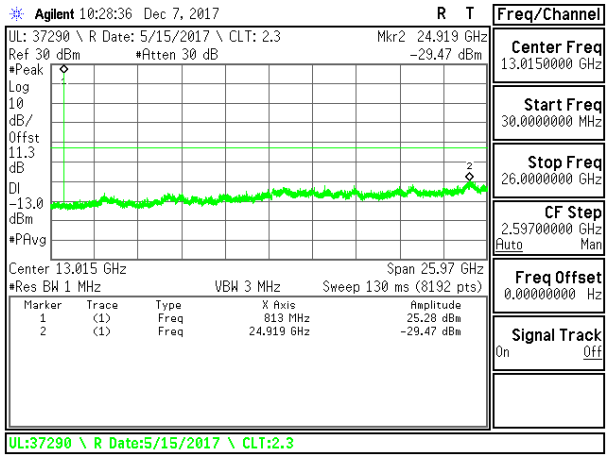
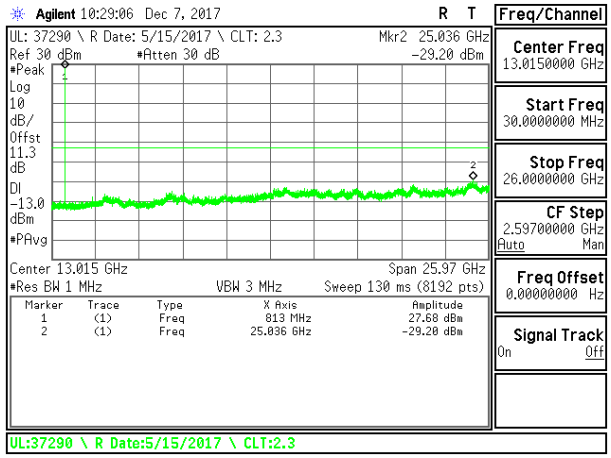
8.3.10. LTE BAND 26



LTE B26 1.4MHz QPSK Low Channel RB1-0



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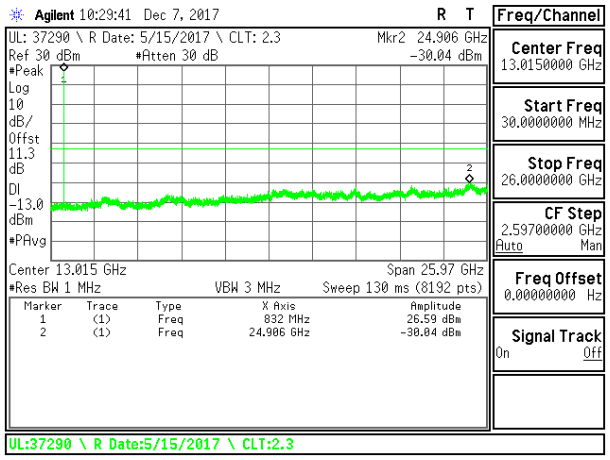
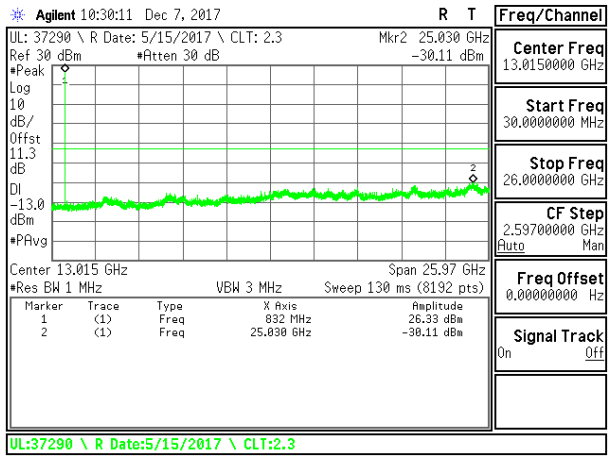


LTE B26 1.4MHz QPSK Middle Channel RB1-0



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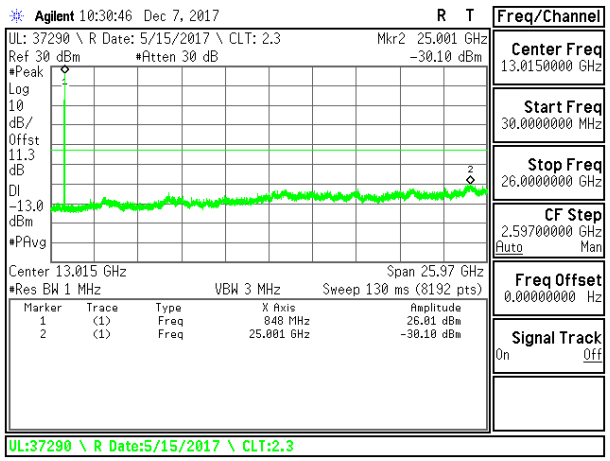

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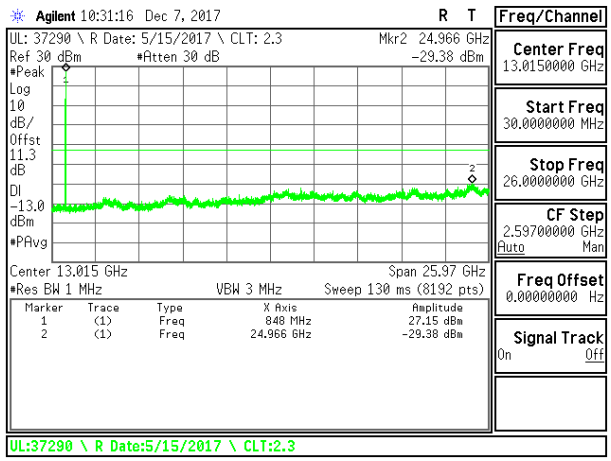

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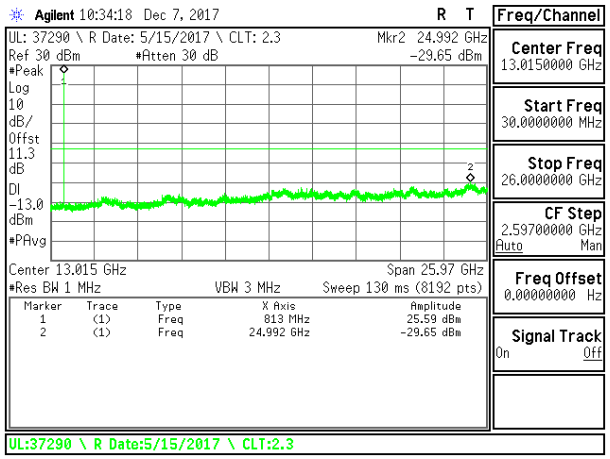

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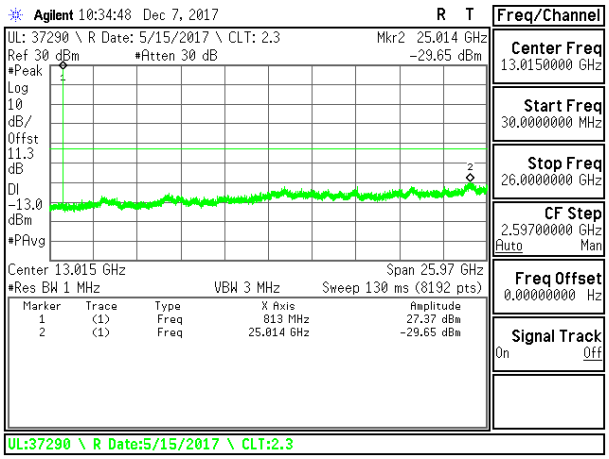

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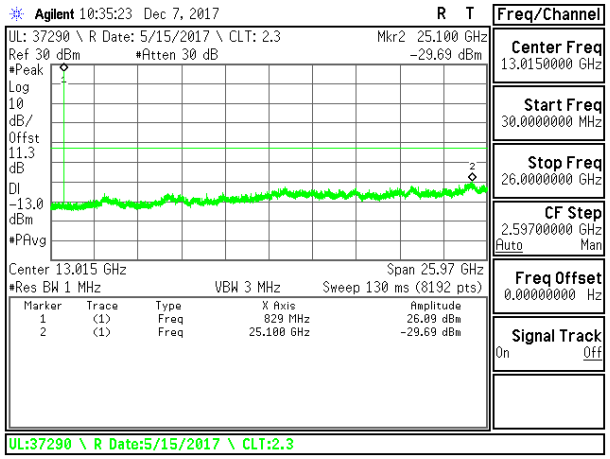

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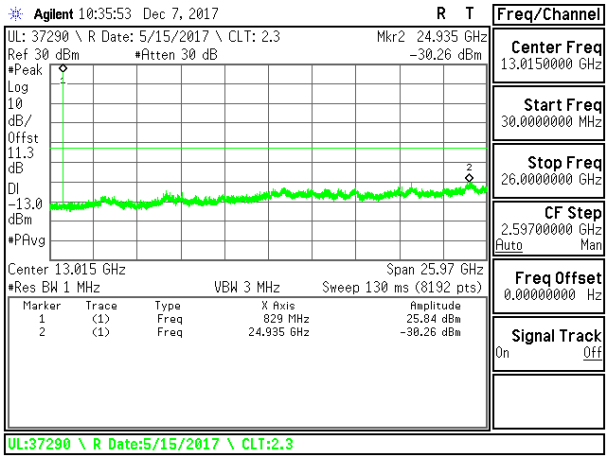

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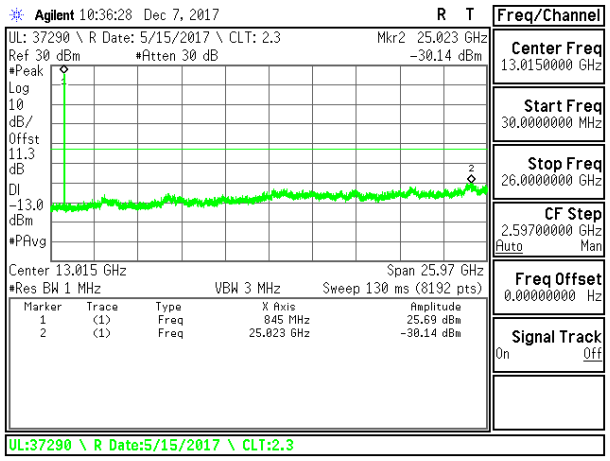

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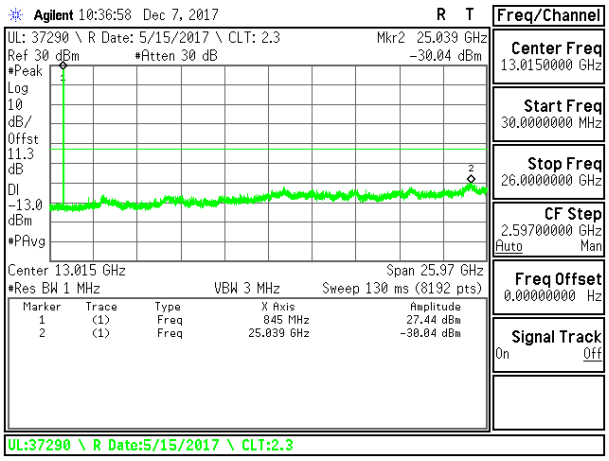

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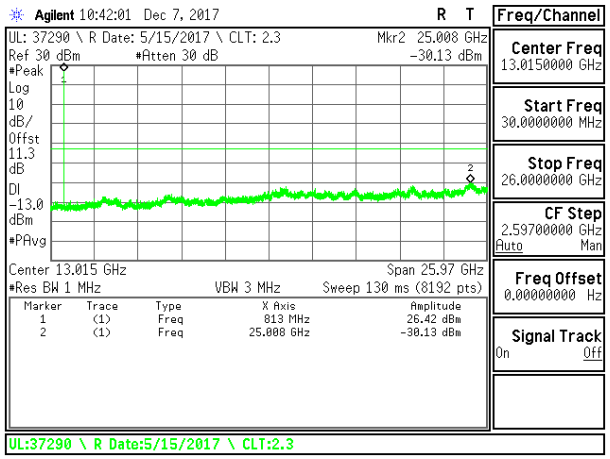
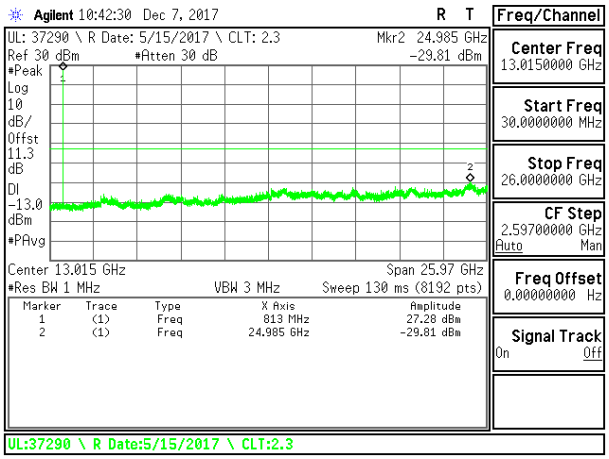


LTE B26 5MHz QPSK Low Channel RB1-0



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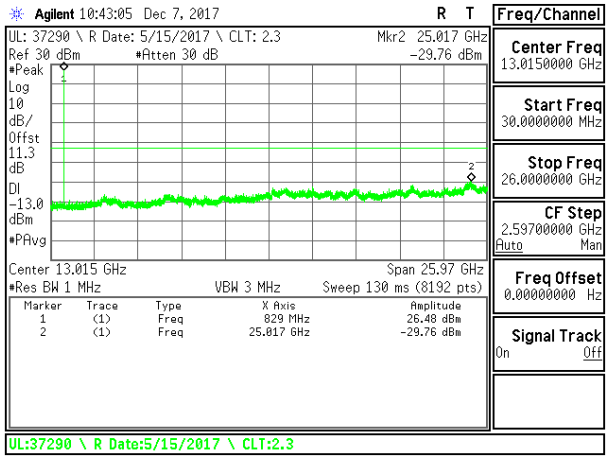
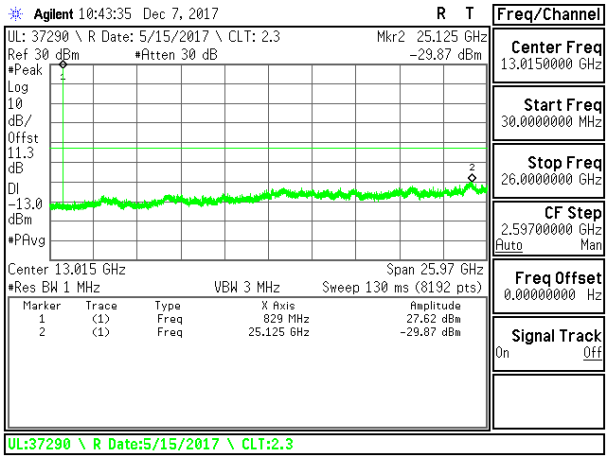
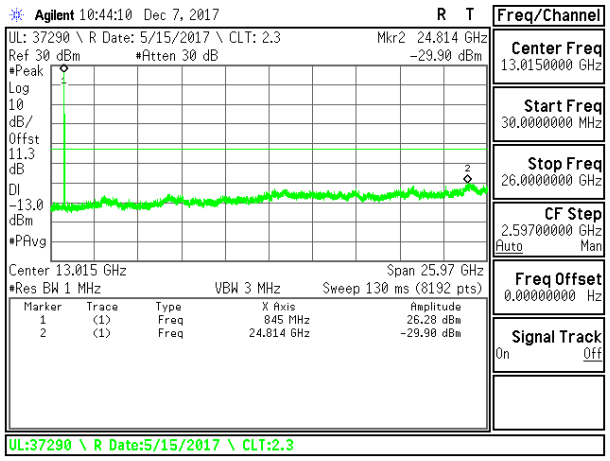


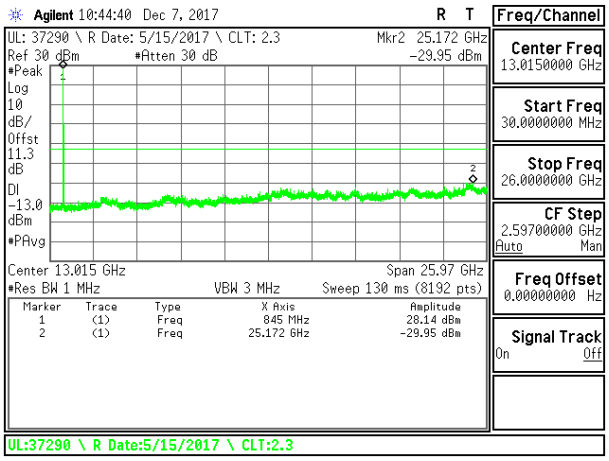
LTE B26 5MHz QPSK Middle Channel RB1-0



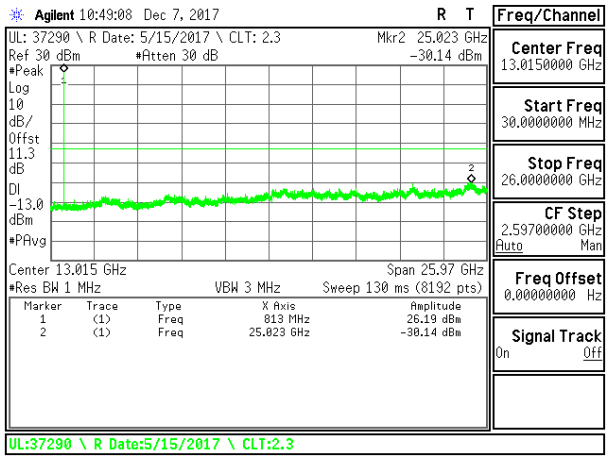
LTE B26 5MHz 16QAM Middle Channel RB1-0



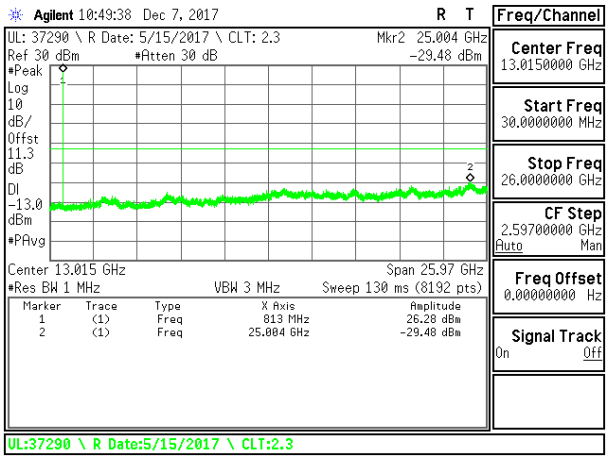
LTE B26 5MHz QPSK High Channel RB1-0



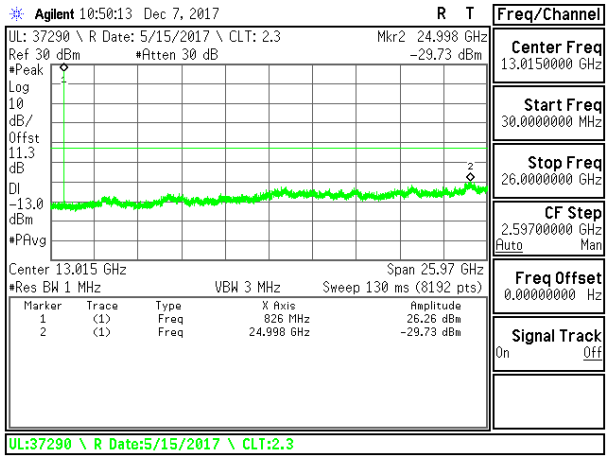
LTE B26 5MHz 16QAM High Channel RB1-0



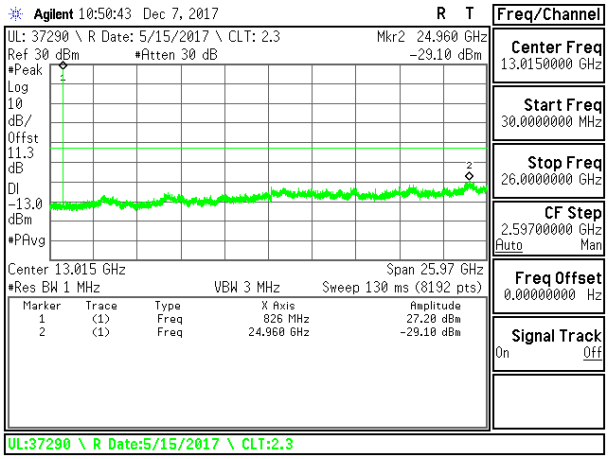
LTE B26 10MHz QPSK Low Channel RB1-0



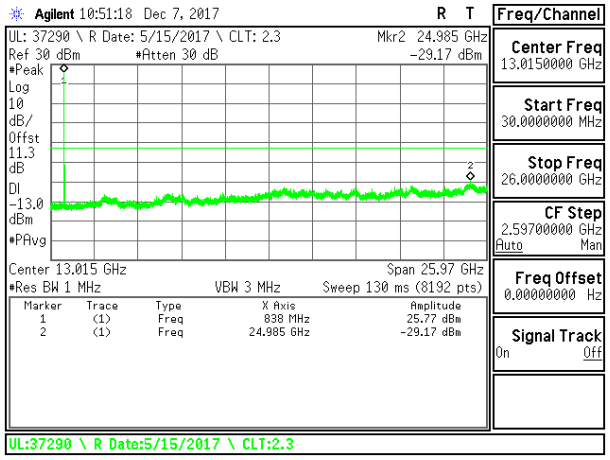
LTE B26 10MHz 16QAM Low Channel RB1-0



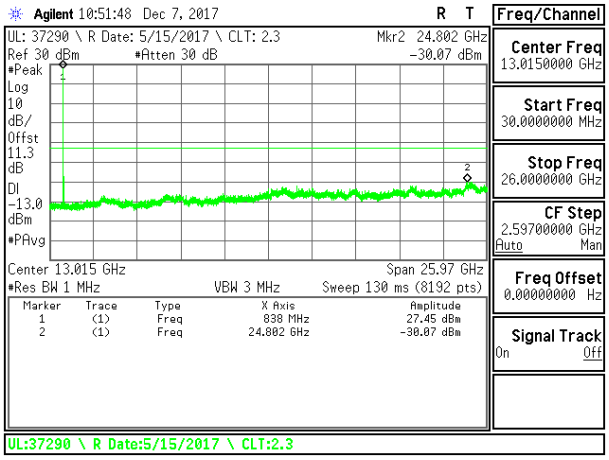
LTE B26 10MHz QPSK Middle Channel RB1-0



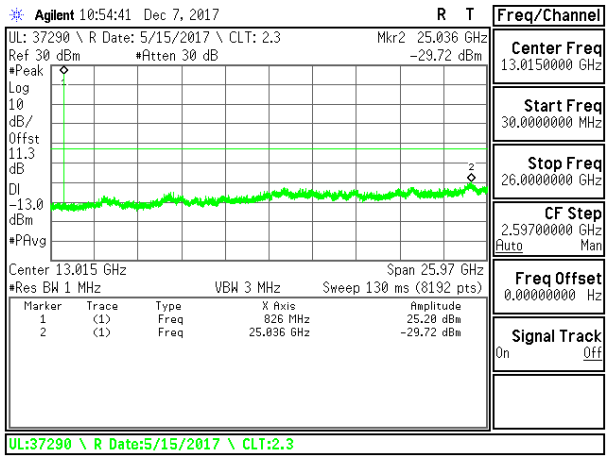
LTE B26 10MHz 16QAM Middle Channel RB1-0



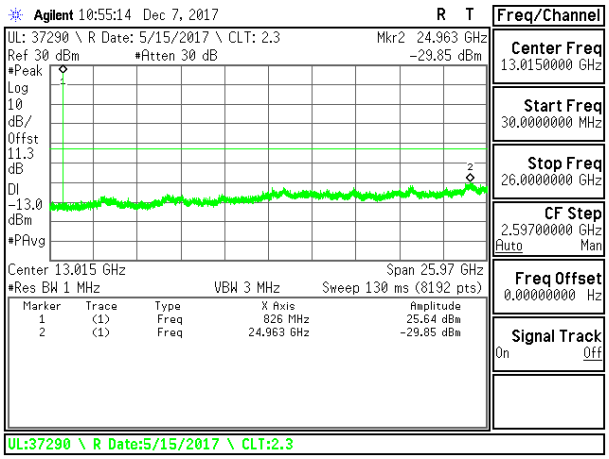
LTE B26 10MHz QPSK High Channel RB1-0



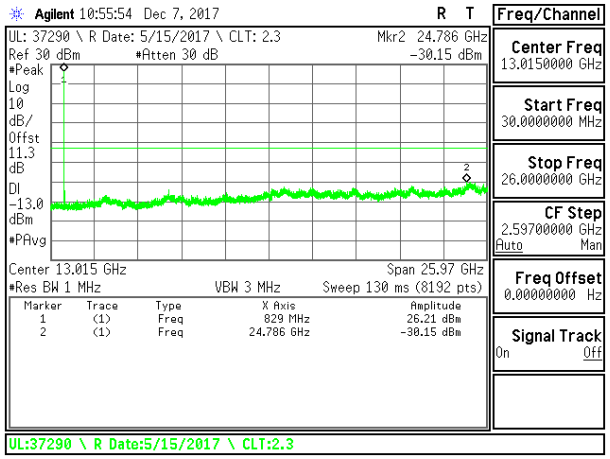
LTE B26 10MHz 16QAM High Channel RB1-0



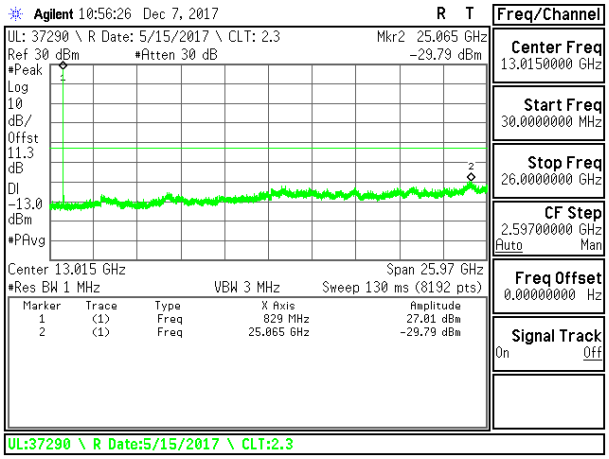
LTE B26 15MHz QPSK Low Channel RB1-0



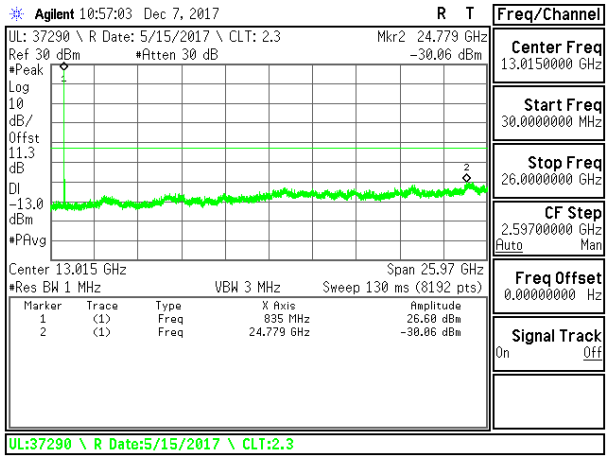
LTE B26 15MHz 16QAM Low Channel RB1-0



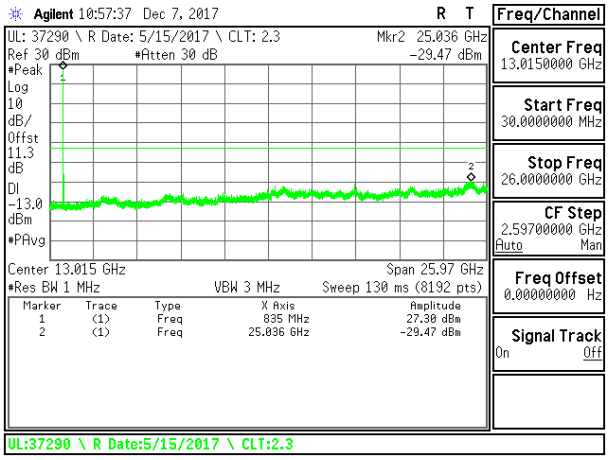
LTE B26 15MHz QPSK Middle Channel RB1-0



LTE B26 15MHz 16QAM Middle Channel RB1-0

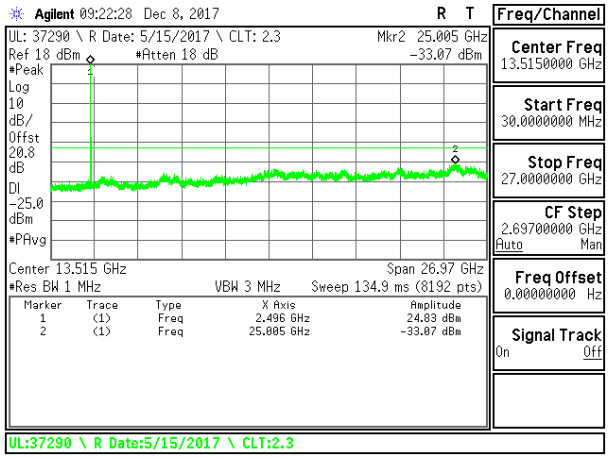


LTE B26 15MHz QPSK High Channel RB1-0

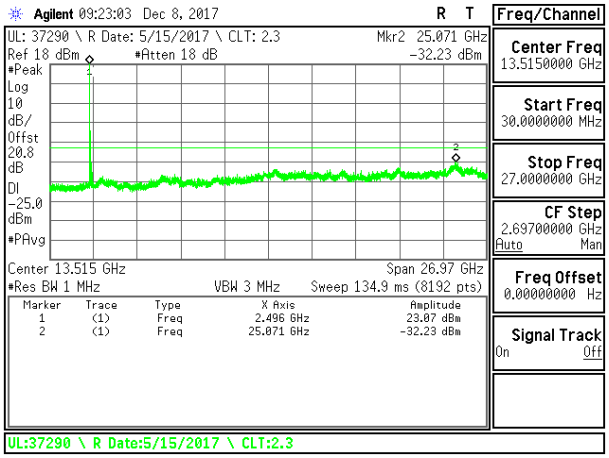


LTE B26 15MHz 16QAM High Channel RB1-0

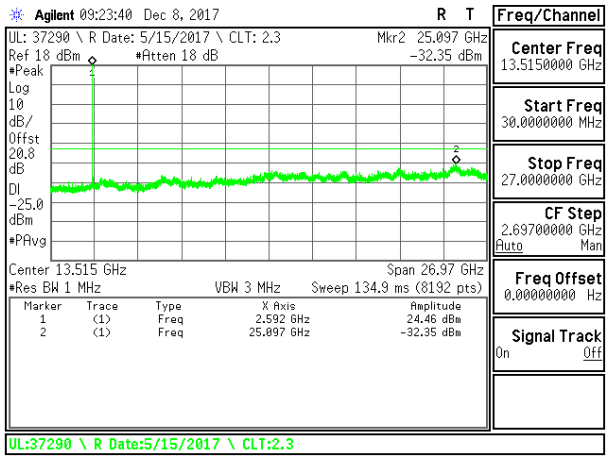
8.3.11. LTE BAND 41



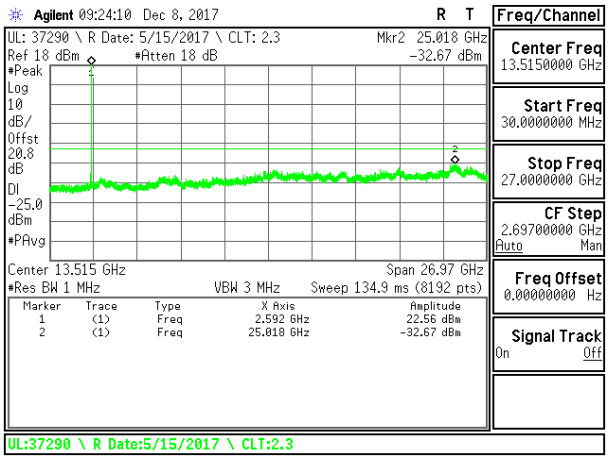
LTE B41 5MHz QPSK Low Channel RB1-0



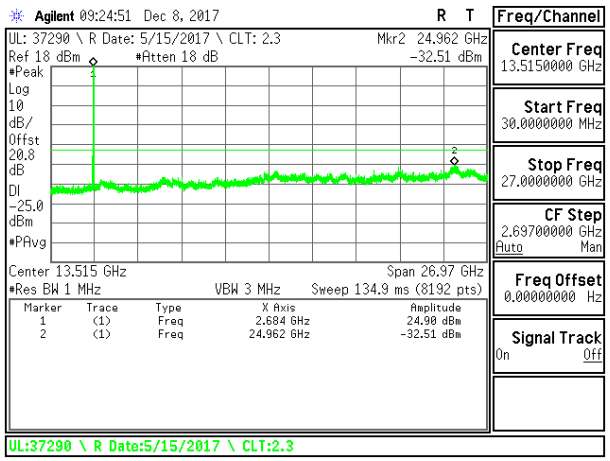
LTE B41 5MHz 16QAM Low Channel RB1-0



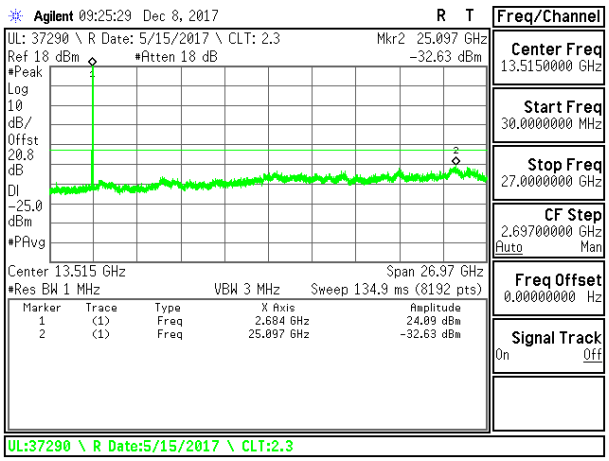
LTE B41 5MHz QPSK Middle Channel RB1-0



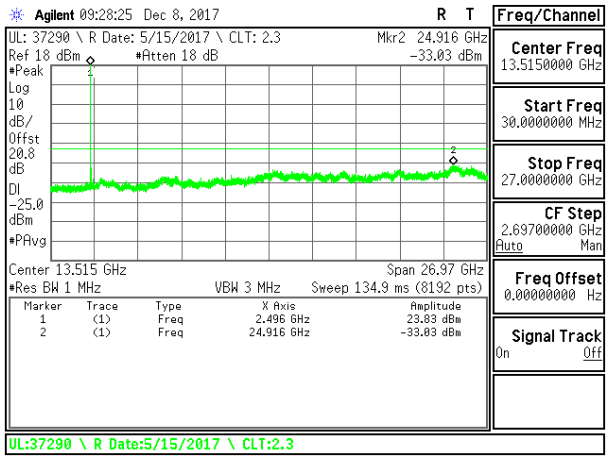
LTE B41 5MHz 16QAM Middle Channel RB1-0



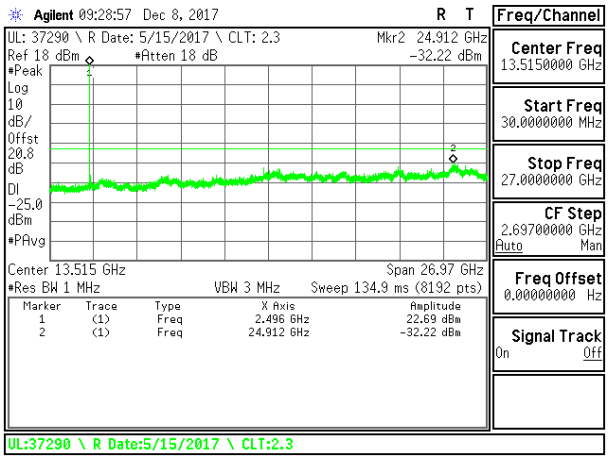
LTE B41 5MHz QPSK High Channel RB1-0



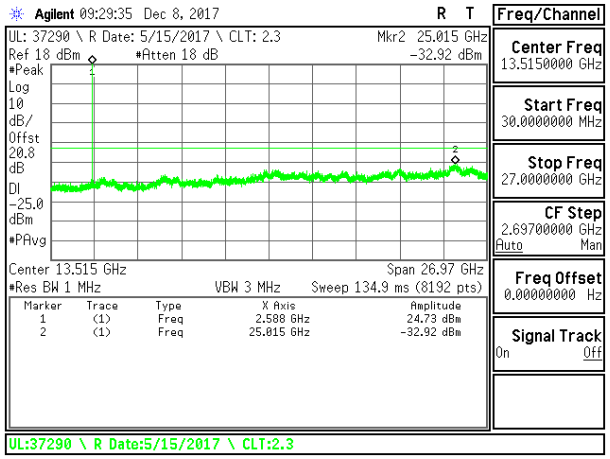
LTE B41 5MHz 16QAM High Channel RB1-0



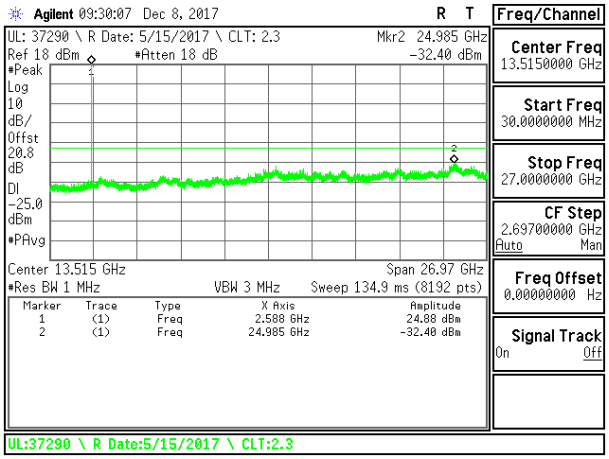
LTE B41 10MHz QPSK Low Channel RB1-0



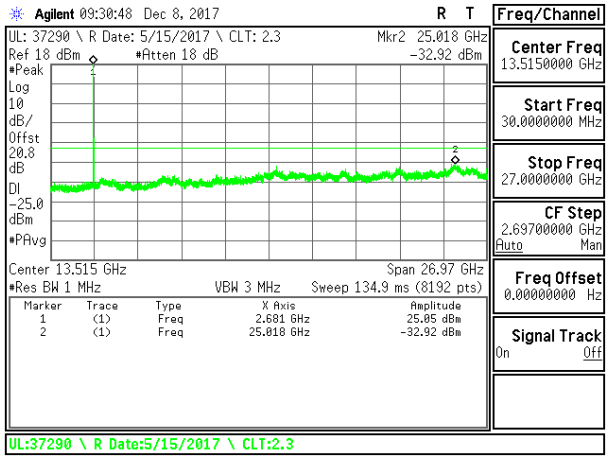
LTE B41 10MHz 16QAM Low Channel RB1-0



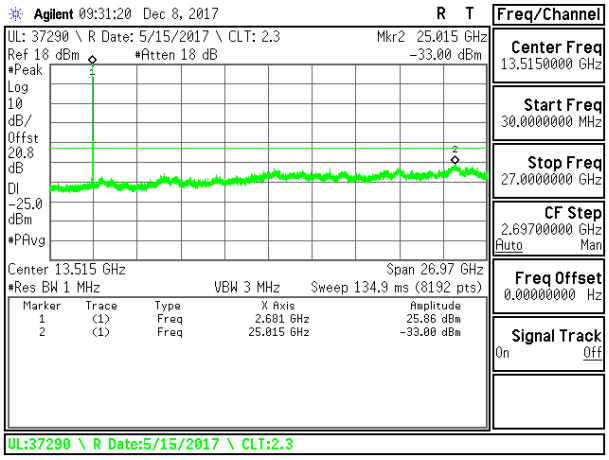
LTE B41 10MHz QPSK Middle Channel RB1-0



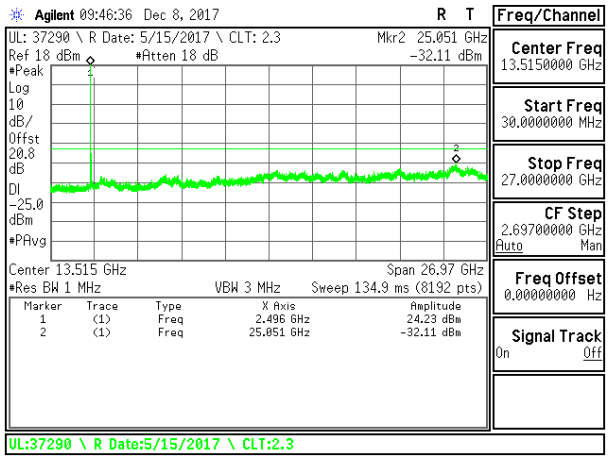
LTE B41 10MHz 16QAM Middle Channel RB1-0



