TEST REPORT

Report Number: R15628768-E4

Applicant	:	Garmin International Inc. 1200 East 151st Street Olathe, KS 66062-3426, USA
FCC ID	:	IPH-05201
IC	:	1792A-05201
MODEL	:	A05201
EUT Description	:	51mm Extremity Worn Digital Transceiver
Test Standard(s)	:	FCC CFR 47 Part 2, Part 24, Part 25 and Part 27. ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-133 ISSUE 7, RSS-139 ISSUE 4, RSS-130 ISSUE 2, RSS-170 Issue 4,

Date Of Issue:
2025-08-10

Prepared by:
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CERT #0751.06

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2025-08-05	Initial Review	Noah Bennett
V2	2025-08-10	Updated Antenna Type Corrected Typo in 6.2	Noah Bennett

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Garmin International Inc.
1200 East 151st Street
Olathe, KS 66062-3426, USA

EUT DESCRIPTION: Extremity Worn Digital Transceiver

SERIAL NUMBERS: **604021458, 604021429, 604021425, 604021625**

SAMPLE RECEIPT DATE: 2025-05-07, 2025-06-23

DATE TESTED: 2025-05-07 to 2025-07-24

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC CFR 47 Part 2, Part 24, Part 25, Part 27 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-133 ISSUE 7, RSS-139 ISSUE 4, RSS-130 ISSUE 2, RSS-170 Issue 4,	Complies

UL LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by a2La, NIST, or any agency of the U.S. government.

Approved & Released
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UL LLC

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC. is only responsible for the validity of results after the integration of the data provided by the customer.
Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 6.4)
2. EUT Cable loss (see section 8)
3. Supported bands, bandwidths, modulations, power settings, and MPR configurations. (section 6.1)

Requirement Description	Band	Requirement Clause Number (FCC)	Requirement Clause Number (IC)	Result	Remarks
Equivalent Radiated Power	12	27.50 (c) (10)	RSS130§4.6.3	Complies	N/A
Equivalent Isotropic Radiated Power	2	24.232 (c)	RSS133§5.5	Complies	N/A
	4	27.50 (d) (4)	RSS139§5.5	Complies	N/A

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (IC)	Result	Remarks
Occupied Bandwidth	2.1049	RSS-GEN§6.7, RSS133 RSS130§4.5	Complies	N/A
Band Edge and Emission Mask	2.1051, 24.238 (a), 27.53 (h), 27.53 (g),	RSS133§5.6	Complies	N/A
Out of Band Emissions		RSS139§5.6 RSS130§4.7	Complies	N/A
Frequency Stability	2.1055, 27.54	RSS133§5.4 RSS139§5.4 RSS130§4.5	Complies	N/A
Peak-to-Average Ratio	24.232(d), 27.50(d)(5)	RSS133§5.5 RSS139§5.5 RSS130§4.6.1	Complies	N/A
Field Strength of Spurious Radiation	2.1051, 24.238 (a), 25.202(f) 27.53 (h), 27.53 (g),	RSS133§5.6 RSS139§5.6 RSS130§4.7 RSS170§5.8	Complies	N/A

3. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number 0751.06, 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 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A.	US0067	27265	825374

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following.
FCC published lists of measurement procedures for compliance testing.
ISED published lists of normative test standards and acceptable alternatives procedures.

- ANSI C63.26:2015
- ANSI/TIA-603-E (2016)
- FCC 47 CFR Part 2, Part 22, Part 24, Part 25, Part 27
- FCC KDB 971168 D01: Power Meas License Digital Systems (ISED acceptable alternative procedure)
- FCC KDB 971168 D02: Misc Rev Approv License Devices
- FCC KDB 412172 D01: Determining ERP and EIRP
- FCC KDB 273109 D02: Part 25 SCS and CMRS-Bands
- ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-133 ISSUE 7, RSS-139 ISSUE 4, RSS-130 ISSUE 2, RSS-170 Issue 4,

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}
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

EIRP (dBm) = Measured Power (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) + Correction Factor (dB)
EIRP (dBm) = -56.5 dBm + 40.4 dB/m + 0.5 dB – 36 dB + 11.8 dB = -39.8 dBm

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is an Extremity Worn Digital Transceiver.

This test report covers the WWAN radio of the EUT due to a change in output power from the original equipment test report. Only Bands 2, 4 and 12 are subject to the output power change.

The EUT supports the following Technologies:

Wireless technologies	Frequency bands	Operating mode	UE Category
LTE	LTE Band 2 LTE Band 4 LTE Band 12 NTN Band 23 NTN Band 255	BPSK[b] QPSK 16QAM	Cat eMTC M1
Notes: A) The EUT operated in a 1x1 SISO configuration. B) NTN Band(s) only.			

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 2

Part 24	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-3.46

Bandwidth (MHz)	Modulation	Low Frequency	Upper Frequency	Conducted Average	EIRP Average	EIRP Average	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1914.3	24.0	20.54	0.113	1068.4	1M07G7W
	16QAM			22.9	19.44	0.088	1069.9	1M07D7W
3.0	QPSK	1851.5	1913.5	23.8	20.34	0.108	1068.2	1M07G7W
	16QAM			22.8	19.34	0.086	1074.2	1M07D7W
5.0	QPSK	1852.5	1912.5	23.9	20.44	0.111	1071.5	1M07G7W
	16QAM			24.0	20.54	0.113	1076.5	1M08D7W
10.0	QPSK	1855.0	1910.0	24.0	20.54	0.113	1077.7	1M08G7W
	16QAM			23.8	20.34	0.108	1084.1	1M08D7W
15.0	QPSK	1857.5	1907.5	23.6	20.14	0.103	1071.4	1M07G7W
	16QAM			23.9	20.44	0.111	1075.8	1M08D7W
20.0	QPSK	1860.0	1905.0	23.6	20.14	0.103	1080.8	1M08G7W
	16QAM			23.9	20.44	0.111	1087.6	1M09D7W

LTE BAND 4

Part 27	
EIRP Limit (W)	1.00
Antenna Gain (dBi)	-2.47

Bandwidth (MHz)	Modulation	Low Frequency	Upper Frequency	Conducted Average	EIRP Average	EIRP Average	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1779.3	23.4	20.93	0.124	1077.2	1M08G7W
	16QAM			23.0	20.53	0.113	1060.1	1M06D7W
3.0	QPSK	1711.5	1778.5	23.4	20.93	0.124	1074.8	1M07G7W
	16QAM			22.2	19.73	0.094	1070.9	1M07D7W
5.0	QPSK	1712.5	1777.5	23.4	20.93	0.124	1077.7	1M08G7W
	16QAM			23.6	21.13	0.130	1091.1	1M09D7W
10.0	QPSK	1715.0	1775.0	23.6	21.13	0.130	1071.2	1M07G7W
	16QAM			24.0	21.53	0.142	1090.8	1M09D7W
15.0	QPSK	1717.5	1772.5	23.7	21.23	0.133	1040.9	1M04G7W
	16QAM			23.9	21.43	0.139	1060.1	1M06D7W
20.0	QPSK	1720.0	1770.0	23.7	21.23	0.133	1081.9	1M08G7W
	16QAM			24.1	21.63	0.146	1074.1	1M07D7W

LTE BAND 12

Part 27	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-12.25

Bandwidth (MHz)	Modulation	Low Frequency	Upper Frequency	Conducted Average	ERP Average	ERP Average	99% BW (kHz)	Emission Designator
1.4	QPSK	699.7	715.3	24.50	10.10	0.010	1075.9	1M08G7W
	16QAM			23.50	9.10	0.008	1072.8	1M07D7W
3.0	QPSK	700.5	714.5	23.90	9.50	0.009	1070.5	1M07G7W
	16QAM			22.30	7.90	0.006	1070.8	1M07D7W
5.0	QPSK	701.5	713.5	23.80	9.40	0.009	1065.3	1M07G7W
	16QAM			24.10	9.70	0.009	1072.5	1M07D7W
10.0	QPSK	704.0	711.0	23.60	9.20	0.008	1077.1	1M08G7W
	16QAM			24.50	10.10	0.010	1073.7	1M07D7W

NTN BAND n23

Part 25								
EIRP Limit (W)		0.17						
Antenna Gain (dBi)		-3.35						
Subcarrier Spacing (kHZ)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
3.75	BPSK	2000.1	2019.9	23.60	20.25	0.106	26.282	26K3G1D
	QPSK			23.70	20.35	0.108	26.968	27K0G1D
15.0	BPSK	2000.1	2019.9	23.70	20.35	0.108	68.701	68K7G1D
	QPSK			23.70	20.35	0.108	187.96	188KG1D

NTN BAND N255

Part 25								
EIRP Limit (W)		0.03						
Antenna Gain (dBi)		-9.77						
Subcarrier Spacing (kHZ)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
3.75	BPSK	1626.6	1660.4	22.60	12.83	0.019	38.823	38K8G1D
	QPSK			22.80	13.03	0.020	39.933	39K9G1D
15.0	BPSK	1626.6	1660.4	22.40	12.63	0.018	72.501	72K5G1D
	QPSK			22.40	12.63	0.018	187.62	188KG1D

6.3. SOFTWARE AND FIRMWARE

EUT FW Version: 16.29

6.4. MAXIMUM ANTENNA GAIN

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

WWAN Bands	Antenna Type	Antenna Peak Gain (dBi)
LTE B12	Slot	-12.25
LTE B4		-2.47
LTE B2		-3.46
NTN B23		-3.35
NTN B255		-9.77

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X/Y/Z on both Low Band (Fundamental Below 1GHz) and Mid Band (Fundamental between 1-3GHz) over all antennas to find the worst-case orientation.

The worst-case scenario for all measurements is based on an engineering evaluation made on conducted average power on different modulations found during pretesting. Output power measurements were measured QPSK, 16QAM, and 64QAM modulations for LTE. The modulations with the highest output power were selected as worst-case, outlined below:

Mode	Worst-Case Modulation/Mode
LTE	QPSK
NTN	BPSK 3.75KHz SCS

The EUT was tested while connected to AC Lines via charging cable and brick to represent worst case emissions.

Radiated Emission tests were performed on the lowest order modulation, at the highest BW configuration, at the lowest RB configuration to maximize emissions.

Worst Case emissions from 9kHz-30Mhz, 30-1000MHz, and 18-26.5GHz, were done on the modes with the highest conducted average power. For >30MHz, No Emissions within 20dB were observed.

Note: NTN Bands n23 and N255 did not exceed the original power tune-up from the original equipment. The applicant has stated they are submitting NTN modular conducted data from the original equipment report. Therefore, NTN bands n23 and n255 were tested fully to radiated spurious emissions only. Power is reported as well.

Original Module IDs:
FCC ID: HSW-TY1SCDM
IC: 4492A-TY1SCDM

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	21AJS0KL00	PF4FKVZE	-
EUT Charging Brick	Garmin	AQ27A-59CFA	-	-

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Proprietary	1	USB-C	Shielded	<3m	Program/Charge EUT

Test Setup

The EUT was connected to a base station simulator and set to transmit at max power for GSM/WCDMA/LTE testing

Setup Diagram

See R156268768-EP1 for Setup Photos and Setup Diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 1				
CBL091	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2025-03-07	2026-03-07
IV	SMA Coaxial 20dB Attenuator 25MHz-18GHz	CentricRF	C18S2-20	2025-04-11	2026-04-11
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2024-08-01	2025-08-01
208721	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2024-08-14	2025-08-14
213025	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-01-04	2026-01-04
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2025-01-15	2026-01-15
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-04-09	2026-04-09
	18-40 GHz				
91186	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2024-05-16	2026-05-16
	Gain-Loss Chains				
207640	Gain-loss string: 1-18GHz	Various	Various	2024-05-22	2025-06-06
225795	Gain-loss string: 18-40GHz	Various	Various	2024-05-22	2025-06-06
	Receiver & Software				
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-04-21	2026-04-21
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05
169106 (BRF008)	1710-1785MHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50713-01	2025-03-13	2026-03-13
213025	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-01-14	2026-01-14

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	~~0.009-30MHz~~				
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
	30-1000 MHz				
159203	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-03-05	2026-03-05
	1-18 GHz				
86408	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-06-19	2025-06-19
	Gain-Loss Chains				
91977	Gain-loss string: 1-18GHz	Various	Various	2024-07-17	2025-07-31
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-05-12	2026-05-12
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19
208720	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2024-01-16	2025-01-16
PS216	AC Power Source	Elgar	CW2501M	NA	NA
169106 (BRF008)	1710-1785MHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50713-01	2025-03-13	2026-03-13
198917	1GHz high-pass filter, 2W, Fhigh =18GHz	Micro-Tronics	HPM18129-02	2025-03-13	2026-03-13
78368 (BRF006)	1.8-2.0GHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50707-01	2025-03-13	2026-03-13
77412 (BRF001)	900MHz notch filter, 2W, Fhigh =6GHz	Micro-Tronics	BRM50706	2025-03-13	2026-03-13

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
	Gain-Loss Chains				
91979	Gain-loss string: 1-18GHz	Various	Various	2024-05-08	2025-05-08
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05
213025	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2025-01-14	2026-01-14
169108 (BRF010)	1.85-1.97GHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50714-01	2025-03-13	2026-03-13
169106 (BRF008)	1710-1785MHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50713-01	2025-03-13	2026-03-13
198917	1GHz high-pass filter, 2W, Fhigh =18GHz	Micro-Tronics	HPM18129-02	2025-03-13	2026-03-13

NOTES:

1. Equipment listed above has a calibration due date during the testing period, the testing is completed before equipment expiration date.

8. RF OUTPUT POWER VERIFICATION

8.1. LTE

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.

AVERAGE OUTPUT POWER TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using SMA cable with directional coupler connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

PEAK OUTPUT POWER TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using SMA cable with directional coupler connected to a power meter via wideband peak power sensor. Peak output power was read directly from power meter.

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:

