



TEST REPORT

Application No.:	SHCR2208001794CO
FCC ID:	2A826RTK-EG25G
Applicant:	Vivax-Metrotech (Shanghai) Ltd.
Address of Applicant:	3/F No.90, Lane 1122 Qinzhou Rd.(N), Shanghai, China
Manufacturer:	Vivax-Metrotech (Shanghai) Ltd.
Address of Manufacturer:	3/F No.90, Lane 1122 Qinzhou Rd.(N), Shanghai, China
Factory:	Vivax-Metrotech (Shanghai) Ltd.
Address of Factory:	3/F No.90, Lane 1122 Qinzhou Rd.(N), Shanghai, China
Equipment Under Test (EUT):	
EUT Name:	Pipe and Cable Locator
Model No.:	vLoc3 RTK-Pro
	47 CFR Part 2
	47 CFR Part 22
Standard(s) :	47 CFR Part 24
	47 CFR Part 27
	47 CFR Part 90
Date of Receipt:	2022-08-24
Date of Test:	2022-10-01 to 2022-12-20
Date of Issue:	2022-12-20
Test Result:	Pass

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

parlam zhan

Parlam Zhan
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-12-20	/

Authorized for issue by:			
		Bill Wu	
		Bill Wu /Project Engineer	
		Parlam Zhan	
		Parlam Zhan /Reviewer	

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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §22.913 §24.232 §27.50 §90.635	ERP≤7W(LTE Band 5,26) ERP≤ 3W(LTE Band 12,13) EIRP≤ 2W(LTE Band 2,7,25,38,41) EIRP≤ 1W(LTE Band 4)	PASS
Peak-Average Ratio	§24.232 §27.50	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h)	OBW:No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051 §22.917 §24.238 §27.53 §90.691	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block ≤ -13dBm(LTE Band7, 38, 41<5.5MHz) -25dBm(LTE Band7, 38, 41≥5.5MHz)	PASS
Spurious emissions at antenna terminals	§2.1051 §22.917 §24.238 §27.53 §90.691	≤ -13dBm(LTE Band2,4,5,12,13,25,26) ≤ -25dBm(LTE Band7,38,41)	PASS
Radiated spurious emission	§2.1051 §22.917 §24.238 §27.53 §90.691	≤ -13dBm(LTE Band2,4,5,12,13,25,26) ≤ -25dBm(LTE Band7,38,41)	PASS
Frequency stability	§2.1055, §22.355, §24.235 §27.54	≤ ±2.5ppm.	PASS

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3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	6
4.1 Details of E.U.T	6
4.2 Test Frequency	7
4.3 Test Environment	10
4.4 Description of Support Units	10
4.5 Measurement Uncertainty	11
4.6 Test Location	12
TEST FACILITY	12
4.7 Deviation from Standards	12
4.8 Abnormalities from Standard Conditions	12
5 EQUIPMENT LIST	13
6 RADIO SPECTRUM MATTER TEST RESULTS	14
6.1 Effective (Isotropic) Radiated Power Output Data	14
6.1.1 E.U.T. Operation	14
6.1.2 Test Setup Diagram	14
6.1.3 Measurement Data	14
6.2 Peak-Average Ratio	15
6.2.1 E.U.T. Operation	15
6.2.2 Test Setup Diagram	15
6.2.3 Measurement Data	15
6.3 Bandwidth	16
6.3.1 E.U.T. Operation	16
6.3.2 Test Setup Diagram	16
6.3.3 Measurement Data	16
6.4 Band Edge Compliance	17
6.4.1 E.U.T. Operation	17
6.4.2 Test Setup Diagram	17
6.4.3 Measurement Data	17
6.5 Spurious emissions at antenna terminals	18
6.5.1 E.U.T. Operation	18
6.5.2 Test Setup Diagram	18
6.5.3 Measurement Data	18
6.6 Radiated spurious emission	19
6.6.1 E.U.T. Operation	19
6.6.2 Test Setup Diagram	19
6.6.3 Measurement Procedure and Data	20

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6.7	<i>Frequency stability</i>	31
6.7.1	<i>E.U.T. Operation</i>	31
6.7.2	<i>Test Setup Diagram</i>	31
6.7.3	<i>Measurement Data</i>	31
6.8	<i>Modulation Characteristics</i>	32
6.8.1	<i>E.U.T. Operation</i>	32
6.8.2	<i>Test Setup Diagram</i>	32
6.8.3	<i>Measurement Data</i>	32
2	TEST SETUP PHOTO	33
3	EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	33



