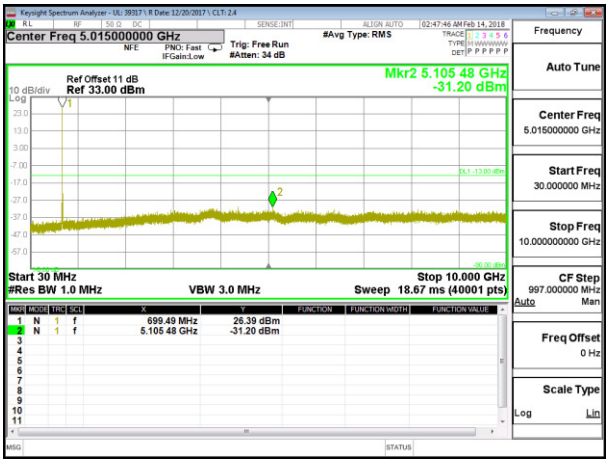
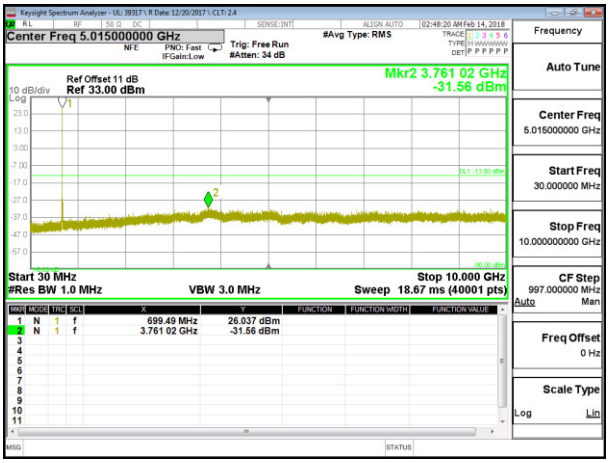
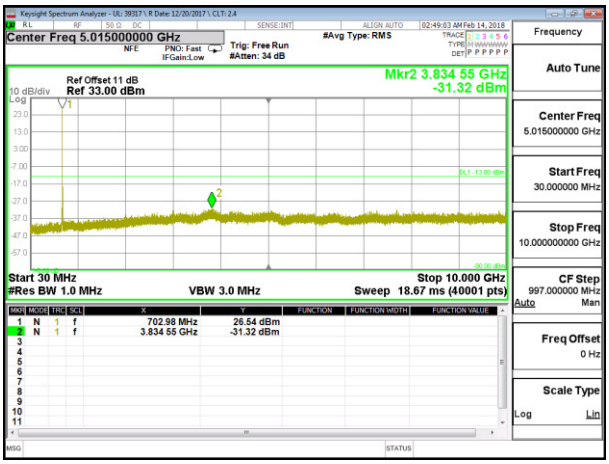


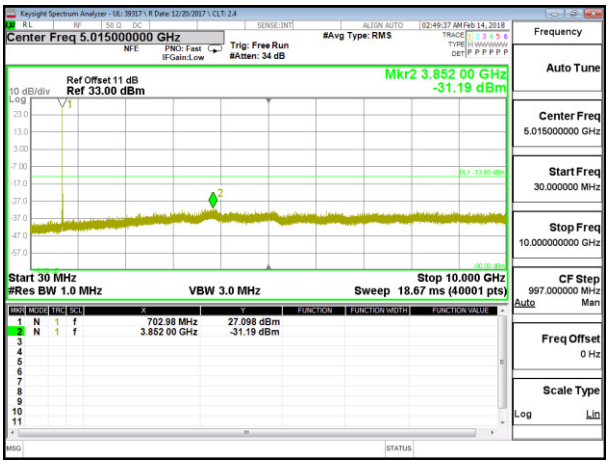
LTE B12 10MHz QPSK Low Channel RB1-0



LTE B12 10MHz 16QAM Low Channel RB1-0



LTE B12 10MHz QPSK Middle Channel RB1-0



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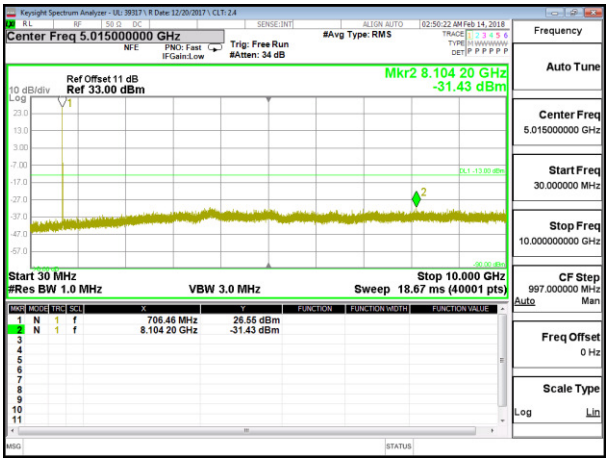
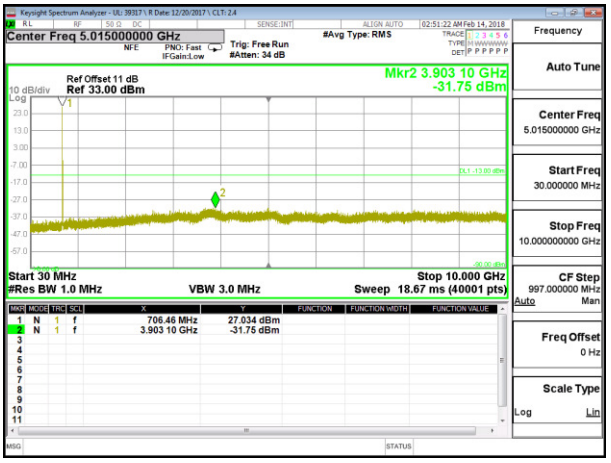
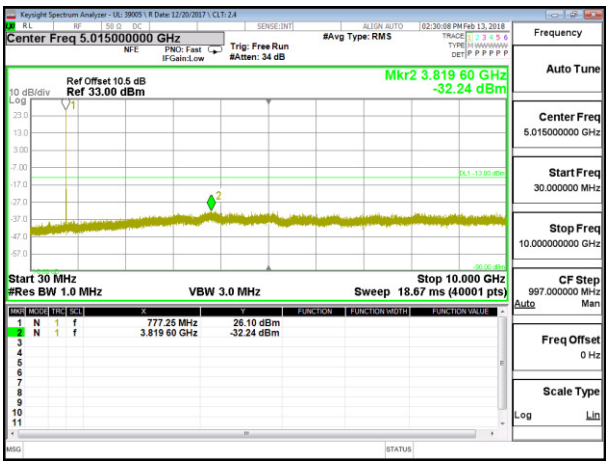


LTE B12 10MHz QPSK High Channel RB1-0

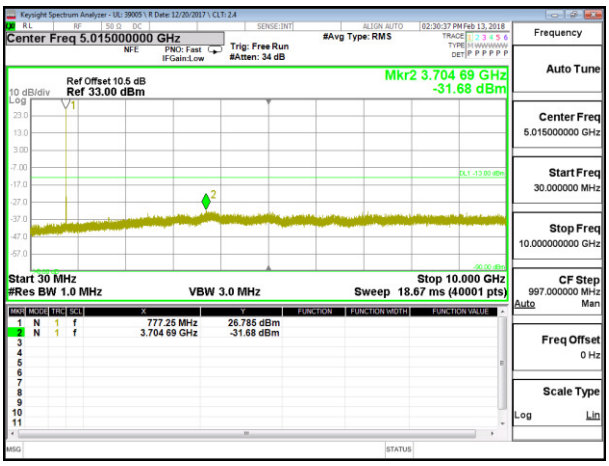


LTE B12 10MHz 16QAM High Channel RB1-0

8.3.8. LTE BAND 13



LTE B13 5MHz QPSK Low Channel RB1-0



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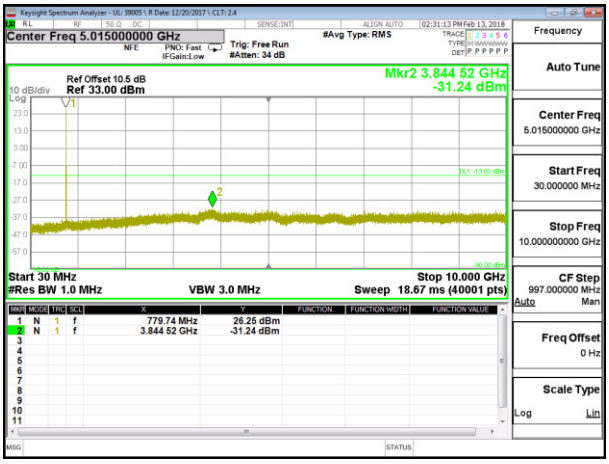

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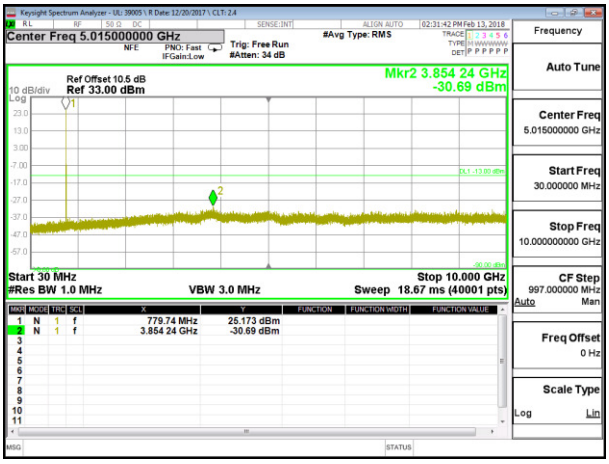

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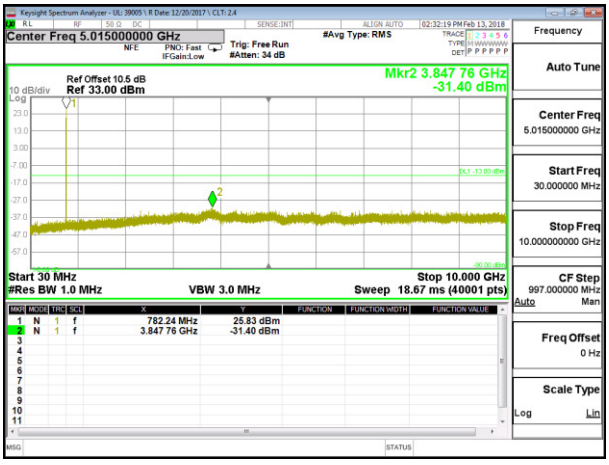
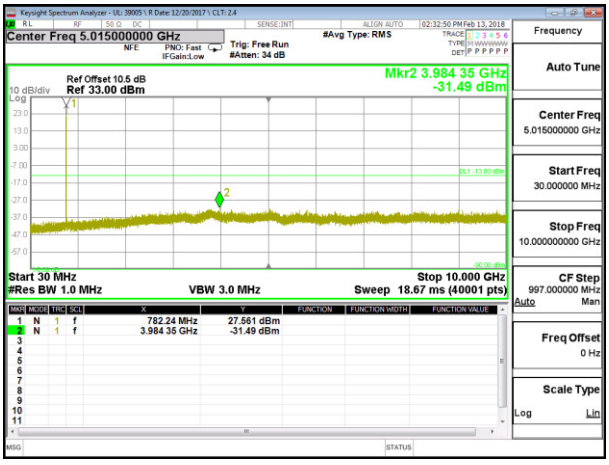
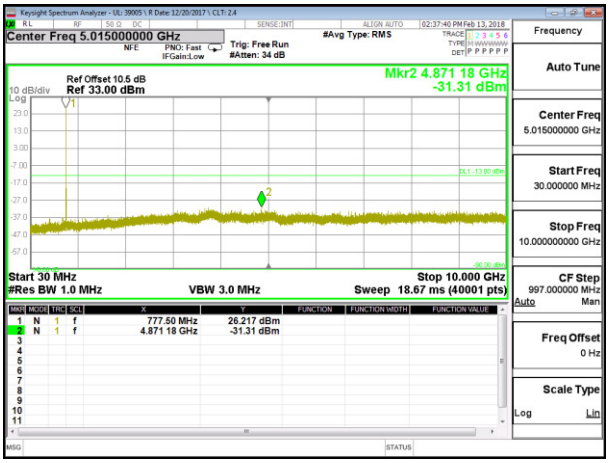


