TEST REPORT

Application No.:	SZEM2009008642CR
Applicant:	PAX Technology Limited
Address of Applicant:	Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour, Hong Kong, China
Manufacturer:	PAX Computer Technology(Shenzhen) Co., Ltd.
Address of Manufacturer:	4/F, No.3 Building, Software Park, Second Central Science-Tech Road, High-Tech industrial Park, Shenzhen, Guangdong, P.R.C.
Factory:	Guangzhou PAX Computer Technology Co., Ltd
Address of Factory:	No.2 Bldg, No.113 Jinyang Road, Hualong Town, Panyu, Guangzhou, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	Mobile Payment Terminal
Model No.:	S920
Trade mark:	PAX
FCC ID:	V5PS9204GBW
Standard(s) :	47 CFR Part 2
	47 CFR Part 22 subpart H
	47 CFR Part 24 subpart E
	47 CFR Part 27 subpart C
	47 CFR Part 90 subpart S
Date of Receipt:	2020-09-01
Date of Test:	2020-09-01 to 2020-09-17
Date of Issue:	2020-09-23
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		*2020-09-23*		*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(b) §27.50(c) §27.50(d) §90.635	ERP≤ 7W(LTE Band 5, 26b) EIRP≤ 2W(LTE Band 2) EIRP≤ 1W(LTE Band 4) ERP≤ 3W(LTE Band 12,13) ERP≤ 100W(LTE band 26a)	PASS
Peak-Average Ratio	§22.913(d) §24.232(d) §27.50(d)	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049	OBW:No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h) §90.691	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block(LTE Band2,4,5,12,13,26b) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h) §90.691	≤ -13dBm(LTE Band2,4,5,12,26b) ≤ -13dBm(LTE Band13, limit out of band 1559-1610MHz) ≤ -40dBm(LTE Band13, limit in the band 1559-1610MHz) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)	PASS

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Field strength of spurious radiation	§2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h) §90.691	≤ -13dBm(LTE Band2,4,5,12,26a,26b) ≤ -13dBm(LTE Band13, limit out of band 1559-1610MHz) ≤ -40dBm(LTE Band13, limit in the band 1559-1610MHz) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)	PASS
Frequency stability	§2.1055, §22.355, §24.235 §27.54 §90.213	≤ ±2.5ppm.	PASS

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4 General Information

4.1 Details of E.U.T.

Rated voltage:	DC5V/1A
Power adapter:	M/N: A18A-050100U-US2 Adapter input: AC100-240V, 50/60Hz, 0.2A Adapter output: DC5V/1A
Battery:	DC3.63V(3250mAh)
Sample Type:	Mobile production
LTE Operation Frequency Band:	LTE FDD Band 2, 4, 5, 12, 13, 26
Modulation Type:	QPSK, 16QAM
LTE Release Version:	R14
LTE Power Class:	Level 3
Antenna Type:	PIFA antenna
Antenna Gain:	1dBi for band 5, 12, 13, 26, 0.5dBi for band 2, 4
SIM Card:	This device has dual SIM Card sockets. Both the SIM sockets have been tested. SIM1 was worst case, only record SIM1.

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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 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
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 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	/

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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 26a	1.4	814.7	819	823.3
	3	815.5	819	822.5
	5	816.5	819	821.5
	10	/	819	/
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 26b	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
	15	831.5	836.5	841.5
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		MHz		
LTE FDD Band 26 cross rule	15	821.5		

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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	3.4 V
	VN	3.63 V
	VH	4.2 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 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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4.6 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, 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

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	2019-09-24	2020-09-23
Signal Analyzer (10Hz-40GHz)	Rohde & Schwarz	FSV40	SEM008-04	2020-03-31	2021-03-30
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	2020-03-31	2021-03-30
Power Sensor	KEYSIGHT	U2021XA	SEM009-13	2020-04-11	2021-04-10

RE in Chamber					
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	2020-04-11	2021-04-10
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2019-09-24	2020-09-23
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-11-11	2020-11-10
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2020-03-31	2021-03-30
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-03-31	2021-03-30
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	ETS-Lindgren	3142C	SEM003-01	2020-06-26	2023-06-25

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
10m Semi-Anechoic	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30

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Chamber					
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-16	2019-12-16	2020-12-15
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2020-04-09	2021-04-08
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-03-31	2021-03-30

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
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-03	2021-04-02

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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), §90.635

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

Limit: ERP≤ 7W(LTE Band 5, 26b)
ERP≤ 3W(LTE Band 13)
ERP≤ 3W(LTE Band 12)
EIRP≤ 2W(LTE Band 2)
EIRP≤ 1W(LTE Band 4)
ERP≤ 100W(LTE band 26a)

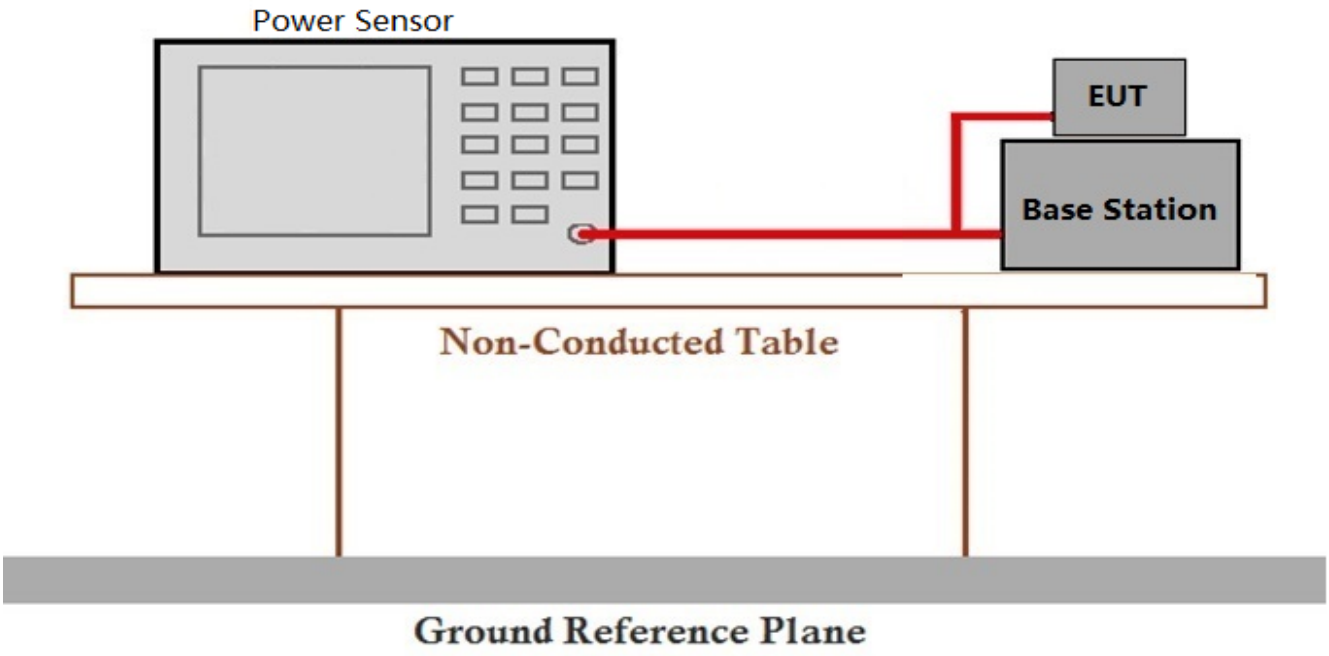
6.1.1 E.U.T. Operation

Operating Environment:

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

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

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

Please refer to Appendix A-Output power

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6.2 Peak-Average Ratio

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

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

Limit: ≤13dB

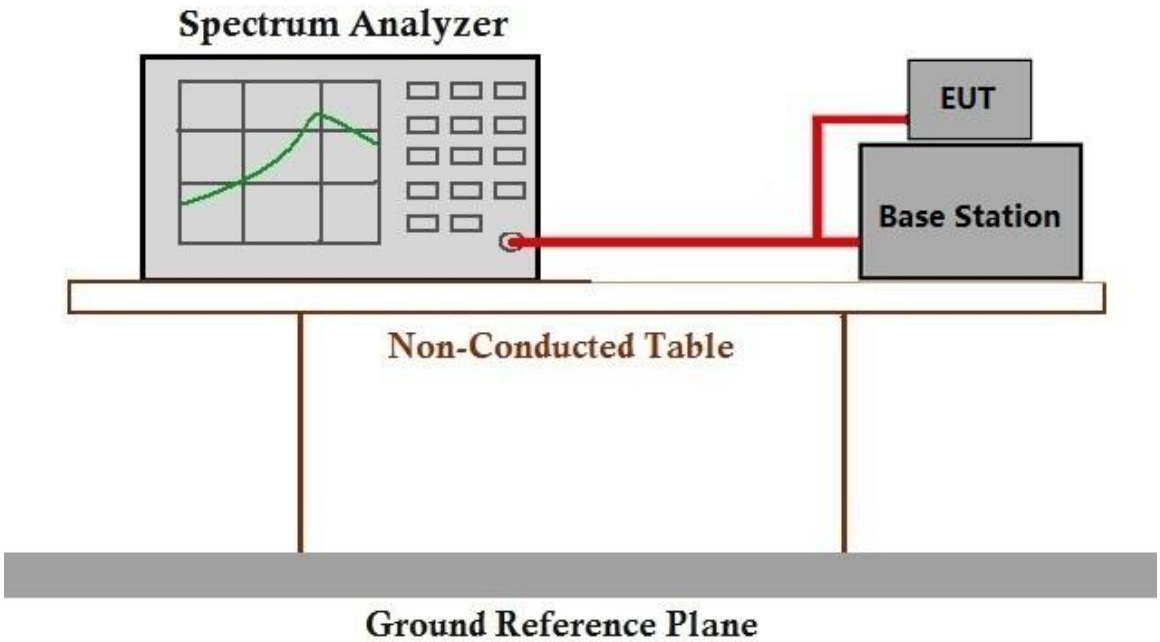
6.2.1 E.U.T. Operation

Operating Environment:

