

Report No.: SZEM200800768202

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TEST REPORT

Application No.: SZEM2008007682CR **Applicant:** Airspan Networks Inc

Address of Applicant: 777 Yamato Rd Suite 310, Boca Raton, Florida 33431, United States

Manufacturer: Airspan Networks Inc

Address of Manufacturer: 777 Yamato Rd Suite 310, Boca Raton, Florida 33431, United States

Equipment Under Test (EUT):

EUT Name: B42H/B43L/B48

Model No.: My-Pro-FC-B42H-43L-48-C12-CB

Trademark: Airspan

FCC ID: PIDASPOT5410
Standard(s): 47 CFR Part 2

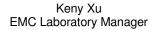
47 CFR Part 96

Date of Receipt: 2020-08-10

Date of Test: 2020-08-11 to 2020-09-03

Date of Issue: 2020-09-07

Test Result: Pass



Ceny. Ku



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



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Revision Record						
Version Chapter Date Modifier Remai						
01		2020-09-07		Original		

Authorized for issue by:		
	Calvin Weng	
	Calvin Weng /Project Engineer	_
	EvicFu	
	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, §96.41	EIRP≤ 47dBm/10MHz PSD≤ 37dBm/MHz (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	0-10 MHz: -13 dBm; 10-operating band edge MHz: -25 dBm; other: -40 dBm	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



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General Information

4.1 Details of E.U.T.

	Adapter Model NO.: G0720-480-050			
Power supply:	Input: 100-240V~50/60Hz, 0.75A			
	Output: 48.0V, 0.5A			
Test voltage:	AC 120V, 60Hz			
Cable:	AC cable: 0.6m unshielded			
Sample Type:	Mobile production			
LTE Operation Frequency Band:	48			
Frequency range:	3550-3700 MHz			
Modulation Type:	UL: QPSK, 16QAM, 64QAM			
імочинаціон Туре.	DL: QPSK, 16QAM, 64QAM, 256QAM			
LTE Release Version:	R11			
LTE Power Class:	Level 3			
CA Capability:	DL 2CA 4x4 MIMO			
	UL 2CA			
	Support Intra-band contiguous/non-contiguous CA and not support UL MIMO			
MIMO:	DL 2x2 (4CA 256QAM)			
	DL 4x4 (2CA 64QAM)			
	Panel Antenna			
Antenna Type:	Ant 4: TX & RX(UL CA)			
Antenna Type.	Ant 3: TX & RX(SISO & UL CA)			
	Ant 2 & 1: RX			
Antenna Gain:	18dBi			
SIM Card:	This device has only one SIM Card sockets.			
Extreme temp. Tolerance:	-30 °C to +50 °C			
Extreme vol. Limits:	40.8VDC to 55.2VDC (nominal: 48.0VDC)			
⊏xtreme vol. Limits:	40.8VDC to 55.2VDC (nominal: 48.0VDC)			



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4.2 **Test Frequency**

	Nominal	RF Channel			
Test mode:	Bandwidth	Low (L)	Middle (M)	High (H)	
	(MHz)	MHz	MHz	MHz	
LTE TDD Band 48	5	3552.5	3625.0	3697.5	
	10	3550.0	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:	TN	25 ℃		
	VL	40.8 V		
Voltage:	VN	48.0 V		
	VH	55.2 V		

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature

4.4 **Description of Support Units**

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800



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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	DE Dadiated naver	± 4.5dB (below 1GHz)
/	RF Radiated power	± 4.8dB (above 1GHz)
8	Radiated Spurious emission test	± 4.5dB (Below 1GHz)
0	nadiated Spurious emission test	± 4.8dB (Above 1GHz)
9	Temperature test	± 1 ℃
10	Humidity test	± 3%
11	Supply voltages	± 1.5%
12	Time	± 3%



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4.6 Test Location

All tests were performed at:

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

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

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

No tests were sub-contracted.

4.7 Test Facility

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

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

· VCC

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

FCC –Designation Number: CN1178

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

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

Innovation, Science and Economic Development Canada

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

CAB identifier: CN0006.

IC#: 4620C.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None



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5 Equipment List

RF 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
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-28	2020-09-27
MXG Vector Signal Generator	KEYSIGHT	N5182A	SEM006-14	2020-03-23	2021-03-22
ESG Vector Signal Generator	KEYSIGHT	E4438C	SEM006-15	2019-09-24	2020-09-23
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
Power Sensor	KEYSIGHT	U2021XA	SEM009-13	2020-04-11	2021-04-10
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23

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	2017-10-17	2020-10-16
Amplifier	HP	8447D	SEM005-02	2019-09-24	2020-09-23



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(0.1-1300MHz)					
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
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
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	IGHz)				
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	2019-12-16	2020-12-15
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement 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 equipmen	General used equipment											
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date							
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25							
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25							
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25							
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06							



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6 Radio Spectrum Matter Test Results

6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §96.41

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

Limit: EIRP≤ 47dBm/10MHz, PSD≤ 37dBm/MHz (LTE Band 48)

6.1.1 E.U.T. Operation

Operating Environment:

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

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



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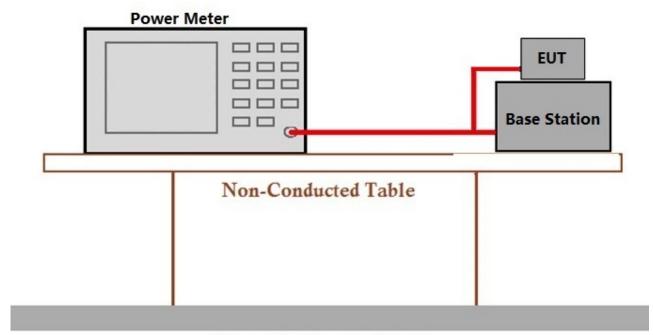
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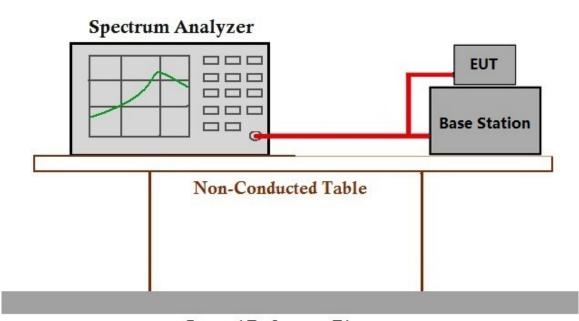
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6.1.2 **Test Setup Diagram**