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 7.2V 6700mAh rechargeable battery Charging adapter: Model:GM36-084200-2 Input:100-240V~50/60Hz Output:8.4V 2A
Test voltage:	DC 7.2V
Serial Number:	22601181026
Firmware version:	1.41 Release
Sample Type:	Portable production
LTE Operation Frequency Band:	LTE Band 2,4,5,7,12,13,25,26,38,41
Modulation Type:	UL: QPSK, 16QAM, 64QAM DL: QPSK, 16QAM, 64QAM
Antenna Type:	FPC Antenna
Antenna Gain:	Band 2: 2.3dBi (Provided by the manufacturer) Band 4: 2.3dBi (Provided by the manufacturer) Band 5: 0.4dBi (Provided by the manufacturer) Band 7: 3.3dBi (Provided by the manufacturer) Band 12: 0.4dBi (Provided by the manufacturer) Band 13: 0.4dBi (Provided by the manufacturer) Band 25: 2.3dBi (Provided by the manufacturer) Band 26: 0.4dBi (Provided by the manufacturer) Band 38: 3.3dBi (Provided by the manufacturer) Band 41: 3.3dBi (Provided by the manufacturer)
Extreme temp. Tolerance:	-30°C to +50°C
Extreme vol. Limits:	6.12V DC to 8.28V DC (nominal: 7.2V DC)
IMEI:	861861041244024

Note:

1. The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.



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4.2 Test Frequency

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855.0	1880	1905.0
	15	1857.5	1880	1902.5
	20	1860.0	1880	1900.0
LTE FDD Band 4	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
LTE FDD Band 5	10	1715.0	1732.5	1750.0
	15	1717.5	1732.5	1747.5
	20	1720.0	1732.5	1745.0
LTE FDD Band 7	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829.0	836.5	844.0
LTE FDD Band 7	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560

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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 13	5	779.5	782	784.5
	10	782	782	782
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 26 (814-824)	1.4	814.7	819	823.3
	3	815.5	819	822.5
	5	816.5	819	821.5
	10	819	819	819
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 26 (824-849)	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
	15	831.5	836.5	841.5

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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE TDD Band 38	5	2572.5	2595.0	2617.5
	10	2575.0	2595.0	2615.0
	15	2577.5	2595.0	2612.5
	20	2580.0	2595.0	2610.0
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE TDD Band 41	5	2498.5	2593.0	2687.5
	10	2501.0	2593.0	2685.0
	15	2503.5	2593.0	2682.5
	20	2506.0	2593.0	2680.0

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4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	48%	
Atmospheric Pressure:	101kPa	
Temperature:	TN	25 °C
Voltage:	VL	6.12V
	VN	7.20V
	VH	8.28V

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature

4.4 Description of Support Units

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



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4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.4%
4	Occupied Bandwidth	3%
5	RF conducted power	0.6dB
6	RF power density	2.9dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

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



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4.6 Test Location

All tests were performed at:

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588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

- SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
- SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

Test Facility

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

- A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory Company Number: 8617A

- VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

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5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2021-12-20	2022-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2022-08-02	2023-08-01
Signal Generator	R&S	SMR20	SHEM006-1	2022-08-02	2023-08-01
Signal Generator	Agilent	N5182A	SHEM182-1	2022-08-02	2023-08-01
Communication Tester	R&S	CMW270	SHEM183-1	2022-07-25	2023-07-24
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2022-08-02	2023-08-01
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2020-04-15	2023-04-14
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2021-12-20	2022-12-19
DC Power Supply	MCH	MCH-303A	SHEM210-1	2021-12-20	2022-12-19
Conducted test Cable	/	RF01~RF04	/	2021-12-20	2022-12-19
Switcher	Tonscend	JS0806	SHEM184-1	2022-08-02	2023-08-01
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Coaxial Cable	TST		SHEM263-1	2022-08-02	2023-08-01
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2021-12-20	2022-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2021-12-20	2022-12-19
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2021-09-11	2023-09-10
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2021-05-07	2023-05-06
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2022/8/11	2024-08-10
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2021-09-18	2023-09-17
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2021-09-18	2023-09-17
Pre-Amplifier	HP	8447D	SHEM236-1	2022-08-02	2023-08-01
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2021-12-20	2022-12-19
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24
RE test Cable	/	RE01, RE02, RE06	/	2022-01-07	2023-01-06
Test software	ESE	E3	Version: 6.111221a	/	/

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6 Radio Spectrum Matter Test Results

6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §22.913, §24.232, §27.50(b), §27.50(c), §27.50(d),
§27.50(h), §90.635

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ERP≤7W(LTE Band 5,26)

ERP≤ 3W(LTE Band 12,13)

EIRP≤ 2W(LTE Band 2,7,25,38,41)

EIRP≤ 1W(LTE Band 4)

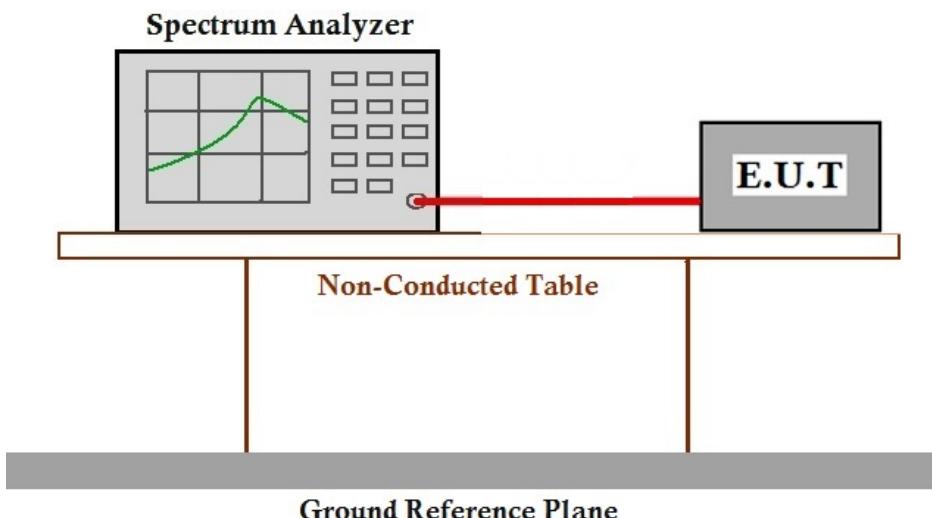
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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6.2 Peak-Average Ratio

