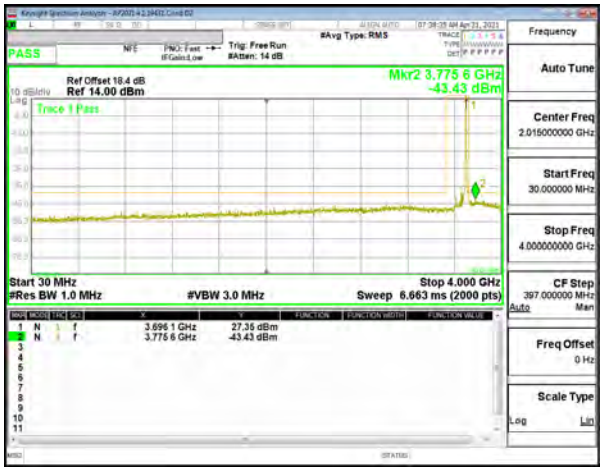
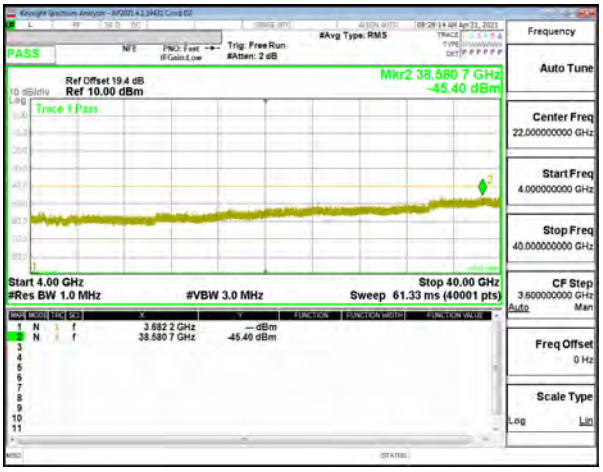
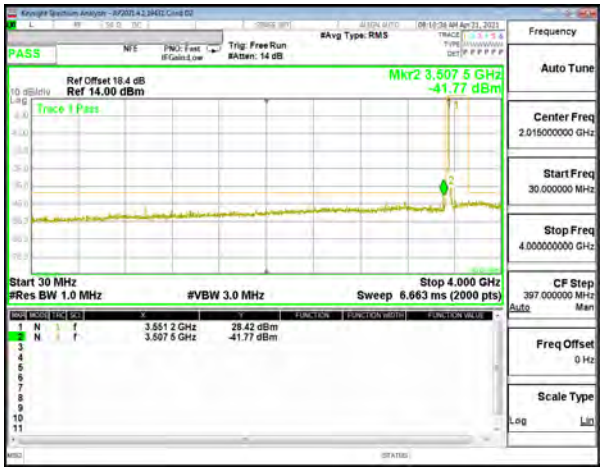


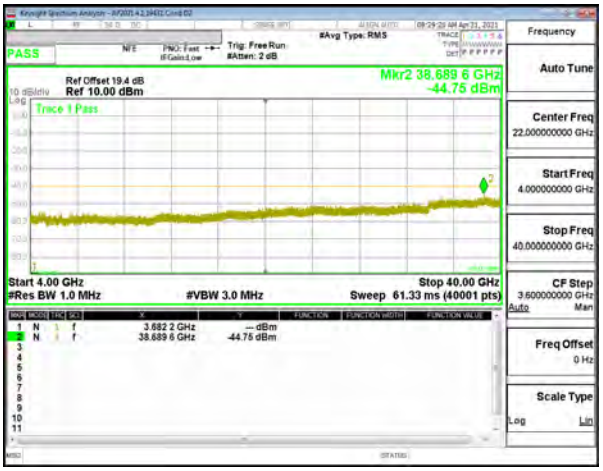
LTE B48 5MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



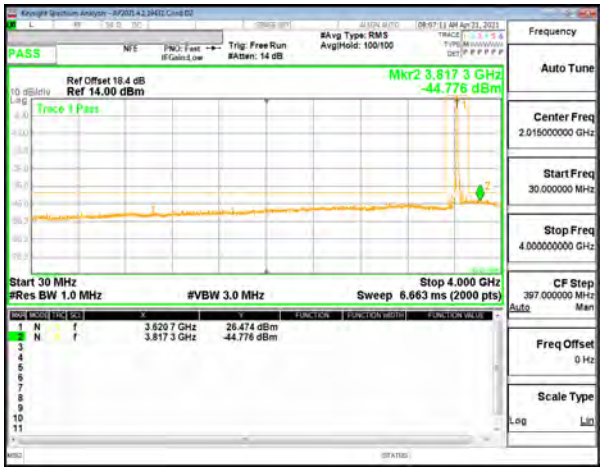
LTE B48 5MHz QPSK High Channel RB1-0 (4G to 40G)



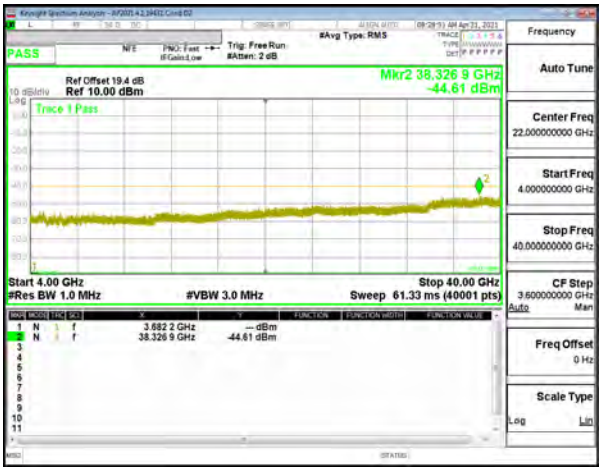
LTE B48 10MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



LTE B48 10MHz QPSK Low Channel RB1-0 (4G to 40G)



LTE B48 10MHz QPSK Mid Channel RB1-0 (30MHz to 4GHz)



LTE B48 10MHz QPSK Middle Channel RB1-0 (4G to 40G)

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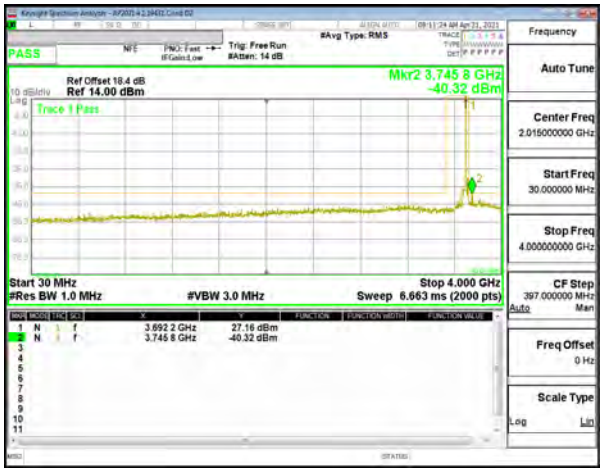
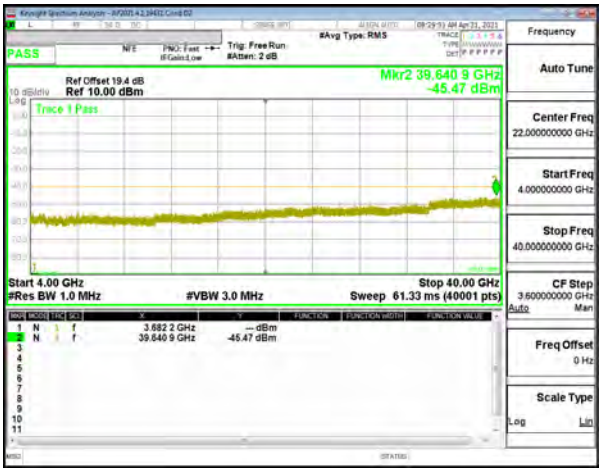
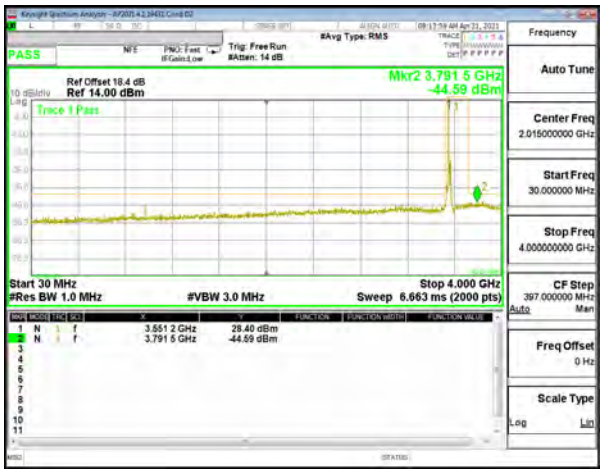


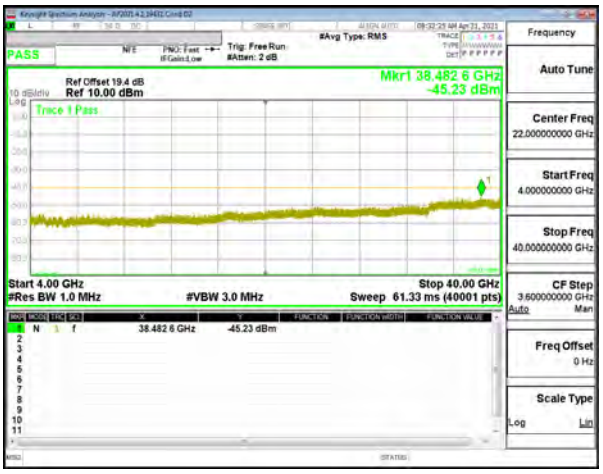
LTE B48 10MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



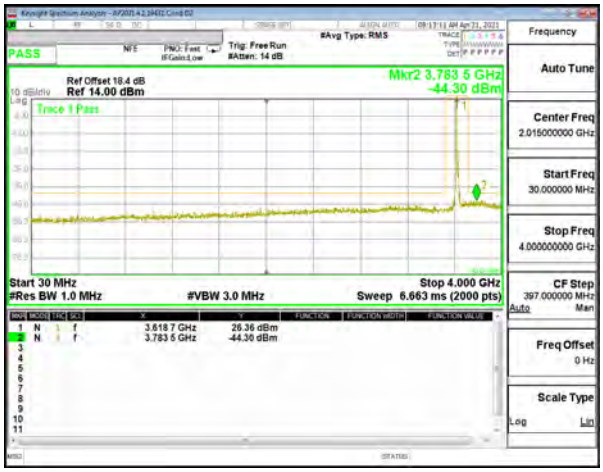
LTE B48 10MHz QPSK High Channel RB1-0 (4G to 40G)



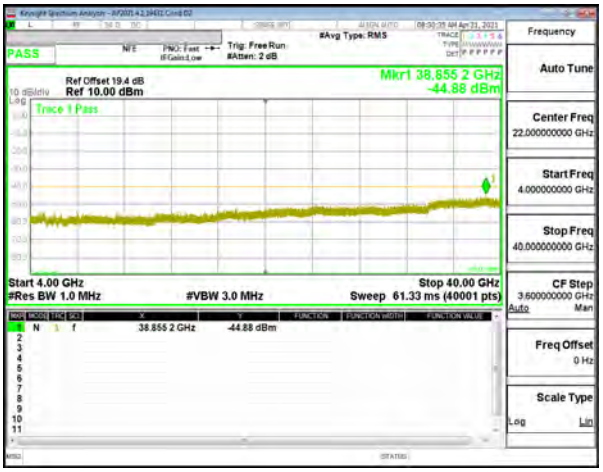
LTE B48 15MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



LTE B48 15MHz QPSK Low Channel RB1-0 (4G to 40G)



LTE B48 15MHz QPSK Mid Channel RB1-0 (30MHz to 4GHz)



LTE B48 15MHz QPSK Middle Channel RB1-0 (4G to 40G)

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FORM NO: CCSUP4031B
FAX: (510) 661-0888
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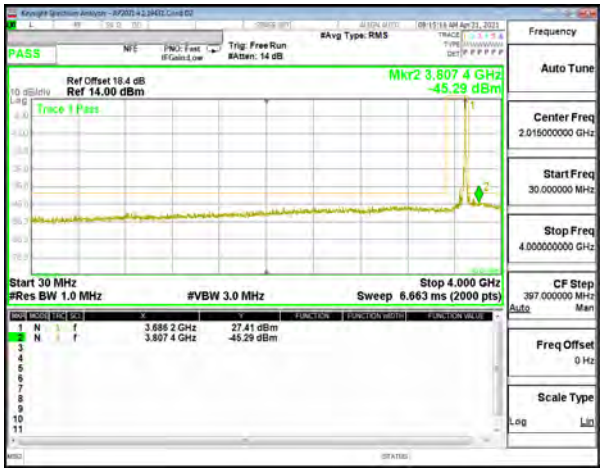
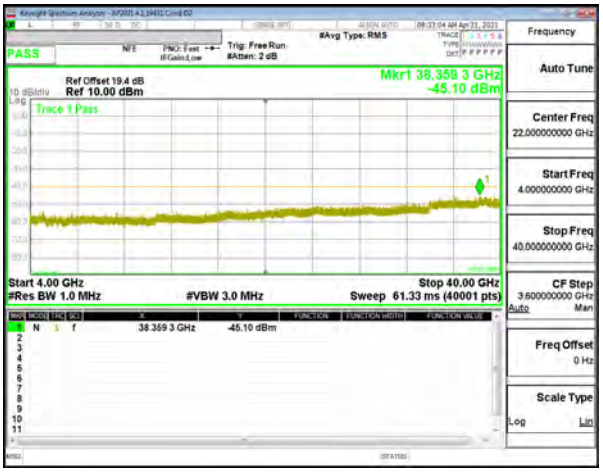
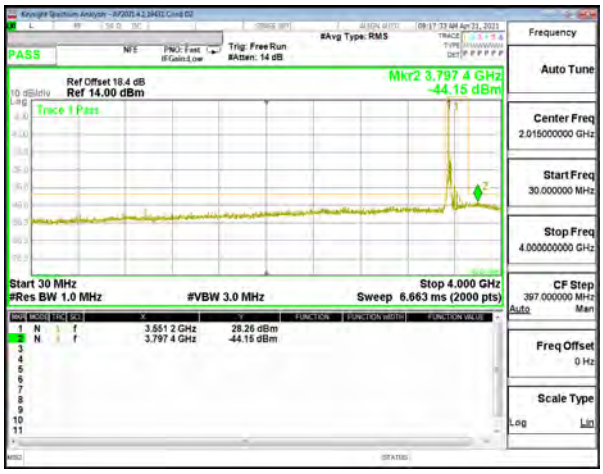


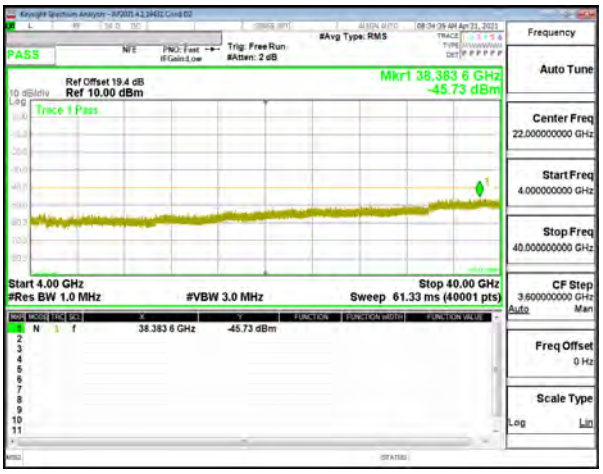
LTE B48 15MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



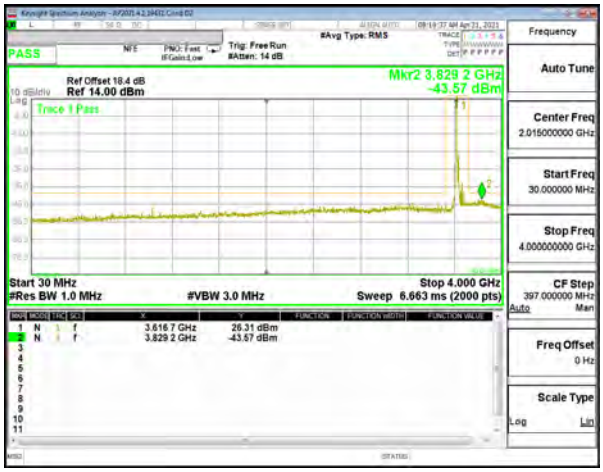
LTE B48 15MHz QPSK High Channel RB1-0 (4G to 40G)



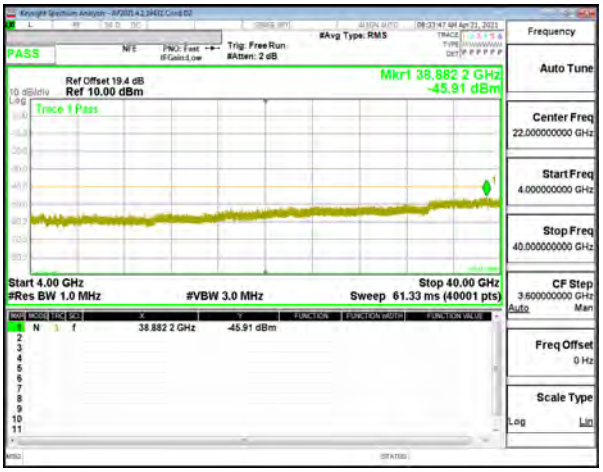
LTE B48 20MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



LTE B48 20MHz QPSK Low Channel RB1-0 (4G to 40G)



LTE B48 20MHz QPSK Mid Channel RB1-0 (30MHz to 4GHz)



LTE B48 20MHz QPSK Middle Channel RB1-0 (4G to 40G)

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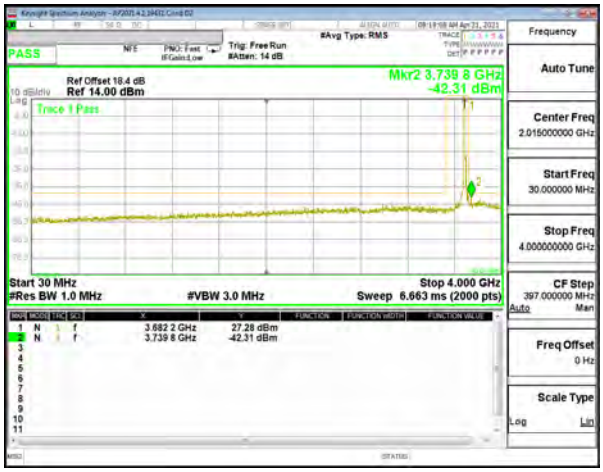
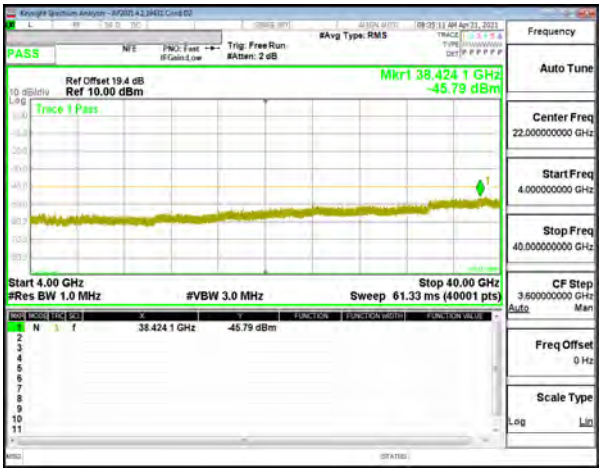


LTE B48 20MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



LTE B48 20MHz QPSK High Channel RB1-0 (4G to 40G)

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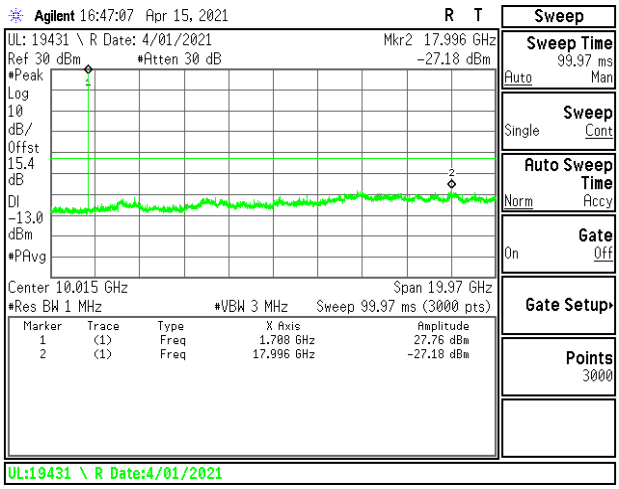
9.3.13. LTE BAND 66 AND 5G NR n66

LIMITS

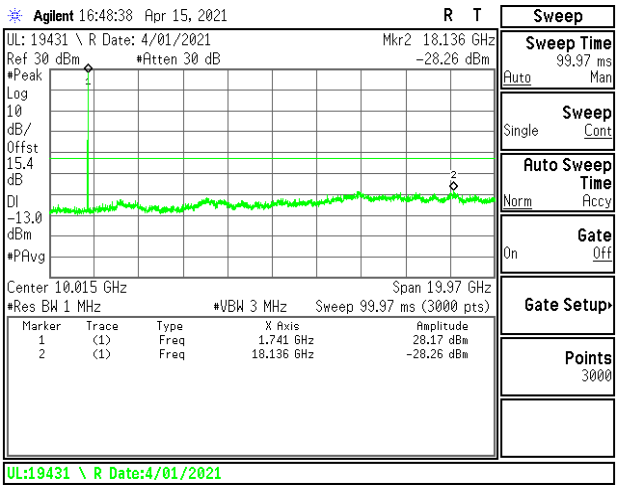
FCC: §27.53 (h)

The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

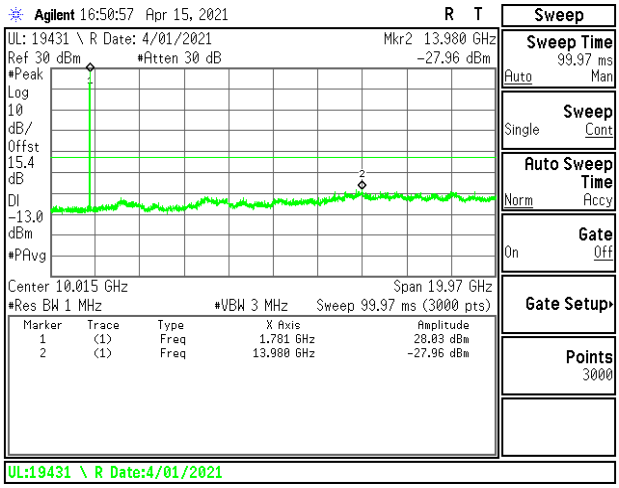
LTE BAND 66



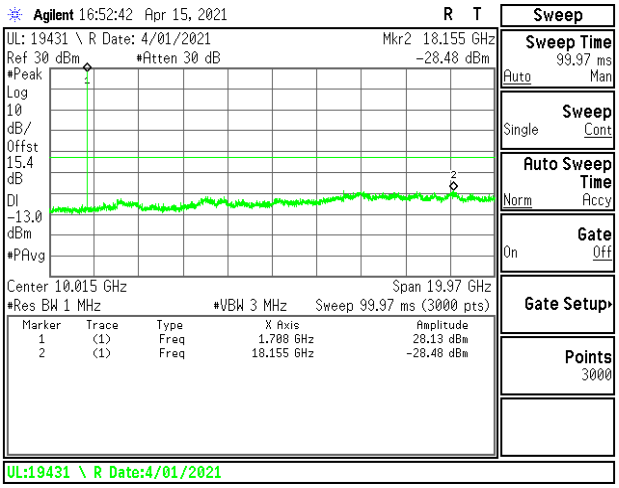
LTE B66 1.4MHz QPSK Low Channel RB1-0



LTE B66 1.4MHz QPSK Middle Channel RB1-0



LTE B66 1.4MHz QPSK High Channel RB1-0



LTE B66 3MHz QPSK Low Channel RB1-0

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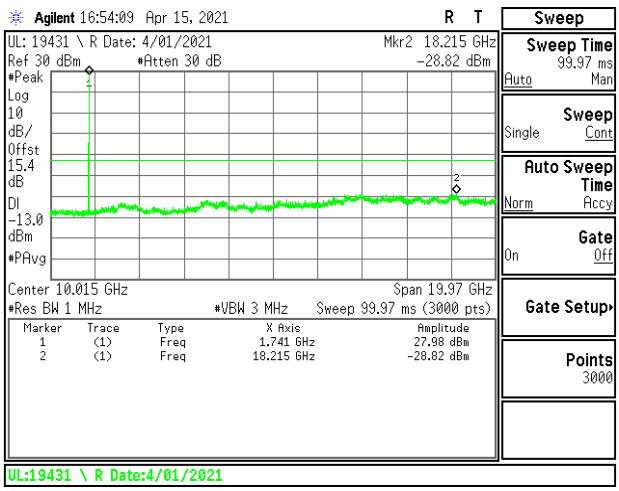
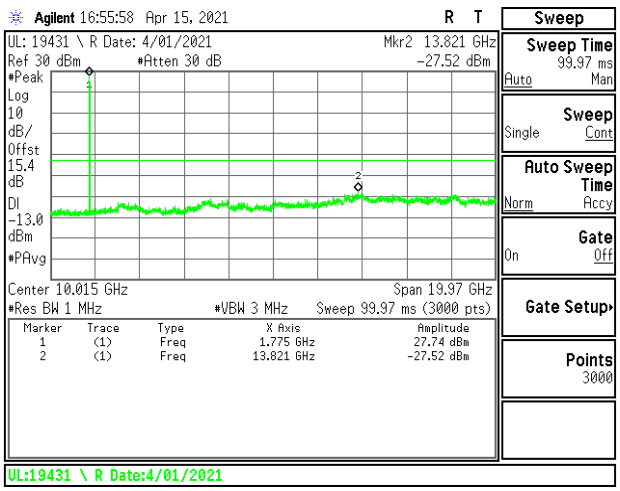
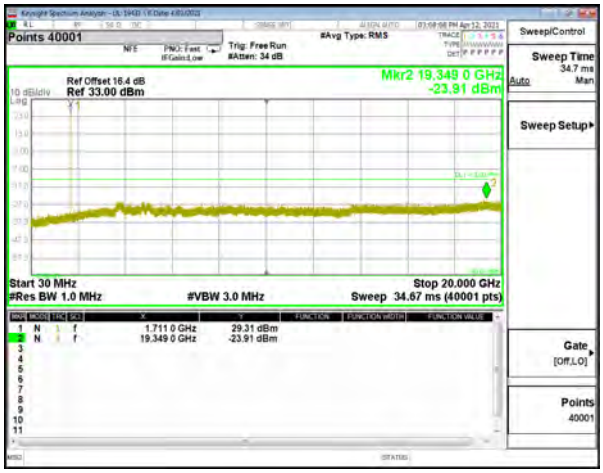


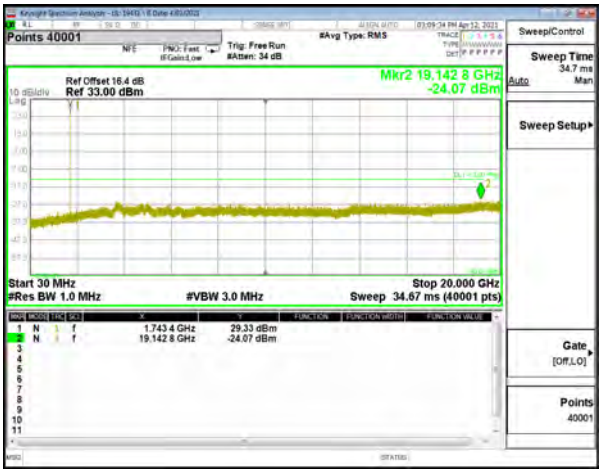
LTE B66 3MHz QPSK Middle Channel RB1-0



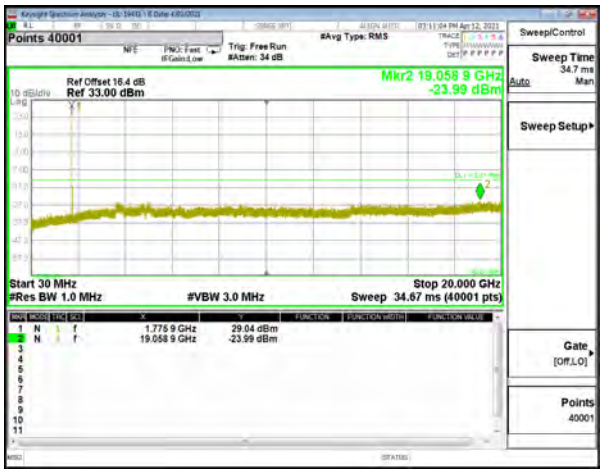
LTE B66 3MHz QPSK High Channel RB1-0



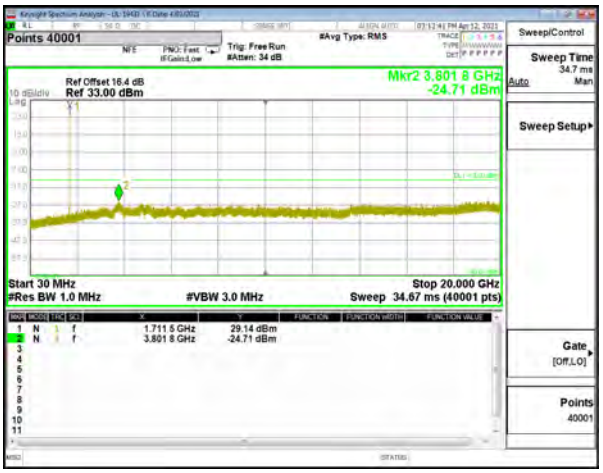
LTE B66 5MHz QPSK Low Channel RB1-0



LTE B66 5MHz QPSK Middle Channel RB1-0



LTE B66 5MHz QPSK High Channel RB1-0



LTE B66 10MHz QPSK Low Channel RB1-0

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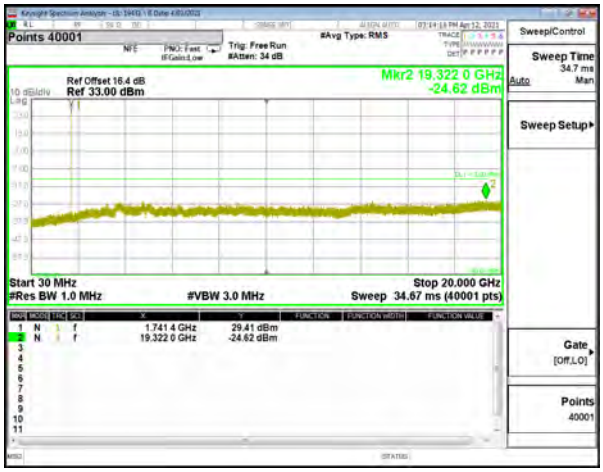
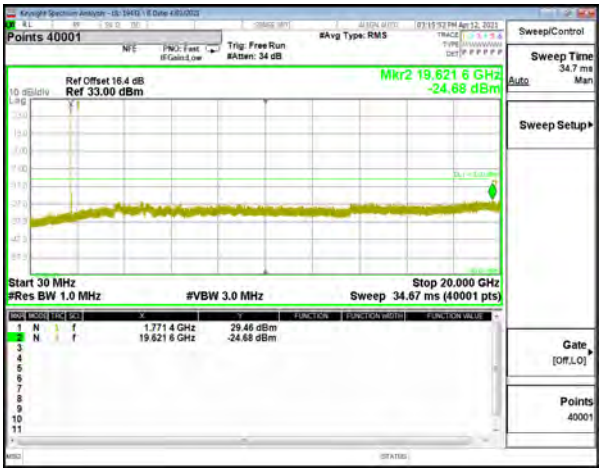
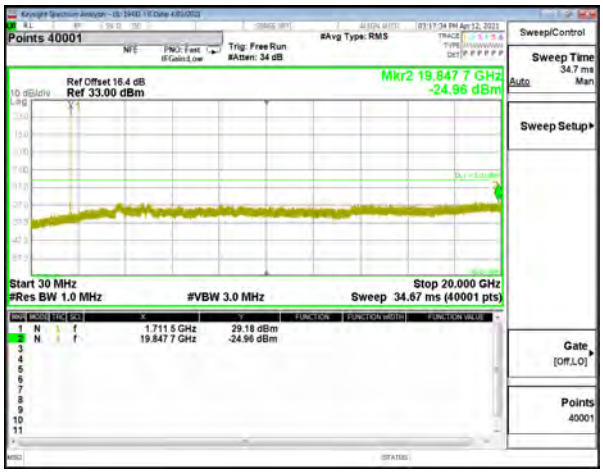


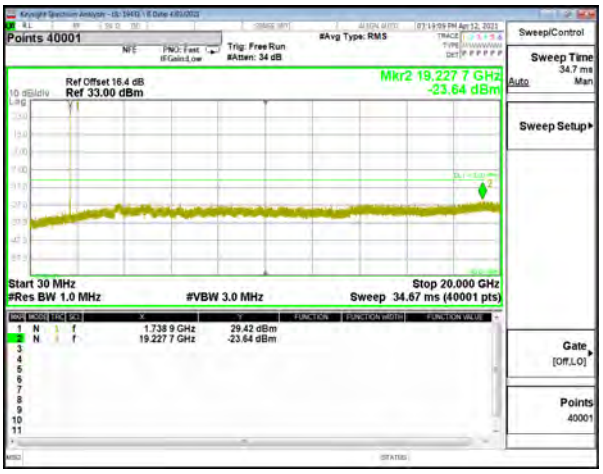
LTE B66 10MHz QPSK Middle Channel RB1-0



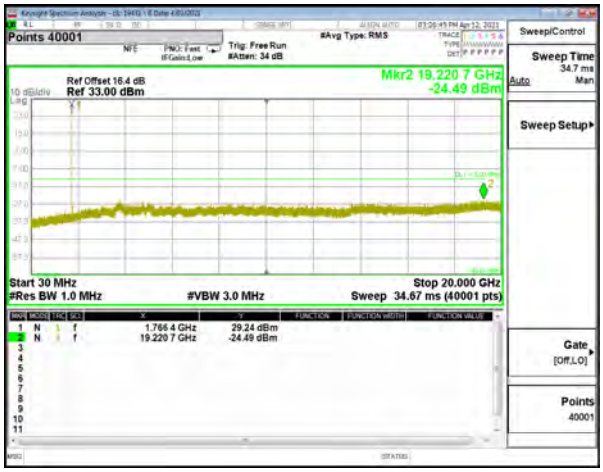
LTE B66 10MHz QPSK High Channel RB1-0



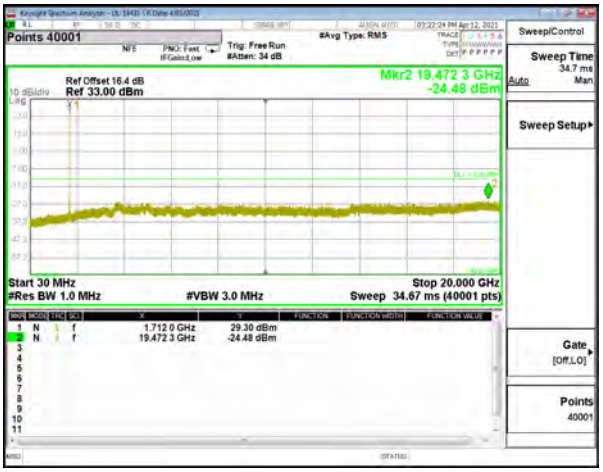
LTE B66 15MHz QPSK Low Channel RB1-0



LTE B66 15MHz QPSK Middle Channel RB1-0



LTE B66 15MHz QPSK High Channel RB1-0



LTE B66 20MHz QPSK Low Channel RB1-0

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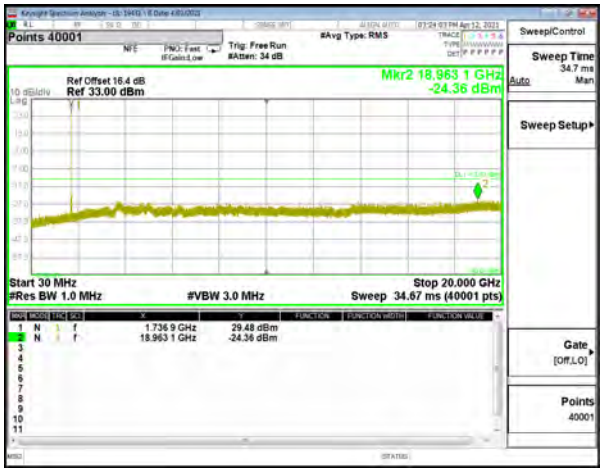
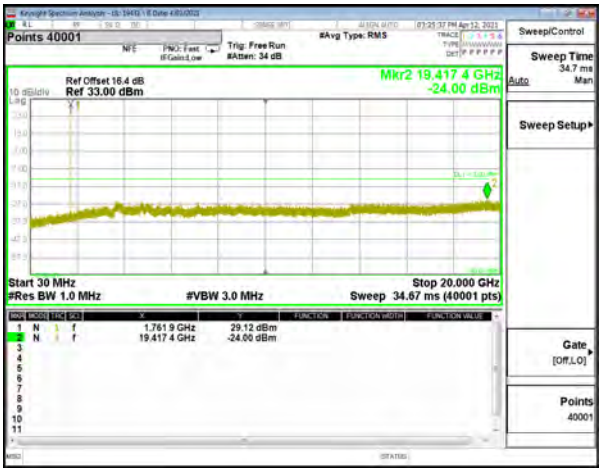


LTE B66 20MHz QPSK Middle Channel RB1-0



LTE B66 20MHz QPSK High Channel RB1-0

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5G NR n66

5G NR n66 5MHz BPSK Low Channel RB1-0

5G NR n66 5MHz BPSK Middle Channel RB1-1

5G NR n66 5MHz BPSK High Channel RB1-24

5G NR n66 10MHz BPSK Low Channel RB1-0

5G NR n66 10MHz BPSK Middle Channel RB1-1

5G NR n66 10MHz BPSK High Channel RB1-51

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5G NR n66 15MHz BPSK Low Channel RB1-0

5G NR n66 15MHz BPSK Middle Channel RB1-1

5G NR n66 15MHz BPSK High Channel RB1-78

5G NR n66 20MHz BPSK Low Channel RB1-0

5G NR n66 20MHz BPSK Middle Channel RB1-1

5G NR n66 20MHz BPSK High Channel RB1-105

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5G NR n66 30MHz BPSK Low Channel RB1-0

5G NR n66 30MHz BPSK Middle Channel RB1-1

5G NR n66 30MHz BPSK High Channel RB1-159

5G NR n66 40MHz BPSK Low Channel RB1-0

5G NR n66 40MHz BPSK Middle Channel RB1-1

5G NR n66 40MHz BPSK High Channel RB1-215

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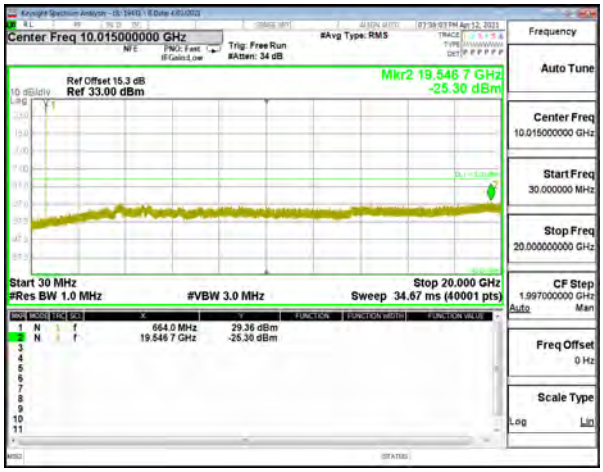
9.3.14. LTE BAND 71 AND 5G NR n71

LIMITS

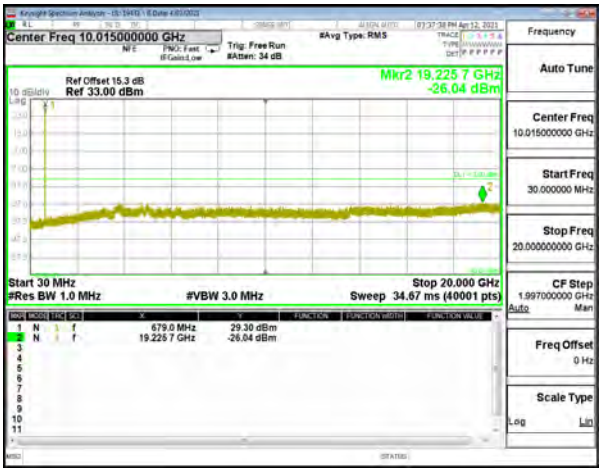
FCC: §27.53 (g)

The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

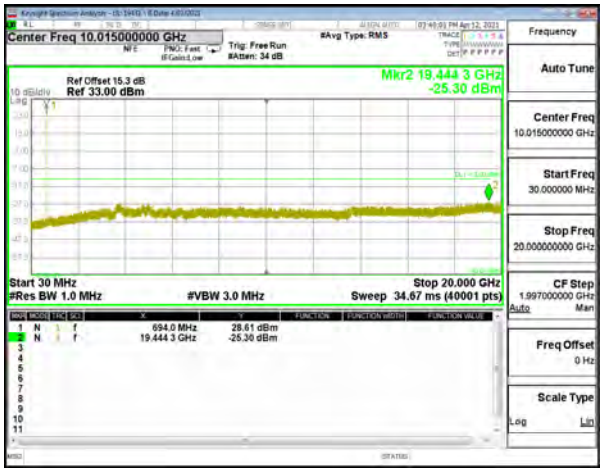
LTE BAND 71



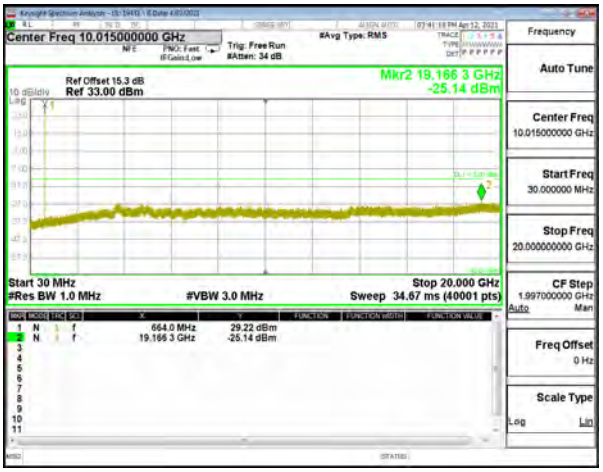
LTE B71 5MHz QPSK Low Channel RB1-0



LTE B71 5MHz QPSK Middle Channel RB1-0



LTE B71 5MHz QPSK High Channel RB1-0



LTE B71 10MHz QPSK Low Channel RB1-0

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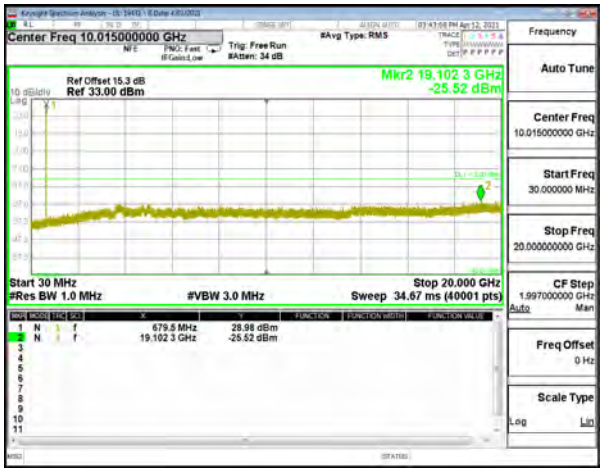
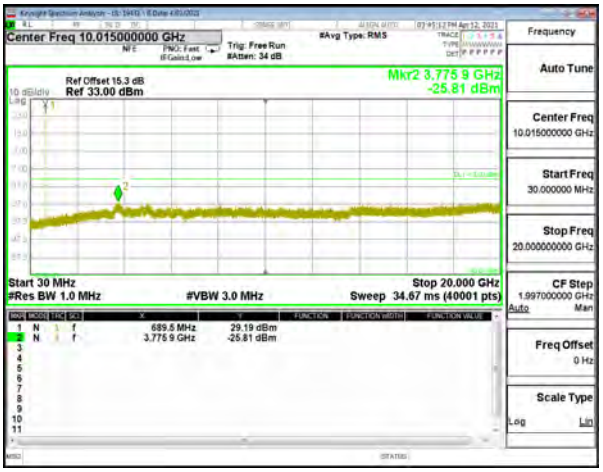
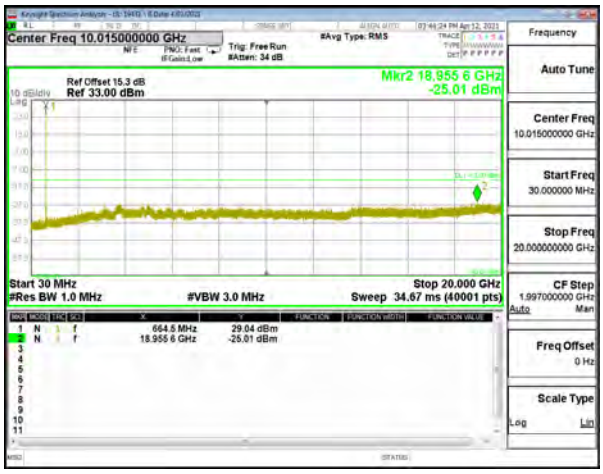