Ground Reference Plane

Test setup for Power measurement



Ground Reference Plane

Test setup for PSD measurement



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6.1.3 Measurement Data

Please refer to Appendix A-Output power



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6.2 Peak-Average Ratio

Test Requirement: §96.41

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

Limit: ≤13dB

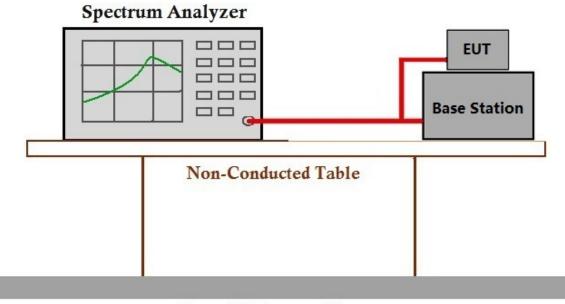
6.2.1 E.U.T. Operation

Operating Environment:

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

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

6.2.2 Test Setup Diagram



Ground Reference Plane

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)

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

Limit: **OBW:** No limit EBW: No limit

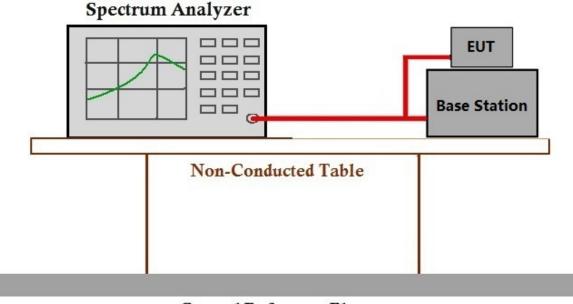
6.3.1 **E.U.T. Operation**

Operating Environment:

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

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

6.3.2 Test Setup Diagram



Ground Reference Plane

6.3.3 **Measurement Data**

Please refer to Appendix C- Bandwidth



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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 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.

6.4.1 E.U.T. Operation

Operating Environment:

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

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



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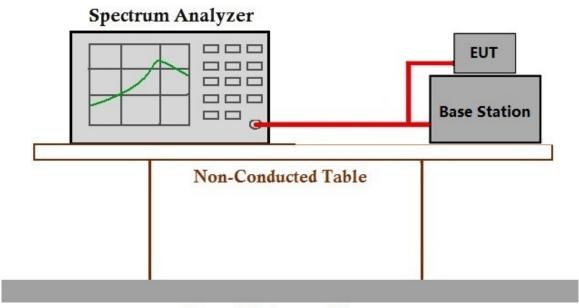
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Test Setup Diagram 6.4.2



Ground Reference Plane

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, §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

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.

combined contiguous channels.

6.5.1 E.U.T. Operation

Operating Environment:

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

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



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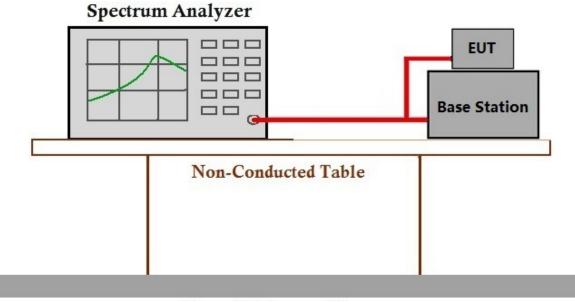
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6.5.2 **Test Setup Diagram**



Ground Reference Plane

6.5.3 **Measurement Data**

Please refer to Appendix D- Spurious emissions at antenna terminals



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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.

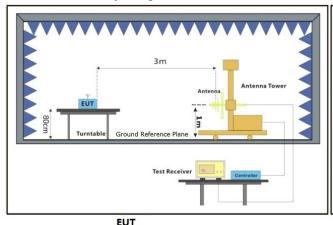
6.6.1 **E.U.T. Operation**

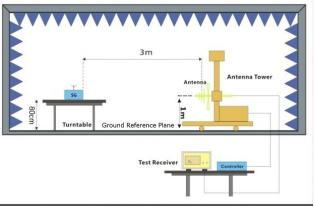
Operating Environment:

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

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

6.6.2 **Test Setup Diagram**





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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		LT	E Band 48_Q	PSK_5MH	z_Low Char	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7105	-61.5	1	12.9	-49.6	-40	-9.6	Horizontal	Pass
10657.5	-63.99	1.49	13.5	-51.98	-40	-11.98	Horizontal	Pass
14210	-63.39	1.67	13.6	-51.46	-40	-11.46	Horizontal	Pass
7105	-61.08	1	12.9	-49.18	-40	-9.18	Vertical	Pass
10657.5	-64.5	1.49	13.5	-52.49	-40	-12.49	Vertical	Pass
14210	-63.27	1.67	13.6	-51.34	-40	-11.34	Vertical	Pass

		LTE	Band 48_QP	SK_5MHz	_Middle Cha	annel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7250	-61.23	1	12.9	-49.33	-40	-9.33	Horizontal	Pass
10875	-64.11	1.49	13.5	-52.1	-40	-12.1	Horizontal	Pass
14500	-60.54	1.37	12.4	-49.51	-40	-9.51	Horizontal	Pass
7250	-60.14	1	12.9	-48.24	-40	-8.24	Vertical	Pass
10875	-64.18	1.49	13.5	-52.17	-40	-12.17	Vertical	Pass
14500	-60.33	1.37	12.4	-49.3	-40	-9.3	Vertical	Pass

		LT	E Band 48_Q	PSK_5MH	z_High Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7395	-60.02	1	12.9	-48.12	-40	-8.12	Horizontal	Pass
11092.5	-61.5	1.59	13.6	-49.49	-40	-9.49	Horizontal	Pass
14790	-57.12	1.37	12.4	-46.09	-40	-6.09	Horizontal	Pass
7395	-60.26	1	12.9	-48.36	-40	-8.36	Vertical	Pass
11092.5	-61.29	1.59	13.6	-49.28	-40	-9.28	Vertical	Pass
14790	-57.63	1.37	12.4	-46.6	-40	-6.6	Vertical	Pass