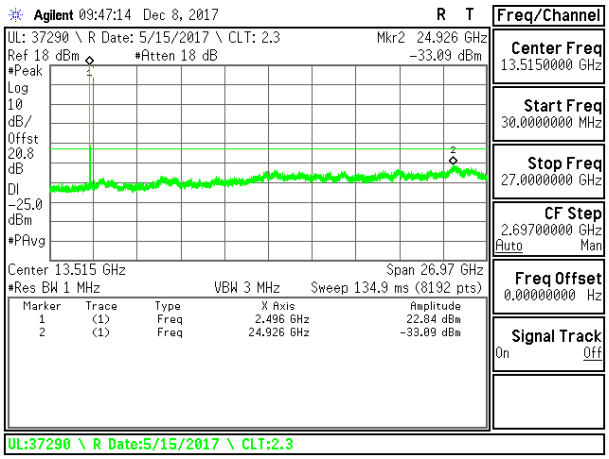
LTE B41 10MHz QPSK High Channel RB1-0



LTE B41 10MHz 16QAM High Channel RB1-0



LTE B41 15MHz QPSK Low Channel RB1-0



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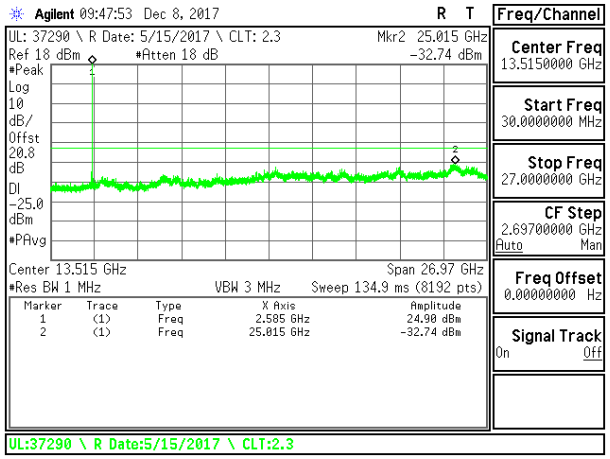
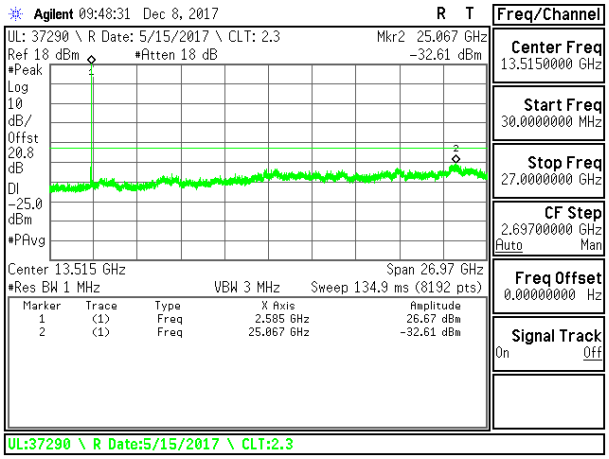
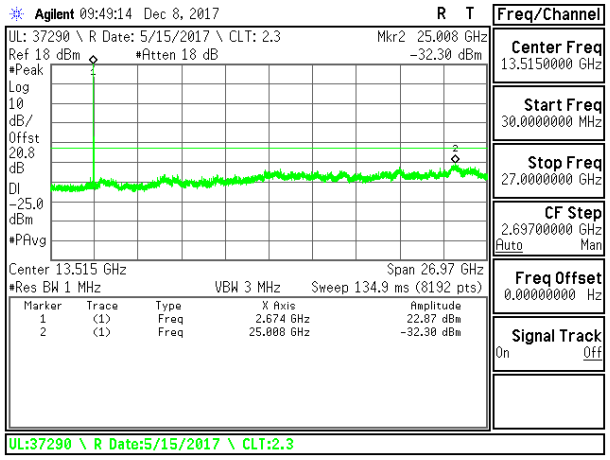


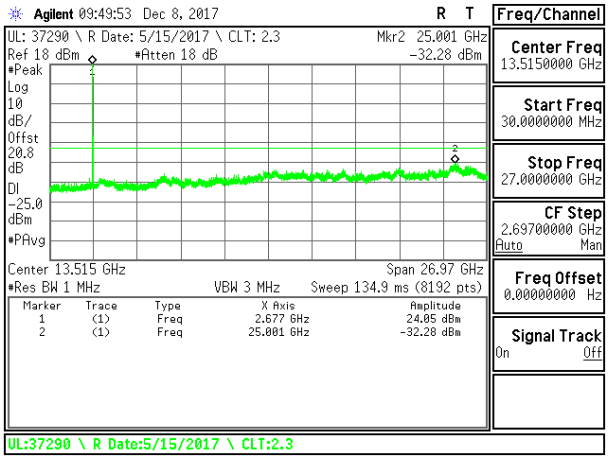
LTE B41 15MHz QPSK Middle Channel RB1-0



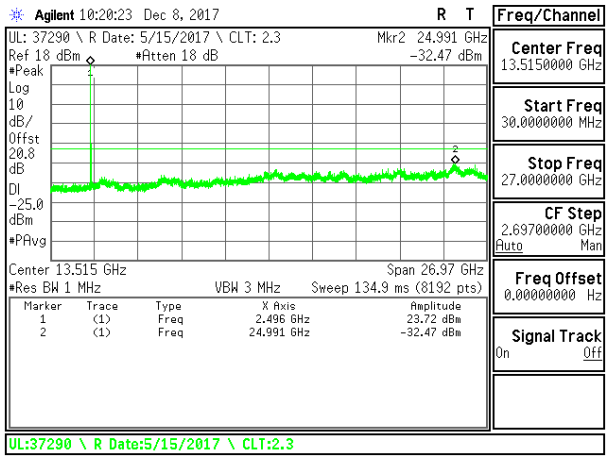
LTE B41 15MHz 16QAM Middle Channel RB1-0



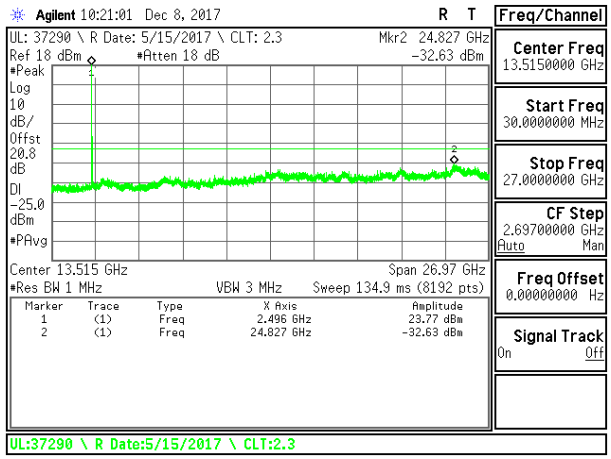
LTE B41 15MHz QPSK High Channel RB1-0



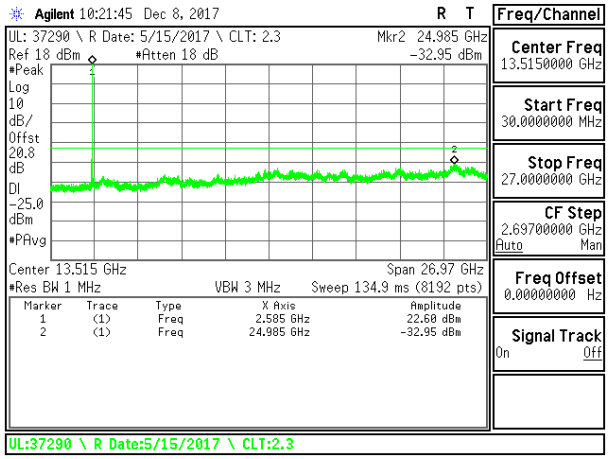
LTE B41 15MHz 16QAM High Channel RB1-0



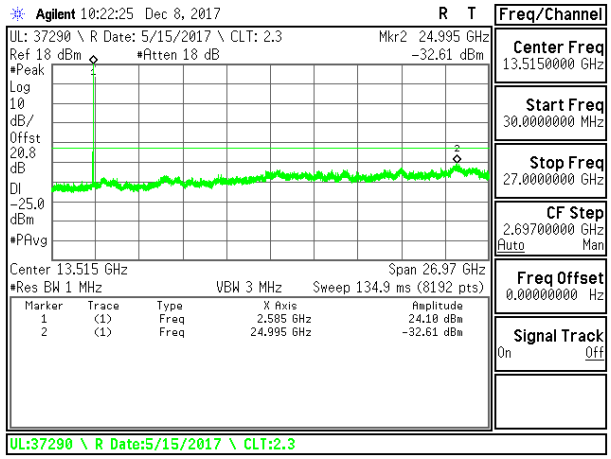
LTE B41 20MHz QPSK Low Channel RB1-0



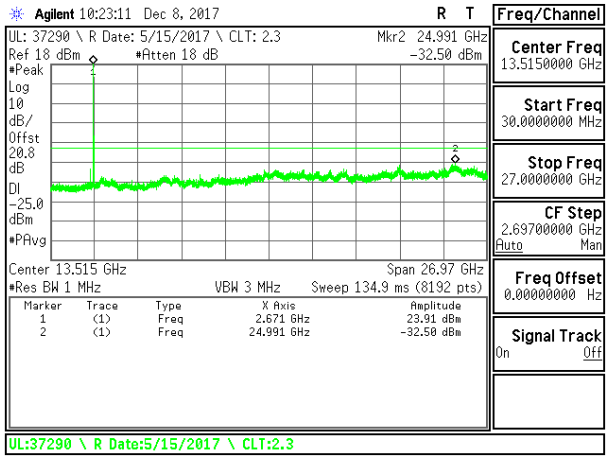
LTE B41 20MHz 16QAM Low Channel RB1-0



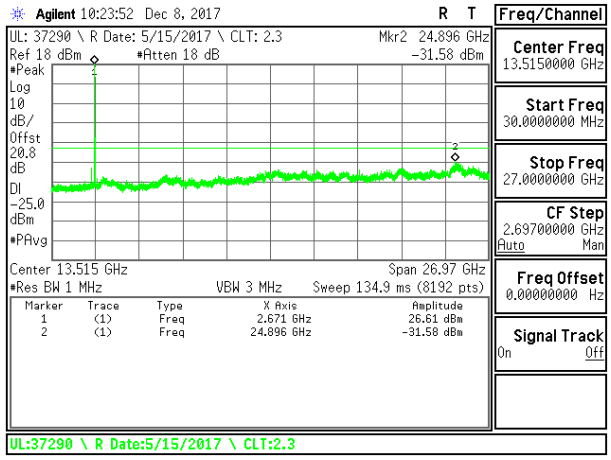
LTE B41 20MHz QPSK Middle Channel RB1-0



LTE B41 20MHz 16QAM Middle Channel RB1-0

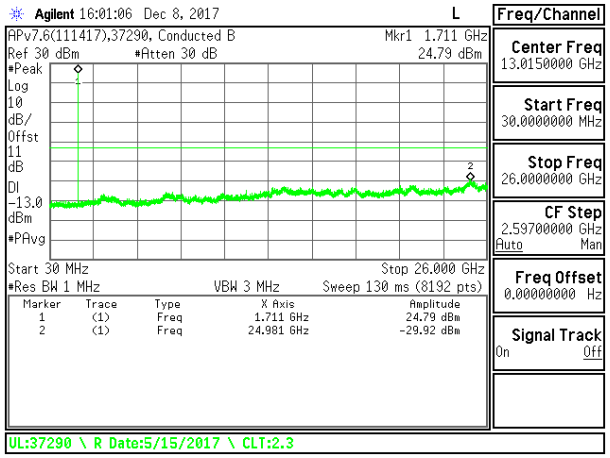


LTE B41 20MHz QPSK High Channel RB1-0

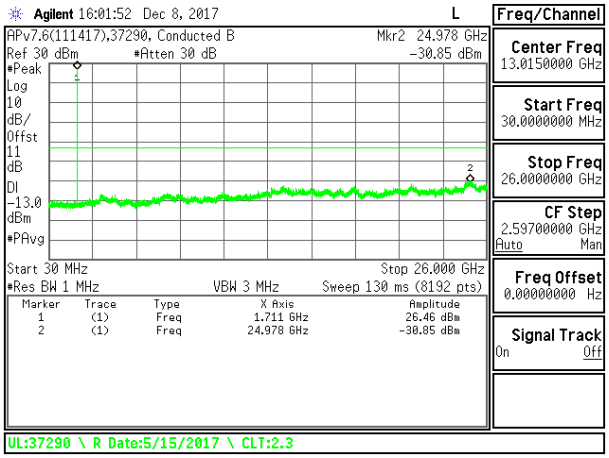


LTE B41 20MHz 16QAM High Channel RB1-0

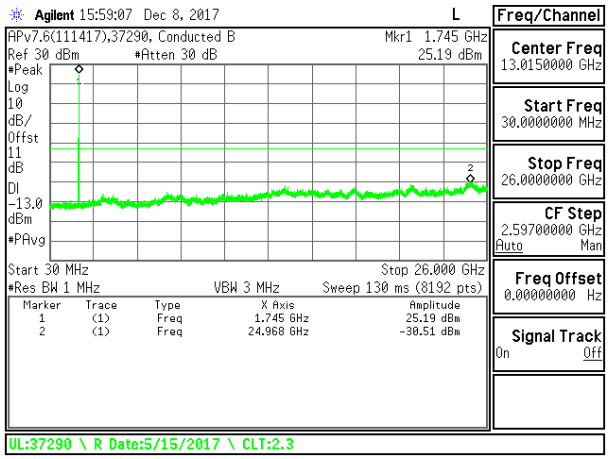
8.3.12. LTE BAND 66



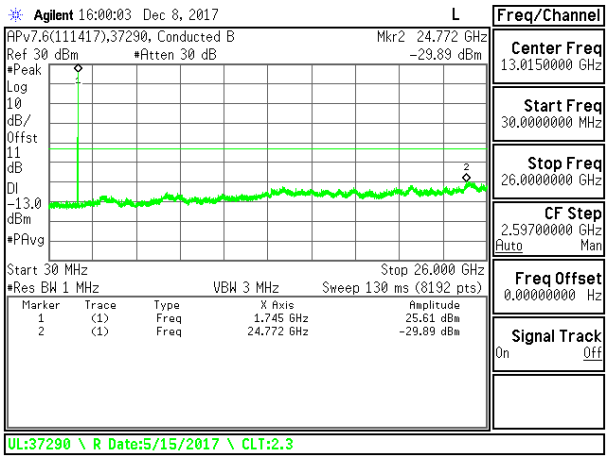
LTE B66 1.4MHz QPSK Low Channel RB1-0



LTE B66 1.4MHz 16QAM Low Channel RB1-0



LTE B66 1.4MHz QPSK Middle Channel RB1-0



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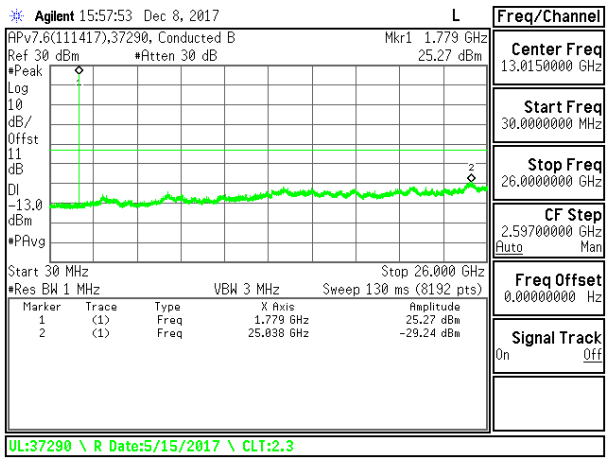
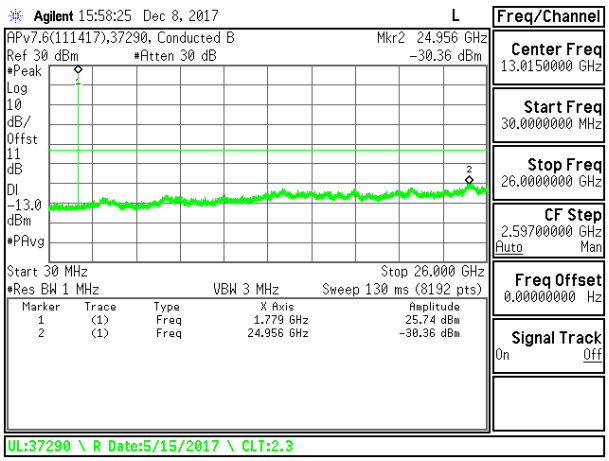


LTE B66 1.4MHz QPSK High Channel RB1-0



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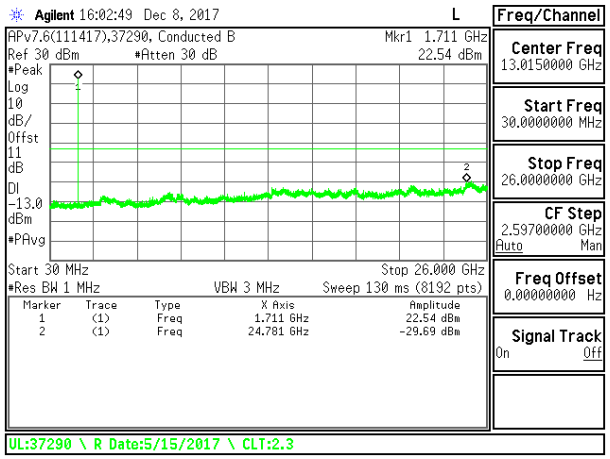
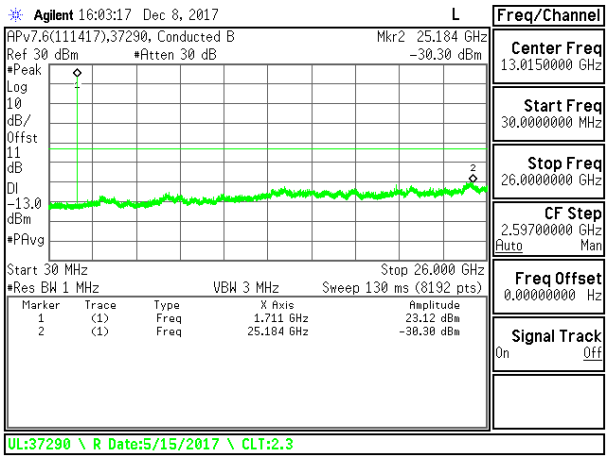


LTE B66 3MHz QPSK Low Channel RB1-0



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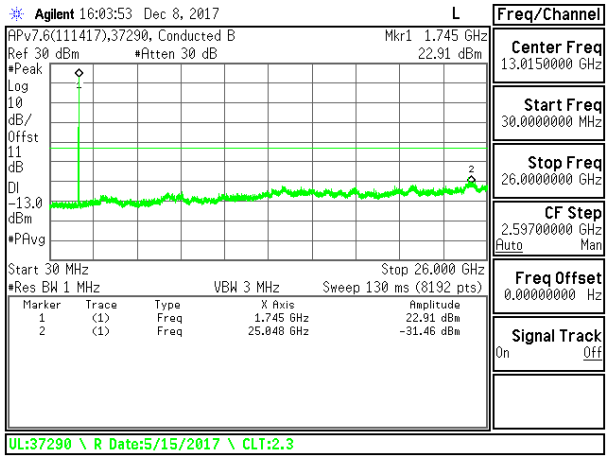
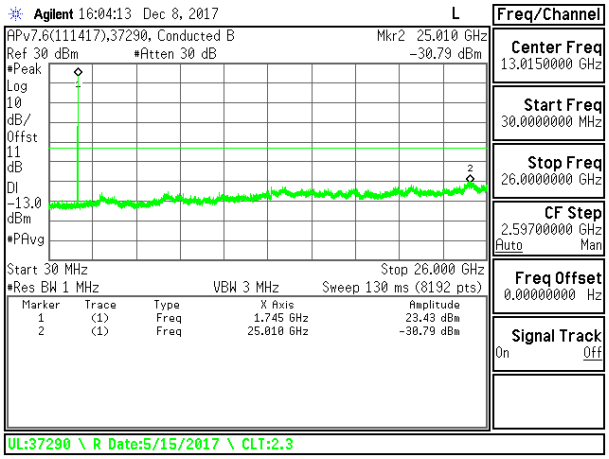
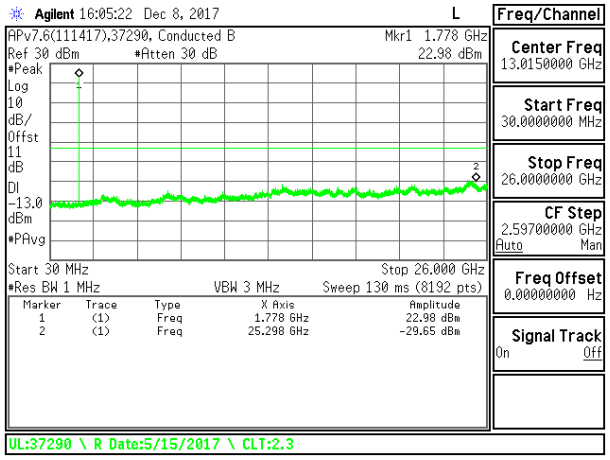


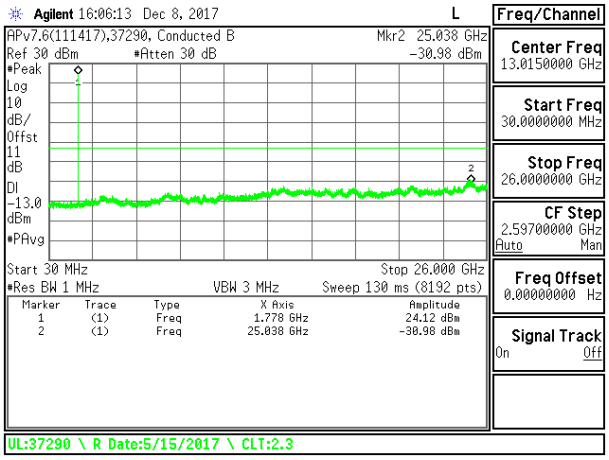
LTE B66 3MHz QPSK Middle Channel RB1-0



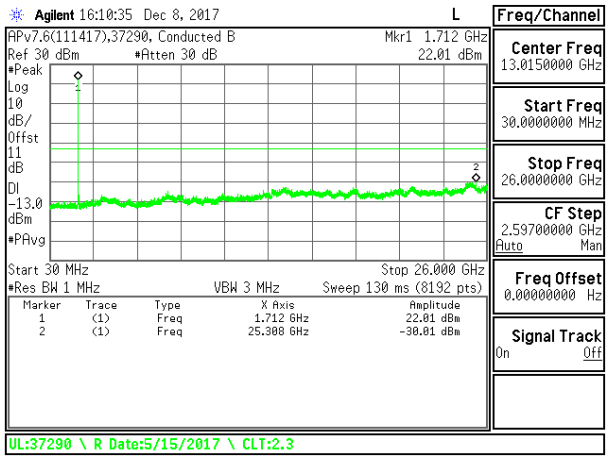
LTE B66 3MHz 16QAM Middle Channel RB1-0



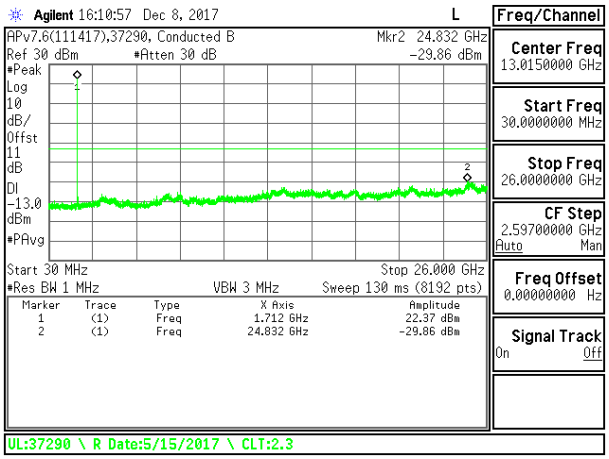
LTE B66 3MHz QPSK High Channel RB1-0



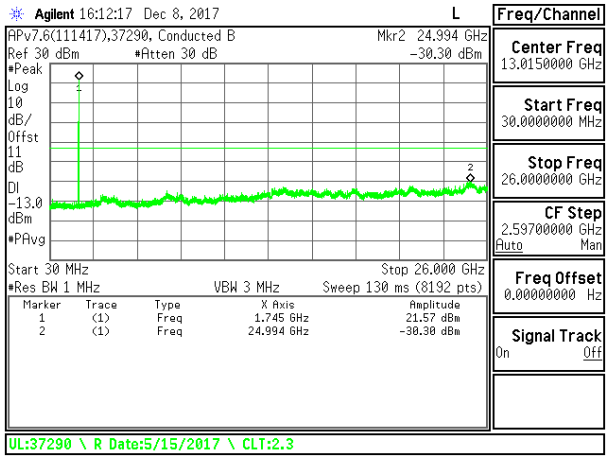
LTE B66 3MHz 16QAM High Channel RB1-0



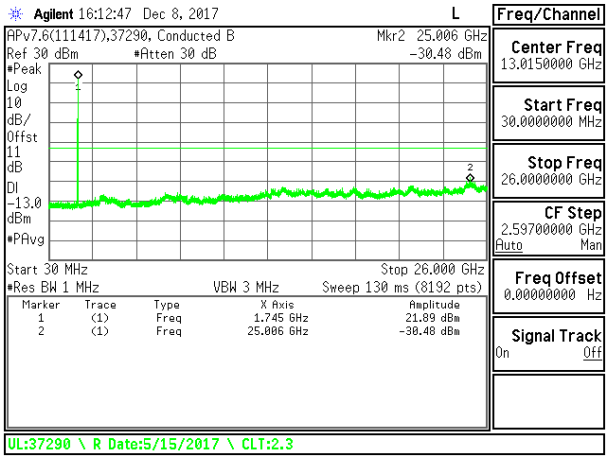
LTE B66 5MHz QPSK Low Channel RB1-0



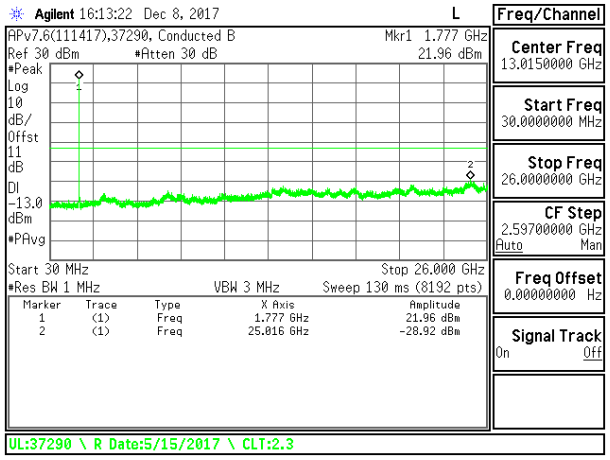
LTE B66 5MHz 16QAM Low Channel RB1-0



LTE B66 5MHz QPSK Middle Channel RB1-0



LTE B66 5MHz 16QAM Middle Channel RB1-0



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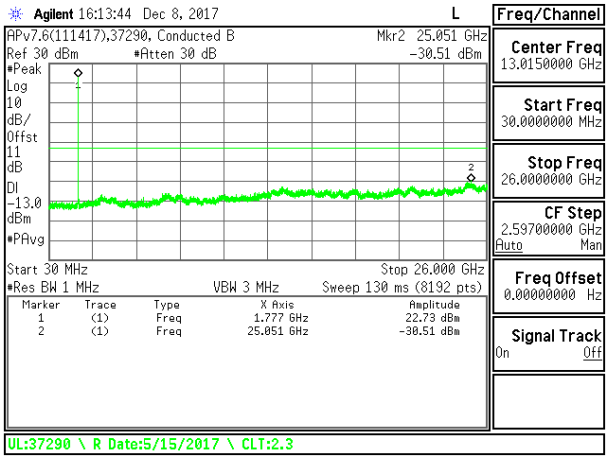
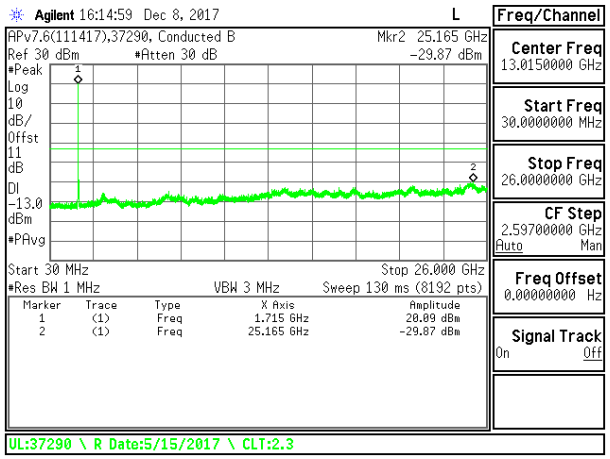
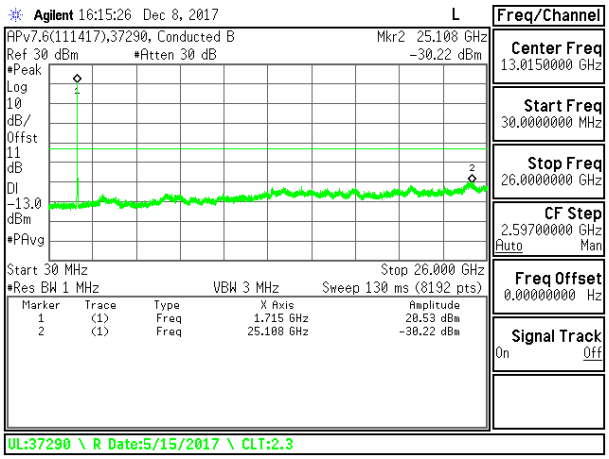


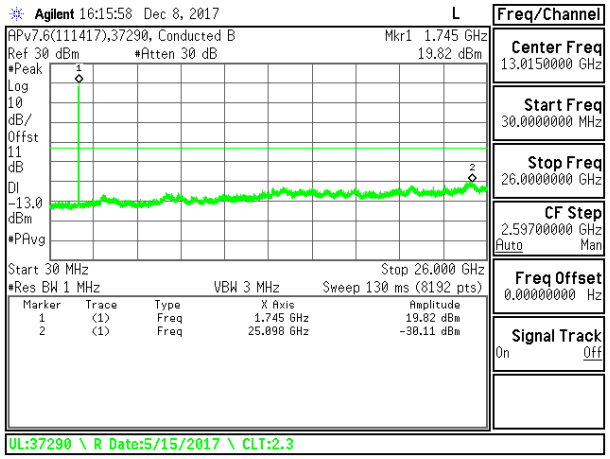
LTE B66 5MHz 16QAM High Channel RB1-0



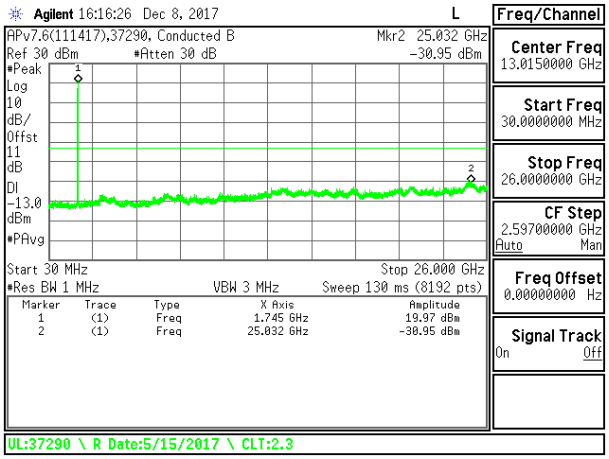
LTE B66 10MHz QPSK Low Channel RB1-0



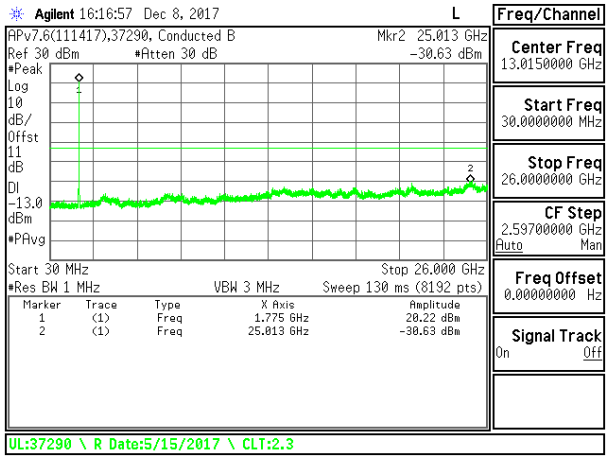
LTE B66 10MHz 16QAM Low Channel RB1-0



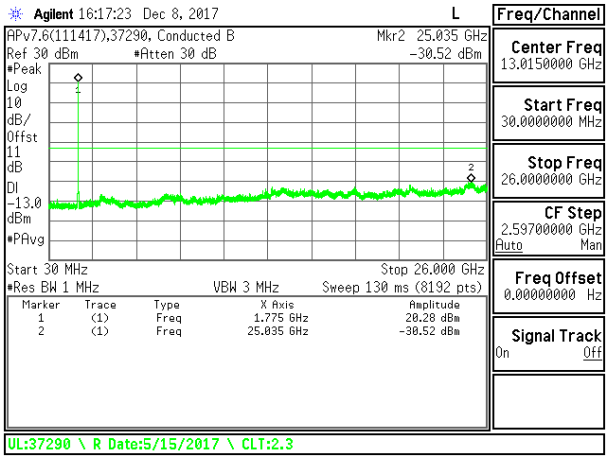
LTE B66 10MHz QPSK Middle Channel RB1-0



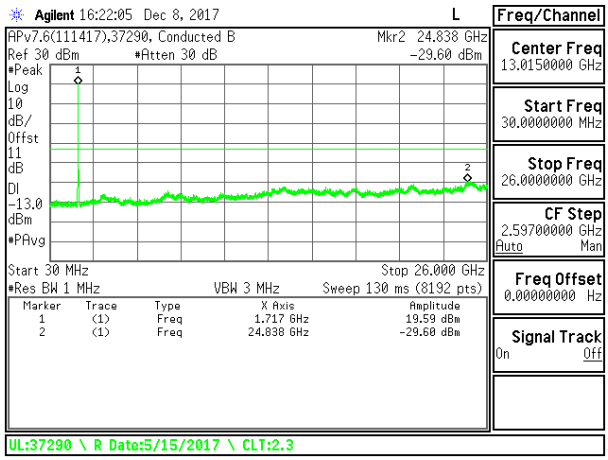
LTE B66 10MHz 16QAM Middle Channel RB1-0



