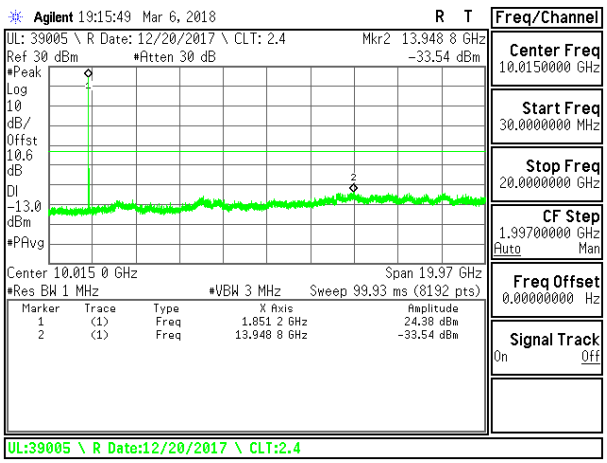
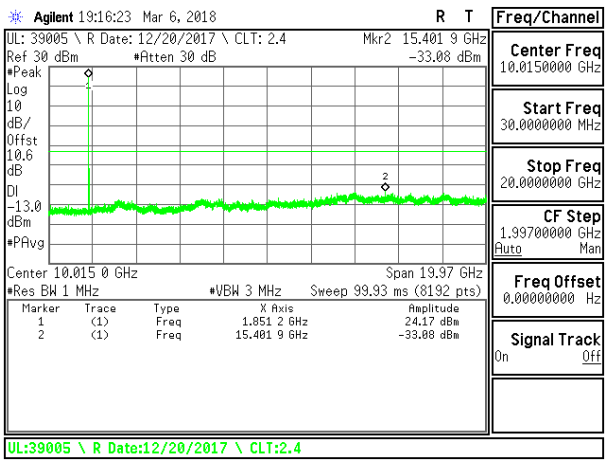
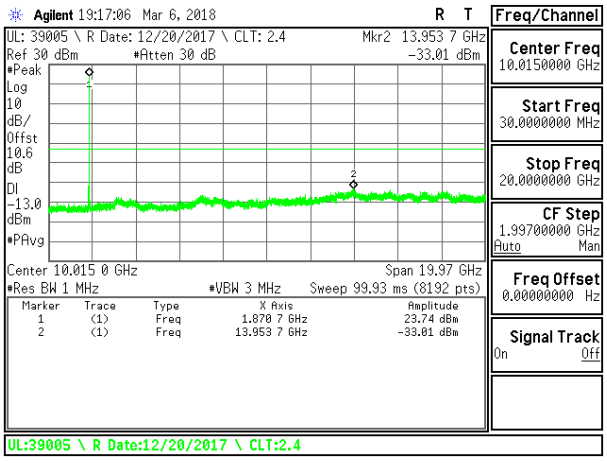


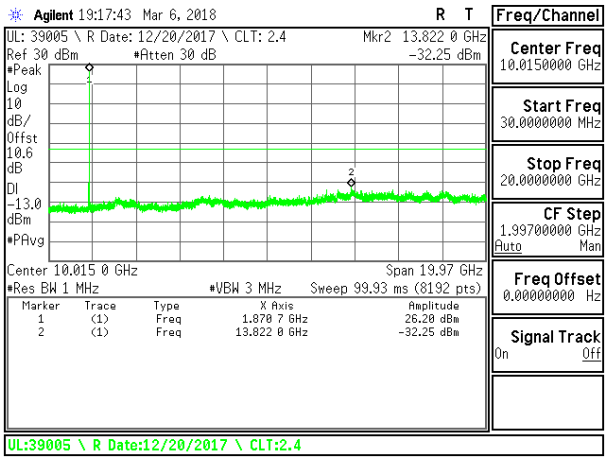
LTE B2 20MHz QPSK Low Channel RB1-0



LTE B2 20MHz 16QAM Low Channel RB1-0



LTE B2 20MHz QPSK Middle Channel RB1-0



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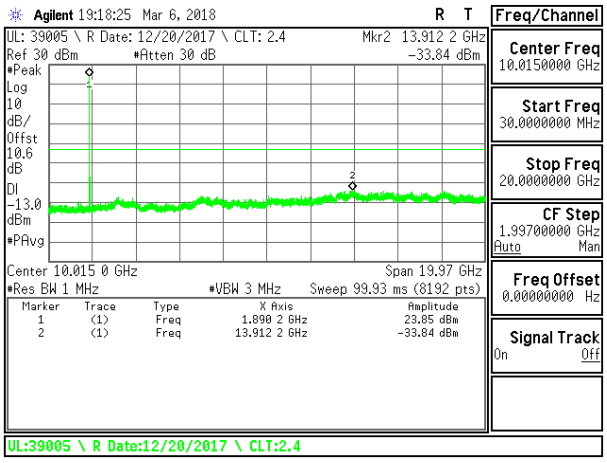
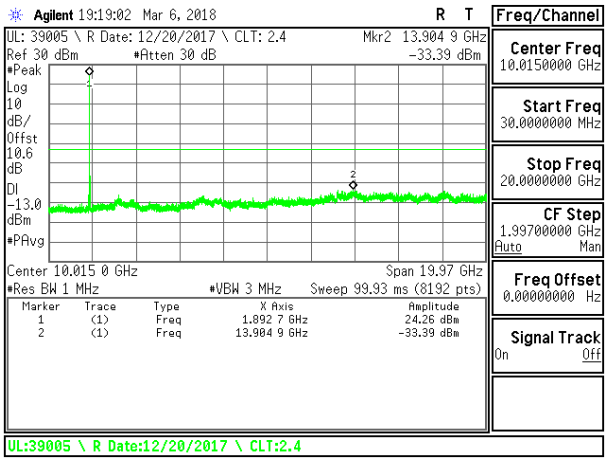
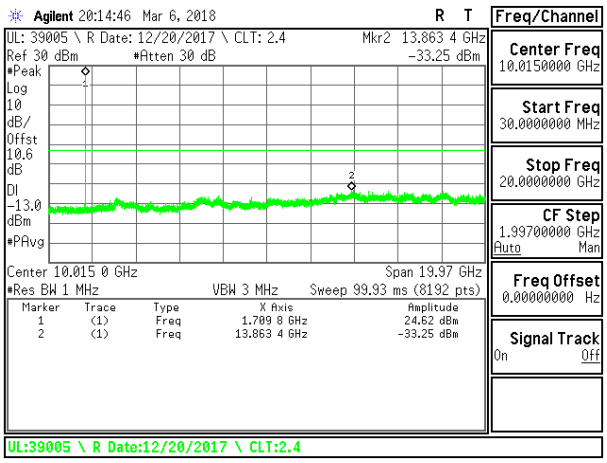


LTE B2 20MHz QPSK High Channel RB1-0

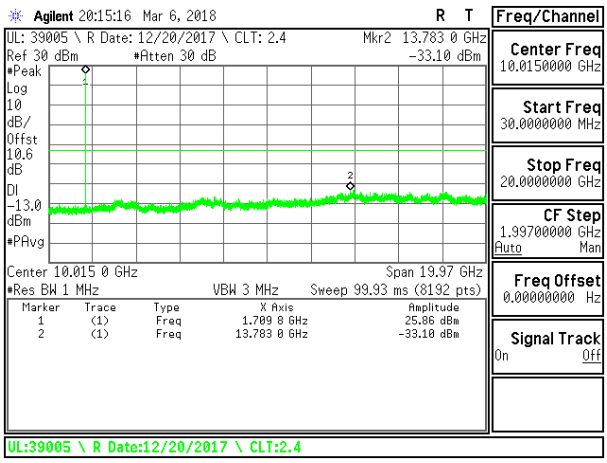


LTE B2 20MHz 16QAM High Channel RB1-0

8.3.6. **LTE BAND 4**



LTE B4 1.4MHz QPSK Low Channel RB1-0



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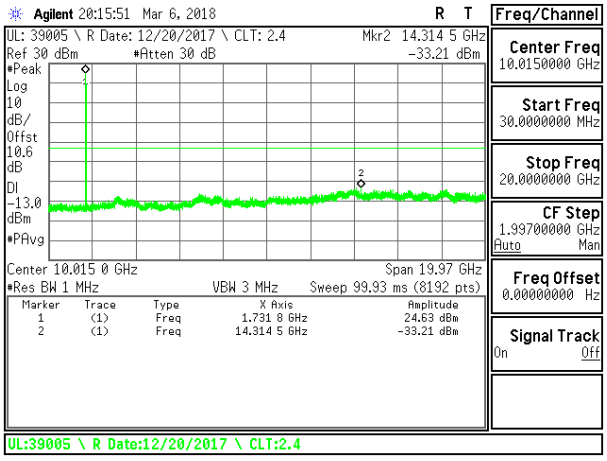

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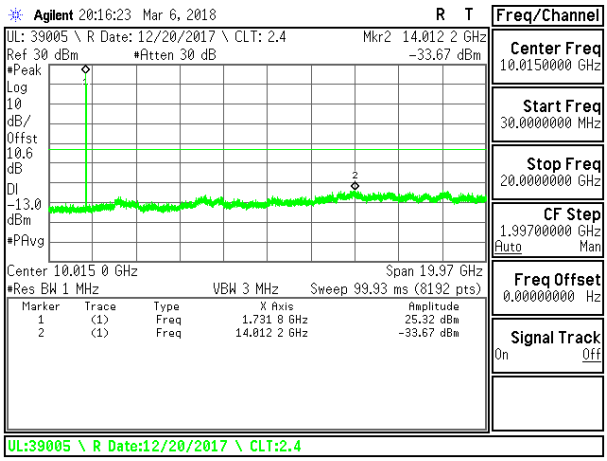

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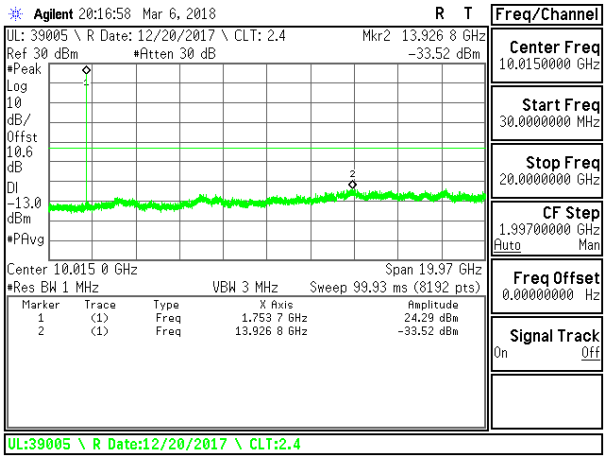

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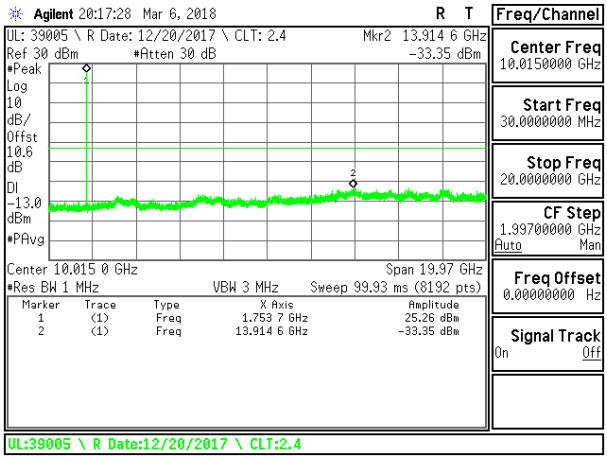

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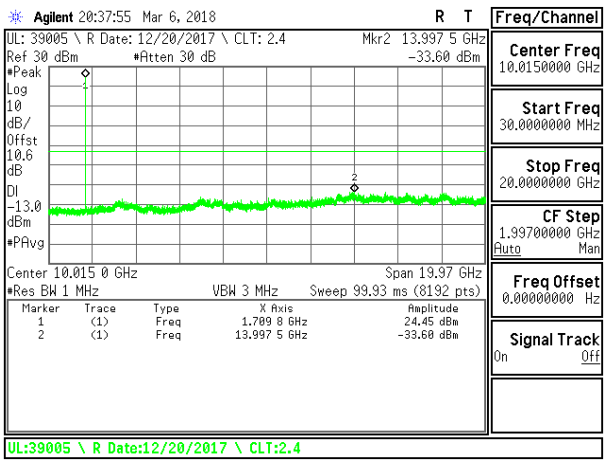
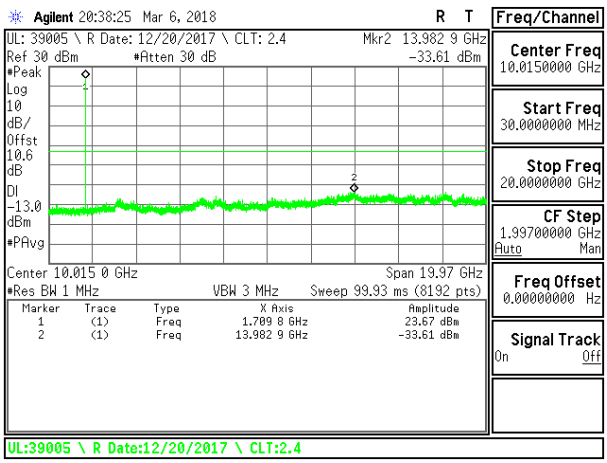
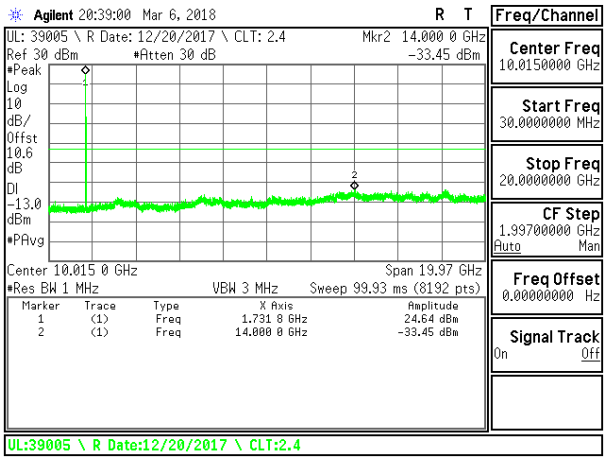


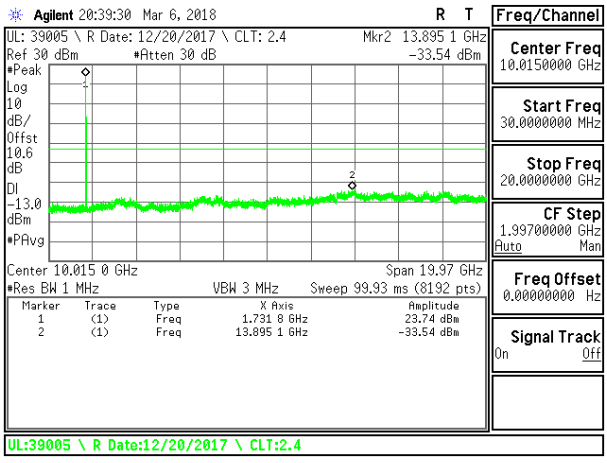
LTE B4 3MHz QPSK Low Channel RB1-0



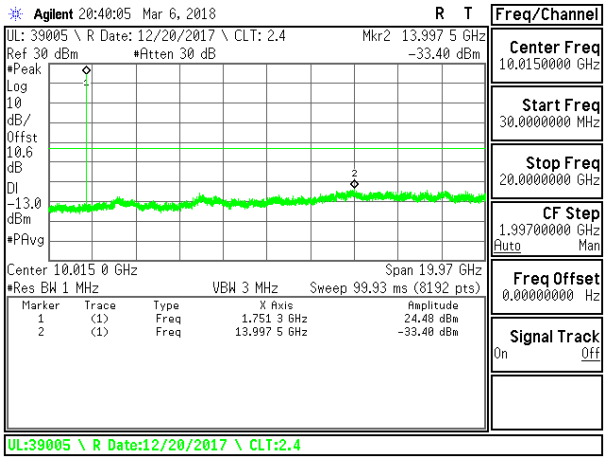
LTE B4 3MHz 16QAM Low Channel RB1-0



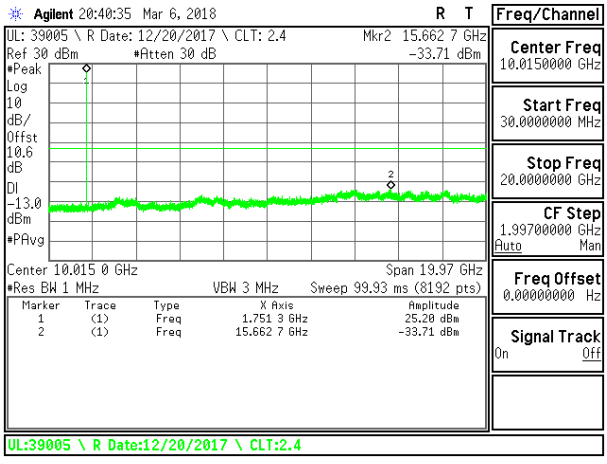
LTE B4 3MHz QPSK Middle Channel RB1-0



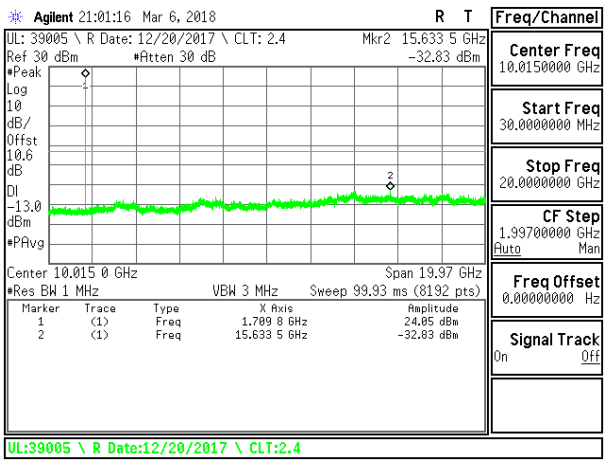
LTE B4 3MHz 16QAM Middle Channel RB1-0



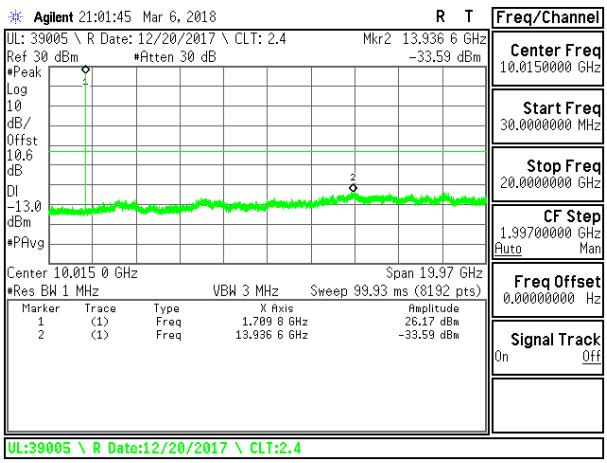
LTE B4 3MHz QPSK High Channel RB1-0



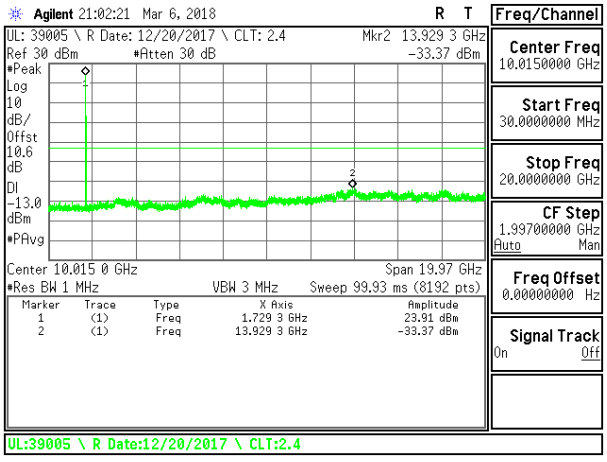
LTE B4 3MHz 16QAM High Channel RB1-0



LTE B4 5MHz QPSK Low Channel RB1-0



LTE B4 5MHz 16QAM Low Channel RB1-0



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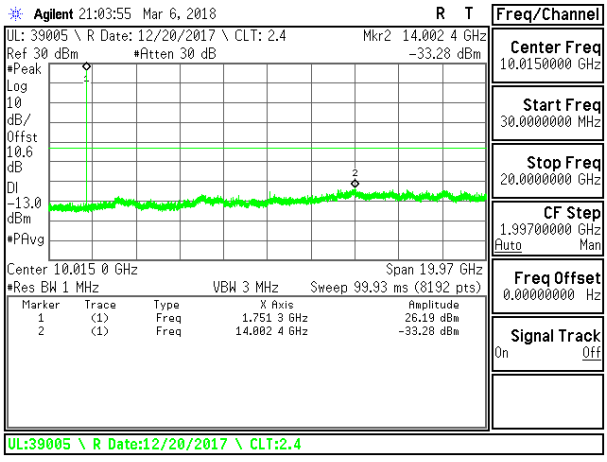
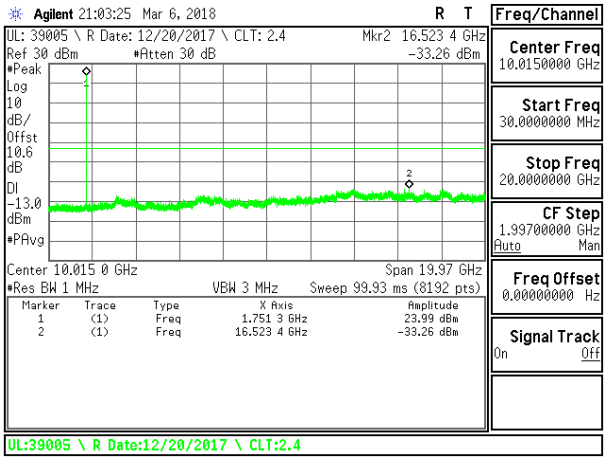
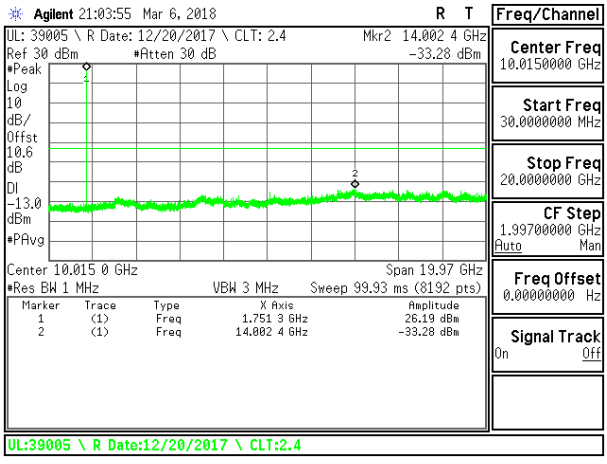


