

TEST REPORT

Report Number: 15496224-E34V4

Applicant : APPLE, INC
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A3256

Brand : APPLE

FCC ID : BCG-E8949A

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 2, PART 96

Date Of Issue:
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Revision History

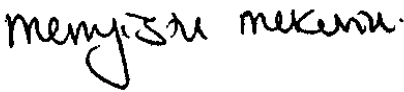
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V1	2025-07-10	Initial Review	--
V2	2025-07-17	Updated Section 6,8,10	Eric Ting
V3	2025-07-27	Updated MIMO Test Method at Section 3, 8, 9.2, and 9.3	Mengistu Mekuria
V4	2025-08-15	Revise section 6.5	Mengistu Mekuria

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.	
Model	A3256	
Brand	APPLE	
FCC ID	BCG-E8949A	
EUT Description	SMARTPHONE	
Serial Number	RADIATED: N4QD07QXJ9, CP2H9NGP6C CONDUCTED: C07HG80000L0000WGT, C07HG80000T0000WGT	
Sample Receipt Date	2024-11-25	
Date Tested	2024-11-25 to 2025-07-03	
Applicable Standards	FCC 47 CFR Part 2, Part 96	
Test Results	COMPLIES	
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.		
Approved & Released By:	Reviewed By:	Prepared By:
		
Mengistu Mekuria Staff Laboratory Engineer UL Verification Services Inc.	Eric Ting Senior Test Engineer UL Verification Services Inc.	Chris He Laboratory Engineer Associate UL Verification Services Inc.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1. Antenna gain (see section 6.4)

Requirement Description	Requirement Clause Number (FCC)	Result	Remarks
Equivalent Isotropic Radiated Power	2.1046, 96.41 (b)	Complies	
Occupied Bandwidth	2.1049	Complies	
Band Edge and Emission Mask	2.1051, 96.41(e)	Complies	
Out of Band Emissions	2.1051, 96.41(e)	Complies	
Frequency Stability	2.1055	Complies	
Peak-to-Average Ratio	96.41 (g)	Complies	
Field Strength of Spurious Radiation	2.1053, 96.41(e)	Complies	

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following.
FCC published lists of [measurement procedures](#) for compliance testing.

- ANSI C63.26:2015
- ANSI/TIA-603-E (2016)
- FCC 47 CFR Part 2, Part 96
- [FCC KDB 971168 D01](#): Power Meas License Digital Systems
- [FCC KDB 971168 D02](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01](#): Determining ERP and EIRP
- [FCC KDB 662911 D01](#): Multiple Transmitter Output

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☐	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{Lab}
Conducted Antenna Port Emission Measurement	1.940 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using Power Meter	0.450 dB Ave. 1.300 dB Peak
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

6.2. MAXIMUM OUTPUT POWER

LIMITS

FCC: §96.41

(b) Power Limits—

Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table in this paragraph (b):

Device	Maximum EIRP (dBm/10megahertz)	Maximum PSD (dBm/MHz)
End User Device	23 (0.2 W/10 MHz)	n/a
Category A CBSD	30	20
Category B CBSD1	47	37

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015

KDB 971168 D01 Section 5.6

$ERP/EIRP = P_{Meas} + GT - LC$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas} , typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and peak EIRP output powers as follows:

LTE BAND 48 (LOW)

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT4)		-3.30							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	25.80	22.50	0.178	4.438	4438	4M44G7W
	16QAM			24.71	21.41	0.138	4.474	4474	4M47D7W
10.0	QPSK	3555.0	3695.0	25.80	22.50	0.178	8.971	8971	8M97G7W
	16QAM			24.79	21.49	0.141	8.958	8958	8M96D7W
15.0	QPSK	3557.5	3692.5	25.80	22.50	0.178	13.388	13388	13M4G7W
	16QAM			24.80	21.50	0.141	13.434	13434	13M4D7W
20.0	QPSK	3560.0	3690.0	25.72	22.42	0.175	17.814	17814	17M8G7W
	16QAM			24.80	21.50	0.141	17.910	17910	17M9D7W

LTE BAND 48 (MID)

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-1.90							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	24.30	22.40	0.174	4.438	4438	4M44G7W
	16QAM			23.30	21.40	0.138	4.474	4474	4M47D7W
10.0	QPSK	3555.0	3695.0	24.30	22.40	0.174	8.971	8971	8M97G7W
	16QAM			23.23	21.33	0.136	8.958	8958	8M96D7W
15.0	QPSK	3557.5	3692.5	24.30	22.40	0.174	13.388	13388	13M4G7W
	16QAM			23.29	21.39	0.138	13.434	13434	13M4D7W
20.0	QPSK	3560.0	3690.0	24.30	22.40	0.174	17.814	17814	17M8G7W
	16QAM			23.30	21.40	0.138	17.910	17910	17M9D7W

LTE BAND 48 (HIGH)

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-2.00							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	24.30	22.30	0.170	4.438	4438	4M44G7W
	16QAM			23.30	21.30	0.135	4.474	4474	4M47D7W
10.0	QPSK	3555.0	3695.0	24.30	22.30	0.170	8.971	8971	8M97G7W
	16QAM			23.30	21.30	0.135	8.958	8958	8M96D7W
15.0	QPSK	3557.5	3692.5	24.30	22.30	0.170	13.388	13388	13M4G7W
	16QAM			23.12	21.12	0.129	13.434	13434	13M4D7W
20.0	QPSK	3560.0	3690.0	24.30	22.30	0.170	17.814	17814	17M8G7W
	16QAM			22.96	20.96	0.125	17.910	17910	17M9D7W

5G NR n48 (LOW)

Part 96									
EIRP Limit (W) /10MHz		0.20							
Antenna Gain (dBi) (ANT4)		-3.30							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	25.80	22.50	0.178	8.603	8603	8M60G7W
	QPSK			25.75	22.45	0.176	8.581	8581	8M58G7W
	16QAM			24.81	21.51	0.142	8.552	8552	8M55D7W
15.0	BPSK	3557.5	3692.5	25.80	22.50	0.178	12.951	12951	13M0G7W
	QPSK			25.80	22.50	0.178	12.965	12965	13M0G7W
	16QAM			25.25	21.95	0.157	12.875	12875	12M9D7W
20.0	BPSK	3560.0	3690.0	25.80	22.50	0.178	17.911	17911	17M9G7W
	QPSK			25.80	22.50	0.178	17.899	17899	17M9G7W
	16QAM			24.56	21.26	0.134	17.912	17912	17M9D7W
30.0	BPSK	3565.0	3685.0	25.80	22.50	0.178	26.892	26892	26M9G7W
	QPSK			25.80	22.50	0.178	26.906	26906	26M9G7W
	16QAM			24.44	21.14	0.130	26.720	26720	26M7D7W
40.0	BPSK	3570.0	3680.0	25.80	22.50	0.178	35.816	35816	35M8G7W
	QPSK			25.80	22.50	0.178	35.761	35761	35M8G7W
	16QAM			24.91	21.61	0.145	35.957	35957	36M0D7W

5G NR n48 (MID)

Part 96									
EIRP Limit (W) /10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-1.90							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	24.30	22.40	0.174	8.603	8603	8M60G7W
	QPSK			24.28	22.38	0.173	8.581	8581	8M58G7W
	16QAM			23.08	21.18	0.131	8.552	8552	8M55D7W
15.0	BPSK	3557.5	3692.5	24.30	22.40	0.174	12.951	12951	13M0G7W
	QPSK			24.30	22.40	0.174	12.965	12965	13M0G7W
	16QAM			23.12	21.22	0.132	12.875	12875	12M9D7W
20.0	BPSK	3560.0	3690.0	24.30	22.40	0.174	17.911	17911	17M9G7W
	QPSK			24.11	22.21	0.166	17.899	17899	17M9G7W
	16QAM			23.11	21.21	0.132	17.912	17912	17M9D7W
30.0	BPSK	3565.0	3685.0	24.30	22.40	0.174	26.892	26892	26M9G7W
	QPSK			24.28	22.38	0.173	26.906	26906	26M9G7W
	16QAM			23.02	21.12	0.129	26.720	26720	26M7D7W
40.0	BPSK	3570.0	3680.0	24.30	22.40	0.174	35.816	35816	35M8G7W
	QPSK			24.20	22.30	0.170	35.761	35761	35M8G7W
	16QAM			23.31	21.41	0.138	35.957	35957	36M0D7W

5G NR n48 (HIGH)

Part 96									
EIRP Limit (W) /10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-2.00							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	24.30	22.30	0.170	8.603	8603	8M60G7W
	QPSK			24.28	22.28	0.169	8.581	8581	8M58G7W
	16QAM			23.14	21.14	0.130	8.552	8552	8M55D7W
15.0	BPSK	3557.5	3692.5	24.30	22.30	0.170	12.951	12951	13M0G7W
	QPSK			24.30	22.30	0.170	12.965	12965	13M0G7W
	16QAM			23.10	21.10	0.129	12.875	12875	12M9D7W
20.0	BPSK	3560.0	3690.0	24.30	22.30	0.170	17.911	17911	17M9G7W
	QPSK			24.11	22.11	0.163	17.899	17899	17M9G7W
	16QAM			22.78	20.78	0.120	17.912	17912	17M9D7W
30.0	BPSK	3565.0	3685.0	24.30	22.30	0.170	26.892	26892	26M9G7W
	QPSK			24.19	22.19	0.166	26.906	26906	26M9G7W
	16QAM			22.91	20.91	0.123	26.720	26720	26M7D7W
40.0	BPSK	3570.0	3680.0	24.30	22.30	0.170	35.816	35816	35M8G7W
	QPSK			24.14	22.14	0.164	35.761	35761	35M8G7W
	16QAM			23.15	21.15	0.130	35.957	35957	36M0D7W

LTE ULCA BAND 48B

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-1.90							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10+10	QPSK	3555.0	3695.0	24.30	22.40	0.174	19.233	19233	19M2G7W
	16QAM			24.08	22.18	0.165	19.215	19215	19M2D7W

LTE ULCA BAND 48C

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT9)		-1.90							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
5+20	QPSK	3553.3	3690.0	23.38	21.48	0.141	23.350	23350	23M4G7W
	16QAM			23.52	21.62	0.145	23.338	23338	23M3D7W
20+5	QPSK	3560.0	3696.7	23.38	21.48	0.141	23.400	23400	23M4G7W
	16QAM			23.36	21.46	0.140	23.299	23299	23M3D7W
10+20	QPSK	3555.5	3690.0	23.86	21.96	0.157	28.192	28192	28M2G7W
	16QAM			23.92	22.02	0.159	28.003	28003	28M0D7W
20+10	QPSK	3560.0	3694.5	23.91	22.01	0.159	28.066	28066	28M1G7W
	16QAM			23.86	21.96	0.157	28.154	28154	28M2D7W
15+20	QPSK	3557.8	3690.0	24.26	22.36	0.172	32.765	32765	32M8G7W
	16QAM			24.20	22.30	0.170	32.909	32909	32M9D7W
20+15	QPSK	3560.0	3692.2	24.27	22.37	0.173	32.888	32888	32M9G7W
	16QAM			24.29	22.39	0.173	32.790	32790	32M8D7W
20+20	QPSK	3560.0	3690.0	24.29	22.39	0.173	37.714	37714	37M7G7W
	16QAM			24.27	22.37	0.173	37.624	37624	37M6D7W

5G NR n48 MIMO

Part 96									
EIRP Limit (W)/ 10MHz		0.20							
Antenna Gain (dBi) (ANT4+8)		-3.50							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Emission Designator
10.0	QPSK	3555.0	3695.0	26.00	22.50	0.178	8.581	8581	8M58G7W
	16QAM			25.49	21.99	0.158	8.552	8552	8M55D7W
15.0	QPSK	3557.5	3692.5	26.00	22.50	0.178	12.965	12965	13M0G7W
	16QAM			25.52	22.02	0.159	12.875	12875	12M9D7W
20.0	QPSK	3560.0	3690.0	26.00	22.50	0.178	17.899	17899	17M9G7W
	16QAM			25.49	21.99	0.158	17.912	17912	17M9D7W
30.0	QPSK	3565.0	3685.0	26.00	22.50	0.178	26.906	26906	26M9G7W
	16QAM			25.57	22.07	0.161	26.720	26720	26M7D7W
40.0	QPSK	3570.0	3680.0	26.00	22.50	0.178	35.761	35761	35M8G7W
	16QAM			24.97	21.47	0.140	35.957	35957	36M0D7W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.08.00.

6.4. MAXIMUM ANTENNA GAIN AND MAXIMUM ALLOWED OUTPUT POWER

The IFA antenna(s) gain/allowed output power, as provided by the manufacturer' are as follows:

SISO MODE

Bands	Frequency Range (MHz)	Antenna Gain (dBi)				Max Allowed Conducted Output Power (dBm)				ERP/EIRP (dBm)			
		ANT4	ANT7	ANT8	ANT9	ANT4	ANT7	ANT8	ANT9	ANT4	ANT7	ANT8	ANT9
LTE Band 48 (Low)	3550 – 3700	-3.30	-3.80	-2.00	-1.90	25.80	26.00	24.50	24.30	22.50	22.20	22.50	22.40
LTE Band 48 (Mid)		-3.60	-4.20	-2.50	-1.90	25.80	26.00	24.50	24.30	22.20	21.80	22.00	22.40
LTE Band 48 (High)		-3.50	-4.20	-3.10	-2.00	25.80	26.00	24.50	24.30	22.30	21.80	21.40	22.30
5G NR n48 (Low)		-3.30	-3.80	-2.00	-1.90	25.80	26.00	24.50	24.30	22.50	22.20	22.50	22.40
5G NR n48 (Mid)		-3.60	-4.20	-2.50	-1.90	25.80	26.00	24.50	24.30	22.20	21.80	22.00	22.40
5G NR n48 (High)		-3.50	-4.20	-3.10	-2.00	25.80	26.00	24.50	24.30	22.30	21.80	21.40	22.30
LTE ULCA Band 48C, 48B (Low)		-3.30	-3.80	-2.00	-1.90	25.80	26.00	24.50	24.30	22.50	22.20	22.50	22.40
LTE ULCA Band 48C, 48B (Mid)		-3.60	-4.20	-2.50	-1.90	25.80	26.00	24.50	24.30	22.20	21.80	22.00	22.40
LTE ULCA Band 48C, 48B (High)		-3.50	-4.20	-3.10	-2.00	25.80	26.00	24.50	24.30	22.30	21.80	21.40	22.30

MIMO MODE

Bands	Frequency Range (MHz)	Antenna	Maximum Allowed Conducted Power Per Antenna (dBm)		Max Allowed Combined Conducted Output Power (dBm)	Gain (dBi)	EIRP (dBm)
5G NR n48	3550 – 3700	ANT 9+8	23	23	26.0	-4.00	22.01
		ANT 9+4	23	23	26.0	-4.10	21.91
		ANT 9+7	23	23	26.0	-4.20	21.81
		ANT 4+8	23	23	26.0	-3.50	22.51
		ANT 4+7	23	23	26.0	-5.80	20.21
		ANT 7+8	23	23	26.0	-3.80	22.21

6.5. WORST-CASE CONFIGURATION AND MODE

For 5G NRs, conducted spurious emission tests were conducted on wider bandwidth with inner 1RB since this is the worst bandwidth and the highest output power.

BPSK modulation applied only for 5G NR frequencies and has the same tune up power as QPSK modulations.

LTE Band 48 and 5G NR n48, SISO data were used for OBW, PAR and FS because these measurements are independent of the number of antennas used simultaneously.

For SISO DFT-s-OFDM and CP-OFDM waveforms were investigated, and DFT-s-OFDM was found to be the worst case.

For MIMO N48 CP-OFDM waveforms were found to be the worst case.

For MIMO N48, the client declares that the antenna ports combination 9+8 is the highest power of all other combinations. Therefore, all the antenna port measurements can be done with the combination of antenna port 9+8 as a worst-case.

The worst-case scenario for all measurements is based on an engineering evaluation made on different modulations. Then, QPSK and BPSK were observed as the worst mode to LTE bands and 5G NR bands respectively and set for all conducted and radiated. Output power measurements were measured on BPSK, QPSK, 16QAM, 64QAM, and 256QAM modulations. For testing purposes emissions on section 9 were measured while QPSK/BPSK was set at or above target power for all bands. Conducted tests were performed on the worst-case antenna port because it has the highest conducted power. The worst-case antenna port is shown in the table below.

LTE and 5G NR Bands	Worst case Antenna Port
LTE BAND 48, FR1 5G NR 48, LTE ULCA BAND 48	Ant 9
FR1 5G NR 48 MIMO	Ant 4+8

The EUT was investigated in three orthogonal orientations X/Y/Z on all available SISO and MIMO antennas to determine the worst-case orientation. The following table exhibits the worst-case orientations. The full tests of the EUT have made upon the orientations shown in the table below.

Frequency Range	ANT4	ANT7	ANT8	ANT9	ANT9+8	ANT9+7	ANT4+8	ANT4+7	ANT7+8	ANT9+4
3550 – 3700 MHz	Y	X	Y	X	Z	X	Y	Y	Y	Y

Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz. There were no emissions found with less than 20dB of margin from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GHz WLAN, UWB, and Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

6.6. DESCRIPTION OF TEST SETUP

Refer to Appendix A for description of test setup.

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment were utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Wideband Communication Test Set, Call Box	R&S GmbH & Co.	CMW500	230297	2026-02-28
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169936	2026-02-28
Antenna, Horn 1-18GHz	ETS Lindgren	3117	200897	2026-04-30
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	217255	2026-01-31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223460	2026-02-28
RF Filter Box, 1-18GHz, 17 Port	UL-FR1	RATS 2	236726	2025-10-31
Antenna, Horn 1-18GHz	ETS Lindgren	3117	80403	2026-08-31
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	171863	2026-11-30
Amplifier 9 KHz - 1 GHz	SONOMA INSTRUMENT	310N	224490	2026-05-06
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170013	2025-07-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170015	2025-07-31
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	172353	2025-08-31
Link File, RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	220194	2026-04-29
Antenna, Horn 26.5-40GHz	A.R.A.	MWH-2640/B	81105	2025-08-31
Link File, RF Amplifier Assembly, 26.5-40GHz, 65dB Gain	Ampical	AMP26G40-65	220193	2026-04-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	262735	2026-03-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	231912	2026-04-30
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	259079	2026-02-28
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	262734	2026-04-30
Wideband Communication Call Box	Rohde & Schwarz	CMW500	230298	2026-02-28
Wideband Communication Call Box	Rohde & Schwarz	CMW500	85943	2026-02-28
Wideband Communication Call Box	Rohde & Schwarz	CMW500	262742	2027-02-11
Wideband Communication Call Box	Rohde & Schwarz	CMW500	262741	2027-02-11
Conducted Switch Box	N/A	CSB	221008	2026-04-30
Conducted Switch Box	N/A	CSB	262354	2026-04-30
Filter, BRF 3400-3800MHz, 18GHz max	Micro-Tronics	BRM50711	217364	2025-09-30
Filter, BRF 2305-2315	Micro-Tronics	BRC20553	224186	2026-06-29
Directional Coupler	KRYTAR	152610	254457	2025-10-31
Directional Coupler	KRYTAR	101040010K	254458	2025-10-30
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90718	2026-03-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	257704	2026-03-31
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	89097	2025-10-31
UL AUTOMATION SOFTWARE				
Conducted Software	UL	CLT	Ver.2023 11.21.0 & .2024.3.20.0	
Conducted Software	UL	Power Measurement	Ver 2023.08.14	
Conducted Software	UL	Antenna Port	Ver.2022.8.16& 2021.5.13	
Conducted Software	UL	Station Tool	Ver. 5.0 & 5.2 & 6.0	
Radiated Software	UL	UL EMC	Ver 9.5, May 1, 2023	

8. RF OUTPUT POWER VERIFICATION

RULE PART(S)

FCC: §2.1046

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All bands conducted average power is obtained from the base station simulator.

