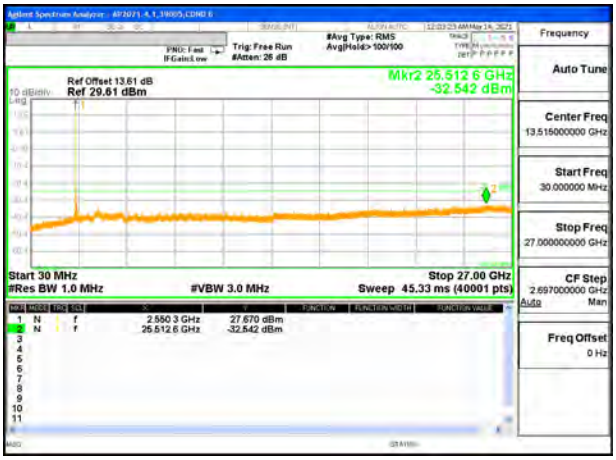
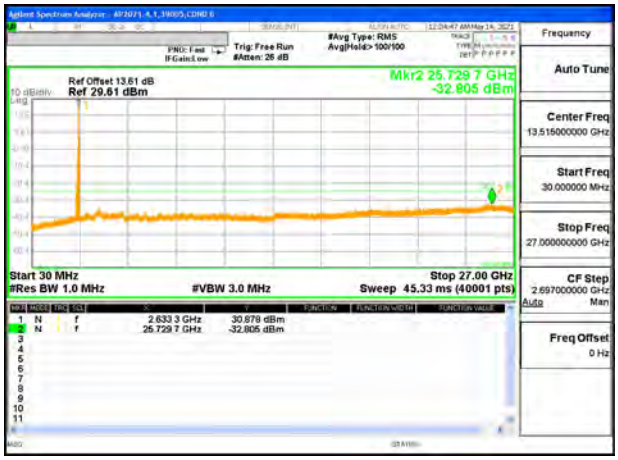
5G NR n41 90MHz BPSK Low Channel RB1-0



5G NR n41 90MHz BPSK Middle Channel RB1-1



5G NR n41 90MHz BPSK High Channel RB1-244

5G NR n41 100MHz BPSK Low Channel RB1-0

5G NR n41 100MHz BPSK Middle Channel RB1-1

5G NR n41 100MHz BPSK High Channel RB1-272

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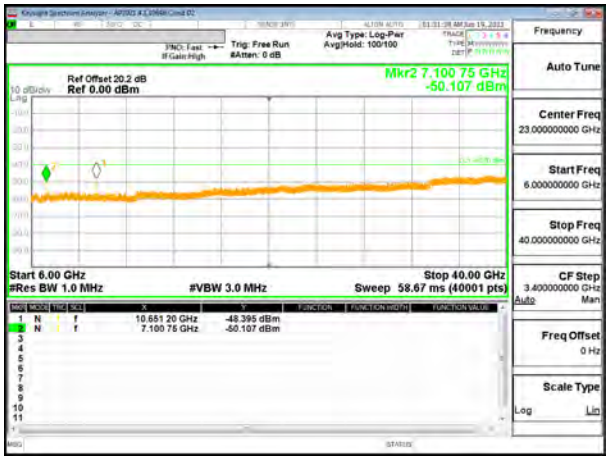
9.3.12. LTE BAND 48

LIMITS

FCC: §96.41
(e) 3.5 GHz Emissions and Interference Limits—
(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

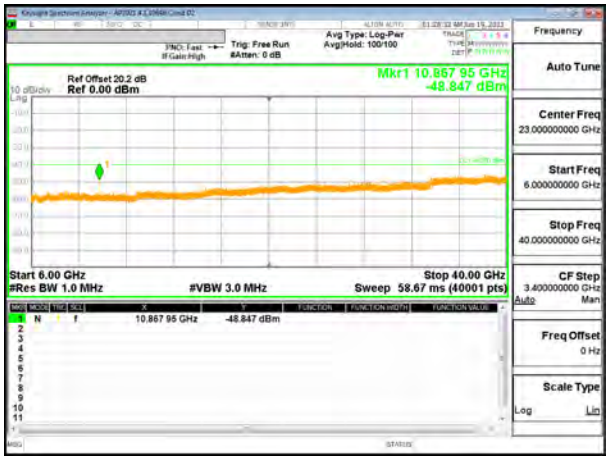
LTE BAND 48

LTE B48 5MHz QPSK Low Channel RB1-0 (30MHz to 6GHz)



LTE B48 5MHz QPSK Low Channel RB1-0 (6GHz to 40GHz)

LTE B48 5MHz QPSK Mid Channel RB1-0 (30MHz to 6GHz)



LTE B48 5MHz QPSK Middle Channel RB1-0 (6GHz to 40GHz)

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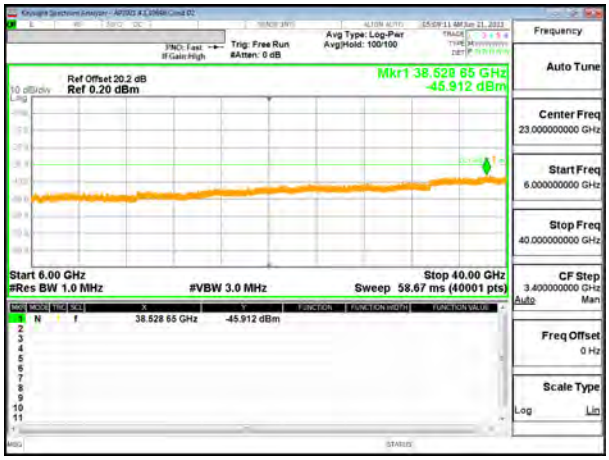
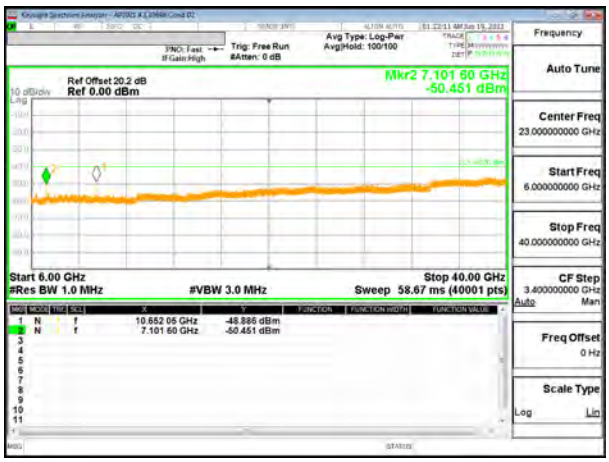
LTE B48 5MHz QPSK High Channel RB1-0 (30MHz to 6GHz)



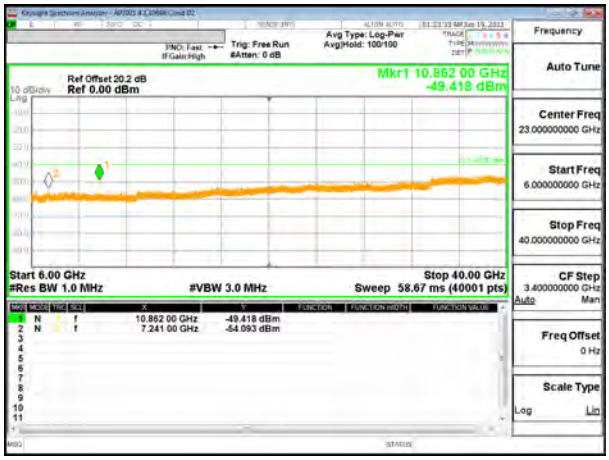
LTE B48 5MHz QPSK High Channel RB1-0 (6GHz to 40GHz)

LTE B48 10MHz QPSK Low Channel RB1-0 (30MHz to 6GHz)



LTE B48 10MHz QPSK Low Channel RB1-0 (6GHz to 40GHz)

LTE B48 10MHz QPSK Mid Channel RB1-0 (30MHz to 6GHz)



LTE B48 10MHz QPSK Middle Channel RB1-0 (6GHz to 40GHz)

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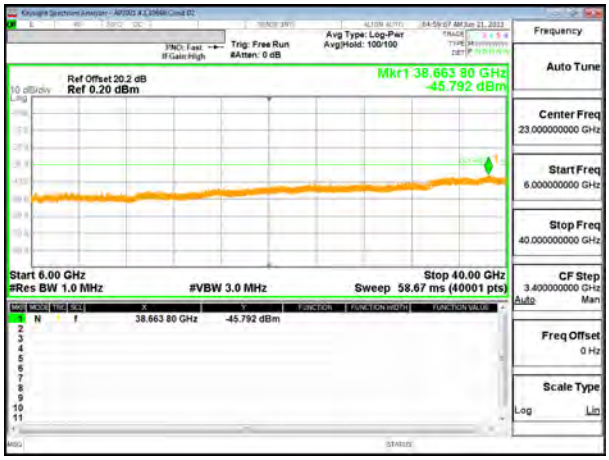
LTE B48 10MHz QPSK High Channel RB1-0 (30MHz to 6GHz)



LTE B48 10MHz QPSK High Channel RB1-0 (6GHz to 40GHz)

LTE B48 15MHz QPSK Low Channel RB1-0 (30MHz to 6GHz)

LTE B48 15MHz QPSK Low Channel RB1-0 (6GHz to 40GHz)

LTE B48 15MHz QPSK Mid Channel RB1-0 (30MHz to 6GHz)

LTE B48 15MHz QPSK Mid Channel RB1-0 (6GHz to 40GHz)

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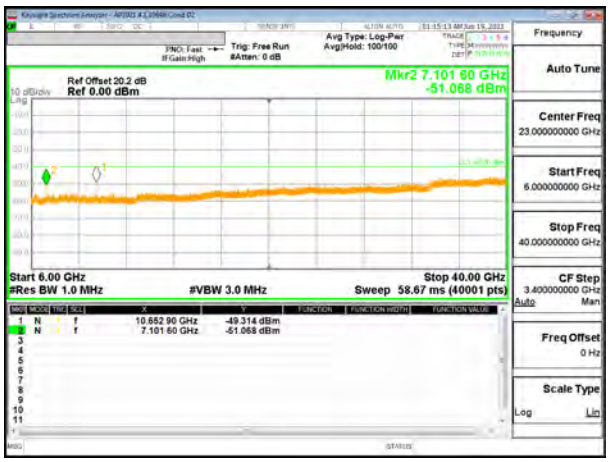
LTE B48 15MHz QPSK High Channel RB1-0 (30MHz to 6GHz)

LTE B48 15MHz QPSK High Channel RB1-0 (6GHz to 40GHz)

LTE B48 20MHz QPSK Low Channel RB1-0 (30MHz to 6GHz)



LTE B48 20MHz QPSK Low Channel RB1-0 (6GHz to 40GHz)

LTE B48 20MHz QPSK Mid Channel RB1-0 (30MHz to 6GHz)

LTE B48 20MHz QPSK Mid Channel RB1-0 (6GHz to 40GHz)

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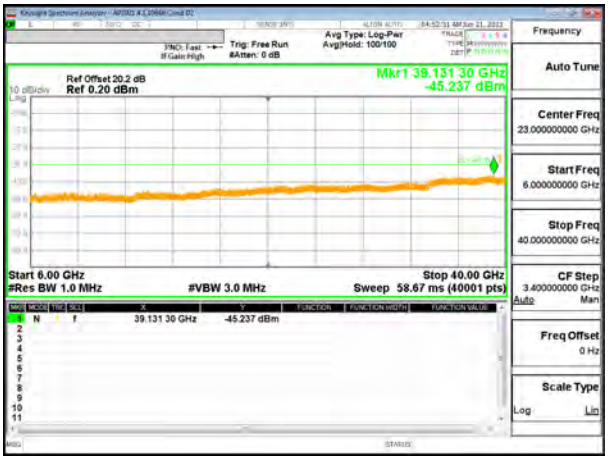
LTE B48 20MHz QPSK High Channel RB1-0 (30MHz to 6GHz)



LTE B48 20MHz QPSK High Channel RB1-0 (6GHz to 40GHz)

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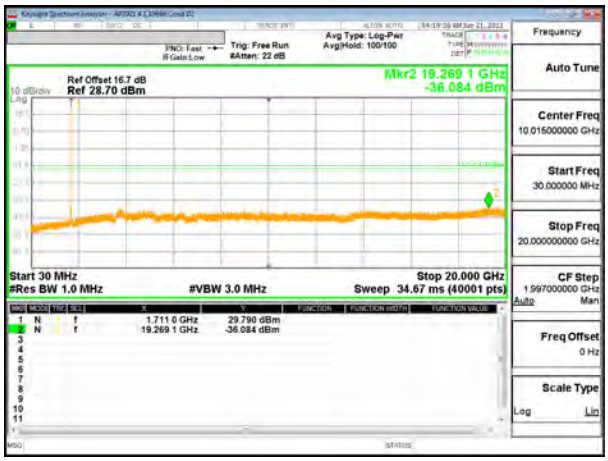
9.3.13. LTE BAND 66 AND 5G NR n66

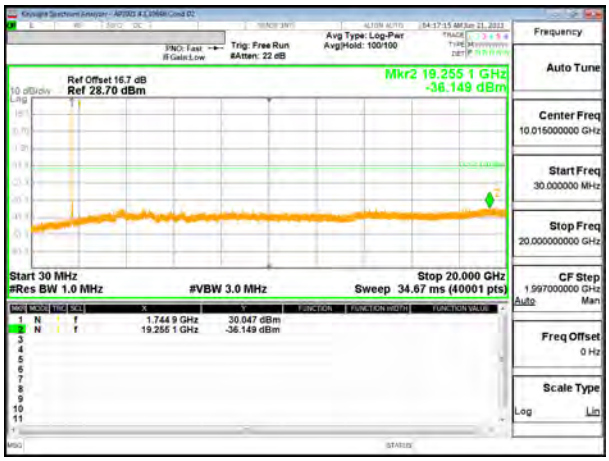
LIMITS

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.

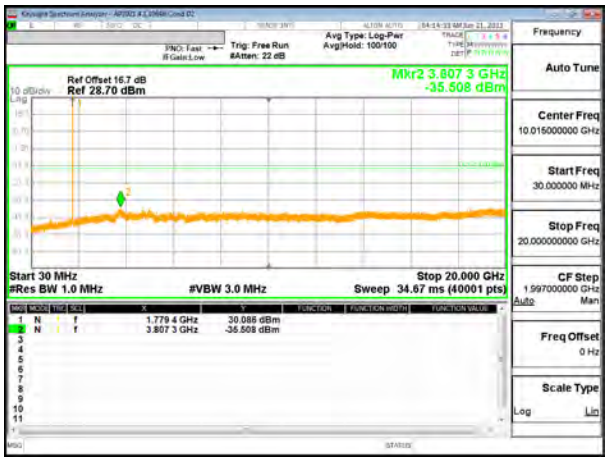
LTE BAND 66



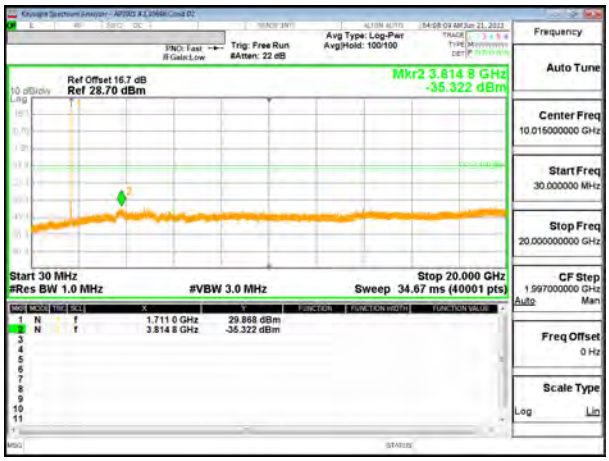
LTE B66 1.4MHz QPSK Low Channel RB1-0



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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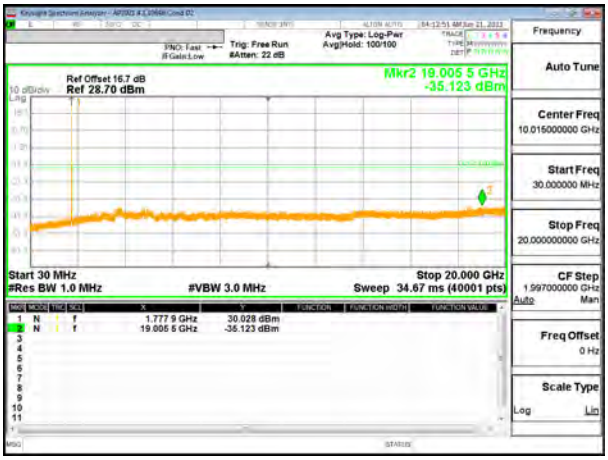
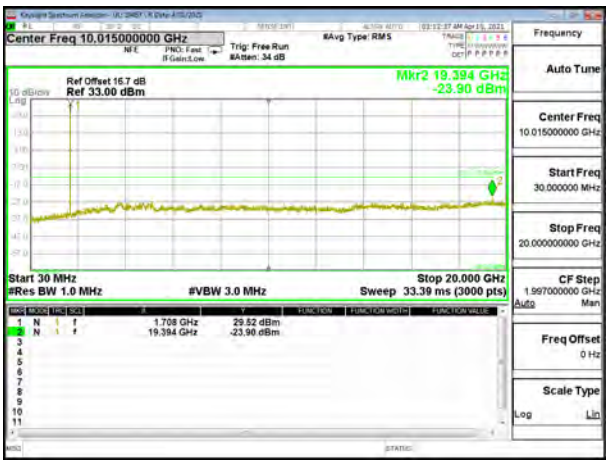
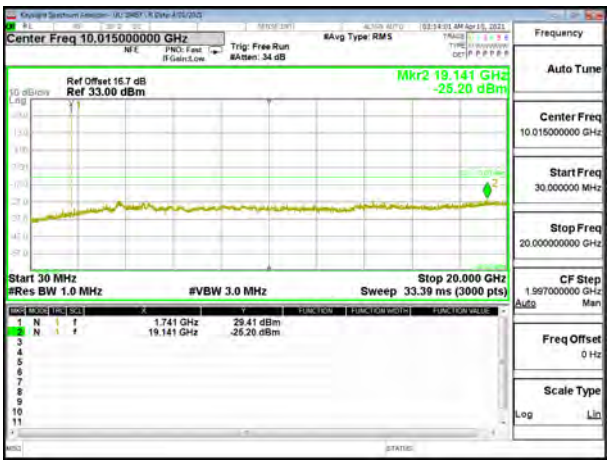
LTE B66 3MHz QPSK Middle Channel RB1-0



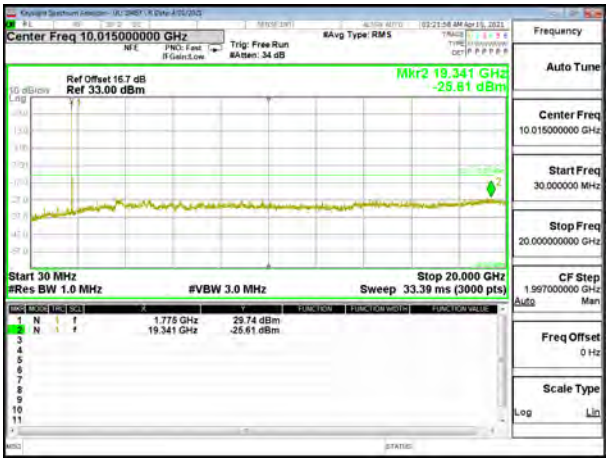
LTE B66 3MHz QPSK High Channel RB1-0



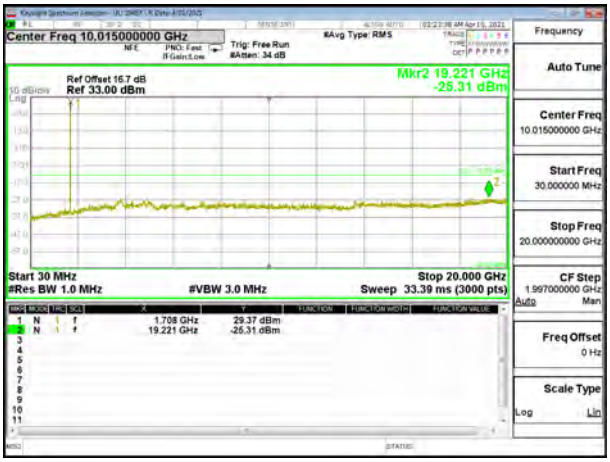
LTE B66 5MHz QPSK Low Channel RB1-0



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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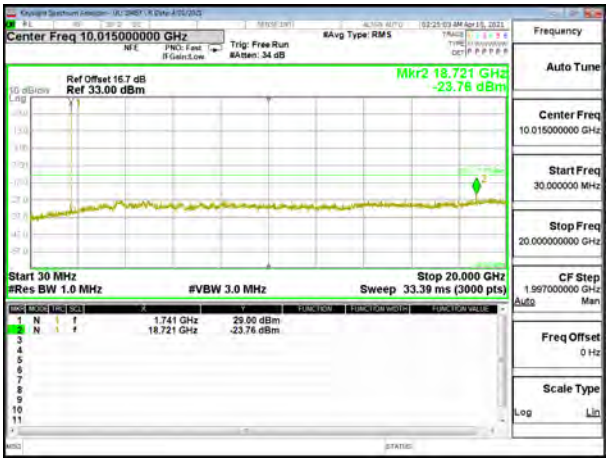
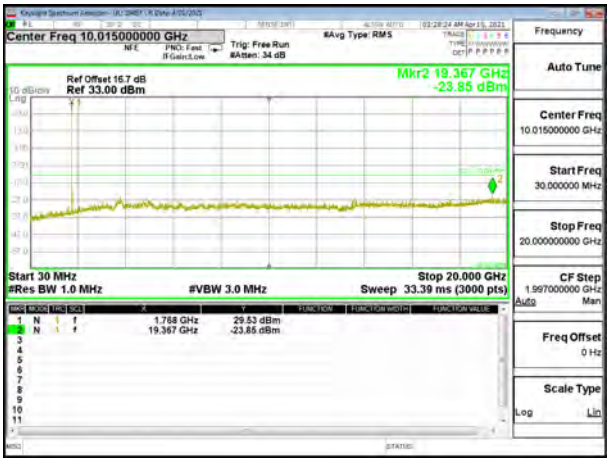
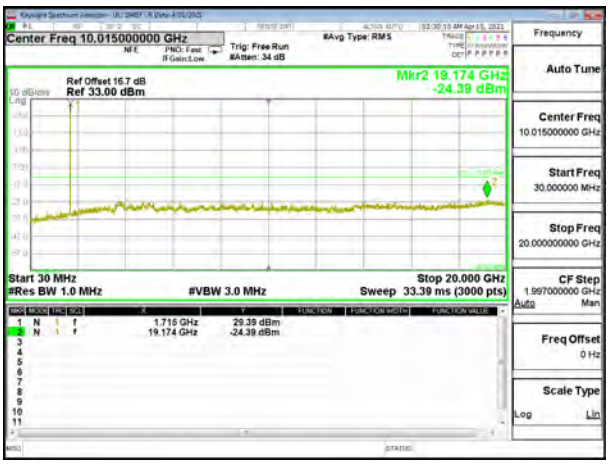


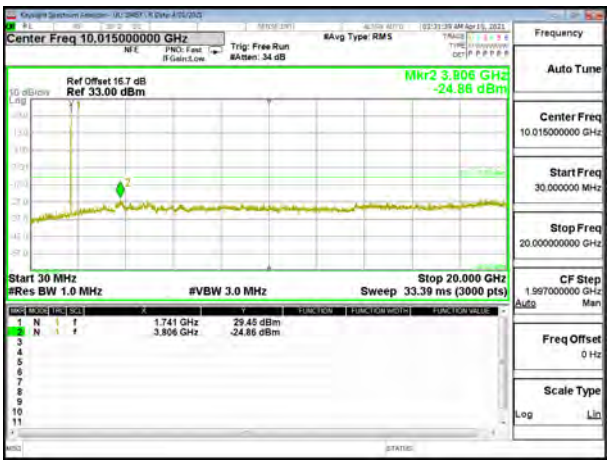
LTE B66 10MHz QPSK Middle Channel RB1-0



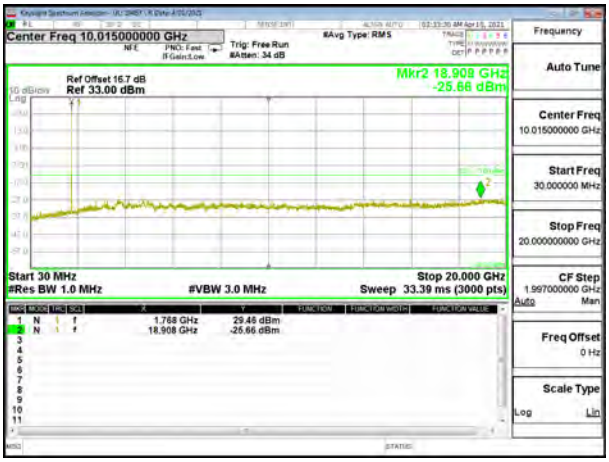
LTE B66 10MHz QPSK High Channel RB1-0



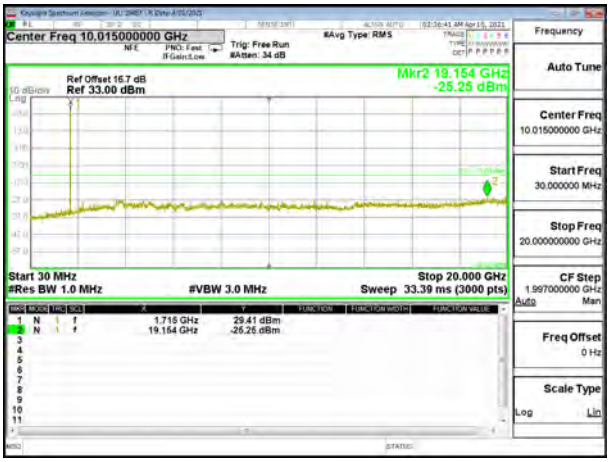
LTE B66 15MHz QPSK Low Channel RB1-0



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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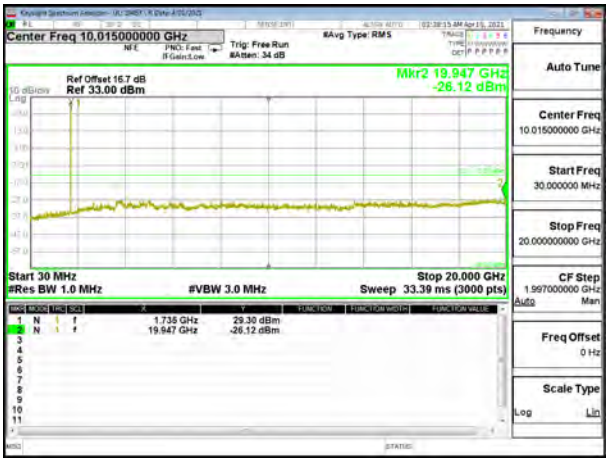
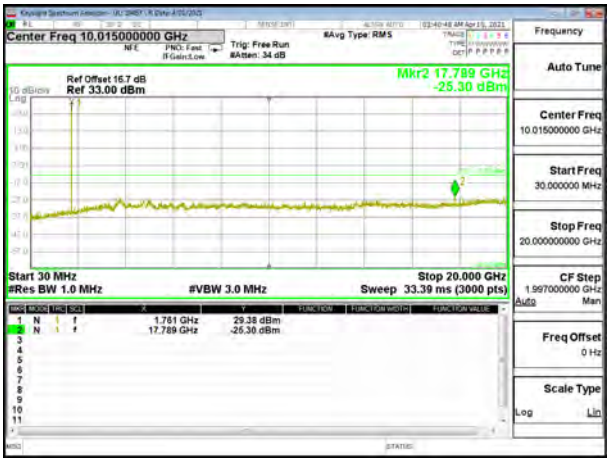


LTE B66 20MHz QPSK Middle Channel RB1-0



LTE B66 20MHz QPSK High Channel RB1-0

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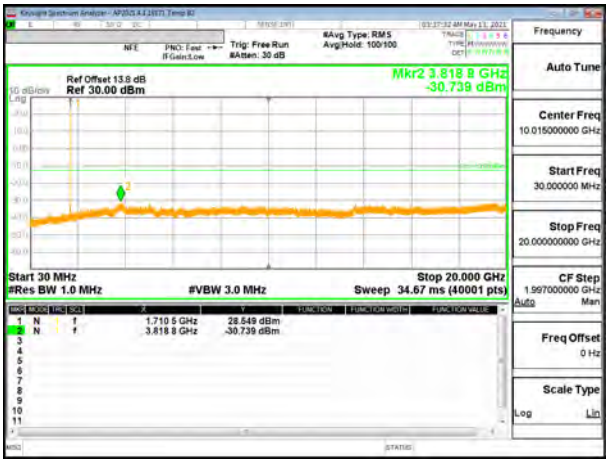
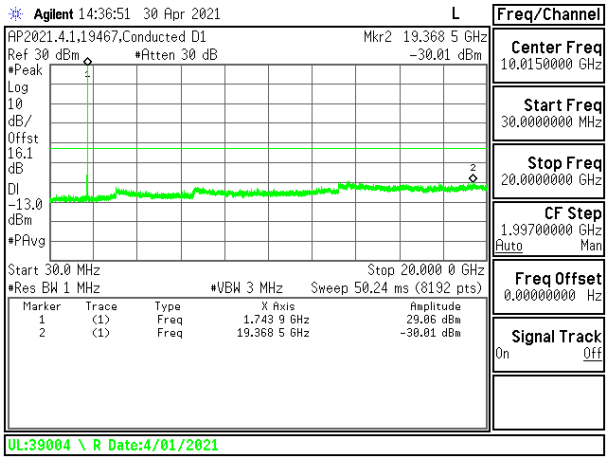
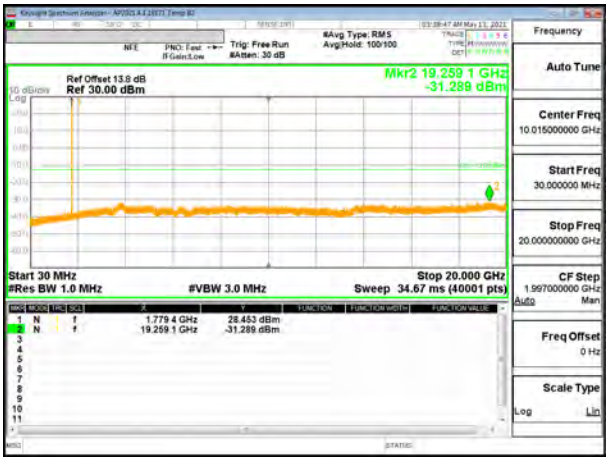
5G NR n66



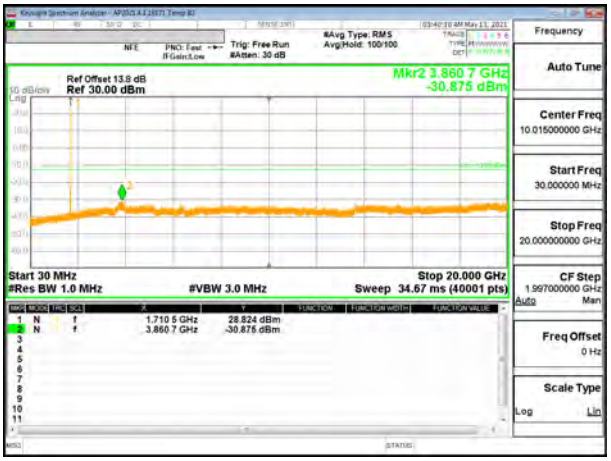
5G NR n66 5MHz BPSK Low Channel RB1-0



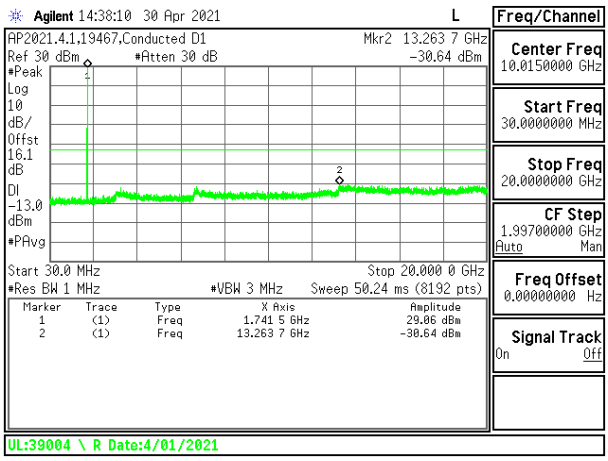
5G NR n66 5MHz BPSK Middle Channel RB1-1



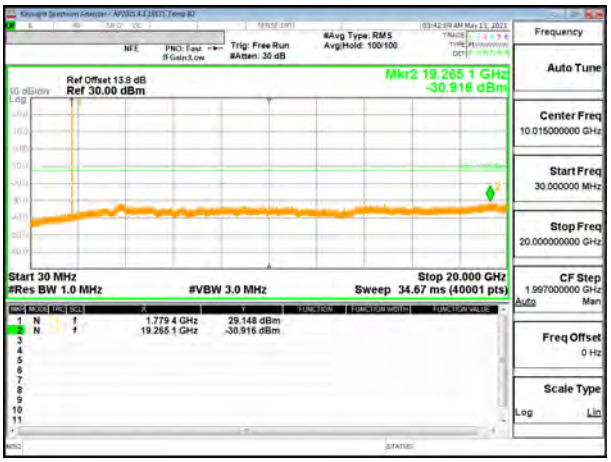
5G NR n66 5MHz BPSK High Channel RB1-24



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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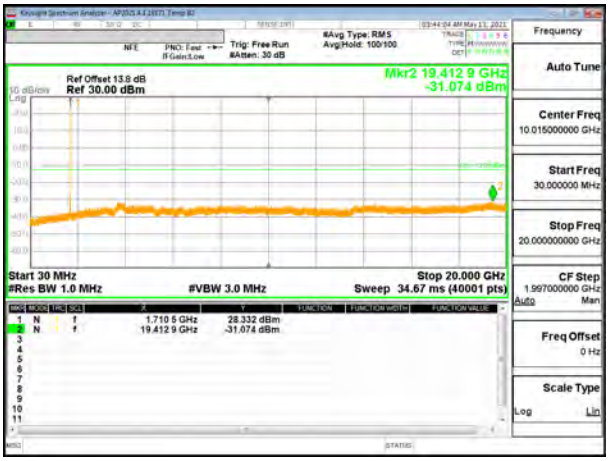
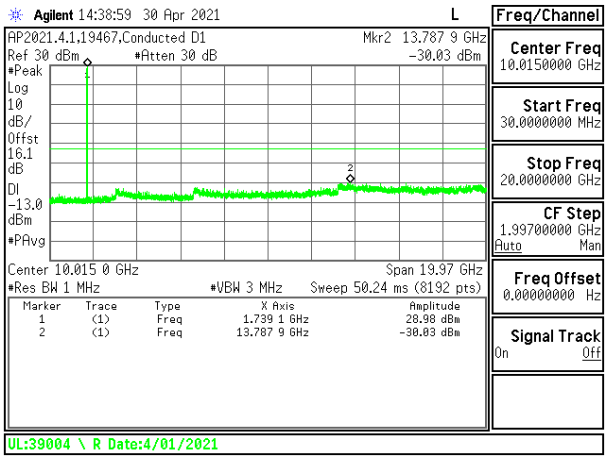
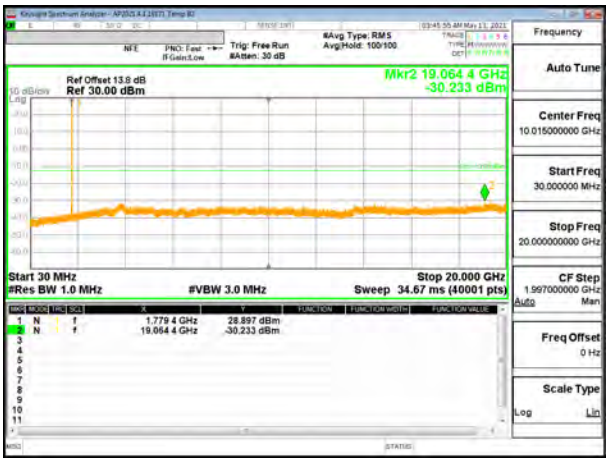


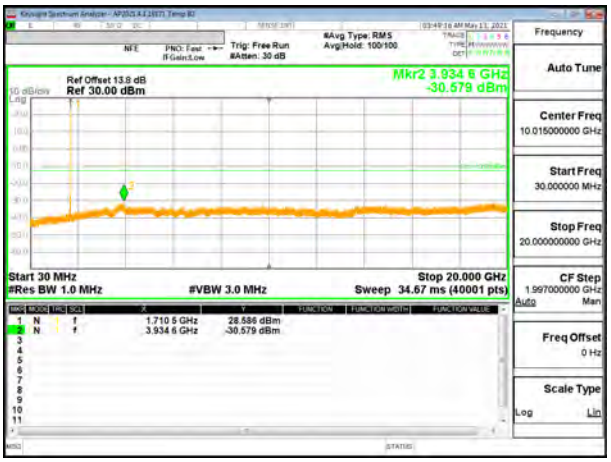
5G NR n66 15MHz BPSK Low Channel RB1-0



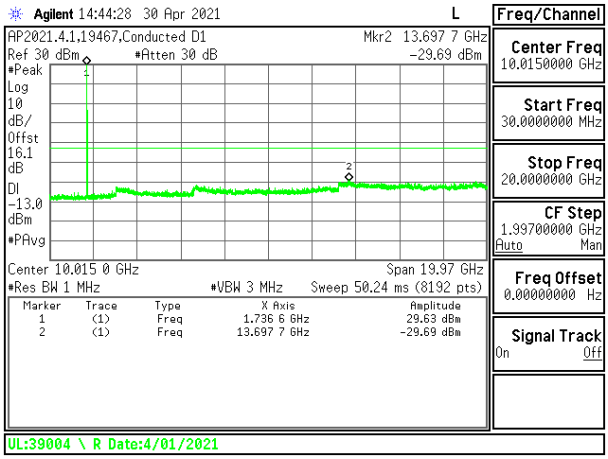
5G NR n66 15MHz BPSK Middle Channel RB1-1



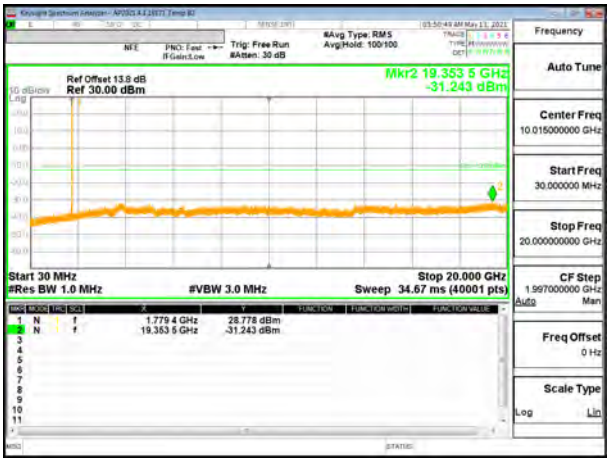
5G NR n66 15MHz BPSK High Channel RB1-78



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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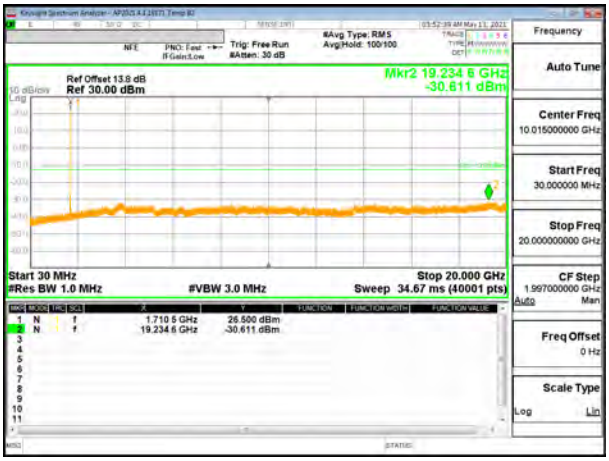
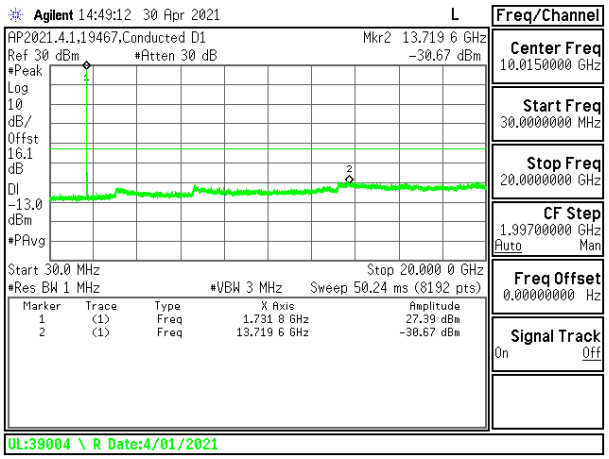
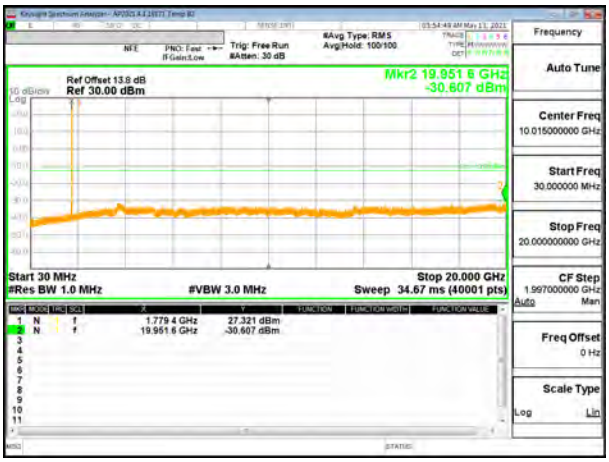


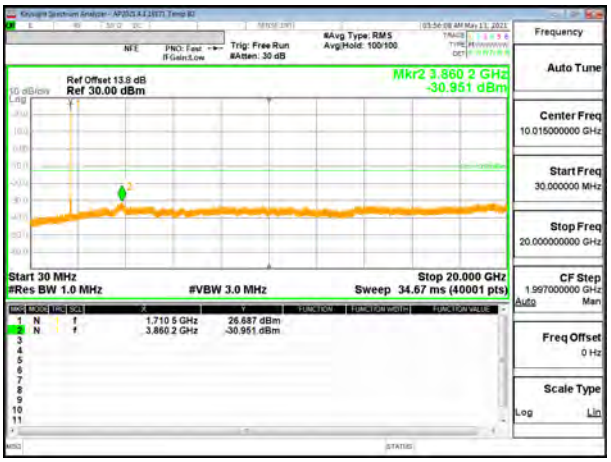
5G NR n66 30MHz BPSK Low Channel RB1-0



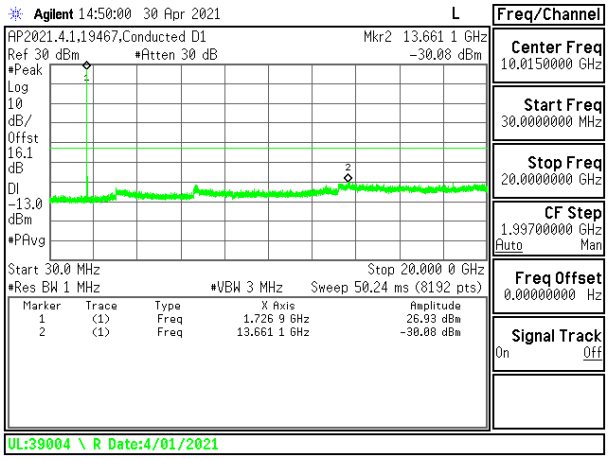
5G NR n66 30MHz BPSK Middle Channel RB1-1



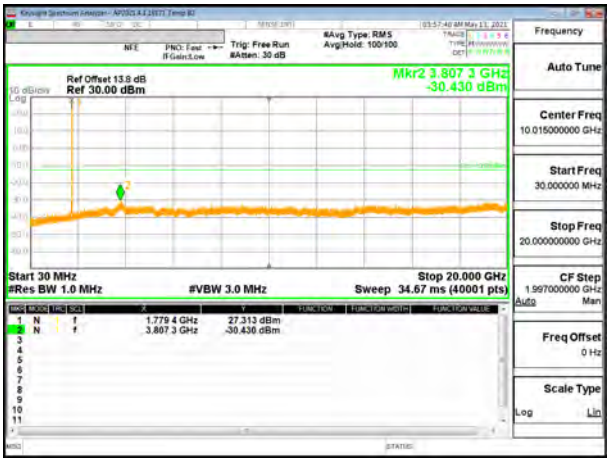
5G NR n66 30MHz BPSK High Channel RB1-159



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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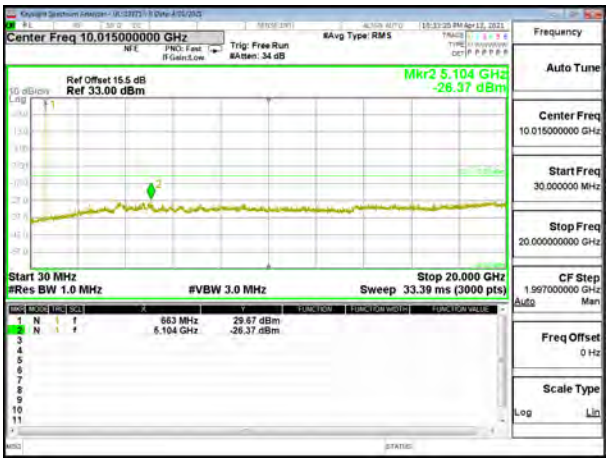
9.3.14. LTE BAND 71 AND 5G NR n71

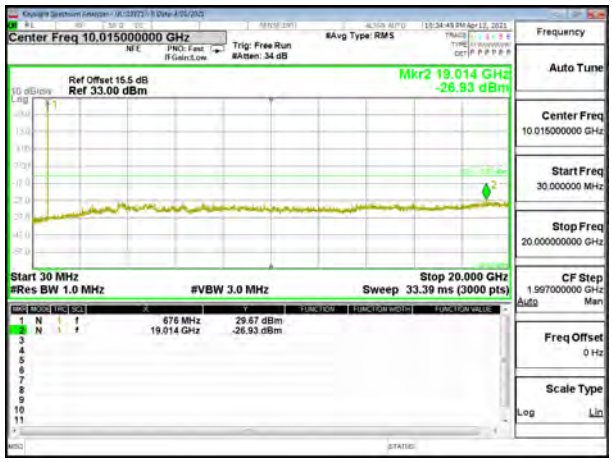
LIMITS

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.

