

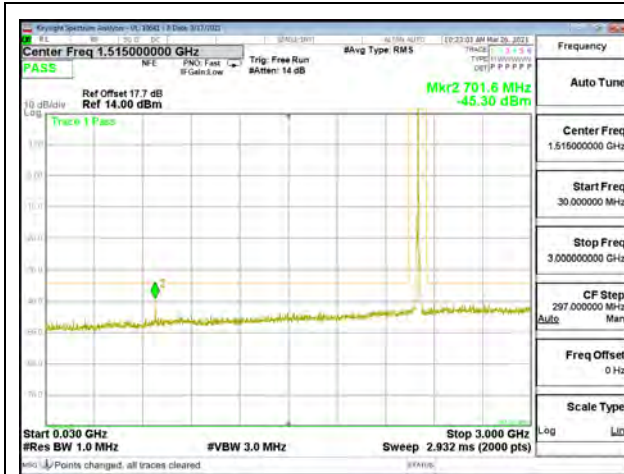
9.3.10. LTE BAND 30 AND 5G NR n30

LIMITS

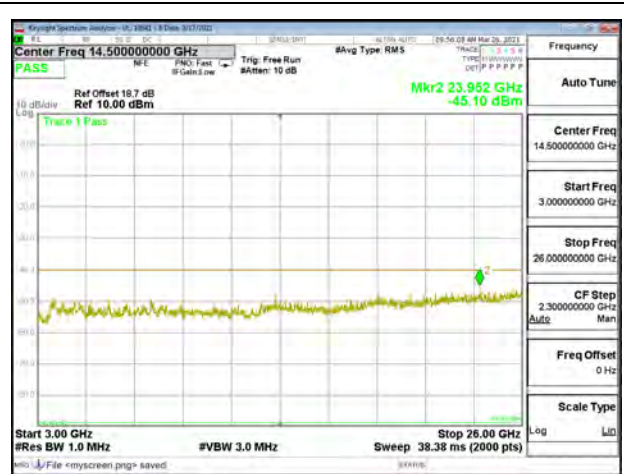
FCC: §27.53 (a)

The minimum permissible emission level of any spurious emissions is $70 + 10 \log(P)$ dB where transmitting power (P) in Watts.

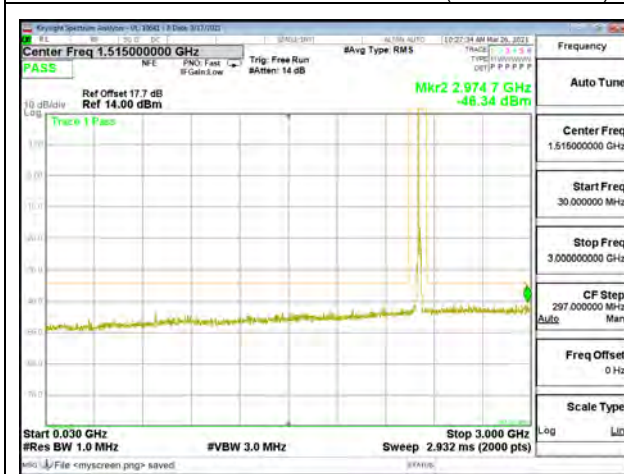
LTE BAND 30



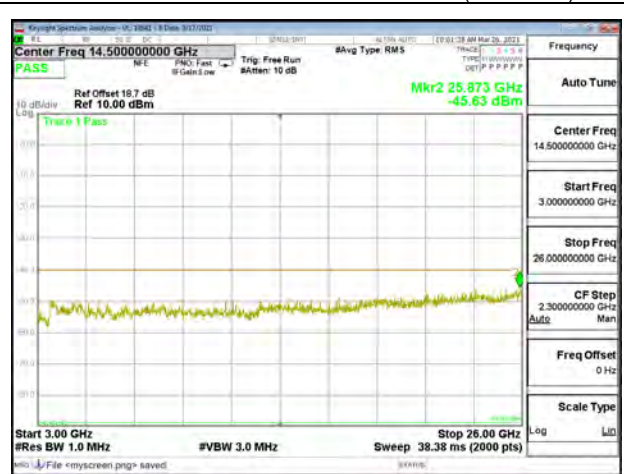
LTE B30 5MHz QPSK Low Channel RB1-0 (30MHz to 3GHz)



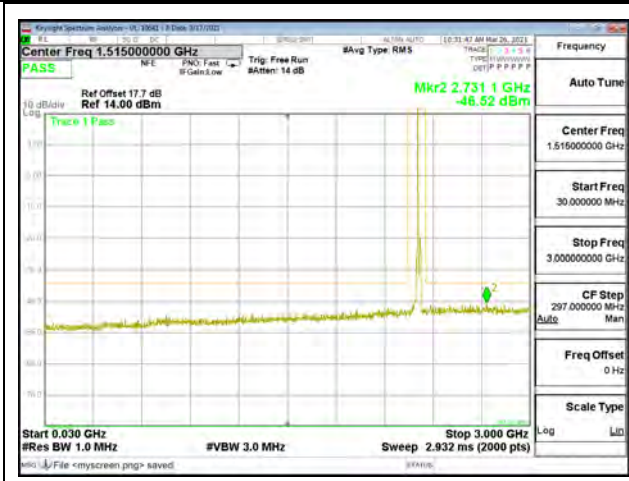
LTE B30 5MHz QPSK Low Channel RB1-0 (3G to 26G)



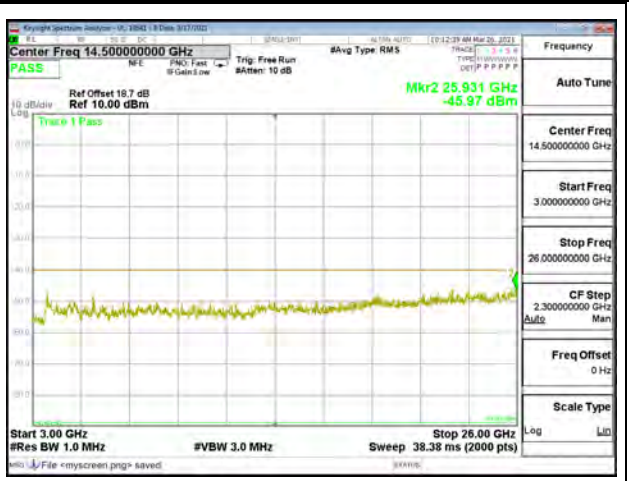
LTE B30 5MHz QPSK Mid Channel RB1-0 (30MHz to 3GHz)



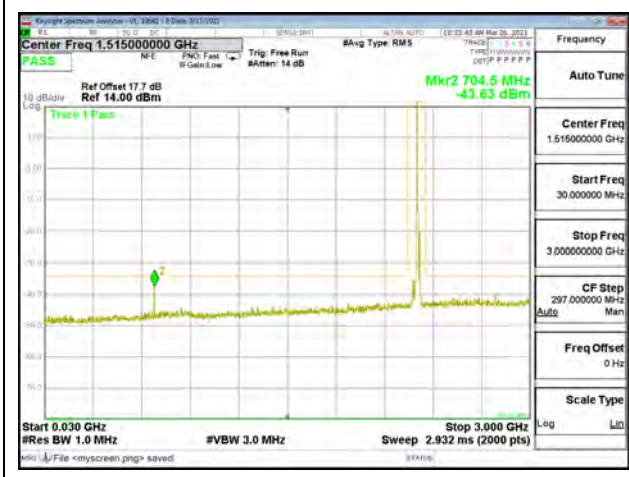
LTE B30 5MHz QPSK Middle Channel RB1-0 (3G to 26G)



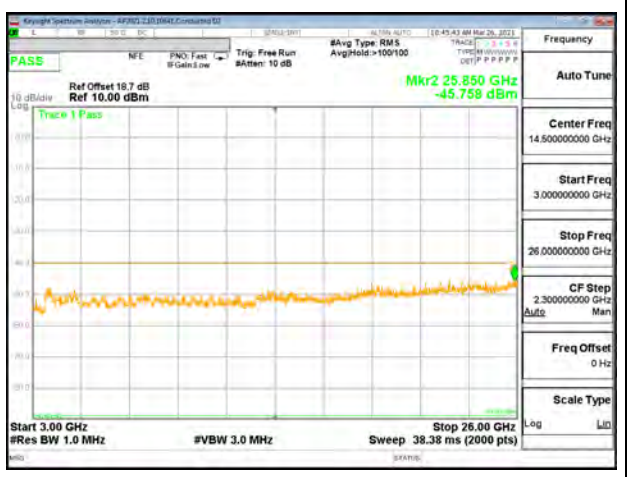
LTE B30 5MHz QPSK High Channel RB1-0 (30MHz to 3GHz)



LTE B30 5MHz QPSK High Channel RB1-0 (3G to 26G)



LTE B30 10MHz QPSK Mid Channel RB1-0 (30MHz to 3GHz)

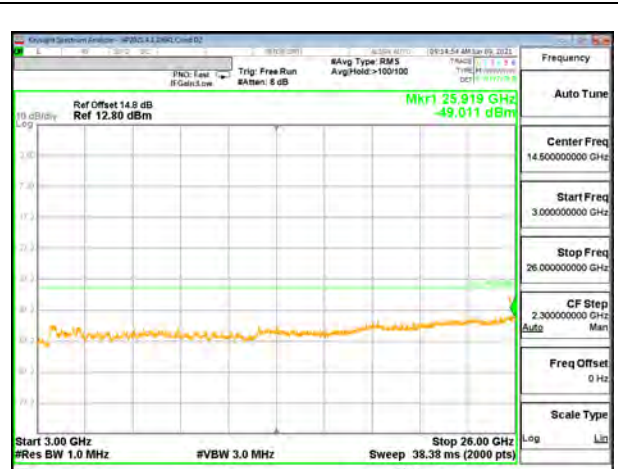


LTE B30 10MHz QPSK Middle Channel RB1-0 (3G to 26G)

LTE 5G NR n30



LTE 5G NR n30 5MHz BPSK Low Channel RB1-0 (30MHz to 3GHz)



LTE 5G NR n30 5MHz BPSK Low Channel RB1-0 (3G to 26G)



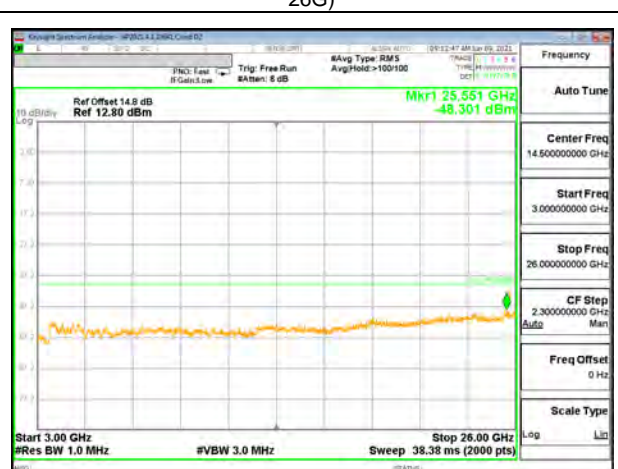
LTE 5G NR n30 5MHz BPSK Mid Channel RB1-1 (30MHz to 3GHz)



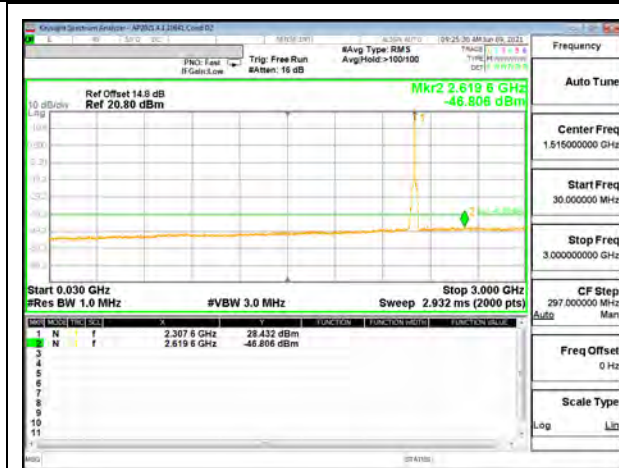
LTE 5G NR n30 5MHz BPSK Middle Channel RB1-1 (3G to 26G)



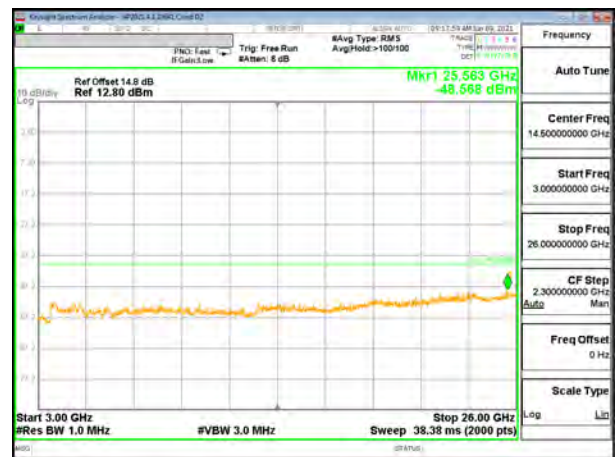
LTE 5G NR n30 5MHz BPSK High Channel RB1-24 (30MHz to 3GHz)



LTE 5G NR n30 5MHz BPSK High Channel RB1-24 (3G to 26G)



LTE 5G NR n30 10MHz BPSK Mid Channel RB1-1 (30MHz to 3GHz)



LTE 5G NR n30 10MHz BPSK Middle Channel RB1-1 (3G to 26G)

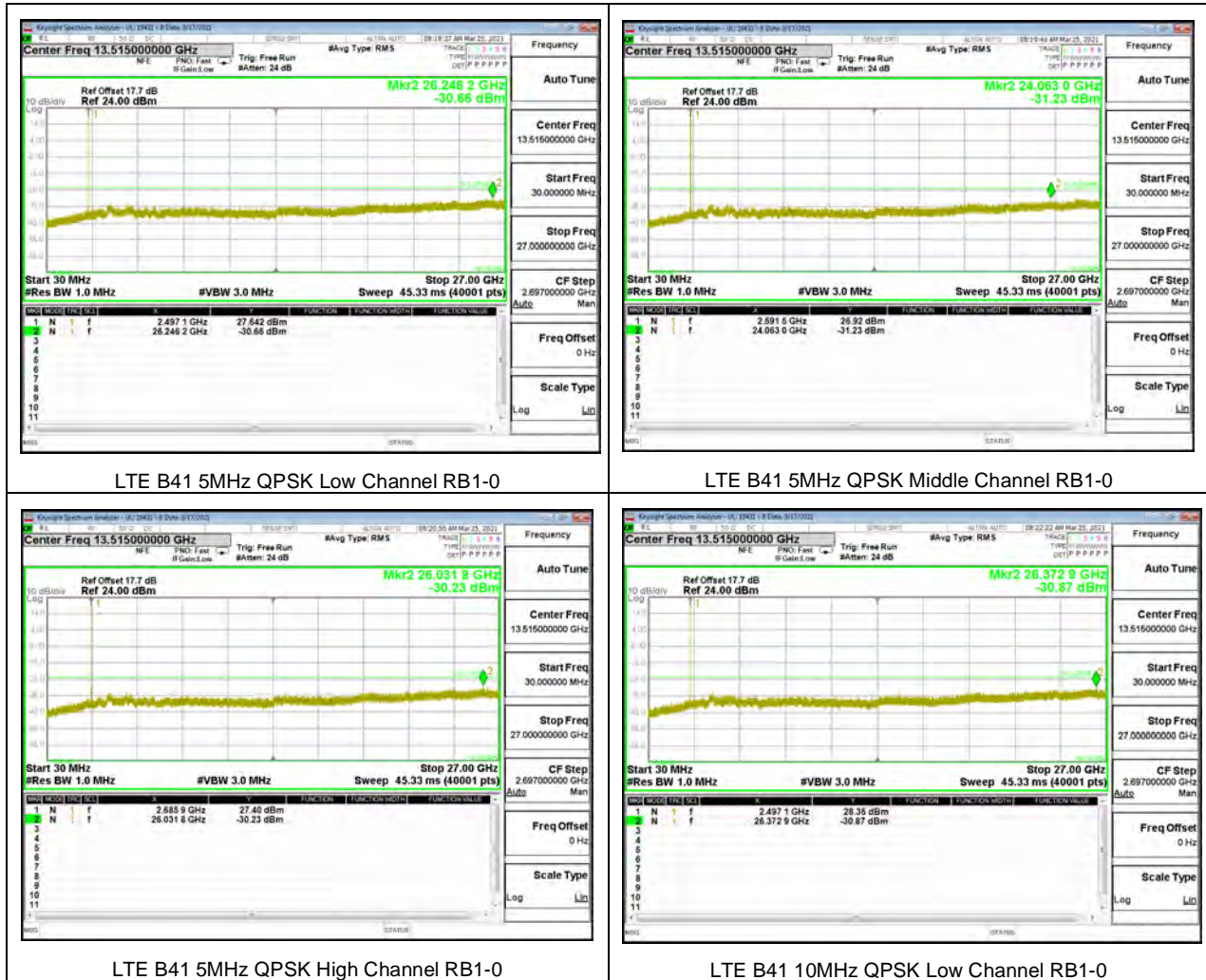
9.3.11. LTE BAND 41 AND 5G NR n41

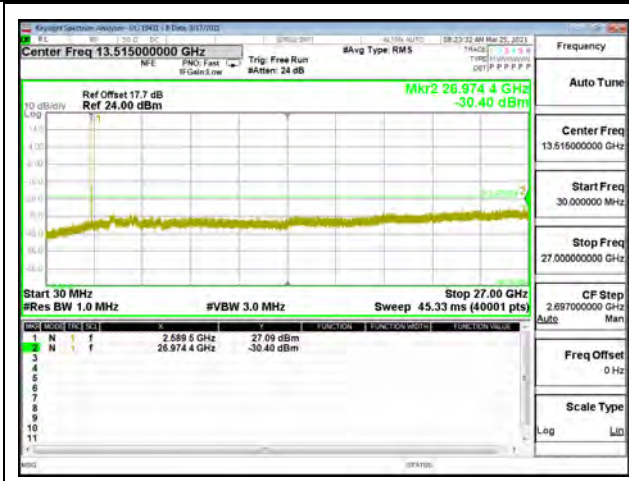
LIMITS

FCC: §27.53 (m)

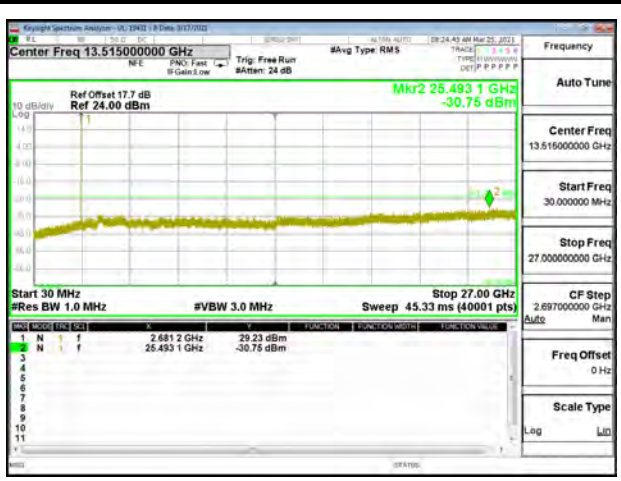
The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log(P)$ dB where transmitting power (P) in Watts.

LTE BAND 41 (FCC)

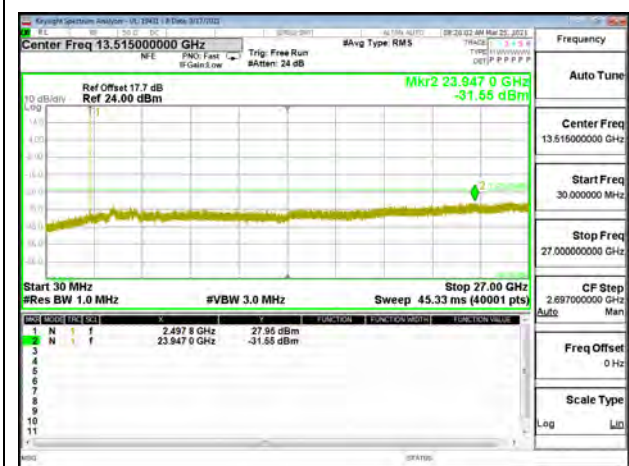




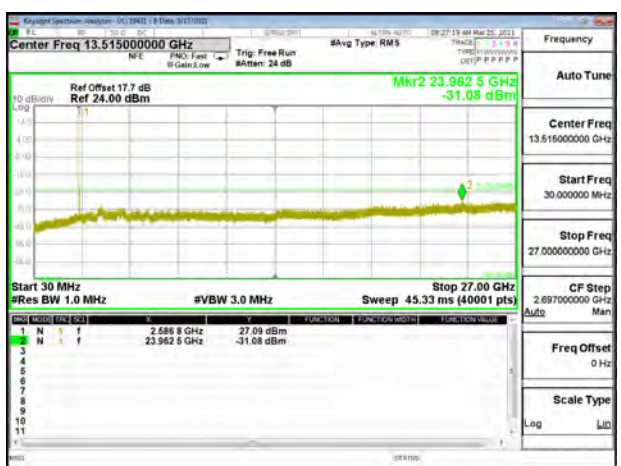
LTE B41 10MHz QPSK Middle Channel RB1-0



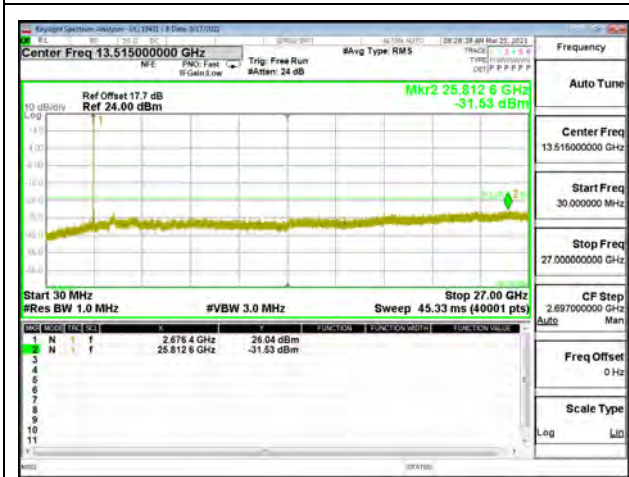
LTE B41 10MHz QPSK High Channel RB1-0



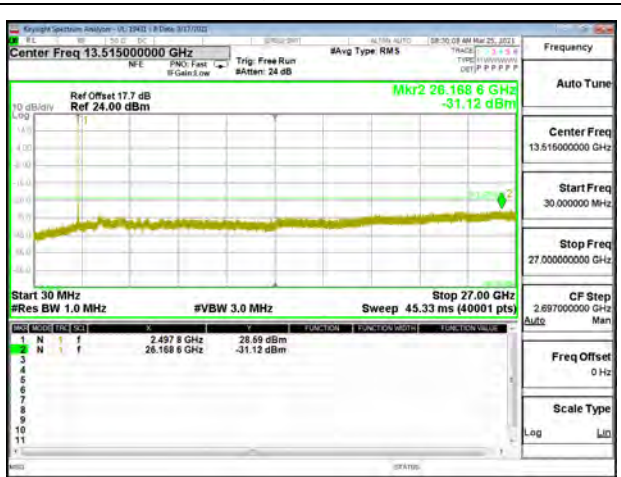
LTE B41 15MHz QPSK Low Channel RB1-0



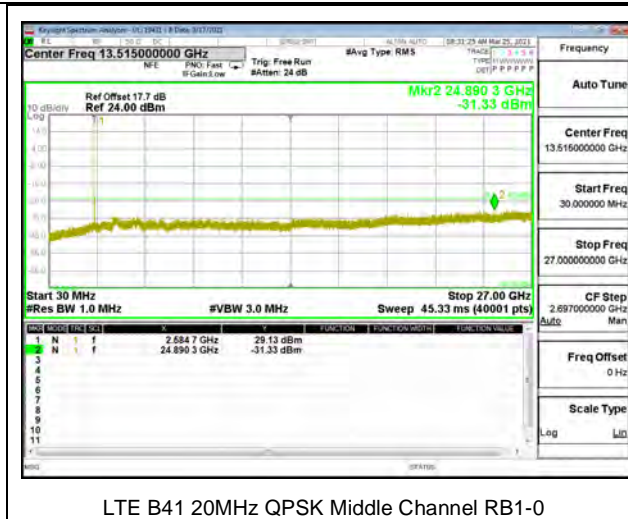
LTE B41 15MHz QPSK Middle Channel RB1-0



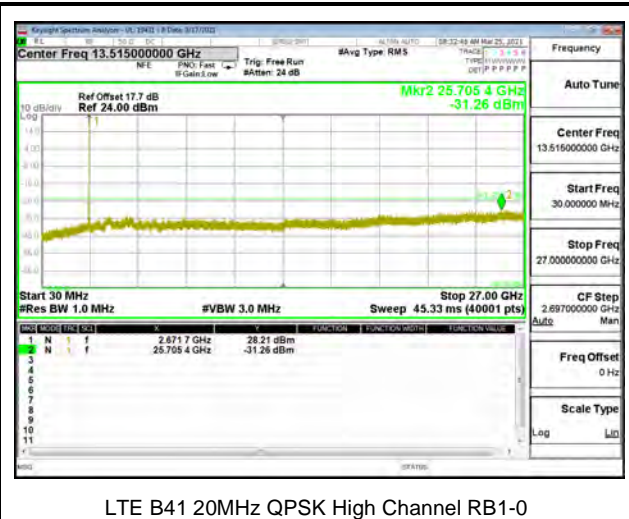
LTE B41 15MHz QPSK High Channel RB1-0



LTE B41 20MHz QPSK Low Channel RB1-0

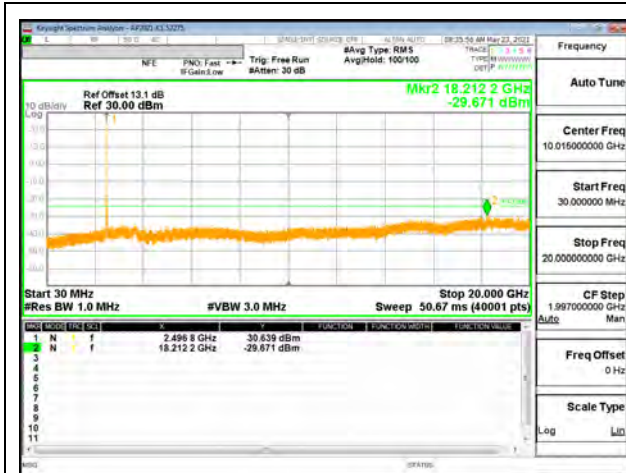


LTE B41 20MHz QPSK Middle Channel RB1-0



LTE B41 20MHz QPSK High Channel RB1-0

5G NR n41



5G NR n41 20MHz BPSK Low Channel RB1-0



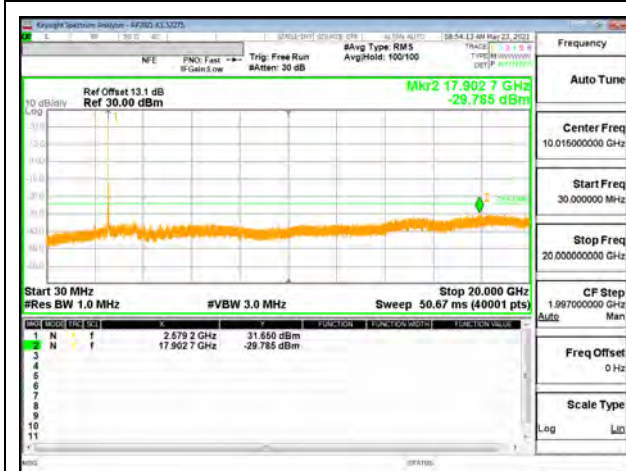
5G NR n41 20MHz BPSK Middle Channel RB1-1



