TEST REPORT

Report Number. : 13211873-E1V3

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, EONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677 KOREA
Model	:	SM-A715W
FCC ID	:	A3LSMA715W
ISED	:	649E-SMA715W
EUT Description	:	GSM/WCDMA/LTE PHABLET WITH BT/BLE,DTS/UNII A/B/G/N/AC, NFC AND ANT+
Test Standard(s)	:	FCC CFR47 PART 22H, 24E, and 27 ISED RSS-130 ISSUE 2, RSS-132 ISSUE 3, RSS-133 ISSUE 6, RSS-139 ISSUE 3 AND RSS-199 ISSUE 3

Date Of Issue:
MARCH 06, 2020

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NVLAP TESTING

NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2/27/2020	Initial Review	--
V2	3/2/2020	Updated Section 5.5, 8.2.8	Dan Coronia
V3	3/6/2020	Updated Section 5.5	Dan Coronia

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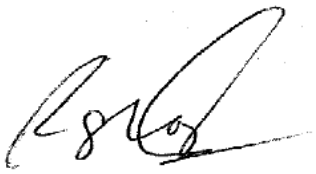
1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, EONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677 KOREA
Model	SM-A715W
FCC ID	A3LSMA715W
IC	649E-SMA715W
EUT Description	GSM/WCDMA/LTE PHABLET WITH BT/BLE,DTS/UNII A/B/G/N/AC, NFC AND ANT+
Serial Number	CONDUCTED: R38N108P7CB, R38N108PBAR, R38N108P98V RADIATED: R38N108PG2D, R38N108PFHB, R38N108PGNH
Date Tested	FEBRUARY 04, 2020 to FEBRUARY 25, 2020
Applicable Standards	FCC PART 22H, 24E, AND 27 ISED RSS-130 ISSUE 2, RSS-132 ISSUE 3, RSS-133 ISSUE 6, RSS-139 ISSUE 3, AND RSS-199 ISSUE 3
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.	Steven Tran Project Engineer UL Verification Services Inc.	Rolly Alegre Laboratory 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, and Part 27
- 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

ISED RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3, and RSS-199 Issue 3.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Road
☐ Chamber A	☐ Chamber D	☐ Chamber I
☐ Chamber B	☐ Chamber E	☒ Chamber J
☐ Chamber C	☐ Chamber F	☒ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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 Phablet with BT/BLE,DTS/UNII a/b/g/n/ac, NFC and ANT+. The model SM-A715W 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
RSS130§4.6, RSS132§5.4; RSS133§6.4, RSS139§6.5, RSS199§4.4.

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 / RSS 132 850MHz					
Frequency range (MHz)	Modulation	Radiated ERP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
824.2-848.8	GPRS	29.64	0.9204	248.60	249KGXW
	EGPRS	22.50	0.1778	244.10	244KG7W

Part 24 / RSS 133 1900MHz					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1850.2-1909.8	GPRS	29.8	0.9550	245.30	245KGXW
	EGPRS	24.88	0.3076	248.10	248KG7W

WCDMA MODES

Part 22 / RSS 132 Band 5					
Frequency range (MHz)	Modulation	Radiated ERP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
826.4-846.6	REL 99	19.04	0.0802	4150	4M15F9W
	HSDPA	18.03	0.0635	4150	4M15F9W

Part 24 / RSS 133 Band 2					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1852.4-1907.6	REL 99	21.93	0.1560	4120	4M12F9W
	HSDPA	20.91	0.1233	4130	4M13F9W

Part 27 / RSS 139 Band 4					
Frequency range (MHz)	Modulation	Radiated EIRP		99% BW (kHz)	Emission Designator
		Average (dBm)	Average (W)		
1712.4-1752.6	REL 99	22.27	0.1687	4140	4M14F9W
	HSDPA	21.20	0.1318	4130	4M13F9W

LTE BAND 2

Part 24 / RSS 133

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	22.69	0.1858	1080	1M08G7W
	16QAM			21.85	0.1531	1090	1M09D7W
3.0	QPSK	1851.5	1908.5	22.94	0.1968	2690	2M69G7W
	16QAM			22.18	0.1652	2680	2M68D7W
5.0	QPSK	1852.5	1907.5	22.89	0.1945	4500	4M50G7W
	16QAM			22.05	0.1603	4500	4M50D7W
10.0	QPSK	1855.0	1905.0	22.88	0.1941	8950	8M95G7W
	16QAM			22.12	0.1629	8990	8M99D7W
15.0	QPSK	1857.5	1902.5	23.31	0.2143	13360	13M4G7W
	16QAM			22.63	0.1832	13390	13M4D7W
20.0	QPSK	1860.0	1900.0	23.21	0.2094	17820	17M8G7W
	16QAM			22.57	0.1807	17860	17M9D7W

LTE BAND 5

Part 22H / RSS 132

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	20.18	0.1042	1080	1M08G7W
	16QAM			19.76	0.0946	1090	1M09D7W
3.0	QPSK	825.5	847.5	20.42	0.1102	2690	2M69G7W
	16QAM			19.98	0.0995	2690	2M69D7W
5.0	QPSK	826.5	846.5	20.40	0.1096	4490	4M49G7W
	16QAM			20.18	0.1042	4490	4M49D7W
10.0	QPSK	829.0	844.0	20.58	0.1143	8950	8M95G7W
	16QAM			20.21	0.1050	8930	8M93D7W

LTE BAND 7

Part 27 / RSS 199

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	QPSK	2502.5	2567.5	22.07	0.1611	4500	4M50G7W
	16QAM			21.35	0.1365	4490	4M49D7W
10.0	QPSK	2505.0	2565.0	21.77	0.1503	8940	8M94G7W
	16QAM			20.97	0.1250	8960	8M96D7W
15.0	QPSK	2507.5	2562.5	21.66	0.1466	13440	13M4G7W
	16QAM			20.82	0.1208	13420	13M4D7W
20.0	QPSK	2510.0	2560.0	21.60	0.1445	17920	17M9G7W
	16QAM			20.97	0.1250	17870	17M9D7W

LTE BAND 12

Part 27 / RSS 130

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	19.72	0.0938	1080	1M08G7W
	16QAM			18.84	0.0766	1090	1M09D7W
3.0	QPSK	700.5	714.5	19.94	0.0986	2680	2M68G7W
	16QAM			19.13	0.0818	2680	2M68D7W
5.0	QPSK	701.5	713.5	20.16	0.1038	4500	4M50G7W
	16QAM			19.42	0.0875	4500	4M50D7W
10.0	QPSK	704.0	711.0	20.02	0.1005	8970	8M97G7W
	16QAM			19.10	0.0813	8980	8M98D7W

LTE BAND 13

Part 27 / RSS 130

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	QPSK	779.5	784.5	20.65	0.1161	4490	4M49G7W
	16QAM			19.75	0.0944	4500	4M50D7W
10.0	QPSK	782.0	782.0	20.71	0.1178	8960	8M96G7W
	16QAM			19.86	0.0968	8960	8M96D7W

LTE BAND 41 FCC

Part 27

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	QPSK	2498.5	2687.5	21.94	0.1563	4490	4M49G7W
	16QAM			20.87	0.1222	4480	4M48D7W
10.0	QPSK	2501.0	2685.0	22.06	0.1607	9010	9M01G7W
	16QAM			21.02	0.1265	8990	8M99D7W
15.0	QPSK	2503.5	2682.5	21.86	0.1535	14430	14M4G7W
	16QAM			20.94	0.1242	13410	13M4D7W
20.0	QPSK	2506.0	2680.0	22.65	0.1841	17890	17M9G7W
	16QAM			21.98	0.1578	17900	17M9D7W

LTE BAND 41 IC

RSS 199

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated EIRP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	QPSK	2502.5	2687.5	21.96	0.1570	4500	4M50G7W
	16QAM			20.70	0.1175	4500	4M50D7W
10.0	QPSK	2505.0	2685.0	21.88	0.1542	8960	8M96G7W
	16QAM			20.98	0.1253	8960	8M96D7W
15.0	QPSK	2507.5	2682.5	21.70	0.1479	13410	13M4G7W
	16QAM			20.73	0.1183	13420	13M4D7W
20.0	QPSK	2510.0	2680.0	22.74	0.1879	17920	17M9G7W
	16QAM			21.83	0.1524	17880	17M9D7W

LTE BAND 66

Part 27 / RSS 139

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	23.25	0.2113	1080	1M08G7W
	16QAM			22.30	0.1698	1080	1M08D7W
3.0	QPSK	1711.5	1778.5	23.52	0.2249	2690	2M69G7W
	16QAM			22.59	0.1816	2680	2M68D7W
5.0	QPSK	1712.5	1777.5	23.48	0.2228	4500	4M50G7W
	16QAM			22.61	0.1824	4490	4M49D7W
10.0	QPSK	1715.0	1775.0	23.06	0.2023	8990	8M99G7W
	16QAM			22.19	0.1656	8980	8M98D7W
15.0	QPSK	1717.5	1772.5	23.07	0.2028	13420	13M4G7W
	16QAM			22.06	0.1607	13390	13M4D7W
20.0	QPSK	1720.0	1770.0	23.11	0.2046	17850	17M9G7W
	16QAM			21.93	0.1560	17810	17M8D7W

LTE BAND 71

Part 27 / RSS 130

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Radiated ERP		99% BW (kHz)	Emission Designator
				Average (dBm)	Average (W)		
5.0	QPSK	665.5	695.5	19.44	0.0879	4490	4M49G7W
	16QAM			18.63	0.0729	4500	4M50D7W
10.0	QPSK	668.0	693.0	19.81	0.0957	8950	8M95G7W
	16QAM			18.96	0.0787	8960	8M96D7W
15.0	QPSK	670.5	690.5	19.74	0.0942	13370	13M4G7W
	16QAM			18.91	0.0778	13400	13M4D7W
20.0	QPSK	673.0	688.0	19.77	0.0948	17850	17M9G7W
	16QAM			18.94	0.0783	17890	17M9D7W

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was A715W.001.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

Bands	Antenna Gain (dBi)
GSM850, 824-849MHz	-3.75
GSM1900, 1850-1910MHz	-3.54
WCDMA Band 2, 1850-1910 MHz	-3.54
WCDMA Band 4, 1710-1755 MHz	-4.33
WCDMA Band 5, 824-849 MHz	-3.75
LTE Band 2, 1850 – 1910 MHz	-3.54
LTE Band 5, 824 – 849 MHz	-3.75
LTE Band 7, 2500 – 2570 MHz	-0.22
LTE Band 12, 699 – 716 MHz	-7.32
LTE Band 13, 777 – 787 MHz	-7.32
LTE Band 38 2570 – 2620 MHz (IC)	0.18
LTE Band 41, 2496 – 2690 MHz (FCC)	-0.24
LTE Band 41, 2500 – 2690 MHz (IC)	-0.24
LTE Band 66, 1710 – 1780 MHz	-4.33
LTE Band 71, 663 – 698 MHz	-8.79

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports LTE Bands of:
Band 2, Band 4, Band 5, Band 7, Band 12, Band 13, Band 38, Band 41, Band 66 and Band 71.

LTE Band 4 (1710-1755MHz, 5/10/15/20MHz bandwidth) is covered by LTE Band 66 because it is a subset of LTE band 66 and they have same output power.

LTE Band 38 (2570-2620MHz) is covered by LTE Band 41 because it is a subset of LTE band 41. Also, they have the same output power and supported bandwidths.

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 and 64QAM modulations. It was found that QPSK and 16QAM results were worst case. All testing was performed using QPSK and 16QAM modulations to represent 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, 800 and 700MHz. And Y-Axis for 2500MHz 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 from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

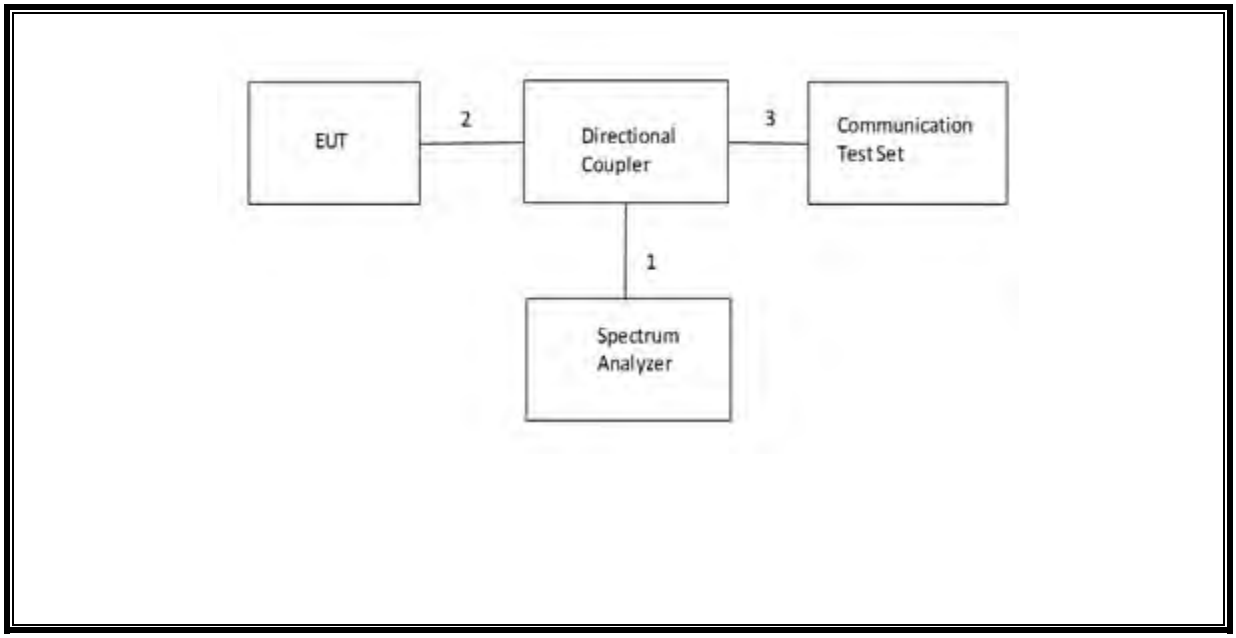
5.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
AC Adapter	Samsung	EP-TA800	R37N16T8DH7DK3	N/A
Earphone	Samsung	N/A	N/A	N/A

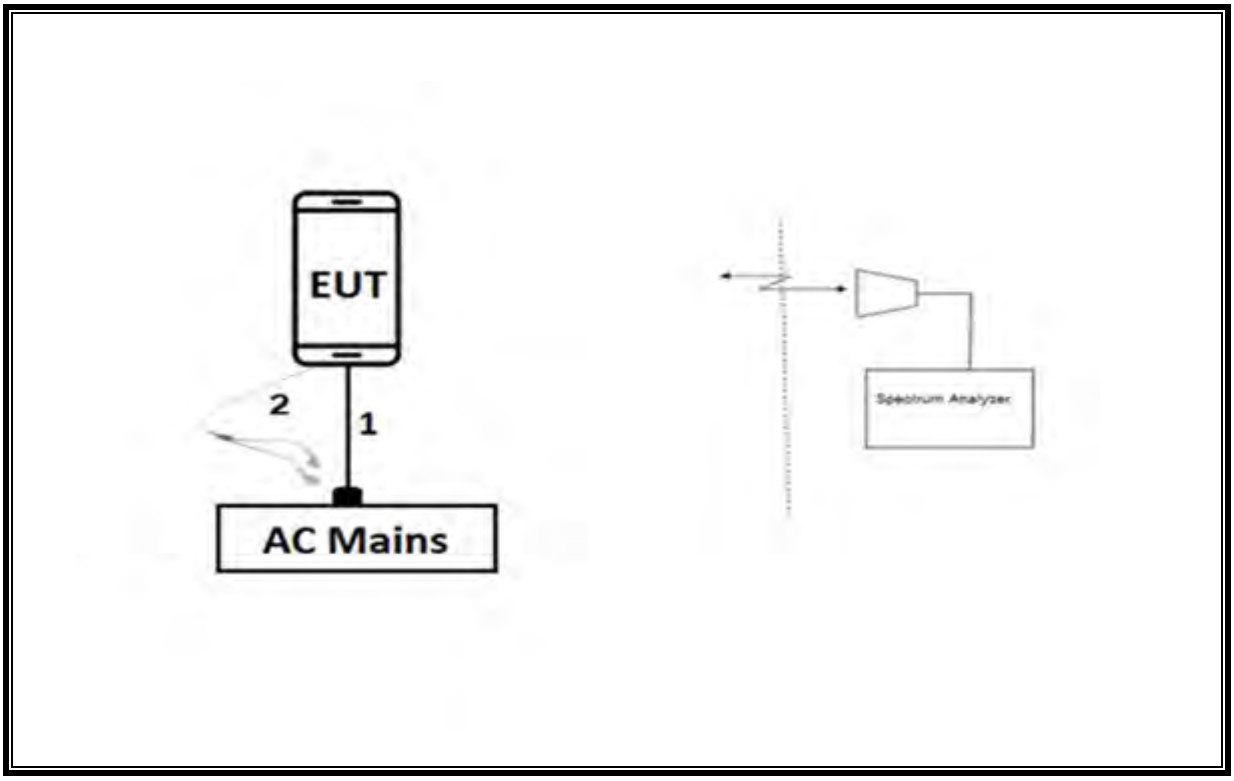
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	RF Out	1	Spectrum Analyzer	Shielded	None	N/A
2	Antenna Port	1	EUT	Shielded	0.1m	N/A
3	RF In/Out	1	Communication Test Set	Shielded	1m	N/A

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	12/31/2020	12/31/2019
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM50114	T1852	07/20/2020	08/20/2019
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1240	05/22/2020	06/22/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	06/05/2020	06/05/2019
Ant., Horn 18 - 26.5 GHz	ARA	MWH-1826/B	T448	03/26/2020	03/26/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T344	05/07/2020	05/07/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	EMC4294	06/14/2020	06/14/2019
Hybrid Antenna	SunAR rf motion	JB3	T899	08/23/2020	08/23/2019
Hybrid Antenna	SunAR rf motion	JB3	PRE0181574	10/14/2020	10/14/2019
RF Amplifier	MITEQ	AFS42-00101800-25-S-42	171460	08/24/2020	08/24/2019
RF Amplifier	AMPLICAL	AMP1G18-35	T1569	01/30/2021	01/30/2020
RF Amplifier	AMPLICAL	AMP1G18-35	T1571	05/28/2020	05/28/2019
RF Amplifier	SONOMA INSTR	310	PRE0186650	01/23/2021	01/23/2020
Pre-Amp 1-26.5 GHz	Agilent	8449B	T404	03/23/2020	03/23/2019
RF Amplifier 9KHz – 1GHz	SONOMA INSTR	310	PRE0180175	05/29/2020	05/29/2019
RF Amplifier 9KHz – 1GHz	SONOMA INSTR	310	PRE0180174	06/01/2020	06/01/2019
Directional Coupler	Mini-Circuits	ZUDC10-183+	PRE0181619	07/21/2020	08/21/2019
Directional Coupler	KRYTAR	152610	T922	06/05/2020	06/05/2019
Wideband Communication Test Set, Call Box	R&S	CMW500	T376	02/21/2020	02/21/2019
Wideband Communication Test Set, Call Box	R&S	CMW500	T260	02/20/2021	02/20/2020
Wideband Communication Test Set, Call Box	R&S	CMW500	T1871	02/18/2020	02/18/2019
Chamber, Environmental	Thermotron	SE-600-10-10	T80	05/07/2020	11/07/2019
Spectrum Analyzer	Agilent (Keysight) Technologies	E4440A	T200	01/24/2021	01/24/2020
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T146	01/29/2021	01/29/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T908	01/28/2021	01/23/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179372	02/16/2020	02/16/2019
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179367	05/16/2020	05/16/2019
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	N1921A	T229	01/21/2021	01/21/2020
Power Sensor	Keysight	N1921A	T1223	02/25/2020	02/25/2019

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:

1. * Testing is completed before equipment expiration date.

2. 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:	38515	Test Date:	2/4/2020

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)
GPRS (GMSK)	CS1	1	128	824.2	33.6
			190	836.6	**33.7**
			251	848.8	33.3
		2	128	824.2	29.7
			190	836.6	29.5
			251	848.8	29.0
EGPRS (8PSK)	MCS5	1	128	824.2	**25.7**
			190	836.6	25.6
			251	848.8	25.3
		2	128	824.2	22.6
			190	836.6	22.7
			251	848.8	22.3

7.1.2. GSM 1900

Test Engineer ID:	38515	Test Date:	2/4/2020

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)
GPRS (GMSK)	CS1	1	512	1850.2	30.7
			661	1880	**30.8**
			810	1909.8	30.3
		2	512	1850.2	26.4
			661	1880	27.2
			810	1909.8	26.9
EGPRS (8PSK)	MCS5	1	512	1850.2	23.9
			661	1880	**24.2**
			810	1909.8	23.9
		2	512	1850.2	21.6
			661	1880	21.9
			810	1909.8	21.5

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	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{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:	38515	Test Date:	2/4/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	**24.1**
			4183	836.6	N/A	23.9
			4233	846.6	N/A	23.7
	HSDPA	Subtest 1	4132	826.4	0	23.0
			4183	836.6	0	23.0
			4233	846.6	0	22.6
		Subtest 2	4132	826.4	0	23.0
			4183	836.6	0	23.0
			4233	846.6	0	22.6
		Subtest 3	4132	826.4	0.5	22.6
			4183	836.6	0.5	22.5
			4233	846.6	0.5	22.1
		Subtest 4	4132	826.4	0.5	22.6
			4183	836.6	0.5	22.5
			4233	846.6	0.5	22.1
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	**23.1**
			4183	836.6	0	23.0
			4233	846.6	0	22.6
		Subtest 2	4132	826.4	2	21.1
			4183	836.6	2	21.0
			4233	846.6	2	20.6
		Subtest 3	4132	826.4	1	22.1
			4183	836.6	1	21.9
			4233	846.6	1	21.6
		Subtest 4	4132	826.4	2	21.1
			4183	836.6	2	21.0
			4233	846.6	2	20.6
		Subtest 5	4132	826.4	0	**23.1**
			4183	836.6	0	23.0
			4233	846.6	0	22.6
	DC-HSDPA	Subtest 1	4132	826.4	0	23.0
			4183	836.6	0	23.0
			4233	846.6	0	22.6
		Subtest 2	4132	826.4	0	23.0
			4183	836.6	0	23.0
			4233	846.6	0	22.6
		Subtest 3	4132	826.4	0.5	22.6
			4183	836.6	0.5	22.5
			4233	846.6	0.5	22.1
		Subtest 4	4132	826.4	0.5	22.6
			4183	836.6	0.5	22.5
			4233	846.6	0.5	22.1

7.2.2. WCDMA BAND 2

Test Engineer ID:	38515	Test Date:	2/4/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)
W-CDMA Band 2 (1900MHz)	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	**23.8**
			9400	1880.0	N/A	**23.8**
			9538	1907.6	N/A	23.3
	HSDPA	Subtest 1	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
		Subtest 2	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
		Subtest 3	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.3
			9538	1907.6	0.5	21.8
		Subtest 4	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.3
			9538	1907.6	0.5	21.8
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
		Subtest 2	9262	1852.4	2	20.8
			9400	1880.0	2	20.6
			9538	1907.6	2	20.3
		Subtest 3	9262	1852.4	1	20.8
			9400	1880.0	1	20.8
			9538	1907.6	1	20.3
		Subtest 4	9262	1852.4	2	20.8
			9400	1880.0	2	20.6
			9538	1907.6	2	20.3
		Subtest 5	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
	DC-HSDPA	Subtest 1	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
		Subtest 2	9262	1852.4	0	**22.8**
			9400	1880.0	0	**22.8**
			9538	1907.6	0	22.3
		Subtest 3	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.3
			9538	1907.6	0.5	21.8
		Subtest 4	9262	1852.4	0.5	22.3
			9400	1880.0	0.5	22.3
			9538	1907.6	0.5	21.8

7.2.3. WCDMA BAND 4

Test Engineer ID:	38515	Test Date:	2/4/2020

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)
W-CDMA Band 4 (1700MHz)	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	**23.4**
			1413	1732.6	N/A	23.3
			1513	1752.6	N/A	23.2
	HSDPA	Subtest 1	1312	1712.4	0	22.3
			1413	1732.6	0	22.2
			1513	1752.6	0	22.0
		Subtest 2	1312	1712.4	0	22.3
			1413	1732.6	0	22.2
			1513	1752.6	0	22.0
		Subtest 3	1312	1712.4	0.5	21.9
			1413	1732.6	0.5	21.8
			1513	1752.6	0.5	21.7
		Subtest 4	1312	1712.4	0.5	21.9
			1413	1732.6	0.5	21.8
			1513	1752.6	0.5	21.7
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	**22.5**
			1413	1732.6	0	22.4
			1513	1752.6	0	22.4
		Subtest 2	1312	1712.4	2	20.4
			1413	1732.6	2	20.4
			1513	1752.6	2	20.4
		Subtest 3	1312	1712.4	1	21.4
			1413	1732.6	1	21.4
			1513	1752.6	1	21.3
		Subtest 4	1312	1712.4	2	20.4
			1413	1732.6	2	20.4
			1513	1752.6	2	20.4
		Subtest 5	1312	1712.4	0	22.4
			1413	1732.6	0	22.4
			1513	1752.6	0	22.3
	DC-HSDPA	Subtest 1	1312	1712.4	0	22.3
			1413	1732.6	0	22.2
			1513	1752.6	0	22.0
		Subtest 2	1312	1712.4	0	22.3
			1413	1732.6	0	22.2
			1513	1752.6	0	22.0
		Subtest 3	1312	1712.4	0.5	21.9
			1413	1732.6	0.5	21.8
			1513	1752.6	0.5	21.7
		Subtest 4	1312	1712.4	0.5	21.9
			1413	1732.6	0.5	21.8
			1513	1752.6	0.5	21.7

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
256 QAM	≥ 1						≤ 5

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".

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

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

RESULTS

***if this is a cellphone device, pls add this statement:

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:	12589	Test Date:	2/5/2020

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	23.8	24.1	24.0
		1	2	23.9	24.2	24.0
		1	5	23.8	24.1	24.0
		3	0	23.9	24.1	23.9
		3	1	24.0	**24.2**	24.0
		3	2	24.0	24.2	24.0
		6	0	22.9	23.1	23.0
	16QAM	1	0	23.0	23.3	23.2
		1	2	23.0	23.3	23.3
		1	5	23.0	23.3	23.3
		3	0	23.2	23.3	23.1
		3	1	23.3	23.4	23.2
		3	2	23.3	**23.4**	23.2
		6	0	22.1	22.4	21.9
	64QAM	1	0	22.1	22.4	22.3
		1	2	22.2	**22.5**	22.4
		1	5	22.1	22.4	22.3
		3	0	22.2	22.3	22.3
		3	1	22.3	22.3	22.4
		3	2	22.3	22.4	22.4
		6	0	21.3	21.3	21.1

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	23.9	24.1	24.1
		1	7	24.0	**24.3**	24.2
		1	14	23.9	24.1	24.1
		8	0	23.0	23.2	23.0
		8	4	23.0	23.2	23.1
		8	7	23.0	23.2	23.1
		15	0	22.9	23.2	23.0
	16QAM	1	0	23.0	23.1	23.3
		1	7	23.1	23.2	**23.4**
		1	14	23.0	23.1	23.3
		8	0	22.1	22.4	22.1
		8	4	22.1	22.4	22.2
		8	7	22.1	22.4	22.2
		15	0	22.0	22.3	22.1
	64QAM	1	0	22.2	**22.5**	22.1
		1	7	22.3	**22.5**	22.2
		1	14	22.2	**22.5**	22.1
		8	0	21.0	21.4	21.1
		8	4	21.0	21.4	21.2
		8	7	21.0	21.4	21.2
		15	0	21.1	21.3	21.2

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	24.0	24.2	24.1
		1	12	24.0	**24.3**	24.1
		1	24	23.9	24.1	24.1
		12	0	23.0	23.2	23.1
		12	6	23.0	23.2	23.1
		12	11	23.0	23.2	23.1
		25	0	22.5	22.7	22.7
	16QAM	1	0	23.1	23.3	**23.5**
		1	12	23.1	23.4	23.5
		1	24	23.1	23.3	23.5
		12	0	22.1	22.4	22.3
		12	6	22.1	22.4	22.3
		12	11	22.1	22.4	22.3
		25	0	22.0	22.3	22.3
	64QAM	1	0	22.3	22.2	**22.4**
		1	12	22.3	22.3	22.3
		1	24	22.3	22.1	22.3
		12	0	21.2	21.4	21.2
		12	6	21.2	21.4	21.1
		12	11	21.2	21.4	21.1
		25	0	21.1	21.3	21.2

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	24.0	**24.2**	24.2
		1	24	23.9	24.1	24.1
		1	49	23.9	24.1	24.1
		25	0	22.4	22.7	22.7
		25	12	22.5	22.7	22.7
		25	24	22.5	22.7	22.6
		50	0	22.5	22.7	22.6
	16QAM	1	0	23.1	23.2	**23.5**
		1	24	23.1	23.1	23.4
		1	49	23.1	23.1	23.3
		25	0	22.5	22.5	22.5
		25	12	22.5	22.5	22.5
		25	24	22.5	22.5	22.5
		50	0	22.5	22.5	22.5
	64QAM	1	0	22.3	**22.5**	22.4
		1	24	22.3	**22.5**	22.3
		1	49	22.3	**22.5**	22.2
		25	0	21.2	21.4	21.4
		25	12	21.2	21.4	21.3
		25	24	21.2	21.4	21.3
		50	0	21.1	21.3	21.3

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	23.9	24.0	**24.1**
		1	37	23.9	24.1	24.1
		1	74	24.0	23.9	24.1
		36	0	22.9	23.1	23.2
		36	16	23.0	23.2	23.2
		36	35	23.0	23.2	23.2
		75	0	22.9	23.2	23.2
	16QAM	1	0	23.3	23.1	**23.5**
		1	37	23.4	23.1	23.4
		1	74	23.4	23.0	23.3
		36	0	22.0	22.3	22.4
		36	16	22.1	22.3	22.3
		36	35	22.0	22.3	22.3
		75	0	22.1	22.3	22.3
	64QAM	1	0	**22.5**	**22.5**	22.4
		1	37	**22.5**	**22.5**	22.3
		1	74	**22.5**	22.4	22.1
		36	0	21.1	21.3	21.4
		36	16	21.1	21.4	21.4
		36	35	21.1	21.4	21.3
		75	0	21.1	21.3	21.3

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	23.8	24.0	**24.2**
		1	49	23.9	24.1	24.1
		1	99	23.9	24.0	24.1
		50	0	23.0	23.2	23.4
		50	24	23.0	23.3	23.2
		50	49	23.0	23.1	23.1
		100	0	22.9	23.2	23.2
	16QAM	1	0	23.5	**23.5**	**23.5**
		1	49	**23.5**	**23.5**	**23.5**
		1	99	**23.5**	**23.5**	23.3
		50	0	22.1	22.3	22.5
		50	24	22.2	22.4	22.3
		50	49	22.2	22.3	22.2
		100	0	22.2	22.3	22.3
	64QAM	1	0	22.3	**22.5**	**22.5**
		1	49	22.4	**22.5**	22.5
		1	99	22.5	**22.5**	22.2
		50	0	21.2	21.3	21.5
		50	24	21.2	21.4	21.4
		50	49	21.2	21.3	21.3
		100	0	21.2	21.3	21.4

7.3.2. LTE BAND 4

Test Engineer ID:	12589	Test Date:	2/13/2020

OUTPUT POWER FOR LTE BAND 4 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				19957	20175	20393
				1710.7 MHz	1732.5 MHz	1754.3 MHz
1.4	QPSK	1	0	24.4	24.0	23.9
		1	2	**24.4**	24.1	23.9
		1	5	24.4	24.0	23.8
		3	0	24.3	24.0	23.7
		3	1	24.3	24.1	23.8
		3	2	24.3	24.1	23.8
		6	0	23.4	23.1	22.8
	16QAM	1	0	23.6	23.1	22.9
		1	2	**23.6**	23.1	22.9
		1	5	23.6	23.1	22.9
		3	0	23.5	23.3	22.9
		3	1	23.5	23.4	23.0
		3	2	23.5	23.4	23.0
		6	0	22.3	22.3	22.0
	64QAM	1	0	22.4	22.2	22.2
		1	2	**22.5**	22.3	22.3
		1	5	22.5	22.2	22.2
		3	0	22.3	22.3	22.2
		3	1	22.4	22.4	22.3
		3	2	22.4	22.4	22.2
		6	0	21.5	21.4	20.9

OUTPUT POWER FOR LTE BAND 4 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				19965	20175	20385
				1711.5 MHz	1732.5 MHz	1753.5 MHz
3.0	QPSK	1	0	24.4	24.1	23.9
		1	7	**24.5**	24.2	24.0
		1	14	24.4	24.2	23.9
		8	0	23.5	23.1	22.9
		8	4	23.5	23.2	22.9
		8	7	23.5	23.2	22.9
		15	0	23.4	23.1	22.9
	16QAM	1	0	23.3	23.1	23.2
		1	7	**23.4**	23.1	23.3
		1	14	23.3	23.0	23.2
		8	0	22.5	22.3	22.0
		8	4	22.5	22.3	22.0
		8	7	22.5	22.4	22.0
		15	0	22.4	22.2	22.0
	64QAM	1	0	22.5	22.5	22.1
		1	7	**22.6**	22.6	22.2
		1	14	22.5	22.5	22.1
		8	0	21.5	21.3	20.9
		8	4	21.6	21.3	21.0
		8	7	21.5	21.3	21.0
		15	0	21.5	21.2	21.0

OUTPUT POWER FOR LTE BAND 4 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				19975	20175	20375
				1712.5 MHz	1732.5 MHz	1752.5 MHz
5.0	QPSK	1	0	**24.5**	24.3	23.9
		1	12	24.5	24.2	23.8
		1	24	24.4	24.2	23.9
		12	0	23.4	23.2	22.9
		12	6	23.5	23.2	22.9
		12	11	23.3	23.1	22.9
		25	0	23.3	23.2	22.9
	16QAM	1	0	**23.5**	23.3	23.4
		1	12	23.4	23.3	23.4
		1	24	23.4	23.3	23.4
		12	0	22.5	22.3	22.1
		12	6	22.5	22.3	22.1
		12	11	22.4	22.3	22.1
		25	0	22.3	22.3	22.0
	64QAM	1	0	**22.7**	22.2	22.2
		1	12	22.7	22.1	22.2
		1	24	22.6	22.2	22.2
		12	0	21.5	21.3	21.1
		12	6	21.5	21.3	21.1
		12	11	21.4	21.3	21.1
		25	0	21.4	21.2	21.1

OUTPUT POWER FOR LTE BAND 4 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20000	20175	20350
				1715.0 MHz	1732.5 MHz	1750.0 MHz
10.0	QPSK	1	0	**24.5**	24.2	23.9
		1	24	24.3	24.1	23.8
		1	49	24.3	24.1	23.9
		25	0	23.4	23.2	22.9
		25	12	23.4	23.2	22.9
		25	24	23.3	23.2	22.9
		50	0	23.3	23.2	22.9
	16QAM	1	0	**23.4**	23.1	23.3
		1	24	23.2	23.0	23.2
		1	49	23.3	23.1	23.2
		25	0	23.4	23.3	23.0
		25	12	23.4	23.3	23.0
		25	24	23.4	23.2	22.9
		50	0	23.3	23.2	23.0
	64QAM	1	0	22.6	22.5	22.1
		1	24	22.4	22.5	22.1
		1	49	22.4	22.5	22.1
		25	0	**22.9**	22.8	22.6
		25	12	22.9	22.8	22.6
		25	24	22.9	22.8	22.5
		50	0	22.9	22.8	22.4

OUTPUT POWER FOR LTE BAND 4 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20025	20175	20325
				1717.5 MHz	1732.5 MHz	1747.5 MHz
15.0	QPSK	1	0	**24.7**	24.4	23.9
		1	37	24.4	24.1	23.8
		1	74	24.3	24.1	23.9
		36	0	23.5	23.2	22.8
		36	16	23.4	23.2	22.9
		36	35	23.2	23.2	22.9
		75	0	23.3	23.2	22.8
	16QAM	1	0	**23.7**	23.3	23.3
		1	37	23.6	23.1	23.2
		1	74	23.5	23.1	23.2
		36	0	22.5	22.3	21.9
		36	16	22.5	22.3	22.1
		36	35	22.3	22.3	22.0
		75	0	22.3	22.3	21.9
	64QAM	1	0	22.6	**22.7**	22.5
		1	37	22.4	22.5	22.5
		1	74	22.3	22.6	22.5
		36	0	21.6	21.3	20.9
		36	16	21.5	21.3	21.0
		36	35	21.4	21.3	21.0
		75	0	21.4	21.3	21.0

OUTPUT POWER FOR LTE BAND 4 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20050	20175	20300
				1720.0 MHz	1732.5 MHz	1745.0 MHz
20.0	QPSK	1	0	**24.5**	24.4	23.9
		1	49	**24.5**	24.1	23.9
		1	99	24.4	24.1	23.9
		50	0	23.4	23.2	22.8
		50	24	23.5	23.2	22.9
		50	49	23.3	23.2	22.9
		100	0	23.3	23.2	22.7
	16QAM	1	0	23.5	**23.8**	23.3
		1	49	23.4	23.7	23.2
		1	99	23.4	23.8	23.2
		50	0	22.5	22.3	21.9
		50	24	22.5	22.3	22.1
		50	49	22.4	22.3	22.0
		100	0	22.3	22.3	21.9
	64QAM	1	0	22.7	**22.7**	22.5
		1	49	22.7	22.6	22.5
		1	99	22.6	22.6	22.5
		50	0	21.5	21.4	20.9
		50	24	21.5	21.4	21.0
		50	49	21.4	21.4	21.1
		100	0	21.4	21.4	21.0

7.3.3. LTE BAND 5

Test Engineer ID:	12589	Test Date:	2/5/2020

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	24.3	24.5	24.2
		1	2	24.4	**24.5**	24.3
		1	5	24.3	24.4	24.2
		3	0	24.3	24.4	24.0
		3	1	24.3	24.4	24.1
		3	2	24.3	24.4	24.1
		6	0	23.4	23.5	23.2
	16QAM	1	0	23.4	23.8	23.2
		1	2	23.4	**23.8**	23.3
		1	5	23.4	23.8	23.2
		3	0	23.5	23.6	23.1
		3	1	23.6	23.6	23.2
		3	2	23.5	23.6	23.2
		6	0	22.6	22.4	22.3
	64QAM	1	0	22.7	22.9	22.2
		1	2	22.7	**22.9**	22.3
		1	5	22.7	22.8	22.2
		3	0	22.4	22.7	22.2
		3	1	22.5	22.8	22.3
		3	2	22.5	22.8	22.3
		6	0	21.6	21.5	21.5

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	24.5	24.5	24.2
		1	7	24.6	**24.6**	24.2
		1	14	24.5	24.5	24.2
		8	0	23.5	23.5	23.2
		8	4	23.5	23.5	23.3
		8	7	23.5	23.5	23.3
		15	0	23.5	23.5	23.2
	16QAM	1	0	23.8	23.4	23.3
		1	7	**23.9**	23.5	23.3
		1	14	23.8	23.4	23.2
		8	0	22.6	22.7	22.3
		8	4	22.6	22.7	22.3
		8	7	22.6	22.7	22.3
		15	0	22.5	22.6	22.2
	64QAM	1	0	22.8	22.8	22.3
		1	7	22.8	**22.9**	22.4
		1	14	22.7	22.8	22.3
		8	0	21.6	21.6	21.4
		8	4	21.6	21.7	21.4
		8	7	21.6	21.7	21.4
		15	0	21.7	21.6	21.3

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	24.5	**24.7**	24.4
		1	12	24.5	24.6	24.3
		1	24	24.5	24.6	24.4
		12	0	23.5	23.6	23.4
		12	6	23.5	23.6	23.4
		12	11	23.5	23.5	23.3
		25	0	23.5	23.5	23.3
	16QAM	1	0	**24.0**	23.7	23.5
		1	12	24.0	23.7	23.4
		1	24	23.9	23.7	23.4
		12	0	22.7	22.7	22.4
		12	6	22.7	22.7	22.4
		12	11	22.6	22.6	22.4
		25	0	22.5	22.6	22.3
	64QAM	1	0	22.8	22.5	22.6
		1	12	**22.8**	22.5	22.5
		1	24	22.7	22.5	22.5
		12	0	21.6	21.6	21.3
		12	6	21.6	21.6	21.3
		12	11	21.6	21.6	21.2
		25	0	21.7	21.6	21.3

