

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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR241000375501

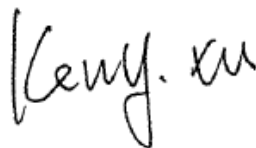
Page: 1 of 19

# TEST REPORT

**Application No.:** SZCR2410003755AT  
**Applicant:** Grandstream Networks, Inc.  
**Address of Applicant:** 126 Brookline Ave., 3rd Floor Boston, MA 02215, USA  
**Manufacturer:** Grandstream Networks, Inc.  
**Address of Manufacturer:** 126 Brookline Ave., 3rd Floor Boston, MA 02215, USA  
**Equipment Under Test (EUT):**  
**EUT Name:** Dual-Band Wi-Fi 7 Access Point  
**Model No.:** GWN7670  
**Trade Mark:** GRANDSTREAM  
**FCC ID:** YZZGWN7670  
**Standard(s) :** 47 CFR Part 15, Subpart B  
**Date of Receipt:** 2024-10-11  
**Date of Test:** 2024-10-16 to 2024-10-24  
**Date of Issue:** 2024-11-26

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu  
EMC Laboratory Manager



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| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2024-11-26 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

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



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## 2 Test Summary

| Emission Part                                         |                           |                 |                   |        |
|-------------------------------------------------------|---------------------------|-----------------|-------------------|--------|
| Item                                                  | Standard                  | Method          | Requirement       | Result |
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | 47 CFR Part 15, Subpart B | ANSI C63.4:2014 | 15.107(a);Class B | Pass   |
| Radiated Emissions (30MHz-1GHz)                       |                           | ANSI C63.4:2014 | 15.109(a);Class B | Pass   |
| Radiated Emissions (Above 1GHz)                       |                           | ANSI C63.4:2014 | 15.109(g);Class B | Pass   |



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## 4 General Information

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

|                  |                      |
|------------------|----------------------|
| Power supply:    | Powered by POE DC48V |
| Internal source: | >108MHz(1.1GHz)      |

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.        |
|---------------|--------------------------------------------|--------------|-------------------|
| Adapter       | RISUNIC<br>TECHNOLOGY<br>SHENZHEN CO.,LTD. | GP-H480-065G | 2308-0130053      |
| Network Cable | SGS                                        | N/A          | REF. No.SEA11A00  |
| Laptop        | Lenovo                                     | L480         | REF. No.SEA18C01F |
| Mouse         | Lenovo                                     | M-U0025-O    | REF. No.:SEA24A01 |

### 4.3 Measurement Uncertainty

| Test Item                                             | Measurement Uncertainty                               |
|-------------------------------------------------------|-------------------------------------------------------|
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | $\pm 3.1\text{dB}$                                    |
| Radiated Emissions (30MHz-1GHz)                       | $\pm 6.0\text{dB}$ for 3m; $\pm 5.0\text{dB}$ for 10m |
| Radiated Emissions (Above 1GHz)                       | $\pm 4.6\text{dB}$                                    |

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### 4.4 Test Location

All tests were performed at:

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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

| Conducted Emissions at Mains Terminals (150kHz-30MHz) |                  |                  |               |            |              |
|-------------------------------------------------------|------------------|------------------|---------------|------------|--------------|
| Equipment                                             | Manufacturer     | Model No.        | Inventory No. | Cal Date   | Cal Due Date |
| Shielding Room                                        | ZhongYu Electron | GB-88            | SEM001-06     | 2022-05-14 | 2025-05-13   |
| EMI Test Receiver                                     | Rohde&Schwarz    | ESR              | SZ-WRG-M-047  | 2024-01-30 | 2025-01-29   |
| Measurement Software                                  | AUDIX            | e3 V8.2014-6-27a | N/A           | N/A        | N/A          |
| Coaxial Cable                                         | SGS              | N/A              | SEM024-01     | 2024-07-06 | 2025-07-05   |
| LISN                                                  | Rohde&Schwarz    | ENV216           | SEM007-01     | 2024-08-15 | 2025-08-14   |
| LISN                                                  | ETS-LINDGREN     | 3816/2           | SEM007-02     | 2024-03-14 | 2025-03-13   |