8.1.1. LTE BAND 2

Test Engineer ID:	85501	Test Date:	5/22/25

BW (MHz)	Mode	RB Allocation	RB Offset	NB Position	Maximum Average Power (dBm)				
					18700	18900	19100	MPR	Tune-up Limit
					1860 MHz	1880 MHz	1900 MHz		
20	QPSK	1	0	Low	23.2	23.2	23.6	0	24.0
		1	3	NB7	23.2	22.1	23.3	0	24.0
		1	5	High	23.3	23.3	23.3	0	24.0
		3	0	Low	23.3	22.9	23.6	0	24.0
		3	1	NB7	23.1	23.1	23.4	0	24.0
		3	3	High	23.6	23.0	23.0	0	24.0
		6	0	Low	23.6	23.5	23.5	0	24.0
	16QAM	1	0	Low	23.8	23.1	22.9	0	24.0
		1	3	NB7	23.3	23.4	23.4	0	24.0
		1	5	High	**23.9**	23.1	22.9	0	24.0
		3	0	Low	23.4	23.3	23.7	0	24.0
		3	1	**NB7**	23.9	23.4	23.2	0	24.0
		3	3	High	23.3	23.2	23.8	0	24.0
		6	0	Low	23.3	23.2	23.2	0	24.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18675	18900	19125	MPR	Tune-up Limit
					1857.5 MHz	1880 MHz	1902.5 MHz		
15	QPSK	1	0	Low	23.2	23.2	22.9	0	24.0
		1	3	NB5	23.3	23.2	22.6	0	24.0
		1	5	High	23.3	23.4	23.1	0	24.0
		3	0	Low	23.3	23.6	22.9	0	24.0
		3	1	NB5	23.2	23.1	22.9	0	24.0
		3	3	High	23.2	23.6	23.0	0	24.0
		6	0	Low	23.2	23.4	23.5	0	24.0
	16QAM	1	0	Low	23.3	23.3	23.3	0	24.0
		1	3	NB5	23.5	23.4	23.5	0	24.0
		1	5	High	23.5	23.5	23.3	0	24.0
		3	0	Low	23.3	23.6	23.5	0	24.0
		3	1	NB5	**23.9**	23.5	23.4	0	24.0
		3	3	High	23.9	23.6	23.3	0	24.0
		6	0	Low	22.9	23.2	23.3	0	24.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18650	18900	19150	MPR	Tune-up Limit
					1855 MHz	1880 MHz	1905 MHz		
10	QPSK	1	0	Low	23.2	23.4	23.6	0	24.0
		1	3	NB3	23.2	23.4	23.2	0	24.0
		1	5	High	23.3	23.4	23.3	0	24.0
		3	0	Low	23.3	23.4	**24.0**	0	24.0
		3	1	NB3	23.1	23.3	23.0	0	24.0
		3	3	High	23.3	23.3	23.5	0	24.0
		6	0	Low	22.7	22.6	22.5	1	23.0
	16QAM	1	0	Low	23.0	23.8	22.9	0	24.0
		1	3	NB3	23.3	23.6	23.4	0	24.0
		1	5	High	23.2	23.7	22.9	0	24.0
		3	0	Low	23.4	23.6	23.5	0	24.0
		3	1	NB3	23.5	23.1	23.6	0	24.0
		3	3	High	23.3	23.7	23.1	0	24.0
		6	0	Low	21.2	21.3	21.2	2	22.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18625	18900	19175	MPR	Tune-up Limit
					1852.5 MHz	1880 MHz	1907.5 MHz		
5	QPSK	1	0	Low	23.2	23.3	23.9	0	24.0
		1	3	NB1	23.2	23.2	22.1	0	24.0
		1	5	High	23.3	23.3	23.2	0	24.0
		3	0	Low	22.4	22.4	22.0	1	23.0
		3	1	NB1	22.7	22.5	22.4	1	23.0
		3	3	High	22.4	22.4	22.0	1	23.0
		6	0	Low	22.7	22.7	22.6	1	23.0
	16QAM	1	0	Low	23.1	23.9	23.0	0	24.0
		1	3	NB1	23.9	**24.0**	23.2	0	24.0
		1	5	High	23.8	23.9	23.0	0	24.0
		3	0	Low	22.5	22.3	22.2	1	23.0
		3	1	NB1	22.7	22.5	21.7	1	23.0
		3	3	High	22.2	22.1	22.1	1	23.0
		6	0	Low	21.2	21.2	21.2	2	22.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					18615	18900	19185		
					1851.5 MHz	1880 MHz	1908.5 MHz		
3	QPSK	1	0	Low	23.1	**23.8**	23.4	0	24.0
		1	3	Low	23.0	23.6	23.1	0	24.0
		1	5	High	23.3	23.6	23.4	0	24.0
		3	0	Low	22.4	22.1	22.7	1	23.0
		3	1	Low	22.6	22.2	22.5	1	23.0
		3	3	High	22.4	22.1	22.5	1	23.0
		6	0	Low	21.5	21.3	21.7	2	22.0
	16QAM	1	0	Low	22.0	22.7	21.8	1	23.0
		1	3	Low	22.2	22.8	22.0	1	23.0
		1	5	High	22.0	22.7	21.9	1	23.0
		3	0	Low	21.6	21.4	21.4	2	22.0
		3	1	Low	21.2	21.4	21.5	2	22.0
		3	3	High	21.1	21.1	21.3	2	22.0
		6	0	Low	21.1	20.9	21.0	2	22.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					18607	18900	19193		
					1850.7 MHz	1880 MHz	1909.3 MHz		
1.4	QPSK	1	0	Low	23.4	23.3	23.4	0	24.0
		1	3	Low	23.0	**24.0**	23.0	0	24.0
		1	5	High	23.3	23.7	23.3	0	24.0
		3	0	Low	22.8	22.1	22.7	1	23.0
		3	1	Low	22.2	22.7	22.8	1	23.0
		3	3	High	22.4	22.3	22.2	1	23.0
		6	0	Low	21.5	21.4	21.4	2	22.0
	16QAM	1	0	Low	22.8	22.7	22.6	1	23.0
		1	3	Low	22.9	22.8	22.8	1	23.0
		1	5	High	22.7	22.6	22.6	1	23.0
		3	0	Low	21.6	21.4	21.4	2	22.0
		3	1	Low	21.2	21.9	21.0	2	22.0
		3	3	High	21.5	21.3	21.3	2	22.0
		6	0	Low	21.0	20.6	21.3	2	22.0

8.1.1. LTE BAND 4

Test Engineer ID:	85502, 105900/84740	Test Date:	5/22/25

BW (MHz)	Mode	RB Allocation	RB Offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					20050	20175	20300		
					1720 MHz	1732.5 MHz	1745 MHz		
20	QPSK	1	0	Low	23.4	23.4	23.3	0	24.5
		1	3	NB7	23.2	23.2	23.2	0	24.5
		1	5	High	23.2	23.3	23.5	0	24.5
		3	0	Low	23.3	23.2	23.5	0	24.5
		3	1	NB7	23.0	23.1	22.9	0	24.5
		3	3	High	23.2	23.1	23.4	0	24.5
		6	0	Low	23.7	23.5	23.5	0	24.5
	16QAM	1	0	Low	22.8	23.4	23.7	0	24.5
		1	3	NB7	23.0	23.4	23.5	0	24.5
		1	5	High	22.8	23.4	23.7	0	24.5
		3	0	Low	23.7	23.7	23.6	0	24.5
		3	1	NB7	**24.1**	23.2	23.5	0	24.5
		3	3	High	23.7	23.5	23.6	0	24.5
		6	0	Low	23.2	23.1	23.3	0	24.5

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					20025	20175	20325		
					1717.5 MHz	1732.5 MHz	1747.5 MHz		
15	QPSK	1	0	Low	23.4	23.3	23.2	0	24.5
		1	3	NB5	23.2	23.2	22.0	0	24.5
		1	5	High	23.2	23.2	23.2	0	24.5
		3	0	Low	23.2	23.1	23.0	0	24.5
		3	1	NB5	23.3	23.1	23.0	0	24.5
		3	3	High	23.2	23.1	23.0	0	24.5
		6	0	Low	23.7	23.6	23.4	0	24.5
	16QAM	1	0	Low	23.5	23.8	23.1	0	24.5
		1	3	NB5	23.5	23.6	23.5	0	24.5
		1	5	High	23.7	23.6	23.2	0	24.5
		3	0	Low	23.7	23.1	23.7	0	24.5
		3	1	NB5	23.6	23.2	23.7	0	24.5
		3	3	High	23.6	23.5	**23.9**	0	24.5
		6	0	Low	23.1	23.1	23.1	0	24.5

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					20000	20175	20350		
					1715 MHz	1732.5 MHz	1750 MHz		
10	QPSK	1	0	Low	23.6	23.3	23.3	0	24.5
		1	3	NB3	23.4	23.2	23.1	0	24.5
		1	5	High	23.6	23.3	23.3	0	24.5
		3	0	Low	23.1	23.3	23.1	0	24.5
		3	1	NB3	23.0	23.1	22.7	0	24.5
		3	3	High	23.0	23.1	23.1	0	24.5
		6	0	Low	22.5	22.7	22.6	1	23.5
	16QAM	1	0	Low	23.3	22.8	23.1	0	24.5
		1	3	NB3	23.6	23.0	23.6	0	24.5
		1	5	High	23.4	22.8	23.4	0	24.5
		3	0	Low	23.9	23.7	23.2	0	24.5
		3	1	NB3	23.7	23.2	23.6	0	24.5
		3	3	High	**24.0**	23.7	23.0	0	24.5
		6	0	Low	21.1	21.1	20.9	2	22.5

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					19975	20175	20375		
					1712.5 MHz	1732.5 MHz	1752.5 MHz		
5	QPSK	1	0	Low	23.4	23.3	23.3	0	24.5
		1	3	NB1	23.3	23.2	22.0	0	24.5
		1	5	High	23.2	23.3	23.3	0	24.5
		3	0	Low	22.3	22.2	22.0	1	23.5
		3	1	NB1	22.4	22.2	22.0	1	23.5
		3	3	High	22.3	22.2	22.0	1	23.5
		6	0	Low	22.7	22.6	22.4	1	23.5
	16QAM	1	0	Low	22.9	23.4	23.2	0	24.5
		1	3	NB1	23.1	23.4	**23.6**	0	24.5
		1	5	High	22.9	23.3	23.4	0	24.5
		3	0	Low	22.8	22.3	22.9	1	23.5
		3	1	NB1	22.7	22.3	22.7	1	23.5
		3	3	High	22.8	22.1	22.9	1	23.5
		6	0	Low	21.1	21.0	21.1	2	22.5

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					19965	20175	20385		
					1711.5 MHz	1732.5 MHz	1753.5 MHz		
3	QPSK	1	0	Low	**23.4**	23.4	23.3	0	24.5
		1	3	Low	23.0	22.9	22.9	0	24.5
		1	5	High	23.3	23.3	23.2	0	24.5
		3	0	Low	22.0	22.4	22.4	1	23.5
		3	1	Low	22.1	22.7	22.3	1	23.5
		3	3	High	22.3	22.2	22.2	1	23.5
		6	0	Low	21.3	21.7	21.6	2	22.5
	16QAM	1	0	Low	21.9	21.8	21.7	1	23.5
		1	3	Low	22.2	22.0	21.9	1	23.5
		1	5	High	21.8	21.8	21.8	1	23.5
		3	0	Low	21.3	21.3	21.2	2	22.5
		3	1	Low	21.2	21.4	20.9	2	22.5
		3	3	High	21.4	21.2	21.3	2	22.5
		6	0	Low	20.9	20.9	21.2	2	22.5

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					19957	20175	20393		
					1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4	QPSK	1	0	Low	23.4	23.2	23.2	0	24.5
		1	3	Low	22.2	22.8	22.8	0	24.5
		1	5	High	**23.4**	23.2	23.2	0	24.5
		3	0	Low	22.2	22.6	22.6	1	23.5
		3	1	Low	22.2	22.2	22.3	1	23.5
		3	3	High	21.9	22.1	22.1	1	23.5
		6	0	Low	21.6	21.2	21.2	2	22.5
	16QAM	1	0	Low	22.9	21.4	22.5	1	23.5
		1	3	Low	23.0	21.4	22.6	1	23.5
		1	5	High	23.0	21.1	22.4	1	23.5
		3	0	Low	21.1	20.9	21.1	2	22.5
		3	1	Low	21.1	20.7	20.7	2	22.5
		3	3	High	21.2	20.9	21.1	2	22.5
		6	0	Low	21.0	20.6	20.5	2	22.5

8.1.2. LTE BAND 12

Test Engineer ID:	85502, 105900/84740	Test Date:	5/23/25

BW (MHz)	Mode	RB Allocation	RB Offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					23060	23095	23130		
					704 MHz	707.5 MHz	711 MHz		
10	QPSK	1	0	Low	23.6	23.6	23.6	0	25.0
		1	3	NB3	23.5	23.5	23.5	0	25.0
		1	5	High	23.5	23.6	23.6	0	25.0
		3	0	Low	23.5	23.5	23.5	0	25.0
		3	1	NB3	23.3	23.5	23.3	0	25.0
		3	3	High	23.4	23.4	23.4	0	25.0
		6	0	Low	23.0	22.7	22.7	1	24.0
	16QAM	1	0	Low	23.1	23.7	23.7	0	25.0
		1	3	NB3	23.4	23.8	23.8	0	25.0
		1	5	High	23.1	23.7	23.7	0	25.0
		3	0	Low	24.0	23.5	23.5	0	25.0
		3	1	NB3	**24.5**	23.5	23.9	0	25.0
		3	3	High	24.0	23.4	23.4	0	25.0
		6	0	Low	21.6	21.7	21.4	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					23035	23095	23155		
					701.5 MHz	707.5 MHz	713.5 MHz		
5	QPSK	1	0	Low	23.7	23.6	23.8	0	25.0
		1	3	NB1	23.5	23.5	23.6	0	25.0
		1	5	High	23.5	23.6	23.8	0	25.0
		3	0	Low	22.5	22.5	22.8	1	24.0
		3	1	NB1	22.6	22.4	22.2	1	24.0
		3	3	High	22.5	22.5	22.7	1	24.0
		6	0	Low	22.8	22.7	22.8	1	24.0
	16QAM	1	0	Low	23.3	23.8	**24.1**	0	25.0
		1	3	NB1	23.5	23.8	23.9	0	25.0
		1	5	High	23.2	24.0	24.0	0	25.0
		3	0	Low	23.1	23.0	23.0	1	24.0
		3	1	NB1	22.9	22.6	22.9	1	24.0
		3	3	High	23.1	22.9	22.2	1	24.0
		6	0	Low	21.2	21.4	21.4	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					23025	23095	23165		
					700.5 MHz	707.5 MHz	714.5 MHz		
3	QPSK	1	0	Low	23.6	**23.9**	23.6	0	25.0
		1	3	Low	23.3	23.7	23.2	0	25.0
		1	5	High	23.6	23.7	23.5	0	25.0
		3	0	Low	22.7	22.3	22.6	1	24.0
		3	1	Low	22.4	22.4	22.0	1	24.0
		3	3	High	22.5	22.3	22.5	1	24.0
		6	0	Low	22.0	21.5	21.9	2	23.0
	16QAM	1	0	Low	22.0	22.0	22.0	1	24.0
		1	3	Low	22.3	22.3	22.3	1	24.0
		1	5	High	22.1	21.9	22.0	1	24.0
		3	0	Low	21.5	21.6	21.6	2	23.0
		3	1	Low	21.6	21.5	21.6	2	23.0
		3	3	High	21.6	21.6	21.3	2	23.0
		6	0	Low	21.2	21.2	21.4	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)			MPR	Tune-up Limit
					23017	23095	23173		
					699.7 MHz	707.5 MHz	715.3 MHz		
1.4	QPSK	1	0	Low	23.6	**24.5**	23.5	0	25.0
		1	3	Low	23.2	24.2	22.4	0	25.0
		1	5	High	23.5	24.2	23.5	0	25.0
		3	0	Low	22.8	22.2	22.6	1	24.0
		3	1	Low	22.4	22.5	22.4	1	24.0
		3	3	High	22.6	22.4	22.4	1	24.0
		6	0	Low	21.7	21.5	21.9	2	23.0
	16QAM	1	0	Low	21.9	22.8	23.5	1	24.0
		1	3	Low	21.9	23.0	22.5	1	24.0
		1	5	High	22.0	22.8	23.5	1	24.0
		3	0	Low	21.2	21.6	22.6	2	23.0
		3	1	Low	21.3	21.0	21.3	2	23.0
		3	3	High	21.3	21.4	22.4	2	23.0
		6	0	Low	21.1	20.8	20.8	2	23.0

9. CONDUCTED TEST RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS133

LIMITS

For reporting purposes only.

TEST PROCEDURE

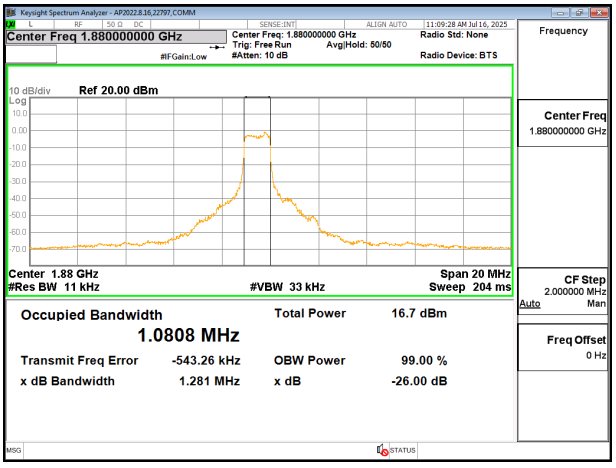
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

RESULTS

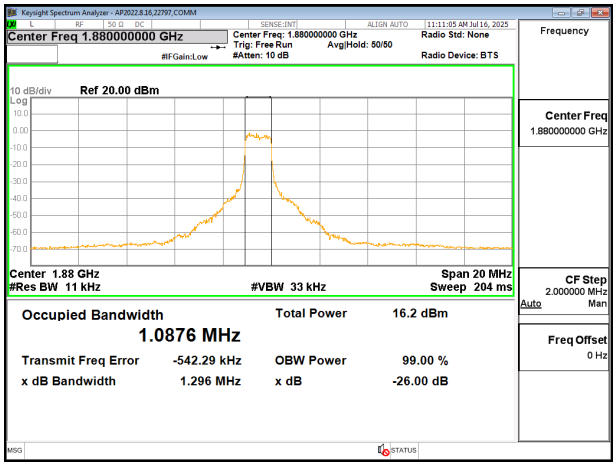
There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested. Worst-case plots (highest bandwidth) are reported only.