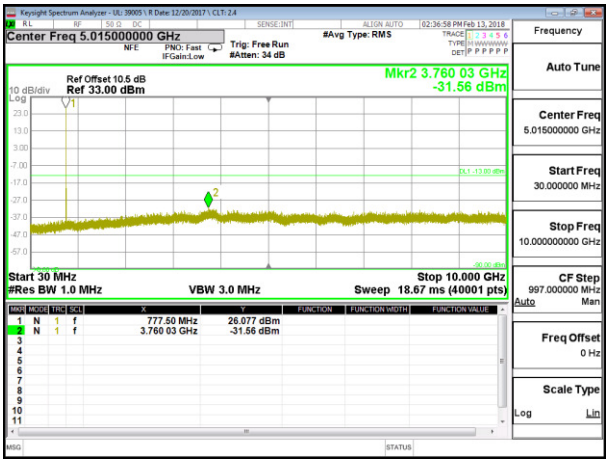
LTE B13 5MHz QPSK High Channel RB1-0



LTE B13 5MHz 16QAM High Channel RB1-0



LTE B13 10MHz QPSK Middle Channel RB1-0

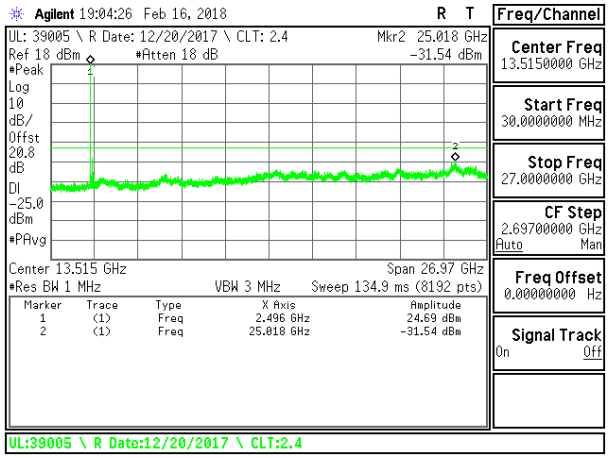


LTE B13 10MHz 16QAM Middle Channel RB1-0

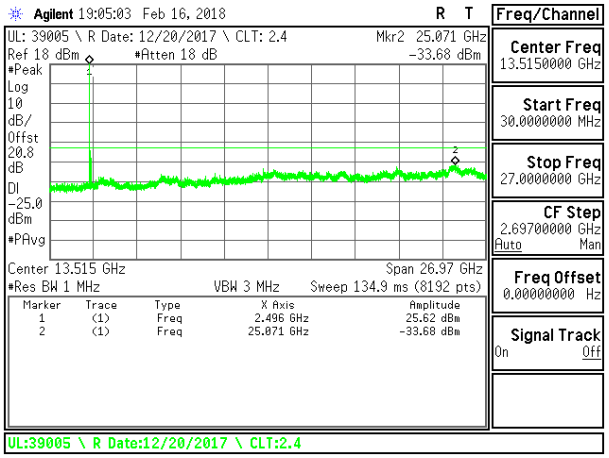
8.3.9. LTE BAND 17

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).

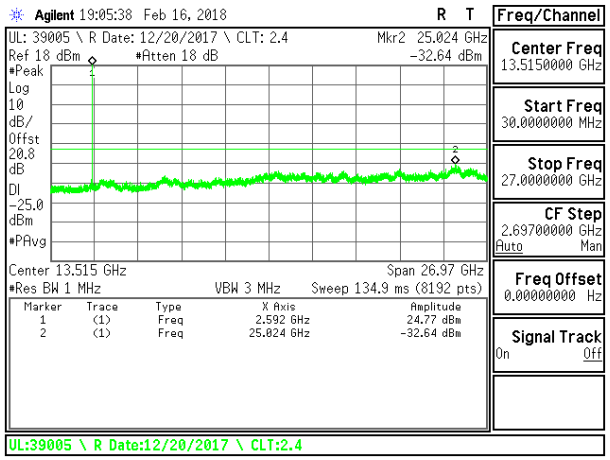
8.3.10. LTE BAND 41



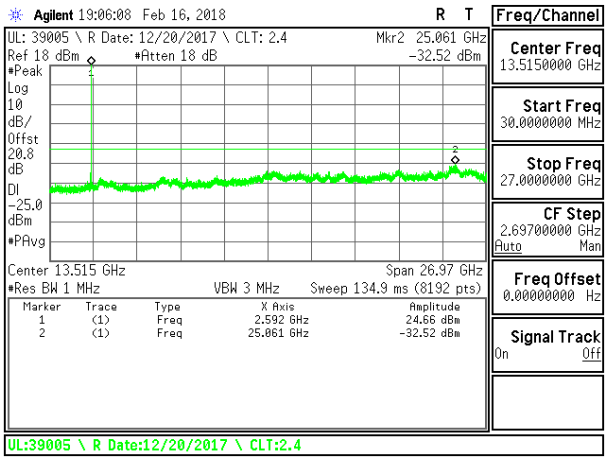
LTE B41 5MHz QPSK Low Channel RB1-0



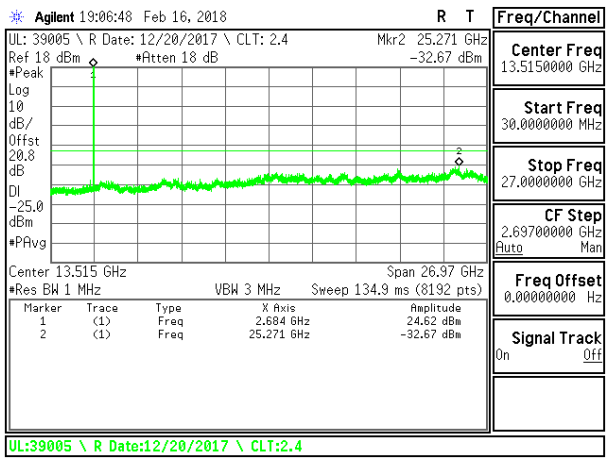
LTE B41 5MHz 16QAM Low Channel RB1-0



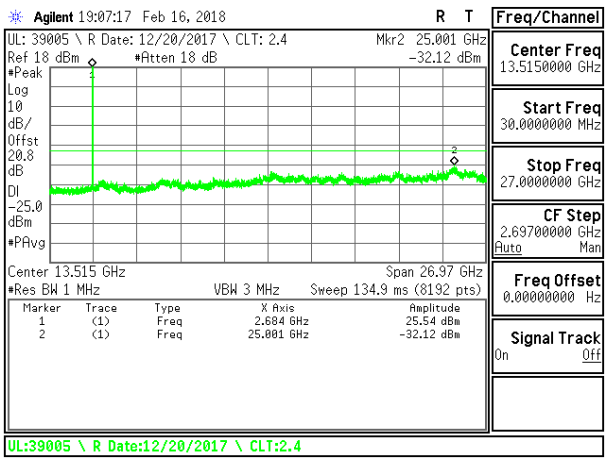
LTE B41 5MHz QPSK Middle Channel RB1-0



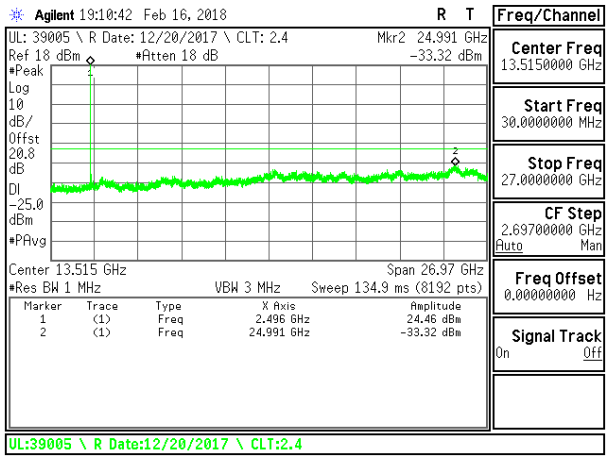
LTE B41 5MHz 16QAM Middle Channel RB1-0



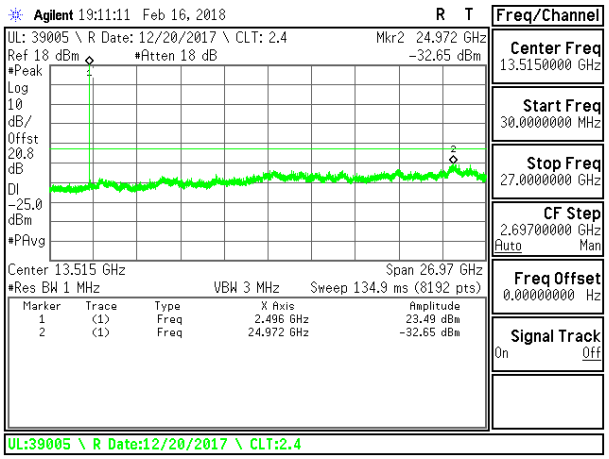
LTE B41 5MHz QPSK High Channel RB1-0



LTE B41 5MHz 16QAM High Channel RB1-0



LTE B41 10MHz QPSK Low Channel RB1-0



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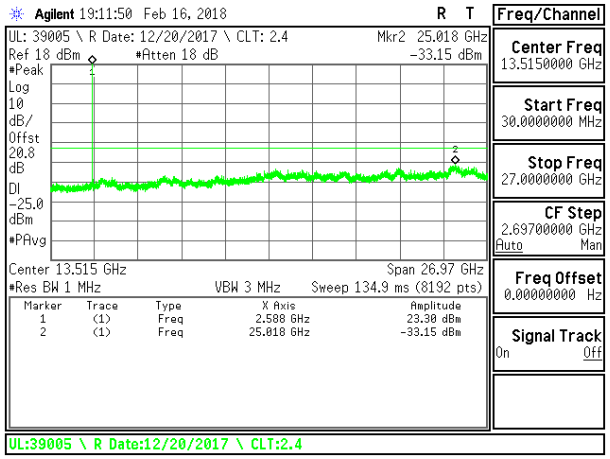
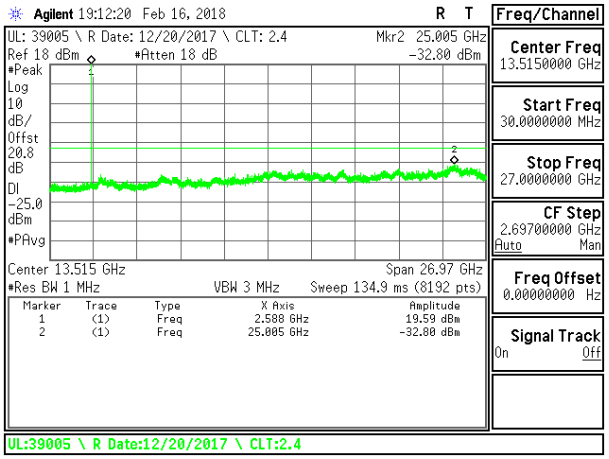
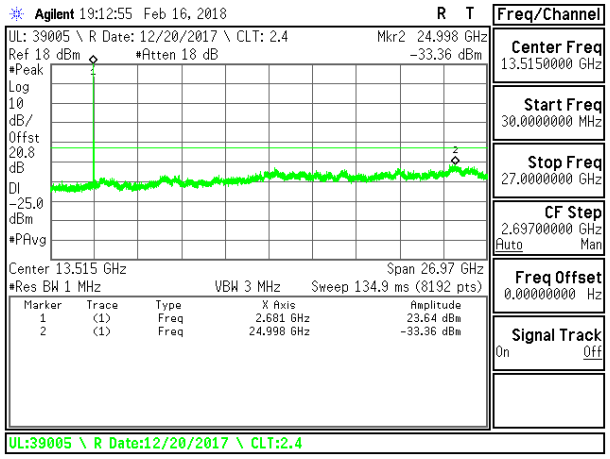


