

TEST REPORT

Application No.: SZCR2505002214WM
Applicant: Sonim Technologies, Inc.
Address of Applicant: 4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA
Manufacturer: Sonim Technologies, Inc.
Address of Manufacturer: 4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA
Equipment Under Test (EUT):
EUT Name: smartphone
Model No.: X800
Type No.: S6002
Trade Mark: Sonim
FCC ID: WYPS6002
Standard(s) : 47 CFR Part 15, Subpart E 15.407
Date of Receipt: 2025-05-28
Date of Test: 2025-05-31 to 2025-06-07
Date of Issue: 2025-06-11

Test Result:	Pass*
---------------------	--------------

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

Keny Xu

Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch (EMC) Laboratory

Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn
 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR250500221406
Page: 2 of 24

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-06-11		Original

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



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

2 Test Summary

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

Remark:

Model No.: X800

This test report (Ref. No.: SZCR250500221406) is only valid with the original test report (Ref. No.: SZCR240300076709).

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 fully retest.

Therefore in this report the section 2 items were fully retested on model and shown the data in this report, other tests please refer to original report SZCR240300076709.



3 Contents

	Page
1 Cover Page	1
2 Test Summary	3
3 Contents	4
4 General Information	5
4.1 Details of E.U.T.	5
4.2 Description of Support Units	5
4.3 Measurement Uncertainty	6
4.4 Test Location	7
4.5 Test Facility	7
4.6 Deviation from Standards	7
4.7 Abnormalities from Standard Conditions	7
5 Equipment List	8
6 Radio Spectrum Matter Test Results	10
6.1 Radiated Emissions (Below 1GHz)	10
6.1.1 E.U.T. Operation	10
6.1.2 Test Mode Description	10
6.1.3 Test Setup Diagram	10
6.1.4 Measurement Procedure and Data	11
6.2 Radiated Emissions (Above 1GHz)	14
6.2.1 E.U.T. Operation	14
6.2.2 Test Mode Description	14
6.2.3 Test Setup Diagram	14
6.2.4 Measurement Procedure and Data	15
6.3 Radiated Emissions which fall in the restricted bands	18
6.3.1 E.U.T. Operation	18
6.3.2 Test Mode Description	18
6.3.3 Test Setup Diagram	18
6.3.4 Measurement Procedure and Data	19
7 Test Setup Photo	24
8 EUT Constructional Details (EUT Photos)	24



4 General Information

4.1 Details of E.U.T.

Power supply:	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.
Cable(s):	USB type C cable M/N: HX-YLMK-16 1.5m shielded cable without ferrite core USB type C cable manufacturer: HUIZHOU WASHIN ELECTRONICS CO.,LTD
IEEE 802.11 WLAN Mode Supported:	<input checked="" type="checkbox"/> 802.11ax (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ax (40 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ax (80 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ax (160 MHz channel bandwidth)
Operation Frequency:	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
Type of Modulation:	OFDMA
FCC Classification:	6GHz Low Power Indoor Client (6XD)
Antenna Type:	PIFA Antenna
Antenna Ports:	<input checked="" type="checkbox"/> Ant 9, <input checked="" type="checkbox"/> Ant 10
Antenna Gain:	ANT9:UNII-5:-2.37dBi; UNII-6:-0.84dBi; UNII-7:-0.64dBi; UNII-8:-3.8dBi; ANT10:UNII-5:0.14dBi; UNII-6:-1.21dBi; UNII-7:-1.63dBi; UNII-8:0.44 dBi;
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.
Cable Loss (for RF conducted test):	1.5dB

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.
--	--	--	--

The EUT has been tested as an independent unit.



4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (Below 1GHz)	$\pm 6.0\text{dB}$ for 3m; $\pm 5.0\text{dB}$ for 10m
Radiated Emissions (Above 1GHz)	$\pm 4.6\text{dB}$ (1-18GHz); $\pm 4.8\text{dB}$ (18-40GHz)
Radiated Emissions which fall in the restricted bands	$\pm 6.0\text{dB}$ (below 1GHz); $\pm 4.6\text{dB}$ (above 1GHz);
<p>Remark:</p> <p>The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results</p> <ul style="list-style-type: none"> – 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. 	



