

# Test Report

**Report No.** : MTi250326008-0102E2  
**Date of issue** : 2025-04-29  
**Applicant** : Torvo Tech Solutions LLC  
**Product** : Dashcam  
**Model(s)** : TD3  
**FCC ID** : 2BP7V-TD3

**Shenzhen Microtest Co., Ltd.**

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|                                  |  |                   |
|----------------------------------|--|-------------------|
| <b>Test Result Certification</b> |  |                   |
| Applicant                        | Torvo Tech Solutions LLC   |                   |
| Applicant Address                | 30 N Gould St Ste R, Sheridan, WY 82801  |                   |
| Manufacturer                     | Shenzhen Zhongxiang Technology Co., Ltd.   |                   |
| Manufacturer Address             | 4th Floor, Building 8, North Industrial Park, No. 18, Makan Village, Xili Street, Shenzhen, Guangdong, China |                   |
| <b>Product description</b>       |  |                   |
| Product name                     | Dashcam  |                   |
| Trademark                        | Torvo  |                   |
| Model name                       | TD3  |                   |
| Series Model(s)                  | N/A  |                   |
| Standards                        | 47 CFR Part 15E  |                   |
| Test Method                      | KDB 789033 D02 General UNII Test Procedures New Rules v02r01<br>ANSI C63.10-2013                             |                   |
| <b>Testing Information</b>       |  |                   |
| Date of test                     | 2025-04-22 to 2025-04-29   |                   |
| Test result                      | Pass   |                   |
| Prepared by:                     | James Qin  | <i>James Qin</i>  |
| Reviewed by:                     | David Lee  | <i>David. Lee</i> |
| Approved by:                     | Lewis Lian   | <i>Lewis Lian</i> |

## 1 General Description

### 1.1 Description of the EUT

|                            |   |
|----------------------------|---|
| Product name:              | Dashcam   |
| Model name:                | TD3   |
| Series Model(s):           | N/A   |
| Model difference:          | N/A   |
| Electrical rating:         | Input: DC 5V  |
| Accessories:               | Car charger:<br>Input: DC 12-24V<br>Output: DC 5V/ 1500mA<br><br>Camera*1             |
| Hardware version:          | V1.1  |
| Software version:          | V1.1  |
| Test sample(s) number:     | MTi250326008-01-R001  |
| <b>RF specification</b>    |   |
| Operating frequency range: | 802.11a/n(HT20):<br>U-NII Band 3: 5745MHz to 5825MHz;                                 |
| Channel number:            | 802.11a/n(HT20):<br>U-NII Band 3: 5;  |
| Modulation type:           | 802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM);<br>802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); |
| Antenna(s) type:           | Ceramic   |
| Antenna(s) gain:           | 2.6dBi  |

### 1.2 Description of test modes

| No.   | Emission test modes |
|-------|---------------------|
| Mode1 | 802.11a mode        |
| Mode2 | 802.11n20 mode      |

#### 1.2.1 Operation channel list

##### U-NII Band 3

| Bandwidth: | 20MHz           |
|------------|-----------------|
| Channel    | Frequency (MHz) |
| 149        | 5745            |
| 153        | 5765            |
| 157        | 5785            |
| 161        | 5805            |

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|     |      |
|-----|------|
| 165 | 5825 |
|-----|------|

### Test Channel List

#### Operation Band: 5725-5850 MHz

| Bandwidth<br>(MHz) | Lowest Channel<br>(LCH)<br>(MHz) | Middle Channel<br>(MCH)<br>(MHz) | Highest Channel<br>(HCH)<br>(MHz) |
|--------------------|----------------------------------|----------------------------------|-----------------------------------|
| 20                 | 5725                             | 5825                             | 5850                              |

Note: The test software provided by manufacturer is used to control EUT for working in engineering mode, that enables selectable channel, and capable of continuous transmitting mode.

### Test Software: ComTool

For power setting, refer to below table.

| Mode          | LCH     | MCH     | HCH     |
|---------------|---------|---------|---------|
| 802.11a       | default | default | default |
| 802.11n(HT20) | default | default | default |

**1.3 Environmental Conditions**

During the measurement the environmental conditions were within the listed ranges:

|                       |                  |
|-----------------------|------------------|
| Temperature:          | 15°C ~ 35°C      |
| Humidity:             | 20% RH ~ 75% RH  |
| Atmospheric pressure: | 98 kPa ~ 101 kPa |

**1.4 Description of support units**

| Support equipment list |            |            |              |
|------------------------|------------|------------|--------------|
| Description            | Model      | Serial No. | Manufacturer |
| /                      | /          | /          | /            |
| Support cable list     |            |            |              |
| Description            | Length (m) | From       | To           |
| /                      | /          | /          | /            |

**1.5 Measurement uncertainty**

| Measurement                              | Uncertainty |
|--|-------------|
| Time                                     | ±1 %        |
| Occupied channel bandwidth               | ±3 %        |
| RF output power, conducted               | ±1 dB       |
| Power Spectral Density, conducted        | ±1 dB       |
| Radiated spurious emissions (above 1GHz) | ±5.3dB      |
| Radiated spurious emissions (9kHz~30MHz) | ±4.3dB      |
| Radiated spurious emissions (30MHz~1GHz) | ±4.7dB      |
| Temperature                              | ±1 °C       |
| Humidity                                 | ± 5 %       |

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



## 2 Summary of Test Result

| No. | Item                                      | Standard        | Requirement   | Result |
|-----|---|-----------------|---|--------|
| 1   | Antenna requirement                       | 47 CFR Part 15E | Part 15.203   | Pass   |
| 2   | Duty Cycle                                | 47 CFR Part 15E |   | Pass   |
| 3   | Emission bandwidth and occupied bandwidth | 47 CFR Part 15E | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>47 CFR Part 15.407(e)   | Pass   |
| 4   | Maximum conducted output power            | 47 CFR Part 15E | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) | Pass   |
| 5   | Power spectral density                    | 47 CFR Part 15E | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i) | Pass   |
| 6   | Frequency stability                       | 47 CFR Part 15E | 47 CFR Part 15.407(g)   | Pass   |
| 7   | Band edge emissions (Radiated)            | 47 CFR Part 15E | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)   | Pass   |
| 8   | Undesirable emission limits (below 1GHz)  | 47 CFR Part 15E | 47 CFR Part 15.407(b)(9)  | Pass   |
| 9   | Undesirable emission limits (above 1GHz)  | 47 CFR Part 15E | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)   | Pass   |

**3 Test Facilities and accreditations****3.1 Test laboratory**

|                        |  |
|------------------------|--|
| Test laboratory:       | Shenzhen Microtest Co., Ltd.   |
| Test site location:    | 101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| Telephone:             | (86-755)88850135   |
| Fax:                   | (86-755)88850136   |
| CNAS Registration No.: | CNAS L5868   |
| FCC Registration No.:  | 448573   |
| IC Registration No.:   | 21760  |
| CABID:                 | CN0093   |



## 4 List of test equipment

| No.  | Equipment                            | Manufacturer    | Model       | Serial No. | Cal. date  | Cal. Due   |
|--|--------------------------------------|-----------------|-------------|------------|------------|------------|
| Frequency stability<br>Duty Cycle<br>Emission bandwidth and occupied bandwidth<br>Maximum conducted output power<br>Power spectral density |                                      |                 |             |            |            |            |
| 1  | Wideband Radio Communication Tester  | Rohde&schwarz   | CMW500      | 149155     | 2025-03-18 | 2026-03-17 |
| 2  | ESG Series Analog Ssignal Generator  | Agilent         | E4421B      | GB40051240 | 2025-03-14 | 2026-03-13 |
| 3  | PXA Signal Analyzer                  | Agilent         | N9030A      | MY51350296 | 2025-03-14 | 2026-03-13 |
| 4  | Synthesized Sweeper                  | Agilent         | 83752A      | 3610A01957 | 2025-03-14 | 2026-03-13 |
| 5  | MXA Signal Analyzer                  | Agilent         | N9020A      | MY50143483 | 2025-03-14 | 2026-03-13 |
| 6  | RF Control Unit                      | Tonscend        | JS0806-1    | 19D8060152 | 2025-03-18 | 2026-03-17 |
| 7  | Band Reject Filter Group             | Tonscend        | JS0806-F    | 19D8060160 | 2025-03-14 | 2026-03-13 |
| 8  | ESG Vector Signal Generator          | Agilent         | N5182A      | MY50143762 | 2025-03-14 | 2026-03-13 |
| 9  | DC Power Supply                      | Agilent         | E3632A      | MY40027695 | 2025-03-18 | 2026-03-17 |
| Band edge emissions (Radiated)<br>Undesirable emission limits (above 1GHz)   |                                      |                 |             |            |            |            |
| 1  | EMI Test Receiver                    | Rohde&schwarz   | ESCI7       | 101166     | 2025-03-14 | 2026-03-13 |
| 2  | Double Ridged Broadband Horn Antenna | schwarabeck     | BBHA 9120 D | 2278       | 2023-06-17 | 2025-06-16 |
| 3  | Amplifier                            | Agilent         | 8449B       | 3008A01120 | 2025-03-18 | 2026-03-17 |
| 4  | MXA signal analyzer                  | Agilent         | N9020A      | MY54440859 | 2025-03-14 | 2026-03-13 |
| 5  | PXA Signal Analyzer                  | Agilent         | N9030A      | MY51350296 | 2025-03-14 | 2026-03-13 |
| 6  | Horn antenna                         | Schwarzbeck     | BBHA 9170   | 00987      | 2023-06-17 | 2025-06-16 |
| 7  | Pre-amplifier                        | Space-Dtronics  | EVLAN1840 G | 210405001  | 2025-03-19 | 2026-03-18 |
| Undesirable emission limits (below 1GHz)   |                                      |                 |             |            |            |            |
| 1  | EMI Test Receiver                    | Rohde&schwarz   | ESCI7       | 101166     | 2025-03-14 | 2026-03-13 |
| 2  | TRILOG Broadband Antenna             | schwarabeck     | VULB 9163   | 9163-1338  | 2023-06-11 | 2025-06-10 |
| 3  | Active Loop Antenna                  | Schwarzbeck     | FMZB 1519 B | 00066      | 2024-03-23 | 2026-03-22 |
| 4  | Amplifier                            | Hewlett-Packard | 8447F       | 3113A06184 | 2025-03-18 | 2026-03-17 |

**5 Evaluation Results (Evaluation)****5.1 Antenna requirement**

Test Requirement:

Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

## 6 Radio Spectrum Matter Test Results (RF)

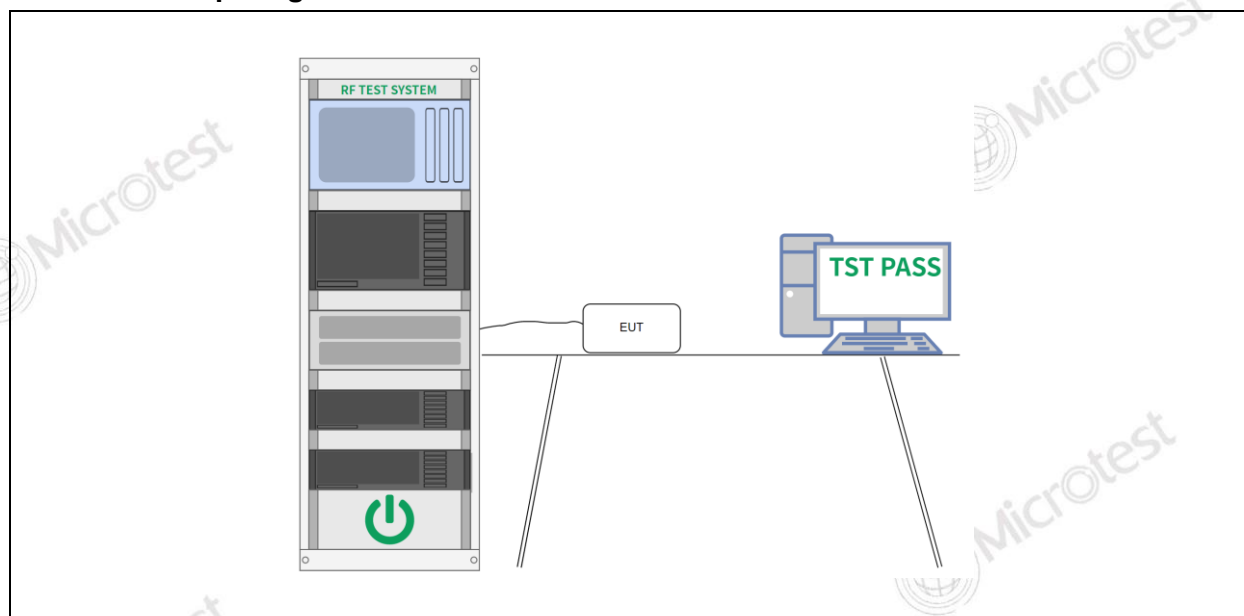
### 6.1 Duty Cycle

|                   |  |
|-------------------|--|
| Test Requirement: | All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.   |
| Test Limit:       | No limits, only for report use.  |
| Test Method:      | ANSI C63.10-2013 section 12.2 (b)  |
| Procedure:        | i) Set the center frequency of the instrument to the center frequency of the transmission.<br>ii) Set RBW $\geq$ EBW if possible; otherwise, set RBW to the largest available value.<br>iii) Set VBW $\geq$ RBW.<br>iv) Set detector = peak.<br>v) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ , where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100. |

#### 6.1.1 E.U.T. Operation:

|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 25 °C        | Humidity: | 57 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

#### 6.1.2 Test Setup Diagram:



#### 6.1.3 Test Data:

Please Refer to Appendix for Details.

## 6.2 Emission bandwidth and occupied bandwidth

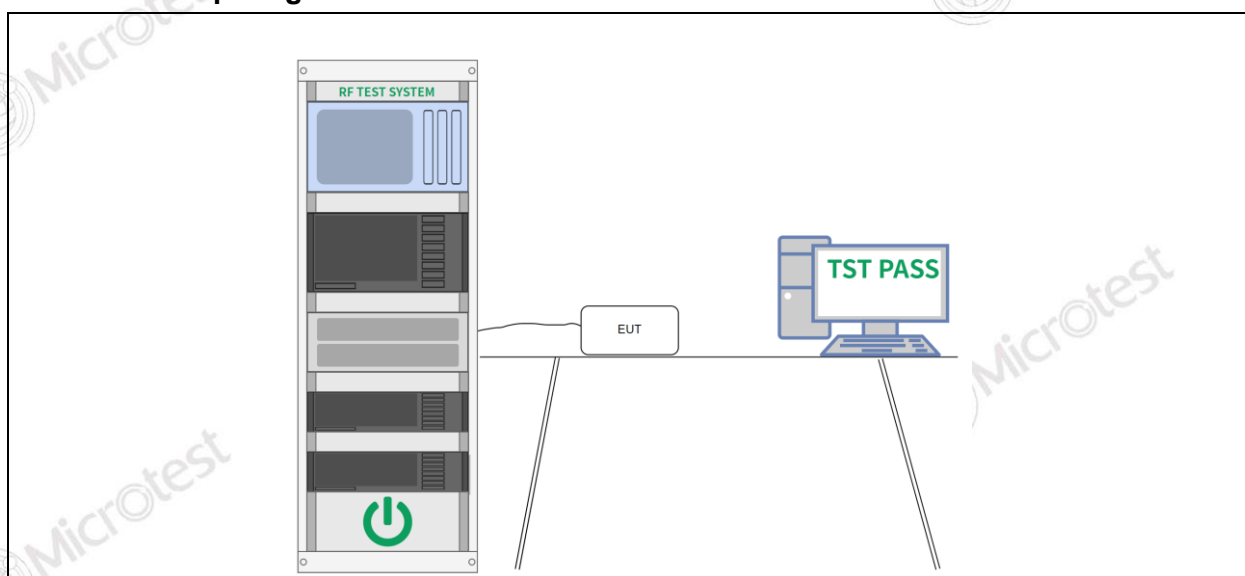
|                   |   |
|-------------------|---|
| Test Requirement: | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>U-NII 3, U-NII 4: 47 CFR Part 15.407(e)   |
| Test Limit:       | U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use.<br>U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.  |
| Test Method:      | ANSI C63.10-2013, section 6.9 & 12.4<br>KDB 789033 D02, Clause C.2  |
| Procedure:        | <p>Emission bandwidth:</p> <ol style="list-style-type: none"> <li>Set RBW = approximately 1% of the emission bandwidth.</li> <li>Set the VBW &gt; RBW.</li> <li>Detector = peak.</li> <li>Trace mode = max hold.</li> <li>Measure the maximum width of the emission that is 26 dB down from the peak of the emission.</li> </ol> <p>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.</p> <p>Occupied bandwidth:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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 <math>[10 \log (OBW/RBW)]</math> below the reference level. Specific guidance is given in 4.1.5.2.</li> <li>Step a) through step c) might require iteration to adjust within the specified range.</li> <li>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.</li> <li>Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.</li> <li>If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered</li> </ol> |

|  |   |
|--|---|
|  | <p>amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.</p> <p>h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).</p> <p>6 dB emission bandwidth:</p> <p>a) Set RBW = 100 kHz.</p> <p>b) Set the video bandwidth (VBW) <math>\geq 3 \times</math> RBW.</p> <p>c) Detector = Peak.</p> <p>d) Trace mode = max hold.</p> <p>e) Sweep = auto couple.</p> <p>f) Allow the trace to stabilize.</p> <p>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.</p> |
|--|---|

## 6.2.1 E.U.T. Operation:

|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 25 °C        | Humidity: | 57 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

## 6.2.2 Test Setup Diagram:



## 6.2.3 Test Data:

Please Refer to Appendix for Details.