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

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

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

Please refer to Appendix B- Peak-Average Ratio

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6.3 Bandwidth

Test Requirement: §2.1049

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

Limit: OBW: No limit

EBW: No limit

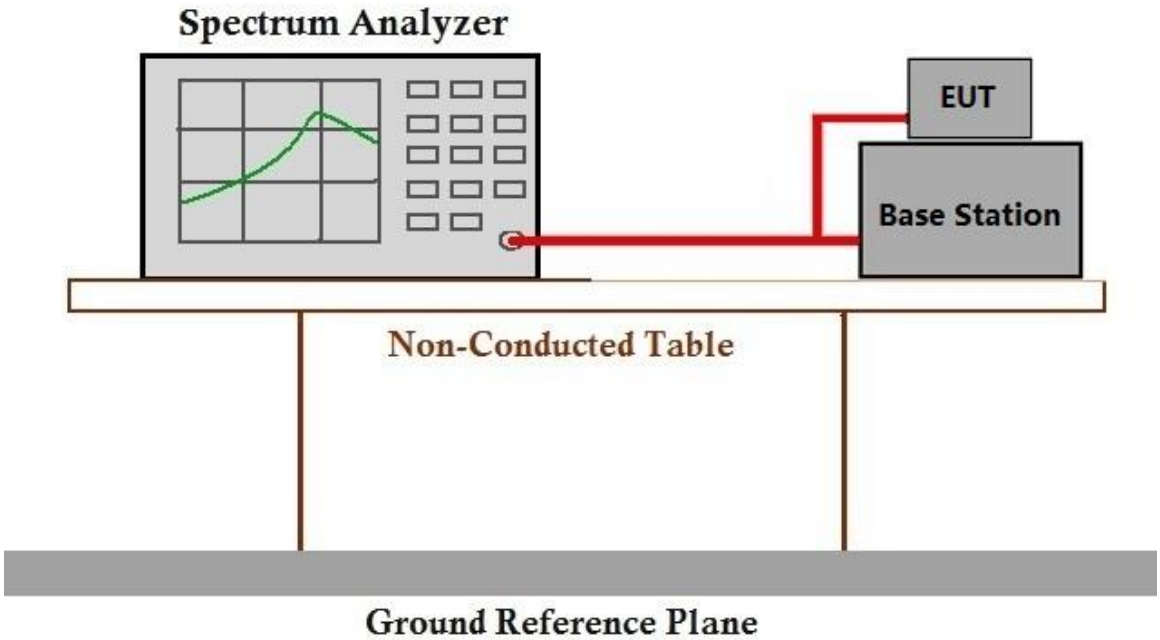
6.3.1 E.U.T. Operation

Operating Environment:

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

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

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

Please refer to Appendix C- Bandwidth

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6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h), §90.691

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(LTE Band2, 4, 5, 12, 13, 26b)

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)

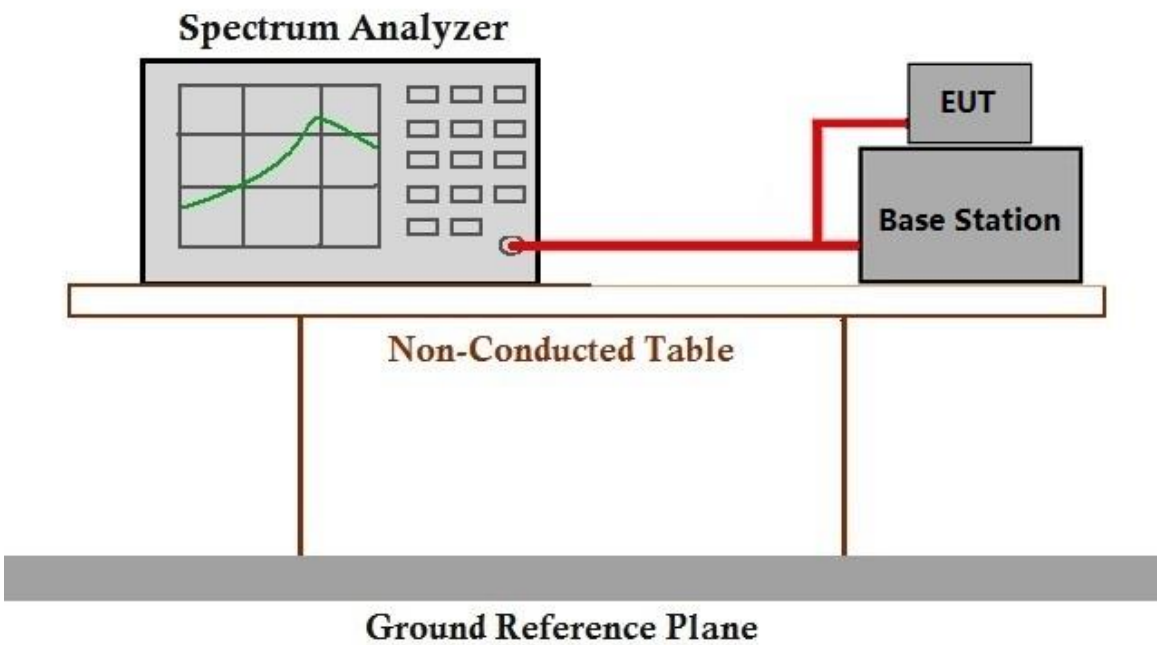
6.4.1 E.U.T. Operation

Operating Environment:

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

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

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

Please refer to Appendix D- Band Edge

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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h), §90.691

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

Limit: ≤ -13dBm(LTE Band2,4,5,12,26b)

≤ -13dBm(LTE Band13, limit out of band 1559-1610MHz)

≤ -40dBm(LTE Band13, limit in the band 1559-1610MHz)

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)

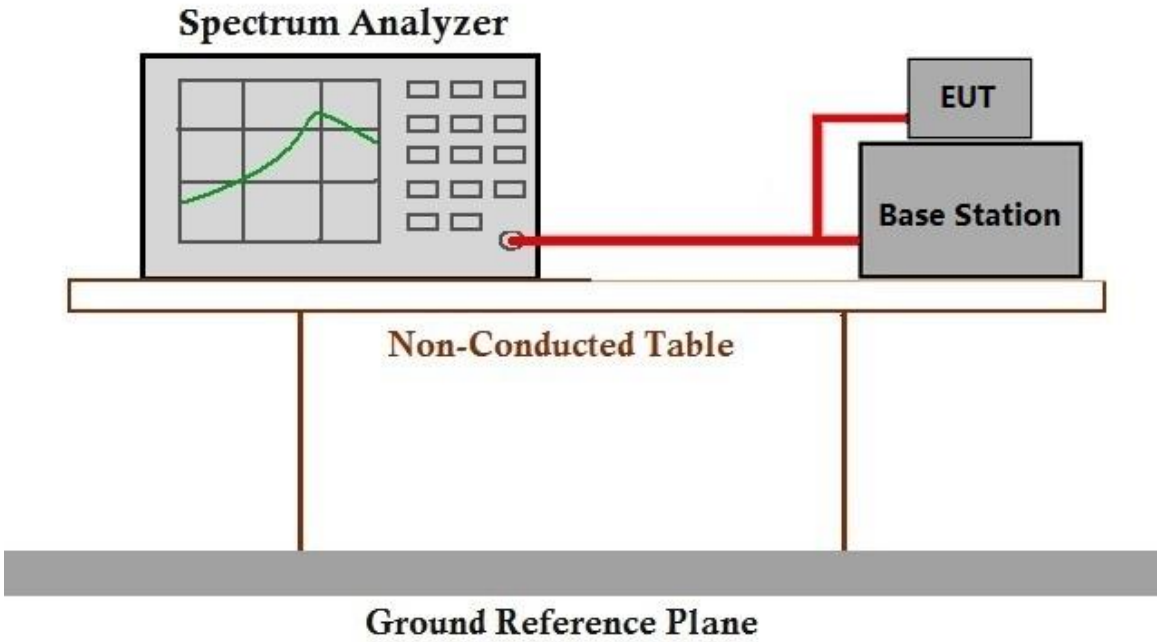
6.5.1 E.U.T. Operation

Operating Environment:

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

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

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Please refer to Appendix E- Spurious emissions at antenna terminals

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6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238, §27.53(f), §27.53(g), §27.53(h), §90.691

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

Limit: ≤ -13dBm(LTE Band2,4,5,12,26b)

≤ -13dBm(LTE Band13, limit out of band 1559-1610MHz)

≤ -40dBm(LTE Band13, limit in the band 1559-1610MHz)

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation; frequency greater than 37.5KHz, ≤ -13dBm(LTE band 26a)

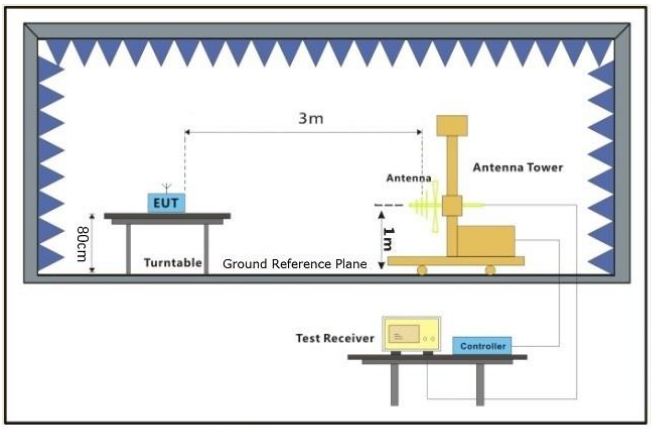
6.6.1 E.U.T. Operation

Operating Environment:

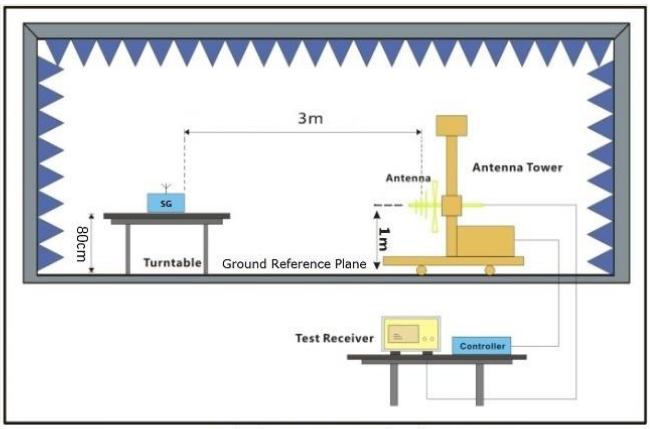
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

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

6.6.2 Test Setup Diagram



EUT



Substiute Antenna+Signal Generator

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6.6.3 Measurement Procedure and Data

Test Procedure:

(1)On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
(6)The transmitter shall 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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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
3702	-60.04	0.71	7.6	-53.15	-13	-40.15	Horizontal	Pass
5553	-57.15	0.85	10.3	-47.7	-13	-34.7	Horizontal	Pass
7404	-59.57	1	12.9	-47.67	-13	-34.67	Horizontal	Pass
3702	-60.2	0.71	7.6	-53.31	-13	-40.31	Vertical	Pass
5553	-57.57	0.85	10.3	-48.12	-13	-35.12	Vertical	Pass
7404	-59.54	1	12.9	-47.64	-13	-34.64	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
3742	-60.33	0.71	7.6	-53.44	-13	-40.44	Horizontal	Pass
5613	-58.65	0.85	10.3	-49.2	-13	-36.2	Horizontal	Pass
7484	-58.69	1	12.9	-46.79	-13	-33.79	Horizontal	Pass
3742	-60.51	0.71	7.6	-53.62	-13	-40.62	Vertical	Pass
5613	-58.64	0.85	10.3	-49.19	-13	-36.19	Vertical	Pass
7484	-59.47	1	12.9	-47.57	-13	-34.57	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
3782	-58.91	0.71	7.6	-52.02	-13	-39.02	Horizontal	Pass
5673	-59	0.85	10.3	-49.55	-13	-36.55	Horizontal	Pass
7564	-60	0.99	13.2	-47.79	-13	-34.79	Horizontal	Pass
3782	-59.94	0.71	7.6	-53.05	-13	-40.05	Vertical	Pass
5673	-58.79	0.85	10.3	-49.34	-13	-36.34	Vertical	Pass
7564	-59.74	0.99	13.2	-47.53	-13	-34.53	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
3422	-50.63	0.65	6.2	-45.08	-13	-32.08	Horizontal	Pass
5133	-58.02	0.82	9.6	-49.24	-13	-36.24	Horizontal	Pass
6844	-58.26	0.95	11.8	-47.41	-13	-34.41	Horizontal	Pass
3422	-52.68	0.65	6.2	-47.13	-13	-34.13	Vertical	Pass
5133	-58.81	0.82	9.6	-50.03	-13	-37.03	Vertical	Pass
6844	-59.08	0.95	11.8	-48.23	-13	-35.23	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
3447	-49.21	0.65	6.2	-43.66	-13	-30.66	Horizontal	Pass
5170.5	-57.79	0.82	9.6	-49.01	-13	-36.01	Horizontal	Pass
6894	-58.32	0.95	11.8	-47.47	-13	-34.47	Horizontal	Pass
3447	-50.66	0.65	6.2	-45.11	-13	-32.11	Vertical	Pass
5170.5	-57.61	0.82	9.6	-48.83	-13	-35.83	Vertical	Pass
6894	-59.13	0.95	11.8	-48.28	-13	-35.28	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
3472	-50.95	0.65	6.2	-45.4	-13	-32.4	Horizontal	Pass
5208	-59.23	0.82	9.6	-50.45	-13	-37.45	Horizontal	Pass
6944	-59.08	0.95	11.8	-48.23	-13	-35.23	Horizontal	Pass
3472	-50.9	0.65	6.2	-45.35	-13	-32.35	Vertical	Pass
5208	-58.35	0.82	9.6	-49.57	-13	-36.57	Vertical	Pass
6944	-58.51	0.95	11.8	-47.66	-13	-34.66	Vertical	Pass

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FDD LTE Band5-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
1649	-49.71	0.52	6	-44.23	-13	-31.23	Horizontal	Pass
2473.5	-64.02	0.53	5.8	-58.75	-13	-45.75	Horizontal	Pass
3298	-58.26	0.65	6.2	-52.71	-13	-39.71	Horizontal	Pass
1649	-52.26	0.52	6	-46.78	-13	-33.78	Vertical	Pass
2473.5	-64.25	0.53	5.8	-58.98	-13	-45.98	Vertical	Pass
3298	-60.79	0.65	6.2	-55.24	-13	-42.24	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
1664	-51.81	0.52	6	-46.33	-13	-33.33	Horizontal	Pass
2496	-61.74	0.53	5.8	-56.47	-13	-43.47	Horizontal	Pass
3328	-60.03	0.65	6.2	-54.48	-13	-41.48	Horizontal	Pass
1664	-50.68	0.52	6	-45.2	-13	-32.2	Vertical	Pass
2496	-63.37	0.53	5.8	-58.1	-13	-45.1	Vertical	Pass
3328	-59.31	0.65	6.2	-53.76	-13	-40.76	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
1679	-50.69	0.52	6	-45.21	-13	-32.21	Horizontal	Pass
2518.5	-62.09	0.59	5.3	-57.38	-13	-44.38	Horizontal	Pass
3358	-60.9	0.65	6.2	-55.35	-13	-42.35	Horizontal	Pass
1679	-53.42	0.52	6	-47.94	-13	-34.94	Vertical	Pass
2518.5	-64.01	0.59	5.3	-59.3	-13	-46.3	Vertical	Pass
3358	-60.83	0.65	6.2	-55.28	-13	-42.28	Vertical	Pass