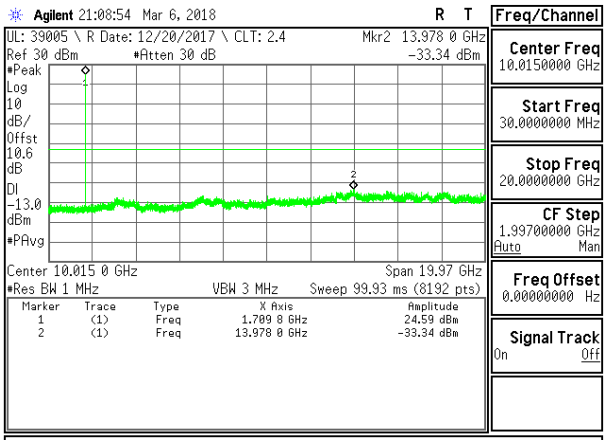
LTE B4 5MHz 16QAM Middle Channel RB1-0



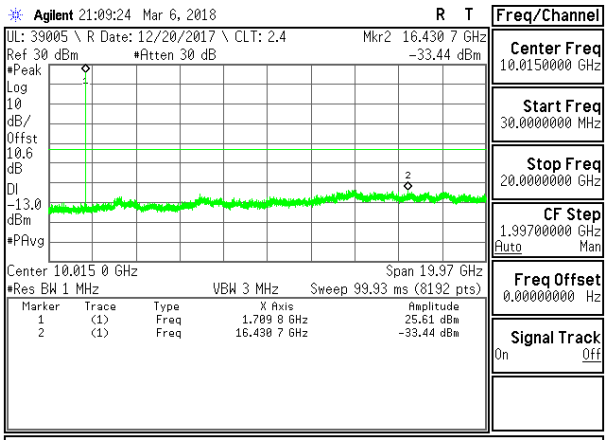
LTE B4 5MHz QPSK High Channel RB1-0



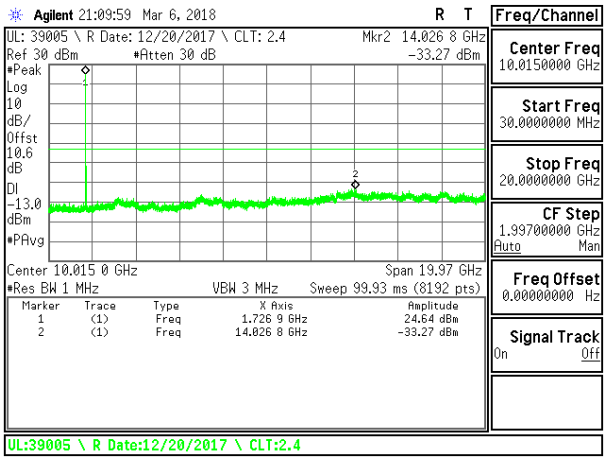
LTE B4 5MHz 16QAM High Channel RB1-0



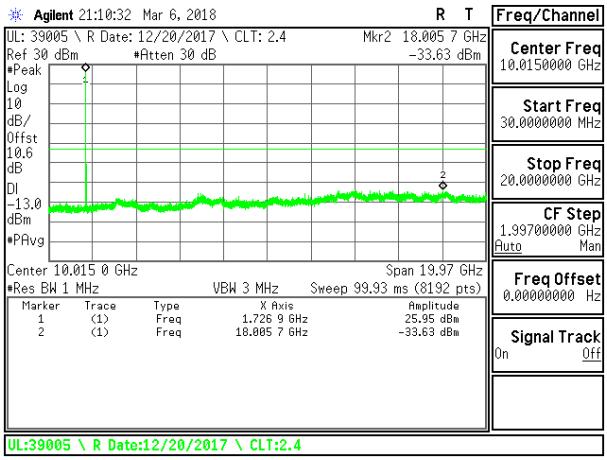
LTE B4 10MHz QPSK Low Channel RB1-0



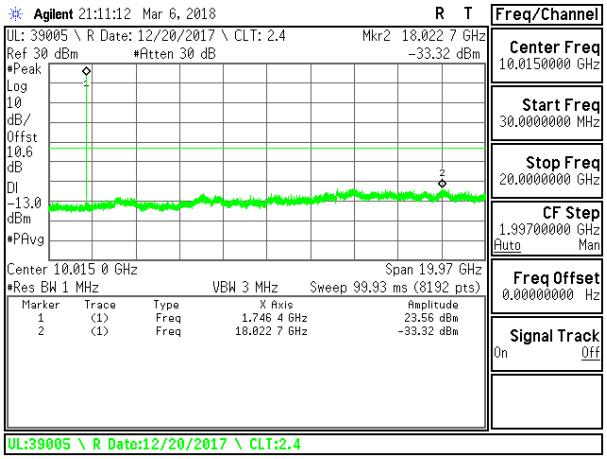
LTE B4 10MHz 16QAM Low Channel RB1-0



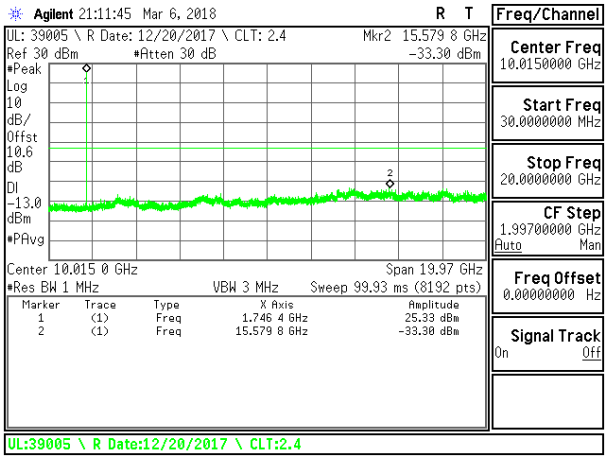
LTE B4 10MHz QPSK Middle Channel RB1-0



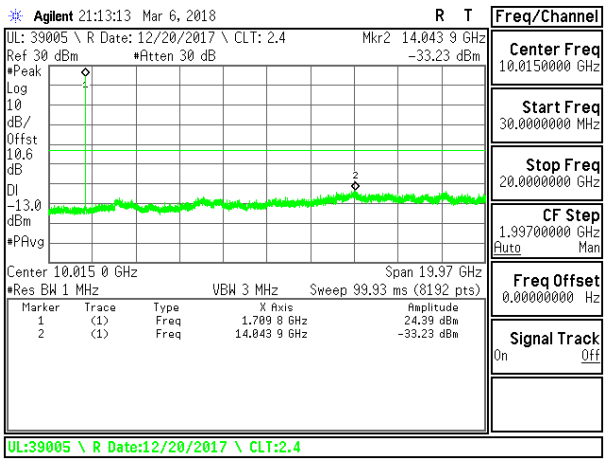
LTE B4 10MHz 16QAM Middle Channel RB1-0



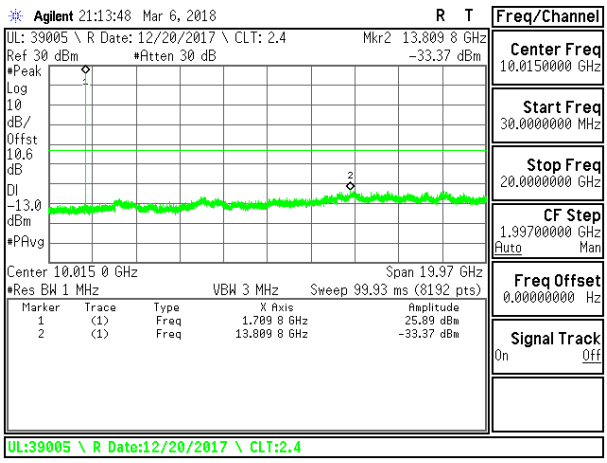
LTE B4 10MHz QPSK High Channel RB1-0



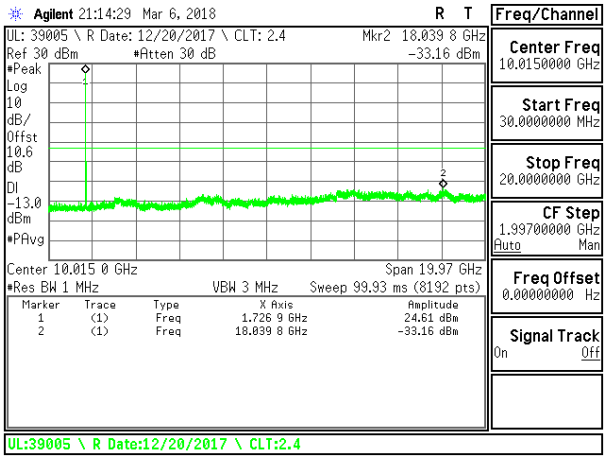
LTE B4 10MHz 16QAM High Channel RB1-0



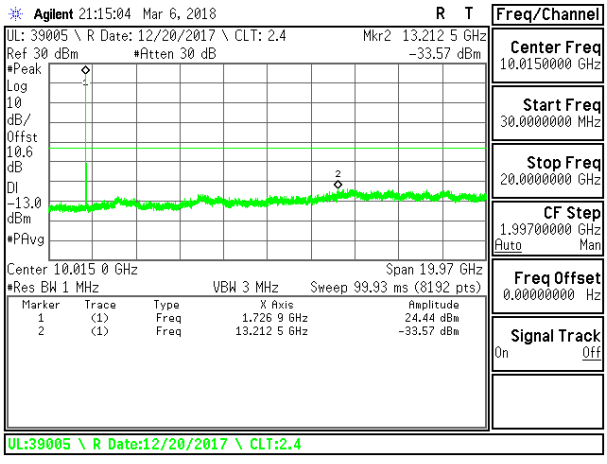
LTE B4 15MHz QPSK Low Channel RB1-0



LTE B4 15MHz 16QAM Low Channel RB1-0



LTE B4 15MHz QPSK Middle Channel RB1-0



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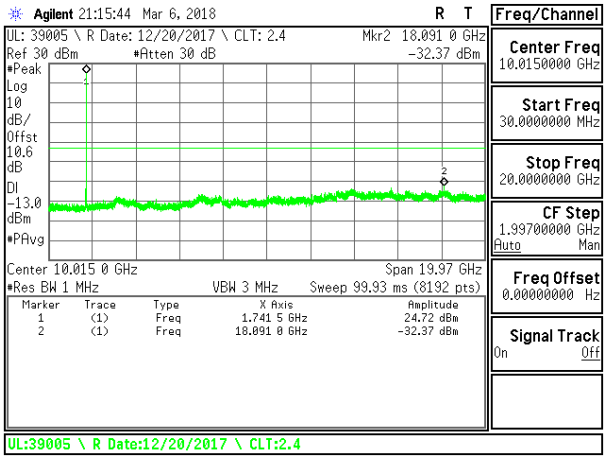
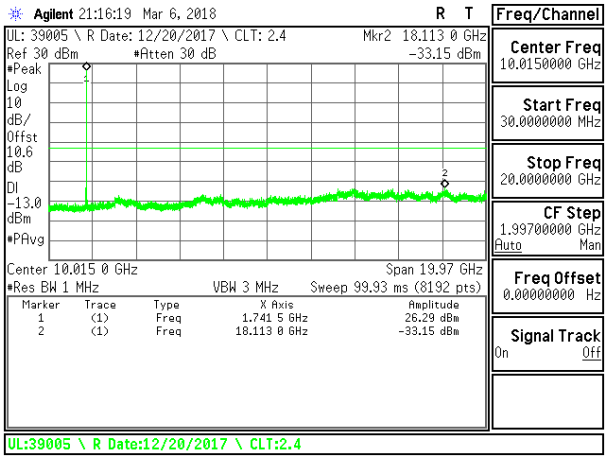
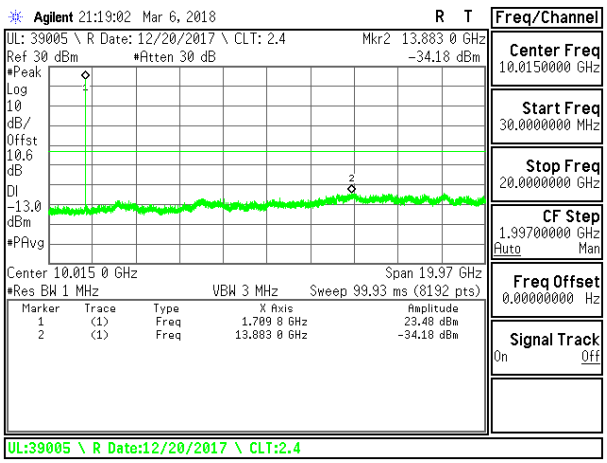


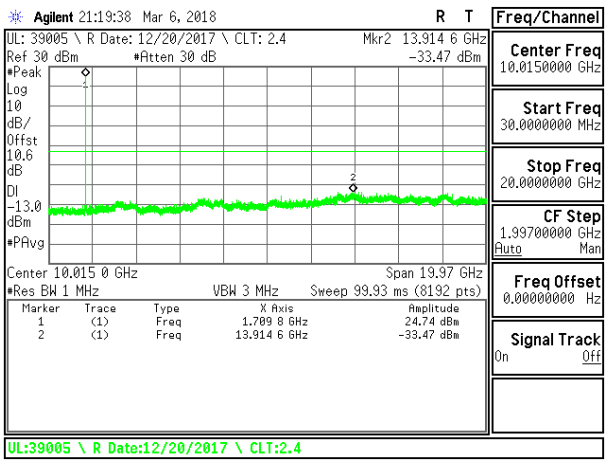
LTE B4 15MHz QPSK High Channel RB1-0



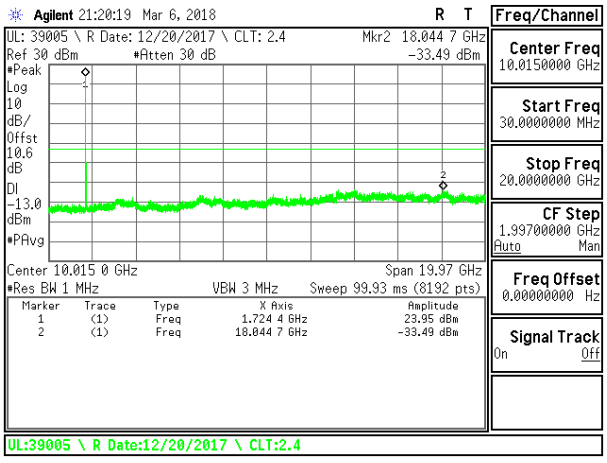
LTE B4 15MHz 16QAM High Channel RB1-0



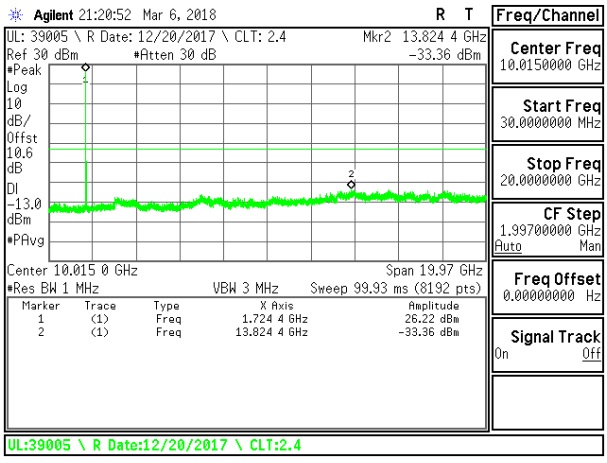
LTE B4 20MHz QPSK Low Channel RB1-0



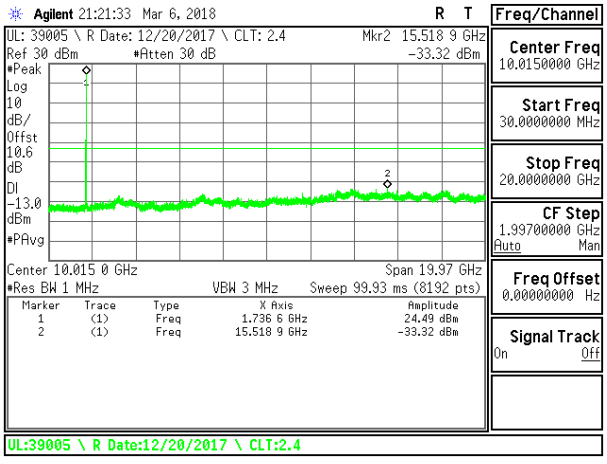
LTE B4 20MHz 16QAM Low Channel RB1-0



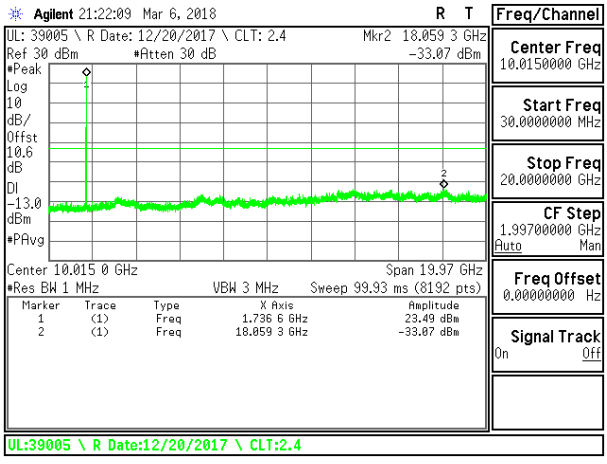
LTE B4 20MHz QPSK Middle Channel RB1-0



LTE B4 20MHz 16QAM Middle Channel RB1-0

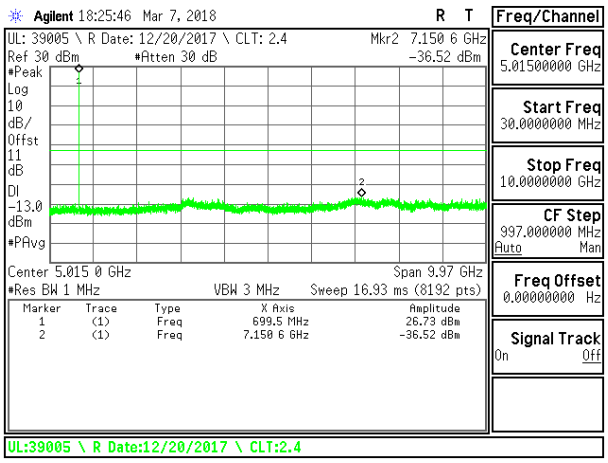


LTE B4 20MHz QPSK High Channel RB1-0

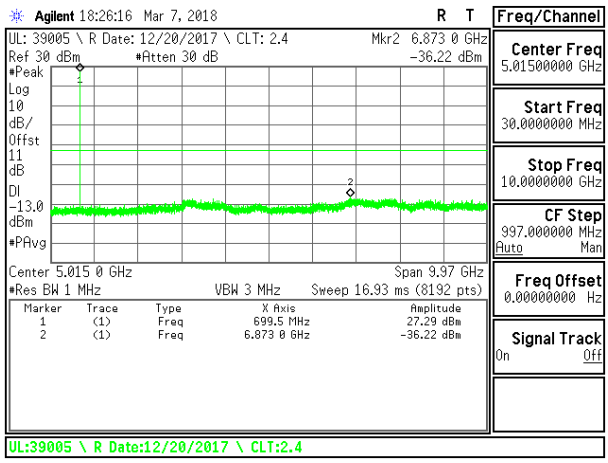


LTE B4 20MHz 16QAM High Channel RB1-0

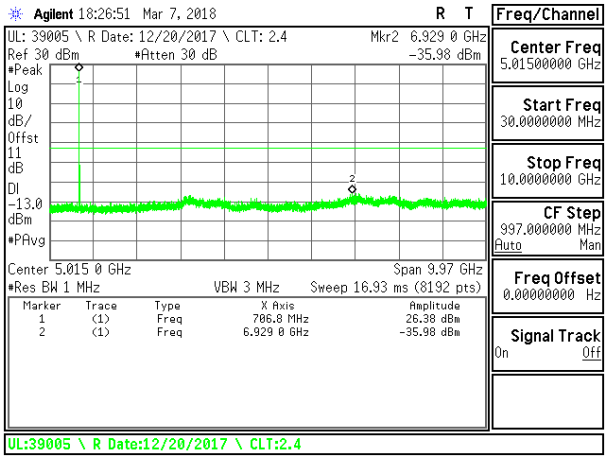
8.3.7. **LTE BAND 12**



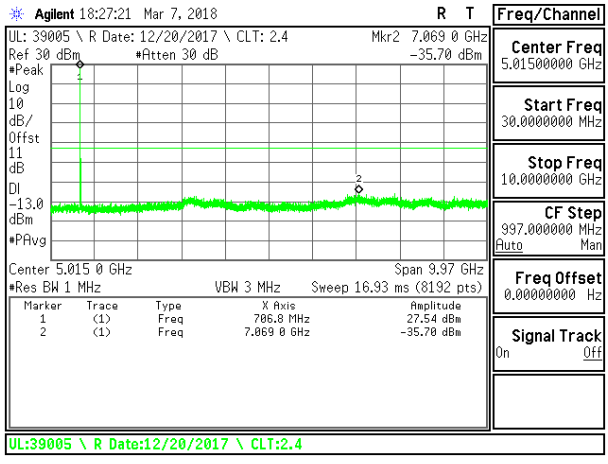
LTE B12 1.4MHz QPSK Low Channel RB1-0



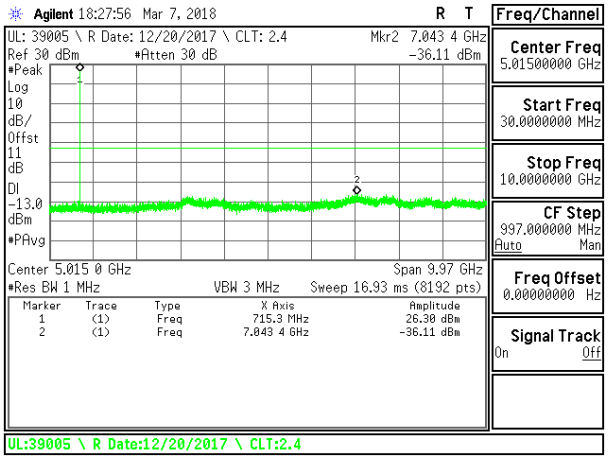
LTE B12 1.4MHz 16QAM Low Channel RB1-0



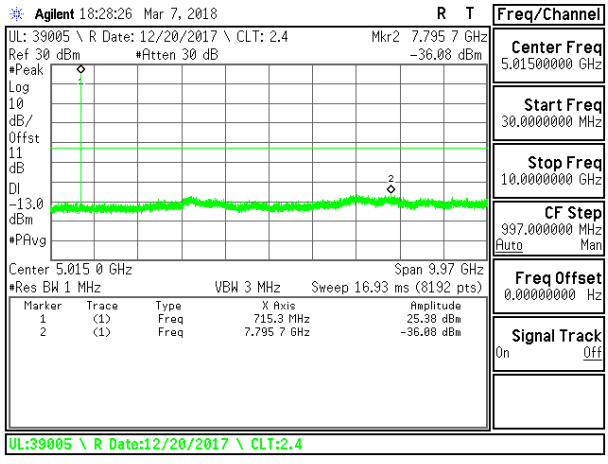
LTE B12 1.4MHz QPSK Middle Channel RB1-0



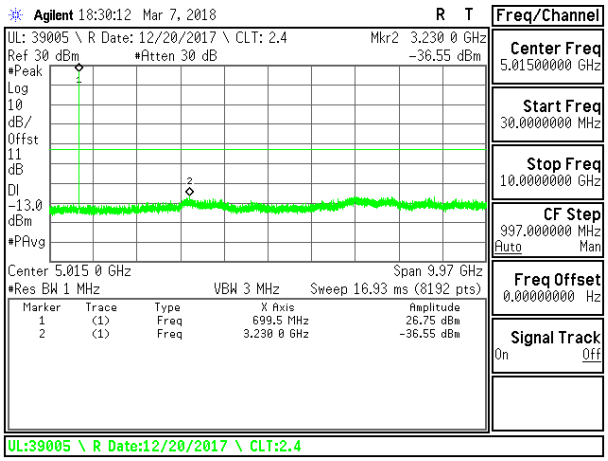
LTE B12 1.4MHz 16QAM Middle Channel B1-0