5G NR n41 20MHz BPSK High Channel RB1-0



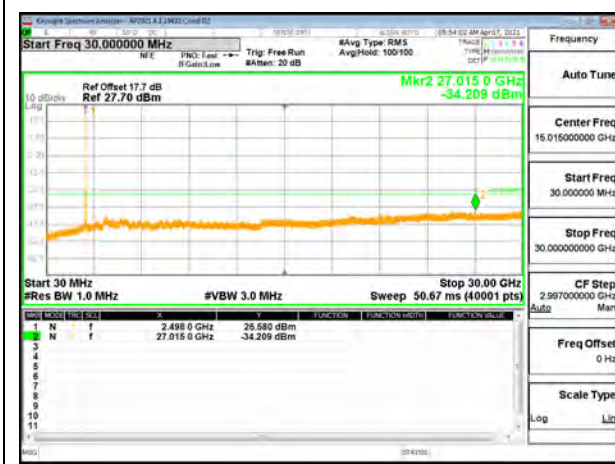
5G NR n41 30MHz BPSK Low Channel RB1-0



5G NR n41 30MHz BPSK Middle Channel RB1-1



5G NR n41 30MHz BPSK High Channel RB1-6



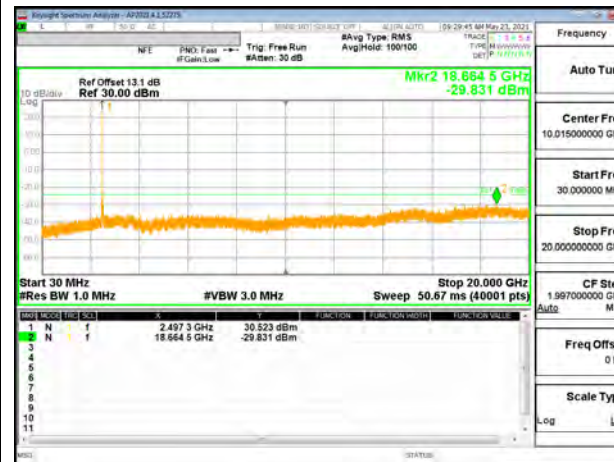
5G NR n41 40MHz BPSK Low Channel RB1-0



5G NR n41 40MHz BPSK Middle Channel RB1-1



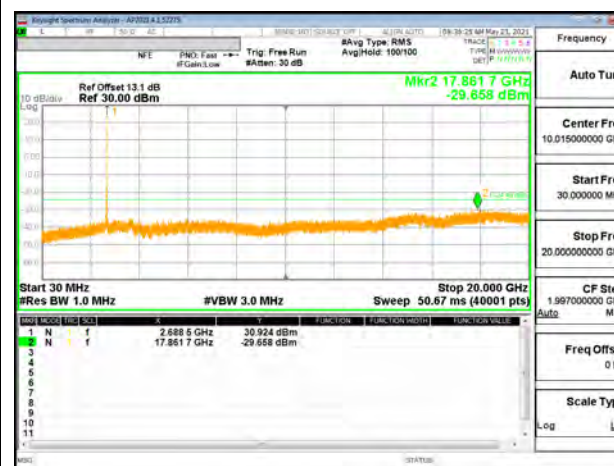
5G NR n41 40MHz BPSK High Channel RB1-105



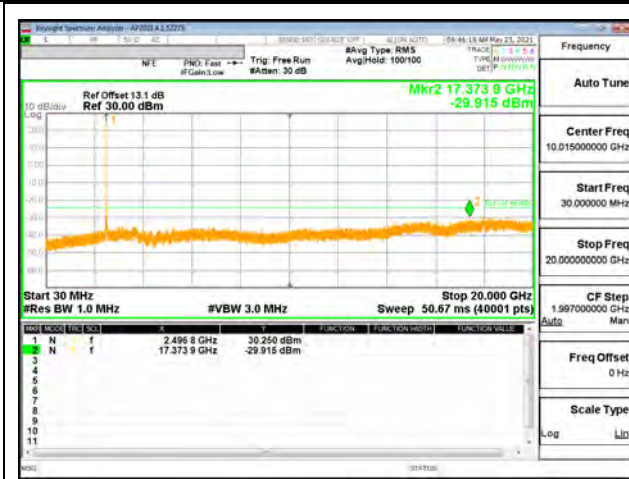
5G NR n41 50MHz BPSK Low Channel RB1-0



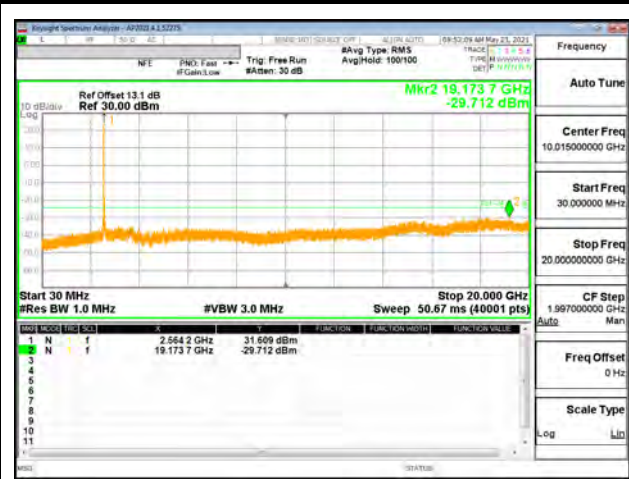
5G NR n41 50MHz BPSK Middle Channel RB1-1



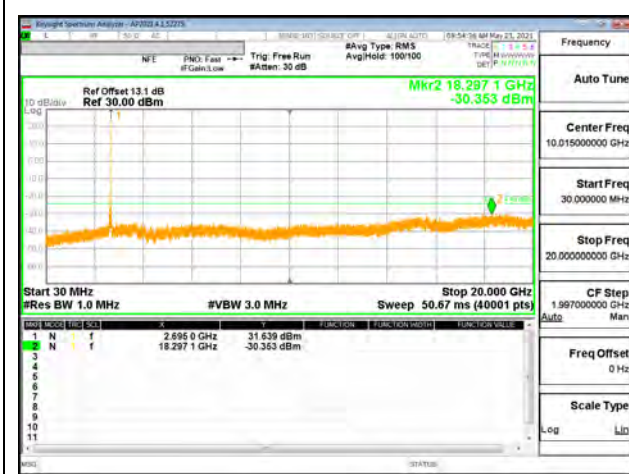
5G NR n41 50MHz BPSK High Channel RB1-132



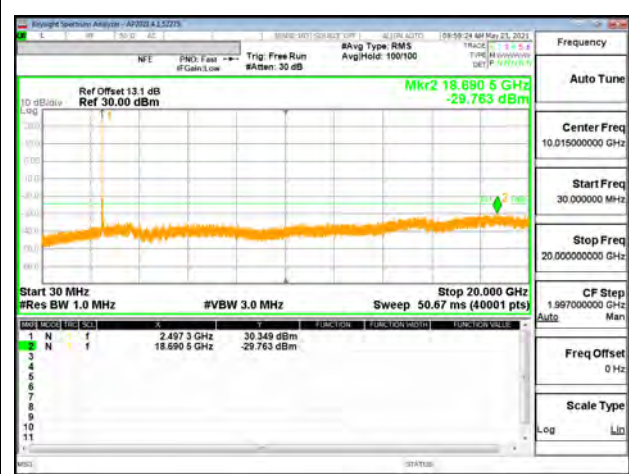
5G NR n41 60MHz BPSK Low Channel RB1-0



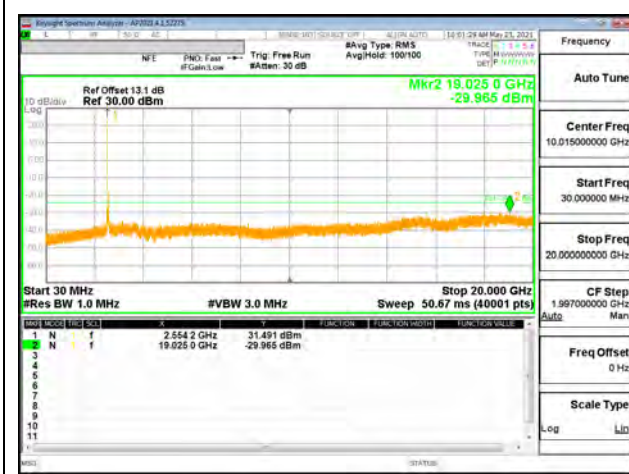
5G NR n41 60MHz BPSK Middle Channel RB1-1



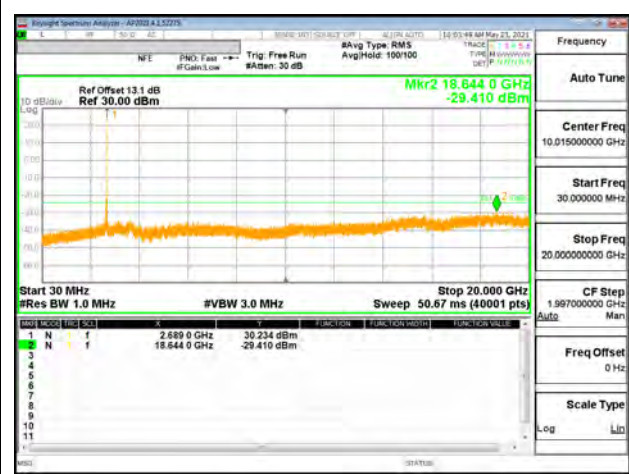
5G NR n41 60MHz BPSK High Channel RB1-78



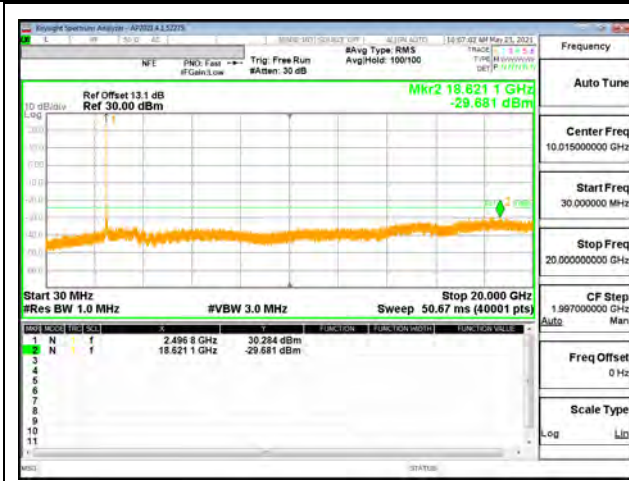
5G NR n41 80MHz BPSK Low Channel RB1-0



5G NR n41 80MHz BPSK Middle Channel RB1-1



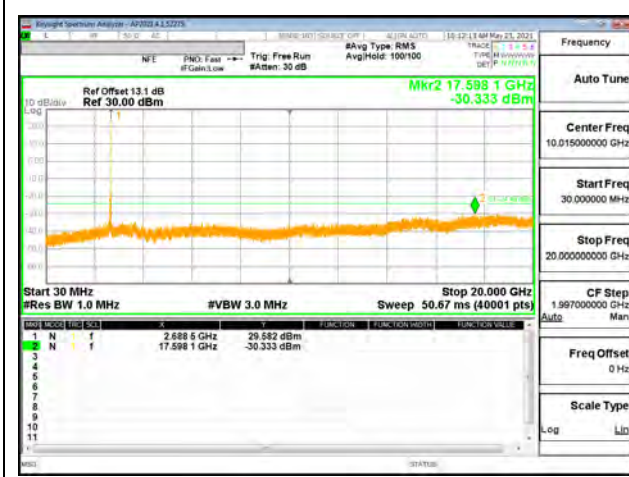
5G NR n41 80MHz BPSK High Channel RB1-216



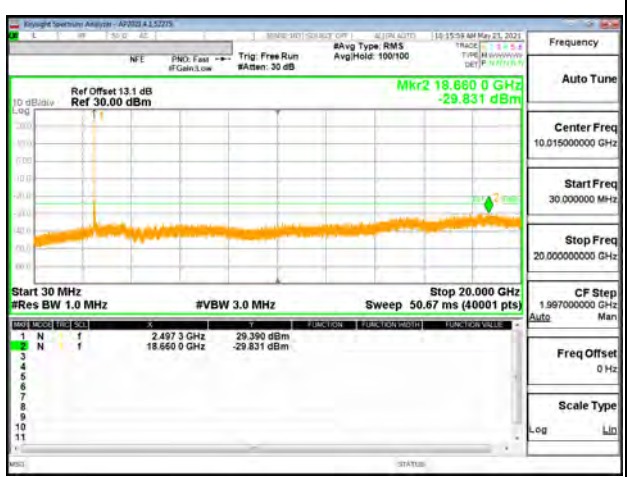
5G NR n41 90MHz BPSK Low Channel RB1-0



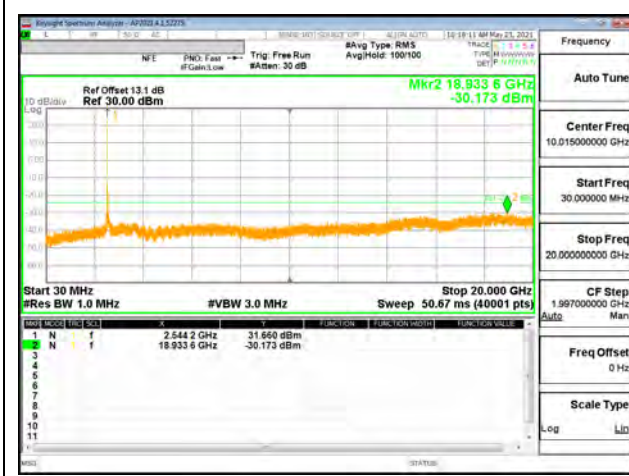
5G NR n41 90MHz BPSK Middle Channel RB1-1



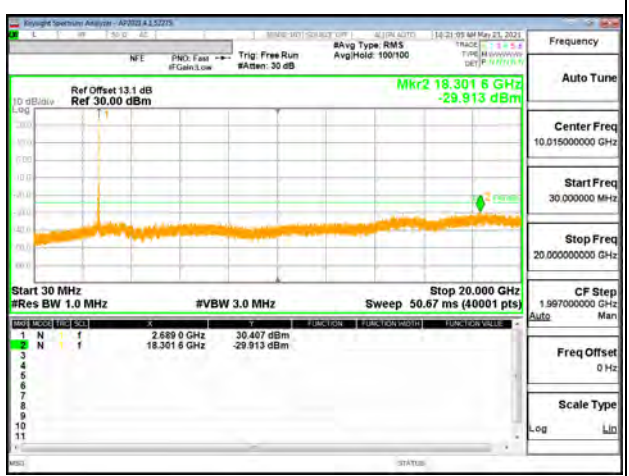
5G NR n41 90MHz BPSK High Channel RB1-244



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

9.3.12. LTE BAND 48

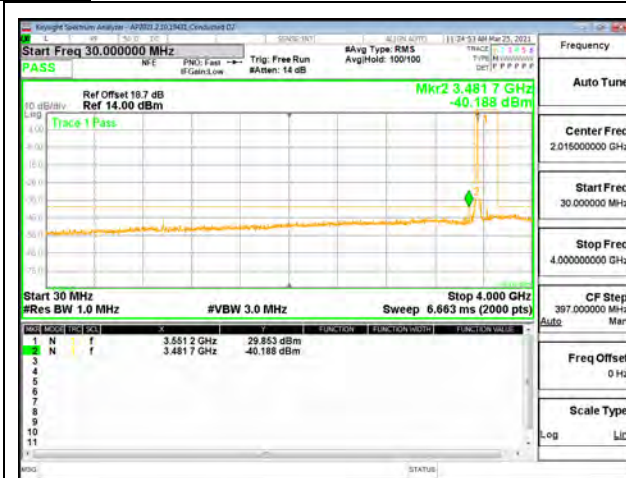
LIMITS

FCC: §96.41

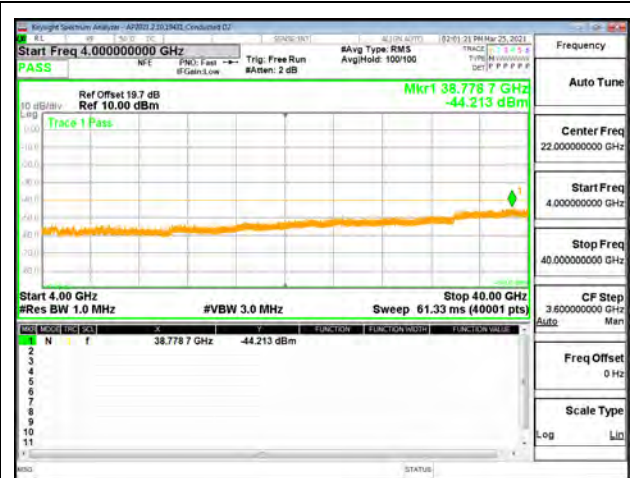
(e) 3.5 GHz Emissions and Interference Limits—

(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.

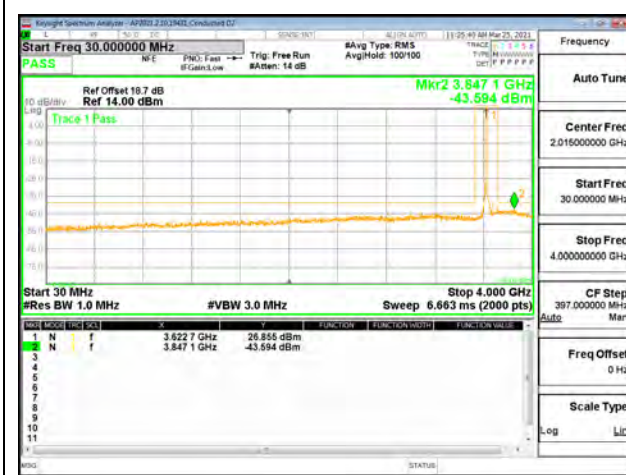
LTE BAND 48



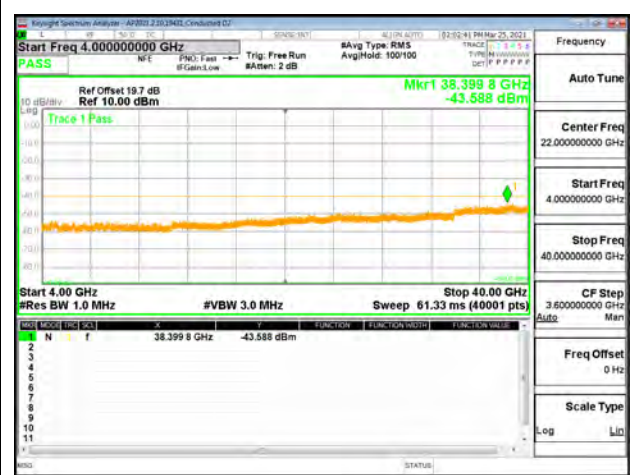
LTE B48 5MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



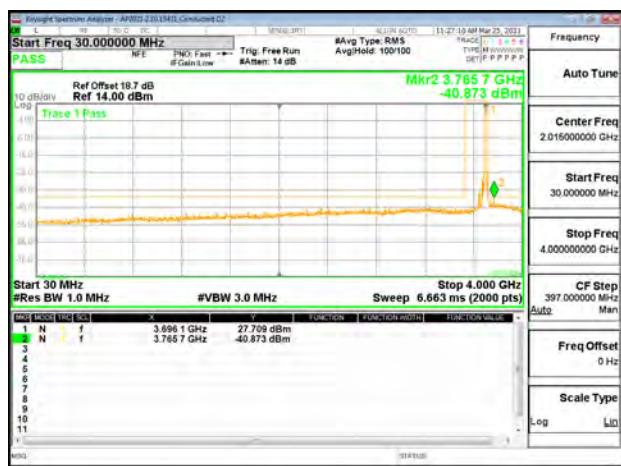
LTE B48 5MHz QPSK Low Channel RB1-0 (4G to 40G)



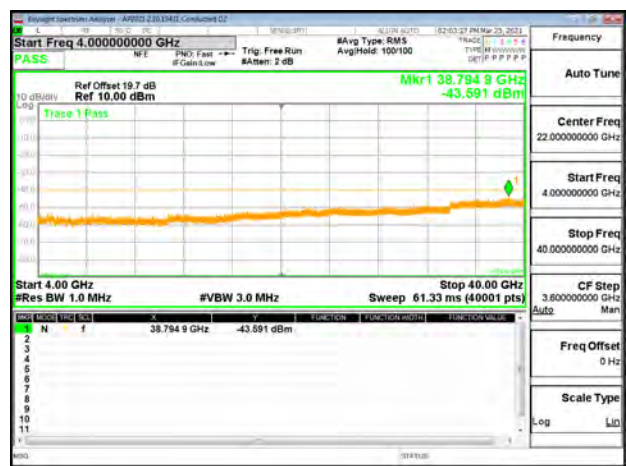
LTE B48 5MHz QPSK Mid Channel RB1-0 (30MHz to 4GHz)



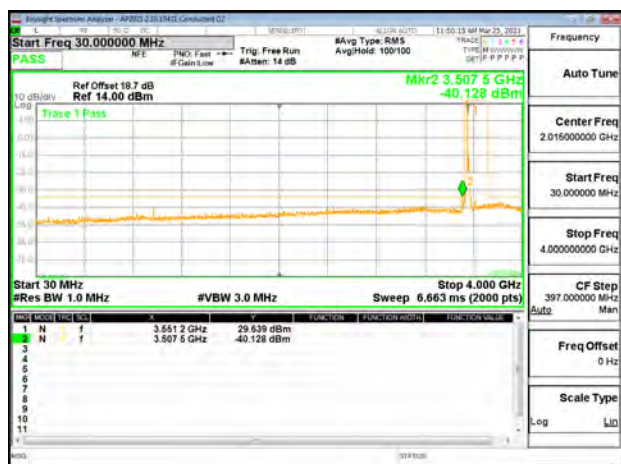
LTE B48 5MHz QPSK Middle Channel RB1-0 (4G to 40G)



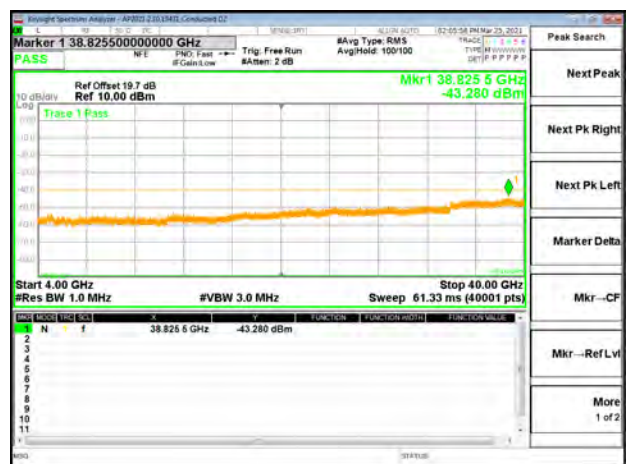
LTE B48 5MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



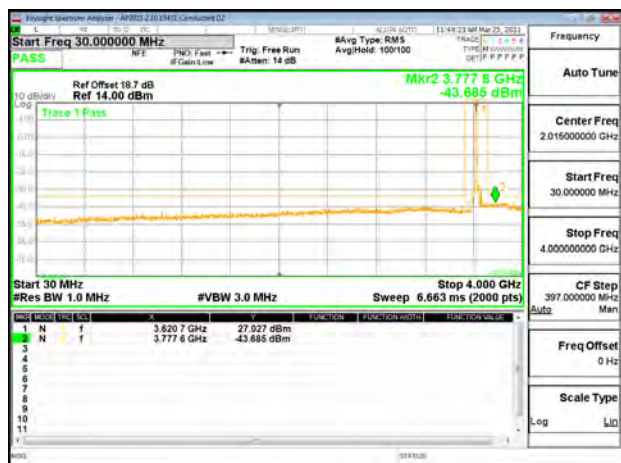
LTE B48 5MHz QPSK High Channel RB1-0 (4G to 40G)



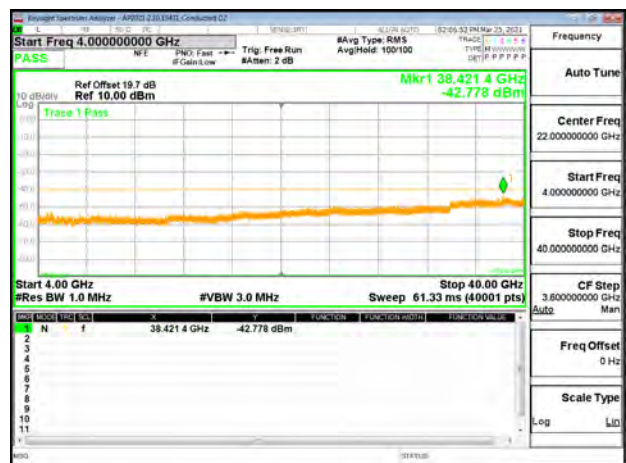
LTE B48 10MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



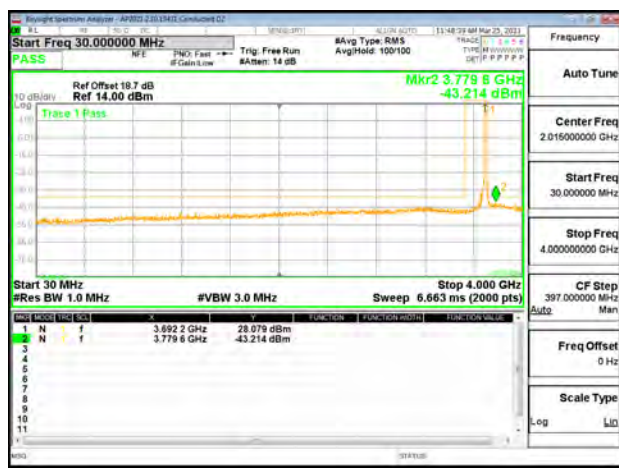
LTE B48 10MHz QPSK Low Channel RB1-0 (4G to 40G)



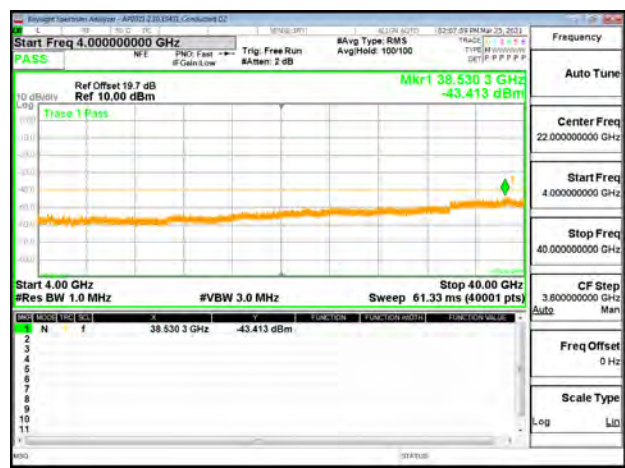
LTE B48 10MHz QPSK Mid Channel RB1-0 (30MHz to 4GHz)



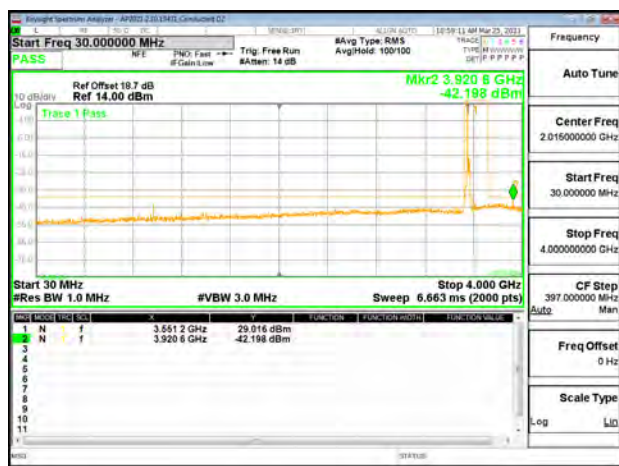
LTE B48 10MHz QPSK Middle Channel RB1-0 (4G to 40G)



