

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

SZEMC-TRF-01 Rev. A/1

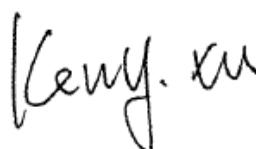
Report No.: SZCR250100009501

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TEST REPORT

Application No.:	SZCR2501000095AT
Applicant:	Grandstream Networks, Inc.
Address of Applicant:	126 Brookline Ave., 3rd Floor, Boston, Massachusetts 02215 United States
Manufacturer:	Grandstream Networks, Inc.
Address of Manufacturer:	126 Brookline Ave., 3rd Floor, Boston, Massachusetts 02215 United States
Equipment Under Test (EUT):	
EUT Name:	Long-Range Dual-band Wi-Fi 7 Access Point/Bridge
Model No.:	GWN7670LR
Trade Mark:	GRANDSTREAM
FCC ID:	YZZGWN7670LR
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2025-01-07
Date of Test:	2025-01-23 to 2025-03-06
Date of Issue:	2025-06-04
Test Result:	Pass*

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



Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing & EEC Laboratory

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-06-04		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.
Network Cable	SGS	N/A	REF. No.SEA11A00
Laptop	Lenovo	L480	REF. No.SEA18C01F
Mouse	Lenovo	M-U0025-O	REF. No.:SEA24A01
Adapter	RISUNIC TECHNOLOGY SHENZHEN CO.,LTD.	GP-H480-065G	2308-0130053

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at Mains Terminals (150kHz-30MHz)	± 3.1dB
Radiated Emissions (30MHz-1GHz)	± 6.0dB for 3m; ± 5.0dB for 10m
Radiated Emissions (Above 1GHz)	± 4.6dB

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (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:

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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

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	2025-01-08	2026-01-07
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	2024-03-14	2025-03-13
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

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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 Indicator	deli	8838	SEM002-33	2024-07-24	2025-07-23
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: 22.5 °C

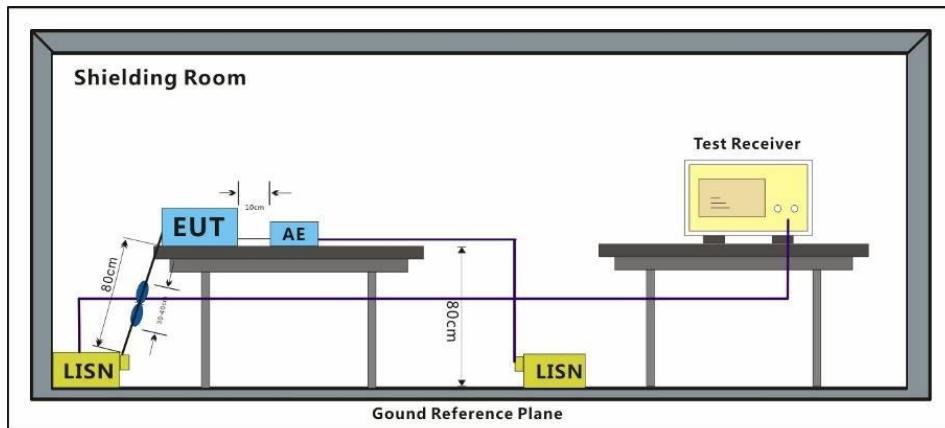
Humidity: 44.5 % RH

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+SFP

6.1.3 Test Setup Diagram



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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



