

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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR240100012205

Page:

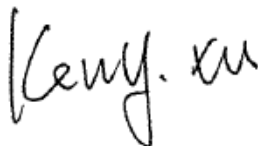
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# TEST REPORT

**Application No.:** SZCR2401000122AT  
**Applicant:** Vanstone Electronic (Beijing) Co., Ltd.  
**Address of Applicant:** 3F No.2 Building, Aisino Corporation Park 18A, Xingshikou Road, Haidian District, Beijing, China 100195  
**Manufacturer:** Vanstone Electronic (Beijing) Co., Ltd.  
**Address of Manufacturer:** 3F No.2 Building, Aisino Corporation Park 18A, Xingshikou Road, Haidian District, Beijing, China 100195  
**Equipment Under Test (EUT):**  
**EUT Name:** QR Code Terminal  
**Model No.:** Q161  
**FCC ID:** OWLQ161  
**Standard(s) :** 47 CFR Part 2  
47 CFR Part 22 subpart H  
47 CFR Part 24 subpart E  
47 CFR Part 27 subpart C  
**Date of Receipt:** 2024-01-09  
**Date of Test:** 2024-01-12 to 2024-02-22  
**Date of Issue:** 2024-03-13

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

\* 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

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024-03-13		Original

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



## 2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Output Power Data	§2.1046 §22.913 §24.232 §27.50(d) §27.50(h)	ERP≤ 7W(LTE Band 5) EIRP≤ 2W(LTE Band 2) EIRP≤ 1W(LTE Band 4,66) EIRP≤ 2W(LTE Band 7)	PASS
Peak-Average Ratio	§22.913 §24.232 §27.50(d)	≤13dB	PASS
Bandwidth	§2.1049(h)	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051 §22.917 §24.238 §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) ≤ -13dBm (LTE Band4,66) Refer to clause 6.4 for LTE Band7	PASS
Spurious emissions at antenna terminals	§2.1051 §22.917 §24.238 §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) ≤ -13dBm (LTE Band4,66) Refer to clause 6.5 for LTE Band7	PASS
Field strength of spurious radiation	§2.1051 §22.917 §24.238 §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) ≤ -13dBm (LTE Band4,66) Refer to clause 6.6 for LTE Band7	PASS
Frequency stability	§2.1055 §22.355 §24.235 §27.54	≤ ±2.5ppm.	PASS



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## 4 General Information

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

Power supply:	DC3.7V by Li-ion Cell(2000mAh) Battery manufacturer1: MEI ZHOU BO FU NENG TECHNOLOGY CO.,LTD Battery M/N:18650 2000mAh Battery manufacturer2: ZHUHAI GREAT POWER ENERGY CO.,LTD Battery M/N:INR18650-2000mAh Recharged by AC/DC 5V/1A Power Adapter Adapter M/N: SW-0018C Adapter Input: AC100-240V, 50/60Hz, 0.2A Adapter output: DC5V/1A
Cable(s):	USB cable: 1.5m unshielded cable without ferrite core
Cable Loss (for RF conducted test):	0.7dBi(below 1GHz), 1dBi(above 1GHz)
Sample Type:	Portable production
LTE Operation Frequency Band:	LTE FDD Band 2,4,5,7,66
Modulation Type:	QPSK, 16QAM
LTE Power Class:	Level 3
Antenna Type:	PCB Antenna
Antenna Gain:	LTE B2: 1.43 dBi; B4: 0.38dBi; B5: 0.99dBi; B7: 3.07 dBi; B66: 0.38 dBi



**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
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1751.5
	5	1712.5	1732.5	1752.5
	10	1715.0	1732.5	1750.0
	15	1717.5	1732.5	1747.5
	20	1720.0	1732.5	1745.0
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 5	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
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 7	5	2502.5	2535.0	2567.5
	10	2505.0	2535.0	2565.0
	15	2507.5	2535.0	2562.5
	20	2510.0	2535.0	2560.0



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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 66	1.4	1710.7	1745.0	1779.3
	3	1711.5	1745.0	1778.5
	5	1712.5	1745.0	1777.5
	10	1715.0	1745.0	1775.0
	15	1717.5	1745.0	1772.5
	20	1720.0	1745.0	1770.0

**4.3 Test Environment**

Environment Parameter	Selected Values During Tests	
Temperature:	TL	-30°C
	TN	+20°C
	TH	+50°C
Voltage:	VL	3.2 Vdc
	VN	3.7 Vdc
	VH	4.2 Vdc

NOTE: VL= lower extreme test voltage  
 VN= nominal voltage  
 VH= upper extreme test voltage  
 TL= lower extreme test temperature  
 TN= normal temperature  
 TH= upper extreme test temperature

**4.4 Description of Support Units**

The EUT has been tested independent unit.



