TEST REPORT

Report Number: 14982479-E14V2

Applicant	:	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A3084
Brand	:	APPLE
FCC ID	:	BCG-E8684A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC 47 CFR Part 2, Part 96

Date Of Issue:
2024-08-13

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

ACCREDITED
CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-08-02	Initial Review	--
V2	2024-08-13	Address TCB Questions at 9.2. and 6.2	Mengistu Mekuria

TABLE OF CONTENTS

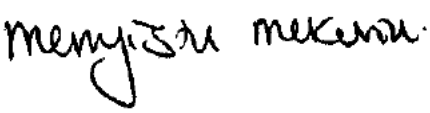
1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A3084
Brand	APPLE
FCC ID	BCG-E8684A
EUT Description	SMARTPHONE
Serial Number	RADIATED: G9KF67HQTQ, F9NDW2CHY0 CONDUCTED: HVHH6Q000R0000HN2, HVHH6Q000980000HN2, HVHH560004T0000HNO
Sample Receipt Date	2024-02-02
Date Tested	2024-02-05 to 2024-07-25
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 Engineer UL Verification Services Inc.	Eric Ting Senior Test Engineer UL Verification Services Inc.	Chris He Laboratory Engineer 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	96.41 (b), Part 2	Complies	

Requirement Description	Requirement Clause Number (FCC)	Result	Remarks
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:

- ANSI C63.26:2015
- 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

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
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	0.450 Peak; 1.300 Ave.
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, 5GNR1, 5GNR2, 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), 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

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

ERP/EIRP = PMeas + GT − LC
where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = 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 ERP/EIRP output powers as follows:

LTE BAND 48 (LOW)

Part 96	
EIRP Limit (W)/ 10MHz	0.20
Antenna Gain (dBi)	-4.20

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	26.00	21.80	0.151	4486	4M49G7W
	16QAM			24.99	20.79	0.120	4487	4M49D7W
10.0	QPSK	3555.0	3695.0	25.95	21.75	0.150	8961	8M96G7W
	16QAM			24.93	20.73	0.118	8943	8M94D7W
15.0	QPSK	3557.5	3692.5	25.99	21.79	0.151	13319	13M3G7W
	16QAM			24.80	20.60	0.115	13368	13M4D7W
20.0	QPSK	3560.0	3690.0	25.90	21.70	0.148	17768	17M8G7W
	16QAM			24.79	20.59	0.115	17889	17M9D7W

LTE BAND 48 (MID)

Part 96	
EIRP Limit (W)/ 10MHz	0.20
Antenna Gain (dBi)	-3.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	26.00	22.20	0.166	4486	4M49G7W
	16QAM			24.99	21.19	0.132	4487	4M49D7W
10.0	QPSK	3555.0	3695.0	26.00	22.20	0.166	8961	8M96G7W
	16QAM			24.99	21.19	0.132	8943	8M94D7W
15.0	QPSK	3557.5	3692.5	26.00	22.20	0.166	13319	13M3G7W
	16QAM			24.87	21.07	0.128	13368	13M4D7W
20.0	QPSK	3560.0	3690.0	26.00	22.20	0.166	17768	17M8G7W
	16QAM			24.86	21.06	0.128	17889	17M9D7W

LTE BAND 48 (HIGH)

Part 96	
EIRP Limit (W)/ 10MHz	0.20
Antenna Gain (dBi)	-3.40

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	3552.5	3697.5	25.75	22.35	0.172	4486	4M49G7W
	16QAM			24.79	21.39	0.138	4487	4M49D7W
10.0	QPSK	3555.0	3695.0	25.80	22.40	0.174	8961	8M96G7W
	16QAM			24.79	21.39	0.138	8943	8M94D7W
15.0	QPSK	3557.5	3692.5	25.80	22.40	0.174	13319	13M3G7W
	16QAM			24.79	21.39	0.138	13368	13M4D7W
20.0	QPSK	3560.0	3690.0	25.80	22.40	0.174	17768	17M8G7W
	16QAM			24.79	21.39	0.138	17889	17M9D7W

5G NR n48 (LOW)

Part 96	
EIRP Limit (W)	0.20
Antenna Gain (dBi)	-4.20

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	26.00	21.80	0.151	8670	8M67G7W
	QPSK			25.97	21.77	0.150	8599	8M60G7W
	16QAM			24.97	20.77	0.119	8617	8M62D7W
15.0	BPSK	3557.5	3692.5	25.95	21.75	0.150	12830	12M8G7W
	QPSK			25.96	21.76	0.150	12921	12M9G7W
	16QAM			24.92	20.72	0.118	12902	12M9D7W
20.0	BPSK	3560.0	3690.0	26.00	21.80	0.151	17940	17M9G7W
	QPSK			25.95	21.75	0.150	17993	18M0G7W
	16QAM			24.99	20.79	0.120	17881	17M9D7W
30.0	BPSK	3565.0	3685.0	25.95	21.75	0.150	26833	26M8G7W
	QPSK			25.99	21.79	0.151	26871	26M9G7W
	16QAM			25.00	20.80	0.120	26800	26M8D7W
40.0	BPSK	3570.0	3680.0	25.95	21.75	0.150	35751	35M8G7W
	QPSK			25.95	21.75	0.150	35723	35M7G7W
	16QAM			24.93	20.73	0.118	35819	35M8D7W

5G NR n48 (MID)

Part 96	
EIRP Limit (W)	0.20
Antenna Gain (dBi)	-3.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	25.98	22.18	0.165	8670	8M67G7W
	QPSK			25.97	22.17	0.165	8599	8M60G7W
	16QAM			25.00	21.20	0.132	8617	8M62D7W
15.0	BPSK	3557.5	3692.5	25.98	22.18	0.165	12830	12M8G7W
	QPSK			25.99	22.19	0.166	12921	12M9G7W
	16QAM			24.94	21.14	0.130	12902	12M9D7W
20.0	BPSK	3560.0	3690.0	26.00	22.20	0.166	17940	17M9G7W
	QPSK			26.00	22.20	0.166	17993	18M0G7W
	16QAM			25.00	21.20	0.132	17881	17M9D7W
30.0	BPSK	3565.0	3685.0	25.99	22.19	0.166	26833	26M8G7W
	QPSK			25.95	22.15	0.164	26871	26M9G7W
	16QAM			24.92	21.12	0.129	26800	26M8D7W
40.0	BPSK	3570.0	3680.0	26.00	22.20	0.166	35751	35M8G7W
	QPSK			26.00	22.20	0.166	35723	35M7G7W
	16QAM			24.93	21.13	0.130	35819	35M8D7W

5G NR n48 (HIGH)

Part 96	
EIRP Limit (W)	0.20
Antenna Gain (dBi)	-3.40

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
10.0	BPSK	3555.0	3695.0	25.77	22.37	0.173	8670	8M67G7W
	QPSK			25.77	22.37	0.173	8599	8M60G7W
	16QAM			24.78	21.38	0.137	8617	8M62D7W
15.0	BPSK	3557.5	3692.5	25.78	22.38	0.173	12830	12M8G7W
	QPSK			25.76	22.36	0.172	12921	12M9G7W
	16QAM			24.73	21.33	0.136	12902	12M9D7W
20.0	BPSK	3560.0	3690.0	25.77	22.37	0.173	17940	17M9G7W
	QPSK			25.74	22.34	0.171	17993	18M0G7W
	16QAM			24.74	21.34	0.136	17881	17M9D7W
30.0	BPSK	3565.0	3685.0	25.76	22.36	0.172	26833	26M8G7W
	QPSK			25.79	22.39	0.173	26871	26M9G7W
	16QAM			24.75	21.35	0.136	26800	26M8D7W
40.0	BPSK	3570.0	3680.0	25.76	22.36	0.172	35751	35M8G7W
	QPSK			25.77	22.37	0.173	35723	35M7G7W
	16QAM			24.79	21.39	0.138	35819	35M8D7W

LTE ULCA Band 48

Part 96	
EIRP Limit (W)/ 10MHz	0.20
Antenna Gain (dBi)	-3.40

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5+20	QPSK	3553.3	3690.0	23.69	20.29	0.107	22869	22M9G7W
	16QAM			23.54	20.14	0.103	22883	22M9D7W
20+5	QPSK	3560.0	3696.7	23.72	20.32	0.108	22919	22M9G7W
	16QAM			23.96	20.56	0.114	22860	22M9D7W
10+20	QPSK	3555.5	3690.0	24.46	21.06	0.128	27757	27M8G7W
	16QAM			24.12	20.72	0.118	27715	27M7D7W
20+10	QPSK	3560.0	3694.5	24.08	20.68	0.117	27721	27M7G7W
	16QAM			24.01	20.61	0.115	27712	27M7D7W
15+20	QPSK	3557.8	3690.0	24.77	21.37	0.137	32532	32M5G7W
	16QAM			24.82	21.42	0.139	32596	32M6D7W
20+15	QPSK	3560.0	3692.2	24.93	21.53	0.142	32565	32M6G7W
	16QAM			24.96	21.56	0.143	32613	32M6D7W
20+20	QPSK	3560.0	3690.0	24.97	21.57	0.144	37498	37M5G7W
	16QAM			24.95	21.55	0.143	37522	37M5D7W

5G NR n48 MIMO

Part 96	
EIRP Limit (W)	0.20
Antenna Gain (dBi)	-6.50

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)
10.0	QPSK	3555.0	3695.0	24.38	17.88	0.061	8599
	16QAM			23.95	17.45	0.056	8617
15.0	QPSK	3557.5	3692.5	24.38	17.88	0.061	12921
	16QAM			23.93	17.43	0.055	12902
20.0	QPSK	3560.0	3690.0	24.36	17.86	0.061	17993
	16QAM			23.88	17.38	0.055	17881
30.0	QPSK	3565.0	3685.0	24.39	17.89	0.062	26871
	16QAM			23.84	17.34	0.054	26800
40.0	QPSK	3570.0	3680.0	24.45	17.95	0.062	35723
	16QAM			23.85	17.35	0.054	35819

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.02.01.

6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain, as provided by the manufacturer' are as follows:

LTE Bands, 5G NR Bands, LTECA Bands	Frequency Range (MHz)	ANT 7 Antenna Gain (dBi)	ANT 8 Antenna Gain (dBi)	ANT 9 Antenna Gain (dBi)	ANT 4 Antenna Gain (dBi)
LTE Band 48, 5G NR n48, LTE ULCA48 (Low)	3550 – 3700	-5.3	-5.7	-4.2	-6.6
LTE Band 48, 5G NR n48, LTE ULCA48 (Mid)	3550 – 3700	-4.1	-5.1	-3.8	-7.0
LTE Band 48, 5G NR n48, LTE ULCA48 (High)	3550 – 3700	-3.4	-5.3	-3.9	-6.2

5G NR MIMO Bands	Frequency Range (MHz)	ANT 7+8 Antenna Gain (dBi)	ANT 7+4 Antenna Gain (dBi)	ANT 9+8 Antenna Gain (dBi)	ANT 9+4 Antenna Gain (dBi)
FR1 MIMO n48	3550 – 3700	-6.5	-6.1	-6.0	-5.6

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports the following LTE and 5G NRs:
Band 48, 5G NR n48.

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 simultaniously.

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 was found to be the worst case

For MIMO N48, the client declair that the anenna ports combination 7+8 is the highest power of all other combinations. Therefore, all the antenna port measurements can be done with the combination of antenna port 7+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 sections 8 and 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.

	Worst case Antenna Port for Conducted Power
LTE BAND 48 and FR1 5G NR 48	ANT 9

	Worst case Antenna Port for Conducted Power
FR1 5G NR 48 MIMO	ANT 7+8

The EUT was investigated in three orthogonal orientations X/Y/Z on all ANT4, ANT7, ANT8 and ANT 9 antennas to determine the worst-case orientation. The following table exabit the worst-case orientations. The full tests of the EUT have made upon the orientations that shown in the table below.

Frequency Bands	ANT1	ANT2	ANT3	ANT4	ANT7	ANT8	ANT9
3300 – 3980 MHz	N/A	N/A	N/A	Y	X	Z	X

Frequency Bands	ANT2+1	ANT2+3	ANT4+1	ANT4+3	ANT7+8	ANT7+4	ANT9+8	ANT9+8
3300 – 3980 MHz	N/A	N/A	N/A	N/A	X	X	X	Z

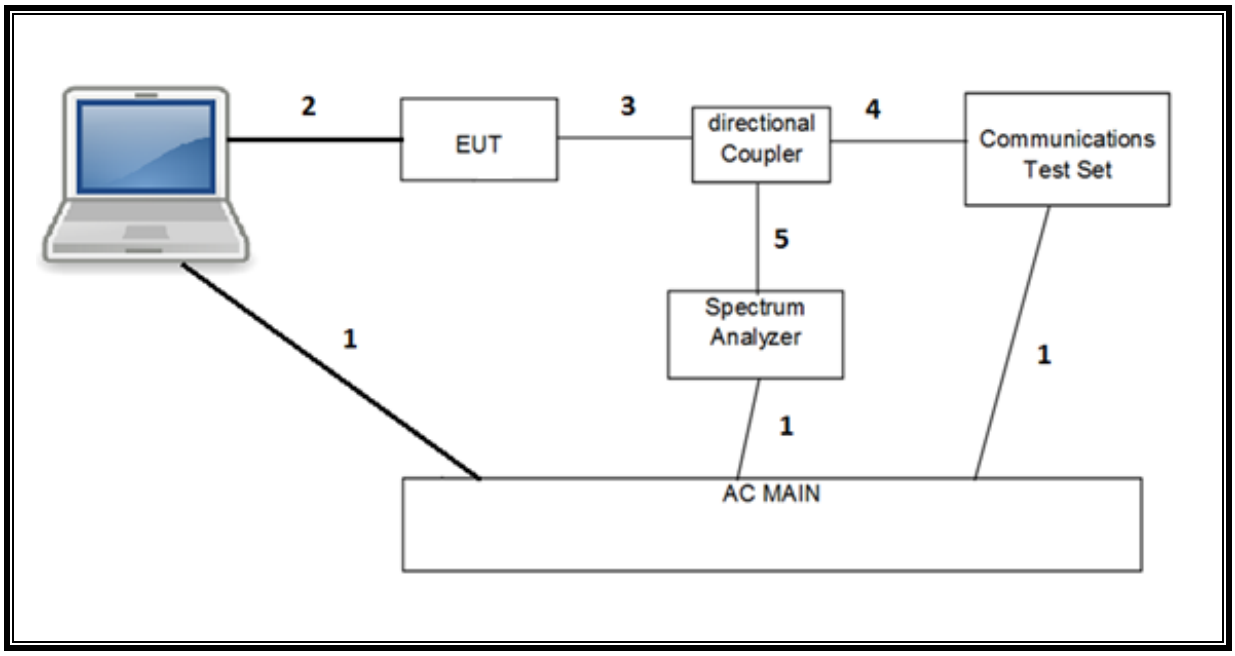
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz. There were no emissions found with less than 20dB of margin from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GH 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.

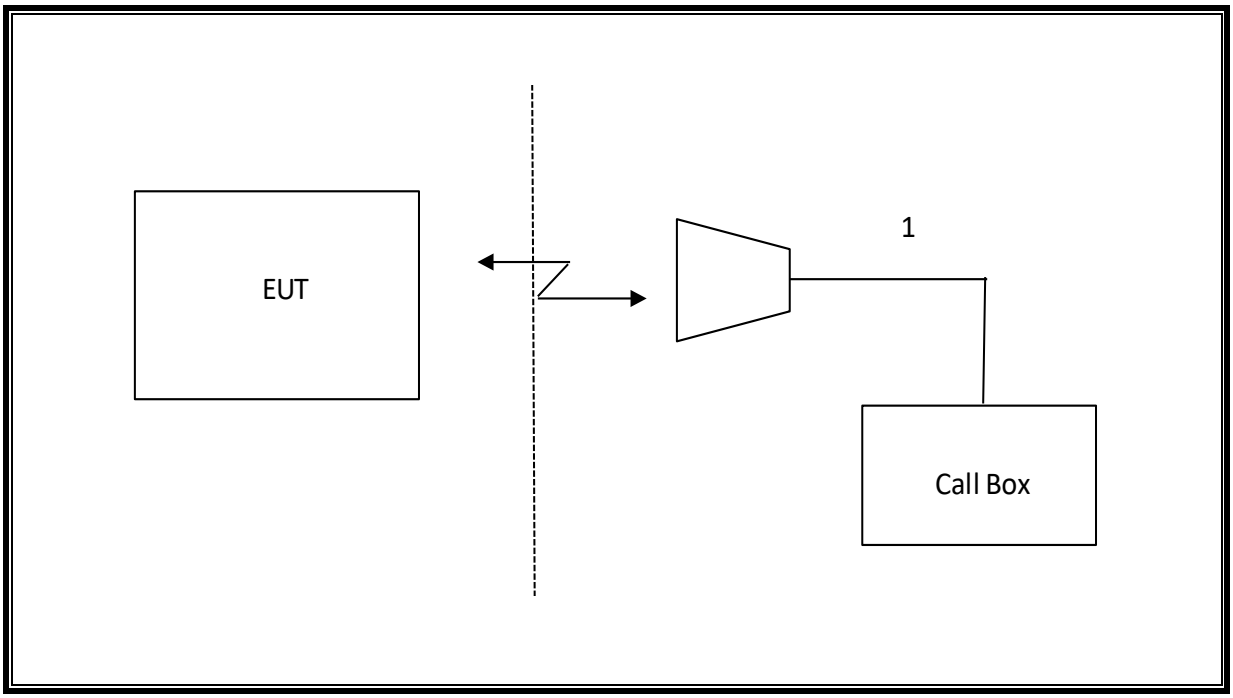
6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		**Manufacturer**	**Model**	**Serial Number**		**FCC ID/ DoC**
Laptop		Apple	MacBook Pro	HRP082673		BCGA1708
AC/DC adapter		Apple	A1718	C4H64450HH3GN8RA6		--
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	3	US 115V	Un-shielded	2.0	N/A
2	USB	1	DC	Un-shielded	1.0	N/A
3	RF In/Out	1	EUT	Un-shielded	0.6	N/A
4	RF In/Out	1	Communication Test Set	Un-shielded	1.2	N/A
5	RF In/Out	1	Barrel	N/A	N/A	N/A
I/O CABLES (RF RADIATED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	RF In/Out	1	Antenna	Un-shielded	5.0	N/A

CONDUCTED SETUP



RADIATED SETUP



7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80430	2024-08-31
Antenna, Horn 1-18GHz	ETS Lindgren	3117	79834	2024-06-30
Antenna, Broadband Hybrid, 30MHz to 3000MHz	SUNAR	JB3	222009	2024-10-31
RF Filter Box, 1-18GHz	UL-FR1	NA	217255	2024-10-31
RF Filter Box, 1-18GHz	UL-FR1	RATS 2	226781	2024-09-30
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	430250	2024-09-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169936	2025-02-28
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169935	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	85943	2025-02-28
Directional Coupler	KRYTAR	152610	198816	2024-10-31
Directional Coupler	KRYTAR	152610	231664	2025-01-22
Power Meter, P-series single channel	Keysight	N1912A	90719	2025-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	81319	2025-01-31
Filter, HPF 1.2GHz	Wainwright Instruments GmbH	WHKX6-948-1.2/15G-40ST	99	2024-10-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	231739	2025-01-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	245120	2025-02-28
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85212	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222793	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222797	2025-02-28
Chamber, Environmental	Thermotron Corp.	SM-16C Mini-Max	179936	2024-06-30
Transmitting Antenna, Horn Antenna	TEKBOX Digital Solutions	TBMA4	226709	C.N.R.
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	199659	2024-12-31
Amplifier 18-26.5GHz, +5Vdc, -54dBm P1dB	AMPLICAL	AMP18G26.5-60	234683	2025-05-31
DC Power Supply	GWINSTEK	GPS18500	N/A	C.N.R.
Conducted Switch Box	N/A	CSB	208281	2025-05-08
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170014	2024-08-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170016	2024-08-31
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	V2023.11.21.0	
Power Measurement Software	UL	UL RF	V2023.08.14.0	
Radiated test software	UL	UL RF	Ver 9.5 2023-05-01	

NOTES:

1. * Testing is completed before equipment expiration date.

8. RF OUTPUT POWER MEASUREMENTS

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All LTE bands conducted average power is obtained from the CMW500 telecommunication test set.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS 36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS 36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS 38.521-1 specification.

The allowed MPR for SRS, PUCCH formats 0, 1, 3 and 4, and PRACH shall be as specified for QPSK modulated DFTs-OFDM of equivalent RB allocation. The allowed MPR for PUCCH format 2 shall be as specified for QPSK modulated CP-OFDM of equivalent RB allocation.

