

SZEMC-TRF-01 Rev. A/1 Report No.: SZCR250400159706

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# TEST REPORT

**Application No.:** SZCR2504001597WM Applicant: Sonim Technologies, Inc.

**Address of Applicant:** 4445 Eastgate Mall, Suite 200, San Diego, California 92121 United States

Manufacturer: Sonim Technologies, Inc.

Address of Manufacturer: 4445 Eastgate Mall, Suite 200, San Diego, California 92121 United States

**Equipment Under Test (EUT):** 

**EUT Name:** smartphone

Model No.: X800

\$1003/\$1001/\$1004/\$1005/\$1006/\$1010 Type No.:

**Trade Mark:** Sonim

FCC ID: WYPS1003

47 CFR Part 15, Subpart E 15.407 Standard(s):

2025-04-22 **Date of Receipt:** 

Date of Test: 2025-04-24 to 2025-04-25

Date of Issue: 2025-05-07

Test Result: Pass\*

Keny Xu **EMC Laboratory Manager** 

Ceny. Ku



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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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|         |         | Revision Record |          |          |
|---------|---------|-----------------|----------|----------|
| Version | Chapter | Date            | Modifier | Remark   |
| 01      |         | 2025-05-07      |          | Original |
|         |         |                 |          |          |
|         |         |                 |          |          |

| Authorized for issue by: |                              |   |
|--------------------------|------------------------------|---|
|                          | Calvin Weng                  |   |
|                          | Calvin Weng/Project Engineer | - |
|                          | Exic Fu                      |   |
|                          | Eric Fu/Reviewer             | - |



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#### **Test Summary** 2

| Radio Spectrum Matter Part                            |                                     |                                       |  |        |  |
|---|-------------------------------------|---------------------------------------|--|--------|--|
| Item  | Standard                            | Method                                | Requirement  | Result |  |
| Radiated Emissions<br>(Below 1GHz)                    |                                     | ANSI C63.10 (2013)<br>Section 6.4,6.5 | 47 CFR Part 15, Subpart<br>C 15.209 & Subpart E<br>15.407(b) | Pass   |  |
| Radiated Emissions<br>(Above 1GHz)                    | 47 CFR Part 15,<br>Subpart E 15.407 | ANSI C63.10 (2013)<br>Section 6.6     | 47 CFR Part 15, Subpart<br>C 15.209 & Subpart E<br>15.407(b) | Pass   |  |
| Radiated Emissions which fall in the restricted bands |                                     | ANSI C63.10 (2013)<br>Section 6.10.5  | 47 CFR Part 15, Subpart<br>C 15.209 & Subpart E<br>15.407(b) | Pass   |  |

#### Remark:

Model No.: X800

This test report (Ref. No.: SZCR250400159706) is only valid with the original test report (Ref. No.: SZCR241000381006).

According to the declaration from the applicant, the models in this report and models in original report were identical, only difference with being added an alternative battery and LCD.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for retest.

Therefore in this report Radiated Emission were spot checked on model and shown the data in this report, other tests please refer to original report SZCR241000381006.



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### **General Information**

#### Details of E.U.T. 4.1

| DC3.87V by Li-ion battery(5000mAh)  |
|---|
| Recharged by AC/DC power adapter  |
| Adapter M/N:1-CHUSQ302-097  |
| Adapter Manufacturer: HUIZHOU PUAN ELEOTRONICS CO.,LTD                      |
| Adapter output: 5V/3A,9V/2A,12V/1.5A  |
| Battery M/N:BAT-05000-21S   |
| Battery Manufacturer: Tianjin Lishen Juyuan New Energy Technology Co., Ltd. |
| USB type C cable M/N: HX-YLMK-16  |
| 1.5m shieled cable without ferrite core                                     |
| USB type C cable manufacturer: HUIZHOU WASHIN ELECTRONICS CO.,LTD           |
| IEEE 802.11 ax(HE20/40/80/160): 5925 MHz ~ 6425 MHz                         |
| IEEE 802.11 ax(HE20/40/80/160): 6425 MHz ~ 6525 MHz                         |
| IEEE 802.11 ax(HE20/40/80/160): 6525 MHz ~ 6875 MHz                         |
| IEEE 802.11 ax(HE20/40/80/160): 6875 MHz ~ 7125 MHz                         |
| OFDMA   |
| 20MHz;40MHz:80MHz;160MHz  |
| 6GHz Low Power Indoor Client (6XD)  |
| PIFA Antenna  |
| OFDMA   |
| Ant9:-1.29dBi, Ant10: 1.34dBi   |
|   |

