TEST REPORT

Application No.:	SZCR2309003223AT
Applicant:	Cosmo Technologies, Inc.
Address of Applicant:	747 Grape St, Denver, Colorado 80220 United States
Manufacturer:	Shenzhen Qinmi Smart Technology Co., Ltd.
Address of Manufacturer:	4rd floor, Building 09, Tongfuyu Industrial Park, Lezhujiao Village, Xixiang, Baoan, Shenzhen
Equipment Under Test (EUT):	
EUT Name:	COSMO JrTrack Kids Smartwatch
Model No.:	JRTV3
Trade Mark:	JrTrack
FCC ID:	2A3RL-JRTRACK03
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:	2023-09-28
Date of Test:	2023-10-12 to 2023-10-30
Date of Issue:	2023-11-02
Test Result:	**Pass**

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

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-11-02		Original

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

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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Output Power Data	§2.1046 §22.913 §24.232 §27.50(b) §27.50(c) §27.50(d) §27.50(h)	ERP≤ 7W(LTE Band 5) EIRP≤ 2W(LTE Band 2) ERP≤ 3W(LTE Band 13) ERP≤ 3W(LTE Band 12,17) 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(c) §27.50(g) §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.4 for LTE Band13 ≤ -13dBm (LTE Band12,17) ≤ -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(c) §27.50(g) §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.5 for LTE Band13 ≤ -13dBm (LTE Band12,17) ≤ -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(c) §27.50(g) §27.50(h) §27.50(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.6 for LTE Band13 ≤ -13dBm (LTE Band12,17) ≤ -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

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC3.8V by li-ion battery(680mAh) Battery M/N:602831 Battery Manufacturer:Shenzhen Ruiyixin Energy Co., Ltd. Recharged Input: DC5V from USB port
Cable(s):	USB cable: 0.5m unshielded cable without ferrite core
Cable Loss (for RF conducted test):	0.5dBi
Sample Type:	Portable production
LTE Operation Frequency Band:	LTE FDD Band 2,4,5,7,12,13,17,66
Modulation Type:	QPSK, 16QAM
LTE Power Class:	Level 3
Antenna Type:	PIFA Antenna
Antenna Gain:	LTE B2: -1.72dBi, B4: -1.63dBi, B5: -6.5dBi, B7: -0.88dBi, B12: -6.93dBi, B13: -6.43dBi, B17: -6.93dBi, B66: -1.63dBi

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
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	704.0	707.5	711.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 13	5	779.5	782.0	784.5
	10	/	782.0	/
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 17	5	706.5	710.0	713.5
	10	709.0	710.0	711.0

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	3.4 Vdc
	VN	3.8 Vdc
	VH	4.35 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	± 5.4 x 10^{-8}
2	Duty cycle	± 0.3%
3	Occupied Bandwidth	± 3%
4	RF conducted power	± 0.8dB
5	RF power density	± 0.4dB
6	Conducted Spurious emissions	± 2.7dB
7	Radiated Spurious emission test	± 3.1dB (Below 1GHz)
		± 4.4dB (Above 1GHz)
8	Temperature test	± 1°C
9	Humidity test	± 3%
10	Supply voltages	± 1.5%
11	Time	± 3%

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

5 Equipment List

RF test system					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
Shielding Room	SAEMC	MSR733	SEM001-09	2022-05-14	2025-05-13
MXA Signal Analyzer	KEYSIGHT	N9020B	SEM004-17	2023-03-20	2024-03-14
Mobile Communications DC Source	Agilent	66319D	SEM011-12	2023-05-06	2024-05-05
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2023-04-06	2024-04-05
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2023-04-06	2024-04-05
Power Sensor	KEYSIGHT	U2021XA	SEM009-15	2023-04-06	2024-04-05
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-04-06	2024-04-05
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2023-04-06	2024-04-05
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2023-09-16	2025-09-15
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2022-07-24	2024-07-23
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-32	2021-09-26	2024-09-25
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2023-09-14	2024-09-13
Microwave System Amplifier(0.5-26.5GHz)	Agilent	83017A	SEM005-25	2023-09-20	2024-09-19
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2023-03-21	2024-03-20
Substitution Antenna	Rohde & Schwarz	HF907	SEM003-06	2022-08-07	2024-08-06
Substitution Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09

Signal Generator(9kHz-40GHz)	N5173B	MY53270267	Agilent	2023-07-11	2024-07-10
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-06	2023-07-07	2024-07-06

