CERTIFICATION TEST REPORT

Report Number. : 12607346-E9V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A2160, A2216, A2217
FCC ID	:	BCG-E3305A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	CFR47 PART 22 H, PART 27

Date Of Issue:
AUGUST 14, 2019

Prepared by:
UL Verification Services Inc.
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NVLAP TESTING ilac-MRA
NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/9/2019	Initial Review	Mengistu Mekuria
V2	8/14/2019	Addressed TCB Feedback	John Thompson

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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	A2160, A2216, A2217
FCC ID	BCG-E3309A
EUT Description	SMARTPHONE
Serial Number	C39YV073N2R5 (Conducted), C39YJ033MKLX (Radiated)
Date Tested	MARCH 29, 2019 to AUGUST 01, 2019
Applicable Standards	CFR47 22H and PART 27
Test Results	COMPLIES

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

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

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

Approved & Released By:	Prepared By:
Mengistu Mekuria Lead Test Engineer UL Verification Services Inc.	Lieu Nguyen Test 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, KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 Determining ERP and EIRP v01r01, Part 22H, Part 27.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd.
☒ Chamber A (ISED:2324B-1)	☐ Chamber D (ISED:22541-1)	☐ Chamber I (ISED: 2324A-5)
☒ Chamber B (ISED:2324B-2)	☐ Chamber E (ISED:22541-2)	☐ Chamber J (ISED: 2324A-6)
☐ Chamber C (ISED:2324B-3)	☐ Chamber F (ISED:22541-3)	☐ Chamber K (ISED: 2324A-1)
	☐ Chamber G (ISED:22541-4)	☐ Chamber L (ISED: 2324A-3)
	☐ Chamber H (ISED:22541-5)	

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

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

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

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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	2.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Radiated Disturbance,1000 to 18000 MHz	4.24 dB
Radiated Disturbance,18000 to 26000 MHz	4.37 dB
Radiated Disturbance,26000 to 40000 MHz	5.17 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT 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/ax, Bluetooth, Ultra-Wide band, GPS and NFC. All models support at least one UICC based SIM. The second SIM, if present, is either UICC based pSIM (physical SIM) or e-SIM (electronic SIM). The device has a built-in inductive charging receiver. The rechargeable battery is also not user accessible.

5.2. DIFFERENCE IN MODEL NUMBER

Model A2160, A2216 and A2217 is electrically identical to Model A2160. Three model numbers are allocated for marketing and logistic purposes only. A2160 was used to perform all final tests.

5.3. MAXIMUM OUTPUT POWER

ERP?EIRP LIMIT

FCC: §2.1046, §22.913, §27.50

EIRP 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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OUTPUT POWER FOR LTE BAND 5

Part 22H	
ERP Limit (W)	7.00
Antenna Gain (dBi)	-5.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
3+5	QPSK	825.5	846.5	25.0	17.85	0.061	7531.4	7M53G7W
	16QAM			24.5	17.35	0.054	7541.9	7M54D7W
	64QAM			23.8	16.65	0.046	7564.1	7M56D7W
5+3	QPSK	826.5	847.5	25.0	17.85	0.061	7563.9	7M56G7W
	16QAM			24.4	17.25	0.053	7532.5	7M53D7W
	64QAM			23.6	16.45	0.044	7521.6	7M52D7W
5+10	QPSK	826.5	844.0	24.9	17.75	0.060	13886.0	13M9G7W
	16QAM			24.0	16.85	0.048	13876.0	13M9D7W
	64QAM			21.2	14.05	0.025	13854.0	13M9D7W
10+5	QPSK	829.0	846.5	25.0	17.86	0.061	13911.0	13M9G7W
	16QAM			23.9	16.75	0.047	13895.0	13M9D7W
	64QAM			22.9	15.75	0.038	13896.0	13M9D7W
10+10	QPSK	829.0	844.0	24.9	17.75	0.060	19506.0	19M5G7W
	16QAM			23.9	16.75	0.047	19467.0	19M5D7W
	64QAM			22.9	15.75	0.038	19306.0	19M3D7W

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS 199	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-2.70

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
10+20	QPSK	2505.5	2560.0	25.0	22.28	0.169	27867.1	27M9G7W
	16QAM			24.1	21.38	0.138	27875.2	27M9D7W
	64QAM			23.4	20.70	0.117	27866.3	27M9D7W
20+10	QPSK	2510.0	2564.5	24.5	21.83	0.153	27856.8	27M9G7W
	16QAM			23.5	20.84	0.121	27851	27M9D7W
	64QAM			22.9	20.20	0.105	27873.3	27M9D7W
15+15	QPSK	2507.5	2562.5	24.5	21.78	0.151	28441.1	28M4G7W
	16QAM			23.6	20.90	0.123	28450.9	28M5D7W
	64QAM			22.7	19.98	0.100	28422.2	28M4D7W
15+20	QPSK	2507.8	2560.0	24.7	21.99	0.158	32684.3	32M7G7W
	16QAM			23.7	21.01	0.126	32649.1	32M6D7W
	64QAM			23.2	20.50	0.112	32674.1	32M7D7W
20+15	QPSK	2510.0	2562.2	24.6	21.88	0.154	32595.5	32M6G7W
	16QAM			23.6	20.93	0.124	32668.9	32M7D7W
	64QAM			23.0	20.25	0.106	32661.2	32M7D7W
20+20	QPSK	2510.0	2560.0	24.7	21.96	0.157	37577.5	37M6G7W
	16QAM			23.7	21.03	0.127	37569.9	37M6D7W
	64QAM			23.1	20.40	0.110	37549	37M5D7W

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OUTPUT POWER FOR LTE BAND 41

Part 27	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	-2.70

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5+20	QPSK	2499.3	2680.0	26.8	24.12	0.258	22942	22M9G7W
	16QAM			25.8	23.10	0.204	22895.4	22M9D7W
	64QAM			23.5	20.82	0.121	22697.2	22M7D7W
20+5	QPSK	2506.0	2686.7	26.7	24.03	0.253	23067.1	23M1G7W
	16QAM			26.0	23.25	0.211	23093.5	23M1D7W
	64QAM			23.7	21.05	0.127	23168.8	23M2D7W
10+20	QPSK	2501.5	2680.0	26.9	24.18	0.262	28012.8	28M0G7W
	16QAM			25.7	22.98	0.198	27829.7	27M8D7W
	64QAM			23.9	21.19	0.132	27822.3	27M8D7W
20+10	QPSK	2506.0	2684.5	26.8	24.12	0.258	27811.1	27M8G7W
	16QAM			25.9	23.20	0.209	27391.8	27M4D7W
	64QAM			23.8	21.06	0.128	27955.6	28M0D7W
15+15	QPSK	2503.5	2682.5	26.9	24.15	0.260	28582	28M6G7W
	16QAM			25.8	23.10	0.204	28484	28M5D7W
	64QAM			23.6	20.90	0.123	28529	28M5D7W
15+20	QPSK	2503.8	2680.0	27.0	24.26	0.267	32791.9	32M8G7W
	16QAM			26.0	23.28	0.213	32565.4	32M6D7W
	64QAM			23.8	21.12	0.129	32704.3	32M7D7W
20+15	QPSK	2506.0	2682.2	26.8	24.06	0.255	32443.8	32M4G7W
	16QAM			25.7	23.03	0.201	32406.9	32M4D7W
	64QAM			23.8	21.09	0.129	32706.6	32M7D7W
20+20	QPSK	2506.0	2680.0	27.0	24.30	0.269	37352.3	37M4G7W
	16QAM			26.1	23.41	0.219	37454.3	37M5D7W
	64QAM			23.9	21.19	0.132	37209.7	37M2D7W

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5.4. SOFTWARE AND FIRMWARE

The EUT Firmware installed during testing was version: 19-01.1919.01_27-0.22.00-27.

5.5. MAXIMUM ANTENNA GAIN

Please see table below:

LTE Bands	Ant 1 Gain (dBi)	Ant 2 Gain (dBi)	Ant 3 Gain (dBi)	Ant 4 Gain (dBi)
LTE Band 5, 824 – 849 MHz	-5.0	-5.1	N/A	N/A
LTE Band 7, 2500 – 2570 MHz	-2.7	-4.6	-8.4	-2.0
LTE Band 41, 2496 – 2690 MHz	-2.7	-3.9	-7.5	-1.9

5.6. WORST-CASE CONFIGURATION AND MODE

The EUT supports LTE dual carrier Bands of: Band 5, 7, and Band 41.

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. Tests were performed on the conducted test at Ant 1 antenna as worst case since it has higher output powers.

The EUT was investigated in three orthogonal orientations X/Y/Z on antennas 1, 2, 3, and 4. For ANT 1 antenna, it was determined that Y (Landscape) orientation was worst-case orientation for bands 7 and 41; X (Flatbed) orientation was worst-case orientation for band 5 without AC/DC adapter.
For ANT 2 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for all bands without AC/DC adapter.
For ANT 3 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for all bands without AC/DC adapter.
For ANT 4 antenna, it was determined that Y (Landscape) orientation was worst-case for bands 7 and 41 without AC/DC adapter

For Band Edge and Emission Mask: The highest BW combo and sample lower BW combinations were tested. Combination pairs of the same BW are considered generally equivalent. The RB combinations were selected such that the signal is active closest to the band limit, as this is the worst case.

For Out of Band Emissions: The highest combination and a sample lower combination was tested. The highest power RB combination was selected as worst case.

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

For interband transmission of multiple channels in Ant 1 and Ant 2 in Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
Laptop AC/DC adapter	Apple	85W MagSafe 2	C0651730MMMG6P4AL
Laptop	Apple	Macbook Pro	C02PM012G3QD
Laptop	Apple	Macbook Pro	C02P52HGG085

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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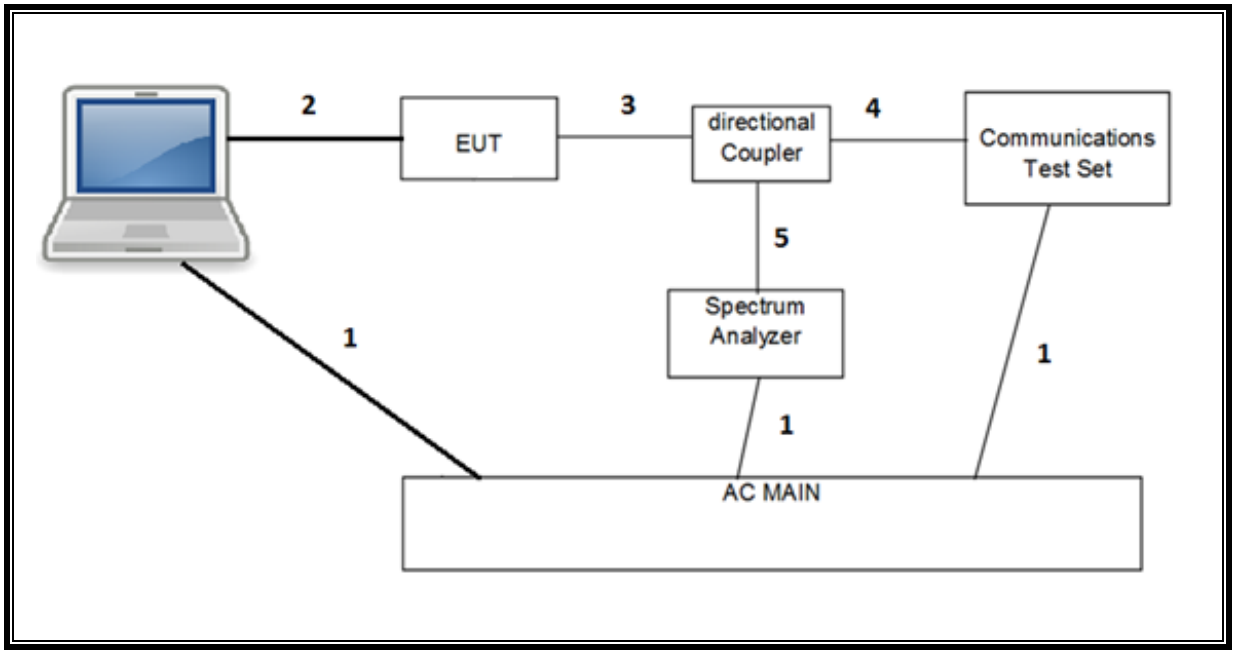
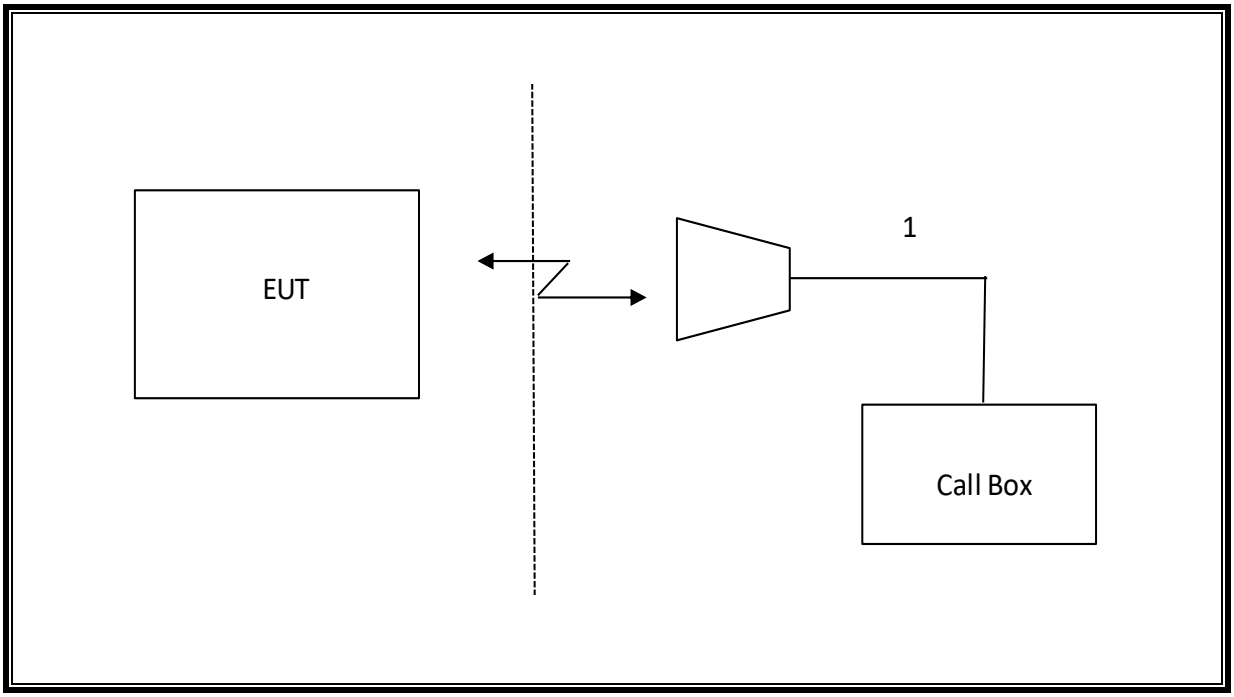
CONDUCTED SETUP



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**
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T15	08/15/2019
Amplifier, 18-26GHz	Agilent	8449B	T404	3/23/2020
Amplifier, 26-40GHz	Miteq	TTA2640	T1804	3/23/2020
Spectrum Analyzer, PXA 3Hz to 44GHZ	Agilent	N9030A	T905	1/24/2020
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T340	01/22/2020
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T1454	01/23/2020
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T908	01/23/2020
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T339	01/29/2020
Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	T931	05/11/2020
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	PRE0180176	11/01/2019
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T177	04/12/2019
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T123	01/28/2020
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4440A	T198	01/30/2020
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4440A	T99	1/28/2020
Directional Coupler	KRYTAR	152610	T1536	04/27/2019
Directional Coupler	KRYTAR	152610	T1537	04/27/2019
Wireless Communications Test Set, 8960 Series 10	Agilent	E5515C	T211	05/10/2020
Filter, HPF 3.0GHz	Micro-Tronics	HPM17543	T487	12/04/2019
Filter, HPF 1.2GHz	Micro-Tronics	WHKX1.2/15G-6ST	T1182	05/19/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T459	07/25/2019
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T959	02/16/2020
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T1871	02/18/2020
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T921	02/18/2020
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T376	02/21/2020
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T958	02/20/2020
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T754	08/15/2019
Power Meter, P-series single channel	Keysight	N1911A	T1268	01/31/2020
Power Sensor	Keysight	N1921A	T1228	07/10/2019
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T346	05/14/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T344	05/07/2020
Antenna, Horn 18-26GHz	ARA	MWH-1826/B	T447	6/16/2019
Antenna, Horn 26-40GHz	ARA	MWH-2640/B	T446	8/9/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	PRE0181574	08/01/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	PRE0077974	05/13/2020
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T1616	10/18/2019
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 9.5, April 26, 2016	
Power Measurement Software	UL	UL RF	Ver 2.2, June 2017	

NOTES:

1. For equipment listed above that had a calibration due during the testing period, its use was paused to allow for calibration.

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7. RF OUTPUT POWER VERIFICATION

RULE PART(S)

FCC: §2.1046

MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

RESULT

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 5

ID:	10646	Date:	6/16/2019

OUTPUT POWER FOR LTE BAND 5 (3.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)					
							Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
3MHz / 5MHz	825.5	829.4	1	14	1	0	24.7	24.2	23.6	23.3	22.7	21.8
			15	0	25	0	23.6	22.7	22.3	21.2	20.7	19.8
	834.0	837.9	1	14	1	0	**25.0**	**24.5**	**23.8**	22.9	21.2	21.9
			15	0	25	0	23.5	22.8	22.3	20.8	21.3	19.8
	847.5	843.6	1	14	1	0	24.9	24.4	23.5	23.1	21.2	21.7
			15	0	25	0	23.5	22.8	22.0	20.7	20.2	19.8

OUTPUT POWER FOR LTE BAND 5 (5.0MHz + 3.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)					
							Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz / 3MHz	826.5	830.4	1	24	1	0	24.6	24.1	**23.6**	23.3	22.7	21.6
			25	0	15	0	23.0	21.9	22.0	21.2	20.2	20.2
	835.0	838.9	1	24	1	0	24.9	**24.4**	23.4	23.3	22.2	21.4
			25	0	15	0	22.9	22.0	21.8	21.2	20.2	20.2
	846.5	842.6	1	24	1	0	**25.0**	23.7	23.5	23.2	22.7	21.5
			25	0	15	0	22.8	21.9	21.9	21.1	20.1	20.2

OUTPUT POWER FOR LTE BAND 5 (5.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)					
							Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz / 10MHz	826.5	833.7	1	24	1	0	**24.9**	**24.0**	**21.2**	**23.2**	22.1	20.3
			25	0	50	0	22.7	21.7	21.0	21.2	20.2	20.2
	831.6	838.8	1	24	1	0	24.7	23.8	21.0	22.9	21.8	19.9
			25	0	50	0	22.7	21.6	20.9	21.0	20.0	20.0
	846.5	839.3	1	24	1	0	24.6	23.7	20.9	23.1	22.0	20.2
			25	0	50	0	22.5	21.6	20.7	20.9	19.9	19.9

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OUTPUT POWER FOR LTE BAND 5 (10.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)					
							Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz/ 5MHz	829.0	836.2	1	49	1	0	**25.0**	**23.9**	22.9	23.5	22.5	20.4
			1	0	1	24	16.2	16.2	17.3	14.6	14.6	14.7
			50	0	25	0	22.7	21.8	22.7	21.3	20.3	20.3
	834.3	841.5	1	49	1	0	24.9	23.8	22.8	23.3	22.3	20.5
			1	0	1	24	16.1	16.1	17.3	14.5	14.4	14.6
			50	0	25	0	22.7	21.7	22.7	21.1	20.0	20.1
	839.3	846.5	1	49	1	0	24.7	23.5	**22.9**	22.9	21.9	20.0
			1	0	1	24	16.1	16.1	17.1	14.3	14.3	14.5
			50	0	25	0	22.6	21.7	22.6	20.9	19.9	19.9

OUTPUT POWER FOR LTE BAND 5 (10.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)					
							Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz/ 10MHz	829.0	838.9	1	49	1	0	**24.9**	**23.9**	21.3	23.3	22.5	20.3
			1	0	1	49	16.2	16.3	15.6	14.4	14.5	14.4
			50	0	50	0	22.6	21.7	21.0	20.9	20.0	20.0
	831.5	841.4	1	49	1	0	24.9	23.9	22.1	23.2	22.1	20.2
			1	0	1	49	16.1	16.2	16.5	14.4	14.4	14.5
			50	0	50	0	22.6	21.7	22.7	21.0	19.9	20.0
	844.0	834.1	1	49	1	0	24.7	23.8	**22.9**	22.9	21.9	19.9
			1	0	1	49	16.1	16.1	17.1	14.3	14.3	14.4
			50	0	50	0	22.6	21.7	22.7	20.8	19.9	19.9

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7.2. LTE BAND 7

ID:	19467	Date:	6/16/19

OUTPUT POWER FOR LTE BAND 7 (10.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz / 20MHz	2505.5	2519.9	1	49	1	0	**25.0**	**24.1**	**23.4**	**19.9**	19.0	17.8
			50	0	100	0	22.9	22.0	21.9	18.3	17.3	17.2
	2525.6	2540.0	1	49	1	0	22.1	21.4	20.9	19.8	**19.2**	18.0
			50	0	100	0	20.1	19.2	19.0	18.1	17.1	17.0
	2545.5	2560.0	1	49	1	0	22.6	21.7	21.0	19.8	19.1	**18.3**
			50	0	100	0	20.2	19.2	19.0	17.9	16.9	16.8

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz / 20MHz	2505.5	2519.9	1	49	1	0	24.0	23.0	21.7	17.8	16.9	15.9
			50	0	100	0	22.1	21.2	22.4	15.9	14.9	15.9
	2525.6	2540.0	1	49	1	0	24.0	**23.4**	22.5	17.6	16.8	**16.2**
			50	0	100	0	22.3	21.4	**22.6**	16.0	14.9	16.0
	2545.5	2560.0	1	49	1	0	**24.3**	23.2	21.8	**18.0**	**17.0**	16.2
			50	0	100	0	22.2	21.2	22.1	16.0	14.9	15.8

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2510.0	2524.4	1	99	1	0	**24.5**	**23.5**	**20.9**	**20.5**	**19.5**	**17.4**
			1	0	1	49	15.8	15.9	15.5	11.7	11.7	11.6
			100	0	50	0	22.3	21.3	20.9	18.2	17.3	17.1
	2530.1	2544.5	1	99	1	0	24.3	23.3	20.7	20.2	19.2	16.8
			1	0	1	49	15.7	15.7	15.2	11.4	11.5	11.4
			100	0	50	0	22.2	21.2	20.6	18.1	17.1	16.8
	2550.1	2564.5	1	99	1	0	24.4	23.4	20.9	20.2	19.3	17.2
			1	0	1	49	15.8	15.7	15.0	11.3	11.4	11.3
			100	0	50	0	22.2	21.2	20.5	17.9	16.9	16.8

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Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2510.0	2524.4	1	99	1	0	**24.4**	23.3	**22.9**	18.2	**17.2**	**16.2**
			1	0	1	49	15.5	15.5	16.9	9.3	9.3	10.4
			100	0	50	0	22.3	21.2	22.5	15.9	14.9	15.9
	2530.1	2544.5	1	99	1	0	24.3	**23.5**	22.7	18.0	17.0	16.2
			1	0	1	49	15.7	15.7	17.0	9.3	9.3	10.6
			100	0	50	0	22.4	21.3	22.5	15.9	14.9	16.0
	2550.1	2564.5	1	99	1	0	24.3	23.4	20.6	**18.2**	17.1	16.1
			1	0	1	49	15.4	15.6	16.6	9.4	9.3	10.3
			100	0	50	0	22.2	21.1	22.1	15.9	14.8	15.6

