



CERTIFICATION TEST REPORT

Report Number. : 12696946-E9V3

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A2111, A2222 AND A2223

FCC ID : BCG-E3309A

EUT Description : SMARTPHONE

Test Standard(s) : CFR47 PART 22 H, PART 27

Date Of Issue:
AUGUST 06, 2019

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888



NVLAP LAB CODE 200065-0

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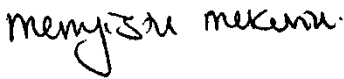
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V1	7/18/2019	Initial Review	Mengistu Mekuria
V2	7/31/2019	Address TCB Questions	Mengistu Mekuria
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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A2111, A2222 AND A2223
FCC ID	BCG-E3309A
EUT Description	SMARTPHONE
Serial Number	C7CYQ004MT74 (Conducted), C7CYP0F0MT5Q (Radiated)
Date Tested	FEBRUARY 18, 2019 to AUGUST 05, 2019
Applicable Standards	CFR47 PART 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. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.	
Approved & Released By:	Prepared By:
	
Mengistu Mekuria Lead Test Engineer UL Verification Services Inc.	Lieu Nguyen Test Engineer UL Verification Services Inc.

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, 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.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \\ &\text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Radiated Disturbance, 26000 to 40000 MHz	5.24 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac/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 A2111, A2222 and A2223 is electrically identical to Model A2111. Three model numbers are allocated for marketing and logistic purposes only. A2111 was used to perform all final tests.

5.3. MAXIMUM OUTPUT POWER

ERP/EIRP LIMIT

FCC: §2.1046, §22H, §27.50

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015

KDB 971168 D01 Section 5.6

KDB 412172 D01 Determining ERP and EIRP v01r01

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

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:

OUTPUT POWER FOR LTE BAND 5

Part 27 / RSS 199								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		-3.20						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
3+5	QPSK	825.5	846.5	24.7	21.48	0.141	7550.6	7M55G7W
	16QAM			24.7	21.54	0.143	7582	7M58D7W
	64QAM			24.6	21.43	0.139	7584.9	7M58D7W
5+3	QPSK	826.5	847.5	24.3	21.11	0.129	7531.1	7M53G7W
	16QAM			23.3	20.11	0.103	7532	7M53D7W
	64QAM			22.2	19.01	0.080	7529.6	7M53D7W
5+10	QPSK	826.5	844.0	24.7	21.55	0.143	13870.7	13M9G7W
	16QAM			23.7	20.54	0.113	13863.1	13M9D7W
	64QAM			21.8	18.59	0.072	13839.6	13M8D7W
10+5	QPSK	829.0	846.5	24.7	21.55	0.143	13922.3	13M9G7W
	16QAM			23.7	20.55	0.113	13889	13M9D7W
	64QAM			21.7	18.47	0.070	13866.1	13M9D7W
10+10	QPSK	829.0	844.0	25.0	21.80	0.151	19421.4	19M4G7W
	16QAM			23.9	20.70	0.118	19352.5	19M4D7W
	64QAM			21.8	18.56	0.072	19297.1	19M3D7W

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS 199								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		-2.10						
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	22.90	0.195	28508	28M5G7W
	16QAM			24.1	22.00	0.159	28342	28M3D7W
	64QAM			22.2	20.05	0.101	28371	28M4D7W
20+10	QPSK	2510.0	2564.5	24.7	22.55	0.180	28283	28M3G7W
	16QAM			23.7	21.63	0.146	28179	28M2D7W
	64QAM			21.8	19.71	0.093	28161	28M2D7W
15+15	QPSK	2507.5	2562.5	24.4	22.34	0.171	28786	28M8G7W
	16QAM			23.5	21.41	0.138	28795	28M8D7W
	64QAM			21.5	19.39	0.087	28714	28M7D7W
15+20	QPSK	2507.8	2560.0	24.7	22.62	0.183	33095	33M1G7W
	16QAM			23.9	21.81	0.152	33110	33M1D7W
	64QAM			21.8	19.72	0.094	32964	33M0D7W
20+15	QPSK	2510.0	2562.2	24.4	22.35	0.172	33133	33M1G7W
	16QAM			23.7	21.62	0.145	33054	33M1D7W
	64QAM			21.8	19.74	0.094	33048	33M0D7W
20+20	QPSK	2510.0	2560.0	24.8	22.70	0.186	37984	38M0G7W
	16QAM			23.9	21.76	0.150	37981	38M0D7W
	64QAM			22.0	19.86	0.097	37929	37M9D7W

OUTPUT POWER FOR LTE BAND 41

Part 27								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		-2.10						
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	27.0	24.90	0.309	23252	23M3G7W
	16QAM			26.0	23.90	0.246	23258	23M3D7W
	64QAM			23.6	21.47	0.140	23194	23M2D7W
20+5	QPSK	2506.0	2686.7	26.8	24.72	0.296	23213	23M2G7W
	16QAM			25.9	23.78	0.239	23102	23M1D7W
	64QAM			24.2	22.08	0.161	23084	23M1D7W
10+20	QPSK	2501.5	2680.0	27.0	24.88	0.308	27942	27M9G7W
	16QAM			26.1	23.96	0.249	27901	27M9D7W
	64QAM			23.7	21.57	0.143	27961	28M0D7W
20+10	QPSK	2506.0	2684.5	26.8	24.71	0.295	27911	27M9G7W
	16QAM			25.7	23.60	0.229	28029	28M0D7W
	64QAM			23.8	21.67	0.147	27865	27M9D7W
15+15	QPSK	2503.5	2682.5	26.7	24.61	0.289	28577	28M6G7W
	16QAM			25.8	23.67	0.233	28582	28M6D7W
	64QAM			23.5	21.41	0.138	28495	28M5D7W
15+20	QPSK	2503.8	2680.0	26.7	24.61	0.289	32708	32M7G7W
	16QAM			25.7	23.58	0.228	32745	32M7D7W
	64QAM			23.7	21.56	0.143	32791	32M8D7W
20+15	QPSK	2506.0	2682.2	26.9	24.79	0.301	32666	32M7G7W
	16QAM			26.0	23.94	0.248	32854	32M9D7W
	64QAM			23.4	21.31	0.135	32767	32M8D7W
20+20	QPSK	2506.0	2680.0	26.9	24.82	0.304	37561	37M6G7W
	16QAM			26.0	23.86	0.243	37542	37M5D7W
	64QAM			23.6	21.48	0.141	37622	37M6D7W

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 Antenna Gain (dBi)	Ant 2 Antenna Gain (dBi)
LTE Band 5	-3.2	-5.4
LTE Band 7, 2500 – 2570 MHz	-2.1	-3.7
LTE Band 41, 2496 – 2690 MHz	-2.1	-3.7

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 both Ant 1 and Ant 2 antennas. For Ant 1 antenna, it was determined that Y(Landscape) orientation was worst-case orientation to all bands 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 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.

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

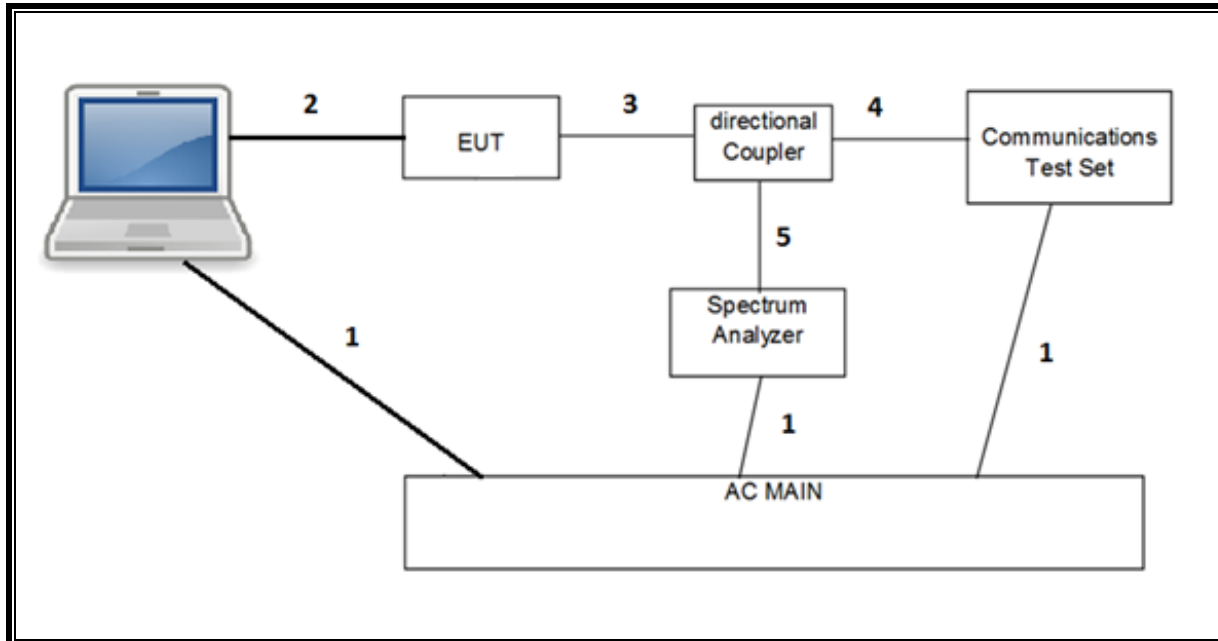
I/O CABLES (RF Conducted Test)

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

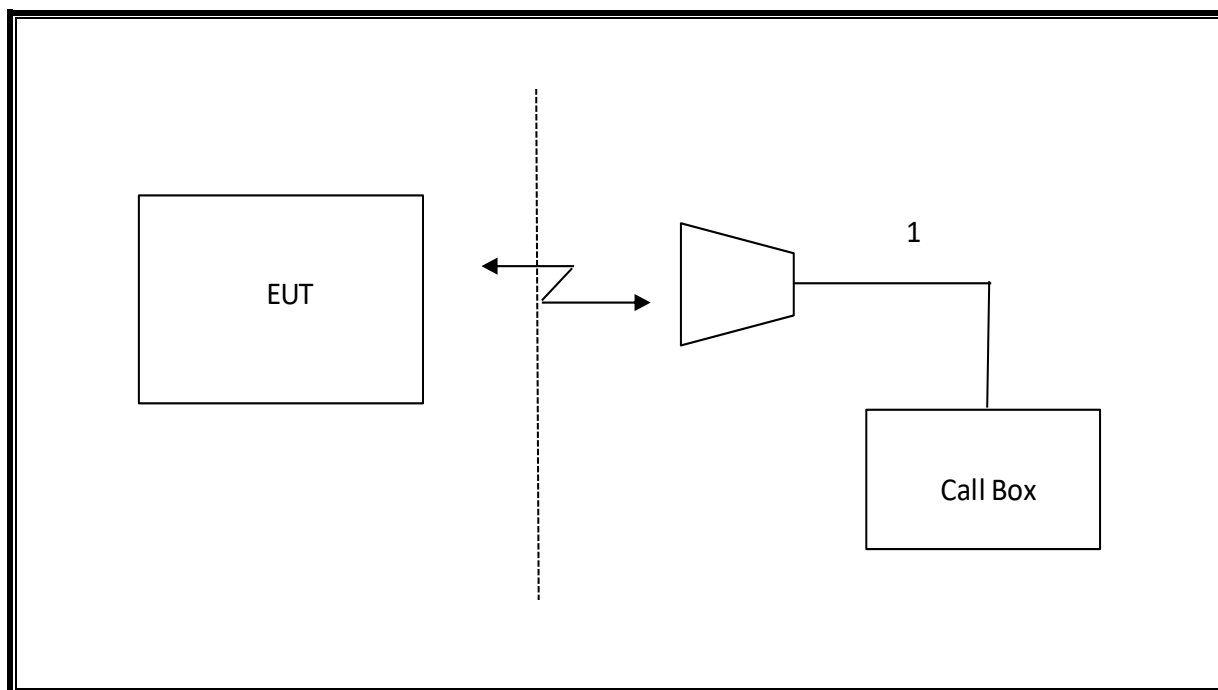
I/O CABLES (RF Radiated Test)

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

CONDUCTED SETUP



RADIATED SETUP



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	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:

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

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:

7.1. LTE BAND 5

ID:	39004	Date:	5/8/2019
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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	24.3	24.3	24.4	23.3	23.5	23.4
			15	0	25	0	24.4	24.4	24.1	23.3	23.4	23.4
	834.0	837.9	1	14	1	0	24.7	24.7	23.9	23.1	23.1	23.2
			15	0	25	0	24.6	24.6	24.6	23.1	21.1	21.2
	847.5	843.6	1	14	1	0	24.1	23.9	24.0	22.8	21.1	22.8
			15	0	25	0	24.2	24.5	23.2	22.7	23.0	23.1

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	24.1	23.1	22.0	23.3	22.2	21.5
			25	0	15	0	22.9	21.9	21.2	21.8	20.9	20.5
	835.0	838.9	1	24	1	0	24.3	23.3	22.2	23.2	22.3	21.6
			25	0	15	0	23.0	22.1	21.1	21.9	20.9	20.7
	846.5	842.6	1	24	1	0	24.2	23.2	22.1	23.3	22.4	21.5
			25	0	15	0	23.0	22.1	21.2	22.0	21.0	20.7

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	23.56	22.51	20.65	21.59	20.63	18.81
			25	0	50	0	21.53	20.52	21.51	19.30	18.40	18.41
	831.6	838.8	1	24	1	0	24.75	23.74	21.79	21.54	20.51	18.69
			25	0	50	0	22.45	21.48	21.53	19.13	18.31	18.30
	846.5	839.3	1	24	1	0	15.79	16.03	16.03	14.56	14.61	14.66
			25	0	50	0	22.27	21.27	21.26	20.91	19.94	19.95

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz/ 5MHz	829.0	836.2	1	49	1	0	24.7	23.7	21.7	21.4	20.4	18.6
			1	0	1	24	16.0	16.0	16.0	12.6	12.6	12.6
			50	0	25	0	22.5	21.5	21.5	19.1	18.3	18.3
	834.1	841.3	1	49	1	0	24.4	23.5	21.4	21.2	20.2	18.3
			1	0	1	24	16.0	16.1	16.1	12.6	12.7	12.6
			50	0	25	0	22.5	21.5	21.5	19.1	18.2	18.3
	844.0	836.8	1	49	1	0	14.9	15.0	14.8	13.4	13.2	13.2
			1	0	1	24	23.4	22.4	20.3	22.0	20.8	19.0
			50	0	25	0	21.3	20.3	20.2	19.8	18.6	18.7

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

Bandwidth	PCC Frequency (MHz)	SCC1 Frequency (MHz)	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz/ 10MHz	829.0	838.9	1	49	1	0	24.8	23.9	21.8	21.5	20.5	18.6
			1	0	1	49	16.0	16.1	15.9	12.7	12.7	12.6
			50	0	50	0	22.5	21.5	21.4	19.1	18.3	18.2
	831.5	841.4	1	49	1	0	25.0	23.9	21.7	21.4	20.5	18.7
			1	0	1	49	16.0	16.2	16.0	12.6	12.7	12.6
			50	0	50	0	22.5	21.5	21.4	19.1	18.2	18.3
	844.0	834.1	1	49	1	0	15.8	16.1	16.0	12.7	12.7	12.6
			1	0	1	49	24.5	23.6	21.4	21.2	20.1	18.5
			50	0	50	0	22.3	21.3	21.3	19.1	18.2	18.2

7.2. LTE BAND 7

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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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
10MHz / 20MHz	2505.5	2519.9	1	49	1	0	24.9	23.9	22.1	19.6	18.7	16.6
			50	0	100	0	22.8	21.9	21.9	17.2	16.2	16.3
	2525.6	2540.0	1	49	1	0	25.0	23.0	20.9	19.3	18.5	16.5
			50	0	100	0	22.6	21.7	21.7	17.4	16.4	16.4
	2545.6	2560.0	1	49	1	0	24.8	24.1	22.2	19.6	18.6	16.7
			50	0	100	0	22.6	21.7	21.6	17.4	16.4	16.3

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2510.0	2524.4	1	99	1	0	24.7	23.7	21.8	19.5	18.5	16.6
			1	0	1	49	15.9	15.9	16.0	10.7	10.8	10.9
			100	0	50	0	22.4	21.5	21.4	17.4	16.4	16.4
	2530.1	2544.5	1	99	1	0	24.1	23.3	21.3	19.5	18.5	16.4
			1	0	1	49	15.6	15.6	15.7	10.8	10.8	10.8
			100	0	50	0	22.1	21.1	21.1	17.3	16.3	16.3
	2550.1	2564.5	1	99	1	0	24.3	23.5	21.6	19.5	18.5	16.5
			1	0	1	49	15.6	15.7	15.7	10.8	10.9	11.0
			100	0	50	0	22.1	21.2	21.2	17.3	16.3	16.3

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2507.5	2522.5	1	74	1	0	24.4	23.4	21.5	19.4	18.3	16.5
			75	0	75	0	22.3	21.3	21.3	17.2	16.2	16.3
	2527.5	2542.5	1	74	1	0	24.3	23.5	21.4	19.5	18.6	16.5
			75	0	75	0	22.2	21.2	21.2	17.3	16.3	16.3
	2547.5	2562.5	1	74	1	0	24.3	23.5	21.3	19.6	18.7	16.7
			75	0	75	0	22.2	21.2	21.2	17.3	16.4	16.4

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2507.8	2524.9	1	74	1	0	24.7	23.9	21.8	19.4	18.6	16.7
			75	0	100	0	22.5	21.6	21.6	17.4	16.4	16.4
	2525.3	2542.4	1	74	1	0	24.6	23.6	21.7	19.6	18.7	16.6
			75	0	100	0	22.3	21.4	21.3	17.4	16.4	16.4
	2542.9	2560.0	1	74	1	0	24.3	23.5	21.5	19.7	18.9	16.7
			75	0	100	0	22.2	21.3	21.2	17.5	16.5	16.5

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2510.0	2527.1	1	99	1	0	24.4	23.7	21.8	19.5	18.6	16.7
			100	0	75	0	22.5	21.5	21.5	17.4	16.4	16.5
	2527.6	2544.7	1	99	1	0	24.2	23.4	21.4	19.4	18.6	16.6
			100	0	75	0	22.2	21.3	21.3	17.4	16.4	16.4
	2545.1	2562.2	1	99	1	0	24.2	23.5	21.6	19.7	18.7	16.7
			100	0	75	0	22.2	21.3	21.3	17.5	16.5	16.5

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2510.0	2529.8	1	99	1	0	24.8	23.9	22.0	19.6	18.7	16.5
			1	0	1	99	15.5	15.8	15.9	10.4	10.6	10.4
			100	0	100	0	22.5	21.6	21.6	17.4	16.3	16.3
	2525.1	2544.9	1	99	1	0	24.5	23.5	21.6	19.6	18.6	16.7
			1	0	1	99	15.3	15.7	15.6	10.4	10.4	10.6
			100	0	100	0	22.3	21.3	21.3	17.4	16.4	16.4
	2540.2	2560.0	1	99	1	0	24.4	23.5	21.6	19.7	18.6	16.9
			1	0	1	99	15.4	15.6	15.7	10.4	10.9	10.9
			100	0	100	0	22.3	21.3	21.3	17.5	16.4	16.5

7.3. LTE BAND 41

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

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 / 20MHz	2499.3	2511.0	1	24	1	0	26.6	25.7	23.6	21.5	20.4	18.4
			25	0	100	0	24.7	23.7	23.3	19.3	18.3	18.1
	2583.8	2595.5	1	24	1	0	27.0	26.0	23.6	21.1	20.0	17.1
			25	0	100	0	24.8	23.8	23.4	19.1	18.1	17.9
	2668.3	2680.0	1	24	1	0	26.8	25.8	23.6	20.9	19.9	17.9
			25	0	100	0	24.8	23.7	23.4	18.7	17.7	17.5

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 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
20MHz / 5MHz	2506.0	2517.7	1	99	1	0	26.8	25.9	24.2	21.4	20.4	18.3
			1	0	1	24	18.0	18.1	18.2	12.6	12.7	12.5
			100	0	25	0	24.5	23.6	23.9	19.3	18.2	18.2
	2590.5	2602.2	1	99	1	0	26.6	25.7	24.0	21.1	20.1	18.0
			1	0	1	24	18.0	18.1	18.2	12.4	12.5	12.4
			100	0	25	0	24.5	23.5	23.8	18.9	17.9	17.8
	2675.0	2686.7	1	99	1	0	26.6	25.6	23.8	20.7	19.7	17.6
			1	0	1	24	18.0	18.1	18.2	12.0	12.1	12.1
			100	0	25	0	24.5	23.5	23.8	18.5	17.5	17.5

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

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 / 20MHz	2501.5	2515.9	1	49	1	0	26.7	25.6	23.3	21.5	20.3	18.4
			50	0	100	0	24.7	23.7	23.4	19.1	18.1	18.1
	2583.6	2598.0	1	49	1	0	26.9	26.1	23.7	21.1	20.1	17.9
			50	0	100	0	24.7	23.7	23.4	18.9	17.9	17.9
	2665.6	2680.0	1	49	1	0	27.0	25.7	23.6	20.8	19.8	17.9
			50	0	100	0	24.7	23.7	23.3	18.5	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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 10MHz	2506.0	2520.4	1	99	1	0	26.8	25.7	23.8	21.4	20.5	18.3
			100	0	50	0	24.5	23.5	23.6	19.2	18.2	18.2
	2588.1	2602.5	1	99	1	0	26.6	25.6	23.6	21.0	20.0	18.1
			100	0	50	0	24.4	23.5	23.5	18.8	17.8	17.9
	2670.1	2684.5	1	99	1	0	26.6	25.7	23.6	20.7	19.7	17.7
			100	0	50	0	24.4	23.5	23.5	18.4	17.4	17.4

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 15MHz	2503.5	2518.5	1	74	1	0	26.7	25.7	23.5	21.5	20.5	18.3
			75	0	75	0	24.5	23.6	23.4	19.1	18.1	18.1
	2585.5	2600.5	1	74	1	0	26.7	25.8	23.4	21.1	20.1	17.9
			75	0	75	0	24.4	23.5	23.3	18.8	17.8	17.8
	2667.5	2682.5	1	74	1	0	26.6	25.7	23.4	21.2	20.1	18.0
			75	0	75	0	24.4	23.5	23.3	19.0	17.9	17.9

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
15MHz / 20MHz	2503.8	2520.9	1	74	1	0	26.7	25.7	23.5	21.3	20.2	18.1
			75	0	100	0	24.5	23.5	23.5	18.9	17.9	18.0
	2583.3	2600.4	1	74	1	0	26.6	25.6	23.7	20.9	19.9	17.8
			75	0	100	0	24.4	23.4	23.5	18.7	17.7	17.7
	2662.9	2680.0	1	74	1	0	26.5	25.6	23.4	21.2	20.1	18.1
			75	0	100	0	24.3	23.3	23.3	19.0	18.0	18.0