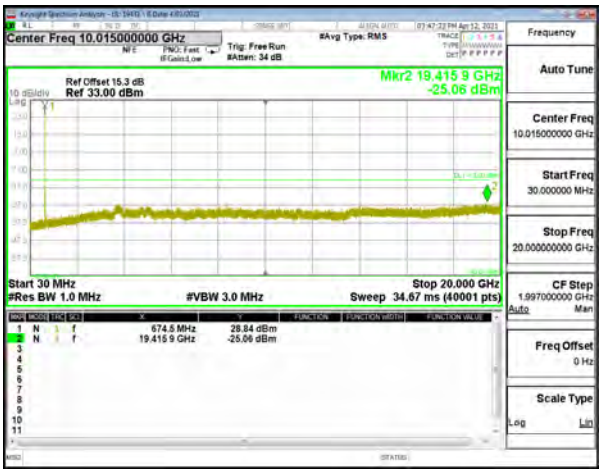
LTE B71 10MHz QPSK Middle Channel RB1-0



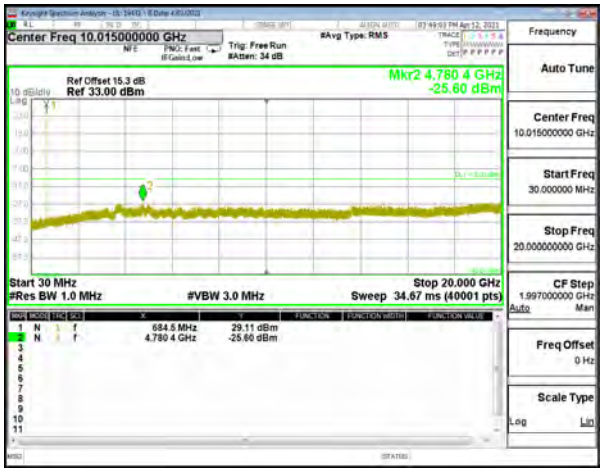
LTE 71 10MHz QPSK High Channel RB1-0



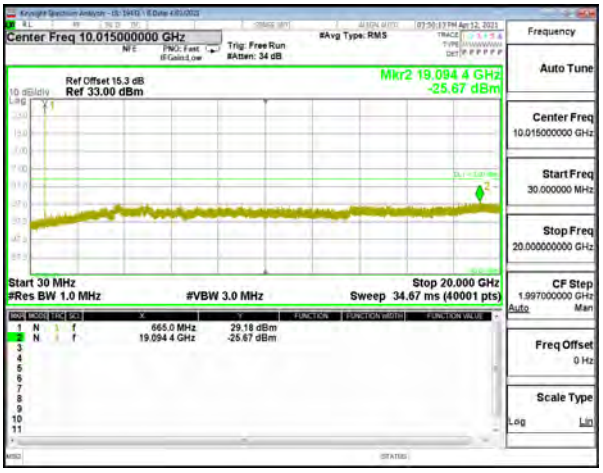
LTE B71 15MHz QPSK Low Channel RB1-0



LTE B71 15MHz QPSK Middle Channel RB1-0



LTE B71 15MHz QPSK High Channel RB1-0



LTE B71 20MHz QPSK Low Channel RB1-0

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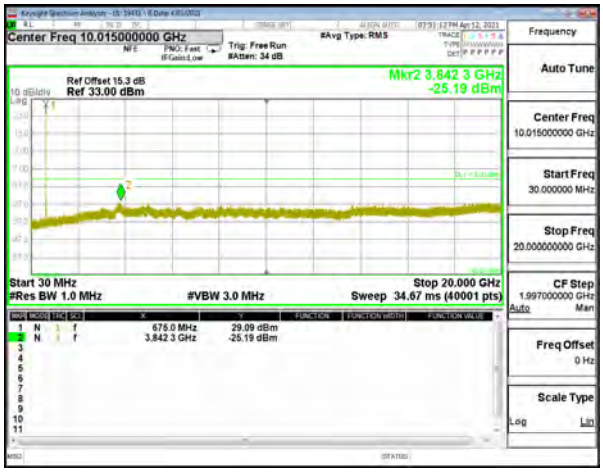
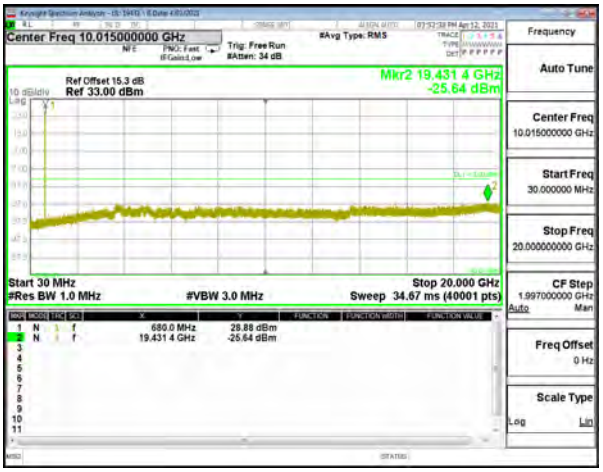


LTE B71 20MHz QPSK Middle Channel RB1-0



LTE B71 20MHz QPSK High Channel RB1-0

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5G NR n71

5G NR n71 5MHz BPSK Low Channel RB1-0

5G NR n71 5MHz BPSK Middle Channel RB1-1

5G NR n71 5MHz BPSK High Channel RB1-24

5G NR n71 10MHz BPSK Low Channel RB1-0

5G NR n71 10MHz BPSK Middle Channel RB1-1

5G NR n71 10MHz BPSK High Channel RB1-51

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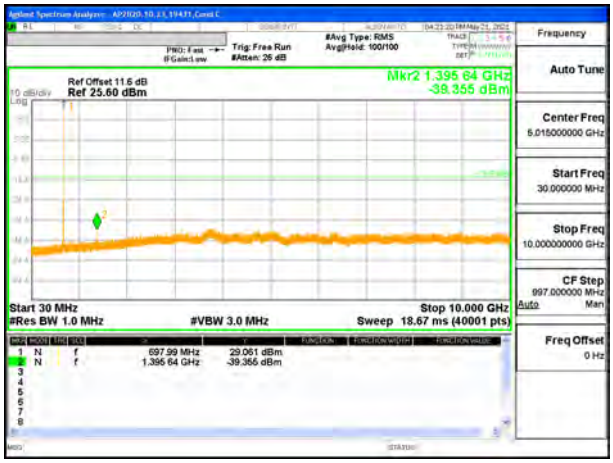
5G NR n71 15MHz BPSK Low Channel RB1-0

5G NR n71 15MHz BPSK Middle Channel RB1-1



5G NR n71 15MHz BPSK High Channel RB1-78

5G NR n71 20MHz BPSK Low Channel RB1-0

5G NR n71 20MHz BPSK Middle Channel RB1-1

5G NR n71 20MHz BPSK High Channel RB1-105

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9.3.15. 5G NR n77 (Part 27 3450-3550MHz)

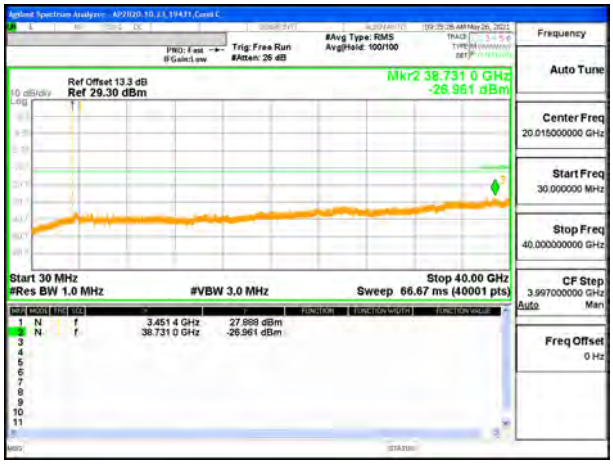
LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.



5G NR n77 20MHz BPSK Low Channel RB1-0

5G NR n77 20MHz BPSK Mid Channel RB1-1

5G NR n77 20MHz BPSK High Channel RB1-50

5G NR n77 30MHz BPSK Low Channel RB1-0

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5G NR n77 30MHz BPSK Mid Channel RB1-1

5G NR n77 30MHz BPSK High Channel RB1-77

5G NR n77 40MHz BPSK Low Channel RB1-0

5G NR n77 40MHz BPSK Mid Channel RB1-1

5G NR n77 40MHz BPSK High Channel RB1-105

5G NR n77 50MHz BPSK Low Channel RB1-0

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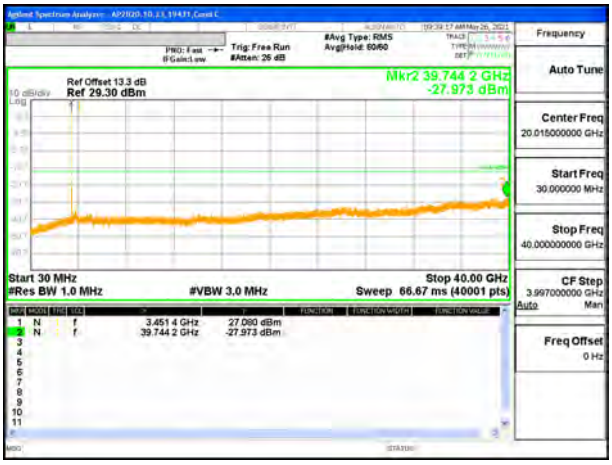
5G NR n77 50MHz BPSK Mid Channel RB1-1

5G NR n77 50MHz BPSK High Channel RB1-132

5G NR n77 60MHz BPSK Low Channel RB1-0

5G NR n77 60MHz BPSK Mid Channel RB1-1

5G NR n77 60MHz BPSK High Channel RB1-161



5G NR n77 80MHz BPSK Low Channel RB1-0

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5G NR n77 80MHz BPSK Mid Channel RB1-1

5G NR n77 80MHz BPSK High Channel RB1-216

5G NR n77 90MHz BPSK Low Channel RB1-0

5G NR n77 90MHz BPSK Mid Channel RB1-1

5G NR n77 90MHz BPSK High Channel RB1-244

5G NR n77 100MHz BPSK Mid Channel RB1-1

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9.3.16. 5G NR n77 (Part 27 3700-3980MHz)

LIMITS

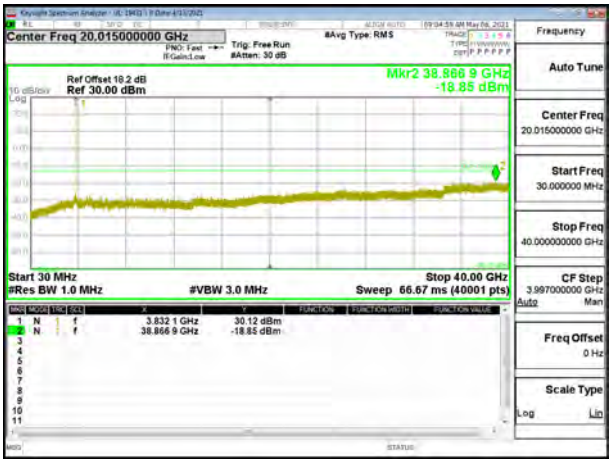
FCC: §27.53

Emission limits

(l) 3.7 GHz Service. The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

5G NR n77 20MHz BPSK Low Channel RB1-0



5G NR n77 20MHz BPSK Mid Channel RB1-1

5G NR n77 20MHz BPSK High Channel RB1-50

5G NR n77 30MHz BPSK Low Channel RB1-0

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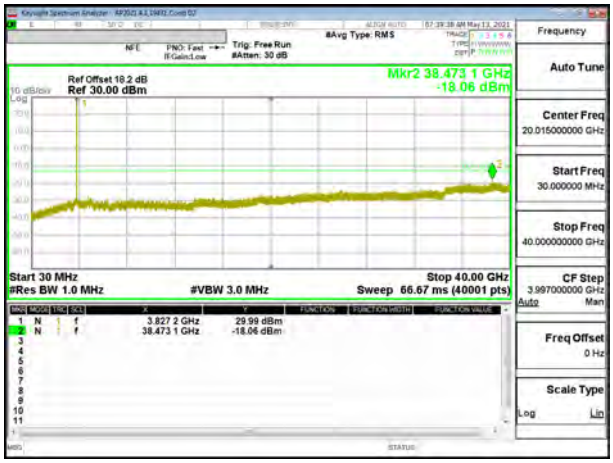
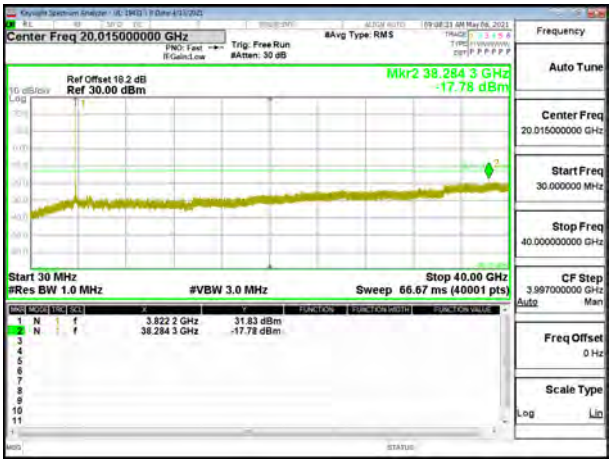


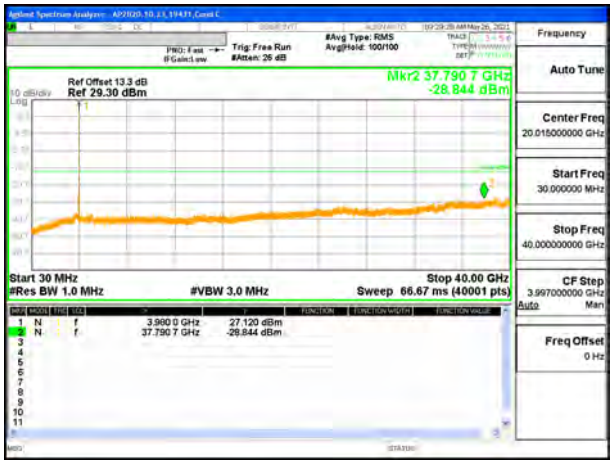
5G NR n77 30MHz BPSK Mid Channel RB1-1

5G NR n77 30MHz BPSK High Channel RB1-77

5G NR n77 40MHz BPSK Low Channel RB1-0



5G NR n77 40MHz BPSK Mid Channel RB1-1



5G NR n77 40MHz BPSK High Channel RB1-105

5G NR n77 50MHz BPSK Low Channel RB1-0

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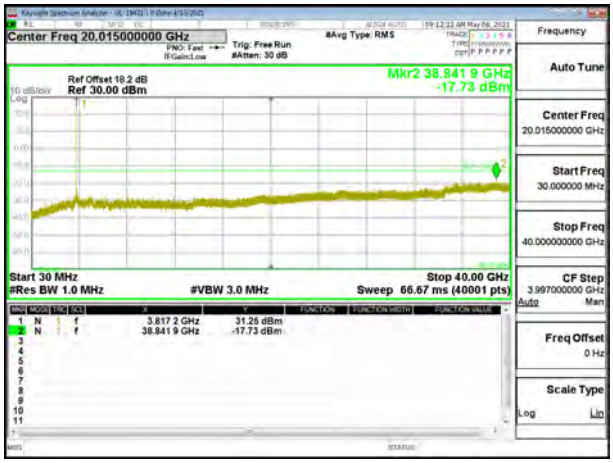
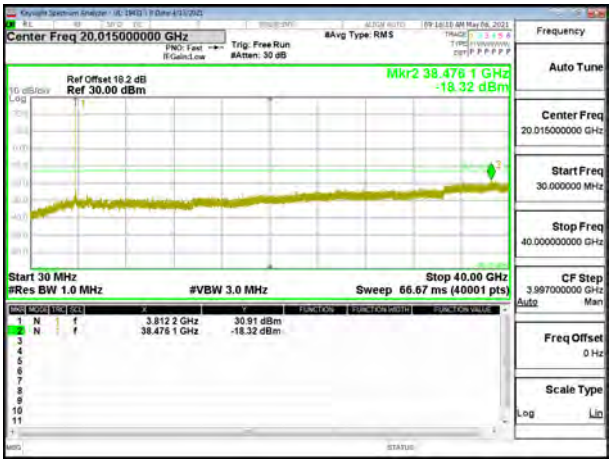


5G NR n77 50MHz BPSK Mid Channel RB1-1

5G NR n77 50MHz BPSK High Channel RB1-132

5G NR n77 60MHz BPSK Low Channel RB1-0



5G NR n77 60MHz BPSK Mid Channel RB1-1

5G NR n77 60MHz BPSK High Channel RB1-161

5G NR n77 80MHz BPSK Low Channel RB1-0

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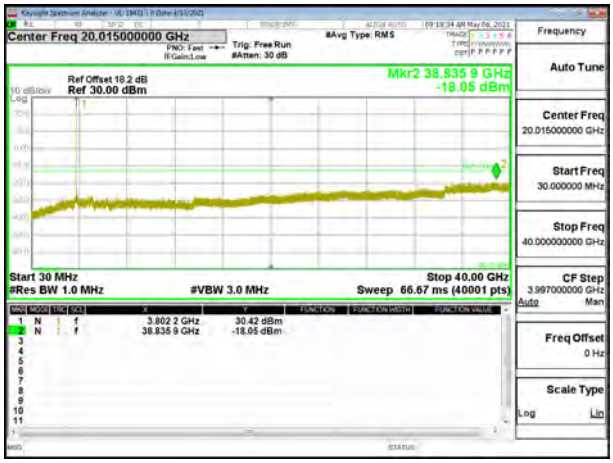
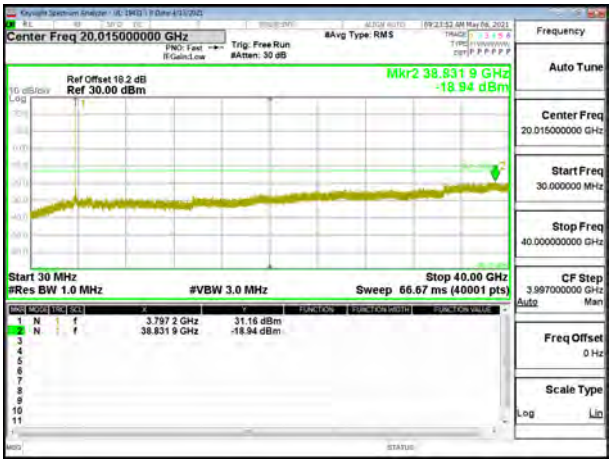


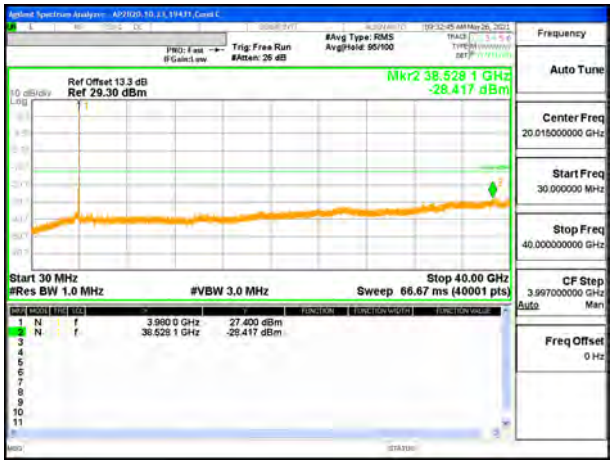
5G NR n77 80MHz BPSK Mid Channel RB1-1

5G NR n77 80MHz BPSK High Channel RB1-216

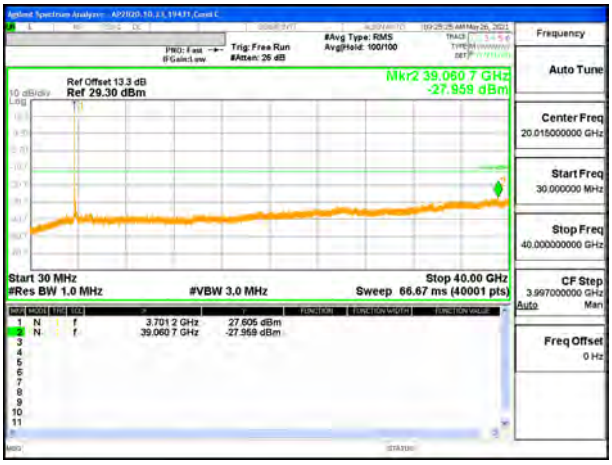
5G NR n77 90MHz BPSK Low Channel RB1-0



5G NR n77 90MHz BPSK Mid Channel RB1-1



5G NR n77 90MHz BPSK High Channel RB1-244



5G NR n77 100MHz BPSK Low Channel RB1-0

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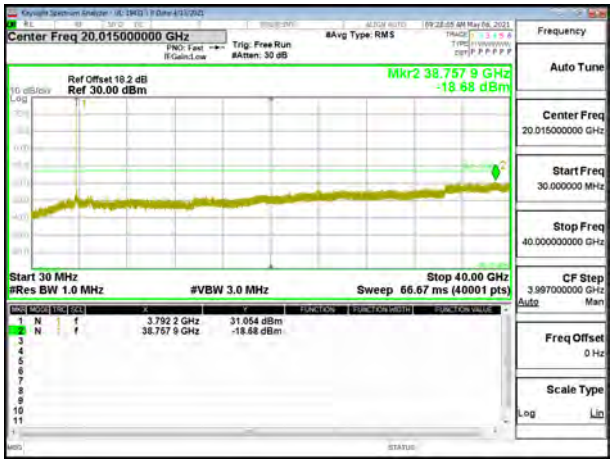

5G NR n77 100MHz BPSK Mid Channel RB1-1

5G NR n77 100MHz BPSK High Channel RB1-272

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9.4. FREQUENCY STABILITY

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).

RESULTS

See the following pages.

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9.4.1. LTE BAND 5 AND 5G NR n5

LIMITS

FCC: §22.355

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

Test Engineer ID:	19410	Test Date:	6/13/2021

5G NR n5 BPSK (20MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.281	848.5850		
Extreme (50C)		824.281	848.5850	4.3	0.005
Extreme (40C)		824.281	848.5850	4.2	0.005
Extreme (30C)		824.281	848.5850	3.6	0.004
Extreme (10C)		824.281	848.5850	3.8	0.004
Extreme (0C)		824.281	848.5850	3.8	0.005
Extreme (-10C)		824.281	848.5850	4.0	0.005
Extreme (-20C)		824.281	848.5850	4.0	0.005
Extreme (-30C)		824.281	848.5850	4.0	0.005
20C	15%	824.281	848.5850	4.2	0.005
	-15%	824.281	848.5850	4.1	0.005
	End Point Voltage	824.281	848.5850	4.3	0.005

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9.4.2. LTE BAND 7 AND 5G NR n7

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 7 QPSK (20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.0770	2568.9148		
Extreme (50C)		2501.0770	2568.9148	6.5	0.003
Extreme (40C)		2501.0770	2568.9148	5.5	0.002
Extreme (30C)		2501.0770	2568.9148	5.6	0.002
Extreme (10C)		2501.0770	2568.9148	4.2	0.002
Extreme (0C)		2501.0770	2568.9148	5.1	0.002
Extreme (-10C)		2501.0770	2568.9148	2.5	0.001
Extreme (-20C)		2501.0770	2568.9148	-0.8	0.000
Extreme (-30C)		2501.0770	2568.9148	-2.7	-0.001
20C	15%	2501.0770	2568.9148	4.7	0.002
	-15%	2501.0770	2568.9148	5.3	0.002
	End Point	2501.0770	2568.9148	5.8	0.002

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5G NR 7 BPSK (40MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2500.577	2569.4230		
Extreme (50C)		2500.577	2569.4230	8.1	0.003
Extreme (40C)		2500.577	2569.4230	7.2	0.003
Extreme (30C)		2500.577	2569.4230	7.0	0.003
Extreme (10C)		2500.577	2569.4230	6.8	0.003
Extreme (0C)		2500.577	2569.4230	7.1	0.003
Extreme (-10C)		2500.577	2569.4230	7.4	0.003
Extreme (-20C)		2500.577	2569.4230	6.9	0.003
Extreme (-30C)		2500.577	2569.4230	7.8	0.003
20C	15%	2500.577	2569.4230	8.4	0.003
	-15%	2500.577	2569.4230	6.7	0.003
	End Point Voltage	2500.577	2569.4230	7.4	0.003

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9.4.3. LTE BAND 12 AND n5G NR 12

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 12 QPSK (10MHz BANDWIDTH)

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	699.5317	715.7151		
Extreme (50C)		699.5317	715.7151	6.0	0.008
Extreme (40C)		699.5317	715.7151	5.1	0.007
Extreme (30C)		699.5317	715.7151	4.5	0.006
Extreme (10C)		699.5317	715.7151	4.1	0.006
Extreme (0C)		699.5317	715.7151	3.7	0.005
Extreme (-10C)		699.5317	715.7151	3.2	0.005
Extreme (-20C)		699.5317	715.7151	-0.6	-0.001
Extreme (-30C)		699.5317	715.7151	-2.0	-0.003
20C	15%	699.5317	715.7151	5.0	0.007
	-15%	699.5317	715.7151	5.7	0.008
	End Point	699.5317	715.7151	5.4	0.008

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5G NR n12 BPSK (15MHz BANDWIDTH)

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	699.161	715.059		
Extreme (50C)		699.161	715.059	2.9	0.004
Extreme (40C)		699.161	715.059	3.1	0.004
Extreme (30C)		699.161	715.059	2.4	0.003
Extreme (10C)		699.161	715.059	2.4	0.003
Extreme (0C)		699.161	715.059	3.1	0.004
Extreme (-10C)		699.161	715.059	2.3	0.003
Extreme (-20C)		699.161	715.059	2.6	0.004
Extreme (-30C)		699.161	715.059	3.8	0.005
20C	15%	699.161	715.059	2.5	0.004
	-15%	699.161	715.059	3.2	0.004
	End Point Voltage	699.161	715.059	3.3	0.005

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9.4.4. LTE BAND 13

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

QPSK (10MHz BANDWIDTH)

Limit		777	787	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	777.4528	786.4609		
Extreme (50C)		777.4528	786.4609	3.7	0.005
Extreme (40C)		777.4528	786.4609	3.1	0.004
Extreme (30C)		777.4528	786.4609	2.9	0.004
Extreme (10C)		777.4528	786.4609	2.6	0.003
Extreme (0C)		777.4528	786.4609	2.7	0.003
Extreme (-10C)		777.4528	786.4609	-1.0	-0.001
Extreme (-20C)		777.4528	786.4609	-1.6	-0.002
Extreme (-30C)		777.4528	786.4609	-2.0	-0.003
20C	15%	777.4528	786.4609	2.9	0.004
	-15%	777.4528	786.4609	2.7	0.003
	End Point	777.4528	786.4609	3.0	0.004

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9.4.5. LTE BAND 14

LIMITS

FCC: §90.539

(e) The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 ppm or better when AFC is locked to a base station, and 5 ppm or better when AFC is not locked.

Test Engineer ID:	19410	Test Date:	6/13/2021

QPSK (10MHz BANDWIDTH)

Limit		788	798	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	788.5353	797.7228		
Extreme (50C)		788.5353	797.7228	-1.6	-0.002
Extreme (40C)		788.5353	797.7228	-1.4	-0.002
Extreme (30C)		788.5353	797.7228	-0.9	-0.001
Extreme (10C)		788.5353	797.7228	-1.6	-0.002
Extreme (0C)		788.5353	797.7228	-0.7	-0.001
Extreme (-10C)		788.5353	797.7228	-0.7	-0.001
Extreme (-20C)		788.5353	797.7228	-0.4	0.000
Extreme (-30C)		788.5353	797.7228	-0.9	-0.001
20C	15%	788.5353	797.7228	-0.8	-0.001
	-15%	788.5353	797.7228	-1.0	-0.001
	End Point	788.5353	797.7228	-0.7	-0.001

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9.4.6. LTE BAND 17

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

QPSK (10MHz BANDWIDTH)

Limit		704	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	704.5250	715.4808		
Extreme (50C)		704.5250	715.4808	-3.9	-0.005
Extreme (40C)		704.5250	715.4808	-3.2	-0.005
Extreme (30C)		704.5250	715.4808	-2.7	-0.004
Extreme (10C)		704.5250	715.4808	-1.8	-0.003
Extreme (0C)		704.5250	715.4808	-1.5	-0.002
Extreme (-10C)		704.5250	715.4808	0.5	0.001
Extreme (-20C)		704.5250	715.4808	0.9	0.001
Extreme (-30C)		704.5250	715.4808	1.2	0.002
20C	15%	704.5250	715.4808	-1.7	-0.002
	-15%	704.5250	715.4808	-1.5	-0.002
	End Point	704.5250	715.4808	-1.7	-0.002

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9.4.7. LTE BAND 25 AND 5G NR n25

LIMITS

FCC: §24.235

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 25 QPSK (20MHz BANDWIDTH)

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1851.0634	1913.9386		
Extreme (50C)		1851.0634	1913.9386	-2.0	-0.001
Extreme (40C)		1851.0634	1913.9386	-2.4	-0.001
Extreme (30C)		1851.0634	1913.9386	-1.7	-0.001
Extreme (10C)		1851.0634	1913.9386	-1.5	-0.001
Extreme (0C)		1851.0634	1913.9386	-0.9	0.000
Extreme (-10C)		1851.0634	1913.9386	1.3	0.001
Extreme (-20C)		1851.0634	1913.9386	-1.7	-0.001
Extreme (-30C)		1851.0634	1913.9386	-2.7	-0.001
20C	15%	1851.0634	1913.9386	-1.9	-0.001
	-15%	1851.0634	1913.9386	-0.8	0.000
	End Point	1851.0634	1913.9386	-0.7	0.000

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5G NR 25 BPSK (40MHz BANDWIDTH)

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.59	1914.425		
Extreme (50C)		1850.59	1914.425	10.6	0.006
Extreme (40C)		1850.59	1914.425	7.9	0.004
Extreme (30C)		1850.59	1914.425	7.3	0.004
Extreme (10C)		1850.59	1914.425	6.5	0.003
Extreme (0C)		1850.59	1914.425	7.9	0.004
Extreme (-10C)		1850.59	1914.425	8.0	0.004
Extreme (-20C)		1850.59	1914.425	8.1	0.004
Extreme (-30C)		1850.59	1914.425	9.7	0.005
20C	15%	1850.59	1914.425	7.8	0.004
	-15%	1850.59	1914.425	7.6	0.004
	End Point Voltage	1850.59	1914.425	8.2	0.004

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9.4.8. LTE BAND 26(PART 90S)

LIMITS

FCC: §90.213

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

Test Engineer ID:	19410	Test Date:	6/13/2021

QPSK (5MHz BANDWIDTH)

Limit		814	824	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	814.1777	823.7245		
Extreme (50C)		814.1777	823.7245	3.9	0.005
Extreme (40C)		814.1777	823.7245	2.2	0.003
Extreme (30C)		814.1777	823.7245	-1.9	-0.002
Extreme (10C)		814.1777	823.7245	-4.7	-0.006
Extreme (0C)		814.1777	823.7245	-0.3	0.000
Extreme (-10C)		814.1777	823.7245	-0.9	-0.001
Extreme (-20C)		814.1777	823.7245	-1.2	-0.001
Extreme (-30C)		814.1777	823.7245	-1.7	-0.002
20C	15%	814.1777	823.7245	-2.7	-0.003
	-15%	814.1777	823.7245	-2.2	-0.003
	End Point	814.1777	823.7245	-2.9	-0.004

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9.4.9. LTE BAND 26(PART 22)

LIMITS

FCC: §22.355

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

Test Engineer ID:	19410	Test Date:	6/13/2021

QPSK (10MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	824.5235	848.4691		
Extreme (50C)		824.5235	848.4691	4.4	0.005
Extreme (40C)		824.5235	848.4691	3.1	0.004
Extreme (30C)		824.5235	848.4691	1.9	0.002
Extreme (10C)		824.5235	848.4691	-1.5	-0.002
Extreme (0C)		824.5235	848.4691	-1.7	-0.002
Extreme (-10C)		824.5235	848.4691	-1.4	-0.002
Extreme (-20C)		824.5235	848.4691	-1.7	-0.002
Extreme (-30C)		824.5235	848.4691	-2.9	-0.003
20C	15%	824.5235	848.4691	1.2	0.001
	-15%	824.5235	848.4691	1.3	0.002
	End Point	824.5235	848.4691	1.5	0.002

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9.4.10. LTE BAND 30 AND 5G NR n30

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 30 QPSK (10MHz BANDWIDTH)

Limit		2305	2315	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2305.2591	2314.7390		
Extreme (50C)		2305.2591	2314.7390	-3.1	-0.001
Extreme (40C)		2305.2591	2314.7390	4.7	0.002
Extreme (30C)		2305.2591	2314.7390	3.5	0.002
Extreme (10C)		2305.2591	2314.7390	-1.6	-0.001
Extreme (0C)		2305.2591	2314.7390	1.5	0.001
Extreme (-10C)		2305.2591	2314.7390	2.2	0.001
Extreme (-20C)		2305.2591	2314.7390	3.4	0.001
Extreme (-30C)		2305.2591	2314.7390	3.8	0.002
20C	15%	2305.2591	2314.7390	-2.7	-0.001
	-15%	2305.2591	2314.7390	-5.0	-0.002
	End Point	2305.2591	2314.7390	3.7	0.002

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5G NR n30 BPSK (10MHz BANDWIDTH)

Limit		2305	2315	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2305.501	2314.509		
Extreme (50C)		2305.501	2314.509	9.9	0.004
Extreme (40C)		2305.501	2314.509	8.2	0.004
Extreme (30C)		2305.501	2314.509	7.9	0.003
Extreme (10C)		2305.501	2314.509	7.2	0.003
Extreme (0C)		2305.501	2314.509	6.5	0.003
Extreme (-10C)		2305.501	2314.509	8.9	0.004
Extreme (-20C)		2305.501	2314.509	10.1	0.004
Extreme (-30C)		2305.501	2314.509	9.6	0.004
20C	15%	2305.501	2314.509	9.6	0.004
	-15%	2305.501	2314.509	8.8	0.004
	End Point Voltage	2305.501	2314.509	8.9	0.004

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9.4.11. LTE BAND 41 AND 5G NR n41 (FCC)

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 41 QPSK (20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.9468	2689.2845		
Extreme (50C)		2496.9468	2689.2845	-9.7	-0.004
Extreme (40C)		2496.9468	2689.2845	-8.5	-0.003
Extreme (30C)		2496.9468	2689.2845	-8.1	-0.003
Extreme (10C)		2496.9468	2689.2845	-7.7	-0.003
Extreme (0C)		2496.9468	2689.2845	-8.0	-0.003
Extreme (-10C)		2496.9468	2689.2845	-7.7	-0.003
Extreme (-20C)		2496.9468	2689.2845	-8.1	-0.003
Extreme (-30C)		2496.9468	2689.2845	-7.7	-0.003
20C	15%	2496.9468	2689.2845	-7.5	-0.003
	-15%	2496.9468	2689.2845	-7.2	-0.003
	End Point	2496.9468	2689.2845	-7.5	-0.003

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5G NR n41 BPSK (100MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2496.77	2689.0600		
Extreme (50C)		2496.77	2689.0600	15.3	0.006
Extreme (40C)		2496.77	2689.0600	15.0	0.006
Extreme (30C)		2496.77	2689.0600	14.4	0.006
Extreme (10C)		2496.77	2689.0600	12.2	0.005
Extreme (0C)		2496.77	2689.0600	12.9	0.005
Extreme (-10C)		2496.77	2689.0600	13.7	0.005
Extreme (-20C)		2496.77	2689.0600	12.7	0.005
Extreme (-30C)		2496.77	2689.0600	12.7	0.005
20C	15%	2496.77	2689.0600	14.7	0.006
	-15%	2496.77	2689.0600	14.0	0.005
	End Point Voltage	2496.77	2689.0600	15.2	0.006

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9.4.12. LTE BAND 48

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 48 QPSK (20MHz BANDWIDTH)

Limit		3550	3700	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3550.7912	3699.0494		
Extreme (50C)		3550.7912	3699.0494	-13.4	-0.004
Extreme (40C)		3550.7912	3699.0494	-16.6	-0.005
Extreme (30C)		3550.7912	3699.0494	-17.1	-0.005
Extreme (10C)		3550.7912	3699.0494	-16.0	-0.004
Extreme (0C)		3550.7912	3699.0494	-14.9	-0.004
Extreme (-10C)		3550.7912	3699.0494	-19.5	-0.005
Extreme (-20C)		3550.7912	3699.0494	-21.2	-0.006
Extreme (-30C)		3550.7912	3699.0494	-22.4	-0.006
20C	15%	3550.7912	3699.0494	-17.8	-0.005
	-15%	3550.7912	3699.0494	-15.5	-0.004
	End Point	3550.7912	3699.0494	-16.6	-0.005

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9.4.13. LTE BAND 66 AND 5G NR n66

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 66 QPSK (20MHz BANDWIDTH)

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1711.0851	1778.9095		
Extreme (50C)		1711.0851	1778.9095	-4.4	-0.003
Extreme (40C)		1711.0851	1778.9095	-2.9	-0.002
Extreme (30C)		1711.0851	1778.9095	-2.7	-0.002
Extreme (10C)		1711.0851	1778.9095	-0.9	0.000
Extreme (0C)		1711.0851	1778.9095	0.7	0.000
Extreme (-10C)		1711.0851	1778.9095	-0.7	0.000
Extreme (-20C)		1711.0851	1778.9095	-0.8	0.000
Extreme (-30C)		1711.0851	1778.9095	-1.4	-0.001
20C	15%	1711.0851	1778.9095	-0.7	0.000
	-15%	1711.0851	1778.9095	-0.8	0.000
	End Point	1711.0851	1778.9095	-0.7	0.000

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5G NR n66 BPSK (40MHz BANDWIDTH)

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.75	1779.343		
Extreme (50C)		1710.75	1779.343	8.8	0.005
Extreme (40C)		1710.75	1779.343	8.3	0.005
Extreme (30C)		1710.75	1779.343	8.6	0.005
Extreme (10C)		1710.75	1779.343	8.3	0.005
Extreme (0C)		1710.75	1779.343	8.4	0.005
Extreme (-10C)		1710.75	1779.343	7.4	0.004
Extreme (-20C)		1710.75	1779.343	8.6	0.005
Extreme (-30C)		1710.75	1779.343	8.8	0.005
20C	15%	1710.75	1779.343	-8.3	-0.005
	-15%	1710.75	1779.343	8.1	0.005
	End Point Voltage	1710.75	1779.343	9.0	0.005

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9.4.14. LTE BAND 71 AND 5G NR n71

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

LTE BAND 71 QPSK (20MHz BANDWIDTH)

Limit		663	698	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	664.0687	696.9379		
Extreme (50C)		664.0687	696.9379	-2.8	-0.004
Extreme (40C)		664.0687	696.9379	-2.6	-0.004
Extreme (30C)		664.0687	696.9379	-2.5	-0.004
Extreme (10C)		664.0687	696.9379	-2.0	-0.003
Extreme (0C)		664.0687	696.9379	-1.3	-0.002
Extreme (-10C)		664.0687	696.9379	-1.7	-0.002
Extreme (-20C)		664.0687	696.9379	-2.7	-0.004
Extreme (-30C)		664.0687	696.9379	-2.5	-0.004
20C	15%	664.0687	696.9379	-2.5	-0.004
	-15%	664.0687	696.9379	-2.7	-0.004
	End Point	664.0687	696.9379	-2.6	-0.004

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5G NR n71 BPSK (20MHz BANDWIDTH)

Limit		663	698	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	663.388	697.5320		
Extreme (50C)		663.388	697.5320	4.2	0.006
Extreme (40C)		663.388	697.5320	3.6	0.005
Extreme (30C)		663.388	697.5320	3.7	0.005
Extreme (10C)		663.388	697.5320	3.4	0.005
Extreme (0C)		663.388	697.5320	3.5	0.005
Extreme (-10C)		663.388	697.5320	3.8	0.006
Extreme (-20C)		663.388	697.5320	3.7	0.005
Extreme (-30C)		663.388	697.5320	4.1	0.006
20C	15%	663.388	697.5320	4.2	0.006
	-15%	663.388	697.5320	4.3	0.006
	End Point Voltage	663.388	697.5320	4.9	0.007

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9.4.15. 5G NR n77 (Part 27 3450-3550MHz)

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

5G NR n77 QPSK (100MHz BANDWIDTH)

Limit		3450	3550	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	3450.77	3549.0600		
Extreme (50C)		3450.77	3549.0600	8.4	0.002
Extreme (40C)		3450.77	3549.0600	8.3	0.002
Extreme (30C)		3450.77	3549.0600	9.2	0.003
Extreme (10C)		3450.77	3549.0600	8.1	0.002
Extreme (0C)		3450.77	3549.0600	10.0	0.003
Extreme (-10C)		3450.77	3549.0600	10.2	0.003
Extreme (-20C)		3450.77	3549.0600	11.7	0.003
Extreme (-30C)		3450.77	3549.0600	10.2	0.003
20C	15%	3450.77	3549.0600	9.5	0.003
	-15%	3450.77	3549.0600	9.0	0.003
	End Point Voltage	3450.77	3549.0600	9.0	0.003

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9.4.16. 5G NR n77 (Part 27 3700-3980MHz)

LIMITS

FCC: §27.54

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

Test Engineer ID:	19410	Test Date:	6/13/2021

5G NR n77 BPSK (100MHz BANDWIDTH)

Limit		3700	3980	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	3700.84	3978.9900		
Extreme (50C)		3700.84	3978.9900	11.9	0.003
Extreme (40C)		3700.84	3978.9900	11.7	0.003
Extreme (30C)		3700.84	3978.9900	11.1	0.003
Extreme (10C)		3700.84	3978.9900	9.7	0.003
Extreme (0C)		3700.84	3978.9900	11.5	0.003
Extreme (-10C)		3700.84	3978.9900	14.4	0.004
Extreme (-20C)		3700.84	3978.9900	10.7	0.003
Extreme (-30C)		3700.84	3978.9900	11.5	0.003
20C	15%	3700.84	3978.9900	10.4	0.003
	-15%	3700.84	3978.9900	10.7	0.003
	End Point Voltage	3700.84	3978.9900	10.8	0.003

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9.5. 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

Antenna 1 was used to measure as the worst case; 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.