9.1.1. LTE2

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4MHz, QPSK	6/0	1880.0	1.0684	1.256
	1.4MHz,16QAM			1.0699	1.262
	3MHz, QPSK			1.0682	1.261
	3MHz, 16QAM			1.0742	1.25
	5MHz, QPSK			1.0715	1.274
	5MHz, 16QAM			1.0765	1.277
	10MHz, QPSK			1.0777	1.264
	10MHz, 16QAM			1.0841	1.271
	15MHz, QPSK			1.0714	1.265
	15MHz, 16QAM			1.0758	1.294
	20MHz, QPSK			1.0808	1.281
	20MHz, 16QAM			1.0876	1.296



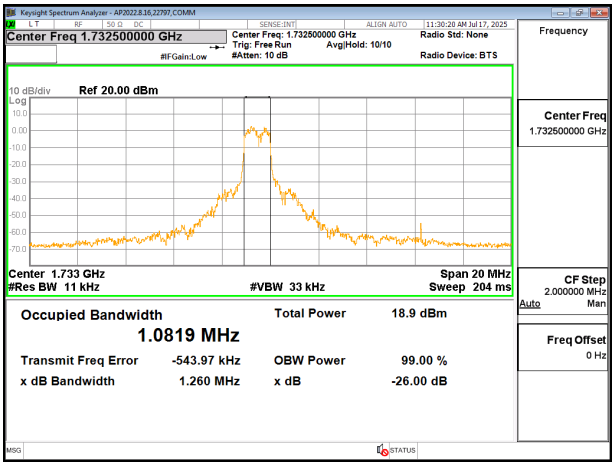
LTE2 20MHz QPSK MID Ch RB6-0



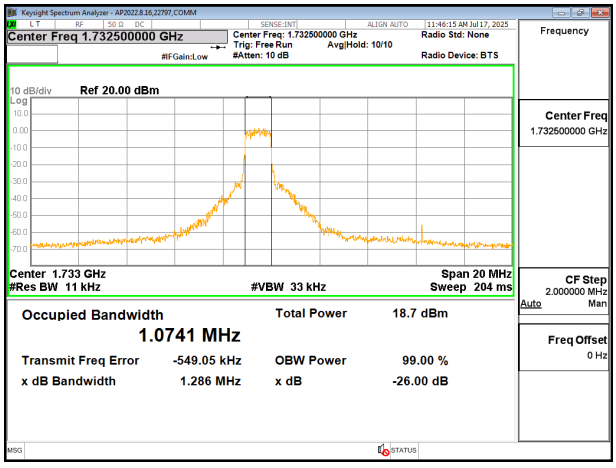
LTE2 20MHz 16QAM MID Ch RB6-0

9.1.1. LTE4

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 4	1.4MHz, QPSK	6/0	1732.5	1.0772	1.194
	1.4MHz,16QAM			1.0601	1.184
	3MHz, QPSK			1.0748	1.27
	3MHz, 16QAM			1.0709	1.256
	5MHz, QPSK			1.0777	1.27
	5MHz, 16QAM			1.0911	1.267
	10MHz, QPSK			1.0712	1.215
	10MHz, 16QAM			1.0908	1.252
	15MHz, QPSK			1.0409	1.138
	15MHz, 16QAM			1.0601	1.169
	20MHz, QPSK			1.0819	1.26
	20MHz, 16QAM			1.0741	1.286



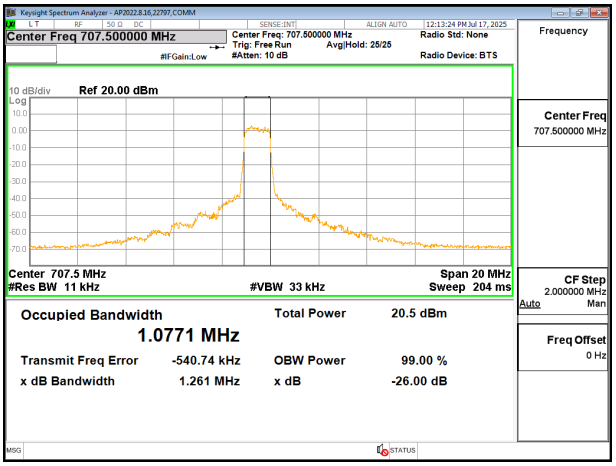
LTE4 20MHz QPSK MID Ch RB6-0



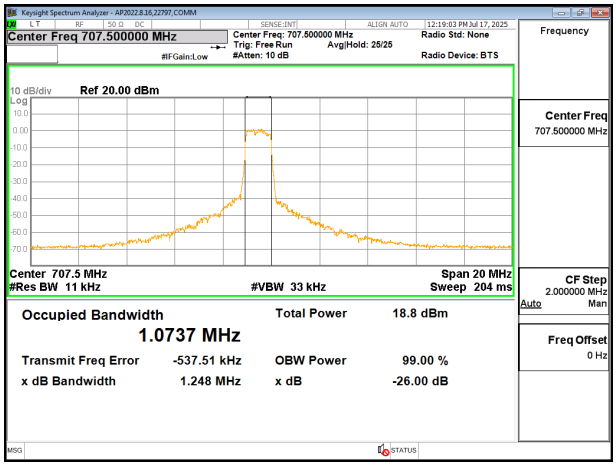
LTE4 20MHz 16QAM MID Ch RB6-0

9.1.2. LTE12

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	1.4MHz, QPSK	6/0	707.5	1.0759	1.235
	1.4MHz,16QAM			1.0728	1.271
	3MHz, QPSK			1.0705	1.0708
	3MHz, 16QAM			1.0708	1.239
	5MHz, QPSK			1.0653	1.247
	5MHz, 16QAM			1.0725	1.243
	10MHz, QPSK			1.0771	1.261
	10MHz, 16QAM			1.0737	1.248



LTE12 10MHz QPSK MID Ch RB6-0



LTE12 10MHz 16QAM MID Ch RB6-0

9.2. OUT OF BAND EMISSIONS

LIMITS

FCC: §24.238 (a), 27.53 (h), 27.53 (g)
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

ISED: RSS133§5.6 RSS139§5.6, RSS130§4.7
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

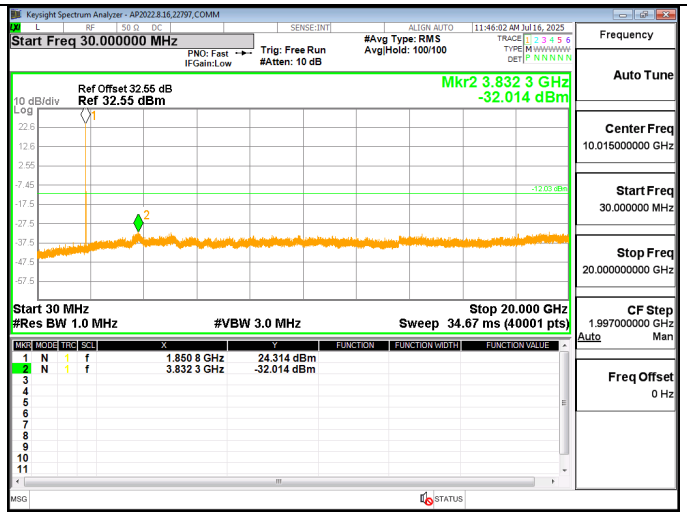
TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.
For each out of band emissions measurement:

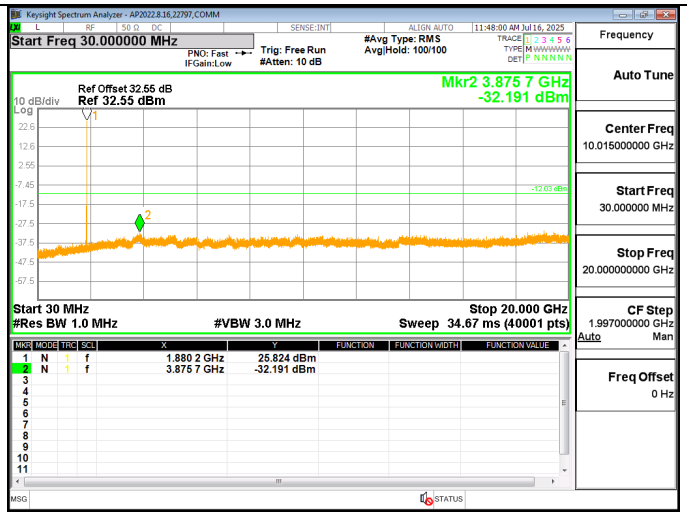
(i) Set display line at -13 dBm, according to the band Limit
(ii) Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