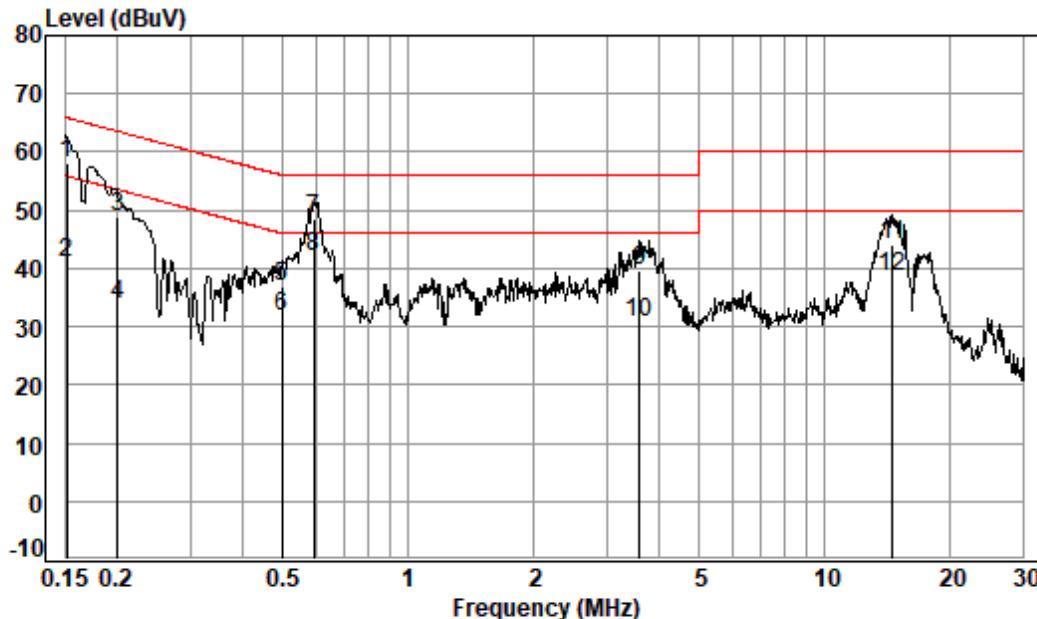
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Test Mode: 08; Line: Live line



Site : Shielding Room

Condition: Line

Job No. : 00095AT

Test mode: 08

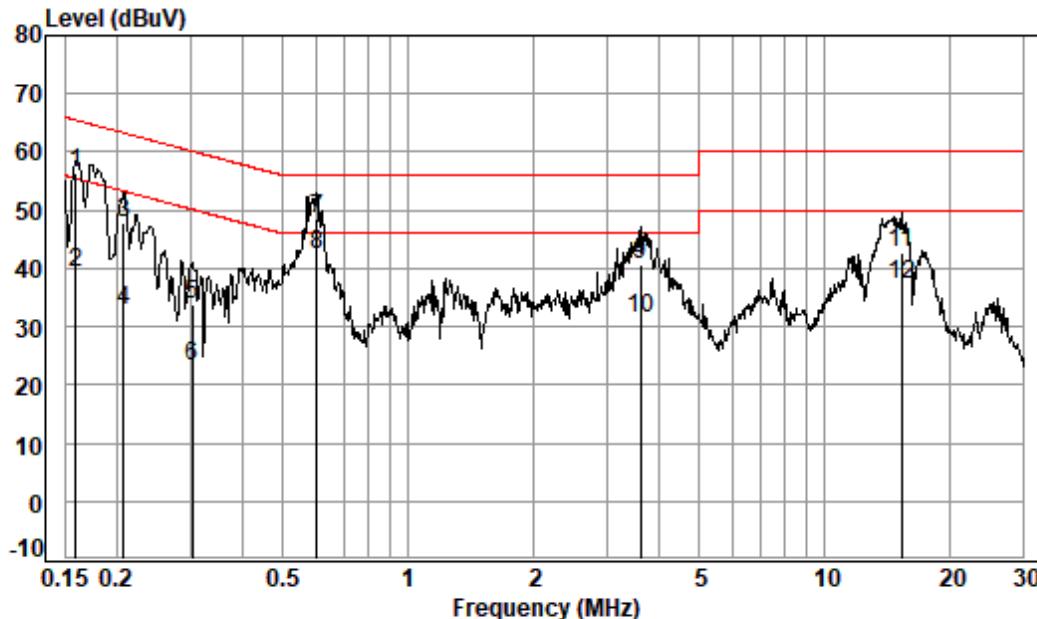
Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Over Limit		Remark
					MHz	dB	
1	0.1516	0.06	10.19	47.92	58.17	65.91	-7.74 QP
2	0.1516	0.06	10.19	30.78	41.03	55.91	-14.88 Average
3	0.2007	0.06	10.12	38.73	48.91	63.58	-14.67 QP
4	0.2007	0.06	10.12	23.51	33.69	53.58	-19.89 Average
5	0.4967	0.08	9.54	27.16	36.78	56.05	-19.27 QP
6	0.4967	0.08	9.54	21.97	31.59	46.05	-14.46 Average
7 *	0.5948	0.08	9.60	38.81	48.49	56.00	-7.51 QP
8 *	0.5948	0.08	9.60	32.44	42.12	46.00	-3.88 Average
9	3.5843	0.11	9.65	30.01	39.77	56.00	-16.23 QP
10	3.5843	0.11	9.65	20.85	30.61	46.00	-15.39 Average
11	14.5171	0.26	9.90	33.86	44.02	60.00	-15.98 QP
12	14.5171	0.26	9.90	28.33	38.49	50.00	-11.51 Average