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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz / 15MHz	2506.0	2523.1	1	99	1	0	26.8	26.0	23.4	21.4	20.5	18.4
			100	0	75	0	24.9	23.9	23.2	19.3	18.2	18.3
	2585.6	2602.7	1	99	1	0	26.9	25.9	23.1	21.1	20.1	18.1
			100	0	75	0	24.8	23.8	23.1	19.0	18.0	17.9
	2665.1	2682.2	1	99	1	0	26.8	26.0	23.3	20.6	19.8	17.6
			100	0	75	0	24.7	23.7	23.0	18.5	17.5	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)					
			Size	Offset	Size	Offset	Ant 1			Ant 2		
							QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20MHz/ 20MHz	2506.0	2525.8	1	99	1	0	26.9	26.0	23.6	21.5	20.5	18.5
			1	0	1	99	17.8	17.9	17.5	12.2	12.2	12.1
			100	0	100	0	24.7	23.7	23.3	19.2	18.2	18.2
	2583.1	2602.9	1	99	1	0	26.8	25.9	23.5	21.2	20.2	18.2
			1	0	1	99	17.8	17.9	17.4	12.1	12.2	12.4
			100	0	100	0	24.6	23.6	23.2	19.0	18.0	18.0
	2660.2	2680.0	1	99	1	0	26.8	25.8	23.4	20.7	19.7	17.7
			1	0	1	99	17.6	17.7	17.4	11.7	11.8	11.8
			100	0	100	0	24.5	23.5	23.2	18.4	17.4	17.4

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

LTE BAND 5

Band	Mode	RB Allocation/RB Offset	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 5	5MHz + 3MHz BAND OPSK	25/0 + 15/0	835	7.5506	8.112
	5MHz + 3MHz BAND 16OAM			7.5820	8.111
	5MHz + 3MHz BAND 64OAM			7.5849	8.104
	3MHz + 5MHz BAND OPSK	15/0 + 25/0		7.5311	8.027
	3MHz + 5MHz BAND 16OAM			7.5320	8.130
	3MHz + 5MHz BAND 64OAM			7.5296	8.091
	5MHz + 10MHz BAND OPSK	25/0 + 50/0		13.8707	14.625
	5MHz + 10MHz BAND 16OAM			13.8631	14.857
	5MHz + 10MHz BAND 64OAM			13.8396	14.775
	10MHz + 5MHz BAND OPSK	50/0 + 25/0		13.9223	14.856
	10MHz + 5MHz BAND 16OAM			13.8890	14.882
	10MHz + 5MHz BAND 64OAM			13.8661	14.940
	10MHz + 10MHz BAND OPSK	50/0 + 50/0		19.4214	21.562
	10MHz + 10MHz BAND 16OAM			19.3525	21.303
	10MHz + 10MHz BAND 64OAM			19.2971	21.364

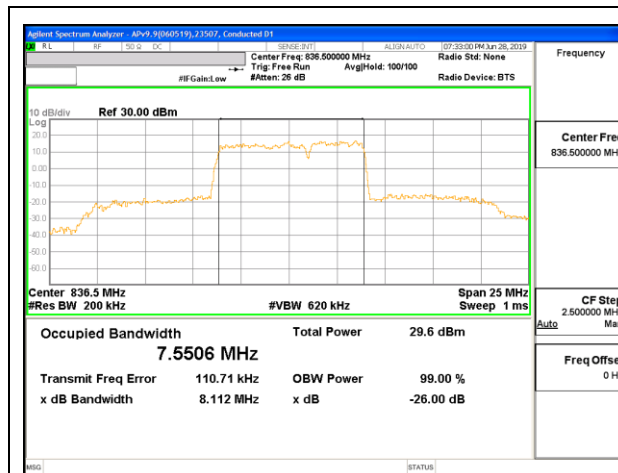
LTE BAND 7

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	28.508	42.74
	10MHz + 20MHz BAND 16OAM			28.342	39.06
	10MHz + 20MHz BAND 64OAM			28.371	43.52
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		28.283	32.93
	20MHz + 10MHz BAND 16OAM			28.179	31.35
	20MHz + 10MHz BAND 64OAM			28.161	32.31
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.786	31.44
	15MHz + 15MHz BAND 16OAM			28.795	34.49
	15MHz + 15MHz BAND 64OAM			28.714	37.47
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		33.095	46.20
	15MHz + 20MHz BAND 16OAM			33.110	45.39
	15MHz + 20MHz BAND 64OAM			32.964	44.56
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		33.133	40.36
	20MHz + 15MHz BAND 16OAM			33.054	38.47
	20MHz + 15MHz BAND 64OAM			33.048	40.64
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.984	47.98
	20MHz + 20MHz BAND 16OAM			37.981	49.34
	20MHz + 20MHz BAND 64OAM			37.929	47.77

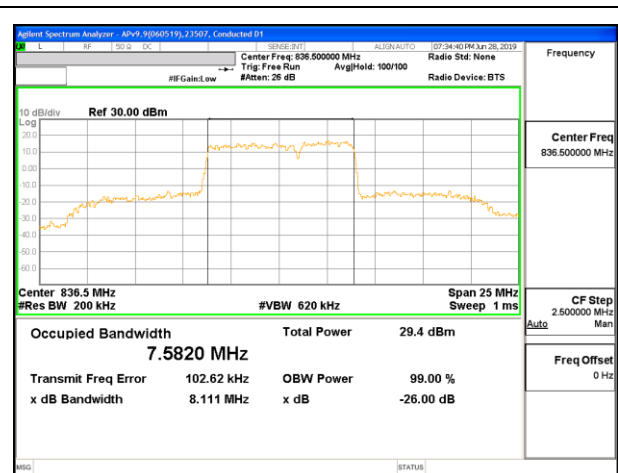
LTE BAND 41

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	23.252	24.74
	5MHz + 20MHz BAND 16QAM			23.258	24.91
	5MHz + 20MHz BAND 64QAM			23.194	24.83
	20MHz + 5MHz BAND QPSK	100/0 + 25/0		23.213	24.85
	20MHz + 5MHz BAND 16QAM			23.102	24.86
	20MHz + 5MHz BAND 64QAM			23.084	24.85
	10MHz + 20MHz BAND QPSK	50/0 + 100/0		27.942	29.83
	10MHz + 20MHz BAND 16QAM			27.901	29.90
	10MHz + 20MHz BAND 64QAM			27.961	29.80
	20MHz + 10MHz BAND QPSK	100/0 + 50/0		27.911	29.87
	20MHz + 10MHz BAND 16QAM			28.029	29.91
	20MHz + 10MHz BAND 64QAM			27.865	29.79
	15MHz + 15MHz BAND QPSK	75/0 + 75/0		28.577	30.52
	15MHz + 15MHz BAND 16QAM			28.582	30.53
	15MHz + 15MHz BAND 64QAM			28.495	30.56
	15MHz + 20MHz BAND QPSK	75/0 + 100/0		32.708	35.07
	15MHz + 20MHz BAND 16QAM			32.745	35.18
	15MHz + 20MHz BAND 64QAM			32.791	35.21
	20MHz + 15MHz BAND QPSK	100/0 + 75/0		32.666	42.92
	20MHz + 15MHz BAND 16QAM			32.854	35.81
	20MHz + 15MHz BAND 64QAM			32.767	35.79
	20MHz + 20MHz BAND QPSK	100/0 + 100/0		37.561	39.91
	20MHz + 20MHz BAND 16QAM			37.542	44.76
	20MHz + 20MHz BAND 64QAM			37.622	44.82

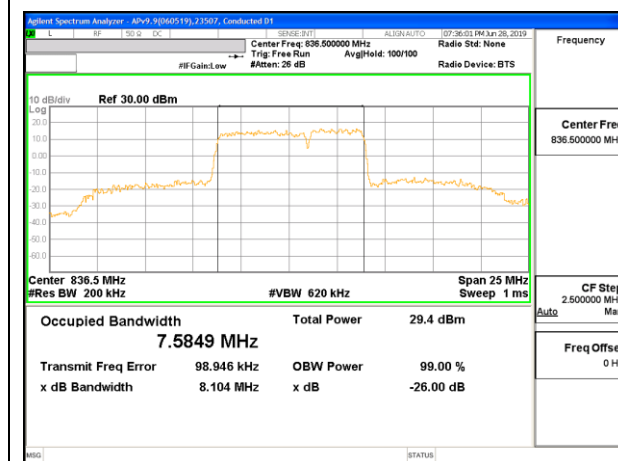
8.1.1. LTE BAND 5



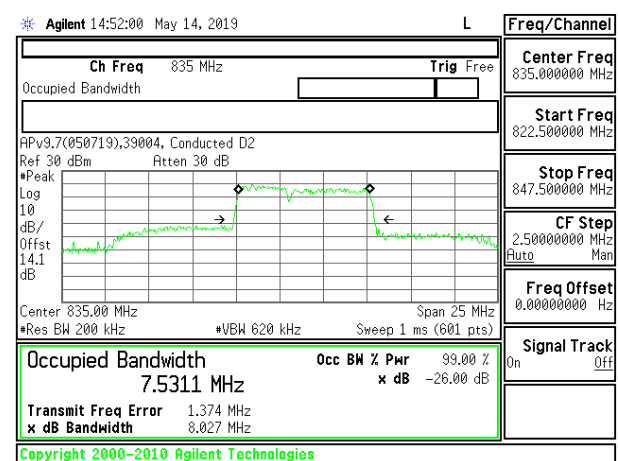
LTE B5 5MHz + 3MHz QPSK RB25-0 + RB15-0



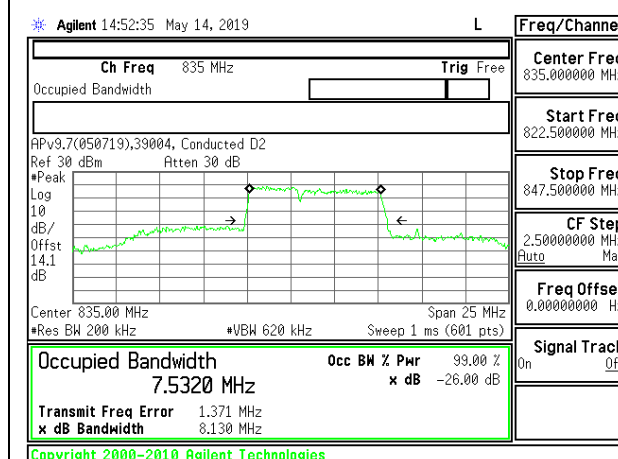
LTE B5 5MHz + 3MHz 16QAM RB25-0 + RB15-0



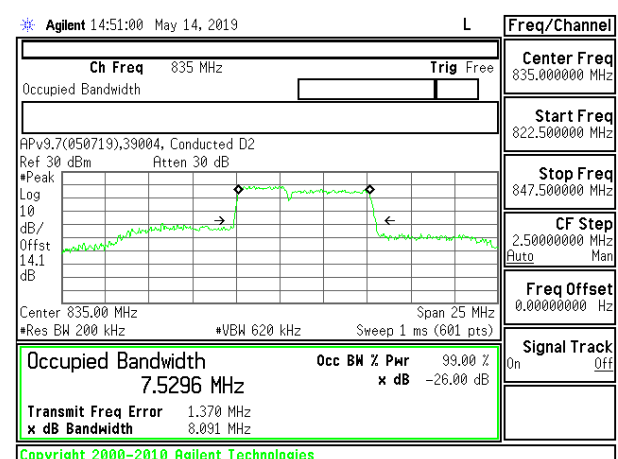
LTE B5 5MHz + 3MHz 64QAM RB25-0 + RB15-0



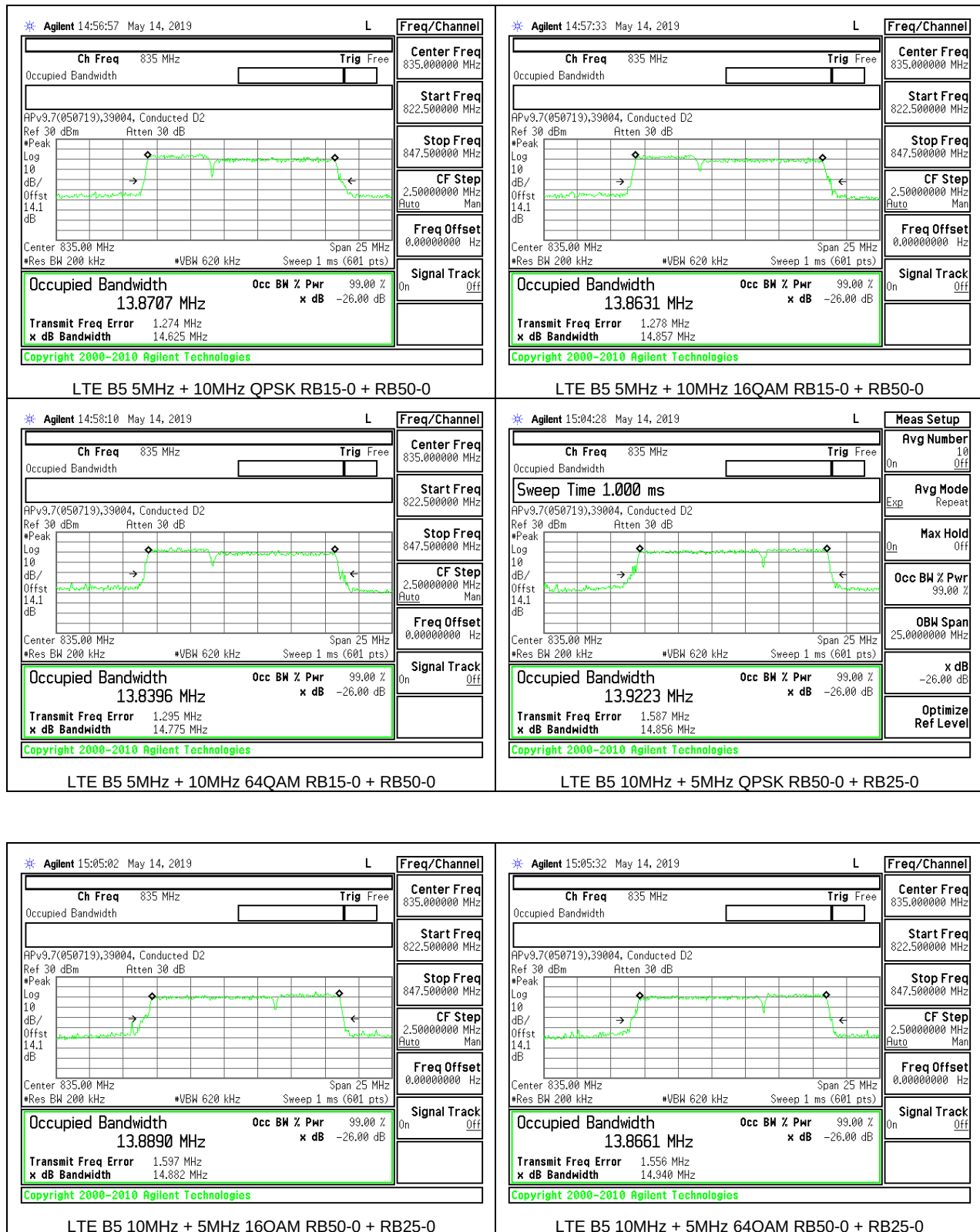
LTE B5 3MHz + 5MHz QPSK RB15-0 + RB25-0

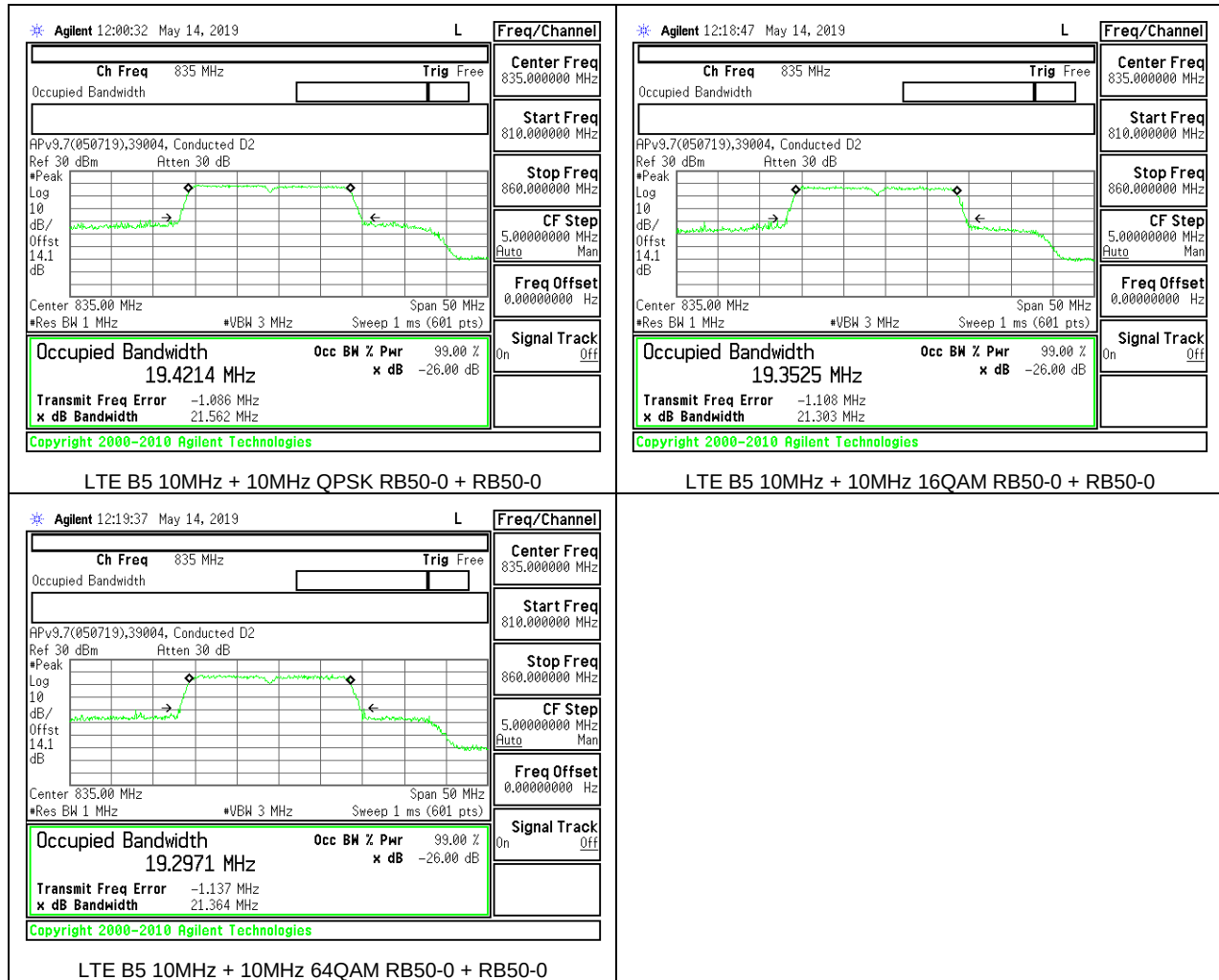


LTE B5 3MHz + 5MHz 16QAM RB15-0 + RB25-0



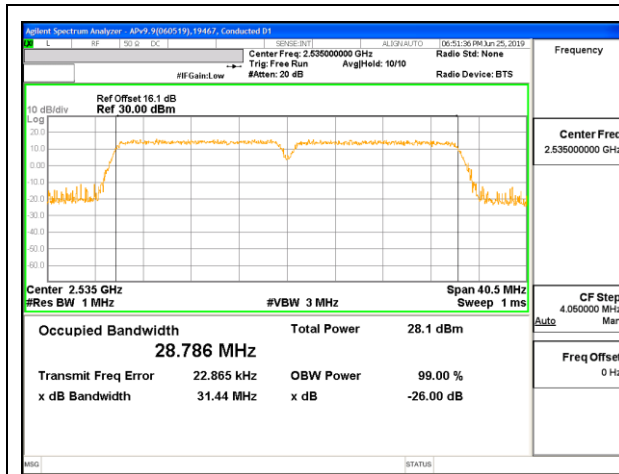
LTE B5 3MHz + 5MHz 64QAM RB15-0 + RB25-0



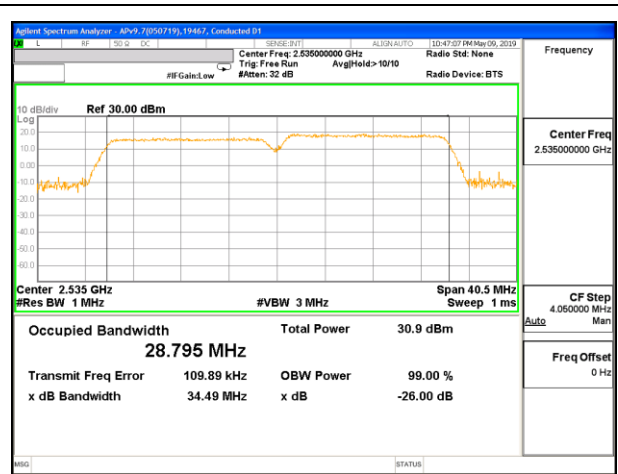


8.1.2. LTE BAND 7

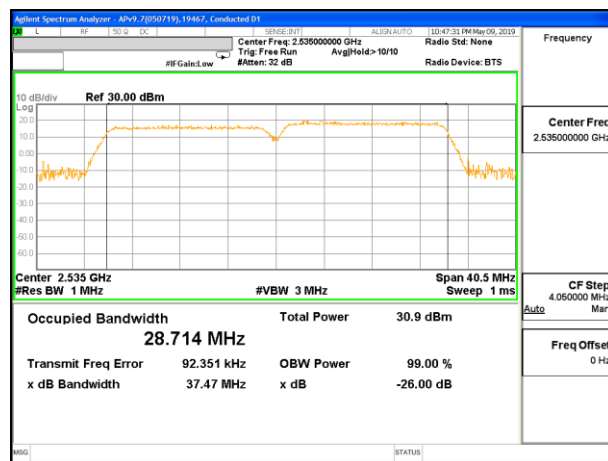




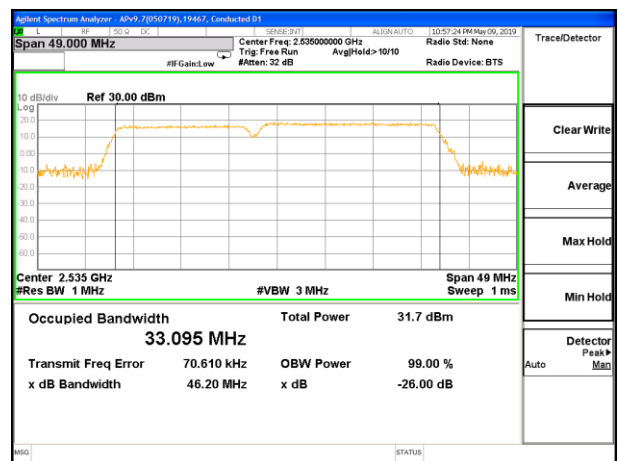
LTE B7 15MHz + 15MHz QPSK RB75-0 + RB75-0



