TEST REPORT

Application No.:	SZEM1903011703CR
Applicant:	Hytera Communications Corporation Limited
Address of Applicant:	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, 518057, China
Manufacturer:	Hytera Communications Corporation Limited
Address of Manufacturer:	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, 518057, China
Equipment Under Test (EUT):	
EUT Name:	PoC LTE Terminal
Model No.:	PNC370
Trade mark:	Hytera
FCC ID:	YAMPNC370
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:	2019-03-14
Date of Test:	2019-03-15 to 2019-04-01
Date of Issue:	2019-04-04
Test Result:	**Pass**

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

Keny. xu

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
01		*2019-04-04*		*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(c), §27.50(d), §90.635(b)	ERP≤7W(LTE Band 5, LTE Band 26(824MHz-849MHz)) ERP≤100W(LTE Band 26(814MHz-824MHz)) EIRP≤ 2W(LTE Band 2,7,38, 41) EIRP≤ 1W(LTE Band 4) ERP≤ 3W(LTE Band 12, 17)	PASS
Peak-Average Ratio	§24.232, §27.50(c), §27.50(d)	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h), §22.917, §24.238, §27.53(h), §90.209	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238, §27.53(h), §27.53(g), §90.691	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block(LTE Band2,4,5,12,17,26,38,41) ≤ -13dBm(LTE Band7, <5.5MHz) -25dBm(LTE Band7, ⩾5.5MHz) ≤50+10*log10(P) at bandedge and for all out-of-band emissions within 37.5KHz of block edge(LTE Band26)	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238, §27.53(h), §27.53(g), §90.691	≤ -13dBm(LTE Band2,4,5,12,17,26) ≤ -25dBm(LTE Band7,38, 41)	PASS
Field strength of spurious radiation	§2.1051, §22.917, §24.238, §27.53(h), §27.53(g), §90.691	≤ -13dBm(LTE Band2,4,5,12,17,26) ≤ -25dBm(LTE Band7,38, 41)	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.

Power supply:	Switching Power Supply Model: S010WU0500200 Input: AC 100-240V, 50/60Hz, 400mA Output: DC 5.0V, 2000mA DC 3.6V, 3100mAh rechargeable battery which charged by USB port
Sample Type:	Portable production
LTE Operation Frequency Band:	LTE FDD Band 2, 4, 5, 7, 12, 17, 26, 38, 41
Modulation Type:	QPSK, 16QAM
LTE Release Version:	R8
LTE Power Class:	Level 3
Antenna Type:	LDS Antenna
Antenna Gain:	0dBi
Extreme temp. Tolerance:	-30℃ to +50℃
Extreme vol. Limits:	3.06VDC to 4.14VDC (nominal: 3.6VDC)

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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 7	5	2502.5	2535.0	2567.5
	10	2505.0	2535.0	2565.0
	15	2507.5	2535.0	2562.5
	20	2510.0	2535.0	2560.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5

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	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 17	5	706.5	710.0	713.5
	10	709.0	710.0	711.0
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 26 (814MHz-824MHz)	1.4	814.7	819.0	823.3
	3	815.5	819.0	822.5
	5	816.5	819.0	821.5
	10	/	819.0	/
	15	821.5	/	/
Test mode:	**Nominal Bandwidth (MHz)**	**RF Channel**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE FDD Band 26 (824MHz-849MHz)	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**		
		Low (L)	**Middle (M)**	**High (H)**
		MHz	**MHz**	**MHz**
LTE TDD 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 TDD Band 41	5	2557.5	2605.0	2652.5
	10	2560.0	2605.0	2650.0
	15	2562.5	2605.0	2647.5
	20	2565.0	2605.0	2645.0

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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	1M10G7D	/	0.222844
Part24E	LTE Band2	16QAM	1.4	1M10W7D	/	0.194536
Part24E	LTE Band2	QPSK	3	2M69G7D	/	0.234423
Part24E	LTE Band2	16QAM	3	2M69W7D	/	0.188799
Part24E	LTE Band2	QPSK	5	4M51G7D	/	0.224388
Part24E	LTE Band2	16QAM	5	4M51W7D	/	0.187932
Part24E	LTE Band2	QPSK	10	8M94G7D	/	0.225944
Part24E	LTE Band2	16QAM	10	8M94W7D	/	0.188365
Part24E	LTE Band2	QPSK	15	13M5G7D	/	0.231206
Part24E	LTE Band2	16QAM	15	13M5W7D	/	0.190108
Part24E	LTE Band2	QPSK	20	18M0G7D	-0.00282	0.236048
Part24E	LTE Band2	16QAM	20	18M0W7D	-0.00265	0.188799
Part27	LTE Band4	QPSK	1.4	1M10G7D	/	0.235505
Part27	LTE Band4	16QAM	1.4	1M10W7D	/	0.191426
Part27	LTE Band4	QPSK	3	2M69G7D	/	0.224905
Part27	LTE Band4	16QAM	3	2M69W7D	/	0.190985
Part27	LTE Band4	QPSK	5	4M51G7D	/	0.226986
Part27	LTE Band4	16QAM	5	4M52W7D	/	0.199526
Part27	LTE Band4	QPSK	10	8M94G7D	/	0.224388
Part27	LTE Band4	16QAM	10	8M94W7D	/	0.193197
Part27	LTE Band4	QPSK	15	13M5G7D	/	0.225424
Part27	LTE Band4	16QAM	15	13M5W7D	/	0.199526
Part27	LTE Band4	QPSK	20	18M0G7D	0.00254	0.229615
Part27	LTE Band4	16QAM	20	18M0W7D	0.00319	0.199526
Part22H	LTE Band5	QPSK	1.4	1M10G7D	/	0.145881
Part22H	LTE Band5	16QAM	1.4	1M10W7D	/	0.117220
Part22H	LTE Band5	QPSK	3	2M68G7D	/	0.147231
Part22H	LTE Band5	16QAM	3	2M69W7D	/	0.118304
Part22H	LTE Band5	QPSK	5	4M50G7D	/	0.144877
Part22H	LTE Band5	16QAM	5	4M52W7D	/	0.121339
Part22H	LTE Band5	QPSK	10	8M98G7D	-0.00648	0.141579
Part22H	LTE Band5	16QAM	10	8M94W7D	-0.00614	0.120226

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Part27	LTE Band7	QPSK	5	4M51G7D	/	0.251189
Part27	LTE Band7	16QAM	5	4M51W7D	/	0.223357
Part27	LTE Band7	QPSK	10	8M96G7D	/	0.240436
Part27	LTE Band7	16QAM	10	8M94W7D	/	0.178649
Part27	LTE Band7	QPSK	15	13M6G7D	/	0.233346
Part27	LTE Band7	16QAM	15	13M5W7D	/	0.195434
Part27	LTE Band7	QPSK	20	18M0G7D	0.00181	0.213796
Part27	LTE Band7	16QAM	20	18M0W7D	0.00208	0.181134
Part27	LTE Band12	QPSK	1.4	1M10G7D	/	0.135207
Part27	LTE Band12	16QAM	1.4	1M10W7D	/	0.116413
Part27	LTE Band12	QPSK	3	2M68G7D	/	0.133045
Part27	LTE Band12	16QAM	3	2M69W7D	/	0.116950
Part27	LTE Band12	QPSK	5	4M51G7D	/	0.140929
Part27	LTE Band12	16QAM	5	4M51W7D	/	0.111429
Part27	LTE Band12	QPSK	10	8M96G7D	0.00722	0.134276
Part27	LTE Band12	16QAM	10	8M96W7D	0.00705	0.118304
Part27	LTE Band17	QPSK	5	4M51G7D	/	0.152405
Part27	LTE Band17	16QAM	5	4M51W7D	/	0.116950
Part27	LTE Band17	QPSK	10	8M94G7D	0.00677	0.145546
Part27	LTE Band17	16QAM	10	8M96W7D	0.00756	0.112460
Part90	LTE Band26[a]	QPSK	1.4	1M10G7D	/	0.138038
Part90	LTE Band26[a]	16QAM	1.4	1M10W7D	/	0.108393
Part90	LTE Band26[a]	QPSK	3	2M69G7D	/	0.137721
Part90	LTE Band26[a]	16QAM	3	2M69W7D	/	0.118577
Part90	LTE Band26[a]	QPSK	5	4M51G7D	/	0.142889
Part90	LTE Band26[a]	16QAM	5	4M51W7D	/	0.115878
Part90	LTE Band26[a]	QPSK	10	8M96G7D	/	0.140929
Part90	LTE Band26[a]	16QAM	10	8M92W7D	/	0.111944
Part90	LTE Band26[a]	QPSK	15	13M5G7D	-0.00507	0.139959
Part90	LTE Band26[a]	16QAM	15	13M4W7D	0.00486	0.112460
Part22H	LTE Band26[b]	QPSK	1.4	1M10G7D	/	0.141906
Part22H	LTE Band26[b]	16QAM	1.4	1M10W7D	/	0.116950
Part22H	LTE Band26[b]	QPSK	3	2M69G7D	/	0.140605
Part22H	LTE Band26[b]	16QAM	3	2M69W7D	/	0.118304
Part22H	LTE Band26[b]	QPSK	5	4M51G7D	/	0.140281
Part22H	LTE Band26[b]	16QAM	5	4M51W7D	/	0.117490
Part22H	LTE Band26[b]	QPSK	10	8M94G7D	/	0.138038

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Part22H	LTE Band26[b]	16QAM	10	8M94W7D	/	0.105439
Part22H	LTE Band26[b]	QPSK	15	13M5G7D	-0.00581	0.141906
Part22H	LTE Band26[b]	16QAM	15	13M5W7D	0.00574	0.112980
Part27	LTE Band38	QPSK	5	4M52G7D	/	0.237684
Part27	LTE Band38	16QAM	5	4M51W7D	/	0.187499
Part27	LTE Band38	QPSK	10	8M94G7D	/	0.241546
Part27	LTE Band38	16QAM	10	8M96W7D	/	0.198609
Part27	LTE Band38	QPSK	15	13M5G7D	/	0.244906
Part27	LTE Band38	16QAM	15	13M5W7D	/	0.197697
Part27	LTE Band38	QPSK	20	18M0G7D	-0.00195	0.247742
Part27	LTE Band38	16QAM	20	18M0W7D	0.00194	0.192752
Part27	LTE Band41	QPSK	5	4M53G7D	/	0.243220
Part27	LTE Band41	16QAM	5	4M51W7D	/	0.193197
Part27	LTE Band41	QPSK	10	8M94G7D	/	0.207970
Part27	LTE Band41	16QAM	10	8M94W7D	/	0.167109
Part27	LTE Band41	QPSK	15	13M5G7D	/	0.201837
Part27	LTE Band41	16QAM	15	13M5W7D	/	0.151356
Part27	LTE Band41	QPSK	20	18M0G7D	-0.00165	0.210378
Part27	LTE Band41	16QAM	20	18M0W7D	0.00191	0.159221

Note: The frequency band of LTE Band26[a] is 814MHz-824MHz;
The frequency band of LTE Band26[b] is 824MHz-849MHz;

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4.4 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 ℃
Voltage:	VL	3.06 V
	VN	3.6 V
	VH	4.14 V

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

4.5 Description of Support Units

The EUT has been tested independent unit.

4.6 Measurement Uncertainty

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

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4.7 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.

4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• 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.