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FDD LTE Band12-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
1399	-45.08	0.43	1.9	-43.61	-13	-30.61	Horizontal	Pass
2098.5	-55.39	0.53	5.8	-50.12	-13	-37.12	Horizontal	Pass
2798	-62.29	0.59	5.3	-57.58	-13	-44.58	Horizontal	Pass
1399	-44.5	0.43	1.9	-43.03	-13	-30.03	Vertical	Pass
2098.5	-57.37	0.53	5.8	-52.1	-13	-39.1	Vertical	Pass
2798	-61.64	0.59	5.3	-56.93	-13	-43.93	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
1406	-43.1	0.43	1.9	-41.63	-13	-28.63	Horizontal	Pass
2109	-56.21	0.53	5.8	-50.94	-13	-37.94	Horizontal	Pass
2812	-61.41	0.59	5.3	-56.7	-13	-43.7	Horizontal	Pass
1406	-44.96	0.43	1.9	-43.49	-13	-30.49	Vertical	Pass
2109	-57.05	0.53	5.8	-51.78	-13	-38.78	Vertical	Pass
2812	-62.7	0.59	5.3	-57.99	-13	-44.99	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
1413	-44.1	0.43	1.9	-42.63	-13	-29.63	Horizontal	Pass
2119.5	-55.09	0.53	5.8	-49.82	-13	-36.82	Horizontal	Pass
2826	-61.13	0.59	5.3	-56.42	-13	-43.42	Horizontal	Pass
1413	-44.7	0.43	1.9	-43.23	-13	-30.23	Vertical	Pass
2119.5	-55.76	0.53	5.8	-50.49	-13	-37.49	Vertical	Pass
2826	-62	0.59	5.3	-57.29	-13	-44.29	Vertical	Pass

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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
1555	-55.04	0.52	6	-49.56	-13	-36.56	Horizontal	Pass
2332.5	-57.92	0.53	5.8	-52.65	-13	-39.65	Horizontal	Pass
3110	-60.01	0.65	6.2	-54.46	-13	-41.46	Horizontal	Pass
1555	-55.18	0.52	6	-49.7	-13	-36.7	Vertical	Pass
2332.5	-60.39	0.53	5.8	-55.12	-13	-42.12	Vertical	Pass
3110	-62.09	0.65	6.2	-56.54	-13	-43.54	Vertical	Pass

FDD LTE Band26a-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
1629	-52.75	0.52	6	-47.27	-13	-34.27	Horizontal	Pass
2443.5	-56.01	0.53	5.8	-50.74	-13	-37.74	Horizontal	Pass
3258	-60.3	0.65	6.2	-54.75	-13	-41.75	Horizontal	Pass
1629	-50.43	0.52	6	-44.95	-13	-31.95	Vertical	Pass
2443.5	-56.36	0.53	5.8	-51.09	-13	-38.09	Vertical	Pass
3258	-60.72	0.65	6.2	-55.17	-13	-42.17	Vertical	Pass

FDD LTE Band26b-Low channel, Modulation: QPSK, Bandwidth: 15MHz, 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
1649.5	-55.6	0.52	6	-50.12	-13	-37.12	Horizontal	Pass
2474.25	-58.3	0.53	5.8	-53.03	-13	-40.03	Horizontal	Pass
3299	-61.04	0.65	6.2	-55.49	-13	-42.49	Horizontal	Pass
1649.5	-54.91	0.52	6	-49.43	-13	-36.43	Vertical	Pass
2474.25	-58.73	0.53	5.8	-53.46	-13	-40.46	Vertical	Pass
3299	-61.45	0.65	6.2	-55.9	-13	-42.9	Vertical	Pass

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FDD LTE Band26b-Middle channel, Modulation: QPSK, Bandwidth: 15MHz, 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
1659.5	-56.65	0.52	6	-51.17	-13	-38.17	Horizontal	Pass
2489.25	-60.15	0.53	5.8	-54.88	-13	-41.88	Horizontal	Pass
3319	-61.19	0.65	6.2	-55.64	-13	-42.64	Horizontal	Pass
1659.5	-55.43	0.52	6	-49.95	-13	-36.95	Vertical	Pass
2489.25	-59.99	0.53	5.8	-54.72	-13	-41.72	Vertical	Pass
3319	-59.85	0.65	6.2	-54.3	-13	-41.3	Vertical	Pass

FDD LTE Band26b-High channel, Modulation: QPSK, Bandwidth: 15MHz, 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
1669.5	-55.99	0.52	6	-50.51	-13	-37.51	Horizontal	Pass
2504.25	-59.02	0.59	5.3	-54.31	-13	-41.31	Horizontal	Pass
3339	-60.91	0.65	6.2	-55.36	-13	-42.36	Horizontal	Pass
1669.5	-53.73	0.52	6	-48.25	-13	-35.25	Vertical	Pass
2504.25	-58.31	0.59	5.3	-53.6	-13	-40.6	Vertical	Pass
3339	-60.13	0.65	6.2	-54.58	-13	-41.58	Vertical	Pass

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, §90.213

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

Limit: ≤ ±2.5ppm.

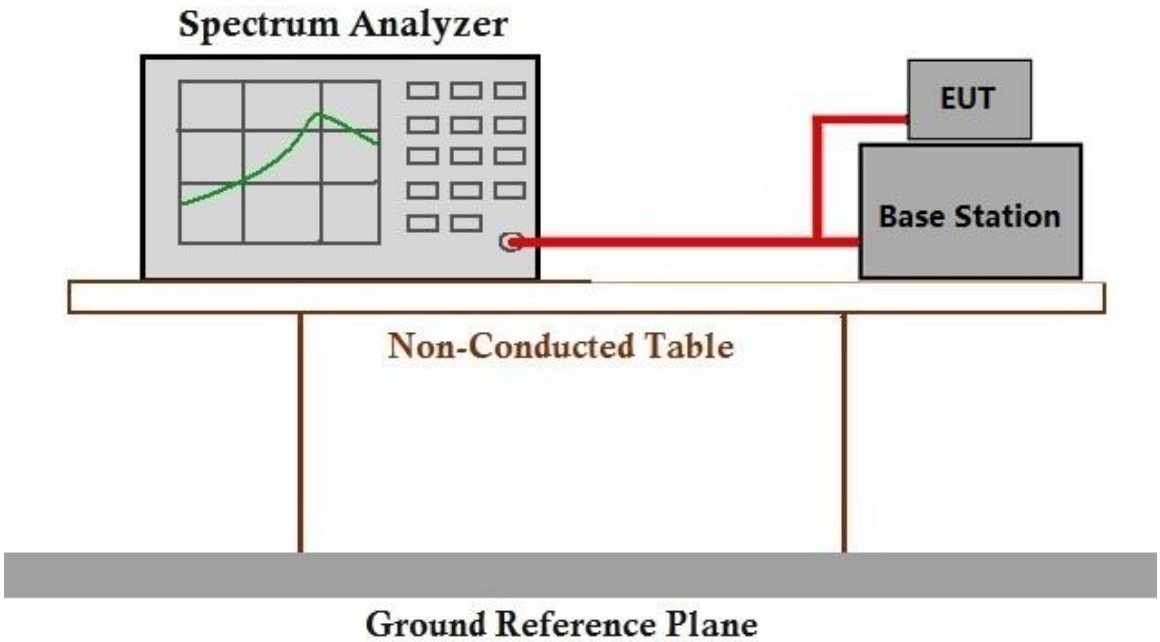
6.7.1 E.U.T. Operation

Operating Environment:

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

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

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

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Frequency Error VS. Voltage

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband2	QPSK/20MHz	LCH	TN	VL	-6.5958	-0.0035	PASS
				VN	13.0073	0.007	PASS
				VH	-12.9953	-0.007	PASS
		MCH	TN	VL	1.7576	0.0009	PASS
				VN	-14.2620	-0.0076	PASS
				VH	-13.9914	-0.0074	PASS
		HCH	TN	VL	10.3447	0.0054	PASS
				VN	-13.2993	-0.007	PASS
				VH	13.3492	0.007	PASS
	16QAM/20MHz	LCH	TN	VL	12.7438	0.0069	PASS
				VN	-14.3423	-0.0077	PASS
				VH	5.5722	0.003	PASS
		MCH	TN	VL	-10.9428	-0.0058	PASS
				VN	-2.2853	-0.0012	PASS
				VH	-9.7827	-0.0052	PASS
		HCH	TN	VL	-2.2892	-0.0012	PASS
				VN	-5.7913	-0.003	PASS
				VH	11.3532	0.006	PASS

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband4	QPSK/20MHz	LCH	TN	VL	5.5598	0.0032	PASS
				VN	0.2895	0.0002	PASS
				VH	0.2098	0.0001	PASS
		MCH	TN	VL	-4.6118	-0.0027	PASS
				VN	14.1220	0.0082	PASS
				VH	-2.5116	-0.0014	PASS
		HCH	TN	VL	4.6447	0.0027	PASS
				VN	8.4219	0.0048	PASS
				VH	-7.8758	-0.0045	PASS
	16QAM/20MHz	LCH	TN	VL	12.4973	0.0073	PASS
				VN	-3.8232	-0.0022	PASS
				VH	14.4649	0.0084	PASS
		MCH	TN	VL	5.2489	0.003	PASS
				VN	-7.7490	-0.0045	PASS

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				VH	-4.0804	-0.0024	PASS
		HCH	TN	VL	-14.7596	-0.0085	PASS
				VN	9.8470	0.0056	PASS
				VH	3.5933	0.0021	PASS