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**4.5 Measurement Uncertainty**

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 5.4 \times 10^{-8}$
2	Duty cycle	$\pm 0.3\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF conducted power	$\pm 0.8\text{dB}$
5	RF power density	$\pm 0.4\text{dB}$
6	Conducted Spurious emissions	$\pm 2.7\text{dB}$
7	Radiated Spurious emission test	$\pm 3.1\text{dB}$ (Below 1GHz)
		$\pm 4.4\text{dB}$ (Above 1GHz)
8	Temperature test	$\pm 1^\circ\text{C}$
9	Humidity test	$\pm 3\%$
10	Supply voltages	$\pm 1.5\%$
11	Time	$\pm 3\%$



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### 4.6 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.

### 4.7 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.

### 4.8 Deviation from Standards

None

### 4.9 Abnormalities from Standard Conditions

None



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## 5 Equipment List

RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
Programmable DC Source	Chroma	62024P-80-60	SEM011-09	2023/07/11	2024/07/10
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023/03/21	2024/03/20
Spectrum Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023/03/20	2024/03/19
Measurement Software	TST	TST PASS V2.0	N/A	N/A	N/A
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023/07/11	2024/07/10
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2023/03/28	2024/03/27
Power Sensor	KEYSIGHT	U2021XA	SEM009-15	2023/03/21	2024/03/20

RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-33	2021/9/25	2024/9/24
MXE EMI receiver	Agilent	N9038A	SEM004-05	2023/07/11	2024/07/10
Pre-amplifier	HP	8447D	SEM005-02	2023/07/11	2024/07/10
Spectrum Analyzer	Rohde & Schwarz	101288	SEM004-08	2023/07/11	2024/07/10
Low Noise Amplifier	CLAVIIO	BDLNA-0118-352810	SEM005-05	2023/07/11	2024/07/10
Substitution Antenna	Schwarzbeck	VULB9168	SEM003-18	2022/08/07	2025/08/06
Signal Generator(9kHz-40GHz)	N5173B	MY53270267	Agilent	2023/07/11	2024/07/10
Pre-amplifier	HP	8447D	SEM005-02	2023/07/11	2024/07/10
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2021/7/11	2024/7/10
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-32	2021/9/26	2024/9/25
Double-ridged waveguide horn	ETS-LINDGREN	3117	SEM003-34	2021/9/25	2024/9/24
Spectrum Analyzer	Rohde & Schwarz	101288	SEM004-08	2023/07/11	2024/07/10
Low Noise Amplifier	CLAVIIO	BDLNA-0118-352810	SEM005-05	2023/07/11	2024/07/10



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Pre-amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2023/07/11	2024/07/10
Pre-amplifier	Rohde & Schwarz	CH14-H052	SEM005-17	2023/07/11	2024/07/10
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2023/06/25	2026/06/24
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2024/03/28	2024/03/27

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2023-07-28	2024-07-27
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22



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## 6 Radio Spectrum Matter Test Results

### 6.1 Effective (Isotropic) Radiated Output Power Data

Test Requirement:	§2.1046, §22.913, §24.232, §27.50(d), §27.50(h)
Test Method:	ANSI C63.26-2015, KDB 971168 D01 v03r01
Limit:	ERP ≤ 7W (LTE Band 5) EIRP ≤ 2W (LTE Band 2) EIRP ≤ 1W (LTE Band 4, 66) EIRP ≤ 2W (LTE Band 7)

