TEST REPORT

Report Number. : R15343326-E1

Applicant	:	UTX Technologies Limited 141 Omonias Avenue The Maritime Center, Block C Limassol, 3045 Cyprus
Model	:	HIVE
FCC ID	:	2A7A2-FNV1
EUT Description	:	Small Form Factor BTS
Test Standard(s)	:	FCC CFR 47 PART 22H, 24E, 27C, 90R and 90S

Date Of Issue:
2025-01-07

Prepared by:
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ACCREDITED
CERT #0751.06

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-10-02	Initial Review	Noah Bennett
V2	2024-11-19	TCB Feedback 1: -Corrected Typos in section 6.2 & 8.1	Noah Bennett
V3	2025-01-07	Removed Band n77(96S)	Noah Bennett

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: UTX Technologies Limited
141 Omonias Avenue
The Maritime Center, Block C
Limassol, 3045, Cyprus

EUT DESCRIPTION: Small Form Factor BTS

SERIAL NUMBER: SN-204A038000050

SAMPLE RECEIPT DATE: 2024-07-25 & 2024-08-19

DATE TESTED: 2024-08-05 Thru 2024-08-28

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 2	Complies
CFR 47 Part 22	Complies
CFR 47 Part 24	Complies
CFR 47 Part 27	Complies
CFR 47 Part 90	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.

Approved & Released For
UL LLC. By:

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UL Verification Services Inc.

Prepared By:

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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 data provided by the customer:

1. Worst-Case Antenna Gain (section 6.4)
2. EUT Cable Loss (used in section 8/9 data)
3. EUT Supported Bands, Modes, Modulations and Power Settings. (section 6.1, 6.5)
4. Software and Firmware Versions (section 6.3)

Requirement Description	Band	Requirement Clause Number (FCC)	Result	Remarks
RF Conducted Output Power	26 (90S)	2.1046 , 90.635 (a)	Complies	
Effective Radiated Power	26 (22H)	22.913 (a)(1)(i)	Complies	
	12	27.50 (c) (3)	Complies	
	13	27.50 (b) (4)	Complies	
	14	90.541 (a)	Complies	
	71, n71	27.50 (c) (3)	Complies	
Equivalent Isotropic Radiated Power	66	27.50 (d) (2)	Complies	
	30	27.50 (a) (1)	Complies	
	n77	27.50 (k), (j)	Complies	

Requirement Description	Requirement Clause Number (FCC)	Result*	Remarks
Occupied Bandwidth	2.1049	Complies	
Band Edge and Emission Mask	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g), 27.53 (c) (f), 90.543 (e)(f), 90.691 (a)	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g), 27.53 (c) (f), 90.543 (e)(f), 90.691 (a)	Complies	
Frequency Stability	2.1055, 22.355, 24.235, 27.54, 90.539, 90.213,	Complies	
Peak-to-Average Ratio	22.913 (d), 24.232 (d), 27.50 (d) (5), 27.50 (b)	Complies	
Field Strength of Spurious Radiation	2.1051, 2.1053, 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g), 27.53 (c) (f), 90.543 (e)(f), 90.691 (a)	Complies	

Note 1: The objective of this report is to add support for LTE and 5G NR bands via a C2PC submission to an already existing host. This test report covers the RF testing of the additional bands added. Refer to section 6.1 for bands added.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90, Part 96.
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01. Determining ERP and EIRP

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 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 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

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)
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%
Power Spectral Density	2.46 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/

6. DESCRIPTION OF EUT

6.1. DESCRIPTION OF EUT

Cognyte® Hive is a 6, 1Tx BTS small form factor solution, designed for urban, indoor and highly covert operational use cases. All 6Tx ports do not transmit simultaneously, and all operate in SISO mode 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.

The transmitter has a maximum average conducted and ERP / EIRP output powers as follows:

LTE BAND 12

Part 27	
ERP Limit (W/MHz)	1000.00
Antenna Gain (dBi)	-2.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	731.5	743.5	24.50	20.35	0.108	4487.2	4M49G7D

LTE BAND 13

Part 27	
ERP Limit (W/MHz)	1000.00
Antenna Gain (dBi)	-2.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	748.5	753.5	19.49	15.34	0.034	4492.3	4M49G7D

LTE BAND 14

Part 90R								
ERP Limit (W/MHz)		1000.00						
Antenna Gain (dBi)		-2.00						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	760.5	765.5	20.39	16.24	0.042	4492.1	4M49G7D

LTE BAND 26(90S)

Part 90S									
ERP Limit (W)		1000.00							
Antenna Gain (dBi)		1.00							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	Conducted Average (W)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	861.5	866.5	24.95	0.31	23.80	0.240	4508	4M51G7D

LTE BAND 26(22H)

Part 22								
ERP Limit (W)		500.00						
Antenna Gain (dBi)		1.00						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	871.5	891.5	25.30	24.15	0.260	4517.9	4M52G7D

5G NR n26(90S)

Part 90S									
ERP Limit (W)		1000.00							
Antenna Gain (dBi)		1.00							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	Conducted Average (W)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	861.5	866.5	22.29	0.17	21.14	0.130	4509.7	4M51G7D

5G NR n26(22H)

Part 22								
ERP Limit (W)		500.00						
Antenna Gain (dBi)		1.00						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	871.3	891.7	21.80	20.65	0.116	4519.5	4M52G7D

LTE Band 30

Part 27	
EIRP Limit (W/MHz)	400.00
Antenna Gain (dBi)	5.50

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	2350.0	2360.0	8.37	13.87	0.024	4484.9	4M48G7D

LTE BAND 66

Part 27	
EIRP Limit (W/MHz)	1640.00
Antenna Gain (dBi)	5.50

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	2112.5	2197.5	25.62	31.12	1.294	4499.5	4M50G7D

LTE BAND 71

Part 27	
ERP Limit (W/MHz)	1000.00
Antenna Gain (dBi)	-2.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	619.5	649.5	15.27	11.12	0.013	4495.4	4M50G7D

5G NR n71

Part 27	
ERP Limit (W/MHz)	1000.00
Antenna Gain (dBi)	-2.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	627.0	642.0	10.79	6.64	0.005	4495.4	4M50G7D

5G NR n77 (FCC Part 27 3450-3550MHz)

Part 27	
EIRP Limit (W)/MHz	1640.00
Antenna Gain (dBi)	6.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
20.0	QPSK	3460.8	3540.0	10.46	16.46	0.044	18315	18M3W7W

5G NR n77 (FCC Part 27 3700-3980MHz)

Part 27	
EIRP Limit (W)/MHz	1640.00
Antenna Gain (dBi)	6.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
20.0	QPSK	3711.36	3789.12	13.87	19.87	0.097	18354	18M4W7W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version v60.2.87

The EUT hardware version used during testing was Rev F.

6.4. MAXIMUM ANTENNA GAIN

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

Chain	Designation in Documentation	Type	Frequency Range (MHz)	Maximum Gain (dBi)
RF1-6	BW-600-4200-EG	Wearable/Body worn	600	-2.0
			900	1.0
			1900	5.5
			3300	6.0
			4200	8.0

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT added support via C2PC for WWAN Bands 12, 13, 14, 26, 30, 66, 71 and 5G NR N26, N71, N77.

The EUT only supports QPSK modulation, at 5MHz Bandwidth, RB25-0 for FDD bands and 20MHz, RB100-0 30kHz SCS for TDD Bands. Therefore, testing was done in these modes only.

The EUT has 3 RF Radio Cards, in which each RF Card has 2 RF Ports, i.e 3 sets of 2 RF ports, for a total of 6 antenna ports. BTS_1 with RF Chain 1 and 2, BTS_2 with RF Chain 3 and 4, and BTS_3 with RF Chain 5 and. 6 Each RF Radio Card supports the following bands:

	BTS_1	BTS_2	BTS_3
LTE 12	Support	Support	Support
LTE 13	Support	Support	Support
LTE 14	Support	Support	Support
LTE 26	Support	Support	Support
LTE 30	Support	Support	Support
LTE 66	Support	Support	Support
LTE 71	Support	No Support	No Support
FR1 n26	Support	Support	Support
FR1 n71	Support	No Support	No Support
FR1 n77 (A)	Support	Support	No Support
FR1 n77 (C)	Support	No Support	No Support

The EUT does not support 5G FR1 Band n77 B-Block, (3550-3700MHz).

The worst-case scenario for conducted measurements is based on an engineering evaluation made on conducted average power found during pretesting. Output power measurements were measured on each RF Card's 2 RF ports, on all channels, and bands supported by the EUT at max power. Only the worst-case conducted antenna port band data per RF Card is reported. Full Radiated Emissions Testing on each antenna was performed. For Radiated Emissions, the EUT was set to 6Tx mode as worst-case. For LTE30, and n77, due to high summed power and lower emissions limit, the tests were run in 2Tx mode For testing purposes, test data in section 9 and 10 was set at or above target power for all bands.

The following is the worst-case antenna port, for Conducted Output Power:

	BTS_1	BTS_2	BTS_3
WC RF Port	RF 1/2	RF 3/4	RF 5/6
LTE 12	2	4	5
LTE 13	2	3	5
LTE 14	2	3	5
LTE 26	1	4	5
LTE 30	1	3	5
LTE 66	1	3	5
LTE 71	1	No Support	No Support
FR1 n26	1	3	5
FR1 n71	1	No Support	No Support
FR1 n77 (A)	2	3	No Support
FR1 n77 (C)	2	No Support	No Support

Worst Case emissions from 9kHz-30Mhz, 30-1000MHz, 18-26.5GHz, and 26.5GHz-40GHz were done on the modes with the highest conducted average power. This test data is reported in section 10.2, which shows worst case emissions for all antennas.

Per customer declarations, both the EUT and external antenna pack are only meant to be installed in one orientation. Therefore, all radiated testing was only performed in this orientation.

Per customer declarations, the EUT is exempt from unintentional emission requirements per 15.103(a).

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
Support Laptop**	Microsoft	Surface Pro	234A017100002
USB to Enet Adaptor	Insignia	NS-PA3CELB23	N/A
USB Drive (Time Key)	Thales DIS France SAS	Sentinel HL, 942-001401-001	6036
Power Supply	Mean Well	GST280A48	EB94G44628
Dummy Loads & Cable Assemblies (Quick Type)	Times Microwave (Cable) Mousser (SMA Loads)	LMR Coax RF TRM-2138-M0-SMA-07	214A0325C0357, 214A0325C0361, 214A0325C0358, 214A0325C0362, 214A0325C0364, E18090, (SMA Loads non-serialized)

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC Mains	1	NEMA	Shielded	<3m	Connects EUT to Power Supply
2	RJ45	1	Ethernet	Shielded*	>3m	Used to program the EUT
3	Power	1	AWM2462	unshielded	<3m	Used to connect EUT power brick to EUT itself
4	SMA	6	RF	Shielded	<3m	Connects EUT to external antenna.
5	GPS	1	SMA	Shielded	<3m	Terminated into dummy load.

*Shielded for COND testing only.
**Not Subject to test

TEST SETUP

The EUT was configured to transmit at max power for the duration of the test via customer firmware. Customer provided loads were used to terminate active EUT I/O ports.

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.
	Common Equipment				
	Conducted Room 1				
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2024-06-14	2025-06-14
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2024-08-01	2025-08-01
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-04-16	2025-04-16
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2024-01-12	2025-01-12
248881	Environmental Meter	Control Company	06-662-4	2024-04-10	2026-04-10
245765	Environmental Meter	Control Company	06-662-4	2024-01-24	2026-01-24
76022	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
ETSI Power Software	EMPower ETSI Burst Measurement System	ETS-Lindgren	Version 1.0.3.18	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
	Additional Equipment used				
211056	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
211055	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
211058	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01

Test Equipment Used - Wireless Conducted Attenuators, Cables, and Couplers

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Attenuators				
226551	SMA Coaxial 20dB Attenuator 25MHz-18GHz	CentricRF	C18S2-20	2024-03-19	2025-03-19
226552	SMA Coaxial 20dB Attenuator 25MHz-18GHz	CentricRF	C18S2-20	2024-04-04	2025-04-04
226559	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-02-29	2025-02-28
226562	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-04-11	2025-04-11
226564	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-04-04	2025-04-04
	Cables				
89245 (CBL012)	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFB293C-0-2400-300300	2024-02-29	2025-02-28
171695	SMA Cable, 30 Feet	Pasternack	PE341-360	2024-03-07	2025-03-07
89245 (CBL013)	SMA Cable	Micro-coax	UFB293C-0-1440-300300	2024-03-21	2025-03-21
245309 (CBL010)	SMA Cable	Huber + Suhner	104PEA	2024-03-01	2025-03-01
89312 (CBL036)	N-Male to SMA Cable, 6FT	Times Microwave Systems	LMR-240	2023-11-29	2024-11-29
89313 (CBL037)	N-Male to SMA Cable, 6FT	Times Microwave Systems	LMR-240	2023-11-29	2024-11-29

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

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-01-24	2025-01-24
	30-1000 MHz				
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
	1-18 GHz				
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
204705	Horn Antenna, 26-40GHz	Com-Power	AH-640	2023-07-20	2025-07-20
	Gain-Loss Chains				
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91976	Gain-loss string: 25-1000MHz	Various	Various	2024-05-08	2025-05-08
91979	Gain-loss string: 1-18GHz	Various	Various	2024-05-08	2025-05-08
135999	Gain-loss string: 18-40GHz	Various	Various	2024-05-08	2025-05-08
	Receiver & Software				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-03-05	2025-03-05
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
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
170112	10dB Pad, DC-18GHz, 5W	Mini-Circuits	BW-N10W5+	2023-11-09	2024-11-09
198917	1GHz high-pass filter, 2W, Fhigh =18GHz	Micro-Tronics	HPM18129-02	2024-03-01	2025-03-01
77414 (BRF003)	2.4GHz notch filter, 2W, Fhigh =18GHz	Micro-Tronics	BRM50702	2024-03-12	2025-03-12
169109 (BRF012)	3.4-3.8GHz notch filter, 2W, Fhigh = 18GHz	Micro-Tronics	BRM50711-01	2024-03-01	2025-03-01
241199 (BRF018)	3.3-4.2GHz notch filter, 2W, Fhigh = 18GHz	Micro-Tronics	BRM50732	2024-03-01	2025-03-01
242417 (BRF020)	2.11-2.17GHz notch filter, 2W, Fhigh = 18GHz	Micro-Tronics	BRM50723-01	2024-03-01	2025-03-01
150716 (LPF008)	DC-1000MHz low-pass filter	Pasternack	PE8720	2024-03-04	2025-03-04

8. RF OUTPUT POWER VERIFICATION

8.1. CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

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

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 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 connected to a power meter via wideband peak power sensor. Peak output power was read directly from power meter.