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR250500221406

Page: 7 of 24

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



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

Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn
中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

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 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 V8.2014-6-27	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 Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2025-01-07	2026-01-06
Low Noise Amplifier 1G-18GHz	Tonscend	TAP01018050	SZ-WRG-M-051	2025-01-07	2026-01-06
Low Noise Amplifier 18G-40GHz	Tonscend	TAP18040048	SZ-WRG-M-052	2025-01-08	2026-01-07
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SZ-WRG-M-055	2023-12-21	2025-12-20
SHF-EHF Horn 15GHz-40GHz	SCHWARZBECK	BBHA 9170	SZ-WRG-M-056	2023-12-25	2025-12-24
RSE Test Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2025-01-06	2028-01-05
Humidity and Temperature Indicator	deli	8838	SEM002-46	2024-07-24	2025-07-23



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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR250500221406

Page: 9 of 24

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

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	2025-03-03	2026-03-02



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

Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

6 Radio Spectrum Matter Test Results

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

Measurement Distance: 3m

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C

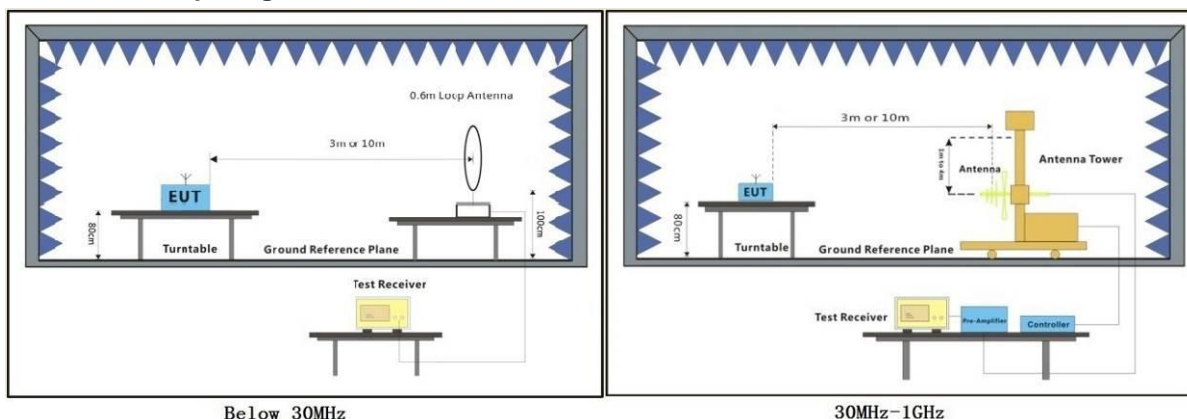
Humidity: 42.5 % RH

Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode 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



6.1.4 Measurement Procedure and Data

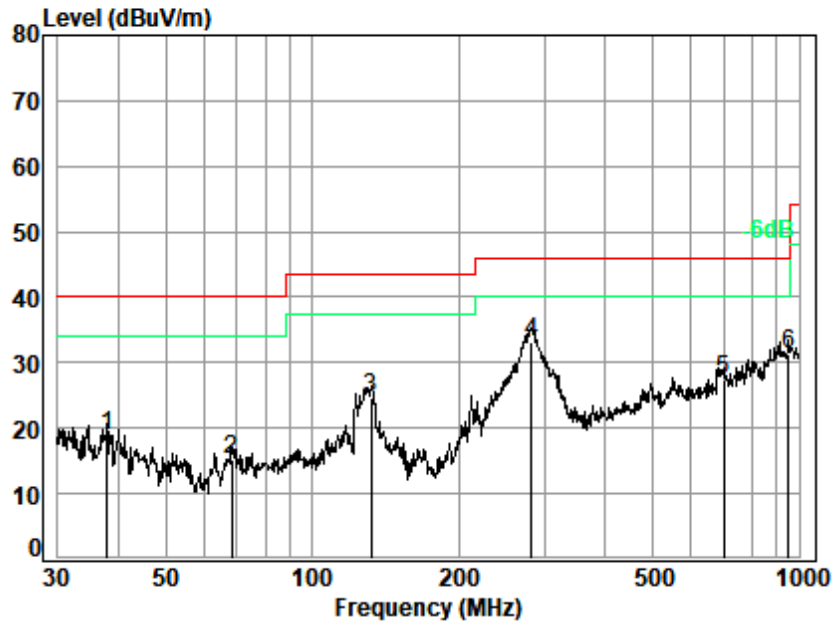
- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, 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.