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2507.5	2522.5	1	74	1	0	**24.5**	**23.6**	**21.0**	**20.4**	**19.3**	**18.2**
			75	0	75	0	22.3	21.4	21.0	18.2	17.3	17.1
	2527.5	2542.5	1	74	1	0	24.3	23.4	20.8	20.2	19.3	**18.2**
			75	0	75	0	22.3	21.3	20.6	18.1	17.1	17.0
	2547.5	2562.5	1	74	1	0	24.4	23.5	20.7	20.1	19.2	18.0
			75	0	75	0	22.3	21.3	20.5	17.9	16.9	16.7

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2507.5	2522.5	1	74	1	0	24.3	23.4	22.5	**17.9**	**17.0**	16.1
			75	0	75	0	22.2	21.2	22.4	15.8	14.8	14.5
	2527.5	2542.5	1	74	1	0	**24.4**	23.4	**22.7**	17.6	16.9	**16.1**
			75	0	75	0	22.3	21.3	22.6	15.6	14.9	14.4
	2547.5	2562.5	1	74	1	0	24.3	**23.4**	22.5	17.8	16.9	15.9
			75	0	75	0	22.2	21.1	22.2	15.7	14.9	15.0

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2507.8	2524.9	1	74	1	0	24.7	23.6	**23.2**	**20.4**	**19.6**	18.3
			75	0	100	0	22.4	21.4	20.9	18.3	17.3	17.2
	2525.3	2542.4	1	74	1	0	24.5	23.5	23.0	20.3	19.4	18.4
			75	0	100	0	22.3	21.3	20.7	18.2	17.2	17.0
	2542.9	2560.0	1	74	1	0	**24.7**	**23.7**	23.1	20.1	19.2	**18.6**
			75	0	100	0	22.4	21.4	20.5	17.9	17.1	16.9

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Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2507.8	2524.9	1	74	1	0	**24.4**	23.5	22.9	16.3	15.4	**16.2**
			75	0	100	0	22.2	21.3	22.5	14.2	13.2	16.0
	2525.3	2542.4	1	74	1	0	24.3	**23.5**	**23.0**	18.1	16.8	16.2
			75	0	100	0	22.3	21.4	22.8	16.0	15.0	16.1
	2542.9	2560.0	1	74	1	0	24.3	23.5	22.7	**18.1**	**17.0**	16.2
			75	0	100	0	22.3	21.3	22.4	16.0	15.0	15.8

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2510.0	2527.1	1	99	1	0	**24.6**	**23.6**	22.8	**20.5**	**19.5**	**18.4**
			100	0	75	0	22.4	21.5	20.9	18.3	17.4	17.2
	2527.6	2544.7	1	99	1	0	24.2	23.4	22.7	20.2	19.3	18.2
			100	0	75	0	22.3	21.3	20.7	18.2	17.2	17.0
	2545.1	2562.2	1	99	1	0	21.5	23.5	**22.9**	20.1	19.3	18.1
			100	0	75	0	22.4	21.3	20.6	18.0	17.0	16.9

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2510.0	2527.1	1	99	1	0	24.5	23.6	**23.0**	18.3	17.2	16.3
			100	0	75	0	22.3	21.3	22.6	16.0	16.1	16.0
	2527.6	2544.7	1	99	1	0	**24.5**	**23.6**	22.7	**18.3**	17.3	16.1
			100	0	75	0	22.4	21.4	22.7	16.2	16.2	16.0
	2545.1	2562.2	1	99	1	0	24.4	23.4	22.5	18.2	**17.5**	**16.8**
			100	0	75	0	22.2	21.3	22.4	16.3	16.0	15.8

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2510.0	2529.8	1	99	1	0	24.6	**23.7**	22.8	**20.5**	**19.6**	**18.6**
			1	0	1	99	15.4	15.9	15.3	11.4	11.3	11.5
			100	0	100	0	22.4	21.4	20.9	18.2	17.3	17.1
	2525.1	2544.9	1	99	1	0	24.4	23.6	23.0	20.3	19.4	18.4
			1	0	1	99	15.5	15.8	15.1	11.2	11.5	11.5
			100	0	100	0	22.3	21.3	20.6	18.2	17.2	17.1
	2540.2	2560.0	1	99	1	0	**24.7**	23.7	**23.1**	20.2	19.2	18.2
			1	0	1	99	15.7	15.7	14.8	11.2	11.4	11.2
			100	0	100	0	22.3	21.4	20.6	18.0	16.9	16.9

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Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2510.0	2529.8	1	99	1	0	24.5	**23.5**	**23.0**	**17.4**	**16.5**	16.4
			1	0	1	99	15.4	15.2	16.6	11.3	10.1	10.3
			100	0	100	0	22.3	21.3	22.5	14.2	13.2	16.0
	2525.1	2544.9	1	99	1	0	24.4	23.3	22.9	17.3	16.3	**16.4**
			1	0	1	99	15.7	15.5	16.7	11.5	10.4	10.5
			100	0	100	0	22.4	21.4	22.6	14.2	13.2	16.1
	2540.2	2560.0	1	99	1	0	**24.5**	23.5	22.7	17.4	16.3	16.2
			1	0	1	99	15.2	15.6	16.7	11.2	10.5	10.2
			100	0	100	0	22.3	21.3	22.3	14.2	13.2	15.9

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7.3. LTE BAND 41

ID:	19467	Date:	6/16/19

OUTPUT POWER FOR LTE BAND 41 (5.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz / 20MHz	2499.3	2511.0	1	24	1	0	**26.8**	**25.8**	**23.5**	22.3	21.2	20.3
			25	0	100	0	24.8	23.8	23.4	20.4	19.4	20.3
	2583.8	2595.5	1	24	1	0	26.7	25.6	23.4	22.4	21.4	20.5
			25	0	100	0	24.5	23.5	23.2	20.4	19.3	20.4
	2668.3	2680.0	1	24	1	0	26.6	25.6	23.2	**22.6**	**21.6**	**20.9**
			25	0	100	0	24.5	23.4	23.4	20.5	19.5	20.6

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5MHz / 20MHz	2499.3	2511.0	1	24	1	0	**26.5**	**25.6**	23.4	**20.8**	**19.7**	**17.7**
			25	0	100	0	24.1	23.1	23.1	18.4	17.6	17.5
	2583.8	2595.5	1	24	1	0	26.2	25.2	**23.5**	20.4	19.3	17.4
			25	0	100	0	24.0	23.0	23.0	18.3	17.4	17.2
	2668.3	2680.0	1	24	1	0	25.3	24.3	22.8	19.9	19.7	17.6
			25	0	100	0	23.6	22.7	22.7	17.5	17.5	17.5

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 5.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 5MHz	2506.0	2517.7	1	99	1	0	**26.7**	**26.0**	23.7	**22.6**	**21.7**	**20.6**
			1	0	1	24	18.1	18.2	17.9	13.8	13.9	14.8
			100	0	25	0	24.6	23.6	23.5	20.4	19.4	20.3
	2590.5	2602.2	1	99	1	0	26.5	25.6	23.7	22.5	21.7	20.5
			1	0	1	24	17.9	17.9	18.1	13.7	13.8	14.8
			100	0	25	0	24.4	23.4	23.4	20.4	19.4	20.3
	2675.0	2686.7	1	99	1	0	26.6	25.6	**23.7**	22.7	21.7	20.7
			1	0	1	24	17.9	17.8	18.1	13.9	14.0	15.0
			100	0	25	0	24.4	23.4	23.6	20.6	19.5	20.6

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 5MHz	2506.0	2517.7	1	99	1	0	**26.3**	**25.4**	**23.4**	**20.9**	**20.2**	**18.0**
			1	0	1	24	17.6	17.7	17.6	11.9	12.0	11.8
			100	0	25	0	24.3	23.3	23.2	18.7	17.8	17.6
	2590.5	2602.2	1	99	1	0	26.1	25.2	23.2	20.5	19.7	17.5
			1	0	1	24	17.4	17.4	17.5	11.7	11.9	11.7
			100	0	25	0	23.9	22.9	22.9	18.3	17.4	17.2
	2675.0	2686.7	1	99	1	0	25.9	24.9	23.0	20.5	19.6	17.6
			1	0	1	24	17.0	17.1	17.0	11.8	11.9	11.9
			100	0	25	0	23.6	22.6	22.6	18.5	17.5	17.4

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OUTPUT POWER FOR LTE BAND 41 (10.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz / 20MHz	2501.5	2515.9	1	49	1	0	**26.9**	**25.7**	**23.9**	22.5	21.3	**20.6**
			50	0	100	0	24.6	23.6	23.3	20.4	19.4	20.3
	2583.6	2598.0	1	49	1	0	21.5	21.5	23.7	22.6	21.5	20.5
			50	0	100	0	24.4	23.4	23.0	20.4	19.4	20.4
	2665.6	2680.0	1	49	1	0	26.4	25.4	23.8	**22.7**	**21.7**	20.5
			50	0	100	0	24.3	23.3	23.4	20.5	19.5	20.5

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz / 20MHz	2501.5	2515.9	1	49	1	0	**26.3**	**25.3**	23.1	**20.8**	**19.8**	**17.7**
			50	0	100	0	24.2	23.1	23.2	18.6	17.6	17.6
	2583.6	2598.0	1	49	1	0	26.3	25.3	**23.5**	20.5	19.3	17.6
			50	0	100	0	24.0	23.0	23.0	18.3	17.4	17.2
	2665.6	2680.0	1	49	1	0	26.3	25.3	23.0	20.6	19.7	17.6
			50	0	100	0	23.5	22.5	22.6	18.4	17.4	17.4

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 10.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2506.0	2520.4	1	99	1	0	**26.8**	**25.9**	**23.8**	22.6	**21.8**	21.0
			100	0	50	0	24.8	23.7	23.6	20.4	19.4	20.9
	2588.1	2602.5	1	99	1	0	26.6	25.7	23.5	22.5	21.7	21.3
			100	0	50	0	24.6	23.5	23.4	20.4	19.4	21.1
	2670.1	2684.5	1	99	1	0	26.6	25.7	23.8	**22.8**	21.8	**21.3**
			100	0	50	0	24.5	23.5	23.6	20.5	19.5	21.3

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2506.0	2520.4	1	99	1	0	**26.3**	**25.3**	**23.3**	**21.0**	**20.2**	**18.0**
			100	0	50	0	24.1	23.2	23.2	18.7	17.8	17.6
	2588.1	2602.5	1	99	1	0	26.0	25.1	23.2	20.4	19.5	17.8
			100	0	50	0	23.9	22.9	23.0	18.2	17.4	17.2
	2670.1	2684.5	1	99	1	0	25.8	24.9	22.9	20.5	19.6	17.7
			100	0	50	0	23.6	22.6	22.6	17.4	16.4	16.4

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OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2503.5	2518.5	1	74	1	0	**26.9**	25.8	**23.6**	22.6	21.5	20.5
			75	0	75	0	24.8	23.7	23.6	20.5	19.5	20.4
	2585.5	2600.5	1	74	1	0	26.6	**25.8**	23.5	22.6	21.6	20.5
			75	0	75	0	24.5	23.6	23.4	20.4	19.4	20.4
	2667.5	2682.5	1	74	1	0	26.6	25.7	23.5	**22.7**	**21.7**	**20.7**
			75	0	75	0	24.5	23.5	23.5	20.5	19.5	20.5

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2503.5	2518.5	1	74	1	0	**26.3**	**25.2**	**23.3**	**20.8**	**20.0**	**17.9**
			75	0	75	0	24.2	23.2	23.2	18.6	17.7	17.6
	2585.5	2600.5	1	74	1	0	26.1	25.2	23.0	20.5	19.5	17.4
			75	0	75	0	23.9	23.0	23.0	18.3	17.3	17.2
	2667.5	2682.5	1	74	1	0	25.7	24.9	22.7	20.5	19.5	17.6
			75	0	75	0	23.6	22.6	22.6	17.5	17.4	17.5

OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2503.8	2520.9	1	74	1	0	**27.0**	**26.0**	**23.8**	**22.6**	21.6	20.6
			75	0	100	0	24.8	23.8	23.8	20.5	19.5	20.4
	2583.3	2600.4	1	74	1	0	26.8	25.9	23.3	22.5	21.5	20.6
			75	0	100	0	24.6	23.6	23.5	20.4	19.4	20.4
	2662.9	2680.0	1	74	1	0	26.7	25.7	23.6	22.5	**21.6**	**20.7**
			75	0	100	0	24.6	23.5	23.6	20.5	19.5	20.6

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2503.8	2520.9	1	74	1	0	**26.5**	**25.4**	**23.5**	**21.0**	**20.0**	**17.9**
			75	0	100	0	24.2	23.3	23.3	18.8	17.9	17.7
	2583.3	2600.4	1	74	1	0	26.3	25.4	23.3	20.5	19.8	17.5
			75	0	100	0	24.0	23.1	23.1	18.4	17.5	17.3
	2662.9	2680.0	1	74	1	0	26.4	25.4	22.7	20.5	19.6	17.8
			75	0	100	0	23.7	22.7	22.7	17.5	17.6	17.5

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OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 15.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2506.0	2523.1	1	99	1	0	**26.8**	**25.7**	**23.8**	22.7	**21.9**	20.6
			100	0	75	0	24.7	23.4	23.7	20.5	19.5	20.4
	2585.6	2602.7	1	99	1	0	26.5	25.6	23.6	22.6	21.7	20.6
			100	0	75	0	24.6	23.6	23.5	20.5	19.5	20.4
	2665.1	2682.2	1	99	1	0	26.5	25.6	23.7	**22.7**	21.8	**20.8**
			100	0	75	0	24.5	23.5	23.7	20.5	19.6	20.6

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2506.0	2523.1	1	99	1	0	**26.4**	**25.7**	**23.8**	**21.0**	**20.2**	**18.1**
			100	0	75	0	24.6	23.7	23.7	18.8	17.9	17.7
	2585.6	2602.7	1	99	1	0	26.3	25.4	23.3	20.5	19.7	17.5
			100	0	75	0	24.3	23.3	23.3	18.4	17.5	17.3
	2665.1	2682.2	1	99	1	0	26.1	25.2	23.2	20.6	19.7	17.8
			100	0	75	0	24.0	23.0	23.0	18.5	17.6	17.5

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 20.0MHz)

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 1			Ant 2		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2506.0	2525.8	1	99	1	0	**27.0**	**26.1**	**23.9**	**22.7**	**21.9**	20.8
			1	0	1	99	18.0	18.1	18.0	13.3	13.6	14.7
			100	0	100	0	24.9	23.9	23.7	20.5	19.5	20.4
	2583.1	2602.9	1	99	1	0	26.9	25.9	23.7	22.6	21.8	**20.8**
			1	0	1	99	17.8	17.9	17.6	13.3	13.8	14.6
			100	0	100	0	24.7	23.8	23.5	20.5	19.5	20.4
	2660.2	2680.0	1	99	1	0	26.8	25.8	23.7	22.7	21.8	20.8
			1	0	1	99	17.8	17.9	17.9	13.4	13.8	14.8
			100	0	100	0	24.7	23.6	23.7	20.5	19.5	20.5

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
							Ant 3			Ant 4		
			Size	Offset	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2506.0	2525.8	1	99	1	0	**26.5**	**25.5**	**23.4**	**21.0**	**20.2**	**18.2**
			1	0	1	99	17.4	17.4	17.7	11.9	11.9	11.5
			100	0	100	0	24.3	23.3	23.3	18.8	17.8	17.7
	2583.1	2602.9	1	99	1	0	26.2	25.3	23.2	20.6	19.7	17.7
			1	0	1	99	17.1	17.2	17.2	11.7	11.3	11.6
			100	0	100	0	23.9	23.0	23.0	18.4	17.5	17.3
	2660.2	2680.0	1	99	1	0	25.8	24.9	22.8	20.7	19.9	17.9
			1	0	1	99	16.8	16.8	16.9	11.4	11.8	11.8
			100	0	100	0	23.7	22.7	22.7	18.5	17.6	17.5

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8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

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 5

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 5	3MHz + 5MHz BAND QPSK	15/0 + 25/0	836.5	7.5314	8.094
	3MHz + 5MHz BAND 16QAM			7.5419	8.091
	3MHz + 5MHz BAND 64QAM			7.5641	8.020
	5MHz + 3MHz BAND QPSK	25/0 + 15/0		7.5639	8.082
	5MHz + 3MHz BAND 16QAM			7.5325	8.017
	5MHz + 3MHz BAND 64QAM			7.5216	8.060
	5MHz + 10MHz BAND QPSK	25/0 + 50/0		13.886	14.85
	5MHz + 10MHz BAND 16QAM			13.876	14.84
	5MHz + 10MHz BAND 64QAM			13.854	14.80
	10MHz + 5MHz BAND QPSK	50/0 + 25/0		13.911	15.01
	10MHz + 5MHz BAND 16QAM			13.895	14.93
	10MHz + 5MHz BAND 64QAM			13.896	14.86
	10MHz + 10MHz BAND QPSK	50/0 + 50/0		19.506	21.43
	10MHz + 10MHz BAND 16QAM			19.467	22.16
	10MHz + 10MHz BAND 64QAM			19.306	21.15

LTE BAND 7

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2535	27.8671	29.955
	10MHz + 20MHz BAND 16QAM			27.8752	29.911
	10MHz + 20MHz BAND 64QAM			27.8663	29.955
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		27.8568	29.943
	20MHz + 10MHz BAND 16QAM			27.8510	29.918
	20MHz + 10MHz BAND 64QAM			27.8733	29.904
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.4411	30.665
	15MHz + 15MHz BAND 16QAM			28.4509	30.630
	15MHz + 15MHz BAND 64QAM			28.4222	30.656
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.6843	34.933
	15MHz + 20MHz BAND 16QAM			32.6491	34.979
	15MHz + 20MHz BAND 64QAM			32.6741	34.997
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.5955	34.921
	20MHz + 15MHz BAND 16QAM			32.6689	34.944
	20MHz + 15MHz BAND 64QAM			32.6612	34.965
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.5775	39.989
	20MHz + 20MHz BAND 16QAM			37.5699	39.984
	20MHz + 20MHz BAND 64QAM			37.5490	40.012

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LTE BAND 41

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41 (FCC)	5MHz + 20MHz BAND QPSK	25/0 + 100/0	2593	22.9420	24.692
	5MHz + 20MHz BAND 16QAM			22.8954	24.750
	5MHz + 20MHz BAND 64QAM			22.6972	24.748
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.0671	24.907
	20MHz + 5MHz BAND 16QAM			23.0935	25.096
	20MHz + 5MHz BAND 64QAM			23.1688	25.046
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		28.0128	29.944
	10MHz + 20MHz BAND 16QAM			27.8297	29.892
	10MHz + 20MHz BAND 64QAM			27.8223	29.840
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		27.8111	30.418
	20MHz + 10MHz BAND 16QAM			27.3918	29.893
	20MHz + 10MHz BAND 64QAM			27.9556	30.103
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.5820	44.790
	15MHz + 15MHz BAND 16QAM			28.4840	30.460
	15MHz + 15MHz BAND 64QAM			28.5290	30.540
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.7919	35.790
	15MHz + 20MHz BAND 16QAM			32.5654	35.879
	15MHz + 20MHz BAND 64QAM			32.7043	35.852
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.7220	34.520
	20MHz + 15MHz BAND 16QAM			32.7140	34.540
	20MHz + 15MHz BAND 64QAM			32.8210	34.840
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.431	40.210
	20MHz + 20MHz BAND 16QAM			37.4240	40.250
	20MHz + 20MHz BAND 64QAM			37.5710	39.840

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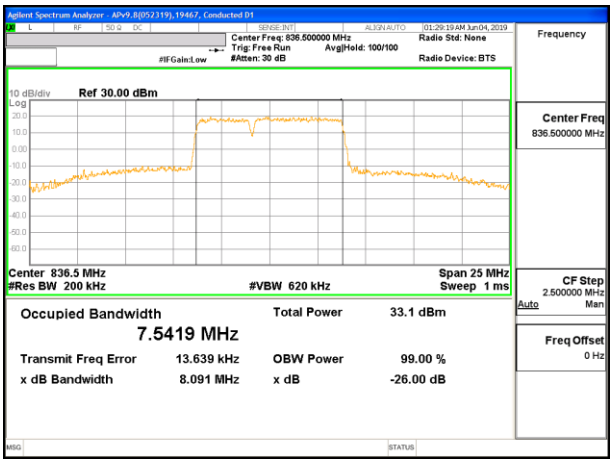
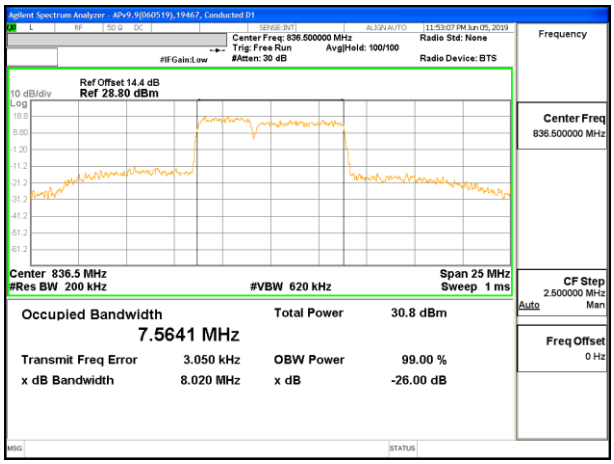
8.1.1. LTE BAND 5

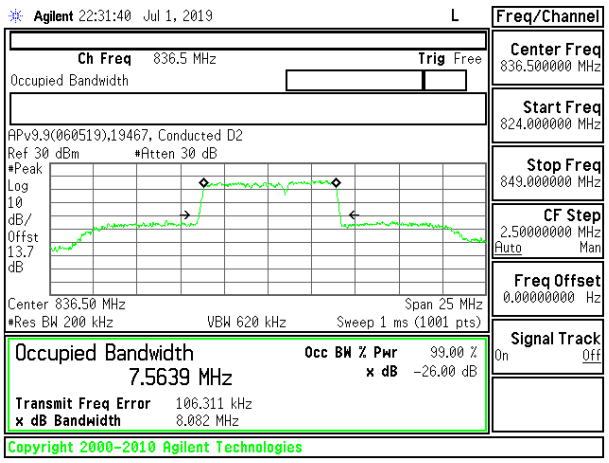
LTE B5 3MHz + 5MHz QPSK RB15-0 + RB25-0



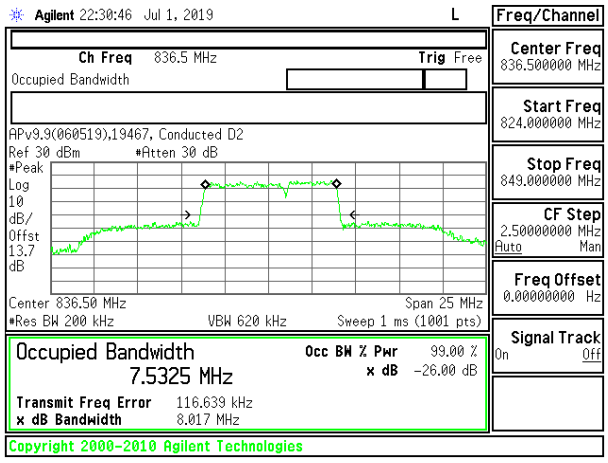
LTE B5 3MHz + 5MHz 16QAM RB15-0 + RB25-0



