TEST REPORT

Report Number. : 13583138-E1V2

Applicant	:	Samsung Electronics Co., Ltd. 129 Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 16677, Korea
Model	:	SM-A526B/DS, SM-A526B
FCC ID	:	A3LSMA526B
EUT Description	:	GSM/WCDMA/LTE/5G Phablet with BT/BLE,DTS/UNII a/b/g/n/ac and NFC
Test Standard(s)	:	FCC CFR47 PART 22H, 24E, 27, 90S

Date Of Issue:
FEBRUARY 04, 2021

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

NVLAP TESTING

NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	1/26/2021	Initial Review	--
V2	2/4/2021	Added Section 9.1.7& 8.2.11 and Updated Section 5.2,5.4,5.5,6,7.3,8.1 and 8.2	Kiya Kedida

TABLE OF CONTENTS

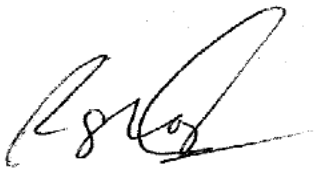
1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	SM-A526B/DS, SM-A526B
FCC ID	A3LSMA526B
EUT Description	GSM/WCDMA/LTE/5G Phablet with BT/BLE, DTS/UNII a/b/g/n/ac and NFC
Serial Number	CONDUCTED: R3CN90Q13AD, R3CNB08S3SE RADIATED: R3CNA0EGSMN, R3CNB0CBJRD
Date Tested	NOVEMBER 13, 2020 TO FEBRUARY 03, 2021
Applicable Standards	FCC PART 22H, 24E, 27, 90S
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released By:	Reviewed By:	Prepared By:
		
Dan Coronia Operations Leader UL Verification Services Inc.	Kiya Kedida Senior Project Engineer UL Verification Services Inc.	Rolly Alegre Test Engineer UL Verification Services Inc.

2. 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 24E, Part 27, and Part 90S
- 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

3. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building 1: 47173 Benicia Street, Fremont, California 94538, USA	US0104	2324A	208313
☐	Building 2: 47266 Benicia Street, Fremont, California 94538, USA	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, California 94538, USA	US0104	2324B	208313

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.39 dB
Conducted Disturbance, 0.15 to 30 MHz	3.07 dB
Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Radiated Disturbance,1000 to 18000 MHz	4.24 dB
Radiated Disturbance,18000 to 26000 MHz	4.37 dB
Radiated Disturbance,26000 to 40000 MHz	5.17 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE/5G Phablet with BT/BLE, DTS/UNII a/b/g/n/ac and NFC.

The model SM-A526B/DS was used for final testing and is representative of the test results in this report.

5.2. MAXIMUM OUTPUT POWER

ERP/EIRP LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50, §90.635, §90.541

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015 Sub-Clause 5.2.7/ TIA-603-E Clause 2.2.17
KDB 971168 D01Section 5.8
KDB 412172 D01

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 radiated ERP / EIRP output powers as follows:

GSM MODES

Part 22 850MHz					
Frequency range (MHz)	Modulation	Radiated ERP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
824.2-848.8	GPRS	26.19	0.4159	245.0	245KGXW
	EGPRS	21.83	0.1524	243.9	244KG7W
Part 24 1900MHz					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1850.2-1909.8	GPRS	26.58	0.4550	243.9	244KGXW
	EGPRS	24.07	0.2553	249.2	249KG7W

WCDMA MODES

Part 22 Band 5					
Frequency range (MHz)	Modulation	Radiated ERP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
826.4-846.6	REL 99	17.60	0.0575	4143.9	4M14F9W
	HSDPA	16.48	0.0445	4152.2	4M15F9W
Part 24 Band 2					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1852.4-1907.6	REL 99	20.98	0.1253	4153.7	4M15F9W
	HSDPA	20.03	0.1007	4153.2	4M15F9W
Part 27 Band 4					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1712.4-1752.6	REL 99	20.81	0.1205	4149.0	4M15F9W
	HSDPA	19.95	0.0989	4151.1	4M15F9W

LTE BAND 2

Part 24							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	1850.7	1909.3	20.67	0.1167	1077.7	1M08G7W
	16QAM			19.91	0.0979	1082.0	1M08D7W
3.0	QPSK	1851.5	1908.5	20.58	0.1143	2691.5	2M69G7W
	16QAM			19.94	0.0986	2682.8	2M68D7W
5.0	QPSK	1852.5	1907.5	20.66	0.1164	4495.6	4M50G7W
	16QAM			19.97	0.0993	4495.7	4M50D7W
10.0	QPSK	1855.0	1905.0	20.66	0.1164	8959.9	8M96G7W
	16QAM			19.94	0.0986	8949.7	8M95D7W
15.0	QPSK	1857.5	1902.5	20.55	0.1135	13385.0	13M4G7W
	16QAM			19.91	0.0979	13433.9	13M4D7W
20.0	QPSK	1860.0	1900.0	20.70	0.1175	17885.4	17M9G7W
	16QAM			20.12	0.1028	17870.4	17M9D7W

LTE BAND 5

Part 22H							
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	824.7	848.3	17.32	0.0540	1079.9	1M08G7W
	16QAM			16.53	0.0450	1086.6	1M09D7W
3.0	QPSK	825.5	847.5	17.53	0.0566	2691.1	2M69G7W
	16QAM			16.92	0.0492	2684.3	2M68D7W
5.0	QPSK	826.5	846.5	17.85	0.0610	4497.6	4M50G7W
	16QAM			17.15	0.0519	4501.5	4M50D7W
10.0	QPSK	829.0	844.0	17.80	0.0603	8937.7	8M94G7W
	16QAM			17.05	0.0507	8956.7	8M96D7W

5G NR BAND n5

Part 22H

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	BPSK	826.5	846.5	18.34	0.0682	4479.0	4M48G7W
	16QAM			17.16	0.0520	4457.4	4M46D7W
10.0	BPSK	829.0	844.0	18.05	0.0638	8942.3	8M94G7W
	16QAM			17.14	0.0518	8949.5	8M95D7W
15.0	BPSK	831.5	841.5	18.48	0.0705	13399.0	13M4G7W
	16QAM			17.46	0.0557	13363.0	13M4D7W
20.0	BPSK	834.0	839.0	18.36	0.0685	17870.0	17M9G7W
	16QAM			17.57	0.0571	17864.0	17M9D7W

LTE BAND 12

Part 27

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	699.7	715.3	18.92	0.0780	1080.4	1M08G7W
	16QAM			18.09	0.0644	1086.6	1M09D7W
3.0	QPSK	700.5	714.5	19.05	0.0804	2689.6	2M69G7W
	16QAM			18.26	0.0670	2697.3	2M70D7W
5.0	QPSK	701.5	713.5	19.25	0.0841	4493.8	4M49G7W
	16QAM			18.53	0.0713	4494.0	4M49D7W
10.0	QPSK	704.0	711.0	19.15	0.0822	8957.1	8M96G7W
	16QAM			18.23	0.0665	8923.2	8M92D7W

LTE BAND 26 (FCC Part 90S)

Part 90S

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	814.7	823.3	17.08	0.0511	1083.0	1M08G7W
	16QAM			16.29	0.0426	1089.6	1M09D7W
3.0	QPSK	815.5	822.5	17.36	0.0545	2688.6	2M69G7W
	16QAM			16.66	0.0463	2681.3	2M68D7W
5.0	QPSK	816.5	821.5	17.47	0.0558	4502.0	4M50G7W
	16QAM			16.81	0.0480	4493.7	4M49D7W
10.0	QPSK	819.0	819.0	17.22	0.0527	8967.9	8M97G7W
	16QAM			16.41	0.0438	8923.0	8M92D7W
15.0	QPSK	821.5	821.5	17.40	0.0550	13428.0	13M4G7W
	16QAM			16.45	0.0442	13437.0	13M4D7W

LTE BAND 26 (FCC Part 22)

Part 22

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	824.7	848.3	17.52	0.0565	1085.9	1M09G7W
	16QAM			16.81	0.0480	1092.0	1M09D7W
3.0	QPSK	825.5	847.5	17.73	0.0593	2686.8	2M69G7W
	16QAM			17.13	0.0516	2693.3	2M69D7W
5.0	QPSK	826.5	846.5	17.81	0.0604	4519.1	4M52G7W
	16QAM			17.17	0.0521	4512.6	4M51D7W
10.0	QPSK	829.0	844.0	17.88	0.0614	8937.8	8M94G7W
	16QAM			17.32	0.0540	8941.4	8M94D7W
15.0	QPSK	831.5	841.5	17.79	0.0601	13384.9	13M4G7W
	16QAM			17.04	0.0506	13371.3	13M4D7W

LTE BAND 66

Part 27

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
1.4	QPSK	1710.7	1779.3	22.04	0.1600	1087.0	1M09G7W
	16QAM			21.42	0.1387	1096.5	1M10D7W
3.0	QPSK	1711.5	1778.5	22.03	0.1596	2690.0	2M69G7W
	16QAM			21.37	0.1371	2690.7	2M69D7W
5.0	QPSK	1712.5	1777.5	22.27	0.1687	4501.2	4M50G7W
	16QAM			21.48	0.1406	4477.8	4M48D7W
10.0	QPSK	1715.0	1775.0	22.30	0.1698	8974.4	8M97G7W
	16QAM			21.52	0.1419	8998.0	8M00D7W
15.0	QPSK	1717.5	1772.5	22.17	0.1648	13436.0	13M4G7W
	16QAM			21.52	0.1419	13447.0	13M4D7W
20.0	QPSK	1720.0	1770.0	22.19	0.1656	17923.0	17M9G7W
	16QAM			21.59	0.1442	17905.0	17M9D7W

5G NR BAND n66

Part 27

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	BPSK	1712.5	1777.5	21.72	0.1486	4479.0	4M48G7W
	16QAM			21.03	0.1268	4457.4	4M46D7W
10.0	BPSK	1715.0	1775.0	21.28	0.1343	8942.3	8M94G7W
	16QAM			20.58	0.1143	8949.5	8M95D7W
15.0	BPSK	1717.5	1772.5	21.29	0.1346	13399.0	13M4G7W
	16QAM			20.63	0.1156	13363.0	13M4D7W
20.0	BPSK	1720.0	1770.0	21.08	0.1282	17872.0	17M9G7W
	16QAM			20.79	0.1199	17838.0	17M8D7W

5.3. SOFTWARE

The test utility software used during testing was A526B.001.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

Bands	Antenna Gain (dBi)
GSM850, 824-849MHz	-6.5
GSM1900, 1850-1910MHz	-6
WCDMA Band 2, 1850-1910 MHz	-6
WCDMA Band 4, 1710-1755 MHz	-6
WCDMA Band 5, 824-849 MHz	-6.5
LTE Band 2, 1850 – 1910 MHz	-6
LTE Band 5 and NR Band n5, 824 – 849 MHz	-6.5
LTE Band 12, 699 – 716 MHz	-5
LTE Band 17, 704 – 716 MHz	-5
LTE Band 26, 814 – 849 MHz	-6.5
LTE Band 66 and NR Band n66, 1710 – 1780 MHz	-6

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports 2G/3G, LTE and 5G NR Bands:
GSM 850/1900, WCDMA Band 2,4 and 5, LTE Band 2, Band 4, Band 5, Band 12, Band 17, Band 26, Band 41, Band 66, 5G NR Band n5, and 5G NR Band n66.

LTE Band 4 (1710-1755MHz) is covered by LTE Band 66 because it is a subset of LTE Band 66 and LTE Band 4 have less output power.

LTE Band 17 (704-716MHz) is covered by LTE Band 12 because it is a subset of LTE Band 12 and they have same output power.

The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM for all LTE Bands and 5G NR. And also added 256QAM and BPSK modulations for 5G NR only. It was found that QPSK and 16QAM results were worst case for LTE Bands and QPSK and BPSK were the worst case for 5G NR Bands. All testing was performed using QPSK, 16QAM, and BPSK modulations to represent the worst case.

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

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, & Z. It was determined that X-Axis for 1900 and 1700MHz. And Y-Axis for 800 and 700MHz with AC/DC Adapter and headset was worst-case orientation.

All radios that can be transmitted simultaneously have been evaluated for radiated for all possible combinations of transmission and found to be in compliance.

Radiated spurious emissions were investigated below 30MHz, 30MHz-1GHz, and above 1GHz. There were no emissions found below 30MHz and 30MHz-1GHz.

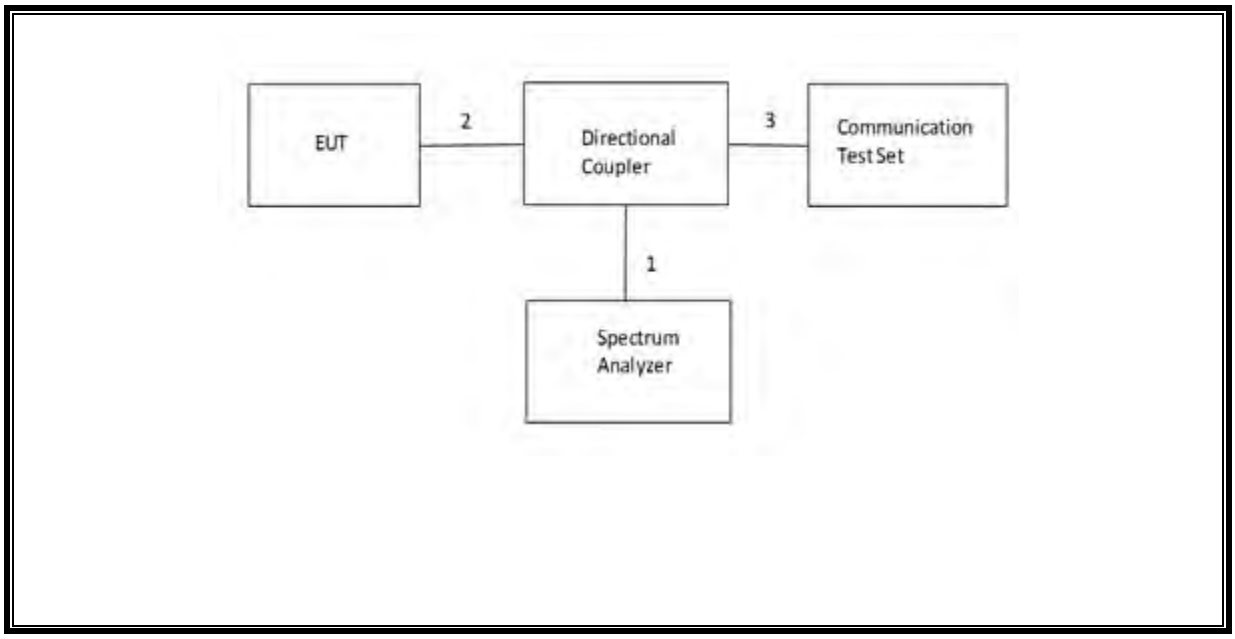
5.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC
AC Adapter	Samsung	EP-TA200	R37N6K18582SE3	N/A
Earphone	Samsung	N/A	N/A	N/A

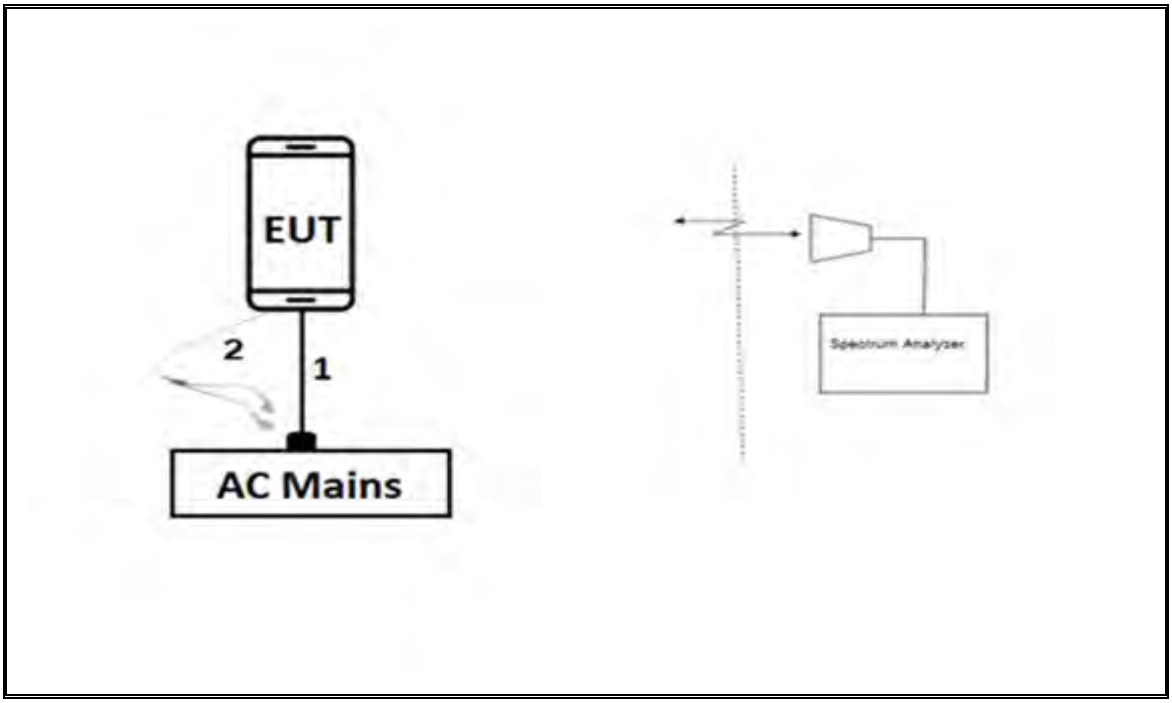
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	N/A
2	Antenna Port	1	EUT	Shielded	0.1m	N/A
3	RF In/Out	1	Communication Test Set	Shielded	1m	N/A

I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	AC Adapter	Shielded	1	No
2	Earphone	1	USB	Un-shielded	1	No
3	RF In/out	1	Communication Test Set	Un-shielded	2	No

CONDUCTED SETUP



RADIATED SETUP



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Highpass Filter, 2.7 GHz	Micro-Circuits	H2G518G6	T772	01/22/2021	01/22/2020
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM50114	T1852	07/20/2021	07/20/2020
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1241	06/25/2021	06/25/2020
Filter, Highpass 1.2GHz	MICRO-TRONICS	HPM50108	PRE0182536	06/19/2021	06/19/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T346	07/20/2021	07/20/2020
Antenna, Dipole	ETS-Lindgren	3121C DB4	T416	11/11/2021	11/11/2020
Hybrid Antenna	Sonol Sciences Corp	JB3	T900	02/05/2021	02/05/2020
Antenna Horn 700MHz to 18GHz	AH Systems, Inc.	SAS-571	T963	01/25/2021	01/25/2020
RF Amplifier	AMPLICAL	AMP1G18-35	T1571	08/20/2021	08/20/2020
RF Amplifier 9KHz – 1GHz	SONOMA INSTR	310	PRE0180174	06/01/2021	06/01/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	08/31/2021	08/31/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T344	05/26/2021	05/26/2020
Directional Coupler	Mini-Circuits	ZUDC10-183+	T1136	08/04/2021	08/04/2020
Wideband Communication Test Set, Call Box	R&S	CMW500	T972	02/24/2021	02/24/2020
Wideband Communication Test Set, Call Box	R&S	CMW500	T979	02/26/2021	02/26/2020
Chamber, Environmental	Thermotron	SE-600-10-10	T80	05/17/2021	11/17/2020
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T146	01/29/2021	01/29/2020
Antenna Horn, 18 to 26GHz	ARA	MWH-1826/B	T447	09/24/2021	09/24/2020
Antenna Horn, 26 to 40GHz	ARA	MWH-2640/B	T446	09/24/2021	09/24/2020
High Frequency Amplifier Switch Box	Agilent Technology	8449B	PRE0183142	04/08/2021	04/08/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T341	07/29/2021	07/29/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179376	04/03/2021	04/03/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179372	02/25/2021	02/25/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179367	02/26/2021	02/26/2020
DC power supply, 8 V @ 3 A or 15 V @ 2 A	Agilent / HP	E3610A	None	CNR	CNR
DC power supply 15V	Sorensen	XT15-4	T465	CNR	CNR
Power Meter	Keysight	N1911A	T1264	01/21/2021	01/21/2020
Power Sensor	Keysight	N1921A	T1223	04/10/2021	04/10/2020

UL AUTOMATION SOFTWARE			
CLT Software	UL	UL RF	Ver 7.6, November 11, 2017
Power Measurement Software	UL	UL RF	Ver 2.7, 2019
Radiated test software	UL	UL RF	Ver 9.5 June 15, 2019

NOTES:

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

7. RF OUTPUT POWER VERIFICATION

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:

7.1. GSM

Using CMW500 Communication Test Set
Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press **Connection control** to choose the different menus
Press **RESET** > choose all to reset all settings

Connection	Press **Signal Off** to turn off the signal and change settings Network Support > GSM+GPRS or GSM+EGPRS Main Service > Packet Data Service selection > Test Mode A – Auto Slot Config. off	
MS Signal	Press Slot Config bottom on the right twice to select and change the number of time slots and power setting	
	> Slot configuration	> Uplink/Gamma > 33 dBm for GPRS 850/900 > 27 dBm for EGPRS 850/900 > 30 dBm for GPRS1800/1900 > 26 dBm for EGPRS1800/1900
BS Signal	Enter the same channel number for TCH channel (test channel) and BCCH channel	
	Frequency Offset >	+ 0 Hz
	Mode >	BCCH and TCH
	BCCH Level >	-85 dBm (May need to adjust if link is not stable)
	BCCH Channel >	choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]
	Channel Type >	Off
	P0>	4 dB
	Slot Config >	Unchanged (if already set under MS Signal)
	TCH >	choose desired test channel
	Hopping >	Off
	Main Timeslot >	3 (Default)
Network	Coding Scheme >	CS 4 (GPRS) and MCS5 (EGPRS)
	Bit Stream >	2E9-1PSR Bit Pattern
AF/RF	Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input	
Connection	Press **Signal On** to turn on the signal and change settings	

RESULT

7.1.1. GSM 850

Test Engineer ID:	40814	Test Date:	11/16/2020

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)
					ANT 1
GPRS (GMSK)	CS1	1	128	824.2	**32.30**
			190	836.6	32.20
			251	848.8	31.60
		2	128	824.2	31.70
			190	836.6	31.80
			251	848.8	31.40
		3	128	824.2	29.70
			190	836.6	**29.80**
			251	848.8	29.40
		4	128	824.2	27.60
			190	836.6	27.60
			251	848.8	27.20
EGPRS (8PSK)	MCS5	1	128	824.2	**26.50**
			190	836.6	**26.50**
			251	848.8	26.20
		2	128	824.2	25.60
			190	836.6	25.30
			251	848.8	24.70
		3	128	824.2	**23.50**
			190	836.6	23.40
			251	848.8	22.90
		4	128	824.2	22.30
			190	836.6	22.30
			251	848.8	21.70

7.1.2. GSM 1900

Test Engineer ID:	40814	Test Date:	11/16/2020

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)
					ANT 1
GPRS (GMSK)	CS1	1	512	1850.2	**28.80**
			661	1880	28.70
			810	1909.8	**28.80**
		2	512	1850.2	28.40
			661	1880	28.70
			810	1909.8	27.80
		3	512	1850.2	25.80
			661	1880	26.00
			810	1909.8	25.00
		4	512	1850.2	24.30
			661	1880	24.60
			810	1909.8	23.80
EGPRS (8PSK)	MCS5	1	512	1850.2	**25.10**
			661	1880	**25.10**
			810	1909.8	24.80
		2	512	1850.2	24.00
			661	1880	24.30
			810	1909.8	23.70
		3	512	1850.2	22.10
			661	1880	22.40
			810	1909.8	22.00
		4	512	1850.2	21.10
			661	1880	21.20
			810	1909.8	20.60

7.2. WCDMA

TEST PROCEDURE

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW ≥ RBW.≥ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

REL 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

HSDPA REL 5

The following 4 Sub-tests were completed according to Release 5 procedures in table C.10.1.4 of 3GPP TS 34.121-1

A summary of these settings are illustrated below:

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, Note 2)*	**CM** (dB) *(Note 3)*	**MPR** (dB) *(Note 3)*
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 *(Note 4)*	15/15 *(Note 4)*	64	12/15 *(Note 4)*	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

HSPA REL 6 (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c . For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c .

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

DUAL CARRIER HSDPA (DC-HSDPA (REL 8, CAT 24)

The following 4 Sub-tests for DC-HSDPA were completed according to Release 8 procedures in table C08.1.12 of 3GPP TS 34.121-1. A summary of subtest settings are illustrated below:

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK

Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.

Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

HSPA+ REL 7

The following 1 Sub-test was completed according to Release 7 procedures in table C.11.1.4 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4: **β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

RESULT

7.2.1. WCDMA BAND 5

Test Engineer ID:	52300	Test Date:	11/16/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm) ANT 1
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	**24.2**
			4183	836.6	N/A	23.9
			4233	846.6	N/A	23.5
	HSDPA	Subtest 1	4132	826.4	0	23.2
			4183	836.6	0	22.9
			4233	846.6	0	22.5
		Subtest 2	4132	826.4	0	23.2
			4183	836.6	0	22.9
			4233	846.6	0	22.5
		Subtest 3	4132	826.4	0.5	23.2
			4183	836.6	0.5	22.9
			4233	846.6	0.5	22.5
		Subtest 4	4132	826.4	0.5	23.2
			4183	836.6	0.5	22.9
			4233	846.6	0.5	22.5
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	23.4
			4183	836.6	0	23.1
			4233	846.6	0	22.7
		Subtest 2	4132	826.4	2	21.4
			4183	836.6	2	21.4
			4233	846.6	2	21.3
		Subtest 3	4132	826.4	1	22.3
			4183	836.6	1	22.1
			4233	846.6	1	21.7
		Subtest 4	4132	826.4	2	21.3
			4183	836.6	2	21.1
			4233	846.6	2	20.7
		Subtest 5	4132	826.4	0	**23.4**
			4183	836.6	0	23.1
			4233	846.6	0	22.7
	DC-HSDPA	Subtest 1	4132	826.4	0	23.2
			4183	836.6	0	22.9
			4233	846.6	0	22.6
		Subtest 2	4132	826.4	0	23.2
			4183	836.6	0	22.9
			4233	846.6	0	22.6
		Subtest 3	4132	826.4	0.5	23.3
			4183	836.6	0.5	23.0
			4233	846.6	0.5	22.6
		Subtest 4	4132	826.4	0.5	23.3
			4183	836.6	0.5	23.0
			4233	846.6	0.5	22.6

7.2.2. WCDMA BAND 2

Test Engineer ID:	38206	Test Date:	11/16/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)
						ANT 1
W-CDMA Band 2 (1900MHz)	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	23.8
			9400	1880.0	N/A	**23.9**
			9538	1907.6	N/A	23.3
	HSDPA	Subtest 1	9262	1852.4	0	22.8
			9400	1880.0	0	22.9
			9538	1907.6	0	22.4
		Subtest 2	9262	1852.4	0	22.8
			9400	1880.0	0	22.9
			9538	1907.6	0	22.4
		Subtest 3	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.4
			9538	1907.6	0.5	21.8
		Subtest 4	9262	1852.4	0.5	22.2
			9400	1880.0	0.5	22.4
			9538	1907.6	0.5	21.7
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	22.7
			9400	1880.0	0	22.8
			9538	1907.6	0	22.2
		Subtest 2	9262	1852.4	2	20.7
			9400	1880.0	2	20.7
			9538	1907.6	2	20.2
		Subtest 3	9262	1852.4	1	21.7
			9400	1880.0	1	21.8
			9538	1907.6	1	21.2
		Subtest 4	9262	1852.4	2	20.7
			9400	1880.0	2	20.8
			9538	1907.6	2	20.3
		Subtest 5	9262	1852.4	0	23.7
			9400	1880.0	0	**23.8**
			9538	1907.6	0	23.2
	DC-HSDPA	Subtest 1	9262	1852.4	0	22.8
			9400	1880.0	0	22.9
			9538	1907.6	0	22.3
		Subtest 2	9262	1852.4	0	22.8
			9400	1880.0	0	22.9
			9538	1907.6	0	22.2
		Subtest 3	9262	1852.4	0.5	22.2
			9400	1880.0	0.5	22.4
			9538	1907.6	0.5	21.8
		Subtest 4	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.4
			9538	1907.6	0.5	21.7

7.2.3. WCDMA BAND 4

Test Engineer ID:	38206	Test Date:	11/16/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)
						ANT 1
W-CDMA Band 4 (1700MHz)	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	23.1
			1413	1732.6	N/A	22.8
			1513	1752.6	N/A	**23.6**
	HSDPA	Subtest 1	1312	1712.4	0	22.1
			1413	1732.6	0	21.8
			1513	1752.6	0	22.6
		Subtest 2	1312	1712.4	0	22.1
			1413	1732.6	0	21.8
			1513	1752.6	0	22.6
		Subtest 3	1312	1712.4	0.5	21.5
			1413	1732.6	0.5	21.3
			1513	1752.6	0.5	22.1
		Subtest 4	1312	1712.4	0.5	21.6
			1413	1732.6	0.5	21.3
			1513	1752.6	0.5	22.1
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	22.0
			1413	1732.6	0	21.8
			1513	1752.6	0	22.6
		Subtest 2	1312	1712.4	2	20.1
			1413	1732.6	2	19.7
			1513	1752.6	2	20.6
		Subtest 3	1312	1712.4	1	21.0
			1413	1732.6	1	20.7
			1513	1752.6	1	21.6
		Subtest 4	1312	1712.4	2	20.0
			1413	1732.6	2	19.7
			1513	1752.6	2	20.6
		Subtest 5	1312	1712.4	0	23.0
			1413	1732.6	0	22.7
			1513	1752.6	0	**23.5**
	DC-HSDPA	Subtest 1	1312	1712.4	0	22.1
			1413	1732.6	0	21.8
			1513	1752.6	0	22.6
		Subtest 2	1312	1712.4	0	22.1
			1413	1732.6	0	21.8
			1513	1752.6	0	22.6
		Subtest 3	1312	1712.4	0.5	21.5
			1413	1732.6	0.5	21.3
			1513	1752.6	0.5	22.1
		Subtest 4	1312	1712.4	0.5	21.6
			1413	1732.6	0.5	21.3
			1513	1752.6	0.5	22.1

7.3. 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 TS36.101 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 TS36.101.

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 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”.3

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

Network Signalling value	Requirements (sub-clause)	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	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Table 6.2.2.3-1: Maximum Power Reduction (MPR) for Power 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]
DFT-s-OFDM QPSK	≤ 1		0
DFT-s-OFDM 16 QAM	≤ 2		≤ 1
DFT-s-OFDM 64 QAM	≤ 2.5		
DFT-s-OFDM 256 QAM	≤ 4.5		
CP-OFDM QPSK	≤ 3		≤ 1.5
CP-OFDM 16 QAM	≤ 3		≤ 2
CP-OFDM 64 QAM	≤ 3.5		
CP-OFDM 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 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
DFT-s-OFDM QPSK	≤ 3.5	≤ 1	0
DFT-s-OFDM 16 QAM	≤ 3.5	≤ 2	≤ 1
DFT-s-OFDM 64 QAM	≤ 3.5	≤ 2.5	
DFT-s-OFDM 256 QAM	≤ 4.5		
CP-OFDM QPSK	≤ 3.5	≤ 3	≤ 1.5
CP-OFDM 16 QAM	≤ 3.5	≤ 3	≤ 2
CP-OFDM 64 QAM	≤ 3.5		
CP-OFDM 256 QAM	≤ 6.5		

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:

7.3.1. LTE BAND 2

Test Engineer ID:	52300	Test Date:	11/16/2020

OUTPUT POWER FOR LTE BAND 2 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				18607	18900	19193
				1850.7 MHz	1880.0 MHz	1909.3 MHz
1.4	QPSK	1	0	**23.4**	23.2	22.6
		1	2	23.4	23.2	22.7
		1	5	23.3	23.2	22.6
		3	0	23.3	23.3	22.6
		3	1	23.3	23.3	22.6
		3	2	23.3	23.3	22.7
		6	0	22.4	22.3	21.7
	16QAM	1	0	22.5	22.7	21.8
		1	2	22.6	**22.8**	21.8
		1	5	22.5	22.6	21.7
		3	0	22.4	22.5	21.9
		3	1	22.4	22.6	22.0
		3	2	22.4	22.6	21.9
		6	0	21.5	21.2	20.8
	64QAM	1	0	21.6	21.5	21.1
		1	2	21.9	21.6	21.2
		1	5	21.8	21.4	21.1
		3	0	21.8	21.6	20.8
		3	1	21.8	21.6	20.8
		3	2	21.8	21.6	20.8
		6	0	20.4	20.6	19.9

OUTPUT POWER FOR LTE BAND 2 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				18615	18900	19185
				1851.5 MHz	1880.0 MHz	1908.5 MHz
3.0	QPSK	1	0	22.5	**23.2**	22.8
		1	7	22.5	23.2	22.8
		1	14	22.5	23.2	22.7
		8	0	21.5	22.4	21.8
		8	4	21.7	22.4	21.9
		8	7	21.7	22.4	21.9
		15	0	21.6	22.4	21.8
	16QAM	1	0	21.5	22.2	22.2
		1	7	21.5	**22.3**	22.2
		1	14	21.5	22.1	22.1
		8	0	20.7	21.5	20.9
		8	4	20.7	21.5	21.0
		8	7	20.7	21.5	20.9
		15	0	20.6	21.4	20.9
	64QAM	1	0	21.6	21.7	21.3
		1	7	21.6	21.6	21.2
		1	14	21.5	21.6	21.2
		8	0	20.6	20.4	20.0
		8	4	20.6	20.4	20.0
		8	7	20.6	20.4	20.0
		15	0	20.5	20.5	19.9

OUTPUT POWER FOR LTE BAND 2 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				18625	18900	19175
				1852.5 MHz	1880.0 MHz	1907.5 MHz
5.0	QPSK	1	0	23.3	23.3	22.8
		1	12	23.3	**23.3**	22.8
		1	24	23.3	23.2	22.6
		12	0	22.5	22.4	21.8
		12	6	22.5	22.4	21.9
		12	11	22.4	22.3	21.7
		25	0	22.4	22.3	21.8
	16QAM	1	0	22.5	22.4	22.3
		1	12	**22.6**	22.5	22.3
		1	24	22.5	22.3	22.2
		12	0	21.5	21.4	21.0
		12	6	21.5	21.4	21.0
		12	11	21.4	21.4	21.0
		25	0	21.4	21.4	20.9
	64QAM	1	0	21.7	21.3	21.2
		1	12	21.7	21.4	21.1
		1	24	21.6	21.2	21.2
		12	0	20.6	20.5	19.9
		12	6	20.6	20.5	19.9
		12	11	20.5	20.4	19.8
		25	0	20.5	20.4	19.9

OUTPUT POWER FOR LTE BAND 2 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				18650	18900	19150
				1855.0 MHz	1880.0 MHz	1905.0 MHz
10.0	QPSK	1	0	23.0	23.0	22.9
		1	24	23.3	**23.4**	22.8
		1	49	23.1	23.0	22.7
		25	0	22.3	22.2	21.8
		25	12	22.4	22.4	21.9
		25	24	22.3	22.2	21.7
		50	0	22.3	22.3	21.8
	16QAM	1	0	22.1	22.4	21.9
		1	24	22.4	**22.8**	21.8
		1	49	22.1	22.4	21.7
		25	0	21.4	21.2	20.9
		25	12	21.5	21.4	21.0
		25	24	21.4	21.3	20.8
		50	0	21.3	21.3	20.8
	64QAM	1	0	21.4	21.3	21.2
		1	24	21.6	21.8	21.1
		1	49	21.3	21.3	20.9
		25	0	20.4	20.3	20.0
		25	12	20.5	20.4	20.1
		25	24	20.4	20.3	19.9
		50	0	20.4	20.3	19.9

OUTPUT POWER FOR LTE BAND 2 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				18675	18900	19125
				1857.5 MHz	1880.0 MHz	1902.5 MHz
15.0	QPSK	1	0	22.3	23.1	22.8
		1	37	22.4	**23.1**	22.6
		1	74	22.4	22.9	22.6
		36	0	21.3	22.0	21.7
		36	16	21.4	22.1	21.7
		36	35	21.5	22.1	21.6
		75	0	21.4	22.1	21.7
	16QAM	1	0	21.2	22.2	**22.2**
		1	37	21.3	22.2	22.0
		1	74	21.4	22.0	21.9
		36	0	20.3	21.0	20.8
		36	16	20.4	21.1	20.8
		36	35	20.5	21.1	20.7
		75	0	20.4	21.1	20.7
	64QAM	1	0	21.2	21.8	21.2
		1	37	21.3	21.8	21.0
		1	74	21.2	21.6	20.9
		36	0	20.2	20.1	19.8
		36	16	20.3	20.2	19.8
		36	35	20.3	20.2	19.7
		75	0	20.2	20.2	19.7

OUTPUT POWER FOR LTE BAND 2 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				18700	18900	19100
				1860.0 MHz	1880.0 MHz	1900.0 MHz
20.0	QPSK	1	0	22.1	23.1	22.8
		1	49	22.3	**23.1**	22.6
		1	99	22.3	22.9	22.4
		50	0	21.3	22.0	21.7
		50	24	21.4	22.1	21.8
		50	49	21.5	22.1	21.6
		100	0	21.4	22.0	21.7
	16QAM	1	0	21.6	22.7	22.4
		1	49	21.9	**22.7**	22.2
		1	99	22.0	22.5	22.1
		50	0	20.3	21.1	20.7
		50	24	20.4	21.1	20.8
		50	49	20.5	21.1	20.7
		100	0	20.4	21.1	20.7
	64QAM	1	0	21.9	21.4	21.2
		1	49	21.8	21.4	21.1
		1	99	21.9	21.2	20.9
		50	0	20.1	20.1	19.8
		50	24	20.3	20.2	19.9
		50	49	20.2	20.1	19.8
		100	0	20.1	20.1	19.8

