

Report No.: SZEM200900888605

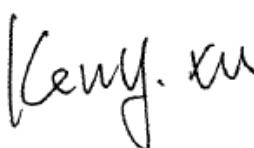
Page: 1 of 29

TEST REPORT

Application No.: SZEM2009008886CR
Applicant: HARXON CORPORATION
Address of Applicant: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Manufacturer: HARXON CORPORATION
Address of Manufacturer: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Factory: HARXON CORPORATION
Address of Factory: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Equipment Under Test (EUT):
EUT Name: Wireless data transceiver
Model No.: HX-DU8616DPRO
Trade mark: eRadio
FCC ID: 2ACRAHX-DU8616DPRO
Standard(s) : 47 CFR Part 2(2017);
47 CFR Part 22 subpart H
47 CFR Part 24 subpart E;
47 CFR Part 27 subpart C
Date of Receipt: 2020-09-04
Date of Test: 2020-09-20 to 2020-10-19
Date of Issue: 2020-10-20

Test Result:	Pass
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* 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		2020-10-20		Original

Authorized for issue by:			
			
		Edison Li /Project Engineer	
			
		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(b) §27.50(c) §27.50(d) (4)	ERP≤ 7W(LTE Band 5) ERP≤ 3W(LTE Band 12,13) EIRP≤ 2W(LTE Band 2) EIRP≤ 1W(LTE Band 4)	PASS
Peak-Average Ratio	§24.232 §27.50	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h)	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238 §27.53(c) §27.53(g) §27.53(h)	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238 §27.53(c) §27.53(g) §27.53(h)	≤ -13dBm	PASS
Field strength of spurious radiation	§2.1051, §22.917, §24.238 §27.53(c) §27.53(g) §27.53(h)	≤ -13dBm	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:	DC 12V
Sample Type:	Fixed production
LTE Operation Frequency Band:	LTE FDD Band 2, 4, 5, 12, 13
Modulation Type:	QPSK, 16QAM
LTE Release Version:	R8
LTE Power Class:	Level 3
Antenna Type:	PCB Antenna
Antenna Gain:	5dBi
Extreme temp. Tolerance:	-30°C to +50°C
Extreme vol. Limits:	9VDC to 16VDC (nominal: 12VDC)

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4.2 Test Frequency

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855.0	1880	1905.0
	15	1857.5	1880	1902.5
	20	1860.0	1880	1900.0
LTE FDD Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	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
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
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
LTE FDD Band 13	5	779.5	782.0	784.5
	10	/	782.0	/

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4.3 Max ERP/EIRP Power, Frequency Tolerance and Emission Designator

FCC Rule	Band	Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP (W)
Part24E	LTE Band2	QPSK	1.4	1M13G7D	/	0.528445
Part24E	LTE Band2	16QAM	1.4	1M13W7D	/	0.431519
Part24E	LTE Band2	QPSK	3	2M75G7D	/	0.534564
Part24E	LTE Band2	16QAM	3	2M75W7D	/	0.461318
Part24E	LTE Band2	QPSK	5	4M56G7D	/	0.533335
Part24E	LTE Band2	16QAM	5	4M59W7D	/	0.438531
Part24E	LTE Band2	QPSK	10	9M08G7D	/	0.566239
Part24E	LTE Band2	16QAM	10	9M10W7D	/	0.500035
Part24E	LTE Band2	QPSK	15	13M7G7D	/	0.601174
Part24E	LTE Band2	16QAM	15	13M7W7D	/	0.528445
Part24E	LTE Band2	QPSK	20	18M3G7D	0.00350	0.584790
Part24E	LTE Band2	16QAM	20	18M3W7D	0.00180	0.508159
Part27	LTE Band4	QPSK	1.4	1M13G7D	/	0.554626
Part27	LTE Band4	16QAM	1.4	1M13W7D	/	0.457088
Part27	LTE Band4	QPSK	3	2M75G7D	/	0.550808
Part27	LTE Band4	16QAM	3	2M75W7D	/	0.479733
Part27	LTE Band4	QPSK	5	4M56G7D	/	0.559758
Part27	LTE Band4	16QAM	5	4M56W7D	/	0.452898
Part27	LTE Band4	QPSK	10	9M11G7D	/	0.587489
Part27	LTE Band4	16QAM	10	9M10W7D	/	0.514044
Part27	LTE Band4	QPSK	15	13M7G7D	/	0.616595
Part27	LTE Band4	16QAM	15	13M7W7D	/	0.530884
Part27	LTE Band4	QPSK	20	18M2G7D	0.00280	0.602560
Part27	LTE Band4	16QAM	20	18M3W7D	0.00230	0.540754
Part22H	LTE Band5	QPSK	1.4	1M12G7D	/	0.336512
Part22H	LTE Band5	16QAM	1.4	1M13W7D	/	0.279898
Part22H	LTE Band5	QPSK	3	2M75G7D	/	0.338844
Part22H	LTE Band5	16QAM	3	2M76W7D	/	0.285102
Part22H	LTE Band5	QPSK	5	4M56G7D	/	0.338065
Part22H	LTE Band5	16QAM	5	4M56W7D	/	0.266686
Part22H	LTE Band5	QPSK	10	9M09G7D	0.00500	0.328095
Part22H	LTE Band5	16QAM	10	9M09W7D	0.00170	0.290402