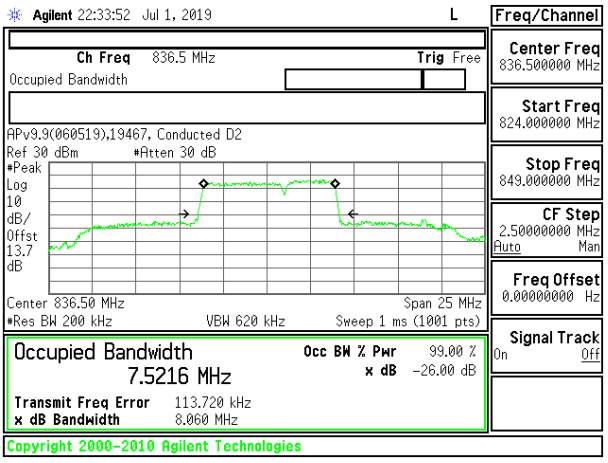
LTE B5 3MHz + 5MHz 64QAM RB15-0 + RB25-0



LTE B5 5MHz + 3MHz QPSK RB25-0 + RB15-0



LTE B5 5MHz + 3MHz 16QAM RB25-0 + RB15-0



LTE B5 5MHz + 3MHz 64QAM RB25-0 + RB15-0

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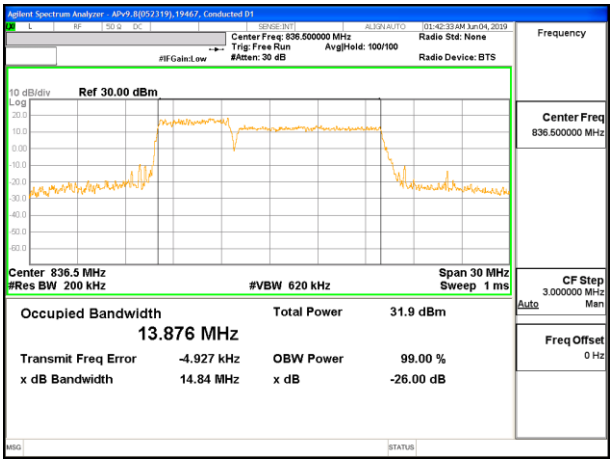
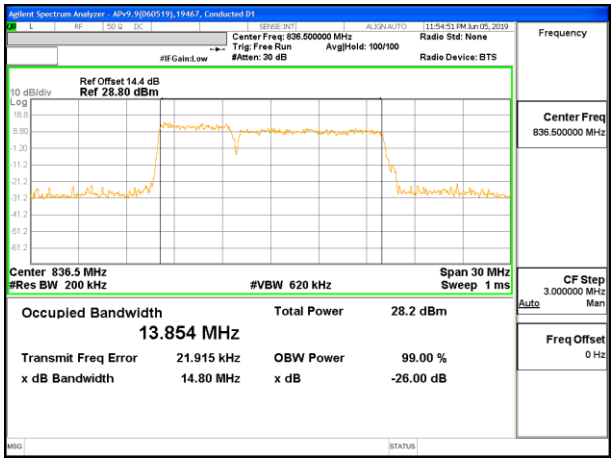
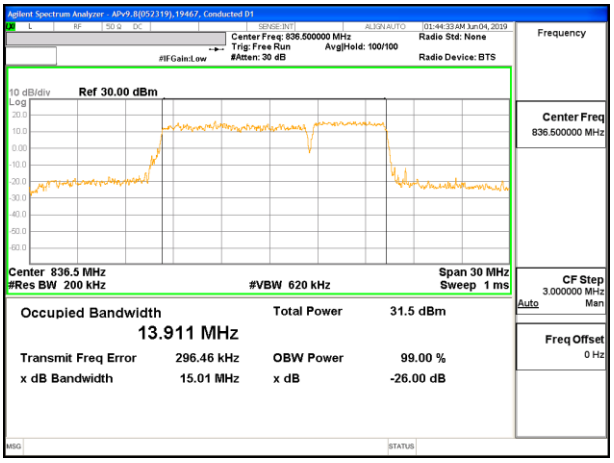
LTE B5 5MHz + 10MHz QPSK RB25-0 + RB50-0



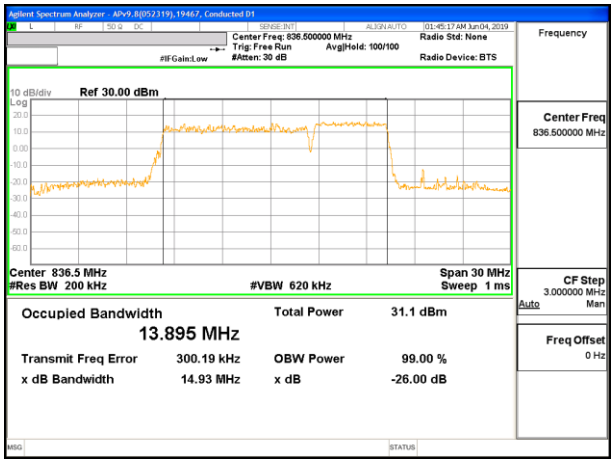
LTE B5 5MHz + 10MHz 16QAM RB25-0 + RB50-0



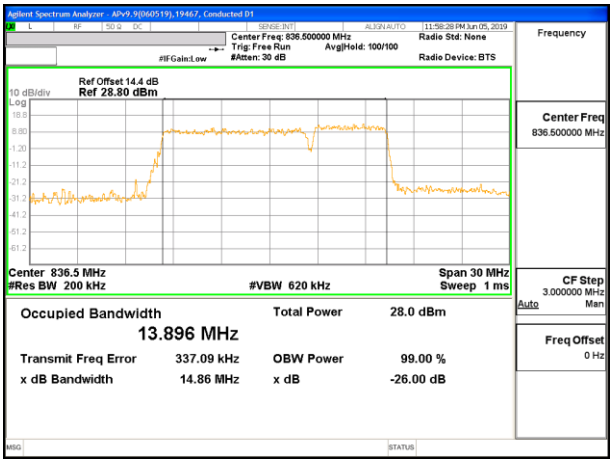
B5 5MHz + 10MHz 64QAM RB25-0 + RB50-0



LTE B5 10MHz + 5MHz QPSK RB50-0 + RB25-0



LTE B5 10MHz + 5MHz 16QAM RB50-0 + RB25-0



LTE B5 10MHz + 5MHz 64QAM RB50-0 + RB25-0

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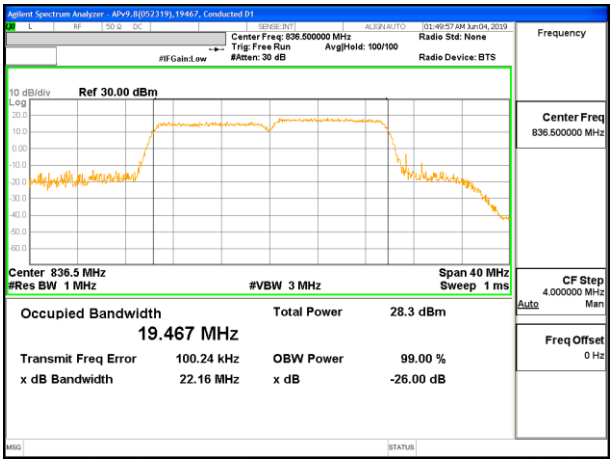
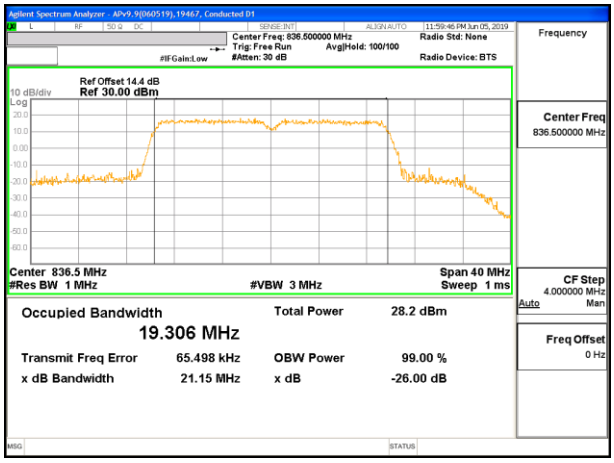
LTE B5 10MHz + 10MHz QPSK RB50-0 + RB50-0



LTE B5 10MHz + 10MHz QPSK RB50-0 + RB50-0



LTE B5 10MHz + 10MHz 64QAM RB50-0 + RB50-0

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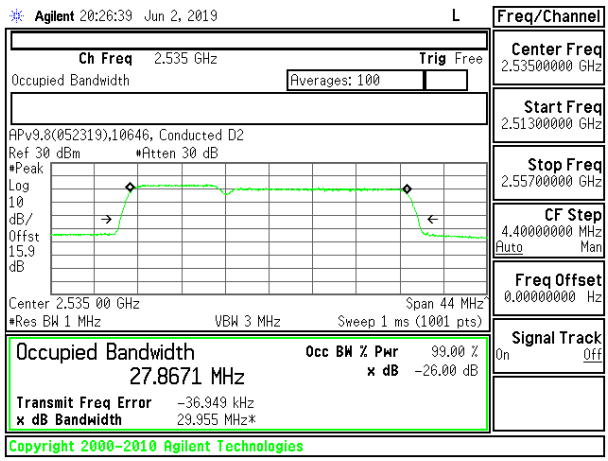
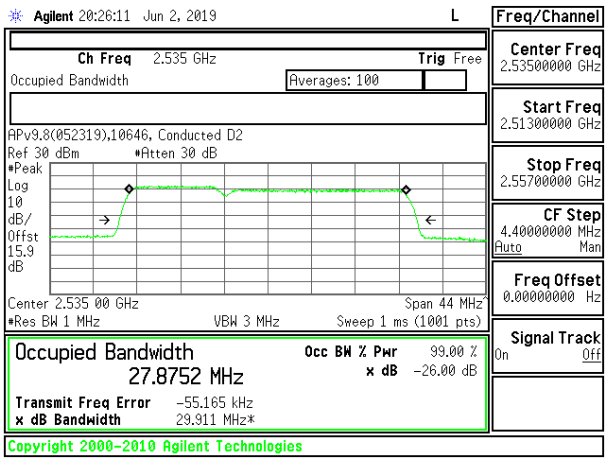
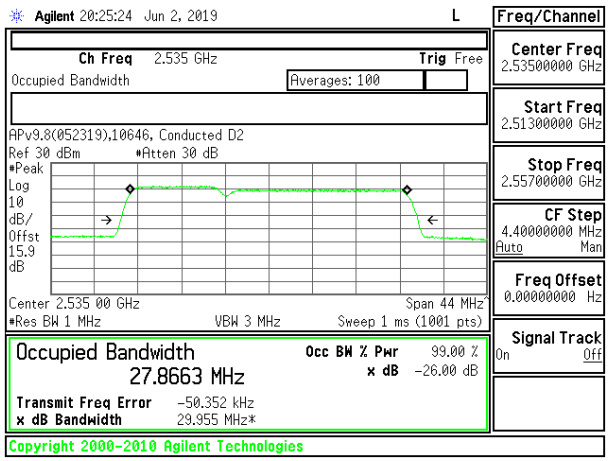
8.1.2. LTE BAND 7



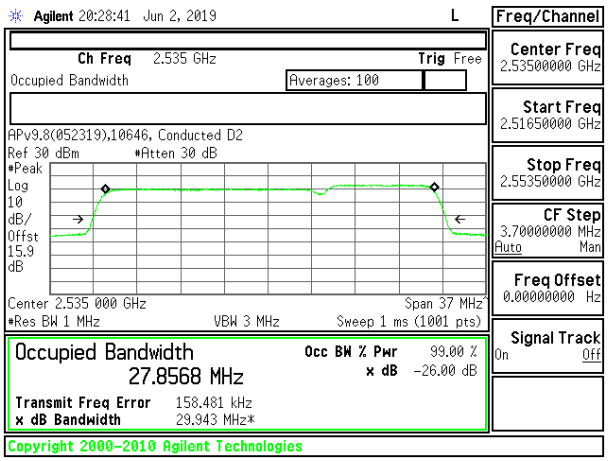
LTE B7 10MHz + 20MHz QPSK RB50-0 + RB100-0



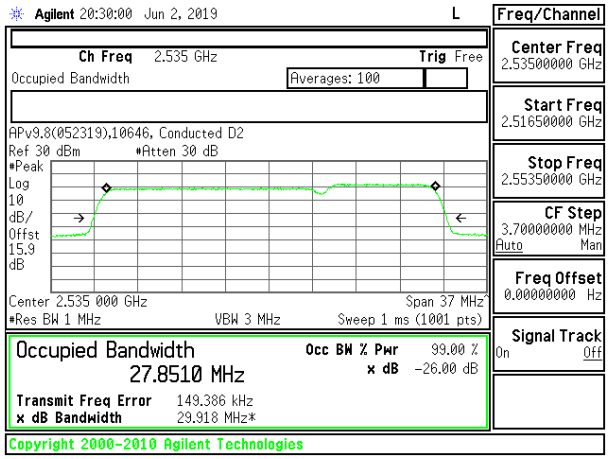
LTE B7 10MHz + 20MHz 16QAM RB50-0 + RB100-0



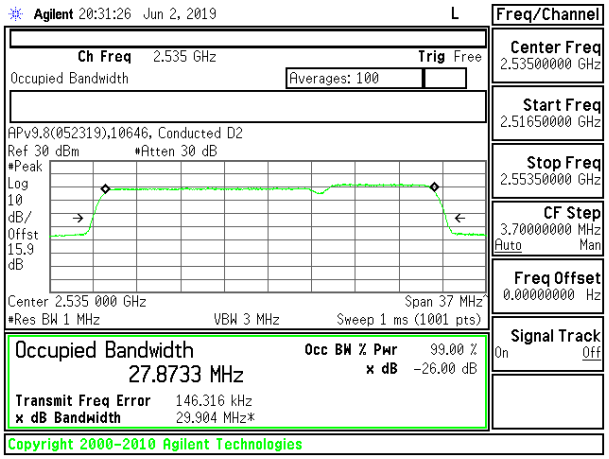
LTE B7 10MHz + 20MHz 64QAM RB50-0 + RB100-0



LTE B7 20MHz + 10MHz QPSK RB100-0 + RB50-0



LTE B7 20MHz + 10MHz 16QAM RB100-0 + RB50-0



LTE B7 20MHz + 10MHz 64QAM RB100-0 + RB50-0

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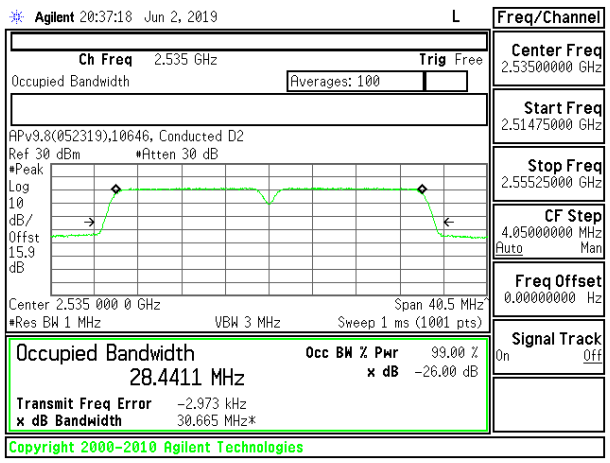
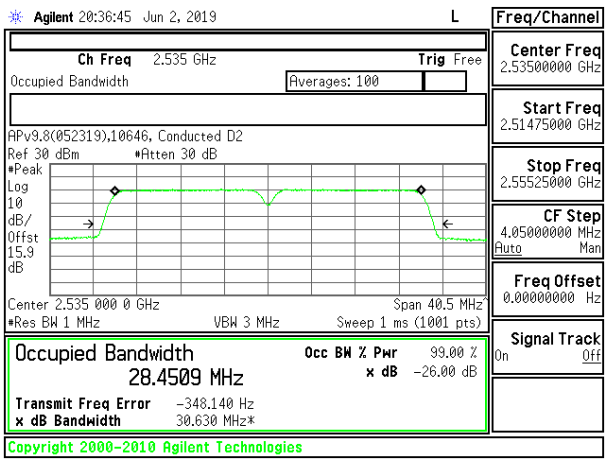
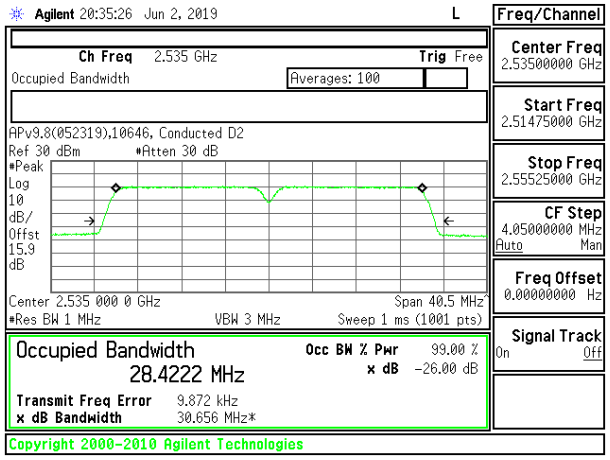


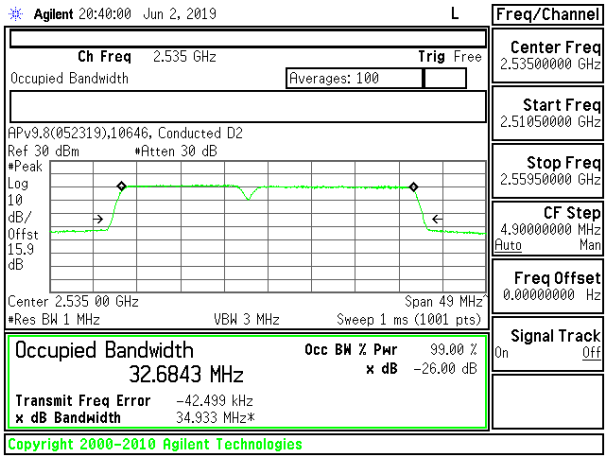
LTE B7 15MHz + 15MHz QPSK RB75-0 + RB75-0



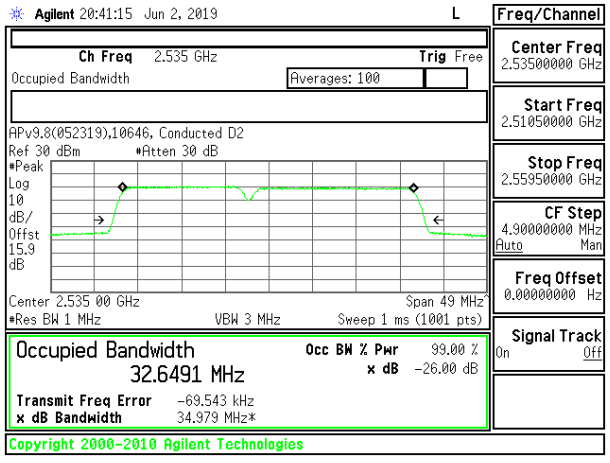
LTE B7 15MHz + 15MHz 16QAM RB75-0 + RB75-0



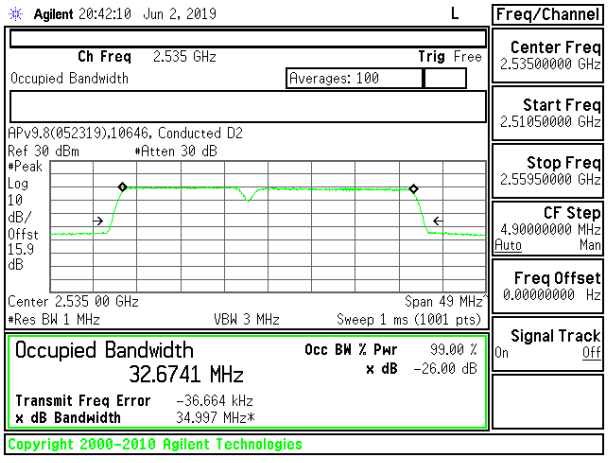
LTE B7 15MHz + 15MHz 64QAM RB75-0 + RB75-0



LTE B7 15MHz + 20MHz QPSK RB75-0 + RB100-0



LTE B7 15MHz + 20MHz 16QAM RB75-0 + RB100-0



LTE B7 15MHz + 20MHz 64QAM RB75-0 + RB100-0

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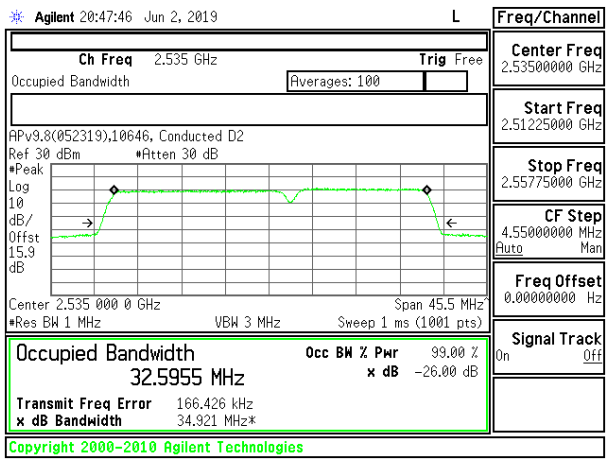
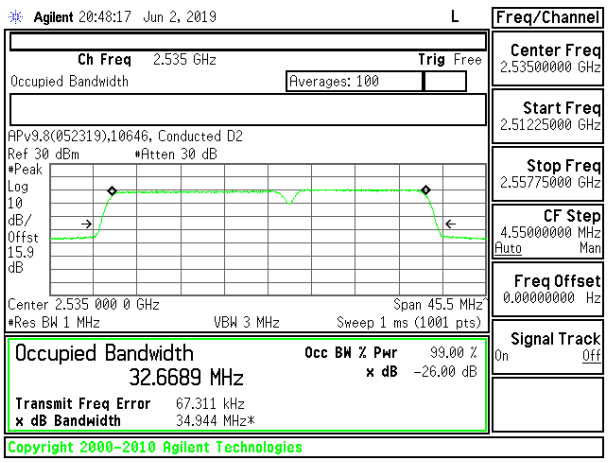
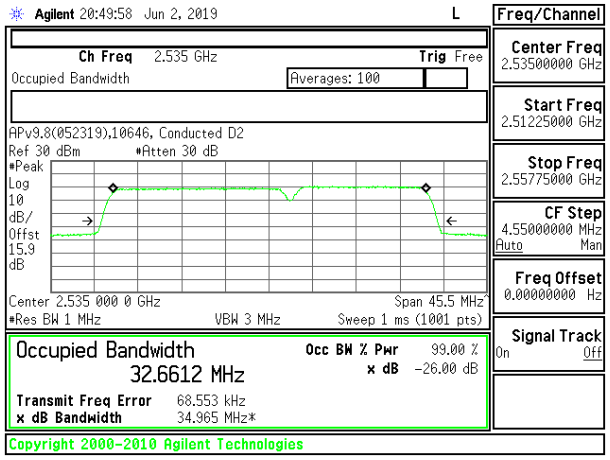