RE in Chamber					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2021-11-30	2023-11-29
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2022-10-20	2023-10-19
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2023-09-16	2025-09-15
Substitution Antenna	Schwarzbeck	VULB9163	SEM003-05	2023-09-16	2025-09-15
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2023-03-20	2024-03-19
Signal Generator(9kHz-40GHz)	N5173B	MY53270267	Agilent	2023-07-11	2024-07-10
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2023-07-07	2024-07-06

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(b), §27.50(c), §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)
ERP≤ 3W(LTE Band 13)
ERP≤ 3W(LTE Band 12,17)
EIRP≤ 1W(LTE Band 4,66)
EIRP≤ 2W(LTE Band 7)

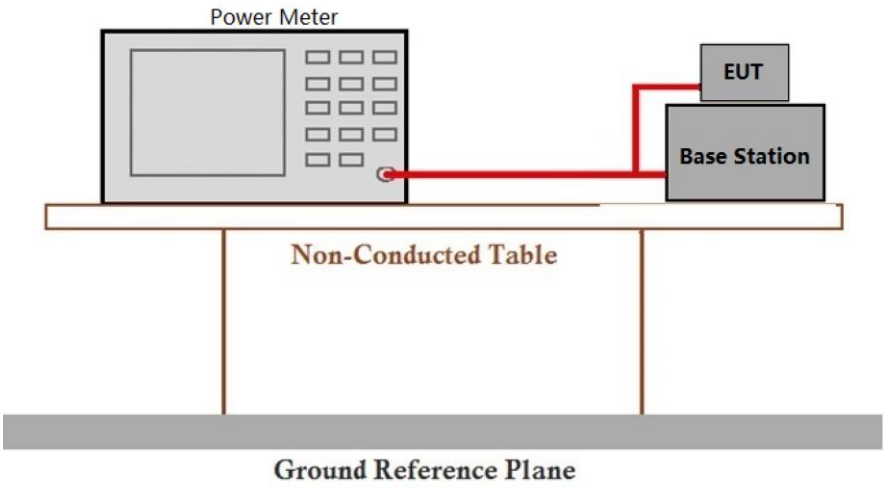
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1000 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.

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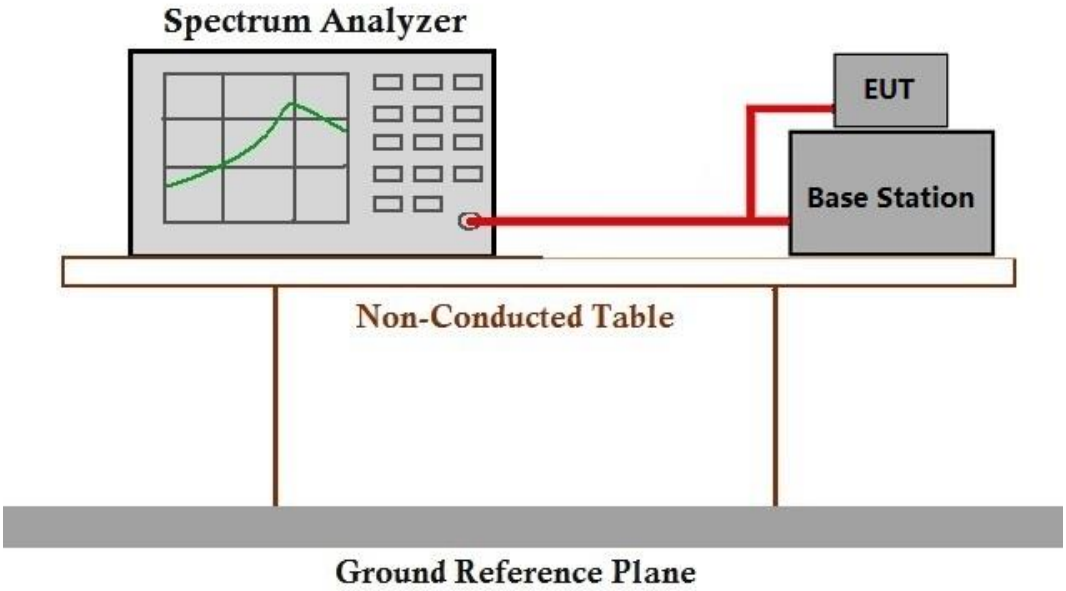
6.2 Peak-Average Ratio

