TEST REPORT

Application No.:	SZEM2101000844CR
Applicant:	Hon Lin Technology Co., Ltd.
Address of Applicant:	11F, No.32, Jihu Rd., Neihu Dist., Taipei City 114, Taiwan
Manufacturer:	NANNING FUGUI PRECISION INDUSTRIAL CO., LTD.
Address of Manufacturer:	No.51, Tongle Avenue, Nanning, Guangxi. China
Factory:	NANNING FUGUI PRECISION INDUSTRIAL CO., LTD.
Address of Factory:	No.51, Tongle Avenue, Nanning, Guangxi. China
Equipment Under Test (EUT):	
EUT Name:	Sirius Fly mPro
Model No.:	M.2-B048-101
FCC ID:	2AQ68T99B123T03
Standard(s) :	47 CFR Part 2
	47 CFR Part 96
Date of Receipt:	2021-01-20
Date of Test:	2021-01-20 to 2021-02-20
Date of Issue:	2021-02-20
Test Result:	**Pass**

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

Keny Xu
EMC Laboratory Manager

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

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2021-02-20		Original

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

2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41	EIRP≤ 23dBm/10MHz (LTE Band 48)	PASS
Peak-Average Ratio	§96.41	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§96.41	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §96.41	-13 dBm/Mhz at frequencies within 0-B MHz of channel edge(where B is the bandwidth of the assigned channel) -25 dBm/MHz at frequencies greater than B MHz above and below channel edge -40 dBm/MHz at frequencies below 3530 MHz and above 3720 MHz ACLR>=30dBc	PASS
Spurious emissions at antenna terminals	§2.1051, §96.41	≤ -40dBm (LTE Band 48)	PASS
Field strength of spurious radiation	§2.1051, §96.41	≤ -40dBm (LTE Band 48)	PASS
Frequency stability	§2.1055,	Fundamental emission stays within authorized frequency block	PASS

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC3.3V from main board. Main board rated input: DC12V/1A
Sample Type:	Mobile Product
LTE Operation Frequency Band:	48
Frequency range:	3550-3700 MHz
Modulation Type:	UL: QPSK, 16QAM, 64QAM DL: QPSK, 16QAM, 64QAM, 256QAM
LTE Release Version:	R11
LTE Power Class:	Level 3
CA Capability MIMO:	DL 2CC 2X2 MIMO DL 1CC 2X2 MIMO UL 1CC 2X2 MIMO UL 2CC SISO Support Intra-band contiguous/non-contiguous CA and support UL MIMO
Antenna Type:	Dipole Antenna Ant 1: TX & RX Ant 2: TX & RX
Antenna Gain:	2.5dBi
Remark: The EUT is a M.2 Module.	

4.2 Test Frequency

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE TDD Band 48	5	3552.5	3625.0	3697.5
	10	3555.0	3625.0	3695.0
	15	3557.5	3625.0	3692.5
	20	3560	3625.0	3690.0

4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TL	-30 ℃
	TN	+20 ℃
	TH	+50℃
Voltage:	VL	10.8 V
	VN	12.0 V
	VH	13.2 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

Description	Manufacturer	Model No.	Serial No.
Switching Adapter	DEE VAN ENTERPRISE CO.,LTD	DSA-12PFT-12 FUS 120100	--
Foxconn Industrial Internet	Foxconn	Sirius Fly Pro	--

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℃
10	Humidity test	± 3%
11	Supply voltages	± 1.5%
12	Time	± 3%

4.6 Test Location

All tests were performed at:

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

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, 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

5 Equipment List

RF test system					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2020-04-09	2021-04-08
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2020-04-09	2021-04-08
Power Sensor	KEYSIGHT	U2021XA	SEM009-20	2020-05-21	2021-05-20
Power Sensor	KEYSIGHT	U2021XA	SEM009-21	2020-05-21	2021-05-20
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2020-03-25	2021-03-24
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-03	2020-07-10	2021-07-09

RE in Chamber (Above 1GHz)					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2020-06-27	2023-06-26
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2020-10-16	2023-10-15
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2020-09-23	2021-09-22
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

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Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31

RE in Chamber (Below 1GHz)					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-08-04	2023-08-03
MXE EMI receiver (3Hz-3.6GHz)	KEYSIGHT	N9038A	SEM004-15	2020-12-15	2021-12-14
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06

6 Radio Spectrum Matter Test Results

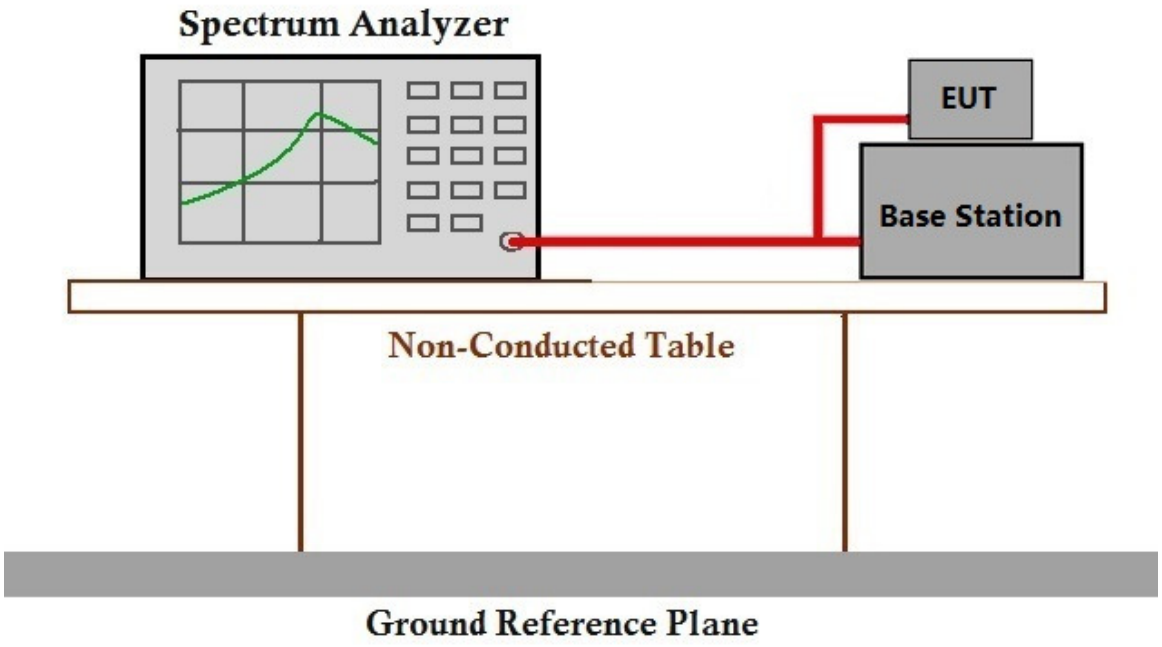
6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §96.41
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: EIRP≤ 23dBm/10MHz(LTE Band 48)

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 00: Tx mode: Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