Test Mode: 09; Polarity: Horizontal

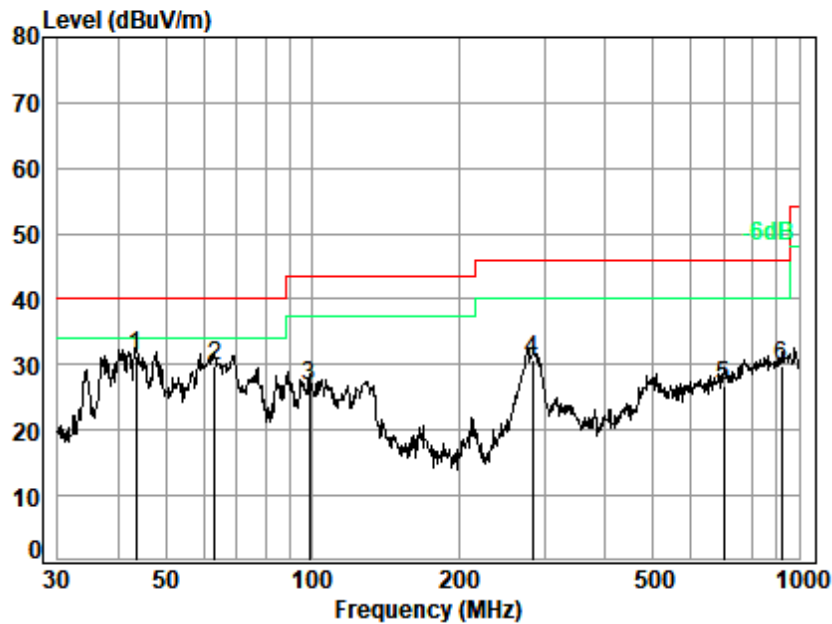


Site : chamber
Condition: 3m HORIZONTAL
Job No. : 02214WM
Test Mode: 09

	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	37.812	17.38	0.76	27.77	28.39	18.76	40.00	-21.24 QP
2	68.391	10.70	1.01	27.68	31.03	15.06	40.00	-24.94 QP
3	132.221	11.14	1.44	27.45	39.38	24.51	43.50	-18.99 QP
4 q	281.995	16.91	2.13	26.83	41.02	33.23	46.00	-12.77 QP
5	699.305	25.93	3.54	27.73	25.50	27.24	46.00	-18.76 QP
6	952.094	28.17	4.26	26.39	25.40	31.44	46.00	-14.56 QP



Test Mode: 09; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : 02214WM
Test Mode: 09

		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 q	43.506	14.74	0.81	27.75	43.62	31.42	40.00	-8.58	QP
2	63.092	11.16	0.97	27.70	45.40	29.83	40.00	-10.17	QP
3	98.487	12.22	1.21	27.59	40.90	26.74	43.50	-16.76	QP
4	283.979	16.90	2.14	26.82	38.59	30.81	46.00	-15.19	QP
5	699.305	25.93	3.54	27.73	24.93	26.67	46.00	-19.33	QP
6	922.516	28.19	4.18	26.60	24.10	29.87	46.00	-16.13	QP



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

Measurement Distance: 3m

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

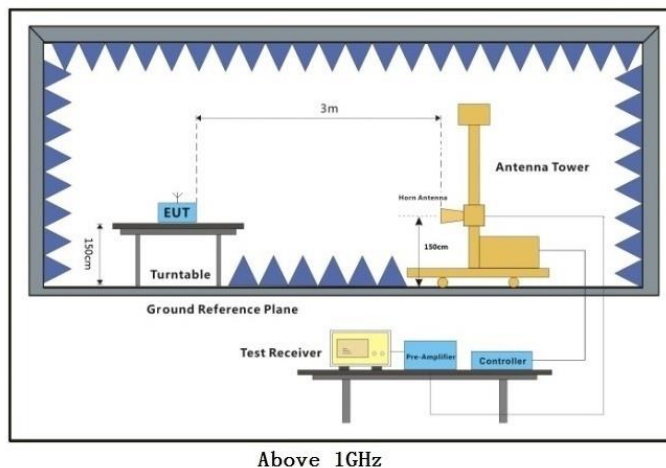
Humidity: 45.7 % RH

Atmospheric Pressure: 1020 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode 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