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	24.5	**24.6**	24.5
		1	24	24.5	24.5	24.4
		1	49	24.5	24.5	24.4
		25	0	23.5	23.5	23.4
		25	12	23.5	23.6	23.4
		25	24	23.5	23.5	23.3
		50	0	23.5	23.5	23.4
	16QAM	1	0	**23.8**	23.5	23.5
		1	24	**23.8**	23.4	23.4
		1	49	**23.8**	23.3	23.4
		25	0	22.6	22.1	22.4
		25	12	22.6	22.2	22.4
		25	24	22.6	22.1	22.4
		50	0	22.6	22.1	22.4
	64QAM	1	0	22.8	**22.9**	22.6
		1	24	22.8	22.8	22.5
		1	49	22.7	22.8	22.5
		25	0	21.6	22.2	21.3
		25	12	21.6	22.2	21.3
		25	24	21.6	22.2	21.3
		50	0	21.7	22.1	21.3

7.3.4. LTE BAND 7

Test Engineer ID:	12589	Test Date:	2/12/2020

OUTPUT POWER FOR LTE BAND 7 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20775	21100	21425
				2502.5 MHz	2535.0 MHz	2567.5 MHz
5.0	QPSK	1	0	**22.5**	22.5	22.4
		1	12	22.5	22.5	22.4
		1	24	22.5	22.5	22.4
		12	0	21.5	21.4	21.5
		12	6	21.5	21.5	21.5
		12	11	21.5	21.5	21.5
		25	0	21.5	21.5	21.5
	16QAM	1	0	21.6	21.6	21.9
		1	12	21.7	21.6	**21.9**
		1	24	21.6	21.6	21.9
		12	0	20.6	20.5	20.6
		12	6	20.6	20.5	20.6
		12	11	20.6	20.5	20.6
		25	0	20.5	20.4	20.6
	64QAM	1	0	20.7	20.3	20.6
		1	12	**20.8**	20.3	20.6
		1	24	20.7	20.3	20.6
		12	0	19.6	19.5	19.4
		12	6	19.6	19.5	19.4
		12	11	19.6	19.5	19.4
		25	0	19.5	19.4	19.4

OUTPUT POWER FOR LTE BAND 7 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20800	21100	21400
				2505.0 MHz	2535.0 MHz	2565.0 MHz
10.0	QPSK	1	0	22.5	22.4	22.3
		1	24	22.5	22.4	22.4
		1	49	**22.6**	22.3	22.4
		25	0	21.0	20.9	20.8
		25	12	21.0	20.9	20.9
		25	24	21.1	20.9	20.9
		50	0	21.1	20.9	20.8
	16QAM	1	0	21.4	**21.8**	21.4
		1	24	21.5	21.8	21.5
		1	49	21.5	21.7	21.4
		25	0	21.0	21.0	20.9
		25	12	21.0	21.0	21.0
		25	24	21.0	21.0	21.0
		50	0	21.0	21.0	20.9
	64QAM	1	0	20.6	20.7	20.4
		1	24	20.6	20.7	20.6
		1	49	20.7	20.6	20.5
		25	0	20.9	20.9	**21.0**
		25	12	20.9	20.9	**21.0**
		25	24	20.9	20.9	**21.0**
		50	0	20.9	20.9	**21.0**

OUTPUT POWER FOR LTE BAND 7 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20825	21100	21375
				2507.5 MHz	2535.0 MHz	2562.5 MHz
15.0	QPSK	1	0	22.4	22.4	22.4
		1	37	22.5	22.4	**22.5**
		1	74	22.5	22.4	22.5
		36	0	21.5	21.4	21.4
		36	16	21.6	21.4	21.5
		36	35	21.6	21.4	21.5
		75	0	21.6	21.4	21.4
	16QAM	1	0	21.4	21.8	21.8
		1	37	21.4	21.7	**21.8**
		1	74	21.5	21.8	21.7
		36	0	20.5	20.5	20.4
		36	16	20.6	20.6	20.5
		36	35	20.6	20.5	20.5
		75	0	20.6	20.5	20.5
	64QAM	1	0	20.9	20.5	20.9
		1	37	20.8	20.5	**21.0**
		1	74	20.8	20.5	20.8
		36	0	19.5	19.5	19.4
		36	16	19.6	19.5	19.5
		36	35	19.6	19.5	19.5
		75	0	19.5	19.5	19.4

OUTPUT POWER FOR LTE BAND 7 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				20850	21100	21350
				2510.0 MHz	2535.0 MHz	2560.0 MHz
20.0	QPSK	1	0	22.4	22.3	22.3
		1	49	**22.5**	22.4	22.3
		1	99	22.4	22.3	22.4
		50	0	21.5	21.4	21.4
		50	24	21.6	21.4	21.4
		50	50	21.5	21.4	21.3
		100	0	21.5	21.4	21.4
	16QAM	1	0	21.9	21.7	21.8
		1	49	**22.0**	21.8	21.9
		1	99	21.8	21.7	21.8
		50	0	20.6	20.5	20.5
		50	24	20.7	20.5	20.5
		50	50	20.6	20.4	20.4
		100	0	20.6	20.4	20.5
	64QAM	1	0	20.9	20.5	20.7
		1	49	**21.0**	20.6	20.7
		1	99	21.0	20.5	20.6
		50	0	19.6	19.4	19.5
		50	24	19.6	19.5	19.5
		50	50	19.5	19.4	19.4
		100	0	19.5	19.4	19.4

7.3.5. LTE BAND 12

Test Engineer ID:	38515	Test Date:	2/5/2020

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	23.5	23.5	23.6
		1	2	23.5	23.5	**23.7**
		1	5	23.4	23.5	23.6
		3	0	23.4	23.4	23.5
		3	1	23.4	23.5	23.5
		3	2	23.4	23.5	23.6
		6	0	22.4	22.6	22.6
	16QAM	1	0	22.8	22.6	22.7
		1	2	**22.9**	22.6	22.8
		1	5	22.8	22.6	22.6
		3	0	22.6	22.7	22.6
		3	1	22.6	22.8	22.6
		3	2	22.6	22.8	22.6
		6	0	21.4	21.8	21.8
	64QAM	1	0	21.8	22.0	21.8
		1	2	21.8	**22.1**	21.9
		1	5	21.8	22.0	21.8
		3	0	21.5	21.9	21.8
		3	1	21.6	22.0	21.9
		3	2	21.6	22.0	21.8
		6	0	20.7	20.6	21.0

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	23.4	23.6	23.6
		1	7	23.6	23.7	**23.8**
		1	14	23.6	23.6	23.7
		8	0	22.5	22.6	22.6
		8	4	22.5	22.6	22.6
		8	7	22.6	22.6	22.7
		15	0	22.6	22.6	22.6
	16QAM	1	0	22.6	22.5	23.0
		1	7	22.6	22.6	**23.1**
		1	14	22.6	22.5	23.0
		8	0	21.6	21.8	21.7
		8	4	21.7	21.8	21.7
		8	7	21.8	21.8	21.8
		15	0	21.7	21.7	21.7
	64QAM	1	0	21.8	22.0	21.8
		1	7	21.8	**22.1**	21.9
		1	14	21.8	22.0	21.8
		8	0	20.6	20.8	20.8
		8	4	20.6	20.9	20.8
		8	7	20.7	20.8	20.9
		15	0	20.8	20.7	20.7

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	23.7	23.7	23.7
		1	12	23.7	**23.8**	23.6
		1	24	23.7	23.7	23.7
		12	0	22.7	22.7	22.7
		12	6	22.7	22.7	22.7
		12	11	22.7	22.6	22.6
		25	0	22.7	22.7	22.6
	16QAM	1	0	22.8	22.8	23.2
		1	12	22.8	22.8	23.1
		1	24	22.8	22.8	**23.2**
		12	0	21.8	21.8	21.9
		12	6	21.8	21.8	21.9
		12	11	21.8	21.8	21.8
		25	0	21.7	21.8	21.8
	64QAM	1	0	21.9	21.5	**22.0**
		1	12	21.9	21.6	21.9
		1	24	21.9	21.6	22.0
		12	0	20.8	20.8	20.7
		12	6	20.8	20.8	20.7
		12	11	20.8	20.8	20.6
		25	0	20.7	20.7	20.6

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	23.6	23.7	23.7
		1	24	23.6	23.6	23.8
		1	49	23.6	23.7	**23.8**
		25	0	22.7	22.7	22.7
		25	12	22.8	22.7	22.7
		25	24	22.7	22.6	22.7
		50	0	22.8	22.7	22.6
	16QAM	1	0	22.6	22.6	23.1
		1	24	22.6	22.6	23.1
		1	49	22.6	22.6	**23.2**
		25	0	21.8	21.8	21.8
		25	12	21.9	21.8	21.8
		25	24	21.8	21.7	21.8
		50	0	21.8	21.8	21.8
	64QAM	1	0	21.9	21.8	21.9
		1	24	21.9	21.8	**21.9**
		1	49	21.9	21.9	21.9
		25	0	20.8	20.9	20.8
		25	12	20.8	20.8	20.8
		25	24	20.8	20.8	20.8
		50	0	20.8	20.8	20.7

7.3.6. LTE BAND 13

Test Engineer ID:	38515	Test Date:	2/5/2020

OUTPUT POWER FOR LTE BAND 13 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				23205	23230	23255
				779.5 MHz	782.0 MHz	784.5 MHz
5.0	QPSK	1	0	23.9	**24.0**	23.9
		1	12	23.9	23.9	23.8
		1	24	23.8	23.9	23.7
		12	0	22.9	22.9	22.9
		12	6	22.9	22.9	22.9
		12	11	22.9	22.9	22.9
		25	0	22.9	22.8	22.8
	16QAM	1	0	22.9	**22.9**	22.8
		1	12	22.8	22.9	22.8
		1	24	22.7	22.9	22.7
		12	0	22.0	21.9	22.0
		12	6	22.0	21.9	22.0
		12	11	22.0	21.9	22.0
		25	0	22.0	21.9	22.0
	64QAM	1	0	22.0	21.7	**22.2**
		1	12	22.1	21.7	22.1
		1	24	22.0	21.7	22.0
		12	0	21.0	20.9	21.0
		12	6	21.0	20.9	21.0
		12	11	21.0	20.9	20.9
		25	0	20.9	20.8	20.9

OUTPUT POWER FOR LTE BAND 13 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				N/A	23230	N/A
				N/A	782.0 MHz	N/A
10.0	QPSK	1	0		**23.9**	
		1	24		23.8	
		1	49		23.7	
		25	0		22.9	
		25	12		22.9	
		25	24		22.8	
		50	0		22.8	
	16QAM	1	0		**22.8**	
		1	24		22.8	
		1	49		22.6	
		25	0		22.0	
		25	12		22.0	
		25	24		22.0	
		50	0		21.9	
	64QAM	1	0		**22.2**	
		1	24		22.1	
		1	49		22.0	
		25	0		20.9	
		25	12		21.0	
		25	24		20.9	
		50	0		20.9	

7.3.7. LTE BAND 38 IC

Test Engineer ID:	12589	Test Date:	2/6/2020

OUTPUT POWER FOR LTE BAND 38 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				37775	38000	38225
				2572.5 MHz	2595.0 MHz	2617.5
5.0	QPSK	1	0	23.7	**23.7**	23.6
		1	12	23.6	23.7	23.6
		1	24	23.7	23.7	23.7
		12	0	22.8	22.9	22.9
		12	6	22.8	22.9	22.9
		12	11	22.8	22.9	22.8
		25	0	22.8	23.0	22.8
	16QAM	1	0	22.7	**22.9**	**22.9**
		1	12	22.7	**22.9**	**22.9**
		1	24	22.8	**22.9**	**22.9**
		12	0	21.9	22.0	22.0
		12	6	21.9	22.0	22.0
		12	11	22.0	22.0	22.0
		25	0	21.9	22.1	21.9
	64QAM	1	0	22.2	**22.5**	22.2
		1	24	22.2	22.4	22.2
		1	49	22.2	22.4	22.1
		25	0	22.1	22.2	22.2
		25	12	21.5	22.2	22.2
		25	24	21.6	22.2	22.2
		50	0	21.6	22.1	22.1

OUTPUT POWER FOR LTE BAND 38 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				37800	38000	38200
				2575.0 MHz	2595.0 MHz	2615.0 MHz
10.0	QPSK	1	0	23.7	23.7	23.7
		1	24	23.7	23.7	23.7
		1	49	**23.7**	23.7	23.7
		25	0	22.3	22.5	22.4
		25	12	22.4	22.5	22.4
		25	24	22.3	22.4	22.4
		50	0	22.3	22.4	22.4
	16QAM	1	0	22.8	22.9	22.9
		1	24	**22.9**	22.9	22.8
		1	49	22.8	22.8	22.8
		25	0	22.5	22.5	22.4
		25	12	22.5	22.5	22.5
		25	24	22.4	22.5	22.4
		50	0	22.5	22.5	22.5
	64QAM	1	0	22.2	**22.5**	22.1
		1	24	22.2	22.5	22.1
		1	49	22.2	22.4	22.1
		25	0	22.1	22.2	22.2
		25	12	21.5	22.2	22.2
		25	24	21.6	22.2	22.1
		50	0	21.6	22.1	22.1

OUTPUT POWER FOR LTE BAND 38 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power Conducted Average (dBm)		
				37825	38000	38175
				2577.5 MHz	2595.0 MHz	2612.5 MHz
15.0	QPSK	1	0	23.8	**23.8**	23.5
		1	37	23.8	23.7	23.8
		1	74	23.7	23.8	23.7
		36	0	22.8	22.9	22.7
		36	16	22.8	23.0	22.9
		36	35	23.0	22.9	22.9
		75	0	22.8	22.9	22.8
	16QAM	1	0	22.8	22.8	22.8
		1	37	**22.9**	22.9	22.8
		1	74	22.9	22.7	22.7
		36	0	22.0	22.0	21.8
		36	16	21.9	22.0	22.0
		36	35	22.0	22.0	21.9
		75	0	21.9	22.0	21.9
	64QAM	1	0	22.1	22.3	22.4
		1	37	22.1	22.3	**22.4**
		1	74	22.1	22.2	22.3
		36	0	22.1	22.2	22.1
		36	16	21.9	21.7	22.2
		36	35	22.0	21.8	22.2
		75	0	22.0	21.7	22.1

OUTPUT POWER FOR LTE BAND 38 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				37850	38000	38150
				2580.0 MHz	2595.0 MHz	2610.0 MHz
20.0	QPSK	1	0	23.8	**23.8**	23.8
		1	49	23.8	23.8	23.8
		1	99	23.8	23.8	23.8
		50	0	22.9	22.9	22.8
		50	24	22.9	22.9	22.8
		50	49	22.9	22.8	22.9
		100	0	22.9	22.9	22.8
	16QAM	1	0	22.9	22.8	22.7
		1	49	22.9	**22.9**	22.8
		1	99	22.9	22.8	22.6
		50	0	21.9	22.1	21.9
		50	24	22.1	22.1	21.9
		50	49	22.0	22.0	21.9
		100	0	22.0	22.0	21.9
	64QAM	1	0	22.0	21.9	21.8
		1	49	**22.1**	21.9	21.8
		1	99	22.1	21.8	21.8
		50	0	21.7	21.8	21.8
		50	24	21.8	21.6	21.7
		50	49	21.8	21.7	21.8
		100	0	21.8	21.5	21.6

7.3.8. LTE BAND 41 FCC

Test Engineer ID:	38515	Test Date:	2/5/2020

OUTPUT POWER FOR LTE BAND 41 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39675	40620	41565
				2498.5 MHz	2593.0 MHz	2687.5 MHz
5.0	QPSK	1	0	23.5	23.7	23.6
		1	12	23.5	23.6	23.6
		1	24	23.6	**23.7**	23.6
		12	0	22.6	22.7	22.6
		12	6	22.7	22.8	22.7
		12	11	22.7	22.8	22.7
		25	0	22.8	22.8	22.6
	16QAM	1	0	22.6	22.8	22.5
		1	12	22.6	22.8	22.5
		1	24	22.7	**22.8**	22.5
		12	0	21.8	21.9	21.7
		12	6	21.9	22.0	21.7
		12	11	21.9	22.0	21.7
		25	0	21.8	21.9	21.7
	64QAM	1	0	21.5	**22.0**	21.8
		1	12	21.4	**22.0**	21.8
		1	24	21.5	**22.0**	21.7
		12	0	20.8	21.0	20.6
		12	6	20.9	21.0	20.7
		12	11	20.8	21.0	20.6
		25	0	20.9	21.0	20.7

OUTPUT POWER FOR LTE BAND 41 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39700	40620	41540
				2501.0 MHz	2593.0 MHz	2685.0 MHz
10.0	QPSK	1	0	23.8	23.7	23.7
		1	24	23.7	23.7	23.7
		1	49	23.8	**23.8**	23.7
		25	0	22.4	22.3	22.2
		25	12	22.4	22.4	22.3
		25	24	22.3	22.3	22.2
		50	0	22.4	22.4	22.3
	16QAM	1	0	22.8	22.8	**22.9**
		1	24	22.7	22.7	22.9
		1	49	22.7	22.7	22.8
		25	0	21.9	21.9	21.8
		25	12	22.0	21.9	21.8
		25	24	22.0	21.9	21.8
		50	0	22.0	22.0	21.9
	64QAM	1	0	**21.9**	21.9	**22.0**
		1	24	21.8	21.8	**22.0**
		1	49	21.9	21.9	**22.0**
		25	0	20.8	20.8	20.8
		25	12	20.9	20.9	20.9
		25	24	20.9	20.9	20.8
		50	0	21.0	21.0	20.9

OUTPUT POWER FOR LTE BAND 41 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39725	40620	41515
				2503.5 MHz	2593.0 MHz	2682.5 MHz
15.0	QPSK	1	0	23.8	**23.8**	23.5
		1	37	23.5	23.6	23.6
		1	74	23.5	23.6	23.5
		36	0	22.6	22.8	22.5
		36	16	22.7	22.8	22.6
		36	35	22.6	22.8	22.6
		75	0	22.7	22.8	22.5
	16QAM	1	0	**22.9**	22.8	22.5
		1	37	22.7	22.6	22.5
		1	74	22.7	22.7	22.5
		36	0	21.8	21.8	21.6
		36	16	21.8	21.9	21.7
		36	35	21.8	21.8	21.7
		75	0	21.8	21.9	21.6
	64QAM	1	0	21.5	**22.0**	21.5
		1	37	21.3	22.0	21.4
		1	74	21.3	**22.0**	21.4
		36	0	20.9	21.0	20.5
		36	16	20.9	21.0	20.6
		36	35	20.8	20.9	20.6
		75	0	20.8	21.0	20.6

OUTPUT POWER FOR LTE BAND 41 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39750	40620	41490
				2506.0 MHz	2593.0 MHz	2680.0 MHz
20.0	QPSK	1	0	23.8	**23.9**	23.7
		1	49	23.6	23.7	23.6
		1	99	23.6	23.7	23.5
		50	0	22.8	22.8	22.6
		50	24	22.8	22.9	22.6
		50	49	22.7	22.9	22.7
		100	0	22.8	22.8	22.5
	16QAM	1	0	22.7	**22.8**	22.8
		1	49	22.5	22.7	22.7
		1	99	22.5	22.7	22.6
		50	0	21.8	21.9	21.7
		50	24	21.9	22.0	21.8
		50	49	21.8	21.9	21.7
		100	0	21.8	21.9	21.6
	64QAM	1	0	21.8	21.9	**22.0**
		1	49	21.6	21.8	21.9
		1	99	21.6	21.8	21.9
		50	0	20.9	21.0	20.7
		50	24	20.9	21.0	20.7
		50	49	20.8	21.0	20.7
		100	0	20.9	21.0	20.6

7.3.9. LTE BAND 41 IC

Test Engineer ID:	12589	Test Date:	2/6/2020

OUTPUT POWER FOR LTE BAND 41 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39715	40640	41565
				2502.5 MHz	2595.0 MHz	2687.5 MHz
5.0	QPSK	1	0	**23.7**	23.7	23.6
		1	12	23.7	23.7	23.6
		1	24	23.6	23.7	23.6
		12	0	22.8	22.7	22.6
		12	6	22.7	22.8	22.7
		12	11	22.7	22.8	22.7
		25	0	22.7	22.8	22.6
	16QAM	1	0	22.7	22.8	22.6
		1	12	22.7	22.8	22.6
		1	24	22.6	**22.8**	22.5
		12	0	21.8	21.9	21.7
		12	6	21.8	22.0	21.7
		12	11	21.7	21.9	21.8
		25	0	21.8	21.9	21.7
	64QAM	1	0	22.0	22.0	21.8
		1	12	22.0	22.0	21.8
		1	24	**22.0**	22.0	21.7
		12	0	20.9	21.0	20.7
		12	6	20.9	21.0	20.7
		12	11	20.8	21.0	20.7
		25	0	20.8	21.0	20.7

OUTPUT POWER FOR LTE BAND 41 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39740	40640	41540
				2505.0 MHz	2595.0 MHz	2685.0 MHz
10.0	QPSK	1	0	23.6	23.6	23.6
		1	24	**23.7**	23.6	23.6
		1	49	23.6	23.7	23.6
		25	0	22.3	22.7	22.6
		25	12	22.3	22.8	22.6
		25	24	22.2	22.7	22.6
		50	0	22.2	22.8	22.6
	16QAM	1	0	22.7	**22.7**	22.6
		1	24	22.7	**22.7**	22.6
		1	49	22.6	22.0	22.5
		25	0	21.8	22.0	21.7
		25	12	21.8	22.0	21.7
		25	24	21.7	21.9	21.8
		50	0	21.8	21.9	21.7
	64QAM	1	0	22.0	21.9	21.8
		1	24	**22.0**	21.9	21.8
		1	49	21.9	22.0	21.7
		25	0	20.8	21.0	20.8
		25	12	20.7	21.0	20.8
		25	24	20.7	21.0	20.8
		50	0	20.7	21.0	20.7

OUTPUT POWER FOR LTE BAND 41 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39765	40640	41515
				2507.5 MHz	2595.0 MHz	2682.5 MHz
15.0	QPSK	1	0	23.7	**23.8**	23.5
		1	37	23.7	23.7	23.6
		1	74	23.6	23.7	23.6
		36	0	22.8	22.8	22.6
		36	16	22.7	22.9	22.7
		36	35	22.6	22.8	22.6
		75	0	22.8	22.8	22.4
	16QAM	1	0	**22.8**	22.7	22.6
		1	37	22.7	22.6	22.5
		1	74	22.7	22.7	22.5
		36	0	21.8	21.8	21.6
		36	16	21.8	21.9	21.7
		36	35	21.7	21.9	21.7
		75	0	21.8	21.9	21.6
	64QAM	1	0	**22.0**	21.9	21.5
		1	37	22.0	21.9	21.5
		1	74	21.9	21.9	21.5
		36	0	20.9	21.0	20.6
		36	16	20.9	21.0	20.7
		36	35	20.8	21.0	20.7
		75	0	20.8	21.0	20.7

OUTPUT POWER FOR LTE BAND 41 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				39790	40640	41490
				2510.0 MHz	2595.0 MHz	2680.0 MHz
20.0	QPSK	1	0	23.7	**23.8**	23.5
		1	49	23.7	23.7	23.6
		1	99	23.7	23.7	23.6
		50	0	22.8	22.8	22.6
		50	24	22.8	22.8	22.7
		50	49	22.8	22.8	22.6
		100	0	22.8	22.8	22.4
	16QAM	1	0	**22.8**	22.8	22.6
		1	49	22.7	22.6	22.5
		1	99	22.7	22.6	22.5
		50	0	21.9	21.9	21.7
		50	24	21.8	21.9	21.7
		50	49	21.8	21.9	21.7
		100	0	21.8	21.9	21.7
	64QAM	1	0	**22.0**	21.9	21.5
		1	49	**22.0**	21.9	21.5
		1	99	**22.0**	21.9	21.5
		50	0	21.0	21.0	20.6
		50	24	20.9	21.0	20.6
		50	49	20.8	21.0	20.7
		100	0	20.8	21.0	20.7

7.3.10. LTE BAND 66

Test Engineer ID:	38515	Test Date:	2/5/2020

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	23.8	23.6	23.5
		1	2	**23.9**	23.7	23.5
		1	5	23.8	23.6	23.5
		3	0	23.7	23.7	23.5
		3	1	23.7	23.8	23.6
		3	2	23.7	23.8	23.6
		6	0	22.8	22.6	22.6
	16QAM	1	0	22.8	23.0	22.6
		1	2	22.8	**23.1**	22.6
		1	5	22.8	23.0	22.6
		3	0	22.8	23.0	22.8
		3	1	22.9	23.1	22.9
		3	2	22.8	23.0	22.9
		6	0	21.9	21.6	21.8
	64QAM	1	0	22.2	22.2	22.3
		1	2	22.2	22.3	**22.4**
		1	5	22.1	22.2	22.3
		3	0	22.2	22.1	22.3
		3	1	22.3	22.2	22.4
		3	2	22.3	22.2	22.4
		6	0	21.4	21.2	21.0

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	24.0	24.0	23.6
		1	7	**24.3**	24.0	23.7
		1	14	24.1	23.9	23.6
		8	0	23.2	22.7	22.6
		8	4	23.2	22.8	22.7
		8	7	23.1	22.8	22.7
		15	0	23.1	22.7	22.7
	16QAM	1	0	23.4	22.8	22.5
		1	7	**23.5**	22.9	22.6
		1	14	23.4	22.8	22.5
		8	0	22.2	21.9	21.8
		8	4	22.2	21.9	21.8
		8	7	22.2	21.9	21.8
		15	0	22.2	21.8	21.7
	64QAM	1	0	22.4	22.2	22.2
		1	7	**22.5**	22.3	22.3
		1	14	22.4	22.2	22.2
		8	0	21.2	21.2	21.0
		8	4	21.3	21.2	21.1
		8	7	21.3	21.2	21.1
		15	0	21.1	21.2	21.1

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	**24.4**	24.3	24.1
		1	12	24.4	24.3	24.1
		1	24	24.4	24.3	24.1
		12	0	23.3	23.2	23.1
		12	6	23.4	23.2	23.1
		12	11	23.4	23.2	23.1
		25	0	23.3	23.2	23.1
	16QAM	1	0	23.4	23.4	**23.6**
		1	12	23.3	23.3	23.6
		1	24	23.4	23.4	23.6
		12	0	22.4	22.4	22.3
		12	6	22.4	22.4	22.3
		12	11	22.4	22.4	22.3
		25	0	22.3	22.3	22.2
	64QAM	1	0	22.6	22.3	22.5
		1	12	22.6	22.2	22.5
		1	24	**22.6**	22.2	22.5
		12	0	21.5	21.4	21.2
		12	6	21.4	21.4	21.2
		12	11	21.4	21.4	21.2
		25	0	21.4	21.3	21.2

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	**24.4**	24.2	24.2
		1	24	24.3	24.1	24.1
		1	49	24.2	24.2	24.1
		25	0	23.3	23.3	23.3
		25	12	23.3	23.3	23.3
		25	24	23.2	23.3	23.1
		50	0	23.3	23.2	23.2
	16QAM	1	0	23.3	23.2	**23.5**
		1	24	23.2	23.1	23.4
		1	49	23.2	23.1	23.4
		25	0	22.5	22.4	22.3
		25	12	22.4	22.4	22.3
		25	24	22.4	22.4	22.2
		50	0	22.3	22.3	22.4
	64QAM	1	0	22.5	**22.6**	22.4
		1	24	22.5	22.6	22.3
		1	49	22.4	22.6	22.3
		25	0	21.5	21.5	21.4
		25	12	21.5	21.5	21.4
		25	24	21.4	21.4	21.3
		50	0	21.3	21.4	21.4

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	**24.6**	24.3	24.3
		1	37	24.4	24.2	24.2
		1	74	24.3	24.2	24.1
		36	0	23.4	23.2	23.3
		36	16	23.3	23.3	23.2
		36	35	23.3	23.2	23.2
		75	0	23.3	23.2	23.2
	16QAM	1	0	**23.7**	23.2	23.6
		1	37	23.6	23.1	23.5
		1	74	23.6	23.1	23.5
		36	0	22.5	22.4	22.4
		36	16	22.3	22.4	22.3
		36	35	22.4	22.3	22.3
		75	0	22.4	22.4	22.4
	64QAM	1	0	**23.0**	22.7	22.4
		1	37	22.9	22.6	22.3
		1	74	22.9	22.5	22.3
		36	0	21.5	21.4	21.4
		36	16	21.4	21.4	21.4
		36	35	21.4	21.4	21.4
		75	0	21.4	21.4	21.4

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	**24.5**	24.4	24.3
		1	49	24.2	24.2	24.1
		1	99	24.3	24.2	24.1
		50	0	23.4	23.4	23.3
		50	24	23.3	23.3	23.2
		50	49	23.3	23.3	23.2
		100	0	23.3	23.3	23.2
	16QAM	1	0	23.8	23.8	**23.8**
		1	49	23.5	23.6	23.6
		1	99	23.7	23.5	23.6
		50	0	22.4	22.4	22.4
		50	24	22.4	22.4	22.3
		50	49	22.4	22.3	22.3
		100	0	22.4	22.4	22.3
	64QAM	1	0	22.8	**23.0**	22.5
		1	49	22.6	22.9	22.4
		1	99	22.7	22.8	22.4
		50	0	21.5	21.5	21.4
		50	24	21.4	21.4	21.4
		50	49	21.4	21.5	21.4
		100	0	21.4	21.4	21.3

7.3.11. LTE BAND 71

Test Engineer ID:	38515	Test Date:	2/5/2020

OUTPUT POWER FOR LTE BAND 71 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				133147	133297	133447
				665.5 MHz	680.5 MHz	695.5 MHz
5.0	QPSK	1	0	24.2	**24.5**	24.1
		1	12	24.1	24.4	23.9
		1	24	24.1	24.4	23.9
		12	0	23.1	23.4	23.1
		12	6	23.1	23.3	22.7
		12	11	23.1	23.3	22.6
		25	0	23.1	23.0	22.7
	16QAM	1	0	23.2	23.3	23.2
		1	12	23.2	23.2	23.1
		1	24	23.2	**23.4**	23.1
		12	0	22.2	22.4	21.9
		12	6	22.2	22.5	21.8
		12	11	22.1	22.4	21.8
		25	0	22.1	22.3	21.9
	64QAM	1	0	**22.7**	22.4	22.4
		1	12	22.6	22.3	22.3
		1	24	22.7	22.3	22.2
		12	0	21.6	21.5	21.1
		12	6	21.6	21.6	21.0
		12	11	21.5	21.5	21.0
		25	0	21.5	21.4	21.1

OUTPUT POWER FOR LTE BAND 71 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				133172	133297	133422
				668.0 MHz	680.5 MHz	693.0 MHz
10.0	QPSK	1	0	24.4	24.2	23.9
		1	24	24.4	24.1	23.9
		1	49	**24.4**	23.9	23.7
		25	0	23.2	23.1	22.9
		25	12	23.2	23.1	22.9
		25	24	23.2	23.0	22.8
		50	0	23.3	23.1	22.9
	16QAM	1	0	23.1	**23.5**	23.0
		1	24	23.1	23.4	22.8
		1	49	23.1	23.2	22.7
		25	0	22.2	22.3	22.0
		25	12	22.2	22.2	22.1
		25	24	22.2	22.2	22.0
		50	0	22.2	22.1	21.9
	64QAM	1	0	**22.8**	22.6	22.5
		1	24	22.7	22.5	22.4
		1	49	22.7	22.4	22.2
		25	0	21.5	21.6	21.4
		25	12	21.5	21.6	21.4
		25	24	21.6	21.5	21.3
		50	0	21.6	21.5	21.3

OUTPUT POWER FOR LTE BAND 71 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				133197	133297	133397
				670.5 MHz	680.5 MHz	690.5 MHz
15.0	QPSK	1	0	24.5	**24.6**	24.1
		1	37	24.4	24.2	24.0
		1	74	24.4	24.0	23.7
		36	0	23.5	23.3	23.2
		36	16	23.6	23.5	23.0
		36	35	23.5	23.4	22.8
		75	0	23.5	23.4	22.9
	16QAM	1	0	23.7	**23.9**	23.0
		1	37	23.5	23.5	22.9
		1	74	23.4	23.3	22.6
		36	0	22.3	22.3	22.2
		36	16	22.7	22.2	22.0
		36	35	22.6	22.1	22.0
		75	0	22.6	22.2	22.0
	64QAM	1	0	23.0	22.8	22.5
		1	37	22.9	22.7	22.3
		1	74	**23.0**	22.4	22.1
		36	0	21.6	21.5	21.5
		36	16	21.6	21.5	21.3
		36	35	21.6	21.5	21.3
		75	0	21.6	21.5	21.3

OUTPUT POWER FOR LTE BAND 71 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Power		
				Conducted Average (dBm)		
				133222	133297	133372
				673.0 MHz	680.5 MHz	688.0 MHz
20.0	QPSK	1	0	24.5	24.5	**24.6**
		1	49	24.5	24.4	24.3
		1	99	24.3	24.1	24.0
		50	0	23.6	23.5	23.5
		50	24	23.6	23.5	23.4
		50	49	23.5	23.4	23.2
		100	0	23.5	23.4	23.4
	16QAM	1	0	23.9	23.9	23.8
		1	49	**24.0**	23.7	23.6
		1	99	23.8	23.5	23.3
		50	0	22.6	22.5	22.4
		50	24	22.6	22.5	22.3
		50	49	22.5	22.3	22.2
		100	0	22.5	22.4	22.4
	64QAM	1	0	22.7	**23.1**	22.8
		1	49	22.8	23.0	22.5
		1	99	22.5	22.7	22.2
		50	0	21.7	21.5	21.6
		50	24	21.6	21.5	21.6
		50	49	21.5	21.4	21.3
		100	0	21.5	21.5	21.5

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS130, RSS132; RSS133 §2.3, RSS139, RSS199§4.2

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 (QPSK/16QAM modes and highest bandwidth) are reported only.

GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	248.6	316.5
	EGPRS			244.1	314.9
1900	GPRS	661	1880.0	245.3	321.4
	EGPRS			248.1	321.0

WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.15	4.72
	HSDPA			4.15	4.68
BAND 2	REL 99	9800	1880.0	4.12	4.70
	HSDPA			4.13	4.69
BAND 4	REL 99	1638	1732.6	4.14	4.72
	HSDPA			4.13	4.70

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	1.08	1.23
	1.4MHz,16QAM			1.09	1.24
	3MHz, QPSK	15/0		2.69	2.98
	3MHz, 16QAM			2.68	2.98
	5MHz, QPSK	25/0		4.50	4.92
	5MHz, 16QAM			4.50	4.97
	10MHz, QPSK	50/0		8.95	9.59
	10MHz, 16QAM			8.99	9.68
	15MHz, QPSK	75/0		13.36	14.35
	15MHz, 16QAM			13.39	14.39
	20MHz, QPSK	100/0		17.82	19.28
	20MHz, 16QAM			17.86	19.31

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	1.08	1.21
	1.4MHz,16QAM			1.09	1.23
	3MHz, QPSK	15/0		2.69	2.99
	3MHz, 16QAM			2.69	2.97
	5MHz, QPSK	25/0		4.49	4.89
	5MHz, 16QAM			4.49	4.93
	10MHz, QPSK	50/0		8.95	9.71
	10MHz, 16QAM			8.93	9.64

LTE BAND 7

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 7	5MHz, QPSK	25/0	2535.0	4.50	4.94
	5MHz, 16QAM			4.49	4.87
	10MHz, QPSK	50/0		8.94	9.77
	10MHz, 16QAM			8.96	9.82
	15MHz, QPSK	75/0		13.44	14.51
	15MHz, 16QAM			13.42	14.36
	20MHz, QPSK	100/0		17.92	19.19
	20MHz, 16QAM			17.87	19.23

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	1.08	1.22
	1.4 MHz,16QAM			1.09	1.23
	3 MHz, QPSK	15/0		2.68	3.01
	3 MHz, 16QAM			2.68	2.99
	5 MHz, QPSK	25/0		4.50	4.92
	5 MHz, 16QAM			4.50	4.93
	10 MHz, QPSK	50/0		8.97	9.68
	10 MHz, 16QAM			8.98	9.77

LTE BAND 13

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 13	5 MHz, QPSK	25/0	782.0	4.49	4.91
	5 MHz, 16QAM			4.50	4.99
	10 MHz, QPSK	50/0		8.96	9.64
	10 MHz, 16QAM			8.96	9.75

LTE BAND 41 (FCC)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5MHz, QPSK	25/0	2593.0	4.49	4.86
	5MHz, 16QAM			4.48	4.86
	10MHz, QPSK	50/0		9.01	9.71
	10MHz, 16QAM			8.99	9.81
	15MHz, QPSK	75/0		14.43	14.59
	15MHz, 16QAM			13.41	14.49
	20MHz, QPSK	100/0		17.89	19.25
	20MHz, 16QAM			17.90	19.26

LTE BAND 41 (IC)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5MHz, QPSK	25/0	2595.0	4.50	5.11
	5MHz, 16QAM			4.50	4.96
	10MHz, QPSK	50/0		8.96	9.80
	10MHz, 16QAM			8.96	9.79
	15MHz, QPSK	75/0		13.41	14.44
	15MHz, 16QAM			13.42	14.58
	20MHz, QPSK	100/0		17.92	19.25
	20MHz, 16QAM			17.88	19.19

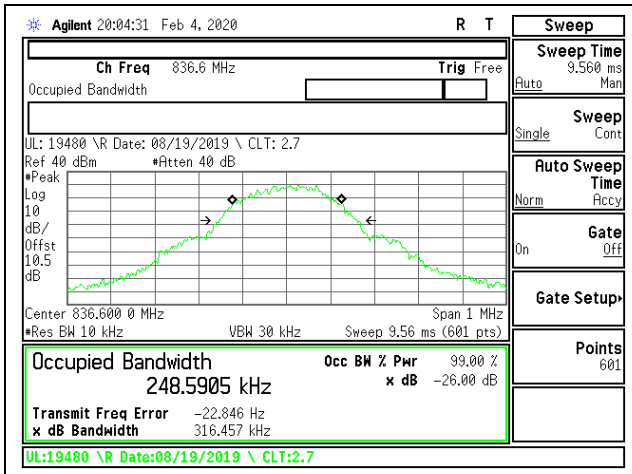
LTE BAND 66

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 66	1.4MHz, QPSK	6/0	1745.0	1.08	1.22
	1.4MHz,16QAM			1.08	1.22
	3MHz, QPSK	15/0		2.69	2.96
	3MHz, 16QAM			2.68	3.00
	5MHz, QPSK	25/0		4.50	4.90
	5MHz, 16QAM			4.49	4.86
	10MHz, QPSK	50/0		8.99	9.65
	10MHz, 16QAM			8.98	9.66
	15MHz, QPSK	75/0		13.42	14.24
	15MHz, 16QAM			13.39	14.38
	20MHz, QPSK	100/0		17.85	19.38
	20MHz, 16QAM			17.81	19.18

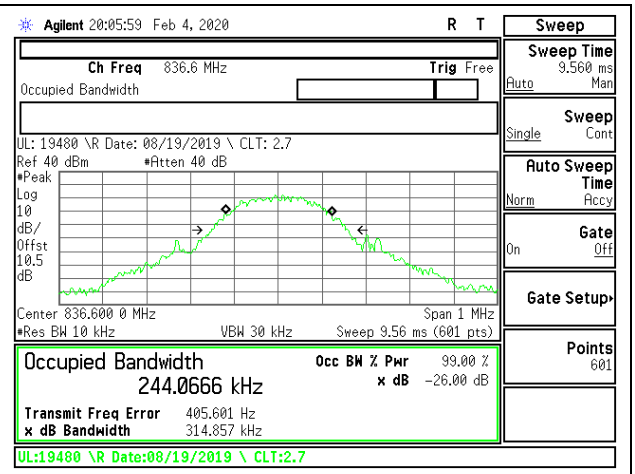
LTE BAND 71

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
	5MHz, QPSK	25/0	680.5	4.49	4.97
	5MHz, 16QAM			4.50	4.98
	10MHz, QPSK	50/0		8.95	9.88
	10MHz, 16QAM			8.96	9.67
	15MHz, QPSK	75/0		13.37	14.55
	15MHz, 16QAM			13.40	14.4
	20MHz, QPSK	100/0		17.85	18.84
	20MHz, 16QAM			17.89	19.22