Table 6.2.2.3-1: Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]		0[2]
	Pi/2 BPSK w Pi/2 BPSK DMRS	≤ 0.5[2]		0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40% of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2.3-2: Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS 36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36, 66, 70	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2, 6.6.3.3.19	41	5, 10, 15, 20	Table 6.2.4-4, Table 6.2.4-4a	

The allowed A-MPR values specified below in Table 6.2.3.3.1-1 of 3GPP TS 38.521-1 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.3.3.1-1: Additional maximum power reduction (A-MPR)

Network signalling label	Requirements (subclause)	NR Band	Channel bandwidth (MHz)	Resources blocks (N_{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 90, 100	Table 5.3.2-1	N/A
NS_03	6.5.2.3.3.3	n2, n25, n66, n70, n86			Clause 6.2.3.3.7
NS_03U	6.5.2.3.3.3, 6.5.2.4.2.3	n2, n25, n66, n86			Clause 6.2.3.3.7
NS_04	6.5.2.3.3.2, 6.5.3.3.3.1	n41	10, 15, 20, 40, 50, 60, 80, 90, 100		Clause 6.2.3.3.2

RESULTS

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 output powers as follows:

8.1. LTE BAND 48 AND 5G NR n48

LTE BAND 48 (FCC)

Test Engineer ID:	39004	Test Date:	2024-02-15

OUTPUT POWER FOR LTE BAND 48 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				55265	55990	56715	55260	55990	56715	55265	55990	56715	55260	55990	56715
				3552.5	3625.0	3697.5	3552.5	3625.0	3697.5	3552.5	3625.0	3697.5	3552.5	3625.0	3697.5
5.0	QPSK	1	0	25.67	25.66	25.65	25.51	25.44	25.55	**26.00**	25.87	25.89	25.10	25.10	25.12
		1	12	**25.80**	**25.79**	**25.75**	**25.60**	**25.60**	**25.60**	25.89	**26.00**	**26.00**	**25.19**	**25.19**	**25.19**
		1	24	25.68	25.69	25.67	25.53	25.51	25.52	25.77	25.87	25.90	25.09	25.13	25.14
		12	0	24.76	24.80	24.74	24.46	24.44	24.45	24.80	24.97	24.95	24.17	24.17	24.15
		12	6	24.80	24.79	24.80	24.47	24.50	24.54	24.88	24.99	24.98	24.20	24.20	24.20
		12	11	24.79	24.80	24.70	24.48	24.49	24.52	24.83	24.98	24.95	24.14	24.16	24.17
		25	0	24.77	24.76	24.72	24.46	24.44	24.45	24.83	24.90	24.94	24.11	24.15	24.16
	16QAM	1	0	24.71	24.66	24.73	24.49	24.51	24.44	24.87	24.73	24.84	24.09	24.11	24.08
		1	12	**24.79**	**24.79**	**24.79**	**24.59**	**24.59**	**24.59**	**24.99**	**24.99**	**24.99**	**24.19**	**24.19**	**24.19**
		1	24	24.76	24.70	24.68	24.50	24.49	24.50	24.96	24.82	24.86	24.11	24.13	24.12
		12	0	23.71	23.57	23.64	23.43	23.43	23.37	24.06	24.09	24.15	23.31	23.36	23.30
		12	6	23.60	23.66	23.68	23.48	23.44	23.50	24.23	24.02	24.21	23.29	23.40	23.36
		12	11	23.65	23.54	23.74	23.42	23.45	23.48	24.20	24.08	24.14	23.30	23.39	23.28
		25	0	23.61	23.59	23.66	23.42	23.36	23.37	24.13	23.99	24.05	23.26	23.28	23.28
	64QAM	1	0	23.76	23.71	23.80	23.62	23.55	23.61	24.32	24.15	24.31	23.23	23.31	23.35
		1	12	**23.91**	**23.89**	**23.97**	**23.73**	**23.71**	**23.76**	**24.39**	**24.32**	**24.34**	23.38	**23.42**	**23.40**
		1	24	23.74	23.84	23.86	23.53	23.63	23.62	24.34	24.29	24.29	**23.39**	23.28	23.34
		12	0	22.51	22.54	22.71	22.37	22.29	22.48	23.13	23.12	23.08	22.14	22.15	22.18
		12	6	22.60	22.59	22.71	22.42	22.41	22.46	23.12	22.96	23.20	22.12	22.21	22.22
		12	11	22.70	22.60	22.61	22.40	22.37	22.46	23.10	22.93	23.14	22.25	22.18	22.22
		25	0	22.60	22.58	22.67	22.42	22.40	22.40	23.10	22.99	23.10	22.14	22.17	22.20
	256QAM	1	0	20.61	20.61	20.61	20.54	20.48	20.44	21.21	21.08	21.25	20.26	20.28	20.34
		1	12	**20.70**	**20.67**	**20.79**	**20.59**	**20.63**	**20.55**	**21.28**	**21.19**	**21.26**	**20.29**	**20.43**	**20.38**
		1	24	20.63	20.65	20.68	20.43	20.52	20.46	21.19	21.08	21.17	**20.29**	20.30	20.31
		12	0	20.60	20.58	20.62	20.39	20.34	20.41	21.08	20.95	21.04	20.12	20.11	20.21
		12	6	20.66	20.61	20.66	20.42	20.40	20.42	21.14	20.97	21.08	20.14	20.20	20.24
		12	11	20.62	20.59	20.60	20.42	20.39	20.41	21.11	20.96	21.04	20.14	20.17	20.20
		25	0	20.58	20.60	20.64	20.39	20.36	20.38	21.10	20.98	21.07	20.15	20.16	20.18

OUTPUT POWER FOR LTE BAND 48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				55290	55990	56690	55290	55990	56690	55290	55990	56690	55290	55990	56690
				3555.0	3625.0	3695.0	3555.0	3625.0	3695.0	3555.0	3625.0	3695.0	3555.0	3625.0	3695.0
10.0	QPSK	1	0	25.67	25.66	25.73	25.53	25.51	25.58	25.80	25.87	25.86	25.08	25.07	25.04
		1	24	**25.75**	**25.75**	**25.80**	**25.58**	**25.55**	**25.60**	**25.95**	**26.00**	**26.00**	**25.11**	**25.09**	25.07
		1	49	25.71	25.70	25.69	25.56	25.54	25.52	25.80	25.89	25.85	25.07	25.08	**25.11**
		25	0	24.78	24.70	24.73	24.57	24.44	24.56	24.90	24.96	24.97	24.17	24.14	24.18
		25	12	24.80	24.80	24.75	24.60	24.60	24.59	24.94	25.00	25.00	24.20	24.20	24.20
		25	24	24.79	24.79	24.80	24.58	24.58	24.56	24.93	24.98	24.96	24.18	24.16	24.20
		50	0	24.76	24.67	24.71	24.57	24.50	24.55	24.92	24.97	24.95	24.18	24.18	24.15
	16QAM	1	0	24.68	24.70	24.72	24.55	24.55	**24.59**	24.90	**24.99**	**24.99**	**24.19**	24.16	**24.19**
		1	24	**24.79**	**24.79**	**24.79**	**24.60**	**24.59**	24.57	**24.93**	24.95	**24.99**	**24.19**	**24.19**	**24.19**
		1	49	24.75	24.75	24.75	24.57	24.53	24.58	24.85	24.98	**24.99**	24.15	**24.19**	24.18
		25	0	23.77	23.69	23.68	23.59	23.46	23.60	24.17	24.24	24.25	23.47	23.49	23.47
		25	12	23.77	23.80	23.74	23.64	23.57	23.61	24.21	24.31	24.24	23.49	23.49	23.50
		25	24	23.81	23.76	23.76	23.57	23.56	23.58	24.20	24.26	24.27	23.48	23.48	23.49
		50	0	23.72	23.65	23.64	23.59	23.44	23.56	24.16	24.22	24.23	23.47	23.44	23.42
	64QAM	1	0	23.87	23.89	23.92	23.68	23.65	23.72	**24.39**	24.36	**24.44**	23.40	23.40	23.46
		1	24	**23.95**	**23.97**	**23.97**	**23.76**	**23.78**	**23.77**	24.36	24.38	**24.44**	**23.52**	**23.54**	**23.53**
		1	49	23.89	23.95	23.87	**23.76**	23.70	23.69	24.35	**24.39**	24.38	23.44	23.49	23.44
		25	0	22.75	22.68	22.69	22.57	22.46	22.61	23.15	23.22	23.25	22.29	22.24	22.31
		25	12	22.78	22.81	22.72	22.61	22.59	22.61	23.19	23.27	23.27	22.29	22.39	22.42
		25	24	22.76	22.80	22.78	22.58	22.56	22.57	23.20	23.23	23.25	22.28	22.36	22.41
		50	0	22.76	22.68	22.66	22.61	22.47	22.59	23.14	23.24	23.24	22.31	22.24	22.28
	256QAM	1	0	20.70	20.61	20.72	20.55	20.61	20.71	21.14	21.28	21.28	20.24	20.33	20.39
		1	24	**20.79**	**20.80**	**20.80**	**20.73**	**20.63**	**20.76**	**21.34**	**21.34**	**21.37**	20.37	**20.47**	**20.56**
		1	49	20.71	20.77	20.74	20.67	20.62	20.64	21.17	21.31	21.28	**20.39**	20.46	20.46
		25	0	20.72	20.62	20.71	20.61	20.48	20.58	21.11	21.21	21.23	20.27	20.26	20.31
		25	12	20.76	20.75	20.69	20.62	20.56	20.60	21.22	21.24	21.27	20.29	20.35	20.39
		25	24	20.75	20.77	20.76	20.61	20.52	20.56	21.18	21.22	21.24	20.24	20.35	20.35
		50	0	20.73	20.67	20.66	20.59	20.47	20.56	21.13	21.21	21.22	20.17	20.26	20.29

OUTPUT POWER FOR LTE BAND 48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				55315	55990	56665	55315	55990	56665	55315	55990	56665	55315	55990	56665
				3557.5	3625.0	3692.5	3557.5	3625.0	3692.5	3557.5	3625.0	3692.5	3557.5	3625.0	3692.5
15.0	QPSK	1	0	25.61	25.66	25.68	25.46	25.56	**25.56**	25.65	25.78	25.77	25.09	25.09	25.00
		1	37	25.64	25.68	**25.80**	25.51	25.56	**25.56**	25.68	25.83	**25.99**	25.09	25.11	25.10
		1	74	**25.71**	**25.74**	25.62	**25.60**	**25.60**	25.55	**25.99**	**26.00**	25.80	**25.20**	**25.17**	**25.20**
		36	0	24.68	24.71	24.75	24.49	24.42	24.60	24.78	24.80	24.84	24.16	24.20	24.06
		36	16	24.76	24.71	24.80	24.50	24.43	24.57	24.78	24.87	24.90	24.16	24.18	24.16
		36	35	24.80	24.80	24.79	24.52	24.52	24.56	24.81	24.88	24.89	24.16	24.18	24.16
		75	0	24.73	24.66	24.77	24.46	24.38	24.53	24.74	24.73	24.77	24.15	24.16	24.02
	16QAM	1	0	24.67	24.64	**24.79**	24.42	24.44	**24.59**	24.66	24.81	24.88	24.13	24.13	23.97
		1	37	**24.79**	24.75	24.75	24.50	**24.56**	24.57	24.74	24.78	**24.89**	24.15	**24.19**	24.00
		1	74	24.72	**24.79**	24.73	**24.57**	24.47	24.52	**24.80**	**24.87**	24.88	**24.19**	**24.19**	**24.19**
		36	0	23.70	23.72	23.70	23.49	23.40	23.58	23.98	24.01	24.08	23.47	23.46	23.20
		36	16	23.79	23.72	23.80	23.49	23.42	23.54	23.98	24.10	24.15	23.46	23.45	23.28
		36	35	23.80	23.77	23.78	23.52	23.50	23.53	23.99	24.09	24.13	23.48	23.45	23.28
		75	0	23.76	23.67	23.74	23.50	23.42	23.53	23.97	24.01	24.06	23.46	23.44	23.16
	64QAM	1	0	23.88	23.91	**23.97**	23.56	23.59	**23.74**	24.08	**24.32**	24.30	23.48	23.35	**23.40**
		1	37	**24.02**	**23.95**	**23.97**	**23.71**	23.63	**23.74**	**24.18**	24.25	24.36	**23.49**	**23.39**	23.28
		1	74	23.94	23.90	23.87	23.69	**23.66**	23.70	24.17	24.29	**24.41**	23.41	23.35	23.26
		36	0	22.69	22.68	22.73	22.52	22.42	22.56	22.97	22.99	23.05	22.26	22.23	22.10
		36	16	22.77	22.69	22.80	22.48	22.41	22.53	22.98	23.09	23.15	22.31	22.32	22.11
		36	35	22.81	22.77	22.78	22.53	22.50	22.56	23.01	23.08	23.14	22.28	22.32	22.19
		75	0	22.77	22.69	22.77	22.53	22.44	22.54	22.98	23.04	23.06	22.25	22.21	22.12
	256QAM	1	0	20.76	20.67	**20.79**	20.56	20.50	20.64	20.92	21.18	21.20	20.24	20.33	20.21
		1	37	**20.88**	20.68	20.70	20.50	20.57	**20.71**	**21.13**	21.21	**21.23**	20.26	20.32	**20.28**
		1	74	20.85	**20.96**	20.76	**20.58**	**20.61**	20.67	21.03	**21.25**	21.20	20.28	**20.56**	20.22
		36	0	20.67	20.67	20.70	20.49	20.40	20.55	20.95	20.99	21.05	20.24	20.21	20.08
		36	16	20.76	20.65	20.76	20.48	20.40	20.54	20.96	21.06	21.09	20.25	20.30	20.07
		36	35	20.78	20.75	20.74	20.51	20.50	20.54	20.96	21.07	21.09	**20.29**	20.30	20.13
		75	0	20.77	20.67	20.75	20.52	20.41	20.56	20.99	21.01	21.05	20.28	20.24	20.08

OUTPUT POWER FOR LTE BAND 48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				55340	55990	56640	55340	55990	56640	55340	55990	56640	55340	55990	56640
				3560.0	3625.0	3690.0	3560.0	3625.0	3690.0	3560.0	3625.0	3690.0	3560.0	3625.0	3690.0
20.0	QPSK	1	0	25.61	25.66	25.69	25.48	**25.60**	**25.60**	25.67	25.80	**25.97**	25.17	25.08	25.08
		1	49	25.68	**25.80**	**25.80**	25.49	25.55	25.51	25.68	25.73	25.80	25.15	25.13	25.11
		1	99	**25.79**	**25.80**	25.68	**25.60**	25.56	25.51	**25.90**	**26.00**	25.80	**25.18**	**25.20**	**25.18**
		50	0	24.77	24.71	24.74	24.46	24.45	24.51	24.76	24.76	24.80	24.19	24.09	24.06
		50	24	24.80	24.74	24.73	24.49	24.48	24.53	24.77	24.87	24.79	24.20	24.19	24.10
		50	49	24.80	24.80	24.80	24.50	24.52	24.48	24.80	24.87	24.86	24.17	24.18	24.20
		100	0	24.74	24.70	24.71	24.47	24.41	24.49	24.78	24.75	24.81	24.17	24.09	24.06
	16QAM	1	0	24.66	24.67	**24.79**	24.20	24.43	**24.55**	24.55	24.71	24.60	24.09	23.94	**24.19**
		1	49	**24.79**	24.72	24.74	**24.59**	**24.59**	24.53	**24.79**	**24.86**	**24.85**	**24.19**	**24.19**	24.15
		1	99	24.76	**24.79**	24.69	24.27	24.47	24.48	24.76	24.67	24.69	23.96	23.94	24.17
		50	0	23.77	23.70	23.69	23.25	23.35	23.52	23.90	23.89	23.84	23.19	23.12	23.20
		50	24	23.80	23.70	23.70	23.26	23.34	23.51	23.98	23.96	23.85	23.19	23.26	23.22
		50	49	23.84	23.82	23.79	23.32	23.45	23.53	23.93	23.96	23.90	23.17	23.24	23.28
		100	0	23.77	23.66	23.69	23.30	23.35	23.51	23.92	23.83	23.83	23.15	23.12	23.19
	64QAM	1	0	23.88	23.94	**23.99**	23.35	23.54	23.66	24.07	24.10	**24.27**	**23.20**	23.15	**23.42**
		1	49	23.92	**23.99**	23.89	23.36	23.52	**23.72**	24.11	24.14	24.04	23.07	**23.24**	23.31
		1	99	**23.94**	**23.99**	23.82	**23.57**	**23.59**	23.53	**24.17**	**24.21**	24.06	23.09	23.11	23.14
		50	0	22.75	22.66	22.70	22.23	22.30	22.51	22.89	22.88	22.84	21.98	22.00	22.24
		50	24	22.78	22.72	22.70	22.29	22.32	22.52	22.95	22.94	22.83	21.99	22.03	22.23
		50	49	22.80	22.80	22.79	22.30	22.41	22.49	22.93	22.95	22.89	21.98	22.10	22.15
		100	0	22.82	22.72	22.64	22.27	22.36	22.50	22.89	22.85	22.87	21.96	22.00	22.16
	256QAM	1	0	20.69	20.87	**20.89**	20.26	20.47	**20.71**	20.96	20.92	20.93	19.91	20.13	20.36
		1	49	20.76	20.74	20.83	20.33	**20.48**	20.51	**20.99**	20.88	21.03	20.11	**20.30**	**20.38**
		1	99	**21.05**	**20.90**	20.87	**20.58**	20.38	20.58	20.98	**21.09**	**21.07**	**20.24**	20.25	20.26
		50	0	20.79	20.68	20.72	20.21	20.31	20.50	20.90	20.87	20.83	19.99	19.97	20.20
		50	24	20.81	20.72	20.72	20.25	20.34	20.50	20.92	20.96	20.85	20.01	20.01	20.17
		50	49	20.83	20.76	20.74	20.28	20.39	20.46	20.94	20.94	20.91	19.97	20.11	20.15
		100	0	20.81	20.71	20.69	20.26	20.34	20.48	20.93	20.87	20.84	20.01	20.00	20.16

5G NR n48 (FCC)

Test Engineer ID:	27957	Test Date:	2024-02-28

OUTPUT POWER FOR 5G NR n48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				637000	641666	646333	637000	641666	646333	637000	641666	646333	637000	641666	646333
				3555.0	3625.0	3695.0	3555.0	3625.0	3695.0	3555.0	3625.0	3695.0	3555.0	3625.0	3695.0
10.0	BPSK	1	0	25.21	25.22	25.21	25.07	25.01	25.06	25.48	25.50	25.42	24.66	24.61	24.65
		1	1	25.70	25.79	25.74	**25.55**	**26.00**	**25.75**	**26.00**	25.95	25.94	**25.16**	25.11	25.16
		1	22	**25.79**	**25.80**	**25.77**	25.50	25.56	25.53	25.90	**25.98**	**25.97**	15.19	**25.13**	**25.50**
		1	23	25.28	25.28	25.23	25.08	25.02	25.00	25.46	25.40	25.49	24.62	24.64	24.60
		12	6	25.22	25.27	25.20	25.00	25.09	25.06	25.41	25.49	25.43	24.61	24.67	24.66
		24	0	25.25	25.27	25.26	25.10	25.10	25.01	25.49	25.49	25.43	24.68	24.67	24.69
	QPSK	1	0	24.72	24.75	24.74	24.55	24.59	24.57	24.90	24.99	24.93	24.15	24.11	24.19
		1	1	**25.72**	25.78	25.74	25.52	**25.57**	25.52	25.96	25.95	25.91	25.13	25.14	25.12
		1	22	25.72	**25.78**	**25.77**	**25.56**	25.56	**25.55**	**25.97**	**25.97**	**25.98**	**25.15**	**25.15**	**25.16**
		1	23	24.78	24.71	24.78	24.56	24.59	24.55	24.97	24.92	24.96	24.18	24.14	24.18
		12	6	24.72	24.79	24.77	24.52	24.59	24.55	24.96	24.99	24.91	24.10	24.14	24.12
		24	0	24.70	24.70	24.71	24.52	24.57	24.54	24.96	24.95	24.96	24.17	24.14	24.12
	16QAM	1	0	23.78	23.71	23.80	23.59	23.53	23.57	23.93	23.98	23.93	23.13	23.11	23.10
		1	1	24.75	24.71	24.78	**24.58**	24.50	**24.58**	24.91	24.92	24.91	24.12	**24.15**	**24.16**
		1	22	**24.79**	**24.80**	**24.78**	24.58	**24.55**	24.51	**24.97**	**25.00**	**24.95**	**24.13**	24.12	24.10
		1	23	23.74	23.76	23.71	23.57	23.59	23.51	23.92	24.00	23.96	23.10	23.16	23.11
		12	6	23.71	23.76	23.78	23.50	23.58	23.56	23.93	23.99	23.99	23.17	23.16	23.11
		24	0	23.71	23.71	23.72	23.53	23.56	23.53	23.97	23.98	23.98	23.13	23.10	23.16
	64QAM	1	0	23.21	23.22	23.21	23.03	23.05	23.04	23.41	23.41	23.44	22.63	22.70	22.60
		1	1	**23.24**	23.20	23.23	23.06	23.00	**23.09**	**23.50**	23.48	23.41	22.61	22.66	22.62
		1	22	23.24	23.20	23.24	**23.08**	23.08	23.05	23.43	**23.49**	23.46	22.61	22.68	22.68
		1	23	23.24	23.20	23.21	23.01	**23.09**	23.03	23.40	23.48	23.41	22.67	22.62	22.62
		12	6	23.23	**23.26**	**23.29**	23.00	23.06	23.03	23.48	23.45	23.47	**22.70**	22.68	22.65
		24	0	23.24	23.23	23.29	23.06	23.02	23.02	23.44	23.43	**23.47**	22.62	**22.70**	**22.68**
	256QAM	1	0	21.23	21.28	21.24	21.03	21.05	21.05	**21.50**	21.46	**21.47**	20.63	20.62	20.65
		1	1	21.21	21.23	21.21	21.03	21.08	21.04	21.42	21.48	21.46	20.64	20.68	**20.70**
		1	22	21.24	21.26	**21.28**	21.03	21.09	21.08	21.41	**21.49**	21.46	**20.69**	20.61	20.69
		1	23	21.25	21.27	21.25	21.00	**21.09**	**21.09**	21.48	21.47	21.47	20.61	**20.70**	20.68
		12	6	21.26	**21.29**	21.20	21.04	21.07	21.02	21.45	21.46	21.43	20.65	20.65	20.62
		24	0	**21.29**	21.24	21.25	**21.05**	21.02	21.06	21.41	21.43	21.42	20.66	20.65	20.66