Test setup for Power measurement

6.1.3 Measurement Data

Please refer to Appendix A-Output power

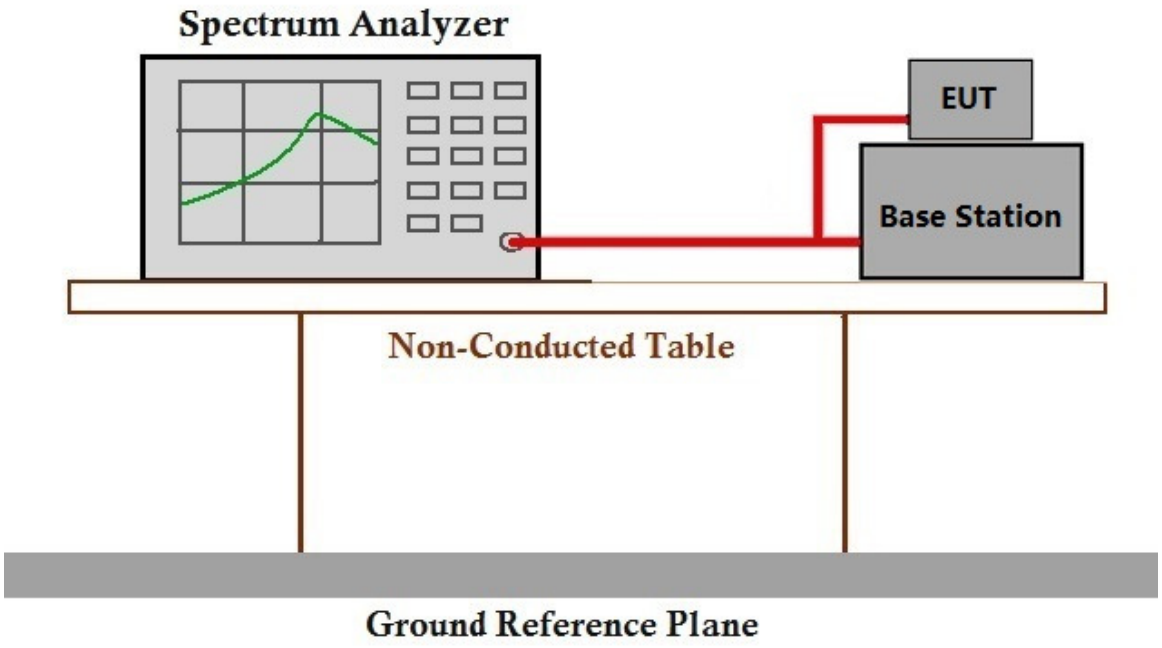
6.2 Peak-Average Ratio

Test Requirement: §96.41
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ≤13dB

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 00: 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

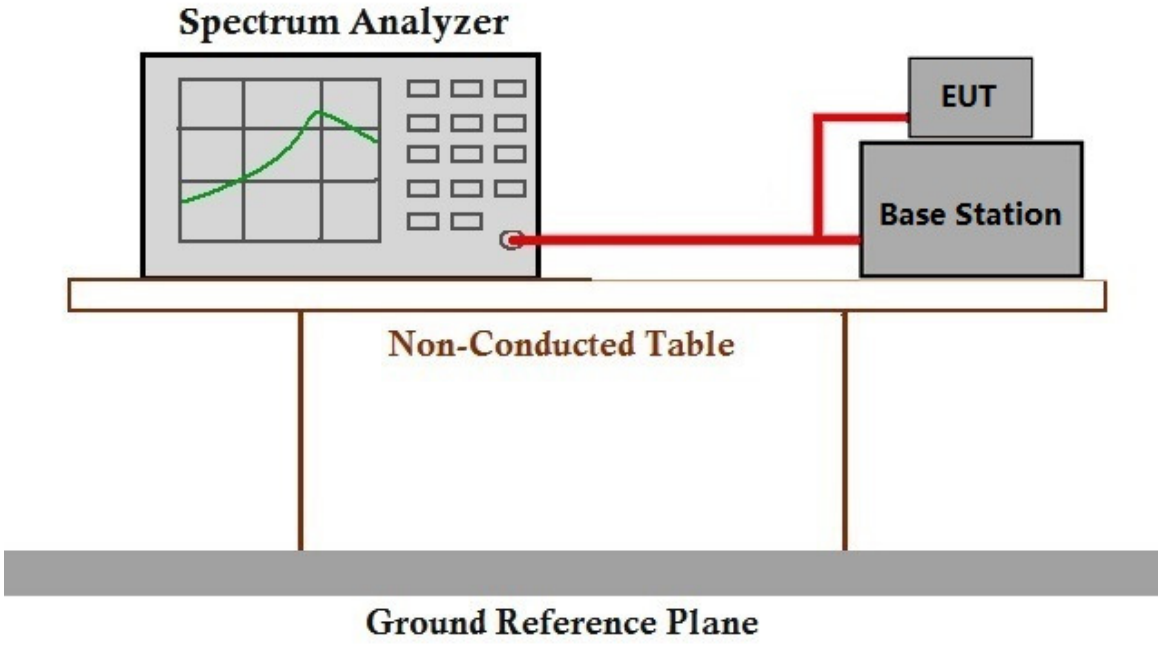
6.3 Bandwidth

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

6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 00: 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

6.4 Band Edge Compliance

Test Requirement: §2.1051, §96.41

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

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed –13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed –25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed –25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed –40dBm/MHz.

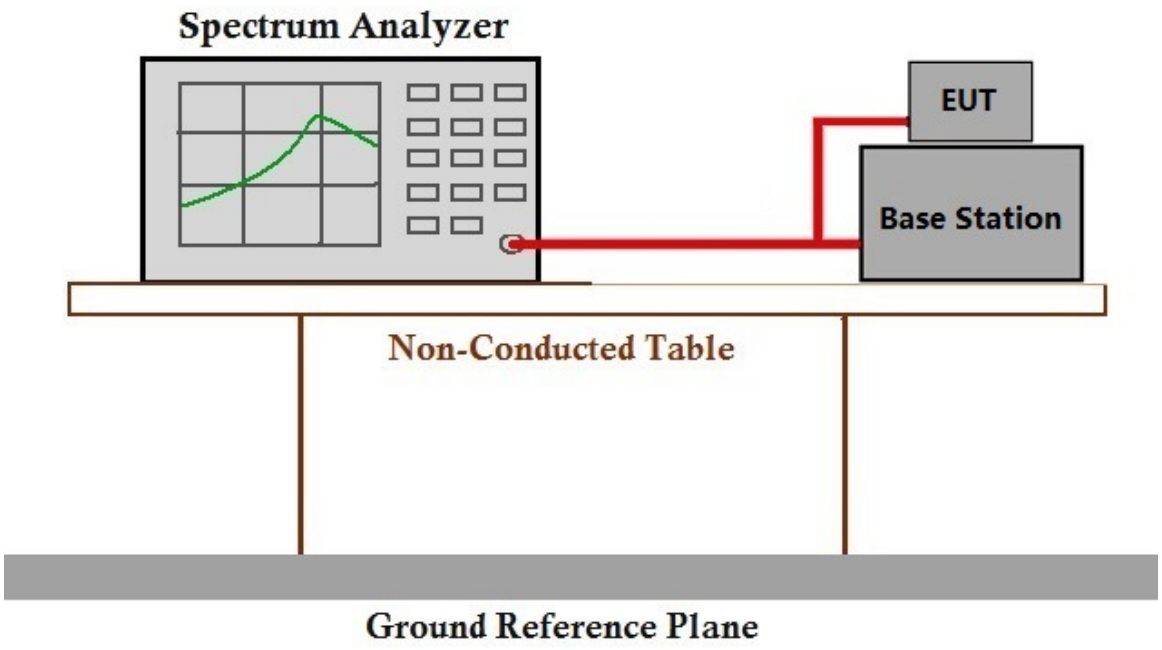
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 00: 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
Please refer to Appendix E- ACLR