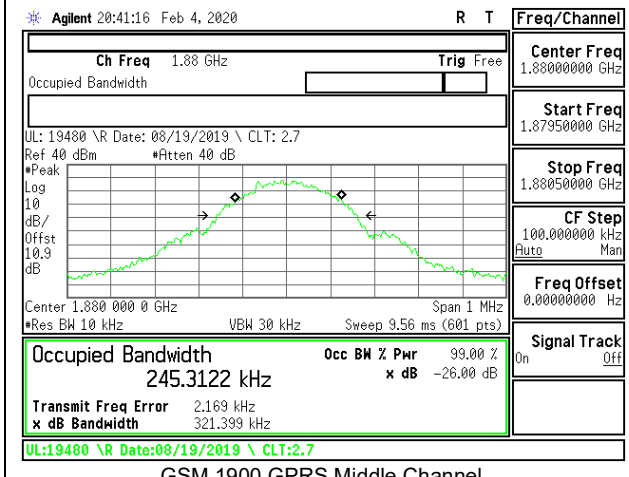
8.1.1. GSM



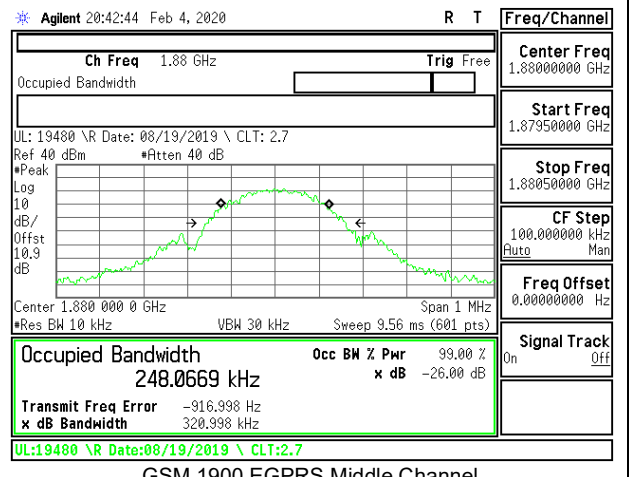
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

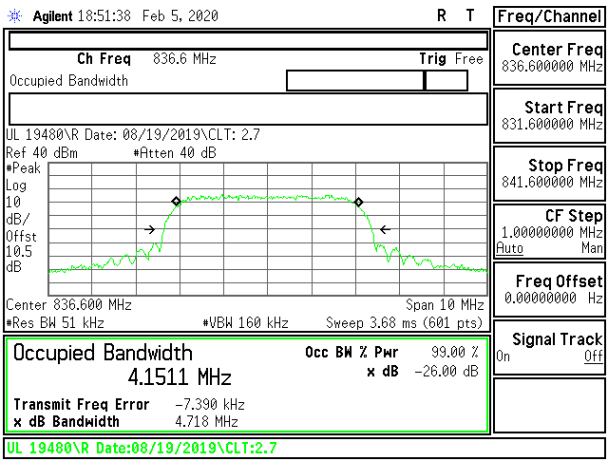


GSM 1900 GPRS Middle Channel

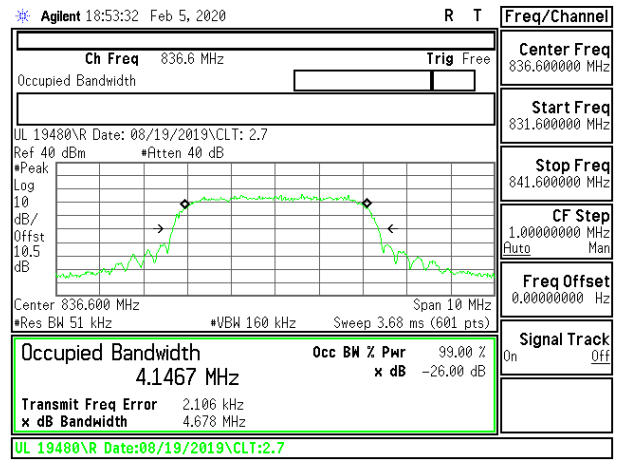


GSM 1900 EGPRS Middle Channel

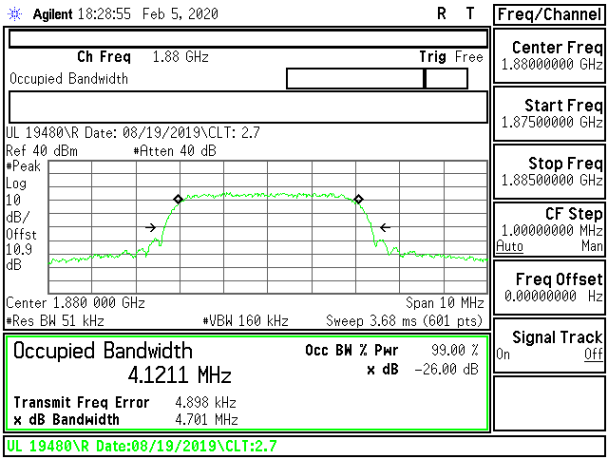
8.1.2. WCDMA



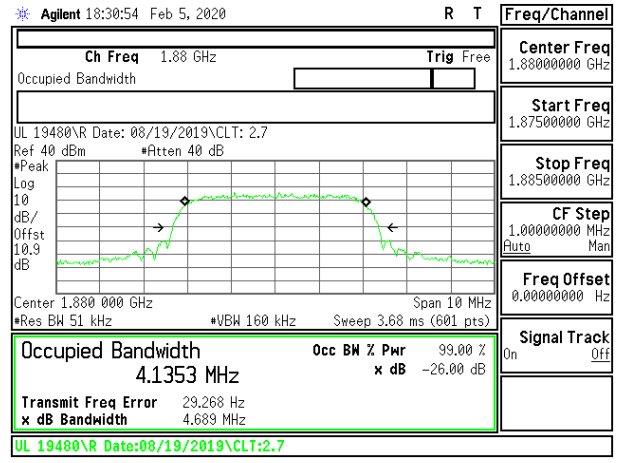
WCDMA Band 5 Rel 99 Middle Channel



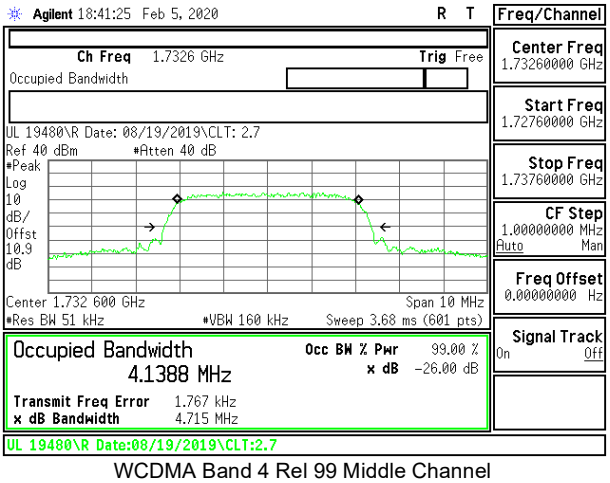
WCDMA Band 5 HSDPA Middle Channel



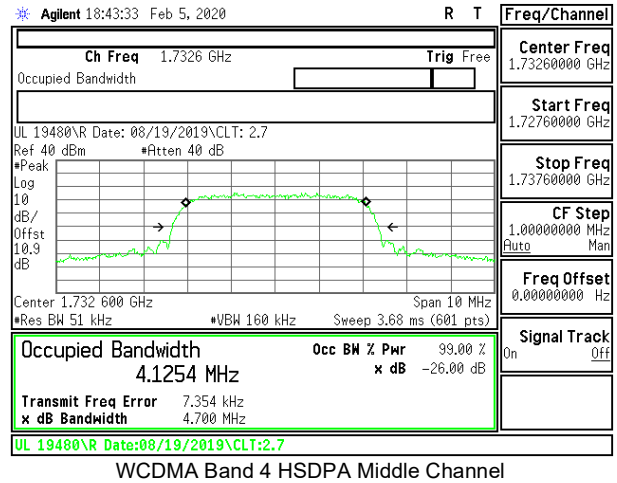
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

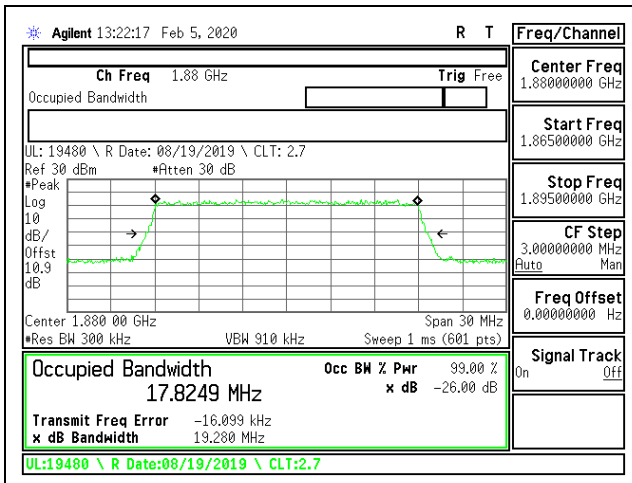


WCDMA Band 4 Rel 99 Middle Channel

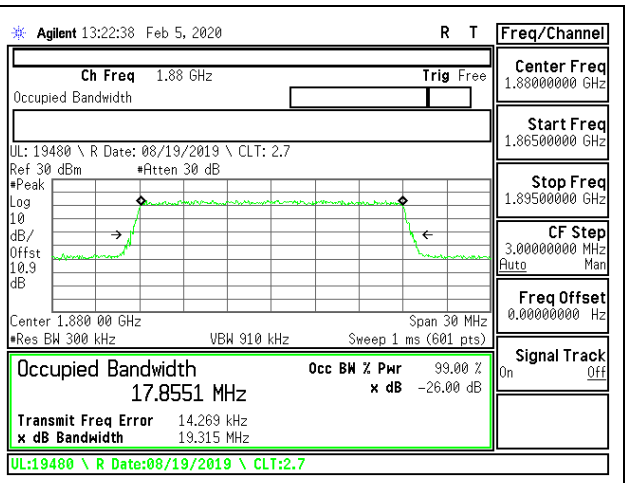


WCDMA Band 4 HSDPA Middle Channel

8.1.3. LTE BAND 2

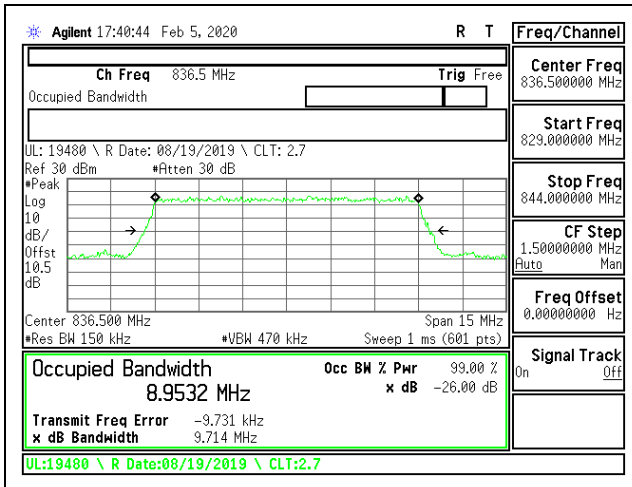


LTE B2 20MHz QPSK Middle Channel RB100-0

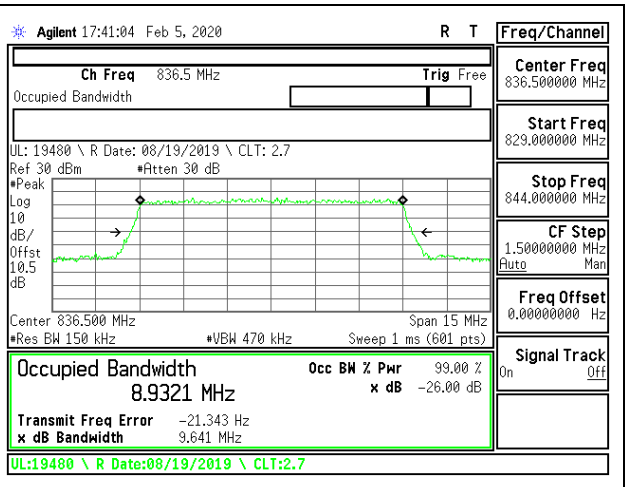


LTE B2 20MHz 16QAM Middle Channel RB100-0

8.1.4. LTE BAND 5

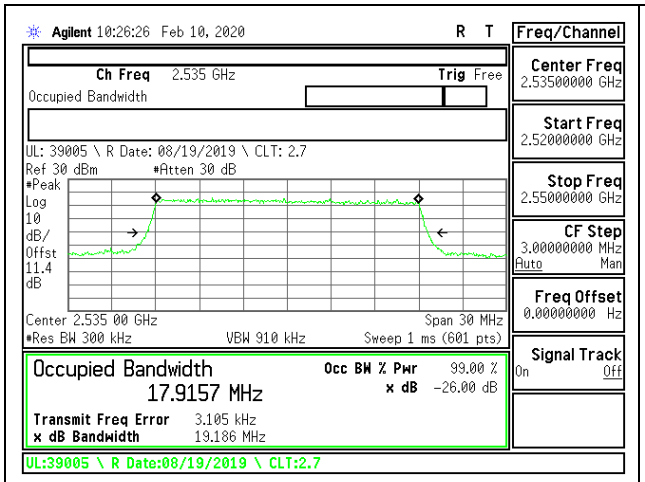


LTE B5 10MHz QPSK Middle Channel RB50-0

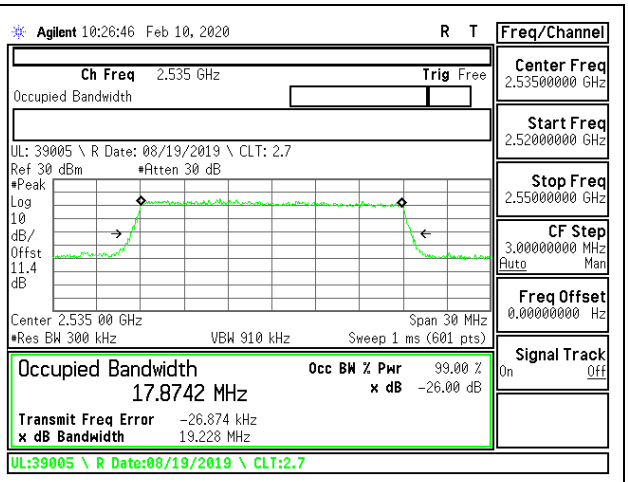


LTE B5 10MHz 16QAM Middle Channel RB50-0

8.1.5. LTE BAND 7

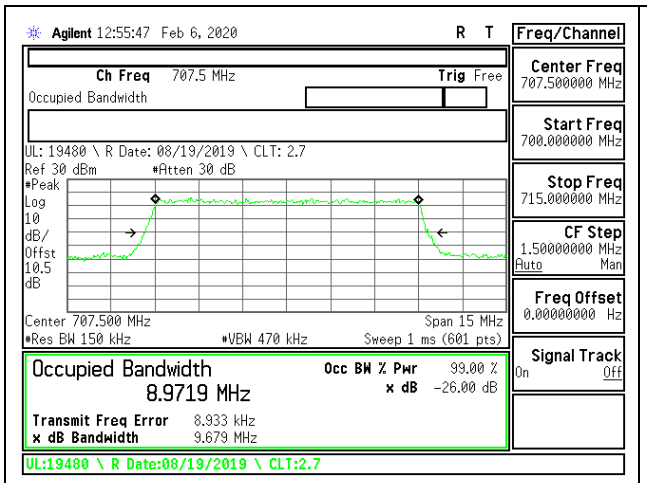


LTE B7 20MHz QPSK Middle Channel RB100-0

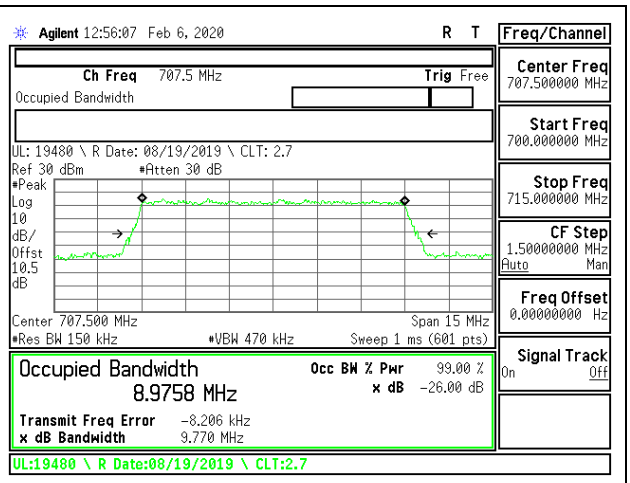


LTE B7 20MHz 16QAM Middle Channel RB100-0

8.1.6. LTE BAND 12

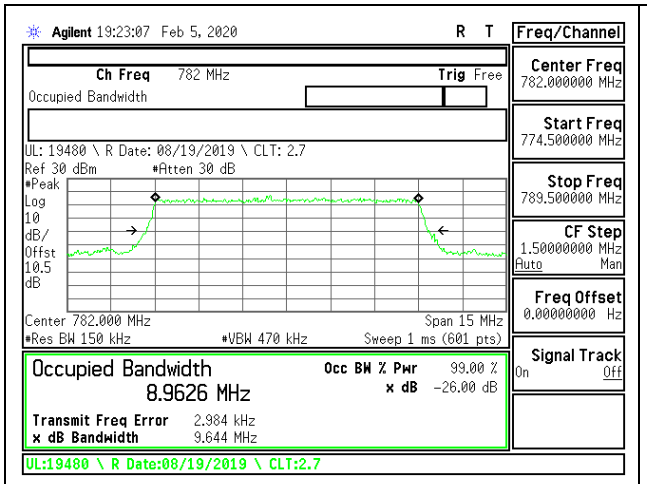


LTE B12 10MHz QPSK Middle Channel RB50-0

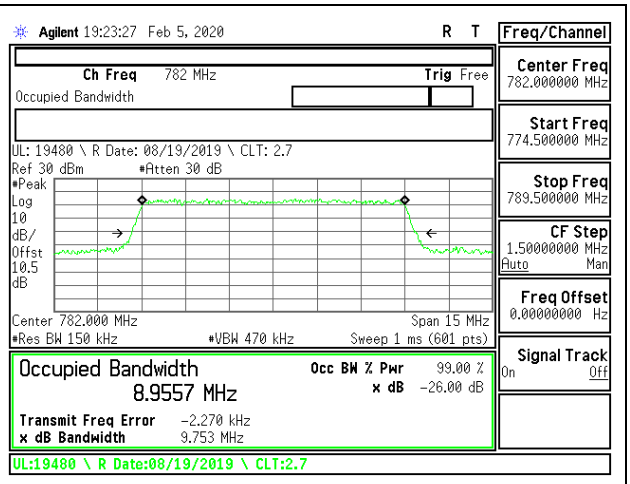


LTE B12 10MHz 16QAM Middle Channel RB50-0

8.1.7. LTE BAND 13

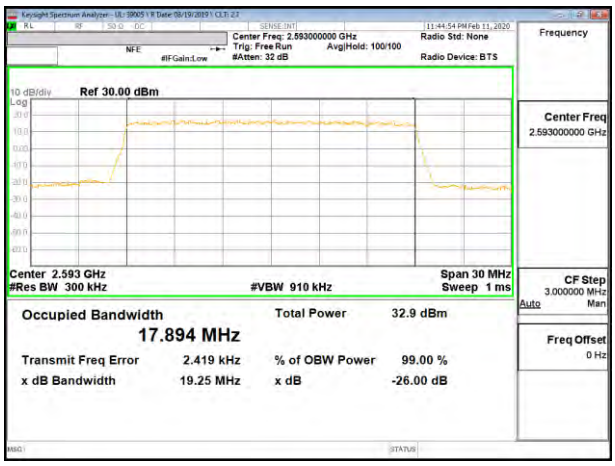


LTE B13 10MHz QPSK Middle Channel RB50-0

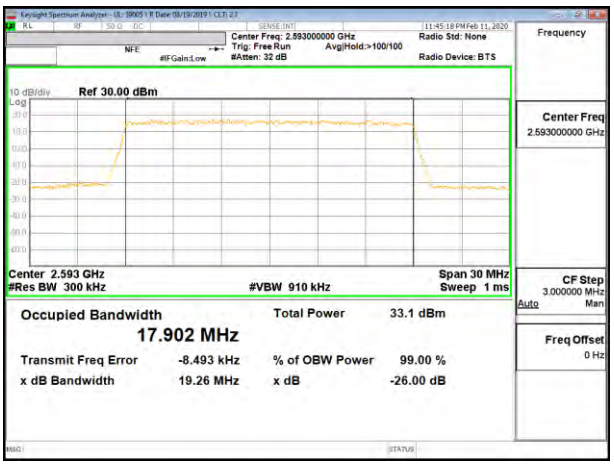


LTE B13 10MHz 16QAM Middle Channel RB50-0

8.1.8. LTE BAND 41 (FCC)

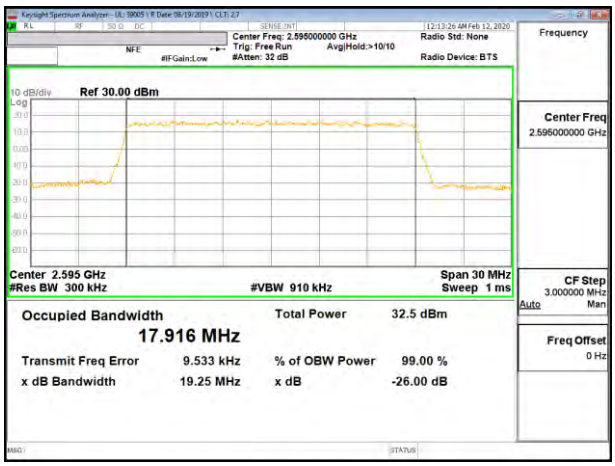


LTE B41 20MHz QPSK Middle Channel RB100-0

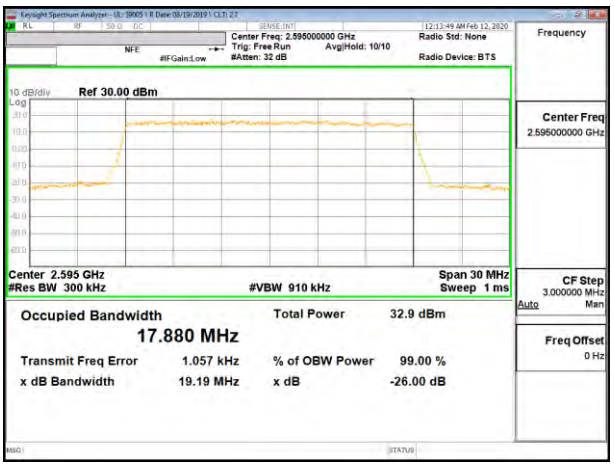


LTE B41 20MHz 16QAM Middle Channel RB100-0

8.1.9. LTE BAND 41 (IC)

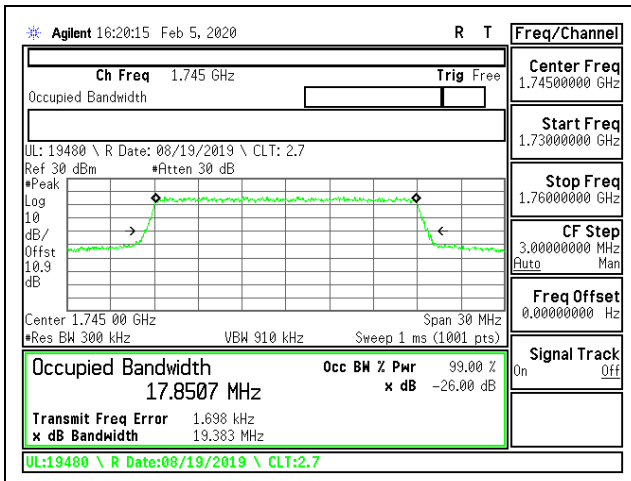


LTE B41 20MHz QPSK Middle Channel RB100-0

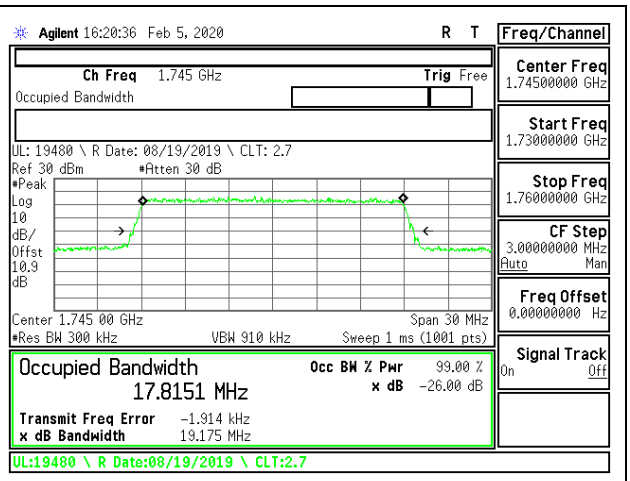


LTE B41 20MHz 16QAM Middle Channel RB100-0

8.1.10. LTE BAND 66

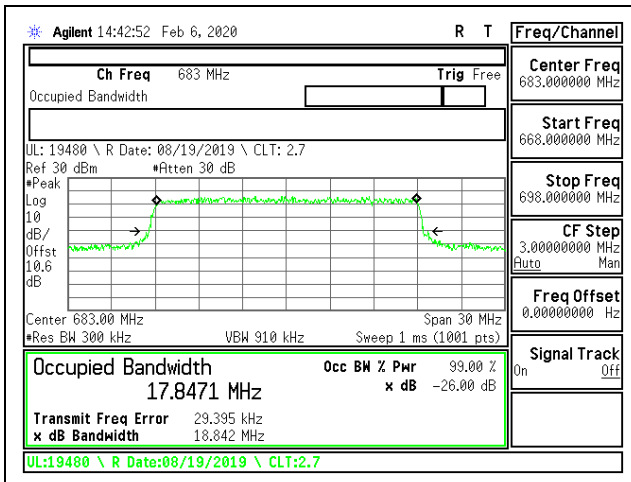


LTE B66 20MHz QPSK Middle Channel RB100-0

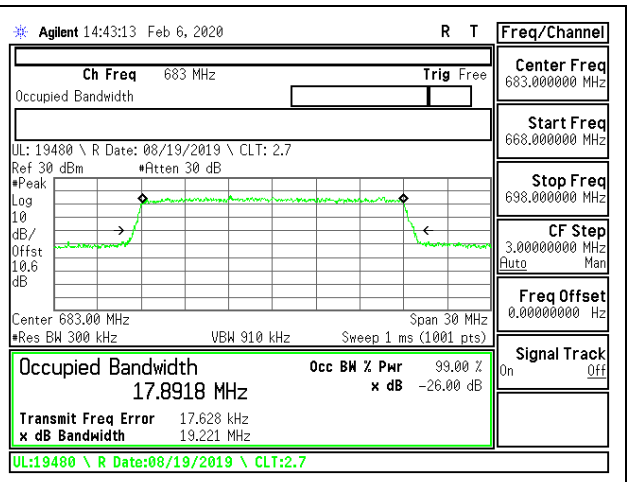


LTE B66 20MHz 16QAM Middle Channel RB100-0

8.1.11. LTE BAND 71



LTE B71 20MHz QPSK Middle Channel RB100-0



LTE B71 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
ISED: RSS130§4.7, RSS132§5.5; RSS133§6.5, RSS139§6.6, RSS199§4.5.

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: §27.53 (Band 13)
(c)For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

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

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

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

FCC: §27.53 (Band 12, 71)
(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.

FCC: §27.53 (Band 7, 41)
(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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.

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.

RSS133§6.5

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

(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.

RSS199§4.5

Equipment shall comply with the following unwanted emission limits:

a. for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$
b. for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
   i. $40 + 10 \log_{10} p$ from the channel edges to 5 MHz away
   ii. $43 + 10 \log_{10} p$ between 5 MHz and X MHz from the channel edges, and
   iii. $55 + 10 \log_{10} p$ at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 $\log_{10}$ p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 $\log_{10}$ p at or below 2490.5 MHz.

In (a) and (b), **p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.

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.

TEST PROCEDURE (FCC LTE BAND 7, 41)

(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

TEST PROCEDURE FOR RSS 199

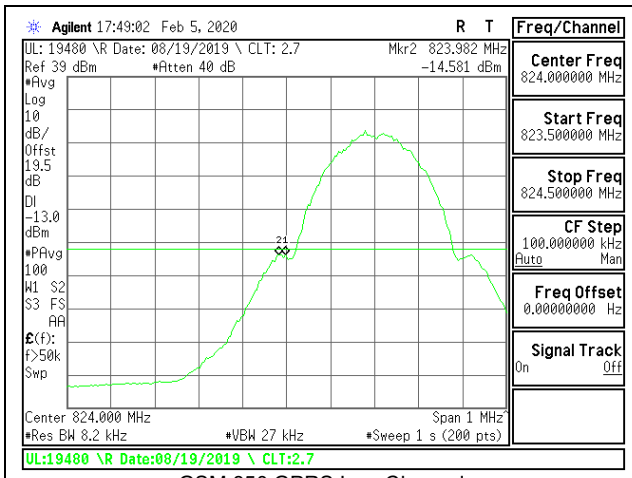
In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth is allowed to be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1%/2% of the occupied bandwidth, as applicable.

RESULTS

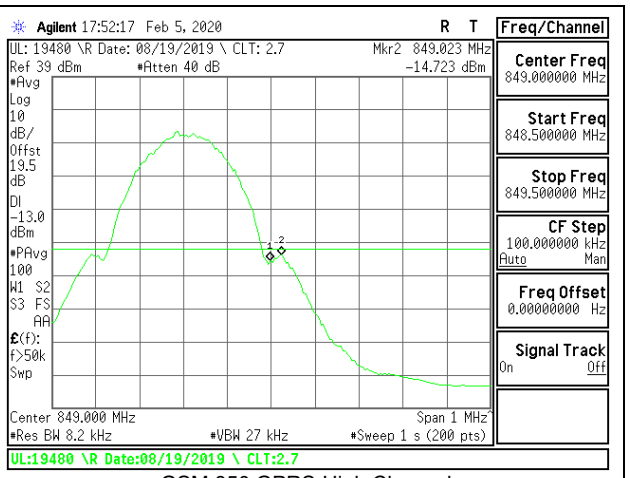
8.2.1. GSM 850

LIMITS

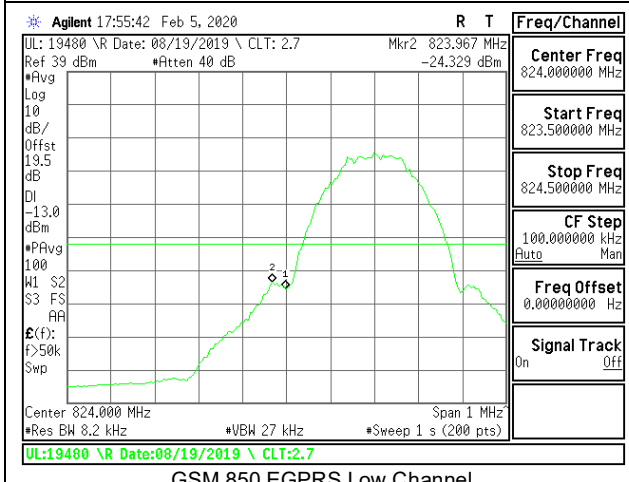
FCC: §22.917
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



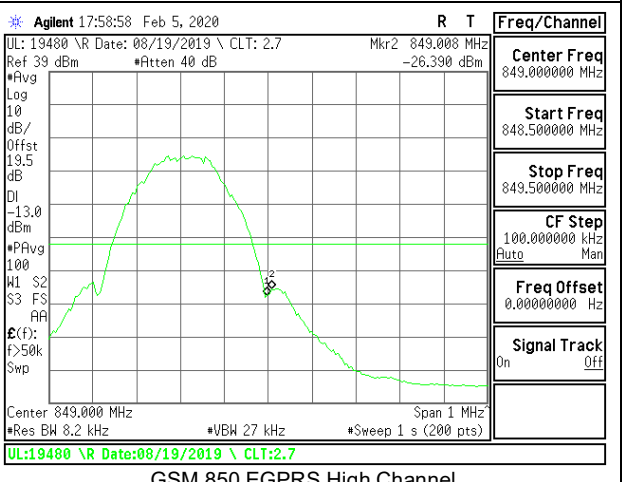
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel



GSM 850 EGPRS Low Channel

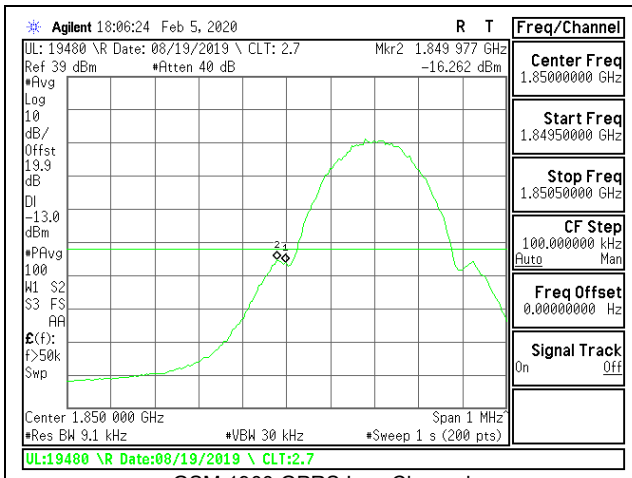


GSM 850 EGPRS High Channel

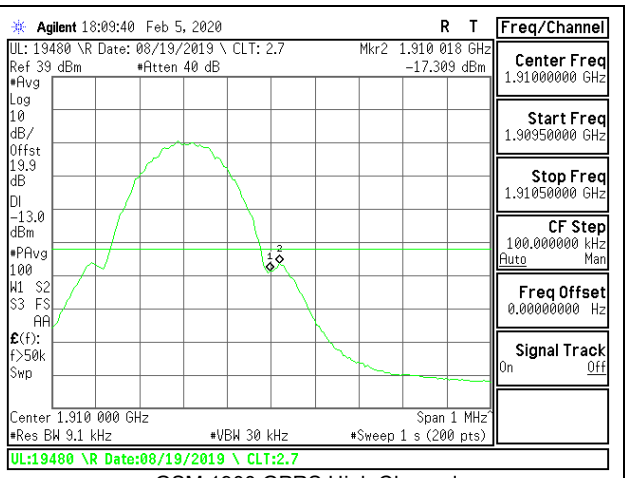
8.2.2. GSM 1900

LIMITS

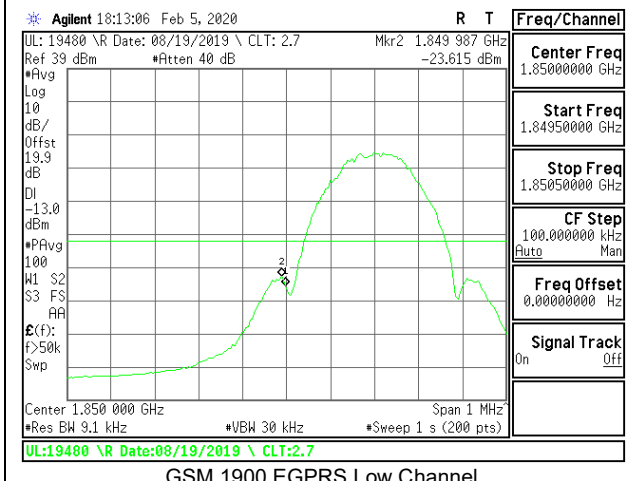
FCC: §24.238
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



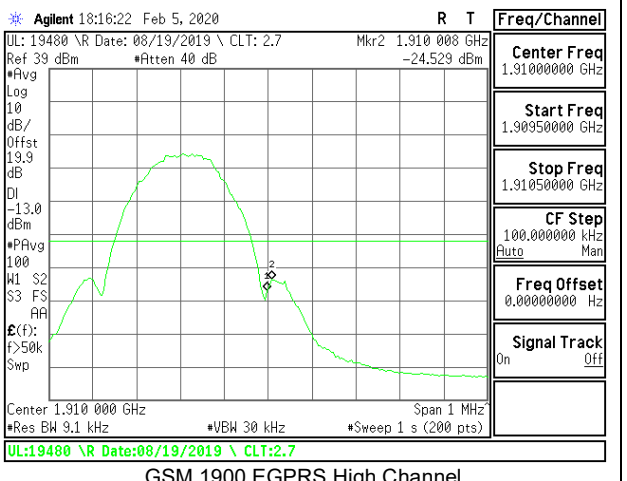
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel



GSM 1900 EGPRS Low Channel

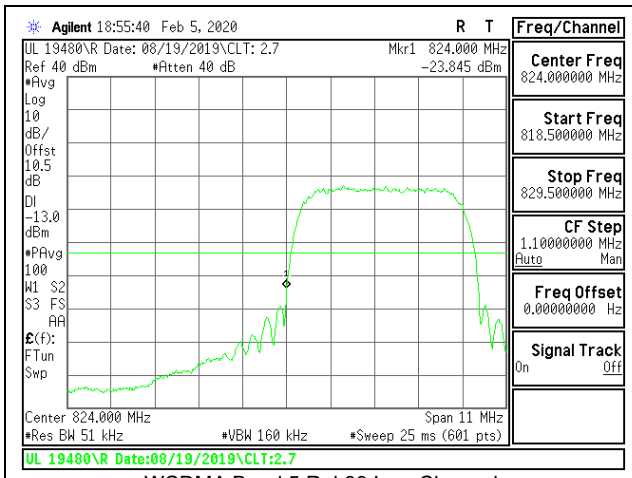


GSM 1900 EGPRS High Channel

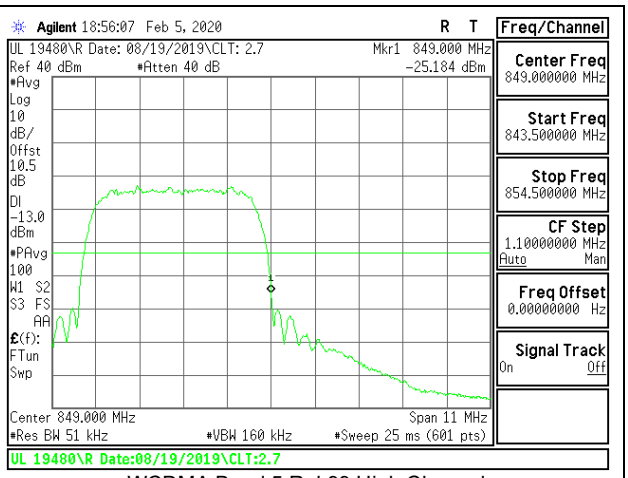
8.2.3. WCDMA BAND 5

LIMITS

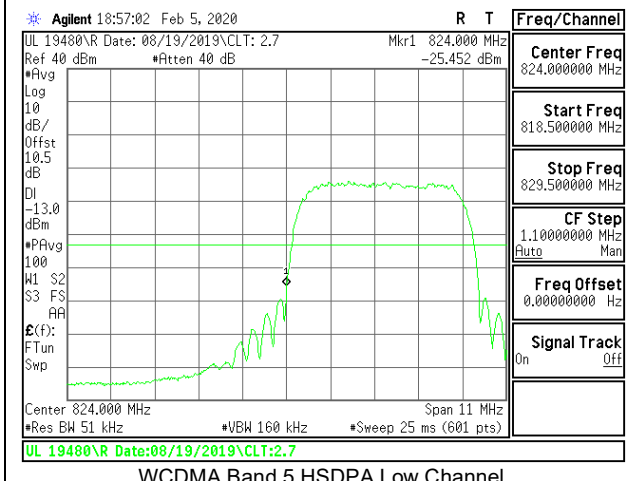
FCC: §22.917
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