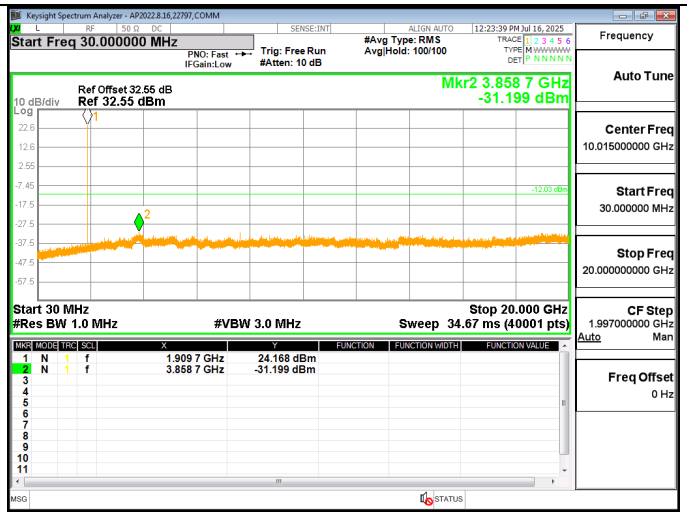
9.2.1. LTE2



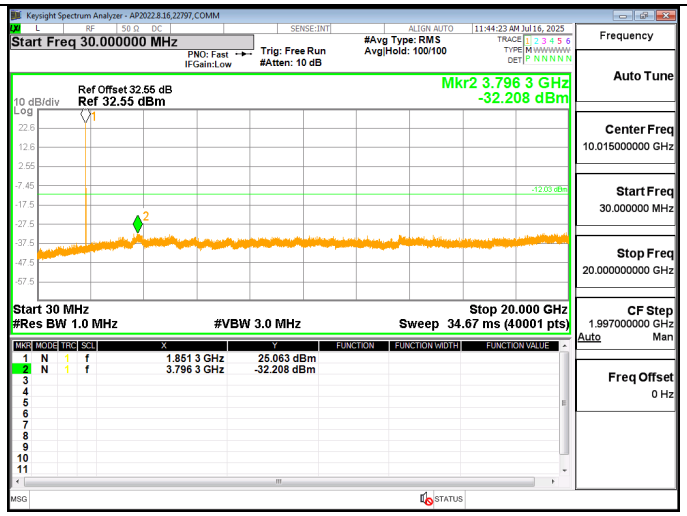
LTE2 1.4MHz QPSK LOW Ch RB1-0



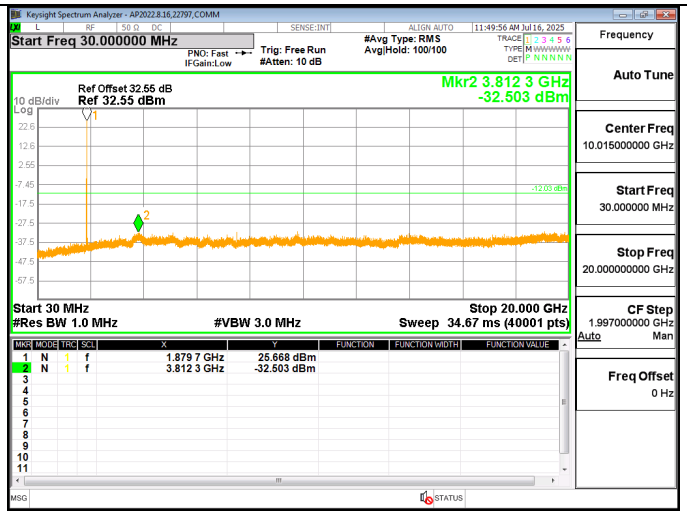
LTE2 1.4MHz QPSK MID Ch RB1-0



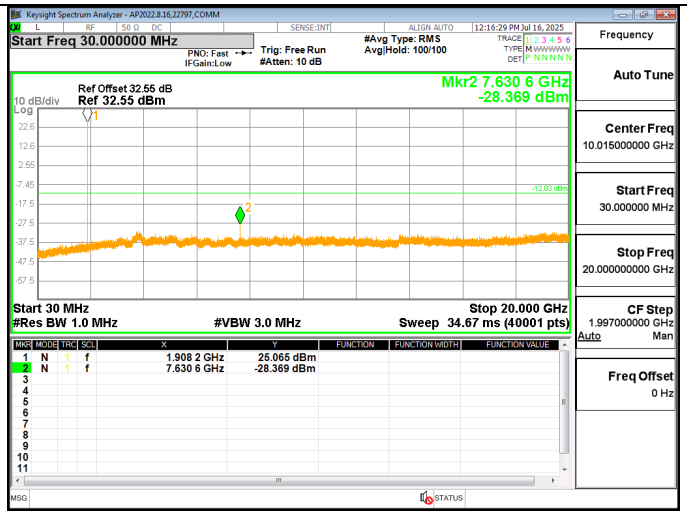
LTE2 1.4MHz QPSK HIGH Ch RB1-0



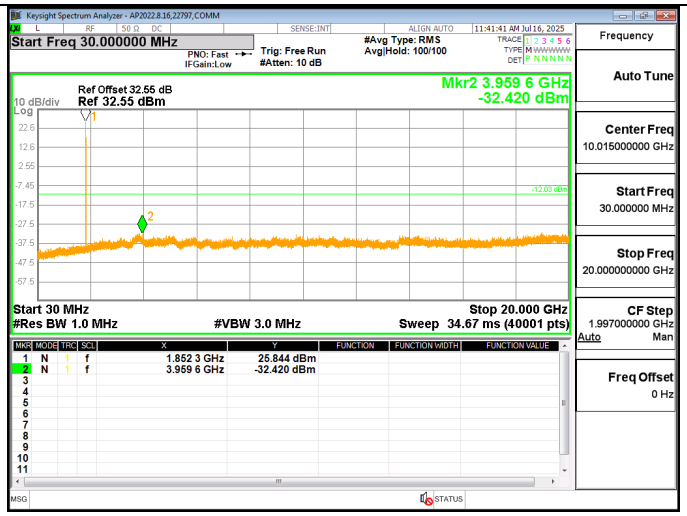
LTE2 3MHz QPSK LOW Ch RB1-0



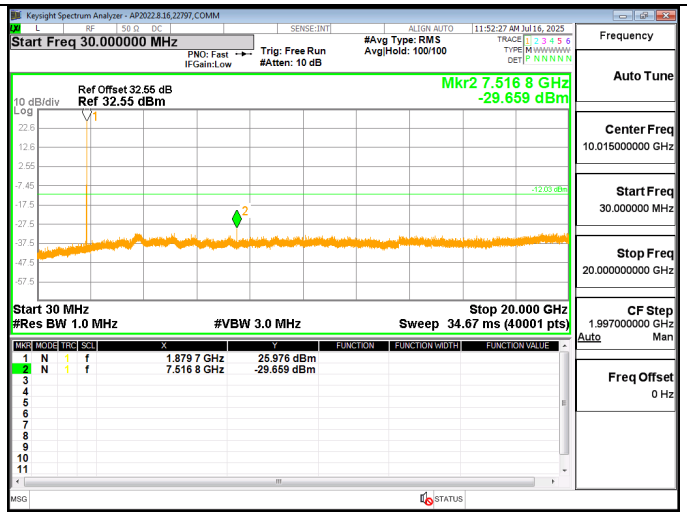
LTE2 3MHz QPSK MID Ch RB1-0



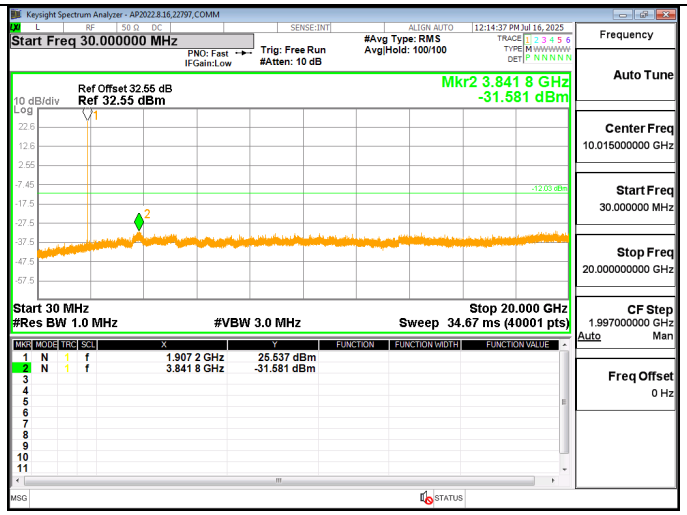
LTE2 3MHz QPSK HIGH Ch RB1-0



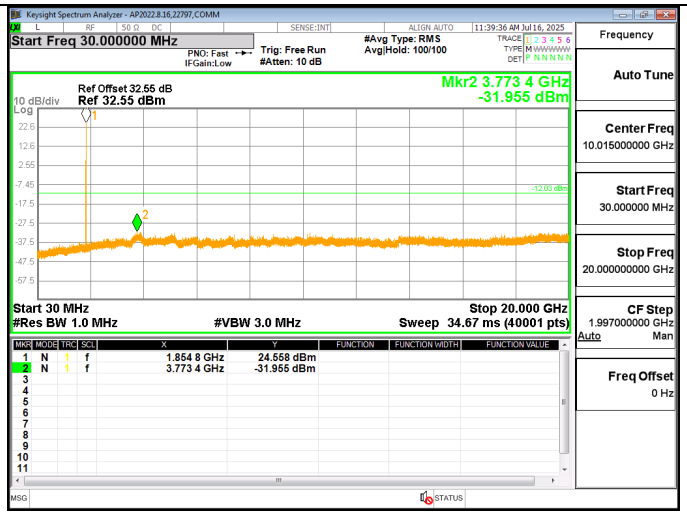
LTE2 5MHz QPSK LOW Ch RB1-0



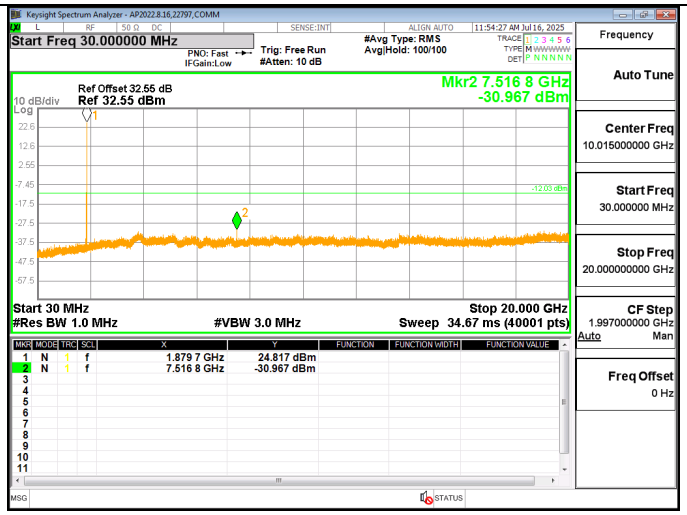
LTE2 5MHz QPSK MID Ch RB1-0



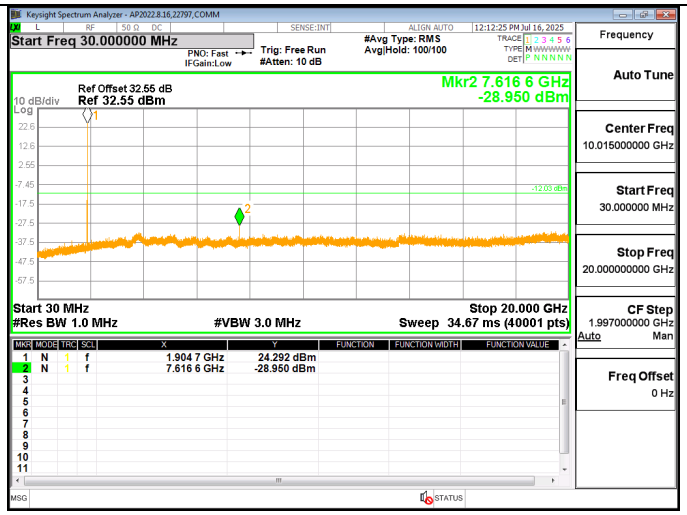
LTE2 5MHz QPSK HIGH Ch RB1-0



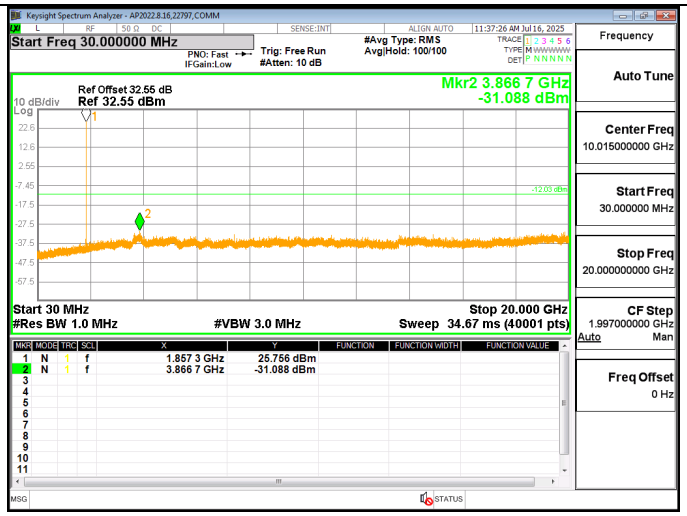
LTE2 10MHz QPSK LOW Ch RB1-0



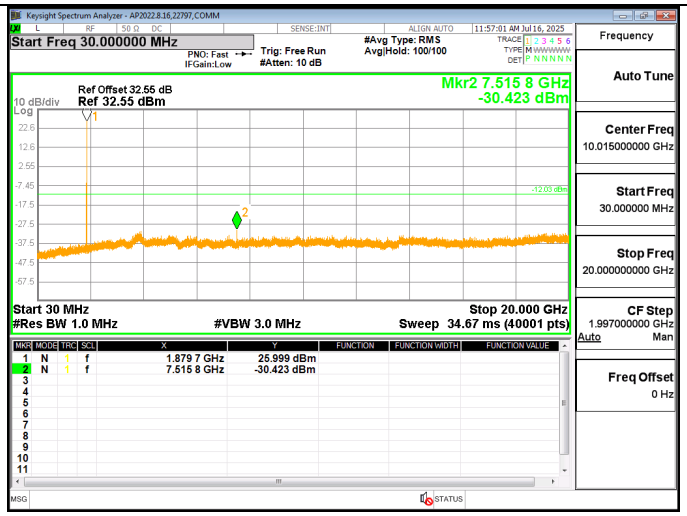
LTE2 10MHz QPSK MID Ch RB1-0



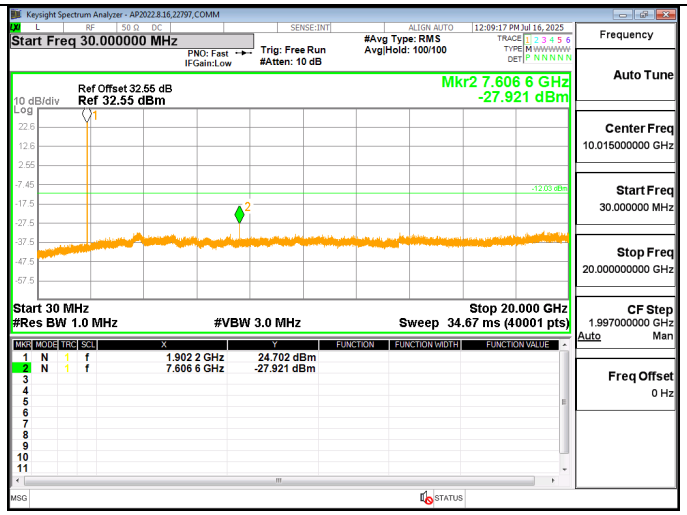
LTE2 10MHz QPSK HIGH Ch RB1-0



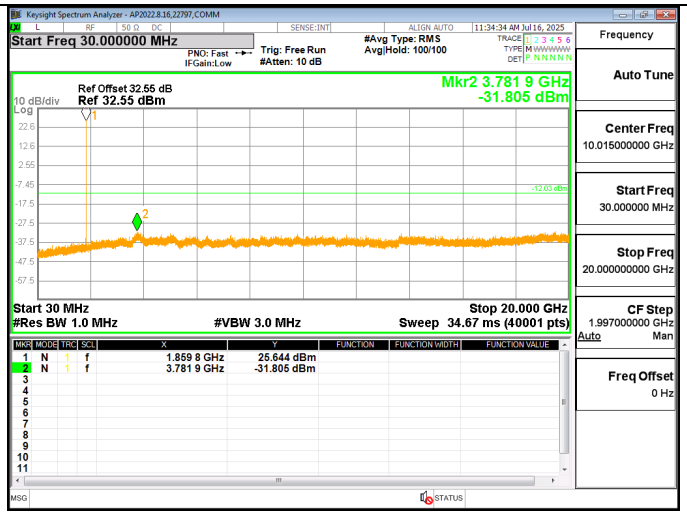
LTE2 15MHz QPSK LOW Ch RB1-0