## 6.3 Maximum conducted output power

|                   |   |
|-------------------|---|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i)   |
| Test Limit:       | <p>For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.</p> <p>If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).</p> <p>For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.</p> <p>If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.</p> <p>Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power.</p> <p>For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi.</p> <p>Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.</p> <p>If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.</p> <p>If transmitting antennas of directional gain greater than 6 dBi are used,</p> |

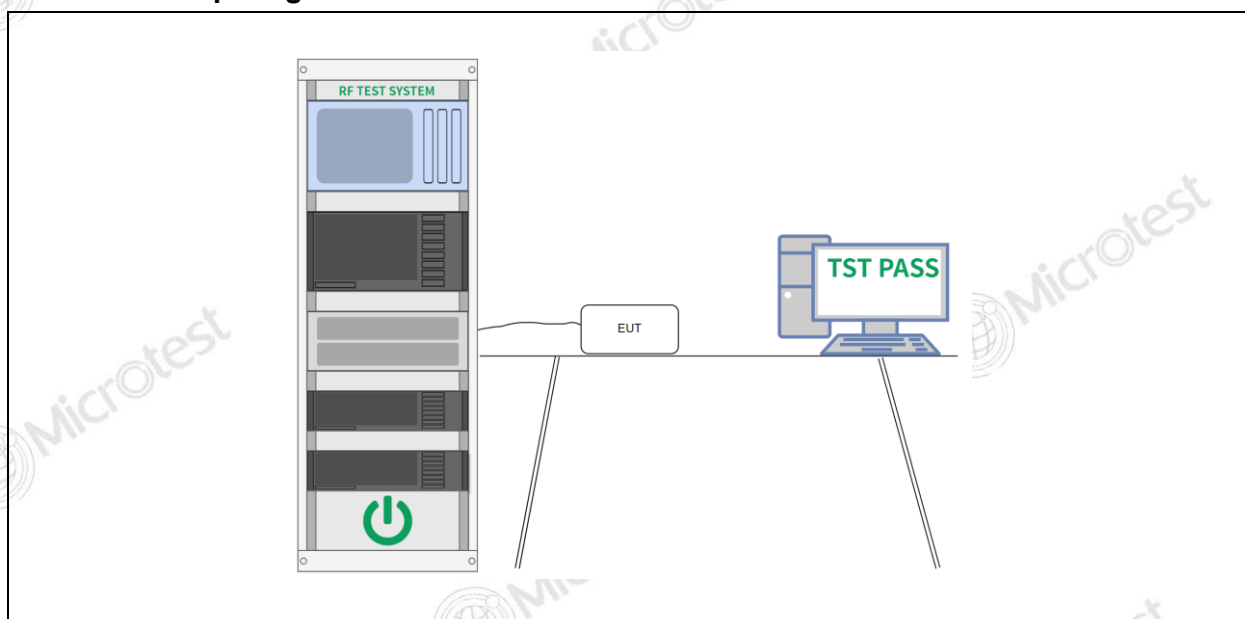


|              |  |
|--------------|--|
|              | the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. |
| Test Method: | ANSI C63.10-2013, section 12.3   |
| Procedure:   | Refer to ANSI C63.10-2013 section 12.3   |

## 6.3.1 E.U.T. Operation:

|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 25 °C        | Humidity: | 57 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

## 6.3.2 Test Setup Diagram:



## 6.3.3 Test Data:

Please Refer to Appendix for Details.

## 6.4 Power spectral density

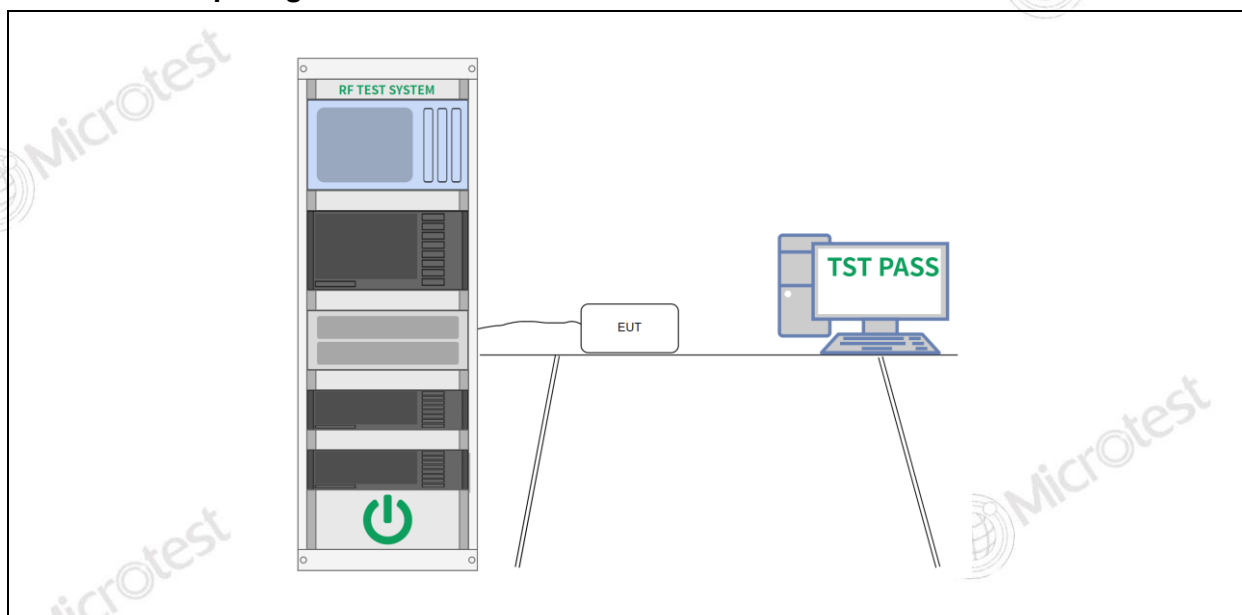
|                   |  |
|-------------------|--|
| Test Requirement: | 47 CFR Part 15.407(a)(1)(i)<br>47 CFR Part 15.407(a)(1)(ii)<br>47 CFR Part 15.407(a)(1)(iii)<br>47 CFR Part 15.407(a)(1)(iv)<br>47 CFR Part 15.407(a)(3)(i)  |
| Test Limit:       | <p>For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.<br/> Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.<br/> Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.<br/> If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.<br/> Fixed, point-to-point operations exclude the use of point-to-multipoint</p> |

|              |   |
|--------------|---|
|              | systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. |
| Test Method: | ANSI C63.10-2013, section 12.5  |
| Procedure:   | Refer to ANSI C63.10-2013, section 12.5   |

## 6.4.1 E.U.T. Operation:

|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 25 °C        | Humidity: | 57 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

## 6.4.2 Test Setup Diagram:



## 6.4.3 Test Data:

Please Refer to Appendix for Details.

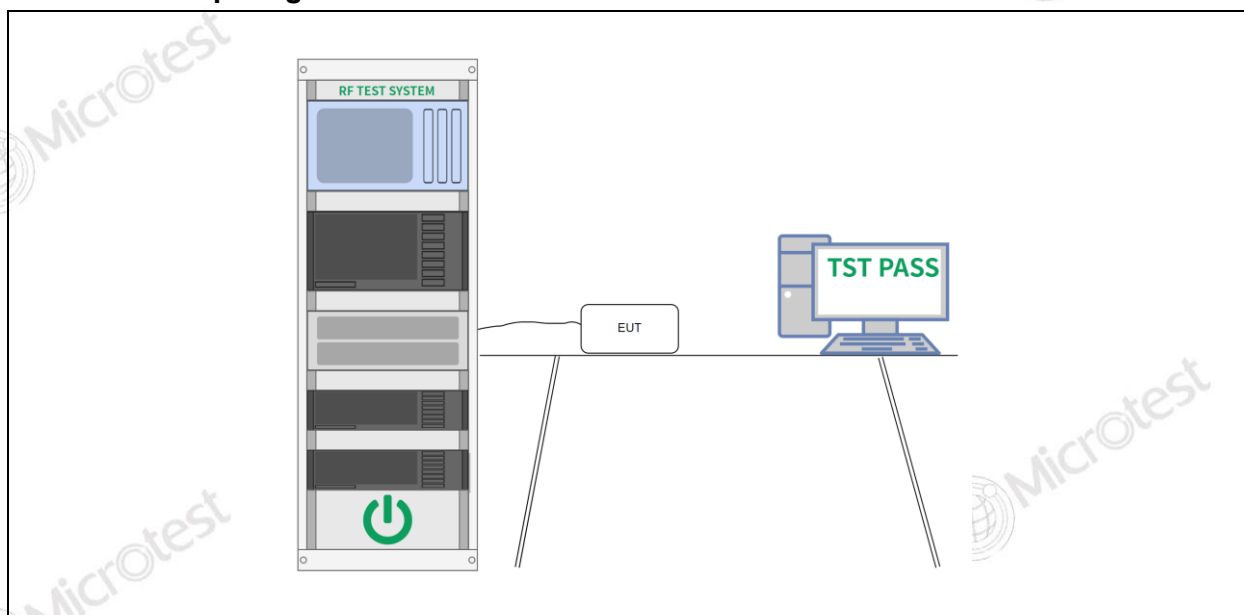
## 6.5 Frequency stability

|                   |   |
|-------------------|---|
| Test Requirement: | 47 CFR Part 15.407(g)   |
| Test Limit:       | Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual. |
| Test Method:      | ANSI C63.10-2013, section 6.8   |
| Procedure:        | Refer to ANSI C63.10-2013 section 6.8   |

### 6.5.1 E.U.T. Operation:

|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 25 °C        | Humidity: | 57 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

### 6.5.2 Test Setup Diagram:



### 6.5.3 Test Data:

Please Refer to Appendix for Details.

## 6.6 Band edge emissions (Radiated)

| Test Requirement:        | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)  |               |                  |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|--------------------------|--|---------------|------------------|-----|-----|-----|-----|-------------|--------------|-----------|----------|--------------------------|-------------------|---------|-----------|---------------|-------------------|----------|-----------|-------------|------------|-----------|-----------|-----------------|------------|-------------|---------|-----------------|---------|---------------|---------|-------------|-----------|-----------|-----------|-----------------|------------|---------------|------------|-----------------|---------|-----------|------------|-------------|--------------|-----------|------------|-------------|---------------------|-------------|-----------|-----------------|-------------|-----------|-------------|-----------------|-----------------|-----------|-----------|--------------|--------------|-----------|-----------|-------------------|---------|-------------|------------|-------------------|-----------|-----------|------------------|-------------|--|--|--|
| Test Limit:              | <p>For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p> <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td><sup>1</sup> 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(<sup>2</sup>)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> <p><sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.</p> <p><sup>2</sup> Above 38.6</p> <p>The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation</p> |               |                  | MHz | MHz | MHz | GHz | 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 | <sup>1</sup> 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 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 | 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 | 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 | 12.57675-12.57725 | 322-335.4 | 3600-4400 | ( <sup>2</sup> ) | 13.36-13.41 |  |  |  |
| MHz                      | MHz  | MHz           | GHz              |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 0.090-0.110              | 16.42-16.423   | 399.9-410     | 4.5-5.15         |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| <sup>1</sup> 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              | 156.52475-156.52525  | 2483.5-2500   | 17.7-21.4        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 8.37625-8.38675          | 156.7-156.9  | 2690-2900     | 22.01-23.12      |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 8.41425-8.41475          | 162.0125-167.17  | 3260-3267     | 23.6-24.0        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.29-12.293             | 167.72-173.2   | 3332-3339     | 31.2-31.8        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.51975-12.52025        | 240-285  | 3345.8-3358   | 36.43-36.5       |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.57675-12.57725        | 322-335.4  | 3600-4400     | ( <sup>2</sup> ) |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 13.36-13.41              |  |               |                  |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |



# TEST REPORT

Report No.: MTI250326008-0102E2

|                 | <p>employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.</p> <p>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:</p> <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> <p>** 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., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table 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.</p> | Frequency (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 |
|-----------------|--|-------------------------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|
| Frequency (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 Method:    | ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7   |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Procedure:      | <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not</p>   |                               |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |

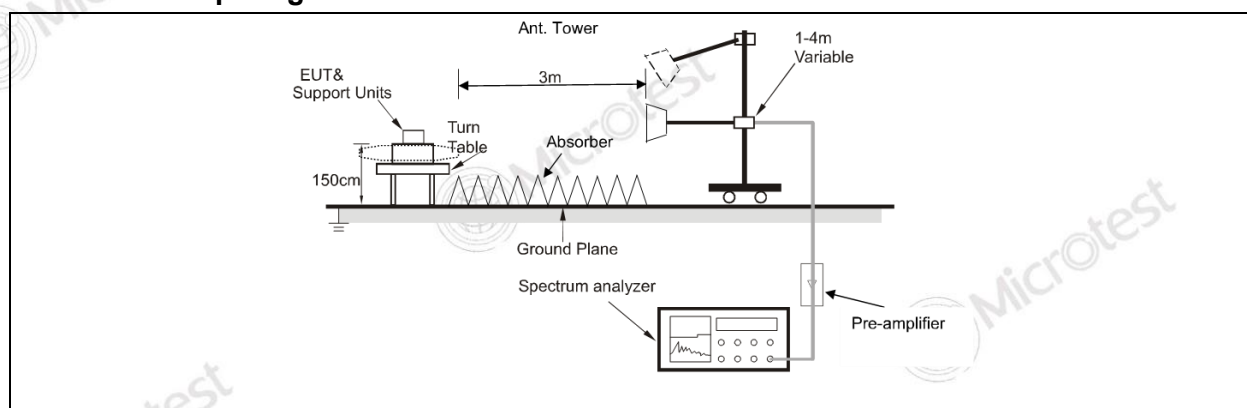


|  |  |
|--|--|
|  | <p>have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> |
|--|--|

## 6.6.1 E.U.T. Operation:

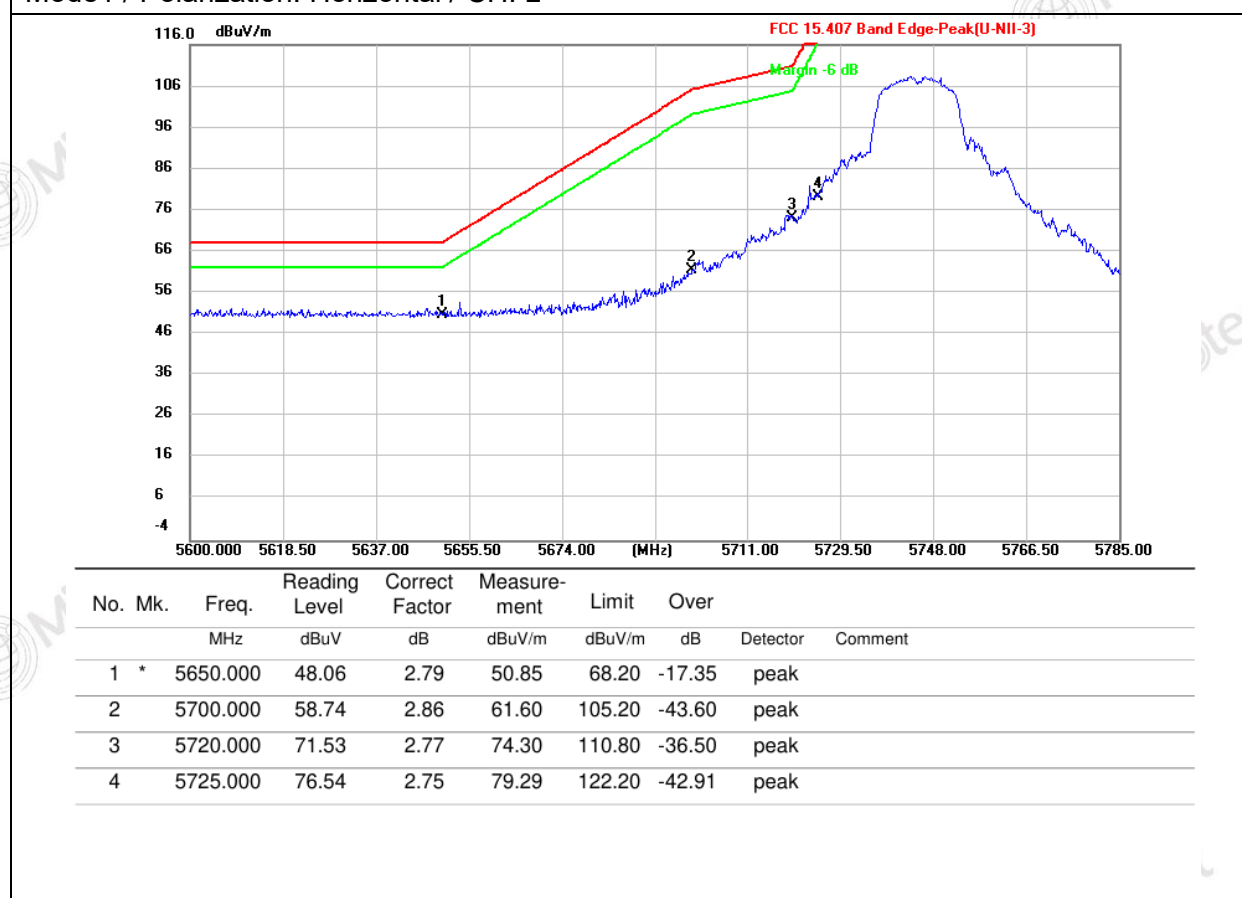
|                        |              |           |      |                       |         |
|------------------------|--------------|-----------|------|-----------------------|---------|
| Operating Environment: |              |           |      |                       |         |
| Temperature:           | 24.6 °C      | Humidity: | 55 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2 |           |      |                       |         |
| Final test mode:       | Mode1, Mode2 |           |      |                       |         |