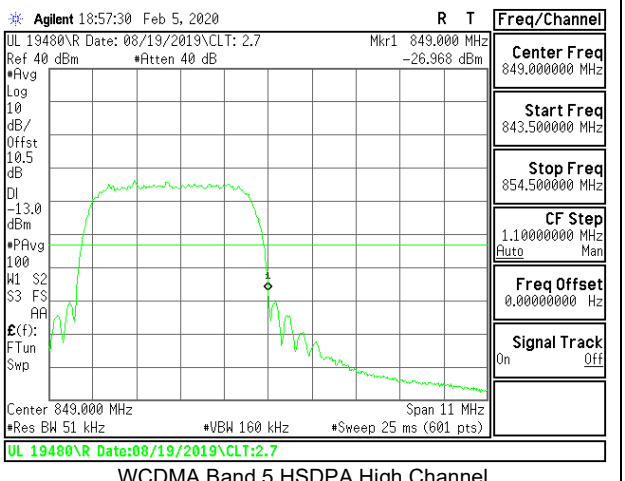
WCDMA Band 5 Rel 99 Low Channel



WCDMA Band 5 Rel 99 High Channel



WCDMA Band 5 HSDPA Low Channel

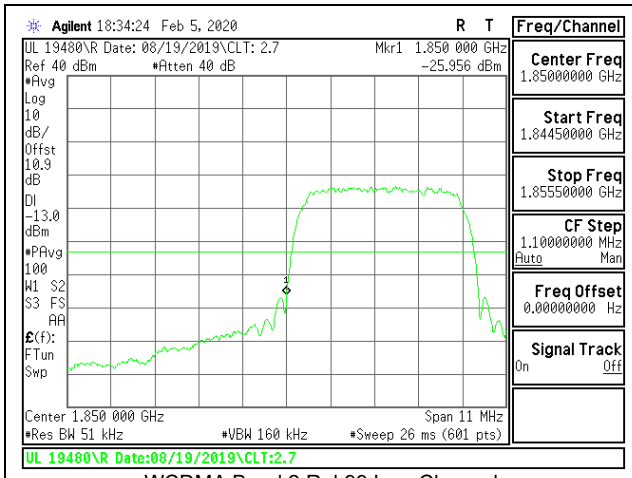


WCDMA Band 5 HSDPA High Channel

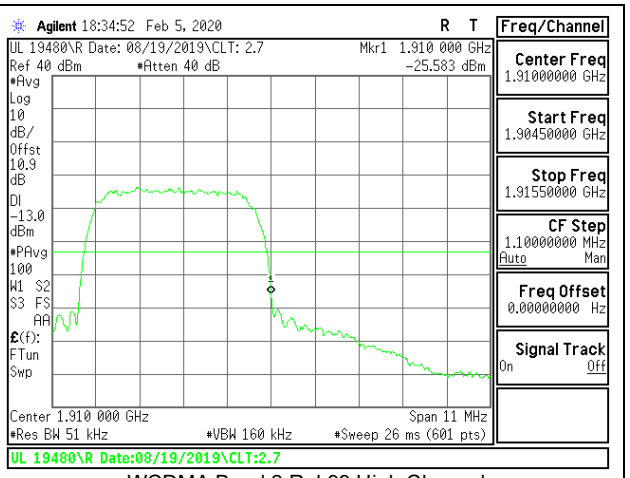
8.2.4. WCDMA BAND 2

LIMITS

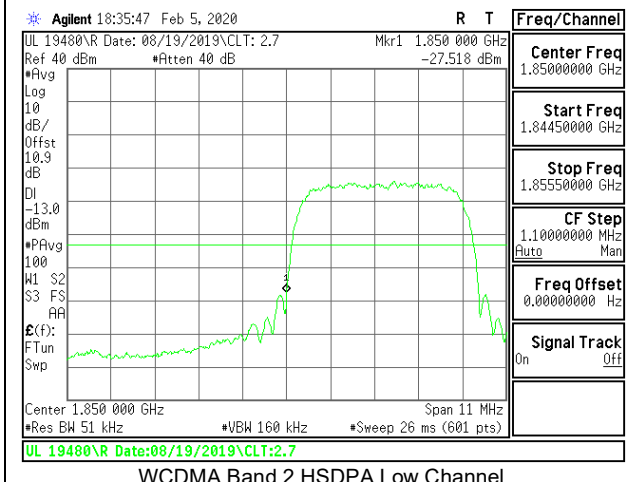
FCC: §24.238
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



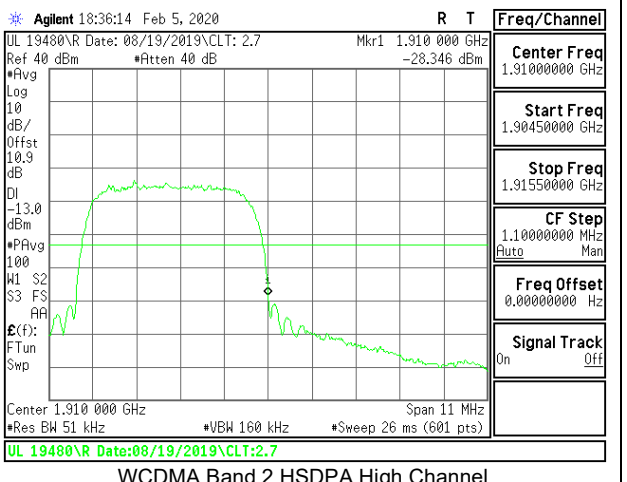
WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 Rel 99 High Channel



WCDMA Band 2 HSDPA Low Channel

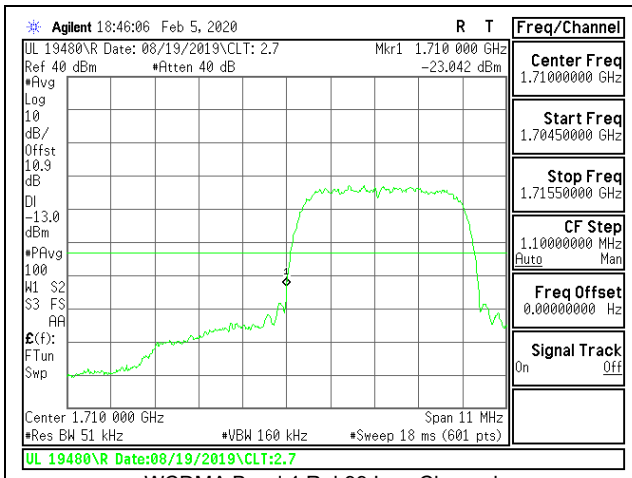


WCDMA Band 2 HSDPA High Channel

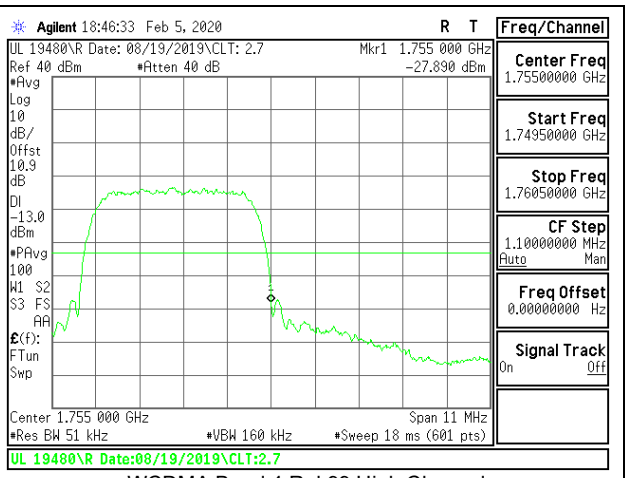
8.2.5. WCDMA BAND 4

LIMITS

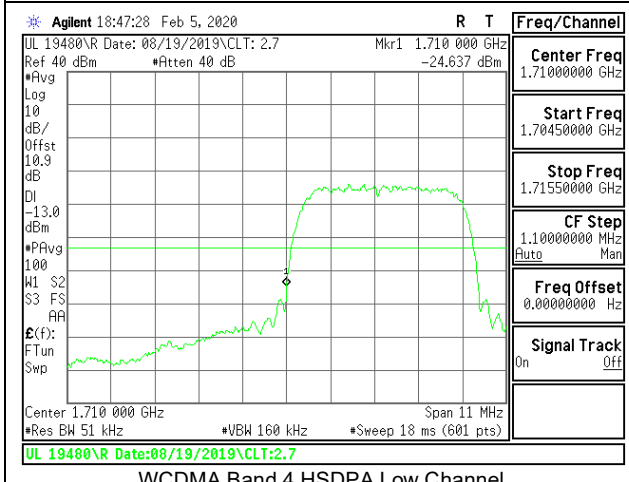
FCC: §27.53(h)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.



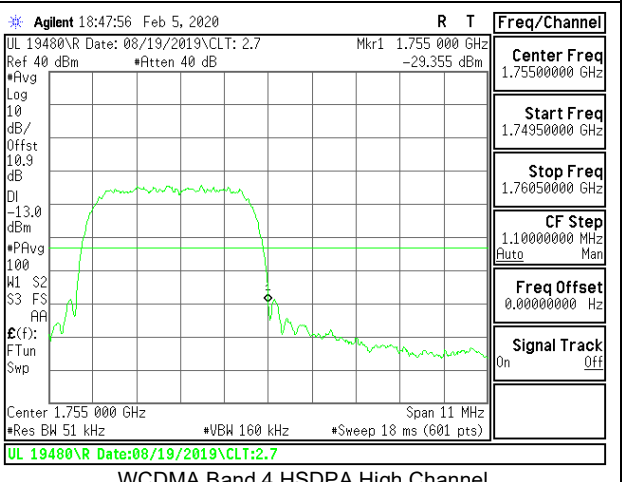
WCDMA Band 4 Rel 99 Low Channel



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

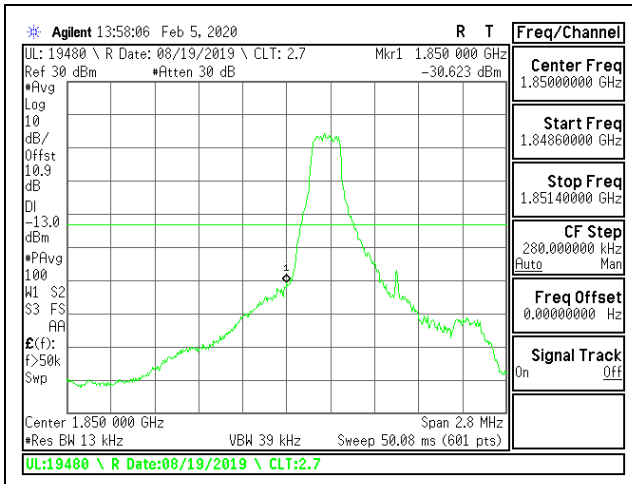
FCC: §24.238
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

ISED: RSS133§6.5.1

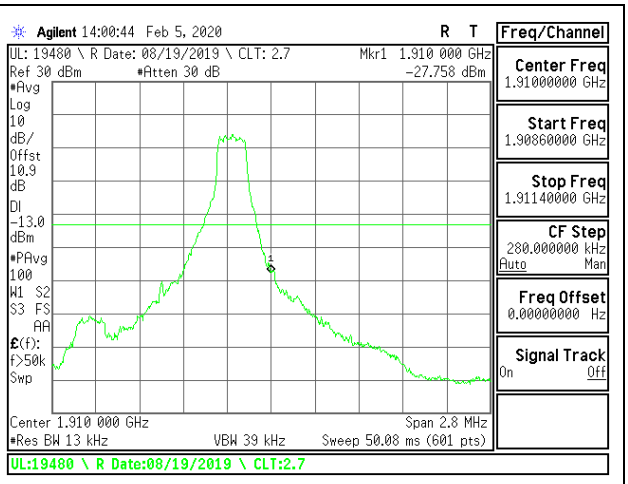
Equipment shall comply with the limits in (i) and (ii) below.

(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).

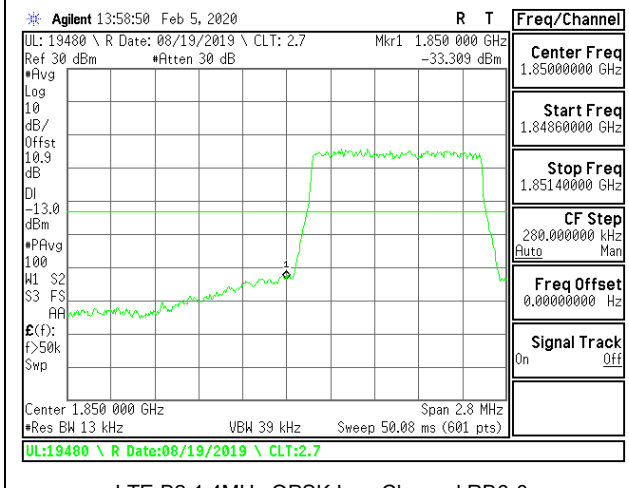
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.