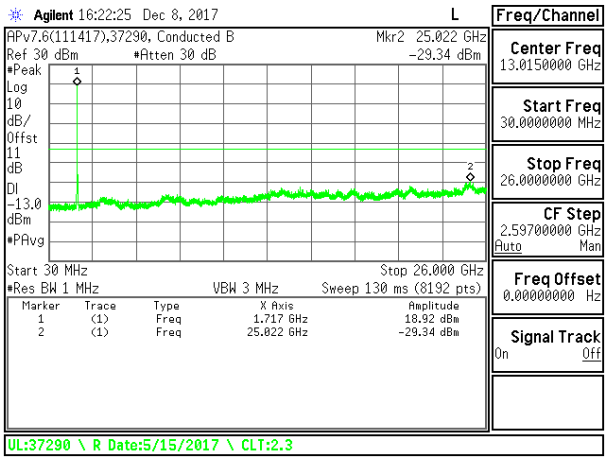
LTE B66 10MHz QPSK High Channel RB1-0



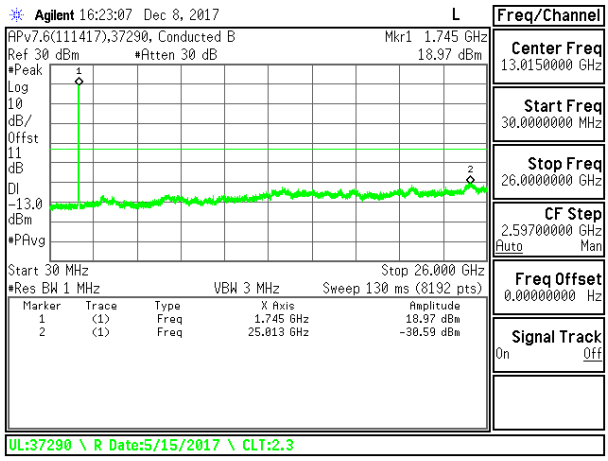
LTE B66 10MHz 16QAM High Channel RB1-0



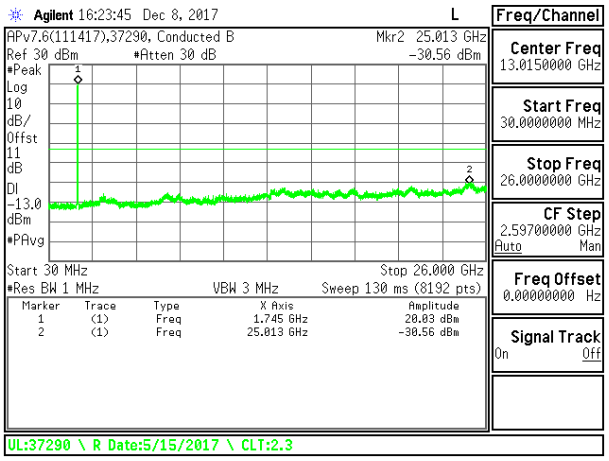
LTE B66 15MHz QPSK Low Channel RB1-0



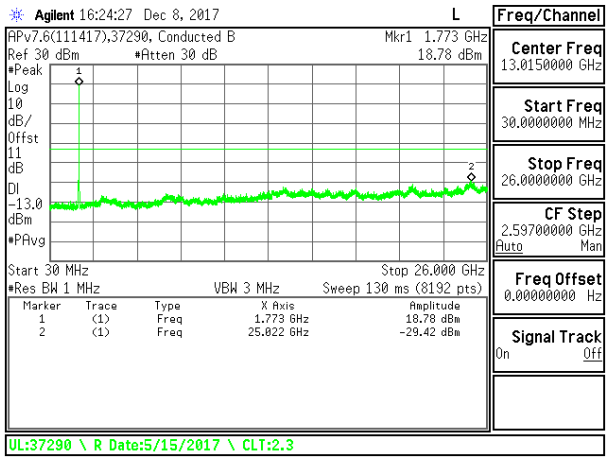
LTE B66 15MHz 16QAM Low Channel RB1-0



LTE B66 15MHz QPSK Middle Channel RB1-0



LTE B66 15MHz 16QAM Middle Channel RB1-0



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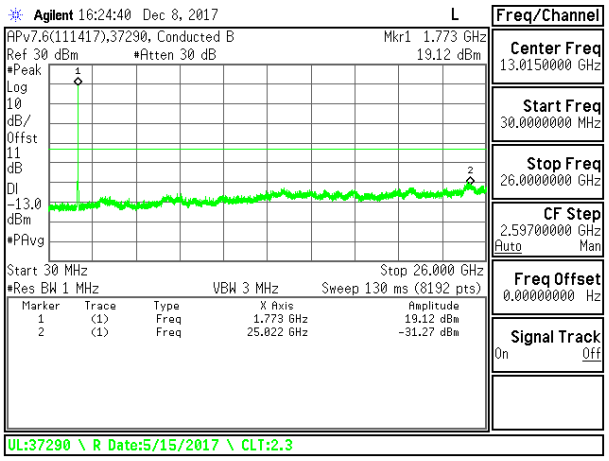
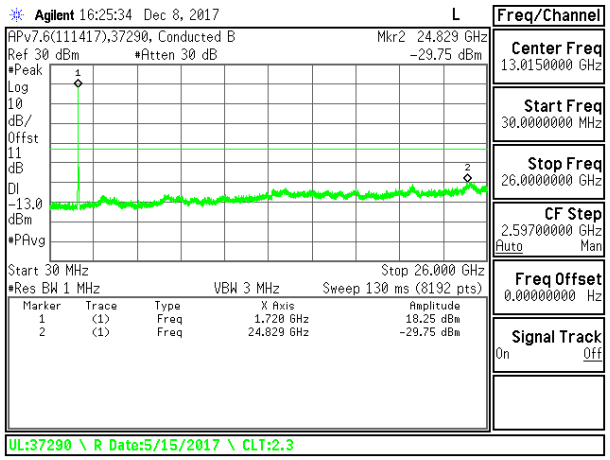
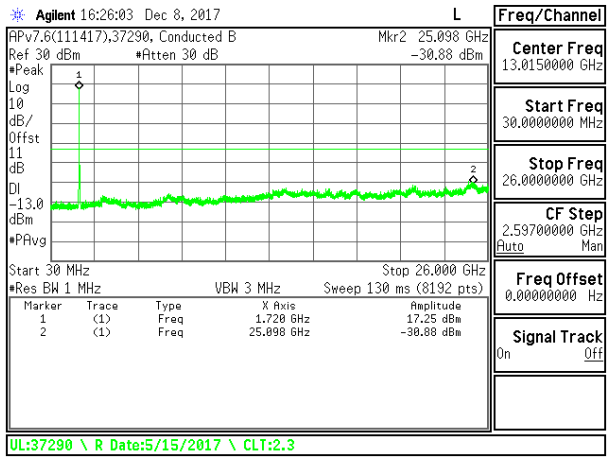


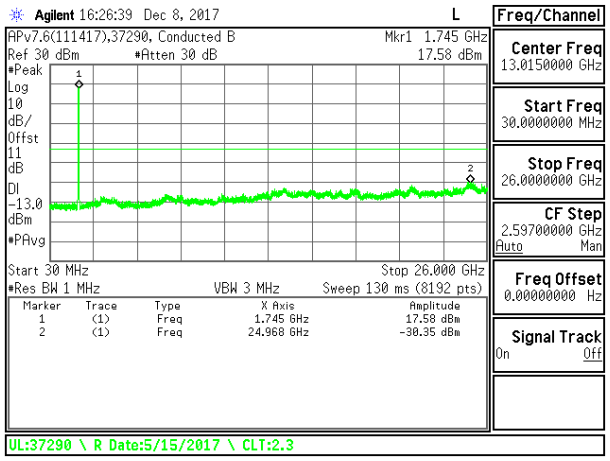
LTE B66 15MHz 16QAM High Channel RB1-0



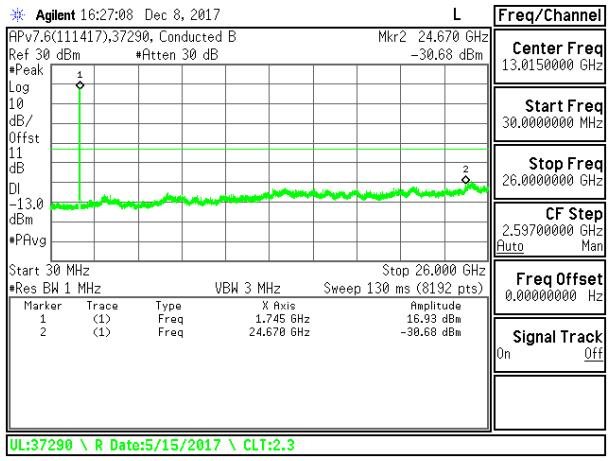
LTE B66 20MHz QPSK Low Channel RB1-0



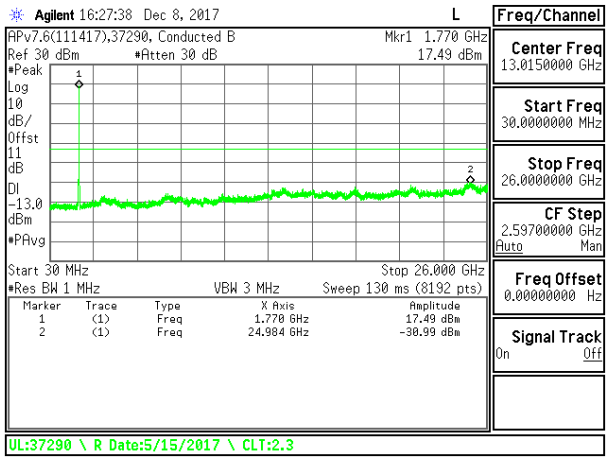
LTE B66 20MHz 16QAM Low Channel RB1-0



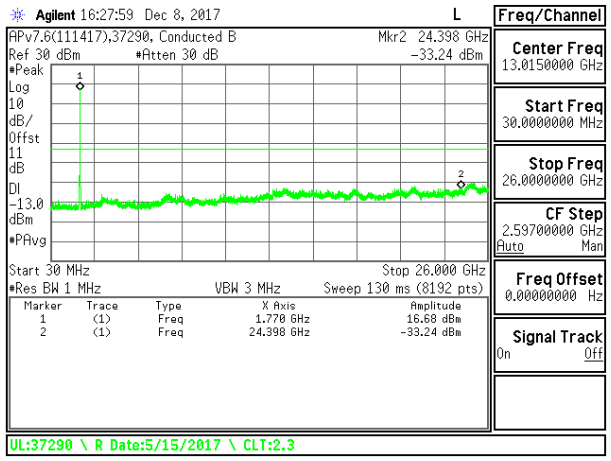
LTE B66 20MHz QPSK Middle Channel RB1-0



LTE B66 20MHz 16QAM Middle Channel RB1-0



LTE B66 20MHz QPSK High Channel RB1-0



LTE B66 20MHz 16QAM High Channel RB1-0

8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

LIMITS

FCC: §22.355, §90.213
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

- LTE Band 2
- LTE Band 7
- LTE Band 13
- LTE Band 17
- LTE Band 26
- LTE Band 41
- LTE Band 66

RESULTS

See the following pages.

Note(s):

GSM 850 Band Measured Results

GSM 850 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) no testing is necessary due to overlapping frequency range.

GSM 1900 Band Measured Results

GSM 1900 (Frequency range: 1850-1910 MHz) is covered by LTE Band 2 (Frequency range: 1850-1910 MHz) no testing is necessary due to overlapping frequency range.

WCDMA Band 5 Measured Results

WCDMA Band 5 (Frequency range: 826-84 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) no testing is necessary due to overlapping frequency range.

WCDMA Band 2 Measured Results

WCDMA Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 2 (Frequency range: 1850-1910 MHz) no testing is necessary due to overlapping frequency range.

WCDMA Band 4 Measured Results

WCDMA Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) no testing is necessary due to overlapping frequency range.

8.4.1. LTE BAND 2

ID:	43575	Date:	12/20/17

QPSK, (20MHz BANDWIDTH)

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	1880.000016	0.000	2.5
3.85	40	1880.000016	-0.001	2.5
3.85	30	1880.000015	0.000	2.5
3.85	***20***	**1880.000015**	**0**	***2.5***
3.85	10	1880.000016	-0.001	2.5
3.85	0	1880.000014	0.001	2.5
3.85	-10	1880.000015	0.000	2.5
3.85	-20	1880.000018	-0.001	2.5
3.85	-30	1880.000017	-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***	***1880.000015***	***0***	***2.5***
4.25	25	1880.000017	*-0.001*	2.5
3.65	25	1880.000016	*-0.001*	2.5

8.4.2. LTE BAND 7

ID:	43575	Date:	12/20/17

QPSK, (20MHz BANDWIDTH)

Reference Frequency: LTE Band 7 Mid Channel		2535	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6337.500	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	2535.000016	0.000	2.5
3.85	40	2534.999984	0.012	2.5
3.85	30	2535.000014	0.001	2.5
3.85	***20***	**2535.000015**	**0**	***2.5***
3.85	10	2535.000017	-0.001	2.5
3.85	0	2535.000021	-0.002	2.5
3.85	-10	2535.000019	-0.002	2.5
3.85	-20	2535.000014	0.001	2.5
3.85	-30	2535.000013	0.001	2.5

Reference Frequency: LTE Band 7 Mid Channel		2535	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6337.500	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***2535.000015***	***0***	***2.5***
4.25	25	2535.000019	*-0.001*	2.5
3.65	25	2535.000020	*-0.002*	2.5

8.4.3. LTE BAND 13

ID:	43575	Date:	12/20/17

QPSK, (10MHz BANDWIDTH)

Reference Frequency: LTE Band 13 Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	781.999985	0.005	2.5
3.85	40	781.999992	-0.004	2.5
3.85	30	781.999992	-0.003	2.5
3.85	***20***	**781.999989**	**0**	***2.5***
3.85	10	781.999993	-0.004	2.5
3.85	0	781.999993	-0.004	2.5
3.85	-10	781.999995	-0.008	2.5
3.85	-20	781.999992	-0.003	2.5
3.85	-30	781.999993	-0.005	2.5

Reference Frequency: LTE Band 13 Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***781.999989***	***0***	***2.5***
4.25	25	781.999989	*0.000*	2.5
3.65	25	781.999991	*-0.002*	2.5

8.4.4. LTE BAND 26

ID:	43575	Date:	12/20/17

QPSK, (10MHz BANDWIDTH)

Reference Frequency: LTE Band 26 Mid Channel		831.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2078.750	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	831.500010	0.001	2.5
3.85	40	831.500010	0.001	2.5
3.85	30	831.500010	0.000	2.5
3.85	***20***	**831.500011**	**0**	***2.5***
3.85	10	831.500012	-0.001	2.5
3.85	0	831.500011	-0.001	2.5
3.85	-10	831.500013	-0.003	2.5
3.85	-20	831.500010	0.000	2.5
3.85	-30	831.500010	0.001	2.5

Reference Frequency: LTE Band 26 Mid Channel		831.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2078.750	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***831.500011***	***0***	***2.5***
4.25	25	831.500009	*0.002*	2.5
3.65	25	831.500012	*-0.001*	2.5

8.4.5. LTE BAND 66

ID:	43575	Date:	12/20/17

QPSK, (20MHz BANDWIDTH)

Reference Frequency: LTE Band 66 Mid Channel		1745	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4362.500	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	1745.000010	0.001	2.5
3.85	40	1745.000010	0.001	2.5
3.85	30	1745.000010	0.001	2.5
3.85	***20***	**1745.000011**	**0**	***2.5***
3.85	10	1745.000011	0.000	2.5
3.85	0	1745.000010	0.001	2.5
3.85	-10	1745.000011	0.000	2.5
3.85	-20	1745.000009	0.001	2.5
3.85	-30	1745.000012	0.000	2.5

Reference Frequency: LTE Band 66 Mid Channel		1745	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4362.500	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***1745.000011***	***0***	***2.5***
4.25	25	1745.000009	*0.002*	2.5
3.65	25	1745.000009	*0.001*	2.5

8.5. PEAK-TO-AVERAGE POWER RATIO

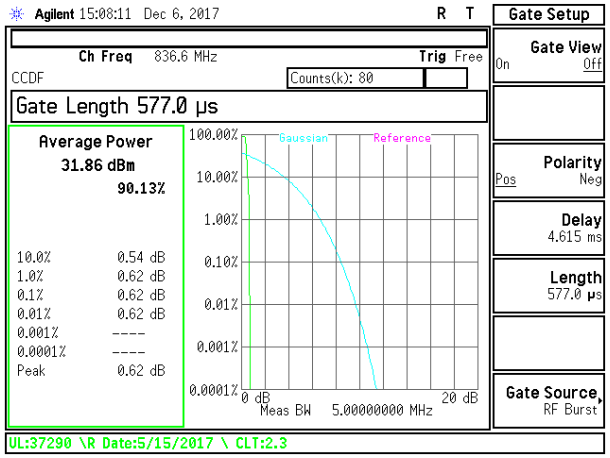
LIMIT

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

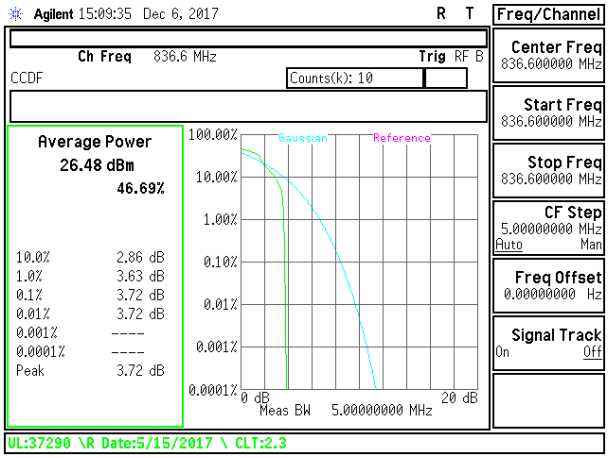
RESULT

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.

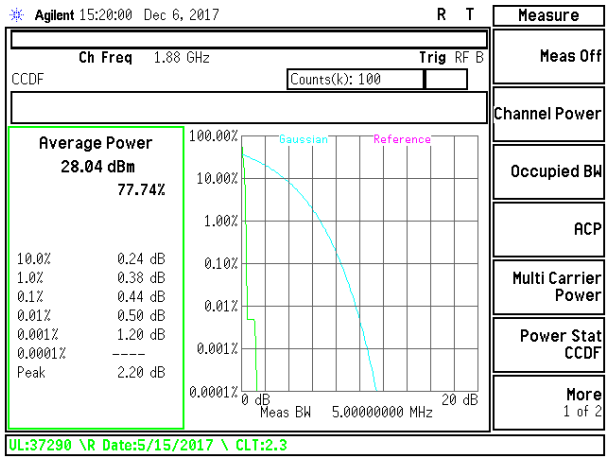
8.5.1. GSM



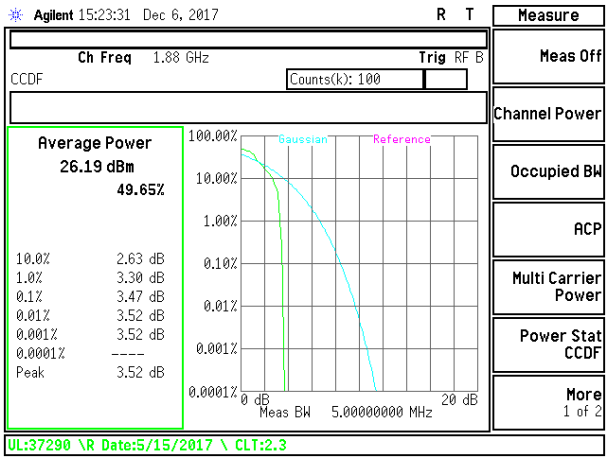
GSM 850MHz GPRS Middle Channel



GSM 850MHz EGPRS Middle Channel

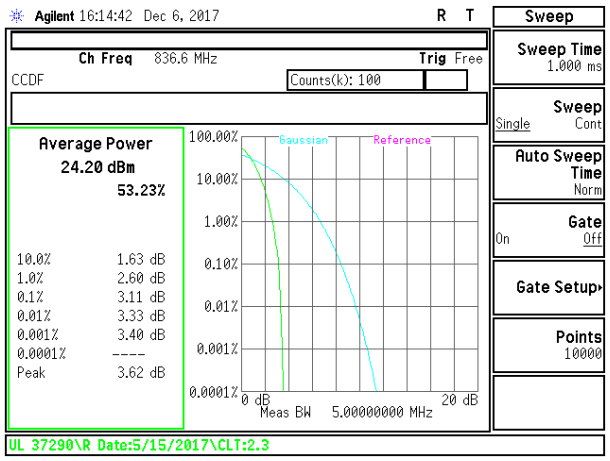


GSM 1900MHz GPRS Middle Channel

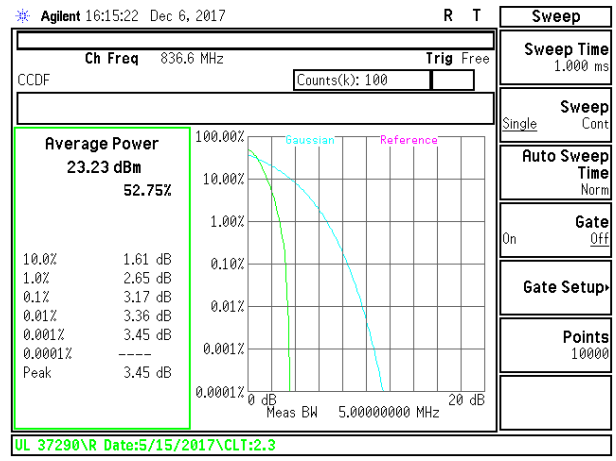


GSM 1900MHz EGPRS Middle Channel

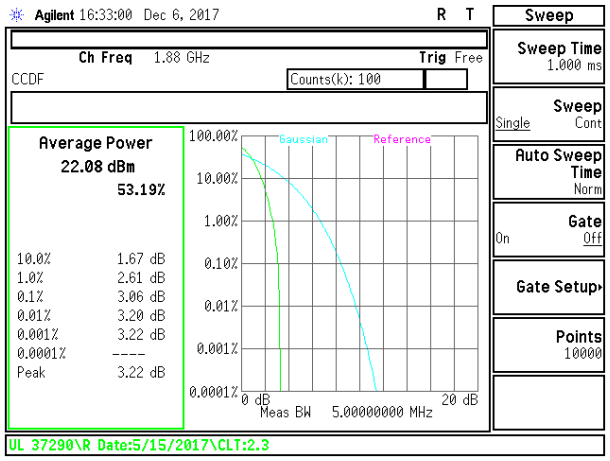
8.5.2. WCDMA



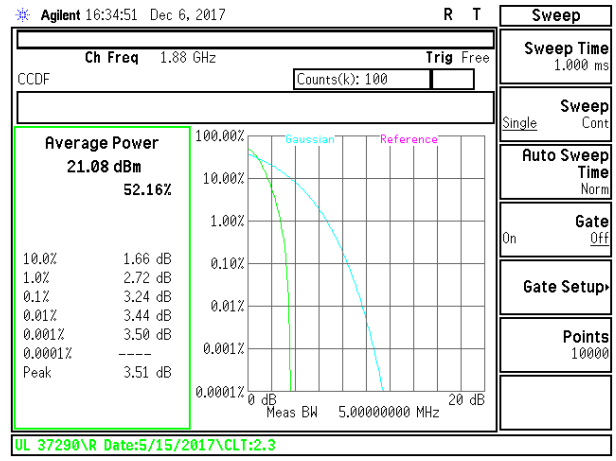
WCDMA Band 5 Rel 99 Middle Channel



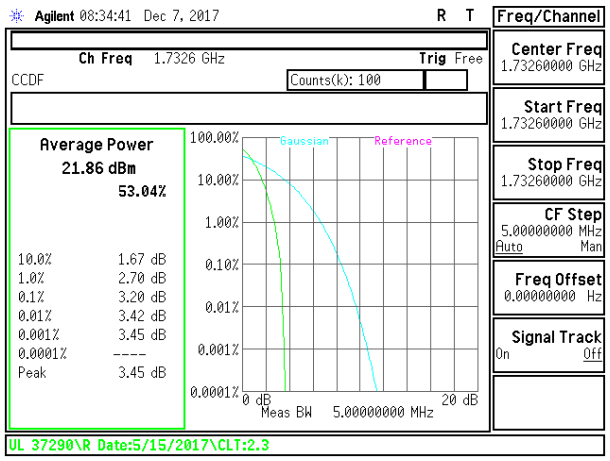
WCDMA Band 5 HSDPA Middle Channel



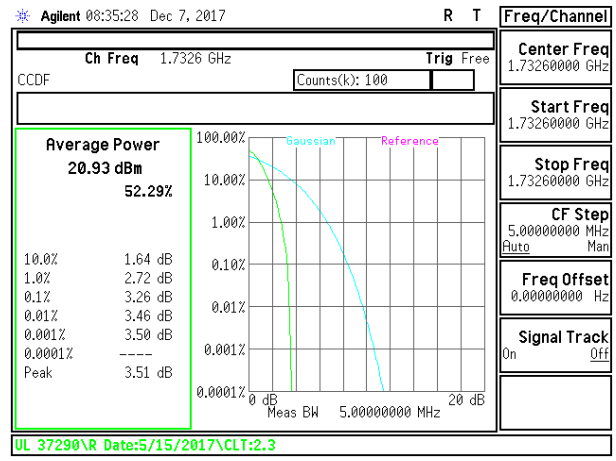
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

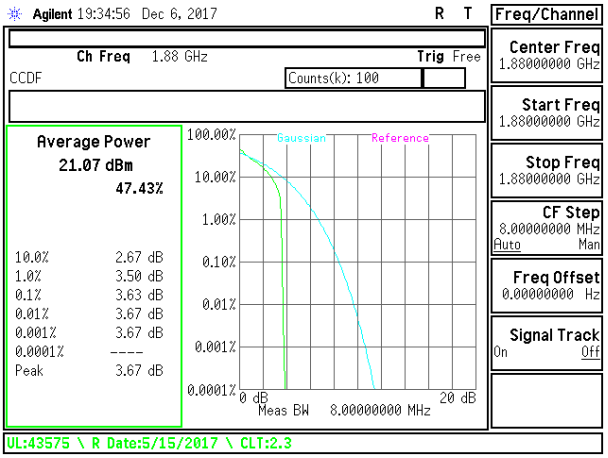


WCDMA Band 4 Rel 99 Middle Channel

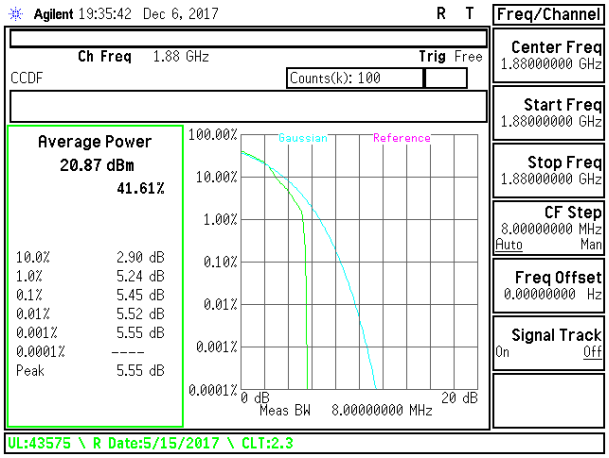


WCDMA Band 4 HSDPA Middle Channel

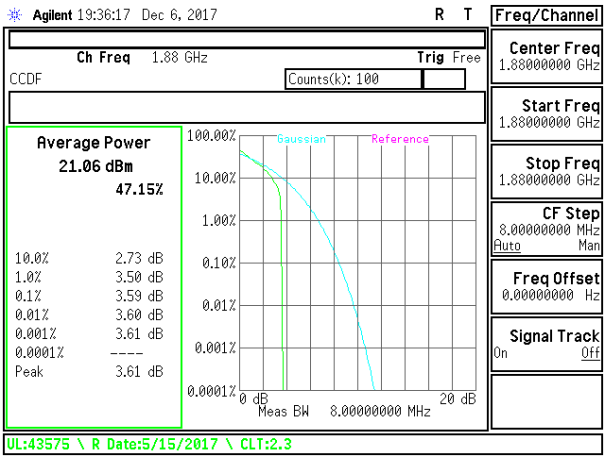
8.5.3. LTE BAND 2



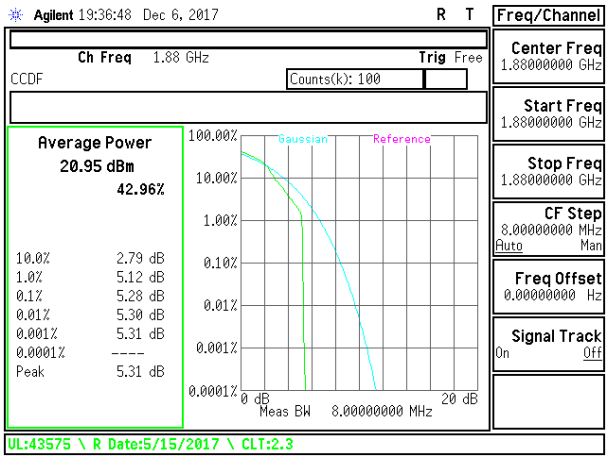
LTE B2 1.4MHz QPSK Middle Channel



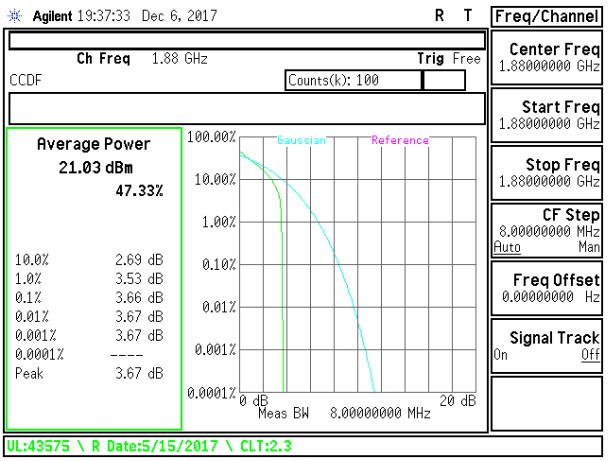
LTE B2 1.4MHz 16QAM Middle Channel



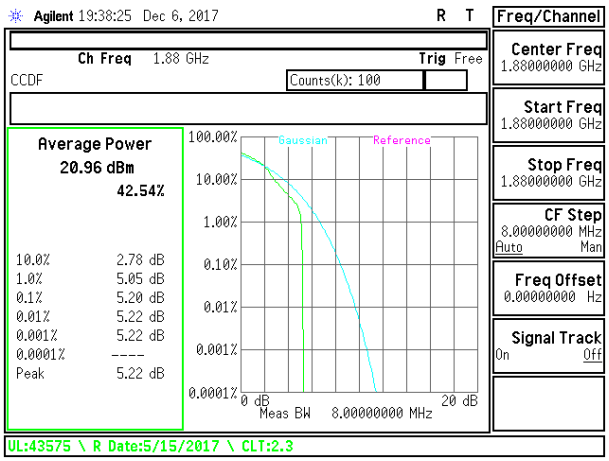
LTE B2 3MHz QPSK Middle Channel



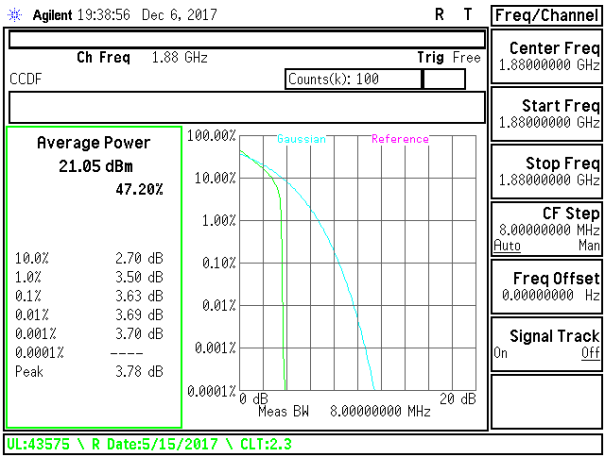
LTE B2 3MHz 16QAM Middle Channel



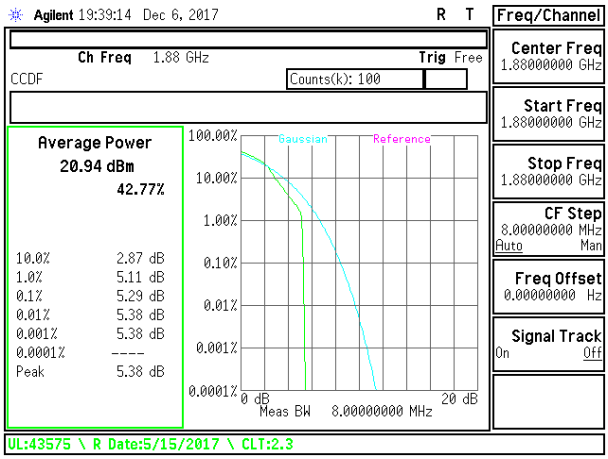
LTE B2 5MHz QPSK Middle Channel



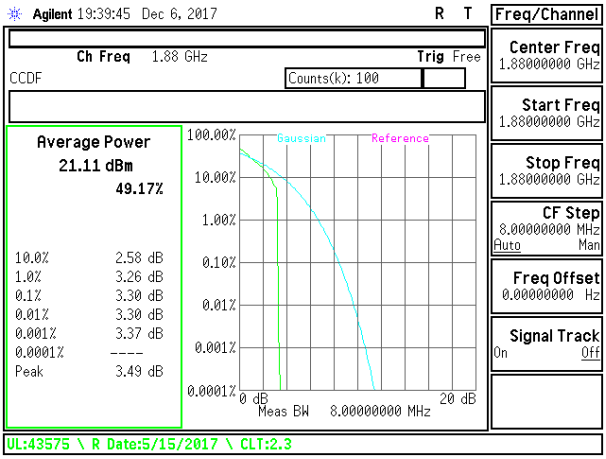
LTE B2 5MHz 16QAM Middle Channel



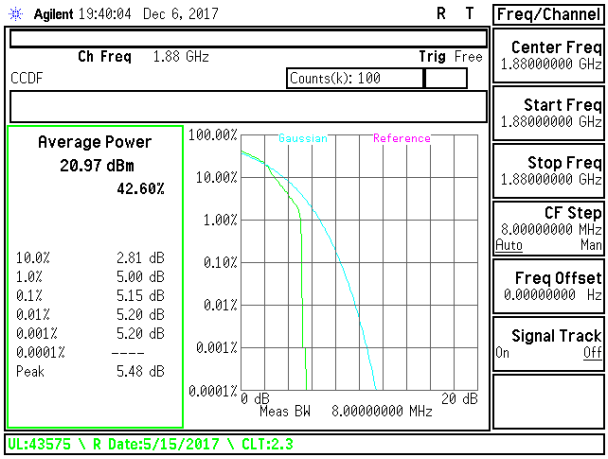
LTE B2 10MHz QPSK Middle Channel



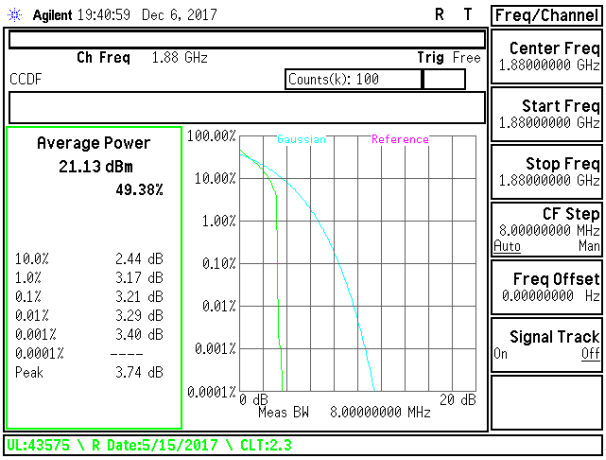
LTE B2 10MHz 16QAM Middle Channel



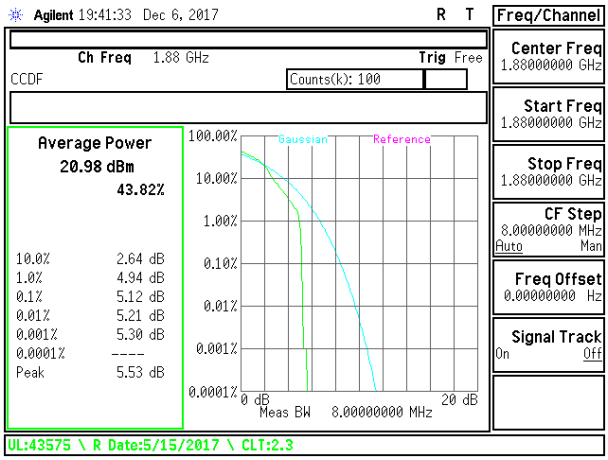
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