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Part27	LTE Band12	QPSK	1.4	1M13G7D	/	0.345939
Part27	LTE Band12	16QAM	1.4	1M13W7D	/	0.289734
Part27	LTE Band12	QPSK	3	2M75G7D	/	0.342768
Part27	LTE Band12	16QAM	3	2M75W7D	/	0.301301
Part27	LTE Band12	QPSK	5	4M56G7D	/	0.348337
Part27	LTE Band12	16QAM	5	4M58W7D	/	0.278612
Part27	LTE Band12	QPSK	10	9M11G7D	0.00470	0.340408
Part27	LTE Band12	16QAM	10	9M12W7D	0.00630	0.305492
Part27	LTE Band13	QPSK	5	4M56G7D	/	0.326588
Part27	LTE Band13	16QAM	5	4M58W7D	/	0.271019
Part27	LTE Band13	QPSK	10	9M09G7D	0.00370	0.305492
Part27	LTE Band13	16QAM	10	9M08W7D	0.00380	0.275423

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4.4 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 °C
Voltage:	VL	9 V
	VN	12 V
	VH	16 V

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature

4.5 Cable

Cable	Length	Shielding	Core
Control Cable	177cm	Unshielded	Non-Core
RSS 232 Cable	143cm	Unshielded	Non-Core

4.6 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power	ZHAOXIN	RXN-305D	REF. No. SEA2700

4.7 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 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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4.8 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, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.9 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.

4.10 Deviation from Standards

None

4.11 Abnormalities from Standard Conditions

None

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5 Equipment List

RF test system					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
MXA Signal Analyzer(10Hz-26.5GHz)	KEYSIGHT	N9020A	SEM004-17	2020-05-21	2021-05-20
Signal Generator (9kHz-40GHz)				2019-09-25 2020-09-23	2020-09-24 2021-09-22
MXG Vector Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-03-23	2021-03-22
ESG Vector Signal Generator	KEYSIGHT	N5182A	SEM006-14	2019-09-25 2020-09-23	2020-09-24 2021-09-22
DC Power Supply				2020-03-24	2021-03-23
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2020-04-09	2021-04-08
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2020-04-09	2021-04-08
Power Sensor	KEYSIGHT	U2021XA	SEM009-20	2020-05-21	2021-05-20
Power Sensor	KEYSIGHT	U2021XA	SEM009-21	2020-05-21	2021-05-20
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2020-03-25	2021-03-24
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-03	2020-07-10	2021-07-09

RE in Chamber					
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(3Hz-3.6GHz)	KEYSIGHT	N9038A	SEM004-15	2019-12-16	2020-12-15
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

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Software					
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-25	2020-09-24
				2020-09-23	2021-09-22
Trilog-Broadband Antenna(25MHz-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07

RE in Chamber 2#					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-06	2018-06-08	2021-06-07
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-25	2020-09-24
				2020-09-23	2021-09-22
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
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-25	2020-09-24
				2020-09-23	2021-09-22

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General used equipment

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06

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6 Radio Spectrum Matter Test Results