7.3.2. LTE BAND 5

Test Engineer ID:	38206	Test Date:	11/17/2020

OUTPUT POWER FOR LTE BAND 5 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				20407	20525	20643
				824.7 MHz	836.5 MHz	848.3 MHz
1.4	QPSK	1	0	24.1	24.0	23.6
		1	2	24.1	24.0	23.6
		1	5	**24.1**	23.9	23.5
		3	0	24.1	23.9	23.5
		3	1	24.1	23.9	23.5
		3	2	24.1	23.9	23.5
		6	0	23.1	23.0	22.5
	16QAM	1	0	23.1	23.2	22.9
		1	2	23.2	23.2	23.0
		1	5	23.1	23.1	22.8
		3	0	23.3	23.0	22.7
		3	1	**23.4**	23.0	22.8
		3	2	23.4	23.0	22.8
		6	0	22.3	22.2	21.5
	64QAM	1	0	22.3	22.1	21.9
		1	2	22.3	22.2	22.0
		1	5	22.2	22.1	21.9
		3	0	22.3	21.9	21.9
		3	1	22.3	21.9	21.9
		3	2	22.3	22.0	21.9
		6	0	21.4	21.1	20.5

OUTPUT POWER FOR LTE BAND 5 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20415	20525	20635
				825.5 MHz	836.5 MHz	847.5 MHz
3.0	QPSK	1	0	24.1	23.9	23.6
		1	7	24.0	23.8	23.5
		1	14	**24.1**	23.8	23.5
		8	0	23.2	23.1	22.6
		8	4	23.2	23.1	22.6
		8	7	23.2	23.1	22.6
		15	0	23.2	23.1	22.6
	16QAM	1	0	**23.1**	22.9	23.0
		1	7	23.0	22.8	22.9
		1	14	23.1	22.7	22.9
		8	0	22.2	22.2	21.7
		8	4	22.3	22.2	21.7
		8	7	22.3	22.2	21.7
		15	0	22.1	22.1	21.7
	64QAM	1	0	22.3	22.4	21.8
		1	7	22.2	22.3	21.7
		1	14	22.3	22.2	21.7
		8	0	21.2	21.2	20.7
		8	4	21.2	21.2	20.8
		8	7	21.2	21.2	20.7
		15	0	21.3	21.1	20.7

OUTPUT POWER FOR LTE BAND 5 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20425	20525	20625
				826.5 MHz	836.5 MHz	846.5 MHz
5.0	QPSK	1	0	24.0	24.0	23.8
		1	12	**24.1**	24.0	23.7
		1	24	24.1	23.8	23.6
		12	0	23.2	23.1	22.7
		12	6	23.3	23.1	22.7
		12	11	23.2	23.0	22.6
		25	0	23.2	23.1	22.6
	16QAM	1	0	23.2	23.2	23.2
		1	12	23.2	23.1	23.1
		1	24	**23.3**	23.0	23.1
		12	0	22.3	22.2	21.8
		12	6	22.3	22.2	21.9
		12	11	22.3	22.1	21.8
		25	0	22.1	22.1	21.7
	64QAM	1	0	22.3	22.0	21.9
		1	12	22.3	22.0	21.8
		1	24	22.3	21.8	21.8
		12	0	21.3	21.2	20.7
		12	6	21.3	21.2	20.7
		12	11	21.2	21.0	20.6
		25	0	21.2	21.1	20.6

OUTPUT POWER FOR LTE BAND 5 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20450	20525	20600
				829.0 MHz	836.5 MHz	844.0 MHz
10.0	QPSK	1	0	**24.0**	23.9	23.9
		1	24	**24.0**	23.9	23.9
		1	49	**24.0**	23.7	23.7
		25	0	23.2	23.2	23.2
		25	12	23.3	23.1	23.1
		25	24	23.2	23.0	23.0
		50	0	23.2	23.0	23.0
	16QAM	1	0	23.2	23.1	23.1
		1	24	23.2	23.1	23.1
		1	49	**23.3**	22.9	22.9
		25	0	22.3	22.2	22.2
		25	12	22.3	22.2	22.2
		25	24	22.3	22.0	22.0
		50	0	22.1	21.9	21.9
	64QAM	1	0	22.3	22.5	22.5
		1	24	22.3	22.4	22.4
		1	49	22.3	22.2	22.2
		25	0	21.3	21.2	21.2
		25	12	21.3	21.2	21.2
		25	24	21.2	21.0	21.0
		50	0	21.2	21.0	21.0

7.3.3. 5G NR BAND n5

Test Engineer ID:	44394 & 19480	Test Date:	12/21/2020 & 12/29/2020 & 1/8/2021

OUTPUT POWER FOR 5G NR BAND n5 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				165300	167300	169300
				826.5	836.5 MHz	846.5 MHz
5.0	BPSK	1	1	24.4	24.5	24.2
		1	13	24.4	24.7	24.3
		1	23	24.2	24.6	24.2
		12	0	24.1	24.2	23.9
		12	6	24.5	**24.7**	24.4
		12	12	24.0	24.1	23.9
		25	0	24.0	24.2	24.0
	QPSK	1	1	23.1	23.0	23.0
		1	13	23.0	23.0	23.0
		1	23	23.0	23.0	23.0
		12	0	**23.2**	23.1	23.0
		12	6	23.1	23.1	23.0
		12	12	23.1	23.1	23.0
		25	0	23.1	23.1	23.0
	16QAM	1	1	23.6	23.5	23.5
		1	13	**23.7**	23.6	23.4
		1	23	23.7	23.5	23.5
		12	0	22.7	22.4	22.2
		12	6	23.5	23.5	23.2
		12	12	22.7	22.5	22.2
		25	0	22.4	22.4	22.1
	64QAM	1	1	21.6	21.6	21.6
		1	13	21.8	21.6	21.6
		1	23	21.8	21.8	21.5
		12	0	22.0	21.9	21.7
		12	6	22.0	21.8	21.6
		12	12	21.9	21.9	21.6
		25	0	22.0	21.9	21.7
	256QAM	1	1	19.9	19.8	19.9
		1	13	**20.1**	19.7	19.7
		1	23	19.8	19.9	19.6
		12	0	20.0	19.9	19.8
		12	6	**20.1**	20.0	19.6
		12	12	19.9	19.9	19.6
		25	0	**20.1**	20.0	19.6

OUTPUT POWER FOR 5G NR BAND n5 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				165800	167300	168800
				829 MHz	836.5 MHz	844 MHz
10.0	BPSK	1	1	23.6	23.4	23.1
		1	26	23.4	23.6	23.3
		1	50	23.6	23.5	23.5
		25	0	23.5	23.1	23.1
		25	12	**23.7**	23.7	23.3
		25	25	23.5	23.1	23.2
		50	0	23.4	23.1	23.2
	QPSK	1	1	23.1	23.0	23.1
		1	26	23.0	23.0	23.0
		1	50	23.0	23.0	23.0
		25	0	**23.2**	23.0	23.0
		25	12	23.1	23.0	23.0
		25	25	23.1	23.0	22.9
		50	0	**23.2**	23.0	23.0
	16QAM	1	1	23.5	23.6	**23.6**
		1	26	23.6	23.5	23.6
		1	50	23.6	23.4	23.6
		25	0	22.6	22.5	22.4
		25	12	23.4	23.5	23.3
		25	25	22.4	22.5	22.2
		50	0	22.5	22.5	22.3
	64QAM	1	1	21.5	21.4	21.5
		1	26	21.9	21.9	21.8
		1	50	21.7	21.9	21.6
		25	0	22.0	22.0	21.8
		25	12	21.9	22.0	21.8
		25	25	21.8	21.9	21.7
		50	0	21.9	21.9	21.8
	256QAM	1	1	20.0	19.9	19.8
		1	26	19.7	**20.3**	19.5
		1	50	20.2	19.9	19.4
		25	0	20.1	19.9	19.9
		25	12	19.9	20.0	19.8
		25	25	20.0	19.9	19.7
		50	0	20.0	19.9	19.8

OUTPUT POWER FOR 5G NR BAND n5 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				166300	167300	168300
				831.5 MHz	836.5 MHz	841.5 MHz
15.0	BPSK	1	1	23.9	23.7	23.7
		1	40	23.7	23.8	23.7
		1	77	23.8	23.7	23.6
		36	0	23.4	23.4	23.3
		36	18	**23.9**	23.8	23.8
		36	36	23.4	23.4	23.3
		75	0	23.4	23.3	23.3
	QPSK	1	1	23.2	**23.3**	**23.3**
		1	40	23.2	23.3	23.2
		1	77	23.2	23.2	23.2
		36	0	23.1	23.1	23.1
		36	18	23.2	23.2	23.1
		36	36	23.2	23.2	23.1
		75	0	22.8	22.8	22.8
	16QAM	1	1	23.5	**23.6**	23.3
		1	40	23.5	23.5	23.2
		1	77	23.6	23.3	22.9
		36	0	22.5	22.3	22.2
		36	18	23.3	23.3	23.1
		36	36	22.3	22.2	22.2
		75	0	22.4	22.3	22.3
	64QAM	1	1	22.0	21.8	21.7
		1	40	21.5	22.0	21.4
		1	77	21.3	21.6	21.0
		36	0	22.1	22.0	21.8
		36	18	21.9	21.9	21.8
		36	36	21.8	21.8	21.6
		75	0	22.0	21.9	21.8
	256QAM	1	1	19.8	**20.0**	19.5
		1	40	**20.0**	19.9	19.7
		1	77	19.8	19.9	19.7
		36	0	19.9	19.9	19.8
		36	18	19.9	19.8	19.8
		36	36	19.9	**20.0**	19.7
		75	0	**20.0**	19.9	19.7

OUTPUT POWER FOR 5G NR BAND n5 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				166800	167300	167800
				834 MHz	836.5 MHz	839 MHz
20.0	BPSK	1	1	**23.9**	23.8	23.8
		1	53	23.8	23.8	23.9
		1	104	23.8	23.5	23.7
		50	0	23.3	23.4	23.5
		50	25	23.9	23.9	**23.9**
		50	50	23.3	23.3	23.4
		100	0	23.3	23.2	23.3
	QPSK	1	1	**23.3**	23.0	23.2
		1	53	23.1	23.0	23.2
		1	104	23.1	23.0	23.0
		50	0	23.2	**23.3**	23.2
		50	25	23.2	23.2	23.2
		50	50	23.0	23.2	23.2
		100	0	22.9	23.1	23.1
	16QAM	1	1	23.5	**23.5**	23.3
		1	53	22.3	**23.5**	23.2
		1	104	23.2	23.4	22.9
		50	0	22.4	22.3	22.4
		50	25	23.3	23.3	23.2
		50	50	22.3	22.2	22.2
		100	0	22.3	22.4	22.2
	64QAM	1	1	22.3	22.1	22.0
		1	53	21.0	21.5	22.0
		1	104	21.3	21.6	21.5
		50	0	21.9	21.9	21.8
		50	25	21.8	21.8	21.8
		50	50	21.8	21.7	21.7
		100	0	21.8	21.8	21.8
	256QAM	1	1	19.7	20.0	19.9
		1	53	19.5	19.7	19.8
		1	104	**20.1**	19.8	19.9
		50	0	19.8	19.9	19.8
		50	25	20.0	19.7	19.8
		50	50	19.8	19.9	19.8
		100	0	19.8	19.7	19.8

7.3.4. LTE BAND 12

Test Engineer ID:	38206	Test Date:	11/17/2020

OUTPUT POWER FOR LTE BAND 12 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				23017	23095	23173
				699.7 MHz	707.5 MHz	715.3 MHz
1.4	QPSK	1	0	24.0	24.2	24.0
		1	2	24.1	24.2	24.1
		1	5	24.1	**24.3**	23.9
		3	0	24.1	24.3	23.9
		3	1	24.1	24.2	23.9
		3	2	24.1	24.2	23.9
		6	0	23.1	23.2	22.9
	16QAM	1	0	23.1	23.5	23.2
		1	2	23.2	23.5	23.4
		1	5	23.2	**23.6**	23.1
		3	0	23.4	23.3	23.2
		3	1	23.4	23.3	23.2
		3	2	23.4	23.4	23.2
		6	0	22.3	22.4	21.8
	64QAM	1	0	22.3	22.4	22.1
		1	2	22.4	22.6	22.2
		1	5	22.4	22.5	22.0
		3	0	22.1	22.6	22.1
		3	1	22.1	22.6	22.2
		3	2	22.1	22.6	22.2
		6	0	21.3	21.2	21.2

OUTPUT POWER FOR LTE BAND 12 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				23025	23095	23165
				700.5 MHz	707.5 MHz	714.5 MHz
3.0	QPSK	1	0	24.1	24.0	24.1
		1	7	24.1	24.0	24.0
		1	14	**24.1**	24.1	23.9
		8	0	23.2	23.2	23.1
		8	4	23.2	23.3	23.1
		8	7	23.2	23.3	23.1
		15	0	23.2	23.3	23.1
	16QAM	1	0	23.2	22.9	**23.5**
		1	7	23.1	22.9	23.3
		1	14	23.2	23.0	23.2
		8	0	22.2	22.2	22.2
		8	4	22.3	22.3	22.1
		8	7	22.3	22.3	22.1
		15	0	22.2	22.3	22.1
	64QAM	1	0	22.5	22.4	22.3
		1	7	22.5	22.4	22.1
		1	14	22.4	22.5	22.1
		8	0	21.2	21.3	21.2
		8	4	21.3	21.4	21.2
		8	7	21.3	21.4	21.1
		15	0	21.3	21.3	21.1

OUTPUT POWER FOR LTE BAND 12 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				23035	23095	23155
				701.5 MHz	707.5 MHz	713.5 MHz
5.0	QPSK	1	0	24.1	24.1	24.2
		1	12	24.2	**24.3**	24.1
		1	24	24.3	24.1	23.9
		12	0	23.1	23.2	23.1
		12	6	23.2	23.3	23.1
		12	11	23.2	23.3	23.0
		25	0	23.2	23.2	23.1
	16QAM	1	0	23.6	23.3	23.3
		1	12	23.6	23.2	23.2
		1	24	**23.7**	23.3	23.1
		12	0	22.3	22.2	22.3
		12	6	22.4	22.3	22.2
		12	11	22.3	22.3	22.1
		25	0	22.3	22.2	22.1
	64QAM	1	0	22.5	22.2	22.5
		1	12	22.4	22.2	22.4
		1	24	22.5	22.2	22.1
		12	0	21.3	21.2	21.2
		12	6	21.4	21.4	21.2
		12	11	21.3	21.4	21.1
		25	0	21.3	21.2	21.1

OUTPUT POWER FOR LTE BAND 12 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				23060	23095	23130
				704.0 MHz	707.5 MHz	711.0 MHz
10.0	QPSK	1	0	23.8	23.8	23.9
		1	24	23.9	23.9	24.0
		1	49	24.0	**24.0**	23.8
		25	0	23.1	23.1	23.1
		25	12	23.2	23.2	23.1
		25	24	23.2	23.2	23.0
		50	0	23.1	23.1	23.1
	16QAM	1	0	23.2	23.2	23.3
		1	24	23.3	**23.4**	23.2
		1	49	23.2	23.2	23.1
		25	0	22.2	22.2	22.3
		25	12	22.3	22.3	22.2
		25	24	22.2	22.2	22.1
		50	0	22.2	22.1	22.1
	64QAM	1	0	22.4	22.4	22.5
		1	24	22.6	22.7	22.4
		1	49	22.4	22.5	22.1
		25	0	21.2	21.2	21.2
		25	12	21.3	21.3	21.2
		25	24	21.3	21.3	21.2
		50	0	21.2	21.2	21.3

7.3.5. LTE BAND 26 (FCC Part 90S)

Test Engineer ID:	38206	Test Date:	11/17/2020

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				26697	26740	26783
				814.7 MHz	819.0	823.3 MHz
1.4	QPSK	1	0	24.2	23.3	23.2
		1	2	**24.3**	23.4	23.3
		1	5	24.2	23.3	23.3
		3	0	24.2	23.2	23.2
		3	1	24.2	23.3	23.3
		3	2	24.2	23.3	23.3
		6	0	23.2	22.3	22.3
	16QAM	1	0	23.4	22.6	22.2
		1	2	**23.5**	22.8	22.4
		1	5	23.4	22.6	22.3
		3	0	23.3	22.5	22.5
		3	1	23.3	22.6	22.6
		3	2	23.3	22.5	22.6
		6	0	22.4	21.2	21.5
	64QAM	1	0	22.3	22.3	22.3
		1	2	22.4	22.3	22.4
		1	5	22.4	22.4	22.4
		3	0	22.1	22.2	22.3
		3	1	22.1	22.2	22.2
		3	2	22.1	22.1	22.3
		6	0	21.3	21.3	21.2

OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				26705	26740	26775
				815.5 MHz	819.0	822.5 MHz
3.0	QPSK	1	0	**24.1**	23.3	23.3
		1	7	24.1	23.2	23.3
		1	14	24.1	23.2	23.3
		8	0	23.2	22.4	22.3
		8	4	23.2	22.4	22.4
		8	7	23.2	22.4	22.4
		15	0	23.2	22.4	22.4
	16QAM	1	0	**23.2**	22.3	22.7
		1	7	23.1	22.2	22.7
		1	14	23.2	22.2	22.8
		8	0	22.3	21.5	21.4
		8	4	22.3	21.5	21.5
		8	7	22.3	21.5	21.5
		15	0	22.2	21.4	21.4
	64QAM	1	0	22.4	22.4	22.4
		1	7	22.3	22.4	22.4
		1	14	22.4	22.4	22.4
		8	0	21.2	22.3	22.4
		8	4	21.3	22.2	22.2
		8	7	21.3	22.2	22.3
		15	0	21.3	21.3	21.3

OUTPUT POWER FOR LTE BAND 26 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				26715	26740	26765
				816.5 MHz	819.0	821.5 MHz
5.0	QPSK	1	0	24.1	23.4	23.4
		1	12	**24.2**	23.3	23.4
		1	24	24.1	23.4	23.4
		12	0	23.2	22.4	22.3
		12	6	23.3	22.4	22.4
		12	11	23.3	22.4	22.4
		25	0	23.2	22.4	22.4
	16QAM	1	0	23.3	22.6	22.9
		1	12	23.3	22.5	22.9
		1	24	**23.3**	22.5	22.9
		12	0	22.3	21.4	21.5
		12	6	22.4	21.5	21.6
		12	11	22.3	21.4	21.6
		25	0	22.2	21.4	21.4
	64QAM	1	0	22.3	22.4	22.3
		1	12	22.4	22.4	22.4
		1	24	22.4	22.4	22.4
		12	0	21.3	22.3	22.3
		12	6	21.3	22.3	22.3
		12	11	21.3	22.2	22.4
		25	0	21.2	21.1	21.3

OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				N/A	26740	N/A
				N/A	819.0	N/A
10.0	QPSK	1	0		**24.2**	
		1	24		24.1	
		1	49		24.1	
		25	0		23.1	
		25	12		23.2	
		25	24		23.1	
		50	0		23.1	
	16QAM	1	0		**23.3**	
		1	24		23.2	
		1	49		23.1	
		25	0		22.2	
		25	12		22.3	
		25	24		22.2	
		50	0		22.2	
	64QAM	1	0		22.5	
		1	24		22.6	
		1	49		22.6	
		25	0		21.2	
		25	12		21.3	
		25	24		21.2	
		50	0		21.1	

OUTPUT POWER FOR LTE BAND 26 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				N/A	26765	N/A
				N/A	821.5 MHz	N/A
15.0	QPSK	1	0		**24.0**	
		1	24		24.0	
		1	49		24.0	
		25	0		23.0	
		25	12		23.2	
		25	24		23.2	
		50	0		23.0	
	16QAM	1	0		**23.2**	
		1	24		23.2	
		1	49		23.1	
		25	0		22.1	
		25	12		22.3	
		25	24		22.3	
		50	0		22.1	
	64QAM	1	0		22.3	
		1	24		22.3	
		1	49		**22.4**	
		25	0		20.9	
		25	12		21.0	
		25	24		20.9	
		50	0		20.9	

7.3.6. LTE BAND 26 (FCC Part 22)

Test Engineer ID:	38206	Test Date:	11/17/2020

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				26797	26915	27033
				824.7 MHz	836.5 MHz	848.3 MHz
1.4	QPSK	1	0	23.2	23.4	23.5
		1	2	23.3	23.5	**23.6**
		1	5	23.3	23.4	23.5
		3	0	23.3	23.3	23.5
		3	1	23.3	23.3	23.5
		3	2	23.3	23.4	23.6
		6	0	22.3	22.4	22.6
	16QAM	1	0	22.4	22.7	22.6
		1	2	22.6	22.8	22.6
		1	5	22.5	22.7	22.6
		3	0	22.3	22.6	22.8
		3	1	22.4	22.6	**22.8**
		3	2	22.4	22.6	22.8
		6	0	21.5	21.3	21.7
	64QAM	1	0	22.3	22.3	21.7
		1	2	22.4	22.3	21.8
		1	5	22.3	22.2	21.6
		3	0	20.9	21.3	21.7
		3	1	20.9	21.3	21.7
		3	2	20.5	21.0	21.8
		6	0	20.8	21.0	20.8

OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				26805	26915	27025
				825.5 MHz	836.5 MHz	847.5 MHz
3.0	QPSK	1	0	23.2	23.4	**23.6**
		1	7	23.2	23.2	23.5
		1	14	23.3	23.3	23.6
		8	0	22.3	22.4	22.6
		8	4	22.4	22.5	22.7
		8	7	22.4	22.5	22.7
		15	0	22.4	22.5	22.7
	16QAM	1	0	22.3	22.4	23.0
		1	7	22.3	22.3	22.9
		1	14	22.4	22.2	**23.0**
		8	0	21.4	21.6	21.7
		8	4	21.5	21.6	21.7
		8	7	21.5	21.6	21.8
		15	0	21.4	21.5	21.7
	64QAM	1	0	22.3	22.3	21.8
		1	7	22.3	22.3	21.7
		1	14	22.3	22.1	21.8
		8	0	20.9	21.2	20.7
		8	4	20.8	21.2	20.7
		8	7	20.5	21.0	20.8
		15	0	20.7	21.0	20.7

OUTPUT POWER FOR LTE BAND 26 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				26815	26915	27015
				826.5 MHz	836.5 MHz	846.5 MHz
5.0	QPSK	1	0	23.3	23.5	**23.8**
		1	12	23.3	23.4	23.7
		1	24	23.4	23.3	23.7
		12	0	22.3	22.5	22.6
		12	6	22.4	22.5	22.7
		12	11	22.4	22.4	22.7
		25	0	22.4	22.5	22.6
	16QAM	1	0	22.4	22.7	**23.2**
		1	12	22.4	22.6	23.1
		1	24	22.6	22.5	23.2
		12	0	21.4	21.5	21.8
		12	6	21.5	21.6	21.9
		12	11	21.5	21.5	21.8
		25	0	21.3	21.5	21.7
	64QAM	1	0	22.4	22.2	21.9
		1	12	22.5	22.2	21.8
		1	24	22.3	22.1	21.9
		12	0	20.9	21.0	20.6
		12	6	20.7	21.0	20.7
		12	11	20.5	21.0	20.7
		25	0	20.7	21.0	20.6

OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				26840	26915	26990
				829.0 MHz	836.5 MHz	844.0 MHz
10.0	QPSK	1	0	23.3	23.3	**23.8**
		1	24	23.3	23.3	23.6
		1	49	23.5	23.1	23.6
		25	0	22.2	22.4	22.6
		25	12	22.4	22.5	22.7
		25	24	22.4	22.3	22.6
		50	0	22.3	22.4	22.7
	16QAM	1	0	22.4	22.6	**23.4**
		1	24	22.4	22.5	23.1
		1	49	22.4	22.3	23.1
		25	0	21.3	21.4	21.6
		25	12	21.5	21.6	21.7
		25	24	21.5	21.4	21.7
		50	0	21.3	21.4	21.7
	64QAM	1	0	22.4	22.1	22.2
		1	24	22.4	22.1	22.0
		1	49	22.3	22.1	21.9
		25	0	20.9	20.9	20.7
		25	12	20.7	21.0	20.8
		25	24	20.5	21.0	20.7
		50	0	20.7	21.0	20.7

OUTPUT POWER FOR LTE BAND 26 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				26865	26915	26965
				831.5 MHz	836.5 MHz	841.5 MHz
15.0	QPSK	1	0	23.1	23.9	23.3
		1	37	23.2	**24.0**	23.0
		1	74	23.1	23.8	23.0
		36	0	22.1	22.8	22.1
		36	16	22.3	22.9	22.1
		36	35	22.2	22.9	21.9
		75	0	22.2	22.8	22.1
	16QAM	1	0	22.2	23.2	22.6
		1	37	22.3	**23.2**	22.3
		1	74	22.2	23.0	22.2
		36	0	21.1	21.9	21.1
		36	16	21.3	21.9	21.1
		36	35	21.3	21.9	20.9
		75	0	21.2	21.8	21.1
	64QAM	1	0	22.5	22.1	22.5
		1	37	22.4	22.1	22.2
		1	74	22.4	22.0	22.0
		36	0	20.9	20.9	20.7
		36	16	20.7	21.0	20.6
		36	35	20.4	21.0	20.4
		75	0	20.6	20.9	20.6

7.3.7. LTE BAND 66

Test Engineer ID:	52300	Test Date:	11/17/2020

OUTPUT POWER FOR LTE BAND 66 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				131979	132322	132665
				1710.7 MHz	1745.0 MHz	1779.3 MHz
1.4	QPSK	1	0	22.8	23.2	23.5
		1	2	22.9	23.3	**23.6**
		1	5	22.8	23.2	23.5
		3	0	22.8	23.2	23.5
		3	1	22.8	23.2	23.5
		3	2	22.9	23.2	23.5
		6	0	21.9	22.2	22.5
	16QAM	1	0	21.8	22.4	23.0
		1	2	21.9	22.5	**23.1**
		1	5	21.9	22.4	22.9
		3	0	22.1	22.2	22.8
		3	1	22.1	22.3	22.8
		3	2	22.1	22.3	22.8
		6	0	21.1	21.5	21.5
	64QAM	1	0	20.9	21.6	22.1
		1	2	21.1	21.7	22.2
		1	5	21.0	21.7	22.0
		3	0	21.1	21.2	22.0
		3	1	21.1	21.3	22.0
		3	2	21.1	21.3	22.0
		6	0	20.3	20.4	20.6

OUTPUT POWER FOR LTE BAND 66 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				131987	132322	132657
				1711.5 MHz	1745.0 MHz	1778.5 MHz
3.0	QPSK	1	0	23.0	23.2	23.5
		1	7	22.9	23.2	23.5
		1	14	22.9	23.2	**23.5**
		8	0	22.0	22.3	22.6
		8	4	22.1	22.3	22.7
		8	7	22.1	22.4	22.7
		15	0	22.0	22.3	22.6
	16QAM	1	0	22.4	22.4	22.6
		1	7	22.4	22.3	**22.6**
		1	14	22.4	22.3	22.5
		8	0	21.1	21.4	21.7
		8	4	21.2	21.4	21.8
		8	7	21.2	21.5	21.8
		15	0	21.1	21.3	21.7
	64QAM	1	0	21.3	21.7	21.7
		1	7	21.2	21.7	21.7
		1	14	21.3	21.7	21.7
		8	0	20.0	20.4	20.7
		8	4	20.0	20.4	20.8
		8	7	20.0	20.5	20.7
		15	0	20.1	20.3	20.7

OUTPUT POWER FOR LTE BAND 66 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				131997	132322	132647
				1712.5 MHz	1745.0 MHz	1777.5 MHz
5.0	QPSK	1	0	22.9	23.3	23.5
		1	12	22.9	23.3	**23.6**
		1	24	22.9	23.3	23.5
		12	0	22.0	22.3	22.6
		12	6	22.1	22.3	22.6
		12	11	22.0	22.4	22.6
		25	0	22.1	22.3	22.6
	16QAM	1	0	22.1	22.4	23.1
		1	12	22.2	22.5	**23.2**
		1	24	22.1	22.4	23.1
		12	0	21.1	21.4	21.7
		12	6	21.1	21.4	21.8
		12	11	21.1	21.4	21.8
		25	0	21.0	21.3	21.6
	64QAM	1	0	21.2	21.2	22.0
		1	12	21.3	21.3	21.9
		1	24	21.2	21.2	22.0
		12	0	20.1	20.4	20.6
		12	6	20.1	20.4	20.6
		12	11	20.1	20.4	20.6
		25	0	20.1	20.3	20.5

OUTPUT POWER FOR LTE BAND 66 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				132022	132322	132622
				1715.0 MHz	1745.0 MHz	1775.0 MHz
10.0	QPSK	1	0	22.9	23.3	23.5
		1	24	22.9	23.3	**23.6**
		1	49	22.9	23.3	23.5
		25	0	22.0	22.3	22.6
		25	12	22.1	22.3	22.6
		25	24	22.0	22.4	22.6
		50	0	22.1	22.3	22.6
	16QAM	1	0	22.1	22.4	23.1
		1	24	22.2	22.5	**23.2**
		1	49	22.1	22.4	23.1
		25	0	21.1	21.4	21.7
		25	12	21.1	21.4	21.8
		25	24	21.1	21.4	21.8
		50	0	21.0	21.3	21.6
	64QAM	1	0	21.2	21.2	22.0
		1	24	21.3	21.3	21.9
		1	49	21.2	21.2	22.0
		25	0	20.1	20.4	20.6
		25	12	20.1	20.4	20.6
		25	24	20.1	20.4	20.6
		50	0	20.1	20.3	20.5

OUTPUT POWER FOR LTE BAND 66 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				132047	132322	132597
				1717.5 MHz	1745.0 MHz	1772.5 MHz
15.0	QPSK	1	0	22.6	22.8	23.2
		1	37	22.8	23.0	23.2
		1	74	22.7	22.9	**23.3**
		36	0	21.8	22.0	22.3
		36	16	21.9	22.1	22.3
		36	35	21.8	22.1	22.4
		75	0	21.8	22.1	22.4
	16QAM	1	0	22.0	22.2	22.3
		1	37	22.2	**22.4**	22.3
		1	74	22.1	22.3	22.3
		36	0	20.8	21.1	21.3
		36	16	20.9	21.1	21.3
		36	35	20.9	21.1	21.4
		75	0	20.8	21.0	21.4
	64QAM	1	0	20.9	21.6	21.8
		1	37	21.1	21.8	21.8
		1	74	21.0	21.7	21.8
		36	0	20.0	20.2	20.5
		36	16	20.1	20.2	20.5
		36	35	20.1	20.3	20.6
		75	0	20.0	20.2	20.5

OUTPUT POWER FOR LTE BAND 66 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				132072	132322	132572
				1720.0 MHz	1745.0 MHz	1770.0 MHz
20.0	QPSK	1	0	23.0	23.0	23.2
		1	49	23.1	**23.3**	23.2
		1	99	23.0	23.1	23.3
		50	0	22.0	22.1	22.2
		50	24	22.2	22.3	22.3
		50	49	22.1	22.3	22.3
		100	0	22.1	22.3	22.2
	16QAM	1	0	22.1	22.4	22.6
		1	49	22.4	**22.7**	22.7
		1	99	22.3	22.4	22.7
		50	0	20.8	21.0	21.2
		50	24	20.9	21.1	21.3
		50	49	20.8	21.1	21.3
		100	0	20.9	21.0	21.2
	64QAM	1	0	21.3	21.0	21.6
		1	49	21.7	21.4	21.7
		1	99	21.5	21.3	21.8
		50	0	19.9	20.2	20.4
		50	24	20.1	20.2	20.5
		50	49	20.0	20.2	20.5
		100	0	19.9	20.2	20.4

7.3.8. 5G NR BAND n66

Test Engineer ID:	44394 & 19480	Test Date:	12/22/2020 & 12/29/2020 & 1/8/2021

OUTPUT POWER FOR 5G NR BAND n66 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				342500	349000	355500
				1712.5 MHz	1745 MHz	1777.5 MHz
5.0	BPSK	1	1	23.9	23.9	24.0
		1	13	24.0	23.8	**24.0**
		1	23	23.9	23.9	23.9
		12	0	23.5	23.5	23.5
		12	6	**24.0**	24.0	24.0
		12	12	23.5	23.5	23.5
		25	0	23.5	23.5	23.5
	QPSK	1	1	23.9	23.7	23.9
		1	13	**24.0**	23.7	23.8
		1	23	23.1	23.8	23.0
		12	0	23.0	22.8	22.9
		12	6	23.0	23.9	23.0
		12	12	23.0	22.9	23.0
		25	0	23.0	22.8	23.0
	16QAM	1	1	22.9	23.1	23.1
		1	13	**23.2**	23.0	22.9
		1	23	23.0	23.0	22.9
		12	0	21.8	21.8	21.8
		12	6	22.7	22.8	22.9
		12	12	21.9	21.8	21.8
		25	0	21.8	21.8	21.9
	64QAM	1	1	21.0	20.9	21.3
		1	13	21.0	21.1	21.2
		1	23	21.2	21.3	21.3
		12	0	21.4	21.2	21.3
		12	6	21.4	21.2	21.3
		12	12	21.3	21.2	21.4
		25	0	21.3	21.2	21.2
	256QAM	1	1	19.3	19.3	19.0
		1	13	**19.4**	19.1	19.1
		1	23	19.2	18.9	19.2
		12	0	19.2	19.2	19.1
		12	6	19.2	19.1	19.1
		12	12	19.1	19.1	19.1
		25	0	19.1	19.2	19.1

OUTPUT POWER FOR 5G NR BAND n66 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				343000	349000	355000
				1715 MHz	1745 MHz	1775 MHz
10.0	BPSK	1	1	23.9	23.8	23.9
		1	26	**24.0**	23.9	23.9
		1	50	24.0	24.0	23.8
		25	0	23.5	23.5	23.5
		25	12	**24.0**	**24.0**	**24.0**
		25	25	23.5	23.5	23.5
		50	0	23.5	23.5	23.4
	QPSK	1	1	**24.0**	23.8	23.9
		1	26	**24.0**	23.8	23.9
		1	50	23.1	23.9	23.0
		25	0	23.0	22.9	23.0
		25	12	23.1	23.9	23.0
		25	25	23.0	22.7	23.0
		50	0	23.0	22.7	23.0
	16QAM	1	1	23.2	22.8	22.8
		1	26	**23.2**	22.7	23.1
		1	50	22.7	22.7	23.1
		25	0	21.9	21.8	21.8
		25	12	22.8	22.8	22.8
		25	25	21.8	21.8	21.9
		50	0	21.9	21.8	21.8
	64QAM	1	1	21.3	21.0	21.2
		1	26	21.0	21.2	21.3
		1	50	21.0	21.7	21.1
		25	0	21.3	21.3	21.3
		25	12	21.4	21.3	21.2
		25	25	21.3	21.3	21.3
		50	0	21.3	21.3	21.3
	256QAM	1	1	19.1	18.9	19.2
		1	26	18.9	**19.3**	19.2
		1	50	19.3	18.7	19.0
		25	0	19.1	19.1	19.1
		25	12	19.2	19.2	19.1
		25	25	19.1	19.1	19.2
		50	0	19.1	19.1	19.1

OUTPUT POWER FOR 5G NR BAND n66 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				343500	349000	354500
				1717.5 MHz	1745 MHz	1772.5 MHz
15.0	BPSK	1	1	23.9	23.8	**24.0**
		1	40	23.8	23.9	**24.0**
		1	77	23.9	**24.0**	23.9
		36	0	23.5	23.5	23.5
		36	18	23.9	**24.0**	**24.0**
		36	36	23.3	23.5	23.5
		75	0	23.5	23.5	23.5
	QPSK	1	1	**24.0**	24.0	23.9
		1	40	**24.0**	23.8	**24.0**
		1	77	23.1	23.9	23.0
		36	0	23.0	22.8	23.0
		36	18	23.2	23.8	23.2
		36	36	23.0	22.9	23.0
		75	0	23.0	22.8	23.0
	16QAM	1	1	23.0	22.8	**23.1**
		1	40	22.9	22.7	22.9
		1	77	22.9	22.4	22.6
		36	0	21.8	21.5	21.8
		36	18	22.8	22.6	22.6
		36	36	21.7	21.6	21.7
		75	0	21.8	21.6	21.8
	64QAM	1	1	21.2	21.0	21.0
		1	40	21.2	21.2	21.0
		1	77	21.3	21.1	21.1
		36	0	21.3	21.2	21.2
		36	18	21.4	21.1	21.2
		36	36	21.3	21.3	21.2
		75	0	21.4	21.1	21.2
	256QAM	1	1	18.7	18.7	18.7
		1	40	18.7	18.6	18.7
		1	77	18.9	18.6	**19.1**
		36	0	**19.1**	19.0	19.0
		36	18	**19.1**	18.9	19.0
		36	36	19.0	**19.1**	18.9
		75	0	19.0	19.0	19.0

OUTPUT POWER FOR 5G NR BAND n66 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				344000	349000	354000
				1720 MHz	1745 MHz	1770 MHz
20.0	BPSK	1	1	23.7	23.6	23.8
		1	53	23.9	**24.0**	**24.0**
		1	104	23.9	23.8	23.7
		50	0	23.4	23.4	23.3
		50	25	**24.0**	**24.0**	**24.0**
		50	50	23.4	23.5	23.5
		100	0	23.4	23.5	23.5
	QPSK	1	1	23.9	23.9	23.2
		1	53	23.9	**24.0**	23.0
		1	104	23.0	**24.0**	23.2
		50	0	23.0	23.0	23.0
		50	25	23.1	23.4	23.4
		50	50	23.0	23.0	23.0
		100	0	23.0	23.0	23.0
	16QAM	1	1	22.8	22.6	22.5
		1	53	22.6	22.5	22.7
		1	104	22.5	22.8	22.8
		50	0	21.8	21.6	21.8
		50	25	22.8	22.7	**22.9**
		50	50	21.8	21.6	21.7
		100	0	21.8	21.7	21.8
	64QAM	1	1	21.6	20.7	21.0
		1	53	21.5	21.0	20.9
		1	104	21.1	20.8	21.4
		50	0	21.4	21.2	21.4
		50	25	21.3	21.2	21.3
		50	50	21.3	21.2	21.2
		100	0	21.3	21.2	21.3
	256QAM	1	1	19.0	19.0	19.2
		1	53	**19.3**	18.6	19.1
		1	104	19.0	19.0	19.2
		50	0	19.1	19.1	19.0
		50	25	19.0	18.9	19.0
		50	50	19.0	18.9	19.0
		100	0	19.1	18.9	19.0

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS130, RSS132; RSS133 §2.3, RSS139,

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 are reported only.

GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	245.00	322.80
	EGPRS			243.86	311.20
1900	GPRS	661	1880.0	243.90	314.70
	EGPRS			249.24	320.30

WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1439	4.727
	HSDPA			4.1522	4.694
BAND 2	REL 99	9800	1880.0	4.1537	4.708
	HSDPA			4.1532	4.689
BAND 4	REL 99	1638	1732.6	4.1490	4.699
	HSDPA			4.1511	4.700

LTE BAND 2

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4MHz, QPSK	6/0	1880.0	1.0777	1.221
	1.4MHz,16QAM			1.0820	1.220
	3MHz, QPSK	15/0		2.6915	2.975
	3MHz, 16QAM			2.6828	2.965
	5MHz, QPSK	25/0		4.4956	4.900
	5MHz, 16QAM			4.4957	4.954
	10MHz, QPSK	50/0		8.9599	9.663
	10MHz, 16QAM			8.9497	9.724
	15MHz, QPSK	75/0		13.3850	14.373
	15MHz, 16QAM			13.4339	14.436
	20MHz, QPSK	100/0		17.8854	19.024
	20MHz, 16QAM			17.8704	19.124

LTE BAND 5

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 5	1.4MHz, QPSK	6/0	836.5	1.0799	1.228
	1.4MHz,16QAM			1.0866	1.234
	3MHz, QPSK	15/0		2.6911	2.985
	3MHz, 16QAM			2.6843	2.937
	5MHz, QPSK	25/0		4.4976	4.938
	5MHz, 16QAM			4.5015	4.945
	10MHz, QPSK	50/0		8.9377	9.617
	10MHz, 16QAM			8.9567	9.737

5G NR BAND n5

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
5G NR Band n5	5MHz, BPSK	25/0	836.5	4.4790	4.888
	5MHz, 16QAM			4.4574	4.847
	10MHz, BPSK	50/0		8.9484	9.622
	10MHz, 16QAM			8.9431	9.621
	15MHz, BPSK	75/0		13.4480	14.240
	15MHz, 16QAM			13.3760	14.250
	20MHz, BPSK	100/0		17.8700	18.720
	20MHz, 16QAM			17.8640	18.840

LTE BAND 12

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 12	1.4 MHz, QPSK	6/0	707.5	1.0804	1.209
	1.4 MHz,16QAM			1.0866	1.228
	3 MHz, QPSK	15/0		2.6896	2.967
	3 MHz, 16QAM			2.6793	2.979
	5 MHz, QPSK	25/0		4.4938	4.870
	5 MHz, 16QAM			4.4940	4.929
	10 MHz, QPSK	50/0		8.9571	9.620
	10 MHz, 16QAM			8.9232	9.593

LTE BAND 26(FCC PART 90S)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 26	1.4 MHz, QPSK	6/0	819.0	1.0830	1.222
	1.4 MHz,16QAM			1.0896	1.235
	3 MHz, QPSK	15/0		2.6886	2.943
	3 MHz, 16QAM			2.6813	2.974
	5 MHz, QPSK	25/0		4.5020	4.907
	5 MHz, 16QAM			4.4937	4.970
	10 MHz, QPSK	50/0		8.9679	9.706
	10 MHz, 16QAM			8.9230	9.687
	15 MHz, QPSK	75/0	821.5	13.4280	14.530
	15 MHz, 16QAM			13.4370	14.580

LTE BAND 26 (FCC PART 22)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 26	1.4 MHz, QPSK	6/0	836.5	1.0859	1.233
	1.4 MHz,16QAM			1.0920	1.232
	3 MHz, QPSK	15/0		2.6868	2.989
	3 MHz, 16QAM			2.6933	2.999
	5 MHz, QPSK	25/0		4.5191	4.928
	5 MHz, 16QAM			4.5126	5.009
	10 MHz, QPSK	50/0		8.9378	9.776
	10 MHz, 16QAM			8.9414	9.755
	15 MHz, QPSK	75/0		13.3849	14.362
	15 MHz, 16QAM			13.3713	14.450

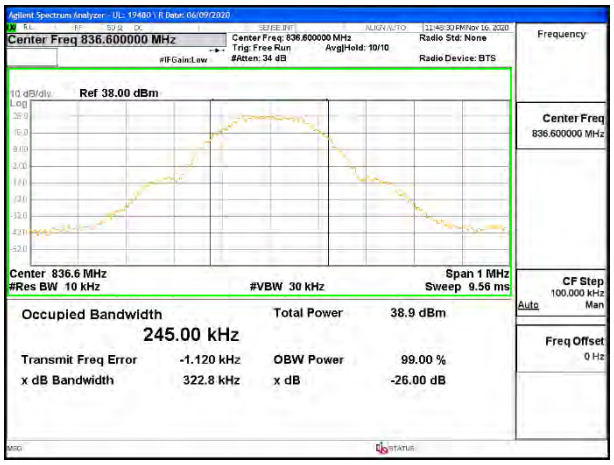
LTE BAND 66

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 66	1.4MHz, QPSK	6/0	1745.0	1.0870	1.229
	1.4MHz,16QAM			1.0965	1.237
	3MHz, QPSK	15/0		2.6900	2.981
	3MHz, 16QAM			2.6907	3.002
	5MHz, QPSK	25/0		4.5012	4.921
	5MHz, 16QAM			4.4778	4.900
	10MHz, QPSK	50/0		8.9744	9.801
	10MHz, 16QAM			8.9980	9.747
	15MHz, QPSK	75/0		13.436	14.560
	15MHz, 16QAM			13.447	14.560
	20MHz, QPSK	100/0		17.923	19.280
	20MHz, 16QAM			17.905	19.290

5G NR BAND n66

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
5G NR Band n66	5MHz, BPSK	25/0	1745.0	4.4790	4.888
	5MHz, 16QAM			4.4574	4.847
	10MHz, BPSK	50/0		8.9423	9.688
	10MHz, 16QAM			8.9495	9.562
	15MHz, BPSK	75/0		13.3990	14.220
	15MHz, 16QAM			13.3630	14.140
	20MHz, BPSK	100/0		17.8720	18.820
	20MHz, 16QAM			17.8380	18.780

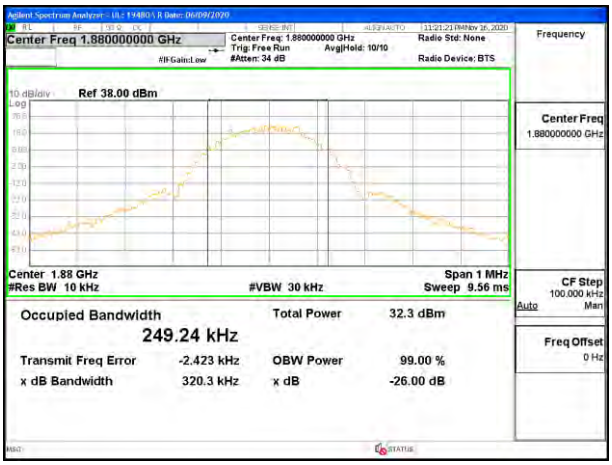
8.1.1. GSM



GSM 850 GPRS Middle Channel

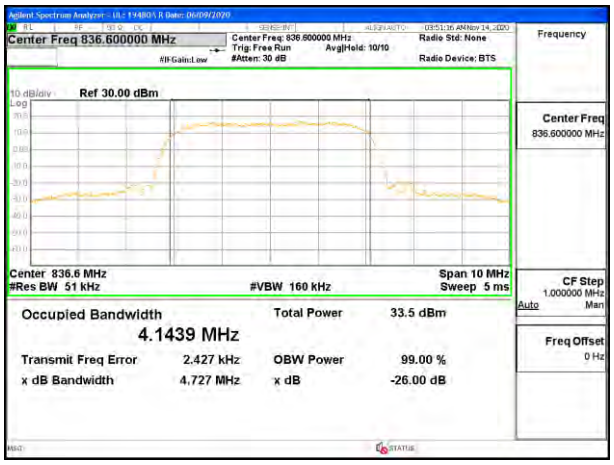
GSM 850 EGPRS Middle Channel

GSM 1900 GPRS Middle Channel

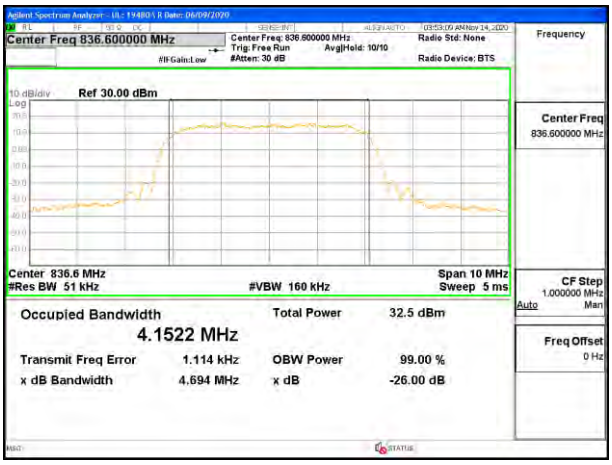


GSM 1900 EGPRS Middle Channel

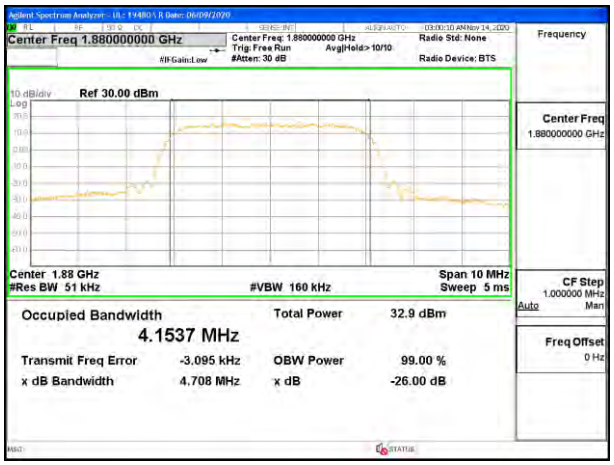
8.1.2. WCDMA



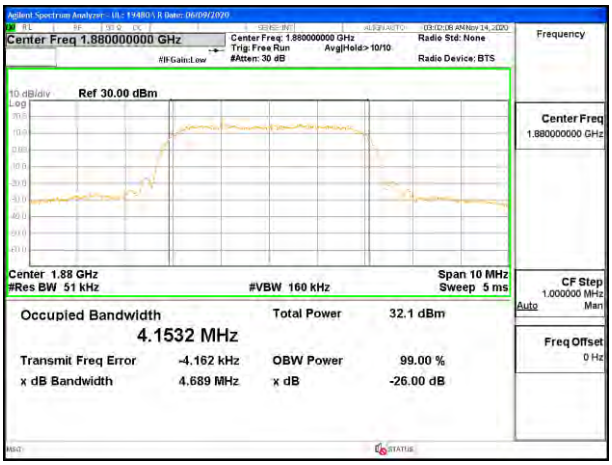
WCDMA Band 5 Rel 99 Middle Channel



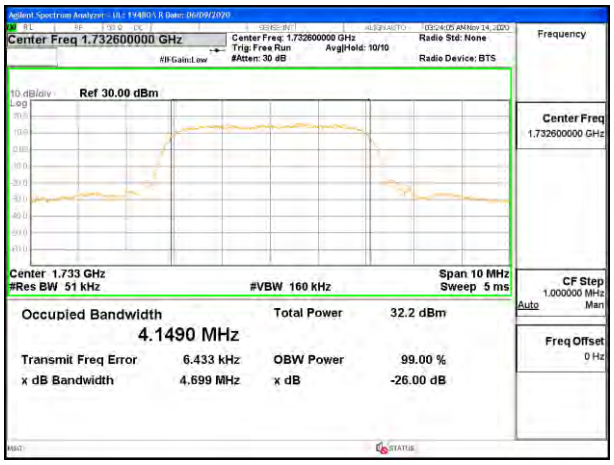
WCDMA Band 5 HSDPA Middle Channel



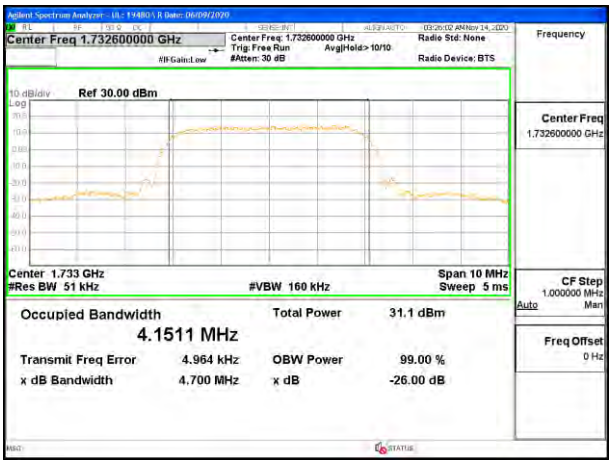
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

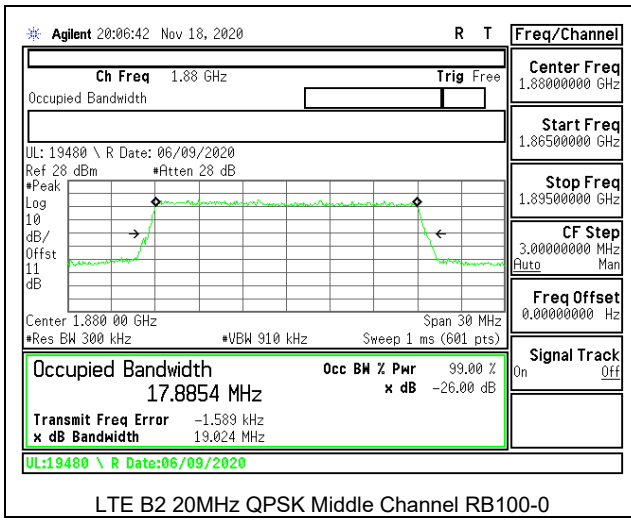


WCDMA Band 4 Rel 99 Middle Channel

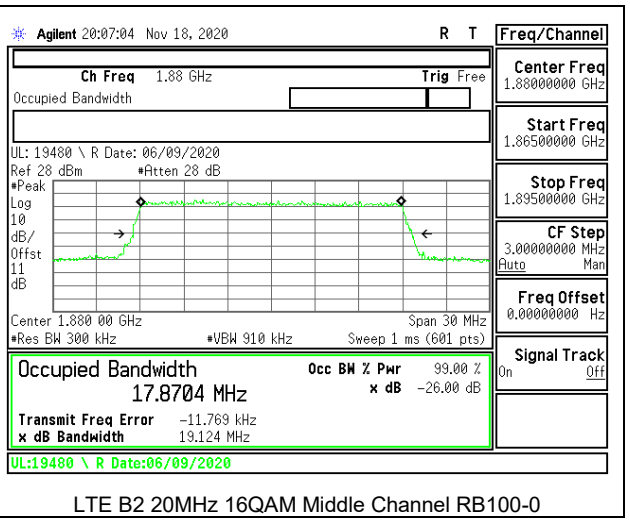


WCDMA Band 4 HSDPA Middle Channel

8.1.3. LTE BAND 2

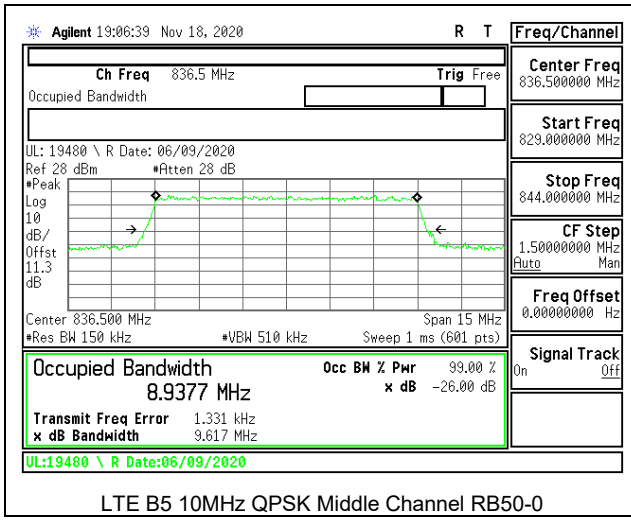


LTE B2 20MHz QPSK Middle Channel RB100-0

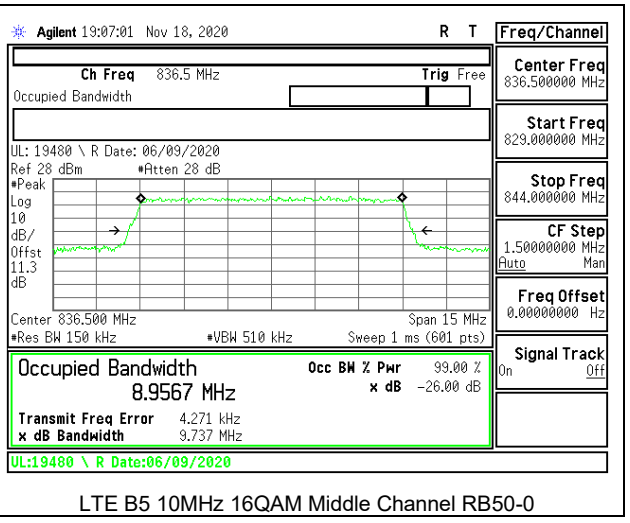


LTE B2 20MHz 16QAM Middle Channel RB100-0

8.1.4. LTE BAND 5

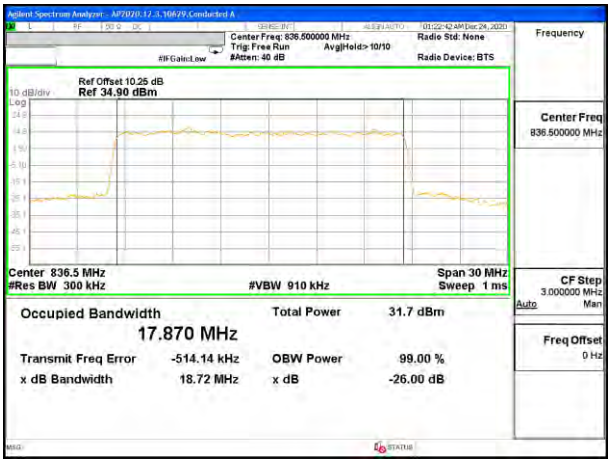


LTE B5 10MHz QPSK Middle Channel RB50-0

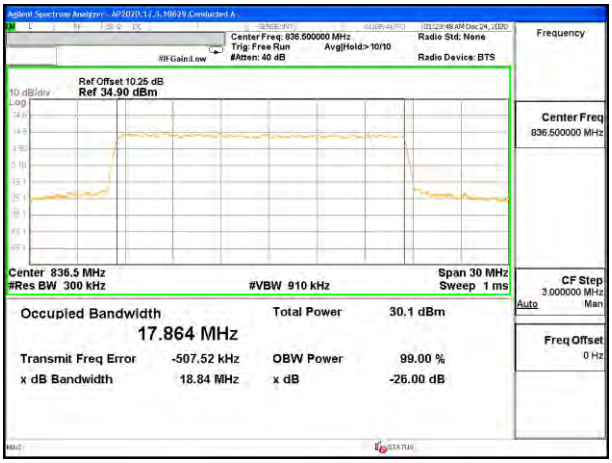


LTE B5 10MHz 16QAM Middle Channel RB50-0

8.1.5. 5G NR BAND n5

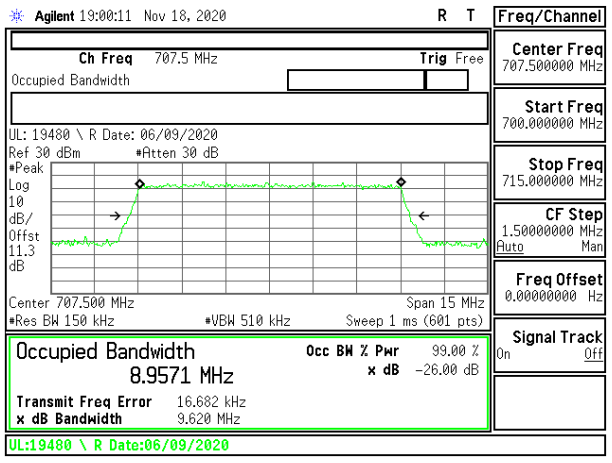


5G NR Band n5 20MHz BPSK Middle Channel RB100-0

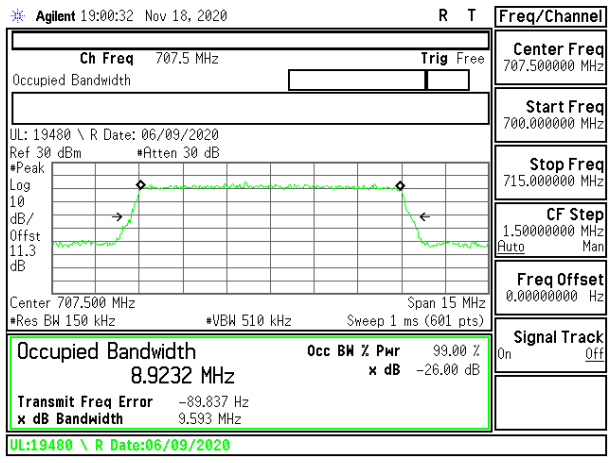


5G NR Band n5 20MHz 16QAM Middle Channel RB100-0

8.1.6. LTE BAND 12

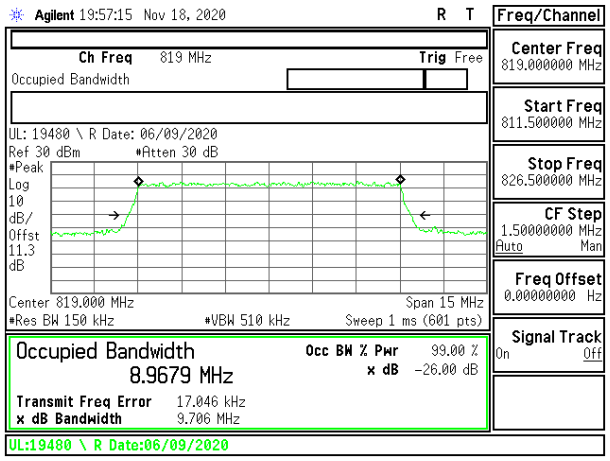


LTE B12 10MHz QPSK Middle Channel RB50-0

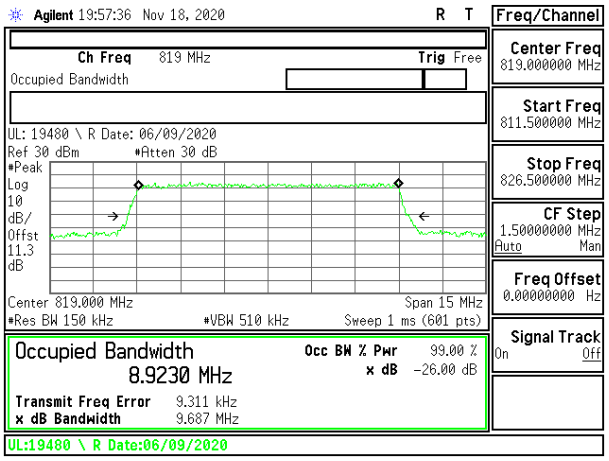


LTE B12 10MHz 16QAM Middle Channel RB50-0

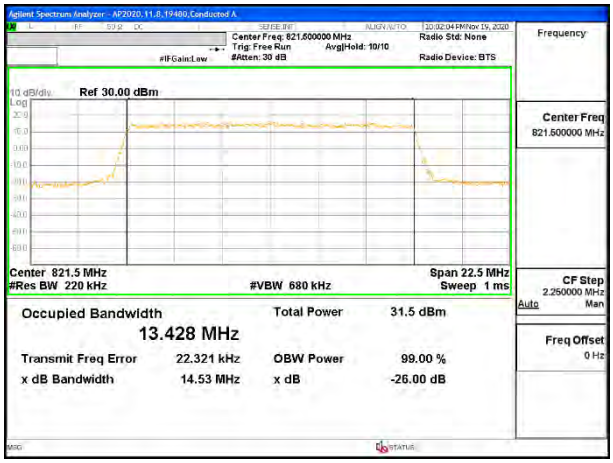
8.1.7. LTE BAND 26 (FCC PART 90S)



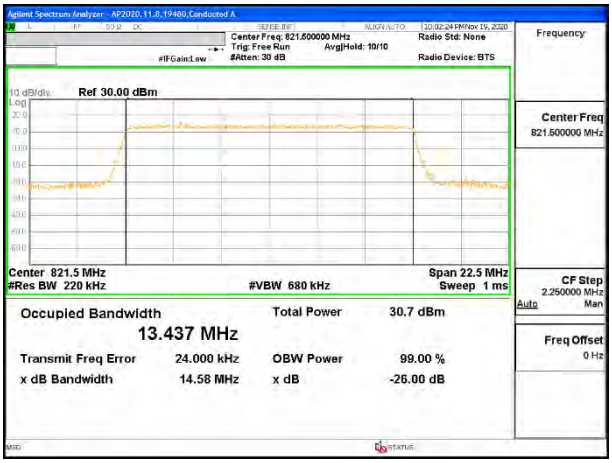
LTE B26 10MHz QPSK Middle Channel RB50-0



LTE B26 10MHz 16QAM Middle Channel RB50-0

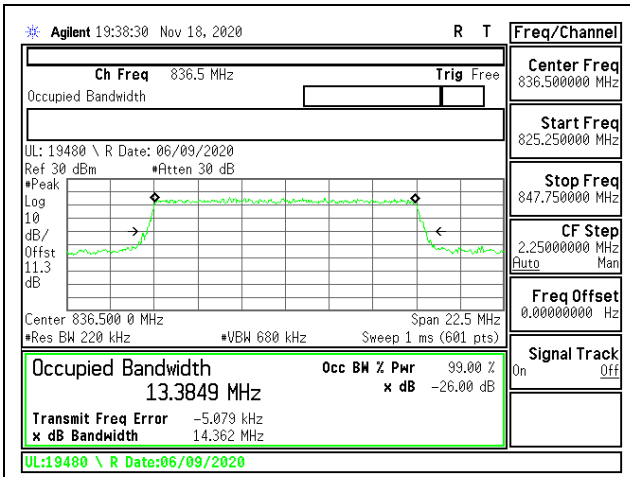


LTE B26 15MHz QPSK Middle Channel RB75-0

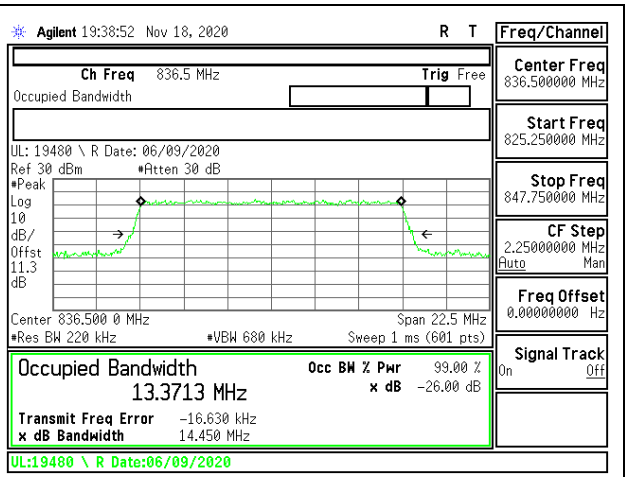


LTE B26 15MHz 16QAM Middle Channel RB75-0

8.1.8. LTE BAND 26 (FCC PART 22)



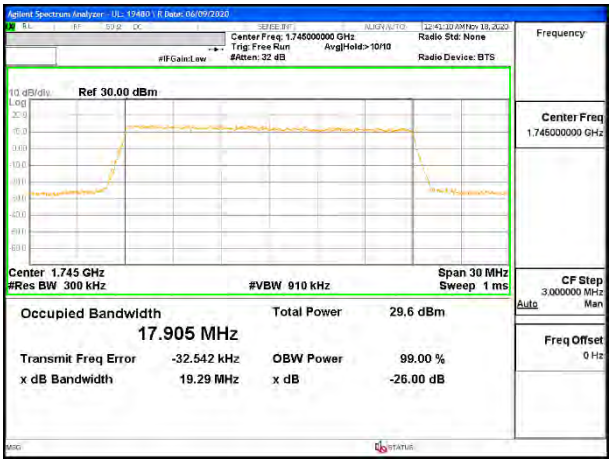
LTE B26 15MHz QPSK Middle Channel RB75-0



LTE B26 15MHz 16QAM Middle Channel RB75-0

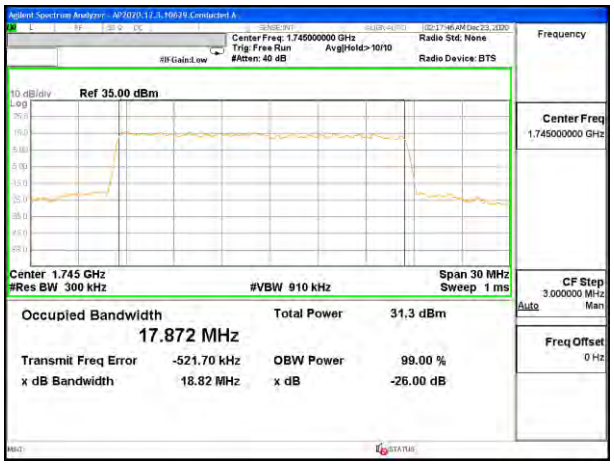
8.1.9. LTE BAND 66

LTE B66 20MHz QPSK Middle Channel RB100-0



LTE B66 20MHz 16QAM Middle Channel RB100-0

8.1.10. 5G NR BAND n66



5G NR Band n66 20MHz BPSK Middle Channel RB100-0

5G NR Band n66 20MHz 16QAM Middle Channel RB100-0

8.2. BAND EDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53, §90.691
ISED: RSS130§4.7, RSS132§5.5; RSS133§6.5, RSS139§6.6

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.

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.

FCC: §27.53 (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.

RSS130§4.7, FCC Part 27.53
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 Additional unwanted emissions limits
In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

(a) the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
    i. 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment and
    ii. 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment
(b) the e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS132§5.5, FCC Part 22.917

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5, FCC Part 24.238

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§6.6, FCC Part 27.53

(i) (i)In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block,Footnote2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.

(ii) (ii)After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

Note: Testing for the adjacent channel that falls completely under Part 22H has the same nominal power and because that channel complies with Part 22H output power limits the straddle channels will also comply. The ERP for straddle channel has same nominal power as the adjacent channel so no further testing is necessary.

TEST PROCEDURE

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

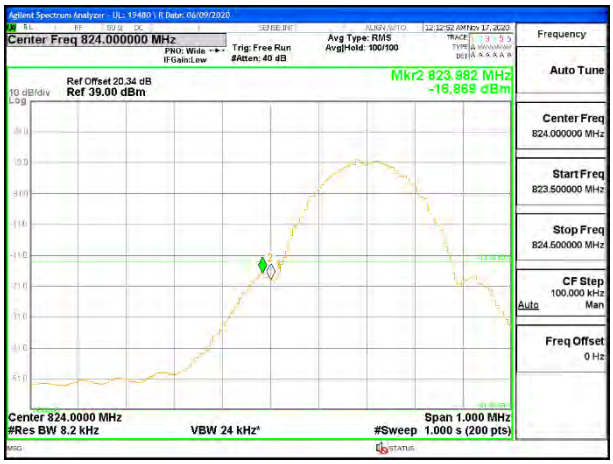
For each band edge measurement:

1. Set the spectrum analyzer span to include the block edge frequency.
2. Set a marker to point the corresponding band edge frequency in each test case.
3. Set display line at -13 dBm
4. Set resolution bandwidth to at least 1% of emission bandwidth.

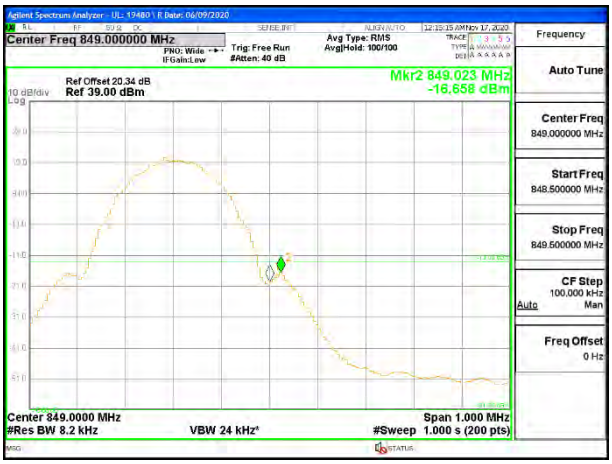
RESULTS

8.2.1. GSM 850

FCC: §22.917
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.

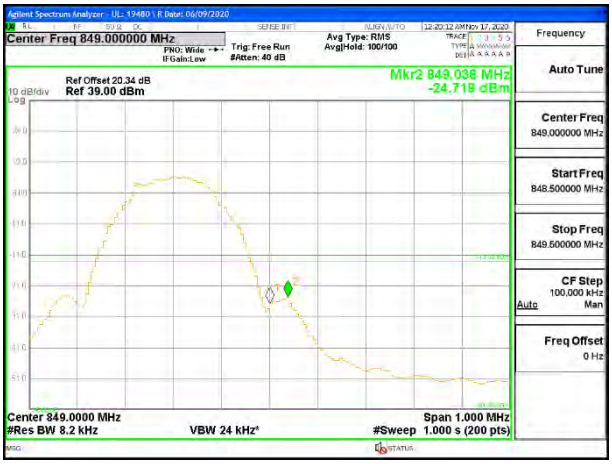


GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel

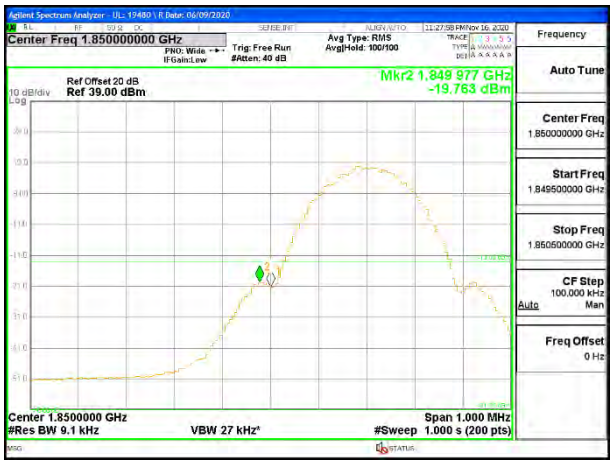
GSM 850 EGPRS Low Channel



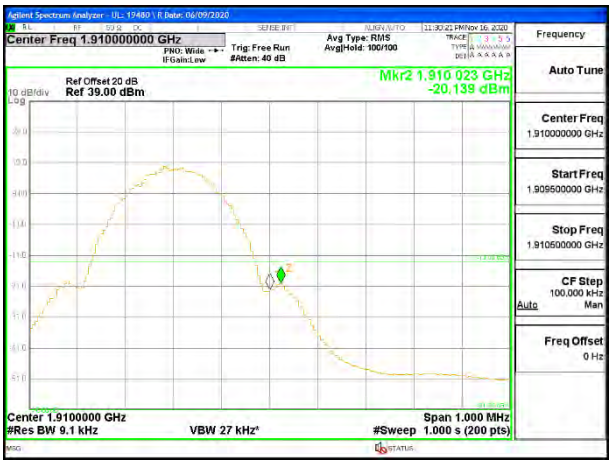
GSM 850 EGPRS High Channel

8.2.2. GSM 1900

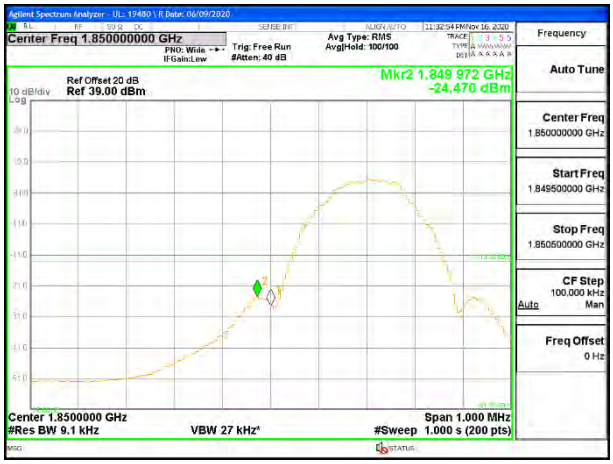
FCC: §24.238
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



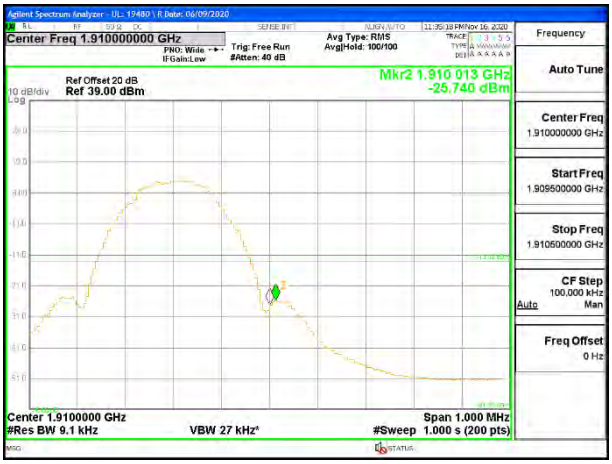
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel

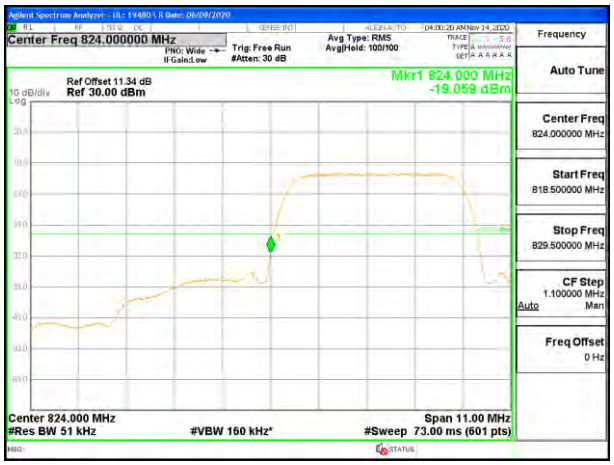


GSM 1900 EGPRS Low Channel

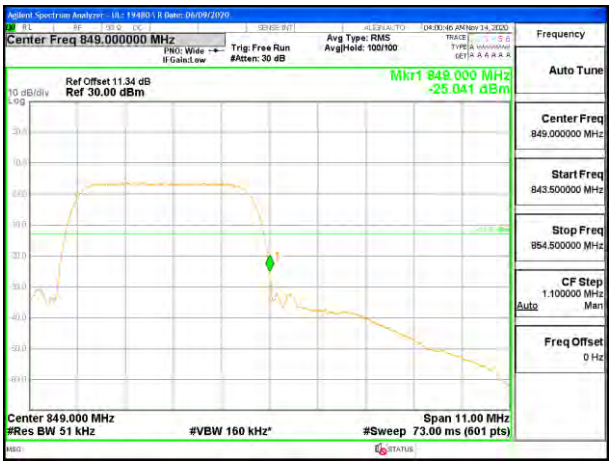


GSM 1900 EGPRS High Channel

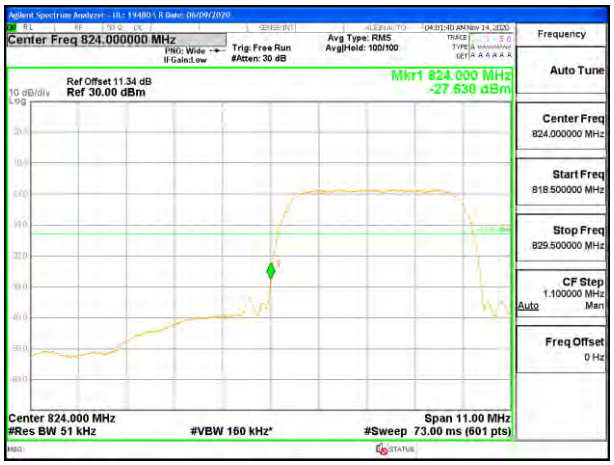
8.2.3. WCDMA BAND 5



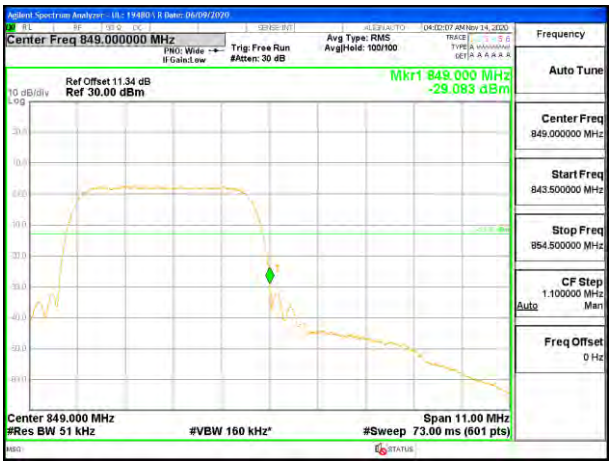
WCDMA Band 5 Rel 99 Low Channel



WCDMA Band 5 Rel 99 High Channel

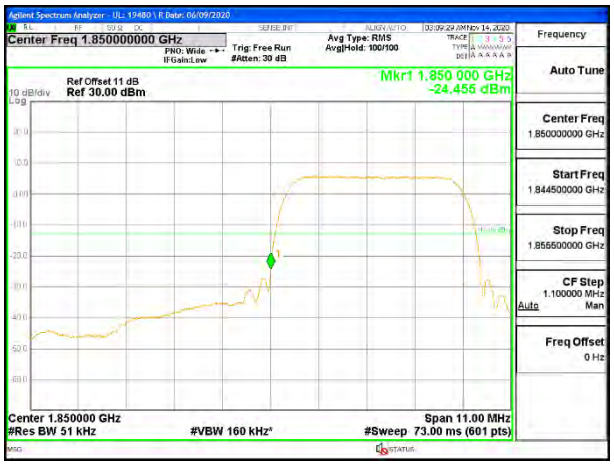


WCDMA Band 5 HSDPA Low Channel

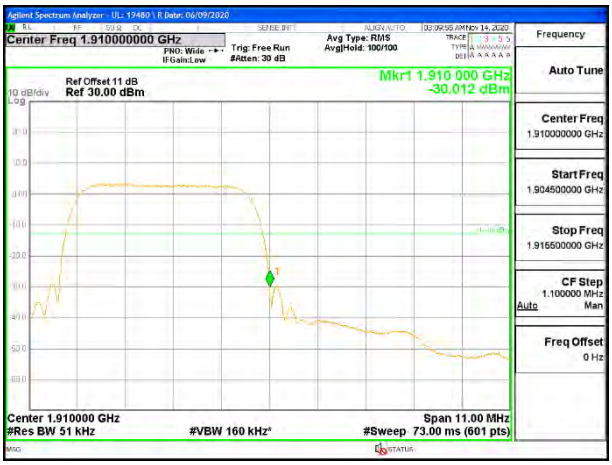


WCDMA Band 5 HSDPA High Channel

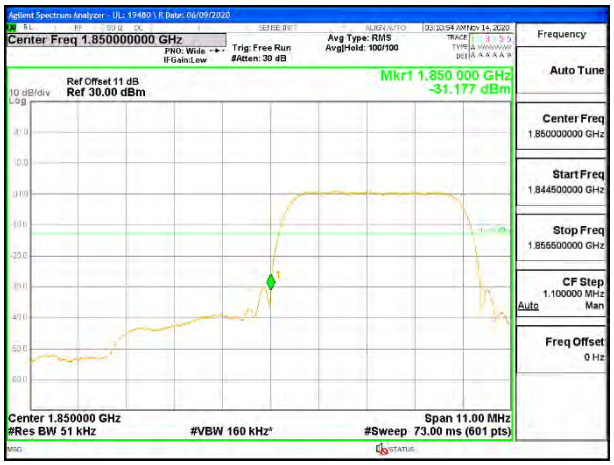
8.2.4. WCDMA BAND 2



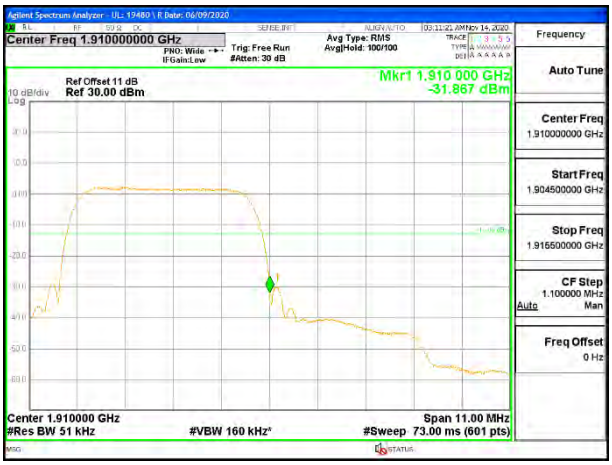
WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 Rel 99 High Channel

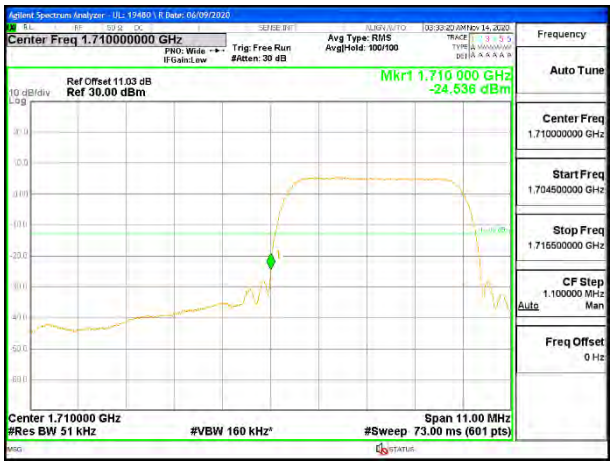


WCDMA Band 2 HSDPA Low Channel

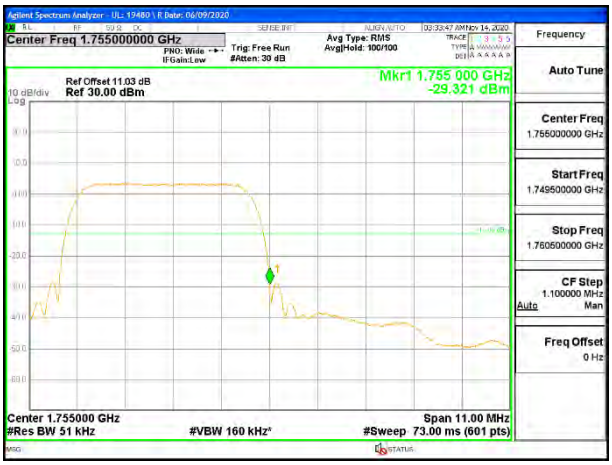


WCDMA Band 2 HSDPA High Channel

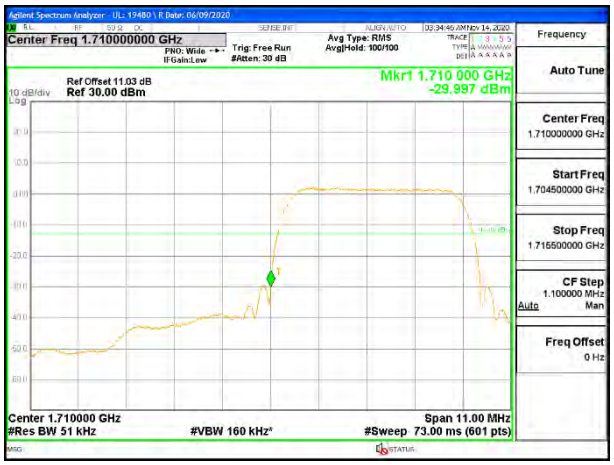
8.2.5. WCDMA BAND 4



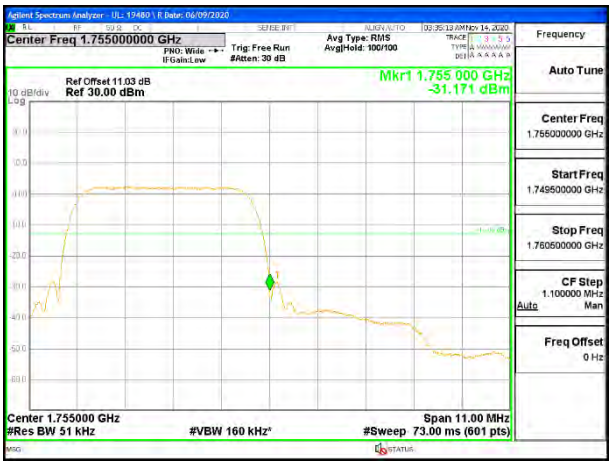
WCDMA Band 4 Rel 99 Low Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA Low Channel



WCDMA Band 4 HSDPA High Channel

8.2.6. LTE BAND 2 BANDEDGE

LIMITS

FCC: §24.238

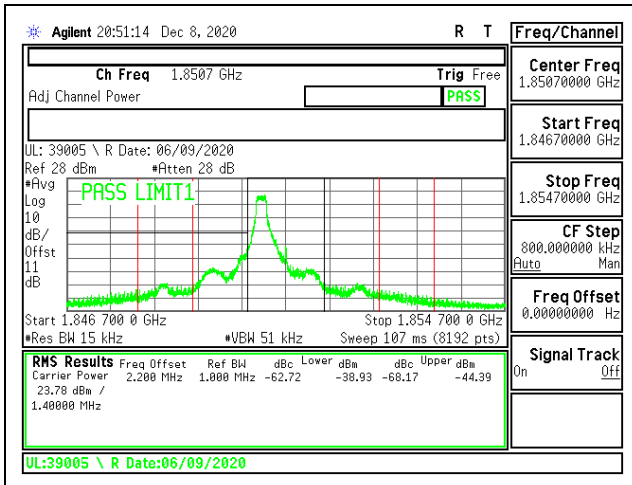
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

ISED: RSS133§6.5.1

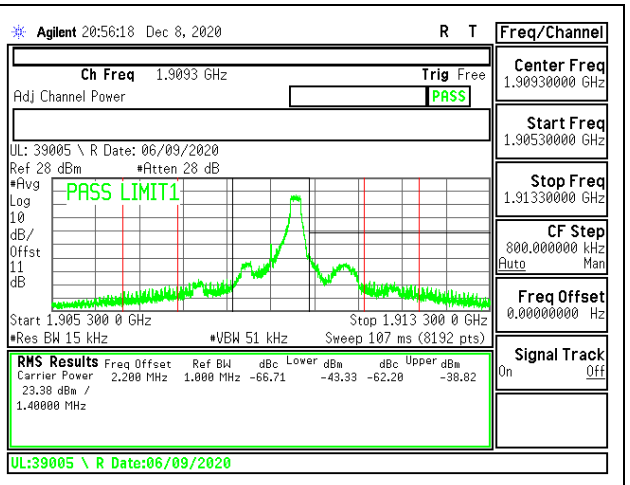
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).

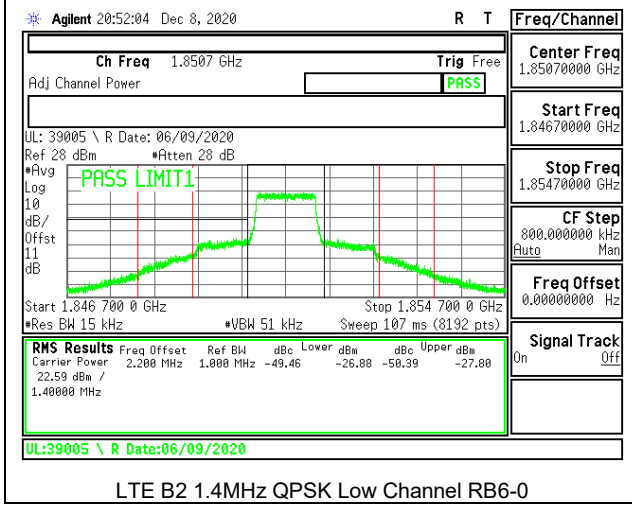
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.