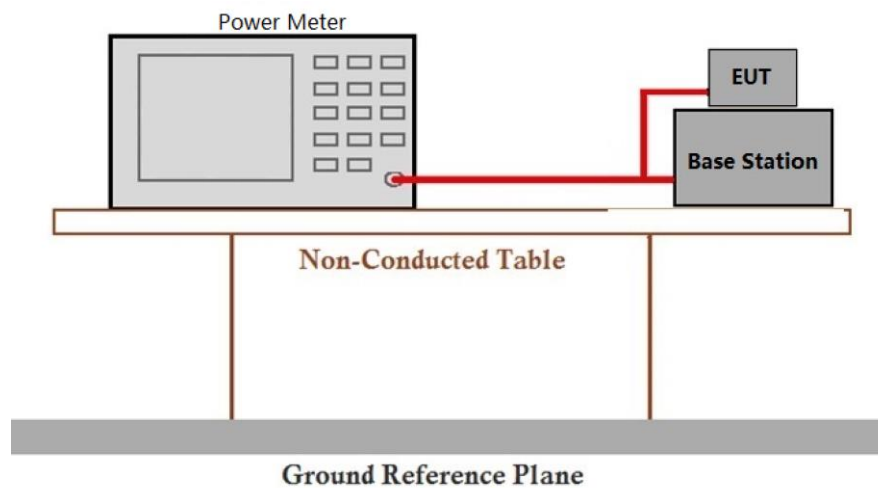
#### 6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C      Humidity: 53.5 % RH      Atmospheric Pressure: 1020 mbar

Test mode      32: TX mode\_Keep the EUT in transmitting mode

#### 6.1.2 Test Setup Diagram



#### 6.1.3 Measurement Data

Please refer to Appendix for LTE test data.

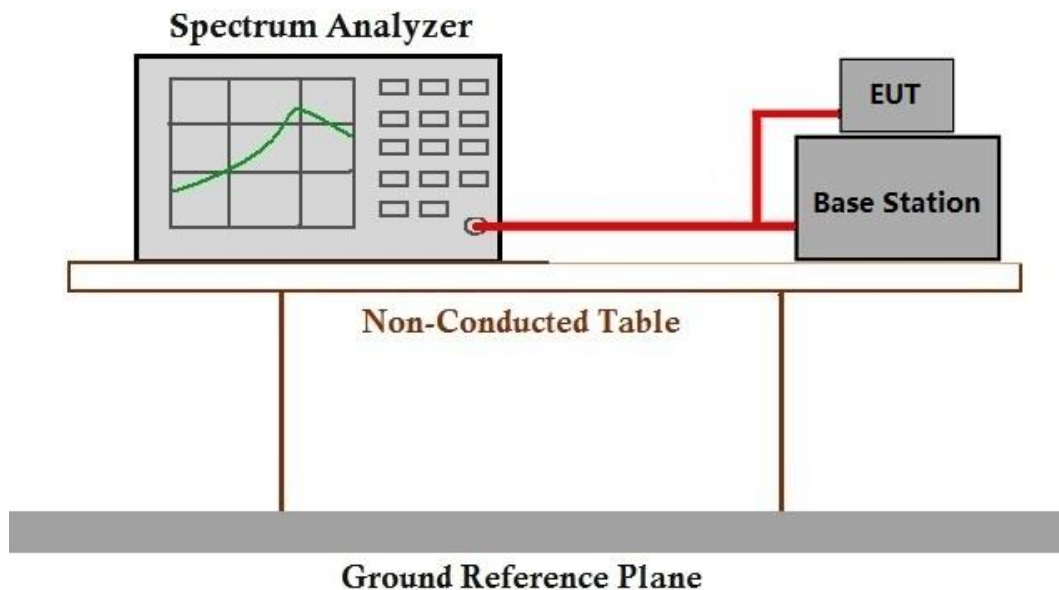
### 6.2 Peak-Average Ratio

Test Requirement: §22.913, §24.232, §27.50(d)  
 Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01  
 Limit: ≤13dB

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

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode 32: TX mode\_Keep the EUT in transmitting mode

#### 6.2.2 Test Setup Diagram



#### 6.2.3 Measurement Data

Please refer to Appendix for LTE test data.