Test Requirement: §24.232,§27.50(c),§27.50(d)

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤13dB

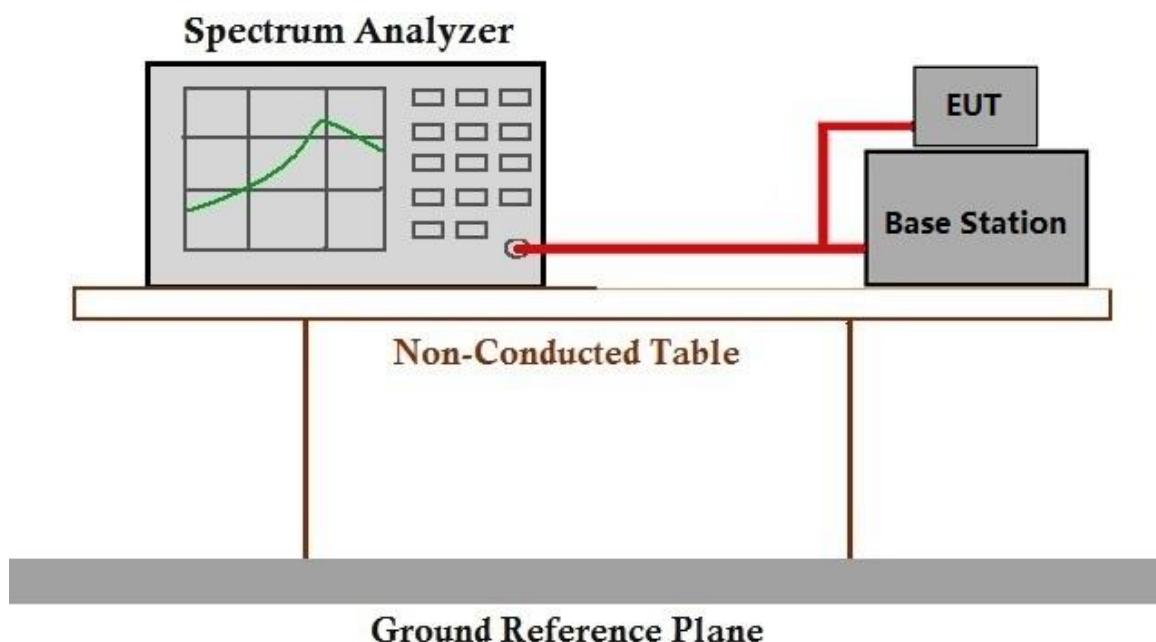
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2,
Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5,
Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12,
Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25,
Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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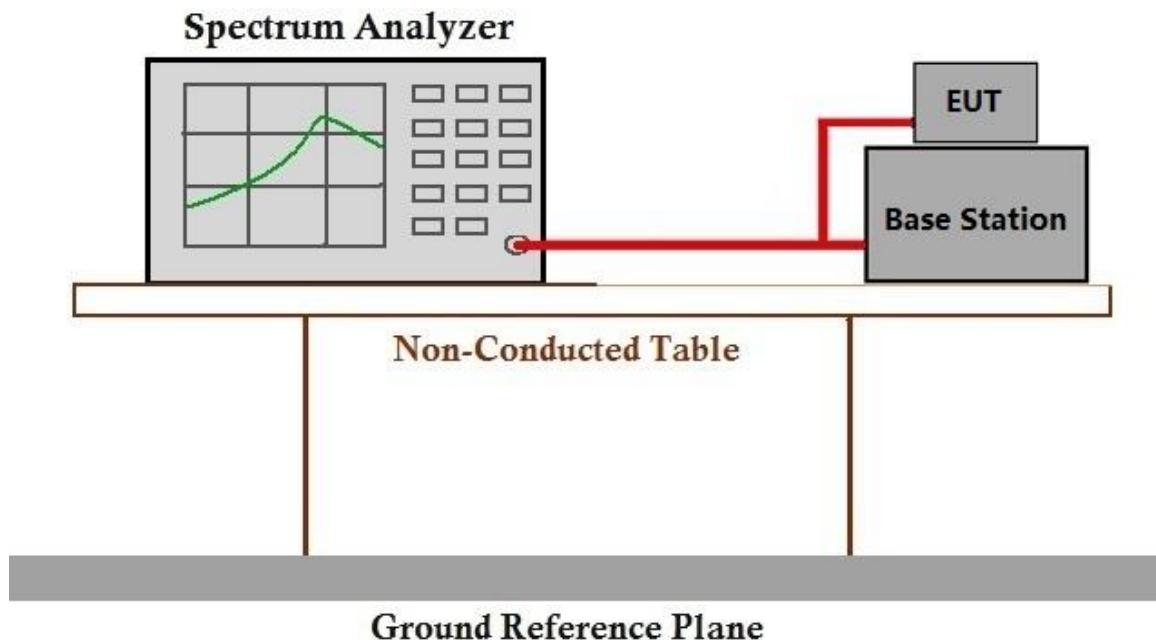
6.3 Bandwidth