LTE B2 20MHz QPSK Middle Channel

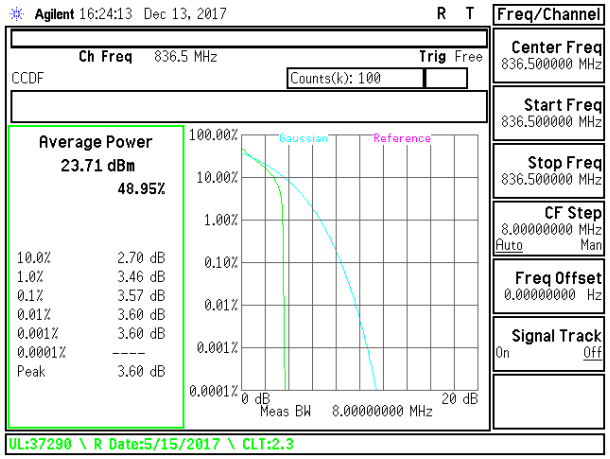


LTE B2 20MHz 16QAM Middle Channel

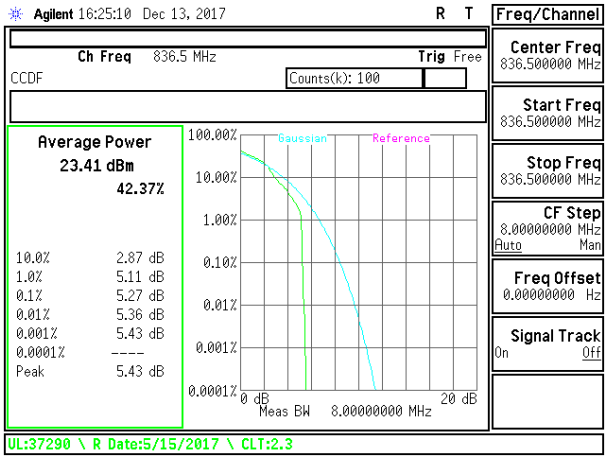
8.5.4. LTE BAND 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

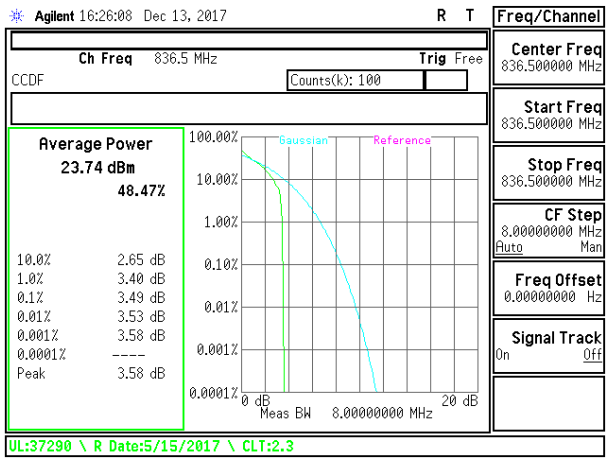
8.5.5. LTE BAND 5



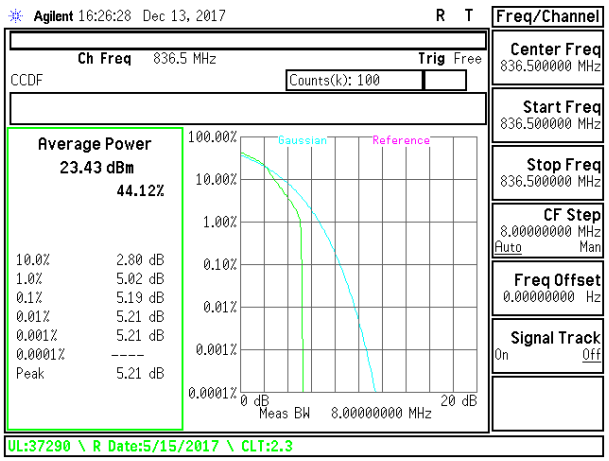
LTE B5 1.4MHz QPSK Middle Channel



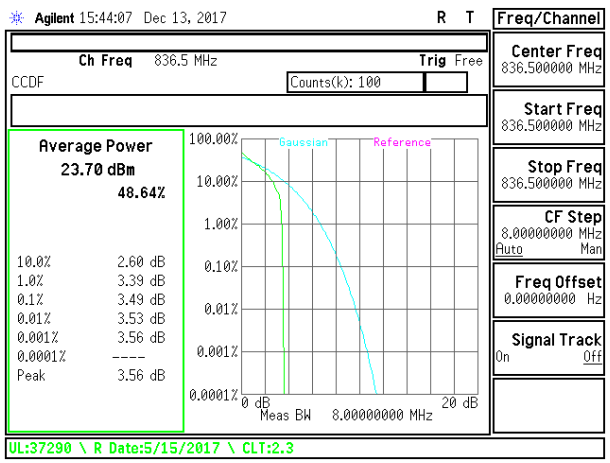
LTE B5 1.4MHz 16QAM Middle Channel



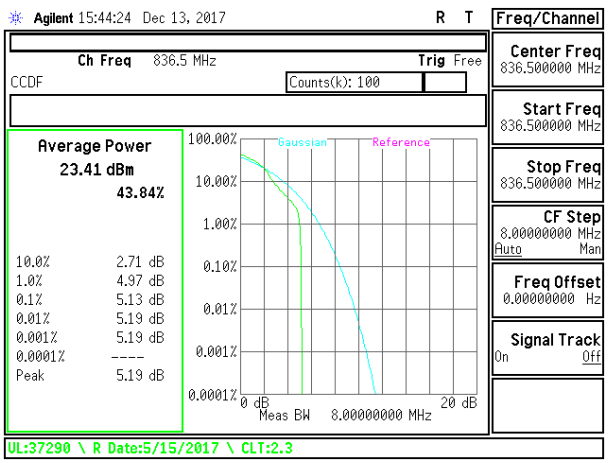
LTE B5 3MHz QPSK Middle Channel



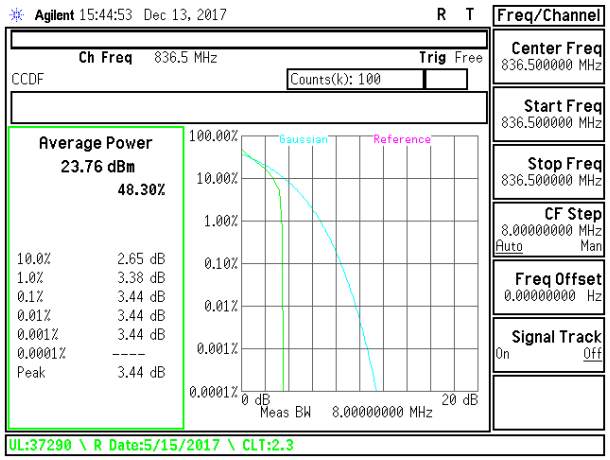
LTE B5 3MHz 16QAM Middle Channel



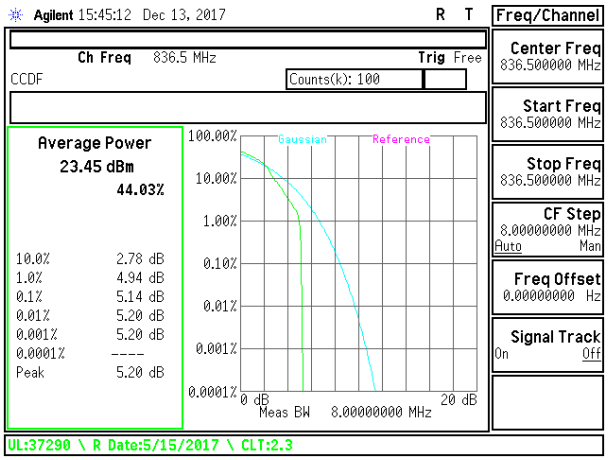
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

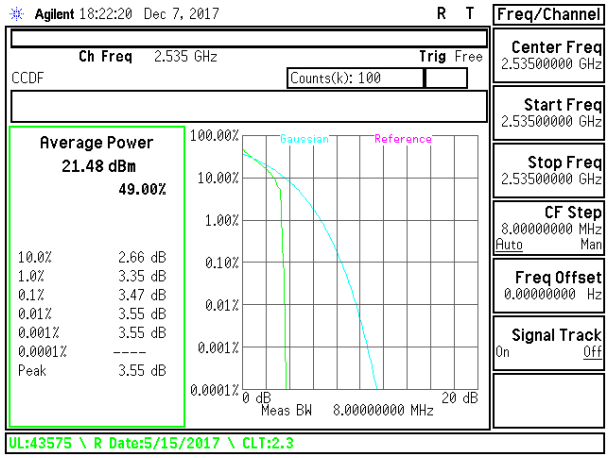


LTE B5 10MHz QPSK Middle Channel

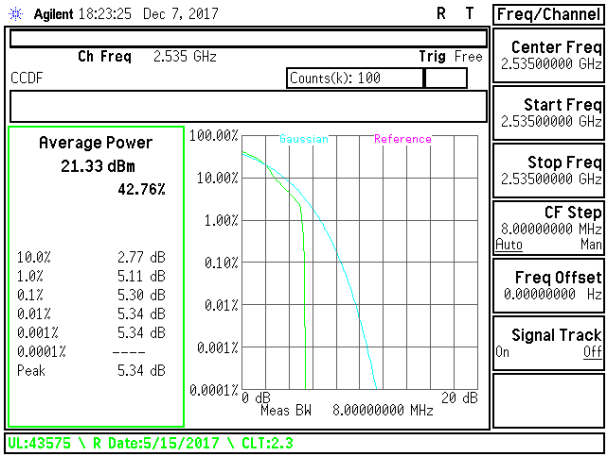


LTE B5 10MHz 16QAM Middle Channel

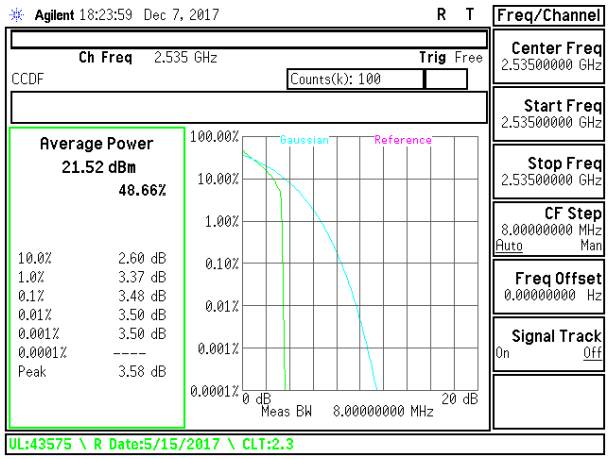
8.5.6. LTE BAND 7



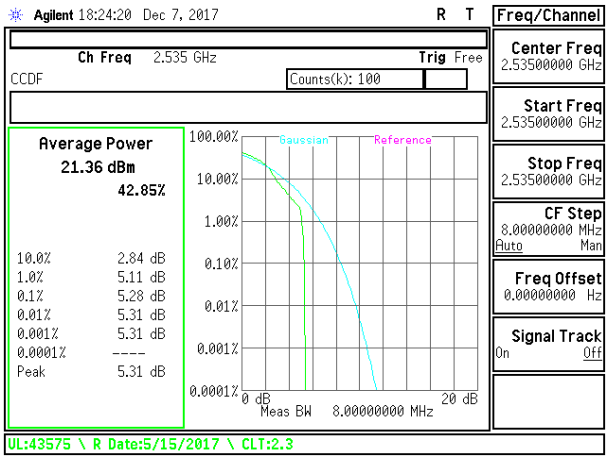
LTE B7 5MHz QPSK Middle Channel



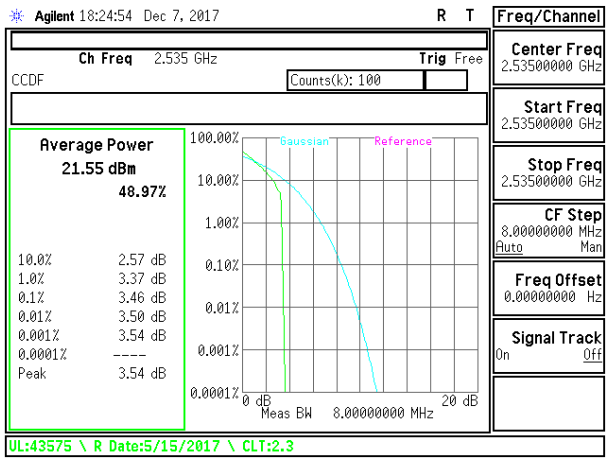
LTE B7 5MHz 16QAM Middle Channel



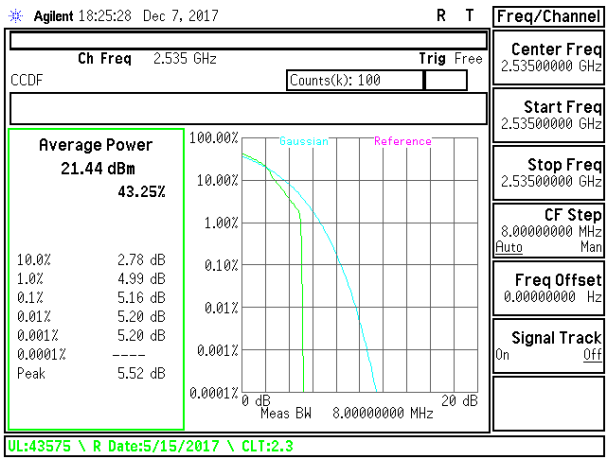
LTE B7 10MHz QPSK Middle Channel



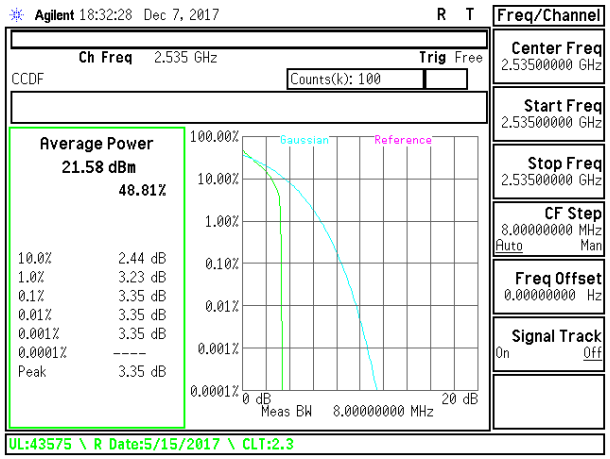
LTE B7 10MHz 16QAM Middle Channel



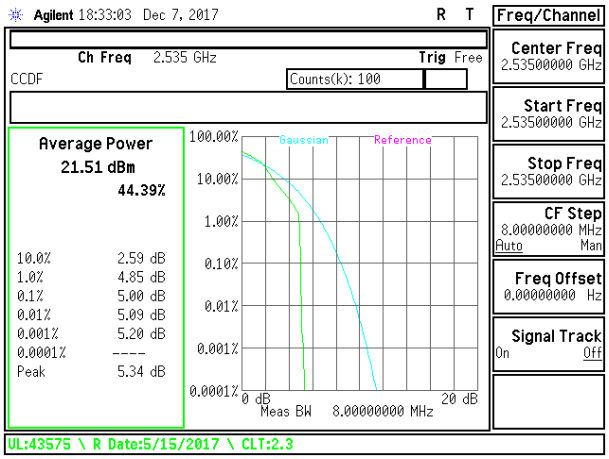
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

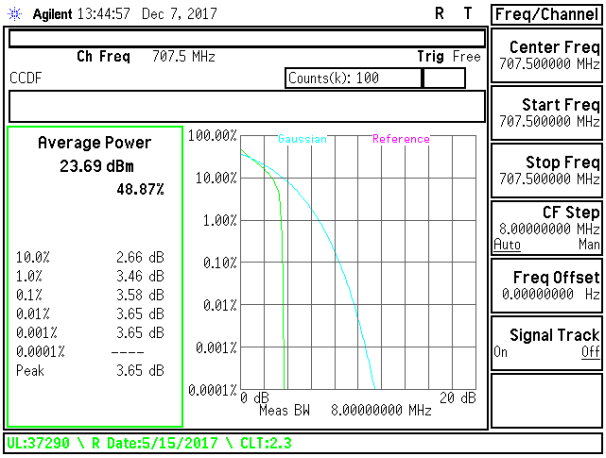


LTE B7 20MHz QPSK Middle Channel

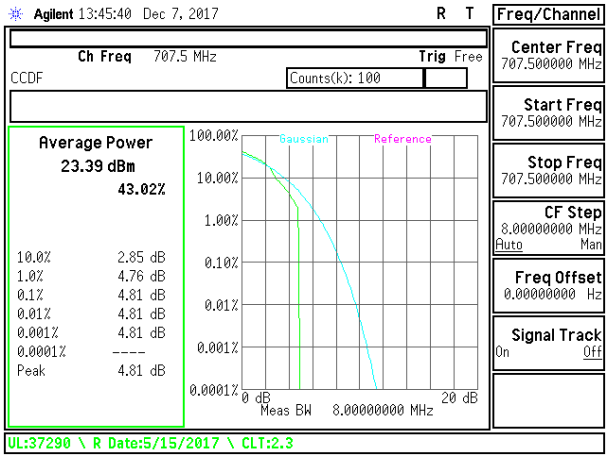


LTE B7 20MHz 16QAM Middle Channel

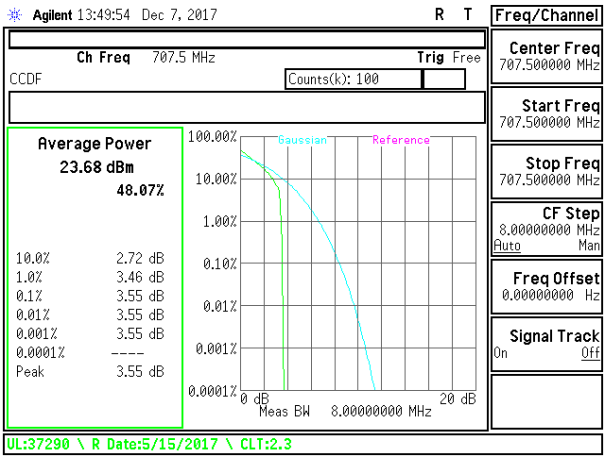
8.5.7. LTE BAND 12



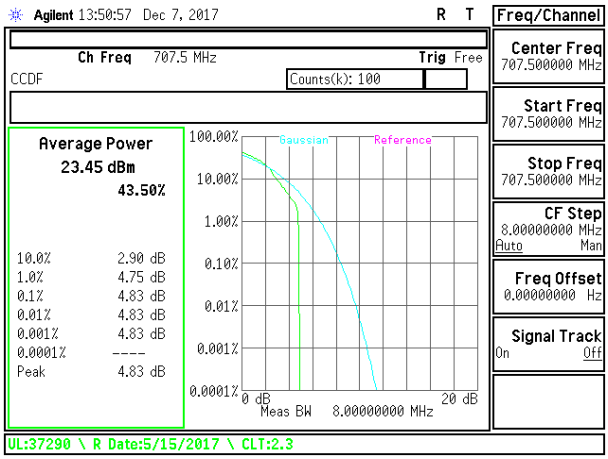
LTE B12 1.4MHz QPSK Middle Channel



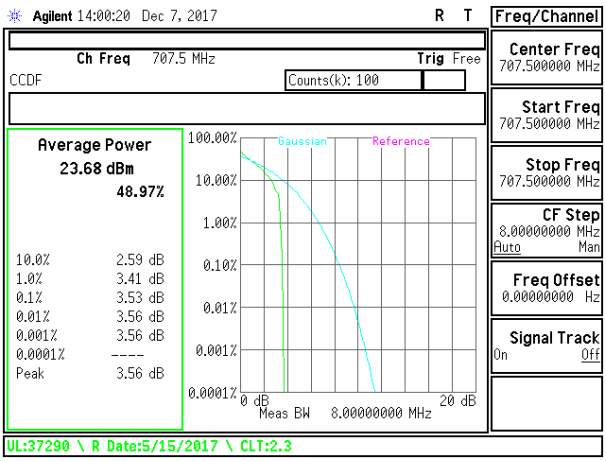
LTE B12 1.4MHz 16QAM Middle Channel



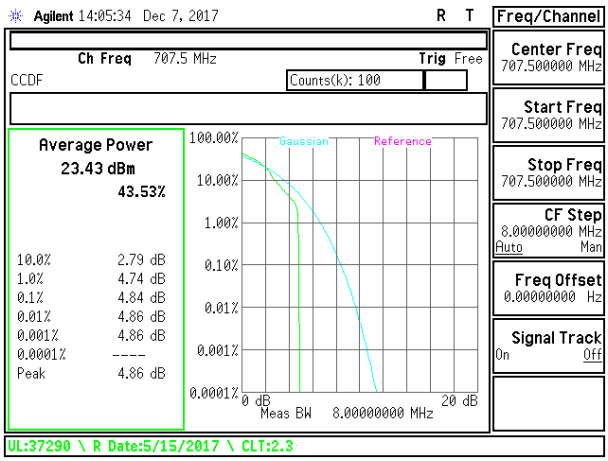
LTE B12 3MHz QPSK Middle Channel



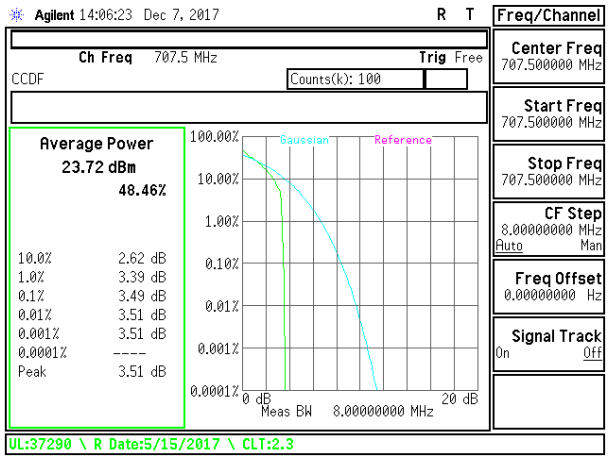
LTE B12 3MHz 16QAM Middle Channel



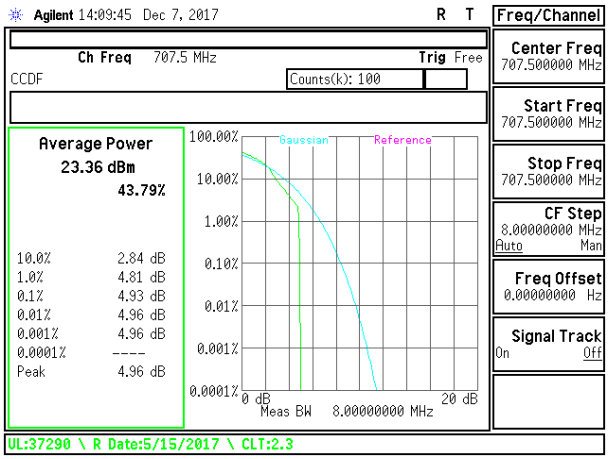
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

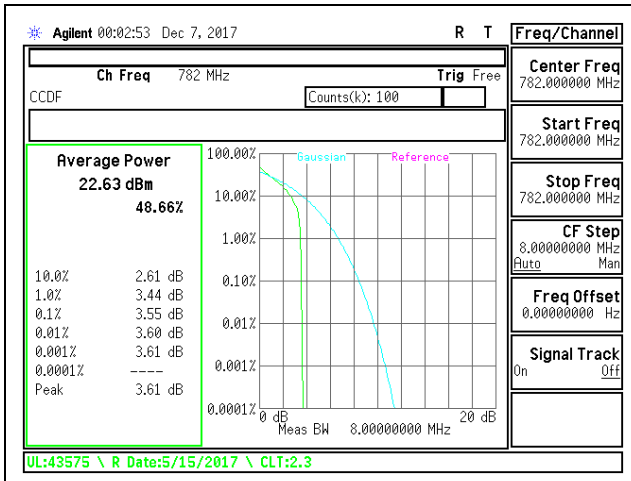


LTE B12 10MHz QPSK Middle Channel

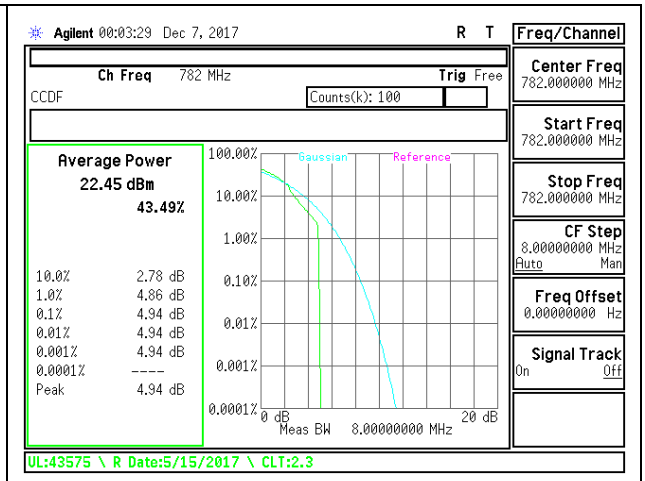


LTE B12 10MHz 16QAM Middle Channel

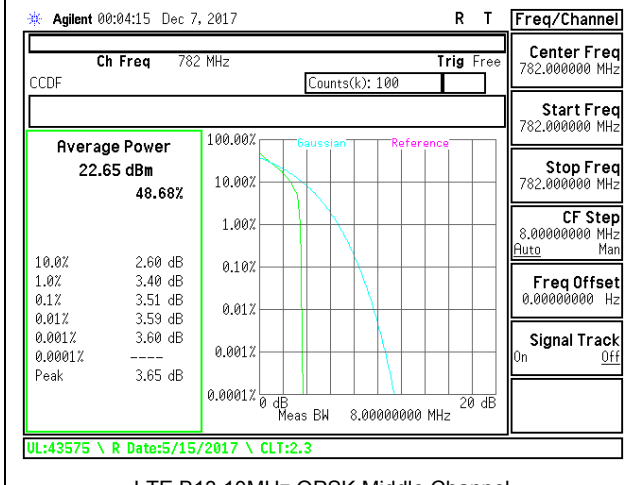
8.5.8. LTE BAND 13



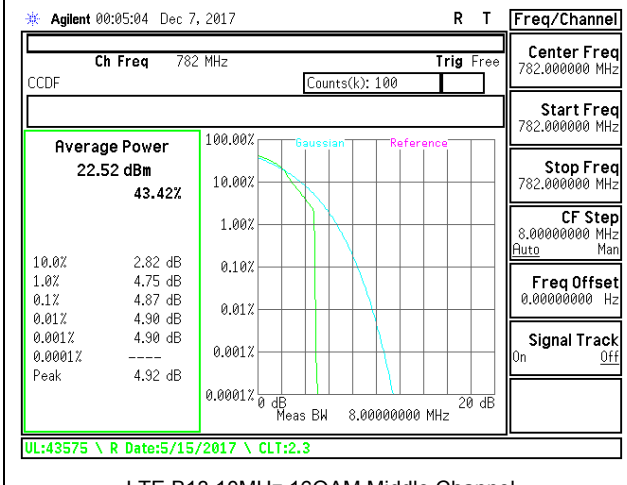
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel

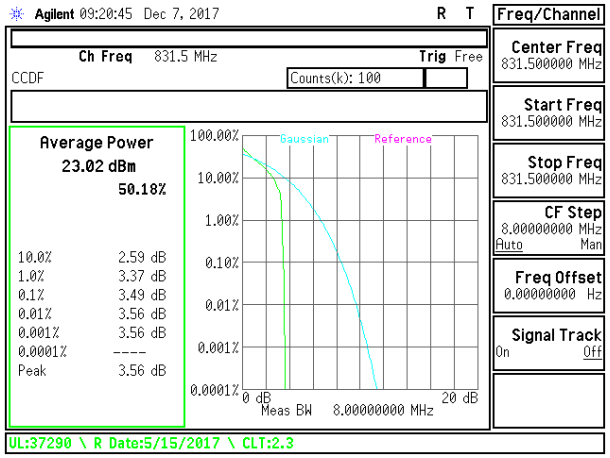


LTE B13 10MHz 16QAM Middle Channel

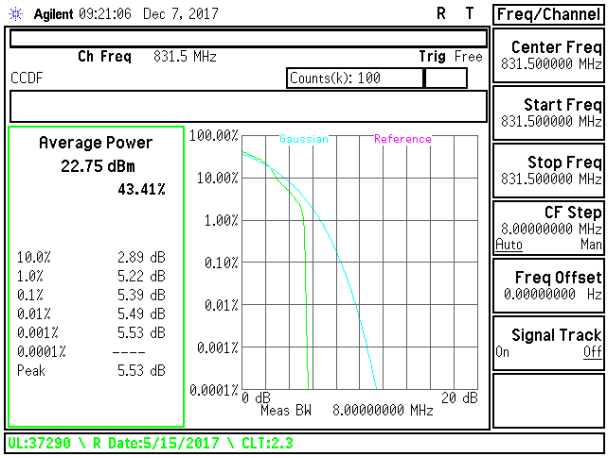
8.5.9. LTE BAND 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth (5 & 10 MHz).

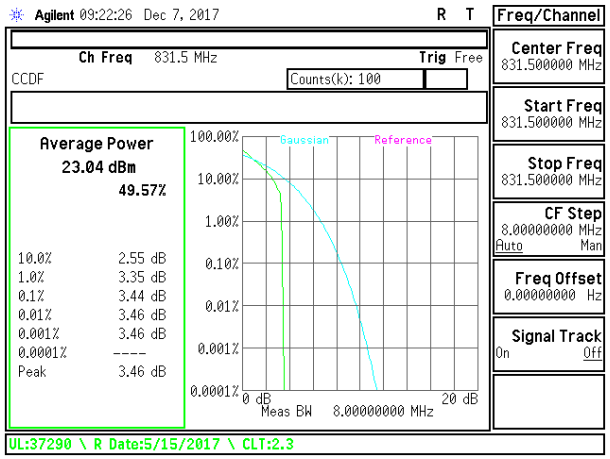
8.5.10. LTE BAND 26



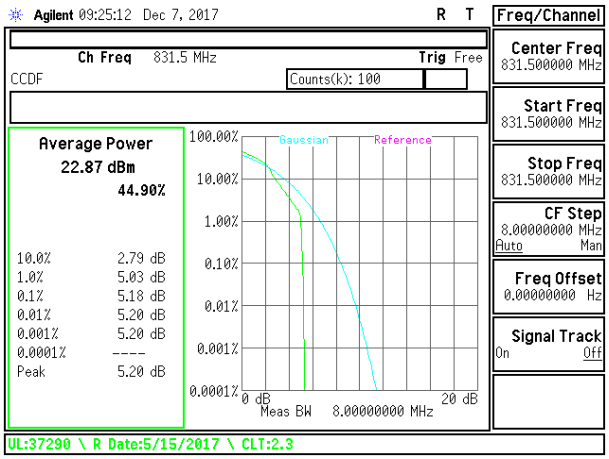
LTE B26 1.4MHz QPSK Middle Channel



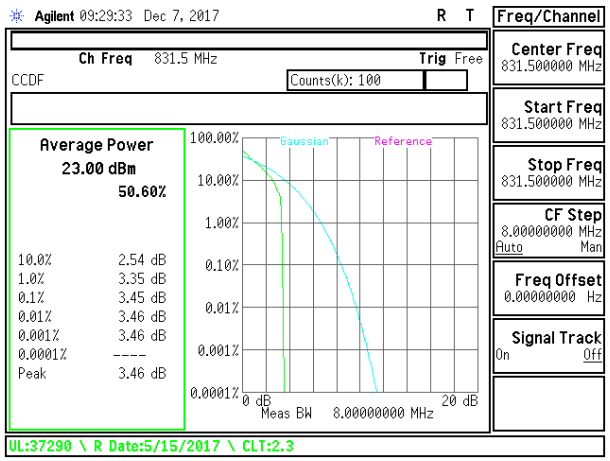
LTE B26 1.4MHz 16QAM Middle Channel



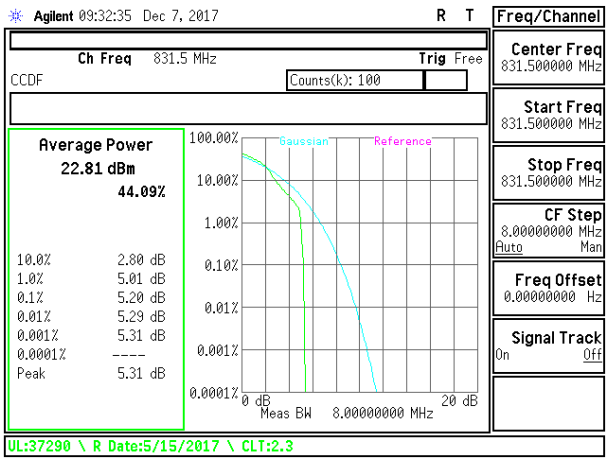
LTE B26 3MHz QPSK Middle Channel



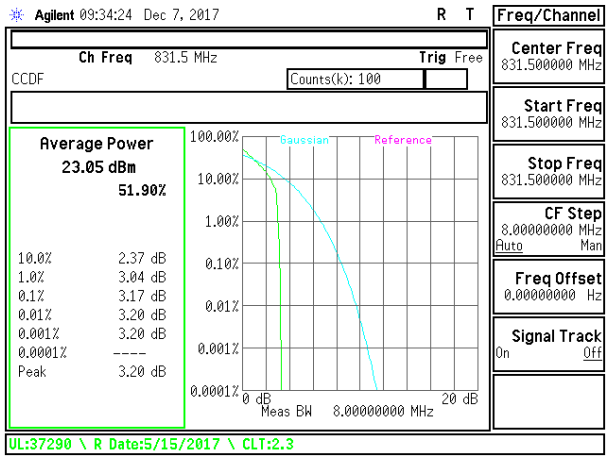
LTE B26 3MHz 16QAM Middle Channel



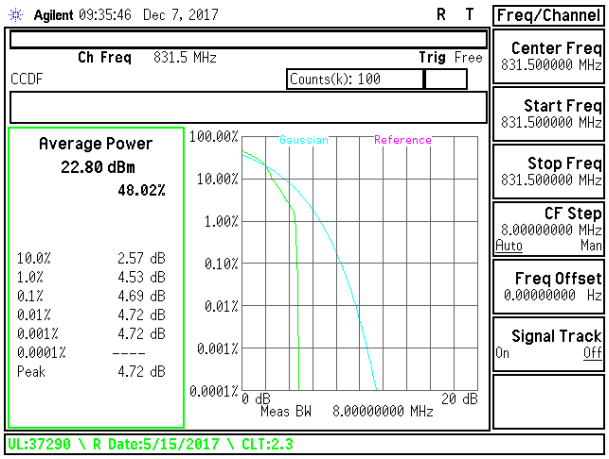
LTE B26 5MHz QPSK Middle Channel



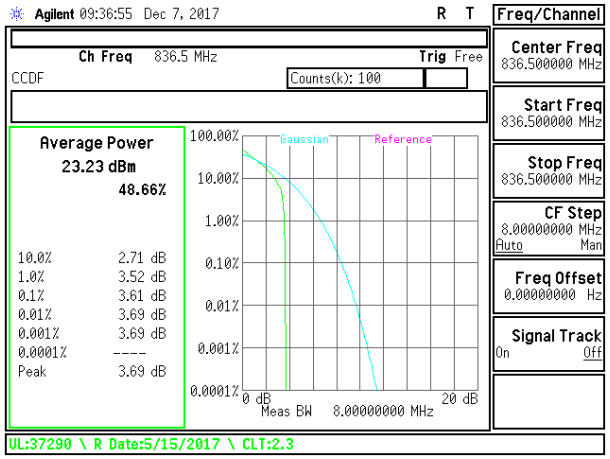
LTE B26 5MHz 16QAM Middle Channel



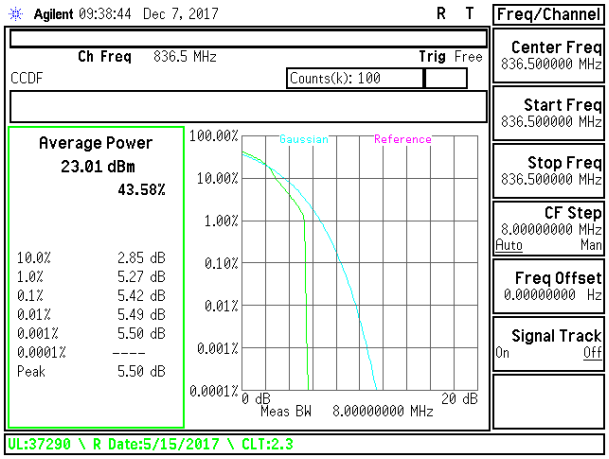
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