The following tests were conducted according to the test requirements outlined in ANSI C63.26 Section 5.2.

In band power measurements for MIMO modes are made by summing the channel power for the individual chains to calculate the total power following the measure and sum method E)1) from KDB 662911 D01.

RESULTS

The EUT has different power levels for head use configuration and body use configuration. All measurements are made with the device operating at the highest average conducted output powers.

8.1. LTE BAND 48

Test Engineer ID:	39004	Test Date:	2025-02-03
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OUTPUT POWER FOR LTE BAND 48 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				55260	55990	56715	55260	55990	56715	55260	55990	56715	55260	55990	56715
5.0	QPSK	1	0	24.30	24.20	24.03	24.48	24.49	24.18	25.52	25.74	25.71	25.46	25.92	25.85
		1	12	24.26	24.30	24.25	24.45	24.49	24.36	25.80	25.74	25.80	26.00	25.90	25.97
		1	24	24.18	24.19	24.30	24.34	24.47	24.50	25.69	25.69	25.75	25.95	25.86	25.85
		12	0	24.08	24.08	23.91	24.26	24.28	24.05	25.61	25.54	25.49	25.80	25.68	25.62
		12	6	24.10	24.13	24.04	24.28	24.35	24.20	25.64	25.55	25.56	25.83	25.73	25.66
		12	11	24.06	24.08	24.05	24.20	24.28	24.21	25.62	25.48	25.57	25.81	25.70	25.70
		25	0	23.12	23.14	23.03	23.21	23.27	23.16	24.59	24.50	24.44	24.77	24.68	24.58
	16QAM	1	0	23.30	23.28	23.01	23.45	23.47	23.19	24.71	24.71	24.72	24.89	24.89	24.90
		1	12	23.27	23.30	23.23	23.50	23.50	23.39	24.70	24.78	24.80	24.93	25.00	25.00
		1	24	23.22	23.15	23.30	23.30	23.40	23.44	24.66	24.70	24.75	24.87	24.90	24.83
		12	0	22.19	22.15	21.98	22.30	22.33	22.10	23.63	23.56	23.49	23.87	23.69	23.69
		12	6	22.18	22.14	22.07	22.31	22.35	22.21	23.68	23.61	23.54	23.95	23.78	23.75
		12	11	22.17	22.15	22.14	22.23	22.34	22.21	23.61	23.54	23.55	23.87	23.71	23.73
		25	0	22.14	22.14	22.07	22.24	22.31	22.17	23.60	23.53	23.48	23.82	23.69	23.63
	64QAM	1	0	22.40	22.33	22.13	22.46	22.50	22.25	23.86	23.69	23.83	24.10	23.96	24.00
		1	12	22.47	22.41	22.36	22.47	22.52	22.46	23.89	23.84	23.85	24.12	23.96	23.97
		1	24	22.32	22.31	22.39	22.35	22.49	22.51	23.80	23.78	23.78	24.02	23.92	23.89
		12	0	21.25	21.24	21.01	21.28	21.33	21.11	22.70	22.60	22.53	22.89	22.70	22.65
		12	6	21.23	21.26	21.12	21.31	21.35	21.20	22.76	22.66	22.55	22.97	22.73	22.67
		12	11	21.17	21.17	21.13	21.24	21.30	21.24	22.70	22.58	22.58	22.90	22.71	22.70
		25	0	21.15	21.13	21.09	21.22	21.29	21.15	22.62	22.53	22.44	22.83	22.73	22.61
	256QAM	1	0	19.37	19.32	19.05	19.36	19.45	19.08	20.74	20.64	20.56	20.92	20.84	20.75
		1	12	19.40	19.30	19.28	19.36	19.47	19.28	20.79	20.75	20.69	21.00	20.83	20.84
		1	24	19.18	19.19	19.30	19.17	19.38	19.38	20.70	20.64	20.61	20.88	20.78	20.75
		12	0	19.12	19.12	19.00	19.22	19.32	19.07	20.60	20.53	20.48	20.85	20.73	20.64
		12	6	19.17	19.19	19.16	19.28	19.34	19.17	20.66	20.59	20.51	20.87	20.75	20.66
		12	11	19.14	19.14	19.13	19.18	19.27	19.19	20.61	20.55	20.50	20.83	20.72	20.68
		25	0	19.16	19.08	19.05	19.20	19.26	19.13	20.61	20.53	20.43	20.83	20.71	20.60

OUTPUT POWER FOR LTE BAND 48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				55290	55990	56690	55290	55990	56690	55290	55990	56690	55290	55990	56690
10.0	QPSK	1	0	24.30	24.30	23.67	24.48	24.50	23.83	25.80	25.71	25.80	25.94	25.93	26.00
		1	24	24.24	24.28	24.05	24.39	24.46	24.14	25.80	25.80	25.79	26.00	26.00	25.98
		1	49	24.18	24.27	24.30	24.31	24.35	24.50	25.71	25.72	25.79	25.97	25.95	25.96
		25	0	24.16	24.13	23.67	24.32	24.26	23.78	25.60	25.55	25.65	25.73	25.77	25.83
		25	12	24.13	24.11	23.83	24.27	24.24	23.96	25.53	25.59	25.66	25.68	25.80	25.85
		25	24	24.06	24.06	24.01	24.19	24.18	24.10	25.52	25.55	25.61	25.63	25.76	25.80
		50	0	23.17	23.16	22.90	23.22	23.19	22.92	24.54	24.58	24.65	24.65	24.79	24.84
	16QAM	1	0	23.25	23.22	22.61	23.50	23.39	22.67	24.79	24.65	24.80	24.84	24.85	24.99
		1	24	23.26	23.23	22.94	23.41	23.37	23.08	24.77	24.70	24.80	24.92	24.91	25.00
		1	49	23.20	23.20	23.30	23.25	23.34	23.27	24.74	24.76	24.75	24.82	24.93	24.93
		25	0	22.22	22.18	21.70	22.31	22.27	21.82	23.65	23.61	23.66	23.77	23.84	23.88
		25	12	22.21	22.14	21.93	22.29	22.24	21.97	23.58	23.64	23.65	23.70	23.84	23.90
		25	24	22.12	22.11	22.07	22.24	22.20	22.12	23.56	23.62	23.61	23.70	23.82	23.85
		50	0	22.13	22.16	21.94	22.25	22.22	21.95	23.54	23.60	23.58	23.70	23.81	23.85
	64QAM	1	0	22.39	22.33	21.76	22.61	22.50	21.86	23.82	23.80	23.77	23.96	23.94	24.08
		1	24	22.40	22.31	22.08	22.59	22.47	22.18	23.86	23.83	23.74	24.07	24.04	24.04
		1	49	22.30	22.33	22.44	22.47	22.37	22.49	23.81	23.79	23.75	24.00	24.03	24.00
		25	0	21.23	21.23	20.73	21.30	21.24	20.81	22.69	22.59	22.66	22.79	22.81	22.87
		25	12	21.21	21.22	20.95	21.29	21.23	20.99	22.61	22.63	22.68	22.71	22.83	22.86
		25	24	21.15	21.18	21.06	21.23	21.19	21.13	22.58	22.60	22.62	22.71	22.83	22.82
		50	0	21.19	21.20	20.92	21.25	21.22	20.95	22.60	22.58	22.61	22.70	22.82	22.83
	256QAM	1	0	19.26	19.22	18.61	19.37	19.29	18.67	20.75	20.68	20.73	20.90	20.88	20.97
		1	24	19.27	19.26	19.00	19.36	19.32	19.07	20.78	20.72	20.82	20.87	20.99	21.02
		1	49	19.12	19.20	19.33	19.19	19.26	19.30	20.60	20.65	20.67	20.76	20.91	20.92
		25	0	19.18	19.16	18.74	19.28	19.22	18.77	20.63	20.59	20.65	20.74	20.80	20.88
		25	12	19.16	19.16	18.94	19.25	19.23	18.92	20.59	20.62	20.66	20.68	20.83	20.86
		25	24	19.13	19.15	19.09	19.20	19.16	19.08	20.58	20.57	20.61	20.66	20.80	20.79
		50	0	19.17	19.15	18.88	19.22	19.19	18.93	20.57	20.59	20.62	20.67	20.81	20.83

OUTPUT POWER FOR LTE BAND 48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				55315	55940	56665	55315	55940	56665	55315	55940	56665	55315	55940	56665
15.0	QPSK	1	0	21.18	21.15	20.48	24.50	24.48	23.56	25.79	25.75	25.80	25.98	25.94	26.00
		1	37	24.30	24.30	24.18	24.36	24.38	24.02	25.80	25.80	25.80	26.00	25.97	25.99
		1	74	21.00	21.11	21.49	24.26	24.36	24.50	25.79	25.73	25.72	26.00	26.00	25.92
		36	0	24.20	24.25	23.72	24.30	24.31	23.56	25.68	25.61	25.58	25.85	25.83	25.81
		36	16	24.20	24.25	24.07	24.22	24.27	23.89	25.69	25.62	25.58	25.88	25.84	25.77
		36	35	24.16	24.23	24.30	24.15	24.23	24.10	25.68	25.60	25.62	25.88	25.85	25.83
		75	0	23.18	23.22	22.98	23.20	23.22	22.82	24.66	24.59	24.52	24.86	24.81	24.72
	16QAM	1	0	19.33	19.34	18.55	23.46	23.50	22.60	24.77	24.66	24.71	24.96	24.94	24.94
		1	37	23.30	23.29	23.12	23.35	23.32	23.01	24.73	24.69	24.76	25.00	25.00	24.92
		1	74	19.16	19.25	19.63	23.27	23.36	23.42	24.80	24.70	24.66	24.96	25.00	24.90
		36	0	22.29	22.26	21.71	22.31	22.34	21.60	23.70	23.63	23.58	23.91	23.85	23.84
		36	16	22.28	22.28	22.06	22.27	22.28	21.90	23.73	23.66	23.60	23.91	23.88	23.81
		36	35	22.23	22.26	22.29	22.19	22.25	22.13	23.73	23.65	23.66	23.92	23.88	23.85
		75	0	22.23	22.27	22.00	22.23	22.27	21.84	23.70	23.63	23.56	23.89	23.88	23.74
	64QAM	1	0	18.45	18.58	17.67	22.62	22.65	21.59	23.89	23.84	23.97	24.17	24.12	24.13
		1	37	22.42	22.41	22.29	22.51	22.60	22.10	23.93	23.83	23.97	24.21	24.11	24.15
		1	74	18.29	18.38	18.79	22.35	22.50	22.54	23.89	23.80	23.84	24.15	24.04	24.08
		36	0	21.29	21.33	20.77	21.31	21.35	20.64	22.71	22.62	22.62	22.89	22.85	22.82
		36	16	21.27	21.31	21.09	21.26	21.30	20.93	22.76	22.62	22.61	22.91	22.88	22.80
		36	35	21.24	21.31	21.36	21.21	21.25	21.14	22.75	22.64	22.67	22.93	22.89	22.85
		75	0	19.23	19.26	19.03	21.24	21.30	20.87	22.70	22.63	22.59	22.89	22.91	22.78
	256QAM	1	0	15.38	15.32	14.55	19.38	19.44	18.43	20.77	20.71	20.66	21.00	20.97	20.98
		1	37	19.23	19.32	19.25	19.31	19.41	18.99	20.78	20.75	20.75	21.07	21.00	21.01
		1	74	15.26	15.37	15.69	19.23	19.35	19.45	20.79	20.71	20.71	21.03	20.94	20.96
		36	0	19.28	19.28	18.76	19.31	19.32	18.59	20.67	20.60	20.57	20.87	20.83	20.81
		36	16	19.23	19.27	19.09	19.25	19.27	18.89	20.71	20.60	20.59	20.88	20.84	20.78
		36	35	19.21	19.28	19.35	19.18	19.25	19.11	20.70	20.62	20.63	20.89	20.85	20.86
		75	0	17.22	17.29	17.01	19.23	19.26	18.84	20.69	20.62	20.56	20.87	20.84	20.75

OUTPUT POWER FOR LTE BAND 48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				55340	55940	56640	55340	55940	56640	55340	55940	56640	55340	55940	56640
20.0	QPSK	1	0	21.19	21.15	20.34	24.38	24.50	23.37	25.72	25.79	25.74	25.90	25.95	25.95
		1	49	24.30	24.30	24.06	24.25	24.34	23.80	25.72	25.80	25.72	25.87	25.98	26.00
		1	99	21.12	21.06	21.55	24.14	24.33	24.41	25.69	25.79	25.70	25.87	26.00	25.89
		50	0	24.13	24.21	23.55	24.14	24.28	23.35	25.56	25.64	25.53	25.73	25.82	25.72
		50	24	24.18	24.20	23.89	24.16	24.25	23.62	25.60	25.65	25.60	25.78	25.84	25.84
		50	49	24.17	24.14	24.30	24.08	24.20	23.99	25.50	25.64	25.59	25.72	25.84	25.77
		100	0	22.88	22.90	22.58	23.11	23.21	22.67	24.55	24.63	24.56	24.75	24.84	24.78
	16QAM	1	0	19.28	19.32	18.41	23.50	23.45	22.44	24.74	24.71	24.79	24.96	24.96	24.87
		1	49	23.29	23.30	22.96	23.32	23.37	22.79	24.80	24.77	24.80	25.00	24.97	24.91
		1	99	19.25	19.26	19.64	23.23	23.27	23.50	24.71	24.78	24.76	24.97	24.86	24.79
		50	0	22.25	22.27	21.68	22.14	22.29	21.37	23.57	23.64	23.53	23.75	23.86	23.70
		50	24	22.31	22.30	22.02	22.13	22.21	21.67	23.58	23.69	23.62	23.79	23.86	23.81
		50	49	22.33	22.23	22.39	22.06	22.18	22.00	23.51	23.64	23.57	23.70	23.83	23.79
		100	0	22.28	22.40	22.35	22.12	22.22	21.68	23.57	23.63	23.59	23.78	23.87	23.78
	64QAM	1	0	18.49	18.45	17.56	22.53	22.62	21.45	23.67	23.80	23.79	23.99	24.01	23.99
		1	49	22.43	22.43	22.22	22.34	22.44	21.90	23.70	23.76	23.82	24.02	23.95	24.06
		1	99	18.39	18.34	18.84	22.22	22.42	22.53	23.66	23.82	23.68	24.00	24.00	23.98
		50	0	21.23	21.30	20.68	21.13	21.29	20.36	22.57	22.66	22.54	22.75	22.83	22.72
		50	24	21.30	21.30	20.99	21.13	21.23	20.65	22.58	22.68	22.63	22.79	22.89	22.82
		50	49	21.29	21.27	21.39	21.06	21.20	20.99	22.49	22.66	22.60	22.72	22.86	22.78
		100	0	18.28	18.25	18.01	21.15	21.23	20.67	22.56	22.66	22.57	22.77	22.84	22.79
	256QAM	1	0	15.41	15.40	14.52	19.31	19.45	18.29	20.66	20.68	20.61	20.82	20.92	20.79
		1	49	19.37	19.37	19.16	19.20	19.37	18.83	20.73	20.75	20.70	20.91	20.98	20.90
		1	99	15.36	15.31	15.83	19.11	19.26	19.49	20.53	20.72	20.60	20.75	20.90	20.80
		50	0	19.23	19.30	18.64	19.10	19.27	18.36	20.53	20.64	20.55	20.74	20.82	20.71
		50	24	19.30	19.29	18.99	19.13	19.23	18.64	20.56	20.66	20.62	20.79	20.84	20.82
		50	49	19.30	19.25	19.42	19.04	19.18	18.99	20.48	20.62	20.56	20.70	20.84	20.78
		100	0	16.30	16.24	15.98	19.11	19.22	18.64	20.55	20.63	20.59	20.74	20.81	20.74

8.2. 5G NR n48

Test Engineer ID:	19210	Test Date:	2024-12-16
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OUTPUT POWER FOR 5G NR n48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				637000	641666	646332	637000	641666	646332	637000	641666	646332	637000	641666	646332
10.0	BPSK	1	0	22.76	23.57	23.27	23.46	23.76	23.80	25.33	25.64	25.55	24.71	25.15	24.79
		1	1	23.61	24.30	23.84	24.11	24.40	24.50	25.42	25.80	25.71	25.45	25.72	25.53
		1	22	24.30	23.16	24.30	24.48	24.20	24.49	25.40	25.56	25.80	24.96	25.69	25.99
		1	23	23.64	22.49	23.60	23.86	23.53	23.82	25.37	25.36	25.62	24.41	25.06	25.41
		12	6	24.02	23.56	23.94	24.31	24.35	24.31	25.77	25.66	25.62	25.47	25.50	25.73
		24	0	23.23	23.03	23.26	23.65	23.66	23.76	25.80	25.40	25.54	24.92	24.91	25.09
	QPSK	1	0	22.76	23.19	22.64	23.03	23.30	23.30	24.37	24.70	24.64	24.79	24.49	24.50
		1	1	23.61	24.28	23.77	24.12	24.48	24.45	25.20	25.35	25.31	26.00	25.73	25.63
		1	22	24.30	23.36	24.28	24.48	24.19	24.43	25.27	25.03	25.43	25.54	25.67	26.00
		1	23	23.64	22.08	23.06	23.28	23.10	23.30	24.40	24.41	24.72	24.35	24.57	24.92
		12	6	24.02	23.67	24.02	24.23	24.39	24.41	25.75	25.17	25.30	25.80	25.56	25.77
		24	0	23.23	22.57	22.90	23.14	23.28	23.30	24.39	24.52	24.66	24.67	24.47	24.67
	16QAM	1	0	22.76	22.13	21.62	21.84	22.25	22.28	23.54	23.73	23.50	23.75	23.52	23.35
		1	1	23.61	23.08	22.53	22.98	23.27	23.23	24.81	24.78	24.65	25.02	24.70	24.42
		1	22	24.30	21.97	23.14	23.29	23.06	23.36	24.28	24.48	24.69	23.87	24.53	24.78
		1	23	23.64	21.12	21.96	22.31	21.92	22.26	23.16	23.22	23.40	22.78	23.52	23.79
		12	6	24.02	22.60	22.65	23.01	23.22	23.24	24.32	24.44	24.56	24.06	24.35	24.48
		24	0	23.23	21.56	21.75	22.05	22.18	22.28	23.39	23.45	23.51	23.06	23.43	23.50
	64QAM	1	0	22.76	21.58	21.08	21.49	21.74	21.84	23.15	23.10	22.93	22.73	22.95	22.86
		1	1	23.61	21.52	20.92	21.43	22.01	21.68	23.28	23.12	23.11	22.75	22.87	22.69
		1	22	24.30	20.59	21.56	21.76	21.50	21.71	22.94	23.00	23.17	22.24	22.92	23.26
		1	23	23.64	20.73	21.48	21.77	21.55	21.56	22.71	22.84	23.07	22.12	22.99	23.38
		12	6	24.02	21.10	21.19	21.54	21.68	21.63	22.77	23.05	23.04	22.50	22.94	22.92
		24	0	23.23	21.05	21.14	21.52	21.66	21.65	22.83	23.01	23.05	22.47	22.92	22.93
	256QAM	1	0	22.76	19.76	18.95	19.35	19.64	19.75	21.05	21.09	20.98	20.58	21.25	20.68
		1	1	23.61	19.53	18.98	19.36	19.75	19.84	21.23	21.22	21.18	20.81	21.15	20.67
		1	22	24.30	18.46	19.43	19.71	19.44	19.81	21.28	20.83	21.04	20.12	21.12	21.16
		1	23	23.64	18.50	19.35	19.58	19.49	19.37	21.29	20.83	21.22	20.18	21.04	21.15
		12	6	24.02	19.12	19.26	19.40	19.59	19.38	21.50	20.91	21.06	20.42	21.01	20.81
		24	0	23.23	19.08	19.28	19.52	19.70	19.35	21.73	20.90	21.06	20.42	21.13	20.82