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		LTI	E Band 48_QF	PSK_10MH	Hz_Low Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7110	-60.95	1	12.9	-49.05	-40	-9.05	Horizontal	Pass
10665	-63.09	1.49	13.5	-51.08	-40	-11.08	Horizontal	Pass
14220	-62.43	1.67	13.6	-50.5	-40	-10.5	Horizontal	Pass
7110	-60.9	1	12.9	-49	-40	-9	Vertical	Pass
10665	-63.75	1.49	13.5	-51.74	-40	-11.74	Vertical	Pass
14220	-62.6	1.67	13.6	-50.67	-40	-10.67	Vertical	Pass

		LTE	Band 48_QPS	SK_10MH	z_Middle Ch	annel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7250	-74.44	1	12.9	-62.54	-40	-22.54	Horizontal	Pass
10875	-84.1	1.49	13.5	-72.09	-40	-32.09	Horizontal	Pass
14500	-80.99	1.37	12.4	-69.96	-40	-29.96	Horizontal	Pass
7250	-74.6	1	12.9	-62.7	-40	-22.7	Vertical	Pass
10875	-84.96	1.49	13.5	-72.95	-40	-32.95	Vertical	Pass
14500	-80.16	1.37	12.4	-69.13	-40	-29.13	Vertical	Pass

		LTE	E Band 48 QF	PSK 10MF	Hz High Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7390	-60.98	1	12.9	-49.08	-40	-9.08	Horizontal	Pass
11085	-62.72	1.59	13.6	-50.71	-40	-10.71	Horizontal	Pass
14780	-57.86	1.37	12.4	-46.83	-40	-6.83	Horizontal	Pass
7390	-61.38	1	12.9	-49.48	-40	-9.48	Vertical	Pass
11085	-63.38	1.59	13.6	-51.37	-40	-11.37	Vertical	Pass
14780	-58.1	1.37	12.4	-47.07	-40	-7.07	Vertical	Pass



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		LTI	E Band 48_QF	PSK_15MH	Hz_Low Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7115	-62.12	1	12.9	-50.22	-40	-10.22	Horizontal	Pass
10672.5	-64.23	1.49	13.5	-52.22	-40	-12.22	Horizontal	Pass
14230	-62.82	1.67	13.6	-50.89	-40	-10.89	Horizontal	Pass
7115	-62.02	1	12.9	-50.12	-40	-10.12	Vertical	Pass
10672.5	-63.31	1.49	13.5	-51.3	-40	-11.3	Vertical	Pass
14230	-63.07	1.67	13.6	-51.14	-40	-11.14	Vertical	Pass

	LTE Band 48_QPSK_15MHz_Middle Channel												
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result					
7250	-61.5	1	12.9	-49.6	-40	-9.6	Horizontal	Pass					
10875	-62.79	1.49	13.5	-50.78	-40	-10.78	Horizontal	Pass					
14500	-61.04	1.37	12.4	-50.01	-40	-10.01	Horizontal	Pass					
7250	-61.07	1	12.9	-49.17	-40	-9.17	Vertical	Pass					
10875	-64.17	1.49	13.5	-52.16	-40	-12.16	Vertical	Pass					
14500	-60.26	1.37	12.4	-49.23	-40	-9.23	Vertical	Pass					

		LTE	E Band 48_QF	PSK 15MF	Hz High Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7385	-61.78	1	12.9	-49.88	-40	-9.88	Horizontal	Pass
11077.5	-61.53	1.59	13.6	-49.52	-40	-9.52	Horizontal	Pass
14770	-57.2	1.37	12.4	-46.17	-40	-6.17	Horizontal	Pass
7385	-61.13	1	12.9	-49.23	-40	-9.23	Vertical	Pass
11077.5	-61.02	1.59	13.6	-49.01	-40	-9.01	Vertical	Pass
14770	-57.71	1.37	12.4	-46.68	-40	-6.68	Vertical	Pass



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		LTI	E Band 48_QF	PSK_20MF	Hz_Low Cha	nnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7120	-61.25	1	12.9	-49.35	-40	-9.35	Horizontal	Pass
10680	-62.98	1.49	13.5	-50.97	-40	-10.97	Horizontal	Pass
14240	-62.15	1.67	13.6	-50.22	-40	-10.22	Horizontal	Pass
7120	-60.09	1	12.9	-48.19	-40	-8.19	Vertical	Pass
10680	-64.07	1.49	13.5	-52.06	-40	-12.06	Vertical	Pass
14240	-63.1	1.67	13.6	-51.17	-40	-11.17	Vertical	Pass

		LTE	Band 48_QPS	SK_20MH	z_Middle Ch	annel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7250	-61.3	1	12.9	-49.4	-40	-9.4	Horizontal	Pass
10875	-64.07	1.49	13.5	-52.06	-40	-12.06	Horizontal	Pass
14500	-60.97	1.37	12.4	-49.94	-40	-9.94	Horizontal	Pass
7250	-60.24	1	12.9	-48.34	-40	-8.34	Vertical	Pass
10875	-63.19	1.49	13.5	-51.18	-40	-11.18	Vertical	Pass
14500	-60.95	1.37	12.4	-49.92	-40	-9.92	Vertical	Pass

		LTE	E Band 48_QF	PSK_20MF	lz_High Cha	ınnel		
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7380	-60.27	1	12.9	-48.37	-40	-8.37	Horizontal	Pass
11070	-61.77	1.59	13.6	-49.76	-40	-9.76	Horizontal	Pass
14760	-57.39	1.37	12.4	-46.36	-40	-6.36	Horizontal	Pass
7380	-60.45	1	12.9	-48.55	-40	-8.55	Vertical	Pass
11070	-62.11	1.59	13.6	-50.1	-40	-10.1	Vertical	Pass
14760	-57.3	1.37	12.4	-46.27	-40	-6.27	Vertical	Pass