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

### 4.2 Description of Support Units

| Description                | Manufacturer Model No. Serial No. |  | Serial No. |
|----------------------------|-----------------------------------|--|------------|
|                            |                                   |  | -          |
| The EUT has been tested as | an independent unit.              |  |            |



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### 4.3 Measurement Uncertainty

| Test Item   | Measurement Uncertainty                     |
|---|---|
| Radiated Emissions (Below 1GHz)                       | ± 6.0dB for 3m; ± 5.0dB for 10m             |
| Radiated Emissions (Above 1GHz)                       | ± 4.6dB (1-18GHz);± 4.8dB (18-<br>40GHz)    |
| Radiated Emissions which fall in the restricted bands | ± 6.0dB (below 1GHz); ± 4.6dB (above 1GHz); |

### Remark:

The Ulab (lab Uncertainty) is less than Ucispr/ETSI (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### • A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

#### VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz. 10m Semi-anechoic chamber for below 1GHz. Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### • FCC -Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

### Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### 4.6 Deviation from Standards

None

### 4.7 Abnormalities from Standard Conditions

None



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#### 5 **Equipment List**

| Radiated Emissions (Below 1GHz) |                      |                     |               |            |              |
|---------------------------------|----------------------|---------------------|---------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No.           | Inventory No. | Cal Date   | Cal Due Date |
| Loop Antenna                    | ETS-Lindgren         | 6502                | SEM003-08     | 2023-11-20 | 2025-11-19   |
| 3m Semi-Anechoic<br>Chamber     | ETS-LINDGREN         | N/A                 | SEM001-01     | 2023-06-19 | 2026-06-18   |
| MXE EMI Receiver                | Agilent Technologies | N9038A              | SEM004-15     | 2024-08-14 | 2025-08-13   |
| BiConiLog Antenna               | ETS-LINDGREN         | 3142C               | SEM003-01     | 2023-09-16 | 2025-09-15   |
| Pre-Amplifier                   | Agilent Technologies | 8447D               | SEM005-01     | 2025-03-04 | 2026-03-03   |
| Measurement Software            | AUDIX                | e3 V8.2014-6-<br>27 | N/A           | N/A        | N/A          |
| Coaxial Cable                   | SGS                  | N/A                 | SEM025-01     | 2024-07-06 | 2025-07-05   |

| Radiated Emissions (Above 1GHz)         |                 |                     |                  |            |              |
|---|-----------------|---------------------|------------------|------------|--------------|
| Equipment                               | Manufacturer    | Model No.           | Inventory No.    | Cal Date   | Cal Due Date |
| Signal & Spectrum<br>Analyzer           | Rohde & Schwarz | FSV                 | SZ-WRG-M-<br>048 | 2025-01-07 | 2026-01-06   |
| Low Noise Amplifier 1G-<br>18GHz        | Tonscend        | TAP01018050         | SZ-WRG-M-<br>051 | 2025-01-07 | 2026-01-06   |
| Low Noise Amplifier<br>18G-40GHz        | Tonscend        | TAP18040048         | SZ-WRG-M-<br>052 | 2025-01-08 | 2026-01-07   |
| Double Ridge Horn<br>Antenna 1GHz-18GHz | SCHWARZBECK     | BBHA 9120 D         | SZ-WRG-M-<br>055 | 2023-12-21 | 2025-12-20   |
| SHF-EHF Horn 15GHz-<br>40GHz            | SCHWARZBECK     | BBHA 9170           | SZ-WRG-M-<br>056 | 2023-12-25 | 2025-12-24   |
| RSE Test Software                       | AUDIX           | e3 V8.2014-6-<br>27 | N/A              | N/A        | N/A          |
| Chamber                                 | CRTSGSSAC966    | N/A                 | SZ-WRG-C-<br>063 | 2025-01-06 | 2028-01-05   |
| Humidity and<br>Temperature Indicator   | deli            | 8838                | SEM002-46        | 2024-07-24 | 2025-07-23   |