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: 1000 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

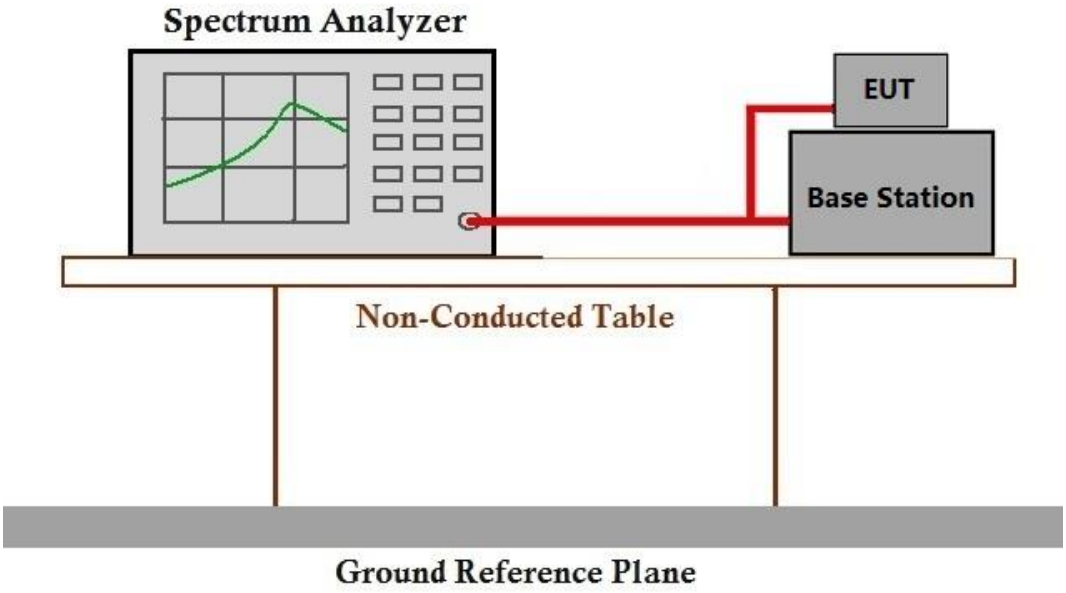
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1000 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(c), §27.50(g), §27.50(h), §27.50(m)

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

Limit: ≤ -13dBm (**LTE Band2,4,5,12,17,66**)

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 that 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.

For band 13:

(1) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations

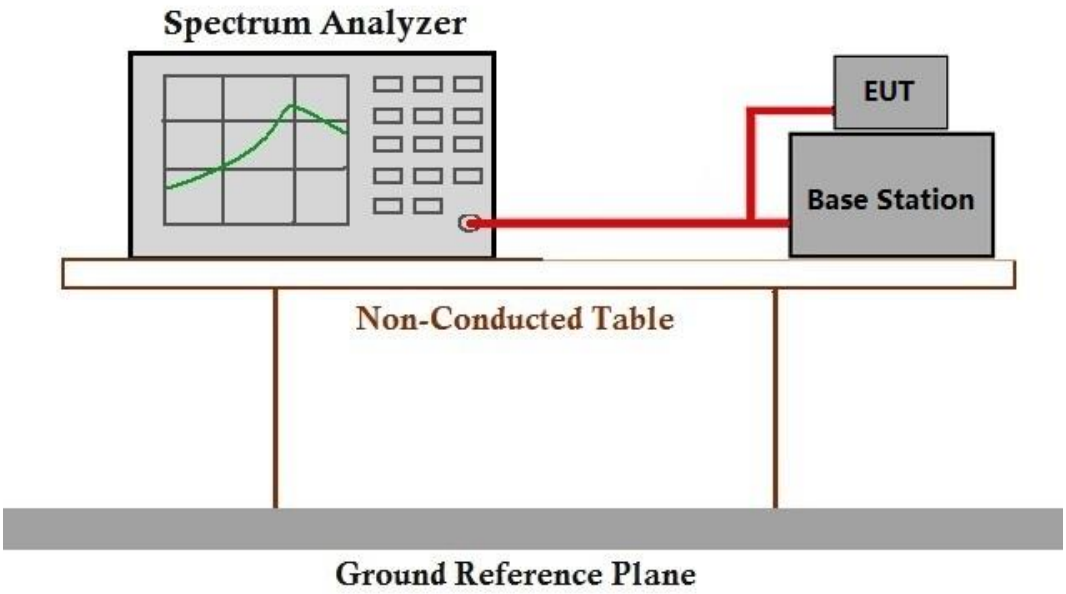
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1000 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.