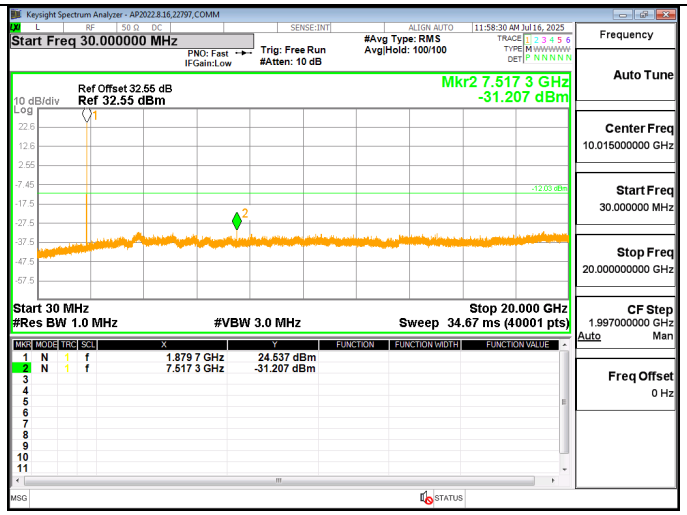
LTE2 15MHz QPSK MID Ch RB1-0



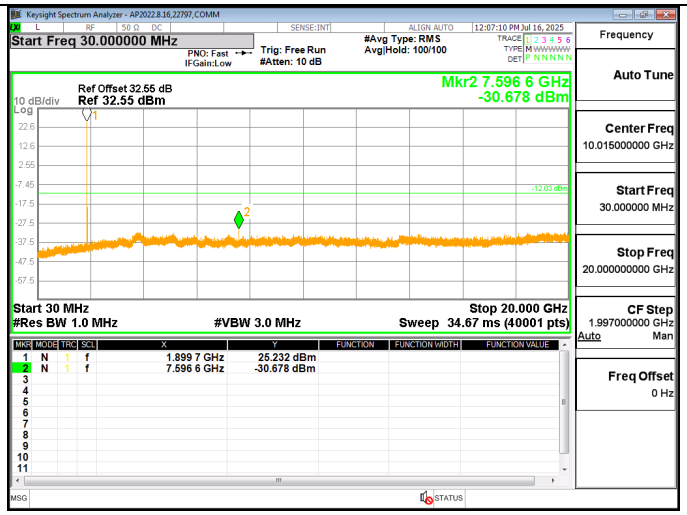
LTE2 15MHz QPSK HIGH Ch RB1-0



LTE2 20MHz QPSK LOW Ch RB1-0

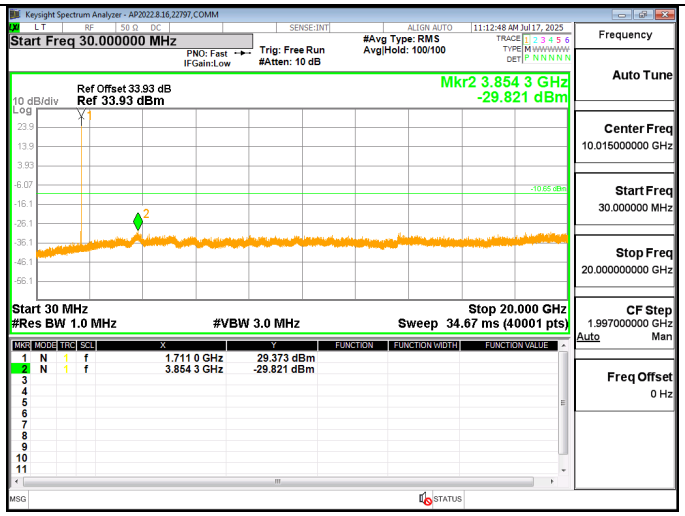


LTE2 20MHz QPSK MID Ch RB1-0

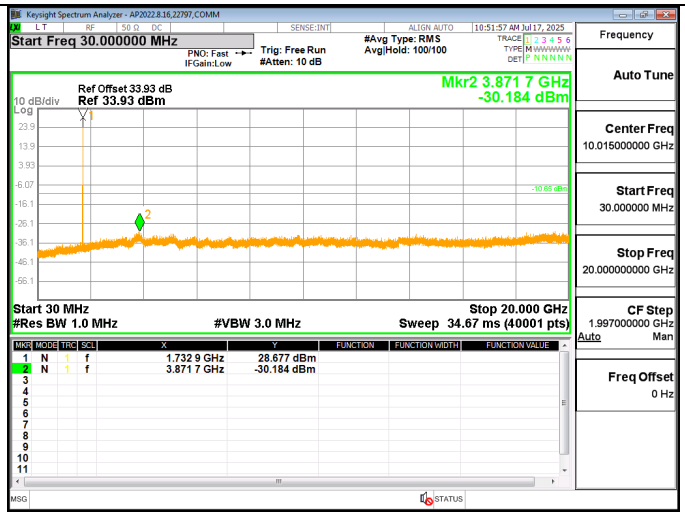


LTE2 20MHz QPSK HIGH Ch RB1-0

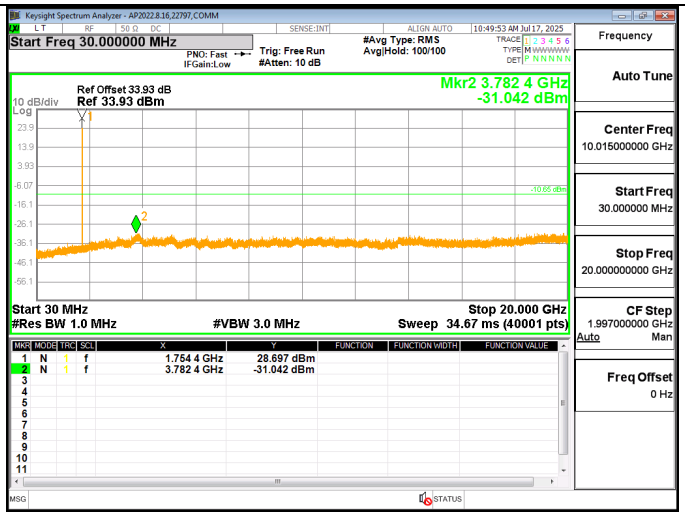
9.2.1. LTE4



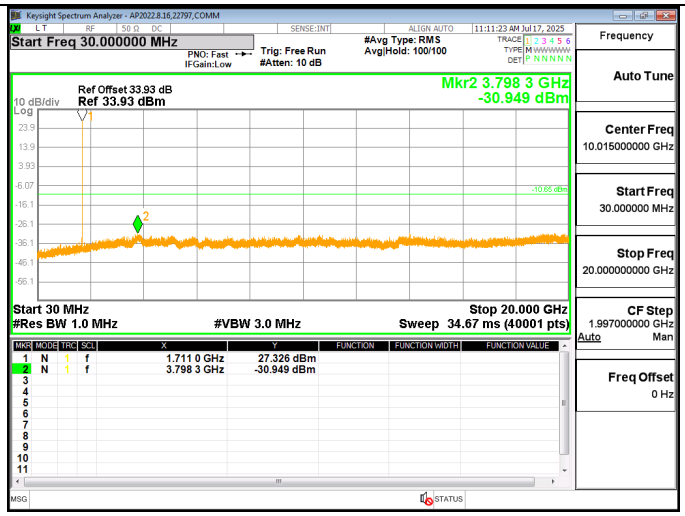
LTE4 1.4MHz QPSK LOW Ch RB1-0



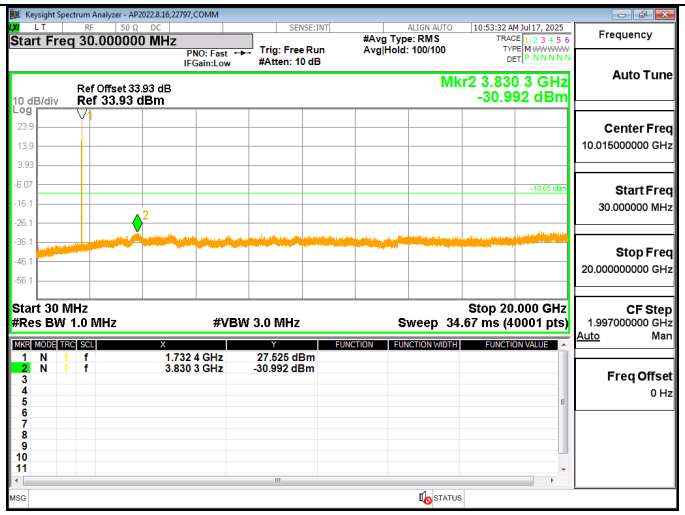
LTE4 1.4MHz QPSK MID Ch RB1-0



LTE4 1.4MHz QPSK HIGH Ch RB1-0

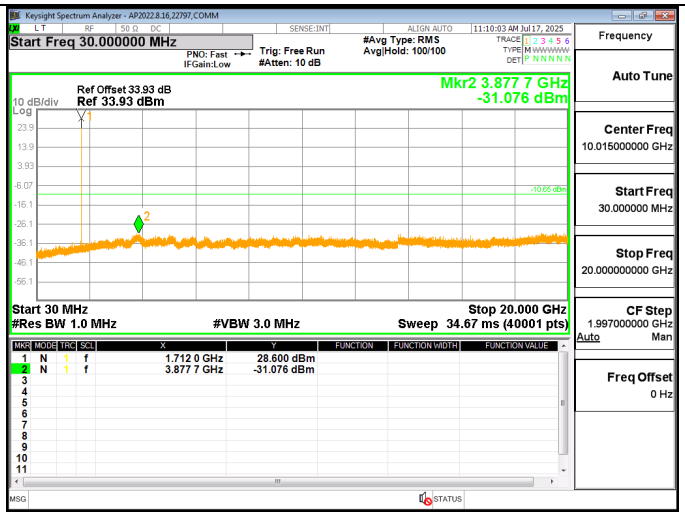


LTE4 3MHz QPSK LOW Ch RB1-0

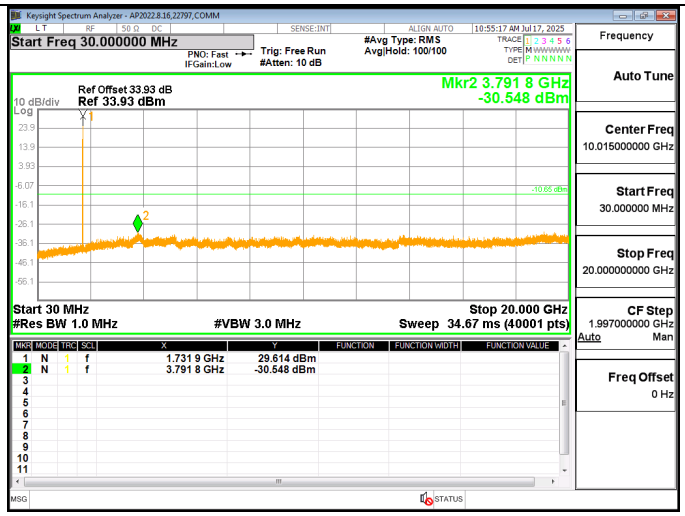


LTE4 3MHz QPSK MID Ch RB1-0

LTE4 3MHz QPSK HIGH Ch RB1-0



LTE4 5MHz QPSK LOW Ch RB1-0



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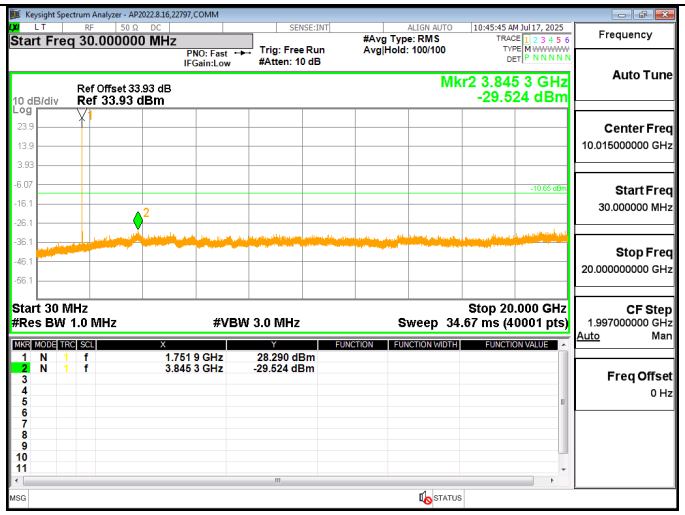

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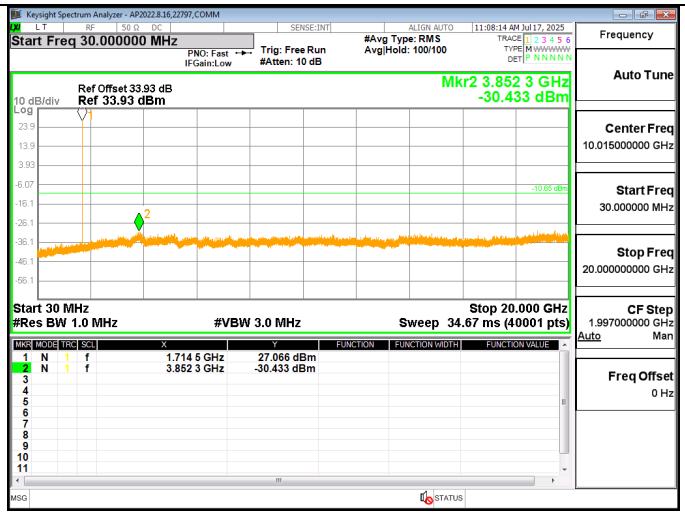
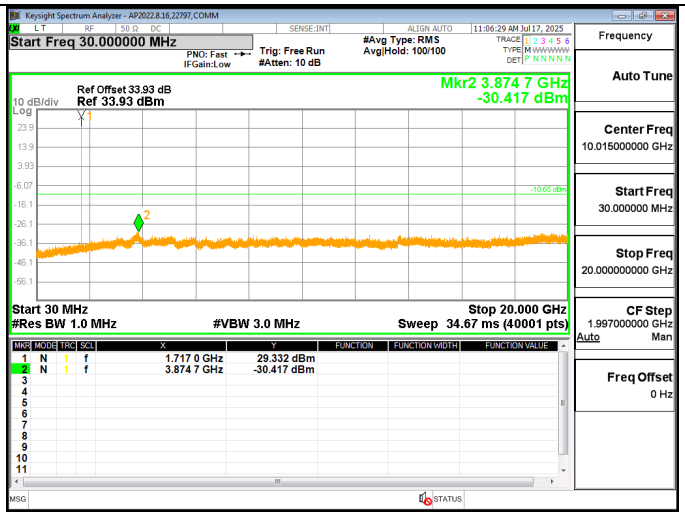