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.

RESULT

Test Engineer ID:	22797/46722	**Test Date:**	2024-08-15, 2024-08-16, 2024-08-27

8.1.1. LTE BAND 12

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
12	5	QPSK	**5035**	**731.5**	21.42	23.96	23.72	23.99	23.93	23.19
			5095	**737.5**	21.93	**24.50**	24.08	24.29	24.34	23.64
			5155	**743.5**	22.02	**24.50**	24.24	**24.41**	**24.44**	23.86

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
12	5	QPSK	**5035**	**731.5**	31.30	33.72	33.57	33.82	33.75	33.25
			5095	**737.5**	31.62	34.05	33.80	34.01	34.01	33.54
			5155	**743.5**	31.73	**34.10**	33.89	**34.08**	**34.05**	33.67

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
12	5	QPSK	**5035**	**731.5**	9.88	9.76	9.85	9.83	9.82	10.06
			5095	**737.5**	9.69	9.55	9.72	9.72	9.67	9.89
			5155	**743.5**	9.70	9.60	9.65	9.67	9.61	9.81

8.1.2. LTE BAND 13

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
13	5	QPSK	**5205**	**748.5**	16.87	**18.96**	18.80	**18.94**	19.48	**19.49**
			5230	**751**	16.76	18.82	18.71	18.78	19.31	19.33
			5255	**753.5**	16.72	18.70	18.58	18.73	19.26	19.38

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
13	5	QPSK	**5205**	**748.5**	27.63	**29.64**	29.42	**29.54**	**30.15**	30.09
			5230	**751**	27.44	29.51	29.36	29.38	29.85	29.75
			5255	**753.5**	27.44	29.32	29.16	29.28	29.88	29.90

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
13	5	QPSK	**5205**	**748.5**	10.76	10.68	10.62	10.59	10.67	10.60
			5230	**751**	10.68	10.69	10.65	10.61	10.54	10.42
			5255	**753.5**	10.72	10.62	10.58	10.55	10.62	10.52

8.1.3. LTE BAND 14

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
14	5	QPSK	**5305**	**760.5**	17.71	19.59	19.54	19.66	19.65	19.23
			5330	**763**	17.97	19.86	19.84	20.00	19.96	19.52
			5355	**765.5**	18.41	**20.28**	20.33	**20.35**	**20.39**	19.98

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
14	5	QPSK	**5305**	**760.5**	28.36	30.17	30.17	30.29	30.35	29.89
			5330	**763**	28.59	30.45	30.49	30.59	30.57	30.04
			5355	**765.5**	29.05	**30.86**	30.96	**30.96**	**31.03**	30.48

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
14	5	QPSK	**5305**	**760.5**	10.64	10.59	10.63	10.63	10.70	10.66
			5330	**763**	10.62	10.59	10.65	10.60	10.61	10.52
			5355	**765.5**	10.64	10.58	10.62	10.61	10.64	10.50

8.1.4. LTE BAND 26 (FCC PART 90S & 22H)

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
26	5	QPSK	8715	861.5	22.80	24.15	23.88	24.74	24.44	23.81
			8740	864	23.15	**24.57**	23.97	24.95	24.68	24.04
			8765	866.5	23.12	24.38	24.02	24.95	24.74	24.08
			8815	871.5	23.38	24.79	24.36	**25.30**	**25.06**	24.39
			8915	881.5	22.85	24.63	23.73	24.64	24.45	23.94
			9015	891.5	23.06	24.84	23.58	24.58	24.41	23.89

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
26	5	QPSK	8715	861.5	32.47	33.97	33.89	34.33	34.24	33.71
			8740	864	32.65	34.19	33.95	**34.56**	34.35	33.86
			8765	866.5	32.68	34.14	33.96	34.42	**34.36**	33.91
			8815	871.5	32.74	**34.59**	34.09	34.56	34.19	33.89
			8915	881.5	32.54	34.24	33.72	34.23	34.13	33.82
			9015	891.5	32.65	34.34	33.68	34.19	34.13	33.93

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
26	5	QPSK	8715	861.5	9.67	9.82	10.02	9.59	9.80	9.91
			8740	864	9.50	9.63	9.98	9.62	9.67	9.82
			8765	866.5	9.56	9.76	9.94	9.48	9.62	9.83
			8815	871.5	9.36	9.80	9.72	9.26	9.12	9.50
			8915	881.5	6.89	9.61	10.00	9.59	9.68	9.88
			9015	891.5	9.80	9.70	9.96	9.55	9.68	9.99

8.1.5. 5G NR n26 (FCC PART 90S & 22H)

5G Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
n26	5	QPSK	172300	861.5	19.67	21.40	19.73	20.16	20.12	19.96
			172800	864	20.06	21.80	19.87	20.35	20.40	20.21
			173300	866.5	20.10	21.77	19.96	20.50	20.45	20.22
			174260	871.3	22.10	**22.29**	20.32	**20.80**	**20.70**	20.47
			176380	881.9	21.34	21.35	19.72	20.19	20.14	20.04
			178340	891.7	21.62	21.67	19.45	20.03	20.05	19.96

5G Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
n26	5	QPSK	172300	861.5	31.77	**33.35**	32.15	**32.43**	**32.51**	32.25
			172800	864	31.98	**33.68**	32.37	32.68	32.77	32.48
			173300	866.5	32.00	33.58	32.35	32.71	32.78	32.43
			174260	871.3	33.45	33.46	32.66	**32.96**	**32.96**	32.62
			176380	881.9	33.46	33.46	32.18	32.57	32.64	32.43
			178340	891.7	33.72	**33.74**	32.10	**32.52**	**32.11**	32.03

5G Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
n26	5	QPSK	172300	861.5	12.10	11.95	12.42	12.27	12.39	12.29
			172800	864	11.92	11.88	12.50	12.33	12.37	12.27
			173300	866.5	11.90	11.81	12.39	12.21	12.33	12.22
			174260	871.3	11.35	11.17	12.34	12.16	12.26	12.16
			176380	881.9	12.12	12.11	12.47	12.38	12.50	12.40
			178340	891.7	12.10	12.07	12.66	12.49	12.06	12.07

8.1.6. LTE BAND 30

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
30	5	QPSK	**9795**	**2352.5**	10.02	10.27	8.78	9.04	10.23	9.88
			9820	**2355**	10.17	10.27	8.82	9.10	10.26	9.96
			9845	**2357.5**	10.31	**10.37**	8.87	**9.14**	**10.35**	10.06

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
30	5	QPSK	**9795**	**2352.5**	20.56	20.75	19.28	19.54	20.77	20.35
			9820	**2355**	20.67	20.57	19.31	19.58	20.77	20.40
			9845	**2357.5**	**20.83**	20.83	19.39	**19.60**	**20.85**	20.53

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
30	5	QPSK	**9795**	**2352.5**	10.54	10.48	10.50	10.49	10.53	10.46
			9820	**2355**	10.50	10.31	10.49	10.47	10.51	10.44
			9845	**2357.5**	10.52	10.46	10.52	10.46	10.50	10.46

8.1.7. LTE BAND 66

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)	RF1 Port 5 Measured Avg Power (dBm)	RF1 Port 6 Measured Avg Power (dBm)
66	5	QPSK	**66461**	**2112.5**	25.15	24.18	23.70	22.83	23.06	22.17
			66886	**2155**	**25.62**	24.58	**24.30**	23.53	**23.71**	22.74
			67135	**2179.9**	24.50	23.52	23.61	22.58	23.01	21.93

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)	RF1 Port 5 Measured Peak Power (dBm)	RF1 Port 6 Measured Peak Power (dBm)
66	5	QPSK	**66461**	**2112.5**	34.48	33.63	34.04	33.31	33.61	32.73
			66886	**2155**	**34.81**	33.92	**34.53**	33.80	**34.05**	33.14
			67135	**2179.9**	34.50	33.70	34.31	33.34	33.72	32.71

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)	RF1 Port 5 Peak to Average Ratio (dB)	RF1 Port 6 Peak to Average Ratio (dB)
66	5	QPSK	**66461**	**2112.5**	9.33	9.44	10.34	10.48	10.55	10.57
			66886	**2155**	9.20	9.34	10.23	10.28	10.34	10.41
			67135	**2179.9**	9.99	10.18	10.70	10.76	10.71	10.79

8.1.8. LTE BAND 71

LTE Band	Bandwidth (MHz)	Modulation	DL Channel	DL Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)
71	5	QPSK	68611	619.5	11.58	14.90
			68761	634.5	12.44	**15.27**
			68911	649.5	11.78	14.54

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)
71	5	QPSK	68611	619.5	21.26	24.69
			68761	634.5	22.44	**25.30**
			68911	649.5	21.99	24.91

LTE Band	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)
71	5	QPSK	68611	619.5	9.68	9.79
			68761	634.5	10.00	10.03
			68911	649.5	10.21	10.37

8.1.9. 5G NR n71

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)
n71	15	5	QPSK	123880	619.4	10.27	10.50
				126940	634.7	10.66	10.79
				129860	649.3	9.99	10.19

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)
n71	15	5	QPSK	123880	619.4	21.53	21.95
				126940	634.7	21.96	22.14
				129860	649.3	21.70	22.04

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)
n71	15	5	QPSK	123880	619.4	11.26	11.45
				126940	634.7	11.31	11.35
				129860	649.3	11.71	11.85

8.1.10. 5G NR n77 (FCC Part 27 3450-3550MHz)

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)	RF1 Port 3 Measured Avg Power (dBm)	RF1 Port 4 Measured Avg Power (dBm)
n77	30	20	QPSK	630720	3460.8	9.85	9.69	**9.21**	7.92
				633312	3499.68	9.70	10.41	8.33	7.22
				636000	3540	9.44	**10.46**	7.21	6.49

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)	RF1 Port 3 Measured Peak Power (dBm)	RF1 Port 4 Measured Peak Power (dBm)
n77	30	20	QPSK	630720	3460.8	22.37	22.29	**20.15**	19.20
				633312	3499.68	22.36	23.13	19.56	18.41
				636000	3540	22.17	**23.39**	18.39	17.81

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)	RF1 Port 3 Peak to Average Ratio (dB)	RF1 Port 4 Peak to Average Ratio (dB)
n77	30	20	QPSK	630720	3460.8	12.52	12.61	10.95	11.28
				633312	3499.68	12.66	12.73	11.24	11.19
				636000	3540	12.73	12.93	11.19	11.33

8.1.11. 5G NR n77 (FCC Part 27 3700-3980MHz)

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Avg Power (dBm)	RF1 Port 2 Measured Avg Power (dBm)
n77	30	20	QPSK	**647424**	**3711.36**	13.37	**13.87**
				656064	**3840.96**	9.12	9.07
				664608	**3969.12**	9.24	9.22

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Measured Peak Power (dBm)	RF1 Port 2 Measured Peak Power (dBm)
n77	30	20	QPSK	**647424**	**3711.36**	23.17	**25.50**
				656064	**3840.96**	18.95	19.60
				664608	**3969.12**	19.39	19.92

5G NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	RF1 Port 1 Peak to Average Ratio (dB)	RF1 Port 2 Peak to Average Ratio (dB)
n77	30	20	QPSK	**647424**	**3711.36**	9.80	11.63
				656064	**3840.96**	9.83	10.52
				664608	**3969.12**	10.15	10.71

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.

Note: To reduce file size, only BTS_1 OBW Plots are reported.