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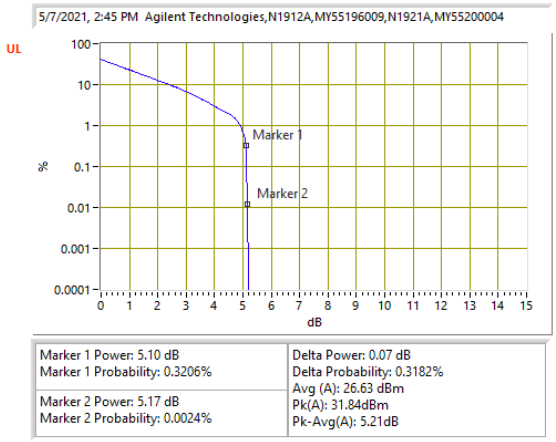
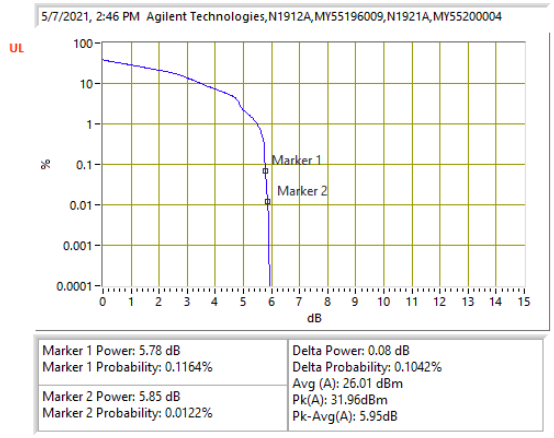
9.5.1. LTE BAND 5 AND 5G NR n5

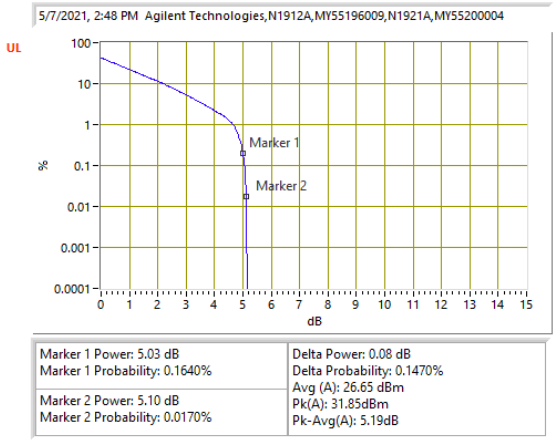
5G NR n5



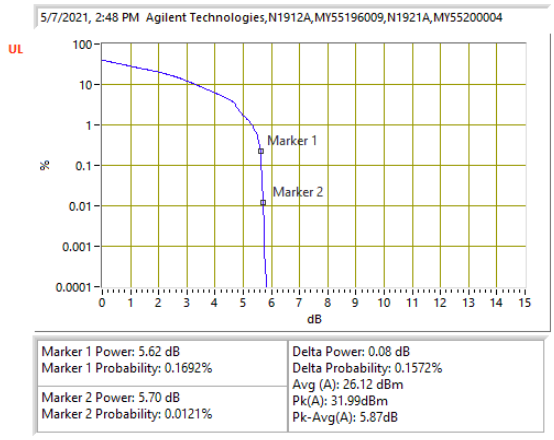
5G NR n5 5MHz BPSK Middle Channel



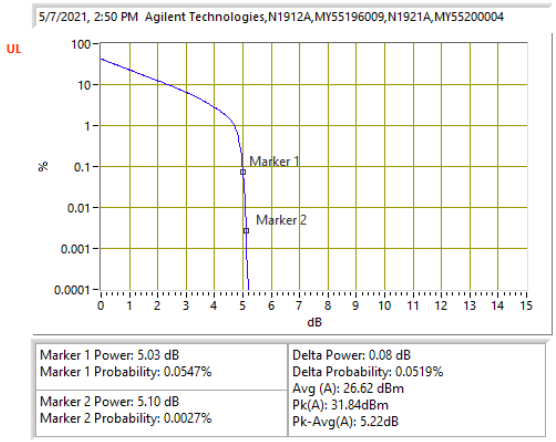
5G NR n5 5MHz 16QAM Middle Channel



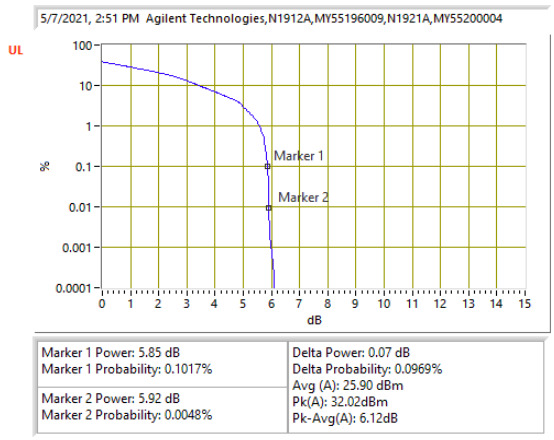
5G NR n5 10MHz BPSK Middle Channel



5G NR n5 10MHz 16QAM Middle Channel



5G NR n5 15MHz BPSK Middle Channel



5G NR n5 15MHz 16QAM Middle Channel

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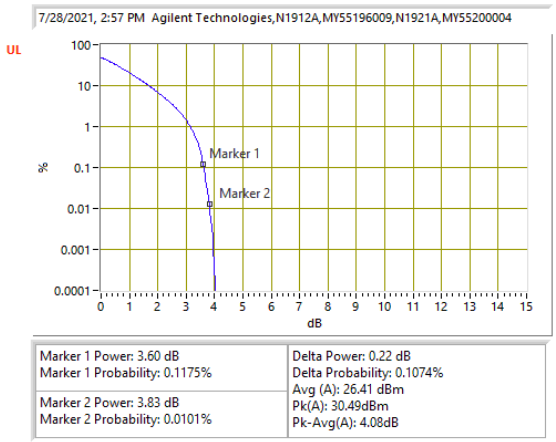
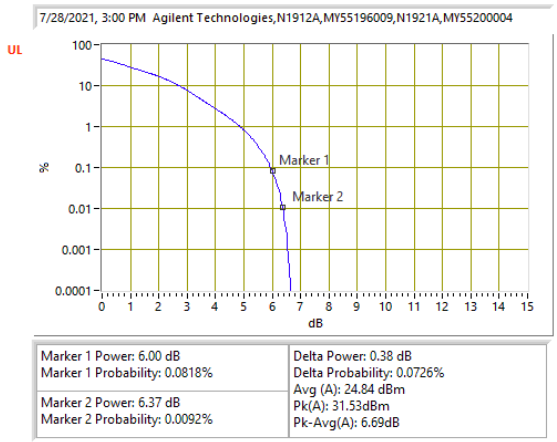


5G NR n5 20MHz BPSK Middle Channel



5G NR n5 20MHz 16QAM Middle Channel

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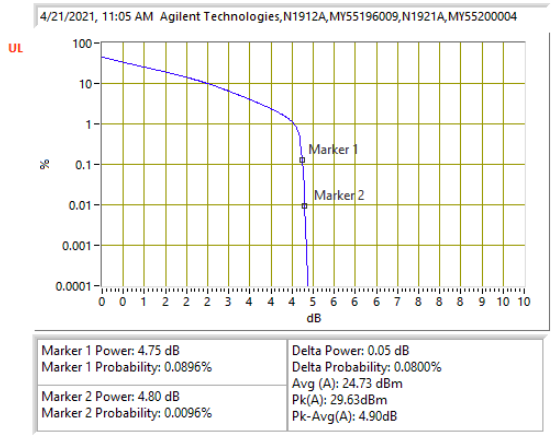
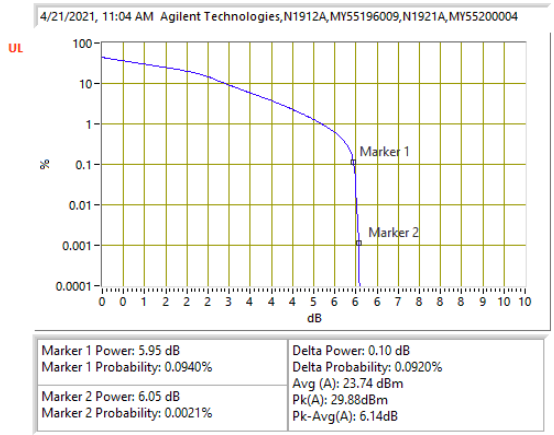
9.5.2. LTE BAND 7 AND 5G NR n7

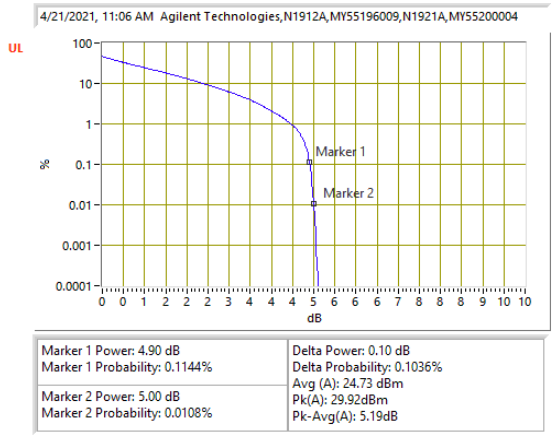
LTE BAND 7



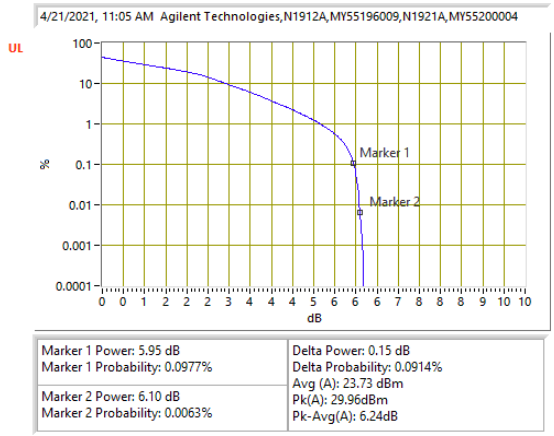
LTE B7 5MHz QPSK Middle Channel



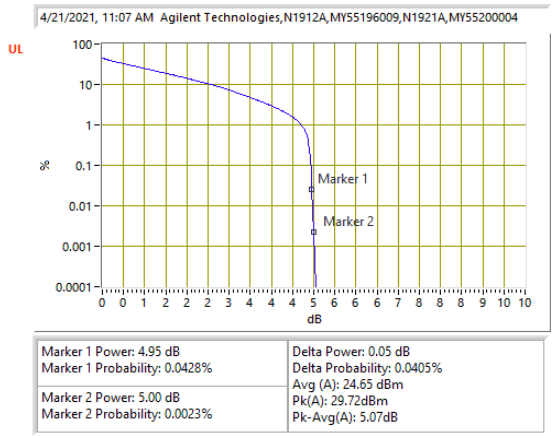
LTE B7 5MHz 16QAM Middle Channel



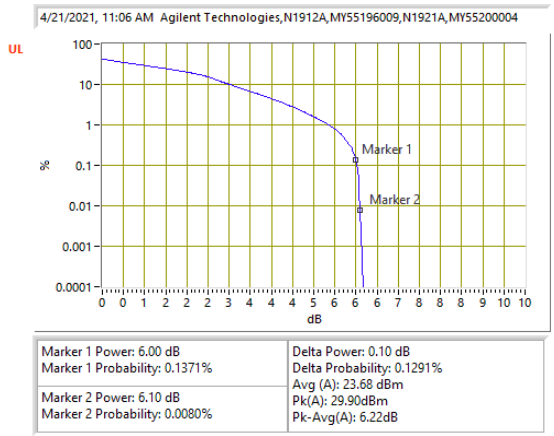
LTE B7 10MHz QPSK Middle Channel



LTE B7 10MHz 16QAM Middle Channel



LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

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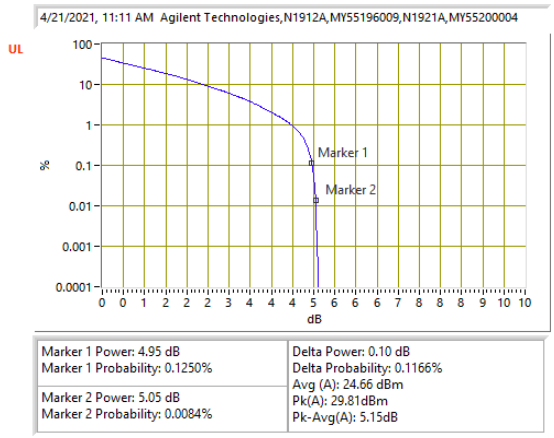
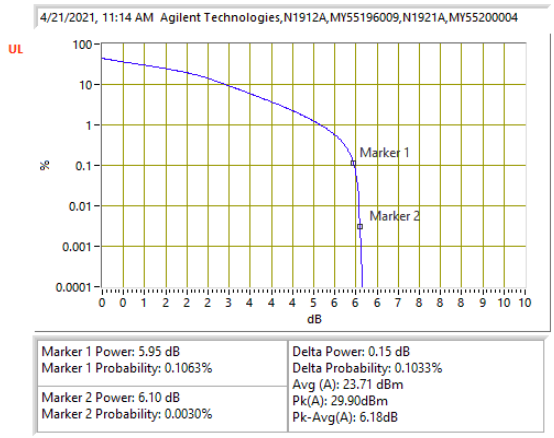


LTE B7 20MHz QPSK Middle Channel



LTE B7 20MHz 16QAM Middle Channel

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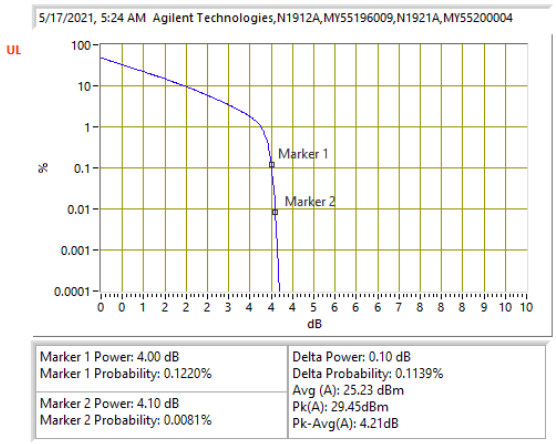
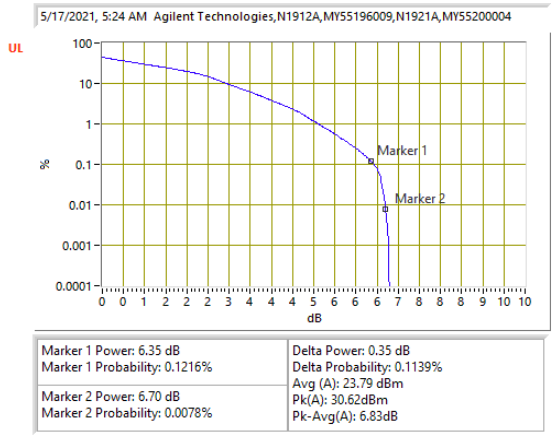
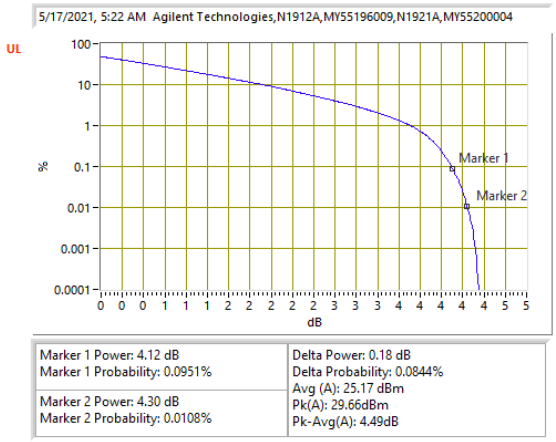
5G NR n7



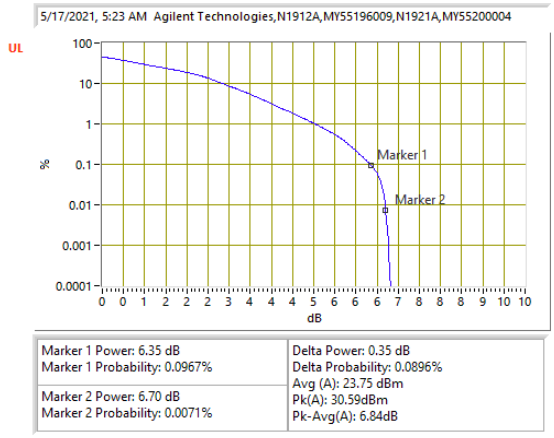
5G NR n7 5MHz BPSK Middle Channel



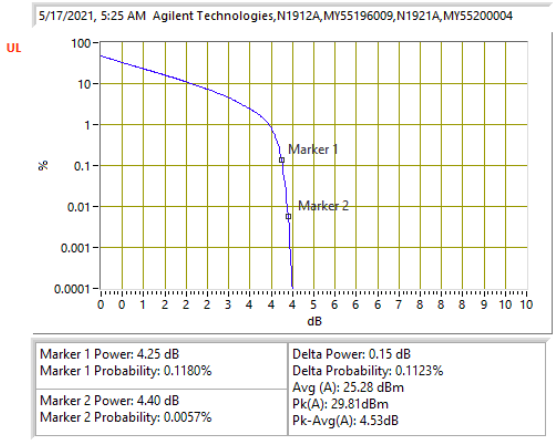
5G NR n7 5MHz 16QAM Middle Channel



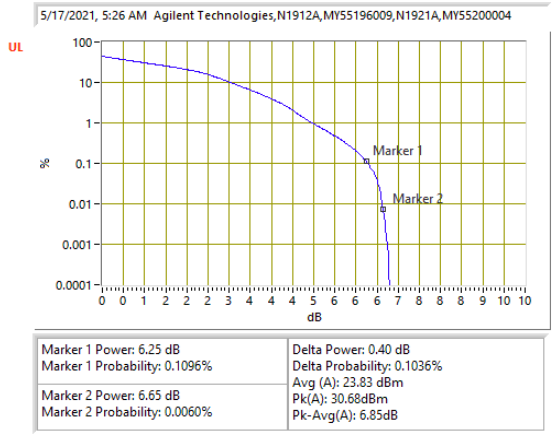
5G NR n7 10MHz BPSK Middle Channel



5G NR n7 10MHz 16QAM Middle Channel



5G NR n7 15MHz BPSK Middle Channel



5G NR n7 15MHz 16QAM Middle Channel

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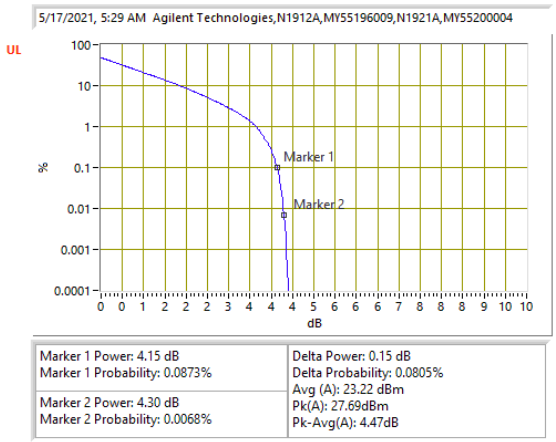
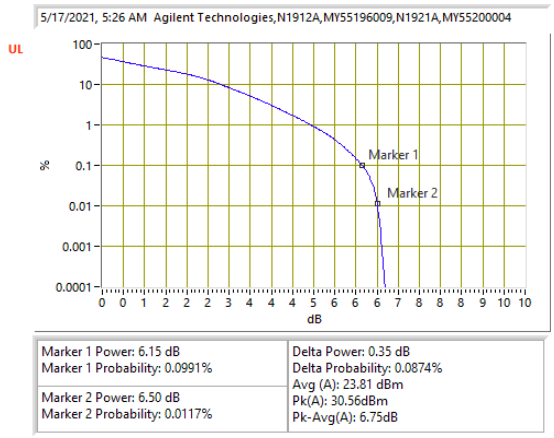
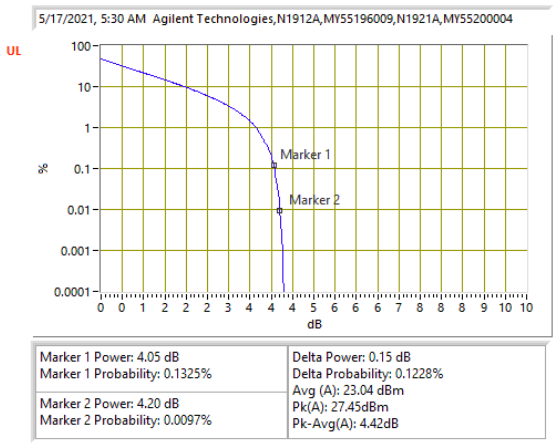


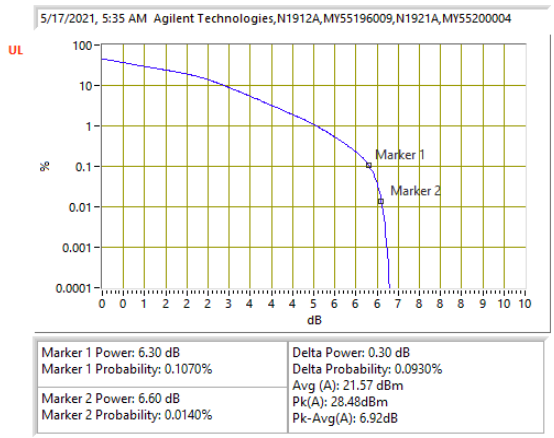
5G NR n7 20MHz BPSK Middle Channel



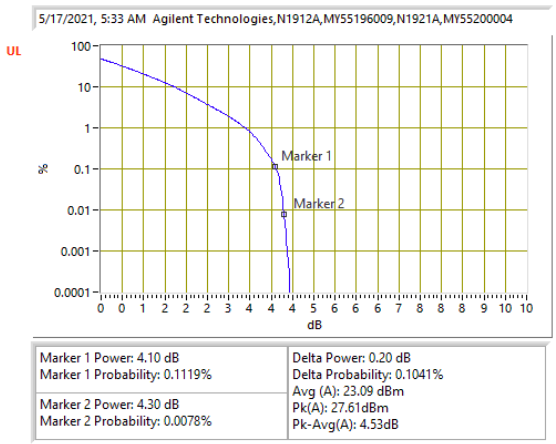
5G NR n7 20MHz 16QAM Middle Channel



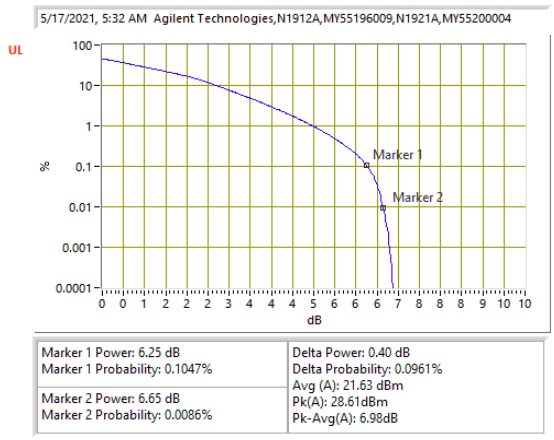
5G NR n7 25MHz BPSK Middle Channel



5G NR n7 25MHz 16QAM Middle Channel



5G NR n7 30MHz BPSK Middle Channel



5G NR n7 30MHz 16QAM Middle Channel

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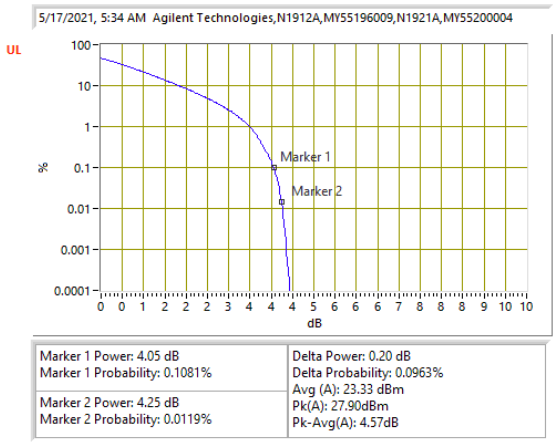
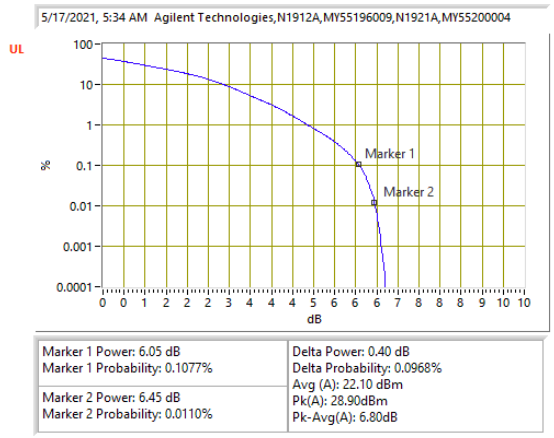


5G NR n7 40MHz BPSK Middle Channel



5G NR n7 40MHz 16QAM Middle Channel

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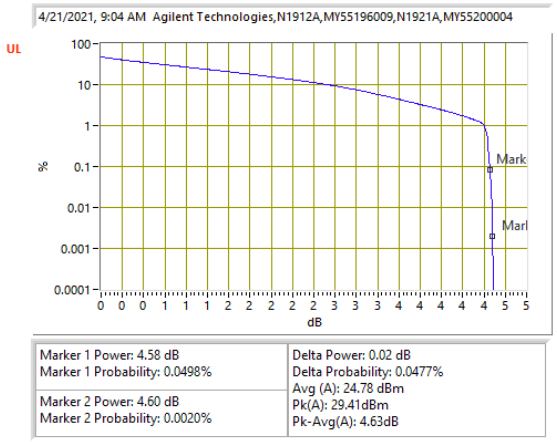
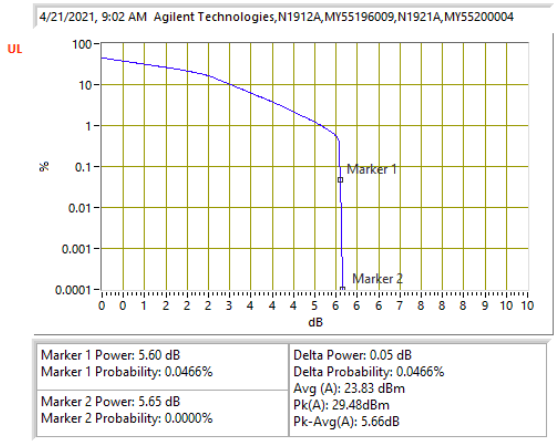
9.5.3. LTE BAND 12 AND 5G NR n12

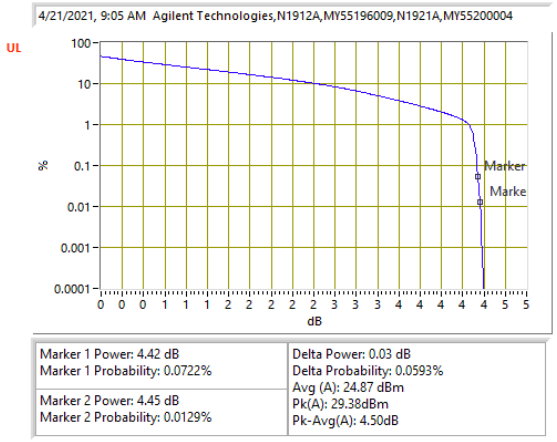
LTE BAND 12



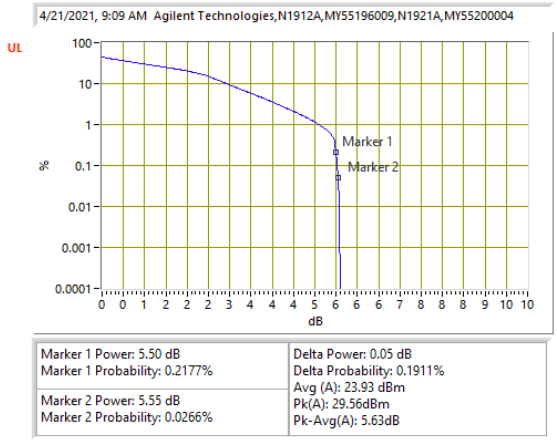
LTE B12 1.4MHz QPSK Middle Channel



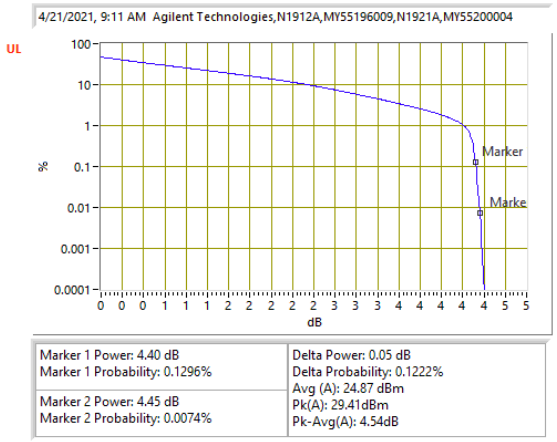
LTE B12 1.4MHz 16QAM Middle Channel



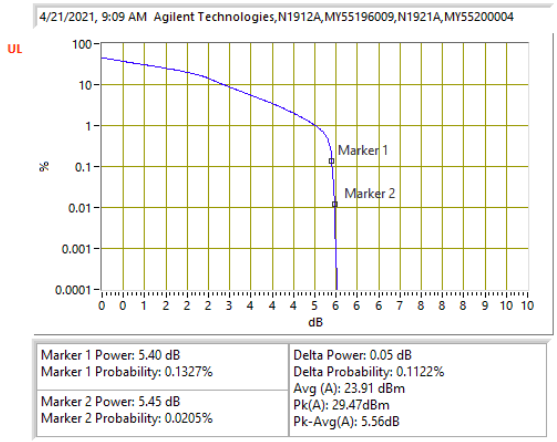
LTE B12 3MHz QPSK Middle Channel



LTE B12 3MHz 16QAM Middle Channel



LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

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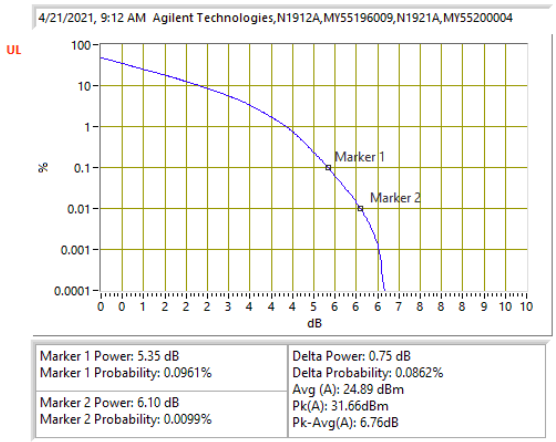
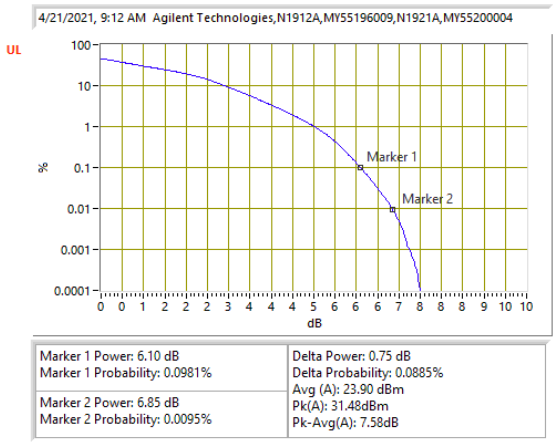


LTE B12 10MHz QPSK Middle Channel



LTE B12 10MHz 16QAM Middle Channel

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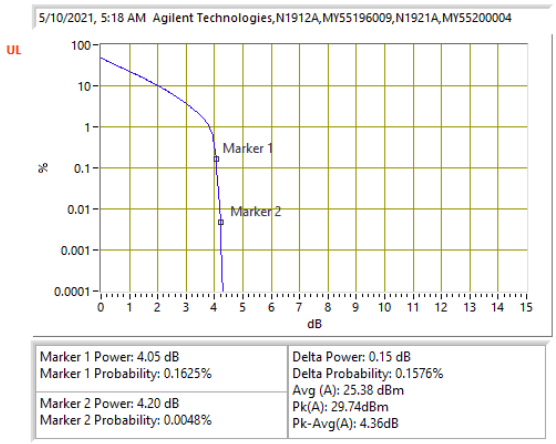
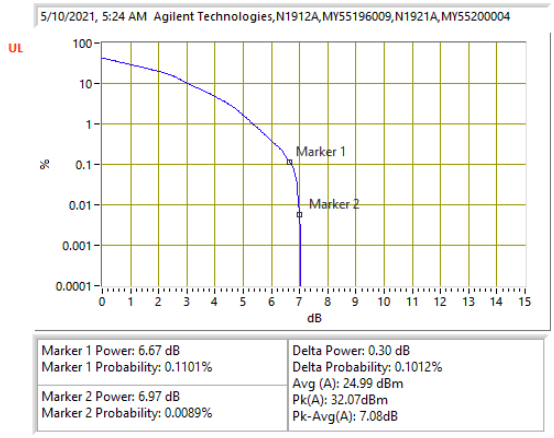
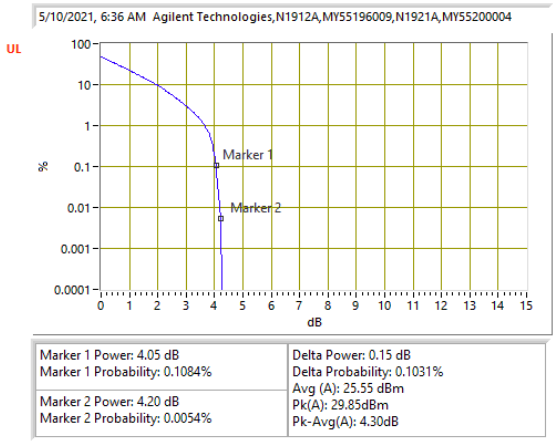
5G NR n12



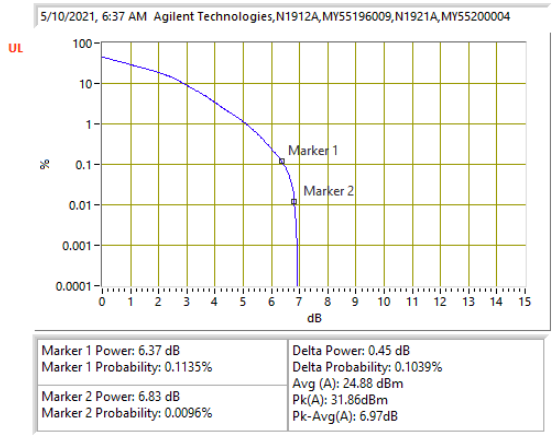
5G NR n12 5MHz BPSK Middle Channel



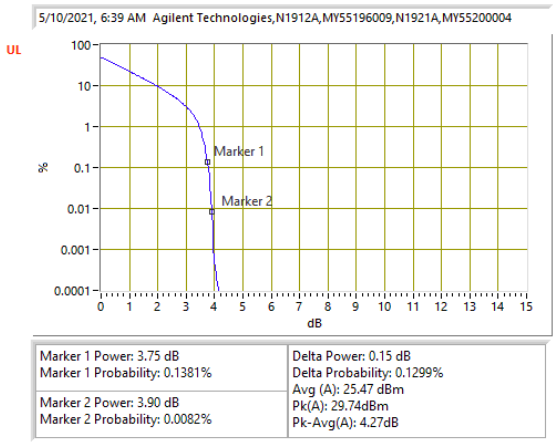
5G NR n12 5MHz 16QAM Middle Channel



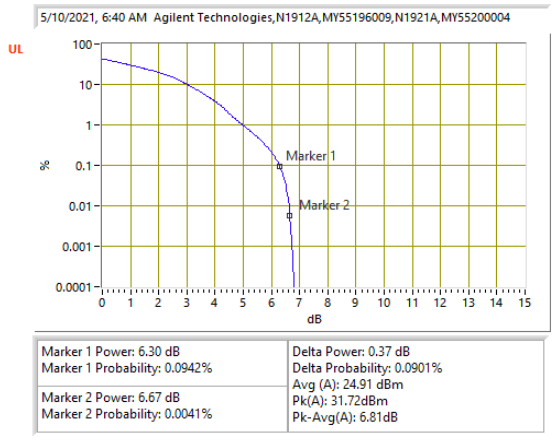
5G NR n12 10MHz BPSK Middle Channel



5G NR n12 10MHz 16QAM Middle Channel



5G NR n12 15MHz BPSK Middle Channel



5G NR n12 15MHz 16QAM Middle Channel

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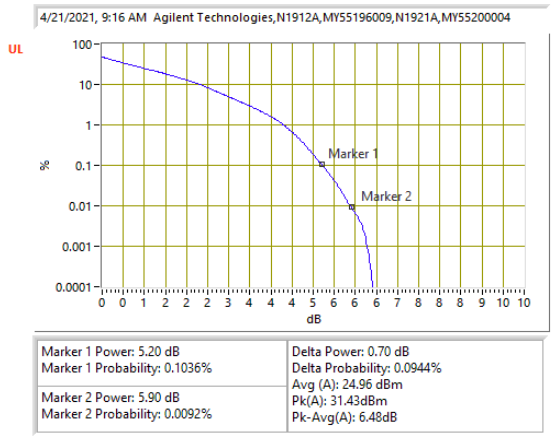
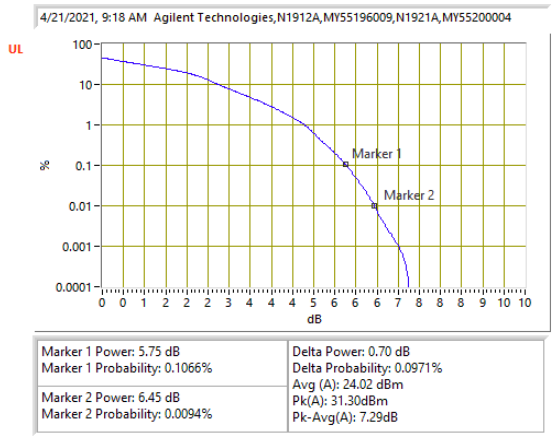
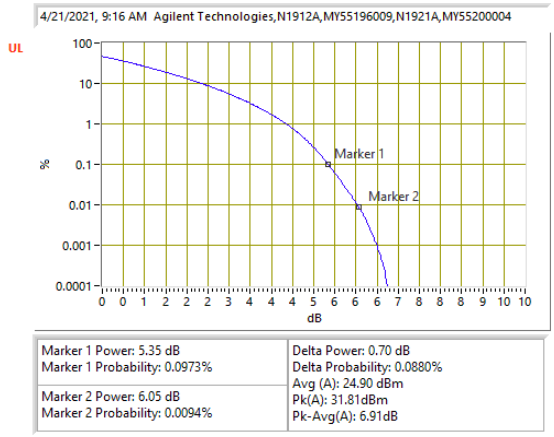
9.5.4. LTE BAND 13



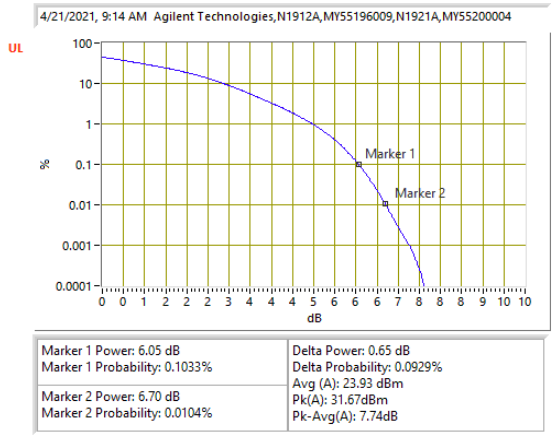
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel



LTE B13 10MHz 16QAM Middle Channel

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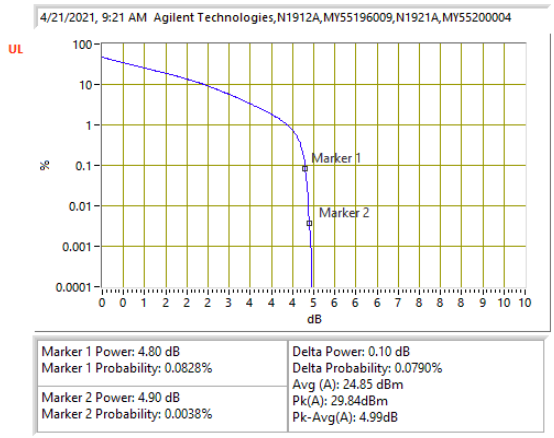
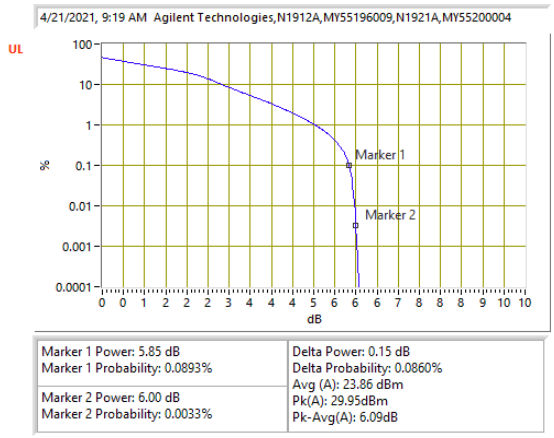
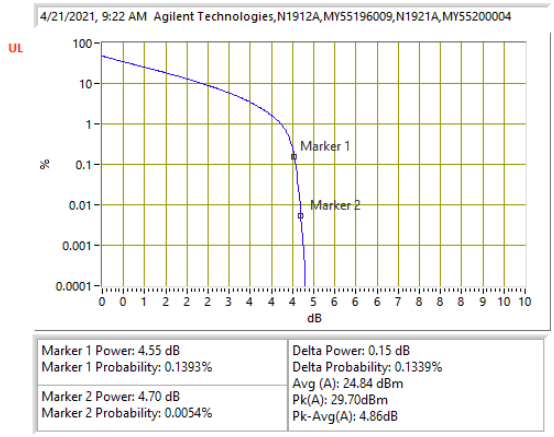
9.5.5. LTE BAND 14



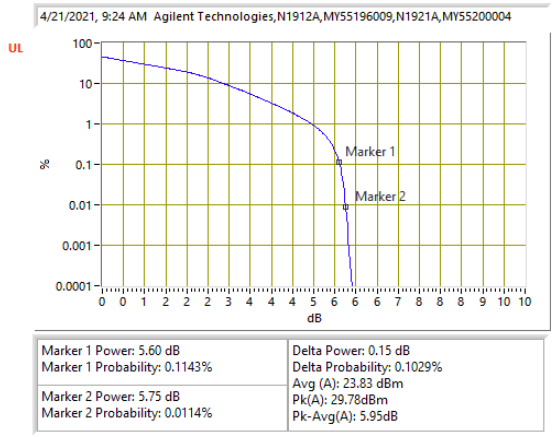
LTE B14 5MHz QPSK Middle Channel



LTE B14 5MHz 16QAM Middle Channel



LTE B14 10MHz QPSK Middle Channel



LTE B14 10MHz 16QAM Middle Channel

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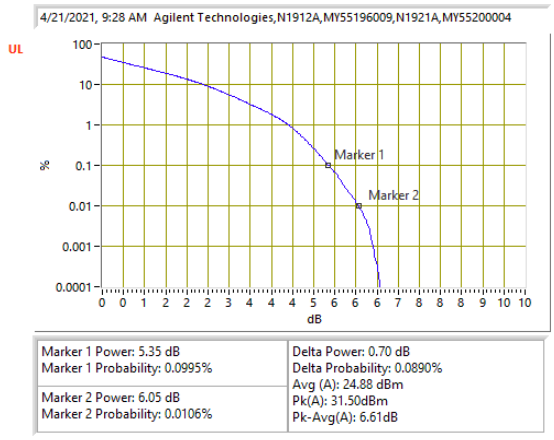
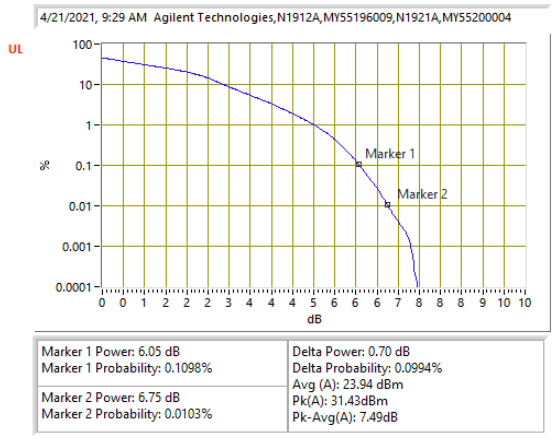
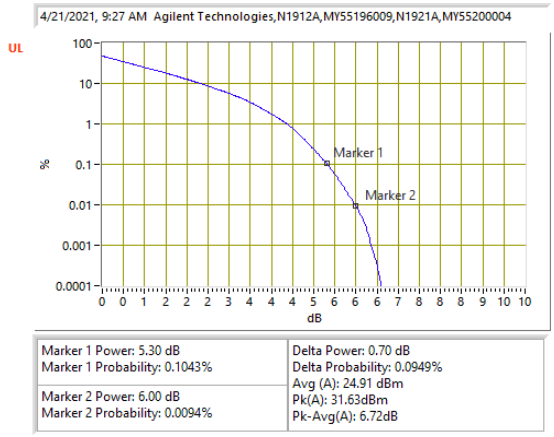
9.5.6. LTE BAND 17