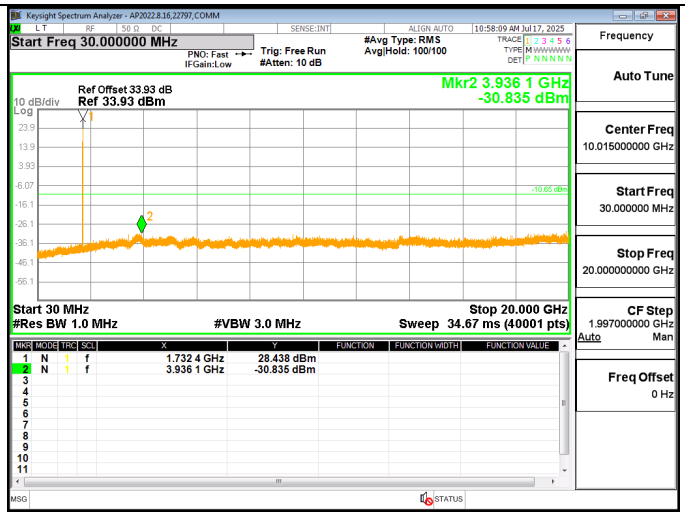
LTE4 10MHz QPSK LOW Ch RB1-0

LTE4 10MHz QPSK MID Ch RB1-0

LTE4 10MHz QPSK HIGH Ch RB1-0

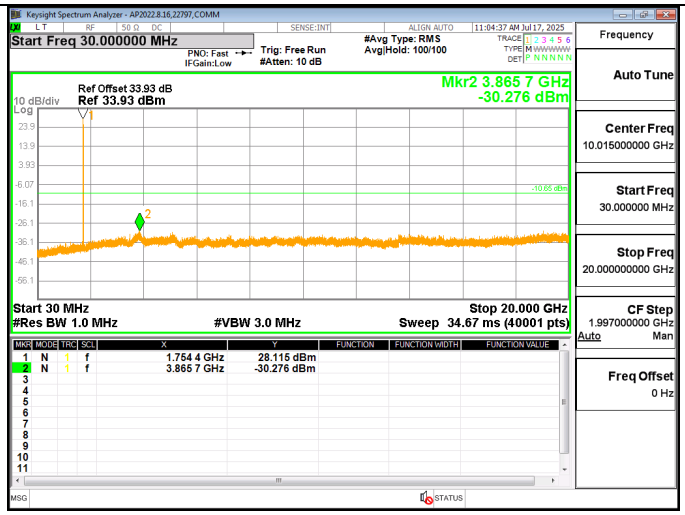


LTE4 15MHz QPSK LOW Ch RB1-0

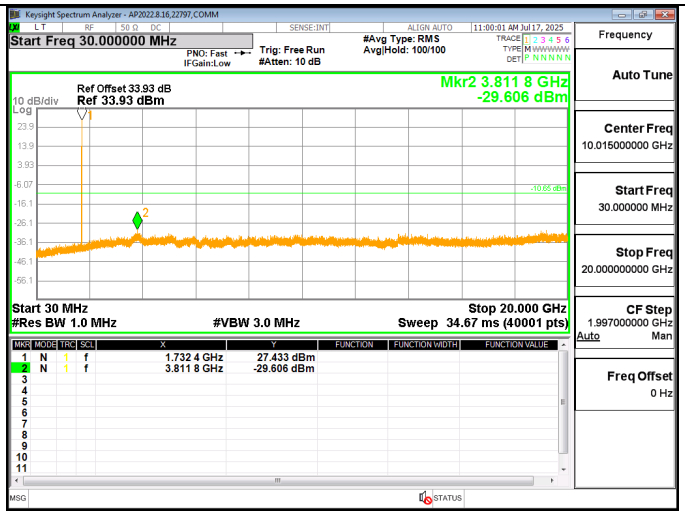


LTE4 15MHz QPSK MID Ch RB1-0

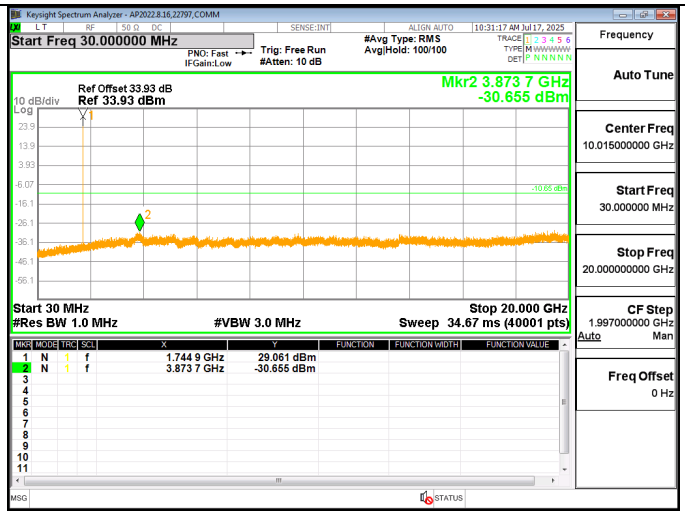
LTE4 15MHz QPSK HIGH Ch RB1-0



LTE4 20MHz QPSK LOW Ch RB1-0

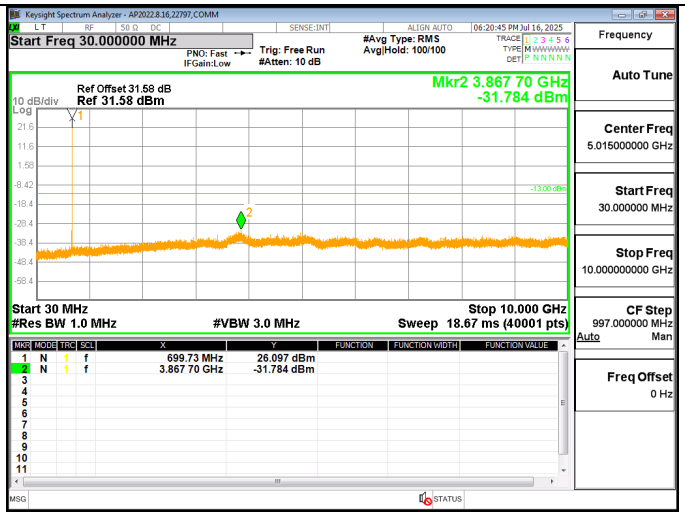


LTE4 20MHz QPSK MID Ch RB1-0

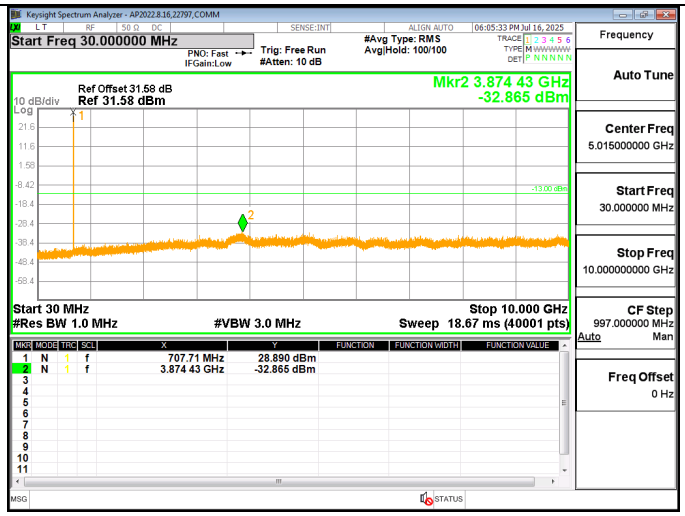


LTE4 20MHz QPSK HIGH Ch RB1-0

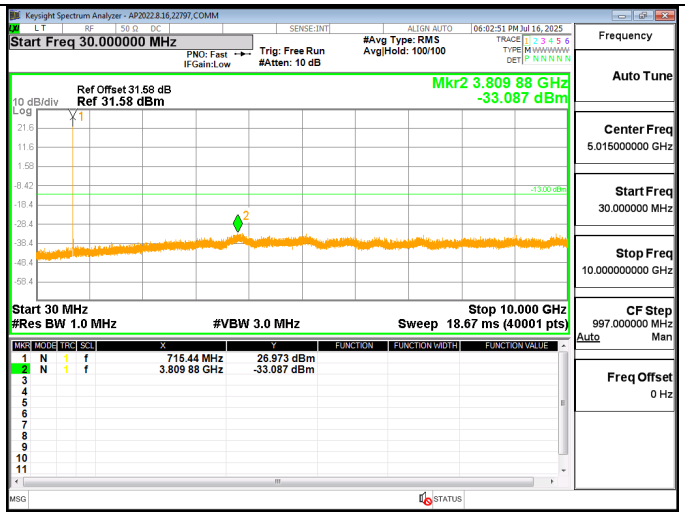
9.2.2. LTE12



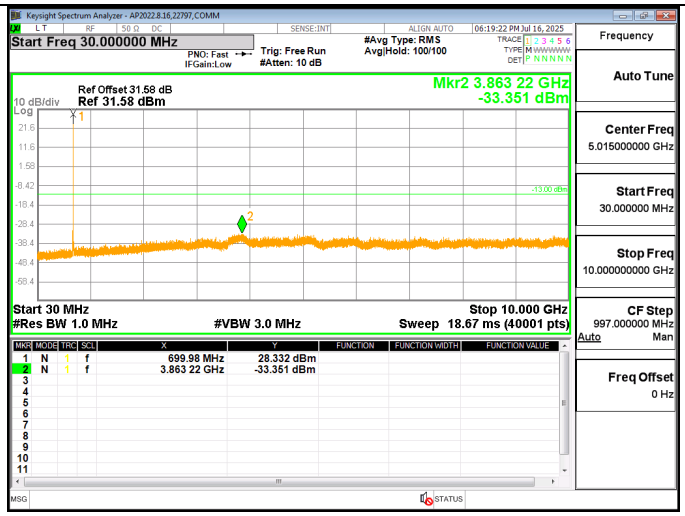
LTE12 1.4MHz QPSK LOW Ch RB1-0



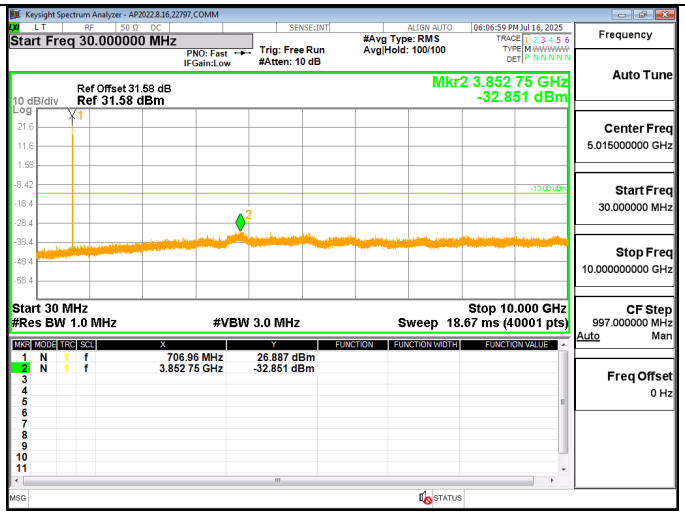
LTE12 1.4MHz QPSK MID Ch RB1-0



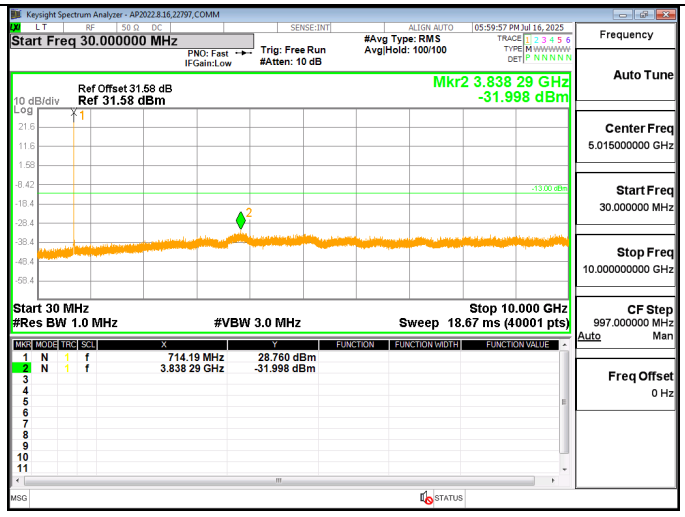
LTE12 1.4MHz QPSK HIGH Ch RB1-0



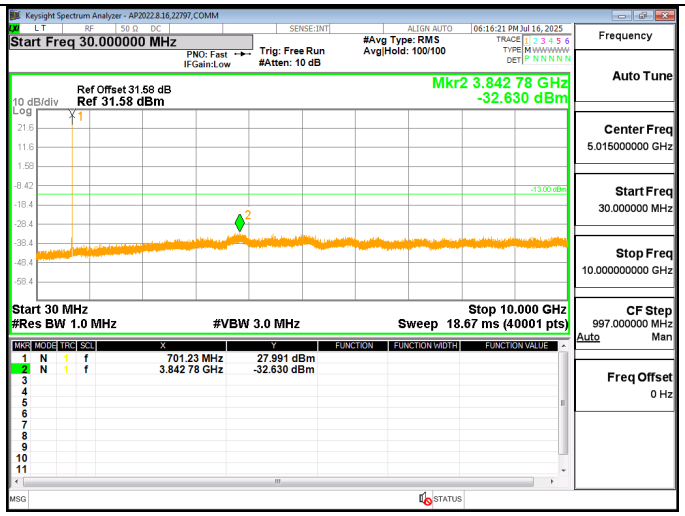
LTE12 3MHz QPSK LOW Ch RB1-0



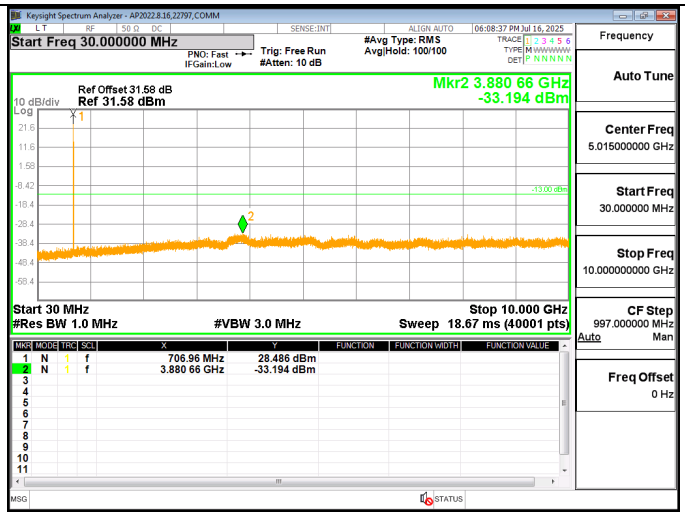
LTE12 3MHz QPSK MID Ch RB1-0



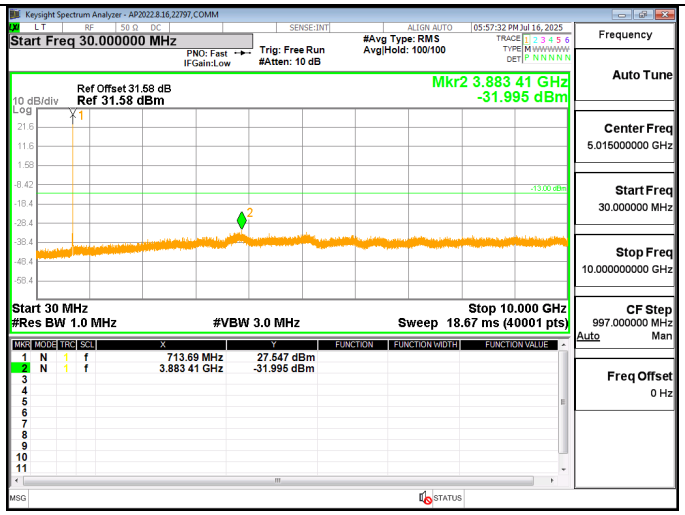
LTE12 3MHz QPSK HIGH Ch RB1-0



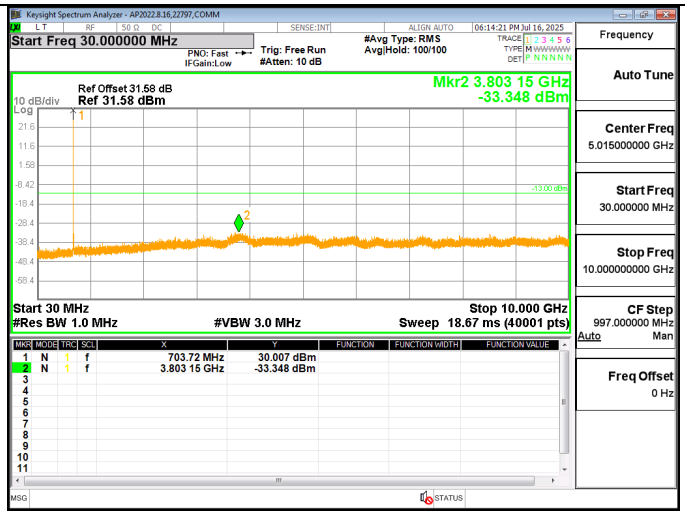
LTE12 5MHz QPSK LOW Ch RB1-0



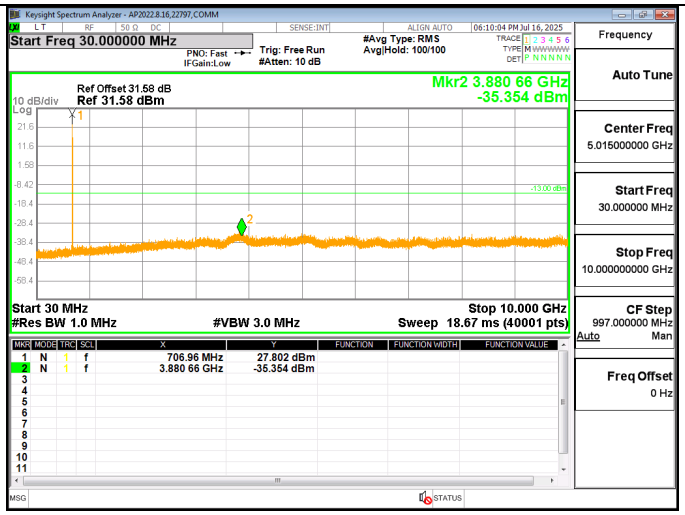
LTE12 5MHz QPSK MID Ch RB1-0



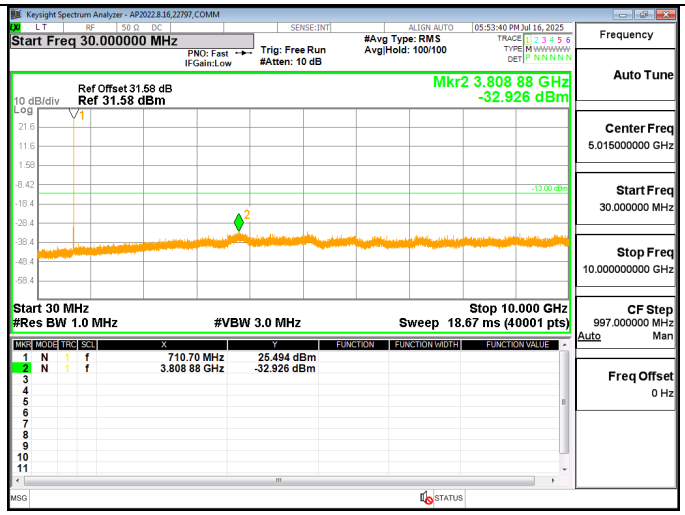
LTE12 5MHz QPSK HIGH Ch RB1-0



LTE12 10MHz QPSK LOW Ch RB1-0



LTE12 10MHz QPSK MID Ch RB1-0



LTE12 10MHz QPSK HIGH Ch RB1-0

9.3. PEAK TO AVERAGE RATIO

LIMIT

In addition, the peak to average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULTS

Test Information	
Test Date	5/12/2025
Tester ID:	85502

LTE Band	Bandwidth (MHz)	Modulation	RBs	Channel	Frequency (MHz)	Measured Peak Power (dBm)	Measured Average Power (dBm)	PAPR (dB)	Margin (dB)
2	1.4	QPSK	RB6-0	18900	1880 MHz	25.4	21.4	4.0	-9.0
	3					25.3	21.3	4.0	-8.98
	5					27.3	22.7	4.6	-8.41
	10					27.2	22.6	4.6	-8.38
	15					27.7	23.4	4.3	-8.73
	20					27.8	23.5	4.2	-8.76
	1.4	16QAM				26.3	20.7	5.7	-7.35
	3					27.0	20.7	6.3	-6.75
	5					26.9	21.1	5.8	-7.2
	10					26.7	21.1	5.6	-7.4
	15					28.2	22.8	5.4	-7.63
	20					28.1	22.2	5.9	-7.06
4	1.4	QPSK	RB6-0	20175	1732.5 MHz	26.7	21.1	5.6	-7.42
	3					26.7	21.2	5.5	-7.46
	5					28.1	22.1	6.0	-7.03
	10					28.0	22.3	5.8	-7.25
	15					28.5	23.0	5.6	-7.44
	20					28.6	23.0	5.6	-7.41
	1.4	16QAM				27.0	19.8	7.3	-5.71
	3					27.3	20.6	6.7	-6.32
	5					27.6	20.8	6.8	-6.19
	10					27.4	20.9	6.5	-6.52
	15					28.8	22.8	6.0	-6.97
	20					28.7	23.2	5.5	-7.46
12	1.4	QPSK	RB6-0	23095	707.5 MHz	27.9	21.3	6.6	-6.44
	3					28.3	21.7	6.5	-6.46
	5					28.5	22.6	5.9	-7.09
	10					29.1	22.7	6.4	-6.56
	1.4	16QAM				27.7	21.3	6.5	-6.53
	3					28.0	21.2	6.8	-6.19
	5					28.5	22.6	5.9	-7.07
	10					28.4	21.1	7.3	-5.73

9.4. BAND EDGE AND EMISSION MASK

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:

(iii) Set the spectrum analyzer span to include the block edge frequency.
(iv) Set a marker to point the corresponding band edge frequency in each test case.
(v) Set display line at -13 dBm
(vi) Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

9.4.1. LTE2

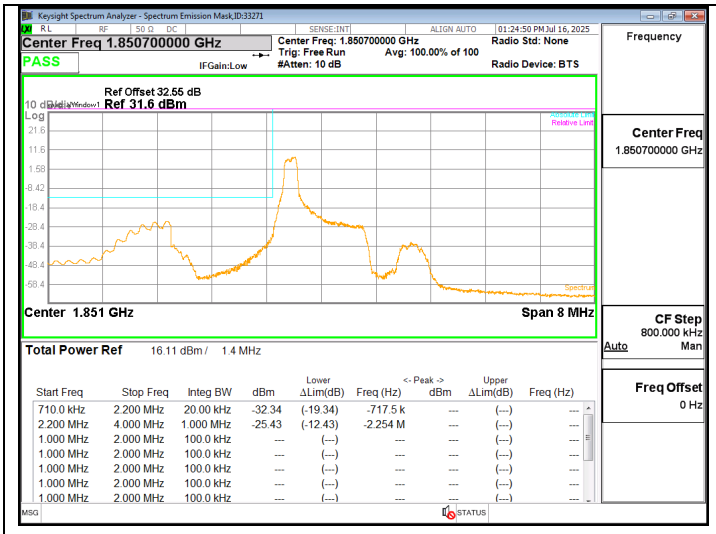
LIMITS

FCC: §24.238(a)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

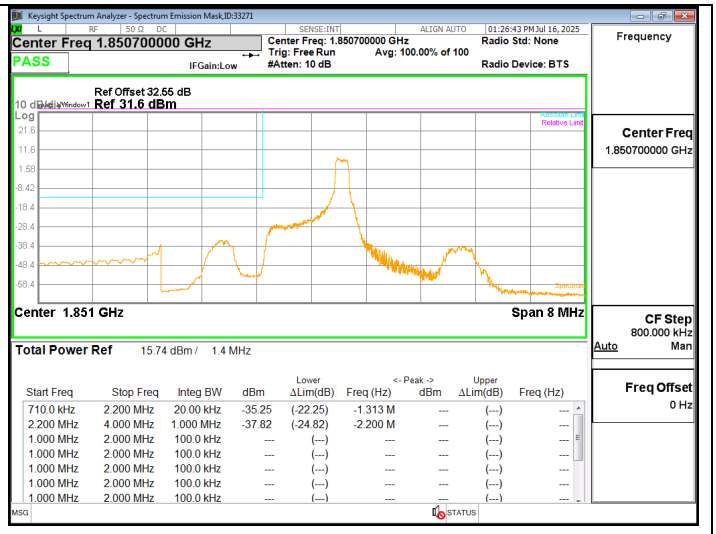
ISED: RSS133§5.6
For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors), where applicable, of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in the table 3.