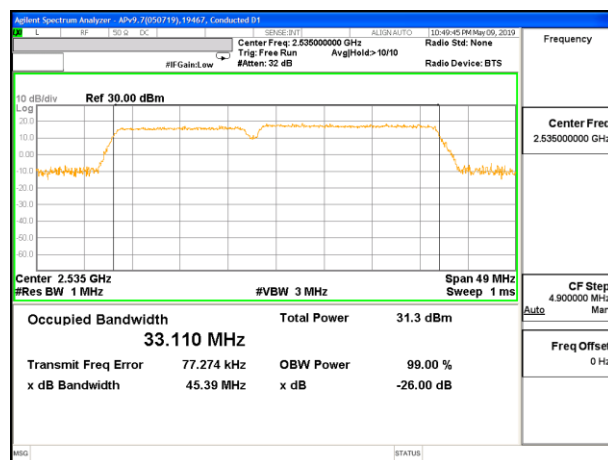
LTE B7 15MHz + 15MHz 16QAM RB75-0 + RB75-0



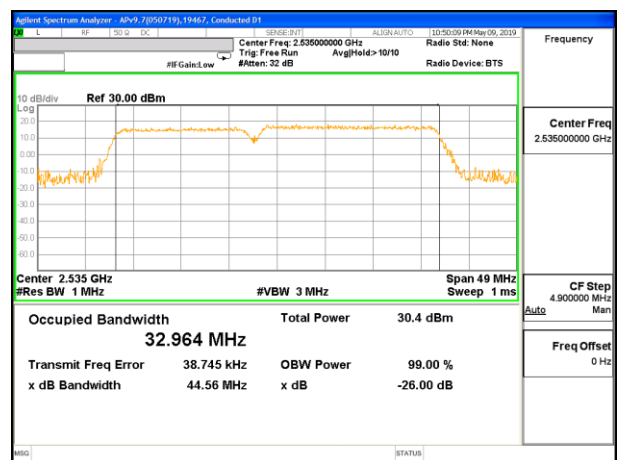
LTE B7 15MHz + 15MHz 64QAM RB75-0 + RB75-0



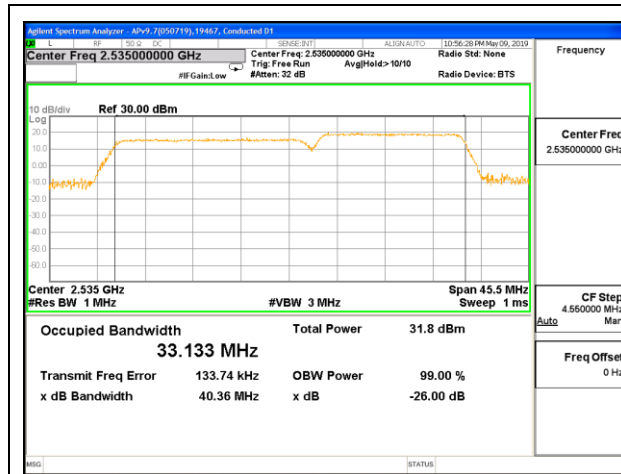
LTE B7 15MHz + 20MHz QPSK RB75-0 + RB100-0



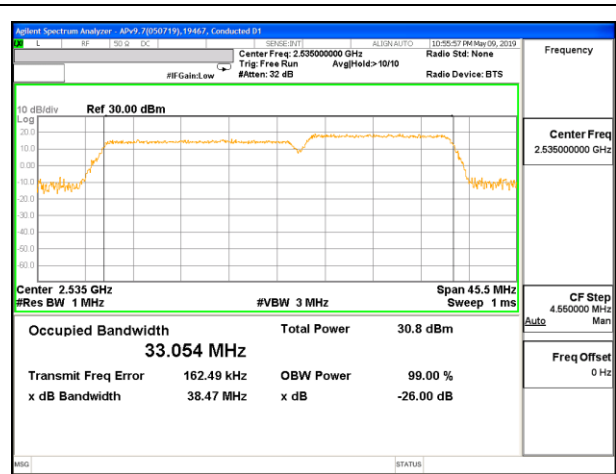
LTE B7 15MHz + 20MHz 16QAM RB75-0 + RB100-0



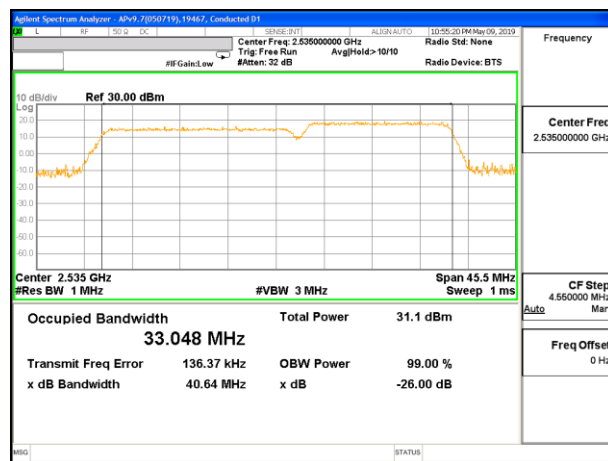
LTE B7 15MHz + 20MHz 64QAM RB75-0 + RB100-0



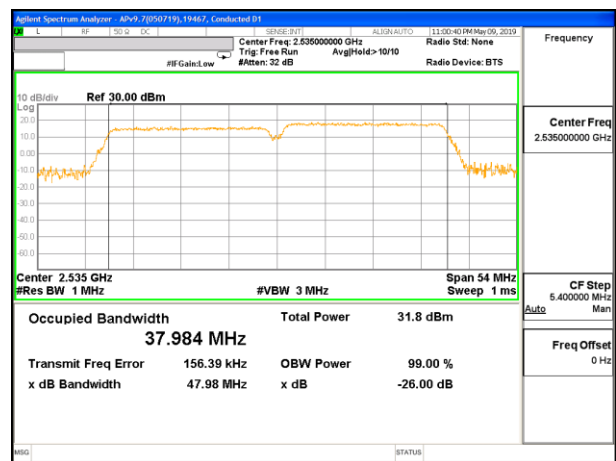
LTE B7 20MHz + 15MHz QPSK RB100-0 + RB75-0



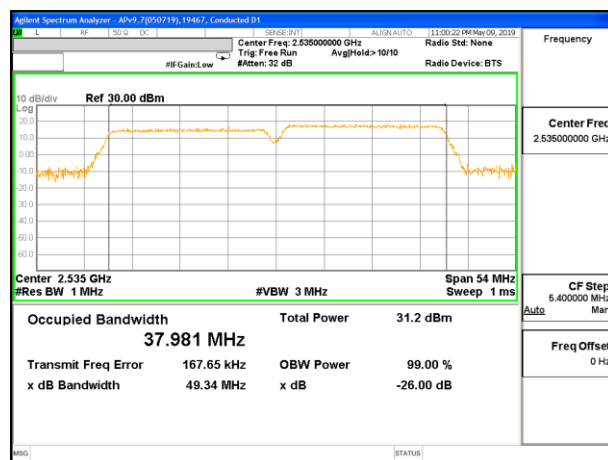
LTE B7 20MHz + 15MHz 16QAM RB100-0 + RB75-0



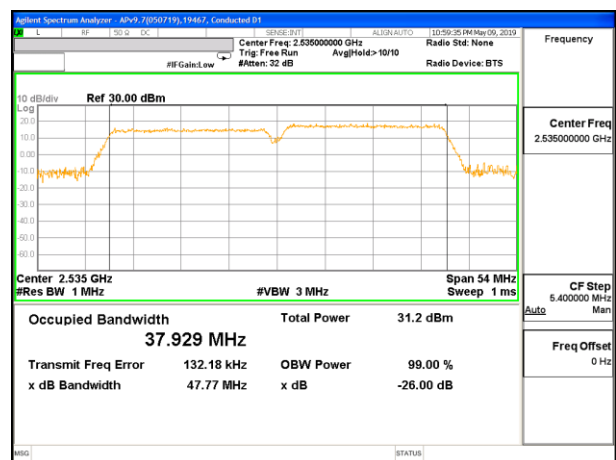
LTE B7 20MHz + 15MHz 64QAM RB100-0 + RB75-0



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

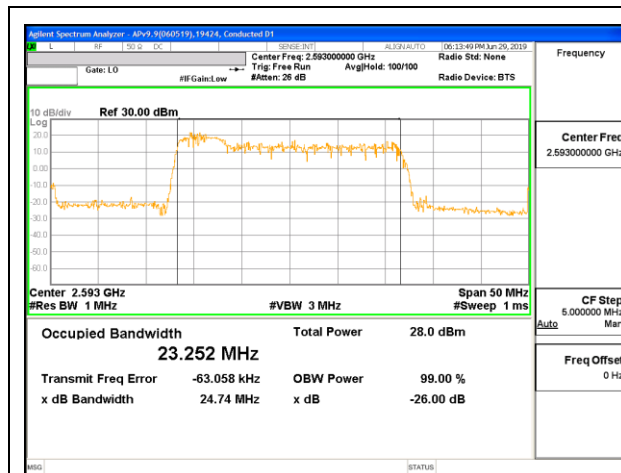


LTE B7 20MHz + 20MHz 16QAM RB100-0 + RB100-0

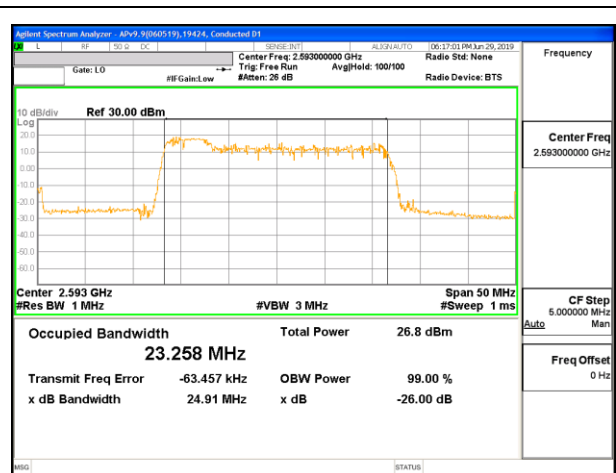


LTE B7 20MHz + 20MHz 64QAM RB100-0 + RB100-0

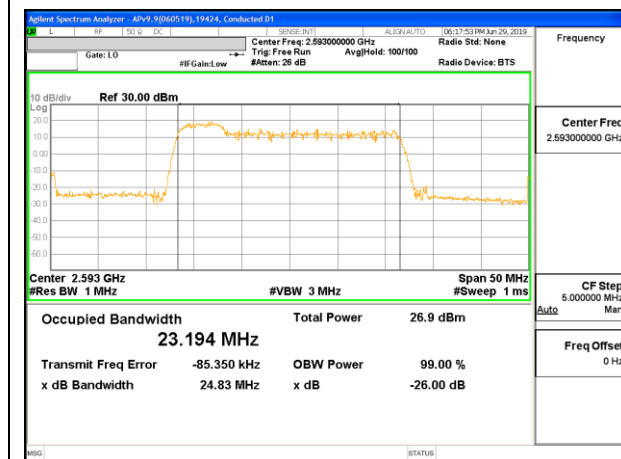
8.1.3. LTE BAND 41



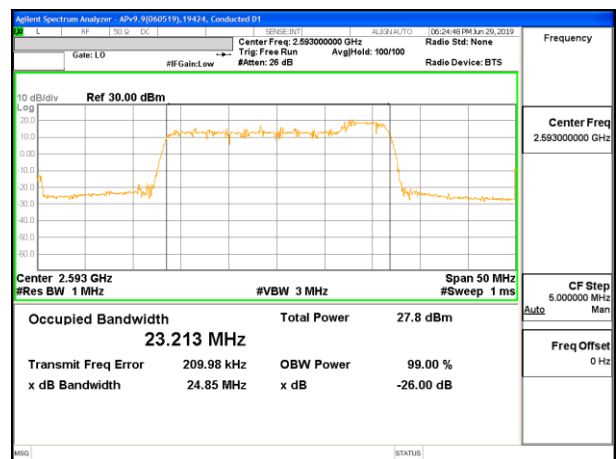
LTE B41 5MHz + 20MHz QPSK RB25-0 + RB100-0



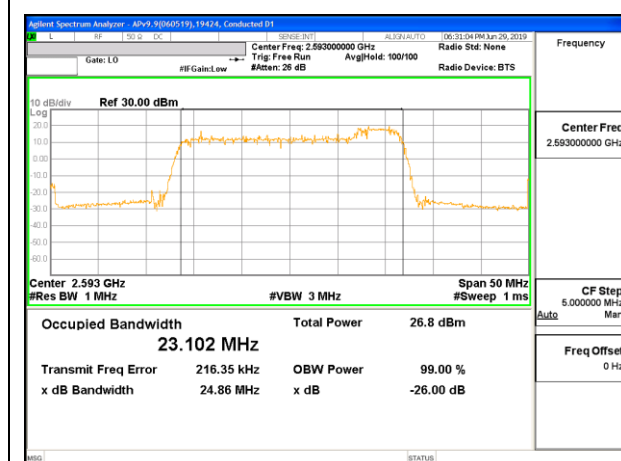
LTE B41 5MHz + 20MHz 16QAM RB25-0 + RB100-0



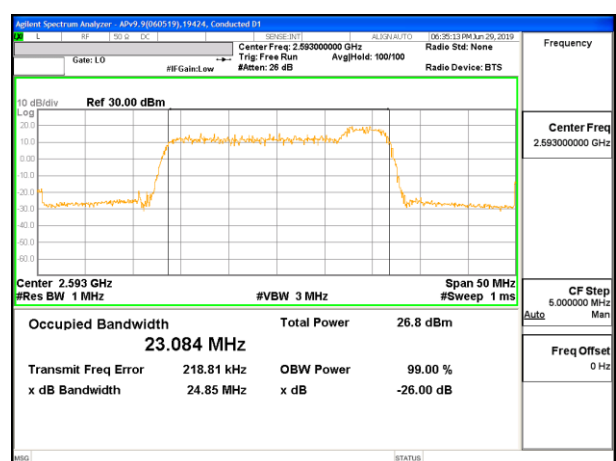
LTE B41 5MHz + 20MHz 64QAM RB25-0 + RB100-0



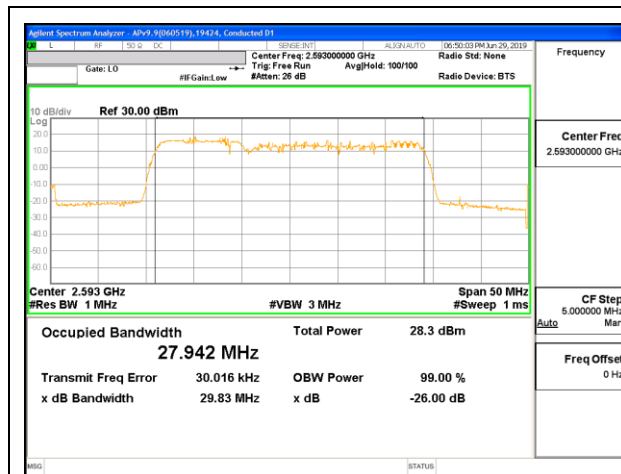
LTE B41 20MHz + 5MHz QPSK RB100-0 + RB25-0



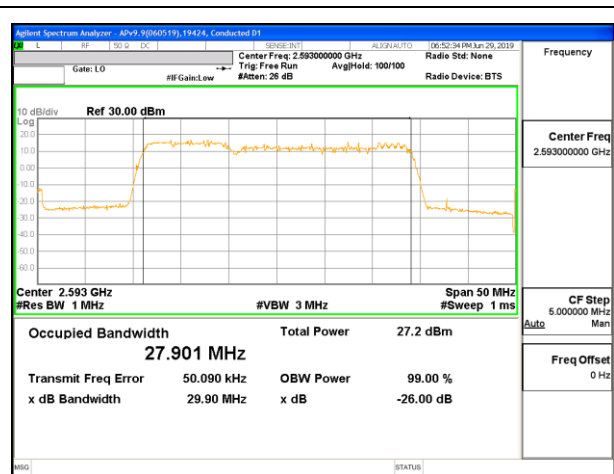
LTE B41 20MHz + 5MHz 16QAM RB100-0 + RB25-0



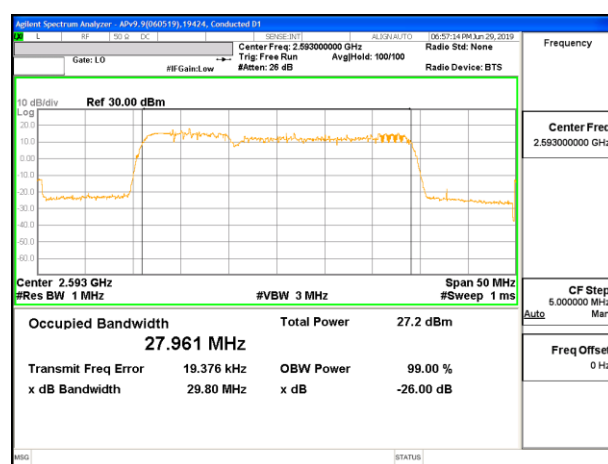
LTE B41 20MHz + 5MHz 64QAM RB100-0 + RB25-0



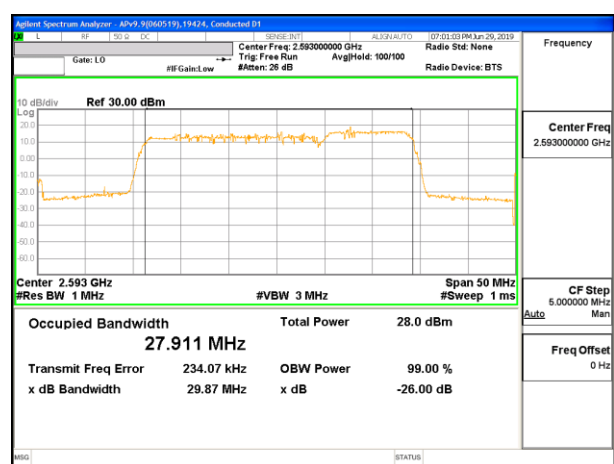
LTE B41 10MHz + 20MHz QPSK RB50-0 + RB100-0



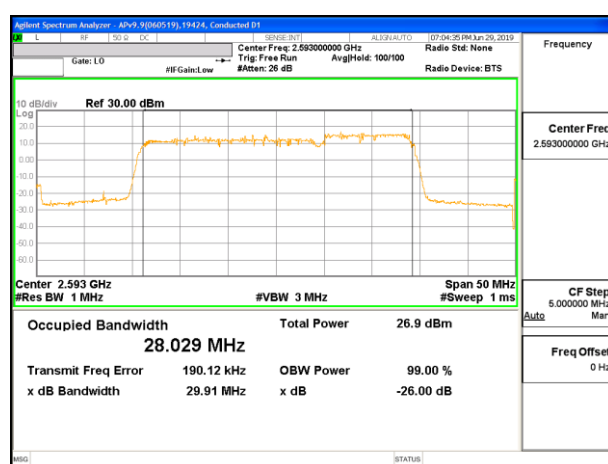
LTE B41 10MHz + 20MHz 16QAM RB50-0 + RB100-0



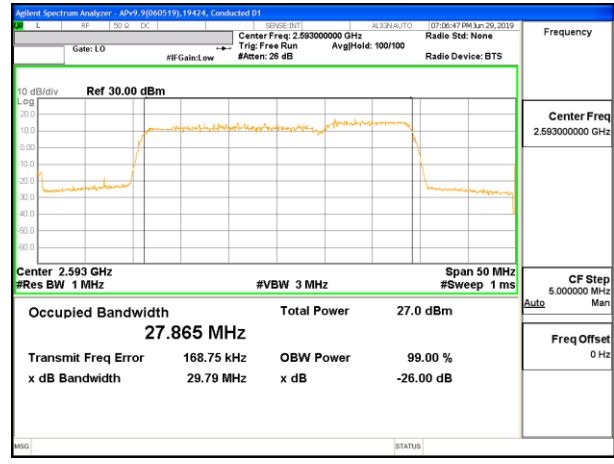
LTE B41 10MHz + 20MHz 64QAM RB50-0 + RB100-0



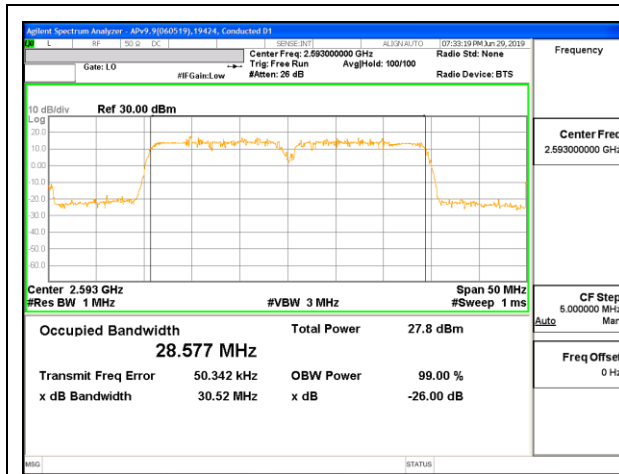
LTE B41 20MHz + 10MHz QPSK RB100-0 + RB50-0



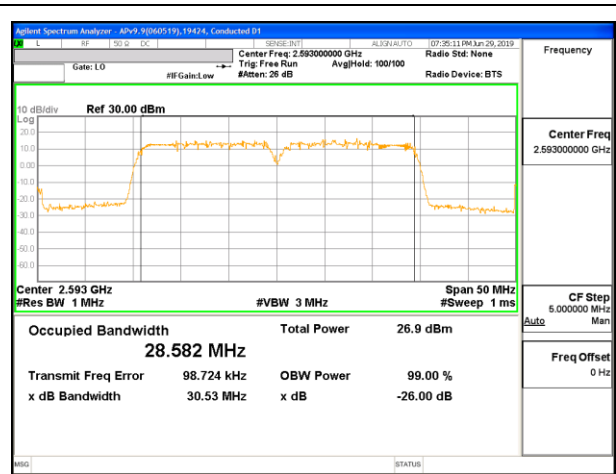
LTE B41 20MHz + 10MHz 16QAM RB100-0 + RB50-0



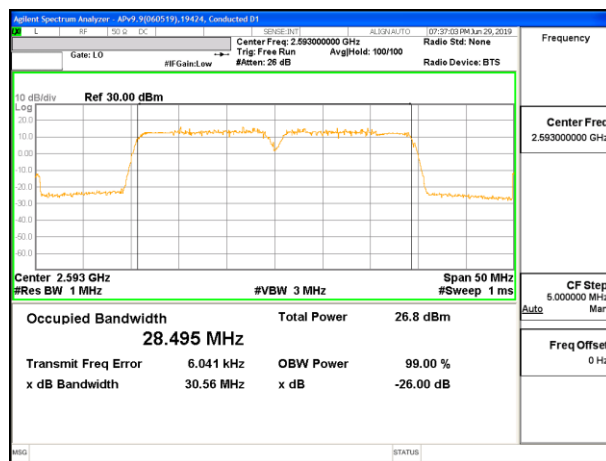
LTE B41 20MHz + 10MHz 64QAM RB100-0 + RB50-0