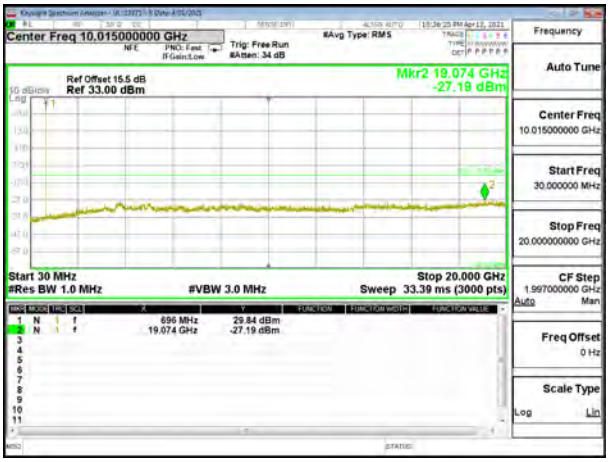
LTE BAND 71



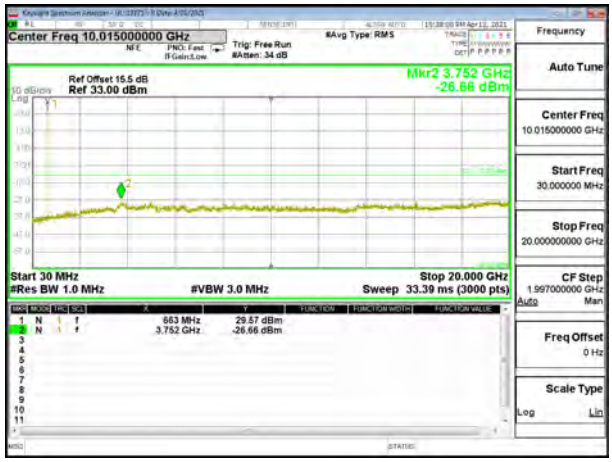
LTE B71 5MHz QPSK Low Channel RB1-0



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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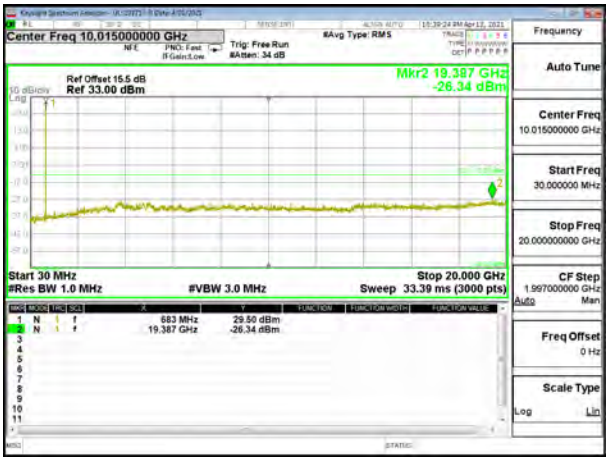
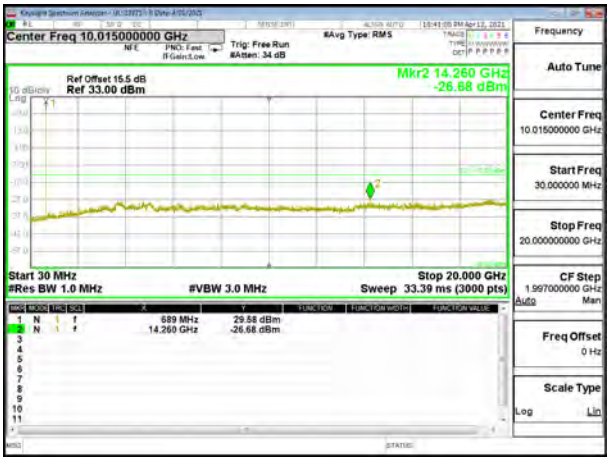
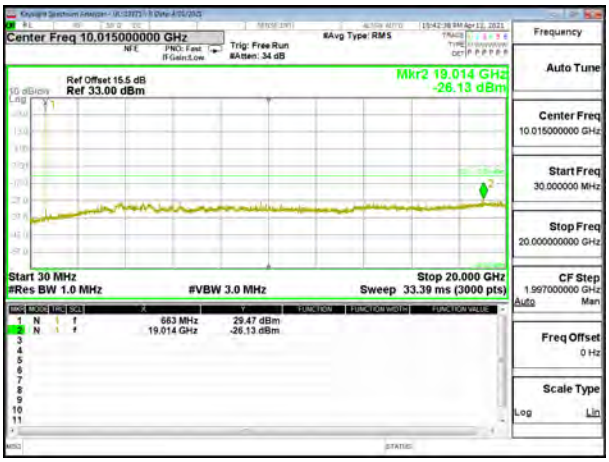


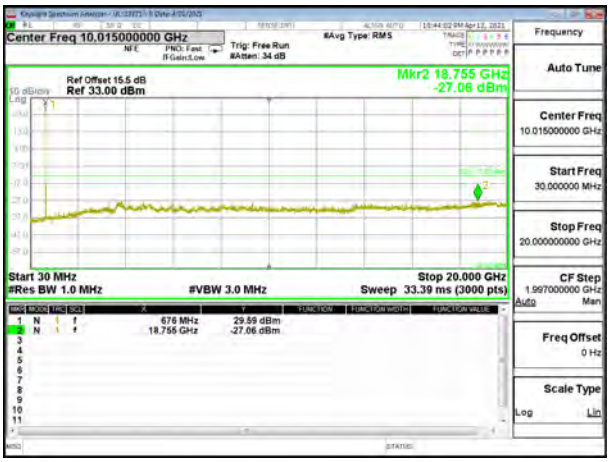
LTE B71 10MHz QPSK Middle Channel RB1-0



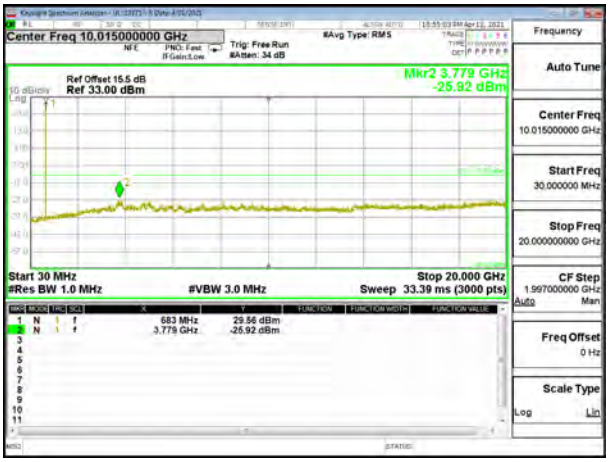
LTE 71 10MHz QPSK High Channel RB1-0



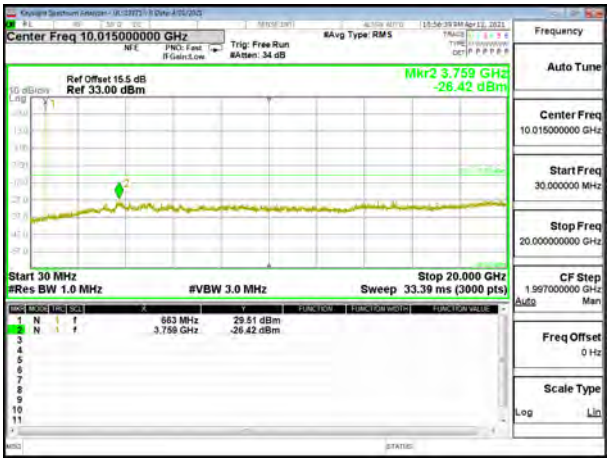
LTE B71 15MHz QPSK Low Channel RB1-0



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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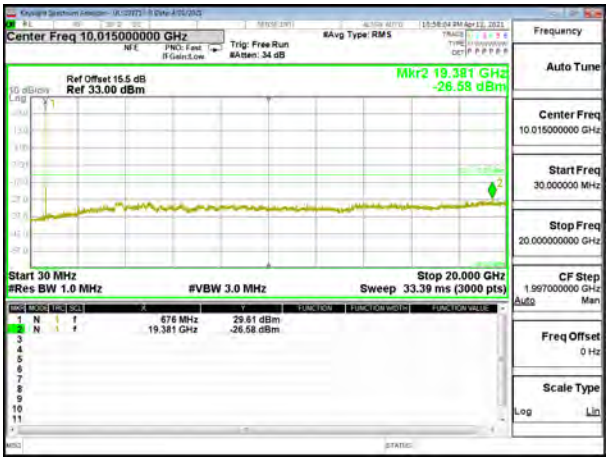
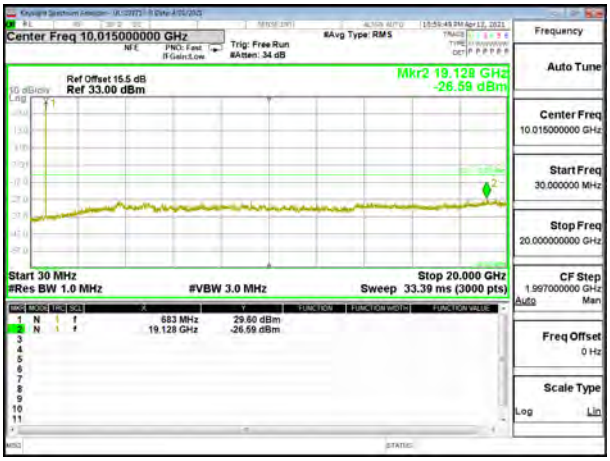


LTE B71 20MHz QPSK Middle Channel RB1-0



LTE B71 20MHz QPSK High Channel RB1-0

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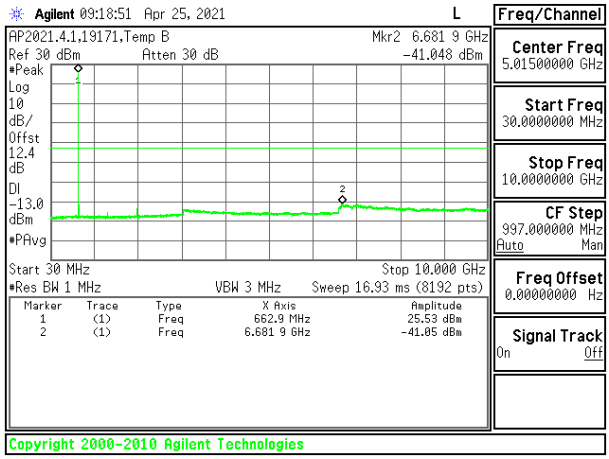
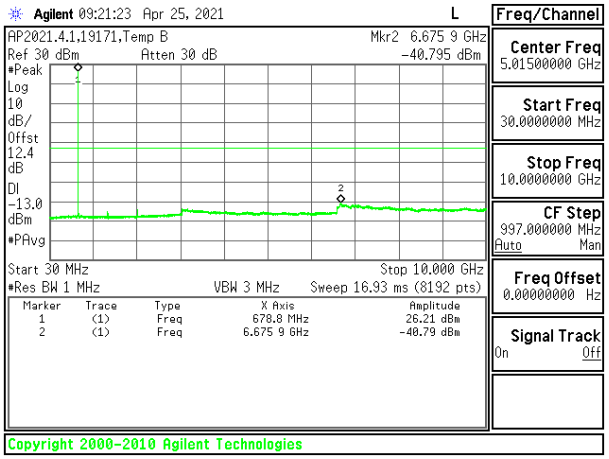
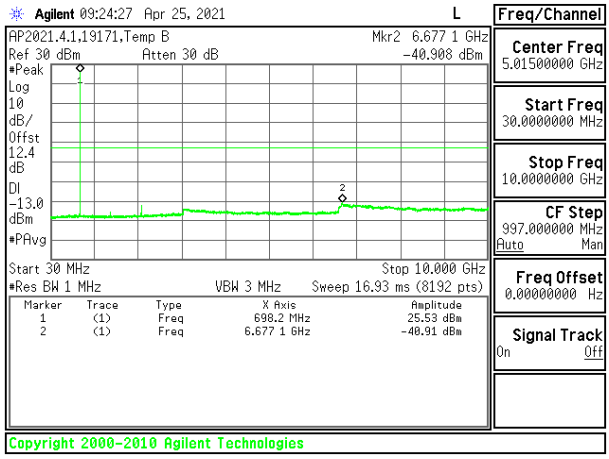
5G NR n71



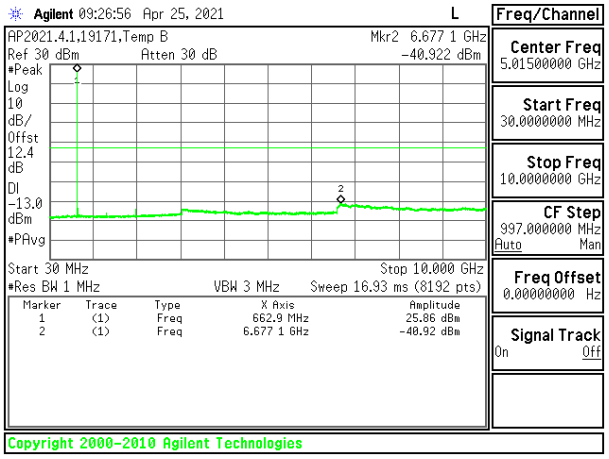
5G NR n71 5MHz BPSK Low Channel RB1-0



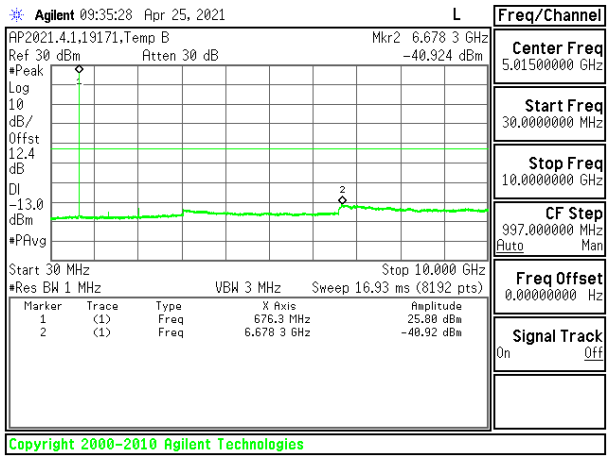
5G NR n71 5MHz BPSK Middle Channel RB1-1



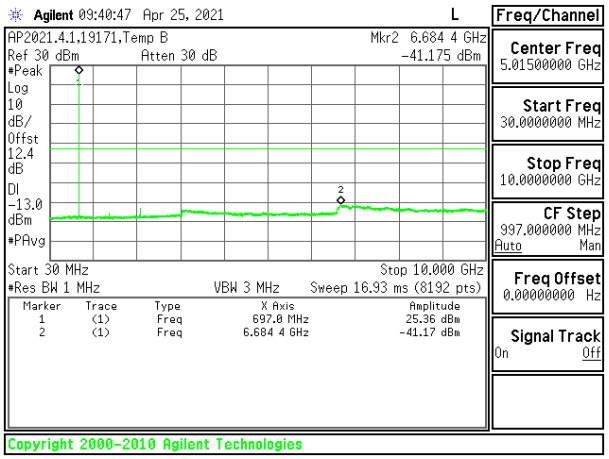
5G NR n71 5MHz BPSK High Channel RB1-24



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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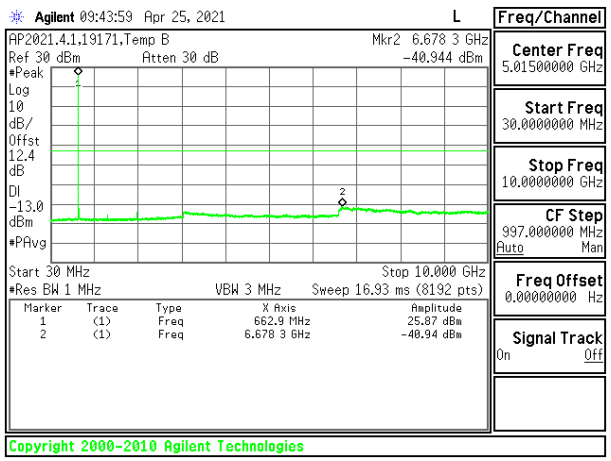
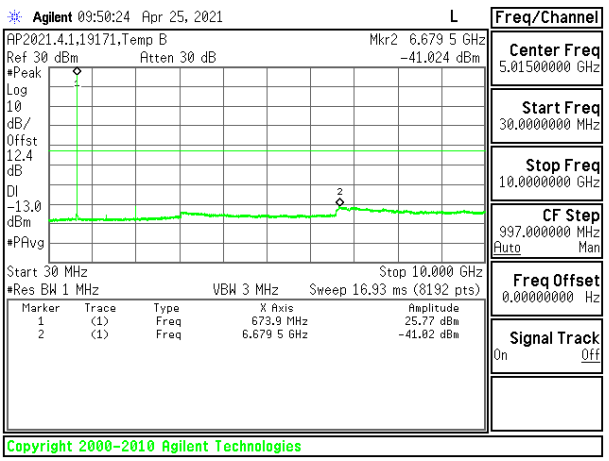
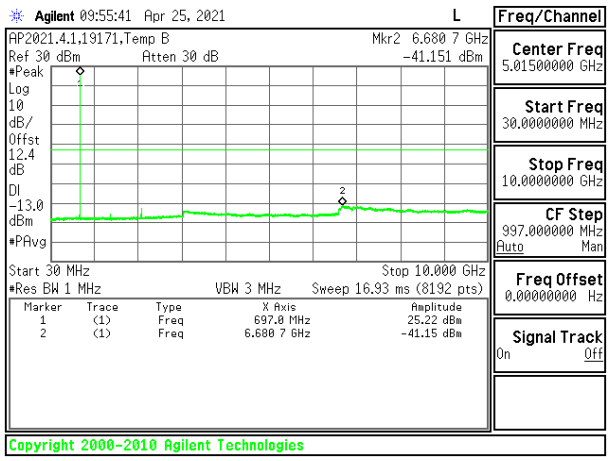


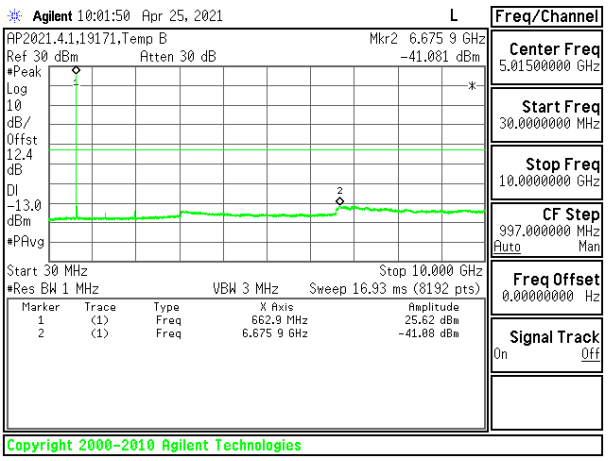
5G NR n71 15MHz BPSK Low Channel RB1-0



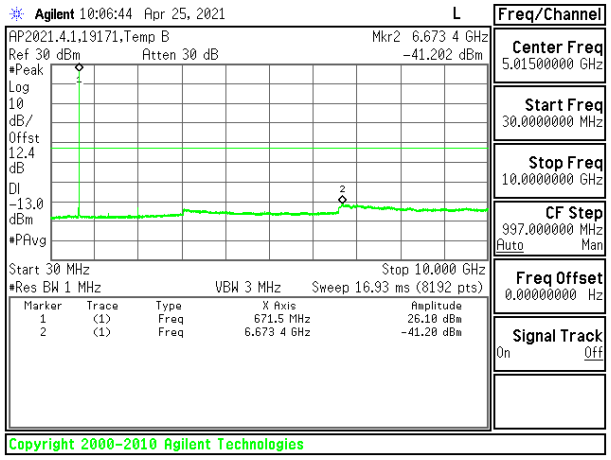
5G NR n71 15MHz BPSK Middle Channel RB1-1



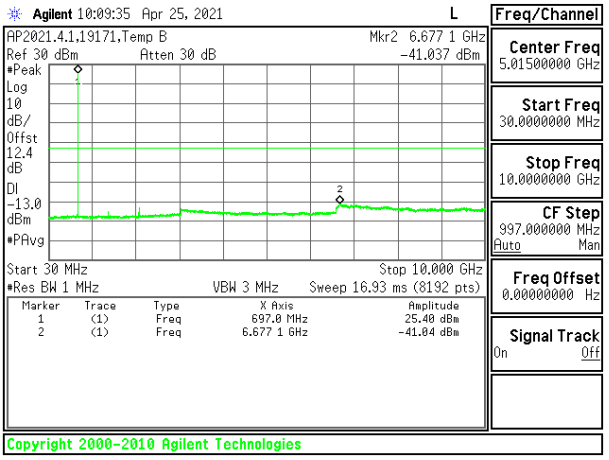
5G NR n71 15MHz BPSK High Channel RB1-78



5G NR n7120MHz 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)

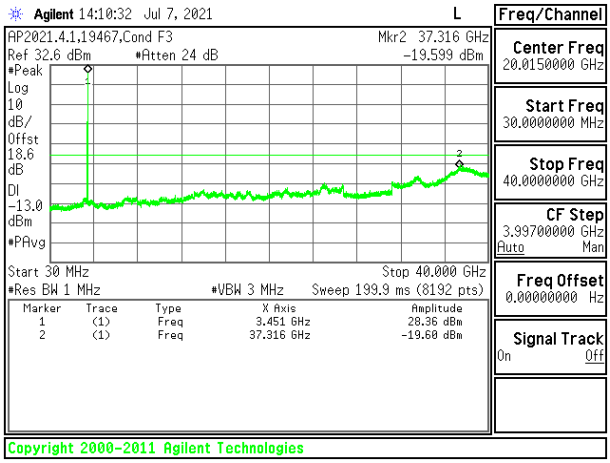
LIMITS

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 Middle 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 Middle 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 Middle 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 Middle 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 Middle Channel RB1-1

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

5G NR n77 70MHz BPSK Low Channel RB1-0

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5G NR n77 70MHz BPSK Middle Channel RB1-1

5G NR n77 70MHz BPSK High Channel RB1-188

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

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

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

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

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

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

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

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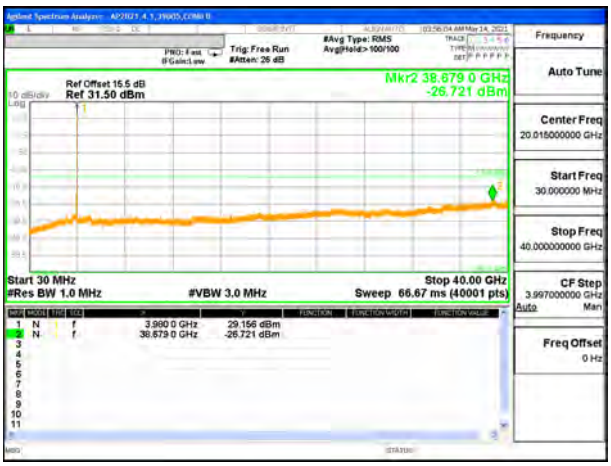
9.3.16. 5G NR n77 (Part 27 3700-3980MHz)

LIMITS

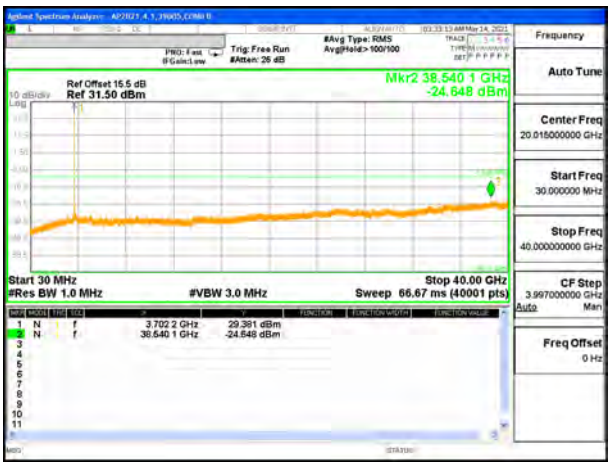
FCC: §27.53
Emission limits
(l) 3.7 GHz Service. The following emission limits apply to stations transmitting in the 3700-3980 MHz band:
(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

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

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

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

5G NR n77 70MHz BPSK Low Channel RB1-0

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5G NR n77 70MHz BPSK Middle Channel RB1-1

5G NR n77 70MHz BPSK High Channel RB1-188

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

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

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

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

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

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

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

5G NR n77 100MHz BPSK Middle 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, 3.80VDC and High voltage, 4.37VDC.
  End Voltage, 3.00VDC.

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. 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:	39006	Test Date:	5/23/2021

QPSK (20MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.5475	847.3896		
Extreme (50C)		824.5474	847.3896	-23.5	-0.028
Extreme (40C)		824.5475	847.3896	19.9	0.024
Extreme (30C)		824.5474	847.3896	-26.8	-0.032
Extreme (10C)		824.5474	847.3896	-26.1	-0.031
Extreme (0C)		824.5475	847.3897	30.2	0.036
Extreme (-10C)		824.5475	847.3896	-13.2	-0.016
Extreme (-20C)		824.5475	847.3896	-18.1	-0.022
Extreme (-30C)		824.5474	847.3896	-23.9	-0.029
20C	15%	824.5475	847.3896	-17.2	-0.021
	-15%	824.5475	847.3896	-18.5	-0.022
	End Point	824.5475	847.3896	22.1	0.026

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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:	39006	Test Date:	5/23/2021

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	2501.0911	2568.9501		
Extreme (50C)		2501.0911	2568.9501	23.4	0.009
Extreme (40C)		2501.0911	2568.9501	21.6	0.009
Extreme (30C)		2501.0911	2568.9501	24.5	0.010
Extreme (10C)		2501.0911	2568.9501	29.5	0.012
Extreme (0C)		2501.0911	2568.9501	23.9	0.009
Extreme (-10C)		2501.0911	2568.9501	26.3	0.010
Extreme (-20C)		2501.0911	2568.9501	21.5	0.008
Extreme (-30C)		2501.0911	2568.9501	22.7	0.009
20C	15%	2501.0911	2568.9501	-21.0	-0.008
	-15%	2501.0911	2568.9501	-19.1	-0.008
	End Point	2501.0911	2568.9501	-17.4	-0.007

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5G NR n7 QPSK (40MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2500.7004	2569.2902		
Extreme (50C)		2500.7004	2569.2902	-35.6	-0.014
Extreme (40C)		2500.7004	2569.2902	-14.7	-0.006
Extreme (30C)		2500.7004	2569.2902	4.5	0.002
Extreme (10C)		2500.7004	2569.2902	-15.2	-0.006
Extreme (0C)		2500.7004	2569.2902	-18.1	-0.007
Extreme (-10C)		2500.7004	2569.2902	-15.4	-0.006
Extreme (-20C)		2500.7004	2569.2902	-17.4	-0.007
Extreme (-30C)		2500.7004	2569.2902	-17.6	-0.007
20C	15%	2500.7004	2569.2902	26.6	0.010
	-15%	2500.7004	2569.2902	-28.1	-0.011
	End Point	2500.7004	2569.2902	-22.3	-0.009

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9.4.3. LTE BAND 12 AND 5G NR n12

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:	39006	Test Date:	5/23/2021

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	699.5244	715.4778		
Extreme (50C)		699.5244	715.4778	-7.5	-0.011
Extreme (40C)		699.5244	715.4778	-8.6	-0.012
Extreme (30C)		699.5244	715.4778	7.1	0.010
Extreme (10C)		699.5244	715.4778	5.4	0.008
Extreme (0C)		699.5244	715.4778	-7.0	-0.010
Extreme (-10C)		699.5244	715.4779	8.8	0.012
Extreme (-20C)		699.5244	715.4779	37.0	0.052
Extreme (-30C)		699.5244	715.4778	-8.4	-0.012
20C	15%	699.5244	715.4778	-11.7	-0.017
	-15%	699.5244	715.4779	13.6	0.019
	End Point	699.5244	715.4779	14.5	0.020

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5G NR n12 QPSK (15MHz BANDWIDTH)

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	699.4198	714.8443		
Extreme (50C)		699.4198	714.8443	21.3	0.030
Extreme (40C)		699.4198	714.8443	20.5	0.029
Extreme (30C)		699.4198	714.8443	-19.5	-0.028
Extreme (10C)		699.4199	714.8443	54.1	0.076
Extreme (0C)		699.4198	714.8443	23.5	0.033
Extreme (-10C)		699.4198	714.8443	-17.8	-0.025
Extreme (-20C)		699.4198	714.8443	16.1	0.023
Extreme (-30C)		699.4198	714.8443	20.0	0.028
20C	15%	699.4198	714.8443	-21.9	-0.031
	-15%	699.4198	714.8443	-20.8	-0.029
	End Point	699.4198	714.8443	14.8	0.021

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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:	39006	Test Date:	5/23/2021

QPSK (10MHz BANDWIDTH)

Limit		777	787	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	777.5332	786.4847		
Extreme (50C)		777.5332	786.4847	-8.5	-0.011
Extreme (40C)		777.5332	786.4847	9.3	0.012
Extreme (30C)		777.5332	786.4847	-8.1	-0.010
Extreme (10C)		777.5332	786.4847	-6.5	-0.008
Extreme (0C)		777.5332	786.4847	10.0	0.013
Extreme (-10C)		777.5332	786.4847	10.0	0.013
Extreme (-20C)		777.5332	786.4847	10.9	0.014
Extreme (-30C)		777.5332	786.4847	-8.4	-0.011
20C	15%	777.5332	786.4847	7.9	0.010
	-15%	777.5332	786.4847	-8.5	-0.011
	End Point	777.5332	786.4847	11.6	0.015

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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:	39006	Test Date:	5/23/2021

QPSK (10MHz BANDWIDTH)

Limit		788	798	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	788.5289	797.4786		
Extreme (50C)		788.5289	797.4786	-4.1	-0.005
Extreme (40C)		788.5289	797.4786	-4.3	-0.005
Extreme (30C)		788.5289	797.4786	-4.7	-0.006
Extreme (10C)		788.5289	797.4786	-4.3	-0.005
Extreme (0C)		788.5289	797.4786	4.3	0.005
Extreme (-10C)		788.5289	797.4786	3.0	0.004
Extreme (-20C)		788.5289	797.4786	2.8	0.003
Extreme (-30C)		788.5289	797.4786	-3.1	-0.004
20C	15%	788.5289	797.4786	-4.4	-0.006
	-15%	788.5289	797.4786	-4.5	-0.006
	End Point	788.5289	797.4786	3.6	0.005

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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:	39006	Test Date:	5/23/2021

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	704.5275	715.4798		
Extreme (50C)		704.5275	715.4798	-8.2	-0.012
Extreme (40C)		704.5275	715.4798	8.8	0.012
Extreme (30C)		704.5275	715.4798	-10.3	-0.014
Extreme (10C)		704.5275	715.4798	-8.4	-0.012
Extreme (0C)		704.5275	715.4798	3.9	0.005
Extreme (-10C)		704.5275	715.4798	9.1	0.013
Extreme (-20C)		704.5275	715.4798	6.2	0.009
Extreme (-30C)		704.5275	715.4798	-9.0	-0.013
20C	15%	704.5275	715.4798	-8.1	-0.011
	-15%	704.5275	715.4798	-8.5	-0.012
	End Point	704.5275	715.4798	-12.2	-0.017

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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:	39006	Test Date:	5/23/2021

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	1851.0866	1913.9555		
Extreme (50C)		1851.0865	1913.9555	-14.7	-0.008
Extreme (40C)		1851.0866	1913.9555	20.3	0.011
Extreme (30C)		1851.0866	1913.9555	18.0	0.010
Extreme (10C)		1851.0865	1913.9555	-13.1	-0.007
Extreme (0C)		1851.0866	1913.9555	17.0	0.009
Extreme (-10C)		1851.0866	1913.9555	19.8	0.011
Extreme (-20C)		1851.0865	1913.9555	-14.8	-0.008
Extreme (-30C)		1851.0866	1913.9555	18.4	0.010
20C	15%	1851.0866	1913.9555	15.9	0.008
	-15%	1851.0866	1913.9555	13.7	0.007
	End Point	1851.0866	1913.9555	18.9	0.010

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5G NR n25 QPSK (40MHz BANDWIDTH)

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.7003	1914.3217		
Extreme (50C)		1850.7003	1914.3217	-10.1	-0.005
Extreme (40C)		1850.7003	1914.3217	16.9	0.009
Extreme (30C)		1850.7003	1914.3217	-16.2	-0.009
Extreme (10C)		1850.7003	1914.3217	-17.1	-0.009
Extreme (0C)		1850.7003	1914.3217	-19.4	-0.010
Extreme (-10C)		1850.7003	1914.3217	-17.9	-0.010
Extreme (-20C)		1850.7003	1914.3217	-18.9	-0.010
Extreme (-30C)		1850.7003	1914.3217	-17.7	-0.009
20C	15%	1850.7003	1914.3217	-20.3	-0.011
	-15%	1850.7003	1914.3217	-26.5	-0.014
	End Point	1850.7004	1914.3217	21.2	0.011

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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:	39006	Test Date:	5/23/2021

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	814.5386	823.4847		
Extreme (50C)		814.5386	823.4846	-10.5	-0.013
Extreme (40C)		814.5386	823.4846	-8.5	-0.010
Extreme (30C)		814.5386	823.4846	-9.7	-0.012
Extreme (10C)		814.5386	823.4846	-7.5	-0.009
Extreme (0C)		814.5386	823.4846	-7.9	-0.010
Extreme (-10C)		814.5386	823.4846	-10.1	-0.012
Extreme (-20C)		814.5386	823.4846	-9.4	-0.011
Extreme (-30C)		814.5386	823.4847	11.6	0.014
20C	15%	814.5386	823.4847	11.4	0.014
	-15%	814.5386	823.4847	8.0	0.010
	End Point	814.5386	823.4847	9.8	0.012

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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:	39006	Test Date:	5/23/2021

QPSK (10MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.7993	848.2203		
Extreme (50C)		824.7993	848.2203	-7.9	-0.009
Extreme (40C)		824.7993	848.2203	-7.2	-0.009
Extreme (30C)		824.7993	848.2203	7.0	0.008
Extreme (10C)		824.7993	848.2203	8.6	0.010
Extreme (0C)		824.7993	848.2203	8.3	0.010
Extreme (-10C)		824.7993	848.2203	-8.4	-0.010
Extreme (-20C)		824.7993	848.2203	6.5	0.008
Extreme (-30C)		824.7993	848.2203	-7.1	-0.008
20C	15%	824.7993	848.2203	-11.3	-0.014
	-15%	824.7993	848.2203	-15.0	-0.018
	End Point	824.7993	848.2203	-12.0	-0.014

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9.4.10. LTE BAND 30 and 5G NR 30

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:	39006	Test Date:	5/23/2021

LTE BAND 30 QPSK (10MHz BANDWIDTH)

Limit		2305	2315	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2305.5348	2314.4854		
Extreme (50C)		2305.5348	2314.4854	17.0	0.007
Extreme (40C)		2305.5348	2314.4854	23.4	0.010
Extreme (30C)		2305.5348	2314.4854	23.9	0.010
Extreme (10C)		2305.5348	2314.4854	22.5	0.010
Extreme (0C)		2305.5348	2314.4854	-15.9	-0.007
Extreme (-10C)		2305.5348	2314.4854	19.7	0.009
Extreme (-20C)		2305.5348	2314.4854	23.0	0.010
Extreme (-30C)		2305.5348	2314.4854	26.1	0.011
20C	15%	2305.5348	2314.4854	22.6	0.010
	-15%	2305.5348	2314.4854	-17.9	-0.008
	End Point	2305.5348	2314.4854	-19.5	-0.008

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5G NR n30 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	2305.3503	2314.2920		
Extreme (50C)		2305.3503	2314.2920	26.3	0.011
Extreme (40C)		2305.3503	2314.2920	24.2	0.010
Extreme (30C)		2305.3503	2314.2920	28.6	0.012
Extreme (10C)		2305.3503	2314.2919	-28.4	-0.012
Extreme (0C)		2305.3503	2314.2920	27.1	0.012
Extreme (-10C)		2305.3503	2314.2919	-33.4	-0.014
Extreme (-20C)		2305.3503	2314.2920	32.2	0.014
Extreme (-30C)		2305.3503	2314.2919	-26.7	-0.012
20C	15%	2305.3503	2314.2919	-22.6	-0.010
	-15%	2305.3503	2314.2919	-24.8	-0.011
	End Point	2305.3503	2314.2919	-23.0	-0.010

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9.4.11. LTE BAND 41 AND 5G NR n41

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:	39006	Test Date:	5/23/2021

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	2497.0052	2689.0205		
Extreme (50C)		2497.0052	2689.0205	-24.5	-0.009
Extreme (40C)		2497.0052	2689.0205	-24.3	-0.009
Extreme (30C)		2497.0052	2689.0205	-25.2	-0.010
Extreme (10C)		2497.0052	2689.0205	-26.7	-0.010
Extreme (0C)		2497.0053	2689.0205	28.2	0.011
Extreme (-10C)		2497.0052	2689.0205	-18.0	-0.007
Extreme (-20C)		2497.0052	2689.0205	-23.9	-0.009
Extreme (-30C)		2497.0052	2689.0205	-26.7	-0.010
20C	15%	2497.0052	2689.0205	-22.9	-0.009
	-15%	2497.0052	2689.0205	-26.2	-0.010
	End Point	2497.0052	2689.0205	-20.9	-0.008

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5G NR n41 QPSK (100MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2497.2361	2687.7459		
Extreme (50C)		2497.2362	2687.7459	34.4	0.013
Extreme (40C)		2497.2362	2687.7459	24.4	0.009
Extreme (30C)		2497.2362	2687.7459	28.6	0.011
Extreme (10C)		2497.2362	2687.7459	22.5	0.009
Extreme (0C)		2497.2362	2687.7459	29.3	0.011
Extreme (-10C)		2497.2362	2687.7459	25.5	0.010
Extreme (-20C)		2497.2362	2687.7459	26.2	0.010
Extreme (-30C)		2497.2362	2687.7459	25.5	0.010
20C	15%	2497.2361	2687.7459	-35.1	-0.014
	-15%	2497.2361	2687.7459	-41.4	-0.016
	End Point	2497.2361	2687.7459	-36.8	-0.014

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9.4.12. LTE BAND 48

Test Engineer ID:	39006	Test Date:	5/23/2021

LTE BAND 48 QPSK (20MHz BANDWIDTH)

Limit		3550	3700	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	3551.0749	3699.8040		
Extreme (50C)		3551.0748	3699.8039	-30.5	-0.008
Extreme (40C)		3551.0748	3699.8039	-33.9	-0.009
Extreme (30C)		3551.0748	3699.8039	-34.8	-0.010
Extreme (10C)		3551.0748	3699.8039	-31.5	-0.009
Extreme (0C)		3551.0748	3699.8039	-37.9	-0.010
Extreme (-10C)		3551.0748	3699.8040	-22.4	-0.006
Extreme (-20C)		3551.0748	3699.8039	-35.3	-0.010
Extreme (-30C)		3551.0748	3699.8039	-32.9	-0.009
20C	15%	3551.0748	3699.8039	-27.8	-0.008
	-15%	3551.0748	3699.8039	-22.7	-0.006
	End Point	3551.0748	3699.8039	-30.6	-0.008

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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:	39006	Test Date:	5/23/2021

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	1711.0774	1778.9517		
Extreme (50C)		1711.0774	1778.9517	-13.0	-0.007
Extreme (40C)		1711.0774	1778.9517	-12.9	-0.007
Extreme (30C)		1711.0775	1778.9517	16.2	0.009
Extreme (10C)		1711.0775	1778.9517	15.9	0.009
Extreme (0C)		1711.0774	1778.9517	-11.3	-0.006
Extreme (-10C)		1711.0775	1778.9517	17.4	0.010
Extreme (-20C)		1711.0774	1778.9517	-9.0	-0.005
Extreme (-30C)		1711.0774	1778.9517	-14.2	-0.008
20C	15%	1711.0774	1778.9517	-12.6	-0.007
	-15%	1711.0774	1778.9517	-12.8	-0.007
	End Point	1711.0774	1778.9517	-13.1	-0.007

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5G NR n66 QPSK (40MHz BANDWIDTH)

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.6088	1779.3400		
Extreme (50C)		1710.6088	1779.3400	-20.8	-0.012
Extreme (40C)		1710.6088	1779.3400	12.5	0.007
Extreme (30C)		1710.6088	1779.3400	13.6	0.008
Extreme (10C)		1710.6088	1779.3400	-17.9	-0.010
Extreme (0C)		1710.6088	1779.3400	-16.1	-0.009
Extreme (-10C)		1710.6088	1779.3400	-14.8	-0.008
Extreme (-20C)		1710.6088	1779.3400	15.5	0.009
Extreme (-30C)		1710.6088	1779.3400	-16.8	-0.010
20C	15%	1710.6088	1779.3400	15.2	0.009
	-15%	1710.6088	1779.3400	20.4	0.012
	End Point	1710.6088	1779.3400	-18.4	-0.011

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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:	19467	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	664.0909	696.9507		
Extreme (50C)		664.0909	696.9507	4.5	0.007
Extreme (40C)		664.0909	696.9507	4.2	0.006
Extreme (30C)		664.0909	696.9507	3.4	0.005
Extreme (10C)		664.0909	696.9507	4.0	0.006
Extreme (0C)		664.0909	696.9507	-3.3	-0.005
Extreme (-10C)		664.0909	696.9507	3.8	0.006
Extreme (-20C)		664.0909	696.9507	4.9	0.007
Extreme (-30C)		664.0909	696.9507	4.4	0.006
20C	15%	664.0909	696.9507	-3.9	-0.006
	-15%	664.0909	696.9507	-4.7	-0.007
	End Point	664.0909	696.9507	-4.9	-0.007

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5G NR n71 QPSK (20MHz BANDWIDTH)

Limit		663	698	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	663.5485	696.3966		
Extreme (50C)		663.5485	696.3966	22.1	0.033
Extreme (40C)		663.5485	696.3966	60.4	0.089
Extreme (30C)		663.5484	696.3965	-34.9	-0.051
Extreme (10C)		663.5485	696.3965	-22.8	-0.033
Extreme (0C)		663.5485	696.3965	-22.2	-0.033
Extreme (-10C)		663.5484	696.3965	-28.9	-0.042
Extreme (-20C)		663.5485	696.3965	-24.4	-0.036
Extreme (-30C)		663.5485	696.3966	21.5	0.032
20C	15%	663.5485	696.3966	5.0	0.007
	-15%	663.5485	696.3966	-6.0	-0.009
	End Point	663.5485	696.3966	-5.8	-0.008

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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:	10646	Test Date:	5/10/2021

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	3451.2113	3547.8263		
Extreme (50C)		3451.2113	3547.8262	-20.5	-0.006
Extreme (40C)		3451.2113	3547.8262	-21.4	-0.006
Extreme (30C)		3451.2114	3547.8263	17.0	0.005
Extreme (10C)		3451.2113	3547.8262	-18.1	-0.005
Extreme (0C)		3451.2113	3547.8262	-20.4	-0.006
Extreme (-10C)		3451.2113	3547.8262	-36.4	-0.010
Extreme (-20C)		3451.2113	3547.8262	-24.9	-0.007
Extreme (-30C)		3451.2113	3547.8262	-26.7	-0.008
20C	15%	3451.2113	3547.8262	-24.7	-0.007
	-15%	3451.2113	3547.8262	-17.9	-0.005
	End Point	3451.2113	3547.8262	-19.8	-0.006

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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:	10646	Test Date:	5/10/2021

5G NR n77 QPSK (100MHz BANDWIDTH)

Limit		3700	3980	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3701.2339	3977.7894		
Extreme (50C)		3701.2339	3977.7893	-21.6	-0.006
Extreme (40C)		3701.2339	3977.7893	-19.6	-0.005
Extreme (30C)		3701.2339	3977.7894	24.7	0.006
Extreme (10C)		3701.2339	3977.7893	-16.6	-0.004
Extreme (0C)		3701.2339	3977.7893	-22.2	-0.006
Extreme (-10C)		3701.2339	3977.7893	-29.4	-0.008
Extreme (-20C)		3701.2339	3977.7893	-26.4	-0.007
Extreme (-30C)		3701.2339	3977.7893	-32.2	-0.008
20C	15%	3701.2340	3977.7894	25.5	0.007
	-15%	3701.2339	3977.7894	17.4	0.005
	End Point	3701.2339	3977.7893	-16.1	-0.004

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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 or Antenna 7 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.