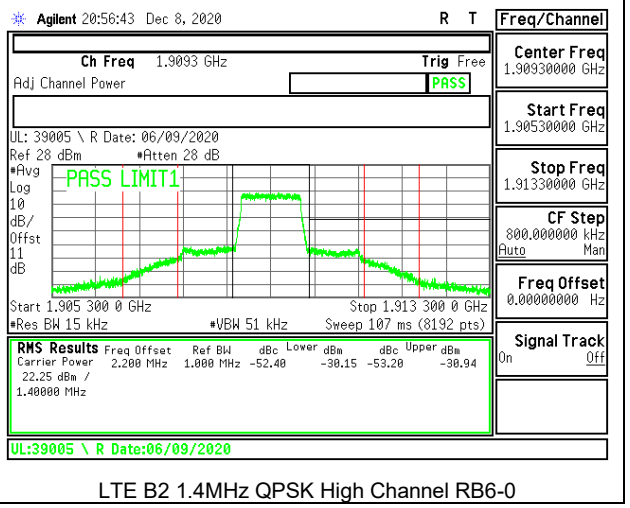
LTE B2 1.4MHz QPSK Low Channel RB1-0



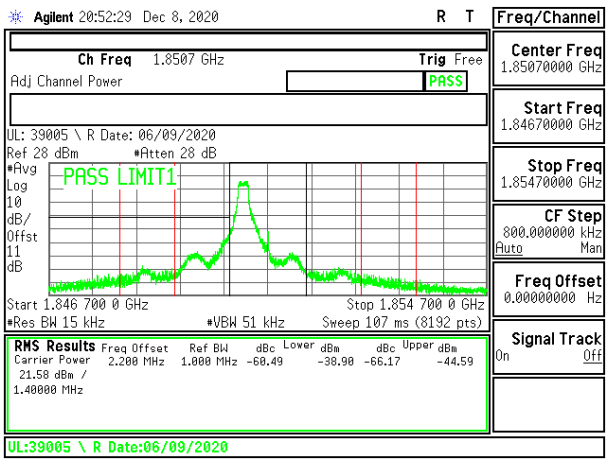
LTE B2 1.4MHz QPSK High Channel RB1-5



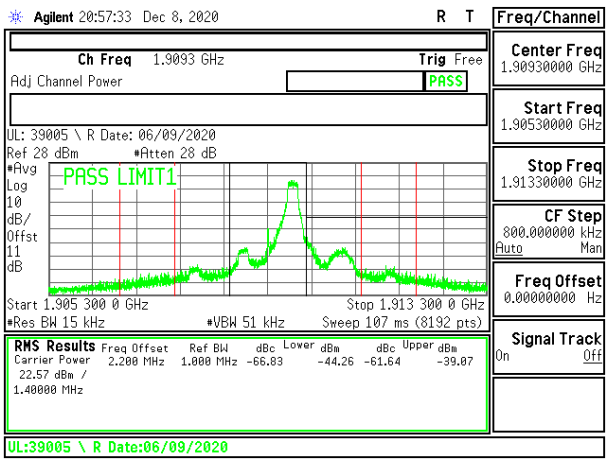
LTE B2 1.4MHz QPSK Low Channel RB6-0



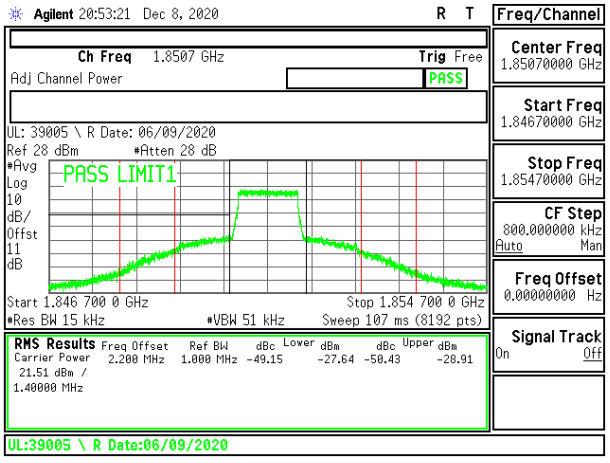
LTE B2 1.4MHz QPSK High Channel RB6-0



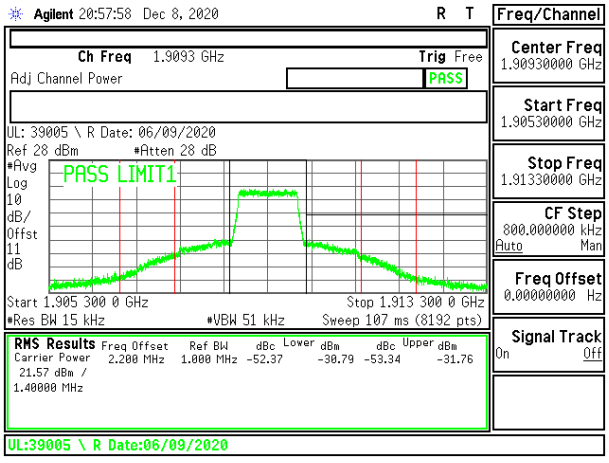
LTE B2 1.4MHz 16QAM Low Channel RB1-0



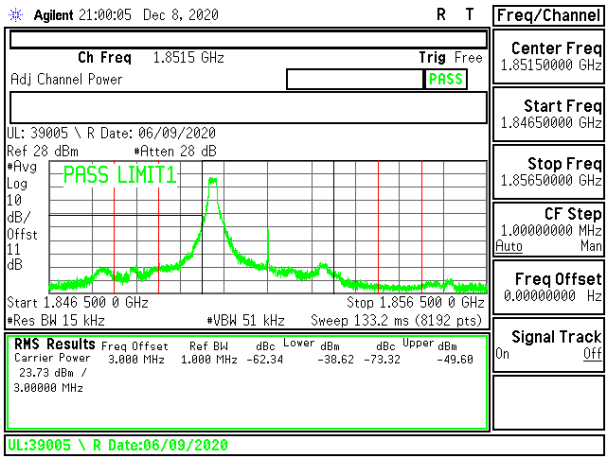
LTE B2 1.4MHz 16QAM High Channel RB1-5



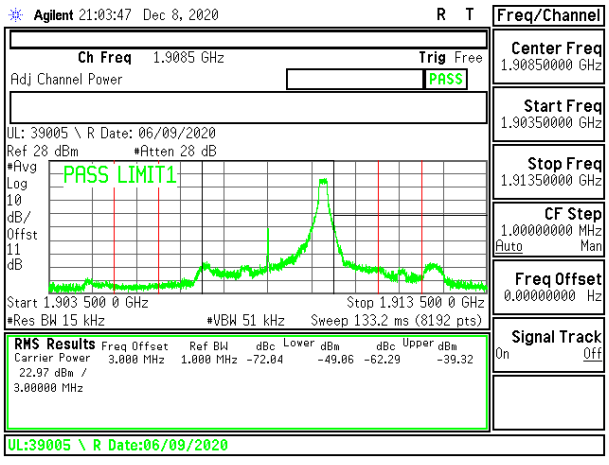
LTE B2 1.4MHz 16QAM Low Channel RB6-0



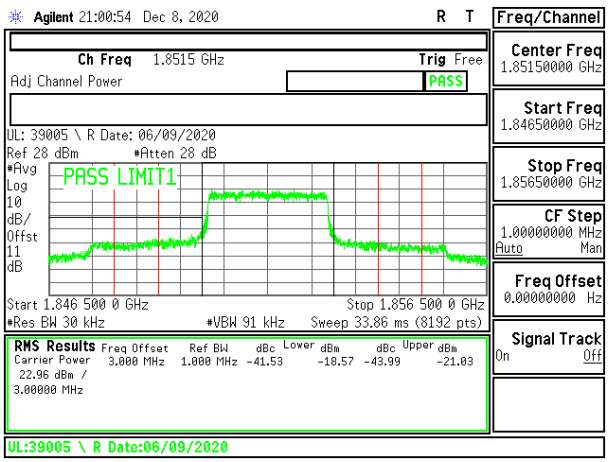
LTE B2 1.4MHz 16QAM High Channel RB6-0



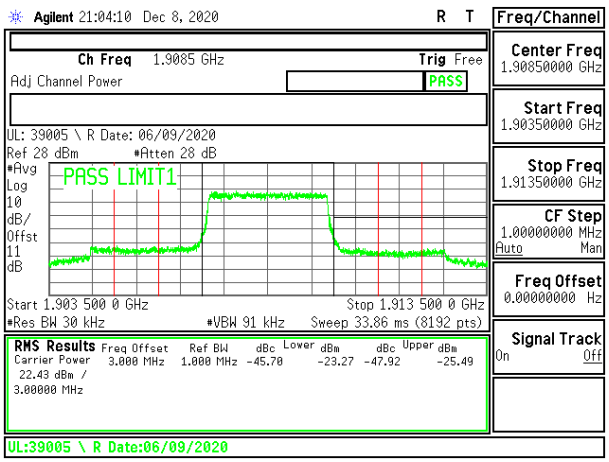
LTE B2 3MHz QPSK Low Channel RB1-0



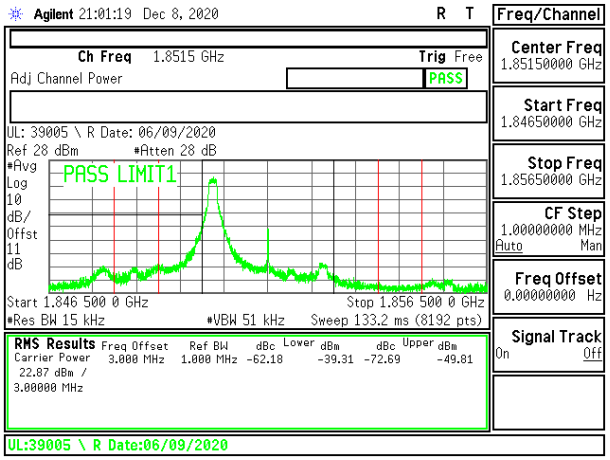
LTE B2 3MHz QPSK High Channel RB1-14



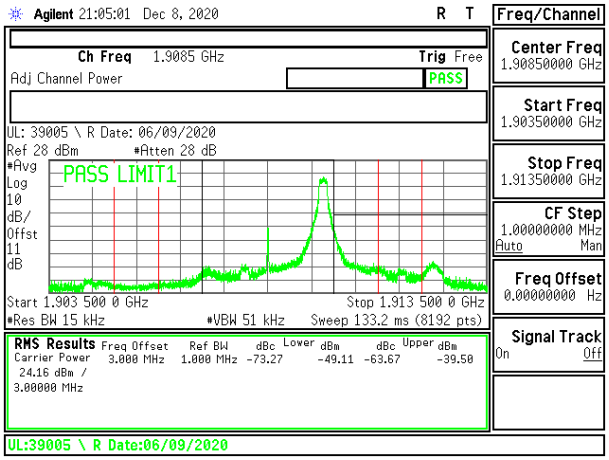
LTE B2 3MHz QPSK Low Channel RB15-0



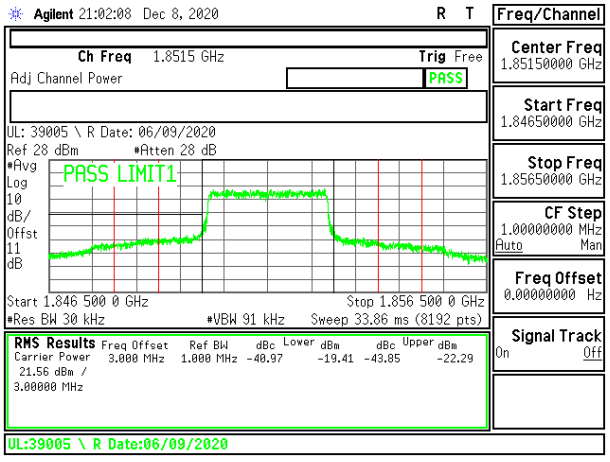
LTE B2 3MHz QPSK High Channel RB15-0



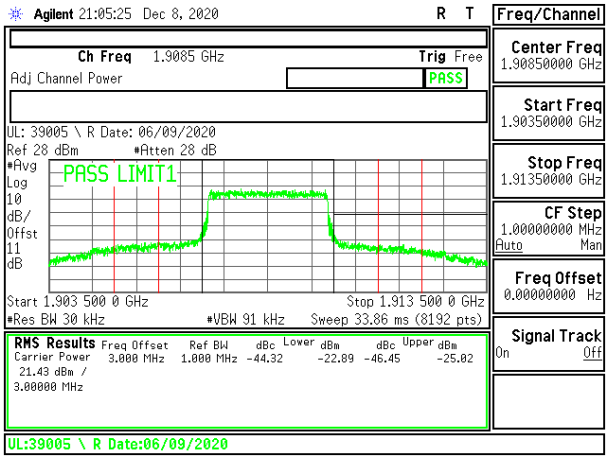
LTE B2 3MHz 16QAM Low Channel RB1-0



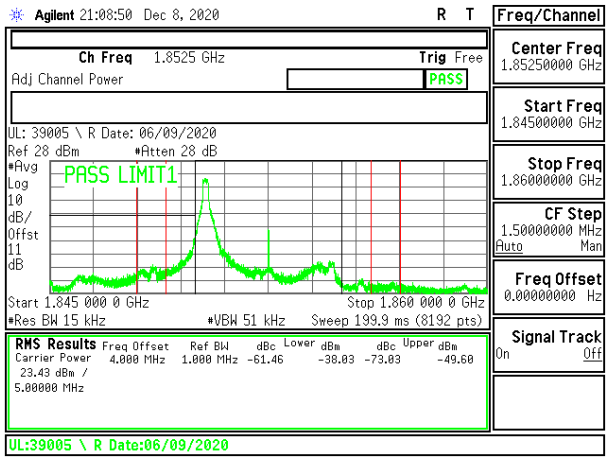
LTE B2 3MHz 16QAM High Channel RB1-14



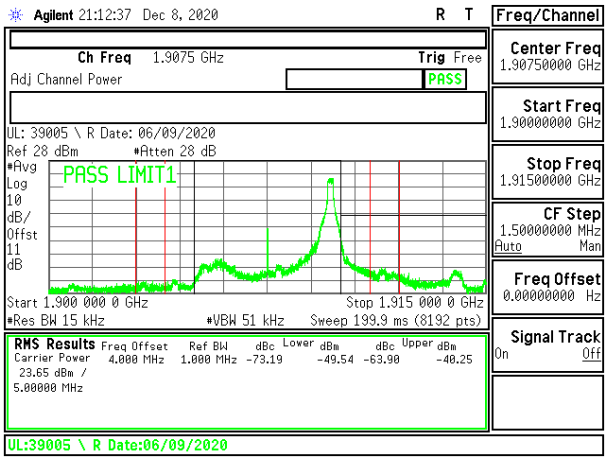
LTE B2 3MHz 16QAM Low Channel RB15-0



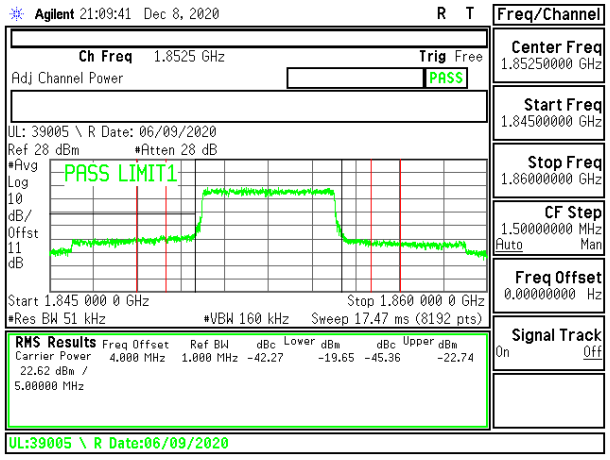
LTE B2 3MHz 16QAM High Channel RB15-0



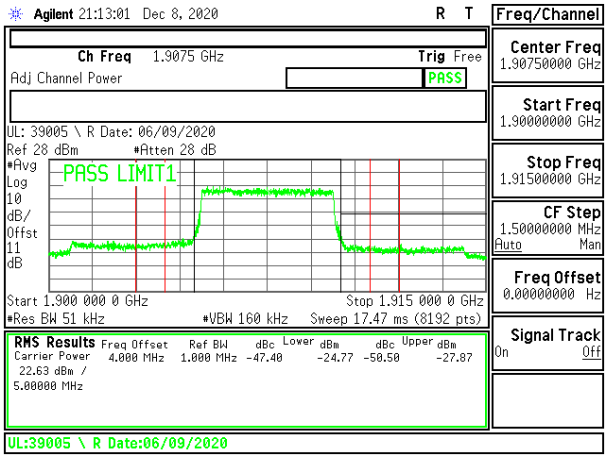
LTE B2 5MHz QPSK Low Channel RB1-0



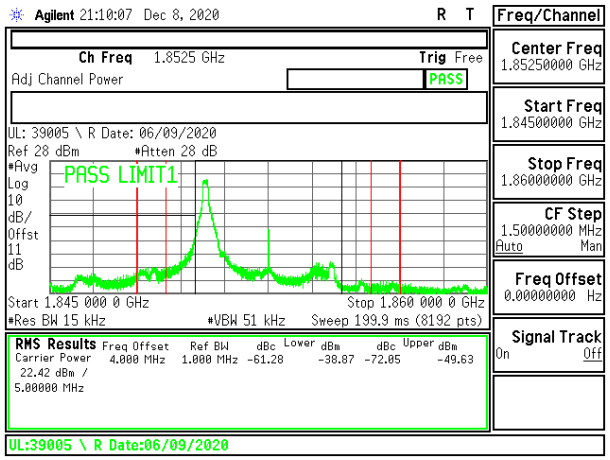
LTE B2 5MHz QPSK High Channel RB1-24



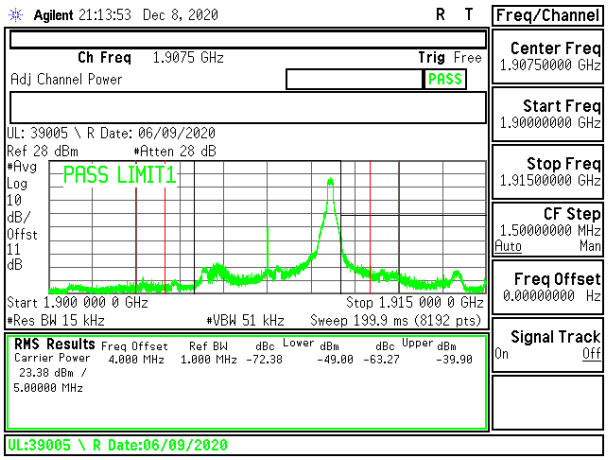
LTE B2 5MHz QPSK Low Channel RB25-0



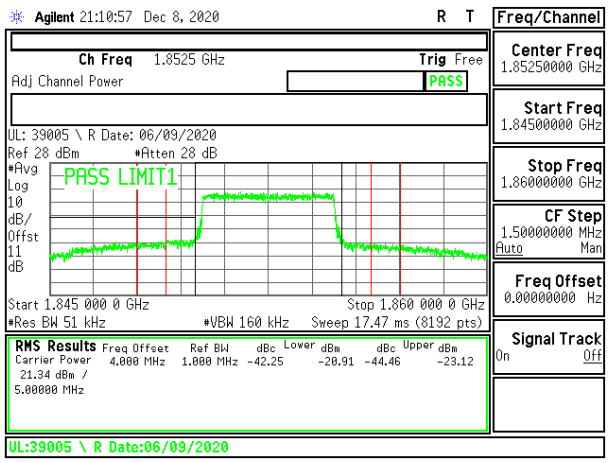
LTE B2 5MHz QPSK High Channel RB25-0



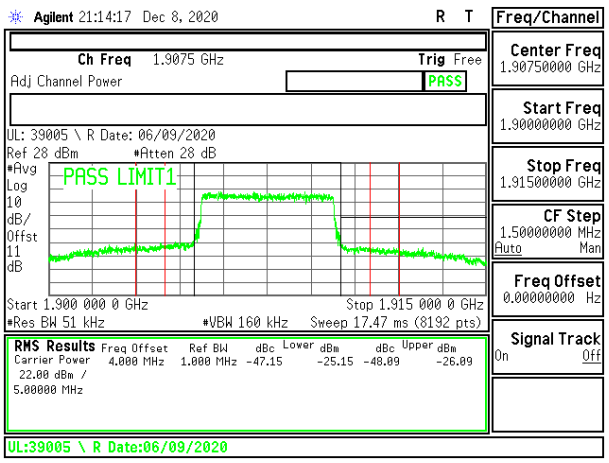
LTE B2 5MHz 16QAM Low Channel RB1-0



LTE B2 5MHz 16QAM High Channel RB1-24

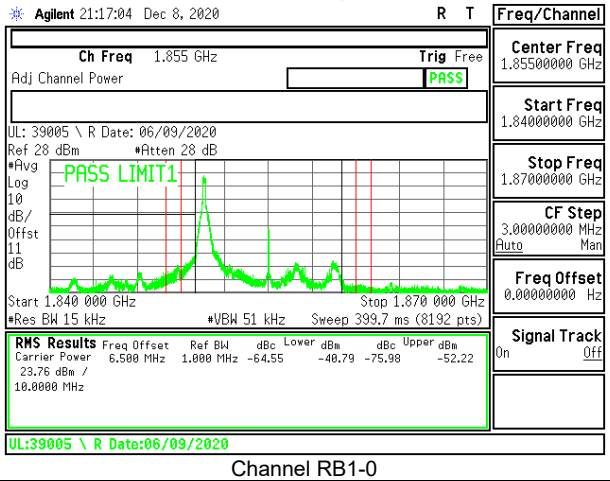


LTE B2 5MHz 16QAM Low Channel RB25-0

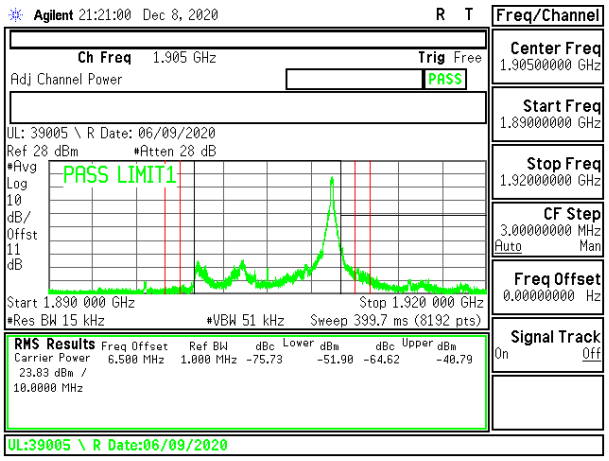


LTE B2 5MHz 16QAM High Channel RB25-0

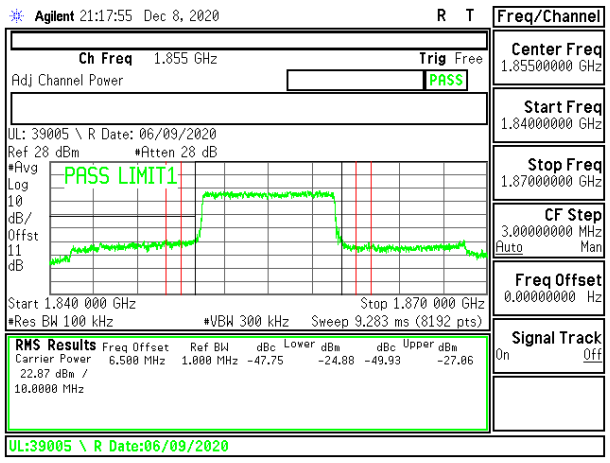
LTE B2 10MHz QPSK Low



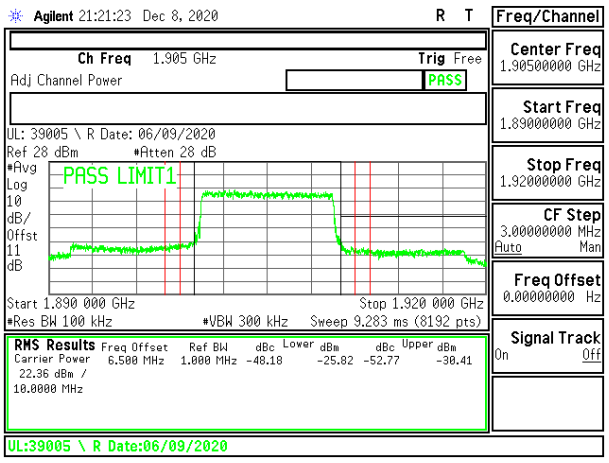
Channel RB1-0



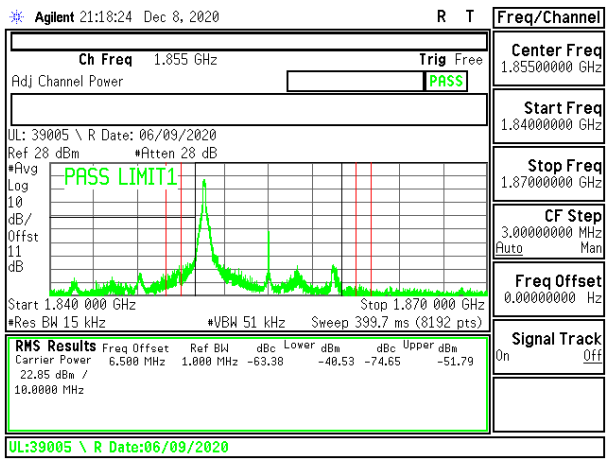
LTE B2 10MHz QPSK High Channel RB1-49



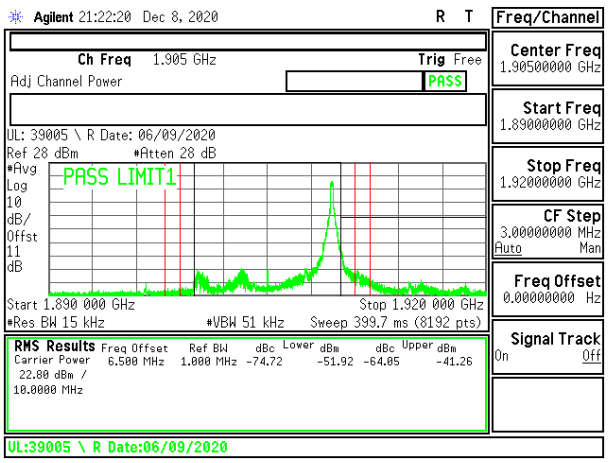
LTE B2 10MHz QPSK Low Channel RB50-0



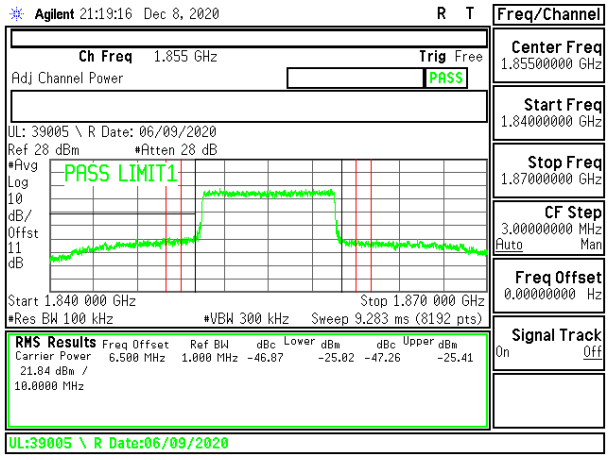
LTE B2 10MHz QPSK High Channel RB50-0



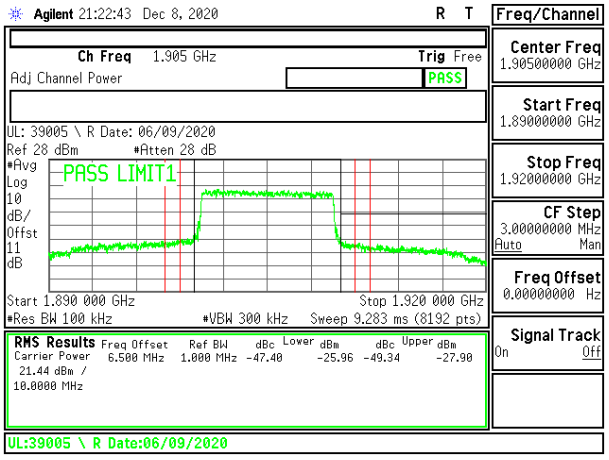
LTE B2 10MHz 16QAM Low Channel RB1-0



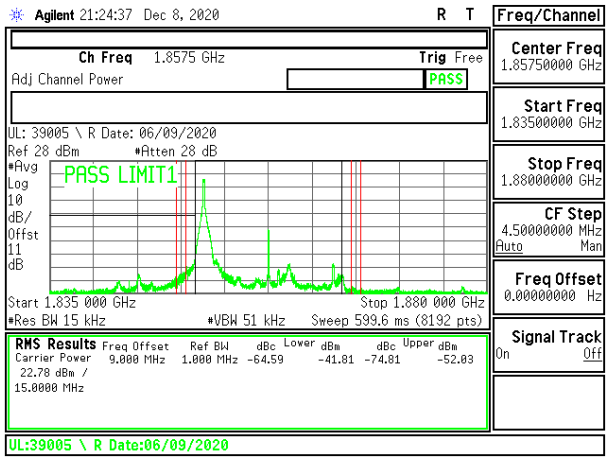
LTE B2 10MHz 16QAM High Channel RB1-49



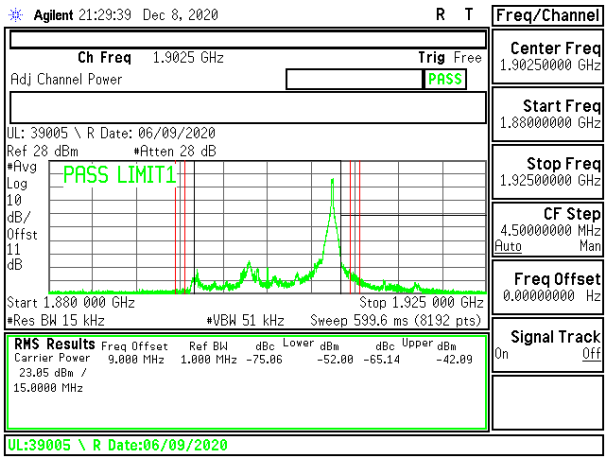
LTE B2 10MHz 16QAM Low Channel RB50-0



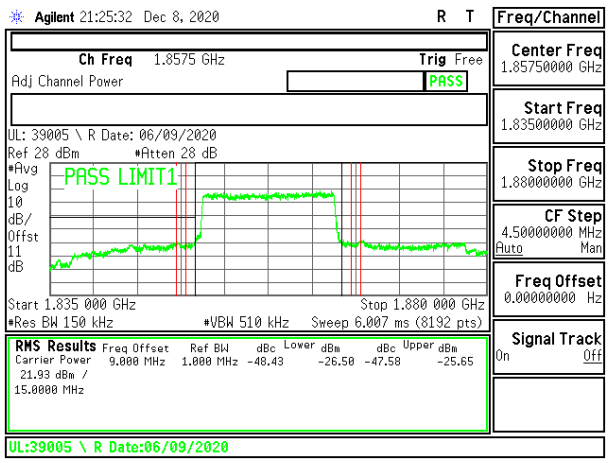
LTE B2 10MHz 16QAM High Channel RB50-0



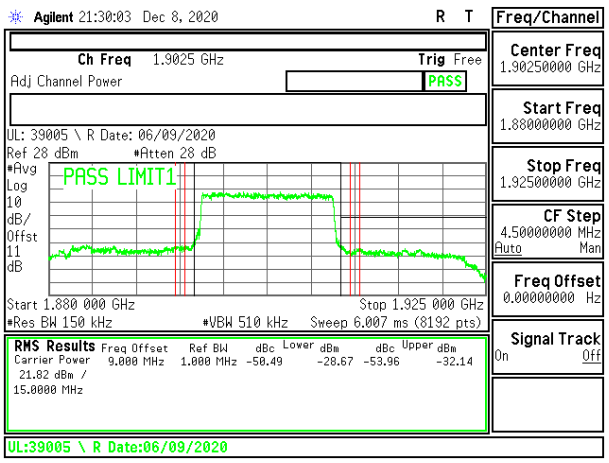
LTE B2 15MHz QPSK Low Channel RB1-0



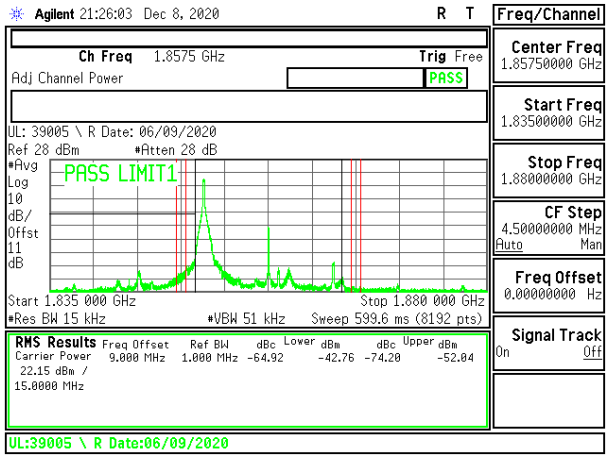
LTE B2 15MHz QPSK High Channel RB1-74



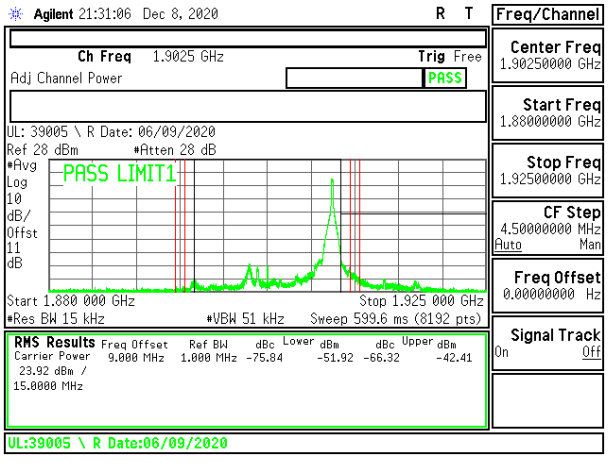
LTE B2 15MHz QPSK Low Channel RB75-0



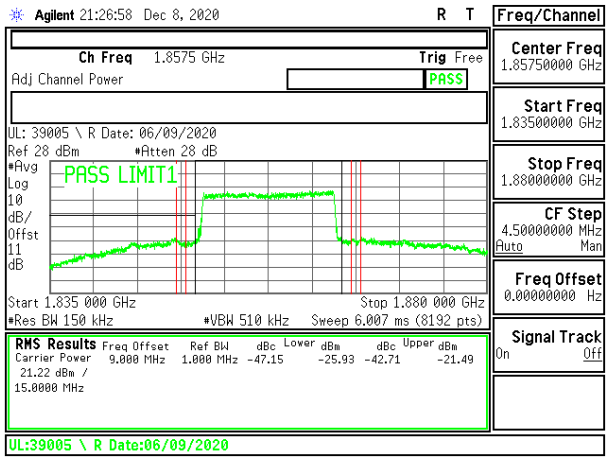
LTE B2 15MHz QPSK High Channel RB75-0



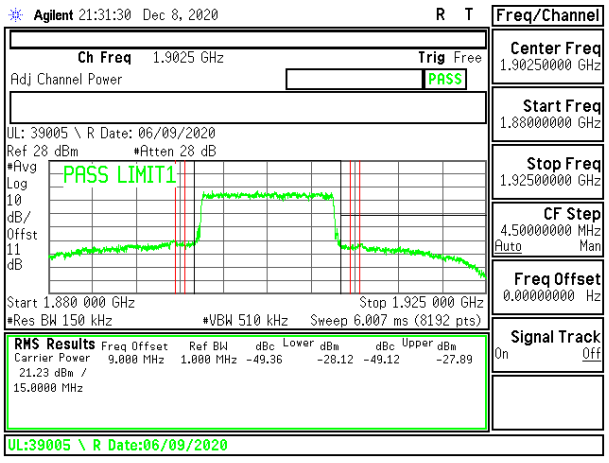
LTE B2 15MHz 16QAM Low Channel RB1-0



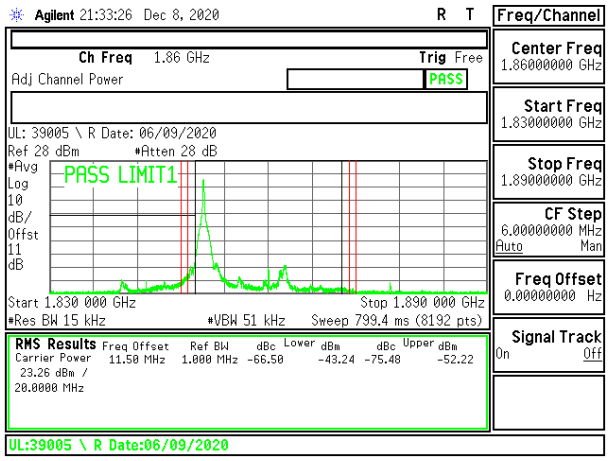
LTE B2 15MHz 16QAM High Channel RB1-74



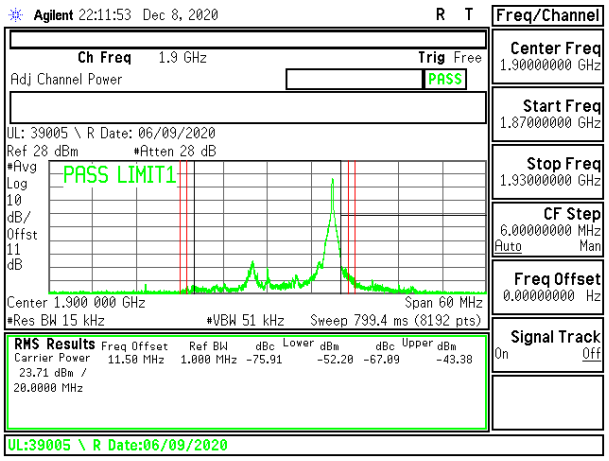
LTE B2 15MHz 16QAM Low Channel RB75-0



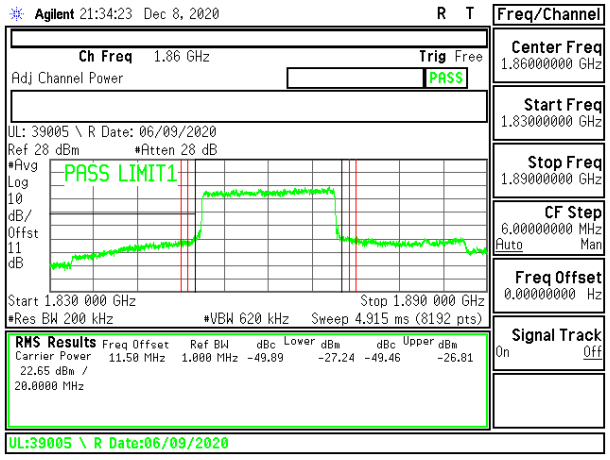
LTE B2 15MHz 16QAM High Channel RB75-0



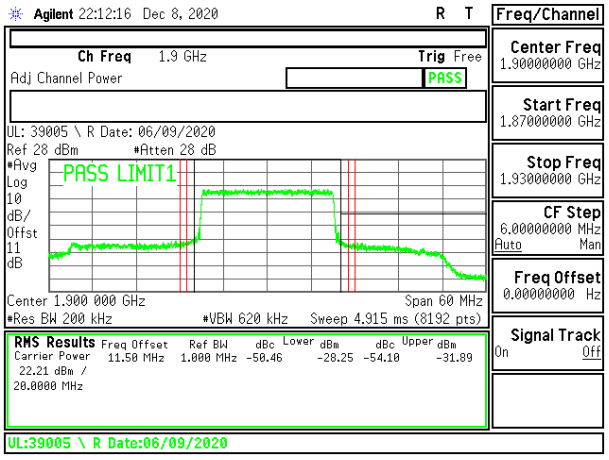
LTE B2 20MHz QPSK Low Channel RB1-0



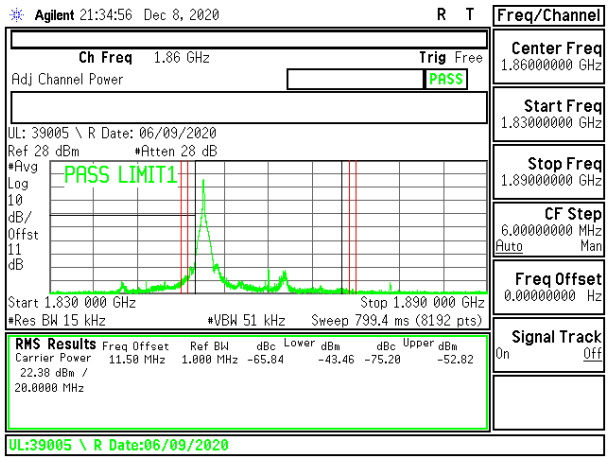
LTE B2 20MHz QPSK High Channel RB1-99



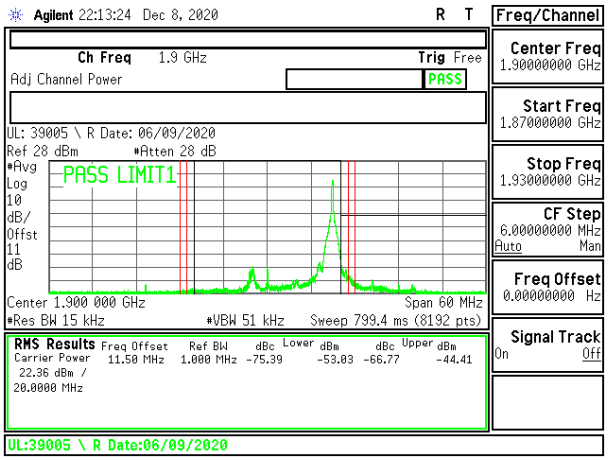
LTE B2 20MHz QPSK Low Channel RB100-0



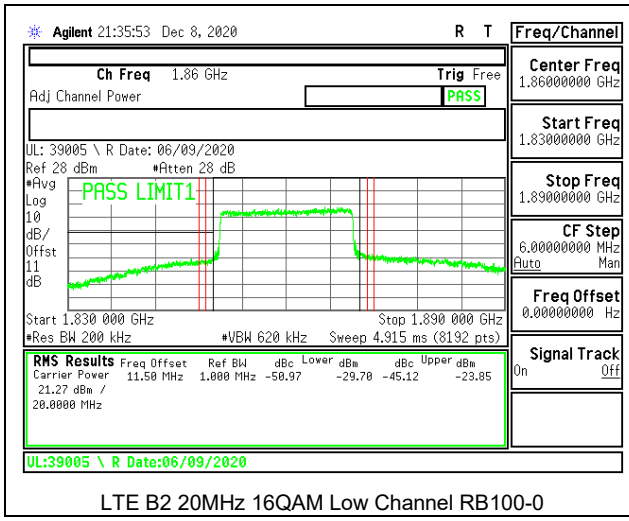
LTE B2 20MHz QPSK High Channel RB100-0



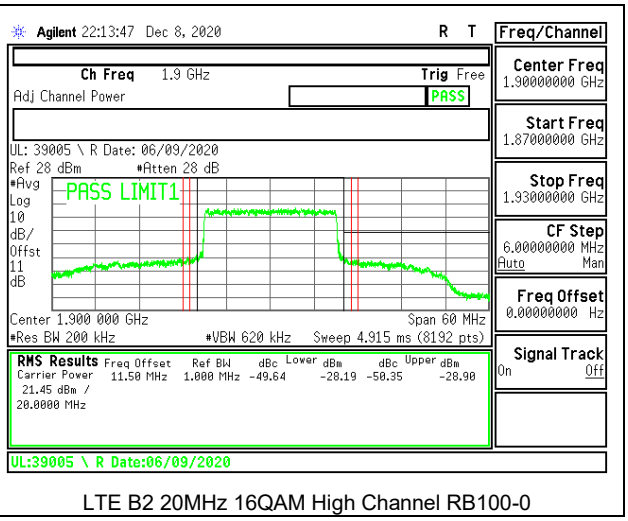
LTE B2 20MHz 16QAM Low Channel RB1-0



LTE B2 20MHz 16QAM High Channel RB1-99



LTE B2 20MHz 16QAM Low Channel RB100-0



LTE B2 20MHz 16QAM High Channel RB100-0

8.2.7. LTE BAND 5 AND 5G NR BAND n5 BANDEDGE

LIMITS

FCC: §22.917
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.

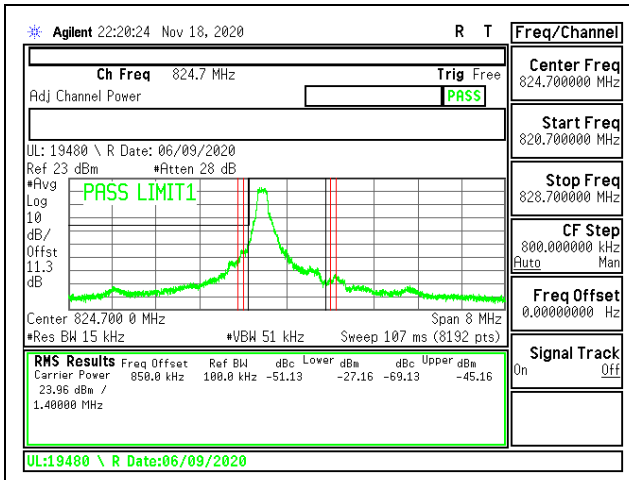
ISED: RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

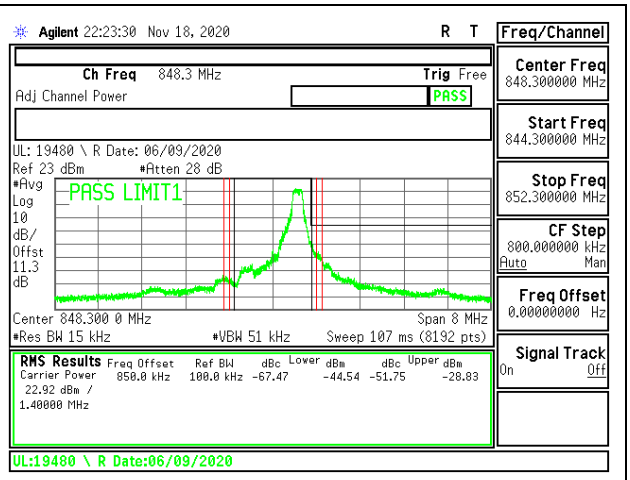
(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