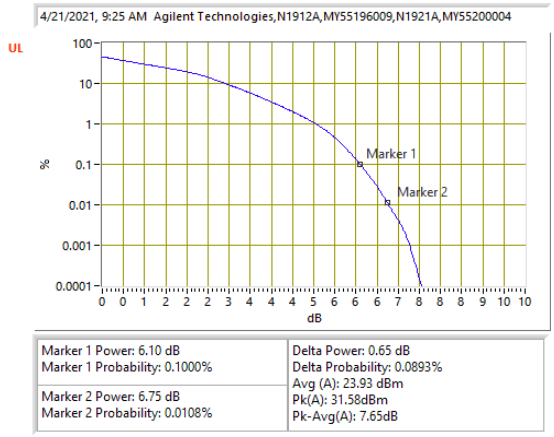
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



LTE B17 10MHz QPSK Middle Channel



LTE B17 10MHz 16QAM Middle Channel

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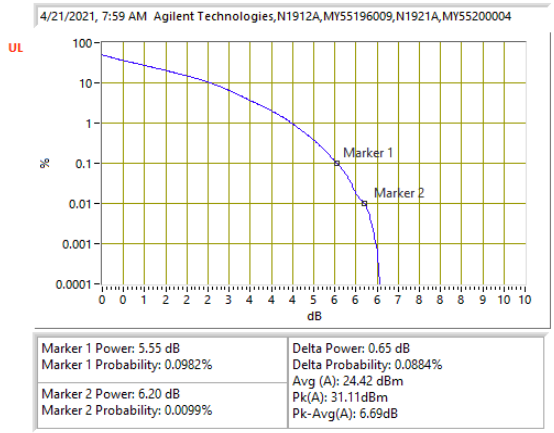
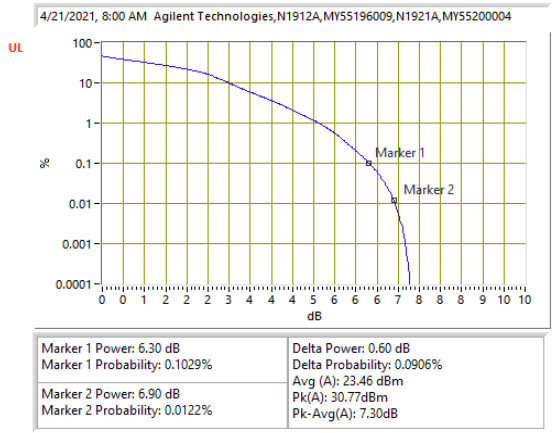
9.5.7. LTE BAND 25 AND 5G NR n25

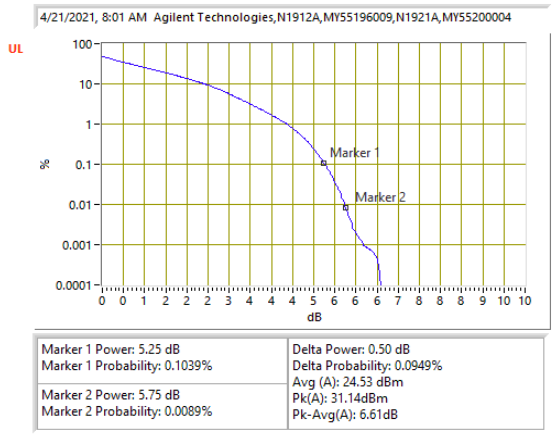
LTE BAND 25



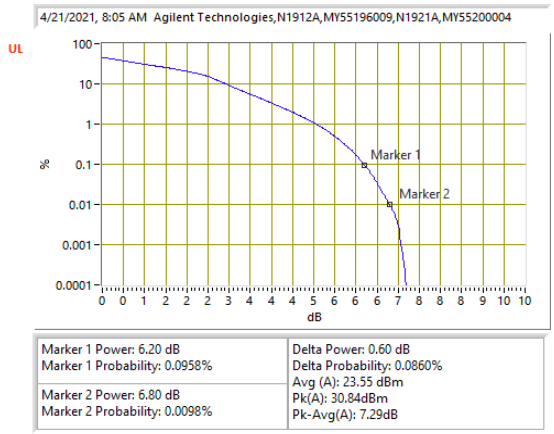
LTE B25 1.4MHz QPSK Middle Channel



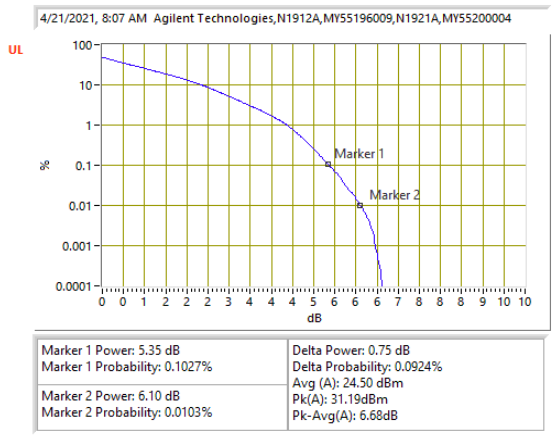
LTE B25 1.4MHz 16QAM Middle Channel



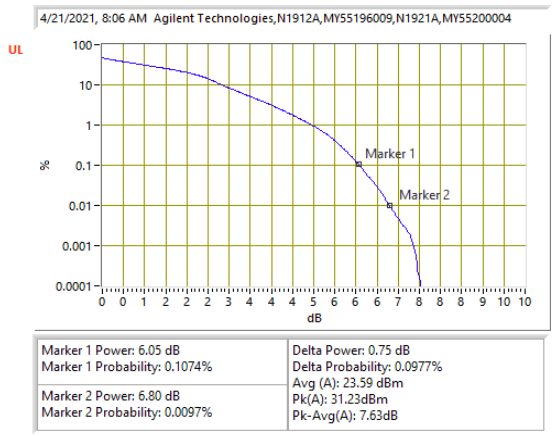
LTE B25 3MHz QPSK Middle Channel



LTE B25 3MHz 16QAM Middle Channel



LTE B2 5MHz QPSK Middle Channel



LTE B2 5MHz 16QAM Middle Channel

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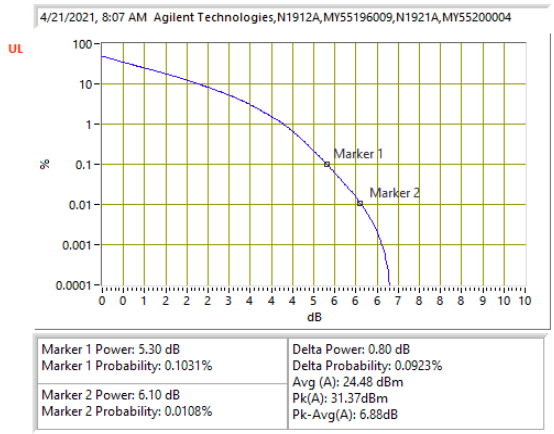
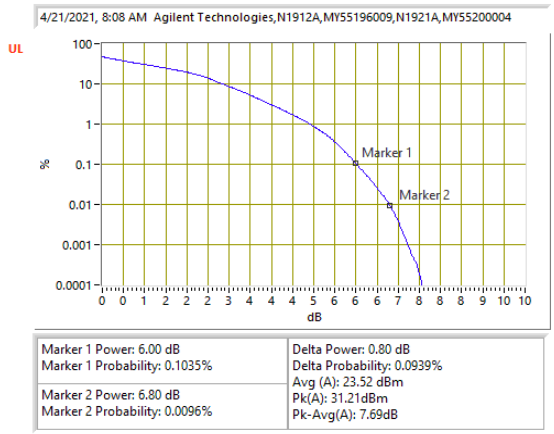
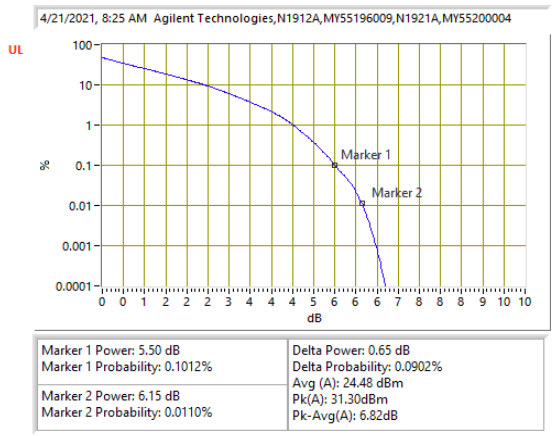


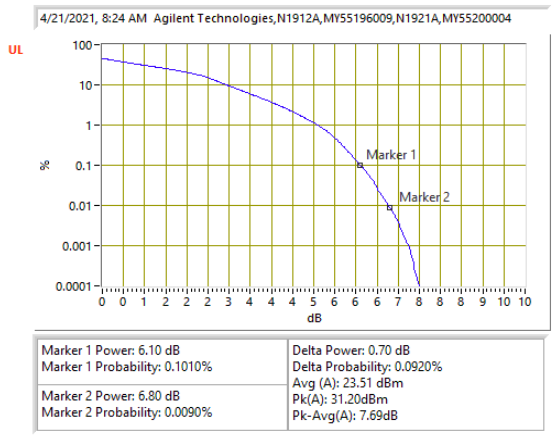
LTE B25 10MHz QPSK Middle Channel



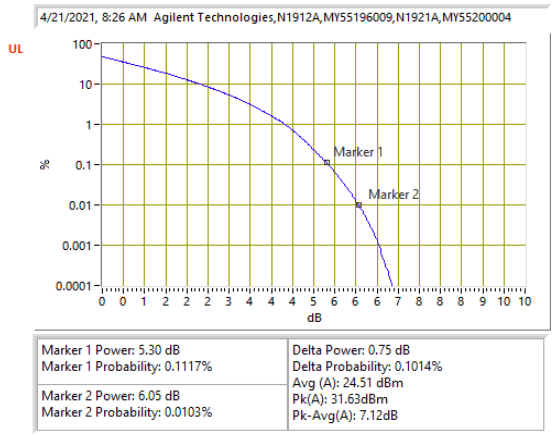
LTE B25 10MHz 16QAM Middle Channel



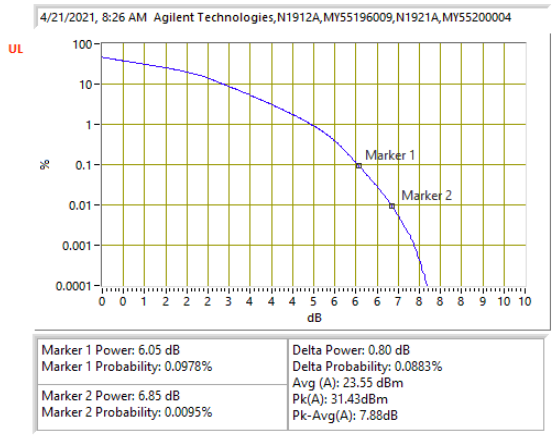
LTE B25 15MHz QPSK Middle Channel



LTE B25 15MHz 16QAM Middle Channel



LTE B25 20MHz QPSK Middle Channel



LTE B25 20MHz 16QAM Middle Channel

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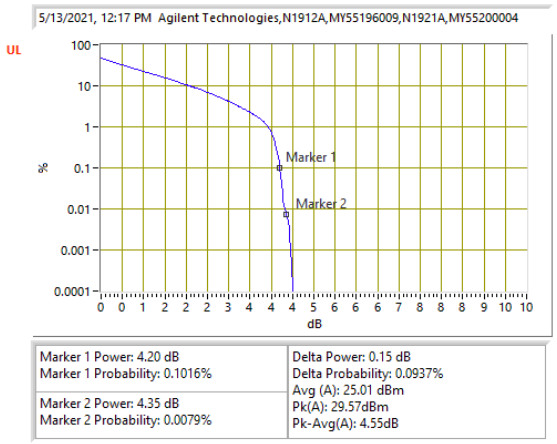
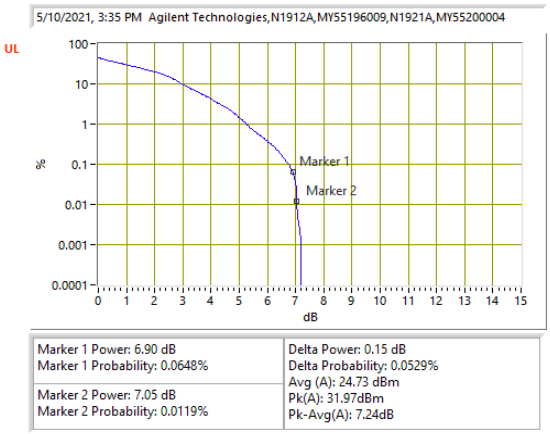
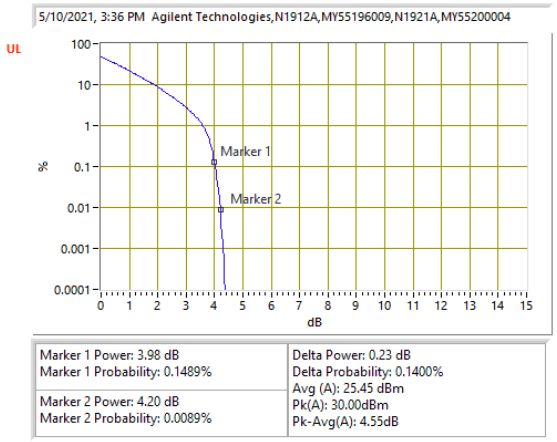
5G NR n25



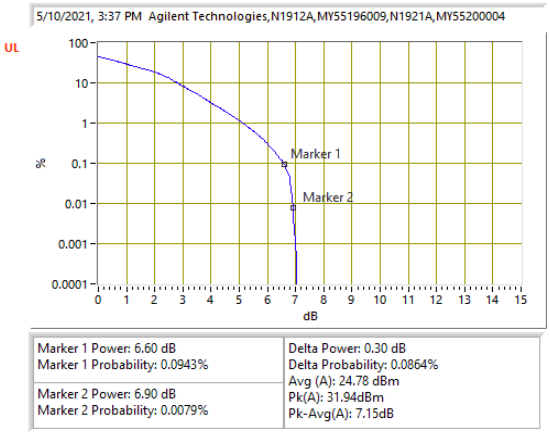
5G NR n25 5MHz BPSK Middle Channel



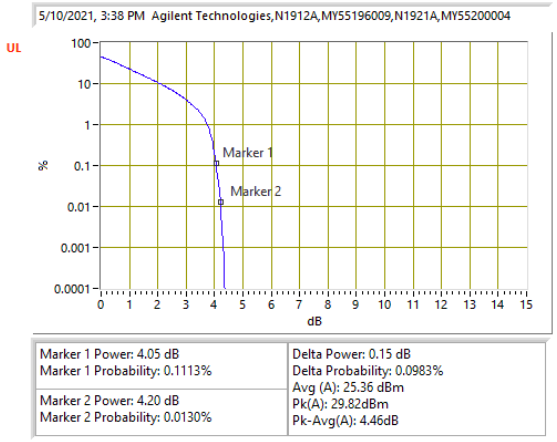
5G NR n25 5MHz 16QAM Middle Channel



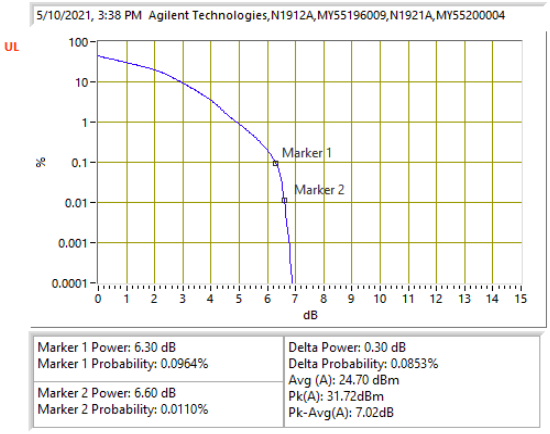
5G NR n25 10MHz BPSK Middle Channel



5G NR n25 10MHz 16QAM Middle Channel



5G NR n25 15MHz BPSK Middle Channel



5G NR n25 15MHz 16QAM Middle Channel

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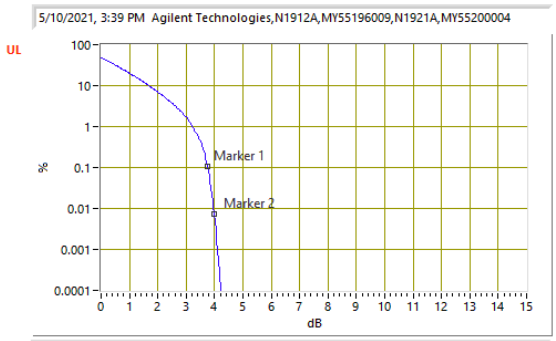
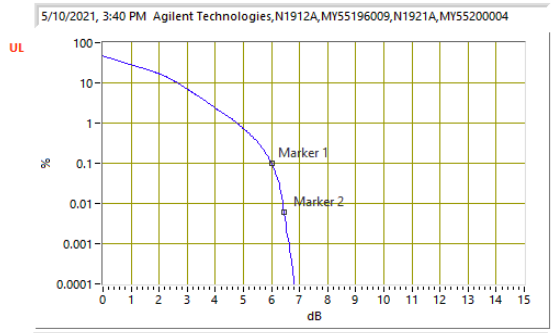


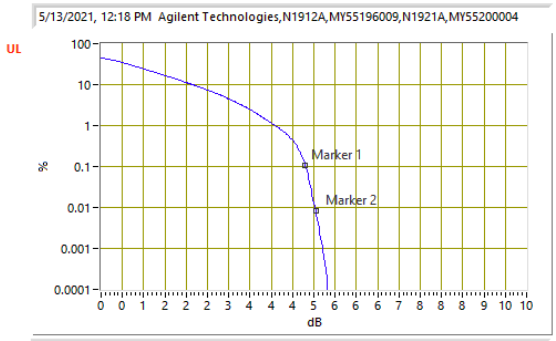
Marker 1 Power: 3.75 dB Marker 1 Probability: 0.1061%	Delta Power: 0.22 dB Delta Probability: 0.0970% Avg (A): 25.39 dBm Pk(A): 29.65dBm Pk-Avg(A): 4.25dB
Marker 2 Power: 3.98 dB Marker 2 Probability: 0.0090%	

5G NR n25 20MHz BPSK Middle Channel



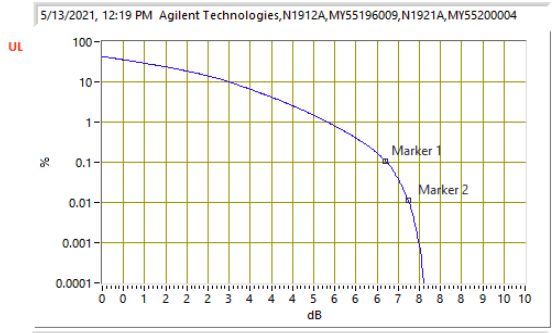
Marker 1 Power: 6.00 dB Marker 1 Probability: 0.1003%	Delta Power: 0.45 dB Delta Probability: 0.0942% Avg (A): 24.72 dBm Pk(A): 31.62dBm Pk-Avg(A): 6.89dB
Marker 2 Power: 6.45 dB Marker 2 Probability: 0.0061%	

5G NR n25 20MHz 16QAM Middle Channel



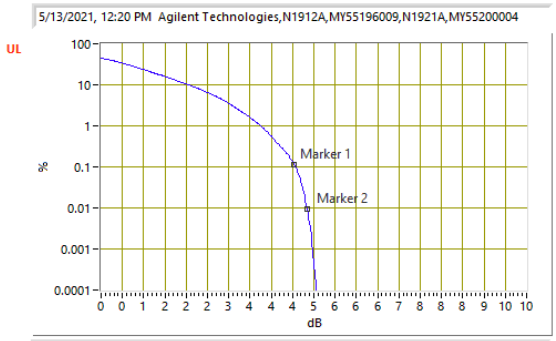
Marker 1 Power: 4.80 dB Marker 1 Probability: 0.1088%	Delta Power: 0.25 dB Delta Probability: 0.1013% Avg (A): 23.04 dBm Pk(A): 28.52dBm Pk-Avg(A): 5.48dB
Marker 2 Power: 5.05 dB Marker 2 Probability: 0.0075%	

5G NR n25 25MHz BPSK Middle Channel



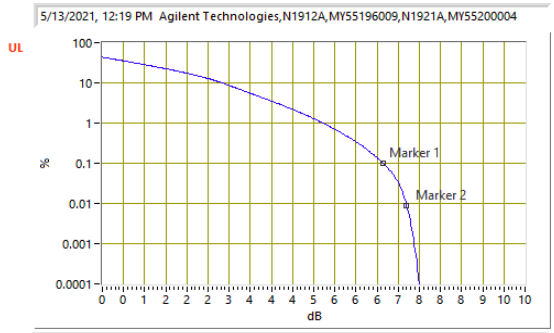
Marker 1 Power: 6.70 dB Marker 1 Probability: 0.1071%	Delta Power: 0.55 dB Delta Probability: 0.0966% Avg (A): 21.55 dBm Pk(A): 29.32dBm Pk-Avg(A): 7.77dB
Marker 2 Power: 7.25 dB Marker 2 Probability: 0.0105%	

5G NR n25 25MHz 16QAM Middle Channel



Marker 1 Power: 4.55 dB Marker 1 Probability: 0.1109%	Delta Power: 0.30 dB Delta Probability: 0.1026% Avg (A): 23.03 dBm Pk(A): 28.16dBm Pk-Avg(A): 5.13dB
Marker 2 Power: 4.85 dB Marker 2 Probability: 0.0082%	

5G NR n25 30MHz BPSK Middle Channel



Marker 1 Power: 6.65 dB Marker 1 Probability: 0.0972%	Delta Power: 0.55 dB Delta Probability: 0.0883% Avg (A): 21.54 dBm Pk(A): 29.18dBm Pk-Avg(A): 7.64dB
Marker 2 Power: 7.20 dB Marker 2 Probability: 0.0089%	

5G NR n25 30MHz 16QAM Middle Channel

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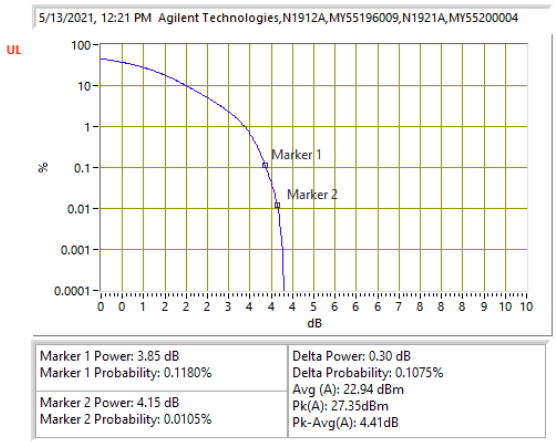
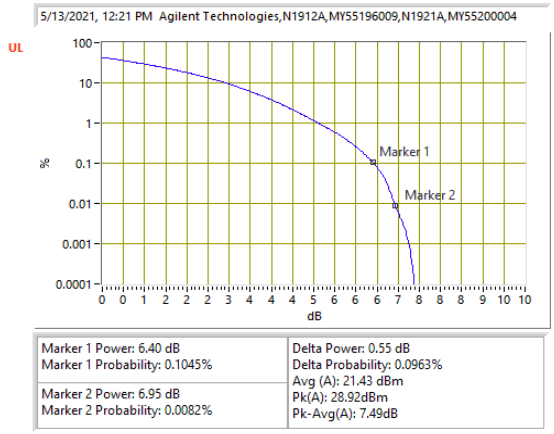


5G NR n25 40MHz BPSK Middle Channel



5G NR n25 40MHz 16QAM Middle Channel

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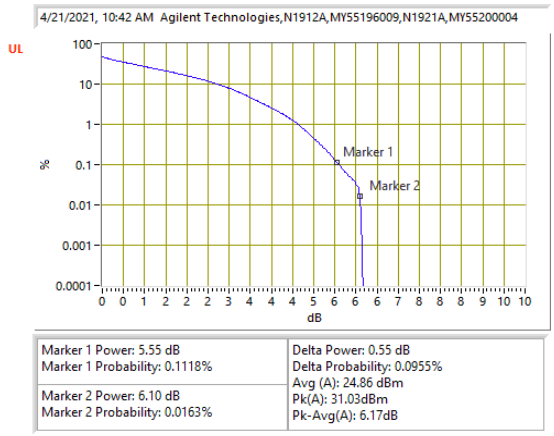
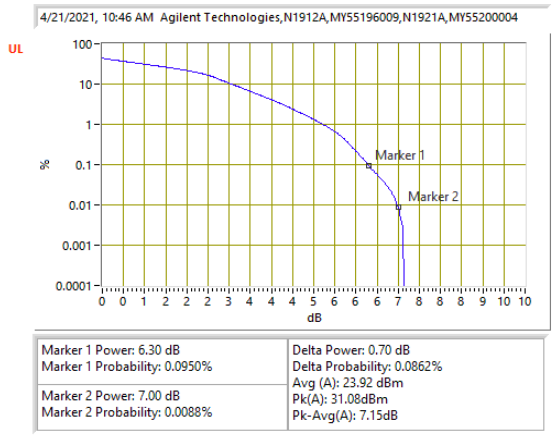
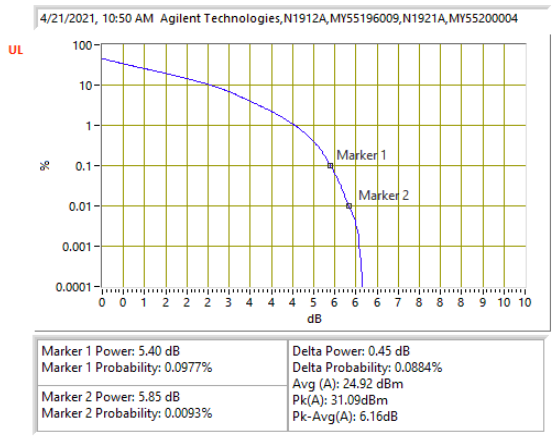
9.5.8. LTE BAND 26 (PART 90S)



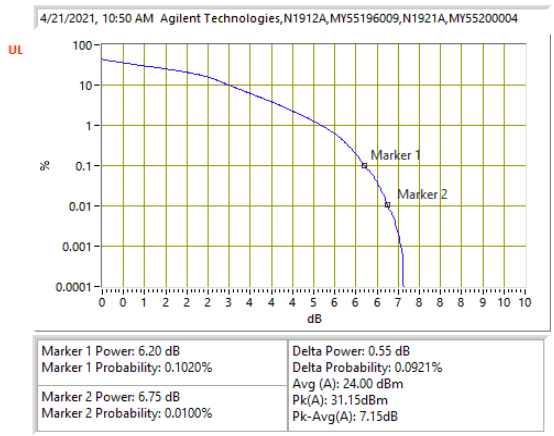
LTE B26 1.4MHz QPSK Middle Channel



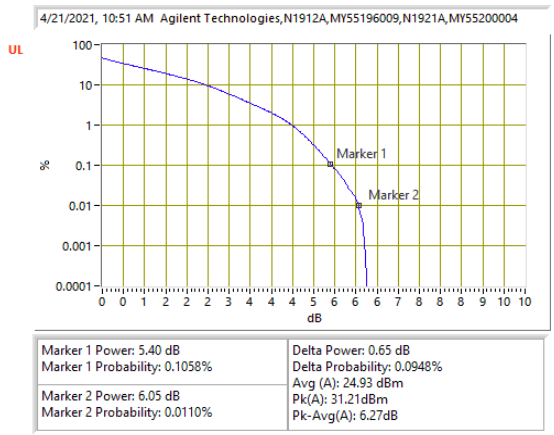
LTE B26 1.4MHz 16QAM Middle Channel



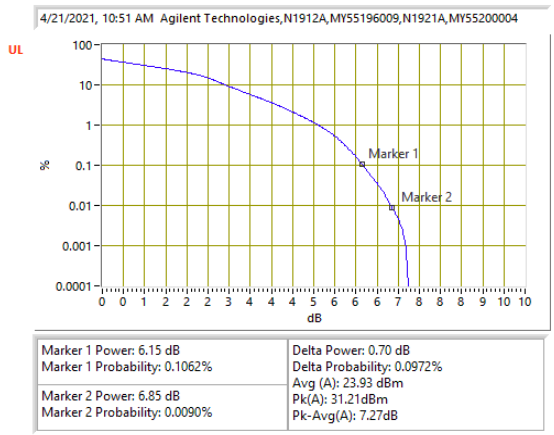
LTE B26 3MHz QPSK Middle Channel



LTE B26 3MHz 16QAM Middle Channel



LTE B26 5MHz QPSK Middle Channel



LTE B26 5MHz 16QAM Middle Channel

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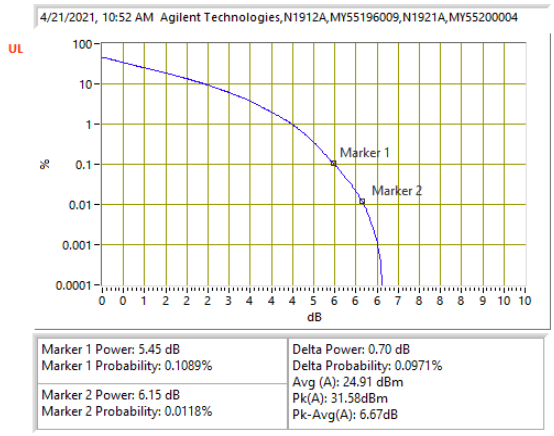
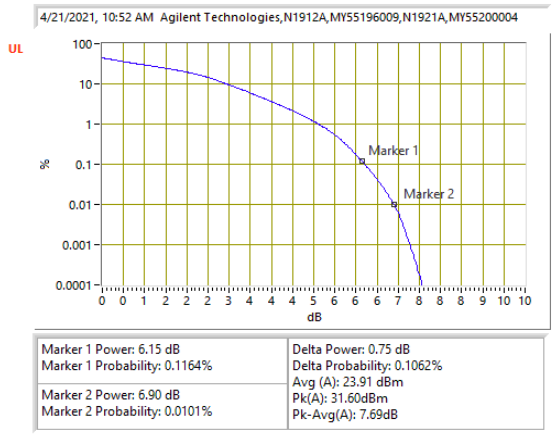


LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

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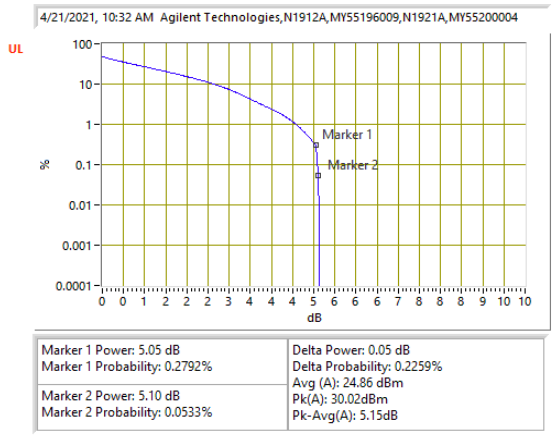
9.5.9. LTE BAND 26 (PART 22)



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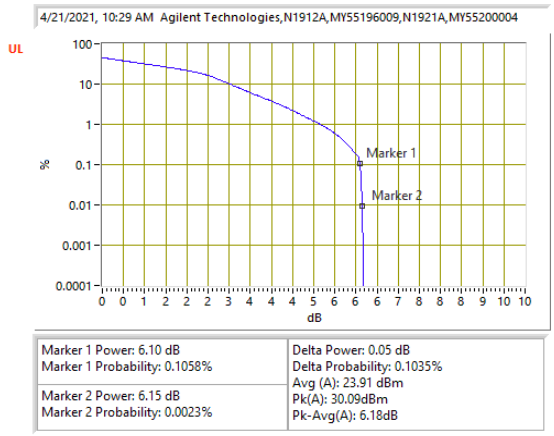
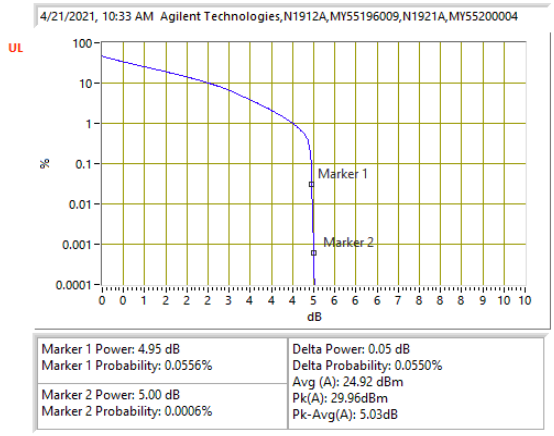
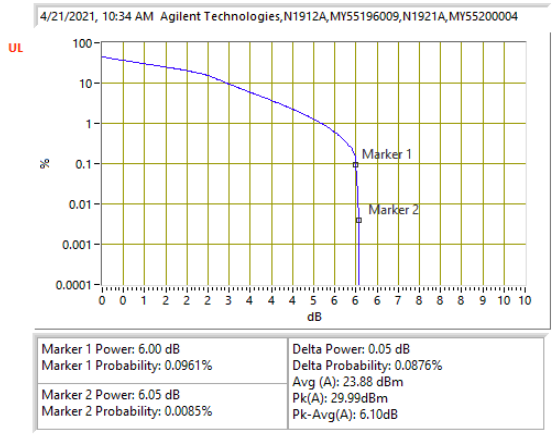


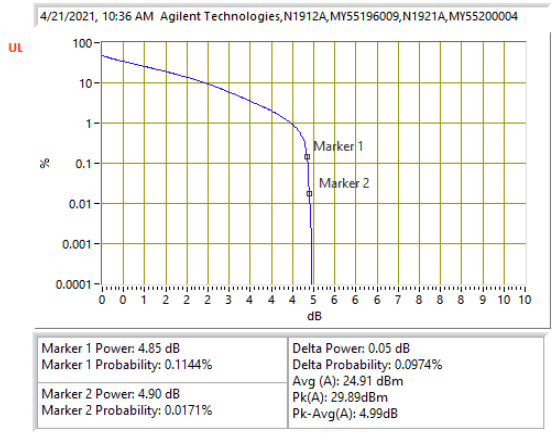
LTE B26 1.4MHz 16QAM Middle Channel



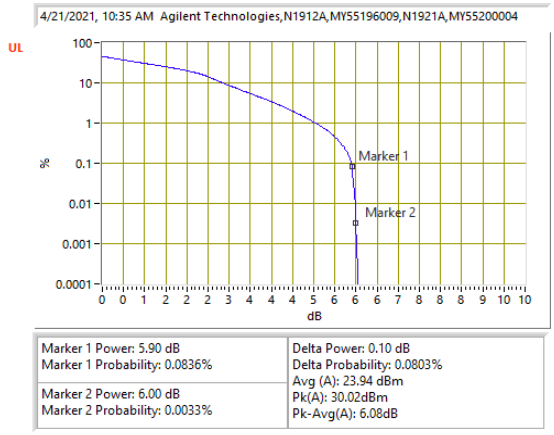
LTE B26 3MHz QPSK Middle Channel



LTE B26 3MHz 16QAM Middle Channel



LTE B26 5MHz QPSK Middle Channel



LTE B26 5MHz 16QAM Middle Channel

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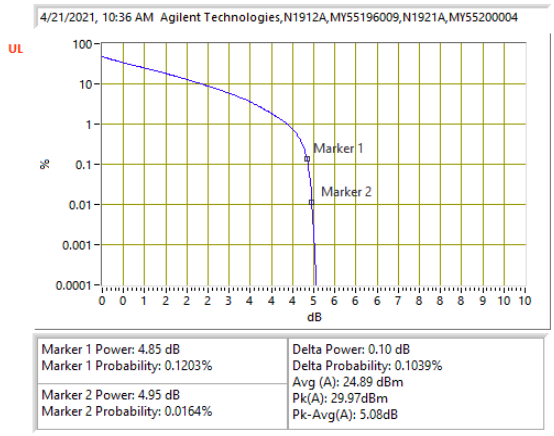
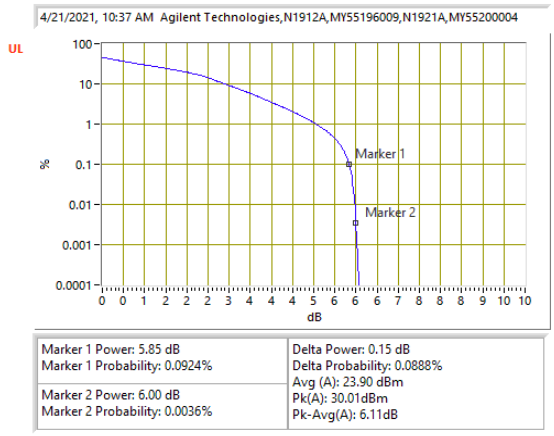


LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

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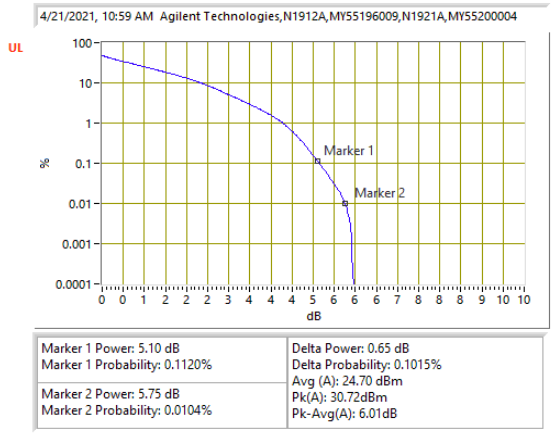
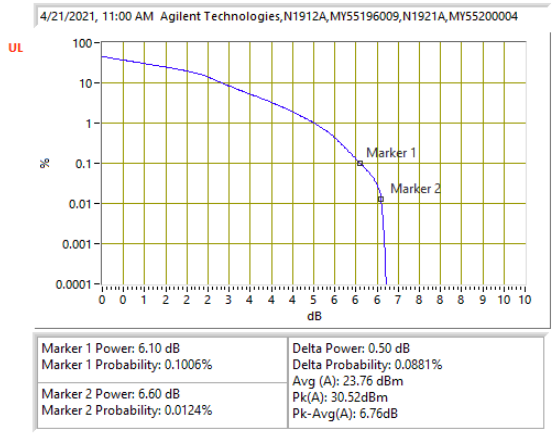
9.5.10. LTE BAND 30

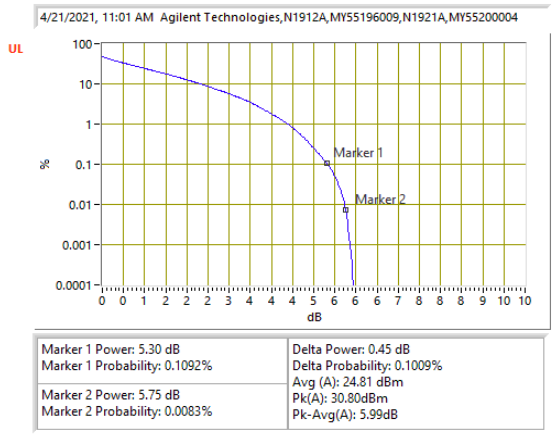
LTE BAND 30



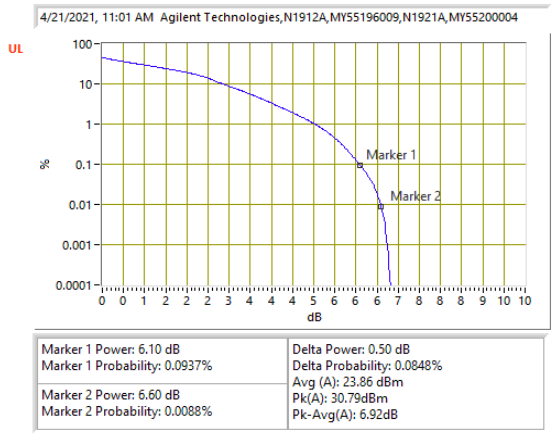
LTE B30 5MHz QPSK Middle Channel



LTE B30 5MHz 16QAM Middle Channel



LTE B30 10MHz QPSK Middle Channel



LTE B30 10MHz 16QAM Middle Channel

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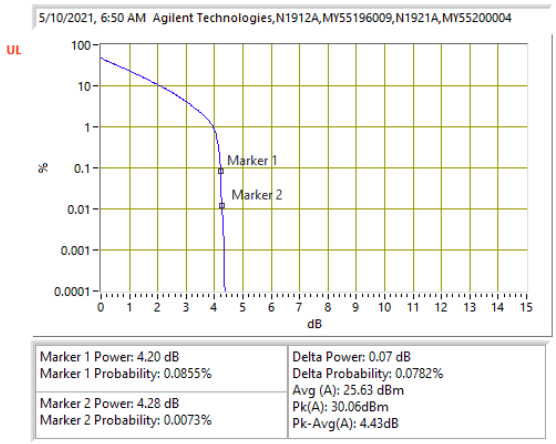
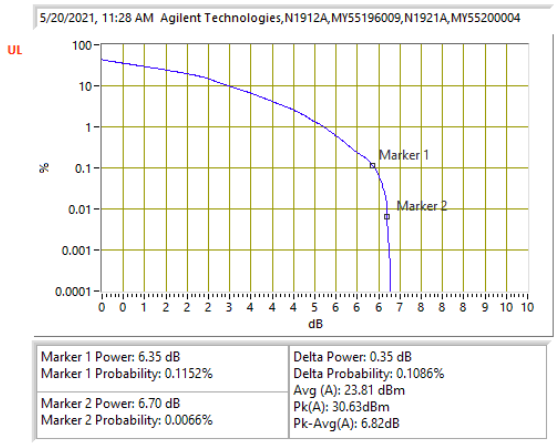
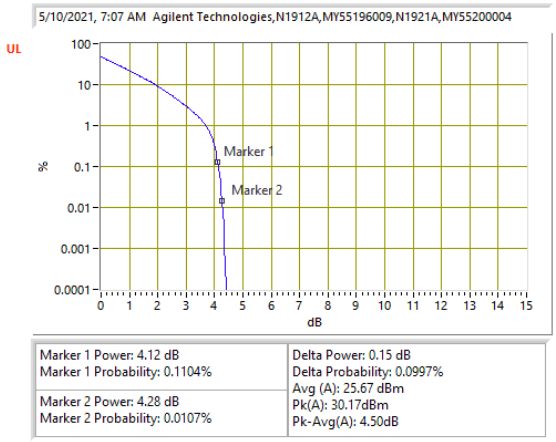
5G NR n30