Test Engineer ID:	10646	**Test Date:**	5/24/2021

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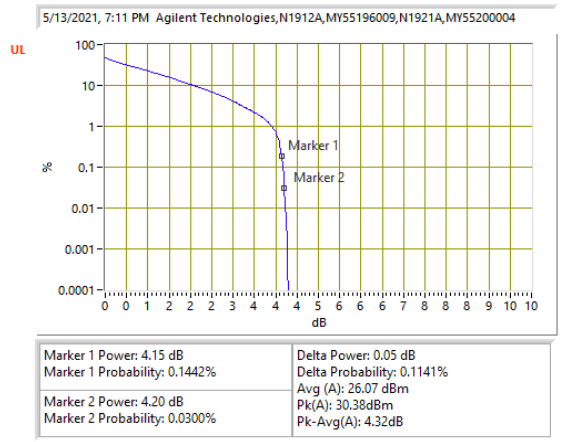
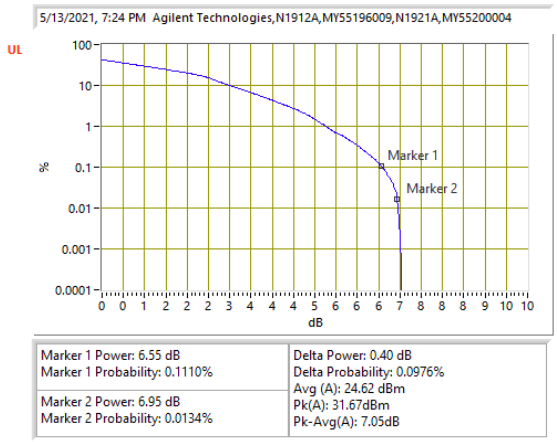
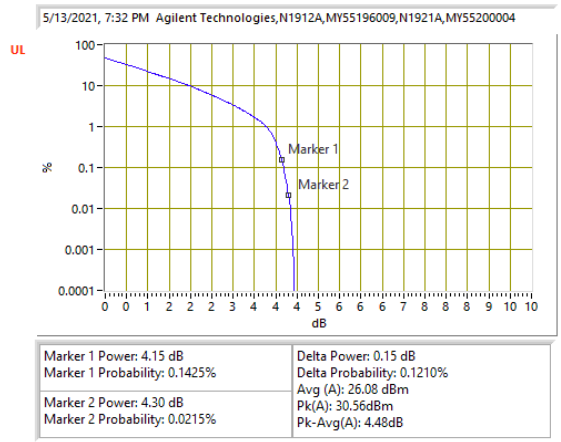
9.5.1. 5G NR n5



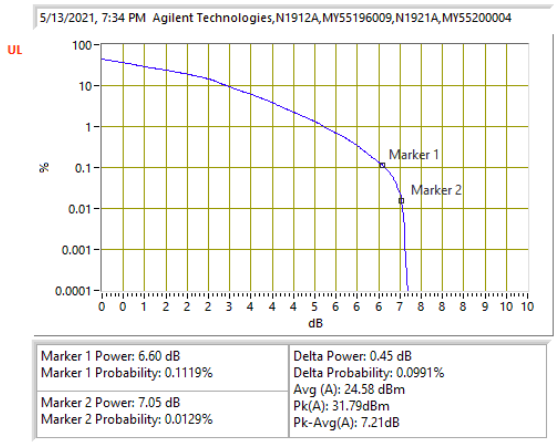
5G NR Bn5 5MHz BPSK Middle Channel



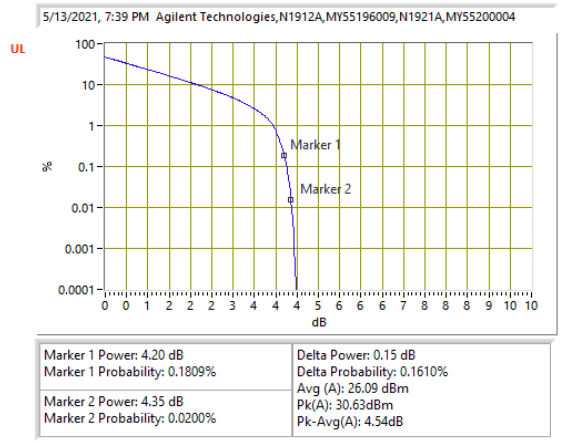
5G NR Bn5 5MHz 16QAM Middle Channel



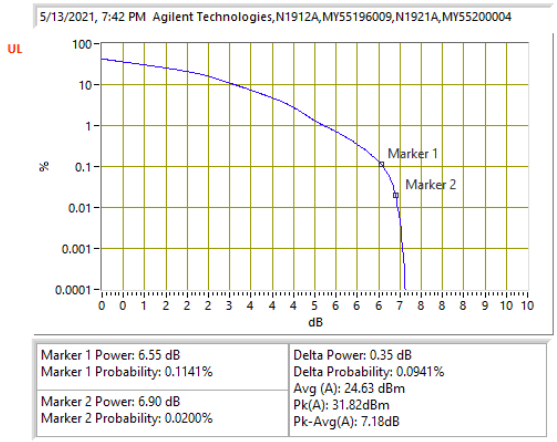
5G NR Bn5 10MHz BPSK Middle Channel



5G NR Bn5 10MHz 16QAM Middle Channel



5G NR Bn5 15MHz BPSK Middle Channel



5G NR Bn5 15MHz 16QAM Middle Channel

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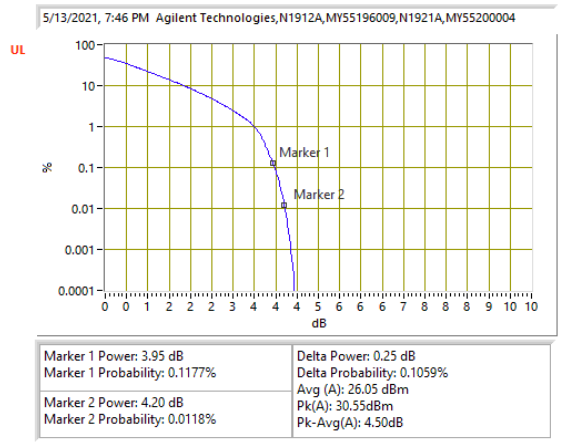
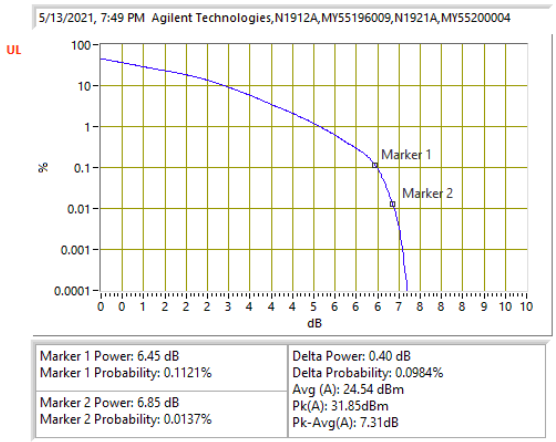


5G NR Bn5 20MHz BPSK Middle Channel



5G NR Bn5 20MHz 16QAM Middle Channel

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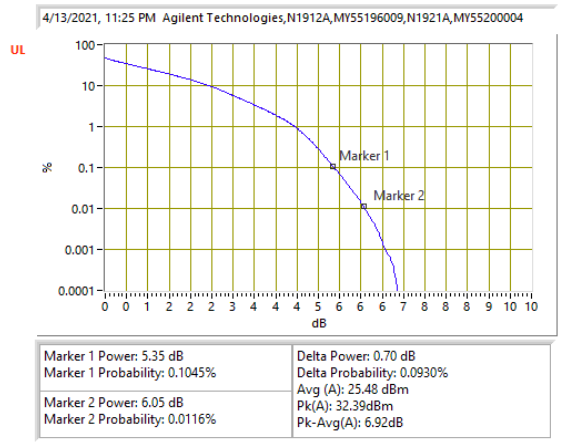
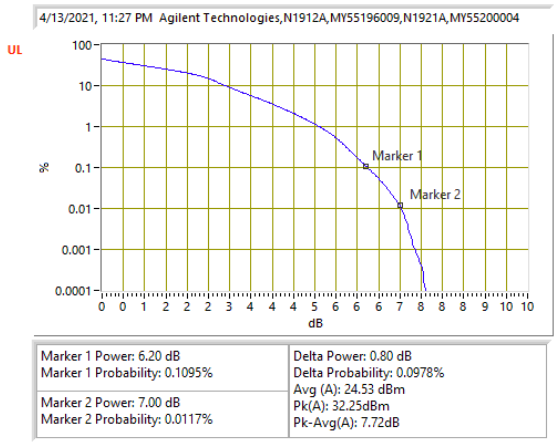
9.5.2. LTE BAND 7 AND 5G NR n7

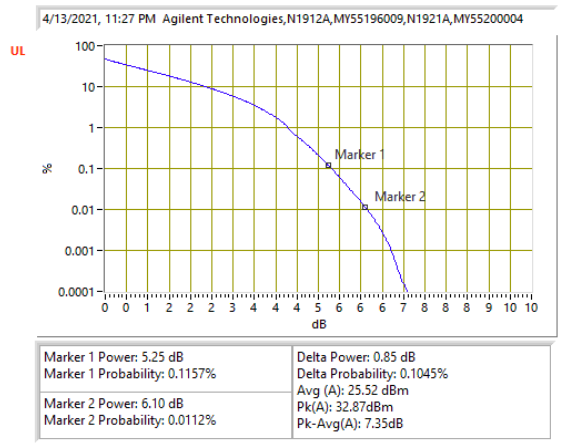
LTE BAND 7



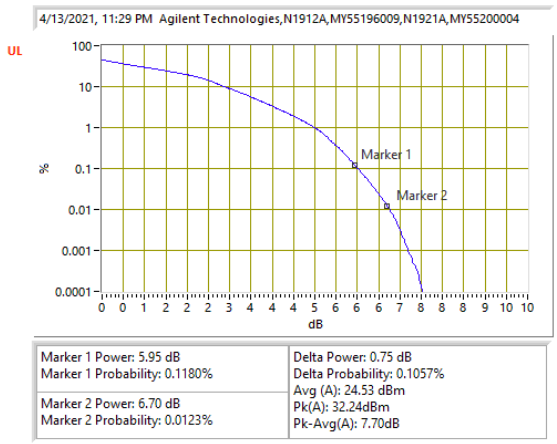
LTE B7 5MHz QPSK Middle Channel



LTE B7 5MHz 16QAM Middle Channel



LTE B7 10MHz QPSK Middle Channel



LTE B7 10MHz 16QAM Middle Channel

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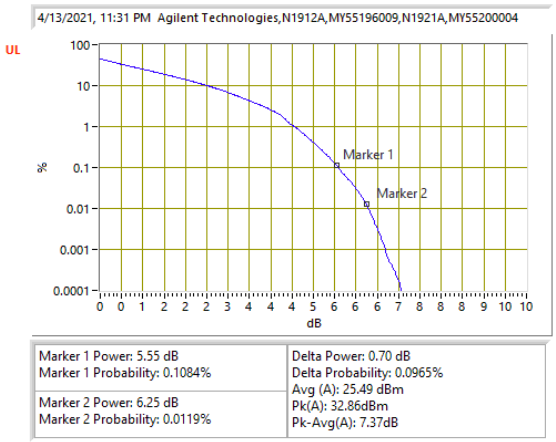
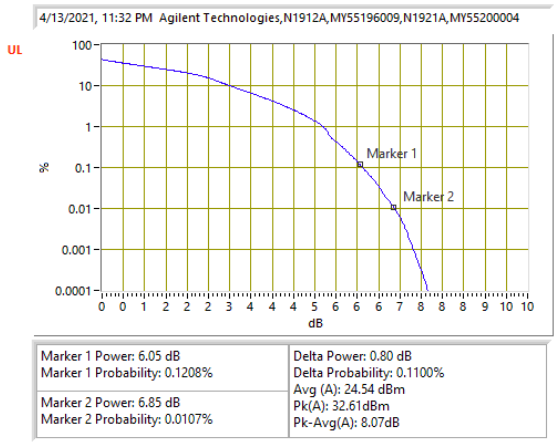
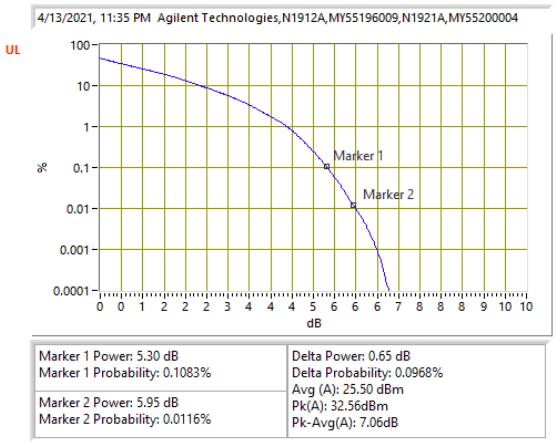


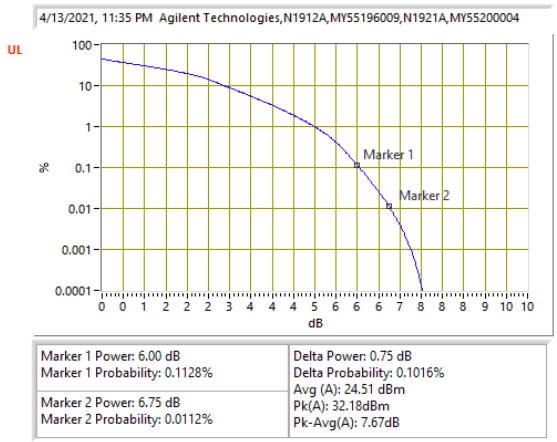
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



LTE B7 20MHz QPSK Middle Channel



LTE B7 20MHz 16QAM Middle Channel

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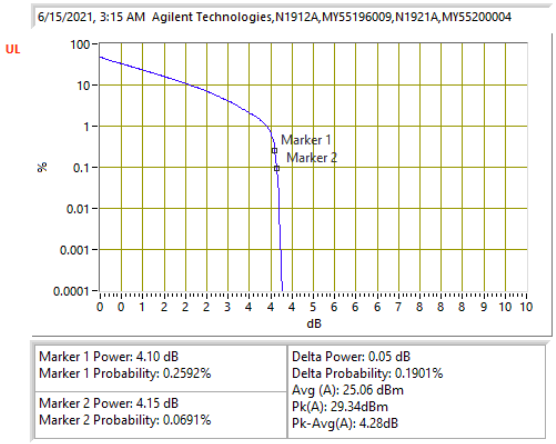
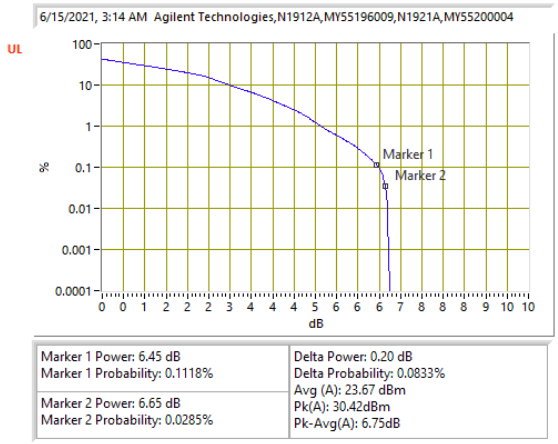
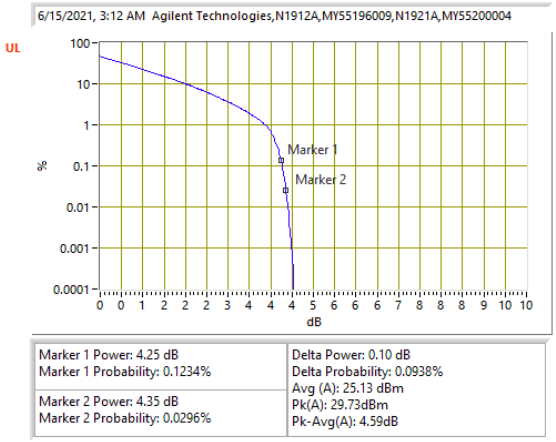
5G NR n7



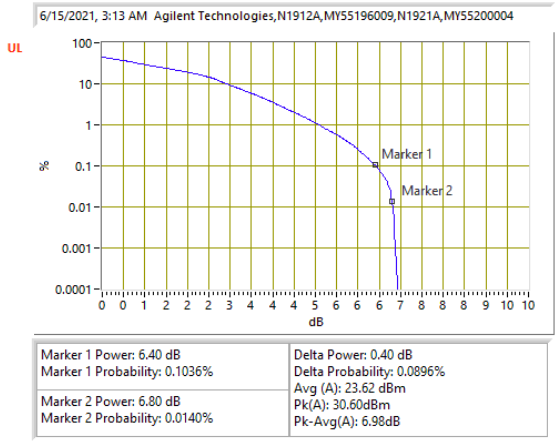
5G NR Bn7 5MHz BPSK Middle Channel



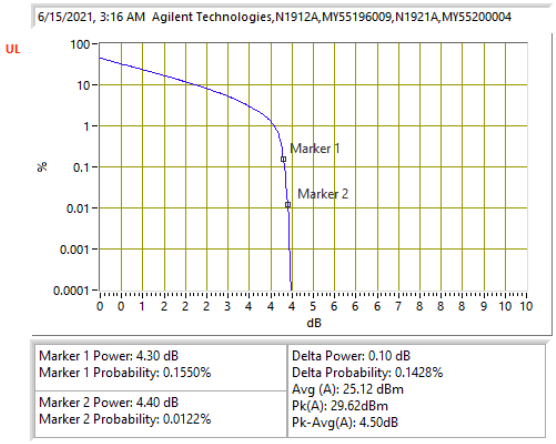
5G NR Bn7 5MHz 16QAM Middle Channel



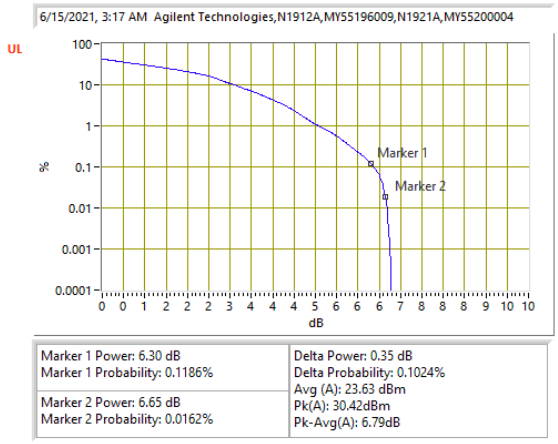
5G NR Bn7 10MHz BPSK Middle Channel



5G NR Bn7 10MHz 16QAM Middle Channel



5G NR Bn7 15MHz BPSK Middle Channel



5G NR Bn7 15MHz 16QAM Middle Channel

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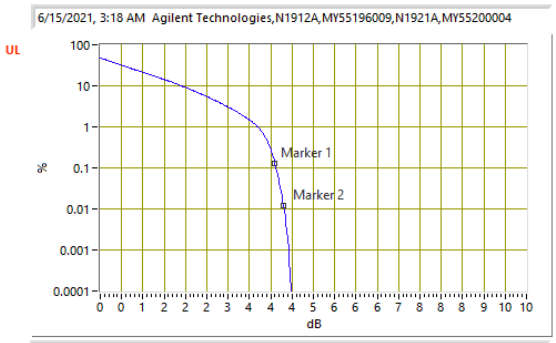
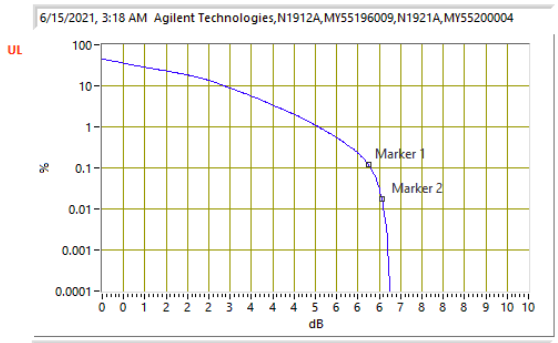


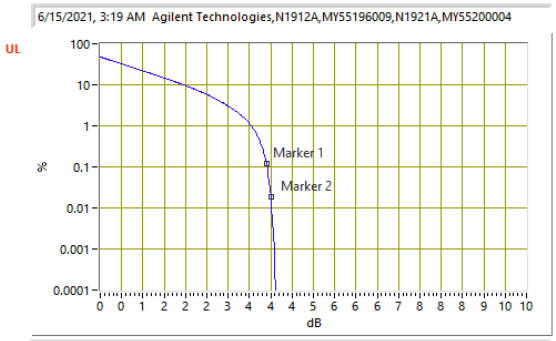
Marker 1 Power: 4.10 dB Marker 1 Probability: 0.1271%	Delta Power: 0.20 dB Delta Probability: 0.1148% Avg (A): 25.09 dBm Pk(A): 29.60dBm Pk-Avg(A): 4.51dB
Marker 2 Power: 4.30 dB Marker 2 Probability: 0.0122%	

5G NR Bn7 20MHz BPSK Middle Channel



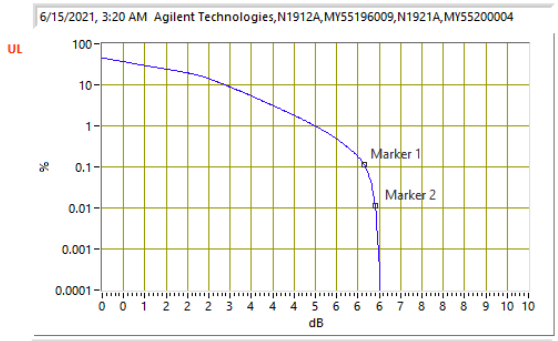
Marker 1 Power: 6.25 dB Marker 1 Probability: 0.1184%	Delta Power: 0.30 dB Delta Probability: 0.0993% Avg (A): 23.61 dBm Pk(A): 30.39dBm Pk-Avg(A): 6.78dB
Marker 2 Power: 6.55 dB Marker 2 Probability: 0.0192%	

5G NR Bn7 20MHz 16QAM Middle Channel



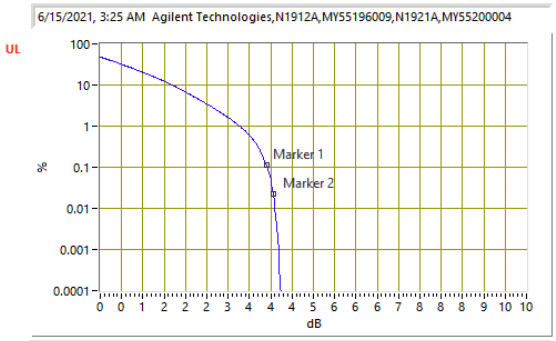
Marker 1 Power: 3.90 dB Marker 1 Probability: 0.1211%	Delta Power: 0.10 dB Delta Probability: 0.1029% Avg (A): 23.27 dBm Pk(A): 27.44dBm Pk-Avg(A): 4.17dB
Marker 2 Power: 4.00 dB Marker 2 Probability: 0.0181%	

5G NR Bn7 25MHz BPSK Middle Channel



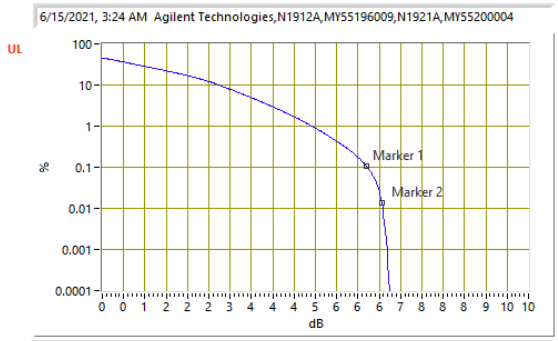
Marker 1 Power: 6.15 dB Marker 1 Probability: 0.1087%	Delta Power: 0.25 dB Delta Probability: 0.0976% Avg (A): 21.77 dBm Pk(A): 28.34dBm Pk-Avg(A): 6.57dB
Marker 2 Power: 6.40 dB Marker 2 Probability: 0.0111%	

5G NR Bn7 25MHz 16QAM Middle Channel



Marker 1 Power: 3.90 dB Marker 1 Probability: 0.1136%	Delta Power: 0.15 dB Delta Probability: 0.0879% Avg (A): 23.17 dBm Pk(A): 27.46dBm Pk-Avg(A): 4.29dB
Marker 2 Power: 4.05 dB Marker 2 Probability: 0.0257%	

5G NR Bn7 30MHz BPSK Middle Channel



Marker 1 Power: 6.20 dB Marker 1 Probability: 0.1069%	Delta Power: 0.35 dB Delta Probability: 0.0917% Avg (A): 21.70 dBm Pk(A): 28.51dBm Pk-Avg(A): 6.81dB
Marker 2 Power: 6.55 dB Marker 2 Probability: 0.0152%	

5G NR Bn7 30MHz 16QAM Middle Channel

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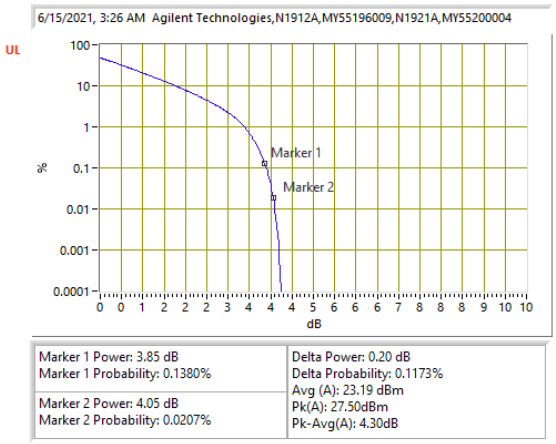
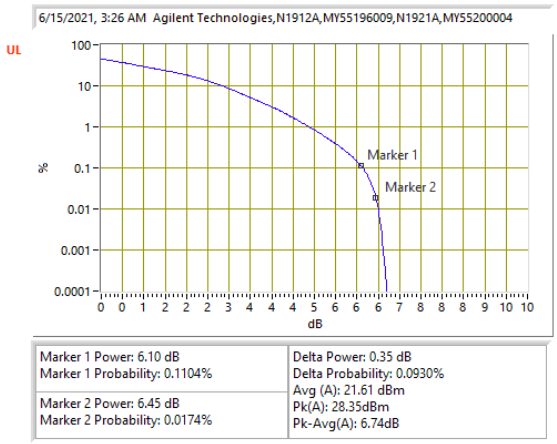


5G NR Bn7 40MHz BPSK Middle Channel



5G NR Bn7 40MHz 16QAM Middle Channel

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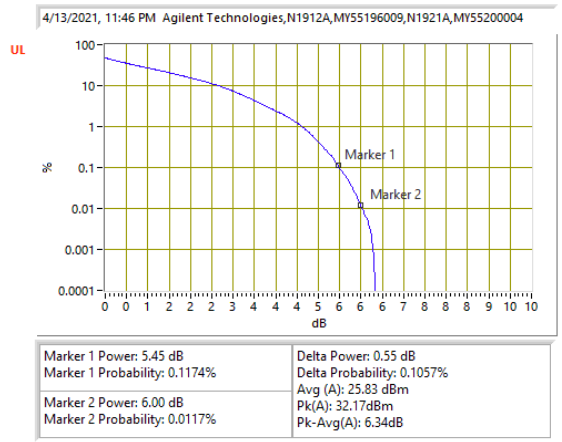
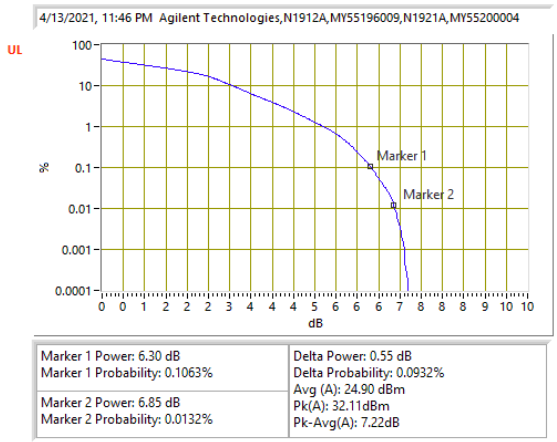
9.5.3. LTE BAND 12 AND 5G NR n12

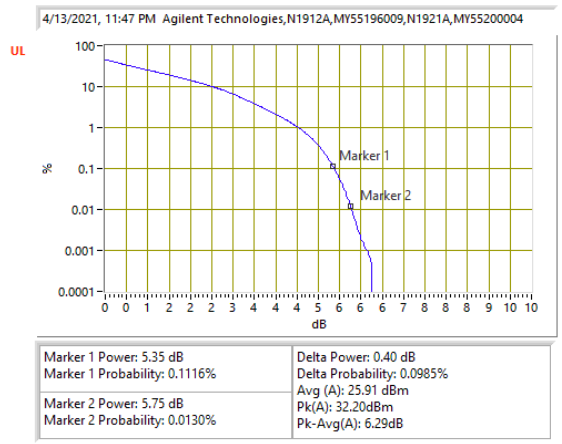
LTE BAND 12



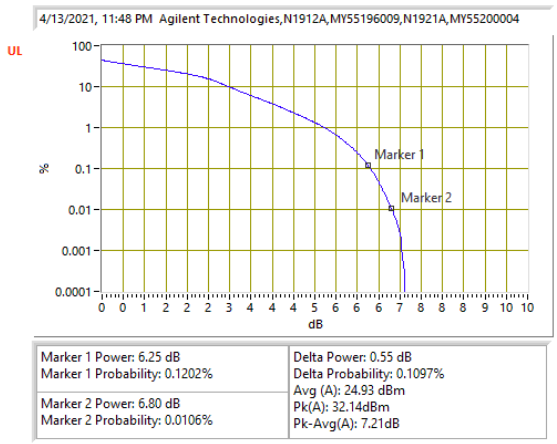
LTE B12 1.4MHz QPSK Middle Channel



LTE B12 1.4MHz 16QAM Middle Channel



LTE B12 3MHz QPSK Middle Channel



LTE B12 3MHz 16QAM Middle Channel

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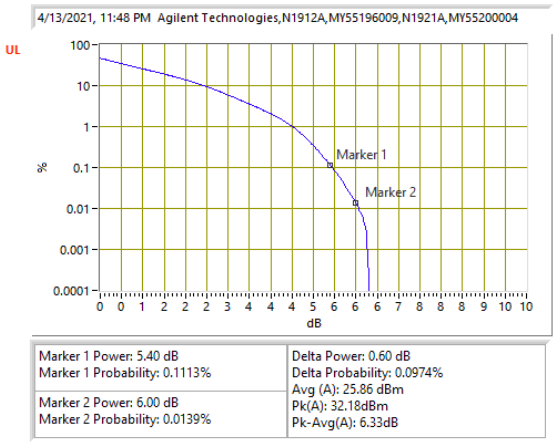
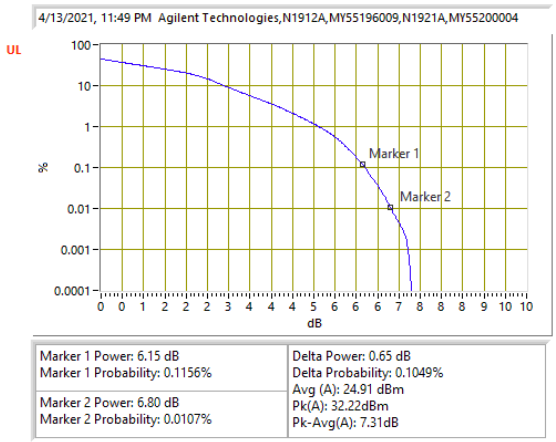
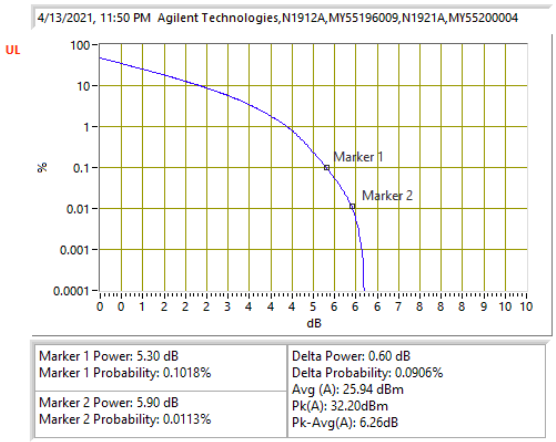


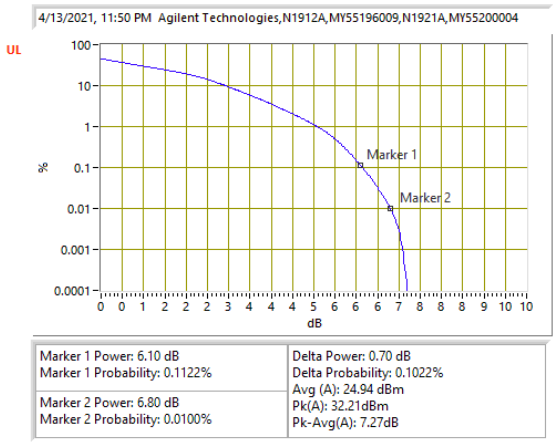
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel



LTE B12 10MHz QPSK Middle Channel



LTE B12 10MHz 16QAM Middle Channel

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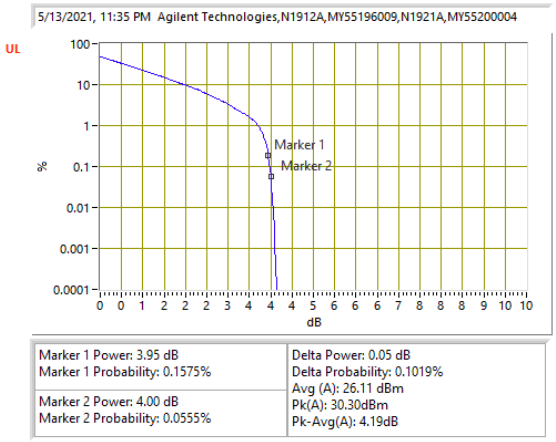
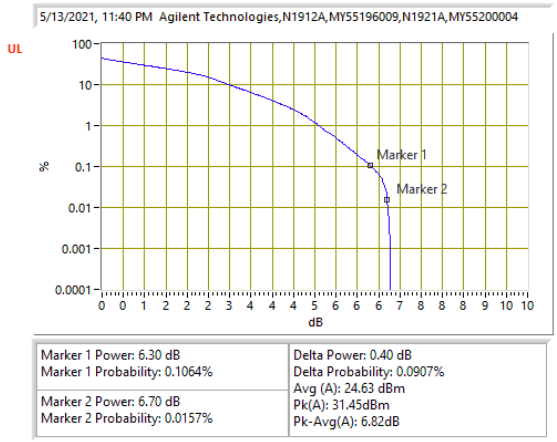
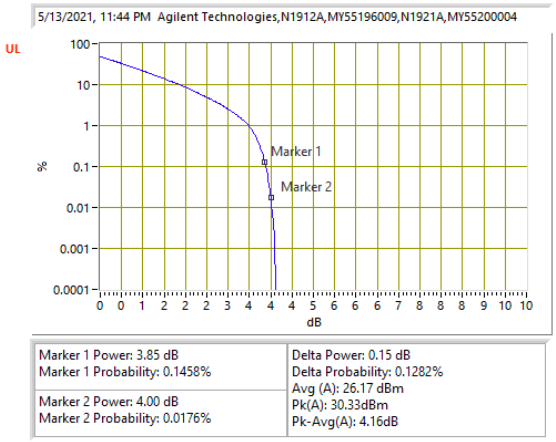
5G NR n12



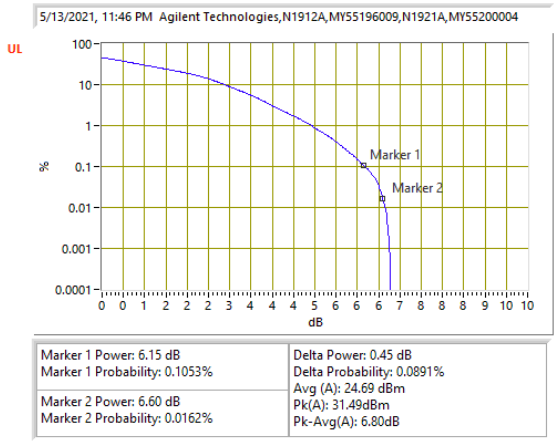
5G NR Bn12 5MHz BPSK Middle Channel



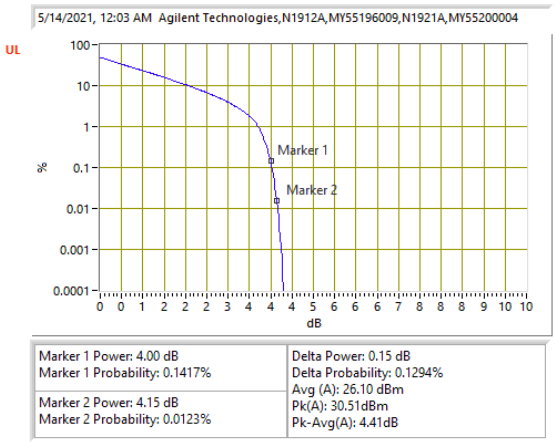
5G NR Bn12 5MHz 16QAM Middle Channel



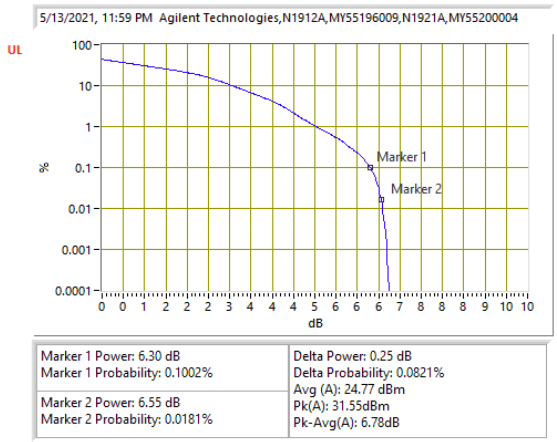
5G NR Bn12 10MHz BPSK Middle Channel



5G NR Bn12 10MHz 16QAM Middle Channel



5G NR Bn12 15MHz BPSK Middle Channel



5G NR Bn12 15MHz 16QAM Middle Channel

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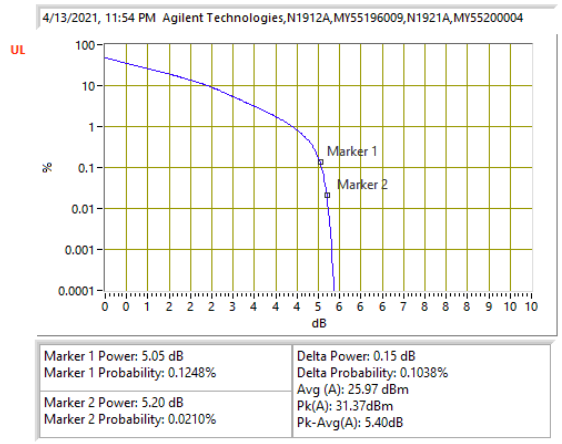
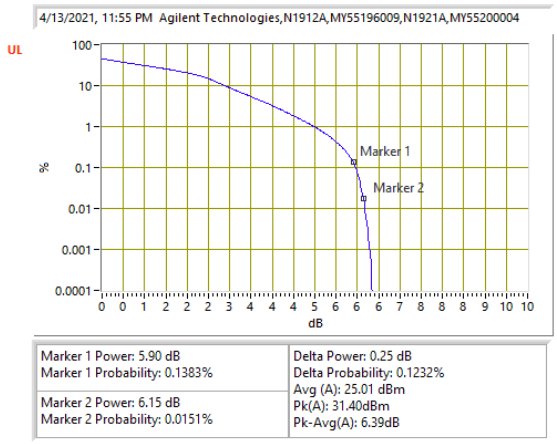
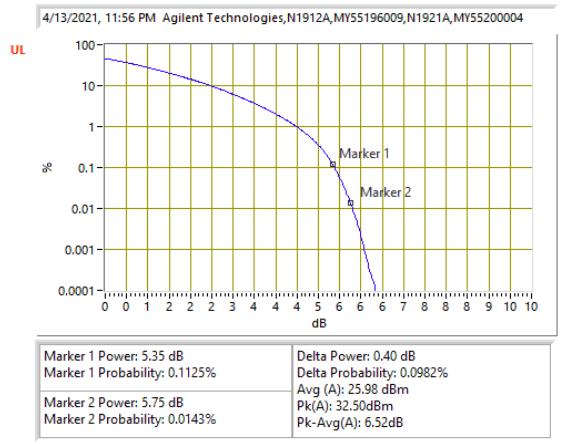
9.5.4. LTE BAND 13



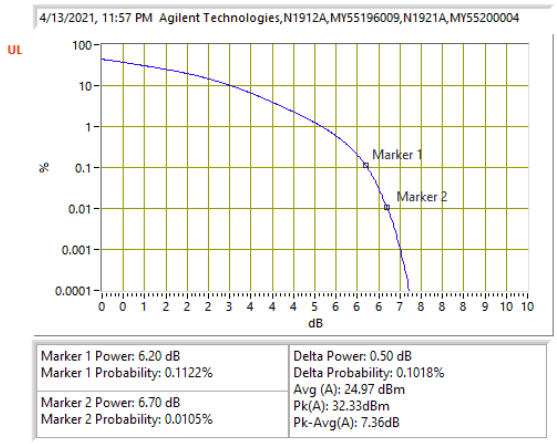
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel



LTE B13 10MHz 16QAM Middle Channel

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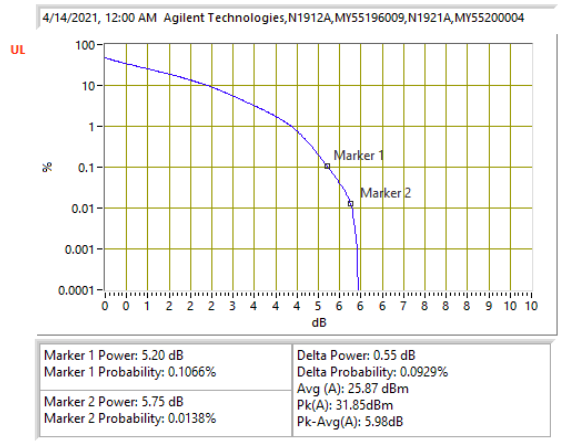
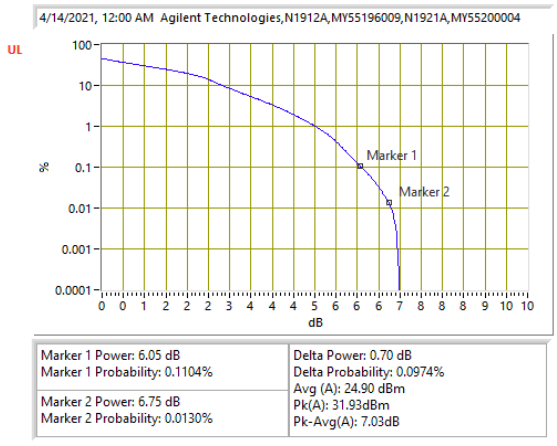
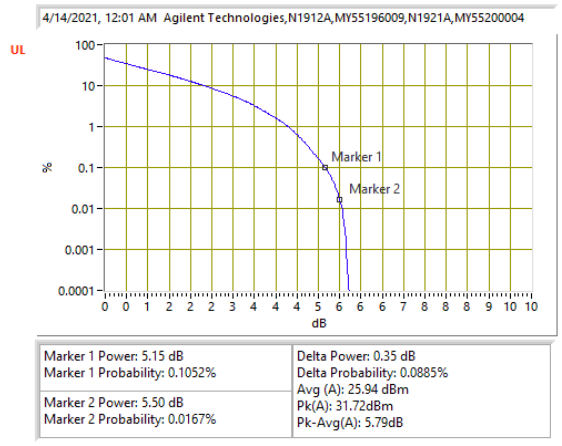
9.5.5. LTE BAND 14



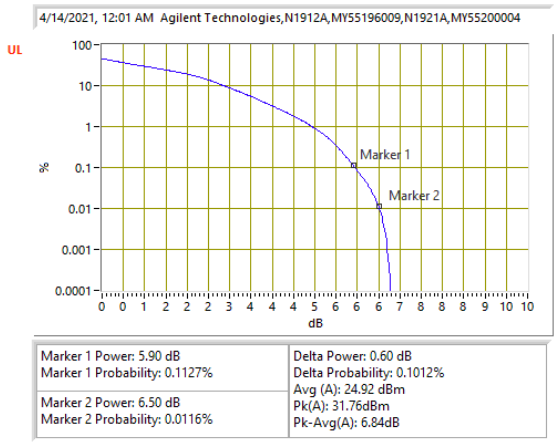
LTE B14 5MHz QPSK Middle Channel



LTE B14 5MHz 16QAM Middle Channel



LTE B14 10MHz QPSK Middle Channel



LTE B14 10MHz 16QAM Middle Channel

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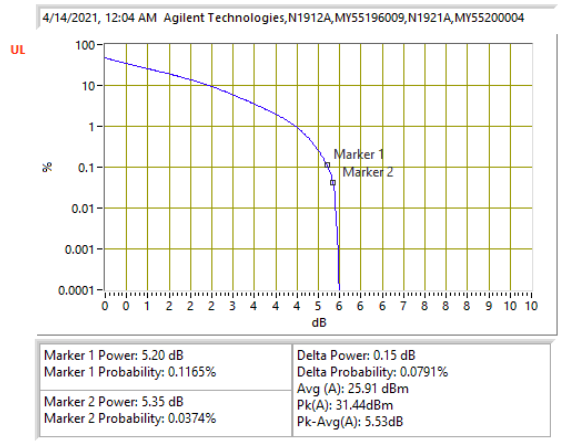
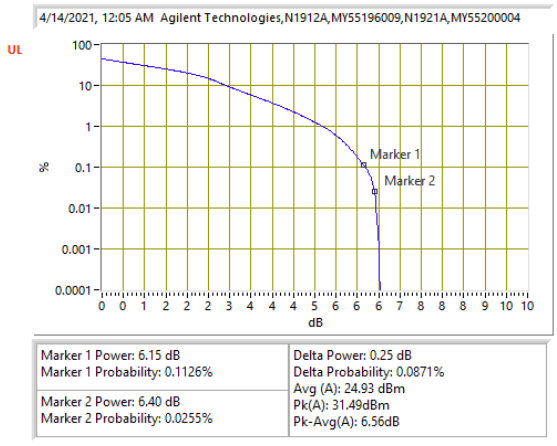
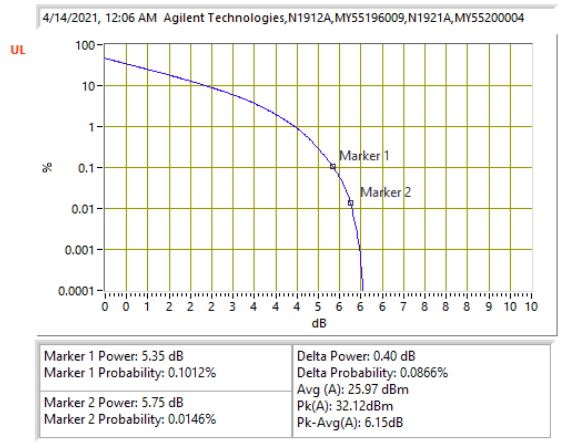
9.5.6. LTE BAND 17



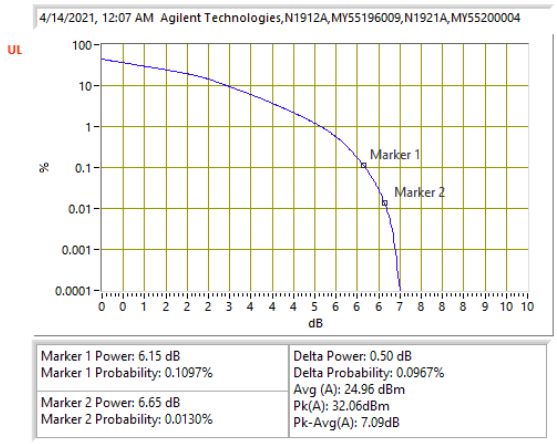
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



LTE B17 10MHz QPSK Middle Channel



LTE B17 10MHz 16QAM Middle Channel

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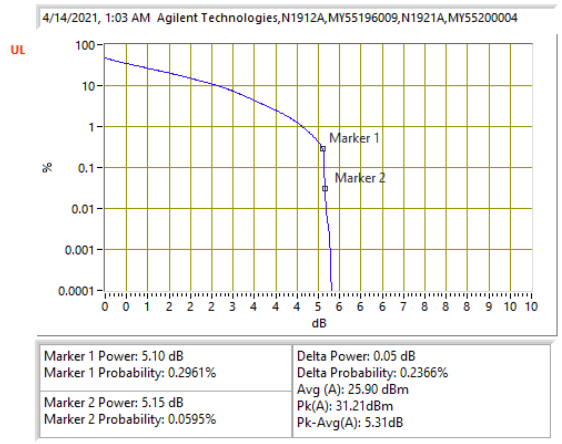
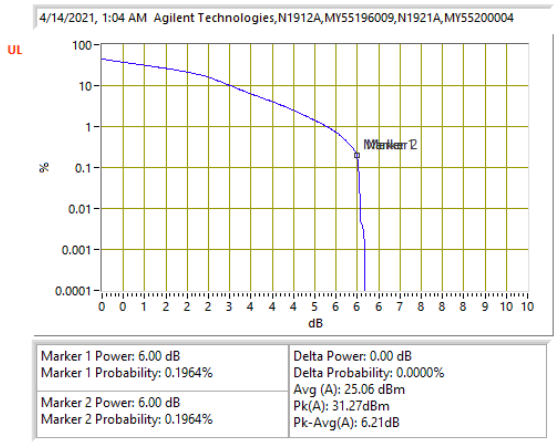
9.5.7. LTE BAND 25 AND 5G NR n25

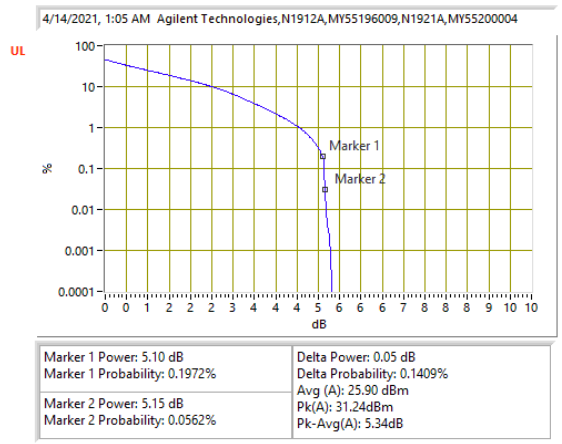
LTE BAND 25



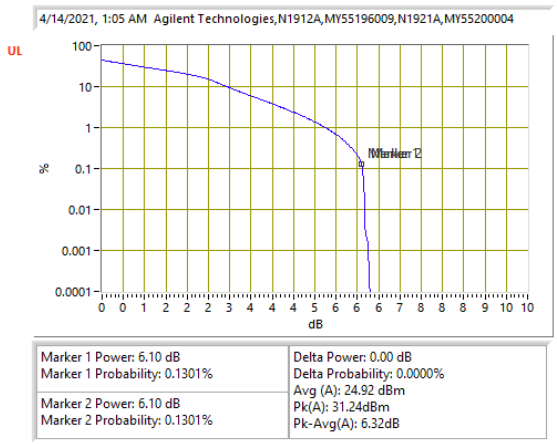
LTE B25 1.4MHz QPSK Middle Channel



LTE B25 1.4MHz 16QAM Middle Channel



LTE B25 3MHz QPSK Middle Channel



LTE B25 3MHz 16QAM Middle Channel

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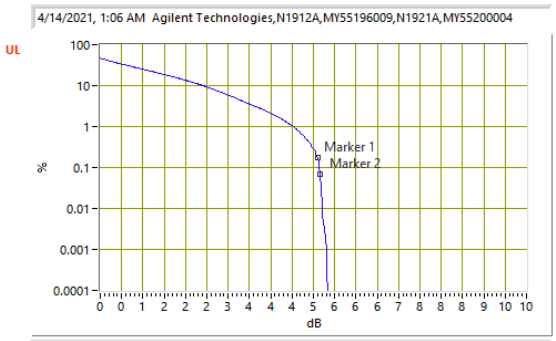
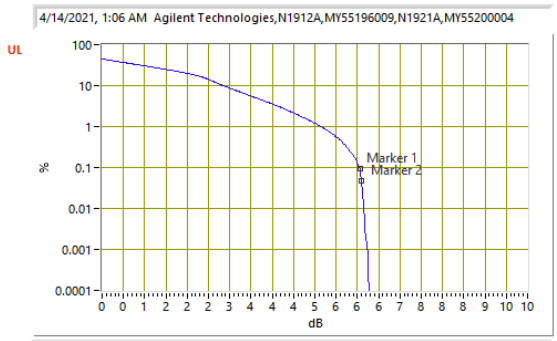


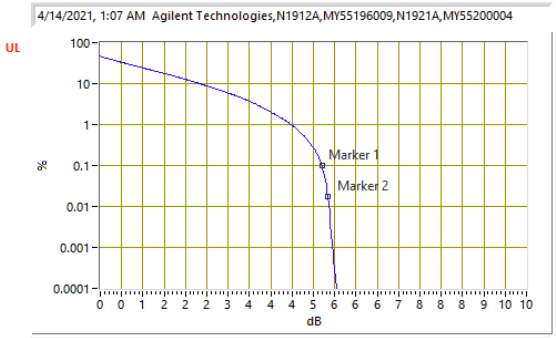
Marker 1 Power: 5.10 dB Marker 1 Probability: 0.1779%	Delta Power: 0.05 dB Delta Probability: 0.0877% Avg (A): 25.84 dBm Pk(A): 31.24dBm Pk-Avg(A): 5.39dB
Marker 2 Power: 5.15 dB Marker 2 Probability: 0.0903%	

LTE B2 5MHz QPSK Middle Channel



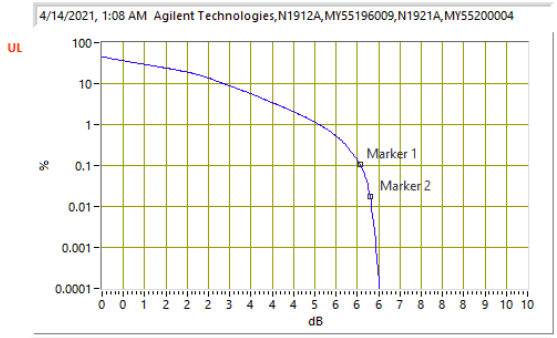
Marker 1 Power: 6.05 dB Marker 1 Probability: 0.1000%	Delta Power: 0.05 dB Delta Probability: 0.0511% Avg (A): 24.91 dBm Pk(A): 31.24dBm Pk-Avg(A): 6.32dB
Marker 2 Power: 6.10 dB Marker 2 Probability: 0.0489%	

LTE B2 5MHz 16QAM Middle Channel



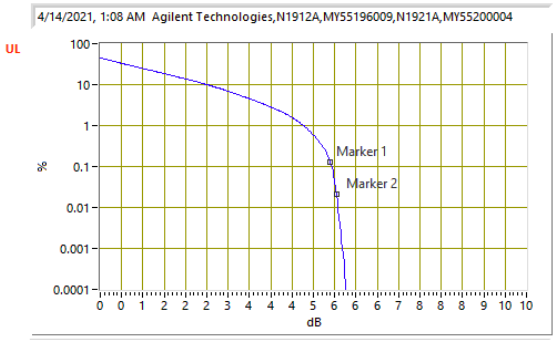
Marker 1 Power: 5.20 dB Marker 1 Probability: 0.1000%	Delta Power: 0.15 dB Delta Probability: 0.0855% Avg (A): 25.93 dBm Pk(A): 31.55dBm Pk-Avg(A): 5.61dB
Marker 2 Power: 5.35 dB Marker 2 Probability: 0.0145%	

LTE B25 10MHz QPSK Middle Channel



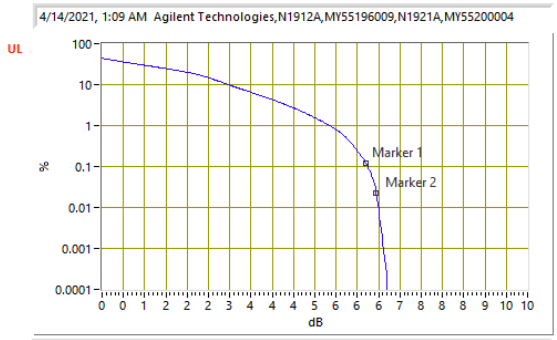
Marker 1 Power: 6.05 dB Marker 1 Probability: 0.1137%	Delta Power: 0.25 dB Delta Probability: 0.0963% Avg (A): 24.95 dBm Pk(A): 31.56dBm Pk-Avg(A): 6.61dB
Marker 2 Power: 6.30 dB Marker 2 Probability: 0.0174%	

LTE B25 10MHz 16QAM Middle Channel



Marker 1 Power: 5.40 dB Marker 1 Probability: 0.1298%	Delta Power: 0.15 dB Delta Probability: 0.1130% Avg (A): 25.92 dBm Pk(A): 31.78dBm Pk-Avg(A): 5.85dB
Marker 2 Power: 5.55 dB Marker 2 Probability: 0.0168%	

LTE B25 15MHz QPSK Middle Channel



Marker 1 Power: 6.20 dB Marker 1 Probability: 0.1209%	Delta Power: 0.25 dB Delta Probability: 0.1008% Avg (A): 24.98 dBm Pk(A): 31.80dBm Pk-Avg(A): 6.82dB
Marker 2 Power: 6.45 dB Marker 2 Probability: 0.0201%	

LTE B25 15MHz 16QAM Middle Channel

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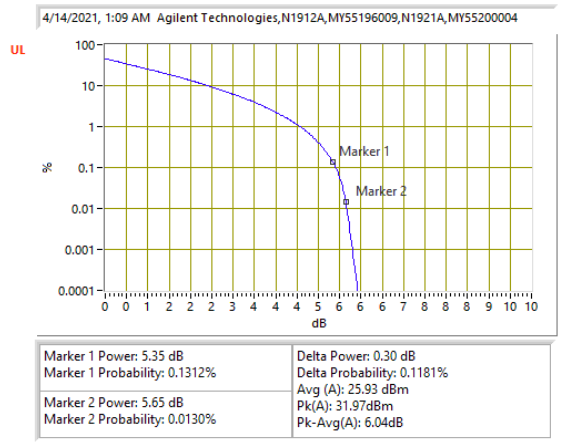
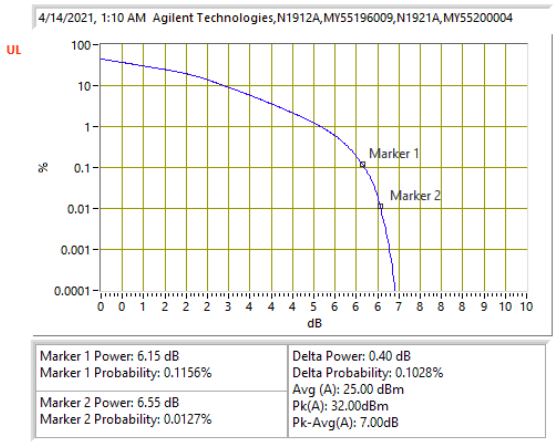


LTE B25 20MHz QPSK Middle Channel



LTE B25 20MHz 16QAM Middle Channel

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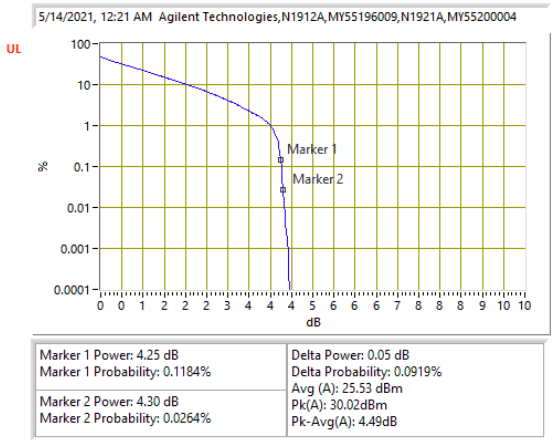
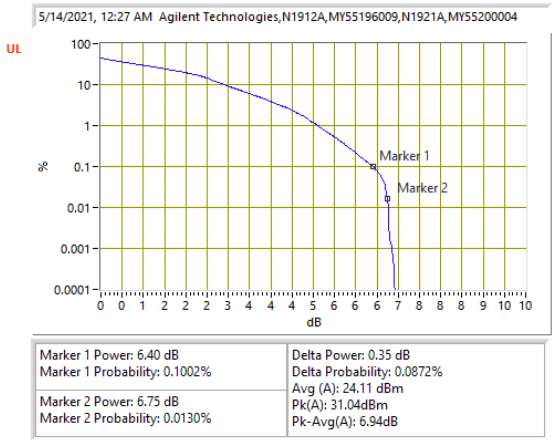
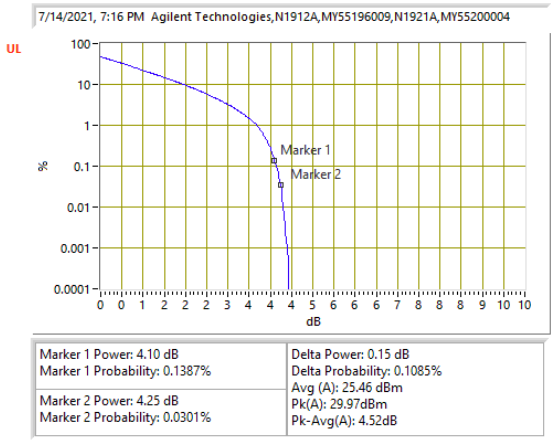
5G NR n25



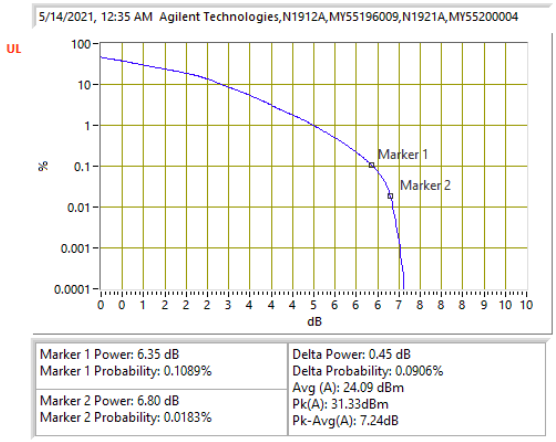
5G NR Bn25 5MHz BPSK Middle Channel



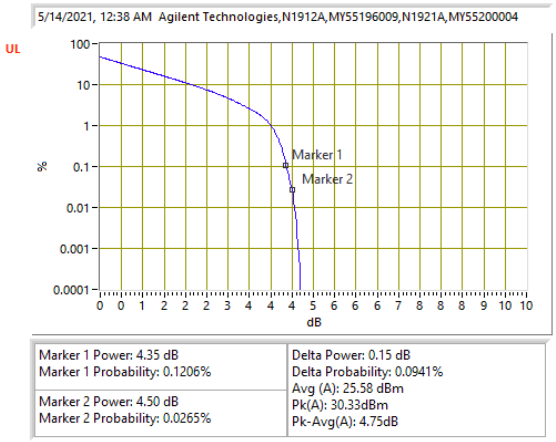
5G NR Bn25 5MHz 16QAM Middle Channel



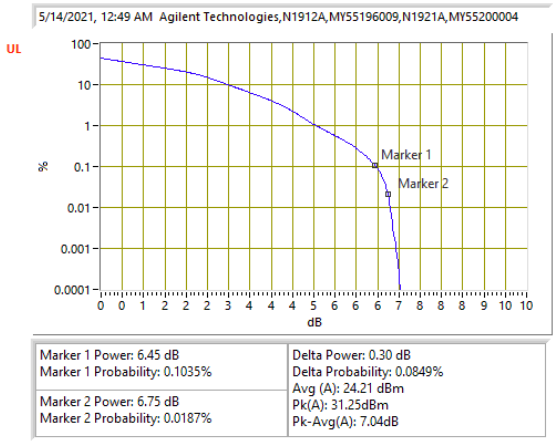
5G NR Bn25 10MHz BPSK Middle Channel



5G NR Bn25 10MHz 16QAM Middle Channel



5G NR Bn25 15MHz BPSK Middle Channel



5G NR Bn25 15MHz 16QAM Middle Channel

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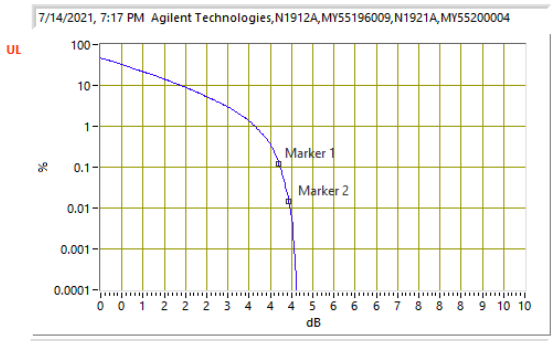
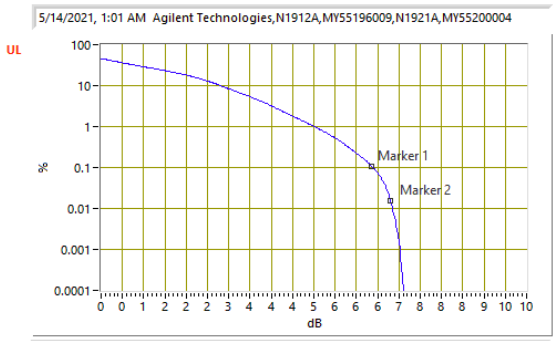


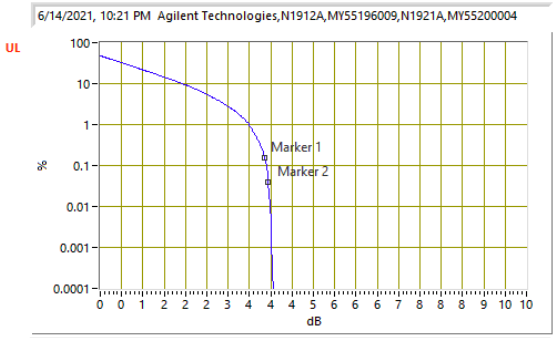
Marker 1 Power: 4.20 dB Marker 1 Probability: 0.1233%	Delta Power: 0.25 dB Delta Probability: 0.1105% Avg (A): 25.48 dBm Pk(A): 30.14dBm Pk-Avg(A): 4.66dB
Marker 2 Power: 4.45 dB Marker 2 Probability: 0.0128%	

5G NR Bn25 20MHz BPSK Middle Channel



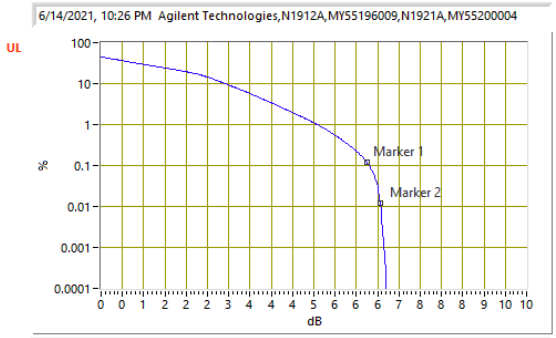
Marker 1 Power: 6.35 dB Marker 1 Probability: 0.1111%	Delta Power: 0.45 dB Delta Probability: 0.0955% Avg (A): 24.16 dBm Pk(A): 31.32dBm Pk-Avg(A): 7.16dB
Marker 2 Power: 6.80 dB Marker 2 Probability: 0.0156%	

5G NR Bn25 20MHz 16QAM Middle Channel



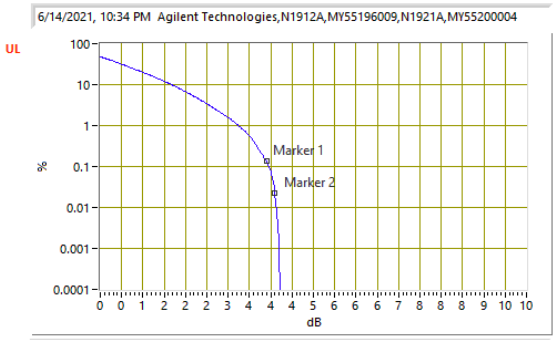
Marker 1 Power: 3.85 dB Marker 1 Probability: 0.1737%	Delta Power: 0.10 dB Delta Probability: 0.1439% Avg (A): 22.85 dBm Pk(A): 26.95dBm Pk-Avg(A): 4.10dB
Marker 2 Power: 3.95 dB Marker 2 Probability: 0.0298%	

5G NR Bn25 25MHz BPSK Middle Channel



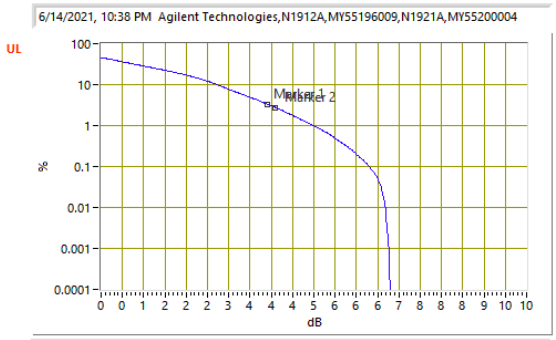
Marker 1 Power: 6.25 dB Marker 1 Probability: 0.1157%	Delta Power: 0.30 dB Delta Probability: 0.1009% Avg (A): 21.42 dBm Pk(A): 28.22dBm Pk-Avg(A): 6.81dB
Marker 2 Power: 6.55 dB Marker 2 Probability: 0.0148%	

5G NR Bn25 25MHz 16QAM Middle Channel



Marker 1 Power: 3.90 dB Marker 1 Probability: 0.1338%	Delta Power: 0.20 dB Delta Probability: 0.1114% Avg (A): 22.91 dBm Pk(A): 27.20dBm Pk-Avg(A): 4.29dB
Marker 2 Power: 4.10 dB Marker 2 Probability: 0.0224%	

5G NR Bn25 30MHz BPSK Middle Channel



Marker 1 Power: 3.90 dB Marker 1 Probability: 3.3595%	Delta Power: 0.20 dB Delta Probability: 0.6126% Avg (A): 21.40 dBm Pk(A): 28.24dBm Pk-Avg(A): 6.84dB
Marker 2 Power: 4.10 dB Marker 2 Probability: 2.7469%	

5G NR Bn25 30MHz 16QAM Middle Channel

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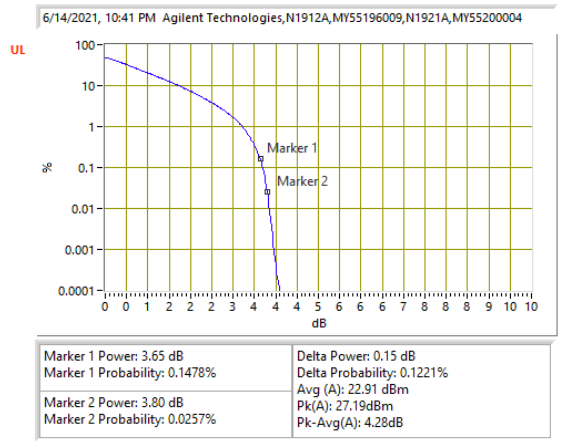
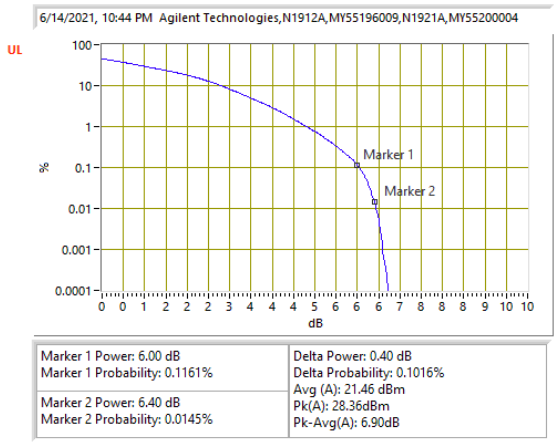


5G NR Bn25 40MHz BPSK Middle Channel



5G NR Bn25 40MHz 16QAM Middle Channel

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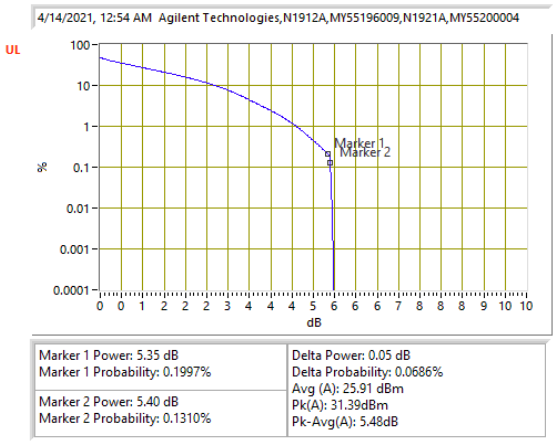
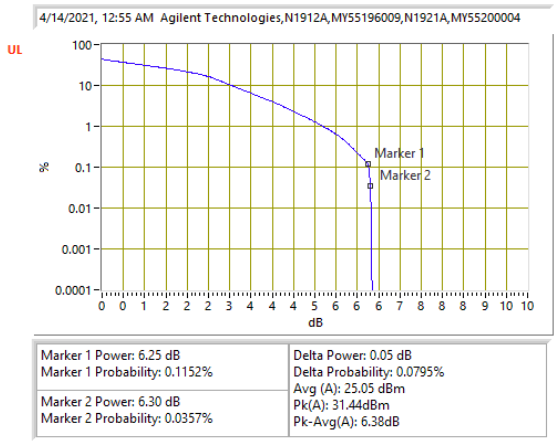
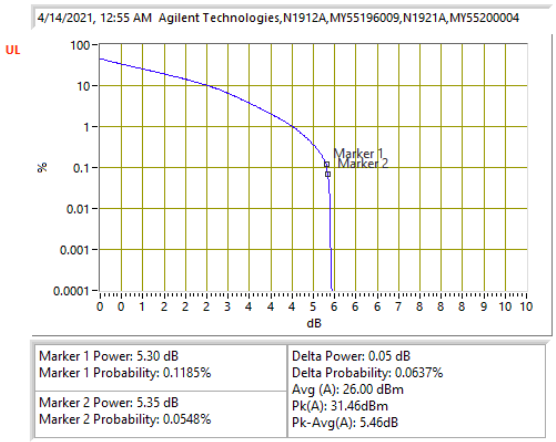
9.5.8. LTE BAND 26 (PART 90S)



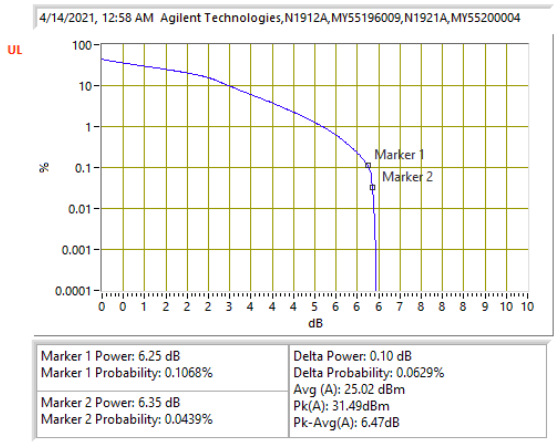
LTE B26 1.4MHz QPSK Middle Channel



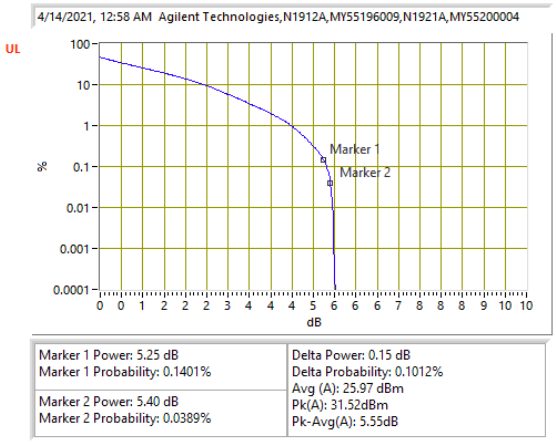
LTE B26 1.4MHz 16QAM Middle Channel



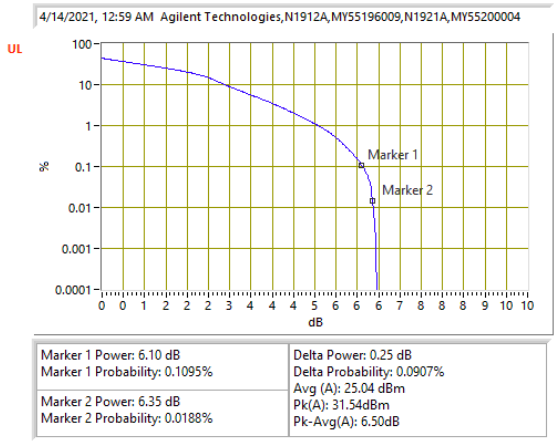
LTE B26 3MHz QPSK Middle Channel



LTE B26 3MHz 16QAM Middle Channel



LTE B26 5MHz QPSK Middle Channel



LTE B26 5MHz 16QAM Middle Channel

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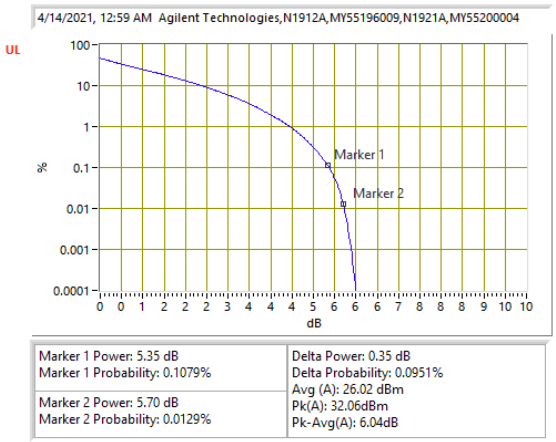
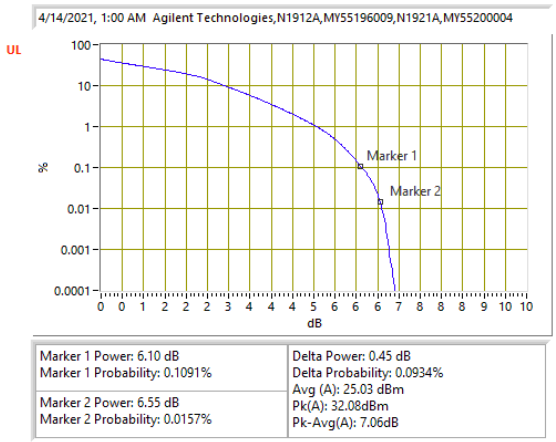


LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

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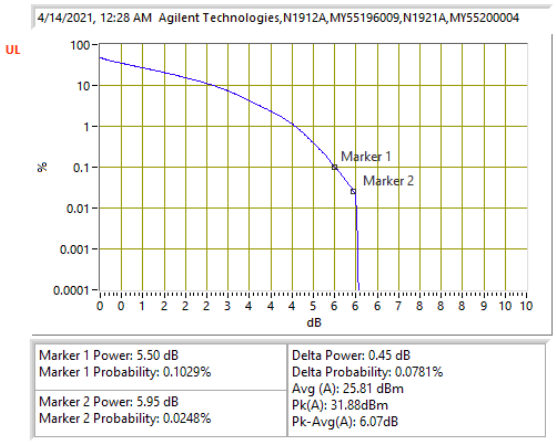
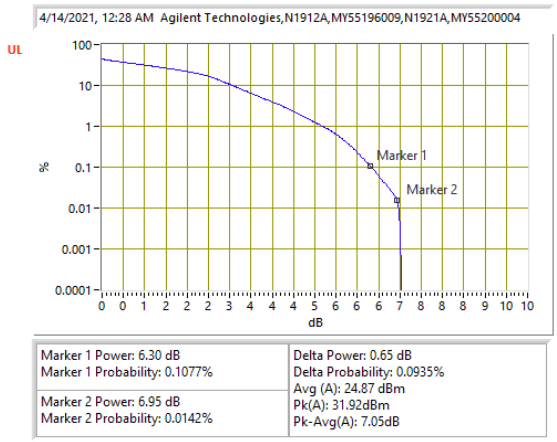
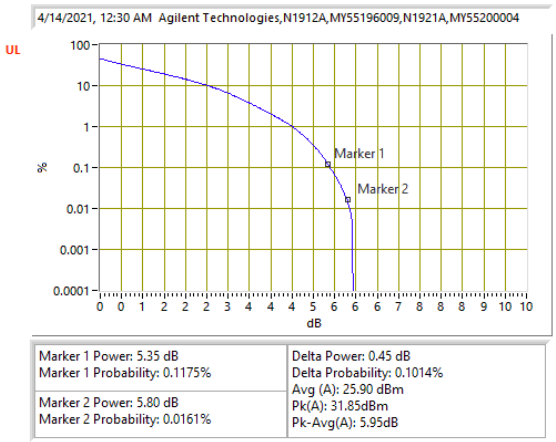
9.5.9. LTE BAND 26 (PART 22)



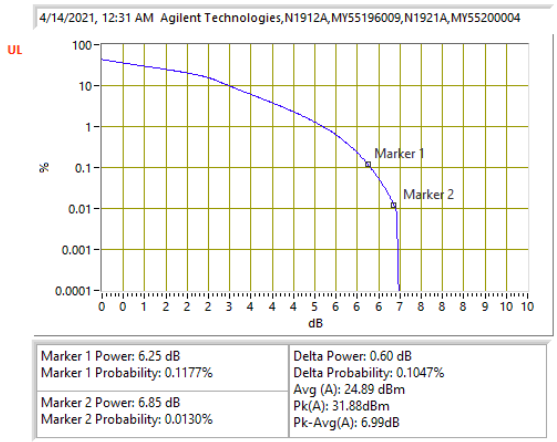
LTE B26 1.4MHz QPSK Middle Channel



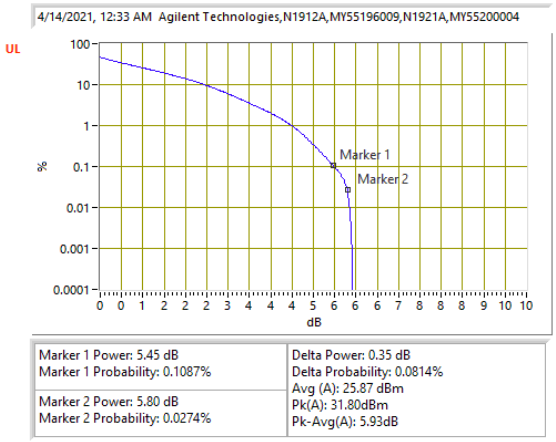
LTE B26 1.4MHz 16QAM Middle Channel



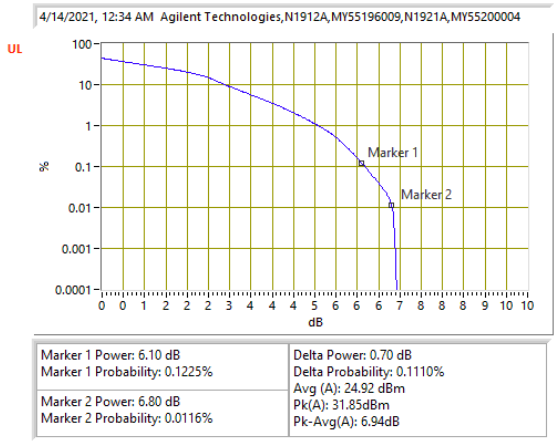
LTE B26 3MHz QPSK Middle Channel



LTE B26 3MHz 16QAM Middle Channel



LTE B26 5MHz QPSK Middle Channel



LTE B26 5MHz 16QAM Middle Channel

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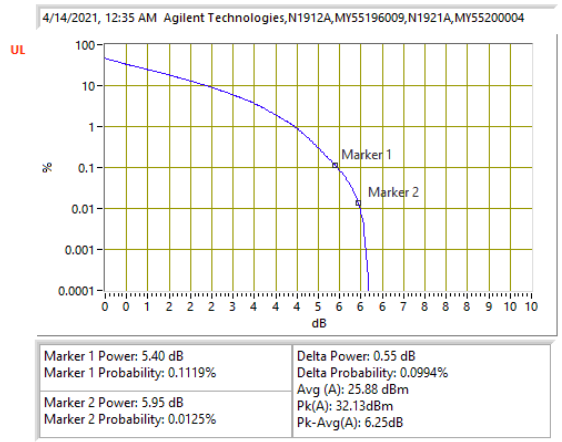
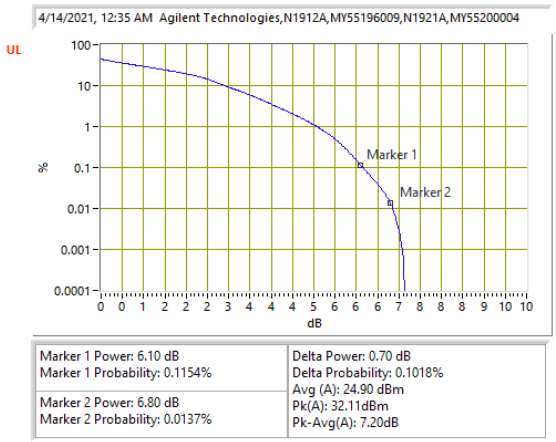


LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

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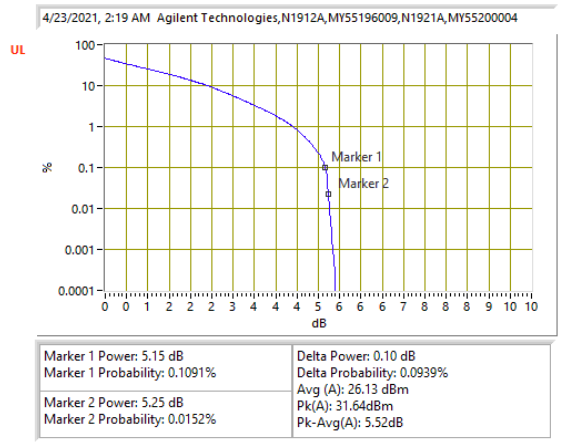
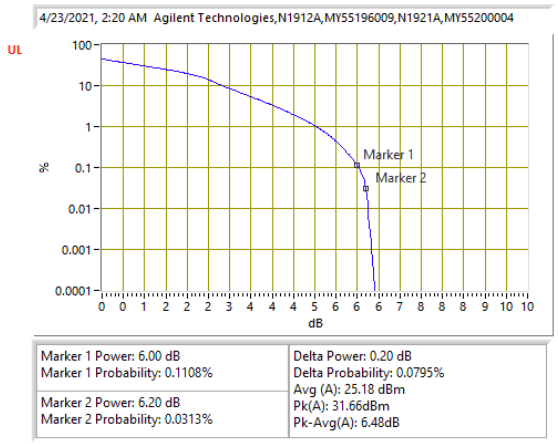
9.5.10. LTE BAND 30 AND 5G NR n30

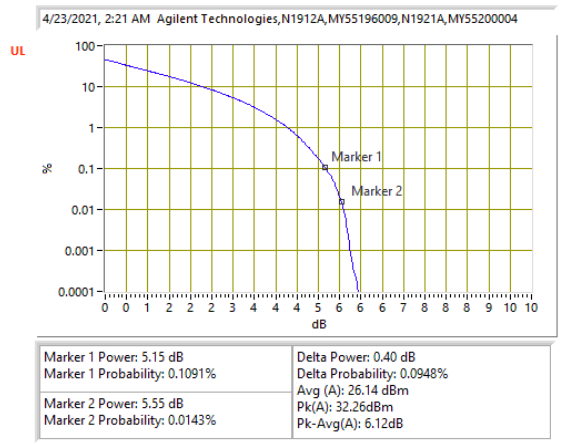
LTE BAND 30



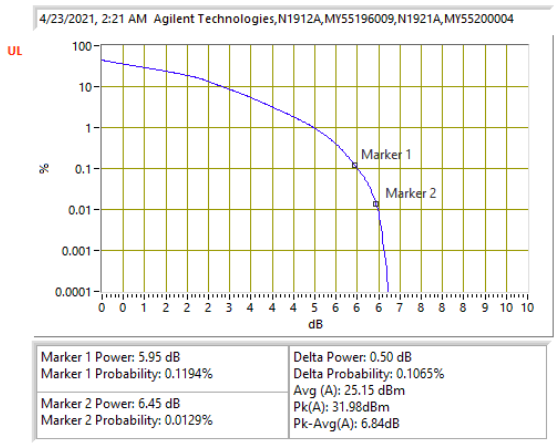
LTE B30 5MHz QPSK Middle Channel



LTE B30 5MHz 16QAM Middle Channel



LTE B30 10MHz QPSK Middle Channel



LTE B30 10MHz 16QAM Middle Channel

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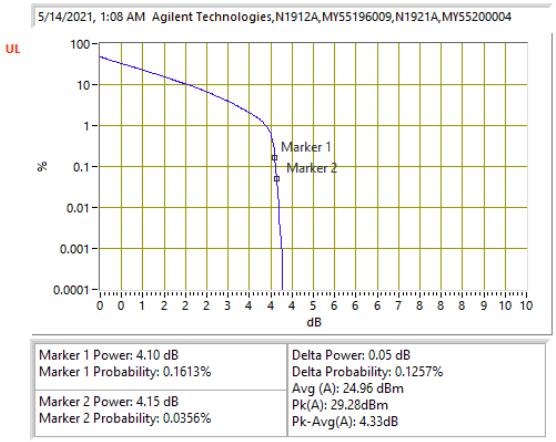
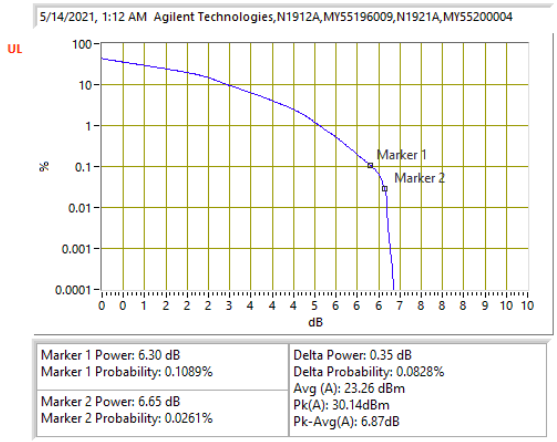
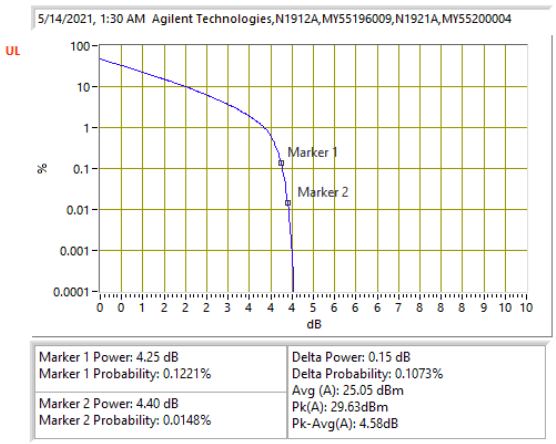
5G NR n30



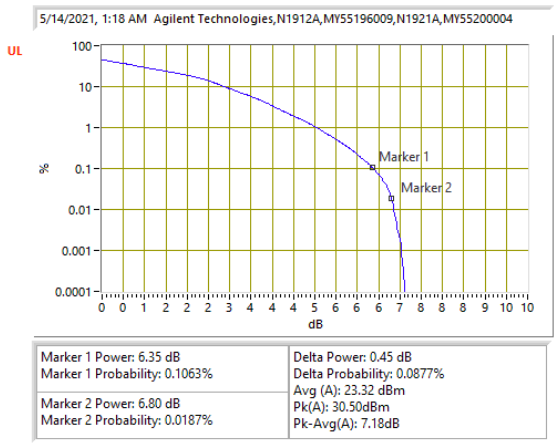
5G NR Bn30 5MHz BPSK Middle Channel



5G NR Bn30 5MHz 16QAM Middle Channel



5G NR Bn30 10MHz BPSK Middle Channel



5G NR Bn30 10MHz 16QAM Middle Channel

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9.5.11. LTE BAND 41 AND 5G NR n41

Test Engineer ID:	10646	Test Date:	3/26/2021

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	33.33	21.28	*5.06
					16QAM	33.38	20.5	*5.89
	10MHz		50	0	QPSK	33.35	21.31	*5.05
					16QAM	33.33	20.45	*5.89
	15MHz		75	0	QPSK	33.15	21.18	*4.98
					16QAM	33.21	20.38	*5.84
	20MHz		100	0	QPSK	32.87	21.09	*4.79
					16QAM	33.08	20.26	*5.83
5G NR Band n41	20MHz		50	0	BPSK	31.43	27.51	3.92
					16QAM	32.53	26.16	6.37
	30MHz		75	0	BPSK	31.45	27.69	3.76
					16QAM	32.89	26.15	6.74
	40MHz		100	0	BPSK	31.77	28.10	3.67
					16QAM	32.82	26.59	6.23
	50MHz		128	0	BPSK	31.58	27.95	3.63
					16QAM	32.44	26.45	5.99
	60MHz		162	0	BPSK	21.55	28.01	-6.46
					16QAM	32.56	26.42	6.14
	80MHz		216	0	BPSK	31.66	28.08	3.58
					16QAM	32.21	26.44	5.77
	90MHz		243	0	BPSK	31.59	28.14	3.45
					16QAM	32.18	26.45	5.73
	100MHz		270	0	BPSK	31.29	28.18	3.11
					16QAM	32.38	26.48	5.90
*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:	10646	Test Date:	3/16/2021

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	32.23	18.99	*6.25
					16QAM	32.56	17.9	*7.67
	10MHz		50	0	QPSK	32.51	19.02	*6.5
					16QAM	32.25	17.98	*7.28
	15MHz		75	0	QPSK	32.13	18.91	*6.23
					16QAM	32.11	17.95	*7.17
	20MHz		100	0	QPSK	32.83	21.1	*4.74
					16QAM	31.71	17.89	*6.83
*Duty Cycle Correction Factor (dB) =			6.99					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

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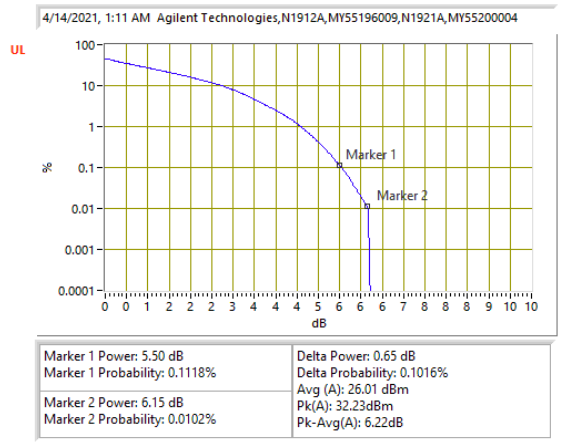
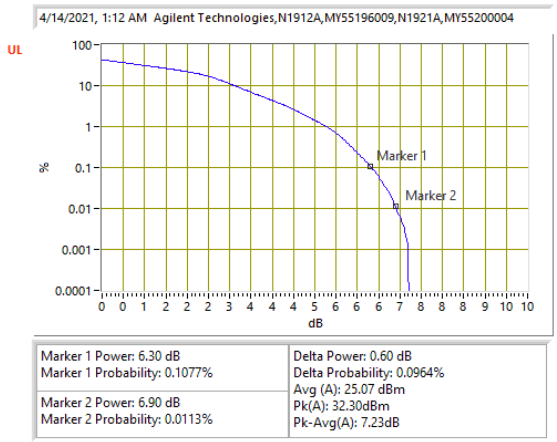
9.5.13. LTE BAND 66 AND 5G NR n66

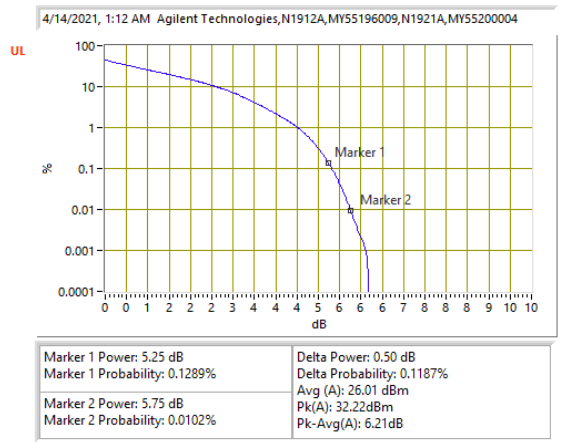
LTE BAND 66



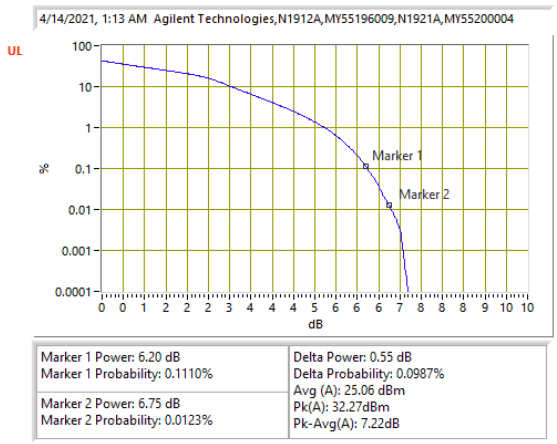
LTE B66 1.4MHz QPSK Middle Channel



LTE B66 1.4MHz 16QAM Middle Channel



LTE B66 3MHz QPSK Middle Channel



LTE B66 3MHz 16QAM Middle Channel

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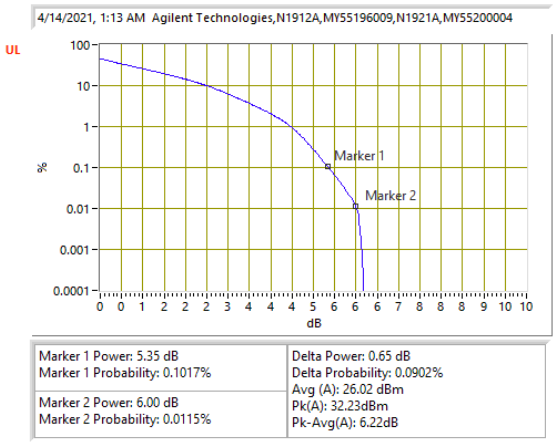
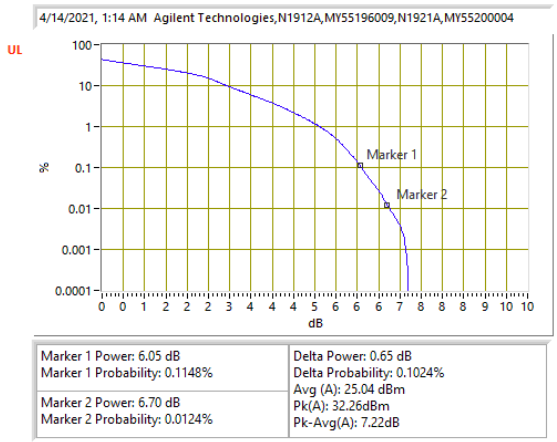
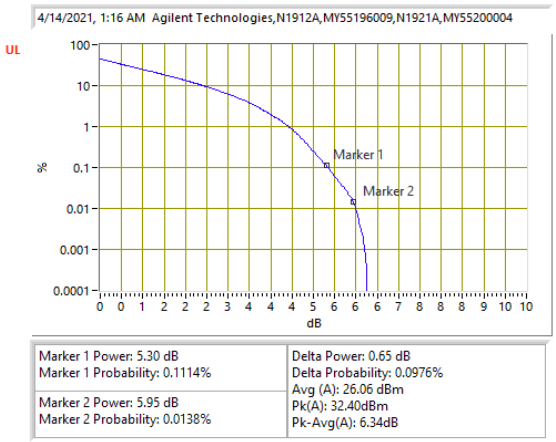


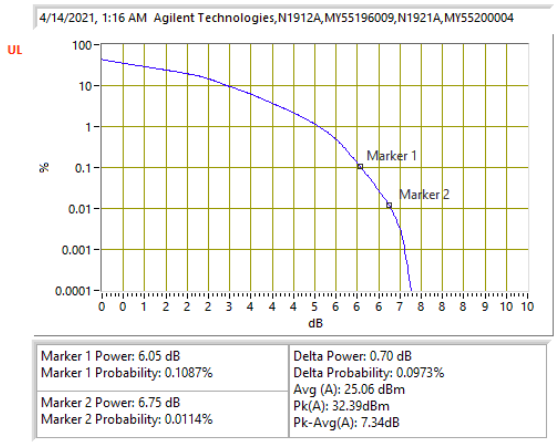
LTE B66 5MHz QPSK Middle Channel



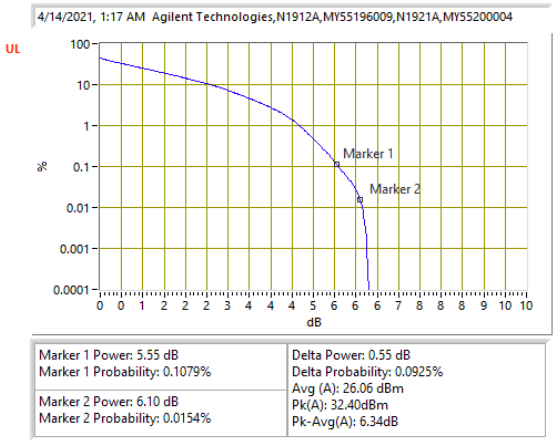
LTE B66 5MHz 16QAM Middle Channel



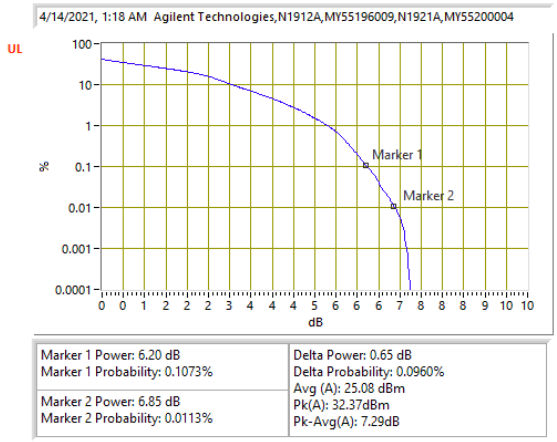
LTE B66 10MHz QPSK Middle Channel



LTE B66 10MHz 16QAM Middle Channel



LTE B66 15MHz QPSK Middle Channel



LTE B66 15MHz 16QAM Middle Channel

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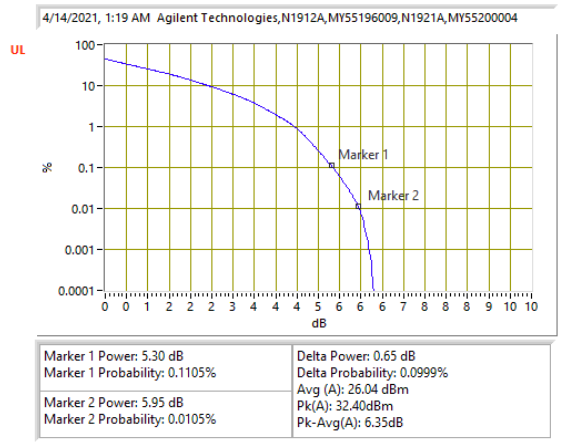
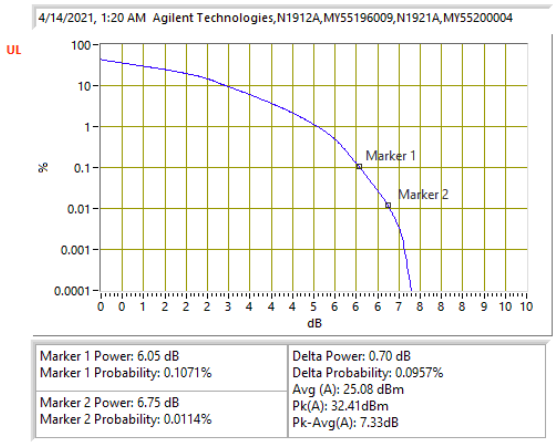


LTE B66 20MHz QPSK Middle Channel



LTE B66 20MHz 16QAM Middle Channel

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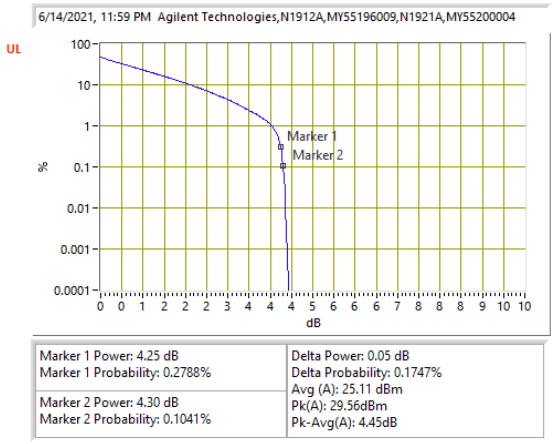
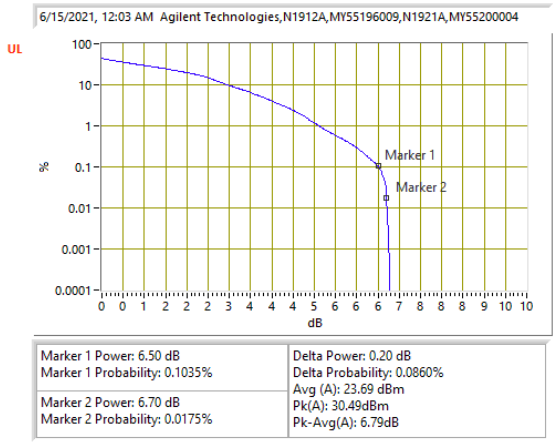
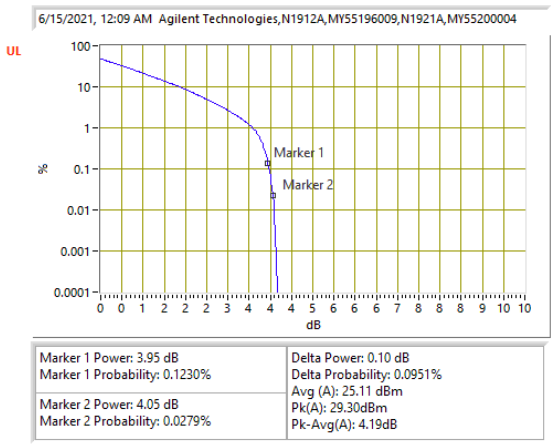
5G NR n66



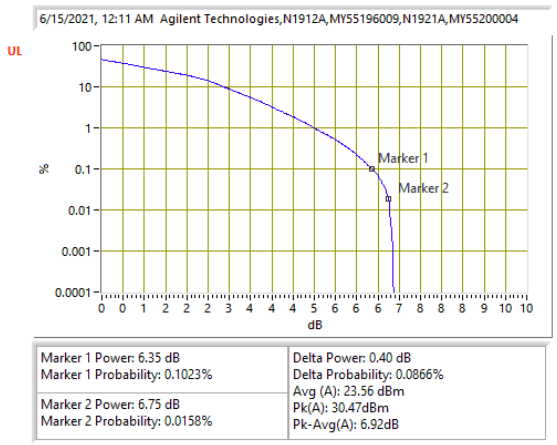
5G NR Bn66 5MHz BPSK Middle Channel



5G NR Bn66 5MHz 16QAM Middle Channel



5G NR Bn66 10MHz BPSK Middle Channel



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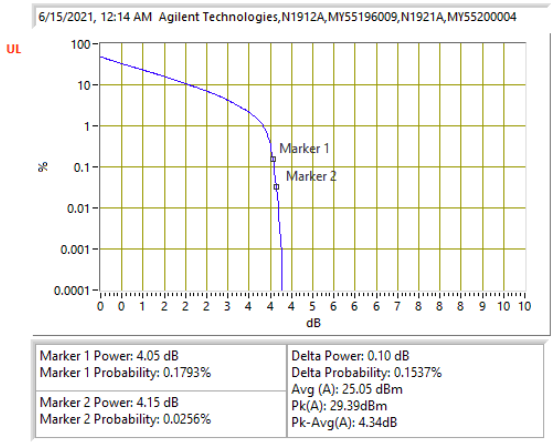
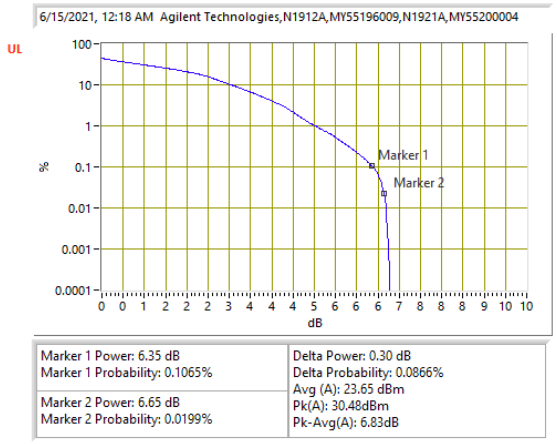


5G NR Bn66 15MHz BPSK Middle Channel



5G NR Bn66 15MHz 16QAM Middle Channel

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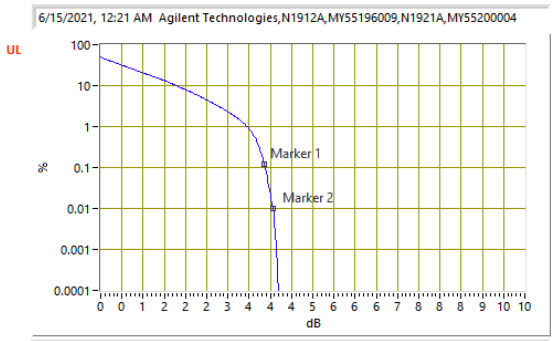
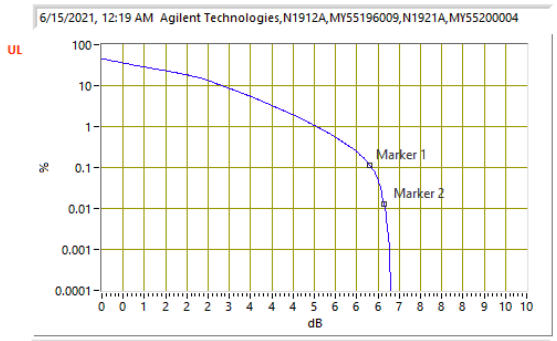
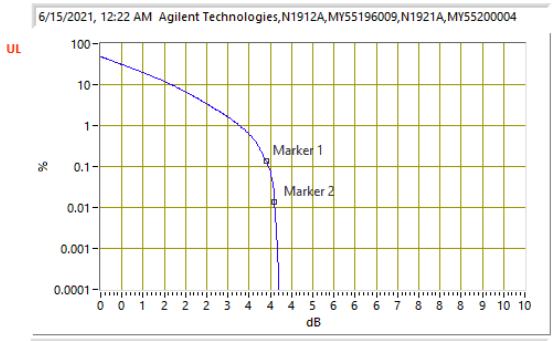


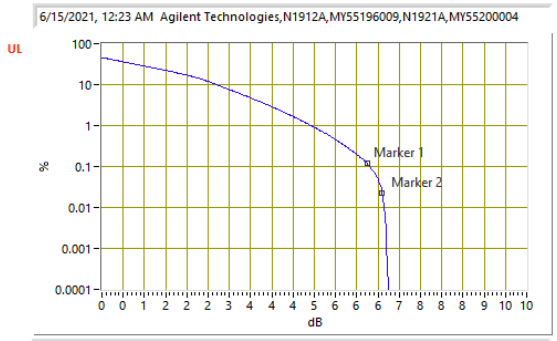
5G NR Bn66 20MHz BPSK Middle Channel



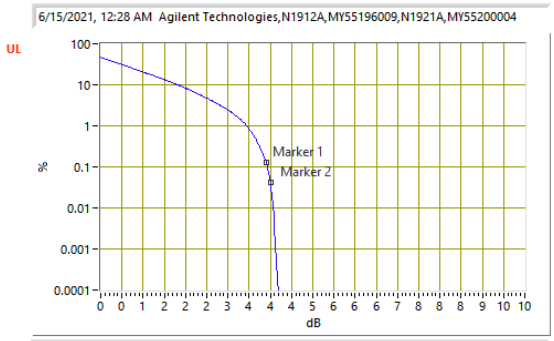
5G NR Bn66 20MHz 16QAM Middle Channel



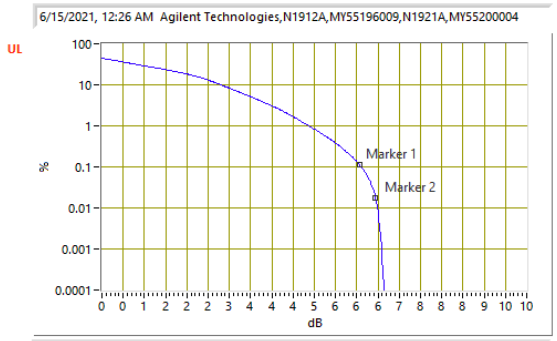
5G NR Bn66 30MHz BPSK Middle Channel



5G NR Bn66 30MHz 16QAM Middle Channel



5G NR Bn66 40MHz BPSK Middle Channel



5G NR Bn66 40MHz 16QAM Middle Channel

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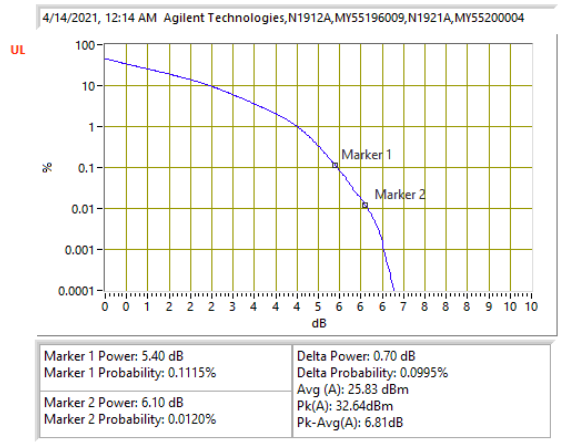
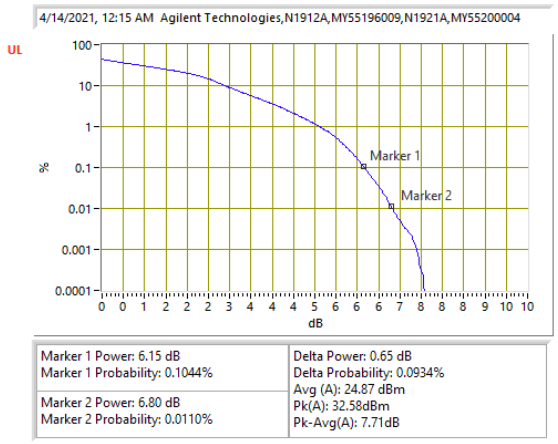
9.5.14. LTE BAND 71 AND 5G NR n71

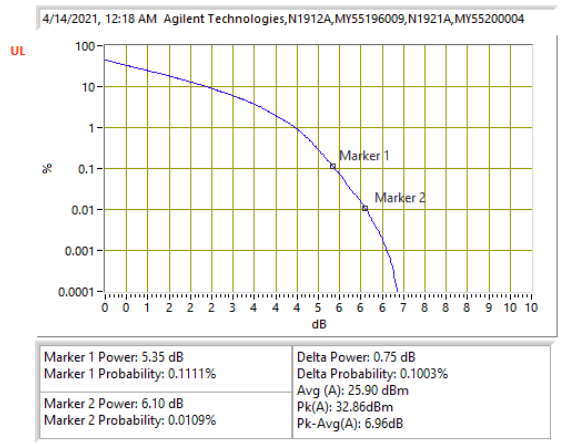
LTE BAND 71



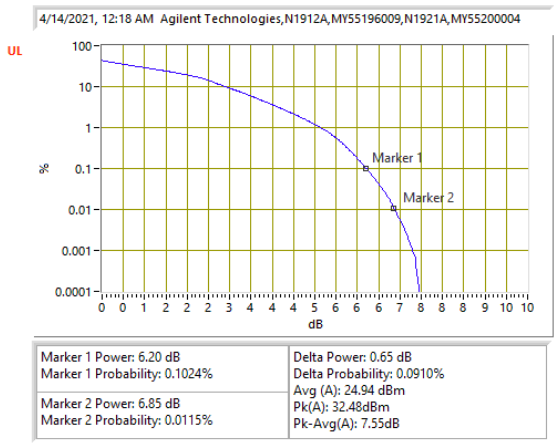
LTE B71 5MHz QPSK Middle Channel



LTE B71 5MHz 16QAM Middle Channel



LTE B71 10MHz QPSK Middle Channel



LTE B71 10MHz 16QAM Middle Channel

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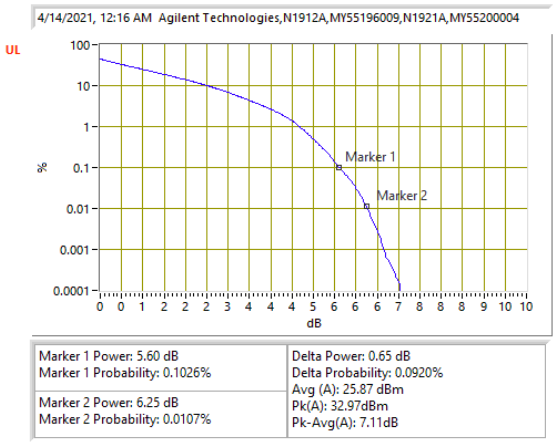
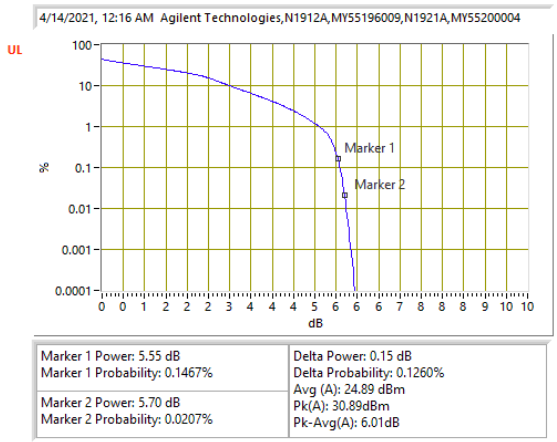
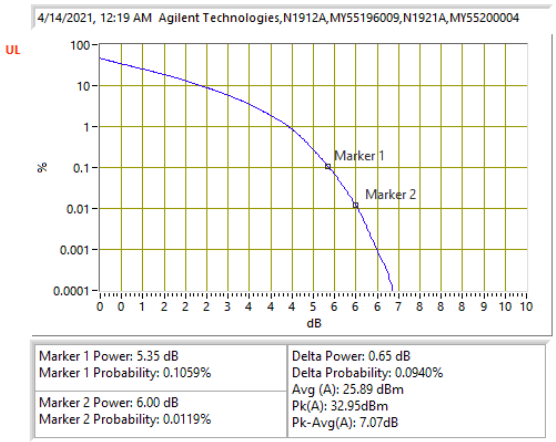


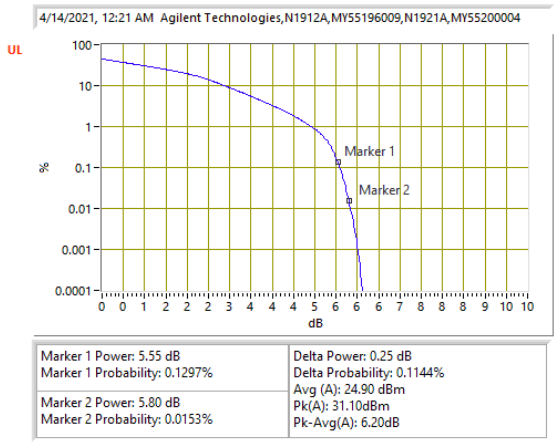
LTE B71 15MHz QPSK Middle Channel



LTE B71 15MHz 16QAM Middle Channel



LTE B71 20MHz QPSK Middle Channel



LTE B71 20MHz 16QAM Middle Channel

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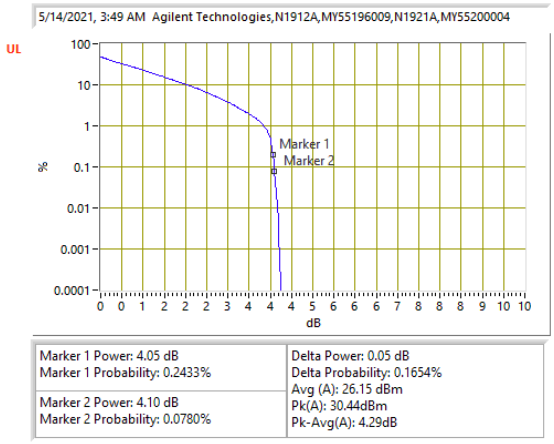
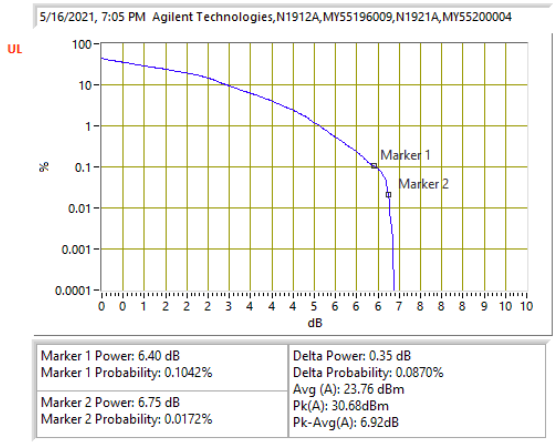
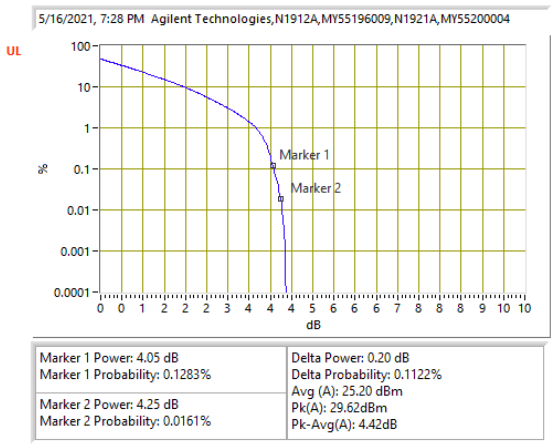
5G NR n71



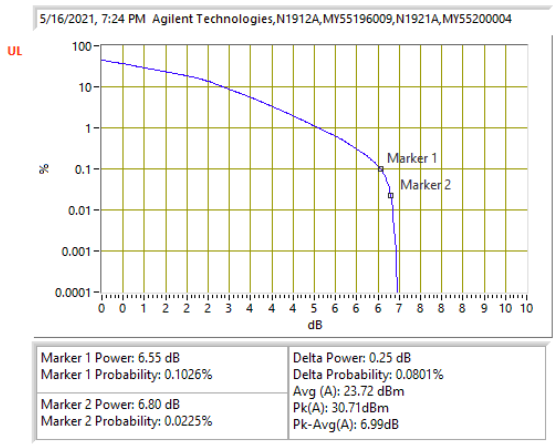
5G NR Bn71 5MHz BPSK Middle Channel



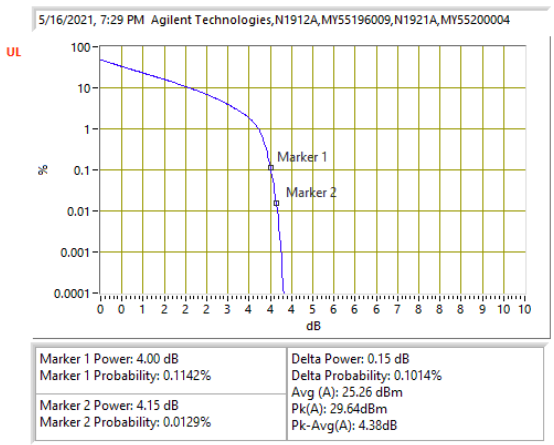
5G NR Bn71 5MHz 16QAM Middle Channel



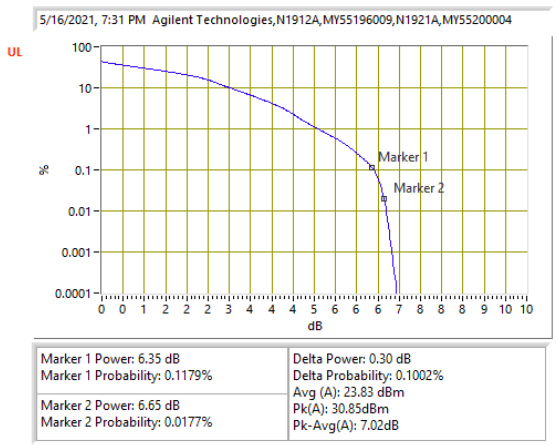
5G NR Bn71 10MHz BPSK Middle Channel



5G NR Bn71 10MHz 16QAM Middle Channel



5G NR Bn71 15MHz BPSK Middle Channel



5G NR Bn71 15MHz 16QAM Middle Channel

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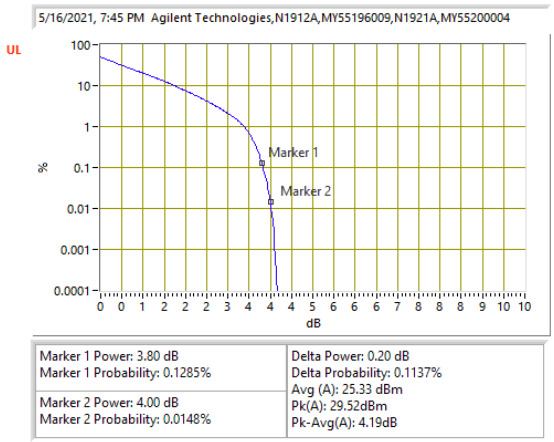
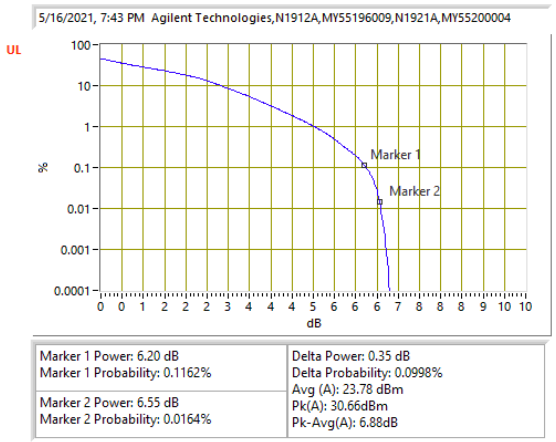


5G NR Bn71 20MHz BPSK Middle Channel



5G NR Bn71 20MHz 16QAM Middle Channel

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

Test Engineer ID:	24552	Test Date:	5/17/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
5G NR Band n77	20MHz	3500.0	50	0	BPSK	31.20	27.39	3.81
					16QAM	31.87	25.86	6.01
	30MHz		75	0	BPSK	31.76	26.87	4.89
					16QAM	32.02	25.94	6.08
	40MHz		100	0	BPSK	31.62	27.85	3.77
					16QAM	31.99	26.33	5.66
	50MHz		128	0	BPSK	31.46	27.65	3.81
					16QAM	31.95	26.21	5.74
	60MHz		162	0	BPSK	31.20	27.53	3.67
					16QAM	32.05	26.36	5.69
	70MHz		180	0	BPSK	31.84	28.01	3.83
					16QAM	32.13	25.84	6.29
	80MHz		216	0	BPSK	31.43	28.04	3.39
					16QAM	31.79	26.43	5.36
	90MHz		243	0	BPSK	31.33	27.96	3.37
					16QAM	31.70	26.34	5.36
	100MHz		270	0	BPSK	31.07	28.01	3.06
					16QAM	31.53	26.33	5.20

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

Test Engineer ID:	24552	Test Date:	5/17/2021

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
5G NR Band n77	20MHz	3840.0	50	0	BPSK	31.42	27.18	4.24
					16QAM	31.90	25.72	6.18
	30MHz		75	0	BPSK	30.92	27.19	3.73
					16QAM	31.99	25.69	6.30
	40MHz		100	0	BPSK	31.35	27.22	4.13
					16QAM	31.98	25.13	6.85
	50MHz		128	0	BPSK	30.52	27.11	3.41
					16QAM	31.50	25.63	5.87
	60MHz		162	0	BPSK	31.06	27.05	4.01
					16QAM	31.74	25.5	6.24
	70MHz		180	0	BPSK	30.50	27.03	3.47
					16QAM	31.60	25.56	6.04
	80MHz		216	0	BPSK	30.05	27.08	2.97
					16QAM	31.15	25.52	5.63
	90MHz		243	0	BPSK	30.11	27.18	2.93
					16QAM	30.97	25.52	5.45
	100MHz		270	0	BPSK	29.85	27.11	2.74
					16QAM	30.77	25.41	5.36

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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.