## 6.6.2 Test Setup Diagram:

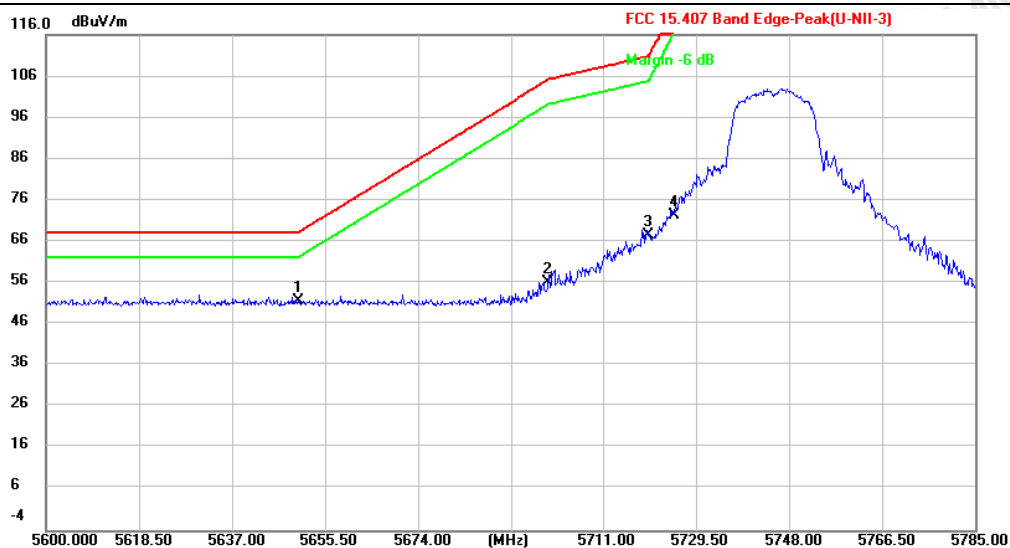


## 6.6.3 Test Data:

Mode1 / Polarization: Horizontal / CH: L

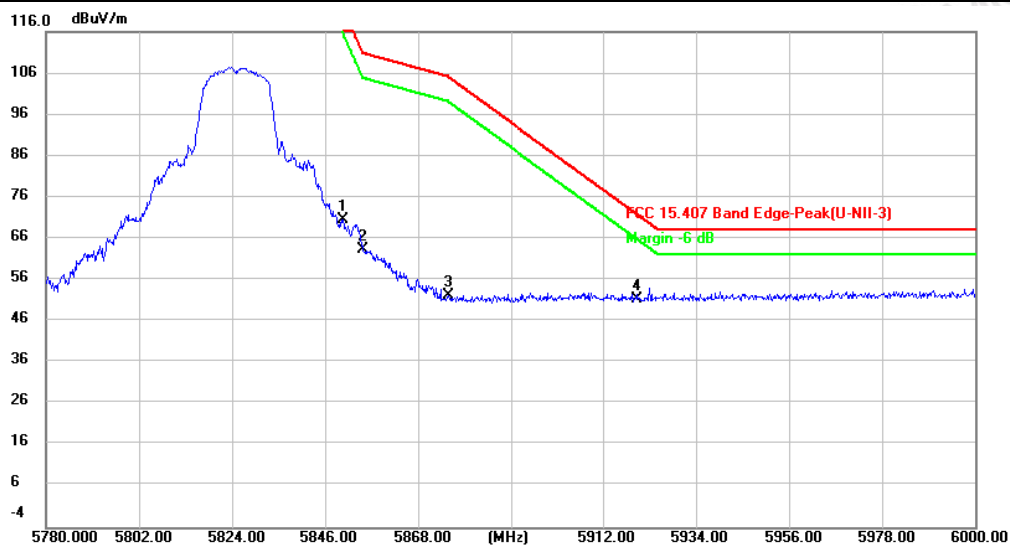


Mode1 / Polarization: Vertical / CH: L



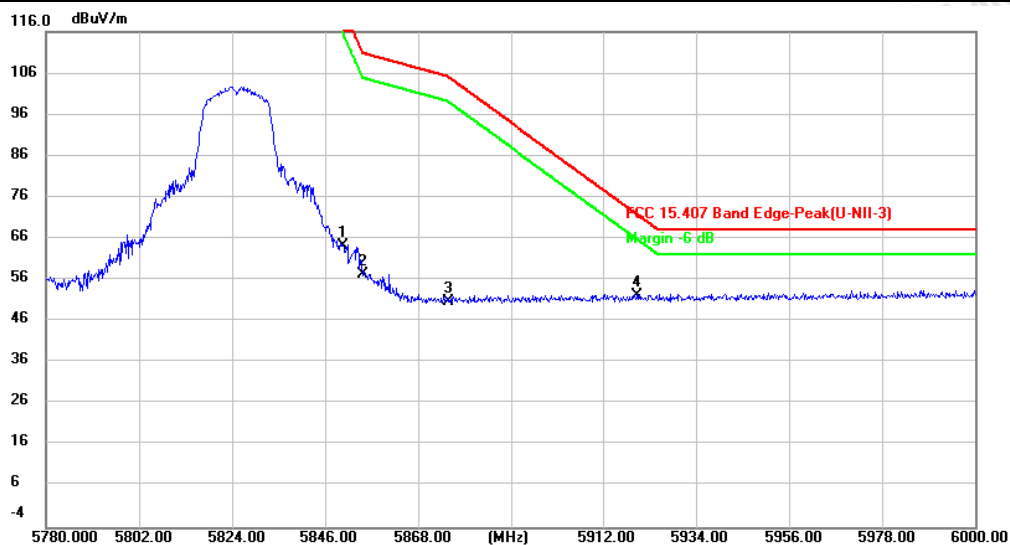
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 5650.000     | 48.77                    | 2.79                    | 51.56                      | 68.20           | -16.64     | peak     |         |
| 2   |     | 5700.000     | 53.32                    | 2.86                    | 56.18                      | 105.20          | -49.02     | peak     |         |
| 3   |     | 5720.000     | 64.73                    | 2.77                    | 67.50                      | 110.80          | -43.30     | peak     |         |
| 4   |     | 5725.000     | 69.75                    | 2.75                    | 72.50                      | 122.20          | -49.70     | peak     |         |

Mode1 / Polarization: Horizontal / CH: H



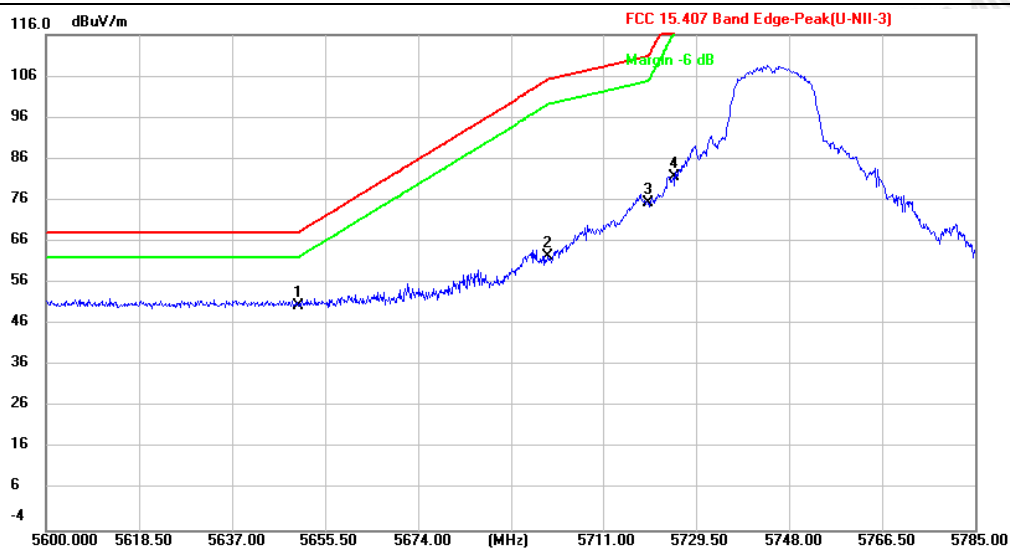
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 5850.000     | 67.93                    | 2.67                    | 70.60                      | 122.20          | -51.60     | peak     |         |
| 2   |     | 5855.000     | 60.72                    | 2.72                    | 63.44                      | 110.80          | -47.36     | peak     |         |
| 3   |     | 5875.000     | 49.46                    | 2.91                    | 52.37                      | 105.20          | -52.83     | peak     |         |
| 4   | *   | 5920.000     | 48.07                    | 3.22                    | 51.29                      | 71.90           | -20.61     | peak     |         |

Mode1 / Polarization: Vertical / CH: H



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 5850.000     | 61.61                    | 2.67                    | 64.28                      | 122.20          | -57.92     | peak     |         |
| 2   |     | 5855.000     | 54.65                    | 2.72                    | 57.37                      | 110.80          | -53.43     | peak     |         |
| 3   |     | 5875.000     | 47.81                    | 2.91                    | 50.72                      | 105.20          | -54.48     | peak     |         |
| 4   | *   | 5920.000     | 48.98                    | 3.22                    | 52.20                      | 71.90           | -19.70     | peak     |         |

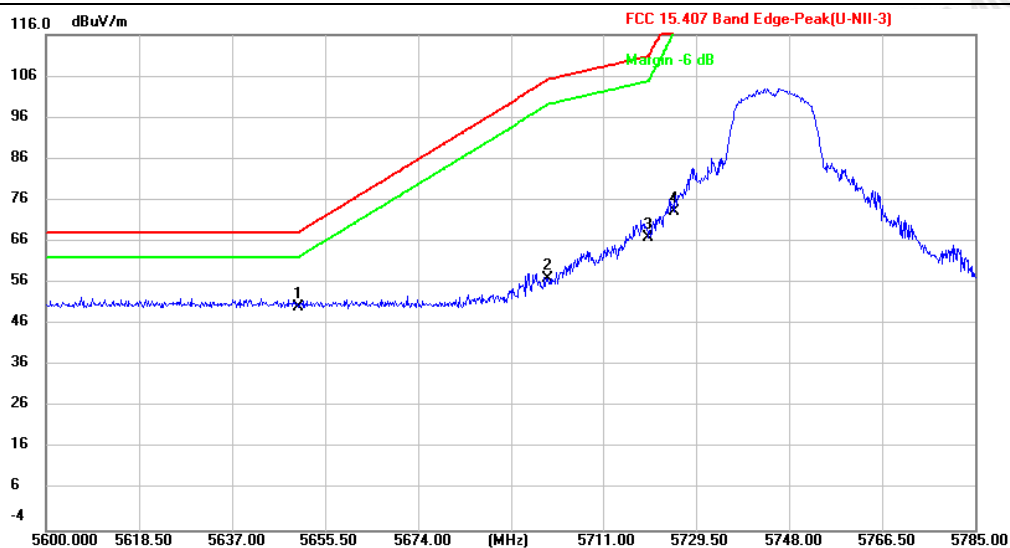
Mode2 / Polarization: Horizontal / CH: L



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 5650.000     | 47.80                    | 2.79                    | 50.59                      | 68.20           | -17.61     | peak     |         |
| 2   |     | 5700.000     | 59.61                    | 2.86                    | 62.47                      | 105.20          | -42.73     | peak     |         |
| 3   |     | 5720.000     | 72.59                    | 2.77                    | 75.36                      | 110.80          | -35.44     | peak     |         |
| 4   |     | 5725.000     | 79.03                    | 2.75                    | 81.78                      | 122.20          | -40.42     | peak     |         |

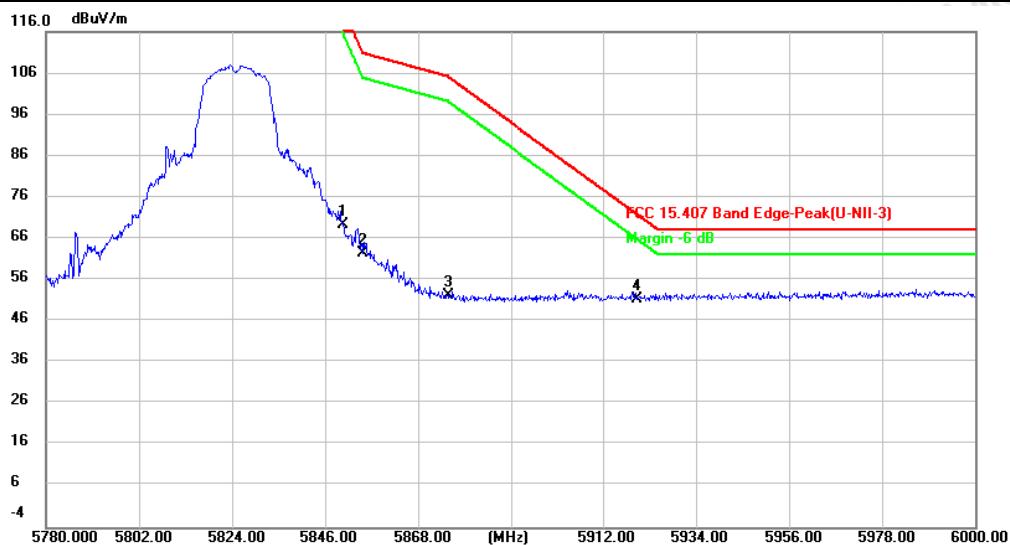


Mode2 / Polarization: Vertical / CH: L



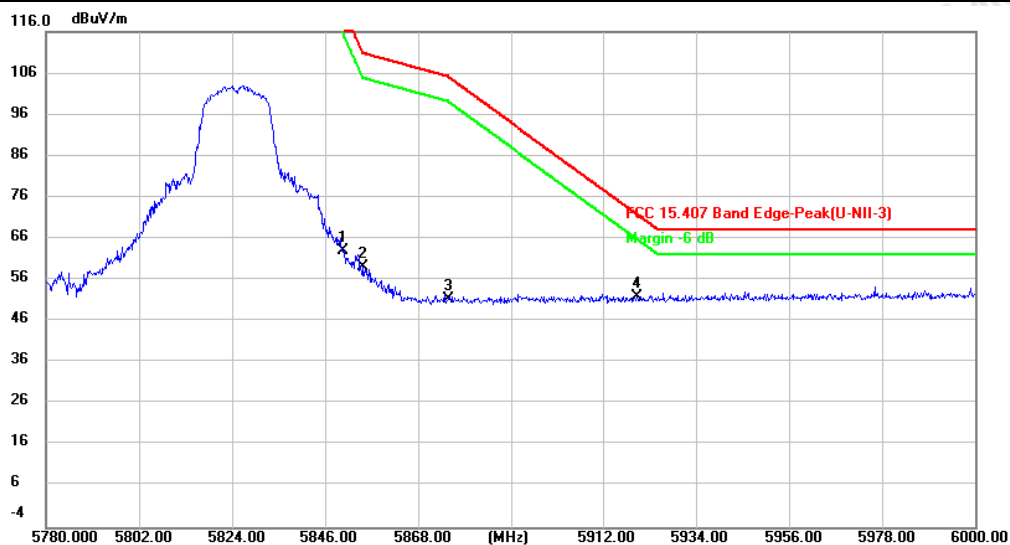
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 5650.000     | 47.50                    | 2.79                    | 50.29                      | 68.20           | -17.91     | peak     |         |
| 2   |     | 5700.000     | 54.24                    | 2.86                    | 57.10                      | 105.20          | -48.10     | peak     |         |
| 3   |     | 5720.000     | 64.20                    | 2.77                    | 66.97                      | 110.80          | -43.83     | peak     |         |
| 4   |     | 5725.000     | 70.58                    | 2.75                    | 73.33                      | 122.20          | -48.87     | peak     |         |

Mode2 / Polarization: Horizontal / CH: H



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 5850.000     | 66.83                    | 2.67                    | 69.50                      | 122.20          | -52.70     | peak     |         |
| 2   |     | 5855.000     | 59.69                    | 2.72                    | 62.41                      | 110.80          | -48.39     | peak     |         |
| 3   |     | 5875.000     | 49.27                    | 2.91                    | 52.18                      | 105.20          | -53.02     | peak     |         |
| 4   | *   | 5920.000     | 47.99                    | 3.22                    | 51.21                      | 71.90           | -20.69     | peak     |         |

Mode2 / Polarization: Vertical / CH: H



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 5850.000     | 60.44                    | 2.67                    | 63.11                      | 122.20          | -59.09     | peak     |         |
| 2   |     | 5855.000     | 56.35                    | 2.72                    | 59.07                      | 110.80          | -51.73     | peak     |         |
| 3   |     | 5875.000     | 48.42                    | 2.91                    | 51.33                      | 105.20          | -53.87     | peak     |         |
| 4   | *   | 5920.000     | 48.79                    | 3.22                    | 52.01                      | 71.90           | -19.89     | peak     |         |

## 6.7 Undesirable emission limits (below 1GHz)

| Test Requirement: | 47 CFR Part 15.407(b)(9)  |                               |  |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
|-------------------|---|-------------------------------|--|-----------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|
| Test Limit:       | <p>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.</p> <p>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:</p> <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> <p>** 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., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table 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.</p> |                               |  | Frequency (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 |
| Frequency (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 Method:      | ANSI C63.10-2013, section 12.7.4, 12.7.5  |                               |  |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Procedure:        | <p>Below 1GHz:</p> <p>a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values</p>  |                               |  |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |

|  |   |
|--|---|
|  | <p>of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamplifier Factor</p> <p>2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> <p>Above 1GHz:</p> <p>a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> |
|--|---|