9.1.1. BTS_1

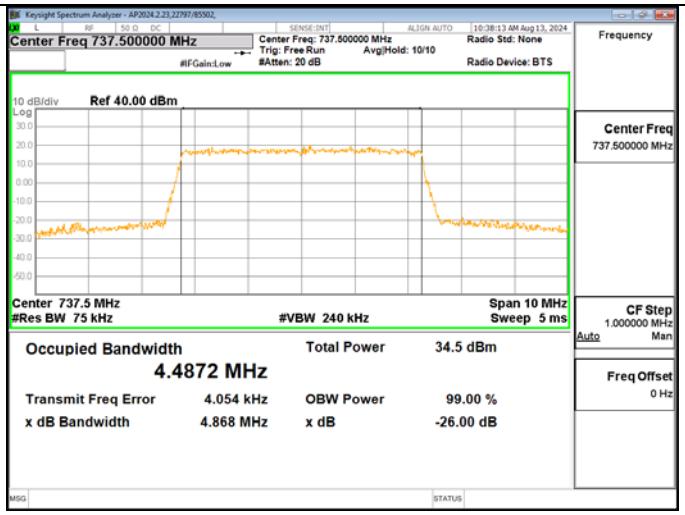
Band	Mode	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	QPSK, RB25-0, 5MHz BW	737.5	4.4872	4.868
LTE BAND 13		751	4.4903	4.913
LTE BAND 14		763	4.4877	4.906
LTE BAND 26 (FCC Part 90S)		864	4.4961	4.867
LTE BAND 26 (FCC Part 22)		881.5	4.5086	4.877
LTE BAND 30		2355	4.4849	4.918
LTE BAND 66		2155	4.4995	4.901
LTE BAND 71		634.5	4.4852	4.878
5G NR n26 (FCC Part 90S)		864	4.5097	4.848
5G NR n26 (FCC Part 22)		881.9	4.5195	4.795
5G NR n71		634.7	4.4954	4.832
5G NR n77 (3450 – 3550)	QPSK, RB100-0, 20MHz BW	3499.68	18.315	20.45
5G NR n77 (3700 – 3980)		3840.96	18.354	20.35

9.1.2. BTS_2

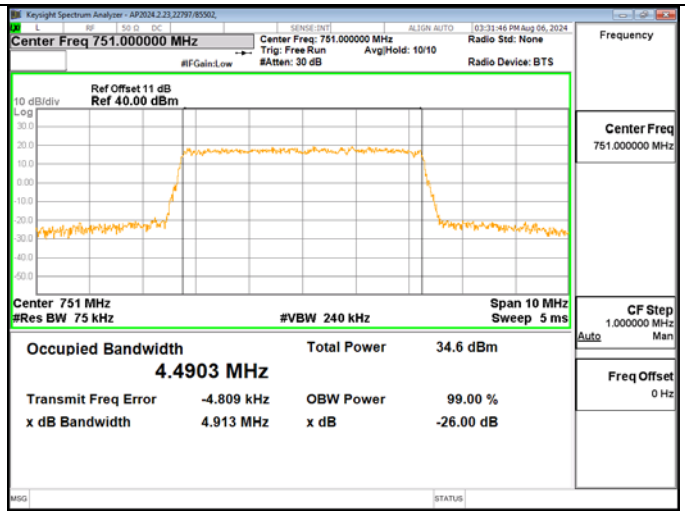
Band	Mode	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	QPSK, RB25-0, 5MHz BW	737.5	4.4747	4.878
LTE BAND 13		751	4.4788	4.866
LTE BAND 14		763	4.4830	4.873
LTE BAND 26 (FCC Part 90S)		864	4.5080	4.903
LTE BAND 26 (FCC Part 22)		881.5	4.5179	4.939
LTE BAND 30		2355	4.4815	4.907
LTE BAND 66		2155	4.4913	4.872
5G NR n26 (FCC Part 90S)		864	4.5081	4.850
5G NR n26 (FCC Part 22)		881.9	4.5096	4.838
5G NR n77 (3450 – 3550)	QPSK, RB100-0, 20MHz BW	3499.68	18.294	20.19

9.1.3. BTS_3

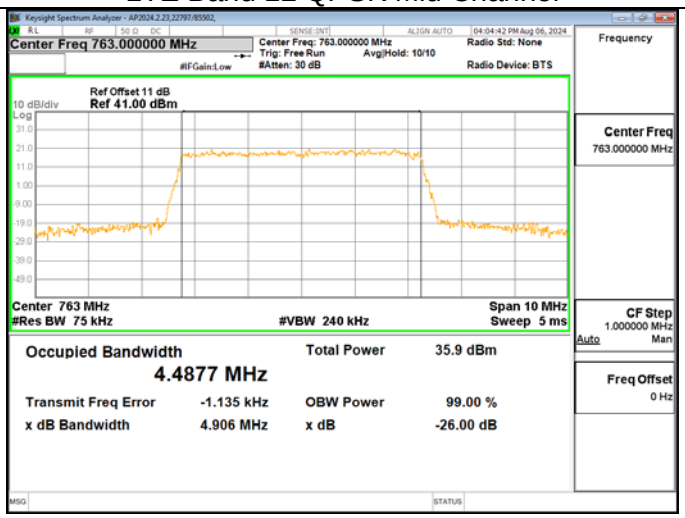
Band	Mode	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	QPSK, RB25-0, 5MHz BW	737.5	4.4873	4.887
LTE BAND 13		751	4.4923	4.889
LTE BAND 14		763	4.4921	4.908
LTE BAND 26 (FCC Part 90S)		864	4.4910	4.865
LTE BAND 26 (FCC Part 22)		881.5	4.4901	4.911
LTE BAND 30		2355	4.4871	4.901
LTE BAND 66		2155	4.4668	4.886
5G NR n26 (FCC Part 90S)		864	4.5094	4.840
5G NR n26 (FCC Part 22)		881.9	4.5081	4.838