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband5	QPSK/10MHz	LCH	TN	VL	-11.4792	-0.0138	PASS
				VN	-12.8940	-0.0156	PASS
				VH	4.7522	0.0057	PASS
		MCH	TN	VL	-8.1047	-0.0097	PASS
				VN	-2.3055	-0.0028	PASS
				VH	8.5542	0.0102	PASS
		HCH	TN	VL	-4.7273	-0.0056	PASS
				VN	-13.0267	-0.0154	PASS
				VH	9.1108	0.0108	PASS
	16QAM/10MHz	LCH	TN	VL	-5.6496	-0.0031	PASS
				VN	5.2143	0.0028	PASS
				VH	-5.8390	-0.0032	PASS
		MCH	TN	VL	-11.6820	-0.0062	PASS
				VN	-4.0821	-0.0022	PASS
				VH	-10.2448	-0.0054	PASS
		HCH	TN	VL	0.5947	0.0003	PASS
				VN	4.7317	0.0025	PASS
				VH	9.0173	0.0047	PASS

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband12	QPSK/10MHz	LCH	TN	VL	1.1062	0.0016	PASS
				VN	14.1167	0.0201	PASS
				VH	-11.1079	-0.0158	PASS
		MCH	TN	VL	2.1735	0.0031	PASS
				VN	-14.8013	-0.0209	PASS
				VH	5.0868	0.0072	PASS
		HCH	TN	VL	-3.1749	-0.0045	PASS
				VN	3.4097	0.0048	PASS
				VH	-7.0259	-0.0099	PASS
	16QAM/10MHz	LCH	TN	VL	10.8523	0.0154	PASS

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				VN	-6.3455	-0.009	PASS
				VH	0.9880	0.0014	PASS
		MCH	TN	VL	-7.1002	-0.01	PASS
				VN	12.3568	0.0175	PASS
				VH	-10.6652	-0.0151	PASS
		HCH	TN	VL	5.0745	0.0071	PASS
				VN	-1.8028	-0.0025	PASS
				VH	3.5237	0.005	PASS

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband13	QPSK/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	9.7516	0.0125	PASS
				VN	-8.8540	-0.0113	PASS
				VH	8.8653	0.0113	PASS
		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
	16QAM/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	14.9352	0.0191	PASS
				VN	7.6027	0.0097	PASS
				VH	-0.0010	0	PASS
		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26a	QPSK/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	-11.0162	-0.0135	PASS
				VN	7.8283	0.0096	PASS
				VH	5.8348	0.0071	PASS

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		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
	16QAM/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	-7.4825	-0.0091	PASS
				VN	14.5895	0.0178	PASS
				VH	-7.5892	-0.0093	PASS
		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26b	QPSK/15MHz	LCH	TN	VL	-6.9049	-0.0083	PASS
				VN	8.3148	0.01	PASS
				VH	7.5846	0.0091	PASS
		MCH	TN	VL	-2.2528	-0.0027	PASS
				VN	-13.7674	-0.0165	PASS
				VH	4.9351	0.0059	PASS
		HCH	TN	VL	13.7107	0.0163	PASS
				VN	7.5677	0.009	PASS
				VH	3.4715	0.0041	PASS
	16QAM/15MHz	LCH	TN	VL	6.6827	0.008	PASS
				VN	-14.1692	-0.017	PASS
				VH	-5.8393	-0.007	PASS
		MCH	TN	VL	1.7845	0.0021	PASS
				VN	13.6682	0.0163	PASS
				VH	6.9026	0.0083	PASS
		HCH	TN	VL	-4.0812	-0.0048	PASS
				VN	-6.3677	-0.0076	PASS
				VH	-5.8619	-0.007	PASS

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Frequency Error VS. Temperature

Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband2	QPSK/20MHz	LCH	VN	-30	2.5145	0.0014	PASS
				-20	-4.1809	-0.0022	PASS
				-10	-8.7838	-0.0047	PASS
				0	-7.6915	-0.0041	PASS
				10	0.4204	0.0002	PASS
				20	7.5350	0.0041	PASS
				30	-11.3308	-0.0061	PASS
				40	-2.8823	-0.0015	PASS
				50	-3.5649	-0.0019	PASS
		MCH	VN	-30	-4.4664	-0.0024	PASS
				-20	-7.1937	-0.0038	PASS
				-10	3.5670	0.0019	PASS
				0	-2.0478	-0.0011	PASS
				10	12.0542	0.0064	PASS
				20	-10.5778	-0.0056	PASS
				30	-9.9016	-0.0053	PASS
				40	14.1937	0.0075	PASS
				50	10.4255	0.0055	PASS
		HCH	VN	-30	-7.7800	-0.0041	PASS
				-20	6.0438	0.0032	PASS
				-10	3.7788	0.002	PASS
				0	9.6936	0.0051	PASS
				10	-10.8010	-0.0057	PASS
				20	3.3342	0.0018	PASS
				30	6.1248	0.0032	PASS
				40	-6.2910	-0.0033	PASS
				50	-1.1765	-0.0006	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband2	16QAM/20MHz	LCH	VN	-30	5.9675	0.0032	PASS
				-20	12.6686	0.0068	PASS
				-10	-10.1378	-0.0055	PASS
				0	3.3087	0.0018	PASS
				10	-1.3047	-0.0007	PASS
				20	12.2250	0.0066	PASS
				30	3.4140	0.0018	PASS
				40	13.6010	0.0073	PASS
				50	-14.3492	-0.0077	PASS
		MCH	VN	-30	-10.2316	-0.0054	PASS
				-20	-0.0458	0	PASS
				-10	-6.8745	-0.0037	PASS
				0	-11.0652	-0.0059	PASS
				10	-3.1006	-0.0016	PASS
				20	10.5729	0.0056	PASS
				30	6.5484	0.0035	PASS
				40	-3.8043	-0.002	PASS
				50	-2.6338	-0.0014	PASS
		HCH	VN	-30	10.1225	0.0053	PASS
				-20	-7.3549	-0.0039	PASS
				-10	-0.1588	-0.0001	PASS
				0	8.5575	0.0045	PASS
				10	0.4297	0.0002	PASS
				20	-11.9191	-0.0063	PASS
				30	7.6032	0.004	PASS
				40	-0.4011	-0.0002	PASS
				50	4.1400	0.0022	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband4	QPSK/20MHz	LCH	VN	-30	13.2315	0.0077	PASS
				-20	11.6224	0.0068	PASS
				-10	-2.0985	-0.0012	PASS
				0	-1.0492	-0.0006	PASS
				10	10.3709	0.006	PASS
				20	3.6553	0.0021	PASS
				30	9.0443	0.0053	PASS
				40	-9.4456	-0.0055	PASS
				50	10.9580	0.0064	PASS
		MCH	VN	-30	13.2700	0.0077	PASS
				-20	2.2492	0.0013	PASS
				-10	-0.9328	-0.0005	PASS
				0	-9.7144	-0.0056	PASS
				10	6.4771	0.0037	PASS
				20	9.3960	0.0054	PASS
				30	11.9278	0.0069	PASS
				40	-10.8425	-0.0063	PASS
				50	-8.7510	-0.0051	PASS
		HCH	VN	-30	-3.0846	-0.0018	PASS
				-20	4.4027	0.0025	PASS
				-10	4.6280	0.0027	PASS
				0	-1.3800	-0.0008	PASS
				10	9.0059	0.0052	PASS
				20	-12.8092	-0.0073	PASS
				30	6.8797	0.0039	PASS
				40	-13.2746	-0.0076	PASS
				50	-3.9474	-0.0023	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband4	16QAM/20MHz	LCH	VN	-30	2.5936	0.0015	PASS
				-20	2.8844	0.0017	PASS
				-10	-1.7659	-0.001	PASS
				0	11.4064	0.0066	PASS
				10	-9.4386	-0.0055	PASS
				20	-6.1059	-0.0035	PASS
				30	13.8592	0.0081	PASS
				40	2.5929	0.0015	PASS
				50	-11.4186	-0.0066	PASS
		MCH	VN	-30	5.3501	0.0031	PASS
				-20	-5.7358	-0.0033	PASS
				-10	8.4497	0.0049	PASS
				0	7.5708	0.0044	PASS
				10	-0.4469	-0.0003	PASS
				20	5.9379	0.0034	PASS
				30	9.5971	0.0055	PASS
				40	8.0739	0.0047	PASS
				50	4.4867	0.0026	PASS
		HCH	VN	-30	12.1037	0.0069	PASS
				-20	-8.9025	-0.0051	PASS
				-10	6.0508	0.0035	PASS
				0	4.2501	0.0024	PASS
				10	-1.9424	-0.0011	PASS
				20	1.2829	0.0007	PASS
				30	4.6194	0.0026	PASS
				40	4.6921	0.0027	PASS
				50	-1.5233	-0.0009	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband5	QPSK/10MHz	LCH	VN	-30	-4.6949	-0.0057	PASS
				-20	2.3173	0.0028	PASS
				-10	-6.0062	-0.0072	PASS
				0	-2.6174	-0.0032	PASS
				10	2.1556	0.0026	PASS
				20	-9.6684	-0.0117	PASS
				30	12.1148	0.0146	PASS
				40	3.0356	0.0037	PASS
				50	14.4310	0.0174	PASS
		MCH	VN	-30	5.5382	0.0066	PASS
				-20	0.6222	0.0007	PASS
				-10	13.7286	0.0164	PASS
				0	-9.1275	-0.0109	PASS
				10	10.9725	0.0131	PASS
				20	-4.7921	-0.0057	PASS
				30	-3.5400	-0.0042	PASS
				40	7.0654	0.0084	PASS
				50	-13.8243	-0.0165	PASS
		HCH	VN	-30	-13.5120	-0.016	PASS
				-20	-9.1795	-0.0109	PASS
				-10	-3.3972	-0.004	PASS
				0	8.4779	0.01	PASS
				10	11.1661	0.0132	PASS
				20	-4.5258	-0.0054	PASS
				30	12.8669	0.0152	PASS
				40	13.7831	0.0163	PASS
				50	-8.7911	-0.0104	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband5	16QAM/10MHz	LCH	VN	-30	-4.6840	-0.0057	PASS
				-20	3.8874	0.0047	PASS
				-10	2.5332	0.0031	PASS
				0	-7.2653	-0.0088	PASS
				10	-11.2630	-0.0136	PASS
				20	-13.1780	-0.0159	PASS
				30	-2.0308	-0.0024	PASS
				40	11.3421	0.0137	PASS
				50	3.2841	0.004	PASS
		MCH	VN	-30	8.7449	0.0105	PASS
				-20	-0.2504	-0.0003	PASS
				-10	9.9480	0.0119	PASS
				0	-5.9055	-0.0071	PASS
				10	-5.7735	-0.0069	PASS
				20	-8.0233	-0.0096	PASS
				30	-8.5949	-0.0103	PASS
				40	-9.7506	-0.0117	PASS
				50	-8.3593	-0.01	PASS
		HCH	VN	-30	-1.2343	-0.0015	PASS
				-20	12.0013	0.0142	PASS
				-10	4.1343	0.0049	PASS
				0	12.6217	0.015	PASS
				10	6.5144	0.0077	PASS
				20	-13.5786	-0.0161	PASS
				30	-12.5656	-0.0149	PASS
				40	-3.5525	-0.0042	PASS
				50	-4.8584	-0.0058	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band 12	QPSK/10MHz	LCH	VN	-30	-7.4040	-0.0105	PASS
				-20	1.6439	0.0023	PASS
				-10	7.8768	0.0112	PASS
				0	7.3930	0.0105	PASS
				10	-14.2020	-0.0202	PASS
				20	14.6625	0.0208	PASS
				30	5.0280	0.0071	PASS
				40	-12.3362	-0.0175	PASS
				50	-14.2043	-0.0202	PASS
		MCH	VN	-30	10.6137	0.015	PASS
				-20	11.3953	0.0161	PASS
				-10	9.9423	0.0141	PASS
				0	9.9521	0.0141	PASS
				10	-5.8075	-0.0082	PASS
				20	-8.8431	-0.0125	PASS
				30	4.0889	0.0058	PASS
				40	6.8287	0.0097	PASS
				50	12.4863	0.0176	PASS
		HCH	VN	-30	-13.6305	-0.0192	PASS
				-20	8.1761	0.0115	PASS
				-10	3.3802	0.0048	PASS
				0	5.4111	0.0076	PASS
				10	-1.8718	-0.0026	PASS
				20	10.0012	0.0141	PASS
				30	-10.0023	-0.0141	PASS
				40	-9.8771	-0.0139	PASS
				50	-14.3797	-0.0202	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band 12	16QAM/10MHz	LCH	VN	-30	10.1789	0.0145	PASS
				-20	13.4061	0.019	PASS
				-10	8.6009	0.0122	PASS
				0	-4.0497	-0.0058	PASS
				10	-4.7546	-0.0068	PASS
				20	1.4973	0.0021	PASS
				30	-8.9210	-0.0127	PASS
				40	8.3614	0.0119	PASS
				50	6.7356	0.0096	PASS
		MCH	VN	-30	-12.4458	-0.0176	PASS
				-20	9.1162	0.0129	PASS
				-10	13.1075	0.0185	PASS
				0	-9.1800	-0.013	PASS
				10	-12.1151	-0.0171	PASS
				20	-6.9300	-0.0098	PASS
				30	2.0714	0.0029	PASS
				40	-8.2703	-0.0117	PASS
				50	-5.6368	-0.008	PASS
		HCH	VN	-30	-5.5367	-0.0078	PASS
				-20	-3.0129	-0.0042	PASS
				-10	-7.4845	-0.0105	PASS
				0	0.7204	0.001	PASS
				10	-5.6996	-0.008	PASS
				20	2.7773	0.0039	PASS
				30	-0.3617	-0.0005	PASS
				40	8.1026	0.0114	PASS
				50	-5.2457	-0.0074	PASS

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LTE band 13	QPSK/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	-14.2067	-0.0182	PASS
				-20	1.5659	0.002	PASS
				-10	-7.1300	-0.0091	PASS
				0	3.5763	0.0046	PASS
				10	4.5166	0.0058	PASS
				20	9.9642	0.0127	PASS
				30	9.3569	0.012	PASS
				40	-12.0110	-0.0154	PASS
				50	5.1718	0.0066	PASS
		HCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/

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LTE band 13	16QAM/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	4.6953	0.006	PASS
				-20	-0.4431	-0.0006	PASS
				-10	-2.6640	-0.0034	PASS
				0	13.5771	0.0174	PASS
				10	10.4764	0.0134	PASS
				20	-14.5203	-0.0186	PASS
				30	2.1596	0.0028	PASS
				40	1.5336	0.002	PASS
				50	-4.5587	-0.0058	PASS
		HCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/

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LTE band 26a	QPSK/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	-4.3022	-0.0053	PASS
				-20	-8.1264	-0.0099	PASS
				-10	-1.7275	-0.0021	PASS
				0	-6.5392	-0.008	PASS
				10	14.5388	0.0178	PASS
				20	2.4431	0.003	PASS
				30	-13.7541	-0.0168	PASS
				40	-13.5606	-0.0166	PASS
				50	13.2117	0.0161	PASS
		HCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band 26a	16QAM/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	-14.5317	-0.0177	PASS
				-20	6.2750	0.0077	PASS
				-10	-9.1413	-0.0112	PASS
				0	-0.0674	-0.0001	PASS
				10	10.7761	0.0132	PASS
				20	-3.3421	-0.0041	PASS
				30	-14.8914	-0.0182	PASS
				40	-11.9404	-0.0146	PASS
				50	-9.1410	-0.0112	PASS
		HCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band 26b	QPSK/15MHz	LCH	VN	-30	-1.9140	-0.0023	PASS
				-20	-4.0763	-0.0049	PASS
				-10	-1.3429	-0.0016	PASS
				0	-13.5284	-0.0163	PASS
				10	-5.3170	-0.0064	PASS
				20	6.5291	0.0079	PASS
				30	1.4009	0.0017	PASS
				40	10.8823	0.0131	PASS
				50	1.4717	0.0018	PASS
		MCH	VN	-30	-3.5614	-0.0043	PASS
				-20	6.7029	0.008	PASS
				-10	10.6961	0.0128	PASS
				0	12.1529	0.0145	PASS
				10	7.1300	0.0085	PASS
				20	-10.7958	-0.0129	PASS
				30	-8.7697	-0.0105	PASS
				40	4.8599	0.0058	PASS
				50	-12.4463	-0.0149	PASS
		HCH	VN	-30	8.3910	0.01	PASS
				-20	-0.8874	-0.0011	PASS
				-10	-14.2944	-0.017	PASS
				0	-4.5185	-0.0054	PASS
				10	-11.5538	-0.0137	PASS
				20	5.1053	0.0061	PASS
				30	-1.3074	-0.0016	PASS
				40	-2.2171	-0.0026	PASS
				50	-9.0545	-0.0108	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band 26b	16QAM/15MHz	LCH	VN	-30	0.5720	0.0007	PASS
				-20	-5.9069	-0.0071	PASS
				-10	12.7022	0.0153	PASS
				0	4.5345	0.0055	PASS
				10	-5.7485	-0.0069	PASS
				20	-4.9936	-0.006	PASS
				30	0.5380	0.0006	PASS
				40	10.6528	0.0128	PASS
				50	-7.9139	-0.0095	PASS
		MCH	VN	-30	-5.2423	-0.0063	PASS
				-20	4.3612	0.0052	PASS
				-10	-10.0914	-0.0121	PASS
				0	-11.9557	-0.0143	PASS
				10	7.1522	0.0086	PASS
				20	-14.0881	-0.0168	PASS
				30	-7.8898	-0.0094	PASS
				40	-5.9381	-0.0071	PASS
				50	13.9293	0.0167	PASS
		HCH	VN	-30	0.5226	0.0006	PASS
				-20	-9.5472	-0.0113	PASS
				-10	-3.0680	-0.0036	PASS
				0	-13.4817	-0.016	PASS
				10	-1.3504	-0.0016	PASS
				20	9.7107	0.0115	PASS
				30	-13.9192	-0.0165	PASS
				40	13.1188	0.0156	PASS
				50	-8.8015	-0.0105	PASS

Note: All modes have been tested and we only record the worst test result.