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	LTE E	Band 48_QPSh	<_ Intra-band (CA non-co	ntiguous_5+	5MHz _Low	/ Channel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7105	-60.66	1	12.9	-48.76	-40	-8.76	Horizontal	Pass
10657.5	-64.53	1.49	13.5	-52.52	-40	-12.52	Horizontal	Pass
14210	-63.34	1.67	13.6	-51.41	-40	-11.41	Horizontal	Pass
7105	-60.34	1	12.9	-48.44	-40	-8.44	Vertical	Pass
10657.5	-64.79	1.49	13.5	-52.78	-40	-12.78	Vertical	Pass
14210	-62.98	1.67	13.6	-51.05	-40	-11.05	Vertical	Pass

	LTE Ba	ind 48_QPSK_	_Intra-band Ca	A non-con	tiguous_5+5	MHz _ Mido	lle Channel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7250	-62.02	1	12.9	-50.12	-40	-10.12	Horizontal	Pass
10875	-64.18	1.49	13.5	-52.17	-40	-12.17	Horizontal	Pass
14500	-61.15	1.37	12.4	-50.12	-40	-10.12	Horizontal	Pass
7250	-61.37	1	12.9	-49.47	-40	-9.47	Vertical	Pass
10875	-64.05	1.49	13.5	-52.04	-40	-12.04	Vertical	Pass
14500	-60.9	1.37	12.4	-49.87	-40	-9.87	Vertical	Pass

	LTE B	and 48_QPSK	_ Intra-band (CA non-co	ntiguous_5+	5MHz _ Hig	h Channel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7395	-61.45	1	12.9	-49.55	-40	-9.55	Horizontal	Pass
11092.5	-61.1	1.59	13.6	-49.09	-40	-9.09	Horizontal	Pass
14790	-57.66	1.37	12.4	-46.63	-40	-6.63	Horizontal	Pass
7395	-60.35	1	12.9	-48.45	-40	-8.45	Vertical	Pass
11092.5	-62.05	1.59	13.6	-50.04	-40	-10.04	Vertical	Pass
14790	-56.92	1.37	12.4	-45.89	-40	-5.89	Vertical	Pass



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	LTI	E Band 48_QF	SK_ Intra-bar	nd CA cont	iguous_5+5	MHz Low C	hannel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7105	-61.92	1	12.9	-50.02	-40	-10.02	Horizontal	Pass
10657.5	-64.99	1.49	13.5	-52.98	-40	-12.98	Horizontal	Pass
14210	-63.69	1.67	13.6	-51.76	-40	-11.76	Horizontal	Pass
7105	-59	1	12.9	-47.1	-40	-7.1	Vertical	Pass
10657.5	-65.23	1.49	13.5	-53.22	-40	-13.22	Vertical	Pass
14210	-62.51	1.67	13.6	-50.58	-40	-10.58	Vertical	Pass

	LTE	Band 48_QPS	SK_ Intra-band	CA contig	guous_5+5 N	MHz Middle	Channel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7250	-60.19	1	12.9	-48.29	-40	-8.29	Horizontal	Pass
10875	-62.43	1.49	13.5	-50.42	-40	-10.42	Horizontal	Pass
14500	-61.29	1.37	12.4	-50.26	-40	-10.26	Horizontal	Pass
7250	-60.01	1	12.9	-48.11	-40	-8.11	Vertical	Pass
10875	-64.02	1.49	13.5	-52.01	-40	-12.01	Vertical	Pass
14500	-60.61	1.37	12.4	-49.58	-40	-9.58	Vertical	Pass

	LTE	Band 48_QP	SK_ Intra-ban	d CA cont	iguous_5+5	MHz High C	Channel	
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
7395	-60.59	1	12.9	-48.69	-40	-8.69	Horizontal	Pass
11092.5	-61.53	1.59	13.6	-49.52	-40	-9.52	Horizontal	Pass
14790	-57.77	1.37	12.4	-46.74	-40	-6.74	Horizontal	Pass
7395	-61.65	1	12.9	-49.75	-40	-9.75	Vertical	Pass
11092.5	-61.7	1.59	13.6	-49.69	-40	-9.69	Vertical	Pass
14790	-57.36	1.37	12.4	-46.33	-40	-6.33	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+5MHz 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

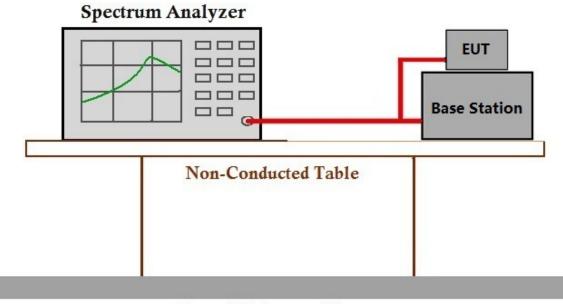
6.7.1 **E.U.T. Operation**

Operating Environment:

Temperature: Humidity: 68.2 % RH Atmospheric Pressure: 1030 mbar

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

6.7.2 Test Setup Diagram



Ground Reference Plane

6.7.3 **Measurement Data**

Please refer to Appendix F



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6.8 Modulation Characteristics

Test Requirement: §2.1047

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

Limit: Digital modulation

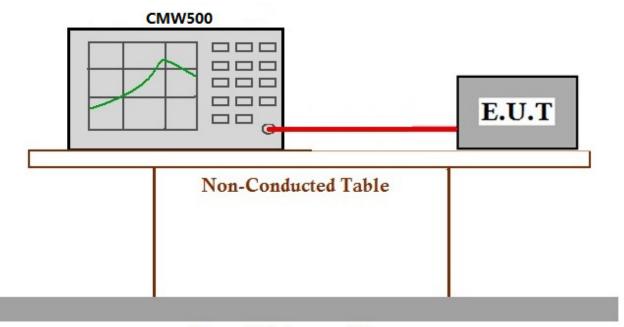
6.8.1 E.U.T. Operation

Operating Environment:

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

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

6.8.2 Test Setup Diagram



Ground Reference Plane

6.8.3 Measurement Data

Please refer to Appendix F



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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.