### 6.3 Bandwidth

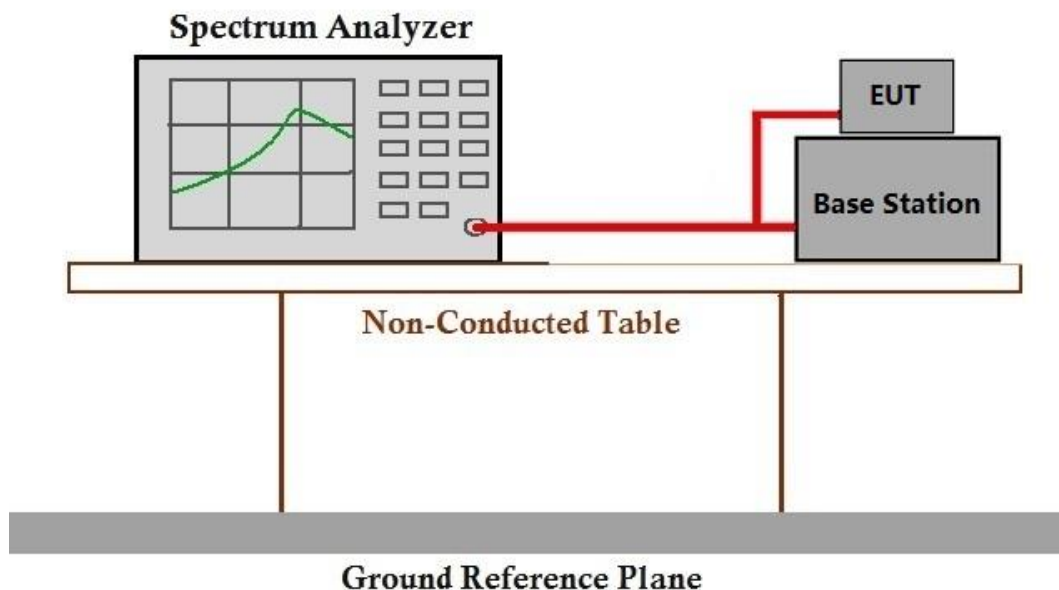
Test Requirement: §2.1049(h)  
 Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01  
 Limit: OBW: No limit  
 EBW: No limit

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

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode 32: TX mode\_Keep the EUT in transmitting mode

#### 6.3.2 Test Setup Diagram



#### 6.3.3 Measurement Data

Please refer to Appendix for LTE test data.

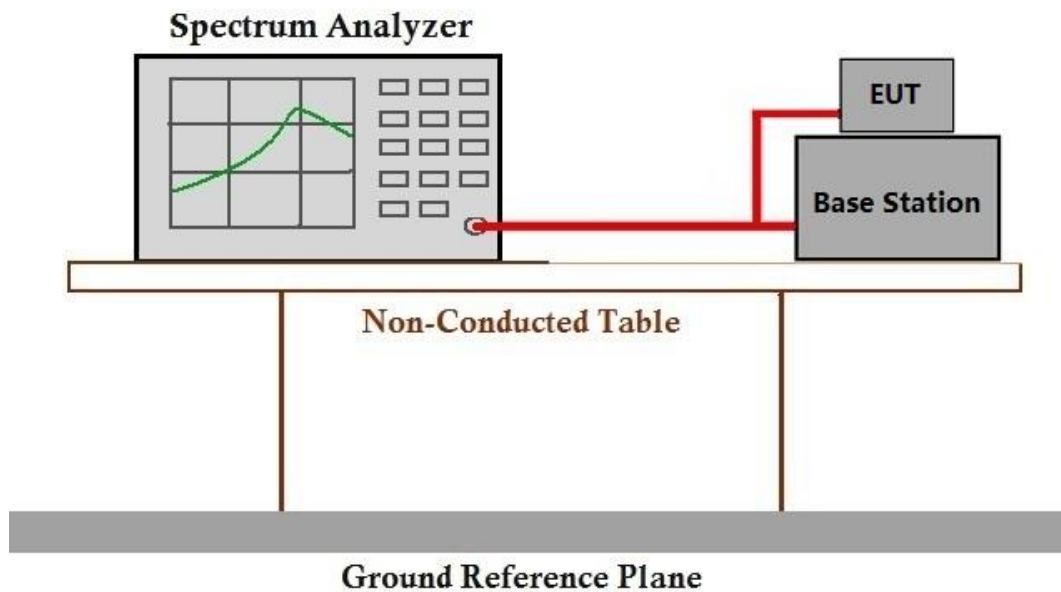
### 6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238, §27.50(h), §27.50(m)  
 Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01  
 Limit: ≤ -13dBm (LTE Band2,4,5,7,66)

#### 6.4.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode 32: TX mode\_Keep the EUT in transmitting mode

#### 6.4.2 Test Setup Diagram



#### 6.4.3 Measurement Data

Please refer to Appendix for LTE test data.