OUTPUT POWER FOR 5G NR n48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				637168	641334	646166	637168	641334	646166	637168	641334	646166	637168	641334	646166
15.0	BPSK	1	0	23.65	24.30	23.48	24.14	24.49	24.50	25.79	25.80	25.66	26.00	25.72	25.47
		1	1	23.70	24.23	23.52	24.05	24.48	24.50	25.79	25.68	25.67	25.90	26.00	25.50
		1	36	24.27	23.13	24.26	24.48	24.50	23.57	25.75	25.64	25.80	25.15	25.52	26.00
		1	37	24.30	23.29	24.30	24.50	24.50	23.68	25.80	25.80	25.80	25.02	25.23	26.00
		18	9	21.27	21.22	21.30	21.50	21.43	21.50	22.80	22.70	22.79	23.00	23.00	23.00
		36	0	22.00	22.76	22.00	22.00	22.19	22.00	22.00	22.80	22.00	22.00	22.26	22.00
	QPSK	1	0	23.27	23.87	22.93	23.61	23.97	24.02	25.32	25.41	25.15	25.52	25.25	24.91
		1	1	23.75	24.30	23.57	24.02	24.48	24.38	25.78	25.80	25.60	26.00	25.91	25.43
		1	36	24.30	23.17	24.30	24.50	24.46	23.56	25.80	25.64	25.69	25.20	25.53	25.97
		1	37	23.85	22.74	23.75	23.92	24.02	23.14	25.28	25.32	25.24	24.65	24.71	25.43
		18	9	21.30	21.30	21.29	21.45	21.50	21.47	22.74	22.80	22.80	22.99	22.92	22.97
		36	0	22.00	22.36	22.00	22.00	21.73	22.00	22.00	22.37	22.00	22.00	21.86	22.00
	16QAM	1	0	22.15	22.72	21.70	22.53	22.94	22.94	24.25	24.26	23.97	24.43	24.23	23.65
		1	1	22.55	23.12	22.29	22.85	23.28	23.21	25.13	25.09	24.90	24.93	24.75	24.22
		1	36	23.06	21.96	23.10	23.35	23.31	22.37	25.25	24.97	25.00	24.01	24.43	24.72
		1	37	22.82	21.48	22.61	22.99	22.88	22.03	24.31	24.15	24.34	23.56	23.76	24.41
		18	9	21.13	20.04	21.11	21.37	20.19	21.38	21.93	21.98	22.02	22.80	21.81	22.64
		36	0	22.00	21.30	22.00	22.00	20.62	22.00	22.00	21.26	22.00	22.00	20.98	22.00
	64QAM	1	0	21.76	22.21	21.29	22.20	22.22	22.44	23.52	23.80	23.82	23.97	23.97	23.11
		1	1	20.99	21.59	20.85	21.57	21.55	21.67	23.67	23.48	23.44	23.37	23.50	22.66
		1	36	21.68	20.38	21.56	21.88	21.76	21.07	23.50	23.45	23.67	22.63	23.22	23.32
		1	37	22.19	21.16	22.13	22.41	22.38	21.96	23.68	23.72	23.68	23.00	23.43	23.81
		18	9	21.30	20.10	21.26	19.95	18.71	20.11	21.58	20.50	21.58	21.36	20.53	21.14
		36	0	21.72	20.70	21.85	22.03	20.12	22.27	21.79	20.73	21.84	21.27	20.51	21.17
	256QAM	1	0	19.54	20.25	19.52	20.30	20.03	20.66	21.66	21.73	21.59	21.84	21.85	21.25
		1	1	19.15	19.36	18.67	19.56	19.33	19.93	21.50	21.47	21.36	21.34	21.28	20.47
		1	36	19.67	18.36	19.66	19.89	19.27	19.15	21.38	21.38	21.69	20.41	20.99	21.32
		1	37	20.33	18.85	20.00	20.66	20.18	19.82	21.61	21.68	21.50	20.91	21.26	21.94
		18	9	19.84	16.44	19.85	19.04	16.33	19.26	21.75	18.47	21.69	21.48	18.44	21.28
		36	0	21.92	18.69	22.20	21.15	17.73	21.42	21.99	18.70	21.93	21.45	18.52	21.29

OUTPUT POWER FOR 5G NR n48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				637334	641334	646000	637334	641334	646000	637334	641334	646000	637334	641334	646000
20.0	BPSK	1	0	23.98	23.43	24.30	24.25	23.35	24.50	25.80	24.95	25.29	26.00	25.28	25.37
		1	1	24.28	24.30	24.30	24.24	24.06	24.41	25.77	25.73	25.22	26.00	25.97	25.38
		1	49	24.08	22.75	23.59	24.50	24.29	23.15	24.43	25.57	25.80	24.90	25.31	26.00
		1	50	23.94	22.11	23.51	24.50	23.44	23.24	24.37	24.81	25.80	24.88	24.63	26.00
		25	12	20.30	23.95	20.30	20.50	24.37	20.42	21.77	25.44	21.80	21.97	25.46	21.79
		50	0	21.00	24.20	21.00	21.00	24.20	21.00	21.00	21.96	21.00	21.00	25.03	21.00
	QPSK	1	0	23.56	23.17	23.79	23.65	22.97	24.04	25.33	23.68	24.63	25.56	24.90	24.96
		1	1	24.30	24.11	24.11	24.32	24.11	24.50	25.80	24.67	25.10	25.99	26.00	25.48
		1	49	24.08	22.85	23.16	24.37	24.13	23.20	24.39	24.64	25.77	24.78	25.29	25.97
		1	50	23.43	21.72	22.71	23.92	23.08	22.70	23.80	24.01	25.14	24.35	24.18	25.46
		25	12	20.25	24.05	19.90	20.49	24.30	20.50	21.80	20.64	21.65	22.00	25.50	22.00
		50	0	21.00	24.00	21.00	21.00	24.00	21.00	21.00	20.36	21.00	21.00	24.52	21.00
	16QAM	1	0	22.35	22.24	22.49	22.57	21.83	22.85	24.19	23.61	23.49	24.40	23.65	23.85
		1	1	23.13	23.01	22.78	22.97	23.05	23.38	24.56	24.67	24.03	24.71	25.01	24.12
		1	49	22.79	21.71	22.13	23.18	23.36	21.69	23.19	24.57	24.58	23.60	24.20	24.81
		1	50	22.34	20.72	21.55	22.83	22.13	21.49	22.82	23.54	24.11	23.20	23.18	24.31
		25	12	20.09	22.91	19.77	20.32	23.46	20.19	21.68	20.54	21.53	21.71	24.33	21.70
		50	0	21.00	23.11	21.00	21.00	23.40	21.00	21.00	19.65	21.00	21.00	23.43	21.00
	64QAM	1	0	21.76	21.61	21.74	22.26	21.70	22.69	23.68	23.45	23.40	22.00	23.29	21.55
		1	1	21.37	21.61	21.23	21.49	21.70	21.89	22.88	23.39	22.48	23.22	23.29	22.66
		1	49	21.35	20.20	20.48	21.74	21.68	22.04	21.69	23.35	23.33	22.19	22.78	23.22
		1	50	21.59	20.26	21.29	22.39	21.62	22.68	22.26	23.36	23.99	22.64	22.40	23.72
		25	12	18.80	21.47	18.53	19.09	22.03	19.97	20.49	19.50	20.66	20.50	22.83	20.45
		50	0	21.00	22.99	21.00	21.00	23.44	21.00	21.00	19.61	21.80	21.50	22.89	21.00
	256QAM	1	0	19.76	19.47	20.08	20.13	19.63	20.56	21.65	21.58	21.56	22.07	21.26	21.20
		1	1	19.45	19.48	19.39	19.23	19.49	19.79	21.13	21.56	20.74	21.36	21.08	20.57
		1	49	19.41	18.27	18.84	19.75	19.63	19.93	19.87	21.55	21.37	20.02	20.44	21.04
		1	50	19.55	18.53	19.25	20.30	19.83	20.69	20.20	21.47	21.87	20.67	20.59	21.81
		25	12	19.57	19.36	19.35	19.78	19.86	16.72	21.20	17.56	21.37	21.29	20.88	21.08
		50	0	21.00	20.91	21.00	21.00	21.25	21.00	21.00	17.72	21.00	21.00	20.99	21.00

OUTPUT POWER FOR 5G NR n48 (30.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				637668	641666	645666	637668	641666	645666	637668	641666	645666	637668	641666	645666
30.0	BPSK	1	0	24.30	23.73	24.30	24.42	24.16	24.40	25.80	25.21	25.26	26.00	25.35	25.74
		1	1	24.26	24.30	24.30	24.45	24.50	24.35	25.59	25.80	25.32	26.00	26.00	25.71
		1	76	22.69	22.12	22.43	24.35	23.91	24.50	23.66	24.74	25.78	24.77	25.71	25.96
		1	77	22.74	21.51	22.33	24.32	23.47	24.50	23.85	24.14	25.80	24.68	25.08	26.00
		36	18	18.30	23.51	18.24	18.45	24.00	18.49	19.71	24.66	19.80	19.91	25.25	19.74
		75	0	19.00	24.30	19.00	24.22	19.00	19.00	19.00	24.45	19.00	19.00	24.83	19.00
	QPSK	1	0	23.80	23.20	23.75	23.93	23.87	23.87	25.50	24.81	24.83	25.42	24.75	25.34
		1	1	24.30	24.28	24.19	24.50	24.48	24.44	25.80	25.75	25.32	25.99	25.90	25.90
		1	76	22.77	22.07	22.21	24.38	24.13	24.37	23.69	24.82	25.80	24.79	25.62	26.00
		1	77	22.32	21.00	21.79	23.98	23.50	23.85	23.41	23.74	25.15	24.09	24.49	25.63
		36	18	18.26	23.50	18.30	18.50	24.12	18.49	19.80	24.73	19.79	20.00	25.24	20.00
		75	0	19.00	23.97	19.00	19.00	24.00	19.00	19.00	24.04	19.00	19.00	24.34	19.00
	16QAM	1	0	22.51	22.09	22.62	22.79	22.72	22.65	24.22	23.74	23.68	24.20	23.65	24.41
		1	1	23.15	23.02	22.91	23.19	23.85	23.53	24.44	24.78	24.34	24.83	24.37	24.94
		1	76	21.32	21.07	21.10	23.89	23.71	23.60	22.41	23.43	24.45	23.51	24.05	24.94
		1	77	21.02	20.08	20.65	24.00	22.51	22.84	22.30	22.61	24.14	23.07	22.95	24.51
		36	18	16.96	22.39	17.01	17.96	23.78	17.82	18.58	23.67	18.77	18.71	23.61	18.91
		75	0	19.00	22.80	19.00	19.00	23.80	19.00	19.00	22.98	19.00	19.00	22.78	19.00
	64QAM	1	0	22.17	21.43	21.82	23.02	22.58	22.15	23.45	23.12	23.20	23.71	22.72	23.81
		1	1	21.58	21.78	21.50	22.54	22.36	22.00	22.53	23.18	22.59	23.19	22.71	23.17
		1	76	19.94	19.28	19.74	22.29	22.32	22.26	20.96	22.28	23.25	21.96	22.32	23.33
		1	77	20.79	19.31	20.32	22.90	22.43	22.47	21.54	22.19	23.68	22.50	22.34	24.13
		36	18	15.49	20.85	15.63	16.49	22.31	16.44	17.05	22.06	17.25	17.30	22.06	17.31
		75	0	19.00	22.35	19.00	19.00	23.49	19.00	19.00	22.45	19.00	19.00	22.27	19.00
	256QAM	1	0	20.00	19.68	20.18	21.05	20.23	20.26	21.47	21.07	21.38	21.97	20.63	21.75
		1	1	19.26	19.47	19.53	20.43	20.32	20.24	20.78	21.29	20.82	21.40	20.68	21.10
		1	76	17.95	17.12	17.52	20.31	19.83	20.35	18.90	20.13	21.31	19.84	20.27	21.17
		1	77	18.50	17.39	18.06	21.03	19.95	20.28	19.79	20.01	21.86	20.45	20.44	21.91
		36	18	13.47	18.78	13.58	14.63	19.96	14.42	14.89	20.17	15.26	15.25	20.18	15.25
		75	0	19.00	20.34	19.00	19.00	21.55	19.00	19.00	20.44	19.00	19.00	20.31	19.00

OUTPUT POWER FOR 5G NR n48 (40.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 9			ANT 8			ANT 4			ANT 7		
				638000	641334	645332	638000	641334	645332	638000	641334	645332	638000	641334	645332
40.0	BPSK	1	0	24.30	22.78	24.30	24.50	24.22	24.40	25.80	24.95	25.80	26.00	25.39	26.00
		1	1	24.30	23.52	24.30	24.49	24.47	24.35	25.43	25.66	25.73	25.52	26.00	26.00
		1	104	20.70	22.48	22.27	23.96	23.83	24.41	24.58	25.80	25.26	24.40	25.24	25.22
		1	105	22.08	21.65	22.56	23.90	23.71	24.50	25.11	25.10	24.97	24.96	24.48	25.32
		50	25	17.15	24.30	17.25	17.47	24.11	17.50	18.42	25.72	18.65	18.31	25.07	19.00
		100	0	19.00	24.20	19.00	19.00	24.20	19.00	19.00	25.45	19.00	19.00	24.72	19.00
	QPSK	1	0	24.20	22.35	23.83	24.07	23.90	23.85	25.63	24.60	25.22	26.00	24.87	25.53
		1	1	23.30	23.43	24.14	24.50	24.23	24.39	25.80	25.61	25.80	26.00	25.87	25.95
		1	104	20.92	22.51	22.37	23.98	23.85	24.50	24.95	25.69	25.14	25.16	25.29	25.25
		1	105	21.56	21.26	22.14	23.37	23.29	24.05	24.90	24.59	24.58	25.27	23.97	24.80
		50	25	17.30	24.10	17.30	17.49	24.11	17.50	18.80	25.59	18.80	19.00	25.21	18.94
		100	0	19.00	24.20	19.00	19.00	24.00	19.00	19.00	24.90	19.00	19.00	24.36	19.00
	16QAM	1	0	22.85	21.03	22.56	22.83	21.20	22.99	24.91	23.52	24.03	25.15	24.09	24.16
		1	1	21.86	22.22	23.15	23.96	22.41	23.30	24.65	24.57	24.61	24.83	24.95	24.79
		1	104	19.51	21.30	21.03	23.27	21.77	23.29	24.09	24.26	23.91	23.96	24.21	24.00
		1	105	20.36	20.20	20.81	22.38	20.81	22.76	23.88	23.11	23.21	24.51	23.12	23.84
		50	25	16.19	23.09	16.08	16.83	22.02	16.32	17.61	24.45	17.24	17.82	24.21	17.90
		100	0	19.00	23.31	19.00	19.00	22.52	19.00	19.00	23.69	19.00	19.00	23.36	19.00
	64QAM	1	0	22.24	20.60	22.37	22.74	20.90	22.25	24.18	22.94	23.84	24.62	23.74	23.82
		1	1	20.78	20.83	21.37	22.40	20.73	21.63	23.04	22.94	23.15	23.47	23.15	23.45
		1	104	18.28	19.51	19.69	21.90	20.00	21.77	22.64	22.84	22.22	22.67	22.84	22.80
		1	105	20.02	19.78	20.36	21.67	20.18	22.44	23.46	22.83	22.74	23.78	22.83	23.42
		50	25	14.61	21.62	14.59	15.36	20.28	14.86	16.03	22.91	15.96	16.28	22.78	16.48
		100	0	19.00	22.79	19.00	19.00	21.72	19.00	19.00	23.14	19.00	19.00	22.86	19.00
	256QAM	1	0	20.49	18.84	20.21	20.19	18.62	20.33	21.73	20.87	21.45	22.34	21.33	21.86
		1	1	18.71	18.71	19.52	20.26	18.73	19.52	20.67	20.76	21.27	21.20	21.47	21.18
		1	104	16.07	17.83	17.64	19.77	18.17	19.72	20.08	20.84	20.22	20.31	20.73	20.63
		1	105	18.03	17.45	18.59	19.74	18.13	20.40	21.01	20.71	20.64	21.33	20.73	21.29
		50	25	12.61	19.61	12.51	13.35	18.26	12.82	13.91	20.82	13.91	14.25	20.55	14.57
		100	0	18.60	20.85	18.60	18.50	19.80	18.70	18.66	21.04	18.38	19.00	20.79	18.50