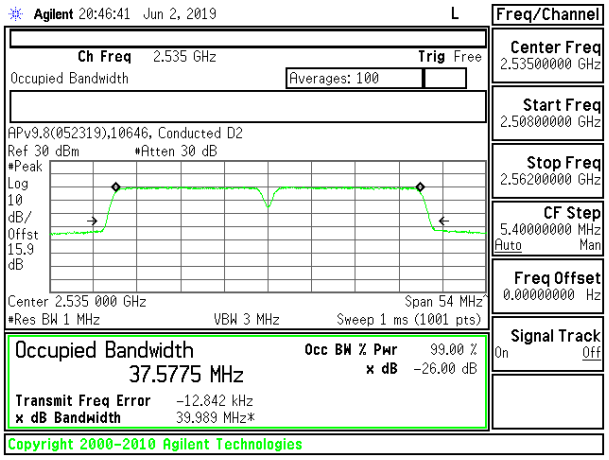
LTE B7 20MHz + 15MHz QPSK RB100-0 + RB75-0



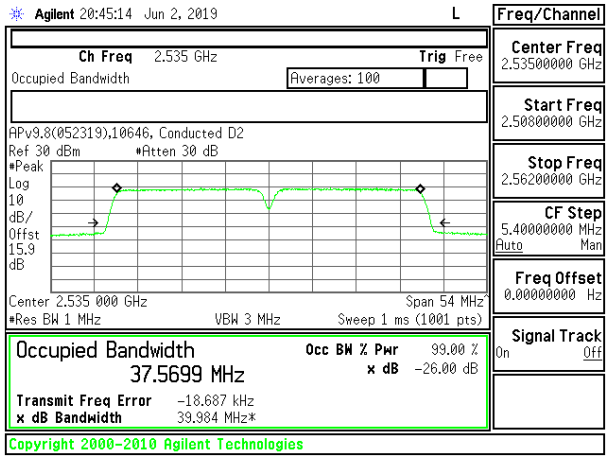
LTE B7 20MHz + 15MHz 16QAM RB100-0 + RB75-0



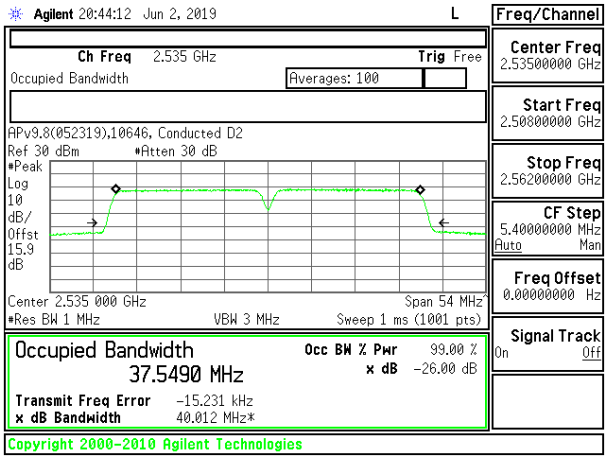
LTE B7 20MHz + 15MHz 64QAM RB100-0 + RB75-0



LTE B7 20MHz + 20MHz QPSK RB100-0 + RB100-0



LTE B7 20MHz + 20MHz 16QAM RB100-0 + RB100-0



LTE B7 20MHz + 20MHz 64QAM RB100-0 + RB100-0

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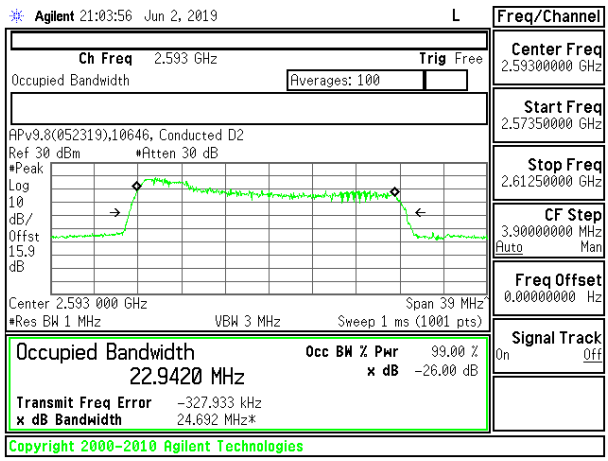
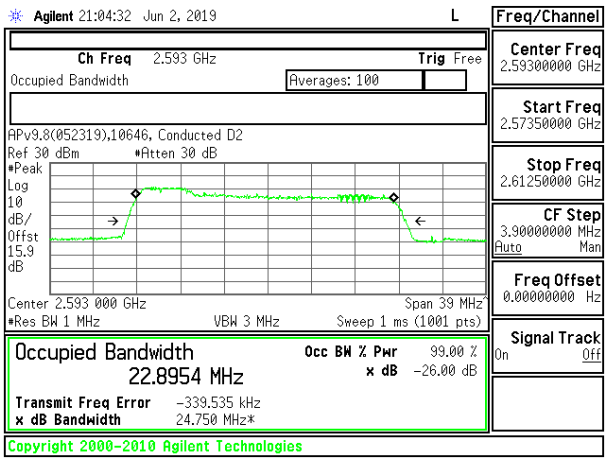
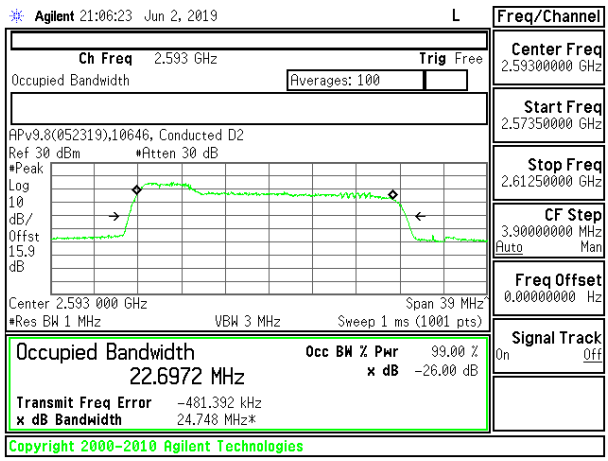
8.1.3. LTE BAND 41



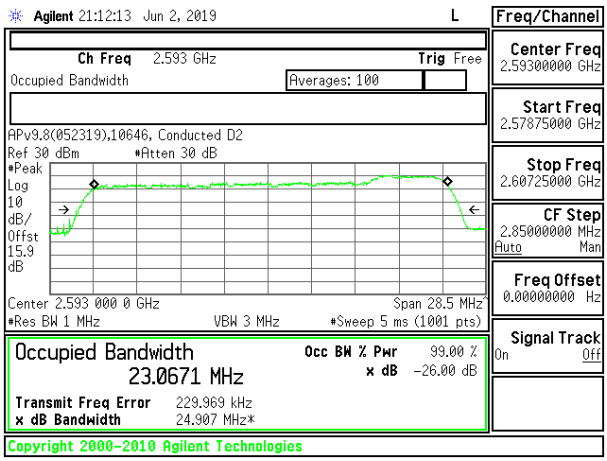
LTE B41 5MHz + 20MHz QPSK RB25-0 + RB100-0



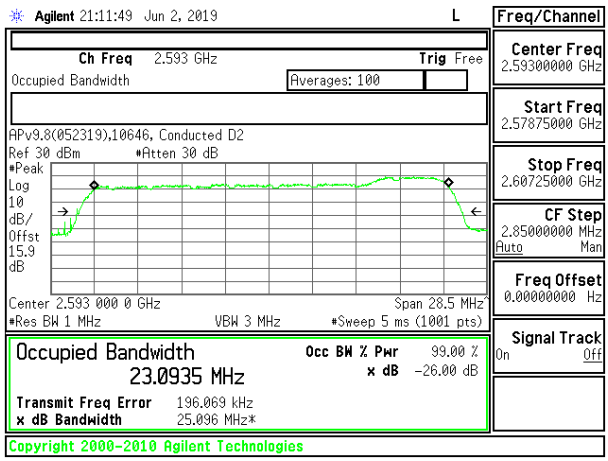
LTE B41 5MHz + 20MHz 16QAM RB25-0 + RB100-0



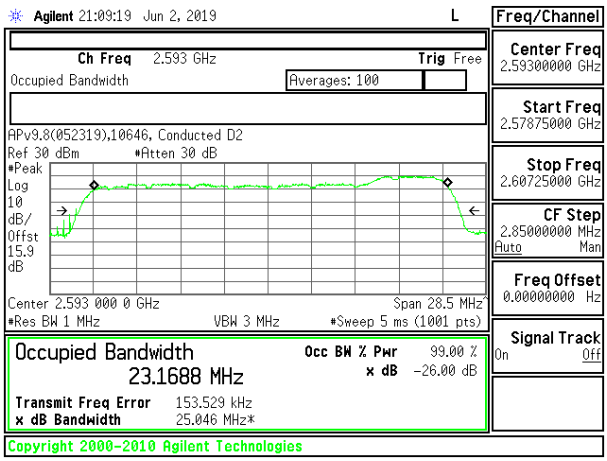
LTE B41 5MHz + 20MHz 64QAM RB25-0 + RB100-0



LTE B41 20MHz + 5MHz QPSK RB100-0 + RB25-0



LTE B41 20MHz + 5MHz 16QAM RB100-0 + RB25-0



LTE B41 20MHz + 5MHz 64QAM RB100-0 + RB25-0

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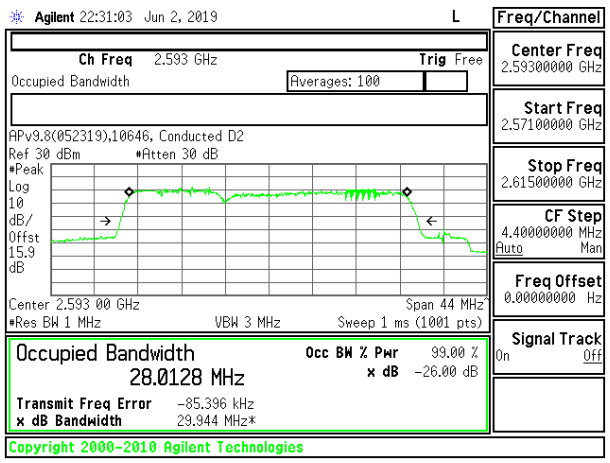
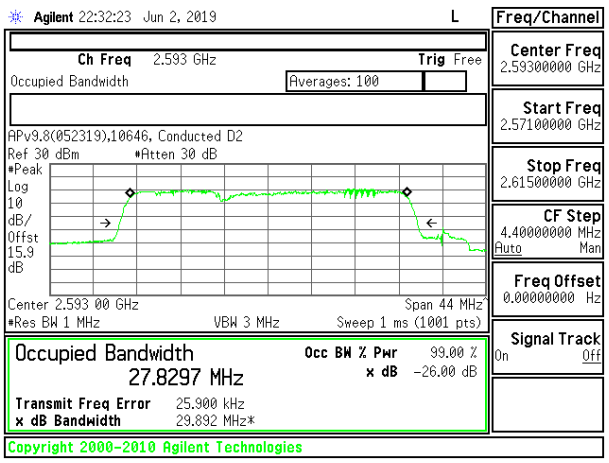
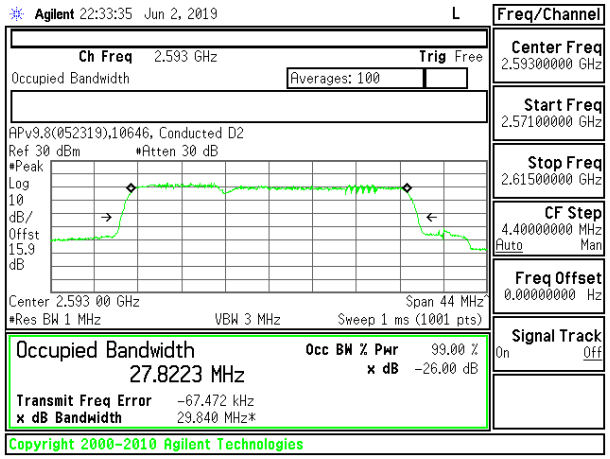


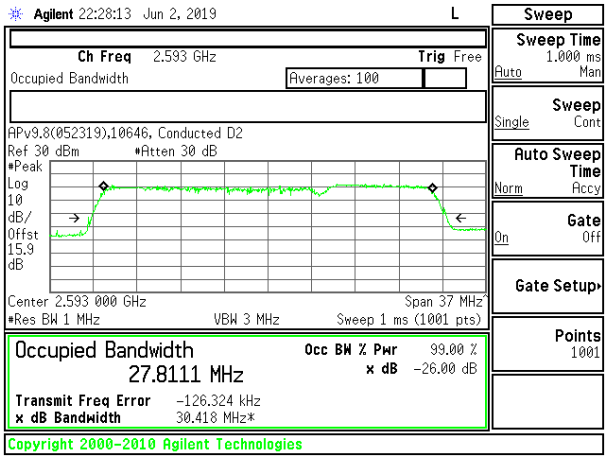
LTE B41 10MHz + 20MHz QPSK RB50-0 + RB100-0



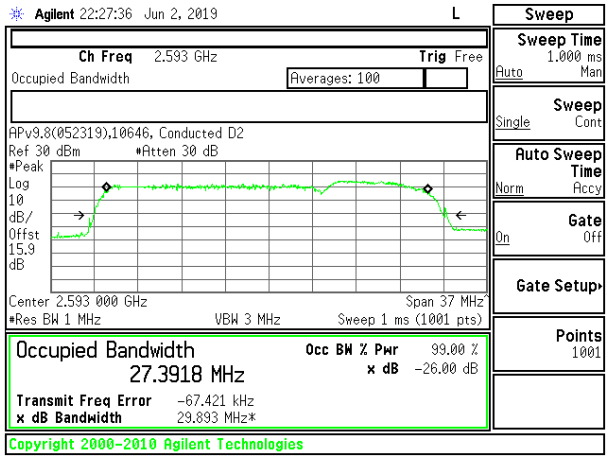
LTE B41 10MHz + 20MHz 16QAM RB50-0 + RB100-0



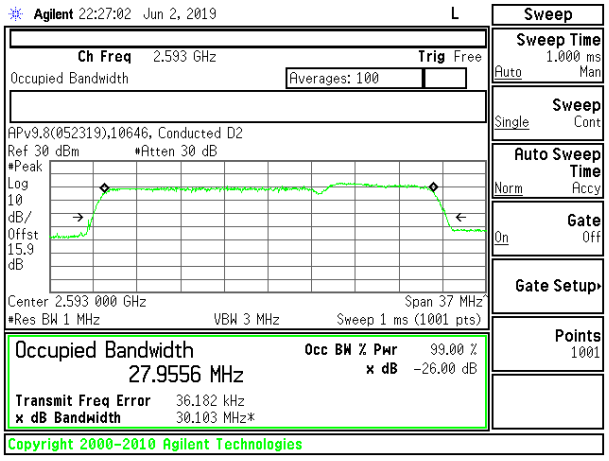
LTE B41 10MHz + 20MHz 64QAM RB50-0 + RB100-0



LTE B41 20MHz + 10MHz QPSK RB100-0 + RB50-0



LTE B41 20MHz + 10MHz 16QAM RB100-0 + RB50-0



LTE B41 20MHz + 10MHz 64QAM RB100-0 + RB50-0

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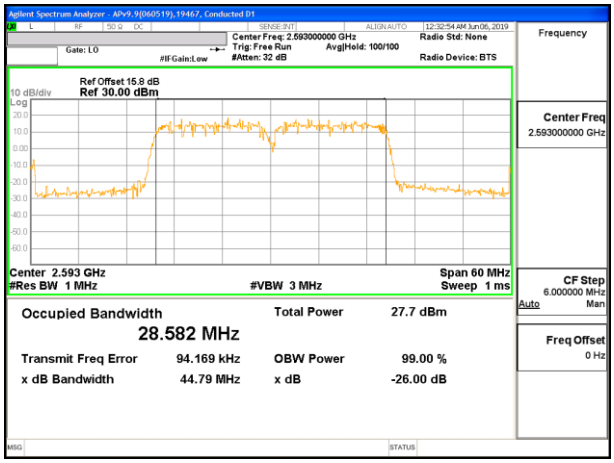
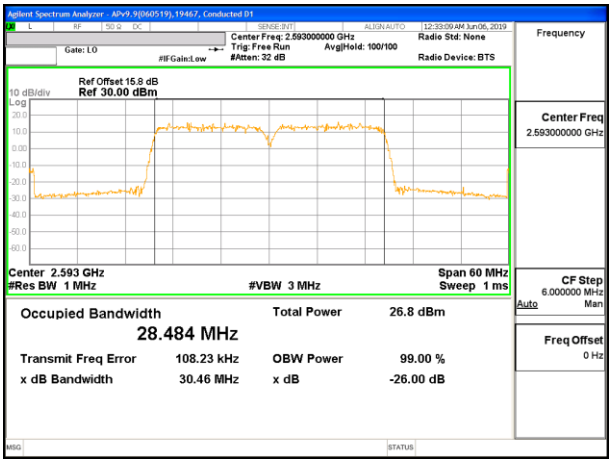
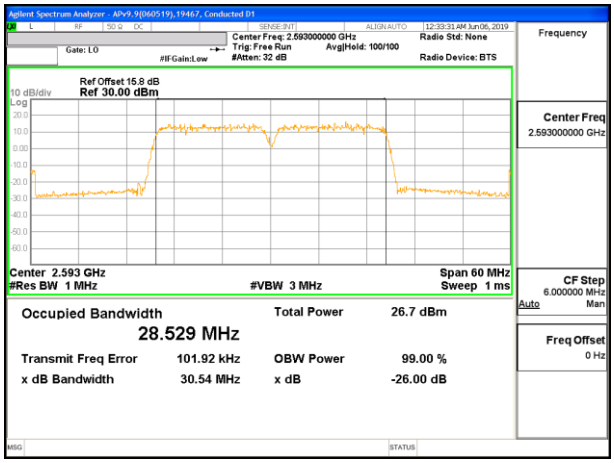


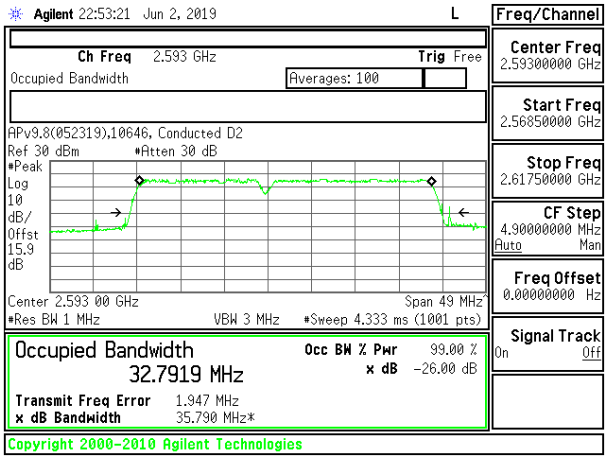
LTE B41 15MHz + 15MHz QPSK RB75-0 + RB75-0



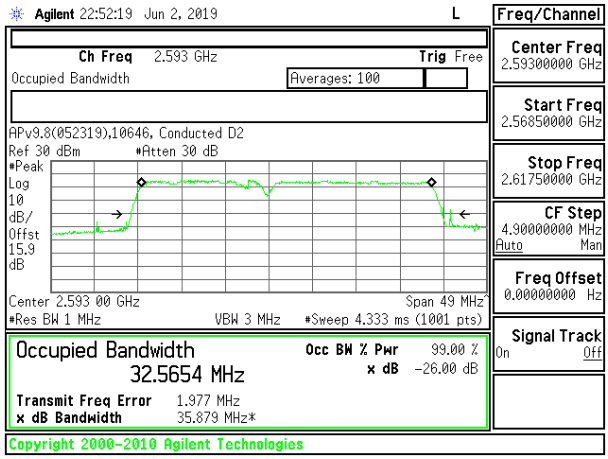
LTE B41 15MHz + 15MHz 16QAM RB75-0 + RB75-0



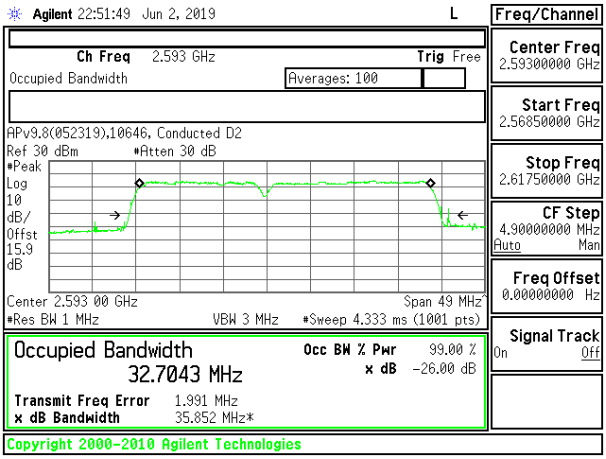
LTE B41 15MHz + 15MHz 64QAM RB75-0 + RB75-0



LTE B41 15MHz + 20MHz QPSK RB75-0 + RB100-0



LTE B41 15MHz + 20MHz 16QAM RB75-0 + RB100-0



LTE B41 15MHz + 20MHz 64QAM RB75-0 + RB100-0

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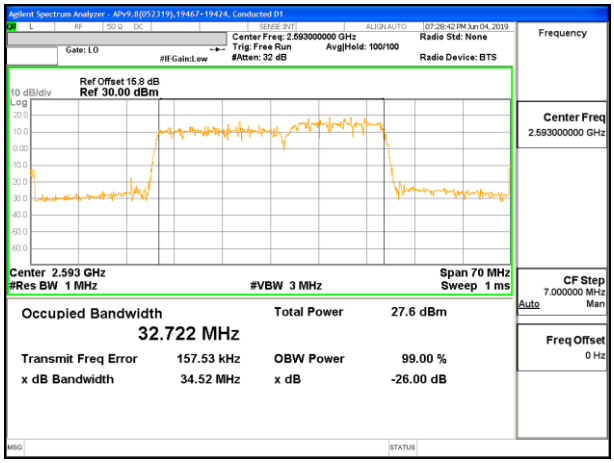
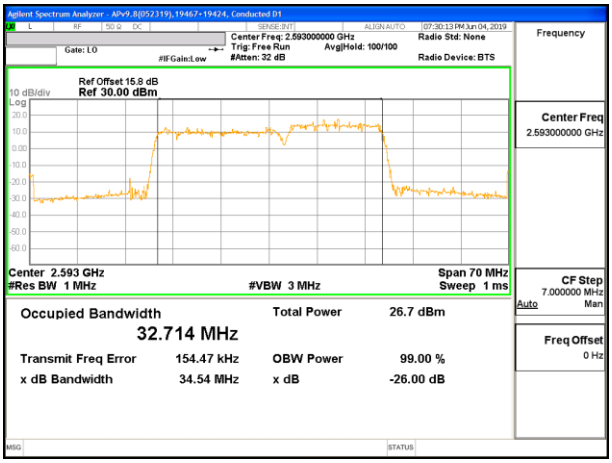
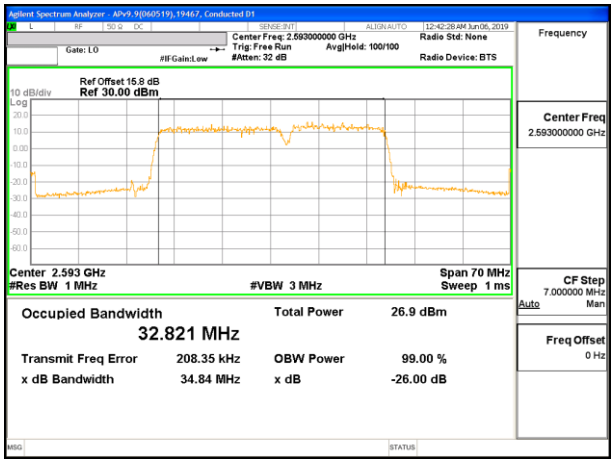


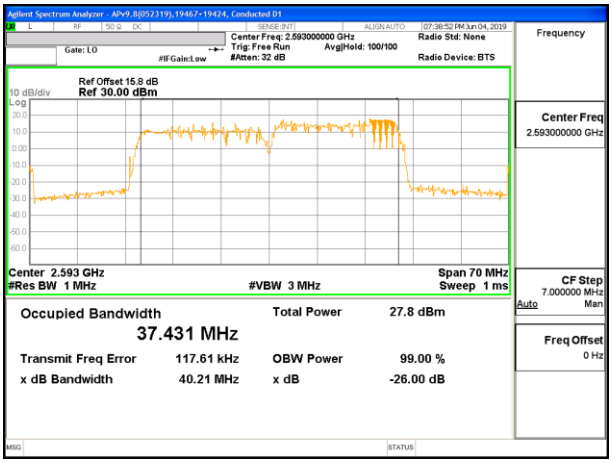
LTE B41 20MHz + 15MHz QPSK RB100-0 + RB75-0



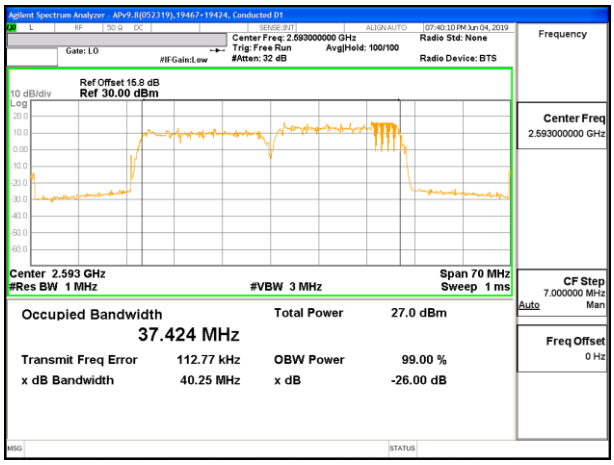
LTE B41 20MHz + 15MHz 16QAM RB100-0 + RB75-0



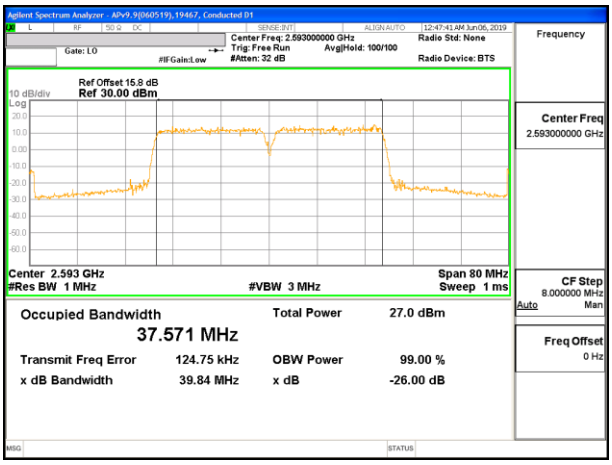
LTE B41 20MHz + 15MHz 64QAM RB100-0 + RB75-0



LTE B41 20MHz + 20MHz QPSK RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 16QAM RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 64QAM RB100-0 + RB100-0

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8.2. BAND EDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.917, and §27.53

LIMITS

FCC: §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.