Table 3: Unwanted emission limits for all equipment

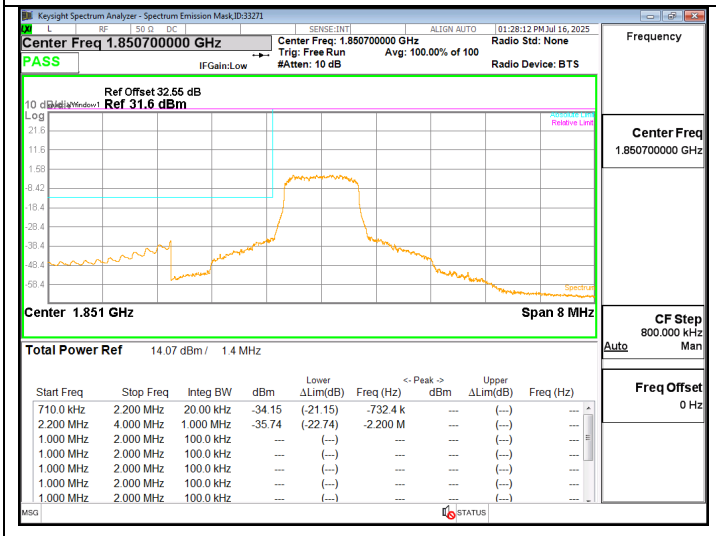
Offset frequency from the edge of the frequency block group (MHz)	Unwanted emission limit
≤ 1	-13 dBm/(1% of OBW)
> 1	-13 dBm/MHz



LTE2 1.4MHz QPSK LOW Ch RB1-0



LTE2 1.4MHz QPSK LOW Ch RB1-5



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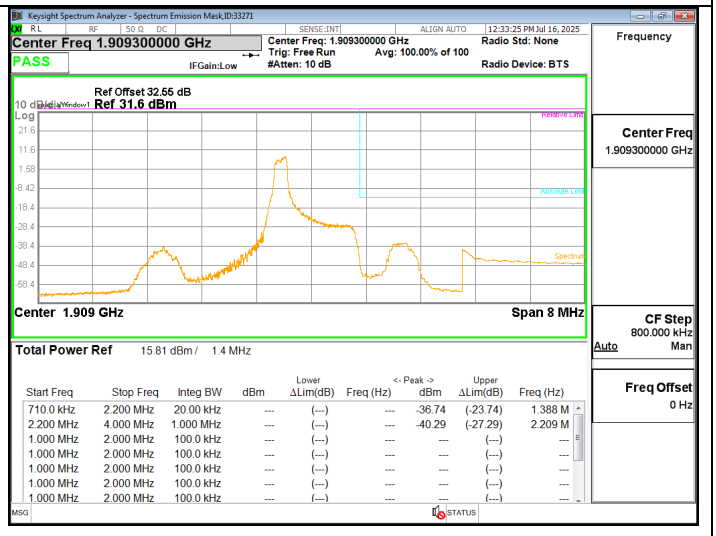
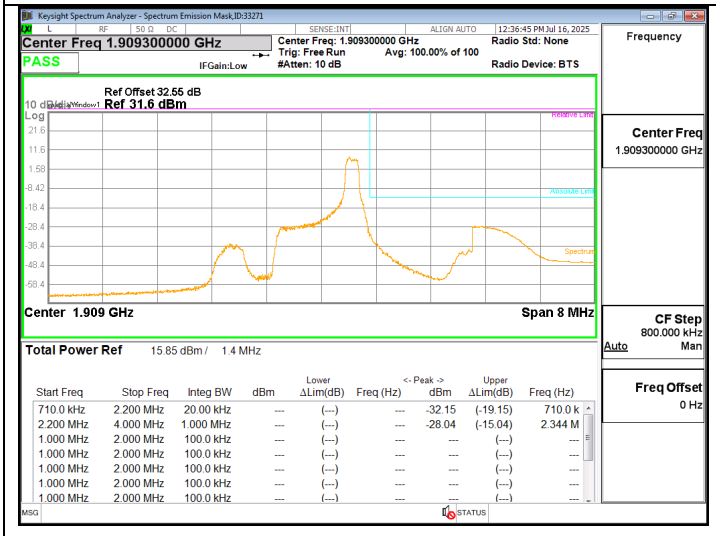
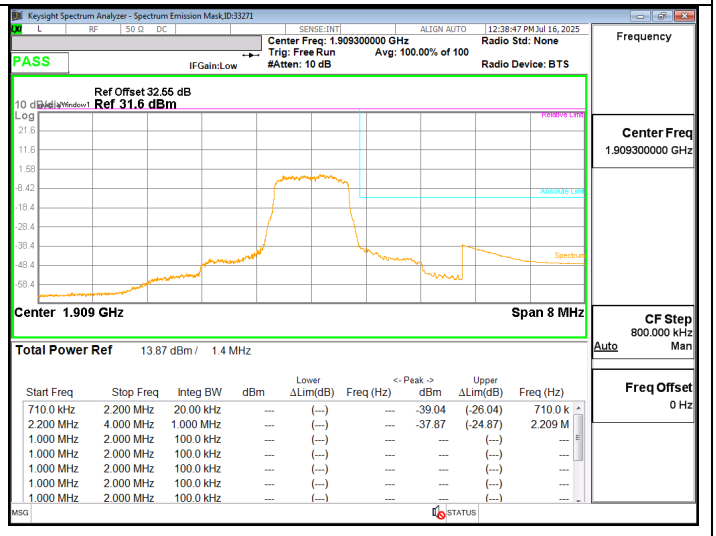


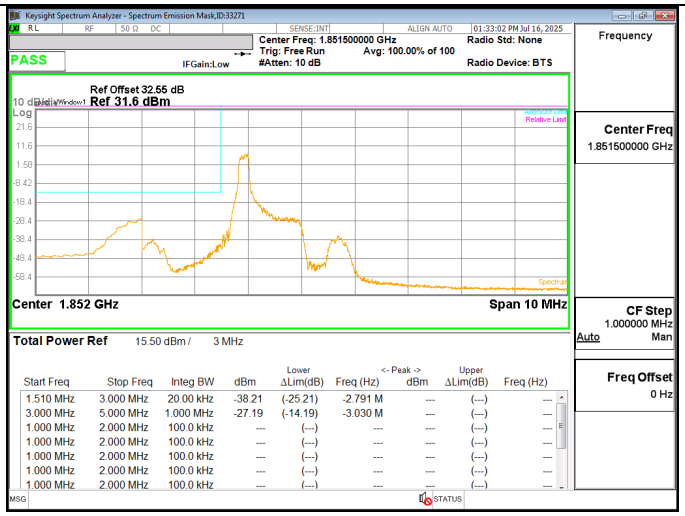
LTE2 1.4MHz QPSK HIGH Ch RB1-0



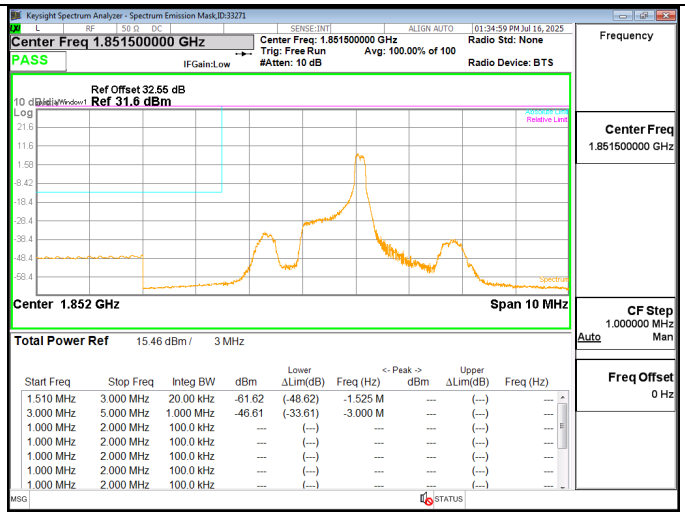
LTE2 1.4MHz QPSK HIGH Ch RB1-5



LTE2 1.4MHz QPSK HIGH Ch RB6-0



LTE2 3MHz QPSK LOW Ch RB1-0



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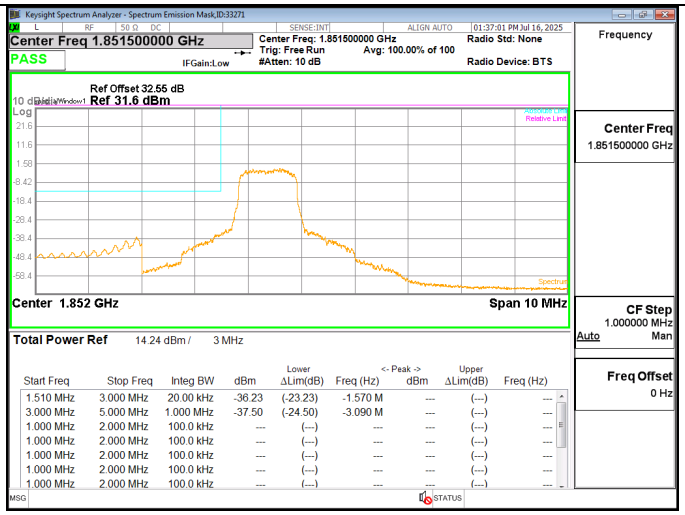

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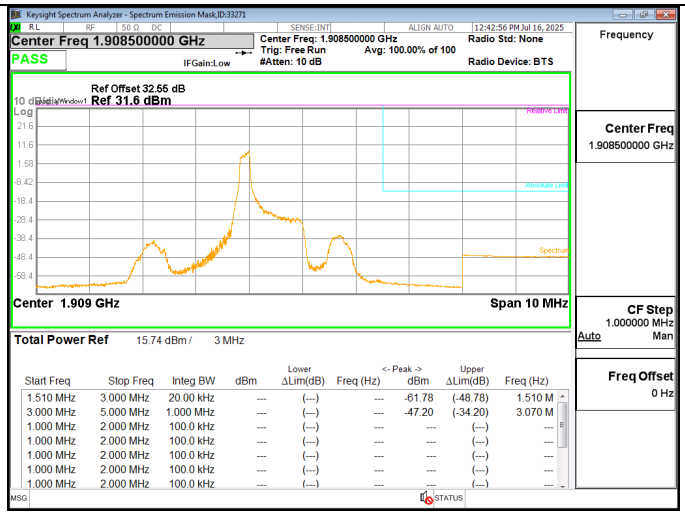

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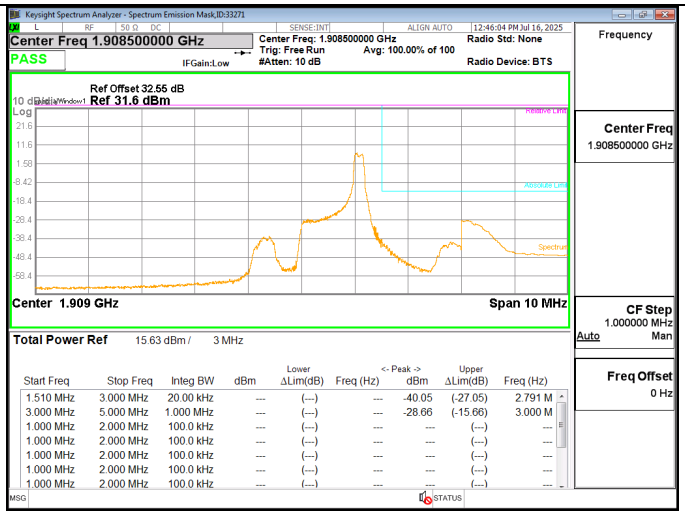

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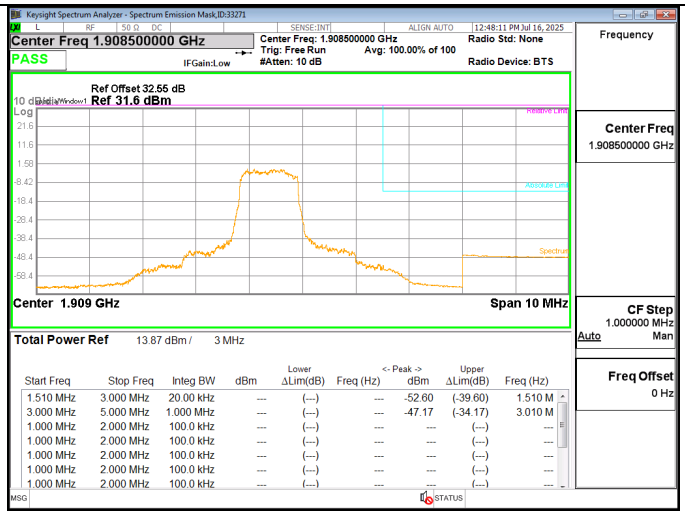
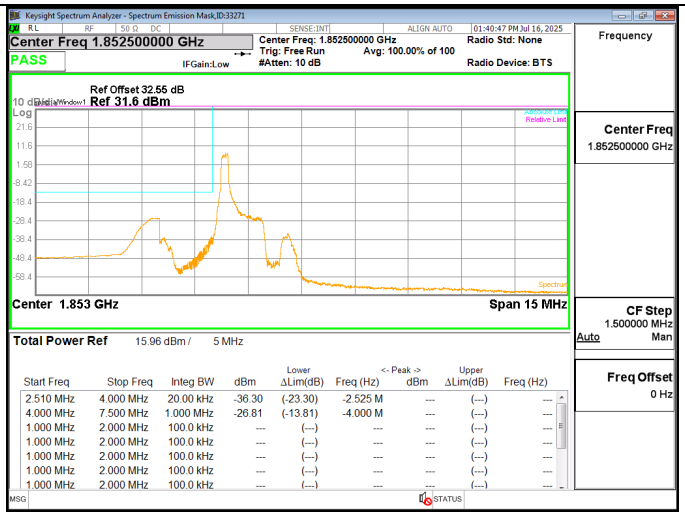
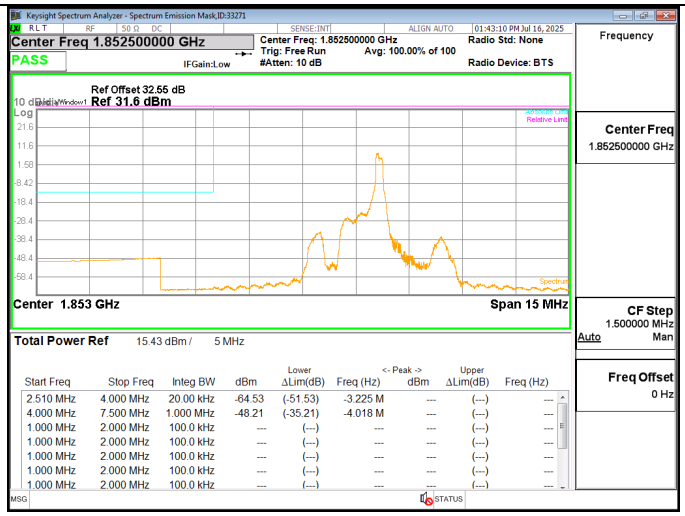


LTE2 3MHz QPSK HIGH Ch RB6-0



LTE2 5MHz QPSK LOW Ch RB1-0



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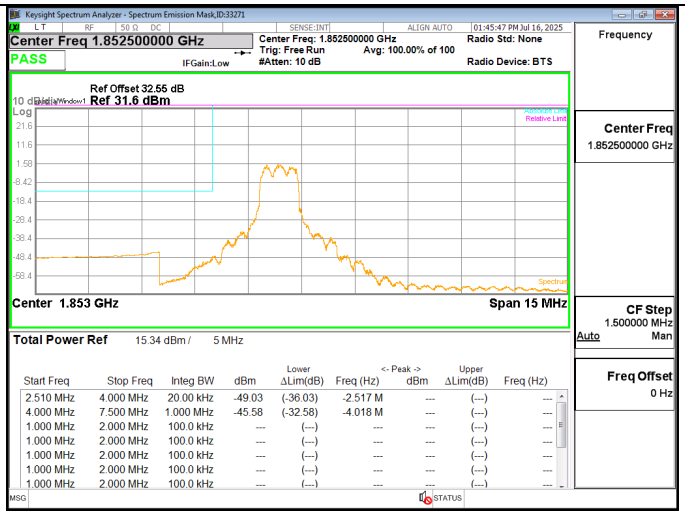

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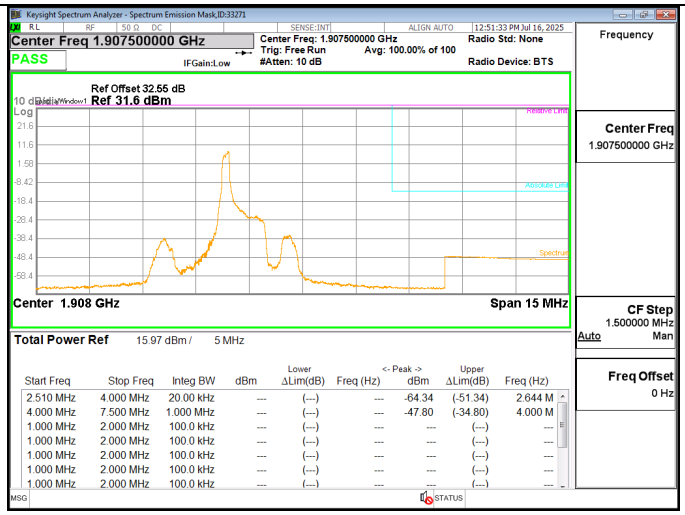