| Radiated Emissions (30MHz-1GHz) |                      |                 |               |            |              |
|---------------------------------|----------------------|-----------------|---------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No.       | Inventory No. | Cal Date   | Cal Due Date |
| 3m Semi-Anechoic 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     | 2024-03-14 | 2025-03-13   |
| Measurement Software            | AUDIX                | e3 V8.2014-6-27 | 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 |
| 3m Fully-Anechoic Chamber       | AUDIX           | N/A             | SEM001-02     | 2024-05-11 | 2027-05-10   |
| Signal Analyzer                 | Rohde & Schwarz | FSV40           | SEM008-04     | 2024-03-15 | 2025-03-14   |
| Horn Antenna                    | Rohde&Schwarz   | HF907           | SEM003-07     | 2023-07-23 | 2025-07-22   |
| Microwave system amplifier      | Agilent         | 83017A          | SEM005-25     | 2024-09-14 | 2025-09-13   |
| Measurement Software            | AUDIX           | e3 V8.2014-6-27 | N/A           | N/A        | N/A          |
| Coaxial Cable                   | SGS             | N/A             | SEM026-01     | 2024-07-06 | 2025-07-05   |

| General used equipment          |              |           |               |            |              |
|---------------------------------|--------------|-----------|---------------|------------|--------------|
| 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           | deli         | 8838      | SEM002-33     | 2024-07-24 | 2025-07-23   |



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|           |                                           |      |           |            |            |
|-----------|-------------------------------------------|------|-----------|------------|------------|
| Indicator |                                           |      |           |            |            |
| Barometer | Changchun Meteorological Industry Factory | DYM3 | SEM002-01 | 2024-03-18 | 2025-03-17 |



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## 6 Emission Test Results

### 6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Limit:

0.15M-0.5MHz 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average

0.5M-5MHz 56dB(μV) quasi-peak, 46dB(μV) average

5M-30MHz 60dB(μV) quasi-peak, 50dB(μV) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

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

Operating Environment:

Temperature: 23.5 °C

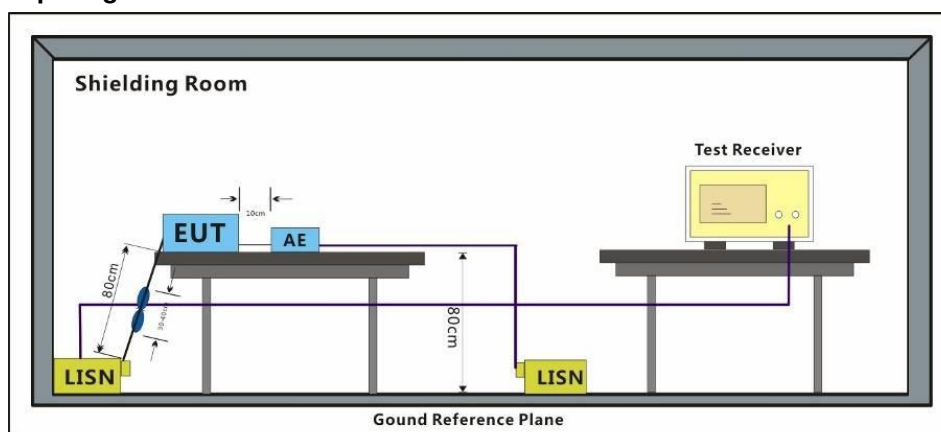
Humidity: 45.5 % RH

Atmospheric Pressure: 1020 mbar

#### 6.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                      |
|-----------------------|-----------|--------------------------------------------------|
| Final test            | 08        | Normal Operation:POE+BLE+2.4G Wi-Fi+5G Wi-Fi+LAN |

#### 6.1.3 Test Setup Diagram



#### 6.1.4 Measurement Procedure and Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Remark: Level= Read Level+ Cable Loss+ LISN Factor