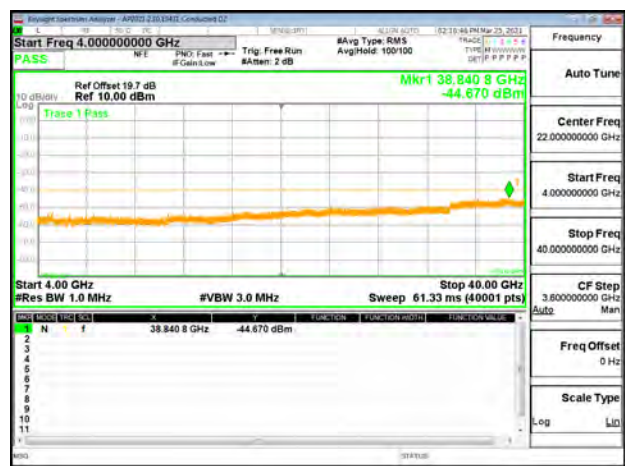
LTE B48 10MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



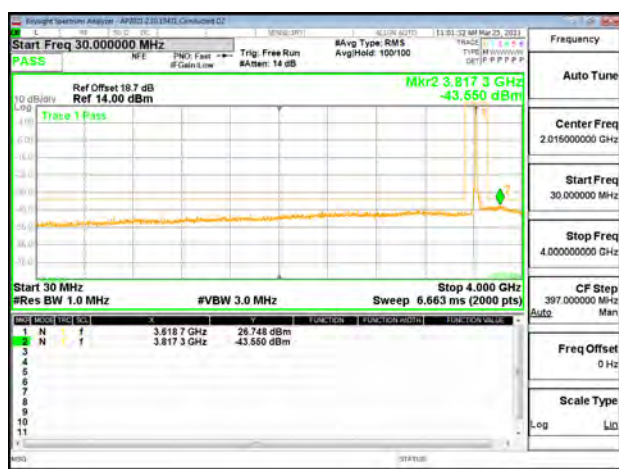
LTE B48 10MHz QPSK High Channel RB1-0 (4G to 40G)



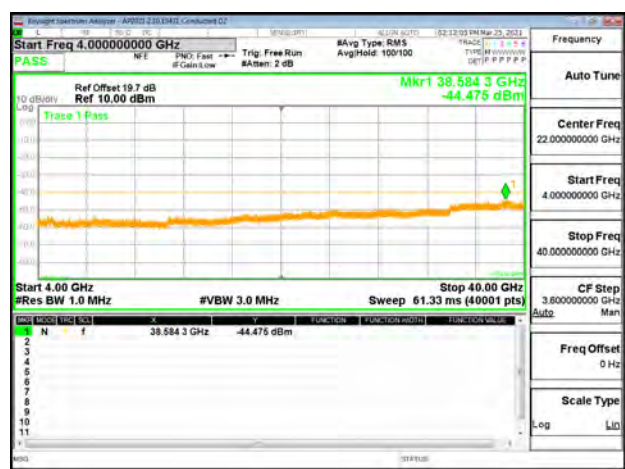
LTE B48 15MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



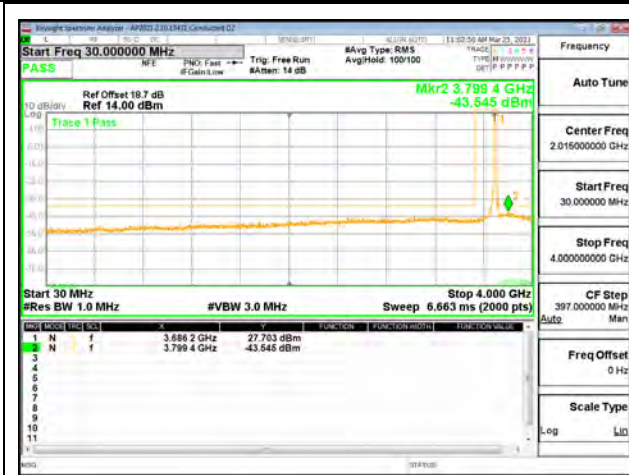
LTE B48 15MHz QPSK Low Channel RB1-0 (4G to 40G)



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



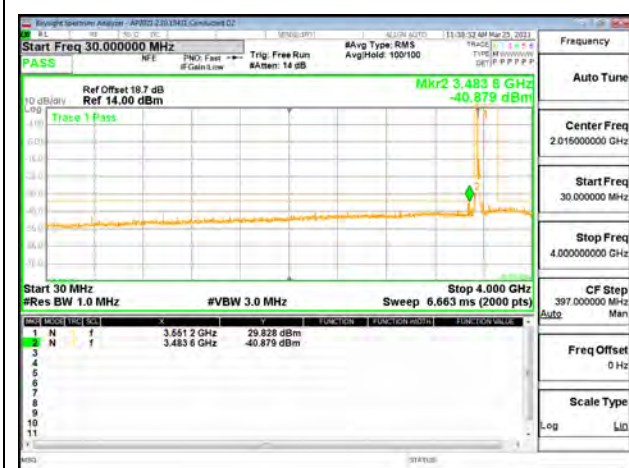
LTE B48 15MHz QPSK Middle Channel RB1-0 (4G to 40G)



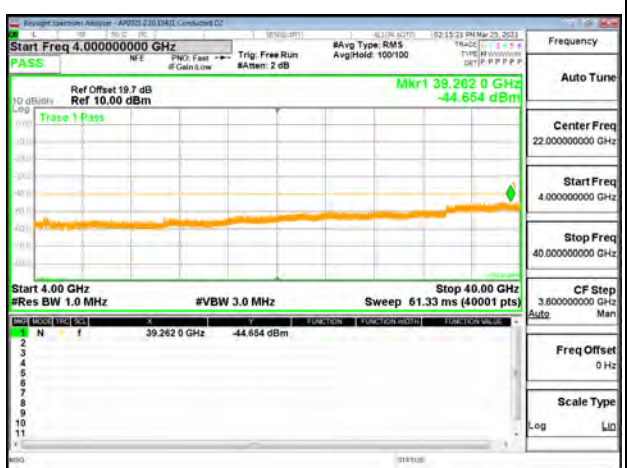
LTE B48 15MHz QPSK High Channel RB1-0 (30MHz to 4GHz)



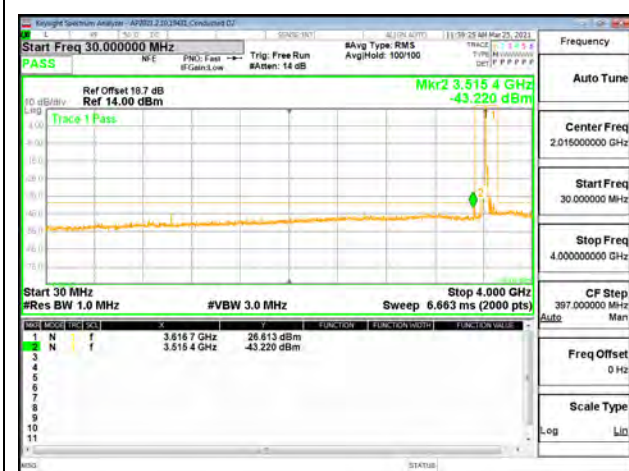
LTE B48 15MHz QPSK High Channel RB1-0 (4G to 40G)



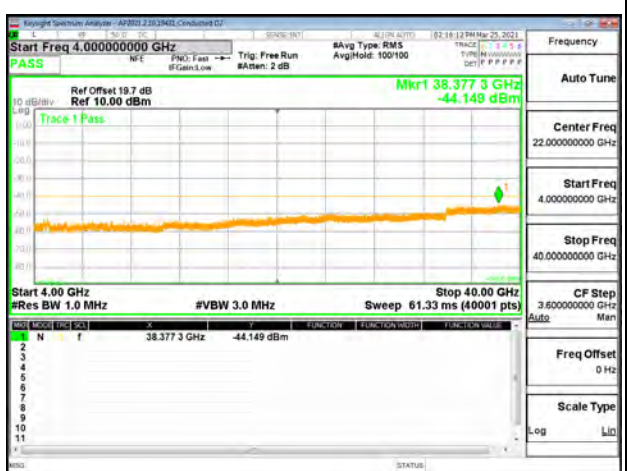
LTE B48 20MHz QPSK Low Channel RB1-0 (30MHz to 4GHz)



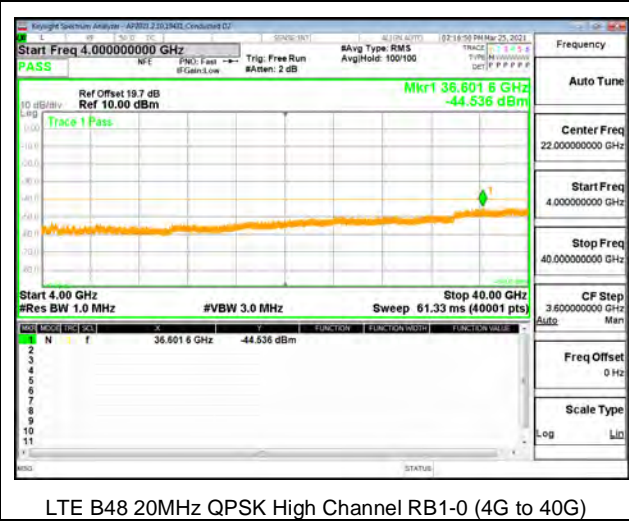
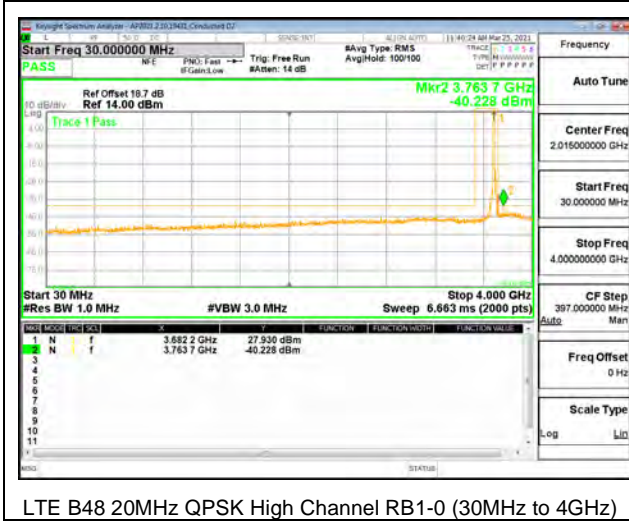
LTE B48 20MHz QPSK Low Channel RB1-0 (4G to 40G)



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



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



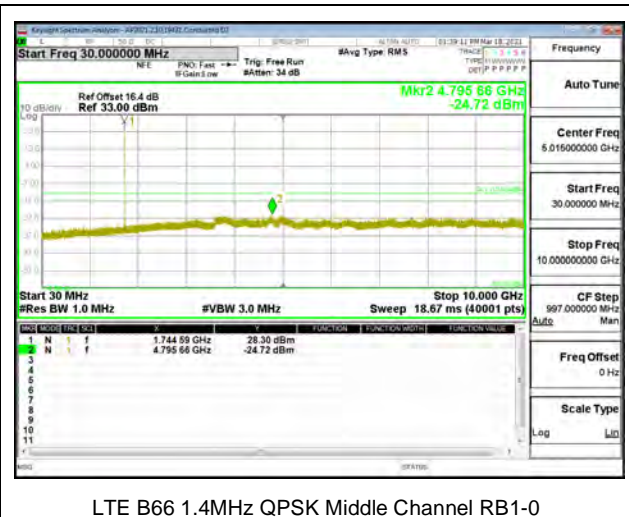
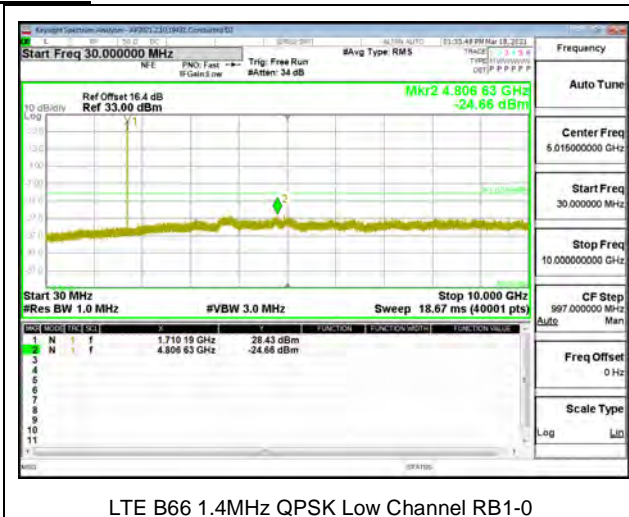
9.3.13. LTE BAND 66 AND 5G NR n66

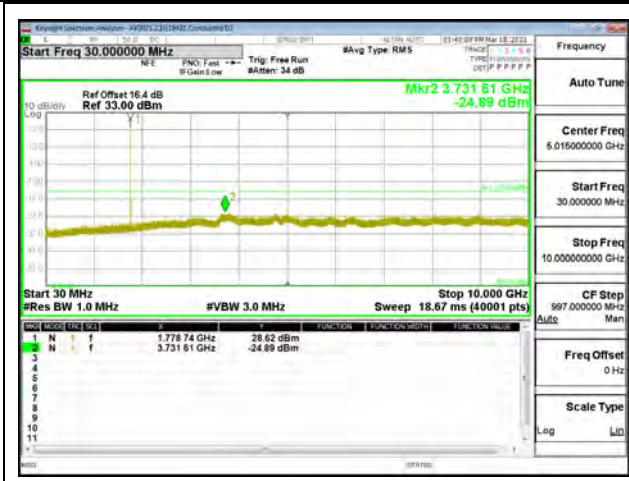
LIMITS

FCC: §27.53 (h)

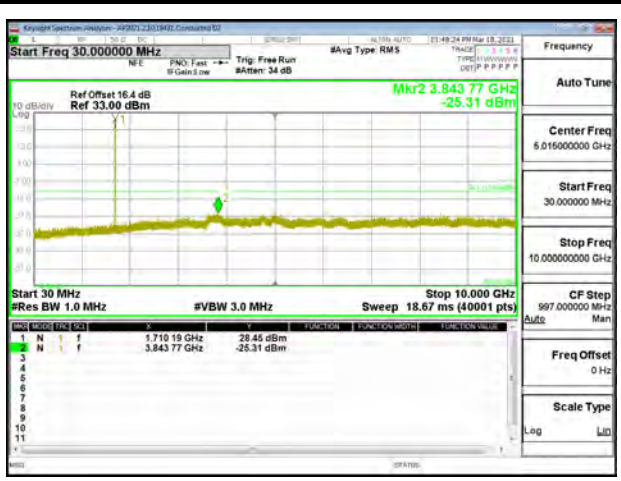
The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log(P)$ dB where transmitting power (P) in Watts.

LTE BAND 66

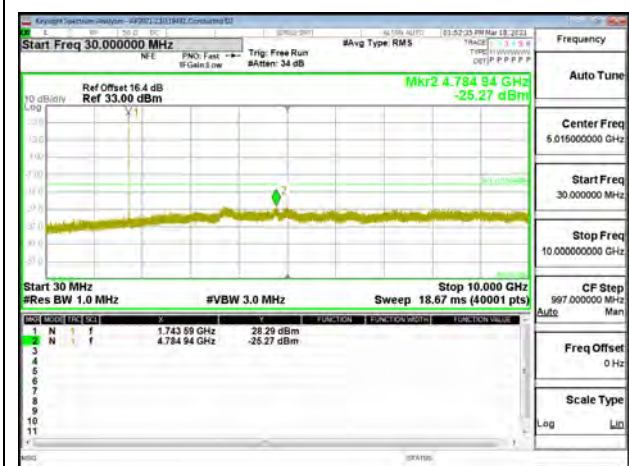




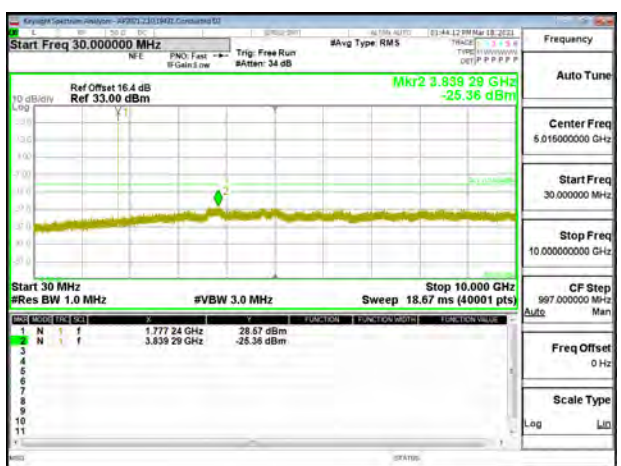
LTE B66 1.4MHz QPSK High Channel RB1-0



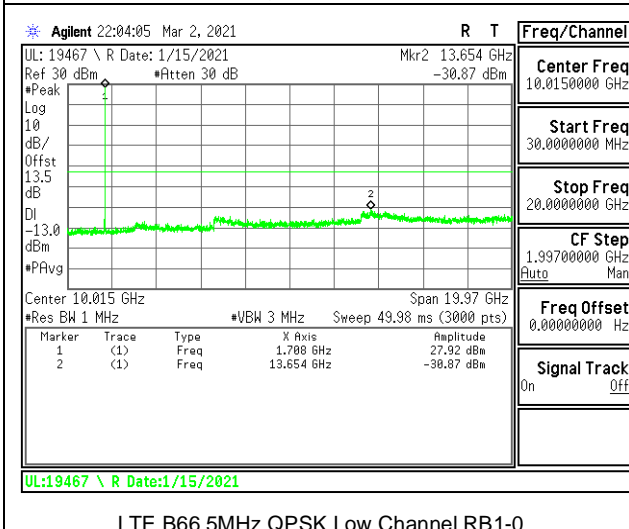
LTE B66 3MHz QPSK Low Channel RB1-0



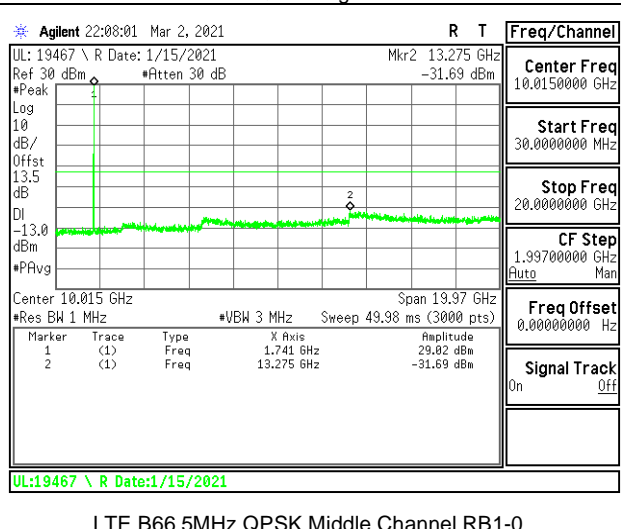
LTE B66 3MHz QPSK Middle Channel RB1-0



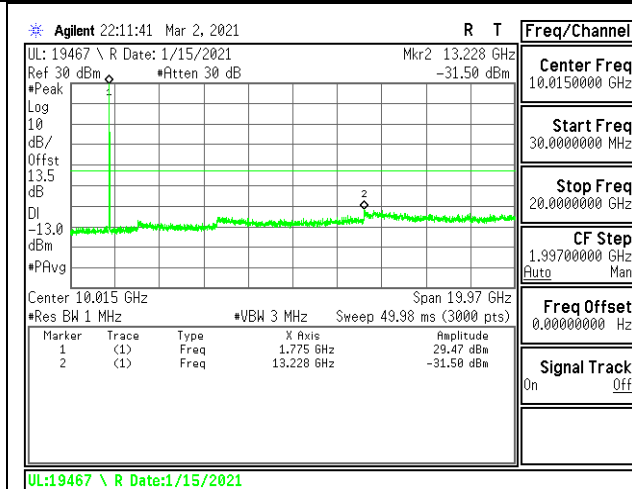
LTE B66 3MHz QPSK High Channel RB1-0



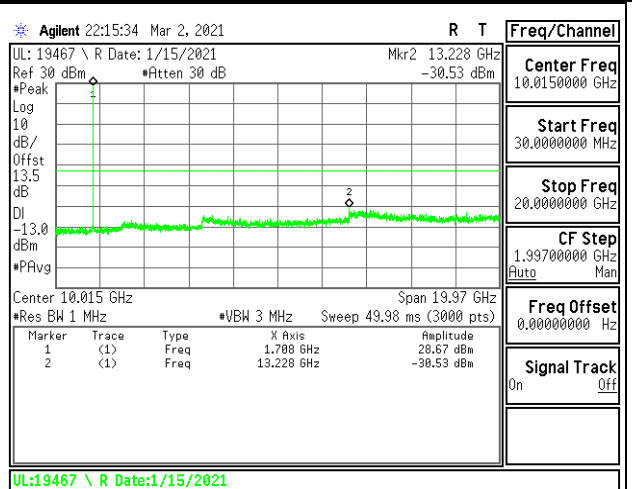
LTE B66 5MHz QPSK Low Channel RB1-0



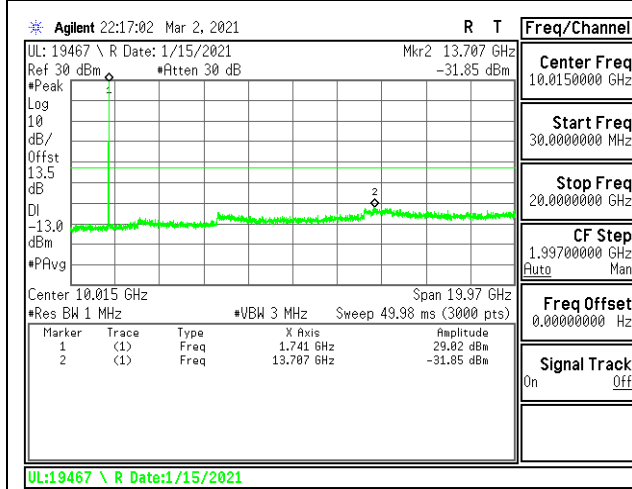
LTE B66 5MHz QPSK Middle Channel RB1-0



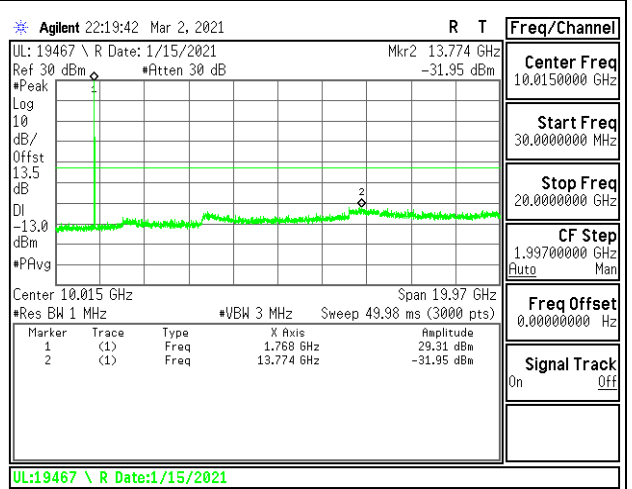
LTE B66 5MHz QPSK High Channel RB1-0



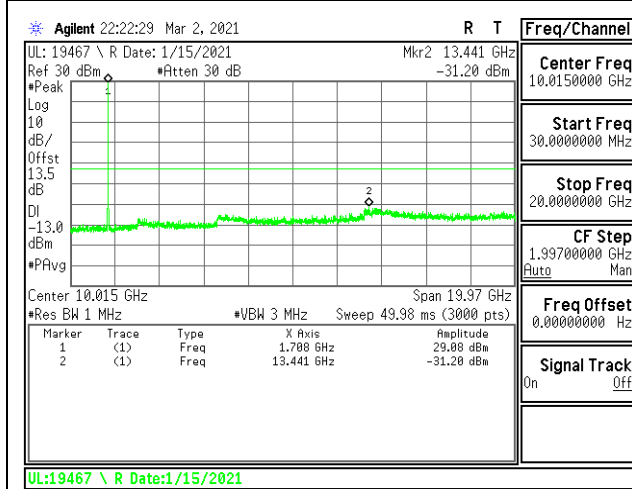
LTE B66 10MHz QPSK Low Channel RB1-0



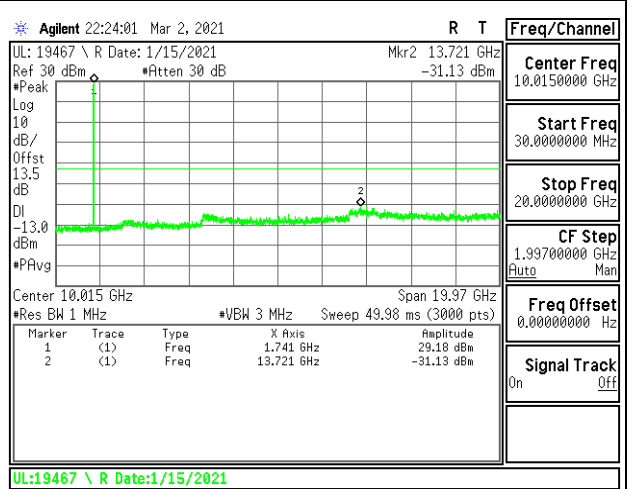
LTE B66 10MHz QPSK Middle Channel RB1-0



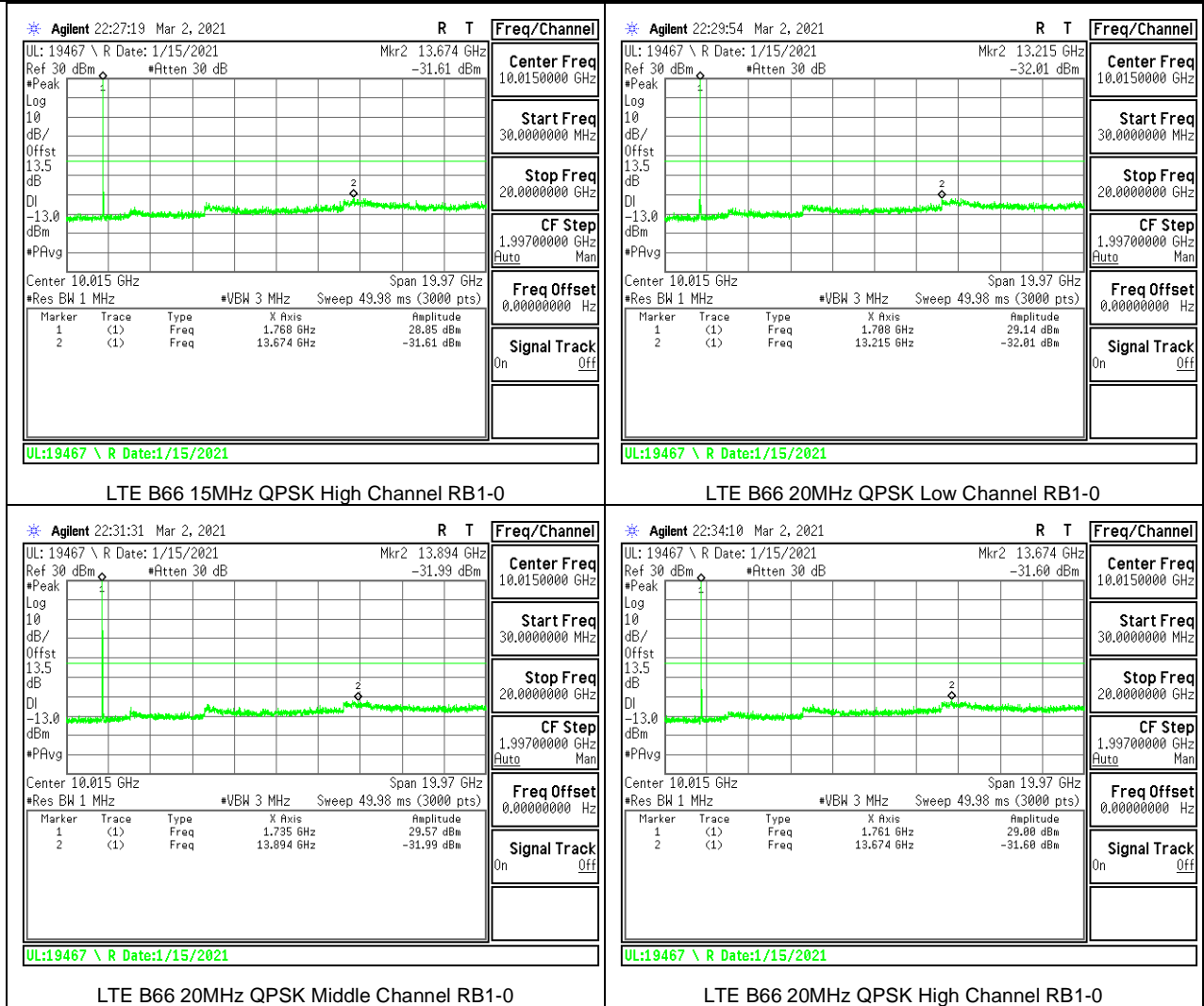
LTE B66 10MHz QPSK High Channel RB1-0



LTE B66 15MHz QPSK Low Channel RB1-0



LTE B66 15MHz QPSK Middle Channel RB1-0



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



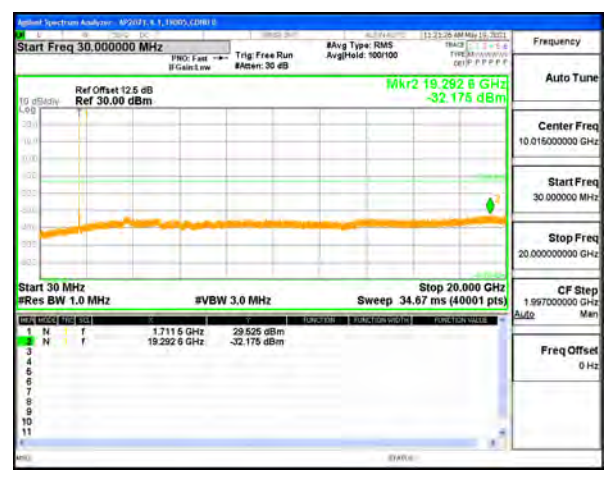
5G NR n66 15MHz BPSK Low Channel RB1-0



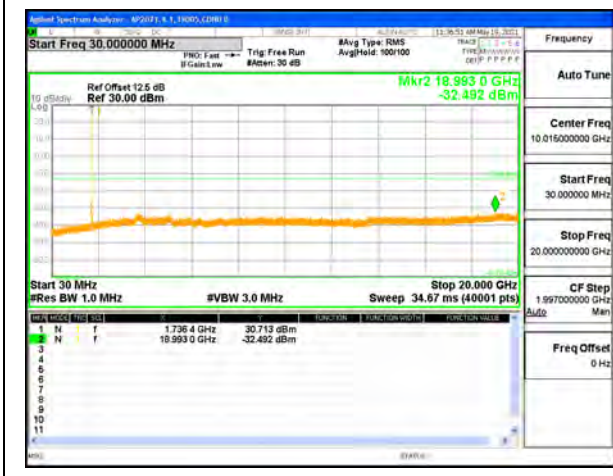
5G NR n66 15MHz BPSK Middle Channel RB1-1