6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §96.41

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

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

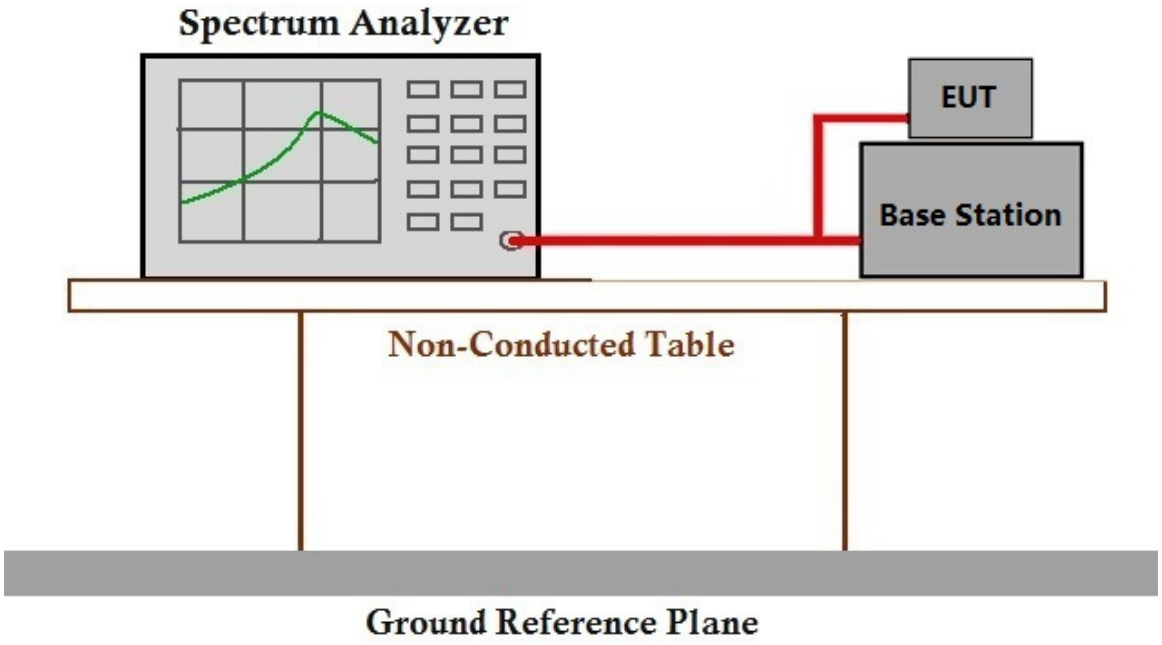
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 00: Tx mode: Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Please refer to Appendix D- Spurious emissions at antenna terminals

6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §96.41

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

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed –13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed –25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed –25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed –40dBm/MHz.

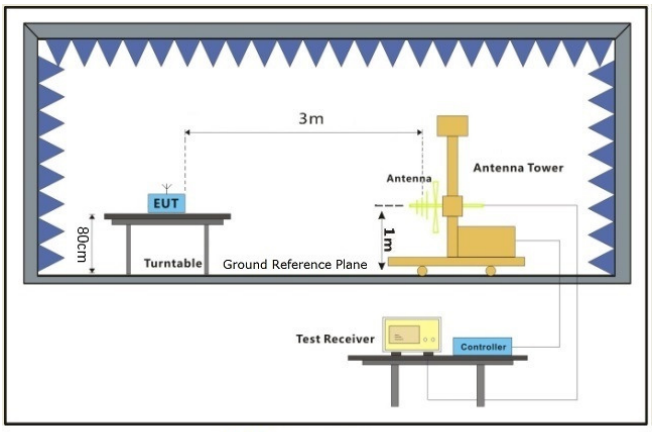
6.6.1 E.U.T. Operation

Operating Environment:

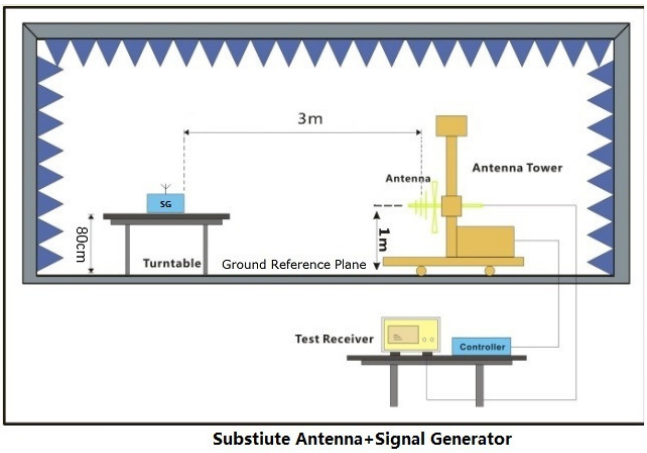
Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 00: Tx mode: Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



EUT



Substiute Antenna+Signal Generator

6.6.3 Measurement Procedure and Data

Test Procedure:

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

SISO Ant 1

LTE Band 48_QPSK_5MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7100.5	-44.23	-40	-4.23	-56.13	1	12.9	Horizontal	Pass
10650.75	-43.29	-40	-3.29	-55.3	1.49	13.5	Horizontal	Pass
14201	-44.08	-40	-4.08	-56.01	1.67	13.6	Horizontal	Pass
7100.5	-48.31	-40	-8.31	-60.21	1	12.9	Vertical	Pass
10650.75	-47.28	-40	-7.28	-59.29	1.49	13.5	Vertical	Pass
14201	-45.98	-40	-5.98	-57.91	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_5MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7245.5	-43.49	-40	-3.49	-55.39	1	12.9	Horizontal	Pass
10868.25	-43.75	-40	-3.75	-55.76	1.49	13.5	Horizontal	Pass
14491	-43.96	-40	-3.96	-55.89	1.67	13.6	Horizontal	Pass
7245.5	-47.03	-40	-7.03	-58.93	1	12.9	Vertical	Pass
10868.25	-46.57	-40	-6.57	-58.58	1.49	13.5	Vertical	Pass
14491	-45.12	-40	-5.12	-57.05	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_5MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7390.5	-44.61	-40	-4.61	-56.51	1	12.9	Horizontal	Pass
11085.75	-43.14	-40	-3.14	-55.15	1.59	13.6	Horizontal	Pass
14781	-44.89	-40	-4.89	-55.92	1.37	12.4	Horizontal	Pass
7390.5	-47.85	-40	-7.85	-59.75	1	12.9	Vertical	Pass
11085.75	-48	-40	-8	-60.01	1.59	13.6	Vertical	Pass
14781	-44.07	-40	-4.07	-55.1	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_10MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7101	-44.68	-40	-4.68	-56.58	1	12.9	Horizontal	Pass
10651.5	-43.51	-40	-3.51	-55.52	1.49	13.5	Horizontal	Pass
14202	-44.35	-40	-4.35	-56.28	1.67	13.6	Horizontal	Pass
7101	-47.4	-40	-7.4	-59.3	1	12.9	Vertical	Pass
10651.5	-47.91	-40	-7.91	-59.92	1.49	13.5	Vertical	Pass
14202	-46	-40	-6	-57.93	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_10MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7241	-45.66	-40	-5.66	-57.56	1	12.9	Horizontal	Pass
10861.5	-43.92	-40	-3.92	-55.93	1.49	13.5	Horizontal	Pass
14482	-44.89	-40	-4.89	-56.82	1.67	13.6	Horizontal	Pass
7241	-48.6	-40	-8.6	-60.5	1	12.9	Vertical	Pass
10861.5	-47.88	-40	-7.88	-59.89	1.49	13.5	Vertical	Pass
14482	-45.69	-40	-5.69	-57.62	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_10MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7381	-45.56	-40	-5.56	-57.46	1	12.9	Horizontal	Pass
11071.5	-43.16	-40	-3.16	-55.17	1.59	13.6	Horizontal	Pass
14762	-44.93	-40	-4.93	-55.96	1.37	12.4	Horizontal	Pass
7381	-48.88	-40	-8.88	-60.78	1	12.9	Vertical	Pass
11071.5	-47.36	-40	-7.36	-59.37	1.59	13.6	Vertical	Pass
14762	-45.26	-40	-5.26	-56.29	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_15MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7101.5	-44.9	-40	-4.9	-56.8	1	12.9	Horizontal	Pass
10652.25	-43.12	-40	-3.12	-55.13	1.49	13.5	Horizontal	Pass
14203	-45.01	-40	-5.01	-56.94	1.67	13.6	Horizontal	Pass
7101.5	-48.63	-40	-8.63	-60.53	1	12.9	Vertical	Pass
10652.25	-46.87	-40	-6.87	-58.88	1.49	13.5	Vertical	Pass
14203	-45.77	-40	-5.77	-57.7	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_15MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7236.5	-44.41	-40	-4.41	-56.31	1	12.9	Horizontal	Pass
10854.75	-43.28	-40	-3.28	-55.29	1.49	13.5	Horizontal	Pass
14473	-45.16	-40	-5.16	-57.09	1.67	13.6	Horizontal	Pass
7236.5	-48.79	-40	-8.79	-60.69	1	12.9	Vertical	Pass
10854.75	-47.24	-40	-7.24	-59.25	1.49	13.5	Vertical	Pass
14473	-46.8	-40	-6.8	-58.73	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_15MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7371.5	-43.54	-40	-3.54	-55.44	1	12.9	Horizontal	Pass
11057.25	-43.68	-40	-3.68	-55.69	1.59	13.6	Horizontal	Pass
14743	-44.28	-40	-4.28	-55.31	1.37	12.4	Horizontal	Pass
7371.5	-49.43	-40	-9.43	-61.33	1	12.9	Vertical	Pass
11057.25	-46.33	-40	-6.33	-58.34	1.59	13.6	Vertical	Pass
14743	-44.73	-40	-4.73	-55.76	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_20MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7102	-44.49	-40	-4.49	-56.39	1	12.9	Horizontal	Pass
10653	-43.26	-40	-3.26	-55.27	1.49	13.5	Horizontal	Pass
14204	-43.02	-40	-3.02	-54.95	1.67	13.6	Horizontal	Pass
7102	-47.36	-40	-7.36	-59.26	1	12.9	Vertical	Pass
10653	-46.47	-40	-6.47	-58.48	1.49	13.5	Vertical	Pass
14204	-46.79	-40	-6.79	-58.72	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_20MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7232	-44.77	-40	-4.77	-56.67	1	12.9	Horizontal	Pass
10848	-43.79	-40	-3.79	-55.8	1.49	13.5	Horizontal	Pass
14464	-44.56	-40	-4.56	-56.49	1.67	13.6	Horizontal	Pass
7232	-48.02	-40	-8.02	-59.92	1	12.9	Vertical	Pass
10848	-46.5	-40	-6.5	-58.51	1.49	13.5	Vertical	Pass
14464	-46.23	-40	-6.23	-58.16	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_20MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7362	-43.18	-40	-3.18	-55.08	1	12.9	Horizontal	Pass
11043	-43.85	-40	-3.85	-55.86	1.59	13.6	Horizontal	Pass
14724	-44.84	-40	-4.84	-55.87	1.37	12.4	Horizontal	Pass
7362	-48.38	-40	-8.38	-60.28	1	12.9	Vertical	Pass
11043	-47.56	-40	-7.56	-59.57	1.59	13.6	Vertical	Pass
14724	-44.57	-40	-4.57	-55.6	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_ Intra-band CA non-contiguous_5+20MHz _Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7147.5	-44.1	-40	-4.1	-56	1	12.9	Horizontal	Pass
10721.25	-43.76	-40	-3.76	-55.77	1.49	13.5	Horizontal	Pass
14295	-45.6	-40	-5.6	-57.53	1.67	13.6	Horizontal	Pass
7147.5	-48.09	-40	-8.09	-59.99	1	12.9	Vertical	Pass
10721.25	-48.96	-40	-8.96	-60.97	1.49	13.5	Vertical	Pass
14295	-45.83	-40	-5.83	-57.76	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_ Intra-band CA non-contiguous_5+20MHz _ Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7287.5	-43.2	-40	-3.2	-55.1	1	12.9	Horizontal	Pass
10931.25	-43.44	-40	-3.44	-55.45	1.49	13.5	Horizontal	Pass
14575	-43.67	-40	-3.67	-54.7	1.37	12.4	Horizontal	Pass
7287.5	-48.25	-40	-8.25	-60.15	1	12.9	Vertical	Pass
10931.25	-48.24	-40	-8.24	-60.25	1.49	13.5	Vertical	Pass
14575	-46.7	-40	-6.7	-57.73	1.37	12.4	Vertical	Pass