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Test Mode: 08; Line: Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 00095AT

Test mode: 08

Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Over Limit		Remark	
					MHz	dBuV	dBuV	dB
1	0.1598	0.06	10.13	46.19	56.38	65.47	-9.09	QP
2	0.1598	0.06	10.13	29.02	39.21	55.47	-16.26	Average
3	0.2072	0.06	10.05	37.68	47.79	63.32	-15.53	QP
4	0.2072	0.06	10.05	22.61	32.72	53.32	-20.60	Average
5	0.3035	0.07	9.77	24.03	33.87	60.15	-26.28	QP
6	0.3035	0.07	9.77	13.41	23.25	50.15	-26.90	Average
7 *	0.6043	0.08	9.68	38.81	48.57	56.00	-7.43	QP
8 *	0.6043	0.08	9.68	32.59	42.35	46.00	-3.65	Average
9	3.6034	0.11	9.55	31.01	40.67	56.00	-15.33	QP
10	3.6034	0.11	9.55	21.81	31.47	46.00	-14.53	Average
11	15.2261	0.26	9.87	32.61	42.74	60.00	-17.26	QP
12	15.2261	0.26	9.87	27.19	37.32	50.00	-12.68	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)	dB μ V/m (At 10m)	
	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: 21.2 °C

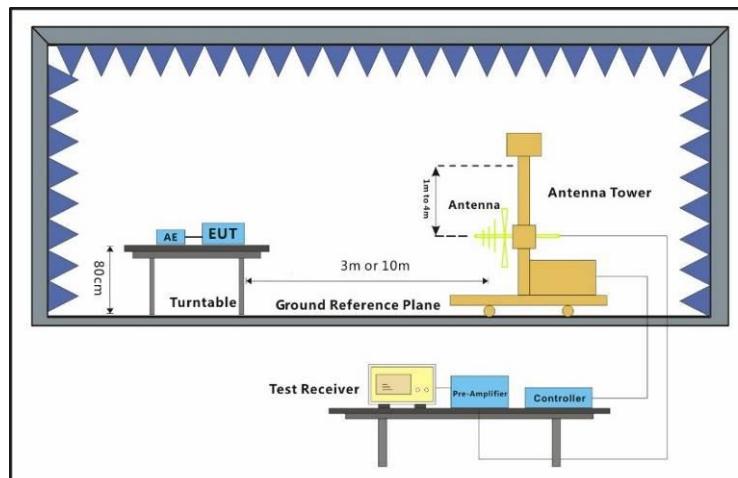
Humidity: 46.9 % RH

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+SFP

6.2.3 Test Setup Diagram



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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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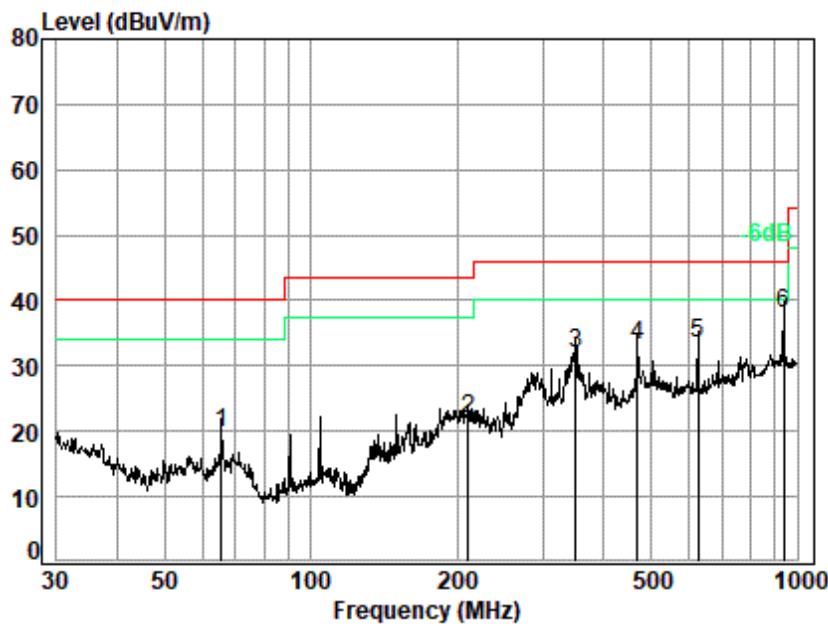
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Test Mode: 08; Polarity: Horizontal



Site : chamber
 Condition: 3m HORIZONTAL
 Job No. : 00095AT
 Test Mode: 08

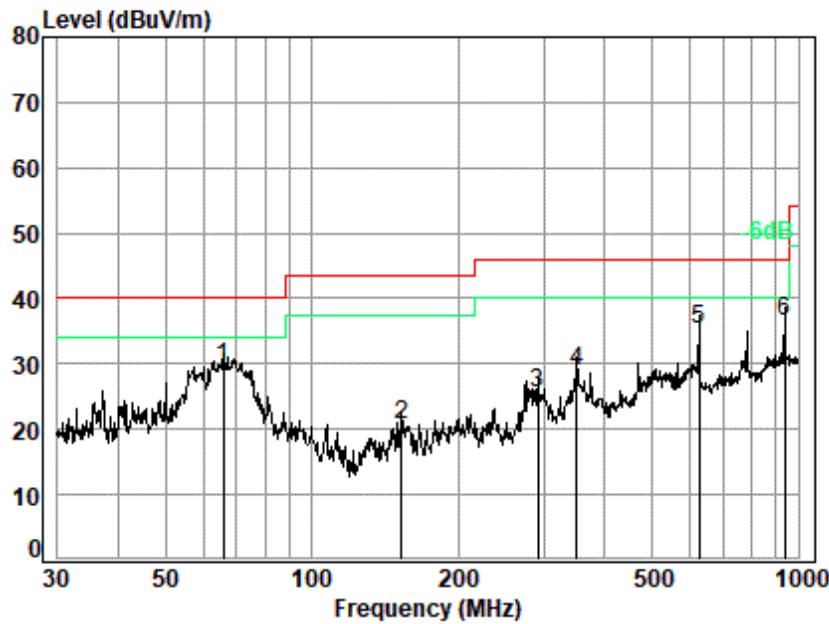
Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Over Limit Remark	
								dB	
1	65.343	11.00	0.99	27.69	35.60	19.90	40.00	-20.10	QP
2	210.786	14.78	1.82	27.12	32.40	21.88	43.50	-21.62	QP
3	350.477	19.94	2.41	26.96	36.59	31.98	46.00	-14.02	QP
4	468.876	22.12	2.82	27.44	35.53	33.03	46.00	-12.97	QP
5	625.078	25.06	3.32	27.91	32.88	33.35	46.00	-12.65	QP
6 q	938.833	28.15	4.22	26.49	32.09	37.97	46.00	-8.03	QP