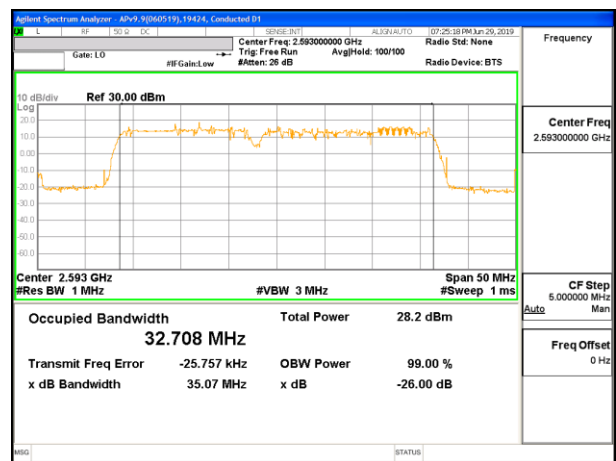
LTE B41 15MHz + 15MHz QPSK RB75-0 + RB75-0



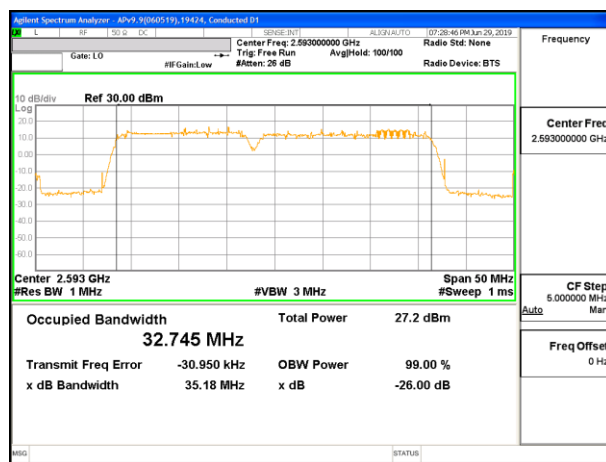
LTE B41 15MHz + 15MHz 16QAM RB75-0 + RB75-0



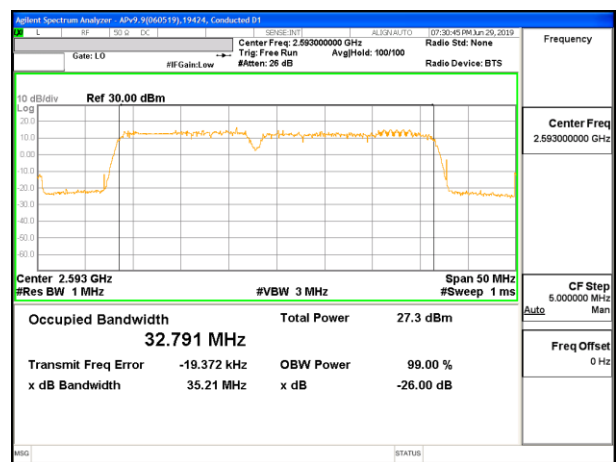
LTE B41 15MHz + 15MHz 64QAM RB75-0 + RB75-0



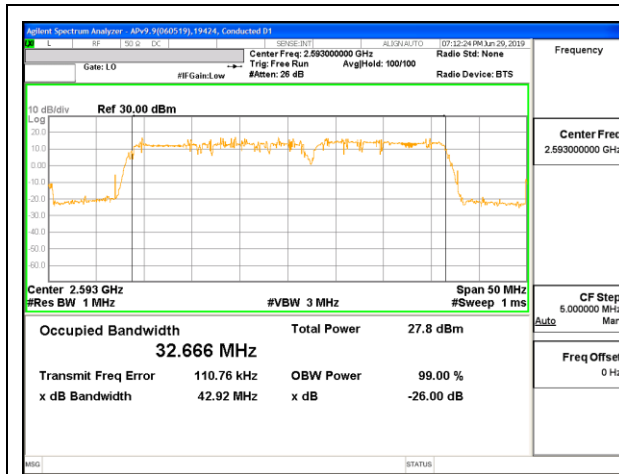
LTE B41 15MHz + 20MHz QPSK RB75-0 + RB100-0



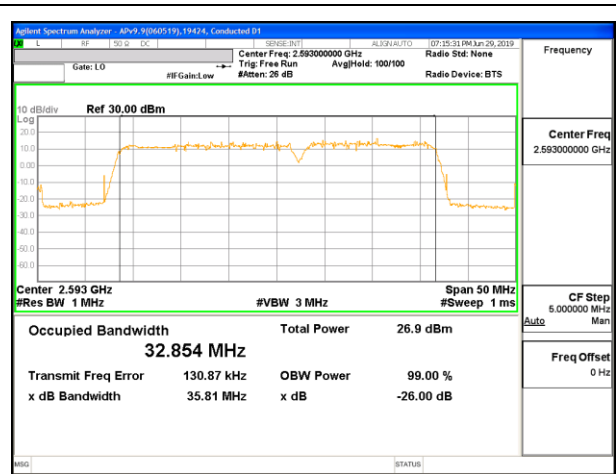
LTE B41 15MHz + 20MHz 16QAM RB75-0 + RB100-0



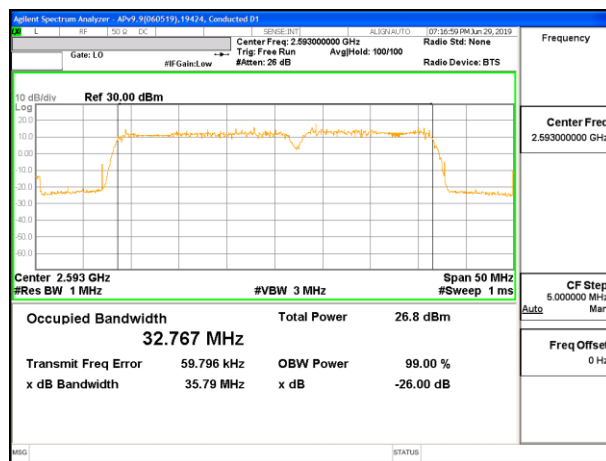
LTE B41 15MHz + 20MHz 64QAM RB75-0 + RB100-0



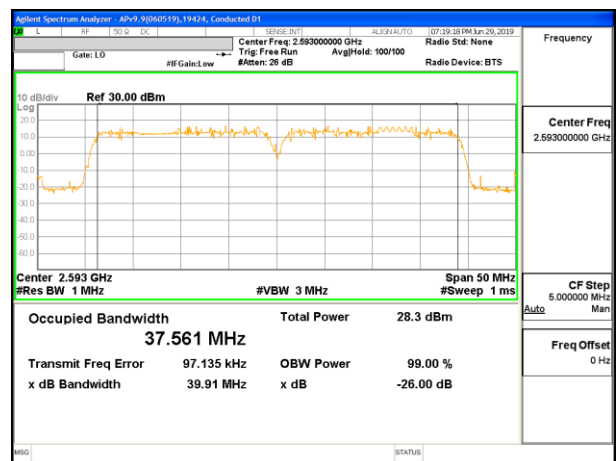
LTE B41 20MHz + 15MHz QPSK RB100-0 + RB75-0



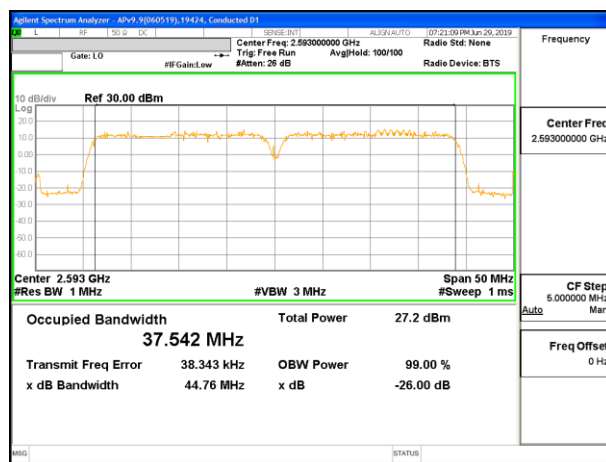
LTE B41 20MHz + 15MHz 16QAM RB100-0 + RB75-0



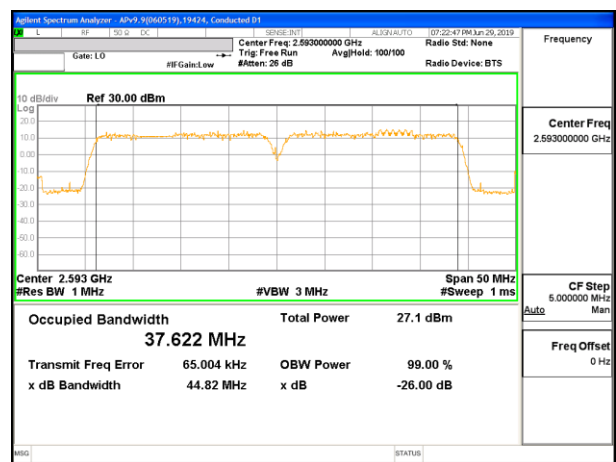
LTE B41 20MHz + 15MHz 64QAM RB100-0 + RB75-0



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

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 than $43 + 10 \log (P)$ 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 CMW500 Test 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.

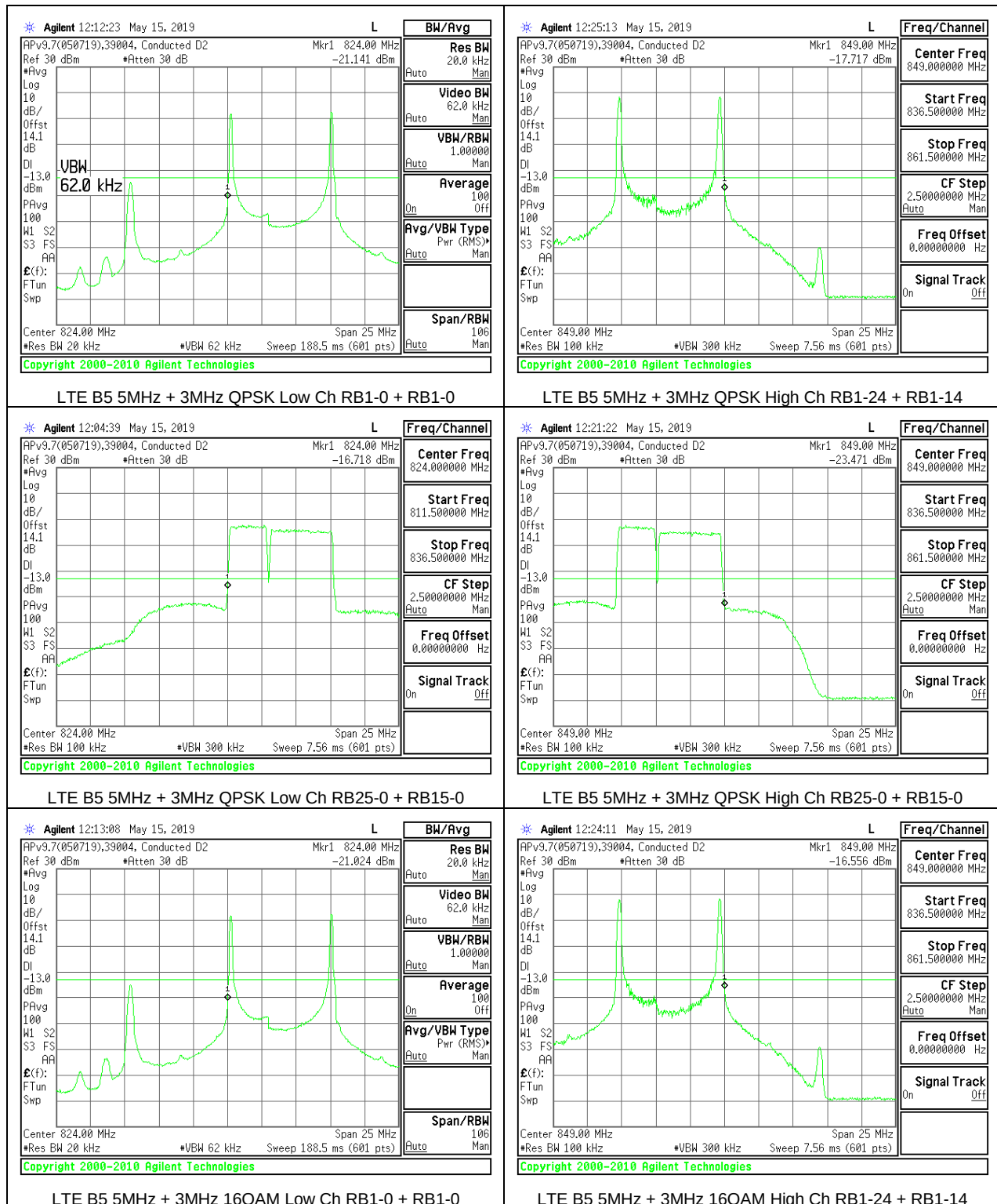
(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of 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.