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

TEST PROCEDURE FOR FCC PART 27

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

Set resolution bandwidth to at least 1% of emission bandwidth.

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

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MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

RESULTS

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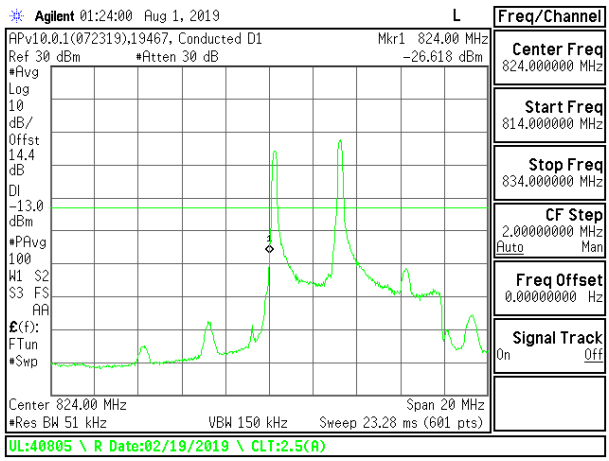
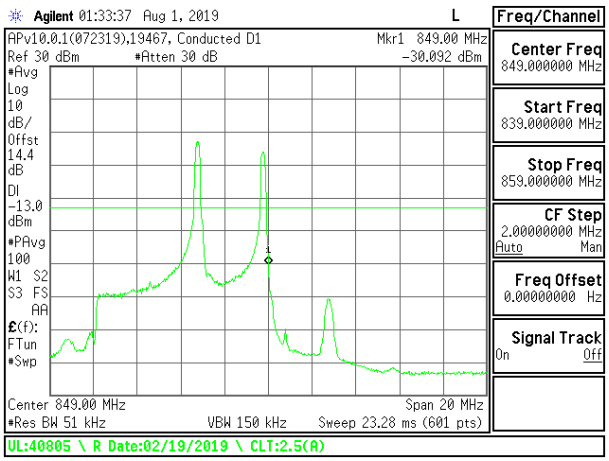
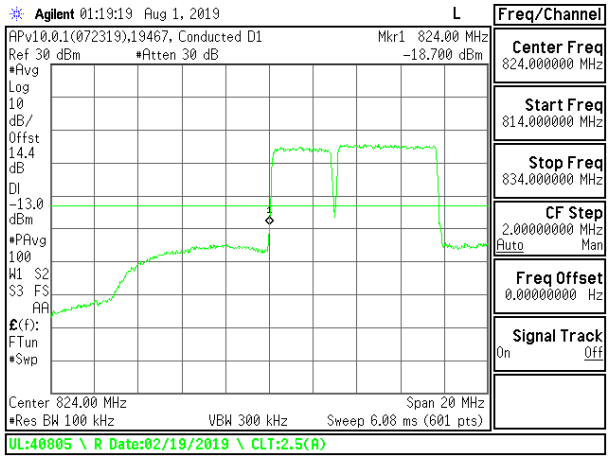
8.2.1. LTE BAND 5



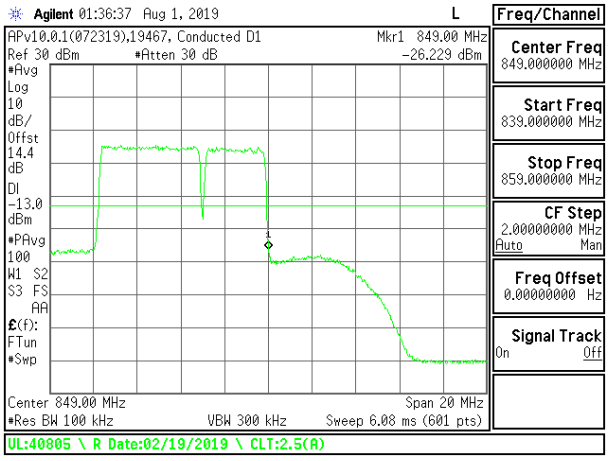
LTE B5 3MHz + 5MHz QPSK Low Ch RB1-0 + RB1-0



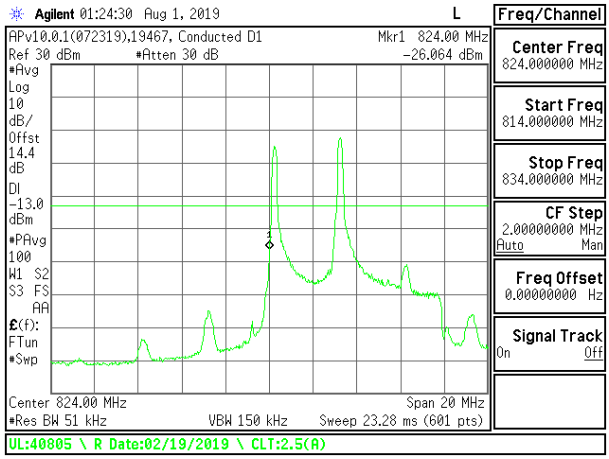
LTE B5 3MHz + 5MHz QPSK High Ch RB1-14 + RB1-24



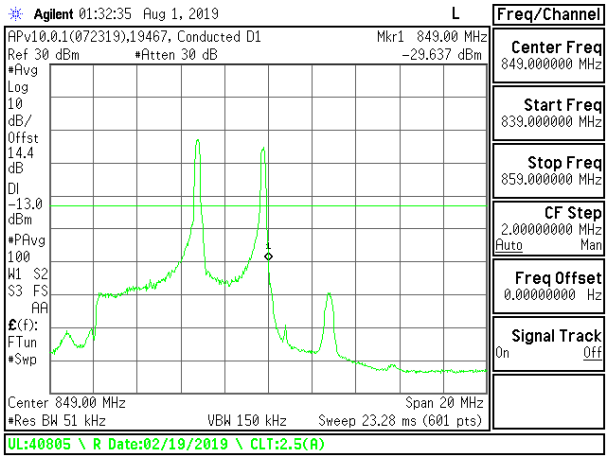
LTE B5 3MHz + 5MHz QPSK Low Ch RB25-0 + RB15-0



LTE B5 3MHz + 5MHz QPSK High Ch RB25-0 + RB15-0



LTE B5 3MHz + 5MHz 16QAM Low Ch RB1-0 + RB1-0



LTE B5 3MHz + 5MHz 16QAM High Ch RB1-14 + RB1-24

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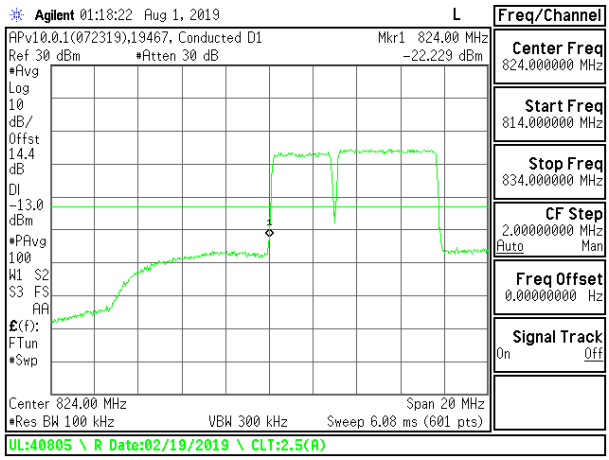
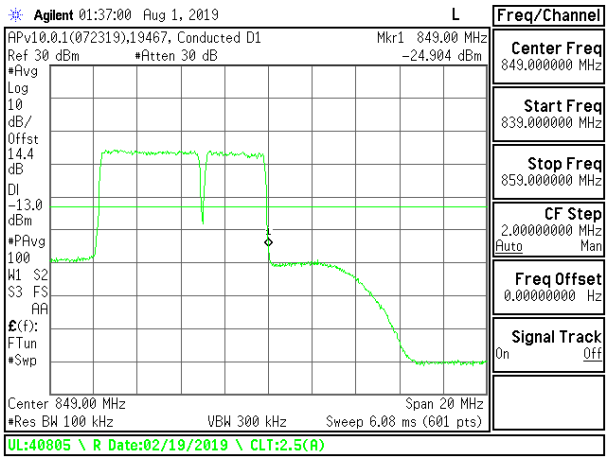
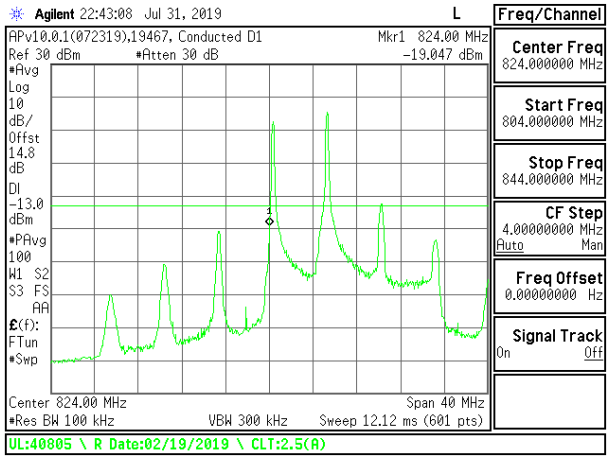


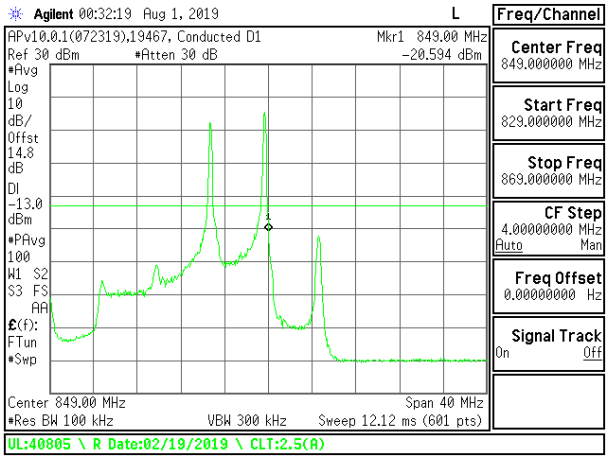
LTE B5 3MHz + 5MHz 16QAM Low Ch RB25-0 + RB15-0



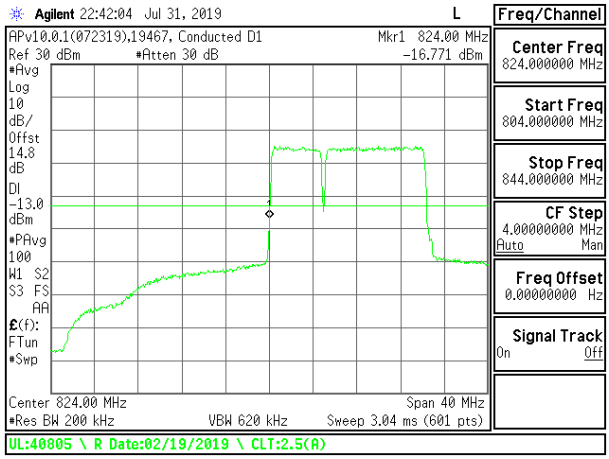
LTE B5 3MHz + 5MHz 16QAM High Ch RB25-0 + RB15-0



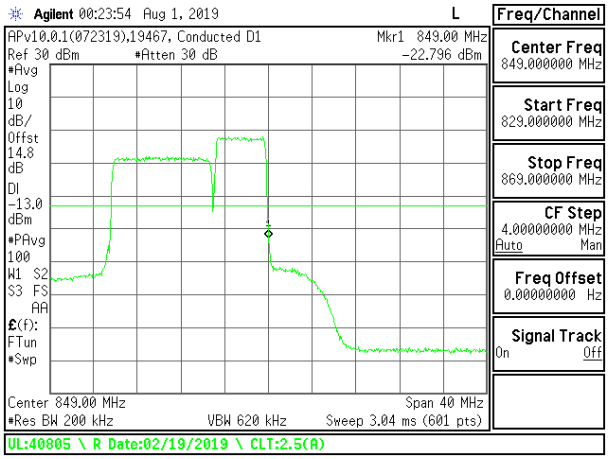
LTE B5 5MHz + 10MHz QPSK Low Ch RB1-0 + RB1-0



LTE B5 10MHz + 5MHz QPSK High Ch RB1-49 + RB1-24



LTE B5 5MHz + 10MHz QPSK Low Ch RB25-0 + RB50-0



LTE B5 10MHz + 5MHz QPSK High Ch RB50-0 + RB25-0

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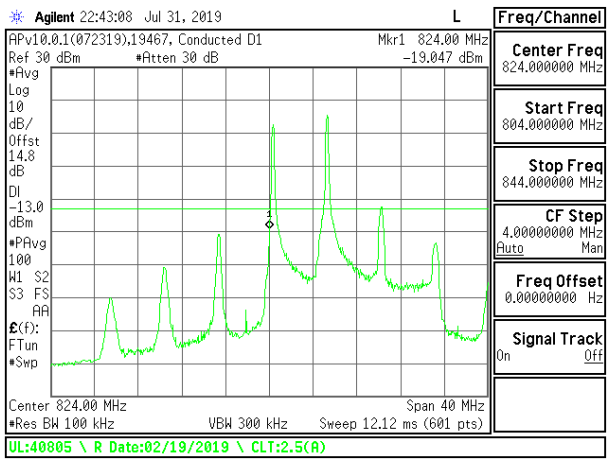
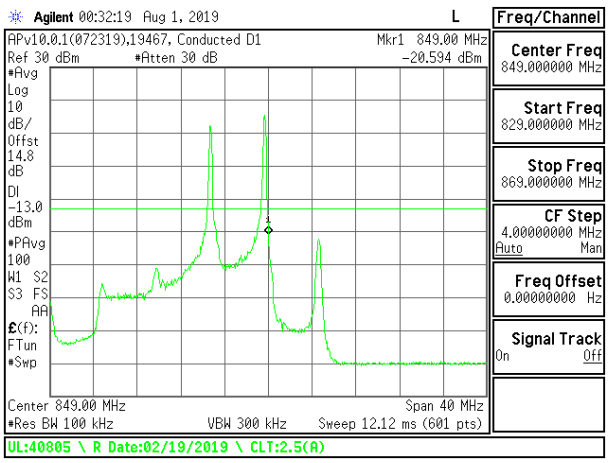
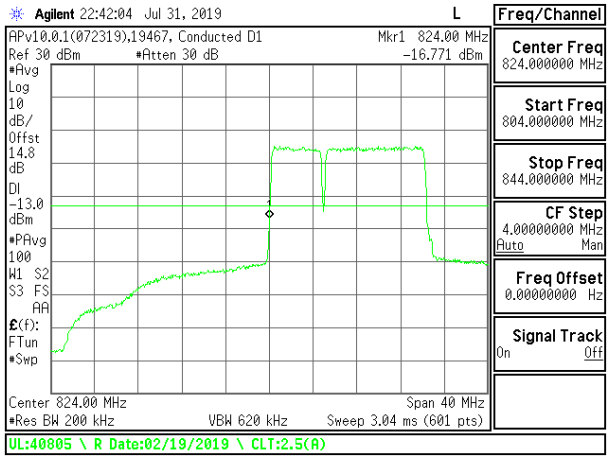


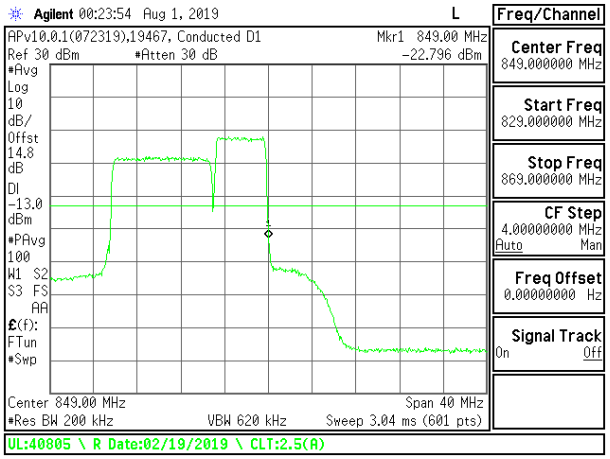
LTE B5 5MHz + 10MHz 16QAM Low Ch RB1-0 + RB1-0



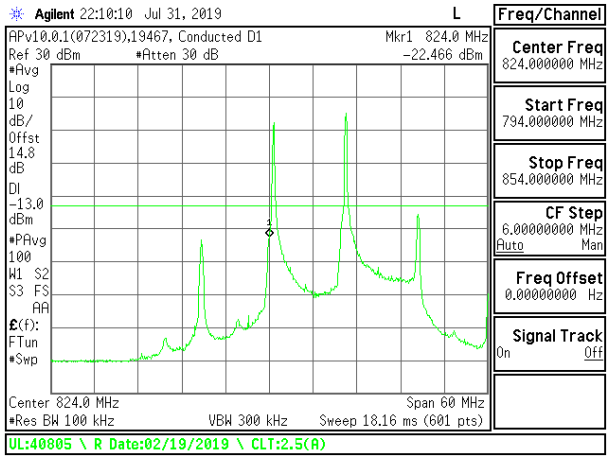
LTE B5 10MHz + 5MHz 16QAM High Ch RB1-49 + RB1-24



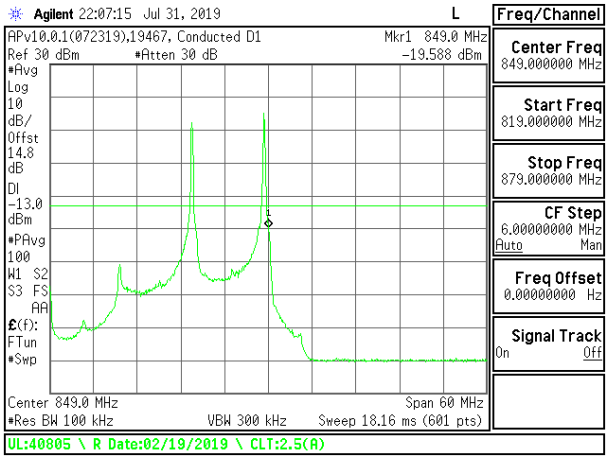
LTE B5 5MHz + 10MHz 16QAM Low Ch RB25-0 + RB50-0



LTE B5 10MHz + 5MHz 16QAM High Ch RB50-0 + RB25-0



LTE B5 10MHz + 10MHz QPSK Low Ch RB1-0 + RB1-0



LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-49

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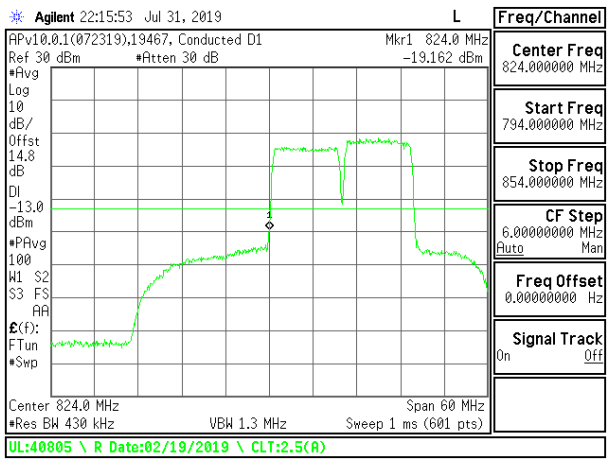
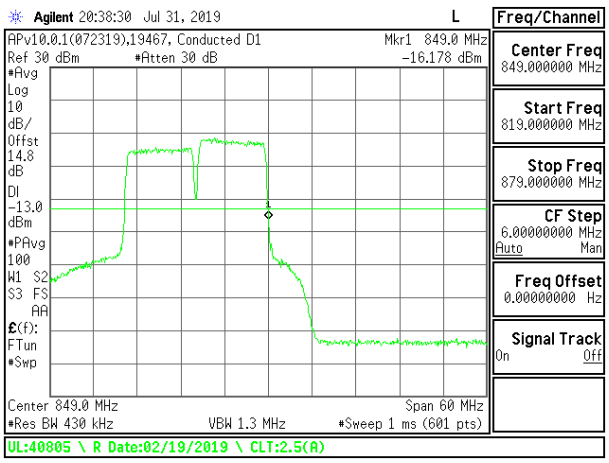