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Test Mode: 08; Polarity: Vertical



Site : chamber
 Condition: 3m VERTICAL
 Job No. : 00095AT
 Test Mode: 08

	Ant Freq	Cable Factor	Preamp Loss	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	65.803	10.95	0.99	27.69	45.33	29.58	40.00	-10.42 QP
2	153.200	13.39	1.55	27.37	33.06	20.63	43.50	-22.87 QP
3	291.036	17.12	2.17	26.79	33.13	25.63	46.00	-20.37 QP
4	350.477	19.94	2.41	26.96	33.55	28.94	46.00	-17.06 QP
5	625.078	25.06	3.32	27.91	34.85	35.32	46.00	-10.68 QP
6 q	938.833	28.15	4.22	26.49	30.74	36.62	46.00	-9.38 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(dB μ V/m) peak, 54(dB μ V/m) average at 3m distance

83.54(dB μ V/m) peak, 63.54(dB μ V/m) average at 1m distance

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

6.3.1 E.U.T. Operation

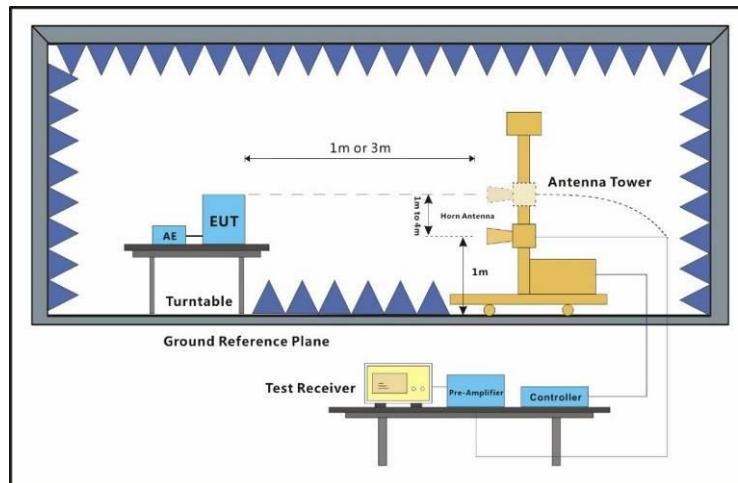
Operating Environment:

Temperature: 21.5 °C Humidity: 41.3 % 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+SFP

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 shown in the graphic is the limit in standard used in this section.

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

Remark: For frequency above 6GHz, no emission was found and it's far from the limit, so it's not recorded.

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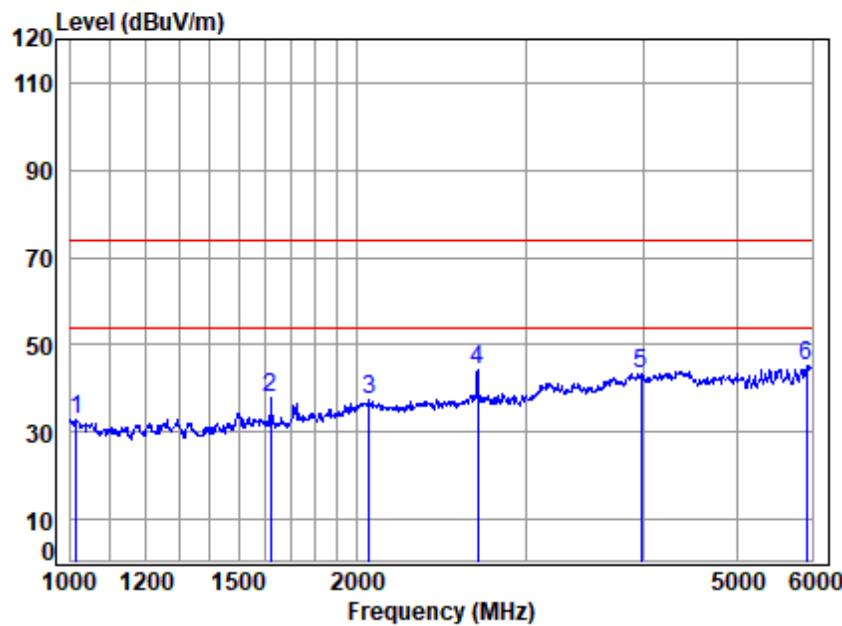
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Test Mode: 08; Polarity: Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00095AT/00096AT
Mode : 08