OUTPUT POWER FOR 5G NR n48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				637166	641333	646166	637166	641333	646166	637166	641333	646166	637166	641333	646166
				3557.5	3620.0	3692.5	3557.5	3620.0	3692.5	3557.5	3620.0	3692.5	3557.5	3620.0	3692.5
15.0	BPSK	1	0	25.22	25.21	25.26	25.10	25.01	25.01	25.41	25.44	25.48	24.65	24.70	24.68
		1	1	**25.74**	25.74	25.71	25.56	**25.60**	**25.60**	**25.95**	25.96	25.92	**26.00**	**25.20**	25.14
		1	36	25.70	**25.80**	**25.78**	**25.57**	25.53	25.52	25.94	**25.98**	**26.00**	25.13	25.12	**25.15**
		1	37	25.26	25.22	25.22	25.08	25.06	25.02	25.45	25.42	25.43	24.63	24.62	24.67
		18	9	25.29	25.24	25.27	25.00	25.04	25.04	25.41	25.45	25.43	24.65	24.62	24.63
		36	0	22.97	25.23	23.00	23.00	25.01	22.97	22.95	25.40	23.00	23.00	24.65	23.99
	QPSK	1	0	24.76	24.77	24.72	24.56	24.51	24.58	24.91	24.99	24.99	24.10	24.15	24.19
		1	1	25.72	**25.78**	**25.76**	25.55	**25.59**	25.54	25.94	25.91	25.91	**25.13**	**25.19**	25.14
		1	36	**25.77**	25.72	25.72	**25.56**	25.51	**25.56**	**25.96**	**25.99**	**25.99**	25.12	25.15	**25.16**
		1	37	24.75	24.78	24.73	24.51	24.55	24.53	24.95	24.98	24.94	24.15	24.18	24.18
		18	9	24.76	24.80	24.71	24.60	24.52	24.51	24.99	24.99	24.92	24.19	24.16	24.13
		36	0	23.00	24.79	22.93	22.96	24.58	23.00	23.00	24.91	22.94	23.00	24.11	22.95
	16QAM	1	0	23.77	23.79	23.71	23.57	23.54	23.57	23.99	23.92	23.93	23.12	23.15	23.13
		1	1	**24.79**	**24.77**	24.71	**24.58**	24.57	24.55	**24.92**	24.93	**24.95**	24.12	**24.19**	24.11
		1	36	24.75	24.74	**24.73**	24.56	**24.59**	**24.58**	24.91	**24.94**	24.91	**24.17**	24.14	**24.11**
		1	37	23.79	23.72	23.75	23.59	23.52	23.58	23.95	24.00	23.91	23.16	23.12	23.15
		18	9	23.75	23.77	23.71	23.57	23.55	23.54	23.94	23.97	23.96	23.15	23.17	23.15
		36	0	23.00	23.74	22.93	23.00	23.60	22.99	22.98	23.99	23.00	23.00	23.10	23.00
	64QAM	1	0	23.25	23.22	23.23	23.00	23.06	23.05	23.45	23.48	23.49	22.67	22.62	22.61
		1	1	23.21	23.28	23.23	23.00	23.08	23.02	**23.47**	23.43	**23.49**	22.60	22.60	22.64
		1	36	**23.28**	23.23	**23.28**	23.03	**23.09**	**23.09**	23.45	23.45	23.46	22.65	**22.67**	22.70
		1	37	23.25	**23.28**	23.23	23.04	23.09	23.03	23.45	23.45	23.45	22.62	22.61	22.67
		18	9	23.28	23.22	23.27	**23.09**	23.02	23.07	23.43	**23.49**	23.43	22.68	22.65	22.68
		36	0	22.99	23.26	23.00	22.98	23.03	23.00	22.97	23.47	23.00	**23.00**	22.62	**22.92**
	256QAM	1	0	21.29	21.21	21.24	**21.08**	21.03	21.02	**21.48**	**21.48**	21.43	**20.67**	20.63	20.66
		1	1	21.22	**21.28**	21.25	21.07	**21.10**	21.08	21.46	21.43	**21.49**	20.60	20.67	20.67
		1	36	**21.29**	21.21	21.22	21.02	21.03	**21.10**	21.42	21.46	21.41	20.64	**20.68**	20.64
		1	37	21.22	21.25	21.23	21.00	21.06	21.06	21.44	21.47	21.46	20.66	20.65	**20.69**
		18	9	21.27	21.24	**21.25**	21.05	21.01	21.09	21.42	21.48	21.43	20.60	20.62	20.62
		36	0	21.23	21.21	21.22	21.03	21.09	21.09	21.48	21.42	21.43	20.61	20.68	20.68

OUTPUT POWER FOR 5G NR n48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				637333	641333	646000	637333	641333	646000	637333	641333	646000	637333	641333	646000
				3560.0	3620.0	3690.0	3560.0	3620.0	3690.0	3560.0	3620.0	3690.0	3560.0	3620.0	3690.0
20.0	BPSK	1	0	25.29	25.30	25.27	25.00	25.06	25.04	25.42	25.49	25.46	24.65	24.63	24.60
		1	1	**25.78**	**25.80**	25.72	**25.56**	**25.58**	25.54	**26.00**	**26.00**	25.94	25.17	25.11	**25.20**
		1	49	25.76	25.80	**25.77**	25.53	25.51	**25.60**	25.95	25.92	**26.00**	**25.19**	**25.18**	25.13
		1	50	25.22	25.25	25.23	25.06	25.01	25.03	25.49	25.46	25.49	24.66	24.66	24.69
		25	12	25.25	25.23	25.21	25.03	25.04	25.09	25.40	25.44	25.45	24.68	24.68	24.68
		50	0	22.00	25.29	21.92	22.00	25.04	22.00	22.00	25.45	21.98	22.00	24.67	21.97
	QPSK	1	0	24.80	24.77	24.75	24.52	24.51	24.57	24.98	24.93	24.94	24.11	24.17	24.13
		1	1	**25.79**	25.74	**25.74**	25.51	25.52	**25.58**	25.93	25.98	25.91	**25.19**	**25.18**	25.10
		1	49	25.77	**25.77**	25.74	**25.55**	**25.57**	25.51	**25.95**	**26.00**	**25.93**	25.15	25.13	**25.16**
		1	50	24.78	24.73	24.78	24.58	24.53	24.56	25.00	24.93	24.93	24.17	24.18	24.14
		25	12	24.74	24.72	24.72	24.60	24.52	24.57	24.95	24.99	24.92	24.18	24.19	24.13
		50	0	21.97	24.76	22.00	21.99	24.56	22.00	22.00	24.94	21.93	21.93	24.16	22.00
	16QAM	1	0	23.79	23.74	23.72	23.50	23.56	23.52	24.00	23.91	23.93	23.15	23.16	23.19
		1	1	24.75	**24.77**	**24.74**	**24.60**	**24.54**	**24.56**	24.91	24.96	**24.97**	**24.16**	24.20	**24.17**
		1	49	**24.80**	24.73	24.72	24.57	24.53	24.54	**24.99**	**25.00**	24.96	24.12	**24.20**	24.12
		1	50	23.74	23.71	23.77	23.58	23.59	23.51	23.93	23.95	23.99	23.12	23.11	23.10
		25	12	23.74	23.72	23.77	23.56	23.51	23.54	23.98	23.98	23.98	23.17	23.14	23.10
		50	0	22.00	23.75	22.00	21.95	23.59	22.00	21.94	23.92	22.00	22.00	23.18	21.98
	64QAM	1	0	**23.29**	23.27	23.23	23.04	23.05	**23.05**	23.48	**23.48**	23.43	22.63	22.69	22.61
		1	1	23.22	23.23	23.23	23.01	23.06	23.02	**23.49**	23.42	23.45	22.62	22.64	22.64
		1	49	23.28	23.20	**23.27**	**23.07**	23.00	23.03	23.42	23.40	23.44	22.62	22.65	**22.65**
		1	50	23.26	23.25	23.26	23.04	23.05	23.01	23.42	23.43	**23.48**	22.65	**22.70**	22.60
		25	12	23.28	23.21	23.23	23.01	**23.09**	23.03	23.40	23.46	23.43	**22.67**	22.61	22.63
		50	0	22.00	**23.28**	21.96	21.98	23.06	22.00	21.99	23.44	22.00	22.00	22.69	21.95
	256QAM	1	0	21.24	21.29	**21.30**	21.08	21.07	21.06	21.42	21.50	**21.50**	20.65	20.61	20.62
		1	1	21.26	21.30	21.22	21.07	21.05	**21.09**	**21.50**	21.49	21.46	20.62	20.63	20.60
		1	49	21.21	**21.30**	21.27	21.05	21.08	21.04	21.43	21.43	21.45	20.65	**20.65**	**20.65**
		1	50	**21.28**	21.22	21.23	21.06	**21.09**	21.09	21.44	21.41	21.43	20.66	20.61	20.65
		25	12	21.21	21.26	21.26	21.09	21.03	21.08	21.43	**21.50**	21.41	**20.69**	20.61	20.63
		50	0	21.21	21.24	21.28	**21.10**	21.08	21.08	21.49	21.49	21.45	20.67	20.64	20.64

OUTPUT POWER FOR 5G NR n48 (30.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				637666	641666	645666	637666	641666	645666	637666	641666	645666	637666	641666	645666
				3565.0	3625.0	3685.0	3565.0	3625.0	3685.0	3565.0	3625.0	3685.0	3565.0	3625.0	3685.0
30.0	BPSK	1	0	25.30	25.21	25.29	25.05	25.03	25.06	25.48	25.45	25.49	24.67	24.69	24.62
		1	1	**25.80**	**25.79**	25.72	**25.55**	25.54	25.54	**25.95**	25.98	**26.00**	25.14	25.16	**25.17**
		1	76	25.77	25.72	**25.76**	25.53	**25.59**	**25.60**	25.92	**25.99**	25.00	**25.20**	**25.17**	25.13
		1	77	25.29	25.23	25.22	25.03	25.05	25.09	25.48	25.41	25.46	24.69	24.62	24.70
		36	18	25.25	25.22	25.26	25.08	25.08	25.01	25.50	25.48	25.50	24.64	24.63	24.66
		75	0	19.00	25.23	19.00	19.00	25.02	18.95	19.00	25.44	18.99	19.00	24.67	18.98
	QPSK	1	0	24.78	24.78	24.78	24.57	24.57	24.52	24.95	24.96	24.97	24.13	24.13	24.15
		1	1	**25.78**	**25.77**	25.71	**25.56**	**25.52**	**25.56**	25.98	**25.95**	**25.96**	25.14	**25.14**	25.10
		1	76	25.75	25.71	**25.79**	25.53	25.51	25.54	**25.99**	25.94	25.92	**25.16**	25.13	**25.14**
		1	77	24.75	24.79	24.74	24.55	24.50	24.57	24.90	24.96	24.93	24.16	24.17	24.19
		36	18	24.73	24.75	24.75	24.59	24.55	24.54	24.97	24.94	24.96	24.13	24.13	24.16
		75	0	18.99	24.70	19.00	18.94	24.52	19.00	18.94	24.92	19.00	19.00	24.19	19.00
	16QAM	1	0	23.76	23.77	23.70	23.54	23.57	23.60	23.93	23.98	23.91	23.13	23.19	23.19
		1	1	24.73	**24.71**	24.72	24.55	24.57	24.54	24.97	24.90	**24.96**	24.15	**24.11**	**24.18**
		1	76	**24.75**	24.70	**24.75**	**24.58**	**24.60**	**24.58**	**25.00**	**24.92**	24.93	**24.18**	24.11	24.11
		1	77	23.72	23.73	23.70	23.52	23.50	23.54	23.96	23.91	23.90	23.18	23.13	23.14
		36	18	23.78	23.72	23.78	23.56	23.53	23.58	23.99	23.93	23.99	23.19	23.11	23.15
		75	0	19.00	23.77	18.95	19.00	23.52	18.99	19.00	23.99	18.97	18.92	23.11	19.00
	64QAM	1	0	23.22	23.27	23.22	**23.09**	23.02	**23.09**	23.46	**23.48**	23.48	22.62	22.64	22.67
		1	1	**23.29**	23.20	23.22	23.01	23.03	23.08	23.46	23.43	23.43	22.66	22.63	22.66
		1	76	23.28	23.21	23.22	23.06	23.03	23.05	23.44	23.41	23.47	22.63	22.62	22.66
		1	77	23.21	**23.28**	23.23	23.07	23.00	23.02	23.43	23.43	23.44	**22.67**	22.62	22.68
		36	18	23.21	23.21	**23.29**	23.05	23.00	23.03	**23.47**	23.40	**23.48**	22.62	22.64	**22.69**
		75	0	18.95	23.27	19.00	19.00	**23.04**	18.96	18.99	23.42	19.00	19.00	**22.65**	18.98
	256QAM	1	0	21.26	21.23	21.27	21.04	21.07	21.01	21.48	21.42	21.41	20.65	20.62	20.64
		1	1	21.23	21.27	**21.30**	21.03	21.02	**21.03**	21.47	21.42	21.47	**20.67**	20.67	**20.70**
		1	76	**21.28**	21.21	21.23	21.08	21.04	21.01	**21.50**	21.40	21.41	20.64	20.60	20.66
		1	77	21.27	**21.30**	21.24	21.02	21.02	21.00	21.49	**21.43**	**21.49**	20.66	20.60	20.62
		36	18	21.22	21.26	21.20	**21.08**	**21.07**	21.02	21.49	21.43	21.40	20.62	**20.68**	20.68
		75	0	18.98	21.23	19.00	18.99	21.06	18.00	18.96	21.43	19.00	18.94	20.61	19.00

OUTPUT POWER FOR 5G NR n48 (40.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)											
				ANT 7			ANT 8			ANT 9			ANT 4		
				638000	641333	645333	638000	641333	645333	638000	641333	645333	638000	641333	645333
				3570.0	3620.0	3680.0	3570.0	3620.0	3680.0	3570.0	3620.0	3680.0	3570.0	3620.0	3680.0
40.0	BPSK	1	0	25.26	25.20	25.20	25.06	25.04	25.03	25.45	25.44	25.44	24.64	24.63	24.68
		1	1	25.75	25.73	**25.76**	25.56	**25.60**	25.51	**25.95**	**26.00**	**26.00**	**25.16**	**25.20**	**25.18**
		1	104	**25.80**	**25.77**	25.70	**25.59**	25.53	**25.58**	25.94	25.98	25.97	25.14	25.17	25.11
		1	105	25.25	25.30	25.23	25.05	25.05	25.04	25.42	25.44	25.47	24.69	24.60	24.65
		50	25	25.28	25.24	25.26	25.08	25.00	25.09	25.43	25.46	25.47	24.67	24.63	24.69
		100	0	18.91	25.29	19.00	18.92	25.07	19.00	19.00	25.50	18.97	19.00	24.70	18.98
	QPSK	1	0	24.73	24.79	24.78	24.56	24.54	24.53	24.98	24.93	24.92	24.14	24.14	24.13
		1	1	**25.71**	**25.75**	**25.77**	**25.56**	**25.53**	**25.59**	25.94	**26.00**	25.94	25.16	25.13	**25.19**
		1	104	25.71	25.73	25.76	25.53	25.52	25.56	**25.95**	25.97	**25.96**	**25.19**	**25.15**	25.19
		1	105	24.74	24.73	24.79	24.59	24.52	24.53	24.94	24.92	24.99	24.14	24.12	24.14
		50	25	24.71	24.75	24.74	24.53	24.59	24.51	24.94	24.99	24.95	24.19	24.17	24.11
		100	0	19.00	24.77	18.94	18.96	24.52	19.00	18.96	24.97	19.00	18.99	24.14	19.00
	16QAM	1	0	23.70	23.71	23.76	23.51	23.55	23.59	23.97	23.93	23.92	23.11	23.16	23.13
		1	1	24.75	24.71	24.73	**24.55**	24.53	**24.55**	24.92	**24.93**	24.94	24.13	24.13	24.17
		1	104	**24.76**	**24.78**	**24.79**	24.54	**24.57**	24.52	**24.93**	24.91	**24.96**	**24.15**	**24.14**	**24.20**
		1	105	23.76	23.72	23.73	23.60	23.54	23.56	23.91	23.98	23.90	23.14	23.12	23.14
		50	25	23.78	23.77	23.70	23.50	23.55	23.54	23.98	23.98	23.93	23.12	23.16	23.18
		100	0	18.97	23.75	19.00	19.00	23.56	18.96	19.00	23.94	19.00	19.00	23.17	18.95
	64QAM	1	0	23.24	23.23	23.20	23.00	**23.10**	23.04	**23.49**	23.46	23.49	22.63	22.67	22.62
		1	1	23.26	23.23	**23.30**	23.02	23.04	23.02	23.45	23.44	23.45	22.66	22.64	22.65
		1	104	**23.29**	**23.28**	23.29	23.01	23.01	**23.10**	23.42	23.45	23.46	22.63	22.68	**22.67**
		1	105	23.27	23.24	23.20	**23.10**	23.07	23.04	23.48	**23.47**	**23.50**	22.65	22.64	22.62
		50	25	23.25	23.24	23.26	23.06	23.09	23.09	23.42	23.46	23.49	**22.67**	**22.69**	22.65
		100	0	18.95	23.28	19.00	19.00	23.04	18.97	19.00	23.44	18.96	19.00	22.66	18.98
	256QAM	1	0	**21.27**	21.23	21.29	21.06	21.04	**21.10**	21.43	21.48	21.43	20.60	20.64	20.62
		1	1	21.22	**21.27**	**21.30**	21.08	21.04	21.02	21.43	**21.50**	21.43	20.62	**20.70**	20.62
		1	104	21.25	21.21	21.27	**21.10**	21.06	21.03	**21.46**	21.45	**21.48**	**20.68**	20.60	20.62
		1	105	21.22	21.26	21.22	21.07	21.07	21.07	21.44	21.42	21.47	20.66	20.70	**20.63**
		50	25	21.27	21.21	21.25	21.03	**21.08**	21.04	21.45	21.47	21.40	20.67	20.61	20.62
		100	0	19.00	21.22	18.97	18.99	21.07	19.00	19.00	21.47	18.91	18.96	20.61	19.00

8.2. LTE ULCA BAND 48

Test Engineer ID:	39004	Test Date:	2024-03-18

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							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	20.13	20.20	20.01	20.23	20.04	20.26	20.29	20.45	20.03	20.39	20.08	**21.12**	19.63	19.69	19.57	19.51
			25	0	100	0	13.80	13.86	13.88	13.74	13.79	13.91	13.52	13.64	13.87	13.52	13.98	13.93	12.96	12.92	12.78	13.16
	3615.8	3627.5	1	24	1	0	**23.69**	**23.54**	**23.97**	**20.88**	**23.64**	**23.68**	**23.85**	**20.62**	**23.50**	**23.97**	**23.52**	20.87	**23.19**	**22.91**	**22.90**	19.98
			25	0	100	0	21.52	21.96	21.83	20.62	21.79	21.54	21.63	20.51	21.93	22.00	21.58	20.67	20.76	21.09	21.05	**20.03**
	3678.3	3690.0	1	24	1	0	20.32	20.38	20.41	20.25	20.33	20.13	20.25	20.14	20.25	20.01	20.05	20.02	19.36	19.34	19.49	19.39
			25	0	100	0	13.55	13.82	13.58	13.92	13.87	13.99	13.81	13.97	13.72	13.86	13.84	13.57	13.07	12.99	13.19	12.96

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							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	20.03	20.41	20.48	20.22	20.25	20.17	20.13	20.36	20.14	20.24	20.14	20.17	19.23	19.30	19.55	19.61
			100	0	25	0	13.92	13.76	13.59	13.71	13.71	13.79	13.76	13.53	13.62	13.51	13.87	13.91	12.71	12.81	13.14	12.72
	3622.5	3634.2	1	99	1	0	**23.72**	**23.96**	**23.58**	**20.62**	**23.69**	**23.59**	**23.76**	20.52	**23.61**	**23.77**	**23.54**	**20.97**	**23.00**	**23.15**	**22.70**	19.93
			100	0	25	0	21.75	21.69	21.56	20.54	21.74	21.78	21.68	**20.64**	21.87	21.60	21.58	20.82	20.77	21.05	20.77	**20.16**
	3685.0	3696.7	1	99	1	0	20.46	20.21	20.10	20.48	20.21	20.41	20.22	20.43	20.50	20.48	20.14	20.48	19.32	19.54	19.38	19.27
			100	0	25	0	13.72	13.56	13.56	13.81	13.92	13.59	14.00	13.61	13.70	13.70	13.97	13.85	13.16	12.91	12.79	13.01

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							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	19.68	19.63	20.00	19.62	19.98	19.96	19.96	19.61	19.97	19.81	19.92	19.93	18.95	18.74	18.82	19.20
			50	0	100	0	14.61	14.80	14.53	14.66	14.92	14.56	14.54	14.70	14.86	14.52	14.80	14.91	13.72	13.93	13.77	13.79
	3615.6	3630.0	1	49	1	0	**24.46**	**24.12**	**23.71**	**20.55**	**24.50**	**24.23**	**23.85**	20.63	**24.06**	**24.34**	**23.63**	20.63	**23.63**	**23.22**	**22.71**	**20.07**
			50	0	100	0	21.43	21.49	21.27	20.53	21.22	21.12	21.07	**20.78**	21.00	21.07	21.31	**20.84**	20.33	20.64	20.58	19.83
	3675.6	3690.0	1	49	1	0	20.00	19.88	19.81	19.87	19.75	19.71	19.52	19.69	19.78	19.76	19.77	19.72	19.14	18.73	18.77	18.74
			50	0	100	0	14.72	14.98	14.72	14.88	14.69	14.97	14.79	14.63	14.85	14.58	14.78	14.55	13.97	14.19	13.83	14.15