8.3. LTE ULCA BAND 48B

Test Engineer ID:	39004	Test Date:	2025-03-14
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OUTPUT POWER FOR LTE ULCA BAND 48B (10.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)															
							ANT 9				ANT 8				ANT 4				ANT 7			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz/ 10MHz	3555.0	3564.9	1	49	1	0	24.29	24.00	22.00	19.93	23.81	23.54	21.51	19.54	25.28	25.09	23.02	21.19	26.00	25.99	23.99	22.00
			1	0	1	49	14.38	14.34	14.36	14.40	14.20	14.21	14.17	14.21	15.69	15.65	15.62	15.72	16.00	15.88	16.00	15.78
			50	0	50	0	23.03	22.06	22.08	20.11	22.73	21.78	21.73	19.79	24.27	23.33	23.31	21.30	25.00	23.98	24.00	22.00
			1	49	1	0	24.30	24.08	22.10	19.98	24.50	24.27	22.17	20.20	25.80	25.39	23.26	21.35	25.79	25.63	23.58	21.48
	3620.1	3630.0	1	0	1	49	14.40	14.36	14.48	14.40	14.38	14.39	14.39	14.44	15.59	15.53	15.54	15.61	15.99	15.85	15.79	15.78
			50	0	50	0	23.07	22.10	22.17	20.10	23.23	22.25	22.27	20.28	24.39	23.40	23.40	21.36	24.70	23.75	23.69	21.76
			1	49	1	0	24.17	23.97	21.92	19.90	24.38	24.19	22.09	20.09	25.41	25.32	23.22	21.36	26.00	25.85	24.00	22.00
			50	0	50	0	22.93	21.97	21.97	19.96	23.14	22.18	22.18	20.22	24.34	23.35	23.38	21.37	24.98	23.88	23.98	21.89
	3685.1	3695.0	1	0	1	49	14.25	14.28	14.24	14.21	14.50	14.42	14.42	14.50	15.70	15.61	15.55	15.68	15.98	15.78	15.77	15.48
			50	0	50	0	22.93	21.97	21.97	19.96	23.14	22.18	22.18	20.22	24.34	23.35	23.38	21.37	24.98	23.88	23.98	21.89
			1	0	1	49	14.25	14.28	14.24	14.21	14.50	14.42	14.42	14.50	15.70	15.61	15.55	15.68	15.98	15.78	15.77	15.48
			50	0	50	0	22.93	21.97	21.97	19.96	23.14	22.18	22.18	20.22	24.34	23.35	23.38	21.37	24.98	23.88	23.98	21.89

8.4. LTE ULCA BAND 48C

Test Engineer ID:	39004	Test Date:	2024-12-19
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OUTPUT POWER FOR LTE ULCA BAND 48C (5.0MHz + 20.0MHz)

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 9				ANT 8				ANT 4				ANT 7			
	(MHz)	(MHz)	Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5MHz / 20MHz	3553.3	3565.0	1	24	1	0	19.75	19.90	19.83	19.79	20.89	21.09	20.90	20.87	21.47	21.56	21.44	21.37	21.68	21.72	21.88	21.74
			25	0	100	0	13.37	13.39	13.36	13.34	14.49	14.44	14.46	14.47	15.06	15.08	15.05	15.06	15.27	15.22	15.19	15.23
	3615.8	3627.5	1	24	1	0	23.38	23.52	22.42	20.38	24.46	24.50	23.45	21.36	25.07	25.12	24.02	22.01	25.32	25.24	24.26	22.26
			25	0	100	0	21.37	21.46	21.45	20.44	22.42	22.44	22.46	21.43	23.03	23.04	23.08	22.07	23.27	23.30	23.31	22.32
	3678.3	3690.0	1	24	1	0	19.84	19.85	19.85	19.81	20.93	21.04	20.92	20.93	21.51	21.68	21.54	21.56	21.63	21.65	21.81	21.70
			25	0	100	0	13.36	13.36	13.29	13.28	14.54	14.49	14.47	14.53	15.08	15.08	15.05	15.09	15.20	15.17	15.14	15.17

OUTPUT POWER FOR LTE ULCA BAND 48C (20.0MHz + 5.0MHz)

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 9				ANT 8				ANT 4				ANT 7			
	(MHz)	(MHz)	Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 5MHz	3560.0	3571.7	1	99	1	0	20.29	20.23	20.30	20.38	21.53	21.43	21.47	21.59	22.24	22.09	22.12	22.26	22.13	22.07	22.08	22.19
			100	0	25	0	13.40	13.40	13.33	13.35	14.69	14.65	14.64	14.68	15.19	15.20	15.14	15.18	15.27	15.22	15.24	15.25
	3622.5	3634.2	1	99	1	0	23.38	23.36	22.34	20.42	24.50	24.50	23.49	21.52	24.96	24.92	23.91	22.05	25.20	24.98	24.07	22.12
			100	0	25	0	21.37	21.45	21.45	20.43	22.61	22.63	22.62	21.66	23.00	23.01	23.06	22.05	23.24	23.25	23.26	22.26
	3685.0	3696.7	1	99	1	0	20.06	20.20	20.11	20.17	21.65	21.54	21.65	21.76	22.02	21.96	22.00	22.01	22.65	22.79	22.59	22.72
			100	0	25	0	13.29	13.29	13.22	13.23	14.74	14.74	14.71	14.75	15.08	15.08	15.05	15.07	15.49	15.46	15.46	15.49

OUTPUT POWER FOR LTE ULCA BAND 48C (10.0MHz + 20.0MHz)

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 9				ANT 8				ANT 4				ANT 7			
	(MHz)	(MHz)	Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
10MHz / 20MHz	3555.5	3569.9	1	49	1	0	19.27	19.34	19.28	19.28	19.94	19.90	19.84	19.94	21.07	21.06	21.06	21.07	21.19	21.26	21.03	21.30
			50	0	100	0	14.41	14.38	14.38	14.37	14.86	14.88	14.94	14.95	16.20	16.18	16.19	16.21	16.25	16.23	16.25	16.25
	3615.6	3630.0	1	49	1	0	23.86	23.92	22.40	20.40	24.50	24.48	22.98	21.01	25.76	25.78	24.26	22.28	25.66	25.61	24.01	22.23
			50	0	100	0	20.91	20.96	20.98	20.44	21.56	21.61	21.65	21.13	22.81	22.84	22.84	22.34	22.80	22.79	22.84	22.34
	3675.6	3690.0	1	49	1	0	19.26	19.28	19.28	19.33	19.13	19.06	19.13	19.13	21.10	21.13	21.12	21.15	21.10	21.05	20.99	21.21
			50	0	100	0	14.35	14.30	14.29	14.30	14.54	14.56	14.57	14.60	16.22	16.21	16.20	16.28	16.11	16.10	16.11	16.12

OUTPUT POWER FOR LTE ULCA BAND 48C (20.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)															
							ANT 9				ANT 8				ANT 4				ANT 7			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz / 10MHz	3560.0	3574.4	1	99	1	0	19.25	19.23	19.27	19.37	19.90	19.80	19.84	19.94	21.18	21.16	21.10	21.25	21.13	20.99	21.06	21.15
			100	0	50	0	14.42	14.39	14.39	14.39	15.19	15.19	15.21	15.25	16.27	16.26	16.25	16.24	16.21	16.22	16.23	16.25
	3620.1	3634.5	1	99	1	0	23.91	23.86	22.36	20.42	24.50	24.39	22.95	21.08	25.80	25.67	24.19	22.31	25.59	25.46	24.07	22.12
			100	0	50	0	20.92	20.97	20.99	20.48	21.87	21.92	21.94	21.45	22.76	22.81	22.81	22.34	22.74	22.75	22.79	22.28
	3680.1	3694.5	1	99	1	0	19.18	19.04	19.15	19.26	19.95	19.84	19.91	20.06	21.20	21.14	21.14	21.24	21.58	21.38	21.57	21.60
			100	0	50	0	14.31	14.27	14.27	14.28	15.21	15.20	15.21	15.26	16.25	16.23	16.26	16.27	16.31	16.29	16.33	16.31

OUTPUT POWER FOR LTE ULCA BAND 48C (15.0MHz + 20.0MHz)

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)															
	Frequency	Frequency	RB	RB	RB	RB	ANT 9				ANT 8				ANT 4				ANT 7			
	(MHz)	(MHz)	Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
15MHz / 20MHz	3557.8	3574.9	1	74	1	0	19.24	19.39	19.32	19.37	19.41	19.41	19.47	19.44	20.63	20.70	20.69	20.67	21.14	21.08	21.06	21.26
			75	0	100	0	14.43	14.39	14.44	14.41	14.64	14.63	14.65	14.67	15.85	15.83	15.83	15.84	16.18	16.20	16.22	16.23
	3615.3	3632.4	1	74	1	0	24.26	24.20	24.10	20.39	24.50	24.33	22.65	20.60	25.80	25.30	23.79	21.80	26.00	25.61	24.01	22.15
			75	0	100	0	20.92	20.99	21.00	20.49	21.41	21.44	21.46	20.95	22.33	22.36	22.38	21.88	22.73	22.78	22.79	22.30
	3672.9	3690.0	1	74	1	0	19.19	19.26	19.30	19.29	18.89	18.94	18.95	18.93	20.67	20.72	20.71	20.71	21.05	21.02	20.90	21.10
			75	0	100	0	14.38	14.31	14.32	14.31	14.49	14.46	14.48	14.50	15.83	15.80	15.81	15.85	16.04	16.06	16.08	16.09

OUTPUT POWER FOR LTE ULCA BAND 48C (20.0MHz + 15.0MHz)

Bandwidth	PCC	SCC1	PCC	PCC	SCC1	SCC1	Conducted Average (dBm)																	
	Frequency	Frequency	RB	RB	RB	RB	ANT 9				ANT 8				ANT 4				ANT 7					
	(MHz)	(MHz)	Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM		
20MHz / 15MHz	3560.0	3577.1	1	99	1	0	19.23	19.29	19.28	19.41	19.44	19.42	19.46	19.53	20.86	20.89	20.88	21.00	21.13	21.02	21.12	21.08		
			100	0	75	0	14.43	14.42	14.42	14.40	14.83	14.82	14.85	14.86	16.02	16.00	15.99	16.02	16.21	16.24	16.23	16.22		
			1	99	1	0	24.27	24.29	22.36	20.36	24.50	24.59	22.65	20.72	25.80	25.68	23.92	21.99	26.00	25.31	24.14	22.12		
			100	0	75	0	20.92	20.98	21.01	20.49	21.58	21.65	21.67	21.16	22.49	22.54	22.53	22.03	22.76	22.77	22.79	22.33		
			1	99	1	0	19.14	19.11	19.18	19.29	19.21	19.18	19.20	19.24	20.79	20.86	20.87	20.89	21.33	21.15	21.30	21.35		
	3617.6	3634.7	100	0	75	0	14.38	14.29	14.32	14.30	14.78	14.79	14.82	14.83	15.98	15.95	15.96	15.99	16.16	16.14	16.18	16.17		

OUTPUT POWER FOR LTE ULCA BAND 48C (20.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)															
							ANT 9				ANT 8				ANT 4				ANT 7			
							Size	Offset	Size	Offset	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz/ 20MHz	3560.0	3579.8	1	99	1	0	20.77	20.74	20.82	20.38	20.64	20.70	20.79	20.32	22.25	22.26	22.37	21.94	22.45	22.41	22.52	22.06
			1	0	1	99	7.36	7.27	7.29	7.37	8.17	8.10	8.16	8.22	9.01	9.01	9.04	9.04	9.14	9.01	9.15	9.14
			100	0	100	0	14.43	14.40	14.39	14.39	14.70	14.70	14.72	14.73	15.96	15.94	15.98	15.96	16.10	16.08	16.11	16.14
			1	99	1	0	24.29	24.27	22.40	20.37	24.50	24.28	22.61	20.64	25.80	25.67	23.97	21.97	26.00	25.45	24.01	22.03
	3615.1	3634.9	1	0	1	99	13.87	13.80	13.78	13.82	14.80	14.72	14.76	14.88	15.29	15.24	15.30	15.33	15.60	15.42	15.55	15.54
			100	0	100	0	20.91	20.99	21.01	20.49	21.57	21.60	21.62	21.10	22.47	22.51	22.50	22.03	22.72	22.72	22.75	22.26
			1	99	1	0	20.72	20.79	20.78	20.24	20.46	20.58	20.52	20.15	22.21	22.29	22.29	21.83	22.42	22.44	22.53	21.99
			1	0	1	99	7.26	7.17	7.28	7.31	8.40	8.32	8.36	8.40	9.11	9.03	9.08	9.11	9.21	9.04	9.20	9.18
	3670.2	3690.0	100	0	100	0	14.39	14.33	14.33	14.33	14.67	14.67	14.72	14.73	15.94	15.95	15.92	15.93	16.01	16.03	16.01	16.05

8.5. 5G NR n48 MIMO

Test Engineer ID:	27342	Test Date:	2025-02-28
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OUTPUT POWER FOR 5G NR n48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 4			ANT 8			ANT 4+8		
				637000	641666	646333	637000	641666	646333	637000	641666	646333
10.0	QPSK	1	0	21.47	21.38	21.02	21.49	21.49	21.43	24.49	24.45	24.24
		1	1	22.99	22.89	22.94	22.99	22.99	22.95	26.00	25.95	25.95
		1	22	22.93	22.99	22.95	22.99	22.79	22.99	25.97	25.90	25.98
		1	23	21.49	21.29	21.22	21.48	21.41	21.43	24.49	24.36	24.34
		12	6	21.49	21.49	21.29	21.46	21.49	21.49	24.49	24.50	24.40
		24	0	21.49	21.46	21.49	21.99	21.46	21.47	24.76	24.47	24.49
	16QAM	1	0	21.44	21.36	21.31	21.45	21.42	21.45	24.45	24.40	24.39
		1	1	22.39	22.47	22.46	22.40	22.49	22.39	25.40	25.49	25.44
		1	22	22.27	22.51	22.36	22.36	22.44	22.42	25.33	25.48	25.40
		1	23	21.42	21.41	21.28	21.44	21.42	21.49	24.44	24.43	24.40
		12	6	21.48	21.44	21.27	21.49	21.49	21.48	24.49	24.48	24.39
		24	0	21.46	21.41	21.25	21.47	21.46	21.46	24.47	24.45	24.37
	64QAM	1	0	20.93	20.85	20.59	21.04	20.93	20.90	24.00	23.90	23.76
		1	1	20.70	20.79	20.74	20.84	20.94	20.74	23.78	23.88	23.75
		1	22	20.75	20.76	20.78	20.68	20.76	20.68	23.73	23.77	23.74
		1	23	20.83	20.66	20.61	20.84	20.82	20.78	23.84	23.76	23.71
		12	6	20.87	20.82	20.69	20.84	20.93	20.89	23.87	23.89	23.80
		24	0	20.85	20.79	20.67	20.82	20.90	20.87	23.85	23.86	23.78
	256QAM	1	0	17.95	17.77	17.58	17.84	17.90	17.86	20.91	20.85	20.74
		1	1	17.66	17.67	17.64	17.78	17.75	17.67	20.73	20.72	20.66
		1	22	17.70	17.78	17.67	17.64	17.72	17.61	20.68	20.76	20.65
		1	23	18.08	17.82	17.75	17.89	17.91	17.89	21.00	20.88	20.83
		12	6	17.94	17.80	17.65	17.81	17.94	17.87	20.89	20.88	20.77
		24	0	17.92	17.77	17.63	17.79	17.91	17.85	20.87	20.85	20.75

OUTPUT POWER FOR 5G NR n48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 4			ANT 8			ANT 4+8		
				637166	641333	646166	637166	641333	646166	637166	641333	646166
15.0	QPSK	1	0	21.43	21.50	21.24	21.50	21.47	21.47	24.48	24.50	24.37
		1	1	22.91	22.99	23.00	23.00	22.99	22.94	25.97	26.00	25.98
		1	36	23.00	23.00	22.85	22.95	22.88	22.81	25.98	25.95	25.84
		1	37	21.50	21.44	21.22	21.48	21.29	21.46	24.50	24.37	24.35
		19	9	21.50	21.39	21.50	21.50	21.44	21.50	24.51	24.43	24.51
		38	0	21.48	21.36	21.48	21.48	21.41	21.48	24.49	24.40	24.49
	16QAM	1	0	21.48	21.40	21.50	21.46	21.50	21.50	24.48	24.46	24.51
		1	1	22.31	22.52	22.36	22.24	22.49	22.58	25.29	25.52	25.48
		1	36	22.27	22.53	22.32	22.30	22.38	22.42	25.30	25.46	25.38
		1	37	21.45	21.45	21.24	21.38	21.31	21.28	24.43	24.39	24.27
		19	9	21.43	21.50	21.46	21.44	21.50	21.43	24.45	24.51	24.46
		38	0	21.06	21.47	20.95	20.82	21.47	20.78	23.95	24.48	23.88
	64QAM	1	0	20.81	21.05	20.72	21.03	21.05	21.00	23.93	24.06	23.87
		1	1	20.59	20.84	20.64	20.79	21.07	20.83	23.70	23.97	23.74
		1	36	20.54	20.73	20.69	20.72	20.59	20.80	23.64	23.67	23.75
		1	37	20.81	20.82	20.95	20.89	20.84	20.99	23.86	23.84	23.98
		19	9	20.89	20.85	20.91	20.93	20.82	20.90	23.92	23.85	23.91
		38	0	20.68	20.82	20.70	20.60	20.79	20.58	23.65	23.82	23.65
	256QAM	1	0	17.75	17.99	17.84	17.88	18.03	17.91	20.83	21.02	20.88
		1	1	17.37	17.63	17.67	17.78	18.02	17.90	20.59	20.84	20.80
		1	36	17.53	17.90	17.45	17.59	17.83	17.83	20.57	20.88	20.65
		1	37	17.67	17.89	17.75	17.87	17.83	17.84	20.78	20.87	20.81
		19	9	17.84	17.79	17.89	17.82	17.79	17.91	20.84	20.80	20.91
		38	0	17.82	17.76	17.87	17.80	17.76	17.89	20.82	20.77	20.89