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8 Appendix F

8.1 Frequency stability

		Т	est Banc	d: 48 _ 5	MHz Baı	ndwidth	(Frequer	ncy Error \	VS. Voltaç	ge)		
Test	RB All	ocation	Test	Test	Free	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	Vordict
Mode	Size	Offset	Temp.	Volt.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict
				LV	-7	-4	-7	-0.0020	-0.0011	-0.0020	2.50	PASS
64QAM	25	0	NT	NV	5	-3	-3	0.0014	-0.0007	-0.0008	2.50	PASS
				HV	0	-7	-4	0.0000	-0.0020	-0.0010	2.50	PASS
				LV	-2	5	-8	-0.0005	0.0014	-0.0022	2.50	PASS
16QAM	25	0	NT	NV	-8	0	5	-0.0022	0.0000	0.0014	2.50	PASS
				HV	-4	-5	-5	-0.0012	-0.0015	-0.0013	2.50	PASS
				LV	-6	7	8	-0.0018	0.0020	0.0022	2.50	PASS
QPSK	25	0	NT	NV	-8	4	4	-0.0022	0.0012	0.0010	2.50	PASS
				HV	3	-4	3	0.0009	-0.0012	0.0008	2.50	PASS

		Test	Band: 4	48 _ 5MH	Iz Bandv	width (Fr	equency	Error VS	. Tempera	ature)								
Test	RB All	ocation	Test	Test	Free	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	Vordict						
Mode	Size	Offset	Volt.	Temp.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict						
				-30.00	-2	-4	5	-0.0005	-0.0011	0.0012	2.50	PASS						
				-20.00	-7	4	-3	-0.0021	0.0011	-0.0007	2.50	PASS						
				-10.00	3	5	1	0.0008	0.0015	0.0003	2.50	PASS						
				0.00	-2	-4	4	-0.0004	-0.0012	0.0010	2.50	PASS						
64QAM	25	0	NV	10.00	3	-7	3	0.0009	-0.0019	0.0009	2.50	PASS						
				20.00	-1	-5	6	-0.0004	-0.0015	0.0017	2.50	PASS						
				30.00	-1	-8	2	-0.0002	-0.0021	0.0005	2.50	PASS						
				40.00	-3	-4	-7	-0.0008	-0.0011	-0.0020	2.50	PASS						
				50.00	7	3	6	0.0020	0.0008	0.0017	2.50	PASS						
				-30.00	7	7	-3	0.0020	0.0019	-0.0007	2.50	PASS						
										-20.00	-3	8	8	-0.0009	0.0023	0.0021	2.50	PASS
				-10.00	8	3	5	0.0023	0.0009	0.0013	2.50	PASS						
				0.00	0	-2	5	0.0001	-0.0006	0.0014	2.50	PASS						
16QAM	25	0	NV	10.00	-1	-8	9	-0.0003	-0.0021	0.0024	2.50	PASS						
				20.00	2	0	3	0.0006	0.0001	0.0007	2.50	PASS						
				30.00	1	1	-7	0.0002	0.0003	-0.0019	2.50	PASS						
				40.00	2	-8	1	0.0007	-0.0022	0.0002	2.50	PASS						
				50.00	-7	7	-1	-0.0019	0.0020	-0.0003	2.50	PASS						



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				-30.00	3	-1	-7	0.0010	-0.0004	-0.0018	2.50	PASS	
				-20.00	2	-9	6	0.0007	-0.0023	0.0016	2.50	PASS	
				-10.00	-8	0	9	-0.0021	-0.0001	0.0024	2.50	PASS	
				0.00	-1	-8	3	-0.0002	-0.0023	0.0009	2.50	PASS	
QPSK	25	25 0	NV	10.00	5	2	6	0.0015	0.0005	0.0017	2.50	PASS	
				20.00	-2	-3	4	-0.0005	-0.0009	0.0012	2.50	PASS	
					30.00	0	-7	9	0.0000	-0.0019	0.0024	2.50	PASS
				40.00	-8	-4	-3	-0.0022	-0.0012	-0.0009	2.50	PASS	
				50.00	-5	-3	2	-0.0013	-0.0007	0.0006	2.50	PASS	

	Test Band: 48 _ 10MHz Bandwidth (Frequency Error VS. Voltage)														
Test	RB All	ocation	Test	Test	Free	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	\/oudist			
Mode	Size	Offset	Temp.	Volt.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict			
				LV	-2	7	-4	-0.0006	0.0019	-0.0012	2.50	PASS			
64QAM	50	0	NT	NV	-5	7	-6	-0.0014	0.0019	-0.0017	2.50	PASS			
				HV	-5	-3	7	-0.0014	-0.0007	0.0019	2.50	PASS			
				LV	-3	-6	7	-0.0007	-0.0015	0.0018	2.50	PASS			
16QAM	50	0	NT	NV	-3	2	-3	-0.0008	0.0006	-0.0009	2.50	PASS			
				HV	-2	0	0	-0.0007	0.0001	0.0000	2.50	PASS			
				LV	2	-6	8	0.0007	-0.0016	0.0022	2.50	PASS			
QPSK	50	0	NT	NV	4	-1	0	0.0011	-0.0002	0.0000	2.50	PASS			
				HV	-6	-3	-8	-0.0018	-0.0009	-0.0021	2.50	PASS			

		Test	Band: 4	8 _ 10MI	Hz Band	width (F	requency	y Error VS	3. Temper	ature)		
Test	RB All	ocation	Test	Test	Free	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	Verdict
Mode	Size	Offset	Volt.	Temp.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict
				-30.00	7	1	-4	0.0019	0.0002	-0.0010	2.50	PASS
				-20.00	5	-9	-6	0.0013	-0.0024	-0.0015	2.50	PASS
				-10.00	-2	-2	9	-0.0006	-0.0005	0.0023	2.50	PASS
				0.00	6	-4	1	0.0018	-0.0011	0.0003	2.50	PASS
64QAM	50	0	NV	10.00	4	-4	5	0.0012	-0.0012	0.0013	2.50	PASS
				20.00	1	8	9	0.0004	0.0022	0.0024	2.50	PASS
				30.00	6	1	-4	0.0017	0.0001	-0.0012	2.50	PASS
				40.00	8	-3	-1	0.0021	-0.0008	-0.0002	2.50	PASS
				50.00	1	-2	6	0.0002	-0.0005	0.0016	2.50	PASS
				-30.00	3	6	3	0.0009	0.0018	0.0008	2.50	PASS
100011	50	0	NIV/	-20.00	5	-3	-6	0.0014	-0.0009	-0.0016	2.50	PASS
16QAM	50	0	NV -	-10.00	8	-3	6	0.0023	-0.0009	0.0015	2.50	PASS
				0.00	5	-4	-8	0.0015	-0.0012	-0.0021	2.50	PASS