LTE B5 10MHz + 10MHz QPSK Low Ch RB50-0 + RB50-0



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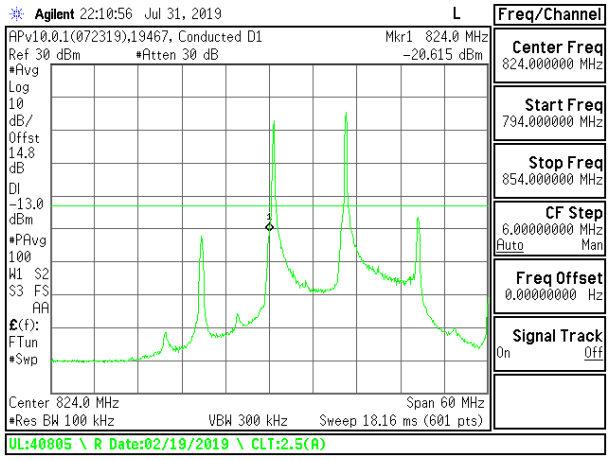
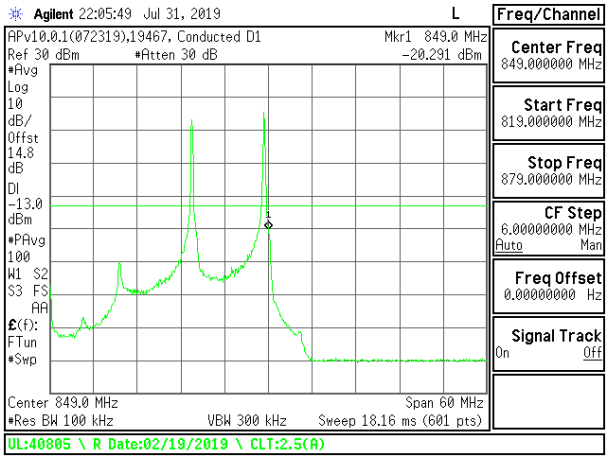
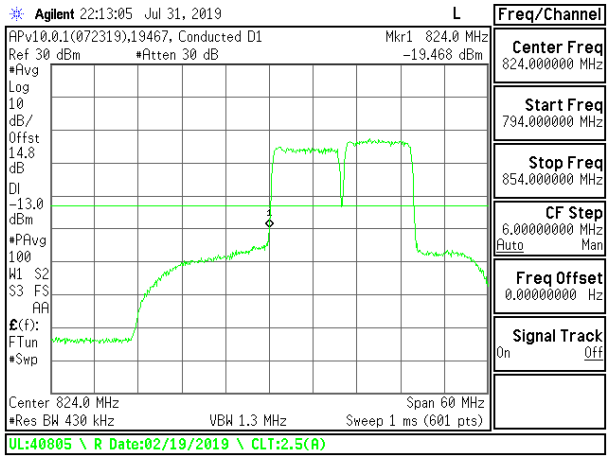


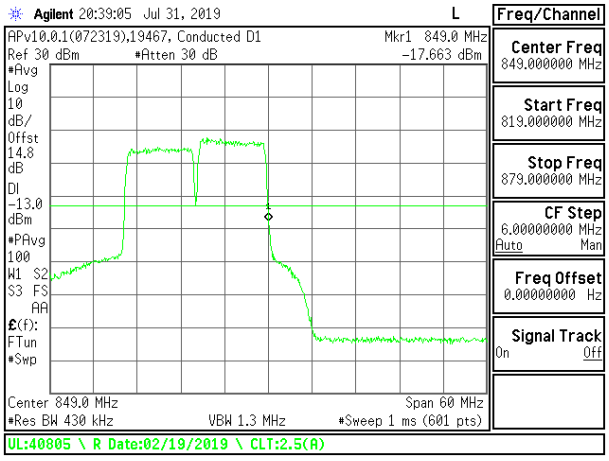
LTE B5 10MHz + 10MHz 16QAM Low Ch RB1-0 + RB1-0



LTE B5 10MHz + 10MHz 16QAM High Ch RB1-49 + RB1-49



LTE B5 10MHz + 10MHz 16QAM Low Ch RB50-0 + RB50-0



LTE B5 10MHz + 10MHz 16QAM High Ch RB50-0 + RB50-0

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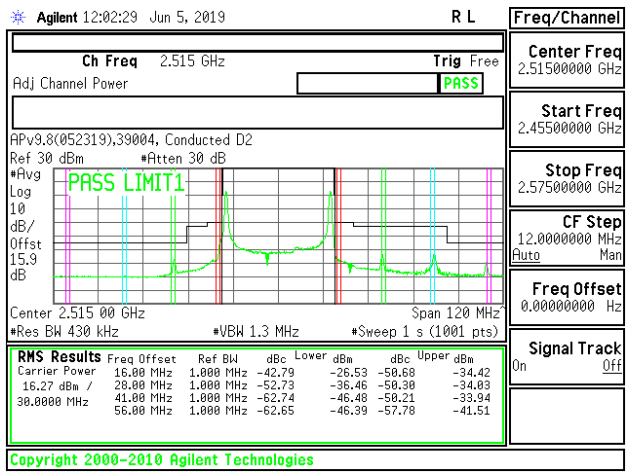
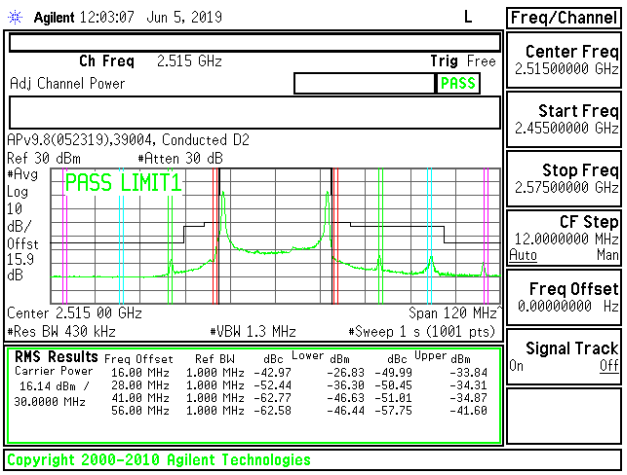
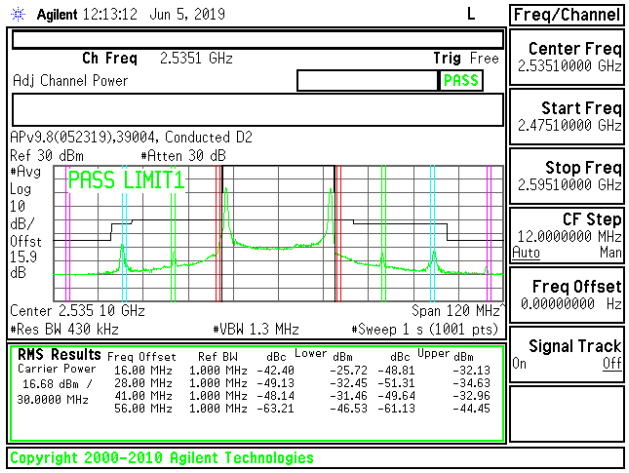
8.2.2. LTE BAND 7



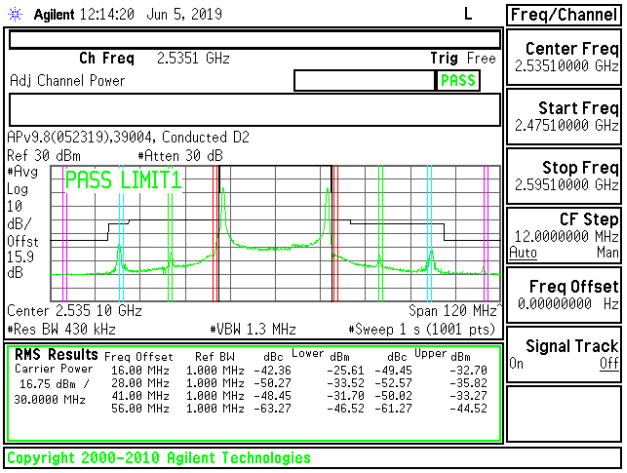
LTE B7 20MHz + 10MHz QPSK Low Ch RB1-0 + RB1-49



LTE B7 20MHz + 10MHz 16QAM Low Ch RB1-0 + RB1-49



LTE B7 20MHz + 10MHz QPSK Mid Ch RB1-0 + RB1-49



LTE B7 20MHz + 10MHz 16QAM Mid Ch RB1-0 + RB1-49

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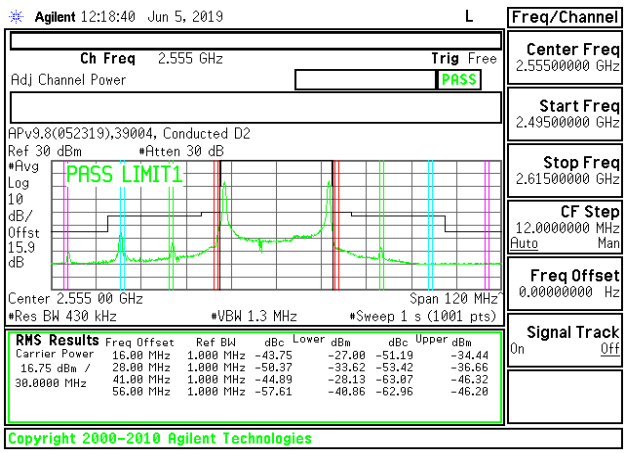
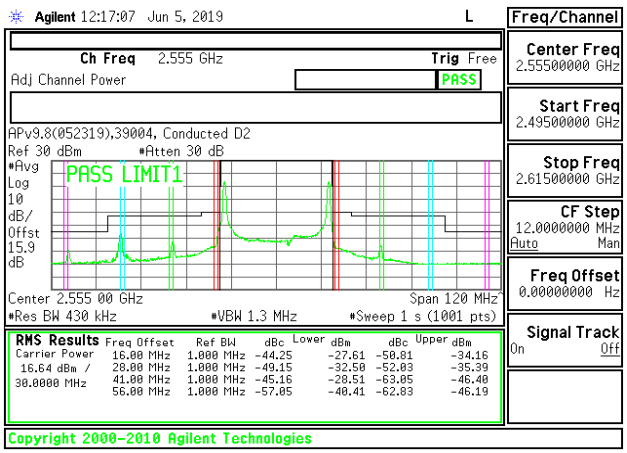
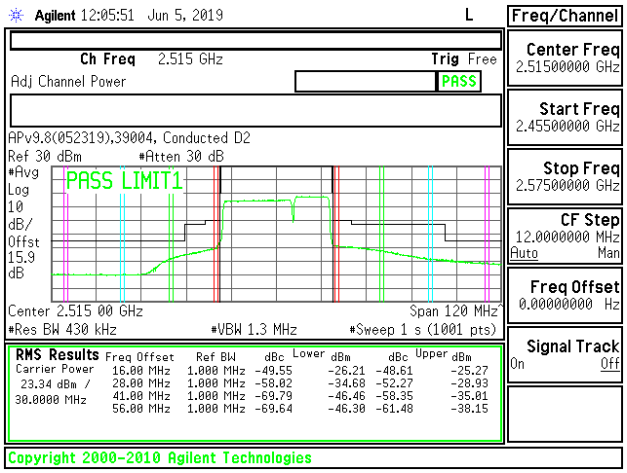


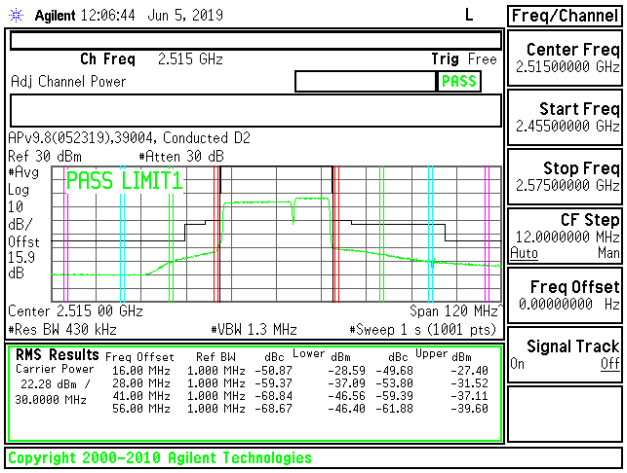
LTE B7 20MHz + 10MHz QPSK High Ch RB1-0 + RB1-49



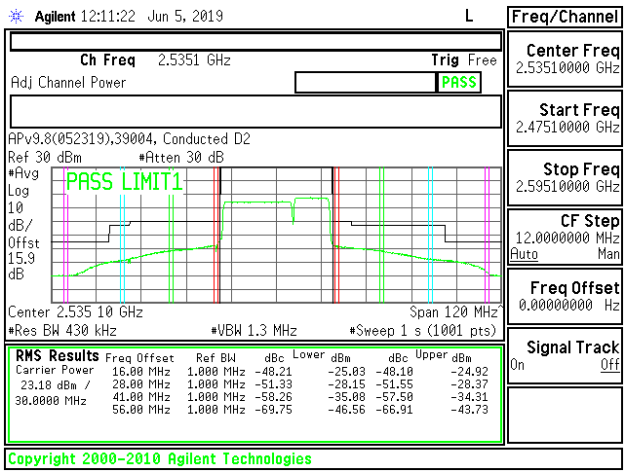
LTE B7 20MHz + 10MHz 16QAM High Ch RB1-0 + RB1-49



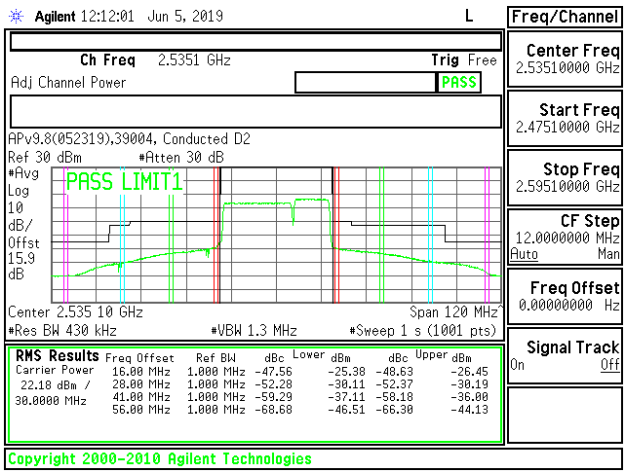
LTE B7 20MHz + 10MHz QPSK Low Ch RB100-0 + RB50-0



LTE B7 20MHz + 10MHz 16QAM Low Ch RB100-0 + RB50-0



LTE B7 20MHz + 10MHz QPSK Mid Ch RB100-0 + RB50-0



LTE B7 20MHz + 10MHz 16QAM Mid Ch RB100-0 + RB50-0

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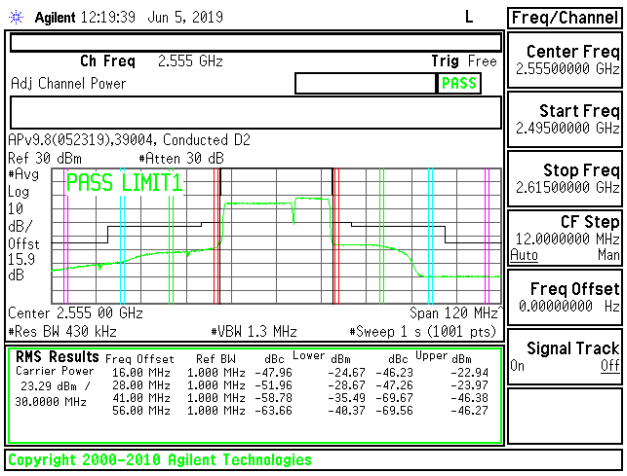
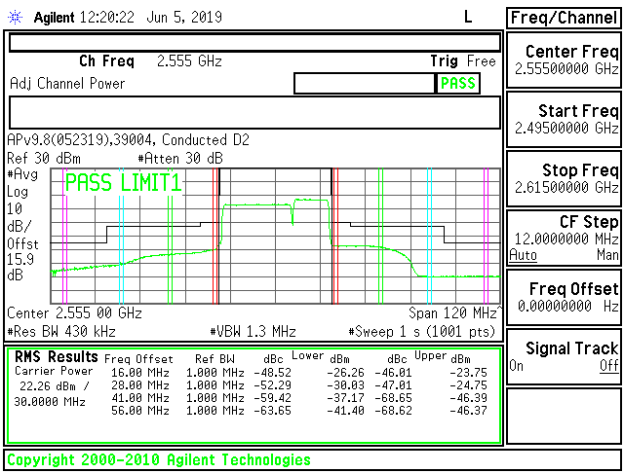


LTE B7 20MHz + 10MHz QPSK High Ch RB100-0 + RB50-0



LTE B7 20MHz + 10MHz 16QAM High Ch RB100-0 + RB50-0

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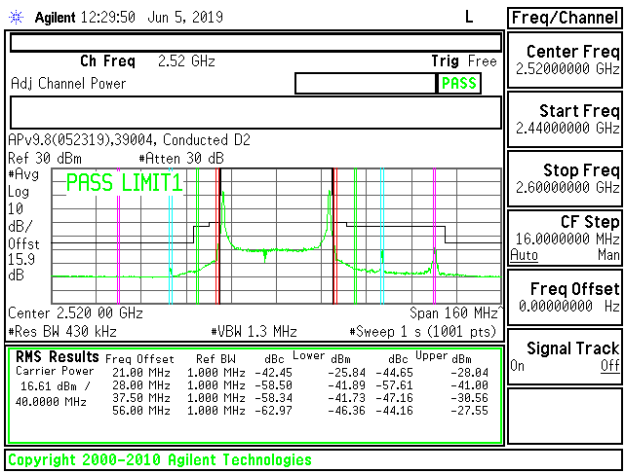
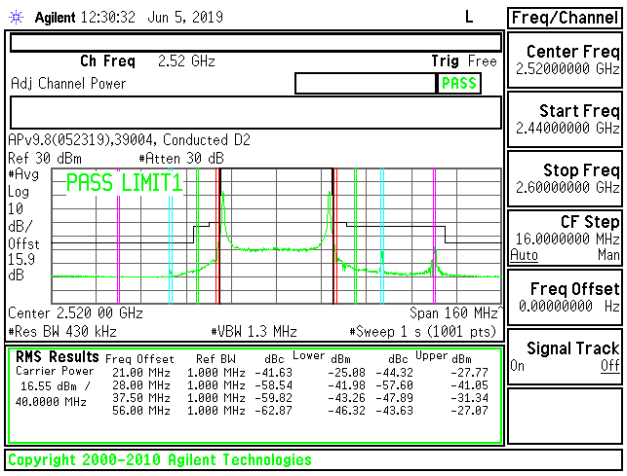
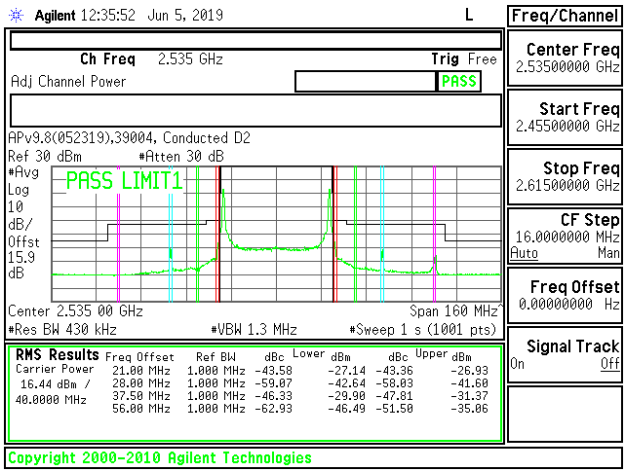


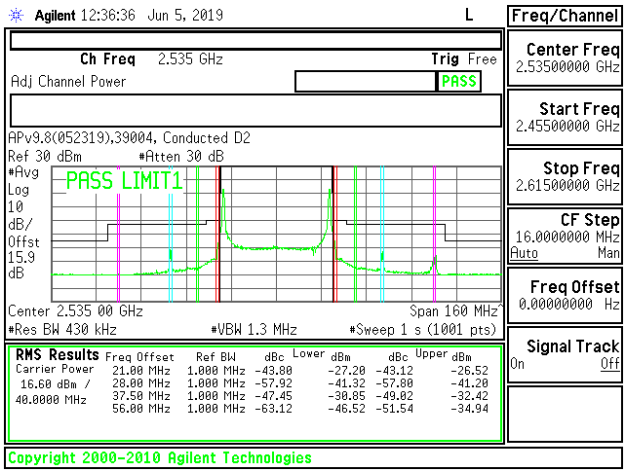
LTE B7 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



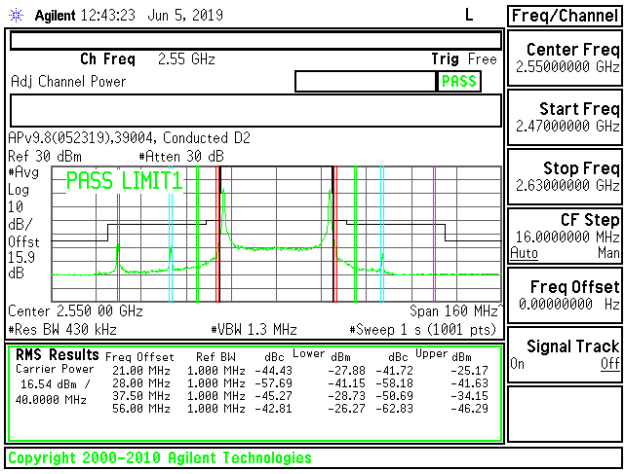
LTE B7 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



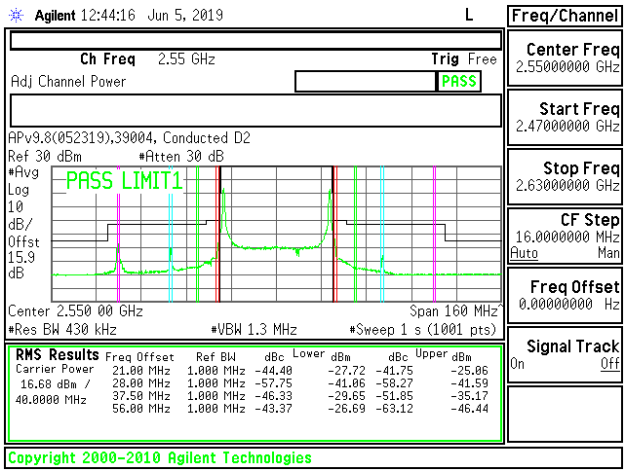
LTE B7 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