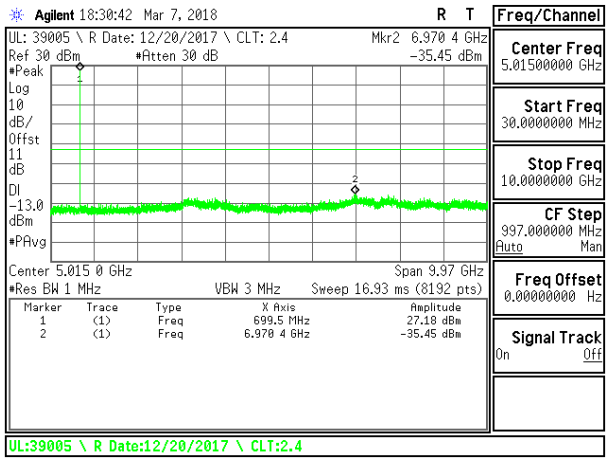
LTE B12 1.4MHz QPSK High Channel RB1-0



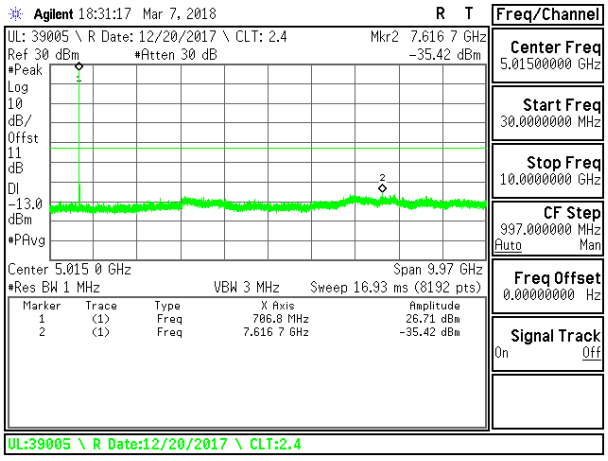
LTE B12 1.4MHz 16QAM High Channel RB1-0



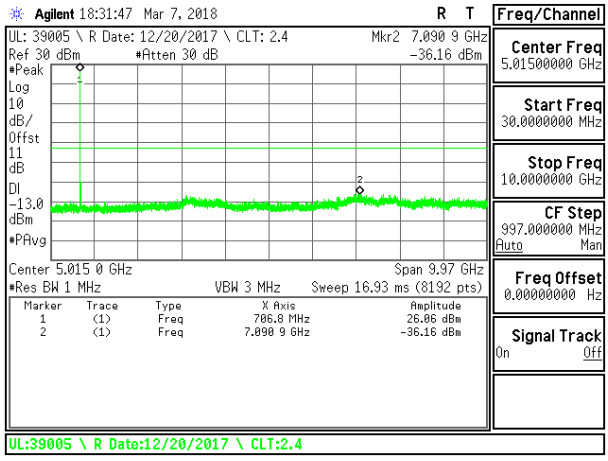
LTE B12 3MHz QPSK Low Channel RB1-0



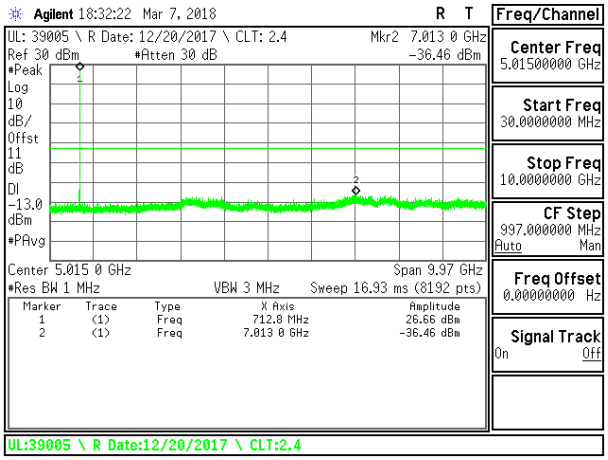
LTE B12 3MHz 16QAM Low Channel RB1-0



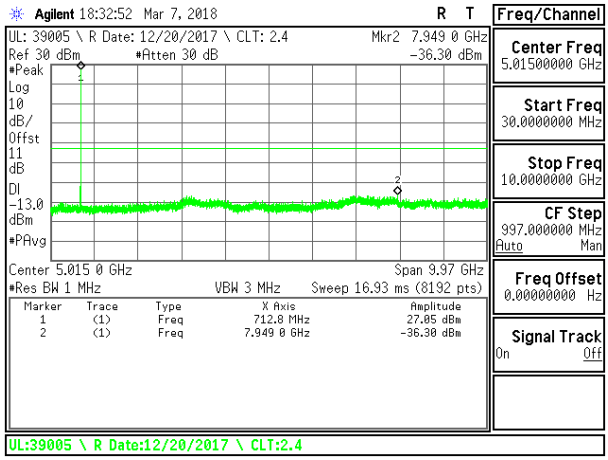
LTE B12 3MHz QPSK Middle Channel RB1-0



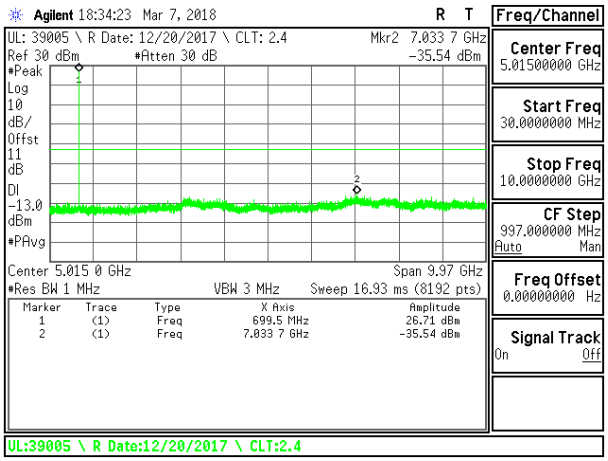
LTE B12 3MHz 16QAM Middle Channel RB1-0



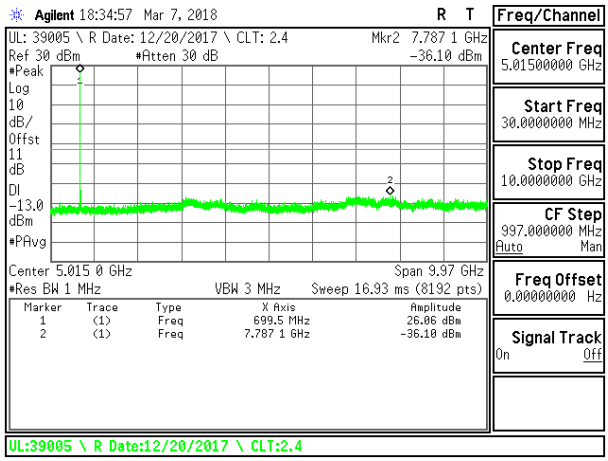
LTE B12 3MHz QPSK High Channel RB1-0



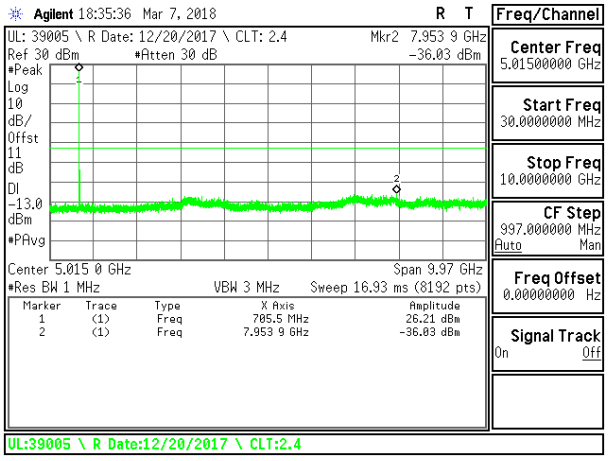
LTE B12 3MHz 16QAM High Channel RB1-0



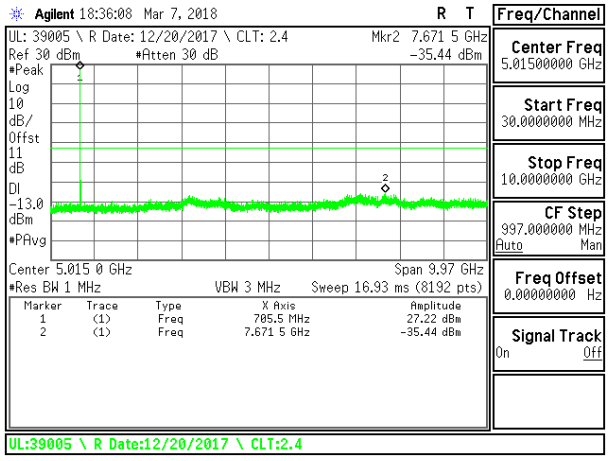
LTE B12 5MHz QPSK Low Channel RB1-0



LTE B12 5MHz 16QAM Low Channel RB1-0



LTE B12 5MHz QPSK Middle Channel RB1-0



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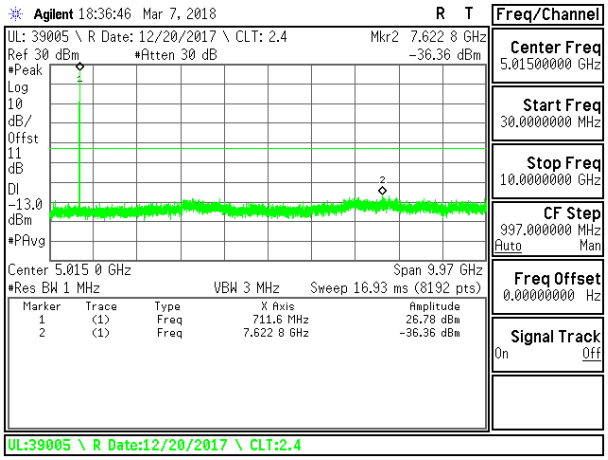

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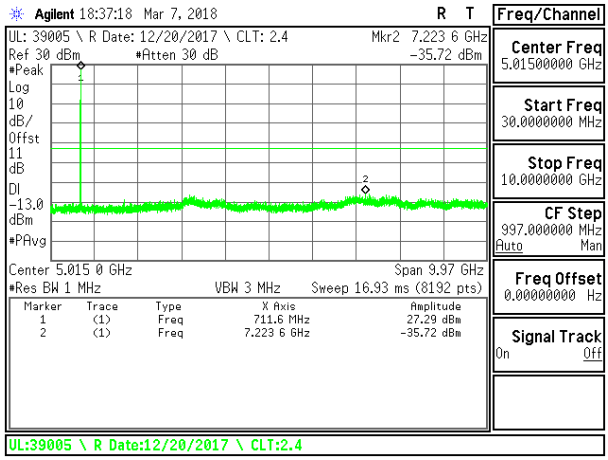

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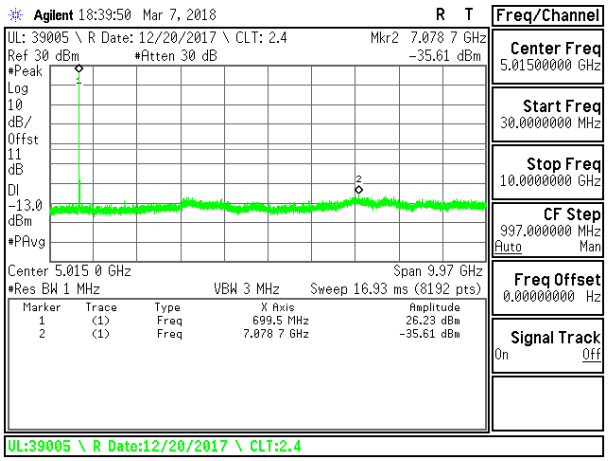
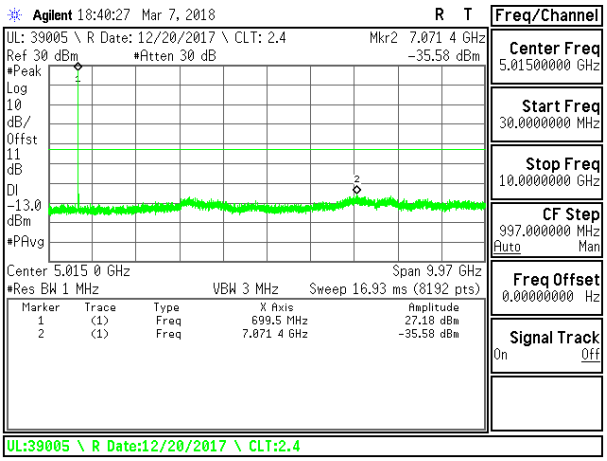
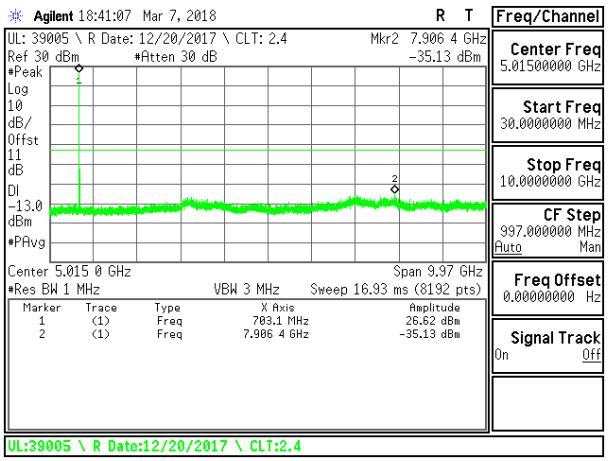