LTE Band 48_QPSK_ Intra-band CA non-contiguous_5+20MHz _ High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7352.5	-43.07	-40	-3.07	-54.97	1	12.9	Horizontal	Pass
11028.75	-43.43	-40	-3.43	-55.44	1.59	13.6	Horizontal	Pass
14705	-43.27	-40	-3.27	-54.3	1.37	12.4	Horizontal	Pass
7352.5	-46.77	-40	-6.77	-58.67	1	12.9	Vertical	Pass
11028.75	-48.88	-40	-8.88	-60.89	1.59	13.6	Vertical	Pass
14705	-45.07	-40	-5.07	-56.1	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_ Intra-band CA contiguous_5+20 MHz Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7124.2	-44	-40	-4	-55.9	1	12.9	Horizontal	Pass
10686.3	-43.44	-40	-3.44	-55.45	1.49	13.5	Horizontal	Pass
14248.4	-44.09	-40	-4.09	-56.02	1.67	13.6	Horizontal	Pass
7124.2	-46.73	-40	-6.73	-58.63	1	12.9	Vertical	Pass
10686.3	-48.72	-40	-8.72	-60.73	1.49	13.5	Vertical	Pass
14248.4	-47.05	-40	-7.05	-58.98	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_ Intra-band CA contiguous_5+20 MHz Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7234.2	-45.88	-40	-5.88	-57.78	1	12.9	Horizontal	Pass
10851.3	-43.97	-40	-3.97	-55.98	1.49	13.5	Horizontal	Pass
14468.4	-43.09	-40	-3.09	-55.02	1.67	13.6	Horizontal	Pass
7234.2	-48.62	-40	-8.62	-60.52	1	12.9	Vertical	Pass
10851.3	-47.94	-40	-7.94	-59.95	1.49	13.5	Vertical	Pass
14468.4	-47.41	-40	-7.41	-59.34	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_ Intra-band CA contiguous_5+20 MHz High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7375.8	-44.52	-40	-4.52	-56.42	1	12.9	Horizontal	Pass
11063.7	-43.8	-40	-3.8	-55.81	1.59	13.6	Horizontal	Pass
14751.6	-43.89	-40	-3.89	-54.92	1.37	12.4	Horizontal	Pass
7375.8	-49.68	-40	-9.68	-61.58	1	12.9	Vertical	Pass
11063.7	-48.51	-40	-8.51	-60.52	1.59	13.6	Vertical	Pass
14751.6	-46.8	-40	-6.8	-57.83	1.37	12.4	Vertical	Pass

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MIMO Ant1+Ant2:

LTE Band 48_QPSK_5MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7100.5	-44.7	-40	-4.7	-56.6	1	12.9	Horizontal	Pass
10650.75	-44.88	-40	-4.88	-56.89	1.49	13.5	Horizontal	Pass
14201	-44.15	-40	-4.15	-56.08	1.67	13.6	Horizontal	Pass
7100.5	-45.88	-40	-5.88	-57.78	1	12.9	Vertical	Pass
10650.75	-45.12	-40	-5.12	-57.13	1.49	13.5	Vertical	Pass
14201	-46.18	-40	-6.18	-58.11	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_5MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7245.5	-43.04	-40	-3.04	-54.94	1	12.9	Horizontal	Pass
10868.25	-44.04	-40	-4.04	-56.05	1.49	13.5	Horizontal	Pass
14491	-43.69	-40	-3.69	-55.62	1.67	13.6	Horizontal	Pass
7245.5	-46.73	-40	-6.73	-58.63	1	12.9	Vertical	Pass
10868.25	-46.05	-40	-6.05	-58.06	1.49	13.5	Vertical	Pass
14491	-46.49	-40	-6.49	-58.42	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_5MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7390.5	-44.54	-40	-4.54	-56.44	1	12.9	Horizontal	Pass
11085.75	-44.74	-40	-4.74	-56.75	1.59	13.6	Horizontal	Pass
14781	-44.04	-40	-4.04	-55.07	1.37	12.4	Horizontal	Pass
7390.5	-45.21	-40	-5.21	-57.11	1	12.9	Vertical	Pass
11085.75	-45.5	-40	-5.5	-57.51	1.59	13.6	Vertical	Pass
14781	-46.03	-40	-6.03	-57.06	1.37	12.4	Vertical	Pass