6.5 Spurious emissions at antenna terminals

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

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

Limit: ≤ -13dBm (**LTE Band2,4,5,12,17,66**)

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 that 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.

For band 13:

(1) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations

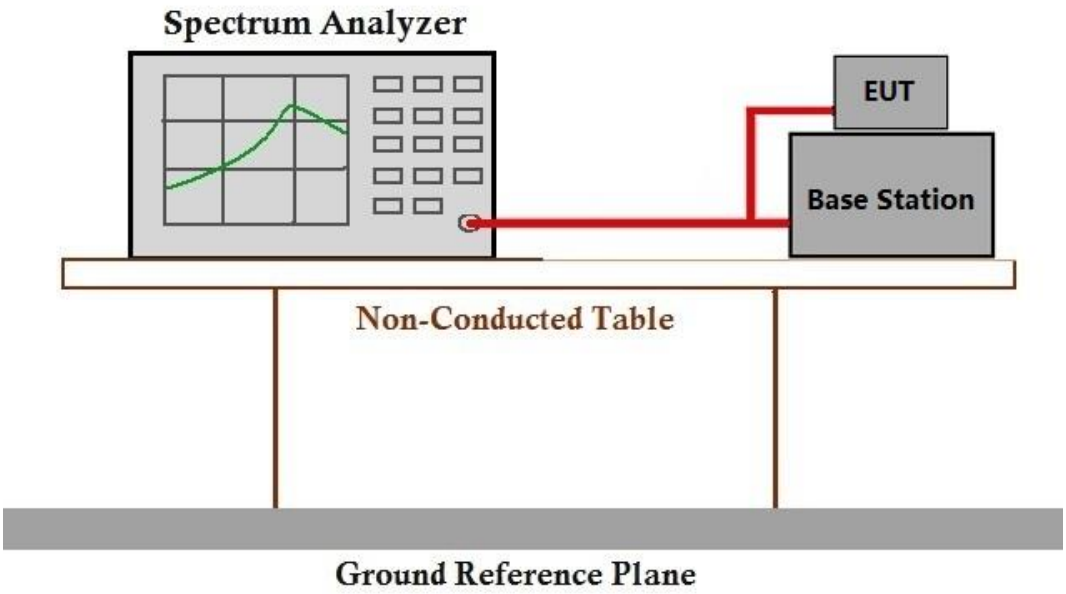
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1000 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.

6.6 Field strength of spurious radiation

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

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

Limit: ≤ -13dBm (**LTE Band2,4,5,12,17,66**)

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 that 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.

For band 13:

(1) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations

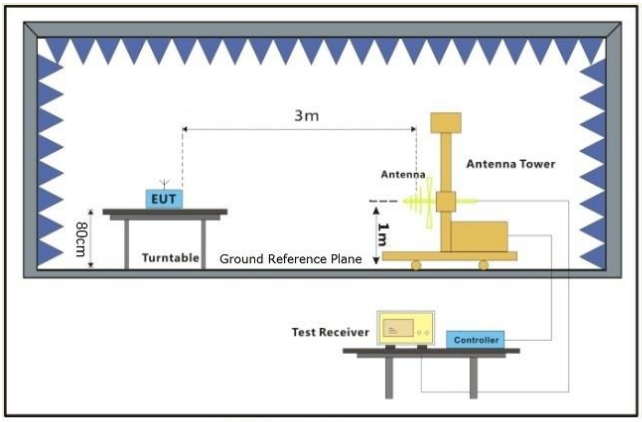
6.6.1 E.U.T. Operation

Operating Environment:

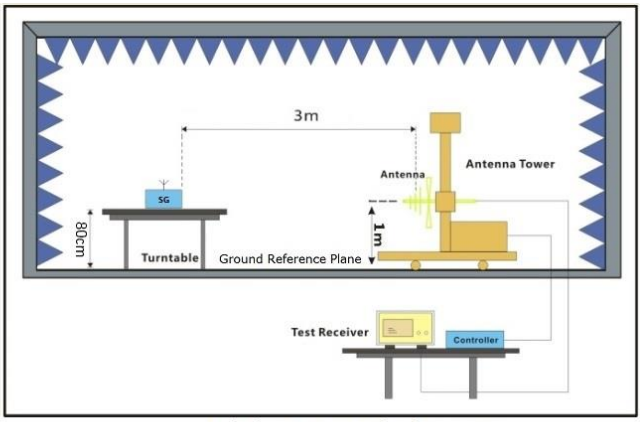
Temperature: 22.5 °C Humidity: 47.5 % RH Atmospheric Pressure: 1000 mbar