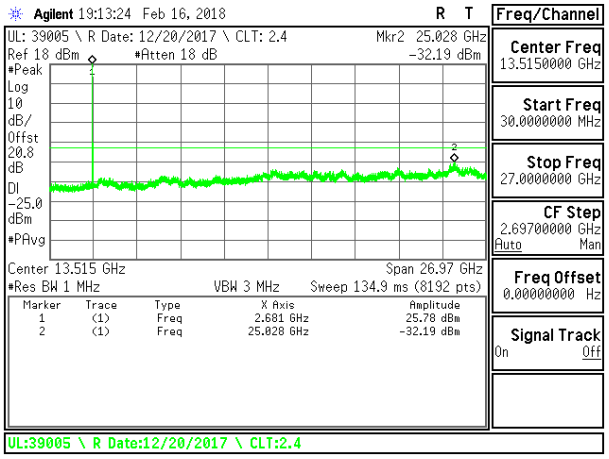
LTE B41 10MHz QPSK Middle Channel RB1-0



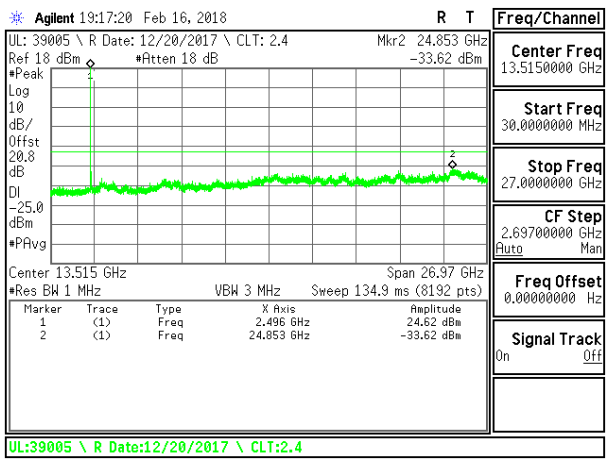
LTE B41 10MHz 16QAM Middle Channel RB1-0



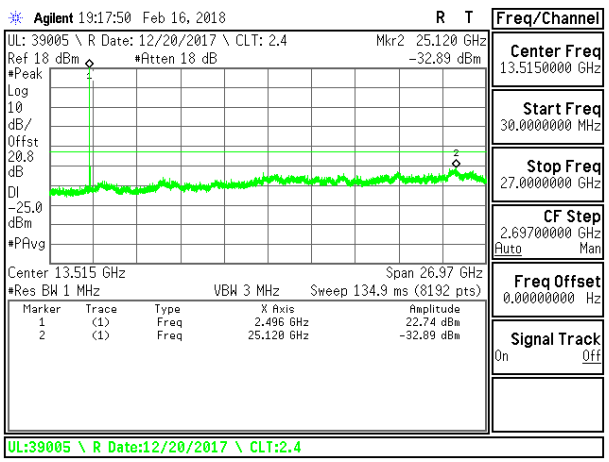
LTE B41 10MHz QPSK High Channel RB1-0



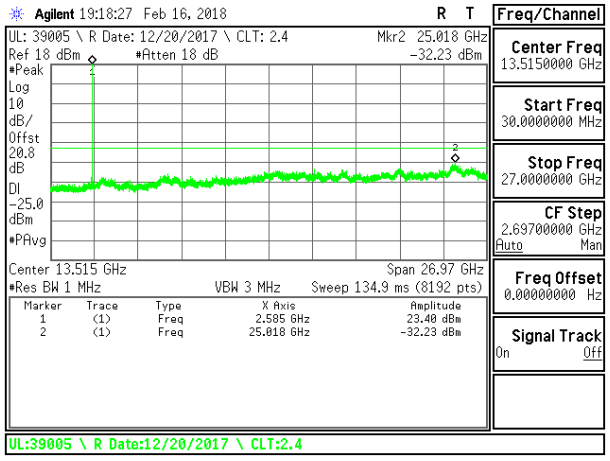
LTE B41 10MHz 16QAM High Channel RB1-0



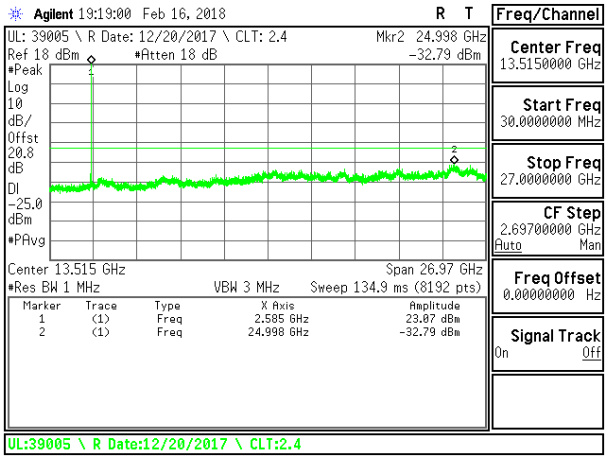
LTE B41 15MHz QPSK Low Channel RB1-0



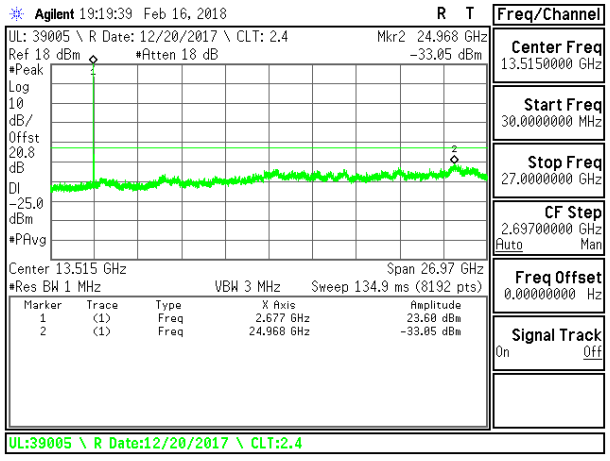
LTE B41 15MHz 16QAM Low Channel RB1-0



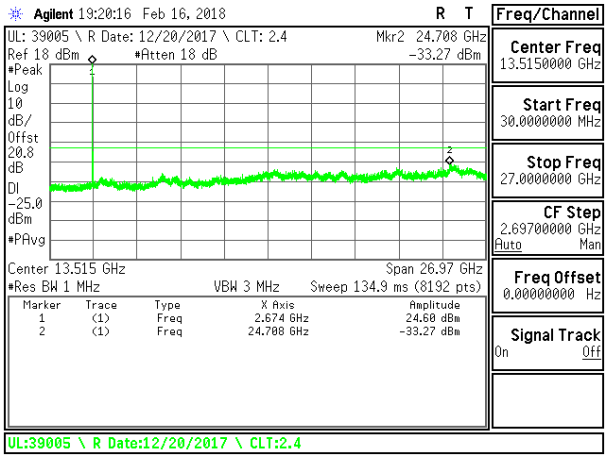
LTE B41 15MHz QPSK Middle Channel RB1-0



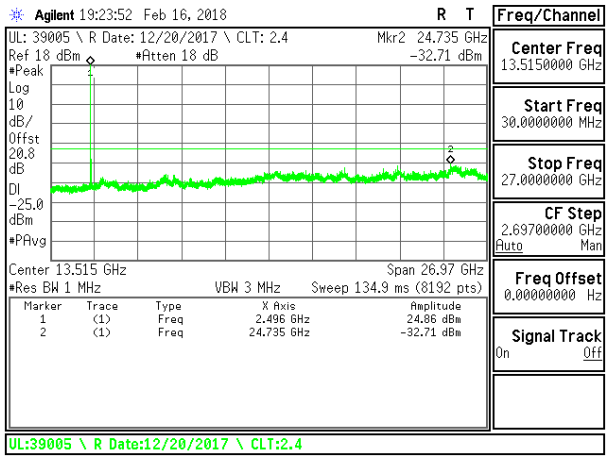
LTE B41 15MHz 16QAM Middle Channel RB1-0



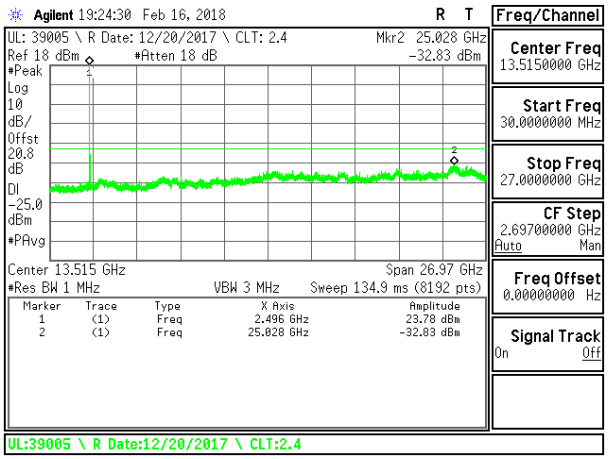
LTE B41 15MHz QPSK High Channel RB1-0



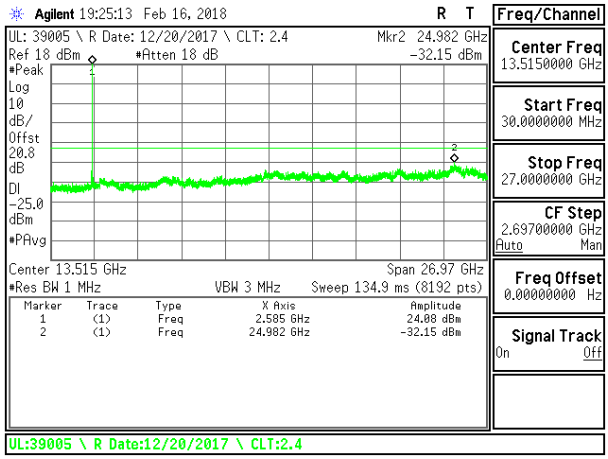
LTE B41 15MHz 16QAM High Channel RB1-0



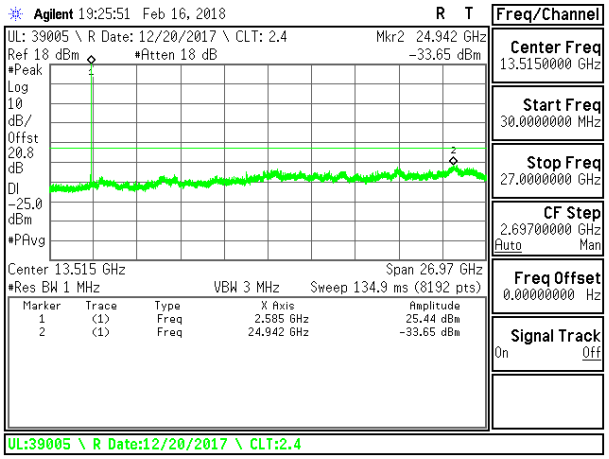
LTE B41 20MHz QPSK Low Channel RB1-0



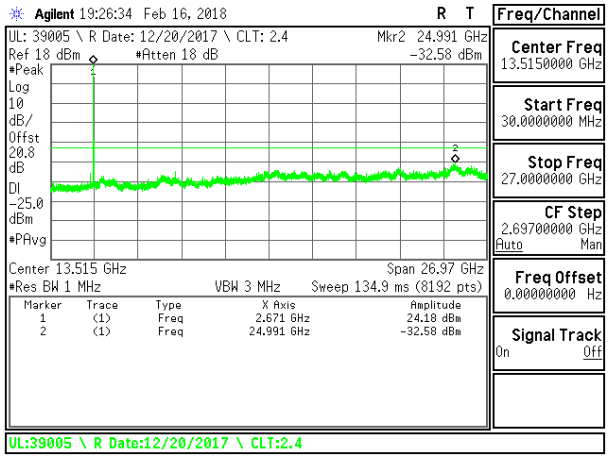
LTE B41 20MHz 16QAM Low Channel RB1-0



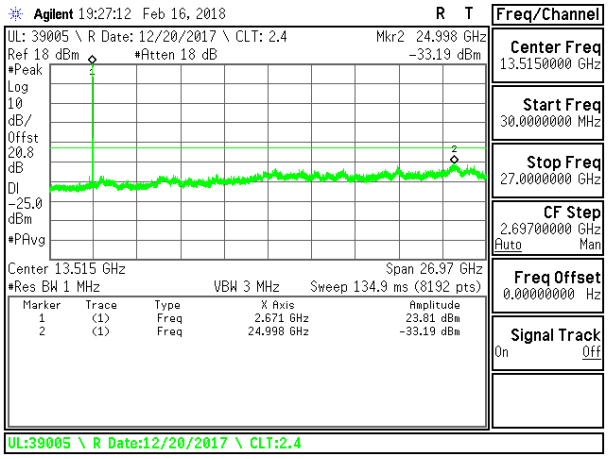
LTE B41 20MHz QPSK Middle Channel RB1-0



LTE B41 20MHz 16QAM Middle Channel RB1-0



LTE B41 20MHz QPSK High Channel RB1-0



LTE B41 20MHz 16QAM High Channel RB1-0

8.4. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

FCC: §22.355
The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

FCC: §24.235 & §27.54
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = −30°C to +50°C
- Voltage = (85% - 115%)

  Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
  End Voltage, 3.2VDC.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

MODES TESTED

- GSM 1900
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13

RESULTS

See the following pages.

Note(s):

GSM 850 Band Measured Results

GSM 850 (Frequency range: 824-849 MHz) is covered by LTE Band 5 (Frequency range: 824-849 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 5 (Frequency range: 824-849 MHz) no testing is necessary due to overlapping frequency range.