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| Radiated Emissions which fall in the restricted bands |                 |                     |                  |            |              |
|---|-----------------|---------------------|------------------|------------|--------------|
| Equipment   | Manufacturer    | Model No.           | Inventory No.    | Cal Date   | Cal Due Date |
| Signal & Spectrum<br>Analyzer                         | Rohde & Schwarz | FSV                 | SZ-WRG-M-<br>048 | 2025-01-07 | 2026-01-06   |
| Low Noise Amplifier<br>30M-8GHz                       | Tonscend        | TAP30M8G30          | SZ-WRG-M-<br>050 | 2025-01-07 | 2026-01-06   |
| Double Ridge Horn<br>Antenna 1GHz-18GHz               | SCHWARZBECK     | BBHA 9120 D         | SZ-WRG-M-<br>055 | 2023-12-21 | 2025-12-20   |
| SHF-EHF Horn 15GHz-<br>40GHz                          | SCHWARZBECK     | BBHA 9170           | SZ-WRG-M-<br>056 | 2023-12-25 | 2025-12-24   |
| RSE Test Software                                     | AUDIX           | e3 V8.2014-6-<br>27 | N/A              | N/A        | N/A          |
| Chamber   | CRTSGSSAC966    | N/A                 | SZ-WRG-C-<br>063 | 2025-01-06 | 2028-01-05   |
| Humidity and<br>Temperature Indicator                 | deli            | 8838                | SEM002-46        | 2024-07-24 | 2025-07-23   |

| General used equipmen           | t   |           |               |            |              |
|---------------------------------|---|-----------|---------------|------------|--------------|
| Equipment                       | Manufacturer                                    | Model No. | Inventory No. | Cal Date   | Cal Due Date |
| Humidity/ Temperature Indicator | deli  | 8838      | SEM002-32     | 2024-07-24 | 2025-07-23   |
| Humidity/ Temperature Indicator | deli  | 8838      | SEM002-33     | 2024-07-24 | 2025-07-23   |
| Barometer                       | Changchun<br>Meteorological<br>Industry Factory | DYM3      | SEM002-01     | 2025-03-03 | 2026-03-02   |



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#### **Radio Spectrum Matter Test Results** 6

### 6.1 Radiated Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

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

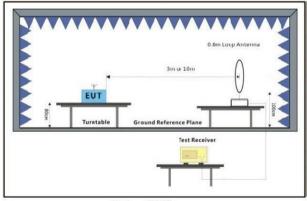
Operating Environment:

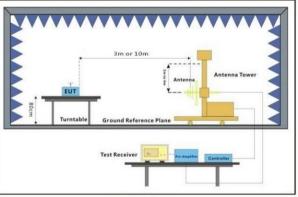
Temperature: 22.5 °C Humidity: 44.5 % RH Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

| Pre-scan /<br>Final test | Mode<br>Code | Description   |
|--------------------------|--------------|---|
| Final test               | 09           | TX mode (U-NII-5) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Pre-scan                 | 10           | TX mode (U-NII-6) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Pre-scan                 | 11           | TX mode (U-NII-7) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Pre-scan                 | 12           | TX mode (U-NII-8) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |

### 6.1.3 Test Setup Diagram





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Below 30MHz 30MHz-1GHz



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#### 6.1.4 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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 quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- i. Repeat above procedures until all frequencies measured was complete.