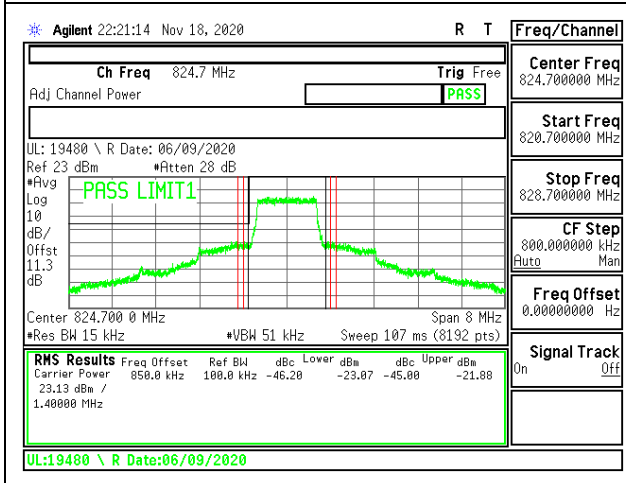
LTE BAND 5 BANDEDGE



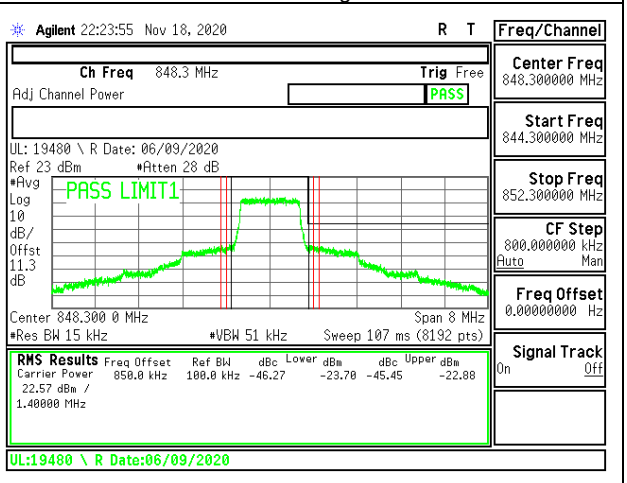
LTE B5 1.4MHz QPSK Low Channel RB1-0



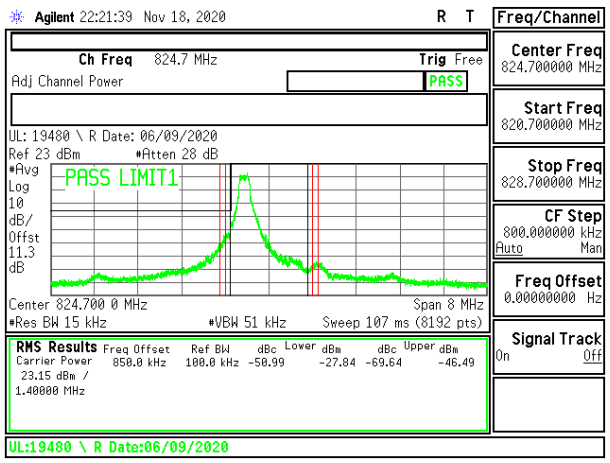
LTE B5 1.4MHz QPSK High Channel RB1-5



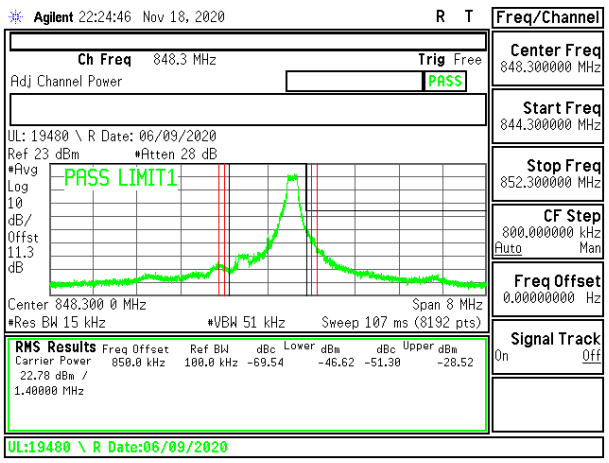
LTE B5 1.4MHz QPSK Low Channel RB6-0



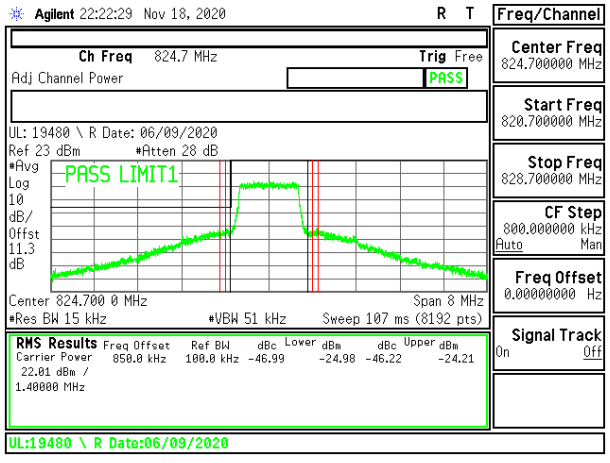
LTE B5 1.4MHz QPSK High Channel RB6-0



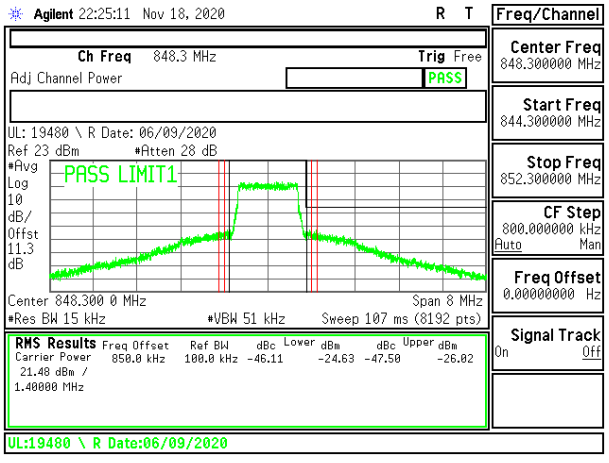
LTE B5 1.4MHz 16QAM Low Channel RB1-0



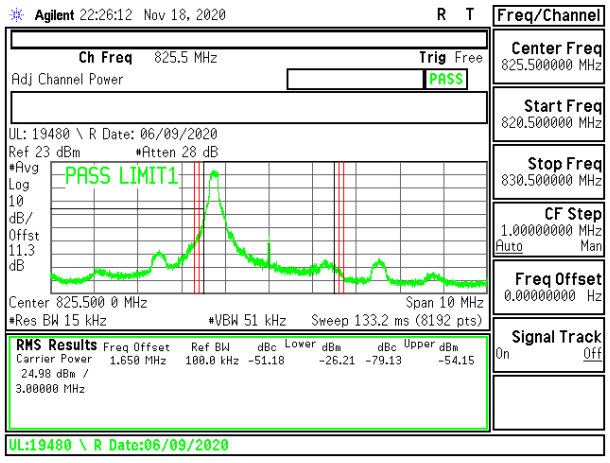
LTE B5 1.4MHz 16QAM High Channel RB1-5



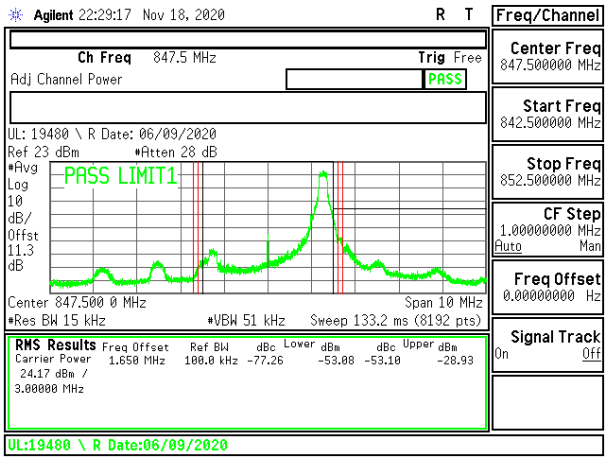
LTE B5 1.4MHz 16QAM Low Channel RB6-0



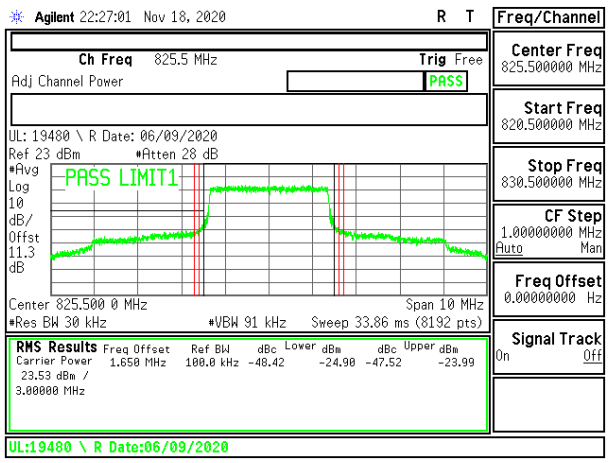
LTE B5 1.4MHz 16QAM High Channel RB6-0



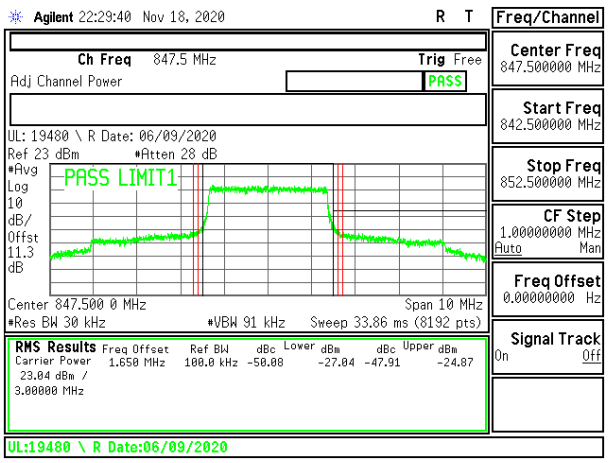
LTE B5 3MHz QPSK Low Channel RB1-0



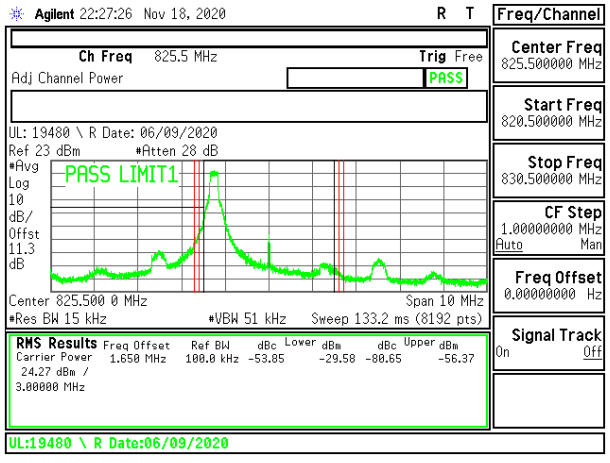
LTE B5 3MHz QPSK High Channel RB1-14



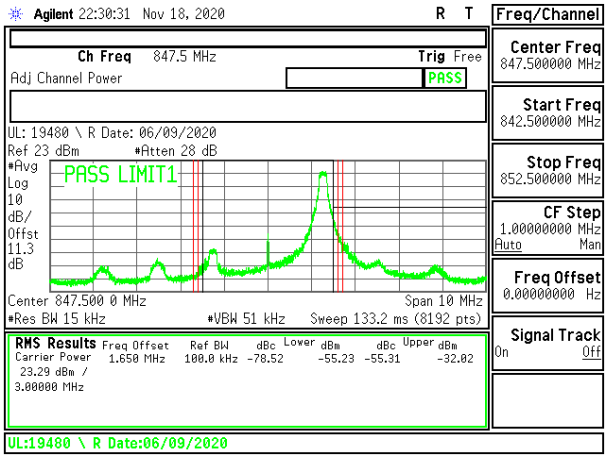
LTE B5 3MHz QPSK Low Channel RB15-0



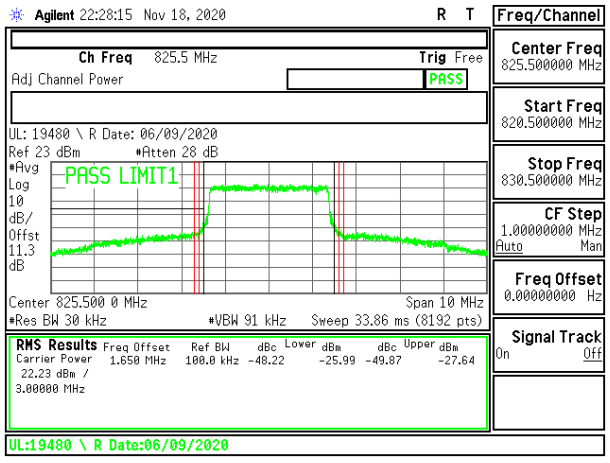
LTE B5 3MHz QPSK High Channel RB15-0



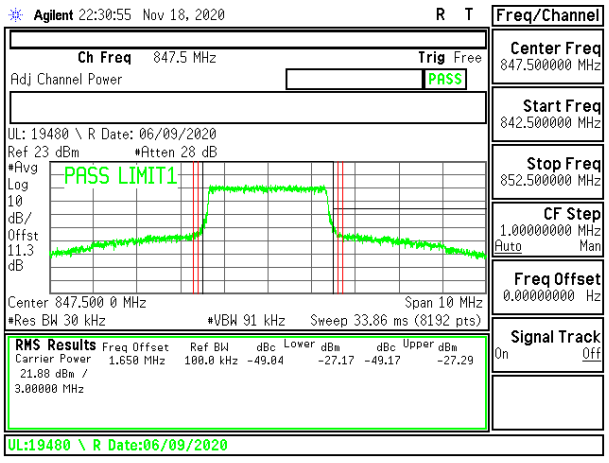
LTE B5 3MHz 16QAM Low Channel RB1-0



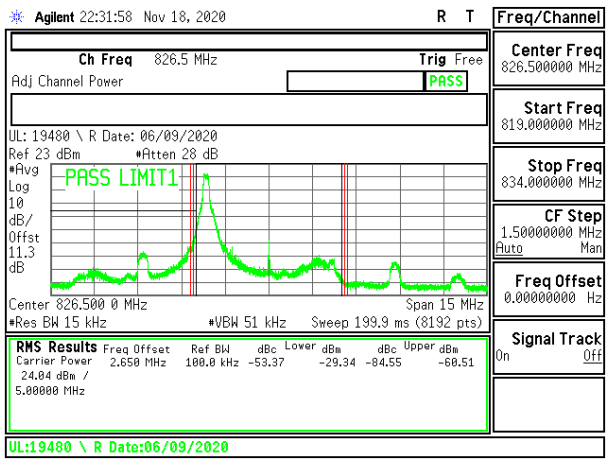
LTE B5 3MHz 16QAM High Channel RB1-14



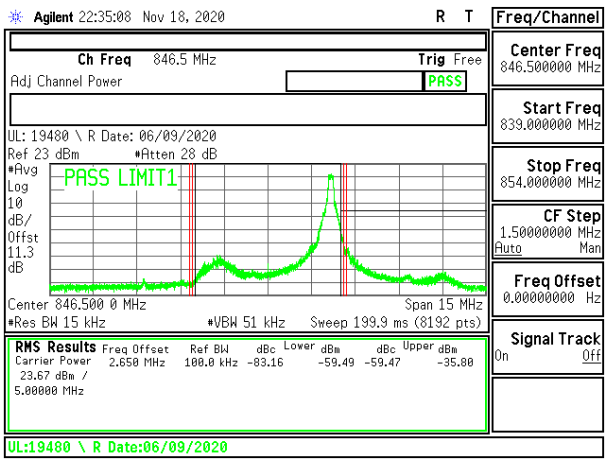
LTE B5 3MHz 16QAM Low Channel RB15-0



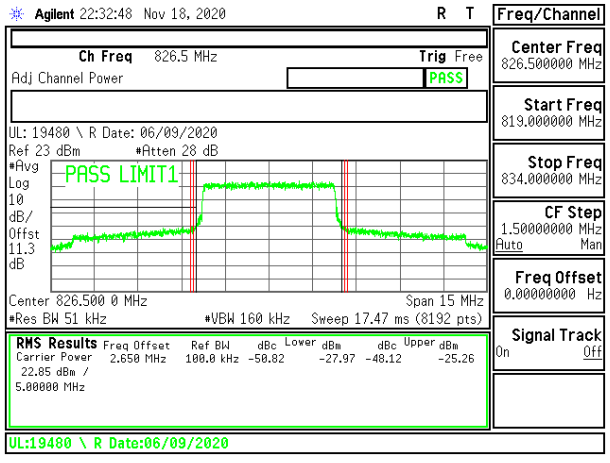
LTE B5 3MHz 16QAM High Channel RB15-0



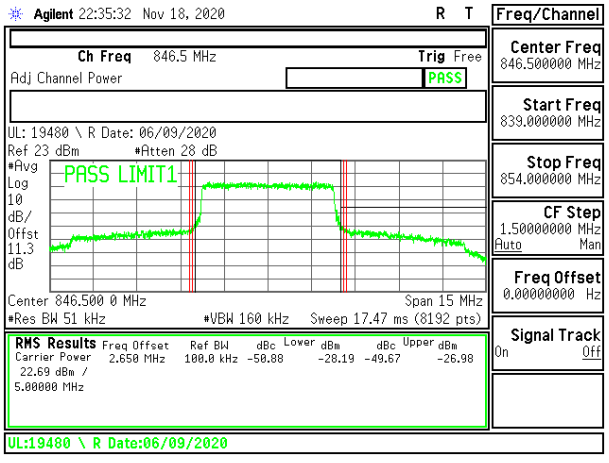
LTE B5 5MHz QPSK Low Channel RB1-0



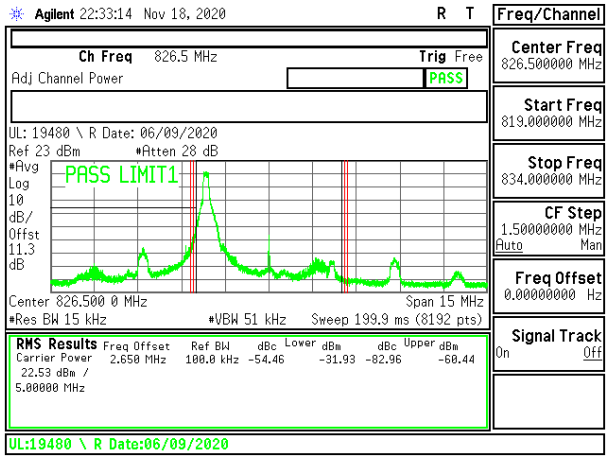
LTE B5 5MHz QPSK High Channel RB1-24



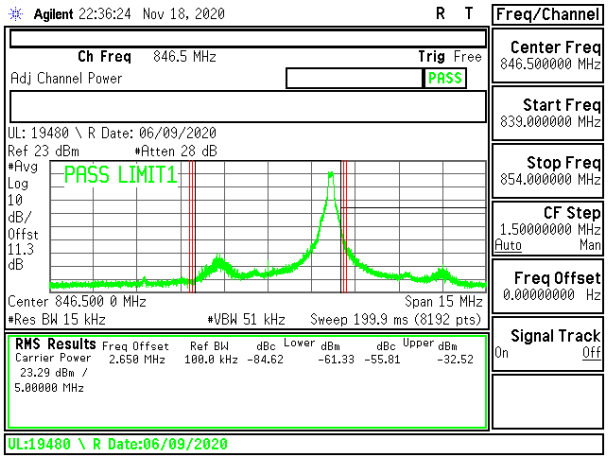
LTE B5 5MHz QPSK Low Channel RB25-0



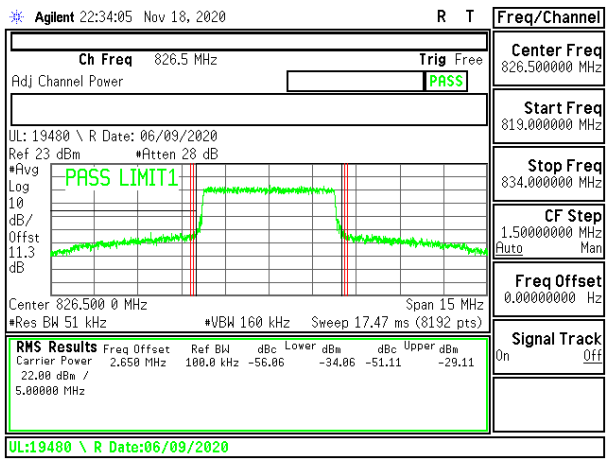
LTE B5 5MHz QPSK High Channel RB25-0



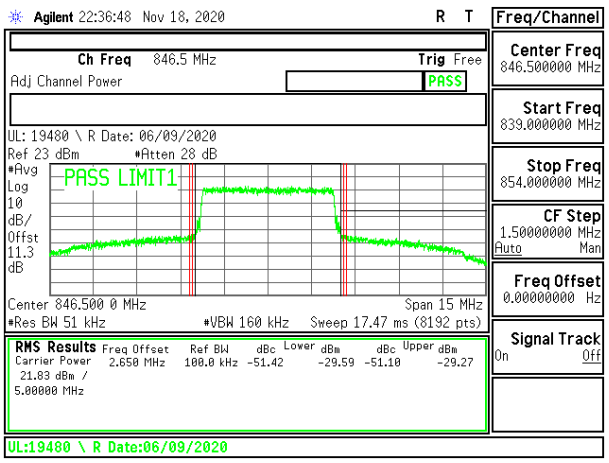
LTE B5 5MHz 16QAM Low Channel RB1-0



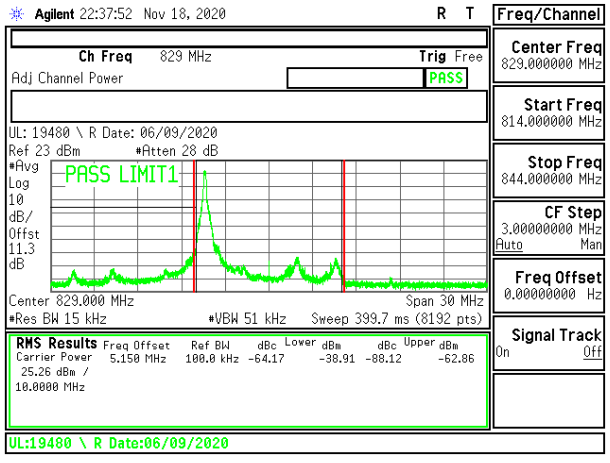
LTE B5 5MHz 16QAM High Channel RB1-24



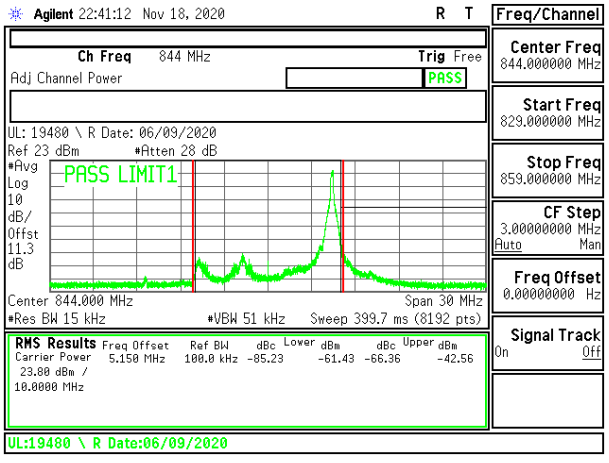
LTE B5 5MHz 16QAM Low Channel RB25-0



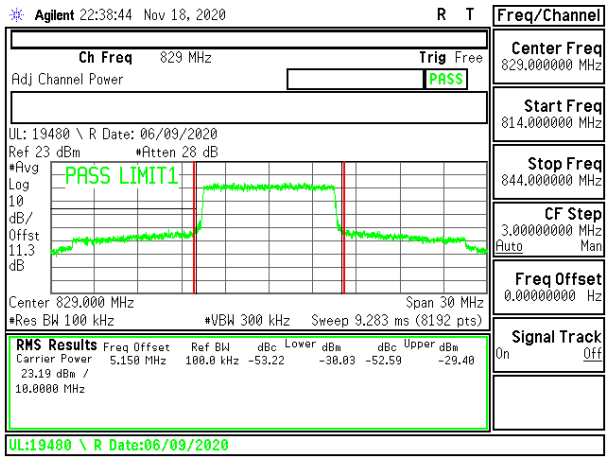
LTE B5 5MHz 16QAM High Channel RB25-0



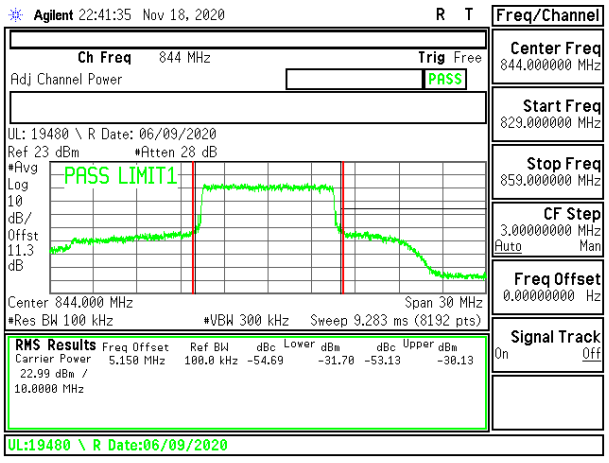
LTE B5 10MHz QPSK Low Channel RB1-0



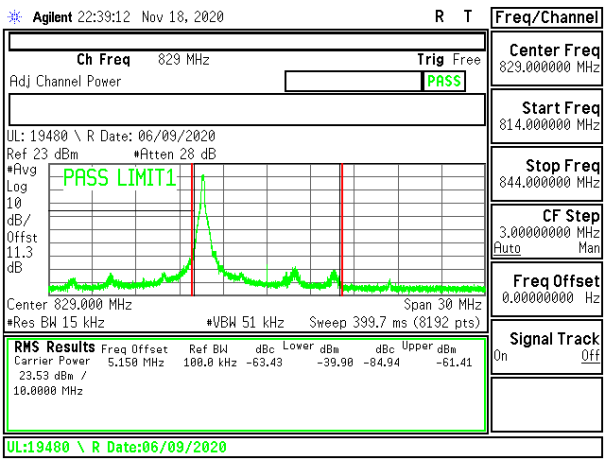
LTE B5 10MHz QPSK High Channel RB1-49



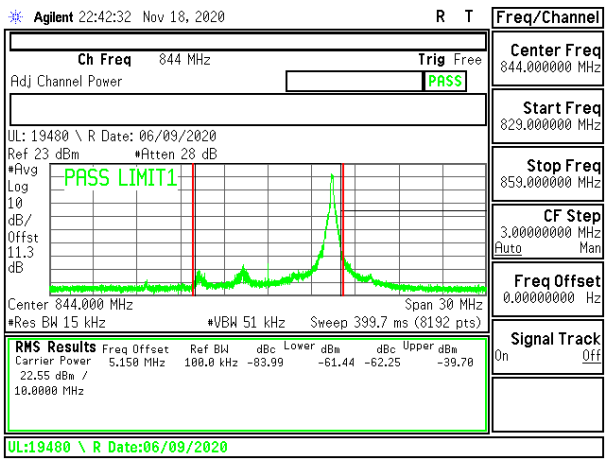
LTE B5 10MHz QPSK Low Channel RB50-0



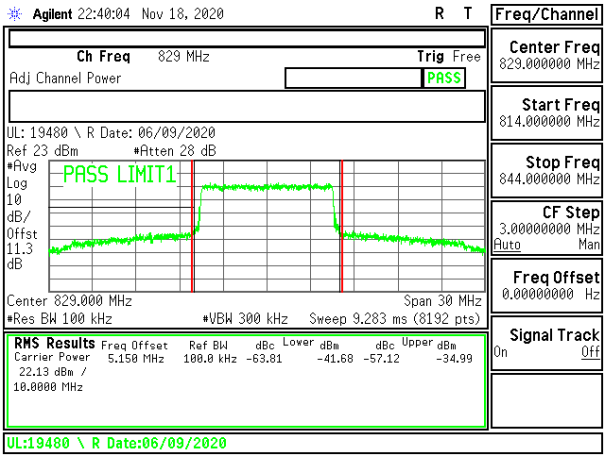
LTE B5 10MHz QPSK High Channel RB50-0



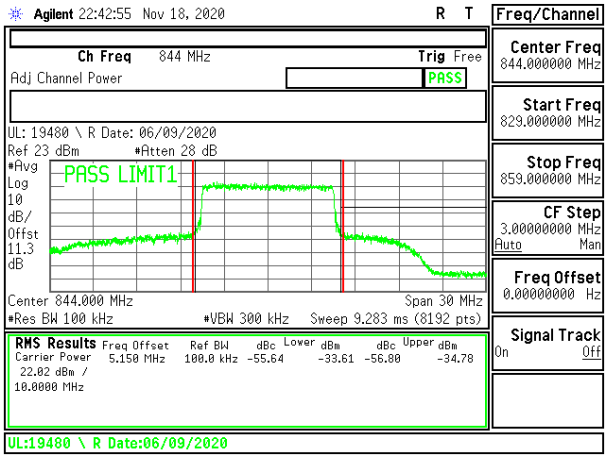
LTE B5 10MHz 16QAM Low Channel RB1-0



LTE B5 10MHz 16QAM High Channel RB1-49

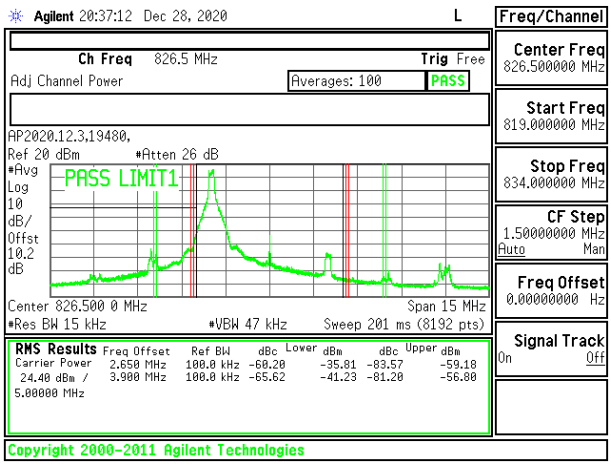


LTE B5 10MHz 16QAM Low Channel RB50-0

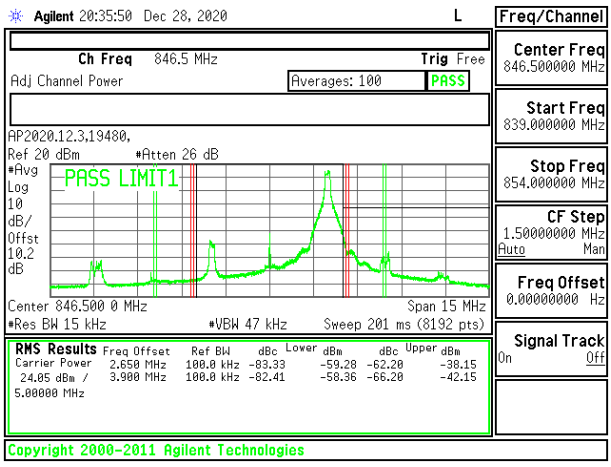


LTE B5 10MHz 16QAM High Channel RB50-0

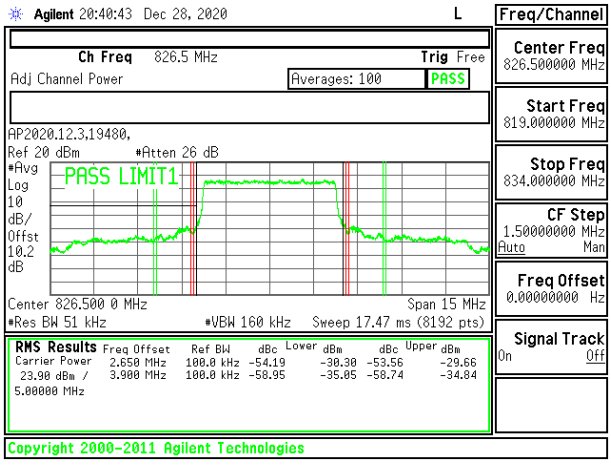
5G NR BAND n5 BANDEDGE



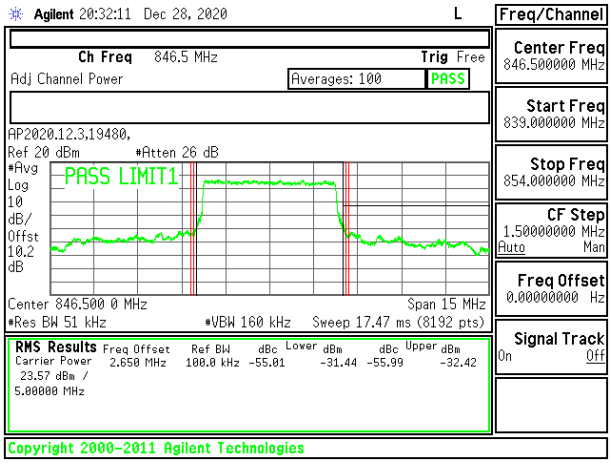
5G NR Band n5 5MHz BPSK Low Channel RB1-1



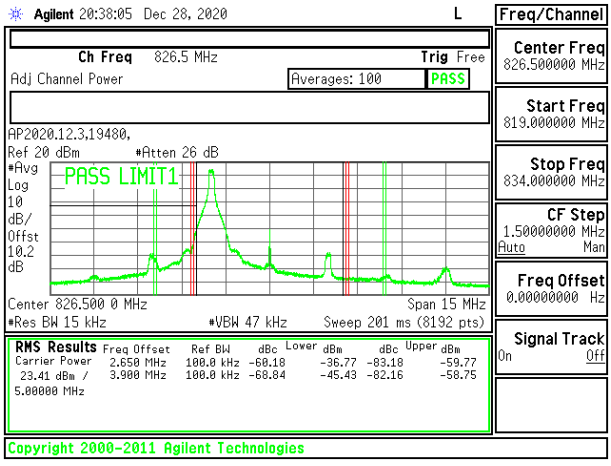
5G NR Band n5 5MHz BPSK High Channel RB1-23



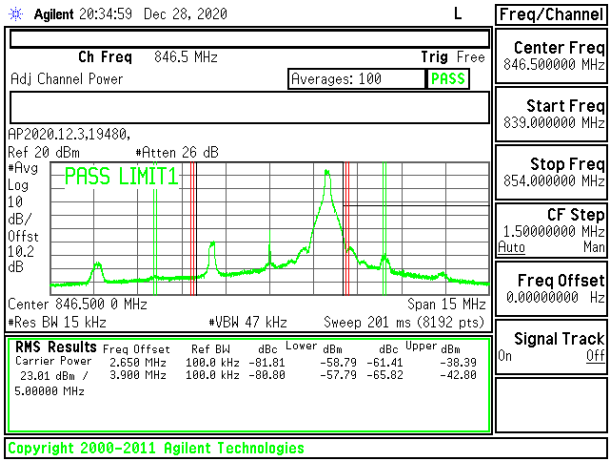
5G NR Band n5 5MHz BPSK Low Channel RB25-0



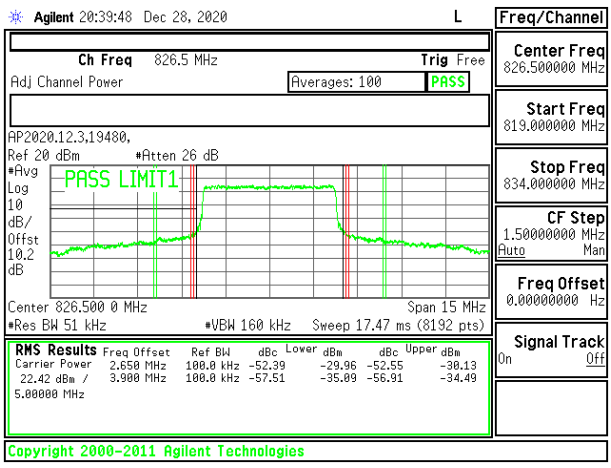
5G NR Band n5 5MHz BPSK High Channel RB25-0



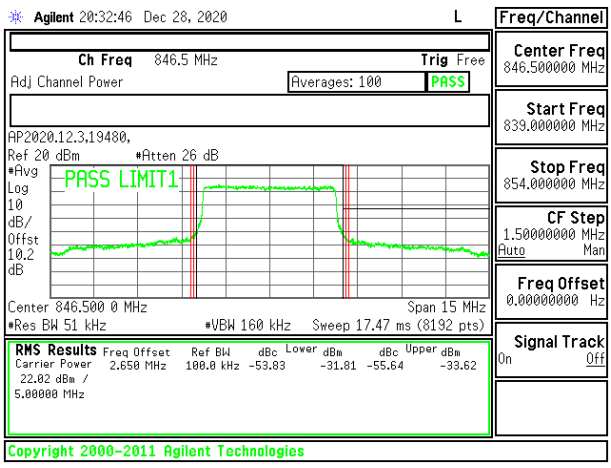
5G NR Band n5 5MHz 16QAM Low Channel RB1-1



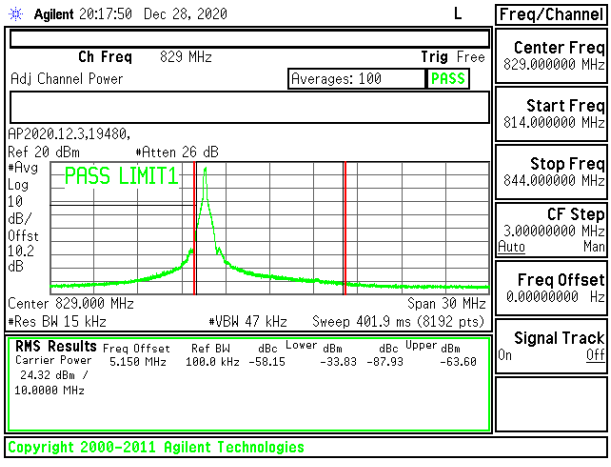
5G NR Band n5 5MHz 16QAM High Channel RB1-23



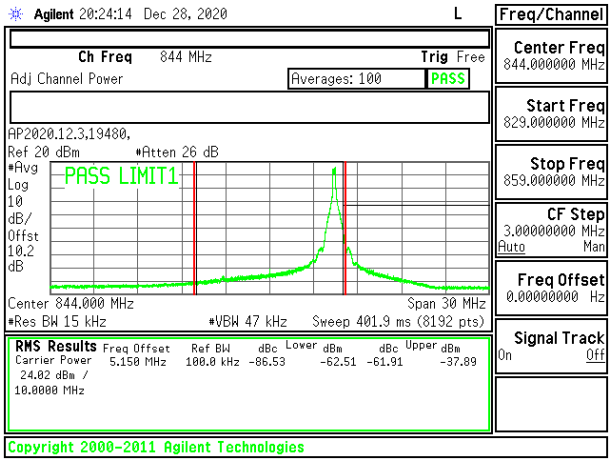
5G NR Band n5 5MHz 16QAM Low Channel RB25-0



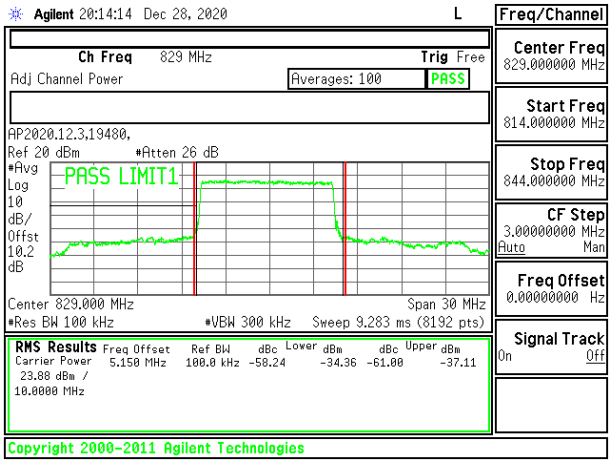
5G NR Band n5 5MHz 16QAM High Channel RB25-0



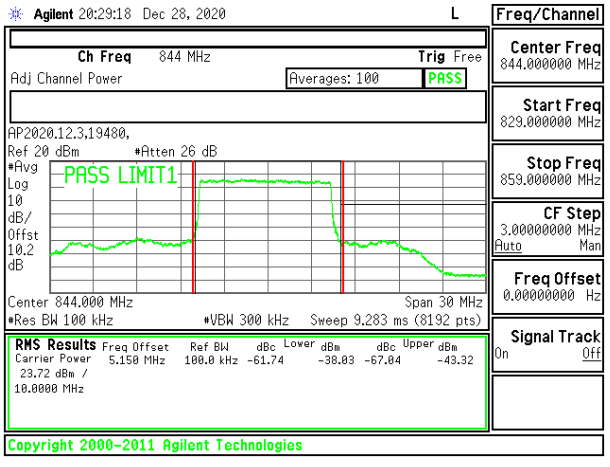
5G NR Band n5 10MHz BPSK Low Channel RB1-1



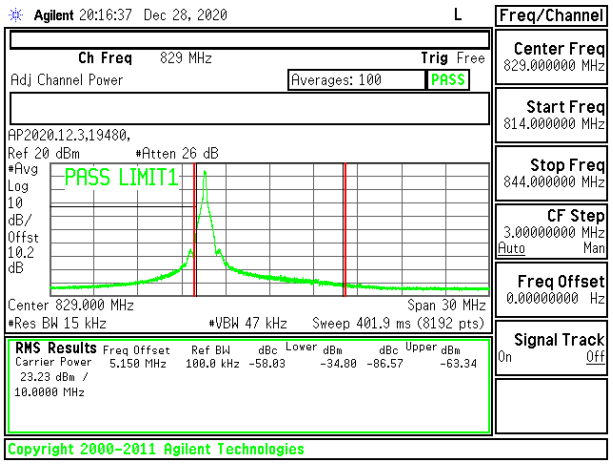
5G NR Band n5 10MHz BPSK High Channel RB1-50



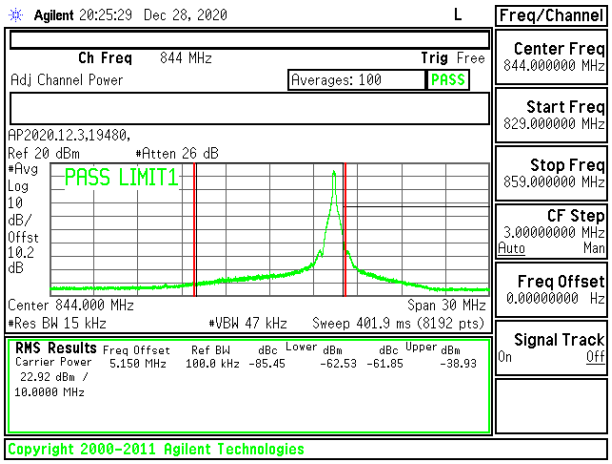
5G NR Band n5 10MHz BPSK Low Channel RB50-0



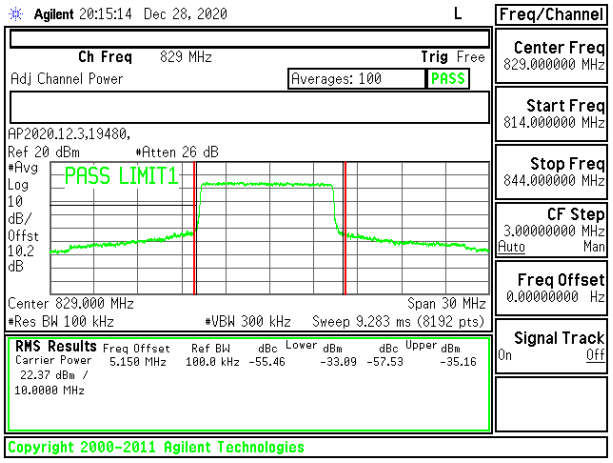
5G NR Band n5 10MHz BPSK High Channel RB50-0



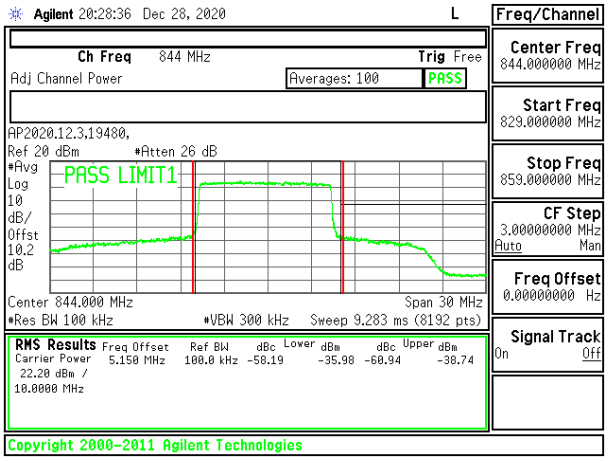
5G NR Band n5 10MHz 16QAM Low Channel RB1-1



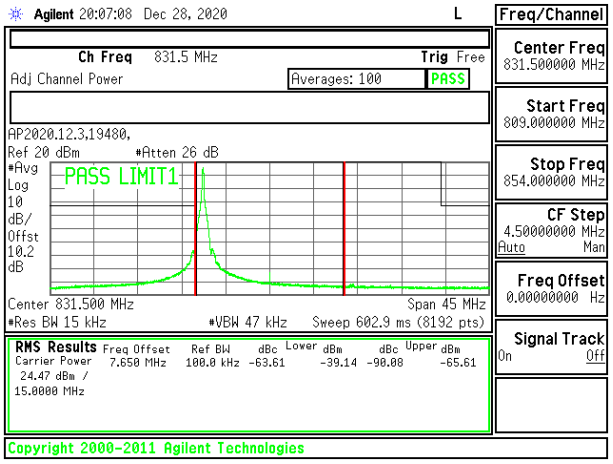
5G NR Band n5 10MHz 16QAM High Channel RB1-50



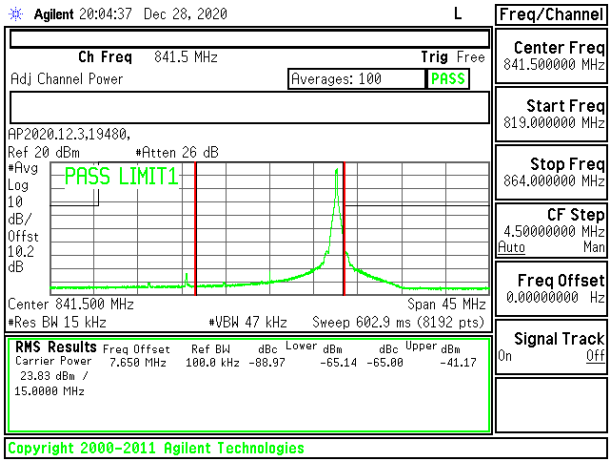
5G NR Band n5 10MHz 16QAM Low Channel RB50-0



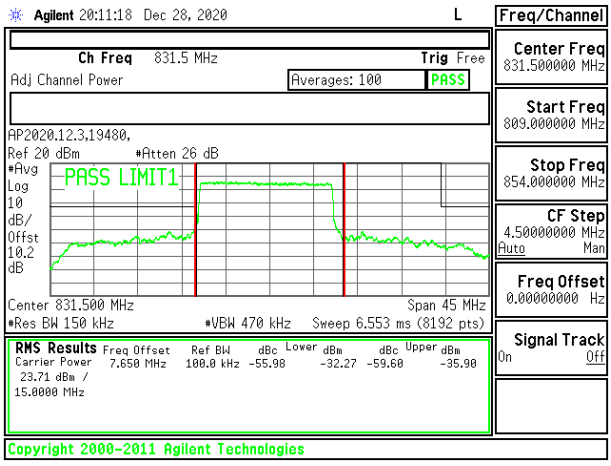
5G NR Band n5 10MHz 16QAM High Channel RB50-0



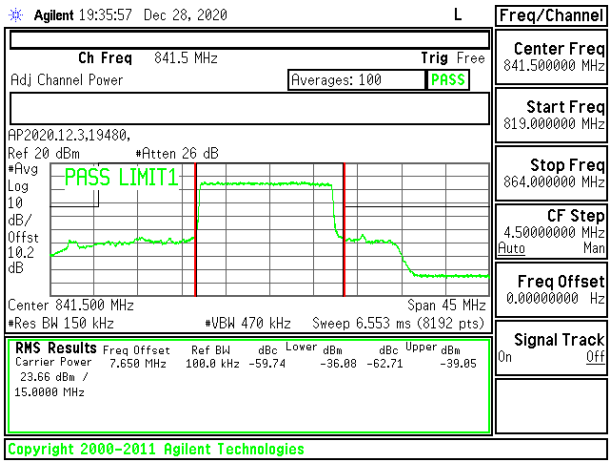
5G NR Band n5 15MHz BPSK Low Channel RB1-1



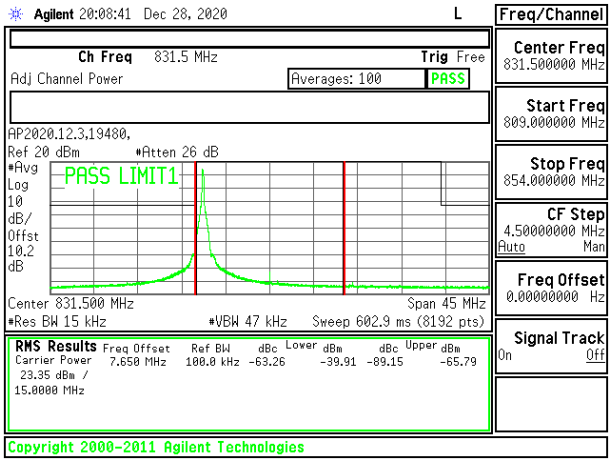
5G NR Band n5 15MHz BPSK High Channel RB1-77



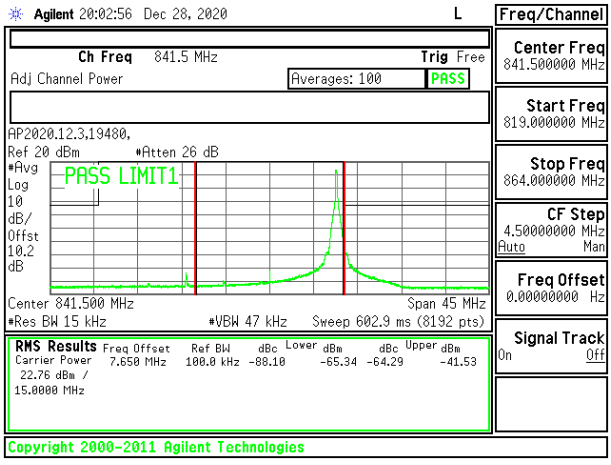
5G NR Band n5 15MHz BPSK Low Channel RB75-0



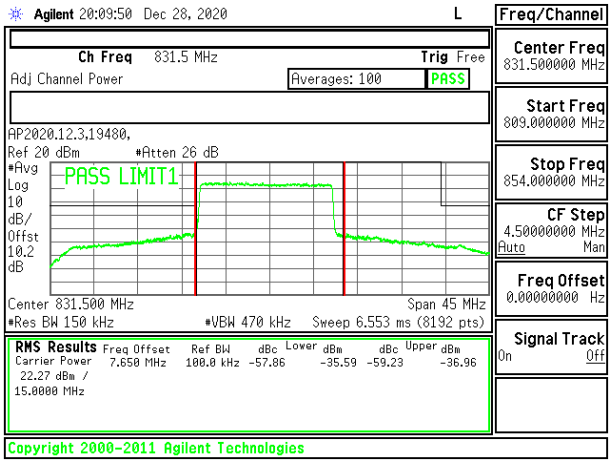
5G NR Band n5 15MHz BPSK High Channel RB75-0



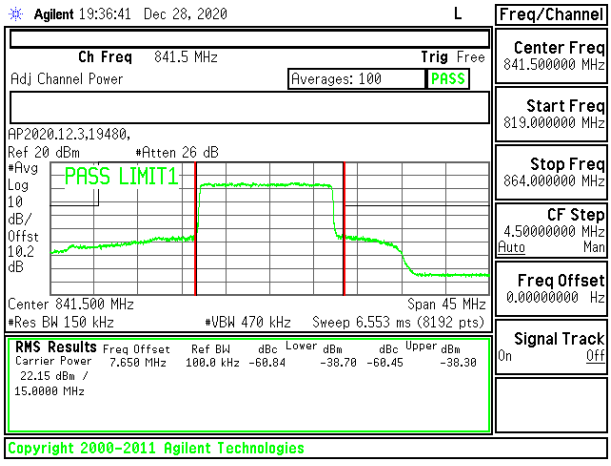
5G NR Band n5 15MHz 16QAM Low Channel RB1-1



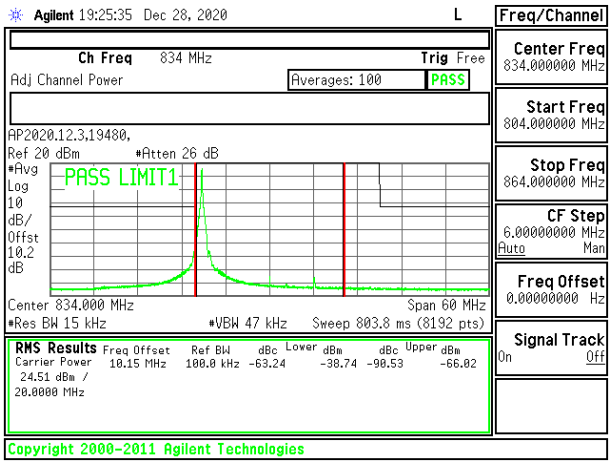
5G NR Band n5 15MHz 16QAM High Channel RB1-77



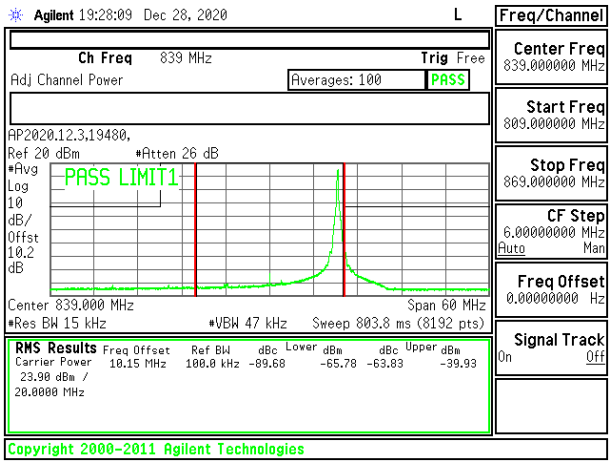
5G NR Band n5 15MHz 16QAM Low Channel RB75-0