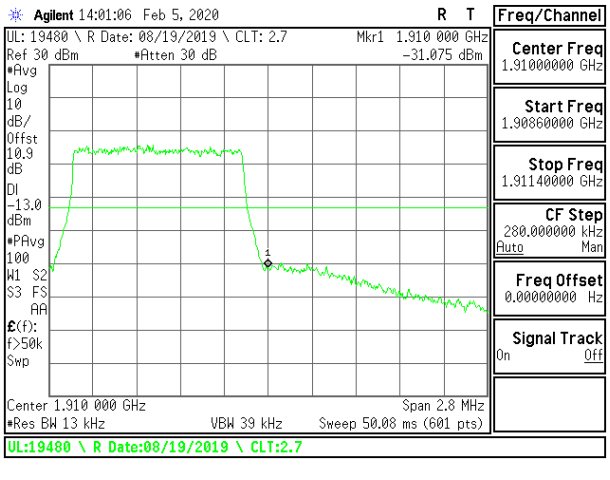
LTE B2 1.4MHz QPSK Low Channel RB1-0



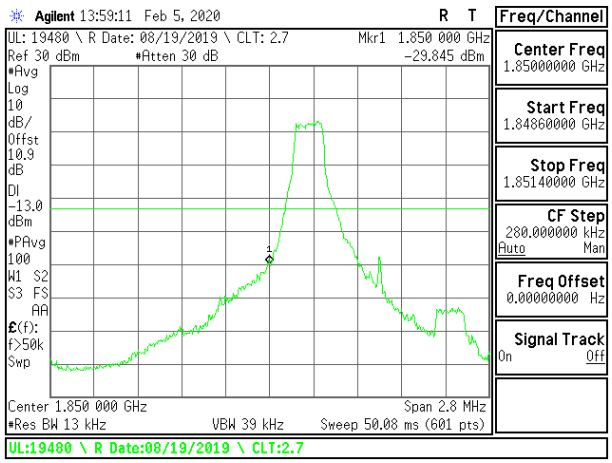
LTE B2 1.4MHz QPSK High Channel RB1-5



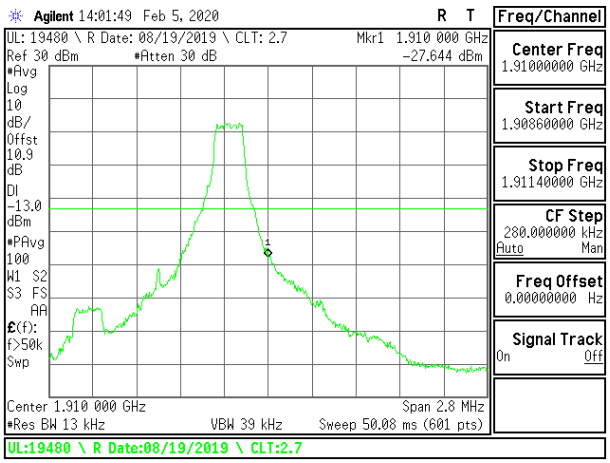
LTE B2 1.4MHz QPSK Low Channel RB6-0



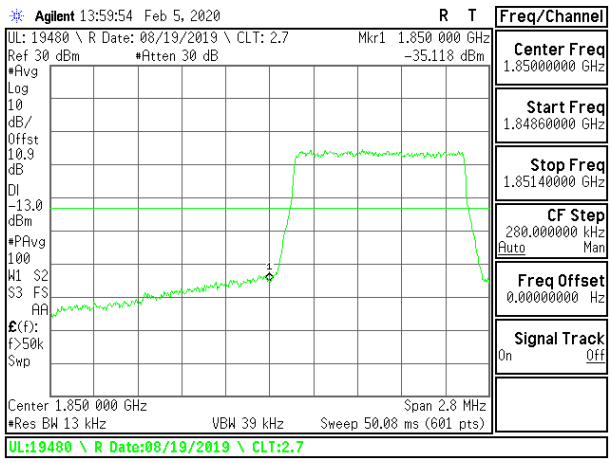
LTE B2 1.4MHz QPSK High Channel RB6-0



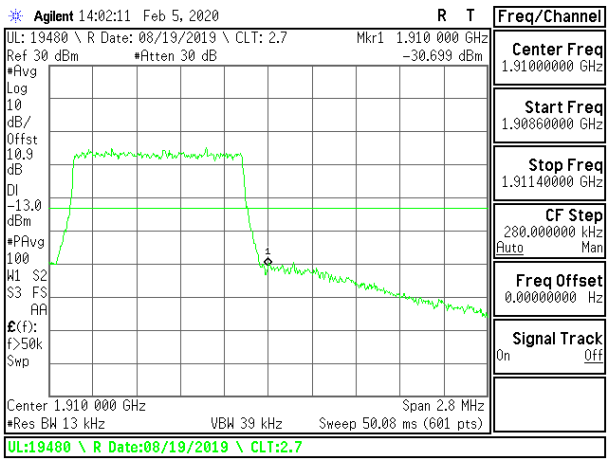
LTE B2 1.4MHz 16QAM Low Channel RB1-0



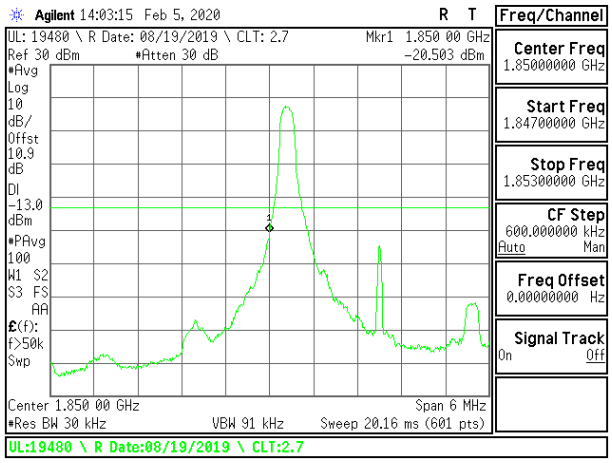
LTE B2 1.4MHz 16QAM High Channel RB1-5



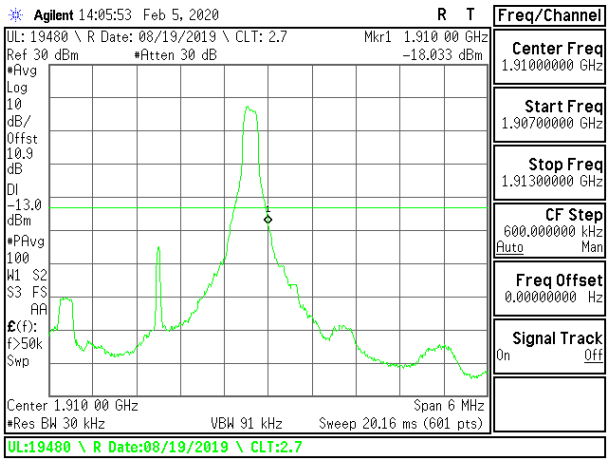
LTE B2 1.4MHz 16QAM Low Channel RB6-0



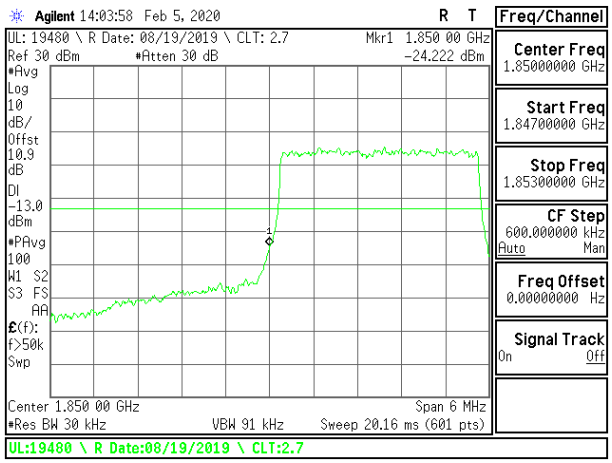
LTE B2 1.4MHz 16QAM High Channel RB6-0



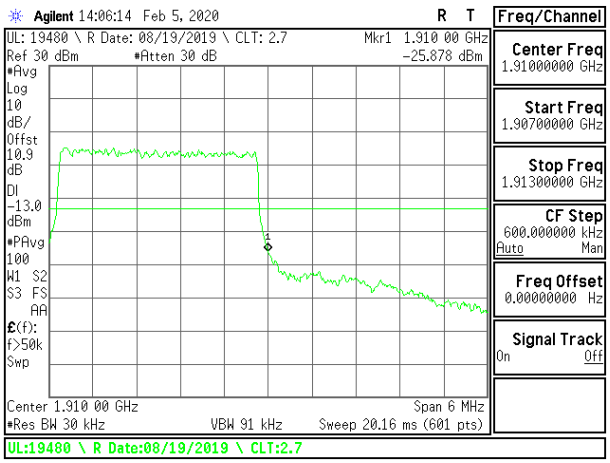
LTE B2 3MHz QPSK Low Channel RB1-0



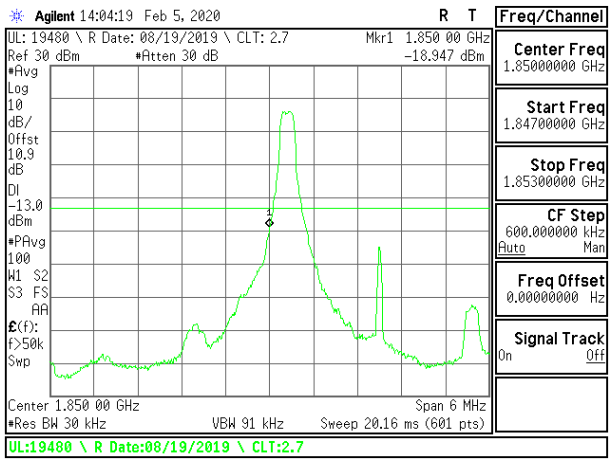
LTE B2 3MHz QPSK High Channel RB1-14



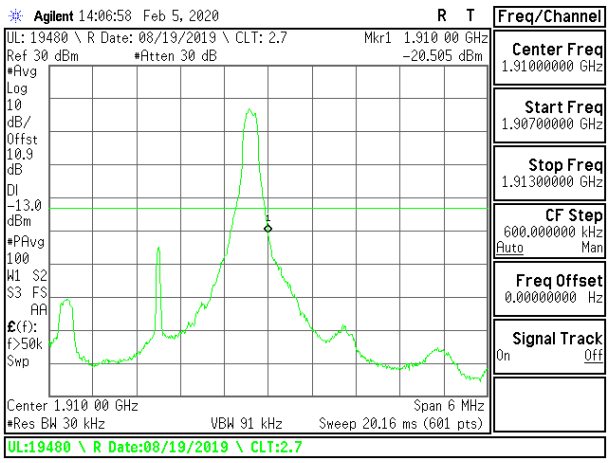
LTE B2 3MHz QPSK Low Channel RB15-0



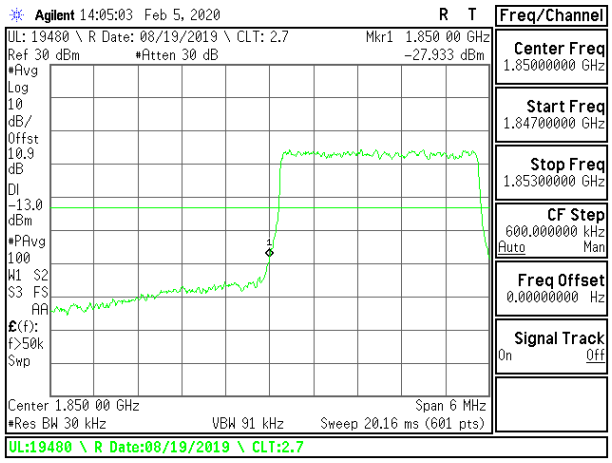
LTE B2 3MHz QPSK High Channel RB15-0



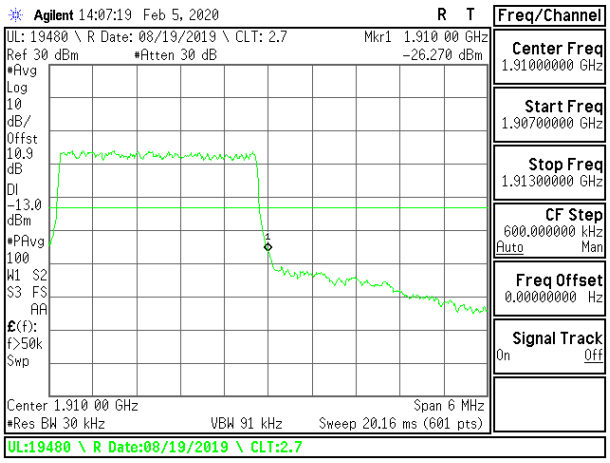
LTE B2 3MHz 16QAM Low Channel RB1-0



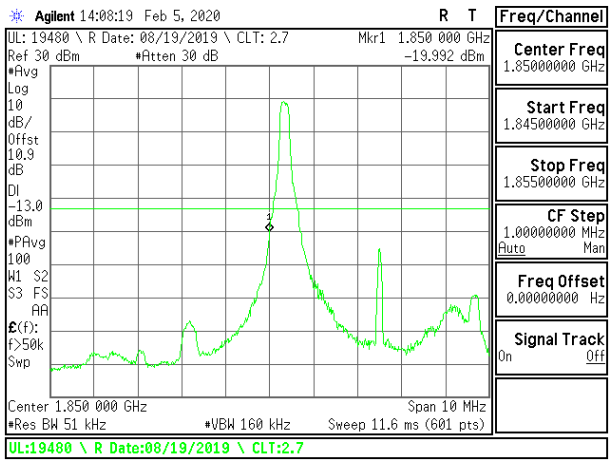
LTE B2 3MHz 16QAM High Channel RB1-14



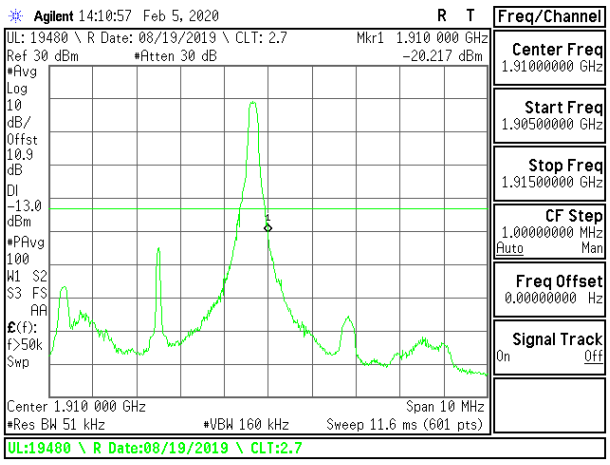
LTE B2 3MHz 16QAM Low Channel RB15-0



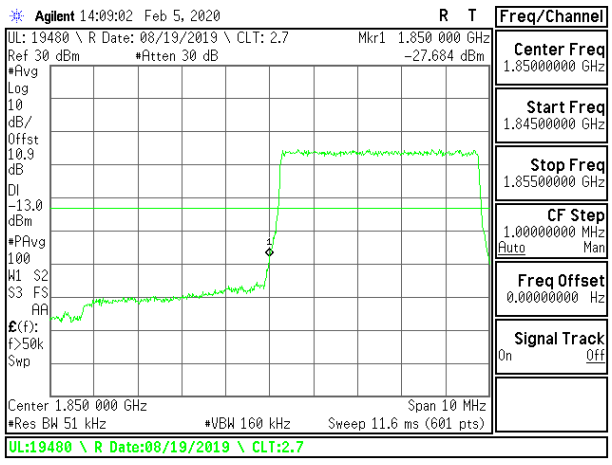
LTE B2 3MHz 16QAM High Channel RB15-0



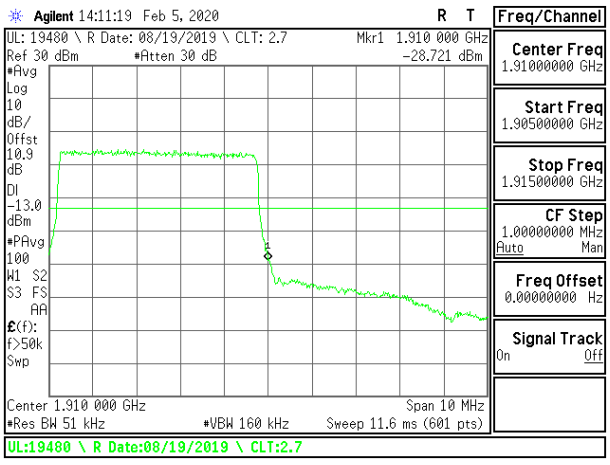
LTE B2 5MHz QPSK Low Channel RB1-0



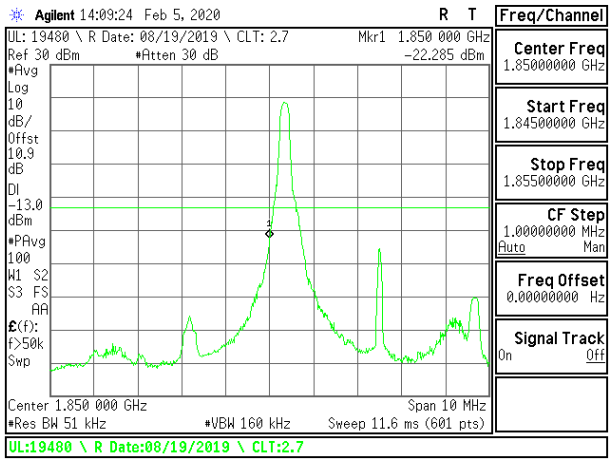
LTE B2 5MHz QPSK High Channel RB1-24



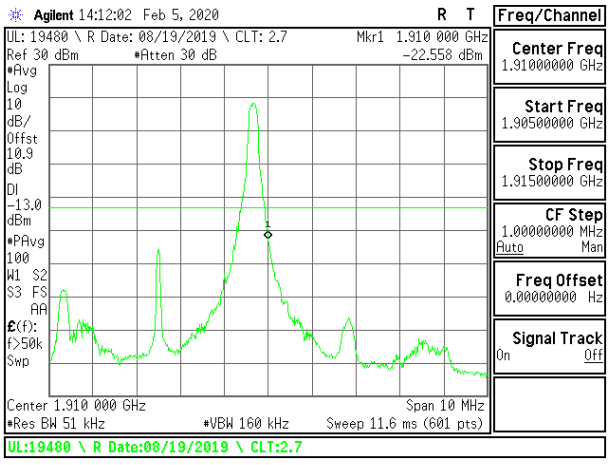
LTE B2 5MHz QPSK Low Channel RB25-0



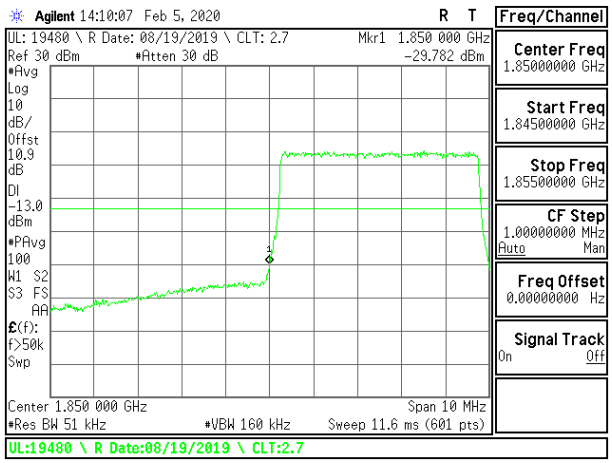
LTE B2 5MHz QPSK High Channel RB25-0



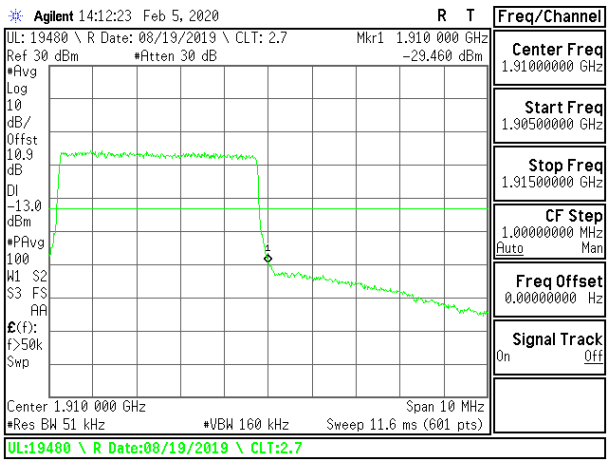
LTE B2 5MHz 16QAM Low Channel RB1-0



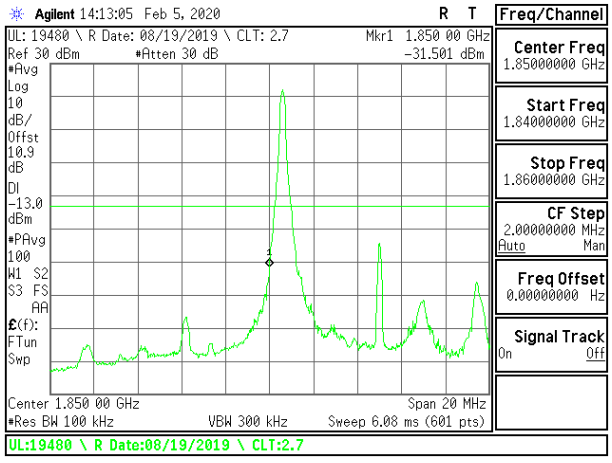
LTE B2 5MHz 16QAM High Channel RB1-24



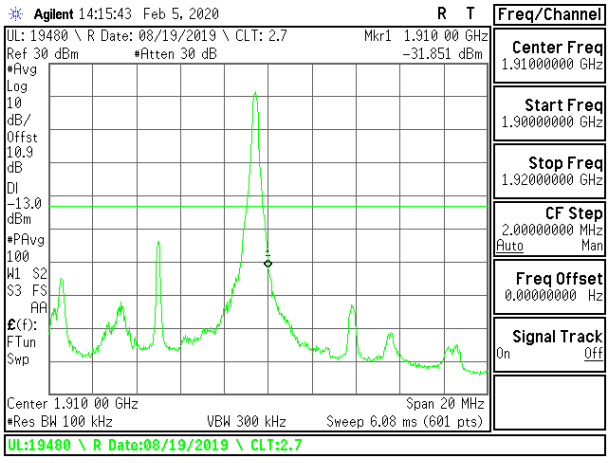
LTE B2 5MHz 16QAM Low Channel RB25-0



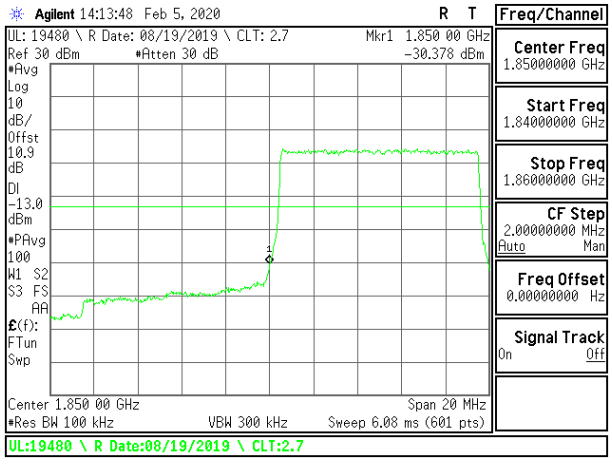
LTE B2 5MHz 16QAM High Channel RB25-0



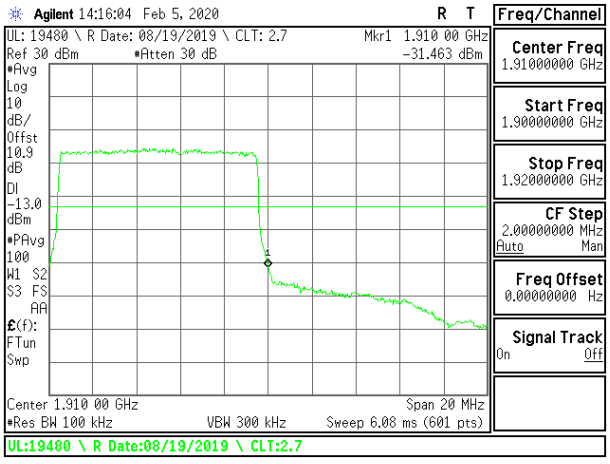
LTE B2 10MHz QPSK Low Channel RB1-0



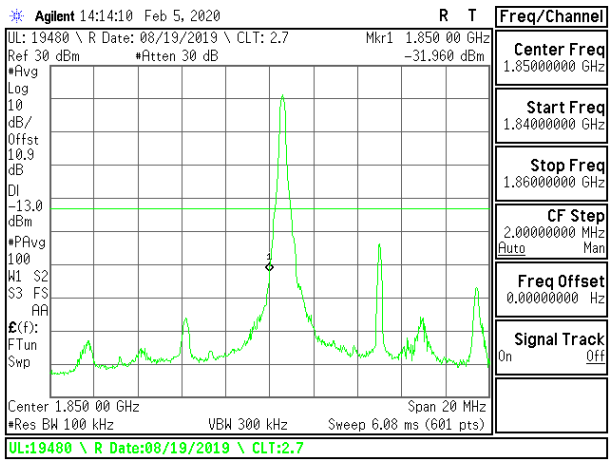
LTE B2 10MHz QPSK High Channel RB1-49



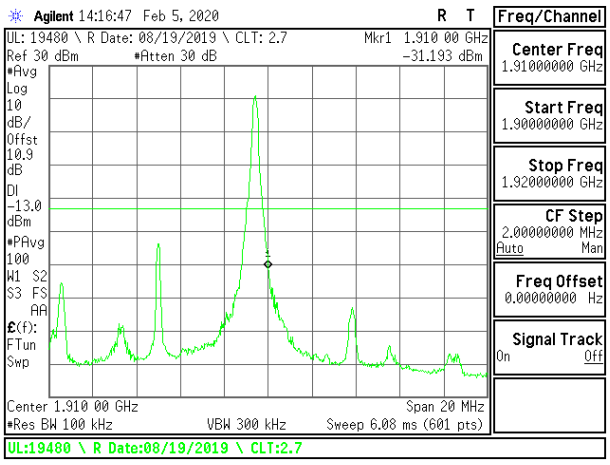
LTE B2 10MHz QPSK Low Channel RB50-0



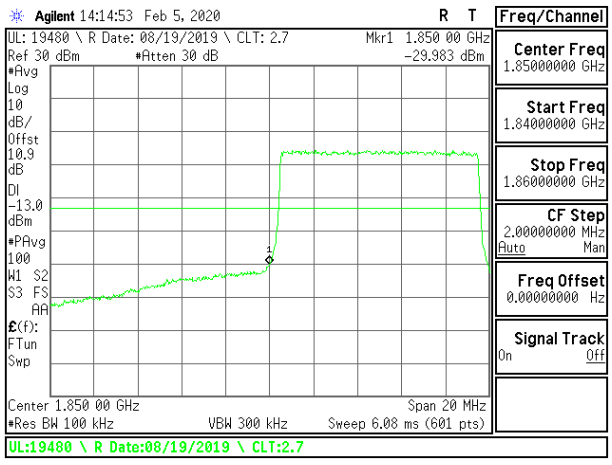
LTE B2 10MHz QPSK High Channel RB50-0



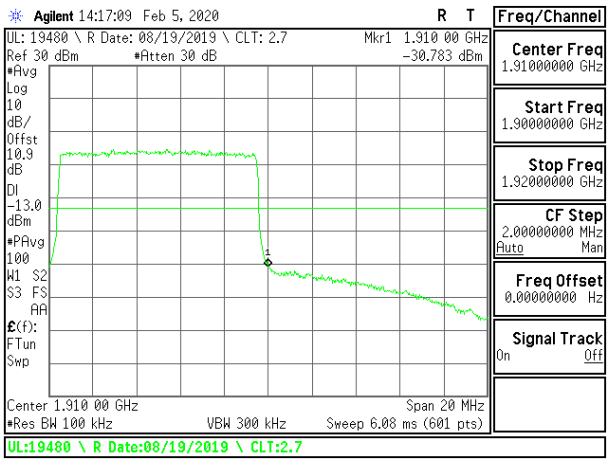
LTE B2 10MHz 16QAM Low Channel RB1-0



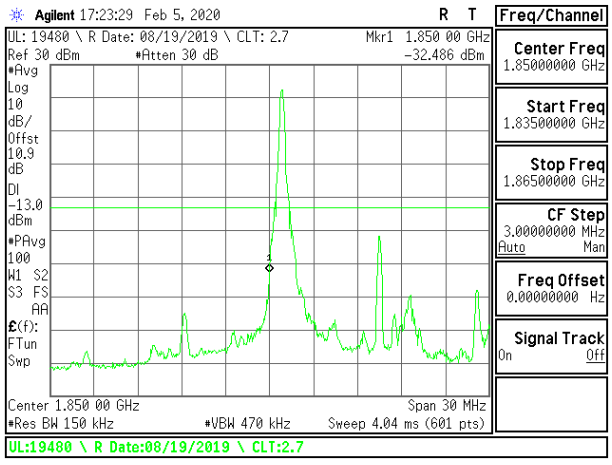
LTE B2 10MHz 16QAM High Channel RB1-49



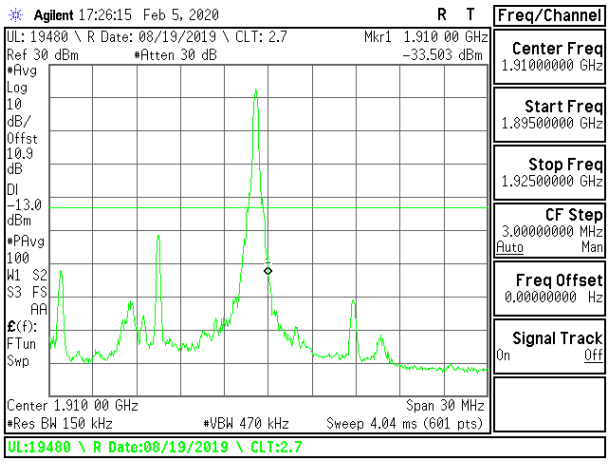
LTE B2 10MHz 16QAM Low Channel RB50-0



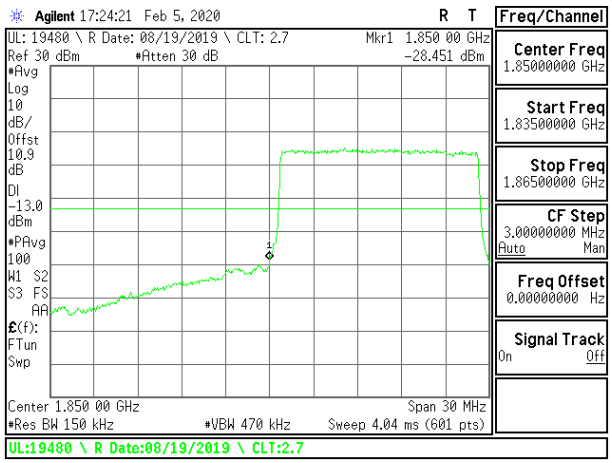
LTE B2 10MHz 16QAM High Channel RB50-0



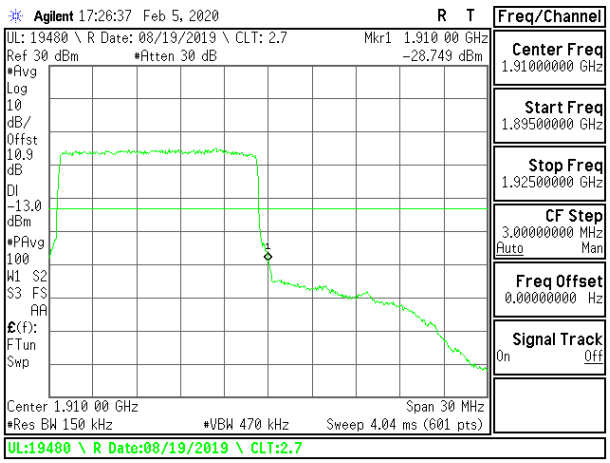
LTE B2 15MHz QPSK Low Channel RB1-0



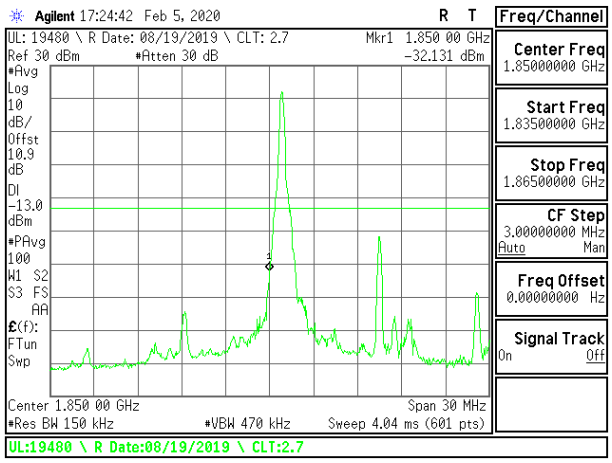
LTE B2 15MHz QPSK High Channel RB1-74



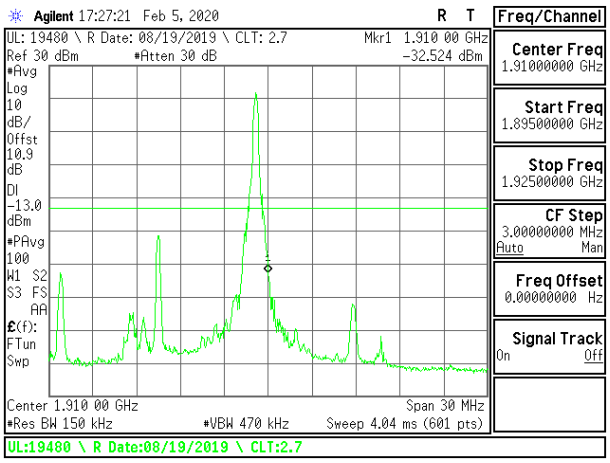
LTE B2 15MHz QPSK Low Channel RB75-0



LTE B2 15MHz QPSK High Channel RB75-0



LTE B2 15MHz 16QAM Low Channel RB1-0



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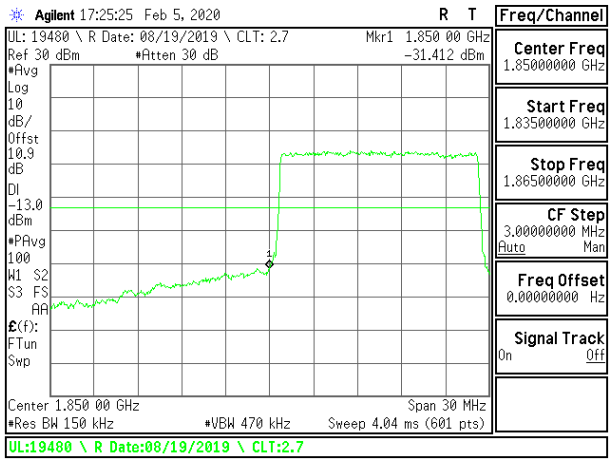

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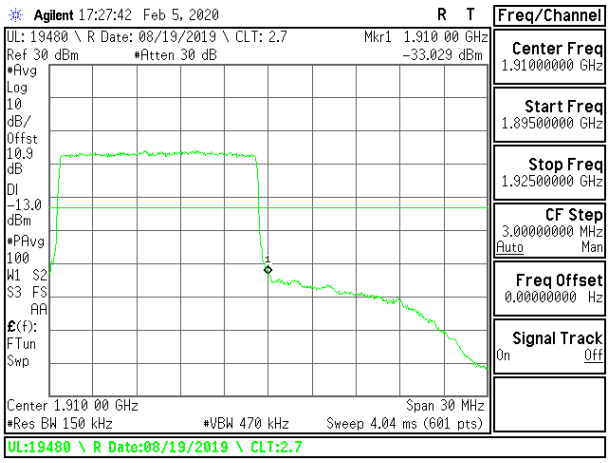

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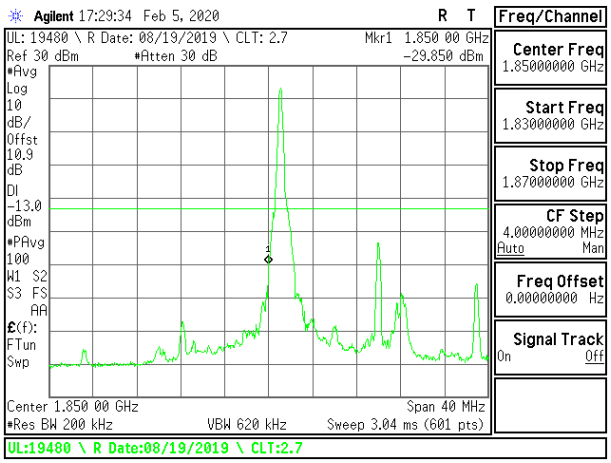
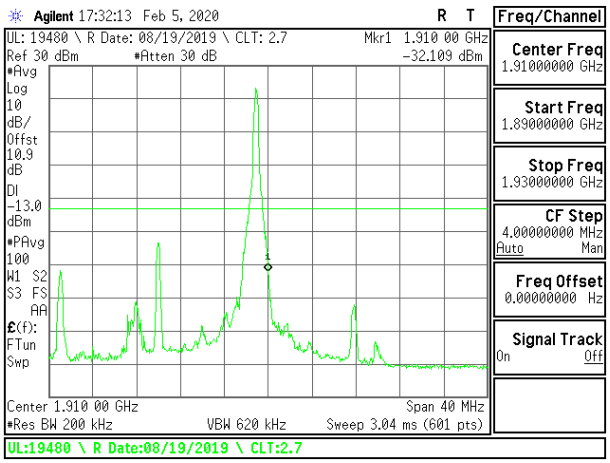
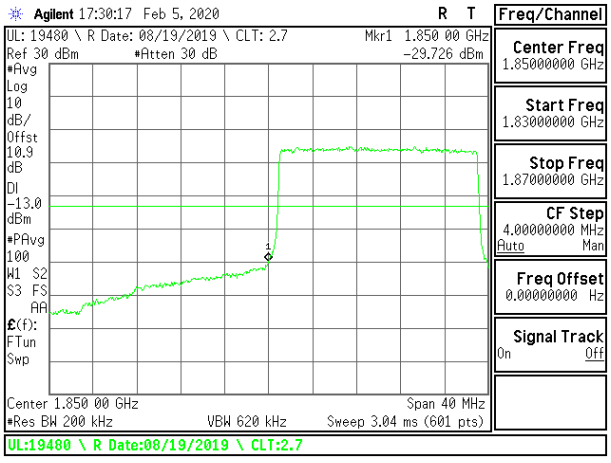


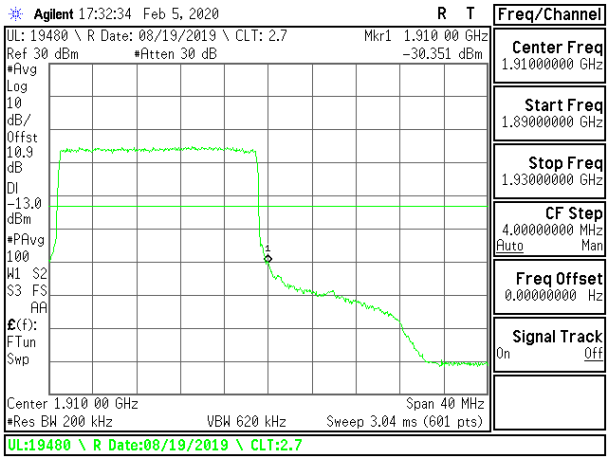
LTE B2 20MHz QPSK Low Channel RB1-0



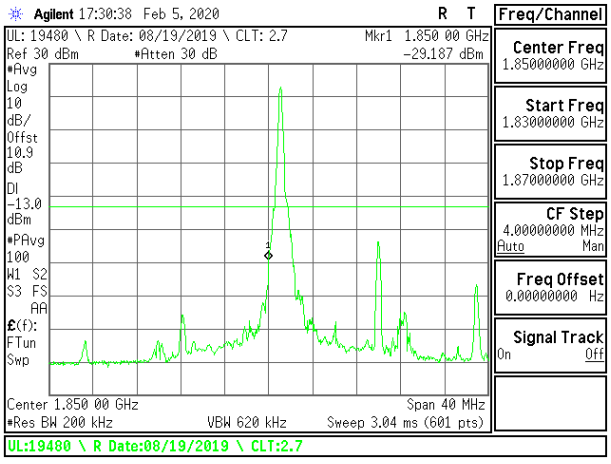
LTE B2 20MHz QPSK High Channel RB1-99



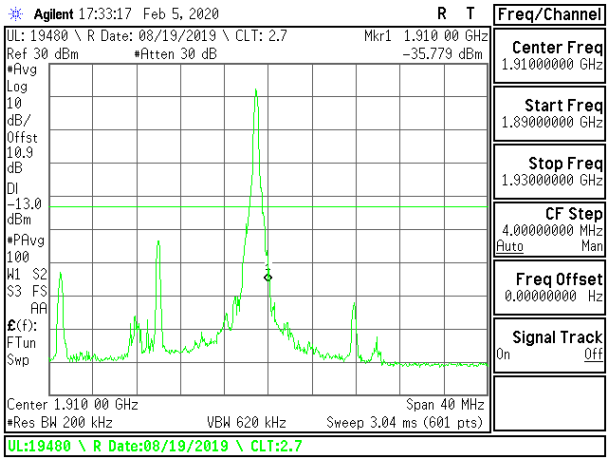
LTE B2 20MHz QPSK Low Channel RB100-0



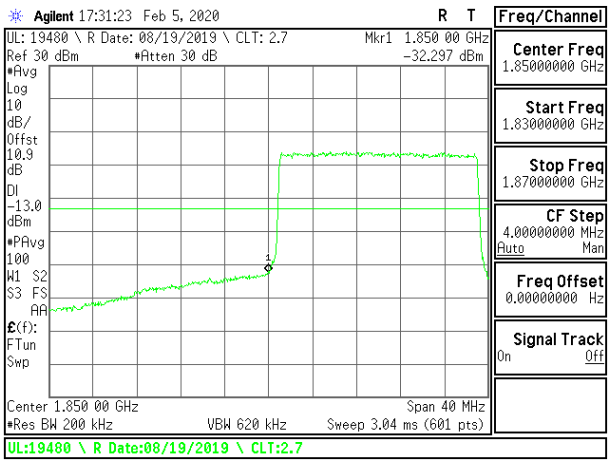
LTE B2 20MHz QPSK High Channel RB100-0



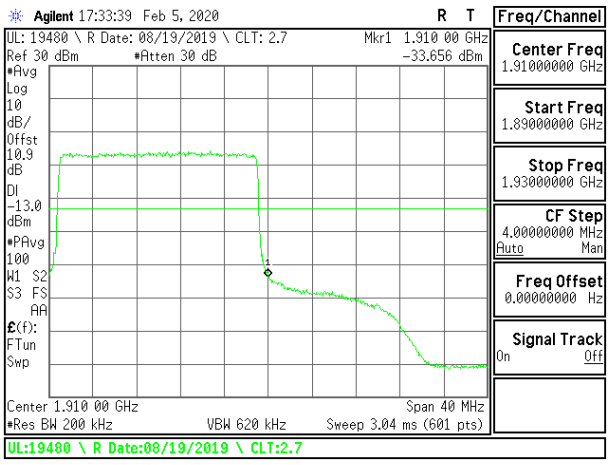
LTE B2 20MHz 16QAM Low Channel RB1-0



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 BANDEDGE

LIMITS

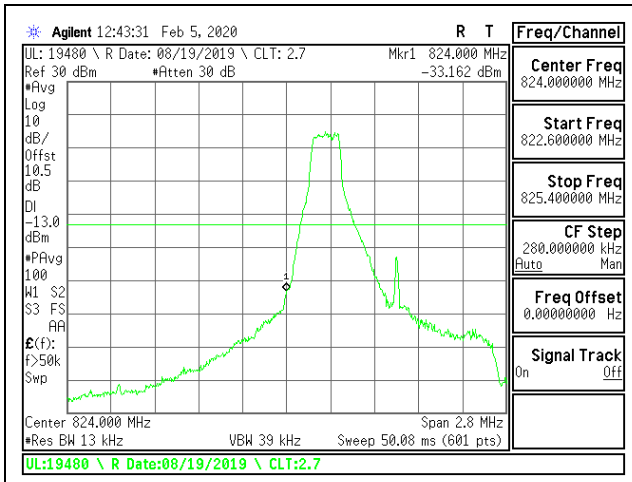
FCC: §22.917
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

ISED: RSS132§5.5

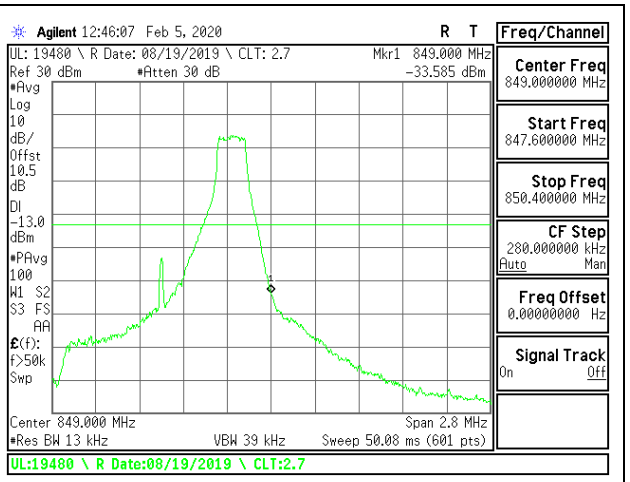
Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(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).

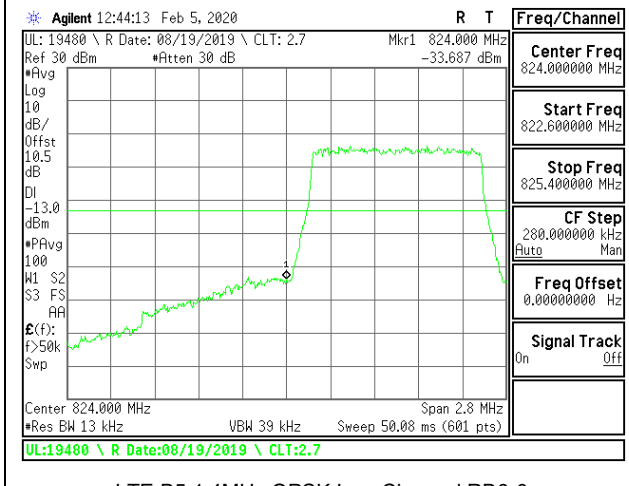
(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth,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



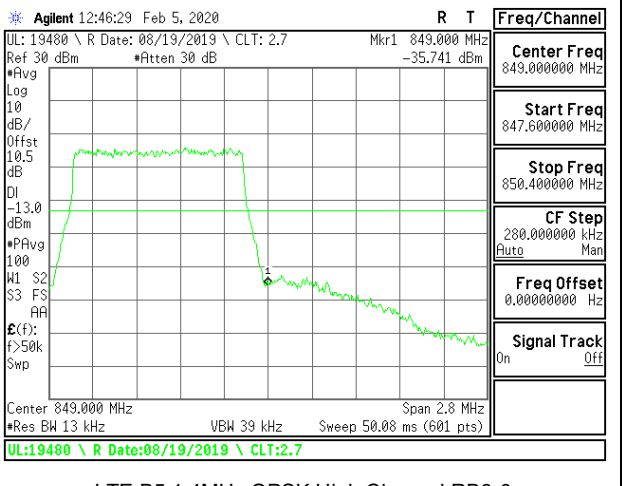
LTE B5 1.4MHz QPSK Low Channel RB1-0



LTE B5 1.4MHz QPSK High Channel RB1-5



LTE B5 1.4MHz QPSK Low Channel RB6-0



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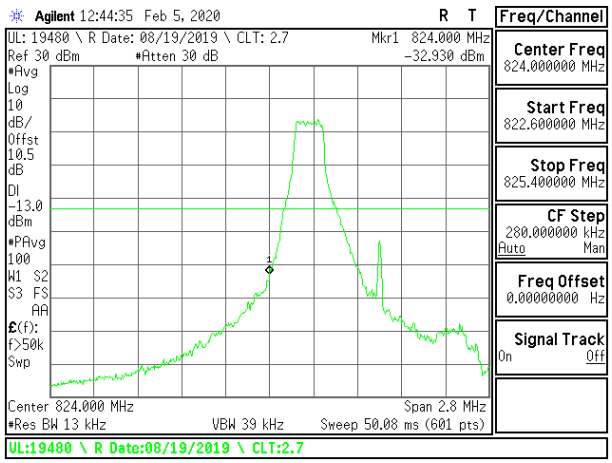
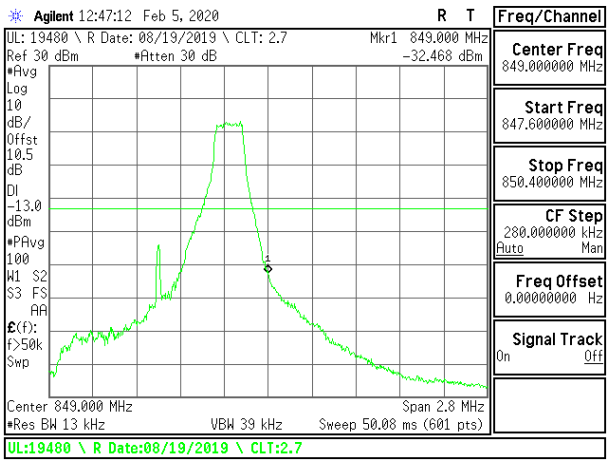


LTE B5 1.4MHz 16QAM Low Channel RB1-0



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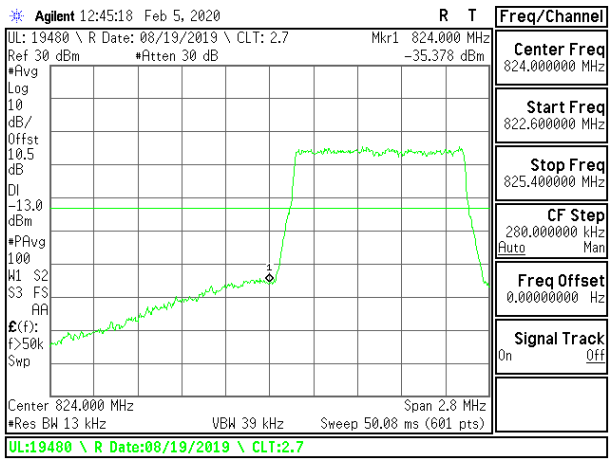
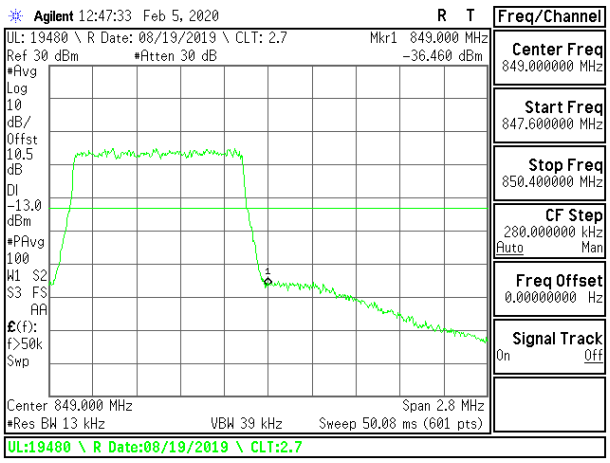
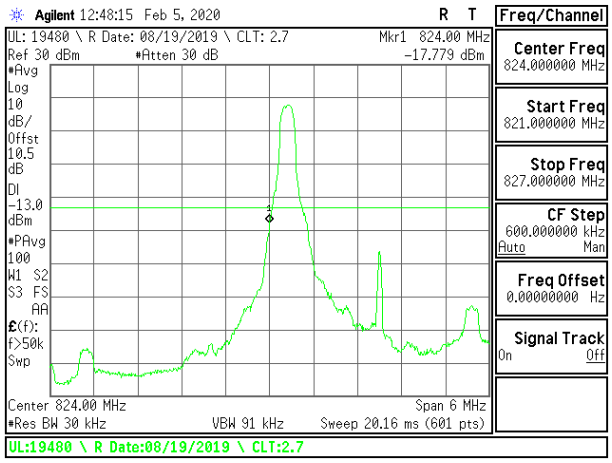


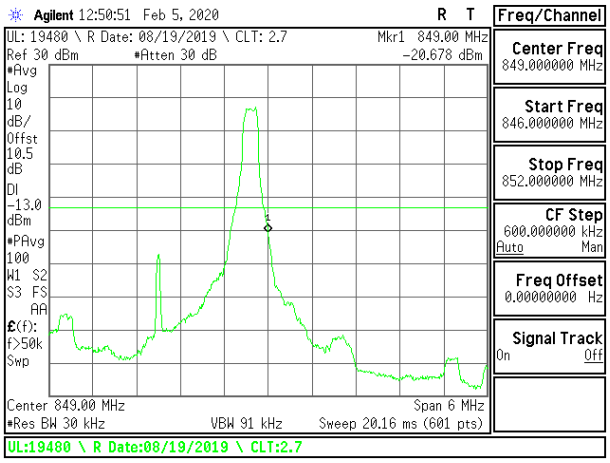
LTE B5 1.4MHz 16QAM Low Channel RB6-0



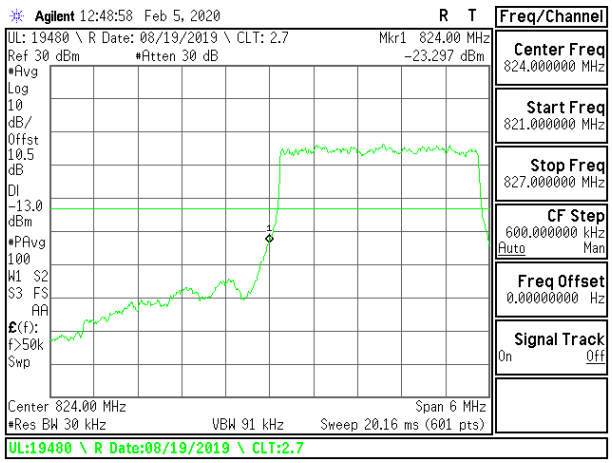
LTE B5 1.4MHz 16QAM High Channel RB6-0



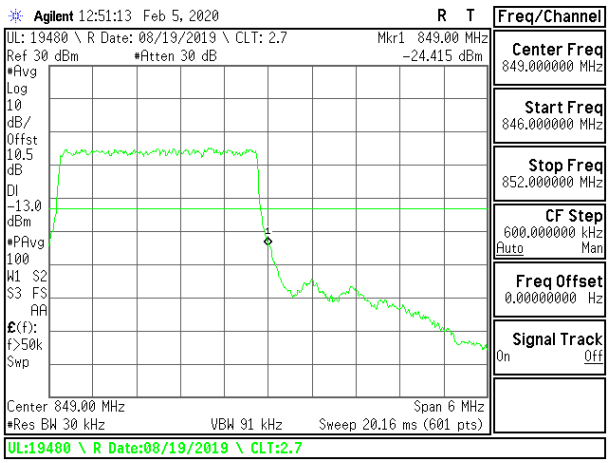
LTE B5 3MHz QPSK Low Channel RB1-0



LTE B5 3MHz QPSK High Channel RB1-14



LTE B5 3MHz QPSK Low Channel RB15-0



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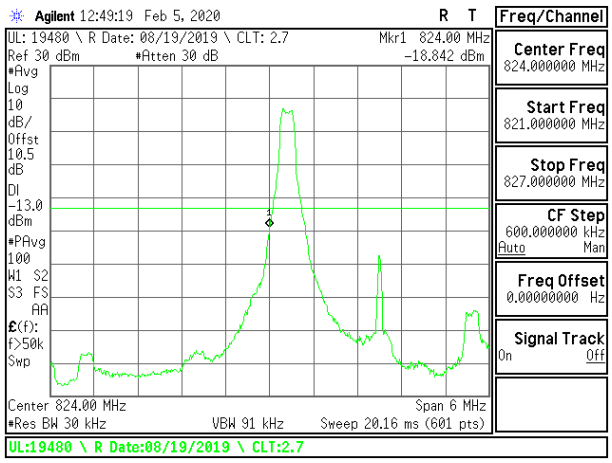
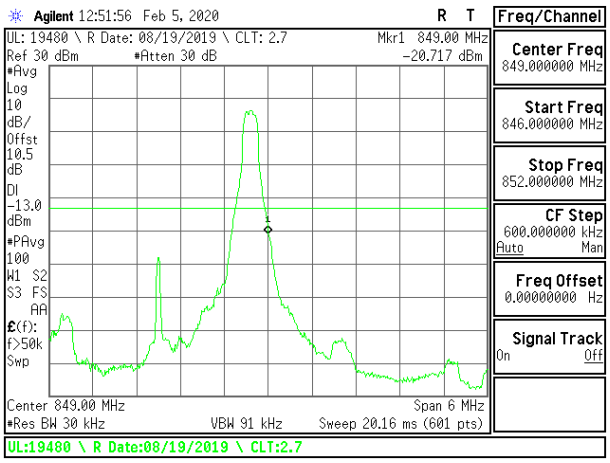


LTE B5 3MHz 16QAM Low Channel RB1-0



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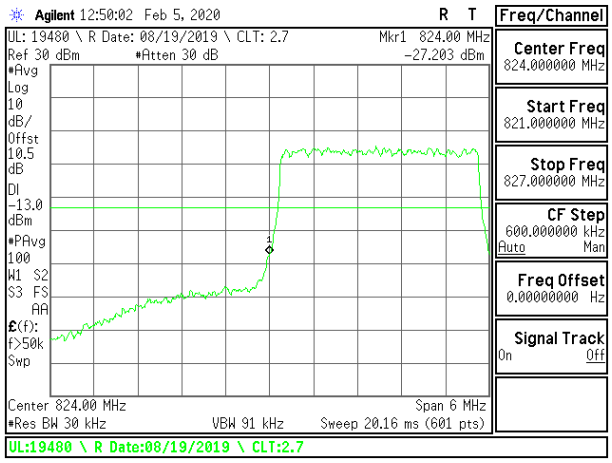
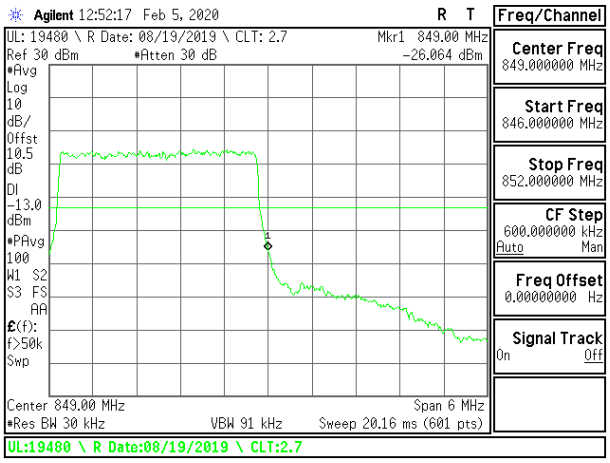
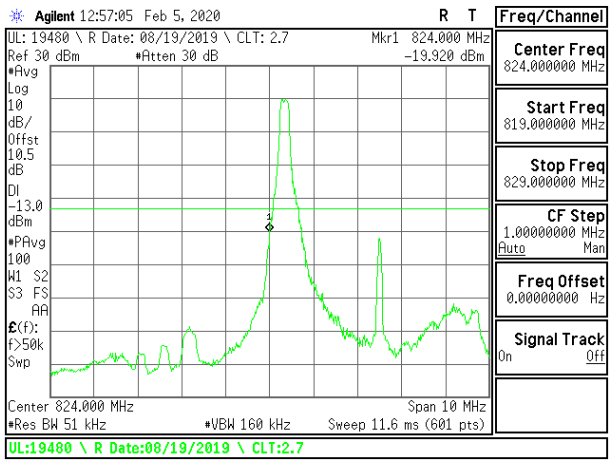