Test Requirement: §2.1049(h)
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: OBW: No limit
EBW: No limit

6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar
Test mode: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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6.4 Band Edge Compliance

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: $\leq -13\text{dBm}/1\% \text{*EBW}$, in 1 MHz bands immediately outside and adjacent to the frequency block

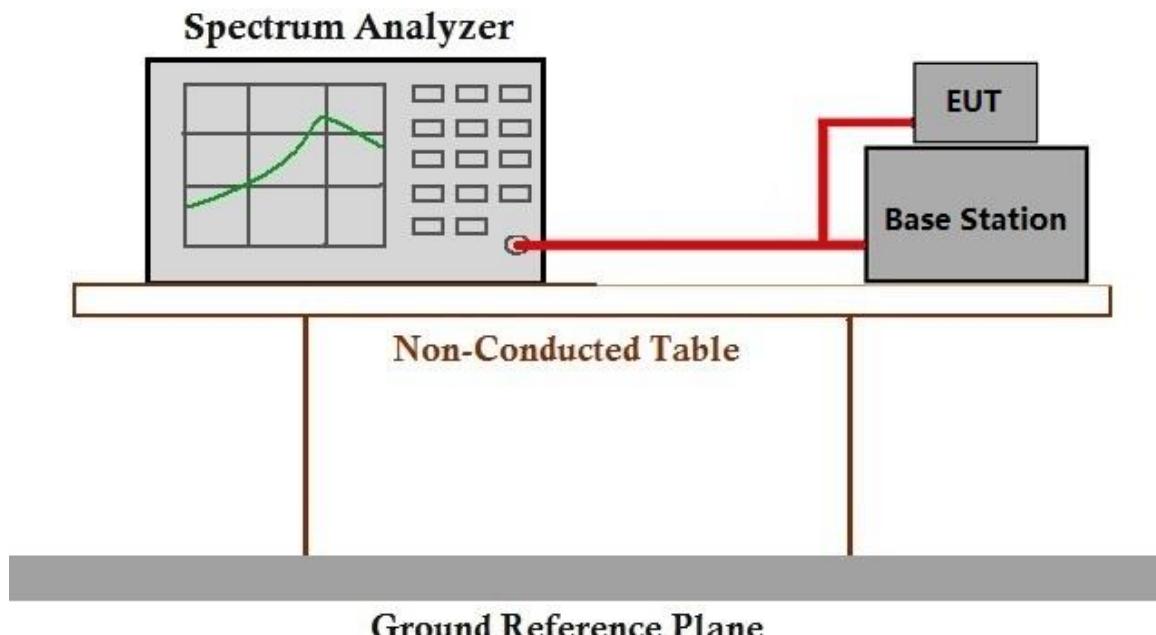
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: $\leq -13\text{dBm}$ (LTE Band2,4,5,12,13,25,26)
 $\leq -25\text{dBm}$ (LTE Band7,38,41)

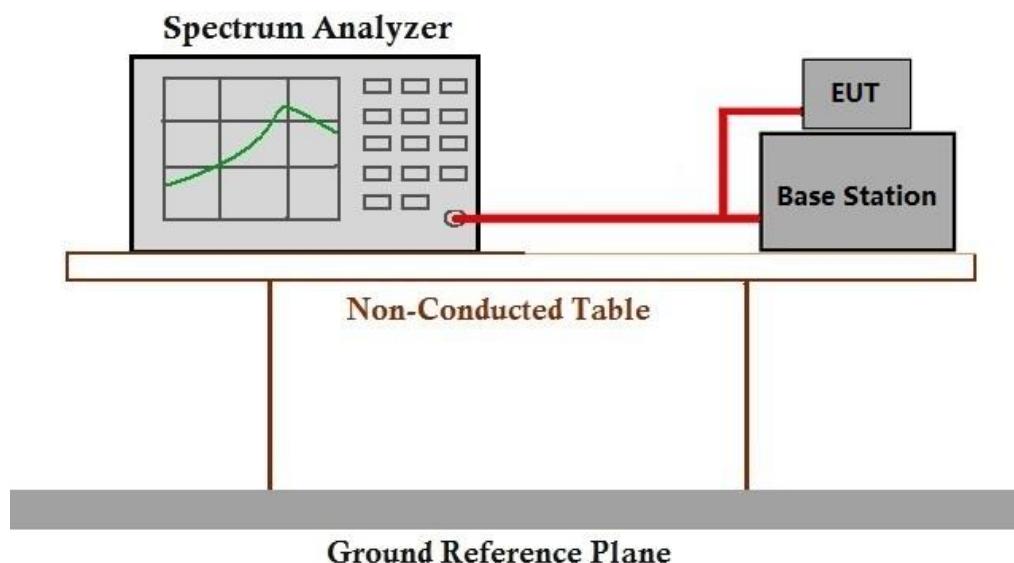
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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6.6 Radiated spurious emission