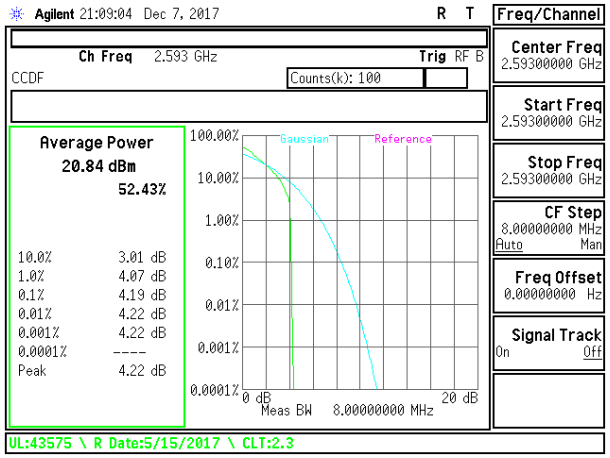


LTE B26 15MHz QPSK Middle Channel

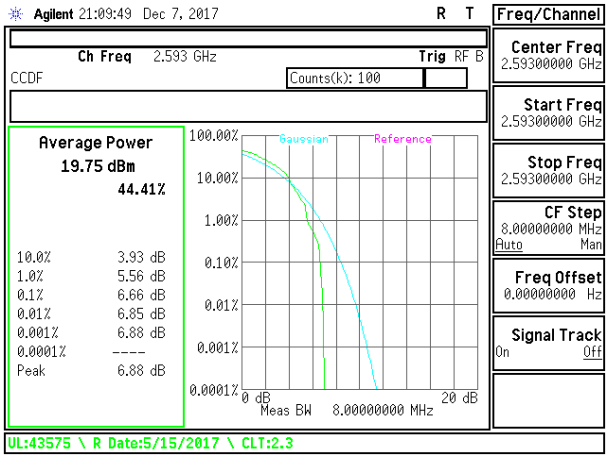


LTE B26 15MHz 16QAM Middle Channel

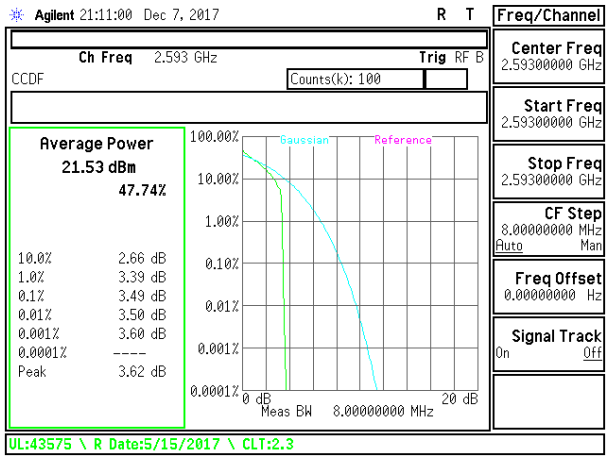
8.5.11. LTE BAND 41



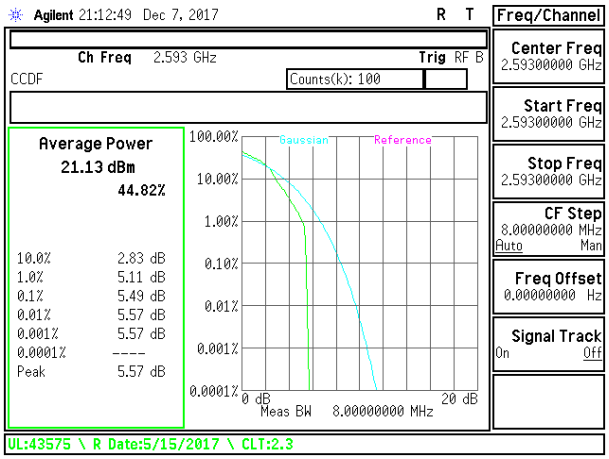
LTE B41 5MHz QPSK Middle Channel



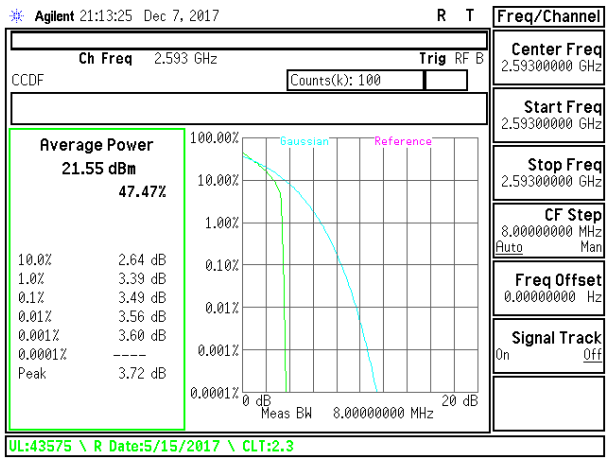
LTE B41 5MHz 16QAM Middle Channel



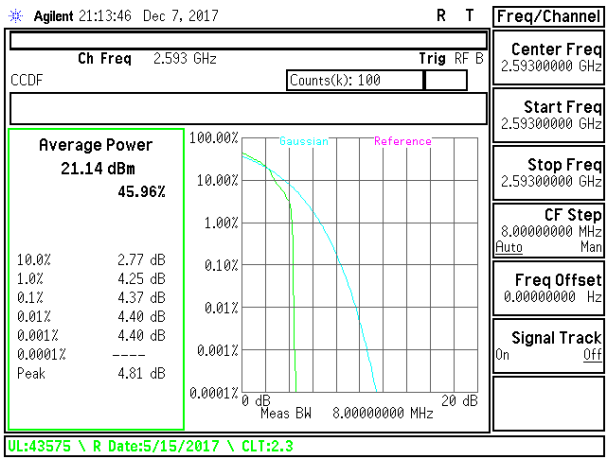
LTE B41 10MHz QPSK Middle Channel



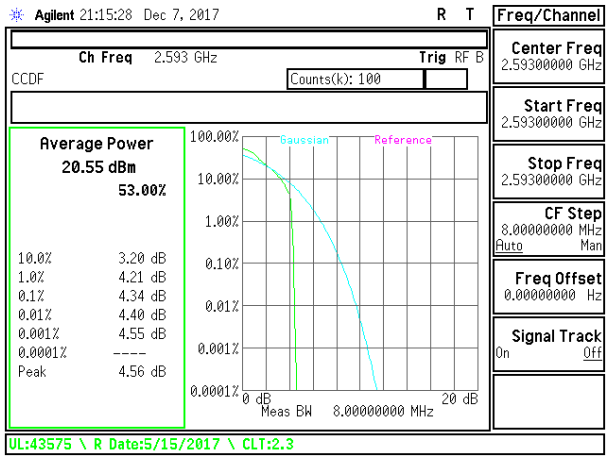
LTE B41 10MHz 16QAM Middle Channel



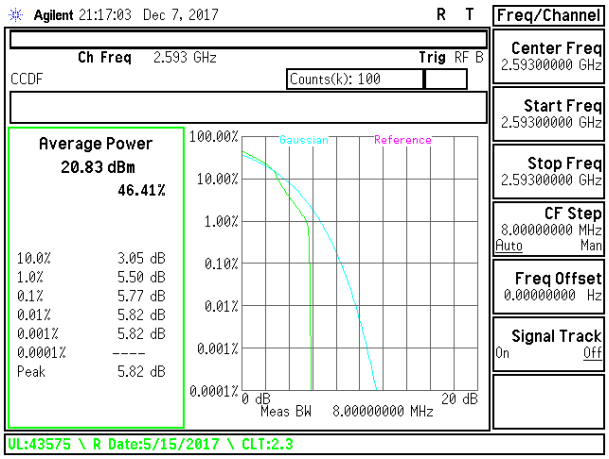
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel

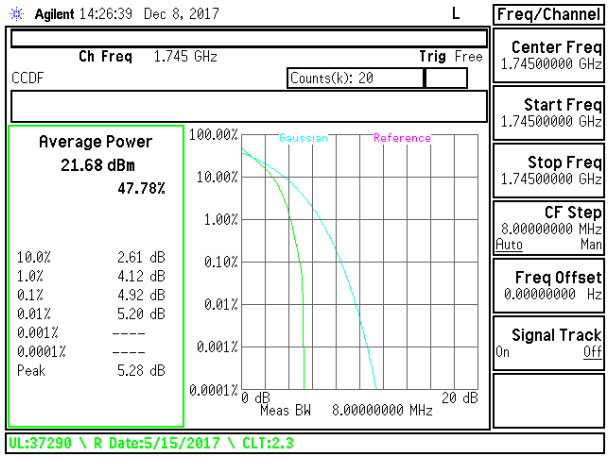


LTE B41 20MHz QPSK Middle Channel

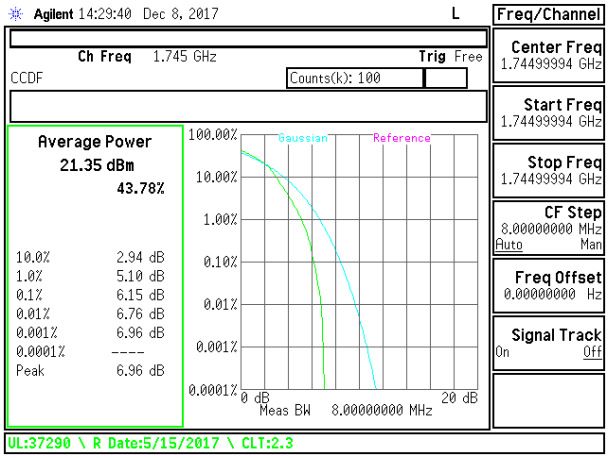


LTE B41 20MHz 16QAM Middle Channel

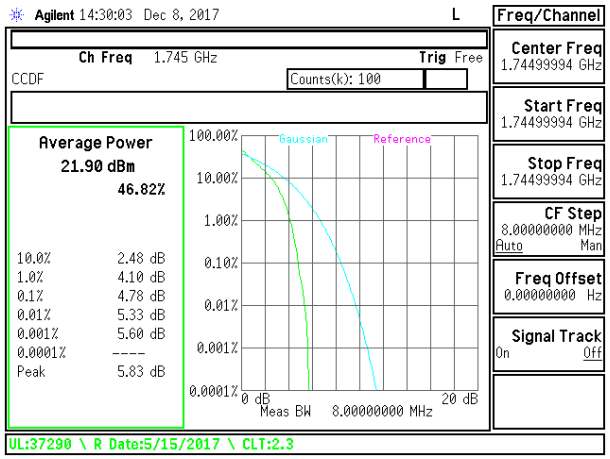
8.5.12. LTE BAND 66



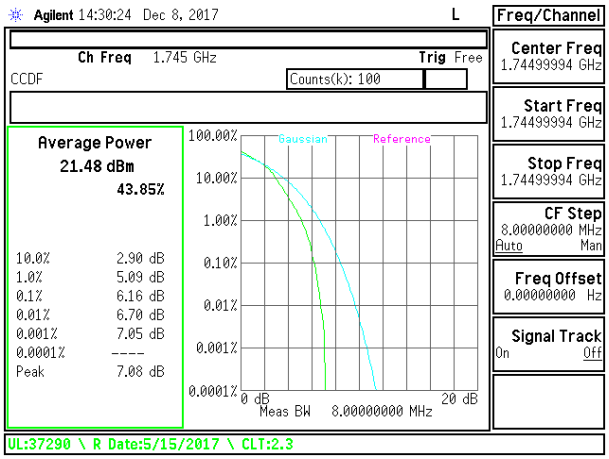
LTE B66 1.4MHz QPSK Middle Channel



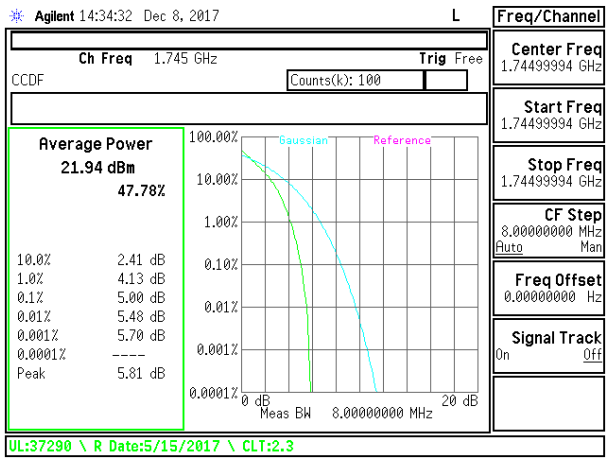
LTE B66 1.4MHz 16QAM Middle Channel



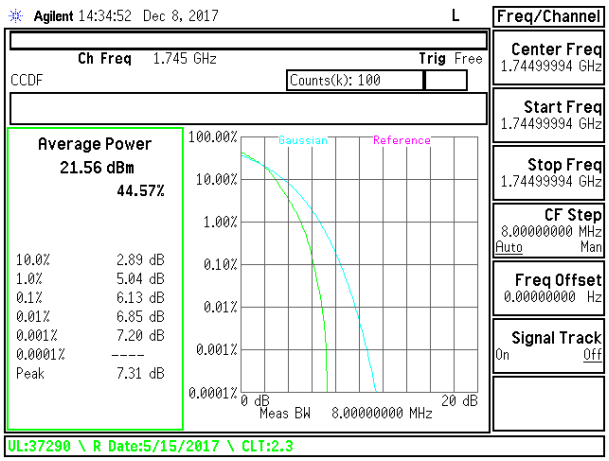
LTE B66 3MHz QPSK Middle Channel



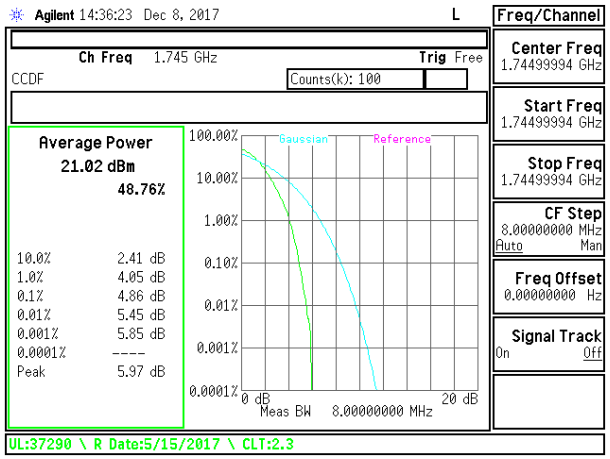
LTE B66 3MHz 16QAM Middle Channel



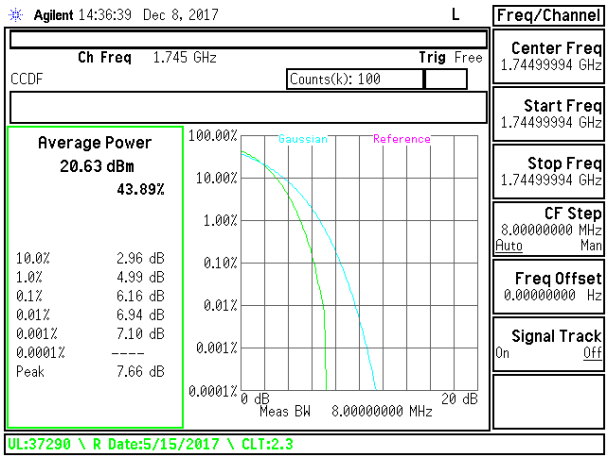
LTE B66 5MHz QPSK Middle Channel



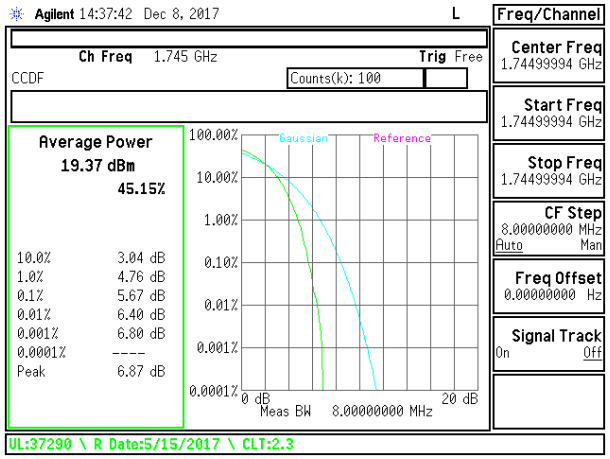
LTE B66 5MHz 16QAM Middle Channel



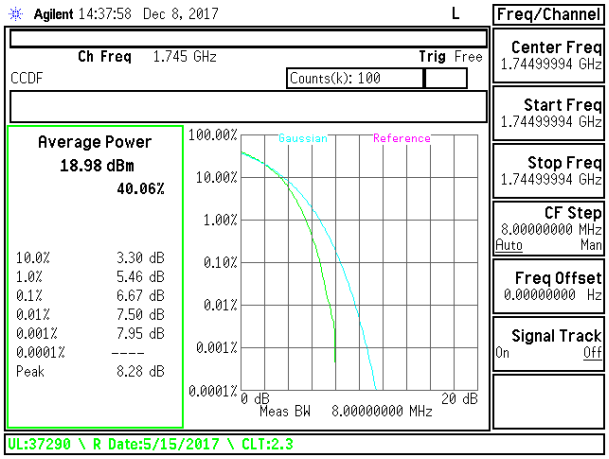
LTE B66 10MHz QPSK Middle Channel



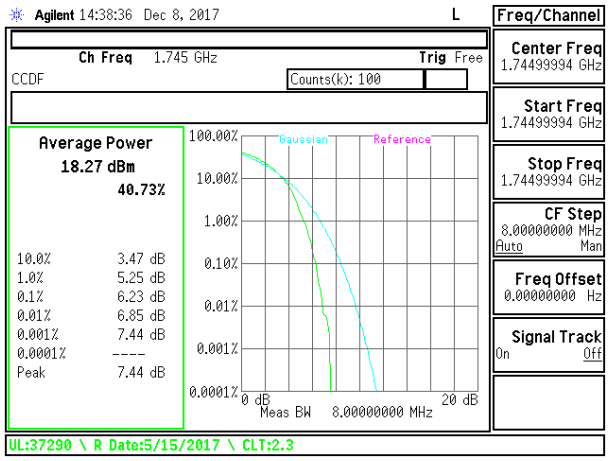
LTE B66 10MHz 16QAM Middle Channel



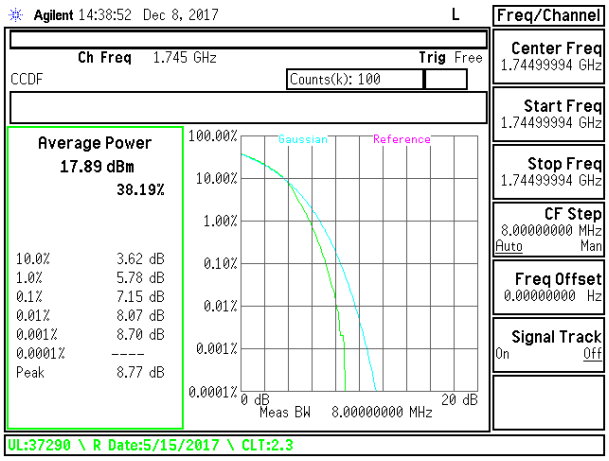
LTE B66 15MHz QPSK Middle Channel



LTE B66 15MHz 16QAM Middle Channel



LTE B66 20MHz QPSK Middle Channel



LTE B66 20MHz 16QAM Middle Channel

9. RADIATED TEST RESULTS

9.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53, §90.691

LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (g), (h), §90.691
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 (a) (Band 30)
For mobile and portable stations operating in the 2305-2315 MHz: by a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

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.

FCC: §96.41 (Band 42)
(e) 3.5 GHz Emissions and Interference Limits—
(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

TEST PROCEDURE

KDB 971168 D01 v03 / D02 v02r01

TIA-603-E, Section 2.2.12.

MODES TESTED

- GSM 850
- GSM 1900
- WCDM Band 2
- WCDM Band 4
- WCDM Band 5
- LTE Band 2
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 26
- LTE Band 41
- LTE Band 66

RESULTS

9.1.1. GSM

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
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	-25.6	V	3.0	37.0	1.0	-61.6	-13.0	-48.6	
2472.60	-25.9	V	3.0	36.4	1.0	-61.3	-13.0	-48.3	
3296.80	-24.0	V	3.0	36.2	1.0	-59.1	-13.0	-46.1	
1648.40	-25.3	H	3.0	37.0	1.0	-61.3	-13.0	-48.3	
2472.60	-25.9	H	3.0	36.4	1.0	-61.3	-13.0	-48.3	
3296.80	-24.6	H	3.0	36.2	1.0	-59.8	-13.0	-46.8	
Mid Ch, 836.6MHz									
1673.20	-25.9	V	3.0	37.0	1.0	-61.9	-13.0	-48.9	
2509.80	-26.3	V	3.0	36.4	1.0	-61.7	-13.0	-48.7	
3346.40	-24.9	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
1673.20	-30.2	H	3.0	37.0	1.0	-66.2	-13.0	-53.2	
2509.80	-25.4	H	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3346.40	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
High Ch, 848.8MHz									
1697.60	-27.1	V	3.0	37.0	1.0	-63.1	-13.0	-50.1	
2546.40	-25.6	V	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3395.20	-25.6	V	3.0	36.1	1.0	-60.7	-13.0	-47.7	
1697.60	-25.7	H	3.0	37.0	1.0	-61.7	-13.0	-48.7	
2546.40	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3395.20	-24.8	H	3.0	36.1	1.0	-59.9	-13.0	-46.9	

GSM 850MHz GPRS

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
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	-29.5	V	3.0	37.0	1.0	-65.5	-13.0	-52.5	
2472.60	-26.0	V	3.0	36.4	1.0	-61.4	-13.0	-48.4	
3296.80	-24.1	V	3.0	36.2	1.0	-59.2	-13.0	-46.2	
1648.40	-30.2	H	3.0	37.0	1.0	-66.2	-13.0	-53.2	
2472.60	-26.2	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3296.80	-24.5	H	3.0	36.2	1.0	-59.7	-13.0	-46.7	
Mid Ch, 836.6MHz									
1673.20	-28.8	V	3.0	37.0	1.0	-64.8	-13.0	-51.8	
2509.80	-25.5	V	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3346.40	-24.7	V	3.0	36.1	1.0	-59.8	-13.0	-46.8	
1673.20	-29.2	H	3.0	37.0	1.0	-65.2	-13.0	-52.2	
2509.80	-26.0	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
3346.40	-24.8	H	3.0	36.1	1.0	-59.9	-13.0	-46.9	
High Ch, 848.8MHz									
1697.60	-27.6	V	3.0	37.0	1.0	-63.6	-13.0	-50.6	
2546.40	-22.4	V	3.0	36.4	1.0	-57.9	-13.0	-44.9	
3395.20	-24.6	V	3.0	36.1	1.0	-59.7	-13.0	-46.7	
1697.60	-29.6	H	3.0	37.0	1.0	-65.6	-13.0	-52.6	
2546.40	-26.0	H	3.0	36.4	1.0	-61.4	-13.0	-48.4	
3395.20	-23.6	H	3.0	36.1	1.0	-58.7	-13.0	-45.7	

GSM 850MHz EGPRS

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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, 1850.2									
3700.40	-18.0	V	3.0	35.9	1.0	-52.8	-13.0	-39.8	
5550.60	-14.2	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7400.80	-13.6	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3700.40	-18.1	H	3.0	35.9	1.0	-52.9	-13.0	-39.9	
5550.60	-13.9	H	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7400.80	-12.0	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
Mid Ch, 1880									
3760.00	-17.5	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5640.00	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3760.00	-17.9	H	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7520.00	-11.7	H	3.0	35.7	1.0	-46.4	-13.0	-33.4	
High Ch, 1909.8									
3819.60	-17.4	V	3.0	35.8	1.0	-52.2	-13.0	-39.2	
5729.40	-14.8	V	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7639.20	-12.7	V	3.0	35.8	1.0	-47.5	-13.0	-34.5	
3819.60	-18.9	H	3.0	35.8	1.0	-53.6	-13.0	-40.6	
5729.40	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7639.20	-12.3	H	3.0	35.8	1.0	-47.0	-13.0	-34.0	

GSM 1900MHz GPRS

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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, 1850.2									
3700.40	-17.7	V	3.0	35.9	1.0	-52.5	-13.0	-39.5	
5550.60	-15.6	V	3.0	35.5	1.0	-50.1	-13.0	-37.1	
7400.80	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3700.40	-19.5	H	3.0	35.9	1.0	-54.4	-13.0	-41.4	
5550.60	-15.0	H	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7400.80	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	
Mid Ch, 1880									
3760.00	-18.1	V	3.0	35.8	1.0	-52.9	-13.0	-39.9	
5640.00	-13.1	V	3.0	35.5	1.0	-47.6	-13.0	-34.6	
7520.00	-13.2	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3760.00	-17.7	H	3.0	35.8	1.0	-52.5	-13.0	-39.5	
5640.00	-13.0	H	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7520.00	-11.6	H	3.0	35.7	1.0	-46.3	-13.0	-33.3	
High Ch, 1909.8									
3819.60	-16.9	V	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5729.40	-13.4	V	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7639.20	-13.5	V	3.0	35.8	1.0	-48.3	-13.0	-35.3	
3819.60	-18.5	H	3.0	35.8	1.0	-53.3	-13.0	-40.3	
5729.40	-12.7	H	3.0	35.5	1.0	-47.2	-13.0	-34.2	
7639.20	-11.9	H	3.0	35.8	1.0	-46.7	-13.0	-33.7	

GSM 1900MHz EGPRS

9.1.2. WCDMA

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: Rel99 Band 5 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, 826.4MHz									
1652.80	-29.6	V	3.0	37.0	1.0	-65.6	-13.0	-52.6	
2479.20	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3305.60	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1652.80	-29.7	H	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2479.20	-26.2	H	3.0	36.4	1.0	-61.7	-13.0	-48.7	
3305.60	-23.8	H	3.0	36.1	1.0	-59.0	-13.0	-46.0	
Mid Ch, 836.6MHz									
1673.20	-29.6	V	3.0	37.0	1.0	-65.6	-13.0	-52.6	
2509.80	-25.6	V	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3346.40	-24.4	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1673.20	-29.3	H	3.0	37.0	1.0	-65.3	-13.0	-52.3	
2509.80	-26.1	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
3346.40	-24.5	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	
High Ch, 846.6MHz									
1693.20	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2539.80	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3386.40	-24.6	V	3.0	36.1	1.0	-59.7	-13.0	-46.7	
1693.20	-28.9	H	3.0	37.0	1.0	-64.8	-13.0	-51.8	
2539.80	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3386.40	-24.6	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	

WCDMA Band 5 Rel 99

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: HSDPA Band 5 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, 826.4MHz									
1652.80	-29.5	V	3.0	37.0	1.0	-65.5	-13.0	-52.5	
2479.20	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3305.60	-24.5	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1652.80	-29.7	H	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2479.20	-25.6	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3305.60	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
Mid Ch, 836.6MHz									
1673.20	-29.8	V	3.0	37.0	1.0	-65.8	-13.0	-52.8	
2509.80	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3346.40	-25.3	V	3.0	36.1	1.0	-60.4	-13.0	-47.4	
1673.20	-29.1	H	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2509.80	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3346.40	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	
High Ch, 846.6MHz									
1693.20	-28.6	V	3.0	37.0	1.0	-64.6	-13.0	-51.6	
2539.80	-26.4	V	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3386.40	-23.9	V	3.0	36.1	1.0	-59.0	-13.0	-46.0	
1693.20	-29.2	H	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2539.80	-25.1	H	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3386.40	-24.5	H	3.0	36.1	1.0	-59.6	-13.0	-46.6	

WCDMA Band 5 HSDPA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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, 1852.4									
3704.80	-18.4	V	3.0	35.9	1.0	-53.3	-13.0	-40.3	
5557.20	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
7409.60	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3704.80	-18.1	H	3.0	35.9	1.0	-52.9	-13.0	-39.9	
5557.20	-14.9	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7409.60	-11.9	H	3.0	35.7	1.0	-46.7	-13.0	-33.7	
Mid Ch, 1880									
3760.00	-18.2	V	3.0	35.8	1.0	-53.0	-13.0	-40.0	
5640.00	-14.5	V	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7520.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3760.00	-18.0	H	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5640.00	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7520.00	-13.7	H	3.0	35.7	1.0	-48.5	-13.0	-35.5	
High Ch, 1907.6									
3815.20	-17.8	V	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5722.80	-14.5	V	3.0	35.5	1.0	-49.0	-13.0	-36.0	
7630.40	-13.1	V	3.0	35.8	1.0	-47.9	-13.0	-34.9	
3815.20	-18.0	H	3.0	35.8	1.0	-52.8	-13.0	-39.8	
5722.80	-13.8	H	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7630.40	-13.1	H	3.0	35.8	1.0	-47.8	-13.0	-34.8	

WCDMA Band 2 Rel 99

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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, 1852.4									
3704.80	-18.1	V	3.0	35.9	1.0	-53.0	-13.0	-40.0	
5557.20	-15.0	V	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7409.60	-14.0	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3704.80	-18.4	H	3.0	35.9	1.0	-53.3	-13.0	-40.3	
5557.20	-12.8	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7409.60	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
Mid Ch, 1880									
3760.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-15.2	V	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7520.00	-14.0	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3760.00	-16.7	H	3.0	35.8	1.0	-51.5	-13.0	-38.5	
5640.00	-14.2	H	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7520.00	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
High Ch, 1907.6									
3815.20	-17.7	V	3.0	35.8	1.0	-52.5	-13.0	-39.5	
5722.80	-14.7	V	3.0	35.5	1.0	-49.2	-13.0	-36.2	
7630.40	-12.9	V	3.0	35.8	1.0	-47.7	-13.0	-34.7	
3815.20	-17.6	H	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5722.80	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7630.40	-12.6	H	3.0	35.8	1.0	-47.4	-13.0	-34.4	

WCDMA Band 2 HSDPA

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

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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	-17.6	V	3.0	36.1	1.0	-52.7	-13.0	-39.7	
5137.20	-12.0	V	3.0	35.4	1.0	-46.4	-13.0	-33.4	
6849.60	-10.1	V	3.0	35.7	1.0	-44.8	-13.0	-31.8	
3424.80	-18.5	H	3.0	36.1	1.0	-53.6	-13.0	-40.6	
5137.20	-11.7	H	3.0	35.4	1.0	-46.2	-13.0	-33.2	
6849.60	-8.1	H	3.0	35.7	1.0	-42.8	-13.0	-29.8	
Mid Ch, 1732.6MHz									
3465.20	-16.5	V	3.0	36.0	1.0	-51.5	-13.0	-38.5	
5197.80	-11.2	V	3.0	35.4	1.0	-45.7	-13.0	-32.7	
6930.40	-11.9	V	3.0	35.7	1.0	-46.6	-13.0	-33.6	
3465.20	-16.8	H	3.0	36.0	1.0	-51.8	-13.0	-38.8	
5197.80	-11.1	H	3.0	35.4	1.0	-45.5	-13.0	-32.5	
6930.40	-9.7	H	3.0	35.7	1.0	-44.4	-13.0	-31.4	
High Ch, 1752.6MHz									
3505.20	-16.1	V	3.0	36.0	1.0	-51.1	-13.0	-38.1	
5257.80	-12.1	V	3.0	35.4	1.0	-46.5	-13.0	-33.5	
7010.40	-11.5	V	3.0	35.7	1.0	-46.2	-13.0	-33.2	
3505.20	-16.5	H	3.0	36.0	1.0	-51.5	-13.0	-38.5	
5257.80	-12.3	H	3.0	35.4	1.0	-46.7	-13.0	-33.7	
7010.40	-9.8	H	3.0	35.7	1.0	-44.5	-13.0	-31.5	

WCDMA Band 4 Rel 99

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

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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	-17.3	V	3.0	36.1	1.0	-52.3	-13.0	-39.3	
5137.20	-12.0	V	3.0	35.4	1.0	-46.4	-13.0	-33.4	
6849.60	-10.4	V	3.0	35.7	1.0	-45.0	-13.0	-32.0	
3424.80	-17.5	H	3.0	36.1	1.0	-52.6	-13.0	-39.6	
5137.20	-11.5	H	3.0	35.4	1.0	-45.9	-13.0	-32.9	
6849.60	-9.2	H	3.0	35.7	1.0	-43.9	-13.0	-30.9	
Mid Ch, 1732.6MHz									
3465.20	-15.8	V	3.0	36.0	1.0	-50.8	-13.0	-37.8	
5197.80	-11.3	V	3.0	35.4	1.0	-45.7	-13.0	-32.7	
6930.40	-11.7	V	3.0	35.7	1.0	-46.4	-13.0	-33.4	
3465.20	-16.4	H	3.0	36.0	1.0	-51.4	-13.0	-38.4	
5197.80	-11.2	H	3.0	35.4	1.0	-45.6	-13.0	-32.6	
6930.40	-11.1	H	3.0	35.7	1.0	-45.8	-13.0	-32.8	
High Ch, 1752.6MHz									
3505.20	-16.4	V	3.0	36.0	1.0	-51.5	-13.0	-38.5	
5257.80	-11.9	V	3.0	35.4	1.0	-46.4	-13.0	-33.4	
7010.40	-10.5	V	3.0	35.7	1.0	-45.2	-13.0	-32.2	
3505.20	-16.6	H	3.0	36.0	1.0	-51.6	-13.0	-38.6	
5257.80	-11.6	H	3.0	35.4	1.0	-46.1	-13.0	-33.1	
7010.40	-9.5	H	3.0	35.7	1.0	-44.2	-13.0	-31.2	

WCDMA Band 4 HSDPA

9.1.3. LTE BAND 2

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.4	V	3.0	35.9	1.0	-46.3	-13.0	-33.3	
5552.10	-8.6	V	3.0	35.5	1.0	-43.1	-13.0	-30.1	
7402.80	-6.8	V	3.0	35.7	1.0	-41.6	-13.0	-28.6	
3701.40	-11.4	H	3.0	35.9	1.0	-46.3	-13.0	-33.3	
5552.10	-8.6	H	3.0	35.5	1.0	-43.0	-13.0	-30.0	
7402.80	-6.6	H	3.0	35.7	1.0	-41.3	-13.0	-28.3	
Mid Ch, 1880MHz									
3760.00	-12.3	V	3.0	35.8	1.0	-47.2	-13.0	-34.2	
5640.00	-8.7	V	3.0	35.5	1.0	-43.2	-13.0	-30.2	
7520.00	-7.2	V	3.0	35.7	1.0	-41.9	-13.0	-28.9	
3760.00	-10.8	H	3.0	35.8	1.0	-45.6	-13.0	-32.6	
5640.00	-8.1	H	3.0	35.5	1.0	-42.6	-13.0	-29.6	
7520.00	-6.7	H	3.0	35.7	1.0	-41.5	-13.0	-28.5	
High Ch, 1909.3MHz									
3818.60	-11.1	V	3.0	35.8	1.0	-45.9	-13.0	-32.9	
5727.90	-8.3	V	3.0	35.5	1.0	-42.8	-13.0	-29.8	
7637.20	-6.4	V	3.0	35.8	1.0	-41.2	-13.0	-28.2	
3818.60	-11.7	H	3.0	35.8	1.0	-46.5	-13.0	-33.5	
5727.90	-8.6	H	3.0	35.5	1.0	-43.1	-13.0	-30.1	
7637.20	-6.2	H	3.0	35.8	1.0	-41.0	-13.0	-28.0	

LTE B2 1.4MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.5	V	3.0	35.9	1.0	-46.3	-13.0	-33.3	
5552.10	-8.8	V	3.0	35.5	1.0	-43.3	-13.0	-30.3	
7402.80	-6.1	V	3.0	35.7	1.0	-40.8	-13.0	-27.8	
3701.40	-11.7	H	3.0	35.9	1.0	-46.6	-13.0	-33.6	
5552.10	-9.2	H	3.0	35.5	1.0	-43.6	-13.0	-30.6	
7402.80	-7.8	H	3.0	35.7	1.0	-42.5	-13.0	-29.5	
Mid Ch, 1880MHz									
3760.00	-10.7	V	3.0	35.8	1.0	-45.5	-13.0	-32.5	
5640.00	-9.3	V	3.0	35.5	1.0	-43.7	-13.0	-30.7	
7520.00	-7.1	V	3.0	35.7	1.0	-41.9	-13.0	-28.9	
3760.00	-11.3	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5640.00	-9.0	H	3.0	35.5	1.0	-43.5	-13.0	-30.5	
7520.00	-7.7	H	3.0	35.7	1.0	-42.4	-13.0	-29.4	
High Ch, 1909.3MHz									
3818.60	-10.7	V	3.0	35.8	1.0	-45.5	-13.0	-32.5	
5727.90	-8.6	V	3.0	35.5	1.0	-43.1	-13.0	-30.1	
7637.20	-6.6	V	3.0	35.8	1.0	-41.3	-13.0	-28.3	
3818.60	-11.6	H	3.0	35.8	1.0	-46.4	-13.0	-33.4	
5727.90	-8.5	H	3.0	35.5	1.0	-43.0	-13.0	-30.0	
7637.20	-7.2	H	3.0	35.8	1.0	-42.0	-13.0	-29.0	