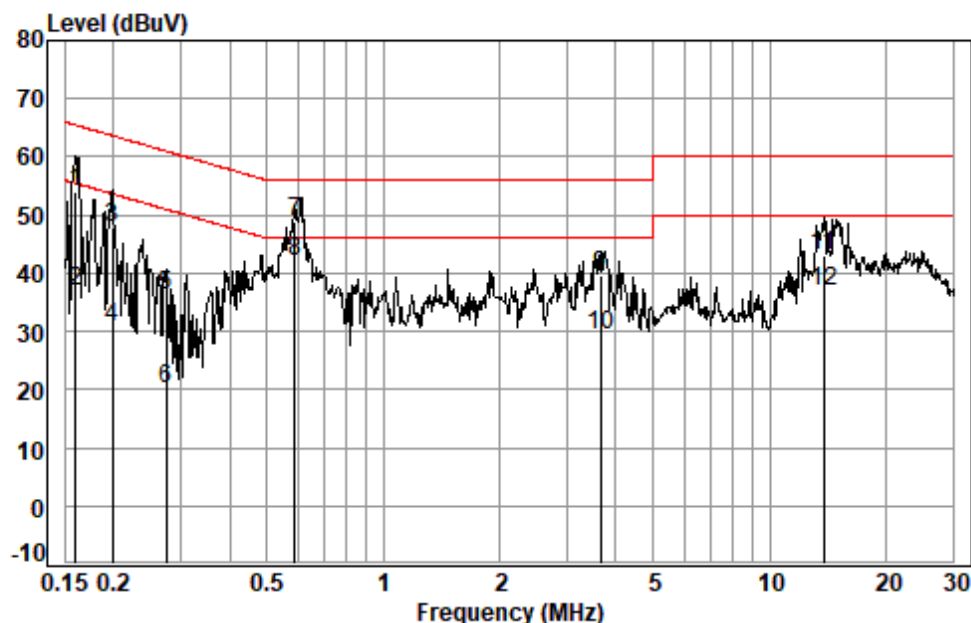
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Test Mode: 08; Line: Live line



Site : Shielding Room

Condition: Line

Job No. : 03755AT

Test mode: 08

|     | Freq    | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark  |
|-----|---------|------------|-------------|------------|-------|------------|------------|---------|
|     | MHz     | dB         | dB          | dBuV       | dBuV  | dBuV       | dB         |         |
| 1   | 0.1598  | 0.06       | 9.81        | 44.11      | 53.98 | 65.47      | -11.49     | QP      |
| 2   | 0.1598  | 0.06       | 9.81        | 26.92      | 36.79 | 55.47      | -18.68     | Average |
| 3   | 0.1986  | 0.06       | 9.80        | 37.89      | 47.75 | 63.67      | -15.92     | QP      |
| 4   | 0.1986  | 0.06       | 9.80        | 20.89      | 30.75 | 53.67      | -22.92     | Average |
| 5   | 0.2744  | 0.07       | 9.76        | 26.48      | 36.31 | 60.98      | -24.67     | QP      |
| 6   | 0.2744  | 0.07       | 9.76        | 10.43      | 20.26 | 50.98      | -30.72     | Average |
| 7 * | 0.5885  | 0.08       | 9.71        | 39.16      | 48.95 | 56.00      | -7.05      | QP      |
| 8 * | 0.5885  | 0.08       | 9.71        | 32.09      | 41.88 | 46.00      | -4.12      | Average |
| 9   | 3.6418  | 0.11       | 9.65        | 29.74      | 39.50 | 56.00      | -16.50     | QP      |
| 10  | 3.6418  | 0.11       | 9.65        | 19.49      | 29.25 | 46.00      | -16.75     | Average |
| 11  | 13.8411 | 0.25       | 10.08       | 32.78      | 43.11 | 60.00      | -16.89     | QP      |
| 12  | 13.8411 | 0.25       | 10.08       | 26.70      | 37.03 | 50.00      | -12.97     | Average |