LTE Band 41 Measured Results

LTE Band 41 (Frequency range: 2496-2690 MHz) is covered by LTE Band 7 (Frequency range: 2500-2570 MHz) no testing is necessary due to overlapping frequency range.

8.4.1. GSM 1900

ID:	39005	Date:	2/14/18

Reference Frequency: GSM1900 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	1880.000018	-0.003	2.5
3.85	40	1880.000017	-0.003	2.5
3.85	30	1880.000019	-0.004	2.5
3.85	***20***	**1880.000011**	**0**	***2.5***
3.85	10	1880.000010	0.001	2.5
3.85	0	1880.000012	0.000	2.5
3.85	-10	1880.000014	-0.001	2.5
3.85	-20	1880.000016	-0.003	2.5
3.85	-30	1880.000018	-0.004	2.5

Reference Frequency: GSM1900 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***	***1880.000011***	***0***	***2.5***
4.25	25	1880.000015	*-0.002*	2.5
3.65	25	1880.000012	*0.000*	2.5

8.4.2. LTE BAND 4

ID:	39005	Date:	2/14/18

QPSK, (20MHz BANDWIDTH)

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	1732.500007	0.001	2.5
3.85	40	1732.500007	0.001	2.5
3.85	30	1732.500005	0.002	2.5
3.85	***20***	**1732.500008**	**0**	***2.5***
3.85	10	1732.500006	0.002	2.5
3.85	0	1732.500005	0.002	2.5
3.85	-10	1732.500005	0.002	2.5
3.85	-20	1732.500005	0.002	2.5
3.85	-30	1732.500004	0.002	2.5

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***1732.500008***	***0***	***2.5***
4.25	25	1732.500009	*0.000*	2.5
3.65	25	1732.500010	*-0.001*	2.5

8.4.3. LTE BAND 5

ID:	39005	Date:	2/14/18

QPSK, (10MHz BANDWIDTH)

Reference Frequency: LTE Band 5 Mid Channel		836.5	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.250	Hz
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	836.499991	0.000	2.5
3.85	40	836.499993	-0.001	2.5
3.85	30	836.499993	-0.002	2.5
3.85	***20***	**836.499991**	**0**	***2.5***
3.85	10	836.499993	-0.002	2.5
3.85	0	836.499990	0.002	2.5
3.85	-10	836.499993	-0.002	2.5
3.85	-20	836.499992	-0.001	2.5
3.85	-30	836.499992	0.000	2.5

Reference Frequency: LTE Band 5 Mid Channel		836.5	MHz @ 20°C
Limit: to stay +- 2.5 ppm =		2091.250	Hz
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***836.499991***	***0***	***2.5***
4.25	25	836.499993	*-0.002*	2.5
3.65	25	836.499992	*0.000*	2.5

8.4.4. LTE BAND 7

ID:	39005	Date:	2/14/18

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	2535.000015	0.000	2.5
3.85	40	2535.000016	-0.001	2.5
3.85	30	2535.000013	0.001	2.5
3.85	***20***	**2535.000015**	**0**	***2.5***
3.85	10	2535.000017	-0.001	2.5
3.85	0	2535.000015	0.000	2.5
3.85	-10	2535.000016	-0.001	2.5
3.85	-20	2535.000015	0.000	2.5
3.85	-30	2535.000015	0.000	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	2535.000016	*0.000*	2.5
3.65	25	2535.000016	*-0.001*	2.5

8.4.5. LTE BAND 12

ID:	39005	Date:	2/14/18

QPSK, (10MHz BANDWIDTH)

Reference Frequency: LTE Band 12 Mid Channel		707.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1768.750	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	50	707.499998	-0.008	2.5
3.85	40	707.499997	-0.006	2.5
3.85	30	707.499997	-0.007	2.5
3.85	***20***	**707.499993**	**0**	***2.5***
3.85	10	707.499994	-0.002	2.5
3.85	0	707.499994	-0.001	2.5
3.85	-10	707.499995	-0.003	2.5
3.85	-20	707.499994	-0.002	2.5
3.85	-30	707.499994	-0.001	2.5

Reference Frequency: LTE Band 12 Mid Channel		707.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1768.750	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.85	***25***	***707.499993***	***0***	***2.5***
4.25	25	707.499994	*-0.002*	2.5
3.65	25	707.499994	*-0.003*	2.5

8.4.6. LTE BAND 13

ID:	39005	Date:	2/14/18

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	781.999988	0.002	2.5
3.85	40	781.999989	0.000	2.5
3.85	30	781.999990	0.000	2.5
3.85	***20***	**781.999989**	**0**	***2.5***
3.85	10	781.999992	-0.003	2.5
3.85	0	781.999992	-0.003	2.5
3.85	-10	781.999992	-0.004	2.5
3.85	-20	781.999992	-0.003	2.5
3.85	-30	781.999994	-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	781.999990	*0.000*	2.5
3.65	25	781.999990	*-0.001*	2.5

8.5. PEAK-TO-AVERAGE POWER RATIO

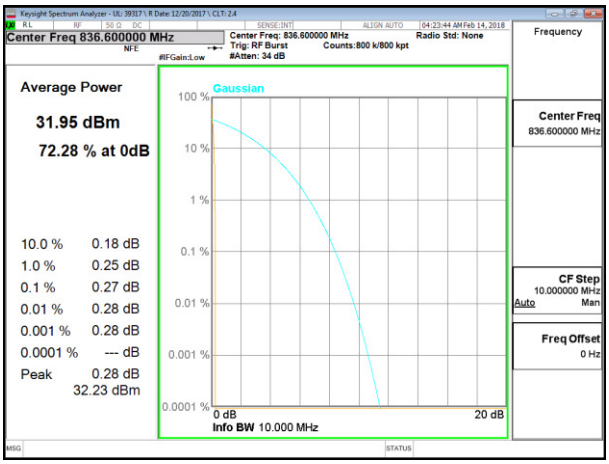
LIMIT

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.

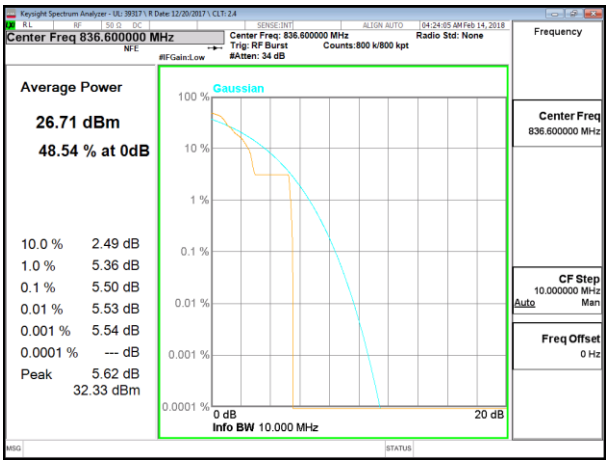
RESULT

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.