#### Remark:

- 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- 3. 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.
- 4. 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.



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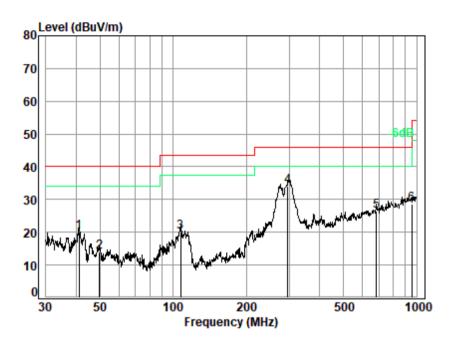


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Test Mode: 09; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL Job No. : 01599WM/01597WM

Test Mode: 09

|     | Ant     |        | Ant Cable |        | Cable | Preamp | Read   |        | Limit  | 0ver |  |  |
|-----|---------|--------|-----------|--------|-------|--------|--------|--------|--------|------|--|--|
|     | Freq    | Factor | Loss      | Factor | Level | Level  | Line   | Limit  | Remark |      |  |  |
| -   | MHz     | dB/m   | dB        | dB     | dBuV  | dBuV/m | dBuV/m | ——dB   |        |      |  |  |
| 1   | 41.132  | 15.83  | 0.79      | 27.76  | 31.14 | 20.00  | 40.00  | -20.00 | QP     |      |  |  |
| 2   | 49.881  | 12.79  | 0.86      | 27.73  | 28.12 | 14.04  | 40.00  | -25.96 | QP     |      |  |  |
| 3   | 107.134 | 12.13  | 1.27      | 27.56  | 34.23 | 20.07  | 43.50  | -23.43 | QP     |      |  |  |
| 4 q | 296.184 | 17.57  | 2.19      | 26.77  | 41.04 | 34.03  | 46.00  | -11.97 | QP     |      |  |  |
| 5   | 684.745 | 25.75  | 3.50      | 27.76  | 25.09 | 26.58  | 46.00  | -19.42 | QP     |      |  |  |
| 6   | 955.438 | 28.10  | 4.27      | 26.37  | 22.74 | 28.74  | 46.00  | -17.26 | OP .   |      |  |  |



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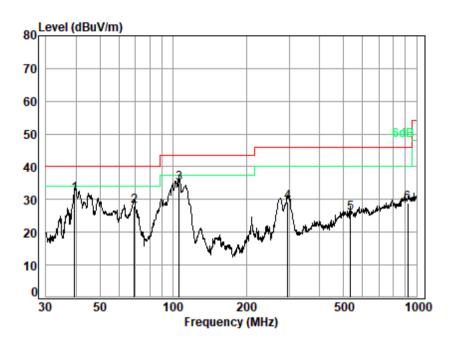


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Test Mode: 09; Polarity: Vertical



Site : chamber

Condition: 3m VERTICAL

Job No. : 01599WM/01597WM

Test Mode: 09

|     |         |       | Ant Cable Prea |             |       |        | Limit  |        |        |
|-----|---------|-------|----------------|-------------|-------|--------|--------|--------|--------|
|     |         |       | Loss           | Loss Factor |       | Level  | Line   | Limit  | Remark |
| -   | MHz     | dB/m  | dB             | dB          | dBuV  | dBuV/m | dBuV/m | ——dB   |        |
| 1 q | 39.437  | 16.66 | 0.77           | 27.76       | 41.85 | 31.52  | 40.00  | -8.48  | QP     |
| 2   | 69.114  | 10.65 | 1.01           | 27.68       | 44.10 | 28.08  | 40.00  | -11.92 | QP     |
| 3   | 106.013 | 12.18 | 1.27           | 27.56       | 49.11 | 35.00  | 43.50  | -8.50  | QP     |
| 4   | 296.184 | 17.57 | 2.19           | 26.77       | 36.25 | 29.24  | 46.00  | -16.76 | QP     |
| 5   | 535.707 | 23.46 | 3.04           | 27.71       | 27.18 | 25.97  | 46.00  | -20.03 | QP     |
| 6   | 922.516 | 28.19 | 4.18           | 26.60       | 23.25 | 29.02  | 46.00  | -16.98 | OP     |