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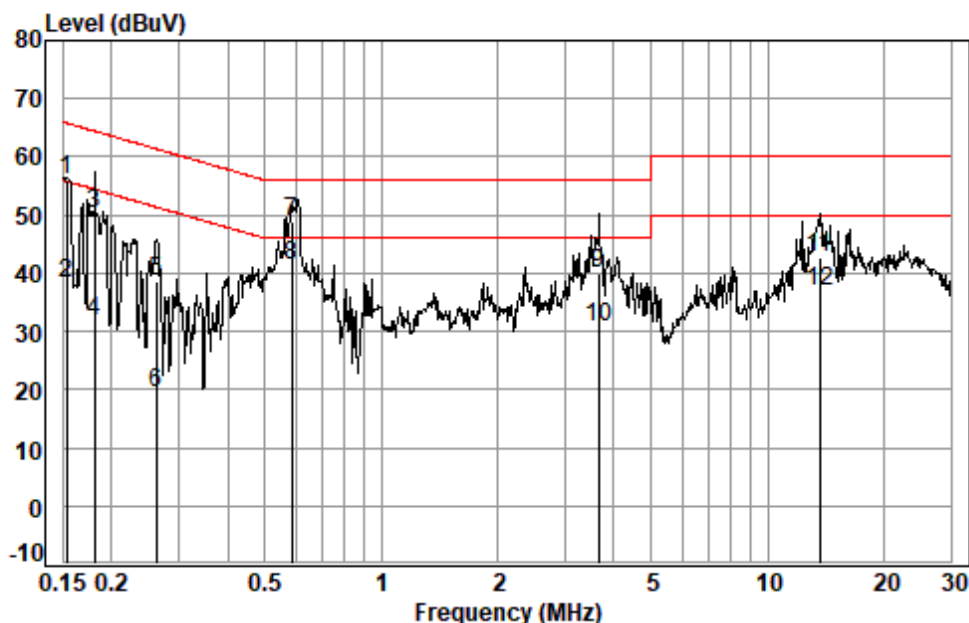
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Test Mode: 08; Line: Neutral Line



Site : Shielding Room  
Condition: Neutral  
Job No. : 03755AT  
Test mode: 08

|     | Freq    | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark  |
|-----|---------|------------|-------------|------------|-------|------------|------------|---------|
|     | MHz     | dB         | dB          | dBuV       | dBuV  | dBuV       | dB         |         |
| 1   | 0.1532  | 0.06       | 9.82        | 46.14      | 56.02 | 65.82      | -9.80      | QP      |
| 2   | 0.1532  | 0.06       | 9.82        | 28.49      | 38.37 | 55.82      | -17.45     | Average |
| 3   | 0.1815  | 0.06       | 9.82        | 40.33      | 50.21 | 64.42      | -14.21     | QP      |
| 4   | 0.1815  | 0.06       | 9.82        | 21.85      | 31.73 | 54.42      | -22.69     | Average |
| 5   | 0.2616  | 0.07       | 9.80        | 28.77      | 38.64 | 61.38      | -22.74     | QP      |
| 6   | 0.2616  | 0.07       | 9.80        | 9.67       | 19.54 | 51.38      | -31.84     | Average |
| 7 * | 0.5854  | 0.08       | 9.72        | 39.10      | 48.90 | 56.00      | -7.10      | QP      |
| 8 * | 0.5854  | 0.08       | 9.72        | 31.37      | 41.17 | 46.00      | -4.83      | Average |
| 9   | 3.6611  | 0.11       | 9.67        | 30.22      | 40.00 | 56.00      | -16.00     | QP      |
| 10  | 3.6611  | 0.11       | 9.67        | 21.02      | 30.80 | 46.00      | -15.20     | Average |
| 11  | 13.6228 | 0.25       | 10.13       | 32.37      | 42.75 | 60.00      | -17.25     | QP      |
| 12  | 13.6228 | 0.25       | 10.13       | 26.56      | 36.94 | 50.00      | -13.06     | Average |



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### 6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Measurement Distance: 3m