Test mode 32: TX mode_Keep the EUT in transmitting mode

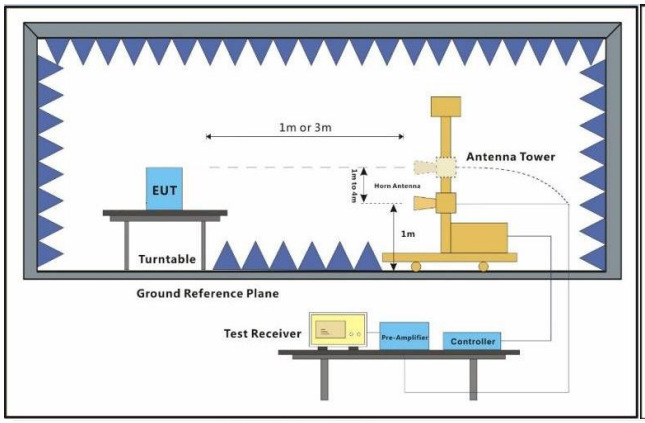
6.6.2 Test Setup Diagram



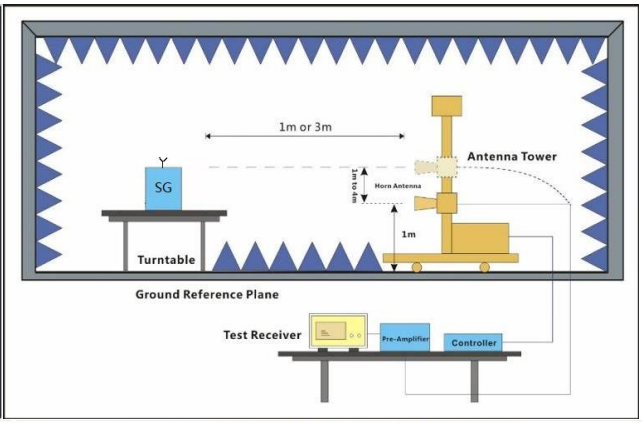
EUT



Substiute Antenna+Signal Generator



EUT



Substiute Antenna+Signal Generator

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 than 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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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

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	-47.99	-13	-34.99	-50.21	6.99	9.21	Horizontal	Pass
5550.21	-45.27	-13	-32.27	-47.59	8.27	10.59	Horizontal	Pass
7400.28	-41.7	-13	-28.7	-45.24	8.19	11.73	Horizontal	Pass
3700.14	-46.98	-13	-33.98	-49.2	6.99	9.21	Vertical	Pass
5550.21	-44.74	-13	-31.74	-47.06	8.27	10.59	Vertical	Pass
7400.28	-42.04	-13	-29.04	-45.58	8.19	11.73	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	-48.32	-13	-35.32	-50.54	6.99	9.21	Horizontal	Pass
5638.11	-45.91	-13	-32.91	-48.23	8.27	10.59	Horizontal	Pass
7517.48	-42.77	-13	-29.77	-46.6	8.43	12.26	Horizontal	Pass
3758.74	-47.03	-13	-34.03	-49.25	6.99	9.21	Vertical	Pass
5638.11	-45.4	-13	-32.4	-47.72	8.27	10.59	Vertical	Pass
7517.48	-42.92	-13	-29.92	-46.75	8.43	12.26	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	-47.72	-13	-34.72	-49.94	6.99	9.21	Horizontal	Pass
5726.01	-46.07	-13	-33.07	-48.39	8.27	10.59	Horizontal	Pass
7634.68	-42.53	-13	-29.53	-46.36	8.43	12.26	Horizontal	Pass
3817.34	-48.06	-13	-35.06	-50.28	6.99	9.21	Vertical	Pass
5726.01	-44.98	-13	-31.98	-47.3	8.27	10.59	Vertical	Pass
7634.68	-42.95	-13	-29.95	-46.78	8.43	12.26	Vertical	Pass