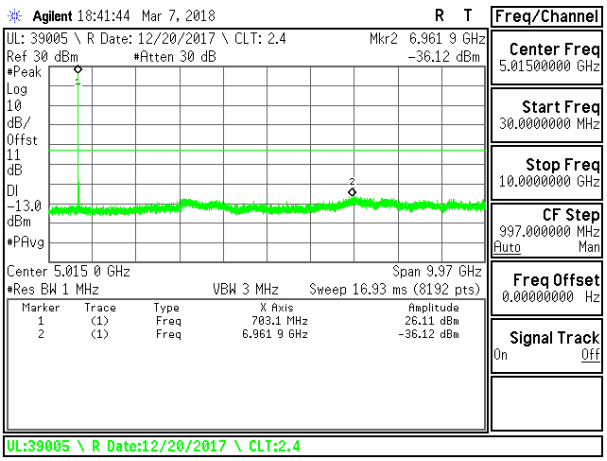
LTE B12 10MHz QPSK Low Channel RB1-0



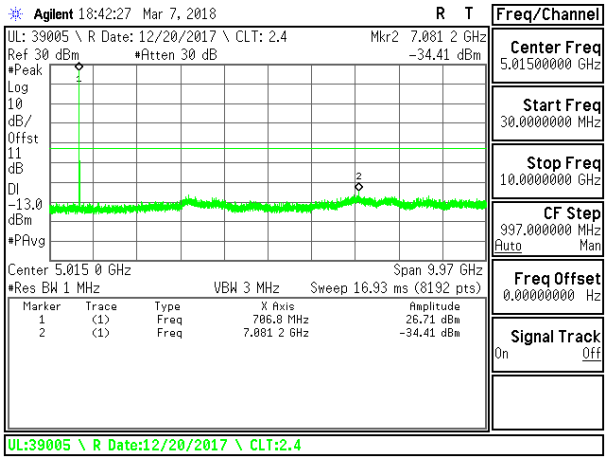
LTE B12 10MHz 16QAM Low Channel RB1-0



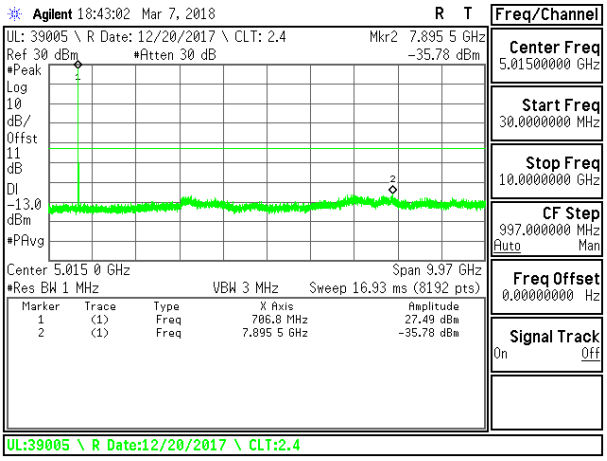
LTE B12 10MHz QPSK Middle Channel RB1-0



LTE B12 10MHz 16QAM Middle Channel RB1-0

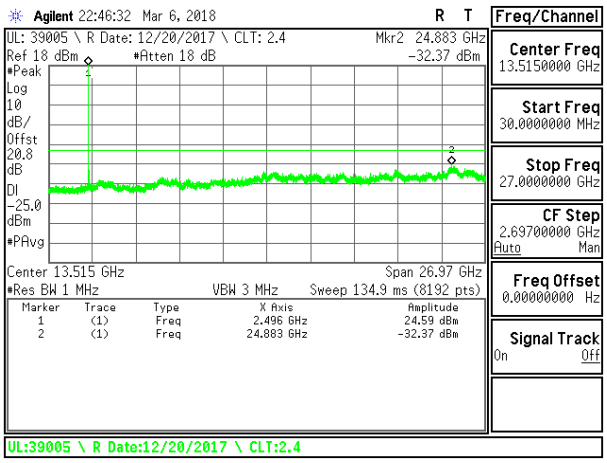


LTE B12 10MHz QPSK High Channel RB1-0

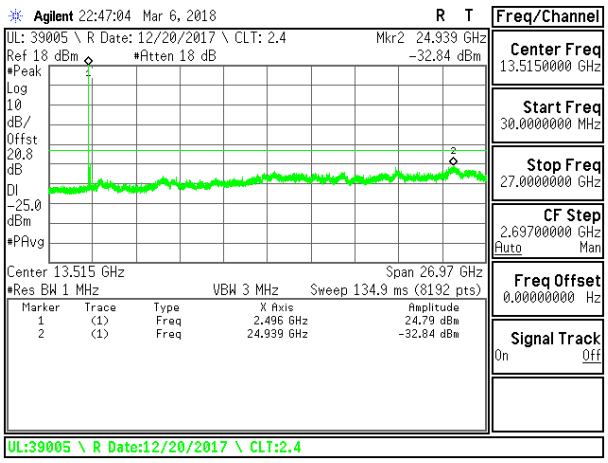


LTE B12 10MHz 16QAM High Channel RB1-0

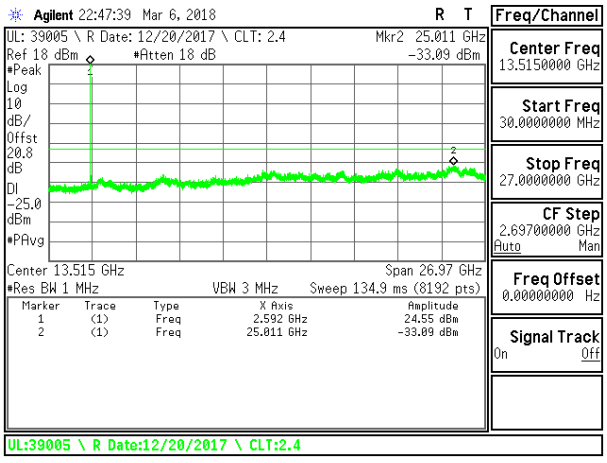
8.3.8. **LTE BAND 41**



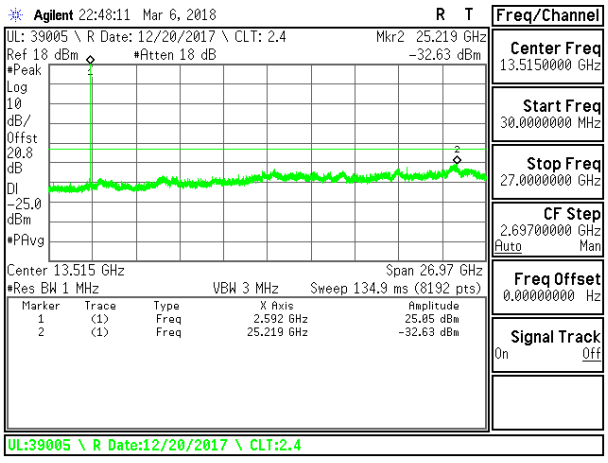
LTE B41 5MHz QPSK Low Channel RB1-0



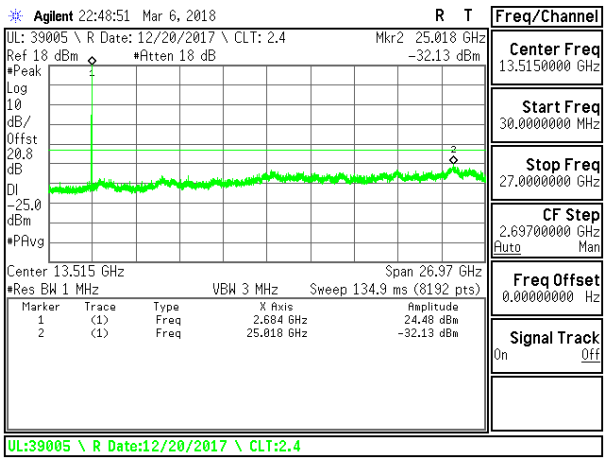
LTE B41 5MHz 16QAM Low Channel RB1-0



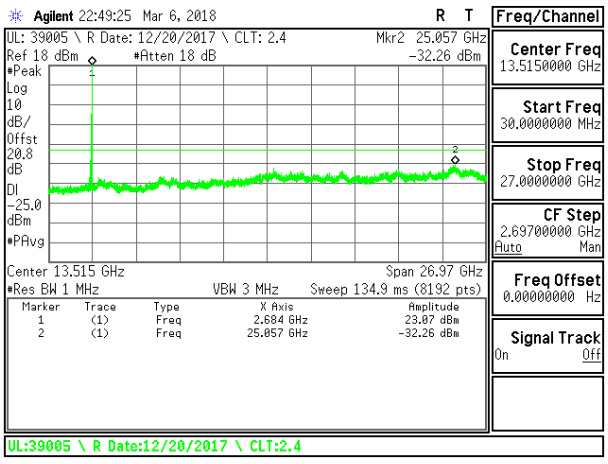
LTE B41 5MHz QPSK Middle Channel RB1-0



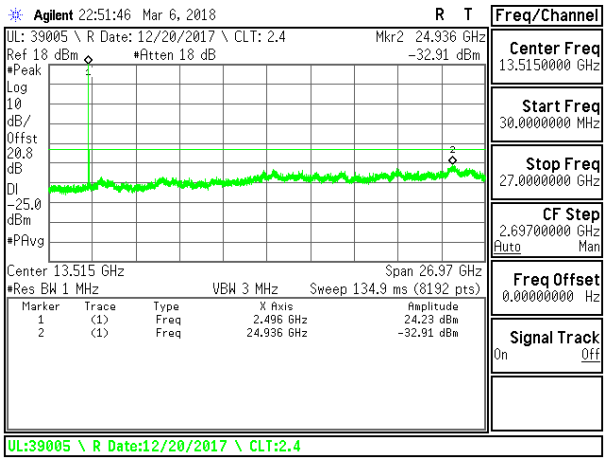
LTE B41 5MHz 16QAM Middle Channel RB1-0



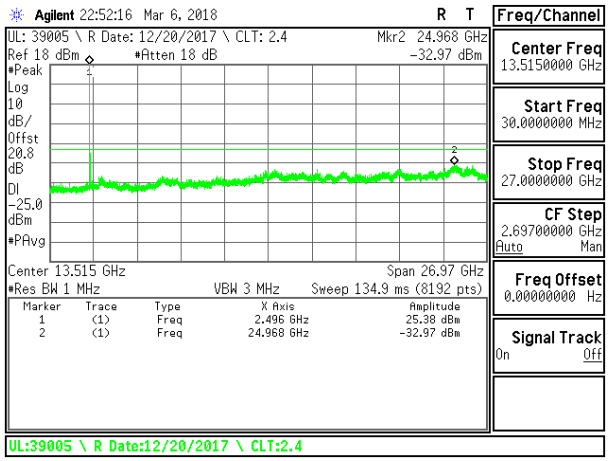
LTE B41 5MHz QPSK High Channel RB1-0



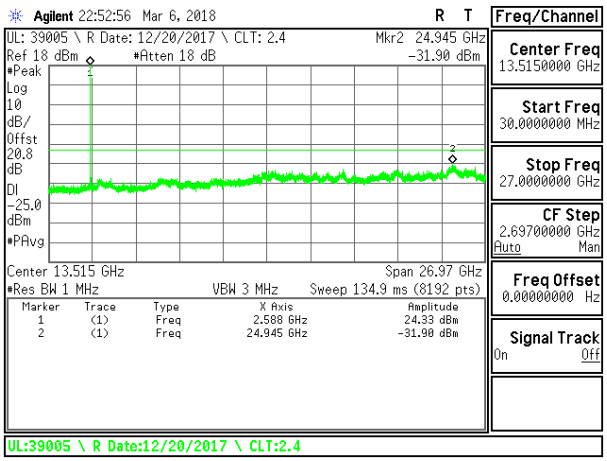
LTE B41 5MHz 16QAM High Channel RB1-0



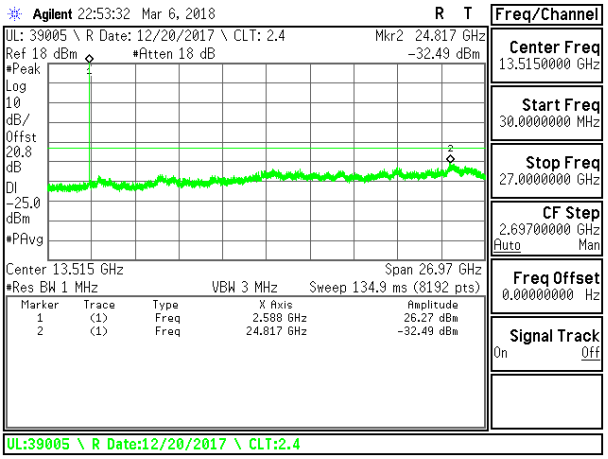
LTE B41 10MHz QPSK Low Channel RB1-0



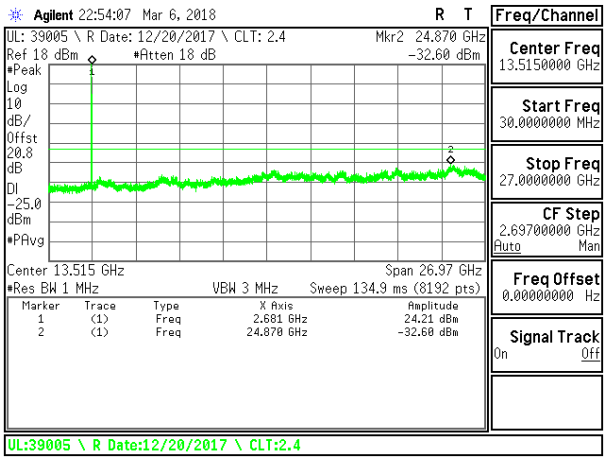
LTE B41 10MHz 16QAM Low Channel RB1-0



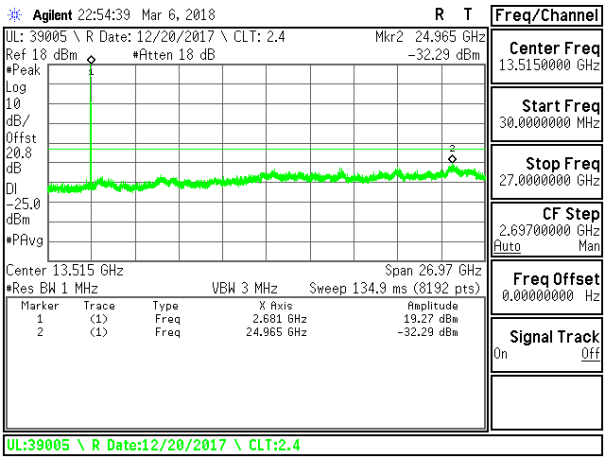
LTE B41 10MHz QPSK Middle Channel RB1-0



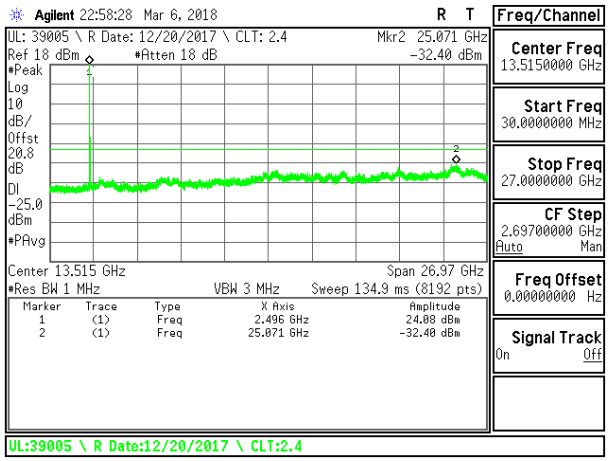
LTE B41 10MHz 16QAM Middle Channel RB1-0



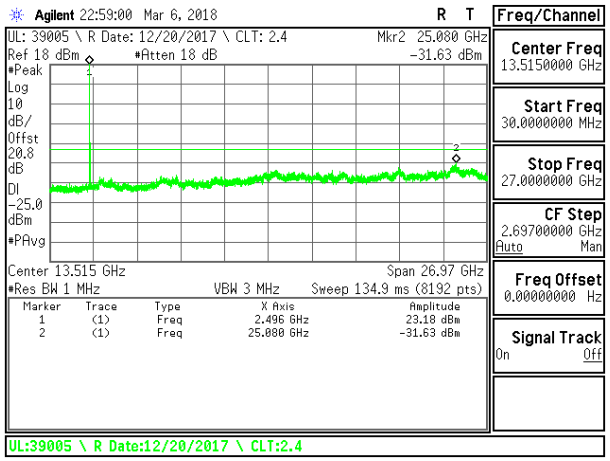
LTE B41 10MHz QPSK High Channel RB1-0



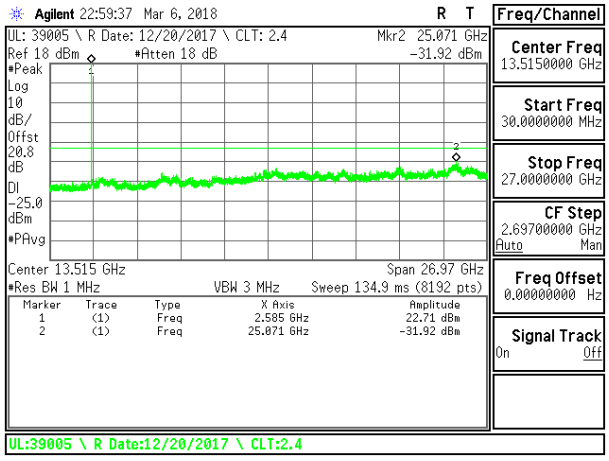
LTE B41 10MHz 16QAM High Channel RB1-0



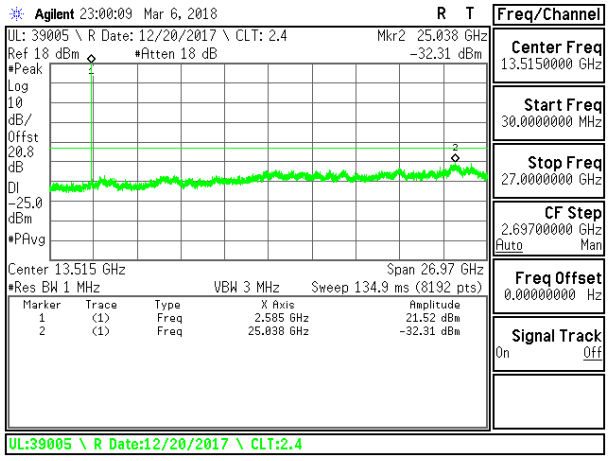
LTE B41 15MHz QPSK Low Channel RB1-0



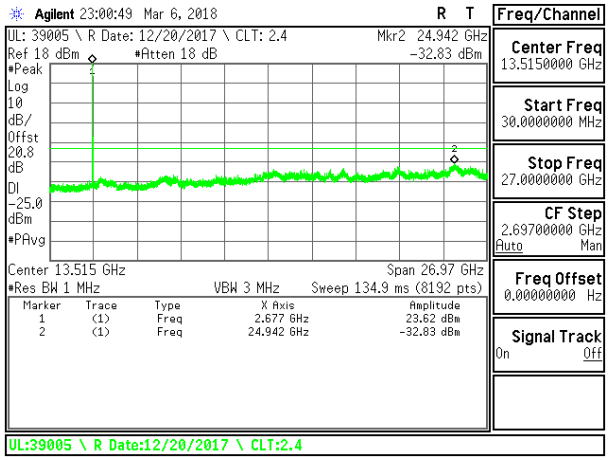
LTE B41 15MHz 16QAM Low Channel RB1-0



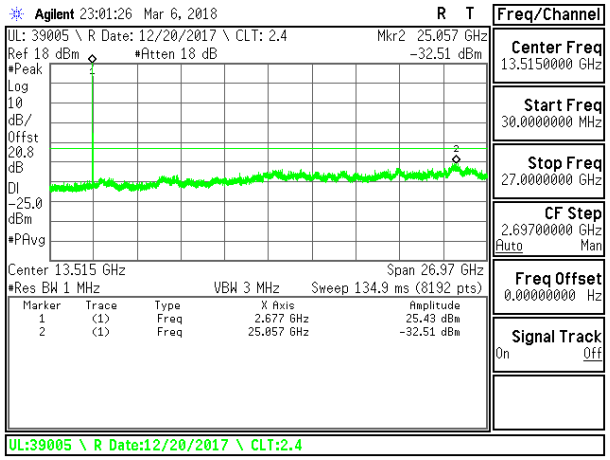
LTE B41 15MHz QPSK Middle Channel RB1-0



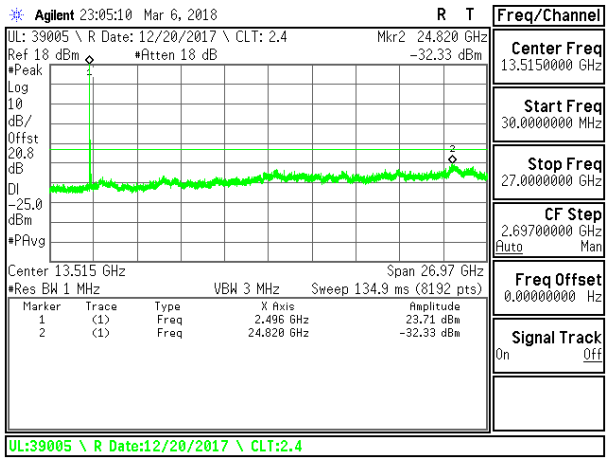
LTE B41 15MHz 16QAM Middle Channel RB1-0



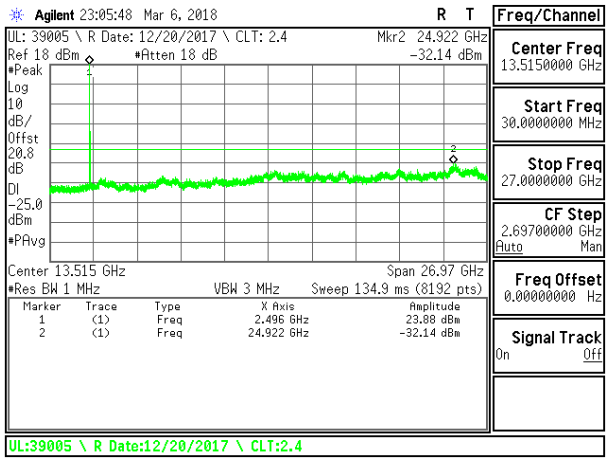
LTE B41 15MHz QPSK High Channel RB1-0



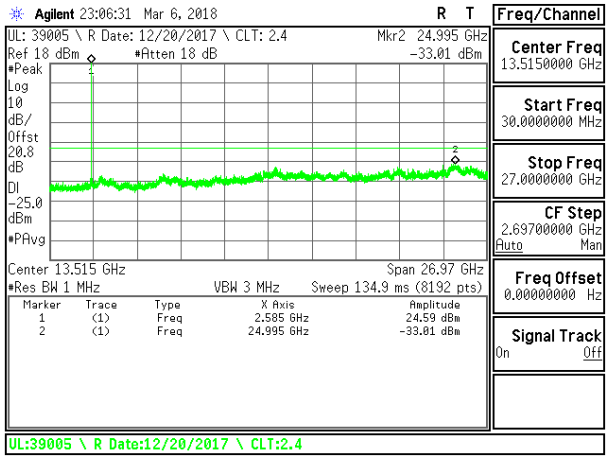
LTE B41 15MHz 16QAM High Channel RB1-0



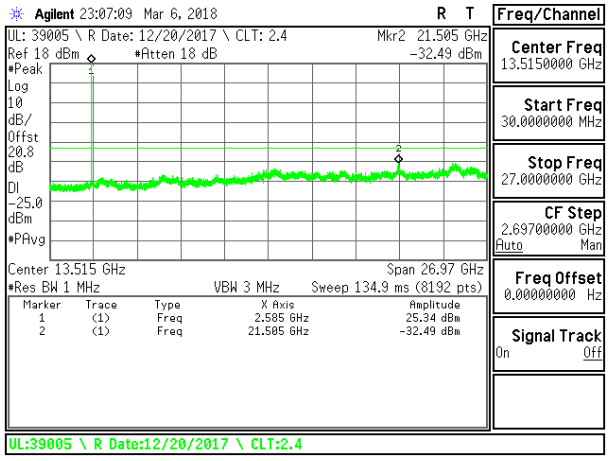
LTE B41 20MHz QPSK Low Channel RB1-0



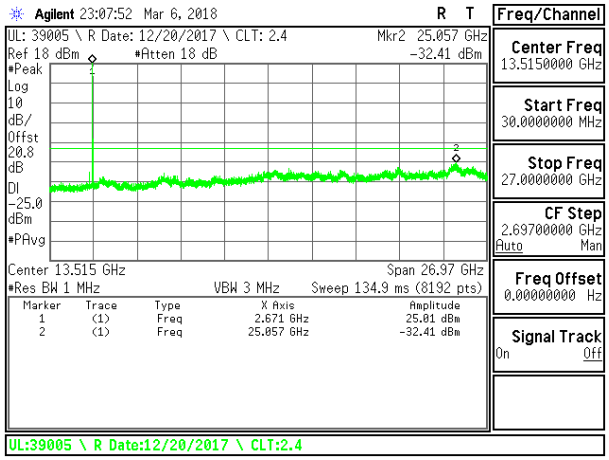
LTE B41 20MHz 16QAM Low Channel RB1-0



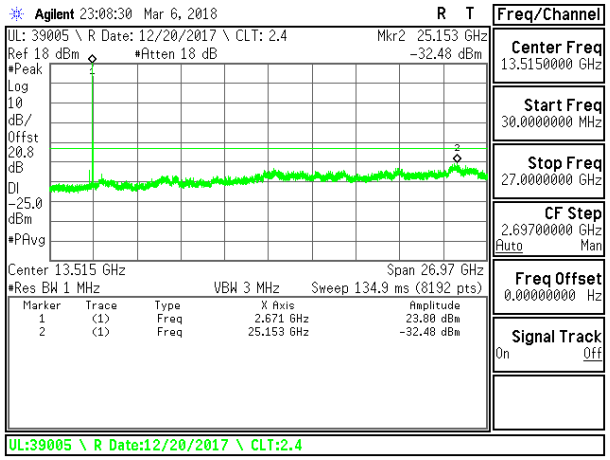
LTE B41 20MHz QPSK Middle Channel RB1-0



LTE B41 20MHz 16QAM Middle Channel RB1-0



LTE B41 20MHz QPSK High Channel RB1-0



LTE B41 20MHz 16QAM High Channel RB1-0

8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54

LIMITS

FCC §22.355

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

FCC §24.235 & §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 place inside a temperature chamber. The temperature is set to 20ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

- GSM
- LTE Band 2
- LTE Band 4
- LTE Band 12
- LTE Band 41
-

RESULTS

See the following pages.

8.4.1. **GSM 850**

Reference Frequency: GSM850 Mid Channel		836.6	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.500	Hz
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	836.600022	0.010	2.5
3.85	40	836.600023	0.009	2.5
3.85	30	836.600024	0.008	2.5
3.85	***20***	**836.600030**	**0**	***2.5***
3.85	10	836.600029	0.002	2.5
3.85	0	836.600030	0.000	2.5
3.85	-10	836.600032	-0.002	2.5
3.85	-20	836.600031	-0.001	2.5
3.85	-30	836.600026	0.005	2.5

Reference Frequency: GSM850 Mid Channel		836.6	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.500	Hz
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***836.600030***	***0***	***2.5***
4.25	25	836.600027	*0.004*	2.5
3.65	25	836.600026	*0.005*	2.5

8.4.2. **LTE BAND 2**

Reference Frequency: LTE Band 2 Mid Channel		1880	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		4700.000	Hz
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	1880.000012	0.003	2.5
3.85	40	1880.000014	0.002	2.5
3.85	30	1880.000014	0.002	2.5
3.85	***20***	**1880.000018**	**0**	***2.5***
3.85	10	1880.000017	0.000	2.5
3.85	0	1880.000016	0.001	2.5
3.85	-10	1880.000016	0.001	2.5
3.85	-20	1880.000017	0.001	2.5
3.85	-30	1880.000016	0.001	2.5

Reference Frequency: LTE Band 2 Mid Channel		1880	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		4700.000	Hz
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***1880.000018***	***0***	***2.5***
4.25	25	1880.000017	*0.001*	2.5
3.65	25	1880.000016	*0.001*	2.5

8.4.3. **LTE BAND 4**

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	1732.500012	0.000	2.5
3.85	40	1732.500014	-0.001	2.5
3.85	30	1732.500012	0.000	2.5
3.85	***20***	**1732.500012**	**0**	***2.5***
3.85	10	1732.500012	0.000	2.5
3.85	0	1732.500015	-0.002	2.5
3.85	-10	1732.500009	0.002	2.5
3.85	-20	1732.500015	-0.001	2.5
3.85	-30	1732.500015	-0.001	2.5

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***1732.500012***	***0***	***2.5***
4.25	25	1732.500015	*-0.002*	2.5
3.65	25	1732.500013	*0.000*	2.5

8.4.4. **LTE BAND 12**

Reference Frequency: LTE Band 12 Mid Channel		707.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1768.750	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	707.500006	0.004	2.5
3.85	40	707.500007	0.003	2.5
3.85	30	707.499997	0.017	2.5
3.85	***20***	**707.500009**	**0**	***2.5***
3.85	10	707.500010	-0.001	2.5
3.85	0	707.500006	0.004	2.5
3.85	-10	707.500006	0.004	2.5
3.85	-20	707.500010	-0.002	2.5
3.85	-30	707.500009	-0.001	2.5

Reference Frequency: LTE Band 12 Mid Channel		707.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1768.750	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***707.500009***	***0***	***2.5***
4.25	25	707.500003	*0.008*	2.5
3.65	25	707.500008	*0.001*	2.5

8.4.5. **LTE BAND 41**

Reference Frequency: LTE Band 41 Mid Channel		2593	MHz @ 20°C	
		Limit: to stay +- 2.5 ppm =	6482.500	Hz
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	2593.000012	0.001	2.5
3.85	40	2593.000013	0.001	2.5
3.85	30	2593.000014	0.001	2.5
3.85	***20***	**2593.000016**	**0**	***2.5***
3.85	10	2593.000014	0.001	2.5
3.85	0	2593.000014	0.001	2.5
3.85	-10	2593.000014	0.001	2.5
3.85	-20	2593.000013	0.001	2.5
3.85	-30	2593.000014	0.001	2.5

Reference Frequency: LTE Band 41 Mid Channel		2593	MHz @ 20°C	
		Limit: to stay +- 2.5 ppm =	6482.500	Hz
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***2593.000016***	***0***	***2.5***
4.25	25	2593.000015	*0.001*	2.5
3.65	25	2593.000015	*0.000*	2.5

8.5. PEAK TO AVERAGE RATIO

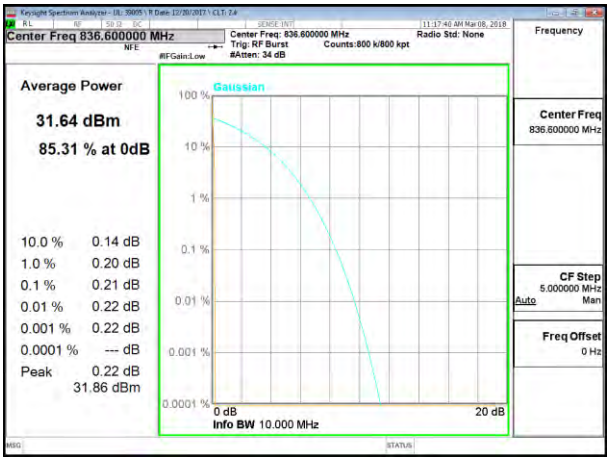
LIMITS

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.

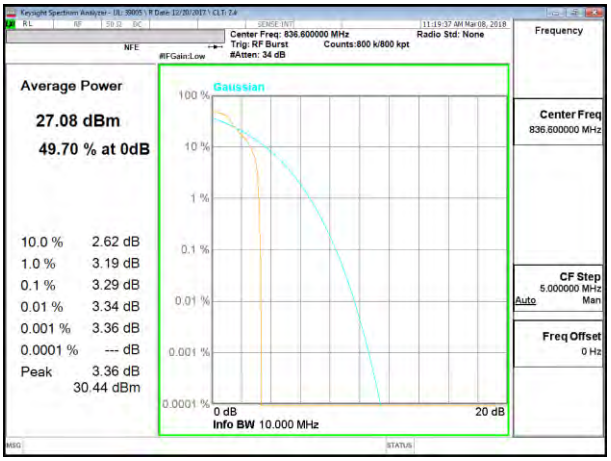
RESULT

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 power ratio criteria..

