CERTIFICATION TEST REPORT

Report Number. : 12216366-E7V2

Applicant	:	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA. 95014, U.S.A.
Model	:	A2105
FCC ID	:	BCG-E3237A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	CFR47 PART 22H, 24E, 27, 90S, and 90R

Date Of Issue:
AUGUST 29, 2018

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/23/2018	Initial Review	Mengistu Mekuria
V2	8/29/2018	TCB Feedback	Vanessa Moestopo

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA. 95014, U.S.A.
Model	A2105
FCC ID	BCG-E3237A
EUT Description	SMARTPHONE
Serial Number	C7CWN00TK3MD
Date Tested	MARCH 12, 2018 to AUGUST 17, 2018
Applicable Standards	PART 22H, 24E, 27, 90S, and 90R
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. 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 any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released By:	Prepared By:
Mengistu Mekuria Lead Test Engineer UL Verification Services Inc.	Ellen Chu Laboratory Engineer UL Verification Services Inc.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.26:2015, CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90S, Part 90R, and KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 Determining ERP and EIRP v01r01.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, 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
☐ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC:22541-2)
☒ Chamber C (IC:2324B-3)	☒ Chamber F (IC:22541-3)
	☐ Chamber G (IC:22541-4)
	☐ Chamber H (IC:22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.
UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at NVLAP Lab Search.

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

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

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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	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance,1000 to 18000 MHz	4.32 dB
Radiated Disturbance,18000 to 26000 MHz	4.45 dB
Radiated Disturbance,26000 to 40000 MHz	5.24 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%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The Apple iPhone, is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac, Bluetooth, GPS and NFC. All models support at least one UICC based SIM. The second SIM is either UICC based, electronic SIM (e-SIM), or second SIM is not present. The device has a built-in inductive charging receiver which is not user accessible. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

ERP/EIRP LIMIT

§2.1046, §22.913, §24.232, §27.50, §90.635 and §90.541

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6
KDB 412172 D01 Determining ERP and EIRP v01r01

ERP/EIRP = PMeas + GT − LC
where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

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LTE BAND 2

Part 24 / RSS 133	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	0.20

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1909.3	25.5	25.70	0.372	1089.0	1M09G7W
	16QAM			24.8	25.00	0.316	1083.6	1M08D7W
	64QAM			24.6	24.80	0.302	1090.4	1M09D7W
3.0	QPSK	1851.5	1908.5	25.4	25.55	0.359	2694.2	2M69G7W
	16QAM			24.8	24.96	0.313	2686.6	2M69D7W
	64QAM			24.4	24.61	0.289	2693.8	2M69D7W
5.0	QPSK	1852.5	1907.5	25.4	25.60	0.363	4504.4	4M50G7W
	16QAM			24.8	25.00	0.316	4496.7	4M50D7W
	64QAM			24.5	24.73	0.297	4496.1	4M50D7W
10.0	QPSK	1855.0	1905.0	25.5	25.70	0.372	8977.5	8M98G7W
	16QAM			24.8	25.00	0.316	8985.4	8M99D7W
	64QAM			23.5	23.70	0.234	8976.3	8M98D7W
15.0	QPSK	1857.5	1902.5	25.4	25.60	0.363	13453.1	13M5G7W
	16QAM			24.8	25.01	0.317	13446.0	13M4D7W
	64QAM			23.3	23.48	0.223	13439.3	13M4D7W
20.0	QPSK	1860.0	1900.0	25.5	25.66	0.368	17898.0	17M9G7W
	16QAM			24.7	24.90	0.309	17933.7	17M9D7W
	64QAM			23.5	23.68	0.233	17925.1	17M9D7W

LTE BAND 5

Part 22H	
ERP Limit (W)	7.00
Antenna Gain (dBi)	-3.30

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	824.7	848.3	25.4	19.97	0.099	1087.8	1M09G7W
	16QAM			24.7	19.29	0.085	1087.3	1M09D7W
	64QAM			21.8	16.37	0.043	1091.6	1M09D7W
3.0	QPSK	825.5	847.5	25.3	19.88	0.097	2693.5	2M69G7W
	16QAM			24.8	19.33	0.086	2693.6	2M69D7W
	64QAM			21.7	16.26	0.042	2702.4	2M70D7W
5.0	QPSK	826.5	846.5	25.5	20.05	0.101	4489.2	4M49G7W
	16QAM			24.8	19.40	0.087	4495.0	4M50D7W
	64QAM			21.8	16.36	0.043	4502.9	4M50D7W
10.0	QPSK	829.0	844.0	25.4	20.00	0.100	8975.2	8M98G7W
	16QAM			24.9	19.45	0.088	8979.5	8M98D7W
	64QAM			21.8	16.37	0.043	8957.3	8M96D7W

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LTE BAND 7

Part 27 / RSS 199	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-0.90

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2502.5	2567.5	25.3	24.41	0.276	4509.6	4M51G7W
	16QAM			24.8	23.86	0.243	4482.5	4M48D7W
	64QAM			24.3	23.39	0.219	4466.4	4M47D7W
10.0	QPSK	2505.0	2565.0	25.5	24.59	0.288	8969.9	8M97G7W
	16QAM			24.8	23.86	0.243	8955.4	8M96D7W
	64QAM			24.4	23.50	0.224	8987.4	8M99D7W
15.0	QPSK	2507.5	2562.5	25.5	24.60	0.288	13463.6	13M5G7W
	16QAM			24.8	23.90	0.246	13440.1	13M4D7W
	64QAM			24.4	23.50	0.224	13435.8	13M4D7W
20.0	QPSK	2510.0	2560.0	25.4	24.54	0.285	17887.0	17M9G7W
	16QAM			24.8	23.93	0.247	17919.8	17M9D7W
	64QAM			24.5	23.56	0.227	17906.9	17M9D7W

LTE BAND 12

Part 27	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-3.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	699.7	715.3	25.4	19.64	0.092	1088.1	1M09G7W
	16QAM			24.8	19.01	0.080	1089.7	1M09D7W
	64QAM			24.4	18.62	0.073	1088.7	1M09D7W
3.0	QPSK	700.5	714.5	25.3	19.60	0.091	2680.0	2M68G7W
	16QAM			24.7	18.93	0.078	2699.0	2M70D7W
	64QAM			24.4	18.65	0.073	2697.5	2M70D7W
5.0	QPSK	701.5	713.5	25.5	19.72	0.094	4508.0	4M51G7W
	16QAM			24.9	19.13	0.082	4485.7	4M49D7W
	64QAM			24.4	18.68	0.074	4504.6	4M50D7W
10.0	QPSK	704.0	711.0	25.5	19.75	0.094	8976.7	8M98G7W
	16QAM			24.9	19.12	0.082	8956.4	8M96D7W
	64QAM			24.5	18.77	0.075	8965.4	8M97D7W

LTE BAND 13

Part 27	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-2.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	779.5	784.5	25.5	20.75	0.119	4508.0	4M51G7W
	16QAM			25.1	20.30	0.107	4492.8	4M49D7W
	64QAM			24.7	19.99	0.100	4499.9	4M50D7W
10.0	QPSK	782.0	782.0	25.5	20.71	0.118	8945.8	8M95G7W
	16QAM			24.9	20.14	0.103	8955.3	8M96D7W
	64QAM			24.9	20.11	0.103	8959.8	8M96D7W

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LTE BAND 14

Part 90R	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-2.70

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	790.5	795.5	25.5	20.61	0.115	4487.5	4M49G7W
	16QAM			25.0	20.18	0.104	4492.0	4M49D7W
	64QAM			23.7	18.80	0.076	4512.9	4M51D7W
10.0	QPSK	793.0	793.0	25.5	20.65	0.116	8985.1	8M99G7W
	16QAM			24.9	20.05	0.101	8953.7	8M95D7W
	64QAM			23.4	18.56	0.072	8995.0	9M00D7W

LTE BAND 17

Part 27	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-3.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	706.5	713.5	25.4	19.61	0.091	4495.3	4M50G7W
	16QAM			24.7	18.99	0.079	4495.6	4M50D7W
	64QAM			24.5	18.78	0.075	4500.1	4M50D7W
10.0	QPSK	709.0	711.0	25.5	19.75	0.094	8979.7	8M98G7W
	16QAM			24.9	19.13	0.082	8958.1	8M96D7W
	64QAM			24.5	18.73	0.075	8854.4	8M85D7W

LTE BAND 25

Part 24 / RSS 133	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	0.20

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1914.3	25.3	25.49	0.354	1086.0	1M09G7W
	16QAM			24.5	24.65	0.292	1088.5	1M09D7W
	64QAM			24.4	24.56	0.286	1088.5	1M09D7W
3.0	QPSK	1851.5	1913.5	25.3	25.48	0.353	2696.3	2M70G7W
	16QAM			24.5	24.70	0.295	2693.9	2M69D7W
	64QAM			24.3	24.51	0.283	2693.1	2M69D7W
5.0	QPSK	1852.5	1912.5	25.3	25.49	0.354	4493.5	4M49G7W
	16QAM			24.7	24.93	0.311	4496.5	4M50D7W
	64QAM			24.5	24.66	0.292	4506.2	4M51D7W
10.0	QPSK	1855.0	1910.0	25.4	25.57	0.361	8984.9	8M98G7W
	16QAM			24.6	24.84	0.305	8976.4	8M98D7W
	64QAM			24.4	24.59	0.288	8980.3	8M98D7W
15.0	QPSK	1857.5	1907.5	25.4	25.59	0.363	13433.7	13M4G7W
	16QAM			24.6	24.82	0.303	13462.2	13M5D7W
	64QAM			23.6	23.78	0.239	13452.2	13M5D7W
20.0	QPSK	1860.0	1905.0	25.5	25.70	0.372	17915.7	17M9G7W
	16QAM			24.7	24.92	0.310	17912.3	17M9D7W
	64QAM			23.8	23.97	0.250	17891.9	17M9D7W

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LTE BAND 26 (Part 90S)

Part 90S	
ERP Limit (W)	100.00
Antenna Gain (dBi)	-3.90

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	814.7	823.3	25.4	19.36	0.086	1094.4	1M09G7W
	16QAM			24.7	18.68	0.074	1092.7	1M09D7W
	64QAM			22.6	16.53	0.045	1078.7	1M08D7W
3.0	QPSK	815.5	822.5	25.4	19.33	0.086	2704.9	2M70G7W
	16QAM			24.8	18.73	0.075	2701.7	2M70D7W
	64QAM			22.4	16.39	0.044	2676.4	2M68D7W
5.0	QPSK	816.5	821.5	25.4	19.39	0.087	4498.8	4M50G7W
	16QAM			24.9	18.81	0.076	4503.5	4M50D7W
	64QAM			22.6	16.55	0.045	4482.3	4M48D7W
10.0	QPSK	819.0	819.0	25.5	19.45	0.088	9002.7	9M00G7W
	16QAM			24.8	18.70	0.074	8978.7	8M98D7W
	64QAM			22.5	16.47	0.044	8920.8	8M92D7W

LTE BAND 30

Part 27 / RSS 195	
EIRP Limit (W)	0.25
Antenna Gain (dBi)	-1.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2307.5	2312.5	23.4	21.63	0.146	4497.9	4M50G7W
	16QAM			22.8	21.00	0.126	4495.5	4M50D7W
	64QAM			21.0	19.16	0.082	4513.6	4M51D7W
10.0	QPSK	2310.0	2310.0	23.5	21.70	0.148	8969.5	8M97G7W
	16QAM			22.7	20.95	0.124	8957.1	8M96D7W
	64QAM			20.9	19.07	0.081	8965.8	8M97D7W

LTE BAND 41

Part 27	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-0.90

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2498.5	2687.5	27.0	26.08	0.405	4472.3	4M47G7W
	16QAM			26.4	25.50	0.355	4503.7	4M50D7W
	64QAM			25.3	24.39	0.275	4506.1	4M51D7W
10.0	QPSK	2501.0	2685.0	27.0	26.08	0.405	8921.3	8M92G7W
	16QAM			26.3	25.40	0.347	8915.9	8M92D7W
	64QAM			25.3	24.38	0.274	8976.0	8M98D7W
15.0	QPSK	2503.5	2682.5	27.0	26.10	0.407	13420.0	13M4G7W
	16QAM			26.2	25.27	0.336	13402.6	13M4D7W
	64QAM			25.3	24.42	0.276	13449.9	13M4D7W
20.0	QPSK	2506.0	2680.0	27.0	26.10	0.407	17845.3	17M8G7W
	16QAM			26.3	25.44	0.350	17869.7	17M9D7W
	64QAM			25.3	24.44	0.278	17889.9	17M9D7W

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LTE BAND 66

Part 27 / RSS 139	
EIRP Limit (W)	1.00
Antenna Gain (dBi)	-0.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1779.3	25.5	24.70	0.295	1087.5	1M09G7W
	16QAM			24.8	24.03	0.253	1087.5	1M09D7W
	64QAM			22.9	22.08	0.162	1085.8	1M09D7W
3.0	QPSK	1711.5	1778.5	25.5	24.67	0.293	2694.2	2M69G7W
	16QAM			24.8	24.04	0.254	2691.3	2M69D7W
	64QAM			22.8	22.02	0.159	2670.2	2M67D7W
5.0	QPSK	1712.5	1777.5	25.2	24.35	0.273	4489.0	4M49G7W
	16QAM			24.6	23.79	0.239	4502.5	4M50D7W
	64QAM			22.6	21.78	0.150	4503.8	4M50D7W
10.0	QPSK	1715.0	1775.0	25.3	24.49	0.281	8973.6	8M97G7W
	16QAM			24.6	23.82	0.241	8951.6	8M95D7W
	64QAM			22.6	21.79	0.151	8976.6	8M98D7W
15.0	QPSK	1717.5	1772.5	25.3	24.51	0.282	13444.5	13M4G7W
	16QAM			24.7	23.95	0.248	13462.2	13M5D7W
	64QAM			22.5	21.75	0.150	13427.6	13M4D7W
20.0	QPSK	1720.0	1770.0	25.3	24.48	0.281	17952.3	18M0G7W
	16QAM			24.7	23.90	0.246	17933.1	17M9D7W
	64QAM			22.6	21.82	0.152	17922.8	17M9D7W

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5.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 00.28.02.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

Frequency (MHz)	Ant 1 Gain (dBi)	Ant 2 Gain (dBi)
660	-4.7	-7.5
670	-4.7	-7.2
680	-4.9	-7.0
690	-5.4	-6.9
700	-4.9	-7.0
710	-4.1	-6.8
720	-3.6	-6.8
770	-2.6	-5.5
780	-2.6	-5.6
790	-2.7	-5.8
810	-6.4	-5.5
820	-5.8	-5.2
830	-3.9	-5.5
840	-3.7	-6.0
850	-3.3	-6.1
860	-3.0	-6.3
1700	-2.7	-3.8
1720	-2.3	-3.5
1740	-2.2	-3.5
1760	-1.5	-3.3
1780	-0.8	-3.0
1840	0.1	-2.1
1860	0.2	-1.6
1880	0.2	-1.3
1900	0.2	-0.7
1920	-0.2	-0.6
2300	-1.9	-2.3
2320	-1.8	-2.8
2500	-0.9	-2.3
2520	-1.0	-1.9
2540	-1.5	-1.7
2560	-1.9	-1.7
2580	-2.1	-1.6
2600	-2.6	-1.8
2620	-3.1	-2.2
2640	-3.6	-2.6
2660	-4.3	-3.3
2680	-5.0	-4.0
2700	-5.1	-4.2

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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 14, Band 17, Band 25, Band 26, Band 30, Band 41, and Band 66.

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

FCC rule Part 22.905 of LTE Band 26 (824-849MHz) is covered by LTE Band 5 of same rule since they have the same output power and supported bandwidths.

According to the Tune-up procedure, power class 2 (PC2) used to measure LTE band 41 powers.

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.

Conducted tests were performed on at Ant. 1 as worst case since it has higher output powers.

Radiated test was investigated in three orthogonal orientations X, Y and Z on ant 1 and ant 2. it was determined that Z (Portrait) orientation was the worst-case orientation for cell bands; X (Flatbed) orientation was the worst-case orientation for pcs bands, band 7, 30, and 41 without AC/DC adapter or earphone.

Radiated spurious emissions were investigated below 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found on below 30MHz and 30MHz-1GHz within 20dB of the limit.

For simultaneous transmission of multiple channels in the 2.4 /5 GHz and Cellular bands, No noticeable emission was found.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Laptop AC/DC adapter	Delta Electronic	A1343	ADP-85EBT V85
Laptop	Apple	MacBook Pro	73008ACB7XJ

I/O CABLES (RF Conducted Test)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	3	US 115V	Un-shielded	2.0m	N/A
2	USB	1	DC	Un-shielded	1.0m	N/A
3	RF In/Out	1	EUT	Un-shielded	0.6m	N/A
4	RF In/Out	1	Communication Test Set	Un-shielded	1.2m	N/A
5	RF In/Out	1	Barrel	N/A	N/A	N/A

I/O CABLES (RF Radiated Test)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF In/Out	1	Antenna	Un-shielded	5.0m	N/A

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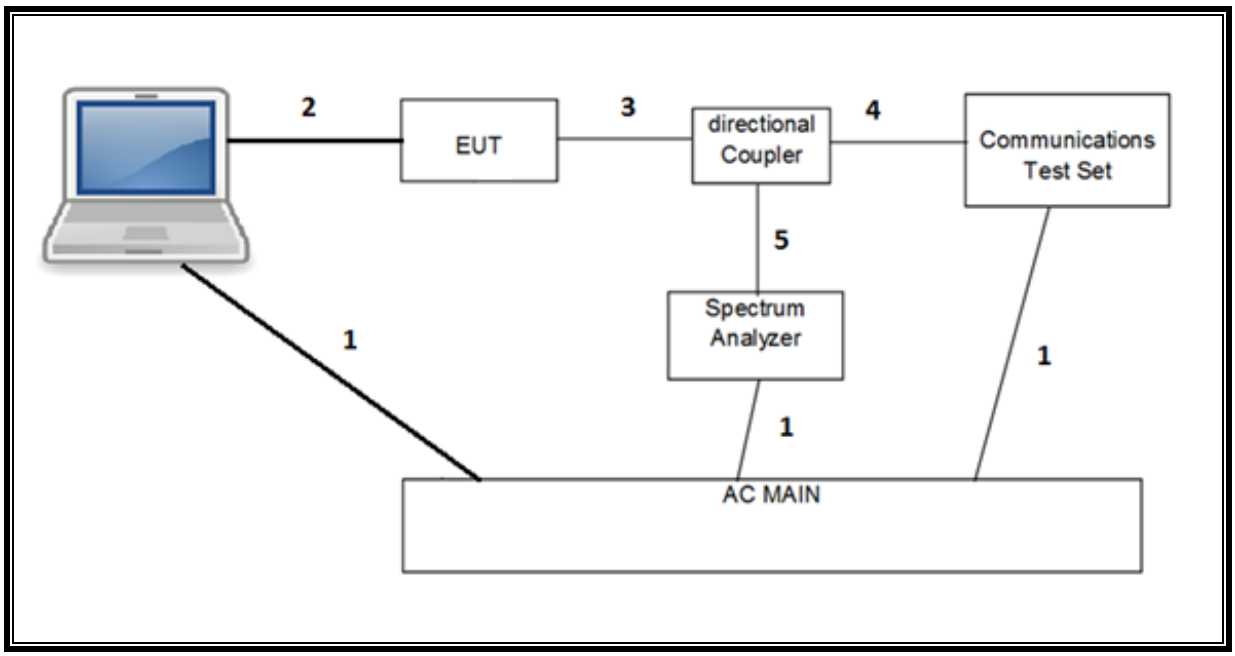
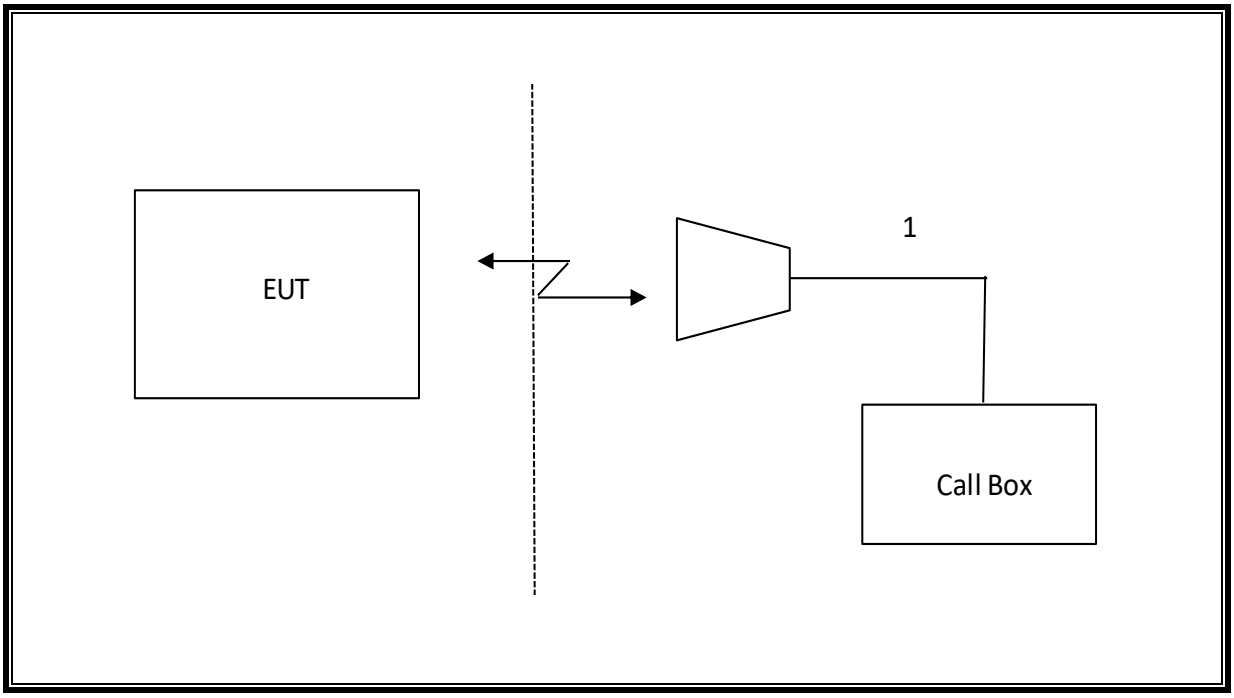
CONDUCTED SETUP



RADIATED SETUP



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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**	**Asset**	**Cal Due**
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	05/24/2019
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T931	02/24/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T243	11/02/2018
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T10	02/14/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T243	11/02/2018
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T711	01/30/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T122	03/08/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T408	12/15/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T742	12/04/2018
*Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T173	06/24/2018
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent (Keysight) Technologies	E4446A	T177	04/12/2019
Power Meter, P-series single channel	Keysight	N1912A	T1244	06/13/2019
Power Sensor	Keysight	N1921A	T1225	04/10/2019
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T979	02/17/2019
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T959	02/17/2019
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T978	08/31/2018
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T1871	02/19/2019
Directional Coupler	KRYTAR	152610	T1536	04/27/2019
Directional Coupler	KRYTAR	152610	T1537	04/27/2019
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T1616	09/14/2018
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T754	09/05/2018
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T1154	09/05/2018
Filter, HPF 1.2GHz	MICROTRONICS	WHKX1.2/15G-6ST	T1182	05/19/2019
*Filter, HPF 4GHz	MICROTRONICS	HPM13351	T1239	08/11/2018
Filter, HPF 3.0GHz	MICROTRONICS	HPM17543	T487	12/04/2018
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 1.7, November 2015	
Power Measurement Software	UL	UL RF	Ver 2.2, June 2017	

NOTES: *The testing is completed before equipment expiration date.

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7. RF OUTPUT POWER VERIFICATION

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

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

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

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

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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

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

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

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MODES TESTED

- LTE Band 2
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 38
- LTE Band 41
- LTE Band 66

RESULTS

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

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7.1. LTE BAND 2

ID:	39004	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 2 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18607	18900	19193	18607	18900	19193
				1850.7 MHz	1880.0 MHz	1909.3 MHz	1850.7 MHz	1880.0 MHz	1909.3 MHz
1.4	QPSK	1	0	25.4	25.2	25.3	19.4	19.4	18.9
		1	2	25.4	25.3	25.2	19.4	19.4	18.9
		1	5	**25.5**	25.3	25.2	19.5	19.5	18.9
		3	0	25.3	25.3	25.1	19.5	19.5	18.9
		3	1	25.3	25.3	25.1	19.4	19.4	18.8
		3	2	25.3	25.2	25.1	19.4	19.5	18.9
		6	0	24.3	24.2	24.1	19.4	**19.5**	18.7
	16QAM	1	0	24.8	24.5	24.5	18.7	18.6	18.0
		1	2	24.8	24.5	24.4	18.7	18.6	18.1
		1	5	**24.8**	24.5	24.4	**18.7**	18.7	18.2
		3	0	24.5	24.4	24.3	18.5	18.5	18.0
		3	1	24.5	24.3	24.3	18.5	18.4	17.9
		3	2	24.5	24.3	24.2	18.5	18.5	18.0
		6	0	23.4	23.3	23.2	18.4	18.5	17.8
	64QAM	1	0	24.4	24.2	24.5	17.3	17.4	**17.6**
		1	2	24.4	24.3	24.5	17.4	17.4	17.5
		1	5	24.4	24.4	**24.6**	17.4	17.4	17.5
		3	0	24.3	24.2	24.4	17.2	17.2	17.3
		3	1	24.3	24.2	24.4	17.3	17.3	17.2
		3	2	24.3	24.2	24.4	17.3	17.2	17.2
		6	0	23.3	23.2	23.3	16.3	16.1	16.1

OUTPUT POWER FOR LTE BAND 2 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18615	18900	19185	18615	18900	19185
				1851.5 MHz	1880.0 MHz	1908.5 MHz	1851.5 MHz	1880.0 MHz	1908.5 MHz
3.0	QPSK	1	0	25.3	25.1	25.1	19.3	19.3	18.9
		1	7	25.3	25.1	25.2	19.3	19.5	18.8
		1	14	**25.4**	25.1	25.0	19.2	19.4	18.7
		8	0	24.2	24.1	24.1	19.3	19.4	18.8
		8	4	24.2	24.1	24.0	19.3	19.4	18.7
		8	7	24.3	24.1	24.0	19.2	**19.5**	18.8
		15	0	24.2	24.0	24.0	19.3	19.5	18.7
	16QAM	1	0	24.6	24.4	24.5	18.5	18.5	18.0
		1	7	24.7	24.4	24.4	18.5	**18.7**	18.0
		1	14	**24.8**	24.4	24.3	18.5	18.6	18.0
		8	0	23.3	23.2	23.2	18.4	18.4	17.8
		8	4	23.3	23.2	23.2	18.4	18.4	17.8
		8	7	23.3	23.2	23.1	18.3	18.5	17.8
		15	0	23.2	23.1	23.1	18.3	18.4	17.7
	64QAM	1	0	24.4	24.1	24.3	17.3	17.1	17.3
		1	7	**24.4**	24.2	24.3	**17.4**	17.3	17.3
		1	14	24.4	24.2	24.3	17.4	17.2	17.0
		8	0	23.2	23.0	23.2	16.1	16.1	16.0
		8	4	23.3	23.0	23.2	16.1	16.1	16.0
		8	7	23.3	23.1	23.2	16.1	16.0	16.0
		15	0	23.2	23.1	23.1	16.0	16.0	16.0

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OUTPUT POWER FOR LTE BAND 2 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18625	18900	19175	18625	18900	19175
				1852.5 MHz	1880.0 MHz	1907.5 MHz	1852.5 MHz	1880.0 MHz	1907.5 MHz
5.0	QPSK	1	0	25.3	25.0	25.3	19.3	19.2	19.0
		1	12	**25.4**	25.0	25.1	19.2	19.3	18.6
		1	24	25.3	25.1	25.0	19.0	19.3	18.7
		12	0	24.2	24.1	24.1	19.2	19.3	18.8
		12	6	24.3	24.1	24.1	19.2	19.3	18.7
		12	11	24.2	24.1	24.1	19.1	19.4	18.7
		25	0	24.3	24.1	24.1	19.3	**19.5**	18.8
	16QAM	1	0	24.6	24.5	24.6	18.5	18.6	18.1
		1	12	**24.8**	24.4	24.5	18.4	18.7	17.9
		1	24	24.6	24.4	24.5	18.2	**18.7**	18.0
		12	0	23.4	23.2	23.3	18.4	18.5	17.9
		12	6	23.5	23.2	23.2	18.4	18.5	17.8
		12	11	23.4	23.2	23.2	18.4	18.5	17.8
		25	0	23.4	23.2	23.2	18.5	18.5	17.9
	64QAM	1	0	24.4	24.1	**24.5**	17.3	17.1	17.4
		1	12	24.4	24.2	24.4	**17.5**	17.2	17.3
		1	24	24.4	24.3	24.3	17.4	17.3	17.3
		12	0	23.3	23.1	23.3	16.1	16.1	16.1
		12	6	23.4	23.2	23.2	16.2	16.1	16.1
		12	11	23.4	23.2	23.2	16.1	16.1	16.1
		25	0	23.4	23.2	23.2	16.2	16.0	16.0

OUTPUT POWER FOR LTE BAND 2 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18650	18900	19150	18650	18900	19150
				1855.0 MHz	1880.0 MHz	1905.0 MHz	1855.0 MHz	1880.0 MHz	1905.0 MHz
10.0	QPSK	1	0	**25.5**	25.3	25.4	19.3	19.2	19.3
		1	24	25.5	25.4	25.4	19.0	19.3	19.1
		1	49	25.2	25.4	25.2	19.3	19.3	18.8
		25	0	24.5	24.2	24.2	19.2	19.2	19.3
		25	12	24.3	24.3	24.2	19.0	19.3	19.2
		25	24	24.1	24.3	24.2	19.2	**19.4**	18.8
		50	0	24.2	24.1	24.3	19.1	19.4	19.0
	16QAM	1	0	24.8	24.7	**24.8**	18.6	18.5	18.6
		1	24	24.8	24.7	24.8	18.3	**18.6**	18.4
		1	49	24.5	24.7	24.6	18.6	18.6	18.1
		25	0	23.5	23.3	23.3	18.3	18.3	18.4
		25	12	23.3	23.4	23.3	18.1	18.4	18.3
		25	24	23.2	23.3	23.2	18.3	18.4	18.0
		50	0	23.3	23.2	23.3	18.2	18.4	18.2
	64QAM	1	0	23.4	23.0	23.3	**17.4**	17.3	17.2
		1	24	**23.5**	23.0	23.4	17.3	17.3	17.3
		1	49	23.4	23.3	23.2	17.2	17.3	17.2
		25	0	22.3	22.0	22.2	16.2	16.0	16.0
		25	12	22.3	22.1	22.2	16.0	16.1	16.0
		25	24	22.3	22.1	22.2	15.9	16.0	16.0
		50	0	22.2	22.1	22.2	15.9	15.9	16.0

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OUTPUT POWER FOR LTE BAND 2 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18675	18900	19125	18675	18900	19125
				1857.5 MHz	1880.0 MHz	1902.5 MHz	1857.5 MHz	1880.0 MHz	1902.5 MHz
15.0	QPSK	1	0	**25.4**	25.1	25.3	19.3	19.3	19.3
		1	37	25.2	25.1	25.3	19.2	**19.4**	19.3
		1	74	24.9	25.1	25.1	19.0	19.4	18.7
		36	0	24.2	24.0	24.1	19.2	19.2	19.2
		36	16	24.0	24.1	24.1	19.1	19.3	19.3
		36	35	23.9	24.0	24.1	19.2	19.3	18.9
		75	0	23.9	24.0	24.2	19.2	19.4	19.3
	16QAM	1	0	**24.8**	24.3	24.8	18.6	18.4	**18.6**
		1	37	24.5	24.3	24.7	18.4	18.4	18.6
		1	74	24.3	24.4	24.4	18.4	18.4	18.0
		36	0	23.2	23.1	23.2	18.3	18.3	18.3
		36	16	23.1	23.2	23.1	18.3	18.3	18.3
		36	35	22.9	23.1	23.2	18.3	18.3	18.1
		75	0	23.0	23.1	23.1	18.3	18.4	18.4
	64QAM	1	0	23.3	23.2	23.2	**17.4**	17.1	17.3
		1	37	23.3	23.2	23.2	17.2	17.3	17.2
		1	74	23.2	**23.3**	23.2	17.1	17.4	17.2
		36	0	22.2	21.8	22.0	16.1	15.9	16.0
		36	16	22.2	21.9	22.1	15.9	16.1	16.0
		36	35	22.1	21.9	22.1	15.9	16.0	16.0
		75	0	22.1	22.0	22.0	15.8	15.9	16.0

OUTPUT POWER FOR LTE BAND 2 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				18700	18900	19100	18700	18900	19100
				1860.0 MHz	1880.0 MHz	1900.0 MHz	1860.0 MHz	1880.0 MHz	1900.0 MHz
20.0	QPSK	1	0	**25.5**	25.1	25.2	19.3	19.4	19.4
		1	49	25.2	25.3	25.3	19.3	19.3	19.3
		1	99	23.9	25.3	25.2	19.5	19.4	18.8
		50	0	23.0	24.0	24.1	19.2	19.2	19.2
		50	24	22.9	24.0	24.2	19.3	19.4	19.2
		50	49	22.7	24.1	24.1	19.2	19.3	19.0
		100	0	22.9	24.1	24.3	19.3	**19.5**	19.4
	16QAM	1	0	23.8	24.3	24.5	18.6	**18.8**	18.7
		1	49	23.4	24.5	**24.7**	18.6	18.6	18.6
		1	99	23.2	24.6	24.5	18.8	18.8	18.0
		50	0	22.1	23.1	23.2	18.3	18.3	18.3
		50	24	21.9	23.1	23.1	18.3	18.4	18.3
		50	49	21.7	23.1	23.1	18.2	18.3	18.3
		100	0	21.9	23.2	23.2	18.3	18.5	18.4
	64QAM	1	0	23.4	23.2	23.4	**17.6**	16.9	17.3
		1	49	23.4	22.9	23.3	17.3	17.2	17.4
		1	99	**23.5**	23.2	23.4	17.1	17.2	17.5
		50	0	22.1	21.8	22.0	15.8	15.9	16.0
		50	24	22.0	22.0	22.1	15.8	15.9	16.0
		50	49	21.8	22.0	22.1	15.7	15.9	16.0
		100	0	21.9	22.1	22.1	15.8	16.0	16.1

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7.2. LTE BAND 5

ID:	10646	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 5 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20407	20525	20643	20407	20525	20643
				824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
1.4	QPSK	1	0	**25.4**	25.2	25.1	23.3	23.2	23.4
		1	2	25.3	25.1	25.0	23.3	23.2	23.3
		1	5	25.3	25.2	25.1	23.3	23.2	23.3
		3	0	25.3	25.1	25.1	23.3	23.2	**23.4**
		3	1	25.3	25.1	25.1	23.3	23.2	23.4
		3	2	25.3	25.1	25.1	23.3	23.2	23.3
		6	0	24.3	24.1	24.1	23.3	23.1	23.3
	16QAM	1	0	**24.7**	24.6	24.3	22.6	22.6	22.6
		1	2	24.7	24.6	24.3	22.6	22.5	22.6
		1	5	24.6	24.6	24.3	**22.6**	22.5	22.5
		3	0	24.5	24.3	24.2	22.4	22.3	22.5
		3	1	24.5	24.3	24.2	22.4	22.3	22.4
		3	2	24.5	24.3	24.2	22.4	22.3	22.4
		6	0	23.5	23.3	23.2	22.4	22.1	22.3
	64QAM	1	0	21.3	21.5	**21.8**	21.1	21.0	21.0
		1	2	21.3	21.5	21.7	21.0	21.0	21.0
		1	5	21.4	21.4	21.8	**21.1**	21.0	21.0
		3	0	21.3	21.3	21.6	20.9	20.8	20.8
		3	1	21.3	21.2	21.6	20.9	20.8	20.8
		3	2	21.3	21.2	21.6	20.9	20.8	20.8
		6	0	20.3	20.2	20.4	19.9	19.8	19.7

OUTPUT POWER FOR LTE BAND 5 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20415	20525	20635	20415	20525	20635
				825.5 MHz	836.5 MHz	847.5 MHz	825.5 MHz	836.5 MHz	847.5 MHz
3.0	QPSK	1	0	**25.3**	25.1	25.1	23.2	23.2	23.4
		1	7	25.3	25.2	25.1	23.3	23.2	**23.4**
		1	14	25.2	25.2	25.1	23.3	23.2	23.3
		8	0	24.3	24.2	24.0	23.3	23.1	23.3
		8	4	24.3	24.1	24.1	23.3	23.1	23.3
		8	7	24.3	24.1	24.1	23.3	23.1	23.3
		15	0	24.3	24.1	24.1	23.3	23.2	23.3
	16QAM	1	0	**24.8**	24.3	24.4	22.4	22.6	22.7
		1	7	24.7	24.4	24.4	22.5	22.5	**22.7**
		1	14	24.6	24.6	24.4	22.5	22.5	22.6
		8	0	23.5	23.2	23.1	22.4	22.2	22.3
		8	4	23.4	23.2	23.2	22.4	22.2	22.3
		8	7	23.4	23.2	23.1	22.4	22.1	22.3
		15	0	23.3	23.2	23.1	22.3	22.1	22.3
	64QAM	1	0	21.3	21.5	21.5	21.1	21.0	21.0
		1	7	21.4	21.5	**21.7**	21.1	20.9	21.0
		1	14	21.4	21.3	21.5	**21.3**	21.0	20.7
		8	0	20.3	20.2	20.4	19.9	19.8	19.8
		8	4	20.4	20.2	20.4	19.9	19.8	19.7
		8	7	20.4	20.2	20.4	20.0	19.8	19.7
		15	0	20.3	20.2	20.3	19.9	19.7	19.7

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OUTPUT POWER FOR LTE BAND 5 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20425	20525	20625	20425	20525	20625
				826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
5.0	QPSK	1	0	**25.5**	25.2	25.3	23.3	23.4	23.3
		1	12	25.3	25.1	25.1	23.3	23.2	23.4
		1	24	25.3	25.2	25.1	23.3	23.3	23.4
		12	0	24.3	24.2	24.1	23.3	23.2	23.3
		12	6	24.2	24.2	24.1	23.4	23.2	23.3
		12	11	24.2	24.3	24.1	23.4	23.2	23.4
		25	0	24.3	24.2	24.1	23.4	23.2	**23.4**
	16QAM	1	0	**24.8**	24.6	24.8	22.6	22.7	22.7
		1	12	24.7	24.6	24.5	22.7	22.5	22.7
		1	24	24.7	24.7	24.5	**22.8**	22.6	22.7
		12	0	23.5	23.4	23.2	22.5	22.3	22.4
		12	6	23.5	23.4	23.2	22.5	22.3	22.5
		12	11	23.5	23.5	23.3	22.6	22.4	22.5
		25	0	23.5	23.3	23.3	22.5	22.3	22.4
	64QAM	1	0	21.5	21.6	21.6	21.2	21.2	**21.3**
		1	12	21.5	21.5	21.7	21.2	21.0	21.2
		1	24	21.6	21.5	**21.8**	21.2	21.1	21.1
		12	0	20.4	20.4	20.4	20.0	19.9	20.0
		12	6	20.4	20.4	20.5	20.0	19.9	20.0
		12	11	20.5	20.4	20.5	20.0	19.9	19.9
		25	0	20.4	20.3	20.4	19.9	19.8	19.9

OUTPUT POWER FOR LTE BAND 5 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20450	20525	20600	20450	20525	20600
				829.0 MHz	836.5 MHz	844.0 MHz	829.0 MHz	836.5 MHz	844.0 MHz
10.0	QPSK	1	0	**25.4**	25.3	25.4	23.4	**23.5**	23.3
		1	24	25.3	25.2	25.4	23.4	23.3	23.4
		1	49	25.2	25.4	25.2	23.4	23.4	23.5
		25	0	24.2	24.2	24.4	23.4	23.3	23.3
		25	12	24.2	24.2	24.3	23.3	23.2	23.3
		25	24	24.2	24.2	24.1	23.4	23.3	23.4
		50	0	24.2	24.1	24.2	23.3	23.2	23.3
	16QAM	1	0	**24.9**	24.7	24.8	22.7	22.8	22.7
		1	24	24.8	24.5	24.7	22.7	22.6	22.7
		1	49	24.6	24.7	24.5	**22.8**	22.6	22.8
		25	0	23.4	23.3	23.5	22.4	22.4	22.4
		25	12	23.4	23.3	23.4	22.4	22.3	22.3
		25	24	23.3	23.4	23.2	22.5	22.4	22.5
		50	0	23.3	23.2	23.3	22.3	22.2	22.3
	64QAM	1	0	21.4	21.8	21.4	21.2	**21.4**	21.1
		1	24	21.6	21.5	21.4	21.3	21.1	21.1
		1	49	21.8	21.5	**21.8**	21.3	21.2	21.0
		25	0	20.4	20.4	20.4	20.0	19.9	19.9
		25	12	20.4	20.3	20.4	19.9	19.9	20.0
		25	24	20.5	20.4	20.5	20.0	19.9	20.0
		50	0	20.3	20.3	20.3	19.9	19.8	19.9

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7.3. LTE BAND 7

ID:	10646	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 7 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20775	21100	21425	20775	21100	21425
				2502.5 MHz	2535.0 MHz	2567.5 MHz	2502.5 MHz	2535.0 MHz	2567.5 MHz
5.0	QPSK	1	0	25.0	**25.3**	25.1	20.3	21.4	20.9
		1	12	25.1	25.2	25.0	20.4	21.2	20.9
		1	24	25.2	25.2	25.1	20.6	21.2	20.8
		12	0	24.0	24.2	24.0	18.5	**21.4**	20.9
		12	6	24.0	24.2	23.9	18.4	21.4	20.8
		12	11	24.0	24.1	24.0	18.5	21.3	20.8
		25	0	24.0	24.2	23.9	18.5	21.4	20.8
	16QAM	1	0	24.4	**24.8**	24.4	18.7	**20.7**	20.1
		1	12	24.4	24.6	24.3	18.6	20.5	20.1
		1	24	24.5	24.7	24.4	18.7	20.4	20.0
		12	0	22.9	23.2	22.9	17.5	20.6	19.8
		12	6	23.0	23.2	22.9	17.5	20.5	19.8
		12	11	23.0	23.1	23.0	17.5	20.5	19.8
		25	0	23.0	23.1	22.9	17.5	20.5	19.8
	64QAM	1	0	24.0	24.2	24.0	17.8	17.9	17.8
		1	12	24.0	24.3	24.0	17.9	17.9	17.8
		1	24	24.1	**24.3**	24.0	**18.0**	17.9	17.7
		12	0	22.7	22.8	22.6	16.5	16.4	16.3
		12	6	22.8	22.8	22.7	16.5	16.4	16.3
		12	11	22.9	22.8	22.6	16.6	16.4	16.3
		25	0	22.8	22.8	22.7	16.5	16.4	16.4