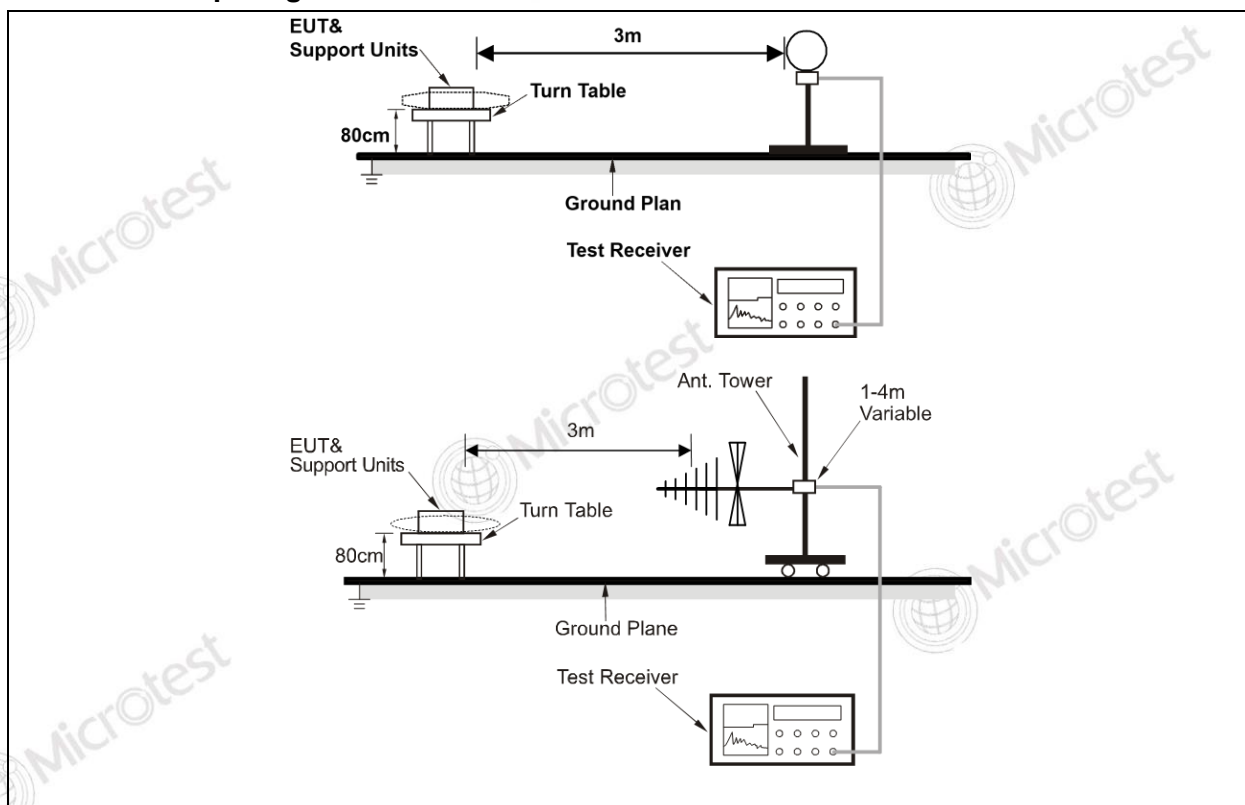


|  |   |
|--|---|
|  | <p>Remark:</p> <ol style="list-style-type: none"> <li>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</li> <li>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</li> <li>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</li> <li>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</li> </ol> |
|--|---|

## 6.7.1 E.U.T. Operation:

|                        |  |           |      |                       |         |
|------------------------|--|-----------|------|-----------------------|---------|
| Operating Environment: |  |           |      |                       |         |
| Temperature:           | 24.6 °C  | Humidity: | 55 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2   |           |      |                       |         |
| Final test mode:       | All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report |           |      |                       |         |

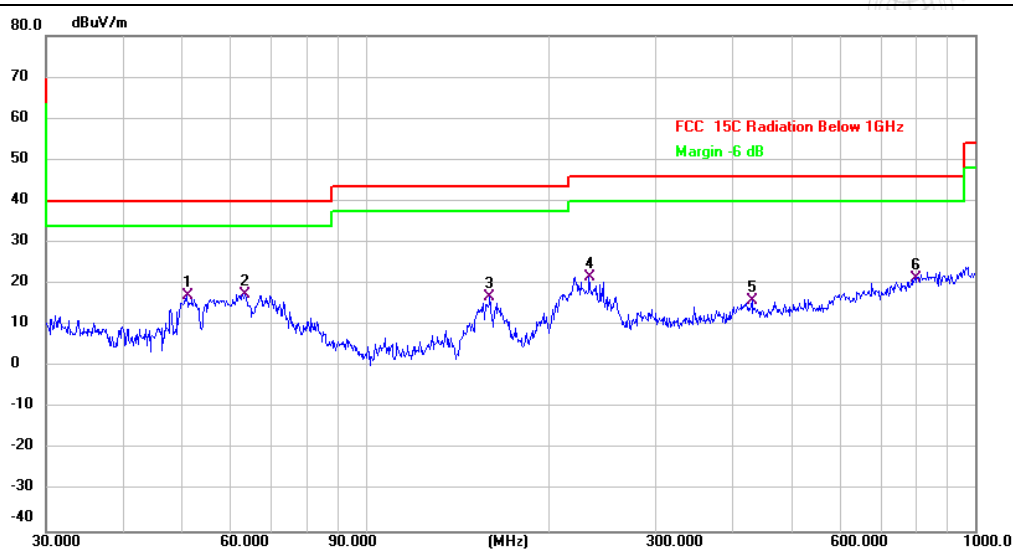
## 6.7.2 Test Setup Diagram:





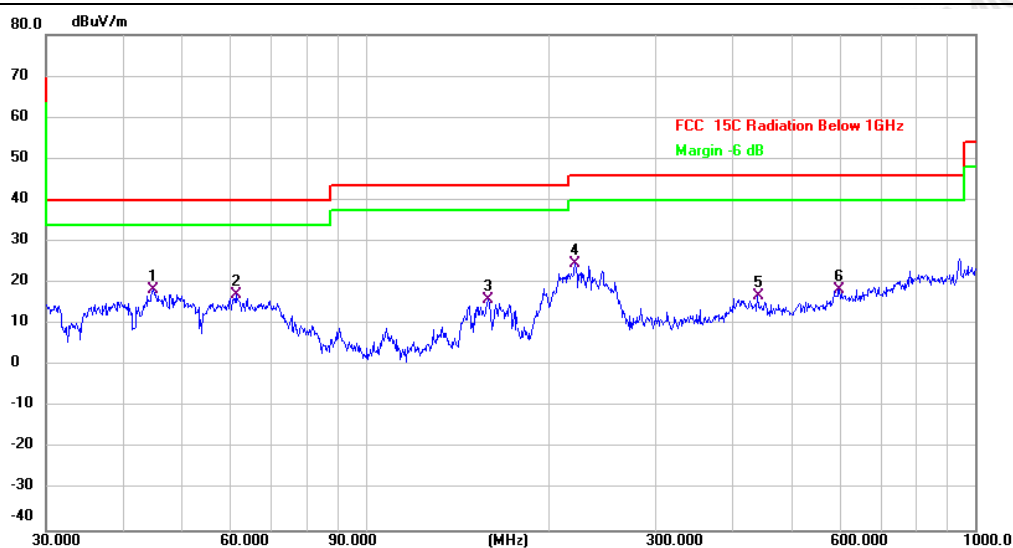
## 6.7.3 Test Data:

Mode1 / Polarization: Horizontal / CH: H



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 50.9420      | 32.77                    | -15.61                  | 17.16                      | 40.00           | -22.84     | QP       |         |
| 2   | *   | 63.5356      | 35.21                    | -17.72                  | 17.49                      | 40.00           | -22.51     | QP       |         |
| 3   |     | 159.7844     | 37.60                    | -20.61                  | 16.99                      | 43.50           | -26.51     | QP       |         |
| 4   |     | 233.3487     | 36.63                    | -14.93                  | 21.70                      | 46.00           | -24.30     | QP       |         |
| 5   |     | 431.0316     | 29.65                    | -13.61                  | 16.04                      | 46.00           | -29.96     | QP       |         |
| 6   |     | 796.1830     | 27.69                    | -6.33                   | 21.36                      | 46.00           | -24.64     | QP       |         |

Mode1 / Polarization: Vertical / CH: H



| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1       | 44.9006      | 41.71                    | -23.48                  | 18.23                      | 40.00           | -21.77     | QP       |         |
| 2       | 61.3463      | 38.45                    | -21.38                  | 17.07                      | 40.00           | -22.93     | QP       |         |
| 3       | 158.6677     | 33.29                    | -17.44                  | 15.85                      | 43.50           | -27.65     | QP       |         |
| 4 *     | 221.3921     | 45.33                    | -20.57                  | 24.76                      | 46.00           | -21.24     | QP       |         |
| 5       | 440.1963     | 31.30                    | -14.46                  | 16.84                      | 46.00           | -29.16     | QP       |         |
| 6       | 599.3212     | 28.92                    | -10.50                  | 18.42                      | 46.00           | -27.58     | QP       |         |

## 6.8 Undesirable emission limits (above 1GHz)

| Test Requirement:        | 47 CFR Part 15.407(b)(1)<br>47 CFR Part 15.407(b)(4)<br>47 CFR Part 15.407(b)(10)  |               |                  |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
|--------------------------|--|---------------|------------------|-----|-----|-----|-----|-------------|--------------|-----------|----------|--------------------------|-------------------|---------|-----------|---------------|-------------------|----------|-----------|-------------|------------|-----------|-----------|-----------------|------------|-------------|---------|-----------------|---------|---------------|---------|-------------|-----------|-----------|-----------|-----------------|------------|---------------|------------|-----------------|---------|-----------|------------|-------------|--------------|-----------|------------|-------------|---------------------|-------------|-----------|-----------------|-------------|-----------|-------------|-----------------|-----------------|-----------|-----------|--------------|--------------|-----------|-----------|-------------------|---------|-------------|------------|-------------------|-----------|-----------|------------------|-------------|--|--|--|
| Test Limit:              | <p>For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p> <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td><sup>1</sup> 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(<sup>2</sup>)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> <p><sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.</p> <p><sup>2</sup> Above 38.6</p> <p>The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation</p> |               |                  | MHz | MHz | MHz | GHz | 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 | <sup>1</sup> 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 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 | 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 | 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 | 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 | 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 | 12.57675-12.57725 | 322-335.4 | 3600-4400 | ( <sup>2</sup> ) | 13.36-13.41 |  |  |  |
| MHz                      | MHz  | MHz           | GHz              |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 0.090-0.110              | 16.42-16.423   | 399.9-410     | 4.5-5.15         |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| <sup>1</sup> 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              | 156.52475-156.52525  | 2483.5-2500   | 17.7-21.4        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 8.37625-8.38675          | 156.7-156.9  | 2690-2900     | 22.01-23.12      |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 8.41425-8.41475          | 162.0125-167.17  | 3260-3267     | 23.6-24.0        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.29-12.293             | 167.72-173.2   | 3332-3339     | 31.2-31.8        |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.51975-12.52025        | 240-285  | 3345.8-3358   | 36.43-36.5       |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 12.57675-12.57725        | 322-335.4  | 3600-4400     | ( <sup>2</sup> ) |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |
| 13.36-13.41              |  |               |                  |     |     |     |     |             |              |           |          |                          |                   |         |           |               |                   |          |           |             |            |           |           |                 |            |             |         |                 |         |               |         |             |           |           |           |                 |            |               |            |                 |         |           |            |             |              |           |            |             |                     |             |           |                 |             |           |             |                 |                 |           |           |              |              |           |           |                   |         |             |            |                   |           |           |                  |             |  |  |  |

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employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements.

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 (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                             |

\*\* 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., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table 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.

**Test Method:** ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7

**Procedure:**

Above 1GHz:

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

|  |  |
|--|--|
|  | <p>have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.</p> <p>3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.</p> <p>4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.</p> |
|--|--|

## 6.8.1 E.U.T. Operation:

|                        |  |           |      |                       |         |
|------------------------|--|-----------|------|-----------------------|---------|
| Operating Environment: |  |           |      |                       |         |
| Temperature:           | 24.6 °C  | Humidity: | 55 % | Atmospheric Pressure: | 101 kPa |
| Pre test mode:         | Mode1, Mode2   |           |      |                       |         |
| Final test mode:       | All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report |           |      |                       |         |



## 6.8.2 Test Data:

Mode1 / Polarization: Horizontal / CH: L

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |
|-----|-----|-----------|---------------|----------------|-------------|--------|--------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector |
| 1   |     | 11490.000 | 44.85         | 12.51          | 57.36       | 68.20  | -10.84 | peak     |
| 2   |     | 11490.000 | 32.84         | 12.51          | 45.35       | 54.00  | -8.65  | AVG      |
| 3   |     | 17235.000 | 45.92         | 14.54          | 60.46       | 68.20  | -7.74  | peak     |
| 4   | *   | 17235.000 | 33.75         | 14.54          | 48.29       | 54.00  | -5.71  | AVG      |

Mode1 / Polarization: Vertical / CH: L

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measurement | Limit  | Over  |          |
|-----|-----|-----------|---------------|----------------|-------------|--------|-------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | Detector |
| 1   |     | 11490.000 | 45.95         | 12.51          | 58.46       | 68.20  | -9.74 | peak     |
| 2   |     | 11490.000 | 34.03         | 12.51          | 46.54       | 54.00  | -7.46 | AVG      |
| 3   |     | 17235.000 | 47.23         | 14.54          | 61.77       | 68.20  | -6.43 | peak     |
| 4   | *   | 17235.000 | 34.81         | 14.54          | 49.35       | 54.00  | -4.65 | AVG      |



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Mode1 / Polarization: Horizontal / CH: M

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |
|-----|-----|-----------|---------------|----------------|--------------|--------|--------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector |
| 1   |     | 11570.000 | 45.62         | 12.37          | 57.99        | 68.20  | -10.21 | peak     |
| 2   |     | 11570.000 | 33.30         | 12.37          | 45.67        | 54.00  | -8.33  | AVG      |
| 3   |     | 17355.000 | 46.20         | 14.60          | 60.80        | 68.20  | -7.40  | peak     |
| 4   | *   | 17355.000 | 33.72         | 14.60          | 48.32        | 54.00  | -5.68  | AVG      |

Mode1 / Polarization: Vertical / CH: M

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |
|-----|-----|-----------|---------------|----------------|--------------|--------|--------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector |
| 1   |     | 11570.000 | 44.89         | 12.37          | 57.26        | 68.20  | -10.94 | peak     |
| 2   |     | 11570.000 | 33.01         | 12.37          | 45.38        | 54.00  | -8.62  | AVG      |
| 3   |     | 17355.000 | 47.49         | 14.60          | 62.09        | 68.20  | -6.11  | peak     |
| 4   | *   | 17355.000 | 35.89         | 14.60          | 50.49        | 54.00  | -3.51  | AVG      |

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Mode1 / Polarization: Horizontal / CH: H

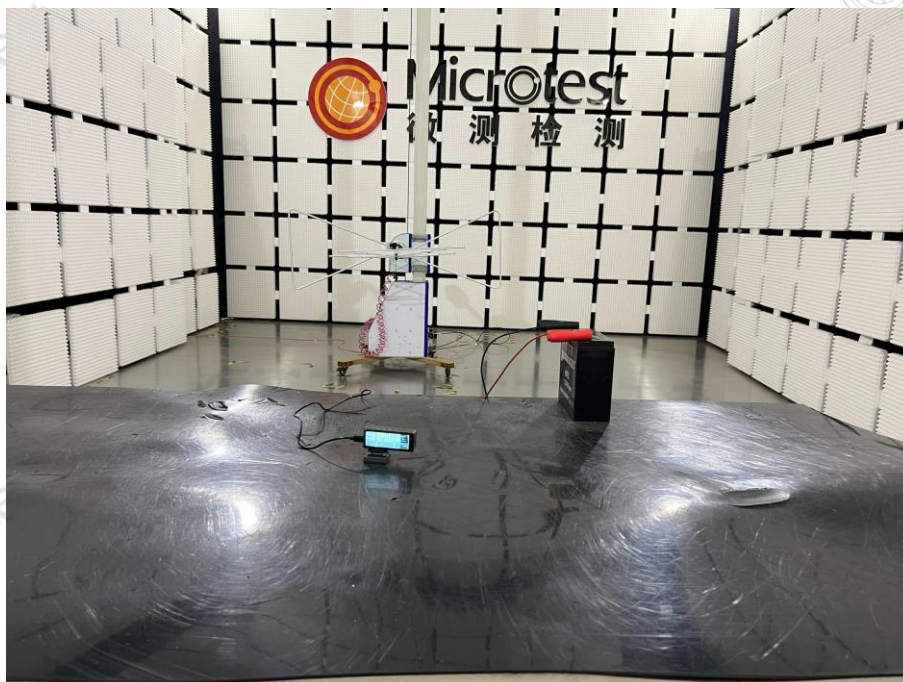
| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |
|-----|-----|-----------|---------------|----------------|--------------|--------|--------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector |
| 1   |     | 11650.000 | 45.98         | 12.19          | 58.17        | 68.20  | -10.03 | peak     |
| 2   |     | 11650.000 | 34.40         | 12.19          | 46.59        | 54.00  | -7.41  | AVG      |
| 3   |     | 17475.000 | 46.91         | 14.88          | 61.79        | 68.20  | -6.41  | peak     |
| 4   | *   | 17475.000 | 34.59         | 14.88          | 49.47        | 54.00  | -4.53  | AVG      |

Mode1 / Polarization: Vertical / CH: H

| No. | Mk. | Freq.     | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |
|-----|-----|-----------|---------------|----------------|--------------|--------|--------|----------|
|     |     | MHz       | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector |
| 1   |     | 11650.000 | 44.80         | 12.19          | 56.99        | 68.20  | -11.21 | peak     |
| 2   |     | 11650.000 | 32.32         | 12.19          | 44.51        | 54.00  | -9.49  | AVG      |
| 3   |     | 17475.000 | 46.47         | 14.88          | 61.35        | 68.20  | -6.85  | peak     |
| 4   | *   | 17475.000 | 34.77         | 14.88          | 49.65        | 54.00  | -4.35  | AVG      |

**Photographs of the test setup**

Radiation spurious (below 1GHz)



Radiation spurious (above 1GHz)