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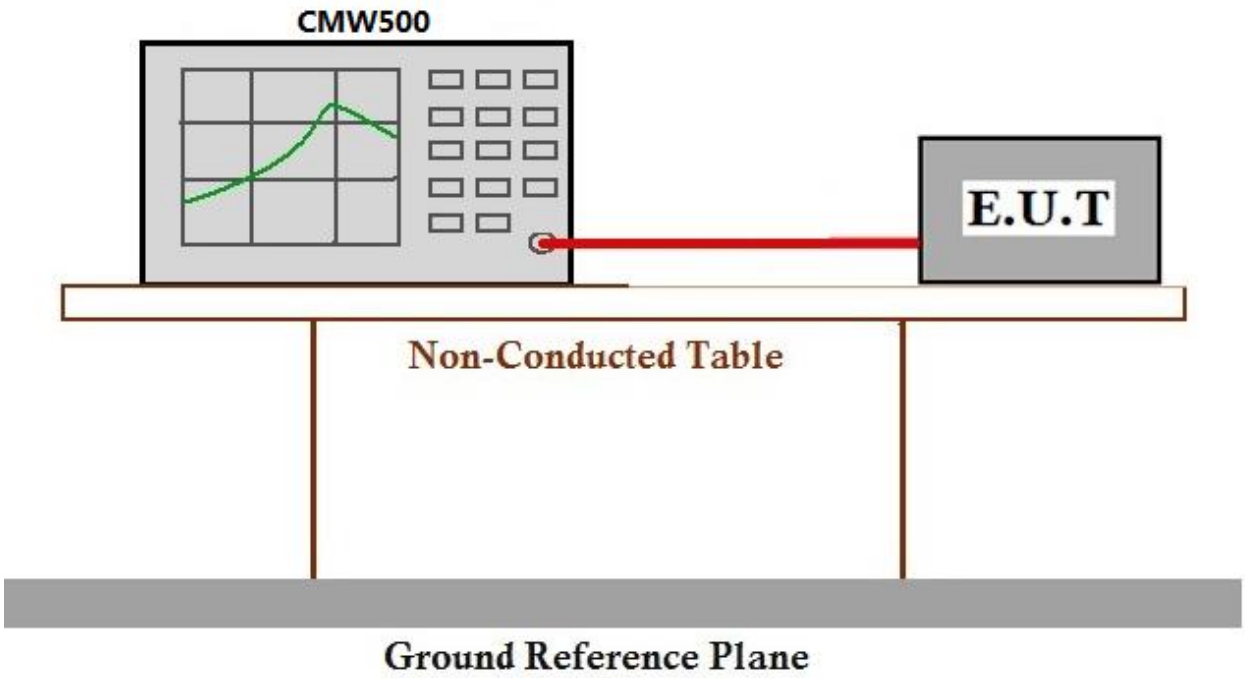
6.8 Modulation Characteristics

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

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

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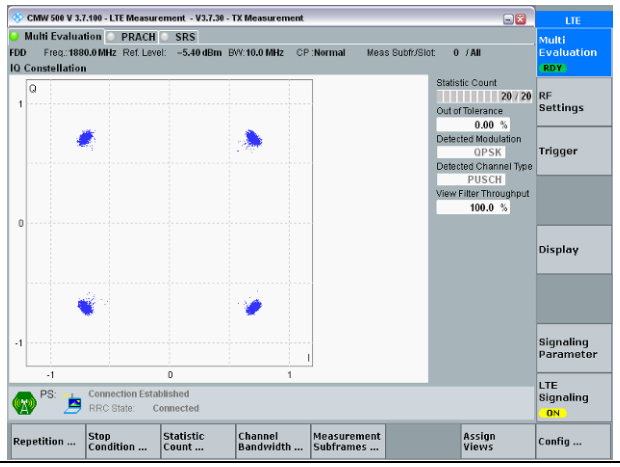
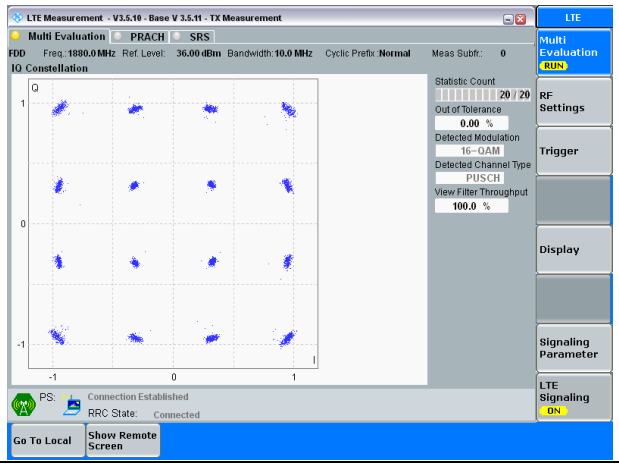
Test Plot

LTE FDD Band 2 QPSK



LTE FDD Band 2 16QAM



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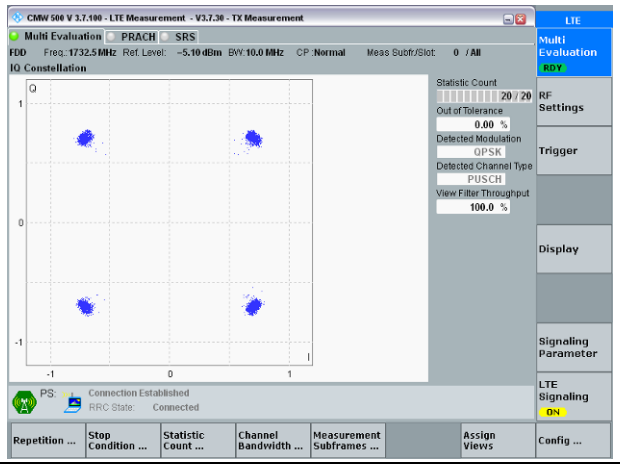
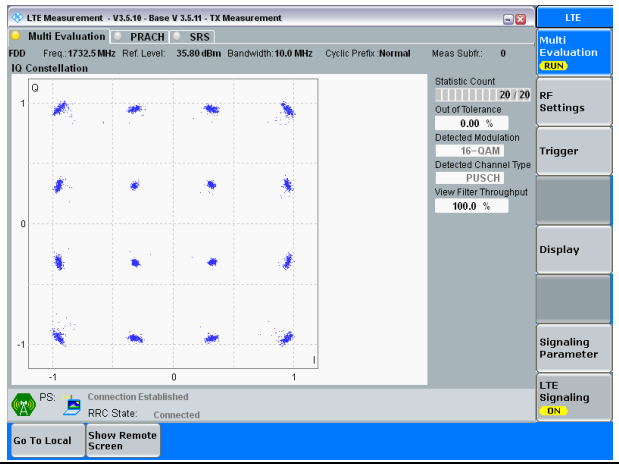
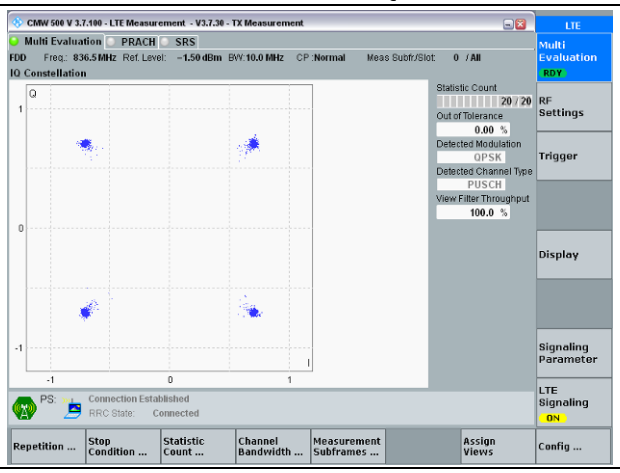