OUTPUT POWER FOR LTE BAND 7 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20800	21100	21400	20800	21100	21400
				2505.0 MHz	2535.0 MHz	2565.0 MHz	2505.0 MHz	2535.0 MHz	2565.0 MHz
10.0	QPSK	1	0	25.1	25.4	25.3	21.0	21.3	21.1
		1	24	25.3	25.4	25.1	21.4	21.3	21.1
		1	49	**25.5**	25.2	25.2	**21.5**	21.2	21.1
		25	0	24.2	24.3	24.1	20.5	20.2	20.2
		25	12	24.2	24.3	24.1	20.5	20.3	20.2
		25	24	24.4	24.2	24.0	20.6	20.3	20.1
		50	0	24.2	24.2	24.1	20.5	20.2	20.2
	16QAM	1	0	24.4	24.6	24.6	20.5	20.5	20.3
		1	24	24.6	24.6	24.5	20.7	20.5	20.2
		1	49	**24.8**	24.5	24.5	**20.7**	20.5	20.3
		25	0	23.2	23.4	23.2	19.5	19.3	19.2
		25	12	23.3	23.3	23.1	19.5	19.3	19.2
		25	24	23.4	23.3	23.0	19.6	19.3	19.1
		50	0	23.2	23.3	23.1	19.5	19.3	19.1
	64QAM	1	0	24.1	24.3	23.9	19.6	19.7	19.4
		1	24	24.1	24.2	24.0	19.8	19.6	19.6
		1	49	**24.4**	24.2	24.0	**20.0**	19.7	19.5
		25	0	23.0	23.1	22.9	18.5	18.4	18.3
		25	12	23.0	23.0	22.9	18.6	18.4	18.4
		25	24	23.2	23.1	22.9	18.7	18.4	18.4
		50	0	23.0	23.0	22.9	18.6	18.4	18.4

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OUTPUT POWER FOR LTE BAND 7 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20825	21100	21375	20825	21100	21375
				2507.5 MHz	2535.0 MHz	2562.5 MHz	2507.5 MHz	2535.0 MHz	2562.5 MHz
15.0	QPSK	1	0	25.1	25.3	25.2	21.0	21.3	21.1
		1	37	**25.5**	25.3	25.2	21.4	21.2	21.2
		1	74	25.2	25.1	25.1	**21.4**	21.2	21.0
		36	0	24.2	24.4	24.2	20.5	20.3	20.2
		36	16	24.4	24.3	24.2	20.5	20.3	20.2
		36	35	24.3	24.2	24.1	20.4	20.3	20.1
		75	0	24.4	24.2	24.2	20.5	20.2	20.2
	16QAM	1	0	24.4	24.6	24.5	20.6	20.6	20.5
		1	37	**24.8**	24.6	24.6	**20.7**	20.4	20.4
		1	74	24.6	24.3	24.5	20.6	20.4	20.3
		36	0	23.2	23.3	23.2	19.5	19.3	19.2
		36	16	23.4	23.4	23.1	19.5	19.3	19.2
		36	35	23.4	23.2	23.1	19.4	19.3	19.1
		75	0	23.4	23.2	23.1	19.5	19.3	19.2
	64QAM	1	0	24.1	**24.4**	23.9	19.7	19.7	19.2
		1	37	24.3	24.3	24.0	19.9	19.7	19.5
		1	74	24.3	24.1	23.9	**20.0**	19.6	19.5
		36	0	23.0	23.1	22.9	18.6	18.4	18.1
		36	16	23.2	23.0	23.0	18.7	18.4	18.2
		36	35	23.2	23.1	22.9	18.7	18.4	18.4
		75	0	23.2	23.0	23.0	18.7	18.4	18.3

OUTPUT POWER FOR LTE BAND 7 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				20850	21100	21350	20850	21100	21350
				2510.0 MHz	2535.0 MHz	2560.0 MHz	2510.0 MHz	2535.0 MHz	2560.0 MHz
20.0	QPSK	1	0	25.1	25.2	24.9	21.4	21.3	21.1
		1	49	**25.4**	25.3	25.2	**21.5**	21.3	21.1
		1	99	25.2	25.0	25.2	21.3	21.2	21.1
		50	0	24.2	24.3	24.1	20.5	20.3	20.1
		50	24	24.3	24.2	24.1	20.4	20.2	20.1
		50	49	24.2	24.1	24.1	20.3	20.2	20.2
		100	0	24.3	24.2	24.2	20.5	20.3	20.2
	16QAM	1	0	24.5	24.6	24.3	20.7	20.6	20.4
		1	49	**24.8**	24.6	24.5	**20.8**	20.6	20.3
		1	99	24.7	24.3	24.5	20.7	20.5	20.4
		50	0	23.3	23.3	23.1	19.5	19.3	19.1
		50	24	23.3	23.3	23.1	19.5	19.3	19.1
		50	49	23.3	23.1	23.1	19.4	19.2	19.2
		100	0	23.4	23.2	23.1	19.5	19.3	19.2
	64QAM	1	0	24.2	24.2	24.1	19.8	19.8	19.1
		1	49	24.4	24.1	24.1	**20.0**	19.7	19.2
		1	99	**24.5**	24.0	24.1	20.0	19.6	19.4
		50	0	23.0	23.1	22.9	18.6	18.4	18.0
		50	24	23.1	23.0	22.9	18.6	18.4	18.1
		50	49	23.1	23.0	22.9	18.6	18.4	18.3
		100	0	23.2	23.1	23.0	18.7	18.4	18.2

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7.4. LTE BAND 12

ID:	10646	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 12 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23017	23095	23173	23017	23095	23173
				699.7 MHz	707.5 MHz	715.3 MHz	699.7 MHz	707.5 MHz	715.3 MHz
1.4	QPSK	1	0	**25.4**	25.4	25.1	**24.2**	24.1	24.0
		1	2	25.3	25.3	25.1	24.2	24.1	24.0
		1	5	25.4	25.3	25.1	24.1	24.1	24.0
		3	0	25.4	25.4	25.1	24.1	24.1	24.0
		3	1	25.4	25.3	25.1	24.1	24.0	24.0
		3	2	25.3	25.3	25.1	24.1	24.0	23.9
		6	0	24.4	24.3	24.1	23.1	23.0	22.9
	16QAM	1	0	24.6	**24.8**	24.4	23.4	**23.5**	23.2
		1	2	24.7	24.7	24.3	23.4	23.4	23.2
		1	5	24.7	24.8	24.4	23.4	23.5	23.2
		3	0	24.5	24.5	24.3	23.3	23.2	23.1
		3	1	24.5	24.5	24.3	23.2	23.2	23.0
		3	2	24.5	24.5	24.3	23.3	23.2	23.0
		6	0	23.4	23.4	23.2	22.2	22.2	22.0
	64QAM	1	0	24.3	24.3	24.3	22.3	**22.4**	22.2
		1	2	24.1	24.4	24.2	22.2	22.3	22.2
		1	5	24.2	24.3	**24.4**	22.3	22.3	22.1
		3	0	24.2	24.1	24.1	22.2	22.2	22.0
		3	1	24.1	24.1	24.1	22.1	22.2	22.0
		3	2	24.1	24.1	24.1	22.1	22.2	21.9
		6	0	23.1	23.1	23.0	21.0	21.2	20.9

OUTPUT POWER FOR LTE BAND 12 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23025	23095	23165	23025	23095	23165
				700.5 MHz	707.5 MHz	714.5 MHz	700.5 MHz	707.5 MHz	714.5 MHz
3.0	QPSK	1	0	25.3	25.3	25.2	24.0	24.0	24.1
		1	7	**25.3**	25.3	25.1	24.1	24.1	24.0
		1	14	25.3	25.2	25.1	23.9	**24.1**	23.9
		8	0	24.4	24.3	24.1	23.1	23.0	23.0
		8	4	24.4	24.3	24.0	23.1	23.0	22.9
		8	7	24.4	24.3	24.0	23.1	23.0	22.9
		15	0	24.4	24.3	24.0	23.1	23.0	22.9
	16QAM	1	0	**24.7**	24.6	24.5	23.4	**23.4**	23.4
		1	7	24.6	24.7	24.5	23.4	23.4	23.3
		1	14	24.6	24.6	24.5	23.2	23.4	23.2
		8	0	23.4	23.3	23.2	22.1	22.1	22.1
		8	4	23.4	23.4	23.1	22.1	22.1	22.0
		8	7	23.4	23.3	23.1	22.1	22.1	22.0
		15	0	23.4	23.3	23.1	22.1	22.1	22.0
	64QAM	1	0	24.2	24.4	24.0	**22.3**	22.2	22.0
		1	7	24.2	**24.4**	24.2	22.2	22.2	22.1
		1	14	24.0	24.4	24.0	22.1	22.2	22.0
		8	0	23.1	23.1	23.0	21.0	21.1	20.9
		8	4	23.1	23.1	22.9	21.0	21.1	20.9
		8	7	23.1	23.1	22.9	21.0	21.1	20.9
		15	0	23.1	23.0	22.9	21.0	21.1	20.8

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OUTPUT POWER FOR LTE BAND 12 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23035	23095	23155	23035	23095	23155
				701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz	707.5 MHz	713.5 MHz
5.0	QPSK	1	0	25.4	**25.5**	25.2	**24.2**	24.1	24.1
		1	12	25.4	25.3	25.2	24.0	24.1	24.1
		1	24	25.4	25.3	25.2	24.1	24.1	24.0
		12	0	24.5	24.4	24.2	23.2	23.2	23.1
		12	6	24.4	24.4	24.2	23.1	23.1	23.1
		12	11	24.3	24.4	24.2	23.1	23.2	23.1
		25	0	24.4	24.5	24.3	23.1	23.2	23.2
	16QAM	1	0	24.7	**24.9**	24.6	23.5	23.5	**23.6**
		1	12	24.7	24.7	24.6	23.3	23.4	23.5
		1	24	24.8	24.6	24.6	23.3	23.5	23.4
		12	0	23.6	23.6	23.4	22.3	22.3	22.2
		12	6	23.5	23.5	23.4	22.2	22.2	22.2
		12	11	23.5	23.6	23.2	22.2	22.3	22.1
		25	0	23.5	23.5	23.4	22.2	22.2	22.3
	64QAM	1	0	24.3	24.4	**24.4**	22.3	22.4	22.3
		1	12	24.2	24.3	24.3	22.3	22.3	22.2
		1	24	24.3	24.4	24.3	**22.5**	22.3	22.2
		12	0	23.2	23.3	23.1	21.1	21.4	21.1
		12	6	23.1	23.2	23.1	21.2	21.3	21.0
		12	11	23.1	23.3	23.1	21.3	21.3	21.0
		25	0	23.1	23.2	23.1	21.2	21.2	21.0

OUTPUT POWER FOR LTE BAND 12 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23060	23095	23130	23060	23095	23130
				704.0 MHz	707.5 MHz	711.0 MHz	704.0 MHz	707.5 MHz	711.0 MHz
10.0	QPSK	1	0	**25.5**	25.5	25.5	24.1	24.0	24.1
		1	24	25.4	25.4	25.3	24.0	24.0	24.1
		1	49	25.4	25.2	25.4	**24.2**	24.1	24.0
		25	0	24.3	24.4	24.4	23.0	23.0	23.0
		25	12	24.3	24.3	24.3	23.0	23.0	23.0
		25	24	24.3	24.3	24.3	23.0	23.0	23.0
		50	0	24.3	24.3	24.2	23.0	23.0	23.0
	16QAM	1	0	24.7	24.7	**24.9**	23.5	23.3	23.5
		1	24	24.8	24.7	24.6	23.4	23.4	23.4
		1	49	24.8	24.5	24.7	**23.5**	23.4	23.3
		25	0	23.5	23.6	23.6	22.1	22.2	22.2
		25	12	23.5	23.5	23.4	22.1	22.1	22.1
		25	24	23.4	23.5	23.4	22.1	22.2	22.2
		50	0	23.4	23.4	23.3	22.1	22.1	22.0
	64QAM	1	0	24.3	24.3	24.4	22.2	22.4	22.3
		1	24	24.3	24.5	24.3	22.4	22.3	22.2
		1	49	**24.5**	24.3	24.2	**22.4**	22.2	22.2
		25	0	23.1	23.2	23.2	21.1	21.2	21.1
		25	12	23.1	23.2	23.2	21.3	21.2	21.0
		25	24	23.2	23.2	23.1	21.2	21.0	21.0
		50	0	23.1	23.1	23.1	21.2	21.1	21.0

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7.5. LTE BAND 13

ID:	10646	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 13 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23207	23230	23255	23207	23230	23255
				779.5 MHz	782.0 MHz	784.5 MHz	779.5 MHz	782.0 MHz	784.5 MHz
5.0	QPSK	1	0	25.3	25.5	25.4	**23.7**	23.4	23.3
		1	12	25.4	25.3	25.5	23.4	23.4	23.3
		1	24	25.3	**25.5**	25.4	23.4	23.3	23.4
		12	0	24.3	24.4	24.3	22.4	22.2	22.4
		12	6	24.5	24.3	24.4	22.3	22.3	22.2
		12	11	24.4	24.2	24.3	22.2	22.2	22.3
		25	0	24.5	24.3	24.4	22.3	22.3	22.3
	16QAM	1	0	24.8	24.9	24.7	**23.3**	22.7	22.8
		1	12	24.8	24.8	24.9	22.8	22.7	22.7
		1	24	24.8	**25.1**	24.6	22.9	22.6	22.8
		12	0	23.3	23.4	23.4	21.5	21.3	21.4
		12	6	23.5	23.4	23.6	21.4	21.3	21.3
		12	11	23.4	23.4	23.4	21.3	21.3	21.3
		25	0	23.5	23.4	23.5	21.3	21.3	21.3
	64QAM	1	0	**24.7**	24.5	24.5	21.7	21.6	21.6
		1	12	24.4	24.5	24.5	21.4	21.7	21.6
		1	24	24.4	24.7	24.5	21.5	21.7	**21.7**
		12	0	23.3	23.2	23.2	20.2	20.1	20.2
		12	6	23.2	23.2	23.2	20.1	20.2	20.2
		12	11	23.2	23.1	23.1	20.1	20.2	20.3
		25	0	23.2	23.1	23.2	20.1	20.2	20.2

OUTPUT POWER FOR LTE BAND 13 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	23230	N/A	N/A	23230	N/A
				N/A	782.0 MHz	N/A	N/A	782.0 MHz	N/A
10.0	QPSK	1	0		**25.5**			**23.7**	
		1	24		25.5			23.5	
		1	49		25.4			23.5	
		25	0		24.7			22.5	
		25	12		24.5			22.4	
		25	24		24.5			22.4	
		50	0		24.4			22.4	
	16QAM	1	0		**24.9**			**23.2**	
		1	24		24.9			22.9	
		1	49		24.9			22.9	
		25	0		23.7			21.6	
		25	12		23.6			21.5	
		25	24		23.7			21.5	
		50	0		23.4			21.4	
	64QAM	1	0		**24.9**			**21.8**	
		1	24		24.5			21.6	
		1	49		24.5			21.7	
		25	0		23.5			20.3	
		25	12		23.4			20.3	
		25	24		23.4			20.4	
		50	0		23.3			20.3	

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7.6. LTE BAND 14

ID:	39004	Date:	6/4/18

OUTPUT POWER FOR LTE BAND 14 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23305	23330	23355	23305	23330	23355
				790.5 MHz	793.0 MHz	795.5 MHz	790.5 MHz	793.0 MHz	795.5 MHz
5.0	QPSK	1	0	25.4	**25.5**	25.3	24.1	24.0	24.1
		1	12	25.4	25.3	25.1	24.0	24.0	24.2
		1	24	25.4	25.2	25.1	24.0	24.1	**24.2**
		12	0	24.3	24.5	24.2	23.6	23.6	23.7
		12	6	24.4	24.4	24.2	23.6	23.6	23.7
		12	11	24.4	24.3	24.2	23.6	23.7	23.8
		25	0	24.4	24.4	24.2	23.7	23.7	23.7
	16QAM	1	0	24.9	**25.0**	24.7	23.4	23.3	23.3
		1	12	24.9	24.8	24.4	23.4	23.4	23.3
		1	24	24.8	24.5	24.4	23.4	**23.4**	23.4
		12	0	23.4	23.6	23.3	22.6	22.5	22.7
		12	6	23.5	23.5	23.2	22.6	22.6	22.7
		12	11	23.5	23.3	23.2	22.5	22.7	22.8
		25	0	23.4	23.4	23.2	22.7	22.7	22.7
	64QAM	1	0	23.5	**23.7**	23.5	20.6	20.6	20.5
		1	12	23.5	23.5	23.4	20.5	20.5	20.5
		1	24	23.4	23.6	23.4	20.5	**20.6**	20.5
		12	0	22.2	22.2	22.3	19.4	19.3	19.2
		12	6	22.3	22.3	22.2	19.4	19.3	19.2
		12	11	22.2	22.3	22.2	19.3	19.3	19.2
		25	0	22.3	22.3	22.3	19.4	19.3	19.2

OUTPUT POWER FOR LTE BAND 14 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	23330	N/A	N/A	23330	N/A
				N/A	793.0 MHz	N/A	N/A	793.0 MHz	N/A
10.0	QPSK	1	0		**25.5**			24.2	
		1	24		25.5			24.1	
		1	49		25.2			**24.2**	
		25	0		24.5			23.7	
		25	12		24.5			23.7	
		25	24		24.3			23.8	
		50	0		24.4			23.8	
	16QAM	1	0		**24.9**			23.4	
		1	24		24.8			23.4	
		1	49		24.5			**23.6**	
		25	0		23.6			22.8	
		25	12		23.6			22.8	
		25	24		23.4			22.9	
		50	0		23.5			22.8	
	64QAM	1	0		23.4			20.6	
		1	24		**23.4**			20.6	
		1	49		23.2			**20.7**	
		25	0		22.2			19.6	
		25	12		22.3			19.6	
		25	24		22.2			19.5	
		50	0		22.2			19.5	

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7.7. LTE BAND 17

ID:	10646	Date:	6/3/18

OUTPUT POWER FOR LTE BAND 17 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23755	23790	23825	23755	23790	23825
				706.5 MHz	710.0 MHz	713.5 MHz	706.5 MHz	710.0 MHz	713.5 MHz
5.0	QPSK	1	0	**25.4**	25.3	25.2	24.1	24.1	24.1
		1	12	25.2	25.1	25.1	24.1	24.1	24.1
		1	24	25.2	25.1	25.2	**24.2**	24.1	24.0
		12	0	24.4	24.3	24.2	23.1	23.1	23.2
		12	6	24.2	24.2	24.1	23.1	23.1	23.2
		12	11	24.3	24.2	24.1	23.1	23.1	23.1
		25	0	24.3	24.2	24.2	23.2	23.1	23.2
	16QAM	1	0	**24.7**	24.6	24.4	23.6	23.4	23.5
		1	12	24.6	24.5	24.4	23.5	23.4	23.5
		1	24	24.6	24.4	24.4	**23.6**	23.4	23.4
		12	0	23.5	23.4	23.3	22.2	22.3	22.3
		12	6	23.4	23.3	23.2	22.2	22.2	22.3
		12	11	23.4	23.2	23.2	22.2	22.2	22.2
		25	0	23.4	23.3	23.3	22.2	22.3	22.3
	64QAM	1	0	24.4	**24.5**	24.4	**22.5**	22.5	22.3
		1	12	24.4	24.5	24.3	22.4	22.3	22.2
		1	24	24.4	24.3	24.4	22.3	22.3	22.3
		12	0	23.3	23.3	23.2	21.4	21.2	21.2
		12	6	23.3	23.3	23.2	21.3	21.1	21.1
		12	11	23.3	23.3	23.2	21.3	21.1	21.1
		25	0	23.3	23.3	23.2	21.3	21.1	21.1

OUTPUT POWER FOR LTE BAND 17 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				23780	23790	23800	23780	23790	23800
				709.0 MHz	710.0 MHz	711.0 MHz	709.0 MHz	710.0 MHz	711.0 MHz
10.0	QPSK	1	0	25.5	**25.5**	25.4	24.2	24.2	**24.2**
		1	24	25.3	25.2	25.2	24.2	24.1	24.2
		1	49	25.2	25.2	25.2	24.2	24.1	24.1
		25	0	24.2	24.2	24.3	23.1	23.1	23.1
		25	12	24.2	24.2	24.1	23.1	23.1	23.1
		25	24	24.1	24.1	24.2	23.1	23.1	23.1
		50	0	24.2	24.1	24.1	23.1	23.1	23.1
	16QAM	1	0	**24.9**	24.7	24.7	23.5	23.5	**23.6**
		1	24	24.6	24.4	24.4	23.6	23.4	23.5
		1	49	24.5	24.4	24.6	23.5	23.4	23.4
		25	0	23.3	23.4	23.4	22.2	22.2	22.3
		25	12	23.4	23.3	23.3	22.3	22.2	22.2
		25	24	23.2	23.2	23.3	22.2	22.2	22.3
		50	0	23.3	23.2	23.2	22.1	22.1	22.1
	64QAM	1	0	24.4	24.4	**24.5**	**22.5**	22.5	22.5
		1	24	24.4	24.4	24.3	22.4	22.2	22.2
		1	49	24.3	24.3	24.3	22.3	22.2	22.2
		25	0	23.2	23.2	23.3	21.3	21.2	21.2
		25	12	23.2	23.2	23.2	21.2	21.1	21.1
		25	24	23.2	23.2	23.2	21.2	21.1	21.1
		50	0	23.1	23.2	23.1	21.0	21.0	21.0

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7.8. LTE BAND 25

ID:	10646	Date:	6/318

OUTPUT POWER FOR LTE BAND 25 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26047	26365	26683	26047	26365	26683
				1850.7 MHz	1882.5 MHz	1914.3 MHz	1850.7 MHz	1882.5 MHz	1914.3 MHz
1.4	QPSK	1	0	25.2	25.1	25.0	19.3	19.3	**19.5**
		1	2	25.2	25.1	25.1	19.3	19.3	19.4
		1	5	**25.3**	25.2	25.1	19.3	19.3	19.4
		3	0	25.1	25.1	25.0	19.2	19.4	19.3
		3	1	25.1	25.1	25.0	19.2	19.4	19.3
		3	2	25.1	25.1	25.0	19.2	19.3	19.3
		6	0	24.1	24.1	24.0	18.2	18.3	18.3
	16QAM	1	0	24.4	24.3	24.4	18.6	18.6	**18.8**
		1	2	24.4	24.3	24.3	18.6	18.6	18.6
		1	5	**24.5**	24.4	24.4	18.6	18.6	18.7
		3	0	24.3	24.2	24.2	18.4	18.4	18.5
		3	1	24.3	24.3	24.2	18.4	18.5	18.5
		3	2	24.3	24.3	24.2	18.4	18.4	18.5
		6	0	23.2	23.2	23.1	17.3	17.4	17.4
	64QAM	1	0	23.4	24.3	23.4	17.8	**18.0**	17.7
		1	2	23.4	**24.4**	23.5	17.8	18.0	17.7
		1	5	23.5	24.3	23.4	18.0	17.9	17.7
		3	0	23.2	24.2	23.2	17.6	17.8	17.6
		3	1	23.2	24.2	23.2	17.6	17.8	17.6
		3	2	23.2	24.2	23.2	17.7	17.7	17.6
		6	0	22.1	23.1	22.0	16.6	16.6	16.5

OUTPUT POWER FOR LTE BAND 25 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26055	26365	26675	26055	26365	26675
				1851.5 MHz	1882.5 MHz	1913.5 MHz	1851.5 MHz	1882.5 MHz	1913.5 MHz
3.0	QPSK	1	0	25.2	25.1	25.1	19.2	19.3	19.3
		1	7	25.3	25.2	25.1	19.2	19.3	**19.4**
		1	14	**25.3**	25.1	25.1	19.2	19.3	19.3
		8	0	24.1	24.1	24.1	18.2	18.4	18.2
		8	4	24.1	24.1	23.9	18.2	18.4	18.3
		8	7	24.2	24.1	23.9	18.2	18.3	18.3
		15	0	24.1	24.1	23.9	18.2	18.3	18.3
	16QAM	1	0	**24.5**	24.3	24.4	18.4	**18.7**	18.6
		1	7	24.5	24.4	24.4	18.6	18.6	18.7
		1	14	24.4	24.4	24.4	18.5	18.6	18.6
		8	0	23.2	23.1	23.1	17.3	17.4	17.3
		8	4	23.2	23.2	23.0	17.3	17.4	17.3
		8	7	23.2	23.2	23.0	17.3	17.4	17.3
		15	0	23.2	23.1	23.0	17.3	17.3	17.3
	64QAM	1	0	23.4	**24.3**	23.3	17.8	17.8	17.6
		1	7	23.6	24.3	23.3	17.9	17.7	17.6
		1	14	23.4	24.2	23.3	**17.9**	17.6	17.7
		8	0	22.1	23.2	22.1	16.7	16.5	16.4
		8	4	22.2	23.2	22.0	16.6	16.6	16.4
		8	7	22.2	23.2	22.0	16.7	16.6	16.4
		15	0	22.1	23.1	21.9	16.6	16.5	16.4

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OUTPUT POWER FOR LTE BAND 25 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26065	26365	26665	26065	26365	26665
				1852.5 MHz	1882.5 MHz	1912.5 MHz	1852.5 MHz	1882.5 MHz	1912.5 MHz
5.0	QPSK	1	0	25.2	25.1	25.1	19.4	**19.4**	19.3
		1	12	**25.3**	25.1	25.1	19.4	19.4	19.2
		1	24	25.1	25.2	25.1	19.4	19.4	19.4
		12	0	24.2	24.2	24.2	18.4	18.4	18.4
		12	6	24.3	24.2	24.1	18.4	18.4	18.4
		12	11	24.2	24.2	24.1	18.5	18.4	18.4
		25	0	24.3	24.2	24.2	18.5	18.4	18.4
	16QAM	1	0	24.6	24.6	24.5	18.7	18.8	18.7
		1	12	**24.7**	24.6	24.5	18.7	18.6	18.7
		1	24	24.5	24.6	24.5	18.7	18.7	**18.8**
		12	0	23.4	23.4	23.3	17.5	17.6	17.5
		12	6	23.5	23.3	23.3	17.6	17.6	17.5
		12	11	23.4	23.4	23.2	17.6	17.6	17.5
		25	0	23.4	23.3	23.3	17.6	17.5	17.5
	64QAM	1	0	23.5	24.3	24.3	18.0	17.9	17.9
		1	12	23.7	24.4	24.3	**18.1**	17.8	17.8
		1	24	23.4	**24.5**	24.4	18.0	17.9	17.9
		12	0	22.2	23.3	23.3	16.8	16.7	16.7
		12	6	22.3	23.3	23.3	16.8	16.7	16.6
		12	11	22.3	23.3	23.1	16.8	16.7	16.7
		25	0	22.3	23.2	23.2	16.8	16.6	16.6

OUTPUT POWER FOR LTE BAND 25 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26090	26365	26640	26090	26365	26640
				1855.0 MHz	1882.5 MHz	1910.0 MHz	1855.0 MHz	1882.5 MHz	1910.0 MHz
10.0	QPSK	1	0	25.3	25.2	25.3	19.3	19.4	19.4
		1	24	25.3	25.3	25.2	19.4	19.4	19.4
		1	49	25.1	**25.4**	25.2	19.4	**19.5**	19.4
		25	0	24.3	24.1	24.1	18.4	18.4	18.3
		25	12	24.1	24.1	24.1	18.3	18.4	18.3
		25	24	24.0	24.2	24.1	18.4	18.3	18.3
		50	0	24.1	24.1	24.1	18.4	18.3	18.3
	16QAM	1	0	24.6	24.4	24.6	18.7	18.6	18.7
		1	24	24.4	24.6	24.5	18.7	18.6	18.7
		1	49	24.3	**24.6**	24.5	18.7	18.7	**18.8**
		25	0	23.4	23.2	23.3	17.4	17.5	17.4
		25	12	23.2	23.2	23.2	17.4	17.5	17.4
		25	24	23.1	23.3	23.2	17.4	17.5	17.5
		50	0	23.1	23.2	23.1	17.4	17.4	17.3
	64QAM	1	0	23.6	23.3	**24.4**	**18.0**	17.9	17.9
		1	24	23.4	23.4	24.3	17.9	18.0	17.8
		1	49	23.3	23.5	24.3	17.8	18.0	17.8
		25	0	22.4	22.2	23.2	16.8	16.7	16.7
		25	12	22.2	22.3	23.2	16.6	16.7	16.6
		25	24	22.1	22.3	23.2	16.5	16.7	16.6
		50	0	22.1	22.2	23.1	16.5	16.5	16.5

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OUTPUT POWER FOR LTE BAND 25 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26115	26365	26615	26115	26365	26615
				1857.5 MHz	1882.5 MHz	1907.5 MHz	1857.5 MHz	1882.5 MHz	1907.5 MHz
15.0	QPSK	1	0	25.3	25.2	25.3	19.4	19.2	19.4
		1	37	25.0	25.3	25.3	19.4	19.4	19.4
		1	74	25.0	**25.4**	25.2	19.2	19.4	**19.4**
		36	0	24.1	24.1	24.1	18.4	18.2	18.4
		36	16	24.0	24.2	24.1	18.4	18.3	18.3
		36	35	23.9	24.2	24.1	18.3	18.3	18.3
		75	0	24.0	24.2	24.2	18.3	18.4	18.4
	16QAM	1	0	**24.6**	24.4	24.6	18.7	18.4	18.7
		1	37	24.3	24.6	24.5	18.7	18.5	18.7
		1	74	24.2	24.6	24.4	18.5	18.6	**18.7**
		36	0	23.2	23.2	23.3	17.5	17.3	17.4
		36	16	23.0	23.2	23.2	17.4	17.5	17.3
		36	35	23.0	23.2	23.2	17.4	17.4	17.3
		75	0	23.0	23.2	23.2	17.4	17.4	17.3
	64QAM	1	0	23.5	23.4	23.5	**18.0**	17.9	17.9
		1	37	23.2	23.6	23.5	17.8	18.0	17.9
		1	74	23.2	**23.6**	23.4	17.7	17.9	17.9
		36	0	22.1	22.1	22.2	16.7	16.6	16.6
		36	16	22.0	22.2	22.2	16.5	16.6	16.6
		36	35	21.9	22.2	22.2	16.5	16.6	16.5
		75	0	21.9	22.1	22.2	16.4	16.6	16.6

OUTPUT POWER FOR LTE BAND 25 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26140	26365	26590	26140	26365	26590
				1860.0 MHz	1882.5 MHz	1905.0 MHz	1860.0 MHz	1882.5 MHz	1905.0 MHz
20.0	QPSK	1	0	25.4	25.2	**25.5**	19.4	19.4	19.4
		1	49	25.1	25.3	25.3	19.4	19.5	19.4
		1	99	25.0	25.4	25.2	19.5	19.5	**19.5**
		50	0	24.0	24.1	24.1	18.4	18.3	18.3
		50	24	23.9	24.2	24.1	18.3	18.3	18.4
		50	49	23.8	24.2	24.0	18.1	18.4	18.3
		100	0	23.9	24.2	24.2	18.3	18.4	18.5
	16QAM	1	0	24.7	24.4	**24.7**	18.8	18.7	18.7
		1	49	24.3	24.6	24.6	18.8	18.7	18.7
		1	99	24.4	24.7	24.5	**19.0**	18.8	18.8
		50	0	23.1	23.2	23.2	17.5	17.4	17.4
		50	24	22.9	23.2	23.2	17.3	17.3	17.4
		50	49	22.8	23.2	23.1	17.2	17.4	17.4
		100	0	23.0	23.2	23.3	17.3	17.4	17.4
	64QAM	1	0	23.8	23.6	**23.8**	17.9	17.9	18.0
		1	49	23.3	23.6	23.7	17.6	18.1	**18.1**
		1	99	23.4	23.7	23.5	17.4	17.9	18.1
		50	0	22.0	22.1	22.2	16.5	16.6	16.6
		50	24	21.9	22.2	22.2	16.4	16.6	16.6
		50	49	21.8	22.2	22.1	16.3	16.6	16.5
		100	0	21.9	22.2	22.3	16.4	16.6	16.7

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7.9. LTE BAND 26 (Part 90S)

ID:	39004	Date:	6/4/18

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26697	26740	26783	26697	26740	26783
				814.7 MHz	819.0 MHz	823.3 MHz	814.7 MHz	819.0 MHz	823.3 MHz
1.4	QPSK	1	0	25.3	25.3	25.4	23.4	23.2	23.2
		1	2	25.3	25.3	25.4	23.3	23.2	23.1
		1	5	25.3	25.4	**25.4**	23.3	23.2	23.2
		3	0	25.3	25.3	25.4	23.4	23.3	23.2
		3	1	25.3	25.3	25.4	23.4	23.2	23.1
		3	2	25.3	25.4	25.4	**23.4**	23.2	23.1
		6	0	24.3	24.3	24.4	22.3	22.2	22.1
	16QAM	1	0	24.6	24.7	24.7	**22.7**	22.6	22.4
		1	2	24.5	24.6	24.6	22.6	22.6	22.4
		1	5	24.6	**24.7**	24.7	22.6	22.5	22.4
		3	0	24.4	24.4	24.5	22.4	22.3	22.2
		3	1	24.4	24.4	24.5	22.5	22.3	22.2
		3	2	24.4	24.5	24.5	22.5	22.3	22.2
		6	0	23.4	23.4	23.4	21.4	21.2	21.2
	64QAM	1	0	22.5	22.5	22.2	**22.0**	21.7	21.6
		1	2	22.5	22.4	22.2	22.0	21.8	21.7
		1	5	**22.6**	22.3	22.3	22.0	21.8	21.6
		3	0	22.4	22.2	22.2	21.9	21.6	21.6
		3	1	22.4	22.2	22.1	21.8	21.6	21.6
		3	2	22.4	22.2	22.2	21.8	21.7	21.6
		6	0	21.3	21.2	21.2	20.7	20.6	20.6

OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26705	26740	26775	26705	26740	26775
				815.5 MHz	819.0 MHz	822.5 MHz	815.5 MHz	819.0 MHz	822.5 MHz
3.0	QPSK	1	0	25.3	25.2	25.4	**23.4**	23.2	23.1
		1	7	25.3	25.3	**25.4**	23.4	23.2	23.2
		1	14	25.3	25.3	25.3	23.3	23.1	23.1
		8	0	24.3	24.3	24.4	22.4	22.2	22.1
		8	4	24.3	24.2	24.3	22.3	22.2	22.2
		8	7	24.3	24.3	24.3	22.3	22.2	22.2
		15	0	24.3	24.3	24.3	22.3	22.2	22.2
	16QAM	1	0	24.6	24.5	24.7	22.6	22.5	22.4
		1	7	24.6	24.7	**24.8**	**22.7**	22.6	22.4
		1	14	24.4	24.6	24.8	22.5	22.4	22.3
		8	0	23.4	23.3	23.4	21.4	21.2	21.1
		8	4	23.3	23.3	23.4	21.4	21.2	21.2
		8	7	23.3	23.4	23.4	21.4	21.2	21.2
		15	0	23.3	23.3	23.3	21.3	21.2	21.2
	64QAM	1	0	22.4	22.4	22.4	21.9	21.8	21.7
		1	7	22.4	**22.4**	22.4	**22.0**	21.8	21.6
		1	14	22.4	22.4	22.3	21.7	21.8	21.5
		8	0	21.2	21.2	21.2	20.7	20.7	20.6
		8	4	21.2	21.2	21.2	20.7	20.6	20.5
		8	7	21.2	21.3	21.2	20.7	20.7	20.5
		15	0	21.2	21.2	21.1	20.6	20.6	20.5

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OUTPUT POWER FOR LTE BAND 26 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				26715	26740	26765	26715	26740	26765
				816.5 MHz	819.0 MHz	821.5 MHz	816.5 MHz	819.0 MHz	821.5 MHz
5.0	QPSK	1	0	**25.4**	25.3	25.4	**23.5**	23.4	23.2
		1	12	25.3	25.4	25.4	23.3	23.2	23.1
		1	24	25.3	25.4	25.4	23.2	23.2	23.2
		12	0	24.4	24.3	24.4	22.4	22.3	22.2
		12	6	24.3	24.3	24.4	22.3	22.3	22.2
		12	11	24.3	24.4	24.3	22.3	22.2	22.2
		25	0	24.4	24.4	24.4	22.4	22.3	22.2
	16QAM	1	0	24.7	24.6	24.8	**22.9**	22.7	22.6
		1	12	24.7	24.7	24.8	22.7	22.5	22.4
		1	24	24.7	24.8	**24.9**	22.6	22.4	22.5
		12	0	23.5	23.5	23.6	21.5	21.4	21.3
		12	6	23.5	23.5	23.5	21.5	21.4	21.3
		12	11	23.5	23.5	23.5	21.5	21.3	21.3
		25	0	23.4	23.5	23.6	21.4	21.4	21.3
	64QAM	1	0	**22.6**	22.5	22.5	**22.1**	21.9	21.9
		1	12	22.5	22.4	22.5	21.9	21.9	21.8
		1	24	22.5	22.4	22.5	21.8	21.9	21.8
		12	0	21.4	21.3	21.3	20.9	20.7	20.8
		12	6	21.4	21.3	21.3	20.8	20.7	20.7
		12	11	21.4	21.3	21.3	20.8	20.8	20.7
		25	0	21.3	21.3	21.3	20.7	20.8	20.7

OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	26740	N/A	N/A	26740	N/A
				N/A	819.0 MHz	N/A	N/A	819.0 MHz	N/A
10.0	QPSK	1	0		25.5			**23.5**	
		1	24		25.4			23.3	
		1	49		**25.5**			23.2	
		25	0		24.3			22.3	
		25	12		24.3			22.2	
		25	24		24.4			22.2	
		50	0		24.4			22.2	
	16QAM	1	0		24.7			**22.8**	
		1	24		24.7			22.6	
		1	49		**24.8**			22.5	
		25	0		23.4			21.4	
		25	12		23.4			21.3	
		25	24		23.5			21.3	
		50	0		23.4			21.3	
	64QAM	1	0		**22.5**			**22.0**	
		1	24		22.4			21.8	
		1	49		22.4			21.8	
		25	0		21.3			20.8	
		25	12		21.3			20.7	
		25	24		21.3			20.7	
		50	0		21.3			20.7	

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7.10. LTE BAND 30

ID:	39004	Date:	6/4/18

OUTPUT POWER FOR LTE BAND 30 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				27685	27710	27735	27685	27710	27735
				2307.5 MHz	2310.0 MHz	2312.5 MHz	2307.5 MHz	2310.0 MHz	2312.5 MHz
5.0	QPSK	1	0	**23.4**	23.3	23.2	**20.4**	20.4	20.3
		1	12	23.2	23.1	23.0	20.4	20.3	20.3
		1	24	23.1	23.1	23.0	20.4	20.4	20.4
		12	0	22.3	22.1	22.0	19.3	19.4	19.3
		12	6	22.2	22.1	22.0	19.4	19.3	19.3
		12	11	22.1	22.0	21.8	19.4	19.3	19.4
		25	0	22.2	22.1	21.9	19.5	19.4	19.3
	16QAM	1	0	**22.8**	22.6	22.6	19.8	19.7	19.6
		1	12	22.6	22.4	22.4	19.8	19.6	19.6
		1	24	22.6	22.4	22.4	19.8	**19.8**	19.7
		12	0	21.4	21.1	21.0	18.3	18.3	18.3
		12	6	21.3	21.1	20.9	18.4	18.3	18.3
		12	11	21.1	21.0	20.8	18.4	18.4	18.4
		25	0	21.1	21.0	20.9	18.4	18.3	18.2
	64QAM	1	0	20.9	**21.0**	20.7	18.6	18.8	18.7
		1	12	20.8	20.8	20.7	18.6	18.7	18.7
		1	24	20.8	20.9	20.8	18.6	**18.8**	18.7
		12	0	19.6	19.4	19.4	17.3	17.3	17.4
		12	6	19.6	19.4	19.4	17.4	17.3	17.4
		12	11	19.5	19.4	19.4	17.4	17.4	17.4
		25	0	19.5	19.4	19.4	17.4	17.4	17.5

OUTPUT POWER FOR LTE BAND 30 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				N/A	27710	N/A	N/A	27710	N/A
				N/A	2310.0 MHz	N/A	N/A	2310.0 MHz	N/A
10.0	QPSK	1	0		**23.5**			20.4	
		1	24		23.3			20.4	
		1	49		23.0			**20.5**	
		25	0		22.3			19.5	
		25	12		22.2			19.5	
		25	24		22.0			19.5	
		50	0		22.2			19.5	
	16QAM	1	0		**22.7**			19.7	
		1	24		22.5			19.6	
		1	49		22.3			**19.9**	
		25	0		21.4			18.5	
		25	12		21.3			18.5	
		25	24		21.1			18.5	
		50	0		21.2			18.6	
	64QAM	1	0		**20.9**			18.5	
		1	24		20.8			18.6	
		1	49		20.8			**18.7**	
		25	0		19.7			17.6	
		25	12		19.7			17.6	
		25	24		19.6			17.6	
		50	0		19.6			17.6	

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7.11. LTE BAND 41

ID:	39004	Date:	6/4/18

OUTPUT POWER FOR LTE BAND 41 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				39675	40620	41565	39675	40620	41565
				2498.5 MHz	2593.0 MHz	2687.5 MHz	2498.5 MHz	2593.0 MHz	2687.5 MHz
5.0	QPSK	1	0	24.0	26.6	26.7	19.7	22.1	21.9
		1	12	27.0	26.7	26.6	22.6	22.1	21.9
		1	24	**27.0**	26.7	26.7	**22.7**	22.2	22.0
		12	0	22.9	25.6	25.6	18.6	21.1	20.9
		12	6	22.9	25.6	25.6	18.6	21.1	20.9
		12	11	25.9	25.6	25.6	21.6	21.1	20.9
		25	0	22.9	25.6	25.6	18.6	21.1	20.9
	16QAM	1	0	23.4	26.1	26.1	19.2	21.5	21.4
		1	12	**26.4**	26.1	26.0	**22.1**	21.5	21.4
		1	24	26.3	26.1	26.0	22.0	21.6	21.3
		12	0	22.0	24.7	24.7	17.7	20.2	19.9
		12	6	22.0	24.7	24.6	17.7	20.2	19.9
		12	11	25.0	24.7	24.6	20.7	20.1	19.9
		25	0	22.0	24.7	24.6	17.7	20.2	19.9
	64QAM	1	0	22.2	25.0	25.1	18.1	20.4	20.4
		1	12	**25.3**	25.1	25.0	21.0	20.5	20.3
		1	24	25.2	25.2	24.9	**21.0**	20.5	20.3
		12	0	21.0	23.7	23.6	16.7	19.1	19.0
		12	6	21.0	23.7	23.6	16.7	19.2	19.0
		12	11	24.0	23.7	23.6	19.7	19.2	19.0
		25	0	20.9	23.7	23.6	16.6	19.1	18.9