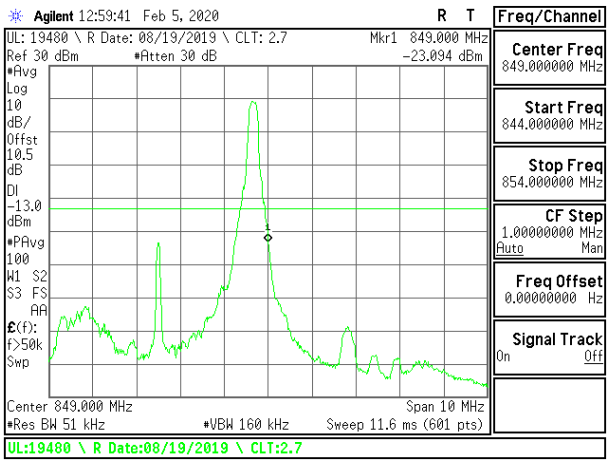
LTE B5 3MHz 16QAM Low Channel RB15-0



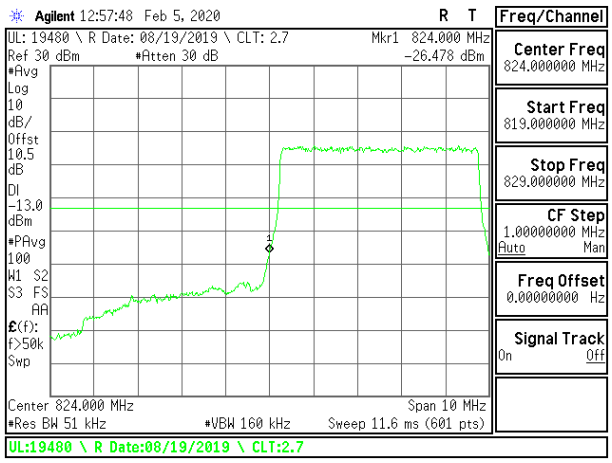
LTE B5 3MHz 16QAM High Channel RB15-0



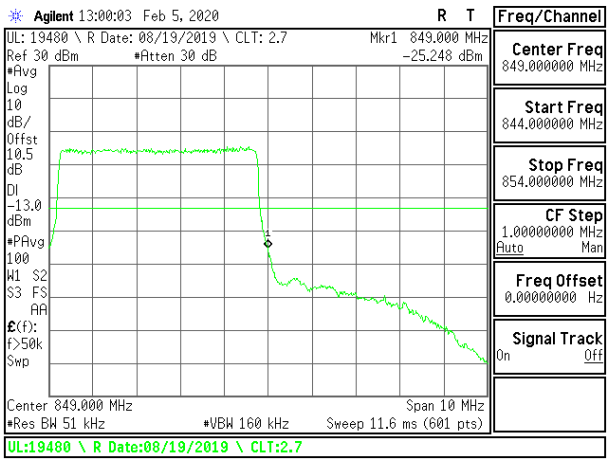
LTE B5 5MHz QPSK Low Channel RB1-0



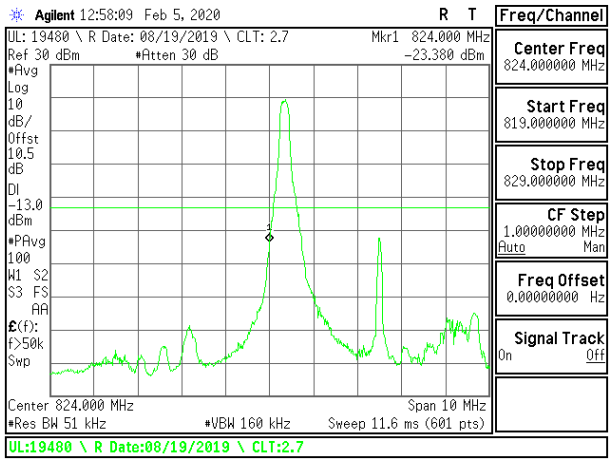
LTE B5 5MHz QPSK High Channel RB1-24



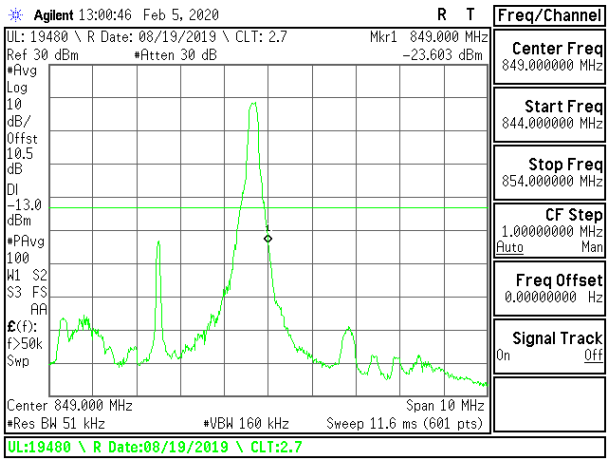
LTE B5 5MHz QPSK Low Channel RB25-0



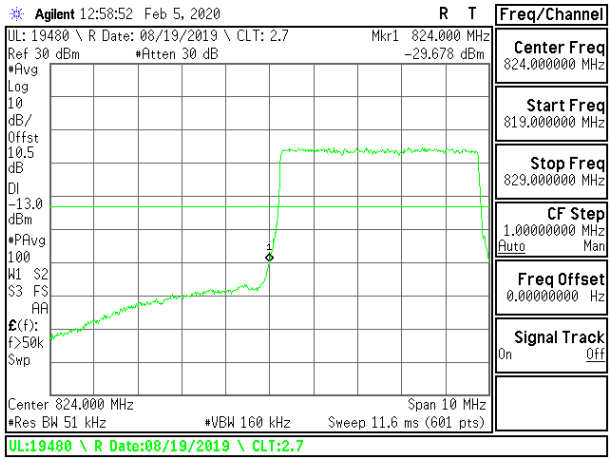
LTE B5 5MHz QPSK High Channel RB25-0



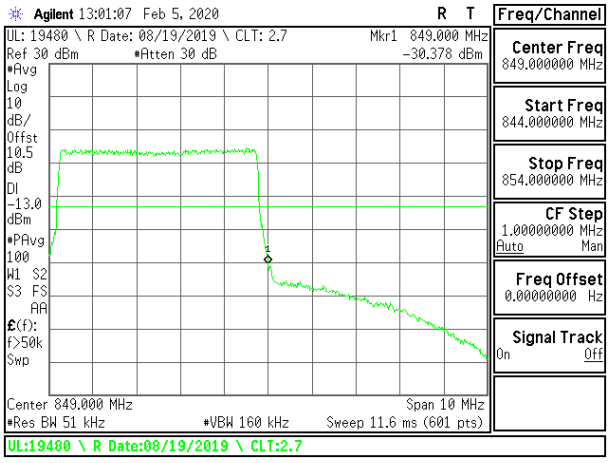
LTE B5 5MHz 16QAM Low Channel RB1-0



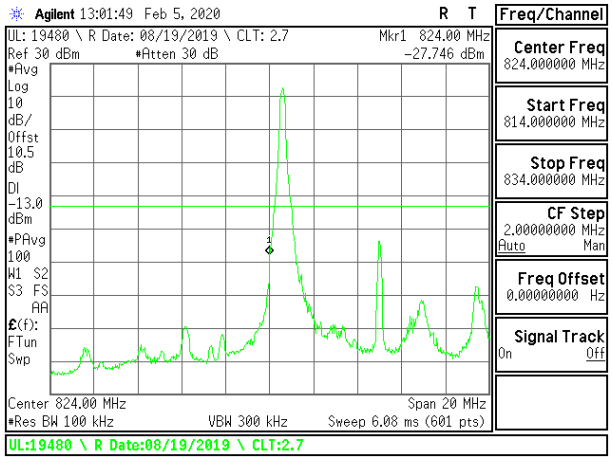
LTE B5 5MHz 16QAM High Channel RB1-24



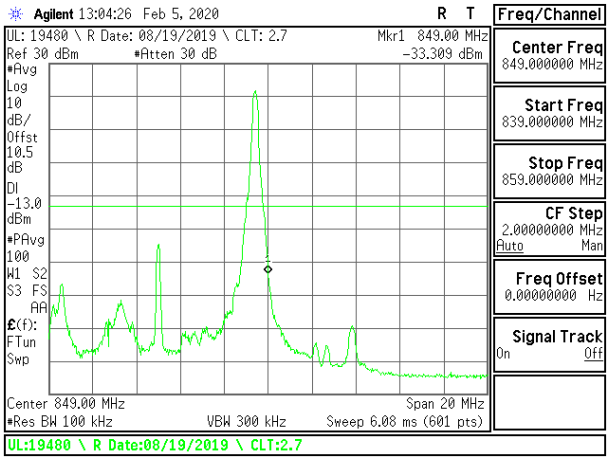
LTE B5 5MHz 16QAM Low Channel RB25-0



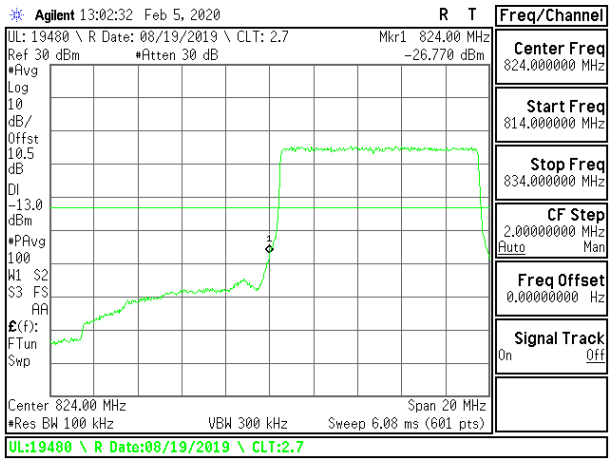
LTE B5 5MHz 16QAM High Channel RB25-0



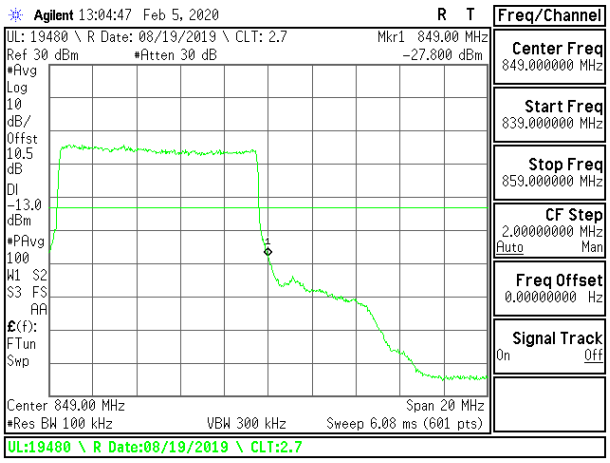
LTE B5 10MHz QPSK Low Channel RB1-0



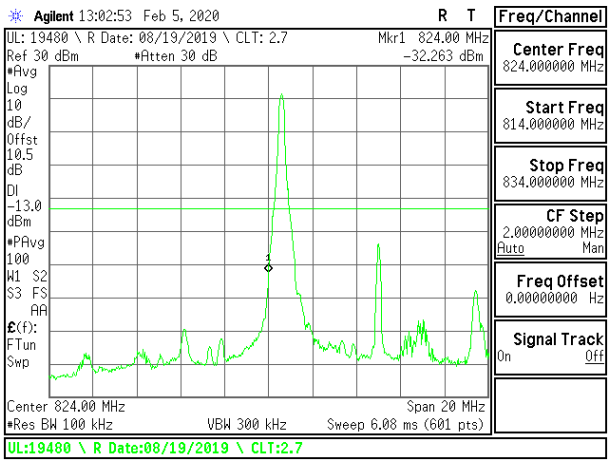
LTE B5 10MHz QPSK High Channel RB1-49



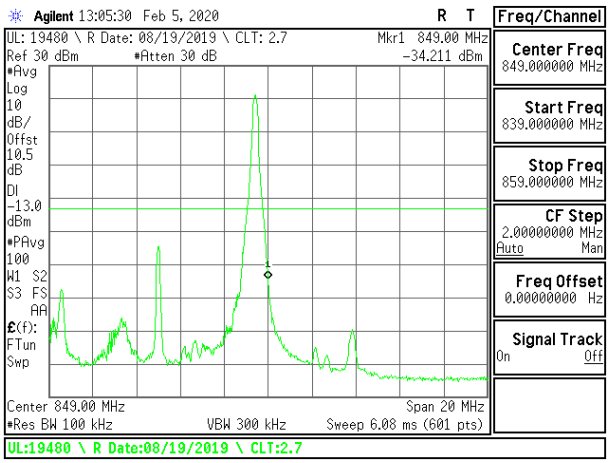
LTE B5 10MHz QPSK Low Channel RB50-0



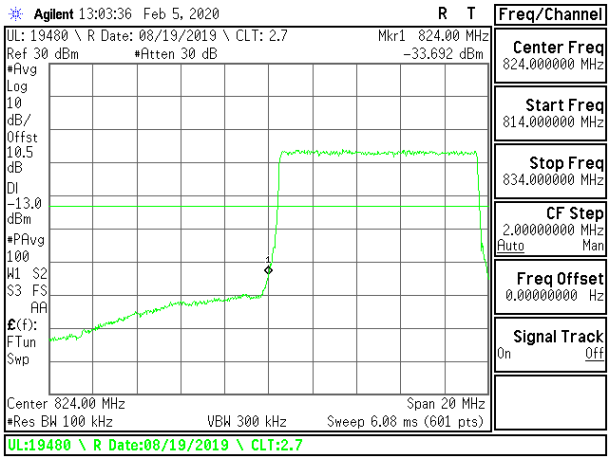
LTE B5 10MHz QPSK High Channel RB50-0



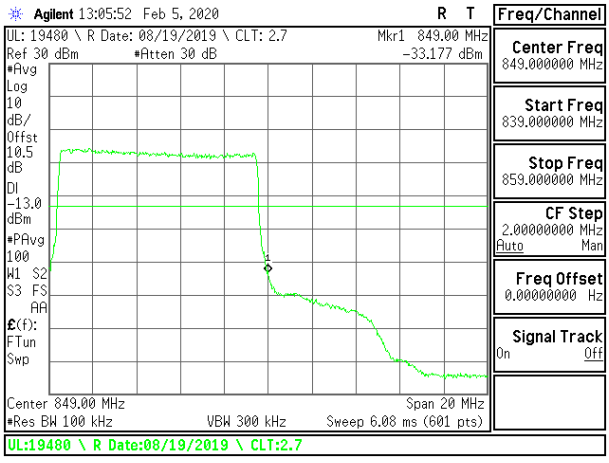
LTE B5 10MHz 16QAM Low Channel RB1-0



LTE B5 10MHz 16QAM High Channel RB1-49



LTE B5 10MHz 16QAM Low Channel RB50-0



LTE B5 10MHz 16QAM High Channel RB50-0

8.2.8. LTE BAND 7 ADJACENT CHANNEL POWER

LIMITS

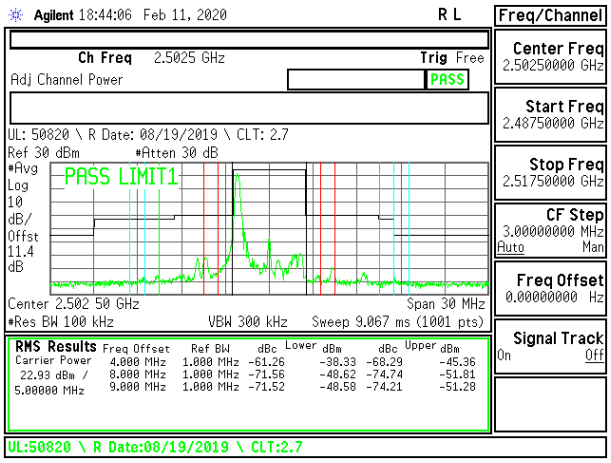
FCC: §27.53
(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

ISED: RSS199§4.5
Equipment shall comply with the following unwanted emission limits:

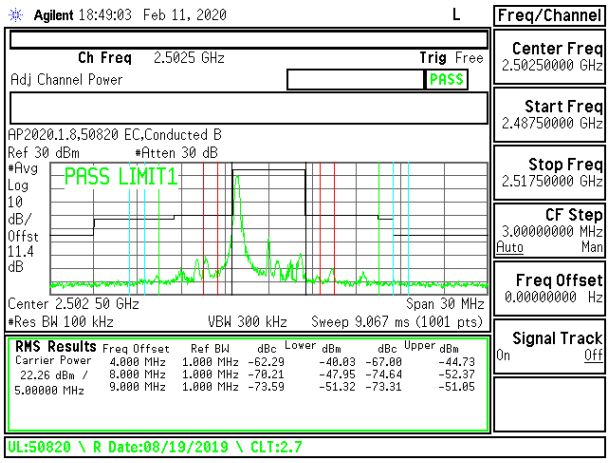
a. for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$
b. for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
    i. $40 + 10 \log_{10} p$ from the channel edges to 5 MHz away
    ii. $43 + 10 \log_{10} p$ between 5 MHz and X MHz from the channel edges, and
    iii. $55 + 10 \log_{10} p$ at X MHz and beyond from the channel edges

    In addition, the attenuation shall not be less than $43 + 10 \log_{10} p$ on all frequencies between 2490.5 MHz and 2496 MHz, and $55 + 10 \log_{10} p$ at or below 2490.5 MHz.

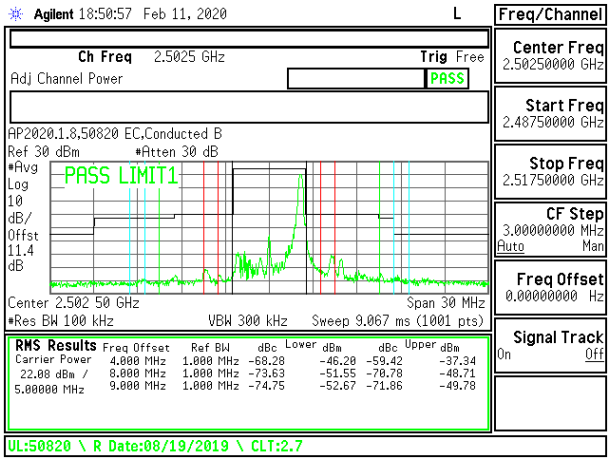
In (a) and (b), **p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.



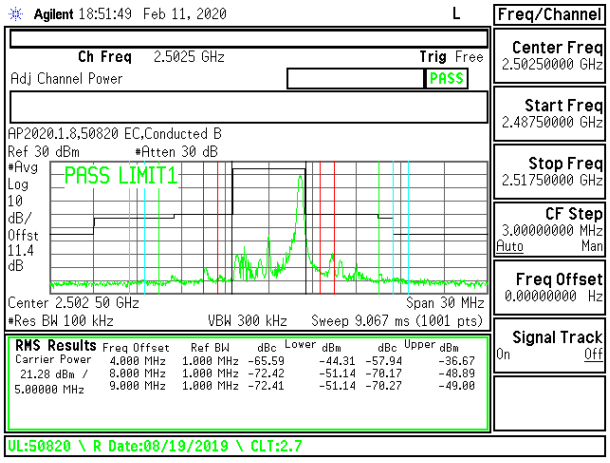
LTE B7 5MHz QPSK Low Channel RB1-0



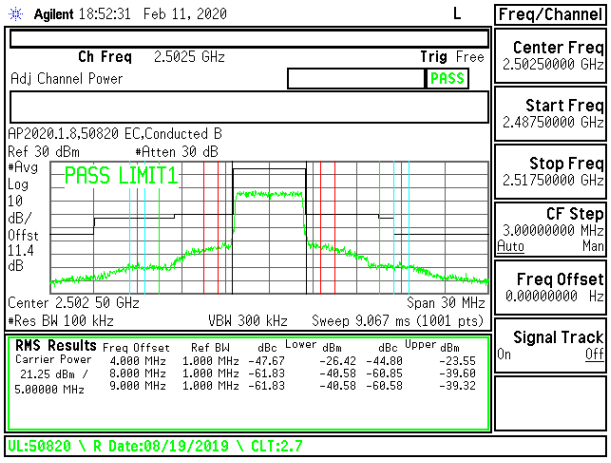
LTE B7 5MHz 16QAM Low Channel RB1-0



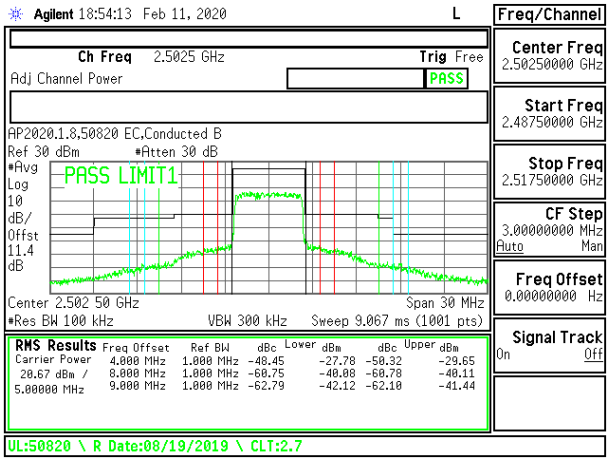
LTE B7 5MHz QPSK Low Channel RB1-24



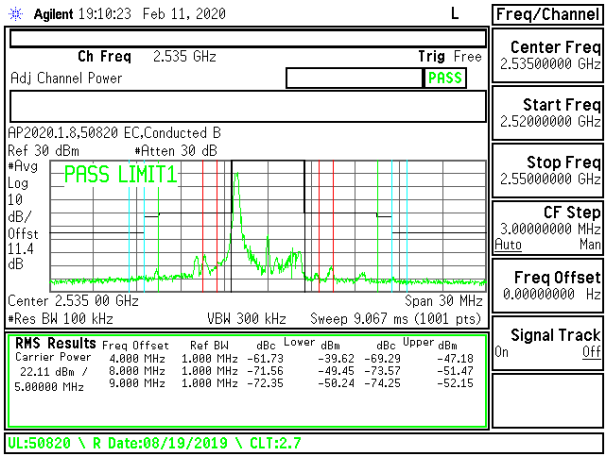
LTE B7 5MHz 16QAM Low Channel RB1-24



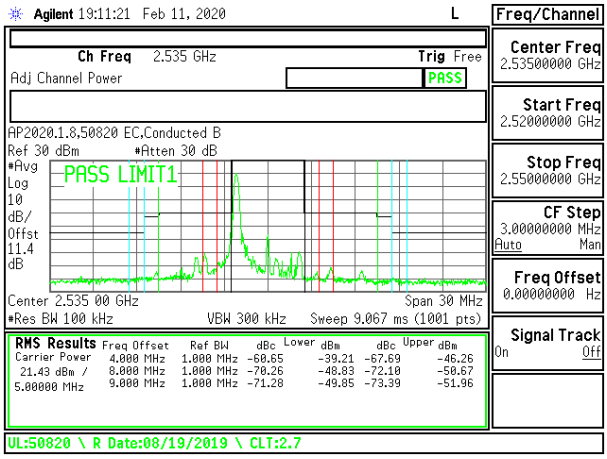
LTE B7 5MHz QPSK Low Channel RB25-0



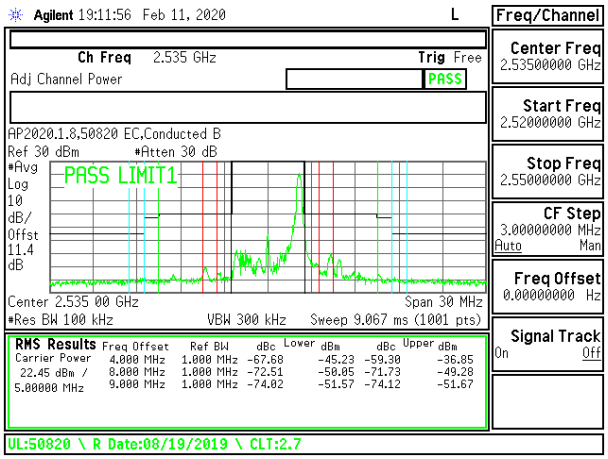
LTE B7 5MHz 16QAM Low Channel RB25-0



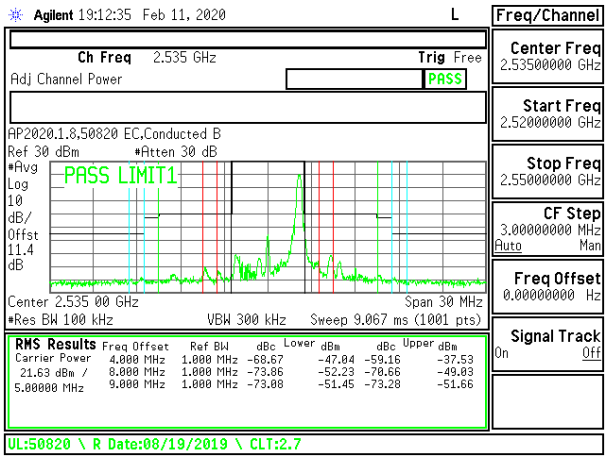
LTE B7 5MHz QPSK Middle Channel RB1-0



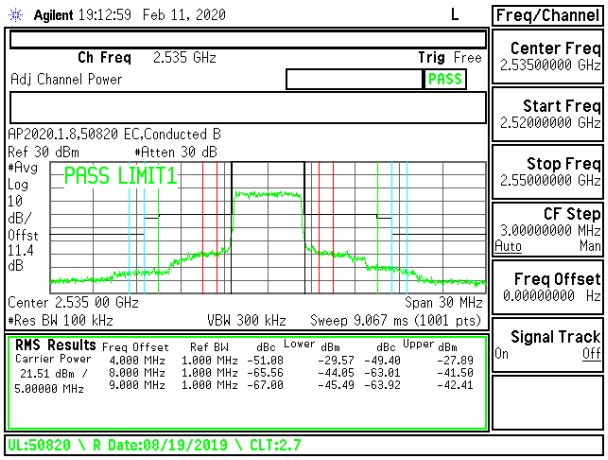
LTE B7 5MHz 16QAM Middle Channel RB1-0



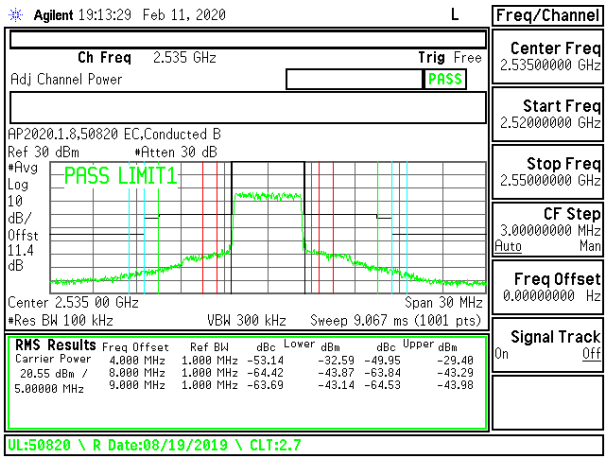
LTE B7 5MHz QPSK Middle Channel RB1-24



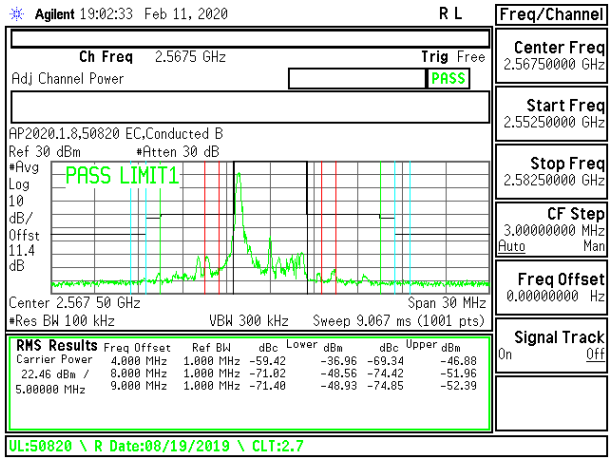
LTE B7 5MHz 16QAM Middle Channel RB1-24



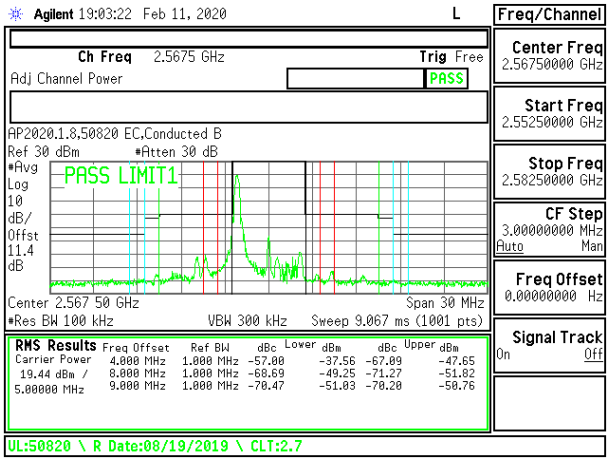
LTE B7 5MHz QPSK Middle Channel RB25-0



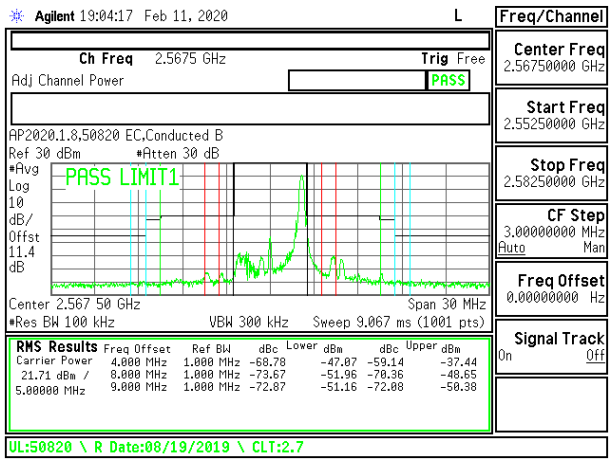
LTE B7 5MHz 16QAM Middle Channel RB25-0



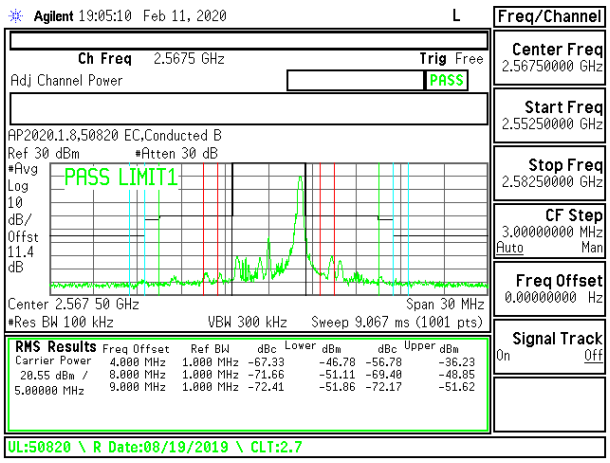
LTE B7 5MHz QPSK High Channel RB1-0



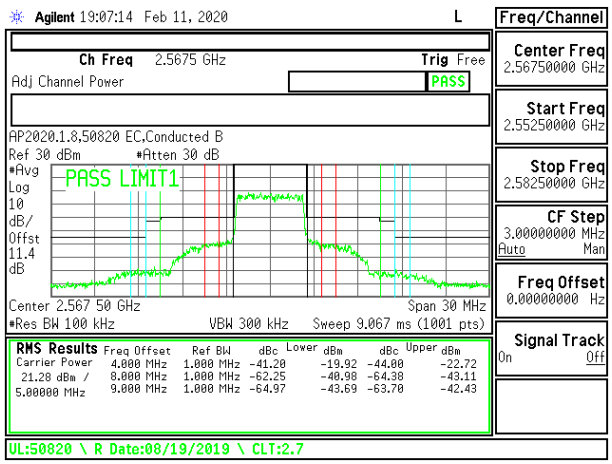
LTE B7 5MHz 16QAM High Channel RB1-0



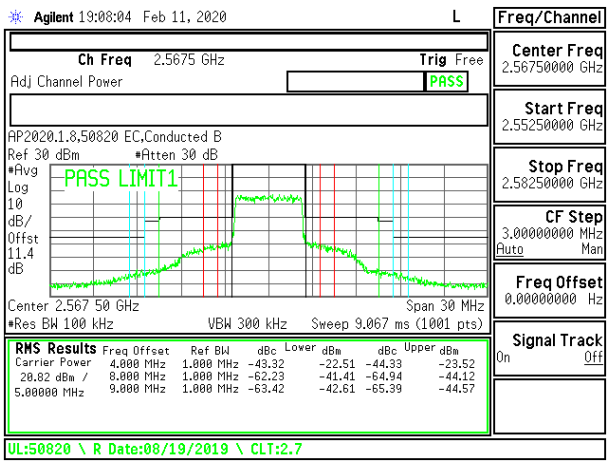
LTE B7 5MHz QPSK High Channel RB1-24



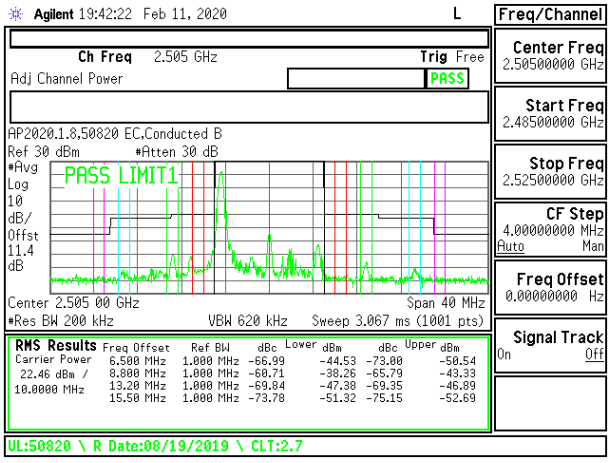
LTE B7 5MHz 16QAM High Channel RB1-24



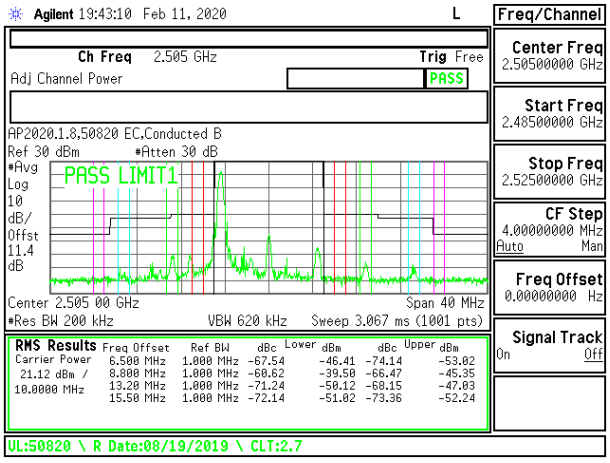
LTE B7 5MHz QPSK High Channel RB25-0



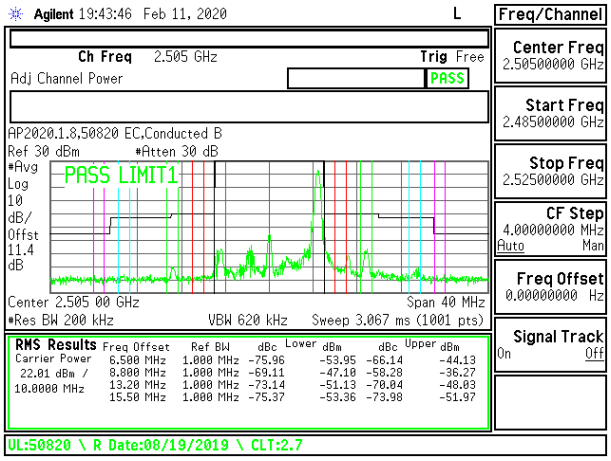
LTE B7 5MHz 16QAM High Channel RB25-0



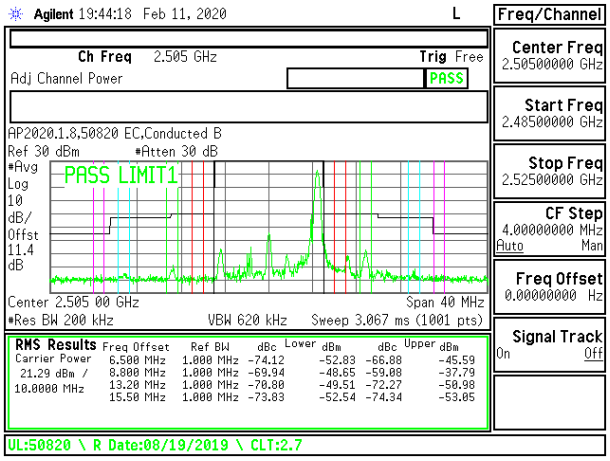
LTE B7 10MHz QPSK Low Channel RB1-0



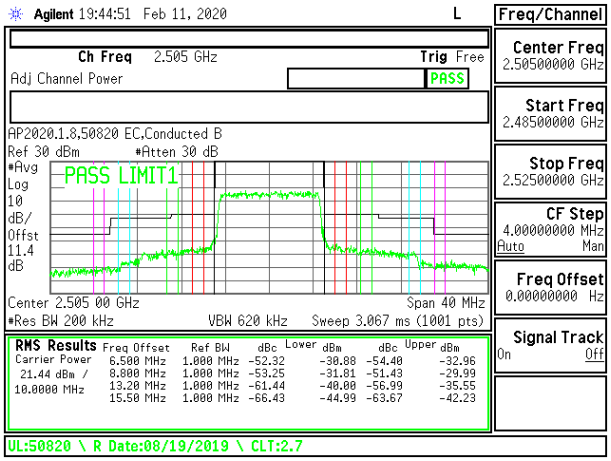
LTE B7 10MHz 16QAM Low Channel RB1-0



LTE B7 10MHz QPSK Low Channel RB1-49

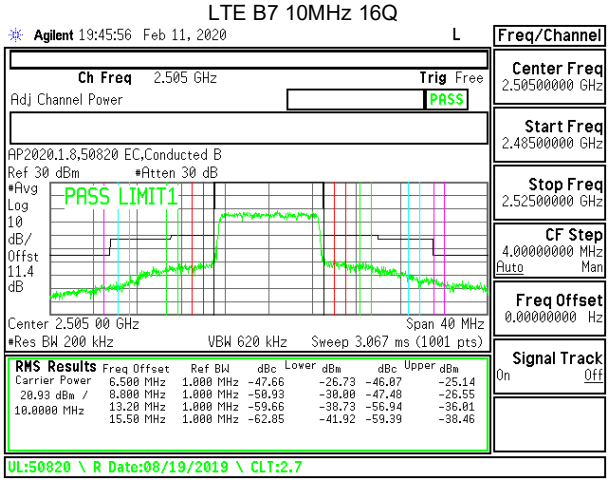


LTE B7 10MHz 16QAM Low Channel RB1-49

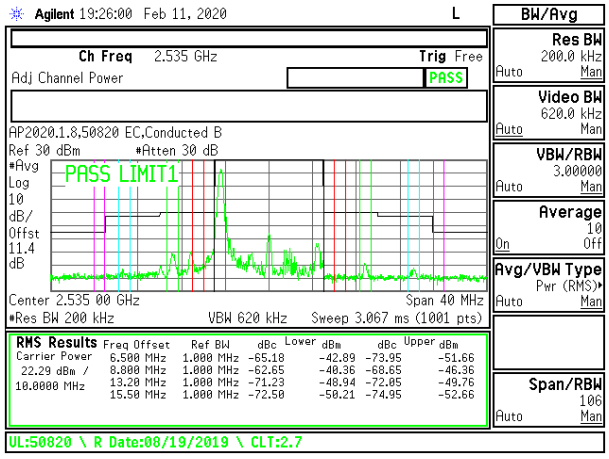


LTE B7 10MHz QPSK Low Channel RB50-0

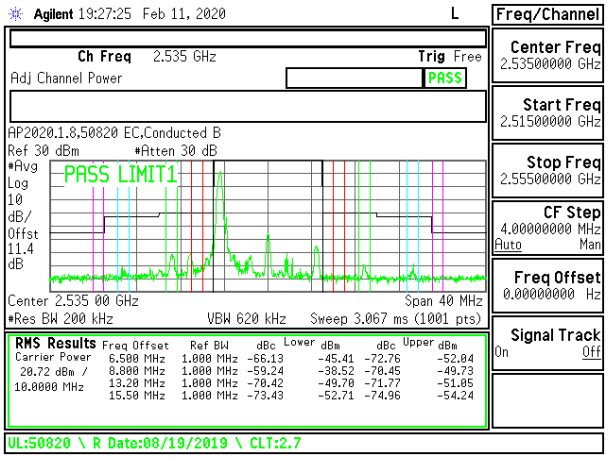
LTE B7 10MHz 16Q



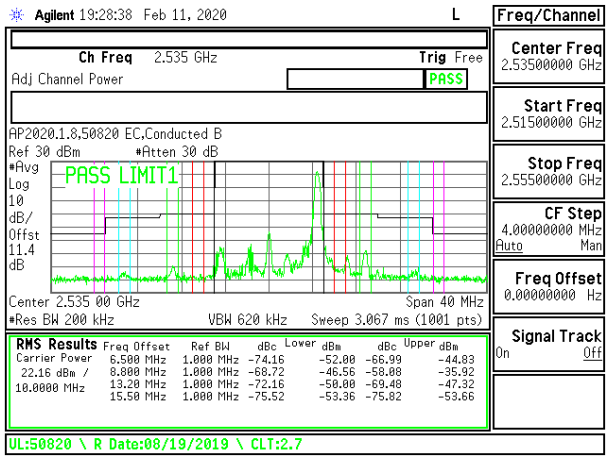
AM Low Channel RB50-0



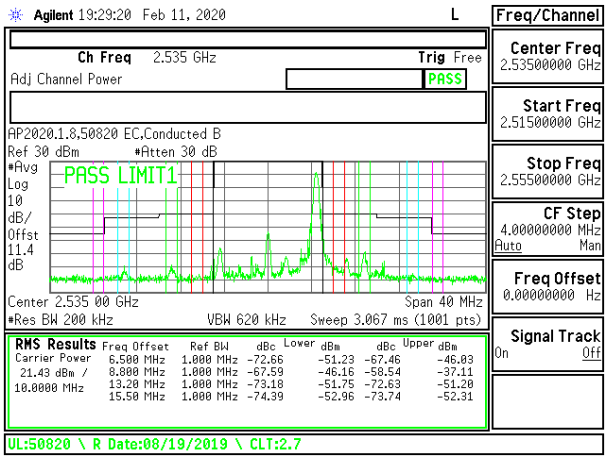
LTE B7 10MHz QPSK Middle Channel RB1-0



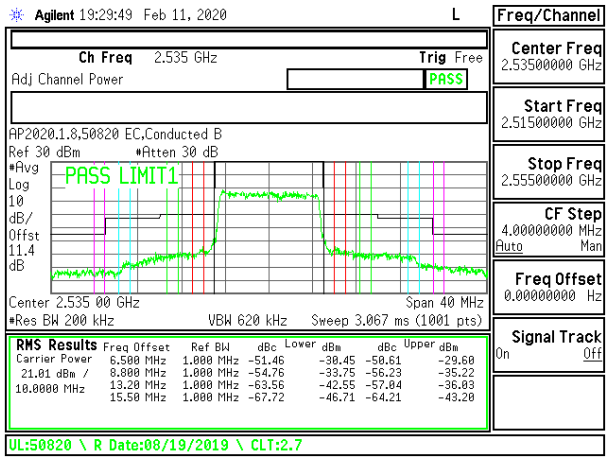
LTE B7 10MHz 16QAM Middle Channel RB1-0



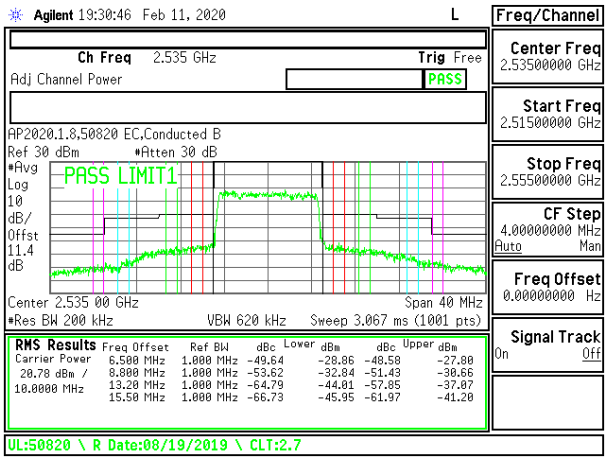
LTE B7 10MHz QPSK Middle Channel RB1-49



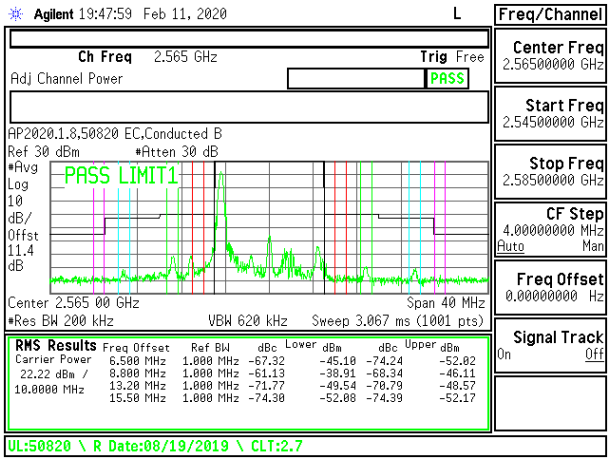
LTE B7 10MHz 16QAM Middle Channel RB1-49



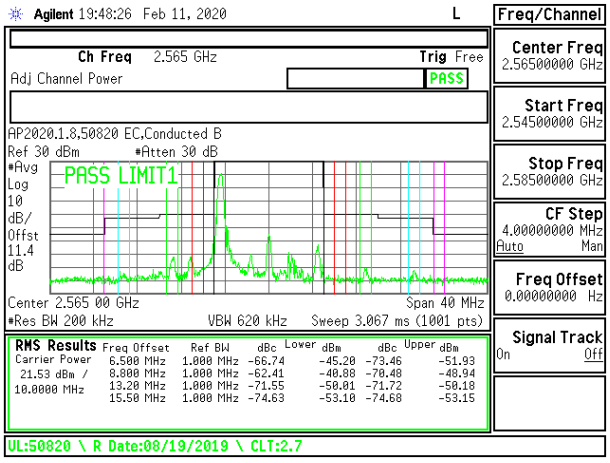
LTE B7 10MHz QPSK Middle Channel RB50-0



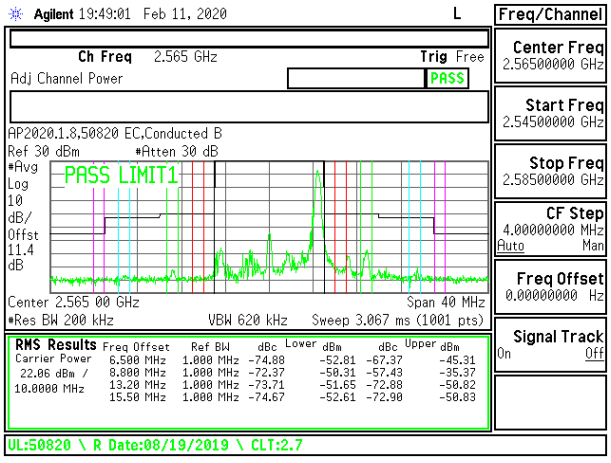
LTE B7 10MHz 16QAM Middle Channel RB50-0