6.2.4 Measurement Procedure and Data

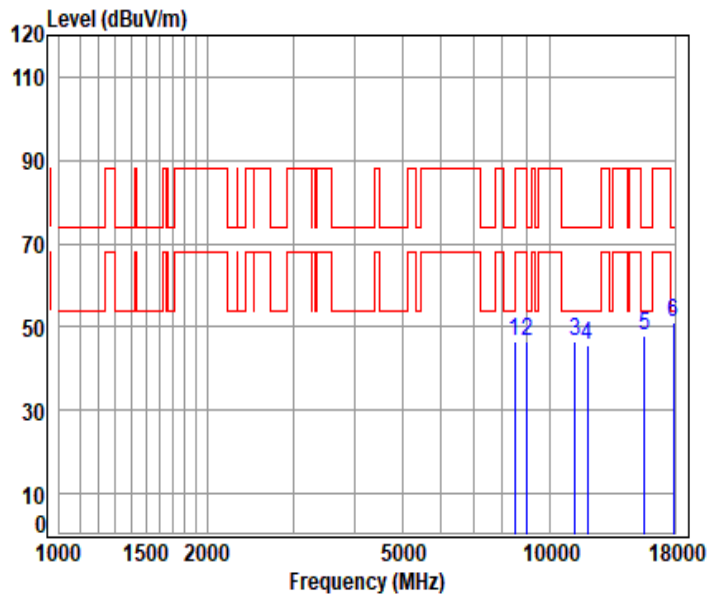
- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which 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 $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



11ax_40M_TX_CH_003_Horizontal



Condition: 3m HORIZONTAL

Job No : 02214WM

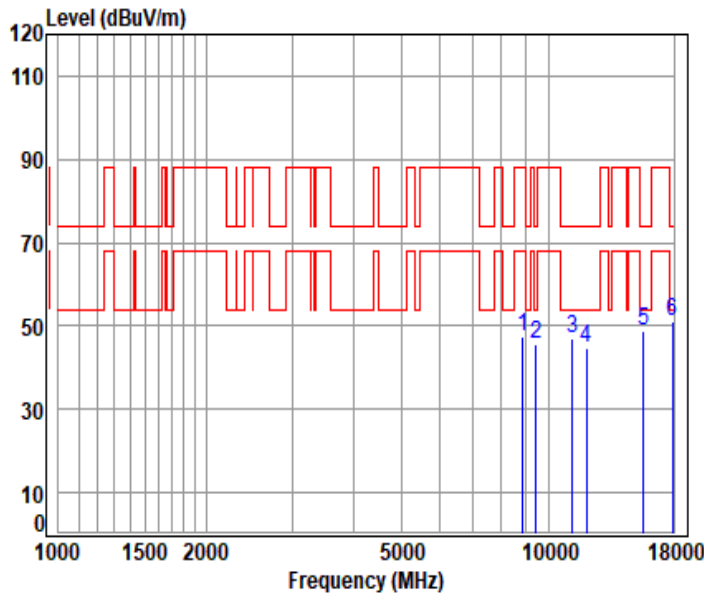
Mode : 5965 TX RSE

: Wi-Fi 6E 11x40

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	8501.659	12.74	38.30	56.31	51.77	46.50	88.20	-41.70	peak
2	9005.517	12.36	38.60	56.13	51.83	46.66	74.00	-27.34	peak
3	11255.350	14.48	39.66	55.41	47.99	46.72	74.00	-27.28	peak
4	11930.000	14.57	39.73	55.22	46.55	45.63	74.00	-28.37	peak
5	15593.230	17.09	38.51	54.04	46.57	48.13	74.00	-25.87	peak
6	pp17895.000	19.25	43.07	54.19	42.93	51.06	74.00	-22.94	peak



11ax_40M_TX_CH_003_Vertical



Condition: 3m VERTICAL

Job No : 02214WM

Mode : 5965 TX RSE

: Wi-Fi 6E 11x40

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	8853.455	12.53	38.51	56.18	52.43	47.29	88.20	-40.91 peak
2	9431.549	12.44	38.80	55.98	50.32	45.58	74.00	-28.42 peak
3	11173.500	14.29	39.57	55.43	48.56	46.99	74.00	-27.01 peak
4	11930.000	14.57	39.73	55.22	45.69	44.77	74.00	-29.23 peak
5	15593.230	17.09	38.51	54.04	47.37	48.93	74.00	-25.07 peak
6	pp17895.000	19.25	43.07	54.19	43.03	51.16	74.00	-22.84 peak