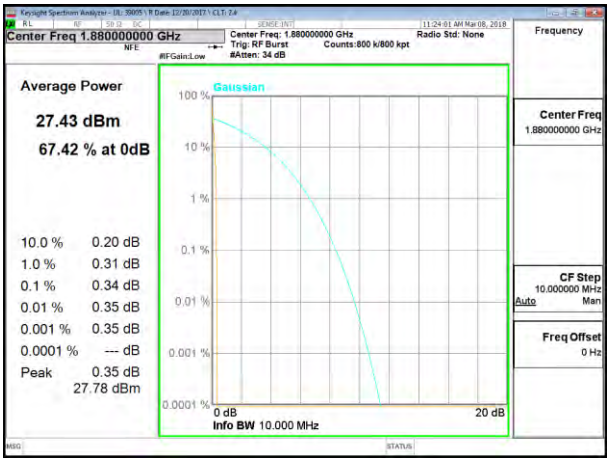
8.5.1. **GSM**



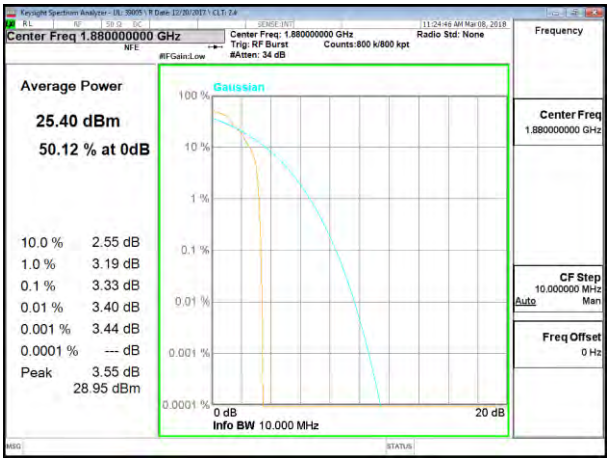
GSM 850MHz GPRS Middle Channel



GSM 850MHz EGPRS Middle Channel

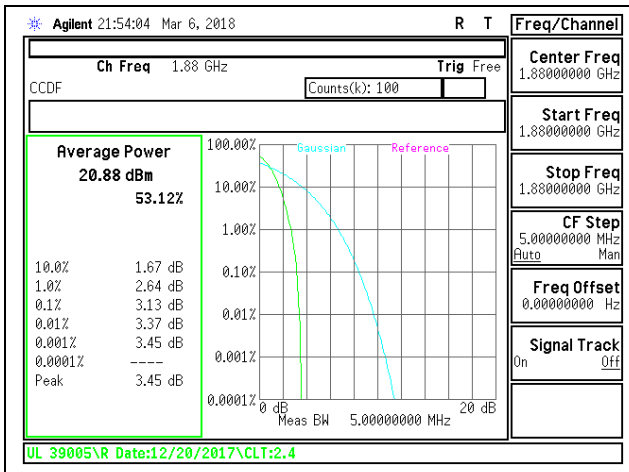


GSM 1900MHz GPRS Middle Channel

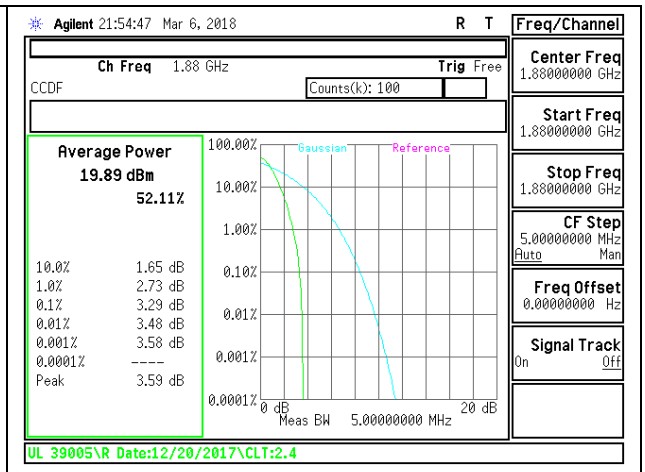


GSM 1900MHz EGPRS Middle Channel

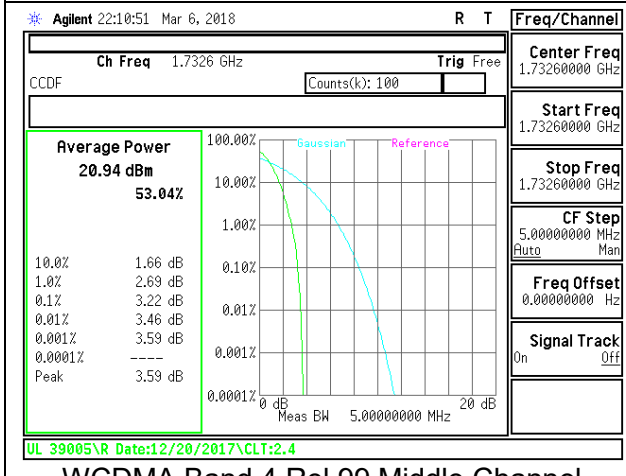
8.5.2. **WCDMA**



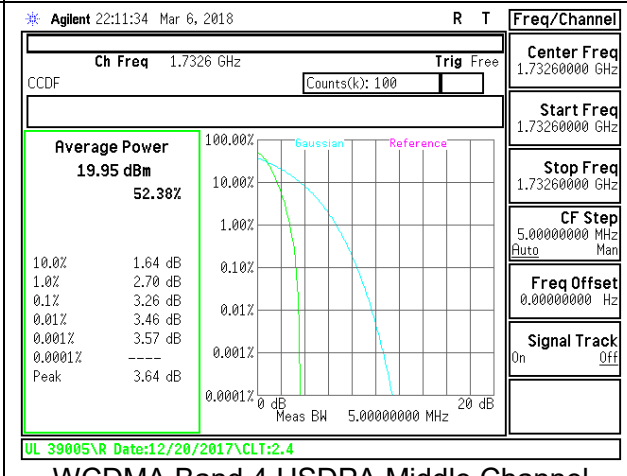
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