OUTPUT POWER FOR LTE BAND 48 (20.0MHz + 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 7				ANT 8				ANT 9				ANT 4			
							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	19.97	19.89	19.98	19.81	19.79	19.59	19.64	19.64	19.78	19.94	19.85	20.00	19.11	18.90	19.07	19.06
			100	0	50	0	14.84	14.52	14.77	14.89	14.85	14.57	14.74	14.83	14.89	14.64	14.69	15.00	13.76	14.13	14.18	13.72
	3620.1	3634.5	1	99	1	0	**24.08**	**24.01**	**23.86**	20.87	**24.35**	**24.26**	**23.91**	**20.65**	**24.02**	**24.00**	**23.66**	**20.94**	**23.32**	**23.22**	**22.87**	19.70
			100	0	50	0	21.43	21.13	21.13	**20.97**	21.38	21.36	21.31	20.60	21.37	21.10	21.29	20.85	20.59	20.34	20.27	**20.00**
	3680.1	3694.5	1	99	1	0	19.93	19.66	19.70	19.96	19.85	19.68	19.92	19.71	19.99	19.80	19.71	19.97	18.89	19.03	18.80	18.96
			100	0	50	0	14.52	14.90	14.69	14.72	14.76	14.98	14.65	14.81	14.59	14.66	15.00	14.74	13.84	13.75	14.00	13.96

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							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	19.52	19.73	19.61	19.73	19.58	19.81	19.52	19.58	19.77	19.90	19.58	19.62	19.18	19.05	18.97	19.12
			75	0	100	0	14.81	14.80	14.91	14.74	14.87	14.92	14.57	14.51	14.60	14.56	14.69	14.68	13.84	13.95	13.75	13.93
	3615.3	3632.4	1	74	1	0	**24.77**	**24.82**	**23.71**	**20.87**	**24.83**	**24.72**	**23.92**	**20.89**	**24.91**	**24.55**	**23.73**	20.82	**23.81**	**23.98**	**23.05**	20.09
			75	0	100	0	21.34	21.29	21.02	20.65	21.20	21.08	21.08	**20.89**	21.05	21.06	21.25	**20.91**	20.46	20.59	20.59	**20.11**
	3672.9	3690.0	1	74	1	0	19.77	19.58	19.66	19.54	19.91	19.81	19.76	19.55	19.59	19.54	19.66	19.76	19.01	19.14	18.81	19.07
			75	0	100	0	14.60	14.97	14.77	14.63	14.68	14.71	14.90	14.90	14.74	14.69	14.74	14.75	14.02	13.79	13.84	14.00

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							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	19.64	19.53	19.65	19.58	19.63	19.68	19.75	19.80	19.52	19.83	19.99	19.59	19.00	18.75	19.17	18.97
			100	0	75	0	14.64	14.81	14.63	14.50	14.75	14.95	14.53	14.81	14.67	14.79	14.63	14.52	14.08	13.91	13.86	13.96
	3617.6	3634.7	1	99	1	0	**24.93**	**24.96**	**23.71**	**20.67**	**24.67**	**24.75**	**23.91**	**20.96**	**24.50**	**24.54**	**23.83**	**20.94**	**23.74**	**24.01**	**23.11**	**19.89**
			100	0	75	0	21.22	21.25	21.04	20.53	21.19	21.17	21.42	20.62	21.46	21.21	21.40	20.56	20.55	20.30	20.64	19.76
	3675.1	3692.2	1	99	1	0	19.85	19.55	19.52	19.64	19.62	19.81	19.76	19.69	19.64	19.51	19.52	19.66	18.70	18.95	19.13	18.96
			100	0	75	0	14.57	14.65	14.58	14.66	14.94	14.88	14.79	14.53	14.93	14.72	14.79	14.88	14.04	13.88	13.73	13.93

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)													
							ANT 7				ANT 8				ANT 9				ANT 4			
							QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
20MHz/ 20MHz	3560.0	3579.8	1	99	1	0	21.13	21.33	21.18	**20.81**	21.32	21.15	21.29	20.60	21.21	21.41	21.38	20.74	20.58	20.70	20.25	19.93
			1	0	1	99	7.55	7.89	8.00	7.72	7.64	7.70	7.79	7.56	7.54	7.74	7.66	7.51	6.78	7.16	7.07	7.05
			100	0	100	0	14.84	14.85	14.98	14.91	14.83	14.91	15.00	14.61	14.97	14.86	14.95	14.70	13.93	13.75	13.73	13.83
	3615.1	3634.9	1	99	1	0	**24.97**	**24.95**	**23.75**	**20.81**	**24.68**	**24.56**	**23.90**	20.65	**24.76**	**24.60**	**23.71**	20.73	**24.12**	**24.08**	**22.71**	19.98
			1	0	1	99	14.46	14.05	14.11	14.02	14.47	14.39	14.21	14.05	14.47	14.44	14.26	14.48	13.21	13.32	13.55	13.33
			100	0	100	0	21.27	21.43	21.19	20.55	21.08	21.26	21.31	**20.98**	21.41	21.02	21.47	**20.76**	20.35	20.36	20.40	20.16
	3670.2	3690.0	1	99	1	0	21.34	21.41	21.34	20.64	21.34	21.00	21.07	20.54	21.41	21.19	21.31	20.67	20.53	20.50	20.37	**20.17**
			1	0	1	99	7.69	7.57	7.89	7.75	7.77	7.54	7.58	7.95	7.65	7.91	7.53	7.95	7.08	6.81	7.10	6.95
			100	0	100	0	14.99	14.62	14.69	14.55	14.52	14.76	14.95	14.64	14.70	14.52	14.92	14.87	13.84	14.13	13.81	14.20

8.3. 5G NR n48 MIMO

Test Engineer ID:	25780	Test Date:	2024-03-09

OUTPUT POWER FOR 5G NR n48 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 7			ANT 8			ANT 7+8		
				637000	641666	646333	637000	641666	646333	637000	641666	646333
				3555.0	3625.0	3695.0	3555.0	3625.0	3695.0	3555.0	3625.0	3695.0
10.0	QPSK	1	0	19.62	19.79	19.60	19.79	19.52	19.99	22.72	22.67	22.81
		1	1	21.13	21.20	21.38	21.26	21.20	**21.36**	24.21	24.21	**24.38**
		1	22	**21.40**	21.33	21.12	21.15	21.20	21.11	24.29	24.28	24.13
		1	23	19.82	19.58	19.53	19.55	19.76	19.99	22.70	22.68	22.78
		12	6	19.99	19.67	19.97	19.73	19.81	19.52	22.87	22.75	22.76
		24	0	19.90	19.97	19.88	19.96	19.85	19.97	22.94	22.92	22.94
	16QAM	1	0	19.52	19.53	19.55	19.88	19.87	19.87	22.71	22.71	22.72
		1	1	**21.01**	20.81	20.95	20.82	20.57	20.72	23.93	23.70	23.85
		1	22	20.58	20.98	20.91	20.78	20.59	**20.97**	23.69	23.80	**23.95**
		1	23	19.57	19.80	19.65	19.71	19.60	19.94	22.65	22.71	22.81
		12	6	19.94	19.87	19.80	19.96	19.81	19.52	22.96	22.85	22.67
		24	0	19.57	19.94	20.00	19.96	19.58	19.64	22.78	22.77	22.83
	64QAM	1	0	19.46	19.45	19.34	19.38	19.47	19.32	22.43	**22.47**	22.34
		1	1	19.26	19.03	19.46	19.42	19.39	19.14	22.35	22.22	22.31
		1	22	19.10	19.03	19.30	19.35	19.45	**19.48**	22.24	22.26	22.40
		1	23	19.22	19.14	19.09	19.31	19.27	19.22	22.28	22.22	22.17
		12	6	**19.51**	19.11	19.26	19.06	19.20	19.36	22.30	22.17	22.32
		24	0	19.13	19.05	19.20	19.29	19.45	19.28	22.22	22.26	22.25
	256QAM	1	0	16.21	**16.50**	16.37	16.19	16.34	16.06	19.21	19.43	19.23
		1	1	16.30	16.42	16.45	16.23	**16.47**	16.34	19.28	**19.46**	19.41
		1	22	16.43	16.08	16.44	16.29	16.23	16.35	19.37	19.17	19.41
		1	23	16.34	16.21	16.40	16.41	16.19	16.41	19.39	19.21	19.42
		12	6	16.36	16.22	16.31	16.13	16.43	16.16	19.26	19.34	19.25
		24	0	16.49	16.48	16.13	16.07	16.24	16.10	19.30	**19.37**	19.13

OUTPUT POWER FOR 5G NR n48 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 7			ANT 8			ANT 7+8		
				637166	641333	646166	637166	641333	646166	637166	641333	646166
				3557.5	3620.0	3692.5	3557.5	3620.0	3692.5	3557.5	3620.0	3692.5
15.0	QPSK	1	0	19.92	19.85	19.63	19.82	19.61	19.88	22.88	22.74	22.77
		1	1	21.20	21.45	21.23	21.21	**21.29**	21.24	24.22	**24.38**	24.25
		1	36	21.26	**21.51**	21.05	21.25	21.13	21.27	24.27	24.33	24.17
		1	37	19.92	19.94	19.78	19.88	19.57	19.85	22.91	22.77	22.83
		18	9	19.72	19.87	19.59	19.99	19.89	19.83	22.87	22.89	22.72
		36	0	20.00	19.56	19.71	19.86	19.75	19.93	22.94	22.67	22.83
	16QAM	1	0	19.64	19.99	19.71	19.54	19.98	19.79	22.60	23.00	22.76
		1	1	20.71	20.74	20.53	20.87	20.86	20.59	23.80	23.81	23.57
		1	36	20.83	20.68	**20.85**	**21.00**	20.90	20.93	**23.93**	23.80	23.90
		1	37	19.95	19.70	19.95	19.59	19.94	19.82	22.78	22.83	22.90
		18	9	19.55	19.97	19.63	19.95	19.54	19.61	22.76	22.77	22.63
		36	0	19.65	19.52	19.67	19.80	19.72	19.69	22.74	22.63	22.69
	64QAM	1	0	19.36	19.43	19.35	19.23	19.29	19.32	22.31	22.37	22.35
		1	1	19.18	19.44	19.11	19.05	19.35	19.35	22.13	22.41	22.24
		1	36	19.42	19.42	19.29	19.04	19.36	19.10	22.24	22.40	22.21
		1	37	19.34	**19.51**	19.47	**19.50**	19.35	19.44	22.43	22.44	**22.47**
		18	9	19.13	19.18	19.38	19.18	19.07	19.32	22.17	22.14	22.36
		36	0	19.37	19.36	19.05	19.30	19.45	19.37	22.35	22.42	22.22
	256QAM	1	0	16.39	16.31	16.43	16.45	16.08	16.29	19.43	19.21	19.37
		1	1	16.42	16.46	16.23	16.37	**16.51**	16.26	19.41	**19.50**	19.26
		1	36	16.23	16.43	16.14	16.48	16.50	16.30	19.37	19.48	19.23
		1	37	16.13	16.45	16.30	16.18	16.27	16.50	19.17	19.37	19.41
		18	9	16.23	16.41	16.41	16.30	16.36	16.46	19.28	19.40	19.45
		36	0	**16.51**	16.12	16.26	16.12	16.50	16.33	**19.33**	19.32	19.31

OUTPUT POWER FOR 5G NR n48 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 7			ANT 8			ANT 7+8		
				637333	641333	646000	637333	641333	646000	637333	641333	646000
				3560.0	3620.0	3690.0	3560.0	3620.0	3690.0	3560.0	3620.0	3690.0
20.0	QPSK	1	0	19.65	19.96	20.01	19.58	19.73	19.81	22.63	22.86	22.92
		1	1	21.09	**21.50**	21.36	21.12	21.19	21.17	24.12	**24.36**	24.28
		1	49	21.17	21.04	21.26	**21.38**	21.07	21.26	24.29	24.07	24.27
		1	50	19.72	19.93	19.96	19.81	19.65	19.87	22.78	22.80	22.93
		25	12	19.98	19.77	19.94	19.54	19.78	19.74	22.78	22.79	22.85
		50	0	19.94	19.95	19.65	19.86	19.68	19.94	22.91	22.83	22.81
	16QAM	1	0	19.69	19.78	19.72	19.69	19.74	19.74	22.70	22.77	22.74
		1	1	20.95	**21.00**	20.87	20.74	20.74	20.63	23.86	**23.88**	23.76
		1	49	20.54	20.85	20.66	20.66	**20.85**	20.59	23.61	23.86	23.64
		1	50	19.87	19.54	19.75	19.99	19.78	19.79	22.94	22.67	22.78
		25	12	19.68	19.52	20.01	19.76	19.65	19.88	22.73	22.60	22.96
		50	0	19.68	19.93	19.53	19.59	19.65	19.76	22.65	22.80	22.66
	64QAM	1	0	19.28	19.18	19.43	19.30	19.31	19.26	22.30	22.26	22.36
		1	1	19.02	19.15	19.33	19.14	19.11	19.35	22.09	22.14	22.35
		1	49	19.34	19.14	19.25	19.34	19.34	19.33	22.35	22.25	22.30
		1	50	19.49	19.45	19.25	19.07	19.45	19.20	22.30	**22.46**	22.24
		25	12	**19.51**	19.43	19.17	19.34	19.34	19.28	22.44	22.40	22.24
		50	0	19.13	19.28	19.34	19.39	19.36	**19.47**	22.27	22.33	22.42
	256QAM	1	0	16.37	16.30	16.37	16.28	16.14	16.37	19.34	19.23	19.38
		1	1	16.47	16.19	16.16	**16.48**	16.06	16.09	**19.49**	19.14	19.14
		1	49	16.47	16.48	16.19	16.10	16.32	16.23	19.30	19.41	19.22
		1	50	16.34	16.13	16.43	16.33	16.26	16.38	19.35	19.21	19.42
		25	12	16.34	16.23	16.40	16.03	16.10	16.42	19.20	19.18	19.42
		50	0	16.49	16.45	**16.51**	16.19	16.38	16.44	19.35	19.43	**19.49**

OUTPUT POWER FOR 5G NR n48 (30.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 7			ANT 8			ANT 7+8		
				637666	641666	645666	637666	641666	645666	637666	641666	645666
				3565.0	3625.0	3685.0	3565.0	3625.0	3685.0	3565.0	3625.0	3685.0
30.0	QPSK	1	0	19.92	19.78	19.74	19.73	19.97	19.91	22.84	22.89	22.84
		1	1	21.22	21.37	21.40	**21.48**	21.39	21.29	24.36	24.39	24.36
		1	76	21.44	**21.48**	21.31	21.07	21.28	21.45	24.27	**24.39**	24.39
		1	77	19.92	19.53	19.54	19.70	19.55	19.58	22.82	22.55	22.57
		36	18	19.54	19.81	19.91	19.63	19.68	19.51	22.60	22.76	22.72
		75	0	19.57	19.58	19.99	19.58	19.75	19.70	22.59	22.68	22.86
	16QAM	1	0	19.79	19.84	19.80	19.71	19.58	19.63	22.76	22.72	22.73
		1	1	20.86	20.67	20.55	20.75	20.62	**20.82**	23.82	23.66	23.70
		1	76	**20.92**	20.77	**20.92**	20.66	20.65	20.74	23.80	23.72	**23.84**
		1	77	19.64	19.68	19.80	19.75	19.68	19.75	22.71	22.69	22.79
		36	18	19.85	19.61	19.87	19.54	19.20	19.92	22.71	22.42	22.91
		75	0	19.68	19.96	19.79	19.67	19.52	19.85	22.69	22.76	22.83
	64QAM	1	0	19.15	19.10	19.07	19.17	19.48	19.35	22.17	22.30	22.22
		1	1	19.48	19.19	19.32	19.28	19.36	19.14	22.39	22.29	22.24
		1	76	19.18	19.50	19.11	19.12	19.37	19.23	22.16	22.45	22.18
		1	77	19.37	19.05	19.26	19.12	19.06	19.08	22.26	22.07	22.18
		36	18	19.69	19.89	19.96	19.85	19.67	**19.99**	22.78	22.79	**22.99**
		75	0	19.68	19.65	**19.98**	19.61	19.69	19.84	22.66	22.68	22.92
	256QAM	1	0	16.30	16.22	16.30	16.20	16.19	16.48	19.26	19.22	19.40
		1	1	16.31	16.35	16.17	16.11	16.17	16.23	19.22	19.27	19.21
		1	76	16.49	16.04	16.42	16.10	16.36	16.51	19.31	19.21	**19.48**
		1	77	16.14	16.40	16.09	16.42	16.12	16.19	19.29	19.27	19.15
		36	18	16.16	16.18	16.29	16.43	16.51	16.51	19.31	19.36	19.41
		75	0	16.59	16.20	**16.67**	16.46	16.54	**16.59**	19.54	19.38	**19.64**

OUTPUT POWER FOR 5G NR n48 (40.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)								
				ANT 7			ANT 8			ANT 7+8		
				638000	641333	645333	638000	641333	645333	638000	641333	645333
				3570.0	3620.0	3680.0	3570.0	3620.0	3680.0	3570.0	3620.0	3680.0
40.0	QPSK	1	0	20.00	19.99	19.74	19.64	19.97	19.79	22.83	22.99	22.78
		1	1	21.24	21.32	21.36	21.28	21.30	21.33	24.27	24.32	24.36
		1	104	**21.72**	21.09	21.21	21.15	21.31	**21.40**	**24.45**	24.21	24.32
		1	105	19.93	19.74	19.72	19.85	19.74	19.81	22.90	22.75	22.78
		50	25	19.76	19.63	19.81	19.92	19.61	19.83	22.85	22.63	22.83
		100	0	19.95	19.79	19.94	19.92	19.68	19.64	22.95	22.75	22.80
	16QAM	1	0	19.87	19.66	20.01	19.96	19.60	19.54	22.93	22.64	22.79
		1	1	20.69	20.75	20.55	**20.93**	20.66	20.59	23.82	23.72	23.58
		1	104	20.94	20.73	**20.94**	20.73	20.54	20.56	**23.85**	23.65	23.76
		1	105	19.58	19.60	19.69	19.52	19.94	19.79	22.56	22.78	22.75
		50	25	19.70	19.97	19.80	19.83	19.96	19.11	22.78	22.98	22.48
		100	0	19.72	19.59	19.93	19.64	19.95	19.69	22.69	22.78	22.82
	64QAM	1	0	19.41	19.31	19.15	19.47	19.21	19.51	22.45	22.27	22.34
		1	1	19.37	19.04	19.19	19.02	19.31	19.35	22.21	22.19	22.28
		1	104	19.15	19.09	19.35	19.50	19.01	19.39	22.34	22.06	22.38
		1	105	19.08	19.05	19.50	19.04	19.14	19.02	22.07	22.11	22.28
		50	25	19.43	19.39	19.35	19.54	19.43	**19.58**	22.50	22.42	22.48
		100	0	19.50	19.52	**19.62**	19.52	19.50	19.49	22.52	22.52	**22.57**
	256QAM	1	0	16.07	16.24	16.49	16.09	16.21	16.12	19.09	19.24	19.32
		1	1	16.30	16.07	16.38	16.41	16.02	16.16	19.37	19.06	19.28
		1	104	16.30	16.49	16.49	16.31	16.30	16.21	19.32	19.41	19.36
		1	105	16.31	16.05	16.42	16.50	16.47	16.45	19.42	19.28	19.45
		50	25	16.62	16.61	**16.72**	16.53	16.45	**16.57**	19.59	19.54	**19.66**
		100	0	16.64	16.47	16.48	16.47	16.51	16.56	**19.57**	19.50	19.53

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. Worst-case plots (highest bandwidth) are reported only.