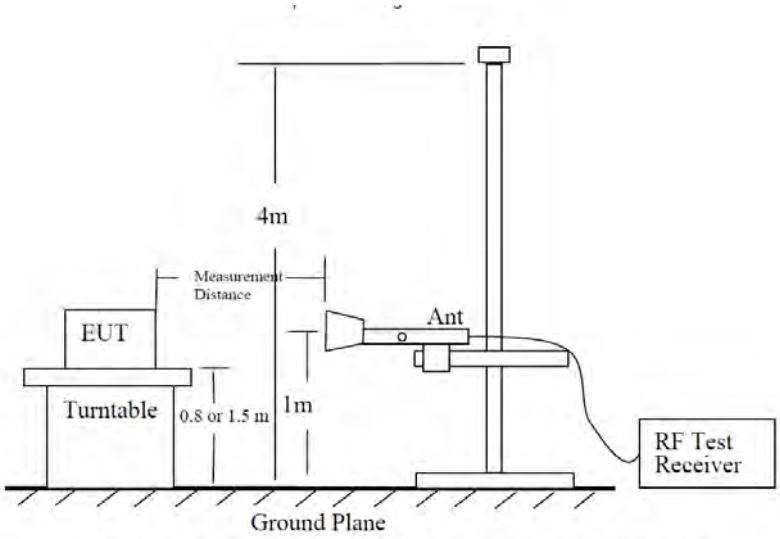

Figure 6 —Test site-up for radiated ERP and/or EIRP measurements

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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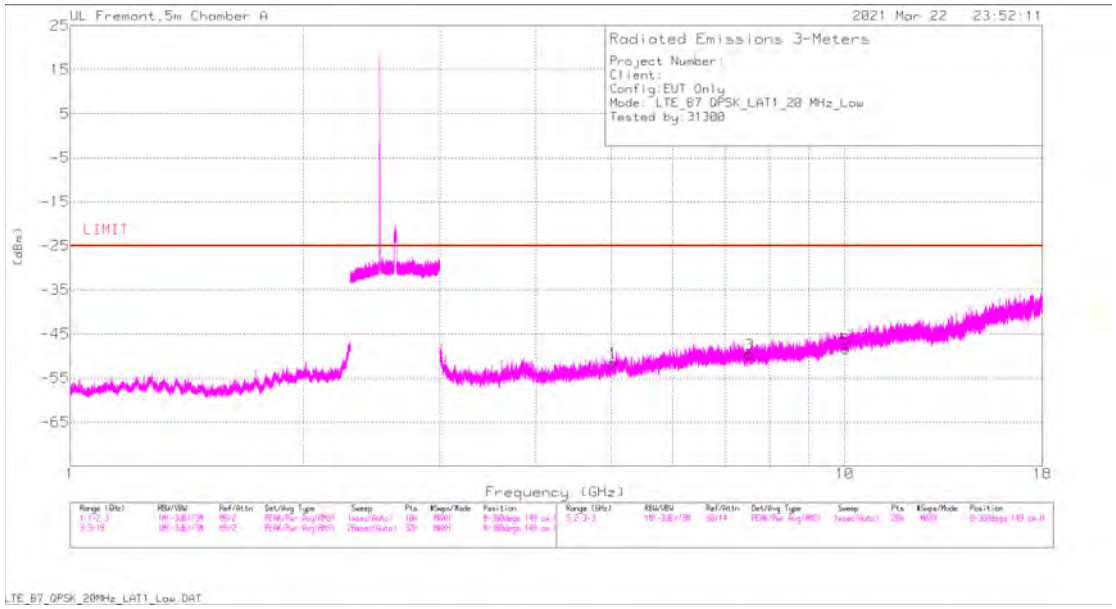
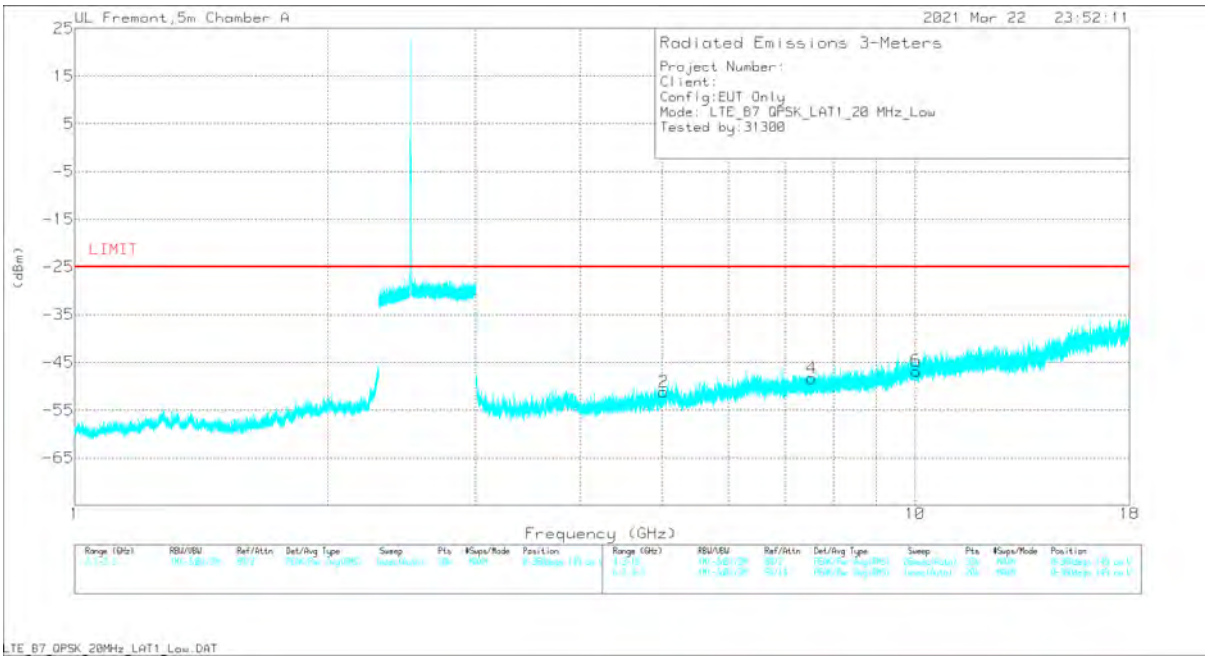
10.1. Example Plot

Horizontal Polarity



Vertical Polarity



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Trace Markers

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
5.01983	38.9	Pk	34.2	-26.5	.8	-95.2	-47.8	-25	-22.8	V
5.02011	39.21	Pk	34.2	-26.5	.8	-95.2	-47.49	-25	-22.49	H
7.529	35.72	Pk	36	-22.8	.3	-95.2	-45.98	-25	-20.98	H
7.53241	35.97	Pk	36	-22.8	.3	-95.2	-45.73	-25	-20.73	V
10.04001	35.37	Pk	37.3	-20.6	.7	-95.2	-42.43	-25	-17.43	H
10.04204	34.98	Pk	37.3	-20.6	.7	-95.2	-42.82	-25	-17.82	V

Pk - Peak detector

Radiated Emissions

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10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz, 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.

RESULTS

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10.2.1. 5G NR 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 n5 (20.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/14/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n5 BPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 834MHz										
1.66068	39.76	Pk	29	-30.7	.8	-95.2	-56.34	-13	-43.34	V
1.67811	36.9	Pk	28.9	-30.6	.7	-95.2	-59.3	-13	-46.3	H
2.51159	39.17	Pk	33.5	-29.7	.7	-95.2	-51.53	-13	-38.53	H
2.51487	38.94	Pk	33.5	-29.6	.7	-95.2	-51.66	-13	-38.66	V
3.31923	38.43	Pk	33	-28.6	.6	-95.2	-51.77	-13	-38.77	V
3.34584	37.34	Pk	33	-28.5	.5	-95.2	-52.86	-13	-39.86	H
Mid Channel, 836.5MHz										
1.67462	55.9	Pk	28.4	-45.1	.7	-95.2	-55.3	-13	-42.3	H
1.67735	55.36	Pk	28.4	-45.1	.7	-95.2	-55.84	-13	-42.84	V
2.49449	63.56	Pk	32.5	-44.2	.6	-95.2	-42.74	-13	-29.74	H
2.4947	59.83	Pk	32.5	-44.2	.6	-95.2	-46.47	-13	-33.47	V
3.32752	52.18	Pk	32.4	-42.4	.6	-95.2	-52.42	-13	-39.42	V
3.33544	51.94	Pk	32.5	-42.3	.5	-95.2	-52.56	-13	-39.56	H
High Channel, 839MHz										
1.66939	40.25	Pk	28.9	-30.6	.7	-95.2	-55.95	-13	-42.95	V
1.69229	39.57	Pk	29	-30.5	.7	-95.2	-56.43	-13	-43.43	H
2.51565	46.26	Pk	33.5	-29.5	.7	-95.2	-44.24	-13	-31.24	H
2.5164	39.96	Pk	33.5	-29.5	.7	-95.2	-50.54	-13	-37.54	V
3.31581	37.84	Pk	33	-28.7	.6	-95.2	-52.46	-13	-39.46	H
3.36628	38.2	Pk	33	-28.4	.6	-95.2	-51.8	-13	-38.8	V

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10.2.2. LTE BAND 7 AND 5G NR 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 #:	13573777
Date:	3/23/2021
Test Engineer:	31300
Configuration:	EUT only
Mode	LTE7 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.01983	38.9	Pk	34.2	-26.5	.8	-95.2	-47.8	-25	-22.8	V
5.02011	39.21	Pk	34.2	-26.5	.8	-95.2	-47.49	-25	-22.49	H
7.529	35.72	Pk	36	-22.8	.3	-95.2	-45.98	-25	-20.98	H
7.53241	35.97	Pk	36	-22.8	.3	-95.2	-45.73	-25	-20.73	V
10.04001	35.37	Pk	37.3	-20.6	.7	-95.2	-42.43	-25	-17.43	H
10.04204	34.98	Pk	37.3	-20.6	.7	-95.2	-42.82	-25	-17.82	V
Mid Channel, 2535MHz										
5.07087	38.57	Pk	34.3	-25.9	.7	-95.2	-47.53	-25	-22.53	V
5.07228	38.11	Pk	34.3	-25.9	.7	-95.2	-47.99	-25	-22.99	H
7.60394	35.87	Pk	35.9	-22.6	.4	-95.2	-45.63	-25	-20.63	H
7.60701	36.41	Pk	35.9	-22.6	.4	-95.2	-45.09	-25	-20.09	V
10.13917	34.58	Pk	37.5	-20.5	.7	-95.2	-42.92	-25	-17.92	H
10.14195	34.93	Pk	37.5	-20.5	.6	-95.2	-42.67	-25	-17.67	V
High Channel, 2560MHz										
5.12179	38.96	Pk	34.6	-26.4	.8	-95.2	-47.24	-25	-22.24	V
5.12422	37.98	Pk	34.5	-26.4	.8	-95.2	-48.32	-25	-23.32	H
7.67854	35.64	Pk	35.9	-22.1	.5	-95.2	-45.26	-25	-20.26	V
7.67961	35.14	Pk	35.9	-22.1	.5	-95.2	-45.76	-25	-20.76	H
10.23953	34.68	Pk	37.6	-20.1	.8	-95.2	-42.22	-25	-17.22	H
10.24169	35.65	Pk	37.6	-20.1	.8	-95.2	-41.25	-25	-16.25	V

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BPSK 5G NR n7 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/14/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n7 BPSK 40MHz
Chamber #:	Chamber A
Project #:	13571607

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2540MHz										
4.92982	51.42	Pk	33.8	-41.9	1.1	-95.2	-50.78	-25	-25.78	V
5.44507	50.24	Pk	34.3	-40.6	.6	-95.2	-50.66	-25	-25.66	H
7.03897	48.9	Pk	35.6	-38.4	.6	-95.2	-48.5	-25	-23.5	V
7.67012	48.42	Pk	35.7	-38.1	.3	-95.2	-48.88	-25	-23.88	H
9.10257	46.98	Pk	36.2	-35.9	.4	-95.2	-47.52	-25	-22.52	H
12.04652	47.08	Pk	38.7	-35.4	.6	-95.2	-44.22	-25	-19.22	V
Mid Channel, 2535MHz										
4.48488	51.81	Pk	33.7	-42	.6	-95.2	-51.09	-25	-26.09	H
4.55942	51.45	Pk	34	-41.9	.5	-95.2	-51.15	-25	-26.15	V
6.46715	48.58	Pk	35.5	-38.9	.5	-95.2	-49.52	-25	-24.52	H
7.15718	48.3	Pk	35.7	-38.5	.4	-95.2	-49.3	-25	-24.3	V
9.14007	47.47	Pk	36.2	-36.2	.4	-95.2	-47.33	-25	-22.33	H
9.93944	49	Pk	37	-37.1	.7	-95.2	-45.6	-25	-20.6	V
High Channel, 2550MHz										
4.78307	52.06	Pk	33.9	-41.8	.7	-95.2	-50.34	-25	-25.34	H
4.92062	51.6	Pk	33.8	-41.9	1.1	-95.2	-50.6	-25	-25.6	V
7.14165	48.63	Pk	35.7	-38.6	.4	-95.2	-49.07	-25	-24.07	H
8.36479	48.47	Pk	35.8	-36.8	.4	-95.2	-47.33	-25	-22.33	V
10.47087	48.47	Pk	37.5	-35.8	.7	-95.2	-44.33	-25	-19.33	V
10.74968	46.35	Pk	37.8	-34.7	.8	-95.2	-44.95	-25	-19.95	H

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10.2.3. LTE BAND 12 AND 5G NR 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 #:	13573777
Date:	3/25/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.40264	43.47	Pk	29.2	-31	.9	-95.2	-52.63	-13	-39.63	V
1.40793	43.4	Pk	29.1	-31	.9	-95.2	-52.8	-13	-39.8	H
2.10978	40.54	Pk	31.7	-30.1	.5	-95.2	-52.56	-13	-39.56	H
2.11092	40.68	Pk	31.7	-30.1	.5	-95.2	-52.42	-13	-39.42	V
2.81729	39.41	Pk	32.6	-29	.6	-95.2	-51.59	-13	-38.59	H
2.82556	39.95	Pk	32.6	-28.9	.7	-95.2	-50.85	-13	-37.85	V
Mid Channel, 707.5MHz										
1.40133	43.1	Pk	29.2	-31.1	.9	-95.2	-53.1	-13	-40.1	V
1.41481	41.66	Pk	29.1	-31	.9	-95.2	-54.54	-13	-41.54	H
2.12046	40.55	Pk	31.6	-30	.5	-95.2	-52.55	-13	-39.55	V
2.12212	44.5	Pk	31.6	-30	.5	-95.2	-48.6	-13	-35.6	H
2.82945	40.53	Pk	32.5	-28.9	.7	-95.2	-50.37	-13	-37.37	V
2.83356	41.07	Pk	32.5	-28.9	.7	-95.2	-49.83	-13	-36.83	H
High Channel, 711MHz										
1.41391	43.48	Pk	29.1	-31	.9	-95.2	-52.72	-13	-39.72	V
1.42731	42.77	Pk	29	-30.9	.9	-95.2	-53.43	-13	-40.43	H
2.12743	41.46	Pk	31.6	-30	.5	-95.2	-51.64	-13	-38.64	V
2.14023	41.52	Pk	31.5	-29.9	.5	-95.2	-51.58	-13	-38.58	H
2.82865	41.04	Pk	32.5	-28.9	.7	-95.2	-49.86	-13	-36.86	H
2.82924	41.13	Pk	32.5	-28.9	.7	-95.2	-49.77	-13	-36.77	V

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BPSK 5G NR n12 (15.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/17/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n12 BPSK 15MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.42013	40.38	Pk	29.1	-30.9	.9	-95.2	-55.72	-13	-42.72	H
1.47174	40.19	Pk	28.7	-30.9	.9	-95.2	-56.31	-13	-43.31	V
2.0983	42.56	Pk	31.9	-30.2	.5	-95.2	-50.44	-13	-37.44	H
2.12028	38.96	Pk	31.6	-30	.5	-95.2	-54.14	-13	-41.14	V
2.8025	38.09	Pk	32.8	-29.1	.5	-95.2	-52.91	-13	-39.91	V
2.83621	38.8	Pk	32.5	-28.9	.7	-95.2	-52.1	-13	-39.1	H
Mid Channel, 707.5MHz										
1.4195	40.25	Pk	29.1	-30.9	.9	-95.2	-55.85	-13	-42.85	V
1.42314	39.96	Pk	29	-31	.9	-95.2	-56.34	-13	-43.34	H
2.10788	38.87	Pk	31.7	-30	.5	-95.2	-54.13	-13	-41.13	V
2.11151	39.63	Pk	31.7	-30.1	.5	-95.2	-53.47	-13	-40.47	H
2.84442	38.46	Pk	32.5	-29.1	.7	-95.2	-52.64	-13	-39.64	V
2.86842	37.44	Pk	32.6	-28.8	.5	-95.2	-53.46	-13	-40.46	H
High Channel, 711MHz										
1.40816	40.22	Pk	29.1	-31	.9	-95.2	-55.98	-13	-42.98	H
1.41591	40.8	Pk	29.1	-31	.9	-95.2	-55.4	-13	-42.4	V
2.09789	38.94	Pk	31.9	-30.2	.5	-95.2	-54.06	-13	-41.06	H
2.13431	39.37	Pk	31.5	-29.9	.5	-95.2	-53.73	-13	-40.73	V
2.81872	37.38	Pk	32.6	-28.9	.6	-95.2	-53.52	-13	-40.52	V
2.83363	37.78	Pk	32.5	-28.9	.7	-95.2	-53.12	-13	-40.12	H

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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 #:	13573777
Date:	3/25/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 782MHz										
1.56127	42.03	Pk	28.4	-30.8	.8	-95.2	-54.77	-40	-14.77	H
1.56151	41.78	Pk	28.4	-30.8	.8	-95.2	-55.02	-40	-15.02	V
2.33377	41.19	Pk	32.3	-29.9	.6	-95.2	-51.01	-13	-38.01	V
2.34058	41.91	Pk	32.3	-29.8	.5	-95.2	-50.29	-13	-37.29	H
3.12854	38.84	Pk	32.8	-28.8	.6	-95.2	-51.76	-13	-38.76	H
3.13761	40.28	Pk	32.7	-28.8	.6	-95.2	-50.42	-13	-37.42	V

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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 #:	13573777
Date:	3/25/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 793MHz										
1.57405	42.24	Pk	28.5	-30.9	.9	-95.2	-54.46	-40	-14.46	V
1.58944	42.58	Pk	28.5	-30.9	.8	-95.2	-54.22	-40	-14.22	H
2.36558	40.04	Pk	32.4	-29.6	.5	-95.2	-51.86	-13	-38.86	H
2.36804	39.91	Pk	32.4	-29.6	.5	-95.2	-51.99	-13	-38.99	V
3.16206	40.46	Pk	32.6	-28.8	.5	-95.2	-50.44	-13	-37.44	V
3.16477	40.25	Pk	32.6	-28.7	.5	-95.2	-50.55	-13	-37.55	H

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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 #:	13573777
Date:	3/17/2021
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 709MHz										
1.4092	70.01	Pk	28.6	-45	.9	-95.2	-40.69	-13	-27.69	H
1.4093	59.37	Pk	28.6	-45	.9	-95.2	-51.33	-13	-38.33	V
2.1138	54.69	Pk	31.7	-45.3	.5	-95.2	-53.61	-13	-40.61	V
2.11393	58.64	Pk	31.7	-45.3	.5	-95.2	-49.66	-13	-36.66	H
2.83442	53.39	Pk	32.7	-43.8	.7	-95.2	-52.21	-13	-39.21	V
2.83482	53.37	Pk	32.7	-43.8	.7	-95.2	-52.23	-13	-39.23	H
Mid Channel, 710MHz										
1.41104	43.27	Pk	29.1	-31	.9	-95.2	-52.93	-13	-39.93	H
1.41129	43.37	Pk	29.1	-31	.9	-95.2	-52.83	-13	-39.83	V
2.14011	41.31	Pk	31.5	-29.9	.5	-95.2	-51.79	-13	-38.79	H
2.14158	42.14	Pk	31.5	-29.9	.5	-95.2	-50.96	-13	-37.96	V
2.82913	40.56	Pk	32.5	-28.9	.7	-95.2	-50.34	-13	-37.34	V
2.84083	41.02	Pk	32.5	-29	.7	-95.2	-49.98	-13	-36.98	H
High Channel, 711MHz										
1.41297	55.64	Pk	28.6	-45	.9	-95.2	-55.06	-13	-42.06	V
1.41316	66.55	Pk	28.5	-45	.9	-95.2	-44.25	-13	-31.25	H
2.13213	55.6	Pk	31.7	-45.2	.5	-95.2	-52.6	-13	-39.6	V
2.13356	55.02	Pk	31.7	-45.2	.5	-95.2	-53.18	-13	-40.18	H
2.84435	52.37	Pk	32.7	-43.7	.7	-95.2	-53.13	-13	-40.13	H
2.84501	53.12	Pk	32.7	-43.7	.7	-95.2	-52.38	-13	-39.38	V

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10.2.7. LTE BAND 25 AND 5G NR 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 #:	13573777
Date:	4/23/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.72671	39.17	Pk	33.5	-26.8	-95.2	-49.33	-13	-36.33	V
3.74378	39.41	Pk	33.5	-27	-95.2	-49.29	-13	-36.29	H
5.57567	37.42	Pk	35	-24.7	-95.2	-47.48	-13	-34.48	V
5.59995	36.62	Pk	35	-24.3	-95.2	-47.88	-13	-34.88	H
7.44953	35.38	Pk	36.1	-22.8	-95.2	-46.52	-13	-33.52	V
7.45611	35.66	Pk	36.2	-22.8	-95.2	-46.14	-13	-33.14	H
Mid Channel, 1882.5MHz									
3.77241	38.82	Pk	33.6	-26.9	-95.2	-49.68	-13	-36.68	V
3.7764	39.61	Pk	33.6	-26.9	-95.2	-48.89	-13	-35.89	H
5.45859	37.76	Pk	34.9	-26.1	-95.2	-48.64	-13	-35.64	H
5.4605	36.88	Pk	34.8	-26	-95.2	-49.52	-13	-36.52	V
7.58635	35.34	Pk	35.9	-21.4	-95.2	-45.36	-13	-32.36	V
7.58974	35.67	Pk	35.9	-21.4	-95.2	-45.03	-13	-32.03	H
High Channel, 1905MHz									
3.8047	39.45	Pk	33.7	-27.3	-95.2	-49.35	-13	-36.35	V
3.82298	38.94	Pk	33.7	-27.4	-95.2	-49.96	-13	-36.96	H
5.72311	37.37	Pk	35.2	-25.6	-95.2	-48.23	-13	-35.23	H
5.74819	37.29	Pk	35.2	-25.6	-95.2	-48.31	-13	-35.31	V
7.6022	34.72	Pk	35.9	-21.3	-95.2	-45.88	-13	-32.88	V
7.63956	35.19	Pk	35.9	-21.2	-95.2	-45.31	-13	-32.31	H

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BPSK 5G NR n25 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/21/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.70547	49.15	Pk	33.1	-40.3	-95.2	-53.25	-13	-40.25	V
3.74156	49.87	Pk	33.2	-40.5	-95.2	-52.63	-13	-39.63	H
5.57906	48.72	Pk	34.3	-39.9	-95.2	-52.08	-13	-39.08	H
5.58	48.05	Pk	34.3	-39.9	-95.2	-52.75	-13	-39.75	V
7.45828	45.55	Pk	35.6	-38	-95.2	-52.05	-13	-39.05	V
7.49813	47.22	Pk	35.6	-38	-95.2	-50.38	-13	-37.38	H
Mid Channel, 1882.5MHz									
3.71719	49.5	Pk	33.1	-40.4	-95.2	-53	-13	-40	V
3.74344	49.48	Pk	33.3	-40.6	-95.2	-53.02	-13	-40.02	H
5.6475	48.04	Pk	34.3	-39.5	-95.2	-52.36	-13	-39.36	V
5.69719	49.01	Pk	34.3	-39.2	-95.2	-51.09	-13	-38.09	H
7.51125	46.59	Pk	35.7	-38	-95.2	-50.91	-13	-37.91	V
7.51641	46.58	Pk	35.6	-38	-95.2	-51.02	-13	-38.02	H
High Channel, 1905MHz									
3.75375	48.68	Pk	33.3	-40.5	-95.2	-53.72	-13	-40.72	V
3.79922	48.62	Pk	33.3	-40.6	-95.2	-53.88	-13	-40.88	H
5.70656	47.51	Pk	34.3	-39.2	-95.2	-52.59	-13	-39.59	H
5.72391	47.94	Pk	34.3	-39.2	-95.2	-52.16	-13	-39.16	V
7.61859	47.28	Pk	35.7	-37.6	-95.2	-49.82	-13	-36.82	V
7.62797	47.08	Pk	35.7	-37.6	-95.2	-50.02	-13	-37.02	H

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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.

QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	3/25/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE26 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 819MHz										
1.66591	41.89	Pk	28.9	-30.6	.7	-95.2	-54.31	-13	-41.31	H
1.66667	42.2	Pk	28.9	-30.6	.7	-95.2	-54.0	-13	-41.0	V
2.48948	44.97	Pk	33.4	-29.8	.6	-95.2	-46.03	-13	-33.03	H
2.48979	43.73	Pk	33.4	-29.8	.6	-95.2	-47.27	-13	-34.27	V
3.32695	41.23	Pk	33	-28.7	.6	-95.2	-49.07	-13	-36.07	H
3.32929	40.38	Pk	33	-28.7	.6	-95.2	-49.92	-13	-36.92	V

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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 #:	13573777
Date:	3/25/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE26 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz										
1.59893	42.38	Pk	28	-34.9	.8	-95.2	-58.92	-13	-45.92	V
1.60187	43.8	Pk	28	-34.9	.7	-95.2	-57.6	-13	-44.6	H
2.46671	46.46	Pk	32.6	-34.8	.5	-95.2	-50.44	-13	-37.44	H
2.46671	46.64	Pk	32.6	-34.8	.5	-95.2	-50.26	-13	-37.26	V
3.54618	43.38	Pk	33.1	-33.3	.5	-95.2	-51.52	-13	-38.52	H
3.57111	41.41	Pk	33.2	-33.2	.6	-95.2	-53.19	-13	-40.19	V
Mid Channel, 836.5MHz										
1.62157	42.23	Pk	28.9	-30.9	.6	-95.2	-54.37	-13	-41.37	V
1.63012	42.12	Pk	29.1	-30.8	.7	-95.2	-54.08	-13	-41.08	H
2.44105	41.55	Pk	33	-29.8	.5	-95.2	-49.95	-13	-36.95	V
2.44365	43.74	Pk	33	-29.8	.5	-95.2	-47.76	-13	-34.76	H
3.26038	39.73	Pk	33.1	-28.5	.5	-95.2	-50.37	-13	-37.37	V
3.2847	39.59	Pk	33	-28.3	.8	-95.2	-50.11	-13	-37.11	H
High Channel, 844MHz										
1.79498	43.97	Pk	30.2	-34.9	.6	-95.2	-55.33	-13	-42.33	H
1.81502	43.09	Pk	30.5	-34.8	.6	-95.2	-55.81	-13	-42.81	V
2.51902	46.87	Pk	32.7	-34.7	.8	-95.2	-49.53	-13	-36.53	H
2.51902	47.77	Pk	32.7	-34.7	.8	-95.2	-48.63	-13	-35.63	V
3.28609	41.99	Pk	32.8	-33.8	.8	-95.2	-53.41	-13	-40.41	H
3.34329	42.41	Pk	32.5	-33.7	.6	-95.2	-53.39	-13	-40.39	V

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10.2.10. LTE BAND 30

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 #:	13573777
Date:	4/4/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	LTE30 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.68982	31.67	RMS	32.4	-23.8	-95.2	-54.93	-40	-14.93	H
4.80918	31.14	RMS	33	-22.6	-95.2	-53.66	-40	-13.66	V
6.51901	28.89	RMS	35.2	-21	-95.2	-52.11	-40	-12.11	H
6.5688	28.76	RMS	35.4	-20.7	-95.2	-51.74	-40	-11.74	V
8.99655	28.47	RMS	38.5	-18	-95.2	-46.23	-40	-6.23	V
8.99769	28.17	RMS	38.5	-17.9	-95.2	-46.43	-40	-6.43	H

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10.2.11. LTE BAND 41 AND 5G NR 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.

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13573777
Date:	3/24/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE41 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
4.99729	38.63	Pk	34.1	-26.8	.8	-95.2	-48.47	-25	-23.47	V
5.02236	38.67	Pk	34.2	-26.4	.7	-95.2	-48.03	-25	-23.03	H
7.48115	34.94	Pk	36.1	-22.8	.3	-95.2	-46.66	-25	-21.66	V
7.48613	34.92	Pk	36	-22.8	.3	-95.2	-46.78	-25	-21.78	H
10.30317	34.63	Pk	37.7	-19.8	.6	-95.2	-42.07	-25	-17.07	H
10.32299	34.46	Pk	37.7	-20.1	.6	-95.2	-42.54	-25	-17.54	V
Mid Channel, 2593MHz										
5.13914	38.95	Pk	34.6	-26.2	.8	-95.2	-47.05	-25	-22.05	V
5.20128	38.2	Pk	34.5	-25.8	.9	-95.2	-47.4	-25	-22.4	H
7.74866	35.36	Pk	35.9	-22.3	.3	-95.2	-45.94	-25	-20.94	V
7.75564	35.5	Pk	35.9	-22.4	.3	-95.2	-45.9	-25	-20.9	H
10.25315	34.08	Pk	37.6	-20.1	.7	-95.2	-42.92	-25	-17.92	V
10.30649	34.36	Pk	37.7	-19.9	.6	-95.2	-42.44	-25	-17.44	H
High Channel, 2680MHz										
5.32237	37.61	Pk	34.8	-26.5	.8	-95.2	-48.49	-25	-23.49	V
5.3606	36.62	Pk	34.8	-26.2	.5	-95.2	-49.48	-25	-24.48	H
7.99103	34.56	Pk	36.2	-22.2	.3	-95.2	-46.34	-25	-21.34	V
8.02303	35.07	Pk	36.1	-22.2	.3	-95.2	-45.93	-25	-20.93	H
10.73445	34.51	Pk	37.8	-19.7	.7	-95.2	-41.89	-25	-16.89	V
10.75306	34.18	Pk	37.8	-19.3	.9	-95.2	-41.62	-25	-16.62	H

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BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/29/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n41 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
4.99078	34.29	Pk	33.6	-23.1	.7	-95.2	-49.71	-25	-24.71	V
5.04141	34.85	Pk	33.7	-23.5	.6	-95.2	-49.55	-25	-24.55	H
7.51781	33.96	Pk	36.7	-21.3	.3	-95.2	-45.54	-25	-20.54	V
7.54828	35.1	Pk	36.9	-21.5	.3	-95.2	-44.4	-25	-19.4	H
10.92375	33.19	Pk	39.4	-17.1	.8	-95.2	-38.91	-25	-13.91	V
10.99078	33.04	Pk	39.5	-16.8	.7	-95.2	-38.76	-25	-13.76	H
Mid Channel, 2593MHz										
5.17922	36.21	Pk	33.7	-23.6	.7	-95.2	-48.19	-25	-23.19	V
5.17969	38.31	Pk	33.7	-23.6	.7	-95.2	-46.09	-25	-21.09	H
8.09859	35.51	Pk	37.2	-20.1	.3	-95.2	-42.29	-25	-17.29	V
8.14172	34.54	Pk	37.3	-20.3	.3	-95.2	-43.36	-25	-18.36	H
10.56891	32.52	Pk	39.6	-17.1	.8	-95.2	-39.38	-25	-14.38	H
10.81359	33.85	Pk	39.3	-17	.6	-95.2	-38.45	-25	-13.45	V
High Channel, 2680MHz										
4.99688	34.88	Pk	33.6	-23	.8	-95.2	-48.92	-25	-23.92	H
5.05078	34.48	Pk	33.8	-23.3	.6	-95.2	-49.62	-25	-24.62	V
7.27781	34.28	Pk	37.1	-20.4	.4	-95.2	-43.82	-25	-18.82	H
7.29281	33.14	Pk	37.1	-20.6	.4	-95.2	-45.16	-25	-20.16	V
10.33031	33.43	Pk	39	-17.4	.6	-95.2	-39.57	-25	-14.57	H
10.62328	33.77	Pk	39.5	-17	.6	-95.2	-38.33	-25	-13.33	V

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10.2.12. LTE BAND 66 AND 5G NR 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 #:	13573777
Date:	6/7/2021
Test Engineer:	25196
Configuration:	EUT only
Mode	LTE66 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.71203	41.12	Pk	33.3	-32.2	-95.2	-52.98	-13	-39.98	V
3.75891	42.31	Pk	33.5	-32.1	-95.2	-51.49	-13	-38.49	H
5.08781	40.86	Pk	34.2	-30.5	-95.2	-50.64	-13	-37.64	H
5.11875	40.11	Pk	34.2	-30.2	-95.2	-51.09	-13	-38.09	V
6.78609	36.78	Pk	35.7	-26.9	-95.2	-49.62	-13	-36.62	H
6.99281	38.11	Pk	35.7	-26.3	-95.2	-47.69	-13	-34.69	V
Mid Channel, 1745MHz									
3.77344	41.52	Pk	33.5	-32	-95.2	-52.18	-13	-39.18	V
3.80297	41.29	Pk	33.6	-31.8	-95.2	-52.11	-13	-39.11	H
5.16891	39.63	Pk	34.2	-29.4	-95.2	-50.77	-13	-37.77	V
5.17078	39.35	Pk	34.2	-29.4	-95.2	-51.05	-13	-38.05	H
7.19766	37.28	Pk	35.6	-26.1	-95.2	-48.42	-13	-35.42	H
7.29328	36.61	Pk	35.6	-25.9	-95.2	-48.89	-13	-35.89	V
High Channel, 1770MHz									
3.92578	41.46	Pk	33.8	-31.8	-95.2	-51.74	-13	-38.74	V
4.00828	39.6	Pk	33.7	-31.3	-95.2	-53.2	-13	-40.2	H
5.64703	40.78	Pk	35	-30.1	-95.2	-49.52	-13	-36.52	V
5.70563	39.81	Pk	34.8	-29.3	-95.2	-49.89	-13	-36.89	H
8.06578	36.77	Pk	35.9	-25.4	-95.2	-47.93	-13	-34.93	V
8.14406	37.61	Pk	35.9	-25.6	-95.2	-47.29	-13	-34.29	H

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BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/28/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	N66 BPSK 40MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1730MHz									
3.44719	50.51	Pk	32.6	-40.9	-95.2	-52.99	-13	-39.99	H
3.46031	49.21	Pk	32.6	-40.8	-95.2	-54.19	-13	-41.19	V
5.10234	48.52	Pk	34.1	-40.8	-95.2	-53.38	-13	-40.38	V
5.15578	48.9	Pk	34.2	-40.8	-95.2	-52.9	-13	-39.9	H
6.87094	47.99	Pk	35.5	-38.2	-95.2	-49.91	-13	-36.91	H
6.88359	46.7	Pk	35.5	-38.2	-95.2	-51.2	-13	-38.2	V
Mid Channel, 1745MHz									
3.46359	50.79	Pk	32.6	-40.8	-95.2	-52.61	-13	-39.61	V
3.48469	49.85	Pk	32.7	-41	-95.2	-53.65	-13	-40.65	H
5.22234	48.69	Pk	34.1	-41	-95.2	-53.41	-13	-40.41	V
5.2418	49.06	Pk	34.1	-40.9	-95.2	-52.94	-13	-39.94	H
6.93563	47.59	Pk	35.7	-38.3	-95.2	-50.21	-13	-37.21	V
6.97594	47.22	Pk	35.6	-38.3	-95.2	-50.68	-13	-37.68	H
High Channel, 1760MHz									
3.54469	49.27	Pk	32.9	-41	-95.2	-54.03	-13	-41.03	V
3.55125	50.25	Pk	32.8	-41	-95.2	-53.15	-13	-40.15	H
5.27297	48.66	Pk	34.1	-40.6	-95.2	-53.04	-13	-40.04	V
5.28281	49.64	Pk	34.2	-40.5	-95.2	-51.86	-13	-38.86	H
7.06172	47.13	Pk	35.6	-38.1	-95.2	-50.57	-13	-37.57	V
7.06734	46.75	Pk	35.6	-38.1	-95.2	-50.95	-13	-37.95	H

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10.2.13. LTE BAND 71 AND 5G NR 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 #:	13573777
Date:	5/30/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	LTE71 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)		EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.41662	36.7	Pk	29.1	-31	.9	-95.2	-59.5	-13	-46.5	V
1.43935	40.12	Pk	29	-30.9	.9	-95.2	-56.08	-13	-43.08	H
2.40167	43.42	Pk	32.7	-29.6	.5	-95.2	-48.18	-13	-35.18	H
2.40221	45.22	Pk	32.7	-29.6	.5	-95.2	-46.38	-13	-33.38	V
3.70438	37.05	Pk	33.4	-27.6	.7	-95.2	-51.65	-13	-38.65	H
3.76928	38.07	Pk	33.6	-27.9	.5	-95.2	-50.93	-13	-37.93	V
Mid Channel, 680.5MHz										
1.36977	41.01	Pk	29.7	-31.1	1	-95.2	-54.59	-13	-41.59	H
1.4386	40.82	Pk	29	-30.9	.9	-95.2	-55.38	-13	-42.38	V
2.03374	40.32	Pk	32.3	-30.3	.5	-95.2	-52.38	-13	-39.38	H
2.04537	40.7	Pk	32.2	-30.3	.5	-95.2	-52.1	-13	-39.1	V
2.9419	38.96	Pk	32.6	-28.9	.5	-95.2	-52.04	-13	-39.04	V
3.01503	38.52	Pk	32.9	-28.5	.4	-95.2	-51.88	-13	-38.88	H
High Channel, 688MHz										
1.37943	39.9	Pk	29.5	-31.1	1	-95.2	-55.9	-13	-42.9	V
1.42502	41.18	Pk	29	-31	.9	-95.2	-55.12	-13	-42.12	H
2.03621	39.36	Pk	32.3	-30.3	.6	-95.2	-53.24	-13	-40.24	V
2.03981	39.84	Pk	32.3	-30.3	.6	-95.2	-52.76	-13	-39.76	H
2.78743	39.39	Pk	32.8	-29.1	.5	-95.2	-51.61	-13	-38.61	H
2.8374	38.22	Pk	32.5	-28.9	.7	-95.2	-52.68	-13	-39.68	V

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BPSK 5G NR n71 (20.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/23/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	N71 BPSK 20MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.32697	58.07	Pk	28.7	-45.5	1.2	-95.2	-52.73	-13	-39.73	V
1.32721	63.06	Pk	28.7	-45.5	1.2	-95.2	-47.74	-13	-34.74	H
1.99067	57.21	Pk	30.9	-44.6	.5	-95.2	-51.19	-13	-38.19	H
2.00311	55.43	Pk	30.9	-44.7	.5	-95.2	-53.07	-13	-40.07	V
2.68024	54.03	Pk	32.3	-44	.6	-95.2	-52.27	-13	-39.27	V
2.68542	53.9	Pk	32.3	-44	.6	-95.2	-52.4	-13	-39.4	H
Mid Channel, 680.5MHz										
1.34967	54.91	Pk	28.6	-45.4	1	-95.2	-56.09	-13	-43.09	V
1.35109	61.74	Pk	28.6	-45.4	1	-95.2	-49.26	-13	-36.26	H
2.01587	55.25	Pk	30.8	-44.6	.5	-95.2	-53.25	-13	-40.25	V
2.02645	59.91	Pk	30.9	-44.6	.5	-95.2	-48.49	-13	-35.49	H
2.68133	53.81	Pk	32.3	-44	.6	-95.2	-52.49	-13	-39.49	H
2.68964	52.07	Pk	32.3	-44	.5	-95.2	-54.33	-13	-41.33	V
High Channel, 688MHz										
1.37538	61.14	Pk	28.5	-45.3	1	-95.2	-49.86	-13	-36.86	H
1.38134	55.59	Pk	28.5	-45.3	1	-95.2	-55.41	-13	-42.41	V
2.06256	55.68	Pk	31.1	-44.5	.5	-95.2	-52.42	-13	-39.42	V
2.0627	57.59	Pk	31.1	-44.5	.5	-95.2	-50.51	-13	-37.51	H
2.75337	54.3	Pk	32	-43.9	.5	-95.2	-52.3	-13	-39.3	V
2.75345	54.45	Pk	32	-43.9	.5	-95.2	-52.15	-13	-39.15	H

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10.3. FIELD STRENGTH OF SPURIOUS RADIATION, BELOW 1GHz, Ant 2

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

RESULTS

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10.3.1. 5G NR 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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QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	03/30/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE5 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 829MHz										
1.64925	41.9	Pk	29	-30.7	.8	-95.2	-54.2	-13	-41.2	V
1.66039	41.91	Pk	29	-30.7	.8	-95.2	-54.19	-13	-41.19	H
2.47365	50.1	Pk	33.3	-29.7	.5	-95.2	-41	-13	-28	V
2.47369	42.13	Pk	33.3	-29.7	.5	-95.2	-48.97	-13	-35.97	H
3.30171	39.19	Pk	33	-28.4	.8	-95.2	-50.61	-13	-37.61	V
3.31837	39.99	Pk	33	-28.7	.6	-95.2	-50.31	-13	-37.31	H
Mid Channel, 836.5MHz										
1.72006	41.93	Pk	29.8	-30.5	.6	-95.2	-53.37	-13	-40.37	H
1.72028	42.36	Pk	29.8	-30.5	.6	-95.2	-52.94	-13	-39.94	V
2.49222	39.84	Pk	33.5	-29.8	.6	-95.2	-51.06	-13	-38.06	V
2.5056	40.11	Pk	33.5	-29.7	.7	-95.2	-50.59	-13	-37.59	H
3.33972	38.71	Pk	32.9	-28.6	.5	-95.2	-51.69	-13	-38.69	V
3.34958	39.08	Pk	33	-28.5	.5	-95.2	-51.12	-13	-38.12	H
High Channel, 844MHz										
1.67795	42.42	Pk	28.9	-30.6	.7	-95.2	-53.78	-13	-40.78	H
1.68391	42.33	Pk	29	-30.6	.7	-95.2	-53.77	-13	-40.77	V
2.51875	46.5	Pk	33.5	-29.6	.8	-95.2	-44	-13	-31	H
2.51885	51.43	Pk	33.5	-29.6	.8	-95.2	-39.07	-13	-26.07	V
3.36758	39.93	Pk	33	-28.4	.6	-95.2	-50.07	-13	-37.07	V
3.37065	39.98	Pk	33	-28.6	.6	-95.2	-50.22	-13	-37.22	H

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BPSK 5G NR n5 (20.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/21/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	N5 BPSK 20MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 834MHz										
1.66249	53.36	Pk	28.4	-45.2	.8	-95.2	-57.84	-13	-44.84	V
1.66396	52.99	Pk	28.4	-45.1	.8	-95.2	-58.11	-13	-45.11	H
2.49116	53.09	Pk	32.5	-44.2	.6	-95.2	-53.21	-13	-40.21	H
2.49311	53.1	Pk	32.5	-44.2	.6	-95.2	-53.2	-13	-40.2	V
3.31298	50.71	Pk	32.4	-42.3	.6	-95.2	-53.79	-13	-40.79	H
3.31347	50.65	Pk	32.4	-42.3	.6	-95.2	-53.85	-13	-40.85	V
Mid Channel, 836.5MHz										
1.67667	54.29	Pk	28.4	-45.1	.7	-95.2	-56.91	-13	-43.91	V
1.68351	55.48	Pk	28.4	-45.1	.7	-95.2	-55.72	-13	-42.72	H
2.50191	54.22	Pk	32.5	-44.3	.6	-95.2	-52.18	-13	-39.18	V
2.50436	53.27	Pk	32.5	-44.3	.7	-95.2	-53.03	-13	-40.03	H
3.34427	50.81	Pk	32.4	-42.2	.5	-95.2	-53.69	-13	-40.69	V
3.34964	49.65	Pk	32.5	-42.2	.5	-95.2	-54.75	-13	-41.75	H
High Channel, 849MHz										
1.69329	53.16	Pk	28.5	-45	.7	-95.2	-57.84	-13	-44.84	H
1.69524	53.69	Pk	28.5	-45	.7	-95.2	-57.31	-13	-44.31	V
2.52244	51.16	Pk	32.3	-44.3	.8	-95.2	-55.24	-13	-42.24	V
2.53418	51.87	Pk	32.2	-44.2	.7	-95.2	-54.63	-13	-41.63	H
3.3692	49.66	Pk	32.5	-42	.6	-95.2	-54.44	-13	-41.44	V
3.37604	50.65	Pk	32.5	-42.1	.6	-95.2	-53.55	-13	-40.55	H
1.69329	53.16	Pk	28.5	-45	.7	-95.2	-57.84	-13	-44.84	H