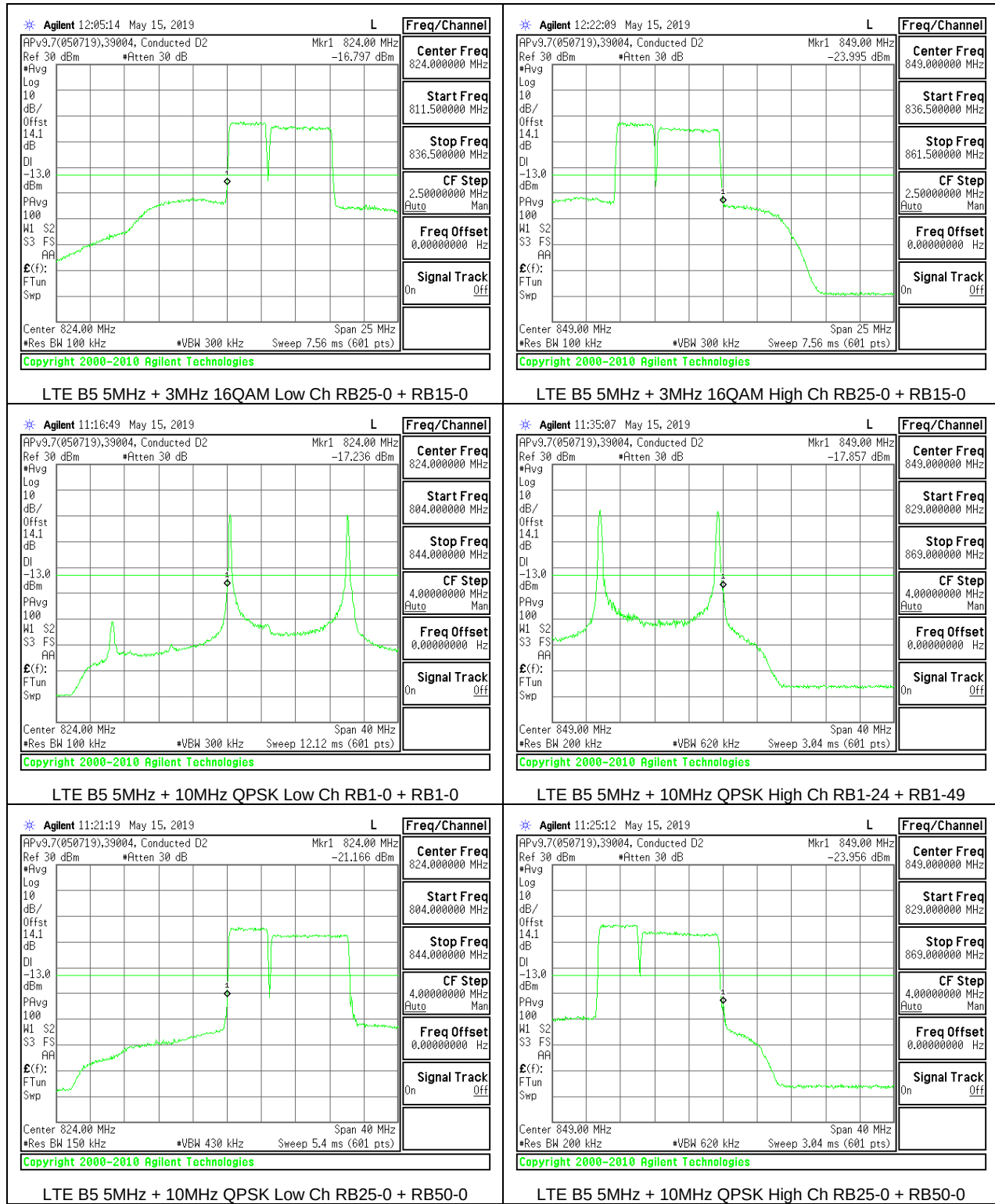
MODES TESTED

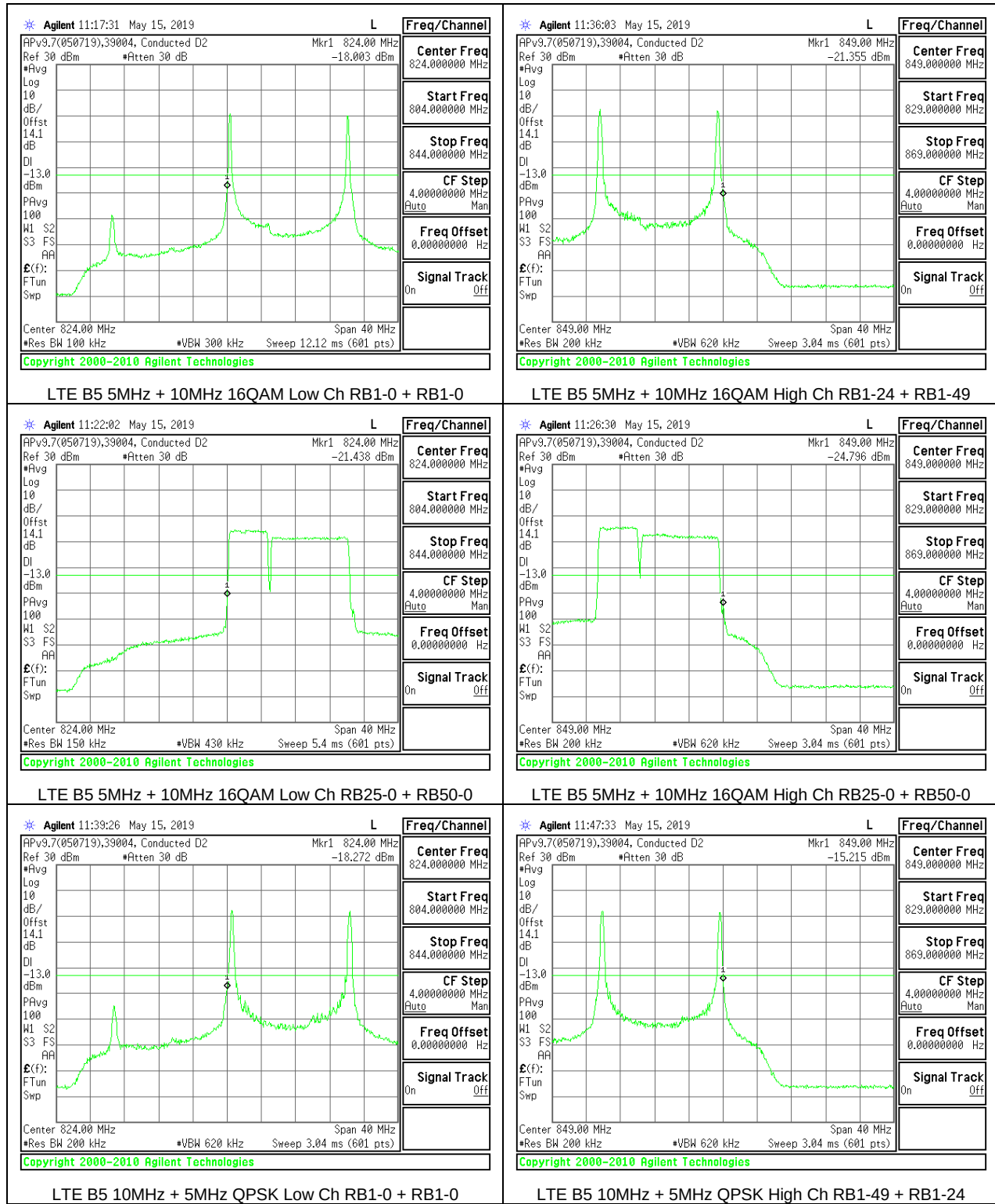
- LTE Band 5
- LTE Band 7
- LTE Band 41

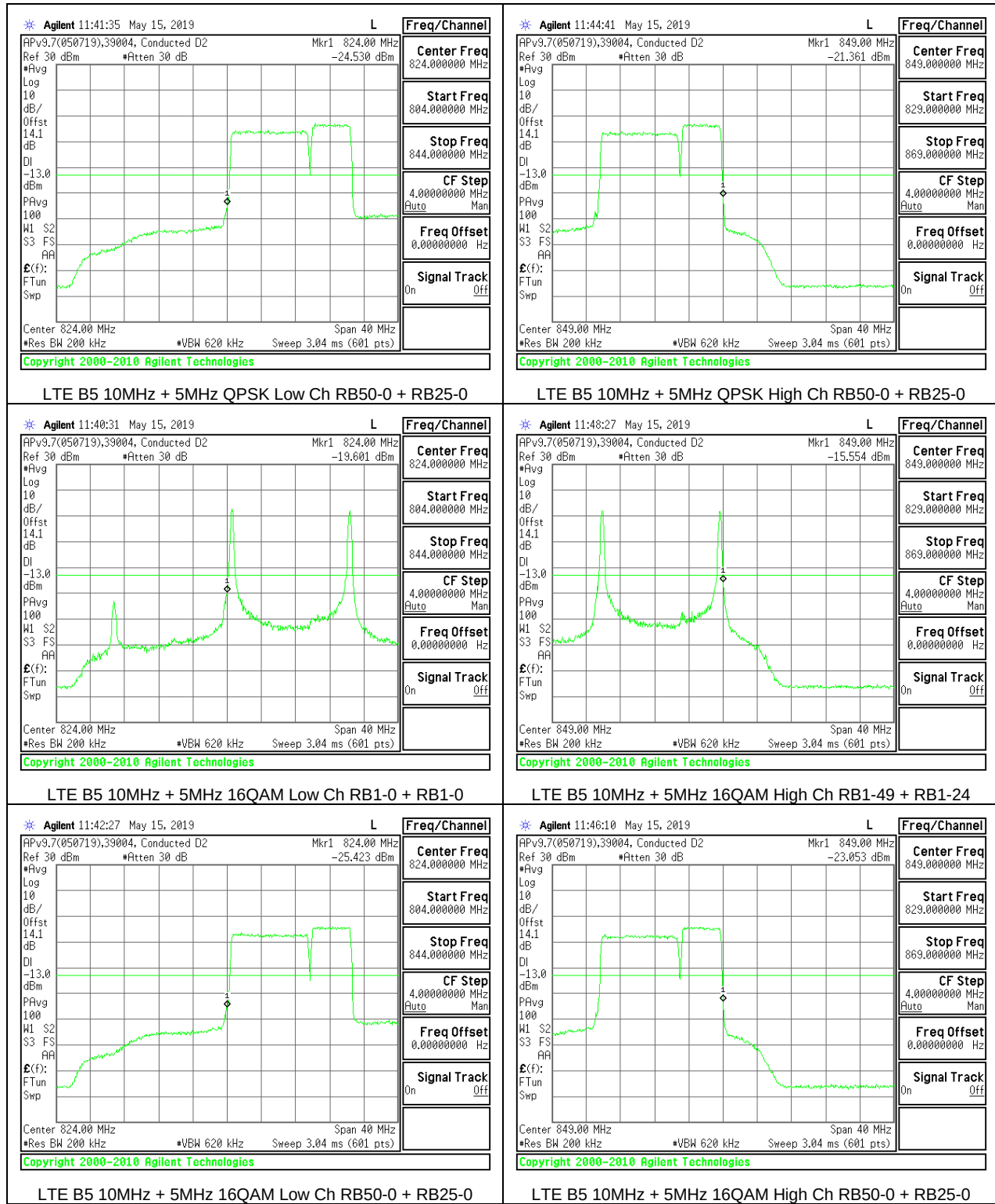
RESULTS

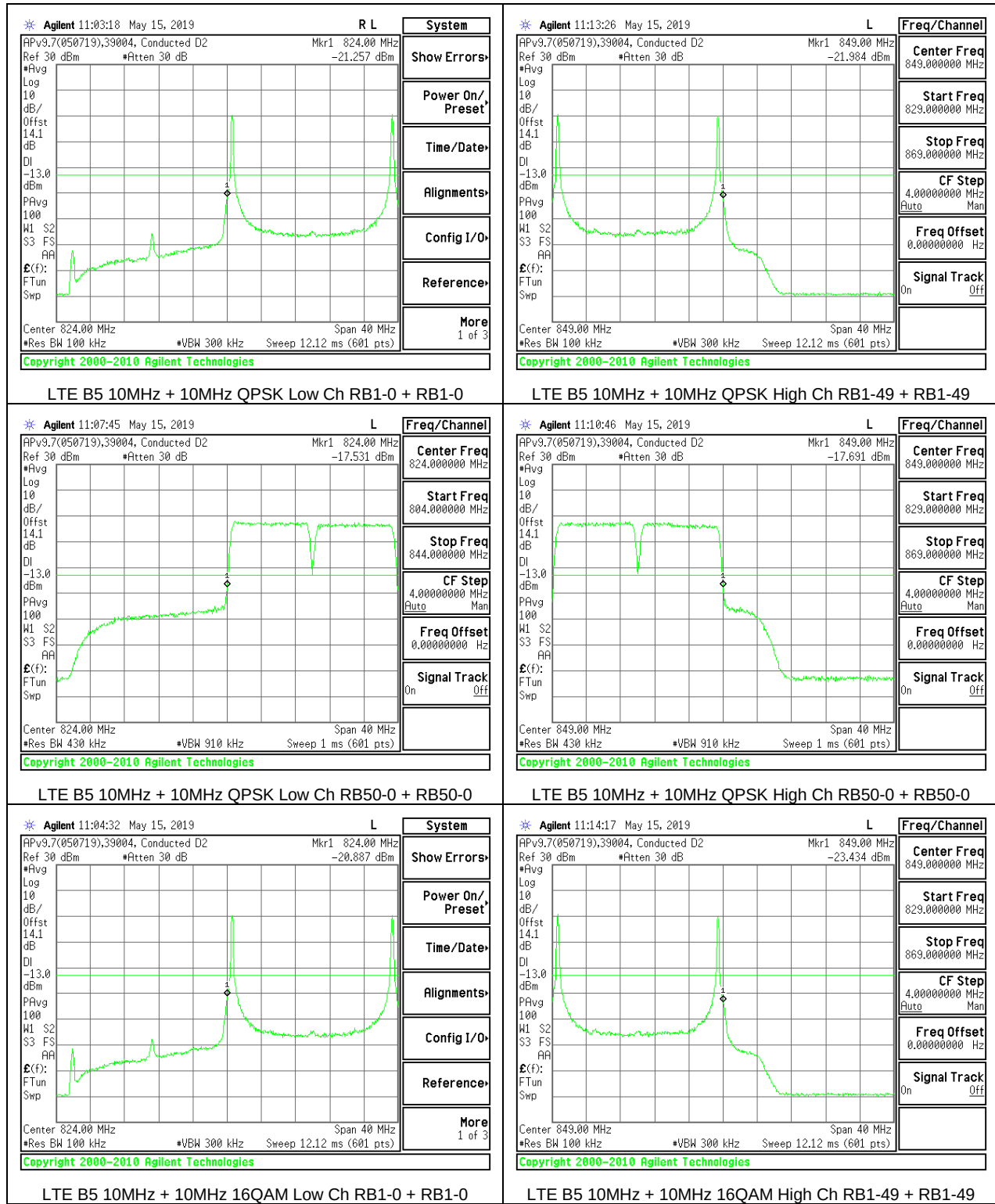
8.2.1. LTE BAND 5

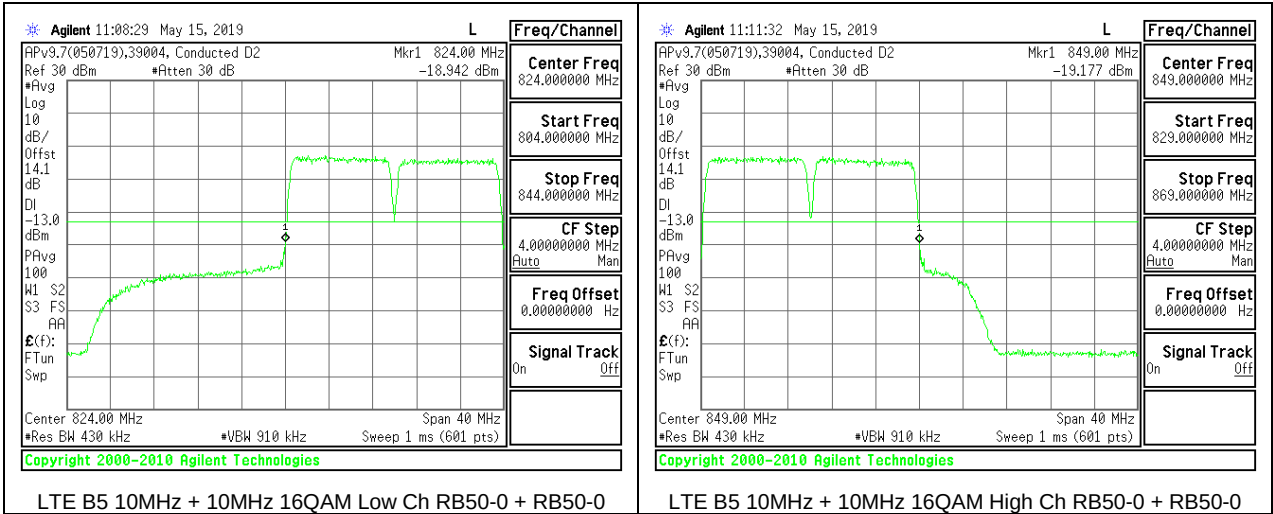






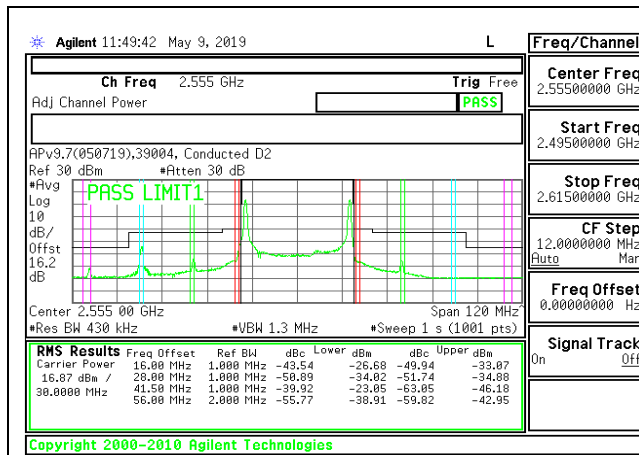




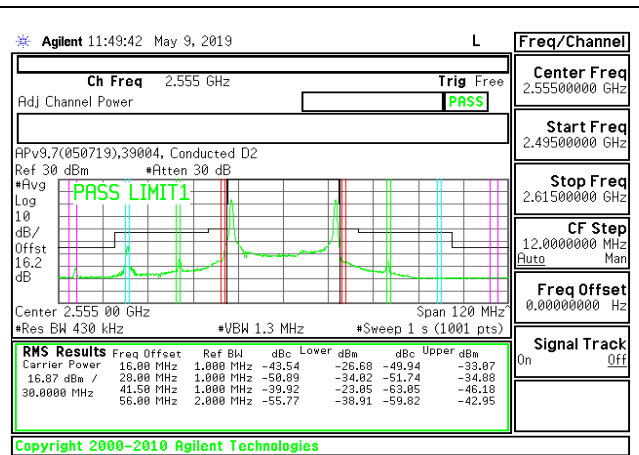


8.2.2. LTE BAND 7

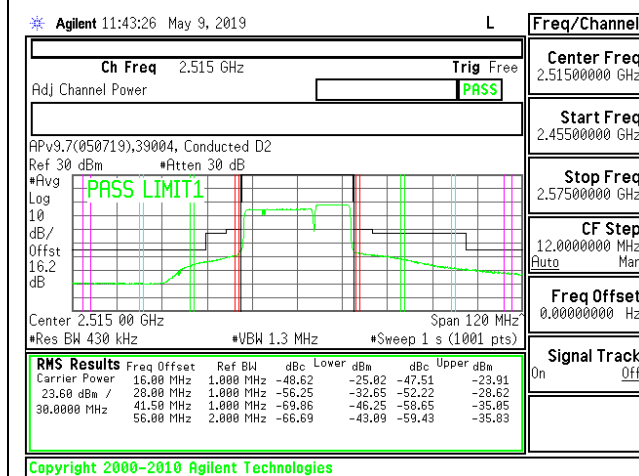




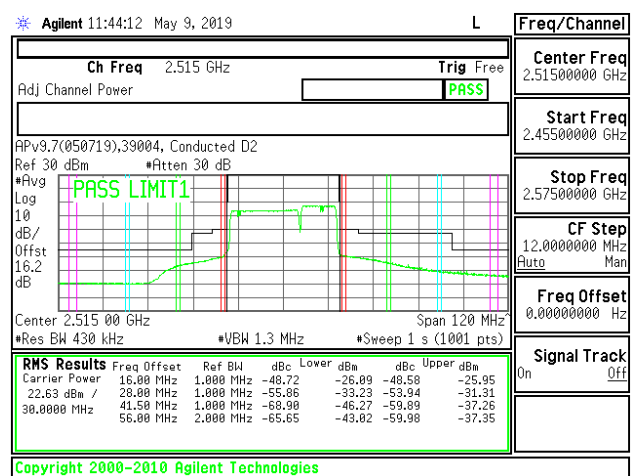
LTE B7 20MHz + 10MHz QPSK High Ch RB1-0 + RB1-49



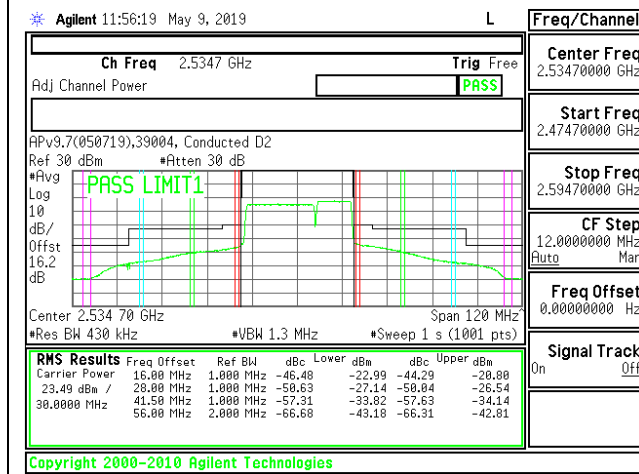
LTE B7 20MHz + 10MHz 16QAM High Ch RB1-0 + RB1-49



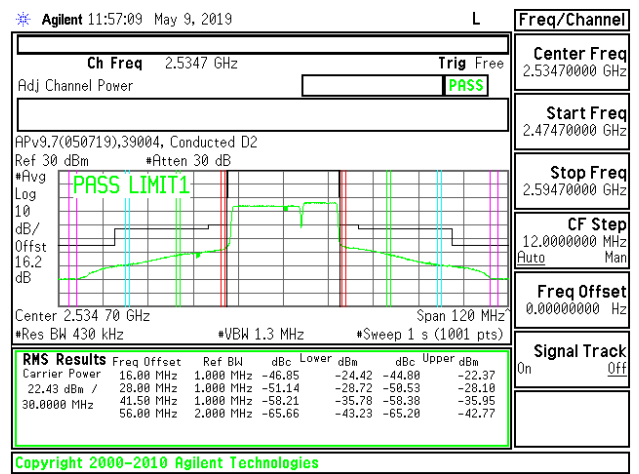
LTE B7 20MHz + 10MHz QPSK Low Ch RB100-0 + RB50-0



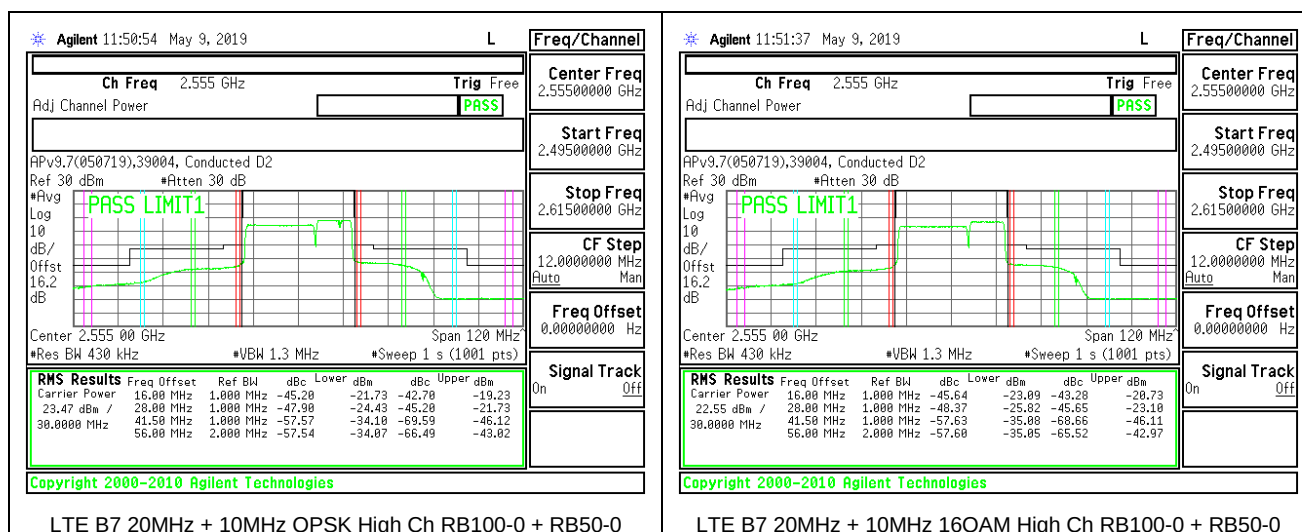
LTE B7 20MHz + 10MHz 16QAM Low Ch RB100-0 + RB50-0

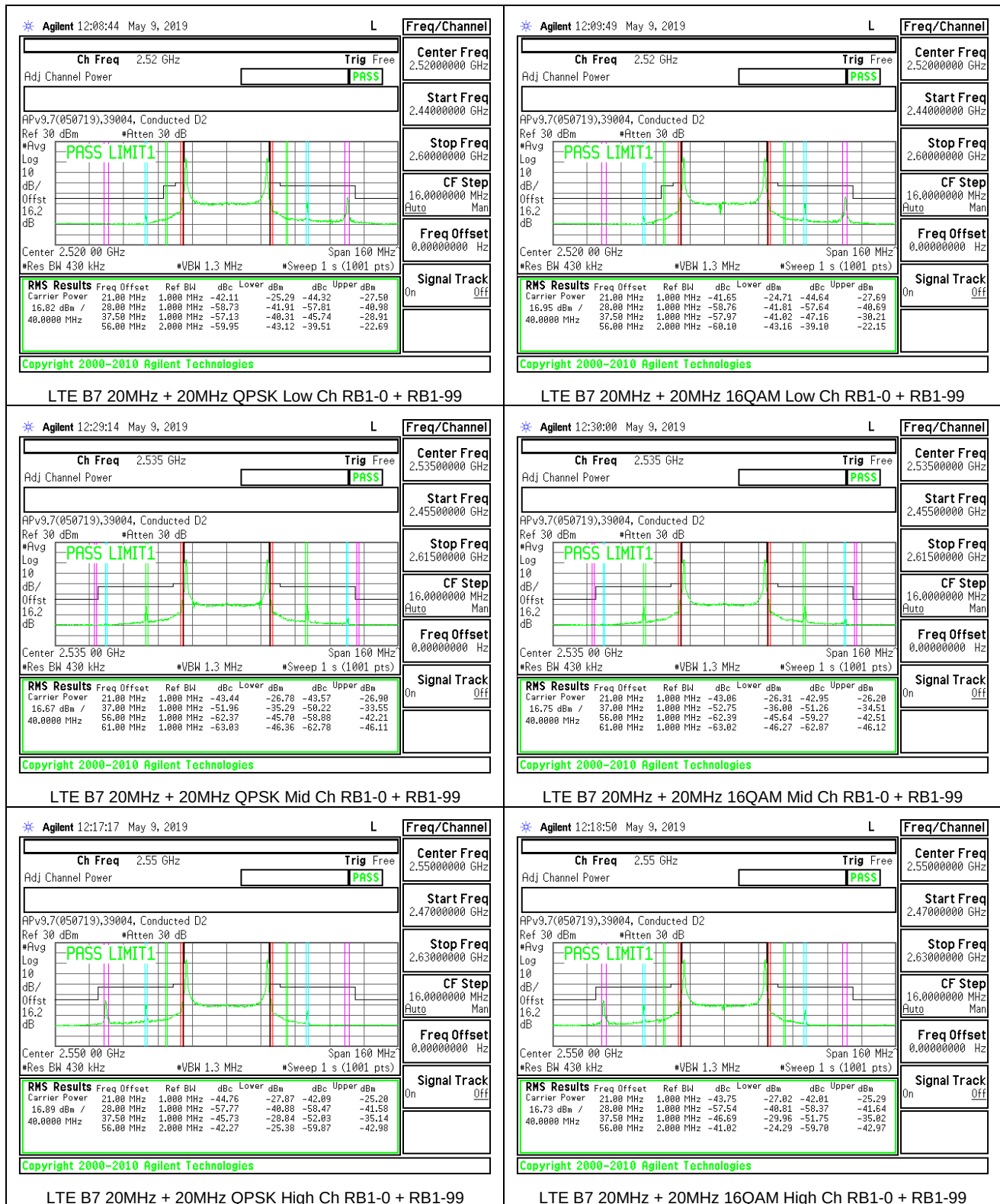


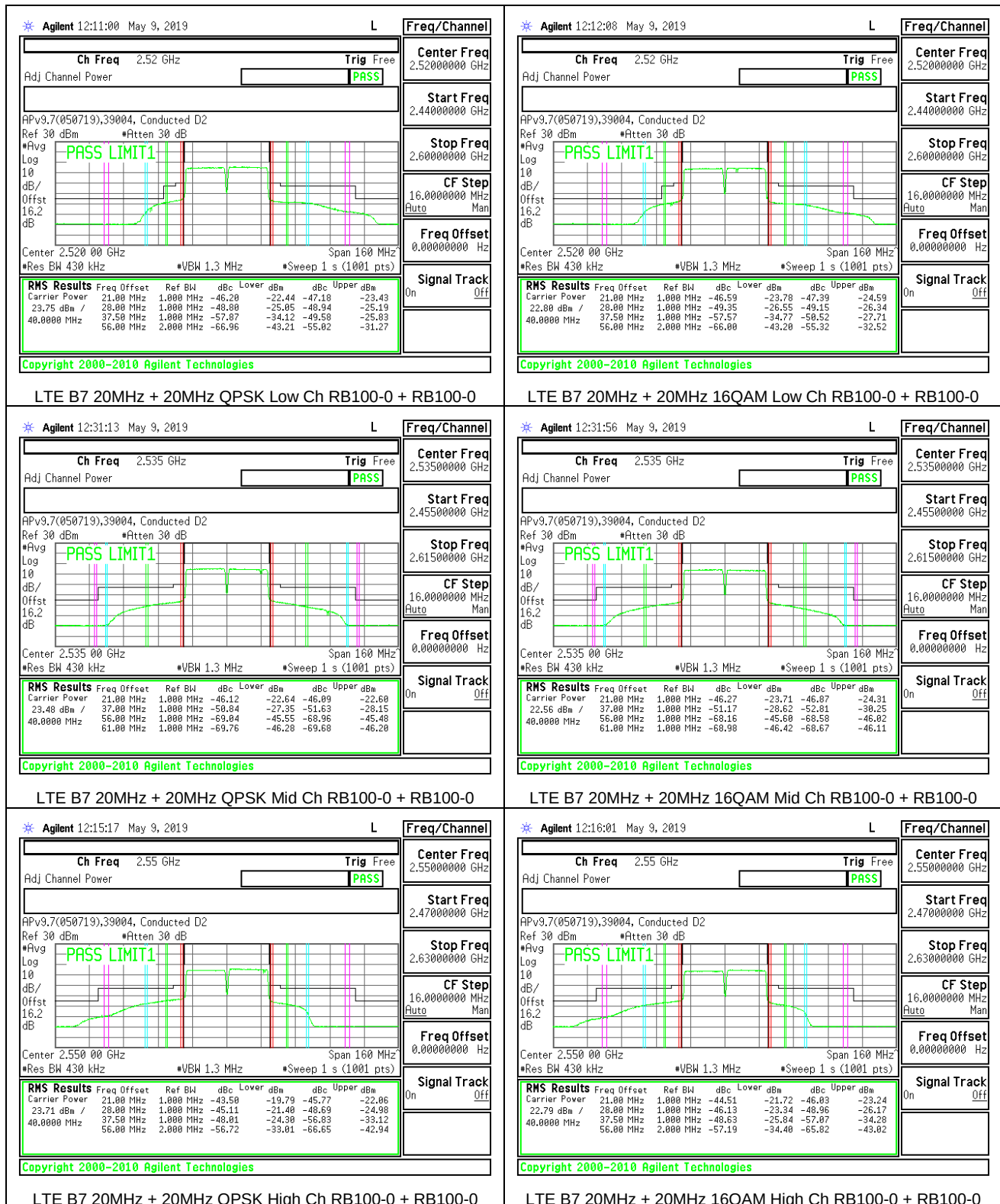
LTE B7 20MHz + 10MHz QPSK Mid Ch RB100-0 + RB50-0