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### 6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.50(h), §27.50(m)

Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01

Limit:  $\leq -13\text{dBm}$  (LTE Band2,4,5,66)

For **Band7**:

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

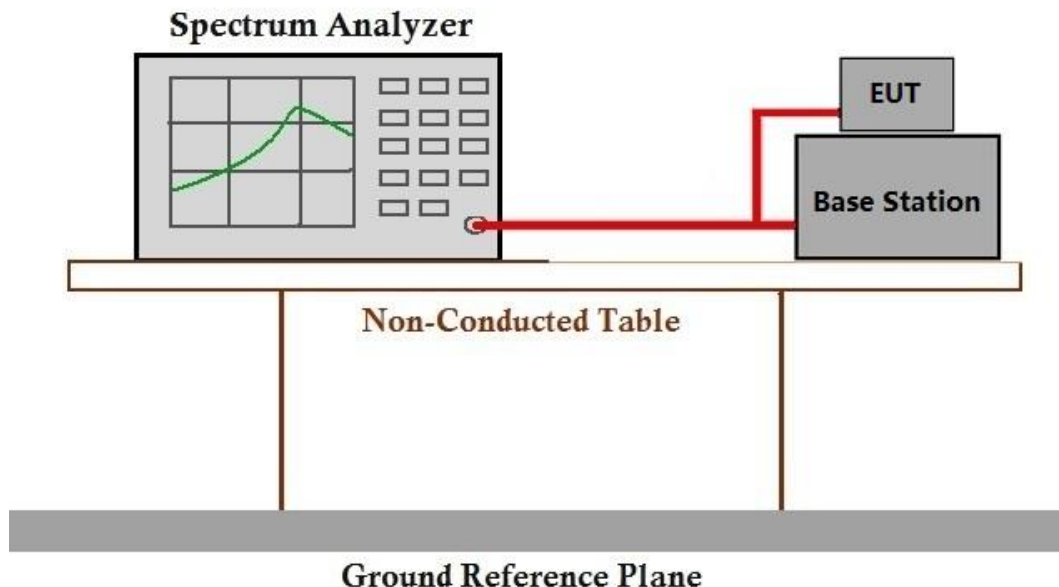
#### 6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar

Test mode 32: TX mode\_Keep the EUT in transmitting mode

#### 6.5.2 Test Setup Diagram



#### 6.5.3 Measurement Data

Please refer to Appendix for LTE test data.



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### 6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238, §27.50(h), §27.50(m)

Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01

Limit:  $\leq -13\text{dBm}$  (**LTE Band2,4,5,66**)

For **Band7**:

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

#### 6.6.1 E.U.T. Operation

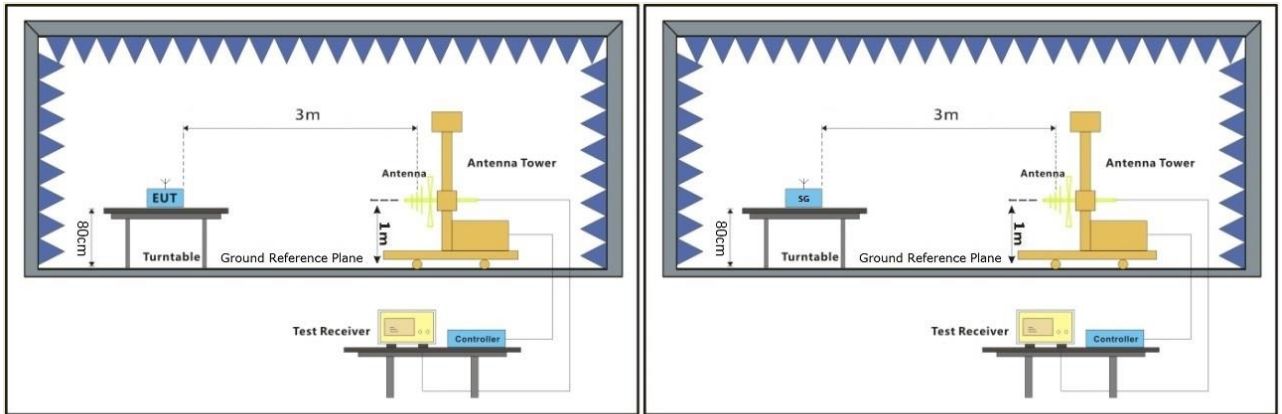
Operating Environment:

Temperature: 22.5 °C Humidity: 47.5 % RH Atmospheric Pressure: 1020 mbar

Test mode 32: TX mode\_Keep the EUT in transmitting mode

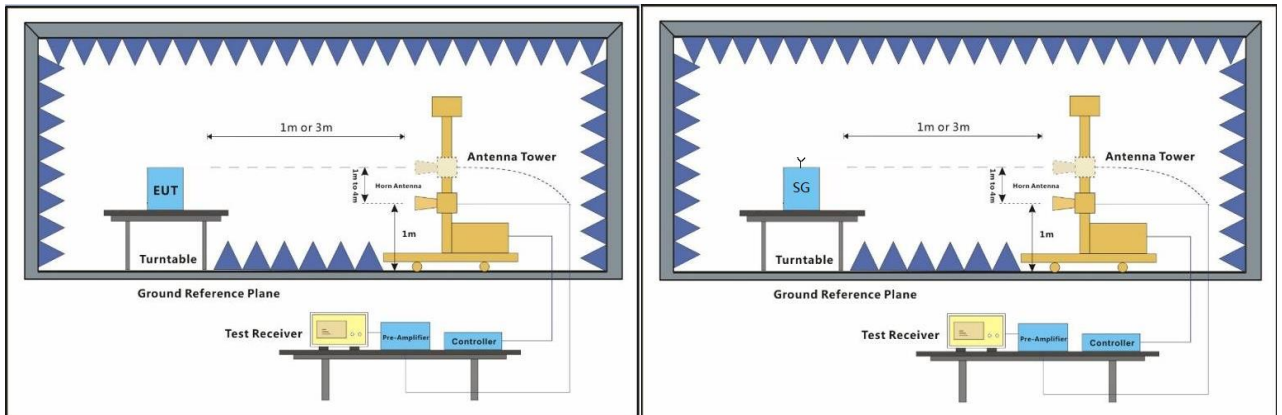


### 6.6.2 Test Setup Diagram



EUT

Substiute Antenna+Signal Generator



EUT

Substiute Antenna+Signal Generator



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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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FDD LTE Band2-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3700.14	-56.11	-13	-43.11	-60.99	3.29	8.17	Horizontal	Pass
5550.21	-52.43	-13	-39.43	-58.64	4.24	10.45	Horizontal	Pass
7400.28	-49.59	-13	-36.59	-56.53	4.19	11.13	Horizontal	Pass
3700.14	-56.12	-13	-43.12	-61	3.29	8.17	Vertical	Pass
5550.21	-52.75	-13	-39.75	-58.96	4.24	10.45	Vertical	Pass
7400.28	-48.87	-13	-35.87	-55.81	4.19	11.13	Vertical	Pass

FDD LTE Band2-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3758.74	-54.93	-13	-41.93	-59.81	3.29	8.17	Horizontal	Pass
5638.11	-52.6	-13	-39.6	-58.81	4.24	10.45	Horizontal	Pass
7517.48	-48.49	-13	-35.49	-56.015	4.215	11.74	Horizontal	Pass
3758.74	-55.68	-13	-42.68	-60.56	3.29	8.17	Vertical	Pass
5638.11	-53.57	-13	-40.57	-59.78	4.24	10.45	Vertical	Pass
7517.48	-50.13	-13	-37.13	-57.655	4.215	11.74	Vertical	Pass

FDD LTE Band2-High channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3817.34	-55.7	-13	-42.7	-60.58	3.29	8.17	Horizontal	Pass
5726.01	-53.48	-13	-40.48	-59.69	4.24	10.45	Horizontal	Pass
7634.68	-49.51	-13	-36.51	-57.035	4.215	11.74	Horizontal	Pass
3817.34	-56.25	-13	-43.25	-61.13	3.29	8.17	Vertical	Pass
5726.01	-54.32	-13	-41.32	-60.53	4.24	10.45	Vertical	Pass
7634.68	-50.41	-13	-37.41	-57.935	4.215	11.74	Vertical	Pass



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FDD LTE Band4-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3420.14	-56.56	-13	-43.56	-60.52	2.96	6.92	Horizontal	Pass
5130.21	-53.62	-13	-40.62	-59.5	4.26	10.14	Horizontal	Pass
6840.28	-51.11	-13	-38.11	-57.395	4.205	10.49	Horizontal	Pass
3420.14	-56.46	-13	-43.46	-60.42	2.96	6.92	Vertical	Pass
5130.21	-52.29	-13	-39.29	-58.17	4.26	10.14	Vertical	Pass
6840.28	-50.82	-13	-37.82	-57.105	4.205	10.49	Vertical	Pass

FDD LTE Band4-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3463.74	-57.33	-13	-44.33	-61.29	2.96	6.92	Horizontal	Pass
5195.61	-53.62	-13	-40.62	-59.5	4.26	10.14	Horizontal	Pass
6927.48	-51.68	-13	-38.68	-57.965	4.205	10.49	Horizontal	Pass
3463.74	-57.28	-13	-44.28	-61.24	2.96	6.92	Vertical	Pass
5195.61	-53.35	-13	-40.35	-59.23	4.26	10.14	Vertical	Pass
6927.48	-51.2	-13	-38.2	-57.485	4.205	10.49	Vertical	Pass