LTE B7 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



LTE B7 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



LTE B7 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99

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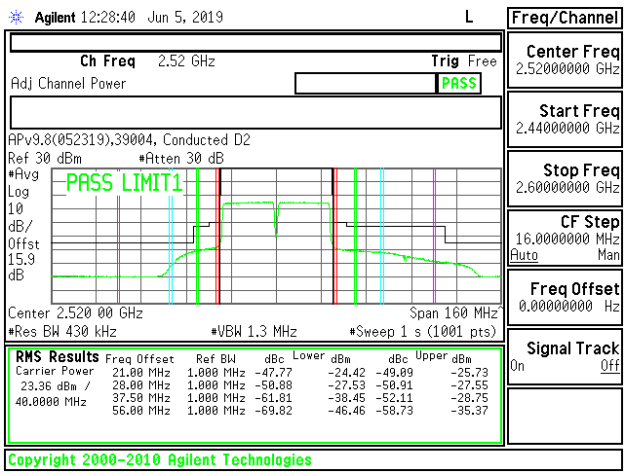
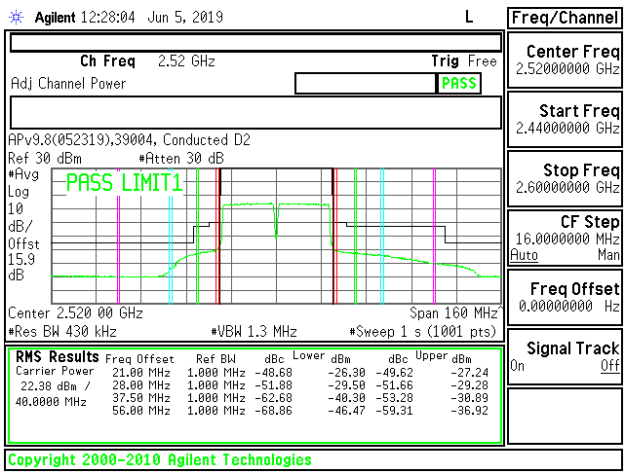
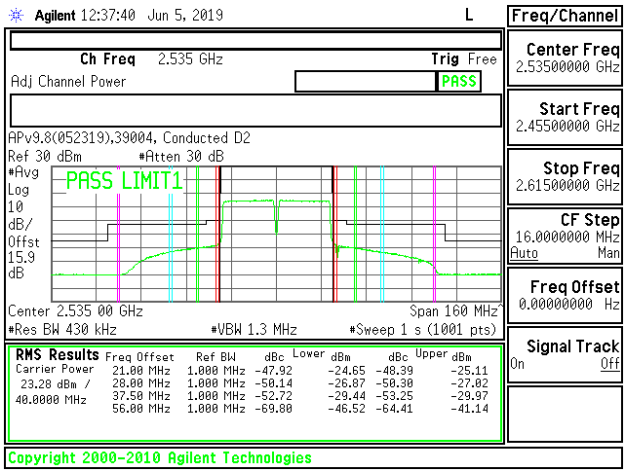


LTE B7 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



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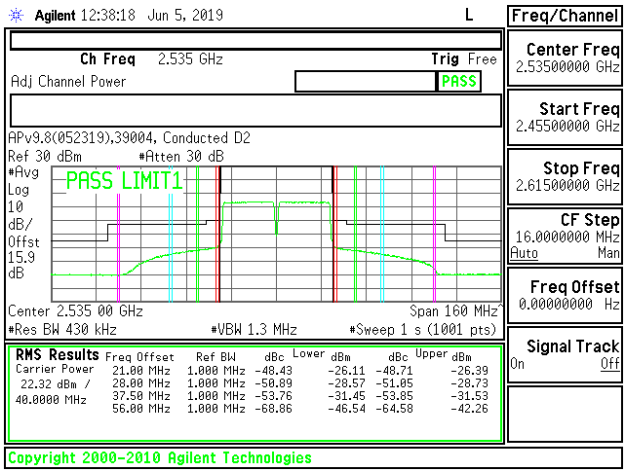
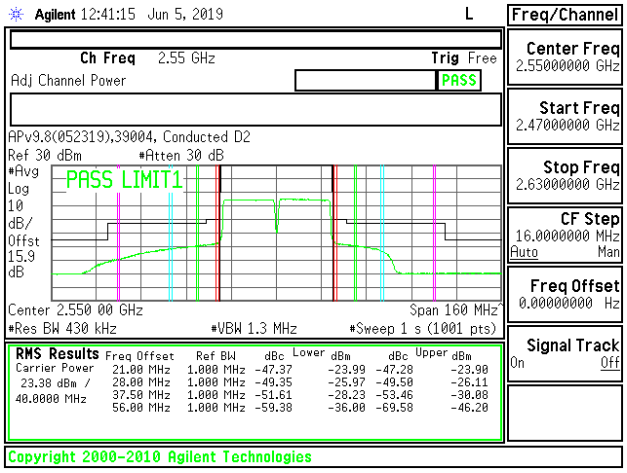
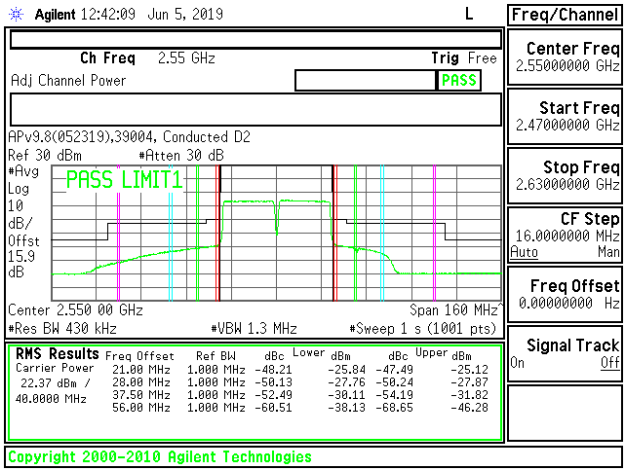


LTE B7 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0



LTE B7 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

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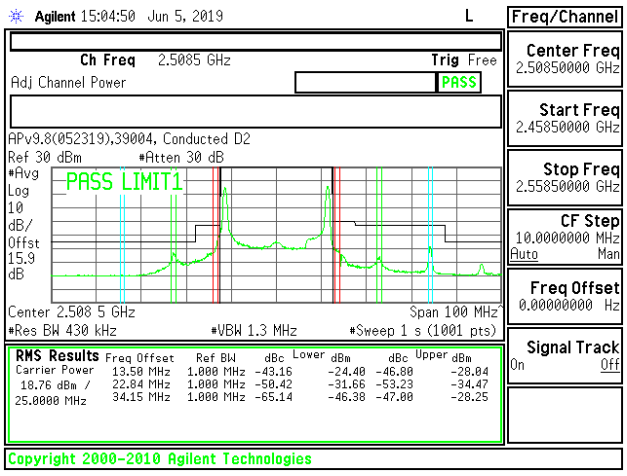
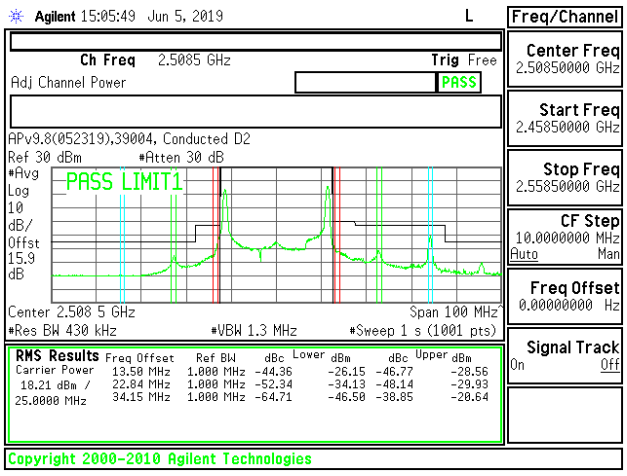
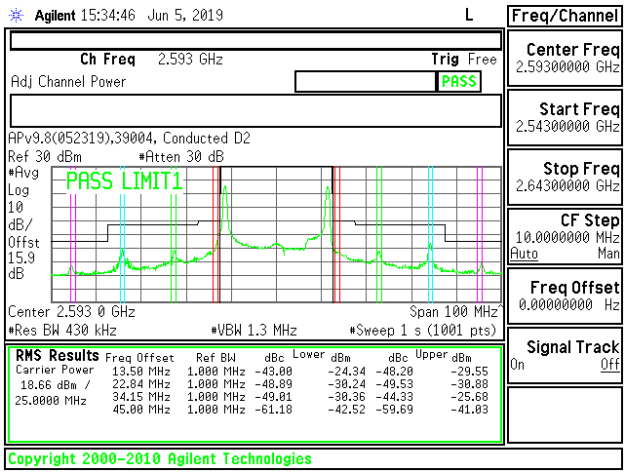
8.2.3. LTE BAND 41



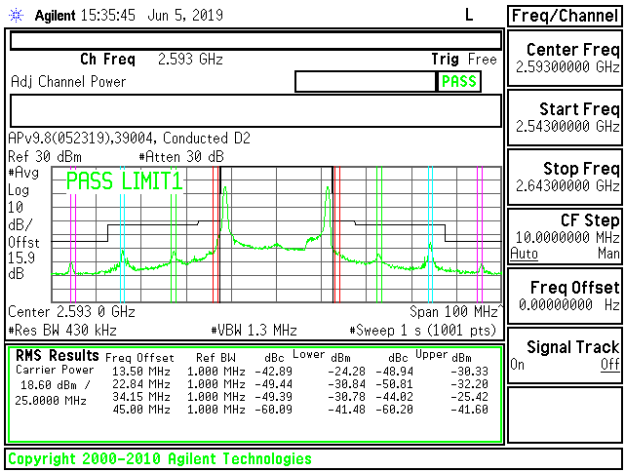
LTE B41 20MHz + 5MHz QPSK Low Ch RB1-0 + RB1-24



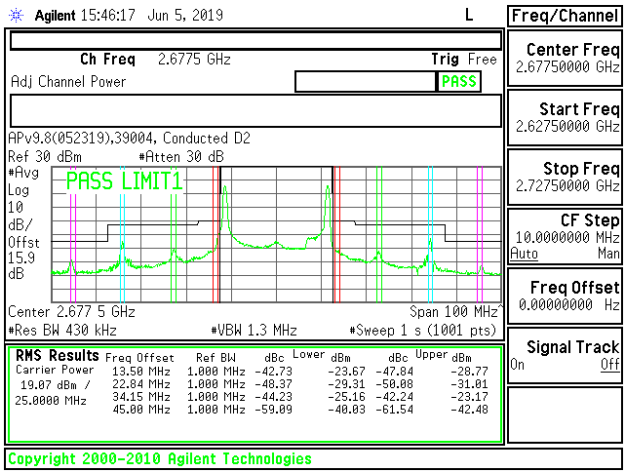
LTE B41 20MHz + 5MHz 16QAM Low Ch RB1-0 + RB1-24



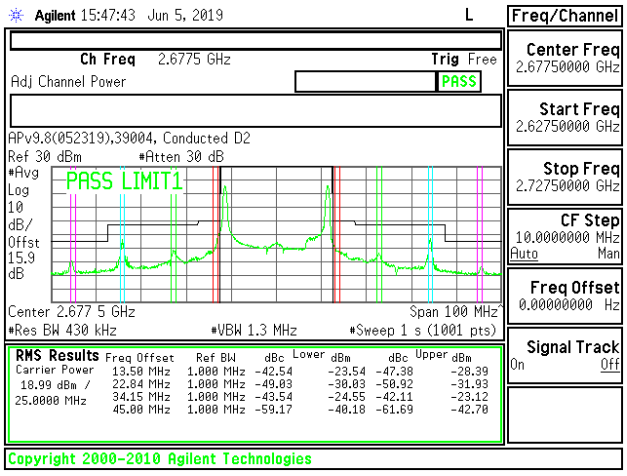
LTE B41 20MHz + 5MHz QPSK Mid Ch RB1-0 + RB1-24



LTE B41 20MHz + 5MHz 16QAM Mid Ch RB1-0 + RB1-24



LTE B41 20MHz + 5MHz QPSK High Ch RB1-0 + RB1-24



LTE B41 20MHz + 5MHz 16QAM High Ch RB1-0 + RB1-24

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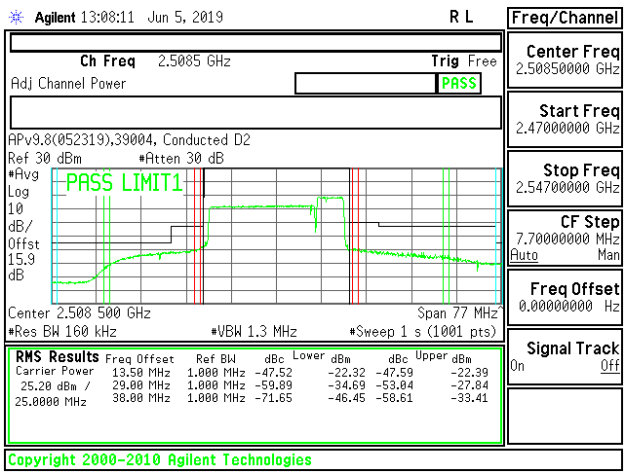
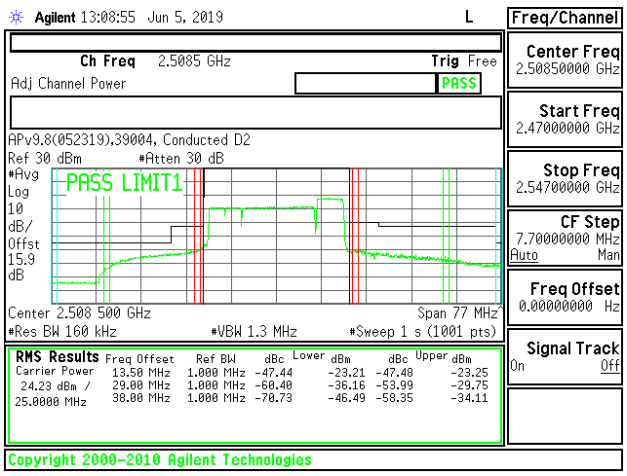
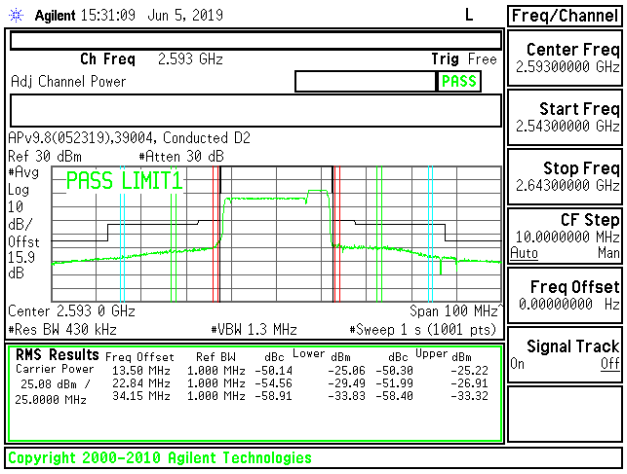


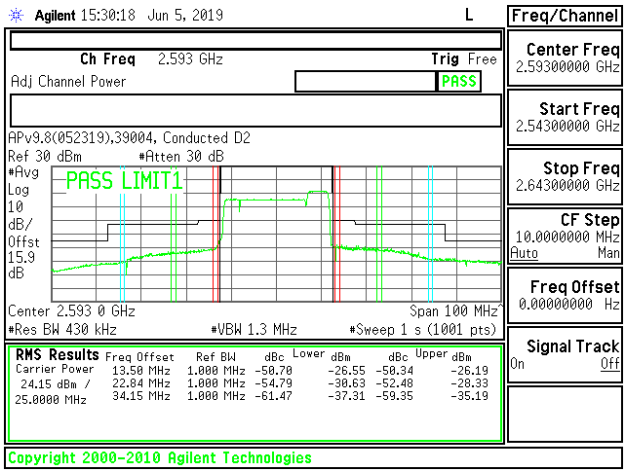
LTE B41 20MHz + 5MHz QPSK Low Ch RB100-0 + RB25-0



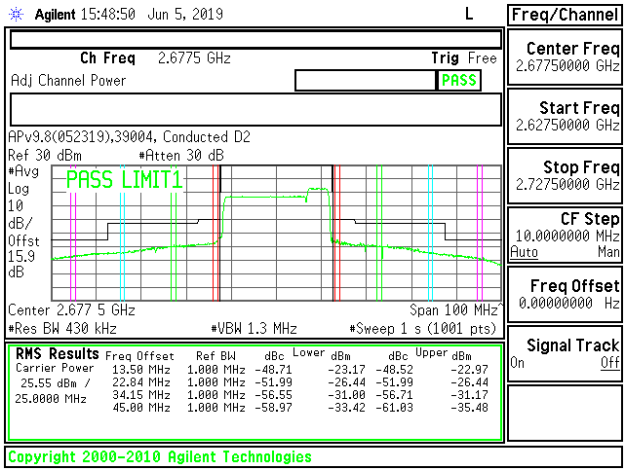
LTE B41 20MHz + 5MHz 16QAM Low Ch RB100-0 + RB25-0



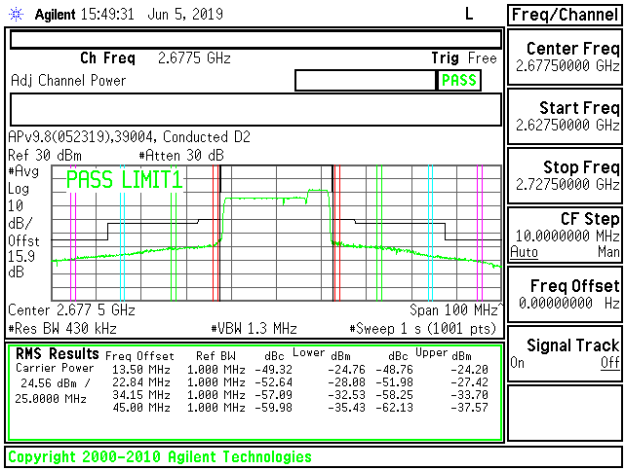
LTE B41 20MHz + 5MHz QPSK Mid Ch RB100-0 + RB25-0



LTE B41 20MHz + 5MHz 16QAM Mid Ch RB100-0 + RB25-0



LTE B41 20MHz + 5MHz QPSK High Ch RB100-0 + RB25-0



LTE B41 20MHz + 5MHz 16QAM High Ch RB100-0 + RB25-0

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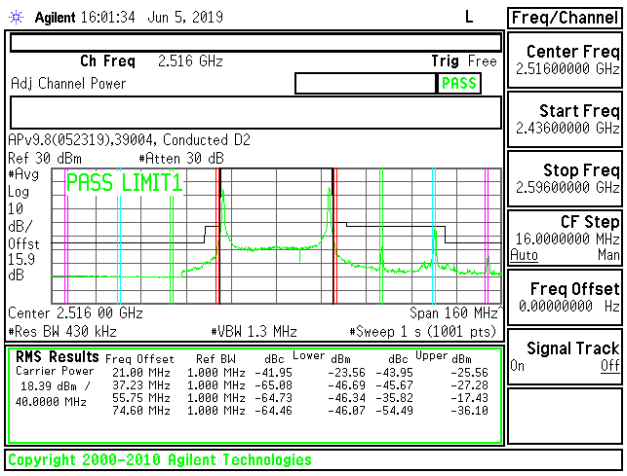
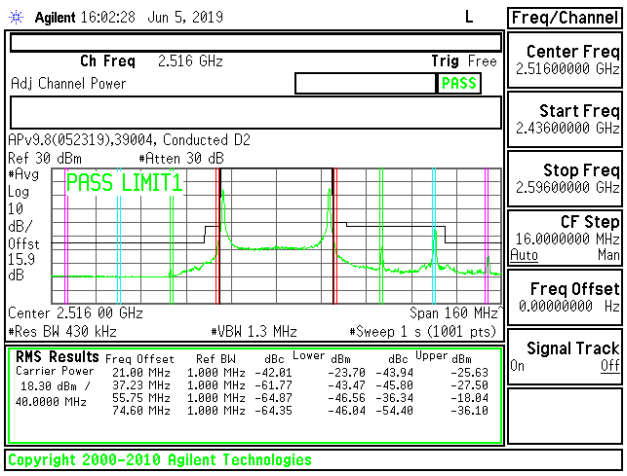
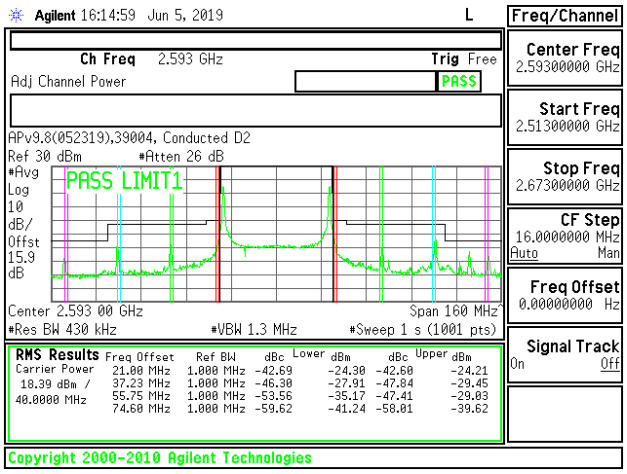


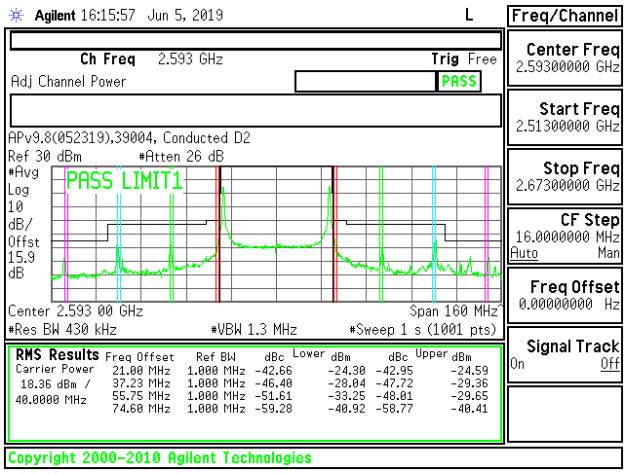
LTE B41 20MHz + 20MHz QPSK Low Ch RB1-0 + RB1-99



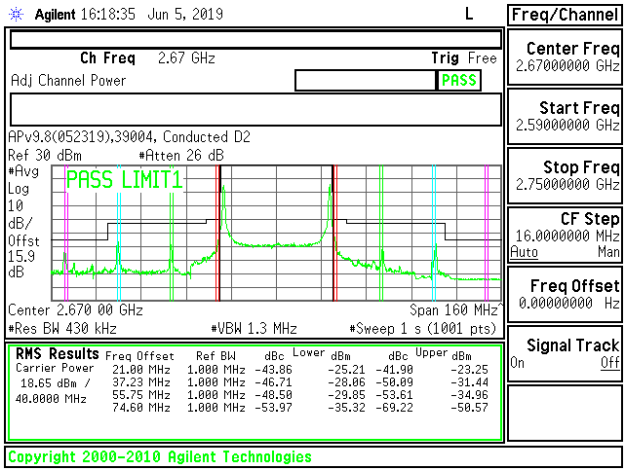
LTE B41 20MHz + 20MHz 16QAM Low Ch RB1-0 + RB1-99



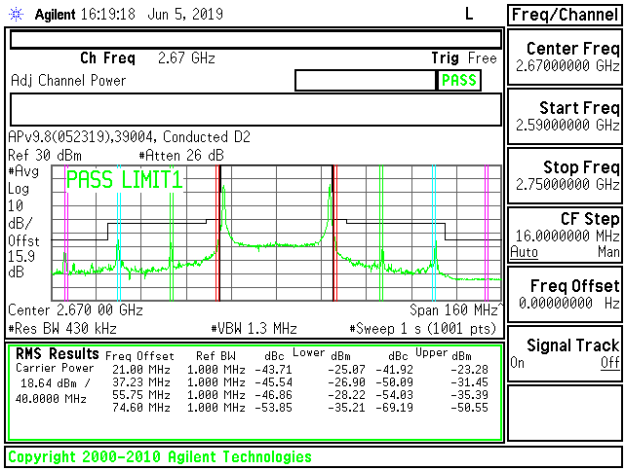
LTE B41 20MHz + 20MHz QPSK Mid Ch RB1-0 + RB1-99