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### 6.2 Radiated Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: ANSI C63.10 (2013) Section 6.6

#### 6.2.1 E.U.T. Operation

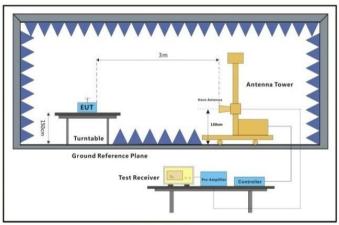
Operating Environment:

Temperature: 23.5 °C Humidity: 40.2 % RH Atmospheric Pressure: 1020 mbar

### 6.2.2 Test Mode Description

| CILI TOOLINGUO BOOLINGUI |              |   |  |  |  |  |  |  |  |  |
|--------------------------|--------------|---|--|--|--|--|--|--|--|--|
| Pre-scan /<br>Final test | Mode<br>Code | Description   |  |  |  |  |  |  |  |  |
| Final test               | 09           | TX mode (U-NII-5) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |  |  |  |  |  |  |  |  |
| Pre-scan                 | 10           | TX mode (U-NII-6) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |  |  |  |  |  |  |  |  |
| Pre-scan                 | 11           | TX mode (U-NII-7) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |  |  |  |  |  |  |  |  |
| Pre-scan                 | 12           | TX mode (U-NII-8) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |  |  |  |  |  |  |  |  |

### 6.2.3 Test Setup Diagram



Above 1GHz



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#### 6.2.4 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- i. Repeat above procedures until all frequencies measured was complete.

#### Remark:

- 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 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.
- 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.
- 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.
- 5. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.
- 6.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
- 7. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥1/T (Duty cycle<98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.



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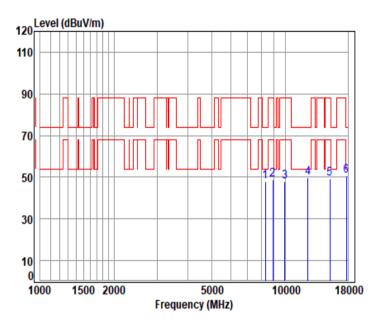


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11a\_TX\_CH\_045\_Horizontal



Condition: 3m HORIZONTAL Job No : 01597WM/01599WM Mode : 6175 TX RSE

. W: F: CE 11av20

|   | : W1-       | F1 6E | TTaxzo |        |       |        |        |        |        |
|---|-------------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |             | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq        | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |             |       |        |        |       |        |        |        |        |
|   | MHz         | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |             |       |        |        |       |        |        |        |        |
| 1 | 8283.881    | 12.00 | 37.87  | 55.64  | 53.71 | 47.94  | 74.00  | -26.06 | Peak   |
| 2 | 8875.021    | 12.56 | 38.55  | 55.11  | 52.76 | 48.76  | 88.20  | -39.44 | peak   |
| 3 | 9966.242    | 12.91 | 38.90  | 54.13  | 50.32 | 48.00  | 88.20  | -40.20 | Peak   |
| 4 | 12350.000   | 14.81 | 39.85  | 54.04  | 48.93 | 49.55  | 74.00  | -24.45 | peak   |
| 5 | 15218.460   | 16.77 | 38.78  | 54.23  | 47.83 | 49.15  | 88.20  | -39.05 | Peak   |
| 6 | pp17753.560 | 19.13 | 42.17  | 54.45  | 43.87 | 50.72  | 74.00  | -23.28 | peak   |



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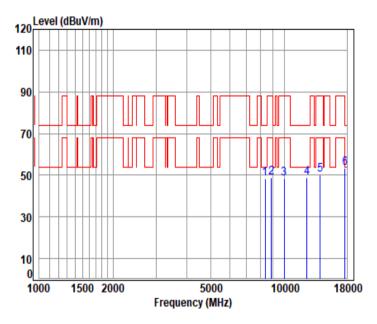