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	4.486	5.074
	5MHz, 16QAM			4.487	5.012
	10MHz, QPSK	50/0		8.961	9.684
	10MHz, 16QAM			8.943	9.397
	15MHz, QPSK	75/0		13.319	14.10
	15MHz, 16QAM			13.368	14.06
	20MHz, QPSK	100/0		17.768	18.85
	20MHz, 16QAM			17.889	18.79
	20MHz, QPSK	1/0		0.279	0.479

5G NR n48

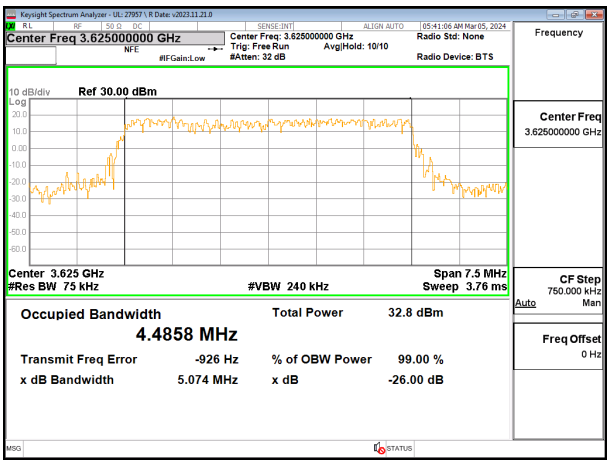
Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
5G NR n48	10MHz, BPSK	24/0	3625	8.670	9.724
	10MHz, QPSK			8.599	9.726
	10MHz, 16QAM			8.617	9.743
	15MHz, BPSK	36/0	3620	12.830	14.18
	15MHz, QPSK			12.921	14.17
	15MHz, 16QAM			12.902	14.20
	20MHz, BPSK	50/0		17.940	19.01
	20MHz, QPSK			17.993	19.55
	20MHz, 16QAM			17.881	19.60
	30MHz, BPSK	75/0	3625	26.833	28.52
	30MHz, QPSK			26.871	28.83
	30MHz, 16QAM			26.800	28.57
	40MHz, BPSK	100/0	3620	35.751	37.62
	40MHz, QPSK			35.723	37.81
	40MHz, 16QAM			35.819	37.35
	40MHz, BPSK	1/0		0.509	0.880

LTE ULCA BAND 48

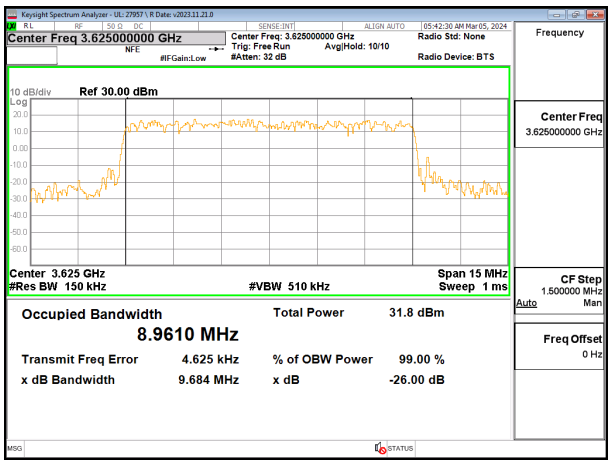
Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 48	5MHz + 20MHz BAND QPSK	25/0 + 100/0	3625	22.869	24.10
	5MHz + 20MHz BAND 16QAM			22.883	24.16
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		22.919	24.14
	20MHz + 5MHz BAND 16QAM			22.860	24.12
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		27.757	29.38
	10MHz + 20MHz BAND 16QAM			27.715	29.21
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		27.721	29.39
	20MHz + 10MHz BAND 16QAM			27.712	29.38
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.532	34.64
	15MHz + 20MHz BAND 16QAM			32.596	34.37
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.562	34.26
	20MHz + 15MHz BAND 16QAM			32.613	34.18
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.498	39.29
	20MHz + 20MHz BAND 16QAM			37.522	39.08

9.1.1. LTE BAND 48 AND 5G NR n48

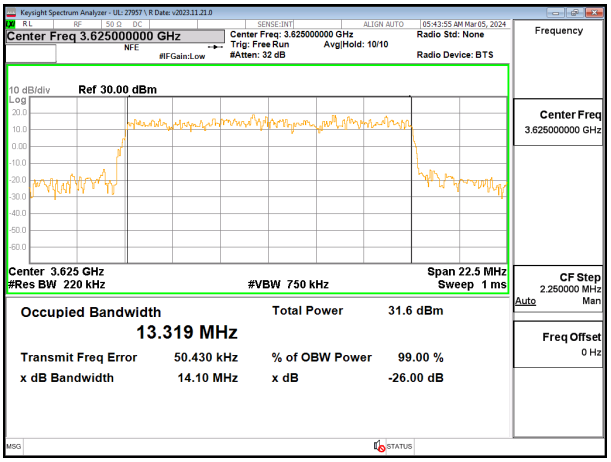
LTE BAND 48



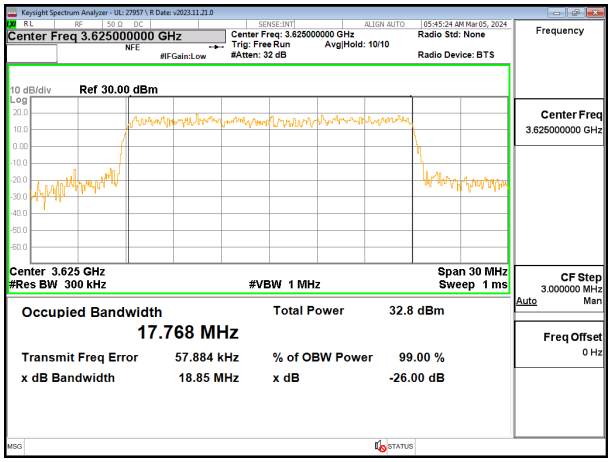
LTE B48 5MHz QPSK Middle Channel RB25-0



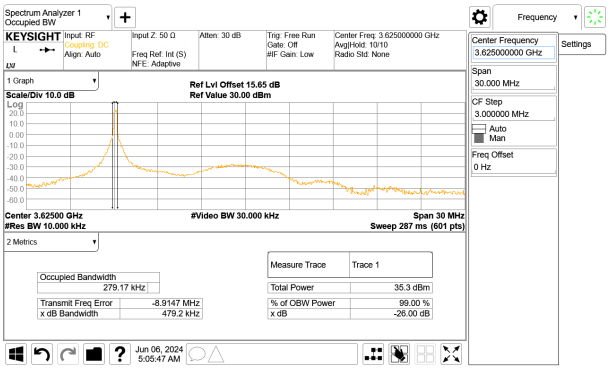
LTE B48 10MHz QPSK Middle Channel RB50-0



LTE B48 15MHz QPSK Middle Channel RB75-0



LTE B48 20MHz QPSK Middle Channel RB100-0



LTE B48 20MHz QPSK Middle Channel RB1-0 ID:27957

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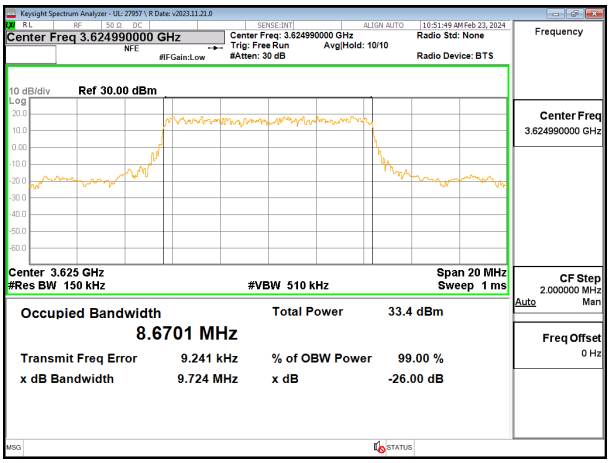
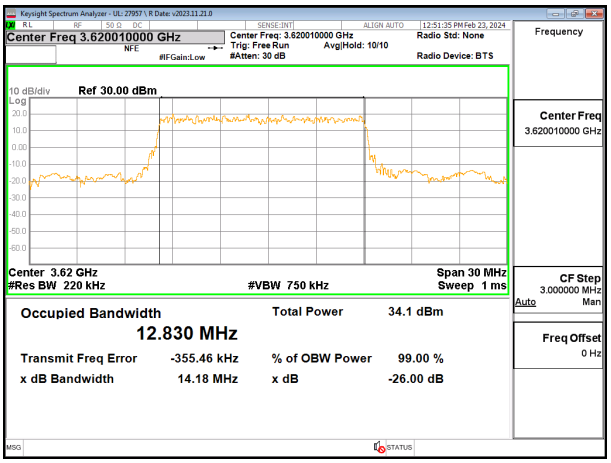
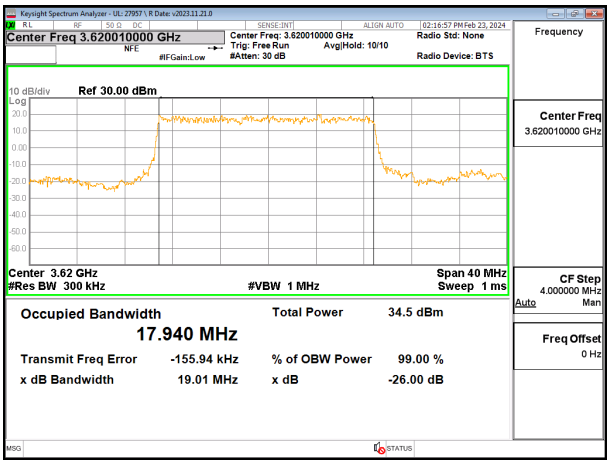
5G NR n48



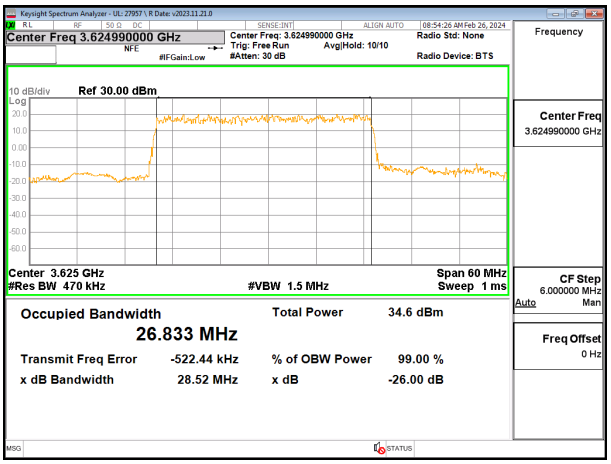
5G NR n48 10MHz BPSK Middle Channel RB24-0



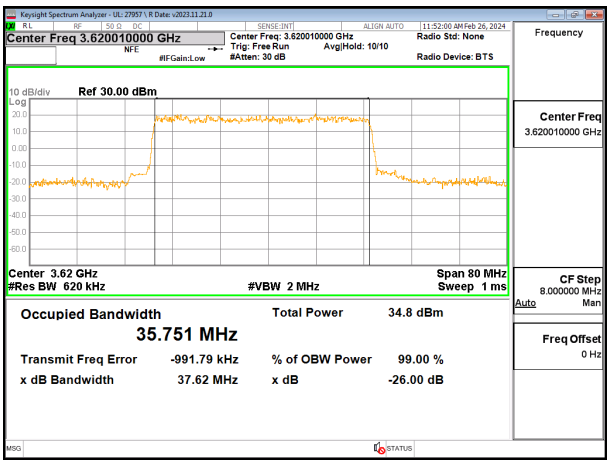
5G NR n48 15MHz BPSK Middle Channel RB36-0



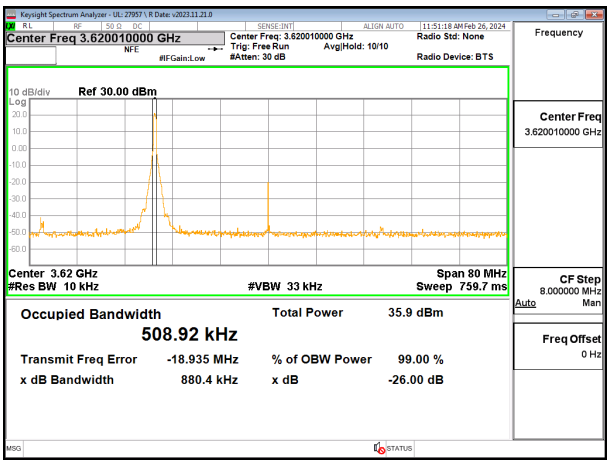
5G NR n48 20MHz BPSK Middle Channel RB50-0



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

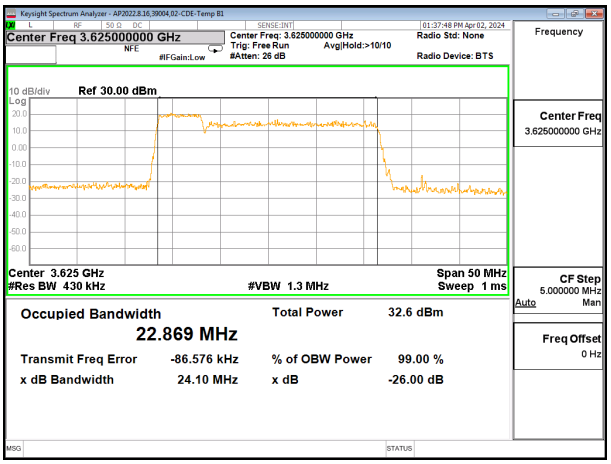


5G NR n48 40MHz BPSK Middle Channel RB100-0

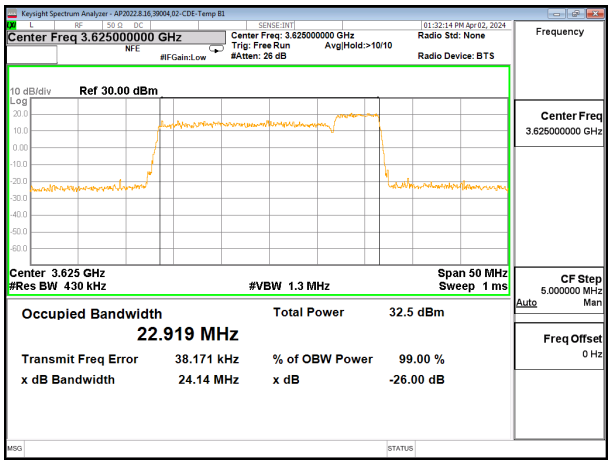


5G NR n48 40MHz BPSK Middle Channel RB1-0

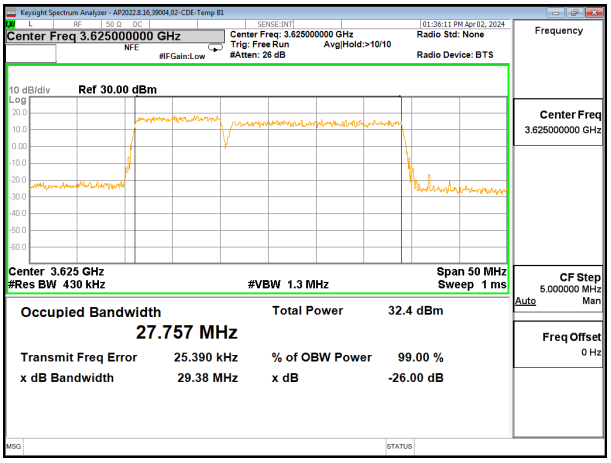
9.1.2. LTE ULCA BAND 48



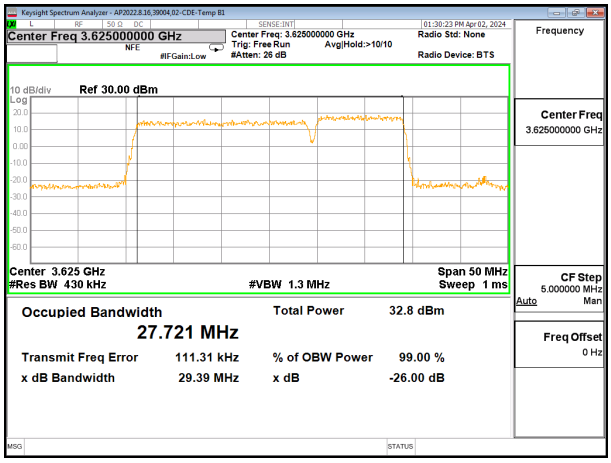
LTE B48 5MHz + 20MHz QPSK RB25-0 + RB100-0



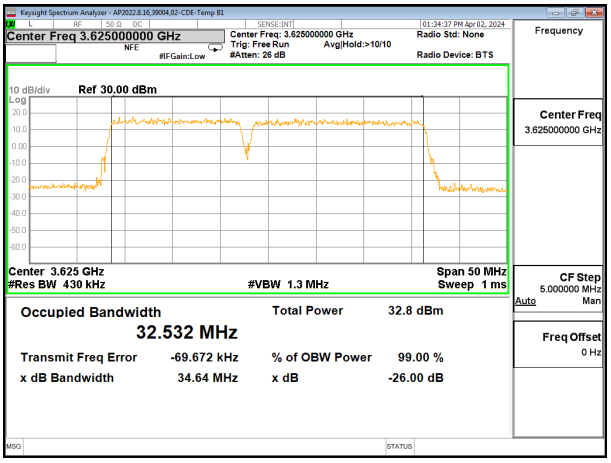
LTE B48 20MHz + 5MHz QPSK RB100-0 + RB25-0



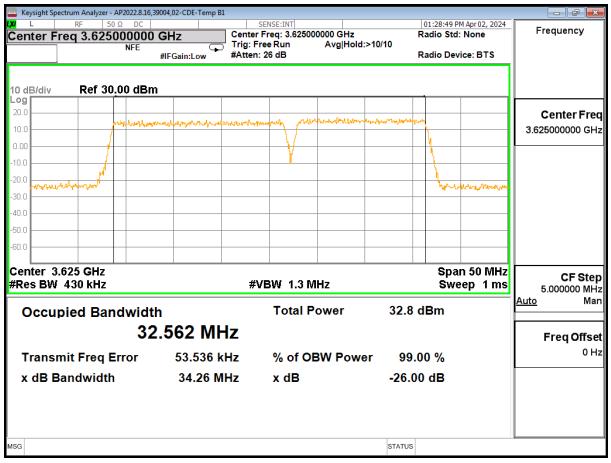
LTE B48 10MHz + 20MHz QPSK RB50-0 + RB100-0



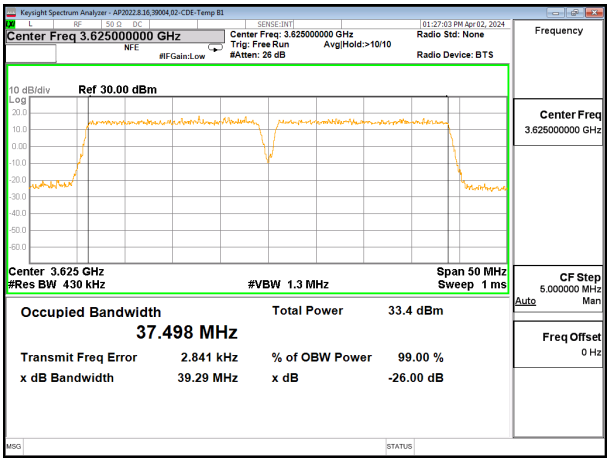
LTE B48 20MHz + 10MHz QPSK RB100-0 + RB50-0



LTE B48 15MHz + 20MHz QPSK RB75-0 + RB100-0



LTE B48 20MHz + 15MHz QPSK RB100-0 + RB75-0



LTE B48 20MHz + 20MHz QPSK RB100-0 + RB100-0

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9.2. EMISSION MASK AND ADJACENT CHANNEL POWER

For Spectrum Emission Mask plots, the Keysight PXA N9030A is configured to sweep with a moving integration window, the width of which can be adjusted to different sizes across the sweep. The window width is configured to be greater than or equal to the required reference bandwidth. The center frequencies of the integration window for the different integration windows was set such that the upper and lower edges of the windows are aligned with the transition points in the reference bandwidths. This is achieved by setting the start / stop frequencies of the window with an offset equal to the reference bandwidth / 2 from the transition point.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

1. Set the spectrum analyzer span to include the block edge frequency.
2. Set a marker to point the corresponding band edge frequency in each test case.
3. Set display line at X dBm,
4. Set resolution bandwidth to at least 1% of emission bandwidth.

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.

RESULTS

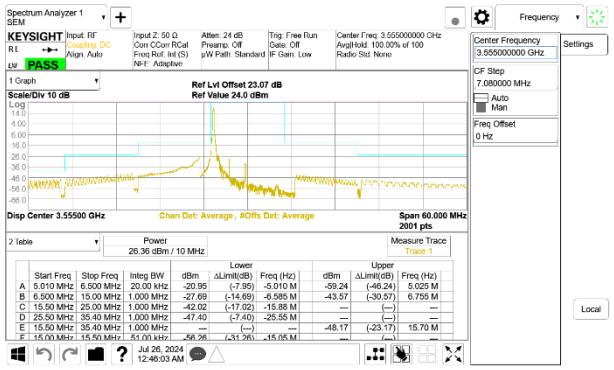
LIMITS

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.