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

Measurement Distance: 3m

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

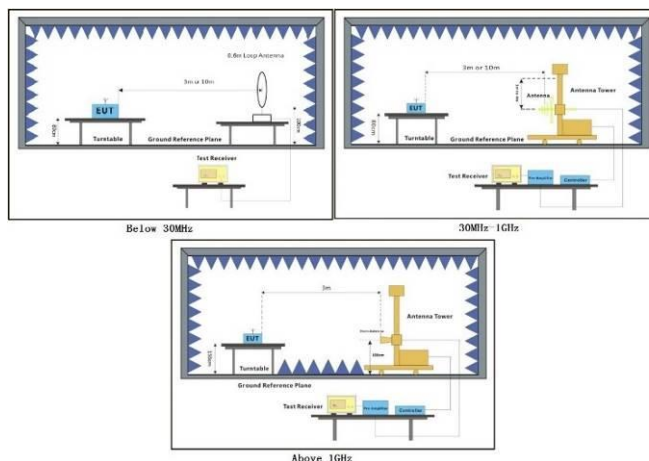
Humidity: 50.8 % RH

Atmospheric Pressure: 1020 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode 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



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.

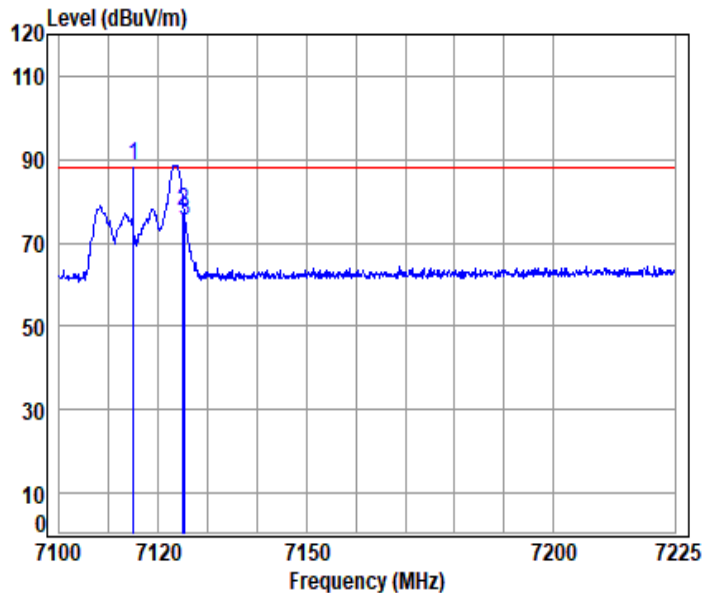
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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 $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



11ax_20M_Partial_RU26_TX_CH_233_Horizontal-Peak



Condition: 3m HORIZONTAL

Job No : 02214WM

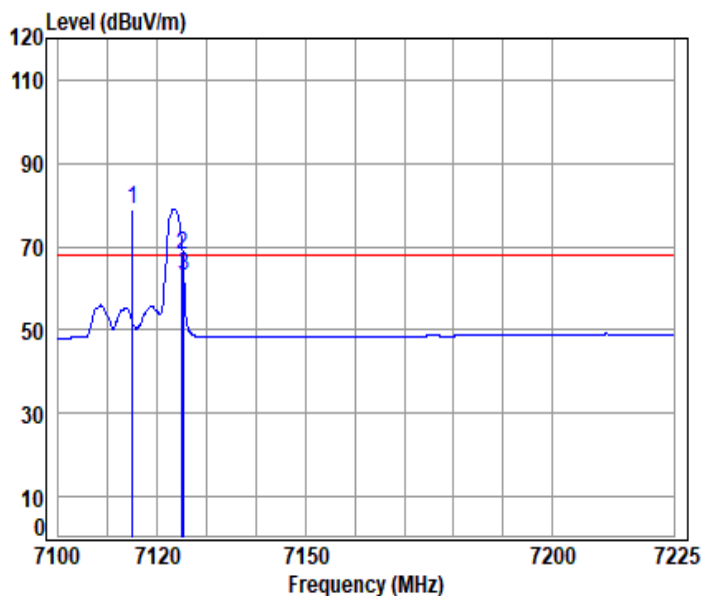
Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU26

		Cable	Ant	Preamp	Read		Limit	Over	
	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	31.16	71.47	88.55	88.20	0.35	peak
2	7125.020	11.82	36.45	31.17	60.29	77.39	88.20	-10.81	peak
3	7125.323	11.82	36.45	31.17	58.12	75.22	88.20	-12.98	peak