Test Requirement: §2.1051

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: $\leq -13\text{dBm}$ (LTE Band2,4,5,12,13,25,26)
 $\leq -25\text{dBm}$ (LTE Band7,38,41)

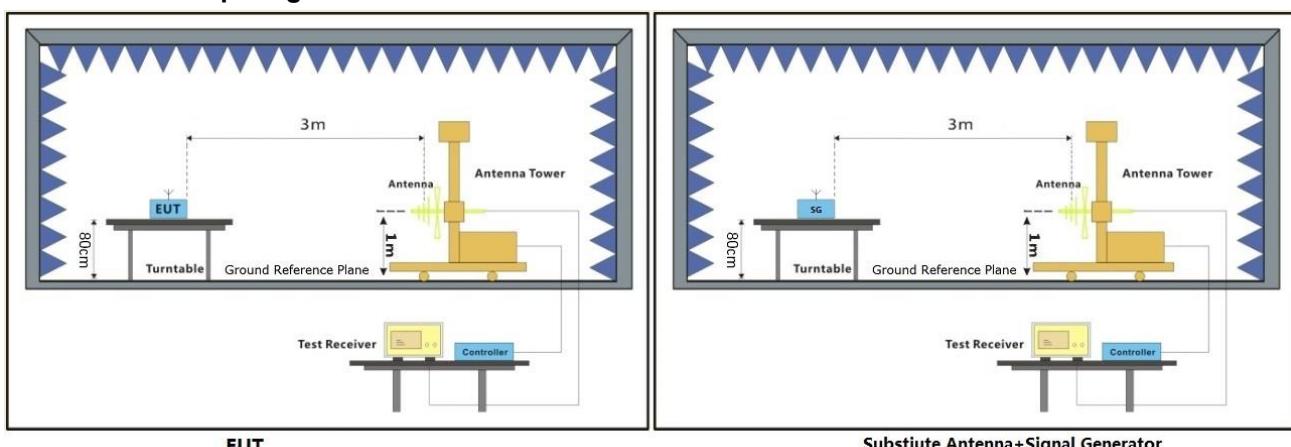
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



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6.6.3 Measurement Procedure and Data

Test Procedure:

- (1)On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6)The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8)The maximum signal level detected by the measuring receiver shall be noted.
- (9)The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11)The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12)The substitution antenna shall be connected to a calibrated signal generator.
- (13)If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14)The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16)The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17)The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

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LTE BAND 2-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3720.000	-52.37	-13	-39.37	Horizontal
5580.000	-57.69	-13	-44.69	Horizontal
7440.000	-56.47	-13	-43.47	Horizontal
3720.000	-57.43	-13	-44.43	Vertical
5580.000	-61.45	-13	-48.45	Vertical
7440.000	-57.09	-13	-44.09	Vertical

LTE BAND 2-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3760.000	-57.97	-13	-44.97	Horizontal
5640.000	-63.71	-13	-50.71	Horizontal
7520.000	-57.93	-13	-44.93	Horizontal
3760.000	-52.15	-13	-39.15	Vertical
5640.000	-61.90	-13	-48.90	Vertical
7520.000	-57.26	-13	-44.26	Vertical

LTE BAND 2-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3800.000	-61.09	-13	-48.09	Horizontal
5700.000	-62.55	-13	-49.55	Horizontal
7600.000	-58.08	-13	-45.08	Horizontal
3800.000	-53.48	-13	-40.48	Vertical
5700.000	-58.65	-13	-45.65	Vertical
7600.000	-55.26	-13	-42.26	Vertical



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LTE BAND 4-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3440.000	-55.70	-13	-42.70	Horizontal
5160.000	-62.56	-13	-49.56	Horizontal
6880.000	-53.93	-13	-40.93	Horizontal
3440.000	-55.85	-13	-42.85	Vertical
5160.000	-60.21	-13	-47.21	Vertical
6880.000	-50.43	-13	-37.43	Vertical

LTE BAND 4-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3465.000	-52.49	-13	-39.49	Horizontal
5197.500	-57.43	-13	-44.43	Horizontal
6930.000	-55.77	-13	-42.77	Horizontal
3465.000	-52.08	-13	-39.08	Vertical
5197.500	-59.91	-13	-46.91	Vertical
6930.000	-53.38	-13	-40.38	Vertical

LTE BAND 4-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3490.000	-51.99	-13	-38.99	Horizontal
5235.000	-56.64	-13	-43.64	Horizontal
6980.000	-52.25	-13	-39.25	Horizontal
3490.000	-53.44	-13	-40.44	Vertical
5235.000	-57.33	-13	-44.33	Vertical
6980.000	-53.32	-13	-40.32	Vertical