Limit:

| FREQUENCY (MHz)                                                          | dBμV/m (At 10m) | dBμV/m (At 3m) |
|--------------------------------------------------------------------------|-----------------|----------------|
|                                                                          | Class B         | Class B        |
| 30MHz -88MHz                                                             | 29.5            | 40.0           |
| 88MHz-216MHz                                                             | 33.1            | 43.5           |
| 216MHz-960MHz                                                            | 35.6            | 46.0           |
| 960MHz-1000MHz                                                           | 43.5            | 54.0           |
| Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz |                 |                |

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

Operating Environment:

Temperature: 23.5 °C

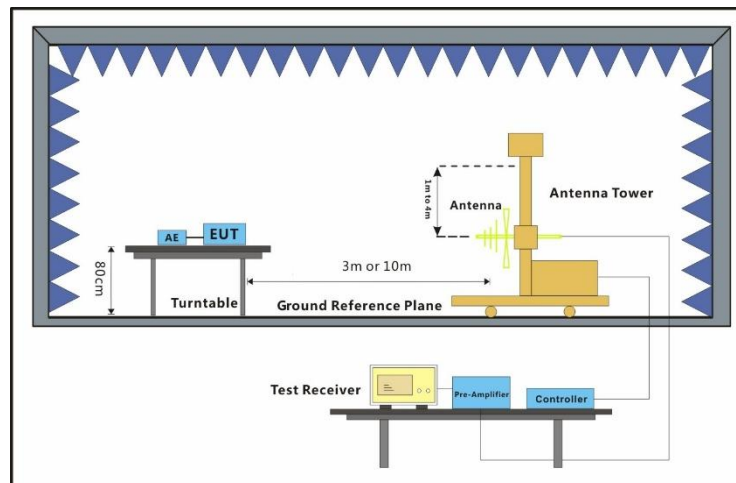
Humidity: 47.6 % RH

Atmospheric Pressure: 1020 mbar

#### 6.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                      |
|-----------------------|-----------|--------------------------------------------------|
| Final test            | 08        | Normal Operation:POE+BLE+2.4G Wi-Fi+5G Wi-Fi+LAN |

#### 6.2.3 Test Setup Diagram



### 6.2.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



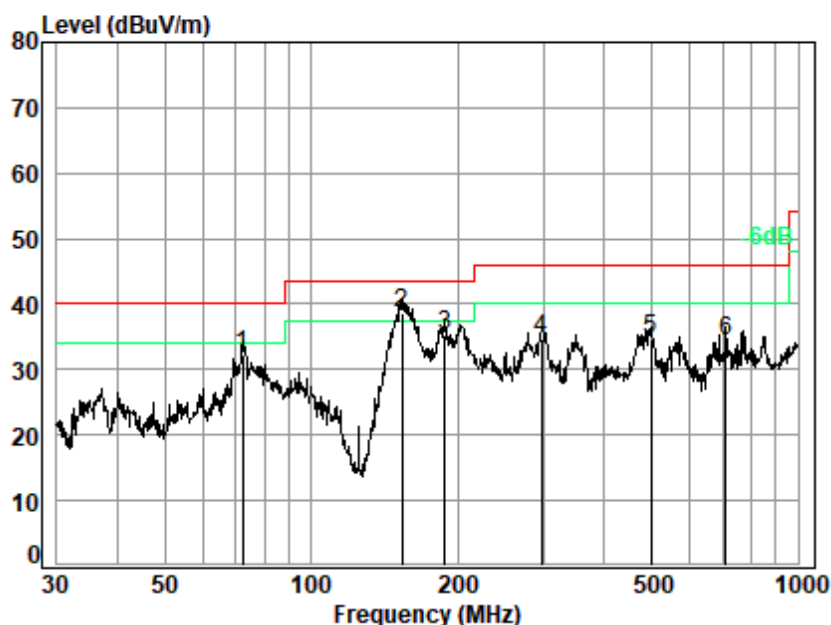
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Test Mode: 08; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No. : 03755AT