4.9 Deviation from Standards

None

4.10 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	2018-09-25	2019-09-24
Spectrum Analyzer (20Hz-43GHz)	Rohde & Schwarz	FSU43	SEM004-08	2018-04-13	2019-04-12
Signal Analyzer (10Hz-40GHz)	Rohde & Schwarz	FSV40	SEM008-04	2018-04-02	2019-04-01
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2018-09-27	2019-09-26
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.6	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2018-07-12	2019-07-11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2018-04-02	2019-04-01
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	SEM010-02	2018-04-02	2019-04-01
Power Splitter	Narda	4324-2	0168	N/A	N/A

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	2018-04-13	2019-04-12
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
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	2018-09-25	2019-09-24
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2018-11-12	2019-11-11
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018-04-02	2019-04-01
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2018-07-12	2019-07-11
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26

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Signal Generator	R&S	SMA100A	102174	2018-07-12	2019-07-11

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	2017-08-05	2020-08-04
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2018-09-25	2019-09-24
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2018-04-02	2019-04-01
				2019-04-01	2020-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2018-07-12	2019-07-11
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
Signal Generator	R&S	SMA100A	102174	2018-07-12	2019-07-11

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	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-28
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-17

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6 Radio Spectrum Matter Test Results

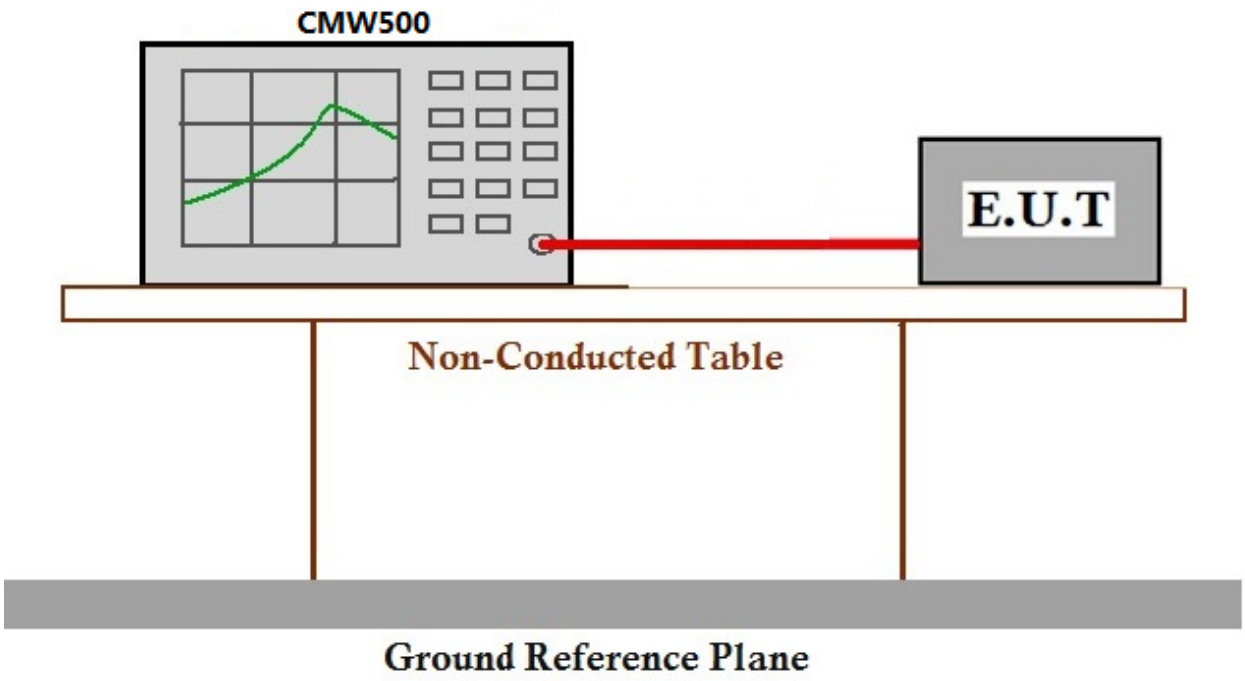
6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §22.913, §24.232, §27.50(c), §27.50(d), §90.635(d)
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ERP≤7W(LTE Band 5, LTE Band 26(824MHz-849MHz))
ERP≤100W(LTE Band 26(814MHz-824MHz))
EIRP≤ 2W(LTE Band 2,7,38, 41)
EIRP≤ 1W(LTE Band 4)
ERP≤ 3W(LTE Band 12, 17)

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar
Test mode: z: 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: §24.232, §27.50(c), §27.50(d)

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

Limit: ≤13dB

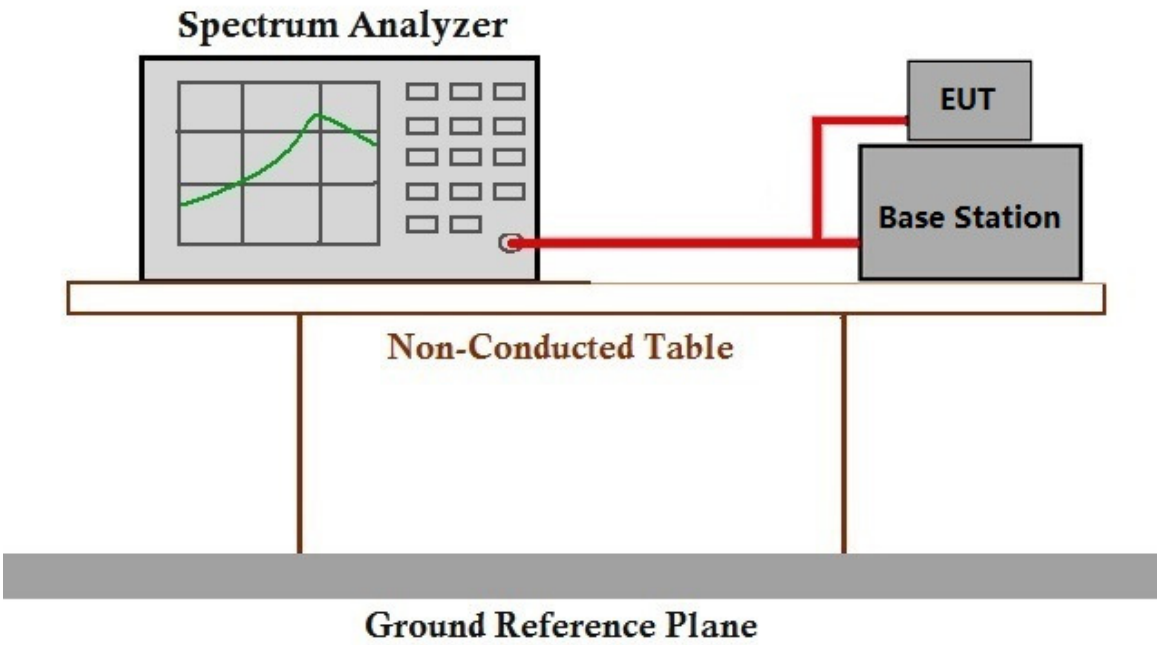
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: z: 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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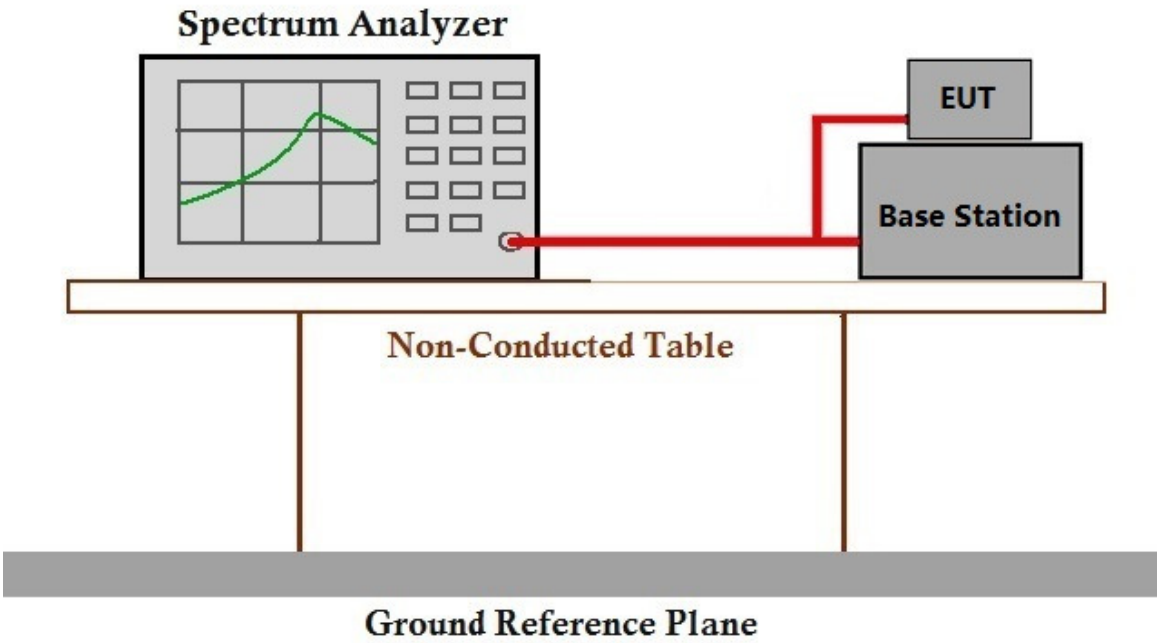
6.3 Bandwidth

Test Requirement: §2.1049(h), §22.917, §24.238, §27.53(h), §90.209
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: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar
Test mode: z: 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(h), §27.53(g), §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 Band2,4,5,12,17,26,38,41)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. (LTE Band7)

≤50+10*log10(P) at bandedge and for all out-of-band emissions within 37.5KHz of block edge(LTE Band26)

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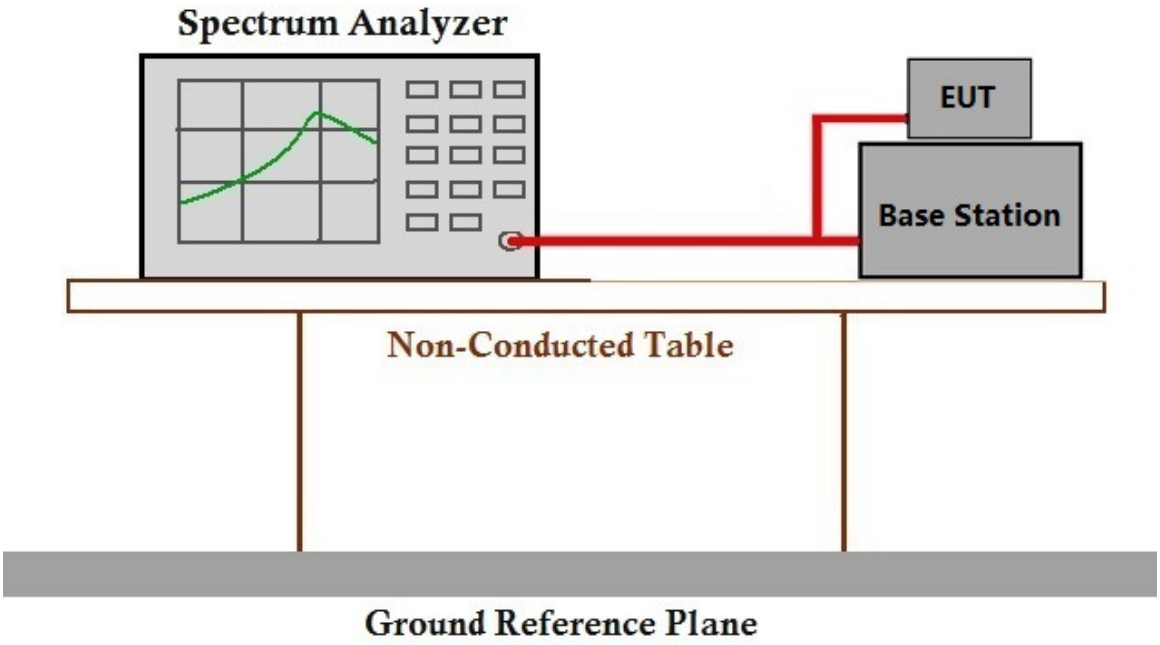
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: z: 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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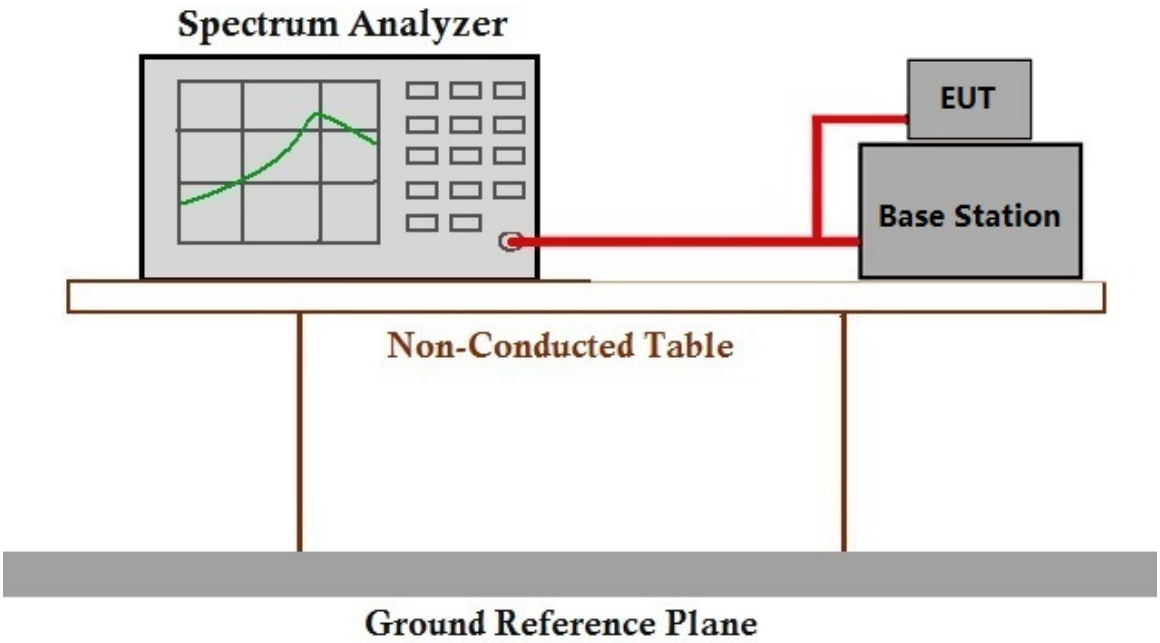
6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.53(h), §27.53(g), §90.691
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ≤ -13dBm(LTE Band2,4,5,12,17,26)
≤ -25dBm(LTE Band7,38, 41)