LTE Band 48_QPSK_10MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7101	-44.67	-40	-4.67	-56.57	1	12.9	Horizontal	Pass
10651.5	-44.04	-40	-4.04	-56.05	1.49	13.5	Horizontal	Pass
14202	-43.93	-40	-3.93	-55.86	1.67	13.6	Horizontal	Pass
7101	-45.33	-40	-5.33	-57.23	1	12.9	Vertical	Pass
10651.5	-45.76	-40	-5.76	-57.77	1.49	13.5	Vertical	Pass
14202	-45.23	-40	-5.23	-57.16	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_10MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7241	-43.14	-40	-3.14	-55.04	1	12.9	Horizontal	Pass
10861.5	-44.14	-40	-4.14	-56.15	1.49	13.5	Horizontal	Pass
14482	-43.03	-40	-3.03	-54.96	1.67	13.6	Horizontal	Pass
7241	-45.33	-40	-5.33	-57.23	1	12.9	Vertical	Pass
10861.5	-46.63	-40	-6.63	-58.64	1.49	13.5	Vertical	Pass
14482	-45.16	-40	-5.16	-57.09	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_10MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7381	-43.24	-40	-3.24	-55.14	1	12.9	Horizontal	Pass
11071.5	-44.96	-40	-4.96	-56.97	1.59	13.6	Horizontal	Pass
14762	-43.53	-40	-3.53	-54.56	1.37	12.4	Horizontal	Pass
7381	-45.01	-40	-5.01	-56.91	1	12.9	Vertical	Pass
11071.5	-45.78	-40	-5.78	-57.79	1.59	13.6	Vertical	Pass
14762	-46.75	-40	-6.75	-57.78	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_15MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7101.5	-43.08	-40	-3.08	-54.98	1	12.9	Horizontal	Pass
10652.25	-44.79	-40	-4.79	-56.8	1.49	13.5	Horizontal	Pass
14203	-44.71	-40	-4.71	-56.64	1.67	13.6	Horizontal	Pass
7101.5	-45.44	-40	-5.44	-57.34	1	12.9	Vertical	Pass
10652.25	-46.88	-40	-6.88	-58.89	1.49	13.5	Vertical	Pass
14203	-45.03	-40	-5.03	-56.96	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_15MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7236.5	-44.49	-40	-4.49	-56.39	1	12.9	Horizontal	Pass
10854.75	-44.99	-40	-4.99	-57	1.49	13.5	Horizontal	Pass
14473	-44.98	-40	-4.98	-56.91	1.67	13.6	Horizontal	Pass
7236.5	-46.99	-40	-6.99	-58.89	1	12.9	Vertical	Pass
10854.75	-45.73	-40	-5.73	-57.74	1.49	13.5	Vertical	Pass
14473	-45.22	-40	-5.22	-57.15	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_15MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7371.5	-43.57	-40	-3.57	-55.47	1	12.9	Horizontal	Pass
11057.25	-43.12	-40	-3.12	-55.13	1.59	13.6	Horizontal	Pass
14743	-44.18	-40	-4.18	-55.21	1.37	12.4	Horizontal	Pass
7371.5	-45.77	-40	-5.77	-57.67	1	12.9	Vertical	Pass
11057.25	-46.92	-40	-6.92	-58.93	1.59	13.6	Vertical	Pass
14743	-46.7	-40	-6.7	-57.73	1.37	12.4	Vertical	Pass

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LTE Band 48_QPSK_20MHz_Low Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7102	-43.65	-40	-3.65	-55.55	1	12.9	Horizontal	Pass
10653	-44.43	-40	-4.43	-56.44	1.49	13.5	Horizontal	Pass
14204	-44.71	-40	-4.71	-56.64	1.67	13.6	Horizontal	Pass
7102	-46.14	-40	-6.14	-58.04	1	12.9	Vertical	Pass
10653	-46.75	-40	-6.75	-58.76	1.49	13.5	Vertical	Pass
14204	-45.83	-40	-5.83	-57.76	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_20MHz_Middle Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7232	-43.82	-40	-3.82	-55.72	1	12.9	Horizontal	Pass
10848	-43.75	-40	-3.75	-55.76	1.49	13.5	Horizontal	Pass
14464	-44.52	-40	-4.52	-56.45	1.67	13.6	Horizontal	Pass
7232	-45.34	-40	-5.34	-57.24	1	12.9	Vertical	Pass
10848	-45.26	-40	-5.26	-57.27	1.49	13.5	Vertical	Pass
14464	-45.2	-40	-5.2	-57.13	1.67	13.6	Vertical	Pass

LTE Band 48_QPSK_20MHz_High Channel								
Frequency (MHz)	EIRP(dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7362	-44	-40	-4	-55.9	1	12.9	Horizontal	Pass
11043	-43.02	-40	-3.02	-55.03	1.59	13.6	Horizontal	Pass
14724	-44.33	-40	-4.33	-55.36	1.37	12.4	Horizontal	Pass
7362	-45.39	-40	-5.39	-57.29	1	12.9	Vertical	Pass
11043	-45.48	-40	-5.48	-57.49	1.59	13.6	Vertical	Pass
14724	-46.26	-40	-6.26	-57.29	1.37	12.4	Vertical	Pass

Remark:

1) Pretest with normal and extreme conditions, only the worst case data was showed in the test report.
2) We have tested all modulation and all Channel, but only the worst case data displayed in this report.
3) For CA test, only recorded the worst case of 5+20MHz configuration for contiguous and non-contiguous mode.

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6.7 Frequency stability

Test Requirement: §2.1055

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

Limit: Fundamental emission stays within authorized frequency block

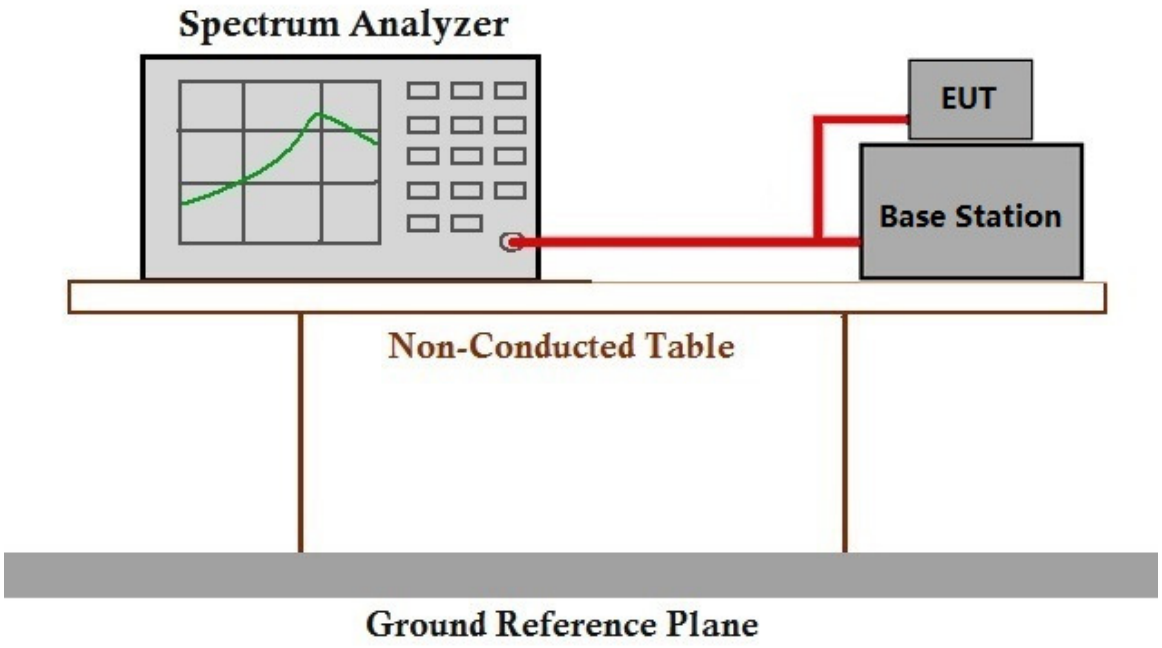
6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 00: Tx mode: Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