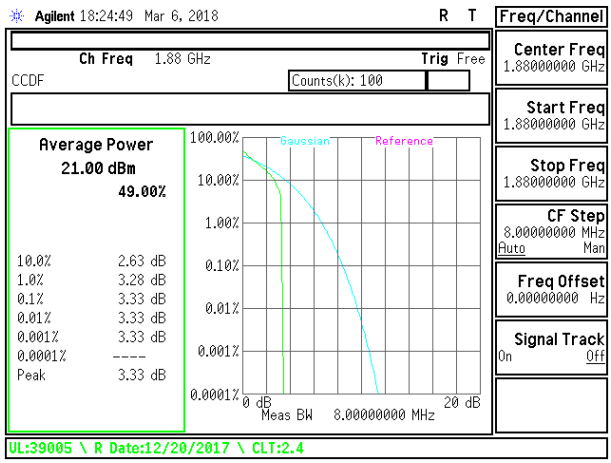


WCDMA Band 4 Rel 99 Middle Channel

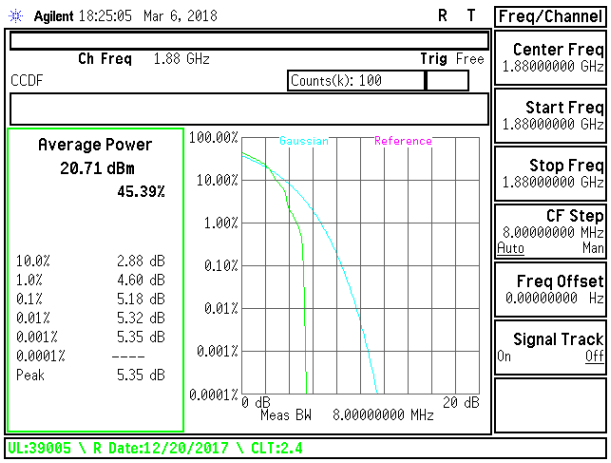


WCDMA Band 4 HSDPA Middle Channel

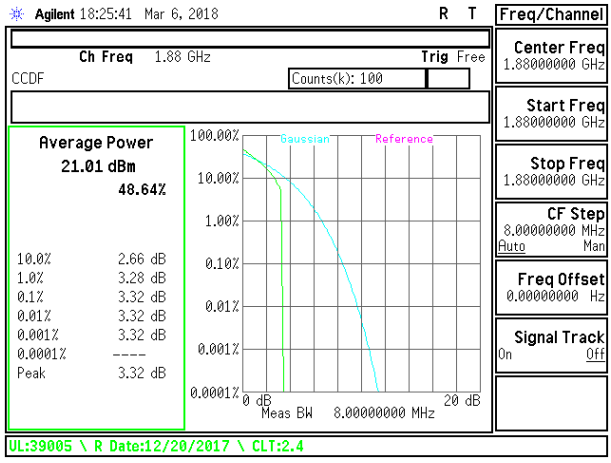
8.5.3. **LTE BAND 2**



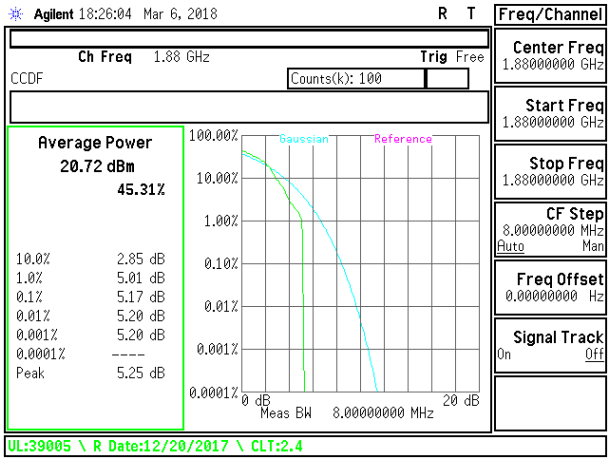
LTE B2 1.4MHz QPSK Mid Channel



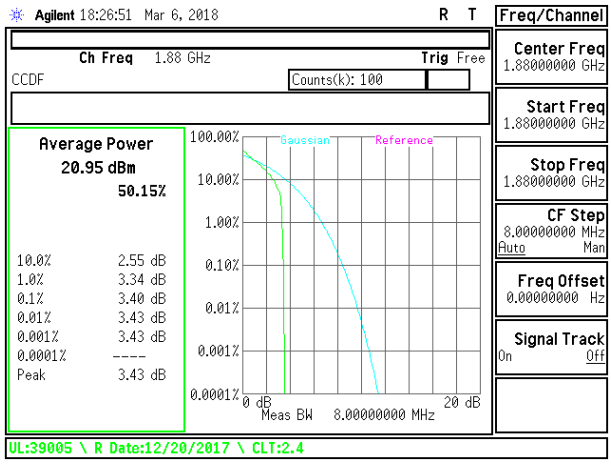
LTE B2 1.4MHz 16QAM Mid Channel



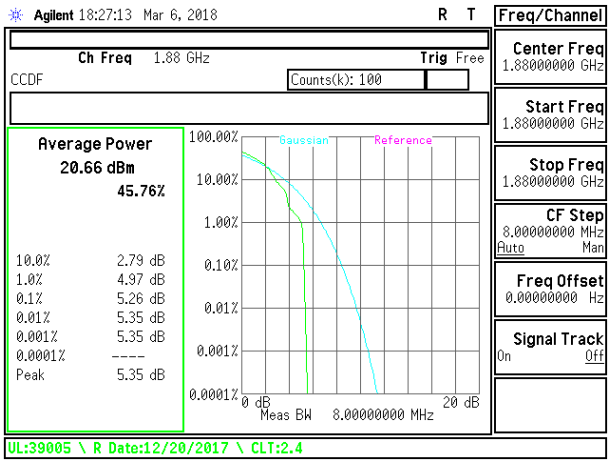
LTE B2 3MHz QPSK Mid Channel



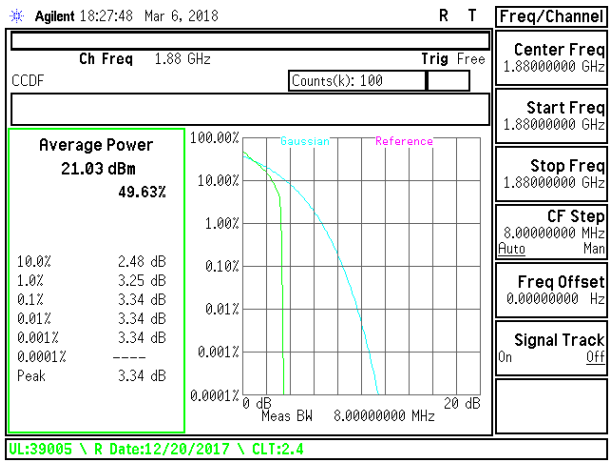
LTE B2 3MHz 16QAM Mid Channel



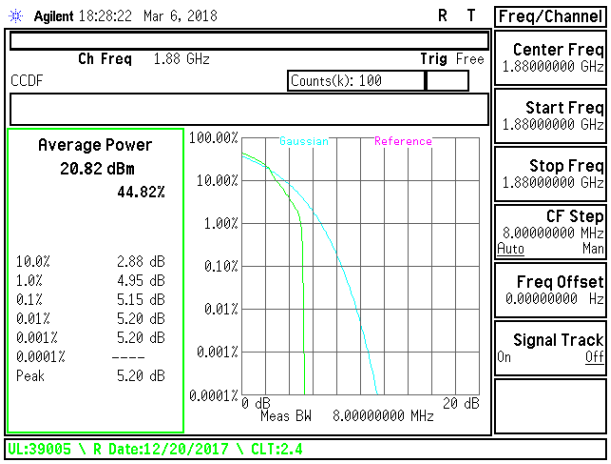
LTE B2 5MHz QPSK Mid Channel



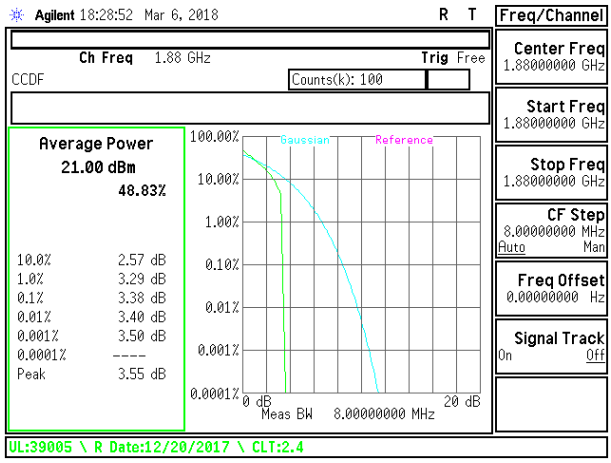
LTE B2 5MHz 16QAM Mid Channel



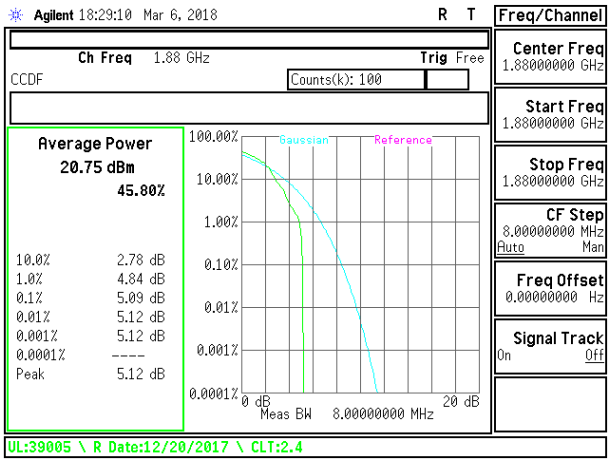
LTE B2 10MHz QPSK Mid Channel



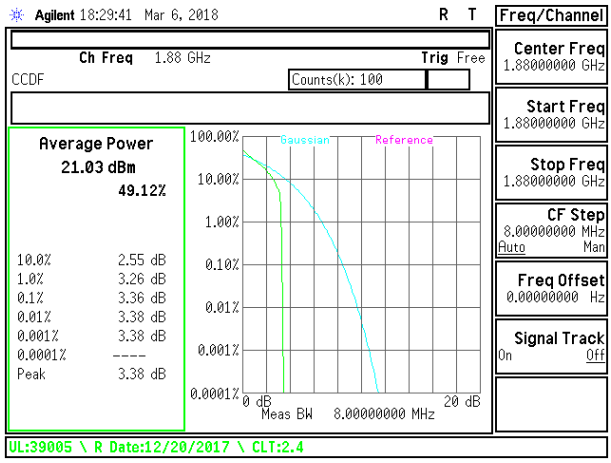
LTE B2 10MHz 16QAM Mid Channel



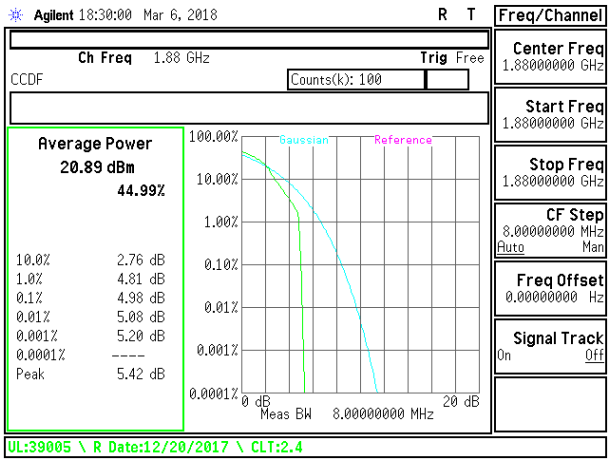
LTE B2 15MHz QPSK Mid Channel



LTE B2 15MHz 16QAM Mid Channel

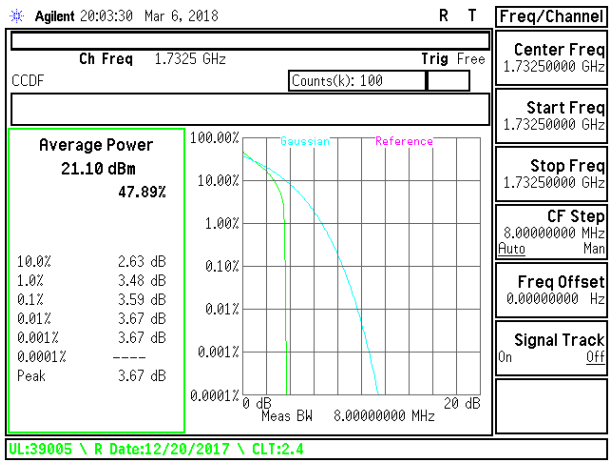


LTE B2 20MHz QPSK Mid Channel

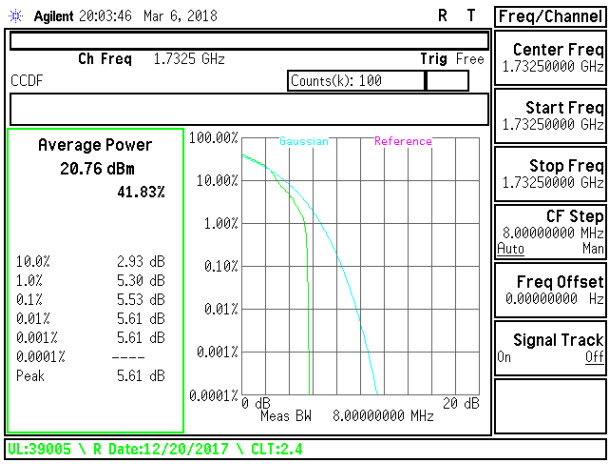


LTE B2 20MHz 16QAM Mid Channel

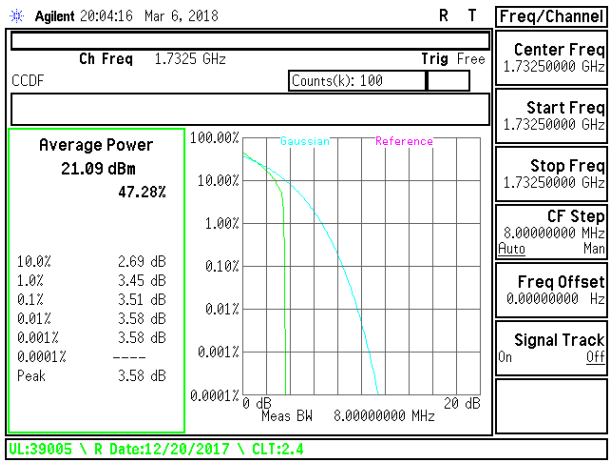
8.5.4. **LTE BAND 4**



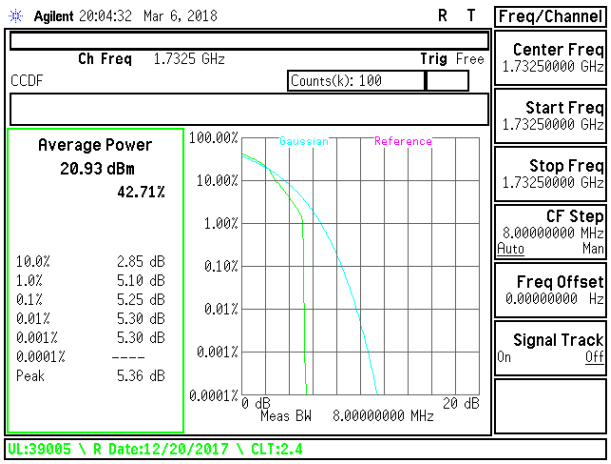
LTE B4 1.4MHz QPSK Mid Channel



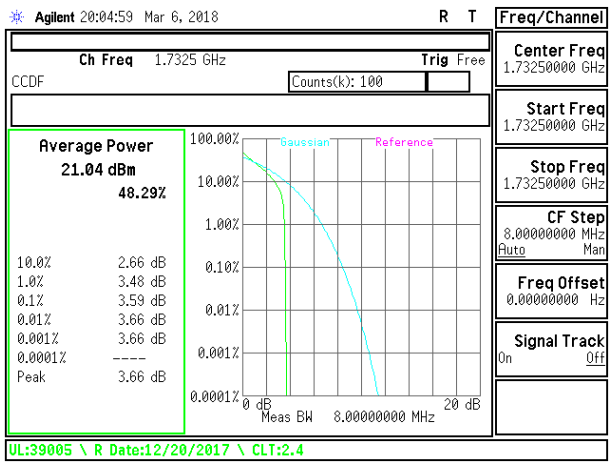
LTE B4 1.4MHz 16QAM Mid Channel



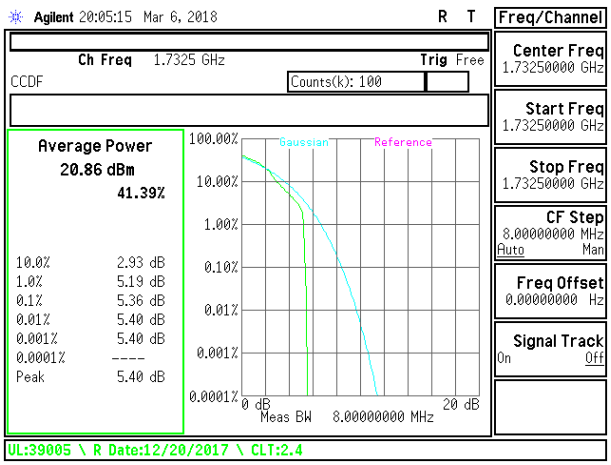
LTE B4 3MHz QPSK Mid Channel



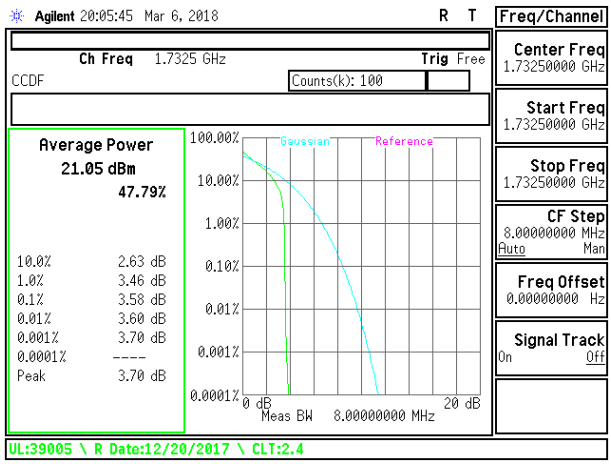
LTE B4 3MHz 16QAM Mid Channel



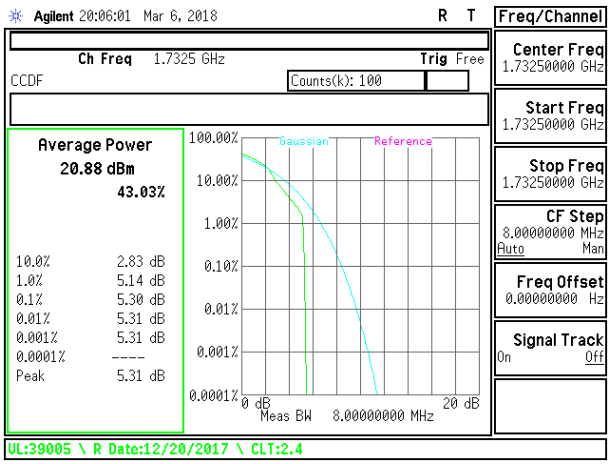
LTE B4 5MHz QPSK Mid Channel



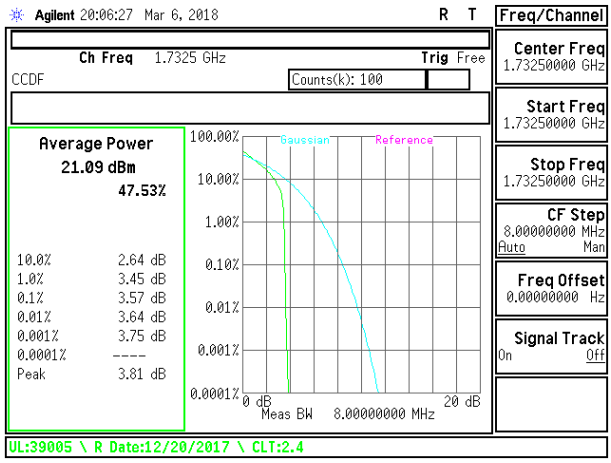
LTE B4 5MHz 16QAM Mid Channel



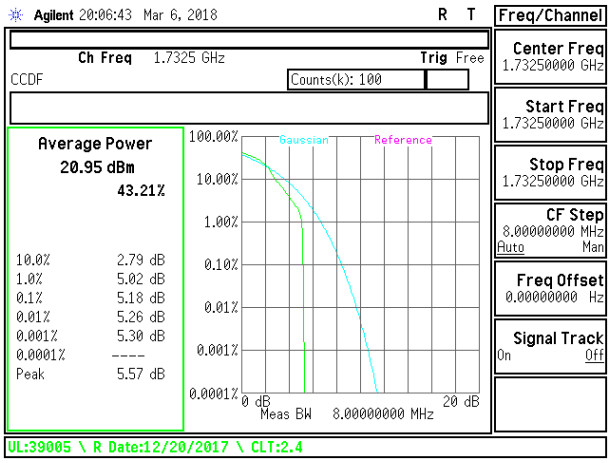
LTE B4 10MHz QPSK Mid Channel



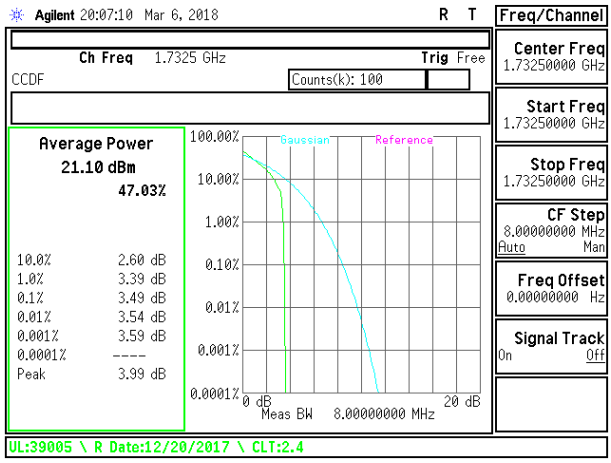
LTE B4 10MHz 16QAM Mid Channel



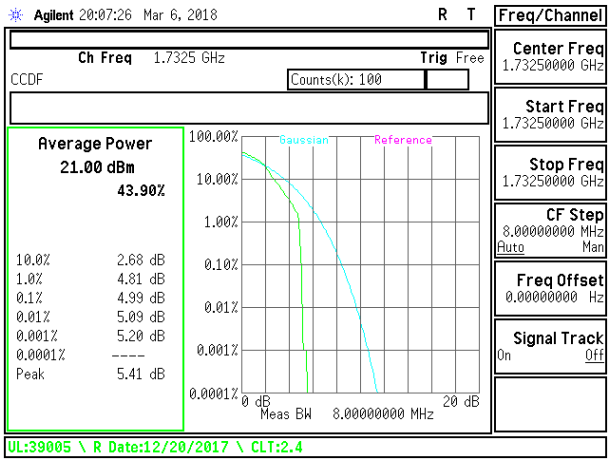
LTE B4 15MHz QPSK Mid Channel



LTE B4 15MHz 16QAM Mid Channel

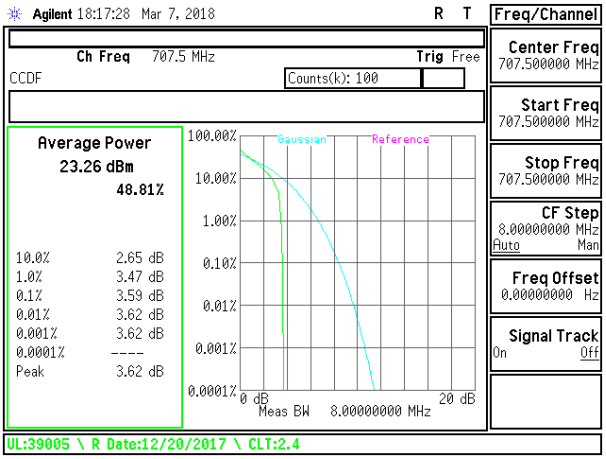


LTE B4 20MHz QPSK Mid Channel

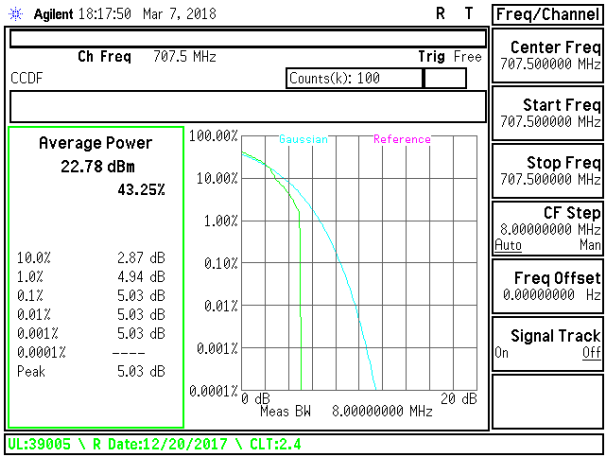


LTE B4 20MHz 16QAM Mid Channel

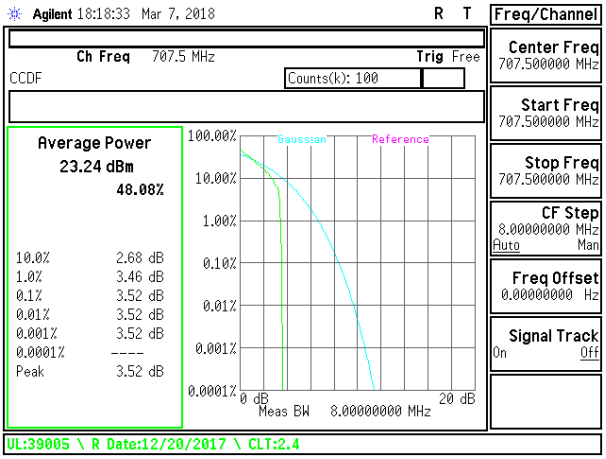
8.5.5. **LTE BAND 12**



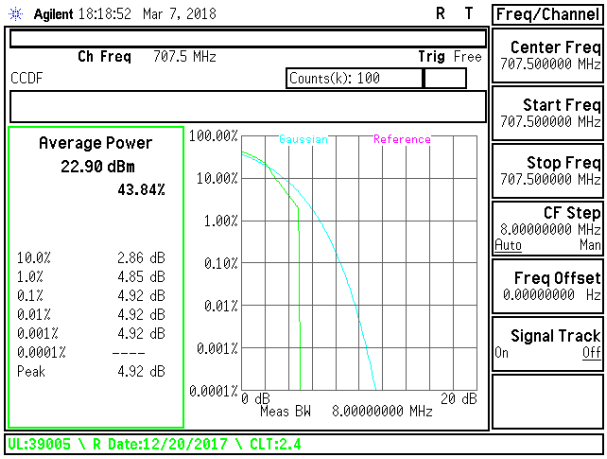
LTE B12 1.4MHz QPSK Mid Channel



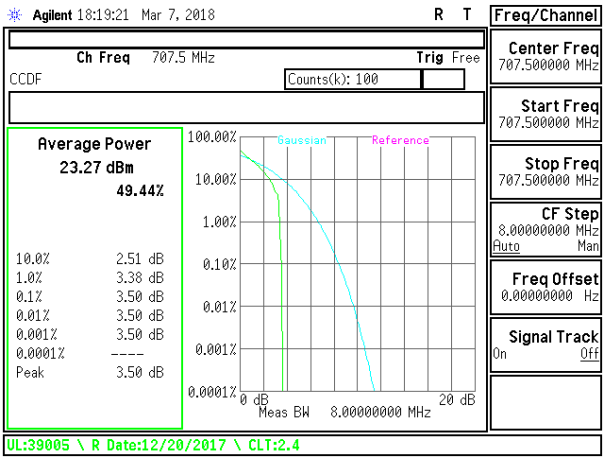
LTE B12 1.4MHz 16QAM Mid Channel



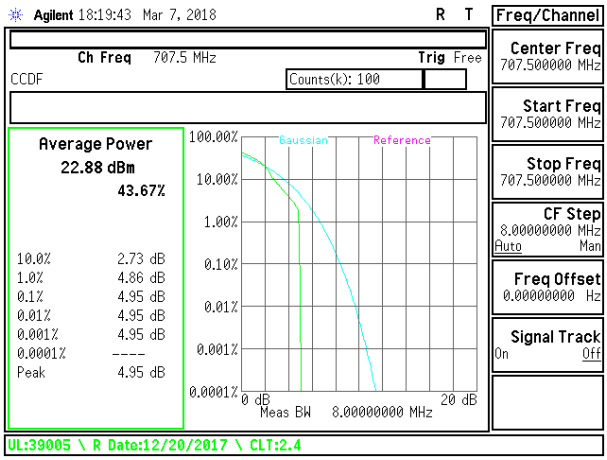
LTE B12 3MHz QPSK Mid Channel



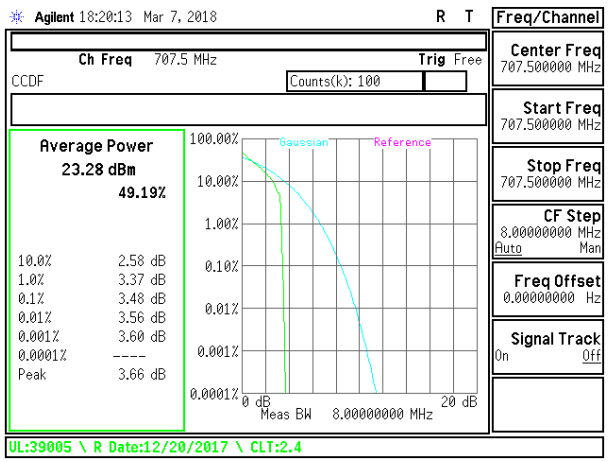
LTE B12 3MHz 16QAM Mid Channel



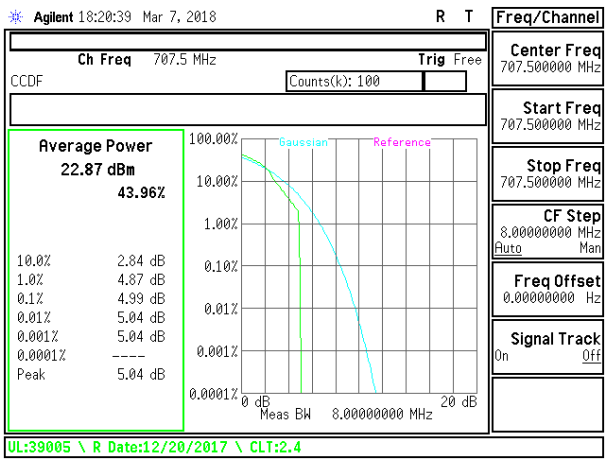
LTE B12 5MHz QPSK Mid Channel



LTE B12 5MHz 16QAM Mid Channel

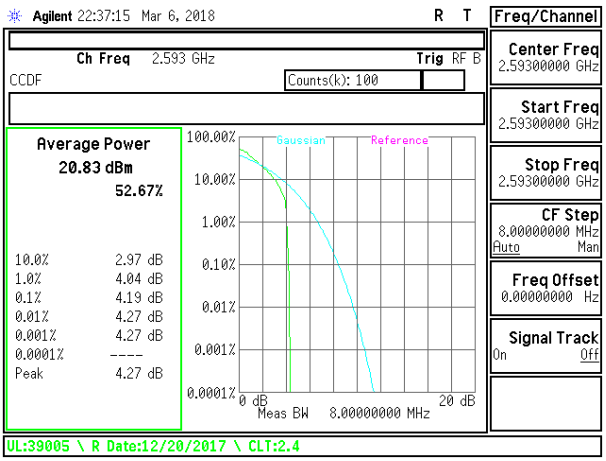


LTE B12 10MHz QPSK Mid Channel

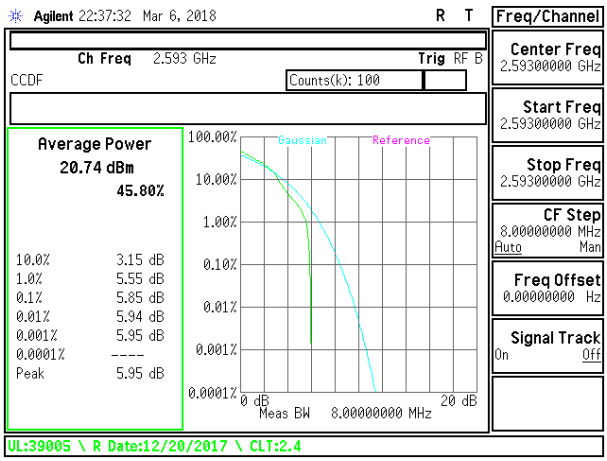


LTE B12 10MHz 16QAM Mid Channel

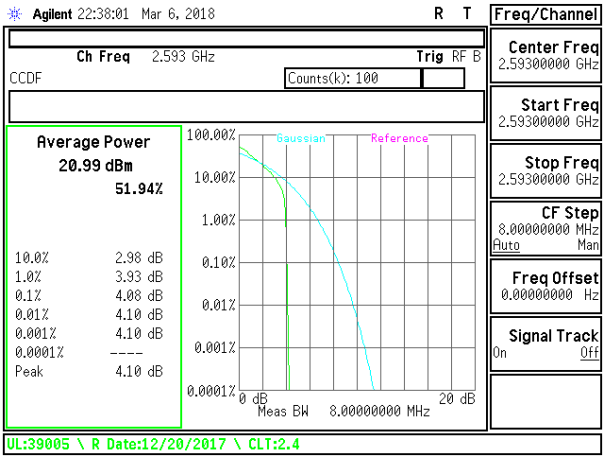
8.5.6. **LTE BAND 41 (FCC)**



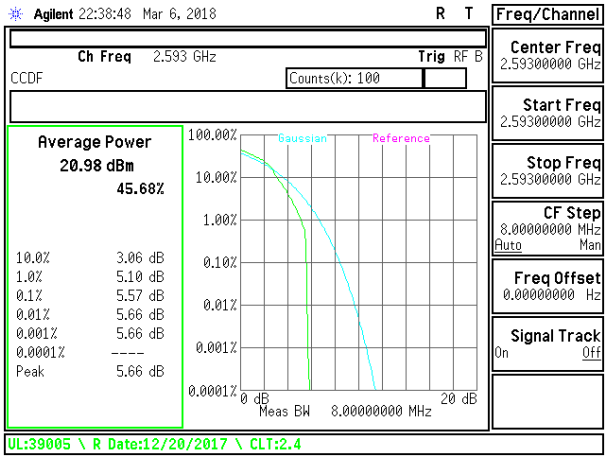
LTE B41 5MHz QPSK Mid Channel



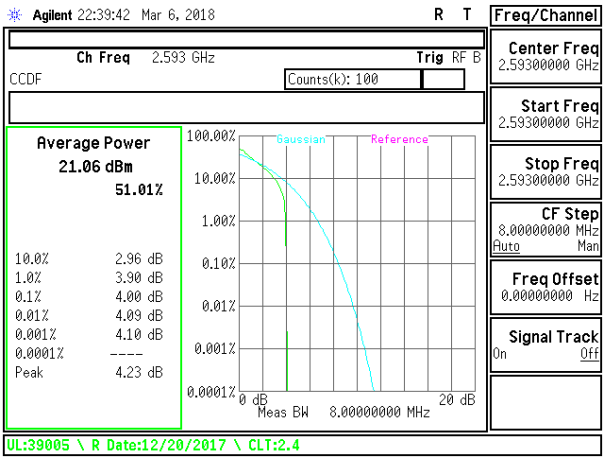
LTE B41 5MHz 16QAM Mid Channel



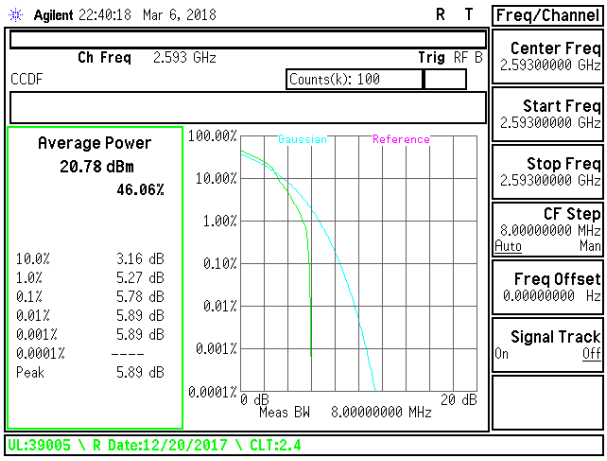
LTE B41 10MHz QPSK Mid Channel



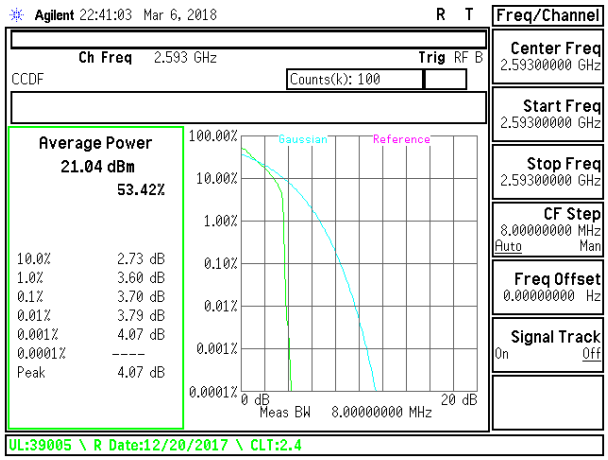
LTE B41 10MHz 16QAM Mid Channel



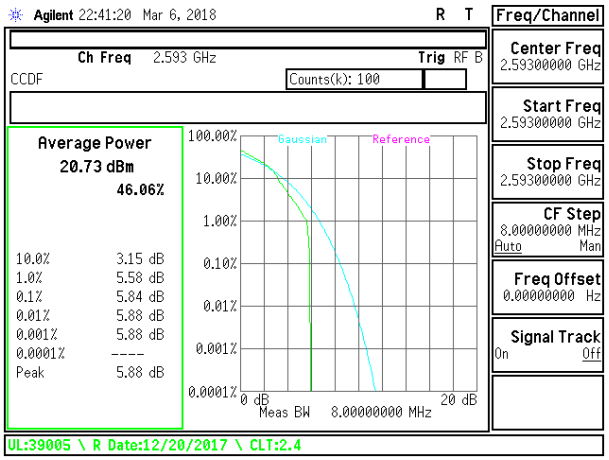
LTE B41 15MHz QPSK Mid Channel



LTE B41 15MHz 16QAM Mid Channel



LTE B41 20MHz QPSK Mid Channel



LTE B41 20MHz 16QAM Mid Channel

9. RADIATED TEST RESULTS

9.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, and §27.53

LIMITS

FCC: §22.917(a), §24.238(a), §27.53 (g), (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 (Band 13)
(c) 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.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

FCC: §27.53 (m) (Band 7, 41)
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 v02r02/D02 v01

MODES TESTED

- GSM
- WCDMA
- LTE Band 2
- LTE Band 4
- LTE Band 12
- LTE Band 41

RESULTS

9.1.1. **GSM**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/13/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber B
Mode:	GPRS 850 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-26.2	V	3.0	37.0	1.0	-62.2	-13.0	-49.2	
2472.60	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3296.80	-20.3	V	3.0	36.2	1.0	-55.4	-13.0	-42.4	
1648.40	-26.1	H	3.0	37.0	1.0	-62.2	-13.0	-49.2	
2472.60	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3296.80	-20.9	H	3.0	36.2	1.0	-56.1	-13.0	-43.1	
Mid Ch, 836.6MHz									
1673.20	-25.9	V	3.0	37.0	1.0	-61.9	-13.0	-48.9	
2509.80	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3346.40	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1673.20	-25.6	H	3.0	37.0	1.0	-61.6	-13.0	-48.6	
2509.80	-23.4	H	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3346.40	-20.7	H	3.0	36.1	1.0	-55.9	-13.0	-42.9	
High Ch, 848.8MHz									
1697.60	-25.6	V	3.0	37.0	1.0	-61.6	-13.0	-48.6	
2546.40	-21.9	V	3.0	36.4	1.0	-57.3	-13.0	-44.3	
3395.20	-20.3	V	3.0	36.1	1.0	-55.4	-13.0	-42.4	
1697.60	-25.4	H	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2546.40	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3395.20	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	