6.5.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar
Test mode: z: 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(h), §27.53(g), §90.691

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

Limit: ≤ -13dBm(LTE Band2,4,5,12,17,26)

≤ -25dBm(LTE Band7,38, 41)

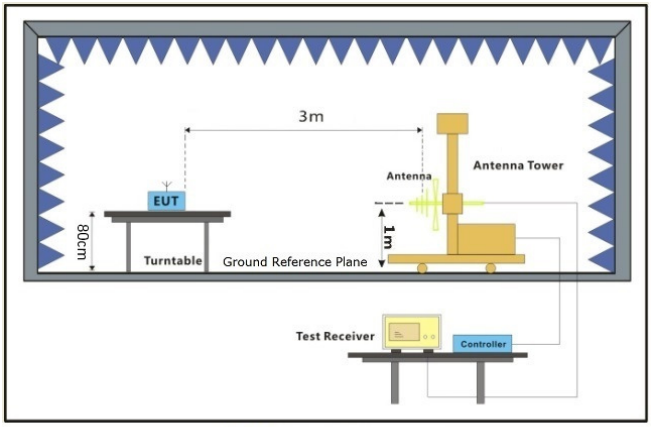
6.6.1 E.U.T. Operation

Operating Environment:

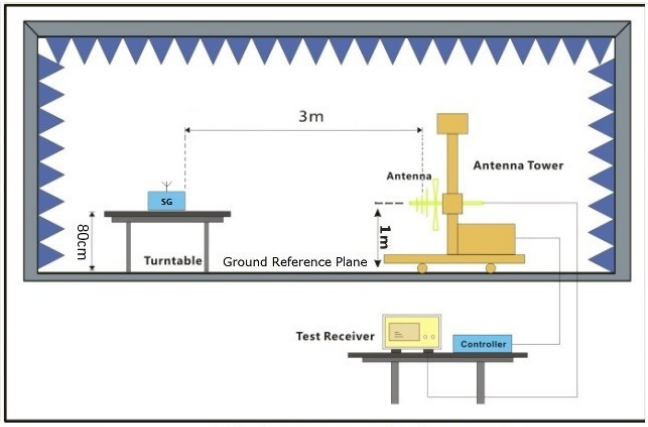
Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: z: 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	-61.42	0.71	7.6	-54.53	-13	-41.53	Horizontal	Pass
5553	-57.93	0.85	10.3	-48.48	-13	-35.48	Horizontal	Pass
7404	-60.52	1	12.9	-48.62	-13	-35.62	Horizontal	Pass
3702	-61.51	0.71	7.6	-54.62	-13	-41.62	Vertical	Pass
5553	-59.05	0.85	10.3	-49.6	-13	-36.6	Vertical	Pass
7404	-58.99	1	12.9	-47.09	-13	-34.09	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	-60.8	0.71	7.6	-53.91	-13	-40.91	Horizontal	Pass
5613	-58.45	0.85	10.3	-49	-13	-36	Horizontal	Pass
7484	-58.04	1	12.9	-46.14	-13	-33.14	Horizontal	Pass
3742	-60.59	0.71	7.6	-53.7	-13	-40.7	Vertical	Pass
5613	-59.54	0.85	10.3	-50.09	-13	-37.09	Vertical	Pass
7484	-57.84	1	12.9	-45.94	-13	-32.94	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	-59.2	0.71	7.6	-52.31	-13	-39.31	Horizontal	Pass
5673	-57.7	0.85	10.3	-48.25	-13	-35.25	Horizontal	Pass
7564	-59.01	0.99	13.2	-46.8	-13	-33.8	Horizontal	Pass
3782	-58.89	0.71	7.6	-52	-13	-39	Vertical	Pass
5673	-57.31	0.85	10.3	-47.86	-13	-34.86	Vertical	Pass
7564	-59.54	0.99	13.2	-47.33	-13	-34.33	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
3422	-59.73	0.65	6.2	-54.18	-13	-41.18	Horizontal	Pass
5133	-56.88	0.82	9.6	-48.1	-13	-35.1	Horizontal	Pass
6844	-57.1	0.95	11.8	-46.25	-13	-33.25	Horizontal	Pass
3422	-59.13	0.65	6.2	-53.58	-13	-40.58	Vertical	Pass
5133	-58.47	0.82	9.6	-49.69	-13	-36.69	Vertical	Pass
6844	-56.2	0.95	11.8	-45.35	-13	-32.35	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	-59.74	0.65	6.2	-54.19	-13	-41.19	Horizontal	Pass
5170.5	-58.17	0.82	9.6	-49.39	-13	-36.39	Horizontal	Pass
6894	-58.22	0.95	11.8	-47.37	-13	-34.37	Horizontal	Pass
3447	-58.79	0.65	6.2	-53.24	-13	-40.24	Vertical	Pass
5170.5	-58.59	0.82	9.6	-49.81	-13	-36.81	Vertical	Pass
6894	-56.94	0.95	11.8	-46.09	-13	-33.09	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	-59.08	0.65	6.2	-53.53	-13	-40.53	Horizontal	Pass
5208	-58.13	0.82	9.6	-49.35	-13	-36.35	Horizontal	Pass
6944	-56.47	0.95	11.8	-45.62	-13	-32.62	Horizontal	Pass
3472	-60.08	0.65	6.2	-54.53	-13	-41.53	Vertical	Pass
5208	-58.97	0.82	9.6	-50.19	-13	-37.19	Vertical	Pass
6944	-57.87	0.95	11.8	-47.02	-13	-34.02	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	-61.54	0.52	6	-56.06	-13	-43.06	Horizontal	Pass
2473.5	-61.71	0.53	5.8	-56.44	-13	-43.44	Horizontal	Pass
3298	-57.78	0.65	6.2	-52.23	-13	-39.23	Horizontal	Pass
1649	-63.07	0.52	6	-57.59	-13	-44.59	Vertical	Pass
2473.5	-60.59	0.53	5.8	-55.32	-13	-42.32	Vertical	Pass
3298	-57.53	0.65	6.2	-51.98	-13	-38.98	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	-53.93	0.52	6	-48.45	-13	-35.45	Horizontal	Pass
2496	-60.75	0.53	5.8	-55.48	-13	-42.48	Horizontal	Pass
3328	-57.46	0.65	6.2	-51.91	-13	-38.91	Horizontal	Pass
1664	-59.48	0.52	6	-54	-13	-41	Vertical	Pass
2496	-61.88	0.53	5.8	-56.61	-13	-43.61	Vertical	Pass
3328	-58.36	0.65	6.2	-52.81	-13	-39.81	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	-60.86	0.52	6	-55.38	-13	-42.38	Horizontal	Pass
2518.5	-61.03	0.59	5.3	-56.32	-13	-43.32	Horizontal	Pass
3358	-57.72	0.65	6.2	-52.17	-13	-39.17	Horizontal	Pass
1679	-65.17	0.52	6	-59.69	-13	-46.69	Vertical	Pass
2518.5	-61.03	0.59	5.3	-56.32	-13	-43.32	Vertical	Pass
3358	-58.47	0.65	6.2	-52.92	-13	-39.92	Vertical	Pass

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FDD LTE Band7-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
5002	-50.31	0.82	9.6	-41.53	-25	-16.53	Horizontal	Pass
7503	-55.48	0.99	13.2	-43.27	-25	-18.27	Horizontal	Pass
10004	-56.37	1.26	12.7	-44.93	-25	-19.93	Horizontal	Pass
5002	-48.19	0.82	9.6	-39.41	-25	-14.41	Vertical	Pass
7503	-57.12	0.99	13.2	-44.91	-25	-19.91	Vertical	Pass
10004	-56.09	1.26	12.7	-44.65	-25	-19.65	Vertical	Pass

FDD LTE Band7-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
5052	-50.56	0.82	9.6	-43.93	-25	-18.93	Horizontal	Pass
7578	-56.19	0.99	13.2	-46.13	-25	-21.13	Horizontal	Pass
10104	-53.25	1.26	12.7	-43.96	-25	-18.96	Horizontal	Pass
5052	-48.35	0.82	9.6	-41.72	-25	-16.72	Vertical	Pass
7578	-55.81	0.99	13.2	-45.75	-25	-20.75	Vertical	Pass
10104	-53.33	1.26	12.7	-44.04	-25	-19.04	Vertical	Pass

FDD LTE Band7-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
5102	-52.53	0.82	9.6	-43.75	-25	-18.75	Horizontal	Pass
7653	-57.59	0.99	13.2	-45.38	-25	-20.38	Horizontal	Pass
10204	-55.57	1.26	12.7	-44.13	-25	-19.13	Horizontal	Pass
5102	-50.1	0.82	9.6	-41.32	-25	-16.32	Vertical	Pass
7653	-57.73	0.99	13.2	-45.52	-25	-20.52	Vertical	Pass
10204	-55.45	1.26	12.7	-44.01	-25	-19.01	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	-62.07	0.43	1.9	-60.6	-13	-47.6	Horizontal	Pass
2098.5	-64.59	0.53	5.8	-59.32	-13	-46.32	Horizontal	Pass
2798	-58.71	0.59	5.3	-54	-13	-41	Horizontal	Pass
1399	-60.83	0.43	1.9	-59.36	-13	-46.36	Vertical	Pass
2098.5	-63.72	0.53	5.8	-58.45	-13	-45.45	Vertical	Pass
2798	-60.56	0.59	5.3	-55.85	-13	-42.85	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	-60.37	0.43	1.9	-58.9	-13	-45.9	Horizontal	Pass
2109	-62.51	0.53	5.8	-57.24	-13	-44.24	Horizontal	Pass
2812	-59.8	0.59	5.3	-55.09	-13	-42.09	Horizontal	Pass
1406	-60.46	0.43	1.9	-58.99	-13	-45.99	Vertical	Pass
2109	-61.51	0.53	5.8	-56.24	-13	-43.24	Vertical	Pass
2812	-59.66	0.59	5.3	-54.95	-13	-41.95	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	-60.56	0.43	1.9	-59.09	-13	-46.09	Horizontal	Pass
2119.5	-65.29	0.53	5.8	-60.02	-13	-47.02	Horizontal	Pass
2826	-59.93	0.59	5.3	-55.22	-13	-42.22	Horizontal	Pass
1413	-58.92	0.43	1.9	-57.45	-13	-44.45	Vertical	Pass
2119.5	-63.69	0.53	5.8	-58.42	-13	-45.42	Vertical	Pass
2826	-59.24	0.59	5.3	-54.53	-13	-41.53	Vertical	Pass

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FDD LTE Band17-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
1409	-61.03	0.43	1.9	-59.56	-13	-46.56	Horizontal	Pass
2113.5	-62.43	0.53	5.8	-57.16	-13	-44.16	Horizontal	Pass
2818	-60.14	0.59	5.3	-55.43	-13	-42.43	Horizontal	Pass
1409	-58.62	0.43	1.9	-57.15	-13	-44.15	Vertical	Pass
2113.5	-61.91	0.53	5.8	-56.64	-13	-43.64	Vertical	Pass
2818	-58.5	0.59	5.3	-53.79	-13	-40.79	Vertical	Pass

FDD LTE Band17-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
1411	-60.66	0.43	1.9	-59.19	-13	-46.19	Horizontal	Pass
2116.5	-63.99	0.53	5.8	-58.72	-13	-45.72	Horizontal	Pass
2822	-59.31	0.59	5.3	-54.6	-13	-41.6	Horizontal	Pass
1411	-59.13	0.43	1.9	-57.66	-13	-44.66	Vertical	Pass
2116.5	-62.05	0.53	5.8	-56.78	-13	-43.78	Vertical	Pass
2822	-59.51	0.59	5.3	-54.8	-13	-41.8	Vertical	Pass

FDD LTE Band17-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	-61.88	0.43	1.9	-60.41	-13	-47.41	Horizontal	Pass
2119.5	-62.59	0.53	5.8	-57.32	-13	-44.32	Horizontal	Pass
2826	-59.8	0.59	5.3	-55.09	-13	-42.09	Horizontal	Pass
1413	-58.89	0.43	1.9	-57.42	-13	-44.42	Vertical	Pass
2119.5	-60.29	0.53	5.8	-55.02	-13	-42.02	Vertical	Pass
2826	-58.96	0.59	5.3	-54.25	-13	-41.25	Vertical	Pass

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FDD LTE Band26-Low channel(814MHz-824MHz), 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	-63.9	0.52	6	-58.42	-13	-45.42	Horizontal	Pass
2443.5	-62.91	0.53	5.8	-57.64	-13	-44.64	Horizontal	Pass
3258	-58.35	0.65	6.2	-52.8	-13	-39.8	Horizontal	Pass
1629	-64.88	0.52	6	-59.4	-13	-46.4	Vertical	Pass
2443.5	-63.58	0.53	5.8	-58.31	-13	-45.31	Vertical	Pass
3258	-58.61	0.65	6.2	-53.06	-13	-40.06	Vertical	Pass