Test Mode: 08

|     | Ant     | Cable  | Preamp | Read   |       | Limit  | Over   |              |
|-----|---------|--------|--------|--------|-------|--------|--------|--------------|
|     | Freq    | Factor | Loss   | Factor | Level | Level  | Line   | Limit Remark |
|     | MHz     | dB/m   | dB     | dB     | dBuV  | dBuV/m | dBuV/m | dB           |
| 1   | 72.338  | 10.47  | 1.04   | 27.67  | 48.51 | 32.35  | 40.00  | -7.65 QP     |
| 2 q | 153.739 | 13.43  | 1.56   | 27.36  | 51.11 | 38.74  | 43.50  | -4.76 QP     |
| 3   | 188.413 | 14.30  | 1.71   | 27.22  | 46.47 | 35.26  | 43.50  | -8.24 QP     |
| 4   | 297.224 | 17.69  | 2.19   | 26.76  | 41.46 | 34.58  | 46.00  | -11.42 QP    |
| 5   | 497.677 | 22.87  | 2.91   | 27.55  | 36.36 | 34.59  | 46.00  | -11.41 QP    |
| 6   | 711.674 | 26.04  | 3.58   | 27.70  | 32.58 | 34.50  | 46.00  | -11.50 QP    |



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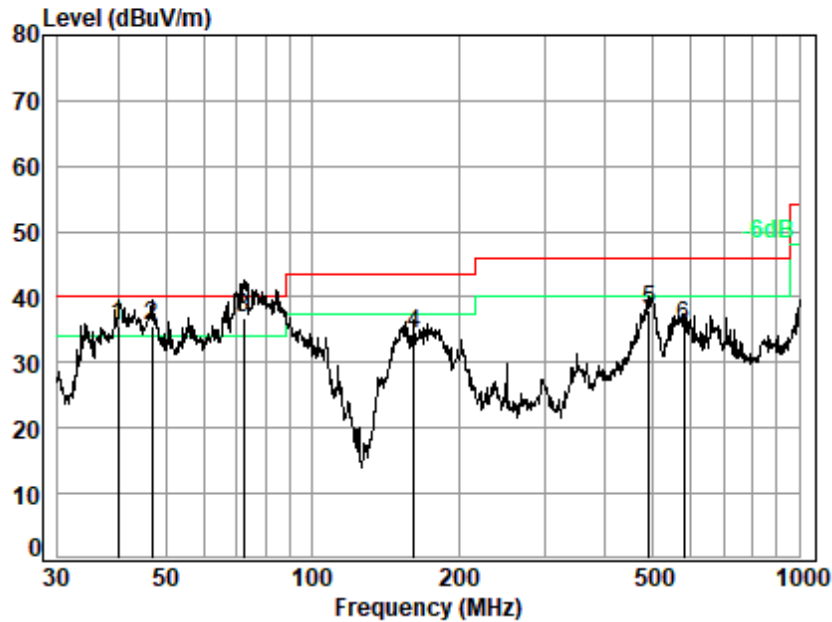
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Test Mode: 08; Polarity: Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No. : 03755AT  
Test Mode: 08

|     | Ant<br>Freq | Cable<br>Factor | Preamp<br>Loss | Read<br>Factor | Level<br>dBuV | Limit<br>dBuV/m | Over<br>Limit | Remark    |
|-----|-------------|-----------------|----------------|----------------|---------------|-----------------|---------------|-----------|
|     | MHz         | dB/m            | dB             | dB             | dBuV          | dBuV/m          | dB            |           |
| 1   | 39.994      | 16.42           | 0.78           | 27.76          | 46.06         | 35.50           | 40.00         | -4.50 QP  |
| 2   | 46.830      | 13.69           | 0.84           | 27.74          | 48.81         | 35.60           | 40.00         | -4.40 QP  |
| 3 q | 72.338      | 10.47           | 1.04           | 27.67          | 52.86         | 36.70           | 40.00         | -3.30 QP  |
| 4   | 162.041     | 13.44           | 1.60           | 27.33          | 46.78         | 34.49           | 43.50         | -9.01 QP  |
| 5   | 490.745     | 22.84           | 2.89           | 27.53          | 39.95         | 38.15           | 46.00         | -7.85 QP  |
| 6   | 578.670     | 23.88           | 3.18           | 27.88          | 36.34         | 35.52           | 46.00         | -10.48 QP |