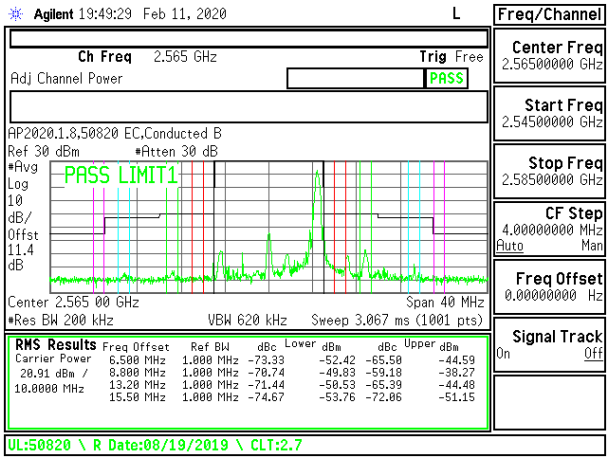
LTE B7 10MHz QPSK High Channel RB1-0



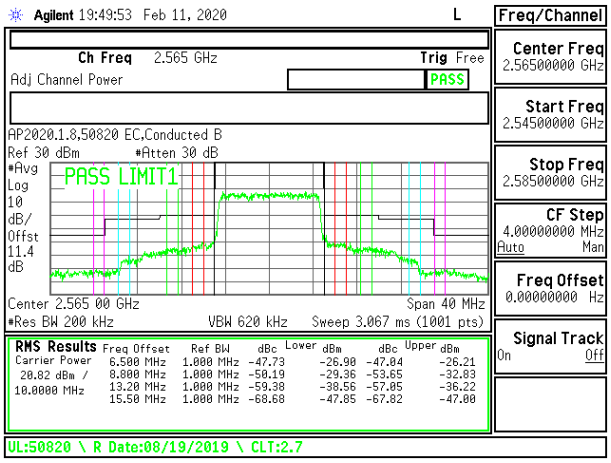
LTE B7 10MHz 16QAM High Channel RB1-0



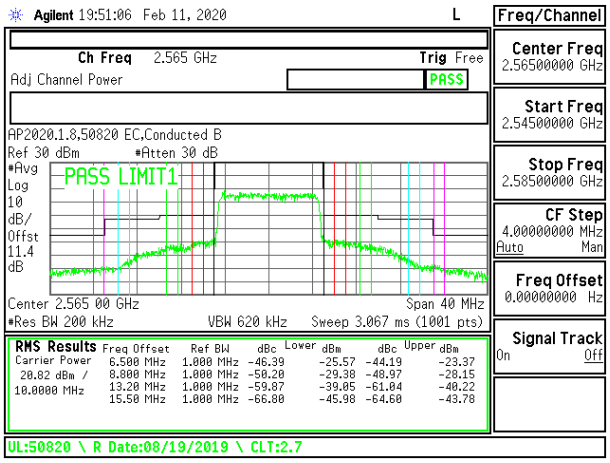
LTE B7 10MHz QPSK High Channel RB1-49



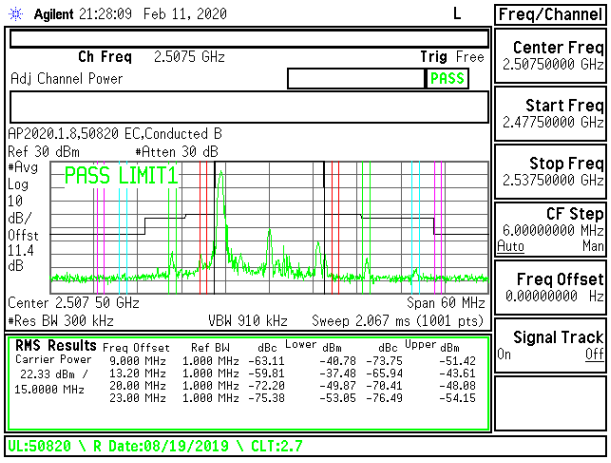
LTE B7 10MHz 16QAM High Channel RB1-49



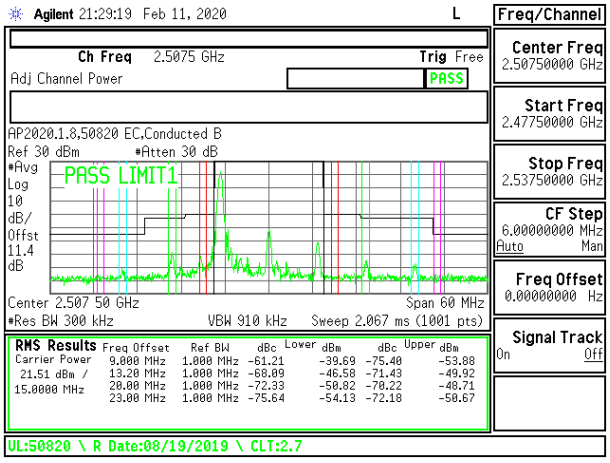
LTE B7 10MHz QPSK High Channel RB50-0



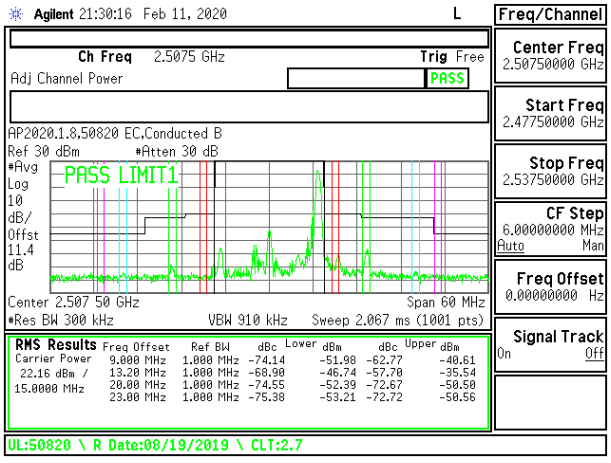
LTE B7 10MHz 16QAM High Channel RB50-0



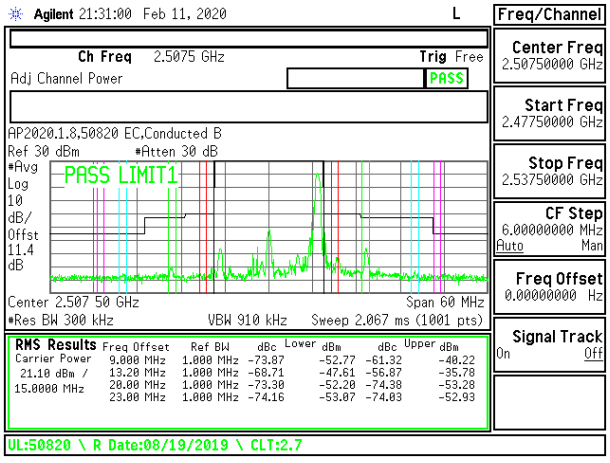
LTE B7 15MHz QPSK Low Channel RB1-0



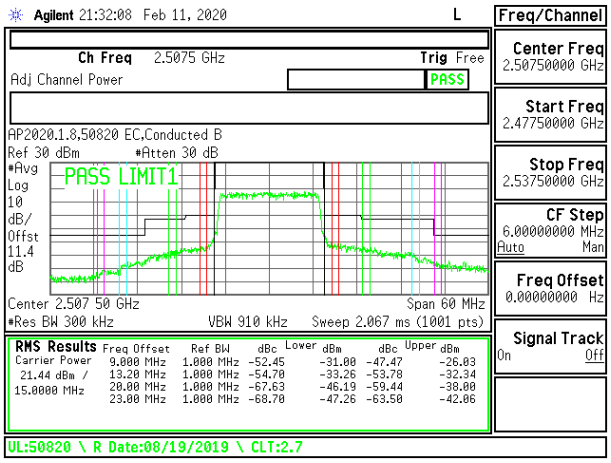
LTE B7 15MHz 16QAM Low Channel RB1-0



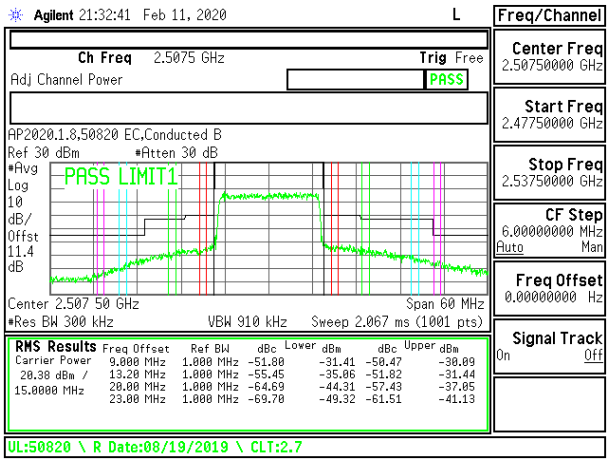
LTE B7 15MHz QPSK Low Channel RB1-74



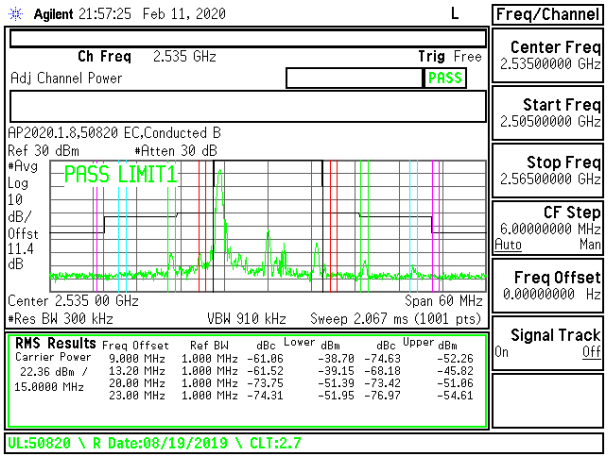
LTE B7 15MHz 16QAM Low Channel RB1-74



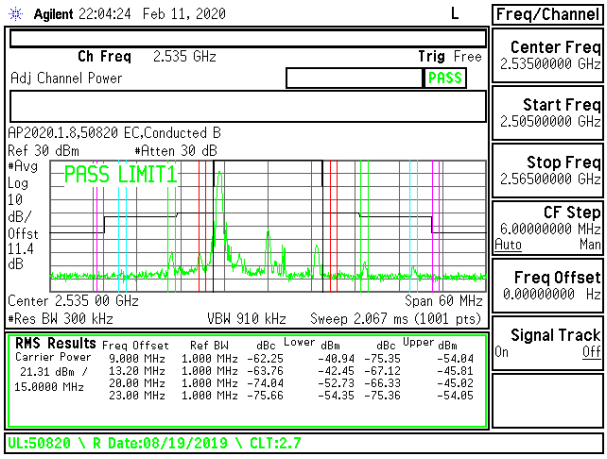
LTE B7 15MHz QPSK Low Channel RB75-0



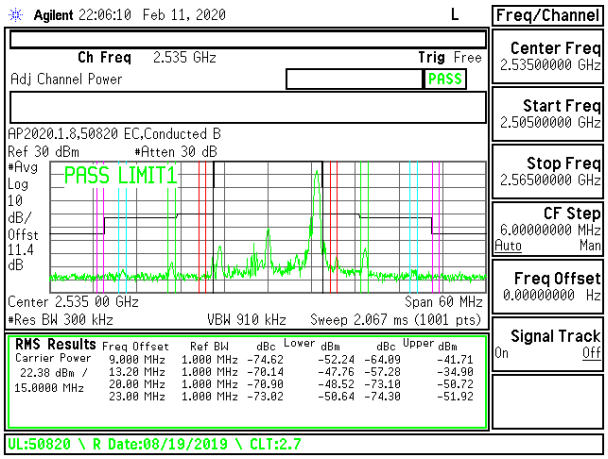
LTE B7 15MHz 16QAM Low Channel RB75-0



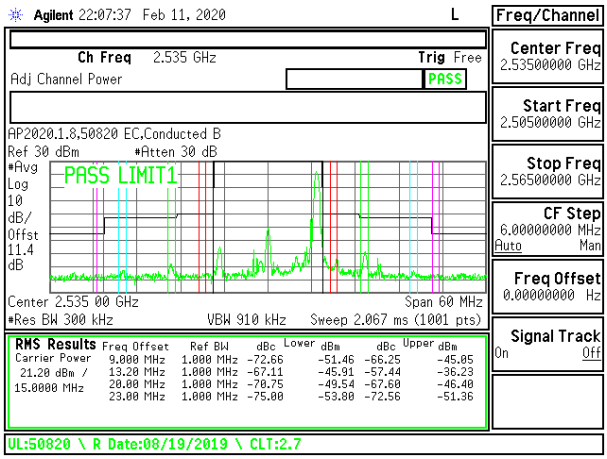
LTE B7 15MHz QPSK Middle Channel RB1-0



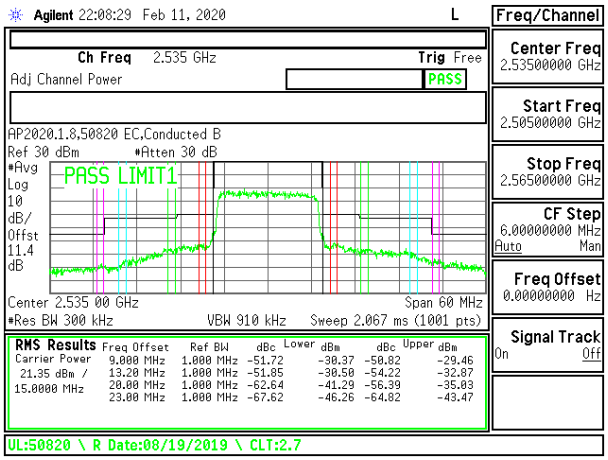
LTE B7 15MHz 16QAM Middle Channel RB1-0



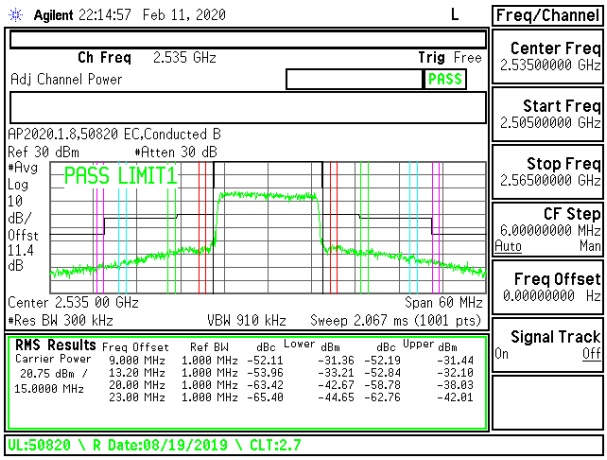
LTE B7 15MHz QPSK Middle Channel RB1-74



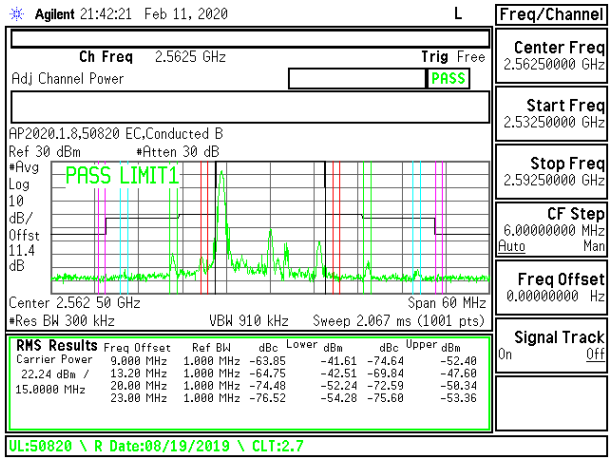
LTE B7 15MHz 16QAM Middle Channel RB1-74



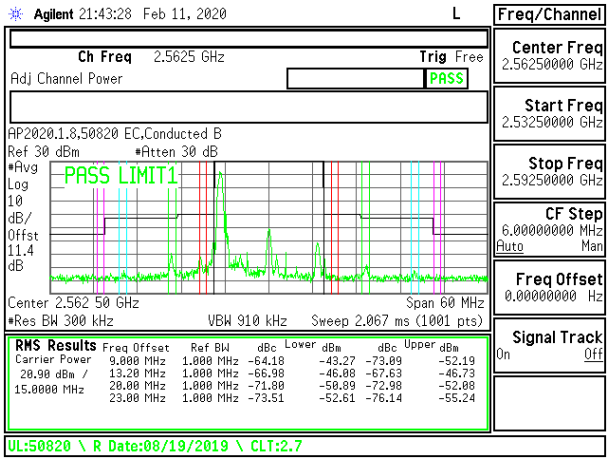
LTE B7 15MHz QPSK Middle Channel RB75-0



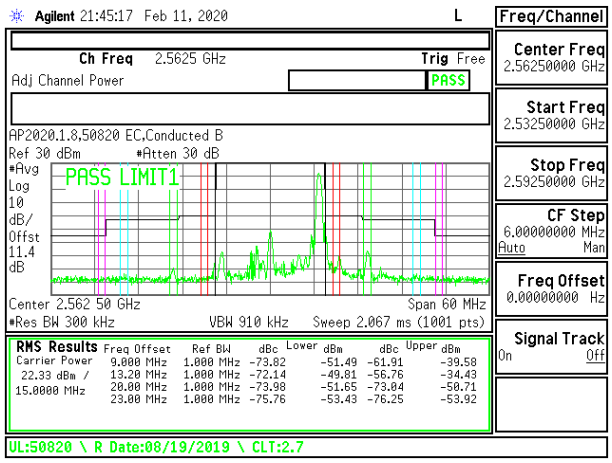
LTE B7 15MHz 16QAM Middle Channel RB75-0



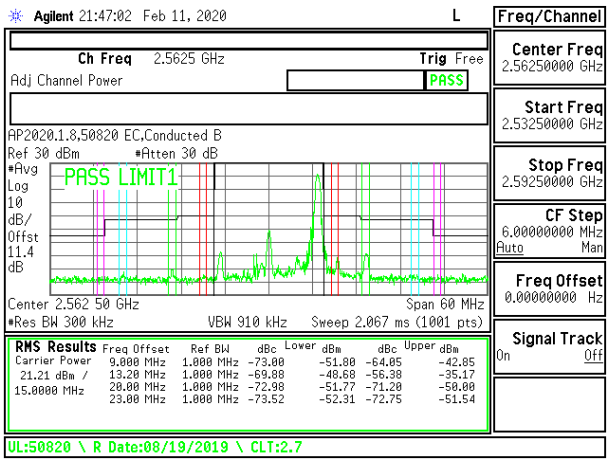
LTE B7 15MHz QPSK High Channel RB1-0



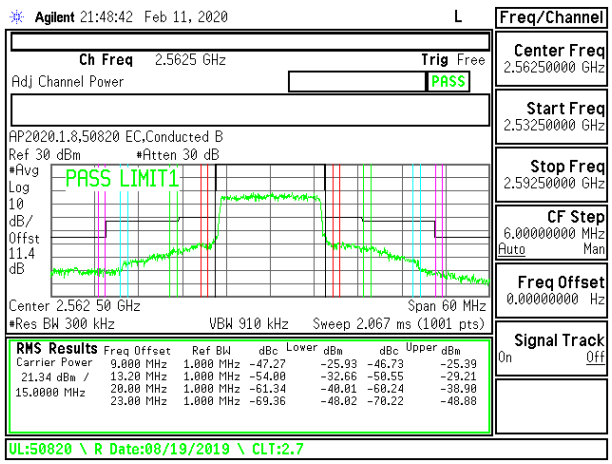
LTE B7 15MHz 16QAM High Channel RB1-0



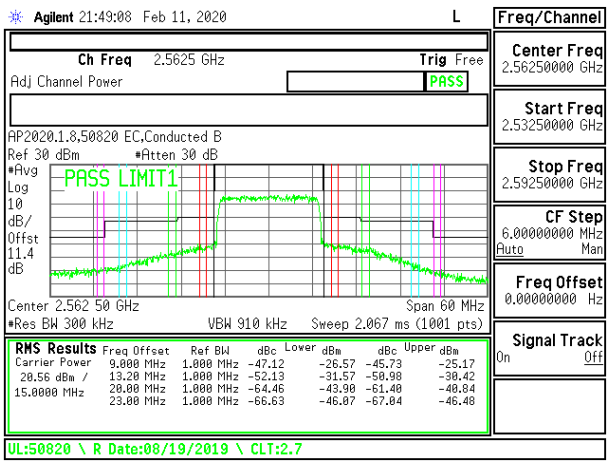
LTE B7 15MHz QPSK High Channel RB1-74



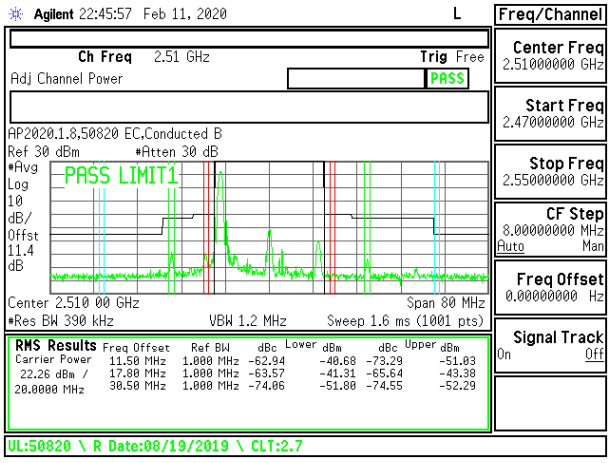
LTE B7 15MHz 16QAM High Channel RB1-74



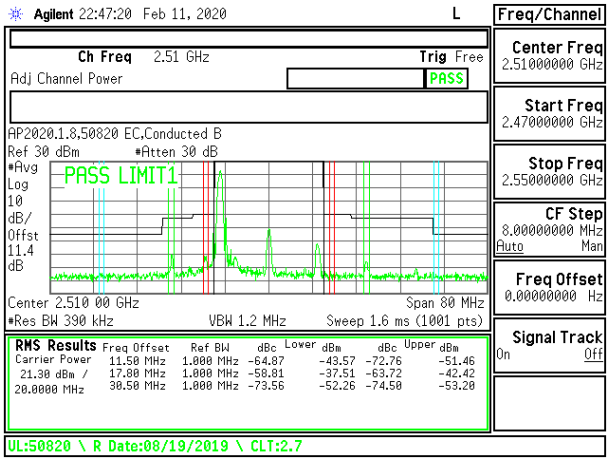
LTE B7 15MHz QPSK High Channel RB75-0



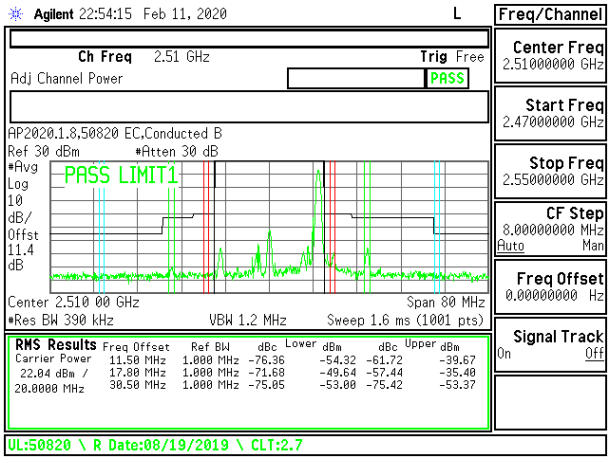
LTE B7 15MHz 16QAM High Channel RB75-0



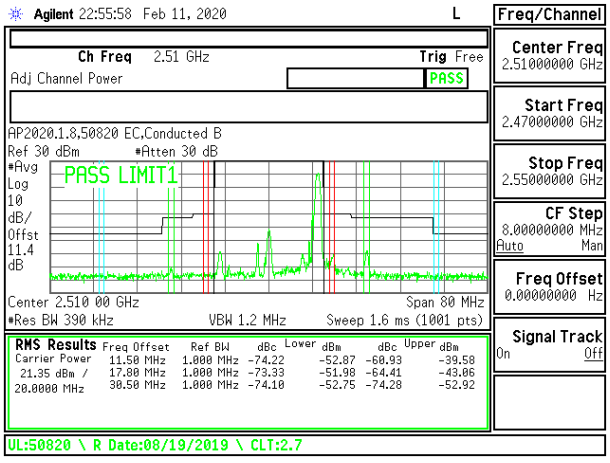
LTE B7 20MHz QPSK Low Channel RB1-0



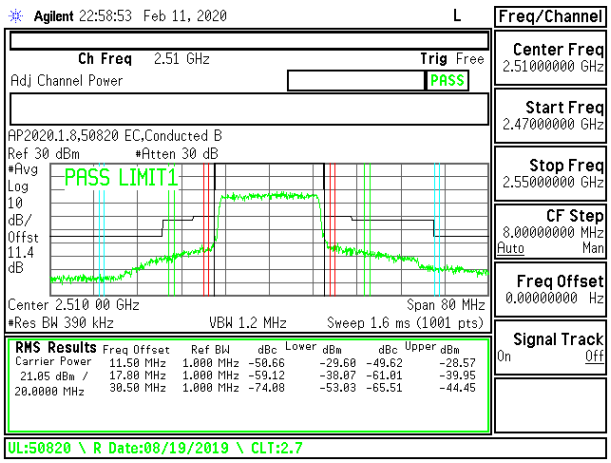
LTE B7 20MHz 16QAM Low Channel RB1-0



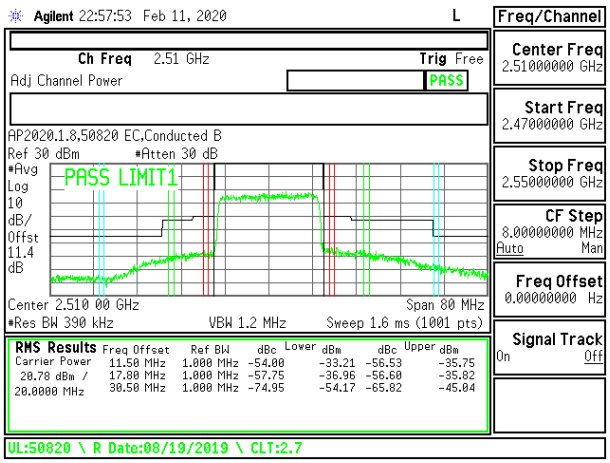
LTE B7 20MHz QPSK Low Channel RB1-99



LTE B7 20MHz 16QAM Low Channel RB1-99



LTE B7 20MHz QPSK Low Channel RB100-0



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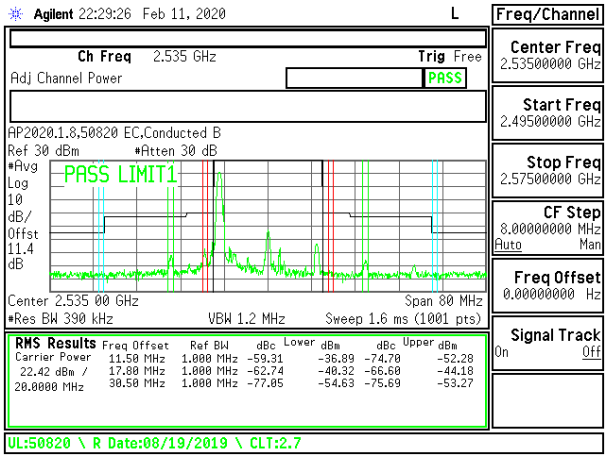
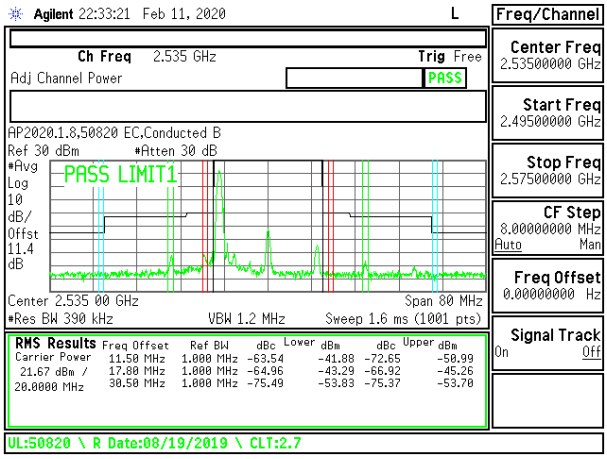


LTE B7 20MHz QPSK Middle Channel RB1-0



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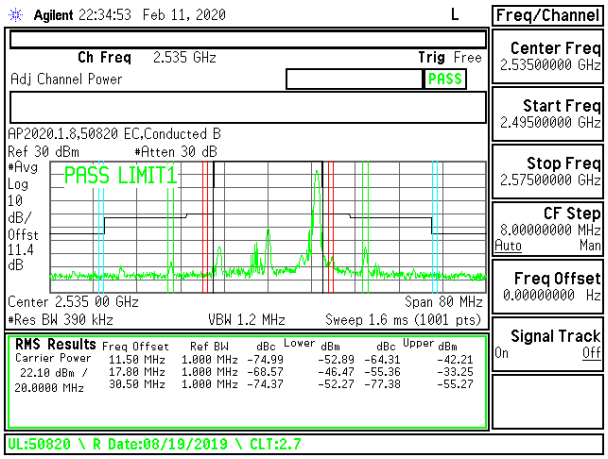

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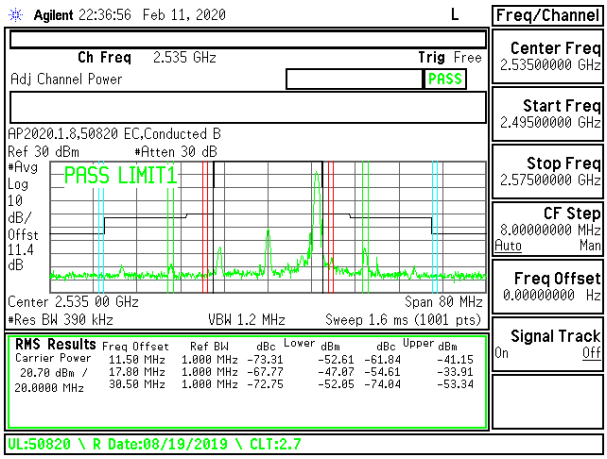

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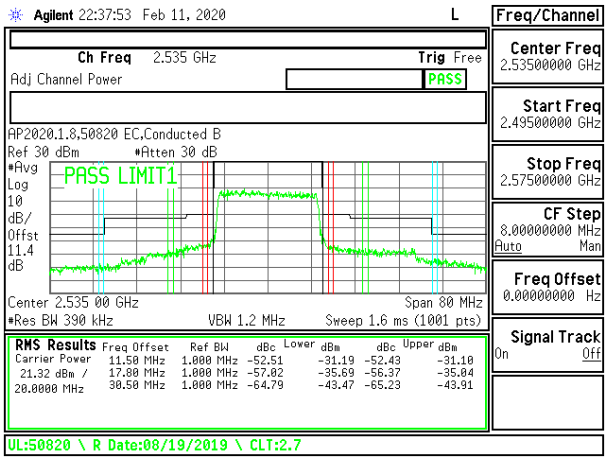

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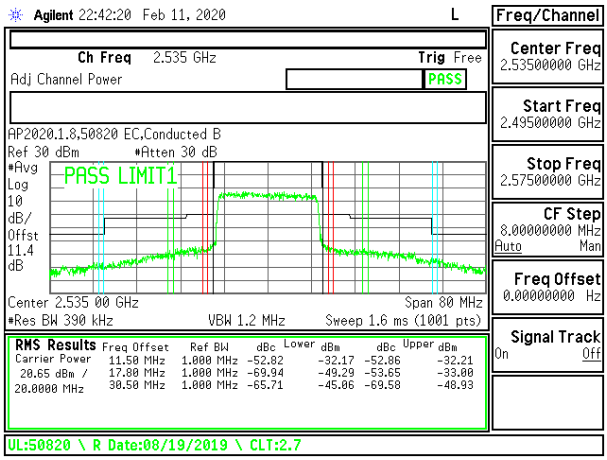

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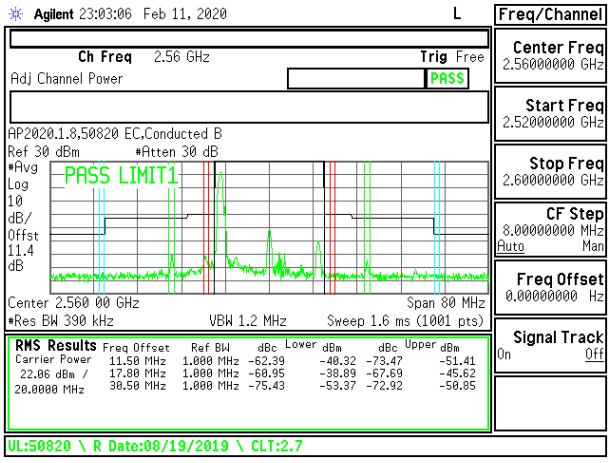
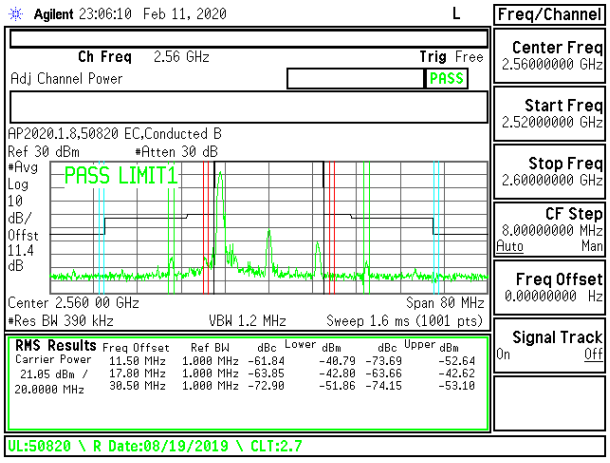


LTE B7 20MHz QPSK High Channel RB1-0



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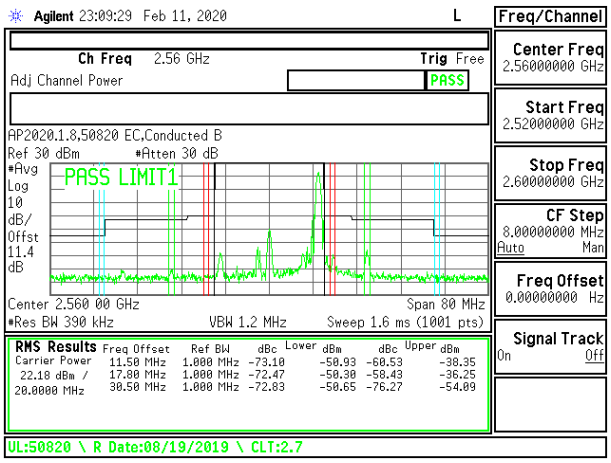

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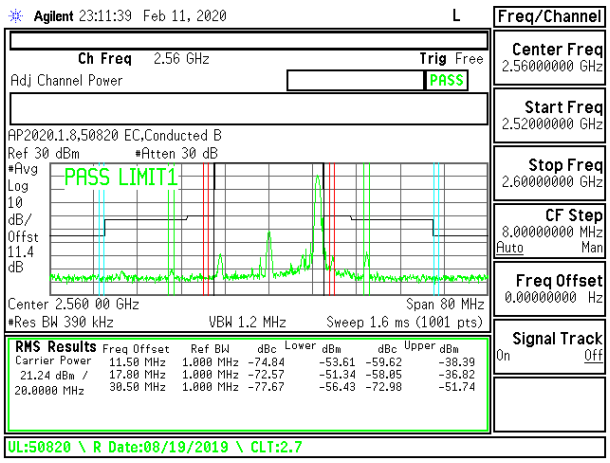
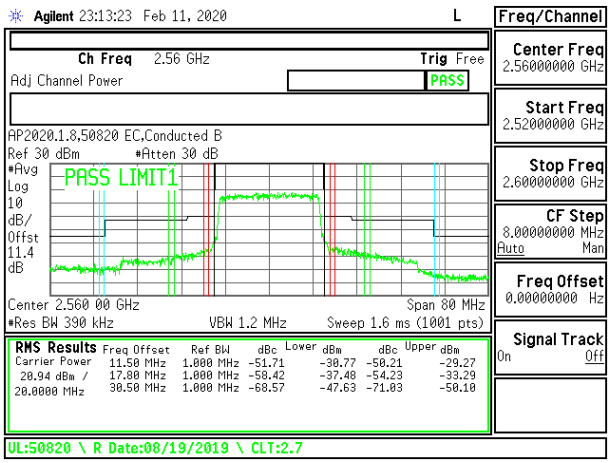
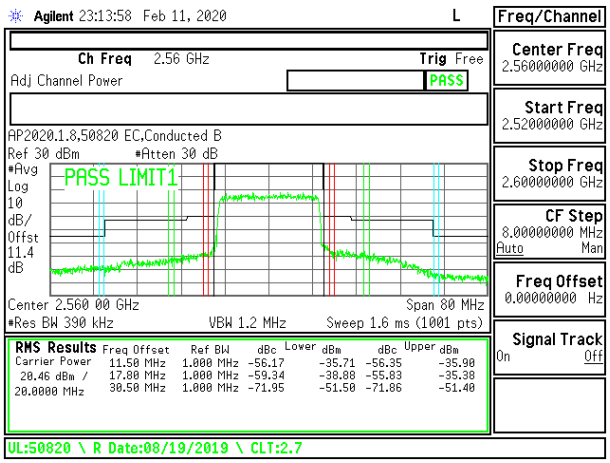


LTE B7 20MHz 16QAM High Channel RB1-99



LTE B7 20MHz QPSK High Channel RB100-0



LTE B7 20MHz 16QAM High Channel RB100-0

8.2.9. LTE BAND 12 ADJACENT CHANNEL POWER

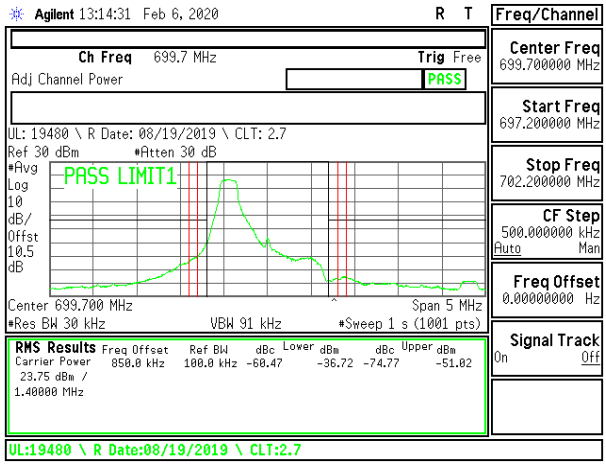
LIMITS

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.

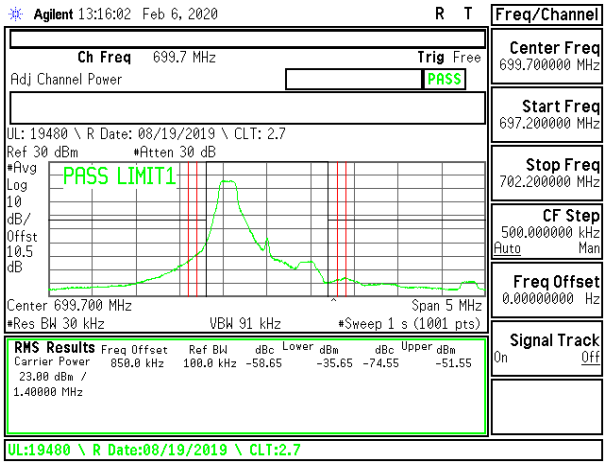
ISED: RSS130§4.7
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 $\log_{10}$ 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:

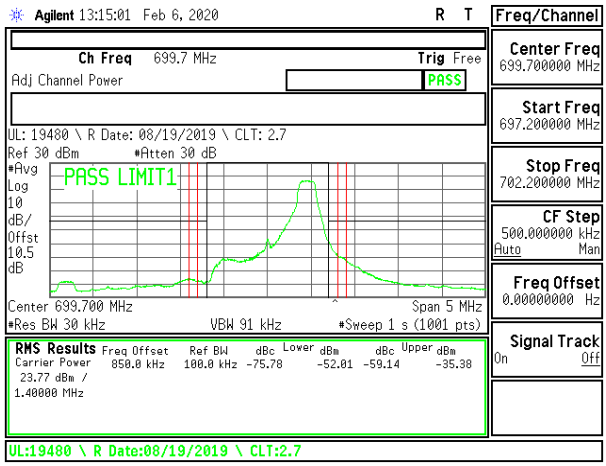
(c) the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
    iii. 76 + 10 $\log_{10}$ p (watts), dB, for base and fixed equipment and
    iv. 65 + 10 $\log_{10}$ p (watts), dB, for mobile and portable equipment
(d) 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.