FDD LTE Band26-Middle channel(814MHz-824MHz), 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
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Vertical	-
-	-	-	-	-	-	-	Vertical	-
-	-	-	-	-	-	-	Vertical	-

FDD LTE Band26-High channel(814MHz-824MHz), 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
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Horizontal	-
-	-	-	-	-	-	-	Vertical	-
-	-	-	-	-	-	-	Vertical	-
-	-	-	-	-	-	-	Vertical	-

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FDD LTE Band26-Low channel(824MHz-849MHz), 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	-65.45	0.52	6	-59.97	-13	-46.97	Horizontal	Pass
2474.25	-62.57	0.53	5.8	-57.3	-13	-44.3	Horizontal	Pass
3299	-58.5	0.65	6.2	-52.95	-13	-39.95	Horizontal	Pass
1649.5	-64.71	0.52	6	-59.23	-13	-46.23	Vertical	Pass
2474.25	-61.44	0.53	5.8	-56.17	-13	-43.17	Vertical	Pass
3299	-58.42	0.65	6.2	-52.87	-13	-39.87	Vertical	Pass

FDD LTE Band26-Middle channel(824MHz-849MHz), 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	-60.99	0.52	6	-55.51	-13	-42.51	Horizontal	Pass
2489.25	-61.62	0.53	5.8	-56.35	-13	-43.35	Horizontal	Pass
3319	-58.87	0.65	6.2	-53.32	-13	-40.32	Horizontal	Pass
1659.5	-62.34	0.52	6	-56.86	-13	-43.86	Vertical	Pass
2489.25	-61.6	0.53	5.8	-56.33	-13	-43.33	Vertical	Pass
3319	-58.97	0.65	6.2	-53.42	-13	-40.42	Vertical	Pass

FDD LTE Band26-High channel(824MHz-849MHz), 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	-57.48	0.52	6	-52	-13	-39	Horizontal	Pass
2504.25	-60.84	0.59	5.3	-56.13	-13	-43.13	Horizontal	Pass
3339	-58.93	0.65	6.2	-53.38	-13	-40.38	Horizontal	Pass
1669.5	-66.18	0.52	6	-60.7	-13	-47.7	Vertical	Pass
2504.25	-61.99	0.59	5.3	-57.28	-13	-44.28	Vertical	Pass
3339	-58.23	0.65	6.2	-52.68	-13	-39.68	Vertical	Pass

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TDD LTE Band38-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
5142	-51.15	0.82	9.6	-42.37	-25	-17.37	Horizontal	Pass
7713	-56.25	0.99	13.2	-44.04	-25	-19.04	Horizontal	Pass
10284	-54.4	1.26	12.7	-42.96	-25	-17.96	Horizontal	Pass
5142	-51.74	0.82	9.6	-42.96	-25	-17.96	Vertical	Pass
7713	-58.02	0.99	13.2	-45.81	-25	-20.81	Vertical	Pass
10284	-54.92	1.26	12.7	-43.48	-25	-18.48	Vertical	Pass

TDD LTE Band38-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
5172	-55.69	0.82	9.6	-46.91	-25	-21.91	Horizontal	Pass
7758	-57.51	0.99	13.2	-45.3	-25	-20.3	Horizontal	Pass
10344	-55.07	1.26	12.7	-43.63	-25	-18.63	Horizontal	Pass
5172	-52.01	0.82	9.6	-43.23	-25	-18.23	Vertical	Pass
7758	-57.97	0.99	13.2	-45.76	-25	-20.76	Vertical	Pass
10344	-55.32	1.26	12.7	-43.88	-25	-18.88	Vertical	Pass

TDD LTE Band38-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
5202	-48.02	0.82	9.6	-39.24	-25	-14.24	Horizontal	Pass
7803	-57.73	0.99	13.2	-45.52	-25	-20.52	Horizontal	Pass
10404	-54.85	1.26	12.7	-43.41	-25	-18.41	Horizontal	Pass
5202	-52.05	0.82	9.6	-43.27	-25	-18.27	Vertical	Pass
7803	-58.09	0.99	13.2	-45.88	-25	-20.88	Vertical	Pass
10404	-55.02	1.26	12.7	-43.58	-25	-18.58	Vertical	Pass

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TDD LTE Band41-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
5112	-48.1	0.82	9.6	-39.32	-25	-14.32	Horizontal	Pass
7668	-56.12	0.99	13.2	-43.91	-25	-18.91	Horizontal	Pass
10224	-54.01	1.26	12.7	-42.57	-25	-17.57	Horizontal	Pass
5112	-48.58	0.82	9.6	-39.8	-25	-14.8	Vertical	Pass
7668	-57.46	0.99	13.2	-45.25	-25	-20.25	Vertical	Pass
10224	-55.27	1.26	12.7	-43.83	-25	-18.83	Vertical	Pass

TDD LTE Band41-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
5192	-51.76	0.82	9.6	-42.98	-25	-17.98	Horizontal	Pass
7788	-56.9	0.99	13.2	-44.69	-25	-19.69	Horizontal	Pass
10384	-56.11	1.26	12.7	-44.67	-25	-19.67	Horizontal	Pass
5192	-51.61	0.82	9.6	-42.83	-25	-17.83	Vertical	Pass
7788	-56.59	0.99	13.2	-44.38	-25	-19.38	Vertical	Pass
10384	-54.4	1.26	12.7	-42.96	-25	-17.96	Vertical	Pass

TDD LTE Band41-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
5272	-51.95	0.82	9.6	-43.17	-25	-18.17	Horizontal	Pass
7908	-57.16	0.99	13.2	-44.95	-25	-19.95	Horizontal	Pass
10544	-55.72	1.49	13.5	-43.71	-25	-18.71	Horizontal	Pass
5272	-50.89	0.82	9.6	-42.11	-25	-17.11	Vertical	Pass
7908	-57.5	0.99	13.2	-45.29	-25	-20.29	Vertical	Pass
10544	-55.38	1.49	13.5	-43.37	-25	-18.37	Vertical	Pass

Note: All modes have been tested and we found max bandwidth, 1 RB0 has the worst test result. Only record the worst test result.

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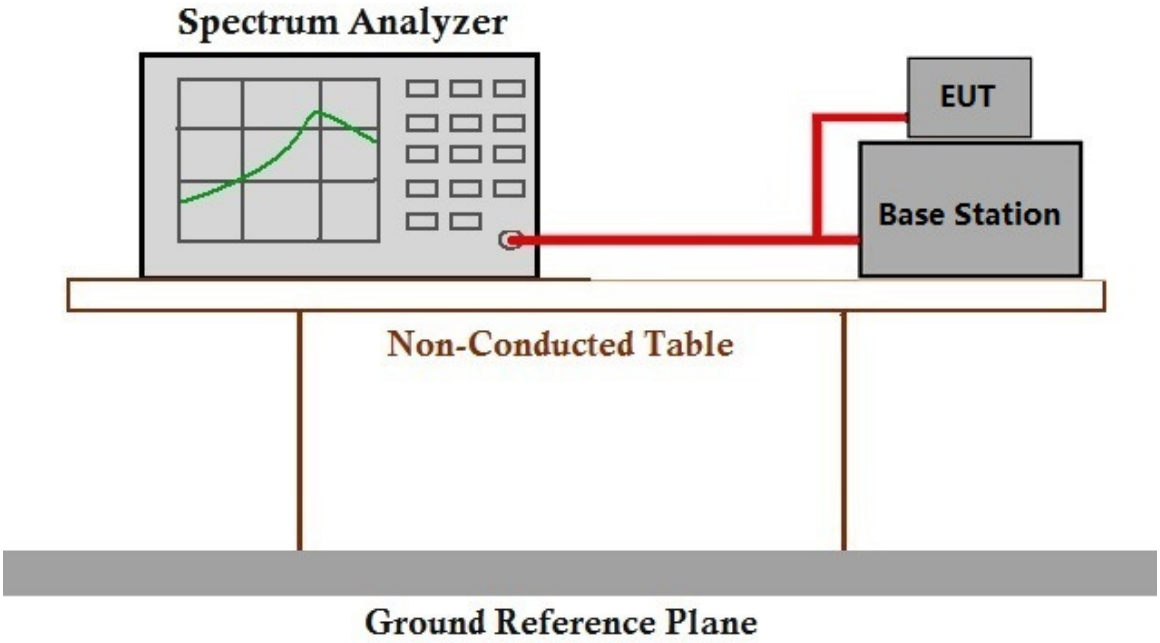
6.7 Frequency stability

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: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar
Test mode: z: 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	-5.2	-0.00280	PASS
				VN	-0.25	-0.00013	PASS
				VH	-3.37	-0.00181	PASS
		MCH	TN	VL	0.79	0.00042	PASS
				VN	-3.48	-0.00185	PASS
				VH	1.95	0.00104	PASS
		HCH	TN	VL	-2.23	-0.00117	PASS
				VN	-1.84	-0.00097	PASS
				VH	-1.42	-0.00075	PASS
	16QAM/20MHz	LCH	TN	VL	-4.93	-0.00265	PASS
				VN	-3.64	-0.00196	PASS
				VH	-3.77	-0.00203	PASS
		MCH	TN	VL	0.86	0.00046	PASS
				VN	-3.51	-0.00187	PASS
				VH	1.92	0.00102	PASS
		HCH	TN	VL	-3.72	-0.00196	PASS
				VN	-2.69	-0.00142	PASS
				VH	0.77	0.00041	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband4	QPSK/20MHz	LCH	TN	VL	-4.98	-0.00290	PASS
				VN	0.01	0.00001	PASS
				VH	-2.16	-0.00126	PASS
		MCH	TN	VL	1.06	0.00061	PASS
				VN	-3.27	-0.00189	PASS
				VH	2.21	0.00128	PASS
		HCH	TN	VL	-2.93	-0.00168	PASS
				VN	-1.58	-0.00091	PASS
				VH	-1.19	-0.00068	PASS
	16QAM/20MHz	LCH	TN	VL	-4.68	-0.00272	PASS
				VN	-3.37	-0.00196	PASS
				VH	-1.54	-0.00090	PASS
		MCH	TN	VL	1.1	0.00063	PASS
				VN	-3.26	-0.00188	PASS
				VH	2.13	0.00123	PASS
		HCH	TN	VL	-3.48	-0.00199	PASS
				VN	-2.45	-0.00140	PASS
				VH	0	0.00000	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband5	QPSK/10MHz	LCH	TN	VL	-5.37	-0.00648	PASS
				VN	-0.38	-0.00046	PASS
				VH	-2.54	-0.00306	PASS
		MCH	TN	VL	0.62	0.00074	PASS
				VN	-3.63	-0.00434	PASS
				VH	1.8	0.00215	PASS
		HCH	TN	VL	-3.34	-0.00396	PASS
				VN	-1.98	-0.00235	PASS
				VH	-1.57	-0.00186	PASS
	16QAM/10MHz	LCH	TN	VL	-5.09	-0.00614	PASS
				VN	-3.77	-0.00455	PASS
				VH	-2.94	-0.00355	PASS
		MCH	TN	VL	0.75	0.00090	PASS
				VN	-3.68	-0.00440	PASS
				VH	1.75	0.00209	PASS
		HCH	TN	VL	-3.9	-0.00462	PASS
				VN	-1.85	-0.00219	PASS
				VH	-0.39	-0.00046	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband7	QPSK/20MHz	LCH	TN	VL	-3.79	-0.00151	PASS
				VN	1.2	0.00048	PASS
				VH	-0.95	-0.00038	PASS
		MCH	TN	VL	2.23	0.00088	PASS
				VN	-2.06	-0.00081	PASS
				VH	3.38	0.00133	PASS
		HCH	TN	VL	-0.79	-0.00031	PASS
				VN	-0.4	-0.00016	PASS
				VH	0.01	0.00000	PASS
	16QAM/20MHz	LCH	TN	VL	-3.52	-0.00140	PASS
				VN	-2.19	-0.00087	PASS
				VH	-0.36	-0.00014	PASS
		MCH	TN	VL	2.35	0.00093	PASS
				VN	-2.06	-0.00081	PASS
				VH	3.29	0.00130	PASS
		HCH	TN	VL	-2.3	-0.00090	PASS
				VN	-0.27	-0.00011	PASS
				VH	1.19	0.00046	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband12	QPSK/10MHz	LCH	TN	VL	-3.43	-0.00487	PASS
				VN	1.56	0.00222	PASS
				VH	-0.59	-0.00084	PASS
		MCH	TN	VL	2.59	0.00366	PASS
				VN	-1.7	-0.00240	PASS
				VH	3.74	0.00529	PASS
		HCH	TN	VL	-0.43	-0.00060	PASS
				VN	-0.04	-0.00006	PASS
				VH	0.37	0.00052	PASS
	16QAM/10MHz	LCH	TN	VL	-3.16	-0.00449	PASS
				VN	-1.83	-0.00260	PASS
				VH	0	0.00000	PASS
		MCH	TN	VL	2.71	0.00383	PASS
				VN	-1.7	-0.00240	PASS
				VH	3.65	0.00516	PASS
		HCH	TN	VL	-1.94	-0.00273	PASS
				VN	0.09	0.00013	PASS
				VH	1.55	0.00218	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband17	QPSK/10MHz	LCH	TN	VL	-3.51	-0.00495	PASS
				VN	1.48	0.00209	PASS
				VH	-0.67	-0.00094	PASS
		MCH	TN	VL	2.51	0.00354	PASS
				VN	-1.78	-0.00251	PASS
				VH	3.66	0.00515	PASS
		HCH	TN	VL	-0.51	-0.00072	PASS
				VN	-0.12	-0.00017	PASS
				VH	0.29	0.00041	PASS
	16QAM/10MHz	LCH	TN	VL	-3.24	-0.00457	PASS
				VN	-1.91	-0.00269	PASS
				VH	-0.08	-0.00011	PASS
		MCH	TN	VL	2.63	0.00370	PASS
				VN	-1.78	-0.00251	PASS
				VH	3.57	0.00503	PASS
		HCH	TN	VL	-2.02	-0.00284	PASS
				VN	0.01	0.00001	PASS
				VH	1.47	0.00207	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26 (814MHz-824MHz)	QPSK/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	2.21	0.00270	PASS
				VN	-2.07	-0.00253	PASS
				VH	3.37	0.00411	PASS
		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
	16QAM/10MHz	LCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/
		MCH	TN	VL	2.27	0.00277	PASS
				VN	-2.09	-0.00255	PASS
				VH	3.33	0.00407	PASS
		HCH	TN	VL	/	/	/
				VN	/	/	/
				VH	/	/	/