Please refer to Appendix F

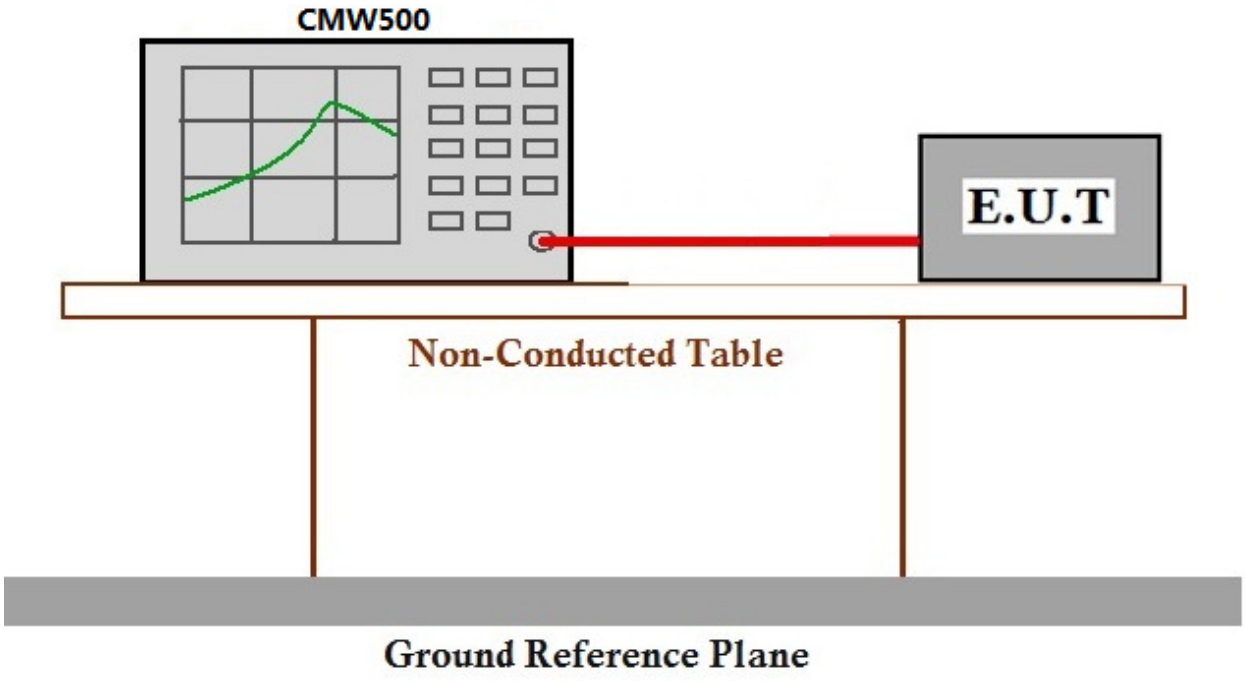
6.8 Modulation Characteristics

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: 20.4 °C Humidity: 57.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 00: Tx mode: Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

Please refer to Appendix F

7 Photographs

7.1 Setup photo

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

8 Appendix F

8.1 Frequency stability

Remark: only recorded worst case of MIMO mode @ant 1.

Test Band: 48 _ 5MHz Bandwidth (Frequency Error VS. Voltage)												
Test Mode	RB Allocation		Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	25	0	NT	LV	7	11	13	0.0020	0.0030	0.0035	2.50	PASS
				NV	9	-5	-2	0.0025	-0.0014	-0.0005	2.50	PASS
				HV	7	5	12	0.0020	0.0014	0.0032	2.50	PASS
16QAM	25	0	NT	LV	-7	14	5	-0.0020	0.0039	0.0014	2.50	PASS
				NV	-8	15	-13	-0.0023	0.0041	-0.0035	2.50	PASS
				HV	10	-1	12	0.0028	-0.0003	0.0032	2.50	PASS
QPSK	25	0	NT	LV	6	-2	12	0.0017	-0.0006	0.0032	2.50	PASS
				NV	2	-11	-8	0.0006	-0.0030	-0.0022	2.50	PASS
				HV	-4	13	4	-0.0011	0.0036	0.0011	2.50	PASS

Test Band: 48 _ 5MHz Bandwidth (Frequency Error VS. Temperature)												
Test Mode	RB Allocation		Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	25	0	NV	-30.00	5	-13	6	0.0014	-0.0036	0.0016	2.50	PASS
				-20.00	13	-9	-10	0.0037	-0.0025	-0.0027	2.50	PASS
				-10.00	-7	-6	15	-0.0020	-0.0017	0.0041	2.50	PASS
				0.00	-6	4	7	-0.0017	0.0011	0.0019	2.50	PASS
				10.00	6	-15	-13	0.0017	-0.0041	-0.0035	2.50	PASS
				20.00	-7	-1	-15	-0.0020	-0.0003	-0.0041	2.50	PASS
				30.00	-11	3	12	-0.0031	0.0008	0.0032	2.50	PASS
				40.00	14	8	-3	0.0039	0.0022	-0.0008	2.50	PASS
				50.00	-2	-10	-10	-0.0006	-0.0028	-0.0027	2.50	PASS
16QAM	25	0	NV	-30.00	6	-14	-10	0.0017	-0.0039	-0.0027	2.50	PASS
				-20.00	14	15	-5	0.0039	0.0041	-0.0014	2.50	PASS
				-10.00	12	-10	15	0.0034	-0.0028	0.0041	2.50	PASS
				0.00	-5	7	-14	-0.0014	0.0019	-0.0038	2.50	PASS
				10.00	6	-14	-11	0.0017	-0.0039	-0.0030	2.50	PASS
				20.00	9	10	12	0.0025	0.0028	0.0032	2.50	PASS
				30.00	7	12	15	0.0020	0.0033	0.0041	2.50	PASS
				40.00	14	8	10	0.0039	0.0022	0.0027	2.50	PASS
				50.00	-9	-9	10	-0.0025	-0.0025	0.0027	2.50	PASS

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QPSK	25	0	NV	-30.00	12	-12	10	0.0034	-0.0033	0.0027	2.50	PASS
				-20.00	7	9	6	0.0020	0.0025	0.0016	2.50	PASS
				-10.00	-10	-1	-6	-0.0028	-0.0003	-0.0016	2.50	PASS
				0.00	3	9	5	0.0008	0.0025	0.0014	2.50	PASS
				10.00	-12	12	5	-0.0034	0.0033	0.0014	2.50	PASS
				20.00	-9	-6	12	-0.0025	-0.0017	0.0032	2.50	PASS
				30.00	2	-14	1	0.0006	-0.0039	0.0003	2.50	PASS
				40.00	5	0	5	0.0014	0.0000	0.0014	2.50	PASS
				50.00	-11	-3	7	-0.0031	-0.0008	0.0019	2.50	PASS

Test Band: 48 _ 10MHz Bandwidth (Frequency Error VS. Voltage)												
Test Mode	RB Allocation		Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	50	0	NT	LV	-10	7	9	-0.0028	0.0019	0.0024	2.50	PASS
				NV	-5	-10	-4	-0.0014	-0.0028	-0.0011	2.50	PASS
				HV	-8	14	10	-0.0023	0.0039	0.0027	2.50	PASS
16QAM	50	0	NT	LV	12	10	-5	0.0034	0.0028	-0.0014	2.50	PASS
				NV	-5	11	11	-0.0014	0.0030	0.0030	2.50	PASS
				HV	3	3	10	0.0008	0.0008	0.0027	2.50	PASS
QPSK	50	0	NT	LV	1	-8	-4	0.0003	-0.0022	-0.0011	2.50	PASS
				NV	6	1	-11	0.0017	0.0003	-0.0030	2.50	PASS
				HV	-2	7	-8	-0.0006	0.0019	-0.0022	2.50	PASS