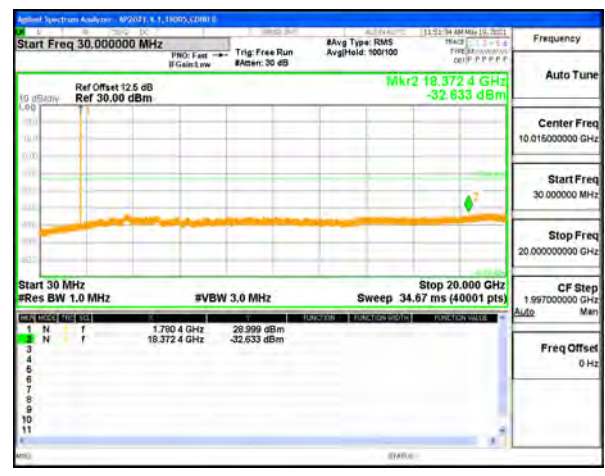
5G NR n66 15MHz BPSK High Channel RB1-78



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



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



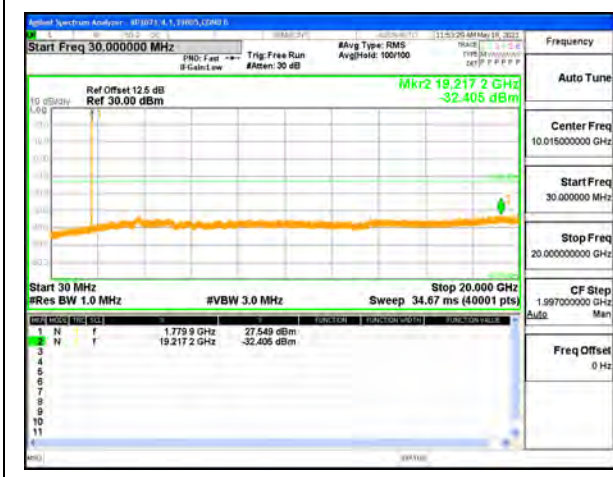
5G NR n66 20MHz BPSK High Channel RB1-105



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



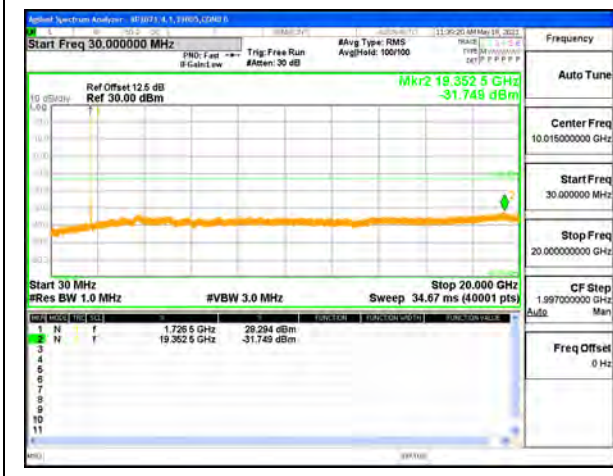
5G NR n66 30MHz BPSK Middle Channel RB1-1



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

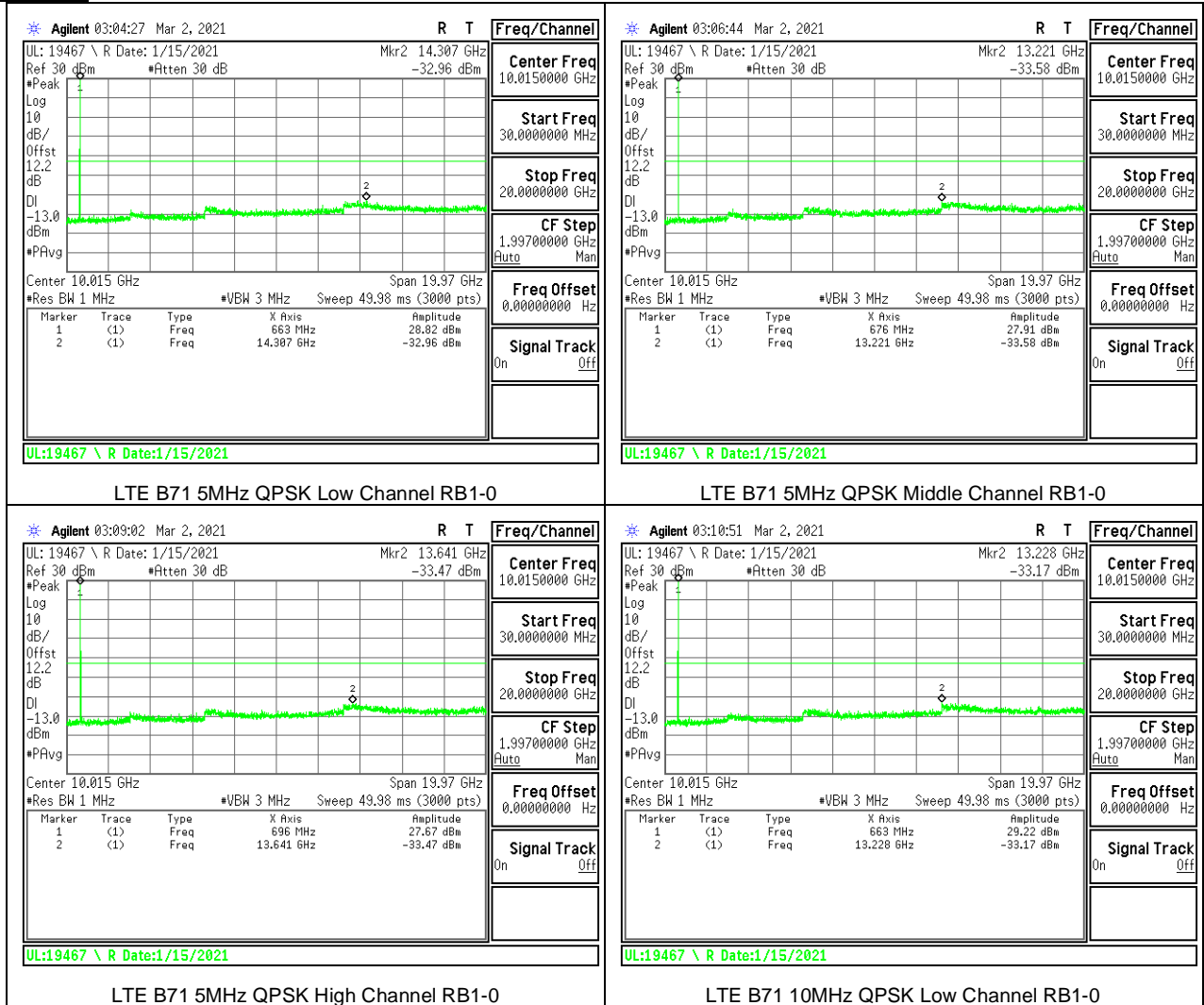
9.3.14. LTE BAND 71 AND 5G NR n71

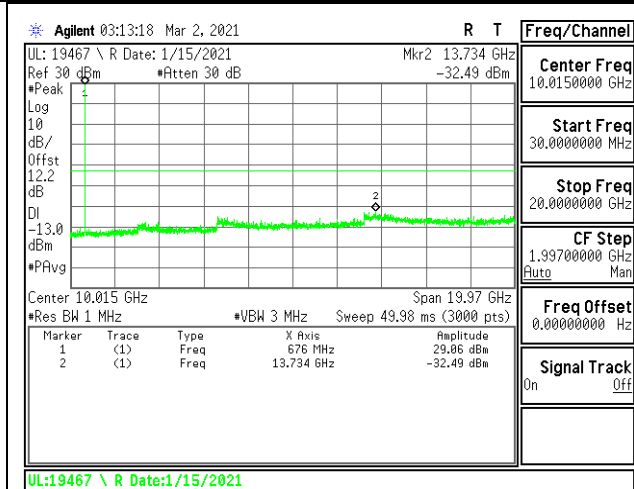
LIMITS

FCC: §27.53 (g)

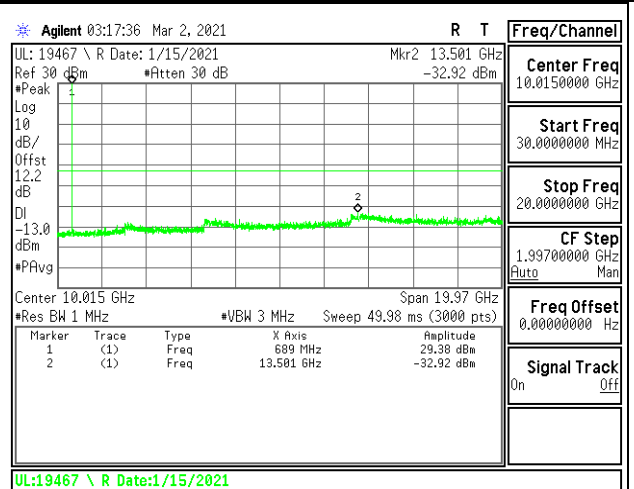
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

LTE BAND 71

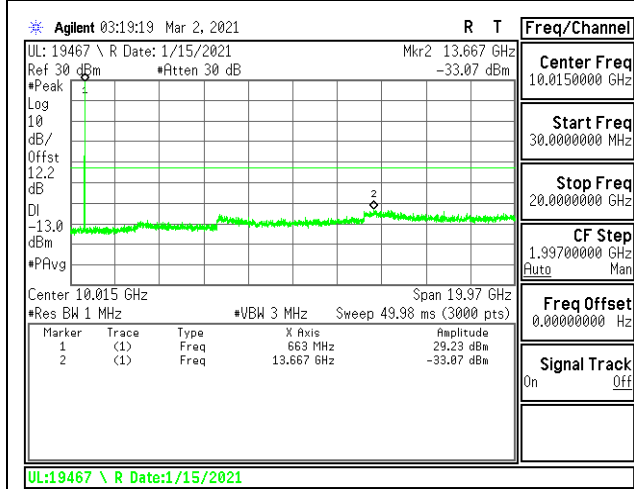




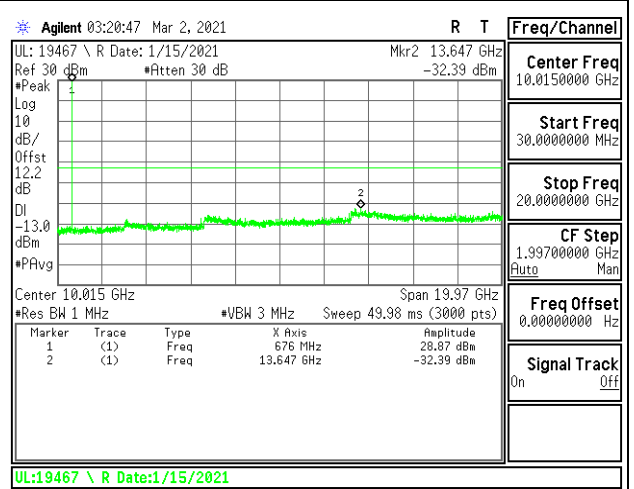
LTE B71 10MHz QPSK Middle Channel RB1-0



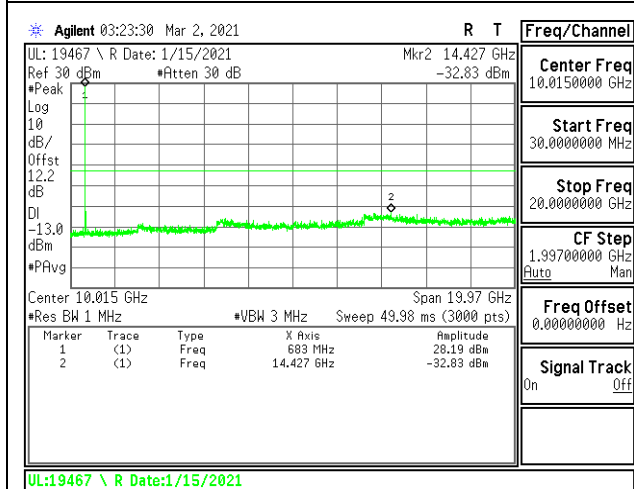
LTE 71 10MHz QPSK High Channel RB1-0



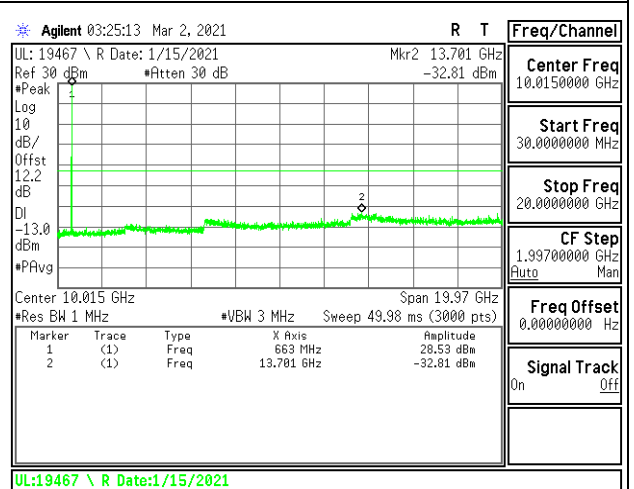
LTE B71 15MHz QPSK Low Channel RB1-0



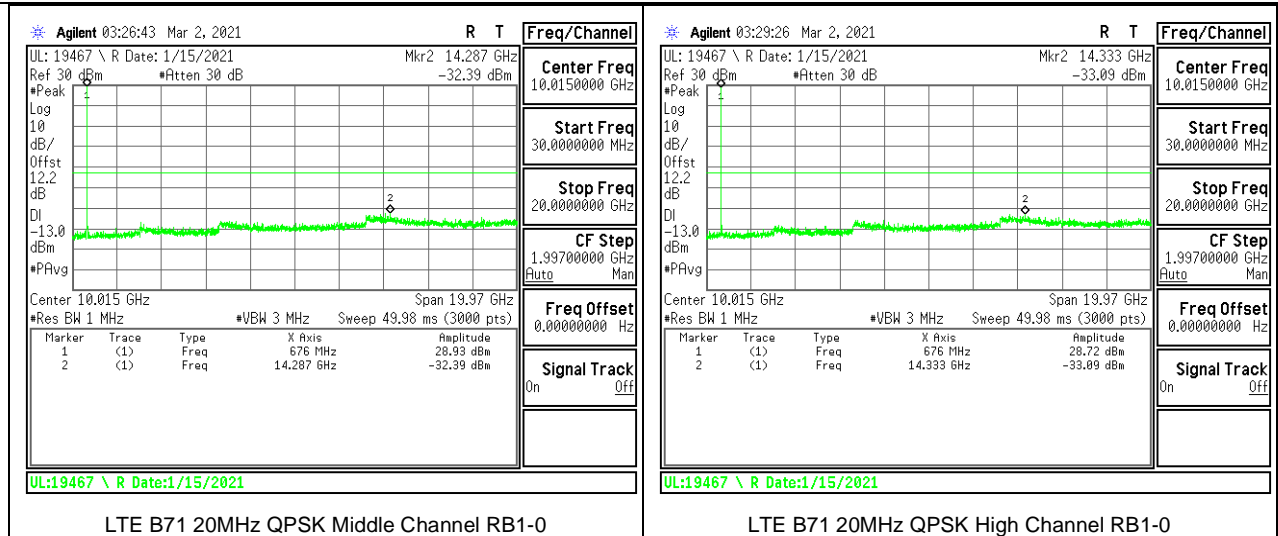
LTE B71 15MHz QPSK Middle Channel RB1-0



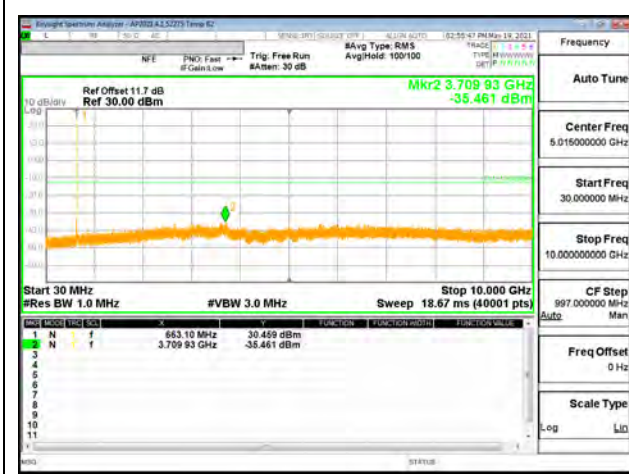
LTE B71 15MHz QPSK High Channel RB1-0



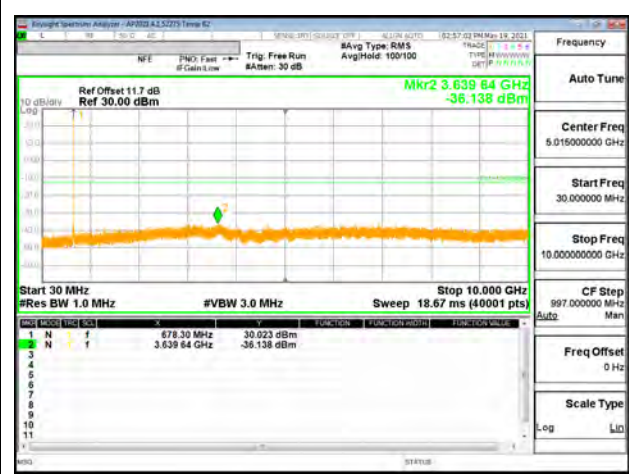
LTE B71 20MHz QPSK Low Channel RB1-0



5G NR n71



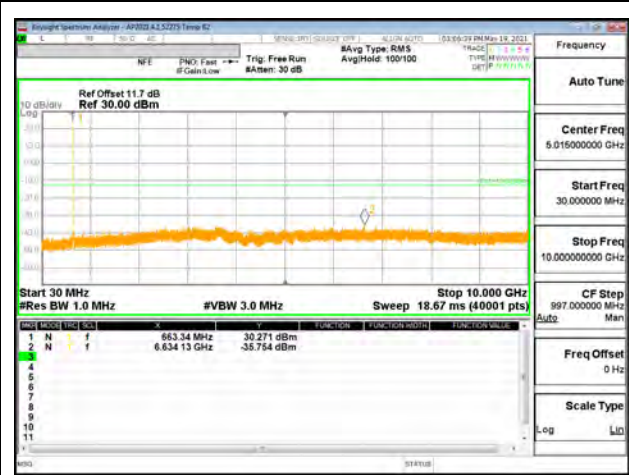
5G NR n71 5MHz BPSK Low Channel RB1-0



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



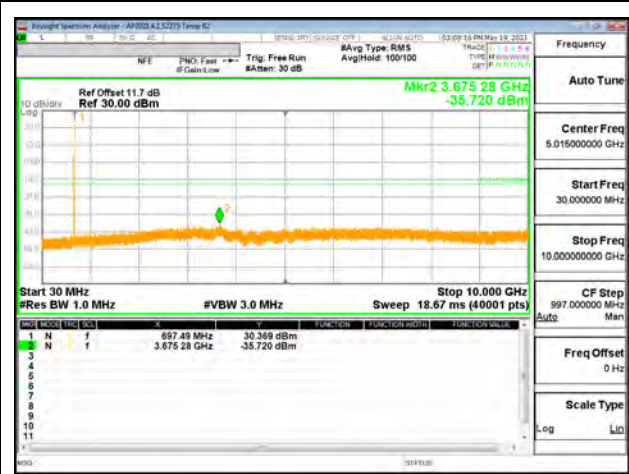
5G NR n71 5MHz BPSK High Channel RB1-24



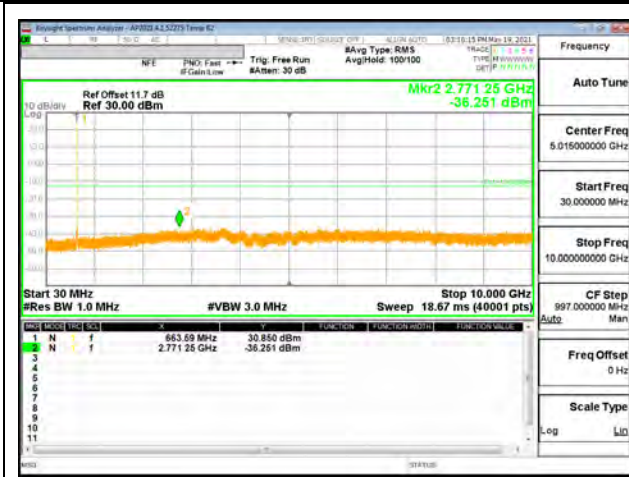
5G NR n71 10MHz BPSK Low Channel RB1-0



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



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



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



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



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



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



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



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

9.3.15. 5G NR n77 (FCC 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:

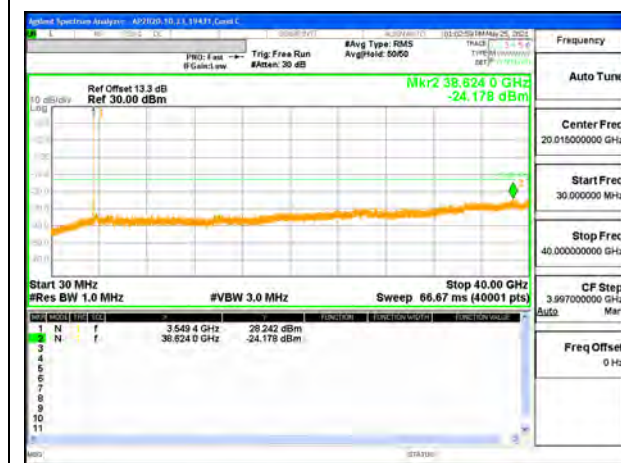
(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.