LTE Band 12 QPSK Mid Channel

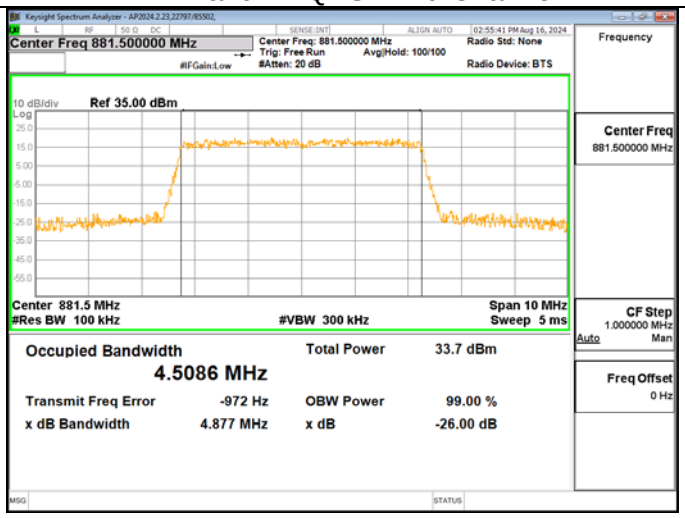


LTE Band 13 QPSK Mid Channel

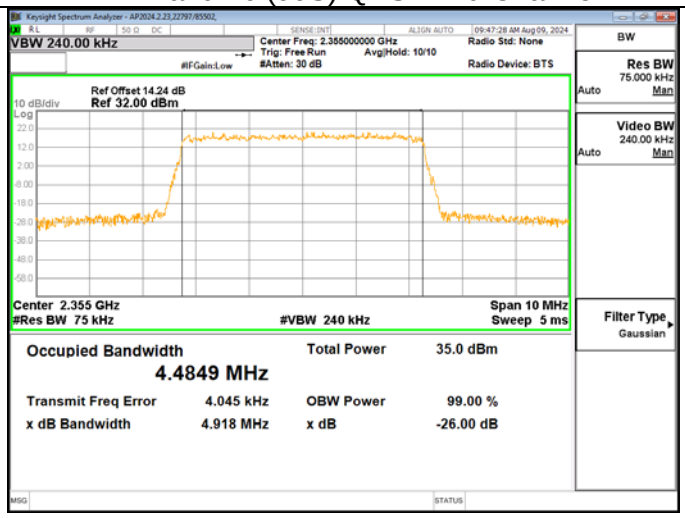


LTE Band 14 QPSK Mid Channel

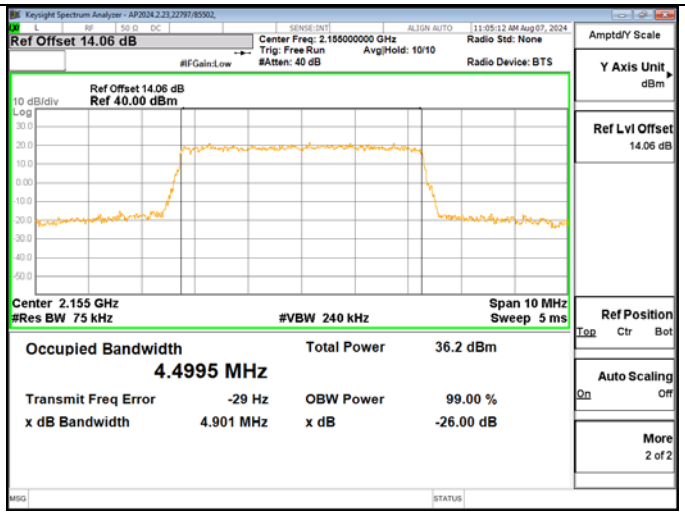
LTE Band 26 (90S) QPSK Mid Channel



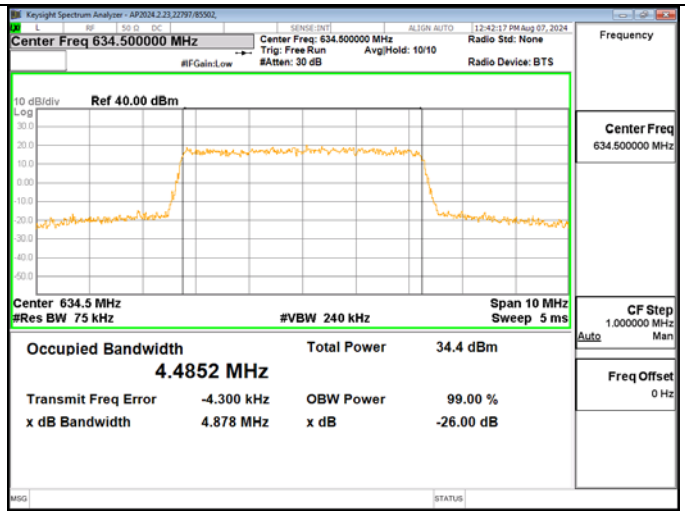
LTE Band 26 (22H) QPSK Mid Channel



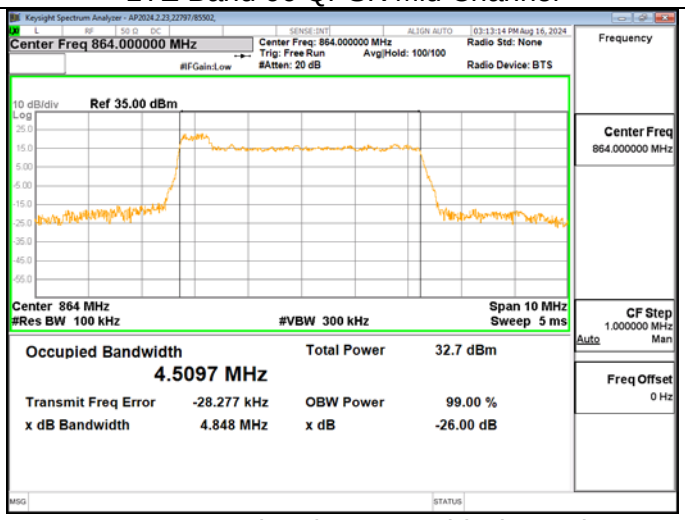
LTE Band 30 QPSK Mid Channel



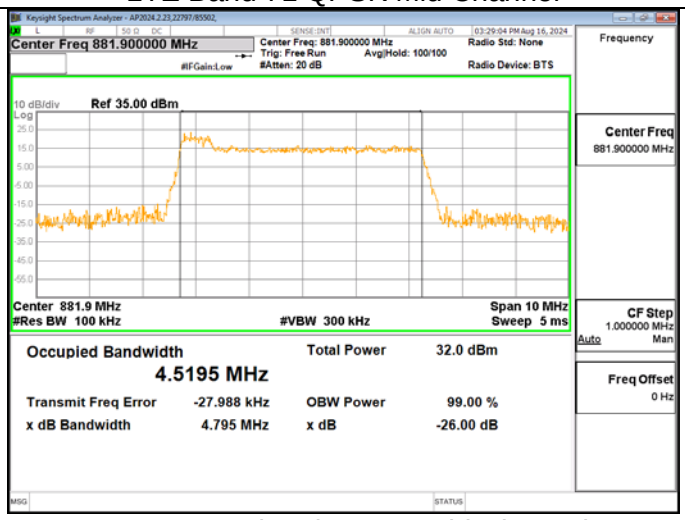
LTE Band 66 QPSK Mid Channel



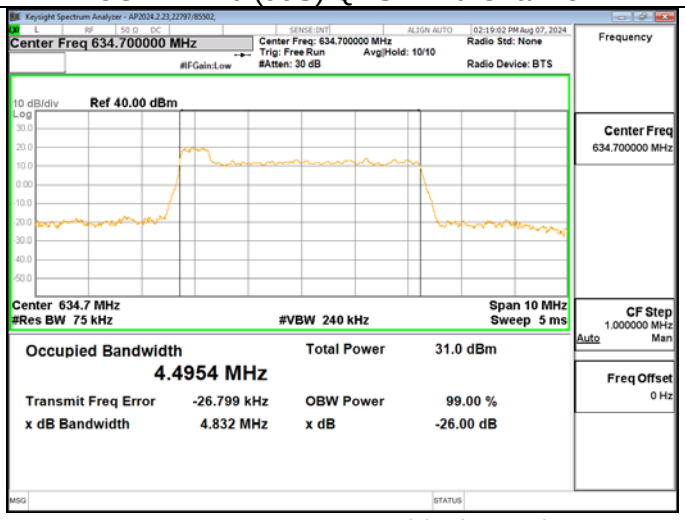
LTE Band 71 QPSK Mid Channel



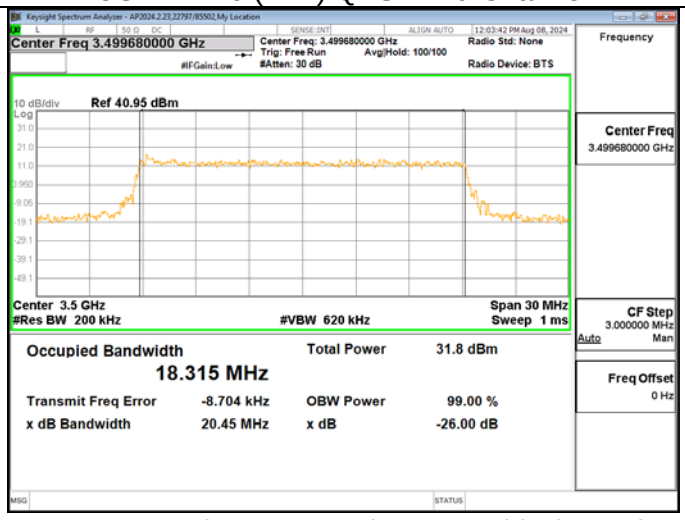
5G NR n26 (90S) QPSK Mid Channel



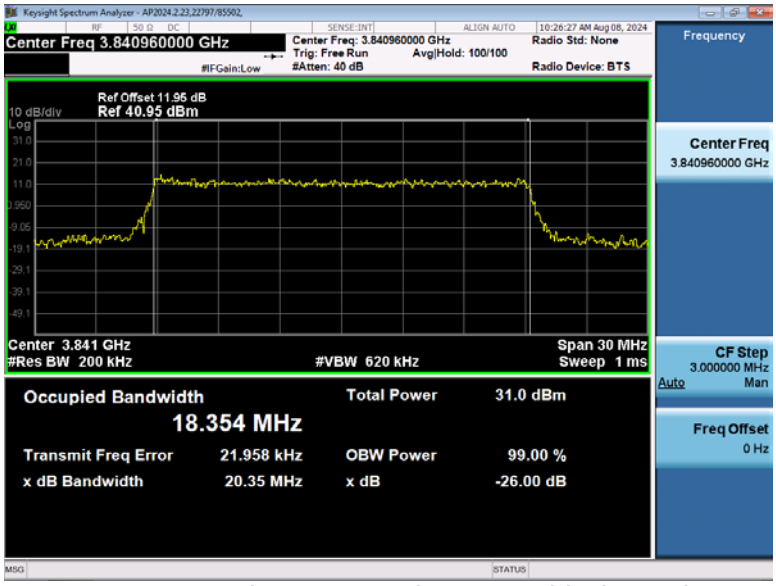
5G NR n26 (22H) QPSK Mid Channel



5G NR n71 QPSK Mid Channel



5G NR n77 (3450 – 3550) QPSK Mid Channel



5G NR n77 (3700 – 3980) QPSK Mid Channel

9.2. EMISSION MASK

For Spectrum Emission Mask plots, the SA 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.

RULE PART(S)

FCC: 22.917 (a), 24.238 (a), 27.53 (h), 27.53 (g), 27.53 (c) (f), 90.543 (e)(f), 90.691 (a).

TEST PROCEDURE

ANSI C63.26-2015, Section 5.7

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 -13, -20, -25, -40, -42, -45, and -46dBm
4. Set resolution bandwidth to at least 1% of emission bandwidth.

TEST PROCEDURE (FCC LTE BAND 12)

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

TEST PROCEDURE (FCC LTE BAND 13)

(5) Compliance with the provisions of paragraphs (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

TEST PROCEDURE (FCC LTE BAND 14)

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

TEST PROCEDURE (FCC LTE BAND 30)

(5) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter 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 required measurement bandwidth (*i.e.,* 1 MHz). 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.

TEST PROCEDURE (FCC 5G NR n77 FCC Part 27)

(n)(1) For base station operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with the provisions of this paragraph (n)(1) 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 frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. 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. Notwithstanding the channel edge requirement of −13 dBm per megahertz, for base station operations in the 3450-3550 MHz band, the conducted power of any emission below 3440 MHz or above 3560 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3430 MHz or above 3570 MHz shall not exceed −40 dBm/MHz.

(l)(1) For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(1) 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 frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.

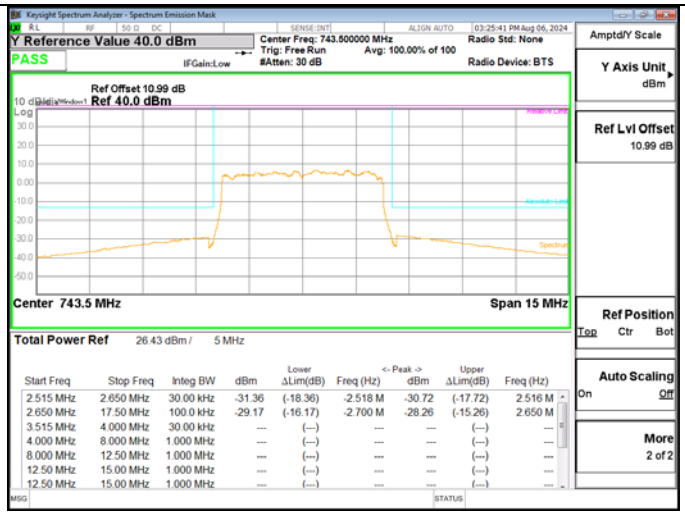
RESULTS

9.2.1. LTE BAND 12

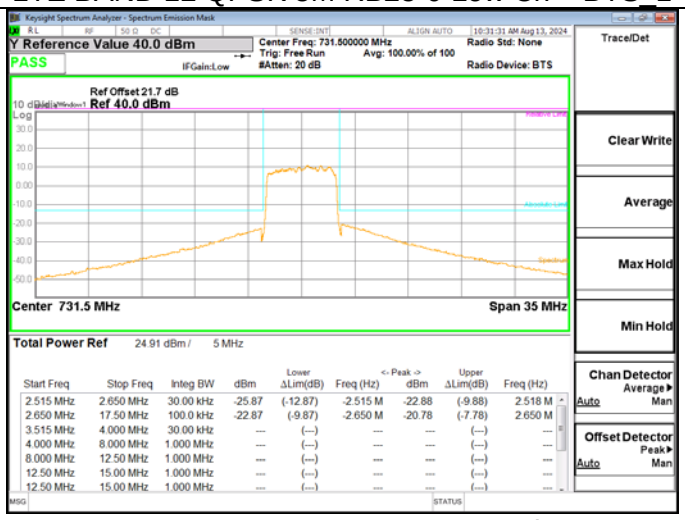
LIMITS

FCC: §27.53
(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

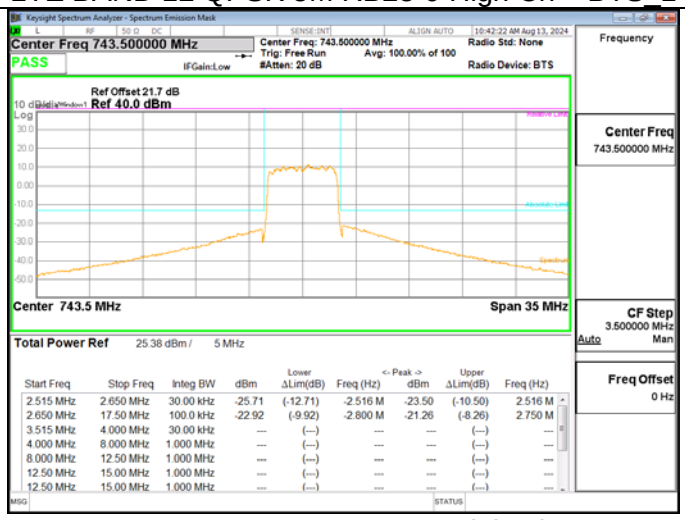
LTE BAND 12 QPSK 5M RB25-0 Low Ch – BTS_1



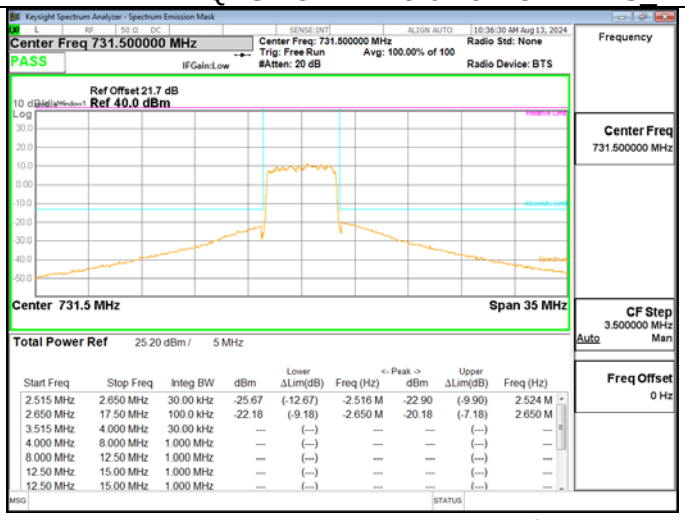
LTE BAND 12 QPSK 5M RB25-0 High Ch – BTS_1



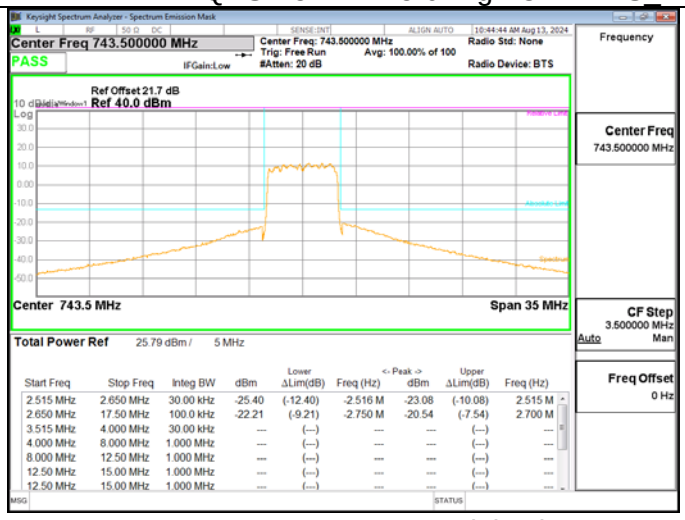
LTE BAND 12 QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 12 QPSK 5M RB25-0 High Ch – BTS_2



LTE BAND 12 QPSK 5M RB25-0 Low Ch – BTS_3



LTE BAND 12 QPSK 5M RB25-0 High Ch – BTS_3

9.2.2. LTE BAND 13 EMISSION MASK

LIMITS

FCC: §27.53
(c)For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

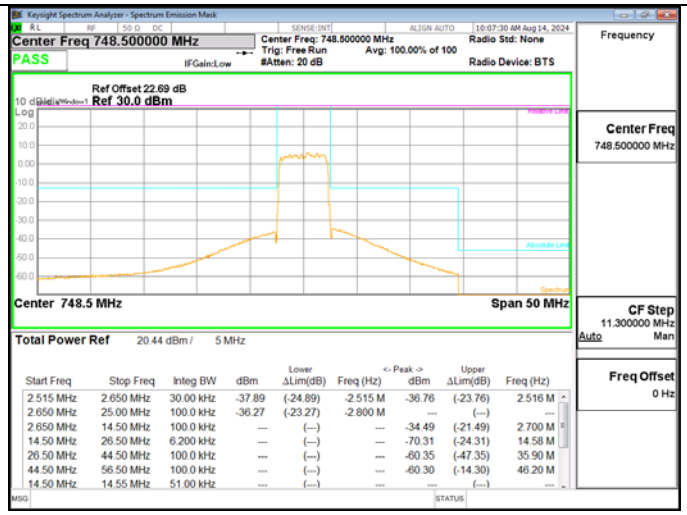
(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

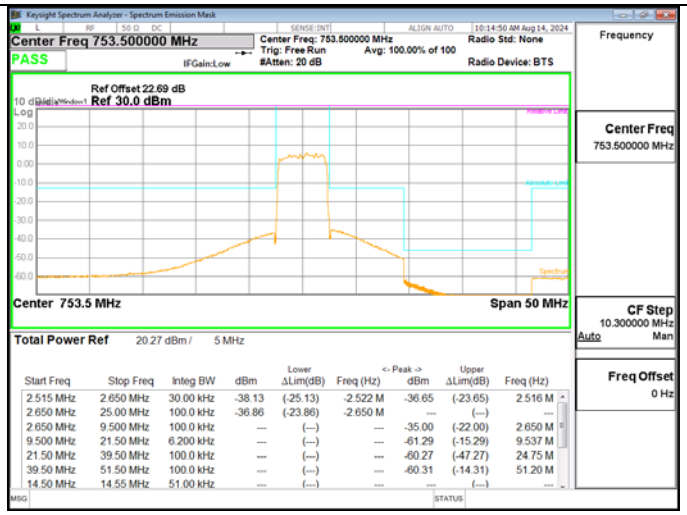
(5) Compliance with the provisions of paragraphs (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

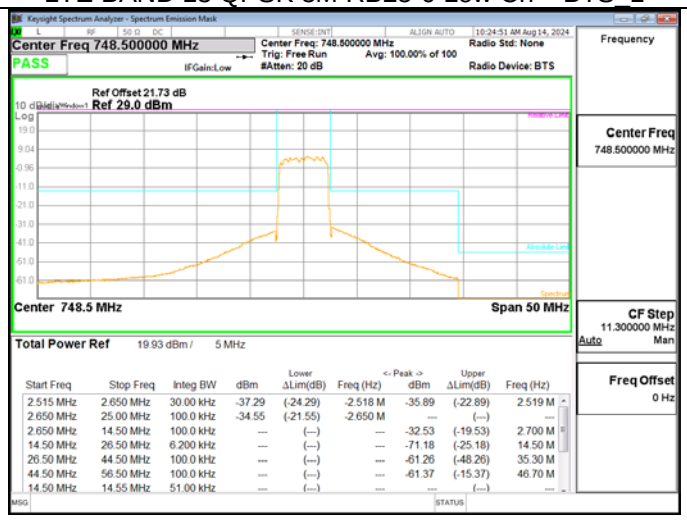
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).