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			1									
				10.00	7	-8	8	0.0019	-0.0023	0.0022	2.50	PASS
				20.00	1	-6	-6	0.0001	-0.0016	-0.0017	2.50	PASS
				30.00	3	5	1	0.0008	0.0015	0.0004	2.50	PASS
				40.00	-7	-6	7	-0.0019	-0.0017	0.0019	2.50	PASS
				50.00	-4	8	-7	-0.0010	0.0022	-0.0020	2.50	PASS
				-30.00	0	2	4	-0.0001	0.0005	0.0012	2.50	PASS
				-20.00	2	-5	1	0.0005	-0.0015	0.0003	2.50	PASS
				-10.00	8	5	-7	0.0023	0.0015	-0.0020	2.50	PASS
				0.00	5	5	1	0.0013	0.0013	0.0004	2.50	PASS
QPSK	50	0	NV	10.00	-4	-2	5	-0.0012	-0.0004	0.0014	2.50	PASS
				20.00	0	-6	6	0.0001	-0.0016	0.0017	2.50	PASS
				30.00	-7	8	3	-0.0020	0.0021	0.0009	2.50	PASS
				40.00	-2	-2	2	-0.0006	-0.0006	0.0006	2.50	PASS
				50.00	1	-8	3	0.0003	-0.0022	0.0007	2.50	PASS

	Test Band: 48 _ 15MHz Bandwidth (Frequency Error VS. Voltage)														
Test	RB All	ocation	Test	Test	Fre	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	Verdict			
Mode	Size	Offset	Temp.	Volt.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	verdict			
				LV	3	-7	-6	0.0009	-0.0020	-0.0017	2.50	PASS			
64QAM	75	0	NT	NV	2	-1	-4	0.0006	-0.0004	-0.0011	2.50	PASS			
				HV	-8	0	7	-0.0023	-0.0001	0.0018	2.50	PASS			
				LV	7	-4	-9	0.0020	-0.0011	-0.0023	2.50	PASS			
16QAM	75	0	NT	NV	-4	-5	-2	-0.0012	-0.0015	-0.0007	2.50	PASS			
				HV	9	0	-7	0.0025	0.0000	-0.0018	2.50	PASS			
				LV	8	3	6	0.0023	0.0009	0.0018	2.50	PASS			
QPSK	75	0) NT	NV	9	7	-1	0.0025	0.0018	-0.0003	2.50	PASS			
				HV	-8	2	-4	-0.0023	0.0004	-0.0012	2.50	PASS			

	Test Band: 48 _ 15MHz Bandwidth (Frequency Error VS. Temperature)														
Test	RB All	ocation	Test	Test	Free	q. Error ((Hz)	Freq.	vs. rated	(ppm)	Limit	Vordict			
Mode	Size	Offset	Volt.	Temp.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict			
				-30.00	-4	6	-6	-0.0012	0.0017	-0.0016	2.50	PASS			
			NV -	-20.00	4	6	-8	0.0010	0.0016	-0.0022	2.50	PASS			
		0		-10.00	1	5	-5	0.0004	0.0015	-0.0013	2.50	PASS			
64001	75			0.00	-6	5	7	-0.0017	0.0013	0.0019	2.50	PASS			
64QAM	75			10.00	-2	3	-4	-0.0005	0.0007	-0.0011	2.50	PASS			
				20.00	3	-8	-7	0.0008	-0.0021	-0.0020	2.50	PASS			
				30.00	3	-4	3	0.0009	-0.0010	0.0009	2.50	PASS			
				40.00	-5	3	8	-0.0015	0.0008	0.0023	2.50	PASS			



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								1				
				50.00	6	1	6	0.0016	0.0002	0.0016	2.50	PASS
				-30.00	6	-5	5	0.0016	-0.0013	0.0014	2.50	PASS
				-20.00	1	0	-2	0.0003	0.0000	-0.0005	2.50	PASS
				-10.00	0	-5	-3	0.0000	-0.0015	-0.0008	2.50	PASS
				0.00	0	2	-2	-0.0001	0.0006	-0.0007	2.50	PASS
16QAM	75	0	NV	10.00	-1	1	7	-0.0001	0.0002	0.0019	2.50	PASS
				20.00	-1	8	-5	-0.0002	0.0022	-0.0013	2.50	PASS
				30.00	7	0	-4	0.0021	0.0000	-0.0012	2.50	PASS
				40.00	-5	-3	-5	-0.0015	-0.0009	-0.0012	2.50	PASS
				50.00	-8	-4	7	-0.0022	-0.0012	0.0019	2.50	PASS
				-30.00	3	0	9	0.0008	0.0000	0.0024	2.50	PASS
				-20.00	-6	2	1	-0.0016	0.0006	0.0003	2.50	PASS
				-10.00	2	0	0	0.0005	0.0001	0.0001	2.50	PASS
				0.00	-6	-4	8	-0.0017	-0.0011	0.0021	2.50	PASS
QPSK	75	0	NV	10.00	-7	-7	-8	-0.0020	-0.0019	-0.0023	2.50	PASS
				20.00	-9	-8	9	-0.0025	-0.0021	0.0023	2.50	PASS
				30.00	-1	6	-3	-0.0003	0.0017	-0.0009	2.50	PASS
				40.00	8	-3	-4	0.0023	-0.0008	-0.0011	2.50	PASS
				50.00	-7	-8	-7	-0.0018	-0.0022	-0.0018	2.50	PASS