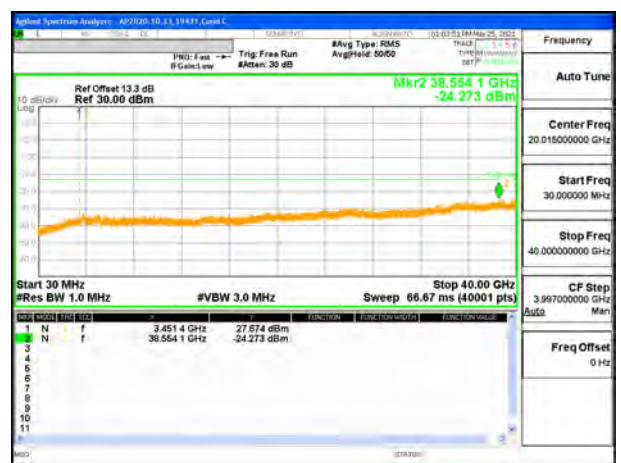
5G NR n77 20MHz BPSK Low Channel RB1-0



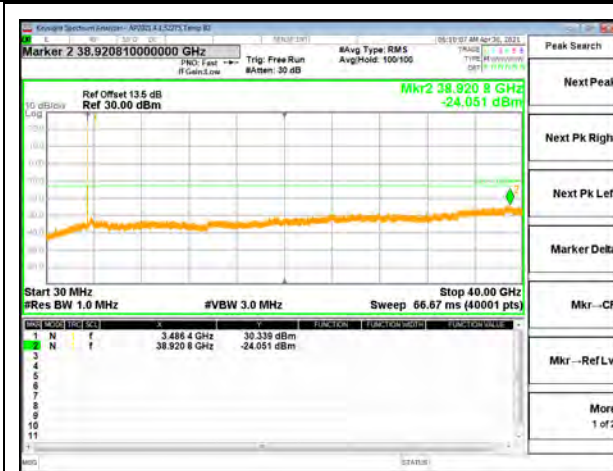
5G NR n77 20MHz BPSK Middle Channel RB1-1



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



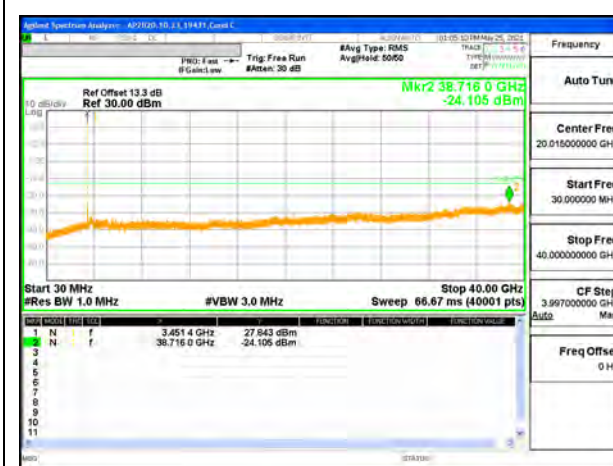
5G NR n77 30MHz BPSK Low Channel RB1-0



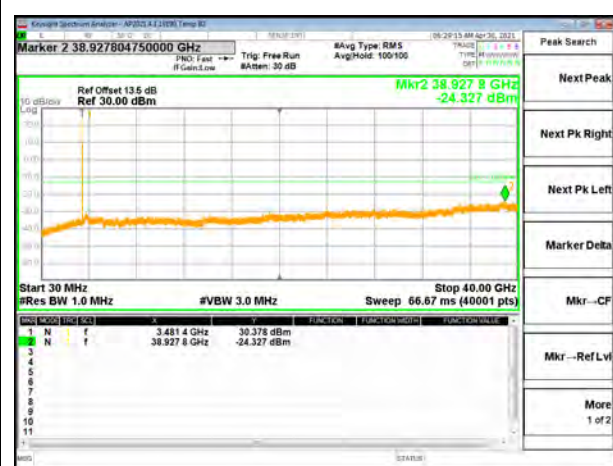
5G NR n77 30MHz BPSK Middle Channel RB1-1



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



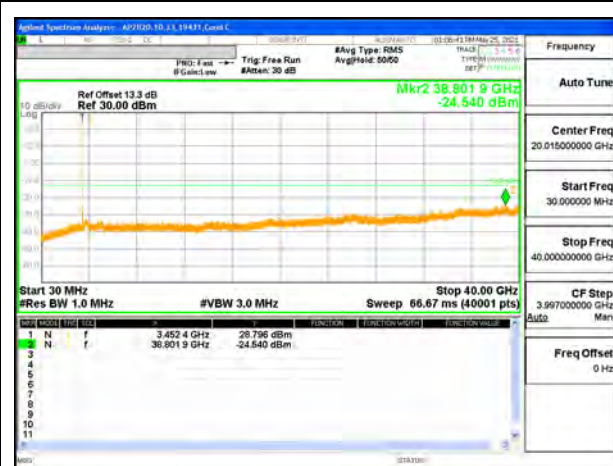
5G NR n77 40MHz BPSK Low Channel RB1-0



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



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



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



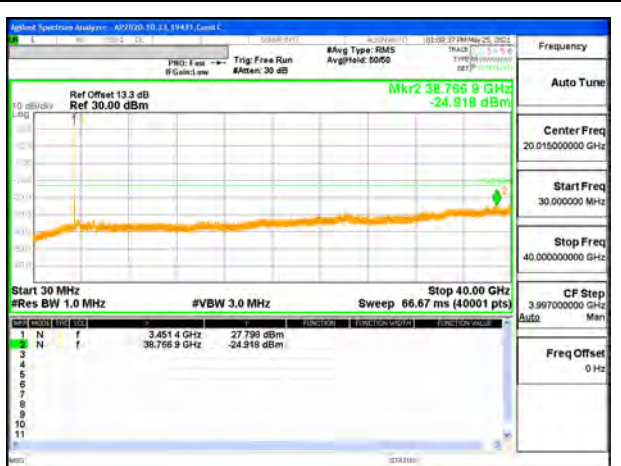
5G NR n77 60MHz BPSK Low Channel RB1-0



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



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



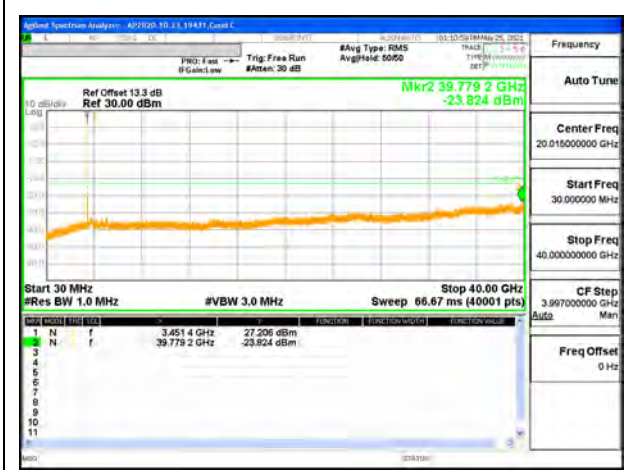
5G NR n77 70MHz BPSK Low Channel RB1-0



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



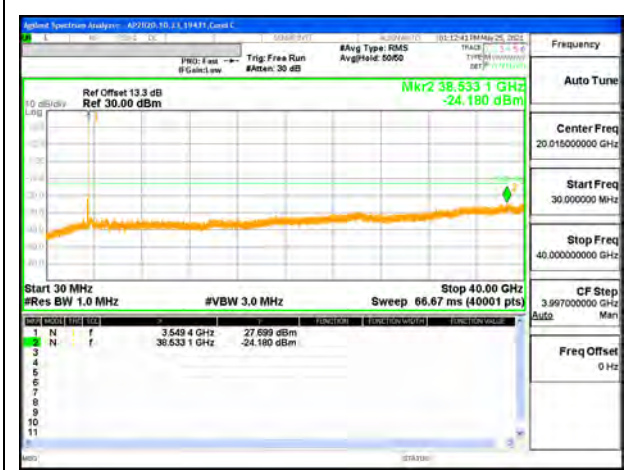
5G NR n77 70MHz BPSK High Channel RB1-188



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



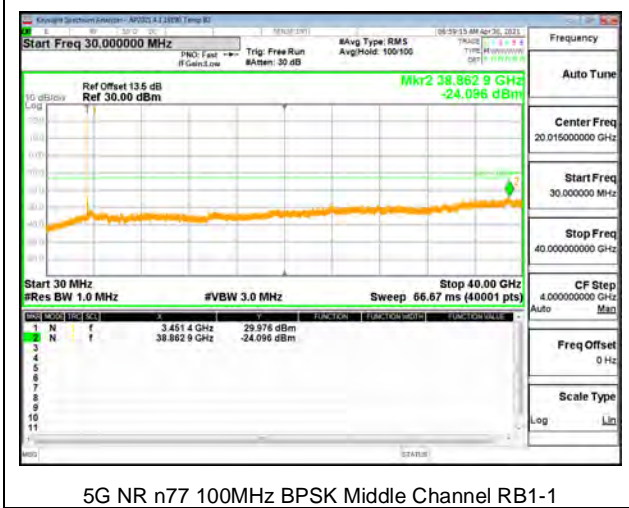
5G NR n77 90MHz BPSK Low Channel RB1-0



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

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

LIMITS

FCC: §27.53

Emission limits

(1) 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.



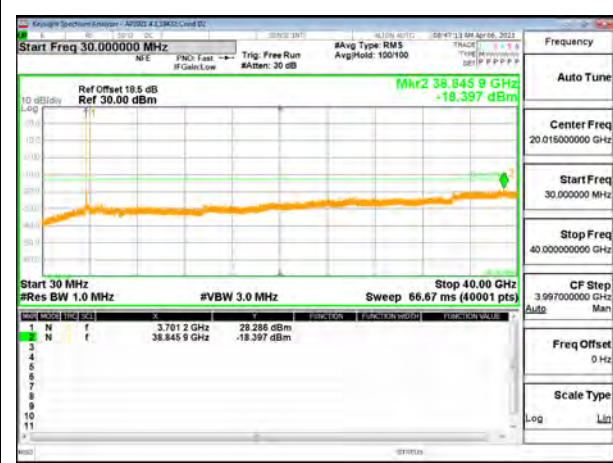
5G NR n77 20MHz BPSK Low Channel RB1-0



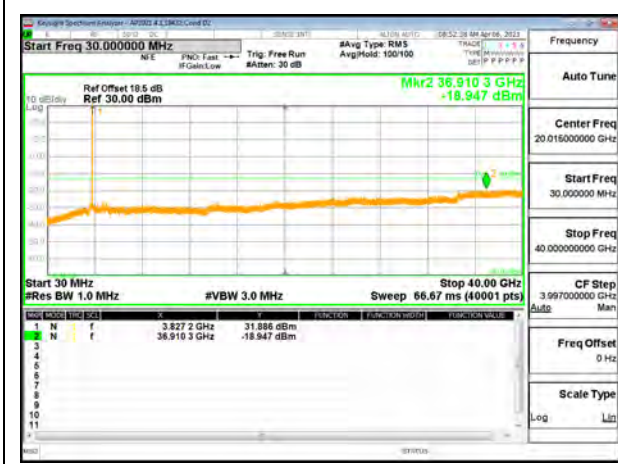
5G NR n77 20MHz BPSK Middle Channel RB1-1



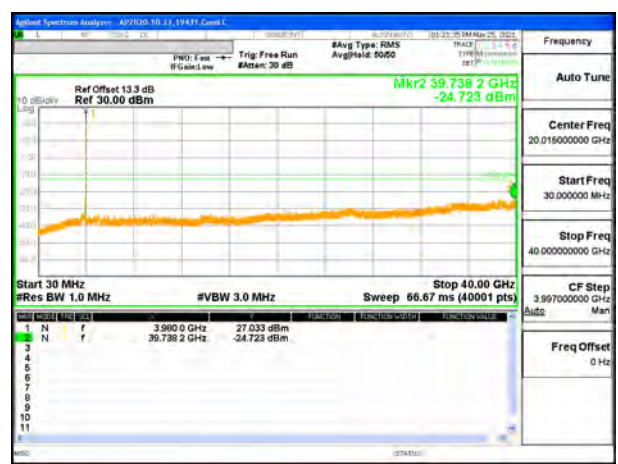
5G NR n77 20MHz BPSK High Channel RB1-50



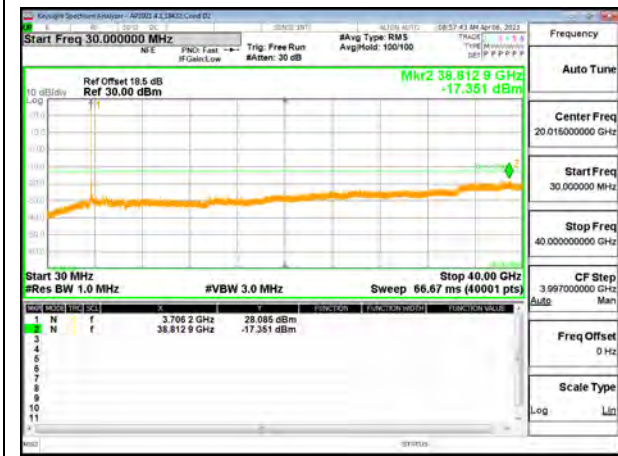
5G NR n77 30MHz BPSK Low Channel RB1-0



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



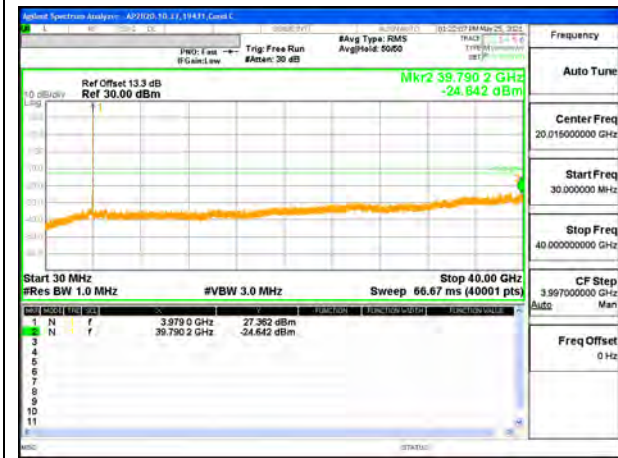
5G NR n77 30MHz BPSK High Channel RB1-77



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



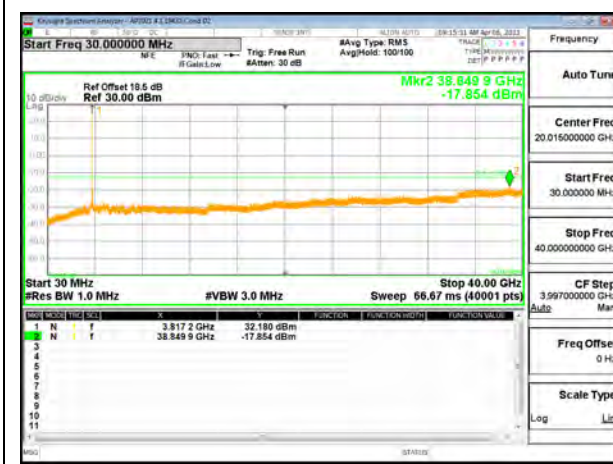
5G NR n77 40MHz BPSK Middle Channel RB1-1



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



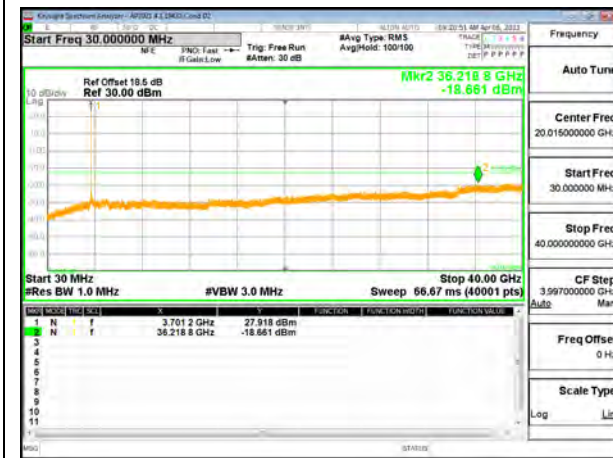
5G NR n77 50MHz BPSK Low Channel RB1-0



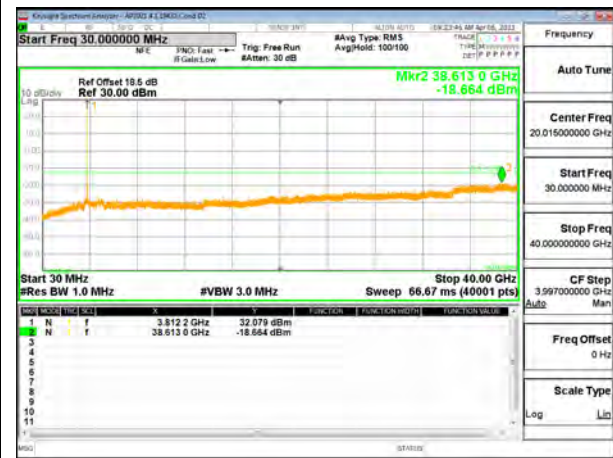
5G NR n77 50MHz BPSK Middle Channel RB1-1



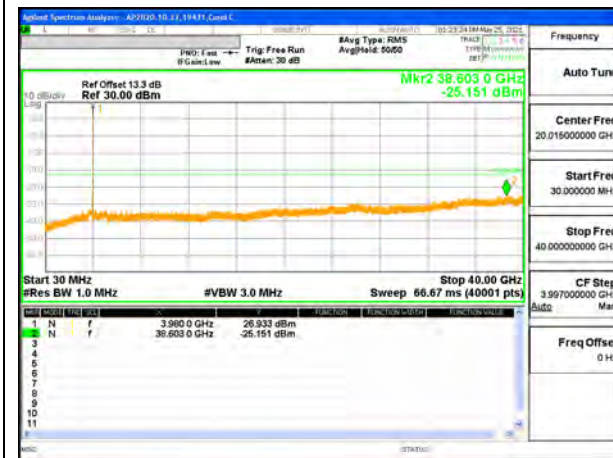
5G NR n77 50MHz BPSK High Channel RB1-132



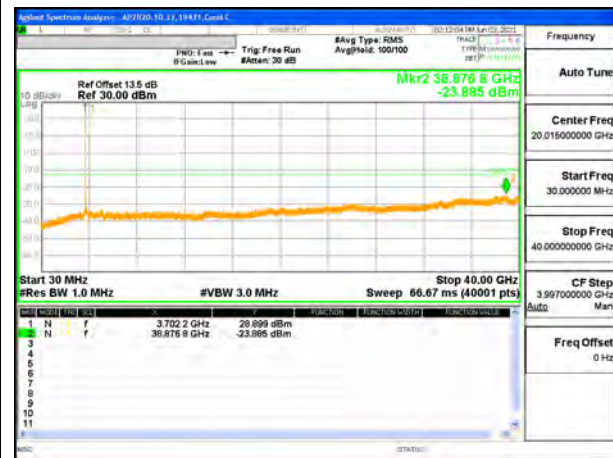
5G NR n77 60MHz BPSK Low Channel RB1-0



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



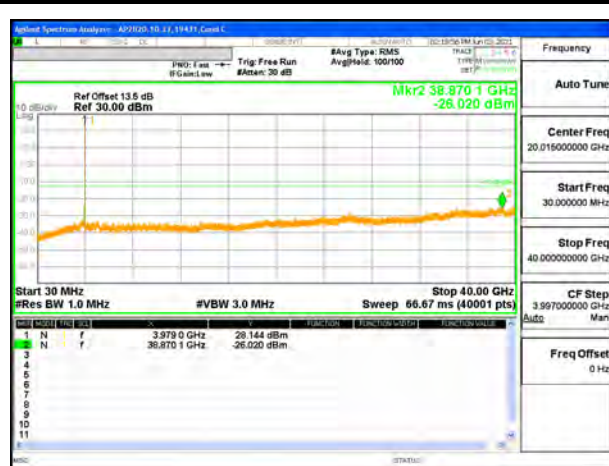
5G NR n77 60MHz BPSK High Channel RB1-161



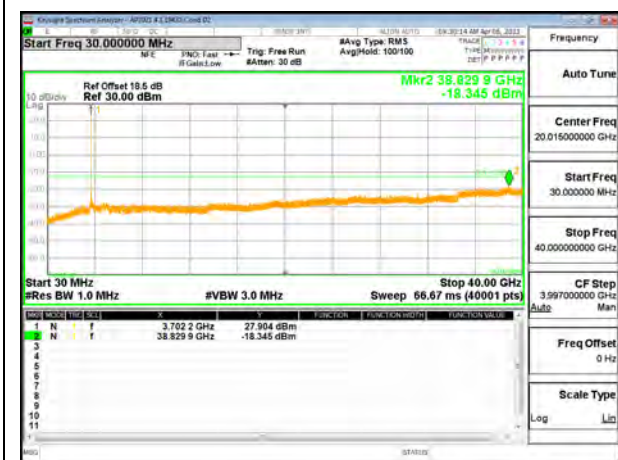
5G NR n77 70MHz BPSK Low Channel RB1-0



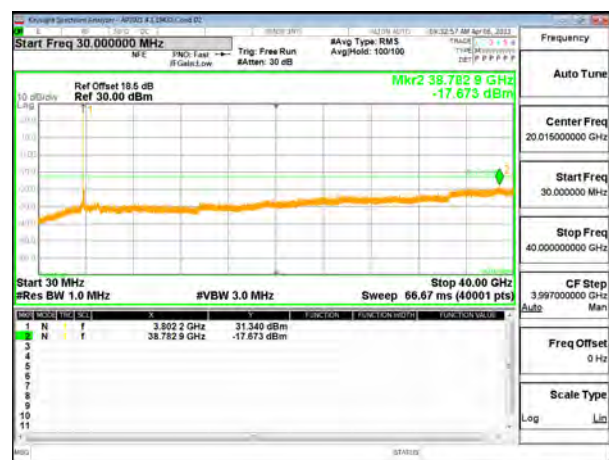
5G NR n77 70MHz BPSK Middle Channel RB1-1



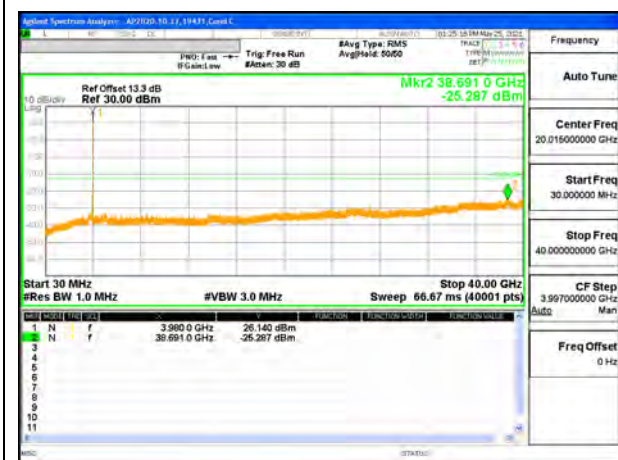
5G NR n77 70MHz BPSK High Channel RB1-188



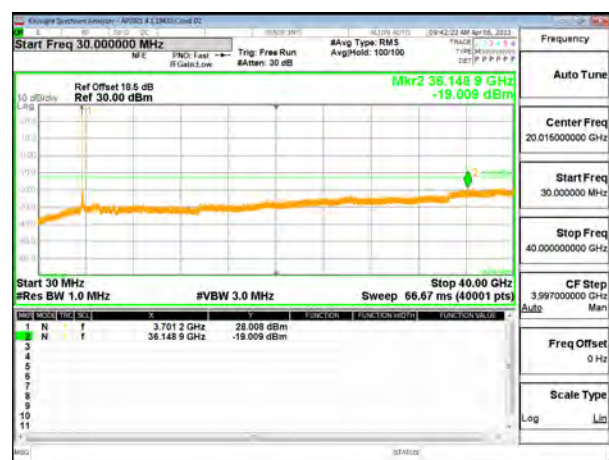
5G NR n77 80MHz BPSK Low Channel RB1-0



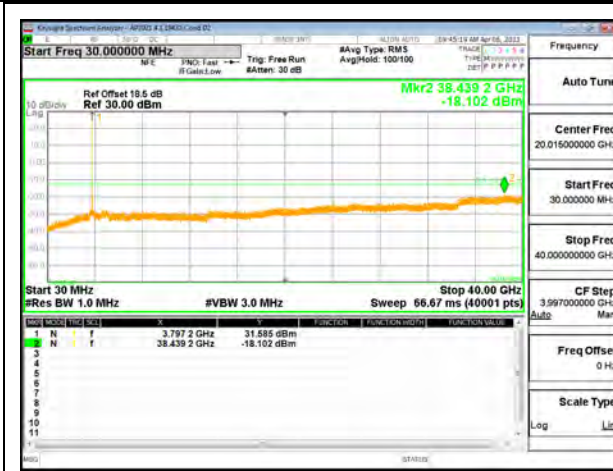
5G NR n77 80MHz BPSK Middle Channel RB1-1



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



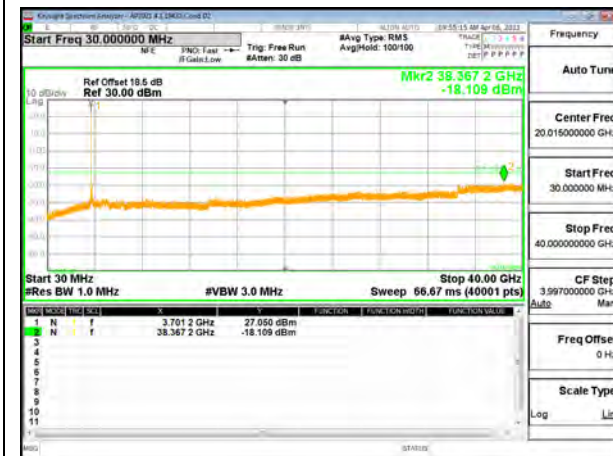
5G NR n77 90MHz BPSK Low Channel RB1-0



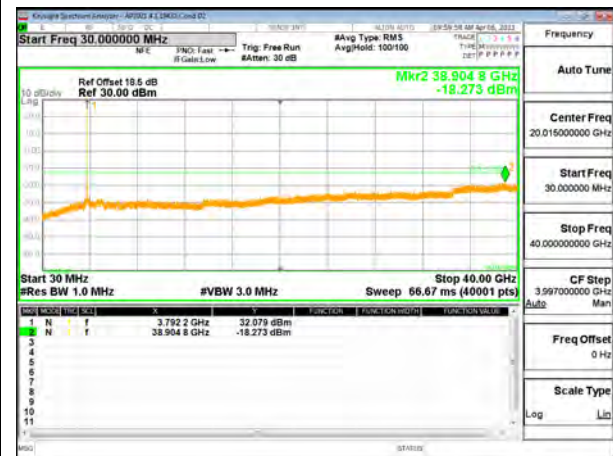
5G NR n77 90MHz BPSK Middle Channel RB1-1



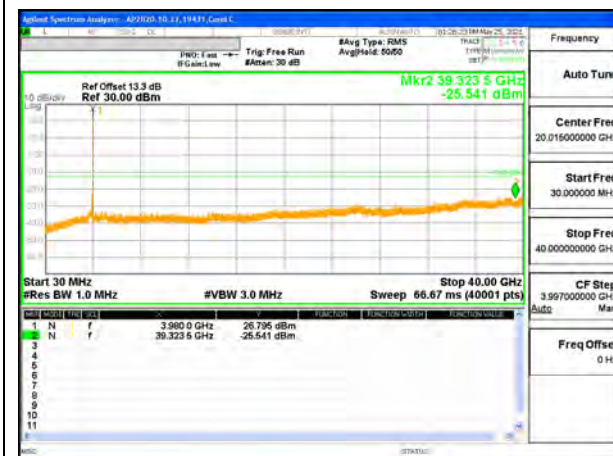
5G NR n77 90MHz BPSK High Channel RB1-244



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

9.4. FREQUENCY STABILITY

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

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

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

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C 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 +50°C is reached.

Frequency Stability vs Voltage:

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

RESULTS

See the following pages.

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:	38602	Test Date:	4/28/2021
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5G NR n5 BPSK (20MHz BANDWIDTH)

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.2380	847.6650		
Extreme (50C)		824.2380	847.6650	-2.6	-0.003
Extreme (40C)		824.2380	847.6650	-4.3	-0.005
Extreme (30C)		824.2380	847.6650	-1.8	-0.002
Extreme (10C)		824.2380	847.6650	-4.8	-0.006
Extreme (0C)		824.2380	847.6650	-5.3	-0.006
Extreme (-10C)		824.2380	847.6650	-2.6	-0.003
Extreme (-20C)		824.2379	847.6649	-70.6	-0.084
Extreme (-30C)		824.2380	847.6650	-5.0	-0.006
20C	15%	824.2380	847.6650	-4.8	-0.006
	-15%	824.2380	847.6650	-5.2	-0.006
	End Point Voltage	824.2380	847.6650	-6.1	-0.007

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.

The applicant shall ensure frequency stability by showing that fL minus the frequency offset and fH plus the frequency offset shall be within the frequency range that the equipment is designed to operate.

Test Engineer ID:	38602	Test Date:	4/28/2021
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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	2501.012	2568.986		
Extreme (50C)		2501.012	2568.986	1.1	0.000
Extreme (40C)		2501.012	2568.986	-1.6	-0.001
Extreme (30C)		2501.012	2568.986	-2.3	-0.001
Extreme (10C)		2501.012	2568.986	-2.1	-0.001
Extreme (0C)		2501.012	2568.986	0.6	0.000
Extreme (-10C)		2501.012	2568.986	0.9	0.000
Extreme (-20C)		2501.012	2568.986	-0.4	0.000
Extreme (-30C)		2501.012	2568.986	0.7	0.000
20C	15%	2501.012	2568.986	0.7	0.000
	-15%	2501.012	2568.986	-0.8	0.000
	End Point	2501.012	2568.986	1.1	0.000

5G NR n7 BPSK (40MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	2.8	(MHz)	(MHz)		
Normal (20C)	Normal	2500.5689	2569.4020		
Extreme (50C)		2500.5689	2569.4020	-9.1	-0.004
Extreme (40C)		2500.5689	2569.4020	-7.5	-0.003
Extreme (30C)		2500.5689	2569.4020	-6.6	-0.003
Extreme (10C)		2500.5689	2569.4020	-6.2	-0.002
Extreme (0C)		2500.5689	2569.4020	-6.4	-0.003
Extreme (-10C)		2500.5689	2569.4020	-7.0	-0.003
Extreme (-20C)		2500.5689	2569.4020	-7.4	-0.003
Extreme (-30C)		2500.5689	2569.4020	-7.2	-0.003
20C	15%	2500.5689	2569.4020	-8.1	-0.003
	-15%	2500.5689	2569.4020	-7.2	-0.003
	End Point Voltage	2500.5689	2569.4020	-8.2	-0.003

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.

The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at the temperature and supply voltage variations specified in RSS-Gen.