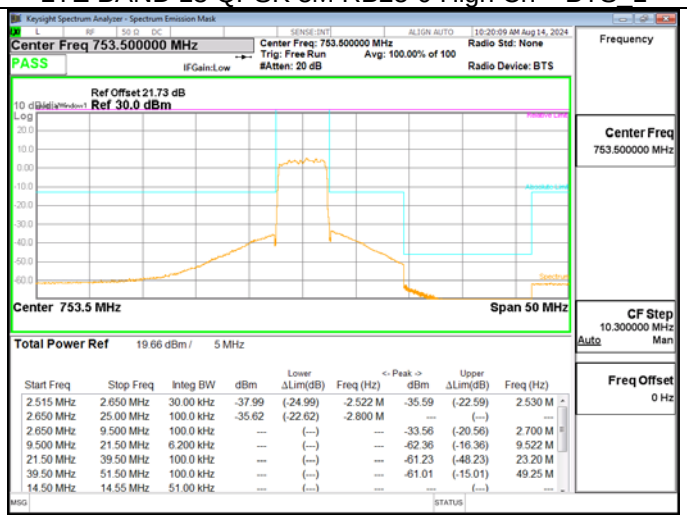
LTE BAND 13 QPSK 5M RB25-0 Low Ch – BTS_1



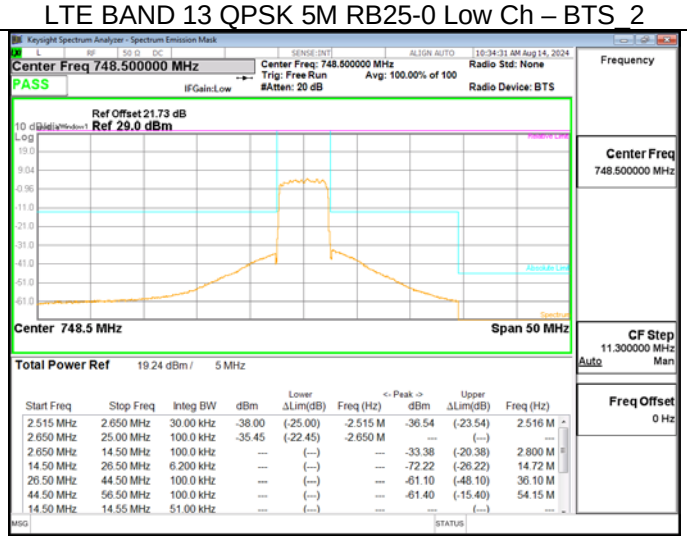
LTE BAND 13 QPSK 5M RB25-0 High Ch – BTS_1



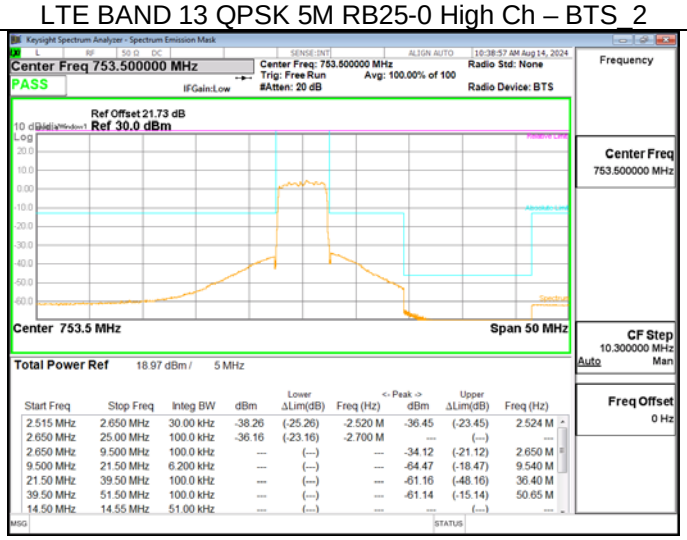
LTE BAND 13 QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 13 QPSK 5M RB25-0 High Ch – BTS_2



LTE BAND 13 QPSK 5M RB25-0 Low Ch – BTS_3



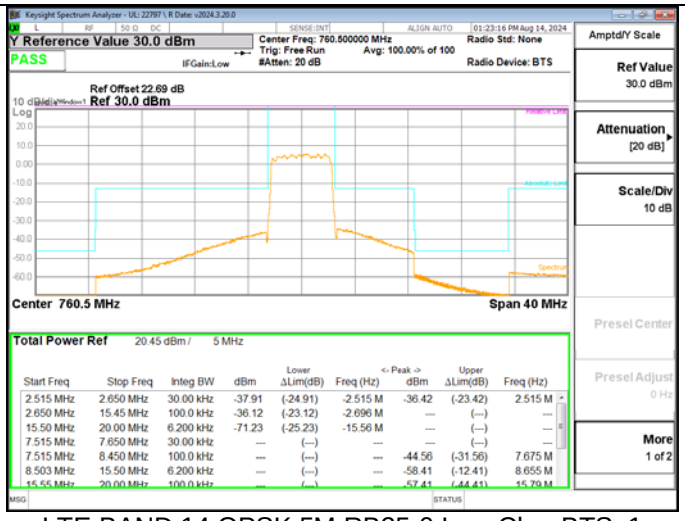
LTE BAND 13 QPSK 5M RB25-0 High Ch – BTS_3

9.2.3. LTE BAND 14 EMISSION MASK

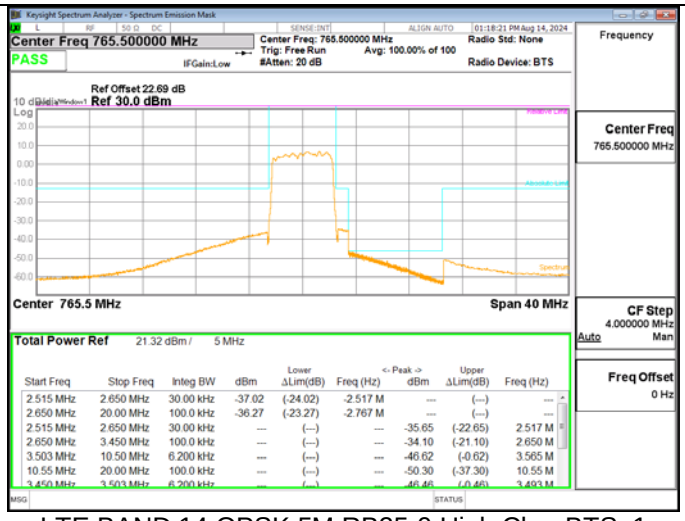
LIMITS

FCC: §90.543 Emission Limitations.
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.
(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.
(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.
(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

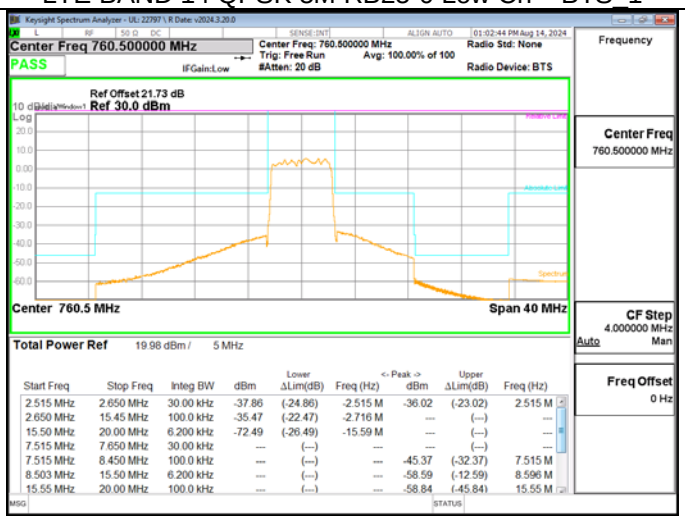
LTE BAND 14 EMISSION MASK



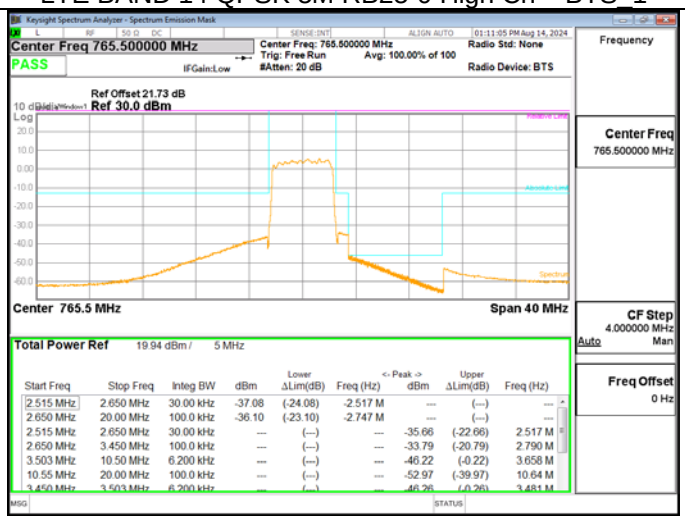
LTE BAND 14 QPSK 5M RB25-0 Low Ch – BTS_1



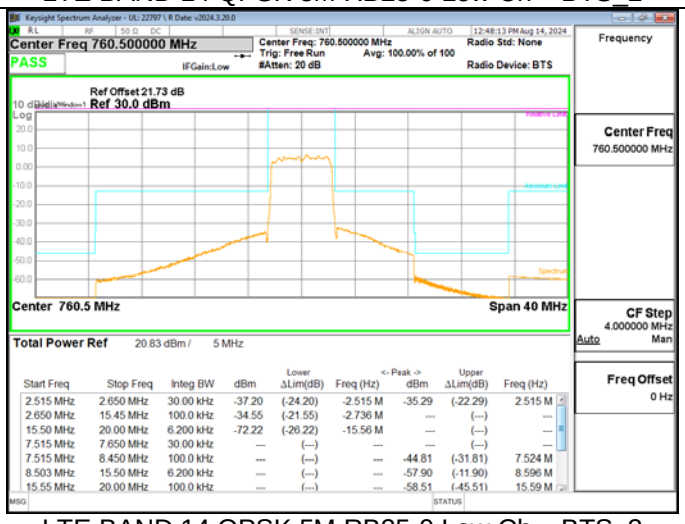
LTE BAND 14 QPSK 5M RB25-0 High Ch – BTS_1



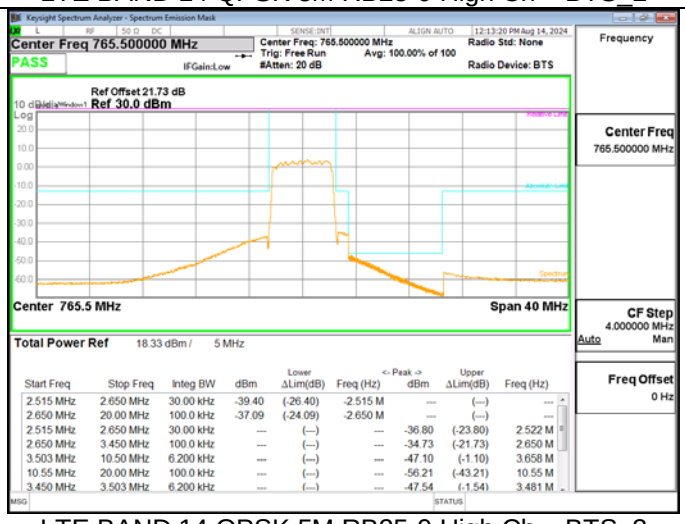
LTE BAND 14 QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 14 QPSK 5M RB25-0 High Ch – BTS_2