OUTPUT POWER FOR LTE BAND 41 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				39700	40620	41540	39700	40620	41540
				2501.0 MHz	2593.0 MHz	2685.0 MHz	2501.0 MHz	2593.0 MHz	2685.0 MHz
10.0	QPSK	1	0	22.1	26.7	26.7	17.7	22.2	22.0
		1	24	27.0	26.7	26.7	**22.7**	22.2	22.0
		1	49	**27.0**	26.8	26.7	22.6	22.2	22.0
		25	0	23.0	25.6	25.6	18.7	21.2	21.0
		25	12	25.9	25.7	25.6	21.7	21.2	21.0
		25	24	25.0	25.7	25.6	20.7	21.2	20.9
		50	0	22.9	25.7	25.6	18.7	21.2	20.9
	16QAM	1	0	21.4	26.2	26.1	17.2	21.6	21.5
		1	24	26.3	26.2	26.1	**22.0**	21.6	21.4
		1	49	**26.3**	26.2	26.1	21.9	21.6	21.3
		25	0	22.1	24.8	24.8	17.9	20.3	20.1
		25	12	25.0	24.8	24.8	20.8	20.3	20.1
		25	24	24.1	24.8	24.8	19.8	20.3	20.1
		50	0	22.0	24.8	24.7	17.8	20.3	20.0
	64QAM	1	0	20.5	25.2	25.1	16.3	20.6	20.6
		1	24	25.2	25.2	25.1	**21.0**	20.5	20.5
		1	49	**25.3**	25.2	25.1	20.9	20.5	20.4
		25	0	21.1	23.8	23.8	16.8	19.3	19.1
		25	12	24.0	23.8	23.8	19.8	19.4	19.1
		25	24	23.1	23.8	23.8	18.8	19.4	19.1
		50	0	21.0	23.8	23.7	16.8	19.3	19.1

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OUTPUT POWER FOR LTE BAND 41 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				39725	40620	41515	39725	40620	41515
				2503.5 MHz	2593.0 MHz	2682.5 MHz	2503.5 MHz	2593.0 MHz	2682.5 MHz
15.0	QPSK	1	0	22.1	26.7	26.8	17.8	22.3	22.1
		1	37	**27.0**	26.8	26.7	**22.7**	22.2	22.1
		1	74	26.9	26.7	26.7	22.6	22.2	22.0
		36	0	22.0	25.6	25.7	17.7	21.1	21.0
		36	16	26.0	25.7	25.7	21.7	21.2	20.9
		36	35	22.9	25.7	25.6	18.7	21.1	20.9
		75	0	21.9	25.6	25.6	17.6	21.1	20.9
	16QAM	1	0	21.3	25.9	26.0	17.0	21.4	21.3
		1	37	**26.2**	26.0	25.9	**21.9**	21.4	21.2
		1	74	26.1	26.0	25.9	21.8	21.3	21.1
		36	0	21.1	24.7	24.8	16.8	20.3	20.1
		36	16	25.0	24.8	24.7	20.7	20.3	20.1
		36	35	22.0	24.8	24.7	17.7	20.3	20.0
		75	0	21.0	24.7	24.7	16.7	20.2	20.0
	64QAM	1	0	20.5	25.1	25.1	16.3	20.6	20.5
		1	37	25.3	25.2	25.0	**20.9**	20.6	20.5
		1	74	**25.3**	25.1	25.0	20.9	20.5	20.4
		36	0	20.1	23.7	23.8	15.8	19.3	19.1
		36	16	24.0	23.8	23.8	19.7	19.3	19.1
		36	35	21.0	23.8	23.7	16.7	19.3	19.1
		75	0	20.0	23.7	23.7	15.7	19.3	19.0

OUTPUT POWER FOR LTE BAND 41 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				39750	40620	41490	39750	40620	41490
				2506.0 MHz	2593.0 MHz	2680.0 MHz	2506.0 MHz	2593.0 MHz	2680.0 MHz
20.0	QPSK	1	0	22.1	26.8	**26.8**	17.9	22.3	22.2
		1	49	**27.0**	26.9	26.8	**22.7**	22.3	22.1
		1	99	27.0	26.9	26.8	22.5	22.4	22.0
		50	0	21.9	25.6	25.7	17.6	21.2	21.0
		50	24	25.9	25.7	25.6	21.6	21.1	20.9
		50	49	22.9	25.7	25.6	18.5	21.1	20.9
		100	0	21.9	25.7	25.6	17.6	21.1	20.9
	16QAM	1	0	21.5	26.2	26.2	17.3	21.7	21.6
		1	49	26.3	26.2	26.2	**22.0**	21.6	21.4
		1	99	**26.3**	26.3	26.1	21.9	21.6	21.4
		50	0	21.0	24.7	24.8	16.7	20.2	20.1
		50	24	25.0	24.8	24.7	20.6	20.2	20.0
		50	49	22.0	24.7	24.7	17.7	20.2	20.0
		100	0	20.9	24.7	24.7	16.7	20.2	20.0
	64QAM	1	0	20.4	25.2	25.1	16.4	20.7	20.5
		1	49	25.3	25.1	25.1	**20.9**	20.6	20.4
		1	99	**25.3**	25.2	25.1	20.9	20.6	20.4
		50	0	20.0	23.7	23.7	15.8	19.3	19.1
		50	24	24.0	23.8	23.7	19.7	19.3	19.1
		50	49	21.0	23.8	23.7	16.7	19.3	19.0
		100	0	20.0	23.7	23.7	15.7	19.2	19.0

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7.12. LTE BAND 66

ID:	39004	Date:	6/4/18

OUTPUT POWER FOR LTE BAND 66 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				131979	132322	132665	131979	132322	132665
				1710.7 MHz	1745.0 MHz	1779.3 MHz	1710.7 MHz	1745.0 MHz	1779.3 MHz
1.4	QPSK	1	0	25.4	25.4	25.3	21.0	21.5	21.3
		1	2	25.4	25.4	25.4	21.0	21.4	21.3
		1	5	25.4	**25.5**	25.4	20.9	21.4	21.2
		3	0	25.4	25.5	25.3	21.1	21.5	21.4
		3	1	25.4	25.5	25.3	21.1	21.5	21.3
		3	2	25.4	25.5	25.3	21.1	**21.5**	21.3
		6	0	24.3	24.4	24.3	20.8	20.8	20.6
	16QAM	1	0	24.7	24.7	24.6	20.6	20.9	20.7
		1	2	24.8	24.6	24.6	20.7	**20.9**	20.5
		1	5	**24.8**	24.7	24.7	20.7	20.9	20.6
		3	0	24.5	24.6	24.5	20.7	20.8	20.6
		3	1	24.5	24.6	24.5	20.7	20.8	20.6
		3	2	24.5	24.5	24.5	20.7	20.8	20.6
		6	0	23.4	23.5	23.4	19.8	19.9	19.6
	64QAM	1	0	22.7	22.8	22.8	17.1	17.1	17.2
		1	2	22.7	22.7	22.8	17.0	17.2	17.2
		1	5	22.7	22.8	**22.9**	17.1	17.1	**17.3**
		3	0	22.6	22.7	22.7	17.0	17.0	17.1
		3	1	22.6	22.7	22.7	17.0	17.0	17.1
		3	2	22.7	22.7	22.7	17.0	17.0	17.1
		6	0	21.6	21.7	21.6	16.0	16.0	16.0

OUTPUT POWER FOR LTE BAND 66 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				131987	132322	132657	131987	132322	132657
				1711.5 MHz	1745.0 MHz	1778.5 MHz	1711.5 MHz	1745.0 MHz	1778.5 MHz
3.0	QPSK	1	0	25.3	25.4	25.3	21.0	21.4	21.2
		1	7	25.4	25.5	25.4	20.9	21.4	21.1
		1	14	25.4	**25.5**	25.3	21.0	**21.4**	21.0
		8	0	24.3	24.4	24.3	20.7	20.8	20.7
		8	4	24.3	24.4	24.3	20.7	20.8	20.6
		8	7	24.3	24.4	24.3	20.7	20.8	20.6
		15	0	24.3	24.4	24.3	20.7	20.8	20.7
	16QAM	1	0	24.7	24.6	24.7	20.5	20.8	20.8
		1	7	24.8	24.8	24.7	20.6	20.9	20.8
		1	14	**24.8**	24.7	24.6	20.7	**20.9**	20.6
		8	0	23.4	23.4	23.3	19.8	19.9	19.8
		8	4	23.3	23.4	23.3	19.7	19.8	19.7
		8	7	23.3	23.5	23.3	19.7	19.8	19.7
		15	0	23.3	23.5	23.3	19.8	19.8	19.6
	64QAM	1	0	22.7	22.7	22.6	17.1	17.1	17.1
		1	7	22.7	**22.8**	22.6	17.0	**17.2**	17.1
		1	14	22.6	22.7	22.7	17.1	17.0	16.9
		8	0	21.6	21.7	21.6	15.9	16.0	16.0
		8	4	21.6	21.7	21.5	15.9	16.1	15.9
		8	7	21.6	21.7	21.6	15.9	16.1	15.9
		15	0	21.6	21.6	21.5	15.9	16.0	15.9

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OUTPUT POWER FOR LTE BAND 66 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				131997	132322	132647	131997	132322	132647
				1712.5 MHz	1745.0 MHz	1777.5 MHz	1712.5 MHz	1745.0 MHz	1777.5 MHz
5.0	QPSK	1	0	25.1	25.1	25.1	21.1	21.4	21.4
		1	12	25.1	25.1	25.1	21.2	21.4	21.3
		1	24	25.1	25.1	**25.2**	21.3	**21.5**	21.1
		12	0	24.1	24.0	24.0	20.8	20.9	20.8
		12	6	24.1	24.0	24.0	20.8	20.9	20.8
		12	11	24.1	24.0	24.0	20.8	20.9	20.7
		25	0	24.1	24.0	24.0	20.9	20.9	20.8
	16QAM	1	0	**24.6**	24.4	24.4	20.6	21.0	20.8
		1	12	24.6	24.3	24.4	20.7	21.0	20.7
		1	24	24.5	24.5	24.4	20.8	**21.0**	20.6
		12	0	23.2	23.2	23.1	19.9	20.1	19.9
		12	6	23.2	23.1	23.1	20.0	20.0	19.8
		12	11	23.2	23.1	23.1	20.0	20.0	19.8
		25	0	23.1	23.1	23.1	20.0	19.9	19.9
	64QAM	1	0	22.4	22.5	22.4	19.6	19.7	19.6
		1	12	22.5	22.5	22.4	19.7	19.7	19.6
		1	24	**22.6**	22.5	22.4	**19.8**	19.7	19.6
		12	0	21.4	21.4	21.3	18.6	18.5	18.5
		12	6	21.5	21.4	21.3	18.7	18.6	18.5
		12	11	21.5	21.4	21.2	18.7	18.5	18.4
		25	0	21.4	21.3	21.3	18.6	18.5	18.4

OUTPUT POWER FOR LTE BAND 66 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				132022	132322	132622	132022	132322	132622
				1715.0 MHz	1745.0 MHz	1775.0 MHz	1715.0 MHz	1745.0 MHz	1775.0 MHz
10.0	QPSK	1	0	25.2	25.1	25.2	21.1	21.3	21.3
		1	24	25.2	25.1	25.2	21.3	21.4	21.4
		1	49	**25.3**	25.2	25.2	**21.4**	21.4	21.0
		25	0	24.1	24.0	24.0	20.9	20.8	20.9
		25	12	24.1	24.0	24.0	20.9	20.8	20.9
		25	24	24.1	24.0	24.0	20.9	20.9	20.8
		50	0	24.1	24.0	24.0	20.8	20.9	20.8
	16QAM	1	0	24.6	24.4	24.5	20.5	20.9	20.8
		1	24	24.5	24.5	24.4	20.8	21.0	20.8
		1	49	**24.6**	24.6	24.4	20.9	**21.0**	20.7
		25	0	23.2	23.1	23.1	20.0	19.9	20.0
		25	12	23.1	23.0	23.1	20.0	19.9	19.9
		25	24	23.1	23.1	23.1	20.0	20.0	19.9
		50	0	23.1	23.0	23.0	19.9	19.9	19.8
	64QAM	1	0	22.5	22.4	22.4	19.7	19.6	19.6
		1	24	22.6	22.4	22.5	19.8	19.6	19.7
		1	49	**22.6**	22.3	22.4	**19.8**	19.5	19.5
		25	0	21.4	21.3	21.3	18.6	18.5	18.5
		25	12	21.4	21.3	21.4	18.6	18.5	18.5
		25	24	21.5	21.3	21.3	18.6	18.5	18.5
		50	0	21.4	21.2	21.2	18.6	18.4	18.4

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OUTPUT POWER FOR LTE BAND 66 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				132047	132322	132597	132047	132322	132597
				1717.5 MHz	1745.0 MHz	1772.5 MHz	1717.5 MHz	1745.0 MHz	1772.5 MHz
15.0	QPSK	1	0	25.2	25.0	**25.3**	21.1	21.3	21.4
		1	37	25.3	25.1	25.2	21.4	21.3	21.1
		1	74	25.0	25.2	25.1	**21.4**	21.4	20.9
		36	0	24.1	23.9	24.1	20.8	20.7	20.7
		36	16	24.0	24.0	24.0	20.8	20.8	20.7
		36	35	24.0	24.0	24.0	20.8	20.8	20.7
		75	0	24.0	24.0	24.0	20.9	20.8	20.7
	16QAM	1	0	24.5	24.2	**24.7**	20.7	20.7	20.8
		1	37	24.6	24.4	24.6	**21.0**	20.8	20.8
		1	74	24.3	24.3	24.5	20.8	20.8	20.6
		36	0	23.1	22.9	23.2	19.9	19.8	19.8
		36	16	23.1	23.0	23.0	20.0	19.9	19.8
		36	35	23.0	23.0	23.0	19.9	19.9	19.8
		75	0	23.1	23.0	23.0	19.9	19.8	19.8
	64QAM	1	0	22.5	22.5	22.4	19.7	19.7	19.6
		1	37	**22.5**	22.5	22.5	**19.7**	19.7	19.7
		1	74	22.4	22.5	22.3	19.6	19.7	19.5
		36	0	21.4	21.2	21.2	18.6	18.4	18.4
		36	16	21.4	21.3	21.3	18.6	18.5	18.5
		36	35	21.4	21.3	21.2	18.6	18.4	18.4
		75	0	21.4	21.2	21.3	18.6	18.4	18.5

OUTPUT POWER FOR LTE BAND 66 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Ant 1			Ant 2		
				Conducted Average (dBm)			Conducted Average (dBm)		
				132072	132322	132572	132072	132322	132572
				1720.0 MHz	1745.0 MHz	1770.0 MHz	1720.0 MHz	1745.0 MHz	1770.0 MHz
20.0	QPSK	1	0	25.2	25.0	**25.3**	21.2	21.2	21.5
		1	49	25.2	25.2	25.2	**21.5**	21.4	21.2
		1	99	25.1	25.2	25.2	21.3	21.4	21.0
		50	0	24.1	23.9	24.1	20.9	20.7	20.8
		50	24	24.0	23.9	24.0	20.8	20.8	20.7
		50	49	23.9	24.0	24.0	20.7	20.7	20.8
		100	0	24.0	24.0	24.1	20.8	20.8	20.8
	16QAM	1	0	24.5	24.4	**24.7**	20.8	20.8	20.9
		1	49	24.5	24.6	24.6	**21.0**	20.9	20.7
		1	99	24.3	24.6	24.5	20.9	21.0	20.6
		50	0	23.1	22.9	23.2	19.9	19.8	19.9
		50	24	23.0	23.0	23.1	19.9	19.9	19.7
		50	49	22.9	23.0	23.0	19.7	19.8	19.8
		100	0	23.0	23.0	23.1	19.9	19.8	19.8
	64QAM	1	0	22.5	22.3	22.5	19.7	19.5	19.7
		1	49	**22.6**	22.3	22.5	**19.8**	19.5	19.7
		1	99	22.5	22.3	22.5	19.7	19.5	19.7
		50	0	21.3	21.2	21.2	18.5	18.4	18.4
		50	24	21.3	21.2	21.2	18.5	18.4	18.4
		50	49	21.2	21.2	21.3	18.3	18.4	18.5
		100	0	21.3	21.2	21.2	18.5	18.4	18.4

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8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

§2.1049

LIMITS

For reporting purposes only.

TEST PROCEDURE

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

MODES TESTED

- LTE Band 2
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 66

RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested.

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LTE BAND 2

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 2	1.4 MHz, QPSK	6/0	1880.0	1.0890	1.239
	1.4 MHz,16QAM			1.0836	1.242
	1.4 MHz,64QAM			1.0904	1.243
	3 MHz, QPSK	15/0		2.6942	2.994
	3 MHz, 16QAM			2.6866	2.983
	3 MHz, 64QAM			2.6938	2.960
	5 MHz, QPSK	25/0		4.5044	4.930
	5 MHz, 16QAM			4.4967	4.952
	5 MHz, 64QAM			4.4961	4.928
	10 MHz, QPSK	50/0		8.9775	9.918
	10 MHz, 16QAM			8.9854	9.953
	10 MHz, 64QAM			8.9763	10.012
	15 MHz, QPSK	75/0		13.4531	15.127
	15 MHz, 16QAM			13.4460	15.283
	15 MHz, 64QAM			13.4393	15.377
	20 MHz, QPSK	100/0		17.8980	19.581
	20 MHz, 16QAM			17.9337	19.555
	20 MHz, 64QAM			17.9251	19.513

LTE BAND 5

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 5	1.4 MHz, QPSK	6/0	836.5	1.0878	1.237
	1.4 MHz,16QAM			1.0873	1.241
	1.4 MHz, 64QAM			1.0916	1.241
	3 MHz, QPSK	15/0		2.6935	2.977
	3 MHz, 16QAM			2.6936	2.982
	3 MHz, 64QAM			2.7024	2.973
	5 MHz, QPSK	25/0		4.4892	4.926
	5 MHz, 16QAM			4.4950	4.950
	5 MHz, 64QAM			4.5029	4.927
	10 MHz, QPSK	50/0		8.9752	9.977
	10 MHz, 16QAM			8.9795	9.918
	10 MHz, 64QAM			8.9573	9.976

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LTE BAND 7

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 7	5 MHz, QPSK	25/0	2535.0	4.5096	4.927
	5 MHz, 16QAM			4.4825	4.903
	5 MHz, 64QAM			4.4644	4.870
	10 MHz, QPSK	50/0		8.9699	9.951
	10 MHz, 16QAM			8.9554	10.026
	10 MHz, 64QAM			8.9874	9.850
	15 MHz, QPSK	75/0		13.4636	15.315
	15 MHz, 16QAM			13.4401	15.040
	15 MHz, 64QAM			13.4358	15.084
	20 MHz, QPSK	100/0		17.8870	19.428
	20 MHz, 16QAM			17.9198	19.630
	20 MHz, 64QAM			17.9069	19.799

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	1.0881	1.240
	1.4 MHz,16QAM			1.0897	1.244
	1.4 MHz, 64QAM			1.0887	1.241
	3 MHz, QPSK	15/0		2.6800	2.985
	3 MHz, 16QAM			2.6990	2.986
	3 MHz, 64QAM			2.6975	2.994
	5 MHz, QPSK	25/0		4.5080	4.903
	5 MHz, 16QAM			4.4857	4.950
	5 MHz, 64QAM			4.5046	4.850
	10 MHz, QPSK	50/0		8.9767	9.839
	10 MHz, 16QAM			8.9564	9.933
	10 MHz, 64QAM			8.9654	9.920

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	4.5080	4.954
	5 MHz, 16QAM			4.4928	4.952
	5 MHz, 64QAM			4.4999	4.927
	10 MHz, QPSK	50/0		8.9458	9.995
	10 MHz, 16QAM			8.9553	9.901
	10 MHz, 64QAM			8.9598	9.849

LTE BAND 14

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 14	5 MHz, QPSK	25/0	793	4.4875	4.919
	5 MHz, 16QAM			4.4920	4.915
	5 MHz, 64QAM			4.5129	4.943
	10 MHz, QPSK	50/0		8.9851	9.802
	10 MHz, 16QAM			8.9537	9.828
	10 MHz, 64QAM			8.9950	10.033

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LTE BAND 17

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 17	5 MHz, QPSK	25/0	710.0	4.4953	4.879
	5 MHz, 16QAM			4.4956	4.932
	5 MHz, 64QAM			4.5001	4.921
	10 MHz, QPSK	50/0		8.9797	9.852
	10 MHz, 16QAM			8.9581	9.979
	10 MHz, 64QAM			8.8544	9.368

LTE BAND 25

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 25	1.4 MHz, QPSK	6/0	1882.5	1.0860	1.248
	1.4 MHz,16QAM			1.0885	1.246
	1.4 MHz, 64QAM			1.0885	1,247
	3 MHz, QPSK	15/0		2.6963	2.990
	3 MHz, 16QAM			2.6939	2.996
	3 MHz, 64QAM			2.6931	2.981
	5 MHz, QPSK	25/0		4.4935	4.910
	5 MHz, 16QAM			4.4965	4.954
	5 MHz, 64QAM			4.5062	4.931
	10 MHz, QPSK	50/0		8.9849	9.877
	10 MHz, 16QAM			8.9764	9.965
	10 MHz, 64QAM			8.9803	9.842
	15 MHz, QPSK	75/0		13.4337	15.254
	15 MHz, 16QAM			13.4622	15.321
	15 MHz, 64QAM			13.4522	15.376
	20 MHz, QPSK	100/0		17.9157	19.513
	20 MHz, 16QAM			17.9123	19.719
	20 MHz, 64QAM			17.8919	19.828

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LTE BAND 26 (PART 90S)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 26	1.4 MHz, QPSK	1/0	819.0	0.2585	0.356
	1.4 MHz,16QAM			0.2802	0.350
	1.4 MHz, 64QAM			0.2770	0.377
	1.4 MHz, QPSK	6/0		1.0944	1.244
	1.4 MHz,16QAM			1.0927	1.246
	1.4 MHz, 64QAM			1.0787	1.235
	3 MHz, QPSK	1/0		0.2855	0.414
	3 MHz, 16QAM			0.2873	0.416
	3 MHz, 64QAM			0.2882	0.406
	3 MHz, QPSK	15/0		2.7049	2.991
	3 MHz, 16QAM			2.7017	2.981
	3 MHz, 64QAM			2.6764	2.864
	5 MHz, QPSK	1/0		0.2340	0.403
	5 MHz, 16QAM			0.2383	0.419
	5 MHz, 64QAM			0.2501	0.422
	5 MHz, QPSK	25/0		4.4988	4.931
	5 MHz, 16QAM			4.5035	4.925
	5 MHz, 64QAM			4.4823	4.787
	10 MHz, QPSK	1/0		0.2637	0.439
	10 MHz, 16QAM			0.2720	0.462
	10 MHz, 64QAM			0.2793	0.472
	10 MHz, QPSK	50/0		9.0027	10.02
	10 MHz, 16QAM			8.9787	10.09
	10 MHz, 64QAM			8.9208	9.341

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LTE BAND 30

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 30	5 MHz, QPSK	25/0	2310.0	4.4979	4.922
	5 MHz, 16QAM			4.4955	4.845
	5 MHz, 64QAM			4.5136	4.913
	10 MHz, QPSK	50/0		8.9695	9.815
	10 MHz, 16QAM			8.9571	9.865
	10 MHz, 64QAM			8.9658	9.977

LTE BAND 41

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5 MHz, QPSK	25/0	2593.0	4.4723	5.086
	5 MHz, 16QAM			4.5037	4.817
	5 MHz, 64QAM			4.5061	4.988
	10 MHz, QPSK	50/0		8.9213	10.197
	10 MHz, 16QAM			8.9159	10.747
	10 MHz, 64QAM			8.9760	9.794
	15 MHz, QPSK	75/0		13.4200	14.805
	15 MHz, 16QAM			13.4026	14.404
	15 MHz, 64QAM			13.4499	15.472
	20 MHz, QPSK	100/0		17.8453	19.788
	20 MHz, 16QAM			17.8697	19.173
	20 MHz, 64QAM			17.8899	19.021

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	1.0875	1.248
	1.4MHz,16QAM			1.0875	1.240
	1.4MHz 64QAM			1.0858	1.299
	3MHz, QPSK	15/0		2.6942	2.989
	3MHz, 16QAM			2.6913	2.967
	3MHz 64QAM			2.6702	2.848
	5MHz, QPSK	25/0		4.4890	4.939
	5MHz, 16QAM			4.5025	4.915
	5MHz 64QAM			4.5038	4.879
	10MHz, QPSK	50/0		8.9736	9.910
	10MHz, 16QAM			8.9516	9.930
	10MHz 64QAM			8.9766	9.934
	15MHz, QPSK	75/0		13.4445	14.962
	15MHz, 16QAM			13.4622	15.263
	15MHz 64QAM			13.4276	15.149
	20MHz, QPSK	100/0		17.9523	19.832
	20MHz, 16QAM			17.9331	19.324
	20MHz 64QAM			17.9228	19.868

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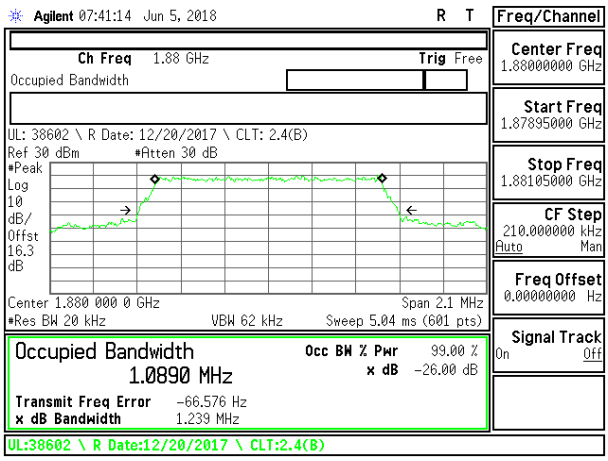
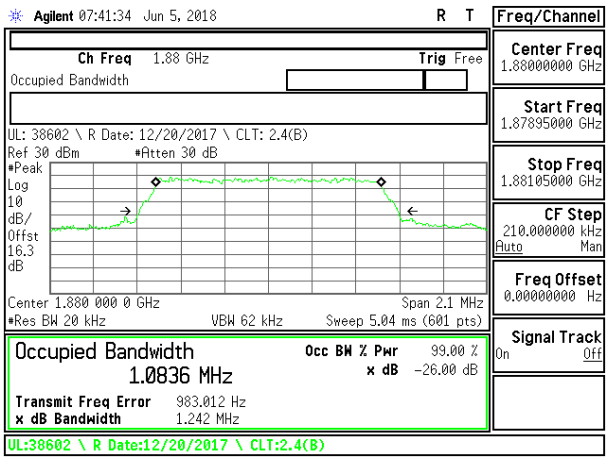
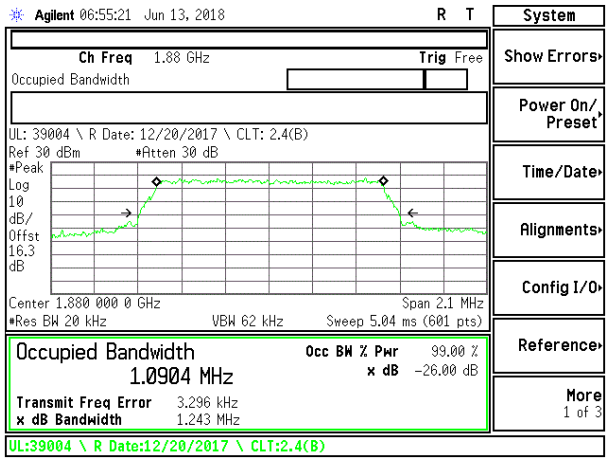
8.1.1. LTE BAND 2



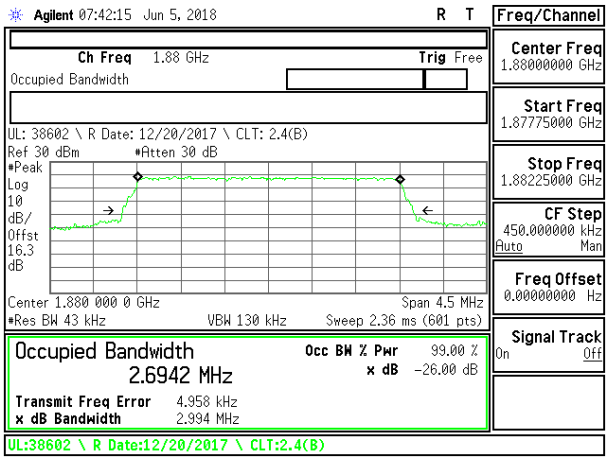
LTE B2 1.4MHz QPSK Middle Channel RB6-0



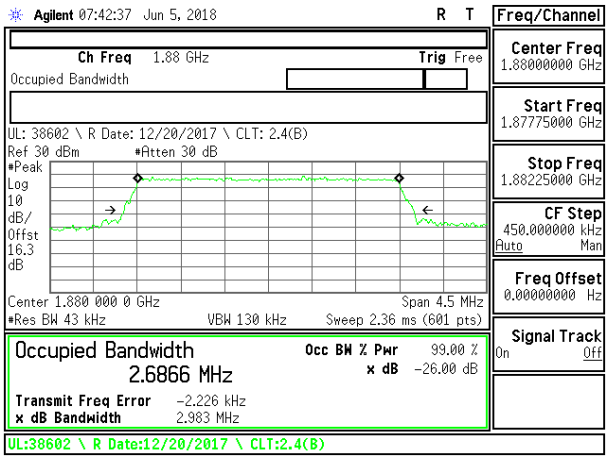
LTE B2 1.4MHz 16QAM Middle Channel RB6-0



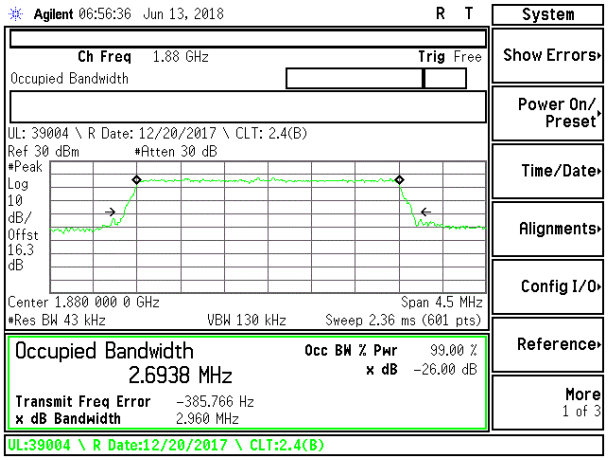
LTE B2 1.4MHz 64QAM Middle Channel RB6-0



LTE B2 3MHz QPSK Middle Channel RB15-0



LTE B2 3MHz 16QAM Middle Channel RB15-0



LTE B2 3MHz 64QAM Middle Channel RB15-0

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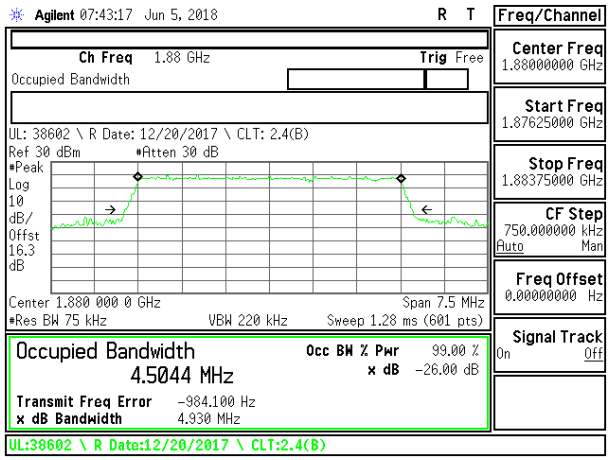
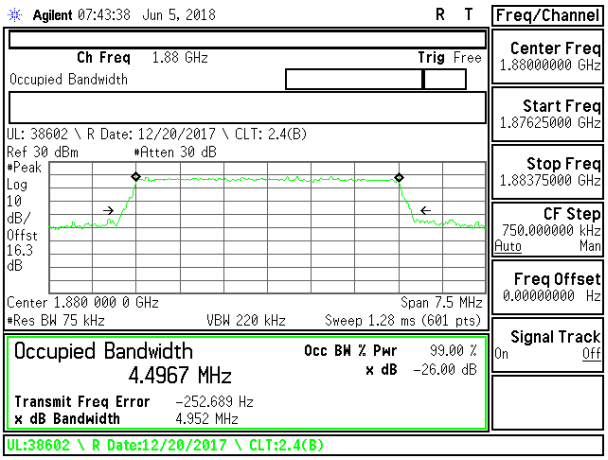
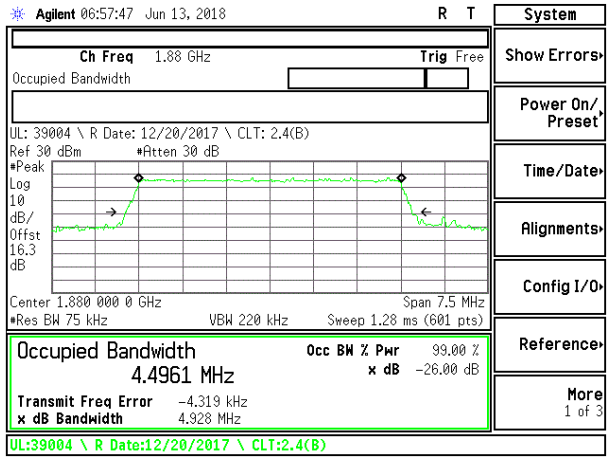


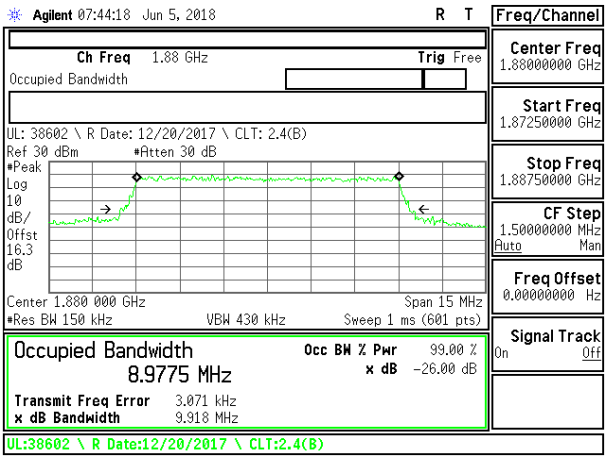
LTE B2 5MHz QPSK Middle Channel RB50-0



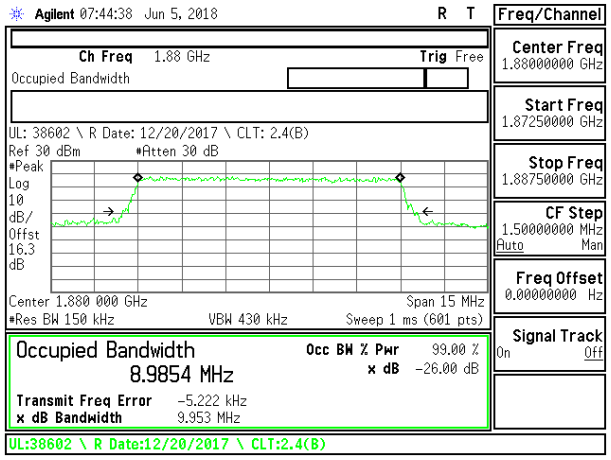
LTE B2 5MHz 16QAM Middle Channel RB50-0



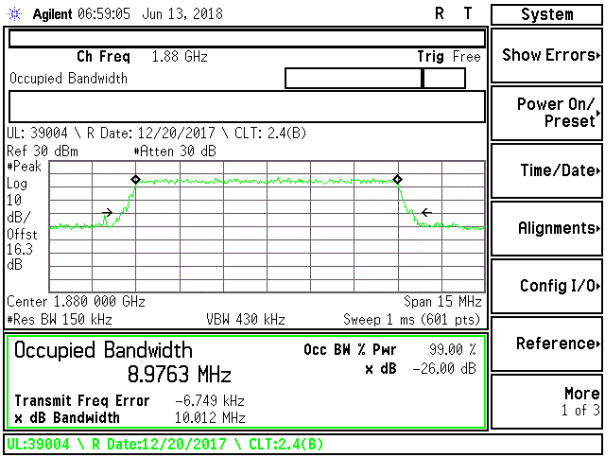
LTE B2 5MHz 64QAM Middle Channel RB50-0



LTE B2 10MHz QPSK Middle Channel RB75-0



LTE B2 10MHz 16QAM Middle Channel RB75-0



LTE B2 10MHz 64QAM Middle Channel RB75-0

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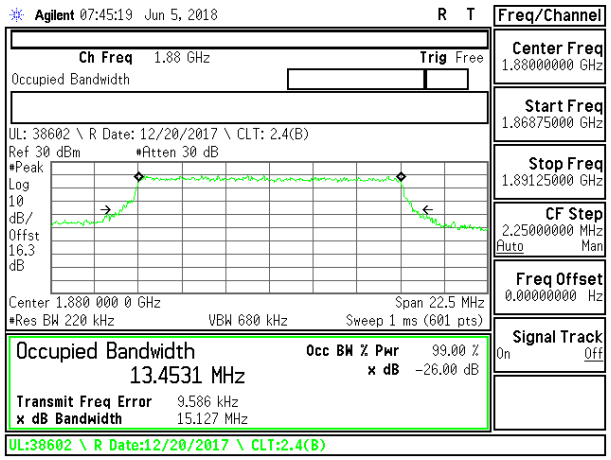
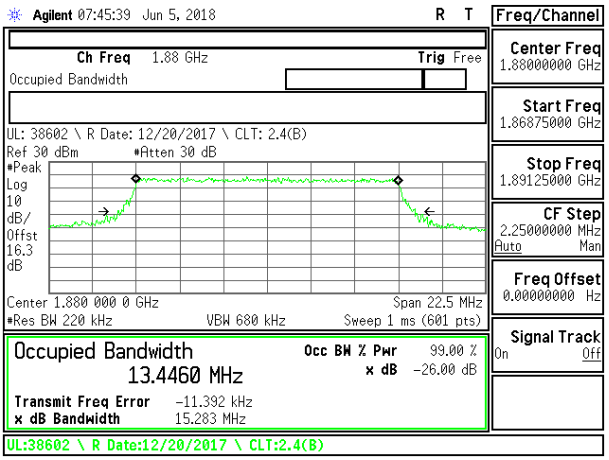
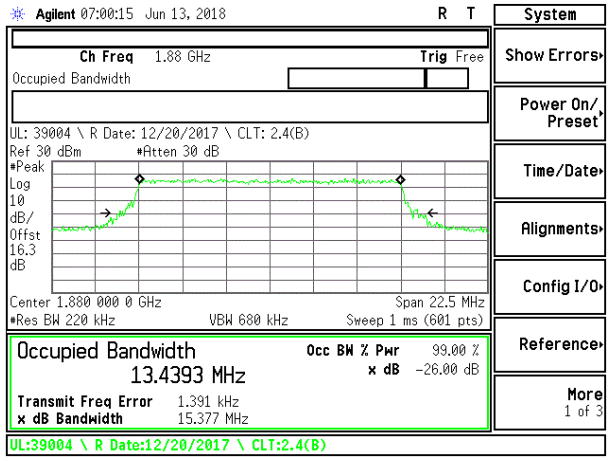


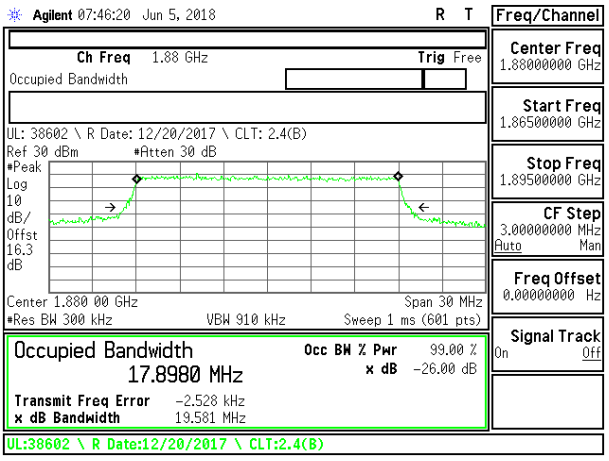
LTE B2 15MHz QPSK Middle Channel RB75-0



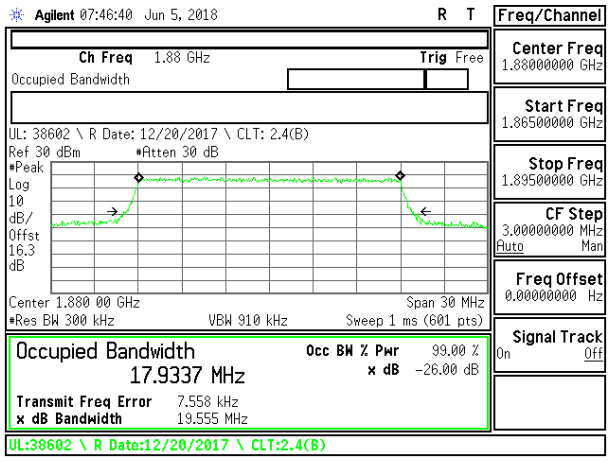
LTE B2 15MHz 16QAM Middle Channel RB75-0



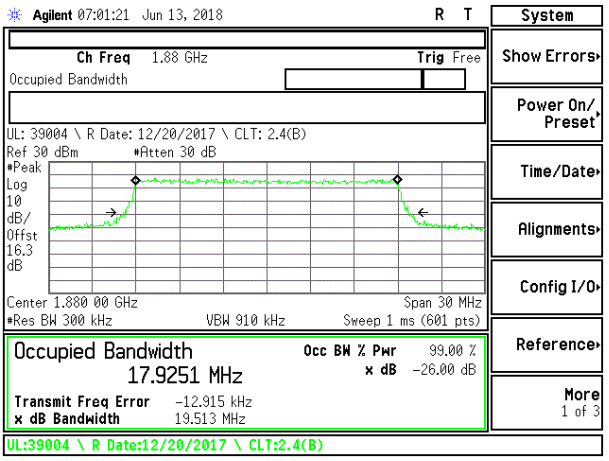
LTE B2 15MHz 64QAM Middle Channel RB75-0