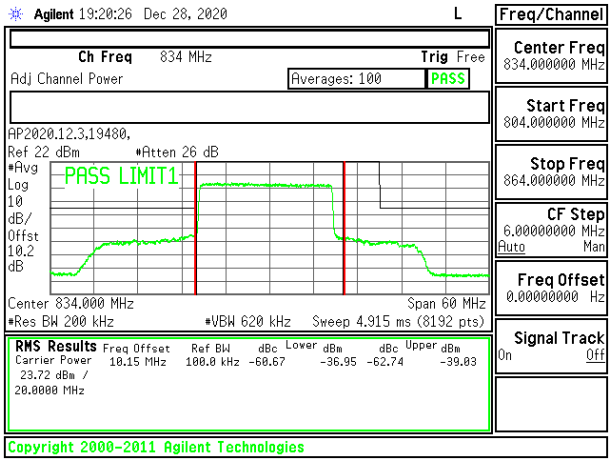
5G NR Band n5 15MHz 16QAM High Channel RB75-0



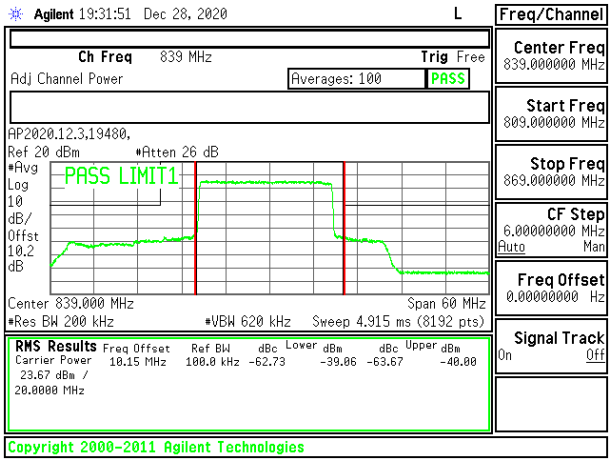
5G NR Band n5 20MHz BPSK Low Channel RB1-1



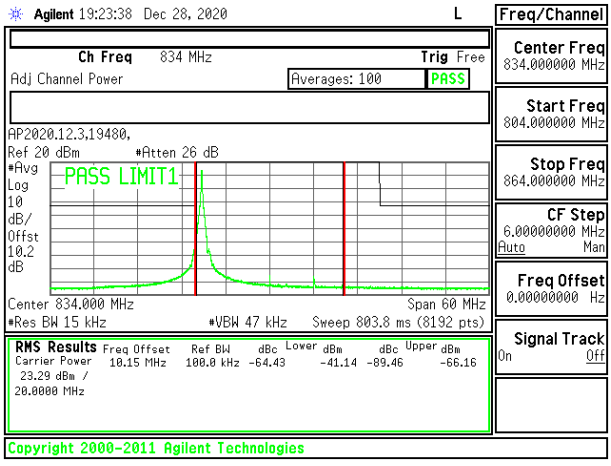
5G NR Band n5 20MHz BPSK High Channel RB1-104



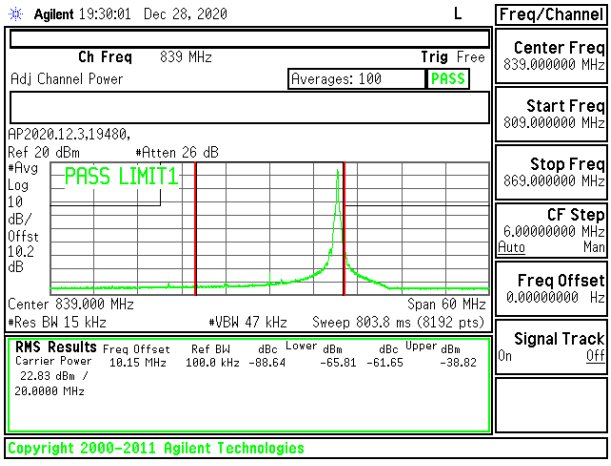
5G NR Band n5 20MHz BPSK Low Channel RB100-0



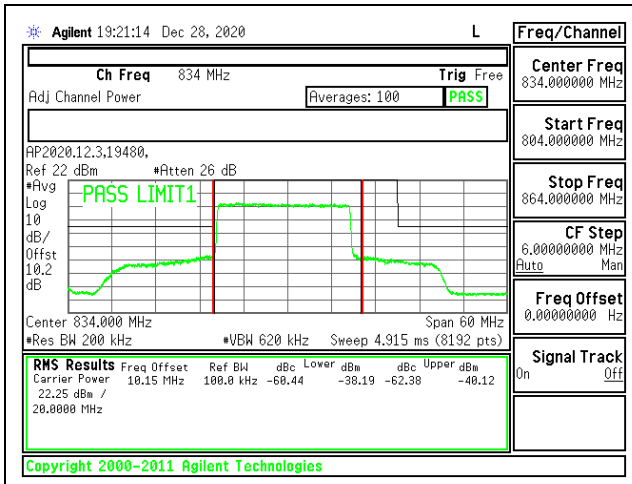
5G NR Band n5 20MHz BPSK High Channel RB100-0



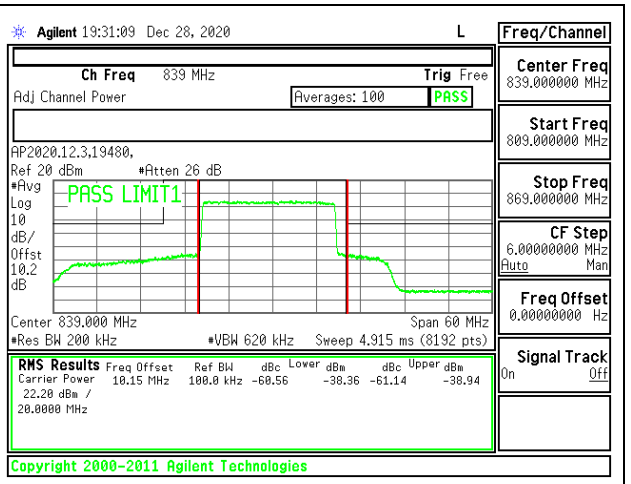
5G NR Band n5 20MHz 16QAM Low Channel RB1-1



5G NR Band n5 20MHz 16QAM High Channel RB1-104



5G NR Band n5 20MHz 16QAM Low Channel RB100-0



5G NR Band n5 20MHz 16QAM High Channel RB100-0

8.2.8. LTE BAND 12 ADJACENT CHANNEL POWER

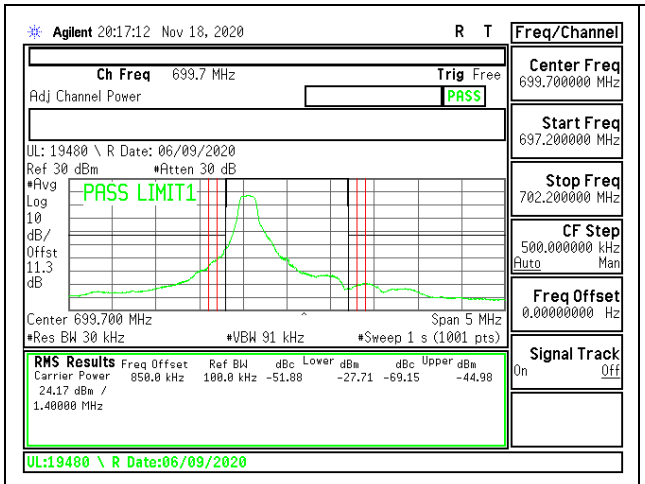
LIMITS

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.

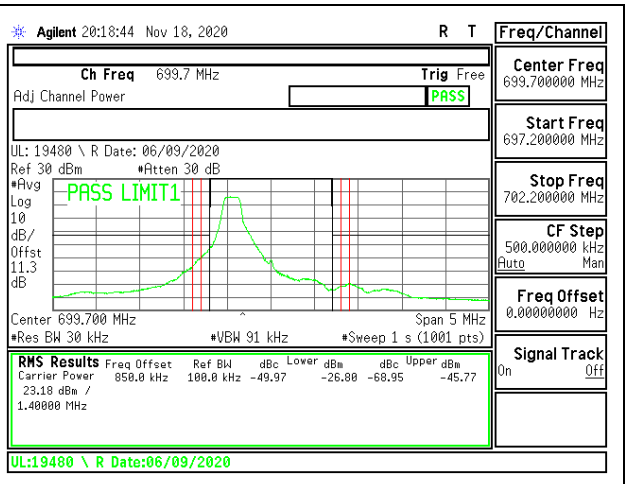
ISED: RSS130§4.7
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 Additional unwanted emissions limits
In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

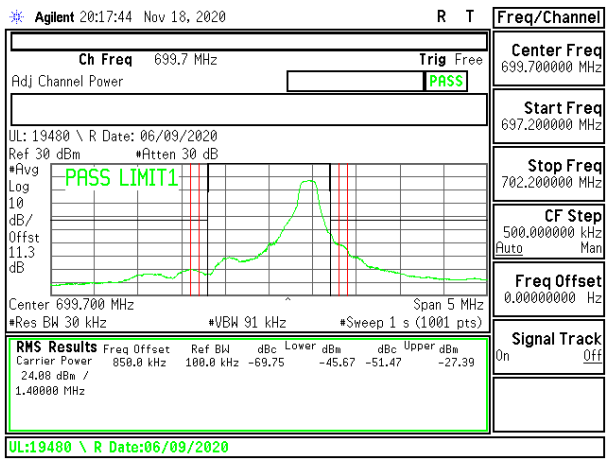
(a) the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
    i. 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment and
    ii. 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment
(b) the e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.



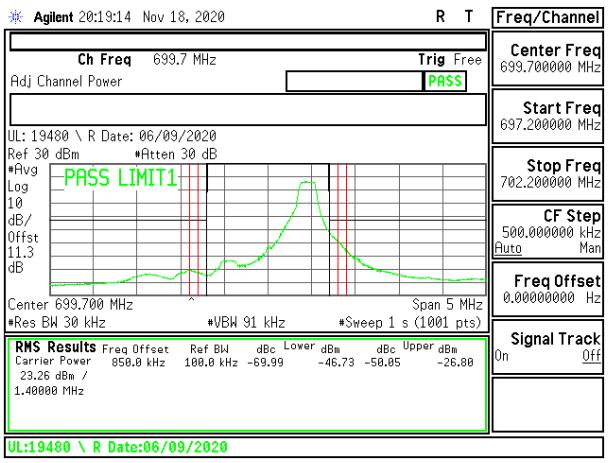
LTE B12 1.4MHz QPSK Low Channel RB1-0



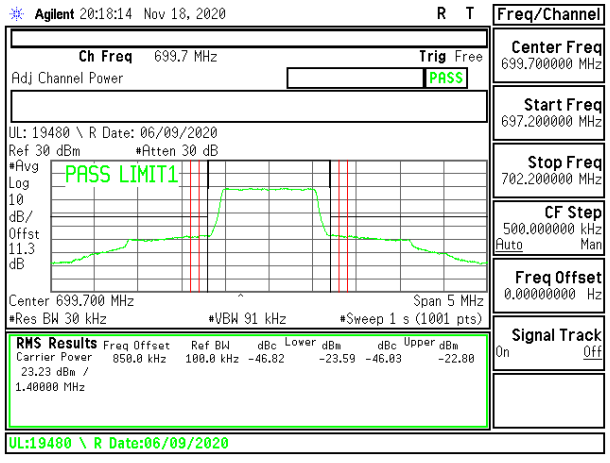
LTE B12 1.4MHz 16QAM Low Channel RB1-0



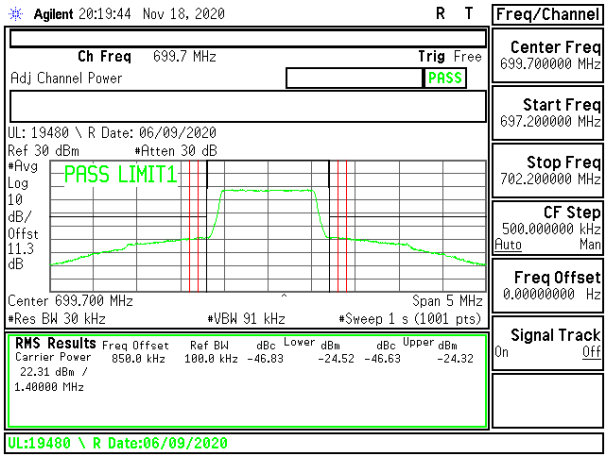
LTE B12 1.4MHz QPSK Low Channel RB1-5



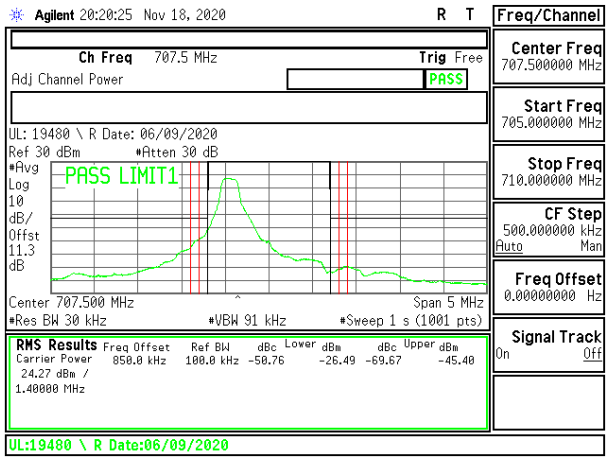
LTE B12 1.4MHz 16QAM Low Channel RB1-5



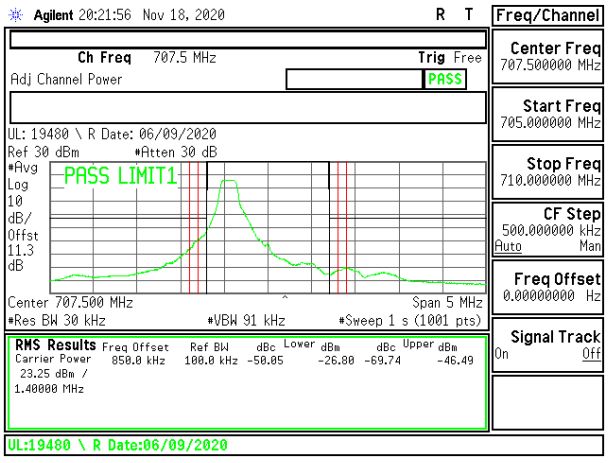
LTE B12 1.4MHz QPSK Low Channel RB6-0



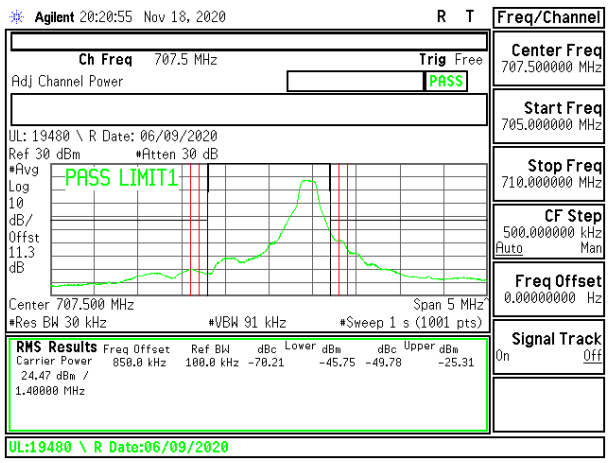
LTE B12 1.4MHz 16QAM Low Channel RB6-0



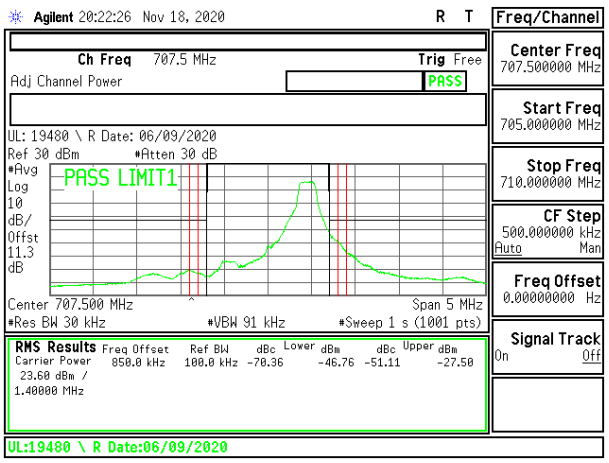
LTE B12 1.4MHz QPSK Middle Channel RB1-0



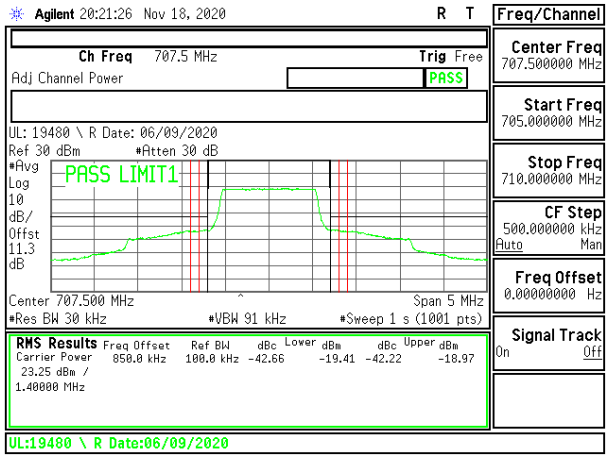
LTE B12 1.4MHz 16QAM Middle Channel RB1-0



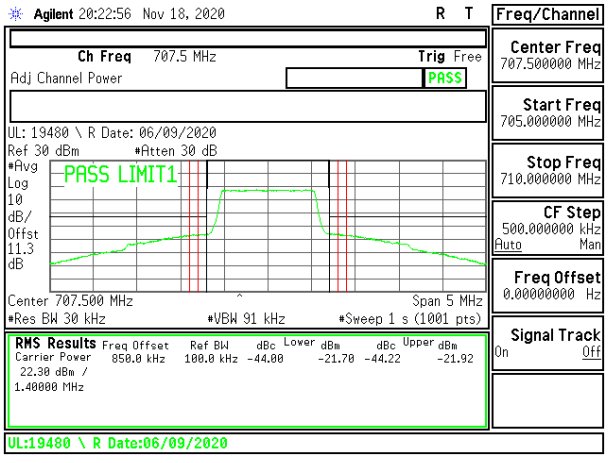
LTE B12 1.4MHz QPSK Middle Channel RB1-5



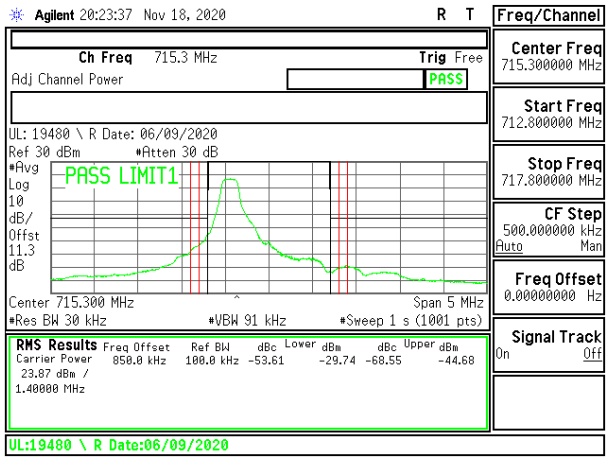
LTE B12 1.4MHz 16QAM Middle Channel RB1-5



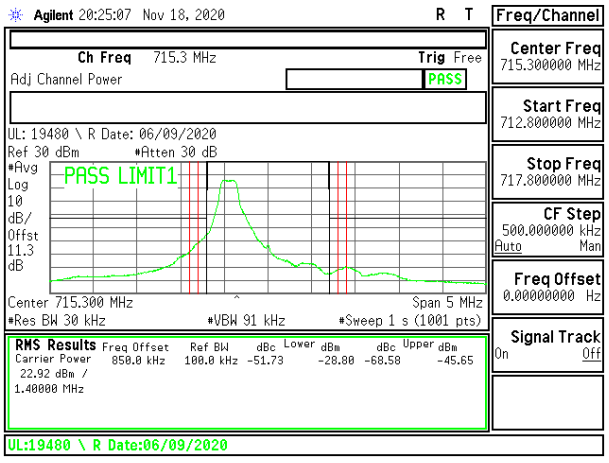
LTE B12 1.4MHz QPSK Middle Channel RB6-0



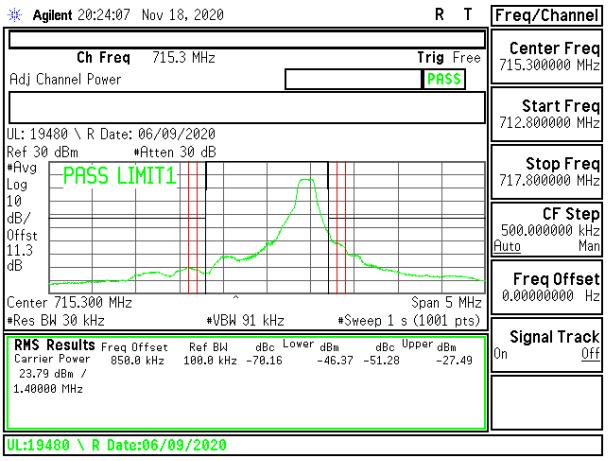
LTE B12 1.4MHz 16QAM Middle Channel RB6-0



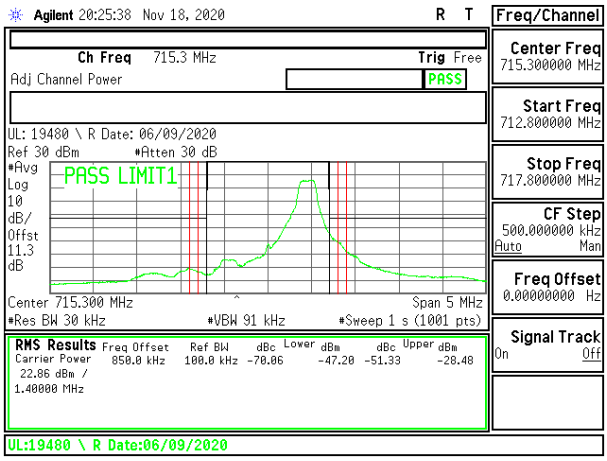
LTE B12 1.4MHz QPSK High Channel RB1-0



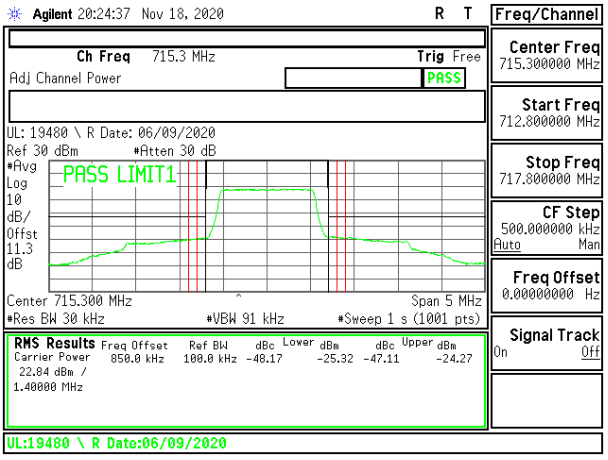
LTE B12 1.4MHz 16QAM High Channel RB1-0



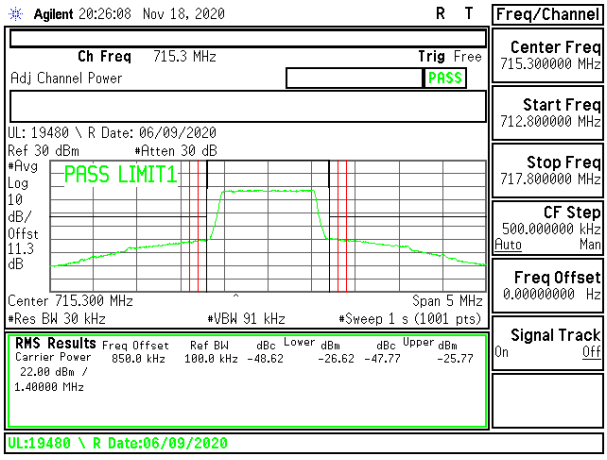
LTE B12 1.4MHz QPSK High Channel RB1-5



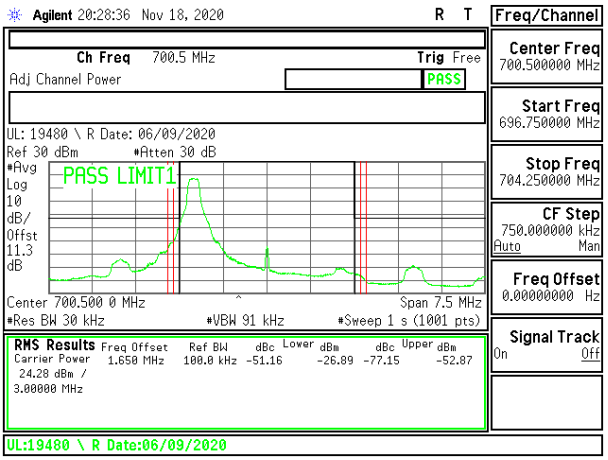
LTE B12 1.4MHz 16QAM High Channel RB1-5



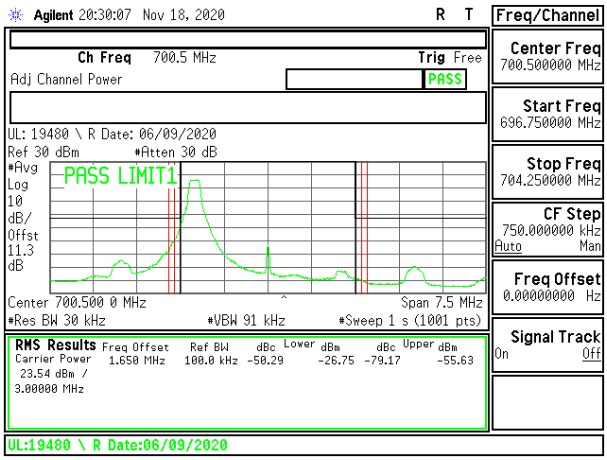
LTE B12 1.4MHz QPSK High Channel RB6-0



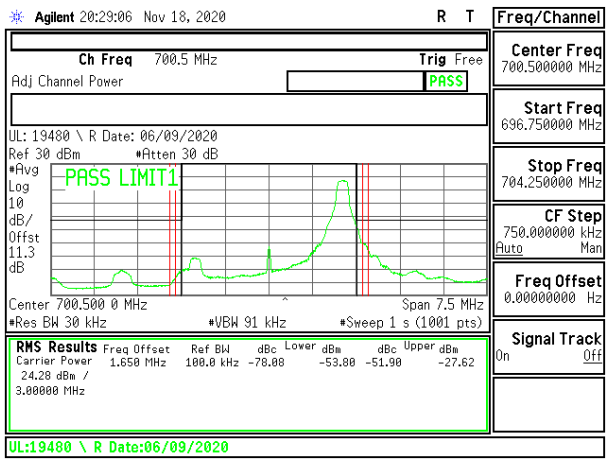
LTE B12 1.4MHz 16QAM High Channel RB6-0



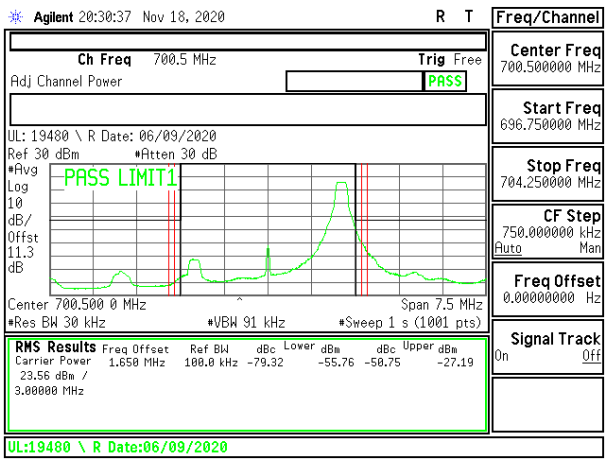
LTE B12 3MHz QPSK Low Channel RB1-0



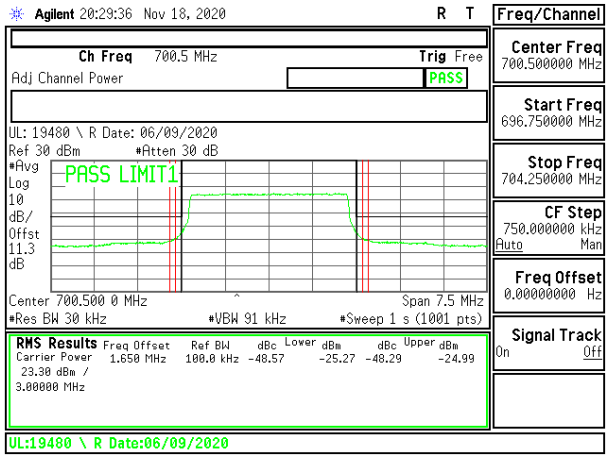
LTE B12 3MHz 16QAM Low Channel RB1-0



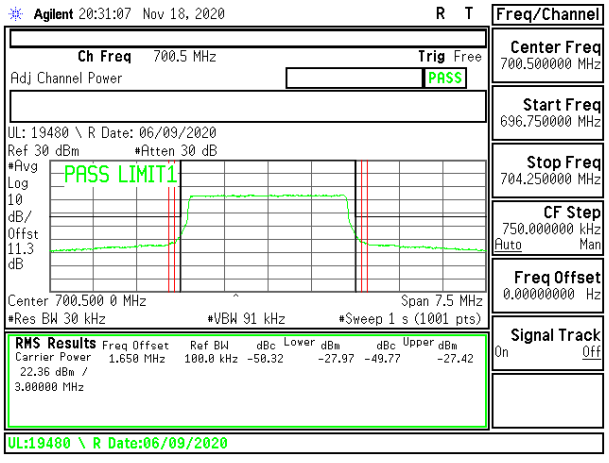
LTE B12 3MHz QPSK Low Channel RB1-14



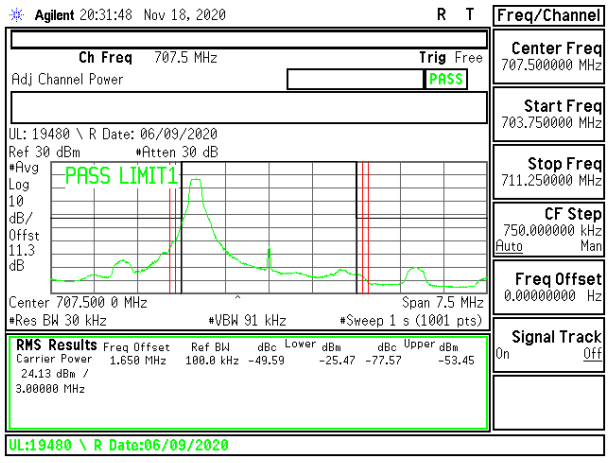
LTE B12 3MHz 16QAM Low Channel RB1-14



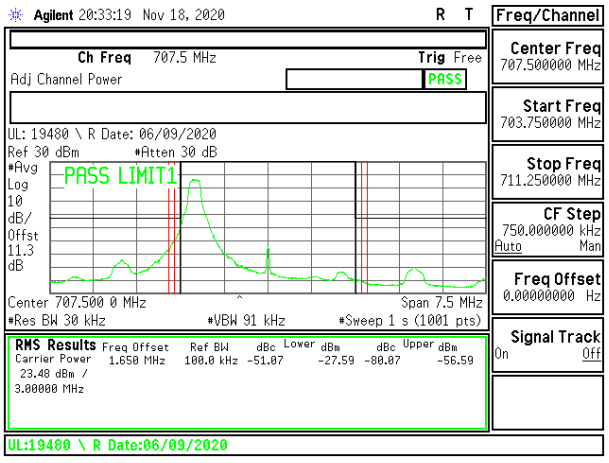
LTE B12 3MHz QPSK Low Channel RB15-0



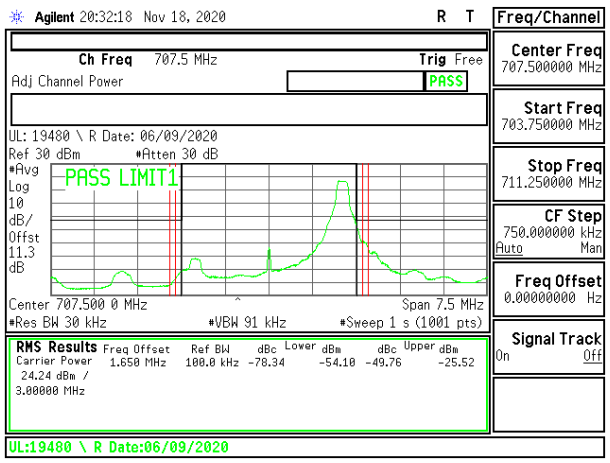
LTE B12 3MHz 16QAM Low Channel RB15-0



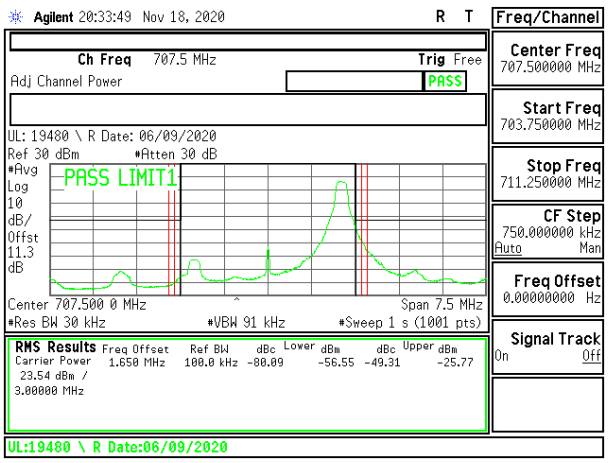
LTE B12 3MHz QPSK Middle Channel RB1-0



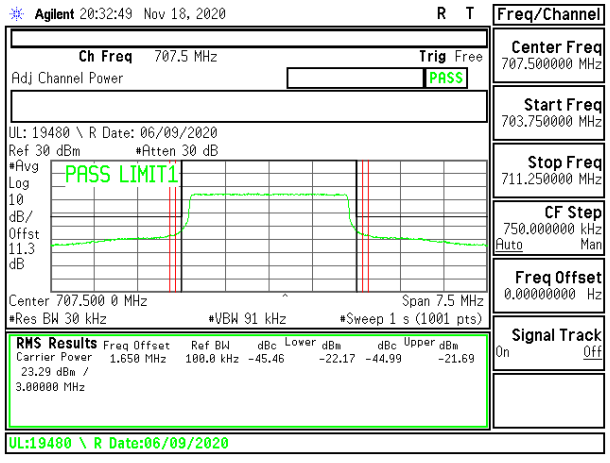
LTE B12 3MHz 16QAM Middle Channel RB1-0



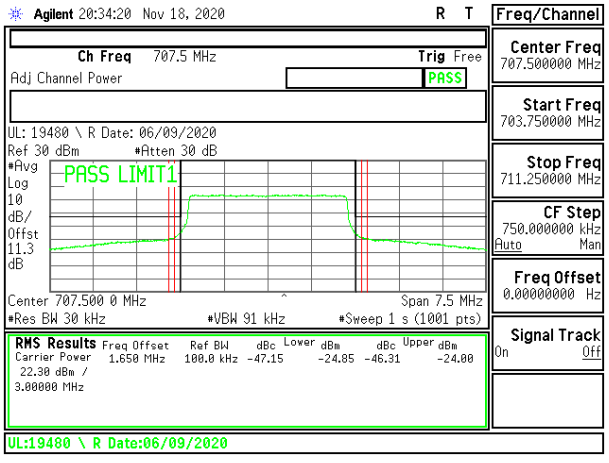
LTE B12 3MHz QPSK Middle Channel RB1-14



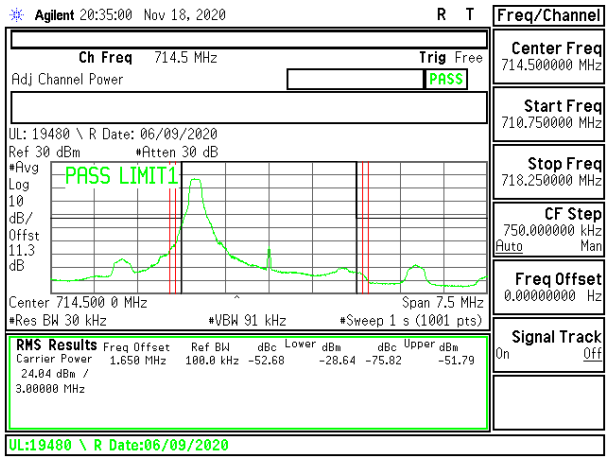
LTE B12 3MHz 16QAM Middle Channel RB1-14



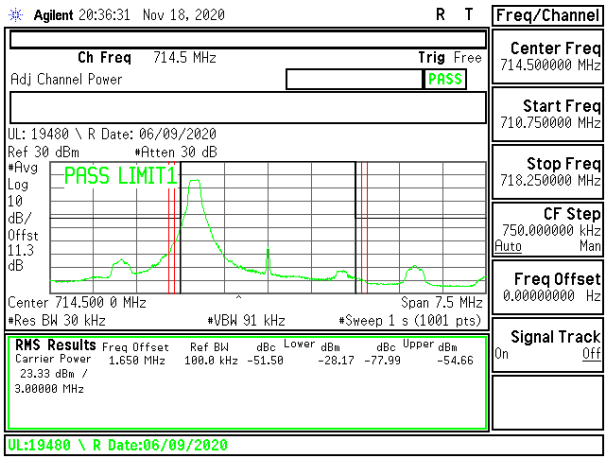
LTE B12 3MHz QPSK Middle Channel RB15-0



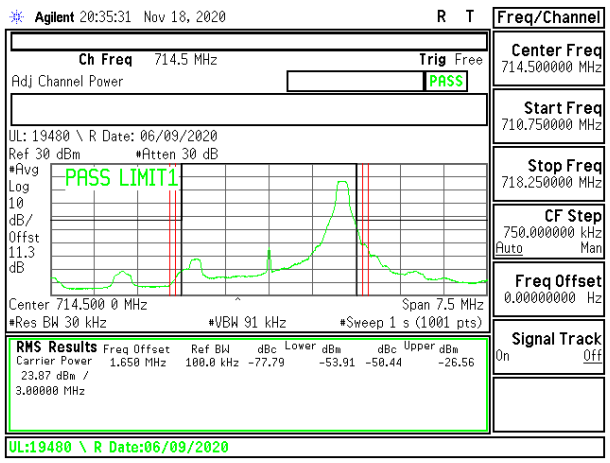
LTE B12 3MHz 16QAM Middle Channel RB15-0