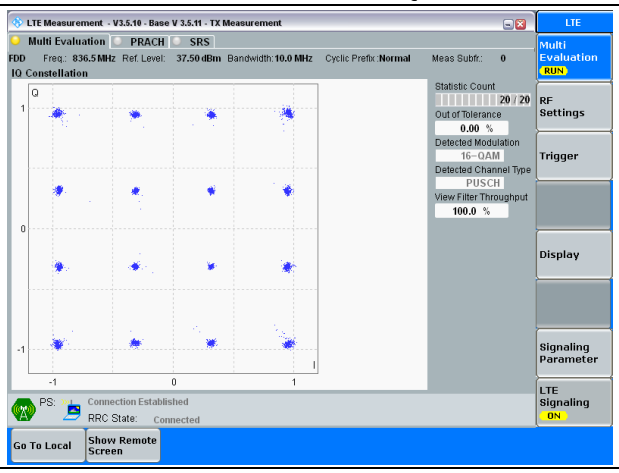
LTE FDD Band 4 16QAM



LTE FDD Band 5 QPSK



LTE FDD Band 5 16QAM



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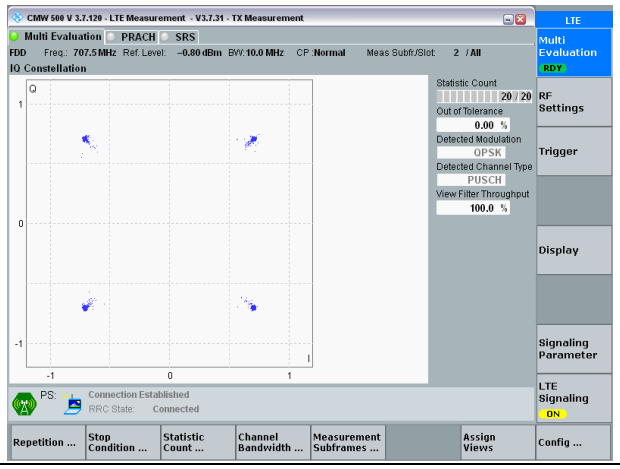
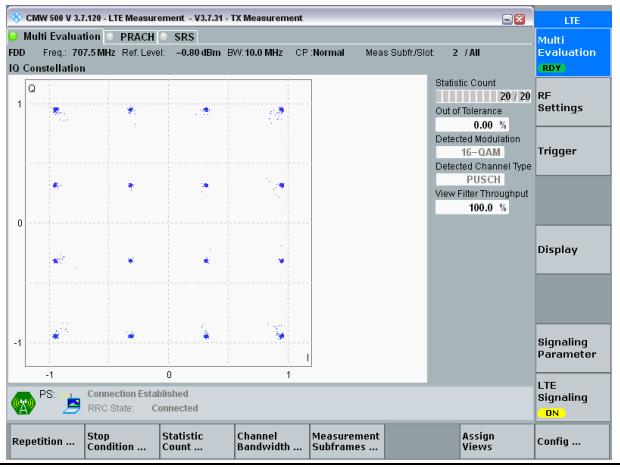
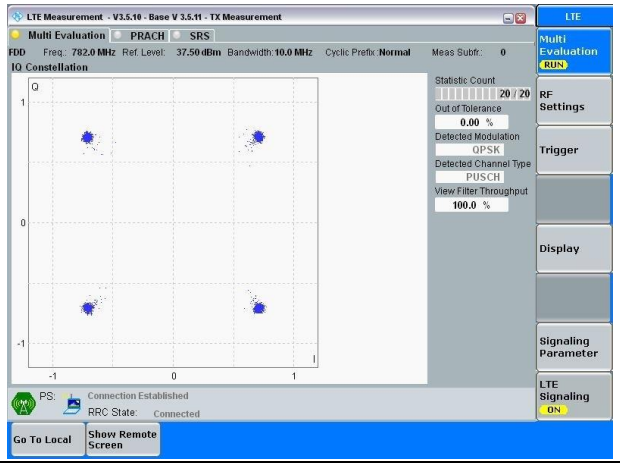
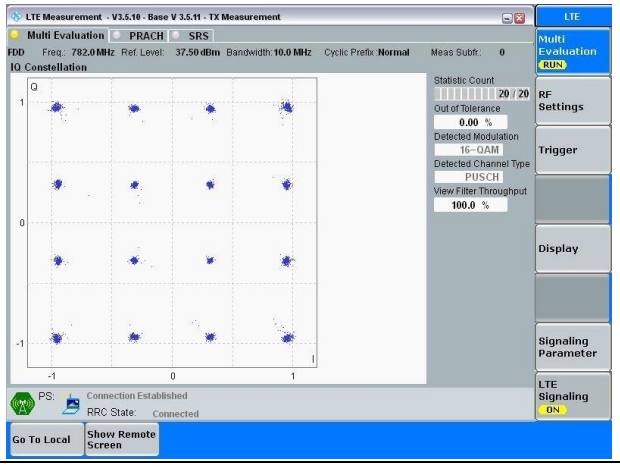
	
LTE FDD Band 13 QPSK	**LTE FDD Band 13 16QAM**
	

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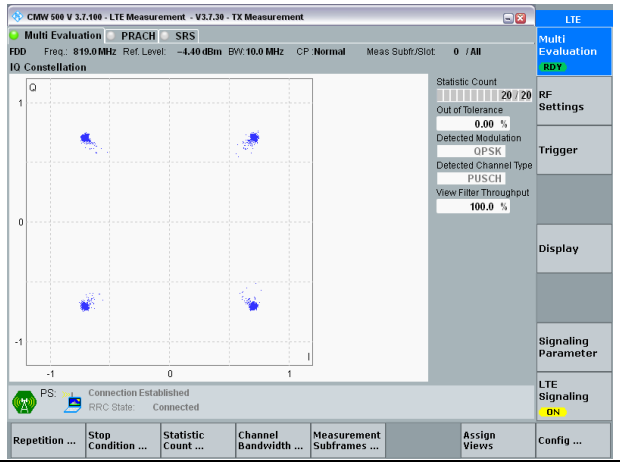
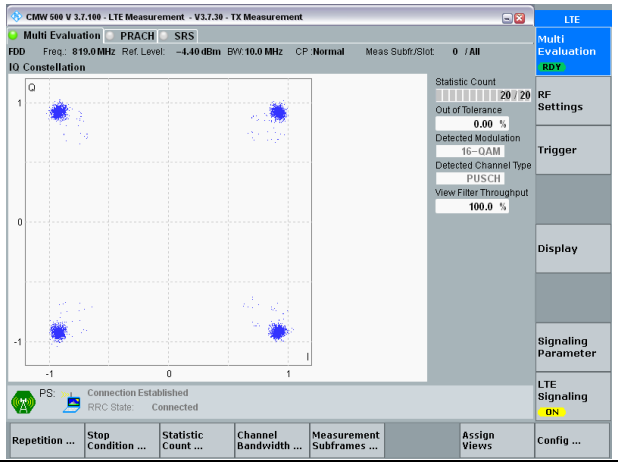
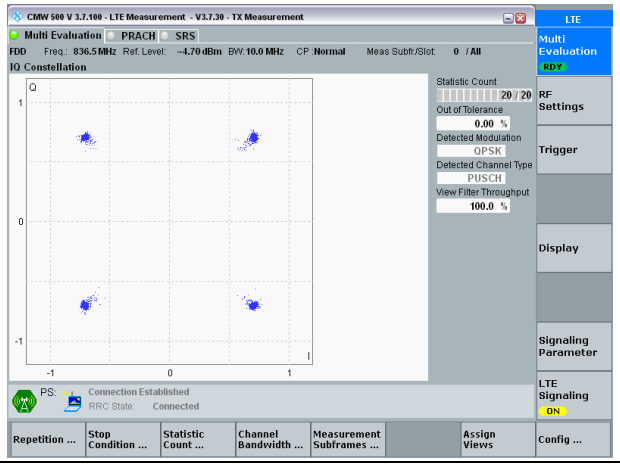
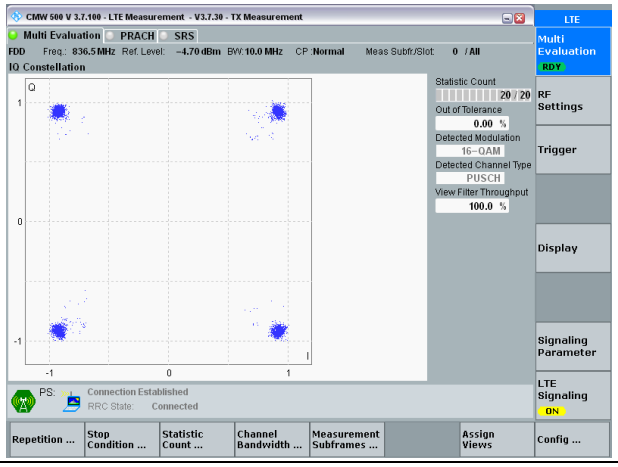
	
LTE FDD Band 26b QPSK	LTE FDD Band 26b 16QAM
	

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