LTE B2 20MHz QPSK Middle Channel RB100-0



LTE B2 20MHz 16QAM Middle Channel RB100-0



LTE B2 20MHz 64QAM Middle Channel RB100-0

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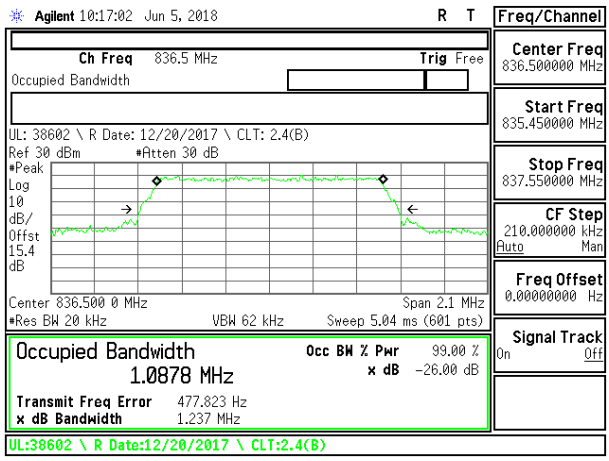
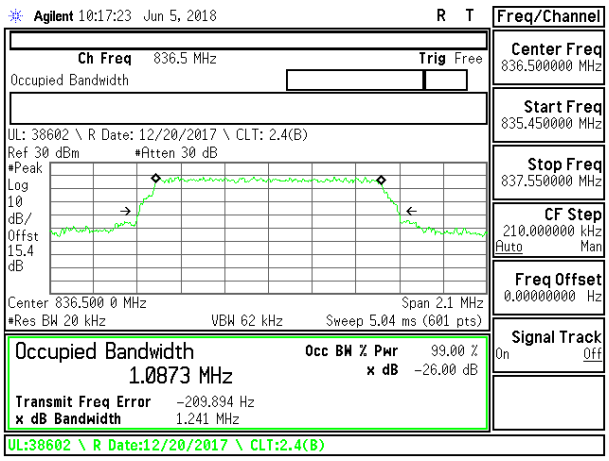
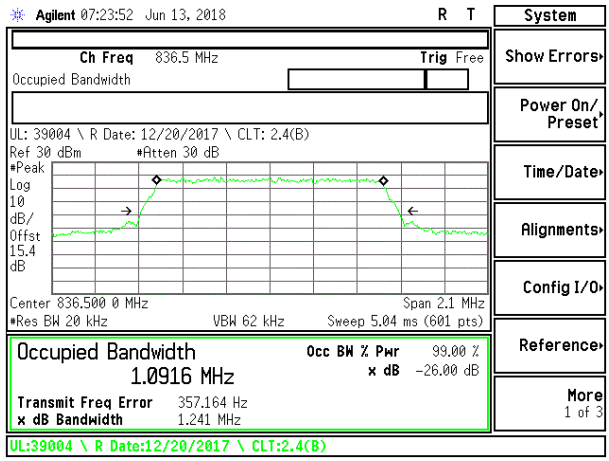
8.1.2. LTE BAND 5



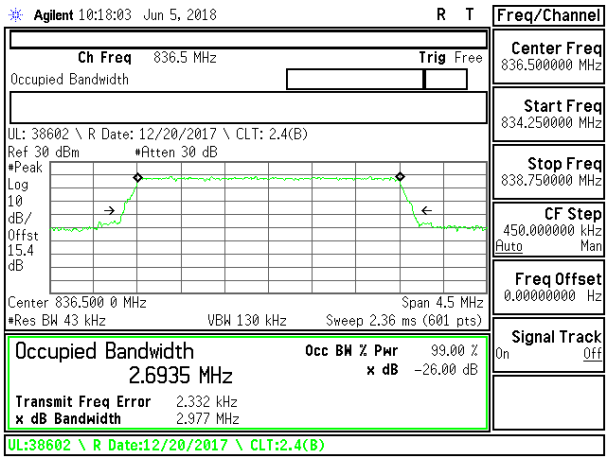
LTE B5 1.4MHz QPSK Middle Channel RB6-0



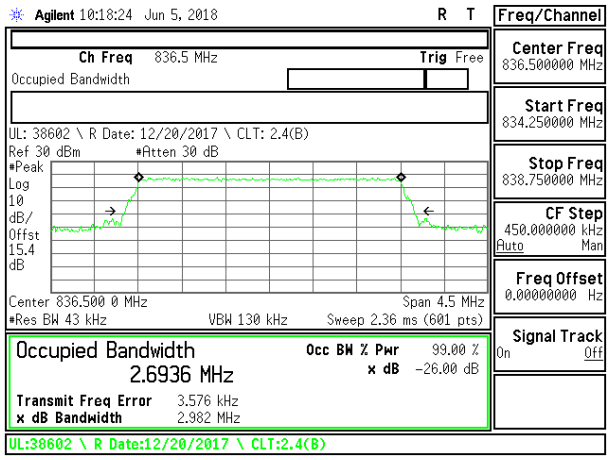
LTE B5 1.4MHz 16QAM Middle Channel RB6-0



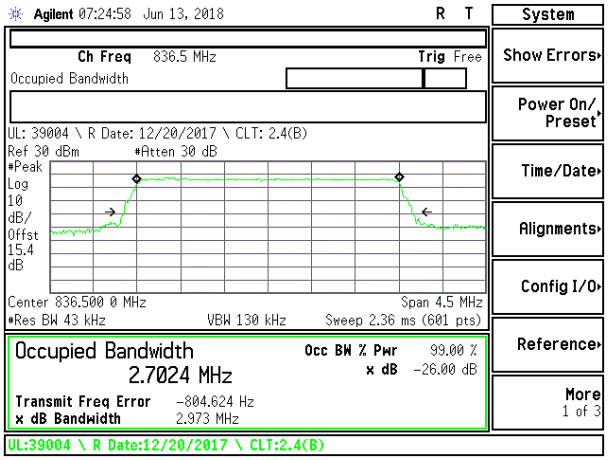
LTE B5 1.4MHz 64QAM Middle Channel RB6-0



LTE B5 3MHz QPSK Middle Channel RB15-0



LTE B5 3MHz 16QAM Middle Channel RB15-0



LTE B5 3MHz 64QAM Middle Channel RB15-0

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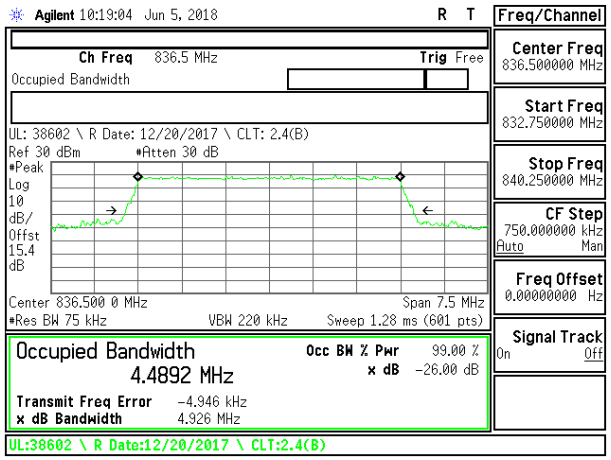
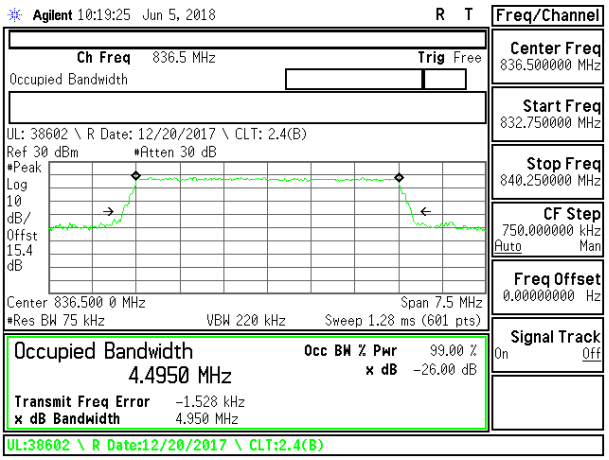
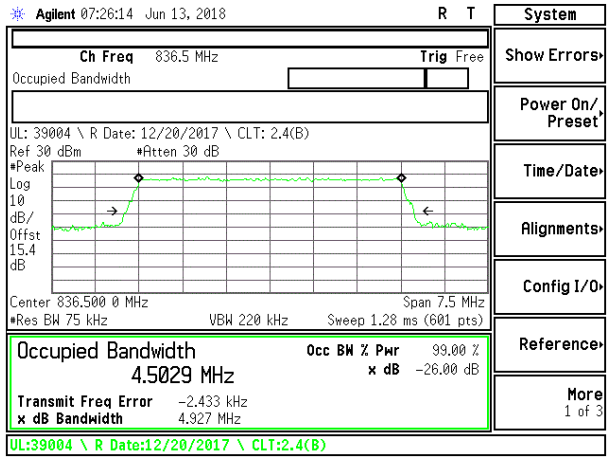


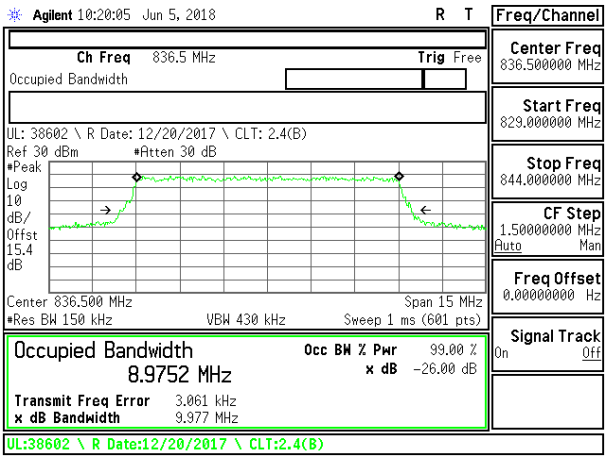
LTE B5 5MHz QPSK Middle Channel RB25-0



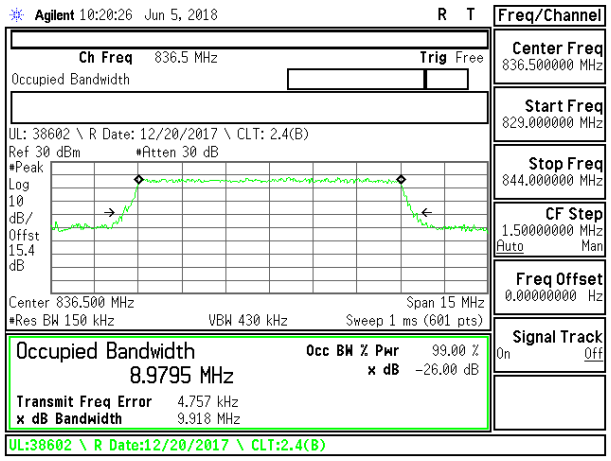
LTE B5 5MHz 16QAM Middle Channel RB25-0



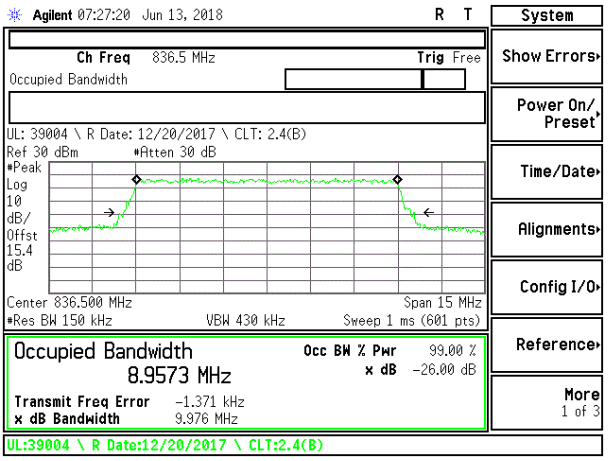
LTE B5 5MHz 64QAM Middle Channel RB25-0



LTE B5 10MHz QPSK Middle Channel RB50-0



LTE B5 10MHz 16QAM Middle Channel RB50-0



LTE B5 10MHz 64QAM Middle Channel RB50-0

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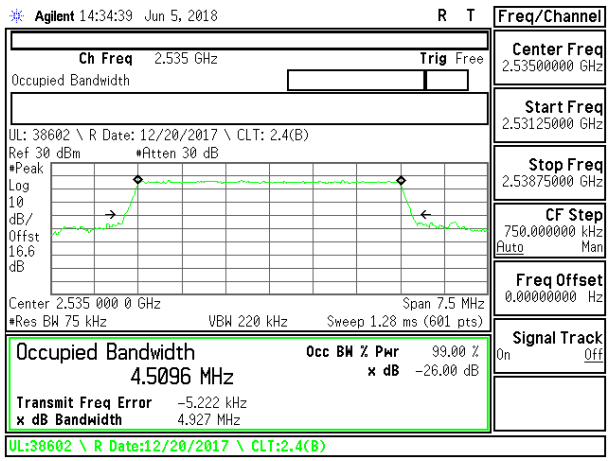
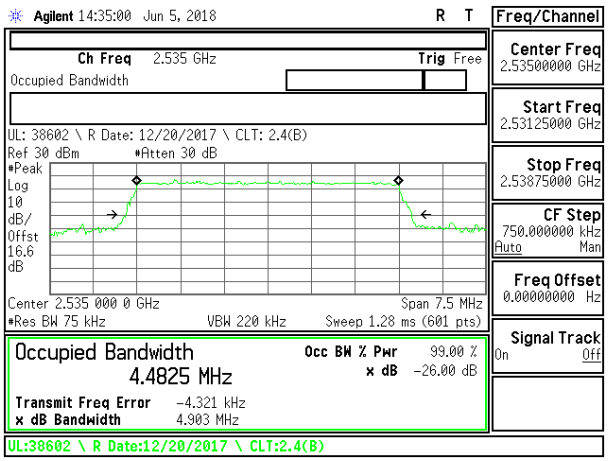
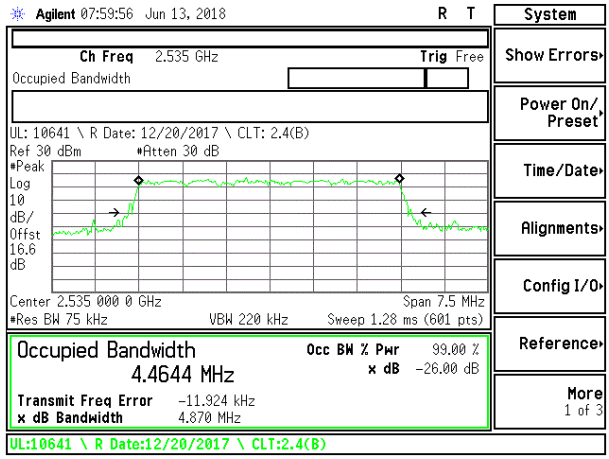
8.1.3. LTE BAND 7



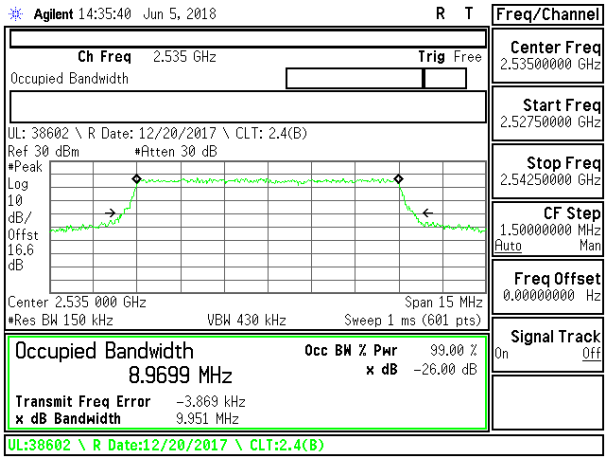
LTE B7 5MHz QPSK Middle Channel RB25-0



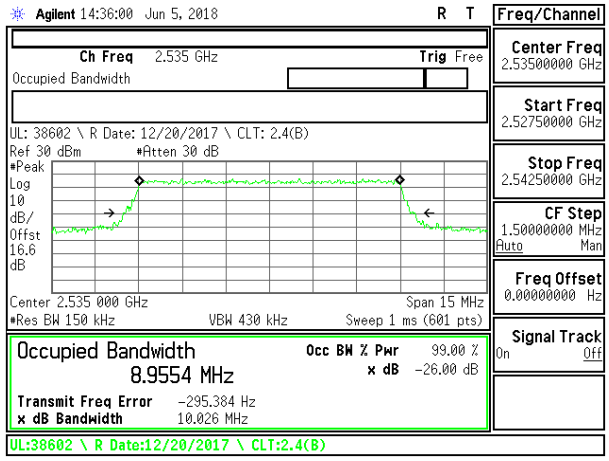
LTE B7 5MHz 16QAM Middle Channel RB25-0



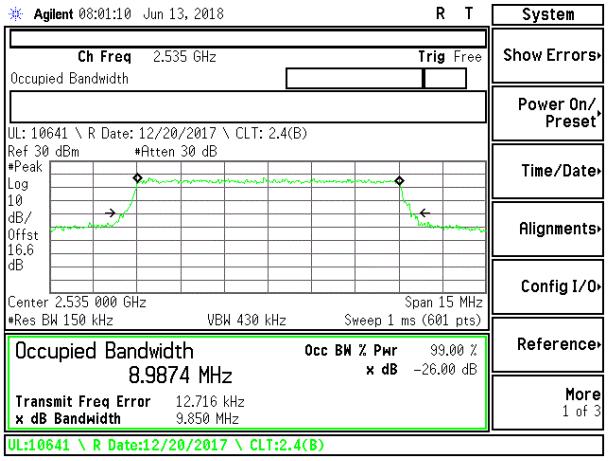
LTE B7 5MHz 64QAM Middle Channel RB25-0



LTE B7 10MHz QPSK Middle Channel RB50-0



LTE B7 10MHz 16QAM Middle Channel RB50-0



LTE B7 10MHz 64QAM Middle Channel RB50-0

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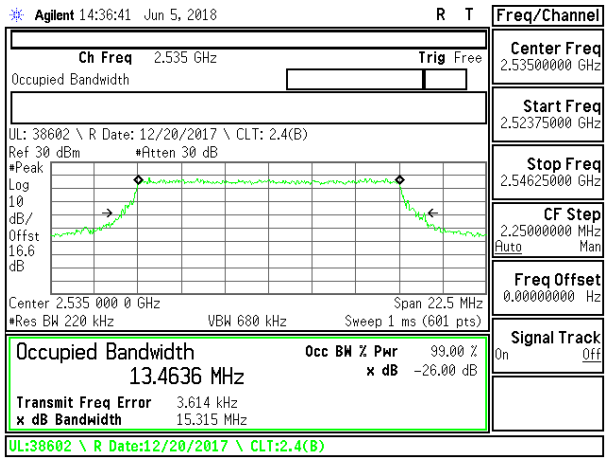
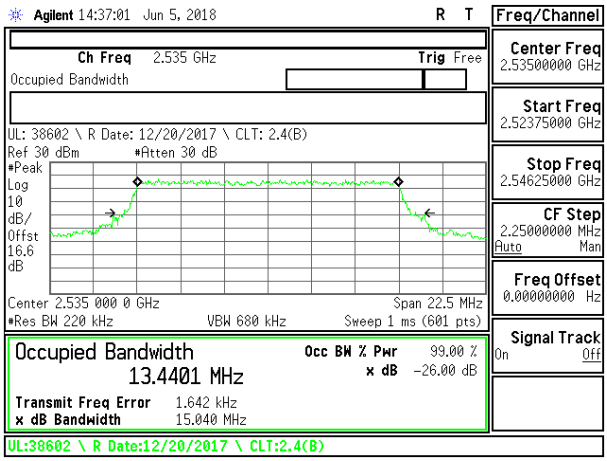
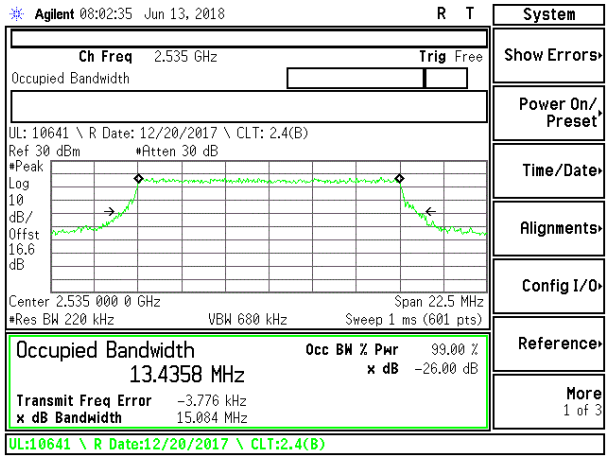


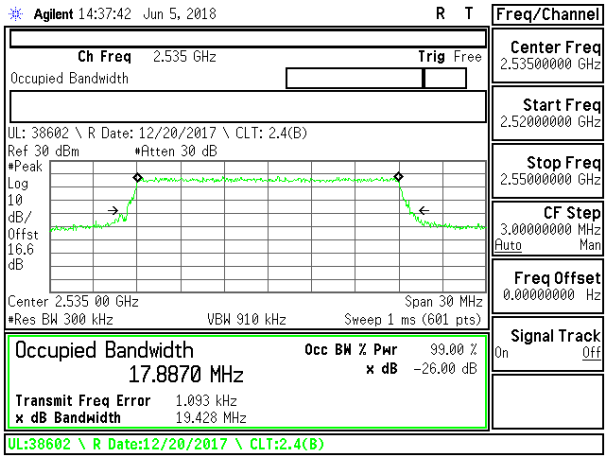
LTE B7 15MHz QPSK Middle Channel RB75-0



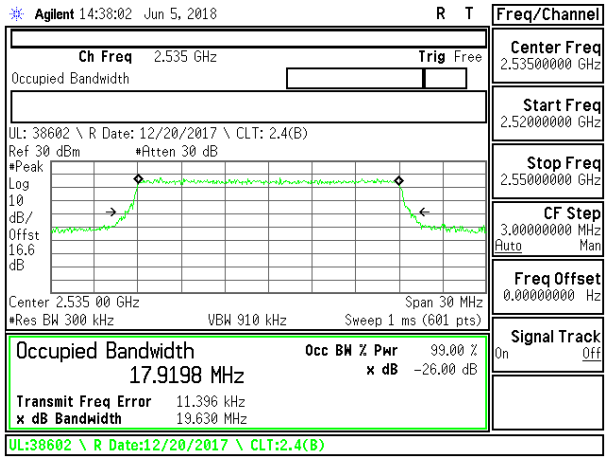
LTE B7 15MHz 16QAM Middle Channel RB75-0



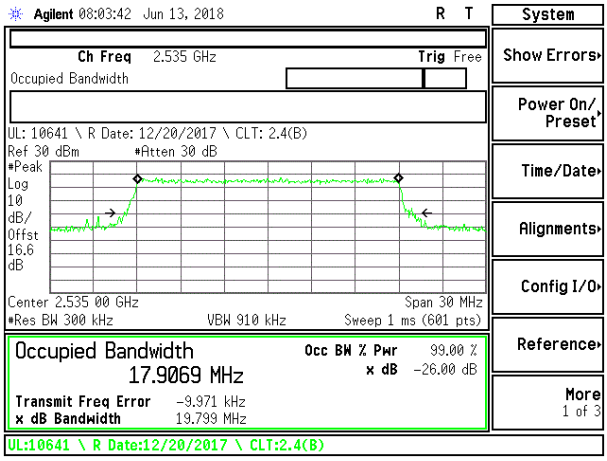
LTE B7 15MHz 64QAM Middle Channel RB75-0



LTE B7 20MHz QPSK Middle Channel RB100-0



LTE B7 20MHz 16QAM Middle Channel RB100-0



LTE B7 20MHz 64QAM Middle Channel RB100-0

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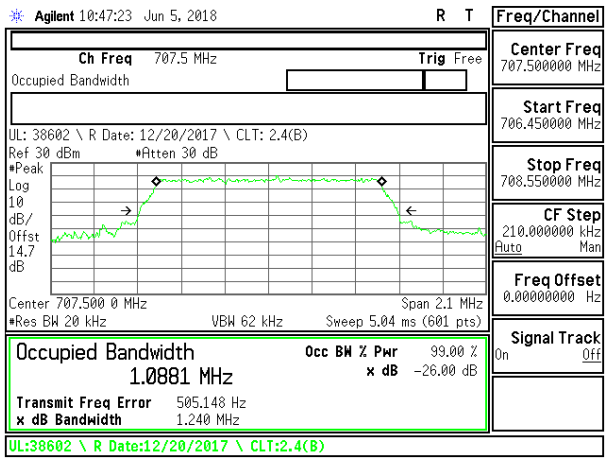
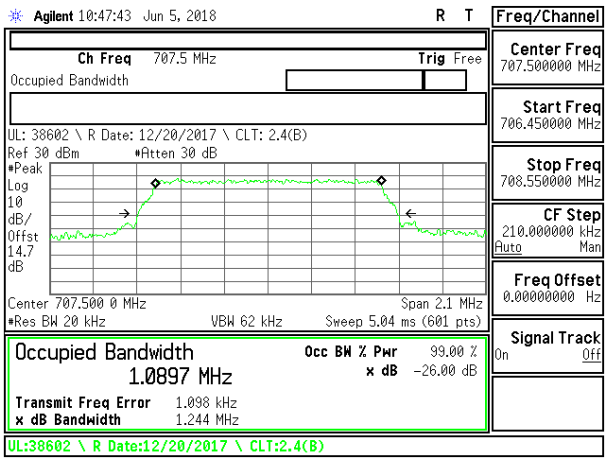
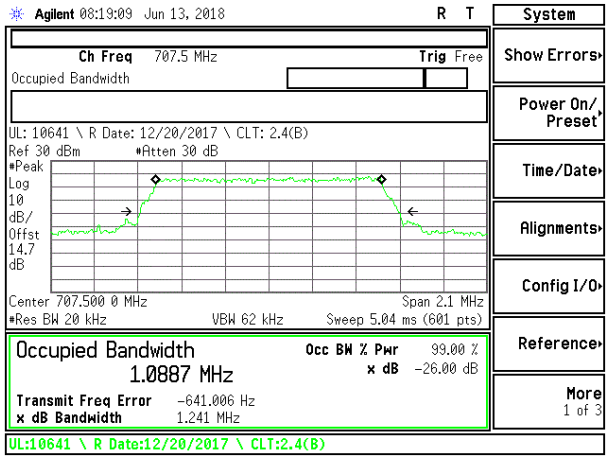
8.1.4. LTE BAND 12



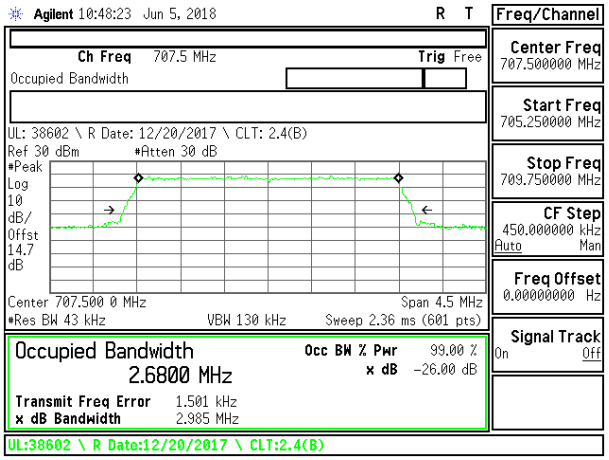
LTE B12 1.4MHz QPSK Middle Channel RB6-0



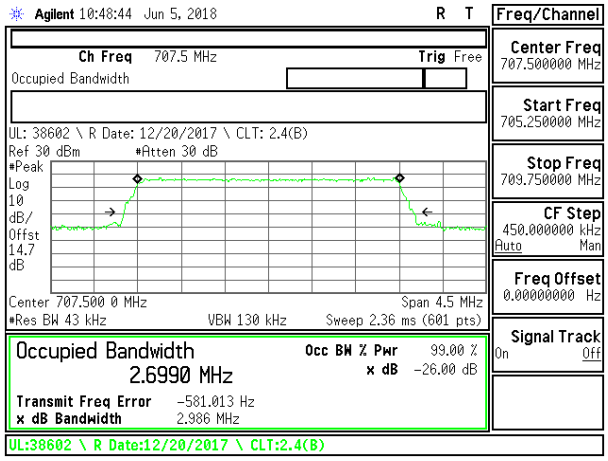
LTE B12 1.4MHz 16QAM Middle Channel RB6-0



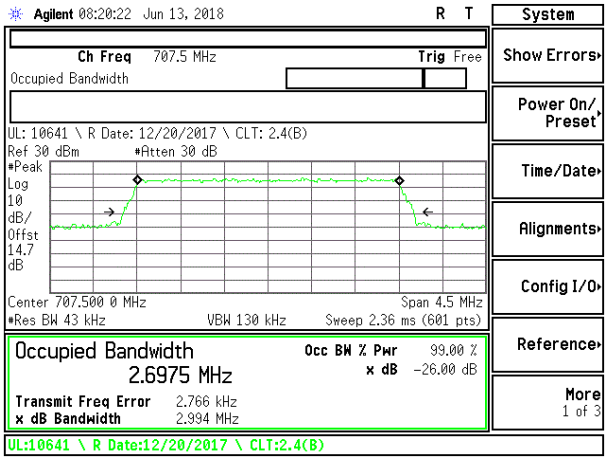
LTE B12 1.4MHz 64QAM Middle Channel RB6-0



LTE B12 3MHz QPSK Middle Channel RB15-0



LTE B12 3MHz 16QAM Middle Channel RB15-0



LTE B12 3MHz 64QAM Middle Channel RB15-0

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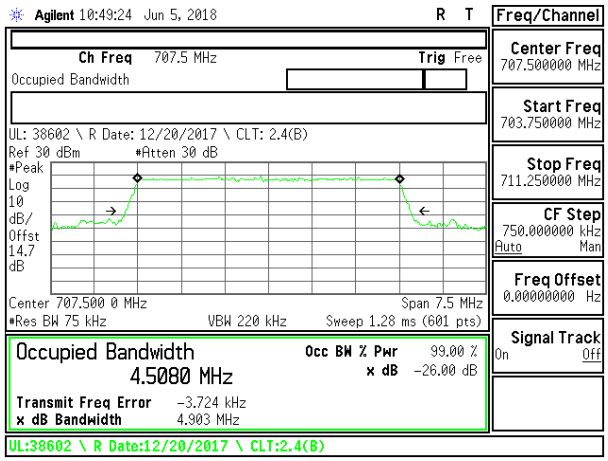
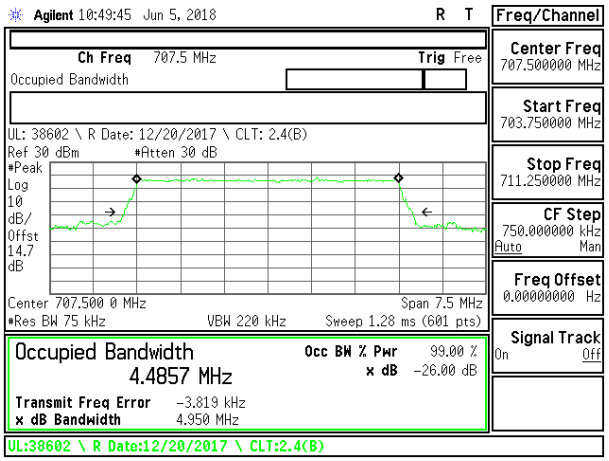
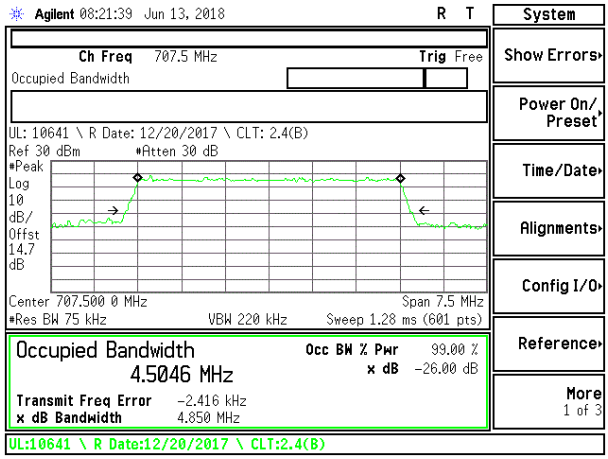


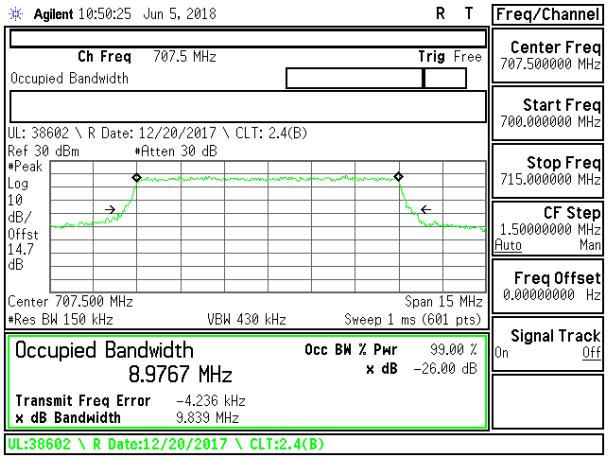
LTE B12 5MHz QPSK Middle Channel RB25-0



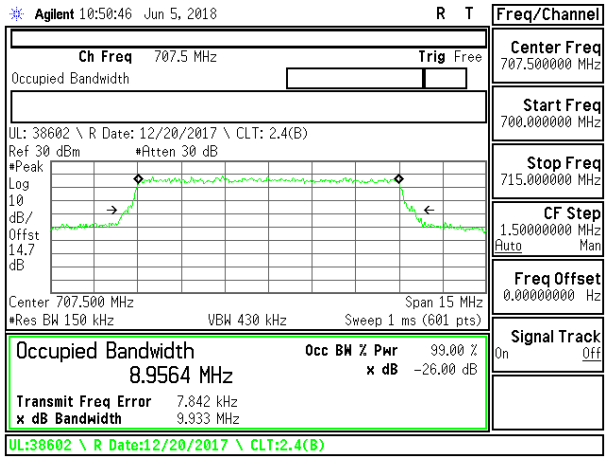
LTE B12 5MHz 16QAM Middle Channel RB25-0



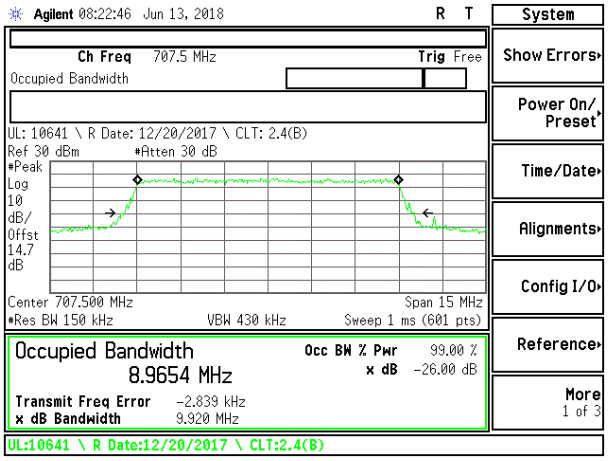
LTE B12 5MHz 64QAM Middle Channel RB25-0



LTE B12 10MHz QPSK Middle Channel RB50-0



LTE B12 10MHz 16QAM Middle Channel RB50-0



LTE B12 10MHz 64QAM Middle Channel RB50-0

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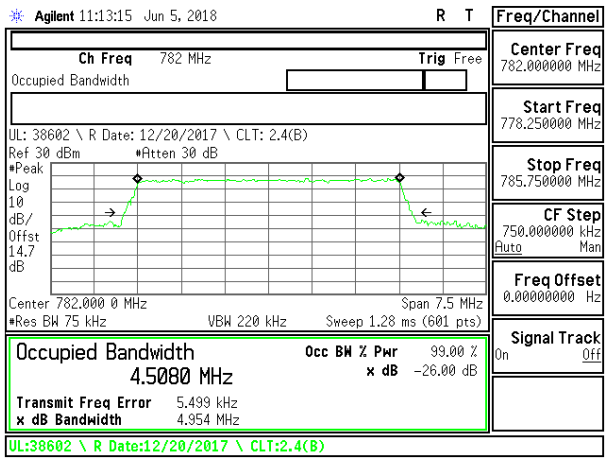
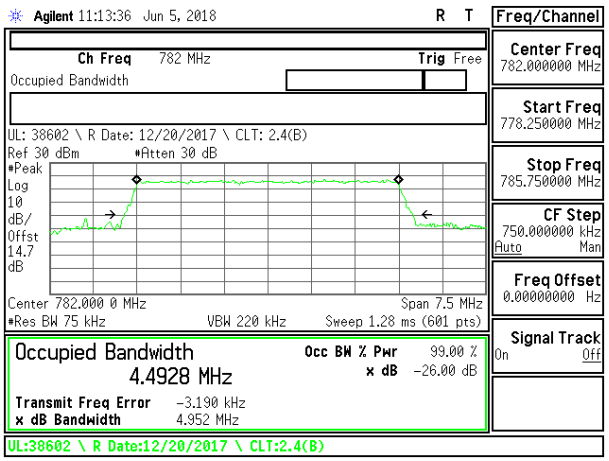
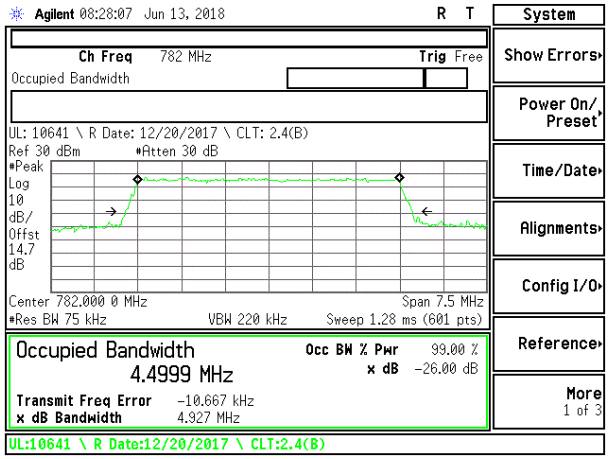
8.1.5. LTE BAND 13



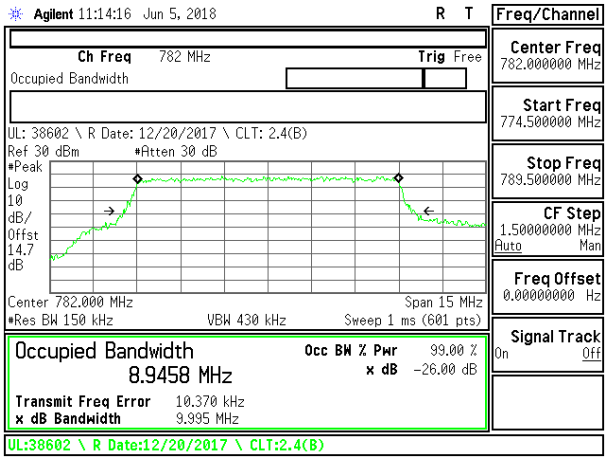
LTE B13 5MHz QPSK Middle Channel RB25-0



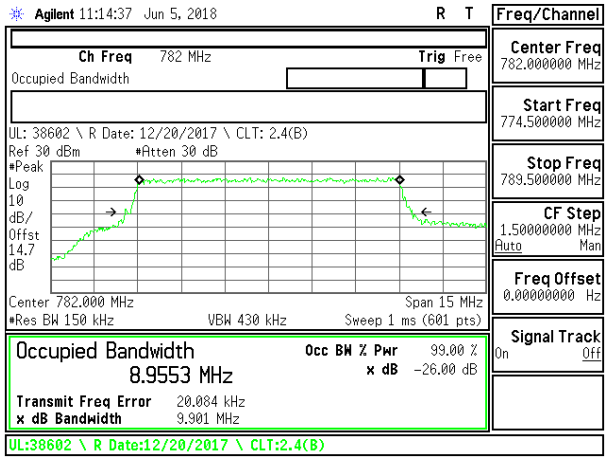
LTE B13 5MHz 16QAM Middle Channel RB25-0



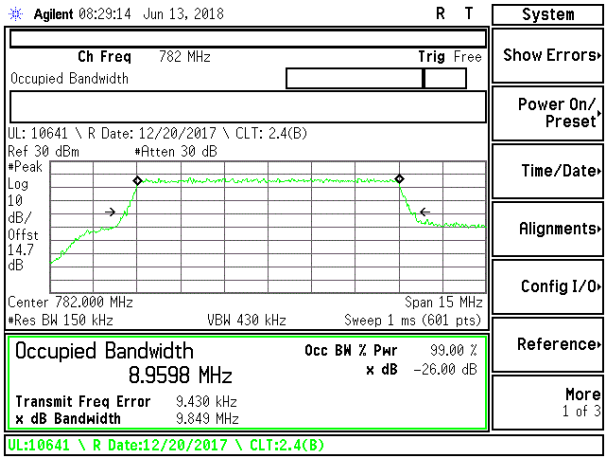
LTE B13 5MHz 64QAM Middle Channel RB25-0