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LTE BAND 5-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1658.000	-57.08	-13	-44.08	Horizontal
2487.000	-58.34	-13	-45.34	Horizontal
3316.000	-53.85	-13	-40.85	Horizontal
1658.000	-56.62	-13	-43.62	Vertical
2487.000	-60.51	-13	-47.51	Vertical
3316.000	-58.17	-13	-45.17	Vertical

LTE BAND 5-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1673.000	-52.35	-13	-39.35	Horizontal
2509.500	-58.09	-13	-45.09	Horizontal
3346.000	-59.71	-13	-46.71	Horizontal
1673.000	-52.09	-13	-39.09	Vertical
2509.500	-60.23	-13	-47.23	Vertical
3346.000	-55.97	-13	-42.97	Vertical

LTE BAND 5-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1688.000	-50.36	-13	-37.36	Horizontal
2532.000	-57.37	-13	-44.37	Horizontal
3376.000	-53.13	-13	-40.13	Horizontal
1688.000	-48.16	-13	-35.16	Vertical
2532.000	-57.85	-13	-44.85	Vertical
3376.000	-48.72	-13	-35.72	Vertical

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LTE BAND 7-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5020.000	-54.96	-25	-29.96	Horizontal
7530.000	-53.30	-25	-28.30	Horizontal
10040.000	-52.63	-25	-27.63	Horizontal
5020.000	-55.58	-25	-30.58	Vertical
7530.000	-59.41	-25	-34.41	Vertical
10040.000	-55.36	-25	-30.36	Vertical

LTE BAND 7-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5070.000	-55.35	-25	-30.35	Horizontal
7605.000	-56.78	-25	-31.78	Horizontal
10140.000	-56.66	-25	-31.66	Horizontal
5070.000	-52.49	-25	-27.49	Vertical
7605.000	-57.02	-25	-32.02	Vertical
10140.000	-58.41	-25	-33.41	Vertical

LTE BAND 7-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5120.000	-56.81	-25	-31.81	Horizontal
7680.000	-55.93	-25	-30.93	Horizontal
10240.000	-55.28	-25	-30.28	Horizontal
5120.000	-56.55	-25	-31.55	Vertical
7680.000	-59.87	-25	-34.87	Vertical
10240.000	-54.67	-25	-29.67	Vertical



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LTE BAND 12-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1408.000	-55.65	-13	-42.65	Horizontal
2112.000	-60.64	-13	-47.64	Horizontal
2816.000	-57.44	-13	-44.44	Horizontal
1408.000	-56.93	-13	-43.93	Vertical
2112.000	-58.57	-13	-45.57	Vertical
2816.000	-58.48	-13	-45.48	Vertical

LTE BAND 12-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1415.000	-56.27	-13	-43.27	Horizontal
2122.500	-58.37	-13	-45.37	Horizontal
2830.000	-57.03	-13	-44.03	Horizontal
1415.000	-54.79	-13	-41.79	Vertical
2122.500	-60.78	-13	-47.78	Vertical
2830.000	-55.77	-13	-42.77	Vertical

LTE BAND 12-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1422.000	-57.16	-13	-44.16	Horizontal
2133.000	-58.26	-13	-45.26	Horizontal
2844.000	-56.27	-13	-43.27	Horizontal
1422.000	-55.50	-13	-42.50	Vertical
2133.000	-61.81	-13	-48.81	Vertical
2844.000	-55.77	-13	-42.77	Vertical

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LTE BAND 13-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1559.000	-59.52	-13	-46.52	Horizontal
2338.500	-56.64	-13	-43.64	Horizontal
3118.000	-55.13	-13	-42.13	Horizontal
1559.000	-57.86	-13	-44.86	Vertical
2338.500	-59.20	-13	-46.20	Vertical
3118.000	-52.98	-13	-39.98	Vertical

LTE BAND 13-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1564.000	-50.53	-13	-37.53	Horizontal
2346.000	-57.50	-13	-44.50	Horizontal
3128.000	-56.19	-13	-43.19	Horizontal
1564.000	-52.12	-13	-39.12	Vertical
2346.000	-60.91	-13	-47.91	Vertical
3128.000	-57.53	-13	-44.53	Vertical

LTE BAND 13-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1569.000	-51.83	-13	-38.83	Horizontal
2353.500	-60.97	-13	-47.97	Horizontal
3138.000	-56.28	-13	-43.28	Horizontal
1569.000	-57.77	-13	-44.77	Vertical
2353.500	-61.00	-13	-48.00	Vertical
3138.000	-57.03	-13	-44.03	Vertical

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LTE BAND 25-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3720.000	-52.40	-13	-39.40	Horizontal
5580.000	-58.64	-13	-45.64	Horizontal
7440.000	-56.30	-13	-43.30	Horizontal
3720.000	-52.63	-13	-39.63	Vertical
5580.000	-59.08	-13	-46.08	Vertical
7440.000	-53.28	-13	-40.28	Vertical

LTE BAND 25-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3760.000	-55.41	-13	-42.41	Horizontal
5640.000	-59.89	-13	-46.89	Horizontal
7520.000	-57.10	-13	-44.10	Horizontal
3760.000	-50.66	-13	-37.66	Vertical
5640.000	-57.34	-13	-44.34	Vertical
7520.000	-58.22	-13	-45.22	Vertical