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### 11a\_TX\_CH\_045\_Vertical



Condition: 3m VERTICAL Job No : 01597WM/01599WM Mode : 6175 TX RSE

: Wi-Fi 6E 11ax20

|   |             | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|---|-------------|-------|--------|--------|-------|--------|--------|--------|--------|
|   | Freq        | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |             |       |        |        |       |        |        |        |        |
|   | MHz         | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |             |       |        |        |       |        |        |        |        |
| 1 | 8344.561    | 11.96 | 38.61  | 55.59  | 53.44 | 48.42  | 74.00  | -25.58 | Peak   |
| 2 | 8853.455    | 12.53 | 38.51  | 55.13  | 52.78 | 48.69  | 88.20  | -39.51 | peak   |
| 3 | 9990.518    | 12.95 | 38.90  | 54.11  | 50.45 | 48.19  | 88.20  | -40.01 | Peak   |
| 4 | pp12350.000 | 14.81 | 39.85  | 54.04  | 48.17 | 48.79  | 74.00  | -25.21 | peak   |
| 5 | 14021.690   | 16.43 | 39.90  | 54.40  | 48.11 | 50.04  | 88.20  | -38.16 | Peak   |
| 6 | 17681.720   | 18.98 | 41.53  | 54.44  | 47.10 | 53.17  | 88.20  | -35.03 | peak   |



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#### 6.3 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: ANSI C63.10 (2013) Section 6.10.5

#### 6.3.1 E.U.T. Operation

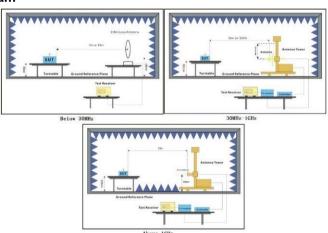
Operating Environment:

Temperature: 23.5 °C Humidity: 40.2 % RH Atmospheric Pressure: 1020 mbar

### 6.3.2 Test Mode Description

| Pre-scan /<br>Final test | Mode<br>Code | Description   |
|--------------------------|--------------|---|
| Pre-scan                 | 09           | TX mode (U-NII-5) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Pre-scan                 | 10           | TX mode (U-NII-6) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Pre-scan                 | 11           | TX mode (U-NII-7) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |
| Final test               | 12           | TX mode (U-NII-8) _Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report. |

### 6.3.3 Test Setup Diagram





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#### 6.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- c. 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.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. Repeat above procedures until all frequencies measured was complete.
- Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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- Remark 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
- Remark 3. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥1/T (Duty cycle<98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.



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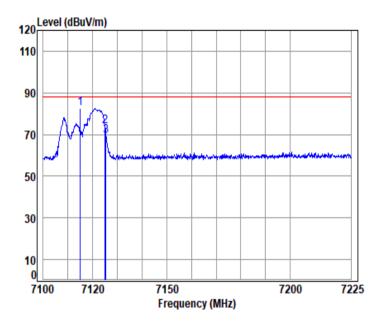


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11ax\_20M\_Partial\_RU106\_TX\_CH\_233\_Horizontal-Peak



Condition: 3m HORIZONTAL Job No : 01597WM/01599WM Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU106

Cable Ant Preamp Read Limit 0ver Freq Loss Factor Factor Level Level Line Limit Remark MHz dB dB/m dBuV dBuV/m dBuV/m 1 pp 7115.000 11.81 36.43 31.26 65.45 82.43 88.20 -5.77 peak

7125.000 11.82 36.45 31.26 56.79 73.80 88.20 -14.40 peak 7125.323 11.82 36.45 31.26 52.35 69.36 88.20 -18.84 peak



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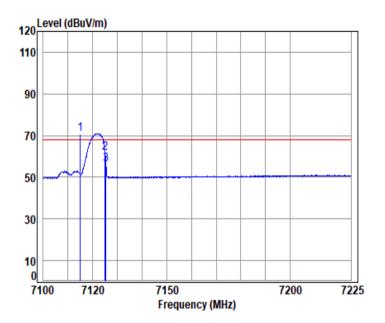