Test Engineer ID:	38602	Test Date:	4/28/2021
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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	699.5117	715.4916		
Extreme (50C)		699.5117	715.4916	-1.3	-0.002
Extreme (40C)		699.5117	715.4916	-1.5	-0.002
Extreme (30C)		699.5117	715.4916	-0.4	-0.001
Extreme (10C)		699.5117	715.4916	-0.5	-0.001
Extreme (0C)		699.5117	715.4916	-0.7	-0.001
Extreme (-10C)		699.5117	715.4916	0.2	0.000
Extreme (-20C)		699.5117	715.4916	-0.6	-0.001
Extreme (-30C)		699.5117	715.4916	-1.6	-0.002
20C	15%	699.5117	715.4916	-1.8	-0.003
	-15%	699.5117	715.4916	-1.1	-0.002
	End Point	699.5117	715.4916	-1.3	-0.002

5G NR n12 BPSK (15MHz BANDWIDTH)

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	699.1850	715.0910		
Extreme (50C)		699.1850	715.0910	-2.6	-0.004
Extreme (40C)		699.1850	715.0910	-2.3	-0.003
Extreme (30C)		699.1850	715.0910	-6.0	-0.008
Extreme (10C)		699.1850	715.0910	-4.7	-0.007
Extreme (0C)		699.1850	715.0910	-4.0	-0.006
Extreme (-10C)		699.1850	715.0910	-5.1	-0.007
Extreme (-20C)		699.1850	715.0910	-2.2	-0.003
Extreme (-30C)		699.1850	715.0910	-3.7	-0.005
20C	15%	699.1850	715.0910	-3.7	-0.005
	-15%	699.1850	715.0910	-3.1	-0.004
	End Point Voltage	699.1850	715.0910	-4.4	-0.006

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.

The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at the temperature and supply voltage variations specified in RSS-Gen.

Test Engineer ID:	38602	Test Date:	4/29/2021
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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	777.2457	786.7820		
Extreme (50C)		777.2457	786.7820	-1.8	-0.002
Extreme (40C)		777.2457	786.7820	-1.5	-0.002
Extreme (30C)		777.2457	786.7820	0.3	0.000
Extreme (10C)		777.2457	786.7820	-0.7	-0.001
Extreme (0C)		777.2457	786.7820	-1.2	-0.002
Extreme (-10C)		777.2457	786.7820	0.4	0.001
Extreme (-20C)		777.2457	786.7820	-1.5	-0.002
Extreme (-30C)		777.2457	786.7820	1.8	0.002
20C	15%	777.2457	786.7820	-0.5	-0.001
	-15%	777.2457	786.7820	-1.1	-0.001
	End Point	777.2457	786.7820	-1.4	-0.002

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:	38602	Test Date:	5/7/2021
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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	788.2511	796.8691		
Extreme (50C)		788.2511	796.8691	-1.4	-0.002
Extreme (40C)		788.2511	796.8691	-0.7	-0.001
Extreme (30C)		788.2511	796.8691	-1.0	-0.001
Extreme (10C)		788.2511	796.8691	-0.5	-0.001
Extreme (0C)		788.2511	796.8691	1.2	0.002
Extreme (-10C)		788.2511	796.8691	0.9	0.001
Extreme (-20C)		788.2511	796.8691	1.1	0.001
Extreme (-30C)		788.2511	796.8691	0.6	0.001
20C	15%	788.2511	796.8691	-1.7	-0.002
	-15%	788.2511	796.8691	-1.2	-0.002
	End Point	788.2511	796.8691	0.6	0.001

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.

The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at the temperature and supply voltage variations specified in RSS-Gen.

Test Engineer ID:	38902	Test Date:	4/29/2021
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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	704.5136	715.4897		
Extreme (50C)		704.5136	715.4897	1.0	0.001
Extreme (40C)		704.5136	715.4897	-2.1	-0.003
Extreme (30C)		704.5136	715.4897	-1.8	-0.003
Extreme (10C)		704.5136	715.4897	-1.6	-0.002
Extreme (0C)		704.5136	715.4897	-1.1	-0.002
Extreme (-10C)		704.5136	715.4897	-0.8	-0.001
Extreme (-20C)		704.5136	715.4897	-1.3	-0.002
Extreme (-30C)		704.5136	715.4897	0.7	0.001
20C	15%	704.5136	715.4897	-2.4	-0.003
	-15%	704.5136	715.4897	-1.7	-0.002
	End Point	704.5136	715.4897	-2.1	-0.003

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:	38602	Test Date:	4/29/2021
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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	1851.0334	1913.9735		
Extreme (50C)		1851.0334	1913.9735	-2.1	-0.001
Extreme (40C)		1851.0334	1913.9735	-1.7	-0.001
Extreme (30C)		1851.0334	1913.9735	-1.3	-0.001
Extreme (10C)		1851.0334	1913.9735	-0.7	0.000
Extreme (0C)		1851.0334	1913.9735	-0.6	0.000
Extreme (-10C)		1851.0334	1913.9735	-1.2	-0.001
Extreme (-20C)		1851.0334	1913.9735	1.8	0.001
Extreme (-30C)		1851.0334	1913.9735	2.8	0.001
20C	15%	1851.0334	1913.9735	-1.3	-0.001
	-15%	1851.0334	1913.9735	-1.9	-0.001
	End Point	1851.0334	1913.9735	3.3	0.002

5G NR n25 BPSK (40MHz BANDWIDTH)

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	2.8	(MHz)	(MHz)		
Normal (20C)	Normal	1849.5700	1914.4100		
Extreme (50C)		1849.5700	1914.4100	-8.7	-0.005
Extreme (40C)		1849.5700	1914.4100	-8.0	-0.004
Extreme (30C)		1849.5700	1914.4100	-8.9	-0.005
Extreme (10C)		1849.5700	1914.4100	-7.5	-0.004
Extreme (0C)		1849.5700	1914.4100	-7.2	-0.004
Extreme (-10C)		1849.5700	1914.4100	-6.5	-0.003
Extreme (-20C)		1849.5700	1914.4100	-7.8	-0.004
Extreme (-30C)		1849.5700	1914.4100	-10.2	-0.005
20C		15%	1849.5700	1914.4100	-6.9
	-15%	1849.5700	1914.4100	-8.1	-0.004
	End Point Voltage	1849.5700	1914.4100	-9.1	-0.005

9.4.8. LTE BAND 26(FCC 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:	38602	Test Date:	4/29/2021
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QPSK (5MHz BANDWIDTH)

Limit		814	824	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	814.2600	823.7425		
Extreme (50C)		814.2600	823.7425	1.2	0.001
Extreme (40C)		814.2600	823.7425	-2.4	-0.003
Extreme (30C)		814.2600	823.7425	-2.9	-0.004
Extreme (10C)		814.2600	823.7425	-2.6	-0.003
Extreme (0C)		814.2600	823.7425	-2.3	-0.003
Extreme (-10C)		814.2600	823.7425	-2.9	-0.004
Extreme (-20C)		814.2600	823.7425	2.5	0.003
Extreme (-30C)		814.2600	823.7425	-3.1	-0.004
20C	15%	814.2600	823.7425	-2.5	-0.003
	-15%	814.2600	823.7425	-3.3	-0.004
	End Point	814.2600	823.7425	-3.5	-0.004

9.4.9. LTE BAND 26 (FCC 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:	38602	Test Date:	4/29/2021
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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	824.7585	848.2475		
Extreme (50C)		824.7585	848.2475	-1.9	-0.002
Extreme (40C)		824.7585	848.2475	-1.4	-0.002
Extreme (30C)		824.7585	848.2475	1.2	0.001
Extreme (10C)		824.7585	848.2475	-0.6	-0.001
Extreme (0C)		824.7585	848.2475	-1.1	-0.001
Extreme (-10C)		824.7585	848.2475	-2.1	-0.003
Extreme (-20C)		824.7585	848.2475	-0.9	-0.001
Extreme (-30C)		824.7585	848.2475	1.6	0.002
20C	15%	824.7585	848.2475	-0.8	-0.001
	-15%	824.7585	848.2475	-1.9	-0.002
	End Point	824.7585	848.2475	2.2	0.003

9.4.10. LTE BAND 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:	38602	Test Date:	4/29/2021
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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	2305.1687	2314.8583		
Extreme (50C)		2305.1687	2314.8583	-2.2	-0.001
Extreme (40C)		2305.1687	2314.8583	3.3	0.001
Extreme (30C)		2305.1687	2314.8583	3.6	0.002
Extreme (10C)		2305.1687	2314.8583	-1.1	0.000
Extreme (0C)		2305.1687	2314.8583	0.9	0.000
Extreme (-10C)		2305.1687	2314.8583	1.3	0.001
Extreme (-20C)		2305.1687	2314.8583	2.7	0.001
Extreme (-30C)		2305.1687	2314.8583	3.1	0.001
20C	15%	2305.1687	2314.8583	3.2	0.001
	-15%	2305.1687	2314.8583	1.2	0.001
	End Point	2305.1687	2314.8583	3.0	0.001

LTE BAND n30 BPSK (10MHz BANDWIDTH)

Limit		2305	2315	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	2305.1992	2314.8953		
Extreme (50C)		2305.1992	2314.8953	-7.5	-0.003
Extreme (40C)		2305.1992	2314.8953	-6.0	-0.003
Extreme (30C)		2305.1992	2314.8953	-8.2	-0.004
Extreme (10C)		2305.1992	2314.8953	-9.5	-0.004
Extreme (0C)		2305.1992	2314.8953	-6.0	-0.003
Extreme (-10C)		2305.1992	2314.8953	-7.5	-0.003
Extreme (-20C)		2305.1992	2314.8953	-9.9	-0.004
Extreme (-30C)		2305.1992	2314.8953	-9.0	-0.004
20C	15%	2305.1992	2314.8953	-9.7	-0.004
	-15%	2305.1992	2314.8953	-5.9	-0.003
	End Point Voltage	2305.1992	2314.8953	-7.1	-0.003

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:	38602	Test Date:	4/30/2021
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LTE BAND 41 QPSK (20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.7941	2689.6360		
Extreme (50C)		2496.7941	2689.6360	-8.5	-0.003
Extreme (40C)		2496.7941	2689.6360	-7.7	-0.003
Extreme (30C)		2496.7941	2689.6360	-7.3	-0.003
Extreme (10C)		2496.7941	2689.6360	-6.9	-0.003
Extreme (0C)		2496.7941	2689.6360	-7.5	-0.003
Extreme (-10C)		2496.7941	2689.6360	-7.2	-0.003
Extreme (-20C)		2496.7941	2689.6360	-7.8	-0.003
Extreme (-30C)		2496.7941	2689.6360	-7.5	-0.003
20C	15%	2496.7941	2689.6360	-7.5	-0.003
	-15%	2496.7941	2689.6360	-6.9	-0.003
	End Point	2496.7941	2689.6360	-7.2	-0.003

5G NR n41 BPSK (100MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	2496.9031	2689.0354		
Extreme (50C)		2496.9031	2689.0354	-12.2	-0.005
Extreme (40C)		2496.9031	2689.0354	-0.2	0.000
Extreme (30C)		2496.9031	2689.0354	-19.2	-0.007
Extreme (10C)		2496.9031	2689.0354	-19.1	-0.007
Extreme (0C)		2496.9031	2689.0354	-12.0	-0.005
Extreme (-10C)		2496.9031	2689.0354	-10.5	-0.004
Extreme (-20C)		2496.9031	2689.0354	-13.2	-0.005
Extreme (-30C)		2496.9031	2689.0354	-16.1	-0.006
20C		15%	2496.9031	2689.0354	-40.0
	-15%	2496.9031	2689.0354	-30.3	-0.012
	End Point Voltage	2496.9031	2689.0354	-36.8	-0.014

9.4.12. LTE BAND 48

Test Engineer ID:	12981	Test Date:	5/6/2021
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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	3550.5110	3699.6221		
Extreme (50C)		3550.5110	3699.6221	-12.3	-0.003
Extreme (40C)		3550.5110	3699.6221	-9.2	-0.003
Extreme (30C)		3550.5110	3699.6221	-8.6	-0.002
Extreme (10C)		3550.5110	3699.6221	-5.7	-0.002
Extreme (0C)		3550.5110	3699.6221	-2.2	-0.001
Extreme (-10C)		3550.5110	3699.6221	-7.5	-0.002
Extreme (-20C)		3550.5110	3699.6221	-7.0	-0.002
Extreme (-30C)		3550.5110	3699.6221	-6.2	-0.002
20C	15%	3550.5110	3699.6221	-7.1	-0.002
	-15%	3550.5110	3699.6221	-6.9	-0.002
	End Point	3550.5110	3699.6221	-7.5	-0.002

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:	38602	Test Date:	4/30/2021
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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	1711.0211	1778.9807		
Extreme (50C)		1711.0211	1778.9807	-5.4	-0.003
Extreme (40C)		1711.0211	1778.9807	-4.1	-0.002
Extreme (30C)		1711.0211	1778.9807	-4.2	-0.002
Extreme (10C)		1711.0211	1778.9807	-7.1	-0.004
Extreme (0C)		1711.0211	1778.9807	-9.5	-0.005
Extreme (-10C)		1711.0211	1778.9807	5.7	0.003
Extreme (-20C)		1711.0211	1778.9807	4.6	0.003
Extreme (-30C)		1711.0211	1778.9807	5.5	0.003
20C	15%	1711.0211	1778.9807	-3.4	-0.002
	-15%	1711.0211	1778.9807	-6.9	-0.004
	End Point	1711.0211	1778.9807	7.3	0.004

5G NR n66 BPSK (40MHz BANDWIDTH)

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	1709.5970	1779.3970		
Extreme (50C)		1709.5970	1779.3970	-7.4	-0.004
Extreme (40C)		1709.5970	1779.3970	-7.2	-0.004
Extreme (30C)		1709.5970	1779.3970	-6.8	-0.004
Extreme (10C)		1709.5970	1779.3970	-7.1	-0.004
Extreme (0C)		1709.5970	1779.3970	-7.0	-0.004
Extreme (-10C)		1709.5970	1779.3970	-7.2	-0.004
Extreme (-20C)		1709.5970	1779.3970	-7.9	-0.005
Extreme (-30C)		1709.5970	1779.3970	-7.9	-0.005
20C		15%	1709.5970	1779.3970	-6.1
	-15%	1709.5970	1779.3970	-6.0	-0.003
	End Point Voltage	1709.5970	1779.3970	-7.8	-0.004

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.

The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at the temperature and supply voltage variations specified in RSS-Gen.

Test Engineer ID:	38602	Test Date:	5/7/2021
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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	664.0347	696.9820	0.8	0.001
Extreme (50C)		664.0347	696.9820		
Extreme (40C)		664.0347	696.9820		
Extreme (30C)		664.0347	696.9820		
Extreme (10C)		664.0347	696.9820		
Extreme (0C)		664.0347	696.9820		
Extreme (-10C)		664.0347	696.9820		
Extreme (-20C)		664.0347	696.9820		
Extreme (-30C)		664.0347	696.9820		
20C	15%	664.0347	696.9820	-1.2	-0.002
	-15%	664.0347	696.9820	-0.7	-0.001
	End Point	664.0347	696.9820	-1.3	-0.002

5G NR n71 BPSK (20MHz BANDWIDTH)

Limit		663	698	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	663.2750	696.6450		
Extreme (50C)		663.2750	696.6450	-18.6	-0.027
Extreme (40C)		663.2750	696.6450	-17.2	-0.025
Extreme (30C)		663.2750	696.6450	-12.4	-0.018
Extreme (10C)		663.2750	696.6450	-11.0	-0.016
Extreme (0C)		663.2750	696.6450	-15.5	-0.023
Extreme (-10C)		663.2750	696.6450	-19.8	-0.029
Extreme (-20C)		663.2750	696.6450	-21.9	-0.032
Extreme (-30C)		663.2750	696.6450	-14.3	-0.021
20C		15%	663.2750	696.6450	-24.9
	-15%	663.2750	696.6450	-20.4	-0.030
	End Point Voltage	663.2750	696.6450	-22.3	-0.033

9.4.15. 5G NR n77 (FCC 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:	52275	Test Date:	5/26/2021
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5G NR n77 BPSK (100MHz BANDWIDTH)

Limit		3450	3550	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	3450.8547	3549.7452		
Extreme (50C)		3450.8547	3549.7452	-14.0	-0.004
Extreme (40C)		3450.8547	3549.7452	-13.9	-0.004
Extreme (30C)		3450.8547	3549.7452	-12.5	-0.004
Extreme (10C)		3450.8547	3549.7452	-10.2	-0.003
Extreme (0C)		3450.8547	3549.7452	-10.2	-0.003
Extreme (-10C)		3450.8547	3549.7452	-12.4	-0.004
Extreme (-20C)		3450.8547	3549.7452	-14.2	-0.004
Extreme (-30C)		3450.8547	3549.7452	-14.9	-0.004
20C	15%	3450.8547	3549.7452	-11.0	-0.003
	-15%	3450.8547	3549.7452	-10.5	-0.003
	End Point Voltage	3450.8547	3549.7452	-12.2	-0.003

9.4.16. 5G NR n77 (FCC 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:	52275	Test Date:	5/26/2021
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5G NR n77 BPSK (100MHz BANDWIDTH)

Limit		3700	3980	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	2.8				
Normal (20C)	Normal	3700.6860	3979.0300		
Extreme (50C)		3700.6860	3979.0300	-11.8	-0.003
Extreme (40C)		3700.6860	3979.0300	-6.8	-0.002
Extreme (30C)		3700.6860	3979.0300	-3.4	-0.001
Extreme (10C)		3700.6860	3979.0300	-7.1	-0.002
Extreme (0C)		3700.6860	3979.0300	-15.0	-0.004
Extreme (-10C)		3700.6860	3979.0300	-7.7	-0.002
Extreme (-20C)		3700.6860	3979.0300	-10.7	-0.003
Extreme (-30C)		3700.6860	3979.0300	-9.0	-0.002
20C		15%	3700.6860	3979.0300	-13.9
	-15%	3700.6860	3979.0300	-13.3	-0.003
	End Point Voltage	3700.6860	3979.0300	-14.5	-0.004

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

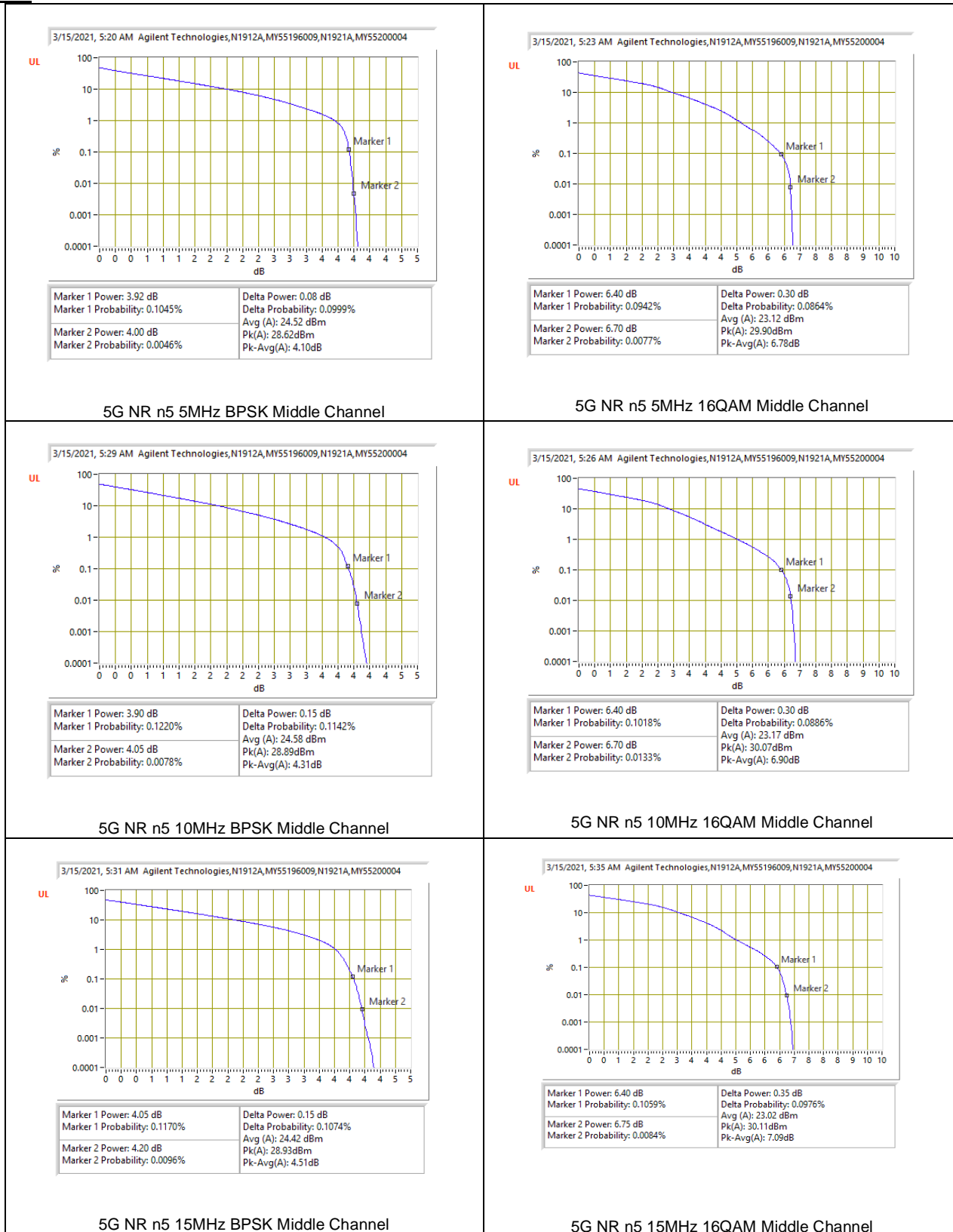
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

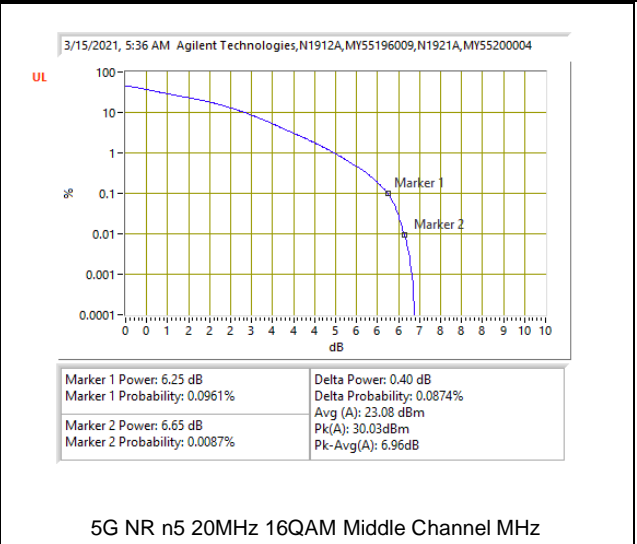
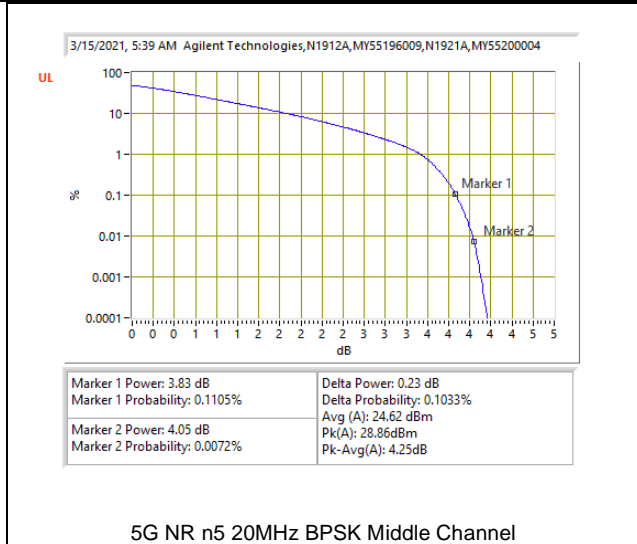
RESULT

Antenna 1 was used to measure as the worst case; full resource block (FRB) for each bandwidth was used to measure as the worst case. The results from all CCDF measurements are passed with 13dB peak-to-average power ratio criteria.