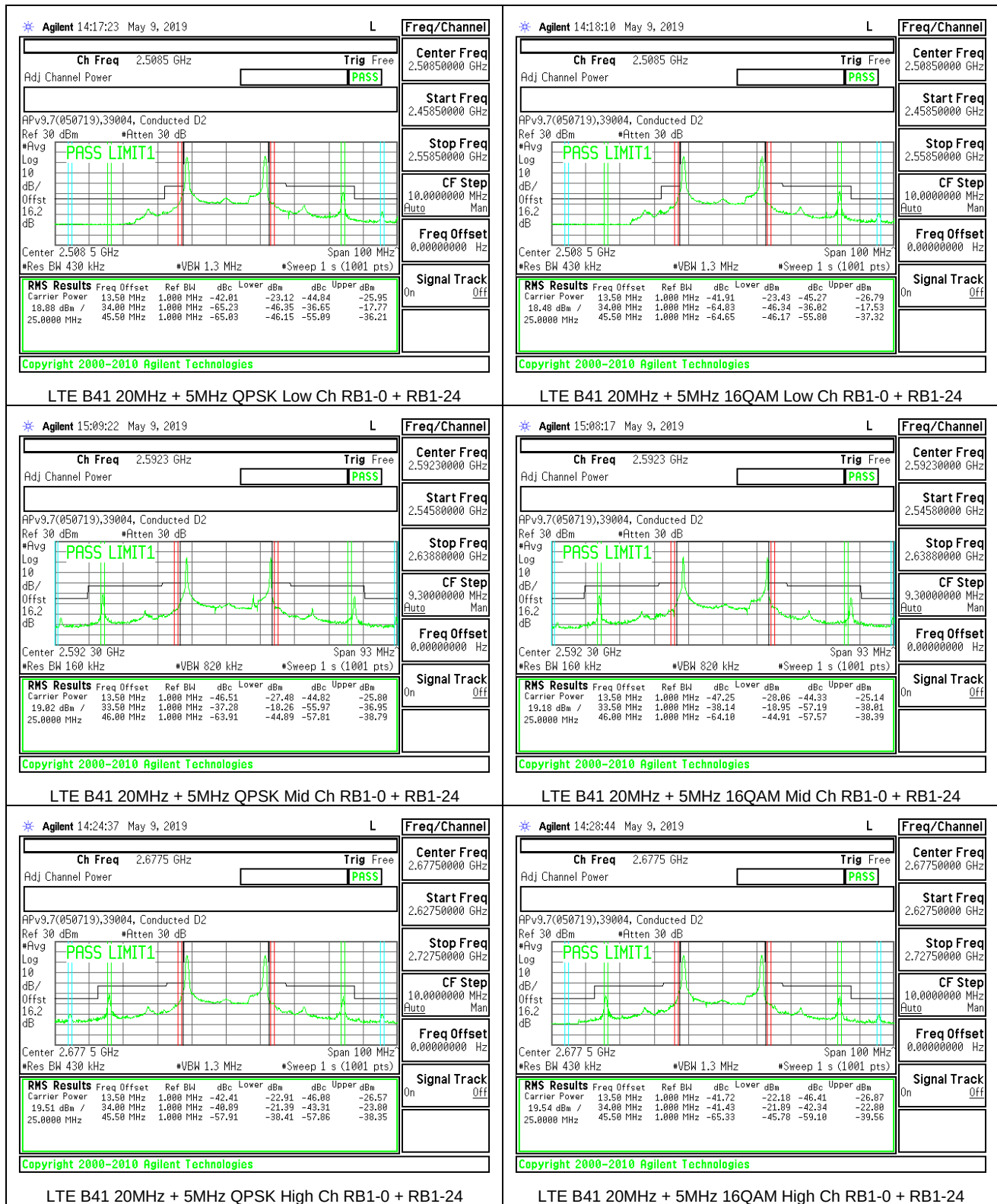
LTE B7 20MHz + 10MHz 16QAM Mid Ch RB100-0 + RB50-0

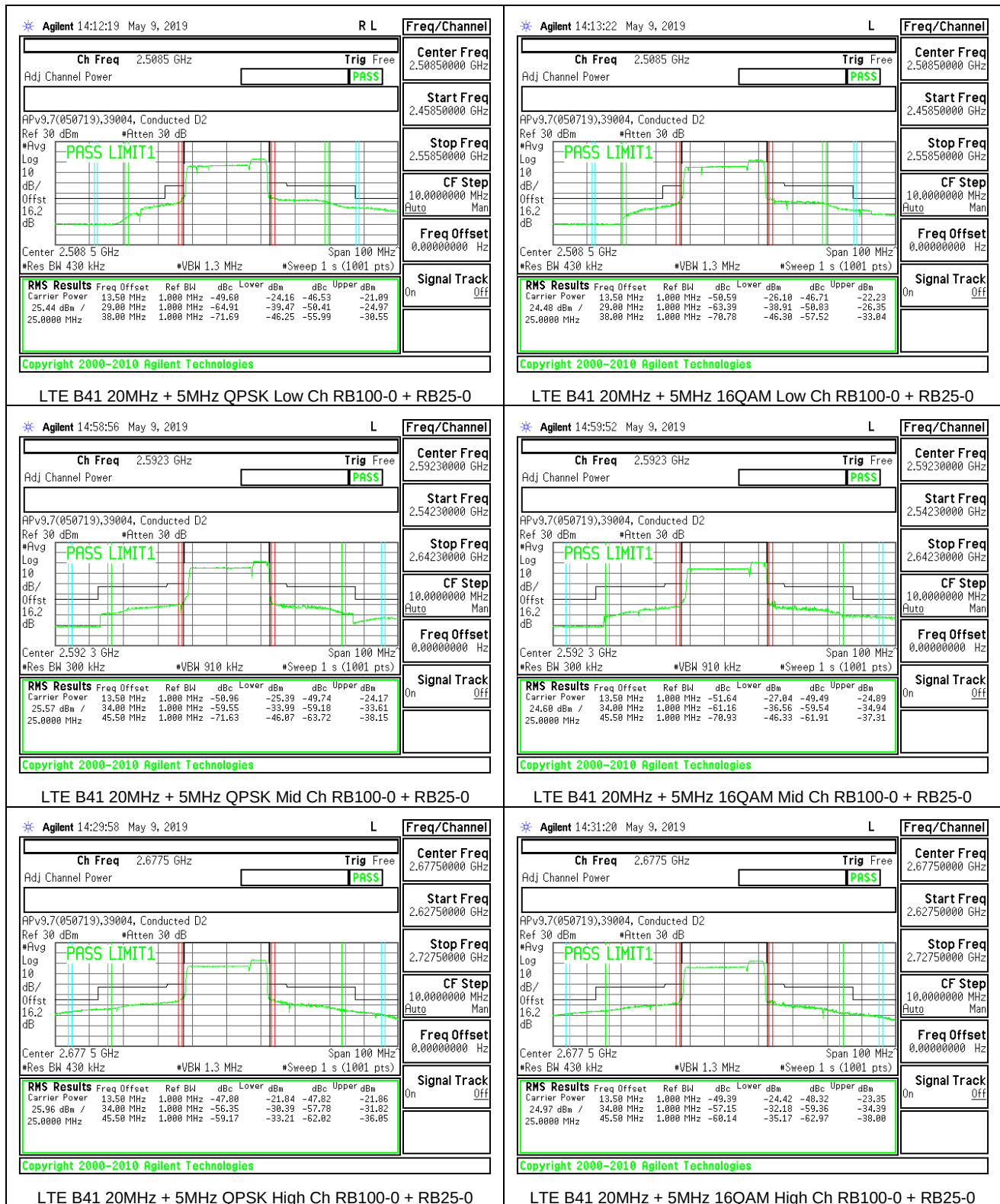




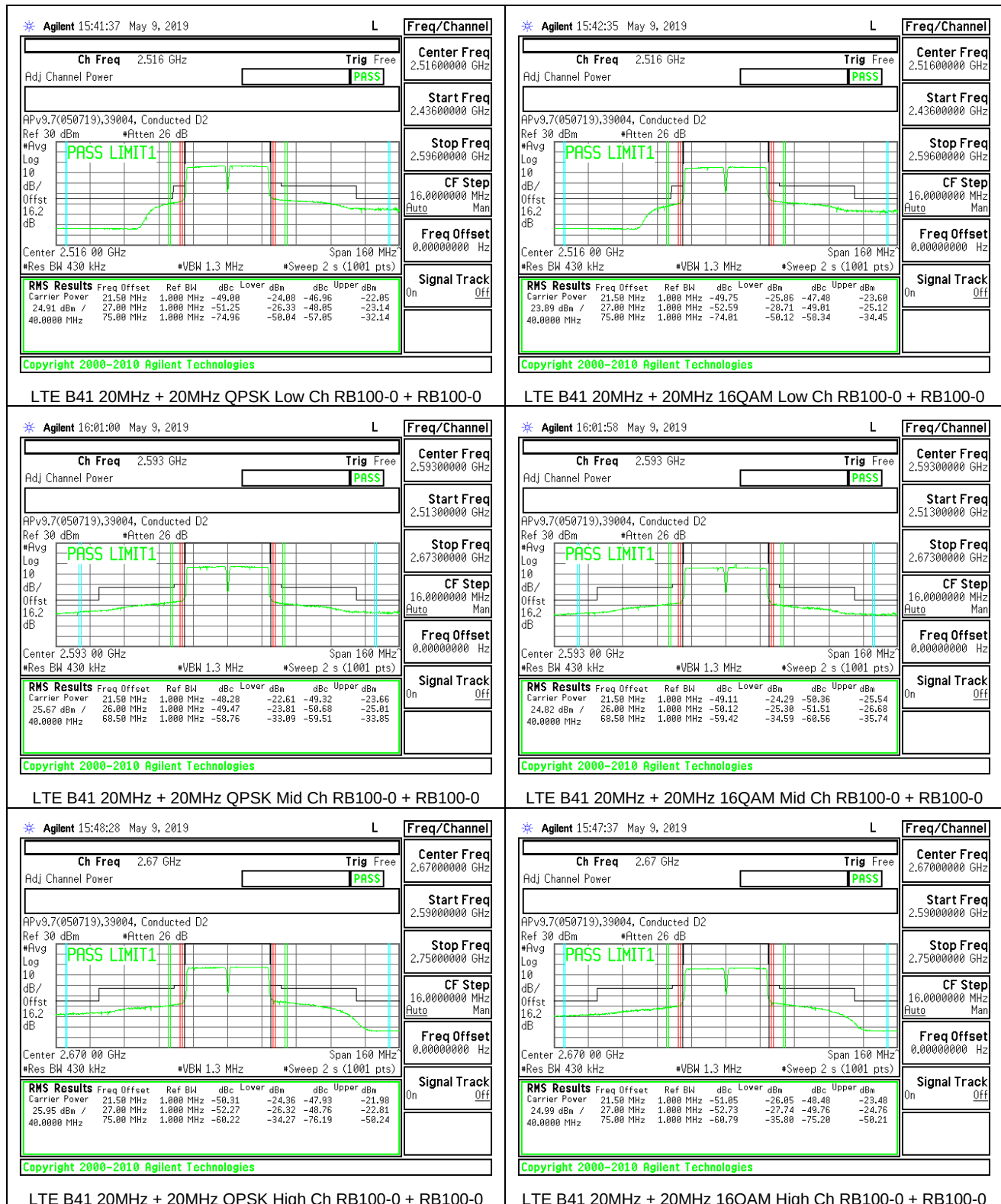


8.2.3. LTE BAND 41









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.

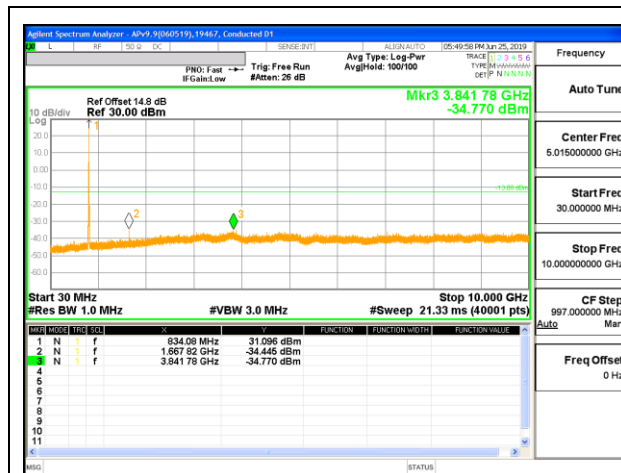
For each out of band emissions measurement:

- Set display line at -13 dBm to band 5 and -25 dBm to band 7 and 41
- 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)

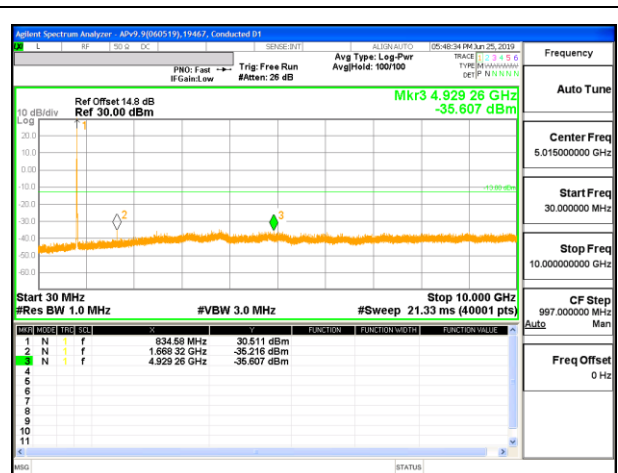
MODES TESTED

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

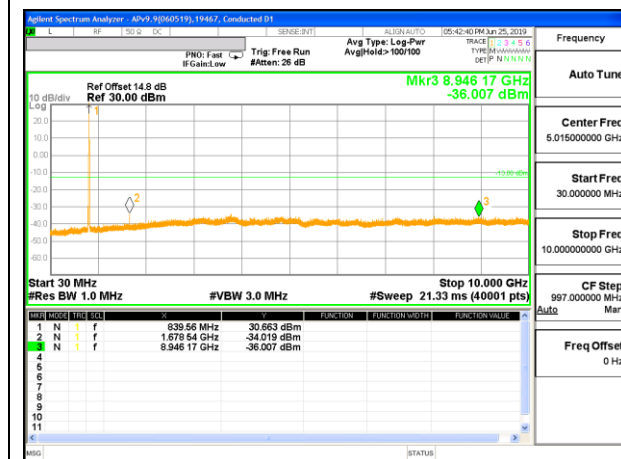
8.3.1. LTE BAND 5



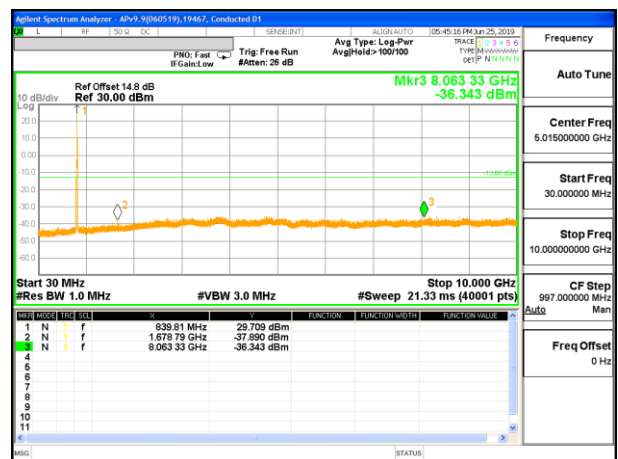
LTE B5 10MHz + 5MHz QPSK Low Ch RB1-49 + RB1-0



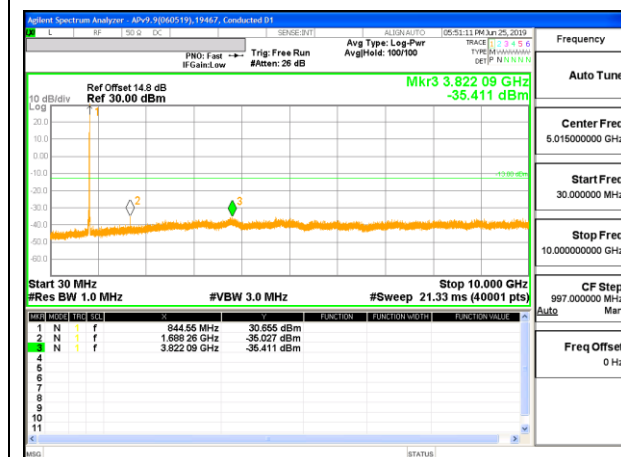
LTE B5 10MHz + 5MHz 16QAM Low Ch RB1-49 + RB1-0



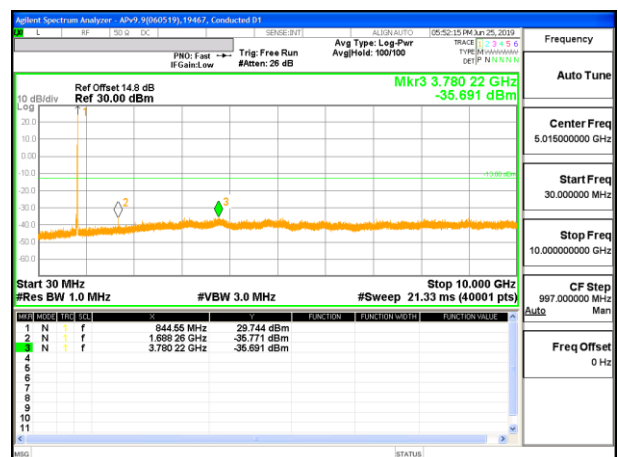
LTE B5 10MHz + 5MHz QPSK Middle Ch RB1-49 + RB1-0



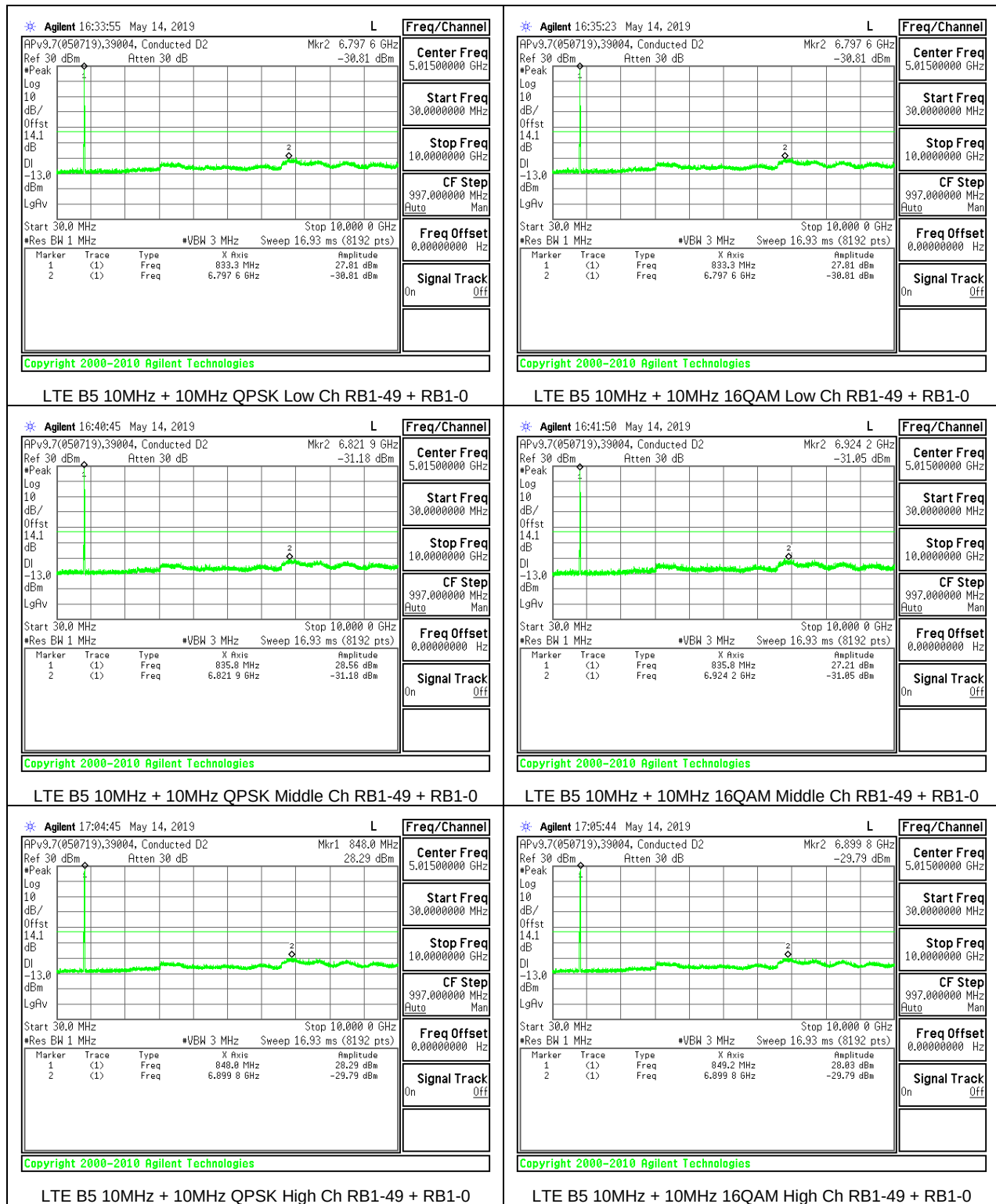
LTE B5 10MHz + 5MHz 16QAM Middle Ch RB1-49 + RB1-0



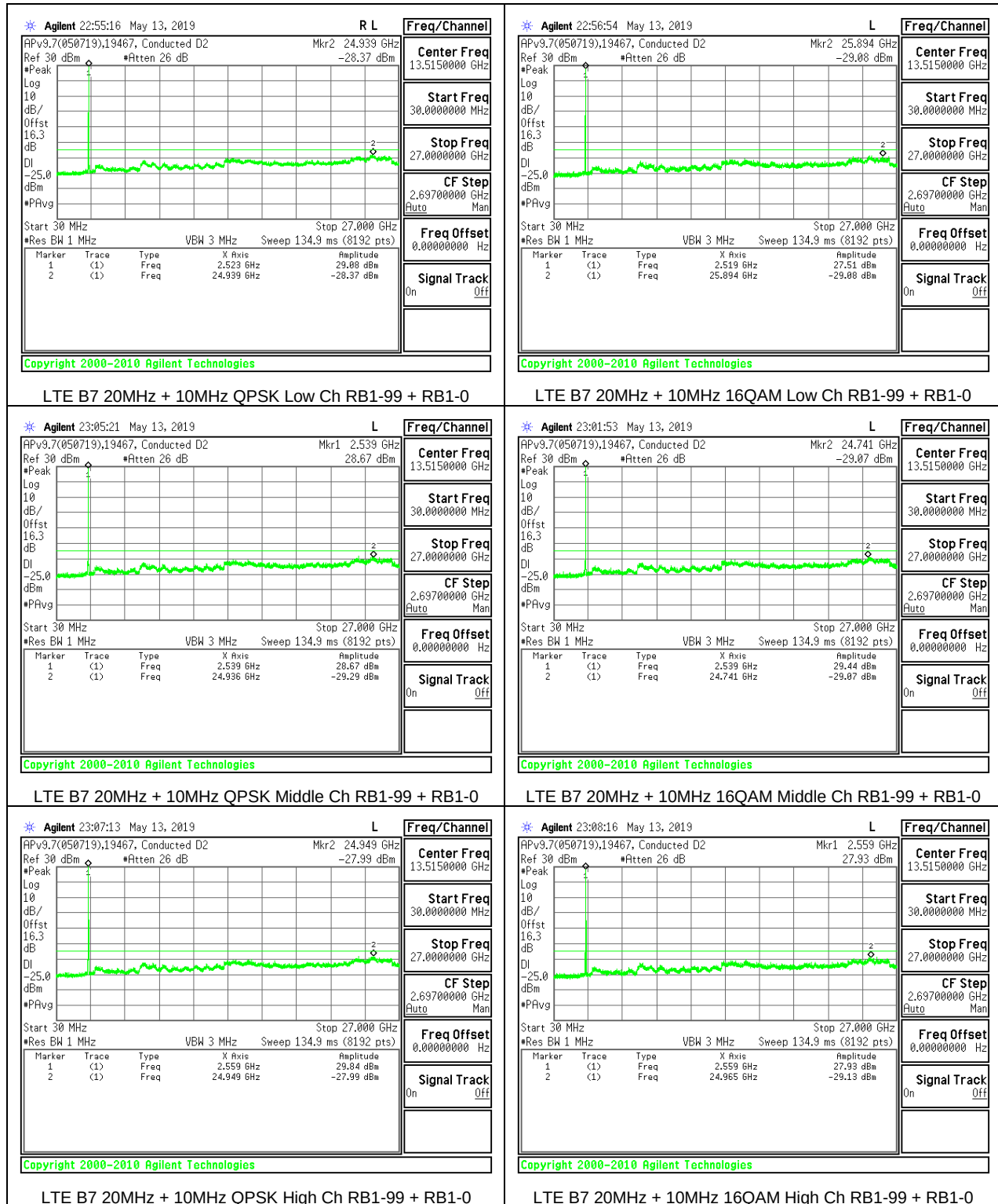
LTE B5 10MHz + 5MHz QPSK High Ch RB1-49 + RB1-0