6.1 Effective (Isotropic) Radiated Power Output Data

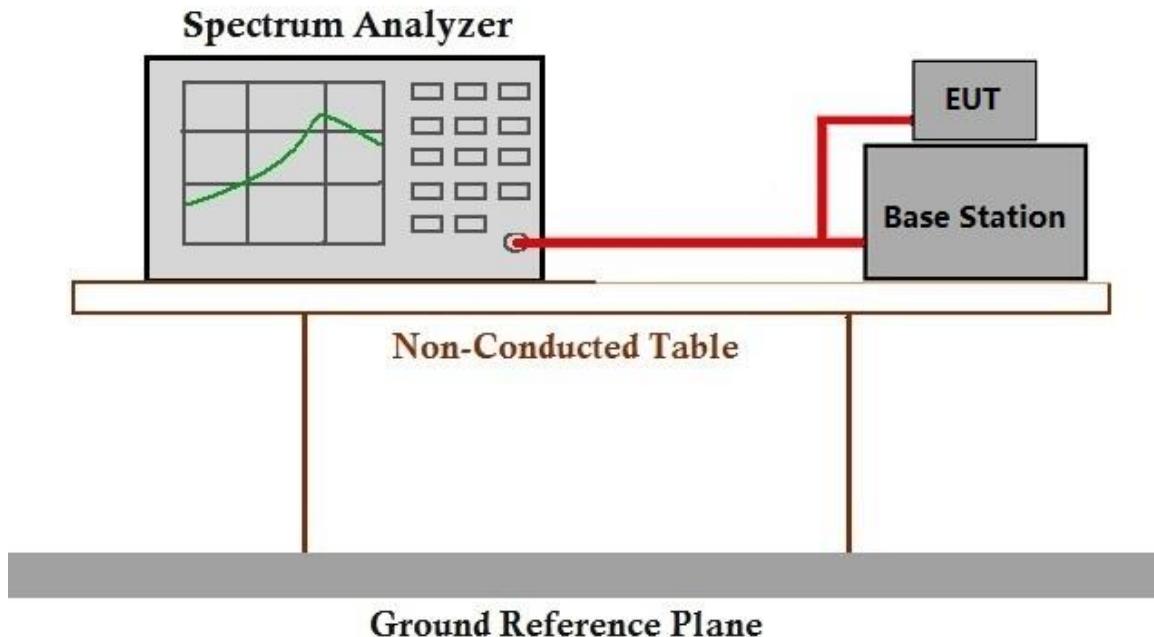
Test Requirement: §2.1046, §22.913, §24.232, §27.50(b), §27.50(c), §27.50(d) (4)
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: $ERP \leq 7W$ (LTE Band 5)
 $ERP \leq 3W$ (LTE Band 12,13)
 $EIRP \leq 2W$ (LTE Band 2)
 $EIRP \leq 1W$ (LTE Band 4)

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

The detailed test data see: Appendix A-FCC data.



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6.2 Peak-Average Ratio

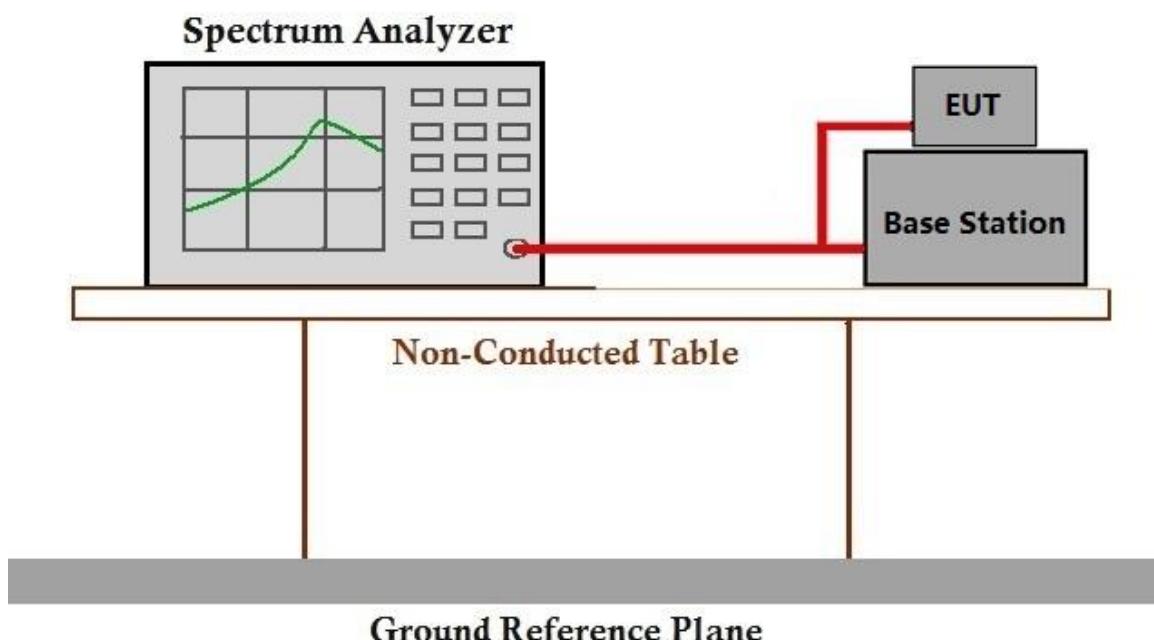
Test Requirement: §24.232, §27.50
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ≤13dB