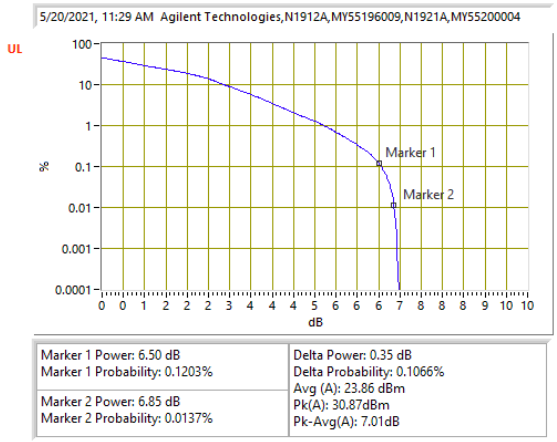
5G NR n30 5MHz BPSK Middle Channel



LTE B30 5MHz 16QAM Middle Channel



5G NR n30 10MHz BPSK Middle Channel



LTE B30 10MHz 16QAM Middle Channel

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9.5.11. LTE BAND 41 AND 5G NR n41

Test Engineer ID:	19431	Test Date:	4/21/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band 41	5MHz	2593.0	25	0	QPSK	31.70	19.18	5.53
					16QAM	31.73	18.24	6.50
	10MHz		50	0	QPSK	31.80	19.16	5.65
					16QAM	31.81	18.23	6.59
	15MHz		75	0	QPSK	31.81	19.1	5.72
					16QAM	31.81	18.13	6.69
	20MHz		100	0	QPSK	31.87	19.1	5.78
					16QAM	31.86	18.11	6.76
5G NR n41(FCC)	20MHz		50	0	BPSK	31.33	27.6	3.73
					16QAM	31.02	26.05	4.97
	30MHz		75	0	BPSK	31.69	27.58	4.11
					16QAM	31.27	26.54	4.73
	40MHz		100	0	BPSK	29.34	26.77	2.57
					16QAM	30.60	25.78	4.82
	50MHz		128	0	BPSK	30.30	27.65	2.65
					16QAM	31.34	26.62	4.72
	60MHz		162	0	BPSK	29.64	27.21	2.43
					16QAM	30.63	26.03	4.60
	80MHz		216	0	BPSK	30.10	27.21	2.89
					16QAM	30.43	26.64	3.79
	90MHz		243	0	BPSK	29.65	27.21	2.44
					16QAM	30.42	26.58	3.84
	100MHz		270	0	BPSK	29.69	27.25	2.44
					16QAM	30.84	26.92	3.92
Duty Cycle Correction Factor (dB) =			6.99					

Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor

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9.5.12. LTE BAND 48

Test Engineer ID:	19431	Test Date:	4/21/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band 48	5MHz	3625.0	25	0	QPSK	30.85	18.36	5.49
					16QAM	30.98	17.38	6.60
	10MHz		50	0	QPSK	31.10	18.4	5.70
					16QAM	30.88	17.39	6.49
	15MHz		75	0	QPSK	31.04	18.29	5.75
					16QAM	30.94	17.33	6.61
	20MHz		100	0	QPSK	30.95	18.34	5.61
					16QAM	30.87	17.32	6.55
5G NR 48(FCC)	10MHz		24	0	BPSK	30.59	26.45	4.14
					16QAM	30.78	25.02	5.76
	20MHz		50	0	BPSK	30.34	25.92	4.42
					16QAM	30.94	24.47	6.47
	40MHz		100	0	BPSK	29.98	25.98	4.00
					16QAM	30.89	24.46	6.43
Duty Cycle Correction Factor (dB) =			7.00					

Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor

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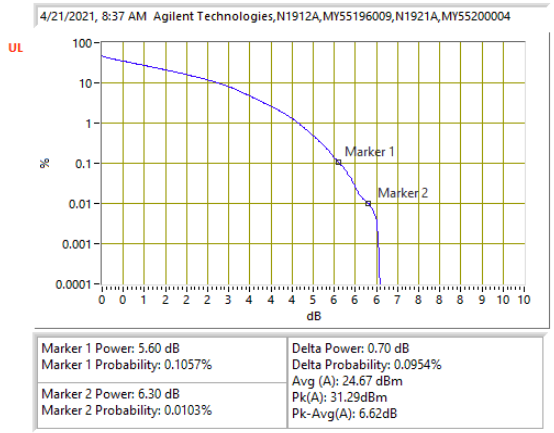
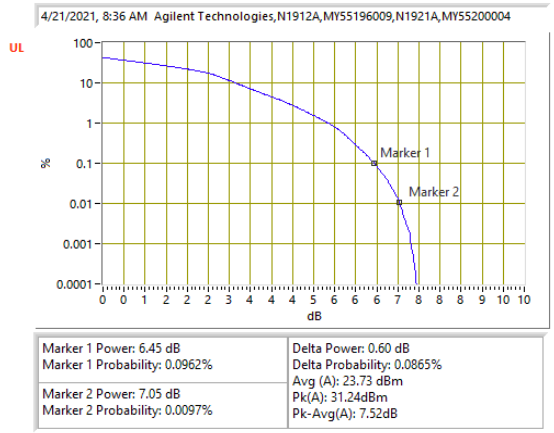
9.5.13. LTE BAND 66 AND 5G NR n66

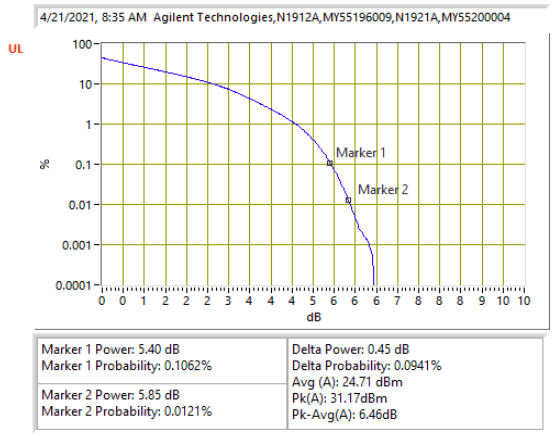
LTE BAND 66



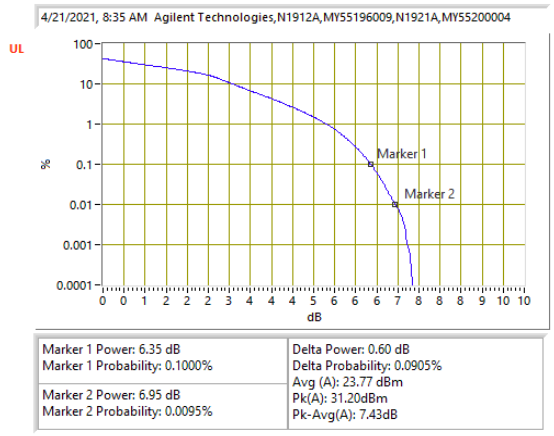
LTE B66 1.4MHz QPSK Middle Channel



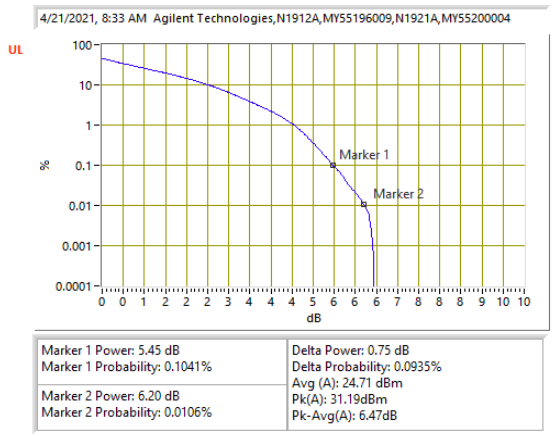
LTE B66 1.4MHz 16QAM Middle Channel



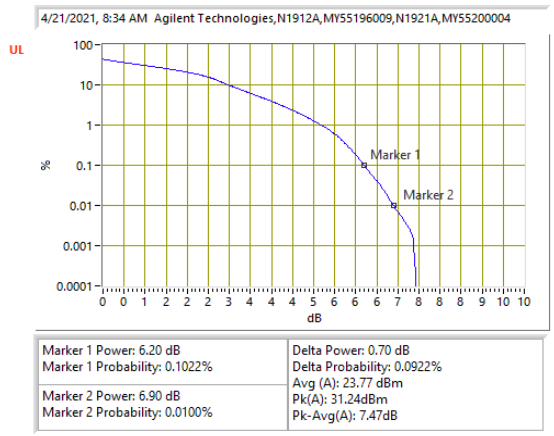
LTE B66 3MHz QPSK Middle Channel



LTE B66 3MHz 16QAM Middle Channel



LTE B66 5MHz QPSK Middle Channel



LTE B66 5MHz 16QAM Middle Channel

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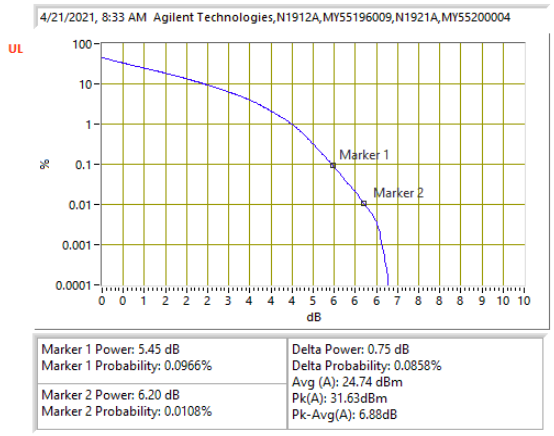
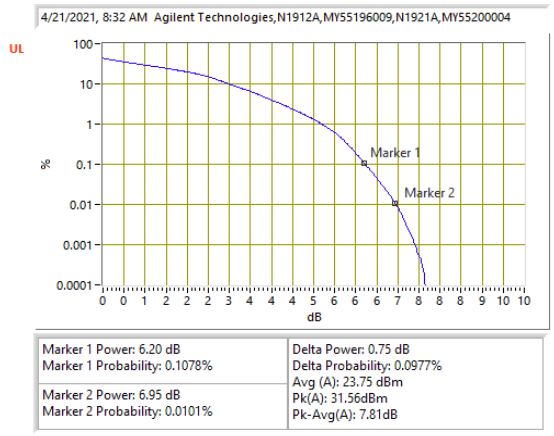
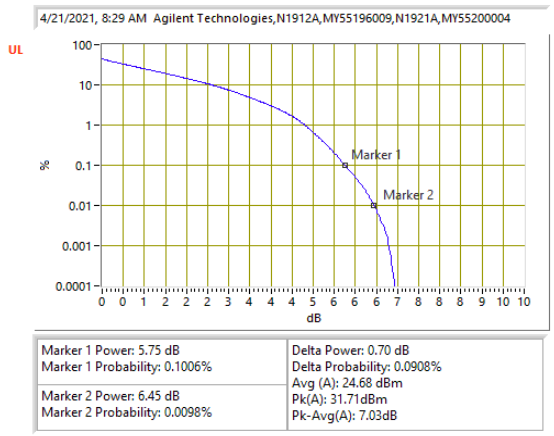


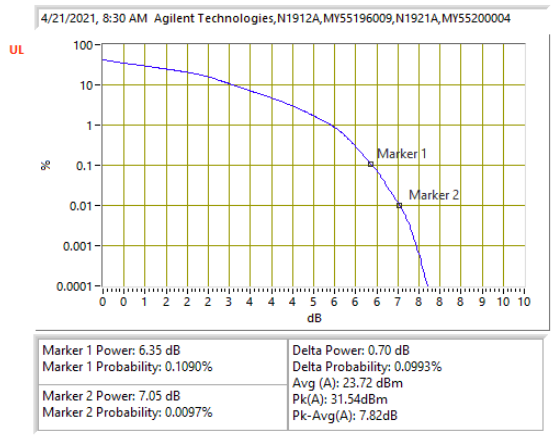
LTE B66 10MHz QPSK Middle Channel



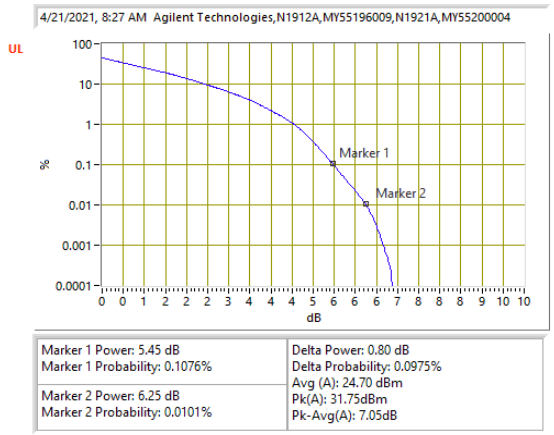
LTE B66 10MHz 16QAM Middle Channel



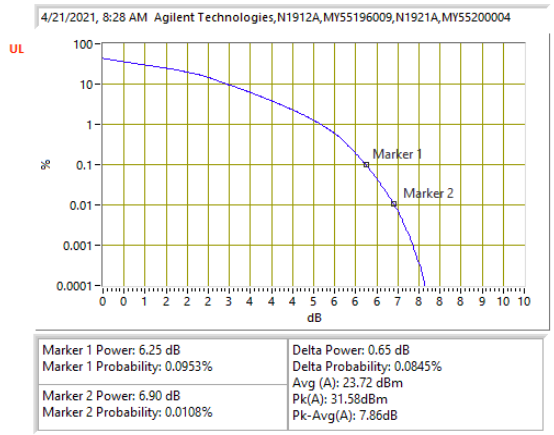
LTE B66 15MHz QPSK Middle Channel



LTE B66 15MHz 16QAM Middle Channel



LTE B66 20MHz QPSK Middle Channel



LTE B66 20MHz 16QAM Middle Channel

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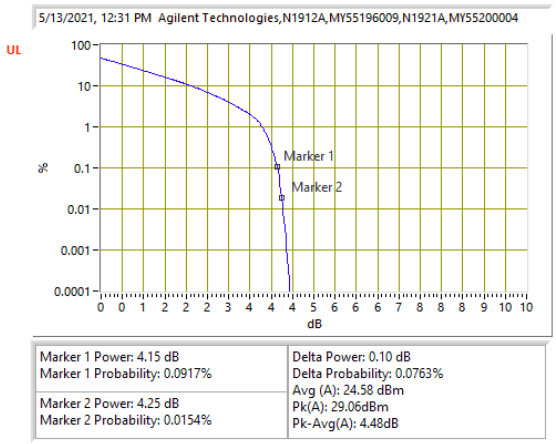
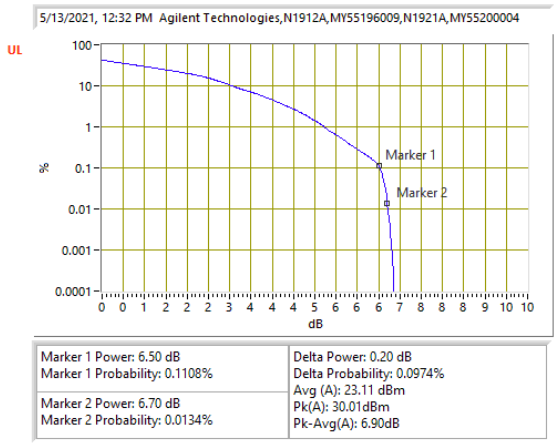
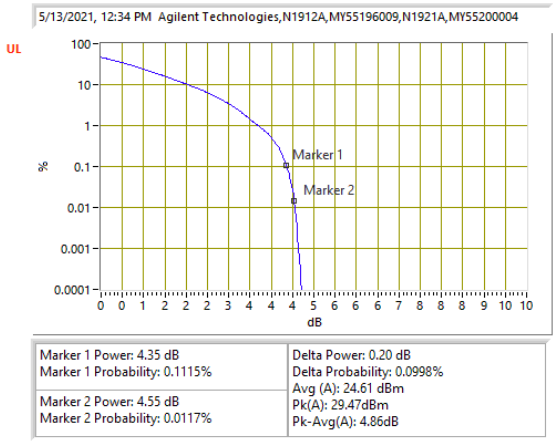
5G NR n66



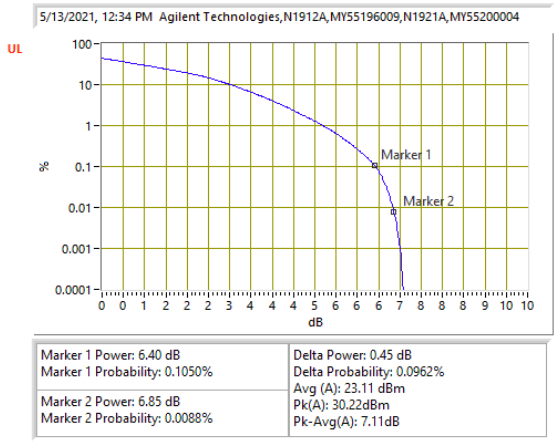
5G NR n66 5MHz BPSK Middle Channel



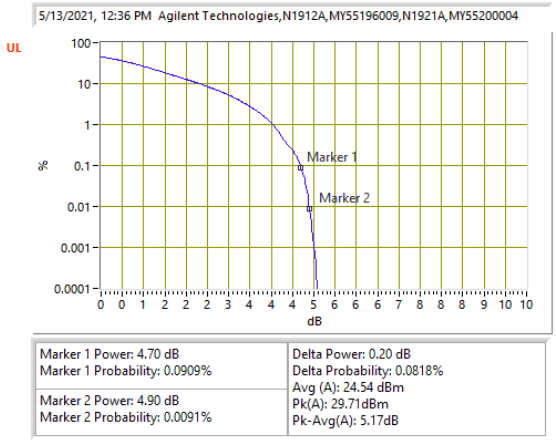
5G NR n66 5MHz 16QAM Middle Channel



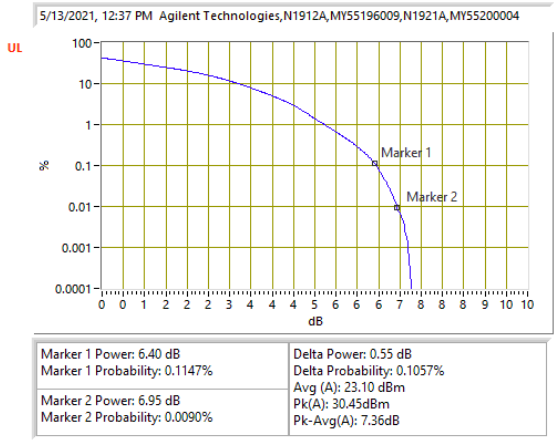
5G NR n66 10MHz BPSK Middle Channel



5G NR n66 10MHz 16QAM Middle Channel



5G NR n66 15MHz BPSK Middle Channel



5G NR n66 15MHz 16QAM Middle Channel

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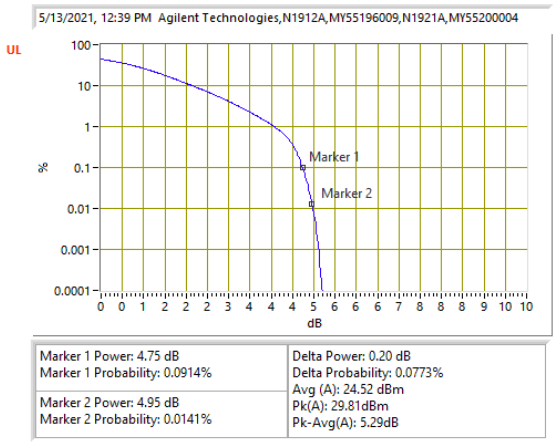
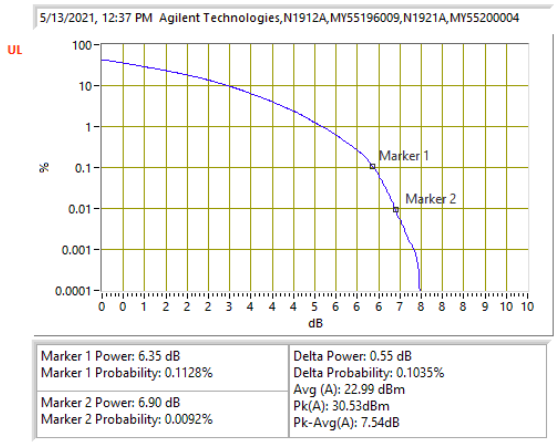
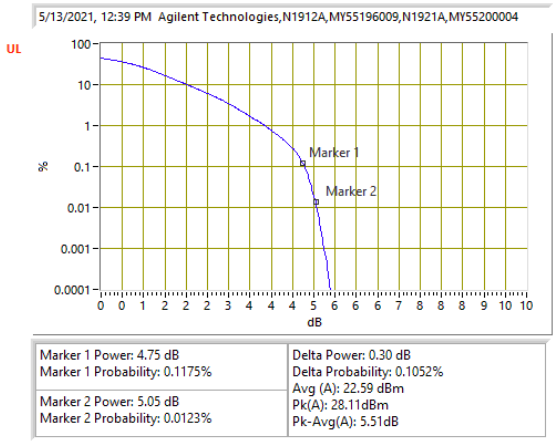


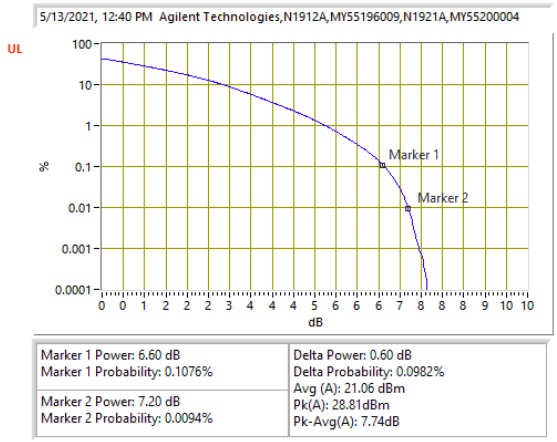
5G NR n66 20MHz BPSK Middle Channel



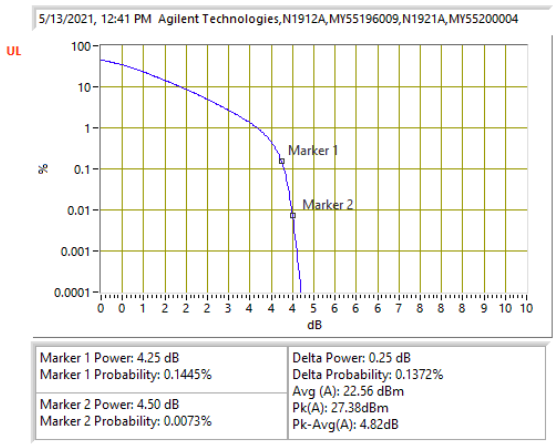
5G NR n66 20MHz 16QAM Middle Channel



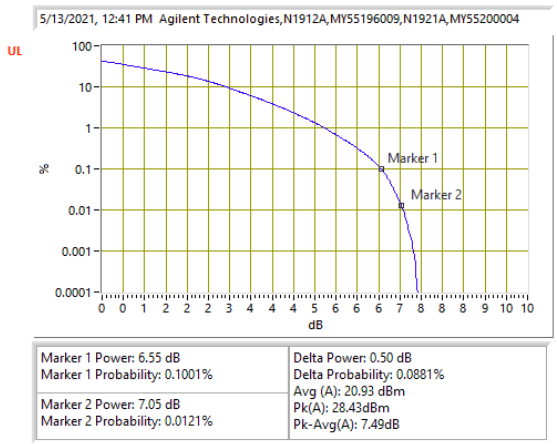
5G NR n66 30MHz BPSK Middle Channel



5G NR n66 30MHz 16QAM Middle Channel



5G NR n66 40MHz BPSK Middle Channel



5G NR n66 40MHz 16QAM Middle Channel

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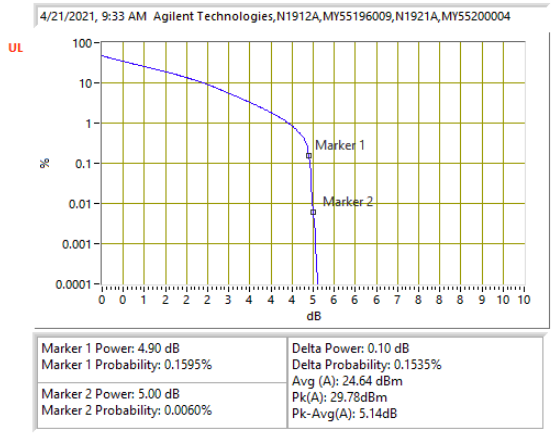
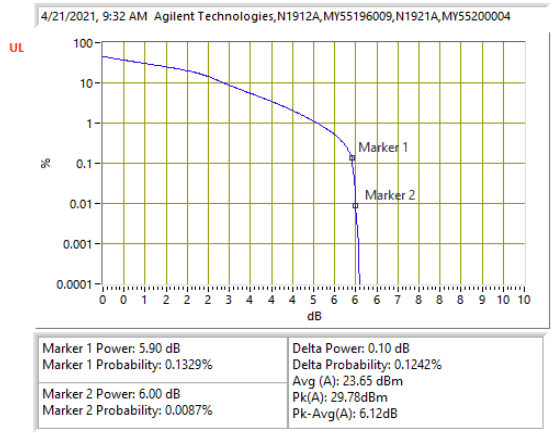
9.5.14. LTE BAND 71 AND 5G NR n71

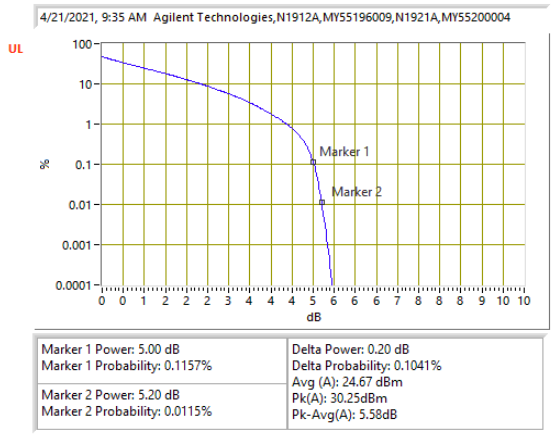
LTE BAND 71



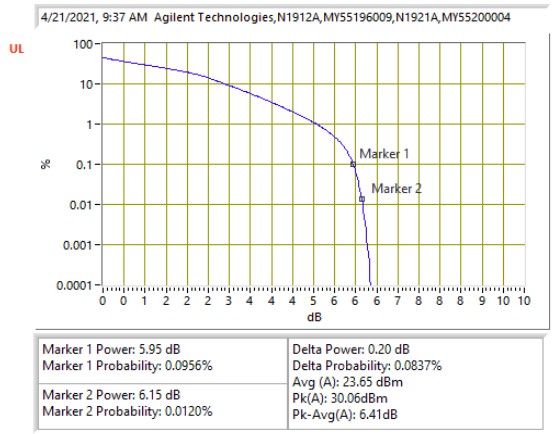
LTE B71 5MHz QPSK Middle Channel



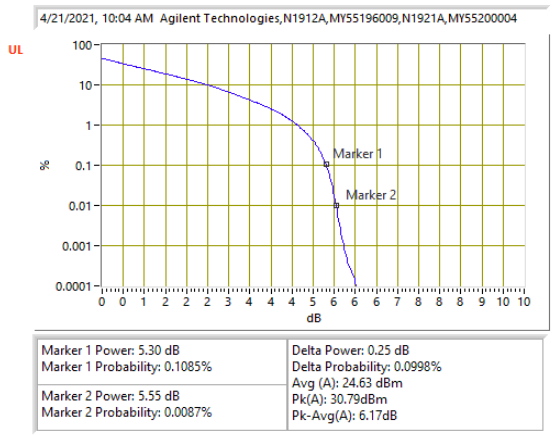
LTE B71 5MHz 16QAM Middle Channel



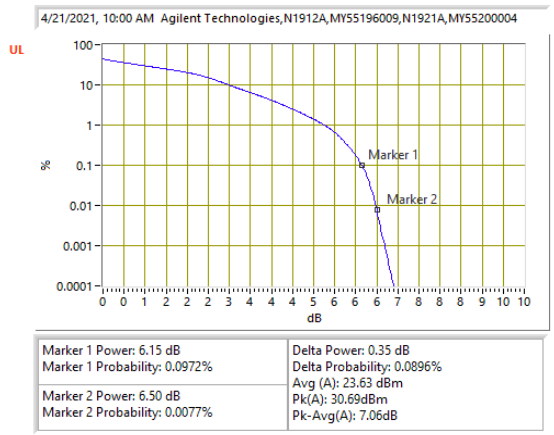
LTE B71 10MHz QPSK Middle Channel



LTE B71 10MHz 16QAM Middle Channel



LTE B71 15MHz QPSK Middle Channel



LTE B71 15MHz 16QAM Middle Channel

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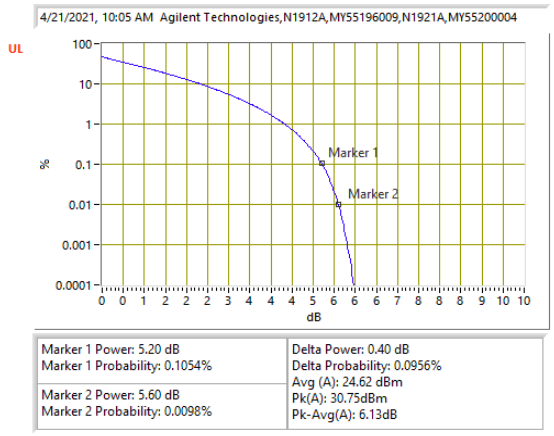
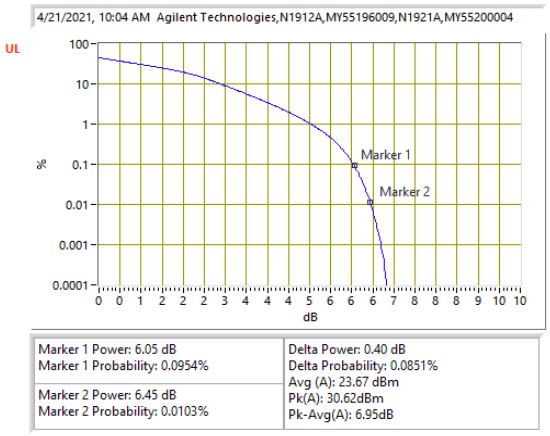


LTE B71 20MHz QPSK Middle Channel



LTE B71 20MHz 16QAM Middle Channel

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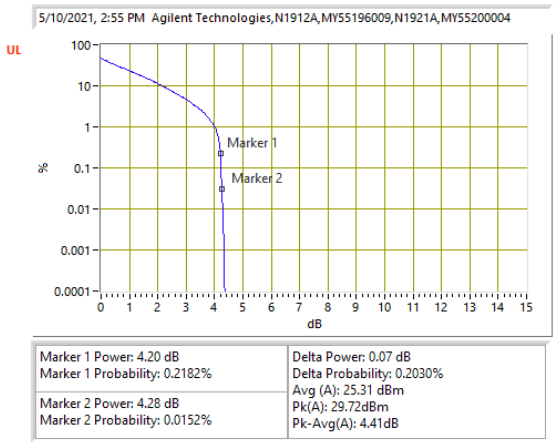
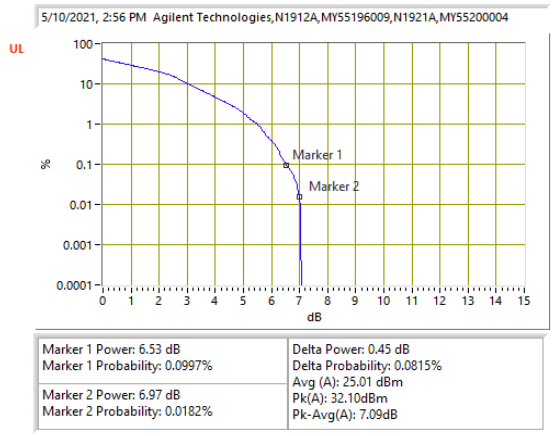
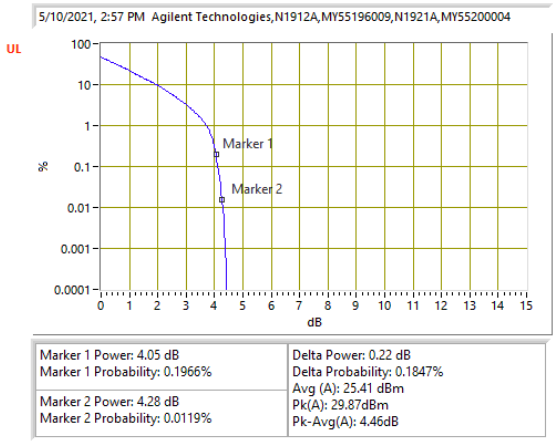
5G NR n71



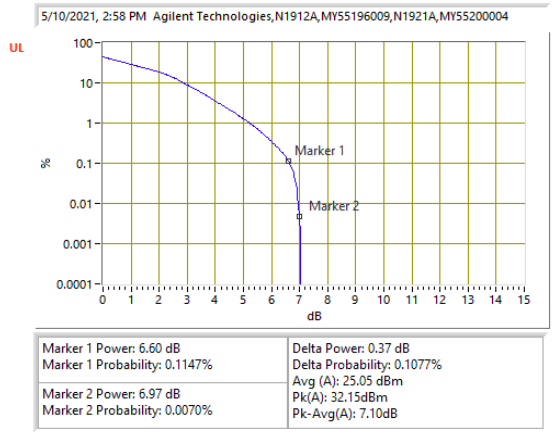
5G NR n71 5MHz BPSK Middle Channel



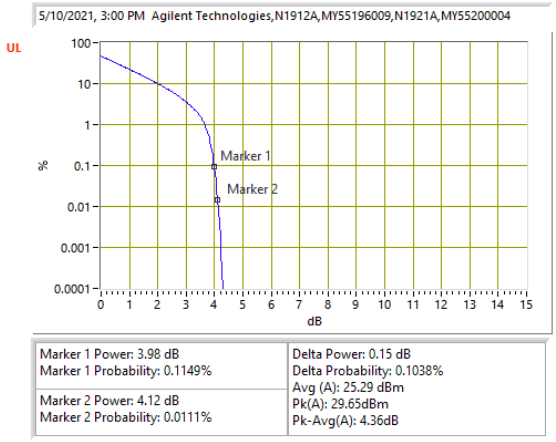
5G NR n71 5MHz 16QAM Middle Channel



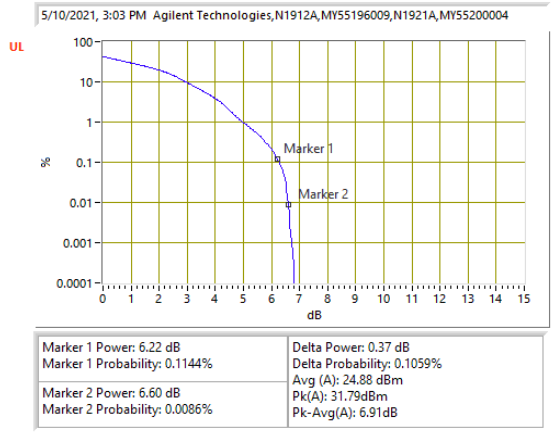
5G NR n71 10MHz BPSK Middle Channel



5G NR n71 10MHz 16QAM Middle Channel



5G NR n71 15MHz BPSK Middle Channel



5G NR n71 15MHz 16QAM Middle Channel

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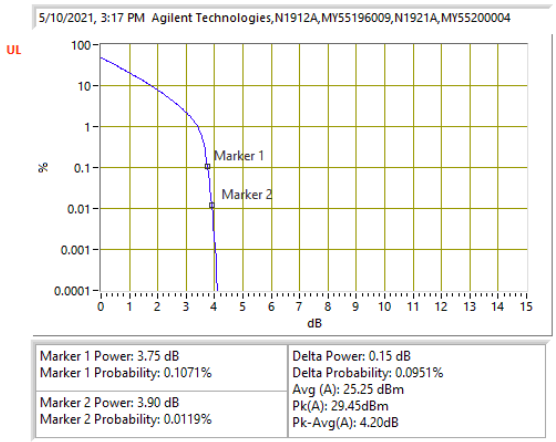
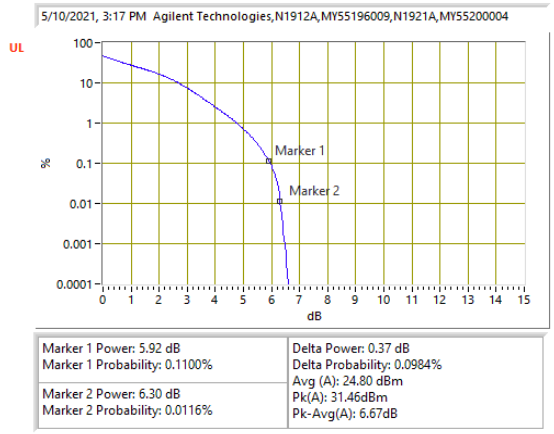


5G NR n71 20MHz BPSK Middle Channel



5G NR n71 20MHz 16QAM Middle Channel

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9.5.15. 5G NR n77 (Part 27 3450-3550MHz)

Test Engineer ID:	19431	Test Date:	4/21/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band n77	20MHz	3500.0	50	0	BPSK	30.71	27.19	3.52
					16QAM	30.95	25.67	5.28
	30MHz		75	0	BPSK	31.18	27.29	3.89
					16QAM	31.22	25.78	5.44
	40MHz		100	0	BPSK	31.16	27.3	3.86
					16QAM	31.36	25.77	5.59
	50MHz		128	0	BPSK	31.04	27.14	3.90
					16QAM	31.18	25.59	5.59
	60MHz		162	0	BPSK	30.94	27.26	3.68
					16QAM	31.63	25.61	6.02
	70MHz		180	0	BPSK	30.81	27.17	3.64
					16QAM	31.60	25.56	6.04
	80MHz		216	0	BPSK	30.57	26.81	3.76
					16QAM	31.01	25.21	5.80
	90MHz		243	0	BPSK	30.32	27.09	3.23
					16QAM	31.31	25.57	5.74
	100MHz		270	0	BPSK	30.40	27.07	3.33
					16QAM	31.07	25.51	5.56
Duty Cycle Correction Factor (dB) =								

Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor

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9.5.16. 5G NR n77 (Part 27 3700-3980MHz)

Test Engineer ID:	19431	Test Date:	4/21/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band n77	20MHz	3840.0	50	0	BPSK	33.30	28.35	4.95
					16QAM	32.28	25.75	6.53
	30MHz		75	0	BPSK	33.20	28.26	4.94
					16QAM	32.20	25.8	6.40
	40MHz		100	0	BPSK	32.93	28.31	4.62
					16QAM	32.12	25.66	6.46
	50MHz		128	0	BPSK	32.26	28.31	3.95
					16QAM	31.91	25.63	6.28
	60MHz		162	0	BPSK	32.25	28.4	3.85
					16QAM	31.42	25.16	6.26
	70MHz		180	0	BPSK	32.11	28.39	3.72
					16QAM	31.43	25.08	6.35
	80MHz		216	0	BPSK	31.88	28.41	3.47
					16QAM	30.90	25.06	5.84
	90MHz		243	0	BPSK	31.79	28.44	3.35
					16QAM	30.83	25	5.83
	100MHz		270	0	BPSK	31.88	28.42	3.46
					16QAM	30.59	24.98	5.61
Duty Cycle Correction Factor (dB) =								

Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor

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10. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, We measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement method.

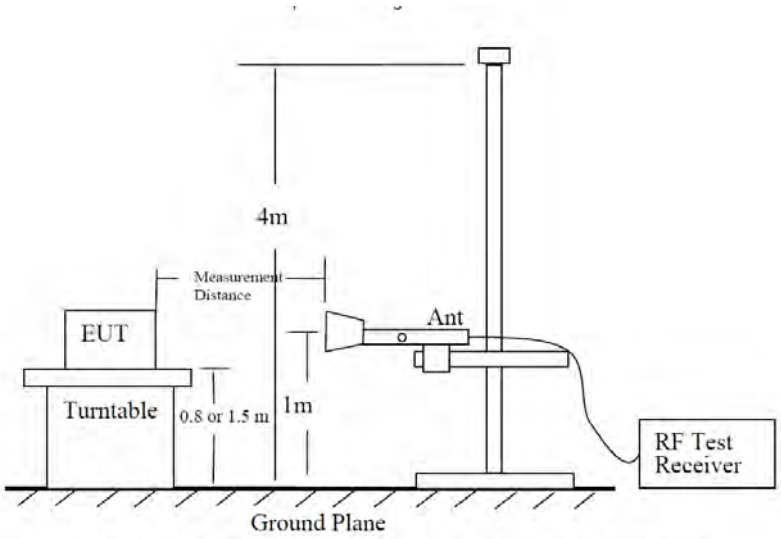

Figure 6 —Test site-up for radiated ERP and/or EIRP measurements

Radiated Power Measurement Calculation According to ANSI C63.26-2015

a) E (dBμV/m) = Measured amplitude level (dBμV) + Cable Loss (dB) + Antenna Factor (dB/m).

b) E (dBμV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).

c) E (dBμV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.

d) EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then 20*Log(3)=9.5424

Then, EIRP (dBm) = E (dBμV/m) + 9.5424 − 104.8 = E (dBμV/m) – 95.2576

Note that: we do confidence check to our chambers every day to see if any degradation from expected/normal reading reference data. Also we do ambient check to all our chambers every month.