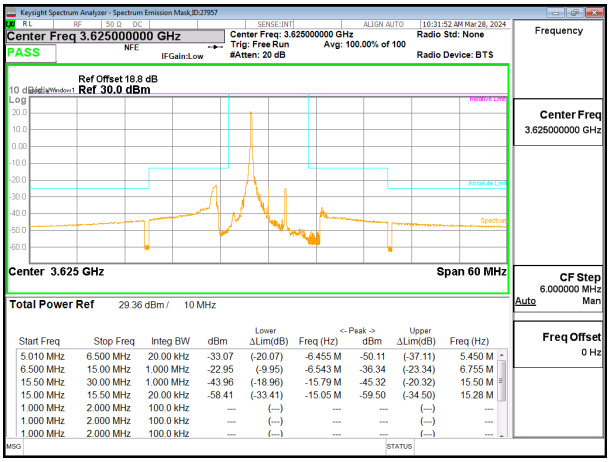
(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

9.2.1. LTE BAND 48 AND 5G NR n48

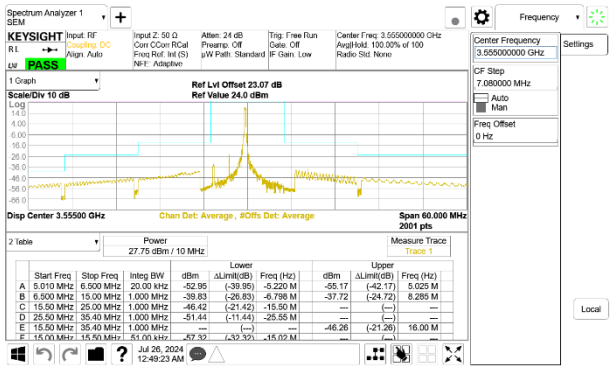
LTE BAND 48 EMISSION MASK



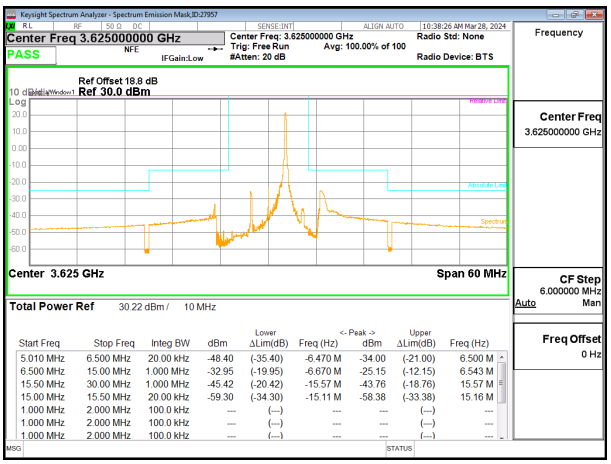
LTE B48 5MHz QPSK Low Channel RB1-0, ID: 25780



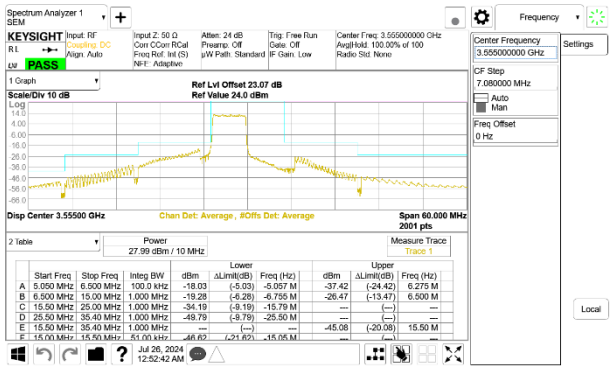
LTE B48 5MHz QPSK Middle Channel RB1-0



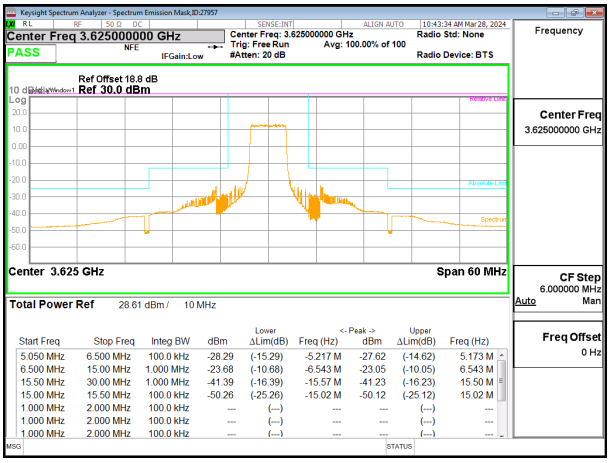
LTE B48 5MHz QPSK Low Channel RB1-24, ID: 25780



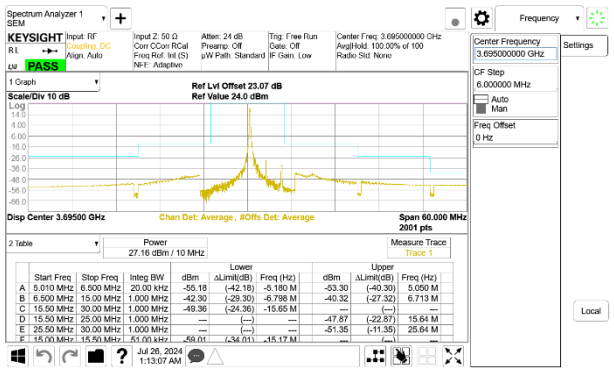
LTE B48 5MHz QPSK Middle Channel RB1-24



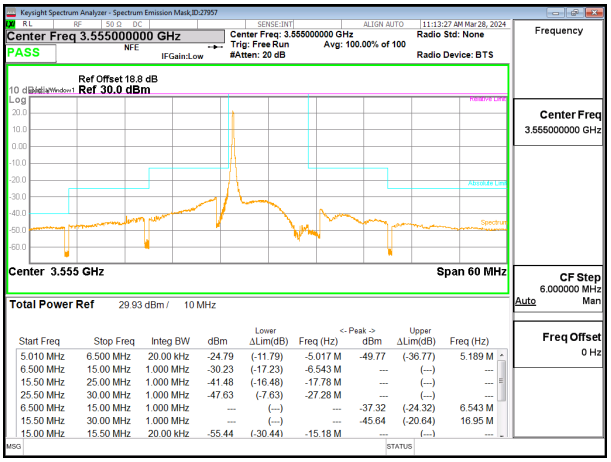
LTE B48 5MHz QPSK Low Channel RB25-0, ID: 25780



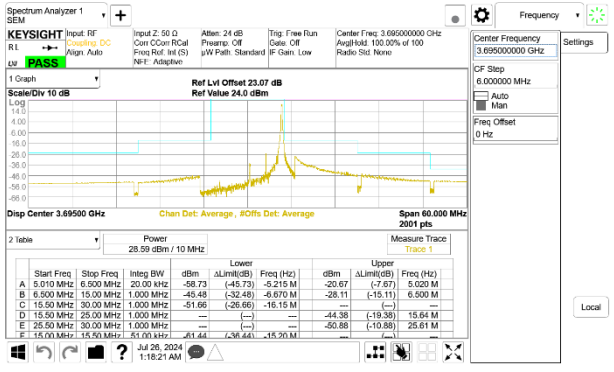
LTE B48 5MHz QPSK Middle Channel RB25-0



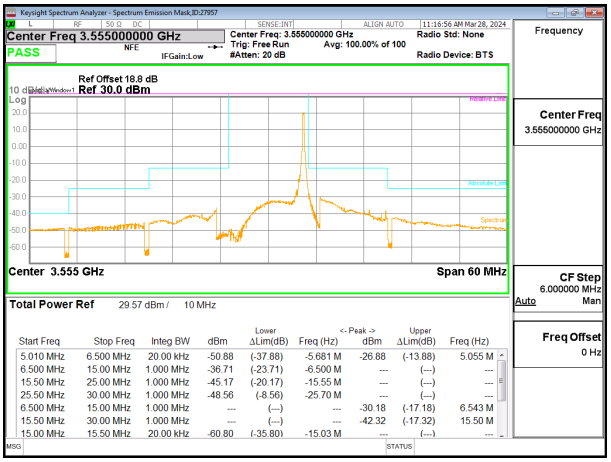
LTE B48 5MHz QPSK High Channel RB1-0



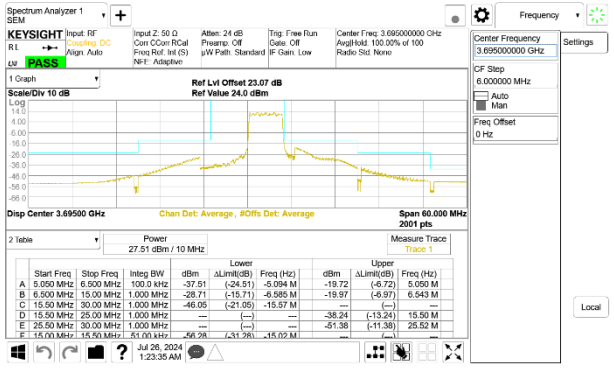
LTE B48 10MHz QPSK Low Channel RB1-0



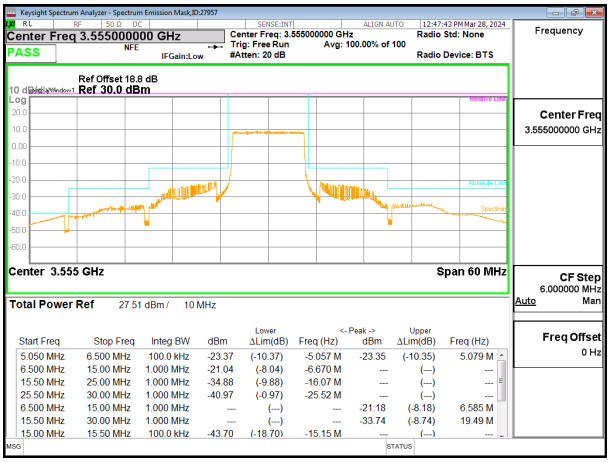
LTE B48 5MHz QPSK High Channel RB1-24



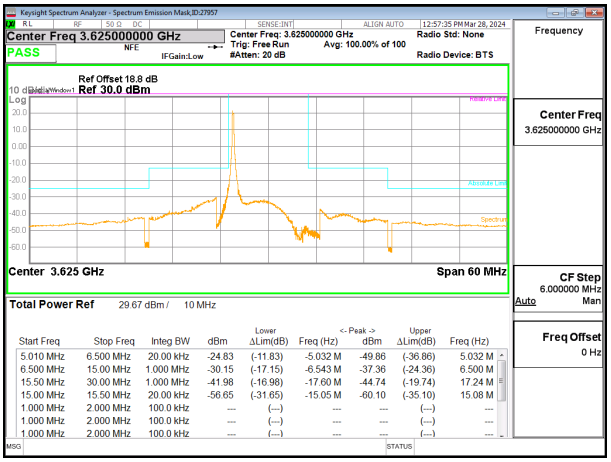
LTE B48 10MHz QPSK Low Channel RB1-49



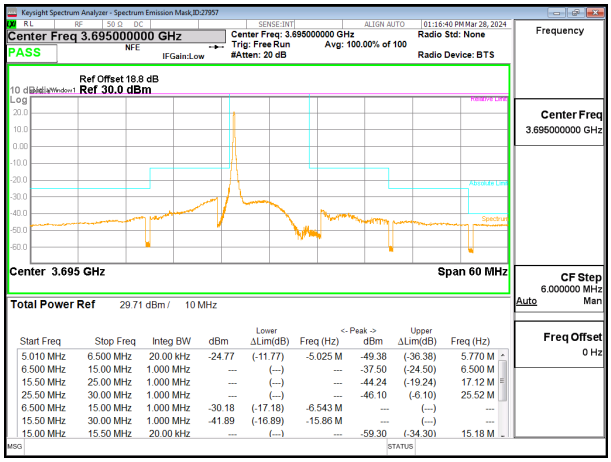
LTE B48 5MHz QPSK High Channel RB25-0



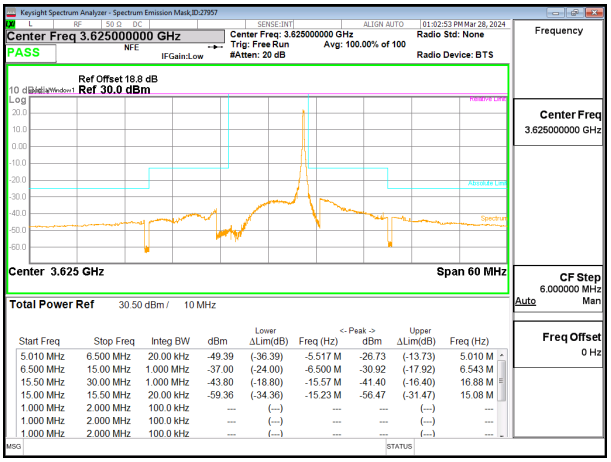
LTE B48 10MHz QPSK Low Channel RB50-0



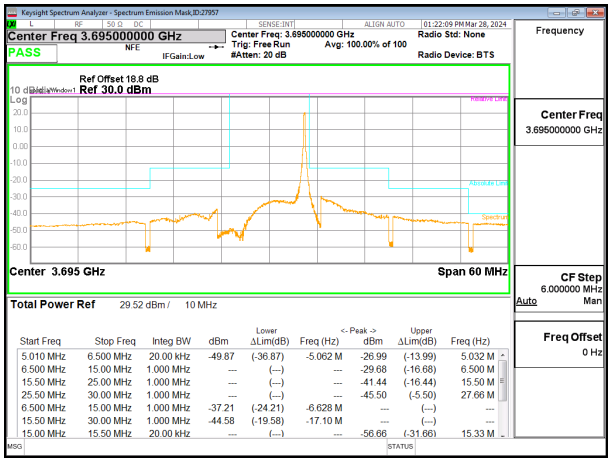
LTE B48 10MHz QPSK Middle Channel RB1-0



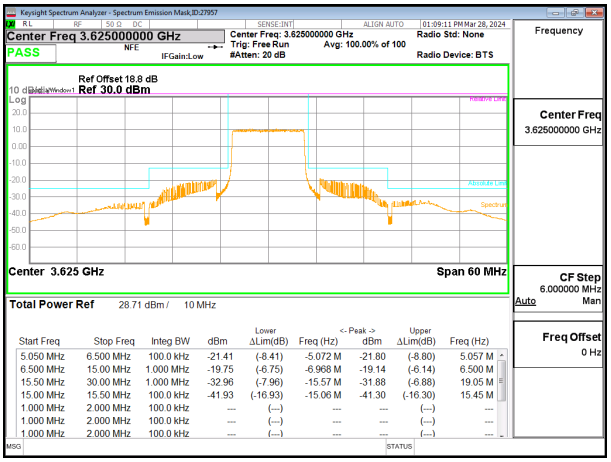
LTE B48 10MHz QPSK High Channel RB1-0



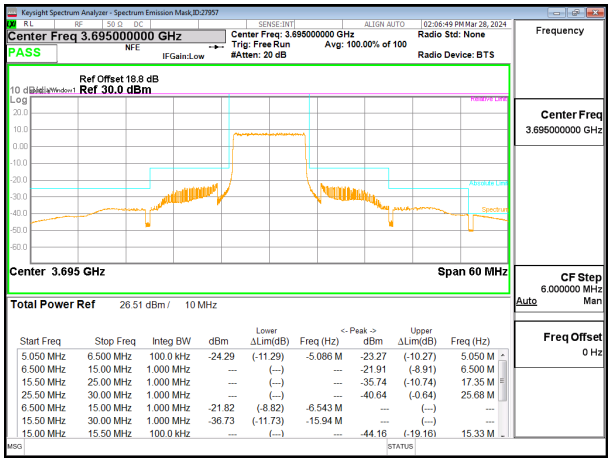
LTE B48 10MHz QPSK Middle Channel RB1-49



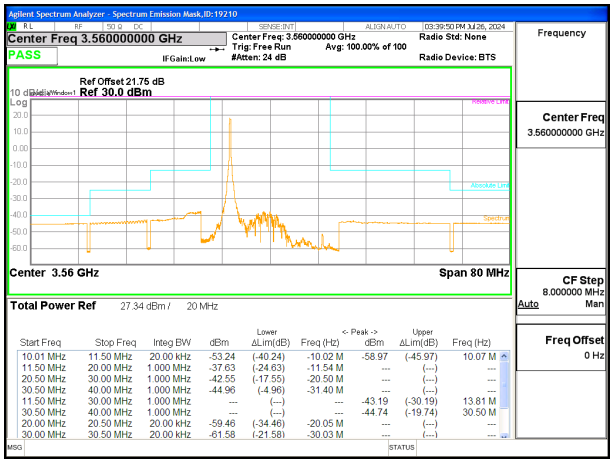
LTE B48 10MHz QPSK High Channel RB1-49



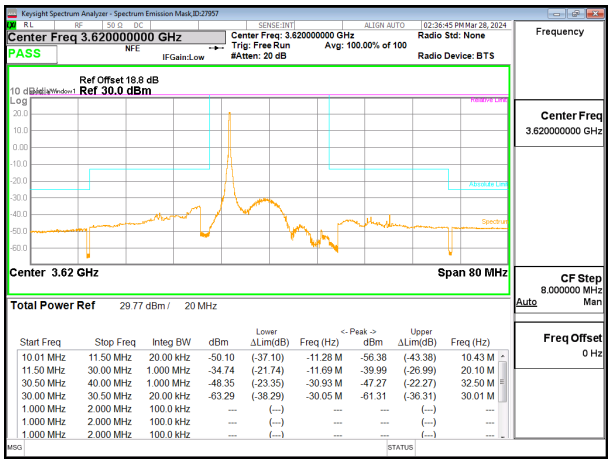
LTE B48 10MHz QPSK Middle Channel RB50-0



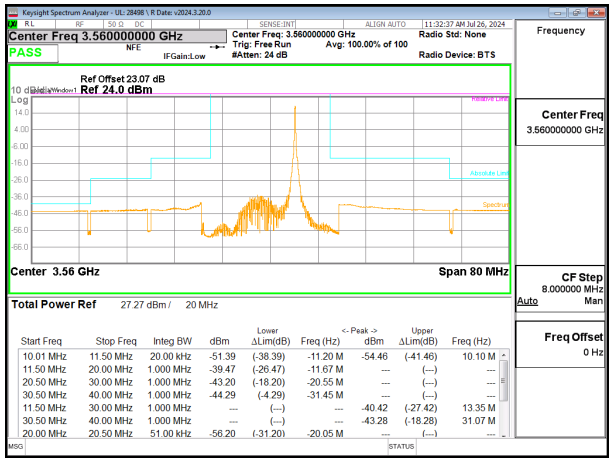
LTE B48 10MHz QPSK High Channel RB50-0



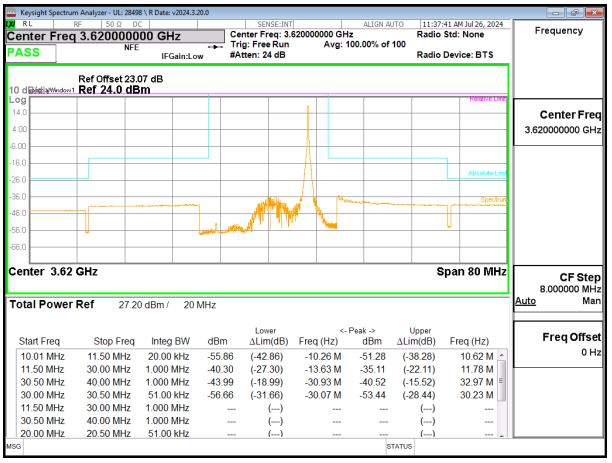
LTE B48 15MHz QPSK Low Channel RB1-0



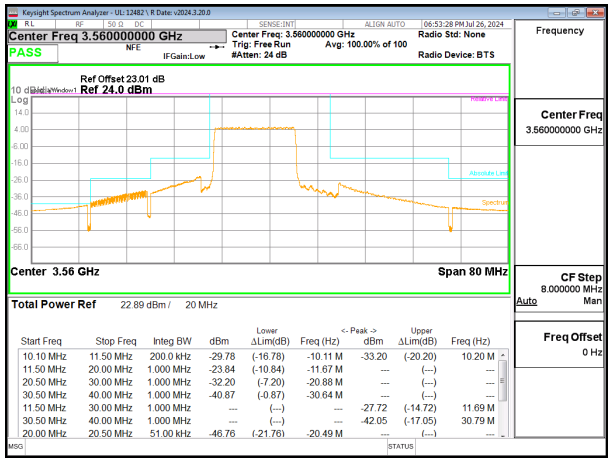
LTE B48 15MHz QPSK Middle Channel RB1-0



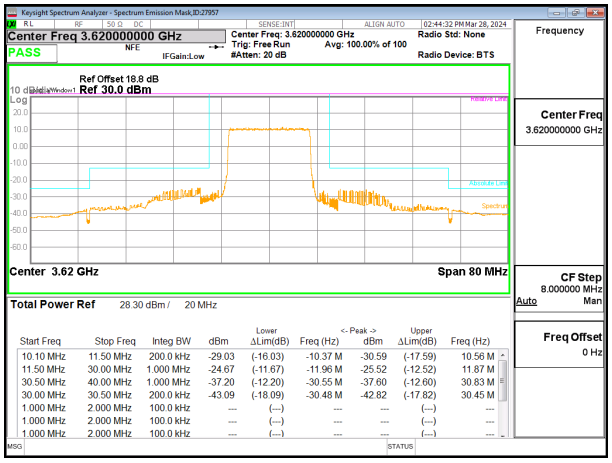
LTE B48 15MHz QPSK Low Channel RB1-74



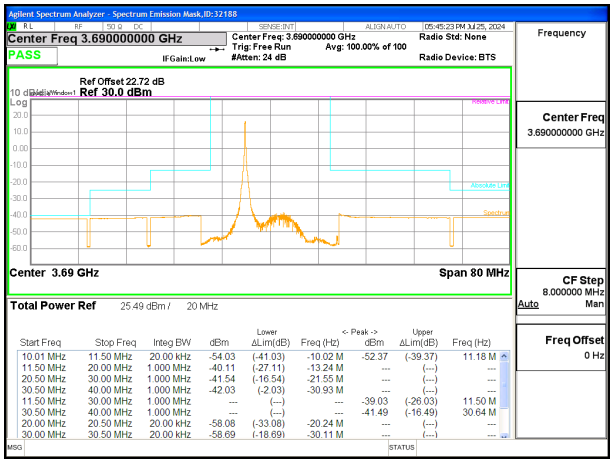
LTE B48 15MHz QPSK Middle Channel RB1-74



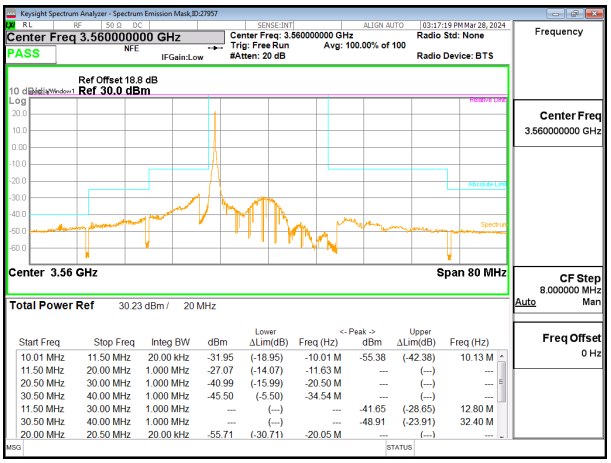
LTE B48 15MHz QPSK Low Channel RB75-0



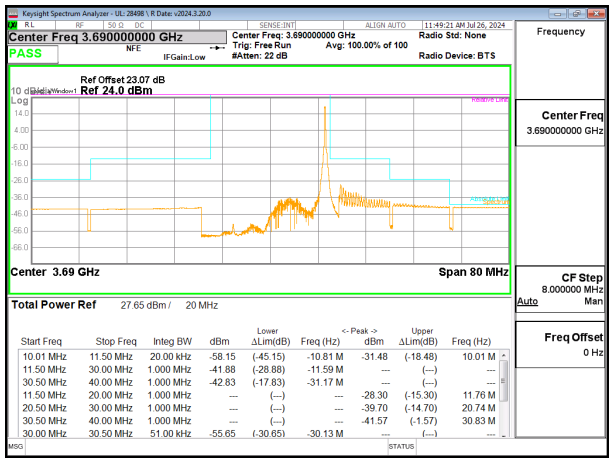
LTE B48 15MHz QPSK Middle Channel RB75-0