LTE BAND 14 QPSK 5M RB25-0 Low Ch – BTS_3



LTE BAND 14 QPSK 5M RB25-0 High Ch – BTS_3

9.2.4. LTE BAND 26 & 5G NR n26 EMISSION MASK (FCC PART 90S)

LIMITS

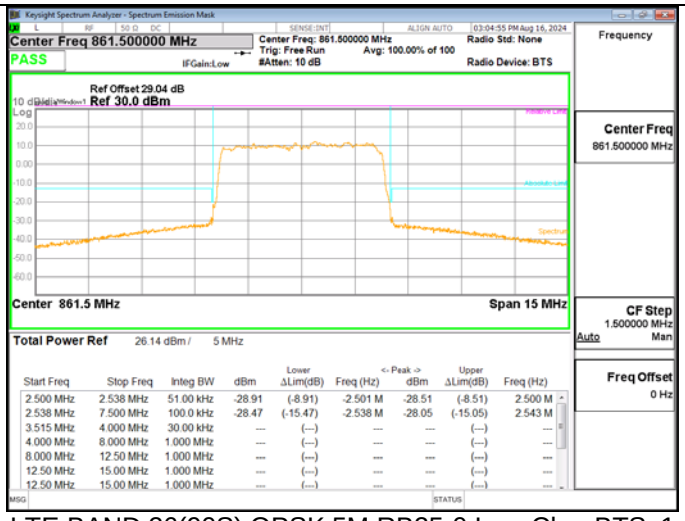
FCC: §90.691 Emission mask requirements for EA-based systems.
(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

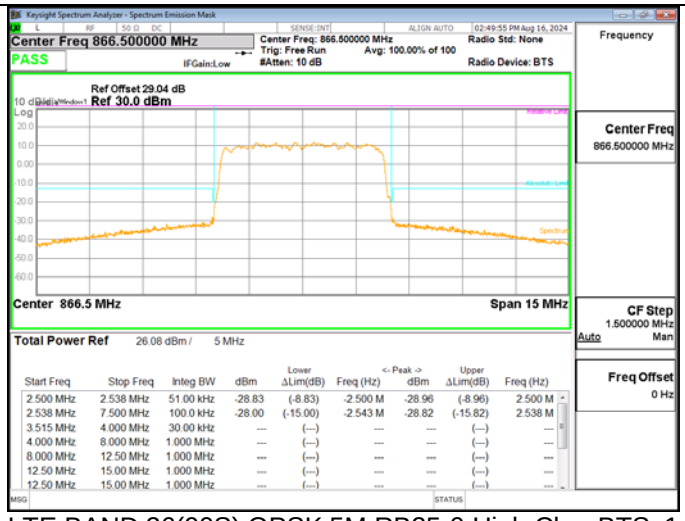
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

NOTE: According to 971168 D02 Misc Rev Approv License Devices v02r01, Section VIII (c):
For Section 90.691(a) compliance testing, use RBW = 300 Hz for offsets less than 37.5 kHz from a channel edge; RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.

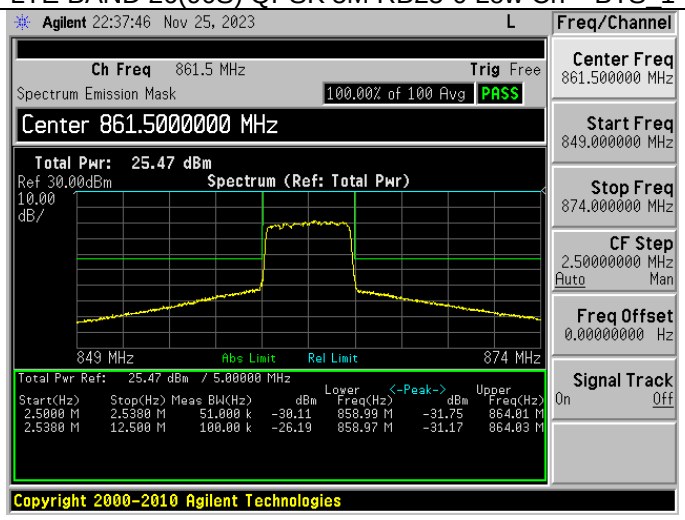
LTE BAND 26 EMISSION MASK



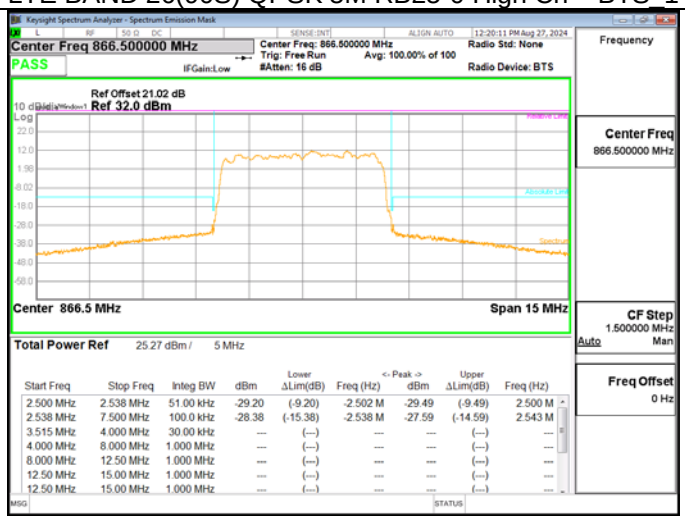
LTE BAND 26(90S) QPSK 5M RB25-0 Low Ch – BTS_1



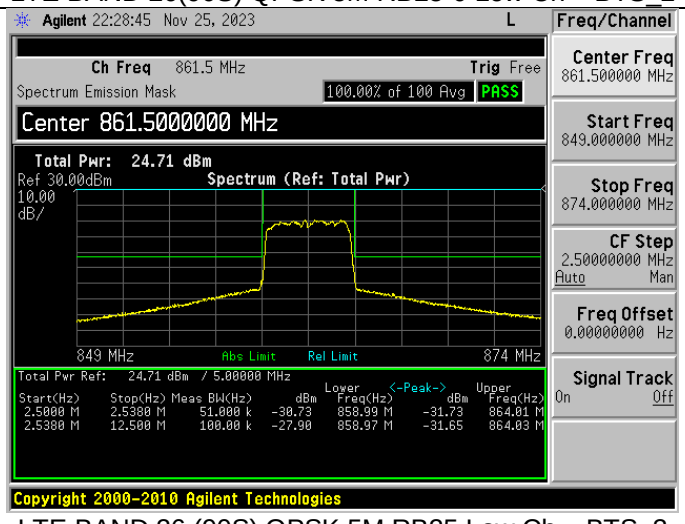
LTE BAND 26(90S) QPSK 5M RB25-0 High Ch – BTS_1



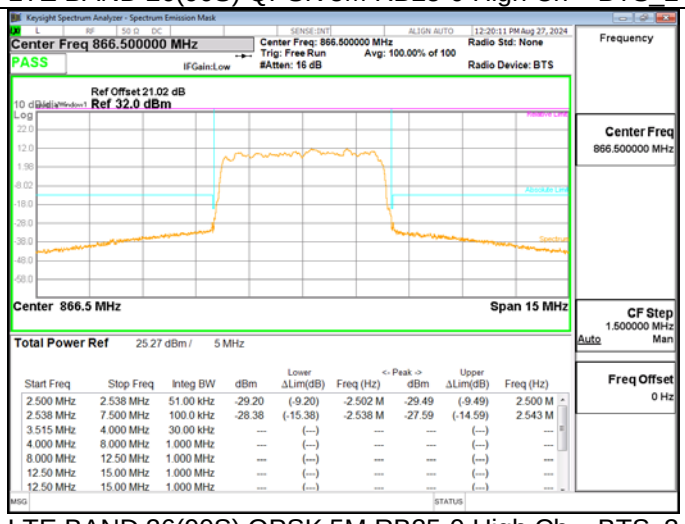
LTE BAND 26(90S) QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 26(90S) QPSK 5M RB25-0 High Ch – BTS_2

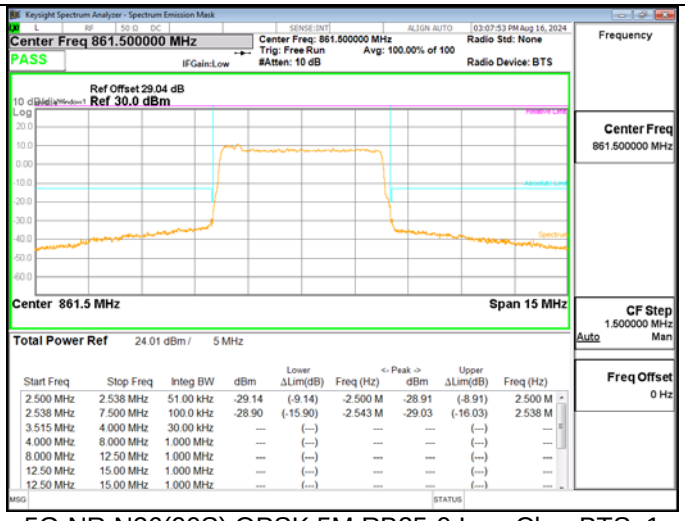


LTE BAND 26 (90S) QPSK 5M RB25 Low Ch – BTS_3

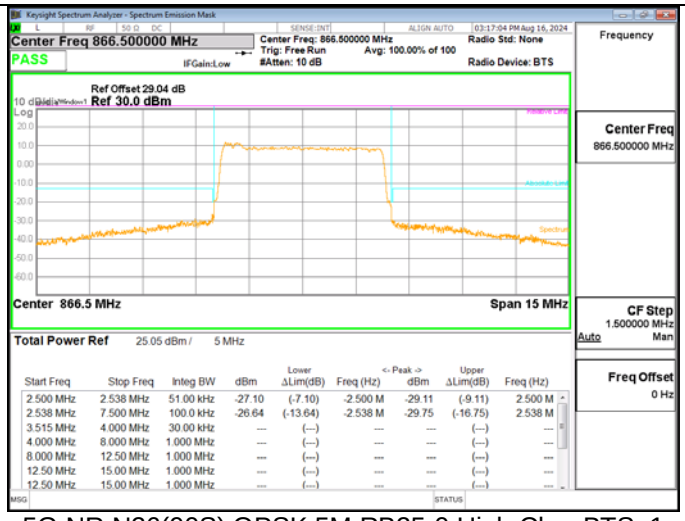


LTE BAND 26(90S) QPSK 5M RB25-0 High Ch – BTS_3

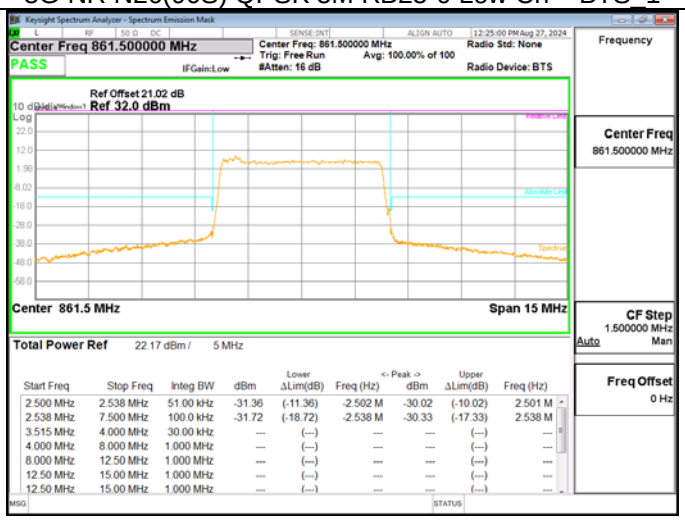
5G NR n26 EMISSION MASK



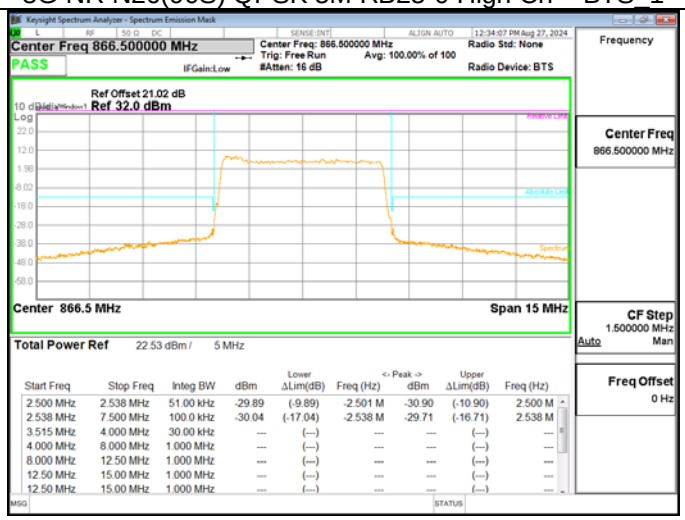
5G NR N26(90S) QPSK 5M RB25-0 Low Ch – BTS_1



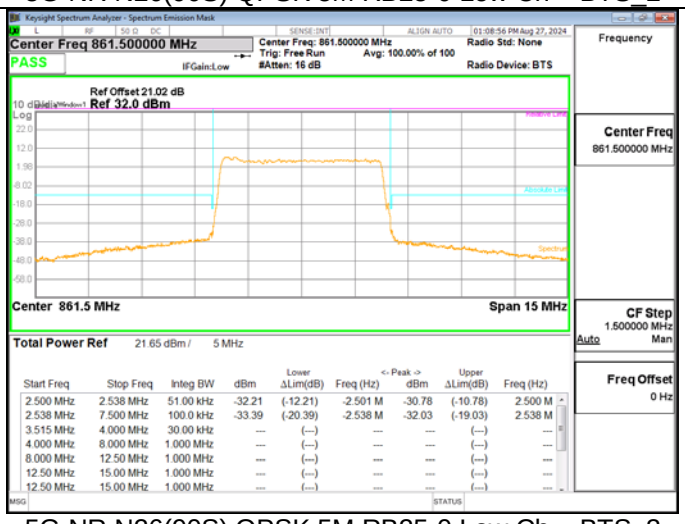
5G NR N26(90S) QPSK 5M RB25-0 High Ch – BTS_1