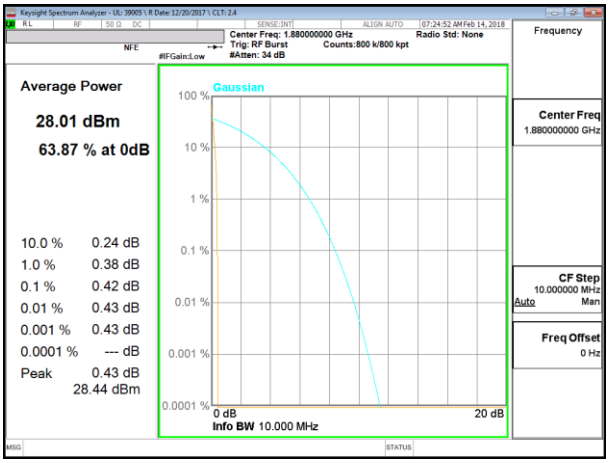
8.5.1. GSM



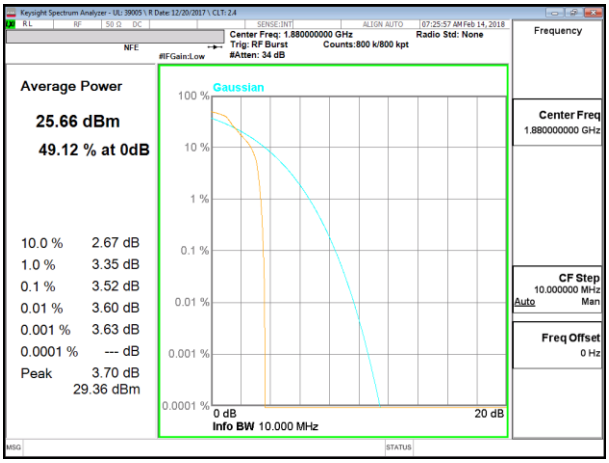
GSM 850MHz GPRS Middle Channel



GSM 850MHz EGPRS Middle Channel

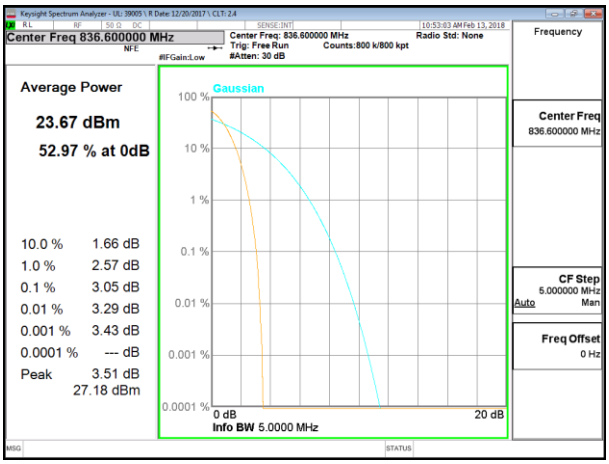


GSM 1900MHz GPRS Middle Channel

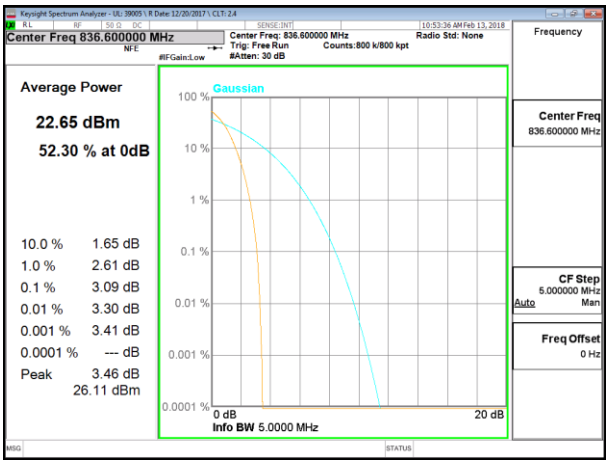


GSM 1900MHz EGPRS Middle Channel

8.5.2. WCDMA

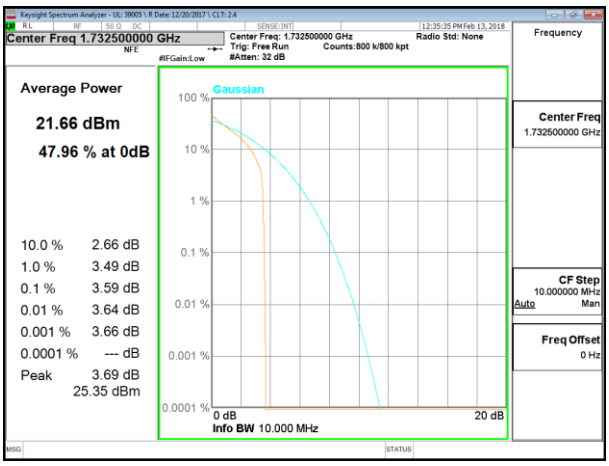


WCDMA Band 5 Rel 99 Middle Channel

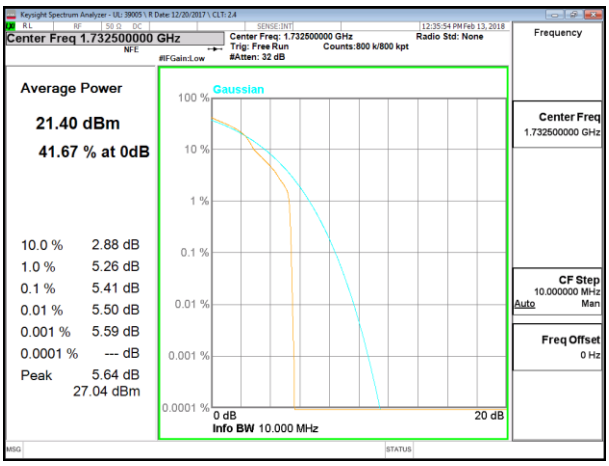


WCDMA Band 5 HSDPA Middle Channel

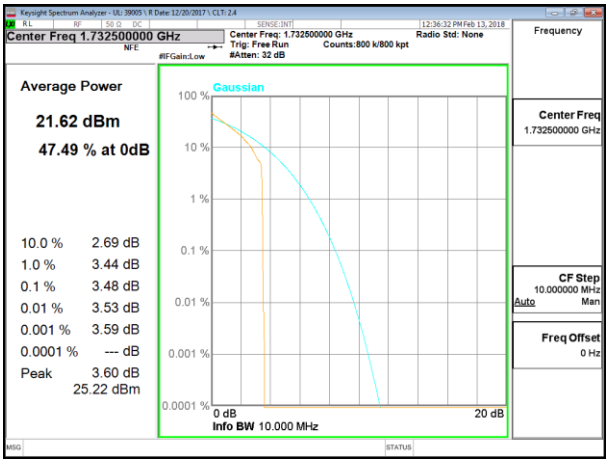
8.5.3. LTE BAND 4



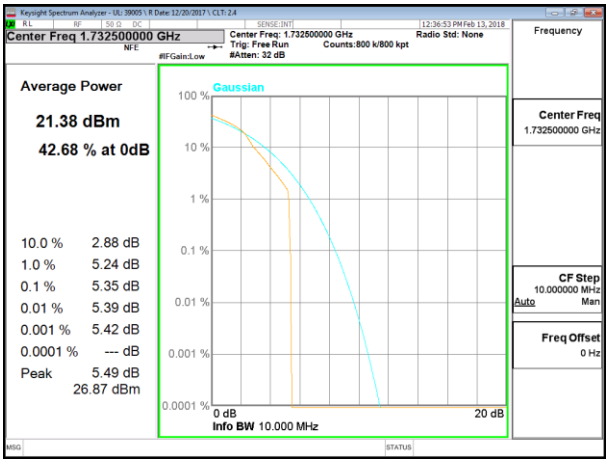
LTE B4 1.4MHz QPSK Middle Channel



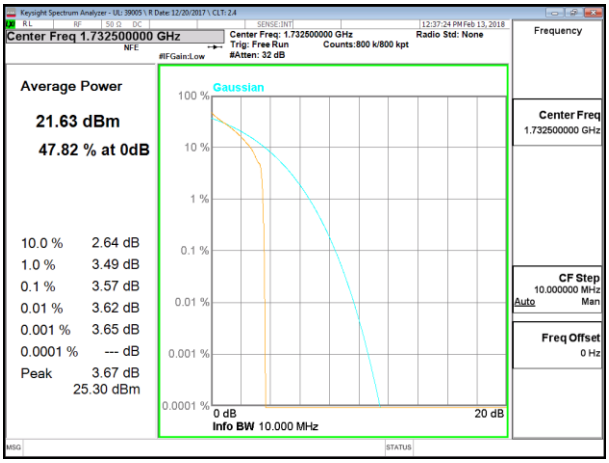
LTE B4 1.4MHz 16QAM Middle Channel



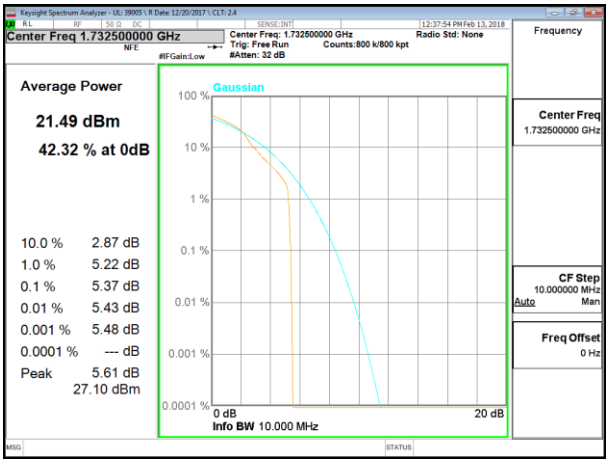
LTE B4 3MHz QPSK Middle Channel



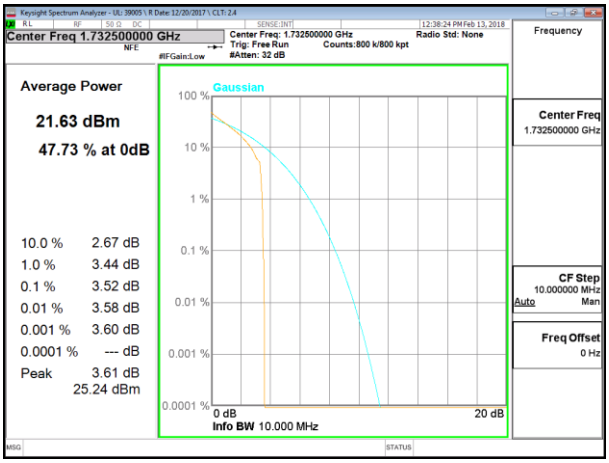
LTE B4 3MHz 16QAM Middle Channel



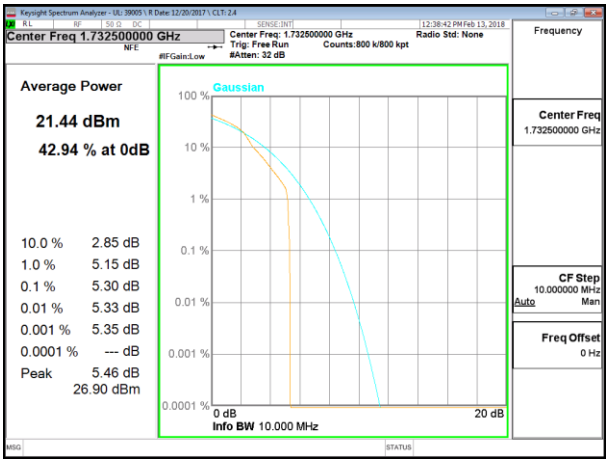
LTE B4 5MHz QPSK Middle Channel



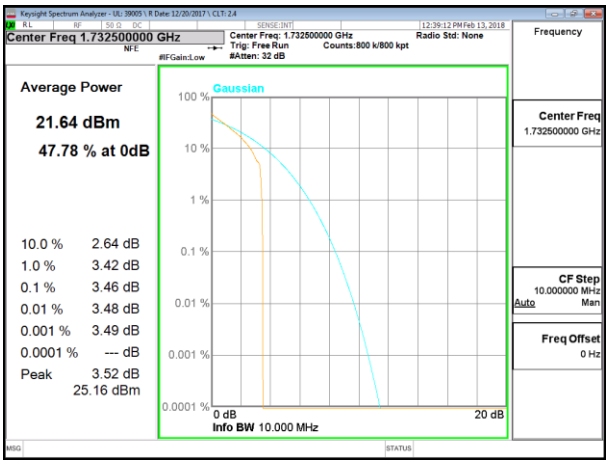
LTE B4 5MHz 16QAM Middle Channel



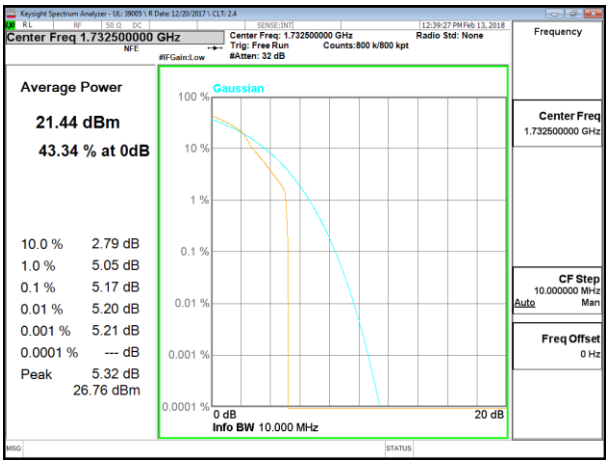
LTE B4 10MHz QPSK Middle Channel



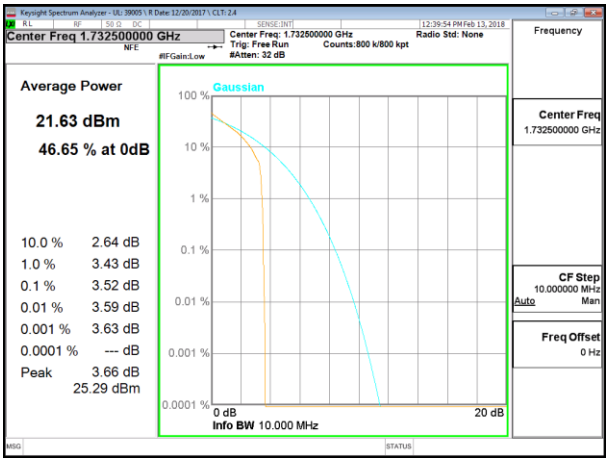
LTE B4 10MHz 16QAM Middle Channel



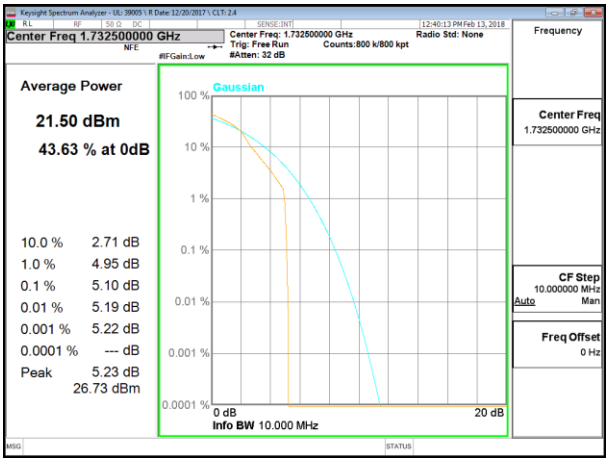
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel

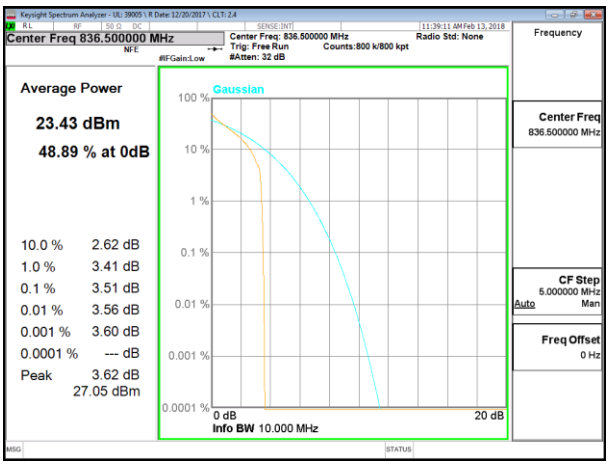


LTE B4 20MHz QPSK Middle Channel

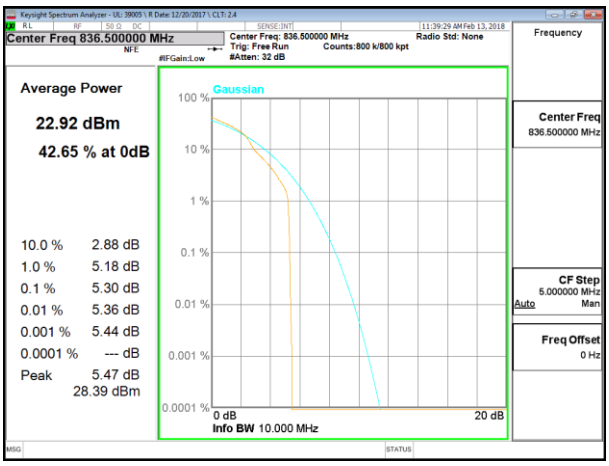


LTE B4 20MHz 16QAM Middle Channel

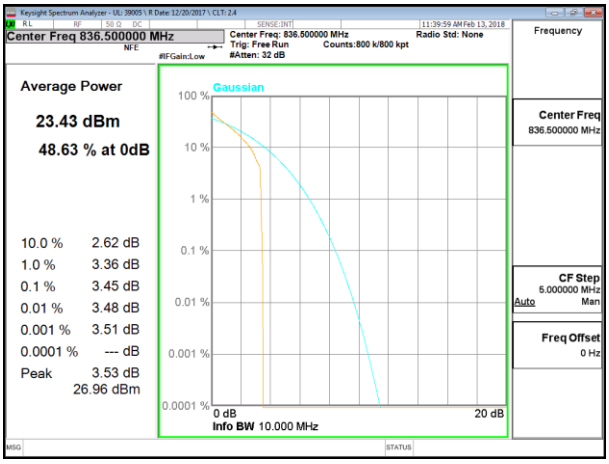
8.5.4. LTE BAND 5



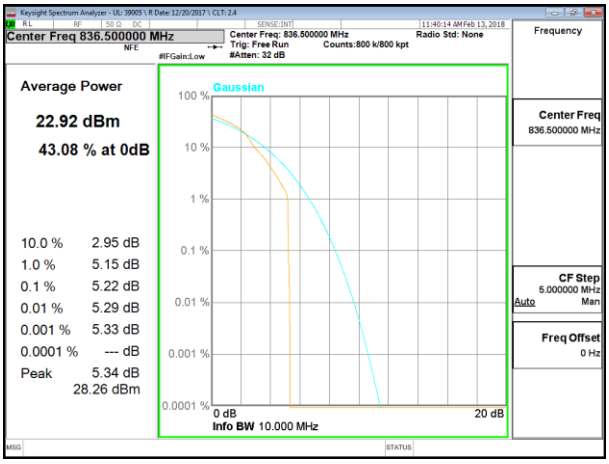
LTE B5 1.4MHz QPSK Middle Channel



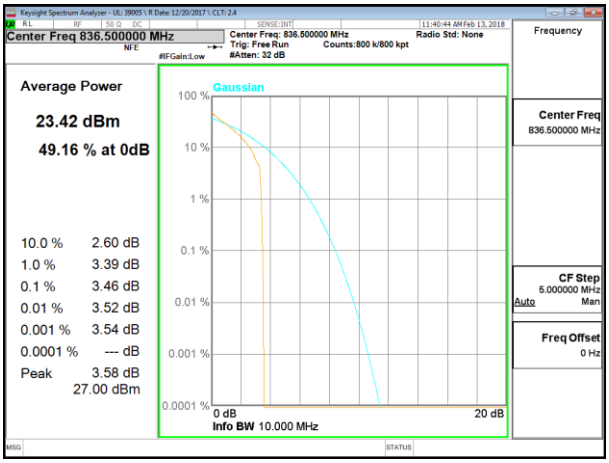
LTE B5 1.4MHz 16QAM Middle Channel



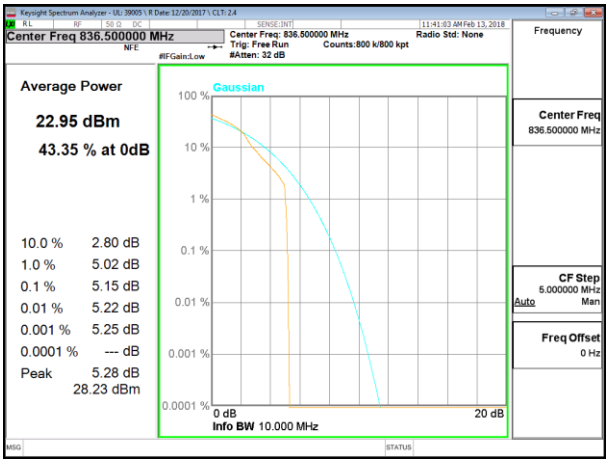
LTE B5 3MHz QPSK Middle Channel



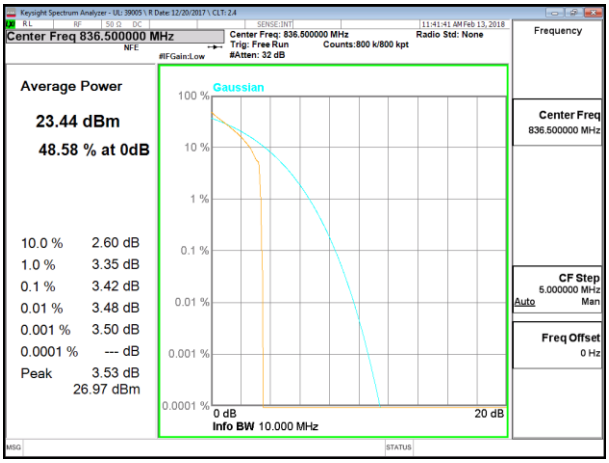
LTE B5 3MHz 16QAM Middle Channel



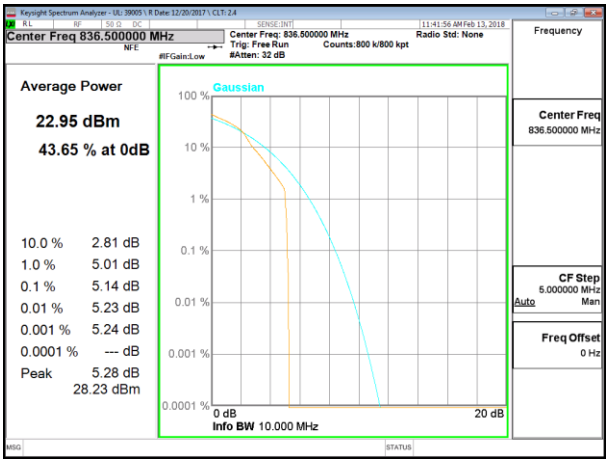
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

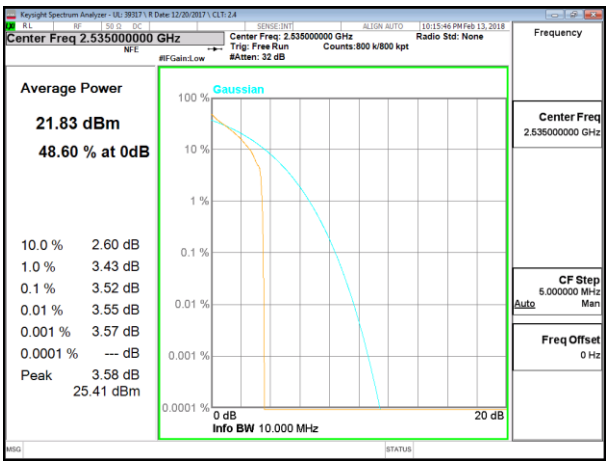


LTE B5 10MHz QPSK Middle Channel

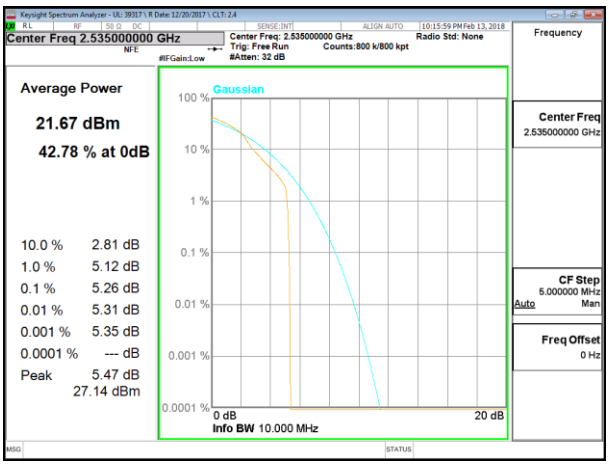


LTE B5 10MHz 16QAM Middle Channel

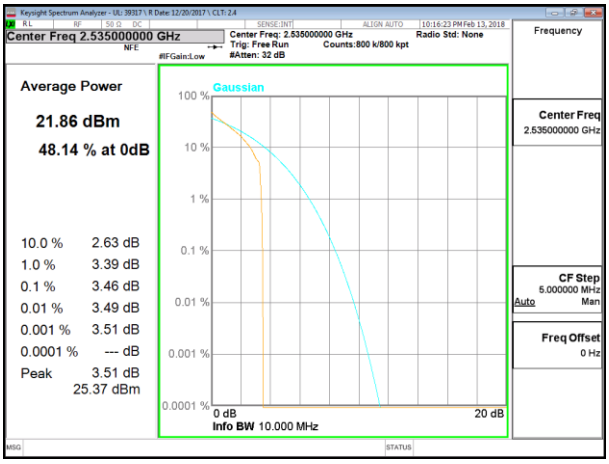
8.5.5. LTE BAND 7



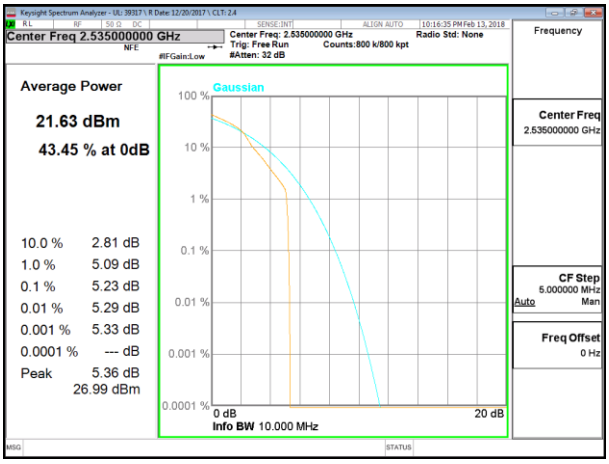
LTE B7 5MHz QPSK Middle Channel



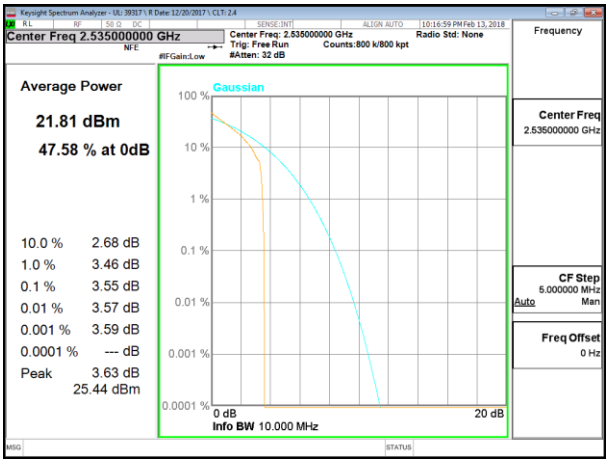
LTE B7 5MHz 16QAM Middle Channel



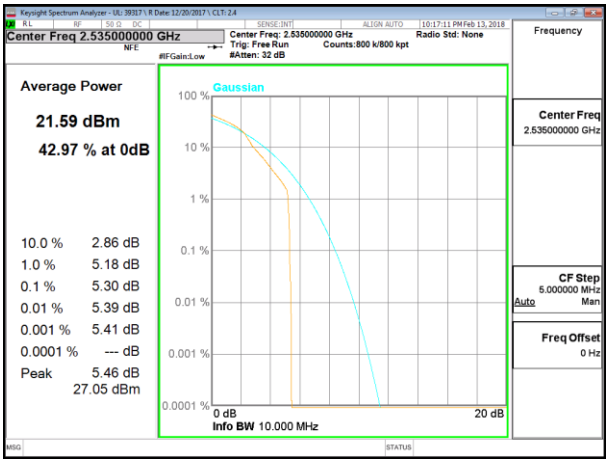
LTE B7 10MHz QPSK Middle Channel



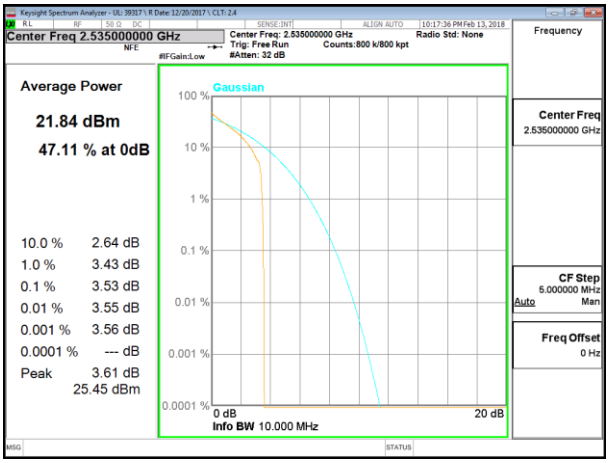
LTE B7 10MHz 16QAM Middle Channel



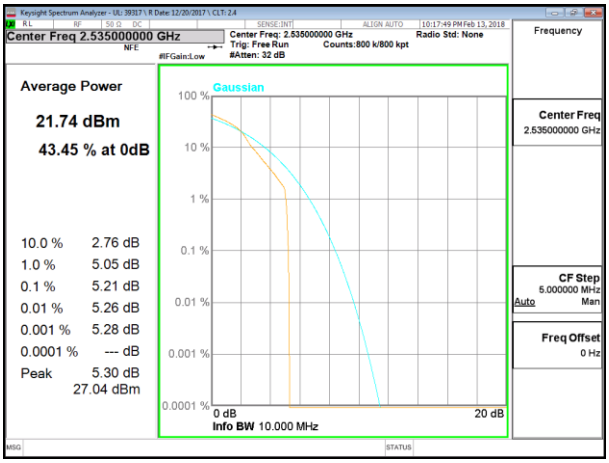
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