LTE B41 20MHz + 20MHz 16QAM Mid Ch RB1-0 + RB1-99



LTE B41 20MHz + 20MHz QPSK High Ch RB1-0 + RB1-99



LTE B41 20MHz + 20MHz 16QAM High Ch RB1-0 + RB1-99

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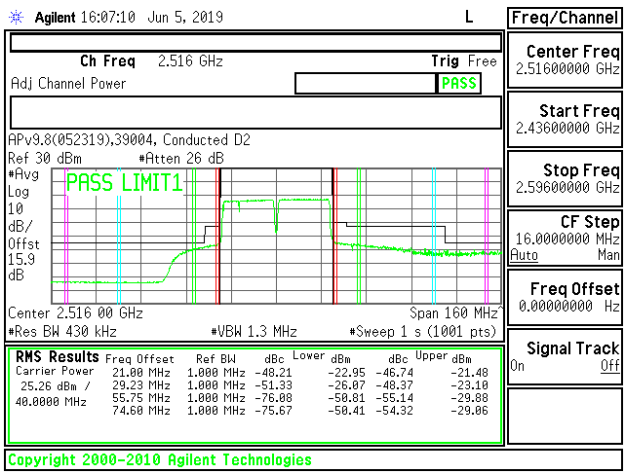
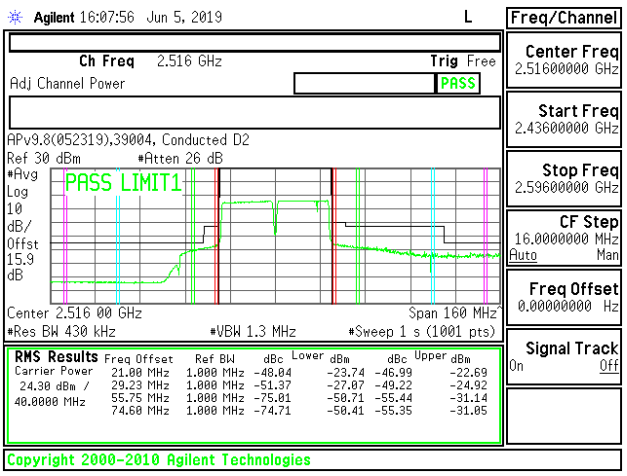
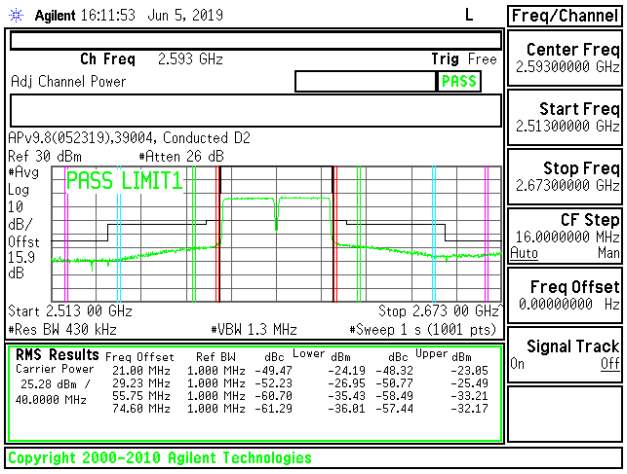


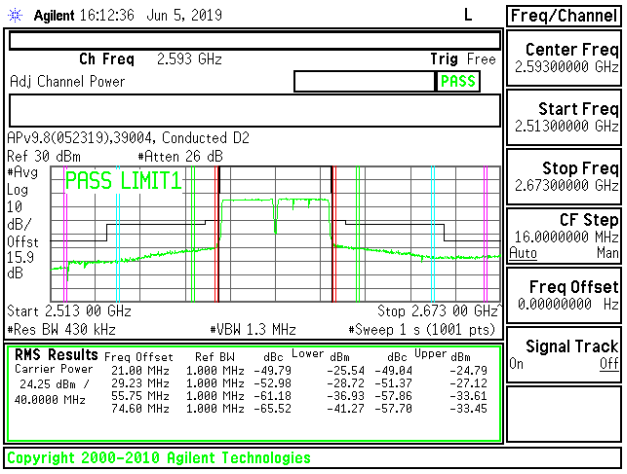
LTE B41 20MHz + 20MHz QPSK Low Ch RB100-0 + RB100-0



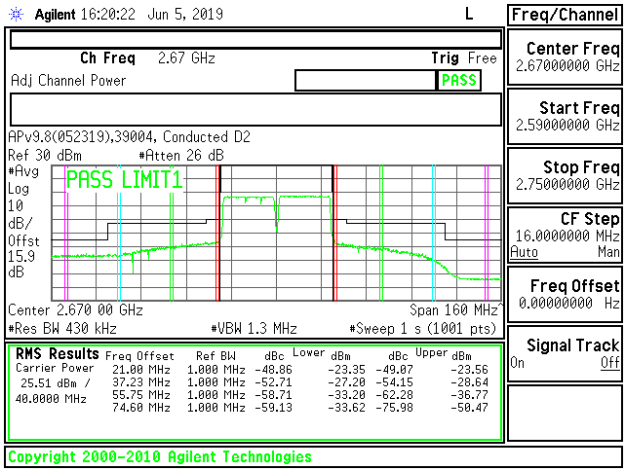
LTE B41 20MHz + 20MHz 16QAM Low Ch RB100-0 + RB100-0



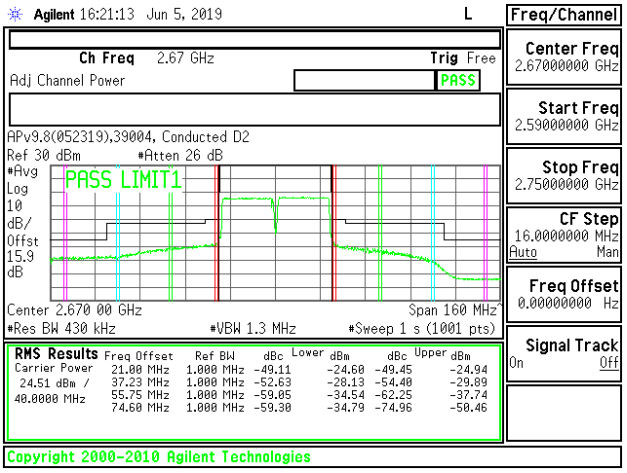
LTE B41 20MHz + 20MHz QPSK Mid Ch RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 16QAM Mid Ch RB100-0 + RB100-0



LTE B41 20MHz + 20MHz QPSK High Ch RB100-0 + RB100-0



LTE B41 20MHz + 20MHz 16QAM High Ch RB100-0 + RB100-0

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8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917, §27.53

LIMITS

FCC: §27.53 (m)
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

TEST PROCEDURE

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

For each out of band emissions measurement:

- Set display line at -25 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

MODES TESTED

- LTE Band 5
- LTE Band 7
- LTE Band 41

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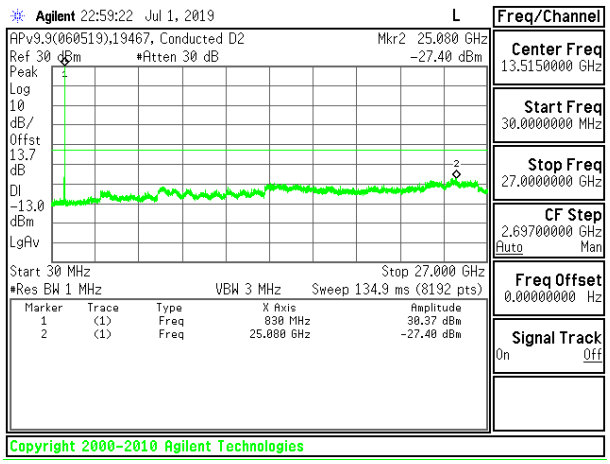
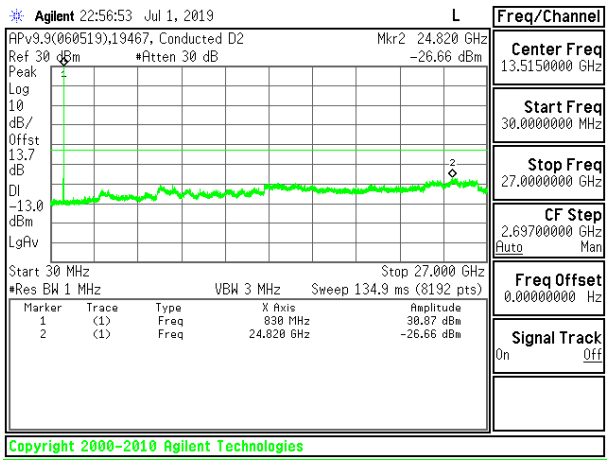
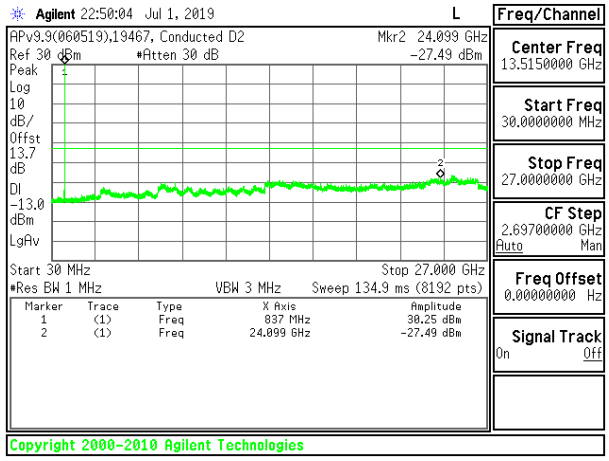
8.3.1. LTE BAND 5



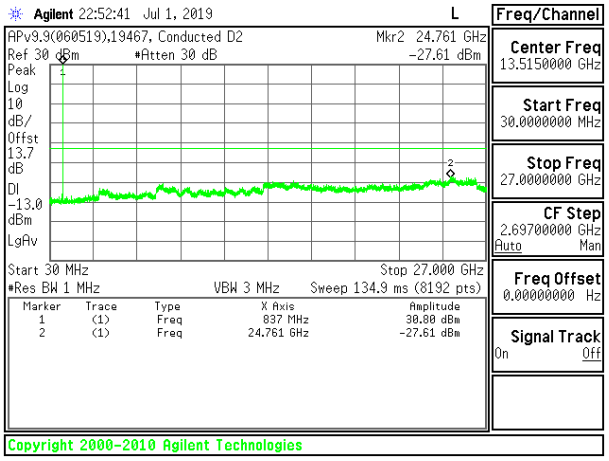
LTE B5 5MHz + 3MHz QPSK Low Ch RB1-24 + RB1-0



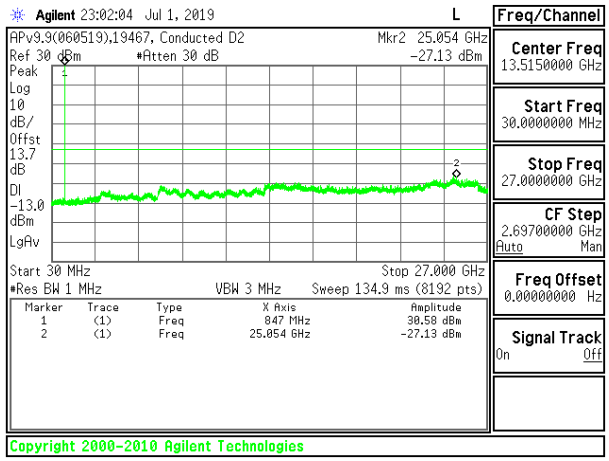
LTE B5 5MHz + 3MHz 16QAM Low Ch RB1-24 + RB1-0



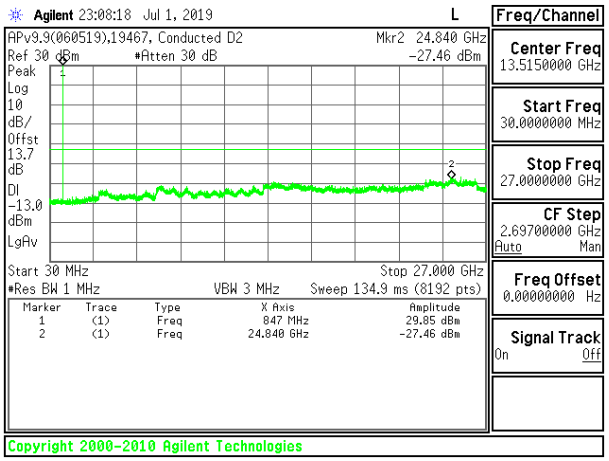
LTE B5 5MHz + 3MHz QPSK Middle Ch RB1-24 + RB1-0



LTE B5 5MHz + 3MHz 16QAM Middle Ch RB1-24 + RB1-0-



LTE B5 5MHz + 3MHz QPSK High Ch RB1-24 + RB1-0



LTE B5 5MHz + 3MHz 16QAM High Ch RB1-24 + RB1-0

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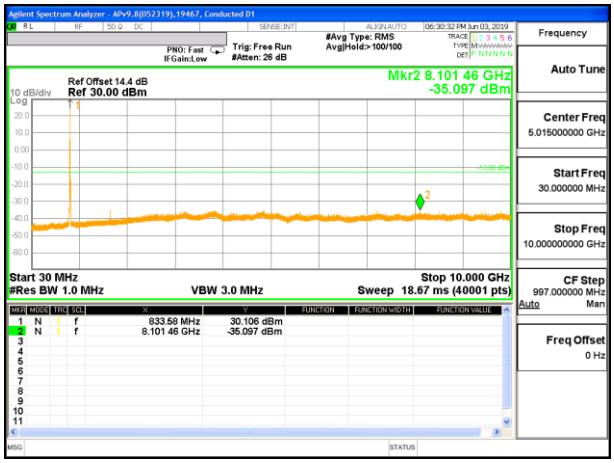
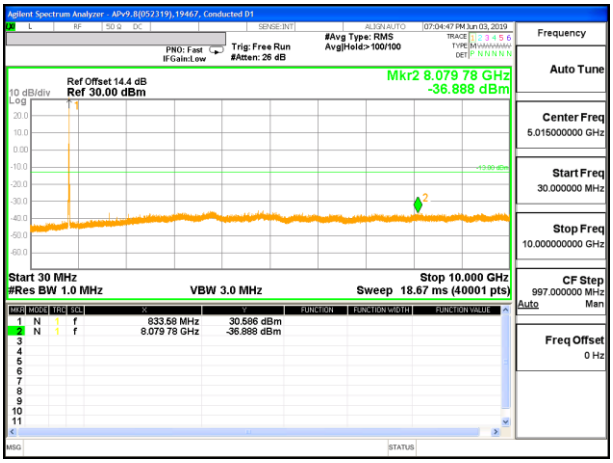
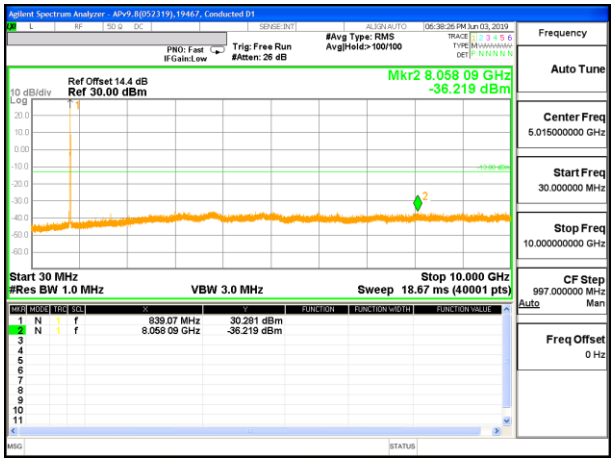


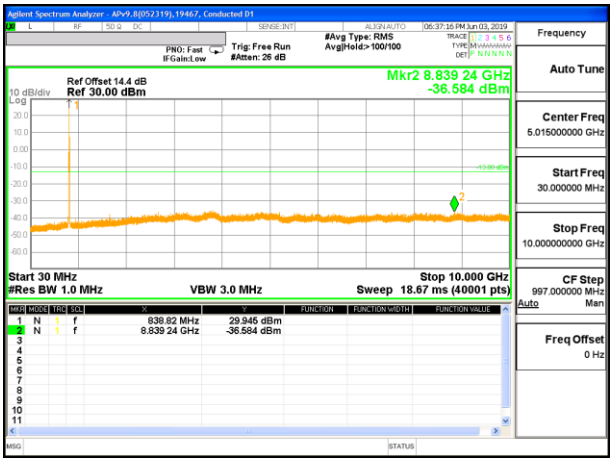
LTE B5 10MHz + 5MHz QPSK Low Ch RB1-49 + RB1-0



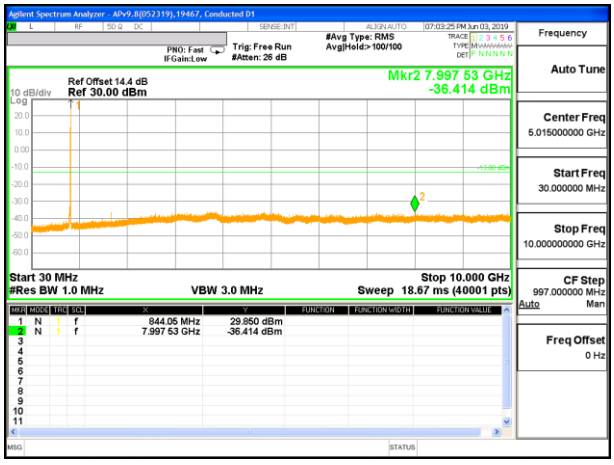
LTE B5 10MHz + 5MHz 16QAM Low Ch RB1-49 + RB1-0



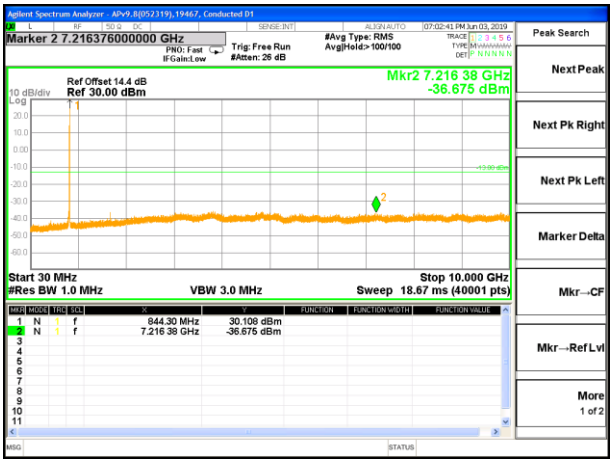
LTE B5 10MHz + 5MHz QPSK Middle Ch RB1-49 + RB1-0



LTE B5 10MHz + 5MHz 16QAM Middle Ch RB1-49 + RB1-0



LTE B5 10MHz + 5MHz QPSK High Ch RB1-49 + RB1-0



LTE B5 10MHz + 5MHz 16QAM High Ch RB1-49 + RB1-0

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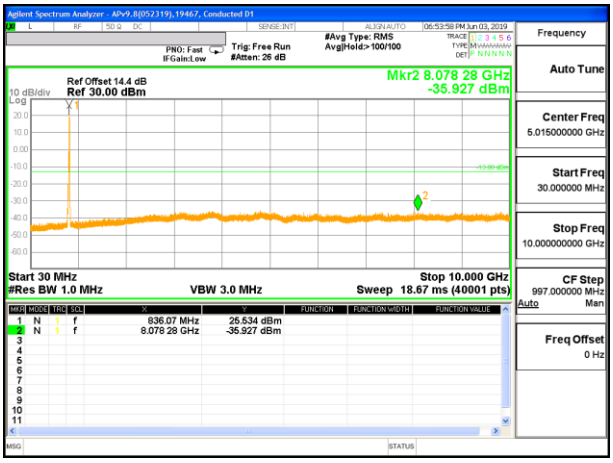
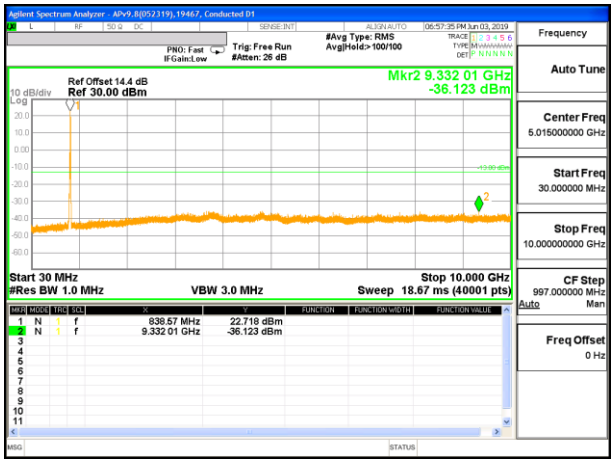
LTE B5 10MHz + 10MHz QPSK Low Ch RB1-49 + RB1-0

LTE B5 10MHz + 10MHz 16QAM Low Ch RB1-49 + RB1-0

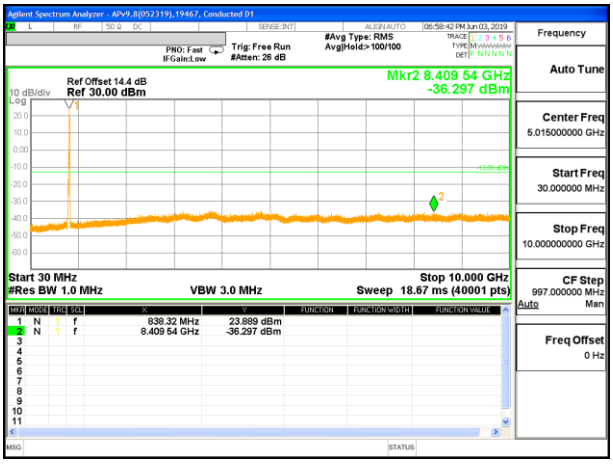
LTE B5 10MHz + 10MHz QPSK Middle Ch RB1-49 + RB1-0



LTE B5 10MHz + 10MHz 16QAM Middle Ch RB1-49 + RB1-0



LTE B5 10MHz + 10MHz QPSK High Ch RB1-49 + RB1-0



LTE B5 10MHz + 10MHz 16QAM High Ch RB1-49 + RB1-0

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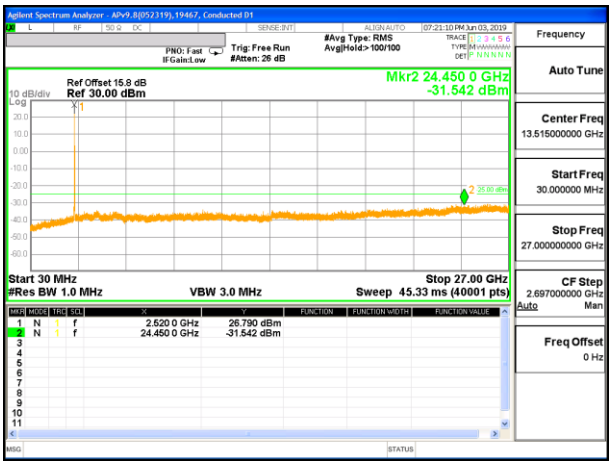
8.3.2. LTE BAND 7

LTE B7 20MHz + 10MHz QPSK Low Ch RB1-99 + RB1-0



LTE B7 20MHz + 10MHz 16QAM Low Ch RB1-99 + RB1-0

LTE B7 20MHz + 10MHz QPSK Middle Ch RB1-99 + RB1-0

LTE B7 20MHz + 10MHz 16QAM Middle Ch RB1-99 + RB1-0

LTE B7 20MHz + 10MHz QPSK High Ch RB1-99 + RB1-0

LTE B7 20MHz + 10MHz 16QAM High Ch RB1-99 + RB1-0

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