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11ax\_20M\_Partial\_RU106\_TX\_CH\_233\_Horizontal-AVG



Condition: 3m HORIZONTAL Job No : 01597WM/01599WM Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU106

|   |    |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |         |  |
|---|----|----------|-------|--------|--------|-------|--------|--------|--------|---------|--|
|   |    | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark  |  |
|   |    |          |       |        |        |       |        |        |        |         |  |
|   |    | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |         |  |
|   |    |          |       |        |        |       |        |        |        |         |  |
| 1 | pp | 7115.000 | 11.81 | 36.43  | 31.26  | 53.83 | 70.81  | 68.20  | 2.61   | Average |  |
| 2 |    | 7125.000 | 11.82 | 36.45  | 31.26  | 44.74 | 61.75  | 68.20  | -6.45  | Average |  |
| 3 |    | 7125.323 | 11.82 | 36.45  | 31.26  | 38.99 | 56.00  | 68.20  | -12.20 | Average |  |



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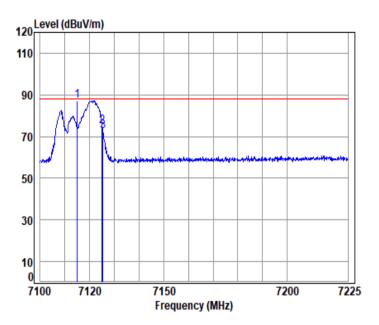


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11ax\_20M\_Partial\_RU106\_TX\_CH\_233\_Vertical-Peak



Condition: 3m VERTICAL Job No : 01597WM/01599WM Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU106

|    |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver  |        |
|----|----------|-------|--------|--------|-------|--------|--------|-------|--------|
|    | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit | Remark |
|    |          |       |        |        |       |        |        |       |        |
|    | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB    |        |
|    |          |       |        |        |       |        |        |       |        |
| pp | 7115.000 | 11.81 | 36.43  | 31.26  | 70.17 | 87.15  | 88.20  | -1.05 | peak   |
|    | 7125.000 |       |        |        |       |        |        |       |        |
|    | 7125.323 |       |        |        |       |        |        |       | -      |



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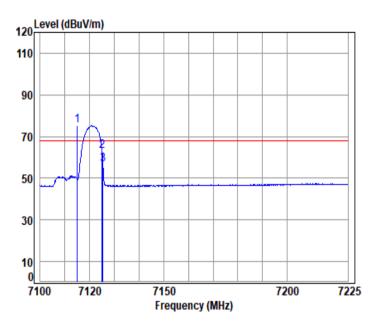


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11ax\_20M\_Partial\_RU106\_TX\_CH\_233\_Vertical-AVG



Condition: 3m VERTICAL Job No : 01597WM/01599WM Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU106

|   |    |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |         |   |
|---|----|----------|-------|--------|--------|-------|--------|--------|--------|---------|---|
|   |    | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark  |   |
|   |    |          |       |        |        |       |        |        |        |         | _ |
|   |    | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |         |   |
|   |    |          |       |        |        |       |        |        |        |         |   |
| 1 | pp | 7115.000 | 11.81 | 36.43  | 31.26  | 58.13 | 75.11  | 68.20  | 6.91   | Average |   |
| 2 |    | 7125.000 | 11.82 | 36.45  | 31.26  | 45.81 | 62.82  | 68.20  | -5.38  | Average |   |
| 3 |    | 7125.323 | 11.82 | 36.45  | 31.26  | 39.52 | 56.53  | 68.20  | -11.67 | Average |   |



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#### 7 **Test Setup Photo**

Refer to Appendix - Test Setup Photo for SZCR2504001597WM

#### **EUT Constructional Details (EUT Photos)** 8

Refer to Appendix - External and Internal Photos for SZCR2504001597WM

- End of the Report -



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