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10.3.2. LTE BAND 7 AND 5G NR 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 #:	13573777
Date:	3/31/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE7 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
4.95609	35.77	Pk	34.1	-26.8	.6	-95.2	-51.53	-25	-26.53	V
4.97438	35.39	Pk	34.1	-27	.5	-95.2	-52.21	-25	-27.21	H
7.52578	32.9	Pk	36	-22.8	.3	-95.2	-48.8	-25	-23.8	V
7.55906	33.35	Pk	35.9	-22.7	.3	-95.2	-48.35	-25	-23.35	H
9.94359	32.21	Pk	37.3	-19.7	.6	-95.2	-44.79	-25	-19.79	V
9.99141	31.38	Pk	37.3	-20	.5	-95.2	-46.02	-25	-21.02	H
Mid Channel, 2535MHz										
5.05734	34.59	Pk	34.3	-26.2	.6	-95.2	-51.91	-25	-26.91	V
5.08594	35.39	Pk	34.4	-26	.8	-95.2	-50.61	-25	-25.61	H
7.60641	33.49	Pk	35.9	-22.6	.4	-95.2	-48.01	-25	-23.01	V
7.61109	33.23	Pk	35.9	-22.6	.4	-95.2	-48.27	-25	-23.27	H
10.11563	32.11	Pk	37.4	-20.4	.7	-95.2	-45.39	-25	-20.39	V
10.16203	31.97	Pk	37.5	-20.4	.5	-95.2	-45.63	-25	-20.63	H
High Channel, 2560MHz										
5.16984	34.53	Pk	34.6	-26.3	.7	-95.2	-51.67	-25	-26.67	V
5.17641	35.29	Pk	34.6	-26.2	.7	-95.2	-50.81	-25	-25.81	H
7.6275	35.03	Pk	35.9	-22.4	.4	-95.2	-46.27	-25	-21.27	V
7.68703	33.63	Pk	35.8	-22.1	.5	-95.2	-47.37	-25	-22.37	H
10.18875	32.09	Pk	37.5	-20.4	.7	-95.2	-45.31	-25	-20.31	V
10.23844	31.85	Pk	37.6	-20.1	.8	-95.2	-45.05	-25	-20.05	H

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BPSK 5G NR n7 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/23/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	N7 BPSK 40MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
4.72011	52.89	Pk	33.7	-41.8	.7	-95.2	-49.71	-25	-24.71	V
5.11197	51.61	Pk	34	-41.7	.8	-95.2	-50.49	-25	-25.49	H
6.54085	48.61	Pk	35.6	-38.9	.6	-95.2	-49.29	-25	-24.29	V
7.43595	48.35	Pk	35.6	-38.4	.3	-95.2	-49.35	-25	-24.35	H
9.90634	48.72	Pk	37	-37.4	.8	-95.2	-46.08	-25	-21.08	H
10.40618	48.57	Pk	37.5	-36.5	.8	-95.2	-44.83	-25	-19.83	V
Mid Channel, 2535MHz										
5.0475	48.75	Pk	34	-41.7	.6	-95.2	-53.55	-25	-28.55	V
5.08219	49.1	Pk	34	-41.8	.8	-95.2	-53.1	-25	-28.1	H
7.57406	49.91	Pk	35.6	-38.3	.4	-95.2	-47.59	-25	-22.59	H
7.57406	48.67	Pk	35.6	-38.3	.4	-95.2	-48.83	-25	-23.83	V
10.23516	46.42	Pk	37.3	-36.2	.8	-95.2	-46.88	-25	-21.88	V
10.26	45.91	Pk	37.3	-36.1	.7	-95.2	-47.39	-25	-22.39	H
High Channel, 2550MHz										
5.07563	49.6	Pk	34	-41.7	.7	-95.2	-52.6	-25	-27.6	V
5.11641	49.79	Pk	34.1	-41.6	.8	-95.2	-52.11	-25	-27.11	H
7.64625	49.74	Pk	35.7	-38.3	.4	-95.2	-47.66	-25	-22.66	H
7.64625	48.47	Pk	35.7	-38.3	.4	-95.2	-48.93	-25	-23.93	V
10.27453	46.33	Pk	37.3	-36.1	.7	-95.2	-46.97	-25	-21.97	V
10.275	46.13	Pk	37.3	-36.2	.7	-95.2	-47.27	-25	-22.27	H

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10.3.3. LTE BAND 12 AND 5G NR 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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BAND 12 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	3/30/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE12 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel,704MHz										
1.39881	44.29	Pk	29.2	-31.1	.9	-95.2	-51.91	-13	-38.91	V
1.40765	43.37	Pk	29.1	-31	.9	-95.2	-52.83	-13	-39.83	H
2.09867	47.31	Pk	31.9	-30.2	.5	-95.2	-45.69	-13	-32.69	V
2.10924	41	Pk	31.7	-30	.5	-95.2	-52	-13	-39	H
2.80955	39.4	Pk	32.7	-29	.6	-95.2	-51.5	-13	-38.5	V
2.81344	39.85	Pk	32.7	-29	.6	-95.2	-51.05	-13	-38.05	H
Mid Channel, 707.5MHz										
1.40624	45.98	Pk	29.1	-31	.9	-95.2	-50.22	-13	-37.22	V
1.40637	43.52	Pk	29.1	-31	.9	-95.2	-52.68	-13	-39.68	H
2.13648	41.02	Pk	31.6	-29.9	.5	-95.2	-51.98	-13	-38.98	H
2.13678	40.99	Pk	31.6	-29.9	.5	-95.2	-52.01	-13	-39.01	V
2.81912	40.07	Pk	32.6	-28.9	.6	-95.2	-50.83	-13	-37.83	V
2.8291	40.14	Pk	32.5	-28.9	.7	-95.2	-50.76	-13	-37.76	H
High Channel, 711MHz										
1.41303	45.85	Pk	29.1	-31	.9	-95.2	-50.35	-13	-37.35	V
1.41317	43.8	Pk	29.1	-31	.9	-95.2	-52.4	-13	-39.4	H
2.12062	40.86	Pk	31.6	-30	.5	-95.2	-52.24	-13	-39.24	V
2.12952	40.4	Pk	31.5	-30	.5	-95.2	-52.8	-13	-39.8	H
2.83387	39.97	Pk	32.5	-28.9	.7	-95.2	-50.93	-13	-37.93	H
2.83429	39.57	Pk	32.5	-28.9	.7	-95.2	-51.33	-13	-38.33	V

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BPSK 5G NR n12 (15.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/19/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	N12 BPSK 15MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel,706.5MHz										
1.4046	42.21	Pk	29.1	-31	.9	-95.2	-53.99	-13	-40.99	H
1.40472	42.85	Pk	29.1	-31	.9	-95.2	-53.35	-13	-40.35	V
2.12012	40.41	Pk	31.6	-30	.5	-95.2	-52.69	-13	-39.69	V
2.14196	39.31	Pk	31.5	-29.9	.5	-95.2	-53.79	-13	-40.79	H
2.82519	38.22	Pk	32.6	-28.9	.7	-95.2	-52.58	-13	-39.58	V
2.83512	39.93	Pk	32.5	-28.9	.7	-95.2	-50.97	-13	-37.97	H
Mid Channel, 707.5MHz										
1.40775	43.83	Pk	29.1	-31	.9	-95.2	-52.37	-13	-39.37	H
1.41714	40.78	Pk	29.1	-31	.9	-95.2	-55.42	-13	-42.42	V
2.11425	39.23	Pk	31.7	-30	.5	-95.2	-53.77	-13	-40.77	H
2.11904	39.75	Pk	31.6	-30	.5	-95.2	-53.35	-13	-40.35	V
2.83038	38.82	Pk	32.5	-28.9	.7	-95.2	-52.08	-13	-39.08	H
2.84525	39.52	Pk	32.5	-29.1	.7	-95.2	-51.58	-13	-38.58	V
High Channel, 708.5MHz										
1.41181	41.29	Pk	29.1	-31	.9	-95.2	-54.91	-13	-41.91	V
1.41645	42.67	Pk	29.1	-31	.9	-95.2	-53.53	-13	-40.53	H
2.12457	39.22	Pk	31.6	-30	.5	-95.2	-53.88	-13	-40.88	V
2.13208	40.09	Pk	31.5	-29.9	.5	-95.2	-53.01	-13	-40.01	H
2.81855	38.2	Pk	32.6	-28.9	.6	-95.2	-52.7	-13	-39.7	H
2.83993	38.77	Pk	32.5	-29	.7	-95.2	-52.23	-13	-39.23	V

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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 #:	13573777
Date:	3/19/2021
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE13 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 782MHz										
1.56423	55.09	Pk	27.8	-45.1	.9	-95.2	-56.51	-40	-16.51	H
1.56569	55.29	Pk	27.8	-45.1	.9	-95.2	-56.31	-40	-16.31	V
2.3312	54.61	Pk	32.4	-45.2	.6	-95.2	-52.79	-13	-39.79	V
2.33179	55.48	Pk	32.4	-45.2	.6	-95.2	-51.92	-13	-38.92	H
3.12915	52.09	Pk	33	-42.3	.6	-95.2	-51.81	-13	-38.81	H
3.12978	51.79	Pk	33	-42.3	.6	-95.2	-52.11	-13	-39.11	V

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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 #:	13573777
Date:	3/30/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE14 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 793MHz										
1.58375	41.8	Pk	28.4	-30.9	.8	-95.2	-55.1	-40	-15.1	H
1.59348	41.75	Pk	28.5	-30.8	.8	-95.2	-54.95	-40	-14.95	V
2.36591	41.16	Pk	32.4	-29.6	.5	-95.2	-50.74	-13	-37.74	H
2.366	40.5	Pk	32.4	-29.6	.5	-95.2	-51.4	-13	-38.4	V
3.1742	39.24	Pk	32.6	-28.6	.5	-95.2	-51.46	-13	-38.46	H
3.17926	38.65	Pk	32.6	-28.5	.5	-95.2	-51.95	-13	-38.95	V

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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 #:	13573777
Date:	5/18/2021
Test Engineer:	19226
Configuration:	EUT only
Mode	LTE17 QPSK 10MHz
Chamber #:	Chamber S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 709MHz										
1.41711	55.53	Pk	28.4	-45	.9	-95.2	-55.37	-13	-42.37	H
1.41948	54.77	Pk	28.4	-45	.9	-95.2	-56.13	-13	-43.13	V
2.12698	55.18	Pk	31.7	-45.2	.5	-95.2	-53.02	-13	-40.02	V
2.1287	55.31	Pk	31.7	-45.2	.5	-95.2	-52.89	-13	-39.89	H
2.83614	53.83	Pk	32.7	-43.8	.7	-95.2	-51.77	-13	-38.77	V
2.83624	53.96	Pk	32.7	-43.8	.7	-95.2	-51.64	-13	-38.64	H
Mid Channel, 710MHz										
1.42345	41.88	Pk	29	-31	.9	-95.2	-54.42	-13	-41.42	H
1.42632	41.27	Pk	29	-30.9	.9	-95.2	-54.93	-13	-41.93	V
2.13034	40.08	Pk	31.5	-30	.5	-95.2	-53.12	-13	-40.12	V
2.1376	40.79	Pk	31.6	-29.9	.5	-95.2	-52.21	-13	-39.21	H
2.84826	39.57	Pk	32.5	-29.1	.6	-95.2	-51.63	-13	-38.63	H
2.84874	40	Pk	32.5	-29.1	.6	-95.2	-51.2	-13	-38.2	V
High Channel, 711MHz										
1.42286	53.89	Pk	28.3	-45	.9	-95.2	-57.11	-13	-44.11	H
1.42362	53.63	Pk	28.3	-45	.9	-95.2	-57.37	-13	-44.37	V
2.13145	55.32	Pk	31.7	-45.2	.5	-95.2	-52.88	-13	-39.88	V
2.13333	54.88	Pk	31.7	-45.2	.5	-95.2	-53.32	-13	-40.32	H
2.84237	52.87	Pk	32.7	-43.8	.7	-95.2	-52.73	-13	-39.73	H
2.84536	53.36	Pk	32.7	-43.7	.7	-95.2	-52.14	-13	-39.14	V

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10.3.7. LTE BAND 25 AND 5G NR 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 #:	13573777
Date:	6/25/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	LTE25 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	PK Margin (dB)	Polarity
Low Channel, 1860MHz									
3.79547	41.41	Pk	30.8	-31.9	-95.2	-54.89	-13	-41.89	H
3.83672	40.75	Pk	31	-31.8	-95.2	-55.25	-13	-42.25	V
5.59594	39.9	Pk	33.3	-29.6	-95.2	-51.6	-13	-38.6	H
5.60438	39.46	Pk	33.2	-29.7	-95.2	-52.24	-13	-39.24	V
7.46109	36.95	Pk	36.8	-26.2	-95.2	-47.65	-13	-34.65	H
7.76063	37.4	Pk	37.1	-25.6	-95.2	-46.3	-13	-33.3	V
Mid Channel, 1882.5MHz									
3.69609	42.4	Pk	30.3	-32.3	-95.2	-54.8	-13	-41.8	H
3.82641	41.34	Pk	31	-31.8	-95.2	-54.66	-13	-41.66	V
5.69953	39.67	Pk	33.1	-29.4	-95.2	-51.83	-13	-38.83	V
5.79469	37.81	Pk	33.3	-28.4	-95.2	-52.49	-13	-39.49	H
7.69031	36.43	Pk	37	-26.2	-95.2	-47.97	-13	-34.97	H
7.87266	37.64	Pk	37.3	-26	-95.2	-46.26	-13	-33.26	V
High Channel, 1905MHz									
3.8925	40.47	Pk	31.4	-31.7	-95.2	-55.03	-13	-42.03	H
3.95109	40.14	Pk	31.6	-31.7	-95.2	-55.16	-13	-42.16	V
5.69906	40.01	Pk	33.1	-29.4	-95.2	-51.49	-13	-38.49	H
5.92594	38.9	Pk	34.2	-28.9	-95.2	-51.0	-13	-38.0	V
7.47938	37.24	Pk	36.8	-26.2	-95.2	-47.36	-13	-34.36	V
7.72125	37.44	Pk	37.1	-26.1	-95.2	-46.76	-13	-33.76	H

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BPSK 5G NR 25 (40.0MHZ BANDWIDTH)

Project #:	13571607
Date:	5/20/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n25 BPSK 40MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	PK Margin (dB)	Polarity
Low Channel, 1870MHz									
3.76539	37.57	Pk	33.7	-27	-95.2	-50.93	-13	-37.93	V
3.79363	36.78	Pk	33.7	-27.1	-95.2	-51.82	-13	-38.82	H
5.62808	33.46	Pk	35.2	-24.2	-95.2	-50.74	-13	-37.74	H
5.67997	34.81	Pk	35.2	-24.6	-95.2	-49.79	-13	-36.79	V
7.48614	33.76	Pk	36	-22.7	-95.2	-48.14	-13	-35.14	V
7.50955	32.75	Pk	36	-22.3	-95.2	-48.75	-13	-35.75	H
Mid Channel, 1882.5MHz									
3.76734	48.95	Pk	33.3	-40.3	-95.2	-53.25	-13	-40.25	V
3.78141	48.26	Pk	33.3	-40.4	-95.2	-54.04	-13	-41.04	H
5.61563	49.71	Pk	34.3	-39.6	-95.2	-50.79	-13	-37.79	V
5.65828	48.15	Pk	34.3	-39.6	-95.2	-52.35	-13	-39.35	H
7.54711	46.58	Pk	35.7	-38	-95.2	-50.92	-13	-37.92	H
7.55063	48.48	Pk	35.7	-37.9	-95.2	-48.92	-13	-35.92	V
High Channel, 1895MHz									
3.74741	36.29	Pk	33.5	-27	-95.2	-52.41	-13	-39.41	H
3.78378	37.18	Pk	33.6	-26.9	-95.2	-51.32	-13	-38.32	V
5.64333	34.25	Pk	35.2	-24.3	-95.2	-50.05	-13	-37.05	V
5.68963	35.26	Pk	35.2	-24.9	-95.2	-49.64	-13	-36.64	H
7.55975	32.66	Pk	35.9	-21.6	-95.2	-48.24	-13	-35.24	V
7.59195	32.6	Pk	35.9	-21.4	-95.2	-48.1	-13	-35.1	H

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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.

QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/23/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE26 QPSK 10MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1- 18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 819MHz										
1.62916	45.11	Pk	29.1	-30.8	.7	-95.2	-51.09	-13	-38.09	V
1.63693	41.03	Pk	29	-30.8	.7	-95.2	-55.27	-13	-42.27	H
2.44358	49.46	Pk	33	-29.8	.5	-95.2	-42.04	-13	-29.04	H
2.44374	52.32	Pk	33	-29.8	.5	-95.2	-39.18	-13	-26.18	V
3.28294	39.82	Pk	33.1	-28.3	.8	-95.2	-49.78	-13	-36.78	V
3.28398	31.94	Av	33.1	-28.3	.8	-95.2	-57.66	-13	-44.66	H

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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.

QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	7/7/2021
Test Engineer:	25196
Configuration:	EUT only
Mode	LTE26 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 829MHz										
1.7852	43.06	Pk	30	-34.9	.6	-95.2	-56.44	-13	-43.44	H
1.81453	43.05	Pk	30.5	-34.8	.6	-95.2	-55.85	-13	-42.85	V
2.46671	51.19	Pk	32.6	-34.8	.5	-95.2	-45.71	-13	-32.71	H
2.4672	50.92	Pk	32.6	-34.8	.5	-95.2	-45.98	-13	-32.98	V
3.11693	42.95	Pk	33	-34.1	.7	-95.2	-52.65	-13	-39.65	H
3.12231	42.27	Pk	32.9	-34.1	.7	-95.2	-53.43	-13	-40.43	V
Mid Channel, 836.5MHz										
1.62946	41.04	Pk	29.1	-30.8	.7	-95.2	-55.16	-13	-42.16	H
1.6308	42.27	Pk	29.1	-30.8	.7	-95.2	-53.93	-13	-40.93	V
2.48937	50.13	Pk	33.4	-29.8	.6	-95.2	-40.87	-13	-27.87	H
2.4897	46.33	Pk	33.4	-29.8	.6	-95.2	-44.67	-13	-31.67	V
3.26544	39.59	Pk	33	-28.5	.6	-95.2	-50.51	-13	-37.51	V
3.27014	39.37	Pk	33	-28.5	.7	-95.2	-50.63	-13	-37.63	H
High Channel, 844MHz										
1.6796	42.84	Pk	28.6	-34.9	.7	-95.2	-57.96	-13	-44.96	V
1.71578	43.72	Pk	29.3	-34.9	.6	-95.2	-56.48	-13	-43.48	H
2.51853	48.03	Pk	32.7	-34.7	.8	-95.2	-48.37	-13	-35.37	H
2.51853	46.51	Pk	32.7	-34.7	.8	-95.2	-49.89	-13	-36.89	V
3.11547	44.64	Pk	33	-34.1	.7	-95.2	-50.96	-13	-37.96	H
3.18978	42.44	Pk	32.8	-33.9	.6	-95.2	-53.26	-13	-40.26	V

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10.3.10. LTE BAND 30 AND 5G NR 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.

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/4/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	LTE30 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.69118	31.5	RMS	32.4	-23.8	-95.2	-55.1	-40	-15.1	V
4.69168	31.97	RMS	32.4	-23.8	-95.2	-54.63	-40	-14.63	H
6.86163	29.03	RMS	36.2	-20.8	-95.2	-50.77	-40	-10.77	H
6.9022	30	RMS	36.2	-20.9	-95.2	-49.9	-40	-9.9	V
8.93953	28.45	RMS	38.2	-18.5	-95.2	-47.05	-40	-7.05	V
8.99955	27.94	RMS	38.5	-17.9	-95.2	-46.66	-40	-6.66	H

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BPSK 5G NR 30 (10.0MHZ BANDWIDTH)

Project #:	13571607
Date:	6/9/2021
Test Engineer:	25196
Configuration:	EUT only
Mode	n30 BPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
5.09538	36.56	RMS	33.9	-30.4	-95.2	-55.14	-40	-15.14	H
5.12383	37.26	RMS	33.9	-30.1	-95.2	-54.14	-40	-14.14	V
7.76205	31.78	RMS	37.1	-25.6	-95.2	-51.92	-40	-11.92	V
7.95302	32.3	RMS	37.2	-26.2	-95.2	-51.9	-40	-11.9	H
10.40831	30.96	RMS	39.3	-24	-95.2	-48.94	-40	-8.94	V
10.51868	30.39	RMS	39.5	-24	-95.2	-49.31	-40	-9.31	H

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10.3.11. LTE BAND 41 AND 5G NR 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 #:	13573777
Date:	4/1/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE41 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
4.96078	35.29	Pk	34.1	-26.9	.6	-95.2	-52.11	-25	-27.11	V
4.99406	36.84	Pk	34.1	-26.9	.7	-95.2	-50.46	-25	-25.46	H
7.47891	32.77	Pk	36.1	-22.8	.3	-95.2	-48.83	-25	-23.83	V
7.51172	32.88	Pk	36	-22.6	.3	-95.2	-48.62	-25	-23.62	H
9.99609	32.88	Pk	37.2	-20	.5	-95.2	-44.62	-25	-19.62	V
10.04438	31.73	Pk	37.4	-20.6	.7	-95.2	-45.97	-25	-20.97	H
Mid Channel, 2593MHz										
5.17453	34.66	Pk	34.6	-26.3	.7	-95.2	-51.54	-25	-26.54	V
5.18859	35.88	Pk	34.6	-25.9	.8	-95.2	-49.82	-25	-24.82	H
7.70953	32.35	Pk	35.9	-22.2	.4	-95.2	-48.75	-25	-23.75	V
7.77891	32.74	Pk	35.9	-22.5	.3	-95.2	-48.76	-25	-23.76	H
10.27922	31.69	Pk	37.7	-19.7	.7	-95.2	-44.81	-25	-19.81	V
10.3275	31.59	Pk	37.7	-20	.6	-95.2	-45.31	-25	-20.31	H
High Channel, 2680MHz										
5.35078	34.87	Pk	34.8	-26.4	.5	-95.2	-51.43	-25	-26.43	V
5.35125	35.83	Pk	34.8	-26.4	.5	-95.2	-50.47	-25	-25.47	H
8.01281	33.55	Pk	36.1	-22.3	.3	-95.2	-47.55	-25	-22.55	V
8.04469	33.38	Pk	36.2	-22.2	.4	-95.2	-47.42	-25	-22.42	H
10.73766	33.35	Pk	37.8	-19.6	.7	-95.2	-42.95	-25	-17.95	H
10.73859	32.86	Pk	37.8	-19.6	.8	-95.2	-43.34	-25	-18.34	V

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BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	4/29/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n41 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09438	35.03	Pk	33.9	-23.8	.8	-95.2	-49.27	-25	-24.27	V
5.11313	36.1	Pk	33.9	-23.7	.8	-95.2	-48.1	-25	-23.1	H
7.21219	34.6	Pk	37.1	-20.9	.4	-95.2	-44.0	-25	-19.0	H
7.29234	33.39	Pk	37.1	-20.6	.4	-95.2	-44.91	-25	-19.91	V
10.44047	32.7	Pk	39.4	-16.9	.8	-95.2	-39.2	-25	-14.2	H
10.45359	31.86	Pk	39.4	-17.1	.7	-95.2	-40.34	-25	-15.34	V
Mid Channel, 2593MHz										
5.08359	35.62	Pk	33.8	-23.8	.8	-95.2	-48.78	-25	-23.78	H
5.11313	35.86	Pk	33.9	-23.7	.8	-95.2	-48.34	-25	-23.34	V
7.71094	34.96	Pk	37	-20.9	.4	-95.2	-43.74	-25	-18.74	H
7.81641	34.51	Pk	37.3	-20.8	.4	-95.2	-43.79	-25	-18.79	V
10.91297	33.4	Pk	39.4	-17.3	.7	-95.2	-39.0	-25	-14.0	V
10.95422	32.92	Pk	39.5	-17.2	.9	-95.2	-39.08	-25	-14.08	H
High Channel, 2640MHz										
5.05172	36.53	Pk	33.8	-23.3	.6	-95.2	-47.57	-25	-22.57	H
5.06578	35.01	Pk	33.8	-23.5	.6	-95.2	-49.29	-25	-24.29	V
7.78078	34.44	Pk	37.2	-20.8	.3	-95.2	-44.06	-25	-19.06	V
7.79813	35.26	Pk	37.2	-21	.4	-95.2	-43.34	-25	-18.34	H
10.44703	32.44	Pk	39.4	-16.9	.8	-95.2	-39.46	-25	-14.46	H
10.54359	32.47	Pk	39.5	-17.2	.5	-95.2	-39.93	-25	-14.93	V

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10.3.12. LTE BAND 66 AND 5G NR 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 #:	13573777
Date:	3/31/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE66 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.43078	36.62	Pk	33.1	-28.2	-95.2	-53.68	-13	-40.68	V
3.43313	36.62	Pk	33.1	-28.1	-95.2	-53.58	-13	-40.58	H
5.14266	37.1	Pk	34.5	-25.7	-95.2	-49.3	-13	-36.3	V
5.15297	34.95	Pk	34.6	-25.9	-95.2	-51.55	-13	-38.55	H
6.82078	32.71	Pk	36.5	-22.9	-95.2	-48.89	-13	-35.89	V
6.86813	34	Pk	36.3	-23.5	-95.2	-48.4	-13	-35.4	H
Mid Channel, 1745MHz									
3.50297	36.48	Pk	33.2	-27.4	-95.2	-52.92	-13	-39.92	V
3.51281	37.64	Pk	33.2	-27.3	-95.2	-51.66	-13	-38.66	H
5.22281	35.77	Pk	34.6	-26.2	-95.2	-51.03	-13	-38.03	H
5.23688	35.92	Pk	34.6	-26.2	-95.2	-50.88	-13	-37.88	V
6.97078	33.7	Pk	36.2	-23	-95.2	-48.3	-13	-35.3	V
6.97828	33.28	Pk	36.1	-22.7	-95.2	-48.52	-13	-35.52	H
High Channel, 1770MHz									
3.55641	36.8	Pk	33.3	-26.7	-95.2	-51.8	-13	-38.8	H
3.56672	35.83	Pk	33.3	-26.8	-95.2	-52.87	-13	-39.87	V
5.30109	35.26	Pk	34.7	-25.7	-95.2	-50.94	-13	-37.94	H
5.31656	34.24	Pk	34.7	-25.3	-95.2	-51.56	-13	-38.56	V
7.04766	33.7	Pk	36	-22.1	-95.2	-47.6	-13	-34.6	H
7.06359	32.74	Pk	36.1	-22	-95.2	-48.36	-13	-35.36	V

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BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/20/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n66 BPSK 40MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1730MHz									
3.41766	49.85	Pk	32.5	-41.1	-95.2	-53.95	-13	-40.95	V
3.44906	49.44	Pk	32.7	-40.9	-95.2	-53.96	-13	-40.96	H
5.11875	47.79	Pk	34.2	-40.7	-95.2	-53.91	-13	-40.91	V
5.15344	48.07	Pk	34.3	-40.8	-95.2	-53.63	-13	-40.63	H
6.84094	47.07	Pk	35.5	-38	-95.2	-50.63	-13	-37.63	V
6.87469	47.07	Pk	35.6	-38.2	-95.2	-50.73	-13	-37.73	H
Mid Channel, 1745MHz									
3.47625	49.28	Pk	32.7	-40.9	-95.2	-54.12	-13	-41.12	V
3.48375	49.71	Pk	32.7	-41	-95.2	-53.79	-13	-40.79	H
5.21156	49.02	Pk	34.2	-41	-95.2	-52.98	-13	-39.98	V
5.23875	49.63	Pk	34.1	-40.8	-95.2	-52.27	-13	-39.27	H
6.98953	46.89	Pk	35.6	-38.2	-95.2	-50.91	-13	-37.91	H
6.99281	46.63	Pk	35.6	-38.2	-95.2	-51.17	-13	-38.17	V
High Channel, 1760MHz									
3.54195	37.28	Pk	33.4	-27	-95.2	-51.52	-13	-38.52	V
3.54834	37.7	Pk	33.4	-26.8	-95.2	-50.9	-13	-37.9	H
5.27581	38.33	Pk	34.7	-25.7	-95.2	-47.87	-13	-34.87	V
5.27602	35.99	Pk	34.7	-25.7	-95.2	-50.21	-13	-37.21	H
7.03397	33.6	Pk	36.1	-22.4	-95.2	-47.9	-13	-34.9	H
7.04629	33.26	Pk	36.1	-22.1	-95.2	-47.94	-13	-34.94	V

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10.3.13. LTE BAND 71 AND 5G NR 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 #:	13573777
Date:	3/30/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	LTE71 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.33493	40.1	Pk	29.7	-31.3	1.1	-95.2	-55.6	-13	-42.6	V
1.34471	41.27	Pk	29.8	-31.3	1.1	-95.2	-54.33	-13	-41.33	H
2.02036	39.11	Pk	32.4	-30.3	.5	-95.2	-53.49	-13	-40.49	V
2.02182	39.09	Pk	32.4	-30.3	.5	-95.2	-53.51	-13	-40.51	H
2.67987	37.75	Pk	33	-29.5	.6	-95.2	-53.35	-13	-40.35	V
2.68329	38.13	Pk	33	-29.5	.6	-95.2	-52.97	-13	-39.97	H
Mid Channel, 680.5MHz										
1.41336	41.04	Pk	29.1	-31	.9	-95.2	-55.16	-13	-42.16	V
1.46007	39.96	Pk	28.8	-30.9	.9	-95.2	-56.44	-13	-43.44	H
2.07123	39.04	Pk	32.1	-30.3	.5	-95.2	-53.86	-13	-40.86	V
2.08958	39.68	Pk	31.9	-30.2	.5	-95.2	-53.32	-13	-40.32	H
2.8472	38.57	Pk	32.5	-29.1	.6	-95.2	-52.63	-13	-39.63	V
2.99757	38.5	Pk	32.9	-28.5	.5	-95.2	-51.8	-13	-38.8	H
High Channel, 688MHz										
1.37431	41.26	Pk	29.5	-31.1	1	-95.2	-54.54	-13	-41.54	V
1.46194	40.52	Pk	28.8	-30.9	.9	-95.2	-55.88	-13	-42.88	H
1.84834	39.09	Pk	31.4	-30.4	.5	-95.2	-54.61	-13	-41.61	V
2.03254	40.27	Pk	32.3	-30.3	.5	-95.2	-52.43	-13	-39.43	H
2.73568	39.32	Pk	33	-29.3	.5	-95.2	-51.68	-13	-38.68	V
2.76855	38.28	Pk	32.8	-28.8	.5	-95.2	-52.42	-13	-39.42	H

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BPSK 5G NR 71 (20.0MHZ BANDWIDTH)

Project #:	3573777
Date:	4/23/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n71 BPSK 20MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.32674	58.6	Pk	28.7	-45.5	1.2	-95.2	-52.2	-13	-39.2	H
1.32704	62.77	Pk	28.7	-45.5	1.2	-95.2	-48.03	-13	-35.03	V
1.98997	53.73	Pk	30.9	-44.7	.5	-95.2	-54.77	-13	-30.93	V
1.99028	53.83	Pk	30.9	-44.7	.5	-95.2	-54.67	-13	-41.67	H
2.65046	54.13	Pk	32.3	-44.2	.4	-95.2	-52.57	-13	-39.57	V
2.66069	53.82	Pk	32.2	-44.1	.5	-95.2	-52.78	-13	-39.78	H
Mid Channel, 680.5MHz										
1.35079	56.09	Pk	28.6	-45.4	1	-95.2	-54.91	-13	-41.91	H
1.35124	61.05	Pk	28.6	-45.4	1	-95.2	-49.95	-13	-36.95	V
2.02635	58.93	Pk	30.9	-44.5	.5	-95.2	-49.37	-13	-36.37	H
2.02654	60.26	Pk	30.9	-44.6	.5	-95.2	-48.14	-13	-35.14	V
2.72488	54.02	Pk	32.2	-44.1	.5	-95.2	-52.58	-13	-39.58	H
2.73813	54.27	Pk	32.1	-44	.5	-95.2	-52.33	-13	-39.33	V
High Channel, 688MHz										
1.37453	56.45	Pk	28.5	-45.4	1	-95.2	-54.65	-13	-41.65	V
1.38284	53.81	Pk	28.5	-45.3	1	-95.2	-57.19	-13	-44.19	H
2.0624	54.47	Pk	31.1	-44.5	.5	-95.2	-53.63	-13	-40.63	V
2.06533	54.26	Pk	31.1	-44.6	.5	-95.2	-53.94	-13	-40.94	H
2.74147	53.77	Pk	32.1	-43.9	.5	-95.2	-52.73	-13	-39.73	V
2.74831	52.43	Pk	32	-43.9	.5	-95.2	-54.17	-13	-41.17	H

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10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz, 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 5G NR 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 #:	13573777
Date:	4/2/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE7 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
4.98938	35.5	Pk	34.1	-27	.7	-95.2	-51.9	-25	-26.9	V
5.02547	35.93	Pk	34.2	-26.4	.7	-95.2	-50.77	-25	-25.77	H
7.46156	33.43	Pk	36.1	-22.7	.4	-95.2	-47.97	-25	-22.97	V
7.52156	33.34	Pk	36	-22.7	.3	-95.2	-48.26	-25	-23.26	H
9.975	32.4	Pk	37.3	-20.1	.5	-95.2	-45.1	-25	-20.1	V
10.06688	33.14	Pk	37.4	-20.6	.7	-95.2	-44.56	-25	-19.56	H
Mid Channel, 2535MHz										
5.0475	35.66	Pk	34.4	-26.3	.6	-95.2	-50.84	-25	-25.84	V
5.06484	34.98	Pk	34.3	-26.1	.6	-95.2	-51.42	-25	-26.42	H
7.53234	33.23	Pk	36	-22.8	.3	-95.2	-48.47	-25	-23.47	V
7.59	33.06	Pk	35.9	-22.7	.5	-95.2	-48.44	-25	-23.44	H
10.4025	33.74	Pk	37.7	-19.5	.8	-95.2	-42.46	-25	-17.46	H
10.40719	34.11	Pk	37.7	-19.5	.8	-95.2	-42.09	-25	-17.09	V
High Channel, 2560MHz										
5.10281	35.84	Pk	34.5	-26.2	.8	-95.2	-50.26	-25	-25.26	V
5.1375	36.54	Pk	34.6	-26.2	.8	-95.2	-49.46	-25	-24.46	H
7.62047	33.13	Pk	35.9	-22.4	.4	-95.2	-48.17	-25	-23.17	V
7.67438	32.76	Pk	35.9	-22.2	.4	-95.2	-48.34	-25	-23.34	H
10.21359	32.84	Pk	37.6	-20.3	.9	-95.2	-44.16	-25	-19.16	V
10.24828	32.55	Pk	37.6	-20.1	.7	-95.2	-44.45	-25	-19.45	H

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BPSK 5G NR 7 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/30/2021
Test Engineer:	45258
Configuration:	EUT only
Mode	n7 BPSK 40MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.04004	35.88	Pk	33.6	-23.5	.6	-95.2	-48.62	-25	-23.62	H
5.04121	35.98	Pk	33.7	-23.5	.6	-95.2	-48.42	-25	-23.42	V
7.56125	34.71	Pk	36.8	-21.7	.4	-95.2	-44.99	-25	-19.99	H
7.56239	34.51	Pk	36.8	-21.7	.4	-95.2	-45.19	-25	-20.19	V
10.07881	33.26	Pk	38.4	-17.6	.6	-95.2	-40.54	-25	-15.54	V
10.08097	32.48	Pk	38.4	-17.6	.6	-95.2	-41.32	-25	-16.32	H
Mid Channel, 2535MHz										
5.0682	35.89	Pk	33.8	-23.5	.7	-95.2	-48.31	-25	-23.31	H
5.07175	36.53	Pk	33.8	-23.6	.7	-95.2	-47.77	-25	-22.77	V
7.50487	34.37	Pk	36.7	-21.6	.3	-95.2	-45.43	-25	-20.43	V
7.50538	34.93	Pk	36.7	-21.6	.3	-95.2	-44.87	-25	-19.87	H
10.13958	33.83	Pk	38.4	-17.7	.7	-95.2	-39.97	-25	-14.97	H
10.14232	33.64	Pk	38.4	-17.7	.6	-95.2	-40.26	-25	-15.26	V
High Channel, 2550MHz										
5.0983	36.48	Pk	33.9	-23.8	.8	-95.2	-47.82	-25	-22.82	V
5.10171	36.31	Pk	33.9	-23.8	.8	-95.2	-47.99	-25	-22.99	H
7.64812	34.26	Pk	36.9	-20.9	.4	-95.2	-44.54	-25	-19.54	H
7.65146	34.55	Pk	36.9	-20.8	.3	-95.2	-44.25	-25	-19.25	V
10.2006	33.29	Pk	38.7	-17.4	.8	-95.2	-39.81	-25	-14.81	H
10.20183	34.17	Pk	38.7	-17.4	.8	-95.2	-38.93	-25	-13.93	V

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10.4.2. LTE BAND 25 AND 5G NR 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 #:	13573777
Date:	6/25/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	LTE25 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.81188	40.41	Pk	31	-31.8	-95.2	-55.59	-13	-42.59	V
3.81281	41.54	Pk	31	-31.8	-95.2	-54.46	-13	-41.46	H
5.55334	47.91	Pk	33.3	-29.7	-95.2	-43.69	-13	-30.69	V
5.55328	48.2	Pk	33.3	-29.7	-95.2	-43.4	-13	-30.4	H
7.07016	38.76	Pk	36.7	-26.6	-95.2	-46.34	-13	-33.34	H
7.07531	37.05	Pk	36.6	-26.6	-95.2	-48.15	-13	-35.15	V
Mid Channel, 1882.5MHz									
3.78563	41.91	Pk	30.8	-31.9	-95.2	-54.39	-13	-41.39	H
3.80063	41.38	Pk	30.9	-31.8	-95.2	-54.72	-13	-41.72	V
5.62078	44.43	Pk	33.1	-29.9	-95.2	-47.57	-13	-34.57	H
5.76	38.56	Pk	33.1	-28.3	-95.2	-51.84	-13	-38.84	V
7.29047	38.44	Pk	37.1	-25.9	-95.2	-45.56	-13	-32.56	V
7.69266	37.72	Pk	37.1	-26.1	-95.2	-46.48	-13	-33.48	H
High Channel, 1905MHz									
3.80859	40.86	Pk	30.9	-31.8	-95.2	-55.24	-13	-42.24	V
3.92156	41.15	Pk	31.5	-31.8	-95.2	-54.35	-13	-41.35	H
5.75109	38.25	Pk	33.1	-28.4	-95.2	-52.25	-13	-39.25	H
5.94188	38.55	Pk	34.3	-28.8	-95.2	-51.15	-13	-38.15	V
7.72031	37.24	Pk	37.1	-26.1	-95.2	-46.96	-13	-33.96	V
7.75734	36.53	Pk	37.1	-25.6	-95.2	-47.17	-13	-34.17	H

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BPSK 5G NR 25 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/22/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n25 BPSK 40MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1870MHz									
3.71484	49.69	Pk	33.1	-40.4	-95.2	-52.81	-13	-39.81	V
3.71953	49.27	Pk	33.1	-40.3	-95.2	-53.13	-13	-40.13	H
5.55656	48.94	Pk	34.3	-39.9	-95.2	-51.86	-13	-38.86	V
5.58422	48.18	Pk	34.3	-39.9	-95.2	-52.62	-13	-39.62	H
7.45078	47.19	Pk	35.6	-38	-95.2	-50.41	-13	-37.41	H
7.47656	45.91	Pk	35.6	-37.9	-95.2	-51.59	-13	-38.59	V
Mid Channel, 1882.5MHz									
3.76875	48.71	Pk	33.3	-40.4	-95.2	-53.59	-13	-40.59	H
3.76922	49.03	Pk	33.3	-40.4	-95.2	-53.27	-13	-40.27	V
5.60766	47.89	Pk	34.3	-39.6	-95.2	-52.61	-13	-39.61	V
5.61047	50.47	Pk	34.4	-39.6	-95.2	-49.93	-13	-36.93	H
7.55672	47.12	Pk	35.6	-37.9	-95.2	-50.38	-13	-37.38	V
7.56516	48.36	Pk	35.7	-37.8	-95.2	-48.94	-13	-35.94	H
High Channel, 1895MHz									
3.80391	48.75	Pk	33.3	-40.6	-95.2	-53.75	-13	-40.75	V
3.82172	49.96	Pk	33.3	-40.8	-95.2	-52.74	-13	-39.74	H
5.69906	47.82	Pk	34.4	-39.2	-95.2	-52.18	-13	-39.18	V
5.71547	46.99	Pk	34.4	-39.2	-95.2	-53.01	-13	-40.01	H
7.62141	46.49	Pk	35.7	-37.6	-95.2	-50.61	-13	-37.61	H
7.64344	47.36	Pk	35.7	-37.4	-95.2	-49.54	-13	-36.54	V

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10.4.3. LTE BAND 30 AND 5G NR n30

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.