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

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6.3 Bandwidth

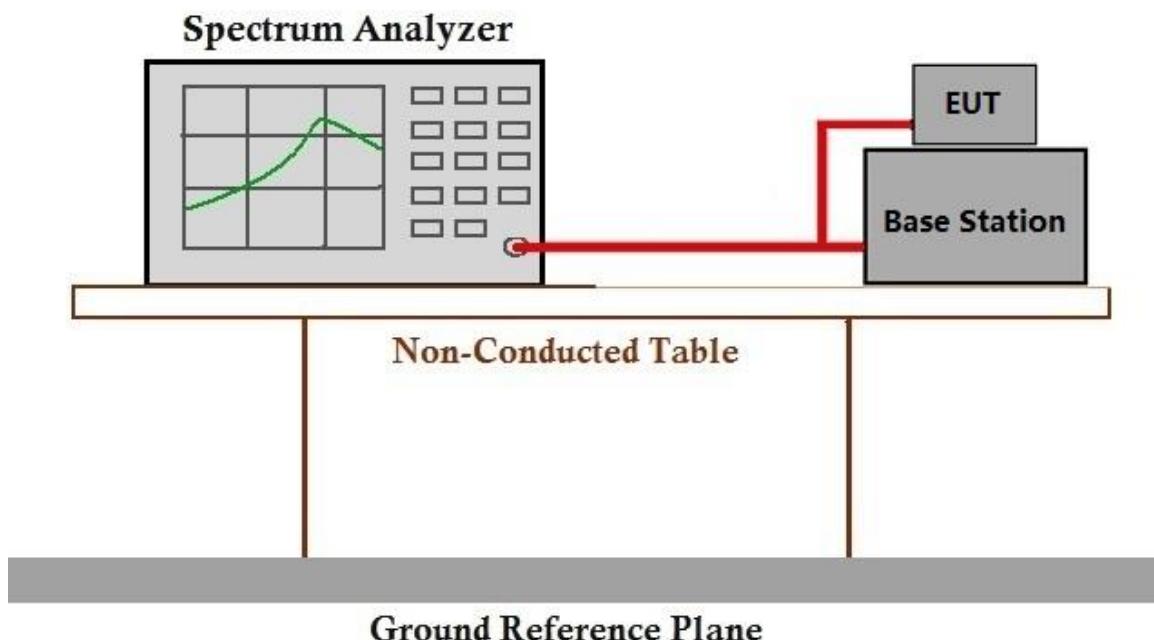
Test Requirement: §2.1049(h)
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: OBW: No limit
EBW: No limit

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

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6.4 Band Edge Compliance

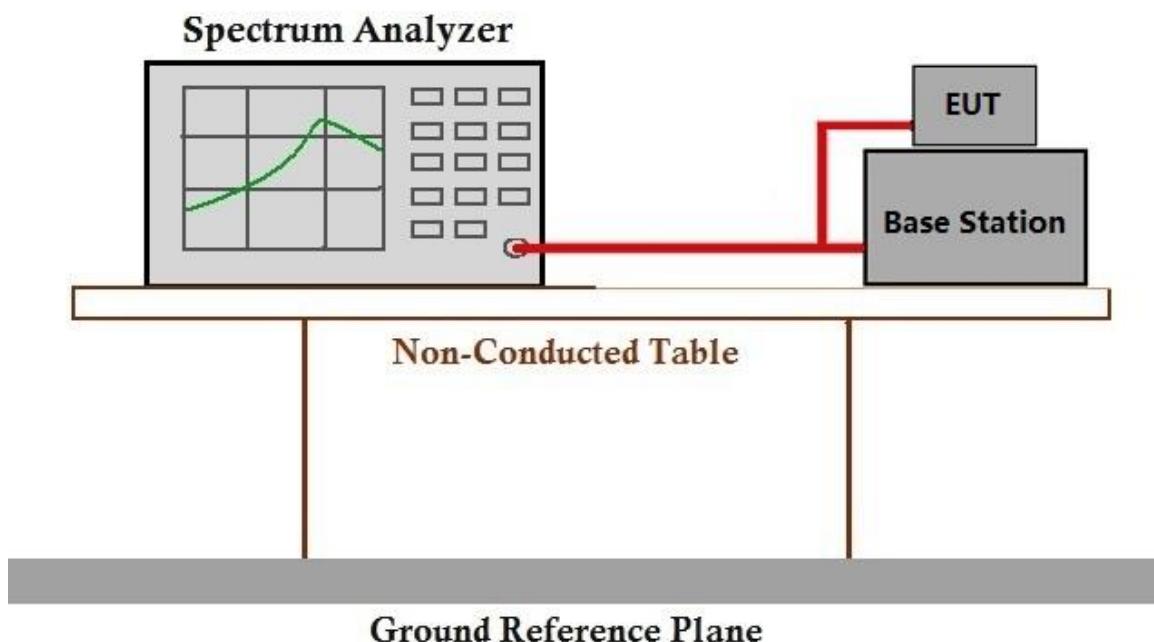
Test Requirement: §2.1051, §22.917, §24.238, §27.53(c), §27.53(g), §27.53(h)
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

Note: the emission of frequency between 793MHz-805MHz meets the requirements of FCC, test plots don't reflected in the report.