LTE B13 10MHz QPSK Middle Channel RB50-0



LTE B13 10MHz 16QAM Middle Channel RB50-0



LTE B13 10MHz 64QAM Middle Channel RB50-0

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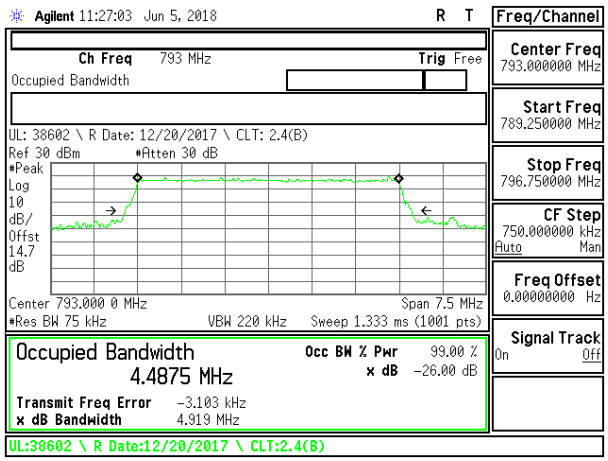
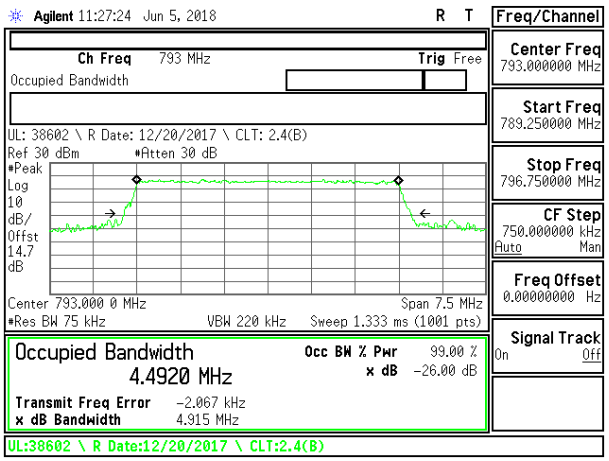
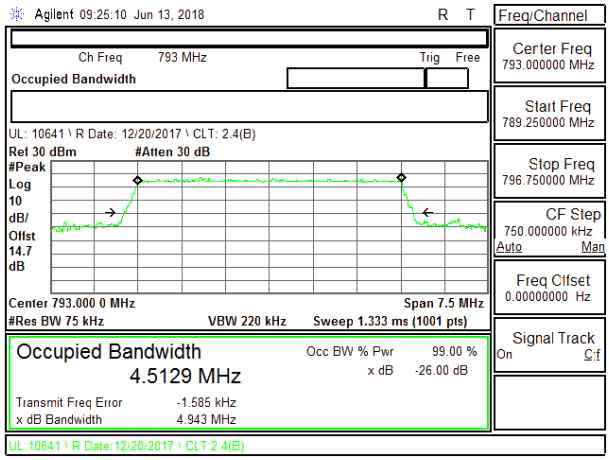
8.1.6. LTE BAND 14



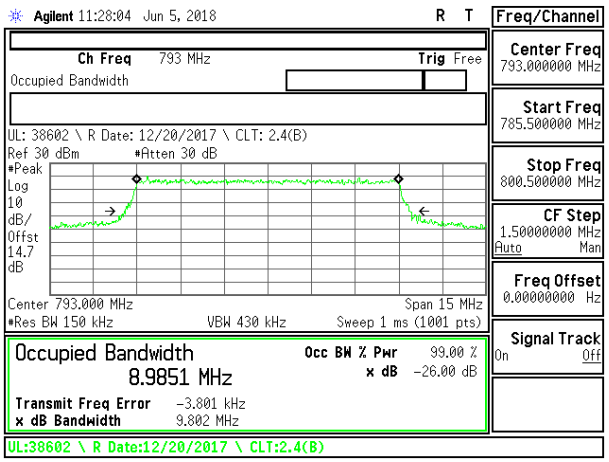
LTE B14 5MHz QPSK Middle Channel RB25-0



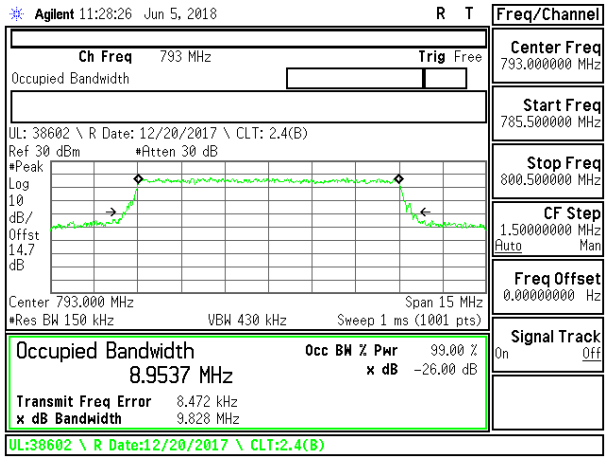
LTE B14 5MHz 16QAM Middle Channel RB25-0



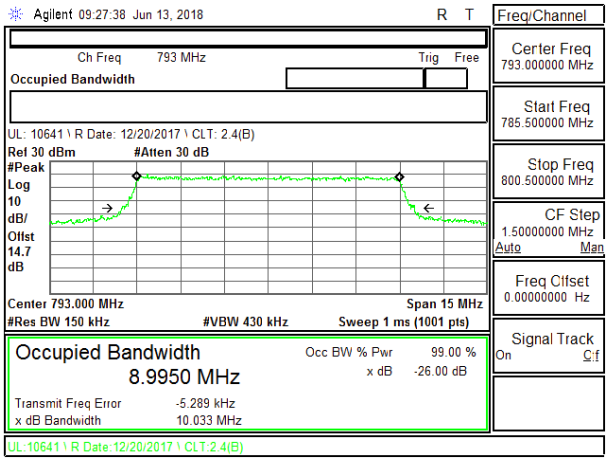
LTE B14 5MHz 64QAM Middle Channel RB25-0



LTE B14 10MHz QPSK Middle Channel RB50-0



LTE B14 10MHz 16QAM Middle Channel RB50-0



LTE B14 10MHz 64QAM Middle Channel RB50-0

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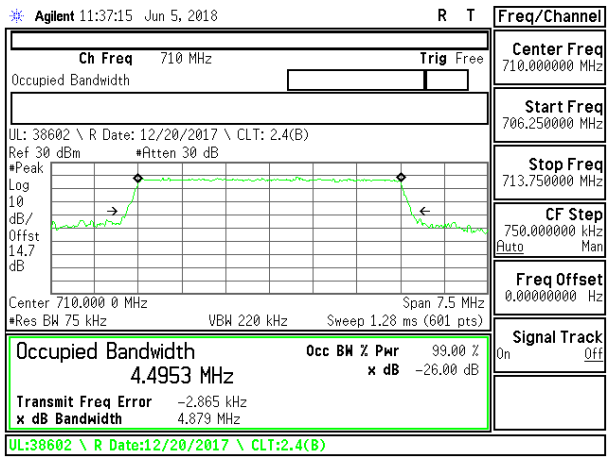
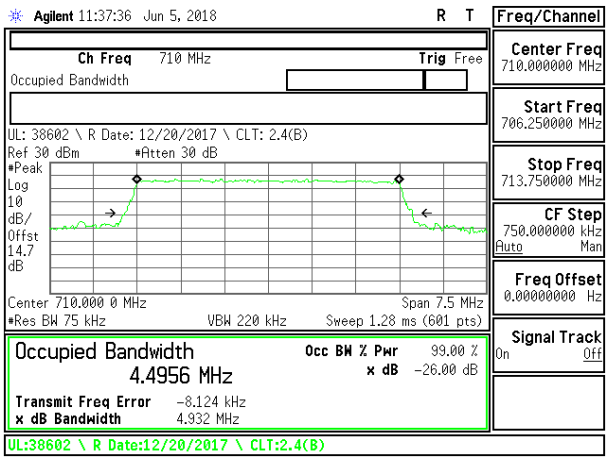
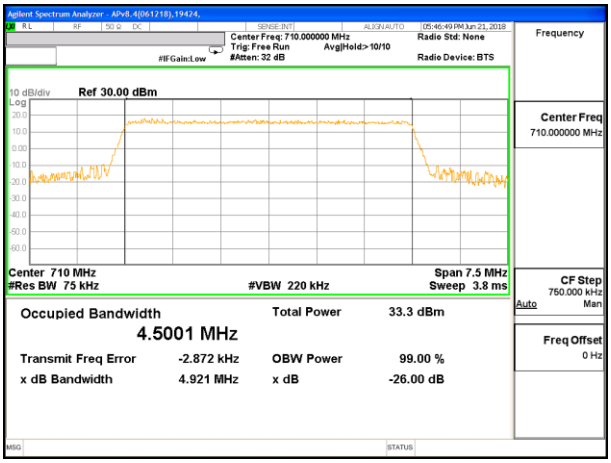
8.1.7. LTE BAND 17



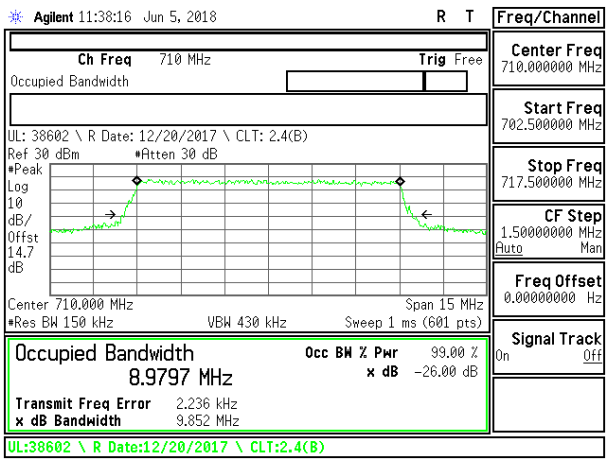
LTE B17 5MHz QPSK Middle Channel RB25-0



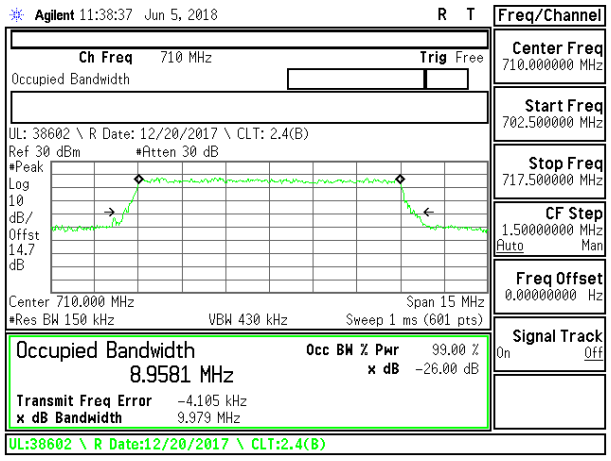
LTE B17 5MHz 16QAM Middle Channel RB25-0



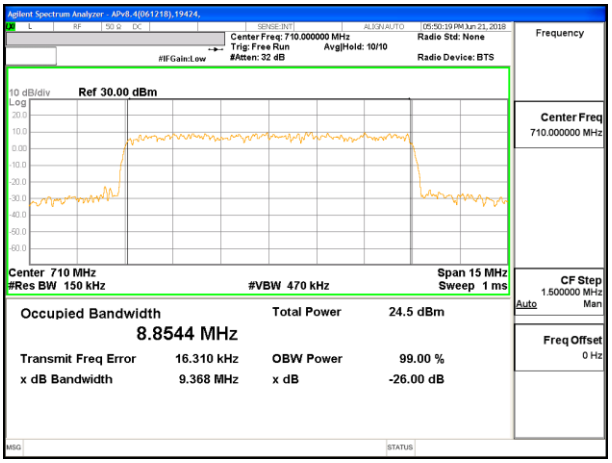
LTE B17 5MHz 64QAM Middle Channel RB25-0



LTE B17 10MHz QPSK Middle Channel RB50-0



LTE B17 10MHz 16QAM Middle Channel RB50-0



LTE B17 10MHz 64QAM Middle Channel RB50-0

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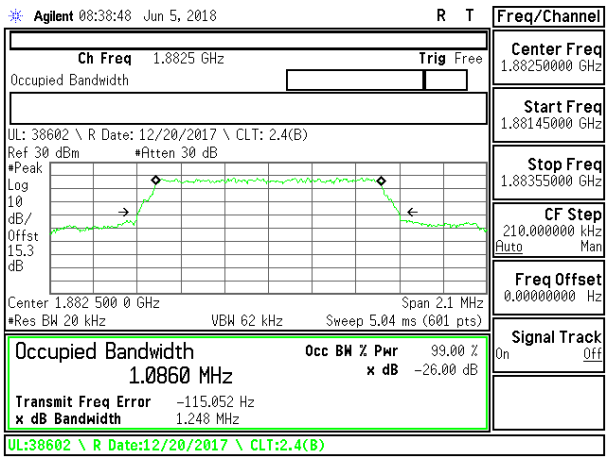
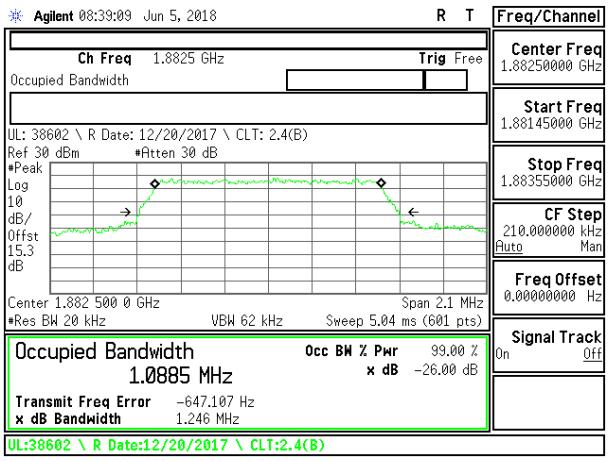
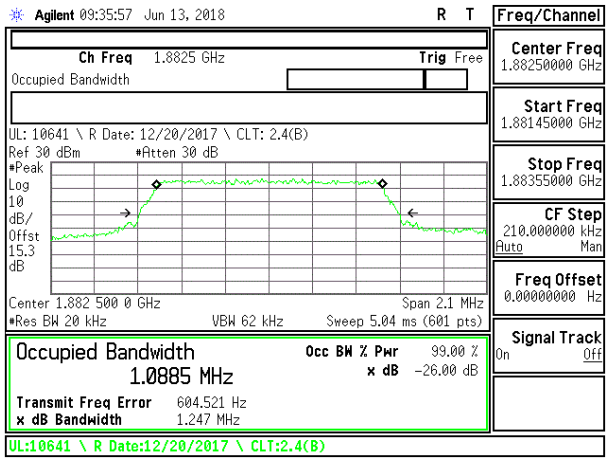
8.1.8. LTE BAND 25



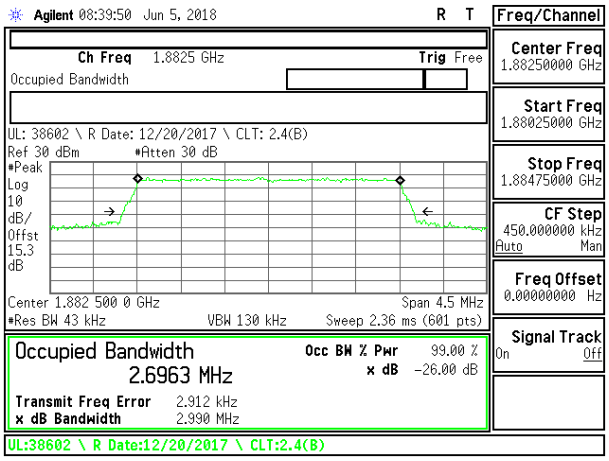
LTE B25 1.4MHz QPSK Middle Channel RB6-0



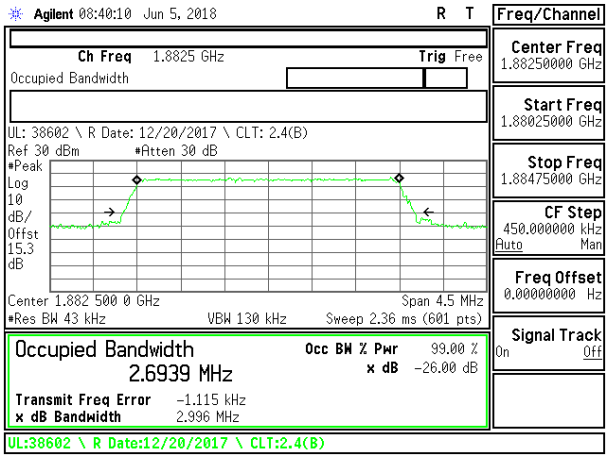
LTE B25 1.4MHz 16QAM Middle Channel RB6-0



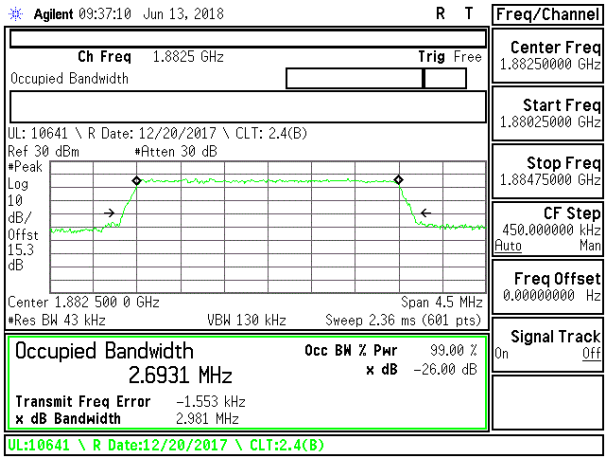
LTE B25 1.4MHz 64QAM Middle Channel RB6-0



LTE B25 3MHz QPSK Middle Channel RB15-0



LTE B25 3MHz 16QAM Middle Channel RB15-0



LTE B25 3MHz 64QAM Middle Channel RB15-0

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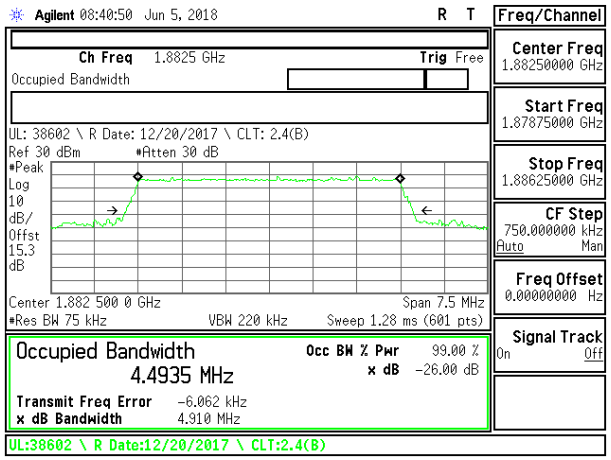
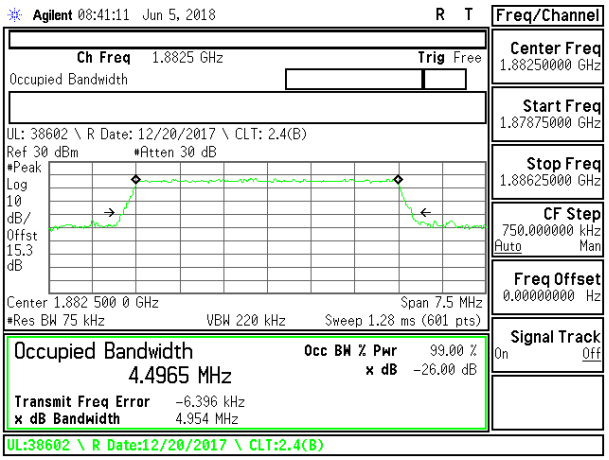
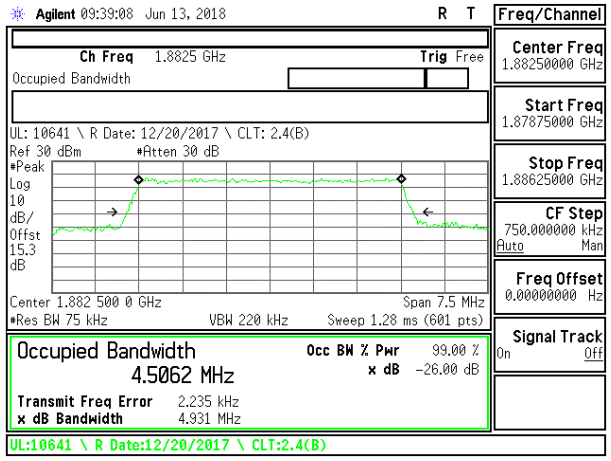


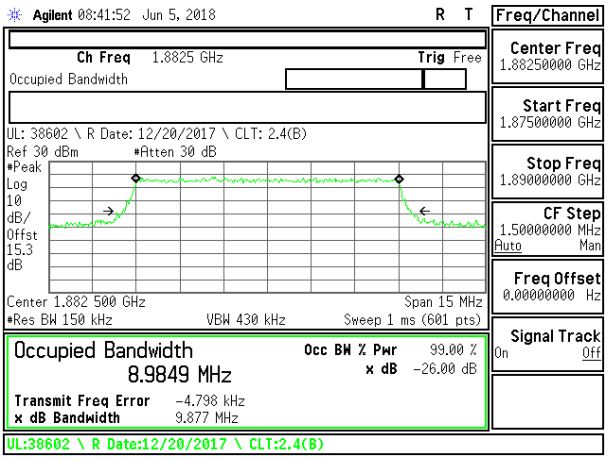
LTE B25 5MHz QPSK Middle Channel RB25-0



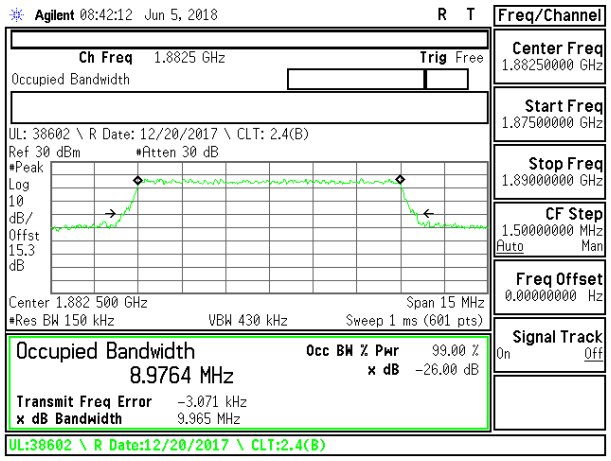
LTE B25 5MHz 16QAM Middle Channel RB25-0



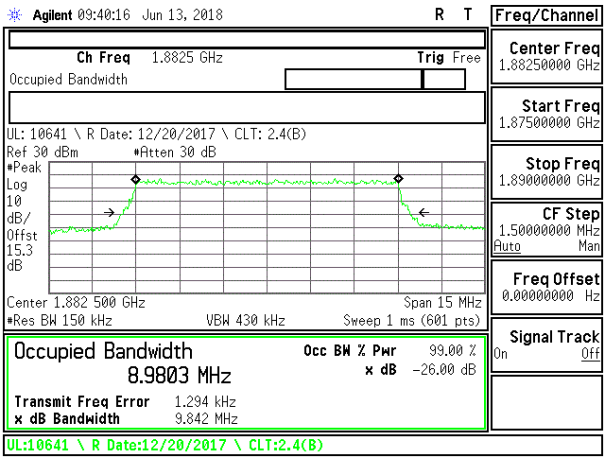
LTE B25 5MHz 64QAM Middle Channel RB25-0



LTE B25 10MHz QPSK Middle Channel RB50-0



LTE B25 10MHz 16QAM Middle Channel RB50-0



LTE B25 10MHz 64QAM Middle Channel RB50-0

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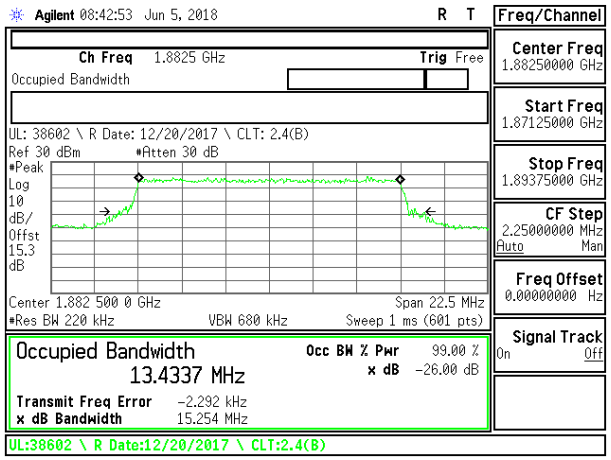
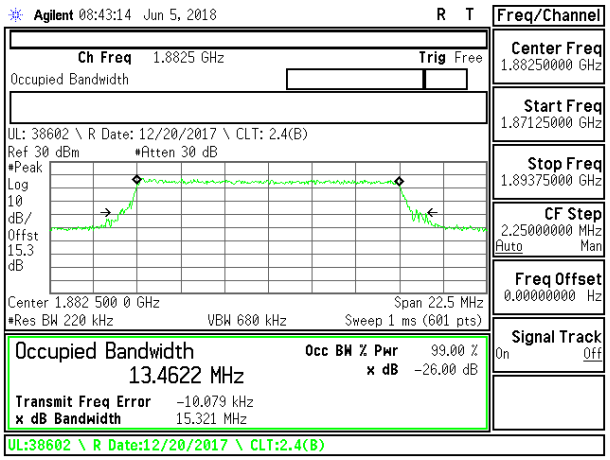
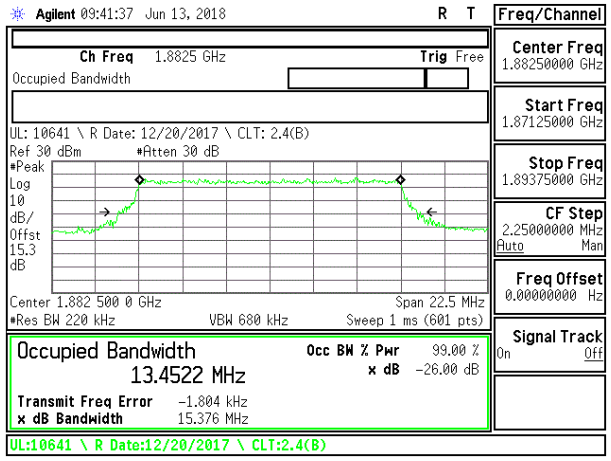


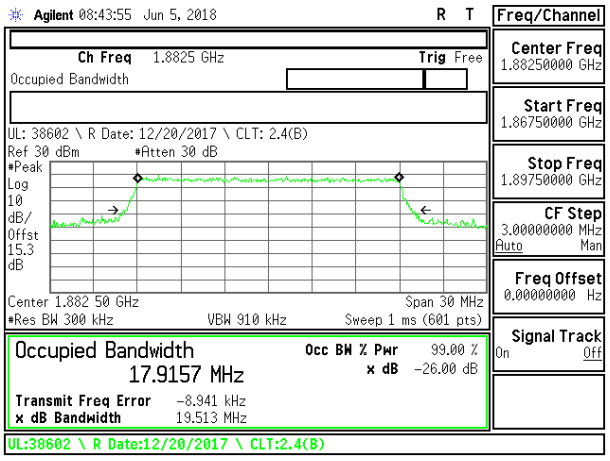
LTE B25 15MHz QPSK Middle Channel RB75-0



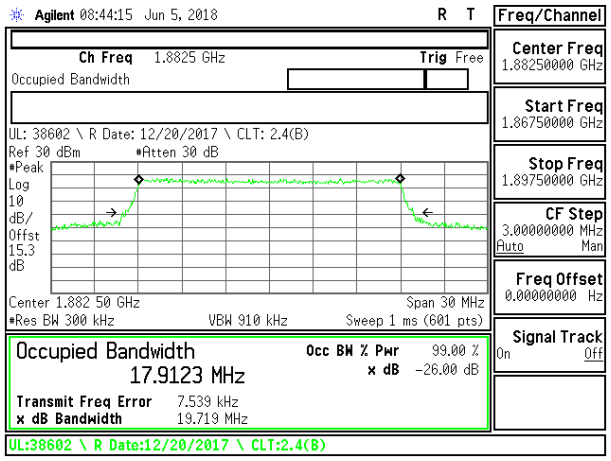
LTE B25 15MHz 16QAM Middle Channel RB75-0



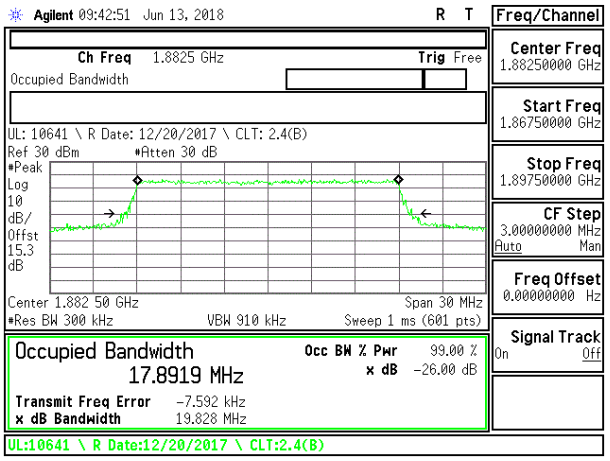
LTE B25 15MHz 64QAM Middle Channel RB75-0



LTE B25 20MHz QPSK Middle Channel RB100-0



LTE B25 20MHz 16QAM Middle Channel RB100-0



LTE B25 20MHz 64QAM Middle Channel RB100-0

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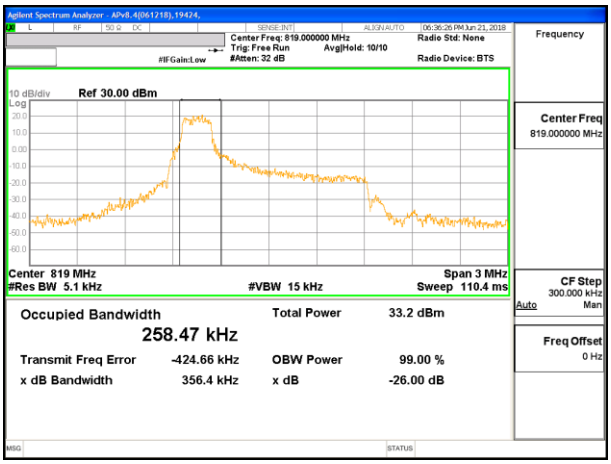
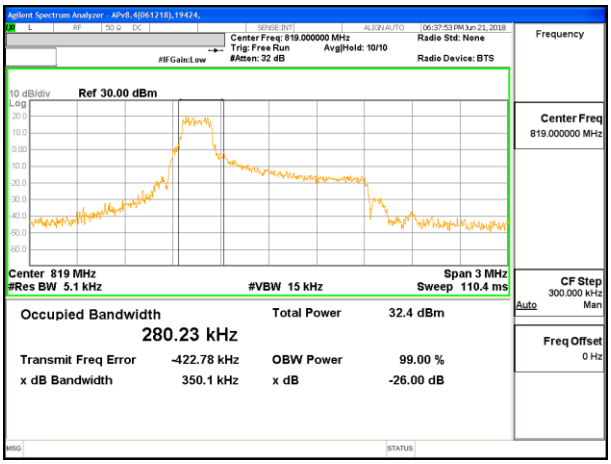
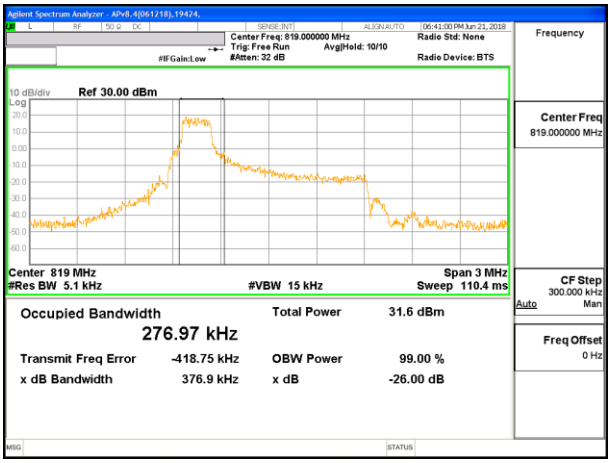
8.1.9. LTE BAND 26 (PART 90S)



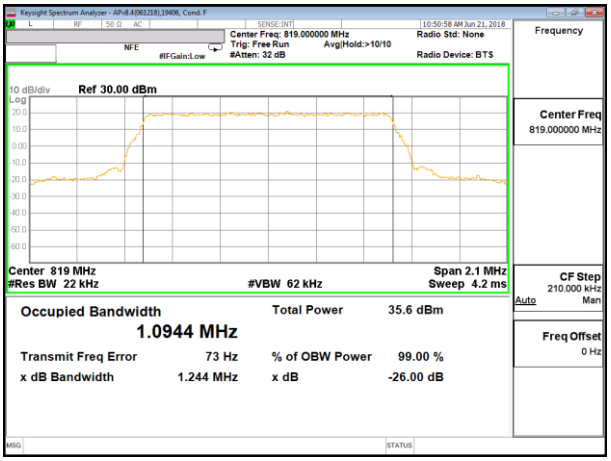
LTE B26 1.4MHz QPSK Middle Channel RB1-0



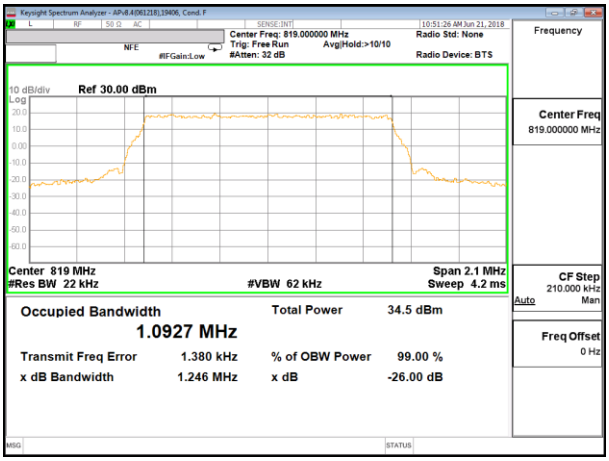
LTE B26 1.4MHz 16QAM Middle Channel RB1-0



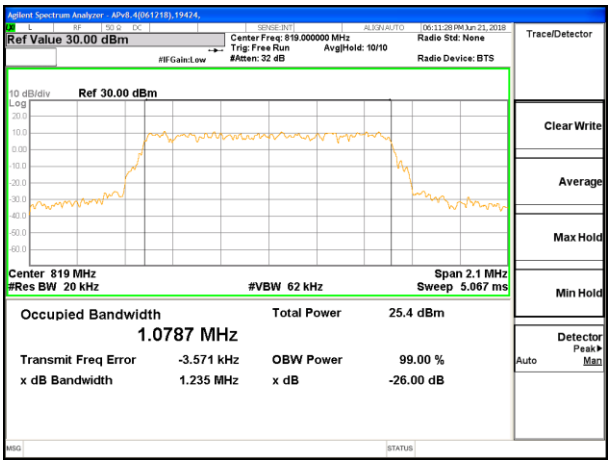
LTE B26 1.4MHz 64QAM Middle Channel RB1-0



LTE B26 1.4MHz QPSK Middle Channel RB6-0



LTE B26 1.4MHz 16QAM Middle Channel RB6-0



LTE B26 1.4MHz 64QAM Middle Channel RB6-0

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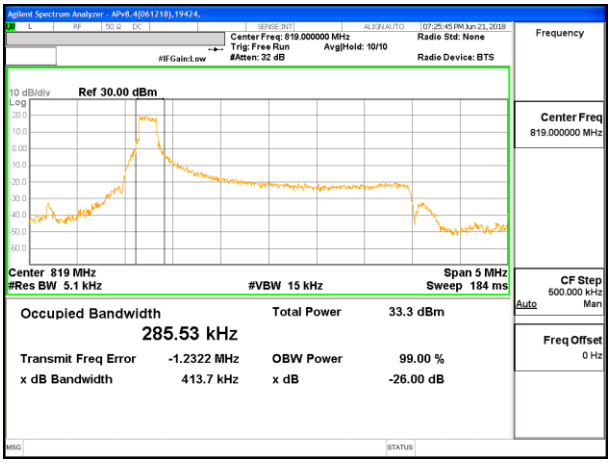
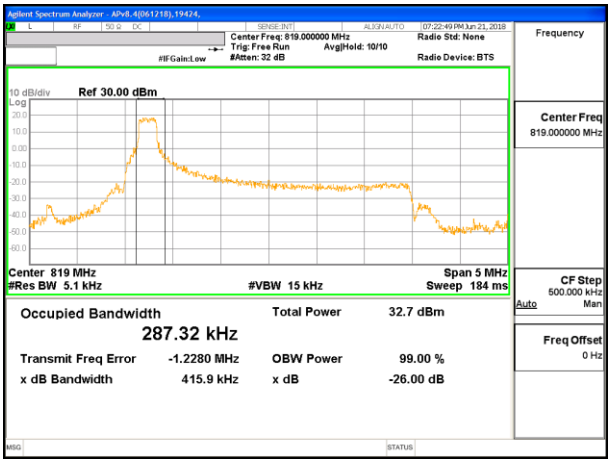
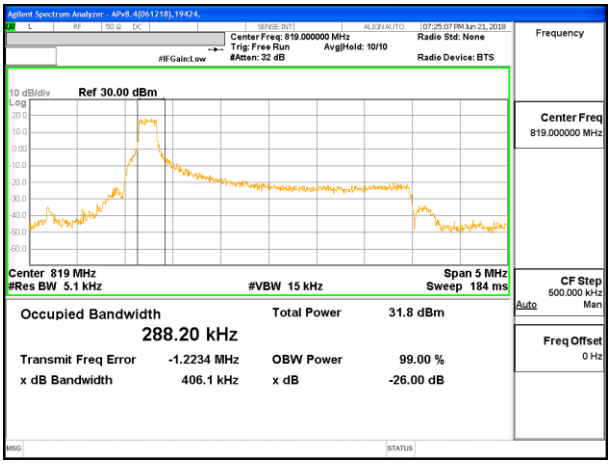


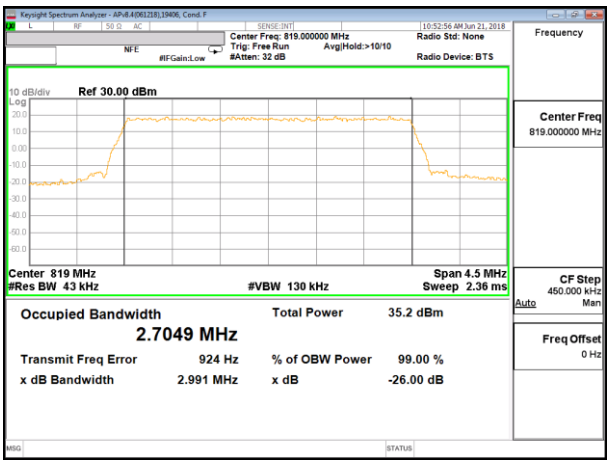
LTE B26 3MHz QPSK Middle Channel RB1-0



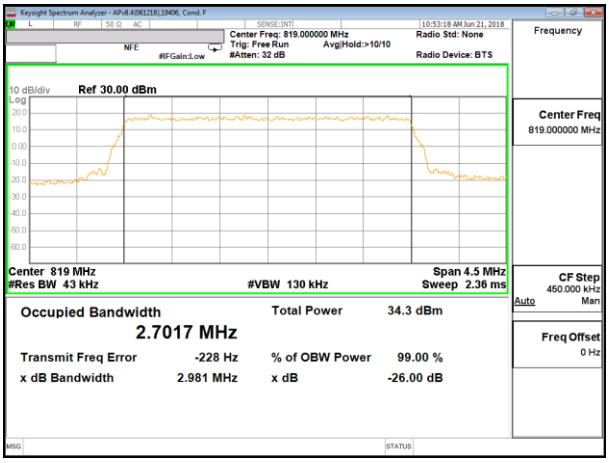
LTE B26 3MHz 16QAM Middle Channel RB1-0



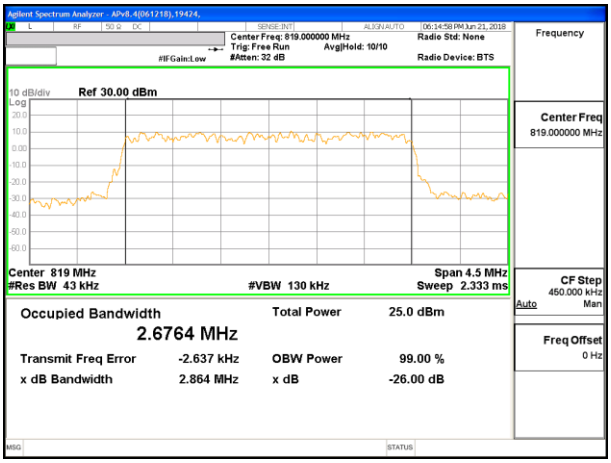
LTE B26 3MHz 64QAM Middle Channel RB1-0



LTE B26 3MHz QPSK Middle Channel RB15-0



LTE B26 3MHz 16QAM Middle Channel RB15-0



LTE B26 3MHz 64QAM Middle Channel RB15-0

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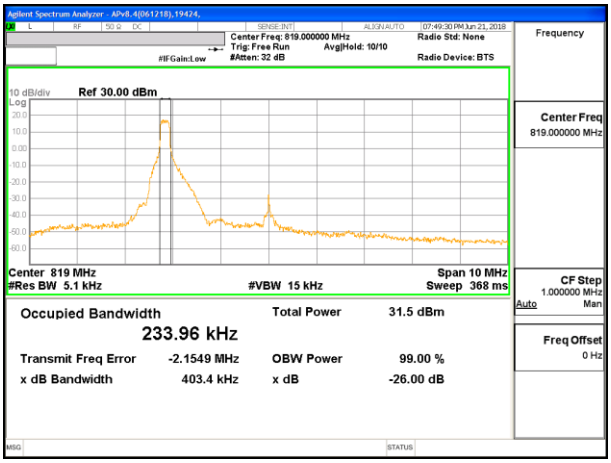
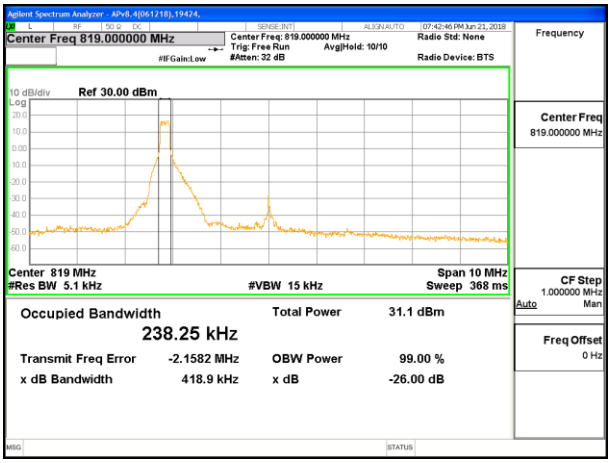
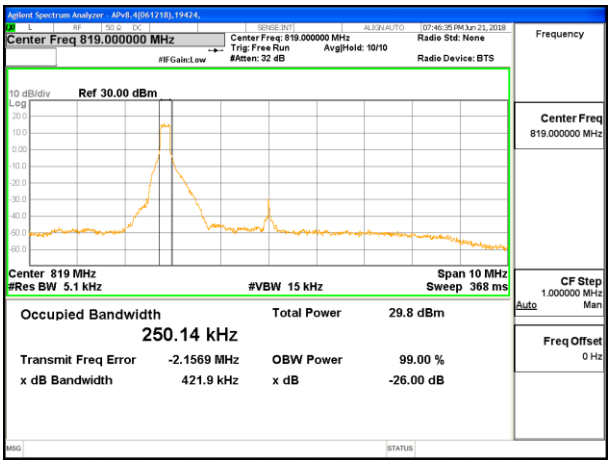