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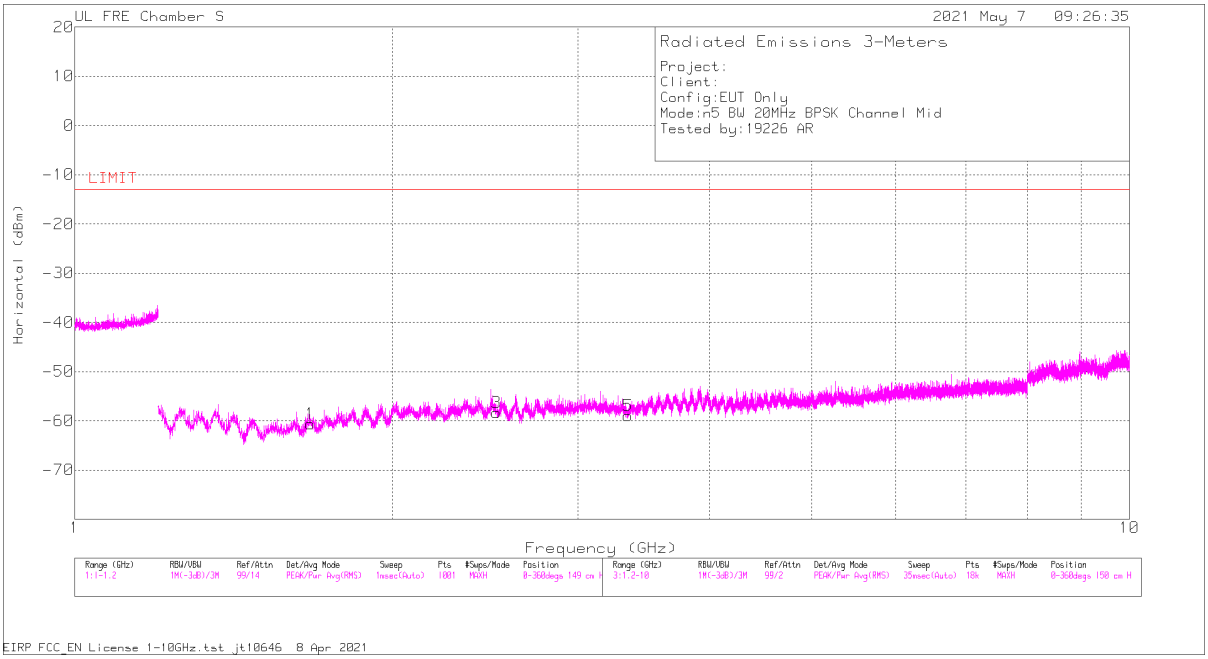
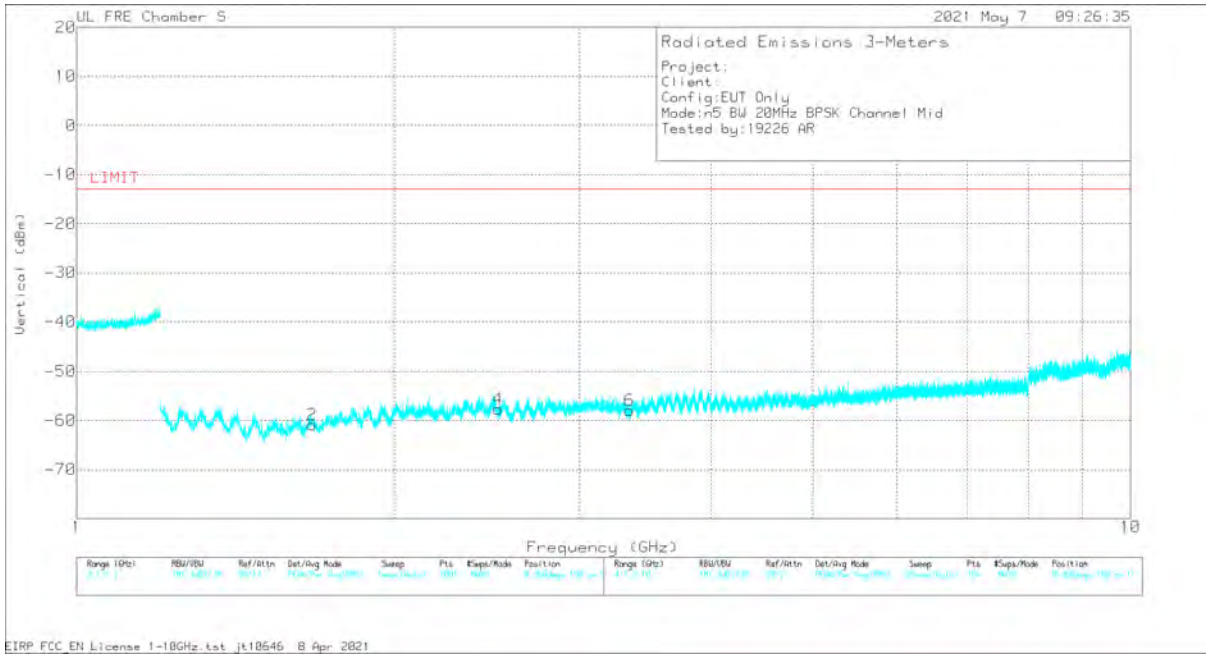
10.1. Plot Example





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Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1.67418	56.51	Pk	28.5	-45	.7	-95.2	-54.49	-13	-41.49	V
1.67474	57.95	Pk	28.5	-45	.7	-95.2	-53.05	-13	-40.05	H
2.50786	53.41	Pk	32.3	-44.8	.7	-95.2	-53.59	-13	-40.59	H
2.50869	54.74	Pk	32.3	-44.8	.7	-95.2	-52.26	-13	-39.26	V
3.34702	50.66	Pk	32.2	-41.6	.5	-95.2	-53.44	-13	-40.44	V
3.34854	51.72	Pk	32.2	-41.6	.5	-95.2	-52.38	-13	-39.38	H

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10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

All tests below 1GHz were done with a Resolution Bandwidth of 100kHz, and a Video Bandwidth of 300kHz.

RESULTS

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10.2.1. LTE BAND 5 AND n5

LIMITS

FCC: §22.917(a)

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.

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BPSK 5G NR BAND n5 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/7/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n5 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 834MHz										
1.66765	57.6	Pk	28.4	-45	.7	-95.2	-53.5	-13	-40.5	H
1.6683	58.02	Pk	28.4	-45	.7	-95.2	-53.08	-13	-40.08	V
2.50196	54.79	Pk	32.3	-44.8	.6	-95.2	-52.31	-13	-39.31	V
2.50313	54.41	Pk	32.3	-44.9	.6	-95.2	-52.79	-13	-39.79	H
3.33555	49.49	Pk	32.3	-41.6	.5	-95.2	-54.51	-13	-41.51	V
3.33734	49.96	Pk	32.3	-41.6	.5	-95.2	-54.04	-13	-41.04	H
Mid Channel, 836.5MHz										
1.67418	56.51	Pk	28.5	-45	.7	-95.2	-54.49	-13	-41.49	V
1.67474	57.95	Pk	28.5	-45	.7	-95.2	-53.05	-13	-40.05	H
2.50786	53.41	Pk	32.3	-44.8	.7	-95.2	-53.59	-13	-40.59	H
2.50869	54.74	Pk	32.3	-44.8	.7	-95.2	-52.26	-13	-39.26	V
3.34702	50.66	Pk	32.2	-41.6	.5	-95.2	-53.44	-13	-40.44	V
3.34854	51.72	Pk	32.2	-41.6	.5	-95.2	-52.38	-13	-39.38	H
High Channel, 839MHz										
1.67779	58.93	Pk	28.5	-44.9	.7	-95.2	-51.97	-13	-38.97	V
1.67992	56.68	Pk	28.4	-44.9	.7	-95.2	-54.32	-13	-41.32	H
2.51358	53.88	Pk	32.3	-44.8	.7	-95.2	-53.12	-13	-40.12	V
2.51752	53.38	Pk	32.3	-44.8	.8	-95.2	-53.52	-13	-40.52	H
3.35567	51.24	Pk	32.2	-41.6	.6	-95.2	-52.76	-13	-39.76	V
3.3581	50.99	Pk	32.2	-41.5	.6	-95.2	-52.91	-13	-39.91	H

Pk - Peak detector

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10.2.2. LTE BAND 7 AND n7

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	3/11-6/28/2021
Test Engineer:	19226 AR, 25004 CS
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	S, P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.02071	49.89	Pk	33.6	-40.9	.7	-95.2	-51.91	-25	-26.91	V
5.02099	50.09	Pk	33.6	-40.9	.7	-95.2	-51.71	-25	-26.71	H
7.52874	47.59	Pk	35.6	-36.9	.3	-95.2	-48.61	-25	-23.61	H
7.52921	47.25	Pk	35.6	-36.9	.3	-95.2	-48.95	-25	-23.95	V
10.03865	45.96	Pk	37	-34.7	.7	-95.2	-46.24	-25	-21.24	H
10.04022	45.95	Pk	37	-34.7	.7	-95.2	-46.25	-25	-21.25	V
Mid Channel, 2535MHz										
5.06881	49.92	Pk	33.8	-40.7	.7	-95.2	-51.48	-25	-26.48	V
5.07084	50.21	Pk	33.8	-40.7	.7	-95.2	-51.19	-25	-26.19	H
7.57867	47.22	Pk	35.5	-36.7	.5	-95.2	-48.68	-25	-23.68	V
7.60466	47.32	Pk	35.7	-36.8	.4	-95.2	-48.58	-25	-23.58	H
10.14021	46.41	Pk	37.1	-34.8	.7	-95.2	-45.79	-25	-20.79	V
10.14028	46	Pk	37.1	-34.8	.6	-95.2	-46.3	-25	-21.3	H
High Channel, 2560MHz										
5.1024	51.62	Pk	34.5	-41.6	.8	-95.2	-49.88	-25	-24.88	V
5.10274	51.46	Pk	34.5	-41.6	.8	-95.2	-50.04	-25	-25.04	H
7.68023	48.78	Pk	36.1	-38.4	.5	-95.2	-48.22	-25	-23.22	H
7.68242	48.65	Pk	36.1	-38.4	.5	-95.2	-48.35	-25	-23.35	V
10.23976	48.67	Pk	37.4	-36.7	.8	-95.2	-45.03	-25	-20.03	H
10.23997	48.29	Pk	37.4	-36.7	.8	-95.2	-45.41	-25	-20.41	V

Pk - Peak detector

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BPSK 5G NR BAND 7 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/15/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	5G NR Band n7 BPSK 40MHz
Chamber #:	R

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.03107	52.38	Pk	34	-41.9	.7	-95.2	-50.02	-25	-25.02	V
5.03372	52.39	Pk	34	-41.9	.7	-95.2	-50.01	-25	-25.01	H
7.49862	49.3	Pk	35.7	-38.9	.4	-95.2	-48.7	-25	-23.7	H
7.50084	49.72	Pk	35.7	-38.9	.4	-95.2	-48.28	-25	-23.28	V
9.99804	49.37	Pk	37.2	-36.7	.5	-95.2	-44.83	-25	-19.83	H
10.0023	48.99	Pk	37.2	-36.8	.5	-95.2	-45.31	-25	-20.31	V
Mid Channel, 2535MHz										
5.02535	51.48	Pk	33.9	-42	.7	-95.2	-51.12	-25	-26.12	H
5.03087	51.44	Pk	34	-41.9	.7	-95.2	-50.96	-25	-25.96	V
7.54232	48.96	Pk	35.8	-38.8	.3	-95.2	-48.94	-25	-23.94	V
7.54479	48.94	Pk	35.8	-38.8	.3	-95.2	-48.96	-25	-23.96	H
10.06076	48.59	Pk	37.2	-36.5	.7	-95.2	-45.21	-25	-20.21	H
10.06368	49.57	Pk	37.2	-36.5	.7	-95.2	-44.23	-25	-19.23	V
High Channel, 2550MHz										
5.05852	51.19	Pk	34.1	-42	.6	-95.2	-51.31	-25	-26.31	V
5.06352	51.49	Pk	34.2	-41.9	.6	-95.2	-50.81	-25	-25.81	H
7.58902	48.13	Pk	35.8	-38.6	.5	-95.2	-49.37	-25	-24.37	V
7.59171	50.41	Pk	35.8	-38.6	.5	-95.2	-47.09	-25	-22.09	H
10.12095	49.12	Pk	37.2	-35.9	.7	-95.2	-44.08	-25	-19.08	H
10.12322	48.52	Pk	37.2	-35.9	.7	-95.2	-44.68	-25	-19.68	V

Pk - Peak detector

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10.2.3. LTE BAND 12 AND n12

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B12 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.39873	54.17	Pk	28.8	-45	1	-95.2	-56.23	-13	-43.23	H
1.39922	56.37	Pk	28.8	-45	.9	-95.2	-54.13	-13	-41.13	V
2.10155	55.43	Pk	31.6	-45.2	.5	-95.2	-52.87	-13	-39.87	H
2.10263	55.43	Pk	31.6	-45.2	.5	-95.2	-52.87	-13	-39.87	V
2.80519	54.42	Pk	32.7	-43.8	.6	-95.2	-51.28	-13	-38.28	H
2.80802	53.59	Pk	32.7	-43.9	.6	-95.2	-52.21	-13	-39.21	V
Mid Channel, 707.5MHz										
1.40587	58.69	Pk	28.6	-45	.9	-95.2	-52.01	-13	-39.01	H
1.40621	66.1	Pk	28.6	-45	.9	-95.2	-44.6	-13	-31.6	V
2.11139	54.81	Pk	31.7	-45.3	.5	-95.2	-53.49	-13	-40.49	V
2.11179	55.47	Pk	31.7	-45.3	.5	-95.2	-52.83	-13	-39.83	H
2.81856	53.75	Pk	32.8	-43.9	.6	-95.2	-51.95	-13	-38.95	V
2.82134	54.01	Pk	32.8	-43.9	.7	-95.2	-51.59	-13	-38.59	H
High Channel, 711MHz										
1.41314	62.05	Pk	28.5	-45	.9	-95.2	-48.75	-13	-35.75	H
1.41322	64.97	Pk	28.5	-45	.9	-95.2	-45.83	-13	-32.83	V
2.12191	54.99	Pk	31.6	-45.3	.5	-95.2	-53.41	-13	-40.41	V
2.12512	55.2	Pk	31.7	-45.3	.5	-95.2	-53.1	-13	-40.1	H
2.83516	52.97	Pk	32.7	-43.8	.7	-95.2	-52.63	-13	-39.63	V
2.83517	53.23	Pk	32.7	-43.8	.7	-95.2	-52.37	-13	-39.37	H

Pk - Peak detector

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BPSK 5G NR BAND n12 (15.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/23-4/27/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n12 BPSK 15MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 706.5MHz										
1.41236	55.08	Pk	28.6	-45	0.9	-95.2	-55.62	-13	-42.62	V
1.41331	54.47	Pk	28.5	-45	0.9	-95.2	-56.33	-13	-43.33	H
2.09785	55.46	Pk	31.6	-45.1	0.5	-95.2	-52.74	-13	-39.74	H
2.09876	55.3	Pk	31.6	-45.1	0.5	-95.2	-52.9	-13	-39.9	V
2.82698	53.64	Pk	32.7	-43.7	0.6	-95.2	-51.96	-13	-38.96	V
2.82849	54.32	Pk	32.7	-43.7	0.6	-95.2	-51.28	-13	-38.28	H
Mid Channel, 707.5MHz										
1.41439	54.83	Pk	28.5	-45	0.9	-95.2	-55.97	-13	-42.97	V
1.41466	54.81	Pk	28.5	-45	0.9	-95.2	-55.99	-13	-42.99	H
2.12204	55.96	Pk	31.6	-45.2	0.5	-95.2	-52.34	-13	-39.34	H
2.1222	55.41	Pk	31.6	-45.2	0.5	-95.2	-52.89	-13	-39.89	V
2.83084	54.11	Pk	32.8	-43.7	0.5	-95.2	-51.49	-13	-38.49	V
2.83158	54.53	Pk	32.8	-43.7	0.5	-95.2	-51.07	-13	-38.07	H
High Channel, 708.5MHz										
1.41858	55.47	Pk	28.4	-45	0.9	-95.2	-55.43	-13	-42.43	H
1.41896	55.03	Pk	28.4	-45	0.9	-95.2	-55.87	-13	-42.87	V
2.12519	54.67	Pk	31.7	-45.2	0.5	-95.2	-53.53	-13	-40.53	H
2.12712	54.61	Pk	31.7	-45.2	0.5	-95.2	-53.59	-13	-40.59	V
2.83442	53.81	Pk	32.7	-43.6	0.5	-95.2	-51.79	-13	-38.79	V
2.83489	53.84	Pk	32.7	-43.6	0.5	-95.2	-51.76	-13	-38.76	H

Pk - Peak detector

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10.2.4. LTE BAND 13

LIMITS

FCC: §27.53

(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, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

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QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 13 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 782MHz										
*1.55512	66.5	Pk	27.8	-45.1	.8	-95.2	-45.2	-40	-5.2	V
*1.55527	64.61	Pk	27.8	-45.1	.8	-95.2	-47.09	-40	-7.09	H
2.33563	54.8	Pk	32.4	-45.2	.6	-95.2	-52.6	-13	-39.6	V
2.33565	54.9	Pk	32.4	-45.2	.6	-95.2	-52.5	-13	-39.5	H
3.11774	52.54	Pk	33	-42.3	.7	-95.2	-51.26	-13	-38.26	V
3.11991	51.99	Pk	33	-42.3	.6	-95.2	-51.91	-13	-38.91	H

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

Pk - Peak detector

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10.2.5. LTE BAND 14

LIMITS

FCC: §90.543 Emission Limitations. (Band 14)
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation

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QPSK LTE BAND 14 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B14 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 793MHz										
*1.58636	54.61	Pk	28	-44.4	.9	-95.2	-56.09	-40	-16.09	H
*1.58653	54.93	Pk	28	-44.4	.9	-95.2	-55.77	-40	-15.77	V
2.37783	54.43	Pk	31.9	-44.1	.6	-95.2	-52.37	-13	-39.37	V
2.37817	54.07	Pk	31.9	-44.1	.6	-95.2	-52.73	-13	-39.73	H
3.17194	50.52	Pk	32.6	-41.5	.5	-95.2	-53.08	-13	-40.08	H
3.17296	50.29	Pk	32.6	-41.5	.5	-95.2	-53.31	-13	-40.31	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

Pk - Peak detector

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10.2.6. LTE BAND 17

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B17 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 710MHz										
1.41162	57.14	Pk	28.6	-45	.9	-95.2	-53.56	-13	-40.56	V
1.41206	58.43	Pk	28.6	-45	.9	-95.2	-52.27	-13	-39.27	H
2.11815	55.31	Pk	31.6	-45.3	.5	-95.2	-53.09	-13	-40.09	H
2.11992	55.31	Pk	31.6	-45.3	.5	-95.2	-53.09	-13	-40.09	V
2.87565	53.88	Pk	32.5	-43.6	.5	-95.2	-51.92	-13	-38.92	V
2.87614	54.14	Pk	32.5	-43.6	.5	-95.2	-51.66	-13	-38.66	H

Pk - Peak detector

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10.2.7. LTE BAND 25 AND n25

LIMITS

FCC: §24.238(a)

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.

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QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.71869	51.29	Pk	33.1	-39.9	-95.2	-50.71	-13	-37.71	H
3.71968	50.75	Pk	33.1	-40	-95.2	-51.35	-13	-38.35	V
5.57813	48.56	Pk	34.2	-38.6	-95.2	-51.04	-13	-38.04	H
5.5787	48.51	Pk	34.2	-38.6	-95.2	-51.09	-13	-38.09	V
7.43871	46.88	Pk	35.6	-36.5	-95.2	-49.22	-13	-36.22	H
7.43965	46.54	Pk	35.5	-36.6	-95.2	-49.76	-13	-36.76	V
Mid Channel, 1882.5MHz									
3.76385	49.87	Pk	33.3	-39.7	-95.2	-51.73	-13	-38.73	H
3.76553	49.62	Pk	33.3	-39.8	-95.2	-52.08	-13	-39.08	V
5.64715	48.29	Pk	34.3	-38.4	-95.2	-51.01	-13	-38.01	H
5.64886	48.3	Pk	34.3	-38.4	-95.2	-51	-13	-38	V
7.5307	47.44	Pk	35.6	-36.4	-95.2	-48.56	-13	-35.56	H
7.5312	47.18	Pk	35.6	-36.4	-95.2	-48.82	-13	-35.82	V
High Channel, 1905MHz									
3.80885	50.44	Pk	33.2	-40	-95.2	-51.56	-13	-38.56	H
3.81086	50.44	Pk	33.3	-40	-95.2	-51.46	-13	-38.46	V
5.71377	48.55	Pk	34.3	-38.2	-95.2	-50.55	-13	-37.55	V
5.71628	48.57	Pk	34.4	-38.2	-95.2	-50.43	-13	-37.43	H
7.61952	39.24	Pk	35.6	-36.1	-95.2	-56.46	-13	-43.46	V
7.62144	46.81	Pk	35.7	-36.1	-95.2	-48.79	-13	-35.79	H

Pk - Peak detector

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BPSK 5G NR BAND 25 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/17/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.73841	51.39	Pk	33.2	-40.9	.7	-95.2	-50.81	-13	-37.81	H
3.74071	50.85	Pk	33.2	-40.9	.6	-95.2	-51.45	-13	-38.45	V
5.60801	48.71	Pk	34.3	-39	.5	-95.2	-50.69	-13	-37.69	V
5.60992	48.93	Pk	34.3	-39	.5	-95.2	-50.47	-13	-37.47	H
7.48038	47.1	Pk	35.5	-37	.4	-95.2	-49.2	-13	-36.2	H
7.48129	47.05	Pk	35.5	-37	.4	-95.2	-49.25	-13	-36.25	V
Mid Channel, 1882.5MHz										
3.76496	50.72	Pk	33.3	-41	.6	-95.2	-51.58	-13	-38.58	H
3.76501	50.84	Pk	33.3	-41	.6	-95.2	-51.46	-13	-38.46	V
5.64799	48.55	Pk	34.3	-39	.5	-95.2	-50.85	-13	-37.85	V
5.64927	48.72	Pk	34.3	-39	.5	-95.2	-50.68	-13	-37.68	H
7.5286	46.95	Pk	35.6	-36.9	.4	-95.2	-49.15	-13	-36.15	H
7.52869	47.29	Pk	35.6	-36.9	.4	-95.2	-48.81	-13	-35.81	V
High Channel, 1895MHz										
3.78963	50.51	Pk	33.2	-40.9	.7	-95.2	-51.69	-13	-38.69	H
3.79225	50.44	Pk	33.2	-40.9	.7	-95.2	-51.76	-13	-38.76	V
5.68384	48.66	Pk	34.3	-38.8	.5	-95.2	-50.54	-13	-37.54	V
5.68453	48.5	Pk	34.3	-38.9	.5	-95.2	-50.8	-13	-37.8	H
7.57893	47.31	Pk	35.5	-36.7	.5	-95.2	-48.59	-13	-35.59	H
7.57918	47.06	Pk	35.5	-36.7	.5	-95.2	-48.84	-13	-35.84	V

Pk - Peak detector

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10.2.8. LTE BAND 26 (PART 90S)

LIMITS

FCC: §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.

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QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573711
Date:	6/29/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 26(90S) QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 819MHz										
1.6292	65.66	Pk	28.4	-45.1	.7	-95.2	-45.54	-13	-32.54	H
1.62932	59.22	Pk	28.4	-45.1	.7	-95.2	-51.98	-13	-38.98	V
2.44523	55.88	Pk	32.3	-45.1	.5	-95.2	-51.62	-13	-38.62	H
2.44815	54.72	Pk	32.3	-45.1	.5	-95.2	-52.78	-13	-39.78	V
3.26597	51.19	Pk	32.6	-41.8	.6	-95.2	-52.61	-13	-39.61	V
3.26746	52.17	Pk	32.6	-41.8	.6	-95.2	-51.63	-13	-38.63	H

Pk - Peak detector

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10.2.9. LTE BAND 26 (PART 22)

LIMITS

FCC: §22.917(a)

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.

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QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29/2021
Test Engineer:	19226 AR, 12491 GM
Configuration:	EUT Only
Mode	LTE Band 26 (Part 22) QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 829.0MHz										
1.65167	54.93	Pk	28.4	-45	.8	-95.2	-56.07	-13	-43.07	H
1.65253	55.1	Pk	28.4	-45	.8	-95.2	-55.9	-13	-42.9	V
2.49435	62.72	Pk	32.3	-45	.6	-95.2	-44.58	-13	-31.58	H
2.49451	56.48	Pk	32.3	-45	.6	-95.2	-50.82	-13	-37.82	V
3.31598	51.41	Pk	32.3	-41.7	.6	-95.2	-52.59	-13	-39.59	H
3.31861	51.59	Pk	32.3	-41.7	.6	-95.2	-52.41	-13	-39.41	V
Mid Channel, 836.5MHz										
1.66186	55.55	Pk	28.5	-45.1	.8	-95.2	-55.45	-13	-42.45	H
1.66421	56.35	Pk	28.4	-45.1	.8	-95.2	-54.75	-13	-41.75	V
2.49691	56.28	Pk	32.3	-45	.6	-95.2	-51.02	-13	-38.02	V
2.49927	60.24	Pk	32.3	-44.9	.6	-95.2	-46.96	-13	-33.96	H
3.33594	51.11	Pk	32.3	-41.8	.5	-95.2	-53.09	-13	-40.09	V
3.3378	50.88	Pk	32.3	-41.8	.5	-95.2	-53.32	-13	-40.32	H
High Channel, 844.0MHz										
1.66963	63.39	Pk	28.4	-45.1	.7	-95.2	-47.81	-13	-34.81	H
1.66983	63.66	Pk	28.4	-45.1	.7	-95.2	-47.54	-13	-34.54	V
2.50457	64.55	Pk	32.3	-44.9	.7	-95.2	-42.55	-13	-29.55	V
2.50464	68.49	Pk	32.3	-44.9	.7	-95.2	-38.61	-13	-25.61	H
3.35762	51.91	Pk	32.2	-41.7	.6	-95.2	-52.19	-13	-39.19	V
3.35792	51.84	Pk	32.2	-41.7	.6	-95.2	-52.26	-13	-39.26	H

Pk - Peak detector

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10.2.10. LTE BAND 30 AND n30

LIMITS

FCC: §27.53 (a)

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.

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QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.60879	52.31	Pk	34.3	-42.5	.6	-95.2	-50.49	-40	-10.49	V
4.61161	51.72	Pk	34.3	-42.5	.6	-95.2	-51.08	-40	-11.08	H
6.9206	49.21	Pk	35.9	-39.5	.5	-95.2	-49.09	-40	-9.09	V
6.9221	49.78	Pk	35.9	-39.5	.5	-95.2	-48.52	-40	-8.52	H
9.22863	49	Pk	36.4	-37.7	.6	-95.2	-46.9	-40	-6.9	H
9.22966	48.41	Pk	36.4	-37.7	.6	-95.2	-47.49	-40	-7.49	V

Pk - Peak detector

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BPSK 5G NR BAND n30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/26/2021
Test Engineer:	24928 DL
Configuration:	EUT Only
Mode	5G NR Band n30 BPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.62141	51.75	Pk	34.3	-42.5	0.6	-95.2	-51.05	-40	-11.05	V
4.62199	51.8	Pk	34.3	-42.5	0.6	-95.2	-51	-40	-11	H
6.92935	49.59	Pk	36	-39.5	0.4	-95.2	-48.71	-40	-8.71	V
6.93163	49.56	Pk	36	-39.6	0.4	-95.2	-48.84	-40	-8.84	H
9.23933	48.2	Pk	36.4	-37.8	0.7	-95.2	-47.7	-40	-7.7	H
9.24191	48.11	Pk	36.4	-37.8	0.7	-95.2	-47.79	-40	-7.79	V

Pk - Peak detector

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10.2.11. LTE BAND 41 AND n41

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/15 - 7/1/2021
Test Engineer:	19226 AR,12491 GM
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	S, Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.01259	50.93	Pk	33.9	-42.2	.8	-95.2	-51.77	-25	-26.77	V
5.01292	50.9	Pk	33.9	-42.2	.8	-95.2	-51.8	-25	-26.8	H
7.51823	48.53	Pk	36.2	-39.3	.3	-95.2	-49.47	-25	-24.47	H
7.51879	48.49	Pk	36.2	-39.3	.3	-95.2	-49.51	-25	-24.51	V
10.02379	47.56	Pk	37.3	-37.7	.6	-95.2	-47.44	-25	-22.44	V
10.02503	47.38	Pk	37.3	-37.7	.6	-95.2	-47.62	-25	-22.62	H
Mid Channel, 2593MHz										
5.18716	50.89	Pk	34.4	-41.7	.8	-95.2	-50.81	-25	-25.81	V
5.18771	51.5	Pk	34.4	-41.7	.8	-95.2	-50.2	-25	-25.2	H
7.77798	47.89	Pk	36	-38.4	.3	-95.2	-49.41	-25	-24.41	V
7.77801	47.89	Pk	36	-38.4	.3	-95.2	-49.41	-25	-24.41	H
10.37335	48.94	Pk	37.6	-36.6	.8	-95.2	-44.46	-25	-19.46	H
10.3734	48.91	Pk	37.6	-36.6	.8	-95.2	-44.49	-25	-19.49	V
High Channel, 2680MHz										
5.35902	51.13	Pk	34.5	-41	.5	-95.2	-50.07	-25	-25.07	H
5.36045	50.78	Pk	34.5	-40.9	.5	-95.2	-50.32	-25	-25.32	V
8.04031	47.73	Pk	36	-37.5	.4	-95.2	-48.57	-25	-23.57	H
8.04156	47.82	Pk	36	-37.4	.4	-95.2	-48.38	-25	-23.38	V
10.71887	47.47	Pk	37.9	-35	.6	-95.2	-44.23	-25	-19.23	H
10.72031	48.3	Pk	37.9	-35	.6	-95.2	-43.4	-25	-18.4	V

Pk - Peak detector

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BPSK 5G NR BAND n41 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/19/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n41 BPSK 100MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09141	49.55	Pk	33.9	-40.5	.8	-95.2	-51.45	-25	-26.45	H
5.09333	50.29	Pk	33.9	-40.6	.8	-95.2	-50.81	-25	-25.81	V
7.63781	47.81	Pk	35.7	-36.5	.4	-95.2	-47.79	-25	-22.79	V
7.63971	46.78	Pk	35.7	-36.6	.4	-95.2	-48.92	-25	-23.92	H
10.18545	45.22	Pk	37.1	-35.1	.6	-95.2	-47.38	-25	-22.38	H
10.1862	45.39	Pk	37.1	-35.1	.7	-95.2	-47.11	-25	-22.11	V
Mid Channel, 2593MHz										
5.18687	50	Pk	34	-40.3	.8	-95.2	-50.7	-25	-25.7	H
5.18814	49.64	Pk	34	-40.3	.8	-95.2	-51.06	-25	-26.06	V
7.91849	47.42	Pk	35.7	-36.5	.2	-95.2	-48.38	-25	-23.38	H
7.91948	46.92	Pk	35.7	-36.5	.2	-95.2	-48.88	-25	-23.88	V
10.56145	46.14	Pk	37.5	-35	.7	-95.2	-45.86	-25	-20.86	H
10.56191	46.38	Pk	37.6	-35	.7	-95.2	-45.52	-25	-20.52	V
High Channel, 2640MHz										
5.27822	49.04	Pk	34.3	-39.8	.3	-95.2	-51.36	-25	-26.36	V
5.27841	49.61	Pk	34.3	-39.8	.3	-95.2	-50.79	-25	-25.79	H
7.91871	46.61	Pk	35.7	-36.5	.2	-95.2	-49.19	-25	-24.19	V
7.92141	46.89	Pk	35.7	-36.5	.2	-95.2	-48.91	-25	-23.91	H
10.55912	45.16	Pk	37.5	-35	.7	-95.2	-46.84	-25	-21.84	H
10.55959	45.69	Pk	37.5	-35	.7	-95.2	-46.31	-25	-21.31	V

Pk - Peak detector

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10.2.12. LTE BAND 66 AND n66

LIMITS

FCC: §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz										
3.44049	50.42	Pk	32.5	-40.9	.7	-95.2	-52.48	-13	-39.48	V
3.44054	50.37	Pk	32.5	-40.9	.7	-95.2	-52.53	-13	-39.53	H
5.15909	49.85	Pk	34	-40.4	.5	-95.2	-51.25	-13	-38.25	V
5.16066	50.05	Pk	34	-40.4	.5	-95.2	-51.05	-13	-38.05	H
6.87991	48.05	Pk	35.6	-38.4	.6	-95.2	-49.35	-13	-36.35	V
6.88189	47.67	Pk	35.5	-38.4	.6	-95.2	-49.83	-13	-36.83	H
Mid Channel, 1745MHz										
3.49019	51.05	Pk	32.6	-41	.7	-95.2	-51.85	-13	-38.85	H
3.49246	50.55	Pk	32.6	-40.9	.7	-95.2	-52.25	-13	-39.25	V
5.23473	50.02	Pk	34.1	-40.1	.6	-95.2	-50.58	-13	-37.58	H
5.23559	49.41	Pk	34.1	-40	.6	-95.2	-51.09	-13	-38.09	V
6.97855	47.81	Pk	35.5	-38.3	.5	-95.2	-49.69	-13	-36.69	V
6.98164	48.27	Pk	35.5	-38.2	.5	-95.2	-49.13	-13	-36.13	H
High Channel, 1770MHz										
3.52222	73.14	Pk	32.8	-40.9	.8	-95.2	-29.36	-13	-16.36	V
3.54021	50.89	Pk	32.9	-40.9	.7	-95.2	-51.61	-13	-38.61	H
5.30856	49.98	Pk	34.4	-39.9	.4	-95.2	-50.32	-13	-37.32	H
5.30892	49.15	Pk	34.4	-39.9	.4	-95.2	-51.15	-13	-38.15	V
7.07931	48.08	Pk	35.5	-38	.7	-95.2	-48.92	-13	-35.92	V
7.08093	47.81	Pk	35.5	-38.1	.7	-95.2	-49.29	-13	-36.29	H

Pk - Peak detector

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BPSK 5G NR BAND n66 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/17/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.46018	50.63	Pk	32.5	-40.9	.6	-95.2	-52.37	-13	-39.37	H
3.46114	51.42	Pk	32.5	-40.8	.6	-95.2	-51.48	-13	-38.48	V
5.18991	49.51	Pk	34.1	-40.4	.5	-95.2	-51.49	-13	-38.49	H
5.19145	49.7	Pk	34.1	-40.4	.5	-95.2	-51.3	-13	-38.3	V
6.92071	48.95	Pk	35.5	-38.4	.5	-95.2	-48.65	-13	-35.65	V
6.92129	48.74	Pk	35.5	-38.4	.5	-95.2	-48.86	-13	-35.86	H
Mid Channel, 1745MHz										
3.4904	50.86	Pk	32.6	-41	.7	-95.2	-52.04	-13	-39.04	H
3.4913	50.36	Pk	32.6	-40.9	.7	-95.2	-52.44	-13	-39.44	V
5.2356	49.7	Pk	34.1	-40	.6	-95.2	-50.8	-13	-37.8	V
5.23585	50.39	Pk	34.1	-40	.6	-95.2	-50.11	-13	-37.11	H
6.97848	48.66	Pk	35.5	-38.3	.5	-95.2	-48.84	-13	-35.84	H
6.97973	48.32	Pk	35.5	-38.2	.5	-95.2	-49.08	-13	-36.08	V
High Channel, 1760MHz										
3.51976	51.22	Pk	32.8	-40.9	.8	-95.2	-51.28	-13	-38.28	H
3.52181	50.6	Pk	32.8	-40.9	.8	-95.2	-51.9	-13	-38.9	V
5.28053	49.63	Pk	34.2	-40	.5	-95.2	-50.87	-13	-37.87	H
5.28212	49.62	Pk	34.2	-39.9	.5	-95.2	-50.78	-13	-37.78	V
7.03903	48.44	Pk	35.5	-38.1	.5	-95.2	-48.86	-13	-35.86	V
7.0418	48.46	Pk	35.6	-38.2	.5	-95.2	-48.84	-13	-35.84	H

Pk - Peak detector

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10.2.13. LTE BAND 71 AND n71

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29 – 6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B71 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34579	55.15	Pk	28.8	-44.7	1.1	-95.2	-54.85	-13	-41.85	H
1.34698	55.83	Pk	28.8	-44.7	1.1	-95.2	-54.17	-13	-41.17	V
2.01874	55	Pk	31.3	-44.2	.5	-95.2	-52.6	-13	-39.6	V
2.02061	53.4	Pk	31.3	-44.2	.5	-95.2	-54.2	-13	-41.2	H
2.69107	54.49	Pk	32	-43.8	.6	-95.2	-51.91	-13	-38.91	H
2.69351	54.32	Pk	32	-43.8	.6	-95.2	-52.08	-13	-39.08	V
Mid Channel, 683MHz										
1.36189	55.11	Pk	28.8	-44.7	1	-95.2	-54.99	-13	-41.99	H
1.36203	55.23	Pk	28.8	-44.7	1	-95.2	-54.87	-13	-41.87	V
2.04029	54.92	Pk	31.3	-44.2	.6	-95.2	-52.58	-13	-39.58	V
2.04103	54.68	Pk	31.3	-44.3	.6	-95.2	-52.92	-13	-39.92	H
2.72088	53.6	Pk	32.1	-43.7	.5	-95.2	-52.7	-13	-39.7	V
2.72258	54.15	Pk	32.1	-43.8	.5	-95.2	-52.25	-13	-39.25	H
High Channel, 688MHz										
1.37513	53.56	Pk	28.8	-44.6	1	-95.2	-56.44	-13	-43.44	V
1.37543	53.77	Pk	28.8	-44.6	1	-95.2	-56.23	-13	-43.23	H
2.0371	57.17	Pk	31.3	-44.2	.6	-95.2	-50.33	-13	-37.33	H
2.06269	53.41	Pk	31.5	-44.2	.5	-95.2	-53.99	-13	-40.99	V
2.75297	54.31	Pk	32.2	-43.9	.6	-95.2	-51.99	-13	-38.99	V
2.75384	54.55	Pk	32.2	-43.8	.6	-95.2	-51.65	-13	-38.65	H

Pk - Peak detector

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BPSK 5G NR BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/22/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n71 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34459	56.19	Pk	29.3	-45.1	1	-95.2	-53.81	-13	-40.81	V
1.34655	55.81	Pk	29.3	-45.1	1	-95.2	-54.19	-13	-41.19	H
2.01855	55.45	Pk	31.2	-45.1	0.5	-95.2	-53.15	-13	-40.15	V
2.01917	55.73	Pk	31.3	-45.1	0.5	-95.2	-52.77	-13	-39.77	H
2.69182	54.7	Pk	32.1	-44.3	0.5	-95.2	-52.2	-13	-39.2	V
2.69423	54.28	Pk	32.1	-44.3	0.5	-95.2	-52.62	-13	-39.62	H
Mid Channel, 683.0MHz										
1.35944	54.02	Pk	29.4	-45.1	1	-95.2	-55.88	-13	-42.88	V
1.35961	53.48	Pk	29.4	-45.1	1	-95.2	-56.42	-13	-43.42	H
2.04182	55.94	Pk	31.5	-45.1	0.5	-95.2	-52.36	-13	-39.36	V
2.04361	55.81	Pk	31.5	-45.1	0.5	-95.2	-52.49	-13	-39.49	H
2.72176	53.65	Pk	32.3	-44.1	0.5	-95.2	-52.85	-13	-39.85	V
2.72199	52.97	Pk	32.3	-44.1	0.5	-95.2	-53.53	-13	-40.53	H
High Channel, 688MHz										
1.37777	55.07	Pk	29	-45.1	1	-95.2	-55.23	-13	-42.23	V
1.37817	54.44	Pk	29	-45.1	1	-95.2	-55.86	-13	-42.86	H
2.06416	53.95	Pk	31.7	-45.1	0.5	-95.2	-54.15	-13	-41.15	V
2.0647	54.66	Pk	31.7	-45.1	0.5	-95.2	-53.44	-13	-40.44	H
2.75138	55.32	Pk	32.4	-44.1	0.5	-95.2	-51.08	-13	-38.08	V
2.75269	54.01	Pk	32.5	-44.1	0.5	-95.2	-52.29	-13	-39.29	H

Pk - Peak detector

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10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

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10.3.1. LTE BAND 5 AND n5

LIMITS

FCC: §22.917(a)

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.