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26 (824MHz-849MHz)	QPSK/15MHz	LCH	TN	VL	-3.16	-0.00380	PASS
				VN	1.82	0.00219	PASS
				VH	-1.31	-0.00158	PASS
		MCH	TN	VL	2.87	0.00343	PASS
				VN	-1.43	-0.00171	PASS
				VH	4.01	0.00479	PASS
		HCH	TN	VL	-1.17	-0.00139	PASS
				VN	-0.79	-0.00094	PASS
				VH	0.66	0.00078	PASS
	16QAM/15MHz	LCH	TN	VL	-2.87	-0.00345	PASS
				VN	-1.56	-0.00188	PASS
				VH	-0.72	-0.00087	PASS
		MCH	TN	VL	2.95	0.00353	PASS
				VN	-1.41	-0.00169	PASS
				VH	3.96	0.00473	PASS
		HCH	TN	VL	-1.67	-0.00198	PASS
				VN	-0.63	-0.00075	PASS
				VH	1.82	0.00216	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband38	QPSK/20MHz	LCH	TN	VL	-3.07	-0.00119	PASS
				VN	1.92	0.00074	PASS
				VH	-1.25	-0.00048	PASS
		MCH	TN	VL	2.97	0.00114	PASS
				VN	-1.35	-0.00052	PASS
				VH	4.11	0.00158	PASS
		HCH	TN	VL	-5.08	-0.00195	PASS
				VN	-0.7	-0.00027	PASS
				VH	0.74	0.00028	PASS
	16QAM/20MHz	LCH	TN	VL	-2.78	-0.00108	PASS
				VN	-1.5	-0.00058	PASS
				VH	-0.63	-0.00024	PASS
		MCH	TN	VL	3.06	0.00118	PASS
				VN	-1.33	-0.00051	PASS
				VH	4.05	0.00156	PASS
		HCH	TN	VL	-1.58	-0.00061	PASS
				VN	-0.6	-0.00023	PASS
				VH	1.9	0.00073	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband41	QPSK/20MHz	LCH	TN	VL	-3.25	-0.00130	PASS
				VN	1.74	0.00069	PASS
				VH	-2.4	-0.00096	PASS
		MCH	TN	VL	2.77	0.00107	PASS
				VN	-1.51	-0.00058	PASS
				VH	3.98	0.00153	PASS
		HCH	TN	VL	-2.23	-0.00083	PASS
				VN	-3.86	-0.00144	PASS
				VH	0.54	0.00020	PASS
	16QAM/20MHz	LCH	TN	VL	-2.98	-0.00119	PASS
				VN	-1.65	-0.00066	PASS
				VH	-0.81	-0.00032	PASS
		MCH	TN	VL	2.89	0.00111	PASS
				VN	-1.51	-0.00058	PASS
				VH	3.87	0.00149	PASS
		HCH	TN	VL	-1.76	-0.00066	PASS
				VN	0.27	0.00010	PASS
				VH	1.73	0.00065	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	1.69	0.00091	PASS
				-20	1.7	0.00091	PASS
				-10	0.83	0.00045	PASS
				0	4.52	0.00243	PASS
				10	3.91	0.00210	PASS
				20	3.78	0.00203	PASS
				30	2.32	0.00125	PASS
				40	1.83	0.00098	PASS
				50	1.98	0.00106	PASS
		MCH	VN	-30	-2.69	-0.00143	PASS
				-20	-2.68	-0.00143	PASS
				-10	-3.82	-0.00203	PASS
				0	-0.28	-0.00015	PASS
				10	-3.52	-0.00187	PASS
				20	-1.94	-0.00103	PASS
				30	-1.82	-0.00097	PASS
				40	-3.47	-0.00185	PASS
				50	-2.52	-0.00134	PASS
		HCH	VN	-30	2.72	0.00143	PASS
				-20	2.73	0.00144	PASS
				-10	0.66	0.00035	PASS
				0	3.67	0.00193	PASS
				10	-0.74	-0.00039	PASS
				20	4.78	0.00252	PASS
				30	1.6	0.00084	PASS
				40	-0.53	-0.00028	PASS
				50	-3.27	-0.00172	PASS

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LTEband2	16QAM/20MHz	LCH	VN	-30	0.93	0.00050	PASS
				-20	0.94	0.00051	PASS
				-10	-0.91	-0.00049	PASS
				0	4.72	0.00254	PASS
				10	4.28	0.00230	PASS
				20	3.34	0.00180	PASS
				30	1.51	0.00081	PASS
				40	1.3	0.00070	PASS
				50	3.48	0.00187	PASS
		MCH	VN	-30	-1.85	-0.00098	PASS
				-20	-1.86	-0.00099	PASS
				-10	-3.64	-0.00194	PASS
				0	-2.05	-0.00109	PASS
				10	-3.18	-0.00169	PASS
				20	0.7	0.00037	PASS
				30	3.48	0.00185	PASS
				40	-1.8	-0.00096	PASS
				50	-1.08	-0.00057	PASS
		HCH	VN	-30	3.29	0.00173	PASS
				-20	3.28	0.00173	PASS
				-10	-0.71	-0.00037	PASS
				0	3.33	0.00175	PASS
				10	-1.69	-0.00089	PASS
				20	4.42	0.00233	PASS
				30	0.27	0.00014	PASS
				40	-1.45	-0.00076	PASS
				50	-2.69	-0.00142	PASS

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LTEband4	QPSK/20MHz	LCH	VN	-30	1.35	0.00078	PASS
				-20	1.36	0.00079	PASS
				-10	0.49	0.00028	PASS
				0	4.18	0.00243	PASS
				10	3.57	0.00208	PASS
				20	3.44	0.00200	PASS
				30	1.98	0.00115	PASS
				40	1.49	0.00087	PASS
				50	1.64	0.00095	PASS
		MCH	VN	-30	-2.02	-0.00117	PASS
				-20	-2.02	-0.00117	PASS
				-10	-4.16	-0.00240	PASS
				0	-1.62	-0.00094	PASS
				10	-3.86	-0.00223	PASS
				20	-2.28	-0.00132	PASS
				30	-3.16	-0.00182	PASS
				40	-3.81	-0.00220	PASS
				50	-2.86	-0.00165	PASS
		HCH	VN	-30	2.4	0.00138	PASS
				-20	2.39	0.00137	PASS
				-10	0.32	0.00018	PASS
				0	3.33	0.00191	PASS
				10	-1.08	-0.00062	PASS
				20	4.44	0.00254	PASS
				30	1.26	0.00072	PASS
				40	-0.87	-0.00050	PASS
				50	-3.61	-0.00207	PASS

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LTEband4	16QAM/20MHz	LCH	VN	-30	1.71	0.00099	PASS
				-20	1.7	0.00099	PASS
				-10	-0.15	-0.00009	PASS
				0	5.48	0.00319	PASS
				10	5.04	0.00293	PASS
				20	4.1	0.00238	PASS
				30	2.27	0.00132	PASS
				40	2.06	0.00120	PASS
				50	4.24	0.00247	PASS
		MCH	VN	-30	-1.09	-0.00063	PASS
				-20	-1.1	-0.00063	PASS
				-10	-2.88	-0.00166	PASS
				0	-0.29	-0.00017	PASS
				10	-2.42	-0.00140	PASS
				20	1.46	0.00084	PASS
				30	4.24	0.00245	PASS
				40	-1.04	-0.00060	PASS
				50	-0.32	-0.00018	PASS
		HCH	VN	-30	4.03	0.00231	PASS
				-20	4.04	0.00232	PASS
				-10	0.05	0.00003	PASS
				0	4.09	0.00234	PASS
				10	-0.93	-0.00053	PASS
				20	5.18	0.00297	PASS
				30	1.03	0.00059	PASS
				40	-0.69	-0.00040	PASS
				50	-1.93	-0.00111	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	0.77	0.00093	PASS
				-20	0.76	0.00092	PASS
				-10	-0.11	-0.00013	PASS
				0	3.58	0.00432	PASS
				10	2.97	0.00358	PASS
				20	2.84	0.00343	PASS
				30	1.38	0.00166	PASS
				40	0.89	0.00107	PASS
				50	1.04	0.00125	PASS
		MCH	VN	-30	-3.61	-0.00432	PASS
				-20	-3.62	-0.00433	PASS
				-10	-4.76	-0.00569	PASS
				0	-1.22	-0.00146	PASS
				10	-4.46	-0.00533	PASS
				20	-2.88	-0.00344	PASS
				30	-1.76	-0.00210	PASS
				40	-4.41	-0.00527	PASS
				50	-3.46	-0.00414	PASS
		HCH	VN	-30	1.8	0.00213	PASS
				-20	1.79	0.00212	PASS
				-10	-0.28	-0.00033	PASS
				0	2.73	0.00323	PASS
				10	-1.68	-0.00199	PASS
				20	3.84	0.00455	PASS
				30	0.66	0.00078	PASS
				40	-1.47	-0.00174	PASS
				50	-4.21	-0.00499	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	0.47	0.00057	PASS
				-20	0.48	0.00058	PASS
				-10	-1.37	-0.00165	PASS
				0	4.26	0.00514	PASS
				10	3.82	0.00461	PASS
				20	2.88	0.00347	PASS
				30	1.05	0.00127	PASS
				40	0.84	0.00101	PASS
				50	3.02	0.00364	PASS
		MCH	VN	-30	-2.33	-0.00279	PASS
				-20	-2.32	-0.00277	PASS
				-10	-4.1	-0.00490	PASS
				0	-1.51	-0.00181	PASS
				10	-3.64	-0.00435	PASS
				20	0.24	0.00029	PASS
				30	3.02	0.00361	PASS
				40	-2.26	-0.00270	PASS
				50	-1.54	-0.00184	PASS
		HCH	VN	-30	2.81	0.00333	PASS
				-20	2.82	0.00334	PASS
				-10	-1.17	-0.00139	PASS
				0	2.87	0.00340	PASS
				10	-2.15	-0.00255	PASS
				20	3.96	0.00469	PASS
				30	-0.19	-0.00023	PASS
				40	-1.91	-0.00226	PASS
				50	-3.15	-0.00373	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband7	QPSK/20MHz	LCH	VN	-30	1.72	0.00069	PASS
				-20	1.73	0.00069	PASS
				-10	0.86	0.00034	PASS
				0	4.55	0.00181	PASS
				10	3.94	0.00157	PASS
				20	3.81	0.00152	PASS
				30	2.35	0.00094	PASS
				40	1.86	0.00074	PASS
				50	2.01	0.00080	PASS
		MCH	VN	-30	-2.66	-0.00105	PASS
				-20	-2.65	-0.00105	PASS
				-10	-3.79	-0.00150	PASS
				0	-1.25	-0.00049	PASS
				10	-3.49	-0.00138	PASS
				20	-1.91	-0.00075	PASS
				30	0.21	0.00008	PASS
				40	-3.44	-0.00136	PASS
				50	-2.49	-0.00098	PASS
		HCH	VN	-30	2.75	0.00107	PASS
				-20	2.76	0.00108	PASS
				-10	0.69	0.00027	PASS
				0	3.7	0.00145	PASS
				10	-0.71	-0.00028	PASS
				20	4.81	0.00188	PASS
				30	1.63	0.00064	PASS
				40	-0.5	-0.00020	PASS
				50	-3.24	-0.00127	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband7	16QAM/20MHz	LCH	VN	-30	1.44	0.00057	PASS
				-20	1.45	0.00058	PASS
				-10	-0.4	-0.00016	PASS
				0	5.23	0.00208	PASS
				10	4.79	0.00191	PASS
				20	3.85	0.00153	PASS
				30	2.02	0.00080	PASS
				40	1.81	0.00072	PASS
				50	3.99	0.00159	PASS
		MCH	VN	-30	-1.34	-0.00053	PASS
				-20	-1.35	-0.00053	PASS
				-10	-3.13	-0.00123	PASS
				0	-0.54	-0.00021	PASS
				10	-2.67	-0.00105	PASS
				20	1.21	0.00048	PASS
				30	3.99	0.00157	PASS
				40	-1.29	-0.00051	PASS
				50	-0.57	-0.00022	PASS
		HCH	VN	-30	3.8	0.00148	PASS
				-20	3.79	0.00148	PASS
				-10	-0.2	-0.00008	PASS
				0	3.84	0.00150	PASS
				10	-1.18	-0.00046	PASS
				20	4.93	0.00193	PASS
				30	0.78	0.00030	PASS
				40	-0.94	-0.00037	PASS
				50	-2.18	-0.00085	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband12	QPSK/20MHz	LCH	VN	-30	2.04	0.00290	PASS
				-20	2.05	0.00291	PASS
				-10	1.18	0.00168	PASS
				0	4.87	0.00692	PASS
				10	4.26	0.00605	PASS
				20	4.13	0.00587	PASS
				30	2.67	0.00379	PASS
				40	2.18	0.00310	PASS
				50	2.33	0.00331	PASS
		MCH	VN	-30	-2.34	-0.00331	PASS
				-20	-2.33	-0.00329	PASS
				-10	-3.47	-0.00490	PASS
				0	-0.93	-0.00131	PASS
				10	-3.17	-0.00448	PASS
				20	-1.59	-0.00225	PASS
				30	0.53	0.00075	PASS
				40	-3.12	-0.00441	PASS
				50	-2.17	-0.00307	PASS
		HCH	VN	-30	3.07	0.00432	PASS
				-20	3.08	0.00433	PASS
				-10	1.01	0.00142	PASS
				0	4.02	0.00565	PASS
				10	-0.39	-0.00055	PASS
				20	5.13	0.00722	PASS
				30	1.95	0.00274	PASS
				40	-0.18	-0.00025	PASS
				50	-2.92	-0.00411	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband12	16QAM/10MHz	LCH	VN	-30	1.17	0.00166	PASS
				-20	1.18	0.00168	PASS
				-10	-0.67	-0.00095	PASS
				0	4.96	0.00705	PASS
				10	4.52	0.00642	PASS
				20	3.58	0.00509	PASS
				30	1.75	0.00249	PASS
				40	1.54	0.00219	PASS
				50	3.72	0.00528	PASS
		MCH	VN	-30	-1.61	-0.00228	PASS
				-20	-1.62	-0.00229	PASS
				-10	-3.4	-0.00481	PASS
				0	-0.81	-0.00114	PASS
				10	-2.94	-0.00416	PASS
				20	0.94	0.00133	PASS
				30	3.72	0.00526	PASS
				40	-1.56	-0.00220	PASS
				50	-0.84	-0.00119	PASS
		HCH	VN	-30	3.53	0.00496	PASS
				-20	3.52	0.00495	PASS
				-10	-0.47	-0.00066	PASS
				0	3.57	0.00502	PASS
				10	-1.45	-0.00204	PASS
				20	4.66	0.00655	PASS
				30	0.51	0.00072	PASS
				40	-1.21	-0.00170	PASS
				50	-2.45	-0.00345	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband17	QPSK/20MHz	LCH	VN	-30	1.72	0.00243	PASS
				-20	1.73	0.00244	PASS
				-10	0.86	0.00121	PASS
				0	4.55	0.00642	PASS
				10	3.94	0.00556	PASS
				20	3.81	0.00537	PASS
				30	2.35	0.00331	PASS
				40	1.86	0.00262	PASS
				50	2.01	0.00283	PASS
		MCH	VN	-30	-2.66	-0.00375	PASS
				-20	-2.65	-0.00373	PASS
				-10	-3.79	-0.00534	PASS
				0	-1.25	-0.00176	PASS
				10	-3.49	-0.00492	PASS
				20	-1.91	-0.00269	PASS
				30	0.21	0.00030	PASS
				40	-3.44	-0.00485	PASS
				50	-2.49	-0.00351	PASS
		HCH	VN	-30	2.75	0.00387	PASS
				-20	2.76	0.00388	PASS
				-10	0.69	0.00097	PASS
				0	3.7	0.00520	PASS
				10	-0.71	-0.00100	PASS
				20	4.81	0.00677	PASS
				30	1.63	0.00229	PASS
				40	-0.5	-0.00070	PASS
				50	-3.24	-0.00456	PASS