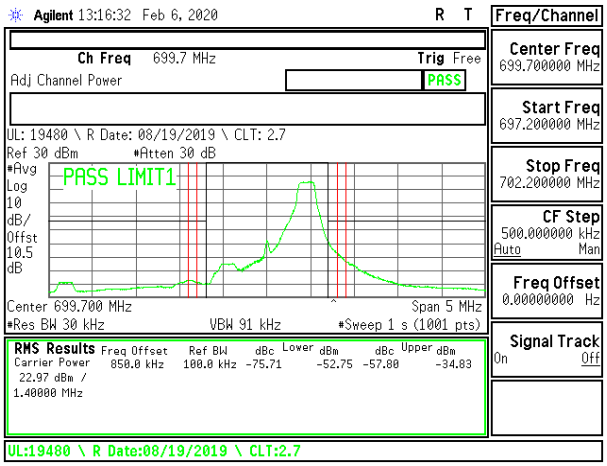
LTE B12 1.4MHz QPSK Low Channel RB1-0



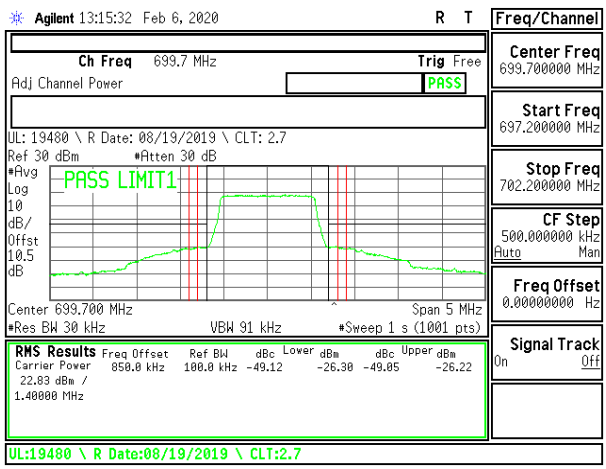
LTE B12 1.4MHz 16QAM Low Channel RB1-0



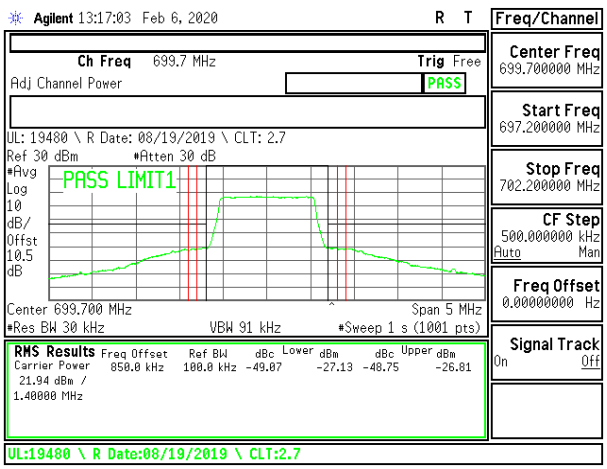
LTE B12 1.4MHz QPSK Low Channel RB1-5



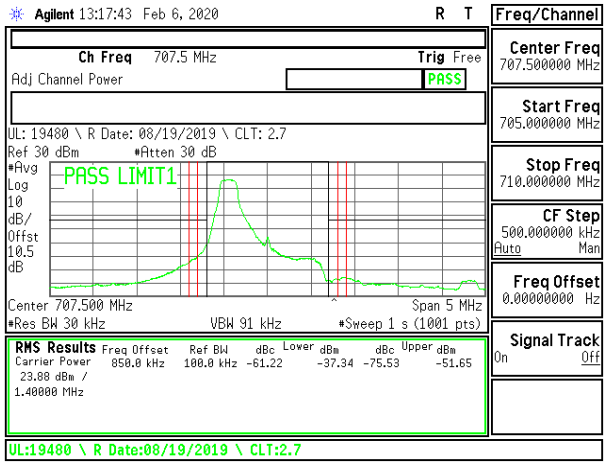
LTE B12 1.4MHz 16QAM Low Channel RB1-5



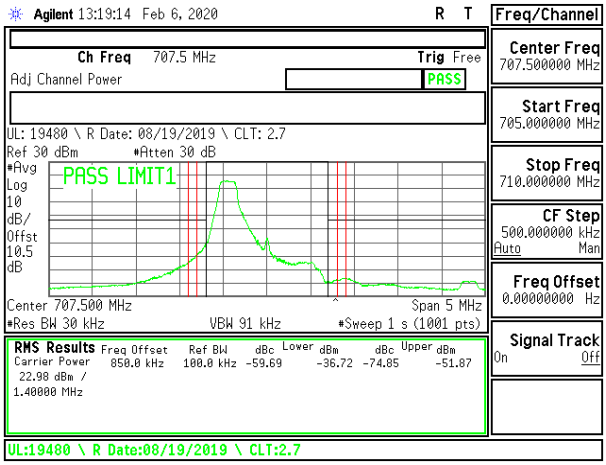
LTE B12 1.4MHz QPSK Low Channel RB6-0



LTE B12 1.4MHz 16QAM Low Channel RB6-0



LTE B12 1.4MHz QPSK Middle Channel RB1-0



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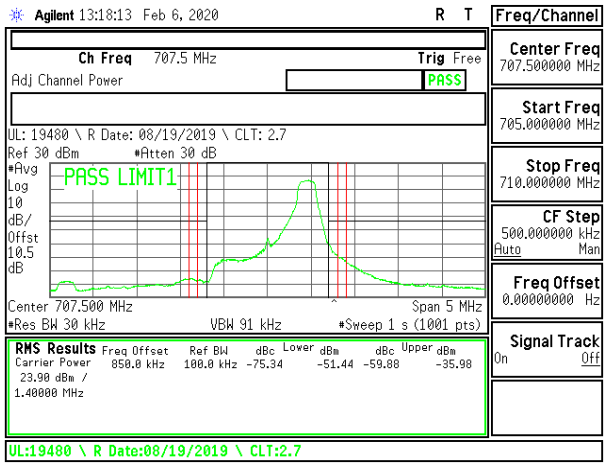
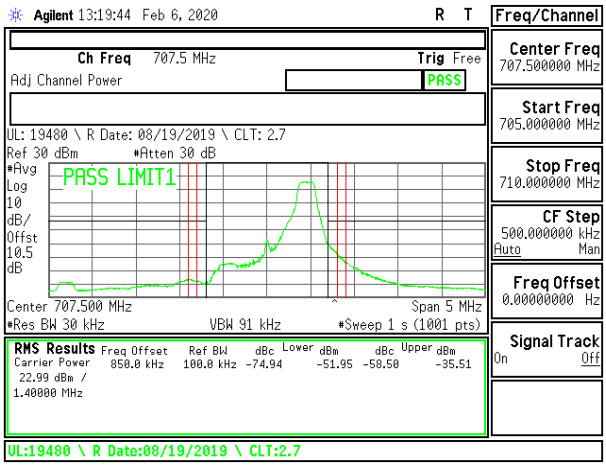


LTE B12 1.4MHz QPSK Middle Channel RB1-5



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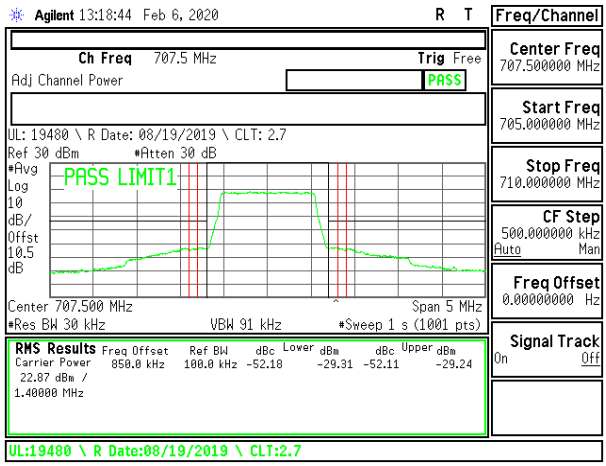

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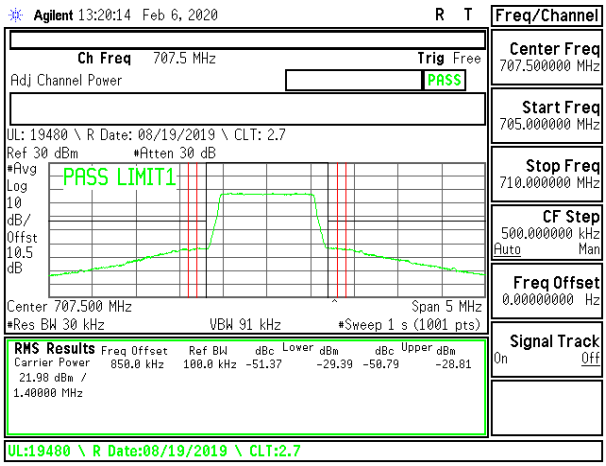

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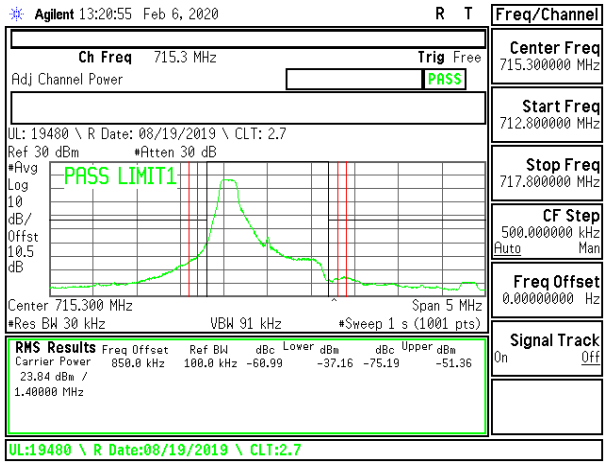
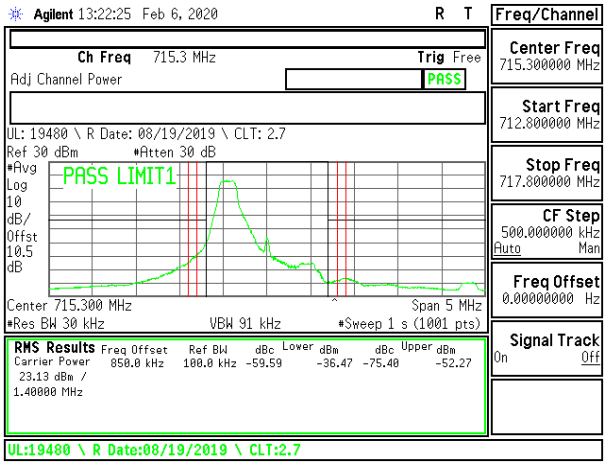


LTE B12 1.4MHz QPSK High Channel RB1-0



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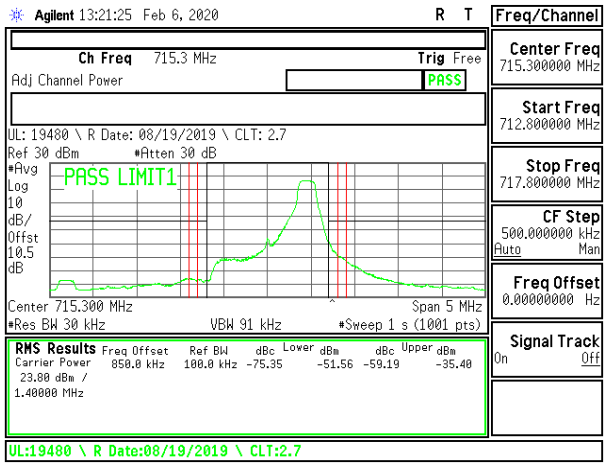
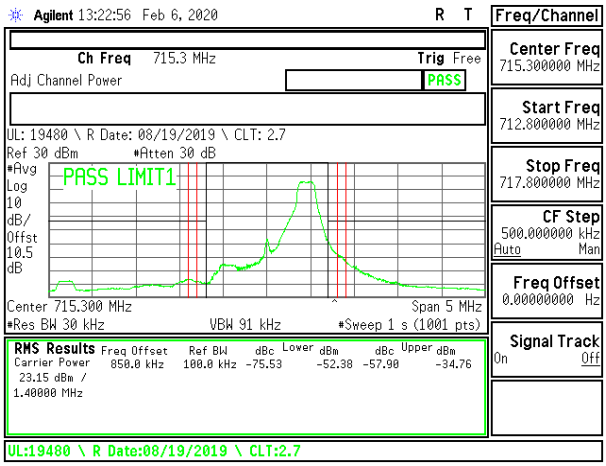


LTE B12 1.4MHz QPSK High Channel RB1-5



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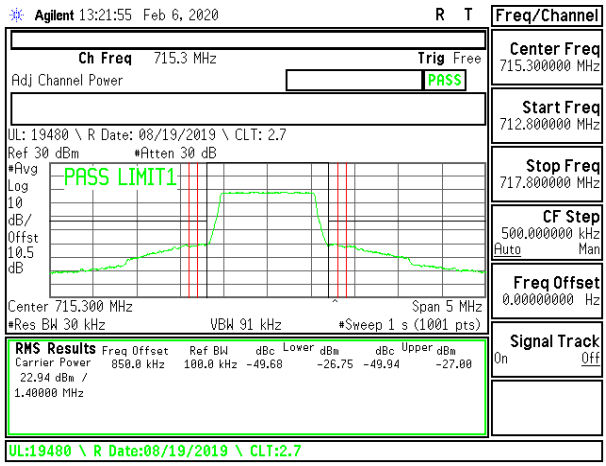
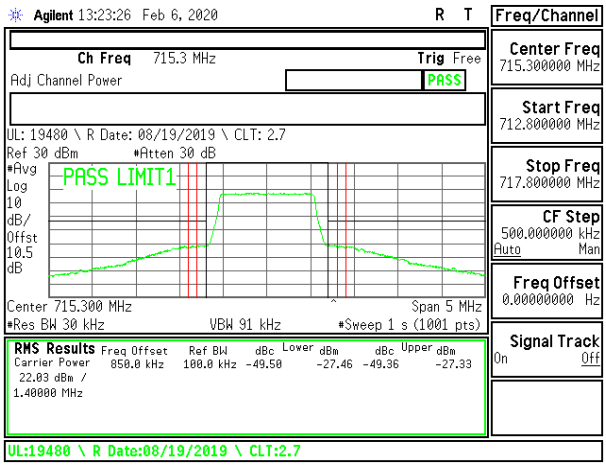


LTE B12 1.4MHz QPSK High Channel RB6-0



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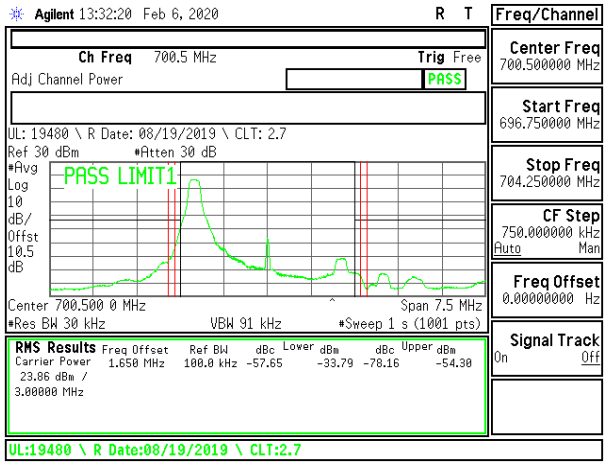
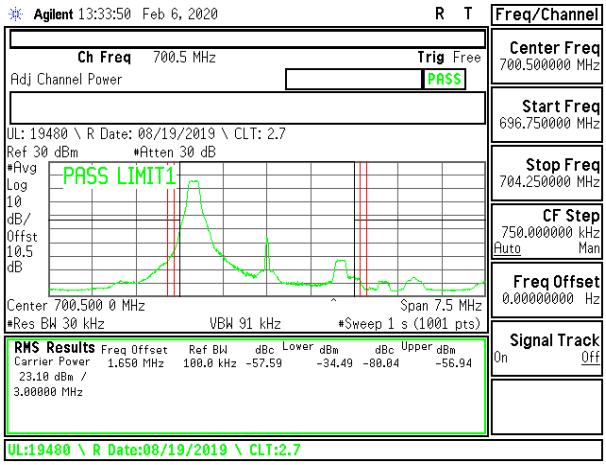
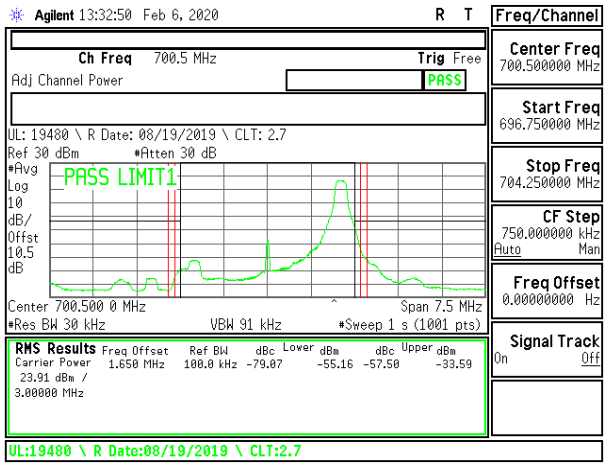


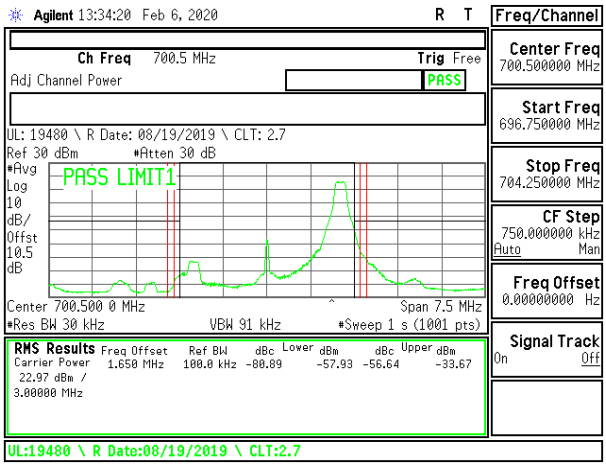
LTE B12 3MHz QPSK Low Channel RB1-0



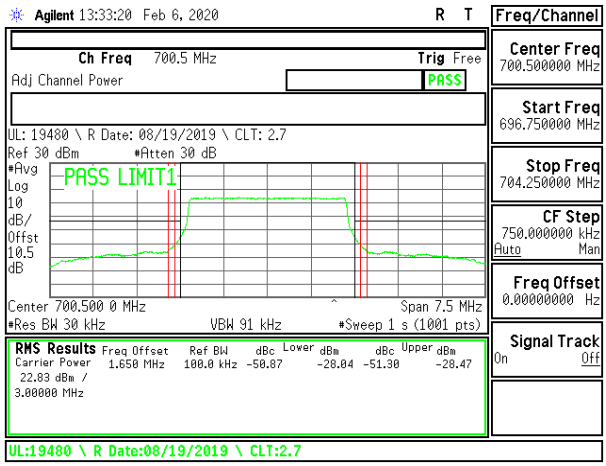
LTE B12 3MHz 16QAM Low Channel RB1-0



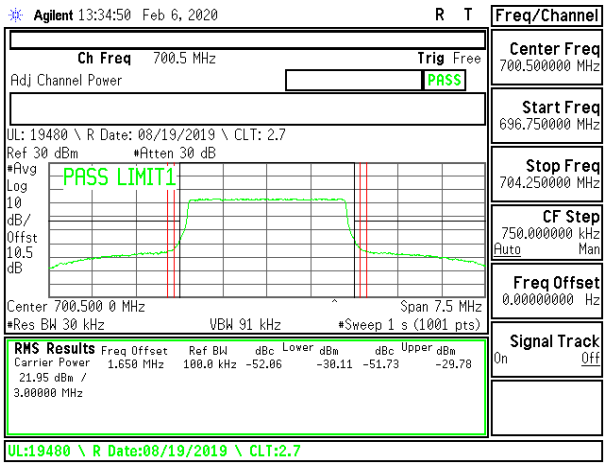
LTE B12 3MHz QPSK Low Channel RB1-14



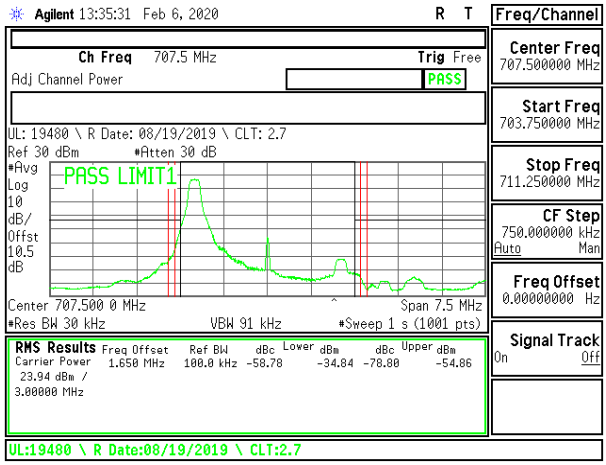
LTE B12 3MHz 16QAM Low Channel RB1-14



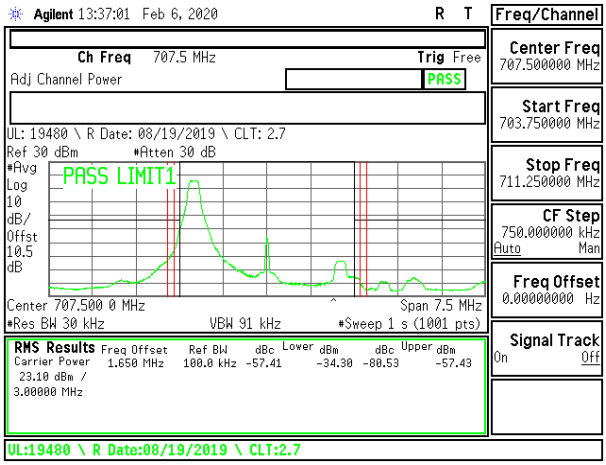
LTE B12 3MHz QPSK Low Channel RB15-0



LTE B12 3MHz 16QAM Low Channel RB15-0



LTE B12 3MHz QPSK Middle Channel RB1-0



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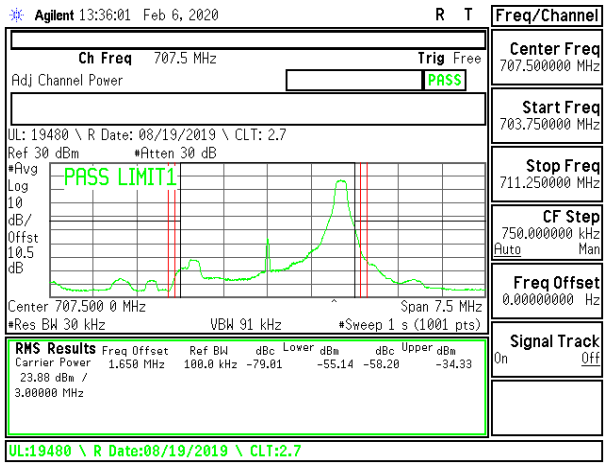
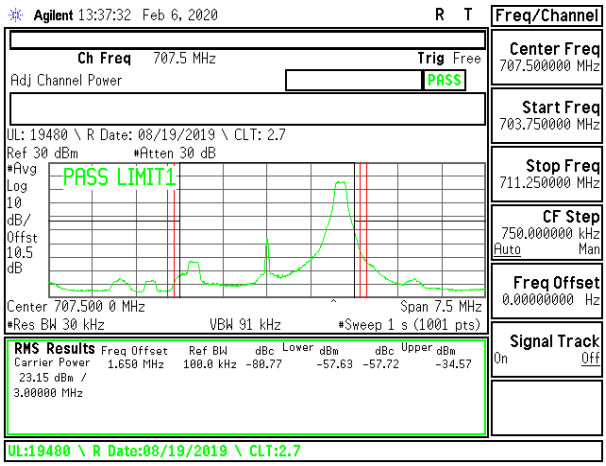


LTE B12 3MHz QPSK Middle Channel RB1-14



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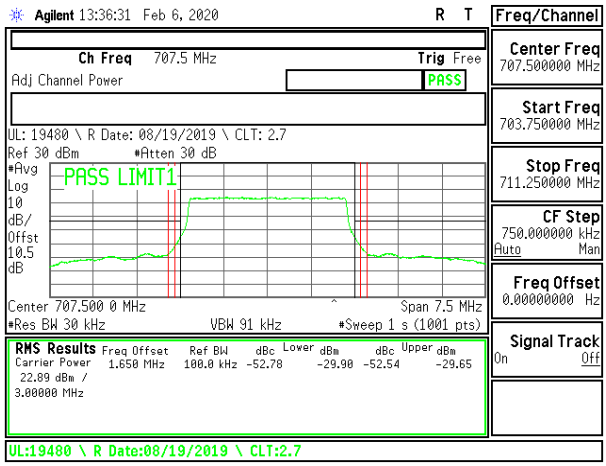
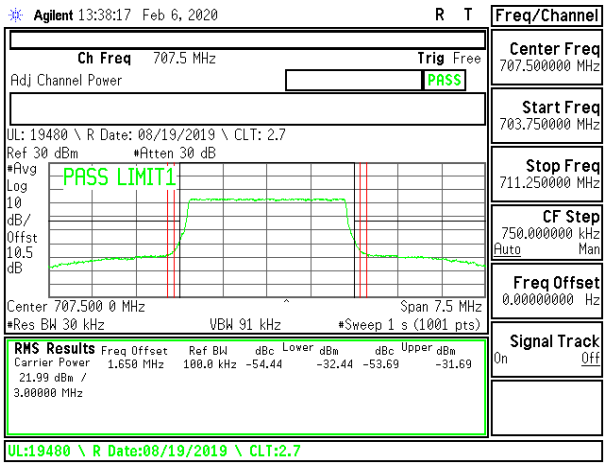


LTE B12 3MHz QPSK Middle Channel RB15-0



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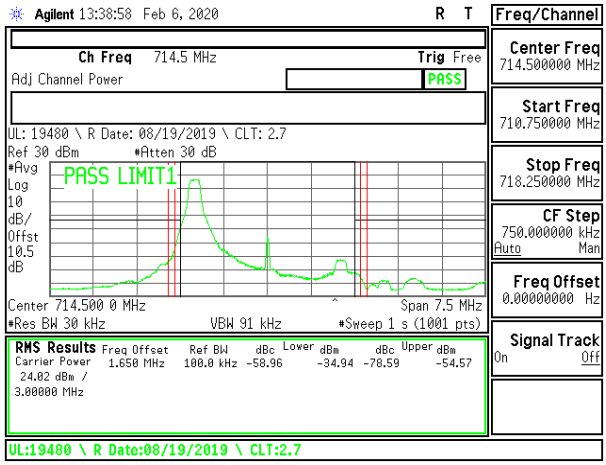
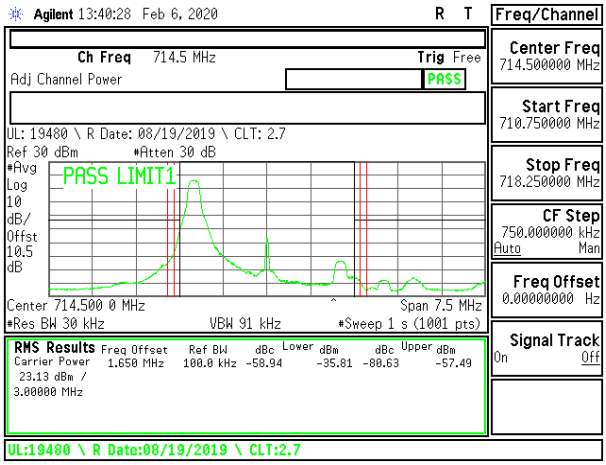
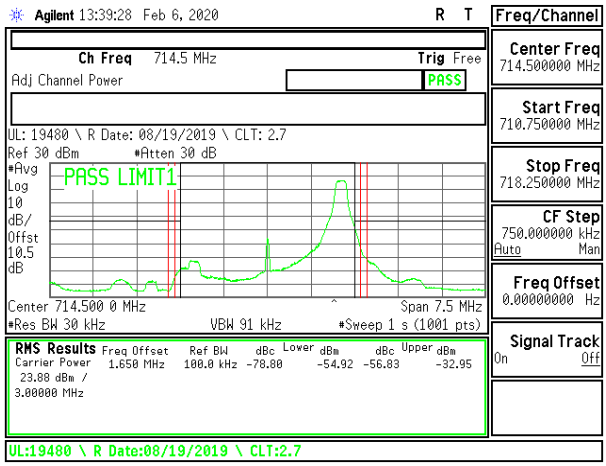


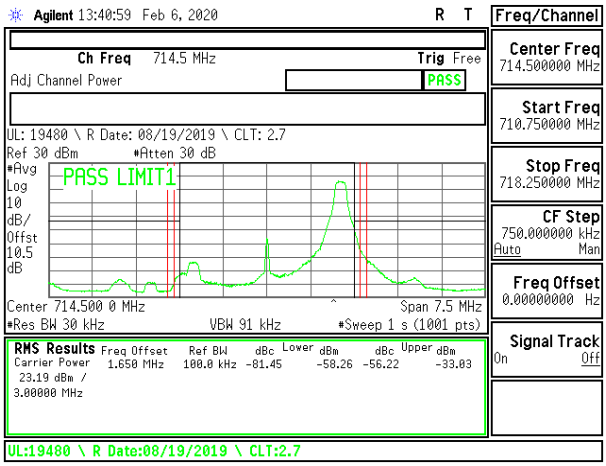
LTE B12 3MHz QPSK High Channel RB1-0



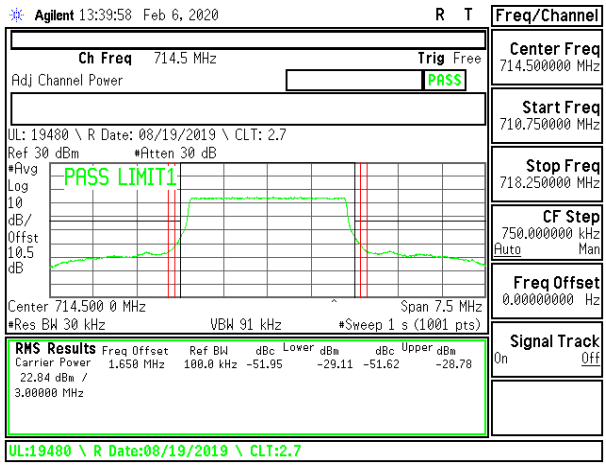
LTE B12 3MHz 16QAM High Channel RB1-0



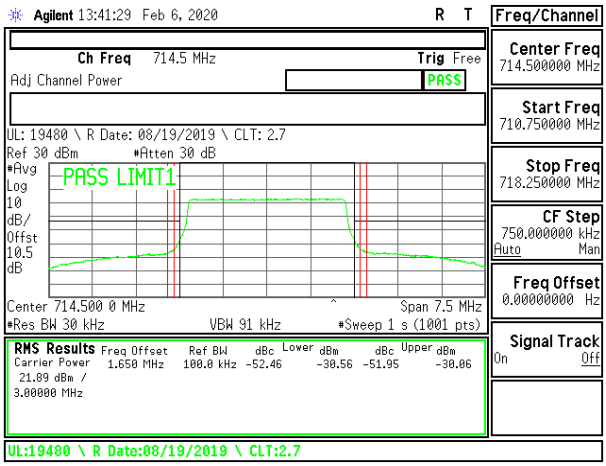
LTE B12 3MHz QPSK High Channel RB1-14



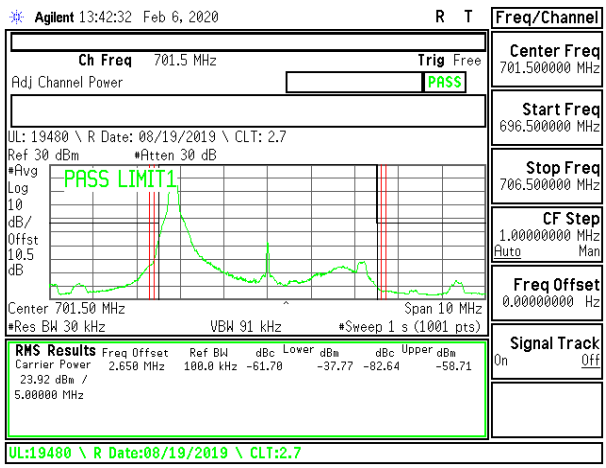
LTE B12 3MHz 16QAM High Channel RB1-14



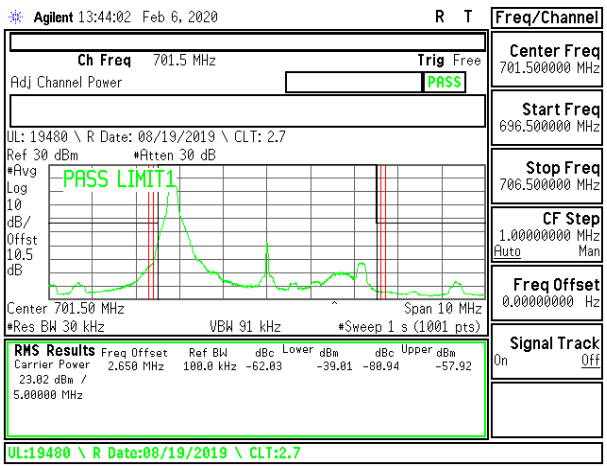
LTE B12 3MHz QPSK High Channel RB15-0



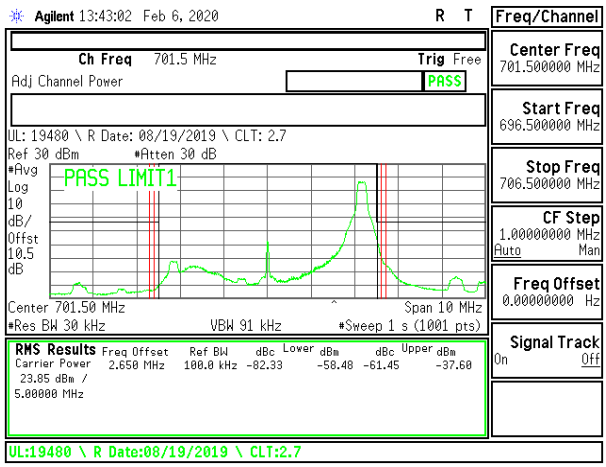
LTE B12 3MHz 16QAM High Channel RB15-0



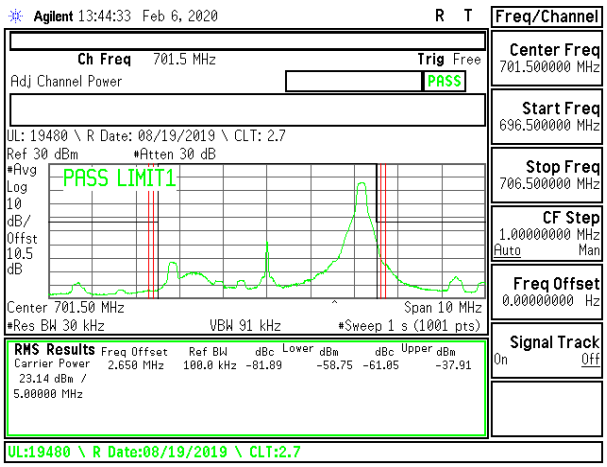
LTE B12 5MHz QPSK Low Channel RB1-0



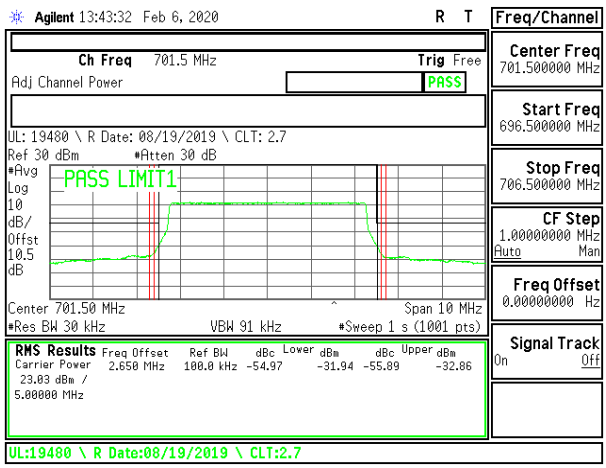
LTE B12 5MHz 16QAM Low Channel RB1-0



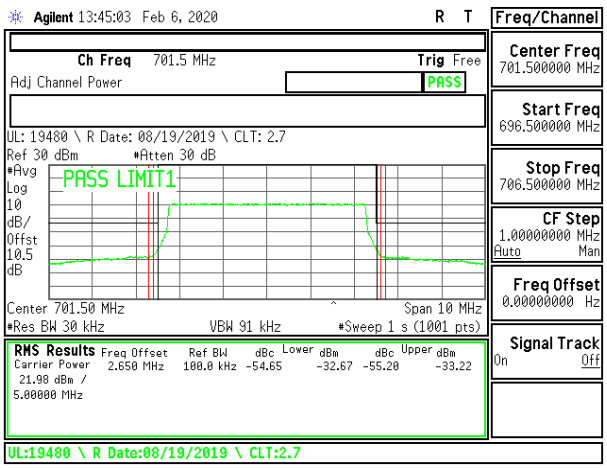
LTE B12 5MHz QPSK Low Channel RB1-24



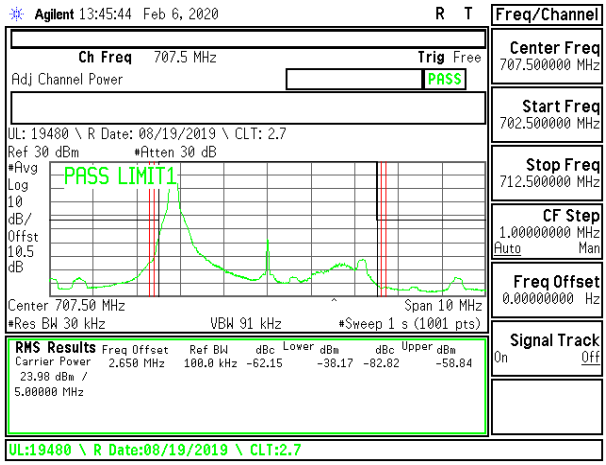
LTE B12 5MHz 16QAM Low Channel RB1-24



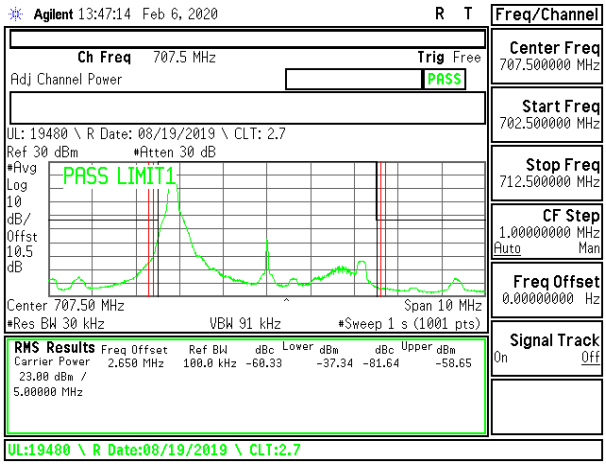
LTE B12 5MHz QPSK Low Channel RB25-0



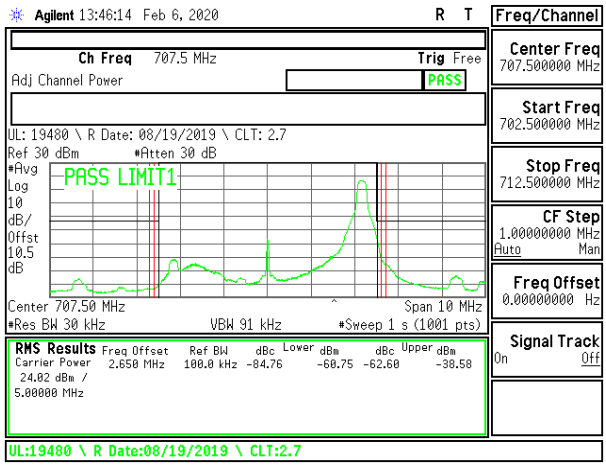
LTE B12 5MHz 16QAM Low Channel RB25-0



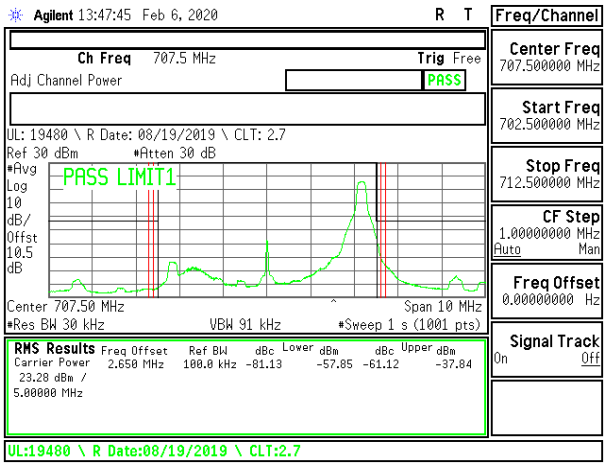
LTE B12 5MHz QPSK Middle Channel RB1-0



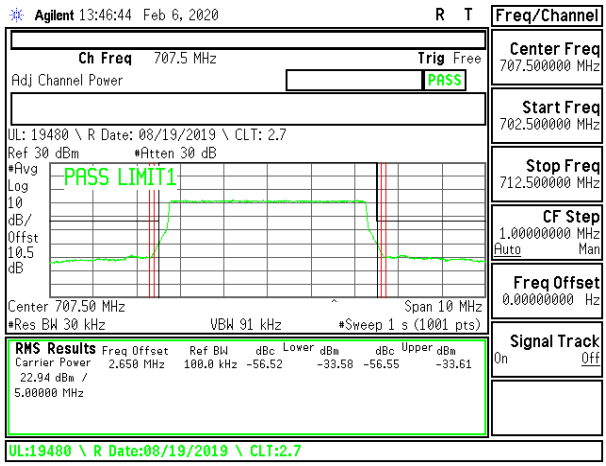
LTE B12 5MHz 16QAM Middle Channel RB1-0



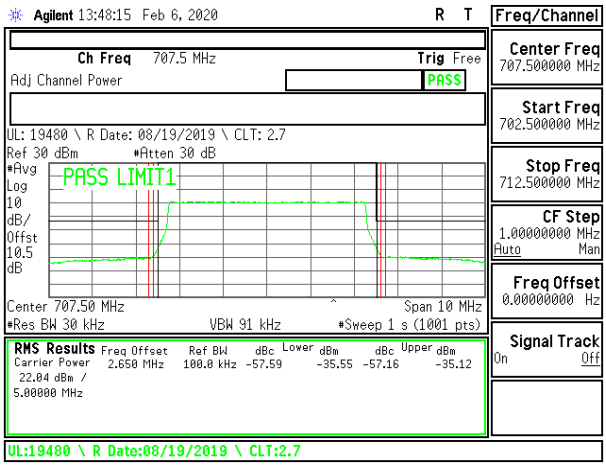
LTE B12 5MHz QPSK Middle Channel RB1-24



LTE B12 5MHz 16QAM Middle Channel RB1-24



LTE B12 5MHz QPSK Middle Channel RB25-0



LTE B12 5MHz 16QAM Middle Channel RB25-0