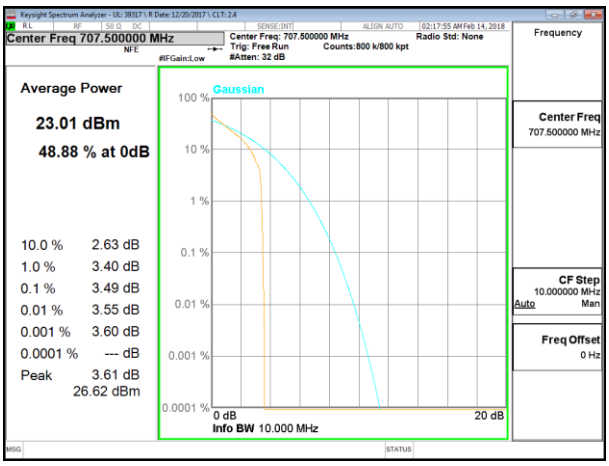


LTE B7 20MHz QPSK Middle Channel

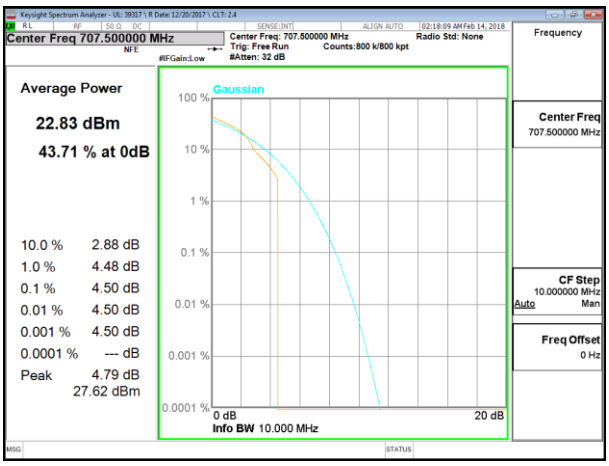


LTE B7 20MHz 16QAM Middle Channel

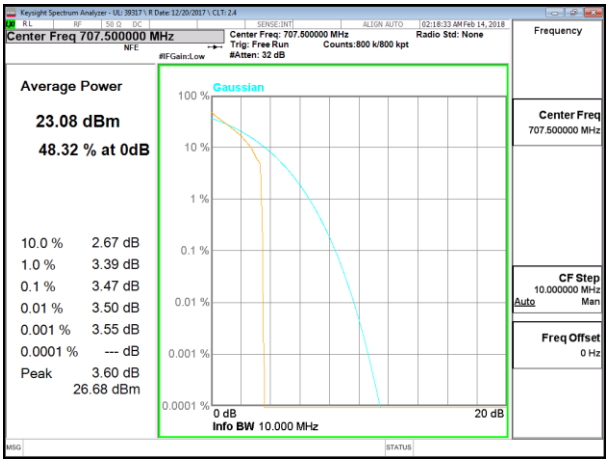
8.5.6. LTE BAND 12



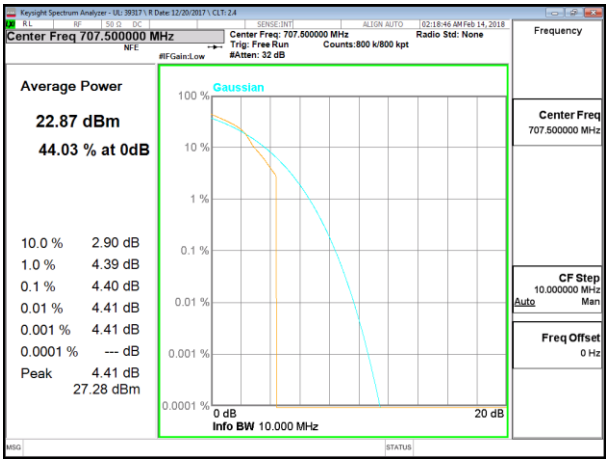
LTE B12 1.4MHz QPSK Middle Channel



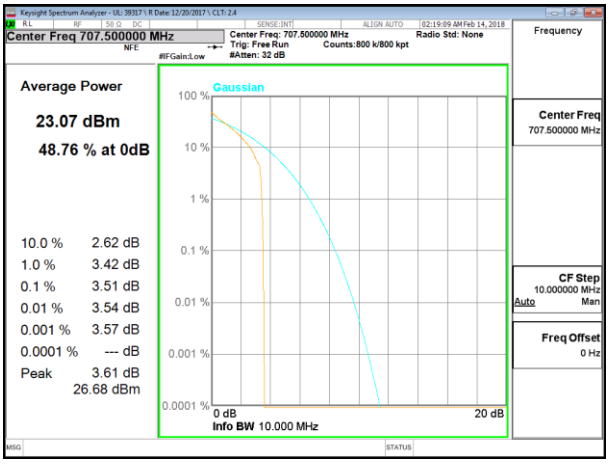
LTE B12 1.4MHz 16QAM Middle Channel



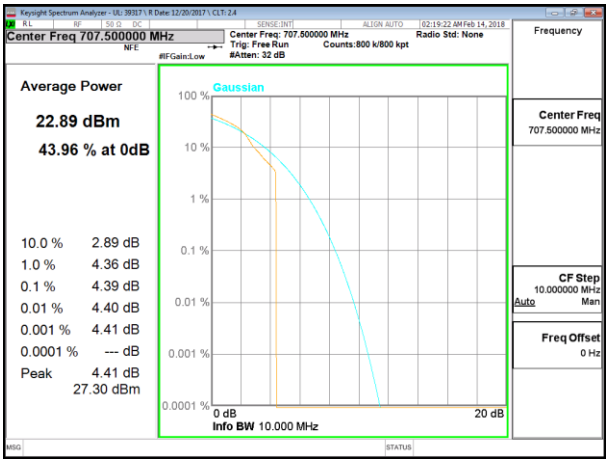
LTE B12 3MHz QPSK Middle Channel



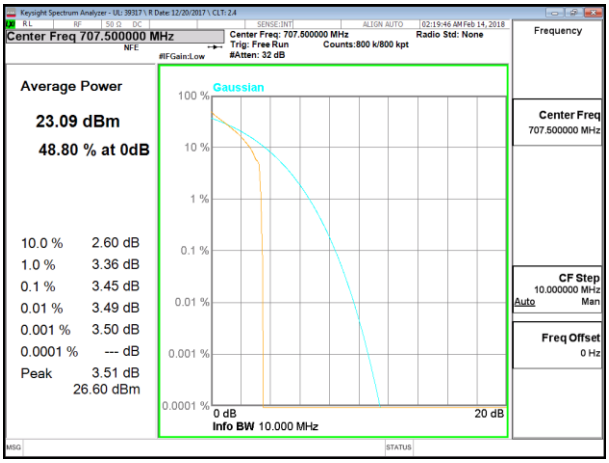
LTE B12 3MHz 16QAM Middle Channel



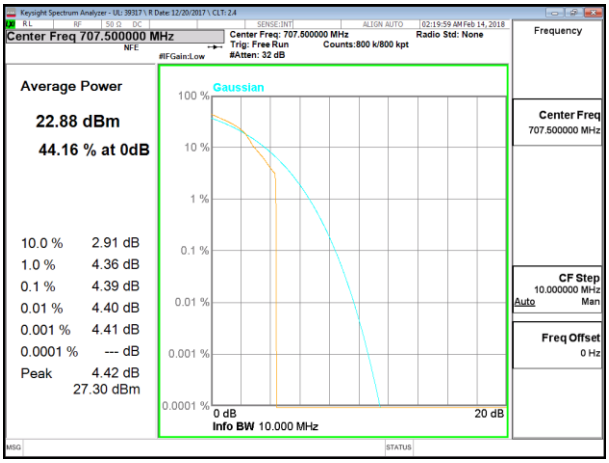
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

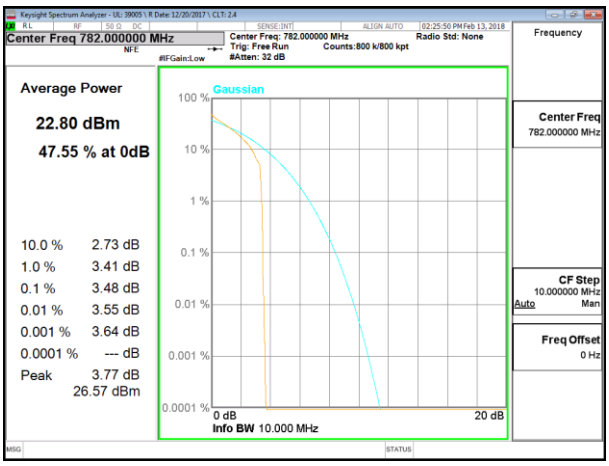


LTE B12 10MHz QPSK Middle Channel

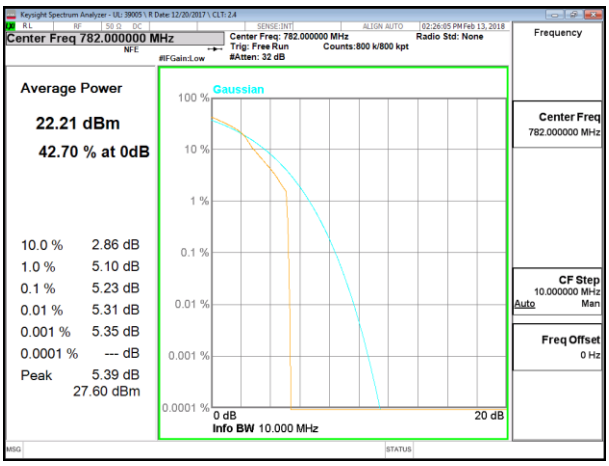


LTE B12 10MHz 16QAM Middle Channel

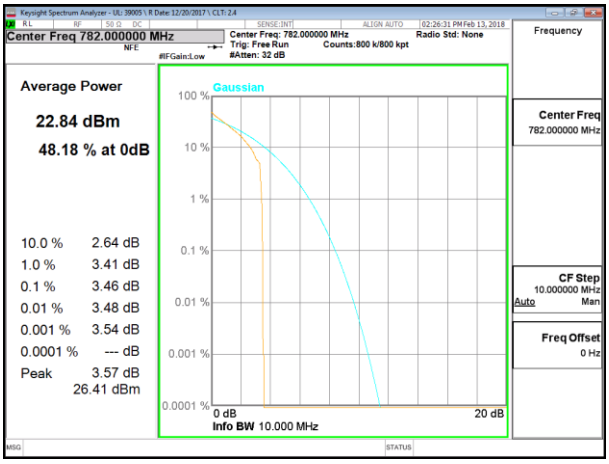
8.5.7. LTE BAND 13



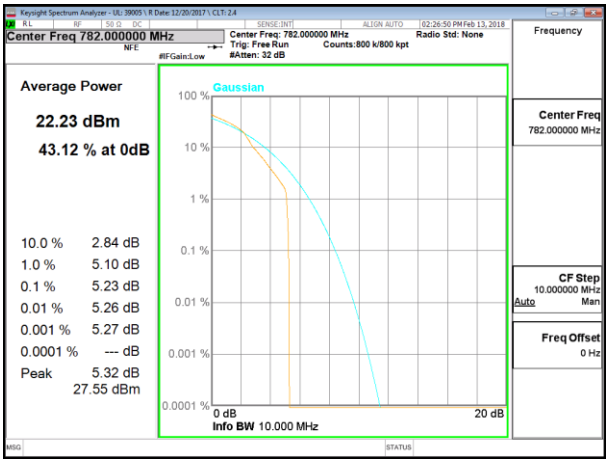
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel

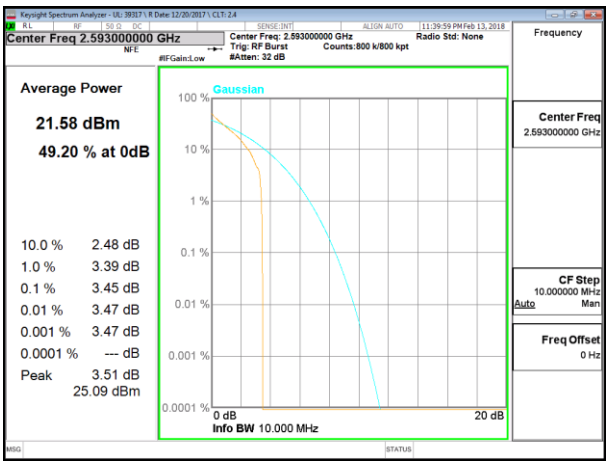


LTE B13 10MHz 16QAM Middle Channel

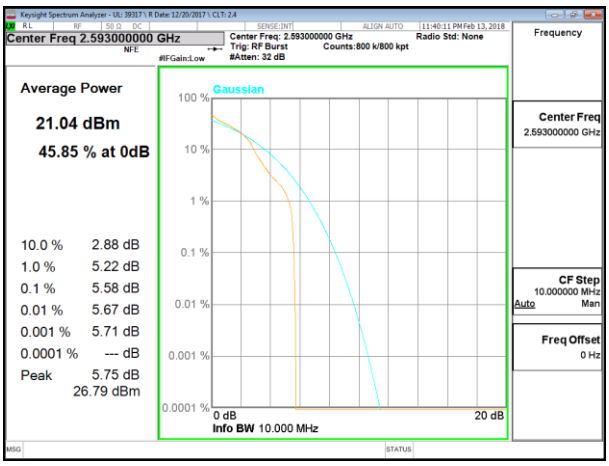
8.5.8. LTE BAND 17

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).