GSM 850MHz GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/13/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber B
Mode:	EGPRS 850 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-26.0	V	3.0	37.0	1.0	-62.1	-13.0	-49.1	
2472.60	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3296.80	-20.4	V	3.0	36.2	1.0	-55.6	-13.0	-42.6	
1648.40	-26.2	H	3.0	37.0	1.0	-62.2	-13.0	-49.2	
2472.60	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3296.80	-20.8	H	3.0	36.2	1.0	-56.0	-13.0	-43.0	
Mid Ch, 836.6MHz									
1673.20	-26.1	V	3.0	37.0	1.0	-62.1	-13.0	-49.1	
2509.80	-22.2	V	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3346.40	-20.6	V	3.0	36.1	1.0	-55.7	-13.0	-42.7	
1673.20	-25.5	H	3.0	37.0	1.0	-61.5	-13.0	-48.5	
2509.80	-23.7	H	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3346.40	-20.6	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	
High Ch, 848.8MHz									
1697.60	-25.8	V	3.0	37.0	1.0	-61.8	-13.0	-48.8	
2546.40	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3395.20	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1697.60	-25.6	H	3.0	37.0	1.0	-61.6	-13.0	-48.6	
2546.40	-23.3	H	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3395.20	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	

GSM 850MHz EGPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/13/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber B
Mode:	GPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-18.3	V	3.0	35.9	1.0	-53.2	-13.0	-40.2	
5550.60	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7400.80	-14.5	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3700.40	-18.1	H	3.0	35.9	1.0	-53.0	-13.0	-40.0	
5550.60	-14.7	H	3.0	35.5	1.0	-49.2	-13.0	-36.2	
7400.80	-13.3	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
Mid Ch, 1880MHz									
3760.00	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5640.00	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-14.8	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3760.00	-18.4	H	3.0	35.8	1.0	-53.2	-13.0	-40.2	
5640.00	-14.5	H	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7520.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1909.8MHz									
3819.60	-18.4	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5729.40	-15.2	V	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7639.20	-14.6	V	3.0	35.8	1.0	-49.3	-13.0	-36.3	
3819.60	-17.4	H	3.0	35.8	1.0	-52.2	-13.0	-39.2	
5729.40	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7639.20	-12.7	H	3.0	35.8	1.0	-47.4	-13.0	-34.4	

GSM 1900MHz GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/13/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber B
Mode:	EGPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-18.5	V	3.0	35.9	1.0	-53.4	-13.0	-40.4	
5550.60	-15.4	V	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7400.80	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3700.40	-17.9	H	3.0	35.9	1.0	-52.8	-13.0	-39.8	
5550.60	-14.6	H	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7400.80	-12.9	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1880MHz									
3760.00	-18.0	V	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5640.00	-15.7	V	3.0	35.5	1.0	-50.2	-13.0	-37.2	
7520.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3760.00	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5640.00	-14.4	H	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7520.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1909.8MHz									
3819.60	-18.4	V	3.0	35.8	1.0	-53.2	-13.0	-40.2	
5729.40	-14.9	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7639.20	-14.8	V	3.0	35.8	1.0	-49.5	-13.0	-36.5	
3819.60	-17.5	H	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5729.40	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7639.20	-12.4	H	3.0	35.8	1.0	-47.2	-13.0	-34.2	

GSM 1900MHz EGPRS

9.1.2. **WCDMA**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/7/2018
Test Engineer:	16069 OG
Configuration:	EUT + SUPPORT EQUIPMENT
Location:	Chamber A
Mode:	Rel99 Band 2 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-18.1	V	3.0	35.9	1.0	-53.9	-13.0	-40.9	
5557.20	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7409.60	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3704.80	-19.8	H	3.0	35.9	1.0	-54.7	-13.0	-41.7	
5557.20	-16.7	H	3.0	35.5	1.0	-51.2	-13.0	-38.2	
7409.60	-14.7	H	3.0	35.7	1.0	-49.5	-13.0	-36.5	
Mid Ch, 1880MHz									
3760.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5640.00	-15.9	V	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7520.00	-14.3	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3760.00	-18.3	H	3.0	35.8	1.0	-53.2	-13.0	-40.2	
5640.00	-16.3	H	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7520.00	-16.3	H	3.0	35.7	1.0	-51.0	-13.0	-38.0	
High Ch, 1907.6MHz									
3815.20	-17.5	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5722.80	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7630.40	-15.2	V	3.0	35.8	1.0	-50.0	-13.0	-37.0	
3815.20	-18.1	H	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5722.80	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7630.40	-14.7	H	3.0	35.8	1.0	-49.4	-13.0	-36.4	

WCDMA Band 2 Rel 99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/9/2018
Test Engineer:	16069 OG
Configuration:	EUT + SUPPORT EQUIPMENT
Location:	Chamber B
Mode:	HSDPA Band 2 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-18.1	V	3.0	35.9	1.0	-52.9	-13.0	-39.9	
5557.20	-15.6	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7409.60	-16.1	V	3.0	35.7	1.0	-50.8	-13.0	-37.8	
3704.80	-19.1	H	3.0	35.9	1.0	-54.0	-13.0	-41.0	
5557.20	-16.3	H	3.0	35.5	1.0	-50.8	-13.0	-37.8	
7409.60	-15.0	H	3.0	35.7	1.0	-49.8	-13.0	-36.8	
Mid Ch, 1880MHz									
3760.00	-18.9	V	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5640.00	-16.5	V	3.0	35.5	1.0	-51.0	-13.0	-38.0	
7520.00	-15.3	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3760.00	-19.1	H	3.0	35.8	1.0	-53.9	-13.0	-40.9	
5640.00	-16.9	H	3.0	35.5	1.0	-51.4	-13.0	-38.4	
7520.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1907.6MHz									
3815.20	-18.6	V	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5722.80	-16.4	V	3.0	35.5	1.0	-50.9	-13.0	-37.9	
7630.40	-16.0	V	3.0	35.8	1.0	-50.7	-13.0	-37.7	
3815.20	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5722.80	-15.7	H	3.0	35.5	1.0	-50.2	-13.0	-37.2	
7630.40	-15.0	H	3.0	35.8	1.0	-49.7	-13.0	-36.7	

WCDMA Band 2 HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/9/2018
Test Engineer:	16069 OG
Configuration:	EUT + SUPPORT EQUIPMENT
Location:	Chamber B
Mode:	Rel99 Band 4 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.4MHz									
3424.80	-20.3	V	3.0	36.1	1.0	-55.4	-13.0	-42.4	
5137.20	-14.3	V	3.0	35.4	1.0	-48.8	-13.0	-35.8	
6849.60	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3424.80	-20.5	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
5137.20	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6849.60	-14.4	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	
Mid Ch, 1732.6MHz									
3465.20	-20.2	V	3.0	36.0	1.0	-55.2	-13.0	-42.2	
5197.80	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
6930.40	-16.9	V	3.0	35.7	1.0	-51.5	-13.0	-38.5	
3465.20	-21.2	H	3.0	36.0	1.0	-56.2	-13.0	-43.2	
5197.80	-16.0	H	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.40	-14.8	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
High Ch, 1752.6MHz									
3505.20	-20.5	V	3.0	36.0	1.0	-55.5	-13.0	-42.5	
5257.80	-14.8	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
7010.40	-14.6	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3505.20	-20.7	H	3.0	36.0	1.0	-55.7	-13.0	-42.7	
5257.80	-16.5	H	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7010.40	-13.9	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	

WCDMA Band 4 Rel 99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/9/2018
Test Engineer:	16069 OG
Configuration:	EUT + SUPPORT EQUIPMENT
Location:	Chamber B
Mode:	HSDPA Band 4 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.4MHz									
3424.80	-20.0	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
5137.20	-15.9	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6849.60	-16.3	V	3.0	35.7	1.0	-50.9	-13.0	-37.9	
3424.80	-20.4	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
5137.20	-15.0	H	3.0	35.4	1.0	-49.5	-13.0	-36.5	
6849.60	-14.5	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	
Mid Ch, 1732.6MHz									
3465.20	-20.3	V	3.0	36.0	1.0	-55.3	-13.0	-42.3	
5197.80	-15.7	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.40	-16.6	V	3.0	35.7	1.0	-51.2	-13.0	-38.2	
3465.20	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.80	-16.5	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
6930.40	-14.0	H	3.0	35.7	1.0	-48.7	-13.0	-35.7	
High Ch, 1752.6MHz									
3505.20	-19.9	V	3.0	36.0	1.0	-54.9	-13.0	-41.9	
5257.80	-14.9	V	3.0	35.4	1.0	-49.4	-13.0	-36.4	
7010.40	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3505.20	-20.4	H	3.0	36.0	1.0	-55.4	-13.0	-42.4	
5257.80	-16.6	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7010.40	-14.1	H	3.0	35.7	1.0	-48.7	-13.0	-35.7	

WCDMA Band 4 HSDPA

9.1.3. **LTE BAND 2**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7MHz									
3701.40	-19.8	V	3.0	35.9	1.0	-54.7	-13.0	-41.7	
5552.10	-14.7	V	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7402.80	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3701.40	-19.3	H	3.0	35.9	1.0	-54.1	-13.0	-41.1	
5552.10	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7402.80	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1880MHz									
3760.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-14.3	V	3.0	35.5	1.0	-48.8	-13.0	-35.8	
7520.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1909.3MHz									
3818.60	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5727.90	-14.2	V	3.0	35.5	1.0	-48.7	-13.0	-35.7	
7637.20	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3818.60	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5727.90	-14.8	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7637.20	-8.8	H	3.0	35.8	1.0	-43.6	-13.0	-30.6	

LTE B2 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7MHz									
3701.40	-19.8	V	3.0	35.9	1.0	-54.7	-13.0	-41.7	
5552.10	-15.0	V	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7402.80	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3701.40	-19.4	H	3.0	35.9	1.0	-54.2	-13.0	-41.2	
5552.10	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7402.80	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3760.00	-19.1	V	3.0	35.8	1.0	-53.9	-13.0	-40.9	
5640.00	-15.0	V	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7520.00	-14.0	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.2	H	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7520.00	-13.0	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
High Ch, 1909.3MHz									
3818.60	-18.2	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5727.90	-14.9	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7637.20	-13.8	V	3.0	35.8	1.0	-48.5	-13.0	-35.5	
3818.60	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5727.90	-14.9	H	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7637.20	-12.0	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

LTE B2 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5MHz									
3703.00	-19.7	V	3.0	35.9	1.0	-54.6	-13.0	-41.6	
5554.50	-14.8	V	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7406.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3703.00	-18.7	H	3.0	35.9	1.0	-53.6	-13.0	-40.6	
5554.50	-16.0	H	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7406.00	-12.1	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	
Mid Ch, 1880MHz									
3760.00	-19.4	V	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5640.00	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7520.00	-11.8	V	3.0	35.7	1.0	-46.6	-13.0	-33.6	
3760.00	-19.3	H	3.0	35.8	1.0	-54.1	-13.0	-41.1	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-13.3	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
High Ch, 1908.5MHz									
3817.00	-18.5	V	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5725.50	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7634.00	-11.4	V	3.0	35.8	1.0	-46.2	-13.0	-33.2	
3817.00	-18.3	H	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5725.50	-13.0	H	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7634.00	-13.8	H	3.0	35.8	1.0	-48.6	-13.0	-35.6	

LTE B2 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5MHz									
3703.00	-19.6	V	3.0	35.9	1.0	-54.5	-13.0	-41.5	
5554.50	-15.0	V	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7406.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3703.00	-18.9	H	3.0	35.9	1.0	-53.8	-13.0	-40.8	
5554.50	-15.9	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7406.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
Mid Ch, 1880MHz									
3760.00	-19.4	V	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5640.00	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-13.1	V	3.0	35.7	1.0	-47.8	-13.0	-34.8	
3760.00	-19.4	H	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5640.00	-15.2	H	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7520.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1908.5MHz									
3817.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5725.50	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7634.00	-12.1	V	3.0	35.8	1.0	-46.8	-13.0	-33.8	
3817.00	-18.7	H	3.0	35.8	1.0	-53.5	-13.0	-40.5	
5725.50	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7634.00	-14.2	H	3.0	35.8	1.0	-49.0	-13.0	-36.0	

LTE B2 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5MHz									
3705.00	-19.5	V	3.0	35.9	1.0	-54.4	-13.0	-41.4	
5557.50	-15.9	V	3.0	35.5	1.0	-50.4	-13.0	-37.4	
7410.00	-14.1	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3705.00	-18.8	H	3.0	35.9	1.0	-53.6	-13.0	-40.6	
5557.50	-14.5	H	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7410.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
Mid Ch, 1880MHz									
3760.00	-19.4	V	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5640.00	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7520.00	-12.1	V	3.0	35.7	1.0	-46.8	-13.0	-33.8	
3760.00	-19.1	H	3.0	35.8	1.0	-53.9	-13.0	-40.9	
5640.00	-15.8	H	3.0	35.5	1.0	-50.3	-13.0	-37.3	
7520.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1907.5MHz									
3815.00	-18.0	V	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5722.50	-14.9	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7630.00	-13.2	V	3.0	35.8	1.0	-47.9	-13.0	-34.9	
3815.00	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5722.50	-13.1	H	3.0	35.5	1.0	-47.6	-13.0	-34.6	
7630.00	-12.2	H	3.0	35.8	1.0	-47.0	-13.0	-34.0	

LTE B2 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5MHz									
3705.00	-19.2	V	3.0	35.9	1.0	-54.1	-13.0	-41.1	
5557.50	-16.0	V	3.0	35.5	1.0	-50.5	-13.0	-37.5	
7410.00	-14.2	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3705.00	-19.0	H	3.0	35.9	1.0	-53.9	-13.0	-40.9	
5557.50	-14.6	H	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7410.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
Mid Ch, 1880MHz									
3760.00	-19.6	V	3.0	35.8	1.0	-54.4	-13.0	-41.4	
5640.00	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7520.00	-12.8	V	3.0	35.7	1.0	-47.5	-13.0	-34.5	
3760.00	-18.9	H	3.0	35.8	1.0	-53.7	-13.0	-40.7	
5640.00	-15.7	H	3.0	35.5	1.0	-50.2	-13.0	-37.2	
7520.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1907.5MHz									
3815.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5722.50	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7630.00	-13.4	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
3815.00	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5722.50	-13.1	H	3.0	35.5	1.0	-47.6	-13.0	-34.6	
7630.00	-12.3	H	3.0	35.8	1.0	-47.1	-13.0	-34.1	

LTE B2 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855MHz									
3710.00	-19.8	V	3.0	35.9	1.0	-54.6	-13.0	-41.6	
5565.00	-14.6	V	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7420.00	-12.9	V	3.0	35.7	1.0	-47.6	-13.0	-34.6	
3710.00	-19.3	H	3.0	35.9	1.0	-54.1	-13.0	-41.1	
5565.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7420.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1880MHz									
3760.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-14.3	V	3.0	35.5	1.0	-48.8	-13.0	-35.8	
7520.00	-12.6	V	3.0	35.7	1.0	-47.3	-13.0	-34.3	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1905MHz									
3810.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5715.00	-14.2	V	3.0	35.5	1.0	-48.7	-13.0	-35.7	
7620.00	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3810.00	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5715.00	-14.8	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7620.00	-10.8	H	3.0	35.8	1.0	-45.6	-13.0	-32.6	

LTE B2 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855MHz									
3710.00	-19.5	V	3.0	35.9	1.0	-54.4	-13.0	-41.4	
5565.00	-14.7	V	3.0	35.5	1.0	-49.2	-13.0	-36.2	
7420.00	-13.0	V	3.0	35.7	1.0	-47.8	-13.0	-34.8	
3710.00	-19.1	H	3.0	35.9	1.0	-53.9	-13.0	-40.9	
5565.00	-15.2	H	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7420.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3760.00	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5640.00	-14.5	V	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7520.00	-12.8	V	3.0	35.7	1.0	-47.5	-13.0	-34.5	
3760.00	-18.3	H	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7520.00	-13.0	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
High Ch, 1905MHz									
3810.00	-18.8	V	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5715.00	-15.2	V	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7620.00	-14.4	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3810.00	-18.7	H	3.0	35.8	1.0	-53.5	-13.0	-40.5	
5715.00	-14.9	H	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7620.00	-11.2	H	3.0	35.8	1.0	-46.0	-13.0	-33.0	

LTE B2 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5MHz									
3715.00	-19.8	V	3.0	35.8	1.0	-54.6	-13.0	-41.6	
5572.50	-14.3	V	3.0	35.5	1.0	-48.7	-13.0	-35.7	
7430.00	-13.1	V	3.0	35.7	1.0	-47.8	-13.0	-34.8	
3715.00	-19.3	H	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5572.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7430.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
Mid Ch, 1880MHz									
3760.00	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5640.00	-14.4	V	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7520.00	-12.9	V	3.0	35.7	1.0	-47.6	-13.0	-34.6	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.2	H	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7520.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1902.5MHz									
3805.00	-18.0	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5707.50	-14.5	V	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7610.00	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3805.00	-18.8	H	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5707.50	-14.8	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7610.00	-11.2	H	3.0	35.8	1.0	-46.0	-13.0	-33.0	

LTE B2 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5MHz									
3715.00	-19.6	V	3.0	35.8	1.0	-54.5	-13.0	-41.5	
5572.50	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7430.00	-13.3	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3715.00	-19.5	H	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5572.50	-15.3	H	3.0	35.5	1.0	-49.8	-13.0	-36.8	
7430.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
Mid Ch, 1880MHz									
3760.00	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5640.00	-14.4	V	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7520.00	-12.9	V	3.0	35.7	1.0	-47.6	-13.0	-34.6	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.1	H	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7520.00	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
High Ch, 1902.5MHz									
3805.00	-17.9	V	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5707.50	-14.1	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7610.00	-13.8	V	3.0	35.8	1.0	-48.5	-13.0	-35.5	
3805.00	-18.8	H	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5707.50	-15.1	H	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7610.00	-11.3	H	3.0	35.8	1.0	-46.0	-13.0	-33.0	

LTE B2 15MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-19.4	V	3.0	35.8	1.0	-54.2	-13.0	-41.2	
5580.00	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7440.00	-13.3	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3720.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5580.00	-15.3	H	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7440.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
Mid Ch, 1880MHz									
3760.00	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5640.00	-14.3	V	3.0	35.5	1.0	-48.8	-13.0	-35.8	
7520.00	-12.9	V	3.0	35.7	1.0	-47.6	-13.0	-34.6	
3760.00	-18.2	H	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1900MHz									
3800.00	-19.0	V	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5700.00	-14.5	V	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7600.00	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
3800.00	-18.7	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5700.00	-14.8	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7600.00	-11.3	H	3.0	35.8	1.0	-46.0	-13.0	-33.0	

LTE B2 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/9/2018
Test Engineer: 16069 OG
Configuration: EUT + SUPPORT EQUIPMENT
Location: Chamber B
Mode: LTE_16QAM Band 2 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-19.1	V	3.0	35.8	1.0	-54.0	-13.0	-41.0	
5580.00	-15.2	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7440.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3720.00	-19.0	H	3.0	35.8	1.0	-53.8	-13.0	-40.8	
5580.00	-15.5	H	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7440.00	-12.3	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
Mid Ch, 1880MHz									
3760.00	-17.9	V	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5640.00	-14.6	V	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7520.00	-12.9	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3760.00	-18.3	H	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-15.4	H	3.0	35.5	1.0	-49.9	-13.0	-36.9	
7520.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1900MHz									
3800.00	-19.5	V	3.0	35.8	1.0	-54.3	-13.0	-41.3	
5700.00	-14.0	V	3.0	35.5	1.0	-48.5	-13.0	-35.5	
7600.00	-13.6	V	3.0	35.8	1.0	-48.4	-13.0	-35.4	
3800.00	-18.6	H	3.0	35.8	1.0	-53.4	-13.0	-40.4	
5700.00	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7600.00	-11.2	H	3.0	35.8	1.0	-45.9	-13.0	-32.9	

LTE B2 20MHz 16QAM

9.1.4. **LTE BAND 4**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
5132.10	-15.6	V	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6842.80	-14.7	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3421.40	-19.9	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	
5132.10	-15.6	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6842.80	-13.6	H	3.0	35.7	1.0	-48.3	-13.0	-35.3	
Mid Ch, 1732.5MHz									
3465.00	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5197.50	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3465.00	-18.7	H	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5197.50	-14.7	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
6930.00	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
High Ch, 1754.3MHz									
3508.60	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5262.90	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7017.20	-14.6	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3508.60	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5262.90	-15.3	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
7017.20	-13.0	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	

LTE B4 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-19.7	V	3.0	36.1	1.0	-54.7	-13.0	-41.7	
5132.10	-16.0	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6842.80	-14.8	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3421.40	-20.5	H	3.0	36.1	1.0	-55.5	-13.0	-42.5	
5132.10	-16.0	H	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6842.80	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-19.8	V	3.0	36.0	1.0	-54.8	-13.0	-41.8	
5197.50	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6930.00	-15.3	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3465.00	-19.3	H	3.0	36.0	1.0	-54.4	-13.0	-41.4	
5197.50	-14.8	H	3.0	35.4	1.0	-49.2	-13.0	-36.2	
6930.00	-13.3	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1754.3MHz									
3508.60	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5262.90	-16.5	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7017.20	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3508.60	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5262.90	-15.1	H	3.0	35.4	1.0	-49.5	-13.0	-36.5	
7017.20	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	

LTE B4 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-20.3	V	3.0	36.1	1.0	-55.3	-13.0	-42.3	
5134.50	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6846.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3423.00	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
5134.50	-15.2	H	3.0	35.4	1.0	-49.6	-13.0	-36.6	
6846.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1732.5MHz									
3465.00	-19.6	V	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3465.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.6	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6930.00	-12.8	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
High Ch, 1753.5MHz									
3507.00	-19.6	V	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5260.50	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
7014.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3507.00	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5260.50	-15.3	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
7014.00	-13.0	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	

LTE B4 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-20.1	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
5134.50	-15.8	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6846.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3423.00	-20.0	H	3.0	36.1	1.0	-55.0	-13.0	-42.0	
5134.50	-15.2	H	3.0	35.4	1.0	-49.6	-13.0	-36.6	
6846.00	-13.0	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1732.5MHz									
3465.00	-19.8	V	3.0	36.0	1.0	-54.8	-13.0	-41.8	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3465.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.6	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6930.00	-12.8	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
High Ch, 1753.5MHz									
3507.00	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5260.50	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
7014.00	-14.9	V	3.0	35.7	1.0	-49.6	-13.0	-36.6	
3507.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5260.50	-15.2	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
7014.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	

LTE B4 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-20.3	V	3.0	36.1	1.0	-55.4	-13.0	-42.4	
5137.50	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6850.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3425.00	-19.9	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
5137.50	-15.2	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
6850.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3465.00	-19.3	H	3.0	36.0	1.0	-54.3	-13.0	-41.3	
5197.50	-15.4	H	3.0	35.4	1.0	-49.8	-13.0	-36.8	
6930.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
High Ch, 1752.5MHz									
3505.00	-19.6	V	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5257.50	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7010.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3505.00	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5257.50	-15.3	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
7010.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	

LTE B4 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-20.1	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
5137.50	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
6850.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3425.00	-19.5	H	3.0	36.1	1.0	-54.6	-13.0	-41.6	
5137.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6850.00	-13.3	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6930.00	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3465.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5197.50	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
High Ch, 1752.5MHz									
3505.00	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5257.50	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7010.00	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3505.00	-20.0	H	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5257.50	-15.3	H	3.0	35.4	1.0	-49.8	-13.0	-36.8	
7010.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	