Test Band: 48 _ 10MHz Bandwidth (Frequency Error VS. Temperature)												
Test Mode	RB Allocation		Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	50	0	NV	-30.00	0	-4	8	0.0000	-0.0011	0.0022	2.50	PASS
				-20.00	10	9	10	0.0028	0.0025	0.0027	2.50	PASS
				-10.00	2	-8	-5	0.0006	-0.0022	-0.0014	2.50	PASS
				0.00	-10	-1	4	-0.0028	-0.0003	0.0011	2.50	PASS
				10.00	12	-9	12	0.0034	-0.0025	0.0032	2.50	PASS
				20.00	-2	3	-9	-0.0006	0.0008	-0.0024	2.50	PASS
				30.00	-13	1	-3	-0.0037	0.0003	-0.0008	2.50	PASS
				40.00	13	-7	2	0.0037	-0.0019	0.0005	2.50	PASS
				50.00	7	-2	-6	0.0020	-0.0006	-0.0016	2.50	PASS
16QAM	50	0	NV	-30.00	-15	-5	15	-0.0042	-0.0014	0.0041	2.50	PASS
				-20.00	-2	10	-3	-0.0006	0.0028	-0.0008	2.50	PASS
				-10.00	-1	-6	4	-0.0003	-0.0017	0.0011	2.50	PASS
				0.00	-3	2	-13	-0.0008	0.0006	-0.0035	2.50	PASS

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				10.00	11	-3	11	0.0031	-0.0008	0.0030	2.50	PASS
				20.00	12	4	-13	0.0034	0.0011	-0.0035	2.50	PASS
				30.00	-8	2	-5	-0.0023	0.0006	-0.0014	2.50	PASS
				40.00	2	-15	-11	0.0006	-0.0041	-0.0030	2.50	PASS
				50.00	5	8	-1	0.0014	0.0022	-0.0003	2.50	PASS
QPSK	50	0	NV	-30.00	-15	13	10	-0.0042	0.0036	0.0027	2.50	PASS
				-20.00	-3	-9	-8	-0.0008	-0.0025	-0.0022	2.50	PASS
				-10.00	-15	-6	-14	-0.0042	-0.0017	-0.0038	2.50	PASS
				0.00	9	1	-10	0.0025	0.0003	-0.0027	2.50	PASS
				10.00	-5	-5	-3	-0.0014	-0.0014	-0.0008	2.50	PASS
				20.00	6	7	-9	0.0017	0.0019	-0.0024	2.50	PASS
				30.00	1	-11	-11	0.0003	-0.0030	-0.0030	2.50	PASS
				40.00	0	6	13	0.0000	0.0017	0.0035	2.50	PASS
				50.00	-2	4	-11	-0.0006	0.0011	-0.0030	2.50	PASS

Test Band: 48 _ 15MHz Bandwidth (Frequency Error VS. Voltage)												
Test Mode	RB Allocation		Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	75	0	NT	LV	0	12	-1	0.0000	0.0033	-0.0003	2.50	PASS
				NV	7	7	10	0.0020	0.0019	0.0027	2.50	PASS
				HV	6	4	0	0.0017	0.0011	0.0000	2.50	PASS
16QAM	75	0	NT	LV	-4	8	5	-0.0011	0.0022	0.0014	2.50	PASS
				NV	-14	-12	-6	-0.0039	-0.0033	-0.0016	2.50	PASS
				HV	1	-1	8	0.0003	-0.0003	0.0022	2.50	PASS
QPSK	75	0	NT	LV	-2	4	0	-0.0006	0.0011	0.0000	2.50	PASS
				NV	-7	-7	-3	-0.0020	-0.0019	-0.0008	2.50	PASS
				HV	-3	7	0	-0.0008	0.0019	0.0000	2.50	PASS

Test Band: 48 _ 15MHz Bandwidth (Frequency Error VS. Temperature)												
Test Mode	RB Allocation		Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	75	0	NV	-30.00	10	4	-6	0.0028	0.0011	-0.0016	2.50	PASS
				-20.00	-7	-4	4	-0.0020	-0.0011	0.0011	2.50	PASS
				-10.00	-3	-7	14	-0.0008	-0.0019	0.0038	2.50	PASS
				0.00	-1	-13	3	-0.0003	-0.0036	0.0008	2.50	PASS
				10.00	14	10	12	0.0039	0.0028	0.0032	2.50	PASS
				20.00	-2	-12	3	-0.0006	-0.0033	0.0008	2.50	PASS
				30.00	13	-12	7	0.0037	-0.0033	0.0019	2.50	PASS
				40.00	10	-1	6	0.0028	-0.0003	0.0016	2.50	PASS

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				50.00	12	13	-14	0.0034	0.0036	-0.0038	2.50	PASS
16QAM	75	0	NV	-30.00	12	-5	4	0.0034	-0.0014	0.0011	2.50	PASS
				-20.00	-3	6	-6	-0.0008	0.0017	-0.0016	2.50	PASS
				-10.00	7	6	-3	0.0020	0.0017	-0.0008	2.50	PASS
				0.00	-12	-14	-1	-0.0034	-0.0039	-0.0003	2.50	PASS
				10.00	5	4	4	0.0014	0.0011	0.0011	2.50	PASS
				20.00	-7	-10	0	-0.0020	-0.0028	0.0000	2.50	PASS
				30.00	13	10	-5	0.0037	0.0028	-0.0014	2.50	PASS
				40.00	-15	13	-13	-0.0042	0.0036	-0.0035	2.50	PASS
				50.00	-4	2	4	-0.0011	0.0006	0.0011	2.50	PASS
QPSK	75	0	NV	-30.00	3	-11	-11	0.0008	-0.0030	-0.0030	2.50	PASS
				-20.00	-8	-1	-1	-0.0022	-0.0003	-0.0003	2.50	PASS
				-10.00	7	5	13	0.0020	0.0014	0.0035	2.50	PASS
				0.00	8	5	-2	0.0022	0.0014	-0.0005	2.50	PASS
				10.00	-9	14	10	-0.0025	0.0039	0.0027	2.50	PASS
				20.00	4	-10	-2	0.0011	-0.0028	-0.0005	2.50	PASS
				30.00	12	13	-15	0.0034	0.0036	-0.0041	2.50	PASS
				40.00	-13	0	-2	-0.0037	0.0000	-0.0005	2.50	PASS
				50.00	11	-2	1	0.0031	-0.0006	0.0003	2.50	PASS

Test Band: 48 _ 20MHz Bandwidth (Frequency Error VS. Voltage)												
Test Mode	RB Allocation		Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	100	0	NT	LV	-4	14	5	-0.0011	0.0039	0.0014	2.50	PASS
				NV	-4	-3	-9	-0.0011	-0.0008	-0.0024	2.50	PASS
				HV	0	15	14	0.0000	0.0041	0.0038	2.50	PASS
16QAM	100	0	NT	LV	14	-7	12	0.0039	-0.0019	0.0033	2.50	PASS
				NV	4	-8	-10	0.0011	-0.0022	-0.0027	2.50	PASS
				HV	14	-8	8	0.0039	-0.0022	0.0022	2.50	PASS
QPSK	100	0	NT	LV	-4	15	-2	-0.0011	0.0041	-0.0005	2.50	PASS
				NV	-13	4	-13	-0.0037	0.0011	-0.0035	2.50	PASS
				HV	-11	0	-2	-0.0031	0.0000	-0.0005	2.50	PASS

Test Band: 48 _ 20MHz Bandwidth (Frequency Error VS. Temperature)												
Test Mode	RB Allocation		Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
	Size	Offset			LCH	MCH	HCH	LCH	MCH	HCH		
64QAM	100	0	NV	-30.00	-3	-12	12	-0.0008	-0.0033	0.0033	2.50	PASS
				-20.00	-15	-13	-2	-0.0042	-0.0036	-0.0005	2.50	PASS
				-10.00	-7	3	0	-0.0020	0.0008	0.0000	2.50	PASS