**Photographs of the EUT**

Refer to Appendix - EUT Photos

# Appendix



## TEST REPORT

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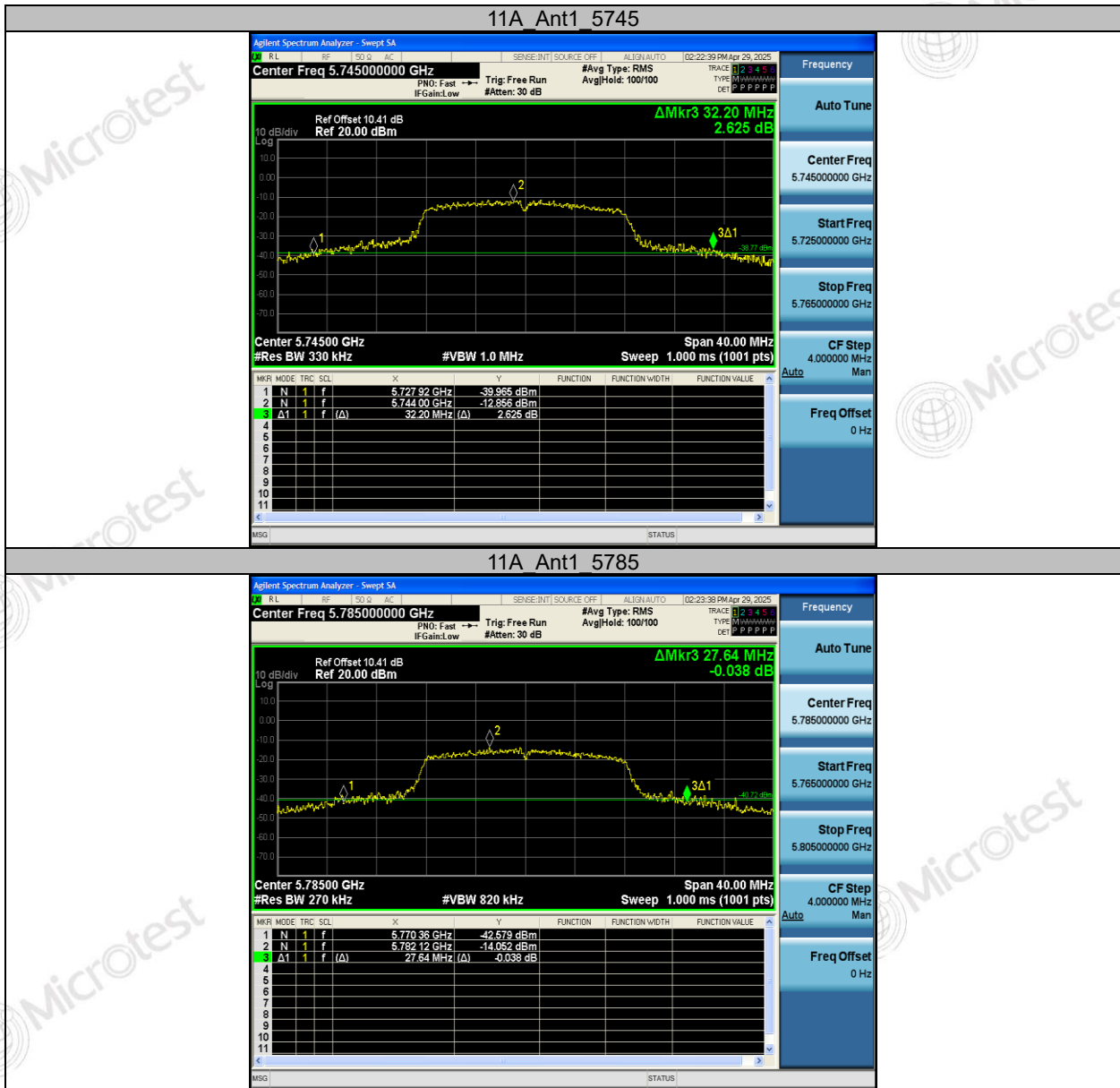
### Appendix A1: Emission bandwidth (26dB bandwidth)

#### Test Result

| Test Mode | Antenna | Frequency<br>[MHz] | 26db EBW<br>[MHz] |
|-----------|---------|--------------------|-------------------|
| 11A       | Ant1    | 5745               | 32.200            |
|           |         | 5785               | 27.640            |
|           |         | 5825               | 26.760            |
| 11N20SISO | Ant1    | 5745               | 32.960            |
|           |         | 5785               | 31.600            |
|           |         | 5825               | 26.800            |

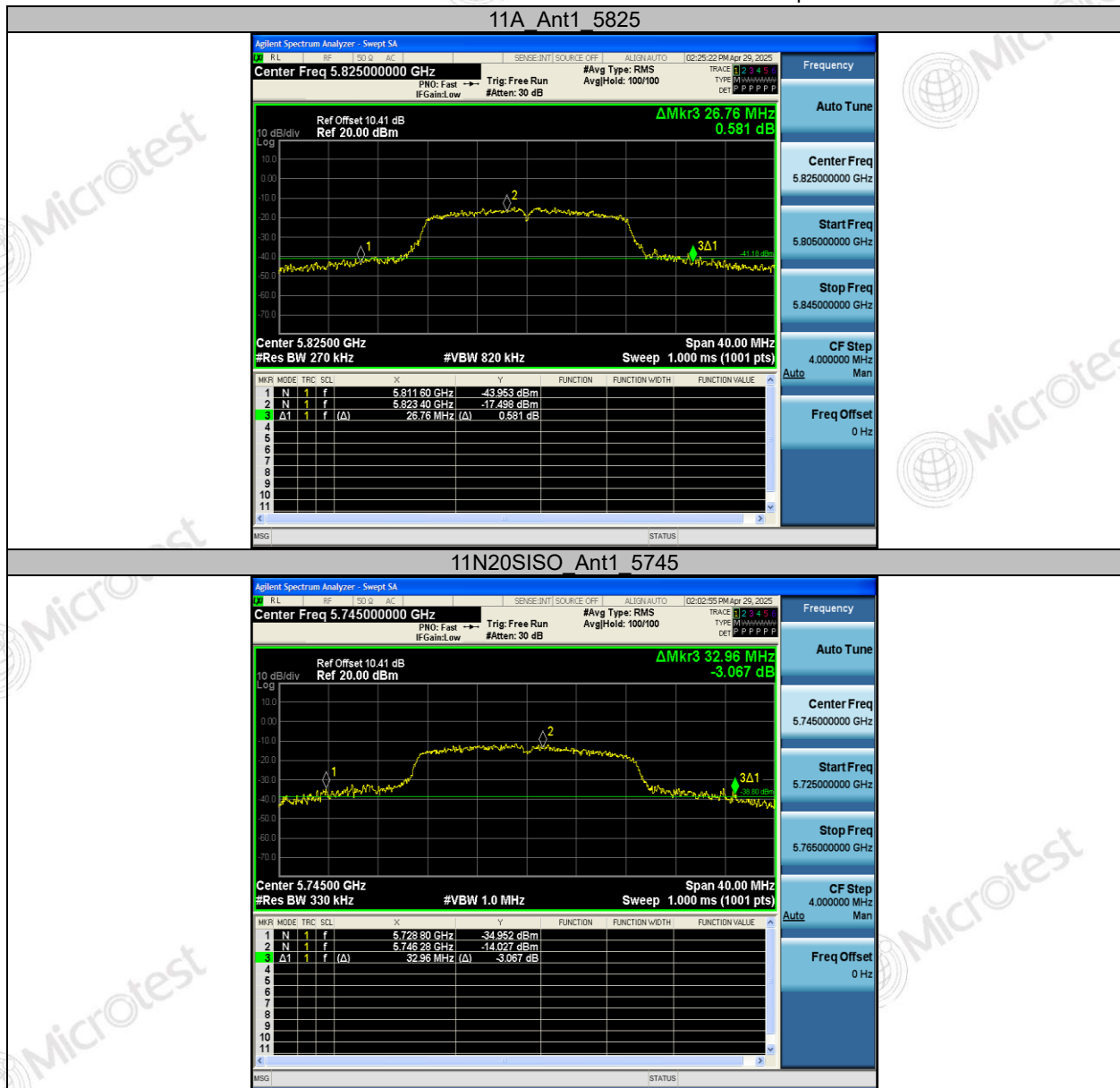


## Test Graphs



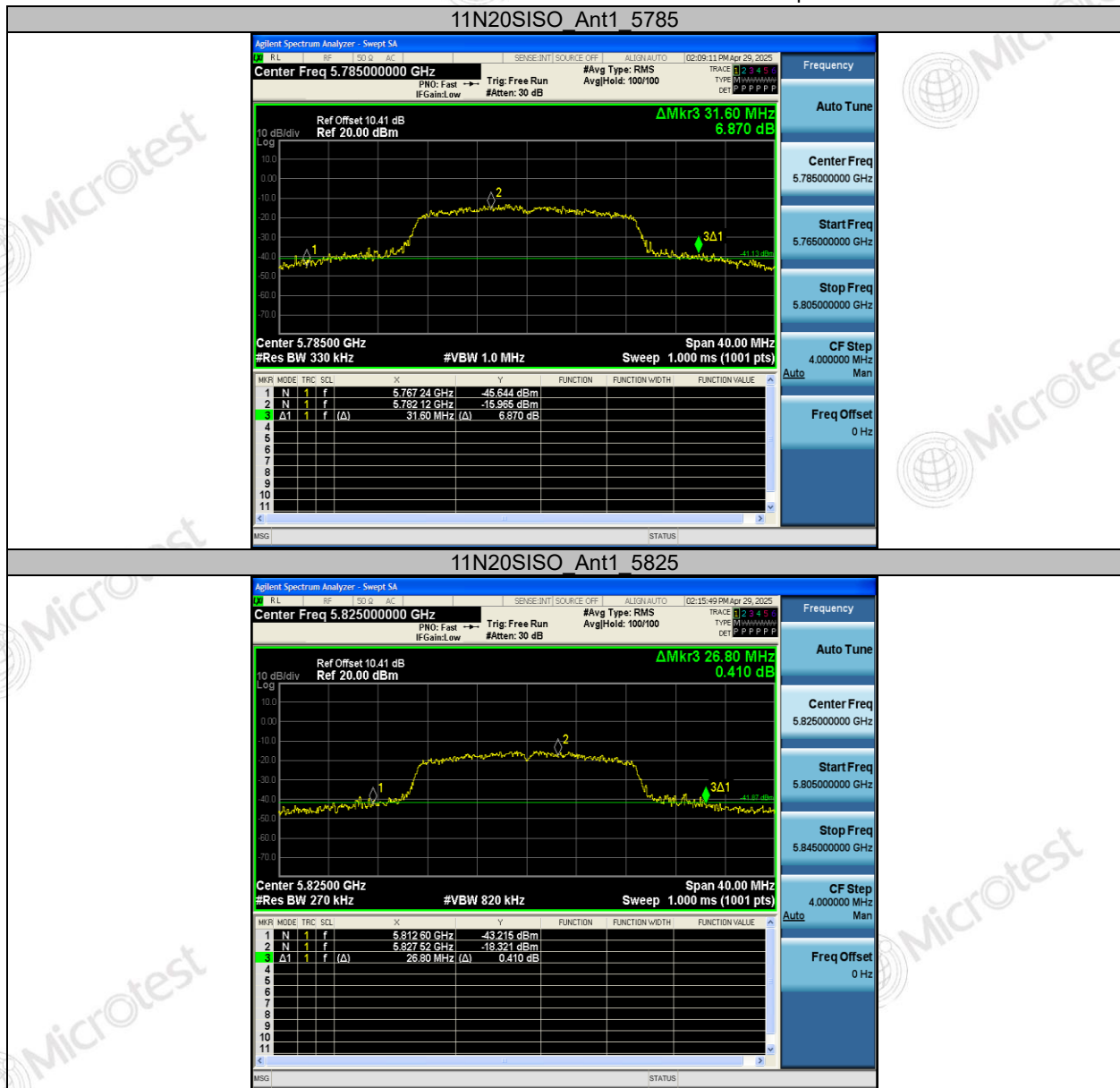
# TEST REPORT

Report No.: MTi250326008-0102E2



# TEST REPORT

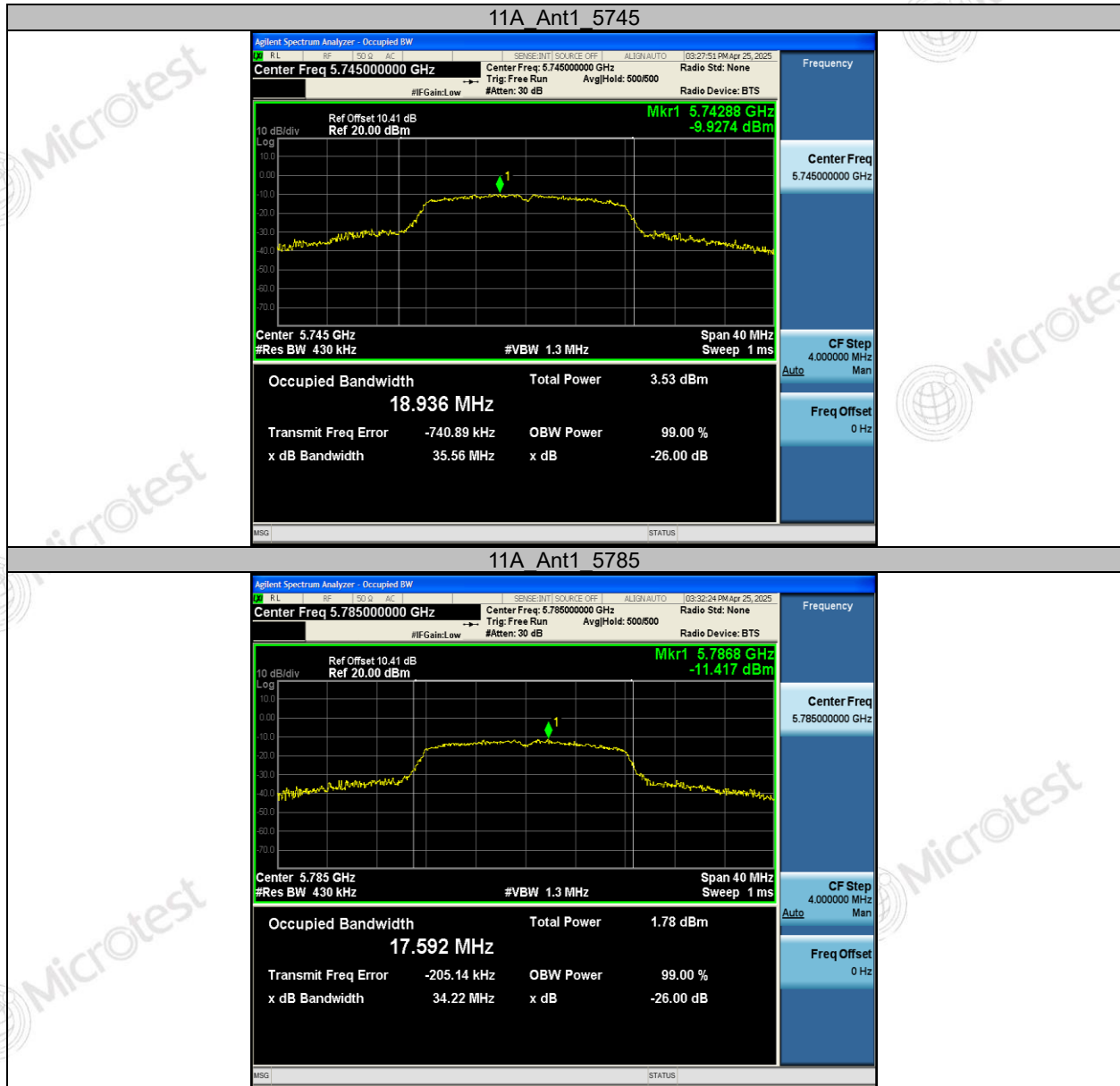
Report No.: MTi250326008-0102E2



**6.9 Appendix A2: Occupied channel bandwidth****6.9.1 Test Result**

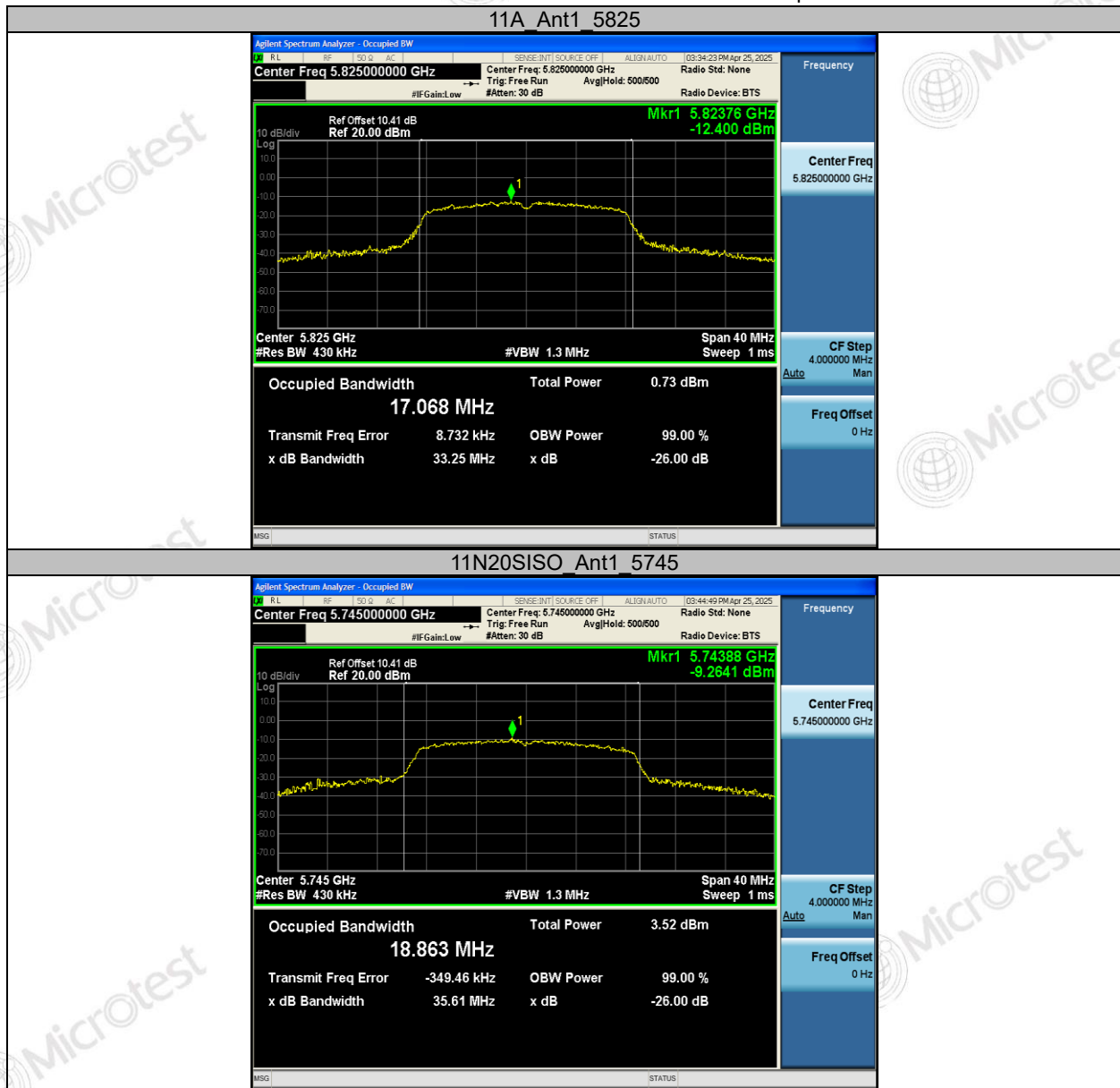
| TestMode  | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|-----------|---------|----------------|-----------|-----------|-----------|------------|---------|
| 11A       | Ant1    | 5745           | 18.936    | 5734.7911 | 5753.7271 | ---        | ---     |
|           |         | 5785           | 17.592    | 5775.9989 | 5793.5909 | ---        | ---     |
|           |         | 5825           | 17.068    | 5816.4747 | 5833.5427 | ---        | ---     |
| 11N20SISO | Ant1    | 5745           | 18.863    | 5735.2190 | 5754.0820 | ---        | ---     |
|           |         | 5785           | 18.339    | 5775.7443 | 5794.0833 | ---        | ---     |
|           |         | 5825           | 18.019    | 5815.9451 | 5833.9641 | ---        | ---     |