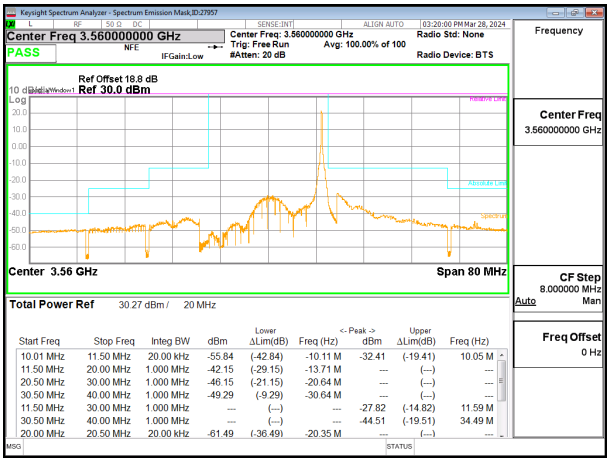
LTE B48 15MHz QPSK High Channel RB1-0



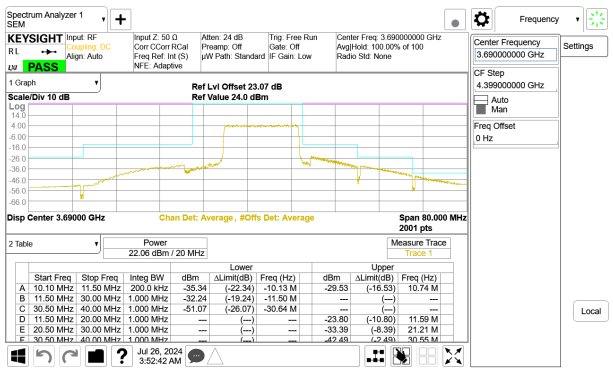
LTE B48 20MHz QPSK Low Channel RB1-0



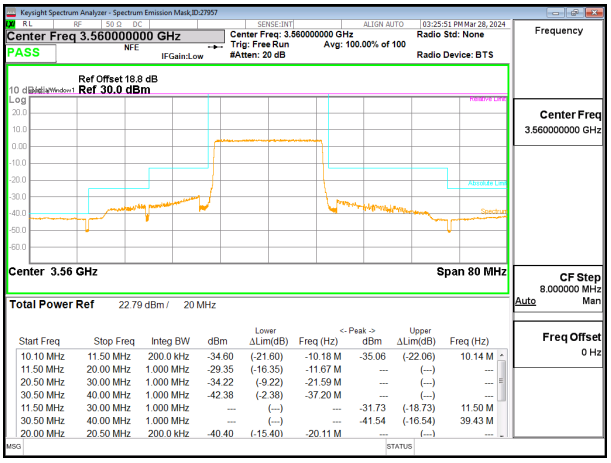
LTE B48 15MHz QPSK High Channel RB1-74



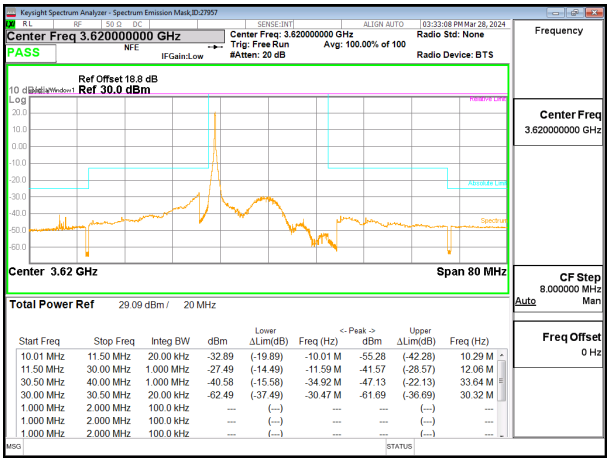
LTE B48 20MHz QPSK Low Channel RB1-99



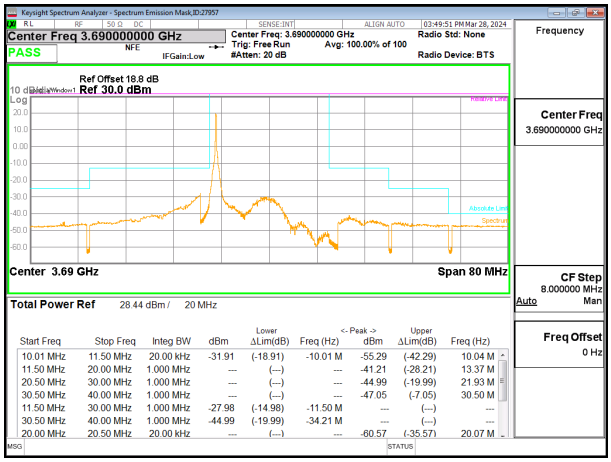
LTE B48 15MHz QPSK High Channel RB75-0



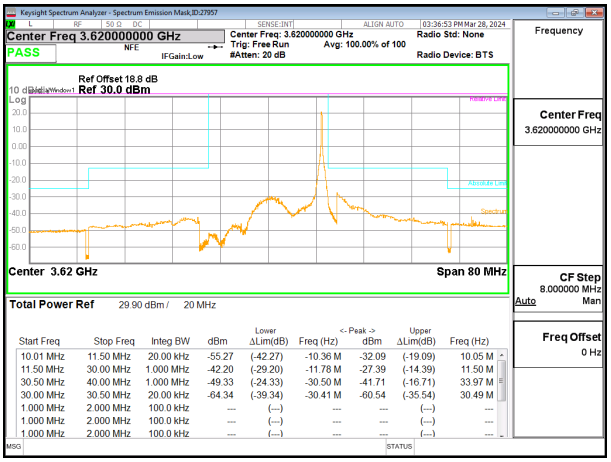
LTE B48 20MHz QPSK Low Channel RB100-0



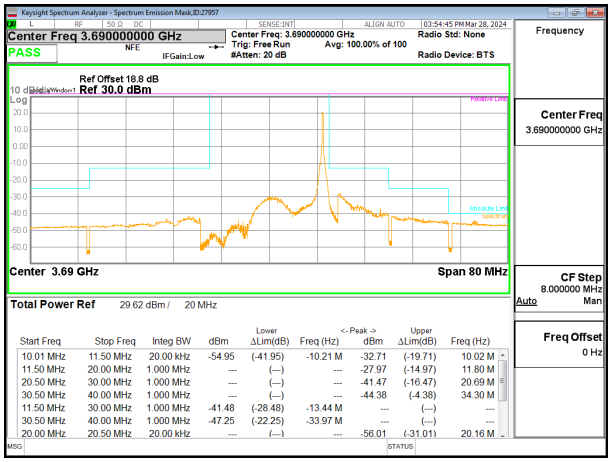
LTE B48 20MHz QPSK Middle Channel RB1-0



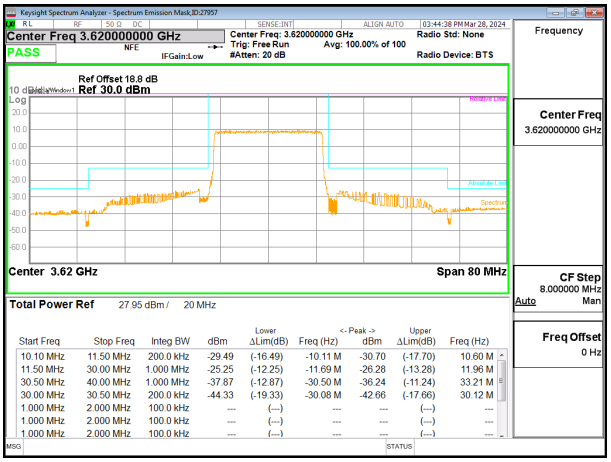
LTE B48 20MHz QPSK High Channel RB1-0



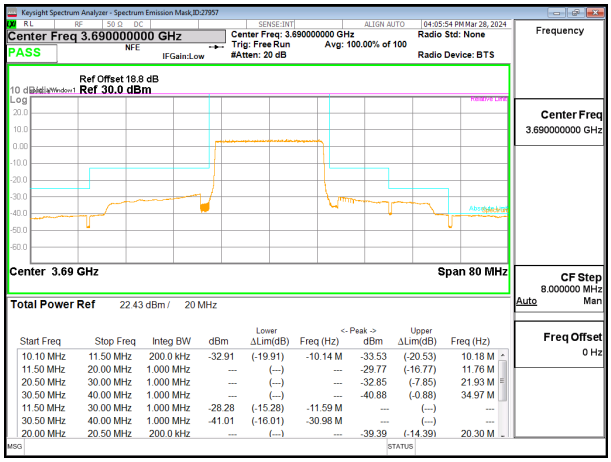
LTE B48 20MHz QPSK Middle Channel RB1-99



LTE B48 20MHz QPSK High Channel RB1-99

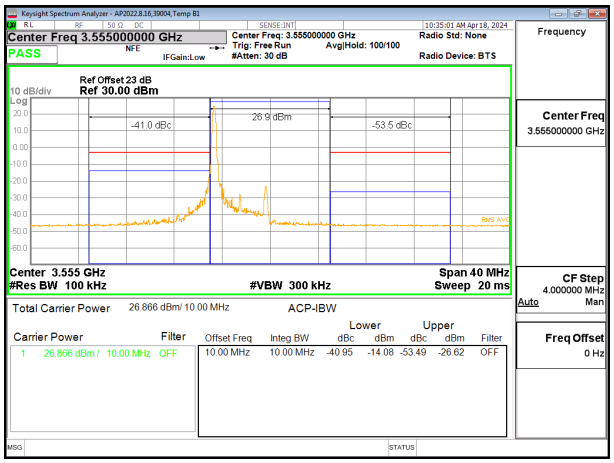


LTE B48 20MHz QPSK Middle Channel RB100-0

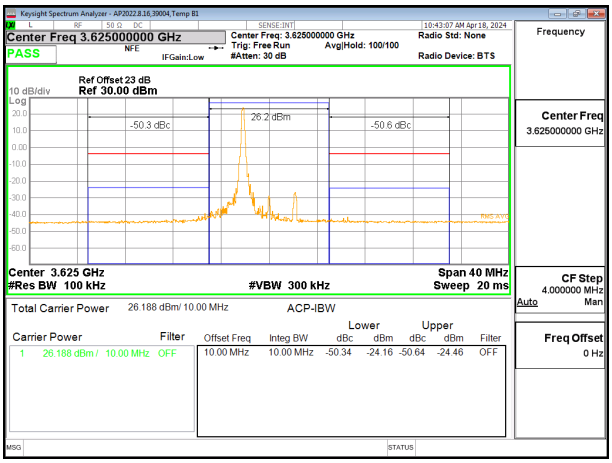


LTE B48 20MHz QPSK High Channel RB100-0

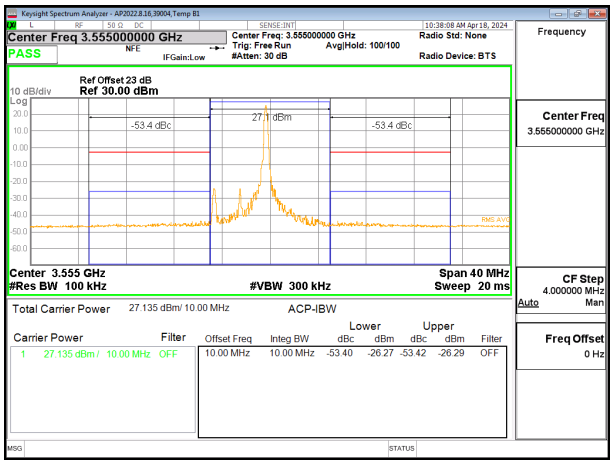
LTE BAND 48 ADJACENT CHANNEL POWER



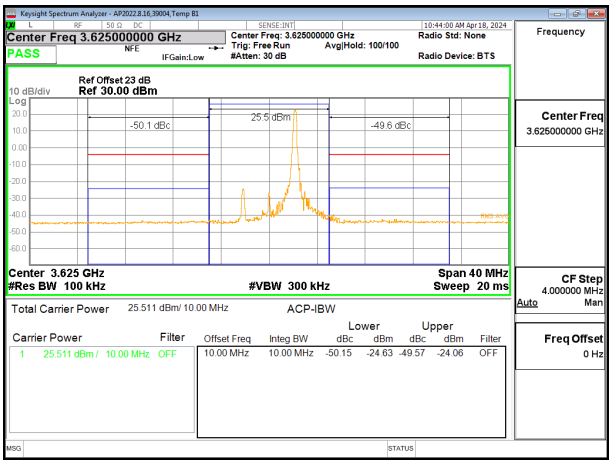
LTE B48 5MHz QPSK Low Channel RB1-0



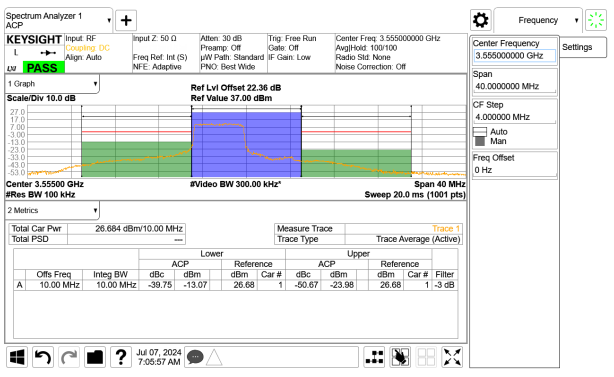
LTE B48 5MHz QPSK Middle Channel RB1-0



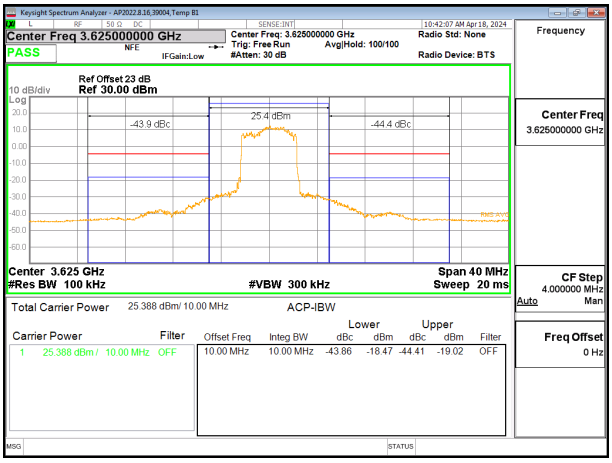
LTE B48 5MHz QPSK Low Channel RB1-24



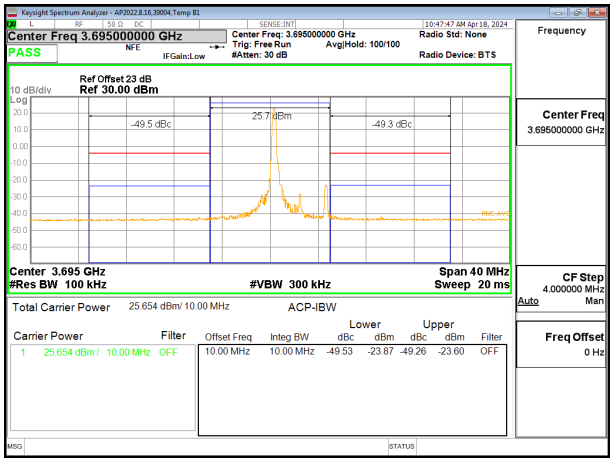
LTE B48 5MHz QPSK Middle Channel RB1-24



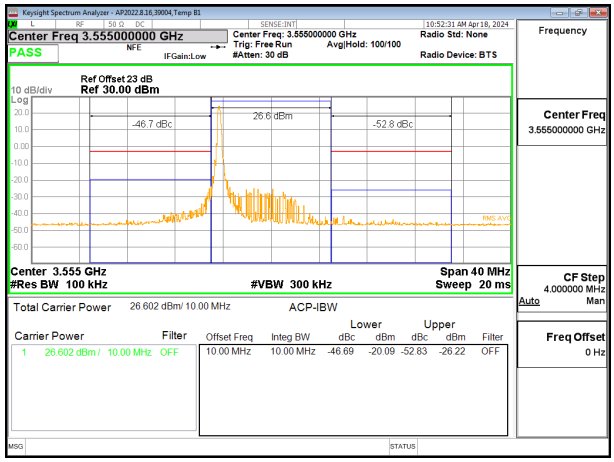
LTE B48 5MHz QPSK Low Channel RB25-0 ID: 39004



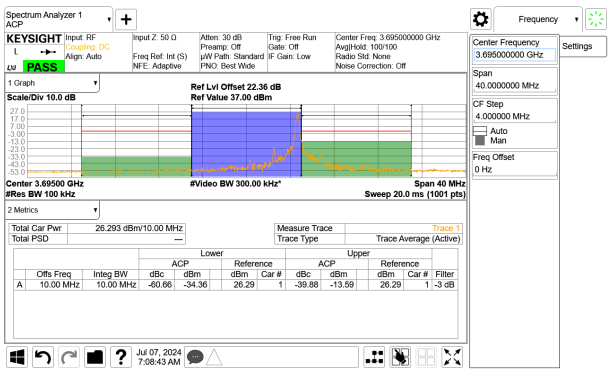
LTE B48 5MHz QPSK Middle Channel RB25-0



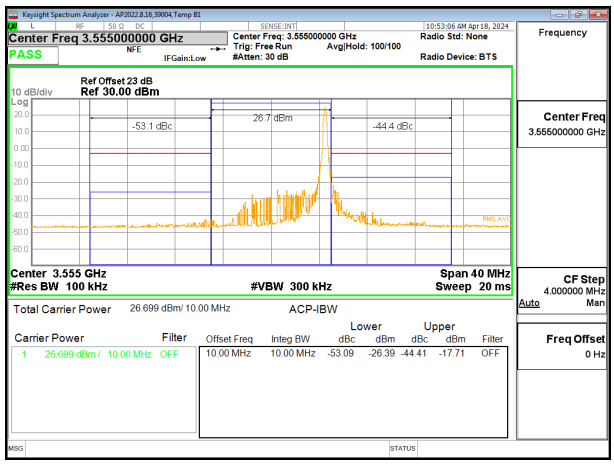
LTE B48 5MHz QPSK High Channel RB1-0



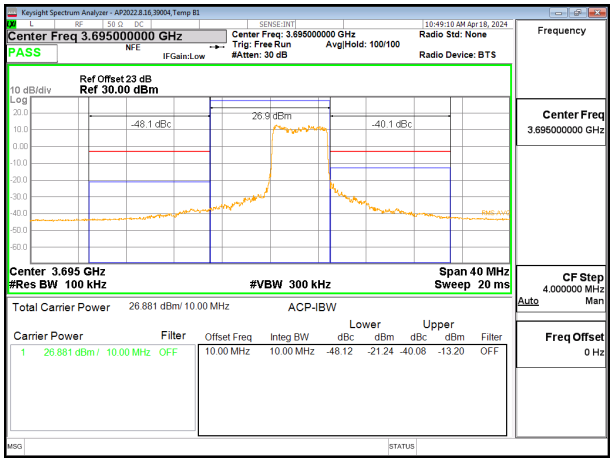
LTE B48 10MHz QPSK Low Channel RB1-0



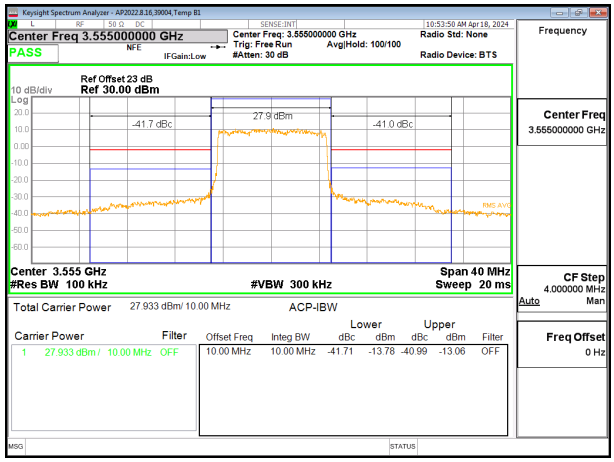
LTE B48 5MHz QPSK High Channel RB1-24 ID: 39004