FDD LTE Band4-High channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3507.34	-56.54	-13	-43.54	-61.42	3.29	8.17	Horizontal	Pass
5261.01	-52.91	-13	-39.91	-58.79	4.26	10.14	Horizontal	Pass
7014.68	-50.03	-13	-37.03	-56.97	4.19	11.13	Horizontal	Pass
3507.34	-57.28	-13	-44.28	-62.16	3.29	8.17	Vertical	Pass
5261.01	-53.53	-13	-40.53	-59.41	4.26	10.14	Vertical	Pass
7014.68	-49.56	-13	-36.56	-56.5	4.19	11.13	Vertical	Pass



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SZEMC-TRF-01 Rev. A/1

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FDD LTE Band5-Low channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1648.14	-65.88	-13	-52.88	-69.765	1.995	5.88	Horizontal	Pass
2472.21	-61.23	-13	-48.23	-61.35	2.35	4.62	Horizontal	Pass
3296.28	-57.77	-13	-44.77	-59.58	2.96	6.92	Horizontal	Pass
1648.14	-64.27	-13	-51.27	-66.005	1.995	5.88	Vertical	Pass
2472.21	-39.03	-13	-26.03	-39.15	2.35	4.62	Vertical	Pass
3296.28	-57.41	-13	-44.41	-59.22	2.96	6.92	Vertical	Pass

FDD LTE Band5-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1671.74	-65.58	-13	-52.58	-69.465	1.995	5.88	Horizontal	Pass
2507.61	-62.75	-13	-49.75	-63.765	2.655	5.82	Horizontal	Pass
3343.48	-57.4	-13	-44.4	-59.21	2.96	6.92	Horizontal	Pass
1671.74	-65.83	-13	-52.83	-67.565	1.995	5.88	Vertical	Pass
2507.61	-58.06	-13	-45.06	-59.075	2.655	5.82	Vertical	Pass
3343.48	-56.74	-13	-43.74	-58.55	2.96	6.92	Vertical	Pass

FDD LTE Band5-High channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1695.34	-66.7	-13	-53.7	-70.585	1.995	5.88	Horizontal	Pass
2543.01	-61.77	-13	-48.77	-62.785	2.655	5.82	Horizontal	Pass
3390.68	-56.78	-13	-43.78	-58.59	2.96	6.92	Horizontal	Pass
1695.34	-65.43	-13	-52.43	-67.165	1.995	5.88	Vertical	Pass
2543.01	-62.09	-13	-49.09	-63.105	2.655	5.82	Vertical	Pass
3390.68	-57.01	-13	-44.01	-58.82	2.96	6.92	Vertical	Pass



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FDD LTE Band7-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5000.5	-53.99	-25	-28.99	-59.87	4.26	10.14	Horizontal	Pass
7500.75	-48.73	-25	-23.73	-56.255	4.215	11.74	Horizontal	Pass
10001	-45.99	-25	-20.99	-53.94	5.08	13.03	Horizontal	Pass
5000.5	-53.63	-25	-28.63	-59.51	4.26	10.14	Vertical	Pass
7500.75	-49.05	-25	-24.05	-56.575	4.215	11.74	Vertical	Pass
10001	-47.25	-25	-22.25	-55.2	5.08	13.03	Vertical	Pass

FDD LTE Band7-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5065.5	-53.14	-25	-28.14	-59.02	4.26	10.14	Horizontal	Pass
7598.25	-50.14	-25	-25.14	-57.665	4.215	11.74	Horizontal	Pass
10131	-46.62	-25	-21.62	-54.57	5.08	13.03	Horizontal	Pass
5065.5	-53.77	-25	-28.77	-59.65	4.26	10.14	Vertical	Pass
7598.25	-49.78	-25	-24.78	-57.305	4.215	11.74	Vertical	Pass
10131	-46.22	-25	-21.22	-54.17	5.08	13.03	Vertical	Pass

