



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

Report No.: SZCR210402058706

Page: 1 of 29

TEST REPORT

Application No.: SZCR2104020587AT
Applicant: GUANGDONG GENIUS TECHNOLOGY CO., LTD.
Address of Applicant: No.168, Middle Road Of East Gate, Xiaobian Community, Chang'an Town, Dongguan City, Guangdong, China
Manufacturer: GUANGDONG GENIUS TECHNOLOGY CO., LTD.
Address of Manufacturer: No.168, Middle Road Of East Gate, Xiaobian Community, Chang'an Town, Dongguan City, Guangdong, China
Factory: GUANGDONG GENIUS TECHNOLOGY CO., LTD.
Address of Factory: No.168, Middle Road Of East Gate, Xiaobian Community, Chang'an Town, Dongguan City, Guangdong, China
Equipment Under Test (EUT):
EUT Name: Watch Phone
Model No.: W1818AO
Trade mark: imoo
FCC ID: 2AYJFI18
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: 2021-04-16
Date of Test: 2021-04-19 to 2021-06-17
Date of Issue: 2021-06-17

Test Result:	Pass
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-06-17		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 Power Output Data	§2.1046 §22.913 §24.232 §27.50(a) §27.50(h)	ERP≤ 7W(LTE Band 5) EIRP≤ 2W(LTE Band 2) EIRP≤ 250mW/5MHz(LTE Band 40) EIRP≤ 2W(LTE Band 38,41)	PASS
Peak-Average Ratio	§22.913 §24.232 §27.50(d)	≤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(a) §27.53(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.4 for LTE and 40 Refer to clause 6.4 for LTE Band38, 41	PASS
Spurious emissions at antenna terminals	§2.1051 §22.917 §24.238 §27.53(a) §27.53(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.4 for LTE and 40 Refer to clause 6.4 for LTE Band38, 41	PASS
Field strength of spurious radiation	§2.1051 §22.917 §24.238 §27.53(a) §27.53(m)	≤ -13dBm (LTE Band5) ≤ -13dBm (LTE Band2) Refer to clause 6.4 for LTE and 40 Refer to clause 6.4 for LTE Band38, 41	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:	DC3.85V by li-ion battery(680mAh) Recharge input: DC5V/1200mA from power adapter
Cable(s):	USB charge cable: 1m unshielded cable without ferrite core
LTE Operation Frequency Band:	LTE FDD Band 2, 5, 38, 40, 41
Modulation Type:	QPSK, 16QAM
LTE Power Class:	Level 3
Antenna Type:	PIFA Antenna
Antenna Gain:	LTE B2: -1.67dBi B5: -4.01dBi B38: -0.35dBi B40: -1.26dBi B41: -0.68dBi
Extreme temp. Tolerance:	-30°C to +50°C
Extreme vol. Limits:	3.6VDC to 4.4VDC (nominal: 3.85VDC)



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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
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 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 FDD Band 40(a)	5	2307.5	2310.0	2312.5
	10	/	2310.0	/
Test Mode	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 40(b)	5	2352.5	2355.0	2357.5
	10	/	2355.0	/



Test Mode	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD 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	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TL	-30 °C
	TN	+20 °C
	TH	+50 °C
Voltage:	VL	3.6 V
	VN	3.85 V
	VH	4.4 V

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.

4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious emission test	4.5dB (Below 1GHz)
		4.8dB (Above 1GHz)
9	Temperature test	1 °C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%



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4.6 Test Location

All tests were performed at:

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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**

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. 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: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **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
DC Power Supply	ZhaoXin	PS-3005D	SEM011-05	2020-09-23	2021-09-22
Signal Analyzer (10Hz-40GHz)	Rohde & Schwarz	FSV40	SEM008-04	2021-03-30	2022-03-29
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.6	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2021-03-30	2022-03-29
Power Sensor	KEYSIGHT	U2021XA	SEM009-13	2021-04-10	2022-04-09

RE in Chamber(below 1GHz)					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2020-09-23	2021-09-22
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2019-05-24	2022-05-23
Substitution Antenna	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2021-03-24	2022-03-23
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2021-03-30	2022-03-29