LTE BAND 25-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
3810.000	-54.18	-13	-41.18	Horizontal
5715.000	-60.18	-13	-47.18	Horizontal
7620.000	-56.89	-13	-43.89	Horizontal
3810.000	-56.33	-13	-43.33	Vertical
5715.000	-58.27	-13	-45.27	Vertical
7620.000	-56.48	-13	-43.48	Vertical

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LTE BAND 26-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1643.000	-53.60	-13	-40.60	Horizontal
2464.500	-57.88	-13	-44.88	Horizontal
3286.000	-51.94	-13	-38.94	Horizontal
1643.000	-54.08	-13	-41.08	Vertical
2464.500	-59.99	-13	-46.99	Vertical
3286.000	-52.62	-13	-39.62	Vertical

LTE BAND 26-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1663.000	-53.89	-13	-40.89	Horizontal
2494.500	-57.57	-13	-44.57	Horizontal
3326.000	-57.85	-13	-44.85	Horizontal
1663.000	-52.64	-13	-39.64	Vertical
2494.500	-58.32	-13	-45.32	Vertical
3326.000	-59.27	-13	-46.27	Vertical

LTE BAND 26-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1683.000	-57.43	-13	-44.43	Horizontal
2524.500	-62.58	-13	-49.58	Horizontal
3366.000	-52.41	-13	-39.41	Horizontal
1683.000	-60.27	-13	-47.27	Vertical
2524.500	-63.47	-13	-50.47	Vertical
3366.000	-55.74	-13	-42.74	Vertical

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LTE BAND 38-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5160.000	-55.50	-25	-30.50	Horizontal
7740.000	-56.65	-25	-31.65	Horizontal
10320.000	-57.68	-25	-32.68	Horizontal
5160.000	-51.43	-25	-26.43	Vertical
7740.000	-60.33	-25	-35.33	Vertical
10320.000	-56.61	-25	-31.61	Vertical

LTE BAND 38-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5190.000	-57.54	-25	-32.54	Horizontal
7785.000	-59.50	-25	-34.50	Horizontal
10380.000	-58.34	-25	-33.34	Horizontal
5190.000	-53.04	-25	-28.04	Vertical
7785.000	-61.19	-25	-36.19	Vertical
10380.000	-59.68	-25	-34.68	Vertical

LTE BAND 38-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5220.000	-61.48	-25	-36.48	Horizontal
7830.000	-61.05	-25	-36.05	Horizontal
10440.000	-52.87	-25	-27.87	Horizontal
5220.000	-57.97	-25	-32.97	Vertical
7830.000	-61.44	-25	-36.44	Vertical
10440.000	-54.86	-25	-29.86	Vertical



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LTE BAND 41-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5012.000	-59.86	-25	-34.86	Horizontal
7518.000	-58.26	-25	-33.26	Horizontal
10024.000	-53.05	-25	-28.05	Horizontal
5012.000	-58.90	-25	-33.90	Vertical
7518.000	-59.04	-25	-34.04	Vertical
10024.000	-55.84	-25	-30.84	Vertical

LTE BAND 41-Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5186.000	-59.33	-25	-34.33	Horizontal
7779.000	-61.24	-25	-36.24	Horizontal
10372.000	-55.35	-25	-30.35	Horizontal
5186.000	-50.15	-25	-25.15	Vertical
7779.000	-57.56	-25	-32.56	Vertical
10372.000	-56.71	-25	-31.71	Vertical

LTE BAND 41-High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
5360.000	-51.89	-25	-26.89	Horizontal
8040.000	-60.61	-25	-35.61	Horizontal
10720.000	-56.10	-25	-31.10	Horizontal
5360.000	-56.15	-25	-31.15	Vertical
8040.000	-62.55	-25	-37.55	Vertical
10720.000	-55.23	-25	-30.23	Vertical

Remark:

We have tested all modulation and all Bandwidth, but only the worst case data presented in this report.



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6.7 Frequency stability

Test Requirement: §2.1055

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: $\leq \pm 2.5\text{ppm}$.