9.5.1. 5G NR n5

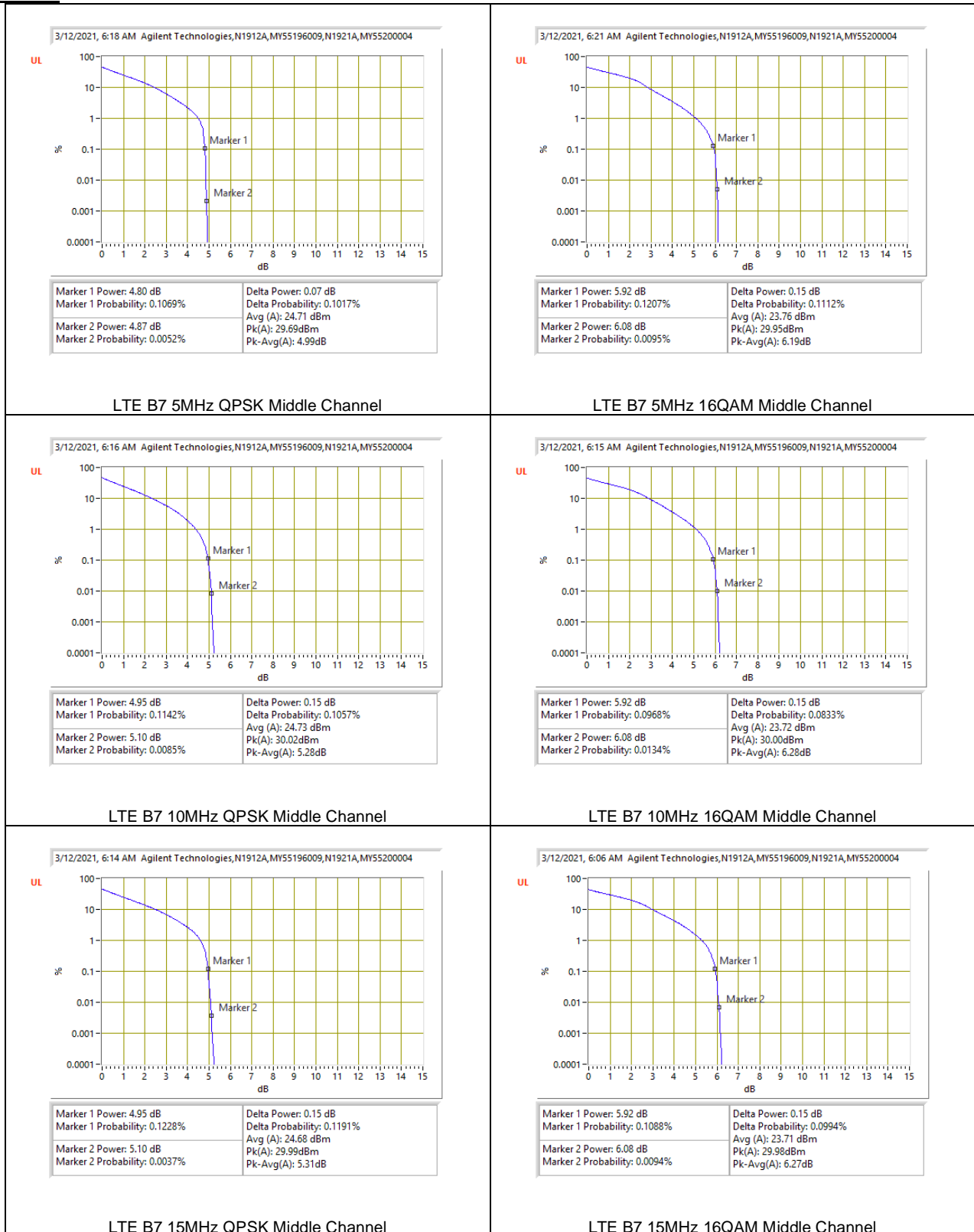
5G NR n5

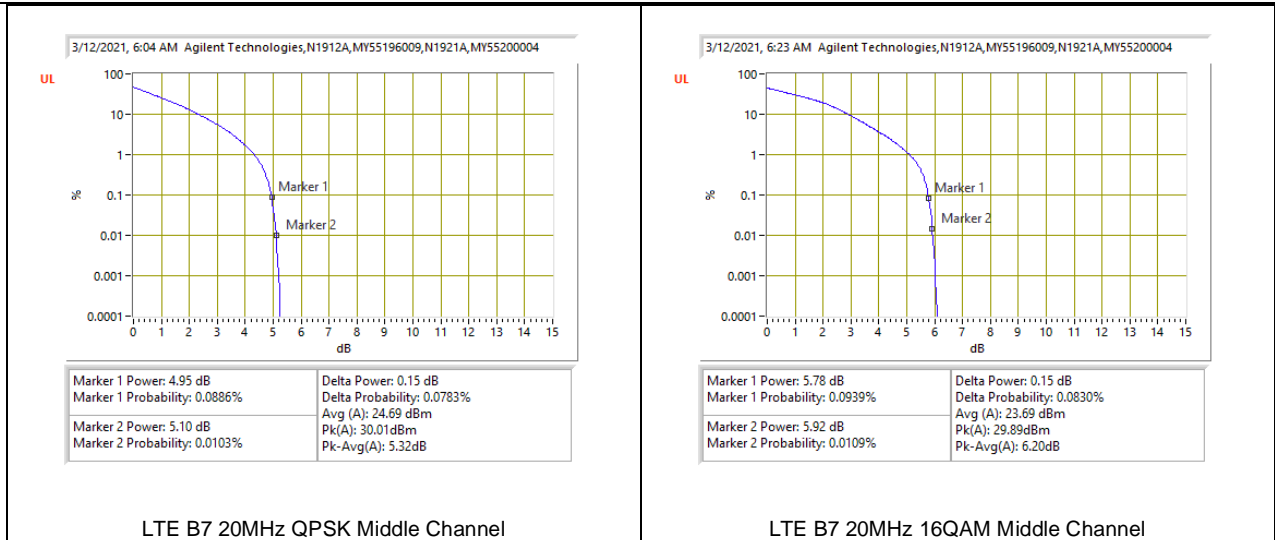




9.5.2. LTE BAND 7 AND 5G NR n7

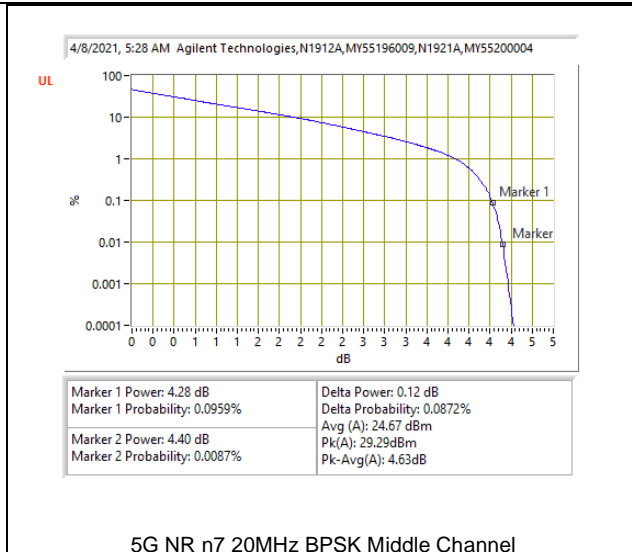
LTE BAND 7



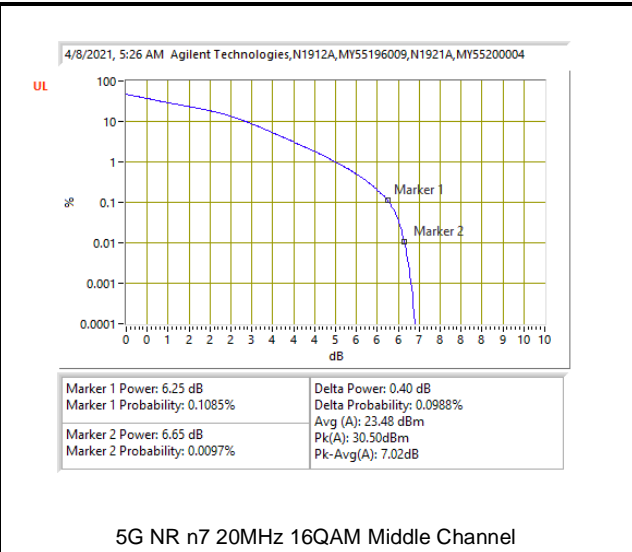


5G NR n7

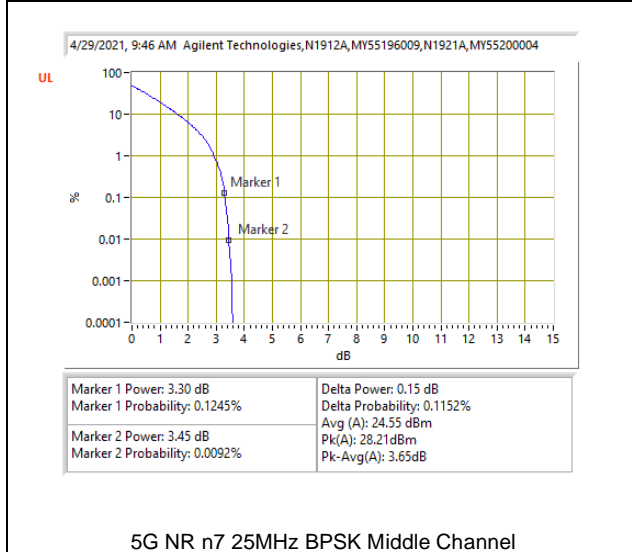




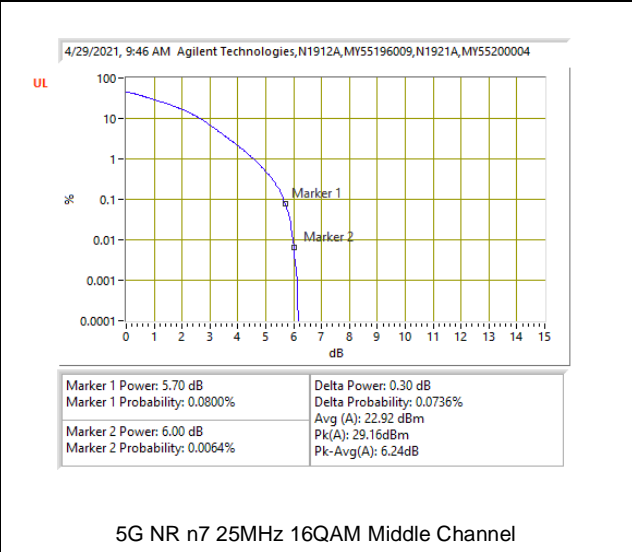
5G NR n7 20MHz BPSK Middle Channel



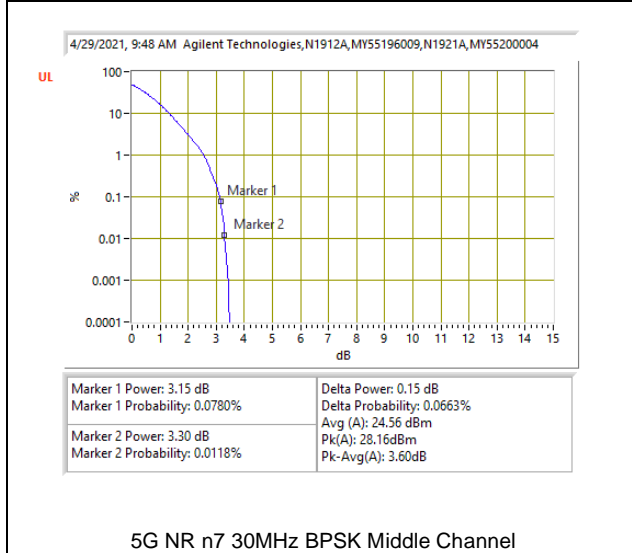
5G NR n7 20MHz 16QAM Middle Channel



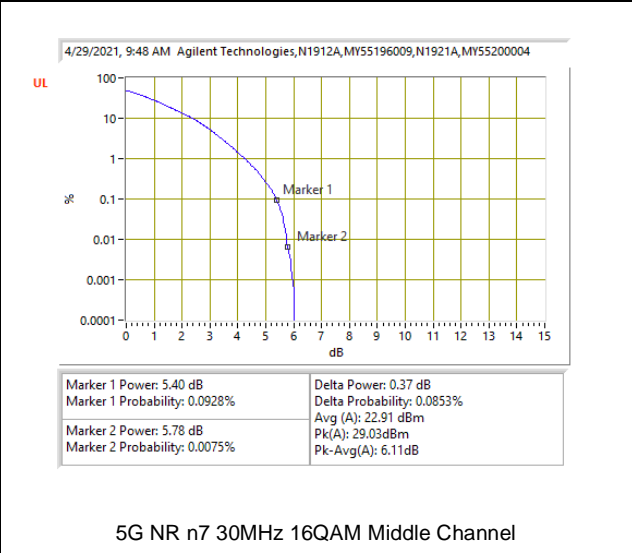
5G NR n7 25MHz BPSK Middle Channel



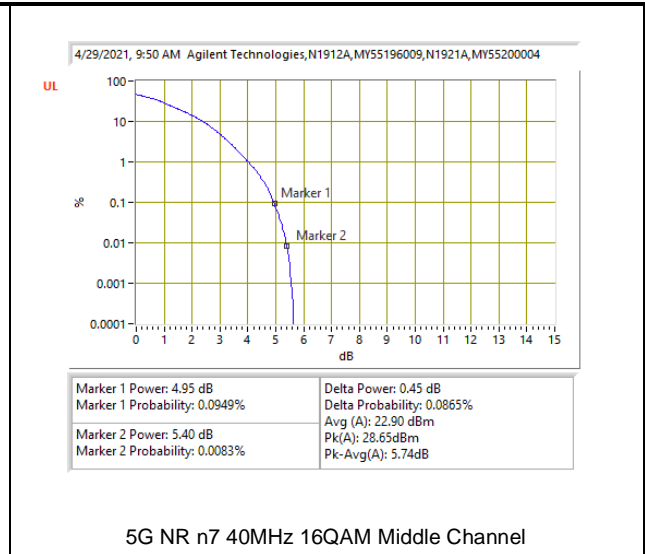
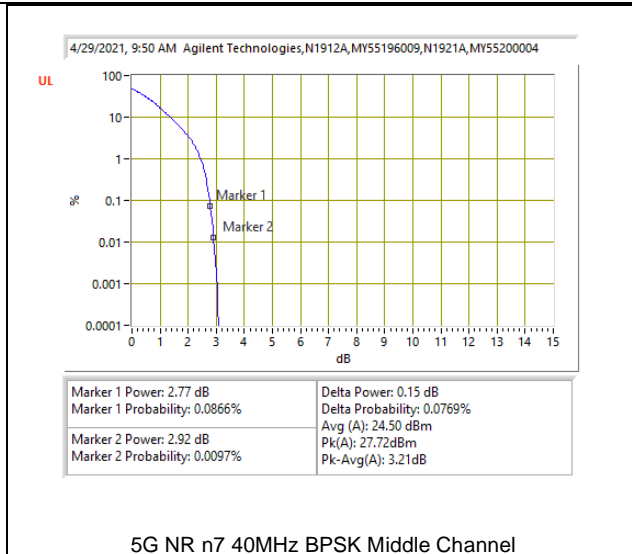
5G NR n7 25MHz 16QAM Middle Channel