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RE in Chamber(above 1GHz)					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2021-04-10	2022-04-09
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2021-04-14	2024-04-13
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2020-11-14	2023-11-13
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2020-09-23	2021-09-22
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2021-03-30	2022-03-29
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2021-03-30	2022-03-29
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
Substitution Antenna	Rohde&Schwarz	HF907	SEM003-06	2021-04-17	2024-04-16
Signal Generator	R&S	SMA100A	102174	2020-07-10	2021-07-09

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2021-03-30	2022-03-29



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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(a), §27.50(h)

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

Limit:
ERP ≤ 7W(LTE Band 5)
EIRP ≤ 2W(LTE Band 2)
EIRP ≤ 250mW/5MHz(LTE Band 40)
EIRP ≤ 2W(LTE Band 38,41)

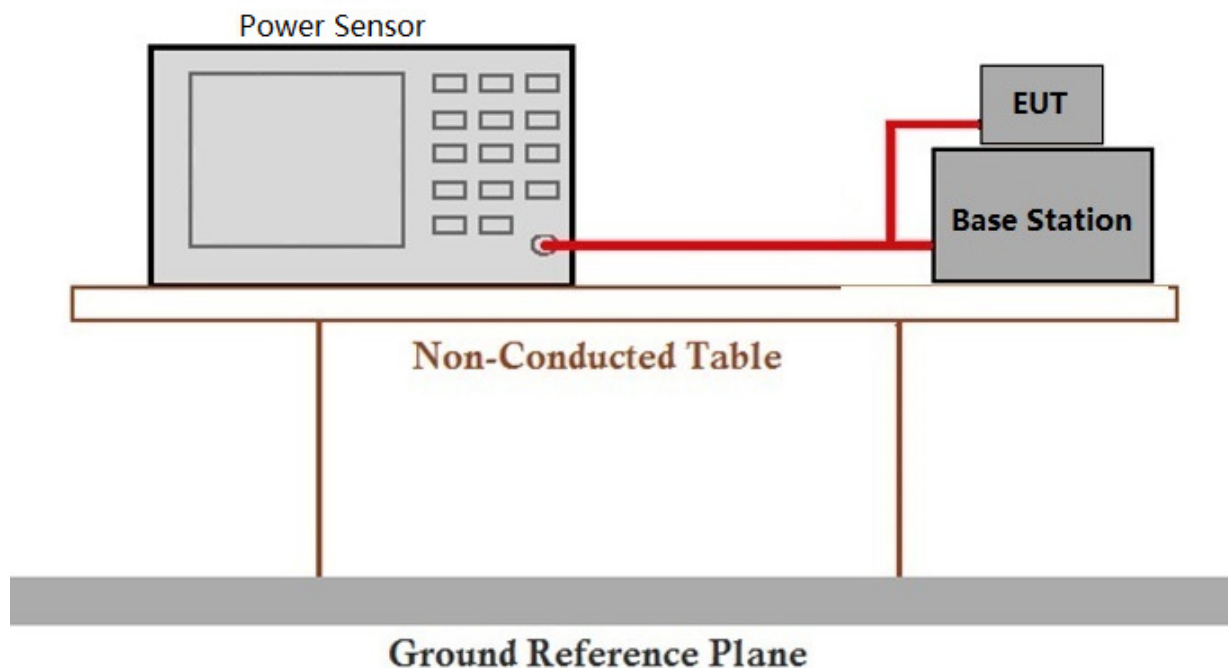
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

Please refer to Appendix_LTE_RF power



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6.2 Peak-Average Ratio

Test Requirement: §22.913, §24.232, §27.50(d)