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LTEband17	16QAM/10MHz	LCH	VN	-30	1.57	0.00221	PASS
				-20	1.58	0.00223	PASS
				-10	-0.27	-0.00038	PASS
				0	5.36	0.00756	PASS
				10	4.92	0.00694	PASS
				20	3.98	0.00561	PASS
				30	2.15	0.00303	PASS
				40	1.94	0.00274	PASS
				50	4.12	0.00581	PASS
		MCH	VN	-30	-1.21	-0.00170	PASS
				-20	-1.22	-0.00172	PASS
				-10	-3	-0.00423	PASS
				0	-0.41	-0.00058	PASS
				10	-2.54	-0.00358	PASS
				20	1.34	0.00189	PASS
				30	4.12	0.00580	PASS
				40	-1.16	-0.00163	PASS
				50	-0.44	-0.00062	PASS
		HCH	VN	-30	3.93	0.00553	PASS
				-20	3.92	0.00551	PASS
				-10	-0.07	-0.00010	PASS
				0	3.97	0.00558	PASS
				10	-1.05	-0.00148	PASS
				20	5.06	0.00712	PASS
				30	0.91	0.00128	PASS
				40	-0.81	-0.00114	PASS
				50	-2.05	-0.00288	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26 (814MHz-824MHz)	QPSK/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	0	0.00000	PASS
				-20	-0.01	-0.00001	PASS
				-10	-4.15	-0.00507	PASS
				0	-1.61	-0.00197	PASS
				10	-0.85	-0.00104	PASS
				20	-2.27	-0.00277	PASS
				30	-0.15	-0.00018	PASS
				40	-3.8	-0.00464	PASS
				50	-3.73	-0.00455	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
LTEband26 (814MHz-824MHz)	16QAM/10MHz	LCH	VN	-20	/	/	/
				-10	/	/	/
				0	/	/	/
				10	/	/	/
				20	/	/	/
				30	/	/	/
				40	/	/	/
				50	/	/	/
				55	/	/	/
		MCH	VN	-30	-1.35	-0.00165	PASS
				-20	-1.36	-0.00166	PASS
				-10	-3.14	-0.00383	PASS
				0	-1.55	-0.00189	PASS
				10	-2.68	-0.00327	PASS
				20	1.2	0.00147	PASS
				30	3.98	0.00486	PASS
				40	-1.3	-0.00159	PASS
				50	-0.58	-0.00071	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
LTEband26 (824MHz-849MHz)	QPSK/15MHz	LCH	VN	-30	0.65	0.00078	PASS
				-20	0.66	0.00079	PASS
				-10	-0.21	-0.00025	PASS
				0	3.48	0.00419	PASS
				10	2.87	0.00345	PASS
				20	2.74	0.00330	PASS
				30	1.28	0.00154	PASS
				40	0.79	0.00095	PASS
				50	0.94	0.00113	PASS
		MCH	VN	-30	-2.73	-0.00326	PASS
				-20	-2.72	-0.00325	PASS
				-10	-4.86	-0.00581	PASS
				0	-2.32	-0.00277	PASS
				10	-4.56	-0.00545	PASS
				20	-2.98	-0.00356	PASS
				30	-1.86	-0.00222	PASS
				40	-4.51	-0.00539	PASS
				50	-3.56	-0.00426	PASS
		HCH	VN	-30	1.68	0.00200	PASS
				-20	1.69	0.00201	PASS
				-10	-0.38	-0.00045	PASS
				0	2.63	0.00313	PASS
				10	-1.78	-0.00212	PASS
				20	3.74	0.00444	PASS
				30	0.56	0.00067	PASS
				40	-1.57	-0.00187	PASS
				50	-4.31	-0.00512	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband26 (824MHz-849MHz)	16QAM/15MHz	LCH	VN	-30	1	0.00120	PASS
				-20	0.99	0.00119	PASS
				-10	-0.86	-0.00103	PASS
				0	4.77	0.00574	PASS
				10	4.33	0.00521	PASS
				20	3.39	0.00408	PASS
				30	1.56	0.00188	PASS
				40	1.35	0.00162	PASS
				50	2.53	0.00304	PASS
		MCH	VN	-30	-1.81	-0.00216	PASS
				-20	-1.81	-0.00216	PASS
				-10	-3.59	-0.00429	PASS
				0	-1	-0.00120	PASS
				10	-3.13	-0.00374	PASS
				20	0.75	0.00090	PASS
				30	3.53	0.00422	PASS
				40	-1.75	-0.00209	PASS
				50	-1.03	-0.00123	PASS
		HCH	VN	-30	3.32	0.00395	PASS
				-20	3.33	0.00396	PASS
				-10	-0.66	-0.00078	PASS
				0	3.38	0.00402	PASS
				10	-1.64	-0.00195	PASS
				20	4.47	0.00531	PASS
				30	0.32	0.00038	PASS
				40	-1.4	-0.00166	PASS
				50	-2.64	-0.00314	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband38	QPSK/20MHz	LCH	VN	-30	0.81	0.00031	PASS
				-20	0.82	0.00032	PASS
				-10	-0.05	-0.00002	PASS
				0	3.64	0.00141	PASS
				10	3.03	0.00117	PASS
				20	2.9	0.00112	PASS
				30	1.44	0.00056	PASS
				40	0.95	0.00037	PASS
				50	1.1	0.00043	PASS
		MCH	VN	-30	-2.55	-0.00098	PASS
				-20	-2.56	-0.00099	PASS
				-10	-4.7	-0.00181	PASS
				0	-2.16	-0.00083	PASS
				10	-4.4	-0.00170	PASS
				20	-2.82	-0.00109	PASS
				30	-1.7	-0.00066	PASS
				40	-4.35	-0.00168	PASS
				50	-3.4	-0.00131	PASS
		HCH	VN	-30	1.86	0.00071	PASS
				-20	1.85	0.00071	PASS
				-10	-0.22	-0.00008	PASS
				0	2.79	0.00107	PASS
				10	-1.62	-0.00062	PASS
				20	3.9	0.00149	PASS
				30	0.72	0.00028	PASS
				40	-1.41	-0.00054	PASS
				50	-4.15	-0.00159	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband38	16QAM/20MHz	LCH	VN	-30	1.22	0.00047	PASS
				-20	1.23	0.00048	PASS
				-10	-0.62	-0.00024	PASS
				0	5.01	0.00194	PASS
				10	4.57	0.00177	PASS
				20	3.63	0.00141	PASS
				30	1.8	0.00070	PASS
				40	1.59	0.00062	PASS
				50	1.77	0.00069	PASS
		MCH	VN	-30	-1.58	-0.00061	PASS
				-20	-1.57	-0.00061	PASS
				-10	-3.35	-0.00129	PASS
				0	-0.76	-0.00029	PASS
				10	-2.89	-0.00111	PASS
				20	0.99	0.00038	PASS
				30	3.77	0.00145	PASS
				40	-1.51	-0.00058	PASS
				50	-0.79	-0.00030	PASS
		HCH	VN	-30	3.56	0.00136	PASS
				-20	3.57	0.00137	PASS
				-10	-0.42	-0.00016	PASS
				0	3.62	0.00139	PASS
				10	-1.4	-0.00054	PASS
				20	4.71	0.00180	PASS
				30	0.56	0.00021	PASS
				40	-1.16	-0.00044	PASS
				50	-2.4	-0.00092	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband41	QPSK/20MHz	LCH	VN	-30	1.25	0.00050	PASS
				-20	1.24	0.00049	PASS
				-10	0.37	0.00015	PASS
				0	4.06	0.00162	PASS
				10	3.45	0.00138	PASS
				20	3.32	0.00132	PASS
				30	1.86	0.00074	PASS
				40	1.37	0.00055	PASS
				50	1.52	0.00061	PASS
		MCH	VN	-30	-2.13	-0.00082	PASS
				-20	-2.14	-0.00083	PASS
				-10	-4.28	-0.00165	PASS
				0	-1.74	-0.00067	PASS
				10	-3.98	-0.00153	PASS
				20	-2.4	-0.00093	PASS
				30	-1.28	-0.00049	PASS
				40	-3.93	-0.00152	PASS
				50	-2.98	-0.00115	PASS
		HCH	VN	-30	2.28	0.00085	PASS
				-20	2.27	0.00085	PASS
				-10	0.2	0.00007	PASS
				0	3.21	0.00120	PASS
				10	-1.2	-0.00045	PASS
				20	4.32	0.00161	PASS
				30	1.14	0.00043	PASS
				40	-0.99	-0.00037	PASS
				50	-3.73	-0.00139	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband41	16QAM/20MHz	LCH	VN	-30	0.99	0.00040	PASS
				-20	1	0.00040	PASS
				-10	-0.85	-0.00034	PASS
				0	4.78	0.00191	PASS
				10	4.34	0.00173	PASS
				20	3.4	0.00136	PASS
				30	1.57	0.00063	PASS
				40	1.36	0.00054	PASS
				50	2.54	0.00101	PASS
		MCH	VN	-30	-1.81	-0.00070	PASS
				-20	-1.8	-0.00069	PASS
				-10	-3.58	-0.00138	PASS
				0	-1.99	-0.00077	PASS
				10	-3.12	-0.00120	PASS
				20	0.76	0.00029	PASS
				30	3.54	0.00137	PASS
				40	-1.74	-0.00067	PASS
				50	-1.02	-0.00039	PASS
		HCH	VN	-30	3.33	0.00124	PASS
				-20	3.34	0.00125	PASS
				-10	-0.65	-0.00024	PASS
				0	3.39	0.00126	PASS
				10	-1.63	-0.00061	PASS
				20	4.48	0.00167	PASS
				30	0.33	0.00012	PASS
				40	-1.39	-0.00052	PASS
				50	-2.63	-0.00098	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