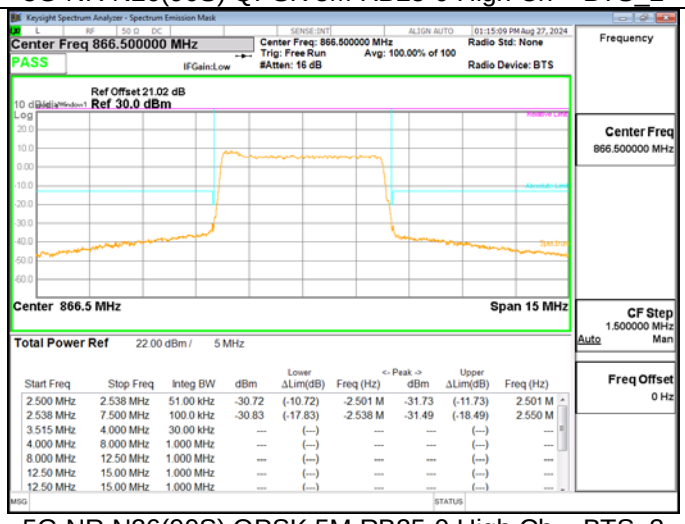
5G NR N26(90S) QPSK 5M RB25-0 Low Ch – BTS_2



5G NR N26(90S) QPSK 5M RB25-0 High Ch – BTS_2



5G NR N26(90S) QPSK 5M RB25-0 Low Ch – BTS_3



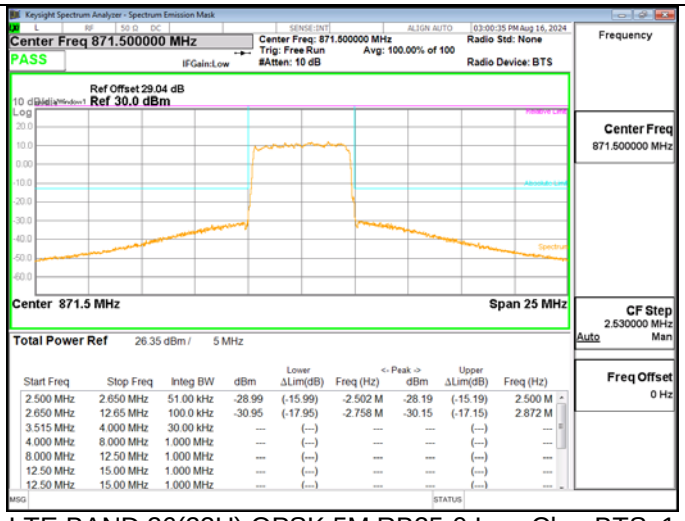
5G NR N26(90S) QPSK 5M RB25-0 High Ch – BTS_3

9.2.5. LTE BAND 26 EMISSION MASK (FCC PART 22)

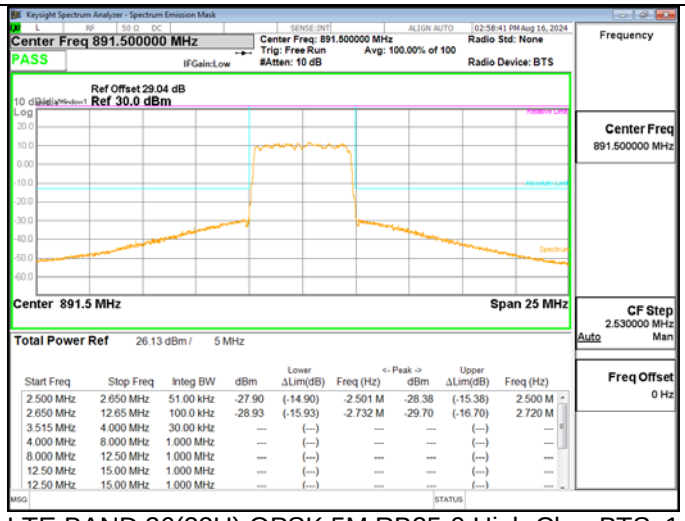
LIMITS

FCC: §22.917 (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.

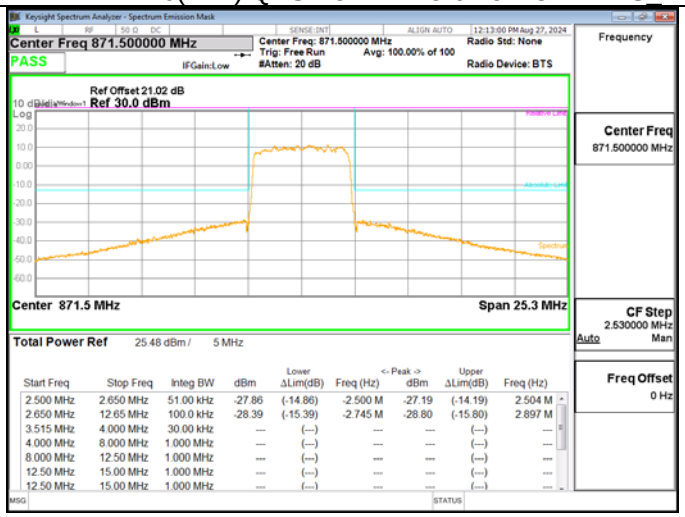
LTE BAND 26 EMISSION MASK



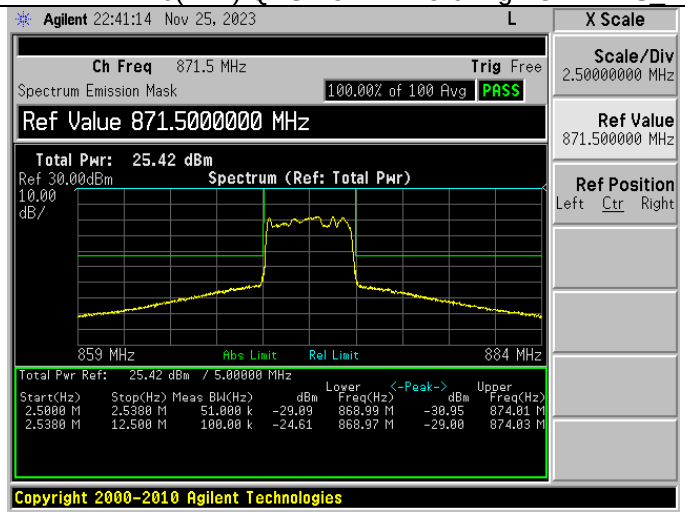
LTE BAND 26(22H) QPSK 5M RB25-0 Low Ch – BTS_1



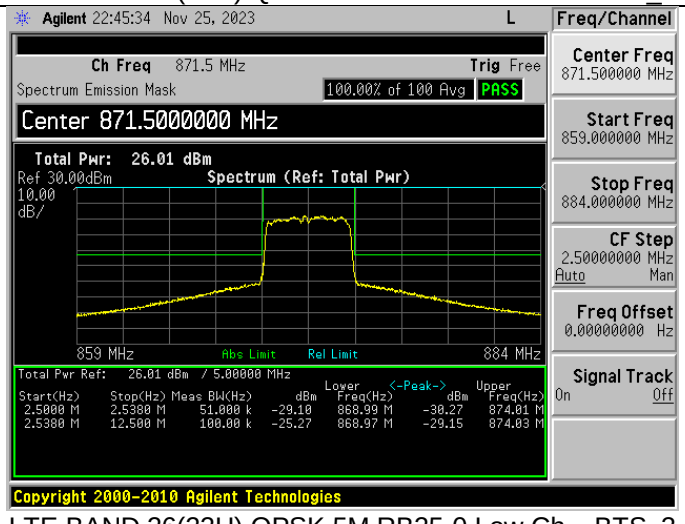
LTE BAND 26(22H) QPSK 5M RB25-0 High Ch – BTS_1



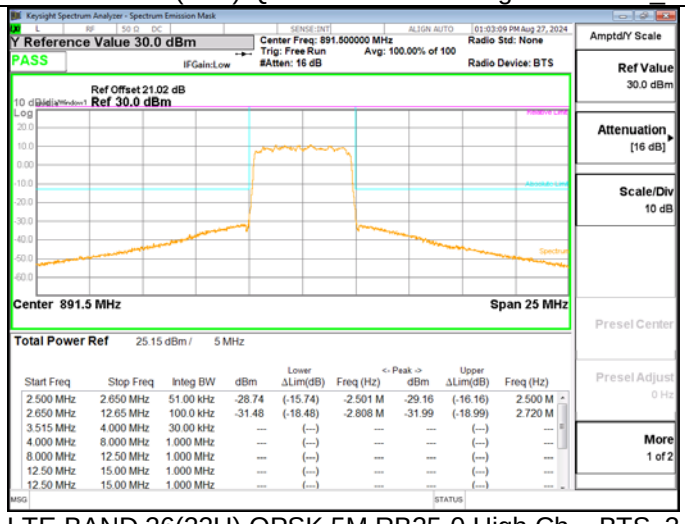
LTE BAND 26(22H) QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 26(22H) QPSK 5M RB25-0 High Ch – BTS_2

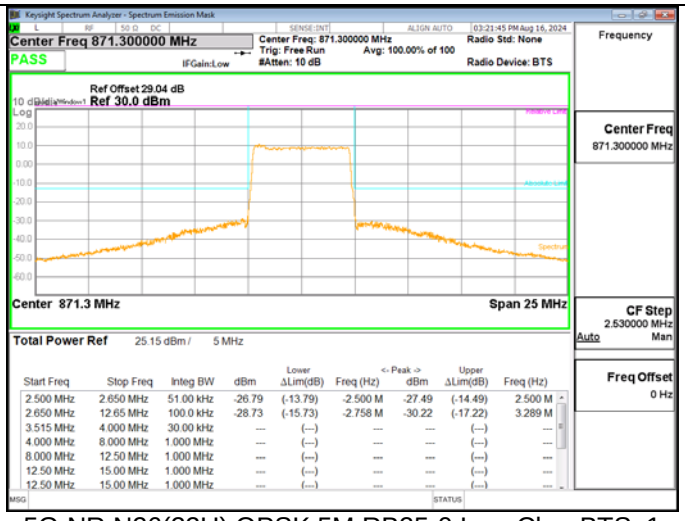


LTE BAND 26(22H) QPSK 5M RB25-0 Low Ch – BTS_3

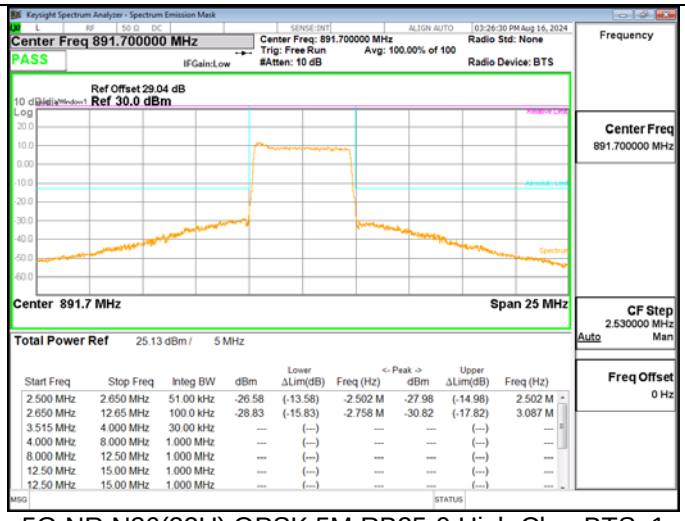


LTE BAND 26(22H) QPSK 5M RB25-0 High Ch – BTS_3

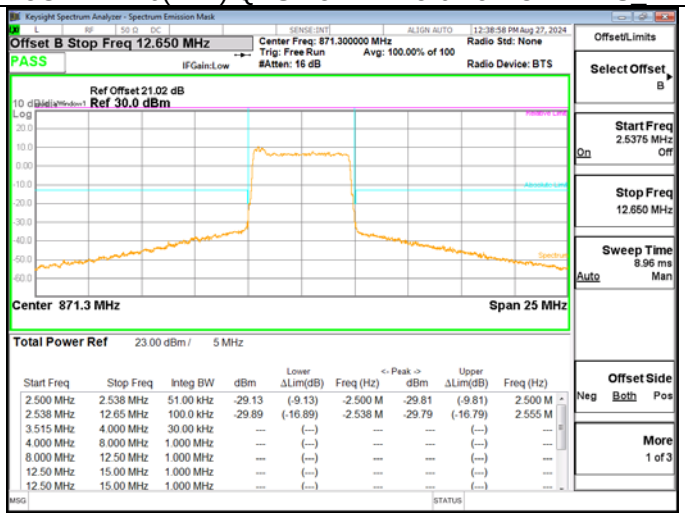
5G NR n26 EMISSION MASK



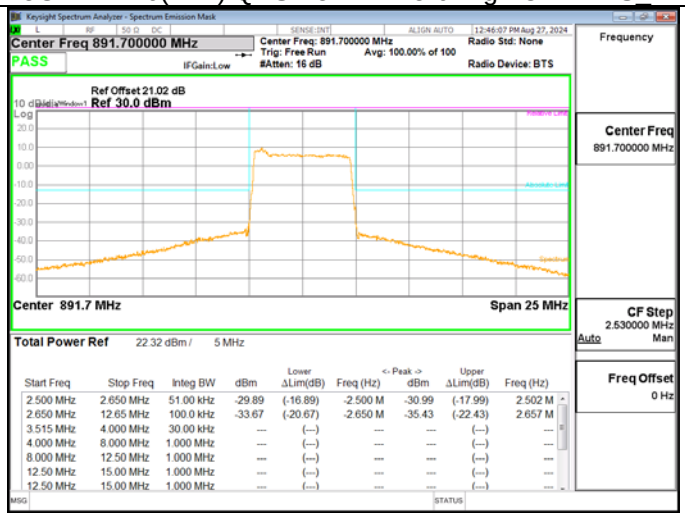
5G NR N26(22H) QPSK 5M RB25-0 Low Ch – BTS_1