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/4/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	LTE30 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.75044	24.7	RMS	32.7	-22.3	-95.2	-60.1	-40	-20.1	V
4.75855	31.52	RMS	32.8	-22.4	-95.2	-53.28	-40	-13.28	H
6.91314	22.83	RMS	36.3	-20.8	-95.2	-56.87	-40	-16.87	V
6.9167	25.11	RMS	36.3	-20.8	-95.2	-54.59	-40	-14.59	H
9.73866	26.79	RMS	38.6	-17.4	-95.2	-47.21	-40	-7.21	H
9.80787	27.77	RMS	38.6	-16.8	-95.2	-45.63	-40	-5.63	V

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BPSK 5G NR 30 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	6/9/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n30 BPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.79885	30.4	RMS	33	-22.4	-95.2	-54.2	-40	-14.2	H
4.80629	31.08	RMS	33.1	-22.5	-95.2	-53.52	-40	-13.52	V
6.91912	30.01	RMS	36.3	-20.7	-95.2	-49.59	-40	-9.59	H
7.10293	29.23	RMS	36.7	-20.6	-95.2	-49.87	-40	-9.87	V
9.28746	27.82	RMS	38.7	-17.6	-95.2	-46.28	-40	-6.28	V
9.36674	28.28	RMS	38.7	-17.9	-95.2	-46.12	-40	-6.12	H

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10.4.4. LTE BAND 41 AND 5G NR 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 #:	13573777
Date:	4/2/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE41 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.01422	36.72	Pk	34.2	-26.6	.8	-95.2	-50.08	-25	-25.08	V
5.02453	35.15	Pk	34.2	-26.4	.7	-95.2	-51.55	-25	-26.55	H
7.44844	33.48	Pk	36.1	-22.7	.4	-95.2	-47.92	-25	-22.92	V
7.50797	33.31	Pk	36	-22.6	.3	-95.2	-48.19	-25	-23.19	H
10.01156	31.31	Pk	37.3	-20.1	.6	-95.2	-46.09	-25	-21.09	H
10.02984	32.19	Pk	37.3	-20.5	.7	-95.2	-45.51	-25	-20.51	V
Mid Channel, 2593MHz										
5.14031	36.74	Pk	34.5	-26.2	.8	-95.2	-49.36	-25	-24.36	V
5.17359	35.84	Pk	34.6	-26.3	.7	-95.2	-50.36	-25	-25.36	H
7.74797	33.73	Pk	35.9	-22.3	.3	-95.2	-47.57	-25	-22.57	V
7.78641	32.52	Pk	36	-22.4	.4	-95.2	-48.68	-25	-23.68	H
10.32469	33.15	Pk	37.7	-20.1	.6	-95.2	-43.85	-25	-18.85	V
10.3425	32.57	Pk	37.7	-19.9	.7	-95.2	-44.13	-25	-19.13	H
High Channel, 2680MHz										
5.35734	34.68	Pk	34.8	-26.2	.5	-95.2	-51.42	-25	-26.42	H
5.37094	35.43	Pk	34.8	-26.1	.6	-95.2	-50.47	-25	-25.47	V
8.02547	33.76	Pk	36.1	-22.2	.3	-95.2	-47.24	-25	-22.24	V
8.04938	33.09	Pk	36.1	-22.2	.4	-95.2	-47.81	-25	-22.81	H
10.73859	31.92	Pk	37.8	-19.6	.8	-95.2	-44.28	-25	-19.28	V
10.76766	32.99	Pk	37.8	-19.3	.9	-95.2	-42.81	-25	-17.81	H

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BPSK LTE BAND 41 (100.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/18/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n41 BPSK 100MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.06167	35.39	Pk	34.3	-26.2	.6	-95.2	-51.11	-25	-26.11	V
5.08975	36.98	Pk	34.4	-26	.8	-95.2	-49.02	-25	-24.02	H
7.62197	32.64	Pk	35.9	-22.4	.4	-95.2	-48.66	-25	-23.66	H
7.63976	32.8	Pk	35.9	-22.4	.4	-95.2	-48.5	-25	-23.5	V
10.2021	30.84	Pk	37.5	-20.4	.8	-95.2	-46.46	-25	-21.46	H
10.2108	32.73	Pk	37.6	-20.3	.9	-95.2	-44.27	-25	-19.27	V
Mid Channel, 2593MHz										
5.1632	36.66	Pk	34.5	-26.4	.7	-95.2	-49.74	-25	-24.74	V
5.17424	35.28	Pk	34.6	-26.3	.7	-95.2	-50.92	-25	-25.92	H
7.77269	33.36	Pk	35.9	-22.5	.3	-95.2	-48.14	-25	-23.14	H
7.77396	34.45	Pk	35.9	-22.5	.3	-95.2	-47.05	-25	-22.05	V
10.35832	33.02	Pk	37.7	-19.8	.8	-95.2	-43.48	-25	-18.48	H
10.4033	31.95	Pk	37.7	-19.5	.8	-95.2	-44.25	-25	-19.25	V
High Channel, 2640MHz										
5.22845	35.01	Pk	34.6	-26.1	.9	-95.2	-50.79	-25	-25.79	V
5.2589	35.81	Pk	34.6	-26.4	.4	-95.2	-50.79	-25	-25.79	H
7.69515	33.81	Pk	35.9	-22.1	.5	-95.2	-47.09	-25	-22.09	V
7.70968	33.9	Pk	35.9	-22.2	.4	-95.2	-47.2	-25	-22.2	H
10.56829	32.74	Pk	37.8	-19.6	.8	-95.2	-43.46	-25	-18.46	V
10.57735	31.93	Pk	37.8	-19.5	.9	-95.2	-44.07	-25	-19.07	H

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10.4.5. LTE BAND 66 AND 5G NR 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 #:	13573777
Date:	4/5/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE66 QPSK 20MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.48422	36.76	Pk	33.1	-27.7	-95.2	-53.04	-13	-40.04	V
3.48609	37.33	Pk	33.1	-27.6	-95.2	-52.37	-13	-39.37	H
5.20172	35.55	Pk	34.5	-26.3	-95.2	-51.45	-13	-38.45	V
5.2275	35.71	Pk	34.6	-26.2	-95.2	-51.09	-13	-38.09	H
6.97406	33.27	Pk	36.2	-22.9	-95.2	-48.63	-13	-35.63	V
6.99563	32.62	Pk	36.1	-22.4	-95.2	-48.88	-13	-35.88	H
Mid Channel, 1745MHz									
3.48938	37.73	Pk	33.1	-27.5	-95.2	-51.87	-13	-38.87	V
3.49406	36.09	Pk	33.1	-27.6	-95.2	-53.61	-13	-40.61	H
5.18344	36.01	Pk	34.6	-26.4	-95.2	-50.99	-13	-37.99	V
5.20781	38.58	Pk	34.6	-26.3	-95.2	-48.32	-13	-35.32	H
6.95297	34	Pk	36.2	-23.1	-95.2	-48.1	-13	-35.1	V
6.98766	33.36	Pk	36.2	-22.5	-95.2	-48.14	-13	-35.14	H
High Channel, 1770MHz									
3.54938	35.55	Pk	33.4	-26.8	-95.2	-53.05	-13	-40.05	V
3.55359	37.31	Pk	33.3	-26.8	-95.2	-51.39	-13	-38.39	H
5.1975	35.77	Pk	34.6	-26.3	-95.2	-51.13	-13	-38.13	V
5.20814	42.12	Pk	34.6	-26.3	-95.2	-44.78	-13	-31.78	H
6.99984	32.36	Pk	36.1	-22.5	-95.2	-49.24	-13	-36.24	V
7.05094	33.44	Pk	36	-22	-95.2	-47.76	-13	-34.76	H

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BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/24/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n66 BPSK 40MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1730MHz									
3.43078	49.69	Pk	32.6	-41.2	-95.2	-54.11	-13	-41.11	V
3.45094	49.67	Pk	32.7	-40.9	-95.2	-53.73	-13	-40.73	H
5.13375	48.35	Pk	34.2	-40.7	-95.2	-53.35	-13	-40.35	V
5.15203	48.62	Pk	34.2	-40.8	-95.2	-53.18	-13	-40.18	H
6.87984	46.76	Pk	35.6	-38.1	-95.2	-50.94	-13	-37.94	H
6.89297	48.36	Pk	35.7	-38.1	-95.2	-49.24	-13	-36.24	V
Mid Channel, 1745MHz									
3.47438	49.77	Pk	32.7	-40.9	-95.2	-53.63	-13	-40.63	V
3.48375	48.95	Pk	32.7	-41	-95.2	-54.55	-13	-41.55	H
5.22656	49.13	Pk	34.2	-40.9	-95.2	-52.77	-13	-39.77	V
5.24438	48.86	Pk	34.2	-40.9	-95.2	-53.04	-13	-40.04	H
7.00781	47.88	Pk	35.6	-38.1	-95.2	-49.82	-13	-36.82	H
7.01484	47.28	Pk	35.5	-38.2	-95.2	-50.62	-13	-37.62	V
High Channel, 1760MHz									
3.52875	49.3	Pk	32.8	-40.9	-95.2	-54	-13	-41	V
3.54328	49.66	Pk	32.9	-41	-95.2	-53.64	-13	-40.64	H
5.29359	48.71	Pk	34.2	-40.5	-95.2	-52.79	-13	-39.79	V
5.30953	48.33	Pk	34.3	-40.3	-95.2	-52.87	-13	-39.87	H
7.065	48.39	Pk	35.6	-38.1	-95.2	-49.31	-13	-36.31	V
7.09125	46.29	Pk	35.5	-37.9	-95.2	-51.31	-13	-38.31	H

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10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz, 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

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10.5.1. LTE BAND 7 AND 5G NR 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 #:	13573777
Date:	4/9/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE7 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.01094	35.4	Pk	33.7	-23.4	.8	-95.2	-48.7	-25	-23.7	V
5.03391	33.69	Pk	33.7	-23.4	.7	-95.2	-50.51	-25	-25.51	H
7.50563	33.55	Pk	36.7	-21.6	.3	-95.2	-46.25	-25	-21.25	V
7.56797	33.63	Pk	36.9	-21.6	.4	-95.2	-45.87	-25	-20.87	H
10.37859	32.9	Pk	39.2	-17	.8	-95.2	-39.3	-25	-14.3	V
10.40344	32.13	Pk	39.3	-17.3	.8	-95.2	-40.27	-25	-15.27	H
Mid Channel, 2535MHz										
5.04328	34.6	Pk	33.7	-23.5	.6	-95.2	-49.8	-25	-24.8	V
5.06625	35.41	Pk	33.8	-23.5	.6	-95.2	-48.89	-25	-23.89	H
7.72078	33.96	Pk	37.1	-20.9	.3	-95.2	-44.74	-25	-19.74	V
7.77047	36.05	Pk	37.2	-20.7	.3	-95.2	-42.35	-25	-17.35	H
10.14516	32.81	Pk	38.5	-17.7	.6	-95.2	-40.99	-25	-15.99	V
5.04328	34.6	Pk	33.7	-23.5	.6	-95.2	-49.8	-25	-24.8	V
High Channel, 2560MHz										
5.06578	35.14	Pk	33.8	-23.5	.6	-95.2	-49.16	-25	-24.16	V
5.10141	34.69	Pk	33.9	-23.8	.8	-95.2	-49.61	-25	-24.61	H
7.60922	33.3	Pk	37	-21.4	.4	-95.2	-45.9	-25	-20.9	V
7.67016	32.8	Pk	36.9	-20.9	.3	-95.2	-46.1	-25	-21.1	H
10.27313	32.4	Pk	38.9	-17.4	.7	-95.2	-40.6	-25	-15.6	H
10.32516	31.97	Pk	39.1	-17.3	.6	-95.2	-40.83	-25	-15.83	V

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BPSK 5G NR 7 (40.0MHZ BANDWIDTH)

Project #:	113573777
Date:	5/5/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n7 BPSK 40MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
4.99969	34.57	Pk	33.6	-23.1	.8	-95.2	-49.33	-25	-24.33	V
5.00156	35.86	Pk	33.6	-23.2	.8	-95.2	-48.14	-25	-23.14	H
7.21922	34.33	Pk	37.2	-20.9	.3	-95.2	-44.27	-25	-19.27	H
7.28016	34.13	Pk	37.1	-20.3	.4	-95.2	-43.87	-25	-18.87	V
10.42641	32.81	Pk	39.4	-16.9	.8	-95.2	-39.09	-25	-14.09	V
10.58063	32.6	Pk	39.5	-17.2	.9	-95.2	-39.4	-25	-14.4	H
Mid Channel, 2535MHz										
5.09953	35.08	Pk	33.9	-23.8	.8	-95.2	-49.22	-25	-24.22	H
5.11875	35.92	Pk	33.9	-23.6	.8	-95.2	-48.18	-25	-23.18	V
7.20328	32.78	Pk	37.1	-21	.4	-95.2	-45.92	-25	-20.92	H
7.23938	35.51	Pk	37.2	-21.3	.4	-95.2	-43.39	-25	-18.39	V
10.14422	33.78	Pk	38.5	-17.7	.6	-95.2	-40.02	-25	-15.02	V
10.20891	32.14	Pk	38.7	-17.4	.9	-95.2	-40.86	-25	-15.86	H
High Channel, 2550MHz										
4.80422	37.26	Pk	33	-24.4	.9	-95.2	-48.44	-25	-23.44	V
4.99406	35.17	Pk	33.6	-23	.7	-95.2	-48.73	-25	-23.73	H
7.20938	33.66	Pk	37.1	-20.9	.4	-95.2	-44.94	-25	-19.94	V
7.22297	34.13	Pk	37.1	-20.9	.3	-95.2	-44.57	-25	-19.57	H
9.69047	32.8	Pk	38.7	-17.6	.8	-95.2	-40.5	-25	-15.5	H
9.76266	33.19	Pk	38.7	-17.8	.3	-95.2	-40.81	-25	-15.81	V

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10.5.2. LTE BAND 25 AND 5G NR 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 #:	13573777
Date:	6/26/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	LTE25 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.69891	41.94	Pk	30.3	-32.3	-95.2	-55.26	-13	-42.26	V
3.70172	41.59	Pk	30.3	-32.3	-95.2	-55.61	-13	-42.61	H
5.64703	40.44	Pk	33.1	-30.1	-95.2	-51.76	-13	-38.76	V
5.65453	40.86	Pk	33.1	-30	-95.2	-51.24	-13	-38.24	H
7.44703	36.44	Pk	36.8	-26.3	-95.2	-48.26	-13	-35.26	H
7.54453	37.3	Pk	36.9	-26.2	-95.2	-47.2	-13	-34.2	V
Mid Channel, 1882.5MHz									
3.73313	42.27	Pk	30.5	-32.2	-95.2	-54.63	-13	-41.63	H
3.77672	40.9	Pk	30.7	-32	-95.2	-55.6	-13	-42.6	V
5.69344	39.98	Pk	33	-29.5	-95.2	-51.72	-13	-38.72	H
5.95641	39.3	Pk	34.3	-28.6	-95.2	-50.2	-13	-37.2	V
7.25156	37.92	Pk	37.2	-25.8	-95.2	-45.88	-13	-32.88	V
7.4925	37.52	Pk	36.8	-26.3	-95.2	-47.18	-13	-34.18	H
High Channel, 1905MHz									
3.80484	40.74	Pk	30.9	-31.9	-95.2	-55.46	-13	-42.46	H
3.85406	41.07	Pk	31.1	-31.8	-95.2	-54.83	-13	-41.83	V
5.71781	39.8	Pk	33	-29.2	-95.2	-51.6	-13	-38.6	H
5.81016	37.98	Pk	33.5	-28.2	-95.2	-51.92	-13	-38.92	V
7.58531	37.06	Pk	36.9	-26.2	-95.2	-47.44	-13	-34.44	H
8.15297	37.14	Pk	37.3	-25.7	-95.2	-46.46	-13	-33.46	V

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BPSK 5G NR 25 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	3/19/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n25 BPSK 40MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1870MHz									
3.73666	36.86	Pk	33.5	-26.8	-95.2	-51.64	-13	-38.64	H
3.75331	37.09	Pk	33.6	-27.1	-95.2	-51.61	-13	-38.61	V
5.60983	34.18	Pk	35.1	-24.1	-95.2	-50.02	-13	-37.02	H
5.62275	34.68	Pk	35.1	-24.1	-95.2	-49.52	-13	-36.52	V
7.46661	32.68	Pk	36.1	-22.8	-95.2	-49.22	-13	-36.22	H
7.49528	34	Pk	36.1	-22.5	-95.2	-47.6	-13	-34.6	V
Mid Channel, 1882.5MHz									
3.75995	36.74	Pk	33.6	-27	-95.2	-51.86	-13	-38.86	H
3.81974	37.31	Pk	33.7	-27.4	-95.2	-51.59	-13	-38.59	V
5.61994	33.93	Pk	35	-24.1	-95.2	-50.37	-13	-37.37	V
5.65107	35.02	Pk	35.1	-24.3	-95.2	-49.38	-13	-36.38	H
7.52194	33.19	Pk	36	-22.3	-95.2	-48.31	-13	-35.31	H
7.59685	32.09	Pk	35.9	-21.4	-95.2	-48.61	-13	-35.61	V
High Channel, 1995MHz									
3.77279	37.63	Pk	33.6	-26.9	-95.2	-50.87	-13	-37.87	H
3.8089	37.13	Pk	33.6	-27.4	-95.2	-51.87	-13	-38.87	V
5.67035	33.69	Pk	35.2	-24.4	-95.2	-50.71	-13	-37.71	V
5.67602	34.84	Pk	35.2	-24.5	-95.2	-49.66	-13	-36.66	H
7.57212	32.68	Pk	35.9	-21.4	-95.2	-48.02	-13	-35.02	H
7.59245	32.12	Pk	35.9	-21.4	-95.2	-48.58	-13	-35.58	V

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10.5.3. LTE BAND 30 AND 5G NR 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.

QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/4/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	LTE30 QPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.75289	30.79	RMS	32.7	-22.3	-95.2	-54.01	-40	-14.01	V
4.79788	30.89	RMS	33	-22.4	-95.2	-53.71	-40	-13.71	H
6.85548	29.62	RMS	36.1	-20.9	-95.2	-50.38	-40	-10.38	V
6.90413	30.12	RMS	36.1	-20.9	-95.2	-49.88	-40	-9.88	H
9.63297	27.08	RMS	38.8	-17	-95.2	-46.32	-40	-6.32	V
9.6407	27.02	RMS	38.7	-16.9	-95.2	-46.38	-40	-6.38	H

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BPSK 5G NR 30 (10.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/3/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n30 BPSK 10MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.80436	30.8	RMS	33.1	-22.5	-95.2	-53.8	-40	-13.8	V
4.80875	30.53	RMS	33	-22.6	-95.2	-54.27	-40	-14.27	H
6.86065	29.01	RMS	36.2	-20.8	-95.2	-50.79	-40	-10.79	V
6.8629	29.13	RMS	36.2	-20.8	-95.2	-50.67	-40	-10.67	H
9.71154	27.37	RMS	38.7	-17.2	-95.2	-46.33	-40	-6.33	H
9.81672	26.99	RMS	38.6	-16.6	-95.2	-46.21	-40	-6.21	V

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10.5.4. LTE BAND 41 AND 5G NR 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 (20MHZ BANDWIDTH)

Project #:	13573777
Date:	4/9/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE41 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
4.99266	33.88	Pk	33.6	-23.1	.7	-95.2	-50.12	-25	-25.12	V
5.01844	35.4	Pk	33.7	-23.5	.8	-95.2	-48.8	-25	-23.8	H
7.52531	32.6	Pk	36.8	-21.2	.3	-95.2	-46.7	-25	-21.7	H
7.52719	33.86	Pk	36.8	-21.2	.3	-95.2	-45.44	-25	-20.44	V
10.04719	32.83	Pk	38.4	-17.5	.7	-95.2	-40.77	-25	-15.77	V
10.06875	32.88	Pk	38.4	-17.4	.7	-95.2	-40.62	-25	-15.62	H
Mid Channel, 2593MHz										
5.16797	34.82	Pk	33.7	-23.8	.7	-95.2	-49.78	-25	-24.78	V
5.17641	35.13	Pk	33.7	-23.6	.7	-95.2	-49.27	-25	-24.27	H
7.82859	35.34	Pk	37.3	-20.4	.3	-95.2	-42.66	-25	-17.66	H
7.83047	33.58	Pk	37.3	-20.4	.3	-95.2	-44.42	-25	-19.42	V
10.30078	32.17	Pk	39	-17.2	.6	-95.2	-40.63	-25	-15.63	H
10.30219	31.84	Pk	39	-17.1	.6	-95.2	-40.86	-25	-15.86	V
High Channel, 2680MHz										
5.34234	35.55	Pk	33.1	-24.1	.6	-95.2	-50.05	-25	-25.05	H
5.37328	34.32	Pk	32.9	-24.1	.6	-95.2	-51.48	-25	-26.48	H
8.01844	33.33	Pk	37.1	-20.2	.3	-95.2	-44.67	-25	-19.67	H
8.04469	33.63	Pk	37.1	-20.4	.4	-95.2	-44.47	-25	-19.47	H
10.74047	32.52	Pk	39.3	-17.1	.8	-95.2	-39.68	-25	-14.68	H
10.76063	32.81	Pk	39.2	-17.2	.9	-95.2	-39.49	-25	-14.49	H

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BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/29/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	n41 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.7225	37.14	Pk	33	-22.7	.6	-95.2	-47.16	-25	-22.16	H
5.76328	35.32	Pk	33.1	-22.6	.5	-95.2	-48.88	-25	-23.88	V
8.14875	35.22	Pk	37.3	-20.3	.3	-95.2	-42.68	-25	-17.68	H
8.16141	35.19	Pk	37.3	-20.3	.3	-95.2	-42.71	-25	-17.71	V
10.92281	33.29	Pk	39.4	-17.1	.8	-95.2	-38.81	-25	-13.81	H
11.05828	32.8	Pk	39.4	-17	.6	-95.2	-39.4	-25	-14.4	V
Mid Channel, 2593MHz										
4.98703	36.87	Pk	33.6	-23.1	.7	-95.2	-47.13	-25	-22.13	H
5.12016	36.99	Pk	33.9	-23.6	.8	-95.2	-47.11	-25	-22.11	V
7.98563	35.62	Pk	37.1	-20.7	.3	-95.2	-42.88	-25	-17.88	H
8.11547	35.12	Pk	37.2	-20.4	.3	-95.2	-42.98	-25	-17.98	V
12.34406	33.82	Pk	40.2	-18	.7	-95.2	-38.48	-25	-13.48	H
12.63938	33.15	Pk	39.8	-18	.5	-95.2	-39.75	-25	-14.75	V
High Channel, 2640MHz										
4.87641	36.65	Pk	33.3	-24	.7	-95.2	-48.55	-25	-23.55	H
4.87828	35.77	Pk	33.3	-24	.7	-95.2	-49.43	-25	-24.43	V
8.01047	34.97	Pk	37.1	-20.4	.3	-95.2	-43.23	-25	-18.23	H
8.14406	35.55	Pk	37.3	-20.3	.3	-95.2	-42.35	-25	-17.35	V
11.04281	33.09	Pk	39.4	-17.2	.6	-95.2	-39.31	-25	-14.31	H
11.04563	32.42	Pk	39.4	-17.1	.6	-95.2	-39.88	-25	-14.88	V

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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.

QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/7/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE48 QPSK 20MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.09714	38.71	RMS	35.6	-38.6	.5	-95.2	-58.99	-40	-18.99	V
7.12275	38.81	RMS	35.6	-38.6	.5	-95.2	-58.89	-40	-18.89	H
10.68555	36.73	RMS	37.8	-35.3	.6	-95.2	-55.37	-40	-15.37	H
10.72259	36.67	RMS	37.8	-34.8	.5	-95.2	-55.03	-40	-15.03	V
14.14023	39.17	RMS	38.6	-35.2	.8	-95.2	-51.83	-40	-11.83	V
14.16965	37.86	RMS	38.7	-34.9	.7	-95.2	-52.84	-40	-12.84	H
Mid Channel, 3625MHz										
7.23214	38.11	RMS	35.6	-38.6	.5	-95.2	-59.59	-40	-19.59	H
7.23221	39.36	RMS	35.6	-38.6	.5	-95.2	-58.34	-40	-18.34	V
10.74135	34.11	RMS	37.8	-34.7	.6	-95.2	-57.39	-40	-17.39	V
10.85459	33.59	RMS	37.8	-34.2	.5	-95.2	-57.51	-40	-17.51	H
14.54614	36.23	RMS	39.4	-36	.8	-95.2	-54.77	-40	-14.77	H
14.56024	36.28	RMS	39.4	-36.4	.8	-95.2	-55.12	-40	-15.12	V
High Channel, 3690MHz										
7.35121	36.24	RMS	35.5	-38.4	.6	-95.2	-61.26	-40	-21.26	V
7.37918	36.05	RMS	35.6	-38.5	.7	-95.2	-61.35	-40	-21.35	H
11.08371	33.5	RMS	37.9	-34.5	.7	-95.2	-57.6	-40	-17.6	V
11.10308	33.66	RMS	38	-34.6	.7	-95.2	-57.44	-40	-17.44	H
14.79686	35.99	RMS	39.5	-35.5	1	-95.2	-54.21	-40	-14.21	H
14.81713	36.16	RMS	39.5	-35.4	.9	-95.2	-54.04	-40	-14.04	V

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10.5.6. LTE BAND 66 AND 5G NR 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 #:	13573777
Date:	4/10/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE66 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.43219	35.4	Pk	30.6	-24.9	-95.2	-54.1	-13	-41.1	V
3.45047	34.29	Pk	30.5	-24.8	-95.2	-55.21	-13	-42.21	H
5.13328	35.5	Pk	33.8	-22.3	-95.2	-48.2	-13	-35.2	V
5.15531	35.14	Pk	33.8	-22.5	-95.2	-48.76	-13	-35.76	H
6.88125	33.03	Pk	36.3	-21	-95.2	-46.87	-13	-33.87	H
6.90047	33.57	Pk	36.3	-21	-95.2	-46.33	-13	-33.33	V
Mid Channel, 1745MHz									
3.49734	34.79	Pk	30.1	-24.8	-95.2	-55.11	-13	-42.11	V
3.50109	34.8	Pk	30.1	-24.7	-95.2	-55	-13	-42	H
5.23406	34.69	Pk	33.5	-23.9	-95.2	-50.91	-13	-37.91	V
5.24953	35.89	Pk	33.5	-24	-95.2	-49.81	-13	-36.81	H
6.91078	34.4	Pk	36.2	-20.8	-95.2	-45.4	-13	-32.4	V
6.97734	32.96	Pk	36.4	-21.4	-95.2	-47.24	-13	-34.24	H
High Channel, 1770MHz									
3.52313	35.93	Pk	30.2	-24.7	-95.2	-53.77	-13	-40.77	V
3.54047	34.8	Pk	30.2	-24.7	-95.2	-54.9	-13	-41.9	H
5.25609	34.13	Pk	33.5	-24	-95.2	-51.57	-13	-38.57	V
5.32031	33.49	Pk	33.2	-22.8	-95.2	-51.31	-13	-38.31	H
7.03125	34.48	Pk	36.5	-21.5	-95.2	-45.72	-13	-32.72	V
7.08328	33.41	Pk	36.7	-20.7	-95.2	-45.79	-13	-32.79	H

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BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13573777
Date:	4/24/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n66 BPSK 40MHz
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1730MHz									
3.43078	49.55	Pk	32.6	-41.2	-95.2	-54.25	-13	-41.25	V
3.44531	50.25	Pk	32.6	-40.9	-95.2	-53.25	-13	-40.25	H
5.13188	48.7	Pk	34.2	-40.7	-95.2	-53	-13	-40	V
5.15625	48.59	Pk	34.2	-40.8	-95.2	-53.21	-13	-40.21	H
6.88078	47.97	Pk	35.5	-38.2	-95.2	-49.93	-13	-36.93	H
6.91078	46.55	Pk	35.6	-38.2	-95.2	-51.25	-13	-38.25	V
Mid Channel, 1745MHz									
3.46875	49.14	Pk	32.6	-40.8	-95.2	-54.26	-13	-41.26	V
3.48656	48.87	Pk	32.7	-41	-95.2	-54.63	-13	-41.63	H
5.22375	48.74	Pk	34.1	-40.9	-95.2	-53.26	-13	-40.26	V
5.22703	48.71	Pk	34.2	-40.9	-95.2	-53.19	-13	-40.19	H
7.00359	46.72	Pk	35.6	-38.2	-95.2	-51.08	-13	-38.08	V
7.01203	46.86	Pk	35.6	-38.1	-95.2	-50.84	-13	-37.84	H
High Channel, 1760MHz									
3.52594	49.38	Pk	32.8	-40.9	-95.2	-53.92	-13	-40.92	V
3.55172	49.33	Pk	32.8	-41	-95.2	-54.07	-13	-41.07	H
5.29547	48.21	Pk	34.2	-40.5	-95.2	-53.29	-13	-40.29	V
5.32078	48.6	Pk	34.4	-40.3	-95.2	-52.5	-13	-39.5	H
7.08141	46.69	Pk	35.6	-37.9	-95.2	-50.81	-13	-37.81	H
7.09313	46.59	Pk	35.5	-38	-95.2	-51.11	-13	-38.11	V

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10.5.7. 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13573777
Date:	6/21/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 3500MHz									
7.216	36.95	Pk	37.2	-26.7	-95.2	-47.75	-13	-34.75	H
7.2765	37.33	Pk	37.1	-26.1	-95.2	-46.87	-13	-33.87	V
10.511	36.29	Pk	39.5	-23.9	-95.2	-43.31	-13	-30.31	V
10.5785	35.86	Pk	39.5	-24.2	-95.2	-44.04	-13	-31.04	H
14.342	34.09	Pk	41.4	-19.3	-95.2	-39.01	-13	-26.01	H
14.7595	35.01	Pk	42.1	-19.3	-95.2	-37.39	-13	-24.39	V

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10.5.8. 5G NR 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13573777
Date:	5/1/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3750MHz									
7.8125	31.81	Pk	37.3	-20.2	-95.2	-46.29	-13	-33.29	V
7.844	31.83	Pk	37.3	-19.9	-95.2	-45.97	-13	-32.97	H
11.318	31.45	Pk	39.2	-17	-95.2	-41.55	-13	-28.55	H
11.3285	30.67	Pk	39.2	-16.8	-95.2	-42.13	-13	-29.13	V
15.861	31.02	Pk	41.2	-17.3	-95.2	-40.28	-13	-27.28	H
15.984	33.13	Pk	40.9	-17	-95.2	-38.17	-13	-25.17	V
Mid Channel, 3840MHz									
7.945	32.35	Pk	37.2	-20.5	-95.2	-46.15	-13	-33.15	H
8.0125	32.36	Pk	37.1	-20.2	-95.2	-45.94	-13	-32.94	H
11.1885	31.38	Pk	39.1	-17.2	-95.2	-41.92	-13	-28.92	H
11.1885	31.38	Pk	39.1	-17.2	-95.2	-41.92	-13	-28.92	H
15.848	31.3	Pk	41.1	-17.3	-95.2	-40.1	-13	-27.1	H
15.984	31.14	Pk	40.9	-17	-95.2	-40.16	-13	-27.16	H
High Channel, 3930MHz									
7.74	32.59	Pk	37.1	-20.9	-95.2	-46.41	-13	-33.41	V
7.8525	31.28	Pk	37.3	-19.7	-95.2	-46.32	-13	-33.32	H

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11.2755	32.23	Pk	39.1	-17.1	-95.2	-40.97	-13	-27.97	V
11.3615	31.17	Pk	39.2	-17	-95.2	-41.83	-13	-28.83	H
15.4305	32.82	Pk	40.9	-16.9	-95.2	-38.38	-13	-25.38	H
15.583	32.25	Pk	40.8	-17.7	-95.2	-39.85	-13	-26.85	V

10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz, 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 #:	13571607
Date:	4/28/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE48 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.07596	28.31	RMS	36.6	-21.1	.6	-95.2	-50.79	-40	-10.79	V
7.11267	28.88	RMS	36.7	-21.5	.5	-95.2	-50.62	-40	-10.62	H
10.30619	26.98	RMS	39	-17.1	.6	-95.2	-45.72	-40	-5.72	V
10.33257	27.59	RMS	39	-17.4	.6	-95.2	-45.41	-40	-5.41	H
13.44862	26.68	RMS	39.9	-18.6	.9	-95.2	-46.32	-40	-6.32	H
13.47195	27.7	RMS	40	-18.2	.8	-95.2	-44.9	-40	-4.9	V
Mid Channel, 3625MHz										
7.23343	28.84	RMS	37.2	-21.3	.5	-95.2	-49.96	-40	-9.96	V
7.2698	28.27	RMS	37.2	-20.6	.5	-95.2	-49.83	-40	-9.83	H
10.49357	26.34	RMS	39.5	-16.9	.6	-95.2	-45.66	-40	-5.66	V
10.52278	26.67	RMS	39.5	-17.4	.6	-95.2	-45.83	-40	-5.83	H
13.42481	26.27	RMS	39.9	-18.6	.6	-95.2	-47.03	-40	-7.03	V
13.44758	26.5	RMS	39.9	-18.6	.9	-95.2	-46.5	-40	-6.5	H
High Channel, 3690MHz										
7.35741	29.39	RMS	36.9	-21.2	.7	-95.2	-49.41	-40	-9.41	H
7.36266	29	RMS	37	-21.3	.7	-95.2	-49.8	-40	-9.8	V
11.061	27.53	RMS	39.3	-17	.6	-95.2	-44.77	-40	-4.77	V
11.06531	27.01	RMS	39.4	-17.1	.6	-95.2	-45.29	-40	-5.29	H
13.5191	27.61	RMS	40	-18.6	.7	-95.2	-45.49	-40	-5.49	V
13.5376	27.92	RMS	40	-18.3	.7	-95.2	-44.88	-40	-4.88	H

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10.6.2. 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	6/24/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 3500MHz									
7.008	36	Pk	36.6	-26.7	-95.2	-49.3	-13	-36.3	V
7.063	35.85	Pk	36.6	-26.1	-95.2	-48.85	-13	-35.85	H
10.69	36.22	Pk	39.4	-23.6	-95.2	-43.18	-13	-30.18	H
10.97	35.14	Pk	39.4	-22.8	-95.2	-43.46	-13	-30.46	V
14.155	33.9	Pk	40.9	-18.3	-95.2	-38.7	-13	-25.7	H
14.349	34.62	Pk	41.4	-19.4	-95.2	-38.58	-13	-25.58	V

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10.6.3. 5G NR 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	5/3/2021
Test Engineer:	30606
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3750MHz									
7.28636	34.95	Pk	37.1	-18.7	-95.2	-41.85	-13	-28.85	V
7.34295	34.1	Pk	37	-19.3	-95.2	-43.4	-13	-30.4	H
11.033	33.17	Pk	39.4	-16.7	-95.2	-39.33	-13	-26.33	H
11.09035	33.96	Pk	39.3	-16.3	-95.2	-38.24	-13	-25.24	V
15.42997	34.22	Pk	40.9	-16.9	-95.2	-36.98	-13	-23.98	V
15.53033	33.15	Pk	40.8	-17	-95.2	-38.25	-13	-25.25	H
Mid Channel, 3840MHz									
7.61568	34.39	Pk	36.9	-19.9	-95.2	-43.81	-13	-30.81	H
7.65452	34.62	Pk	37	-20.7	-95.2	-44.28	-13	-31.28	V
11.19481	32.78	Pk	39.1	-17.3	-95.2	-40.62	-13	-27.62	V
11.20613	33.44	Pk	39	-17.3	-95.2	-40.06	-13	-27.06	H
15.43897	33.75	Pk	40.8	-16.9	-95.2	-37.55	-13	-24.55	V
15.45761	34.02	Pk	40.9	-17.5	-95.2	-37.78	-13	-24.78	H
High Channel, 3930MHz									
7.829	33.22	Pk	37.3	-20.3	-95.2	-44.98	-13	-31.98	V
7.8655	33.16	Pk	37.3	-19.8	-95.2	-44.54	-13	-31.54	H
11.436	31.45	Pk	39.3	-16.5	-95.2	-40.95	-13	-27.95	H
11.4475	31.86	Pk	39.2	-16.4	-95.2	-40.54	-13	-27.54	V
15.527	31.41	Pk	40.8	-17	-95.2	-39.99	-13	-26.99	V
15.5955	31.2	Pk	40.9	-17.8	-95.2	-40.9	-13	-27.9	H

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10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz, 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 #:	13571607
Date:	4/28/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	LTE48 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.05191	29.2	RMS	36.5	-21.4	.9	-95.2	-50.0	-40	-10.0	V
7.13578	28.38	RMS	36.7	-21.4	.6	-95.2	-50.92	-40	-10.92	H
10.58157	27.02	RMS	39.5	-17.2	.6	-95.2	-45.28	-40	-5.28	V
10.61572	27.39	RMS	39.5	-17	.6	-95.2	-44.71	-40	-4.71	H
13.24549	26.78	RMS	40.1	-18.1	.7	-95.2	-45.72	-40	-5.72	V
13.29825	27.17	RMS	39.9	-18.1	.8	-95.2	-45.43	-40	-5.43	H
Mid Channel, 3625MHz										
7.19738	28.35	RMS	37.1	-21.2	.6	-95.2	-50.35	-40	-10.35	V
7.23209	29.42	RMS	37.2	-21.2	.5	-95.2	-49.28	-40	-9.28	H
10.80897	27.01	RMS	39.3	-17	.6	-95.2	-45.29	-40	-5.29	V
10.83683	26.38	RMS	39.3	-17.4	.6	-95.2	-46.32	-40	-6.32	H
13.34815	27.21	RMS	39.8	-18.5	.6	-95.2	-46.09	-40	-6.09	V
13.41465	27.18	RMS	39.8	-18.6	.6	-95.2	-46.22	-40	-6.22	H
High Channel, 3690MHz										
7.36017	28.88	RMS	37	-21.2	.7	-95.2	-49.82	-40	-9.82	V
7.36646	28.05	RMS	36.9	-21.3	.7	-95.2	-50.85	-40	-10.85	H
11.0371	27.57	RMS	39.4	-17.3	.6	-95.2	-44.93	-40	-4.93	V
11.05817	26.89	RMS	39.4	-17	.6	-95.2	-45.31	-40	-5.31	H
13.38956	26.38	RMS	39.8	-18.8	.8	-95.2	-47.02	-40	-7.02	V
13.42685	27.2	RMS	39.9	-18.7	.6	-95.2	-46.2	-40	-6.2	H

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10.7.2. 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	6/24/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 3500MHz									
6.899	37.45	Pk	36.3	-26.8	-95.2	-48.25	-13	-35.25	V
7.0355	36.1	Pk	36.6	-26.5	-95.2	-49.0	-13	-36.0	H
10.9635	35.21	Pk	39.4	-22.9	-95.2	-43.49	-13	-30.49	H
11.662	36.02	Pk	39.3	-22	-95.2	-41.88	-13	-28.88	V
14.138	35.73	Pk	41	-18	-95.2	-36.47	-13	-23.47	V
14.7285	34.11	Pk	42	-18.9	-95.2	-37.99	-13	-24.99	H

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10.7.3. 5G NR 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	5/1/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3750MHz									
7.7895	32.58	Pk	37.2	-20.2	-95.2	-45.62	-13	-32.62	H
7.7995	34.76	Pk	37.2	-20	-95.2	-43.24	-13	-30.24	V
11.642	31.07	Pk	39.3	-16.6	-95.2	-41.43	-13	-28.43	H
11.668	31.66	Pk	39.3	-16.1	-95.2	-40.34	-13	-27.34	V
15.65	32.55	Pk	40.9	-17.8	-95.2	-39.55	-13	-26.55	H
15.6845	31.69	Pk	41.1	-18	-95.2	-40.41	-13	-27.41	V
Mid Channel, 3840MHz									
7.8585	31.96	Pk	37.3	-19.7	-95.2	-45.64	-13	-32.64	V
7.8795	32.81	Pk	37.3	-20.1	-95.2	-45.19	-13	-32.19	H
11.433	30.92	Pk	39.3	-16.6	-95.2	-41.58	-13	-28.58	V
11.4895	31.71	Pk	39.2	-17.1	-95.2	-41.39	-13	-28.39	H
15.571	31.15	Pk	40.8	-17.6	-95.2	-40.85	-13	-27.85	H
15.617	31.96	Pk	40.8	-17.9	-95.2	-40.34	-13	-27.34	V
High Channel, 3930MHz									
7.8165	33.05	Pk	37.3	-20.3	-95.2	-45.15	-13	-32.15	V
7.883	33.59	Pk	37.3	-20.3	-95.2	-44.61	-13	-31.61	H
11.615	32.09	Pk	39.3	-16.6	-95.2	-40.41	-13	-27.41	H
11.635	30.4	Pk	39.3	-16.6	-95.2	-42.1	-13	-29.1	V
15.5945	31.26	Pk	40.9	-17.8	-95.2	-40.84	-13	-27.84	V
15.6815	31.86	Pk	41	-18.1	-95.2	-40.44	-13	-27.44	H

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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.

QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13571607
Date:	4/28/2021
Test Engineer:	50822
Configuration:	EUT only
Mode	LTE48 QPSK 20MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.04287	29.94	RMS	36.6	-21.4	.8	-95.2	-49.26	-40	-9.26	V
7.10328	28.98	RMS	36.7	-21.2	.5	-95.2	-50.22	-40	-10.22	H
10.65121	27.63	RMS	39.4	-17.4	.6	-95.2	-44.97	-40	-4.97	H
10.68113	27.4	RMS	39.4	-17.1	.6	-95.2	-44.9	-40	-4.9	V
13.39575	26.65	RMS	39.8	-18.7	.8	-95.2	-46.65	-40	-6.65	V
13.40935	27.63	RMS	39.8	-18.7	.7	-95.2	-45.77	-40	-5.77	H
Mid Channel, 3625MHz										
7.23209	29.58	RMS	37.2	-21.2	.5	-95.2	-49.12	-40	-9.12	H
7.29133	28.92	RMS	37.1	-20.6	.6	-95.2	-49.18	-40	-9.18	V
10.19863	26.62	RMS	38.7	-17.3	.6	-95.2	-46.58	-40	-6.58	H
10.32236	26.81	RMS	39.1	-17.2	.6	-95.2	-45.89	-40	-5.89	V
13.84062	26.95	RMS	40.6	-18.5	.8	-95.2	-45.35	-40	-5.35	H
13.87256	27.07	RMS	40.6	-18.6	.7	-95.2	-45.43	-40	-5.43	V
High Channel, 3690MHz										
7.29011	28.86	RMS	37.2	-20.5	.6	-95.2	-49.04	-40	-9.04	V
7.36359	29.12	RMS	37	-21.3	.7	-95.2	-49.68	-40	-9.68	H
10.42182	25.33	RMS	39.3	-16.9	.6	-95.2	-46.87	-40	-6.87	V
10.58578	26.3	RMS	39.6	-17.3	.6	-95.2	-46.0	-40	-6.0	H
13.62012	27.58	RMS	40.2	-18.7	.7	-95.2	-45.42	-40	-5.42	V
13.77326	27.87	RMS	40.6	-18.8	.8	-95.2	-44.73	-40	-4.73	H

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10.8.2. 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	6/24/2021
Test Engineer:	24948
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Mid Channel, 3500MHz									
6.938	36.78	Pk	36.3	-26.9	-95.2	-49.02	-13	-36.02	V
7.0065	36.83	Pk	36.5	-26.8	-95.2	-48.67	-13	-35.67	H
10.495	35.61	Pk	39.5	-24	-95.2	-44.09	-13	-31.09	V
10.5765	36.44	Pk	39.5	-24.3	-95.2	-43.56	-13	-30.56	H
14.0875	34.54	Pk	40.8	-18.8	-95.2	-38.66	-13	-25.66	V
14.30225	34.11	Pk	41.3	-18.6	-95.2	-38.39	-13	-25.39	H

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10.8.3. 5G NR 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.

BPSK 5G NR n77 (100.0MHZ BANDWIDTH)

Project #:	13571607
Date:	4/31/2021
Test Engineer:	39006
Configuration:	EUT only
Mode	n77 BPSK 100MHz
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T348 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 3750MHz									
7.759	32.45	Pk	37.1	-20.9	-95.2	-46.55	-13	-33.55	V
7.786	32.76	Pk	37.2	-20.2	-95.2	-45.44	-13	-32.44	H
11.059	30.34	Pk	39.4	-16.5	-95.2	-41.96	-13	-28.96	H
11.0625	31.59	Pk	39.4	-16.6	-95.2	-40.81	-13	-27.81	V
15.412	31.42	Pk	40.9	-17.7	-95.2	-40.58	-13	-27.58	H
15.4345	31.66	Pk	40.8	-16.9	-95.2	-39.64	-13	-26.64	V
Mid Channel, 3840MHz									
7.2875	34.11	Pk	37.2	-18.7	-95.2	-42.59	-13	-29.59	H
7.295	32.1	Pk	37.1	-18.7	-95.2	-44.7	-13	-31.7	V
11.3805	31.15	Pk	39.2	-16.9	-95.2	-41.75	-13	-28.75	V
11.417	30.97	Pk	39.2	-17	-95.2	-42.03	-13	-29.03	H
15.2295	31.77	Pk	41.1	-17.9	-95.2	-40.23	-13	-27.23	V
15.3155	31.96	Pk	40.9	-17.8	-95.2	-40.14	-13	-27.14	H
High Channel, 3930MHz									
7.819	31.81	Pk	37.2	-20.3	-95.2	-46.49	-13	-33.49	V
7.8565	31.21	Pk	37.3	-19.7	-95.2	-46.39	-13	-33.39	H
11.2985	31.23	Pk	39.2	-17.2	-95.2	-41.97	-13	-28.97	V
11.3405	30.55	Pk	39.2	-16.8	-95.2	-42.25	-13	-29.25	H
15.6025	31.1	Pk	40.9	-17.8	-95.2	-41.0	-13	-28.0	H
15.6735	31	Pk	41	-18	-95.2	-41.2	-13	-28.2	V

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11. SETUP PHOTOS

Please refer to 13573777-EP1V1 for setup photos

END OF REPORT

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