OUTPUT POWER FOR 5G NR n48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 4			ANT 8			ANT 4+8		
				637333	641333	646000	637333	641333	646000	637333	641333	646000
20.0	QPSK	1	0	3560.0	3620.0	3690.0	3560.0	3620.0	3690.0	3560.0	3620.0	3690.0
		1	1	21.21	21.24	21.38	21.38	21.14	21.38	24.31	24.20	24.39
		1	49	22.99	22.83	23.00	22.99	23.00	22.94	26.00	25.93	25.98
		1	50	22.96	22.88	22.83	22.94	22.65	22.94	25.96	25.78	25.89
		25	12	21.43	21.37	21.39	21.37	21.16	21.33	24.41	24.28	24.37
	16QAM	51	0	21.50	21.50	21.50	21.50	21.50	21.50	24.51	24.51	24.51
		1	0	20.49	21.47	20.48	20.70	21.47	20.80	23.61	24.48	23.65
		1	1	21.39	21.47	21.34	21.37	21.50	21.38	24.39	24.49	24.37
		1	49	22.50	22.33	22.13	22.32	22.45	22.55	25.42	25.40	25.36
		1	50	22.48	22.48	22.03	22.48	22.28	22.16	25.49	25.39	25.11
	64QAM	1	0	21.50	21.50	21.21	21.38	21.25	21.08	24.45	24.39	24.16
		25	12	21.41	21.34	21.33	21.31	21.36	21.38	24.37	24.36	24.37
		51	0	21.06	21.31	20.95	20.75	21.33	20.65	23.38	24.33	23.31
		1	0	20.86	20.98	20.91	20.83	21.04	20.93	23.85	24.02	23.93
		1	1	20.81	20.78	20.70	20.90	20.69	20.99	23.87	23.75	23.86
	256QAM	1	49	20.82	20.74	20.54	20.84	20.72	20.86	23.84	23.74	23.71
		1	50	20.87	20.88	20.69	20.82	20.65	20.67	23.86	23.78	23.69
		25	12	20.84	20.93	20.85	20.81	20.90	20.91	23.84	23.93	23.89
		51	0	20.62	20.90	20.68	20.50	20.87	20.58	23.57	23.90	23.64
		1	0	17.75	18.00	17.96	17.54	17.82	17.87	20.66	20.92	20.93
		1	1	17.72	17.63	17.64	17.53	17.75	17.75	20.63	20.70	20.71
		1	49	17.60	17.68	17.39	17.63	17.64	17.81	20.63	20.67	20.61
		1	50	17.80	17.72	17.75	17.67	17.74	17.68	20.74	20.74	20.72
		25	12	17.88	17.87	17.81	17.75	17.83	17.80	20.82	20.86	20.81
		51	0	17.86	17.84	17.79	17.73	17.80	17.78	20.80	20.83	20.79

OUTPUT POWER FOR 5G NR n48 (30.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 4			ANT 8			ANT 4+8		
				637666	641666	645666	637666	641666	645666	637666	641666	645666
30.0	QPSK	1	0	3565.0	3625.0	3685.0	3565.0	3625.0	3685.0	3565.0	3625.0	3685.0
		1	1	20.81	21.19	21.50	20.84	21.36	21.48	23.84	24.29	24.50
		1	76	23.00	22.87	23.00	22.62	23.00	22.98	25.82	25.95	26.00
		1	77	23.00	23.00	22.76	22.88	22.67	23.00	25.95	25.85	25.89
		39	19	20.78	21.44	21.42	20.81	21.42	21.45	23.81	24.44	24.45
	16QAM	78	0	20.88	21.50	21.50	20.86	21.50	21.47	23.88	24.51	24.50
		1	0	20.00	21.47	21.48	19.62	21.47	21.45	22.82	24.48	22.98
		1	1	21.50	21.20	21.30	21.48	21.50	21.50	24.50	24.36	24.41
		1	76	22.50	22.32	22.42	22.49	22.37	22.38	25.51	25.36	25.41
		1	77	22.50	22.34	22.43	22.50	22.12	22.67	25.51	25.24	25.57
	64QAM	39	19	21.24	21.50	21.43	21.50	21.21	21.42	24.38	24.37	24.43
		78	0	21.50	21.50	21.50	21.50	21.49	21.50	24.51	24.50	24.51
		1	0	21.48	21.47	21.48	21.48	21.46	21.48	22.99	24.47	22.99
		1	1	20.99	20.91	21.06	21.09	20.80	21.12	24.05	23.86	24.10
		1	76	21.43	20.57	20.72	21.50	20.50	20.71	24.47	23.55	23.72
	256QAM	1	76	21.34	20.92	20.41	21.39	20.60	20.94	24.37	23.77	23.70
		1	77	21.14	20.85	20.98	20.75	20.94	20.89	23.96	23.90	23.94
		39	19	21.16	20.99	20.98	21.10	20.97	21.04	24.14	23.99	24.02
		78	0	20.62	20.96	20.52	20.63	20.94	20.59	22.34	23.96	22.57
		1	0	18.04	17.74	17.73	17.89	17.82	18.14	20.98	20.79	20.95
		1	1	18.44	17.59	17.65	18.66	17.67	17.92	21.56	20.64	20.80
		1	76	18.46	17.63	17.56	18.60	17.69	17.58	21.54	20.67	20.58
		1	77	18.04	17.65	17.70	17.94	17.95	17.83	21.00	20.81	20.78
		39	19	18.11	17.98	18.02	18.09	17.91	17.93	21.11	20.95	20.98
		78	0	18.09	17.95	18.00	18.07	17.88	17.91	21.09	20.92	20.96

OUTPUT POWER FOR 5G NR n48 (40.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 4			ANT 8			ANT 4+8		
				638000	641333	645333	638000	641333	645333	638000	641333	645333
				3570.0 MHz	3620.0 MHz	3680.0 MHz	3570.0 MHz	3620.0 MHz	3680.0 MHz	3570.0 MHz	3620.0 MHz	3680.0 MHz
40.0	QPSK	1	0	20.97	21.48	21.50	21.16	21.50	21.50	24.07	24.50	24.51
		1	1	22.70	22.94	22.88	22.67	22.93	22.95	25.70	25.94	25.93
		1	104	22.79	22.98	22.66	23.00	23.00	22.73	25.91	26.00	25.70
		1	105	21.50	21.50	21.13	21.50	21.43	21.11	24.51	24.47	24.13
		53	26	21.50	21.50	21.50	21.50	21.50	21.50	24.51	24.51	24.51
		106	0	19.95	21.47	19.83	19.70	21.47	19.62	22.84	24.48	22.74
	16QAM	1	0	20.19	20.49	20.43	20.17	20.46	20.33	23.19	23.49	23.39
		1	1	21.66	22.05	21.83	21.53	21.86	21.62	24.61	24.97	24.74
		1	104	21.64	21.89	21.44	21.45	21.74	21.43	24.56	24.82	24.44
		1	105	20.26	20.32	19.87	20.31	20.33	20.03	23.30	23.33	22.96
		53	26	20.42	20.33	20.23	20.32	20.30	20.21	23.38	23.32	23.23
		106	0	19.62	20.30	19.73	19.62	20.27	19.75	22.63	23.29	22.75
	64QAM	1	0	19.64	19.95	19.83	19.53	19.82	19.85	22.60	22.89	22.85
		1	1	20.23	20.38	20.42	19.97	20.06	20.47	23.11	23.23	23.46
		1	104	20.24	20.21	19.83	20.27	20.16	20.13	23.27	23.20	23.00
		1	105	19.68	19.81	19.49	19.74	20.14	19.63	22.72	22.99	22.57
		53	26	19.93	19.84	19.77	19.82	19.82	19.78	22.88	22.84	22.78
		106	0	19.48	19.81	19.39	19.05	19.79	18.62	22.28	22.81	22.03
	256QAM	1	0	17.69	17.82	17.91	17.67	17.77	17.81	20.69	20.81	20.87
		1	1	18.28	18.33	18.23	18.03	18.38	18.33	21.17	21.36	21.29
		1	104	18.31	18.58	17.94	18.09	18.22	17.97	21.21	21.42	20.96
		1	105	17.80	17.88	17.61	17.70	17.87	17.62	20.76	20.88	20.63
		53	26	17.97	17.84	17.83	17.84	17.70	17.86	20.92	20.78	20.86
		106	0	18.01	17.81	17.81	17.70	17.67	17.62	20.87	20.75	20.73

9. CONDUCTED TEST RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only.

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

RESULTS

There is no limit required, and power is the same for low, middle and high channel; therefore, only middle channel was tested.

LTE BAND 48

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 48	5MHz, QPSK	25/0	3625.0	4.438	5.02
	5MHz, 16QAM			4.474	4.98
	10MHz, QPSK	50/0		8.971	9.46
	10MHz, 16QAM			8.958	9.35
	15MHz, QPSK	75/0	3620.0	13.388	14.13
	15MHz, 16QAM			13.434	14.12
	20MHz, QPSK	100/0		17.814	18.81
	20MHz, 16QAM			17.910	19.16
	20MHz, QPSK	1/0		0.2386	0.34

5G NR n48

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
	10MHz, QPSK	24/0	3625.0	8.581	9.58
	10MHz, 16QAM			8.552	9.31
	15MHz, QPSK	36/0	3620.0	12.965	13.89
	15MHz, 16QAM			12.875	13.84
	20MHz, QPSK	50/0		17.899	19.27
	20MHz, 16QAM			17.912	19.26
	30MHz, QPSK	75/0	3625.0	26.906	28.29
	30MHz, 16QAM			26.720	28.06
	40MHz, QPSK	100/0	3620.0	35.761	37.32
	40MHz, 16QAM			35.957	37.72
	40MHz, QPSK	1/0		0.523	0.89

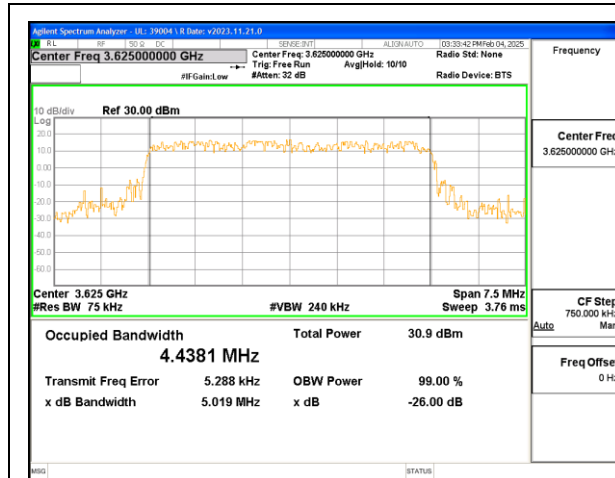
LTE ULCA BAND 48B

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE ULCA BAND 48B	20MHz + 20MHz BAND QPSK	50/0 + 50/0	3625	19.233	21.04
	20MHz + 20MHz BAND 16QAM			19.215	21.15

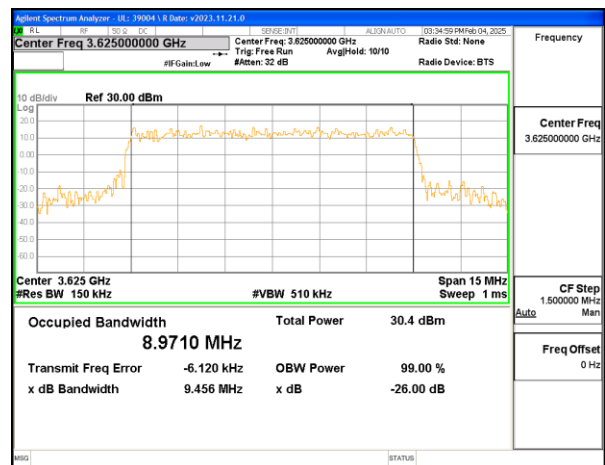
LTE ULCA BAND 48C

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE ULCA BAND 48C	5MHz + 20MHz BAND QPSK	25/0 + 100/0	3625	23.350	25.00
	5MHz + 20MHz BAND 16QAM			23.338	24.89
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.400	24.97
	20MHz + 5MHz BAND 16QAM			23.299	24.93
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		28.192	31.10
	10MHz + 20MHz BAND 16QAM			28.003	29.88
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.066	29.98
	20MHz + 10MHz BAND 16QAM			28.154	31.09
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.765	34.93
	15MHz + 20MHz BAND 16QAM			32.909	34.97
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.888	34.97
	20MHz + 15MHz BAND 16QAM			32.790	38.07
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.714	39.86
	20MHz + 20MHz BAND 16QAM			37.624	40.01

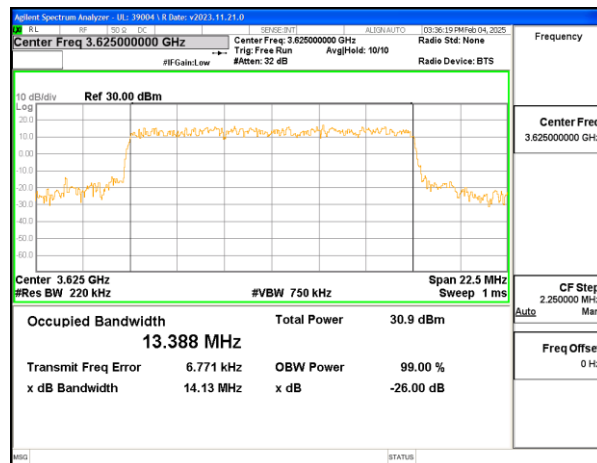
9.1.1. LTE BAND 48



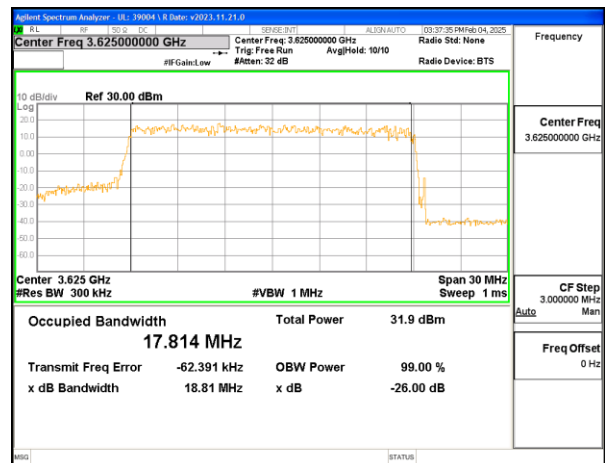
LTE B48 5MHz QPSK Middle Channel RB25-0



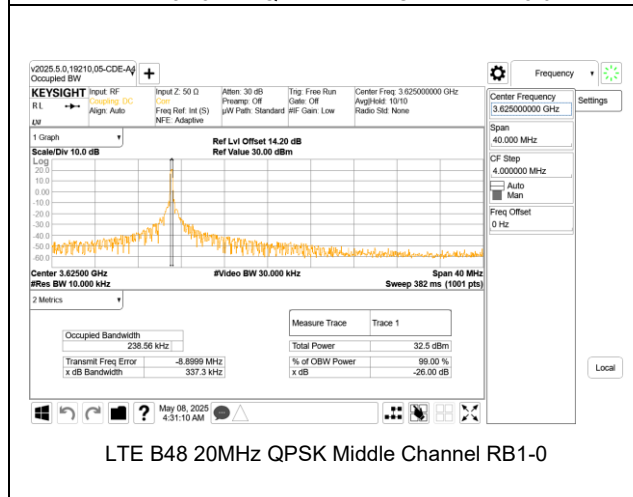
LTE B48 10MHz QPSK Middle Channel RB50-0



LTE B48 15MHz QPSK Middle Channel RB75-0



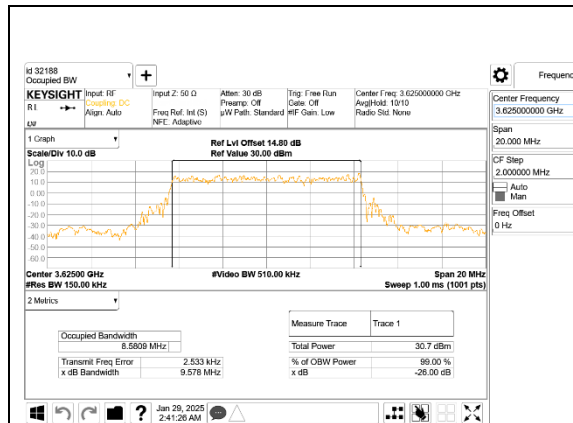
LTE B48 20MHz QPSK Middle Channel RB100-0



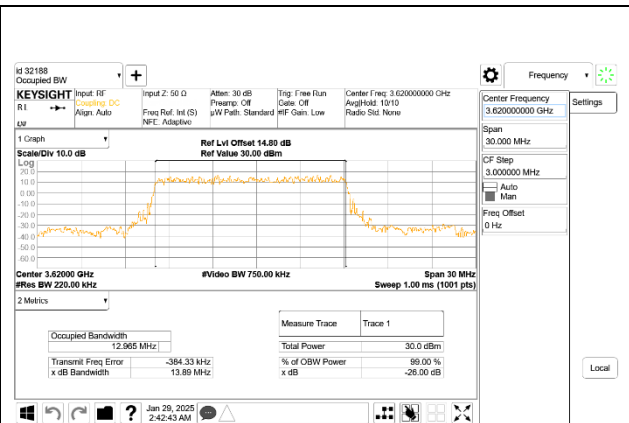
LTE B48 20MHz QPSK Middle Channel RB1-0

Intentionally Blank

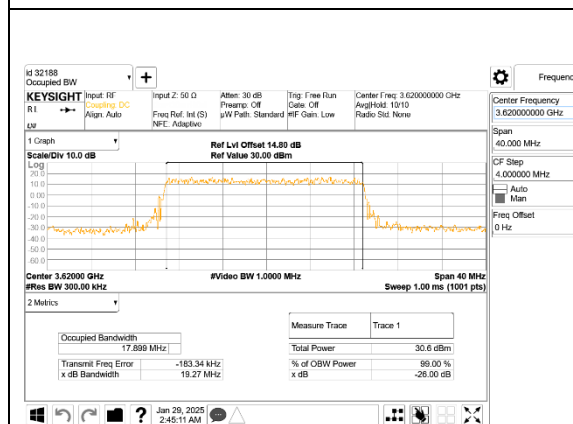
9.1.2. 5G NR n48



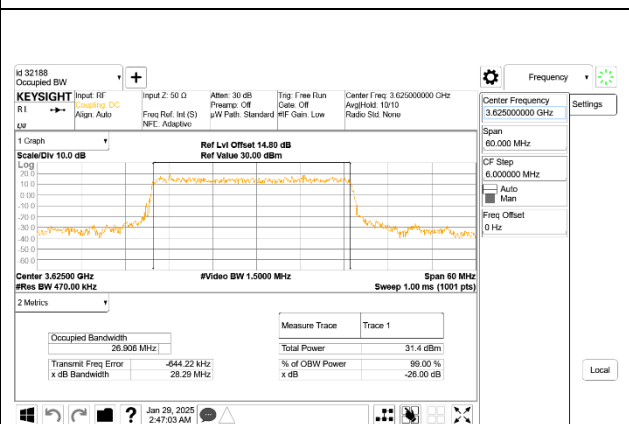
5G NR n48 10MHz QPSK Middle Channel RB24-0



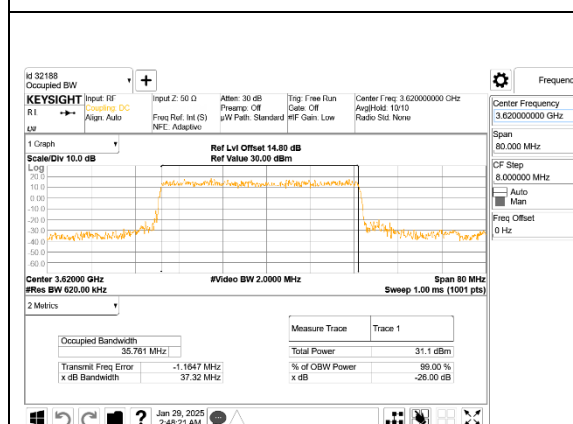
5G NR n48 15MHz QPSK Middle Channel RB36-0