LTE B4 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-19.8	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
5145.00	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6860.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3430.00	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
5145.00	-15.2	H	3.0	35.4	1.0	-49.6	-13.0	-36.6	
6860.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3465.00	-19.4	H	3.0	36.0	1.0	-54.4	-13.0	-41.4	
5197.50	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1750MHz									
3500.00	-19.6	V	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5250.00	-16.3	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
7000.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3500.00	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5250.00	-15.4	H	3.0	35.4	1.0	-49.8	-13.0	-36.8	
7000.00	-13.5	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	

LTE B4 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-19.7	V	3.0	36.1	1.0	-54.7	-13.0	-41.7	
5145.00	-16.3	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
6860.00	-15.6	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3430.00	-19.9	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	
5145.00	-15.2	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
6860.00	-13.7	H	3.0	35.7	1.0	-48.4	-13.0	-35.4	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3465.00	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5197.50	-15.1	H	3.0	35.4	1.0	-49.5	-13.0	-36.5	
6930.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1750MHz									
3500.00	-20.2	V	3.0	36.0	1.0	-55.2	-13.0	-42.2	
5250.00	-16.3	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7000.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3500.00	-19.6	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5250.00	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
7000.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	

LTE B4 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-19.8	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
5152.50	-16.0	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6870.00	-15.7	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3435.00	-19.4	H	3.0	36.1	1.0	-54.5	-13.0	-41.5	
5152.50	-15.2	H	3.0	35.4	1.0	-49.6	-13.0	-36.6	
6870.00	-14.1	H	3.0	35.7	1.0	-48.7	-13.0	-35.7	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.8	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3465.00	-19.4	H	3.0	36.0	1.0	-54.4	-13.0	-41.4	
5197.50	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
High Ch, 1747.5MHz									
3495.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5242.50	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
6990.00	-14.8	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3495.00	-19.6	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5242.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6990.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	

LTE B4 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-19.8	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
5152.50	-16.1	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6870.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
3435.00	-19.7	H	3.0	36.1	1.0	-54.7	-13.0	-41.7	
5152.50	-15.0	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	
6870.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-20.0	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5197.50	-15.7	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3465.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
High Ch, 1747.5MHz									
3495.00	-19.5	V	3.0	36.0	1.0	-54.5	-13.0	-41.5	
5242.50	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6990.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3495.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5242.50	-15.8	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6990.00	-13.6	H	3.0	35.7	1.0	-48.3	-13.0	-35.3	

LTE B4 15MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_QPSK Band 4 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-19.9	V	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5160.00	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6880.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3440.00	-19.5	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5160.00	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6880.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
Mid Ch, 1732.5MHz									
3465.00	-19.5	V	3.0	36.0	1.0	-54.5	-13.0	-41.5	
5197.50	-15.4	V	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-15.3	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3465.00	-19.7	H	3.0	36.0	1.0	-54.8	-13.0	-41.8	
5197.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.8	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	
High Ch, 1745MHz									
3490.00	-19.8	V	3.0	36.0	1.0	-54.8	-13.0	-41.8	
5235.00	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6980.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3490.00	-19.9	H	3.0	36.0	1.0	-54.9	-13.0	-41.9	
5235.00	-15.5	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6980.00	-12.8	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	

LTE B4 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/13/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber B
Mode: LTE_16QAM Band 4 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-20.3	V	3.0	36.0	1.0	-55.3	-13.0	-42.3	
5160.00	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6880.00	-15.2	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3440.00	-19.4	H	3.0	36.0	1.0	-54.5	-13.0	-41.5	
5160.00	-15.4	H	3.0	35.4	1.0	-49.8	-13.0	-36.8	
6880.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
Mid Ch, 1732.5MHz									
3465.00	-19.7	V	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.5	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6930.00	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3465.00	-19.7	H	3.0	36.0	1.0	-54.7	-13.0	-41.7	
5197.50	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6930.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1745MHz									
3490.00	-19.7	V	3.0	36.0	1.0	-54.8	-13.0	-41.8	
5235.00	-15.9	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6980.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3490.00	-20.0	H	3.0	36.0	1.0	-55.0	-13.0	-42.0	
5235.00	-15.5	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6980.00	-12.8	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	

LTE B4 20MHz 16QAM

9.1.5. **LTE BAND 12**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-30.2	V	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2099.10	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2798.80	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
1399.40	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2099.10	-24.4	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2798.80	-23.0	H	3.0	36.4	1.0	-58.3	-13.0	-45.3	
Mid Ch, 707.5MHz									
1415.00	-30.1	V	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2122.50	-24.4	V	3.0	36.6	1.0	-59.9	-13.0	-46.9	
2830.00	-23.1	V	3.0	36.4	1.0	-58.5	-13.0	-45.5	
1415.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
High Ch, 715.3MHz									
1430.60	-30.0	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2145.90	-24.8	V	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2861.20	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
1430.60	-30.0	H	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2145.90	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2861.20	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	

LTE B12 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7MHz									
1399.40	-30.2	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2099.10	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2798.80	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
1399.40	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2099.10	-24.5	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2798.80	-23.0	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
Mid Ch, 707.5MHz									
1415.00	-30.2	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-24.2	V	3.0	36.6	1.0	-59.7	-13.0	-46.7	
2830.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
1415.00	-30.3	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
High Ch, 715.3MHz									
1430.60	-30.1	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2145.90	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2861.20	-22.9	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
1430.60	-29.8	H	3.0	37.3	1.0	-66.1	-13.0	-53.1	
2145.90	-23.9	H	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2861.20	-22.9	H	3.0	36.4	1.0	-58.3	-13.0	-45.3	

LTE B12 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-30.2	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2101.50	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2802.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
1401.00	-30.5	H	3.0	37.4	1.0	-66.9	-13.0	-53.9	
2101.50	-24.4	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2802.00	-22.9	H	3.0	36.4	1.0	-58.3	-13.0	-45.3	
Mid Ch, 707.5MHz									
1415.00	-30.4	V	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-24.3	V	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2830.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1415.00	-30.1	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
High Ch, 714.5MHz									
1429.00	-30.1	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2143.50	-24.9	V	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2858.00	-23.1	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1429.00	-29.7	H	3.0	37.3	1.0	-66.0	-13.0	-53.0	
2143.50	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2858.00	-23.3	H	3.0	36.4	1.0	-58.7	-13.0	-45.7	

LTE B12 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5MHz									
1401.00	-30.3	V	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2101.50	-24.2	V	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2802.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1401.00	-30.7	H	3.0	37.4	1.0	-67.0	-13.0	-54.0	
2101.50	-24.5	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2802.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
Mid Ch, 707.5MHz									
1415.00	-30.4	V	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-24.3	V	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2830.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1415.00	-30.3	H	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
High Ch, 714.5MHz									
1429.00	-30.0	V	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2143.50	-24.8	V	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2858.00	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
1429.00	-29.7	H	3.0	37.3	1.0	-66.0	-13.0	-53.0	
2143.50	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2858.00	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	

LTE B12 3MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-30.0	V	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2104.50	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2806.00	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
1403.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2104.50	-24.2	H	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2806.00	-22.9	H	3.0	36.4	1.0	-58.3	-13.0	-45.3	
Mid Ch, 707.5MHz									
1415.00	-30.1	V	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2122.50	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2830.00	-23.0	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
1415.00	-30.0	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
High Ch, 713.5MHz									
1427.00	-30.0	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2140.50	-24.7	V	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2854.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1427.00	-29.7	H	3.0	37.3	1.0	-66.1	-13.0	-53.1	
2140.50	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2854.00	-23.1	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	

LTE B12 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-30.0	V	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2104.50	-24.1	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2806.00	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
1403.00	-30.1	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2104.50	-24.4	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2806.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
Mid Ch, 707.5MHz									
1415.00	-30.2	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-24.2	V	3.0	36.6	1.0	-59.7	-13.0	-46.7	
2830.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1415.00	-30.0	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2122.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2830.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
High Ch, 713.5MHz									
1427.00	-30.1	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2140.50	-24.4	V	3.0	36.6	1.0	-59.9	-13.0	-46.9	
2854.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
1427.00	-30.1	H	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2140.50	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2854.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	

LTE B12 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704MHz									
1408.00	-29.9	V	3.0	37.4	1.0	-66.2	-13.0	-53.2	
2112.00	-23.9	V	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2816.00	-22.7	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
1408.00	-30.1	H	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2112.00	-23.9	H	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2816.00	-22.6	H	3.0	36.4	1.0	-58.0	-13.0	-45.0	
Mid Ch, 707.5MHz									
1415.00	-30.0	V	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2122.50	-23.5	V	3.0	36.6	1.0	-59.1	-13.0	-46.1	
2830.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1415.00	-29.9	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2122.50	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2830.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
High Ch, 711MHz									
1422.00	-29.8	V	3.0	37.3	1.0	-66.2	-13.0	-53.2	
2133.00	-24.7	V	3.0	36.6	1.0	-60.2	-13.0	-47.2	
2844.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1422.00	-29.8	H	3.0	37.3	1.0	-66.1	-13.0	-53.1	
2133.00	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2844.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	

LTE B12 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12132873
Date: 3/8/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704MHz									
1408.00	-30.3	V	3.0	37.4	1.0	-66.7	-13.0	-53.7	
2112.00	-23.9	V	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2816.00	-23.1	V	3.0	36.4	1.0	-58.5	-13.0	-45.5	
1408.00	-29.9	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2112.00	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2816.00	-22.6	H	3.0	36.4	1.0	-58.0	-13.0	-45.0	
Mid Ch, 707.5MHz									
1415.00	-30.3	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2830.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
1415.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-24.4	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2830.00	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
High Ch, 711MHz									
1422.00	-29.9	V	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2133.00	-23.6	V	3.0	36.6	1.0	-59.2	-13.0	-46.2	
2844.00	-22.5	V	3.0	36.4	1.0	-57.9	-13.0	-44.9	
1422.00	-29.8	H	3.0	37.3	1.0	-66.1	-13.0	-53.1	
2133.00	-23.9	H	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2844.00	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	

LTE B12 10MHz 16QAM

9.1.6. **LTE BAND 41**

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5MHz									
4997.00	-17.0	V	3.0	35.5	1.0	-51.5	-25.0	-26.5	
7495.50	-15.6	V	3.0	35.7	1.0	-50.3	-25.0	-25.3	
9994.00	-12.3	V	3.0	36.0	1.0	-47.3	-25.0	-22.3	
4997.00	-16.6	H	3.0	35.5	1.0	-51.0	-25.0	-26.0	
7495.50	-14.9	H	3.0	35.7	1.0	-49.6	-25.0	-24.6	
9994.00	-12.3	H	3.0	36.0	1.0	-47.3	-25.0	-22.3	
Mid Ch, 2593MHz									
5186.00	-15.9	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-14.9	V	3.0	35.8	1.0	-49.7	-25.0	-24.7	
10372.00	-11.7	V	3.0	35.8	1.0	-46.6	-25.0	-21.6	
5186.00	-15.8	H	3.0	35.4	1.0	-50.2	-25.0	-25.2	
7779.00	-13.9	H	3.0	35.8	1.0	-48.7	-25.0	-23.7	
10372.00	-11.7	H	3.0	35.8	1.0	-46.5	-25.0	-21.5	
High Ch, 2687.5MHz									
5375.00	-15.7	V	3.0	35.4	1.0	-50.1	-25.0	-25.1	
8062.50	-14.1	V	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10750.00	-11.7	V	3.0	35.7	1.0	-46.4	-25.0	-21.4	
5375.00	-15.9	H	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8062.50	-14.6	H	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10750.00	-10.8	H	3.0	35.7	1.0	-45.5	-25.0	-20.5	

LTE B41 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_16QAM Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5MHz									
4997.00	-17.2	V	3.0	35.5	1.0	-51.7	-25.0	-26.7	
7495.50	-15.3	V	3.0	35.7	1.0	-50.0	-25.0	-25.0	
9994.00	-12.0	V	3.0	36.0	1.0	-47.0	-25.0	-22.0	
4997.00	-16.7	H	3.0	35.5	1.0	-51.1	-25.0	-26.1	
7495.50	-14.9	H	3.0	35.7	1.0	-49.7	-25.0	-24.7	
9994.00	-12.2	H	3.0	36.0	1.0	-47.2	-25.0	-22.2	
Mid Ch, 2593MHz									
5186.00	-15.9	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-14.8	V	3.0	35.8	1.0	-49.6	-25.0	-24.6	
10372.00	-12.0	V	3.0	35.8	1.0	-46.8	-25.0	-21.8	
5186.00	-15.9	H	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-14.1	H	3.0	35.8	1.0	-48.9	-25.0	-23.9	
10372.00	-11.8	H	3.0	35.8	1.0	-46.6	-25.0	-21.6	
High Ch, 2687.5MHz									
5375.00	-15.8	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8062.50	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10750.00	-11.9	V	3.0	35.7	1.0	-46.6	-25.0	-21.6	
5375.00	-15.7	H	3.0	35.4	1.0	-50.2	-25.0	-25.2	
8062.50	-15.0	H	3.0	35.8	1.0	-49.8	-25.0	-24.8	
10750.00	-11.7	H	3.0	35.7	1.0	-46.4	-25.0	-21.4	

LTE B41 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-17.0	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7503.00	-15.5	V	3.0	35.7	1.0	-50.2	-25.0	-25.2	
10004.00	-12.6	V	3.0	36.0	1.0	-47.6	-25.0	-22.6	
5002.00	-16.6	H	3.0	35.5	1.0	-51.1	-25.0	-26.1	
7503.00	-14.9	H	3.0	35.7	1.0	-49.7	-25.0	-24.7	
10004.00	-12.4	H	3.0	36.0	1.0	-47.4	-25.0	-22.4	
Mid Ch, 2593MHz									
5186.00	-15.9	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-15.5	V	3.0	35.8	1.0	-50.2	-25.0	-25.2	
10372.00	-12.4	V	3.0	35.8	1.0	-47.3	-25.0	-22.3	
5186.00	-17.5	H	3.0	35.4	1.0	-51.9	-25.0	-26.9	
7779.00	-15.1	H	3.0	35.8	1.0	-49.9	-25.0	-24.9	
10372.00	-12.1	H	3.0	35.8	1.0	-47.0	-25.0	-22.0	
High Ch, 2685MHz									
5370.00	-15.8	V	3.0	35.4	1.0	-50.2	-25.0	-25.2	
8055.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10740.00	-11.8	V	3.0	35.7	1.0	-46.4	-25.0	-21.4	
5370.00	-15.8	H	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8055.00	-15.0	H	3.0	35.8	1.0	-49.8	-25.0	-24.8	
10740.00	-10.8	H	3.0	35.7	1.0	-45.4	-25.0	-20.4	

LTE B41 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_16QAM Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501MHz									
5002.00	-16.6	V	3.0	35.5	1.0	-51.1	-25.0	-26.1	
7503.00	-15.0	V	3.0	35.7	1.0	-49.8	-25.0	-24.8	
10004.00	-12.8	V	3.0	36.0	1.0	-47.8	-25.0	-22.8	
5002.00	-16.6	H	3.0	35.5	1.0	-51.1	-25.0	-26.1	
7503.00	-15.0	H	3.0	35.7	1.0	-49.7	-25.0	-24.7	
10004.00	-12.7	H	3.0	36.0	1.0	-47.7	-25.0	-22.7	
Mid Ch, 2593MHz									
5186.00	-16.1	V	3.0	35.4	1.0	-50.6	-25.0	-25.6	
7779.00	-15.7	V	3.0	35.8	1.0	-50.4	-25.0	-25.4	
10372.00	-12.4	V	3.0	35.8	1.0	-47.2	-25.0	-22.2	
5186.00	-17.8	H	3.0	35.4	1.0	-52.2	-25.0	-27.2	
7779.00	-15.0	H	3.0	35.8	1.0	-49.8	-25.0	-24.8	
10372.00	-12.1	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
High Ch, 2685MHz									
5370.00	-15.8	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8055.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10740.00	-11.8	V	3.0	35.7	1.0	-46.5	-25.0	-21.5	
5370.00	-15.9	H	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8055.00	-15.1	H	3.0	35.8	1.0	-49.9	-25.0	-24.9	
10740.00	-10.9	H	3.0	35.7	1.0	-45.5	-25.0	-20.5	

LTE B41 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5MHz									
5007.00	-17.0	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7510.50	-15.2	V	3.0	35.7	1.0	-50.0	-25.0	-25.0	
10014.00	-12.7	V	3.0	36.0	1.0	-47.7	-25.0	-22.7	
5007.00	-16.7	H	3.0	35.5	1.0	-51.2	-25.0	-26.2	
7510.50	-15.2	H	3.0	35.7	1.0	-49.9	-25.0	-24.9	
10014.00	-12.5	H	3.0	36.0	1.0	-47.5	-25.0	-22.5	
Mid Ch, 2593MHz									
5186.00	-15.6	V	3.0	35.4	1.0	-50.0	-25.0	-25.0	
7779.00	-15.4	V	3.0	35.8	1.0	-50.2	-25.0	-25.2	
10372.00	-12.4	V	3.0	35.8	1.0	-47.2	-25.0	-22.2	
5186.00	-17.5	H	3.0	35.4	1.0	-51.9	-25.0	-26.9	
7779.00	-15.1	H	3.0	35.8	1.0	-49.9	-25.0	-24.9	
10372.00	-12.0	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
High Ch, 2682.5MHz									
5365.00	-15.6	V	3.0	35.4	1.0	-50.0	-25.0	-25.0	
8047.50	-14.6	V	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10730.00	-11.8	V	3.0	35.7	1.0	-46.4	-25.0	-21.4	
5365.00	-16.0	H	3.0	35.4	1.0	-50.5	-25.0	-25.5	
8047.50	-14.9	H	3.0	35.8	1.0	-49.7	-25.0	-24.7	
10730.00	-10.8	H	3.0	35.7	1.0	-45.4	-25.0	-20.4	

LTE B41 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_16QAM Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5MHz									
5007.00	-16.8	V	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7510.50	-15.5	V	3.0	35.7	1.0	-50.2	-25.0	-25.2	
10014.00	-12.3	V	3.0	36.0	1.0	-47.3	-25.0	-22.3	
5007.00	-16.9	H	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7510.50	-15.4	H	3.0	35.7	1.0	-50.1	-25.0	-25.1	
10014.00	-12.4	H	3.0	36.0	1.0	-47.5	-25.0	-22.5	
Mid Ch, 2593MHz									
5186.00	-15.8	V	3.0	35.4	1.0	-50.2	-25.0	-25.2	
7779.00	-15.5	V	3.0	35.8	1.0	-50.2	-25.0	-25.2	
10372.00	-11.8	V	3.0	35.8	1.0	-46.6	-25.0	-21.6	
5186.00	-17.5	H	3.0	35.4	1.0	-51.9	-25.0	-26.9	
7779.00	-15.1	H	3.0	35.8	1.0	-49.9	-25.0	-24.9	
10372.00	-12.0	H	3.0	35.8	1.0	-46.9	-25.0	-21.9	
High Ch, 2682.5MHz									
5365.00	-15.8	V	3.0	35.4	1.0	-50.2	-25.0	-25.2	
8047.50	-14.7	V	3.0	35.8	1.0	-49.5	-25.0	-24.5	
10730.00	-12.0	V	3.0	35.7	1.0	-46.6	-25.0	-21.6	
5365.00	-16.2	H	3.0	35.4	1.0	-50.6	-25.0	-25.6	
8047.50	-14.6	H	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10730.00	-11.0	H	3.0	35.7	1.0	-45.6	-25.0	-20.6	

LTE B41 15MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506MHz									
5012.00	-16.9	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7518.00	-15.2	V	3.0	35.7	1.0	-49.9	-25.0	-24.9	
10024.00	-12.7	V	3.0	36.0	1.0	-47.7	-25.0	-22.7	
5012.00	-16.9	H	3.0	35.5	1.0	-51.3	-25.0	-26.3	
7518.00	-15.3	H	3.0	35.7	1.0	-50.0	-25.0	-25.0	
10024.00	-12.4	H	3.0	36.0	1.0	-47.4	-25.0	-22.4	
Mid Ch, 2593MHz									
5186.00	-15.6	V	3.0	35.4	1.0	-50.0	-25.0	-25.0	
7779.00	-15.5	V	3.0	35.8	1.0	-50.2	-25.0	-25.2	
10372.00	-12.4	V	3.0	35.8	1.0	-47.2	-25.0	-22.2	
5186.00	-17.5	H	3.0	35.4	1.0	-51.9	-25.0	-26.9	
7779.00	-15.1	H	3.0	35.8	1.0	-49.9	-25.0	-24.9	
10372.00	-13.0	H	3.0	35.8	1.0	-47.8	-25.0	-22.8	
High Ch, 2680MHz									
5360.00	-15.9	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
8040.00	-14.5	V	3.0	35.8	1.0	-49.3	-25.0	-24.3	
10720.00	-11.8	V	3.0	35.7	1.0	-46.5	-25.0	-21.5	
5360.00	-16.0	H	3.0	35.4	1.0	-50.5	-25.0	-25.5	
8040.00	-14.9	H	3.0	35.8	1.0	-49.7	-25.0	-24.7	
10720.00	-10.8	H	3.0	35.7	1.0	-45.4	-25.0	-20.4	

LTE B41 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	SOMC
Project #:	12132873
Date:	3/8/2018
Test Engineer:	39005 RA
Configuration:	EUT + Support Equipment
Location:	Chamber A
Mode:	LTE_16QAM Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506MHz									
5012.00	-17.2	V	3.0	35.5	1.0	-51.6	-25.0	-26.6	
7518.00	-14.5	V	3.0	35.7	1.0	-49.2	-25.0	-24.2	
10024.00	-12.3	V	3.0	36.0	1.0	-47.3	-25.0	-22.3	
5012.00	-16.7	H	3.0	35.5	1.0	-51.2	-25.0	-26.2	
7518.00	-15.4	H	3.0	35.7	1.0	-50.1	-25.0	-25.1	
10024.00	-12.8	H	3.0	36.0	1.0	-47.8	-25.0	-22.8	
Mid Ch, 2593MHz									
5186.00	-16.7	V	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-13.9	V	3.0	35.8	1.0	-48.7	-25.0	-23.7	
10372.00	-11.7	V	3.0	35.8	1.0	-46.5	-25.0	-21.5	
5186.00	-16.6	H	3.0	35.4	1.0	-51.0	-25.0	-26.0	
7779.00	-15.0	H	3.0	35.8	1.0	-49.7	-25.0	-24.7	
10372.00	-11.9	H	3.0	35.8	1.0	-46.7	-25.0	-21.7	
High Ch, 2680MHz									
5360.00	-15.6	V	3.0	35.4	1.0	-50.1	-25.0	-25.1	
8040.00	-13.9	V	3.0	35.8	1.0	-48.7	-25.0	-23.7	
10720.00	-11.7	V	3.0	35.7	1.0	-46.4	-25.0	-21.4	
5360.00	-16.2	H	3.0	35.4	1.0	-50.6	-25.0	-25.6	
8040.00	-14.8	H	3.0	35.8	1.0	-49.6	-25.0	-24.6	
10720.00	-12.1	H	3.0	35.7	1.0	-46.7	-25.0	-21.7	

LTE B41 20MHz 16QAM