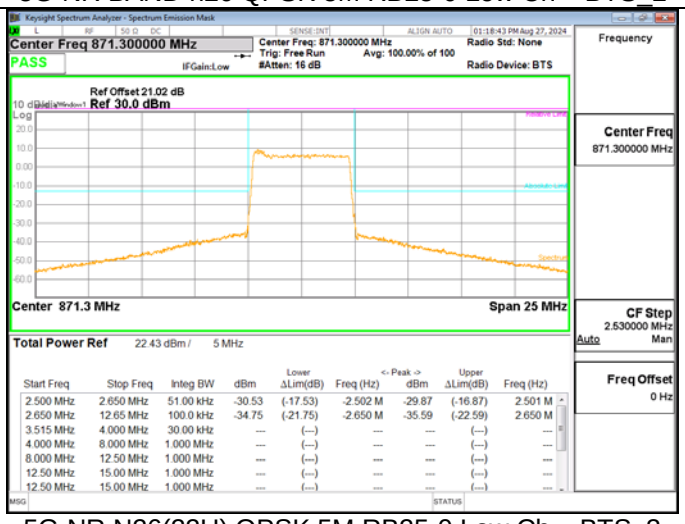
5G NR N26(22H) QPSK 5M RB25-0 High Ch – BTS_1



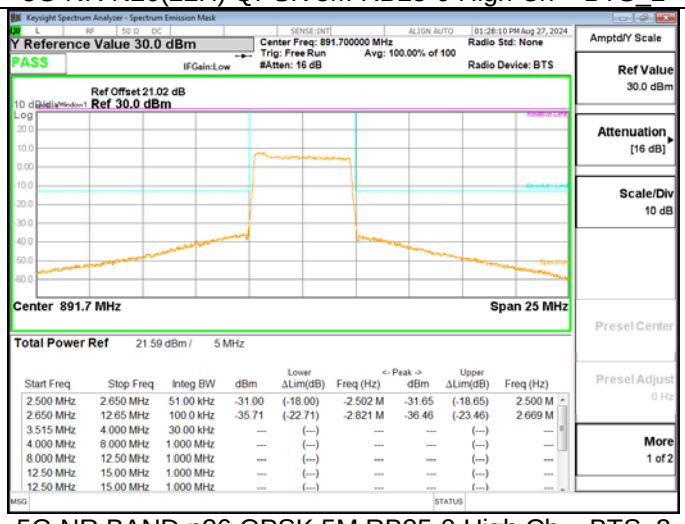
5G NR BAND n26 QPSK 5M RB25-0 Low Ch – BTS_2



5G NR N26(22H) QPSK 5M RB25-0 High Ch – BTS_2



5G NR N26(22H) QPSK 5M RB25-0 Low Ch – BTS_3



5G NR BAND n26 QPSK 5M RB25-0 High Ch – BTS_3

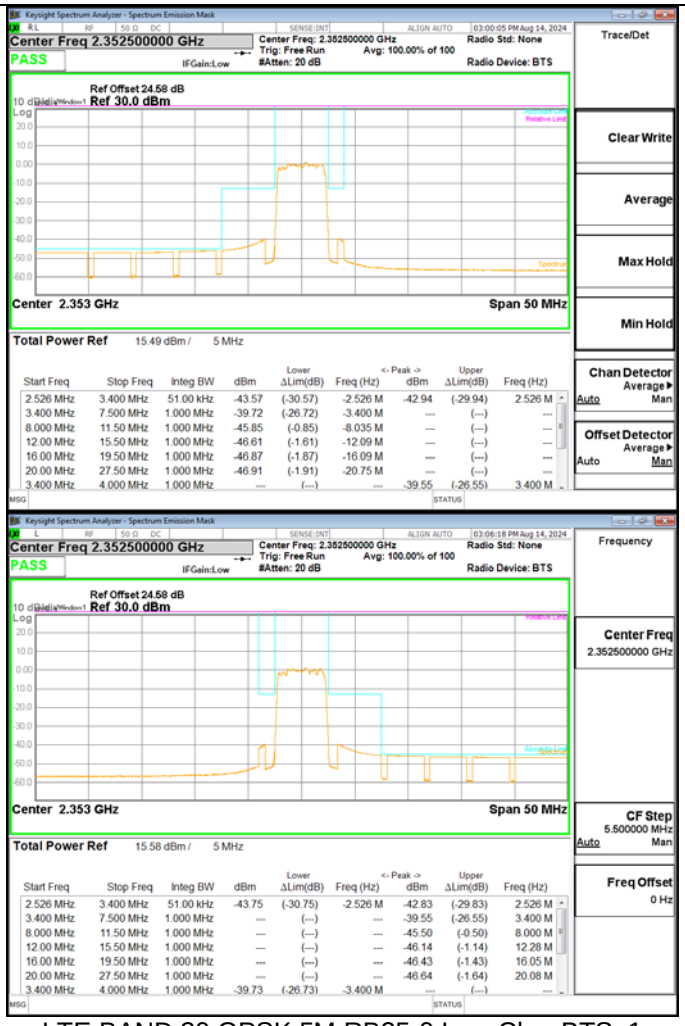
9.2.6. LTE BAND 30

LIMITS

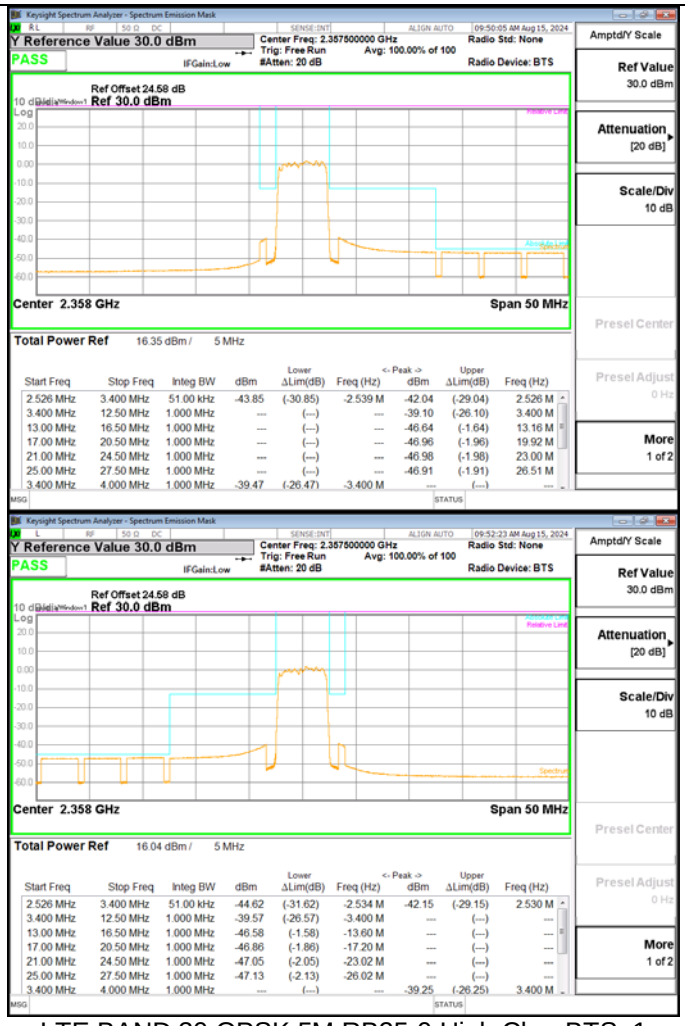
FCC: §27.53
(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(1) For base and fixed stations' operations in the 2305-2320 MHz band and the 2345-2360 MHz band:
(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than 75 + 10 log (P) dB on all frequencies between 2320 and 2345 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5 MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 MHz.

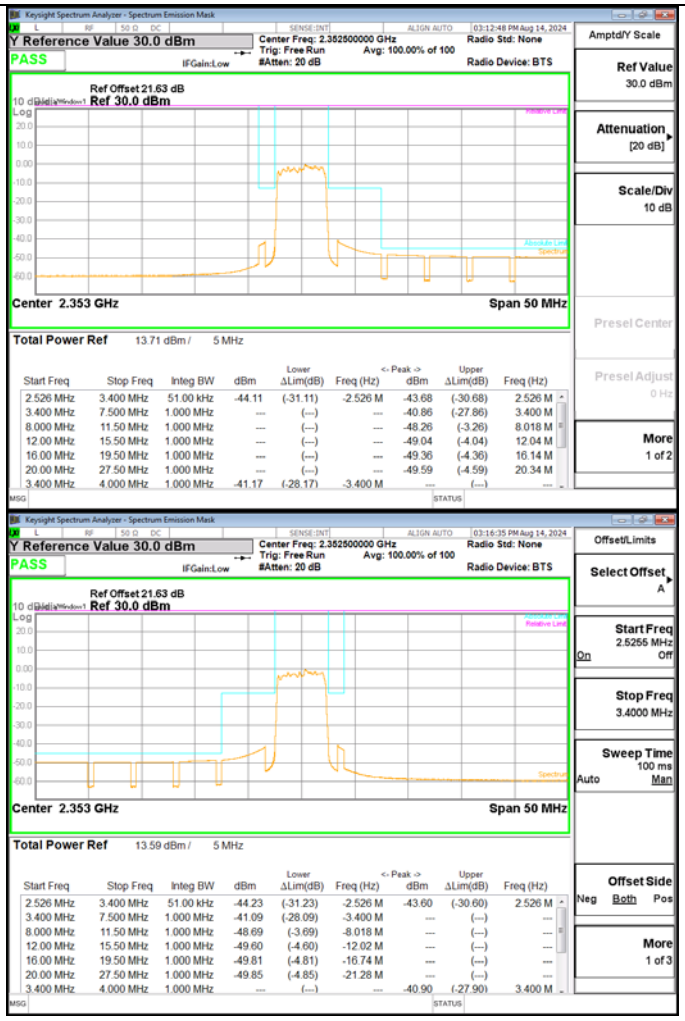
LTE BAND 30 EMISSION MASK



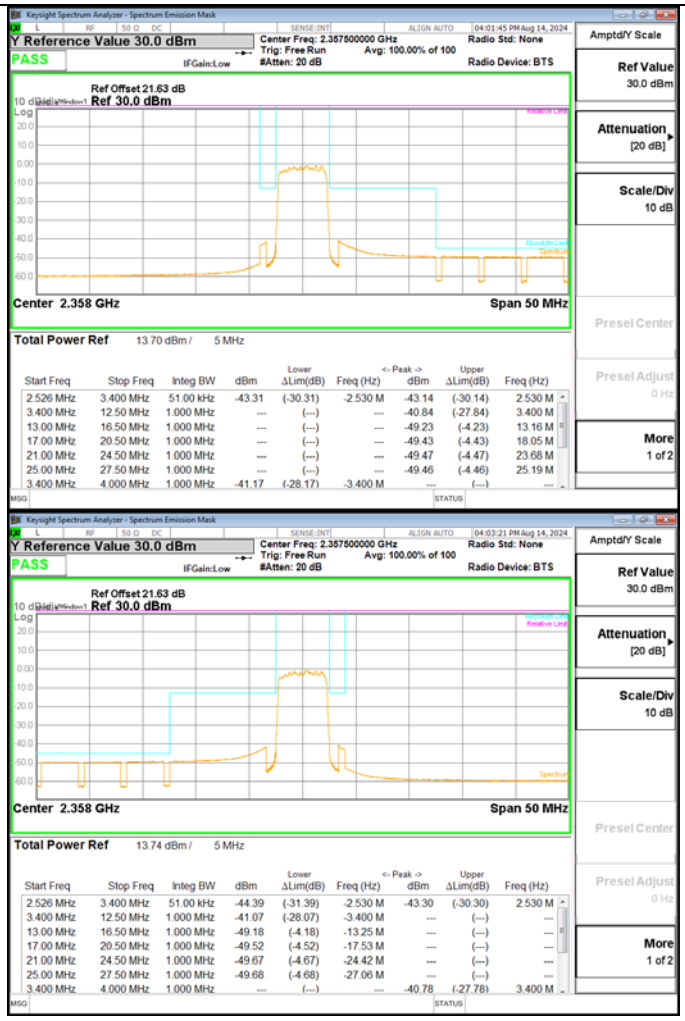
LTE BAND 30 QPSK 5M RB25-0 Low Ch – BTS_1



LTE BAND 30 QPSK 5M RB25-0 High Ch – BTS_1



LTE BAND 30 QPSK 5M RB25-0 Low Ch – BTS_2



LTE BAND 30 QPSK 5M RB25-0 High Ch – BTS_2