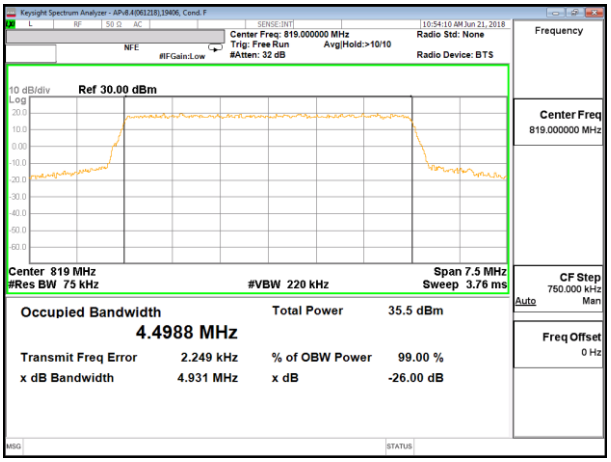
LTE B26 5MHz QPSK Middle Channel RB1-0



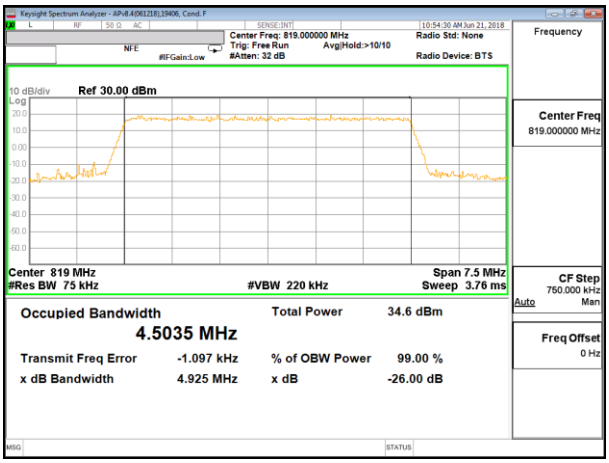
LTE B26 5MHz 16QAM Middle Channel RB1-0



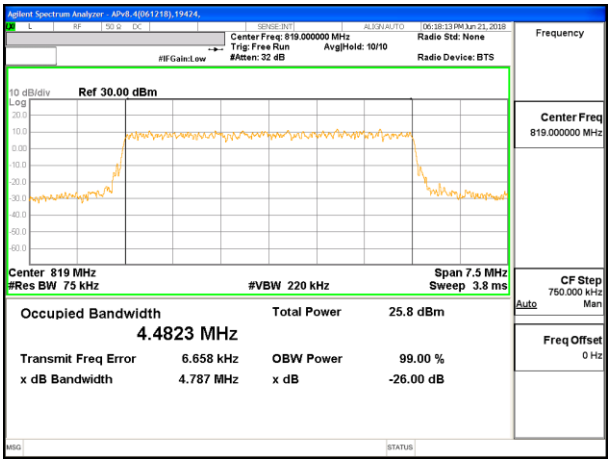
LTE B26 5MHz 64QAM Middle Channel RB1-0



LTE B26 5MHz QPSK Middle Channel RB25-0



LTE B26 5MHz 16QAM Middle Channel RB25-0



LTE B26 5MHz 64QAM Middle Channel RB25-0

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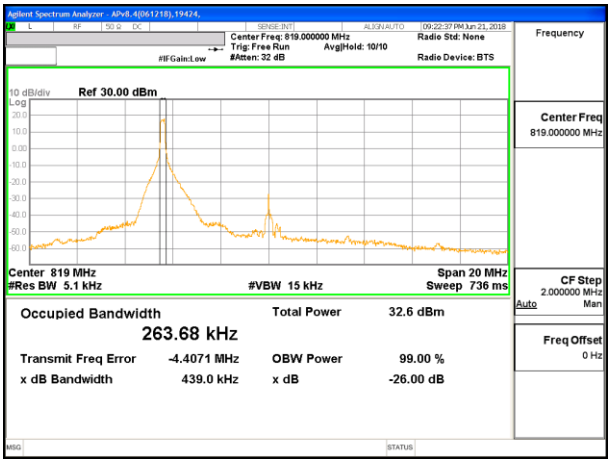
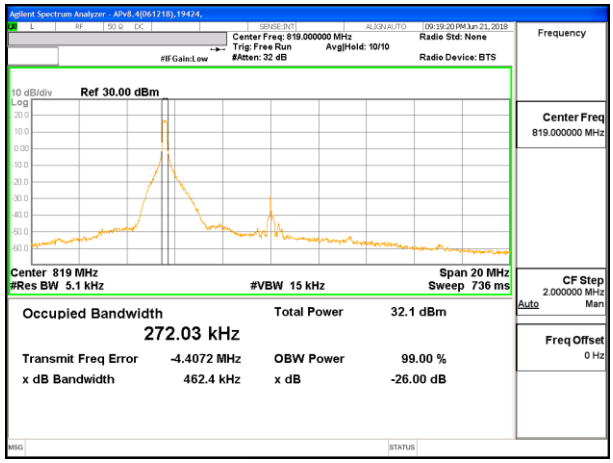
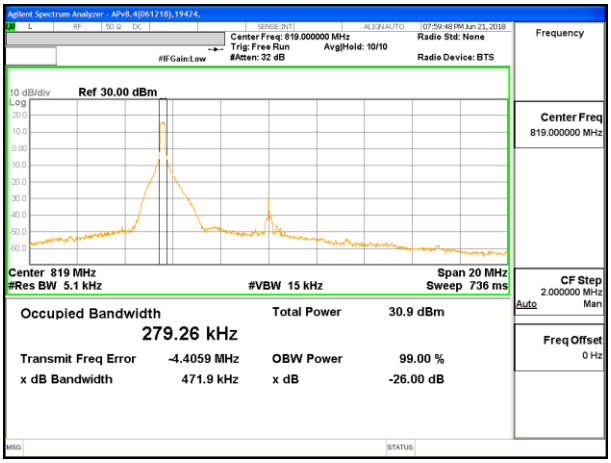


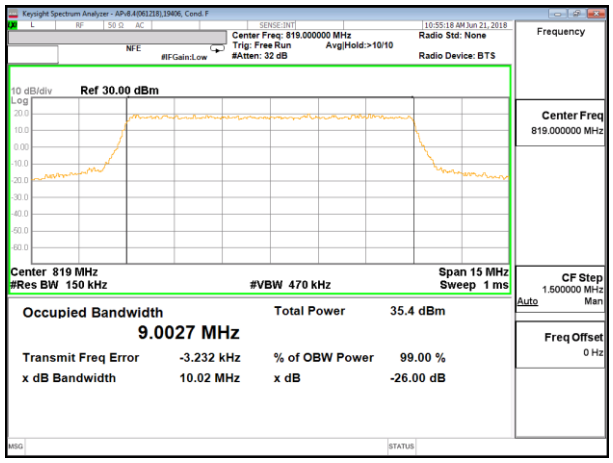
LTE B26 10MHz QPSK Middle Channel RB1-0



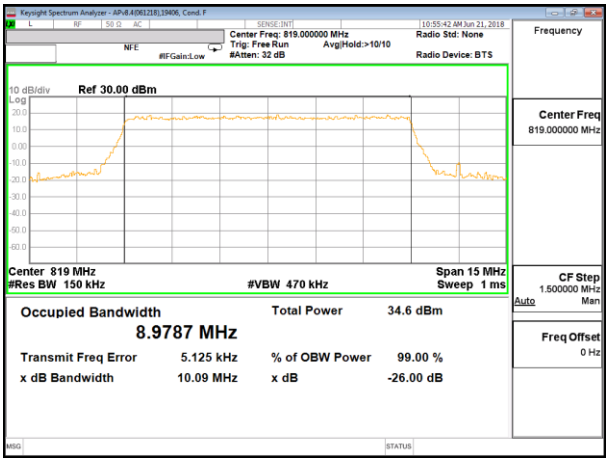
LTE B26 10MHz 16QAM Middle Channel RB1-0



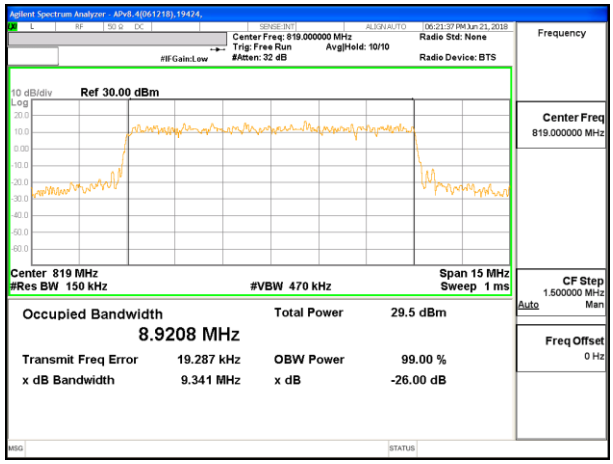
LTE B26 10MHz 64QAM Middle Channel RB1-0



LTE B26 10MHz QPSK Middle Channel RB50-0



LTE B26 10MHz 16QAM Middle Channel RB50-0



LTE B26 10MHz 64QAM Middle Channel RB50-0

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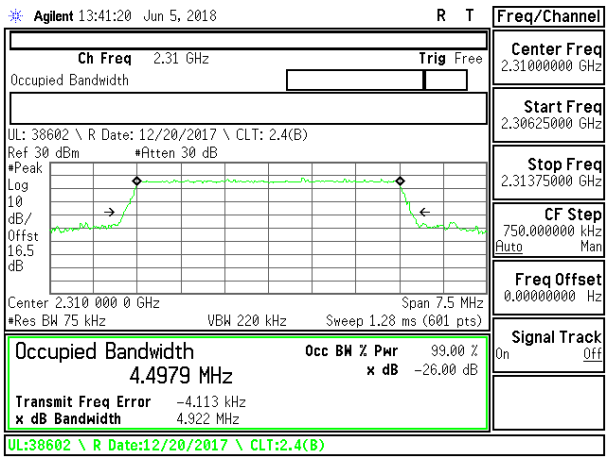
8.1.10. LTE BAND 30



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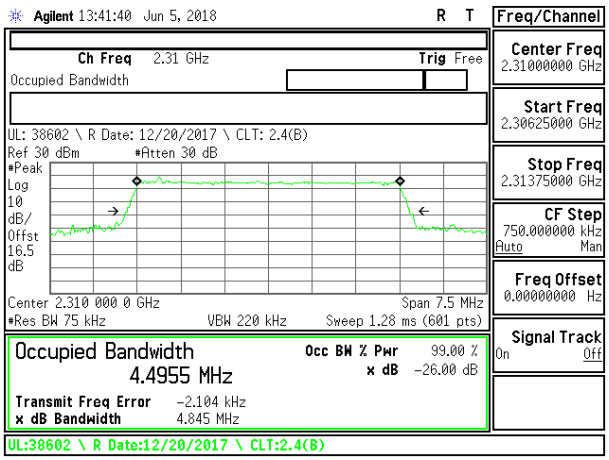

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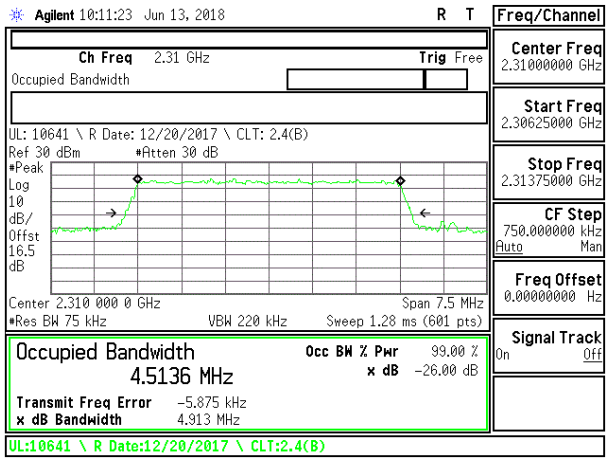

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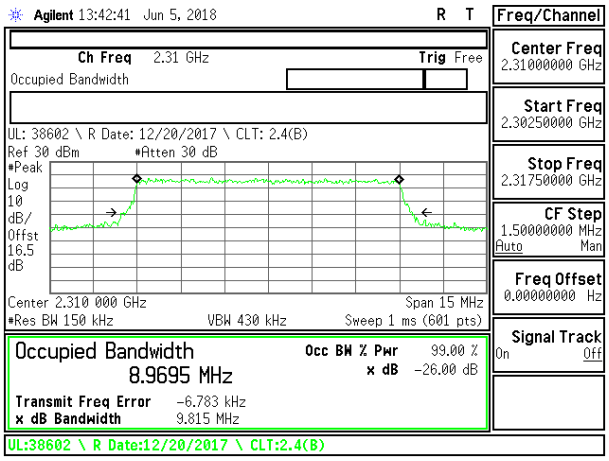
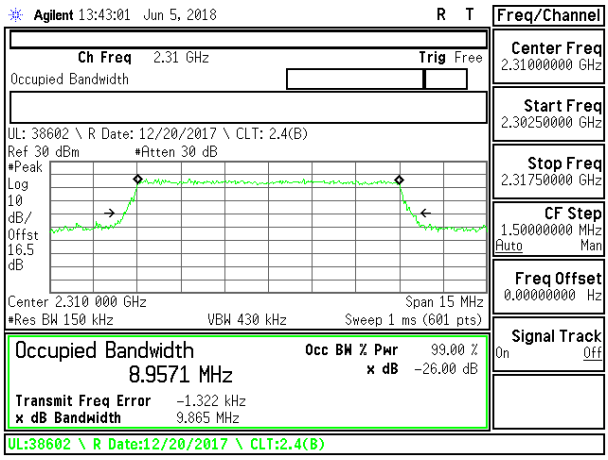
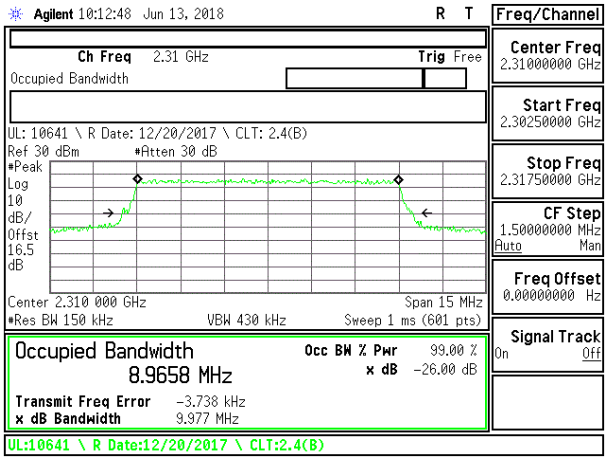


LTE B30 10MHz QPSK Middle Channel RB50-0



LTE B30 10MHz 16QAM Middle Channel RB50-0



LTE B30 10MHz 64QAM Middle Channel RB50-0

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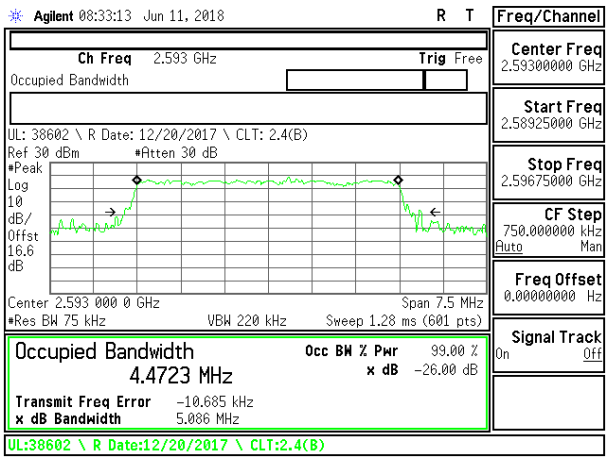
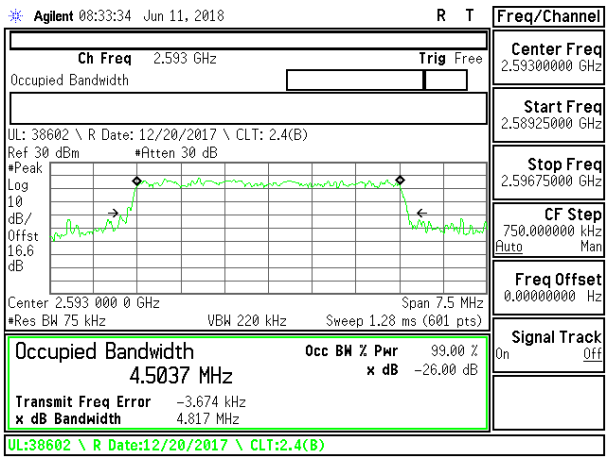
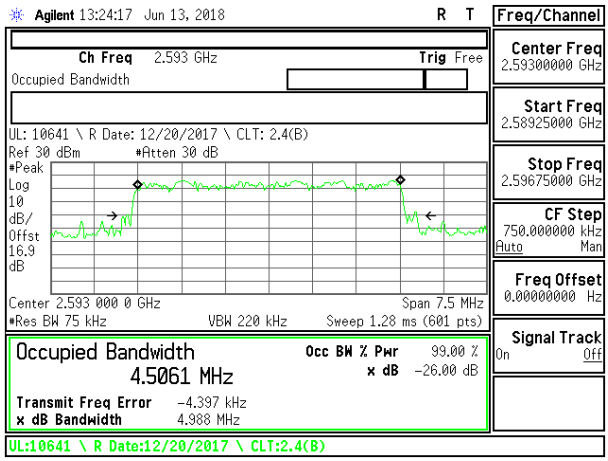
8.1.11. LTE BAND 41



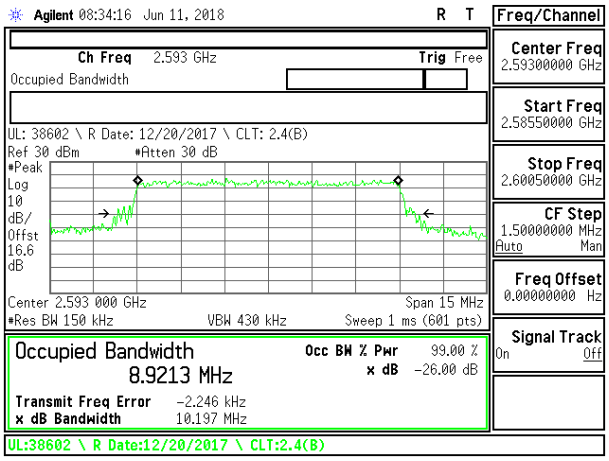
LTE B41 5MHz QPSK Middle Channel RB25-0



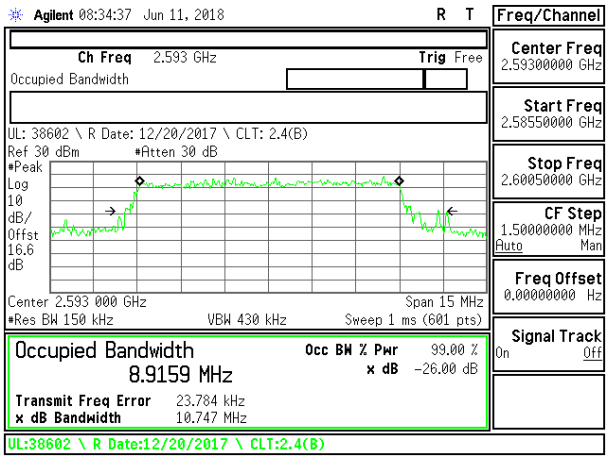
LTE B41 5MHz 16QAM Middle Channel RB25-0



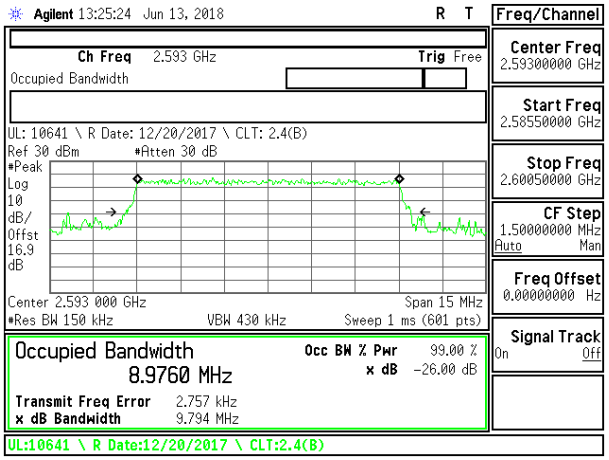
LTE B41 5MHz 64QAM Middle Channel RB25-0



LTE B41 10MHz QPSK Middle Channel RB50-0



LTE B41 10MHz 16QAM Middle Channel RB50-0



LTE B41 10MHz 64QAM Middle Channel RB50-0

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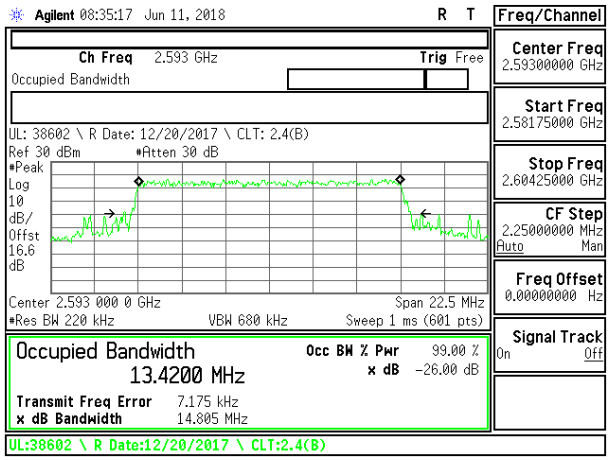
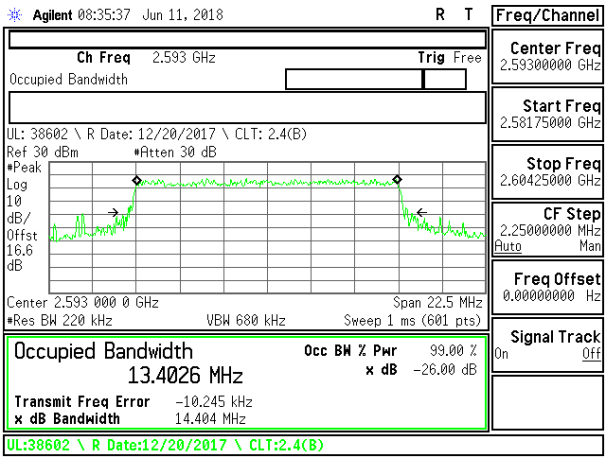
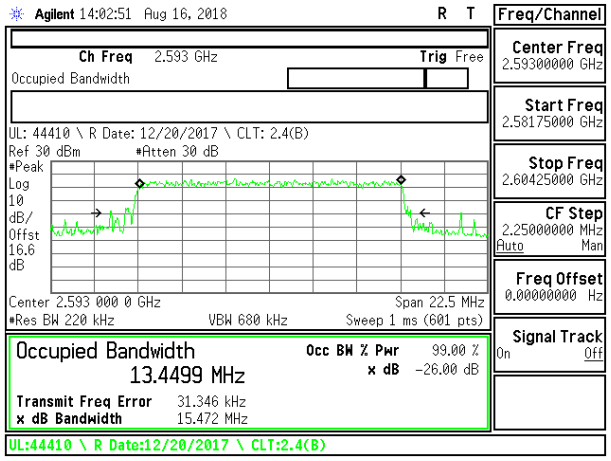


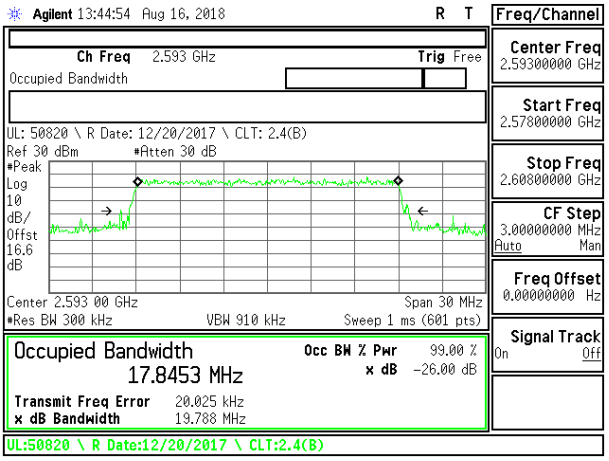
LTE B41 15MHz QPSK Middle Channel RB75-0



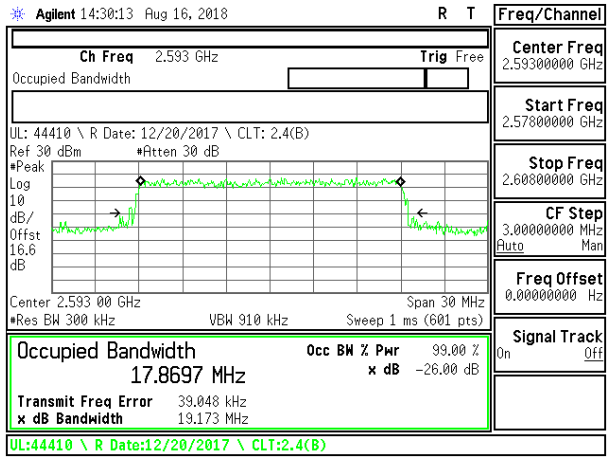
LTE B41 15MHz 16QAM Middle Channel RB75-0



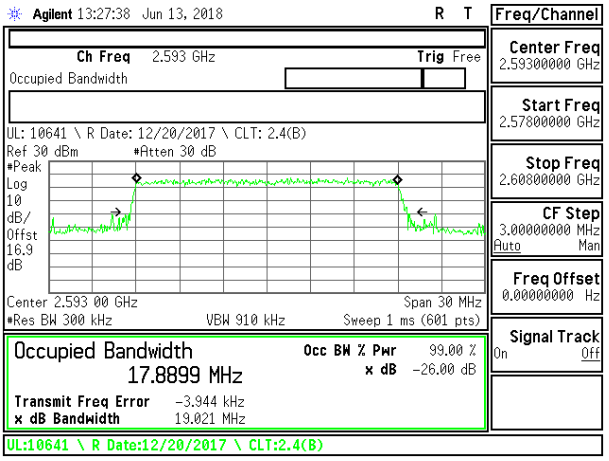
LTE B41 15MHz 64QAM Middle Channel RB75-0



LTE B41 20MHz QPSK Middle Channel RB100-0



LTE B41 20MHz 16QAM Middle Channel RB100-0



LTE B41 20MHz 64QAM Middle Channel RB100-0

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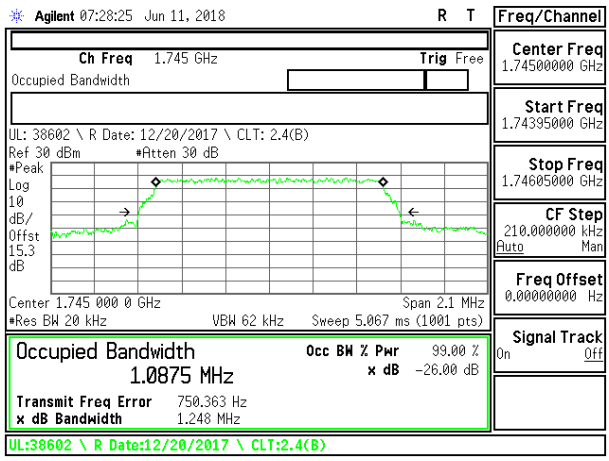
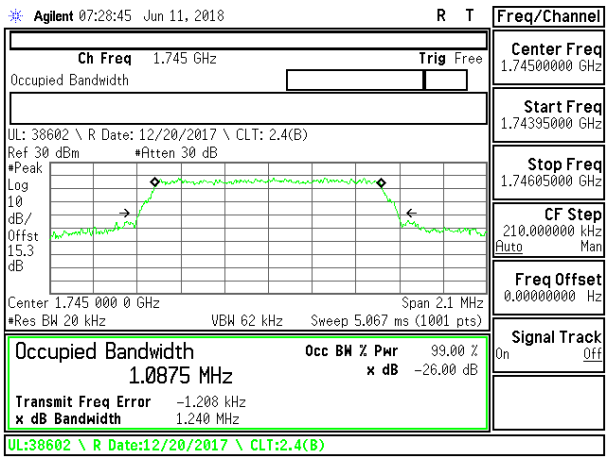
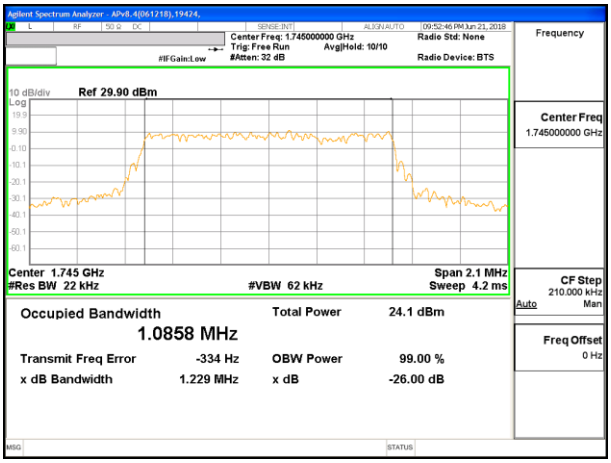
8.1.12. LTE BAND 66



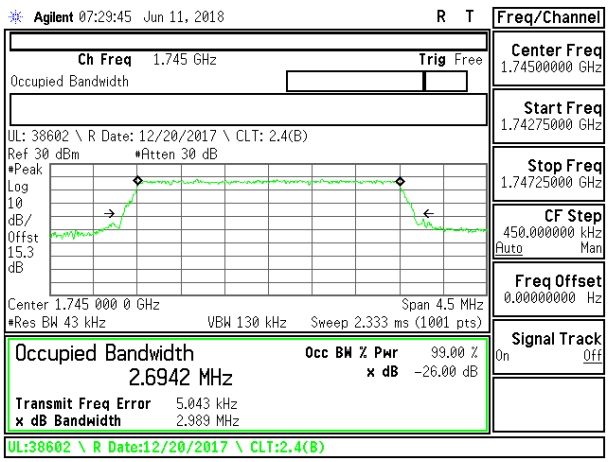
LTE B66 1.4MHz QPSK Middle Channel RB6-0



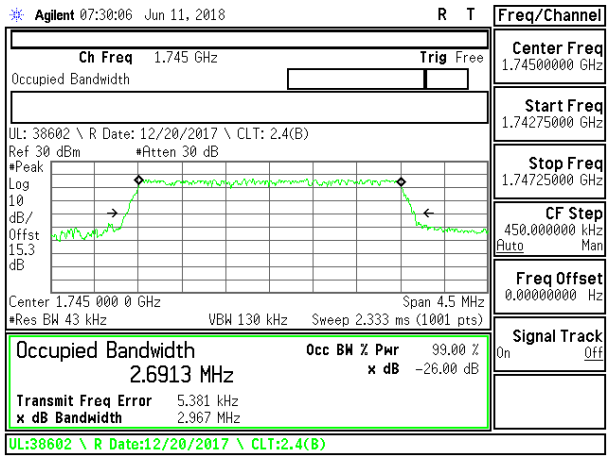
LTE B66 1.4MHz 16QAM Middle Channel RB6-0



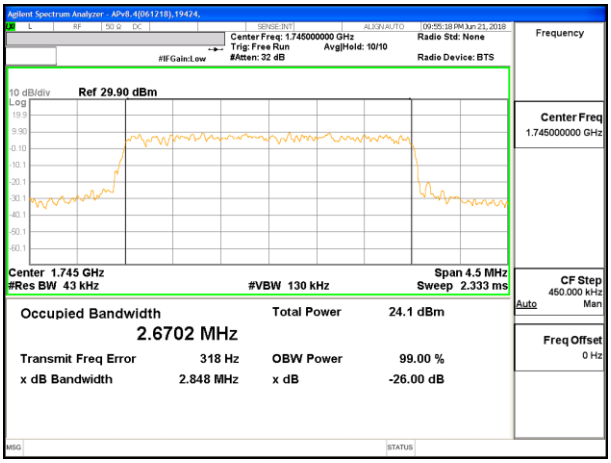
LTE B66 1.4MHz 64QAM Middle Channel RB6-0



LTE B66 3MHz QPSK Middle Channel RB15-0



LTE B66 3MHz 16QAM Middle Channel RB15-0



LTE B66 3MHz 64QAM Middle Channel RB15-0

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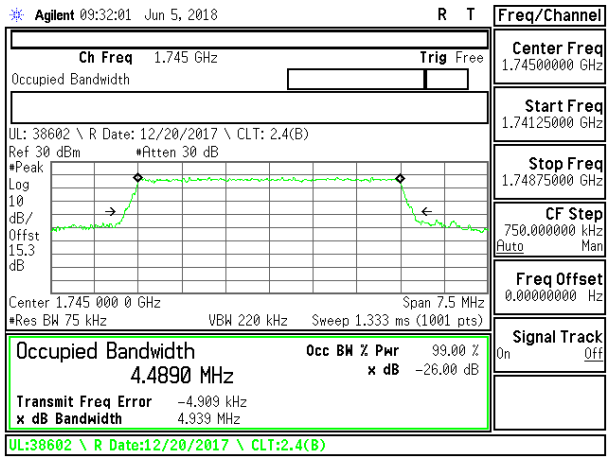
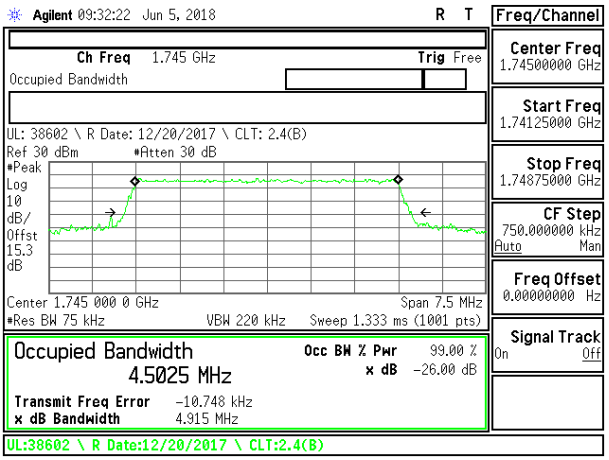
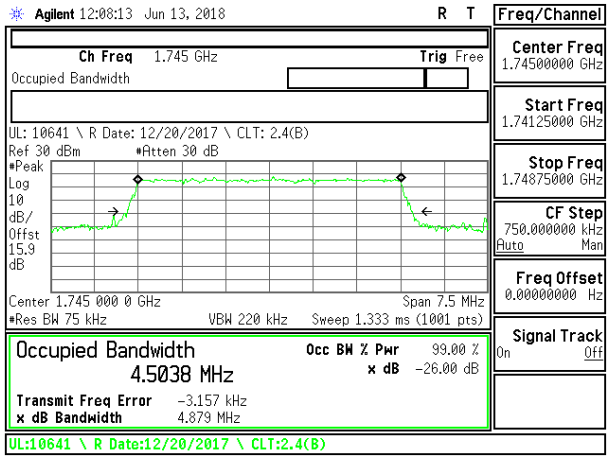


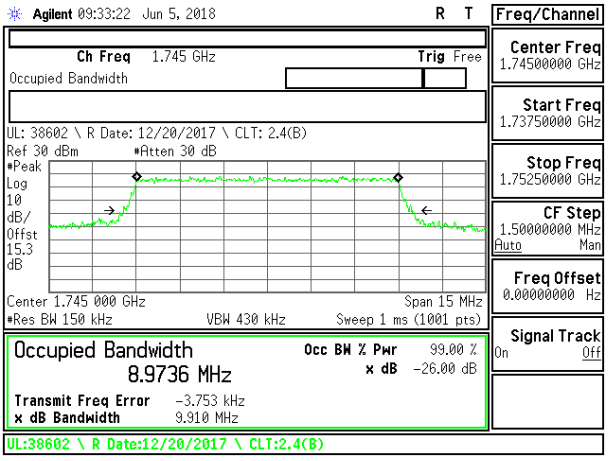
LTE B66 5MHz QPSK Middle Channel RB25-0



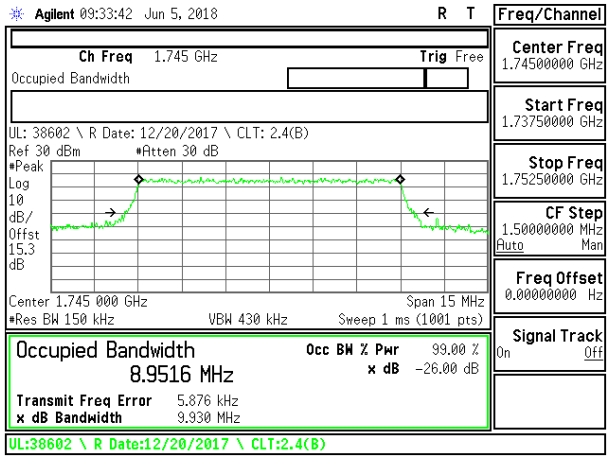
LTE B66 5MHz 16QAM Middle Channel RB25-0



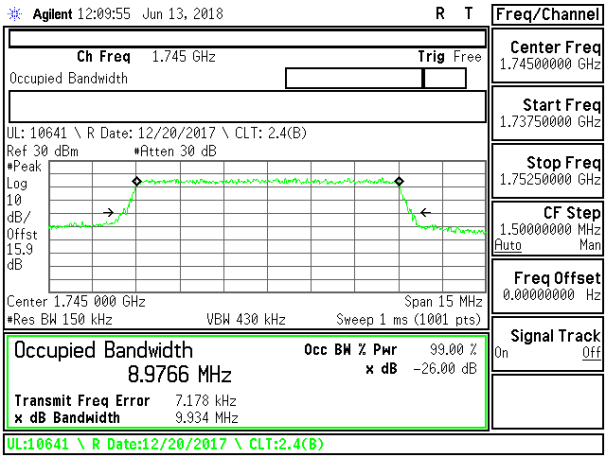
LTE B66 5MHz 64QAM Middle Channel RB25-0



LTE B66 10MHz QPSK Middle Channel RB50-0



LTE B66 10MHz 16QAM Middle Channel RB50-0



LTE B66 10MHz 64QAM Middle Channel RB50-0

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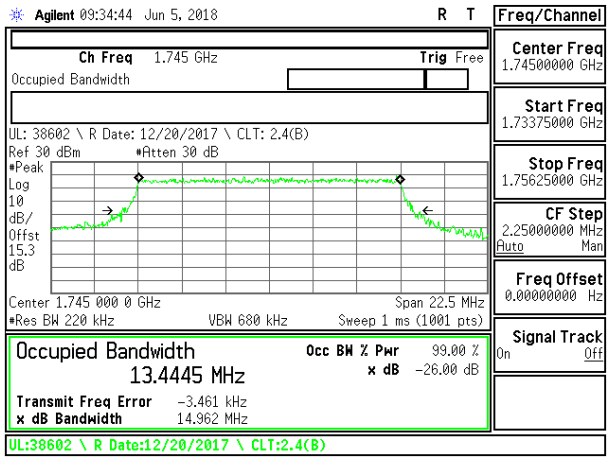
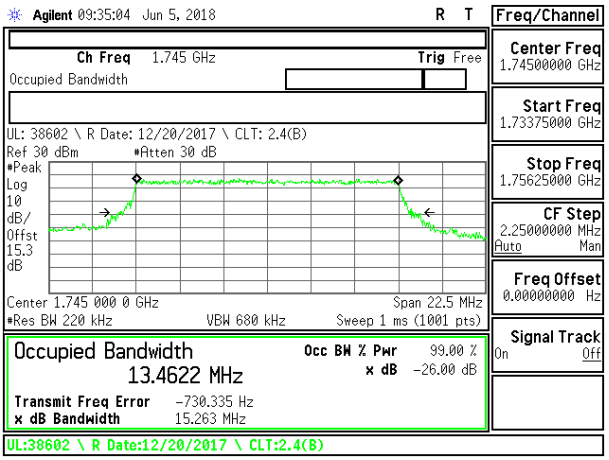
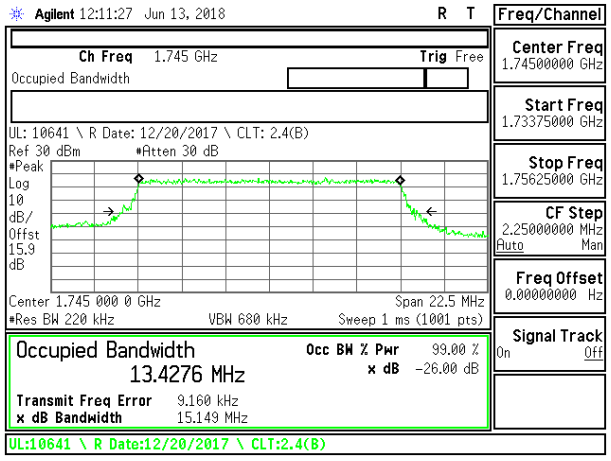


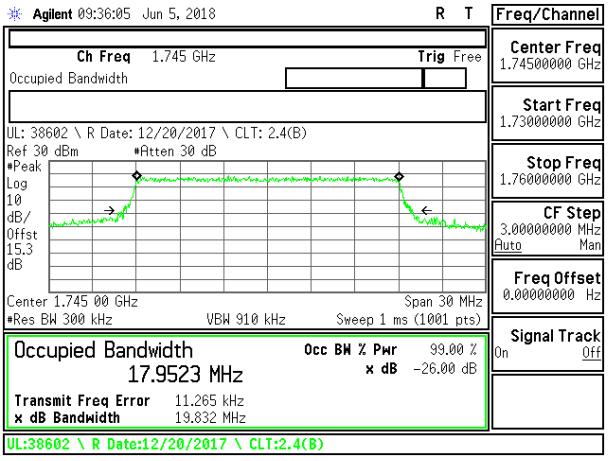
LTE B66 15MHz QPSK Middle Channel RB75-0



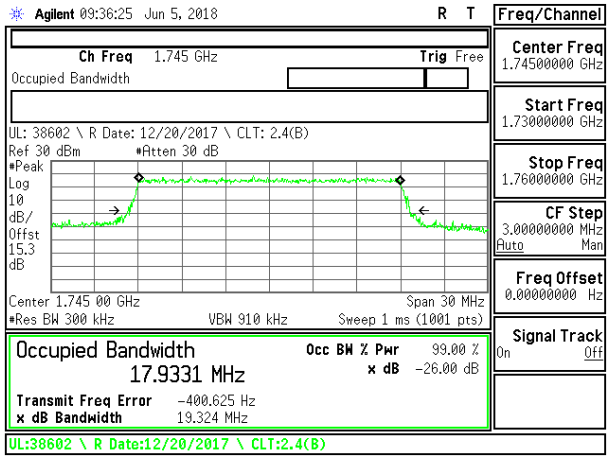
LTE B66 15MHz 16QAM Middle Channel RB75-0



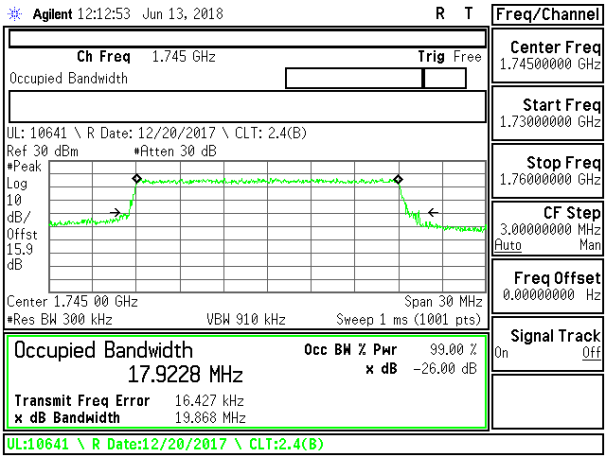
LTE B66 15MHz 64QAM Middle Channel RB75-0



LTE B66 20MHz QPSK Middle Channel RB100-0



LTE B66 20MHz 16QAM Middle Channel RB100-0



LTE B66 20MHz 64QAM Middle Channel RB100-0

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8.2. BAND EDGE AND EMISSION MASK

RULE PART(S)

§2.1051, §22.917, §24.238, §27.53, §90.691 and §90.543

LIMITS

§22.917, §24.238, §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.