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	-48.16	-13	-35.16	-50.74	5.72	8.3	Horizontal	Pass
5130.21	-44.84	-13	-31.84	-46.84	8.3	10.3	Horizontal	Pass
6840.28	-44.05	-13	-31.05	-47.6	7.7	11.25	Horizontal	Pass
3420.14	-47.93	-13	-34.93	-50.51	5.72	8.3	Vertical	Pass
5130.21	-45.5	-13	-32.5	-47.5	8.3	10.3	Vertical	Pass
6840.28	-43.9	-13	-30.9	-47.45	7.7	11.25	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	-47.57	-13	-34.57	-50.15	5.72	8.3	Horizontal	Pass
5195.61	-46.17	-13	-33.17	-48.17	8.3	10.3	Horizontal	Pass
6927.48	-43.21	-13	-30.21	-46.76	7.7	11.25	Horizontal	Pass
3463.74	-49.12	-13	-36.12	-51.7	5.72	8.3	Vertical	Pass
5195.61	-46.49	-13	-33.49	-48.49	8.3	10.3	Vertical	Pass
6927.48	-43.6	-13	-30.6	-47.15	7.7	11.25	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	-49.06	-13	-36.06	-51.28	6.99	9.21	Horizontal	Pass
5261.01	-45.25	-13	-32.25	-47.25	8.3	10.3	Horizontal	Pass
7014.68	-43.53	-13	-30.53	-47.07	8.19	11.73	Horizontal	Pass
3507.34	-48.26	-13	-35.26	-50.48	6.99	9.21	Vertical	Pass
5261.01	-46.05	-13	-33.05	-48.05	8.3	10.3	Vertical	Pass
7014.68	-44.82	-13	-31.82	-48.36	8.19	11.73	Vertical	Pass

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	-52.91	-13	-39.91	-56.57	3.77	7.43	Horizontal	Pass
2472.21	-51.07	-13	-38.07	-53.4	4.75	7.08	Horizontal	Pass
3296.28	-49.25	-13	-36.25	-51.83	5.72	8.3	Horizontal	Pass
1648.14	-52.39	-13	-39.39	-56.05	3.77	7.43	Vertical	Pass
2472.21	-50.44	-13	-37.44	-52.77	4.75	7.08	Vertical	Pass
3296.28	-49.24	-13	-36.24	-51.82	5.72	8.3	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	-53.57	-13	-40.57	-57.23	3.77	7.43	Horizontal	Pass
2507.61	-51.44	-13	-38.44	-53.91	5.13	7.6	Horizontal	Pass
3343.48	-49.16	-13	-36.16	-51.74	5.72	8.3	Horizontal	Pass
1671.74	-53.62	-13	-40.62	-57.28	3.77	7.43	Vertical	Pass
2507.61	-50.41	-13	-37.41	-52.88	5.13	7.6	Vertical	Pass
3343.48	-48.74	-13	-35.74	-51.32	5.72	8.3	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	-53.36	-13	-40.36	-57.02	3.77	7.43	Horizontal	Pass
2543.01	-51.45	-13	-38.45	-53.92	5.13	7.6	Horizontal	Pass
3390.68	-48.89	-13	-35.89	-51.47	5.72	8.3	Horizontal	Pass
1695.34	-52.48	-13	-39.48	-56.14	3.77	7.43	Vertical	Pass
2543.01	-51.5	-13	-38.5	-53.97	5.13	7.6	Vertical	Pass
3390.68	-49.16	-13	-36.16	-51.74	5.72	8.3	Vertical	Pass

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	-44.9	-25	-19.9	-46.9	8.3	10.3	Horizontal	Pass
7500.75	-42.67	-25	-17.67	-46.5	8.43	12.26	Horizontal	Pass
10001	-38.11	-25	-13.11	-40.36	11.12	13.37	Horizontal	Pass
5000.5	-44.54	-25	-19.54	-46.54	8.3	10.3	Vertical	Pass
7500.75	-41.4	-25	-16.4	-45.23	8.43	12.26	Vertical	Pass
10001	-40.22	-25	-15.22	-42.47	11.12	13.37	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	-46.74	-25	-21.74	-48.74	8.3	10.3	Horizontal	Pass
7598.25	-44.2	-25	-19.2	-48.03	8.43	12.26	Horizontal	Pass
10131	-39.87	-25	-14.87	-42.12	11.12	13.37	Horizontal	Pass
5065.5	-46.03	-25	-21.03	-48.03	8.3	10.3	Vertical	Pass
7598.25	-43	-25	-18	-46.83	8.43	12.26	Vertical	Pass
10131	-38.37	-25	-13.37	-40.62	11.12	13.37	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	-45.29	-25	-20.29	-47.29	8.3	10.3	Horizontal	Pass
7695.75	-43.66	-25	-18.66	-47.49	8.43	12.26	Horizontal	Pass
10261	-40.2	-25	-15.2	-42.45	11.12	13.37	Horizontal	Pass
5130.5	-45.59	-25	-20.59	-47.59	8.3	10.3	Vertical	Pass
7695.75	-43.23	-25	-18.23	-47.06	8.43	12.26	Vertical	Pass
10261	-40.29	-25	-15.29	-42.54	11.12	13.37	Vertical	Pass