	Test Band: 48 _ 20MHz Bandwidth (Frequency Error VS. Voltage)														
Test	RB All	ocation	Test	Test	Free	q. Error (Hz)	Freq.	vs. rated	(ppm)	Limit	Vordict			
Mode	Size	Offset	Temp.	Volt.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	Verdict			
			NT	LV	6	4	-6	0.0018	0.0012	-0.0015	2.50	PASS			
64QAM	100	0		NV	9	8	-2	0.0025	0.0021	-0.0004	2.50	PASS			
				HV	8	8	-5	0.0023	0.0023	-0.0015	2.50	PASS			
				LV	-2	-6	-3	-0.0007	-0.0016	-0.0007	2.50	PASS			
16QAM	100	0	NT	NV	7	-6	2	0.0019	-0.0016	0.0006	2.50	PASS			
				HV	6	-9	-2	0.0018	-0.0024	-0.0005	2.50	PASS			
				LV	3	0	-4	0.0009	0.0001	-0.0012	2.50	PASS			
QPSK	100	0) NT	NV	-2	4	0	-0.0007	0.0011	0.0001	2.50	PASS			
					HV	-2	4	-6	-0.0005	0.0011	-0.0016	2.50	PASS		

	Test Band: 48 _ 20MHz Bandwidth (Frequency Error VS. Temperature)														
Test	RB Allocation Tes		Test	Test Freq. Error (Hz)			Freq.	vs. rated	(ppm)	Limit	Verdict				
Mode	Size	Offset	Volt.	Temp.	LCH	MCH	HCH	LCH	MCH	HCH	(ppm)	verdict			
				-30.00	-2	7	6	-0.0006	0.0020	0.0015	2.50	PASS			
64QAM	100	0	NV	-20.00	-1	4	-1	-0.0002	0.0010	-0.0004	2.50	PASS			
				-10.00	8	-7	5	0.0021	-0.0019	0.0013	2.50	PASS			



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			0.00	7	-9	2	0.0019	-0.0024	0.0007	2.50	PASS
			10.00	1	4	2	0.0002	0.0010	0.0004	2.50	PASS
			20.00	-8	1	-1	-0.0021	0.0002	-0.0001	2.50	PASS
			30.00	-6	4	2	-0.0017	0.0012	0.0005	2.50	PASS
			40.00	-4	7	3	-0.0010	0.0018	0.0009	2.50	PASS
			50.00	0	7	0	0.0000	0.0019	0.0000	2.50	PASS
			-30.00	-5	3	-2	-0.0013	0.0007	-0.0006	2.50	PASS
			-20.00	-8	-6	-1	-0.0022	-0.0015	-0.0004	2.50	PASS
			-10.00	1	-3	8	0.0004	-0.0008	0.0021	2.50	PASS
			0.00	-5	-7	5	-0.0013	-0.0019	0.0012	2.50	PASS
100	0	NV	10.00	-7	5	-5	-0.0018	0.0014	-0.0013	2.50	PASS
			20.00	-6	7	-6	-0.0017	0.0019	-0.0017	2.50	PASS
			30.00	-6	7	-2	-0.0016	0.0020	-0.0007	2.50	PASS
			40.00	9	-4	0	0.0024	-0.0012	0.0000	2.50	PASS
			50.00	8	-5	3	0.0023	-0.0015	0.0009	2.50	PASS
			-30.00	5	-3	-8	0.0013	-0.0008	-0.0022	2.50	PASS
			-20.00	-4	-1	-8	-0.0011	-0.0003	-0.0023	2.50	PASS
			-10.00	-2	9	8	-0.0006	0.0024	0.0022	2.50	PASS
			0.00	-8	6	-5	-0.0023	0.0016	-0.0014	2.50	PASS
100	0	NV	10.00	-8	-9	7	-0.0023	-0.0024	0.0018	2.50	PASS
			20.00	3	-3	-3	0.0007	-0.0009	-0.0007	2.50	PASS
			30.00	8	1	-1	0.0022	0.0004	-0.0002	2.50	PASS
			40.00	6	-9	8	0.0017	-0.0024	0.0022	2.50	PASS
			50.00	5	4	-3	0.0013	0.0011	-0.0007	2.50	PASS
				10.00 20.00 30.00 40.00 50.00 -20.00 -10.00 0.00 100 0 NV 10.00 20.00 30.00 40.00 50.00 -20.00 -10.00 0.00 100 0 0 0 0 0 0 0 0 0 0 0 0 0	10.00 1 20.00 -8 30.00 -6 40.00 -4 50.00 0 -30.00 -5 -20.00 -8 -10.00 1 0.00 -5 -10.00 1 0.00 -5 -20.00 -6 30.00 -6 40.00 9 50.00 8 -30.00 5 -20.00 -4 -10.00 -2 0.00 -8 100 0 NV 10.00 -8 20.00 3 30.00 8 40.00 6	10.00 1 4 20.00 -8 1 30.00 -6 4 40.00 -4 7 50.00 0 7 50.00 -5 3 -20.00 -8 -6 -10.00 1 -3 0.00 -5 -7 10.00 1 -3 0.00 -5 -7 10.00 -7 5 20.00 -6 7 30.00 -6 7 40.00 9 -4 50.00 8 -5 -3 -20.00 -4 -1 -10.00 -2 9 0.00 -8 6 10.00 -8 6 10.00 -8 -9 20.00 3 -3 30.00 8 1 40.00 6 -9	100 0 1 4 2 20.00 -8 1 -1 30.00 -6 4 2 40.00 -4 7 3 50.00 0 7 0 -30.00 -5 3 -2 -20.00 -8 -6 -1 -10.00 1 -3 8 0.00 -5 -7 5 -7 5 20.00 -6 7 -6 30.00 -6 7 -6 30.00 -6 7 -2 40.00 9 -4 0 50.00 8 -5 3 -30.00 5 -3 -8 -20.00 -4 -1 -8 -10.00 -2 9 8 0.00 -8 6 -5 100 0 NV 10.00 -8 -9 8	10.00	10.00	100 0 1 4 2 0.0002 0.0010 0.0004 20.00 -8 1 -1 -0.0021 0.0002 -0.0001 30.00 -6 4 2 -0.0017 0.0012 0.0005 40.00 -4 7 3 -0.0010 0.0018 0.0009 50.00 0 7 0 0.0000 0.0019 0.0000 -20.00 -8 -6 -1 -0.0022 -0.0015 -0.0004 -10.00 1 -3 8 0.0004 -0.0008 0.0021 0.00 -5 -7 5 -0.0013 -0.0019 0.0012 0.00 -5 -7 5 -0.0013 -0.0019 0.0012 100 0 NV 10.00 -7 5 -5 -5 -0.0013 -0.0019 0.0012 20.00 -6 7 -6 -0.0017 0.0019 -0.0017 30.00 -6 7 -2 -0.0016 0.0020 -0.0007 40.00 9 -4 0 0.0024 -0.0012 0.0000 50.00 8 -5 3 0.0023 -0.0015 0.0009 -20.00 -4 -1 -8 -0.0011 -0.0003 -0.0022 -20.00 -4 -1 -8 -0.0011 -0.0003 -0.0022 -20.00 -4 -1 -8 -0.0011 -0.0003 -0.0022 0.00 -8 6 -5 -0.0023 0.0016 -0.0014 100 0 NV 10.00 -8 -9 8 0.0007 -0.0009 -0.0007 30.00 8 1 -1 0.0022 0.0004 -0.0012 0.000 -8 6 -5 -0.0023 0.0016 -0.0014 20.00 3 -3 -3 -3 0.0007 -0.0029 -0.0007 30.00 8 1 -1 0.0022 0.0004 -0.0002 40.00 9 8 0.0017 -0.0024 0.0002	100 0 1 4 2 0.0002 0.0010 0.0004 2.50 20.00 -8 1 -1 -1 -0.0021 0.0002 -0.0001 2.50 30.00 -6 4 2 -0.0017 0.0012 0.0005 2.50 40.00 -4 7 3 -0.0010 0.0018 0.0009 2.50 50.00 0 7 0 0.0000 0.0019 0.0000 2.50 -20.00 -5 3 -2 -0.0013 0.0007 -0.0006 2.50 -20.00 -8 -6 -1 -0.0022 -0.0015 -0.0004 2.50 -10.00 1 -3 8 0.0004 -0.0008 0.0021 2.50 0.00 -5 -7 5 -0.0013 0.0007 0.0019 0.0012 2.50 0.00 -5 -7 5 -0.0013 0.0019 0.0012 2.50 0.00 -6 7 -6 -0.0013 0.0014 0.0013 2.50 0.00 -6 7 -2 -0.0016 0.0020 -0.0017 2.50 0.00 9 -4 0 0.0024 -0.0012 0.0000 2.50 0.00 9 -4 0 0.0024 -0.0012 0.0000 2.50 0.00 8 -5 3 0.0023 -0.0015 0.0009 2.50 0.00 8 -5 3 0.0023 -0.0015 0.0009 2.50 0.00 9 -4 0.0013 0.0014 0.0003 0.0022 2.50 0.00 -4 -1 -8 0.0013 -0.0008 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 -8 6 -5 0.0023 0.0016 0.0022 2.50 0.00 3 -3 -3 -3 0.0007 0.0009 0.0007 2.50 0.00 3 0.00 8 1 -1 0.0022 0.0004 0.0022 2.50 0.00 3 -3 -3 -3 0.0007 0.0009 0.0007 2.50 0.00 8 1 -1 0.0022 0.0004 0.0022 2.50 0.00 8 1 -1 0.0022 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.0022 2.50 0.0004 0.00022 2.50 0.00