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

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

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

§90.543 Emission Limitations. (Band 14)
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

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

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

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

§27.53 (Band 30, Band 40)
(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

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(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

§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).

§27.53 (Band 12, 17, 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.

§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.

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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 14)

(b)ACP measurement procedure. The following are the procedures for making the transmitter ACP measurements. For all measurements modulate the transmitter as it would be modulated in normal operating conditions. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is active. All measurements are made at the transmitter's output port. If a transmitter has an integral antenna, a suitable power coupling device shall be used to couple the RF signal to the measurement instrument. The coupling device shall substantially maintain the proper transmitter load impedance. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. “Measurement bandwidth”, as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

(1)Setting reference level. Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter set the measurement bandwidth to 6.25 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the “reference power level.”

(2)Non-swept power measurement. Using a spectrum analyzer capable of ACP measurements, set the mesurement bandwidth and frequency offset from the assigned center frequency as shown in the tables in §90.543 (a) above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3)Swept power measurement. Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

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

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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 (FCC LTE BAND 30, BAND 40)

(5) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.,* 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- LTE Band 2
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 66

RESULTS

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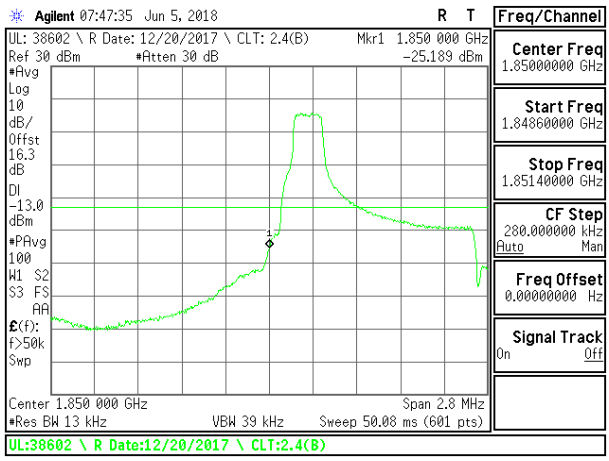
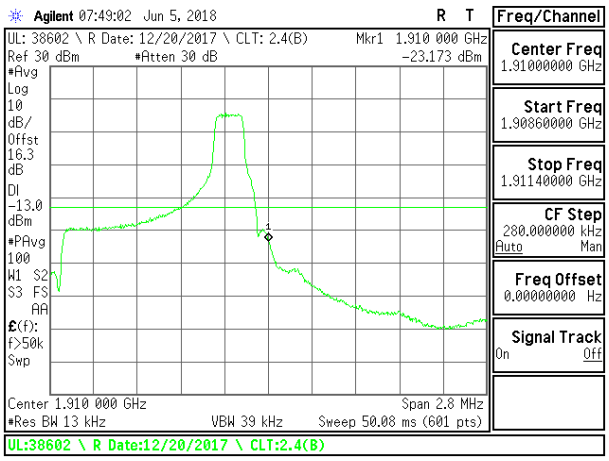
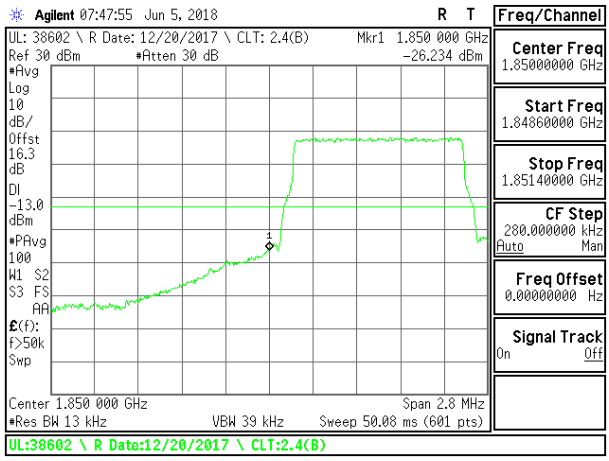
8.2.1. LTE BAND 2 BANDEDGE



LTE B2 1.4MHz QPSK Low Channel RB1-0



LTE B2 1.4MHz QPSK High Channel RB1-5



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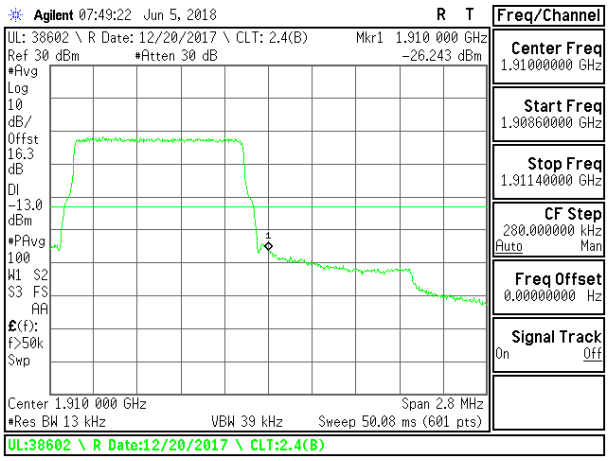

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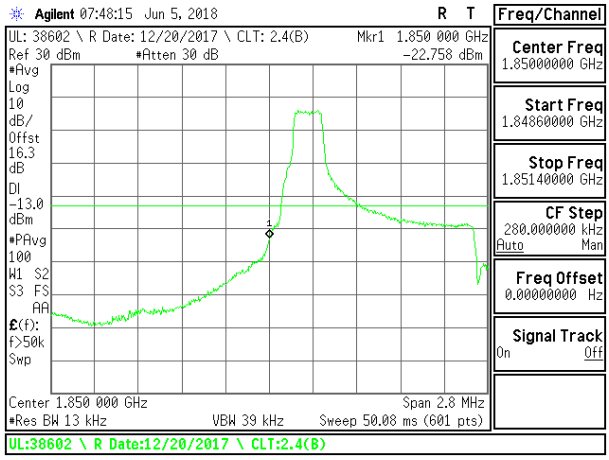
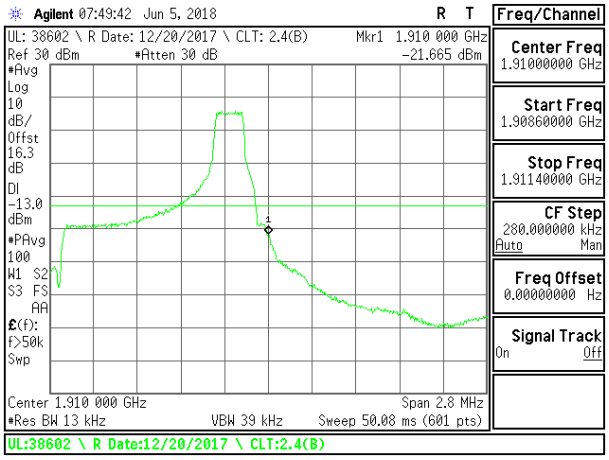


LTE B2 1.4MHz 16QAM Low Channel RB1-0



LTE B2 1.4MHz 16QAM High Channel RB1-5

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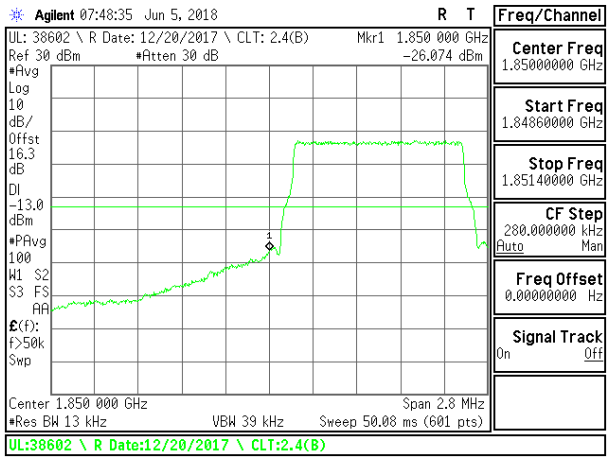
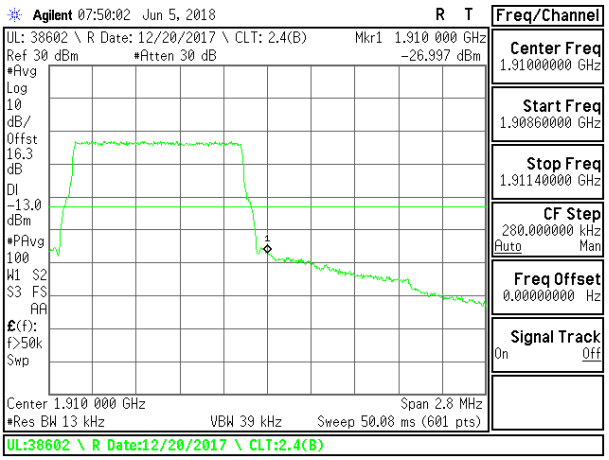


LTE B2 1.4MHz 16QAM Low Channel RB6-0



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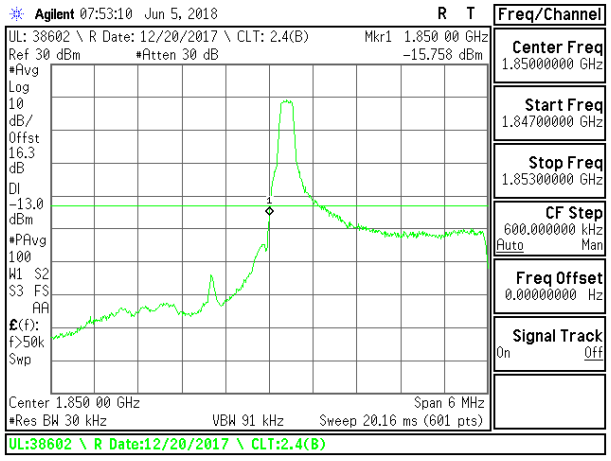

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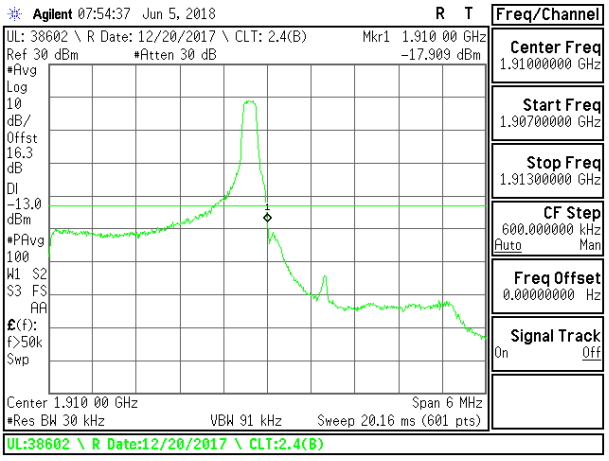
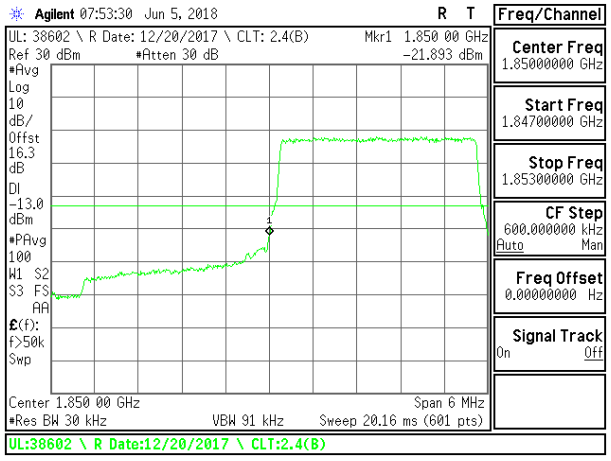
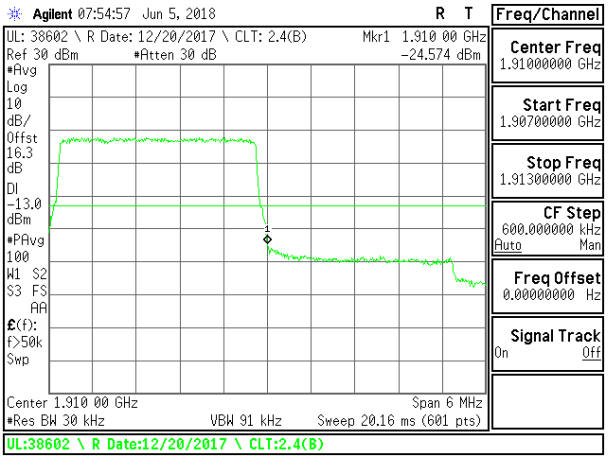


LTE B2 3MHz QPSK High Channel RB1-14



LTE B2 3MHz QPSK Low Channel RB15-0



LTE B2 3MHz QPSK High Channel RB15-0

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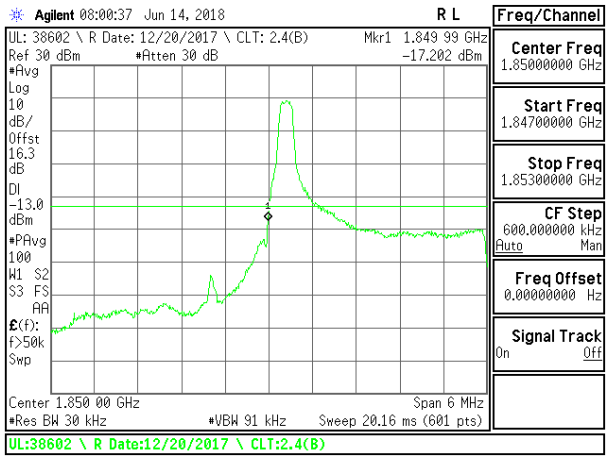

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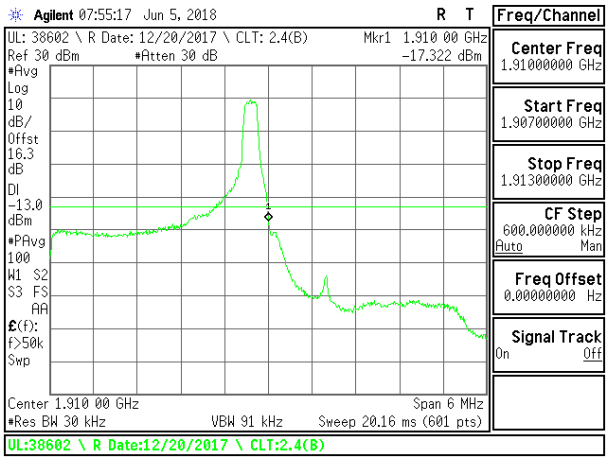

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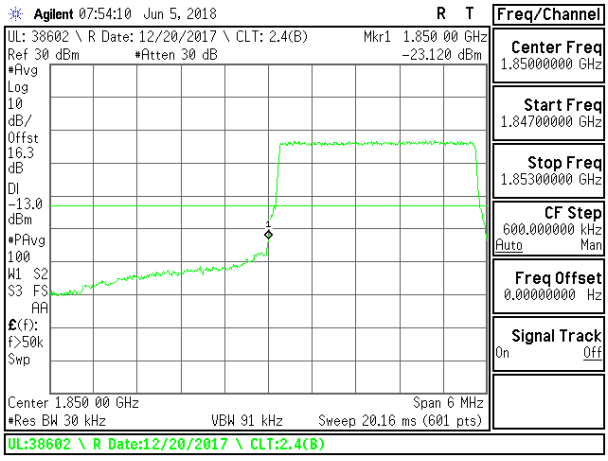

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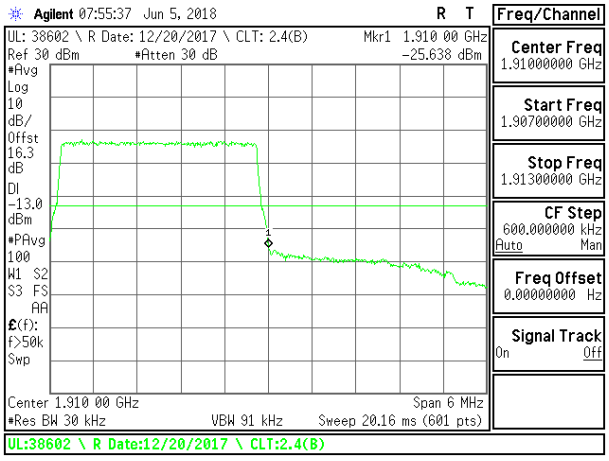

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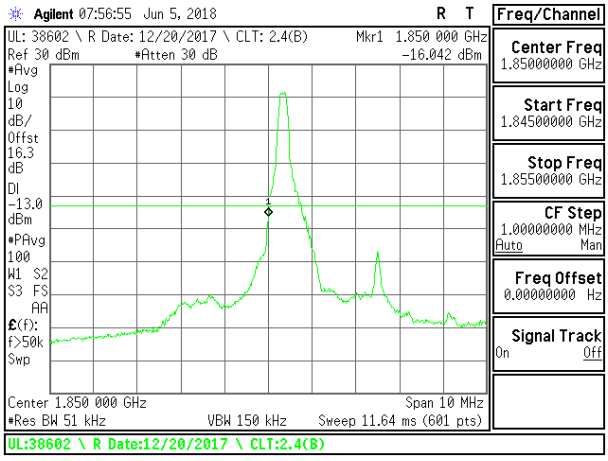
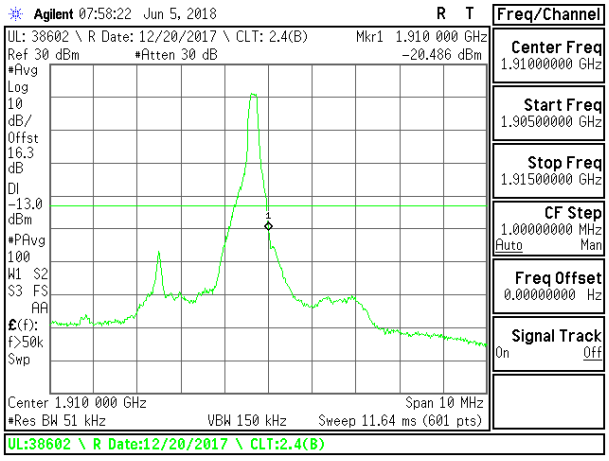


LTE B2 5MHz QPSK Low Channel RB1-0



LTE B2 5MHz QPSK High Channel RB1-24

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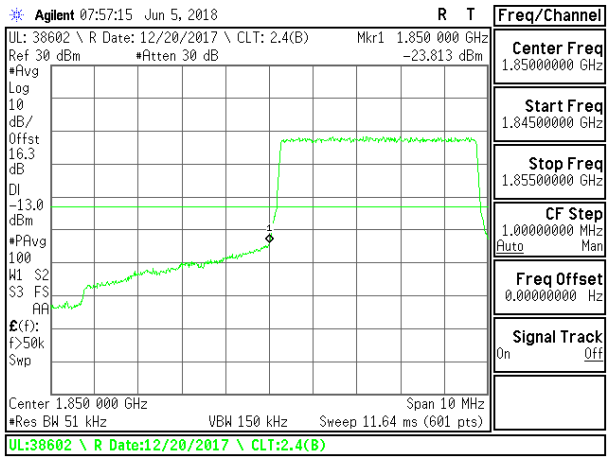
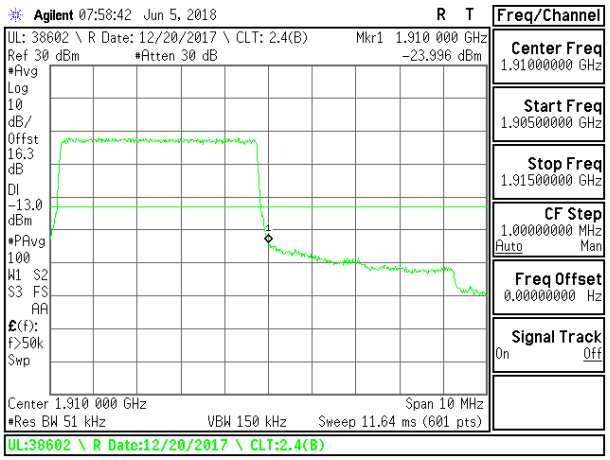


LTE B2 5MHz QPSK Low Channel RB25-0



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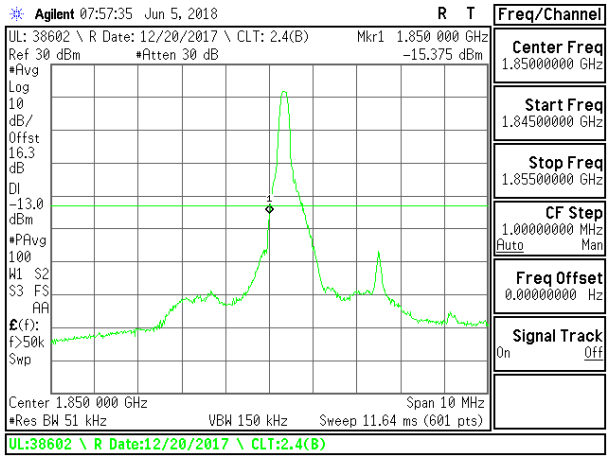
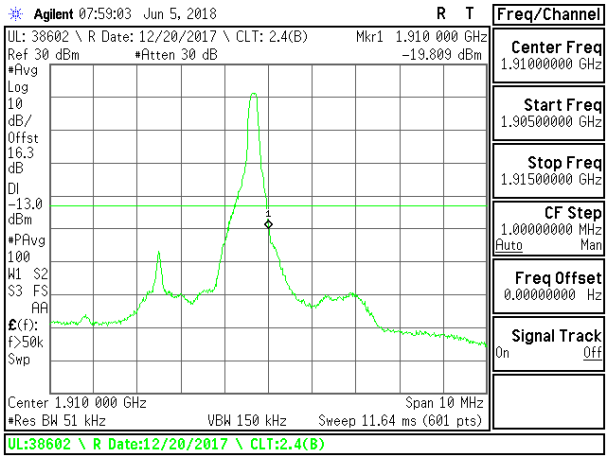
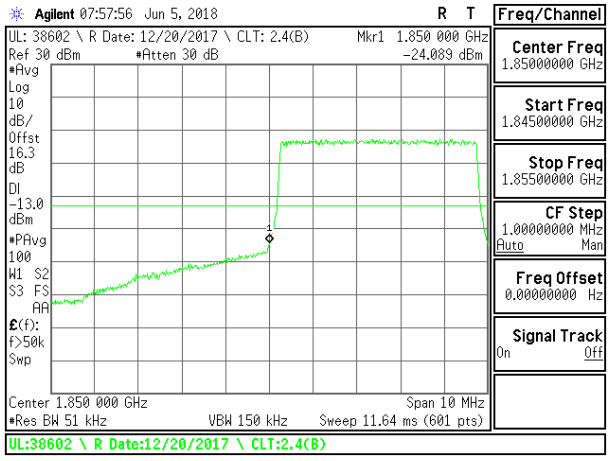


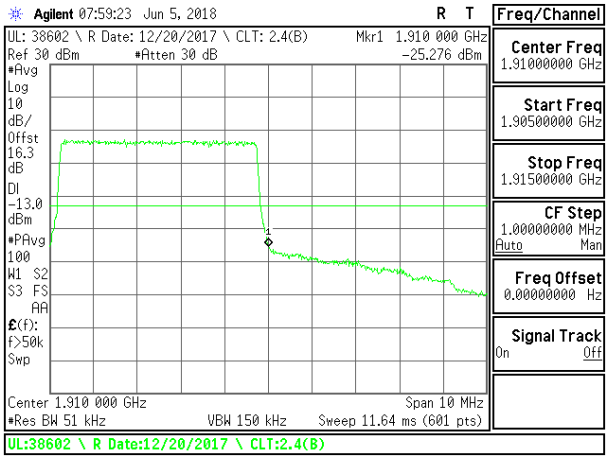
LTE B2 5MHz 16QAM Low Channel RB1-0



LTE B2 5MHz 16QAM High Channel RB1-24



LTE B2 5MHz 16QAM Low Channel RB25-0



LTE B2 5MHz 16QAM High Channel RB25-0

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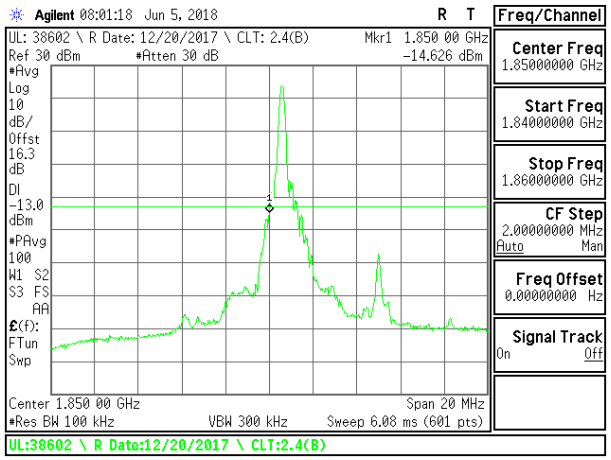

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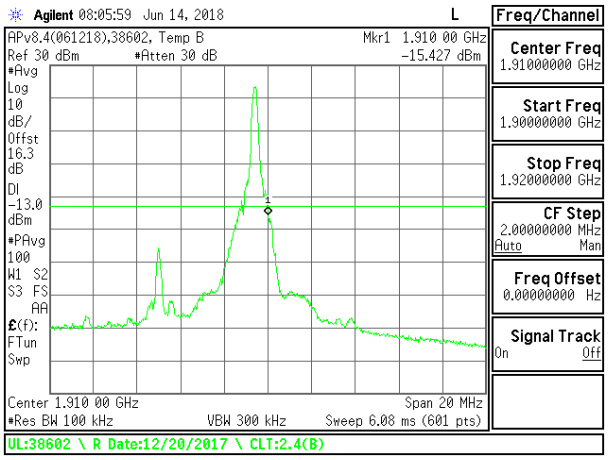

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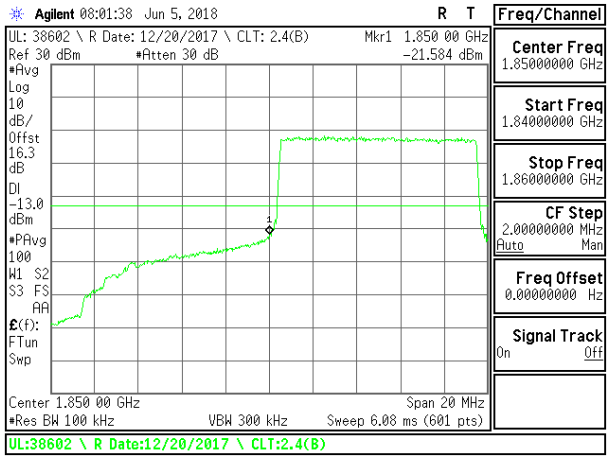

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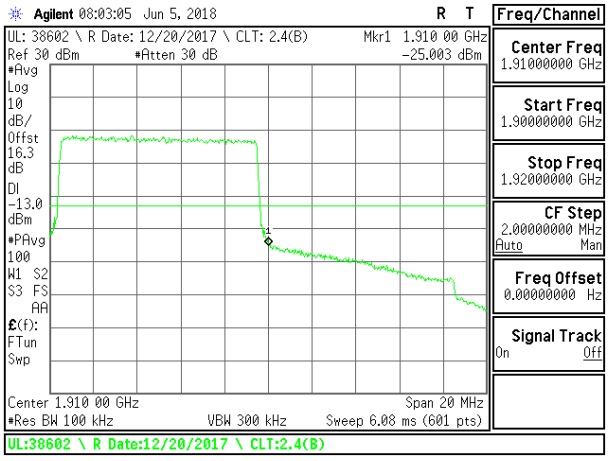

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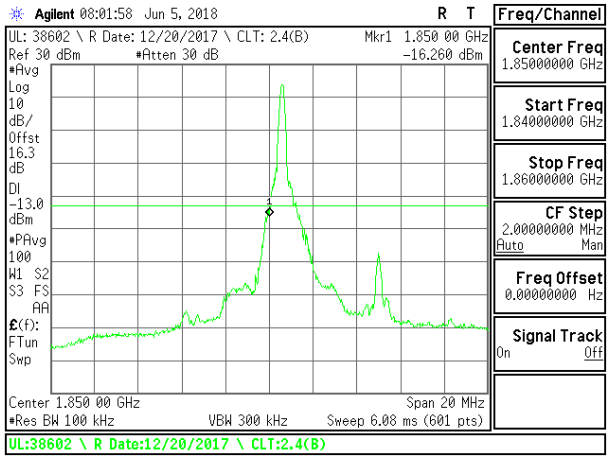

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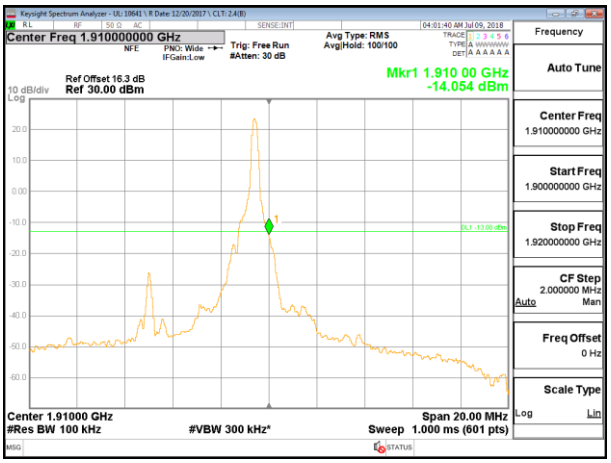

LTE B2 10MHz 16QAM High Channel RB1-49

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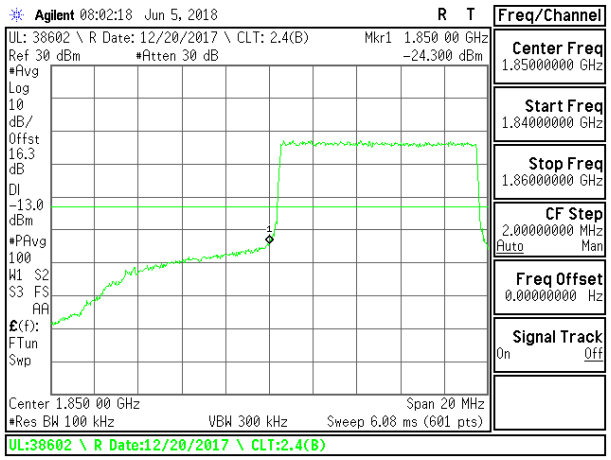
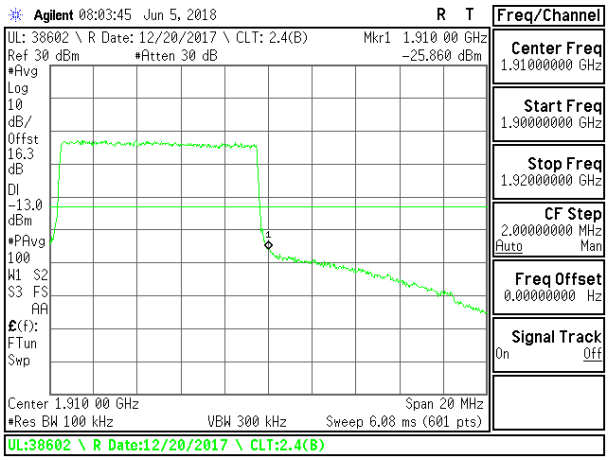
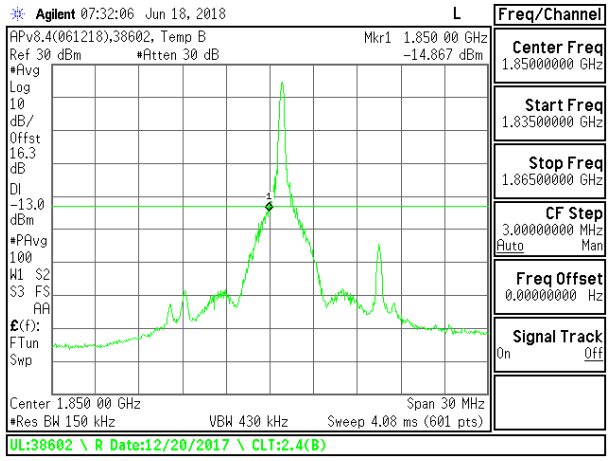


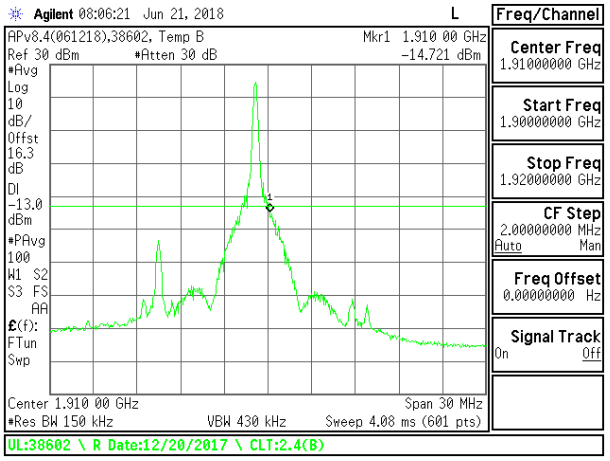
LTE B2 10MHz 16QAM Low Channel RB50-0



LTE B2 10MHz 16QAM High Channel RB50-0



LTE B2 15MHz QPSK Low Channel RB1-0



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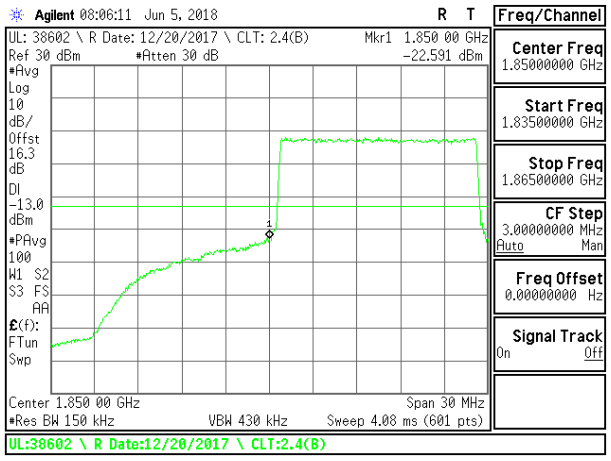
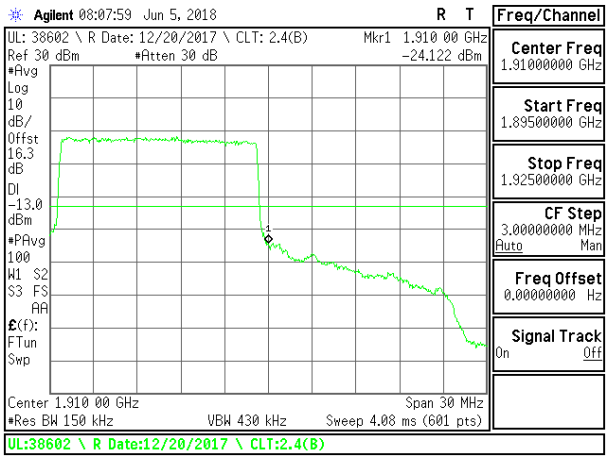


LTE B2 15MHz QPSK Low Channel RB75-0



LTE B2 15MHz QPSK High Channel RB75-0

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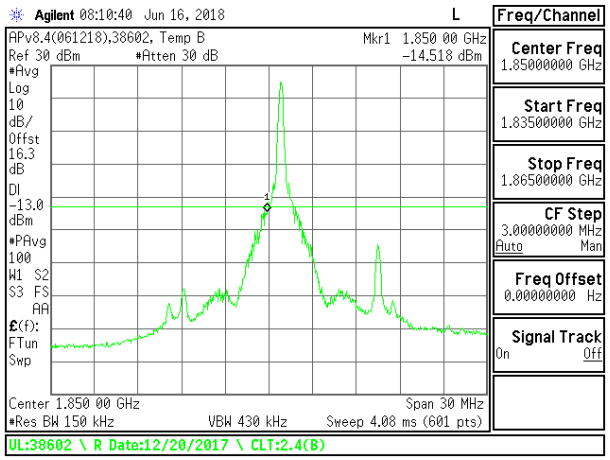
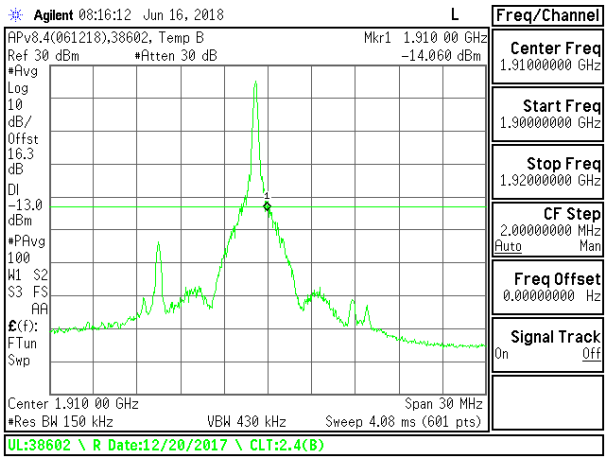
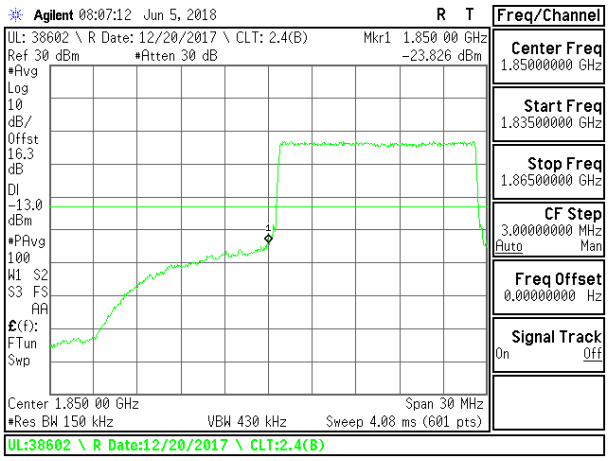


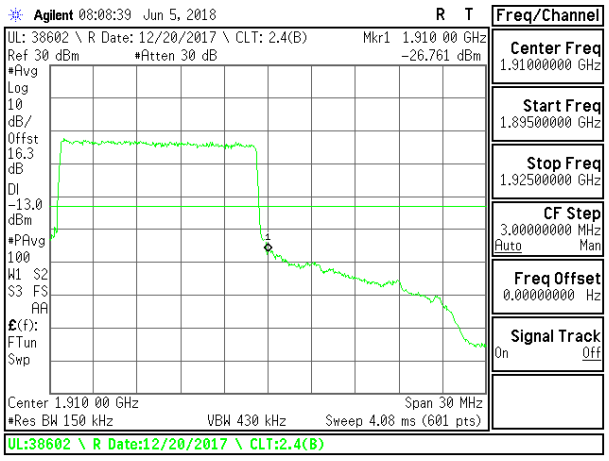
LTE B2 15MHz 16QAM Low Channel RB1-0



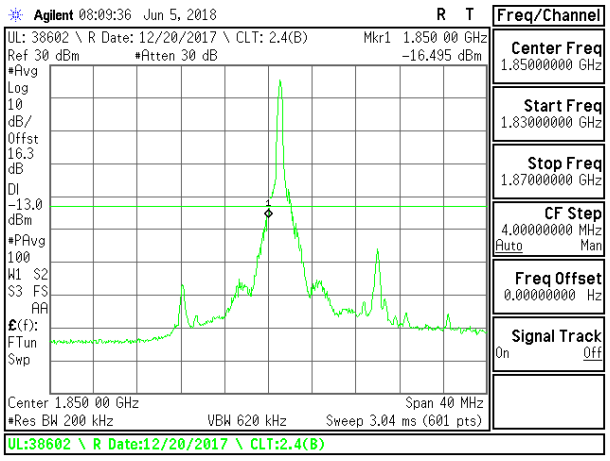
LTE B2 15MHz 16QAM High Channel RB1-74



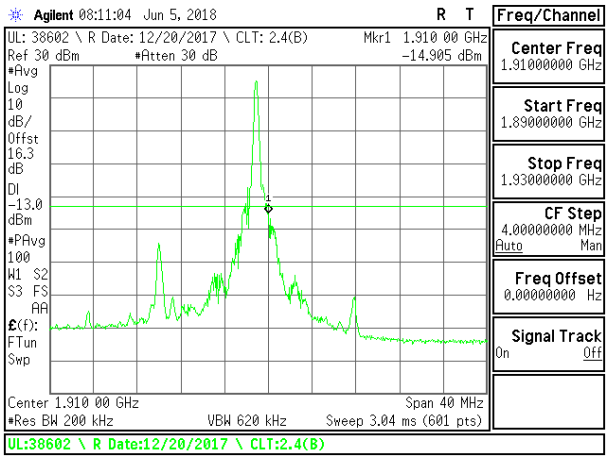
LTE B2 15MHz 16QAM Low Channel RB75-0



LTE B2 15MHz 16QAM High Channel RB75-0



LTE B2 20MHz QPSK Low Channel RB1-0



LTE B2 20MHz QPSK High Channel RB1-99

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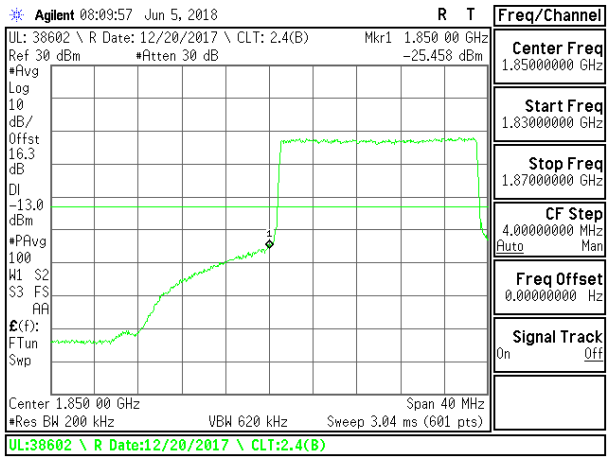