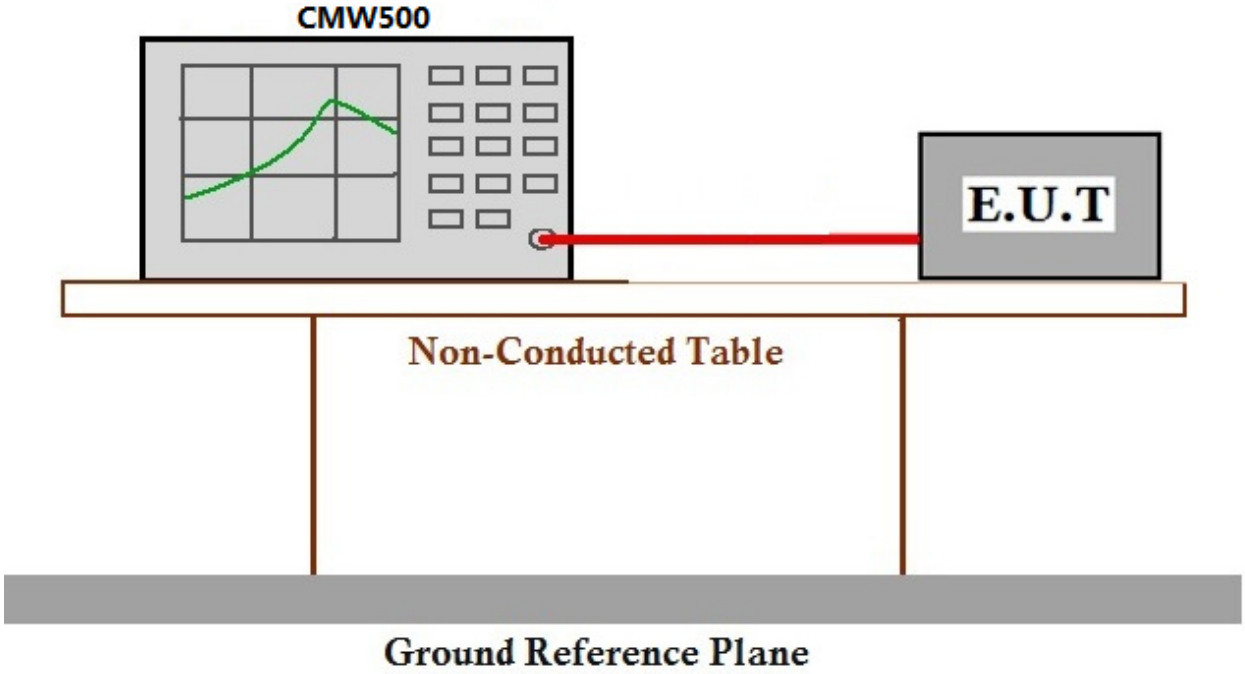
6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

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

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

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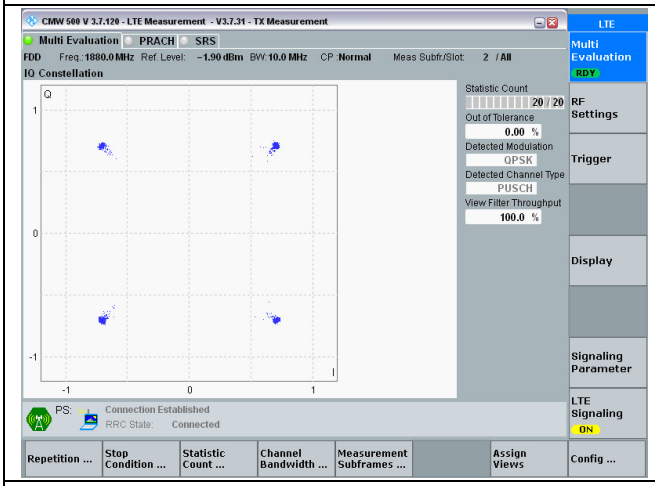
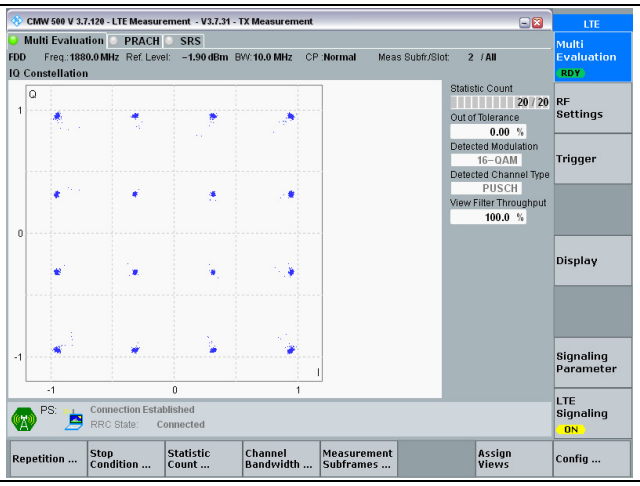
Test Plot

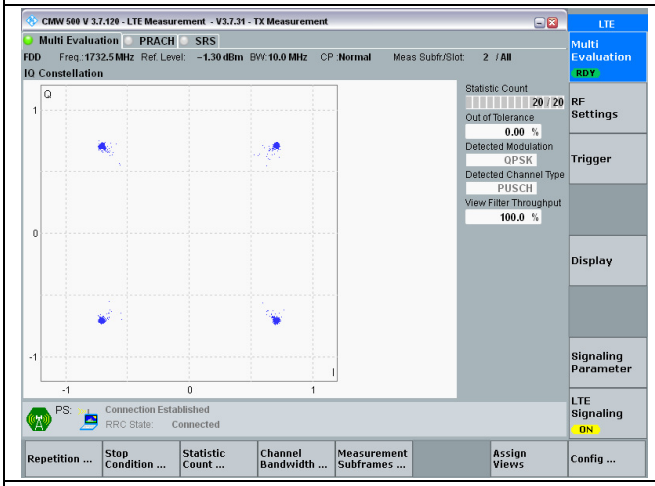
LTE FDD Band 2 QPSK



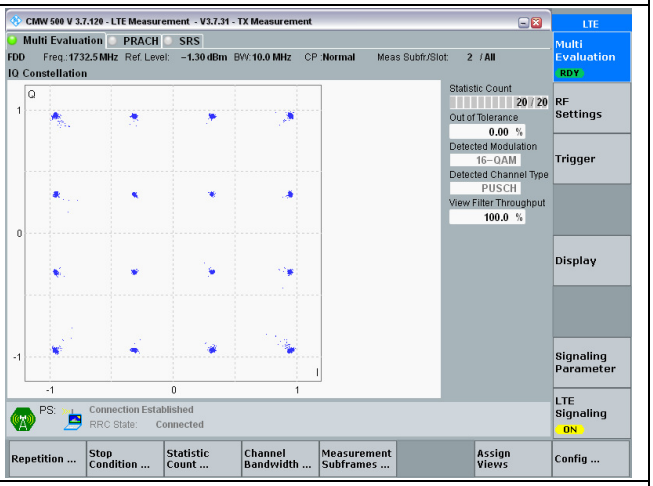
LTE FDD Band 2 16QAM



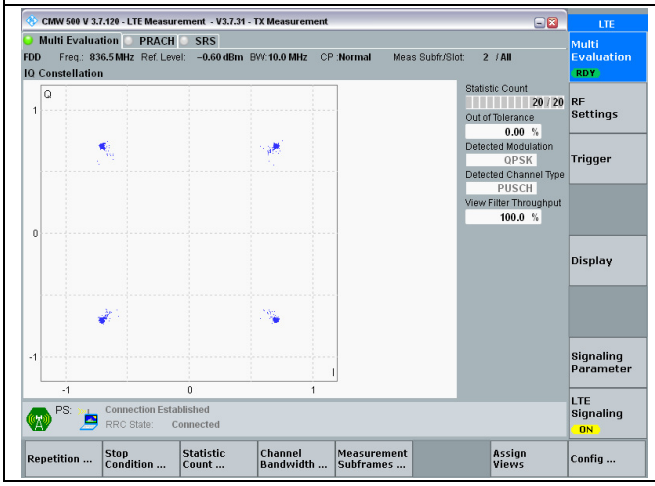
LTE FDD Band 4 QPSK



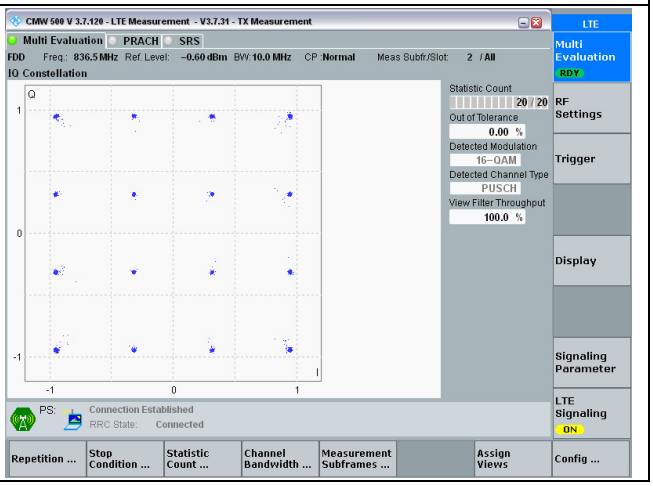
LTE FDD Band 4 16QAM



LTE FDD Band 5 QPSK



LTE FDD Band 5 16QAM



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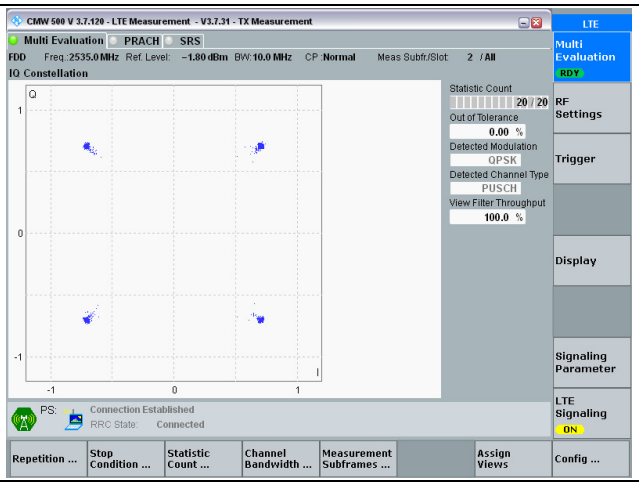
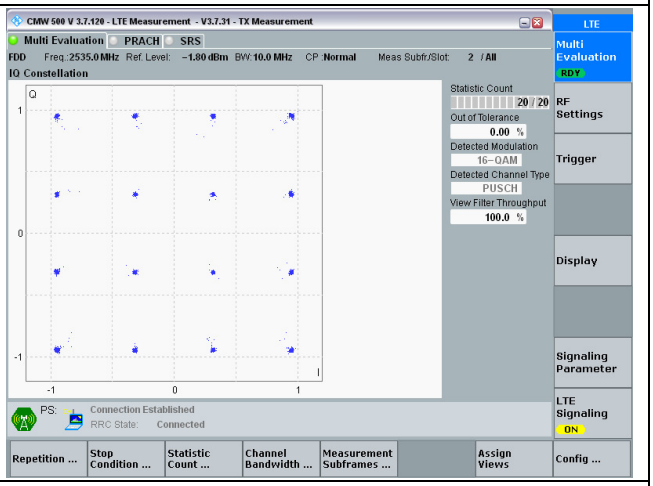
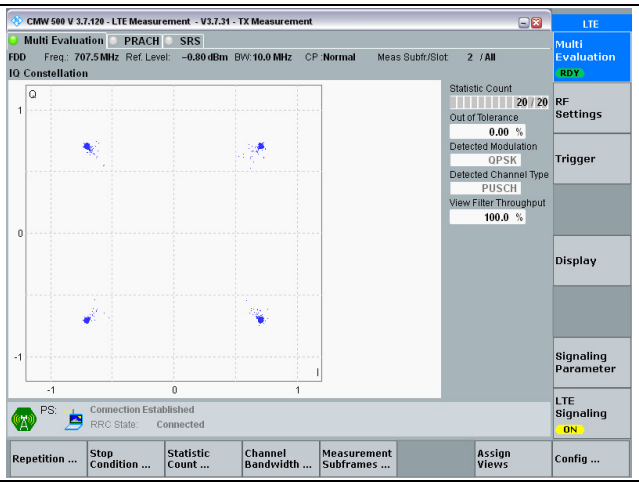
LTE FDD Band 7 QPSK