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				0.00	3	-4	-14	0.0008	-0.0011	-0.0038	2.50	PASS
				10.00	-14	12	11	-0.0039	0.0033	0.0030	2.50	PASS
				20.00	9	-13	5	0.0025	-0.0036	0.0014	2.50	PASS
				30.00	13	-13	-13	0.0037	-0.0036	-0.0035	2.50	PASS
				40.00	-9	13	14	-0.0025	0.0036	0.0038	2.50	PASS
				50.00	9	-13	4	0.0025	-0.0036	0.0011	2.50	PASS
16QAM	100	0	NV	-30.00	13	6	-15	0.0037	0.0017	-0.0041	2.50	PASS
				-20.00	13	-13	-7	0.0037	-0.0036	-0.0019	2.50	PASS
				-10.00	2	2	-7	0.0006	0.0006	-0.0019	2.50	PASS
				0.00	6	-3	14	0.0017	-0.0008	0.0038	2.50	PASS
				10.00	13	2	12	0.0037	0.0006	0.0033	2.50	PASS
				20.00	11	-4	8	0.0031	-0.0011	0.0022	2.50	PASS
				30.00	6	-1	12	0.0017	-0.0003	0.0033	2.50	PASS
				40.00	-14	-15	12	-0.0039	-0.0041	0.0033	2.50	PASS
				50.00	-9	-8	7	-0.0025	-0.0022	0.0019	2.50	PASS
QPSK	100	0	NV	-30.00	13	1	-11	0.0037	0.0003	-0.0030	2.50	PASS
				-20.00	11	-2	-5	0.0031	-0.0006	-0.0014	2.50	PASS
				-10.00	11	0	12	0.0031	0.0000	0.0033	2.50	PASS
				0.00	-15	12	8	-0.0042	0.0033	0.0022	2.50	PASS
				10.00	7	-1	11	0.0020	-0.0003	0.0030	2.50	PASS
				20.00	3	3	-11	0.0008	0.0008	-0.0030	2.50	PASS
				30.00	-11	-1	1	-0.0031	-0.0003	0.0003	2.50	PASS
				40.00	-3	9	-5	-0.0008	0.0025	-0.0014	2.50	PASS
				50.00	8	6	4	0.0022	0.0017	0.0011	2.50	PASS

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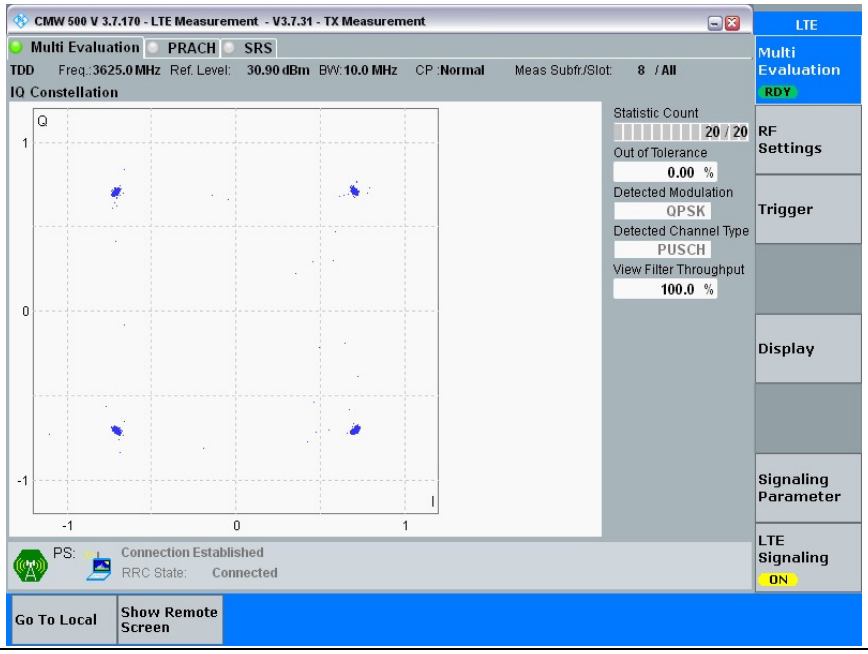
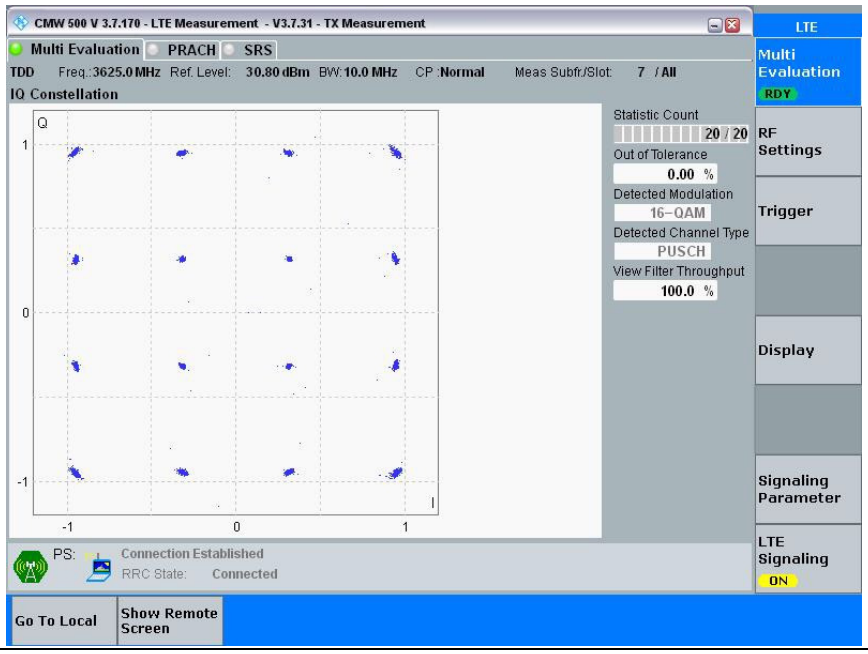
8.2 Modulation Characteristics

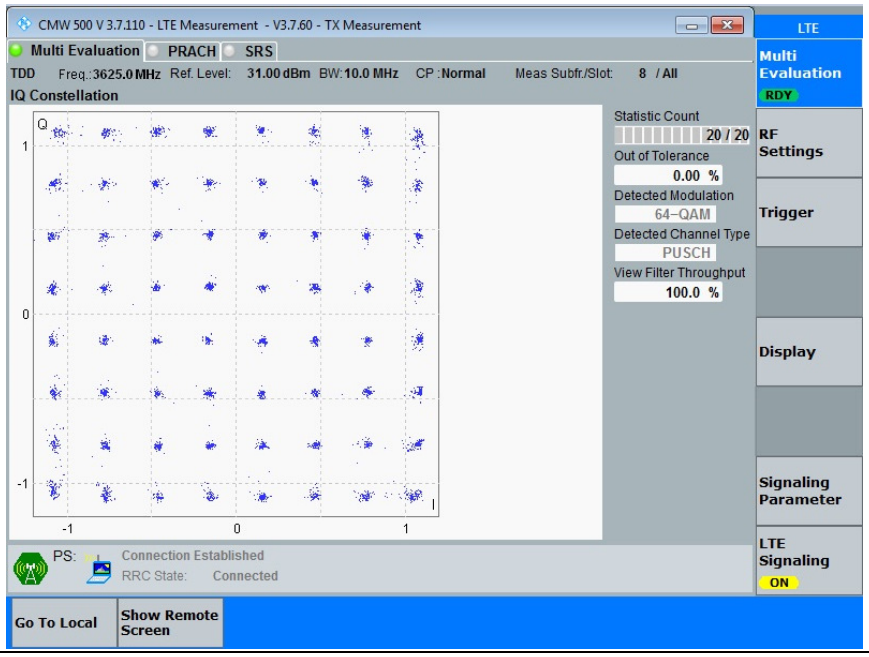
Remark: only recorded worst case of MIMO mode @ant 1.

LTE Band 48 QPSK 10MHz MCH



LTE Band 48 16QAM 10MHz MCH



LTE Band 48 64QAM 10MHz MCH


- End of the Report -