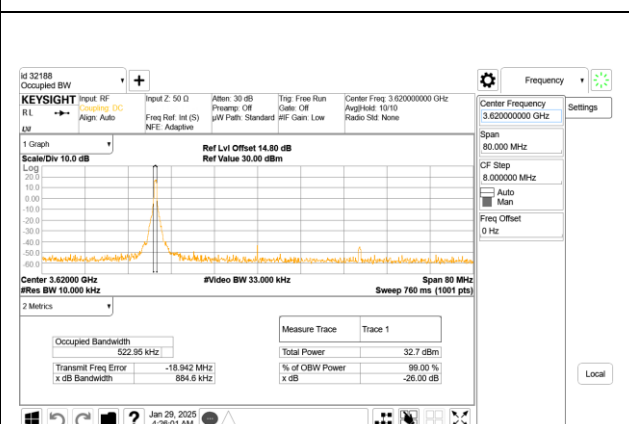
5G NR n48 20MHz QPSK Middle Channel RB50-0



5G NR n48 30MHz QPSK Middle Channel RB75-0

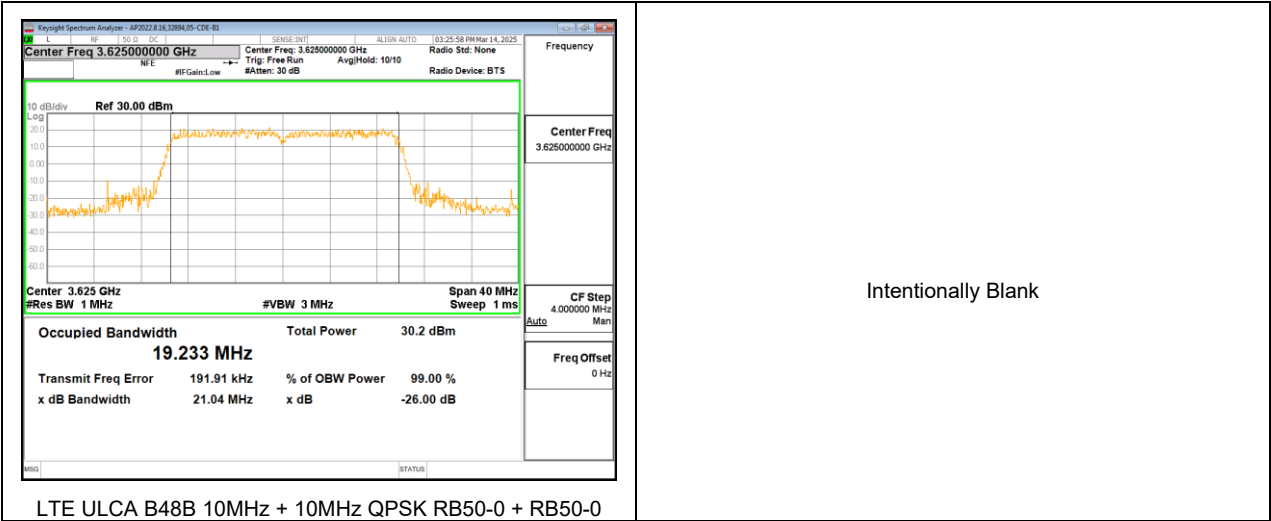


5G NR n48 40MHz QPSK Middle Channel RB100-0



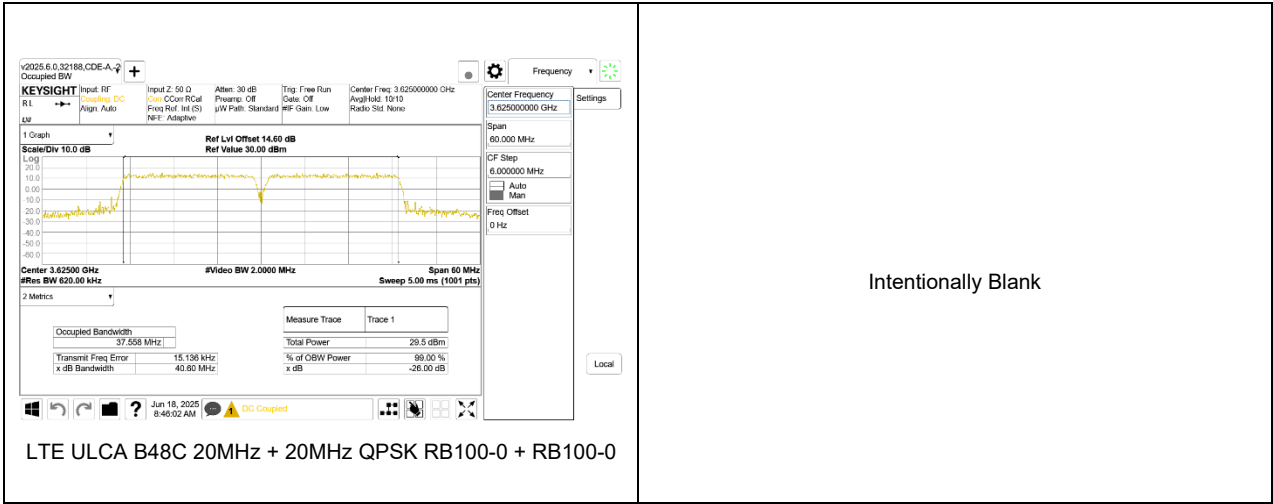
5G NR n48 40MHz QPSK Middle Channel RB1-0

9.1.3. LTE ULCA BAND 48B



9.1.4. LTE ULCA BAND 48C





9.2. EMISSION MASK AND ADJACENT CHANNEL POWER

LIMITS

FCC: §96.41

(e) 3.5 GHz Emissions and Interference Limits—

(1) General protection levels

(ii) 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.

(2) 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 -40 dBm/MHz.

TEST PROCEDURE (FCC LTE BAND 48)

(i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring unwanted emissions to demonstrate compliance with the limits, the CBSD and End User Device nominal carrier frequency/channel shall be adjusted as close to the licensee's authorized frequency block edges, both upper and lower, as the design permits.

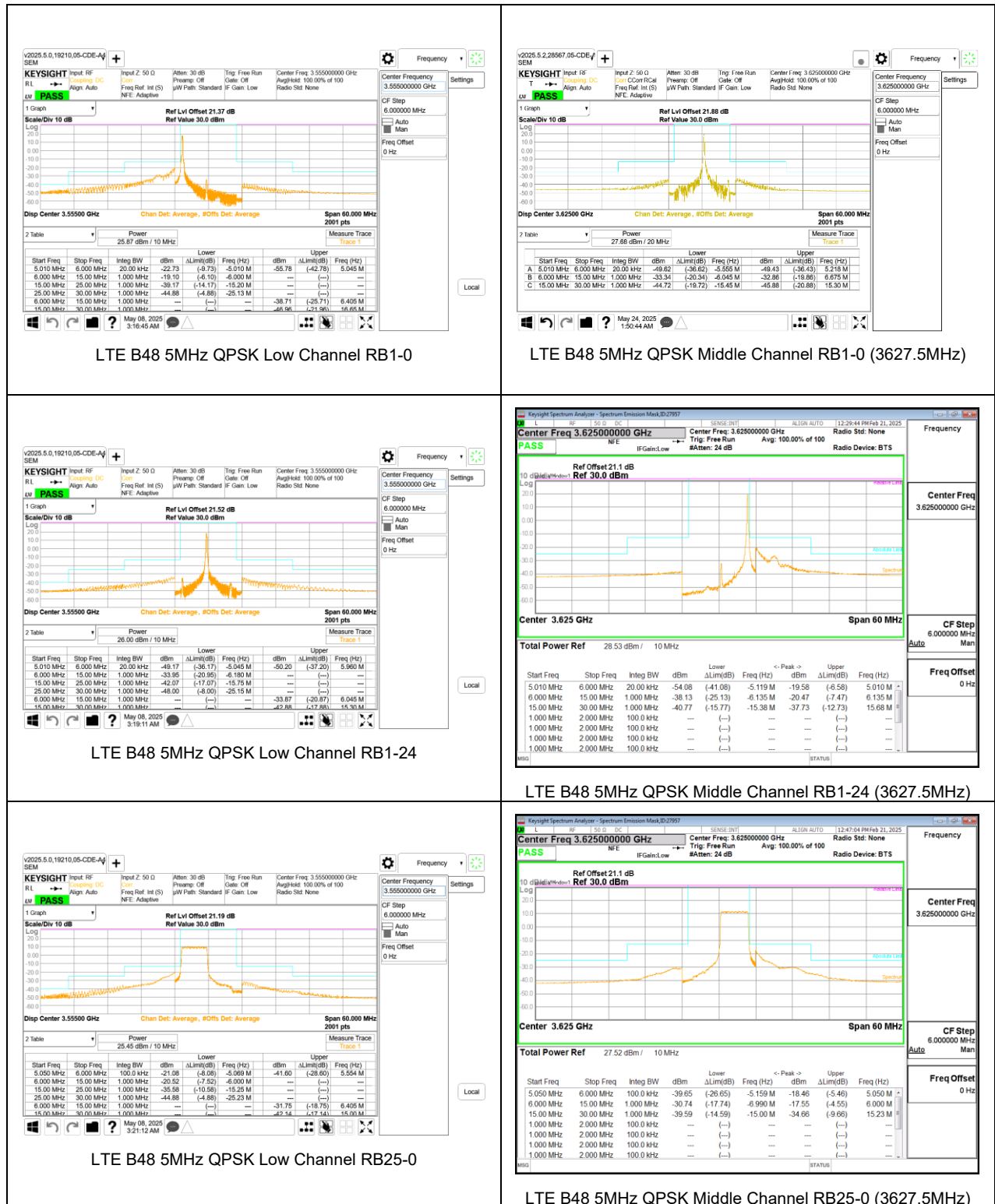
(iii) Compliance with emission limits shall be demonstrated using either average (RMS)-detected or peak-detected power measurement techniques.

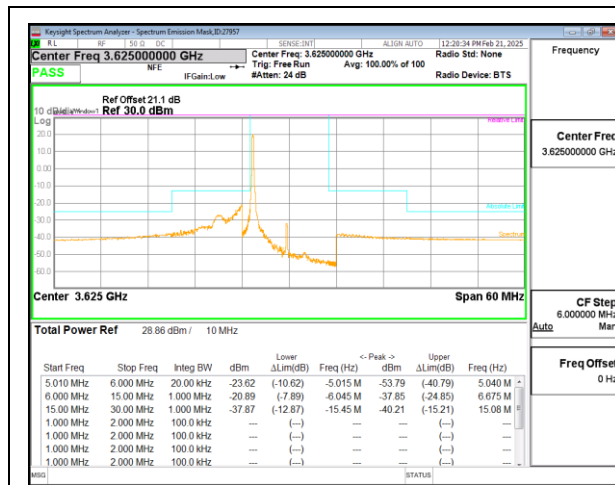
(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40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

For MIMO modes are made using the measure and sum the spectra method E3)a)ii) / E)2)a) from KDB 662911 D01. The measurements for each antenna are stored in separate traces (i.e. trace 1 and trace 2). The spectrum analyzer's math function is used to perform a linear sum of powers of the two traces and store the result in trace 3. Trace 3 is compared to the in-band or out of band limit as applicable.

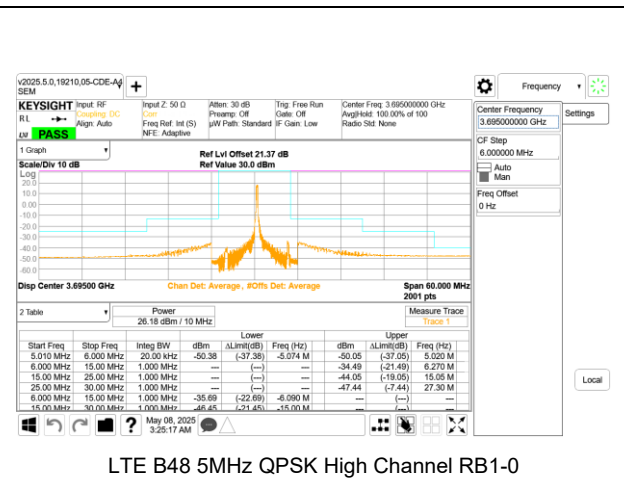
RESULTS

9.2.1. LTE BAND 48 EMISSION MASK

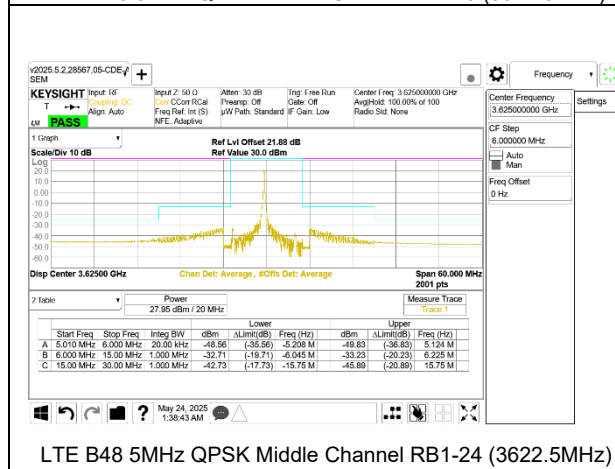




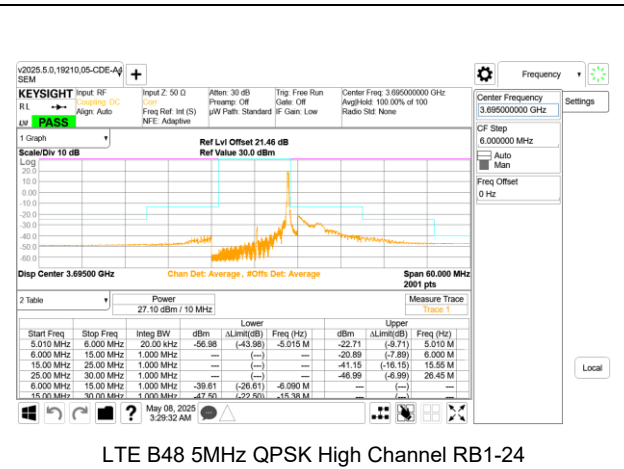
LTE B48 5MHz QPSK Middle Channel RB1-0 (3622.5MHz)



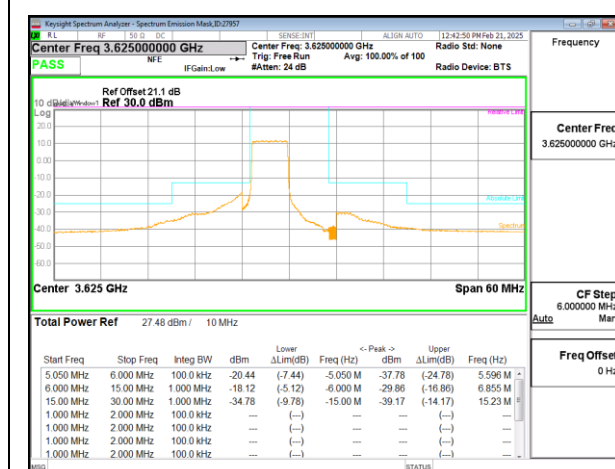
LTE B48 5MHz QPSK High Channel RB1-0



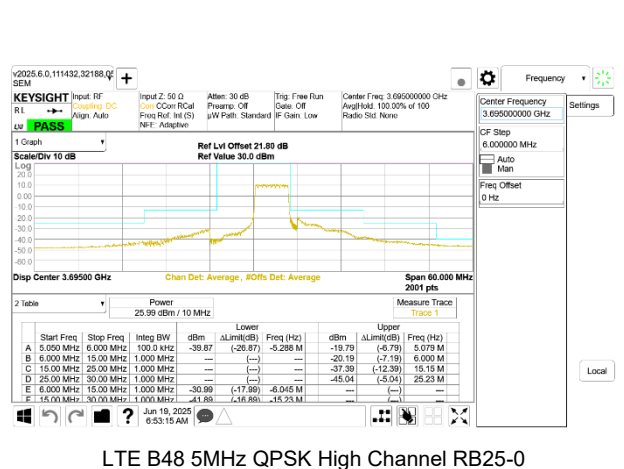
LTE B48 5MHz QPSK Middle Channel RB1-24 (3622.5MHz)



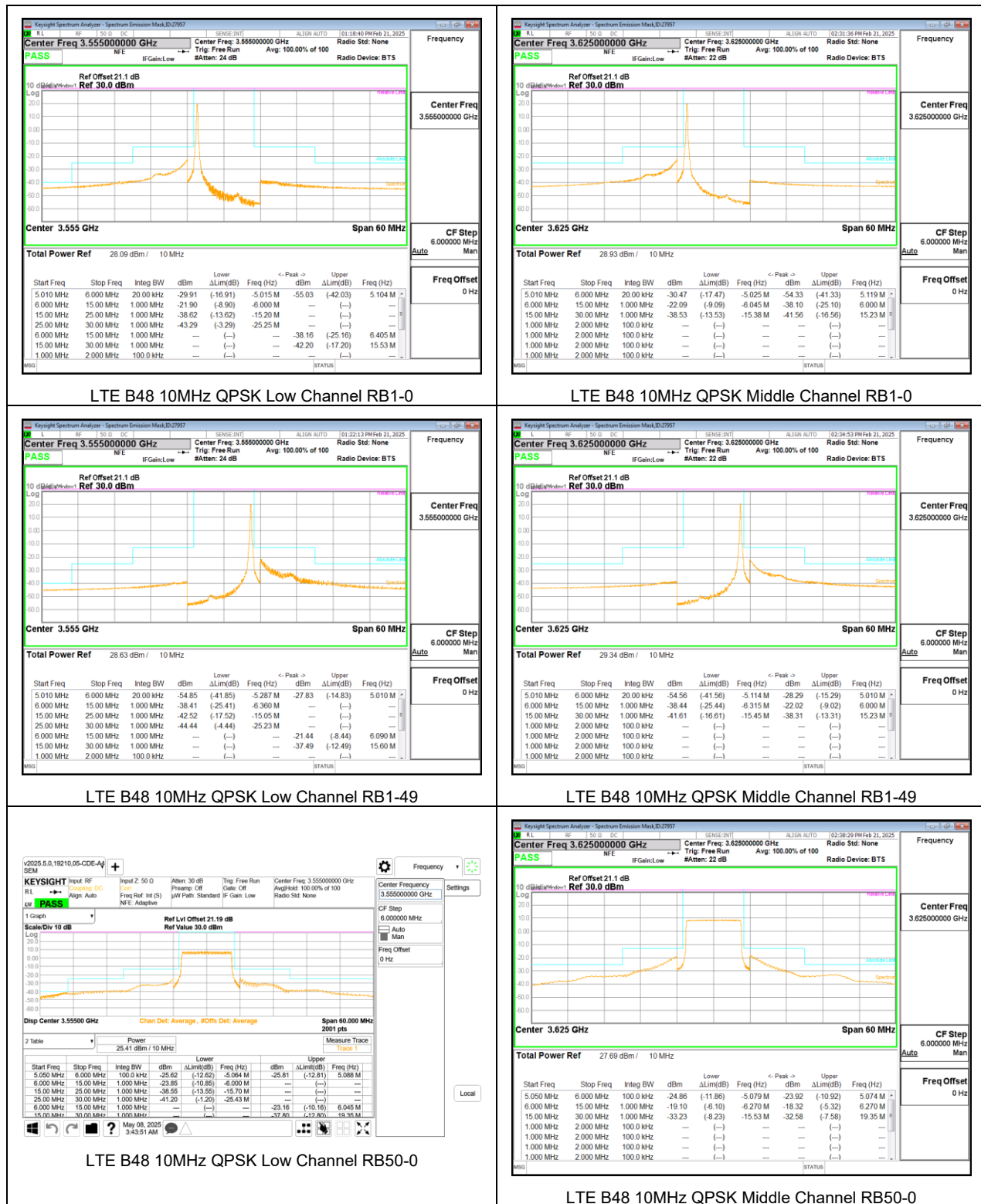
LTE B48 5MHz QPSK High Channel RB1-24

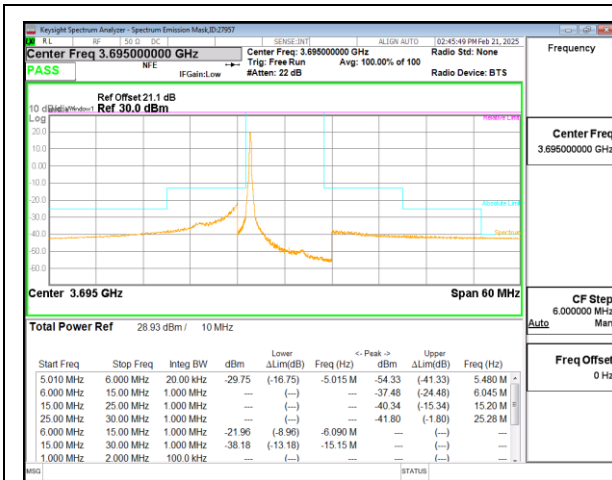


LTE B48 5MHz QPSK Middle Channel RB25-0 (3622.5MHz)