FDD LTE Band7-High channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5130.5	-51.85	-25	-26.85	-57.73	4.26	10.14	Horizontal	Pass
7695.75	-50.87	-25	-25.87	-58.395	4.215	11.74	Horizontal	Pass
10261	-48.42	-25	-23.42	-56.37	5.08	13.03	Horizontal	Pass
5130.5	-54.1	-25	-29.1	-59.98	4.26	10.14	Vertical	Pass
7695.75	-50.21	-25	-25.21	-57.735	4.215	11.74	Vertical	Pass
10261	-48.45	-25	-23.45	-56.4	5.08	13.03	Vertical	Pass



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FDD LTE Band66-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3420.14	-56.54	-13	-43.54	-60.5	2.96	6.92	Horizontal	Pass
5130.21	-53.81	-13	-40.81	-59.69	4.26	10.14	Horizontal	Pass
6840.28	-51.32	-13	-38.32	-57.605	4.205	10.49	Horizontal	Pass
3420.14	-56.33	-13	-43.33	-60.29	2.96	6.92	Vertical	Pass
5130.21	-52.9	-13	-39.9	-58.78	4.26	10.14	Vertical	Pass
6840.28	-51.05	-13	-38.05	-57.335	4.205	10.49	Vertical	Pass

FDD LTE Band66-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3488.74	-57.37	-13	-44.37	-61.33	2.96	6.92	Horizontal	Pass
5233.11	-53.19	-13	-40.19	-59.07	4.26	10.14	Horizontal	Pass
6977.48	-50.29	-13	-37.29	-56.575	4.205	10.49	Horizontal	Pass
3488.74	-57.06	-13	-44.06	-61.02	2.96	6.92	Vertical	Pass
5233.11	-53.13	-13	-40.13	-59.01	4.26	10.14	Vertical	Pass
6977.48	-49.44	-13	-36.44	-55.725	4.205	10.49	Vertical	Pass

FDD LTE Band66-High channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB0								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3557.34	-57.92	-13	-44.92	-62.8	3.29	8.17	Horizontal	Pass
5336.01	-53.25	-13	-40.25	-59.13	4.26	10.14	Horizontal	Pass
7114.68	-50.42	-13	-37.42	-57.36	4.19	11.13	Horizontal	Pass
3557.34	-56.97	-13	-43.97	-61.85	3.29	8.17	Vertical	Pass
5336.01	-53.78	-13	-40.78	-59.66	4.26	10.14	Vertical	Pass
7114.68	-49.91	-13	-36.91	-56.85	4.19	11.13	Vertical	Pass

Note: All modes have been tested and we found QPSK test mode has the worst test result. Only record the worst test result.



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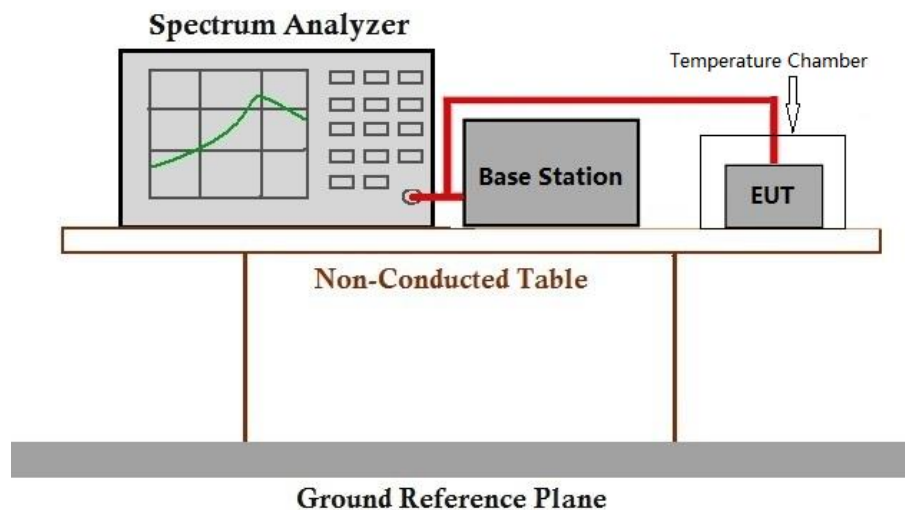
### 6.7 Frequency stability

Test Requirement: §2.1055, §22.355, §24.235, §27.54  
 Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01  
 Limit:  $\leq \pm 2.5\text{ppm}$ .

#### 6.7.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode 32: TX mode\_Keep the EUT in transmitting mode

#### 6.7.2 Test Setup Diagram



#### 6.7.3 Measurement Data

Please refer to Appendix for LTE test data.



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## 7 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2401000122AT

## 8 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for SZCR2401000122AT

- End of the Report -