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

Limit: ≤13dB

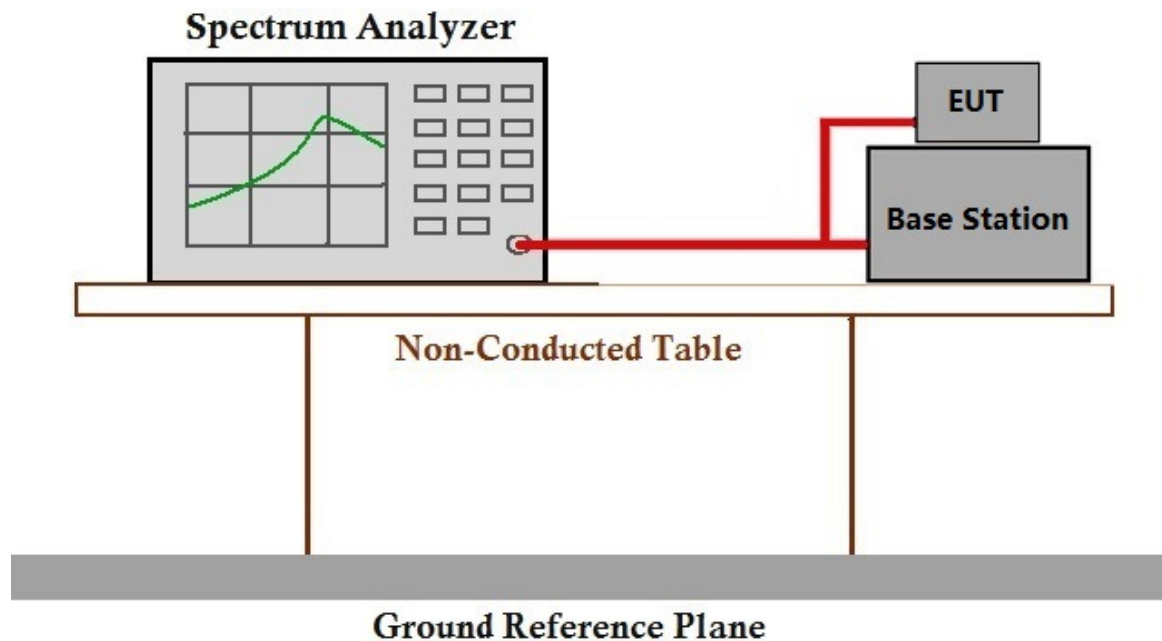
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

Please refer to Appendix_LTE_PAR



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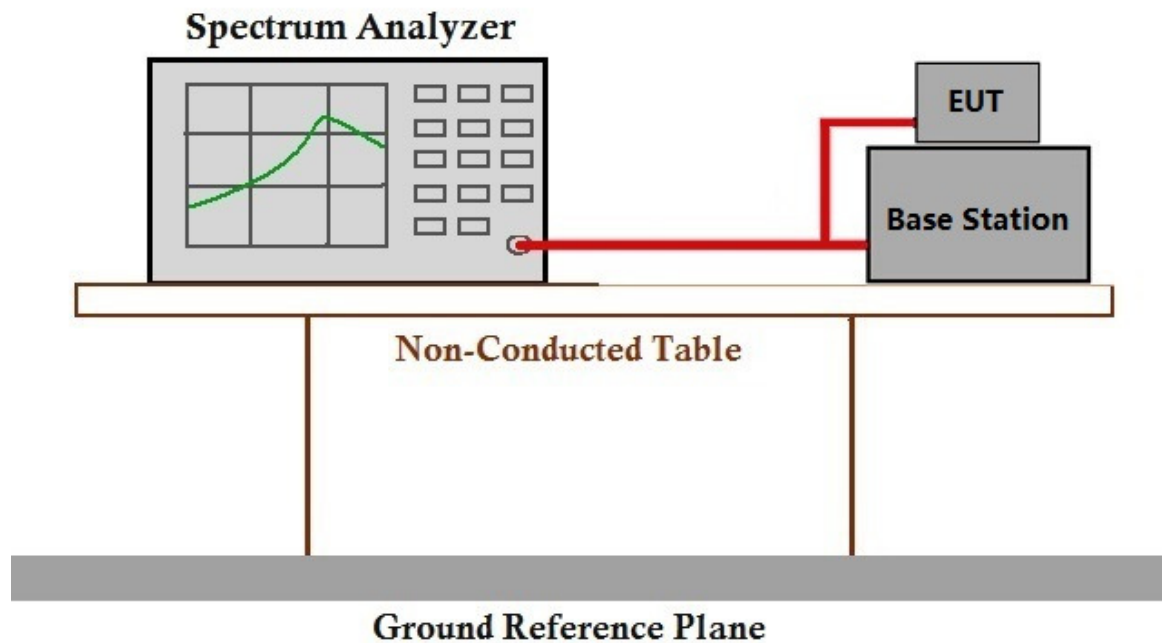
6.3 Bandwidth

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: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar
 Test mode 21: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

Please refer to Appendix_LTE_Bandwidth



6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238, §27.53(a), §27.53(m)

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

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

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. (LTE Band38,41)