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BPSK 5G NR BAND n5 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/7-5/10/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n5 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 834MHz										
1.66966	57.1	Pk	28.4	-45	.7	-95.2	-54.0	-13	-41.0	H
1.67055	55.87	Pk	28.4	-45	.7	-95.2	-55.23	-13	-42.23	V
2.50044	54.31	Pk	32.3	-44.8	.6	-95.2	-52.79	-13	-39.79	H
2.50387	54.4	Pk	32.3	-44.9	.7	-95.2	-52.7	-13	-39.7	V
3.33451	50.77	Pk	32.3	-41.6	.5	-95.2	-53.23	-13	-40.23	V
3.33541	50.58	Pk	32.3	-41.6	.5	-95.2	-53.42	-13	-40.42	H
Mid Channel, 836.5MHz										
1.67165	55.89	Pk	28.4	-45	.7	-95.2	-55.21	-13	-42.21	V
1.67213	57.82	Pk	28.4	-45	.7	-95.2	-53.28	-13	-40.28	H
2.47897	57.11	Pk	32.2	-45	.5	-95.2	-50.39	-13	-37.39	H
2.47994	55.46	Pk	32.2	-45	.5	-95.2	-52.04	-13	-39.04	V
3.34773	51.41	Pk	32.2	-41.6	.5	-95.2	-52.69	-13	-39.69	V
3.34793	52.15	Pk	32.2	-41.6	.5	-95.2	-51.95	-13	-38.95	H
High Channel, 839MHz										
1.67614	56.31	Pk	28.5	-45	.7	-95.2	-54.69	-13	-41.69	V
1.67847	57.3	Pk	28.5	-44.9	.7	-95.2	-53.6	-13	-40.6	H
2.51556	53.36	Pk	32.3	-44.8	.7	-95.2	-53.64	-13	-40.64	V
2.51634	51.55	Pk	32.3	-44.8	.7	-95.2	-55.45	-13	-42.45	H
3.35643	53.06	Pk	32.2	-41.6	.6	-95.2	-50.94	-13	-37.94	H
3.35732	50.7	Pk	32.2	-41.6	.6	-95.2	-53.3	-13	-40.3	V

Pk - Peak detector

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10.3.2. LTE BAND 7 AND n7

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	3/17 - 6/30/2021
Test Engineer:	19226 AR, 25004 CS
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	S, P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.01897	51.66	Pk	33.9	-41.9	.8	-95.2	-50.74	-25	-25.74	H
5.02043	52.05	Pk	33.9	-41.9	.7	-95.2	-50.45	-25	-25.45	V
7.53025	49.27	Pk	36.3	-38.9	.3	-95.2	-48.23	-25	-23.23	V
7.53053	49.54	Pk	36.3	-38.9	.3	-95.2	-47.96	-25	-22.96	H
10.03861	49	Pk	37.3	-36.9	.7	-95.2	-45.1	-25	-20.1	V
10.04174	48.44	Pk	37.3	-36.8	.7	-95.2	-45.56	-25	-20.56	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2535MHz										
5.07015	49.14	Pk	33.8	-40.7	.7	-95.2	-52.26	-25	-27.26	H
5.07241	49.38	Pk	33.8	-40.7	.7	-95.2	-52.02	-25	-27.02	V
7.60343	46.01	Pk	35.7	-36.8	.4	-95.2	-49.89	-25	-24.89	V
7.60405	46.59	Pk	35.7	-36.8	.4	-95.2	-49.31	-25	-24.31	H
10.13871	45.39	Pk	37.1	-34.8	.7	-95.2	-46.81	-25	-21.81	H
10.14134	45.23	Pk	37.1	-34.8	.6	-95.2	-47.07	-25	-22.07	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2560MHz										
5.12132	52.11	Pk	34.5	-41.7	.8	-95.2	-49.49	-25	-24.49	H
5.12141	51.4	Pk	34.5	-41.7	.8	-95.2	-50.2	-25	-25.2	V
7.67935	50.03	Pk	36.1	-38.4	.5	-95.2	-46.97	-25	-21.97	V
7.68122	49.18	Pk	36.1	-38.4	.5	-95.2	-47.82	-25	-22.82	H
10.241	48.56	Pk	37.4	-36.7	.8	-95.2	-45.14	-25	-20.14	V
10.24108	48.33	Pk	37.4	-36.7	.8	-95.2	-45.37	-25	-20.37	H

Pk - Peak detector

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BPSK 5G NR BAND 7 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/15/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	5G NR Band n7 BPSK 40MHz
Chamber #:	R

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
4.99847	52.32	Pk	33.9	-42.1	.8	-95.2	-50.28	-25	-25.28	V
5.00068	52.49	Pk	34	-42.1	.8	-95.2	-50.01	-25	-25.01	H
7.49683	49.55	Pk	35.7	-38.9	.4	-95.2	-48.45	-25	-23.45	H
7.50086	48.89	Pk	35.7	-38.9	.4	-95.2	-49.11	-25	-24.11	V
10.00061	49.08	Pk	37.2	-36.8	.5	-95.2	-45.22	-25	-20.22	H
10.00203	49.93	Pk	37.2	-36.8	.5	-95.2	-44.37	-25	-19.37	V
Mid Channel, 2535MHz										
5.02802	52.31	Pk	34	-42	.7	-95.2	-50.19	-25	-25.19	V
5.02884	52.2	Pk	34	-42	.7	-95.2	-50.3	-25	-25.3	H
7.54324	48.69	Pk	35.8	-38.8	.3	-95.2	-49.21	-25	-24.21	H
7.54679	51.32	Pk	35.8	-38.8	.3	-95.2	-46.58	-25	-21.58	V
10.05841	48.68	Pk	37.2	-36.4	.7	-95.2	-45.02	-25	-20.02	V
10.05952	49.06	Pk	37.2	-36.4	.7	-95.2	-44.64	-25	-19.64	H
High Channel, 2550MHz										
5.05874	51.24	Pk	34.1	-42	.6	-95.2	-51.26	-25	-26.26	V
5.06067	51.97	Pk	34.2	-42	.6	-95.2	-50.43	-25	-25.43	H
7.5915	49.6	Pk	35.8	-38.6	.5	-95.2	-47.9	-25	-22.9	H
7.5922	50.56	Pk	35.8	-38.6	.5	-95.2	-46.94	-25	-21.94	V
10.12037	49.69	Pk	37.3	-36	.7	-95.2	-43.51	-25	-18.51	H
10.12102	49.02	Pk	37.2	-35.9	.7	-95.2	-44.18	-25	-19.18	V

Pk - Peak detector

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10.3.3. LTE BAND 12 AND n12

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B12 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.39906	54.74	Pk	28.8	-45	.9	-95.2	-55.76	-13	-42.76	H
1.39984	55.85	Pk	28.7	-45	.9	-95.2	-54.75	-13	-41.75	V
2.09881	61.78	Pk	31.6	-45.2	.5	-95.2	-46.52	-13	-33.52	H
2.09897	57.56	Pk	31.6	-45.2	.5	-95.2	-50.74	-13	-37.74	V
2.80462	54.36	Pk	32.7	-43.8	.6	-95.2	-51.34	-13	-38.34	H
2.80605	53.58	Pk	32.7	-43.8	.6	-95.2	-52.12	-13	-39.12	V
Mid Channel, 707.5MHz										
1.40592	55.09	Pk	28.6	-45	.9	-95.2	-55.61	-13	-42.61	H
1.40723	53.79	Pk	28.6	-45	.9	-95.2	-56.91	-13	-43.91	V
2.10901	57.28	Pk	31.6	-45.3	.5	-95.2	-51.12	-13	-38.12	H
2.10929	56.84	Pk	31.6	-45.3	.5	-95.2	-51.56	-13	-38.56	V
2.81887	54.26	Pk	32.8	-43.9	.6	-95.2	-51.44	-13	-38.44	H
2.82046	53.89	Pk	32.8	-43.9	.6	-95.2	-51.81	-13	-38.81	H
High Channel, 711MHz										
1.41323	57.64	Pk	28.5	-45	.9	-95.2	-53.16	-13	-40.16	V
1.41332	56.93	Pk	28.5	-45	.9	-95.2	-53.87	-13	-40.87	H
2.12405	55.07	Pk	31.6	-45.3	.5	-95.2	-53.33	-13	-40.33	V
2.12477	55.96	Pk	31.7	-45.3	.5	-95.2	-52.34	-13	-39.34	H
2.83283	53.91	Pk	32.7	-43.8	.7	-95.2	-51.69	-13	-38.69	H
2.83479	53.82	Pk	32.7	-43.8	.7	-95.2	-51.78	-13	-38.78	V

Pk - Peak detector

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BPSK 5G NR BAND n12 (15.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/27/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n12 BPSK 15MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 706.5MHz										
1.41383	54.9	Pk	28.5	-45	0.9	-95.2	-55.9	-13	-42.9	V
1.41477	54.77	Pk	28.5	-45	0.9	-95.2	-56.03	-13	-43.03	H
2.11761	55.69	Pk	31.6	-45.2	0.5	-95.2	-52.61	-13	-39.61	V
2.1198	55.23	Pk	31.6	-45.2	0.5	-95.2	-53.07	-13	-40.07	H
2.82662	53.79	Pk	32.7	-43.7	0.5	-95.2	-51.91	-13	-38.91	H
2.82757	53.7	Pk	32.7	-43.7	0.5	-95.2	-52.0	-13	-39.0	V
Mid Channel, 707.5MHz										
1.41452	55.27	Pk	28.5	-45	0.9	-95.2	-55.53	-13	-42.53	V
1.41677	55.53	Pk	28.5	-45	0.9	-95.2	-55.27	-13	-42.27	H
2.12276	54.69	Pk	31.6	-45.2	0.5	-95.2	-53.61	-13	-40.61	V
2.12436	54.78	Pk	31.6	-45.2	0.5	-95.2	-53.52	-13	-40.52	H
2.8293	54.43	Pk	32.8	-43.7	0.5	-95.2	-51.17	-13	-38.17	H
2.82935	54.37	Pk	32.8	-43.7	0.5	-95.2	-51.23	-13	-38.23	V
High Channel, 708.5MHz										
1.41575	54.34	Pk	28.5	-45	0.9	-95.2	-56.46	-13	-43.46	V
1.41606	54.39	Pk	28.5	-45	0.9	-95.2	-56.41	-13	-43.41	H
2.12364	55.29	Pk	31.6	-45.2	0.5	-95.2	-53.01	-13	-40.01	V
2.12746	55.54	Pk	31.7	-45.2	0.5	-95.2	-52.66	-13	-39.66	H
2.83376	54.55	Pk	32.7	-43.6	0.5	-95.2	-51.05	-13	-38.05	H
2.83565	54.13	Pk	32.7	-43.6	0.5	-95.2	-51.47	-13	-38.47	V

Pk - Peak detector

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10.3.4. LTE BAND 13

LIMITS

FCC: §27.53

(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, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

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QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

Project #:	13573711
Date:	7/1/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 13 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 782MHz										
*1.56417	68.85	Pk	27.8	-45.1	.8	-95.2	-42.85	-40	-2.85	V
*1.5642	66.22	Pk	27.8	-45.1	.8	-95.2	-45.48	-40	-5.48	H
2.34545	55.26	Pk	32.4	-45.2	.5	-95.2	-52.24	-13	-39.24	H
2.34769	54.65	Pk	32.4	-45.2	.5	-95.2	-52.85	-13	-39.85	V
3.12878	51.27	Pk	33	-42.3	.6	-95.2	-52.63	-13	-39.63	H
3.12918	51.92	Pk	33	-42.3	.6	-95.2	-51.98	-13	-38.98	V

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

Pk - Peak detector

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10.3.5. LTE BAND 14

LIMITS

FCC: §90.543 Emission Limitations. (Band 14)
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation

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QPSK LTE BAND 14 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B14 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 793MHz										
*1.58595	53.45	Pk	27.9	-44.4	.8	-95.2	-57.45	-40	-17.45	H
*1.58616	53.62	Pk	27.9	-44.4	.8	-95.2	-57.28	-40	-17.28	V
2.36575	67.53	Pk	31.8	-44.1	.6	-95.2	-39.37	-13	-26.37	H
2.36581	63.3	Pk	31.8	-44.1	.6	-95.2	-43.6	-13	-30.6	V
3.17187	50.63	Pk	32.6	-41.5	.5	-95.2	-52.97	-13	-39.97	V
3.17219	51.4	Pk	32.6	-41.5	.5	-95.2	-52.2	-13	-39.2	H

*** Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used.**

Pk - Peak detector

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10.3.6. LTE BAND 17

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B17 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 710MHz										
1.41133	55.25	Pk	28.6	-45	.9	-95.2	-55.45	-13	-42.45	H
1.41251	55.29	Pk	28.6	-45	.9	-95.2	-55.41	-13	-42.41	V
2.11656	57.03	Pk	31.7	-45.3	.5	-95.2	-51.27	-13	-38.27	V
2.1167	62.76	Pk	31.7	-45.3	.5	-95.2	-45.54	-13	-32.54	H
2.83646	53.7	Pk	32.7	-43.8	.7	-95.2	-51.9	-13	-38.9	H
2.84019	53	Pk	32.7	-43.8	.7	-95.2	-52.6	-13	-39.6	V

Pk - Peak detector

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10.3.7. LTE BAND 25 AND n25

LIMITS

FCC: §24.238(a)

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.

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QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13573711
Date:	3/17 – 6/30/2021
Test Engineer:	19226 AR, 25004 CS
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	S, P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.71933	51.33	Pk	33.5	-40.4	-95.2	-50.77	-13	-37.77	H
3.71933	51.26	Pk	33.5	-40.4	-95.2	-50.84	-13	-37.84	V
5.58221	50.29	Pk	34.5	-39.3	-95.2	-49.71	-13	-36.71	H
5.58226	50.88	Pk	34.5	-39.3	-95.2	-49.12	-13	-36.12	V
7.43943	49.23	Pk	36.3	-38.5	-95.2	-48.17	-13	-35.17	V
7.44175	49.38	Pk	36.3	-38.5	-95.2	-48.02	-13	-35.02	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 1882.5MHz									
3.76352	49.89	Pk	33.3	-39.7	-95.2	-51.71	-13	-38.71	V
3.7654	50.66	Pk	33.3	-39.8	-95.2	-51.04	-13	-38.04	H
5.64566	48.57	Pk	34.3	-38.4	-95.2	-50.73	-13	-37.73	H
5.64744	48.42	Pk	34.3	-38.4	-95.2	-50.88	-13	-37.88	V
7.52801	47.17	Pk	35.6	-36.4	-95.2	-48.83	-13	-35.83	V
7.53021	46.82	Pk	35.6	-36.3	-95.2	-49.08	-13	-36.08	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 1905MHz									
3.80939	51.89	Pk	33.5	-40.7	-95.2	-50.51	-13	-37.51	V
3.81049	51.14	Pk	33.5	-40.7	-95.2	-51.26	-13	-38.26	H
5.71376	49.93	Pk	34.7	-39.3	-95.2	-49.87	-13	-36.87	H
5.71422	49.95	Pk	34.7	-39.3	-95.2	-49.85	-13	-36.85	V
7.62158	49.06	Pk	36.2	-38.2	-95.2	-48.14	-13	-35.14	H
7.62227	49.46	Pk	36.2	-38.2	-95.2	-47.74	-13	-34.74	V

Pk - Peak detector

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BPSK 5G NR BAND 25 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/25/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n25 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz									
3.73905	51.27	Pk	33.5	-40.7	-95.2	-51.13	-13	-38.13	H
3.74154	51.35	Pk	33.5	-40.8	-95.2	-51.15	-13	-38.15	V
5.6092	50.58	Pk	34.5	-39.2	-95.2	-49.32	-13	-36.32	H
5.61148	50.53	Pk	34.5	-39.2	-95.2	-49.37	-13	-36.37	V
7.48008	49.26	Pk	36.2	-38.8	-95.2	-48.54	-13	-35.54	V
7.48027	49.55	Pk	36.2	-38.8	-95.2	-48.25	-13	-35.25	H
Mid Channel, 1882.5MHz									
3.76369	51.64	Pk	33.5	-40.9	-95.2	-50.96	-13	-37.96	H
3.76581	51.85	Pk	33.5	-40.9	-95.2	-50.75	-13	-37.75	V
5.64734	50.71	Pk	34.6	-39.3	-95.2	-49.19	-13	-36.19	H
5.6477	51.27	Pk	34.6	-39.3	-95.2	-48.63	-13	-35.63	V
7.52819	49.37	Pk	36.2	-38.8	-95.2	-48.43	-13	-35.43	H
7.53123	49.66	Pk	36.3	-38.7	-95.2	-47.94	-13	-34.94	V
High Channel, 1895MHz									
3.78857	51.91	Pk	33.4	-40.9	-95.2	-50.79	-13	-37.79	H
3.79057	51.86	Pk	33.4	-40.9	-95.2	-50.84	-13	-37.84	V
5.6838	50.07	Pk	34.6	-39.3	-95.2	-49.83	-13	-36.83	H
5.68387	49.88	Pk	34.6	-39.3	-95.2	-50.02	-13	-37.02	V
7.57835	49.49	Pk	36.1	-38.6	-95.2	-48.21	-13	-35.21	V
7.58076	49.02	Pk	36.1	-38.6	-95.2	-48.68	-13	-35.68	H

Pk - Peak detector

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10.3.8. LTE BAND 26 (PART 90S)

LIMITS

FCC: §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.

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QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	7/1/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 26(90S) QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 819MHz										
1.63674	54.62	Pk	28.4	-45.1	.7	-95.2	-56.58	-13	-43.58	H
1.63693	54.73	Pk	28.4	-45.1	.7	-95.2	-56.47	-13	-43.47	V
2.45727	54.09	Pk	32.2	-45	.5	-95.2	-53.41	-13	-40.41	V
2.45981	54.77	Pk	32.2	-45	.5	-95.2	-52.73	-13	-39.73	H
3.27625	51.18	Pk	32.6	-41.8	.8	-95.2	-52.42	-13	-39.42	H
3.27732	50.7	Pk	32.6	-41.8	.8	-95.2	-52.9	-13	-39.9	V

Pk - Peak detector

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10.3.9. LTE BAND 26 (PART 22)

LIMITS

FCC: §22.917(a)

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.

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QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	7/1/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 26 (Part 22) QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 829.0MHz										
1.66204	55.71	Pk	28.4	-45.1	.8	-95.2	-55.39	-13	-42.39	V
1.66229	55.43	Pk	28.4	-45.1	.8	-95.2	-55.67	-13	-42.67	H
2.49326	54.37	Pk	32.3	-45	.6	-95.2	-52.93	-13	-39.93	V
2.4943	55.1	Pk	32.3	-45	.6	-95.2	-52.2	-13	-39.2	H
3.32466	51.54	Pk	32.3	-41.8	.6	-95.2	-52.56	-13	-39.56	V
3.32782	51.24	Pk	32.3	-41.8	.6	-95.2	-52.86	-13	-39.86	H
Mid Channel, 836.5MHz										
1.65963	65.21	Pk	28.5	-45.1	.8	-95.2	-45.79	-13	-32.79	V
1.6597	66.4	Pk	28.5	-45.1	.8	-95.2	-44.6	-13	-31.6	H
2.50821	54.79	Pk	32.3	-44.9	.7	-95.2	-52.31	-13	-39.31	V
2.51033	55.72	Pk	32.3	-44.9	.7	-95.2	-51.38	-13	-38.38	H
3.3652	51.67	Pk	32.3	-41.7	.6	-95.2	-52.33	-13	-39.33	H
3.36569	51.74	Pk	32.3	-41.7	.6	-95.2	-52.26	-13	-39.26	V
High Channel, 844.0MHz										
1.68237	54.73	Pk	28.5	-45	.7	-95.2	-56.27	-13	-43.27	V
1.68249	55.18	Pk	28.5	-45	.7	-95.2	-55.82	-13	-42.82	H
2.54397	55.37	Pk	32.2	-44.8	.6	-95.2	-51.83	-13	-38.83	V
2.547	54.47	Pk	32.1	-44.8	.6	-95.2	-52.83	-13	-39.83	H
3.36464	51.76	Pk	32.3	-41.7	.6	-95.2	-52.24	-13	-39.24	H
3.36469	50.99	Pk	32.3	-41.7	.6	-95.2	-53.01	-13	-40.01	V

Pk - Peak detector

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10.3.10. LTE BAND 30 AND n30

LIMITS

FCC: §27.53 (a)

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.

RSS195§5.6

The transmitter unwanted emissions shall be measured with a resolution bandwidth of 1 MHz. A smaller resolution bandwidth is permitted provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz. However, in the 1 MHz bands immediately adjacent to the edges of the frequency range(s) in which the equipment is allowed to operate, a resolution bandwidth of as close as possible to, without being less than 1% of the occupied bandwidth, shall be employed provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz.

RSS195§5.6.2 Mobile, Portable and Low-Power Fixed Subscriber Equipment

The power of any emission outside the frequency range(s) in which the equipment operates shall be attenuated below the transmitter power, P(dBW), by the amount indicated in Table 2 and graphically represented in Figure 2, where p is the transmitter output power measured in watts.

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QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61926	51.34	Pk	33.9	-42.2	.6	-95.2	-51.56	-40	-11.56	H
4.61932	51.22	Pk	33.9	-42.2	.6	-95.2	-51.68	-40	-11.68	V
6.92873	47.43	Pk	35.6	-38.4	.4	-95.2	-50.17	-40	-10.17	V
6.93072	48.87	Pk	35.6	-38.4	.4	-95.2	-48.73	-40	-8.73	H
9.23888	46.61	Pk	36	-36	.7	-95.2	-47.89	-40	-7.89	V
9.23981	46.98	Pk	36	-36	.7	-95.2	-47.52	-40	-7.52	H

Pk - Peak detector

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BPSK 5G NR BAND n30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/10/2021
Test Engineer:	25273 LO
Configuration:	EUT Only
Mode	5G NR Band n30 BPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61899	51.31	Pk	33.9	-42.1	0.6	-95.2	-51.49	-40	-11.49	V
4.62135	50.86	Pk	33.9	-42.2	0.6	-95.2	-52.04	-40	-12.04	H
6.93138	47.43	Pk	35.6	-38.4	0.4	-95.2	-50.17	-40	-10.17	H
6.93226	48	Pk	35.6	-38.4	0.4	-95.2	-49.6	-40	-9.6	V
9.23999	46.59	Pk	36	-36	0.7	-95.2	-47.91	-40	-7.91	H
9.24061	46.25	Pk	36	-36.1	0.7	-95.2	-48.35	-40	-8.35	V

Pk - Peak detector

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10.3.11. LTE BAND 41 AND n41

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/15 – 7/1/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.35914	51.29	Pk	34.5	-41.2	.5	-95.2	-50.11	-25	-25.11	V
5.36022	50.8	Pk	34.5	-41.2	.5	-95.2	-50.6	-25	-25.6	H
8.0394	48.11	Pk	36	-37.9	.4	-95.2	-48.59	-25	-23.59	V
8.03982	48.1	Pk	36	-37.9	.4	-95.2	-48.6	-25	-23.6	H
10.72059	47.33	Pk	37.9	-35.9	.6	-95.2	-45.27	-25	-20.27	V
10.72089	47.5	Pk	37.9	-35.9	.6	-95.2	-45.1	-25	-20.1	H
Mid Channel, 2593MHz										
5.18465	51.08	Pk	34.4	-41.7	.7	-95.2	-50.72	-25	-25.72	H
5.18537	51.16	Pk	34.4	-41.7	.8	-95.2	-50.54	-25	-25.54	V
7.77814	48.01	Pk	36	-38.4	.3	-95.2	-49.29	-25	-24.29	H
7.77984	48.02	Pk	36	-38.4	.3	-95.2	-49.28	-25	-24.28	V
10.3711	48.64	Pk	37.5	-36.6	.8	-95.2	-44.86	-25	-19.86	V
10.37423	48.86	Pk	37.6	-36.6	.8	-95.2	-44.54	-25	-19.54	H
High Channel, 2680MHz										
5.35958	51.92	Pk	34.5	-40.9	.5	-95.2	-49.18	-25	-24.18	V
5.36162	50.73	Pk	34.5	-40.9	.5	-95.2	-50.37	-25	-25.37	H
8.03857	47.96	Pk	36	-37.5	.4	-95.2	-48.34	-25	-23.34	V
8.03948	47.77	Pk	36	-37.4	.4	-95.2	-48.43	-25	-23.43	H
10.71979	47.79	Pk	37.9	-35	.6	-95.2	-43.91	-25	-18.91	H
10.72075	47.62	Pk	37.9	-35	.6	-95.2	-44.08	-25	-19.08	V

Pk - Peak detector

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BPSK 5G NR BAND n41 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/18/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n41 BPSK 100MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09115	50.74	Pk	33.9	-40.5	.8	-95.2	-50.26	-25	-25.26	H
5.09261	50.01	Pk	33.9	-40.6	.8	-95.2	-51.09	-25	-26.09	V
7.63873	46.38	Pk	35.7	-36.5	.4	-95.2	-49.22	-25	-24.22	V
7.63976	46.84	Pk	35.7	-36.6	.4	-95.2	-48.86	-25	-23.86	H
10.184	45.8	Pk	37.1	-35.2	.6	-95.2	-46.9	-25	-21.9	V
10.18618	45.26	Pk	37.1	-35.1	.7	-95.2	-47.24	-25	-22.24	H
Mid Channel, 2593MHz										
5.18634	49.82	Pk	34	-40.3	.8	-95.2	-50.88	-25	-25.88	H
5.18707	49.82	Pk	34	-40.3	.8	-95.2	-50.88	-25	-25.88	V
7.77743	47.07	Pk	35.7	-36.5	.3	-95.2	-48.63	-25	-23.63	H
7.78058	46.71	Pk	35.7	-36.5	.3	-95.2	-48.99	-25	-23.99	V
10.37131	44.77	Pk	37.3	-34.9	.8	-95.2	-47.23	-25	-22.23	V
10.37438	44.54	Pk	37.3	-34.9	.8	-95.2	-47.46	-25	-22.46	H
High Channel, 2640MHz										
5.27891	48.9	Pk	34.3	-39.9	.3	-95.2	-51.6	-25	-26.6	V
5.28102	49.55	Pk	34.2	-40	.3	-95.2	-51.15	-25	-26.15	H
7.92162	46.42	Pk	35.7	-36.5	.2	-95.2	-49.38	-25	-24.38	H
7.92163	47.03	Pk	35.7	-36.5	.2	-95.2	-48.77	-25	-23.77	V
10.56104	45.75	Pk	37.5	-35	.7	-95.2	-46.25	-25	-21.25	H
10.56244	46.63	Pk	37.6	-35	.8	-95.2	-45.17	-25	-20.17	V

Pk - Peak detector

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10.3.12. LTE BAND 66 AND n66

LIMITS

FCC: §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz										
3.43856	50.78	Pk	32.5	-40.9	.7	-95.2	-53.52	-13	-40.52	V
3.43873	51.5	Pk	32.5	-40.9	.7	-95.2	-52.8	-13	-39.8	H
5.15813	49.9	Pk	34	-40.3	.5	-95.2	-52.1	-13	-39.1	V
5.15914	49.98	Pk	34	-40.4	.5	-95.2	-52.12	-13	-39.12	H
6.88082	47.76	Pk	35.5	-38.3	.6	-95.2	-49.64	-13	-36.64	V
6.88118	48.64	Pk	35.5	-38.3	.6	-95.2	-49.96	-13	-36.96	H
Mid Channel, 1745MHz										
3.48965	51.19	Pk	32.6	-41	.7	-95.2	-53.11	-13	-40.11	V
3.49032	51.46	Pk	32.6	-41	.7	-95.2	-52.84	-13	-39.84	H
5.23393	50.03	Pk	34.1	-40.1	.6	-95.2	-51.77	-13	-38.77	V
5.23581	50.16	Pk	34.1	-40	.6	-95.2	-51.54	-13	-38.54	H
6.97898	48.28	Pk	35.5	-38.3	.5	-95.2	-50.22	-13	-37.22	H
6.97941	48.24	Pk	35.5	-38.2	.5	-95.2	-50.16	-13	-37.16	V
High Channel, 1770MHz										
3.5415	50.49	Pk	32.9	-40.9	.7	-95.2	-53.41	-13	-40.41	V
3.54203	50.67	Pk	32.9	-40.9	.7	-95.2	-53.23	-13	-40.23	H
5.31029	49.39	Pk	34.3	-39.9	.4	-95.2	-52.22	-13	-39.22	V
5.31072	48.98	Pk	34.3	-39.9	.4	-95.2	-52.22	-13	-39.22	H
7.07886	47.77	Pk	35.5	-38	.7	-95.2	-50.63	-13	-37.63	H
7.08136	47.58	Pk	35.5	-38.1	.7	-95.2	-50.92	-13	-37.92	V

Pk - Peak detector

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BPSK 5G NR BAND n66 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/25/2021
Test Engineer:	24944 MS
Configuration:	EUT Only
Mode	5G NR Band n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45986	50.15	Pk	32.5	-40.9	.6	-95.2	-54.05	-13	-41.05	V
3.46077	50.99	Pk	32.5	-40.8	.6	-95.2	-53.11	-13	-40.11	H
5.13321	49.89	Pk	34	-40.5	.5	-95.2	-52.31	-13	-39.31	H
5.18906	49.04	Pk	34	-40.4	.5	-95.2	-53.06	-13	-40.06	V
6.91909	47.93	Pk	35.5	-38.4	.5	-95.2	-50.67	-13	-37.67	V
6.92015	48.02	Pk	35.5	-38.5	.5	-95.2	-50.68	-13	-37.68	H
Mid Channel, 1745MHz										
3.49023	50.43	Pk	32.6	-41	.7	-95.2	-53.87	-13	-40.87	V
3.49042	51.31	Pk	32.6	-41	.7	-95.2	-52.99	-13	-39.99	H
5.20183	50.03	Pk	34	-40.3	.5	-95.2	-51.97	-13	-38.97	V
5.23697	49.77	Pk	34.1	-40.1	.6	-95.2	-52.03	-13	-39.03	H
6.97872	48.42	Pk	35.5	-38.3	.5	-95.2	-50.08	-13	-37.08	V
6.9809	48.57	Pk	35.5	-38.2	.5	-95.2	-49.83	-13	-36.83	H
High Channel, 1760MHz										
3.51826	50.51	Pk	32.8	-41	.8	-95.2	-53.69	-13	-40.69	H
3.51943	50.08	Pk	32.8	-40.9	.8	-95.2	-54.02	-13	-41.02	V
5.27571	54.1	Pk	34.2	-39.8	.6	-95.2	-47.3	-13	-34.3	H
5.27624	56.84	Pk	34.2	-39.8	.6	-95.2	-44.56	-13	-31.56	V
7.03898	47.85	Pk	35.5	-38.1	.5	-95.2	-50.45	-13	-37.45	H
7.0399	47.85	Pk	35.6	-38.2	.5	-95.2	-50.45	-13	-37.45	V

Pk - Peak detector

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10.3.13. LTE BAND 71 AND n71

LIMITS

FCC: §27.53 (g)

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.

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QPSK LTE BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/30/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B71 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34643	55.08	Pk	28.8	-44.7	1.1	-95.2	-57.12	-13	-44.12	H
1.34716	55.93	Pk	28.8	-44.7	1.1	-95.2	-56.27	-13	-43.27	V
2.01486	57.51	Pk	31.2	-44.2	.5	-95.2	-51.19	-13	-38.19	H
2.01486	57.7	Pk	31.2	-44.2	.5	-95.2	-51	-13	-38	V
2.69194	53.67	Pk	32	-43.8	.6	-95.2	-53.93	-13	-40.93	H
2.69387	53.74	Pk	32.1	-43.8	.6	-95.2	-53.76	-13	-40.76	V
Mid Channel, 683MHz										
1.3595	55.87	Pk	28.8	-44.6	1	-95.2	-56.13	-13	-43.13	V
1.36012	55.67	Pk	28.8	-44.6	1	-95.2	-56.33	-13	-43.33	H
2.01475	50.23	Pk	31.2	-44.2	.5	-95.2	-58.47	-13	-45.47	V
2.01478	57.58	Pk	31.2	-44.2	.5	-95.2	-50.62	-13	-37.62	H
2.72111	54	Pk	32.1	-43.7	.5	-95.2	-53.3	-13	-40.3	V
2.72115	54.31	Pk	32.1	-43.7	.5	-95.2	-52.99	-13	-39.99	H
High Channel, 688MHz										
1.37586	54.03	Pk	28.8	-44.6	1	-95.2	-57.97	-13	-44.97	H
1.37706	54.1	Pk	28.8	-44.6	1	-95.2	-56.91	-13	-43.91	V
2.03733	55.72	Pk	31.3	-44.2	.6	-95.2	-52.98	-13	-39.98	H
2.03734	58.08	Pk	31.3	-44.2	.6	-95.2	-50.22	-13	-37.22	V
2.75083	54.45	Pk	32.1	-43.8	.6	-95.2	-53.05	-13	-40.05	V
2.75394	53.88	Pk	32.2	-43.8	.6	-95.2	-53.52	-13	-40.52	H

Pk - Peak detector

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BPSK 5G NR BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/23/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n71 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34469	56.34	Pk	29.3	-45.1	1	-95.2	-53.66	-13	-40.66	V
1.3451	56.61	Pk	29.3	-45.1	1	-95.2	-53.39	-13	-40.39	H
2.01837	54.22	Pk	31.2	-45.1	0.5	-95.2	-54.38	-13	-41.38	H
2.01862	54.52	Pk	31.2	-45.1	0.5	-95.2	-54.08	-13	-41.08	V
2.69141	53.85	Pk	32.1	-44.3	0.5	-95.2	-53.05	-13	-40.05	V
2.69233	53.98	Pk	32.1	-44.3	0.5	-95.2	-52.92	-13	-39.92	H
Mid Channel, 683MHz										
1.36091	55.07	Pk	29.3	-45.1	1	-95.2	-54.93	-13	-41.93	V
1.36105	55.29	Pk	29.3	-45.1	1	-95.2	-54.71	-13	-41.71	H
2.0402	55.16	Pk	31.5	-45.1	0.5	-95.2	-53.14	-13	-40.14	V
2.04229	55.2	Pk	31.5	-45.1	0.5	-95.2	-53.1	-13	-40.1	H
2.72067	53.93	Pk	32.3	-44.1	0.5	-95.2	-52.57	-13	-39.57	V
2.72289	53.09	Pk	32.3	-44.1	0.5	-95.2	-53.41	-13	-40.41	H
High Channel, 688MHz										
1.37488	55.12	Pk	29.1	-45.1	1	-95.2	-55.08	-13	-42.08	H
1.37539	55.25	Pk	29	-45.1	1	-95.2	-55.05	-13	-42.05	V
2.06251	55.25	Pk	31.7	-45.1	0.5	-95.2	-52.85	-13	-39.85	H
2.06303	55.64	Pk	31.7	-45.1	0.5	-95.2	-52.46	-13	-39.46	V
2.75219	54.55	Pk	32.4	-44.1	0.5	-95.2	-51.85	-13	-38.85	H
2.7541	54.27	Pk	32.5	-44.1	0.5	-95.2	-52.03	-13	-39.03	V

Pk - Peak detector

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10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

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10.4.1. LTE BAND 7 AND n7

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	3/17-6/28/2021
Test Engineer:	19226 AR, 25004 CS
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	S, P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.02042	51.78	Pk	33.9	-41.9	.8	-95.2	-50.62	-25	-25.62	V
5.02159	51.8	Pk	33.9	-41.9	.7	-95.2	-50.7	-25	-25.7	H
7.52968	49.69	Pk	36.3	-38.9	.3	-95.2	-47.81	-25	-22.81	V
7.53054	49.44	Pk	36.3	-38.9	.3	-95.2	-48.06	-25	-23.06	H
10.04008	48.31	Pk	37.3	-36.9	.7	-95.2	-45.79	-25	-20.79	H
10.04177	48.46	Pk	37.3	-36.8	.7	-95.2	-45.54	-25	-20.54	V
Mid Channel, 2535MHz										
5.06846	49.71	Pk	33.8	-40.7	.7	-95.2	-51.69	-25	-26.69	H
5.06909	50.05	Pk	33.8	-40.6	.7	-95.2	-51.25	-25	-26.25	V
7.60367	47.2	Pk	35.7	-36.8	.4	-95.2	-48.7	-25	-23.7	V
7.60427	47.81	Pk	35.7	-36.8	.4	-95.2	-48.09	-25	-23.09	H
10.14041	45.62	Pk	37.1	-34.8	.6	-95.2	-46.68	-25	-21.68	H
10.14193	46.12	Pk	37.1	-34.9	.6	-95.2	-46.28	-25	-21.28	V
High Channel, 2560MHz										
5.11863	51.39	Pk	34.5	-41.7	.8	-95.2	-50.21	-25	-25.21	H
5.12188	51.61	Pk	34.5	-41.7	.8	-95.2	-49.99	-25	-24.99	V
7.67963	48.6	Pk	36.1	-38.4	.5	-95.2	-48.4	-25	-23.4	V
7.68085	48.54	Pk	36.1	-38.4	.5	-95.2	-48.46	-25	-23.46	H
10.23875	48.44	Pk	37.4	-36.7	.8	-95.2	-45.26	-25	-20.26	V
10.23896	48.46	Pk	37.4	-36.7	.8	-95.2	-45.24	-25	-20.24	H

Pk - Peak detector

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BPSK 5G NR BAND 7 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/15/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	5G NR Band n7 BPSK 40MHz
Chamber #:	R

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
4.99877	52.35	Pk	33.9	-42.1	.8	-95.2	-50.25	-25	-25.25	H
4.9994	52.26	Pk	33.9	-42.1	.8	-95.2	-50.34	-25	-25.34	V
7.50258	48.83	Pk	35.7	-38.9	.4	-95.2	-49.17	-25	-24.17	H
7.50295	49.3	Pk	35.7	-38.9	.3	-95.2	-48.8	-25	-23.8	V
10.00005	48.89	Pk	37.2	-36.8	.5	-95.2	-45.41	-25	-20.41	H
10.00231	49.07	Pk	37.2	-36.8	.5	-95.2	-45.23	-25	-20.23	V
Mid Channel, 2535MHz										
5.0285	51.57	Pk	34	-42	.7	-95.2	-50.93	-25	-25.93	H
5.03032	51.66	Pk	34	-41.9	.7	-95.2	-50.74	-25	-25.74	V
7.54557	49.06	Pk	35.8	-38.8	.3	-95.2	-48.84	-25	-23.84	V
7.54705	49.86	Pk	35.8	-38.8	.3	-95.2	-48.04	-25	-23.04	H
10.05921	48.48	Pk	37.2	-36.4	.7	-95.2	-45.22	-25	-20.22	H
10.06036	48.56	Pk	37.2	-36.4	.7	-95.2	-45.14	-25	-20.14	V
High Channel, 2550MHz										
5.05855	51.39	Pk	34.1	-42	.6	-95.2	-51.11	-25	-26.11	H
5.06151	52.15	Pk	34.2	-41.9	.6	-95.2	-50.15	-25	-25.15	V
7.59172	48.28	Pk	35.8	-38.6	.5	-95.2	-49.22	-25	-24.22	V
7.5928	48.79	Pk	35.8	-38.6	.5	-95.2	-48.71	-25	-23.71	H
10.11775	48.51	Pk	37.2	-36	.7	-95.2	-44.79	-25	-19.79	V
10.11889	48.54	Pk	37.2	-36	.7	-95.2	-44.76	-25	-19.76	H

Pk - Peak detector

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10.4.2. LTE BAND 25 AND n25

LIMITS

FCC: §24.238(a)

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.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

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QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/28 – 7/1/2021
Test Engineer:	25004 CS
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz										
3.71898	50.43	Pk	33.1	-41	.7	-95.2	-51.97	-13	-38.97	V
3.72194	49.32	Pk	33.1	-41	.7	-95.2	-53.08	-13	-40.08	H
5.57948	48.44	Pk	34.2	-39.2	.4	-95.2	-51.36	-13	-38.36	H
5.57998	48.26	Pk	34.2	-39.2	.4	-95.2	-51.54	-13	-38.54	V
7.43845	46.76	Pk	35.6	-37.1	.4	-95.2	-49.54	-13	-36.54	H
7.44102	47.1	Pk	35.5	-37.1	.4	-95.2	-49.3	-13	-36.3	V
Mid Channel, 1882.5MHz										
3.76431	50.58	Pk	33.3	-41	.6	-95.2	-51.72	-13	-38.72	H
3.7662	50.49	Pk	33.3	-41	.6	-95.2	-51.81	-13	-38.81	V
5.64902	47.86	Pk	34.3	-39	.5	-95.2	-51.54	-13	-38.54	H
5.64976	49.01	Pk	34.3	-39	.5	-95.2	-50.39	-13	-37.39	V
7.53032	46.73	Pk	35.6	-36.9	.4	-95.2	-49.37	-13	-36.37	V
7.53176	46.69	Pk	35.6	-37	.4	-95.2	-49.51	-13	-36.51	H
High Channel, 1905MHz										
3.80819	50.66	Pk	33.2	-40.8	.6	-95.2	-51.54	-13	-38.54	V
3.80951	50.57	Pk	33.2	-40.9	.6	-95.2	-51.73	-13	-38.73	H
5.71431	48.29	Pk	34.4	-38.8	.6	-95.2	-50.71	-13	-37.71	V
5.71457	49.21	Pk	34.4	-38.9	.6	-95.2	-49.89	-13	-36.89	H
7.61922	48.05	Pk	35.6	-36.8	.4	-95.2	-47.95	-13	-34.95	H
7.62199	47.19	Pk	35.7	-36.8	.4	-95.2	-48.71	-13	-35.71	V

Pk - Peak detector

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BPSK 5G NR BAND 25 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/25-5/26/2021
Test Engineer:	24928 DL, 19226 AR
Configuration:	EUT Only
Mode	5G NR Band n25 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz									
3.73913	50.94	Pk	33.5	-40.7	-95.2	-51.46	-13	-38.46	V
3.74022	51.27	Pk	33.5	-40.7	-95.2	-51.13	-13	-38.13	H
5.61096	51.59	Pk	34.5	-39.3	-95.2	-48.41	-13	-35.41	H
5.61167	51.03	Pk	34.5	-39.2	-95.2	-48.87	-13	-35.87	V
7.47903	49.73	Pk	36.3	-38.8	-95.2	-47.97	-13	-34.97	V
7.47951	49.73	Pk	36.2	-38.8	-95.2	-48.07	-13	-35.07	H
Mid Channel, 1882.5MHz									
3.76396	51.79	Pk	33.5	-40.9	-95.2	-50.81	-13	-37.81	H
3.76625	52.2	Pk	33.5	-40.9	-95.2	-50.4	-13	-37.4	V
5.64679	50.52	Pk	34.6	-39.3	-95.2	-49.38	-13	-36.38	V
5.64732	50.35	Pk	34.6	-39.3	-95.2	-49.55	-13	-36.55	H
7.52868	48.89	Pk	36.3	-38.8	-95.2	-48.81	-13	-35.81	H
7.53142	48.58	Pk	36.3	-38.8	-95.2	-49.12	-13	-36.12	V
High Channel, 1895MHz									
3.79105	51.39	Pk	33.4	-40.9	-95.2	-51.31	-13	-38.31	H
3.7916	51.9	Pk	33.4	-40.9	-95.2	-50.8	-13	-37.8	V
5.68303	50.62	Pk	34.6	-39.3	-95.2	-49.28	-13	-36.28	H
5.68413	50.17	Pk	34.6	-39.3	-95.2	-49.73	-13	-36.73	V
7.57901	49.57	Pk	36.1	-38.6	-95.2	-48.13	-13	-35.13	H
7.58142	48.97	Pk	36.1	-38.6	-95.2	-48.73	-13	-35.73	V

Pk - Peak detector

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10.4.3. LTE BAND 30 AND n30

LIMITS

FCC: §27.53 (a)

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.