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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.53(c), §27.53(g), §27.53(h)

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

Limit: ≤ -13dBm

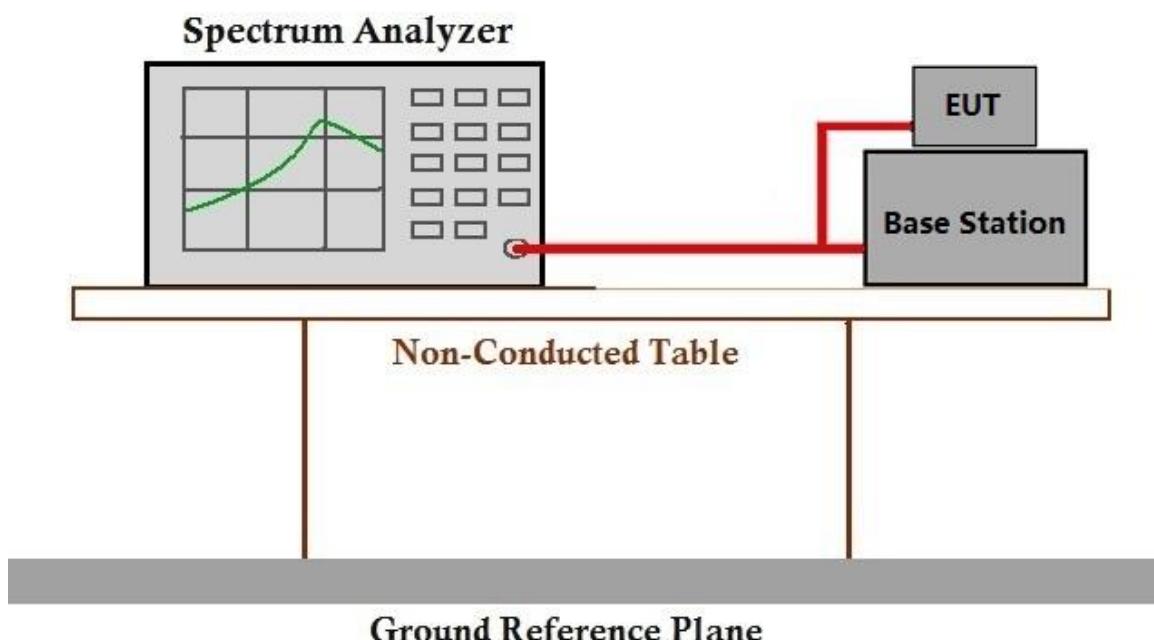
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

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6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238, §27.53(c), §27.53(g), §27.53(h)

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

Limit: ≤ -13dBm

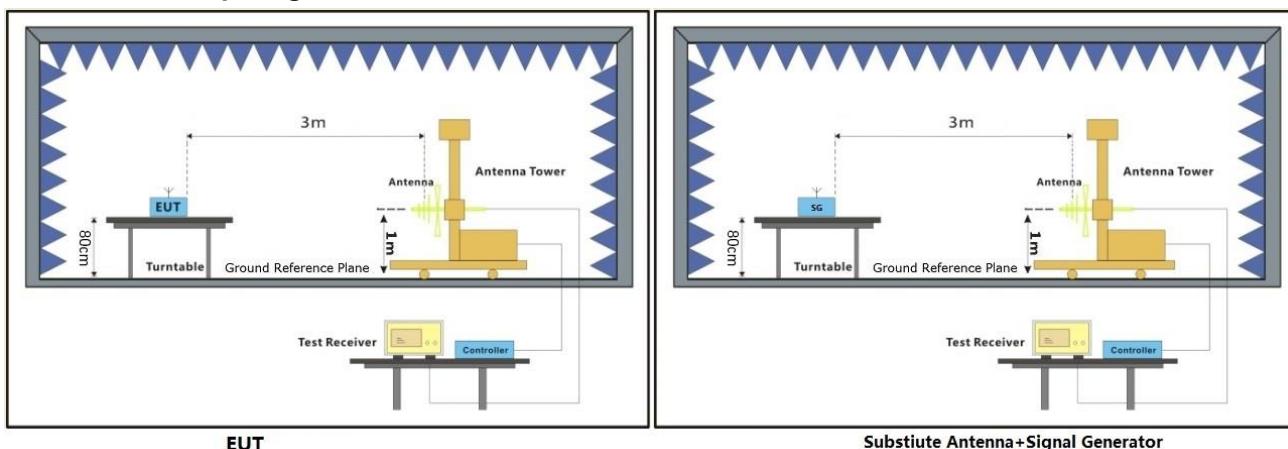
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



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6.6.3 Measurement Procedure and Data**Test Procedure:**