(4) For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: (for band 40)

(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

6.4.1 E.U.T. Operation

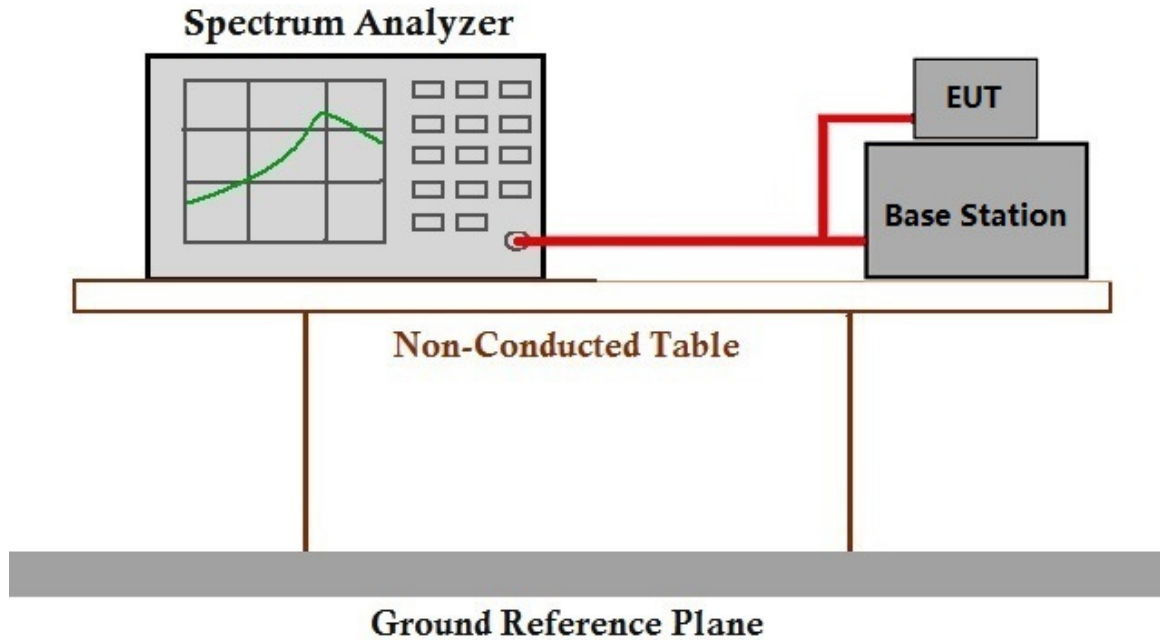
Operating Environment:

Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.



6.4.2 Test Setup Diagram



6.4.3 Measurement Data

Please refer to Appendix_LTE_Spurious emission



6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.53(a), §27.53(m)

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

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

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. (LTE Band38,41)

(4) For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: (for band 40)

(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

6.5.1 E.U.T. Operation

Operating Environment:

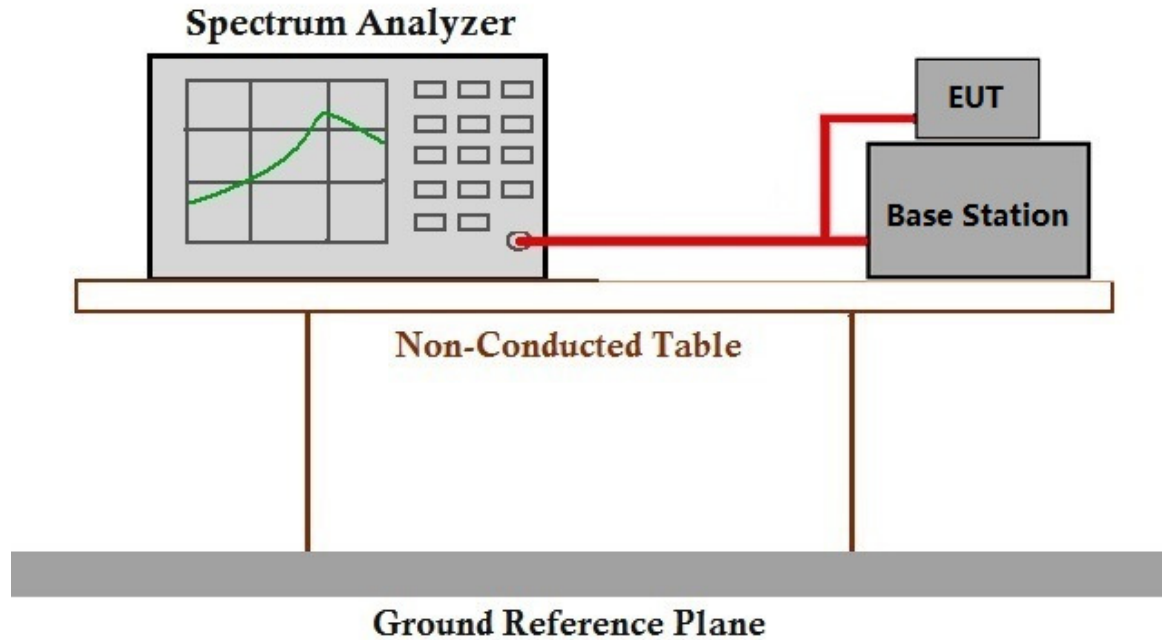
Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.