LTE B2 1.4MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.9	V	3.0	35.9	1.0	-46.8	-13.0	-33.8	
5554.50	-8.1	V	3.0	35.5	1.0	-42.5	-13.0	-29.5	
7406.00	-7.4	V	3.0	35.7	1.0	-42.1	-13.0	-29.1	
3703.00	-10.6	H	3.0	35.9	1.0	-45.4	-13.0	-32.4	
5554.50	-9.1	H	3.0	35.5	1.0	-43.6	-13.0	-30.6	
7406.00	-7.1	H	3.0	35.7	1.0	-41.9	-13.0	-28.9	
Mid Ch, 1880MHz									
3760.00	-10.4	V	3.0	35.8	1.0	-45.2	-13.0	-32.2	
5640.00	-7.7	V	3.0	35.5	1.0	-42.1	-13.0	-29.1	
7520.00	-5.8	V	3.0	35.7	1.0	-40.5	-13.0	-27.5	
3760.00	-11.3	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5640.00	-7.7	H	3.0	35.5	1.0	-42.1	-13.0	-29.1	
7520.00	-6.0	H	3.0	35.7	1.0	-40.8	-13.0	-27.8	
High Ch, 1908.5MHz									
3817.00	-12.3	V	3.0	35.8	1.0	-47.1	-13.0	-34.1	
5725.50	-9.0	V	3.0	35.5	1.0	-43.5	-13.0	-30.5	
7634.00	-6.1	V	3.0	35.8	1.0	-40.9	-13.0	-27.9	
3817.00	-11.8	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	
5725.50	-7.1	H	3.0	35.5	1.0	-41.6	-13.0	-28.6	
7634.00	-6.5	H	3.0	35.8	1.0	-41.2	-13.0	-28.2	

LTE B2 3MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-10.8	V	3.0	35.9	1.0	-45.7	-13.0	-32.7	
5554.50	-8.1	V	3.0	35.5	1.0	-42.5	-13.0	-29.5	
7406.00	-6.9	V	3.0	35.7	1.0	-41.7	-13.0	-28.7	
3703.00	-10.8	H	3.0	35.9	1.0	-45.7	-13.0	-32.7	
5554.50	-8.4	H	3.0	35.5	1.0	-42.9	-13.0	-29.9	
7406.00	-7.0	H	3.0	35.7	1.0	-41.7	-13.0	-28.7	
Mid Ch, 1880MHz									
3760.00	-9.4	V	3.0	35.8	1.0	-44.3	-13.0	-31.3	
5640.00	-7.4	V	3.0	35.5	1.0	-41.9	-13.0	-28.9	
7520.00	-6.5	V	3.0	35.7	1.0	-41.2	-13.0	-28.2	
3760.00	-9.4	H	3.0	35.8	1.0	-44.2	-13.0	-31.2	
5640.00	-7.4	H	3.0	35.5	1.0	-41.9	-13.0	-28.9	
7520.00	-5.5	H	3.0	35.7	1.0	-40.3	-13.0	-27.3	
High Ch, 1908.5MHz									
3817.00	-11.4	V	3.0	35.8	1.0	-46.2	-13.0	-33.2	
5725.50	-7.1	V	3.0	35.5	1.0	-41.6	-13.0	-28.6	
7634.00	-6.5	V	3.0	35.8	1.0	-41.2	-13.0	-28.2	
3817.00	-10.7	H	3.0	35.8	1.0	-45.5	-13.0	-32.5	
5725.50	-10.1	H	3.0	35.5	1.0	-44.6	-13.0	-31.6	
7634.00	-6.3	H	3.0	35.8	1.0	-41.1	-13.0	-28.1	

LTE B2 3MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-10.6	V	3.0	35.9	1.0	-45.4	-13.0	-32.4	
5557.50	-7.1	V	3.0	35.5	1.0	-41.6	-13.0	-28.6	
7410.00	-5.0	V	3.0	35.7	1.0	-39.7	-13.0	-26.7	
3705.00	-13.0	H	3.0	35.9	1.0	-47.9	-13.0	-34.9	
5557.50	-9.1	H	3.0	35.5	1.0	-43.6	-13.0	-30.6	
7410.00	-7.8	H	3.0	35.7	1.0	-42.5	-13.0	-29.5	
Mid Ch, 1880MHz									
3760.00	-12.0	V	3.0	35.8	1.0	-46.9	-13.0	-33.9	
5640.00	-9.5	V	3.0	35.5	1.0	-44.0	-13.0	-31.0	
7520.00	-7.7	V	3.0	35.7	1.0	-42.5	-13.0	-29.5	
3760.00	-11.3	H	3.0	35.8	1.0	-46.2	-13.0	-33.2	
5640.00	-8.4	H	3.0	35.5	1.0	-42.9	-13.0	-29.9	
7520.00	-6.2	H	3.0	35.7	1.0	-41.0	-13.0	-28.0	
High Ch, 1907.5MHz									
3815.00	-10.1	V	3.0	35.8	1.0	-44.9	-13.0	-31.9	
5722.50	-8.2	V	3.0	35.5	1.0	-42.7	-13.0	-29.7	
7630.00	-6.2	V	3.0	35.8	1.0	-40.9	-13.0	-27.9	
3815.00	-10.6	H	3.0	35.8	1.0	-45.4	-13.0	-32.4	
5722.50	-7.2	H	3.0	35.5	1.0	-41.7	-13.0	-28.7	
7630.00	-5.7	H	3.0	35.8	1.0	-40.5	-13.0	-27.5	

LTE B2 5MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.5	V	3.0	35.9	1.0	-46.3	-13.0	-33.3	
5557.50	-7.7	V	3.0	35.5	1.0	-42.1	-13.0	-29.1	
7410.00	-6.0	V	3.0	35.7	1.0	-40.7	-13.0	-27.7	
3705.00	-10.6	H	3.0	35.9	1.0	-45.5	-13.0	-32.5	
5557.50	-7.9	H	3.0	35.5	1.0	-42.4	-13.0	-29.4	
7410.00	-6.0	H	3.0	35.7	1.0	-40.7	-13.0	-27.7	
Mid Ch, 1880MHz									
3760.00	-10.2	V	3.0	35.8	1.0	-45.0	-13.0	-32.0	
5640.00	-8.1	V	3.0	35.5	1.0	-42.6	-13.0	-29.6	
7520.00	-5.9	V	3.0	35.7	1.0	-40.7	-13.0	-27.7	
3760.00	-9.6	H	3.0	35.8	1.0	-44.4	-13.0	-31.4	
5640.00	-7.5	H	3.0	35.5	1.0	-42.0	-13.0	-29.0	
7520.00	-5.5	H	3.0	35.7	1.0	-40.3	-13.0	-27.3	
High Ch, 1907.5MHz									
3815.00	-9.9	V	3.0	35.8	1.0	-44.6	-13.0	-31.6	
5722.50	-6.5	V	3.0	35.5	1.0	-41.0	-13.0	-28.0	
7630.00	-5.3	V	3.0	35.8	1.0	-40.1	-13.0	-27.1	
3815.00	-10.3	H	3.0	35.8	1.0	-45.1	-13.0	-32.1	
5722.50	-8.6	H	3.0	35.5	1.0	-43.1	-13.0	-30.1	
7630.00	-6.8	H	3.0	35.8	1.0	-41.6	-13.0	-28.6	

LTE B2 5MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-10.7	V	3.0	35.9	1.0	-45.5	-13.0	-32.5	
5565.00	-7.2	V	3.0	35.5	1.0	-41.7	-13.0	-28.7	
7420.00	-5.7	V	3.0	35.7	1.0	-40.4	-13.0	-27.4	
3710.00	-11.0	H	3.0	35.9	1.0	-45.8	-13.0	-32.8	
5565.00	-8.1	H	3.0	35.5	1.0	-42.6	-13.0	-29.6	
7420.00	-6.4	H	3.0	35.7	1.0	-41.1	-13.0	-28.1	
Mid Ch, 1880MHz									
3760.00	-10.2	V	3.0	35.8	1.0	-45.0	-13.0	-32.0	
5640.00	-7.4	V	3.0	35.5	1.0	-41.9	-13.0	-28.9	
7520.00	-5.6	V	3.0	35.7	1.0	-40.4	-13.0	-27.4	
3760.00	-9.5	H	3.0	35.8	1.0	-44.3	-13.0	-31.3	
5640.00	-7.8	H	3.0	35.5	1.0	-42.3	-13.0	-29.3	
7520.00	-6.3	H	3.0	35.7	1.0	-41.0	-13.0	-28.0	
High Ch, 1905MHz									
3810.00	-11.4	V	3.0	35.8	1.0	-46.2	-13.0	-33.2	
5715.00	-7.8	V	3.0	35.5	1.0	-42.2	-13.0	-29.2	
7620.00	-5.1	V	3.0	35.8	1.0	-39.9	-13.0	-26.9	
3810.00	-10.9	H	3.0	35.8	1.0	-45.7	-13.0	-32.7	
5715.00	-7.7	H	3.0	35.5	1.0	-42.2	-13.0	-29.2	
7620.00	-6.8	H	3.0	35.8	1.0	-41.6	-13.0	-28.6	

LTE B2 10MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.2	V	3.0	35.9	1.0	-46.1	-13.0	-33.1	
5565.00	-8.5	V	3.0	35.5	1.0	-43.0	-13.0	-30.0	
7420.00	-7.3	V	3.0	35.7	1.0	-42.1	-13.0	-29.1	
3710.00	-11.9	H	3.0	35.9	1.0	-46.8	-13.0	-33.8	
5565.00	-8.2	H	3.0	35.5	1.0	-42.6	-13.0	-29.6	
7420.00	-6.8	H	3.0	35.7	1.0	-41.6	-13.0	-28.6	
Mid Ch, 1880MHz									
3760.00	-11.2	V	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5640.00	-6.9	V	3.0	35.5	1.0	-41.4	-13.0	-28.4	
7520.00	-5.3	V	3.0	35.7	1.0	-40.0	-13.0	-27.0	
3760.00	-10.2	H	3.0	35.8	1.0	-45.0	-13.0	-32.0	
5640.00	-7.4	H	3.0	35.5	1.0	-41.9	-13.0	-28.9	
7520.00	-5.8	H	3.0	35.7	1.0	-40.6	-13.0	-27.6	
High Ch, 1905MHz									
3810.00	-10.3	V	3.0	35.8	1.0	-45.1	-13.0	-32.1	
5715.00	-8.2	V	3.0	35.5	1.0	-42.7	-13.0	-29.7	
7620.00	-6.3	V	3.0	35.8	1.0	-41.1	-13.0	-28.1	
3810.00	-10.2	H	3.0	35.8	1.0	-45.0	-13.0	-32.0	
5715.00	-8.2	H	3.0	35.5	1.0	-42.7	-13.0	-29.7	
7620.00	-6.2	H	3.0	35.8	1.0	-41.0	-13.0	-28.0	

LTE B2 10MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-10.9	V	3.0	35.8	1.0	-45.7	-13.0	-32.7	
5572.50	-7.8	V	3.0	35.5	1.0	-42.3	-13.0	-29.3	
7430.00	-7.2	V	3.0	35.7	1.0	-42.0	-13.0	-29.0	
3715.00	-11.2	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5572.50	-8.1	H	3.0	35.5	1.0	-42.6	-13.0	-29.6	
7430.00	-6.8	H	3.0	35.7	1.0	-41.6	-13.0	-28.6	
Mid Ch, 1880MHz									
3760.00	-11.1	V	3.0	35.8	1.0	-45.9	-13.0	-32.9	
5640.00	-8.8	V	3.0	35.5	1.0	-43.3	-13.0	-30.3	
7520.00	-7.0	V	3.0	35.7	1.0	-41.7	-13.0	-28.7	
3760.00	-9.3	H	3.0	35.8	1.0	-44.1	-13.0	-31.1	
5640.00	-7.2	H	3.0	35.5	1.0	-41.7	-13.0	-28.7	
7520.00	-5.9	H	3.0	35.7	1.0	-40.6	-13.0	-27.6	
High Ch, 1902.5MHz									
3805.00	-10.4	V	3.0	35.8	1.0	-45.2	-13.0	-32.2	
5707.50	-7.8	V	3.0	35.5	1.0	-42.3	-13.0	-29.3	
7610.00	-5.3	V	3.0	35.8	1.0	-40.1	-13.0	-27.1	
3805.00	-10.4	H	3.0	35.8	1.0	-45.2	-13.0	-32.2	
5707.50	-7.9	H	3.0	35.5	1.0	-42.4	-13.0	-29.4	
7610.00	-6.4	H	3.0	35.8	1.0	-41.2	-13.0	-28.2	

LTE B2 15MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber A
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	-11.2	V	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5572.50	-8.6	V	3.0	35.5	1.0	-43.0	-13.0	-30.0	
7430.00	-5.6	V	3.0	35.7	1.0	-40.3	-13.0	-27.3	
3715.00	-11.6	H	3.0	35.8	1.0	-46.4	-13.0	-33.4	
5572.50	-8.6	H	3.0	35.5	1.0	-43.1	-13.0	-30.1	
7430.00	-5.6	H	3.0	35.7	1.0	-40.3	-13.0	-27.3	
Mid Ch, 1880MHz									
3760.00	-11.8	V	3.0	35.8	1.0	-46.6	-13.0	-33.6	
5640.00	-9.4	V	3.0	35.5	1.0	-43.8	-13.0	-30.8	
7520.00	-7.6	V	3.0	35.7	1.0	-42.4	-13.0	-29.4	
3760.00	-11.8	H	3.0	35.8	1.0	-46.6	-13.0	-33.6	
5640.00	-9.2	H	3.0	35.5	1.0	-43.6	-13.0	-30.6	
7520.00	-7.5	H	3.0	35.7	1.0	-42.3	-13.0	-29.3	
High Ch, 1902.5MHz									
3805.00	-10.0	V	3.0	35.8	1.0	-44.8	-13.0	-31.8	
5707.50	-7.1	V	3.0	35.5	1.0	-41.6	-13.0	-28.6	
7610.00	-4.8	V	3.0	35.8	1.0	-39.6	-13.0	-26.6	
3805.00	-10.7	H	3.0	35.8	1.0	-45.4	-13.0	-32.4	
5707.50	-7.5	H	3.0	35.5	1.0	-42.0	-13.0	-29.0	
7610.00	-6.2	H	3.0	35.8	1.0	-41.0	-13.0	-28.0	

LTE B2 15MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/14/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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	-16.3	V	3.0	35.8	1.0	-51.1	-13.0	-38.1	
5572.50	-11.4	V	3.0	35.5	1.0	-45.9	-13.0	-32.9	
7430.00	-10.2	V	3.0	35.7	1.0	-44.9	-13.0	-31.9	
3715.00	-15.6	H	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5572.50	-11.5	H	3.0	35.5	1.0	-45.9	-13.0	-32.9	
7430.00	-10.1	H	3.0	35.7	1.0	-44.8	-13.0	-31.8	
Mid Ch, 1880MHz									
3760.00	-16.2	V	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5640.00	-10.9	V	3.0	35.5	1.0	-45.4	-13.0	-32.4	
7520.00	-9.9	V	3.0	35.7	1.0	-44.6	-13.0	-31.6	
3760.00	-15.8	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-10.5	H	3.0	35.5	1.0	-44.9	-13.0	-31.9	
7520.00	-9.9	H	3.0	35.7	1.0	-44.6	-13.0	-31.6	
High Ch, 1902.5MHz									
3805.00	-16.0	V	3.0	35.8	1.0	-50.8	-13.0	-37.8	
5707.50	-9.8	V	3.0	35.5	1.0	-44.3	-13.0	-31.3	
7610.00	-8.8	V	3.0	35.8	1.0	-43.6	-13.0	-30.6	
3805.00	-15.7	H	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5707.50	-13.0	H	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7610.00	-9.0	H	3.0	35.8	1.0	-43.7	-13.0	-30.7	

LTE B2 20MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/12/2017
Test Engineer: 37290
Configuration: EUT + HS + Charger
Location: Chamber C
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	-15.3	V	3.0	35.8	1.0	-50.1	-13.0	-37.1	
5580.00	-11.2	V	3.0	35.5	1.0	-45.7	-13.0	-32.7	
7440.00	-10.2	V	3.0	35.7	1.0	-44.9	-13.0	-31.9	
3720.00	-16.6	H	3.0	35.8	1.0	-51.5	-13.0	-38.5	
5580.00	-10.9	H	3.0	35.5	1.0	-45.3	-13.0	-32.3	
7440.00	-10.0	H	3.0	35.7	1.0	-44.7	-13.0	-31.7	
Mid Ch, 1880MHz									
3760.00	-15.0	V	3.0	35.8	1.0	-49.8	-13.0	-36.8	
5640.00	-10.4	V	3.0	35.5	1.0	-44.8	-13.0	-31.8	
7520.00	-9.4	V	3.0	35.7	1.0	-44.1	-13.0	-31.1	
3760.00	-15.7	H	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5640.00	-10.4	H	3.0	35.5	1.0	-44.9	-13.0	-31.9	
7520.00	-9.2	H	3.0	35.7	1.0	-43.9	-13.0	-30.9	
High Ch, 1900MHz									
3800.00	-15.0	V	3.0	35.8	1.0	-49.7	-13.0	-36.7	
5700.00	-9.2	V	3.0	35.5	1.0	-43.7	-13.0	-30.7	
7600.00	-8.5	V	3.0	35.8	1.0	-43.2	-13.0	-30.2	
3800.00	-15.4	H	3.0	35.8	1.0	-50.2	-13.0	-37.2	
5700.00	-10.4	H	3.0	35.5	1.0	-44.9	-13.0	-31.9	
7600.00	-9.1	H	3.0	35.8	1.0	-43.9	-13.0	-30.9	

LTE B2 20MHz 16QAM

9.1.4. LTE BAND 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

9.1.5. LTE BAND 5

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_QPSK Band 5 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, 824.7 MHz									
1629.40	-29.8	V	3.0	37.1	1.0	-65.8	-13.0	-52.8	
2444.10	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3258.80	-24.2	V	3.0	36.2	1.0	-59.4	-13.0	-46.4	
1629.40	-30.4	H	3.0	37.1	1.0	-66.4	-13.0	-53.4	
2444.10	-26.2	H	3.0	36.4	1.0	-61.7	-13.0	-48.7	
3258.80	-24.6	H	3.0	36.2	1.0	-59.8	-13.0	-46.8	
Mid Ch, 836.5 MHz									
1663.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2494.50	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3326.00	-24.8	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
1663.00	-29.3	H	3.0	37.0	1.0	-65.3	-13.0	-52.3	
2494.50	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3326.00	-24.5	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
High Ch, 848.3 MHz									
1696.60	-28.7	V	3.0	37.0	1.0	-64.7	-13.0	-51.7	
2544.90	-23.2	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3393.20	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1696.60	-29.1	H	3.0	37.0	1.0	-65.0	-13.0	-52.0	
2544.90	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3393.20	-23.7	H	3.0	36.1	1.0	-58.8	-13.0	-45.8	

LTE B5 1.4MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_16QAM Band 5 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, 824.7 MHz									
1629.40	-30.3	V	3.0	37.1	1.0	-66.4	-13.0	-53.4	
2444.10	-26.5	V	3.0	36.4	1.0	-62.0	-13.0	-49.0	
3258.80	-24.0	V	3.0	36.2	1.0	-59.2	-13.0	-46.2	
1629.40	-30.3	H	3.0	37.1	1.0	-66.3	-13.0	-53.3	
2444.10	-26.0	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
3258.80	-24.5	H	3.0	36.2	1.0	-59.7	-13.0	-46.7	
Mid Ch, 836.5 MHz									
1663.00	-29.0	V	3.0	37.0	1.0	-65.0	-13.0	-52.0	
2494.50	-25.4	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3326.00	-25.1	V	3.0	36.1	1.0	-60.3	-13.0	-47.3	
1663.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3326.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	
High Ch, 848.3 MHz									
1696.60	-29.4	V	3.0	37.0	1.0	-65.4	-13.0	-52.4	
2544.90	-23.7	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3393.20	-24.9	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
1696.60	-29.1	H	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2544.90	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3393.20	-24.1	H	3.0	36.1	1.0	-59.1	-13.0	-46.1	

LTE B5 1.4MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_QPSK Band 5 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, 825.5MHz									
1631.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2446.50	-26.5	V	3.0	36.4	1.0	-61.9	-13.0	-48.9	
3262.00	-24.1	V	3.0	36.2	1.0	-59.3	-13.0	-46.3	
1631.00	-30.4	H	3.0	37.0	1.0	-66.4	-13.0	-53.4	
2446.50	-26.1	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3262.00	-24.7	H	3.0	36.2	1.0	-59.9	-13.0	-46.9	
Mid Ch, 836.5MHz									
1663.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2494.50	-26.4	V	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3326.00	-24.5	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1663.00	-30.2	H	3.0	37.0	1.0	-66.2	-13.0	-53.2	
2494.50	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3326.00	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
High Ch, 847.5MHz									
1695.00	-28.9	V	3.0	37.0	1.0	-64.9	-13.0	-51.9	
2542.50	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3390.00	-24.1	V	3.0	36.1	1.0	-59.2	-13.0	-46.2	
1695.00	-29.8	H	3.0	37.0	1.0	-65.8	-13.0	-52.8	
2542.50	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3390.00	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	

LTE B5 3MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_16QAM Band 5 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, 825.5MHz									
1631.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2446.50	-25.7	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3262.00	-24.7	V	3.0	36.2	1.0	-59.9	-13.0	-46.9	
1631.00	-30.2	H	3.0	37.0	1.0	-66.3	-13.0	-53.3	
2446.50	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3262.00	-24.2	H	3.0	36.2	1.0	-59.4	-13.0	-46.4	
Mid Ch, 836.5MHz									
1663.00	-30.1	V	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-25.3	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3326.00	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1663.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3326.00	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
High Ch, 847.5MHz									
1695.00	-29.1	V	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2542.50	-24.3	V	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3390.00	-24.6	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1695.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2542.50	-26.2	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3390.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	

LTE B5 3MHz 16QAM

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

Company: Sony
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 5 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, 826.5MHz									
1633.00	-24.2	V	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2449.50	-23.1	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3266.00	-20.2	V	3.0	36.2	1.0	-55.3	-13.0	-42.3	
1633.00	-6.9	H	3.0	37.0	1.0	-43.0	-13.0	-30.0	
2449.50	-22.9	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3266.00	-21.3	H	3.0	36.2	1.0	-56.5	-13.0	-43.5	
Mid Ch, 836.5MHz									
1663.00	-22.4	V	3.0	37.0	1.0	-58.4	-13.0	-45.4	
2494.50	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3326.00	-21.3	V	3.0	36.1	1.0	-56.5	-13.0	-43.5	
1663.00	-14.1	H	3.0	37.0	1.0	-50.1	-13.0	-37.1	
2494.50	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3326.00	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	
High Ch, 846.5MHz									
1693.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2539.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3386.00	-19.4	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1693.00	-9.6	H	3.0	37.0	1.0	-45.6	-13.0	-32.6	
2539.50	-23.9	H	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3386.00	-20.7	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	

LTE B5 5MHz QPSK

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

Company: Sony
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 5 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, 826.5MHz									
1633.00	-23.2	V	3.0	37.0	1.0	-59.3	-13.0	-46.3	
2449.50	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3266.00	-20.4	V	3.0	36.2	1.0	-55.6	-13.0	-42.6	
1633.00	-4.1	H	3.0	37.0	1.0	-40.2	-13.0	-27.2	
2449.50	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3266.00	-20.7	H	3.0	36.2	1.0	-55.9	-13.0	-42.9	
Mid Ch, 836.5MHz									
1663.00	-20.6	V	3.0	37.0	1.0	-56.6	-13.0	-43.6	
2494.50	-22.8	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3326.00	-21.2	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1663.00	-11.2	H	3.0	37.0	1.0	-47.2	-13.0	-34.2	
2494.50	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3326.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	
High Ch, 846.5MHz									
1693.00	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2539.50	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3386.00	-20.6	V	3.0	36.1	1.0	-55.7	-13.0	-42.7	
1693.00	-6.9	H	3.0	37.0	1.0	-42.9	-13.0	-29.9	
2539.50	-21.7	H	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3386.00	-20.8	H	3.0	36.1	1.0	-55.9	-13.0	-42.9	

LTE B5 5MHz 16QAM

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

Company:	Sony
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
Mode:	LTE_QPSK Band 5 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, 829MHz									
1638.00	-18.4	V	3.0	37.0	1.0	-54.4	-13.0	-41.4	
2457.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3276.00	-21.1	V	3.0	36.2	1.0	-56.2	-13.0	-43.2	
1638.00	-19.6	H	3.0	37.0	1.0	-55.6	-13.0	-42.6	
2457.00	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3276.00	-21.5	H	3.0	36.2	1.0	-56.7	-13.0	-43.7	
Mid Ch, 836.5MHz									
1663.00	-25.4	V	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2494.50	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3326.00	-21.4	V	3.0	36.1	1.0	-56.5	-13.0	-43.5	
1663.00	-15.6	H	3.0	37.0	1.0	-51.6	-13.0	-38.6	
2494.50	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3326.00	-21.3	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	
High Ch, 844MHz									
1688.00	-21.1	V	3.0	37.0	1.0	-57.1	-13.0	-44.1	
2532.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3376.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1688.00	-12.0	H	3.0	37.0	1.0	-47.9	-13.0	-34.9	
2532.00	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3376.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	

LTE B5 10MHz QPSK

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

Company:	Sony
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
Mode:	LTE_16QAM Band 26 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, 829MHz									
1638.00	-16.1	V	3.0	37.0	1.0	-52.2	-13.0	-39.2	
2457.00	-22.2	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3276.00	-21.4	V	3.0	36.2	1.0	-56.5	-13.0	-43.5	
1638.00	-16.0	H	3.0	37.0	1.0	-52.0	-13.0	-39.0	
2457.00	-24.7	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3276.00	-21.2	H	3.0	36.2	1.0	-56.3	-13.0	-43.3	
Mid Ch, 836.5MHz									
1663.00	-24.2	V	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2494.50	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3326.00	-21.0	V	3.0	36.1	1.0	-56.1	-13.0	-43.1	
1663.00	-13.2	H	3.0	37.0	1.0	-49.2	-13.0	-36.2	
2494.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3326.00	-21.2	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	
High Ch, 844MHz									
1688.00	-20.2	V	3.0	37.0	1.0	-56.1	-13.0	-43.1	
2532.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3376.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1688.00	-10.0	H	3.0	37.0	1.0	-46.0	-13.0	-33.0	
2532.00	-23.5	H	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3376.00	-21.1	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	

LTE B5 10MHz 16QAM

9.1.6. LTE BAND 7

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 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, 2502.5									
5005.00	-21.5	V	3.0	33.2	1.0	-53.7	-25.0	-28.7	
7507.50	-20.2	V	3.0	32.8	1.0	-52.0	-25.0	-27.0	
10010.00	-20.9	V	3.0	32.8	1.0	-52.6	-25.0	-27.6	
5005.00	-22.9	H	3.0	33.2	1.0	-55.1	-25.0	-30.1	
7507.50	-21.0	H	3.0	32.8	1.0	-52.9	-25.0	-27.9	
10010.00	-21.3	H	3.0	32.8	1.0	-53.1	-25.0	-28.1	
Mid Ch, 2535									
5070.00	-23.2	V	3.0	33.2	1.0	-55.4	-25.0	-30.4	
7605.00	-20.0	V	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10140.00	-20.9	V	3.0	32.7	1.0	-52.6	-25.0	-27.6	
5070.00	-22.4	H	3.0	33.2	1.0	-54.6	-25.0	-29.6	
7605.00	-20.2	H	3.0	32.8	1.0	-52.0	-25.0	-27.0	
10140.00	-22.2	H	3.0	32.7	1.0	-53.8	-25.0	-28.8	
High Ch, 2567.5									
5135.00	-23.4	V	3.0	33.2	1.0	-55.6	-25.0	-30.6	
7702.50	-21.5	V	3.0	32.8	1.0	-53.3	-25.0	-28.3	
10270.00	-22.0	V	3.0	32.6	1.0	-53.5	-25.0	-28.5	
5135.00	-23.4	H	3.0	33.2	1.0	-55.6	-25.0	-30.6	
7702.50	-22.4	H	3.0	32.8	1.0	-54.2	-25.0	-29.2	
10270.00	-23.1	H	3.0	32.6	1.0	-54.7	-25.0	-29.7	

LTE B7 5MHz QPSK

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 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, 2502.5									
5005.00	-21.9	V	3.0	33.2	1.0	-54.1	-25.0	-29.1	
7507.50	-20.6	V	3.0	32.8	1.0	-52.5	-25.0	-27.5	
10010.00	-21.8	V	3.0	32.8	1.0	-53.5	-25.0	-28.5	
5005.00	-23.6	H	3.0	33.2	1.0	-55.8	-25.0	-30.8	
7507.50	-21.3	H	3.0	32.8	1.0	-53.2	-25.0	-28.2	
10010.00	-21.5	H	3.0	32.8	1.0	-53.3	-25.0	-28.3	
Mid Ch, 2535									
5070.00	-24.0	V	3.0	33.2	1.0	-56.2	-25.0	-31.2	
7605.00	-20.0	V	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10140.00	-21.5	V	3.0	32.7	1.0	-53.1	-25.0	-28.1	
5070.00	-22.9	H	3.0	33.2	1.0	-55.1	-25.0	-30.1	
7605.00	-20.8	H	3.0	32.8	1.0	-52.6	-25.0	-27.6	
10140.00	-23.1	H	3.0	32.7	1.0	-54.7	-25.0	-29.7	
High Ch, 2567.5									
5135.00	-24.3	V	3.0	33.2	1.0	-56.5	-25.0	-31.5	
7702.50	-22.0	V	3.0	32.8	1.0	-53.8	-25.0	-28.8	
10270.00	-22.9	V	3.0	32.6	1.0	-54.5	-25.0	-29.5	
5135.00	-24.1	H	3.0	33.2	1.0	-56.3	-25.0	-31.3	
7702.50	-23.3	H	3.0	32.8	1.0	-55.1	-25.0	-30.1	
10270.00	-23.3	H	3.0	32.6	1.0	-54.9	-25.0	-29.9	

LTE B7 5MHz 16QAM

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 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, 2505									
5010.00	-21.2	V	3.0	33.2	1.0	-53.5	-25.0	-28.5	
7515.00	-19.4	V	3.0	32.8	1.0	-51.3	-25.0	-26.3	
10020.00	-20.5	V	3.0	32.8	1.0	-52.3	-25.0	-27.3	
5010.00	-22.5	H	3.0	33.2	1.0	-54.7	-25.0	-29.7	
7515.00	-20.6	H	3.0	32.8	1.0	-52.4	-25.0	-27.4	
10020.00	-20.5	H	3.0	32.8	1.0	-52.3	-25.0	-27.3	
Mid Ch, 2535									
5070.00	-22.9	V	3.0	33.2	1.0	-55.1	-25.0	-30.1	
7605.00	-19.2	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10140.00	-20.5	V	3.0	32.7	1.0	-52.2	-25.0	-27.2	
5070.00	-21.7	H	3.0	33.2	1.0	-53.9	-25.0	-28.9	
7605.00	-19.2	H	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10140.00	-21.9	H	3.0	32.7	1.0	-53.6	-25.0	-28.6	
High Ch, 2565									
5130.00	-23.0	V	3.0	33.2	1.0	-55.2	-25.0	-30.2	
7695.00	-21.0	V	3.0	32.8	1.0	-52.9	-25.0	-27.9	
10260.00	-21.4	V	3.0	32.6	1.0	-53.0	-25.0	-28.0	
5130.00	-22.5	H	3.0	33.2	1.0	-54.7	-25.0	-29.7	
7695.00	-21.8	H	3.0	32.8	1.0	-53.7	-25.0	-28.7	
10260.00	-23.0	H	3.0	32.6	1.0	-54.6	-25.0	-29.6	

LTE B7 10MHz QPSK

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 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, 2505									
5010.00	-22.1	V	3.0	33.2	1.0	-54.3	-25.0	-29.3	
7515.00	-19.6	V	3.0	32.8	1.0	-51.4	-25.0	-26.4	
10020.00	-21.3	V	3.0	32.8	1.0	-53.1	-25.0	-28.1	
5010.00	-23.5	H	3.0	33.2	1.0	-55.7	-25.0	-30.7	
7515.00	-21.3	H	3.0	32.8	1.0	-53.2	-25.0	-28.2	
10020.00	-21.3	H	3.0	32.8	1.0	-53.1	-25.0	-28.1	
Mid Ch, 2535									
5070.00	-23.5	V	3.0	33.2	1.0	-55.8	-25.0	-30.8	
7605.00	-19.6	V	3.0	32.8	1.0	-51.5	-25.0	-26.5	
10140.00	-21.2	V	3.0	32.7	1.0	-52.9	-25.0	-27.9	
5070.00	-22.6	H	3.0	33.2	1.0	-54.8	-25.0	-29.8	
7605.00	-20.1	H	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10140.00	-22.8	H	3.0	32.7	1.0	-54.5	-25.0	-29.5	
High Ch, 2565									
5130.00	-23.3	V	3.0	33.2	1.0	-55.5	-25.0	-30.5	
7695.00	-21.7	V	3.0	32.8	1.0	-53.6	-25.0	-28.6	
10260.00	-22.0	V	3.0	32.6	1.0	-53.6	-25.0	-28.6	
5130.00	-22.8	H	3.0	33.2	1.0	-55.0	-25.0	-30.0	
7695.00	-22.2	H	3.0	32.8	1.0	-54.0	-25.0	-29.0	
10260.00	-23.9	H	3.0	32.6	1.0	-55.5	-25.0	-30.5	

LTE B7 10MHz 16QAM

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 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, 2507.5									
5015.00	-21.5	V	3.0	33.2	1.0	-53.7	-25.0	-28.7	
7522.50	-19.7	V	3.0	32.8	1.0	-51.6	-25.0	-26.6	
10030.00	-21.3	V	3.0	32.8	1.0	-53.1	-25.0	-28.1	
5015.00	-23.3	H	3.0	33.2	1.0	-55.5	-25.0	-30.5	
7522.50	-21.4	H	3.0	32.8	1.0	-53.2	-25.0	-28.2	
10030.00	-21.0	H	3.0	32.8	1.0	-52.7	-25.0	-27.7	
Mid Ch, 2535									
5070.00	-23.1	V	3.0	33.2	1.0	-55.4	-25.0	-30.4	
7605.00	-20.2	V	3.0	32.8	1.0	-52.0	-25.0	-27.0	
10140.00	-20.6	V	3.0	32.7	1.0	-52.2	-25.0	-27.2	
5070.00	-22.4	H	3.0	33.2	1.0	-54.6	-25.0	-29.6	
7605.00	-19.6	H	3.0	32.8	1.0	-51.4	-25.0	-26.4	
10140.00	-22.3	H	3.0	32.7	1.0	-54.0	-25.0	-29.0	
High Ch, 2562.5									
5125.00	-23.3	V	3.0	33.2	1.0	-55.5	-25.0	-30.5	
7687.50	-22.0	V	3.0	32.8	1.0	-53.8	-25.0	-28.8	
10250.00	-21.7	V	3.0	32.6	1.0	-53.3	-25.0	-28.3	
5125.00	-23.4	H	3.0	33.2	1.0	-55.6	-25.0	-30.6	
7687.50	-22.2	H	3.0	32.8	1.0	-54.0	-25.0	-29.0	
10250.00	-23.1	H	3.0	32.6	1.0	-54.7	-25.0	-29.7	

LTE B7 15MHz QPSK

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

Company: SOMC
Project #: 11740661
Date: 6/15/2017
Test Engineer: 37290
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 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, 2507.5									
5015.00	-21.5	V	3.0	33.2	1.0	-53.8	-25.0	-28.8	
7522.50	-19.4	V	3.0	32.8	1.0	-51.3	-25.0	-26.3	
10030.00	-20.8	V	3.0	32.8	1.0	-52.6	-25.0	-27.6	
5015.00	-22.8	H	3.0	33.2	1.0	-55.0	-25.0	-30.0	
7522.50	-20.7	H	3.0	32.8	1.0	-52.6	-25.0	-27.6	
10030.00	-21.4	H	3.0	32.8	1.0	-53.2	-25.0	-28.2	
Mid Ch, 2535									
5070.00	-23.0	V	3.0	33.2	1.0	-55.2	-25.0	-30.2	
7605.00	-19.3	V	3.0	32.8	1.0	-51.2	-25.0	-26.2	
10140.00	-21.4	V	3.0	32.7	1.0	-53.1	-25.0	-28.1	
5070.00	-21.9	H	3.0	33.2	1.0	-54.2	-25.0	-29.2	
7605.00	-20.1	H	3.0	32.8	1.0	-52.0	-25.0	-27.0	
10140.00	-22.0	H	3.0	32.7	1.0	-53.6	-25.0	-28.6	
High Ch, 2562.5									
5125.00	-23.3	V	3.0	33.2	1.0	-55.5	-25.0	-30.5	
7687.50	-21.2	V	3.0	32.8	1.0	-53.0	-25.0	-28.0	
10250.00	-22.3	V	3.0	32.6	1.0	-53.9	-25.0	-28.9	
5125.00	-23.4	H	3.0	33.2	1.0	-55.6	-25.0	-30.6	
7687.50	-22.6	H	3.0	32.8	1.0	-54.4	-25.0	-29.4	
10250.00	-23.2	H	3.0	32.6	1.0	-54.9	-25.0	-29.9	