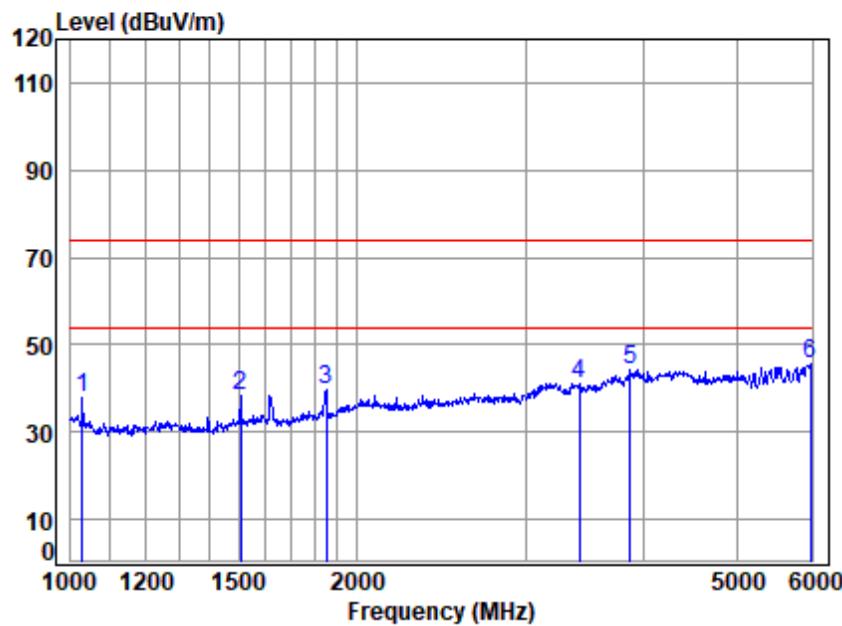
Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Factor	Level	Level	
1	1014.437	4.55	25.84	54.61	57.11	32.89	74.00 -41.11 Peak
2	1622.187	4.83	26.58	54.81	61.13	37.73	74.00 -36.27 Peak
3	2058.709	5.66	28.97	54.91	57.54	37.26	74.00 -36.74 Peak
4	2674.269	6.57	29.96	54.97	62.72	44.28	74.00 -29.72 Peak
5	3966.417	8.45	33.34	54.32	55.89	43.36	74.00 -30.64 Peak
6 p	5925.216	9.49	34.65	53.18	54.12	45.08	74.00 -28.92 Peak

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Test Mode: 08; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 00095AT/00096AT
Mode : 08

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit		Over Limit	Remark
					Level	Line		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 1029.083	4.55	25.37	54.61	62.59	37.90	74.00	-36.10	Peak
2 1507.289	4.59	26.83	54.78	61.75	38.39	74.00	-35.61	Peak
3 1855.505	5.29	27.04	54.87	62.10	39.56	74.00	-34.44	Peak
4 3418.313	6.86	32.18	54.68	56.77	41.13	74.00	-32.87	Peak
5 3868.158	8.14	33.35	54.38	57.23	44.34	74.00	-29.66	Peak
6 p 5978.538	9.51	34.81	53.12	54.49	45.69	74.00	-28.31	Peak

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7 Test Setup Photo

Refer to Appendix – Part 15B Test Setup Photo for SZCR2501000095AT.



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8 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for SZCR2501000095AT.

- End of the Report -



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