6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Please refer to Appendix_LTE_Spurious emission





6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238, §27.53(a), §27.53(m)

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

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

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. (LTE Band38,41)

(4) For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: (for band 40)

(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

6.6.1 E.U.T. Operation

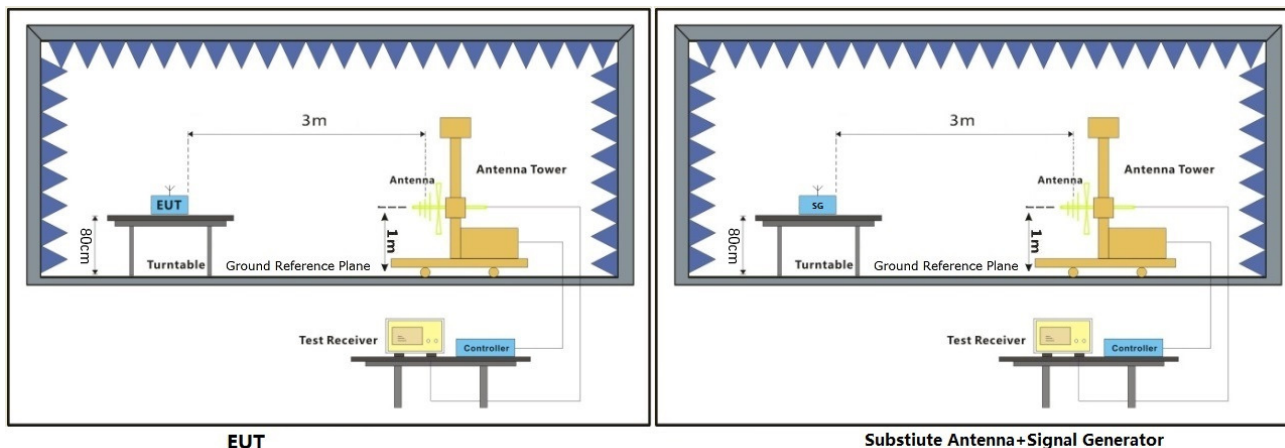
Operating Environment:

Temperature: 18.5 °C Humidity: 39.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.



6.6.2 Test Setup Diagram



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 2-20M Low channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-52.7	-13	-39.7	-59.59	0.71	7.6	Horizontal	Pass
5553	-47.92	-13	-34.92	-57.37	0.85	10.3	Horizontal	Pass
7404	-47.31	-13	-34.31	-59.21	1	12.9	Horizontal	Pass
3702	-52.78	-13	-39.78	-59.67	0.71	7.6	Vertical	Pass
5553	-48.13	-13	-35.13	-57.58	0.85	10.3	Vertical	Pass
7404	-47.26	-13	-34.26	-59.16	1	12.9	Vertical	Pass

LTE Band 2-20M Middle channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3742	-52.93	-13	-39.93	-59.82	0.71	7.6	Horizontal	Pass
5613	-49.51	-13	-36.51	-58.96	0.85	10.3	Horizontal	Pass
7484	-47.58	-13	-34.58	-59.48	1	12.9	Horizontal	Pass
3742	-54.59	-13	-41.59	-61.48	0.71	7.6	Vertical	Pass
5613	-49.74	-13	-36.74	-59.19	0.85	10.3	Vertical	Pass
7484	-46.69	-13	-33.69	-58.59	1	12.9	Vertical	Pass