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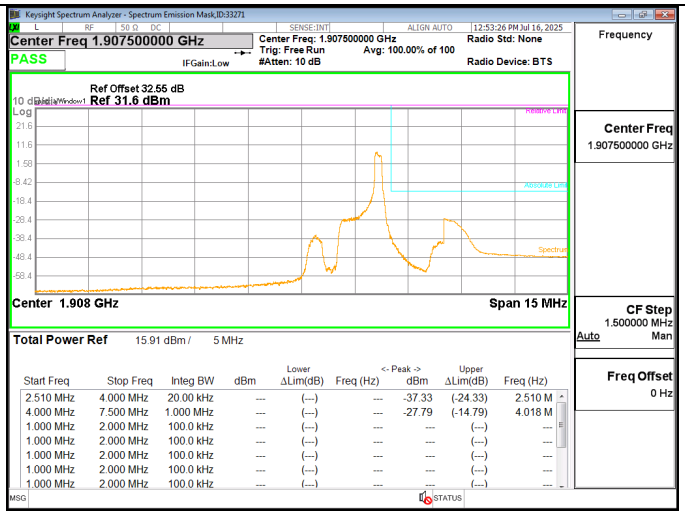

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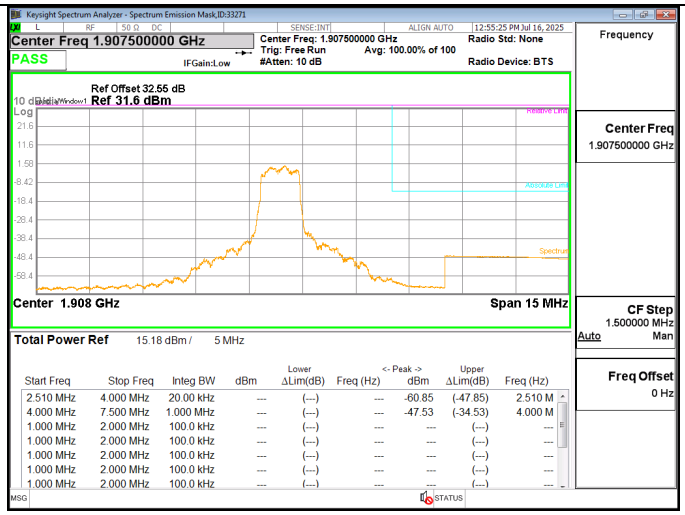
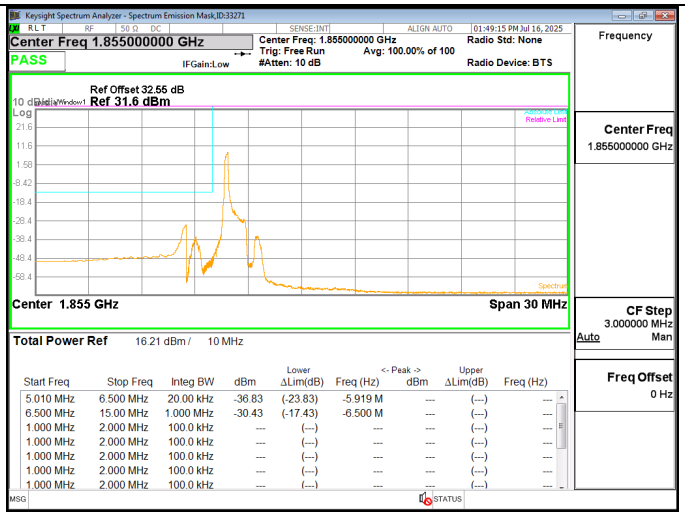
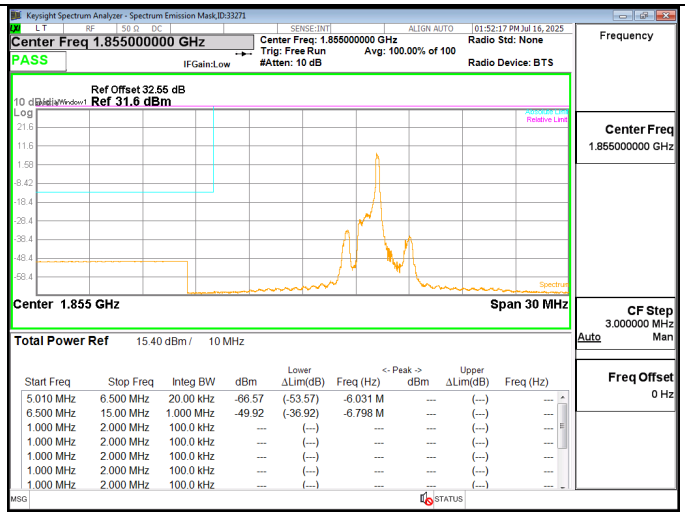


LTE2 5MHz QPSK HIGH Ch RB6-0



LTE2 10MHz QPSK LOW Ch RB1-0



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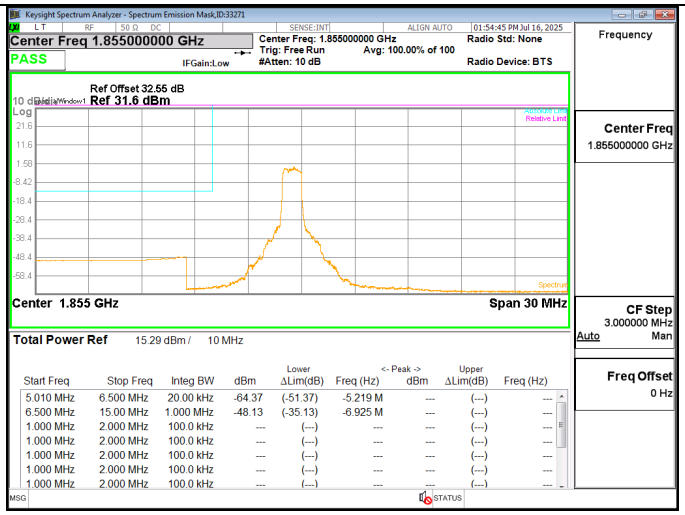

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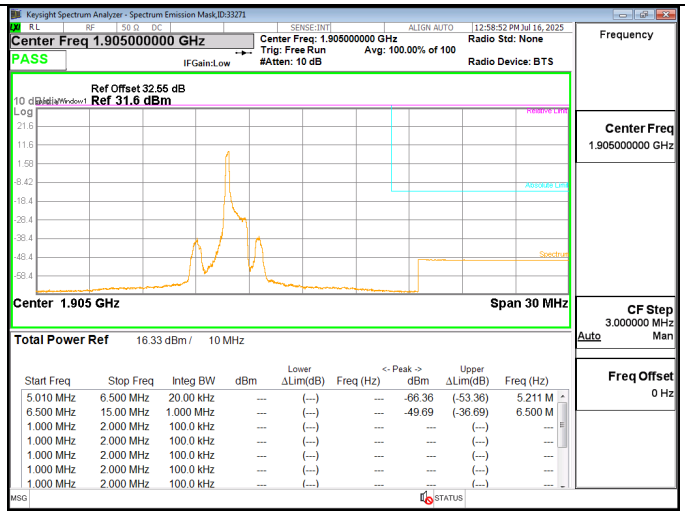

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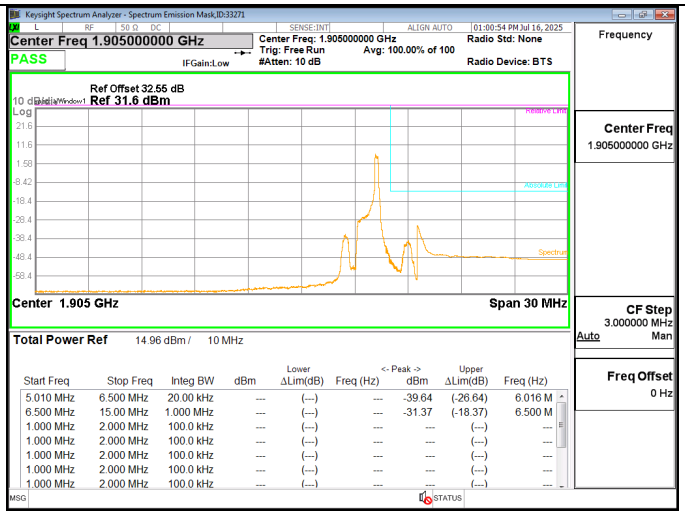
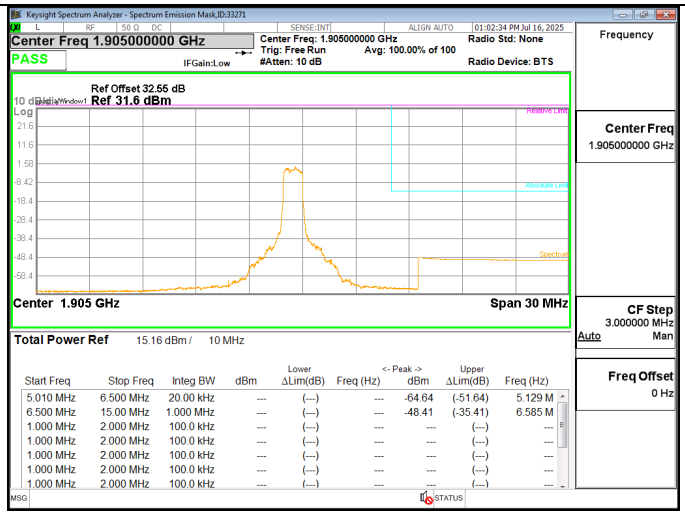


LTE2 10MHz QPSK HIGH Ch RB1-5



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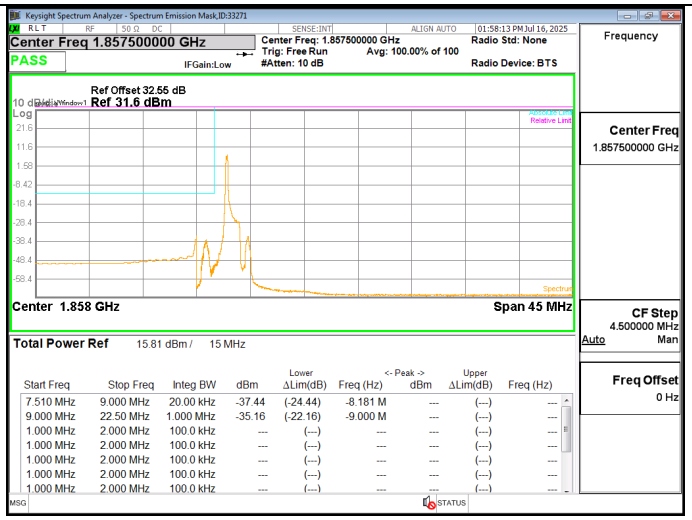
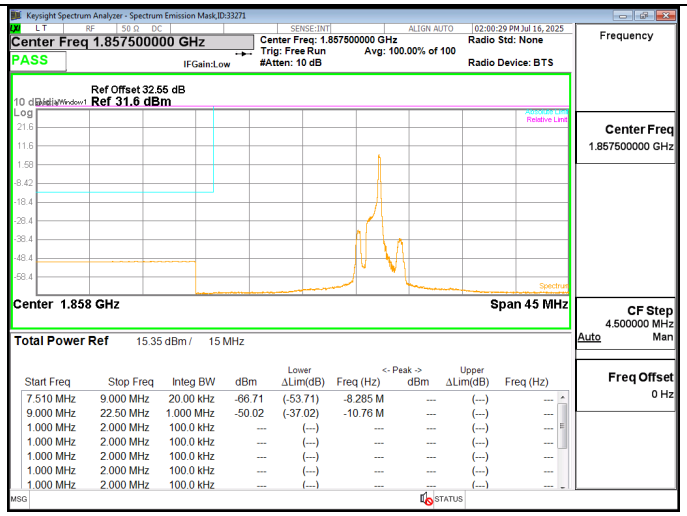


LTE2 15MHz QPSK LOW Ch RB1-0



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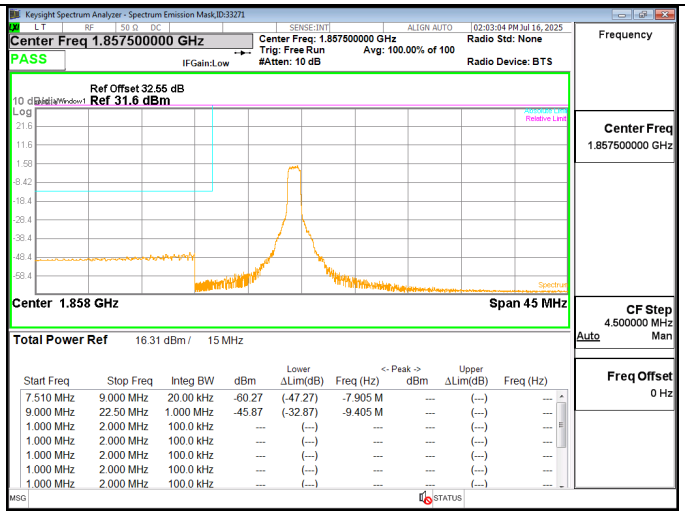

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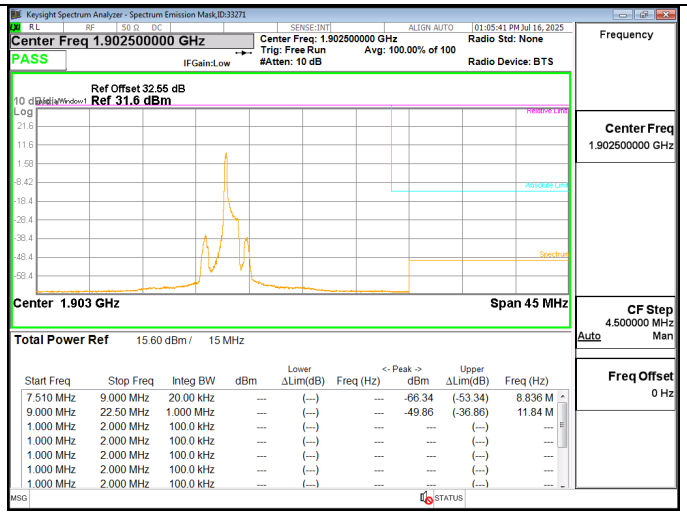

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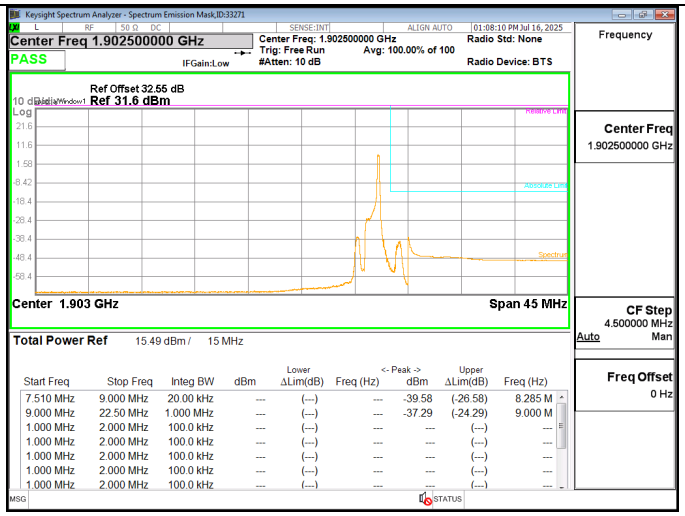
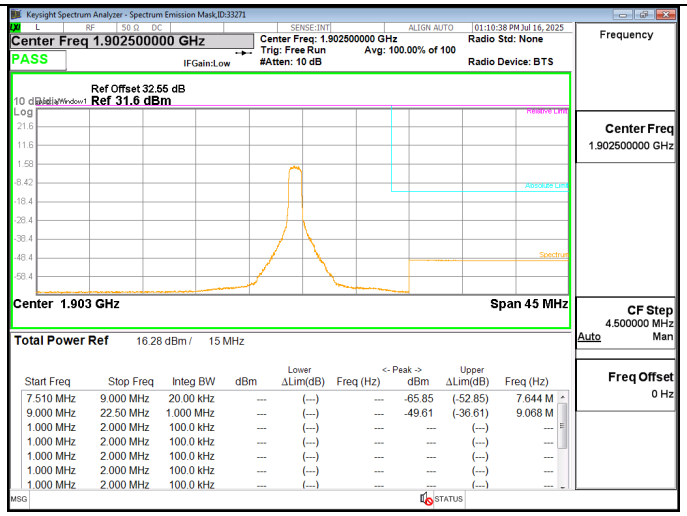


LTE2 15MHz QPSK HIGH Ch RB1-5



LTE2 15MHz QPSK HIGH Ch RB6-0