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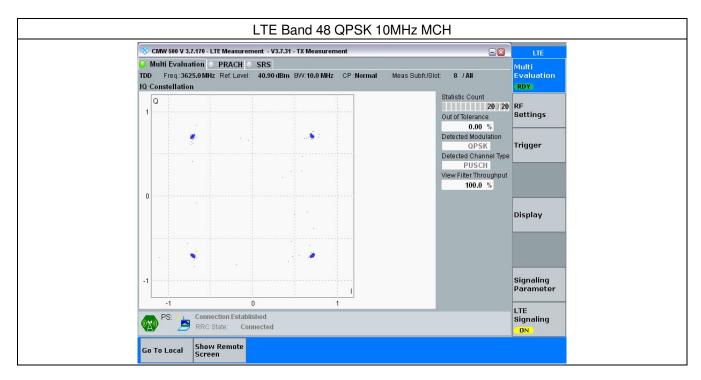
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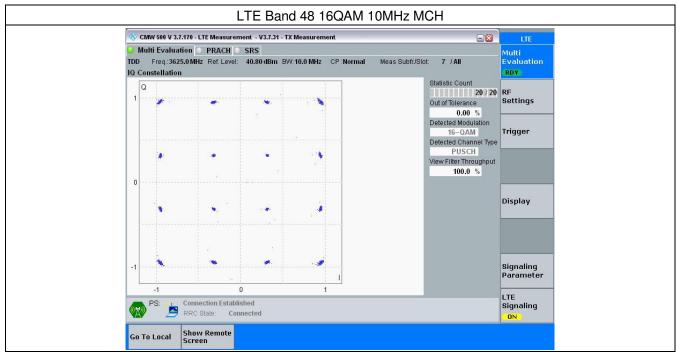


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8.2 Modulation Characteristics







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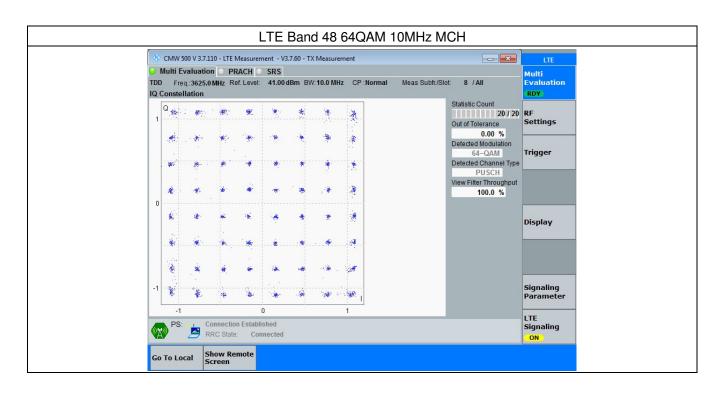
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