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### 6.3 Radiated Emissions (Above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Measurement Distance: 3m

Limit:

Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average at 3m distance  
83.54(dBμV/m) peak, 63.54(dBμV/m) average at 1m distance

Detector: Peak for pre-scan (1MHz resolution bandwidth) 1GHz to 40GHz

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

Operating Environment:

Temperature: 22.4 °C

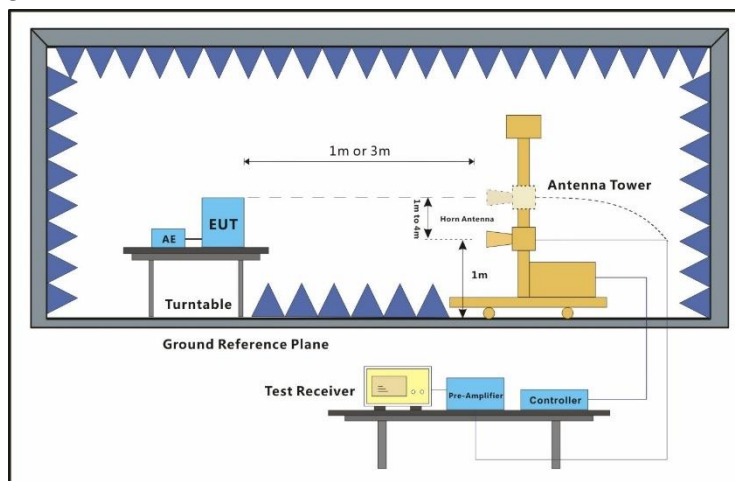
Humidity: 55.2 % RH

Atmospheric Pressure: 1020 mbar

#### 6.3.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description                                      |
|-----------------------|-----------|--------------------------------------------------|
| Final test            | 08        | Normal Operation:POE+BLE+2.4G Wi-Fi+5G Wi-Fi+LAN |

#### 6.3.3 Test Setup Diagram



#### 6.3.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

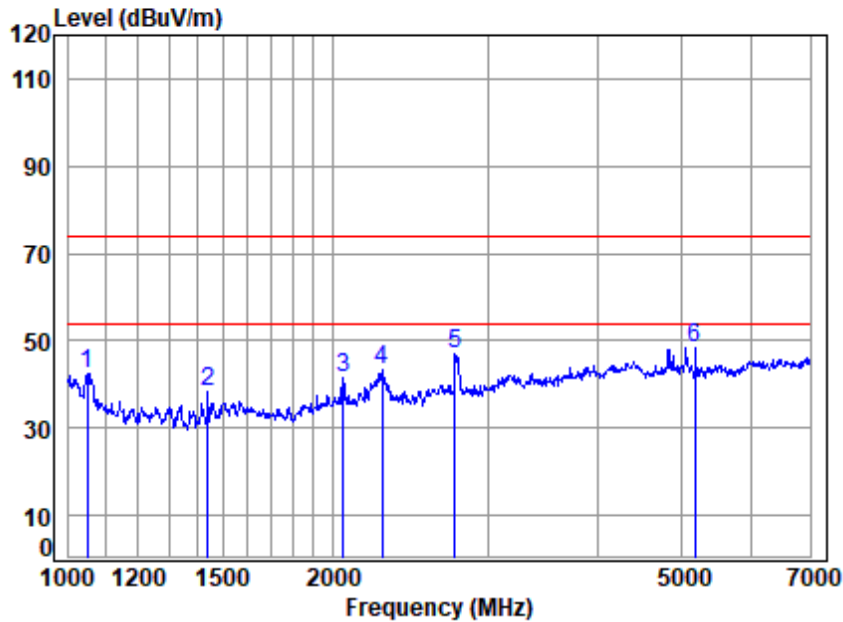
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Test Mode: 08; Polarity: Horizontal