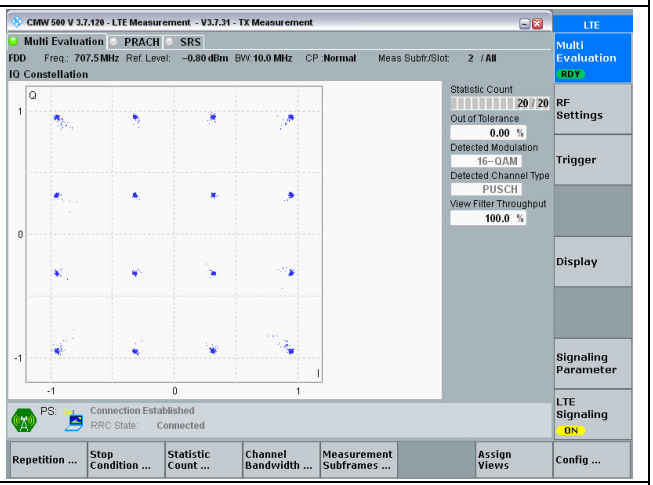
LTE FDD Band 7 16QAM



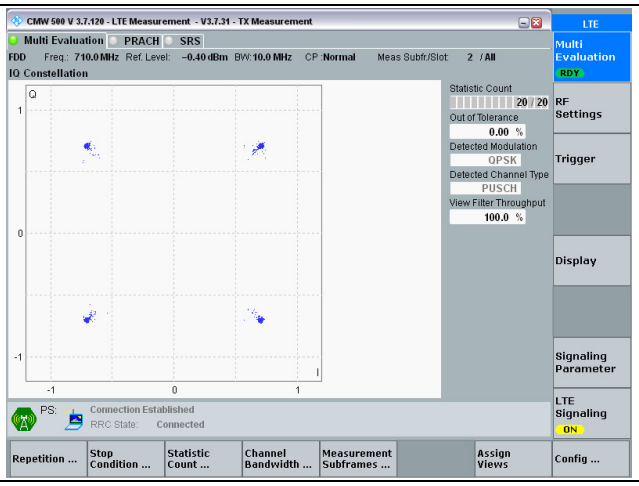
LTE FDD Band 12 QPSK



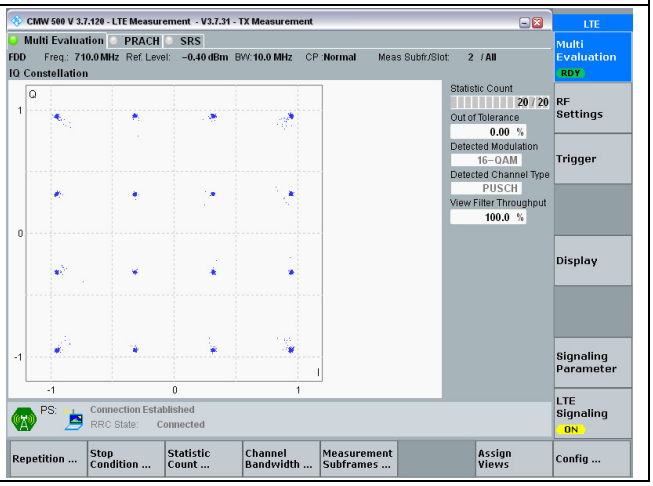
LTE FDD Band 12 16QAM



LTE FDD Band 17 QPSK



LTE FDD Band 17 16QAM



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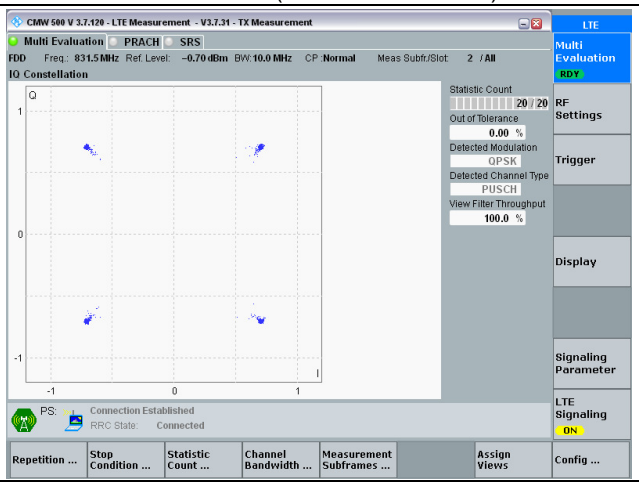
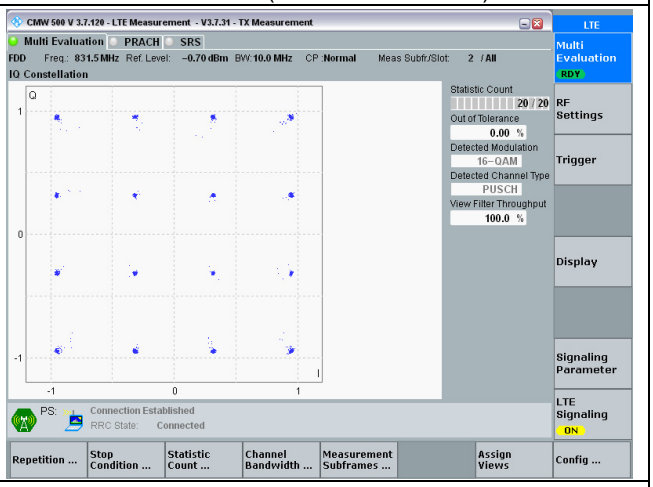
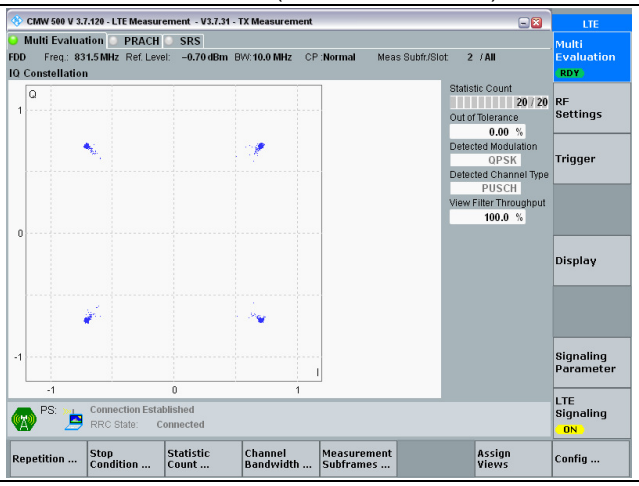
LTE FDD Band 26(814MHz-824MHz) QPSK



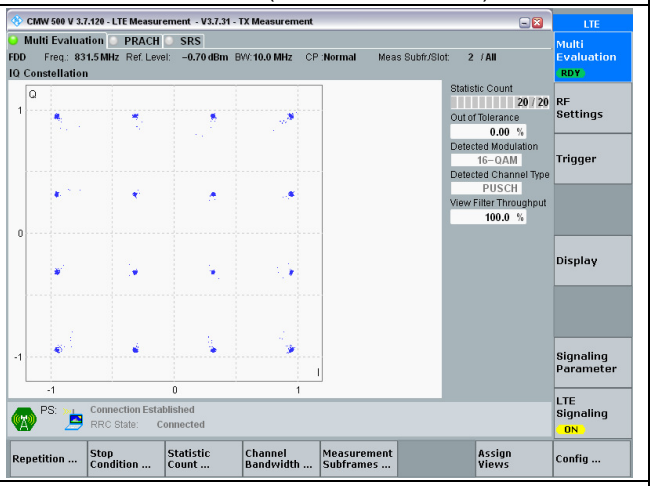
LTE FDD Band 26(814MHz-824MHz) 16QAM



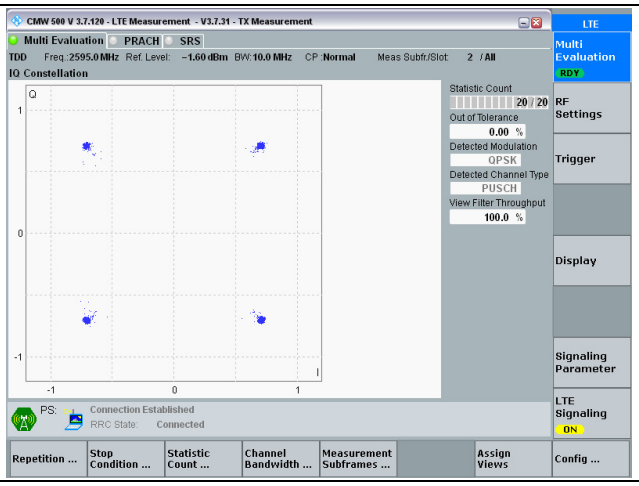
LTE FDD Band 26(824MHz-849MHz) QPSK



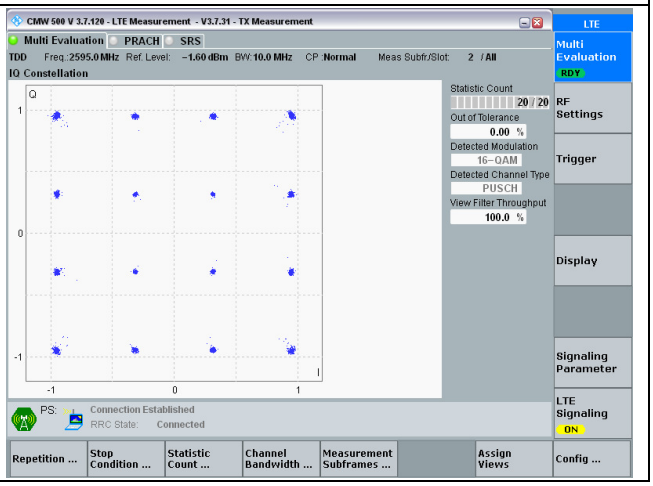
LTE FDD Band 26(824MHz-849MHz) 16QAM



LTE TDD Band 38 QPSK



LTE TDD Band 38 16QAM



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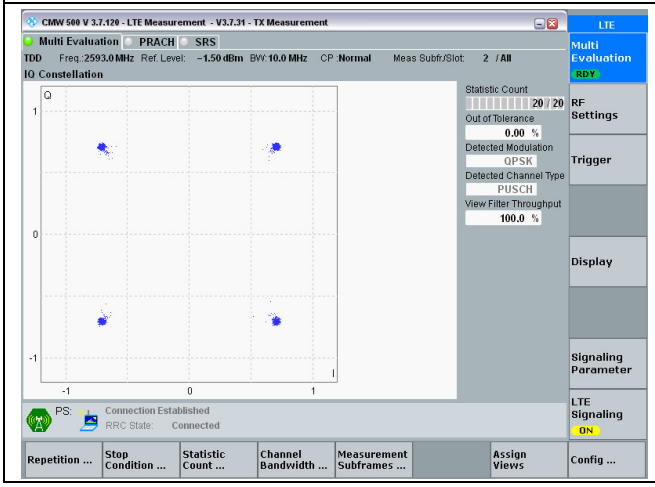
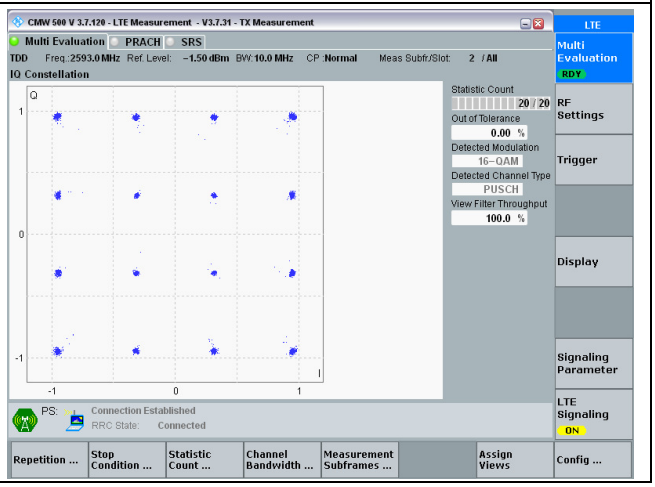
LTE TDD Band 41 QPSK	LTE TDD Band 41 16QAM
	

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