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

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FDD LTE Band2-Low channel, Modulation: QPSK, Bandwidth: 20MHz,1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3700.14	-52.87	0.71	7.6	-45.98	-13	-32.98	Horizontal	Pass
5550.21	-51.76	0.85	10.3	-42.31	-13	-29.31	Horizontal	Pass
7400.28	-57.9	1	12.9	-46	-13	-33	Horizontal	Pass
3700.14	-52.67	0.71	7.6	-45.78	-13	-32.78	Vertical	Pass
5550.21	-49.45	0.85	10.3	-40	-13	-27	Vertical	Pass
7400.28	-57.85	1	12.9	-45.95	-13	-32.95	Vertical	Pass

FDD LTE Band2-Middle channel, Modulation: QPSK, Bandwidth: 20MHz,1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3758.74	-51.38	0.71	7.6	-44.49	-13	-31.49	Horizontal	Pass
5638.11	-50.32	0.85	10.3	-40.87	-13	-27.87	Horizontal	Pass
7517.48	-58.39	0.99	13.2	-46.18	-13	-33.18	Horizontal	Pass
3758.74	-52.15	0.71	7.6	-45.26	-13	-32.26	Vertical	Pass
5638.11	-52.24	0.85	10.3	-42.79	-13	-29.79	Vertical	Pass
7517.48	-59.28	0.99	13.2	-47.07	-13	-34.07	Vertical	Pass

FDD LTE Band2-High channel, Modulation: QPSK, Bandwidth: 20MHz,1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3817.34	-51.12	0.71	7.6	-44.23	-13	-31.23	Horizontal	Pass
5726.01	-49.88	0.85	10.3	-40.43	-13	-27.43	Horizontal	Pass
7634.68	-58.06	0.99	13.2	-45.85	-13	-32.85	Horizontal	Pass
3817.34	-50.46	0.71	7.6	-43.57	-13	-30.57	Vertical	Pass
5726.01	-51.41	0.85	10.3	-41.96	-13	-28.96	Vertical	Pass
7634.68	-58.27	0.99	13.2	-46.06	-13	-33.06	Vertical	Pass

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FDD LTE Band4-Low channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3420.14	-55.21	0.65	6.2	-49.66	-13	-36.66	Horizontal	Pass
5130.21	-53.32	0.82	9.6	-44.54	-13	-31.54	Horizontal	Pass
6840.28	-58.29	0.95	11.8	-47.44	-13	-34.44	Horizontal	Pass
3420.14	-55.43	0.65	6.2	-49.88	-13	-36.88	Vertical	Pass
5130.21	-53.5	0.82	9.6	-44.72	-13	-31.72	Vertical	Pass
6840.28	-58.38	0.95	11.8	-47.53	-13	-34.53	Vertical	Pass

FDD LTE Band4-Middle channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3463.74	-53.87	0.65	6.2	-48.32	-13	-35.32	Horizontal	Pass
5195.61	-54.09	0.82	9.6	-45.31	-13	-32.31	Horizontal	Pass
6927.48	-59.72	0.95	11.8	-48.87	-13	-35.87	Horizontal	Pass
3463.74	-55.22	0.65	6.2	-49.67	-13	-36.67	Vertical	Pass
5195.61	-52	0.82	9.6	-43.22	-13	-30.22	Vertical	Pass
6927.48	-59.2	0.95	11.8	-48.35	-13	-35.35	Vertical	Pass

FDD LTE Band4-High channel, Modulation: QPSK, Bandwidth: 20MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3507.34	-54.69	0.71	7.6	-47.8	-13	-34.8	Horizontal	Pass
5261.01	-53.48	0.82	9.6	-44.7	-13	-31.7	Horizontal	Pass
7014.68	-59.72	1	12.9	-47.82	-13	-34.82	Horizontal	Pass
3507.34	-55.64	0.71	7.6	-48.75	-13	-35.75	Vertical	Pass
5261.01	-52.18	0.82	9.6	-43.4	-13	-30.4	Vertical	Pass
7014.68	-60.68	1	12.9	-48.78	-13	-35.78	Vertical	Pass

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Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1648.14	-58.5	0.52	6	-53.02	-13	-40.02	Horizontal	Pass
2472.21	-62.23	0.53	5.8	-56.96	-13	-43.96	Horizontal	Pass
3296.28	-58.23	0.65	6.2	-52.68	-13	-39.68	Horizontal	Pass
1648.14	-59.44	0.52	6	-53.96	-13	-40.96	Vertical	Pass
2472.21	-64.04	0.53	5.8	-58.77	-13	-45.77	Vertical	Pass
3296.28	-59.56	0.65	6.2	-54.01	-13	-41.01	Vertical	Pass

FDD LTE Band5-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1671.74	-60.68	0.52	6	-55.2	-13	-42.2	Horizontal	Pass
2507.61	-62.73	0.59	5.3	-58.02	-13	-45.02	Horizontal	Pass
3343.48	-59.75	0.65	6.2	-54.2	-13	-41.2	Horizontal	Pass
1671.74	-59.13	0.52	6	-53.65	-13	-40.65	Vertical	Pass
2507.61	-63.41	0.59	5.3	-58.7	-13	-45.7	Vertical	Pass
3343.48	-59.41	0.65	6.2	-53.86	-13	-40.86	Vertical	Pass