11ax_20M_Partial_RU26_TX_CH_233_Horizontal-AVG



Condition: 3m HORIZONTAL

Job No : 02214WM

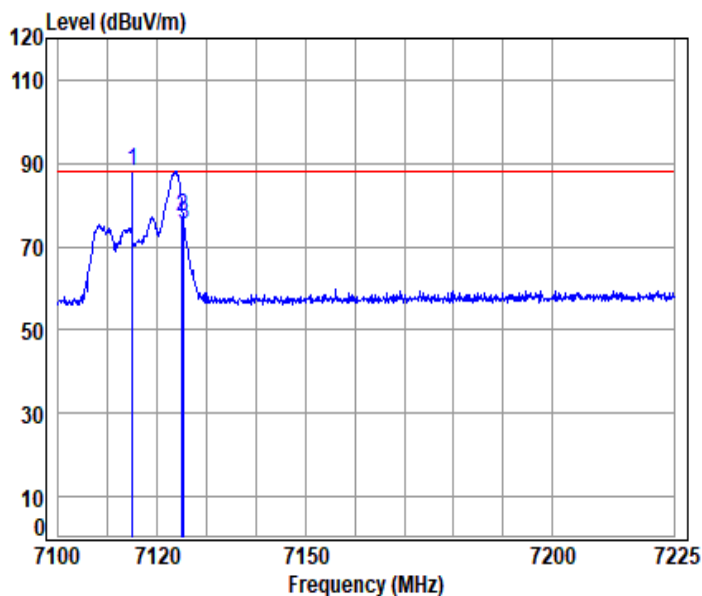
Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU26

		Cable	Ant	Preamp	Read		Limit	Over	
	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	31.16	61.83	78.91	68.20	10.71	Average
2	7125.020	11.82	36.45	31.17	50.93	68.03	68.20	-0.17	Average
3	7125.323	11.82	36.45	31.17	45.85	62.95	68.20	-5.25	Average



11ax_20M_Partial_RU26_TX_CH_233_Vertical-Peak



Condition: 3m VERTICAL

Job No : 02214WM

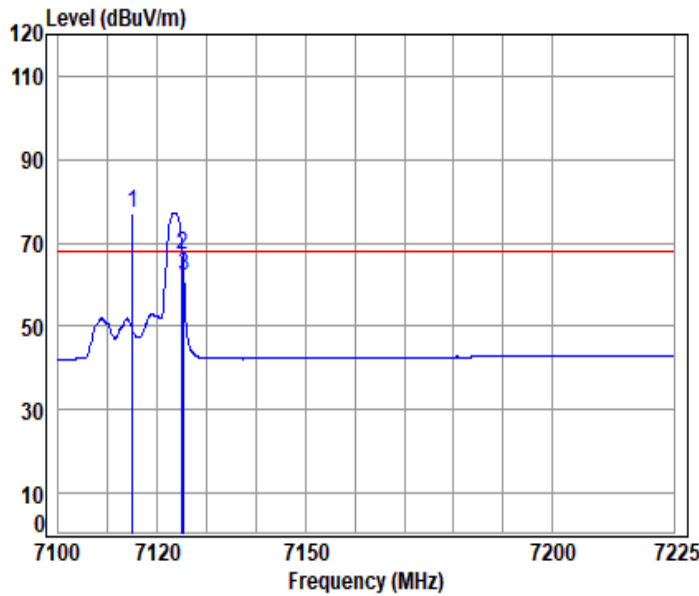
Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU26

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	7115.000	11.82	36.45	31.17	70.77	87.87	88.20	-0.33	Peak
2	7125.020	11.82	36.45	31.17	60.00	77.10	88.20	-11.10	Peak
3	7125.323	11.82	36.45	31.17	58.04	75.14	88.20	-13.06	Peak



11ax_20M_Partial_RU26_TX_CH_233_Vertical-AVG



Condition: 3m VERTICAL

Job No : 02214WM

Mode : 7115 Band edge

: Wi-Fi 6E 11ax20 RU26

		Cable	Ant	Preamp	Read	Limit	Over	
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	31.16	60.18	77.26	68.20	9.06	Average
2 7125.020	11.82	36.45	31.17	50.00	67.10	68.20	-1.10	Average
3 7125.323	11.82	36.45	31.17	44.90	62.00	68.20	-6.20	Average



7 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2505002214WM

8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2505002214WM

- End of the Report -