LTE B7 15MHz 16QAM

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

Company:	SOMC
Project #:	11740661
Date:	6/9/2017
Test Engineer:	43574 JS
Configuration:	EUT + AC + Headset
Location:	Chamber C
Mode:	LTE_QPSK Band 7 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, 2510									
5020.00	-22.2	V	3.0	33.2	1.0	-54.4	-25.0	-29.4	
7530.00	-20.8	V	3.0	32.8	1.0	-52.7	-25.0	-27.7	
10040.00	-21.4	V	3.0	32.7	1.0	-53.2	-25.0	-28.2	
5020.00	-23.0	H	3.0	33.2	1.0	-55.3	-25.0	-30.3	
7530.00	-21.6	H	3.0	32.8	1.0	-53.5	-25.0	-28.5	
10040.00	-22.0	H	3.0	32.7	1.0	-53.7	-25.0	-28.7	
Mid Ch, 2535									
5070.00	-23.4	V	3.0	33.2	1.0	-55.6	-25.0	-30.6	
7605.00	-20.7	V	3.0	32.8	1.0	-52.6	-25.0	-27.6	
10140.00	-21.1	V	3.0	32.7	1.0	-52.8	-25.0	-27.8	
5070.00	-23.2	H	3.0	33.2	1.0	-55.4	-25.0	-30.4	
7605.00	-20.5	H	3.0	32.8	1.0	-52.4	-25.0	-27.4	
10140.00	-22.3	H	3.0	32.7	1.0	-54.0	-25.0	-29.0	
High Ch, 2560									
5120.00	-24.2	V	3.0	33.2	1.0	-56.4	-25.0	-31.4	
7680.00	-22.0	V	3.0	32.8	1.0	-53.8	-25.0	-28.8	
10240.00	-22.7	V	3.0	32.6	1.0	-54.3	-25.0	-29.3	
5120.00	-23.5	H	3.0	33.2	1.0	-55.7	-25.0	-30.7	
7680.00	-22.4	H	3.0	32.8	1.0	-54.3	-25.0	-29.3	
10240.00	-23.3	H	3.0	32.6	1.0	-55.0	-25.0	-30.0	

LTE B7 20MHz QPSK

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

Company:	SOMC
Project #:	11740661
Date:	6/9/2017
Test Engineer:	43574 JS
Configuration:	EUT + AC + Headset
Location:	Chamber C
Mode:	LTE_16QAM Band 7 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, 2510									
5020.00	-21.0	V	3.0	33.2	1.0	-53.2	-25.0	-28.2	
7530.00	-18.9	V	3.0	32.8	1.0	-50.7	-25.0	-25.7	
10040.00	-19.7	V	3.0	32.7	1.0	-51.4	-25.0	-26.4	
5020.00	-22.0	H	3.0	33.2	1.0	-54.3	-25.0	-29.3	
7530.00	-20.0	H	3.0	32.8	1.0	-51.8	-25.0	-26.8	
10040.00	-20.0	H	3.0	32.7	1.0	-51.7	-25.0	-26.7	
Mid Ch, 2535									
5070.00	-22.2	V	3.0	33.2	1.0	-54.4	-25.0	-29.4	
7605.00	-18.3	V	3.0	32.8	1.0	-50.2	-25.0	-25.2	
10140.00	-19.2	V	3.0	32.7	1.0	-50.9	-25.0	-25.9	
5070.00	-21.8	H	3.0	33.2	1.0	-54.1	-25.0	-29.1	
7605.00	-18.9	H	3.0	32.8	1.0	-50.8	-25.0	-25.8	
10140.00	-19.6	H	3.0	32.7	1.0	-51.3	-25.0	-26.3	
High Ch, 2560									
5120.00	-22.9	V	3.0	33.2	1.0	-55.1	-25.0	-30.1	
7680.00	-20.1	V	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10240.00	-21.0	V	3.0	32.6	1.0	-52.6	-25.0	-27.6	
5120.00	-22.1	H	3.0	33.2	1.0	-54.3	-25.0	-29.3	
7680.00	-21.0	H	3.0	32.8	1.0	-52.8	-25.0	-27.8	
10240.00	-21.0	H	3.0	32.6	1.0	-52.6	-25.0	-27.6	

LTE B7 20MHz 16QAM

9.1.7. LTE BAND 12

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-29.2	V	3.0	37.4	1.0	-65.6	-13.0	-52.6	
2099.10	-15.4	V	3.0	36.6	1.0	-51.0	-13.0	-38.0	
2798.80	-21.7	V	3.0	36.4	1.0	-57.0	-13.0	-44.0	
1399.40	-29.8	H	3.0	37.4	1.0	-66.2	-13.0	-53.2	
2099.10	-21.5	H	3.0	36.6	1.0	-57.1	-13.0	-44.1	
2798.80	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
Mid Ch, 707.5MHz									
1415.00	-31.9	V	3.0	37.4	1.0	-68.2	-13.0	-55.2	
2122.50	-21.0	V	3.0	36.6	1.0	-56.6	-13.0	-43.6	
2830.00	-23.5	V	3.0	36.4	1.0	-58.8	-13.0	-45.8	
1415.00	-31.0	H	3.0	37.4	1.0	-67.4	-13.0	-54.4	
2122.50	-21.4	H	3.0	36.6	1.0	-57.0	-13.0	-44.0	
2830.00	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
High Ch, 715.3MHz									
1430.60	-30.1	V	3.0	37.3	1.0	-66.5	-13.0	-53.5	
2145.90	-23.7	V	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2861.20	-22.3	V	3.0	36.4	1.0	-57.6	-13.0	-44.6	
1430.60	-29.7	H	3.0	37.3	1.0	-66.1	-13.0	-53.1	
2145.90	-24.0	H	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2861.20	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	

LTE B12 1.4MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-31.5	V	3.0	37.4	1.0	-67.9	-13.0	-54.9	
2099.10	-15.0	V	3.0	36.6	1.0	-50.5	-13.0	-37.5	
2798.80	-22.5	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
1399.40	-29.9	H	3.0	37.4	1.0	-66.2	-13.0	-53.2	
2099.10	-21.9	H	3.0	36.6	1.0	-57.5	-13.0	-44.5	
2798.80	-22.9	H	3.0	36.4	1.0	-58.3	-13.0	-45.3	
Mid Ch, 707.5MHz									
1415.00	-30.9	V	3.0	37.4	1.0	-67.2	-13.0	-54.2	
2122.50	-20.2	V	3.0	36.6	1.0	-55.8	-13.0	-42.8	
2830.00	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
1415.00	-31.0	H	3.0	37.4	1.0	-67.3	-13.0	-54.3	
2122.50	-20.3	H	3.0	36.6	1.0	-55.8	-13.0	-42.8	
2830.00	-25.0	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
High Ch, 715.3MHz									
1430.60	-29.7	V	3.0	37.3	1.0	-66.0	-13.0	-53.0	
2145.90	-23.8	V	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2861.20	-21.9	V	3.0	36.4	1.0	-57.3	-13.0	-44.3	
1430.60	-30.0	H	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2145.90	-24.8	H	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2861.20	-22.3	H	3.0	36.4	1.0	-57.7	-13.0	-44.7	

LTE B12 1.4MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-29.5	V	3.0	37.4	1.0	-65.9	-13.0	-52.9	
2101.50	-20.3	V	3.0	36.6	1.0	-55.8	-13.0	-42.8	
2802.00	-21.4	V	3.0	36.4	1.0	-56.8	-13.0	-43.8	
1401.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2101.50	-20.9	H	3.0	36.6	1.0	-56.5	-13.0	-43.5	
2802.00	-23.0	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
Mid Ch, 707.5MHz									
1415.00	-29.6	V	3.0	37.4	1.0	-65.9	-13.0	-52.9	
2122.50	-17.4	V	3.0	36.6	1.0	-52.9	-13.0	-39.9	
2830.00	-21.8	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
1415.00	-31.2	H	3.0	37.4	1.0	-67.6	-13.0	-54.6	
2122.50	-20.0	H	3.0	36.6	1.0	-55.6	-13.0	-42.6	
2830.00	-23.0	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
High Ch, 714.5MHz									
1429.00	-30.3	V	3.0	37.3	1.0	-66.6	-13.0	-53.6	
2143.50	-24.5	V	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2858.00	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
1429.00	-30.0	H	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2143.50	-22.0	H	3.0	36.6	1.0	-57.6	-13.0	-44.6	
2858.00	-22.5	H	3.0	36.4	1.0	-57.9	-13.0	-44.9	

LTE B12 3MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-30.8	V	3.0	37.4	1.0	-67.2	-13.0	-54.2	
2101.50	-20.0	V	3.0	36.6	1.0	-55.6	-13.0	-42.6	
2802.00	-21.9	V	3.0	36.4	1.0	-57.3	-13.0	-44.3	
1401.00	-30.0	H	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2101.50	-19.7	H	3.0	36.6	1.0	-55.3	-13.0	-42.3	
2802.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
Mid Ch, 707.5MHz									
1415.00	-30.0	V	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2122.50	-18.8	V	3.0	36.6	1.0	-54.3	-13.0	-41.3	
2830.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
1415.00	-29.9	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2122.50	-18.8	H	3.0	36.6	1.0	-54.4	-13.0	-41.4	
2830.00	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
High Ch, 714.5MHz									
1429.00	-29.2	V	3.0	37.3	1.0	-65.6	-13.0	-52.6	
2143.50	-23.9	V	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2858.00	-22.5	V	3.0	36.4	1.0	-57.9	-13.0	-44.9	
1429.00	-29.2	H	3.0	37.3	1.0	-65.6	-13.0	-52.6	
2143.50	-20.5	H	3.0	36.6	1.0	-56.1	-13.0	-43.1	
2858.00	-20.5	H	3.0	36.4	1.0	-55.9	-13.0	-42.9	

LTE B12 3MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-29.8	V	3.0	37.4	1.0	-66.2	-13.0	-53.2	
2104.50	-23.9	V	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2806.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
1403.00	-29.5	H	3.0	37.4	1.0	-65.9	-13.0	-52.9	
2104.50	-23.8	H	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2806.00	-21.3	H	3.0	36.4	1.0	-56.7	-13.0	-43.7	
Mid Ch, 707.5MHz									
1415.00	-29.3	V	3.0	37.4	1.0	-65.7	-13.0	-52.7	
2122.50	-24.0	V	3.0	36.6	1.0	-59.6	-13.0	-46.6	
2830.00	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
1415.00	-29.6	H	3.0	37.4	1.0	-65.9	-13.0	-52.9	
2122.50	-24.7	H	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2830.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
High Ch, 713.5MHz									
1427.00	-29.5	V	3.0	37.3	1.0	-65.8	-13.0	-52.8	
2140.50	-23.1	V	3.0	36.6	1.0	-58.6	-13.0	-45.6	
2854.00	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
1427.00	-29.4	H	3.0	37.3	1.0	-65.7	-13.0	-52.7	
2140.50	-24.5	H	3.0	36.6	1.0	-60.1	-13.0	-47.1	
2854.00	-22.5	H	3.0	36.4	1.0	-57.9	-13.0	-44.9	

LTE B12 5MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
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	-29.4	V	3.0	37.4	1.0	-65.8	-13.0	-52.8	
2104.50	-24.2	V	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2806.00	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
1403.00	-30.2	H	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2104.50	-24.3	H	3.0	36.6	1.0	-59.8	-13.0	-46.8	
2806.00	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
Mid Ch, 707.5MHz									
1415.00	-28.9	V	3.0	37.4	1.0	-65.3	-13.0	-52.3	
2122.50	-23.7	V	3.0	36.6	1.0	-59.2	-13.0	-46.2	
2830.00	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
1415.00	-30.1	H	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2122.50	-25.0	H	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2830.00	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
High Ch, 713.5MHz									
1427.00	-29.6	V	3.0	37.3	1.0	-65.9	-13.0	-52.9	
2140.50	-23.9	V	3.0	36.6	1.0	-59.4	-13.0	-46.4	
2854.00	-22.3	V	3.0	36.4	1.0	-57.6	-13.0	-44.6	
1427.00	-29.2	H	3.0	37.3	1.0	-65.5	-13.0	-52.5	
2140.50	-23.7	H	3.0	36.6	1.0	-59.3	-13.0	-46.3	
2854.00	-22.4	H	3.0	36.4	1.0	-57.8	-13.0	-44.8	

LTE B12 5MHz 16QAM

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

Company:	SOMC
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
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	-30.0	V	3.0	37.4	1.0	-66.4	-13.0	-53.4	
2112.00	-23.9	V	3.0	36.6	1.0	-59.5	-13.0	-46.5	
2816.00	-21.9	V	3.0	36.4	1.0	-57.3	-13.0	-44.3	
1408.00	-29.9	H	3.0	37.4	1.0	-66.3	-13.0	-53.3	
2112.00	-25.0	H	3.0	36.6	1.0	-60.5	-13.0	-47.5	
2816.00	-23.6	H	3.0	36.4	1.0	-59.0	-13.0	-46.0	
Mid Ch, 707.5MHz									
1415.00	-29.7	V	3.0	37.4	1.0	-66.1	-13.0	-53.1	
2122.50	-23.5	V	3.0	36.6	1.0	-59.1	-13.0	-46.1	
2830.00	-21.7	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
1415.00	-28.9	H	3.0	37.4	1.0	-65.2	-13.0	-52.2	
2122.50	-24.5	H	3.0	36.6	1.0	-60.0	-13.0	-47.0	
2830.00	-23.0	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
High Ch, 711MHz									
1422.00	-30.1	V	3.0	37.3	1.0	-66.4	-13.0	-53.4	
2133.00	-23.5	V	3.0	36.6	1.0	-59.0	-13.0	-46.0	
2844.00	-21.5	V	3.0	36.4	1.0	-56.9	-13.0	-43.9	
1422.00	-29.9	H	3.0	37.3	1.0	-66.3	-13.0	-53.3	
2133.00	-25.4	H	3.0	36.6	1.0	-61.0	-13.0	-48.0	
2844.00	-22.5	H	3.0	36.4	1.0	-57.9	-13.0	-44.9	

LTE B12 10MHz QPSK

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

Company:	SOMC
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
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	-30.2	V	3.0	37.4	1.0	-66.5	-13.0	-53.5	
2112.00	-24.2	V	3.0	36.6	1.0	-59.7	-13.0	-46.7	
2816.00	-22.4	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
1408.00	-29.9	H	3.0	37.4	1.0	-66.2	-13.0	-53.2	
2112.00	-24.3	H	3.0	36.6	1.0	-59.9	-13.0	-46.9	
2816.00	-22.5	H	3.0	36.4	1.0	-57.9	-13.0	-44.9	
Mid Ch, 707.5MHz									
1415.00	-30.3	V	3.0	37.4	1.0	-66.6	-13.0	-53.6	
2122.50	-23.2	V	3.0	36.6	1.0	-58.7	-13.0	-45.7	
2830.00	-21.8	V	3.0	36.4	1.0	-57.2	-13.0	-44.2	
1415.00	-29.5	H	3.0	37.4	1.0	-65.8	-13.0	-52.8	
2122.50	-24.8	H	3.0	36.6	1.0	-60.4	-13.0	-47.4	
2830.00	-22.7	H	3.0	36.4	1.0	-58.0	-13.0	-45.0	
High Ch, 711MHz									
1422.00	-30.0	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	-21.9	V	3.0	36.4	1.0	-57.3	-13.0	-44.3	
1422.00	-28.7	H	3.0	37.3	1.0	-65.0	-13.0	-52.0	
2133.00	-24.7	H	3.0	36.6	1.0	-60.3	-13.0	-47.3	
2844.00	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	

LTE B12 10MHz 16QAM

9.1.8. LTE BAND 13

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
Mode: LTE_QPSK Band 13 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, 779.5									
1559.00	-29.8	V	3.0	37.1	1.0	-66.0	-13.0	-53.0	
2338.50	-24.3	V	3.0	36.5	1.0	-59.8	-13.0	-46.8	
3118.00	-21.0	V	3.0	36.3	1.0	-56.3	-13.0	-43.3	
1559.00	-28.1	H	3.0	37.1	1.0	-64.3	-13.0	-51.3	
2338.50	-25.3	H	3.0	36.5	1.0	-60.8	-13.0	-47.8	
3118.00	-23.0	H	3.0	36.3	1.0	-58.2	-13.0	-45.2	
Mid Ch, 782									
1564.00	-29.9	V	3.0	37.1	1.0	-66.0	-13.0	-53.0	
2346.00	-25.0	V	3.0	36.5	1.0	-60.5	-13.0	-47.5	
3128.00	-22.6	V	3.0	36.3	1.0	-57.9	-13.0	-44.9	
1564.00	-29.2	H	3.0	37.1	1.0	-65.3	-13.0	-52.3	
2346.00	-25.2	H	3.0	36.5	1.0	-60.7	-13.0	-47.7	
3128.00	-22.4	H	3.0	36.3	1.0	-57.7	-13.0	-44.7	
High Ch, 784.5									
1569.00	-28.8	V	3.0	37.1	1.0	-64.9	-13.0	-51.9	
2353.50	-24.1	V	3.0	36.5	1.0	-59.6	-13.0	-46.6	
3138.00	-23.0	V	3.0	36.3	1.0	-58.3	-13.0	-45.3	
1569.00	-28.3	H	3.0	37.1	1.0	-64.4	-13.0	-51.4	
2353.50	-25.6	H	3.0	36.5	1.0	-61.1	-13.0	-48.1	
3138.00	-22.3	H	3.0	36.3	1.0	-57.6	-13.0	-44.6	

LTE B13 5MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
Mode: LTE_16QAM Band 13 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, 779.5									
1559.00	-30.7	V	3.0	37.1	1.0	-66.8	-13.0	-53.8	
2338.50	-25.1	V	3.0	36.5	1.0	-60.6	-13.0	-47.6	
3118.00	-21.9	V	3.0	36.3	1.0	-57.2	-13.0	-44.2	
1559.00	-29.0	H	3.0	37.1	1.0	-65.1	-13.0	-52.1	
2338.50	-26.1	H	3.0	36.5	1.0	-61.6	-13.0	-48.6	
3118.00	-23.8	H	3.0	36.3	1.0	-59.1	-13.0	-46.1	
Mid Ch, 782									
1564.00	-30.7	V	3.0	37.1	1.0	-66.9	-13.0	-53.9	
2346.00	-25.8	V	3.0	36.5	1.0	-61.3	-13.0	-48.3	
3128.00	-23.5	V	3.0	36.3	1.0	-58.8	-13.0	-45.8	
1564.00	-30.0	H	3.0	37.1	1.0	-66.2	-13.0	-53.2	
2346.00	-26.1	H	3.0	36.5	1.0	-61.6	-13.0	-48.6	
3128.00	-23.3	H	3.0	36.3	1.0	-58.5	-13.0	-45.5	
High Ch, 784.5									
1569.00	-29.6	V	3.0	37.1	1.0	-65.8	-13.0	-52.8	
2353.50	-24.9	V	3.0	36.5	1.0	-60.4	-13.0	-47.4	
3138.00	-23.9	V	3.0	36.3	1.0	-59.1	-13.0	-46.1	
1569.00	-29.2	H	3.0	37.1	1.0	-65.3	-13.0	-52.3	
2353.50	-26.4	H	3.0	36.5	1.0	-61.9	-13.0	-48.9	
3138.00	-23.2	H	3.0	36.3	1.0	-58.4	-13.0	-45.4	

LTE B13 5MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
Mode: LTE_QPSK Band 13 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
Mid Ch, 782MHz									
1564.00	-29.1	V	3.0	37.1	1.0	-65.2	-13.0	-52.2	
2346.00	-24.8	V	3.0	36.5	1.0	-60.3	-13.0	-47.3	
3128.00	-21.8	V	3.0	36.3	1.0	-57.0	-13.0	-44.0	
1564.00	-28.9	H	3.0	37.1	1.0	-65.1	-13.0	-52.1	
2346.00	-26.1	H	3.0	36.5	1.0	-61.6	-13.0	-48.6	
3128.00	-21.9	H	3.0	36.3	1.0	-57.2	-13.0	-44.2	

LTE B13 10MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
Mode: LTE_16QAM Band 13 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
Mid Ch, 782MHz									
1564.00	-30.0	V	3.0	37.1	1.0	-66.1	-13.0	-53.1	
2346.00	-25.7	V	3.0	36.5	1.0	-61.2	-13.0	-48.2	
3128.00	-22.6	V	3.0	36.3	1.0	-57.9	-13.0	-44.9	
1564.00	-29.8	H	3.0	37.1	1.0	-65.9	-13.0	-52.9	
2346.00	-26.9	H	3.0	36.5	1.0	-62.4	-13.0	-49.4	
3128.00	-22.8	H	3.0	36.3	1.0	-58.1	-13.0	-45.1	

LTE B13 10MHz 16QAM

9.1.9. LTE BAND 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth (5 & 10 MHz).

9.1.10. LTE BAND 26

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_QPSK Band 26 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, 814.7MHz									
1629.40	-29.8	V	3.0	37.1	1.0	-65.8	-13.0	-52.8	
2444.10	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3258.80	-24.2	V	3.0	36.2	1.0	-59.4	-13.0	-46.4	
1629.40	-30.4	H	3.0	37.1	1.0	-66.4	-13.0	-53.4	
2444.10	-26.2	H	3.0	36.4	1.0	-61.7	-13.0	-48.7	
3258.80	-24.6	H	3.0	36.2	1.0	-59.8	-13.0	-46.8	
Mid Ch, 831.5MHz									
1663.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2494.50	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3326.00	-24.8	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
1663.00	-29.3	H	3.0	37.0	1.0	-65.3	-13.0	-52.3	
2494.50	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3326.00	-24.5	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
High Ch, 848.3MHz									
1696.60	-28.7	V	3.0	37.0	1.0	-64.7	-13.0	-51.7	
2544.90	-23.2	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3393.20	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1696.60	-29.1	H	3.0	37.0	1.0	-65.0	-13.0	-52.0	
2544.90	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3393.20	-23.7	H	3.0	36.1	1.0	-58.8	-13.0	-45.8	

LTE B26 1.4MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_16QAM Band 26 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, 814.7MHz									
1629.40	-30.3	V	3.0	37.1	1.0	-66.4	-13.0	-53.4	
2444.10	-26.5	V	3.0	36.4	1.0	-62.0	-13.0	-49.0	
3258.80	-24.0	V	3.0	36.2	1.0	-59.2	-13.0	-46.2	
1629.40	-30.3	H	3.0	37.1	1.0	-66.3	-13.0	-53.3	
2444.10	-26.0	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
3258.80	-24.5	H	3.0	36.2	1.0	-59.7	-13.0	-46.7	
Mid Ch, 831.5MHz									
1663.00	-29.0	V	3.0	37.0	1.0	-65.0	-13.0	-52.0	
2494.50	-25.4	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3326.00	-25.1	V	3.0	36.1	1.0	-60.3	-13.0	-47.3	
1663.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3326.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	
High Ch, 848.3MHz									
1696.60	-29.4	V	3.0	37.0	1.0	-65.4	-13.0	-52.4	
2544.90	-23.7	V	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3393.20	-24.9	V	3.0	36.1	1.0	-60.0	-13.0	-47.0	
1696.60	-29.1	H	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2544.90	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3393.20	-24.1	H	3.0	36.1	1.0	-59.1	-13.0	-46.1	

LTE B26 1.4MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_QPSK Band 26 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, 815.5MHz									
1631.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2446.50	-26.5	V	3.0	36.4	1.0	-61.9	-13.0	-48.9	
3262.00	-24.1	V	3.0	36.2	1.0	-59.3	-13.0	-46.3	
1631.00	-30.4	H	3.0	37.0	1.0	-66.4	-13.0	-53.4	
2446.50	-26.1	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3262.00	-24.7	H	3.0	36.2	1.0	-59.9	-13.0	-46.9	
Mid Ch, 831.5MHz									
1663.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2494.50	-26.4	V	3.0	36.4	1.0	-61.8	-13.0	-48.8	
3326.00	-24.5	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1663.00	-30.2	H	3.0	37.0	1.0	-66.2	-13.0	-53.2	
2494.50	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3326.00	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
High Ch, 847.5MHz									
1695.00	-28.9	V	3.0	37.0	1.0	-64.9	-13.0	-51.9	
2542.50	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3390.00	-24.1	V	3.0	36.1	1.0	-59.2	-13.0	-46.2	
1695.00	-29.8	H	3.0	37.0	1.0	-65.8	-13.0	-52.8	
2542.50	-25.7	H	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3390.00	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	

LTE B26 3MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/16/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_16QAM Band 26 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, 815.5MHz									
1631.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2446.50	-25.7	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3262.00	-24.7	V	3.0	36.2	1.0	-59.9	-13.0	-46.9	
1631.00	-30.2	H	3.0	37.0	1.0	-66.3	-13.0	-53.3	
2446.50	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3262.00	-24.2	H	3.0	36.2	1.0	-59.4	-13.0	-46.4	
Mid Ch, 831.5MHz									
1663.00	-30.1	V	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-25.3	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3326.00	-24.4	V	3.0	36.1	1.0	-59.5	-13.0	-46.5	
1663.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2494.50	-25.6	H	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3326.00	-25.0	H	3.0	36.1	1.0	-60.1	-13.0	-47.1	
High Ch, 847.5MHz									
1695.00	-29.1	V	3.0	37.0	1.0	-65.1	-13.0	-52.1	
2542.50	-24.3	V	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3390.00	-24.6	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
1695.00	-30.1	H	3.0	37.0	1.0	-66.1	-13.0	-53.1	
2542.50	-26.2	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3390.00	-24.2	H	3.0	36.1	1.0	-59.3	-13.0	-46.3	

LTE B26 3MHz 16QAM

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

Company: Sony
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 26 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, 816.5MHz									
1633.00	-24.2	V	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2449.50	-23.1	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3266.00	-20.2	V	3.0	36.2	1.0	-55.3	-13.0	-42.3	
1633.00	-6.9	H	3.0	37.0	1.0	-43.0	-13.0	-30.0	
2449.50	-22.9	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3266.00	-21.3	H	3.0	36.2	1.0	-56.5	-13.0	-43.5	
Mid Ch, 831.5MHz									
1663.00	-22.4	V	3.0	37.0	1.0	-58.4	-13.0	-45.4	
2494.50	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3326.00	-21.3	V	3.0	36.1	1.0	-56.5	-13.0	-43.5	
1663.00	-14.1	H	3.0	37.0	1.0	-50.1	-13.0	-37.1	
2494.50	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3326.00	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	
High Ch, 846.5MHz									
1693.00	-27.0	V	3.0	37.0	1.0	-63.0	-13.0	-50.0	
2539.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3386.00	-19.4	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1693.00	-9.6	H	3.0	37.0	1.0	-45.6	-13.0	-32.6	
2539.50	-23.9	H	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3386.00	-20.7	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	

LTE B26 5MHz QPSK

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

Company: Sony
Project #: 12073310
Date: 12/19/2017
Test Engineer: 31300 RS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 26 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, 816.5MHz									
1633.00	-23.2	V	3.0	37.0	1.0	-59.3	-13.0	-46.3	
2449.50	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3266.00	-20.4	V	3.0	36.2	1.0	-55.6	-13.0	-42.6	
1633.00	-4.1	H	3.0	37.0	1.0	-40.2	-13.0	-27.2	
2449.50	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3266.00	-20.7	H	3.0	36.2	1.0	-55.9	-13.0	-42.9	
Mid Ch, 831.5MHz									
1663.00	-20.6	V	3.0	37.0	1.0	-56.6	-13.0	-43.6	
2494.50	-22.8	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3326.00	-21.2	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1663.00	-11.2	H	3.0	37.0	1.0	-47.2	-13.0	-34.2	
2494.50	-24.4	H	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3326.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	
High Ch, 846.5MHz									
1693.00	-27.3	V	3.0	37.0	1.0	-63.3	-13.0	-50.3	
2539.50	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3386.00	-20.6	V	3.0	36.1	1.0	-55.7	-13.0	-42.7	
1693.00	-6.9	H	3.0	37.0	1.0	-42.9	-13.0	-29.9	
2539.50	-21.7	H	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3386.00	-20.8	H	3.0	36.1	1.0	-55.9	-13.0	-42.9	

LTE B26 5MHz 16QAM

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

Company:	Sony
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
Mode:	LTE_QPSK Band 26 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, 819MHz									
1638.00	-18.4	V	3.0	37.0	1.0	-54.4	-13.0	-41.4	
2457.00	-23.5	V	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3276.00	-21.1	V	3.0	36.2	1.0	-56.2	-13.0	-43.2	
1638.00	-19.6	H	3.0	37.0	1.0	-55.6	-13.0	-42.6	
2457.00	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3276.00	-21.5	H	3.0	36.2	1.0	-56.7	-13.0	-43.7	
Mid Ch, 831.5MHz									
1663.00	-25.4	V	3.0	37.0	1.0	-61.4	-13.0	-48.4	
2494.50	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3326.00	-21.4	V	3.0	36.1	1.0	-56.5	-13.0	-43.5	
1663.00	-15.6	H	3.0	37.0	1.0	-51.6	-13.0	-38.6	
2494.50	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3326.00	-21.3	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	
High Ch, 844MHz									
1688.00	-21.1	V	3.0	37.0	1.0	-57.1	-13.0	-44.1	
2532.00	-22.6	V	3.0	36.4	1.0	-58.0	-13.0	-45.0	
3376.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1688.00	-12.0	H	3.0	37.0	1.0	-47.9	-13.0	-34.9	
2532.00	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3376.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	

LTE B26 10MHz QPSK

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

Company:	Sony
Project #:	12073310
Date:	12/19/2017
Test Engineer:	31300 RS
Configuration:	EUT + HS + Charger
Location:	Chamber C
Mode:	LTE_16QAM Band 26 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, 819MHz									
1638.00	-16.1	V	3.0	37.0	1.0	-52.2	-13.0	-39.2	
2457.00	-22.2	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3276.00	-21.4	V	3.0	36.2	1.0	-56.5	-13.0	-43.5	
1638.00	-16.0	H	3.0	37.0	1.0	-52.0	-13.0	-39.0	
2457.00	-24.7	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3276.00	-21.2	H	3.0	36.2	1.0	-56.3	-13.0	-43.3	
Mid Ch, 831.5MHz									
1663.00	-24.2	V	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2494.50	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3326.00	-21.0	V	3.0	36.1	1.0	-56.1	-13.0	-43.1	
1663.00	-13.2	H	3.0	37.0	1.0	-49.2	-13.0	-36.2	
2494.50	-24.6	H	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3326.00	-21.2	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	
High Ch, 844MHz									
1688.00	-20.2	V	3.0	37.0	1.0	-56.1	-13.0	-43.1	
2532.00	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3376.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1688.00	-10.0	H	3.0	37.0	1.0	-46.0	-13.0	-33.0	
2532.00	-23.5	H	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3376.00	-21.1	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	

LTE B26 10MHz 16QAM

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

Company:	SOMC
Project #:	12073310
Date:	12/26/2017
Test Engineer:	43575 OS
Configuration:	EUT + HS + Charger
Location:	Chamber A
Mode:	LTE_QPSK Band 26 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, 821.5MHz									
1663.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2494.50	-25.2	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3326.00	-24.0	V	3.0	36.1	1.0	-59.2	-13.0	-46.2	
3326.00	-23.1	H	3.0	36.1	1.0	-58.3	-13.0	-45.3	
3326.00	-22.6	H	3.0	36.1	1.0	-57.8	-13.0	-44.8	
3326.00	-24.5	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	
Mid Ch, 831.5MHz									
1673.00	-29.2	V	3.0	37.0	1.0	-65.2	-13.0	-52.2	
2509.50	-25.5	V	3.0	36.4	1.0	-60.9	-13.0	-47.9	
3346.00	-23.9	V	3.0	36.1	1.0	-59.0	-13.0	-46.0	
3346.00	-22.4	H	3.0	36.1	1.0	-57.5	-13.0	-44.5	
3346.00	-23.1	H	3.0	36.1	1.0	-58.2	-13.0	-45.2	
3346.00	-23.6	H	3.0	36.1	1.0	-58.7	-13.0	-45.7	
High Ch, 841.5MHz									
1663.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2494.50	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3326.00	-23.7	V	3.0	36.1	1.0	-58.8	-13.0	-45.8	
3326.00	-22.9	H	3.0	36.1	1.0	-58.1	-13.0	-45.1	
3326.00	-23.4	H	3.0	36.1	1.0	-58.5	-13.0	-45.5	
3326.00	-24.6	H	3.0	36.1	1.0	-59.7	-13.0	-46.7	

LTE B26 15MHz QPSK

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

Company:	SOMC
Project #:	12073310
Date:	12/26/2017
Test Engineer:	43575 OS
Configuration:	EUT + HS + Charger
Location:	Chamber A
Mode:	LTE_16QAM Band 26 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, 821.5MHz									
1663.00	-29.9	V	3.0	37.0	1.0	-65.9	-13.0	-52.9	
2494.50	-25.4	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3326.00	-24.5	V	3.0	36.1	1.0	-59.6	-13.0	-46.6	
3326.00	-22.4	H	3.0	36.1	1.0	-57.6	-13.0	-44.6	
3326.00	-23.0	H	3.0	36.1	1.0	-58.1	-13.0	-45.1	
3326.00	-24.1	H	3.0	36.1	1.0	-59.2	-13.0	-46.2	
Mid Ch, 831.5MHz									
1673.00	-29.7	V	3.0	37.0	1.0	-65.7	-13.0	-52.7	
2509.50	-25.4	V	3.0	36.4	1.0	-60.8	-13.0	-47.8	
3346.00	-23.6	V	3.0	36.1	1.0	-58.7	-13.0	-45.7	
3346.00	-22.7	H	3.0	36.1	1.0	-57.8	-13.0	-44.8	
3346.00	-23.5	H	3.0	36.1	1.0	-58.7	-13.0	-45.7	
3346.00	-23.9	H	3.0	36.1	1.0	-59.0	-13.0	-46.0	
High Ch, 841.5MHz									
1663.00	-28.7	V	3.0	37.0	1.0	-64.7	-13.0	-51.7	
2494.50	-25.8	V	3.0	36.4	1.0	-61.2	-13.0	-48.2	
3326.00	-24.2	V	3.0	36.1	1.0	-59.3	-13.0	-46.3	
3326.00	-22.6	H	3.0	36.1	1.0	-57.7	-13.0	-44.7	
3326.00	-23.6	H	3.0	36.1	1.0	-58.8	-13.0	-45.8	
3326.00	-24.3	H	3.0	36.1	1.0	-59.5	-13.0	-46.5	

LTE B26 15MHz 16QAM

9.1.11. LTE BAND 41

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-16.7	V	3.0	35.5	1.0	-51.2	-25.0	-26.2	
7495.50	-15.7	V	3.0	35.7	1.0	-50.5	-25.0	-25.5	
9994.00	-13.8	V	3.0	36.0	1.0	-48.9	-25.0	-23.9	
4997.00	-15.2	H	3.0	35.5	1.0	-49.7	-25.0	-24.7	
7495.50	-15.3	H	3.0	35.7	1.0	-50.0	-25.0	-25.0	
9994.00	-12.6	H	3.0	36.0	1.0	-47.6	-25.0	-22.6	
Mid Ch, 2593MHz									
5186.00	-16.7	V	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-15.6	V	3.0	35.8	1.0	-50.4	-25.0	-25.4	
10372.00	-12.6	V	3.0	35.8	1.0	-47.4	-25.0	-22.4	
5186.00	-19.0	H	3.0	35.4	1.0	-53.4	-25.0	-28.4	
7779.00	-11.9	H	3.0	35.8	1.0	-46.6	-25.0	-21.6	
10372.00	-11.5	H	3.0	35.8	1.0	-46.4	-25.0	-21.4	
High Ch, 2687.5MHz									
5375.00	-17.0	V	3.0	35.4	1.0	-51.4	-25.0	-26.4	
8062.50	-14.8	V	3.0	35.8	1.0	-49.6	-25.0	-24.6	
10750.00	-11.8	V	3.0	35.7	1.0	-46.5	-25.0	-21.5	
5375.00	-16.3	H	3.0	35.4	1.0	-50.7	-25.0	-25.7	
8062.50	-13.4	H	3.0	35.8	1.0	-48.2	-25.0	-23.2	
10750.00	-11.7	H	3.0	35.7	1.0	-46.4	-25.0	-21.4	

LTE B41 5MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-17.7	V	3.0	35.5	1.0	-52.2	-25.0	-27.2	
7495.50	-16.7	V	3.0	35.7	1.0	-51.5	-25.0	-26.5	
9994.00	-14.8	V	3.0	36.0	1.0	-49.9	-25.0	-24.9	
4997.00	-16.2	H	3.0	35.5	1.0	-50.7	-25.0	-25.7	
7495.50	-16.3	H	3.0	35.7	1.0	-51.0	-25.0	-26.0	
9994.00	-13.6	H	3.0	36.0	1.0	-48.6	-25.0	-23.6	
Mid Ch, 2593MHz									
5186.00	-17.7	V	3.0	35.4	1.0	-52.1	-25.0	-27.1	
7779.00	-16.6	V	3.0	35.8	1.0	-51.4	-25.0	-26.4	
10372.00	-13.6	V	3.0	35.8	1.0	-48.4	-25.0	-23.4	
5186.00	-20.0	H	3.0	35.4	1.0	-54.4	-25.0	-29.4	
7779.00	-12.9	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
10372.00	-12.5	H	3.0	35.8	1.0	-47.4	-25.0	-22.4	
High Ch, 2687.5MHz									
5375.00	-18.0	V	3.0	35.4	1.0	-52.4	-25.0	-27.4	
8062.50	-15.8	V	3.0	35.8	1.0	-50.6	-25.0	-25.6	
10750.00	-12.8	V	3.0	35.7	1.0	-47.5	-25.0	-22.5	
5375.00	-17.3	H	3.0	35.4	1.0	-51.7	-25.0	-26.7	
8062.50	-14.4	H	3.0	35.8	1.0	-49.2	-25.0	-24.2	
10750.00	-12.7	H	3.0	35.7	1.0	-47.4	-25.0	-22.4	