LTE Band 2-20M High channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3782	-54.36	-13	-41.36	-61.25	0.71	7.6	Horizontal	Pass
5673	-48.52	-13	-35.52	-57.97	0.85	10.3	Horizontal	Pass
7564	-46.51	-13	-33.51	-58.72	0.99	13.2	Horizontal	Pass
3782	-53.48	-13	-40.48	-60.37	0.71	7.6	Vertical	Pass
5673	-48.5	-13	-35.5	-57.95	0.85	10.3	Vertical	Pass
7564	-47.23	-13	-34.23	-59.44	0.99	13.2	Vertical	Pass



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FDD LTE Band 5-Low channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	ERP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-61.99	-13	-48.99	-65.32	0.52	6	Horizontal	Pass
2473.5	-57.16	-13	-44.16	-60.28	0.53	5.8	Horizontal	Pass
3298	-54.01	-13	-41.01	-57.41	0.65	6.2	Horizontal	Pass
1649	-61.74	-13	-48.74	-65.07	0.52	6	Vertical	Pass
2473.5	-58.5	-13	-45.5	-61.62	0.53	5.8	Vertical	Pass
3298	-53.36	-13	-40.36	-56.76	0.65	6.2	Vertical	Pass

FDD LTE Band 5-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	ERP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1664	-62.19	-13	-49.19	-65.52	0.52	6	Horizontal	Pass
2496	-57.9	-13	-44.9	-61.02	0.53	5.8	Horizontal	Pass
3328	-53.75	-13	-40.75	-57.15	0.65	6.2	Horizontal	Pass
1664	-61.37	-13	-48.37	-64.7	0.52	6	Vertical	Pass
2496	-58.53	-13	-45.53	-61.65	0.53	5.8	Vertical	Pass
3328	-54.67	-13	-41.67	-58.07	0.65	6.2	Vertical	Pass

FDD LTE Band 5-High channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	ERP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1679	-61.33	-13	-48.33	-64.66	0.52	6	Horizontal	Pass
2518.5	-57.98	-13	-44.98	-60.54	0.59	5.3	Horizontal	Pass
3358	-53.68	-13	-40.68	-57.08	0.65	6.2	Horizontal	Pass
1679	-61.74	-13	-48.74	-65.07	0.52	6	Vertical	Pass
2518.5	-58.16	-13	-45.16	-60.72	0.59	5.3	Vertical	Pass
3358	-54.06	-13	-41.06	-57.46	0.65	6.2	Vertical	Pass



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LTE Band 38-20M Low channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5142	-49.93	-25	-24.93	-58.71	0.82	9.6	Horizontal	Pass
7713	-47.36	-25	-22.36	-59.57	0.99	13.2	Horizontal	Pass
10284	-45.7	-25	-20.7	-57.14	1.26	12.7	Horizontal	Pass
5142	-49.04	-25	-24.04	-57.82	0.82	9.6	Vertical	Pass
7713	-46.95	-25	-21.95	-59.16	0.99	13.2	Vertical	Pass
10284	-45.74	-25	-20.74	-57.18	1.26	12.7	Vertical	Pass

LTE Band 38-20M Middle channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5172	-50	-25	-25	-58.78	0.82	9.6	Horizontal	Pass
7758	-46.96	-25	-21.96	-59.17	0.99	13.2	Horizontal	Pass
10344	-45.76	-25	-20.76	-57.2	1.26	12.7	Horizontal	Pass
5172	-49.4	-25	-24.4	-58.18	0.82	9.6	Vertical	Pass
7758	-46.86	-25	-21.86	-59.07	0.99	13.2	Vertical	Pass
10344	-45.98	-25	-20.98	-57.42	1.26	12.7	Vertical	Pass

LTE Band 38-20M High channel, Modulation: QPSK, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5202	-49.85	-25	-24.85	-58.63	0.82	9.6	Horizontal	Pass
7803	-46.78	-25	-21.78	-58.99	0.99	13.2	Horizontal	Pass
10404	-45.47	-25	-20.47	-56.91	1.26	12.7	Horizontal	Pass
5202	-50.26	-25	-25.26	-59.04	0.82	9.6	Vertical	Pass
7803	-47.42	-25	-22.42	-59.63	0.99	13.2	Vertical	Pass
10404	-45.64	-25	-20.64	-57.08	1.26	12.7	Vertical	Pass