## 6.9.2 Test Graphs

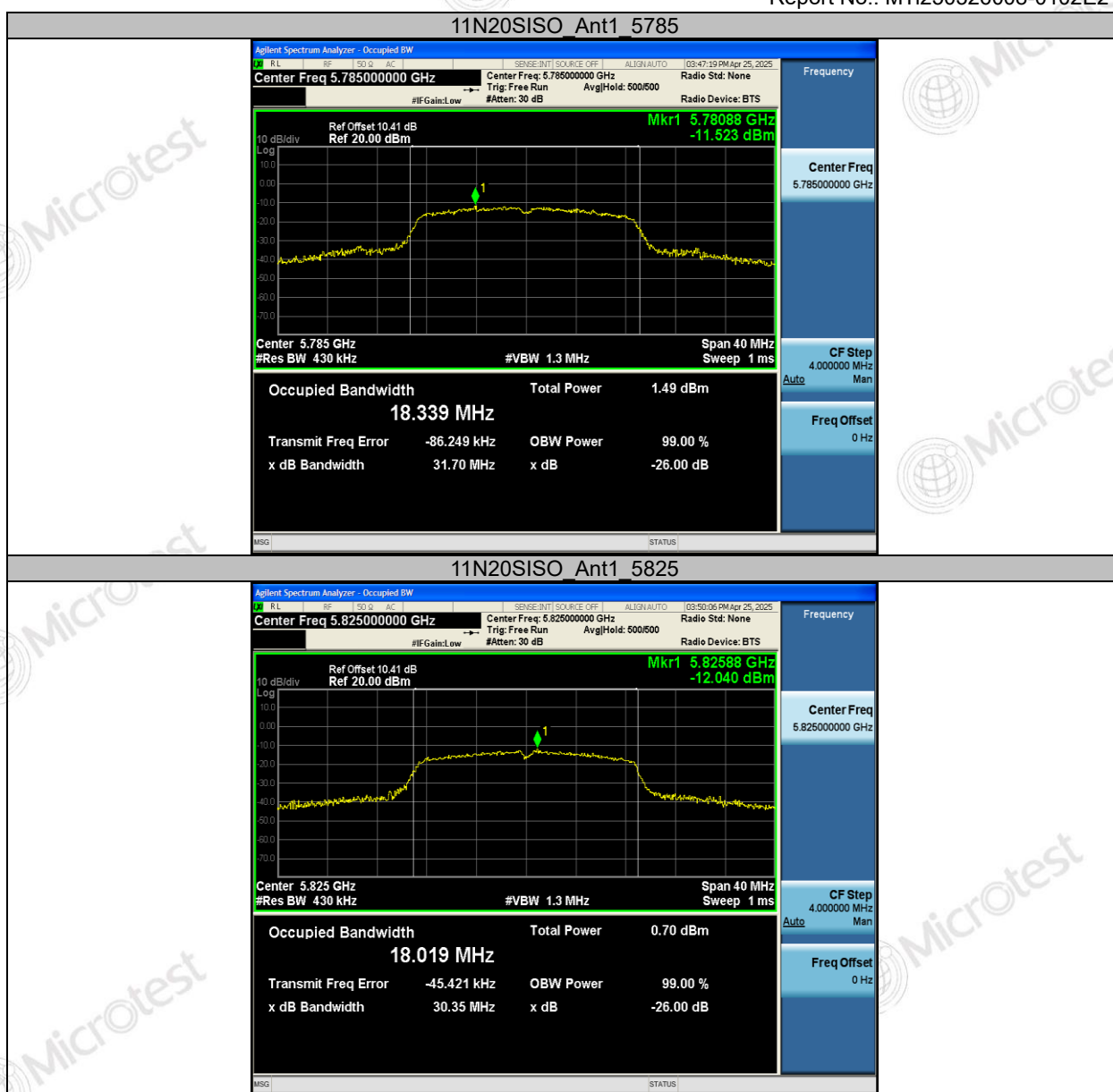


# TEST REPORT

Report No.: MTI250326008-0102E2





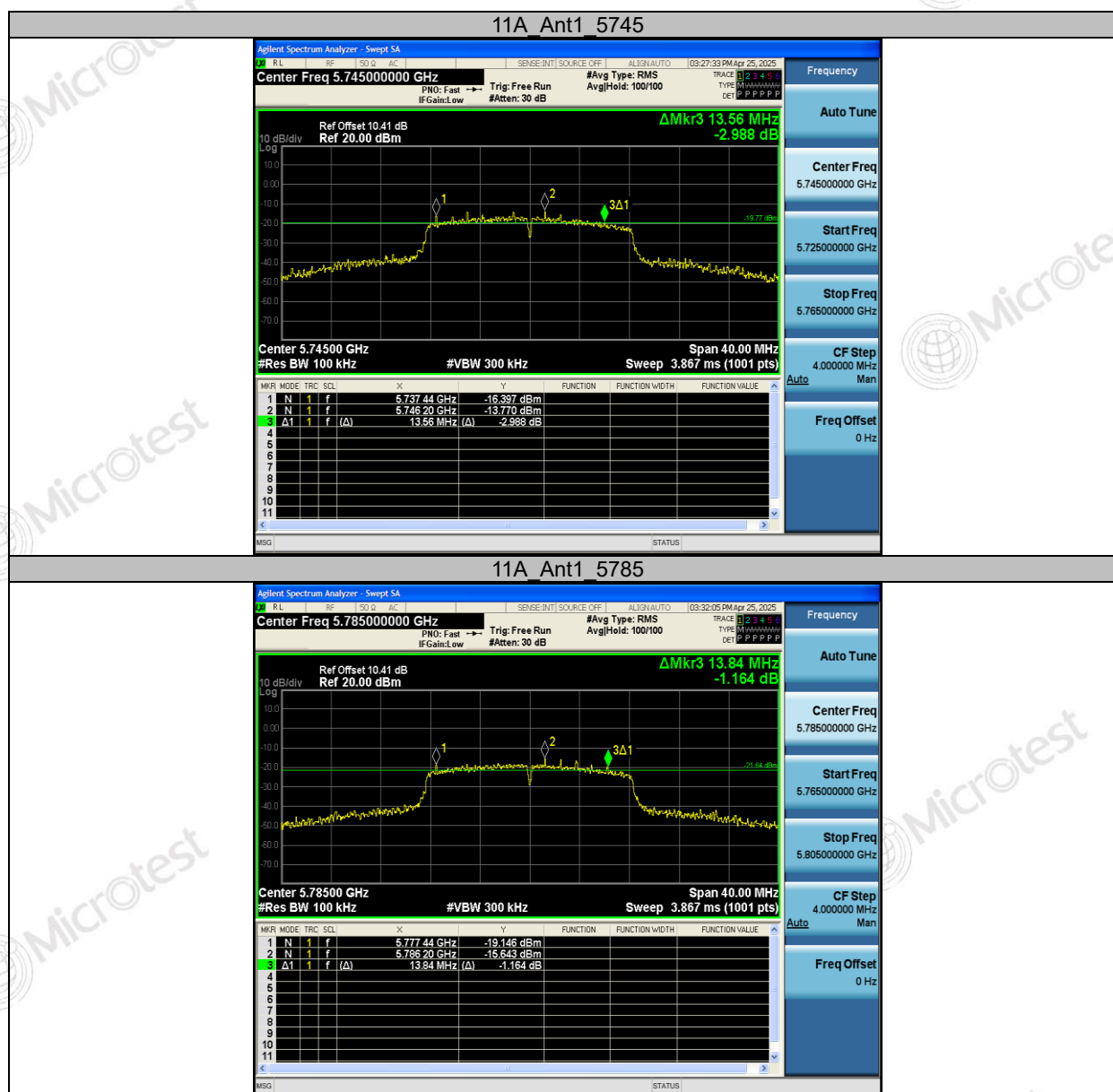


**6.10 Appendix A3: Min emission bandwidth****6.10.1 Test Result B4**

| TestMode  | Antenna | Freq(MHz) | 6db EBW<br>[MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|-----------|---------|-----------|------------------|----------|----------|------------|---------|
| 11A       | Ant1    | 5745      | 13.560           | 5737.440 | 5751.000 | 0.5        | PASS    |
|           |         | 5785      | 13.840           | 5777.440 | 5791.280 | 0.5        | PASS    |
|           |         | 5825      | 14.040           | 5818.080 | 5832.120 | 0.5        | PASS    |
| 11N20SISO | Ant1    | 5745      | 15.920           | 5736.600 | 5752.520 | 0.5        | PASS    |
|           |         | 5785      | 14.720           | 5777.800 | 5792.520 | 0.5        | PASS    |
|           |         | 5825      | 15.080           | 5817.440 | 5832.520 | 0.5        | PASS    |