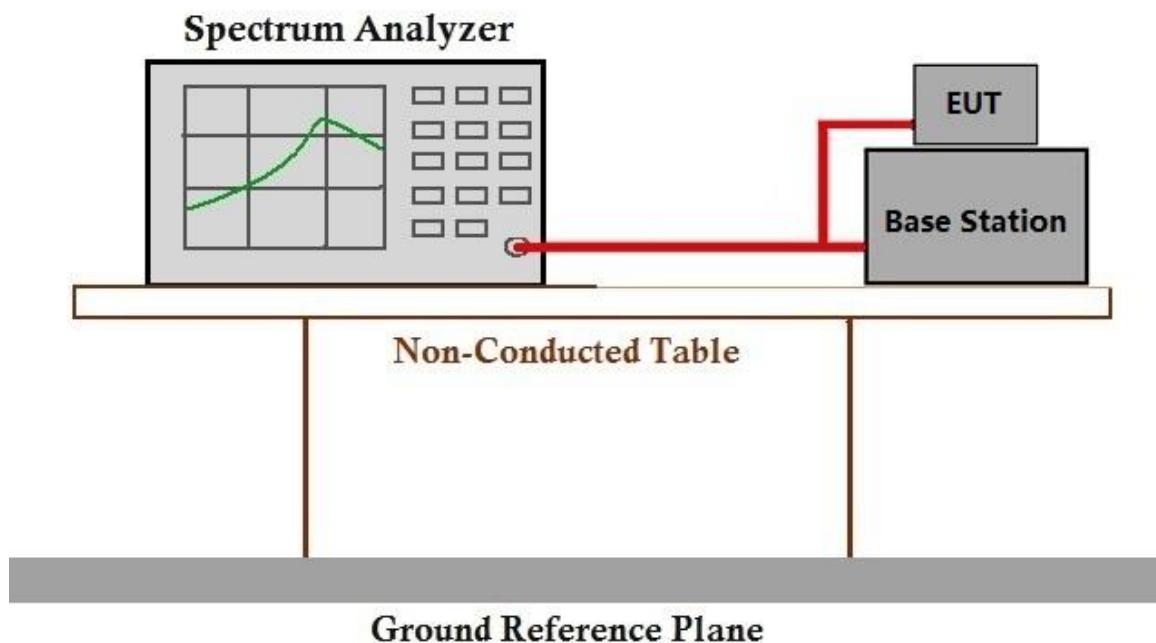
6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

Test mode: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.



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6.8 Modulation Characteristics

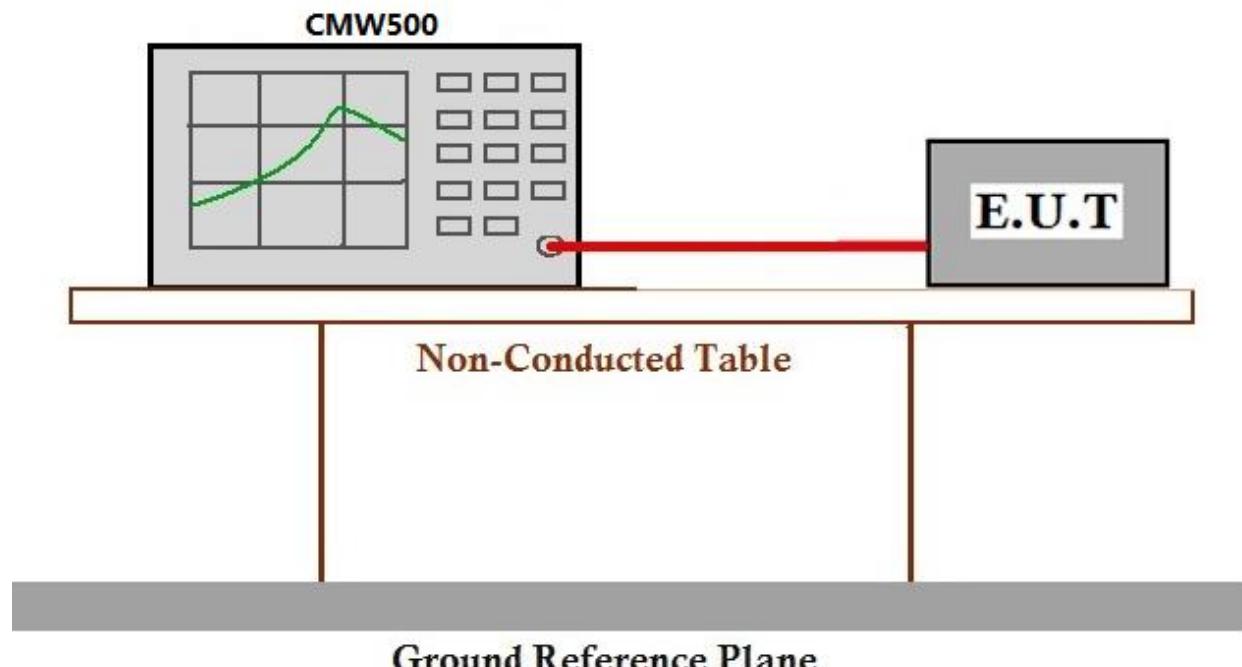
Test Requirement: §2.1047
Test Method: ANSI C63.26
Limit: Digital modulation

6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar
Test mode: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

Please Refer to Appendix E for SHCR2208001794CO-LTE Band 2, Appendix F for SHCR2208001794CO-LTE Band 4, Appendix G for SHCR2208001794CO-LTE Band 5, Appendix H for SHCR2208001794CO-LTE Band 7, Appendix I for SHCR2208001794CO-LTE Band 12, Appendix J for SHCR2208001794CO-LTE Band 13, Appendix K for SHCR2208001794CO-LTE Band 25, Appendix L for SHCR2208001794CO-LTE Band 26(814-824), Appendix M for SHCR2208001794CO-LTE Band 26(824-849), Appendix N for SHCR2208001794CO-LTE Band 26(824-849), Appendix O for SHCR2208001794CO-LTE Band 38, Appendix P for SHCR2208001794CO-LTE Band 41.

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2 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2208001794CO

3 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2208001794CO

- End of the Report -



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