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FDD LTE Band 40a-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	ERP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
4611	-44.97	-40	-4.97	-44.97	-40	-4.97	Horizontal	Pass
6916.5	-46.73	-40	-6.73	-46.73	-40	-6.73	Horizontal	Pass
9222	-43.07	-40	-3.07	-43.07	-40	-3.07	Horizontal	Pass
4611	-44.95	-40	-4.95	-44.95	-40	-4.95	Vertical	Pass
6916.5	-47.26	-40	-7.26	-47.26	-40	-7.26	Vertical	Pass
9222	-43.11	-40	-3.11	-43.11	-40	-3.11	Vertical	Pass

FDD LTE Band 40b-Low channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
4701	-43.69	-40	-3.69	-57.13	0.76	9.7	Horizontal	Pass
7051.5	-45.54	-40	-5.54	-56.27	1	12.9	Horizontal	Pass
9402	-41.3	-40	-1.3	-53.18	1.23	12.4	Horizontal	Pass
4701	-44.49	-40	-4.49	-57.52	0.76	9.7	Vertical	Pass
7051.5	-45.58	-40	-5.58	-56.28	1	12.9	Vertical	Pass
9402	-43.32	-40	-3.32	-52.26	1.23	12.4	Vertical	Pass



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FDD LTE Band 41-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5112	-49.78	-25	-24.78	-58.56	0.82	9.6	Horizontal	Pass
7668	-47.55	-25	-22.55	-59.76	0.99	13.2	Horizontal	Pass
10224	-44.85	-25	-19.85	-56.29	1.26	12.7	Horizontal	Pass
5112	-49.08	-25	-24.08	-57.86	0.82	9.6	Vertical	Pass
7668	-48.21	-25	-23.21	-60.42	0.99	13.2	Vertical	Pass
10224	-45.11	-25	-20.11	-56.55	1.26	12.7	Vertical	Pass

FDD LTE Band 41-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5192	-49.29	-25	-24.29	-58.07	0.82	9.6	Horizontal	Pass
7788	-45.93	-25	-20.93	-58.14	0.99	13.2	Horizontal	Pass
10384	-46.1	-25	-21.1	-57.54	1.26	12.7	Horizontal	Pass
5192	-48.93	-25	-23.93	-57.71	0.82	9.6	Vertical	Pass
7788	-47.53	-25	-22.53	-59.74	0.99	13.2	Vertical	Pass
10384	-46.22	-25	-21.22	-57.66	1.26	12.7	Vertical	Pass

FDD LTE Band 41-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
5292	-47.29	-25	-22.29	-56.07	0.82	9.6	Horizontal	Pass
7938	-45.38	-25	-20.38	-57.59	0.99	13.2	Horizontal	Pass
10584	-46.21	-25	-21.21	-58.22	1.49	13.5	Horizontal	Pass
5292	-49.56	-25	-24.56	-58.34	0.82	9.6	Vertical	Pass
7938	-45.69	-25	-20.69	-57.9	0.99	13.2	Vertical	Pass
10584	-46.15	-25	-21.15	-58.16	1.49	13.5	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, KDB 971168 D01 v03