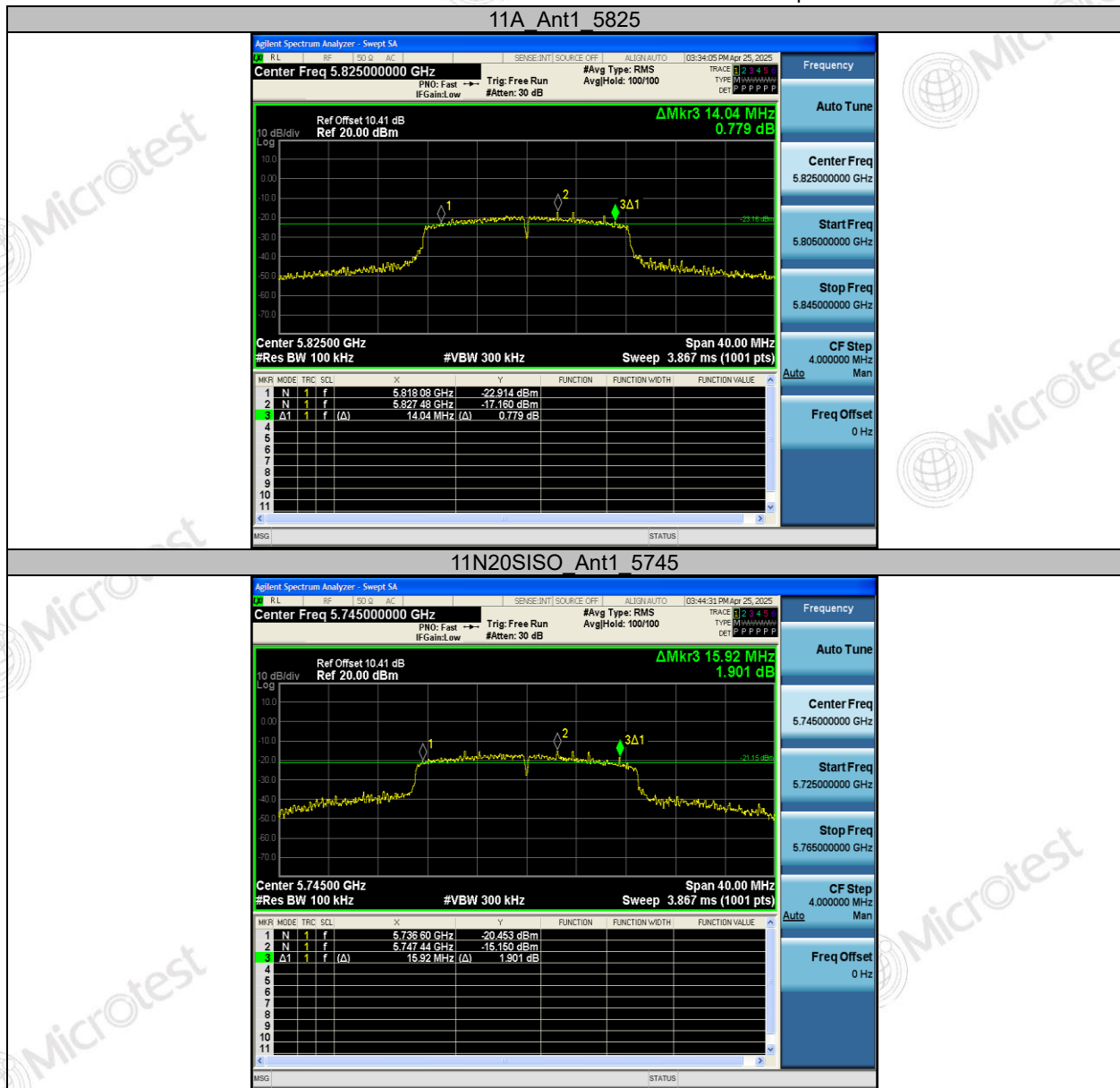
## 6.10.2 Test Graphs B4

### Test Graphs



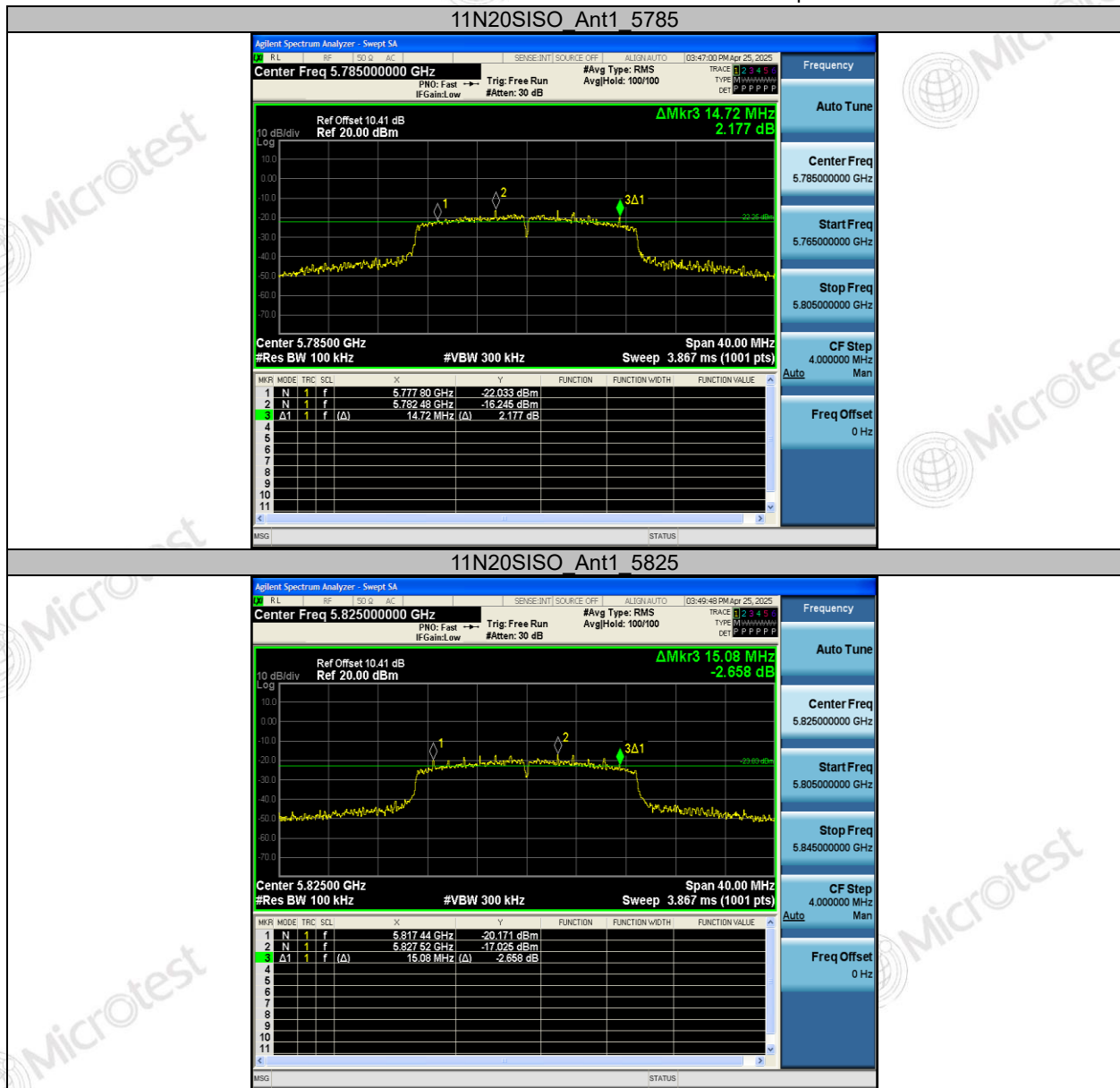
# TEST REPORT

Report No.: MTi250326008-0102E2



# TEST REPORT

Report No.: MTi250326008-0102E2



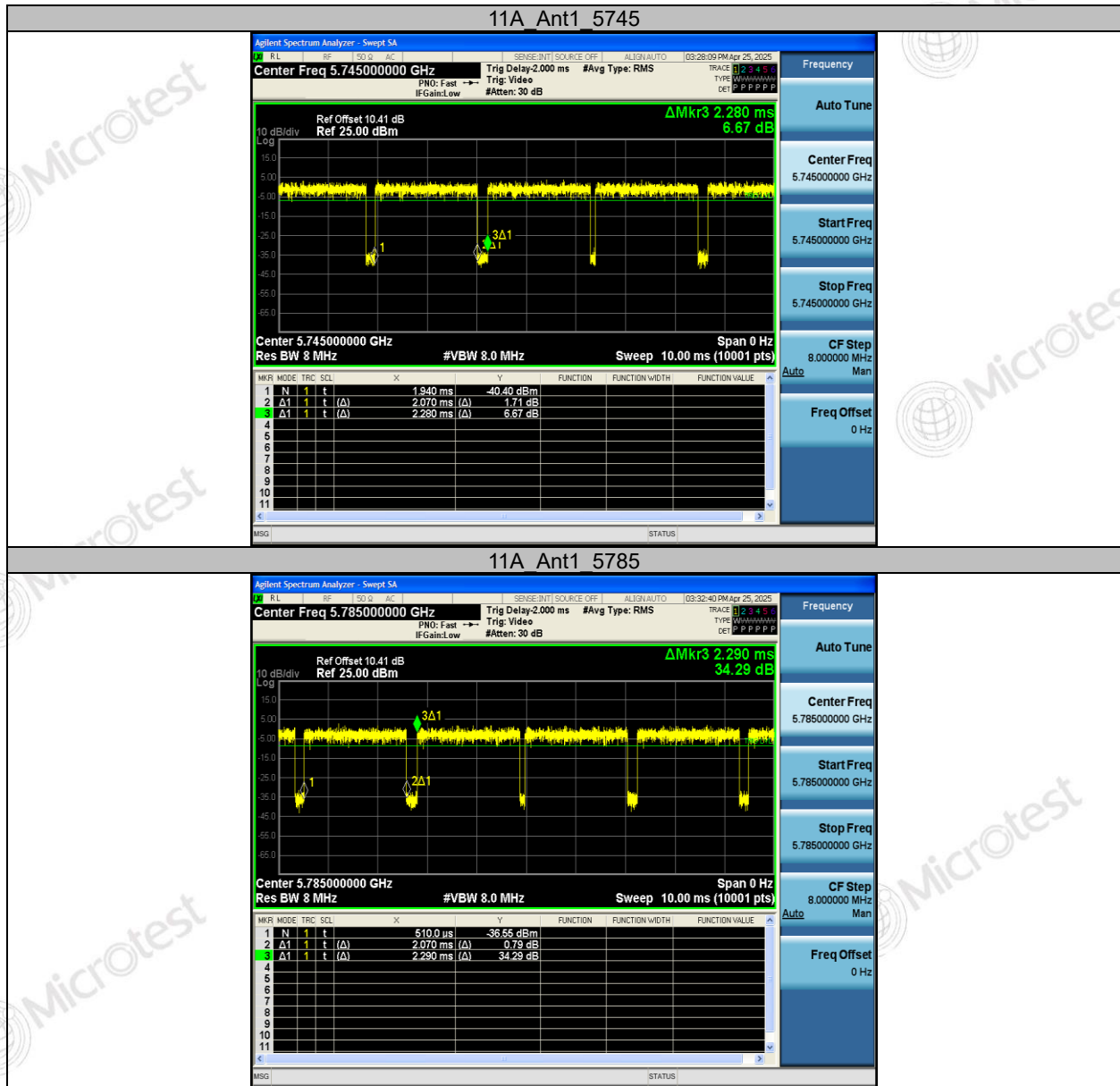
**Appendix B: Duty Cycle**

## Test Result

| Test Mode | Antenna | Frequency<br>[MHz] | Transmission<br>Duration<br>[ms] | Transmission<br>Period<br>[ms] | Duty Cycle<br>[%] |
|-----------|---------|--------------------|----------------------------------|--------------------------------|-------------------|
| 11A       | Ant1    | 5745               | 2.07                             | 2.28                           | 90.79             |
|           |         | 5785               | 2.07                             | 2.29                           | 90.39             |
|           |         | 5825               | 2.06                             | 2.27                           | 90.75             |
| 11N20SISO | Ant1    | 5745               | 1.92                             | 2.15                           | 89.30             |
|           |         | 5785               | 1.92                             | 2.11                           | 91.00             |
|           |         | 5825               | 1.92                             | 2.14                           | 89.72             |

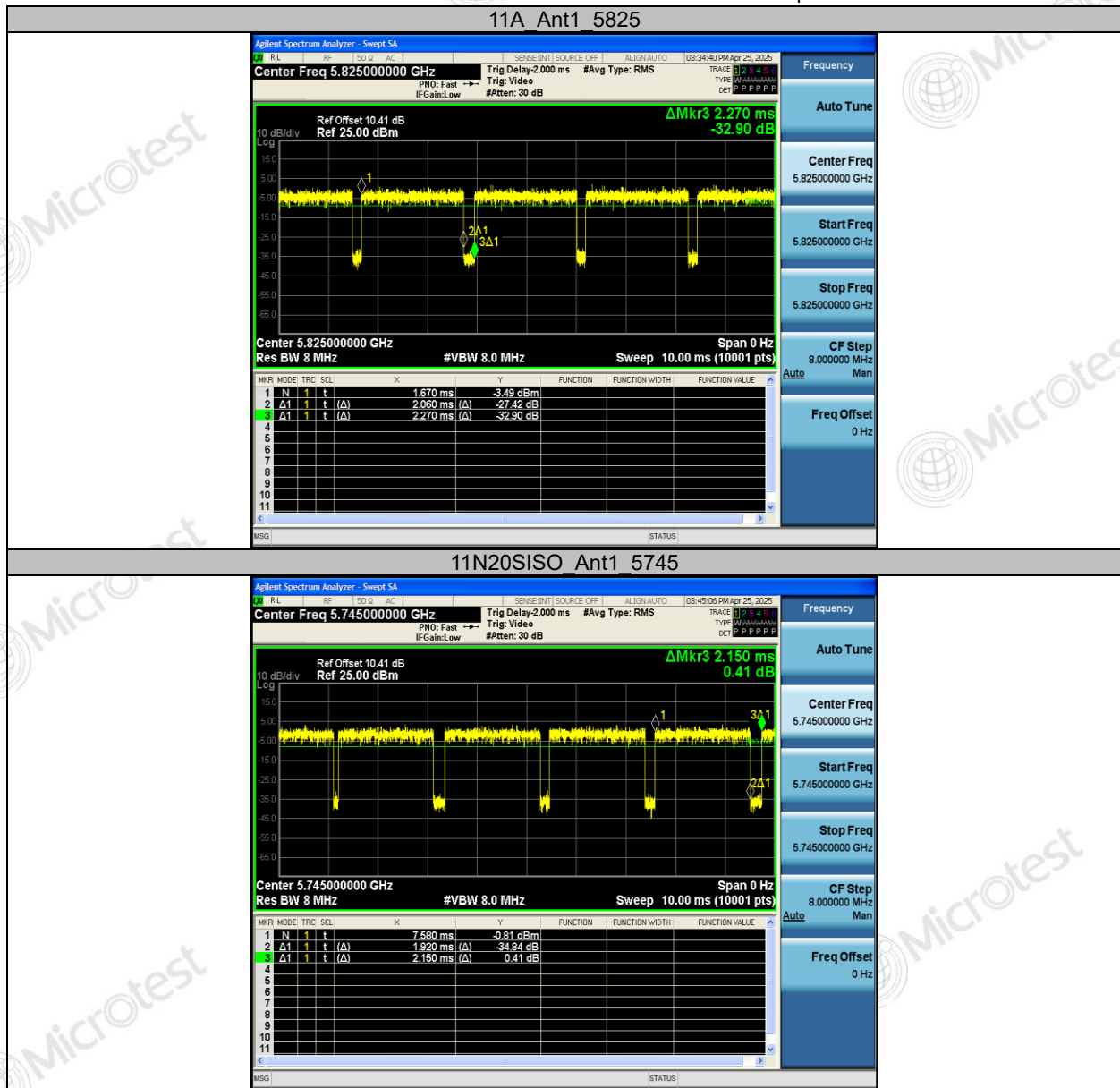


## Test Graphs



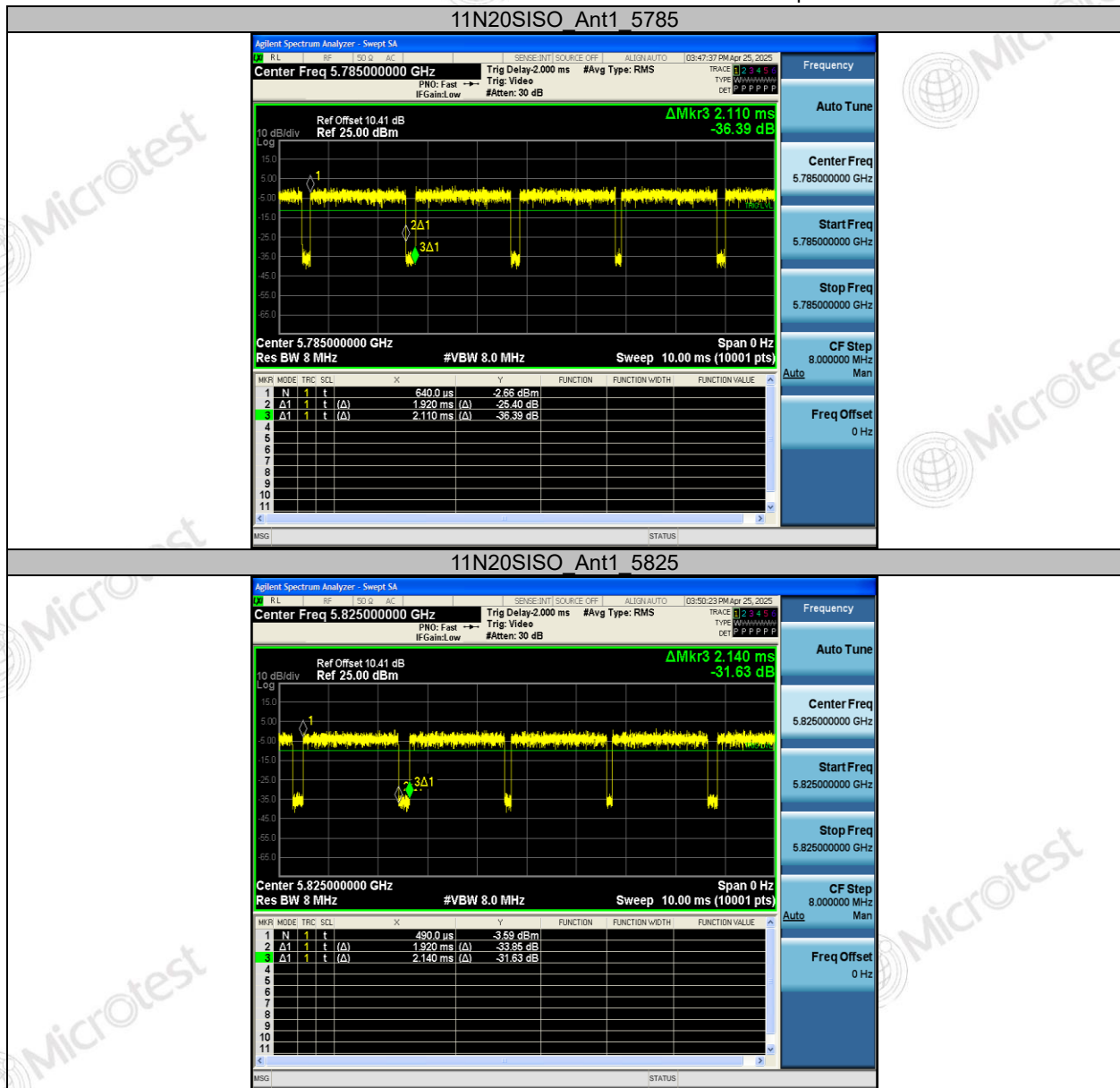
# TEST REPORT

Report No.: MTi250326008-0102E2



# TEST REPORT

Report No.: MTi250326008-0102E2



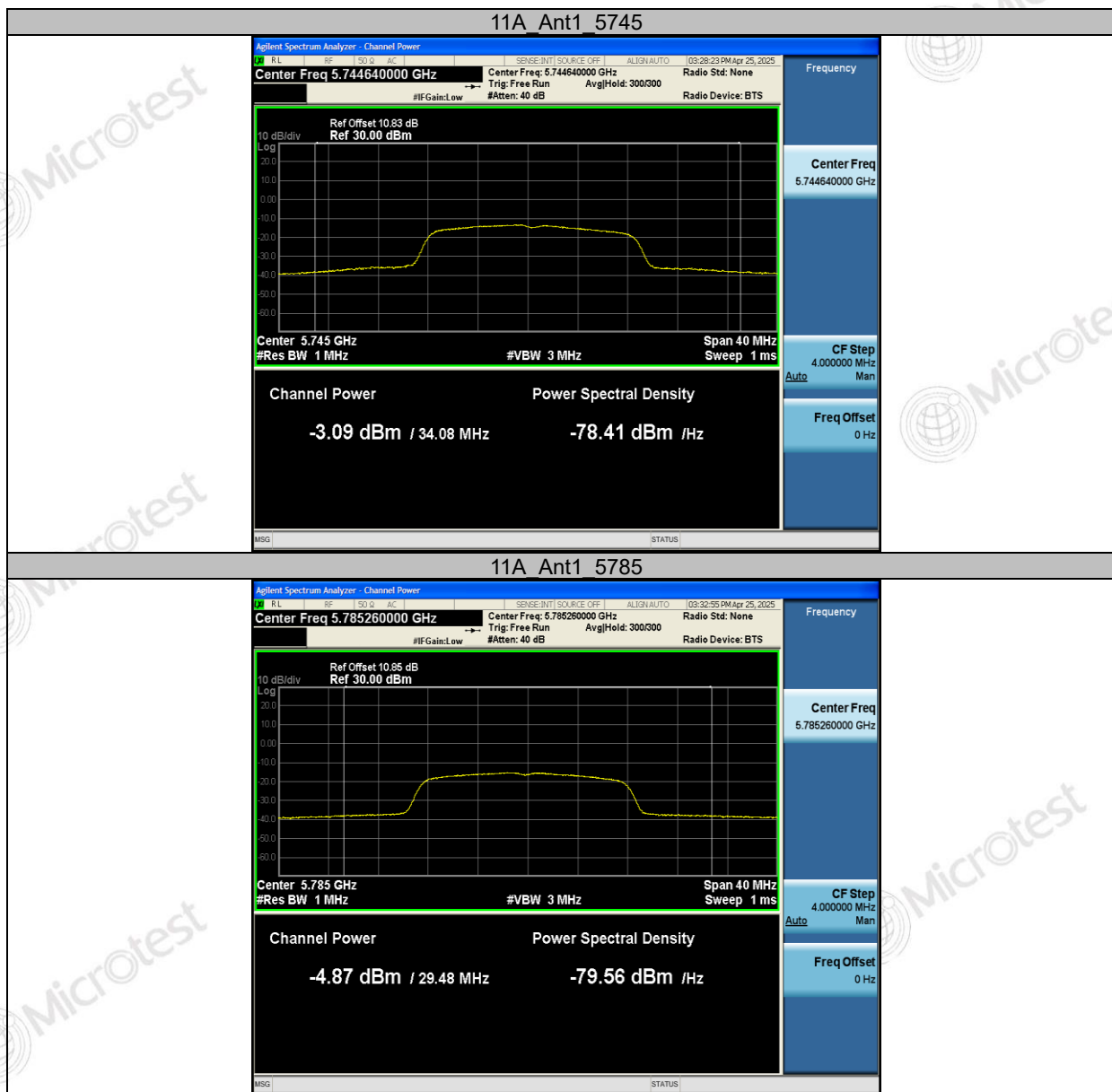
## Appendix C: Maximum conducted output power