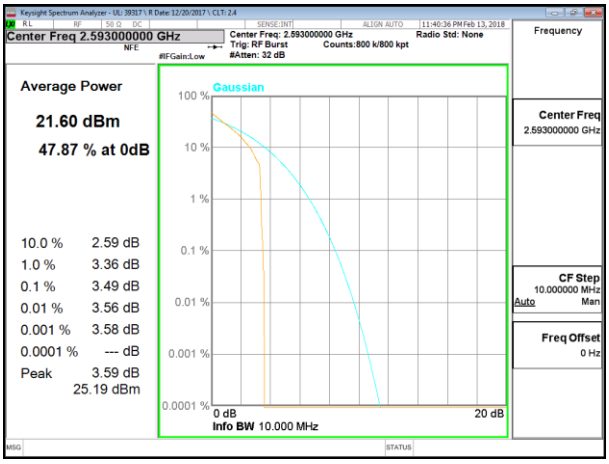
8.5.9. LTE BAND 41



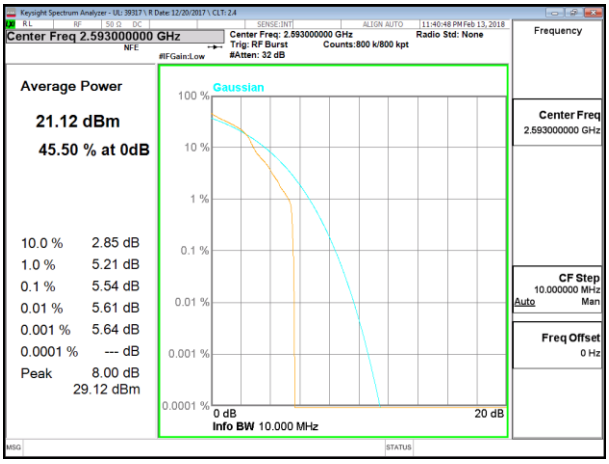
LTE B41 5MHz QPSK Middle Channel



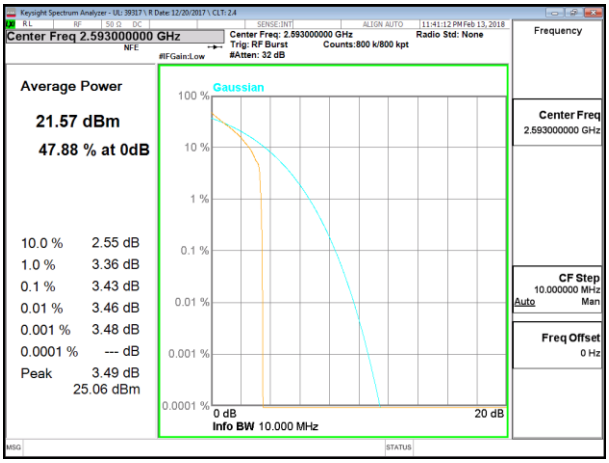
LTE B41 5MHz 16QAM Middle Channel



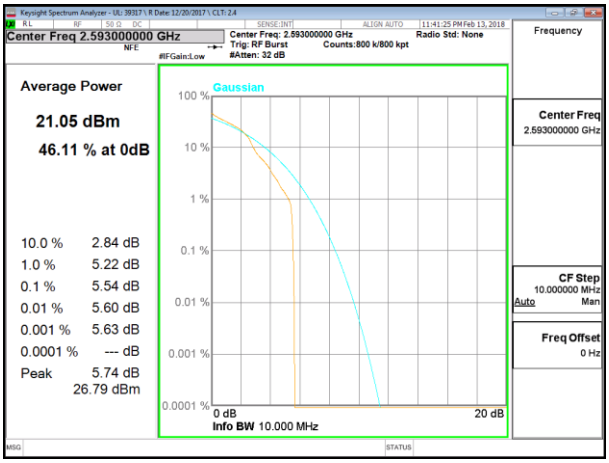
LTE B41 10MHz QPSK Middle Channel



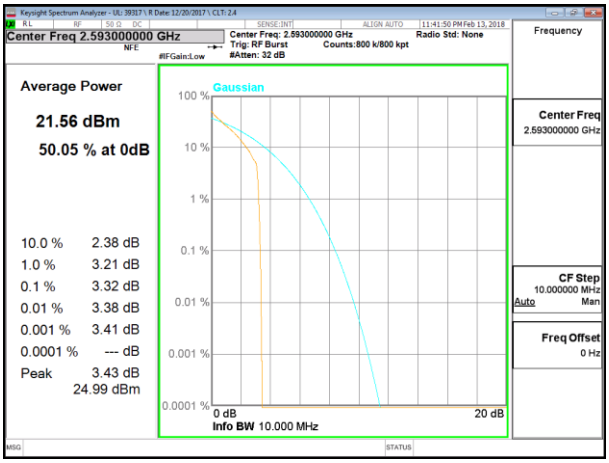
LTE B41 10MHz 16QAM Middle Channel



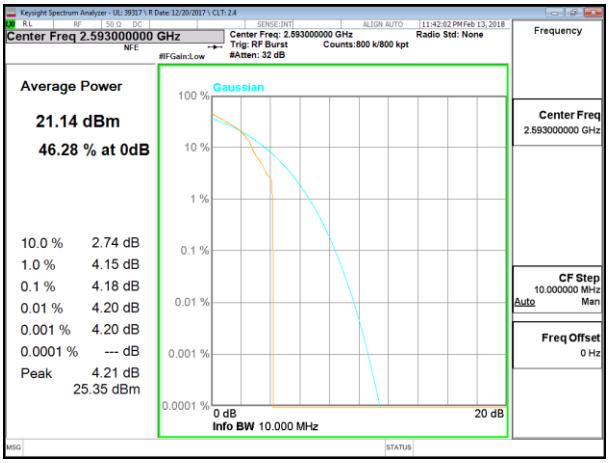
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

9. RADIATED TEST RESULTS

9.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (g), (h)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

FCC: §27.53 (Band 13)
(c) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

FCC: §27.53 (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
- WCDMA Band 5
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 41

RESULTS

9.1.1. GSM

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

Company: SOMC
Project #: 12132671
Date: 2/16/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
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	-26.3	V	3.0	37.0	1.0	-62.3	-13.0	-49.3	
2472.60	-23.6	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3296.80	-23.3	V	3.0	36.2	1.0	-58.5	-13.0	-45.5	
1648.40	-26.0	H	3.0	37.0	1.0	-62.1	-13.0	-49.1	
2472.60	-25.9	H	3.0	36.4	1.0	-61.3	-13.0	-48.3	
3296.80	-23.2	H	3.0	36.2	1.0	-58.4	-13.0	-45.4	
Mid Ch, 836.6MHz									
1673.20	-25.9	V	3.0	37.0	1.0	-61.9	-13.0	-48.9	
2509.80	-23.6	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3346.40	-23.3	V	3.0	36.1	1.0	-58.5	-13.0	-45.5	
1673.20	-26.4	H	3.0	37.0	1.0	-62.4	-13.0	-49.4	
2509.80	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3346.40	-23.2	H	3.0	36.1	1.0	-58.4	-13.0	-45.4	
High Ch, 848.8MHz									
1697.60	-26.4	V	3.0	37.0	1.0	-62.3	-13.0	-49.3	
2546.40	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3395.20	-23.2	V	3.0	36.1	1.0	-58.3	-13.0	-45.3	
1697.60	-26.0	H	3.0	37.0	1.0	-61.9	-13.0	-48.9	
2546.40	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3395.20	-23.3	H	3.0	36.1	1.0	-58.4	-13.0	-45.4	

GSM 850MHz GPRS

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

Company: SOMC
Project #: 12132671
Date: 2/16/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
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	-26.4	V	3.0	37.0	1.0	-62.4	-13.0	-49.4	
2472.60	-23.4	V	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3296.80	-23.7	V	3.0	36.2	1.0	-58.8	-13.0	-45.8	
1648.40	-26.3	H	3.0	37.0	1.0	-62.3	-13.0	-49.3	
2472.60	-26.1	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
3296.80	-23.3	H	3.0	36.2	1.0	-58.5	-13.0	-45.5	
Mid Ch, 836.6MHz									
1673.20	-26.0	V	3.0	37.0	1.0	-62.0	-13.0	-49.0	
2509.80	-23.6	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3346.40	-23.4	V	3.0	36.1	1.0	-58.6	-13.0	-45.6	
1673.20	-26.4	H	3.0	37.0	1.0	-62.4	-13.0	-49.4	
2509.80	-24.1	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3346.40	-23.5	H	3.0	36.1	1.0	-58.7	-13.0	-45.7	
High Ch, 848.8MHz									
1697.60	-26.5	V	3.0	37.0	1.0	-62.4	-13.0	-49.4	
2546.40	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3395.20	-23.4	V	3.0	36.1	1.0	-58.5	-13.0	-45.5	
1697.60	-26.2	H	3.0	37.0	1.0	-62.1	-13.0	-49.1	
2546.40	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3395.20	-23.5	H	3.0	36.1	1.0	-58.6	-13.0	-45.6	

GSM 850MHz EGPRS

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

Company: SOMC
Project #: 12132671
Date: 2/16/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: GPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-18.3	V	3.0	35.9	1.0	-53.2	-13.0	-40.2	
5550.60	-14.1	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7400.80	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3700.40	-17.9	H	3.0	35.9	1.0	-52.8	-13.0	-39.8	
5550.60	-14.4	H	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7400.80	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3760.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5640.00	-13.4	V	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7520.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-18.3	H	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-14.1	H	3.0	35.5	1.0	-48.5	-13.0	-35.5	
7520.00	-13.0	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
High Ch, 1909.8MHz									
3819.60	-17.6	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5729.40	-15.0	V	3.0	35.5	1.0	-49.5	-13.0	-36.5	
7639.20	-13.2	V	3.0	35.8	1.0	-48.0	-13.0	-35.0	
3819.60	-18.7	H	3.0	35.8	1.0	-53.5	-13.0	-40.5	
5729.40	-14.8	H	3.0	35.5	1.0	-49.3	-13.0	-36.3	
7639.20	-13.6	H	3.0	35.8	1.0	-48.3	-13.0	-35.3	

GSM 1900MHz GPRS

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

Company: SOMC
Project #: 12132671
Date: 2/16/2018
Test Engineer: 39005 RA
Configuration: EUT + Support Equipment
Location: Chamber A
Mode: EGPRS 1900 MHz Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-18.5	V	3.0	35.9	1.0	-53.4	-13.0	-40.4	
5550.60	-14.0	V	3.0	35.5	1.0	-48.5	-13.0	-35.5	
7400.80	-13.9	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3700.40	-18.0	H	3.0	35.9	1.0	-52.8	-13.0	-39.8	
5550.60	-14.3	H	3.0	35.5	1.0	-48.8	-13.0	-35.8	
7400.80	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	
Mid Ch, 1880MHz									
3760.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-13.8	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7520.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-18.3	H	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-14.1	H	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7520.00	-13.1	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
High Ch, 1909.8MHz									
3819.60	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5729.40	-15.1	V	3.0	35.5	1.0	-49.6	-13.0	-36.6	
7639.20	-13.3	V	3.0	35.8	1.0	-48.0	-13.0	-35.0	
3819.60	-18.7	H	3.0	35.8	1.0	-53.5	-13.0	-40.5	
5729.40	-14.8	H	3.0	35.5	1.0	-49.4	-13.0	-36.4	
7639.20	-13.6	H	3.0	35.8	1.0	-48.3	-13.0	-35.3	

GSM 1900MHz EGPRS