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

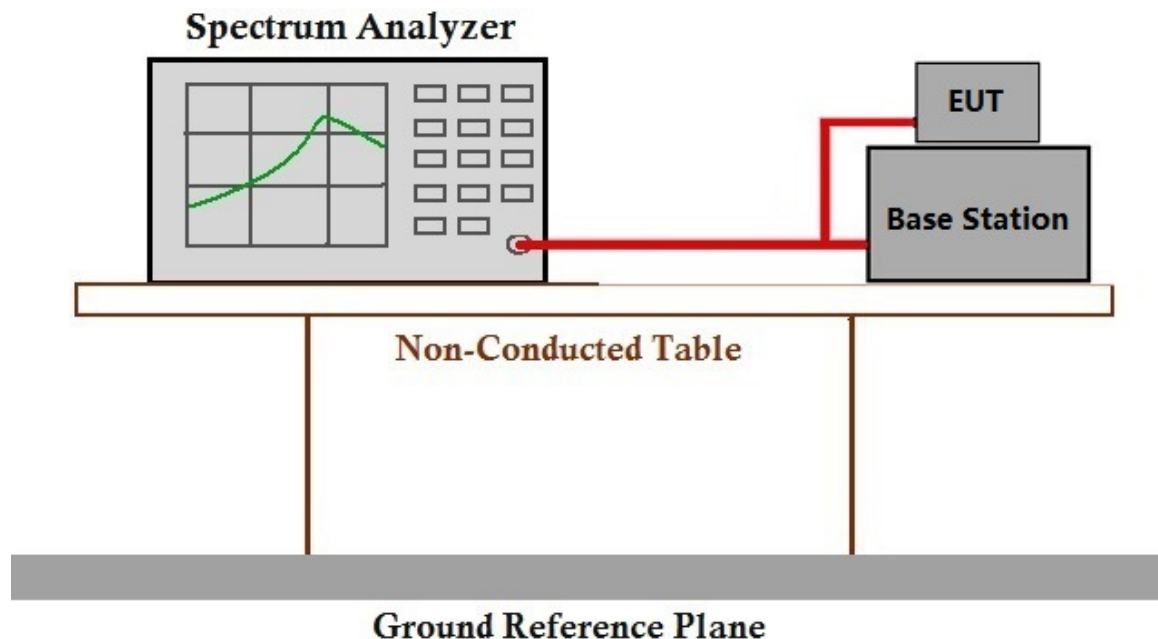
6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar

Test mode 21: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

Please refer to Appendix_LTE_Frequency stability



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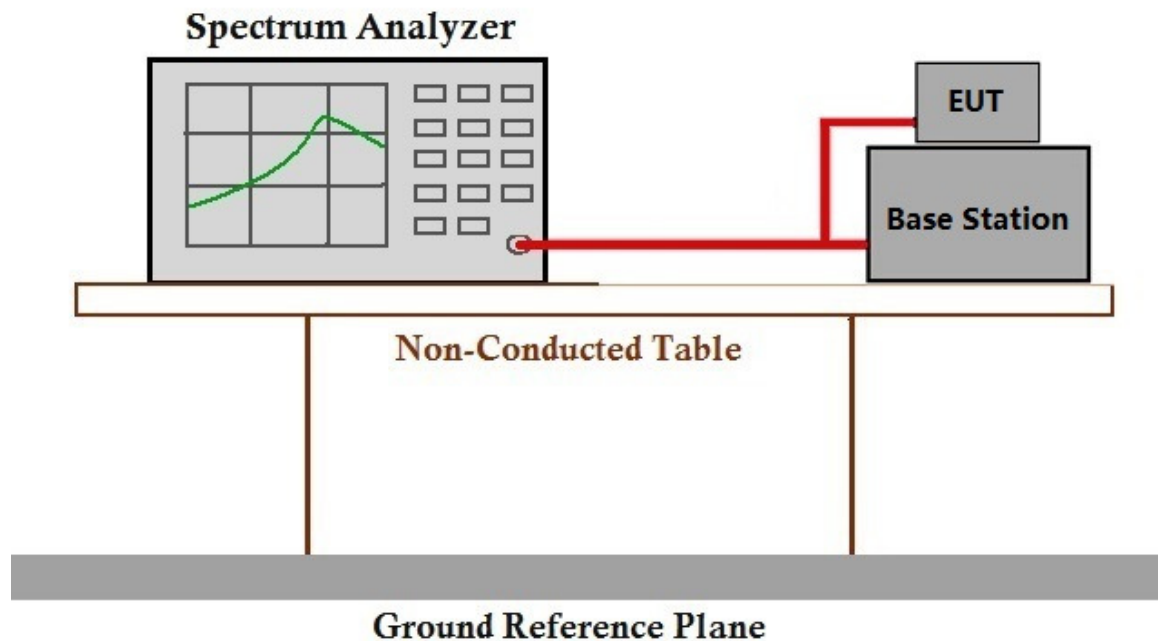
6.8 Modulation Characteristics

Test Requirement: §2.1047
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: Digital modulation

6.8.1 E.U.T. Operation

Operating Environment:
Temperature: 19.5 °C Humidity: 45.5 % RH Atmospheric Pressure: 1010 mbar
Test mode 21: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

Please refer to Appendix_LTE_Modulation Characteristics



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7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -



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