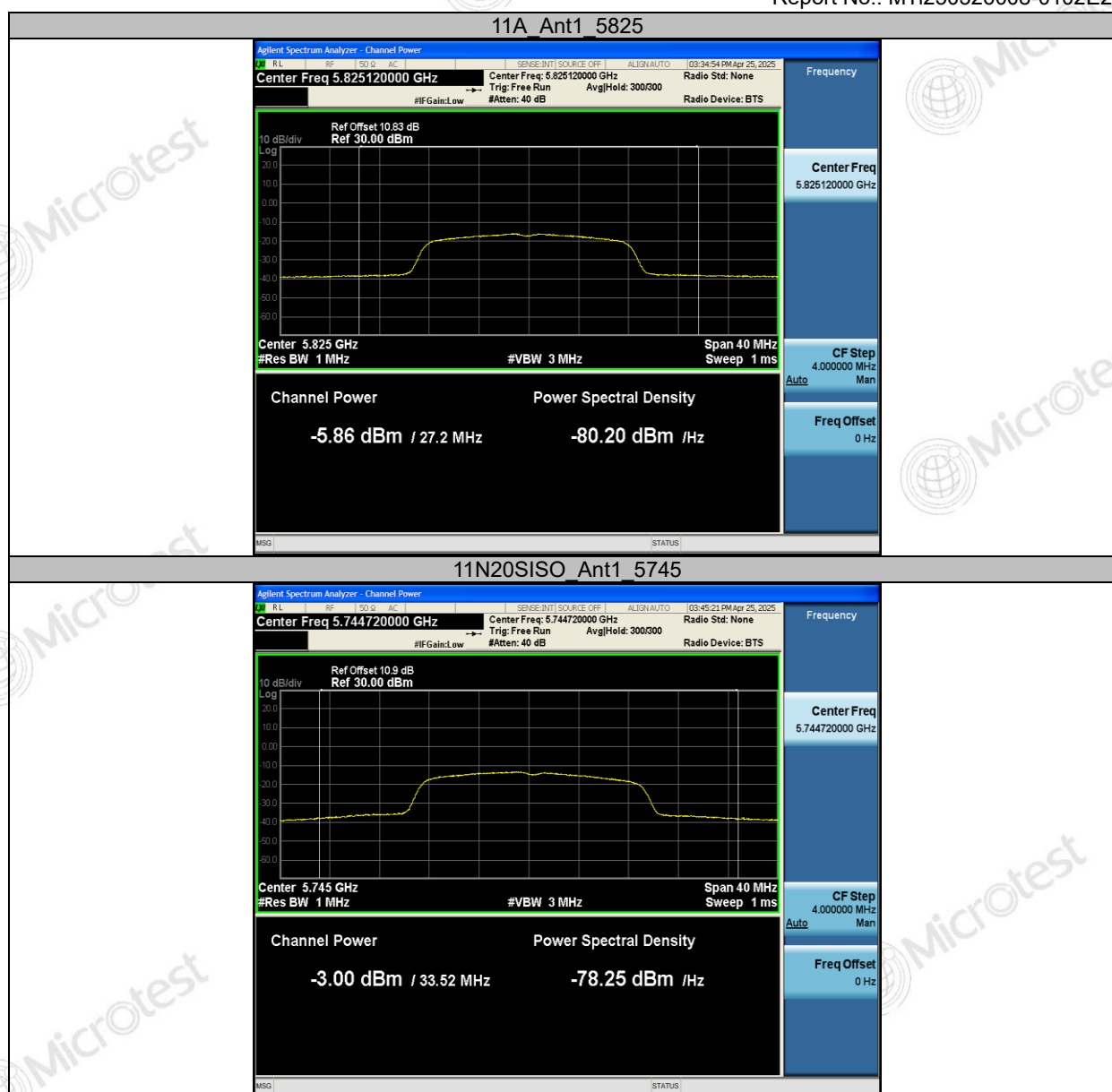
### Test Result Channel Power

| Test Mode     | Antenna | Frequency [MHz] | Channel Power [dBm] | Duty Cycle [%] | DC Factor [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-----------------|---------------------|----------------|-----------------|--------------|-------------|---------|
| 11A           | Ant1    | 5745            | -3.51               | 90.79          | 0.42            | -3.09        | ≤30.00      | PASS    |
|               |         | 5785            | -5.31               | 90.39          | 0.44            | -4.87        | ≤30.00      | PASS    |
|               |         | 5825            | -6.28               | 90.75          | 0.42            | -5.86        | ≤30.00      | PASS    |
| 11N20SIS<br>O | Ant1    | 5745            | -3.49               | 89.30          | 0.49            | -3.00        | ≤30.00      | PASS    |
|               |         | 5785            | -5.54               | 91.00          | 0.41            | -5.13        | ≤30.00      | PASS    |
|               |         | 5825            | -6.41               | 89.72          | 0.47            | -5.94        | ≤30.00      | PASS    |

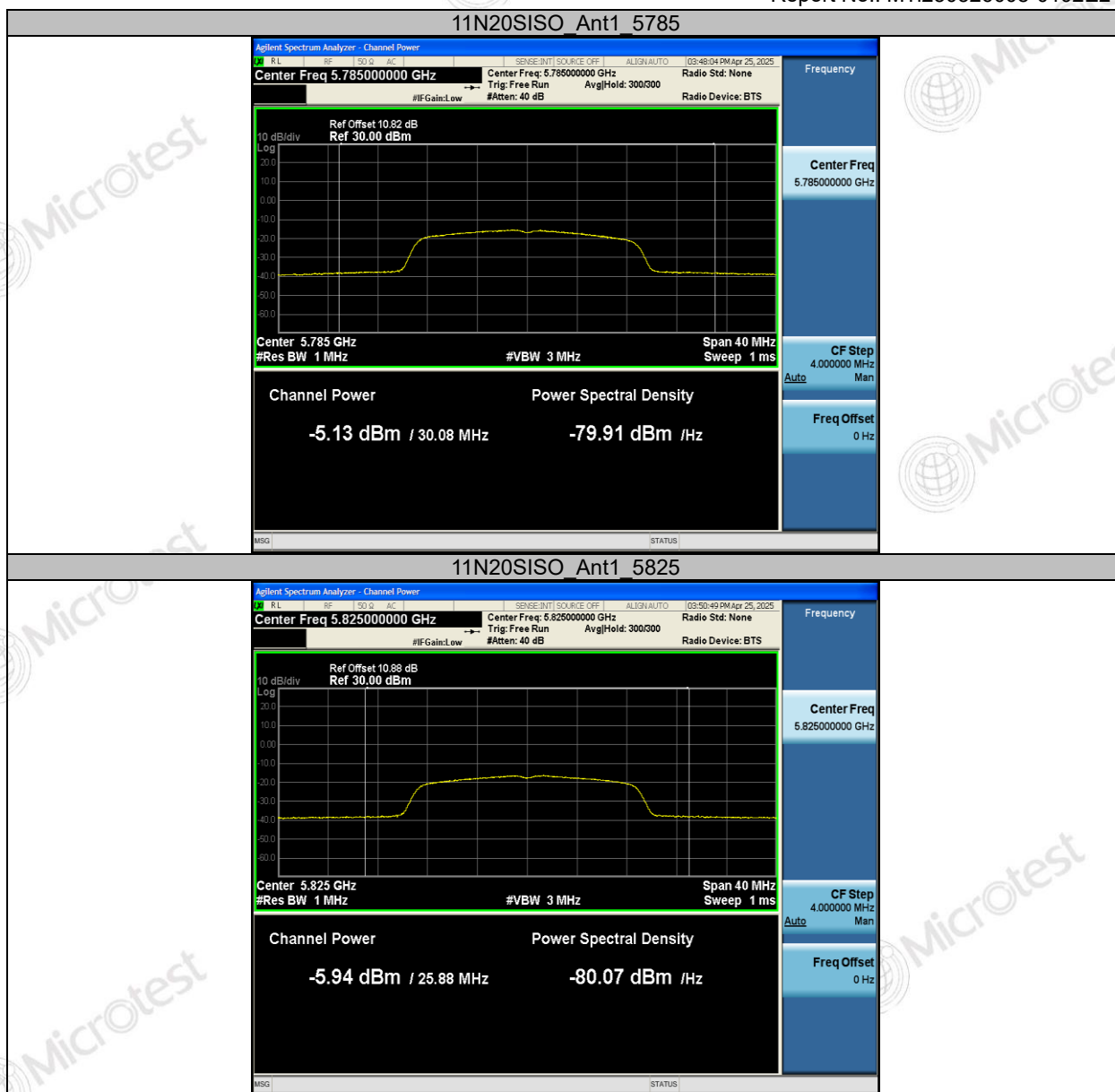
Note: The Duty Cycle Factor is compensated in the graph.

## Test Graphs









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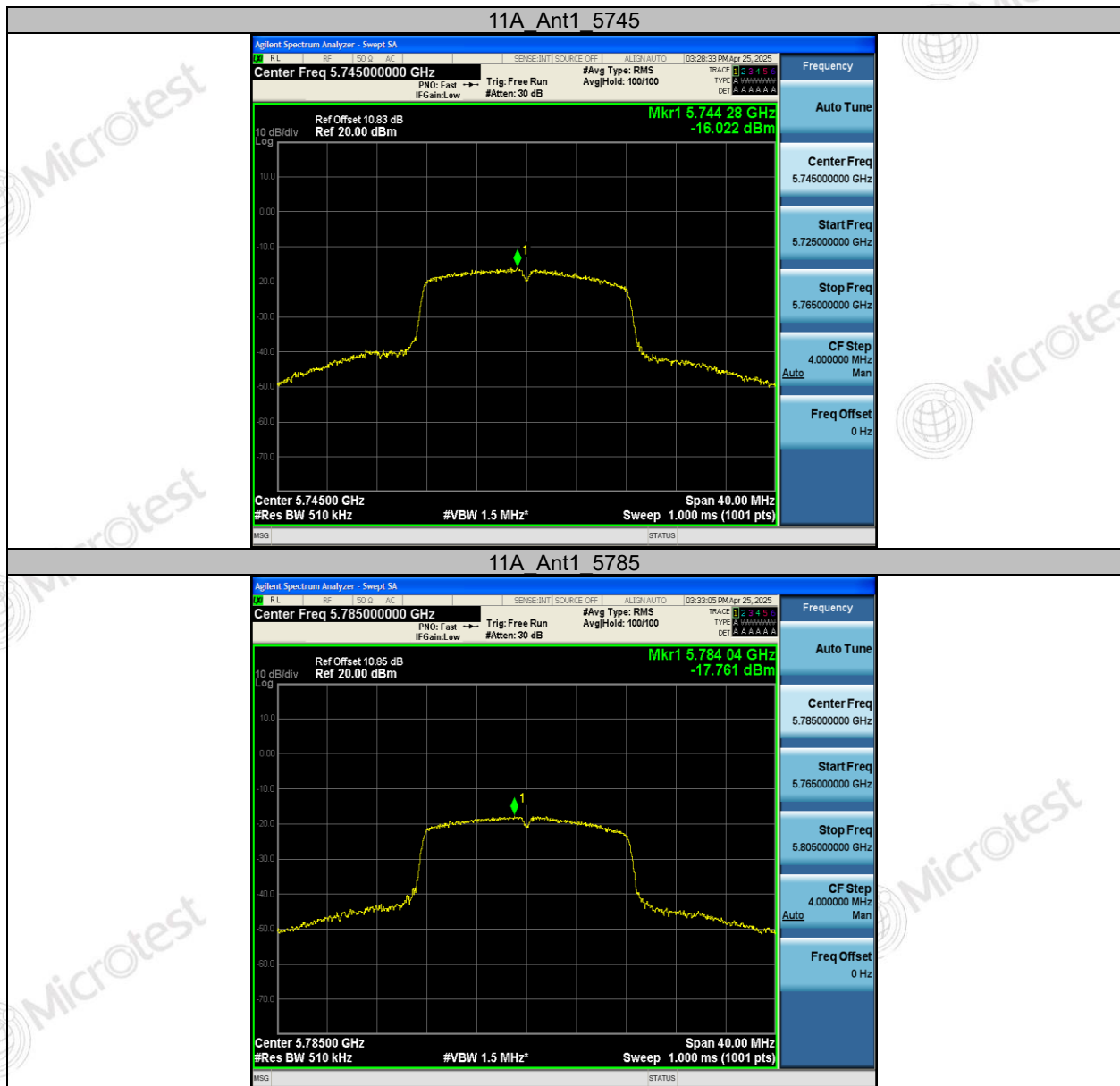
### Appendix D: Maximum power spectral density

#### Test Result

| Test Mode | Antenna | Frequency<br>[MHz] | Result<br>[dBm/ 500kHz] | Limit<br>[dBm/ 500kHz] | Verdict |
|-----------|---------|--------------------|-------------------------|------------------------|---------|
| 11A       | Ant1    | 5745               | -16.02                  | ≤30.00                 | PASS    |
|           |         | 5785               | -17.76                  | ≤30.00                 | PASS    |
|           |         | 5825               | -18.41                  | ≤30.00                 | PASS    |
| 11N20SISO | Ant1    | 5745               | -15.84                  | ≤30.00                 | PASS    |
|           |         | 5785               | -18.29                  | ≤30.00                 | PASS    |
|           |         | 5825               | -18.92                  | ≤30.00                 | PASS    |

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.  
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

## Test Graphs



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## Appendix E: Frequency Stability

### Test Result

| Voltage   |         |                 |               |                  |                |                 |             |         |
|-----------|---------|-----------------|---------------|------------------|----------------|-----------------|-------------|---------|
| Test Mode | Antenna | Frequency [MHz] | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| 11A       | Ant1    | 5745            | NV            | NT               | -60000.00      | -10.443864      | 20          | PASS    |
|           |         |                 | LV            | NT               | -40000.00      | -6.962576       | 20          | PASS    |
|           |         |                 | HV            | NT               | -40000.00      | -6.962576       | 20          | PASS    |
|           |         | 5785            | NV            | NT               | -80000.00      | -13.828868      | 20          | PASS    |
|           |         |                 | LV            | NT               | -60000.00      | -10.371651      | 20          | PASS    |
|           |         |                 | HV            | NT               | -60000.00      | -10.371651      | 20          | PASS    |
|           |         | 5825            | NV            | NT               | -20000.00      | -3.433476       | 20          | PASS    |
|           |         |                 | LV            | NT               | 0.00           | 0.000000        | 20          | PASS    |
|           |         |                 | HV            | NT               | 0.00           | 0.000000        | 20          | PASS    |
| 11N20SISO | Ant1    | 5745            | NV            | NT               | -40000.00      | -6.962576       | 20          | PASS    |
|           |         |                 | LV            | NT               | -60000.00      | -10.443864      | 20          | PASS    |
|           |         |                 | HV            | NT               | -40000.00      | -6.962576       | 20          | PASS    |
|           |         | 5785            | NV            | NT               | -60000.00      | -10.371651      | 20          | PASS    |
|           |         |                 | LV            | NT               | -20000.00      | -3.457217       | 20          | PASS    |
|           |         |                 | HV            | NT               | -20000.00      | -3.457217       | 20          | PASS    |
|           |         | 5825            | NV            | NT               | -20000.00      | -3.433476       | 20          | PASS    |
|           |         |                 | LV            | NT               | -20000.00      | -3.433476       | 20          | PASS    |
|           |         |                 | HV            | NT               | 0.00           | 0.000000        | 20          | PASS    |

| Temperature |         |                 |               |                  |                |                 |             |         |
|-------------|---------|-----------------|---------------|------------------|----------------|-----------------|-------------|---------|
| Test Mode   | Antenna | Frequency [MHz] | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| 11A         | Ant1    | 5745            | NV            | -30              | -40000.00      | -6.962576       | 20          | PASS    |
|             |         |                 | NV            | -20              | -40000.00      | -6.962576       | 20          | PASS    |
|             |         |                 | NV            | -10              | -60000.00      | -10.443864      | 20          | PASS    |
|             |         |                 | NV            | 0                | -20000.00      | -3.481288       | 20          | PASS    |
|             |         |                 | NV            | 10               | -40000.00      | -6.962576       | 20          | PASS    |
|             |         |                 | NV            | 20               | -40000.00      | -6.962576       | 20          | PASS    |
|             |         |                 | NV            | 30               | -60000.00      | -10.443864      | 20          | PASS    |
|             |         |                 | NV            | 40               | -20000.00      | -3.481288       | 20          | PASS    |
|             |         |                 | NV            | 50               | -40000.00      | -6.962576       | 20          | PASS    |
|             |         | 5785            | NV            | -30              | -60000.00      | -10.371651      | 20          | PASS    |
|             |         |                 | NV            | -20              | -60000.00      | -10.371651      | 20          | PASS    |
|             |         |                 | NV            | -10              | -60000.00      | -10.371651      | 20          | PASS    |
|             |         |                 | NV            | 0                | -40000.00      | -6.914434       | 20          | PASS    |
|             |         |                 | NV            | 10               | -80000.00      | -13.828868      | 20          | PASS    |
|             |         |                 | NV            | 20               | -60000.00      | -10.371651      | 20          | PASS    |
|             |         |                 | NV            | 30               | -40000.00      | -6.914434       | 20          | PASS    |
|             |         |                 | NV            | 40               | -60000.00      | -10.371651      | 20          | PASS    |
|             |         |                 | NV            | 50               | -60000.00      | -10.371651      | 20          | PASS    |
|             |         | 5825            | NV            | -30              | -20000.00      | -3.433476       | 20          | PASS    |
|             |         |                 | NV            | -20              | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | -10              | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | 0                | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | 10               | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | 20               | -20000.00      | -3.433476       | 20          | PASS    |
|             |         |                 | NV            | 30               | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | 40               | 0.00           | 0.000000        | 20          | PASS    |
|             |         |                 | NV            | 50               | 0.00           | 0.000000        | 20          | PASS    |
| 11N20SISO   | Ant1    | 5745            | NV            | -30              | -60000.00      | -10.443864      | 20          | PASS    |
|             |         |                 | NV            | -20              | -60000.00      | -10.443864      | 20          | PASS    |
|             |         |                 | NV            | -10              | -60000.00      | -10.443864      | 20          | PASS    |
|             |         |                 | NV            | 0                | -60000.00      | -10.443864      | 20          | PASS    |

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|  |  |      |    |     |           |            |    |      |
|--|--|------|----|-----|-----------|------------|----|------|
|  |  |      | NV | 10  | -40000.00 | -6.962576  | 20 | PASS |
|  |  |      | NV | 20  | -60000.00 | -10.443864 | 20 | PASS |
|  |  |      | NV | 30  | -60000.00 | -10.443864 | 20 | PASS |
|  |  |      | NV | 40  | -60000.00 | -10.443864 | 20 | PASS |
|  |  |      | NV | 50  | -40000.00 | -6.962576  | 20 | PASS |
|  |  | 5785 | NV | -30 | -60000.00 | -10.371651 | 20 | PASS |
|  |  |      | NV | -20 | -20000.00 | -3.457217  | 20 | PASS |
|  |  |      | NV | -10 | -80000.00 | -13.828868 | 20 | PASS |
|  |  |      | NV | 0   | -60000.00 | -10.371651 | 20 | PASS |
|  |  |      | NV | 10  | -20000.00 | -3.457217  | 20 | PASS |
|  |  |      | NV | 20  | -20000.00 | -3.457217  | 20 | PASS |
|  |  |      | NV | 30  | -20000.00 | -3.457217  | 20 | PASS |
|  |  |      | NV | 40  | -60000.00 | -10.371651 | 20 | PASS |
|  |  |      | NV | 50  | -40000.00 | -6.914434  | 20 | PASS |
|  |  | 5825 | NV | -30 | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | -20 | -40000.00 | -6.866953  | 20 | PASS |
|  |  |      | NV | -10 | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | 0   | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | 10  | 0.00      | 0.000000   | 20 | PASS |
|  |  |      | NV | 20  | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | 30  | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | 40  | -20000.00 | -3.433476  | 20 | PASS |
|  |  |      | NV | 50  | -20000.00 | -3.433476  | 20 | PASS |

**Photographs of the Test Setup**

See the Appendix – Test Setup Photos.

**Photographs of the EUT**

See the Appendix - EUT Photos.

----End of Report----

## Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
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6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

\*\*\*\*\* END OF REPORT \*\*\*\*\*