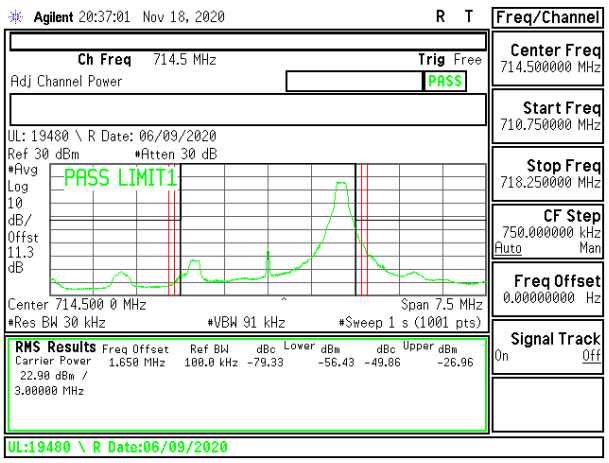
LTE B12 3MHz QPSK High Channel RB1-0



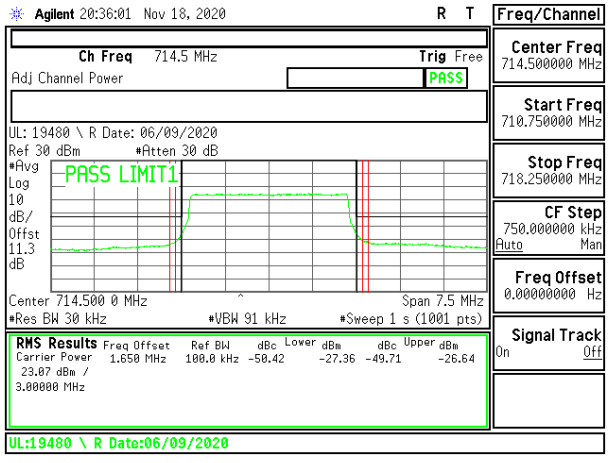
LTE B12 3MHz 16QAM High Channel RB1-0



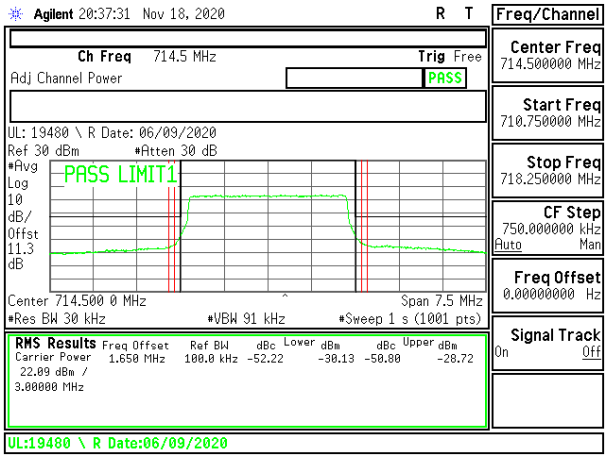
LTE B12 3MHz QPSK High Channel RB1-14



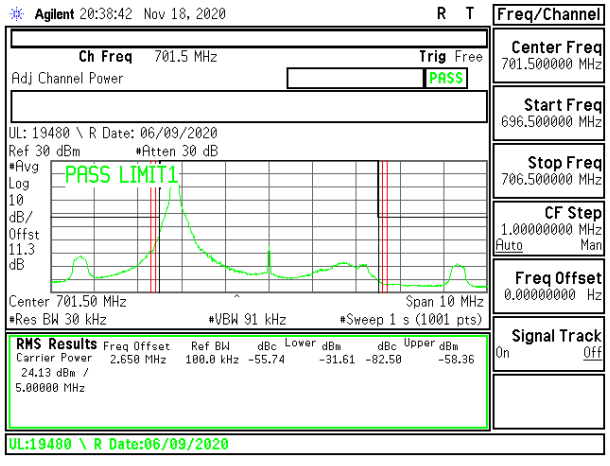
LTE B12 3MHz 16QAM High Channel RB1-14



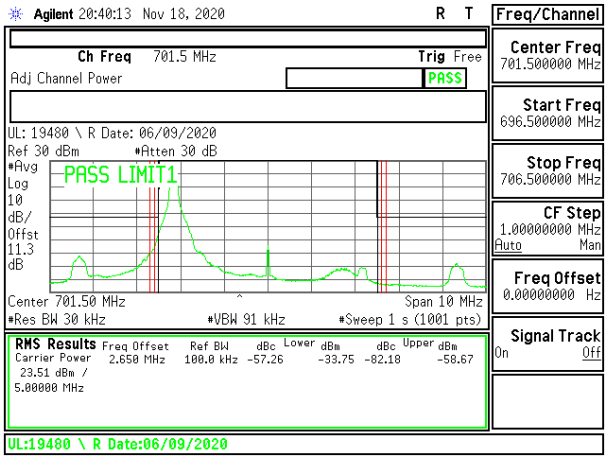
LTE B12 3MHz QPSK High Channel RB15-0



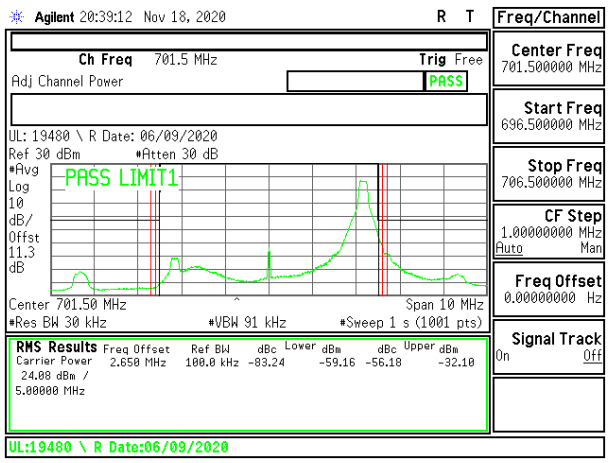
LTE B12 3MHz 16QAM High Channel RB15-0



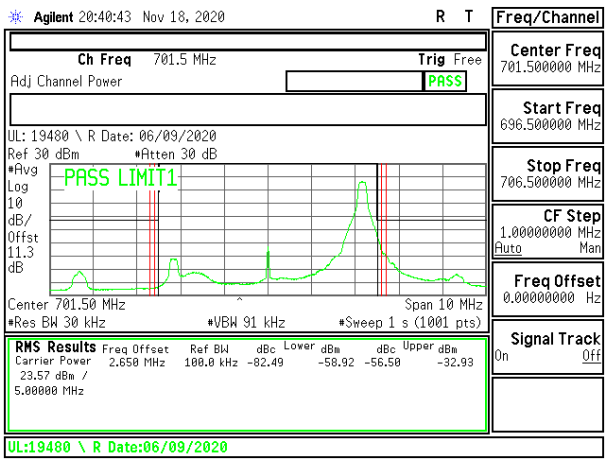
LTE B12 5MHz QPSK Low Channel RB1-0



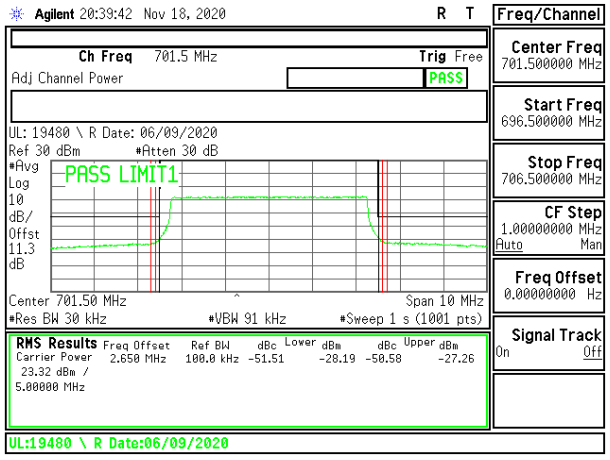
LTE B12 5MHz 16QAM Low Channel RB1-0



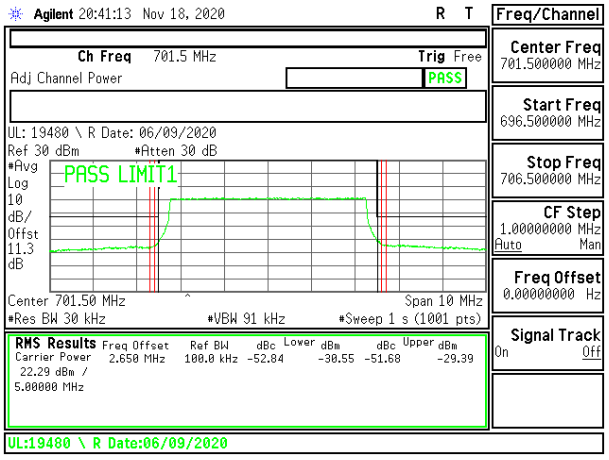
LTE B12 5MHz QPSK Low Channel RB1-24



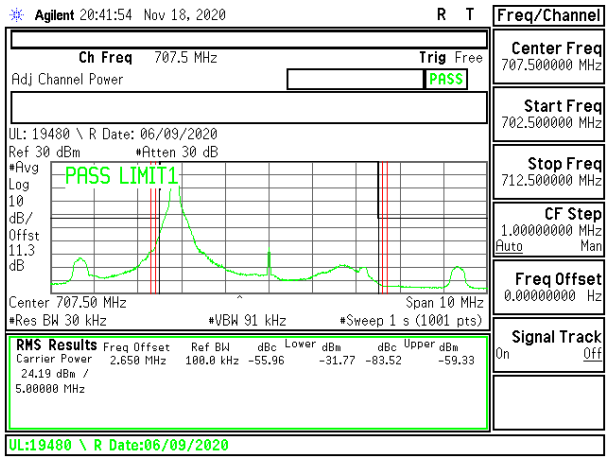
LTE B12 5MHz 16QAM Low Channel RB1-24



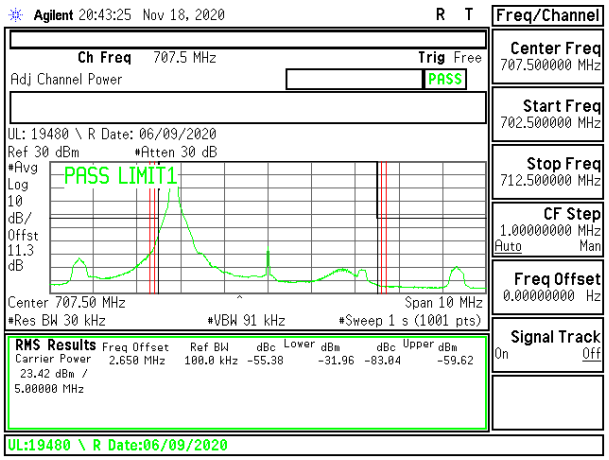
LTE B12 5MHz QPSK Low Channel RB25-0



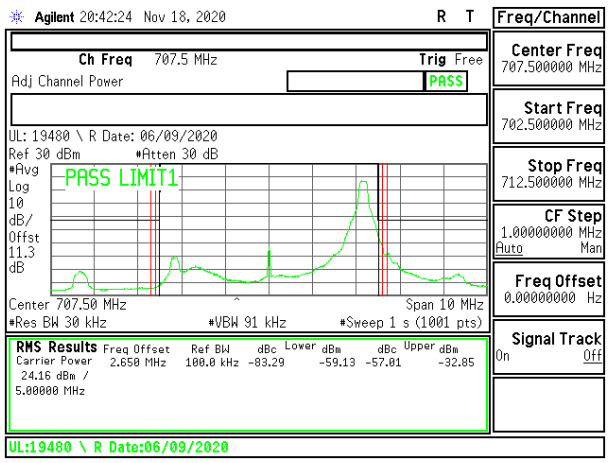
LTE B12 5MHz 16QAM Low Channel RB25-0



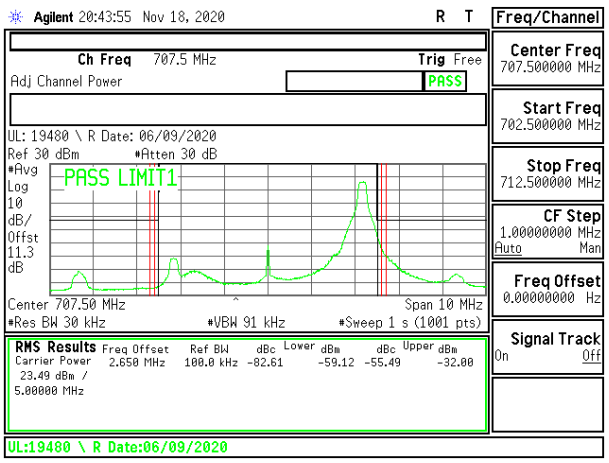
LTE B12 5MHz QPSK Middle Channel RB1-0



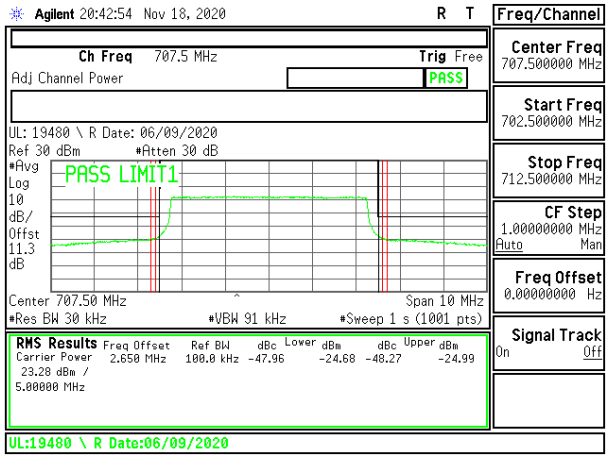
LTE B12 5MHz 16QAM Middle Channel RB1-0



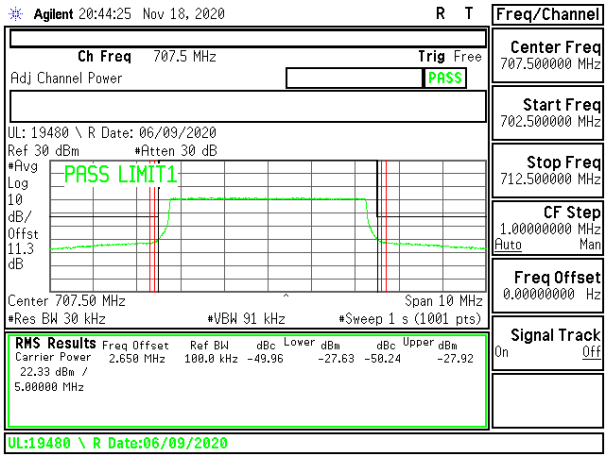
LTE B12 5MHz QPSK Middle Channel RB1-24



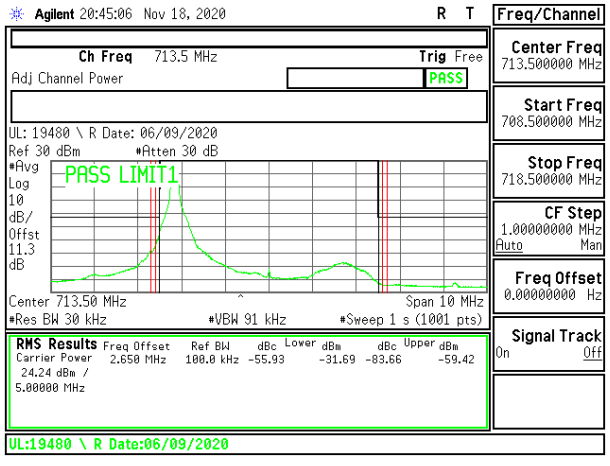
LTE B12 5MHz 16QAM Middle Channel RB1-24



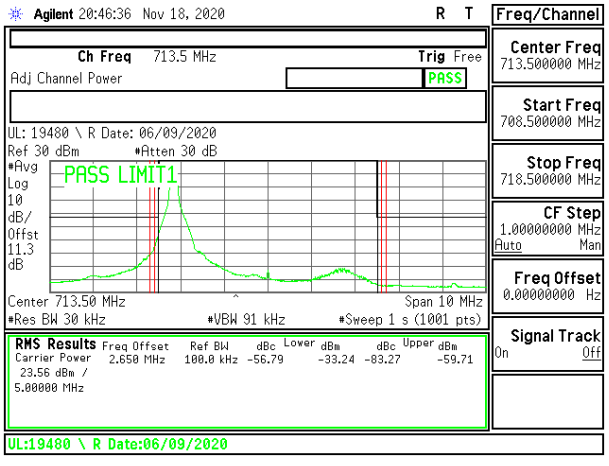
LTE B12 5MHz QPSK Middle Channel RB25-0



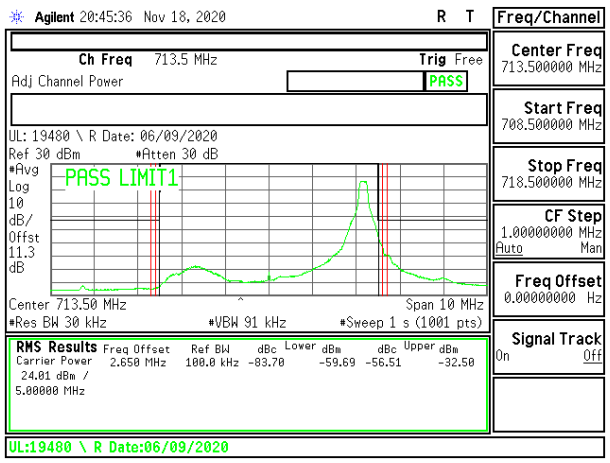
LTE B12 5MHz 16QAM Middle Channel RB25-0



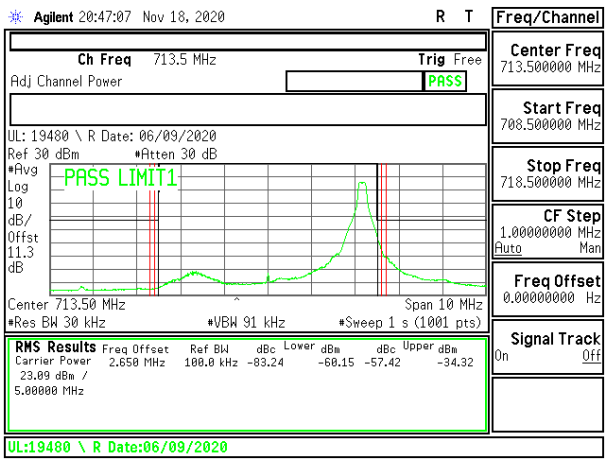
LTE B12 5MHz QPSK High Channel RB1-0



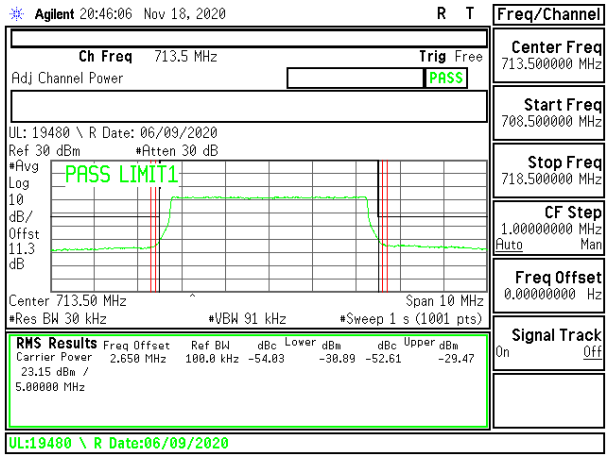
LTE B12 5MHz 16QAM High Channel RB1-0



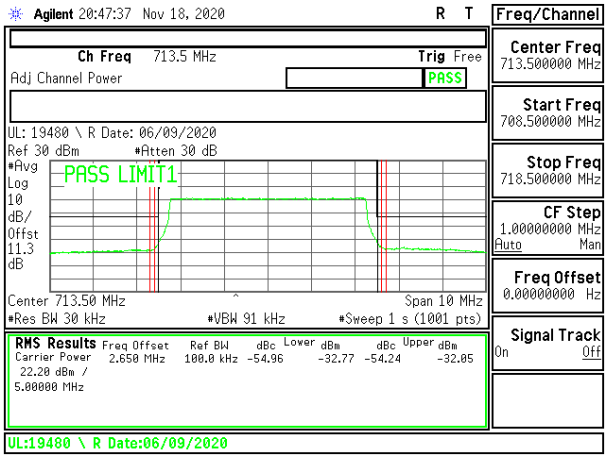
LTE B12 5MHz QPSK High Channel RB1-24



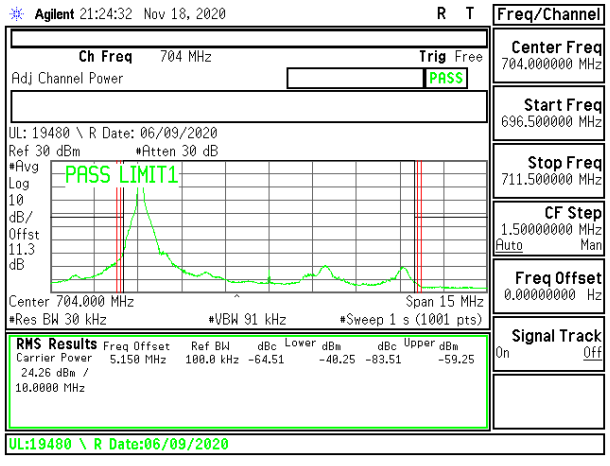
LTE B12 5MHz 16QAM High Channel RB1-24



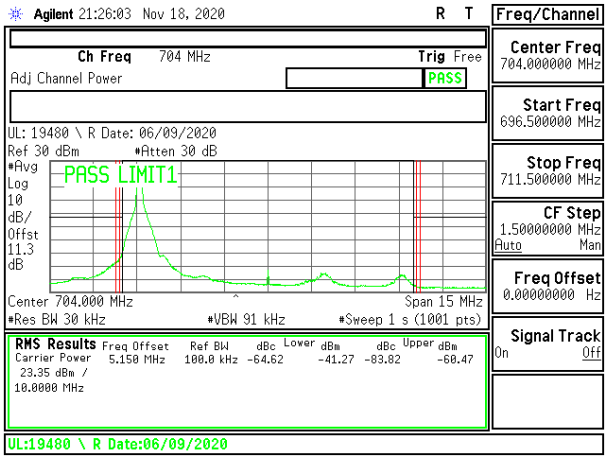
LTE B12 5MHz QPSK High Channel RB25-0



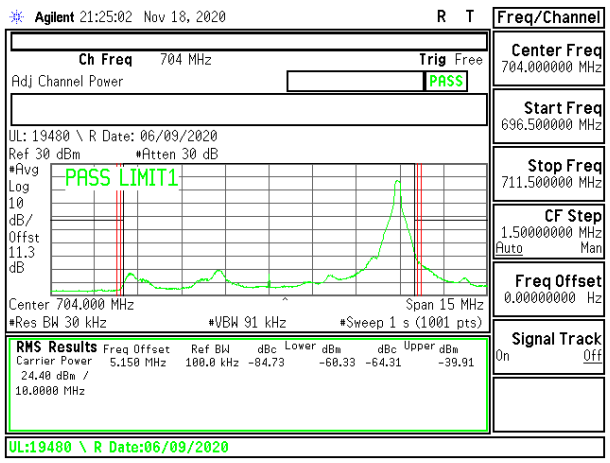
LTE B12 5MHz 16QAM High Channel RB25-0



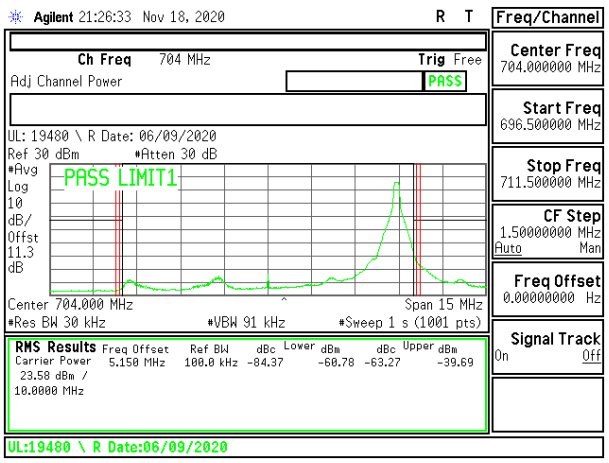
LTE B12 10MHz QPSK Low Channel RB1-0



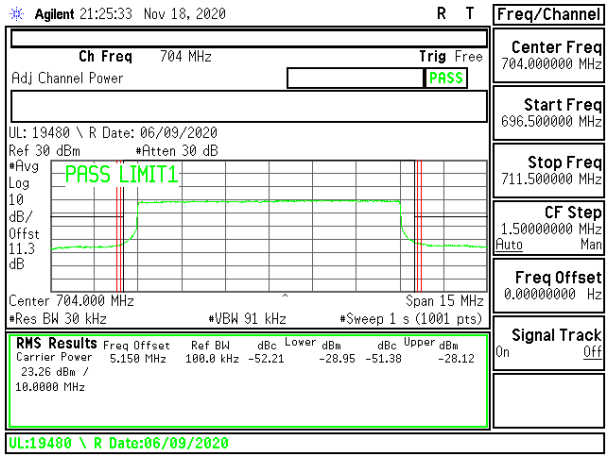
LTE B12 10MHz 16QAM Low Channel RB1-0



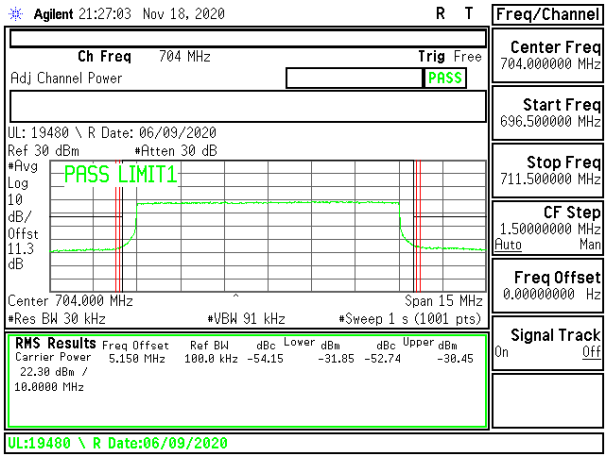
LTE B12 10MHz QPSK Low Channel RB1-49



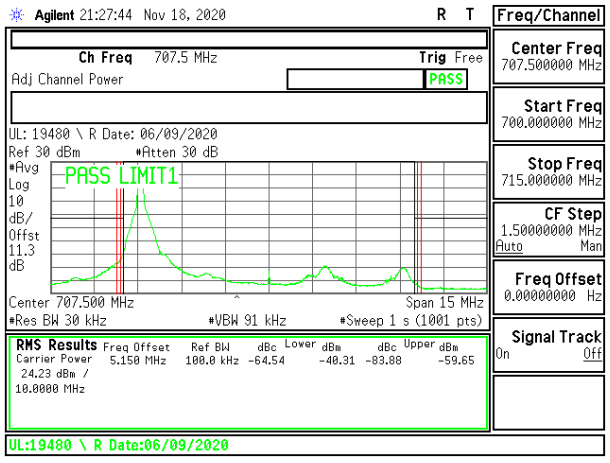
LTE B12 10MHz 16QAM Low Channel RB1-49



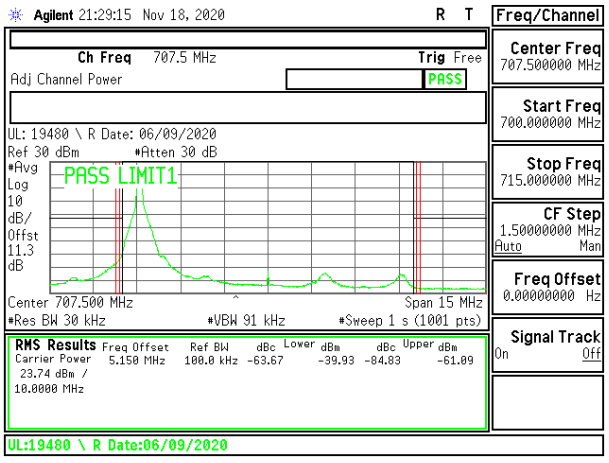
LTE B12 10MHz QPSK Low Channel RB50-0



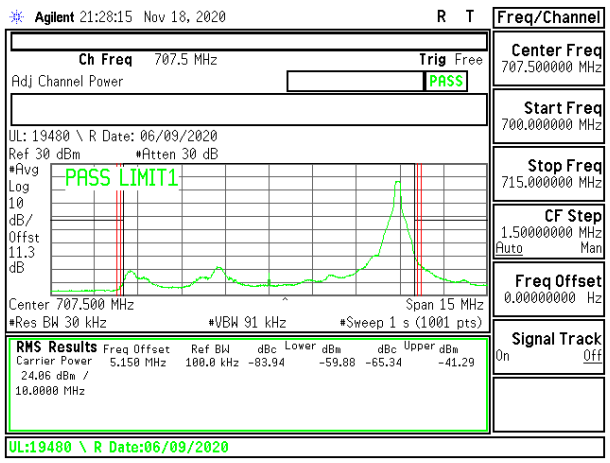
LTE B12 10MHz 16QAM Low Channel RB50-0



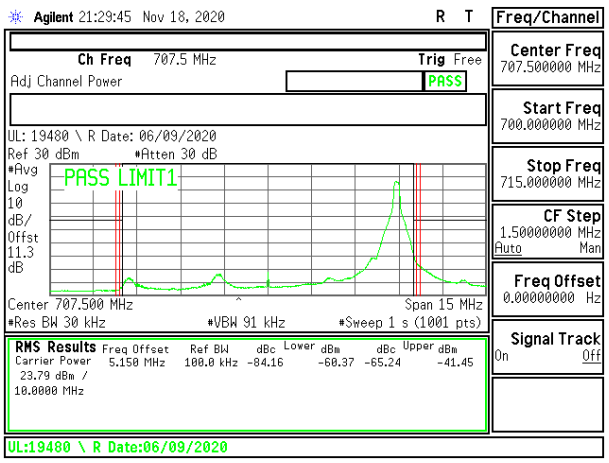
LTE B12 10MHz QPSK Middle Channel RB1-0



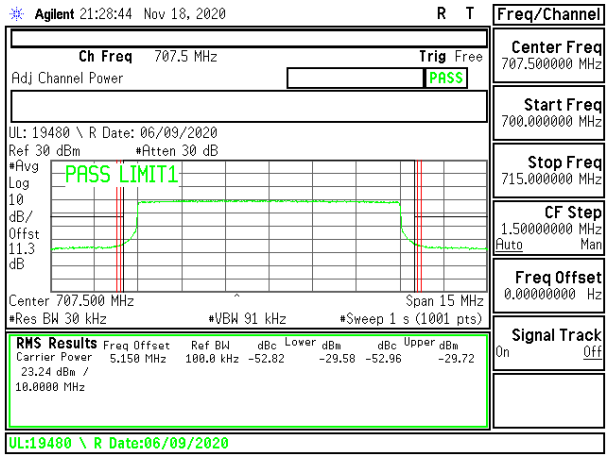
LTE B12 10MHz 16QAM Middle Channel RB1-0



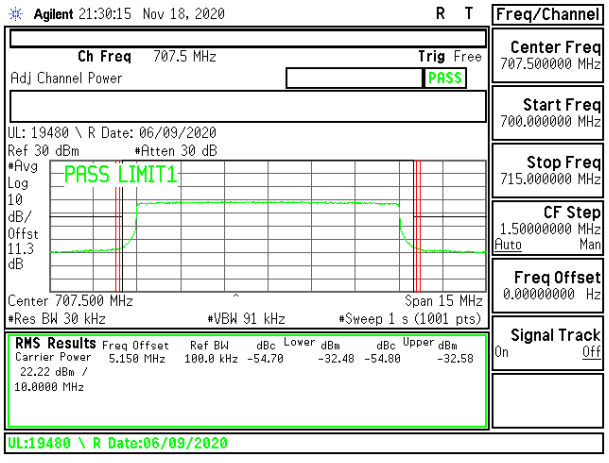
LTE B12 10MHz QPSK Middle Channel RB1-49



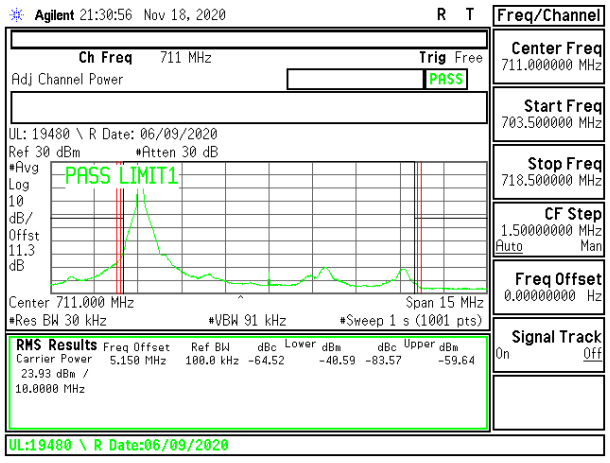
LTE B12 10MHz 16QAM Middle Channel RB1-49



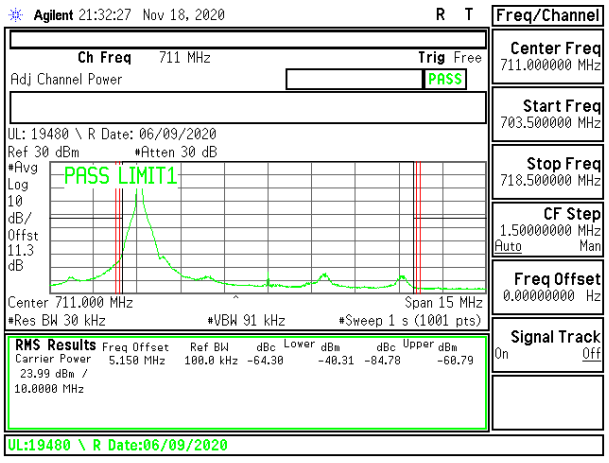
LTE B12 10MHz QPSK Middle Channel RB50-0



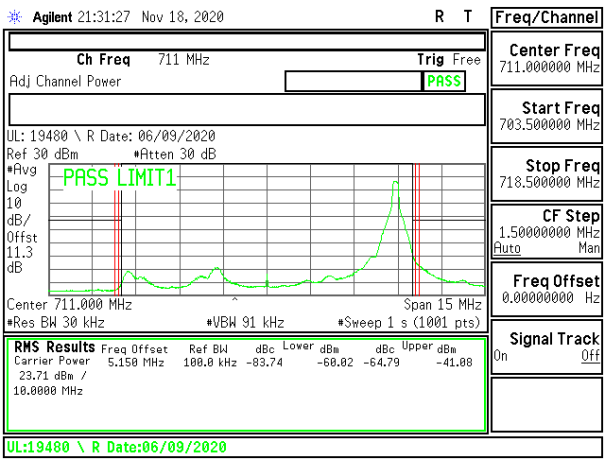
LTE B12 10MHz 16QAM Middle Channel RB50-0



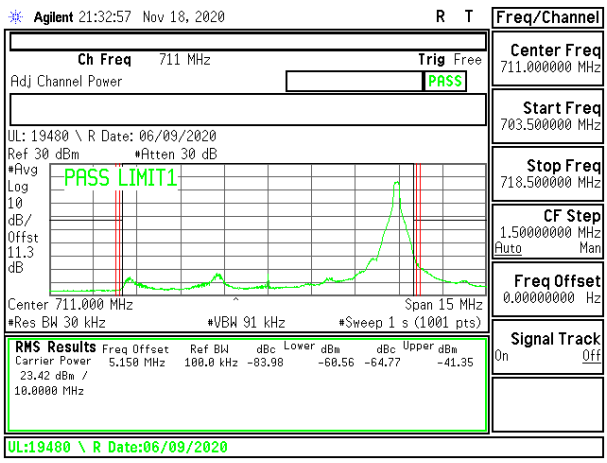
LTE B12 10MHz QPSK High Channel RB1-0



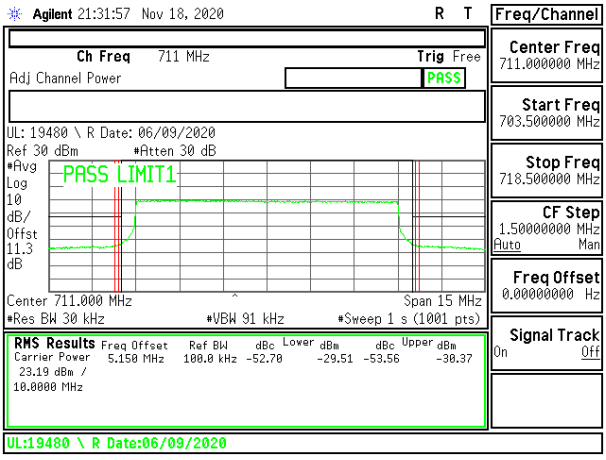
LTE B12 10MHz 16QAM High Channel RB1-0



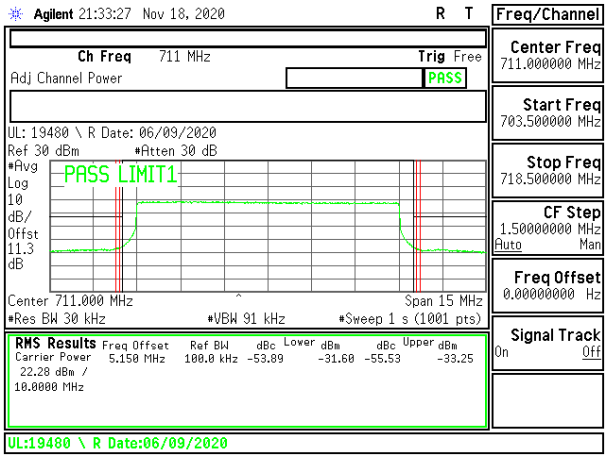
LTE B12 10MHz QPSK High Channel RB1-49



LTE B12 10MHz 16QAM High Channel RB1-49



LTE B12 10MHz QPSK High Channel RB50-0



LTE B12 10MHz 16QAM High Channel RB50-0