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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

FDD LTE Band12-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
1398.14	-53.7	-13	-40.7	-56.23	2.64	5.17	Horizontal	Pass
2097.21	-43.6	-13	-30.6	-45.93	4.75	7.08	Horizontal	Pass
2796.28	-51.94	-13	-38.94	-54.41	5.13	7.6	Horizontal	Pass
1398.14	-53.41	-13	-40.41	-55.94	2.64	5.17	Vertical	Pass
2097.21	-50.85	-13	-37.85	-53.18	4.75	7.08	Vertical	Pass
2796.28	-50.57	-13	-37.57	-53.04	5.13	7.6	Vertical	Pass

FDD LTE Band12-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
1413.74	-54.7	-13	-41.7	-57.23	2.64	5.17	Horizontal	Pass
2120.61	-52.06	-13	-39.06	-54.39	4.75	7.08	Horizontal	Pass
2827.48	-50.28	-13	-37.28	-52.75	5.13	7.6	Horizontal	Pass
1413.74	-55.92	-13	-42.92	-58.45	2.64	5.17	Vertical	Pass
2120.61	-51.83	-13	-38.83	-54.16	4.75	7.08	Vertical	Pass
2827.48	-50.8	-13	-37.8	-53.27	5.13	7.6	Vertical	Pass

FDD LTE Band12-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
1429.34	-54.98	-13	-41.98	-57.51	2.64	5.17	Horizontal	Pass
2144.01	-52.33	-13	-39.33	-54.66	4.75	7.08	Horizontal	Pass
2858.68	-51.33	-13	-38.33	-53.8	5.13	7.6	Horizontal	Pass
1429.34	-55.23	-13	-42.23	-57.76	2.64	5.17	Vertical	Pass
2144.01	-52.1	-13	-39.1	-54.43	4.75	7.08	Vertical	Pass
2858.68	-50.42	-13	-37.42	-52.89	5.13	7.6	Vertical	Pass

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FDD LTE Band13-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
1555	-52.15	-13	-39.15	-55.81	3.77	7.43	Horizontal	Pass
2332.5	-50.64	-13	-37.64	-52.97	4.75	7.08	Horizontal	Pass
3110	-49.19	-13	-36.19	-51.77	5.72	8.3	Horizontal	Pass
1555	-53.3	-13	-40.3	-56.96	3.77	7.43	Vertical	Pass
2332.5	-51.11	-13	-38.11	-53.44	4.75	7.08	Vertical	Pass
3110	-49.68	-13	-36.68	-52.26	5.72	8.3	Vertical	Pass

FDD LTE Band17-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
1409	-54.87	-13	-41.87	-57.4	2.64	5.17	Horizontal	Pass
2113.5	-47.1	-13	-34.1	-49.43	4.75	7.08	Horizontal	Pass
2818	-50.82	-13	-37.82	-53.29	5.13	7.6	Horizontal	Pass
1409	-53.86	-13	-40.86	-56.39	2.64	5.17	Vertical	Pass
2113.5	-51.57	-13	-38.57	-53.9	4.75	7.08	Vertical	Pass
2818	-50.11	-13	-37.11	-52.58	5.13	7.6	Vertical	Pass

FDD LTE Band17-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
1411	-54.65	-13	-41.65	-57.18	2.64	5.17	Horizontal	Pass
2116.5	-52.43	-13	-39.43	-54.76	4.75	7.08	Horizontal	Pass
2822	-50.06	-13	-37.06	-52.53	5.13	7.6	Horizontal	Pass
1411	-54.99	-13	-41.99	-57.52	2.64	5.17	Vertical	Pass
2116.5	-52	-13	-39	-54.33	4.75	7.08	Vertical	Pass
2822	-50.87	-13	-37.87	-53.34	5.13	7.6	Vertical	Pass