LTE B41 5MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-15.9	V	3.0	35.5	1.0	-50.4	-25.0	-25.4	
7503.00	-16.7	V	3.0	35.7	1.0	-51.4	-25.0	-26.4	
10004.00	-13.3	V	3.0	36.0	1.0	-48.3	-25.0	-23.3	
5002.00	-15.2	H	3.0	35.5	1.0	-49.7	-25.0	-24.7	
7503.00	-13.6	H	3.0	35.7	1.0	-48.3	-25.0	-23.3	
10004.00	-12.8	H	3.0	36.0	1.0	-47.8	-25.0	-22.8	
Mid Ch, 2593MHz									
5186.00	-15.8	V	3.0	35.4	1.0	-50.3	-25.0	-25.3	
7779.00	-14.2	V	3.0	35.8	1.0	-49.0	-25.0	-24.0	
10372.00	-12.5	V	3.0	35.8	1.0	-47.3	-25.0	-22.3	
5186.00	-15.1	H	3.0	35.4	1.0	-49.5	-25.0	-24.5	
7779.00	-13.6	H	3.0	35.8	1.0	-48.4	-25.0	-23.4	
10372.00	-13.1	H	3.0	35.8	1.0	-47.9	-25.0	-22.9	
High Ch, 2685MHz									
5370.00	-17.2	V	3.0	35.4	1.0	-51.7	-25.0	-26.7	
8055.00	-14.7	V	3.0	35.8	1.0	-49.5	-25.0	-24.5	
10740.00	-12.9	V	3.0	35.7	1.0	-47.6	-25.0	-22.6	
5370.00	-16.0	H	3.0	35.4	1.0	-50.5	-25.0	-25.5	
8055.00	-11.6	H	3.0	35.8	1.0	-46.4	-25.0	-21.4	
10740.00	-12.3	H	3.0	35.7	1.0	-47.0	-25.0	-22.0	

LTE B41 10MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-16.9	V	3.0	35.5	1.0	-51.4	-25.0	-26.4	
7503.00	-17.7	V	3.0	35.7	1.0	-52.4	-25.0	-27.4	
10004.00	-14.3	V	3.0	36.0	1.0	-49.3	-25.0	-24.3	
5002.00	-16.2	H	3.0	35.5	1.0	-50.7	-25.0	-25.7	
7503.00	-14.6	H	3.0	35.7	1.0	-49.3	-25.0	-24.3	
10004.00	-13.8	H	3.0	36.0	1.0	-48.8	-25.0	-23.8	
Mid Ch, 2593MHz									
5186.00	-16.8	V	3.0	35.4	1.0	-51.3	-25.0	-26.3	
7779.00	-15.2	V	3.0	35.8	1.0	-50.0	-25.0	-25.0	
10372.00	-13.5	V	3.0	35.8	1.0	-48.3	-25.0	-23.3	
5186.00	-16.1	H	3.0	35.4	1.0	-50.5	-25.0	-25.5	
7779.00	-14.6	H	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10372.00	-14.1	H	3.0	35.8	1.0	-48.9	-25.0	-23.9	
High Ch, 2685MHz									
5370.00	-18.2	V	3.0	35.4	1.0	-52.7	-25.0	-27.7	
8055.00	-15.7	V	3.0	35.8	1.0	-50.5	-25.0	-25.5	
10740.00	-13.9	V	3.0	35.7	1.0	-48.6	-25.0	-23.6	
5370.00	-17.0	H	3.0	35.4	1.0	-51.5	-25.0	-26.5	
8055.00	-12.6	H	3.0	35.8	1.0	-47.4	-25.0	-22.4	
10740.00	-13.3	H	3.0	35.7	1.0	-48.0	-25.0	-23.0	

LTE B41 10MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-16.5	V	3.0	35.5	1.0	-51.0	-25.0	-26.0	
7510.50	-14.6	V	3.0	35.7	1.0	-49.4	-25.0	-24.4	
10014.00	-13.1	V	3.0	36.0	1.0	-48.1	-25.0	-23.1	
5007.00	-15.9	H	3.0	35.5	1.0	-50.3	-25.0	-25.3	
7510.50	-14.0	H	3.0	35.7	1.0	-48.7	-25.0	-23.7	
10014.00	-12.3	H	3.0	36.0	1.0	-47.3	-25.0	-22.3	
Mid Ch, 2593MHz									
5186.00	-15.3	V	3.0	35.4	1.0	-49.7	-25.0	-24.7	
7779.00	-15.0	V	3.0	35.8	1.0	-49.8	-25.0	-24.8	
10372.00	-12.5	V	3.0	35.8	1.0	-47.4	-25.0	-22.4	
5186.00	-16.2	H	3.0	35.4	1.0	-50.6	-25.0	-25.6	
7779.00	-13.8	H	3.0	35.8	1.0	-48.6	-25.0	-23.6	
10372.00	-12.2	H	3.0	35.8	1.0	-47.0	-25.0	-22.0	
High Ch, 2682.5MHz									
5365.00	-17.2	V	3.0	35.4	1.0	-51.7	-25.0	-26.7	
8047.50	-13.4	V	3.0	35.8	1.0	-48.2	-25.0	-23.2	
10730.00	-12.9	V	3.0	35.7	1.0	-47.6	-25.0	-22.6	
5365.00	-16.5	H	3.0	35.4	1.0	-50.9	-25.0	-25.9	
8047.50	-13.5	H	3.0	35.8	1.0	-48.3	-25.0	-23.3	
10730.00	-12.0	H	3.0	35.7	1.0	-46.6	-25.0	-21.6	

LTE B41 15MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/18/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber B
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	-17.4	V	3.0	35.5	1.0	-51.9	-25.0	-26.9	
7510.50	-15.5	V	3.0	35.7	1.0	-50.3	-25.0	-25.3	
10014.00	-14.0	V	3.0	36.0	1.0	-49.0	-25.0	-24.0	
5007.00	-16.7	H	3.0	35.5	1.0	-51.2	-25.0	-26.2	
7510.50	-14.9	H	3.0	35.7	1.0	-49.6	-25.0	-24.6	
10014.00	-13.2	H	3.0	36.0	1.0	-48.2	-25.0	-23.2	
Mid Ch, 2593MHz									
5186.00	-16.2	V	3.0	35.4	1.0	-50.6	-25.0	-25.6	
7779.00	-15.9	V	3.0	35.8	1.0	-50.7	-25.0	-25.7	
10372.00	-13.4	V	3.0	35.8	1.0	-48.3	-25.0	-23.3	
5186.00	-17.1	H	3.0	35.4	1.0	-51.5	-25.0	-26.5	
7779.00	-14.7	H	3.0	35.8	1.0	-49.4	-25.0	-24.4	
10372.00	-13.0	H	3.0	35.8	1.0	-47.9	-25.0	-22.9	
High Ch, 2682.5MHz									
5365.00	-18.1	V	3.0	35.4	1.0	-52.6	-25.0	-27.6	
8047.50	-14.3	V	3.0	35.8	1.0	-49.1	-25.0	-24.1	
10730.00	-13.8	V	3.0	35.7	1.0	-48.5	-25.0	-23.5	
5365.00	-17.4	H	3.0	35.4	1.0	-51.8	-25.0	-26.8	
8047.50	-14.4	H	3.0	35.8	1.0	-49.2	-25.0	-24.2	
10730.00	-12.8	H	3.0	35.7	1.0	-47.5	-25.0	-22.5	

LTE B41 15MHz 16QAM

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

Company:	SOMC
Project #:	12073310
Date:	12/18/2017
Test Engineer:	39317
Configuration:	EUT + HS + Charger
Location:	Chamber B
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	-15.3	V	3.0	35.5	1.0	-49.8	-25.0	-24.8	
7518.00	-15.8	V	3.0	35.7	1.0	-50.6	-25.0	-25.6	
10024.00	-13.3	V	3.0	36.0	1.0	-48.3	-25.0	-23.3	
5012.00	-15.4	H	3.0	35.5	1.0	-49.9	-25.0	-24.9	
7518.00	-13.3	H	3.0	35.7	1.0	-48.1	-25.0	-23.1	
10024.00	-12.0	H	3.0	36.0	1.0	-47.0	-25.0	-22.0	
Mid Ch, 2593MHz									
5186.00	-15.7	V	3.0	35.4	1.0	-50.1	-25.0	-25.1	
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	-15.5	H	3.0	35.4	1.0	-49.9	-25.0	-24.9	
7779.00	-13.5	H	3.0	35.8	1.0	-48.2	-25.0	-23.2	
10372.00	-12.7	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
High Ch, 2680MHz									
5360.00	-18.1	V	3.0	35.4	1.0	-52.6	-25.0	-27.6	
8040.00	-14.9	V	3.0	35.8	1.0	-49.7	-25.0	-24.7	
10720.00	-12.5	V	3.0	35.7	1.0	-47.2	-25.0	-22.2	
5360.00	-15.9	H	3.0	35.4	1.0	-50.4	-25.0	-25.4	
8040.00	-12.8	H	3.0	35.8	1.0	-47.6	-25.0	-22.6	
10720.00	-12.7	H	3.0	35.7	1.0	-47.4	-25.0	-22.4	

LTE B41 20MHz QPSK

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

Company:	SOMC
Project #:	12073310
Date:	12/18/2017
Test Engineer:	39317
Configuration:	EUT + HS + Charger
Location:	Chamber B
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	-16.3	V	3.0	35.5	1.0	-50.8	-25.0	-25.8	
7518.00	-16.8	V	3.0	35.7	1.0	-51.6	-25.0	-26.6	
10024.00	-14.3	V	3.0	36.0	1.0	-49.3	-25.0	-24.3	
5012.00	-16.4	H	3.0	35.5	1.0	-50.9	-25.0	-25.9	
7518.00	-14.3	H	3.0	35.7	1.0	-49.1	-25.0	-24.1	
10024.00	-13.0	H	3.0	36.0	1.0	-48.0	-25.0	-23.0	
Mid Ch, 2593MHz									
5186.00	-16.7	V	3.0	35.4	1.0	-51.1	-25.0	-26.1	
7779.00	-16.4	V	3.0	35.8	1.0	-51.2	-25.0	-26.2	
10372.00	-13.4	V	3.0	35.8	1.0	-48.2	-25.0	-23.2	
5186.00	-16.5	H	3.0	35.4	1.0	-50.9	-25.0	-25.9	
7779.00	-14.5	H	3.0	35.8	1.0	-49.2	-25.0	-24.2	
10372.00	-13.7	H	3.0	35.8	1.0	-48.6	-25.0	-23.6	
High Ch, 2680MHz									
5360.00	-19.1	V	3.0	35.4	1.0	-53.6	-25.0	-28.6	
8040.00	-15.9	V	3.0	35.8	1.0	-50.7	-25.0	-25.7	
10720.00	-13.5	V	3.0	35.7	1.0	-48.2	-25.0	-23.2	
5360.00	-16.9	H	3.0	35.4	1.0	-51.4	-25.0	-26.4	
8040.00	-13.8	H	3.0	35.8	1.0	-48.6	-25.0	-23.6	
10720.00	-13.7	H	3.0	35.7	1.0	-48.4	-25.0	-23.4	

LTE B41 20MHz 16QAM

9.1.12. LTE BAND 66

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

Company: SOMC
Project #: 12073310
Date: 12/20/2017
Test Engineer: 39317
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_QPSK Band 66 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	-19.5	V	3.0	36.1	1.0	-54.6	-13.0	-41.6	
5132.10	-16.1	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6842.80	-14.3	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3421.40	-19.2	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
5132.10	-14.7	H	3.0	35.4	1.0	-49.2	-13.0	-36.2	
6842.80	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
Mid Ch, 1745MHz									
3490.00	-19.5	V	3.0	36.0	1.0	-54.5	-13.0	-41.5	
5235.00	-16.9	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6980.00	-15.9	V	3.0	35.7	1.0	-50.6	-13.0	-37.6	
3490.00	-19.2	H	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5235.00	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6980.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
High Ch, 1779.3MHz									
3558.60	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5337.90	-16.7	V	3.0	35.4	1.0	-51.1	-13.0	-38.1	
7117.20	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3558.60	-19.1	H	3.0	36.0	1.0	-54.1	-13.0	-41.1	
5337.90	-16.4	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7117.20	-12.9	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	

LTE B66 1.4MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/20/2017
Test Engineer: 50820
Configuration: EUT + HS + Charger
Location: Chamber A
Mode: LTE_16QAM Band 66 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	-19.4	V	3.0	36.1	1.0	-54.4	-13.0	-41.4	
5132.10	-16.4	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6842.80	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3421.40	-19.1	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
5132.10	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6842.80	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
Mid Ch, 1745MHz									
3490.00	-18.4	V	3.0	36.0	1.0	-53.5	-13.0	-40.5	
5235.00	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6980.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3490.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5235.00	-15.9	H	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6980.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
High Ch, 1779.3MHz									
3558.60	-19.0	V	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5337.90	-16.5	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7117.20	-14.6	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3558.60	-19.2	H	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5337.90	-14.9	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	
7117.20	-13.1	H	3.0	35.7	1.0	-47.8	-13.0	-34.8	

LTE B66 1.4MHz 16QAM

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

Company: SOMC
Project #: 12073310
Date: 12/20/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 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	-18.6	V	3.0	36.1	1.0	-53.7	-13.0	-40.7	
5134.50	-15.8	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6846.00	-14.6	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3423.00	-19.6	H	3.0	36.1	1.0	-54.7	-13.0	-41.7	
5134.50	-16.3	H	3.0	35.4	1.0	-50.8	-13.0	-37.8	
6846.00	-13.0	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1745MHz									
3490.00	-19.0	V	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5235.00	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6980.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3490.00	-19.2	H	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5235.00	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6980.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1778.5MHz									
3557.00	-18.9	V	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5335.50	-16.6	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7114.00	-14.1	V	3.0	35.7	1.0	-48.8	-13.0	-35.8	
3557.00	-19.2	H	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5335.50	-16.7	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
7114.00	-13.0	H	3.0	35.7	1.0	-47.6	-13.0	-34.6	

LTE B66 3MHz QPSK

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

Company: SOMC
Project #: 12073310
Date: 12/20/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 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	-19.5	V	3.0	36.1	1.0	-54.6	-13.0	-41.6	
5134.50	-16.4	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
6846.00	-14.5	V	3.0	35.7	1.0	-49.2	-13.0	-36.2	
3423.00	-19.1	H	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5134.50	-14.9	H	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6846.00	-13.4	H	3.0	35.7	1.0	-48.0	-13.0	-35.0	
Mid Ch, 1745MHz									
3490.00	-18.5	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5235.00	-16.9	V	3.0	35.4	1.0	-51.3	-13.0	-38.3	
6980.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3490.00	-19.5	H	3.0	36.0	1.0	-54.5	-13.0	-41.5	
5235.00	-16.0	H	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6980.00	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
High Ch, 1778.5MHz									
3557.00	-19.3	V	3.0	36.0	1.0	-54.3	-13.0	-41.3	
5335.50	-15.9	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
7114.00	-14.0	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3557.00	-19.3	H	3.0	36.0	1.0	-54.3	-13.0	-41.3	
5335.50	-16.0	H	3.0	35.4	1.0	-50.5	-13.0	-37.5	
7114.00	-13.6	H	3.0	35.7	1.0	-48.3	-13.0	-35.3	

LTE B66 3MHz 16QAM

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 50820
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 5MHz QPSK

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	10dB Pad	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.5MHz)										
3.43	-67.7	H	3.0	-20.6	33.3	10.0	-43.9	-13.0	-30.9	
5.14	-66.3	H	3.0	-15.7	32.9	10.0	-38.6	-13.0	-25.6	
6.85	-67.3	H	3.0	-13.7	31.1	10.0	-34.8	-13.0	-21.8	
3.43	-67.5	V	3.0	-20.3	33.3	10.0	-43.6	-13.0	-30.6	
5.14	-66.1	V	3.0	-15.9	32.9	10.0	-38.8	-13.0	-25.8	
6.85	-67.1	V	3.0	-13.9	31.1	10.0	-34.9	-13.0	-21.9	
Mid Channel (1745.0MHz)										
3.49	-68.6	H	3.0	-21.3	33.4	10.0	-44.6	-13.0	-31.6	
5.24	-67.2	H	3.0	-16.5	32.8	10.0	-39.3	-13.0	-26.3	
6.98	-67.9	H	3.0	-14.1	30.9	10.0	-35.0	-13.0	-22.0	
3.49	-68.9	V	3.0	-21.5	33.4	10.0	-44.9	-13.0	-31.9	
5.24	-67.4	V	3.0	-17.1	32.8	10.0	-39.9	-13.0	-26.9	
6.99	-68.6	V	3.0	-14.5	30.9	10.0	-35.4	-13.0	-22.4	
High Channel (1777.5MHz)										
3.56	-67.2	H	3.0	-19.7	33.4	10.0	-43.1	-13.0	-30.1	
5.33	-67.0	H	3.0	-16.1	32.7	10.0	-38.8	-13.0	-25.8	
7.11	-66.4	H	3.0	-12.4	30.8	10.0	-33.2	-13.0	-20.2	
3.56	-68.0	V	3.0	-20.4	33.4	10.0	-43.8	-13.0	-30.8	
5.33	-68.2	V	3.0	-17.6	32.7	10.0	-40.4	-13.0	-27.4	
7.11	-66.4	V	3.0	-12.1	30.8	10.0	-32.9	-13.0	-19.9	

Rev. 02.24.17

LTE B66 5MHz QPSK

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 50820
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 5MHz QPSK

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifer	Filter	Limit
3m Chamber D	3m Chamber D	10dB Pad	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.5MHz)										
3.43	-67.7	H	3.0	-20.6	33.3	10.0	-43.9	-13.0	-30.9	
5.14	-66.3	H	3.0	-15.7	32.9	10.0	-38.6	-13.0	-25.6	
6.85	-67.3	H	3.0	-13.7	31.1	10.0	-34.8	-13.0	-21.8	
3.43	-67.5	V	3.0	-20.3	33.3	10.0	-43.6	-13.0	-30.6	
5.14	-66.1	V	3.0	-15.9	32.9	10.0	-38.8	-13.0	-25.8	
6.85	-67.1	V	3.0	-13.9	31.1	10.0	-34.9	-13.0	-21.9	
Mid Channel (1745.0MHz)										
3.49	-68.6	H	3.0	-21.3	33.4	10.0	-44.6	-13.0	-31.6	
5.24	-67.2	H	3.0	-16.5	32.8	10.0	-39.3	-13.0	-26.3	
6.98	-67.9	H	3.0	-14.1	30.9	10.0	-35.0	-13.0	-22.0	
3.49	-68.9	V	3.0	-21.5	33.4	10.0	-44.9	-13.0	-31.9	
5.24	-67.4	V	3.0	-17.1	32.8	10.0	-39.9	-13.0	-26.9	
6.99	-68.6	V	3.0	-14.5	30.9	10.0	-35.4	-13.0	-22.4	
High Channel (1777.5MHz)										
3.56	-67.2	H	3.0	-19.7	33.4	10.0	-43.1	-13.0	-30.1	
5.33	-67.0	H	3.0	-16.1	32.7	10.0	-38.8	-13.0	-25.8	
7.11	-66.4	H	3.0	-12.4	30.8	10.0	-33.2	-13.0	-20.2	
3.56	-68.0	V	3.0	-20.4	33.4	10.0	-43.8	-13.0	-30.8	
5.33	-68.2	V	3.0	-17.6	32.7	10.0	-40.4	-13.0	-27.4	
7.11	-66.4	V	3.0	-12.1	30.8	10.0	-32.9	-13.0	-19.9	

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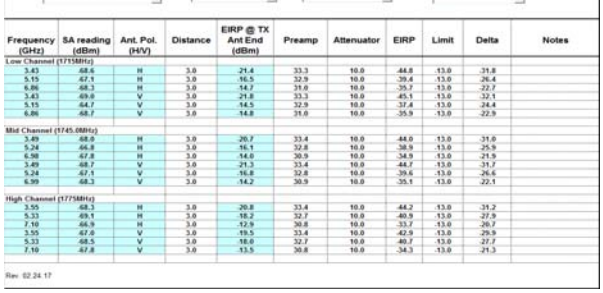
LTE B66 5MHz QPSK



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 10MHz QPSK

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1715MHz)										
3.43	68.6	H	3.0	21.4	33.3	10.0	-44.8	-13.0	-31.8	
5.15	67.1	H	3.0	16.5	32.9	10.0	-39.4	-13.0	-26.4	
6.86	68.3	H	3.0	14.7	31.0	10.0	-35.7	-13.0	-22.7	
3.43	69.0	V	3.0	21.8	33.3	10.0	-45.1	-13.0	-32.1	
5.15	64.7	V	3.0	14.5	32.9	10.0	-37.4	-13.0	-24.4	
6.86	68.7	V	3.0	14.8	31.0	10.0	-35.9	-13.0	-22.9	
Mid Channel (1745.0MHz)										
3.49	68.0	H	3.0	20.7	33.4	10.0	-44.0	-13.0	-31.0	
5.24	66.8	H	3.0	16.1	32.8	10.0	-38.9	-13.0	-25.9	
6.98	67.8	H	3.0	14.0	30.9	10.0	-34.9	-13.0	-21.9	
3.49	68.7	V	3.0	21.3	33.4	10.0	-44.7	-13.0	-31.7	
5.24	67.1	V	3.0	16.8	32.8	10.0	-39.6	-13.0	-26.6	
6.99	68.3	V	3.0	14.2	30.9	10.0	-35.1	-13.0	-22.1	
High Channel (1775MHz)										
3.55	68.3	H	3.0	20.8	33.4	10.0	-44.2	-13.0	-31.2	
5.33	69.1	H	3.0	18.2	32.7	10.0	-40.9	-13.0	-27.9	
7.10	66.9	H	3.0	12.9	30.8	10.0	-33.7	-13.0	-20.7	
3.55	67.0	V	3.0	19.5	33.4	10.0	-42.9	-13.0	-29.9	
5.33	68.5	V	3.0	18.0	32.7	10.0	-40.7	-13.0	-27.7	
7.10	67.8	V	3.0	13.5	30.8	10.0	-34.3	-13.0	-21.3	

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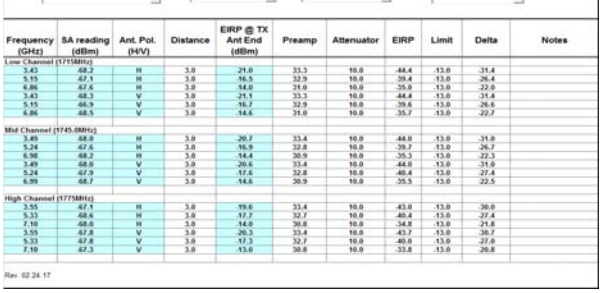
LTE B66 10MHz QPSK



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 10MHz 16QAM

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1715MHz)										
3.43	68.2	H	3.0	21.0	33.3	10.0	-44.4	-13.0	-31.4	
5.15	67.1	H	3.0	16.5	32.9	10.0	-39.4	-13.0	-26.4	
6.86	67.6	H	3.0	14.6	31.0	10.0	-35.0	-13.0	-22.0	
3.43	68.3	V	3.0	21.1	33.3	10.0	-44.4	-13.0	-31.4	
5.15	66.9	V	3.0	14.7	32.9	10.0	-39.6	-13.0	-26.6	
6.86	68.5	V	3.0	14.6	31.0	10.0	-35.7	-13.0	-22.7	
Mid Channel (1745.0MHz)										
3.49	68.0	H	3.0	20.7	33.4	10.0	-44.0	-13.0	-31.0	
5.24	67.6	H	3.0	16.9	32.8	10.0	-39.7	-13.0	-26.7	
6.98	68.2	H	3.0	14.4	30.9	10.0	-35.3	-13.0	-22.3	
3.49	68.0	V	3.0	20.6	33.4	10.0	-44.0	-13.0	-31.0	
5.24	67.9	V	3.0	17.6	32.8	10.0	-40.4	-13.0	-27.4	
6.99	68.7	V	3.0	14.6	30.9	10.0	-35.5	-13.0	-22.5	
High Channel (1775MHz)										
3.55	67.1	H	3.0	19.6	33.4	10.0	-43.0	-13.0	-30.0	
5.33	68.6	H	3.0	17.7	32.7	10.0	-40.4	-13.0	-27.4	
7.10	68.0	H	3.0	14.0	30.8	10.0	-34.8	-13.0	-21.8	
3.55	67.8	V	3.0	20.3	33.4	10.0	-43.7	-13.0	-30.7	
5.33	67.8	V	3.0	17.3	32.7	10.0	-40.0	-13.0	-27.0	
7.10	67.3	V	3.0	13.0	30.8	10.0	-33.8	-13.0	-20.8	

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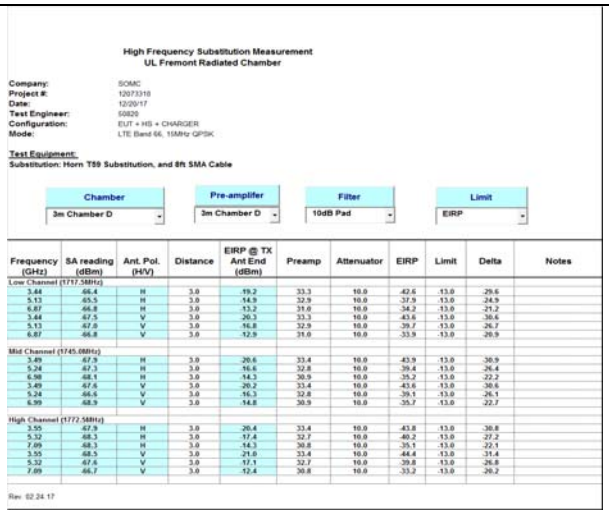
LTE B66 10MHz 16QAM



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 15MHz QPSK

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1717.5MHz)										
3.44	66.4	H	3.0	19.2	33.3	10.0	-42.6	-13.0	-29.6	
5.13	65.5	H	3.0	14.9	32.9	10.0	-37.9	-13.0	-24.9	
6.87	66.8	H	3.0	13.2	31.0	10.0	-34.2	-13.0	-21.2	
3.44	67.5	V	3.0	20.3	33.3	10.0	-43.6	-13.0	-30.6	
5.13	67.0	V	3.0	16.8	32.9	10.0	-39.7	-13.0	-26.7	
6.87	66.8	V	3.0	12.9	31.0	10.0	-33.9	-13.0	-20.9	
Mid Channel (1745.0MHz)										
3.49	67.9	H	3.0	20.6	33.4	10.0	-43.9	-13.0	-30.9	
5.24	67.3	H	3.0	16.6	32.8	10.0	-39.4	-13.0	-26.4	
6.98	68.1	H	3.0	14.3	30.9	10.0	-35.2	-13.0	-22.2	
3.49	67.6	V	3.0	20.2	33.4	10.0	-43.6	-13.0	-30.6	
5.24	66.6	V	3.0	16.3	32.8	10.0	-39.1	-13.0	-26.1	
6.99	68.9	V	3.0	14.8	30.9	10.0	-35.7	-13.0	-22.7	
High Channel (1772.5MHz)										
3.55	67.9	H	3.0	20.4	33.4	10.0	-43.8	-13.0	-30.8	
5.32	68.3	H	3.0	17.4	32.7	10.0	-40.2	-13.0	-27.2	
7.09	68.3	H	3.0	14.3	30.8	10.0	-35.1	-13.0	-22.1	
3.55	68.5	V	3.0	21.0	33.4	10.0	-44.4	-13.0	-31.4	
5.32	67.6	V	3.0	17.1	32.7	10.0	-39.8	-13.0	-26.8	
7.09	66.7	V	3.0	12.4	30.8	10.0	-33.2	-13.0	-20.2	

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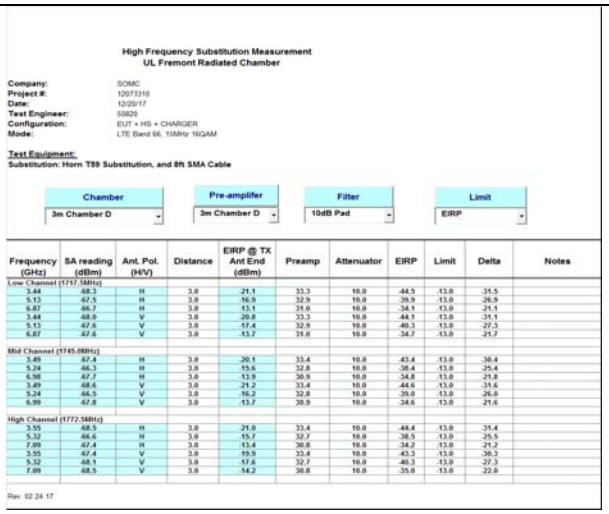
LTE B66 15MHz QPSK



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 15MHz 16QAM

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1717.5MHz)										
3.44	68.3	H	3.0	21.1	33.3	10.0	-44.5	-13.0	-31.5	
5.13	67.5	H	3.0	16.9	32.9	10.0	-39.9	-13.0	-26.9	
6.87	66.7	H	3.0	13.1	31.0	10.0	-34.1	-13.0	-21.1	
3.44	68.0	V	3.0	20.8	33.3	10.0	-44.1	-13.0	-31.1	
5.13	67.6	V	3.0	17.4	32.9	10.0	-40.3	-13.0	-27.3	
6.87	67.6	V	3.0	13.7	31.0	10.0	-34.7	-13.0	-21.7	
Mid Channel (1745.0MHz)										
3.49	67.4	H	3.0	20.1	33.4	10.0	-43.4	-13.0	-30.4	
5.24	66.3	H	3.0	15.6	32.8	10.0	-38.4	-13.0	-25.4	
6.98	67.7	H	3.0	13.9	30.9	10.0	-34.8	-13.0	-21.8	
3.49	68.6	V	3.0	21.2	33.4	10.0	-44.6	-13.0	-31.6	
5.24	66.5	V	3.0	16.2	32.8	10.0	-39.0	-13.0	-26.0	
6.99	67.8	V	3.0	13.7	30.9	10.0	-34.6	-13.0	-21.6	
High Channel (1772.5MHz)										
3.55	68.5	H	3.0	21.0	33.4	10.0	-44.4	-13.0	-31.4	
5.32	66.6	H	3.0	15.7	32.7	10.0	-38.5	-13.0	-25.5	
7.09	67.4	H	3.0	13.4	30.8	10.0	-34.2	-13.0	-21.2	
3.55	67.4	V	3.0	19.9	33.4	10.0	-43.3	-13.0	-30.3	
5.32	68.1	V	3.0	17.6	32.7	10.0	-40.3	-13.0	-27.3	
7.09	68.5	V	3.0	14.2	30.8	10.0	-35.0	-13.0	-22.0	

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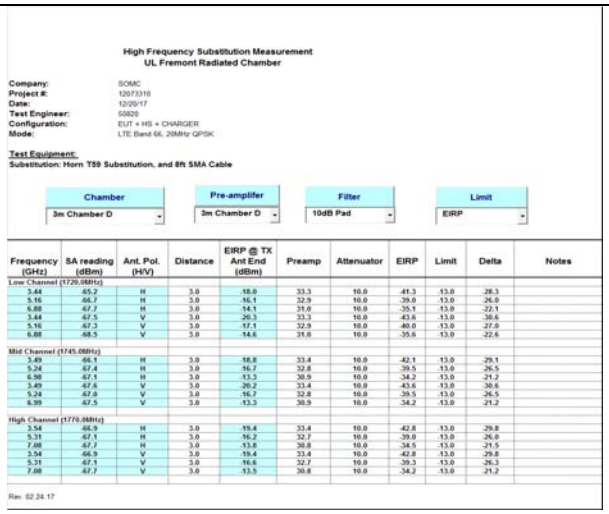
LTE B66 15MHz 16QAM



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 20MHz QPSK

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720.0MHz)										
3.44	65.2	H	3.0	18.0	33.3	10.0	-41.3	-13.0	-28.3	
5.16	66.7	H	3.0	16.1	32.9	10.0	-39.0	-13.0	-26.0	
6.88	67.7	H	3.0	14.1	31.0	10.0	-35.1	-13.0	-22.1	
3.44	67.5	V	3.0	20.3	33.3	10.0	-43.6	-13.0	-30.6	
5.16	67.3	V	3.0	17.1	32.9	10.0	-40.0	-13.0	-27.0	
6.88	68.5	V	3.0	14.6	31.0	10.0	-35.6	-13.0	-22.6	
Mid Channel (1745.0MHz)										
3.49	66.1	H	3.0	18.8	33.4	10.0	-42.1	-13.0	-29.1	
5.24	67.4	H	3.0	16.7	32.8	10.0	-39.5	-13.0	-26.5	
6.98	67.1	H	3.0	13.3	30.9	10.0	-34.2	-13.0	-21.2	
3.49	67.6	V	3.0	20.2	33.4	10.0	-43.6	-13.0	-30.6	
5.24	67.0	V	3.0	16.7	32.8	10.0	-39.5	-13.0	-26.5	
6.99	67.5	V	3.0	13.3	30.9	10.0	-34.2	-13.0	-21.2	
High Channel (1770.0MHz)										
3.54	66.9	H	3.0	19.4	33.4	10.0	-42.8	-13.0	-29.8	
5.31	67.1	H	3.0	16.2	32.7	10.0	-39.0	-13.0	-26.0	
7.08	67.7	H	3.0	13.8	30.8	10.0	-34.5	-13.0	-21.5	
3.54	66.9	V	3.0	19.4	33.4	10.0	-42.8	-13.0	-29.8	
5.31	67.1	V	3.0	16.6	32.7	10.0	-39.3	-13.0	-26.3	
7.08	67.7	V	3.0	13.5	30.8	10.0	-34.2	-13.0	-21.2	

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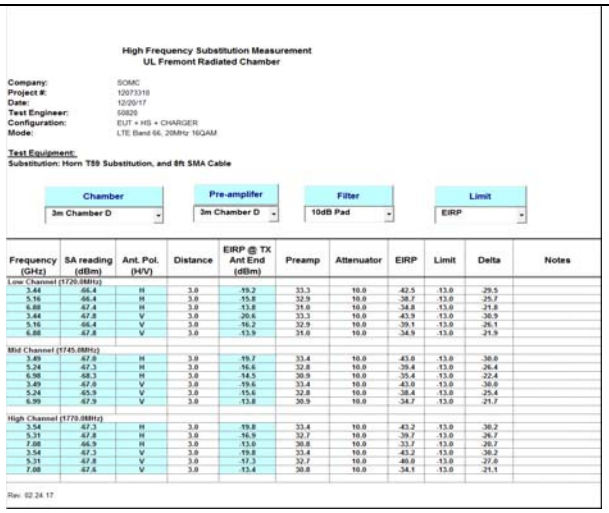
LTE B66 20MHz QPSK



High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company: SOMC
Project #: 12073310
Date: 12/20/17
Test Engineer: 59826
Configuration: EUT + HS + CHARGER
Mode: LTE Band 66, 20MHz 16QAM

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber: 3m Chamber D | Pre-amplifer: 3m Chamber D | Filter: 10dB Pad | Limit: EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1720.0MHz)										
3.44	66.4	H	3.0	19.2	33.3	10.0	-42.5	-13.0	-29.5	
5.16	66.4	H	3.0	15.8	32.9	10.0	-38.7	-13.0	-25.7	
6.88	67.4	H	3.0	13.8	31.0	10.0	-34.8	-13.0	-21.8	
3.44	67.8	V	3.0	20.6	33.3	10.0	-43.9	-13.0	-30.9	
5.16	66.4	V	3.0	16.2	32.9	10.0	-39.1	-13.0	-26.1	
6.88	67.8	V	3.0	13.9	31.0	10.0	-34.9	-13.0	-21.9	
Mid Channel (1745.0MHz)										
3.49	67.0	H	3.0	19.7	33.4	10.0	-43.0	-13.0	-30.0	
5.24	67.3	H	3.0	16.6	32.8	10.0	-39.4	-13.0	-26.4	
6.98	68.3	H	3.0	14.5	30.9	10.0	-35.4	-13.0	-22.4	
3.49	67.9	V	3.0	19.6	33.4	10.0	-43.0	-13.0	-30.0	
5.24	65.9	V	3.0	15.6	32.8	10.0	-38.4	-13.0	-25.4	
6.99	67.9	V	3.0	13.8	30.9	10.0	-34.7	-13.0	-21.7	
High Channel (1770.0MHz)										
3.54	67.3	H	3.0	19.8	33.4	10.0	-43.2	-13.0	-30.2	
5.31	67.8	H	3.0	16.9	32.7	10.0	-39.7	-13.0	-26.7	
7.08	66.9	H	3.0	13.0	30.8	10.0	-33.7	-13.0	-20.7	
3.54	67.3	V	3.0	19.8	33.4	10.0	-43.2	-13.0	-30.2	
5.31	67.8	V	3.0	17.3	32.7	10.0	-40.0	-13.0	-27.0	
7.08	67.6	V	3.0	13.4	30.8	10.0	-34.1	-13.0	-21.1	

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LTE B66 20MHz 16QAM