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QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/12/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.62185	52.18	Pk	34.3	-41.8	-95.2	-50.52	-40	-10.52	H
4.6224	51.91	Pk	34.3	-41.8	-95.2	-50.79	-40	-10.79	V
6.92921	49.04	Pk	36	-38.7	-95.2	-48.86	-40	-8.86	V
6.93124	49	Pk	36	-38.7	-95.2	-48.9	-40	-8.9	H
9.23891	49	Pk	36.4	-37	-95.2	-46.8	-40	-6.8	V
9.2397	49.29	Pk	36.4	-37	-95.2	-46.51	-40	-6.51	H

Pk - Peak detector

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BPSK 5G NR BAND n30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/29/2021
Test Engineer:	24928 DL
Configuration:	EUT Only
Mode	5G NR Band n30 BPSK 10MHz
Chamber #:	R

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.6108	53.7	Pk	34.3	-42.5	.6	-95.2	-49.1	-40	-9.1	H
4.61097	51.97	Pk	34.3	-42.5	.6	-95.2	-50.83	-40	-10.83	V
6.92969	49.42	Pk	36	-39.5	.4	-95.2	-48.88	-40	-8.88	H
6.9323	49.6	Pk	36	-39.6	.4	-95.2	-48.8	-40	-8.8	V
9.23975	48.64	Pk	36.4	-37.8	.7	-95.2	-47.26	-40	-7.26	H
9.24004	48.72	Pk	36.4	-37.8	.7	-95.2	-47.18	-40	-7.18	V

Pk - Peak detector

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10.4.4. LTE BAND 41 AND n41

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/13/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.01099	52.02	Pk	33.9	-42	.8	-95.2	-50.48	-25	-25.48	H
5.01236	51.52	Pk	33.9	-42	.8	-95.2	-50.98	-25	-25.98	V
7.51818	49.21	Pk	36.2	-38.9	.3	-95.2	-48.39	-25	-23.39	H
7.51991	49.45	Pk	36.2	-38.9	.3	-95.2	-48.15	-25	-23.15	V
10.02314	48.96	Pk	37.3	-37.1	.6	-95.2	-45.44	-25	-20.44	H
10.02455	48.81	Pk	37.3	-37.1	.6	-95.2	-45.59	-25	-20.59	V
Mid Channel, 2593MHz										
5.18647	49.14	Pk	34.4	-41.5	.8	-95.2	-52.36	-25	-27.36	H
5.18528	51.05	Pk	34.4	-41.5	.8	-95.2	-50.45	-25	-25.45	V
7.7782	48.46	Pk	36	-37.9	.3	-95.2	-48.34	-25	-23.34	H
7.77873	48.67	Pk	36	-38	.3	-95.2	-48.23	-25	-23.23	V
10.37186	48.71	Pk	37.5	-36.4	.8	-95.2	-44.59	-25	-19.59	H
10.37329	49.33	Pk	37.6	-36.4	.8	-95.2	-43.87	-25	-18.87	V
High Channel, 2680MHz										
5.35921	50.44	Pk	34.5	-40.9	.5	-95.2	-50.66	-25	-25.66	H
5.36204	50.53	Pk	34.5	-40.9	.5	-95.2	-50.57	-25	-25.57	V
8.03981	47.35	Pk	36	-37.4	.4	-95.2	-48.85	-25	-23.85	V
8.04007	47.5	Pk	36	-37.4	.4	-95.2	-48.7	-25	-23.7	H
10.71893	47.44	Pk	37.9	-35	.6	-95.2	-44.26	-25	-19.26	H
10.72016	47.85	Pk	37.9	-35	.6	-95.2	-43.85	-25	-18.85	V

Pk - Peak detector

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BPSK 5G NR BAND n41 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/20/2021
Test Engineer:	25004 CS, 50820 EC
Configuration:	EUT Only
Mode	5G NR Band n41 BPSK 100MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.0917	50.31	Pk	33.9	-40.5	.8	-95.2	-50.69	-25	-25.69	V
5.09256	50.56	Pk	33.9	-40.6	.8	-95.2	-50.54	-25	-25.54	H
7.63695	46.98	Pk	35.6	-36.5	.4	-95.2	-48.72	-25	-23.72	H
7.63881	46.96	Pk	35.7	-36.5	.4	-95.2	-48.64	-25	-23.64	V
10.18421	45.97	Pk	37.1	-35.1	.6	-95.2	-46.63	-25	-21.63	H
10.18518	45.94	Pk	37.1	-35.1	.6	-95.2	-46.66	-25	-21.66	V
Mid Channel, 2593MHz										
5.18475	49.7	Pk	34	-40.3	.7	-95.2	-51.1	-25	-26.1	V
5.18721	50.41	Pk	34	-40.3	.8	-95.2	-50.29	-25	-25.29	H
7.77808	46.77	Pk	35.7	-36.5	.3	-95.2	-48.93	-25	-23.93	H
7.77862	46.62	Pk	35.7	-36.6	.3	-95.2	-49.18	-25	-24.18	V
10.37418	45.1	Pk	37.3	-34.9	.8	-95.2	-46.9	-25	-21.9	V
10.37438	44.63	Pk	37.3	-34.9	.8	-95.2	-47.37	-25	-22.37	H
High Channel, 2640MHz										
5.27876	49.24	Pk	34.3	-39.9	.3	-95.2	-51.26	-25	-26.26	V
5.28105	49.53	Pk	34.2	-40	.3	-95.2	-51.17	-25	-26.17	H
7.91822	47.1	Pk	35.7	-36.5	.2	-95.2	-48.7	-25	-23.7	H
7.91831	46.42	Pk	35.7	-36.5	.2	-95.2	-49.38	-25	-24.38	V
10.55967	46.39	Pk	37.5	-35	.7	-95.2	-45.61	-25	-20.61	V
10.56152	46.71	Pk	37.5	-35	.7	-95.2	-45.29	-25	-20.29	H

Pk - Peak detector

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10.4.5. LTE BAND 66 AND n66

LIMITS

FCC: §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	7/1/2021
Test Engineer:	25373 LO
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz										
3.44045	50.25	Pk	32.5	-40.9	.7	-95.2	-52.65	-13	-39.65	V
3.44164	50.51	Pk	32.5	-40.9	.7	-95.2	-52.39	-13	-39.39	H
5.13302	56.75	Pk	34	-40.5	.5	-95.2	-44.45	-13	-31.45	H
5.13339	56.9	Pk	34	-40.5	.5	-95.2	-44.3	-13	-31.3	V
6.87933	48.06	Pk	35.6	-38.4	.6	-95.2	-49.34	-13	-36.34	H
3.44045	50.25	Pk	35.5	-38.3	.6	-95.2	-48.79	-13	-35.79	V
Mid Channel, 1745MHz										
3.48946	50.08	Pk	32.6	-41	.7	-95.2	-52.82	-13	-39.82	V
3.49061	50.52	Pk	32.6	-41	.7	-95.2	-52.38	-13	-39.38	H
5.20843	49.03	Pk	34.1	-40.2	.5	-95.2	-51.77	-13	-38.77	H
5.209	50.82	Pk	34.1	-40.1	.5	-95.2	-49.88	-13	-36.88	V
6.9801	48.13	Pk	35.5	-38.2	.5	-95.2	-49.27	-13	-36.27	H
6.98201	47.71	Pk	35.5	-38.2	.5	-95.2	-49.69	-13	-36.69	V
High Channel, 1770MHz										
3.53943	50.02	Pk	32.9	-40.9	.7	-95.2	-52.48	-13	-39.48	H
3.54016	50.11	Pk	32.9	-40.9	.7	-95.2	-52.39	-13	-39.39	V
5.30996	49.29	Pk	34.4	-39.9	.4	-95.2	-51.01	-13	-38.01	V
5.31074	48.73	Pk	34.3	-39.9	.4	-95.2	-51.67	-13	-38.67	H
7.07852	47.72	Pk	35.5	-38	.7	-95.2	-49.28	-13	-36.28	V
7.08088	47.49	Pk	35.5	-38.1	.7	-95.2	-49.61	-13	-36.61	H

Pk - Peak detector

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BPSK 5G NR BAND n66 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/25/2021
Test Engineer:	24944 MS
Configuration:	EUT Only
Mode	5G NR Band n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45823	51.68	Pk	32.5	-40.8	.6	-95.2	-51.22	-13	-38.22	V
3.46014	50.58	Pk	32.5	-40.9	.6	-95.2	-52.42	-13	-39.42	H
5.13137	50.12	Pk	34	-40.5	.5	-95.2	-51.08	-13	-38.08	V
5.18828	49.11	Pk	34	-40.3	.5	-95.2	-51.89	-13	-38.89	H
6.91935	48.34	Pk	35.5	-38.4	.5	-95.2	-49.26	-13	-36.26	V
6.91989	48.4	Pk	35.5	-38.5	.5	-95.2	-49.3	-13	-36.3	H
Mid Channel, 1745MHz										
3.48922	50.29	Pk	32.6	-41	.7	-95.2	-52.61	-13	-39.61	V
3.49117	50.95	Pk	32.6	-40.9	.7	-95.2	-51.85	-13	-38.85	H
5.20264	46.83	Pk	34	-40.3	.5	-95.2	-54.17	-13	-41.17	V
5.23436	49.78	Pk	34.1	-40.1	.6	-95.2	-50.82	-13	-37.82	H
6.97875	48.25	Pk	35.5	-38.3	.5	-95.2	-49.25	-13	-36.25	V
6.98051	47.43	Pk	35.5	-38.2	.5	-95.2	-49.97	-13	-36.97	H
High Channel, 1760MHz										
3.51884	51.18	Pk	32.8	-41	.8	-95.2	-51.42	-13	-38.42	H
3.51974	50.69	Pk	32.8	-40.9	.8	-95.2	-51.81	-13	-38.81	V
5.27211	50.06	Pk	34.2	-40	.6	-95.2	-50.34	-13	-37.34	V
5.27581	53.1	Pk	34.2	-39.8	.6	-95.2	-47.1	-13	-34.1	H
7.03808	48.55	Pk	35.5	-38.2	.5	-95.2	-48.85	-13	-35.85	H
7.03911	48.16	Pk	35.5	-38.1	.5	-95.2	-49.14	-13	-36.14	V

Pk - Peak detector

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10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
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10.5.1. LTE BAND 7 AND n7

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/7/2021
Test Engineer:	19226 AR
Configuration:	EUT only
Mode	LTE 7 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.01958	51.38	Pk	33.9	-41.9	.8	-95.2	-51.02	-25	-26.02	V
5.02017	51.61	Pk	33.9	-41.9	.8	-95.2	-50.79	-25	-25.79	H
7.52895	49.49	Pk	36.3	-38.9	.3	-95.2	-48.01	-25	-23.01	H
7.53008	49.36	Pk	36.3	-38.9	.3	-95.2	-48.14	-25	-23.14	V
10.04093	48.15	Pk	37.3	-36.8	.7	-95.2	-45.85	-25	-20.85	H
10.04196	47.96	Pk	37.3	-36.8	.7	-95.2	-46.04	-25	-21.04	V
Mid Channel, 2535MHz										
5.0712	52.42	Pk	34.3	-41.8	.7	-95.2	-49.58	-25	-24.58	V
5.07165	51.37	Pk	34.3	-41.8	.7	-95.2	-50.63	-25	-25.63	H
7.60468	49.14	Pk	36.2	-38.7	.4	-95.2	-48.16	-25	-23.16	V
7.60632	48.71	Pk	36.2	-38.7	.4	-95.2	-48.59	-25	-23.59	H
10.14085	48.07	Pk	37.2	-36.4	.6	-95.2	-45.73	-25	-20.73	V
10.14143	48.83	Pk	37.3	-36.4	.6	-95.2	-44.87	-25	-19.87	H
High Channel, 2560MHz										
5.12009	51.8	Pk	34.5	-41.6	.8	-95.2	-49.7	-25	-24.7	V
5.12109	51.66	Pk	34.5	-41.6	.8	-95.2	-49.84	-25	-24.84	H
7.68034	49.13	Pk	36.1	-38.4	.5	-95.2	-47.87	-25	-22.87	V
7.68208	48.89	Pk	36.1	-38.4	.5	-95.2	-48.11	-25	-23.11	H
10.23982	48.36	Pk	37.4	-36.7	.8	-95.2	-45.34	-25	-20.34	V
10.24095	48.22	Pk	37.4	-36.7	.8	-95.2	-45.48	-25	-20.48	H

Pk - Peak detector

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BPSK 5G NR BAND 7 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/21-5/23/2021
Test Engineer:	25004 CS, 50820 EC
Configuration:	EUT Only
Mode	5G NR Band n7 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.04085	51.21	Pk	33.8	-40.8	.6	-95.2	-50.39	-25	-25.39	V
5.04136	51.49	Pk	33.8	-40.8	.6	-95.2	-50.11	-25	-25.11	H
7.55879	47.28	Pk	35.5	-36.6	.3	-95.2	-48.72	-25	-23.72	V
7.56094	47.28	Pk	35.6	-36.6	.4	-95.2	-48.52	-25	-23.52	H
10.07824	45.18	Pk	37	-34.5	.7	-95.2	-46.82	-25	-21.82	V
10.08099	46.22	Pk	37	-34.5	.6	-95.2	-45.88	-25	-20.88	H
Mid Channel, 2535MHz										
5.06848	50.12	Pk	33.8	-40.7	.7	-95.2	-51.28	-25	-26.28	H
5.07	49.69	Pk	33.8	-40.7	.7	-95.2	-51.71	-25	-26.71	V
7.60351	46.83	Pk	35.7	-36.8	.4	-95.2	-49.07	-25	-24.07	H
7.60543	46.86	Pk	35.7	-36.8	.4	-95.2	-49.04	-25	-24.04	V
10.14028	45.71	Pk	37.1	-34.8	.6	-95.2	-46.59	-25	-21.59	V
10.14081	45.86	Pk	37.1	-34.8	.6	-95.2	-46.44	-25	-21.44	H
High Channel, 2550MHz										
5.09846	50.21	Pk	33.9	-40.6	.8	-95.2	-50.89	-25	-25.89	V
5.10119	50.95	Pk	33.9	-40.6	.8	-95.2	-50.15	-25	-25.15	H
7.64861	46.74	Pk	35.6	-36.6	.3	-95.2	-49.16	-25	-24.16	V
7.65021	47.34	Pk	35.6	-36.7	.3	-95.2	-48.66	-25	-23.66	H
10.19876	45.84	Pk	37.1	-35	.8	-95.2	-46.46	-25	-21.46	V
10.20144	45.93	Pk	37.1	-34.9	.8	-95.2	-46.27	-25	-21.27	H

Pk - Peak detector

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10.5.2. LTE BAND 25 AND n25

LIMITS

FCC: §24.238(a)

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.

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QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	7/1/2021
Test Engineer:	25273 LO
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz										
3.71825	50.4	Pk	33.1	-41	.7	-95.2	-52	-13	-39	H
3.71845	52.29	Pk	33.1	-41	.7	-95.2	-50.11	-13	-37.11	V
5.57895	48.5	Pk	34.2	-39.2	.4	-95.2	-51.3	-13	-38.3	H
5.58207	48.36	Pk	34.2	-39.1	.4	-95.2	-51.34	-13	-38.34	V
7.43957	46.99	Pk	35.5	-37.1	.4	-95.2	-49.41	-13	-36.41	H
7.43981	47.73	Pk	35.5	-37.1	.4	-95.2	-48.67	-13	-35.67	V
Mid Channel, 1882.5MHz										
3.76413	49.94	Pk	33.3	-41	.6	-95.2	-52.36	-13	-39.36	V
3.76668	50.51	Pk	33.3	-41	.6	-95.2	-51.79	-13	-38.79	H
5.64554	48.3	Pk	34.3	-38.9	.6	-95.2	-50.9	-13	-37.9	H
5.64716	47.99	Pk	34.3	-39	.5	-95.2	-51.41	-13	-38.41	V
7.52886	46.47	Pk	35.6	-36.9	.4	-95.2	-49.63	-13	-36.63	H
7.53085	47.68	Pk	35.6	-36.9	.4	-95.2	-48.42	-13	-35.42	V
High Channel, 1905MHz										
3.80995	50.28	Pk	33.3	-40.9	.6	-95.2	-51.92	-13	-38.92	H
3.81187	50.89	Pk	33.3	-41	.6	-95.2	-51.41	-13	-38.41	V
5.71392	48.53	Pk	34.4	-38.8	.6	-95.2	-50.47	-13	-37.47	V
5.71602	49.34	Pk	34.4	-38.8	.6	-95.2	-49.66	-13	-36.66	H
7.61846	46.75	Pk	35.6	-36.8	.4	-95.2	-49.25	-13	-36.25	V
7.619	46.44	Pk	35.6	-36.8	.4	-95.2	-49.56	-13	-36.56	H

Pk - Peak detector

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BPSK 5G NR BAND 25 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/24/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.7401	50.94	Pk	33.2	-40.9	.6	-95.2	-51.36	-13	-38.36	V
3.74028	50.36	Pk	33.2	-40.9	.6	-95.2	-51.94	-13	-38.94	H
5.60918	48.87	Pk	34.3	-39	.5	-95.2	-50.53	-13	-37.53	V
5.61041	49.36	Pk	34.3	-39	.5	-95.2	-50.04	-13	-37.04	H
7.48033	47.35	Pk	35.5	-37	.4	-95.2	-48.95	-13	-35.95	H
7.48166	46.7	Pk	35.5	-37	.4	-95.2	-49.6	-13	-36.6	V
Mid Channel, 1882.5MHz										
3.7639	50.39	Pk	33.3	-40.9	.6	-95.2	-51.81	-13	-38.81	V
3.76509	50.88	Pk	33.3	-41	.6	-95.2	-51.42	-13	-38.42	H
5.64721	48.61	Pk	34.3	-39	.5	-95.2	-50.79	-13	-37.79	H
5.64806	48.1	Pk	34.3	-39	.5	-95.2	-51.3	-13	-38.3	V
7.52946	46.96	Pk	35.6	-36.9	.4	-95.2	-49.14	-13	-36.14	H
7.53078	46.99	Pk	35.6	-36.9	.4	-95.2	-49.11	-13	-36.11	V
High Channel, 1895MHz										
3.78998	51.01	Pk	33.2	-40.9	.7	-95.2	-51.19	-13	-38.19	H
3.79146	50.41	Pk	33.2	-40.9	.7	-95.2	-51.79	-13	-38.79	V
5.68097	55.59	Pk	34.3	-38.9	.5	-95.2	-43.71	-13	-30.71	H
5.68147	48.18	Pk	34.3	-38.9	.5	-95.2	-51.12	-13	-38.12	V
7.5786	47	Pk	35.5	-36.7	.5	-95.2	-48.9	-13	-35.9	H
7.57918	48.04	Pk	35.5	-36.7	.5	-95.2	-47.86	-13	-34.86	V

Pk - Peak detector

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10.5.3. LTE BAND 30 AND n30

LIMITS

FCC: §27.53 (a)

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.

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QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/12/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.62115	51.34	Pk	34.3	-41.9	-95.2	-51.46	-40	-11.46	V
4.62185	51.9	Pk	34.3	-41.8	-95.2	-50.8	-40	-10.8	H
6.93049	49.23	Pk	36	-38.7	-95.2	-48.67	-40	-8.67	V
6.93148	49.19	Pk	36	-38.8	-95.2	-48.81	-40	-8.81	H
9.23917	48.68	Pk	36.4	-37	-95.2	-47.12	-40	-7.12	V
9.24165	49.03	Pk	36.4	-37.1	-95.2	-46.87	-40	-6.87	H

Pk - Peak detector

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BPSK 5G NR BAND n30 (10.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/26/2021
Test Engineer:	24928 DL
Configuration:	EUT Only
Mode	5G NR Band n30 BPSK 10MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61827	52.22	Pk	34.3	-42.5	0.6	-95.2	-50.58	-40	-10.58	V
4.61955	51.16	Pk	34.3	-42.5	0.6	-95.2	-51.64	-40	-11.64	H
6.93115	49.54	Pk	36	-39.6	0.4	-95.2	-48.86	-40	-8.86	H
6.93185	49.36	Pk	36	-39.6	0.4	-95.2	-49.04	-40	-9.04	V
9.24038	48.48	Pk	36.4	-37.8	0.7	-95.2	-47.42	-40	-7.42	V
9.24166	48.09	Pk	36.4	-37.8	0.7	-95.2	-47.81	-40	-7.81	H

Pk - Peak detector

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10.5.4. LTE BAND 41 AND n41

LIMITS

FCC: §27.53 (m)

At least 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

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QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	4/13/2021-8/5/2021
Test Engineer:	19226 AR, 45258 JL
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	Q, B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.0136	51.75	Pk	33.9	-41.9	.8	-95.2	-50.65	-25	-25.65	V
5.0148	51.52	Pk	33.9	-41.9	.8	-95.2	-50.88	-25	-25.88	H
7.51804	49.62	Pk	36.2	-38.9	.3	-95.2	-47.98	-25	-22.98	H
7.51977	49.12	Pk	36.2	-38.9	.3	-95.2	-48.48	-25	-23.48	V
10.02378	48.89	Pk	37.3	-37.1	.6	-95.2	-45.51	-25	-20.51	V
10.0258	49.03	Pk	37.3	-37.1	.7	-95.2	-45.27	-25	-20.27	H
Mid Channel, 2593MHz										
5.18112	50.21	Pk	34.4	-41.7	.7	-95.2	-51.59	-25	-26.59	V
5.18721	50.75	Pk	34.4	-41.7	.8	-95.2	-50.95	-25	-25.95	H
7.7771	48.29	Pk	36	-38.4	.3	-95.2	-49.01	-25	-24.01	V
7.77912	48.11	Pk	36	-38.4	.3	-95.2	-49.19	-25	-24.19	H
10.37032	47.98	Pk	37.5	-36.6	.8	-95.2	-45.52	-25	-20.52	V
10.37161	47.95	Pk	37.5	-36.6	.8	-95.2	-45.55	-25	-20.55	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T135	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2680MHz										
5.35955	39.94	Pk	34.5	-30.1	.5	-95.2	-50.36	-25	-25.36	H
5.36125	39.38	Pk	34.5	-30.1	.5	-95.2	-50.92	-25	-25.92	V
8.04178	37.21	Pk	35.9	-26.4	.4	-95.2	-48.09	-25	-23.09	V
8.04226	37.49	Pk	35.9	-26.4	.4	-95.2	-47.81	-25	-22.81	H
10.7194	35.83	Pk	38	-24.1	.6	-95.2	-44.87	-25	-19.87	V
10.71941	36.17	Pk	38	-24.1	.6	-95.2	-44.53	-25	-19.53	H

Pk - Peak detector

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BPSK 5G NR BAND n41 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/19/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR Band n41 BPSK 100MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09054	49.95	Pk	33.9	-40.5	.8	-95.2	-51.05	-25	-26.05	H
5.09144	50.16	Pk	33.9	-40.5	.8	-95.2	-50.84	-25	-25.84	V
7.63742	46.75	Pk	35.7	-36.5	.4	-95.2	-48.85	-25	-23.85	H
7.63764	46.64	Pk	35.7	-36.5	.4	-95.2	-48.96	-25	-23.96	V
10.18563	44.81	Pk	37.1	-35.1	.7	-95.2	-47.69	-25	-22.69	H
10.18593	45.28	Pk	37.1	-35.1	.7	-95.2	-47.22	-25	-22.22	V
Mid Channel, 2593MHz										
5.18587	50	Pk	34	-40.4	.8	-95.2	-50.8	-25	-25.8	V
5.18711	49.74	Pk	34	-40.3	.8	-95.2	-50.96	-25	-25.96	H
7.77822	46.91	Pk	35.7	-36.5	.3	-95.2	-48.79	-25	-23.79	H
7.77949	46.61	Pk	35.7	-36.5	.3	-95.2	-49.09	-25	-24.09	V
10.37184	45.27	Pk	37.3	-35	.8	-95.2	-46.83	-25	-21.83	V
10.37328	44.51	Pk	37.3	-34.9	.8	-95.2	-47.49	-25	-22.49	H
High Channel, 2640MHz										
5.27891	49.53	Pk	34.3	-39.9	.3	-95.2	-50.97	-25	-25.97	H
5.28061	49.19	Pk	34.2	-40	.3	-95.2	-51.51	-25	-26.51	V
7.91863	46.75	Pk	35.7	-36.5	.2	-95.2	-49.05	-25	-24.05	V
7.91943	46.5	Pk	35.7	-36.5	.2	-95.2	-49.3	-25	-24.3	H
10.55819	46.66	Pk	37.5	-35	.7	-95.2	-45.34	-25	-20.34	V
10.55991	46.43	Pk	37.5	-35.1	.7	-95.2	-45.67	-25	-20.67	H

Pk - Peak detector

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10.5.5. LTE BAND 48

LIMITS

FCC: §96.41

(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.

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QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/3-6/4/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.12073	31.61	RMS	36.8	-26.9	.5	-95.2	-53.19	-40	-13.19	V
7.12196	31.37	RMS	36.8	-26.9	.5	-95.2	-53.43	-40	-13.43	H
10.67972	29.66	RMS	39.4	-24.2	.6	-95.2	-49.74	-40	-9.74	H
10.68002	29.43	RMS	39.4	-24.2	.6	-95.2	-49.97	-40	-9.97	V
14.23937	28.52	RMS	41.1	-20.2	.8	-95.2	-44.98	-40	-4.98	H
14.24079	28.18	RMS	41.1	-20.2	.8	-95.2	-45.32	-40	-5.32	V
Mid Channel, 3625MHz										
7.24861	31.23	RMS	37.2	-26.8	.6	-95.2	-52.97	-40	-12.97	H
7.25122	31.61	RMS	37.2	-26.8	.6	-95.2	-52.59	-40	-12.59	V
10.87343	29.3	RMS	39.3	-23.9	.5	-95.2	-50	-40	-10	H
10.87497	29.95	RMS	39.3	-24	.5	-95.2	-49.45	-40	-9.45	V
14.49942	28.08	RMS	41.4	-20.1	.8	-95.2	-45.02	-40	-5.02	H
14.50192	28.39	RMS	41.4	-20.1	.8	-95.2	-44.71	-40	-4.71	V
High Channel, 3690MHz										
7.37891	31.61	RMS	36.9	-26.8	.7	-95.2	-52.79	-40	-12.79	V
7.3817	31.97	RMS	36.9	-26.8	.7	-95.2	-52.43	-40	-12.43	H
11.06852	29.31	RMS	39.3	-23.5	.6	-95.2	-49.49	-40	-9.49	H
11.06992	29.93	RMS	39.4	-23.5	.6	-95.2	-48.77	-40	-8.77	V
14.75839	27.79	RMS	42.2	-20.1	.8	-95.2	-44.51	-40	-4.51	V
14.76154	28.55	RMS	42.1	-20.1	.8	-95.2	-43.85	-40	-3.85	H

RMS - RMS detection

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10.5.6. LTE BAND 66 AND n66

LIMITS

FCC: §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	7/1 – 7/2/2021
Test Engineer:	25273 LO
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz										
3.43937	50.29	Pk	32.5	-40.9	.7	-95.2	-52.61	-13	-39.61	H
3.44261	50.73	Pk	32.5	-40.9	.7	-95.2	-52.17	-13	-39.17	V
5.15866	49.84	Pk	34	-40.4	.5	-95.2	-51.26	-13	-38.26	H
5.16145	49.55	Pk	34	-40.4	.5	-95.2	-51.55	-13	-38.55	V
6.88111	47.99	Pk	35.5	-38.3	.6	-95.2	-49.41	-13	-36.41	V
6.88135	48.08	Pk	35.5	-38.4	.6	-95.2	-49.42	-13	-36.42	H
Mid Channel, 1745MHz										
3.48926	50.97	Pk	32.6	-41	.7	-95.2	-51.93	-13	-38.93	H
3.49139	50.83	Pk	32.6	-40.9	.7	-95.2	-51.97	-13	-38.97	V
3.49165	50.53	Pk	32.6	-40.9	.7	-95.2	-52.27	-13	-39.27	H
5.23438	49.57	Pk	34.1	-40.1	.6	-95.2	-51.03	-13	-38.03	V
6.98001	48.05	Pk	35.5	-38.2	.5	-95.2	-49.35	-13	-36.35	V
6.98005	48.19	Pk	35.5	-38.2	.5	-95.2	-49.21	-13	-36.21	H
High Channel, 1770MHz										
3.54016	50.43	Pk	32.9	-40.9	.7	-95.2	-52.07	-13	-39.07	H
3.54144	50.37	Pk	32.9	-40.9	.7	-95.2	-52.13	-13	-39.13	V
5.30931	49.22	Pk	34.4	-39.9	.4	-95.2	-51.08	-13	-38.08	V
5.31227	48.94	Pk	34.3	-39.9	.4	-95.2	-51.46	-13	-38.46	H
7.0809	47.61	Pk	35.5	-38.1	.7	-95.2	-49.49	-13	-36.49	V
7.08128	47.74	Pk	35.5	-38.1	.7	-95.2	-49.36	-13	-36.36	H

Pk - Peak detector

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BPSK 5G NR BAND n66 (40.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/25/2021
Test Engineer:	24944 MS
Configuration:	EUT Only
Mode	5G NR Band n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45996	50.9	Pk	32.5	-40.9	.6	-95.2	-52.1	-13	-39.1	V
3.46071	50.57	Pk	32.5	-40.8	.6	-95.2	-52.33	-13	-39.33	H
5.18865	49.96	Pk	34	-40.3	.5	-95.2	-51.04	-13	-38.04	V
5.1915	50.07	Pk	34.1	-40.4	.5	-95.2	-50.93	-13	-37.93	H
6.91877	48	Pk	35.5	-38.4	.5	-95.2	-49.6	-13	-36.6	V
6.91977	48.63	Pk	35.5	-38.5	.5	-95.2	-49.07	-13	-36.07	H
Mid Channel, 1745MHz										
3.49095	50.57	Pk	32.6	-41	.7	-95.2	-52.33	-13	-39.33	V
3.49184	50.81	Pk	32.6	-40.9	.7	-95.2	-51.99	-13	-38.99	H
5.20412	55.69	Pk	34	-40.3	.5	-95.2	-45.31	-13	-32.31	H
5.20513	49.82	Pk	34	-40.3	.5	-95.2	-51.18	-13	-38.18	V
6.98096	48.53	Pk	35.5	-38.2	.5	-95.2	-48.87	-13	-35.87	H
6.98184	48.58	Pk	35.5	-38.2	.5	-95.2	-48.82	-13	-35.82	V
High Channel, 1760MHz										
3.51899	50.63	Pk	32.8	-41	.8	-95.2	-51.97	-13	-38.97	H
3.52138	50.74	Pk	32.8	-40.9	.8	-95.2	-51.76	-13	-38.76	V
5.27468	49.62	Pk	34.2	-39.8	.6	-95.2	-50.58	-13	-37.58	H
5.27732	49.66	Pk	34.3	-39.8	.6	-95.2	-50.44	-13	-37.44	V
7.03789	38.27	Pk	35.5	-38.2	.5	-95.2	-59.13	-13	-46.13	H
7.03997	48.04	Pk	35.6	-38.2	.5	-95.2	-49.26	-13	-36.26	V

Pk - Peak detector

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10.5.7. 5G NR BAND n77 (Part 27 3450-3550MHz)

LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/2/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.99943	32.54	RMS	36.4	-27.3	0.5	-95.2	-53.06	-13	-40.06	H
6.99967	32.25	RMS	36.4	-27.3	0.5	-95.2	-53.35	-13	-40.35	V
10.50004	30.26	RMS	39.5	-24.6	0.6	-95.2	-49.44	-13	-36.44	H
10.50069	31.22	RMS	39.5	-24.6	0.6	-95.2	-48.48	-13	-35.48	V
14.00059	28.02	RMS	40.7	-20.4	0.7	-95.2	-46.18	-13	-33.18	H
14.00236	28.94	RMS	40.7	-20.3	0.7	-95.2	-45.16	-13	-32.16	V

RMS - RMS detector

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10.5.8. 5G NR BAND n77 (Part 27 3700-3980MHz)

LIMITS

FCC: §27.53

(l) 3.7 GHz Service.The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49972	49.64	Pk	36.1	-39.2	.6	-95.2	-48.06	-13	-35.06	H
7.50013	49.11	Pk	36.1	-39.2	.6	-95.2	-48.59	-13	-35.59	V
11.25017	47.36	Pk	38.1	-35.4	.9	-95.2	-44.24	-13	-31.24	H
11.25052	47	Pk	38.1	-35.3	.9	-95.2	-44.5	-13	-31.5	V
14.99968	47.42	Pk	39.6	-34.5	.9	-95.2	-41.78	-13	-28.78	V
14.99993	46.71	Pk	39.6	-34.5	.9	-95.2	-42.49	-13	-29.49	H
Mid Channel, 3840MHz										
7.67999	49.34	Pk	36.1	-38.7	.9	-95.2	-47.56	-13	-34.56	V
7.68181	48.94	Pk	36.1	-38.7	.9	-95.2	-47.96	-13	-34.96	H
11.51878	44.96	Pk	38.4	-34.6	.9	-95.2	-45.54	-13	-32.54	V
11.52097	45.38	Pk	38.4	-34.5	.9	-95.2	-45.02	-13	-32.02	H
15.36112	46.79	Pk	40.4	-33.8	.8	-95.2	-41.01	-13	-28.01	H
15.36209	47.08	Pk	40.4	-33.8	.9	-95.2	-40.62	-13	-27.62	V
High Channel, 3930MHz										
7.85929	48.13	Pk	36	-38.2	.7	-95.2	-48.57	-13	-35.57	H
7.86172	49.33	Pk	36	-38.2	.8	-95.2	-47.27	-13	-34.27	V
11.79132	47.3	Pk	38.5	-34.5	1.1	-95.2	-42.8	-13	-29.8	H
11.79226	47.25	Pk	38.5	-34.5	1.1	-95.2	-42.85	-13	-29.85	V
15.72014	46.27	Pk	40.3	-34.6	1.3	-95.2	-41.93	-13	-28.93	V
15.72097	46.41	Pk	40.4	-34.5	1.3	-95.2	-41.59	-13	-28.59	H

Pk - Peak detector

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10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 7

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

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10.6.1. LTE BAND 48

LIMITS

FCC: §96.41

(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.

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QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/5/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.24984	32.16	RMS	37.2	-26.8	.6	-95.2	-52.04	-40	-12.04	H
7.25134	31.95	RMS	37.2	-26.8	.6	-95.2	-52.25	-40	-12.25	V
10.87734	30.17	RMS	39.3	-24	.5	-95.2	-49.23	-40	-9.23	V
10.87746	29.69	RMS	39.3	-24	.5	-95.2	-49.71	-40	-9.71	H
14.50035	27.82	RMS	41.4	-20.1	.8	-95.2	-45.28	-40	-5.28	V
14.50186	28.22	RMS	41.4	-20.1	.8	-95.2	-44.88	-40	-4.88	H
Mid Channel, 3625MHz										
7.2487	31.65	RMS	37.2	-26.8	.6	-95.2	-52.55	-40	-12.55	H
7.25162	31.53	RMS	37.2	-26.8	.6	-95.2	-52.67	-40	-12.67	V
10.87418	30.11	RMS	39.3	-24	.5	-95.2	-49.29	-40	-9.29	H
10.87465	30.16	RMS	39.3	-24	.5	-95.2	-49.24	-40	-9.24	V
14.49838	28.21	RMS	41.4	-20.1	.8	-95.2	-44.89	-40	-4.89	H
14.49881	28.07	RMS	41.5	-20.1	.8	-95.2	-44.93	-40	-4.93	V
High Channel, 3690MHz										
7.3801	31.64	RMS	36.9	-26.8	.7	-95.2	-52.76	-40	-12.76	V
7.38099	31.88	RMS	36.9	-26.8	.7	-95.2	-52.52	-40	-12.52	H
11.06915	29.58	RMS	39.3	-23.5	.6	-95.2	-49.22	-40	-9.22	H
11.07072	30.04	RMS	39.4	-23.5	.6	-95.2	-48.66	-40	-8.66	V
14.75813	28.22	RMS	42.2	-20.1	.8	-95.2	-44.08	-40	-4.08	H
14.75997	27.86	RMS	42.1	-20.1	.8	-95.2	-44.54	-40	-4.54	V

RMS - RMS detection

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10.6.2. 5G NR BAND n77 (Part 27 3450-3550MHz)

LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/20/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.99939	49.35	Pk	35.9	-39.5	0.5	-95.2	-48.95	-13	-35.95	V
7.00101	49.07	Pk	35.9	-39.5	0.5	-95.2	-49.23	-13	-36.23	H
10.50038	47.6	Pk	37.6	-36.2	0.6	-95.2	-45.6	-13	-32.6	H
10.50211	48.84	Pk	37.6	-36.2	0.6	-95.2	-44.36	-13	-31.36	V
14.00137	47.5	Pk	38.7	-34.7	0.7	-95.2	-43.0	-13	-30.0	V
14.00167	47.3	Pk	38.7	-34.7	0.7	-95.2	-43.2	-13	-30.2	H

Pk - Peak detector

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10.6.3. 5G NR BAND n77 (Part 27 3700-3980MHz)

LIMITS

FCC: §27.53

(l) 3.7 GHz Service.The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/30 – 6/28/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.50057	49.18	Pk	36.1	-39.2	.6	-95.2	-48.52	-13	-35.52	V
7.50067	49.12	Pk	36.1	-39.2	.6	-95.2	-48.58	-13	-35.58	H
11.24879	47.83	Pk	38.1	-35.4	.9	-95.2	-43.77	-13	-30.77	V
11.25024	47.9	Pk	38.1	-35.4	.9	-95.2	-43.7	-13	-30.7	H
15.00065	47.91	Pk	39.6	-34.5	.9	-95.2	-41.29	-13	-28.29	V
15.00248	48.72	Pk	39.6	-34.5	.9	-95.2	-40.48	-13	-27.48	H
Mid Channel, 3840MHz										
7.68101	48.76	Pk	36.1	-38.8	.9	-95.2	-48.24	-13	-35.24	V
7.68209	48.26	Pk	36.1	-38.7	.9	-95.2	-48.64	-13	-35.64	H
11.52009	45.23	Pk	38.4	-34.5	.9	-95.2	-45.17	-13	-32.17	H
11.52091	45.9	Pk	38.4	-34.5	.9	-95.2	-44.5	-13	-31.5	V
15.36088	47.43	Pk	40.4	-33.8	.8	-95.2	-40.37	-13	-27.37	H
15.36183	47.52	Pk	40.4	-33.8	.9	-95.2	-40.18	-13	-27.18	V
High Channel, 3930MHz										
7.85922	48.36	Pk	36	-38.2	.7	-95.2	-48.34	-13	-35.34	V
7.86273	48.4	Pk	36	-38.2	.8	-95.2	-48.2	-13	-35.2	H
11.79125	47.02	Pk	38.5	-34.5	1.1	-95.2	-43.08	-13	-30.08	V
11.79196	47.23	Pk	38.5	-34.5	1.1	-95.2	-42.87	-13	-29.87	H
15.72135	46.59	Pk	40.4	-34.5	1.3	-95.2	-41.41	-13	-28.41	H
15.72153	47.56	Pk	40.4	-34.5	1.3	-95.2	-40.44	-13	-27.44	V

Pk - Peak detector

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10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 8

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

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10.7.1. LTE BAND 48

LIMITS

FCC: §96.41

(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.

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QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/5/2021
Test Engineer:	45258 JL
Configuration:	EUT only
Mode	LTE B48 QPSK 20MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.25161	32.99	RMS	37.2	-26.8	.6	-95.2	-51.21	-40	-11.21	H
7.2519	31.89	RMS	37.2	-26.8	.6	-95.2	-52.31	-40	-12.31	V
10.87448	29.76	RMS	39.3	-24	.5	-95.2	-49.64	-40	-9.64	V
10.87717	30.05	RMS	39.3	-24	.5	-95.2	-49.35	-40	-9.35	H
14.50032	28.16	RMS	41.4	-20.1	.8	-95.2	-44.94	-40	-4.94	H
14.50211	27.92	RMS	41.4	-20.1	.8	-95.2	-45.18	-40	-5.18	V
Mid Channel, 3625MHz										
7.25078	31.99	RMS	37.2	-26.8	.6	-95.2	-52.21	-40	-12.21	H
7.25135	31.87	RMS	37.2	-26.8	.6	-95.2	-52.33	-40	-12.33	V
10.87421	30.17	RMS	39.3	-24	.5	-95.2	-49.23	-40	-9.23	V
10.87689	30.01	RMS	39.3	-24	.5	-95.2	-49.39	-40	-9.39	H
14.49855	27.9	RMS	41.4	-20.1	.8	-95.2	-45.2	-40	-5.2	V
14.49945	28.15	RMS	41.4	-20.1	.8	-95.2	-44.95	-40	-4.95	H
High Channel, 3690MHz										
7.38083	31.81	RMS	36.9	-26.8	.7	-95.2	-52.59	-40	-12.59	H
7.38111	31.87	RMS	36.9	-26.8	.7	-95.2	-52.53	-40	-12.53	V
11.07074	29.59	RMS	39.4	-23.5	.6	-95.2	-49.11	-40	-9.11	H
11.07163	29.76	RMS	39.3	-23.5	.6	-95.2	-49.04	-40	-9.04	V
14.75948	27.7	RMS	42.1	-20.1	.8	-95.2	-44.7	-40	-4.7	H
14.76054	27.77	RMS	42.1	-20.1	.8	-95.2	-44.63	-40	-4.63	V

RMS - RMS detection

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10.7.2. 5G NR BAND n77 (Part 27 3450-3550MHz)

LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/2/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
7.00112	31.92	RMS	36.4	-27.3	0.5	-95.2	-53.68	-13	-40.68	H
7.00219	31.9	RMS	36.5	-27.3	0.5	-95.2	-53.6	-13	-40.6	V
10.49986	30.32	RMS	39.5	-24.6	0.6	-95.2	-49.38	-13	-36.38	H
10.5019	30.65	RMS	39.4	-24.6	0.6	-95.2	-49.15	-13	-36.15	V
13.99948	28.52	RMS	40.7	-20.4	0.7	-95.2	-45.68	-13	-32.68	H
14.00146	29.26	RMS	40.7	-20.4	0.7	-95.2	-44.94	-13	-31.94	V

Pk - Peak detector

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10.7.3. 5G NR BAND n77 (Part 27 3700-3980MHz)

LIMITS

FCC: §27.53

(l) 3.7 GHz Service.The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49932	48.68	Pk	36.1	-39.2	.6	-95.2	-49.02	-13	-36.02	H
7.50152	48.79	Pk	36.2	-39.2	.6	-95.2	-48.81	-13	-35.81	V
11.25012	47.77	Pk	38.1	-35.4	.9	-95.2	-43.83	-13	-30.83	V
11.25043	47.6	Pk	38.1	-35.3	.9	-95.2	-43.9	-13	-30.9	H
14.9984	46.63	Pk	39.6	-34.5	.9	-95.2	-42.57	-13	-29.57	H
15.00119	46.63	Pk	39.6	-34.5	.9	-95.2	-42.57	-13	-29.57	V
Mid Channel, 3840MHz										
7.68054	48.84	Pk	36.1	-38.8	.9	-95.2	-48.16	-13	-35.16	H
7.68114	49.31	Pk	36.1	-38.8	.9	-95.2	-47.69	-13	-34.69	V
11.51889	45.13	Pk	38.4	-34.6	.9	-95.2	-45.37	-13	-32.37	H
11.52083	44.88	Pk	38.4	-34.5	.9	-95.2	-45.52	-13	-32.52	V
15.35944	46.65	Pk	40.4	-33.7	.8	-95.2	-41.05	-13	-28.05	V
15.3601	47.43	Pk	40.4	-33.7	.8	-95.2	-40.27	-13	-27.27	H
High Channel, 3930MHz										
7.8602	48.7	Pk	36	-38.2	.8	-95.2	-47.9	-13	-34.9	V
7.86265	48.32	Pk	36	-38.2	.8	-95.2	-48.28	-13	-35.28	H
11.78963	46.88	Pk	38.5	-34.5	1	-95.2	-43.32	-13	-30.32	V
11.79149	46.7	Pk	38.5	-34.5	1.1	-95.2	-43.4	-13	-30.4	H
15.72063	47.11	Pk	40.4	-34.5	1.3	-95.2	-40.89	-13	-27.89	V
15.7215	47.37	Pk	40.4	-34.5	1.3	-95.2	-40.63	-13	-27.63	H

Pk - Peak detector

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10.8. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 9

TEST PROCEDURE
KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

RESULTS

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10.8.1. LTE BAND 48

LIMITS

FCC: §96.41

(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.

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QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/3/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.11814	31.55	RMS	36.7	-26.8	.5	-95.2	-53.25	-40	-13.25	H
7.12056	31.67	RMS	36.8	-26.9	.5	-95.2	-53.13	-40	-13.13	V
10.67984	29.76	RMS	39.4	-24.2	.6	-95.2	-49.64	-40	-9.64	H
10.68118	29.8	RMS	39.4	-24.3	.6	-95.2	-49.7	-40	-9.7	V
14.24034	27.99	RMS	41.1	-20.2	.8	-95.2	-45.51	-40	-5.51	V
14.24222	28.03	RMS	41.1	-20.2	.8	-95.2	-45.47	-40	-5.47	H
Mid Channel, 3625MHz										
7.24813	32.02	RMS	37.2	-26.8	.6	-95.2	-52.18	-40	-12.18	H
7.25047	31.43	RMS	37.2	-26.8	.6	-95.2	-52.77	-40	-12.77	V
10.87433	29.75	RMS	39.3	-24	.5	-95.2	-49.65	-40	-9.65	V
10.87669	29.94	RMS	39.3	-24	.5	-95.2	-49.46	-40	-9.46	H
14.49893	27.94	RMS	41.5	-20.1	.8	-95.2	-45.06	-40	-5.06	V
14.50129	27.74	RMS	41.4	-20.1	.8	-95.2	-45.36	-40	-5.36	H
High Channel, 3690MHz										
7.37855	31.36	RMS	36.9	-26.8	.7	-95.2	-53.04	-40	-13.04	V
7.38186	32.27	RMS	36.9	-26.8	.7	-95.2	-52.13	-40	-12.13	H
11.06902	30.03	RMS	39.3	-23.5	.6	-95.2	-48.77	-40	-8.77	V
11.06998	30.04	RMS	39.4	-23.5	.6	-95.2	-48.66	-40	-8.66	H
14.76157	28.35	RMS	42.1	-20.1	.8	-95.2	-44.05	-40	-4.05	H
14.76186	28.27	RMS	42.1	-20.1	.8	-95.2	-44.13	-40	-4.13	V

Pk - Peak detector

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10.8.2. 5G NR BAND n77 (Part 27 3450-3550MHz)

LIMITS

FCC: §27.53

Emission limits

(n) 3.45 GHz Service. The following emission limits apply to stations transmitting in the 3450-3550 MHz band:

(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	6/2/2021
Test Engineer:	45258 JL
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.9984	49.54	Pk	35.9	-39.5	0.5	-95.2	-48.76	-13	-35.76	V
7.00025	49.58	Pk	35.9	-39.5	0.5	-95.2	-48.72	-13	-35.72	H
10.49834	47.06	Pk	37.6	-36.1	0.6	-95.2	-46.04	-13	-33.04	V
10.49857	47.27	Pk	37.6	-36.1	0.6	-95.2	-45.83	-13	-32.83	H
14.00094	46.9	Pk	38.7	-34.7	0.7	-95.2	-43.6	-13	-30.6	H
14.00184	46.46	Pk	38.7	-34.7	0.7	-95.2	-44.04	-13	-31.04	V

RMS - RMS detection

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10.8.3. 5G NR BAND n77 (Part 27 3700-3980MHz)

LIMITS

FCC: §27.53

(l) 3.7 GHz Service.The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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BPSK 5G NR BAND n77 (100.0MHZ BANDWIDTH)

Project #:	13573771
Date:	5/30/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR Band n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49955	49.07	Pk	36.1	-39.2	.6	-95.2	-48.63	-13	-35.63	H
7.50059	48.95	Pk	36.1	-39.2	.6	-95.2	-48.75	-13	-35.75	V
11.25006	47.29	Pk	38.1	-35.4	.9	-95.2	-44.31	-13	-31.31	V
11.25054	47.04	Pk	38.1	-35.3	.9	-95.2	-44.46	-13	-31.46	H
14.99826	46.97	Pk	39.6	-34.5	.9	-95.2	-42.23	-13	-29.23	H
14.99967	46.92	Pk	39.6	-34.5	.9	-95.2	-42.28	-13	-29.28	V
Mid Channel, 3840MHz										
7.6782	48.71	Pk	36.1	-38.7	.9	-95.2	-48.19	-13	-35.19	H
7.68063	48.84	Pk	36.1	-38.8	.9	-95.2	-48.16	-13	-35.16	V
11.51861	45	Pk	38.4	-34.6	.9	-95.2	-45.5	-13	-32.5	V
11.52083	45.34	Pk	38.4	-34.5	.9	-95.2	-45.06	-13	-32.06	H
15.36052	46.88	Pk	40.4	-33.7	.8	-95.2	-40.82	-13	-27.82	H
15.362	46.9	Pk	40.4	-33.8	.9	-95.2	-40.8	-13	-27.8	V
High Channel, 3930MHz										
7.85916	48.22	Pk	36	-38.2	.7	-95.2	-48.48	-13	-35.48	V
7.86175	48.55	Pk	36	-38.2	.8	-95.2	-48.05	-13	-35.05	H
11.78853	47.35	Pk	38.6	-34.5	1	-95.2	-42.75	-13	-29.75	H
11.78953	48.02	Pk	38.5	-34.5	1	-95.2	-42.18	-13	-29.18	V
15.72206	46.58	Pk	40.4	-34.5	1.3	-95.2	-41.42	-13	-28.42	V
15.72261	46.57	Pk	40.4	-34.5	1.3	-95.2	-41.43	-13	-28.43	H

Pk - Peak detector

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11. SETUP PHOTOS

Please refer to 13573771-EP1V1 FCC IC Setup Photo for setup photos

END OF REPORT

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