Site : chamber  
Condition: 3m HORIZONTAL  
Job No : 03755AT  
Mode : 08

|     | Freq     | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|-----|----------|------------|------------|---------------|------------|--------|------------|------------|--------|
|     | MHz      | dB         | dB/m       | dB            | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1   | 1049.850 | 4.55       | 24.70      | 61.32         | 74.52      | 42.45  | 74.00      | -31.55     | Peak   |
| 2   | 1441.712 | 4.57       | 25.27      | 61.47         | 70.01      | 38.38  | 74.00      | -35.62     | Peak   |
| 3   | 2054.406 | 5.66       | 28.98      | 61.62         | 68.61      | 41.63  | 74.00      | -32.37     | Peak   |
| 4   | 2277.595 | 6.10       | 28.18      | 61.64         | 70.65      | 43.29  | 74.00      | -30.71     | Peak   |
| 5   | 2756.107 | 6.61       | 29.71      | 61.67         | 72.37      | 47.02  | 74.00      | -26.98     | Peak   |
| 6 p | 5177.354 | 8.53       | 33.95      | 60.89         | 66.79      | 48.38  | 74.00      | -25.62     | Peak   |



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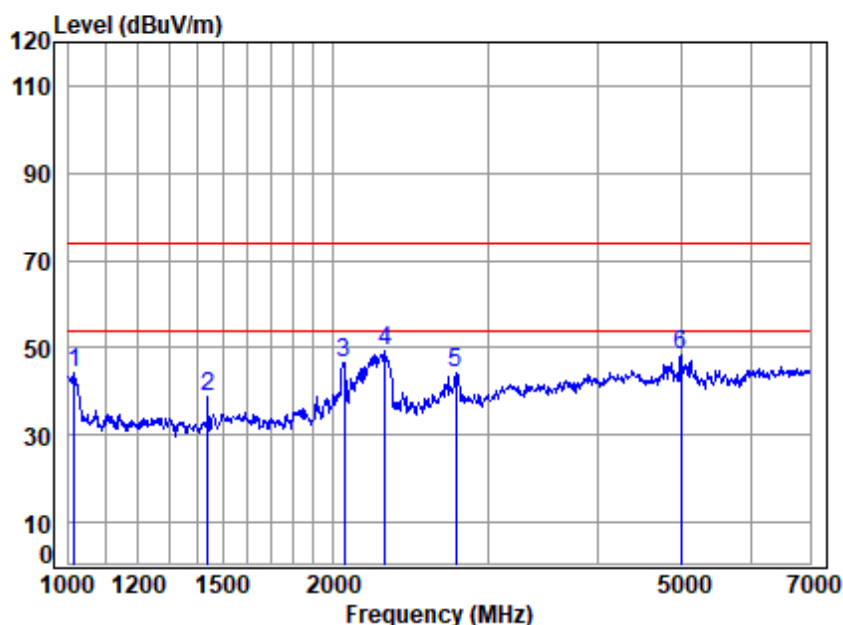
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Test Mode: 08; Polarity: Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No : 03755AT  
Mode : 08

|     | Freq     | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|-----|----------|------------|------------|---------------|------------|--------|------------|------------|--------|
|     | MHz      | dB         | dB/m       | dB            | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1   | 1015.689 | 4.55       | 25.80      | 61.31         | 75.33      | 44.37  | 74.00      | -29.63     | Peak   |
| 2   | 1438.909 | 4.57       | 25.22      | 61.47         | 70.47      | 38.79  | 74.00      | -35.21     | Peak   |
| 3   | 2062.417 | 5.67       | 28.95      | 61.62         | 73.60      | 46.60  | 74.00      | -27.40     | Peak   |
| 4 p | 2295.392 | 6.13       | 28.35      | 61.64         | 76.36      | 49.20  | 74.00      | -24.80     | Peak   |
| 5   | 2761.475 | 6.61       | 29.72      | 61.67         | 69.75      | 44.41  | 74.00      | -29.59     | Peak   |
| 6   | 4989.431 | 8.08       | 34.44      | 60.96         | 66.68      | 48.24  | 74.00      | -25.76     | Peak   |



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## 7 Test Setup Photo

Refer to Appendix – Part 15B Test Setup Photo for SZCR2410003755AT

## 8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2410003755AT

- End of the Report -