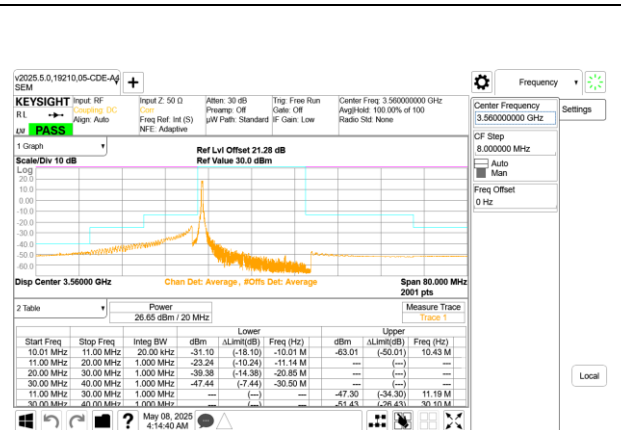


LTE B48 5MHz QPSK High Channel RB25-0

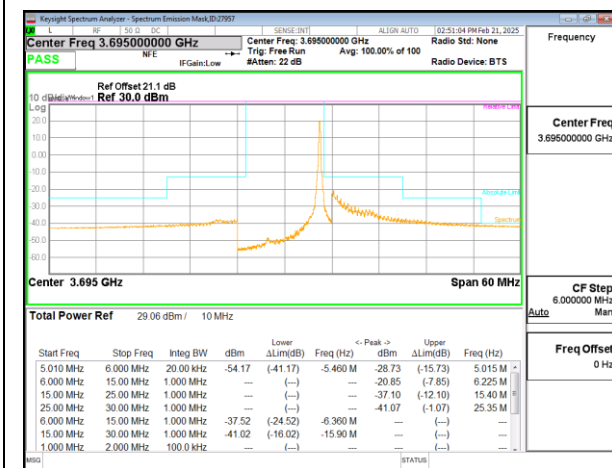




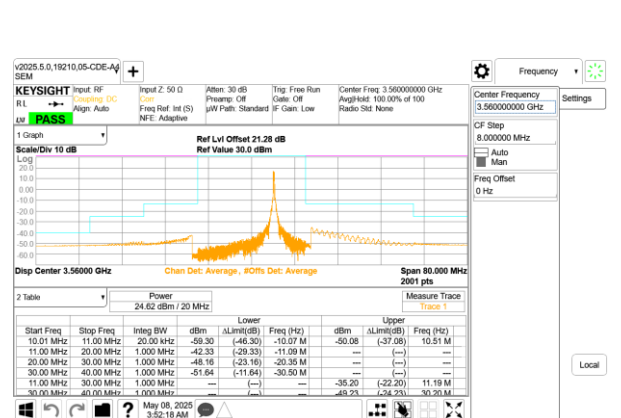
LTE B48 10MHz QPSK High Channel RB1-0



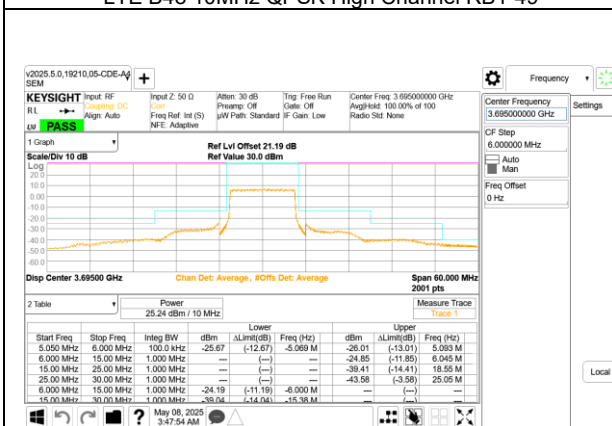
LTE B48 15MHz QPSK Low Channel RB1-0



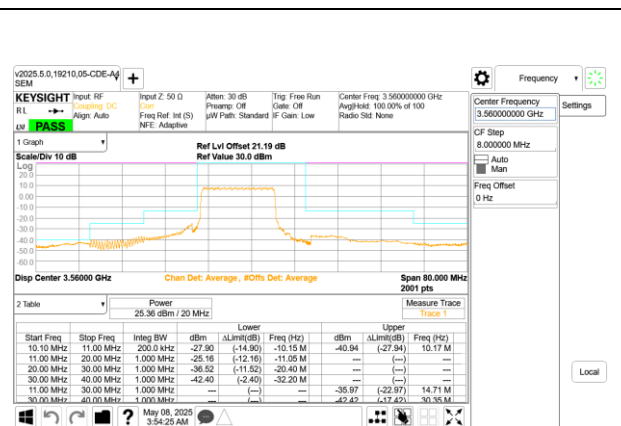
LTE B48 10MHz QPSK High Channel RB1-49



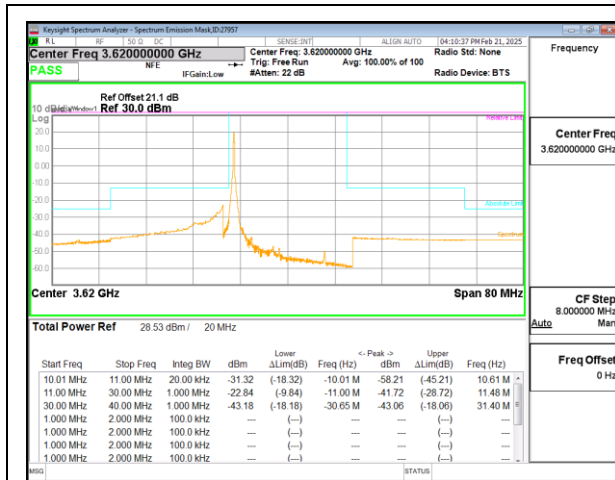
LTE B48 15MHz QPSK Low Channel RB1-74



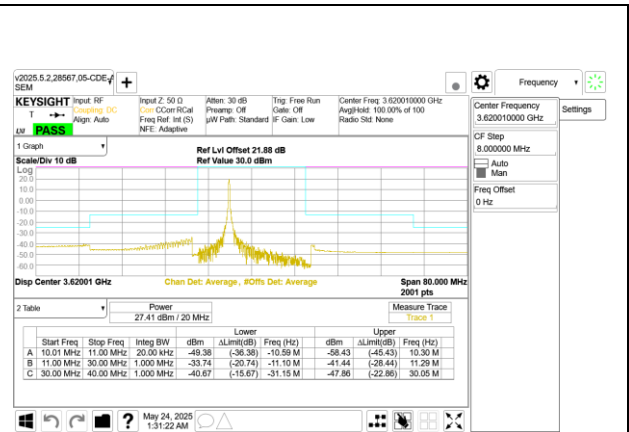
LTE B48 10MHz QPSK High Channel RB50-0



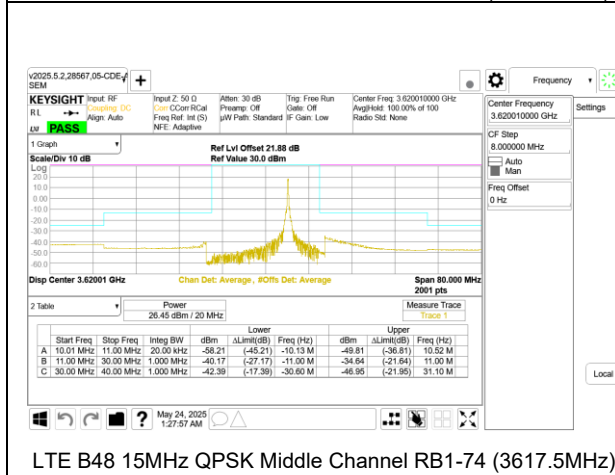
LTE B48 15MHz QPSK Low Channel RB75-0



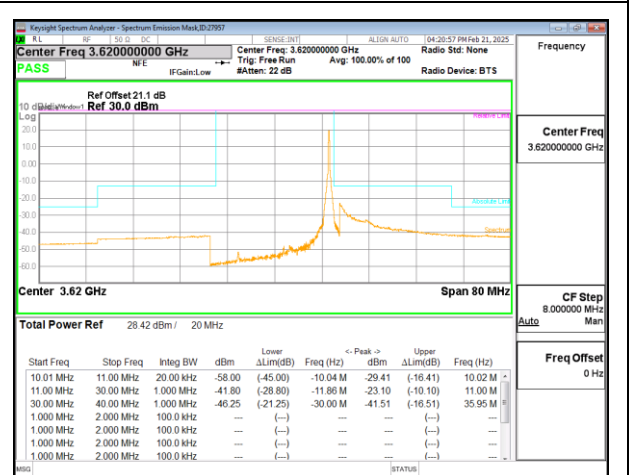
LTE B48 15MHz QPSK Middle Channel RB1-0 (3617.5MHz)



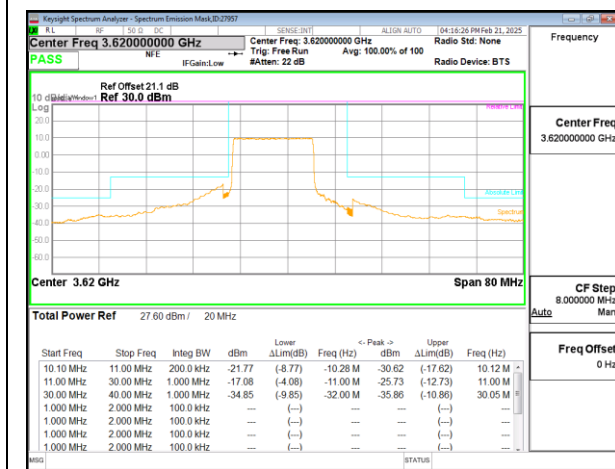
LTE B48 15MHz QPSK Middle Channel RB1-0 (3622.5MHz)



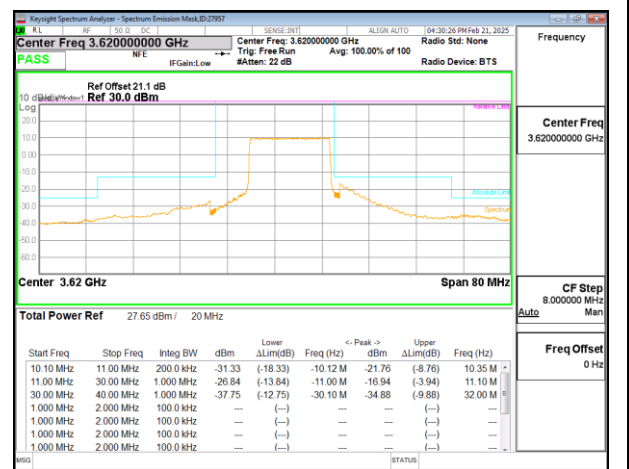
LTE B48 15MHz QPSK Middle Channel RB1-74 (3617.5MHz)



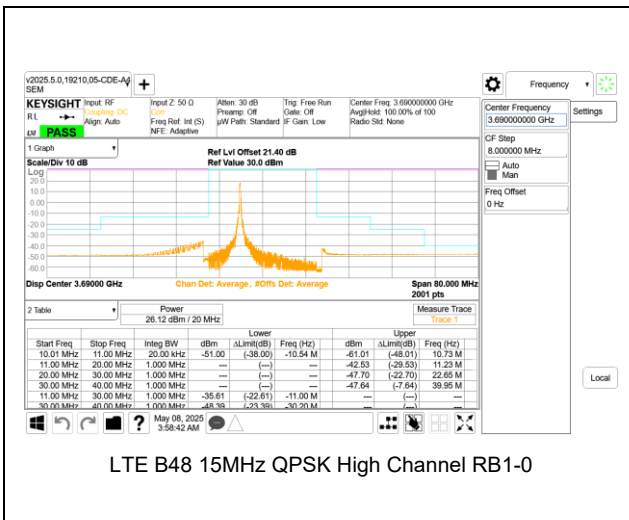
LTE B48 15MHz QPSK Middle Channel RB1-0 (3622.5MHz)



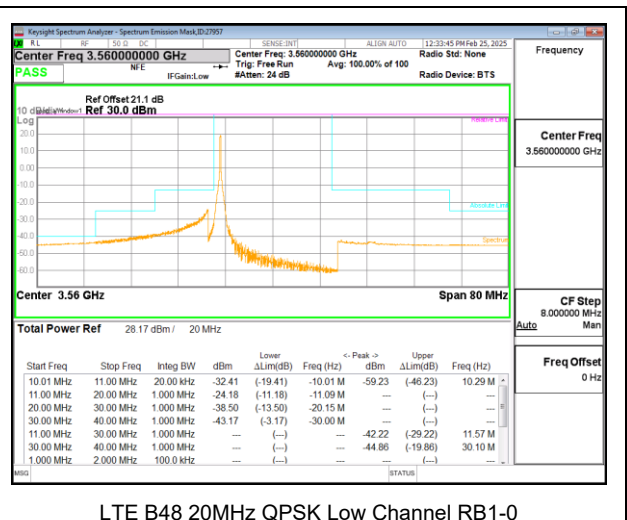
LTE B48 15MHz QPSK Middle Channel RB75-0 (3617.5MHz)



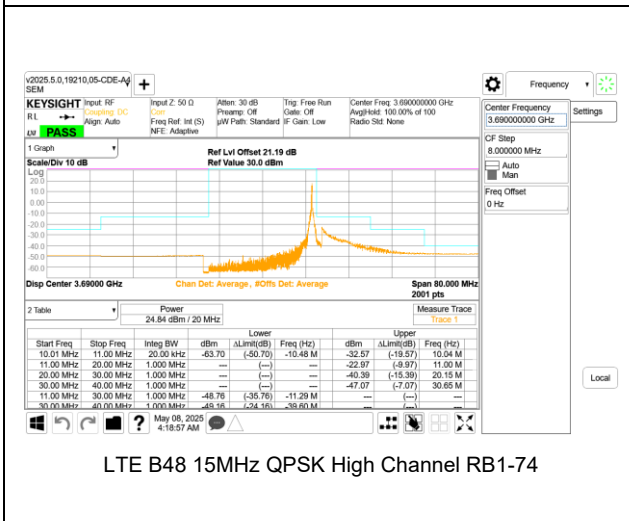
LTE B48 15MHz QPSK Middle Channel RB75-0 (3622.5MHz)