FDD LTE Band5-High channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1695.34	-58.44	0.52	6	-52.96	-13	-39.96	Horizontal	Pass
2543.01	-62.49	0.59	5.3	-57.78	-13	-44.78	Horizontal	Pass
3390.68	-58.63	0.65	6.2	-53.08	-13	-40.08	Horizontal	Pass
1695.34	-57.89	0.52	6	-52.41	-13	-39.41	Vertical	Pass
2543.01	-63.15	0.59	5.3	-58.44	-13	-45.44	Vertical	Pass
3390.68	-59.61	0.65	6.2	-54.06	-13	-41.06	Vertical	Pass

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Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1398.14	-39.2	0.43	1.9	-37.73	-13	-24.73	Horizontal	Pass
2097.21	-52.08	0.53	5.8	-46.81	-13	-33.81	Horizontal	Pass
2796.28	-60.17	0.59	5.3	-55.46	-13	-42.46	Horizontal	Pass
1398.14	-40.09	0.43	1.9	-38.62	-13	-25.62	Vertical	Pass
2097.21	-60.18	0.53	5.8	-54.91	-13	-41.91	Vertical	Pass
2796.28	-61.46	0.59	5.3	-56.75	-13	-43.75	Vertical	Pass

FDD LTE Band12-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1413.74	-36.35	0.43	1.9	-34.88	-13	-21.88	Horizontal	Pass
2120.61	-47.3	0.53	5.8	-42.03	-13	-29.03	Horizontal	Pass
2827.48	-60.97	0.59	5.3	-56.26	-13	-43.26	Horizontal	Pass
1413.74	-33.17	0.43	1.9	-31.7	-13	-18.7	Vertical	Pass
2120.61	-51.8	0.53	5.8	-46.53	-13	-33.53	Vertical	Pass
2827.48	-61.59	0.59	5.3	-56.88	-13	-43.88	Vertical	Pass

FDD LTE Band12-High channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1429.34	-35.1	0.43	1.9	-33.63	-13	-20.63	Horizontal	Pass
2144.01	-48.72	0.53	5.8	-43.45	-13	-30.45	Horizontal	Pass
2858.68	-60.65	0.59	5.3	-55.94	-13	-42.94	Horizontal	Pass
1429.34	-33.85	0.43	1.9	-32.38	-13	-19.38	Vertical	Pass
2144.01	-46.61	0.53	5.8	-41.34	-13	-28.34	Vertical	Pass
2858.68	-60.62	0.59	5.3	-55.91	-13	-42.91	Vertical	Pass

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FDD LTE Band13-Low channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Vertical	--
--	--	--	--	--	-13	--	Vertical	--
--	--	--	--	--	-13	--	Vertical	--

FDD LTE Band13-Middle channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1554.5	-55.72	0.52	6	-50.24	-13	-37.24	Horizontal	Pass
2331.75	-59.71	0.53	5.8	-54.44	-13	-41.44	Horizontal	Pass
3109	-60.34	0.65	6.2	-54.79	-13	-41.79	Horizontal	Pass
1554.5	-56.5	0.52	6	-51.02	-13	-38.02	Vertical	Pass
2331.75	-58.99	0.53	5.8	-53.72	-13	-40.72	Vertical	Pass
3109	-60.2	0.65	6.2	-54.65	-13	-41.65	Vertical	Pass

FDD LTE Band10-High channel, Modulation: QPSK, Bandwidth: 10MHz, 1 RB								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Horizontal	--
--	--	--	--	--	-13	--	Vertical	--
--	--	--	--	--	-13	--	Vertical	--
--	--	--	--	--	-13	--	Vertical	--

Note: All modes have been tested and we found max bandwidth, 1RB Test mode has the worst test result.
Only record the worst test result.