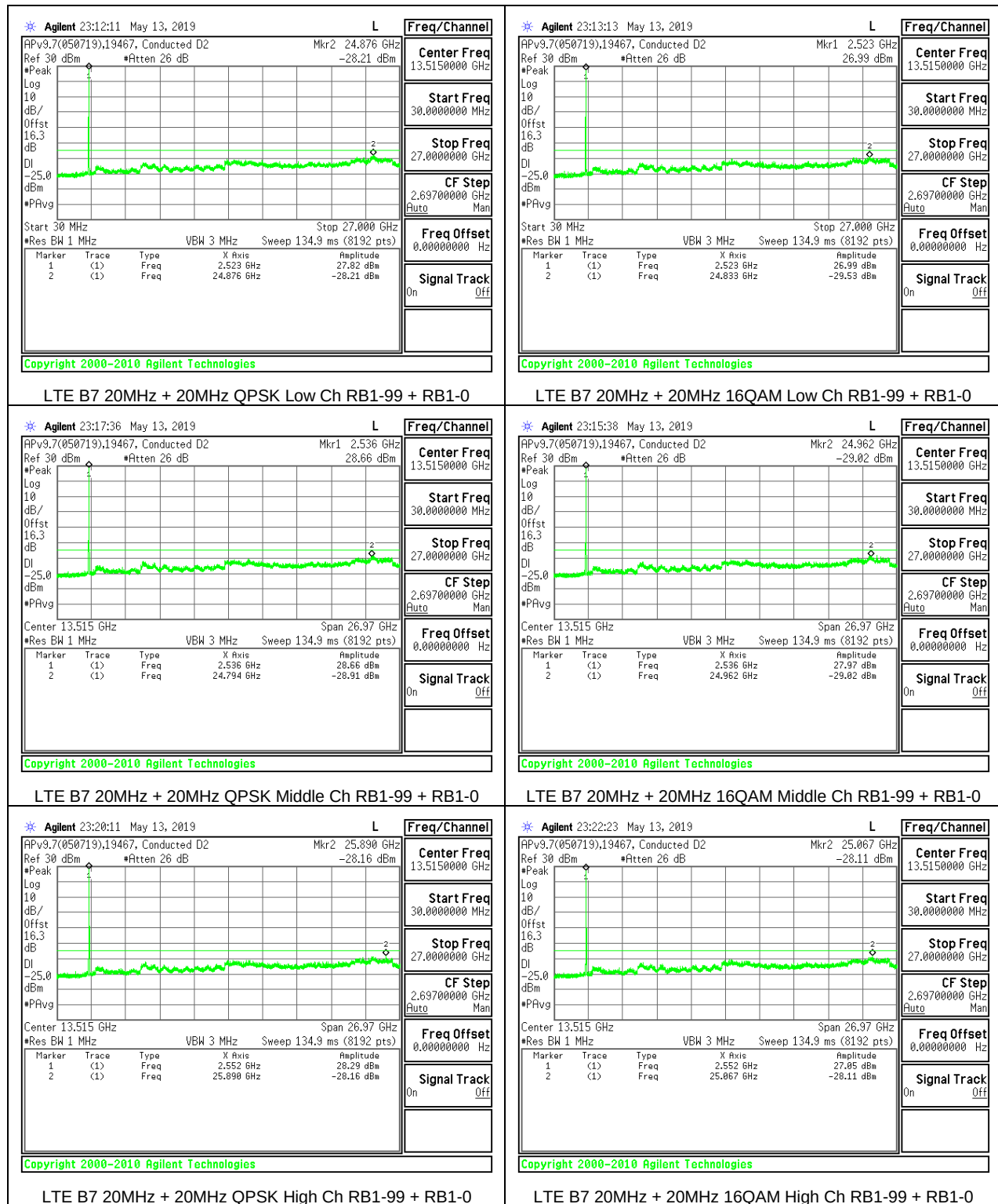


LTE B5 10MHz + 5MHz 16QAM High Ch RB1-49 + RB1-0

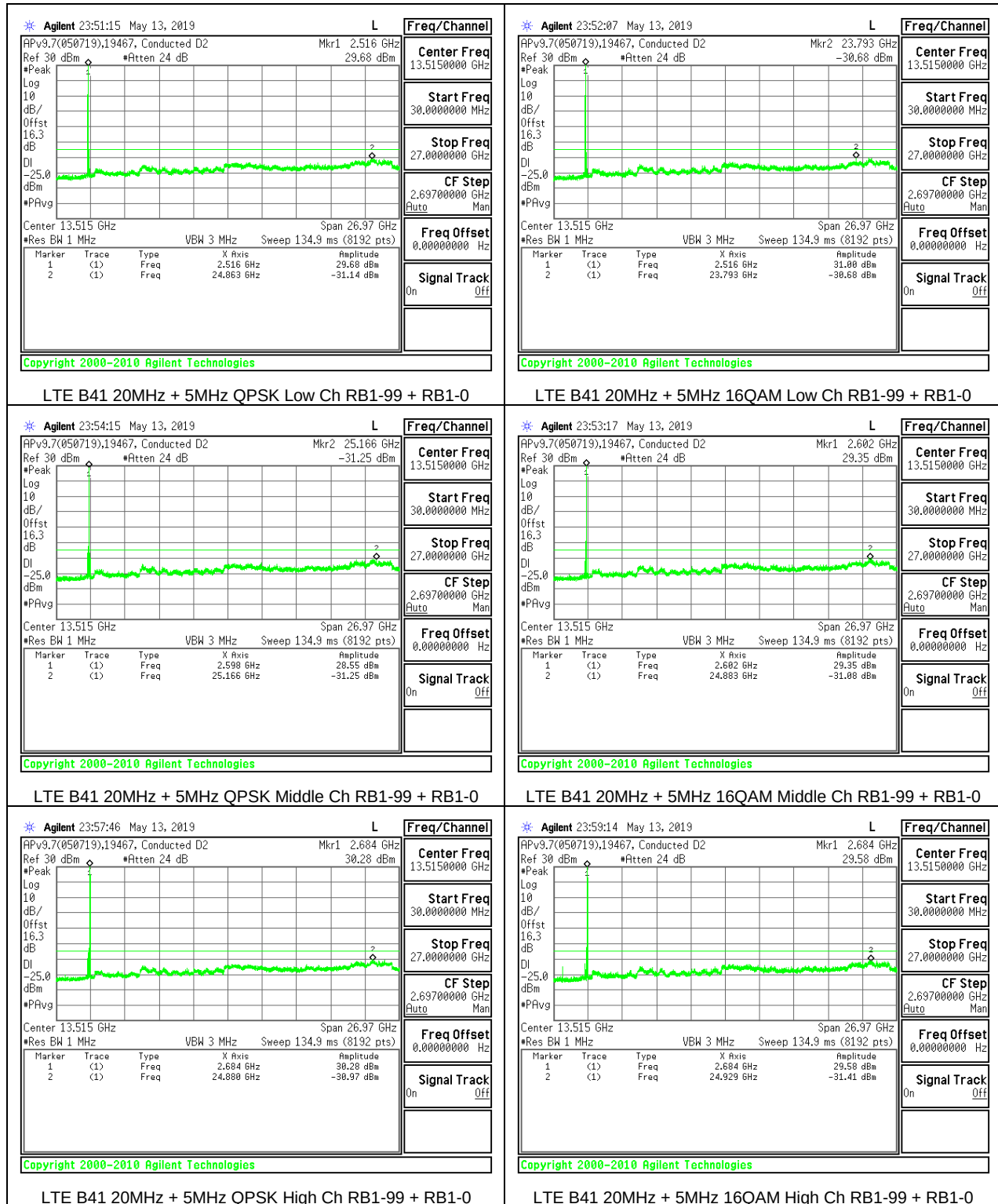


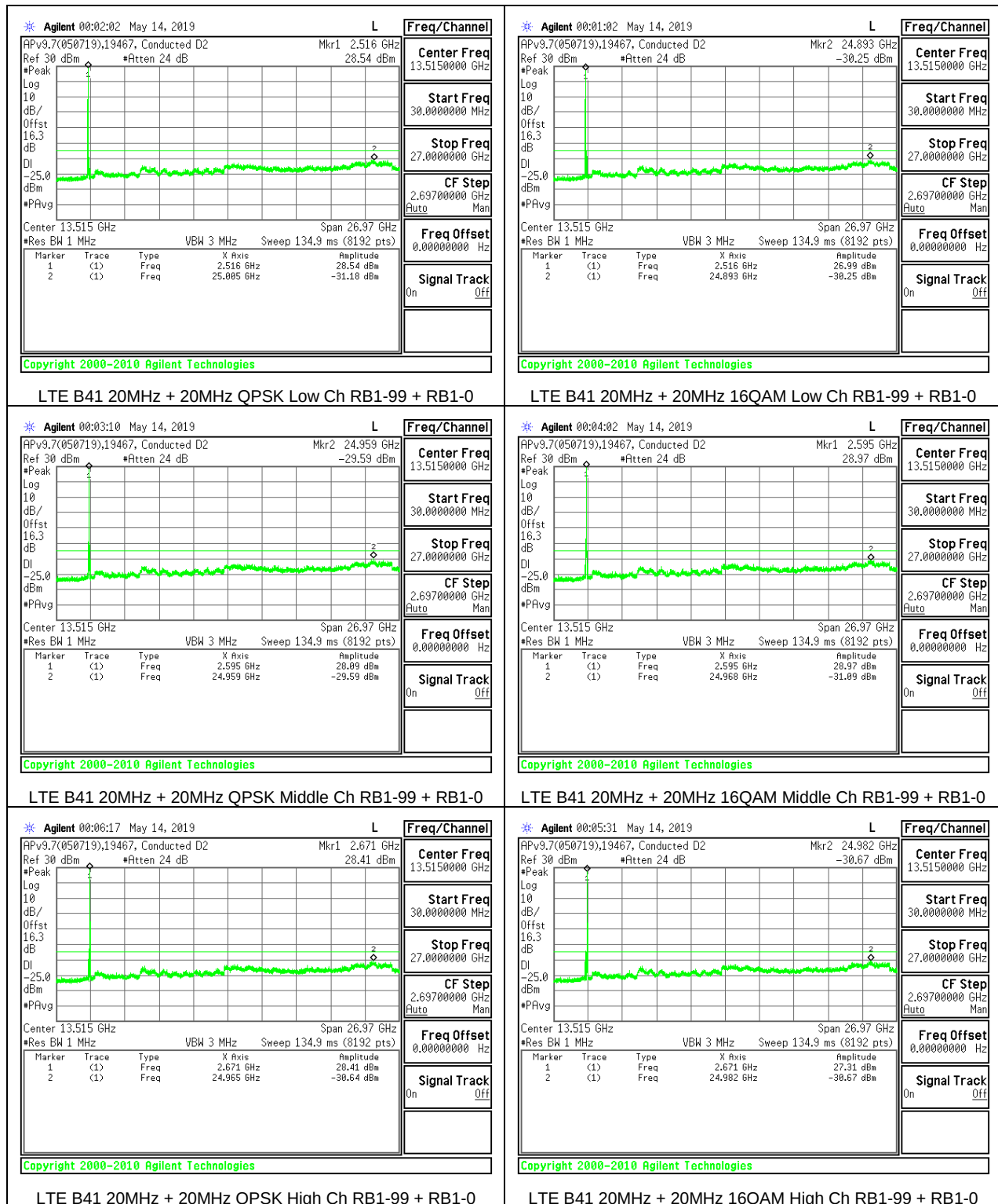
8.3.2. LTE BAND 7





8.3.3. LTE BAND 41





8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §27.54

LIMITS

FCC: §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30°C to +50°C
- Voltage = (85% - 115%)
Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
End Voltage, 3.2VDC.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

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

RESULTS

See the following pages.

8.4.1. LTE BAND 5

ID:	38602	Date:	5/29/19
-----	-------	-------	---------

QPSK, (10MHz + 5MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.5086	848.7454		
Extreme (50C)		824.5086	848.7454	9.1	0.011
Extreme (40C)		824.5086	848.7454	4.9	0.006
Extreme (30C)		824.5086	848.7454	0.8	0.001
Extreme (10C)		824.5086	848.7454	7.7	0.009
Extreme (0C)		824.5086	848.7454	3.5	0.004
Extreme (-10C)		824.5086	848.7454	-3.1	-0.004
Extreme (-20C)		824.5086	848.7454	-6.6	-0.008
Extreme (-30C)		824.5086	848.7454	-7.5	-0.009
20C	15%	824.5086	848.7454	-4.4	-0.005
	-15%	824.5086	848.7454	-5.7	-0.007
	End Point	824.5086	848.7454	-6.5	-0.008

QPSK, (10MHz + 10MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.1154	848.5102		
Extreme (50C)		824.1154	848.5102	37.3	0.045
Extreme (40C)		824.1154	848.5102	33.4	0.040
Extreme (30C)		824.1154	848.5102	31.5	0.038
Extreme (10C)		824.1154	848.5102	-10.2	-0.012
Extreme (0C)		824.1154	848.5102	-13.5	-0.016
Extreme (-10C)		824.1154	848.5102	-16.7	-0.020
Extreme (-20C)		824.1154	848.5102	-15.2	-0.018
Extreme (-30C)		824.1154	848.5102	-11.1	-0.013
20C	15%	824.1154	848.5102	-5.6	-0.007
	-15%	824.1154	848.5102	-17.1	-0.020
	End Point	824.1154	848.5102	-8.7	-0.010

8.4.2. LTE BAND 7

ID:	38602	Date:	5/29/19
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QPSK, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.0624	2568.9866		
Extreme (50C)		2501.0624	2568.9866	32.6	0.013
Extreme (40C)		2501.0624	2568.9866	31.3	0.012
Extreme (30C)		2501.0624	2568.9866	25.1	0.010
Extreme (10C)		2501.0624	2568.9866	15.5	0.006
Extreme (0C)		2501.0624	2568.9866	10.1	0.004
Extreme (-10C)		2501.0624	2568.9866	-1.1	0.000
Extreme (-20C)		2501.0624	2568.9866	-11.3	-0.004
Extreme (-30C)		2501.0624	2568.9866	-17.6	-0.007
20C	15%	2501.0624	2568.9866	28.4	0.011
	-15%	2501.0624	2568.9866	5.7	0.002
	End Point	2501.0624	2568.9866	-20.2	-0.008

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2501.0489	2568.9289		
Extreme (50C)		2501.0489	2568.9289	47.8	0.019
Extreme (40C)		2501.0489	2568.9289	32.4	0.013
Extreme (30C)		2501.0489	2568.9289	13.2	0.005
Extreme (10C)		2501.0489	2568.9289	22.7	0.009
Extreme (0C)		2501.0489	2568.9289	5.0	0.002
Extreme (-10C)		2501.0489	2568.9289	-10.3	-0.004
Extreme (-20C)		2501.0489	2568.9289	-31.5	-0.012
Extreme (-30C)		2501.0489	2568.9289	-39.7	-0.016
20C	15%	2501.0489	2568.9289	35.6	0.014
	-15%	2501.0489	2568.9289	-24.2	-0.010
	End Point	2501.0489	2568.9289	-41.1	-0.016

8.4.3. LTE BAND 41

ID:	30606	Date:	5/29/19
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QPSK, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.8613	2689.3474		
Extreme (50C)		2496.8613	2689.3474	54.0	0.021
Extreme (40C)		2496.8613	2689.3474	44.4	0.017
Extreme (30C)		2496.8613	2689.3474	30.6	0.012
Extreme (10C)		2496.8613	2689.3474	-9.2	-0.004
Extreme (0C)		2496.8613	2689.3474	-38.6	-0.015
Extreme (-10C)		2496.8613	2689.3474	-55.7	-0.021
Extreme (-20C)		2496.8613	2689.3474	-62.1	-0.024
Extreme (-30C)		2496.8613	2689.3474	-66.0	-0.025
20C	15%	2496.8613	2689.3474	1.6	0.001
	-15%	2496.8613	2689.3474	-0.8	0.000
	End Point	2496.8613	2689.3474	-14.3	-0.006

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.8122	2689.3355		
Extreme (50C)		2496.8122	2689.3355	54.2	0.021
Extreme (40C)		2496.8122	2689.3355	46.6	0.018
Extreme (30C)		2496.8122	2689.3355	25.5	0.010
Extreme (10C)		2496.8122	2689.3355	-10.9	-0.004
Extreme (0C)		2496.8122	2689.3355	-38.7	-0.015
Extreme (-10C)		2496.8122	2689.3355	-59.0	-0.023
Extreme (-20C)		2496.8122	2689.3355	-62.2	-0.024
Extreme (-30C)		2496.8122	2689.3355	-69.5	-0.027
20C	15%	2496.8122	2689.3355	-15.5	-0.006
	-15%	2496.8122	2689.3355	-7.3	-0.003
	End Point	2496.8122	2689.3355	-41.6	-0.016

8.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

Test was performed on Antenna 1; full resource block (FRB) for each bandwidth was used to measure as the worst case. The results from all CCDF measurements are passed with 13dB peak-to-average ratio criteria.

8.5.1. LTE BAND 5

ID:	39004	Date:	5/15/19
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 5	5 MHz / 3MHz	835.1	839.0	QPSK	32.08	23.76	8.32
				16QAM	31.20	22.62	8.58
	3MHz / 5MHz	834.1	838.0	QPSK	31.56	24.26	7.30
				16QAM	31.31	24.24	7.07
	10MHz / 5MHz	834.3	841.5	QPSK	32.20	23.79	8.41
				16QAM	31.03	21.82	9.21
	5MHz / 10MHz	831.8	839.0	QPSK	31.57	22.21	9.36
				16QAM	32.00	22.21	9.79
10MHz / 10MHz	831.6	831.5	QPSK	31.96	23.7	8.26	
			16QAM	31.98	22.7	9.28	
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

8.5.2. LTE BAND 7

ID:	39004	Date:	5/15/19
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	30.87	24.30	6.57
				16QAM	30.79	23.31	7.48
	15 MHz / 15MHz	2527.5	2542.5	QPSK	30.85	24.21	6.64
				16QAM	30.84	23.20	7.64
	15MHz / 20MHz	2525.3	2542.4	QPSK	30.92	24.29	6.63
				16QAM	30.87	23.33	7.54
	20MHz / 10MHz	2530.1	2544.5	QPSK	30.99	24.14	6.85
				16QAM	30.88	23.20	7.68
	20MHz / 15MHz	2527.6	2544.7	QPSK	30.10	24.24	5.86
				16QAM	31.17	23.26	7.91
20MHz / 20MHz	2525.1	2544.9	QPSK	30.89	24.26	6.63	
			16QAM	30.79	23.31	7.48	
Duty Cycle Correction Factor (dB) =			0.00				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

8.5.3. LTE BAND 41

ID:	39004	Date:	5/15/19
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Band	Bandwidth (MHz)	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
Band 41 (FCC)	5MHz / 20MHz	2583.8	2595.5	QPSK	32.88	16.98	8.89
				16QAM	33.28	17.01	9.26
	10MHz / 20MHz	2583.6	2598.0	QPSK	33.55	18.47	8.07
				16QAM	33.54	17.50	9.03
	15MHz / 15MHz	2585.5	2600.5	QPSK	33.31	18.46	7.84
				16QAM	33.15	17.51	8.63
	15MHz / 20MHz	2583.3	2600.4	QPSK	33.53	18.54	7.98
				16QAM	33.53	17.57	8.95
	20MHz / 5MHz	2590.5	2602.2	QPSK	33.74	18.47	8.26
				16QAM	33.76	17.50	9.25
	20MHz / 10MHz	2588.1	2602.5	QPSK	33.62	18.45	8.16
				16QAM	33.58	17.49	9.08
	20MHz / 15MHz	2585.6	2602.7	QPSK	33.65	18.53	8.11
				16QAM	33.49	17.61	8.87
	20MHz / 20MHz	2583.1	2602.9	QPSK	33.47	18.43	8.03
				16QAM	33.33	17.51	8.81
Duty Cycle Correction Factor (dB) =			7.01				
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

9. RADIATED TEST RESULTS

RULE PART(S)

FCC: §2.1053, §22.917, §27.53

LIMIT

FCC: §27.53 (m)

At least $55 + 10 \log (P)$ 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.