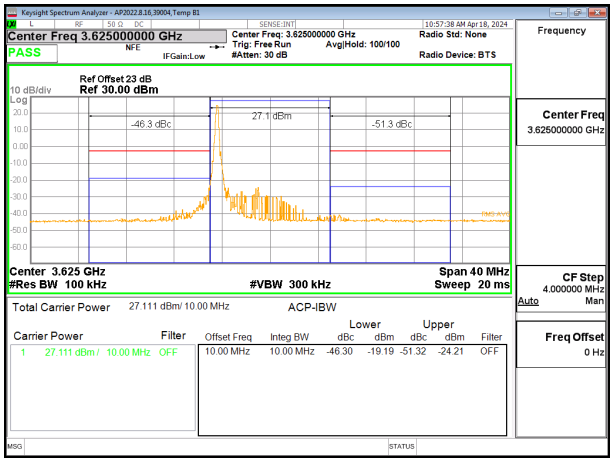
LTE B48 10MHz QPSK Low Channel RB1-49



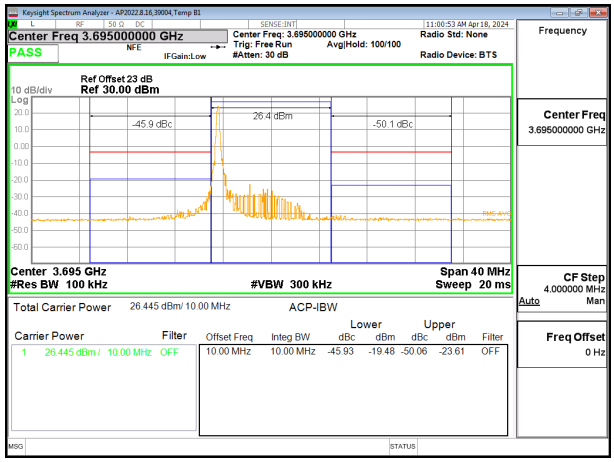
LTE B48 5MHz QPSK High Channel RB25-0



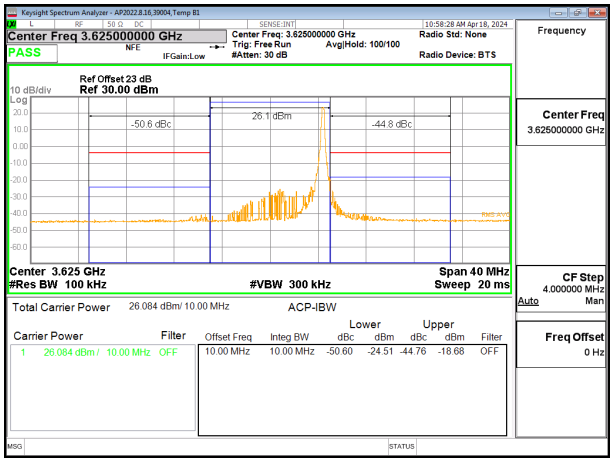
LTE B48 10MHz QPSK Low Channel RB50-0



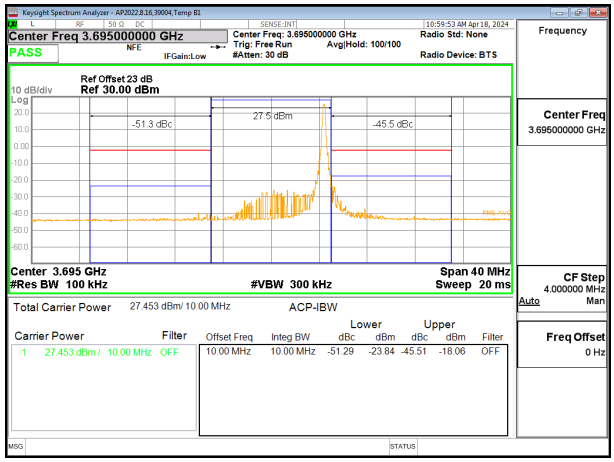
LTE B48 10MHz QPSK Middle Channel RB1-0



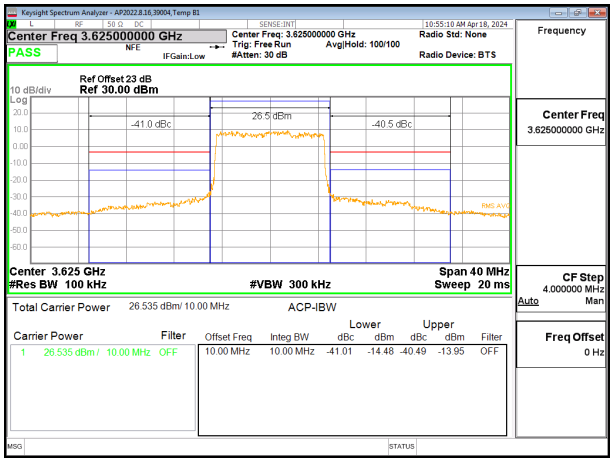
LTE B48 10MHz QPSK High Channel RB1-0



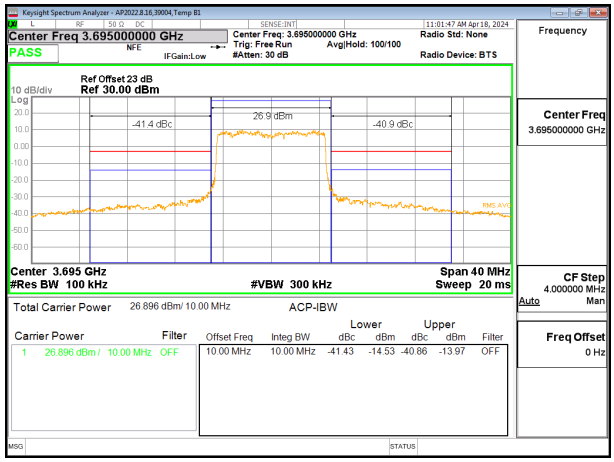
LTE B48 10MHz QPSK Middle Channel RB1-49



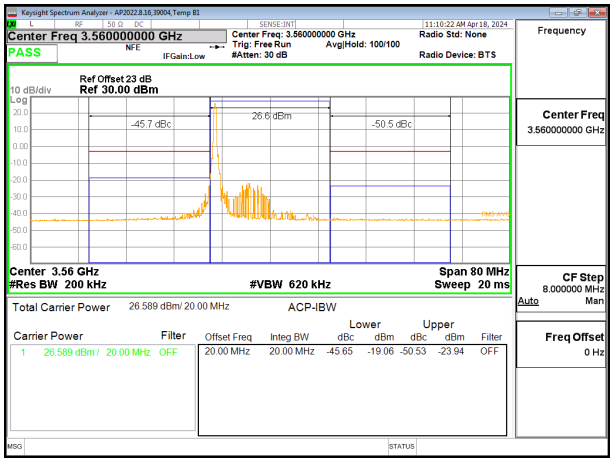
LTE B48 10MHz QPSK High Channel RB1-49



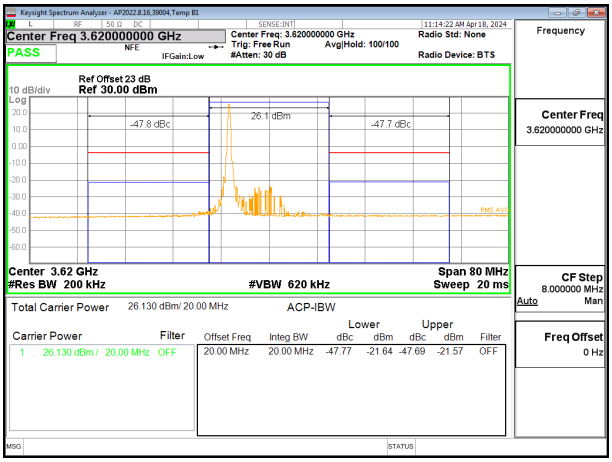
LTE B48 10MHz QPSK Middle Channel RB50-0



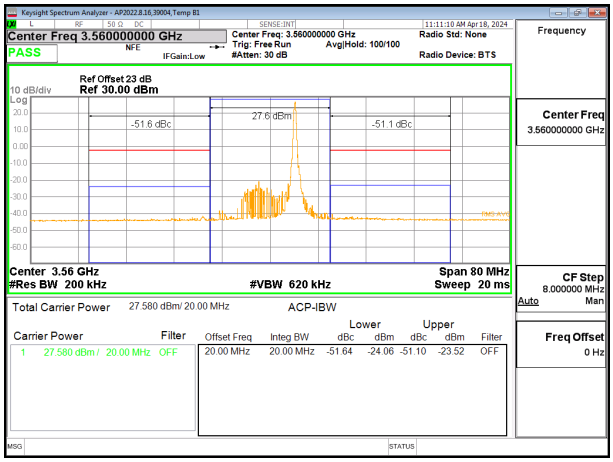
LTE B48 10MHz QPSK High Channel RB50-0



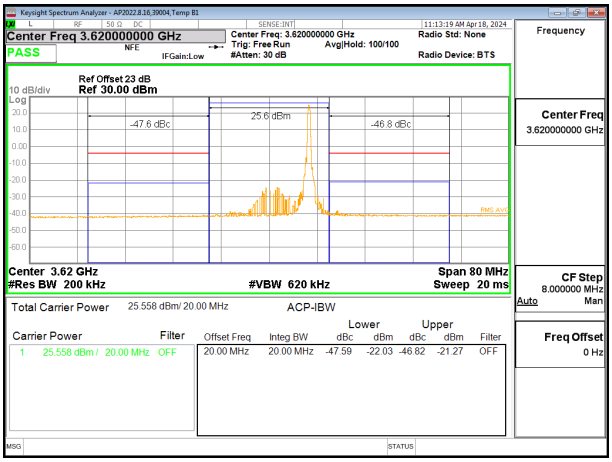
LTE B48 15MHz QPSK Low Channel RB1-0



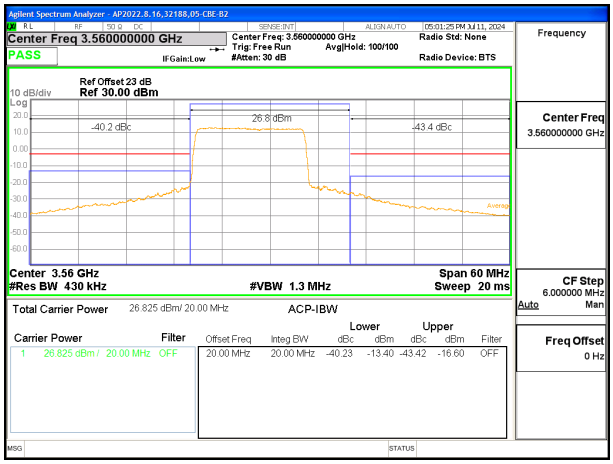
LTE B48 15MHz QPSK Middle Channel RB1-0



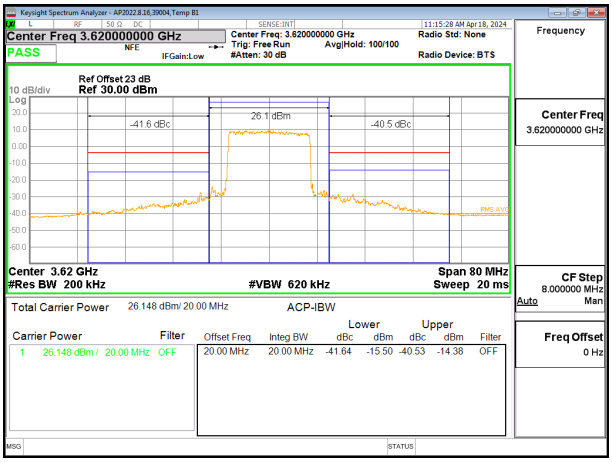
LTE B48 15MHz QPSK Low Channel RB1-74



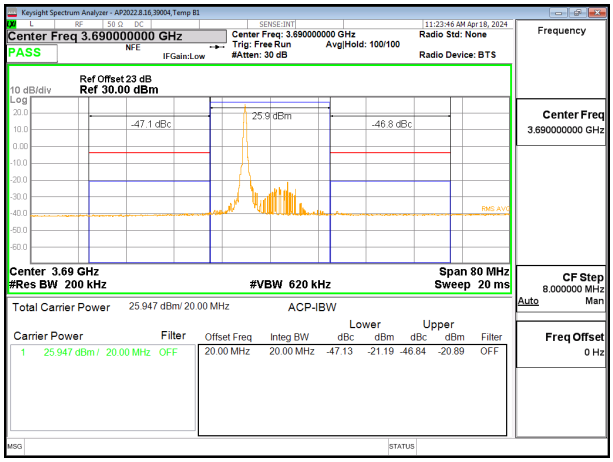
LTE B48 15MHz QPSK Middle Channel RB1-74



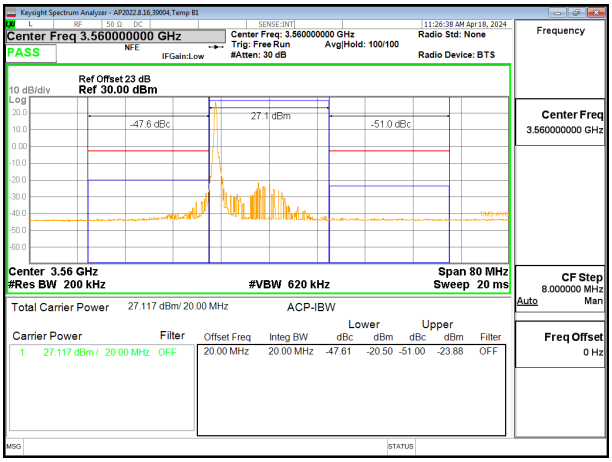
LTE B48 15MHz QPSK Low Channel RB75-0



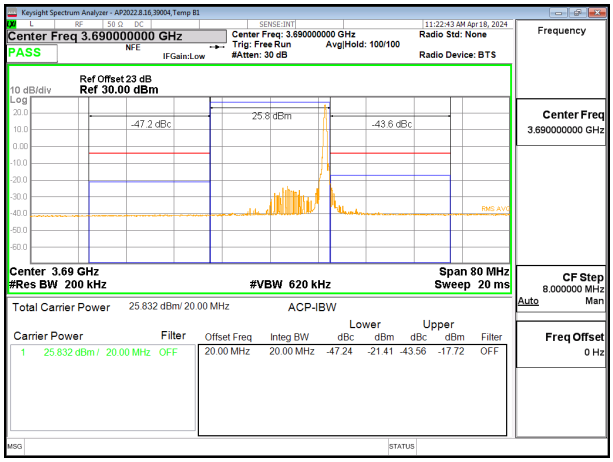
LTE B48 15MHz QPSK Middle Channel RB75-0



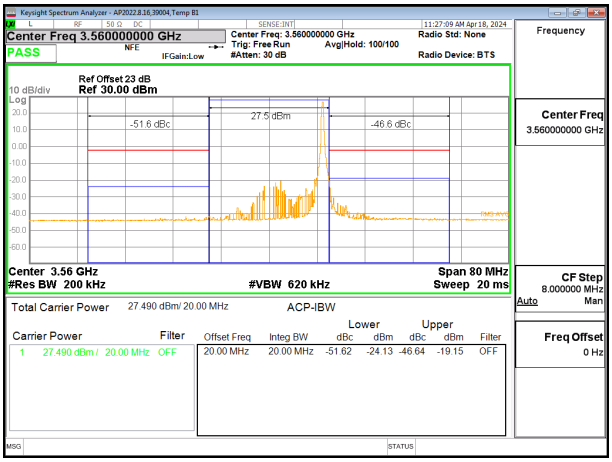
LTE B48 15MHz QPSK High Channel RB1-0



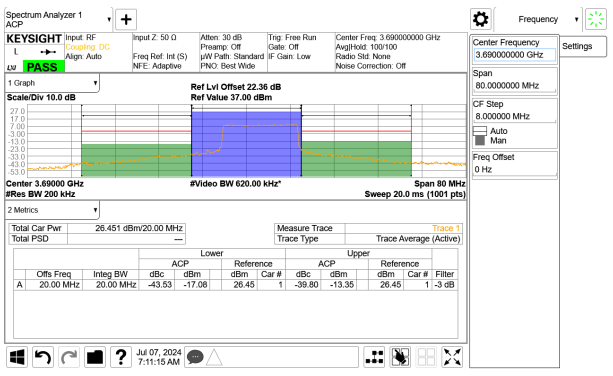
LTE B48 20MHz QPSK Low Channel RB1-0



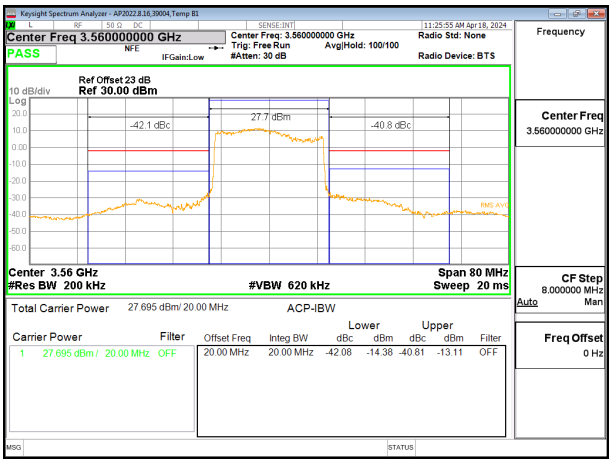
LTE B48 15MHz QPSK High Channel RB1-74



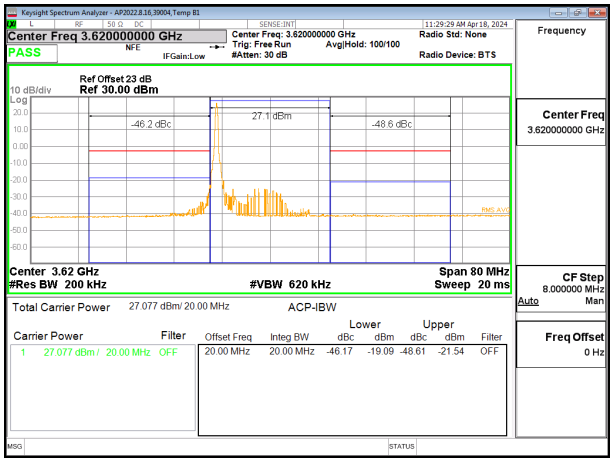
LTE B48 20MHz QPSK Low Channel RB1-99



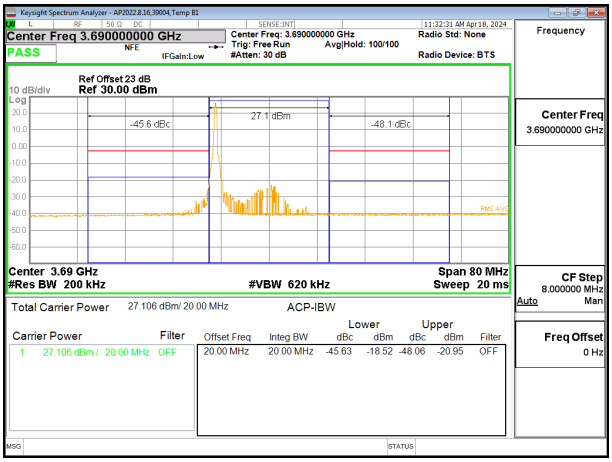
LTE B48 15MHz QPSK High Channel RB75-0, ID: 39004



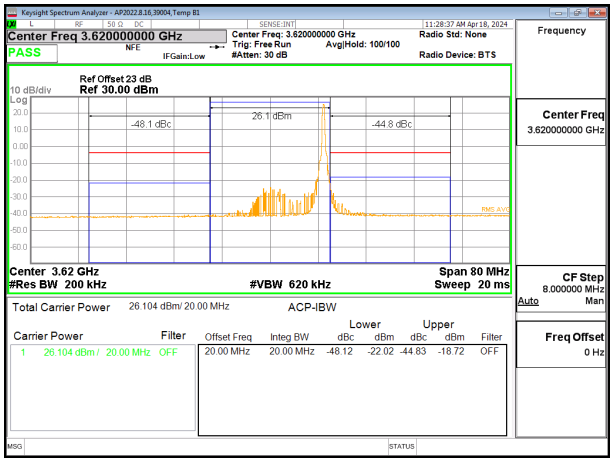
LTE B48 20MHz QPSK Low Channel RB100-0



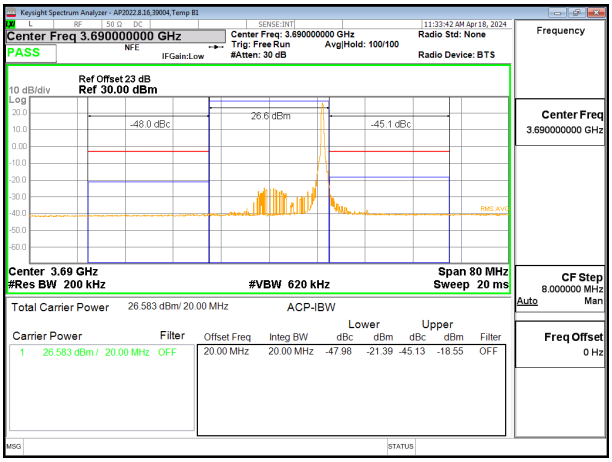
LTE B48 20MHz QPSK Middle Channel RB1-0



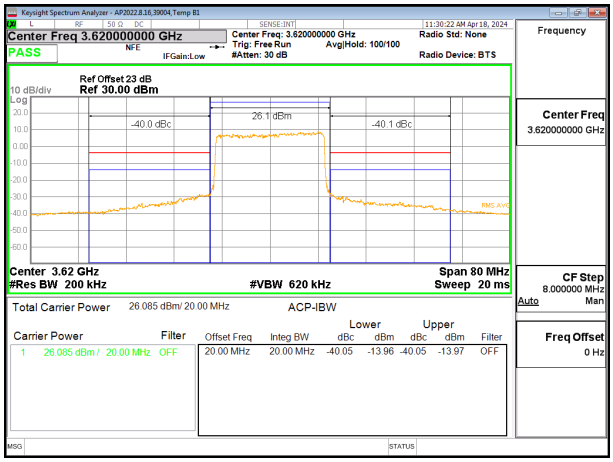
LTE B48 20MHz QPSK High Channel RB1-0



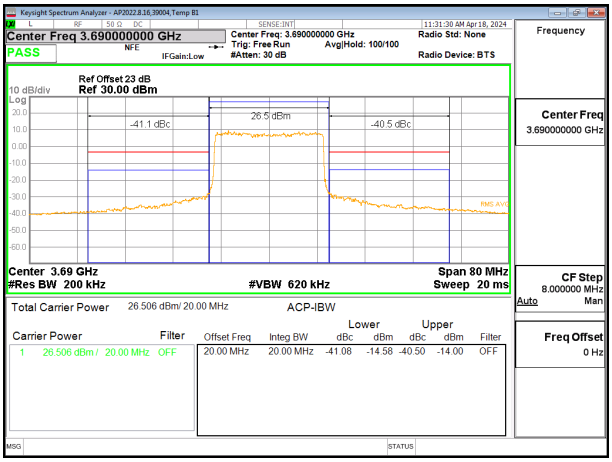
LTE B48 20MHz QPSK Middle Channel RB1-99



LTE B48 20MHz QPSK High Channel RB1-99



LTE B48 20MHz QPSK Middle Channel RB100-0



LTE B48 20MHz QPSK High Channel RB100-0