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6.7 Frequency stability

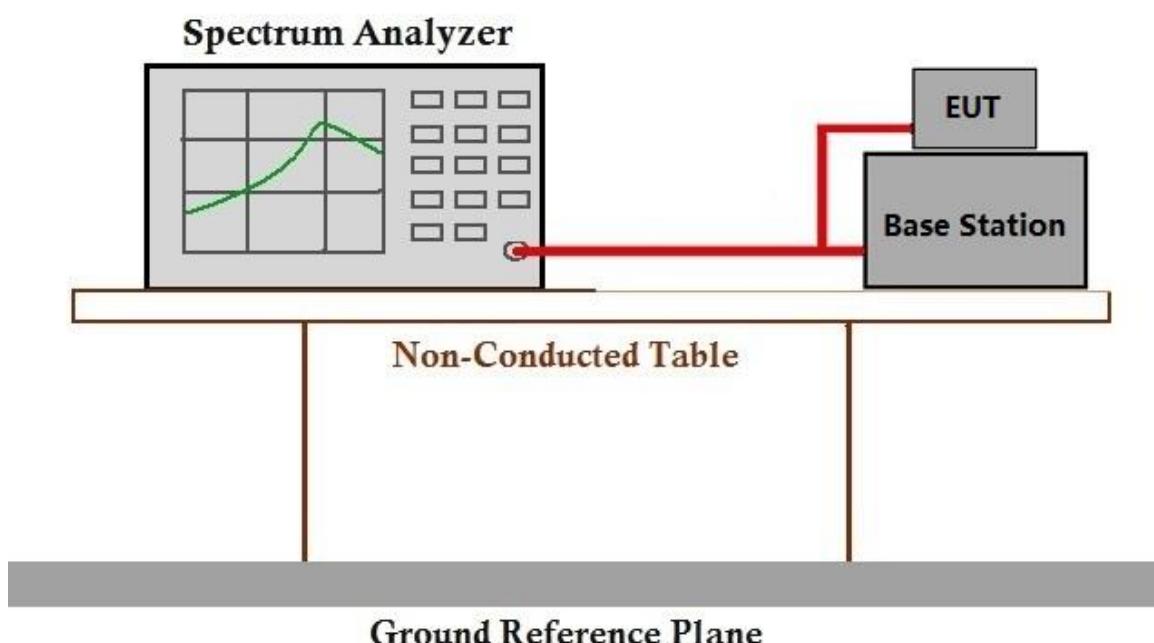
Test Requirement: §2.1055, §22.355, §24.235, §27.54
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: $\leq \pm 2.5\text{ppm}$.

6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

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6.8 Modulation Characteristics

Test Requirement: §2.1047

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

Limit: Digital modulation

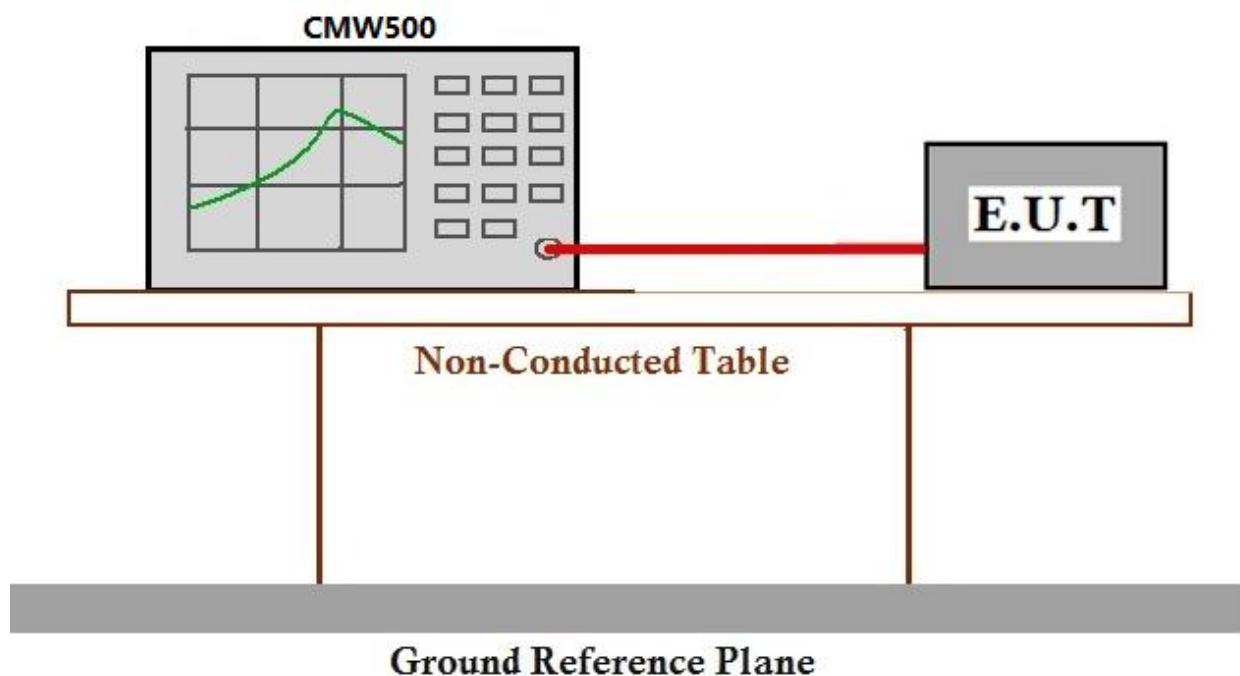
6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

The detailed test data see: Appendix A-FCC data.

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

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

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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Shenzhen Branch 

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com