FDD LTE Band17-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
1413	-54.45	-13	-41.45	-56.98	2.64	5.17	Horizontal	Pass
2119.5	-51.62	-13	-38.62	-53.95	4.75	7.08	Horizontal	Pass
2826	-50.59	-13	-37.59	-53.06	5.13	7.6	Horizontal	Pass
1413	-54.85	-13	-41.85	-57.38	2.64	5.17	Vertical	Pass
2119.5	-51.73	-13	-38.73	-54.06	4.75	7.08	Vertical	Pass
2826	-51.5	-13	-38.5	-53.97	5.13	7.6	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	-47.22	-13	-34.22	-49.8	5.72	8.3	Horizontal	Pass
5130.21	-46.68	-13	-33.68	-48.68	8.3	10.3	Horizontal	Pass
6840.28	-43.58	-13	-30.58	-47.13	7.7	11.25	Horizontal	Pass
3420.14	-49.06	-13	-36.06	-51.64	5.72	8.3	Vertical	Pass
5130.21	-46.57	-13	-33.57	-48.57	8.3	10.3	Vertical	Pass
6840.28	-43.71	-13	-30.71	-47.26	7.7	11.25	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	-48.62	-13	-35.62	-51.2	5.72	8.3	Horizontal	Pass
5233.11	-46.56	-13	-33.56	-48.56	8.3	10.3	Horizontal	Pass
6977.48	-42	-13	-29	-45.55	7.7	11.25	Horizontal	Pass
3488.74	-49.11	-13	-36.11	-51.69	5.72	8.3	Vertical	Pass
5233.11	-46.84	-13	-33.84	-48.84	8.3	10.3	Vertical	Pass
6977.48	-43.63	-13	-30.63	-47.18	7.7	11.25	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	-48.41	-13	-35.41	-50.63	6.99	9.21	Horizontal	Pass
5336.01	-46.56	-13	-33.56	-48.56	8.3	10.3	Horizontal	Pass
7114.68	-42.8	-13	-29.8	-46.34	8.19	11.73	Horizontal	Pass
3557.34	-49.53	-13	-36.53	-51.75	6.99	9.21	Vertical	Pass
5336.01	-46.51	-13	-33.51	-48.51	8.3	10.3	Vertical	Pass
7114.68	-43.15	-13	-30.15	-46.69	8.19	11.73	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.

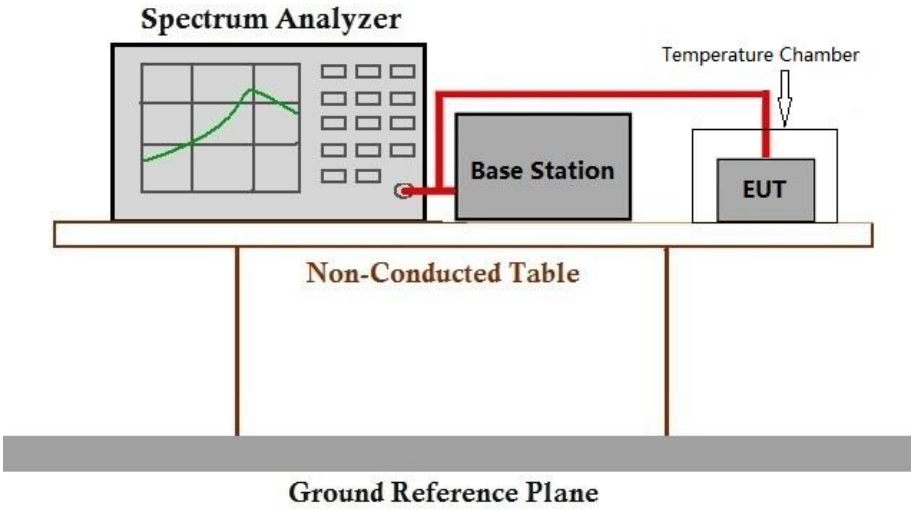
6.7 Frequency stability

Test Requirement: §2.1055,§22.355,§24.235,§27.54
Test Method: ANSI C63.26-2015, KDB 971168 D01 v03r01
Limit: ≤ ±2.5ppm.

6.7.1 E.U.T. Operation

Operating Environment:
Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1000 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.

7 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2309003223AT

8 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for SZCR2309003223AT

- End of the Report -

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