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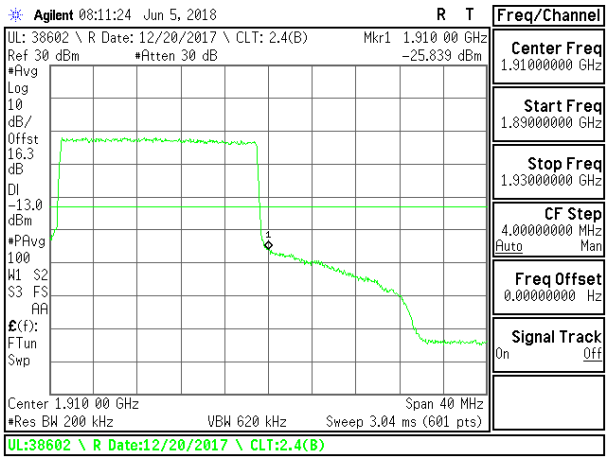
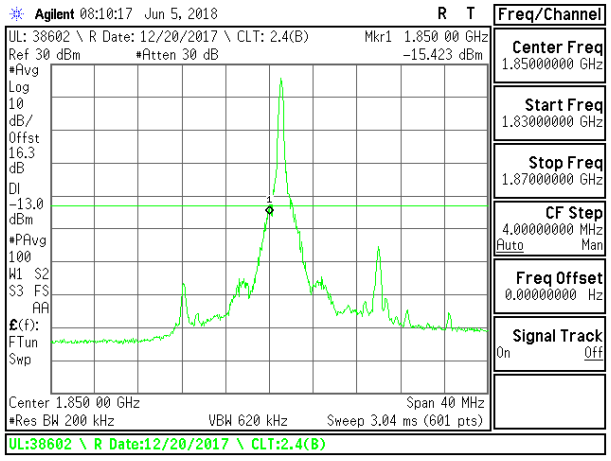
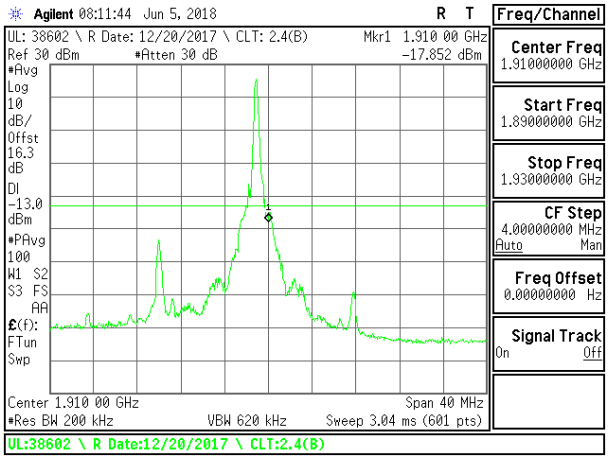


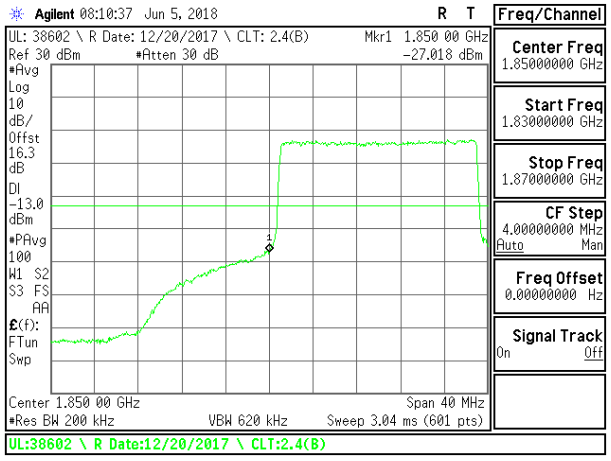
LTE B2 20MHz QPSK High Channel RB100-0



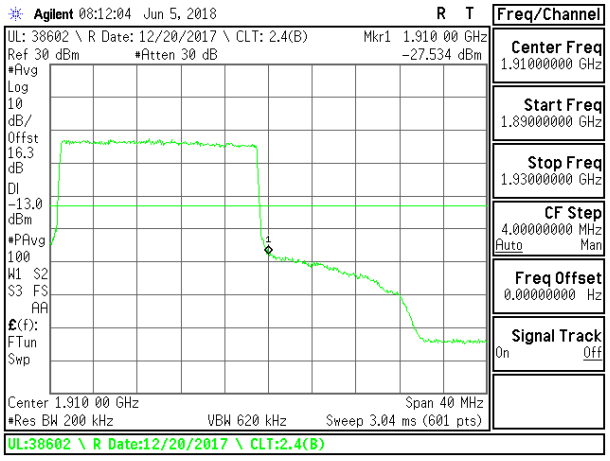
LTE B2 20MHz 16QAM Low Channel RB1-0



LTE B2 20MHz 16QAM High Channel RB1-99



LTE B2 20MHz 16QAM Low Channel RB100-0



LTE B2 20MHz 16QAM High Channel RB100-0

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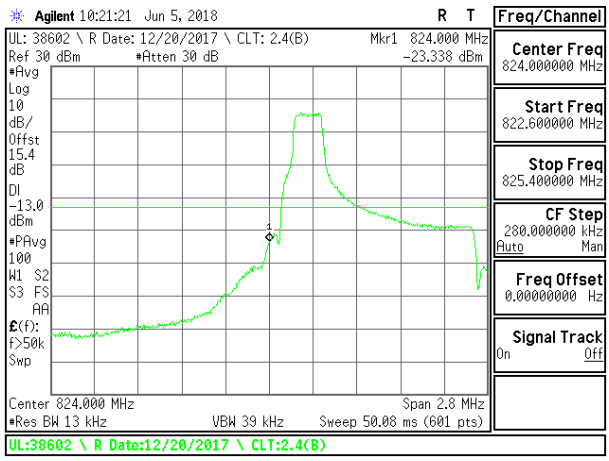
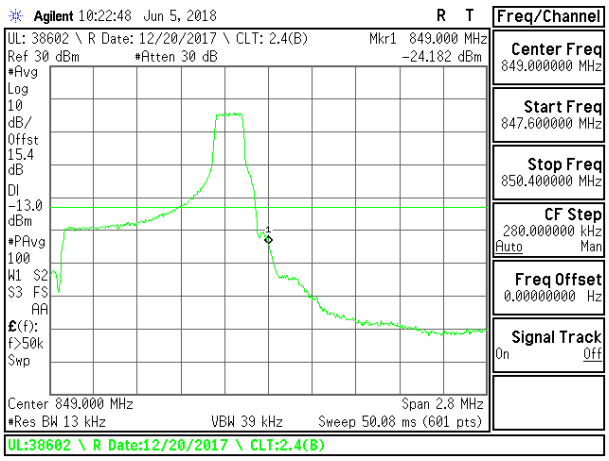
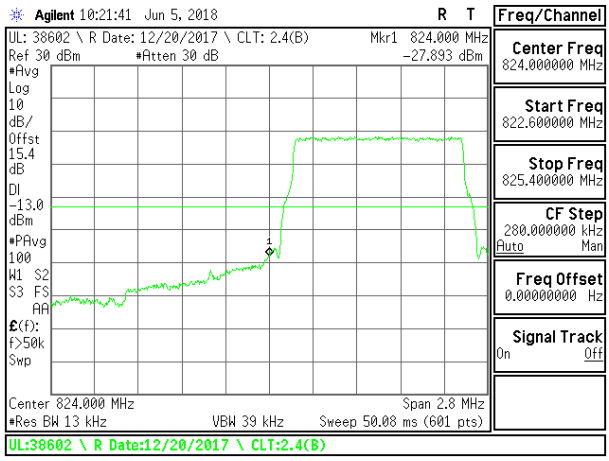
8.2.2. LTE BAND 5 BANDEDGE



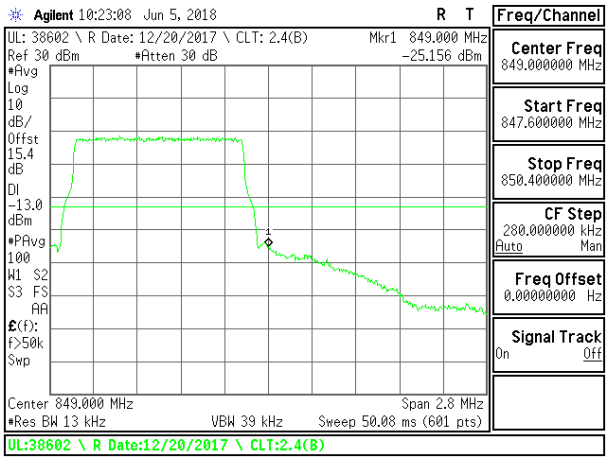
LTE B5 1.4MHz QPSK Low Channel RB1-0



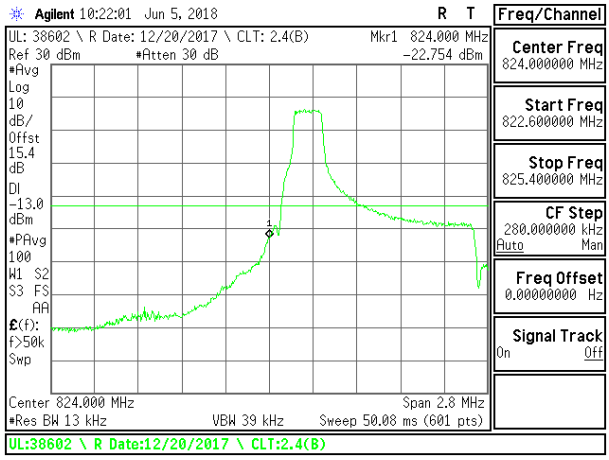
LTE B5 1.4MHz QPSK High Channel RB1-5



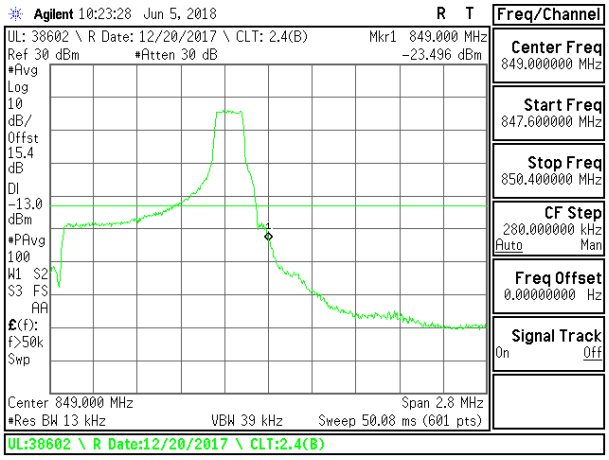
LTE B5 1.4MHz QPSK Low Channel RB6-0



LTE B5 1.4MHz QPSK High Channel RB6-0



LTE B5 1.4MHz 16QAM Low Channel RB1-0



LTE B5 1.4MHz 16QAM High Channel RB1-5

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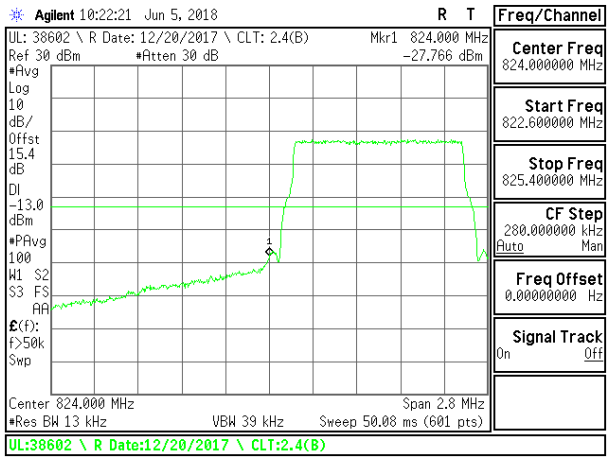
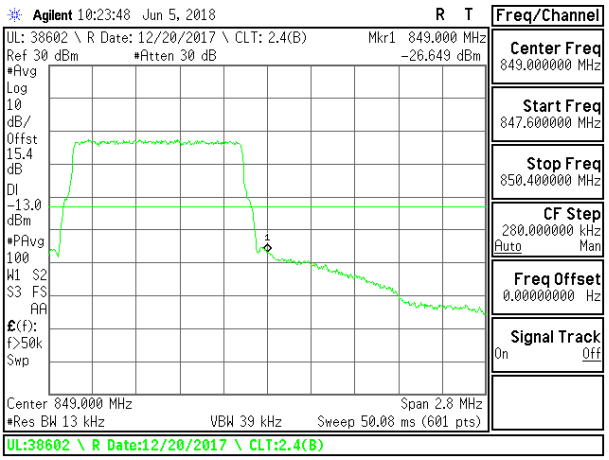
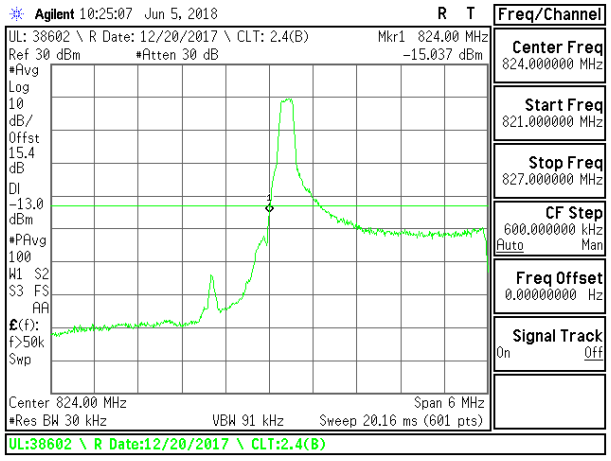


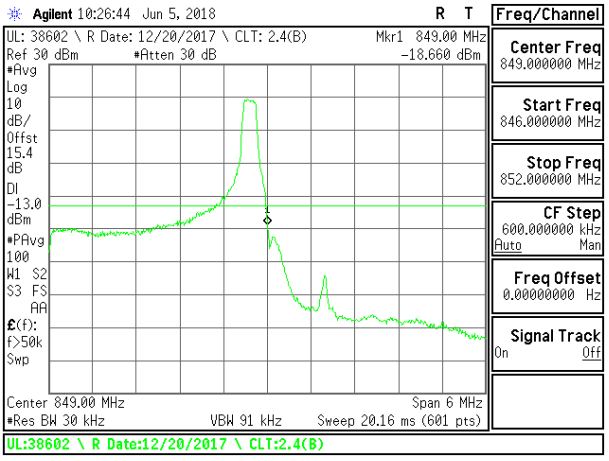
LTE B5 1.4MHz 16QAM Low Channel RB6-0



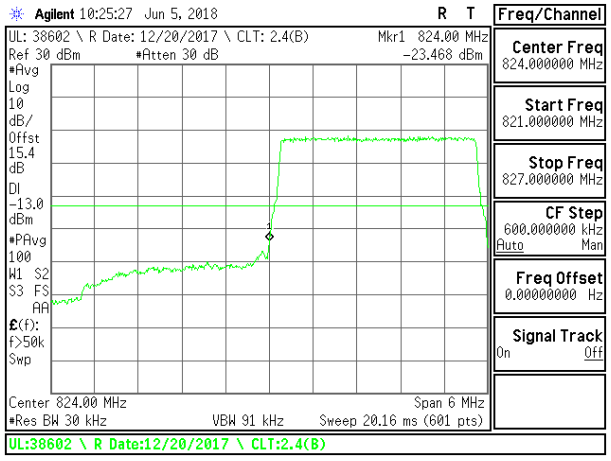
LTE B5 1.4MHz 16QAM High Channel RB6-0



LTE B5 3MHz QPSK Low Channel RB1-0



LTE B5 3MHz QPSK High Channel RB1-14



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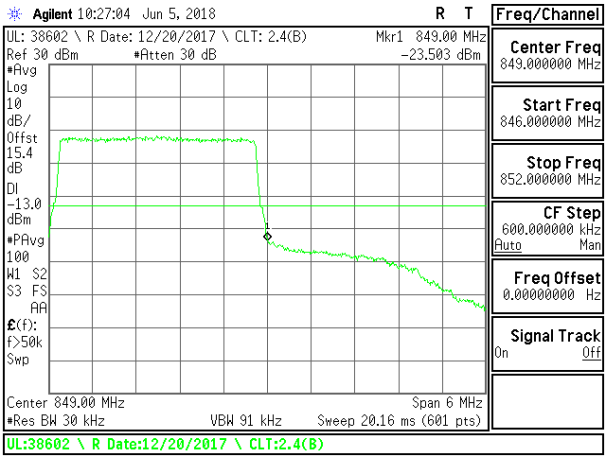

LTE B5 3MHz QPSK High Channel RB15-0

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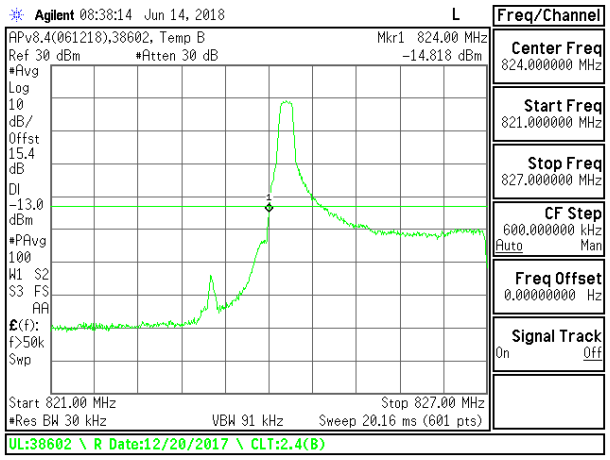
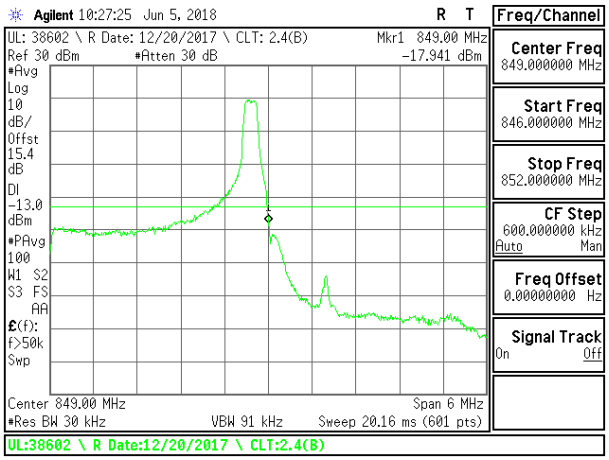
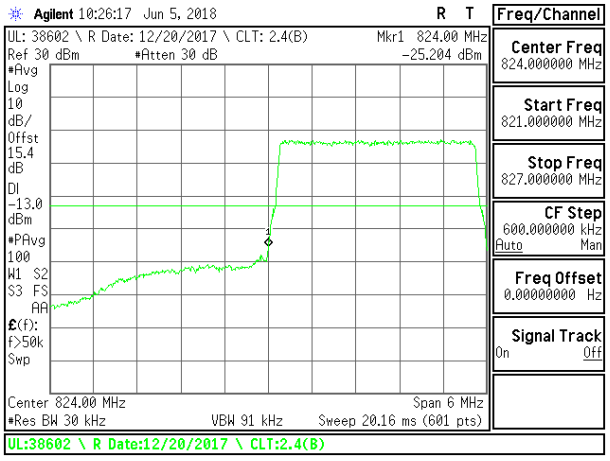


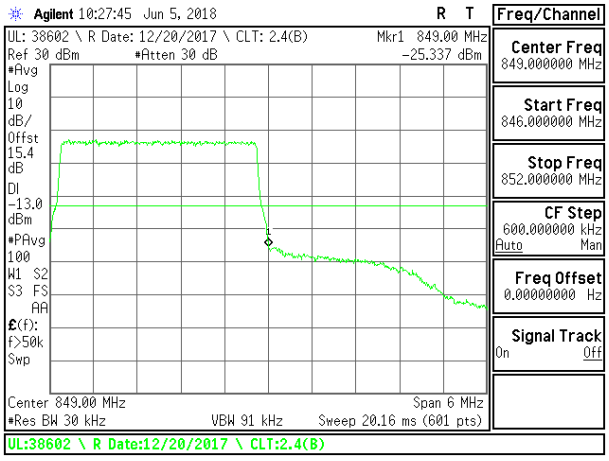
LTE B5 3MHz 16QAM Low Channel RB1-0



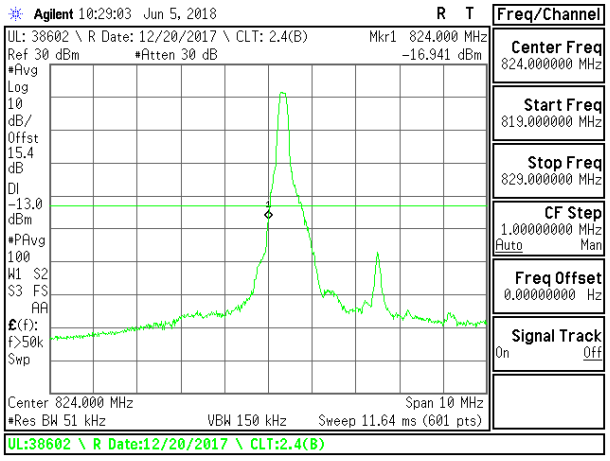
LTE B5 3MHz 16QAM High Channel RB1-14



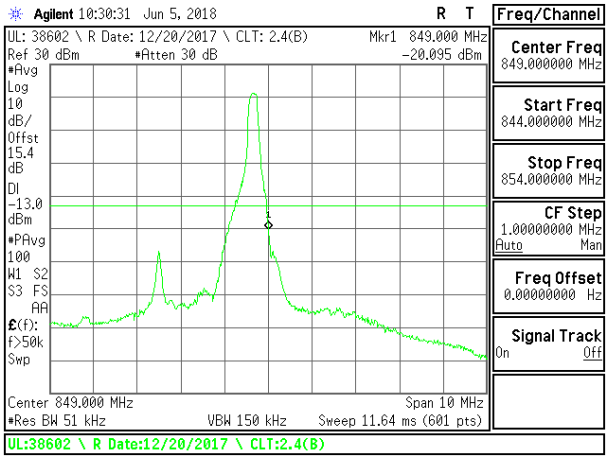
LTE B5 3MHz 16QAM Low Channel RB15-0



LTE B5 3MHz 16QAM High Channel RB15-0



LTE B5 5MHz QPSK Low Channel RB1-0



LTE B5 5MHz QPSK High Channel RB1-24

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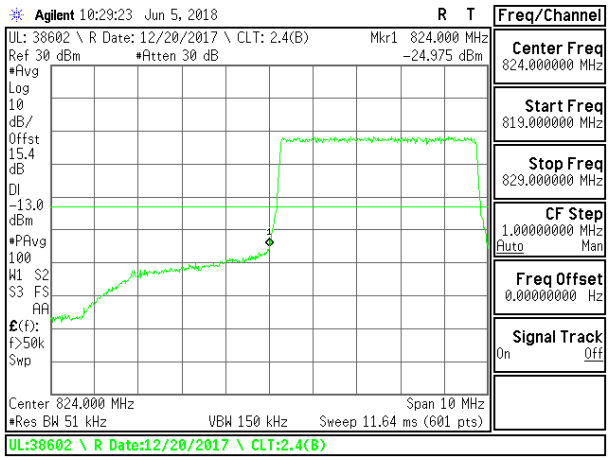
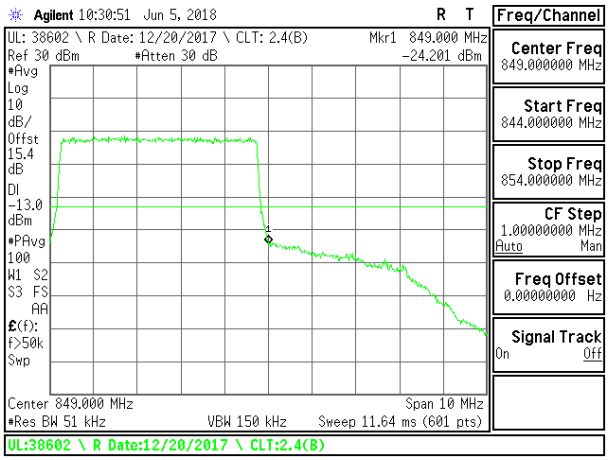
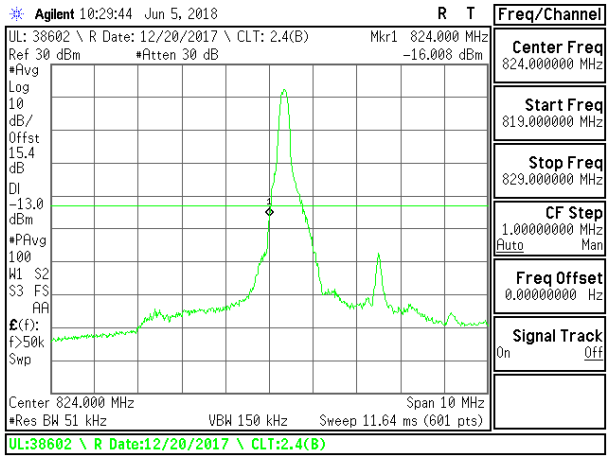


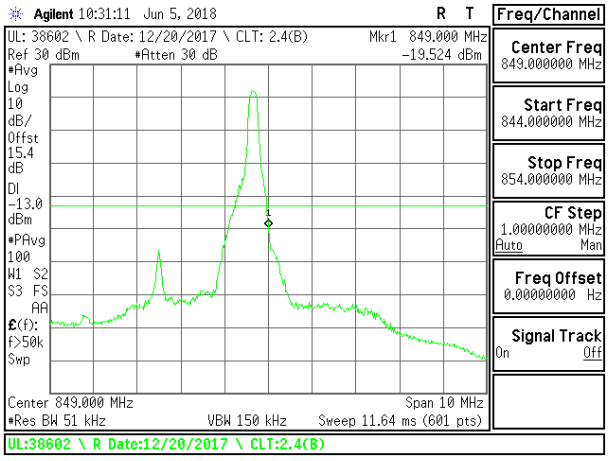
LTE B5 5MHz QPSK Low Channel RB25-0



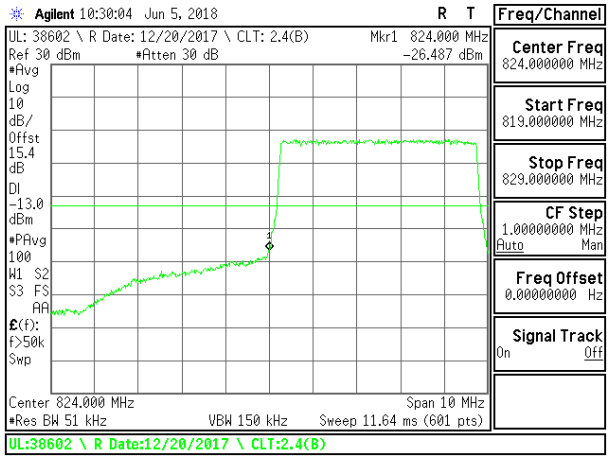
LTE B5 5MHz QPSK High Channel RB25-0



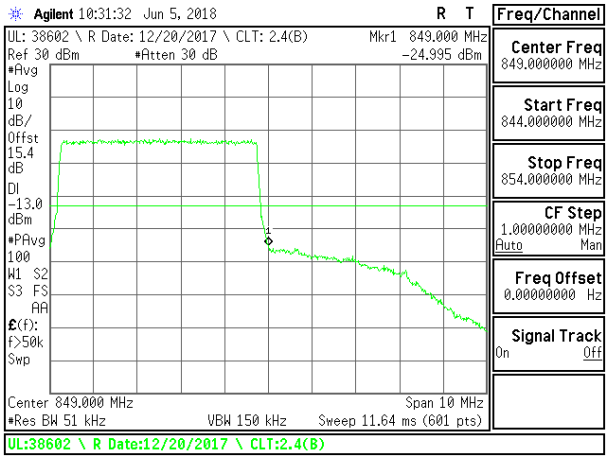
LTE B5 5MHz 16QAM Low Channel RB1-0



LTE B5 5MHz 16QAM High Channel RB1-24



LTE B5 5MHz 16QAM Low Channel RB25-0



LTE B5 5MHz 16QAM High Channel RB25-0

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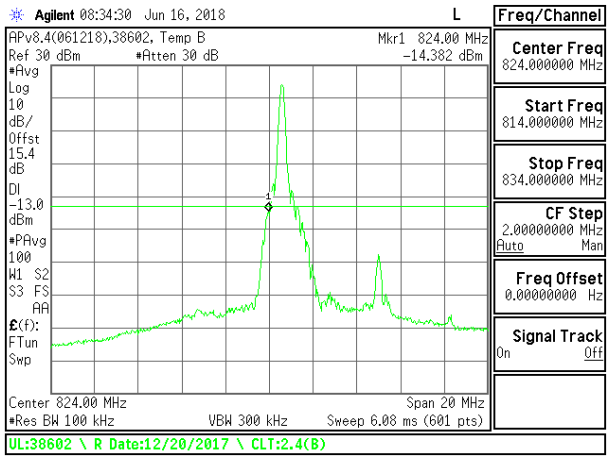
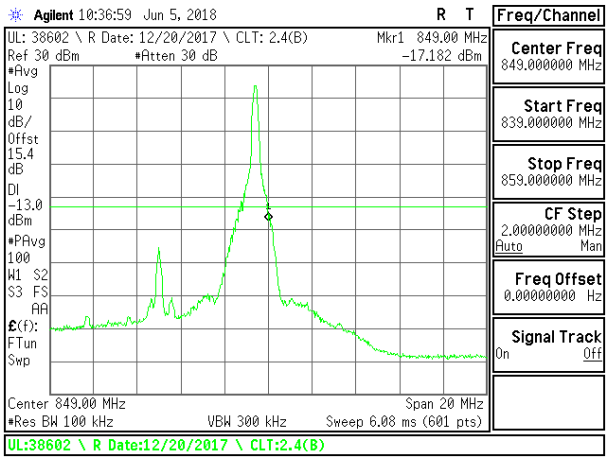
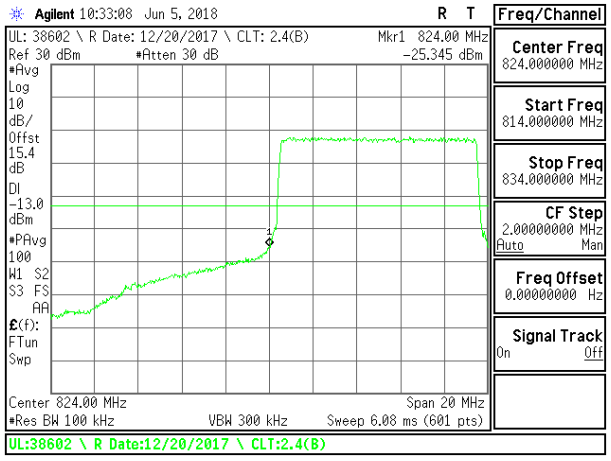


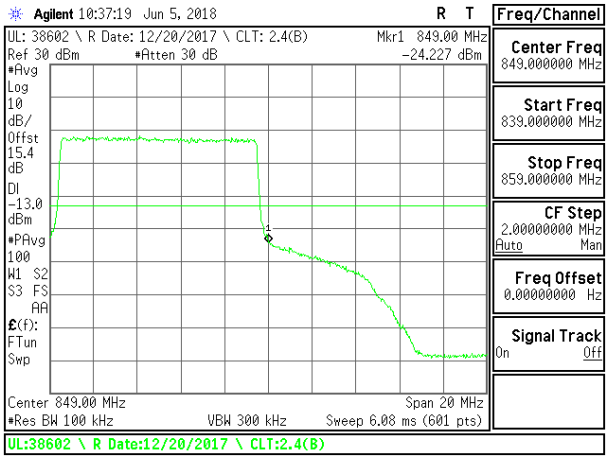
LTE B5 10MHz QPSK Low Channel RB1-0



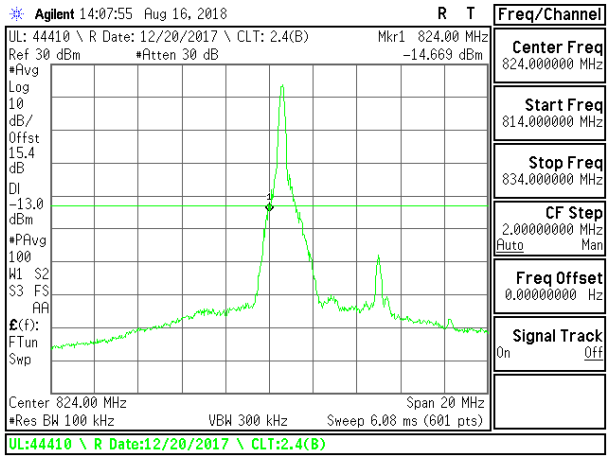
LTE B5 10MHz QPSK High Channel RB1-49



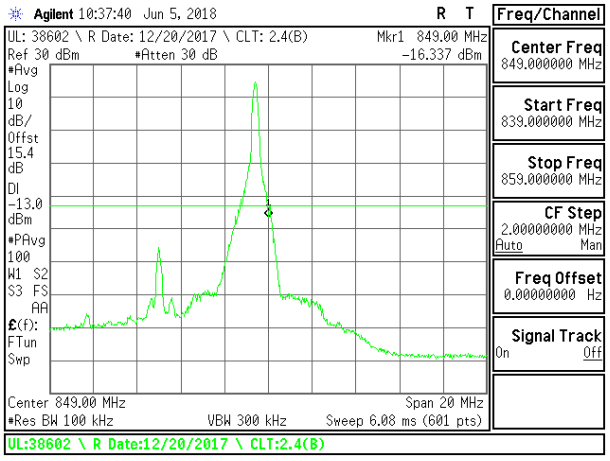
LTE B5 10MHz QPSK Low Channel RB50-0



LTE B5 10MHz QPSK High Channel RB50-0



LTE B5 10MHz 16QAM Low Channel RB1-0



LTE B5 10MHz 16QAM High Channel RB1-49

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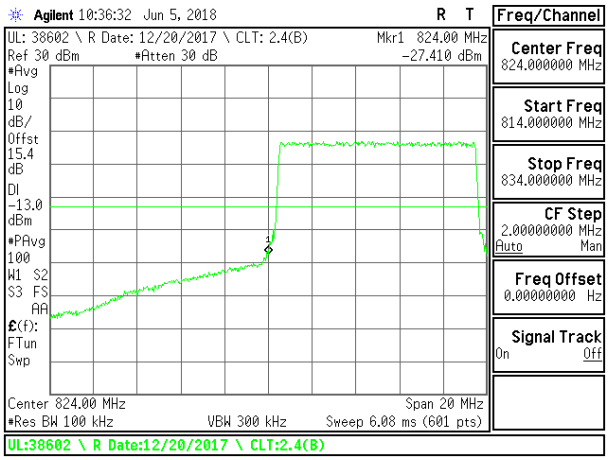
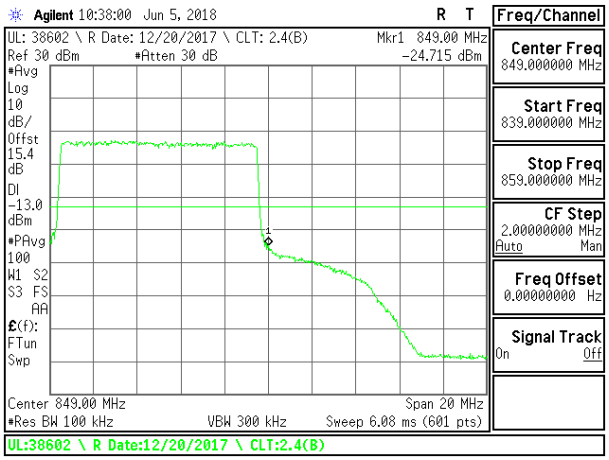


LTE B5 10MHz 16QAM Low Channel RB50-0



LTE B5 10MHz 16QAM High Channel RB50-0

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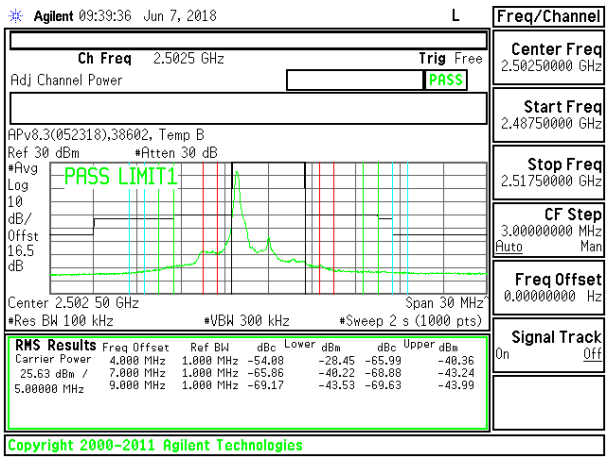
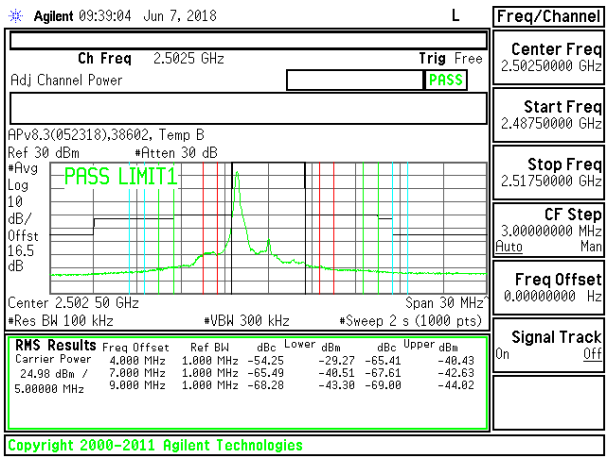
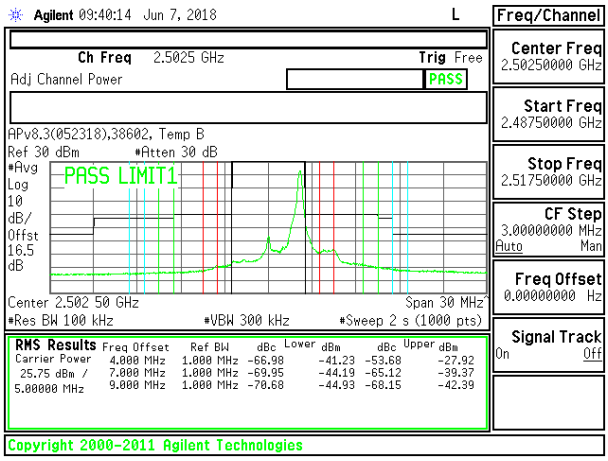
8.2.3. LTE BAND 7 ADJACENT CHANNEL POWER



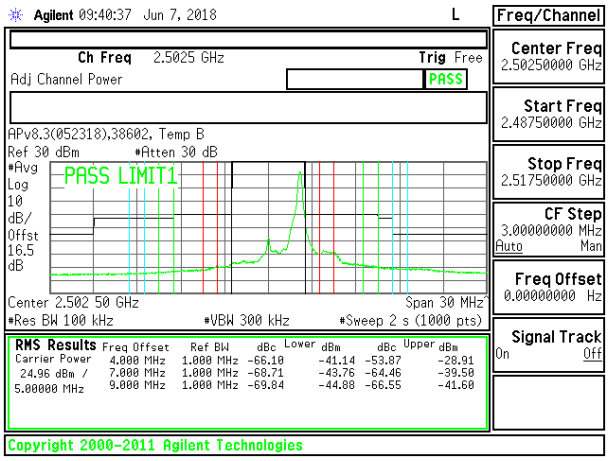
LTE B7 5MHz QPSK Low Channel RB1-0



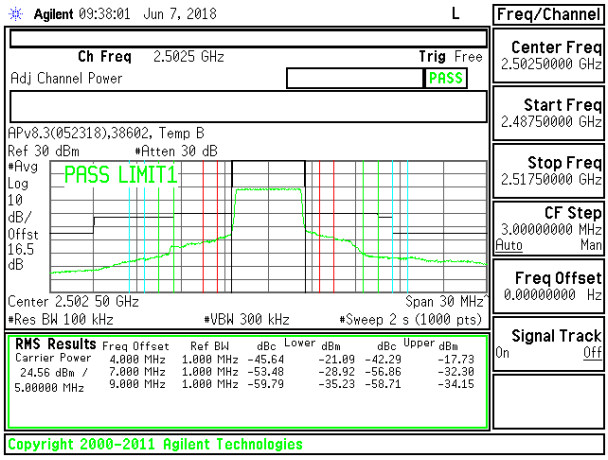
LTE B7 5MHz 16QAM Low Channel RB1-0



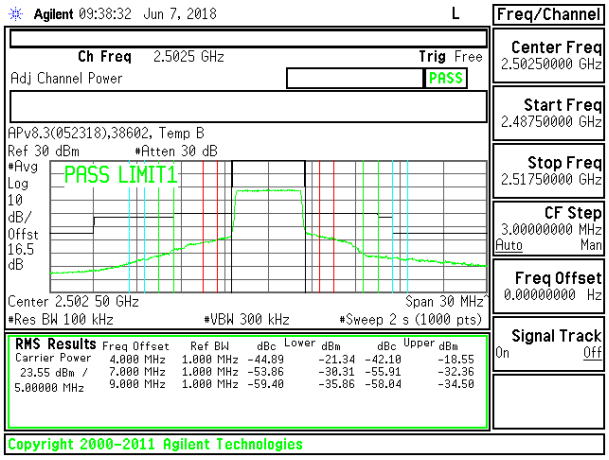
LTE B7 5MHz QPSK Low Channel RB1-24



LTE B7 5MHz 16QAM Low Channel RB1-24



LTE B7 5MHz QPSK Low Channel RB25-0



LTE B7 5MHz 16QAM Low Channel RB25-0

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