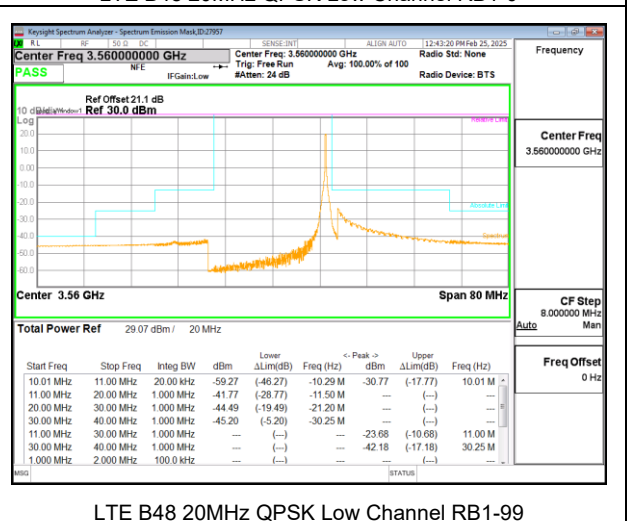
LTE B48 15MHz QPSK High Channel RB1-0



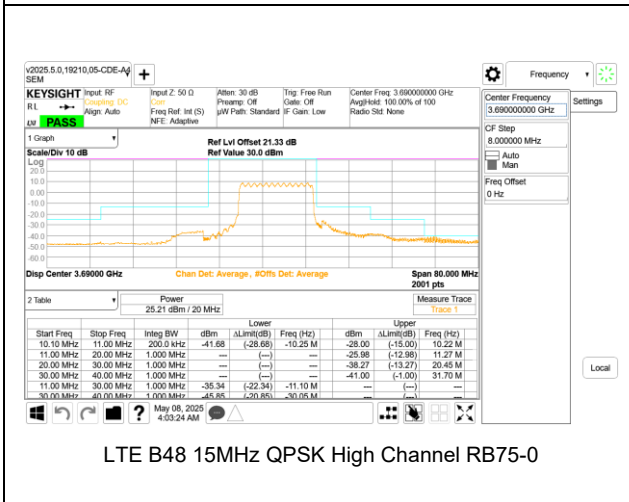
LTE B48 20MHz QPSK Low Channel RB1-0



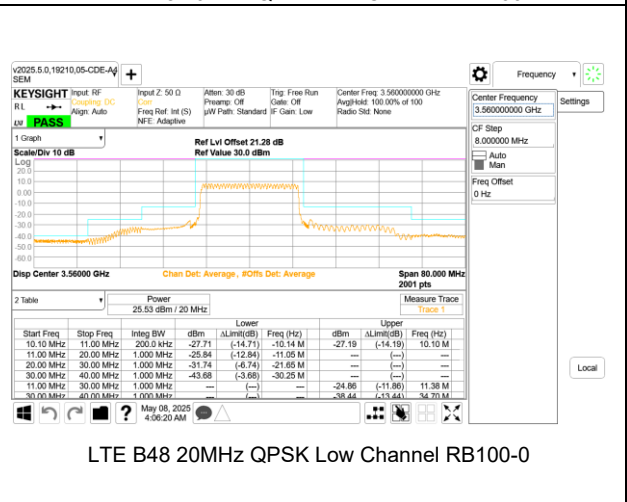
LTE B48 15MHz QPSK High Channel RB1-74



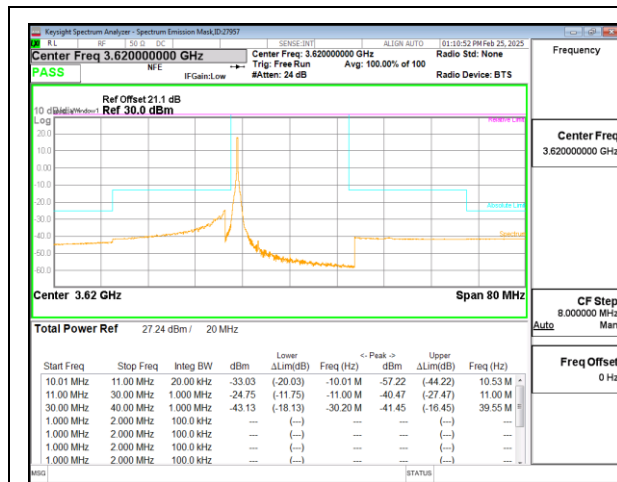
LTE B48 20MHz QPSK Low Channel RB1-99



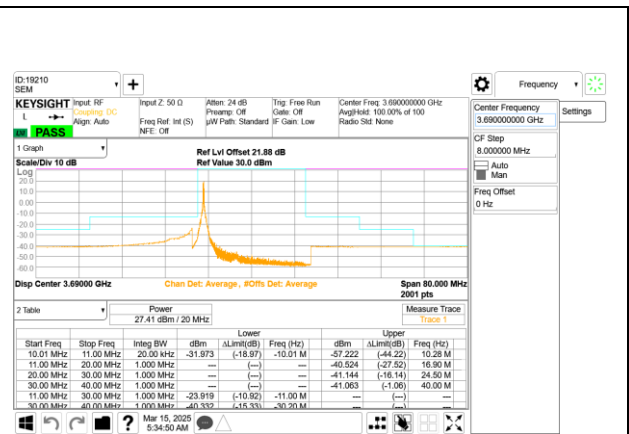
LTE B48 15MHz QPSK High Channel RB75-0



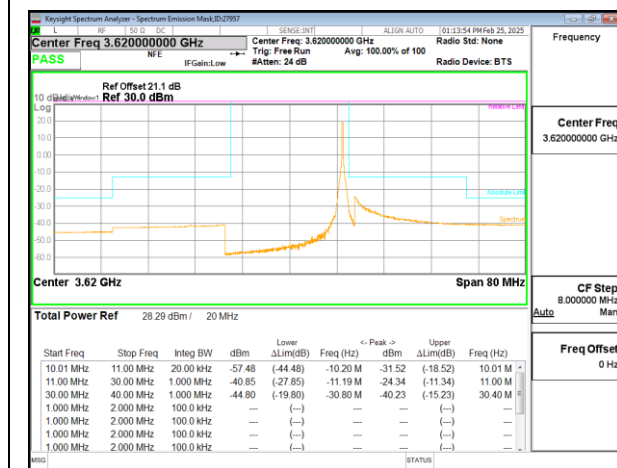
LTE B48 20MHz QPSK Low Channel RB100-0



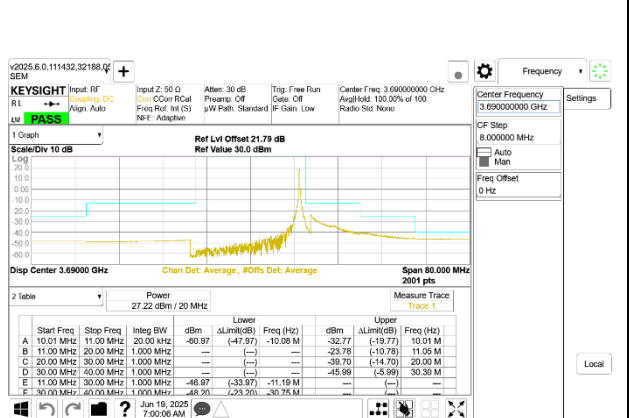
LTE B48 20MHz QPSK Middle Channel RB1-0



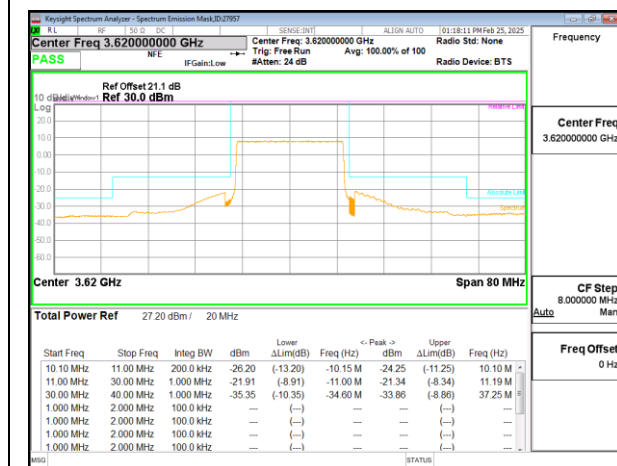
LTE B48 20MHz QPSK High Channel RB1-0



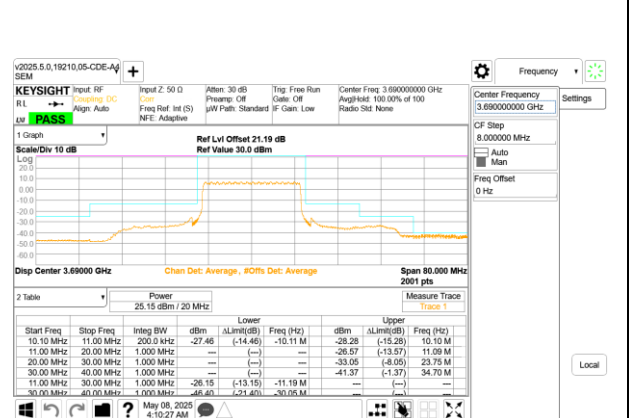
LTE B48 20MHz QPSK Middle Channel RB1-99



LTE B48 20MHz QPSK High Channel RB1-99

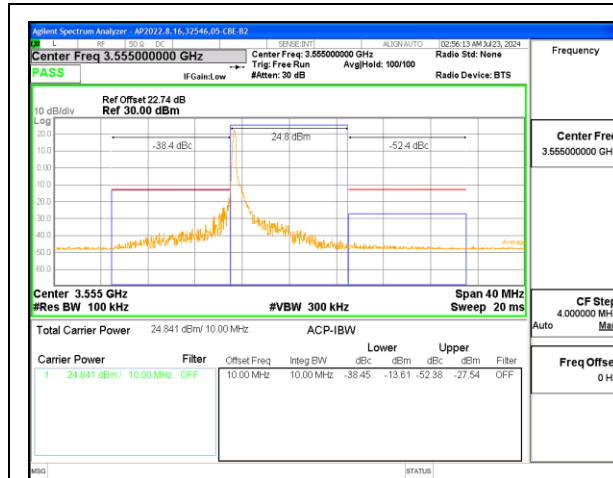


LTE B48 20MHz QPSK Middle Channel RB100-0

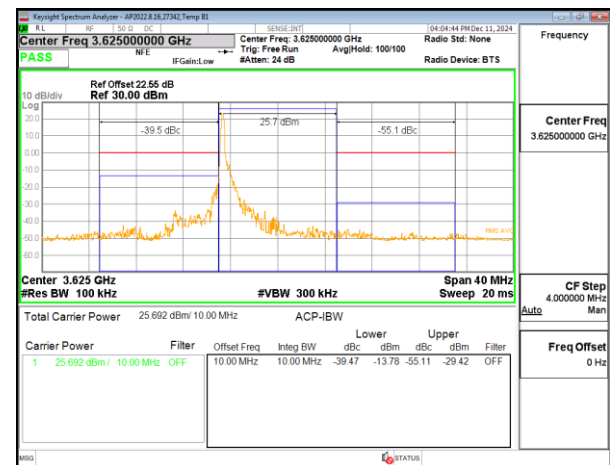


LTE B48 20MHz QPSK High Channel RB100-0

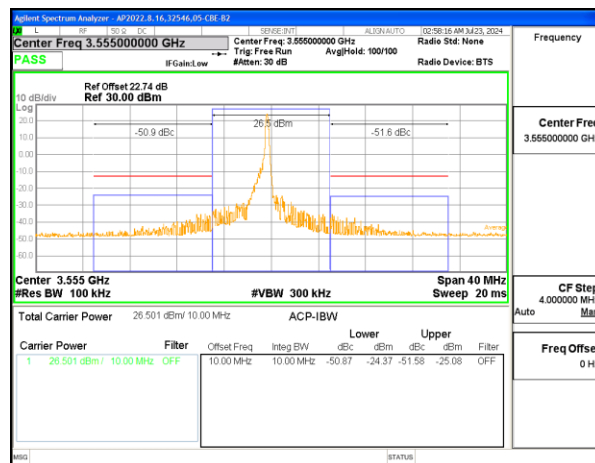
9.2.2. LTE BAND 48 ADJACENT CHANNEL POWER



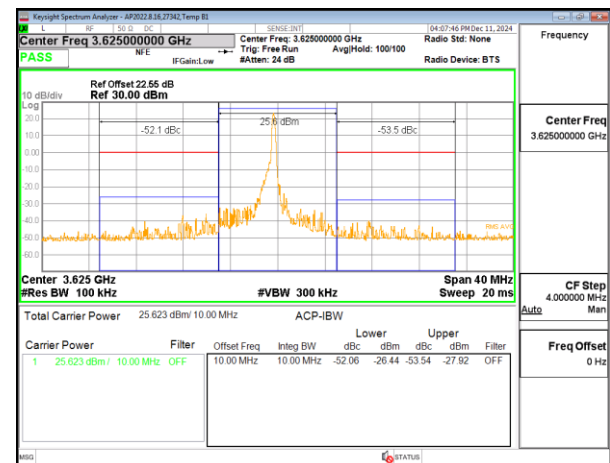
LTE B48 5MHz QPSK Low Channel RB1-0



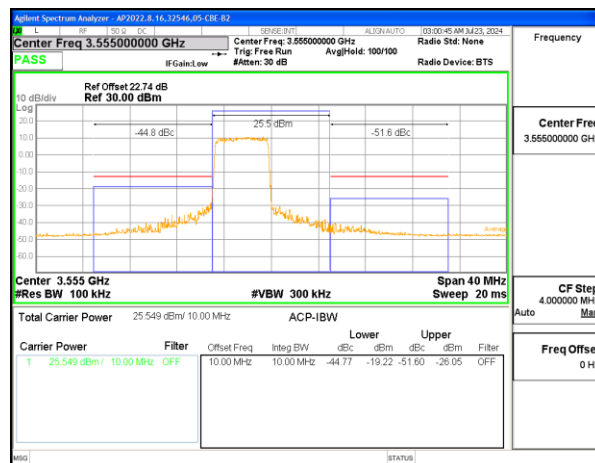
LTE B48 5MHz QPSK Middle Channel RB1-0 (3622.5MHz)



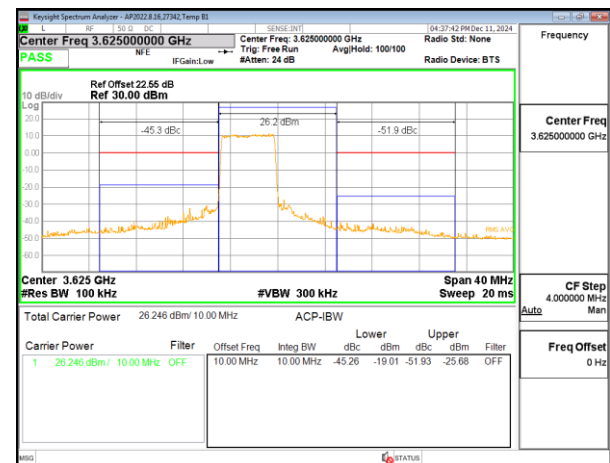
LTE B48 5MHz QPSK Low Channel RB1-24



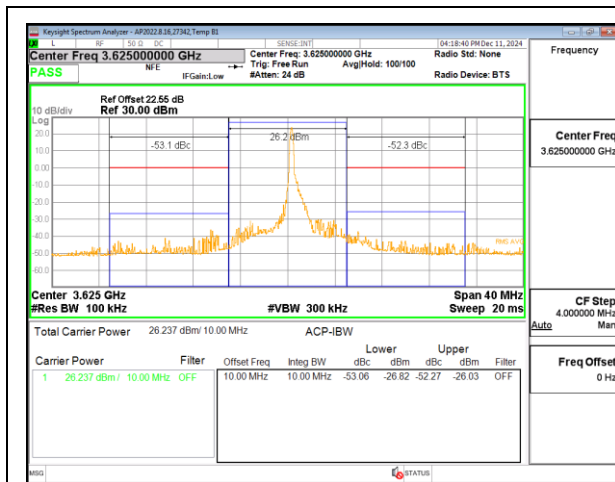
LTE B48 5MHz QPSK Middle Channel RB1-24 (3622.5MHz)



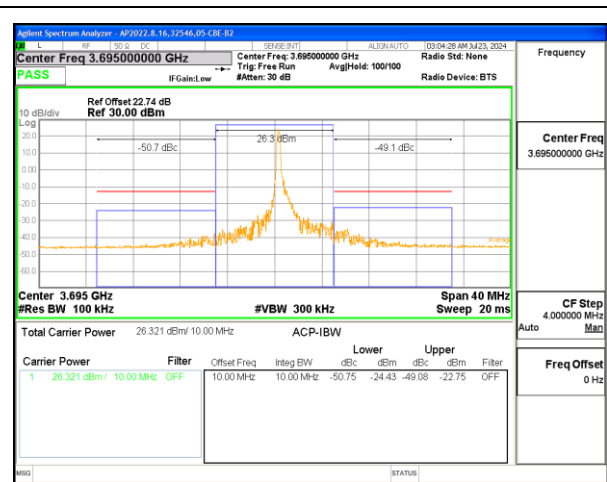
LTE B48 5MHz QPSK Low Channel RB25-0



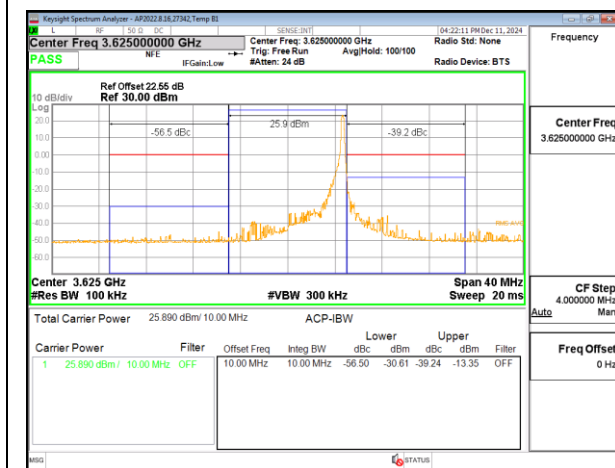
LTE B48 5MHz QPSK Middle Channel RB25-0 (3622.5MHz)



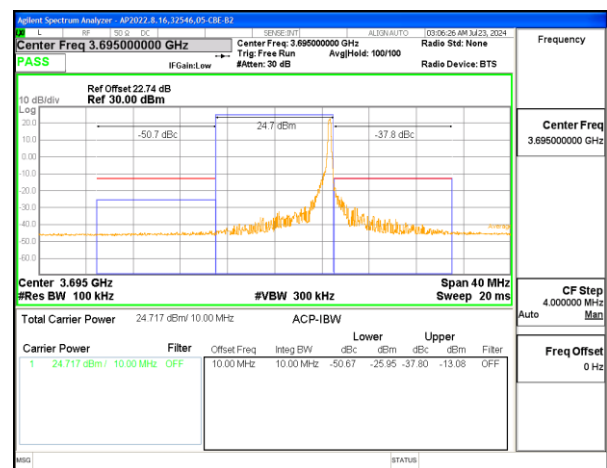
LTE B48 5MHz QPSK Middle Channel RB1-0 (3627.5MHz)



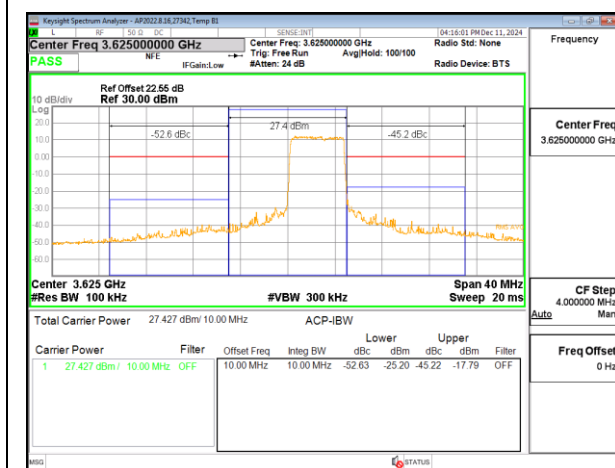
LTE B48 5MHz QPSK High Channel RB1-0



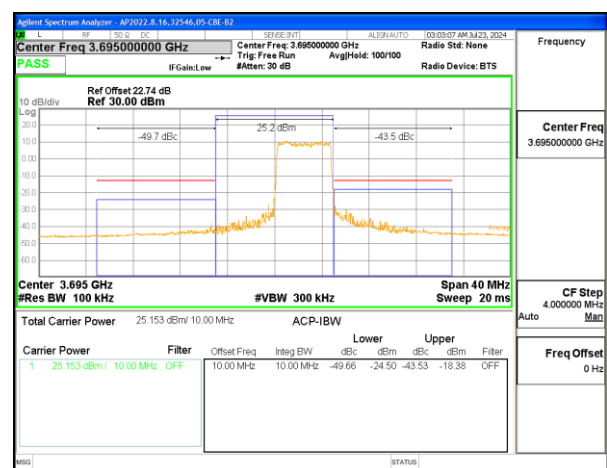
LTE B48 5MHz QPSK Middle Channel RB1-0 (3627.5MHz)



LTE B48 5MHz QPSK High Channel RB1-24



LTE B48 5MHz QPSK Middle Channel RB25-0 (3627.5MHz)



LTE B48 5MHz QPSK High Channel RB25-0