TEST PROCEDURE

KDB 971168 D01/D02 v02r01

MODES TESTED

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

9.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

9.1.1. LTE BAND 5

Company:	
Project #:	12696946
Date:	5/23/19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 5 QPSK 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
2.484	-64.85	Pk	32.7	-31.5	11	-52.65	-25	-27.65	H
1.651	-65.22	Pk	28.6	-32.3	11.2	-57.72	-25	-32.72	V
1.660	-65.91	Pk	28.7	-32.4	12.3	-57.31	-25	-32.31	H
2.483	-66.47	Pk	32.7	-31.5	11.5	-53.77	-25	-28.77	V
3.326	-67.3	Pk	32.8	-30.2	10.9	-53.8	-25	-28.8	H
3.327	-68.03	Pk	32.8	-30.2	11	-54.43	-25	-29.43	V
Mid Channel, 831.6MHz + 841.5MHz									
2.497	-67.37	Pk	32.7	-31.6	11.4	-54.87	-25	-29.87	H
2.491	-66.59	Pk	32.7	-31.5	11.5	-53.89	-25	-28.89	V
1.657	-65.49	Pk	28.7	-32.5	12.4	-56.89	-25	-31.89	H
1.658	-65.89	Pk	28.7	-32.5	11.7	-57.99	-25	-32.99	V
3.316	-66.76	Pk	32.8	-30.2	11	-53.16	-25	-28.16	V
3.323	-68.22	Pk	32.8	-30.2	11	-54.62	-25	-29.62	H
High Channel, 834.1MHz + 844MHz									
1.675	-66.34	Pk	28.9	-32.4	12.4	-57.44	-25	-32.44	H
1.670	-66.17	Pk	28.8	-32.3	11.6	-58.07	-25	-33.07	V
2.499	-67.03	Pk	32.7	-31.5	11.8	-54.03	-25	-29.03	V
3.356	-67.2	Pk	32.8	-30.1	11.6	-52.9	-25	-27.9	V
2.501	-67.05	Pk	32.8	-31.5	11.3	-54.45	-25	-29.45	H
3.332	-67.45	Pk	32.9	-30.1	10.7	-53.95	-25	-28.95	H

Pk - Peak detector

Company:	
Project #:	12696946
Date:	5/23/19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 5 16QAM 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
2.489	-67.48	Pk	32.7	-31.5	10.9	-55.38	-25	-30.38	H
1.650	-65.55	Pk	28.6	-32.3	12.1	-57.15	-25	-32.15	H
1.657	-65.8	Pk	28.7	-32.5	11.8	-57.8	-25	-32.8	V
2.483	-67.08	Pk	32.7	-31.5	11.5	-54.38	-25	-29.38	V
3.307	-67.53	Pk	32.8	-30.3	10.9	-54.13	-25	-29.13	V
3.315	-67.67	Pk	32.8	-30.2	11.4	-53.67	-25	-28.67	H
Mid Channel 831.6MHz + 841.5MHz									
2.491	-67.25	Pk	32.7	-31.5	11	-55.05	-25	-30.05	H
1.662	-65.81	Pk	28.8	-32.4	11.6	-57.81	-25	-32.81	V
2.492	-67.34	Pk	32.7	-31.5	11.6	-54.54	-25	-29.54	V
1.656	-65.8	Pk	28.7	-32.5	12.3	-57.3	-25	-32.3	H
3.298	-67.04	Pk	32.9	-30.4	11.3	-53.24	-25	-28.24	V
3.312	-68.22	Pk	32.8	-30.3	11.5	-54.22	-25	-29.22	H
High Channel 834.1MHz + 844MHz									
1.674	-66.6	Pk	28.9	-32.4	12.5	-57.6	-25	-32.6	H
3.348	-67.81	Pk	32.9	-30.1	10.5	-54.51	-25	-29.51	H
1.673	-66.36	Pk	28.9	-32.3	11.4	-58.36	-25	-33.36	V
3.356	-67.21	Pk	32.8	-30.1	11.6	-52.91	-25	-27.91	V
2.508	-67.99	Pk	32.8	-31.4	11.4	-55.19	-25	-30.19	V
2.509	-65.87	Pk	32.8	-31.4	11.4	-53.07	-25	-28.07	H

Pk - Peak detector

9.1.2. LTE BAND 7

Company:	
Project #:	12696946
Date:	3/22/2019
Test Engineer:	12492
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.037	-69.38	Pk	34.6	-28.8	8.8	-54.78	-25	-29.78	H
7.561	-70.37	Pk	36.3	-26.5	7.3	-53.27	-25	-28.27	H
5.038	-70.1	Pk	34.6	-28.8	8.9	-55.4	-25	-30.4	V
7.557	-70.47	Pk	36.3	-26.5	7.2	-53.47	-25	-28.47	V
10.078	-72.73	Pk	37.6	-22.8	7.9	-50.03	-25	-25.03	V
10.079	-72	Pk	37.6	-22.8	7.9	-49.3	-25	-24.3	H
Mid Channel 2525.1MHz + 2544.9MHz									
5.066	-69.12	Pk	34.5	-28.7	8.7	-54.62	-25	-29.62	H
7.612	-70.33	Pk	36.4	-26.4	7.4	-52.93	-25	-27.93	H
5.073	-69.73	Pk	34.5	-28.7	8.4	-55.53	-25	-30.53	V
7.605	-70.39	Pk	36.4	-26.3	7.6	-52.69	-25	-27.69	V
10.137	-72.66	Pk	37.7	-22.6	6.3	-51.26	-25	-26.26	H
10.140	-71.92	Pk	37.7	-22.6	6.4	-50.42	-25	-25.42	V
High Channel 2540.2MHz + 2560MHz									
5.114	-68.59	Pk	34.6	-28.8	9.3	-53.49	-25	-28.49	H
7.671	-70.43	Pk	36.4	-26	7.9	-52.13	-25	-27.13	H
5.120	-69.17	Pk	34.6	-28.9	8.8	-54.67	-25	-29.67	V
7.668	-70.91	Pk	36.4	-26	7.9	-52.61	-25	-27.61	V
10.224	-71.66	Pk	37.8	-22.6	7.6	-48.86	-25	-23.86	V
10.226	-72.69	Pk	37.8	-22.7	7.7	-49.89	-25	-24.89	H

Pk - Peak detector

Company:	
Project #:	12696946
Date:	3/22/2019
Test Engineer:	12492
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.042	-68.39	Pk	34.6	-28.8	9	-53.59	-25	-28.59	H
5.042	-69.52	Pk	34.6	-28.8	9.1	-54.62	-25	-29.62	V
7.957	-70.67	Pk	36.4	-25.7	7.4	-52.57	-25	-27.57	H
7.957	-70.27	Pk	36.4	-25.7	7.3	-52.27	-25	-27.27	V
10.074	-72.53	Pk	37.6	-22.8	7.9	-49.83	-25	-24.83	V
10.081	-73.14	Pk	37.6	-22.9	7.8	-50.64	-25	-25.64	H
Mid Channel 2525.1MHz + 2544.9MHz									
5.062	-69.53	Pk	34.5	-28.8	8.7	-55.13	-25	-30.13	H
7.611	-71.26	Pk	36.4	-26.3	7.4	-53.76	-25	-28.76	H
5.063	-68.79	Pk	34.5	-28.8	8.8	-54.29	-25	-29.29	V
7.611	-70.73	Pk	36.4	-26.3	7.4	-53.23	-25	-28.23	V
10.132	-72.03	Pk	37.7	-22.6	6.4	-50.53	-25	-25.53	H
10.134	-72.24	Pk	37.7	-22.6	6.4	-50.74	-25	-25.74	V
High Channel 2540.2MHz + 2560MHz									
5.108	-69.44	Pk	34.5	-28.7	9.4	-54.24	-25	-29.24	H
7.671	-70.87	Pk	36.4	-26	7.9	-52.57	-25	-27.57	H
5.115	-69.73	Pk	34.6	-28.8	9.2	-54.73	-25	-29.73	V
7.673	-71.03	Pk	36.4	-26	7.7	-52.93	-25	-27.93	V
10.233	-72.75	Pk	37.8	-22.6	7.6	-49.95	-25	-24.95	V
10.234	-72.02	Pk	37.8	-22.6	7.7	-49.12	-25	-24.12	H

Pk - Peak detector

9.1.3. LTE BAND 41

Company:	
Project #:	12696946
Date:	3/22/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.031	-69.2	Pk	34.6	-28.6	8.4	-54.8	-25	-29.8	H
7.544	-70.24	Pk	36.2	-26.4	7.4	-53.04	-25	-28.04	H
10.613	-71.58	Pk	37.8	-22.2	8.2	-47.78	-25	-22.78	H
5.018	-68.71	Pk	34.6	-28.6	8.7	-54.01	-25	-29.01	V
7.545	-70.57	Pk	36.2	-26.4	7.3	-53.47	-25	-28.47	V
10.595	-72.1	Pk	37.7	-22.1	7.9	-48.6	-25	-23.6	V
Mid Channel 2583.1MHz + 2602.9MHz									
5.181	-68.35	Pk	34.7	-28.9	8.6	-53.95	-25	-28.95	V
5.185	-67.37	Pk	34.7	-28.9	9	-52.57	-25	-27.57	H
7.766	-70.42	Pk	36.4	-26	7.8	-52.22	-25	-27.22	V
7.773	-69.73	Pk	36.4	-26	7.9	-51.43	-25	-26.43	H
10.358	-72.01	Pk	37.8	-22.3	7.2	-49.31	-25	-24.31	H
10.361	-72.19	Pk	37.8	-22.4	7.4	-49.39	-25	-24.39	V
High Channel 2660.2MHz + 2680MHz									
10.673	-72.49	Pk	37.8	-21.9	8	-48.59	-25	-23.59	H
10.675	-72.21	Pk	37.8	-21.9	7.9	-48.41	-25	-23.41	V
5.334	-68.96	Pk	35	-29.1	7.9	-55.16	-25	-30.16	H
5.339	-69.33	Pk	35	-29.1	7.1	-56.33	-25	-31.33	V
8.009	-70.39	Pk	36.4	-25.6	7.6	-51.99	-25	-26.99	H
8.014	-70.69	Pk	36.4	-25.7	7.3	-52.69	-25	-27.69	V

Pk - Peak detector

Company:	
Project #:	12696946
Date:	3/22/2019
Test Engineer:	50822
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.021	-68.41	Pk	34.6	-28.6	8.6	-53.81	-25	-28.81	H
7.542	-70.74	Pk	36.2	-26.5	7.3	-53.74	-25	-28.74	H
5.011	-68.66	Pk	34.6	-28.6	9	-53.66	-25	-28.66	V
7.541	-70.07	Pk	36.2	-26.5	7.3	-53.07	-25	-28.07	V
10.05	-72.15	Pk	37.6	-22.9	7.8	-49.65	-25	-24.65	H
10.05	-72.33	Pk	37.6	-22.9	7.8	-49.83	-25	-24.83	V
Mid Channel 2583.1MHz + 2602.9MHz									
5.185	-68.78	Pk	34.7	-28.9	9	-53.98	-25	-28.98	H
5.187	-68.37	Pk	34.7	-28.8	8.6	-53.87	-25	-28.87	V
7.775	-70.81	Pk	36.4	-26	7.9	-52.51	-25	-27.51	H
7.778	-71	Pk	36.4	-25.9	7.9	-52.6	-25	-27.6	V
10.366	-72.35	Pk	37.8	-22.4	7.8	-49.15	-25	-24.15	V
10.367	-72.34	Pk	37.8	-22.4	7.7	-49.24	-25	-24.24	H
High Channel 2660.2MHz + 2680MHz									
10.672	-72.16	Pk	37.8	-21.9	8	-48.26	-25	-23.26	H
10.676	-72.53	pk	37.8	-21.9	8	-48.53	-25	-23.63	V
5.333	-69.16	Pk	35	-29.1	8	-55.26	-25	-30.26	H
5.336	-68.79	Pk	35	-29.1	7.2	-55.69	-25	-30.69	V
8.004	-70.14	Pk	36.4	-25.5	7.8	-51.44	-25	-26.44	V
8.016	-70.53	Pk	36.4	-25.7	7.4	-52.43	-25	-27.43	H

Pk - Peak detector

9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

9.2.1. LTE BAND 5

Company:	
Project #:	12696946
Date:	5/23/19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 5 QPSK 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
1.666	-65.82	Pk	28.7	-32.4	12.4	-57.12	-25	-32.12	H
1.666	-65.89	Pk	28.7	-32.4	11.6	-57.99	-25	-32.99	V
2.495	-67.9	Pk	32.7	-31.6	11.9	-54.9	-25	-29.9	V
2.483	-66.64	Pk	32.7	-31.5	11.1	-54.34	-25	-29.34	H
3.325	-67.26	Pk	32.8	-30.2	10.9	-53.76	-25	-28.76	V
3.326	-67.82	Pk	32.8	-30.2	10.9	-54.32	-25	-29.32	H
Mid Channel 831.6MHz + 841.5MHz									
1.664	-65.71	Pk	28.7	-32.4	12.3	-57.11	-25	-32.11	H
1.658	-65.81	Pk	28.7	-32.5	11.7	-57.91	-25	-32.91	V
2.481	-67.62	Pk	32.7	-31.5	11.2	-55.22	-25	-30.22	H
2.482	-67.06	Pk	32.7	-31.5	11.5	-54.36	-25	-29.36	V
3.331	-67.01	Pk	32.8	-30.1	10.7	-53.61	-25	-28.61	H
3.332	-67.88	Pk	32.9	-30.1	10.9	-54.18	-25	-29.18	V
High Channel 834.1MHz + 844MHz									
1.664	-66.18	Pk	28.7	-32.4	12.3	-57.58	-25	-32.58	H
1.663	-65.48	Pk	28.7	-32.4	11.6	-57.58	-25	-32.58	V
2.501	-67.12	Pk	32.8	-31.5	11.3	-54.52	-25	-29.52	H
2.501	-67.3	Pk	32.8	-31.5	11.5	-54.5	-25	-29.5	V
3.328	-68.2	Pk	32.8	-30.2	11	-54.6	-25	-29.6	V
3.339	-67.66	Pk	32.8	-30.2	10.6	-54.46	-25	-29.46	H

Pk - Peak detector

Company:	
Project #:	12696946
Date:	5/23/19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	LTE 5 16QAM 10MHz + 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz + 838.9MHz									
2.493	-67.61	Pk	32.7	-31.5	11.2	-55.21	-25	-30.21	H
1.658	-65.24	Pk	28.7	-32.5	12.3	-56.74	-25	-31.74	H
1.659	-66.11	Pk	28.7	-32.4	11.7	-58.11	-25	-33.11	V
2.474	-64.92	Pk	32.7	-31.5	11.6	-52.12	-25	-27.12	V
3.325	-68.12	Pk	32.8	-30.2	10.9	-54.62	-25	-29.62	H
3.331	-67.67	Pk	32.8	-30.1	11	-53.97	-25	-28.97	V
Mid Channel 831.6MHz + 841.5MHz									
1.667	-65.69	Pk	28.7	-32.4	12.5	-56.89	-25	-31.89	H
2.490	-67.9	Pk	32.7	-31.5	10.9	-55.8	-25	-30.8	H
1.672	-66.08	Pk	28.9	-32.3	11.4	-58.08	-25	-33.08	V
2.484	-66.85	Pk	32.7	-31.5	11.6	-54.05	-25	-29.05	V
3.322	-67.42	Pk	32.8	-30.2	11	-53.82	-25	-28.82	H
3.328	-67.99	Pk	32.8	-30.2	11	-54.39	-25	-29.39	V
High Channel 834.1MHz + 844MHz									
1.663	-66.37	Pk	28.7	-32.4	12.2	-57.87	-25	-32.87	H
3.334	-68.04	Pk	32.9	-30.1	10.7	-54.54	-25	-29.54	H
2.497	-66.95	Pk	32.7	-31.5	11.9	-53.85	-25	-28.85	V
1.659	-66.1	Pk	28.7	-32.4	11.7	-58.1	-25	-33.1	V
2.502	-67.21	Pk	32.8	-31.5	11.2	-54.71	-25	-29.71	H
3.329	-68.21	Pk	32.8	-30.2	11	-54.61	-25	-29.61	V

Pk - Peak detector

9.2.2. LTE BAND 7

Company:	
Project #:	12696946
Date:	3/25/2019
Test Engineer:	12492
Configuration:	EUT Only
Mode:	LTE 7 QPSK 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.041	-70.39	Pk	34.6	-28.8	8.9	-55.69	-25	-30.69	H
7.561	-70.53	Pk	36.3	-26.5	7.4	-53.33	-25	-28.33	H
5.042	-70.35	Pk	34.6	-28.8	9.1	-55.45	-25	-30.45	V
7.565	-70.38	Pk	36.3	-26.5	7.4	-53.18	-25	-28.18	V
7.563	-69.64	Pk	36.3	-26.5	7.4	-52.44	-25	-27.44	V
10.078	-73.32	Pk	37.6	-22.8	7.9	-50.62	-25	-25.62	V
Mid Channel 2525.1MHz + 2544.9MHz									
5.073	-69.21	Pk	34.5	-28.7	8.5	-54.91	-25	-29.91	H
7.606	-71.01	Pk	36.4	-26.3	7.6	-53.31	-25	-28.31	H
5.069	-67.27	Pk	34.5	-28.7	8.6	-52.87	-25	-27.87	V
7.603	-70.9	Pk	36.4	-26.3	7.6	-53.2	-25	-28.2	V
10.134	-72.63	Pk	37.7	-22.6	6.4	-51.13	-25	-26.13	V
10.140	-72.46	Pk	37.7	-22.6	6.4	-50.96	-25	-25.96	H
High Channel 2540.2MHz + 2560MHz									
5.104	-69.24	Pk	34.5	-28.8	9.5	-54.04	-25	-29.04	H
7.648	-71.77	Pk	36.4	-26.1	7.6	-53.87	-25	-28.87	H
5.106	-69.74	Pk	34.5	-28.7	9.4	-54.54	-25	-29.54	V
7.650	-70.55	Pk	36.4	-26	7.5	-52.65	-25	-27.65	V
10.201	-72.6	Pk	37.8	-22.5	6.9	-50.4	-25	-25.4	V
10.203	-73.35	Pk	37.8	-22.5	6.9	-51.15	-25	-26.15	H

Pk - Peak detector

Company:	
Project #:	12696946
Date:	3/25/2019
Test Engineer:	12492
Configuration:	EUT Only
Mode:	LTE 7 16QAM 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2510MHz + 2529.8MHz									
5.045	-69.49	Pk	34.6	-28.8	9	-54.69	-25	-29.69	H
7.557	-71	Pk	36.3	-26.5	7.3	-53.9	-25	-28.9	H
5.041	-69.24	Pk	34.6	-28.8	9.1	-54.34	-25	-29.34	V
7.549	-70.54	Pk	36.2	-26.5	7.3	-53.54	-25	-28.54	V
10.078	-72.95	Pk	37.6	-22.8	7.9	-50.25	-25	-25.25	H
10.081	-72.66	Pk	37.6	-22.9	7.9	-50.06	-25	-25.06	V
Mid Channel 2525.1MHz + 2544.9MHz									
5.075	-69.04	Pk	34.5	-28.7	8.5	-54.74	-25	-29.74	H
7.604	-70.59	Pk	36.4	-26.3	7.7	-52.79	-25	-27.79	H
5.070	-69.81	Pk	34.5	-28.7	8.6	-55.41	-25	-30.41	V
7.607	-69.58	Pk	36.4	-26.3	7.5	-51.98	-25	-26.98	V
10.141	-72.35	Pk	37.7	-22.6	6.5	-50.75	-25	-25.75	H
10.141	-72.04	Pk	37.7	-22.6	6.4	-50.54	-25	-25.54	V
High Channel 2540.2MHz + 2560MHz									
5.099	-68.96	Pk	34.5	-28.9	9.4	-53.96	-25	-28.96	H
7.654	-70.78	Pk	36.4	-26	7.6	-52.78	-25	-27.78	H
5.106	-72.58	Pk	34.5	-28.7	9.4	-57.38	-25	-32.38	V
7.648	-70.84	Pk	36.4	-26.1	7.5	-53.04	-25	-28.04	V
10.199	-73.12	Pk	37.8	-22.5	7	-50.82	-25	-25.82	H
10.201	-72.77	Pk	37.8	-22.5	6.9	-50.57	-25	-25.57	V

Pk - Peak detector

9.2.3. LTE BAND 41

Company:	
Project #:	12696946
Date:	3/23/2019
Test Engineer:	19419
Configuration:	EUT Only
Mode:	LTE 41 QPSK 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.023	-69.28	Pk	34.6	-28.7	8.5	-54.88	-25	-29.88	H
5.025	-69.16	Pk	34.6	-28.7	8.7	-54.56	-25	-29.56	V
7.564	-62.59	Pk	36.3	-26.5	7.4	-45.39	-25	-20.39	H
7.565	-69.77	Pk	36.3	-26.5	7.4	-52.57	-25	-27.57	V
10.040	-72.01	Pk	37.5	-22.8	8	-49.31	-25	-24.31	H
10.055	-72.2	Pk	37.6	-22.9	8	-49.5	-25	-24.5	V
Mid Channel 2583.1MHz + 2602.9MHz									
5.185	-67.96	Pk	34.7	-28.9	9	-53.16	-25	-28.16	H
5.187	-68.57	Pk	34.7	-28.9	8.6	-54.17	-25	-29.17	V
7.768	-69.81	Pk	36.4	-26	7.8	-51.61	-25	-26.61	V
7.770	-70.76	Pk	36.4	-26	7.8	-52.56	-25	-27.56	H
10.355	-71.29	Pk	37.8	-22.4	7.1	-48.79	-25	-23.79	H
10.355	-71.83	Pk	37.8	-22.4	7	-49.43	-25	-24.43	V
High Channel 2660.2MHz + 2680MHz									
5.336	-69.73	Pk	35	-29.1	7.6	-56.23	-25	-31.23	H
5.339	-70.08	Pk	35	-29.1	7.1	-57.08	-25	-32.08	V
7.997	-70.37	Pk	36.4	-25.6	8	-51.57	-25	-26.57	V
8.001	-71.26	Pk	36.4	-25.5	8	-52.36	-25	-27.36	H
10.663	-72.02	Pk	37.8	-22	7.5	-48.72	-25	-23.72	H
10.665	-72.42	Pk	37.8	-22	7.5	-49.12	-25	-24.12	V

Pk - Peak detector

Company:	
Project #:	12696946
Date:	3/23/2019
Test Engineer:	19419
Configuration:	EUT Only
Mode:	LTE 41 16QAM 20MHz + 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	Det	AF T344 (dB/m)	Amp/Cbl (dB)	Amp/Cbl (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 2506MHz + 2525.8MHz									
5.024	-69.26	Pk	34.6	-28.7	8.5	-54.86	-25	-29.86	H
5.024	-69.48	Pk	34.6	-28.7	8.7	-54.88	-25	-29.88	V
7.546	-70.87	Pk	36.2	-26.5	7.4	-53.77	-25	-28.77	H
7.548	-69.87	Pk	36.2	-26.5	7.4	-52.77	-25	-27.77	V
10.038	-72.01	Pk	37.5	-22.8	8	-49.31	-25	-24.31	H
10.043	-72.1	Pk	37.5	-22.8	7.9	-49.5	-25	-24.5	V
Mid Channel 2583.1MHz + 2602.9MHz									
5.183	-68.56	Pk	34.7	-28.9	9	-53.76	-25	-28.76	H
5.186	-69.12	Pk	34.7	-28.9	8.6	-54.72	-25	-29.72	V
7.768	-70.51	Pk	36.4	-26	7.8	-52.31	-25	-27.31	V
7.770	-70.6	Pk	36.4	-26	7.8	-52.4	-25	-27.4	H
10.356	-71.65	Pk	37.8	-22.3	7.1	-49.05	-25	-24.05	V
10.360	-71.96	Pk	37.8	-22.4	7.3	-49.26	-25	-24.26	H
High Channel 2660.2MHz + 2680MHz									
5.337	-69.37	Pk	35	-29.1	7.1	-56.37	-25	-31.37	V
5.342	-69.24	Pk	35	-29.1	7.8	-55.54	-25	-30.54	H
7.999	-70.74	Pk	36.4	-25.6	7.9	-52.04	-25	-27.04	V
8.001	-71.57	Pk	36.4	-25.5	8	-52.67	-25	-27.67	H
10.661	-71.83	Pk	37.8	-22	7.5	-48.53	-25	-23.53	V
10.666	-71.72	Pk	37.8	-22	7.5	-48.42	-25	-23.42	H

Pk - Peak detector

END OF REPORT

10. SETUP PHOTOS

Please refer to 12696946-EP1V1 for setup photos