5G NR n7 30MHz BPSK Middle Channel



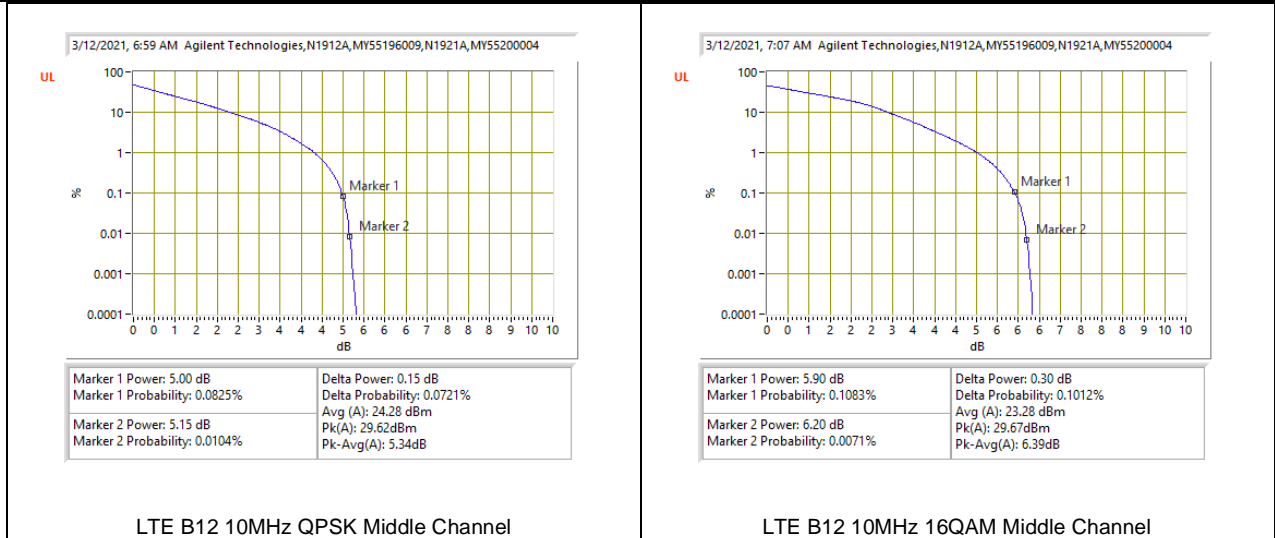
5G NR n7 30MHz 16QAM Middle Channel



9.5.3. LTE BAND 12 AND 5G NR n12

LTE BAND 12

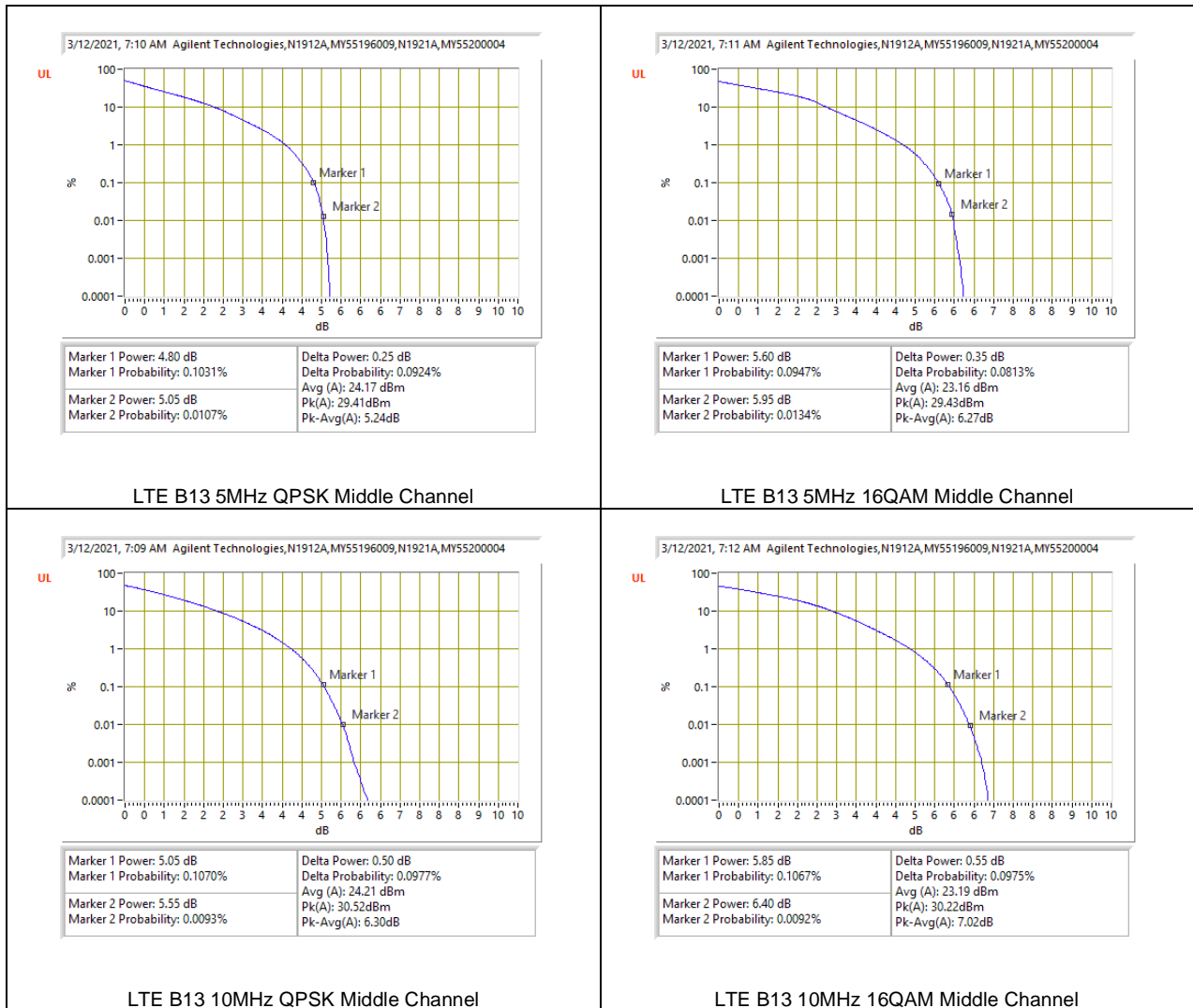




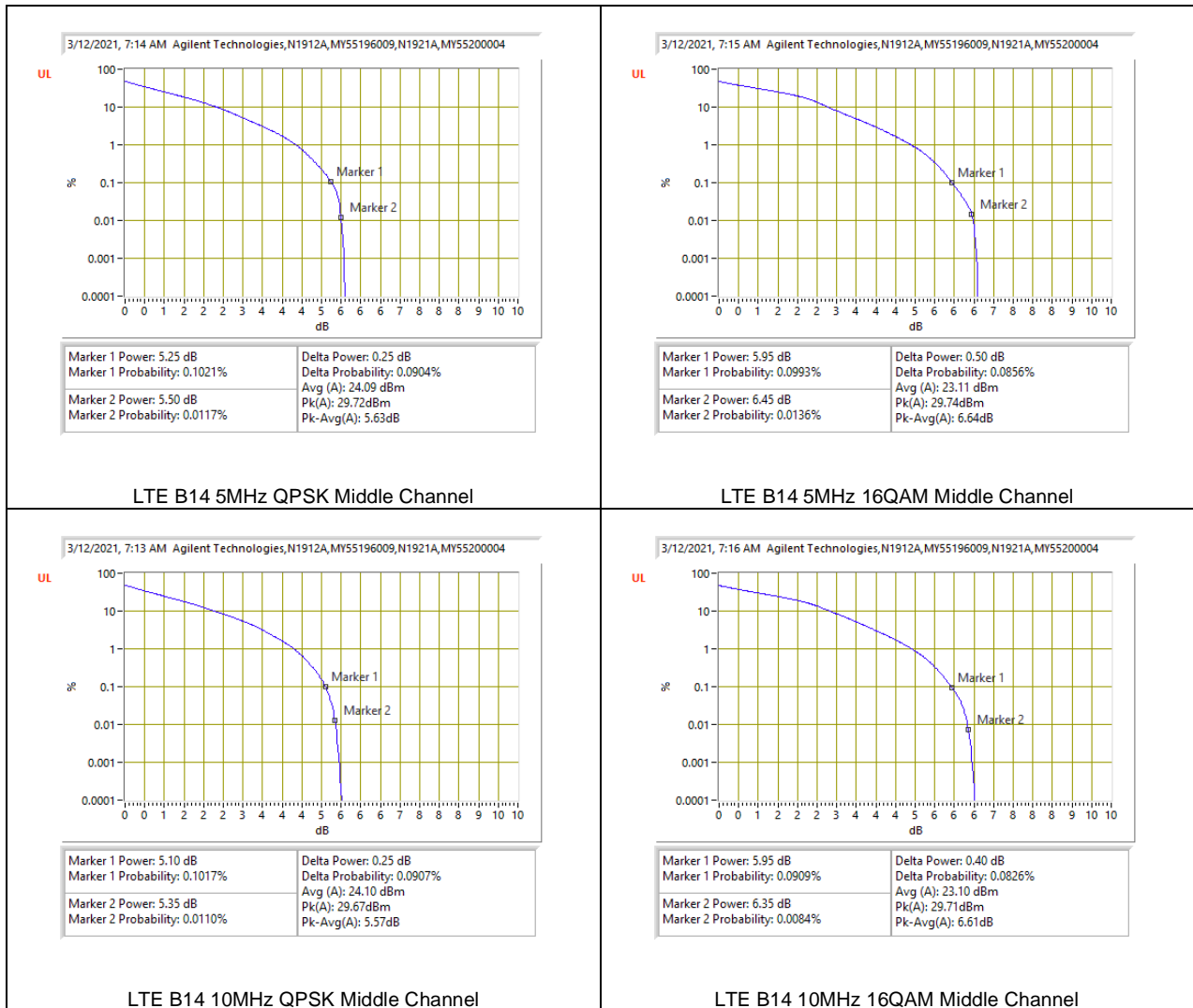
5G NR n12



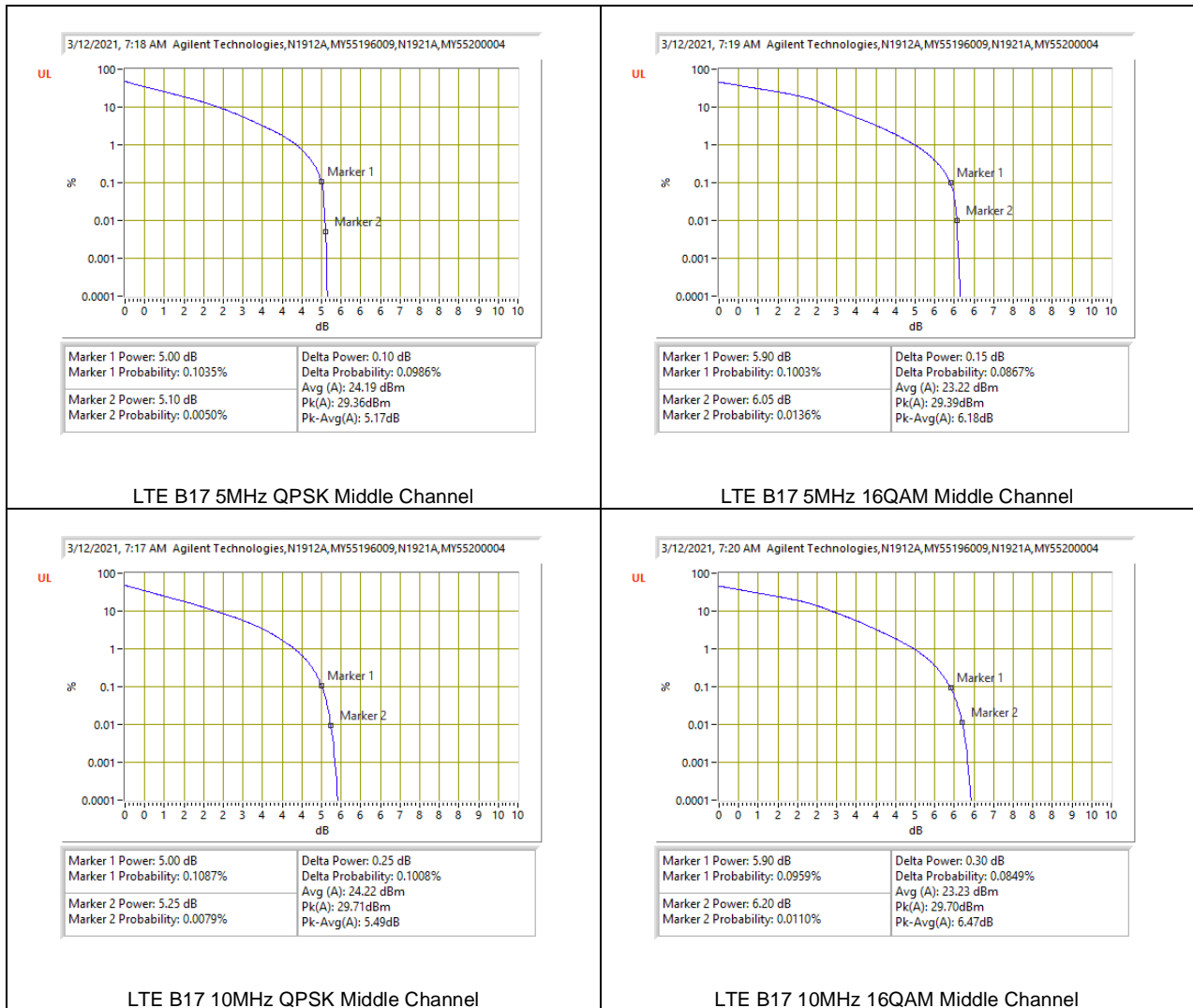
9.5.4. LTE BAND 13



9.5.5. LTE BAND 14

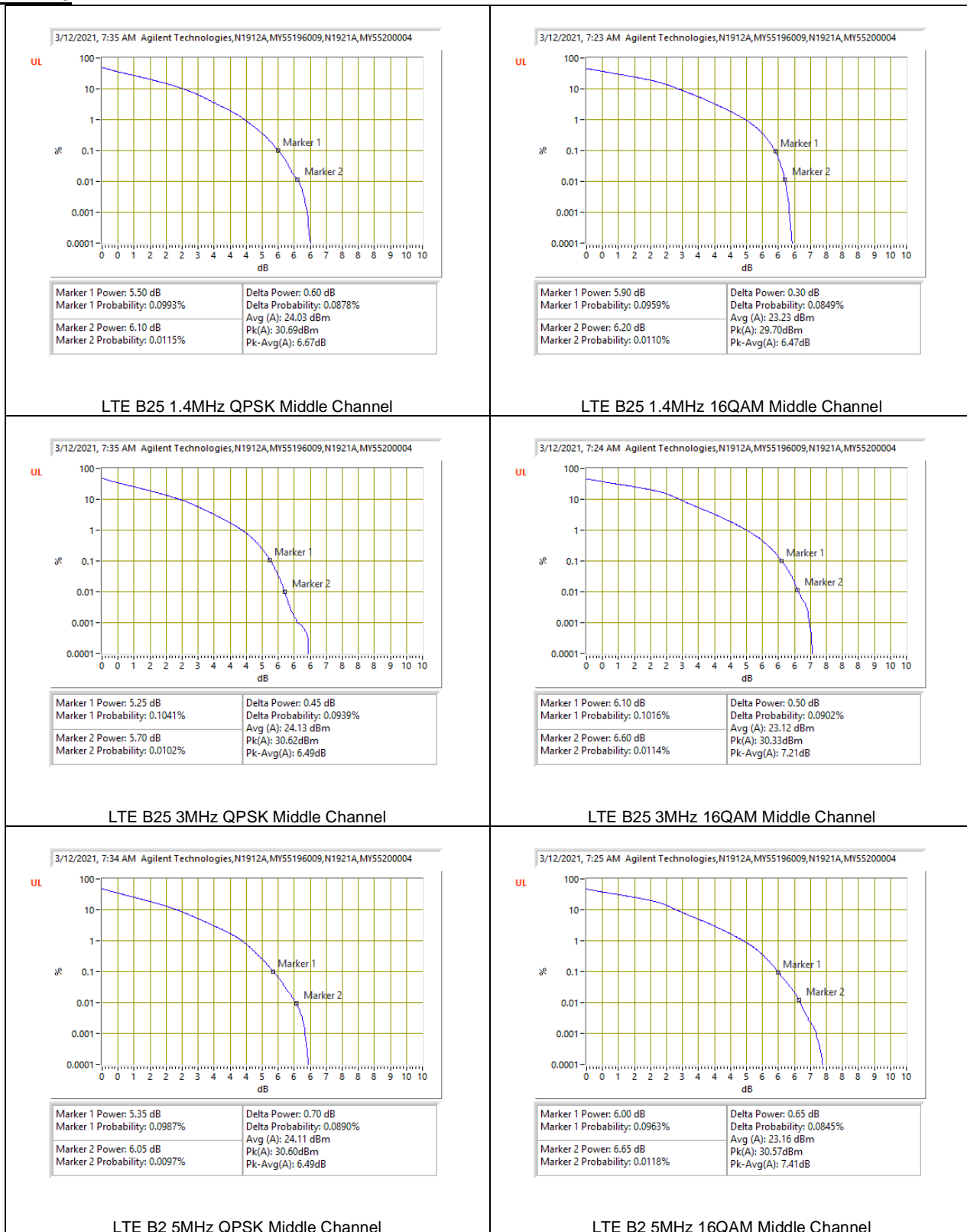


9.5.6. LTE BAND 17



9.5.7. LTE BAND 25 AND 5G NR n25

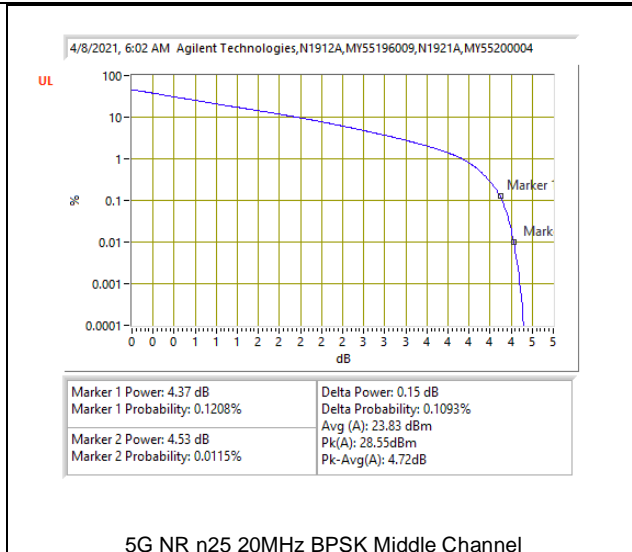
LTE BAND 25



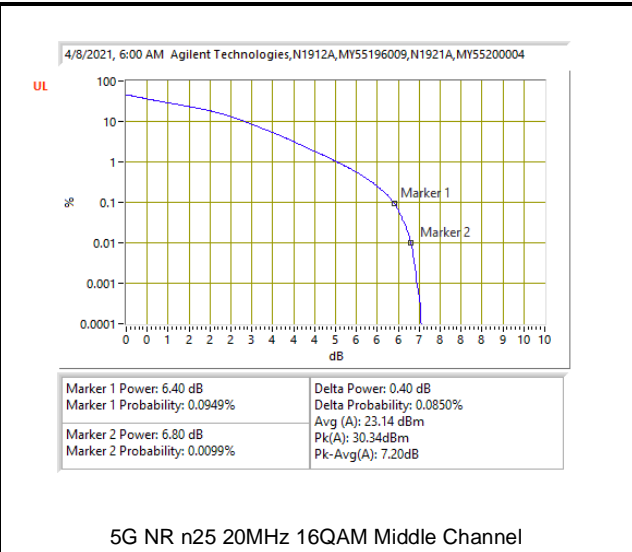


5G NR n25

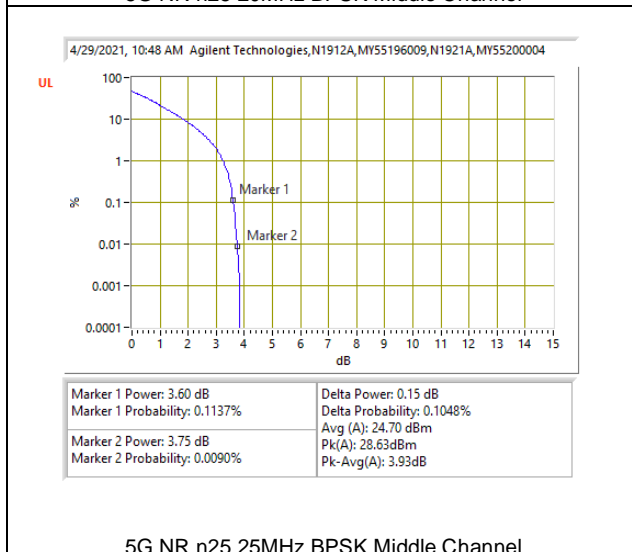




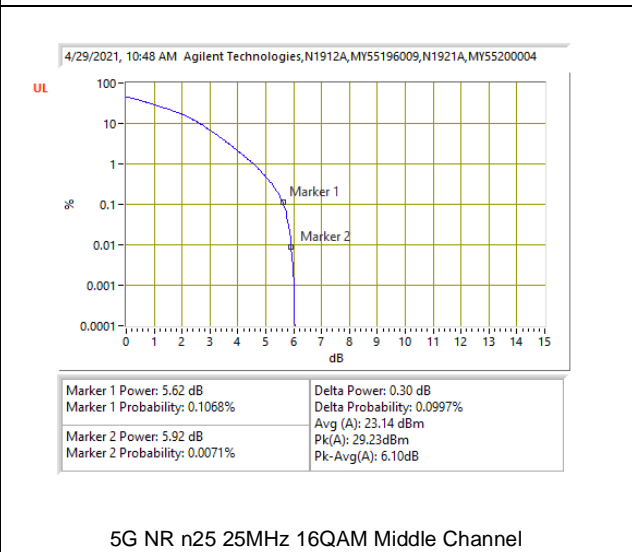
5G NR n25 20MHz BPSK Middle Channel



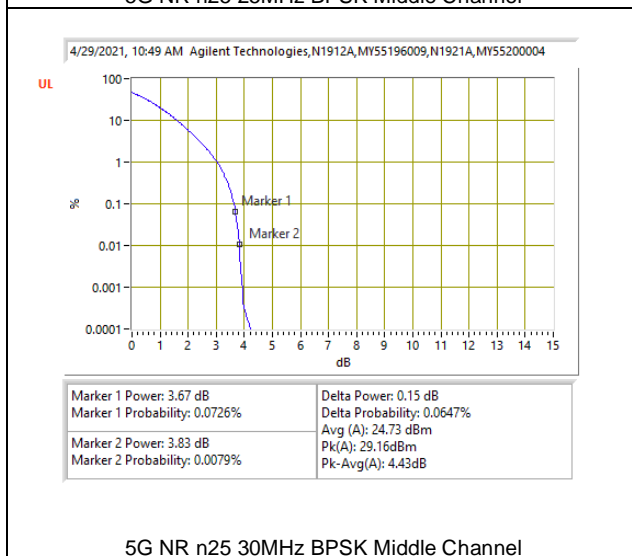
5G NR n25 20MHz 16QAM Middle Channel



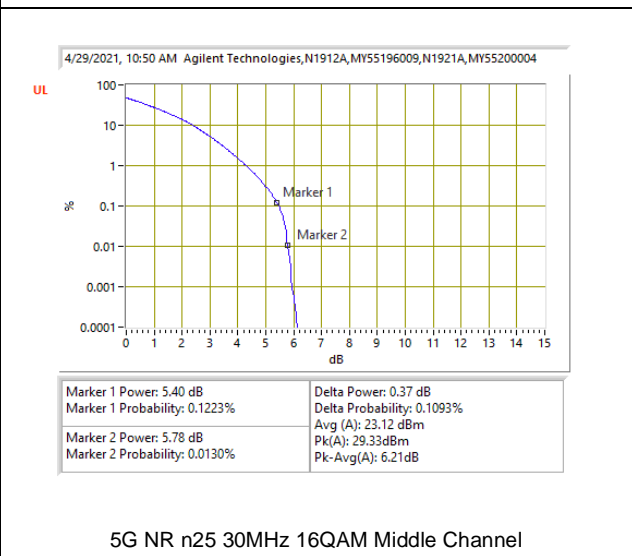
5G NR n25 25MHz BPSK Middle Channel



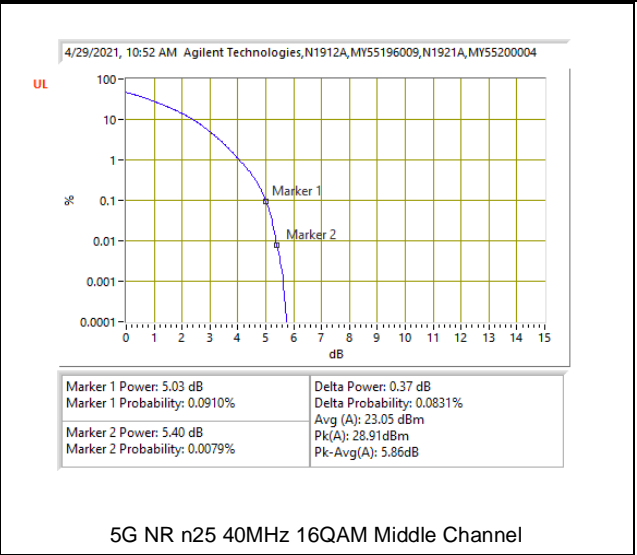
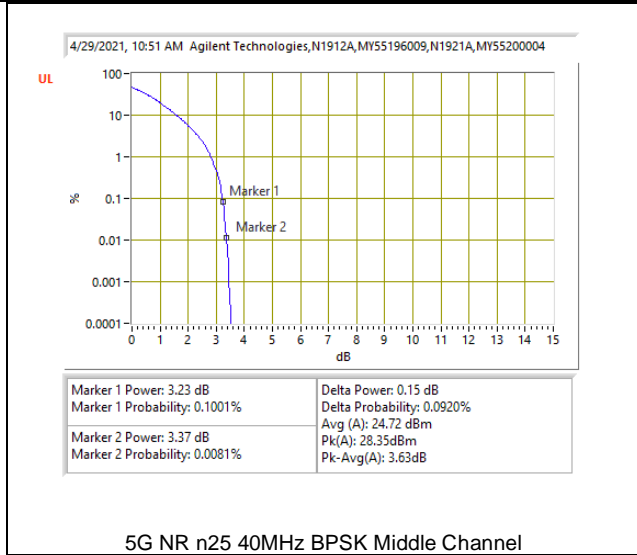
5G NR n25 25MHz 16QAM Middle Channel



5G NR n25 30MHz BPSK Middle Channel

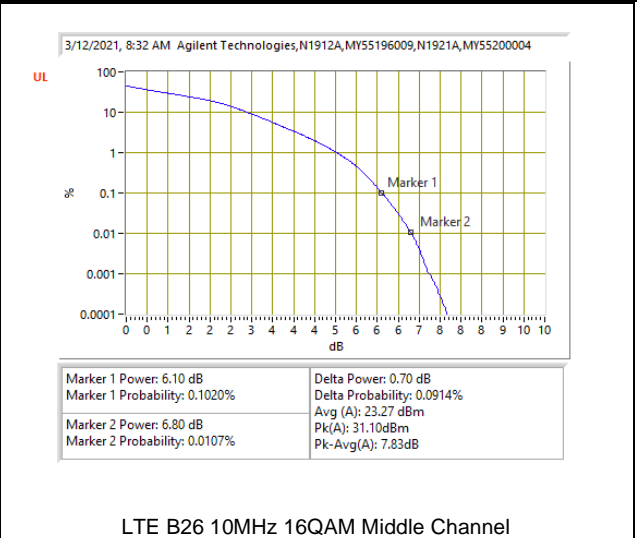
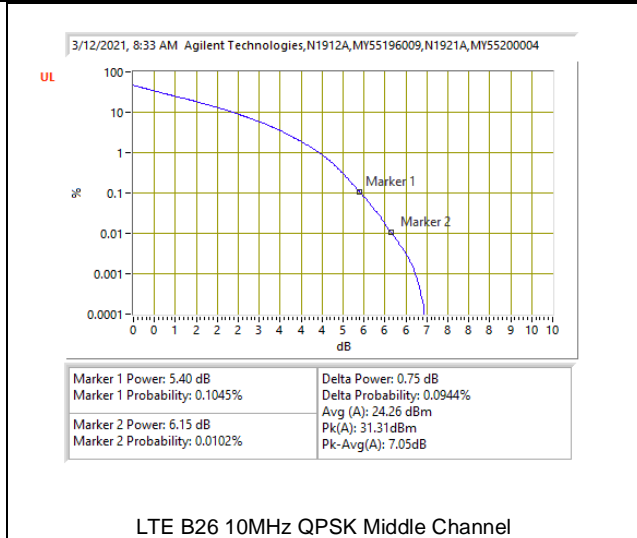


5G NR n25 30MHz 16QAM Middle Channel



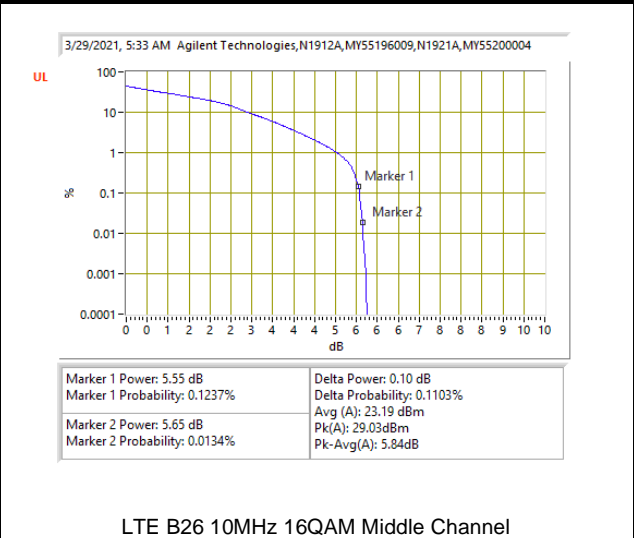
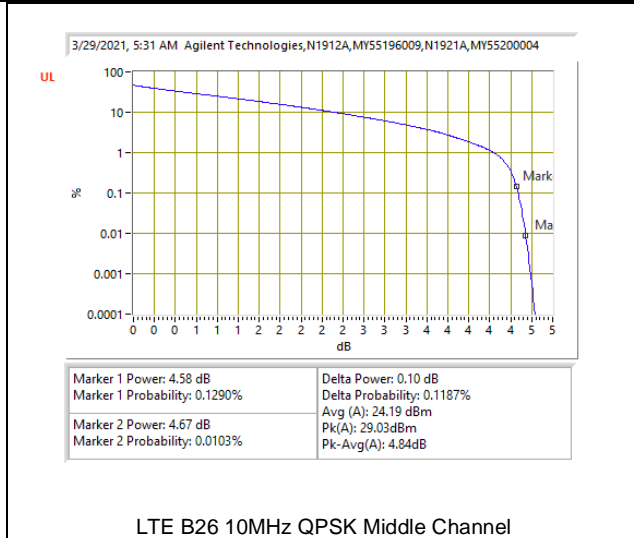
9.5.8. LTE BAND 26 (FCC PART 90S)





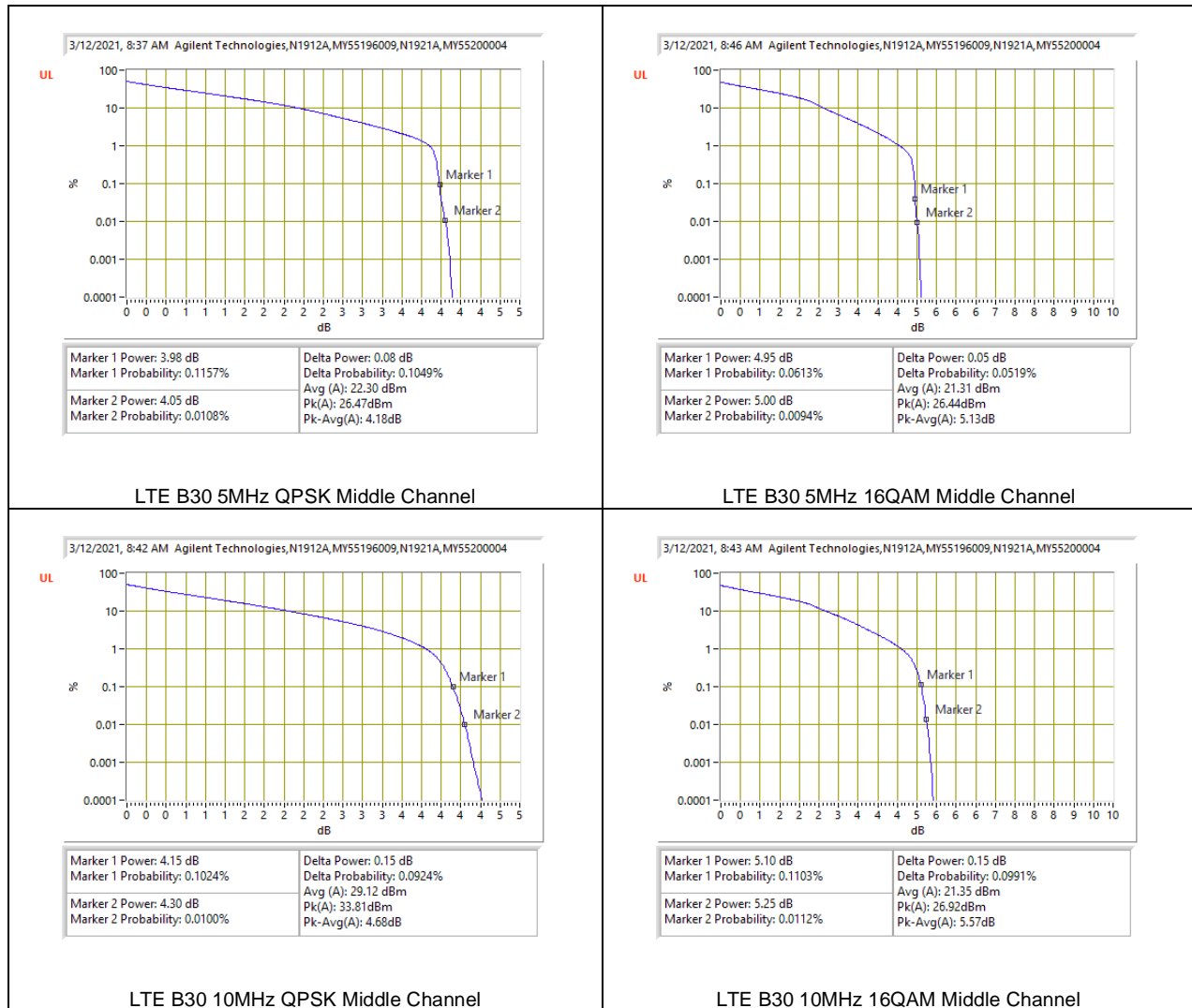
9.5.9. LTE BAND 26 (FCC PART 22)



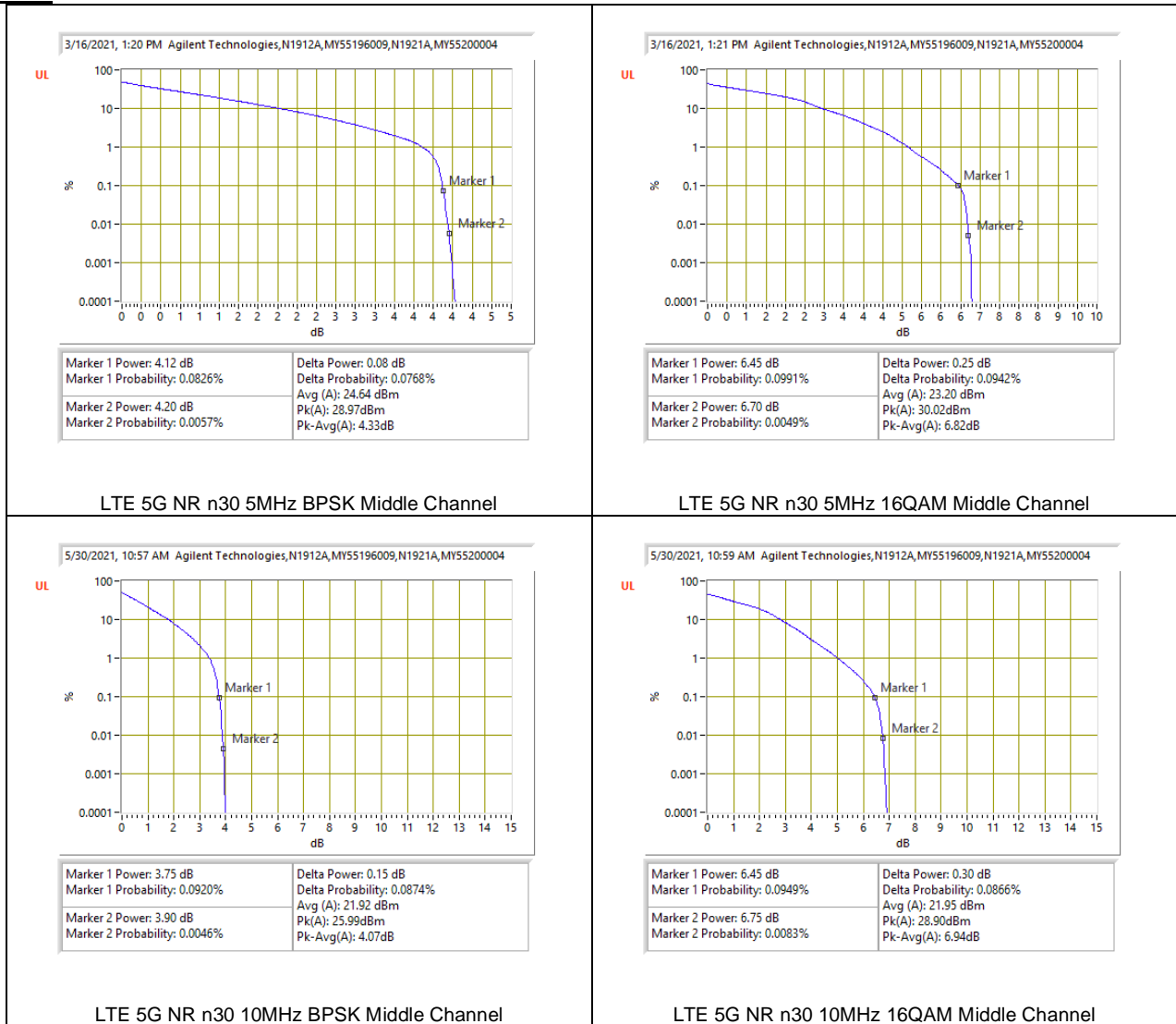


9.5.10. LTE BAND 30 AND 5G NR n30

LTE BAND 30



5G NR n30



9.5.11. LTE BAND 41 AND 5G NR n41

Test Engineer ID:		19431	Test Date:		4/29/2021			
Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band 41	5MHz	2593.0	25	0	QPSK	31.64	18.44	6.21
					16QAM	30.90	19.6	4.31
	10MHz		50	0	QPSK	31.00	20.61	3.40
					16QAM	30.95	19.6	4.36
	15MHz		75	0	QPSK	31.09	20.58	3.52
					16QAM	31.00	19.6	4.41
20MHz	100		0	QPSK	30.95	20.6	3.36	
				16QAM	31.00	19.6	4.41	
5G NR Band n41	20MHz		100	0	BPSK	32.65	29.09	3.56
					16QAM	33.74	27.52	6.22
	30MHz		180	0	BPSK	32.51	29.28	3.23
					16QAM	33.23	27.43	5.80
	40MHz	200	0	BPSK	32.09	29.2	2.89	
				16QAM	32.81	27.43	5.38	
	50MHz	250	0	BPSK	31.81	29.35	2.46	
				16QAM	32.99	27.49	5.50	
	60MHz	300	0	BPSK	31.90	28.97	2.93	
				16QAM	32.25	27.26	4.99	
	80MHz	400	0	BPSK	31.20	28.53	2.67	
				16QAM	31.70	26.75	4.95	
	90MHz	450	0	BPSK	31.04	28.59	2.45	
				16QAM	31.41	26.68	4.73	
100MHz	500	0	BPSK	30.73	28.65	2.08		
			16QAM	31.31	25.89	5.42		
Duty Cycle Correction Factor (dB) =			6.99					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.12. LTE BAND 48

Test Engineer ID:	10641	Test Date:	5/27/2021
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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	31.57	18.80	5.77
					16QAM	32.43	18.32	7.11
	10MHz		50	0	QPSK	31.83	18.85	5.98
					16QAM	31.58	17.84	6.74
	15MHz		75	0	QPSK	31.76	18.74	6.02
					16QAM	31.61	17.78	6.83
	20MHz		100	0	QPSK	31.63	18.78	5.85
					16QAM	31.47	17.79	6.68
Duty Cycle Correction Factor (dB) =			7.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.13. LTE BAND 66 AND 5G NR n66

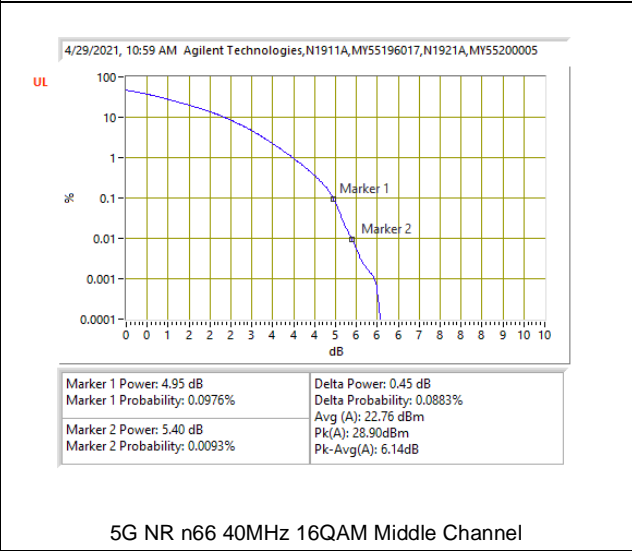
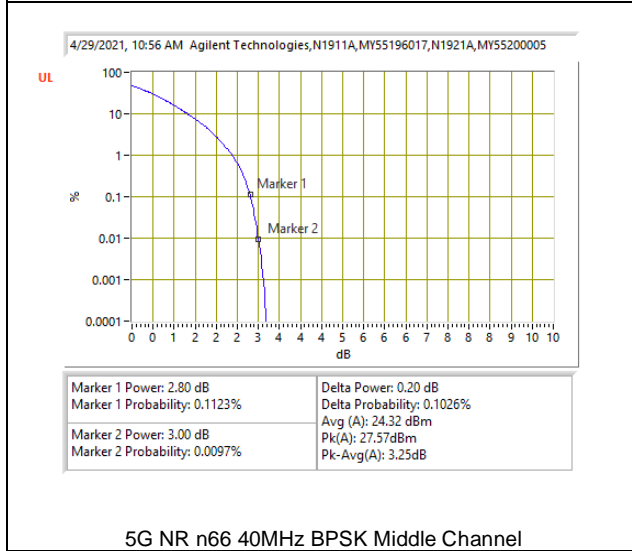
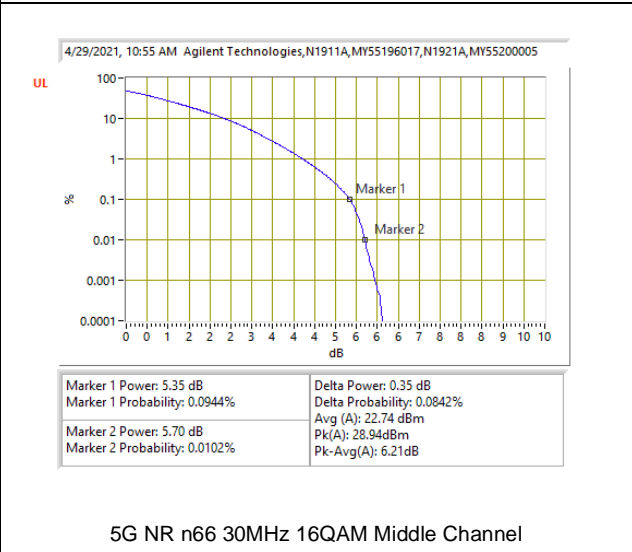
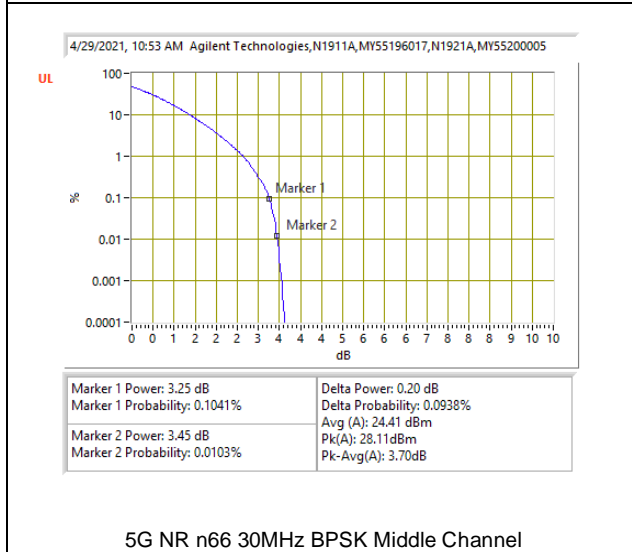
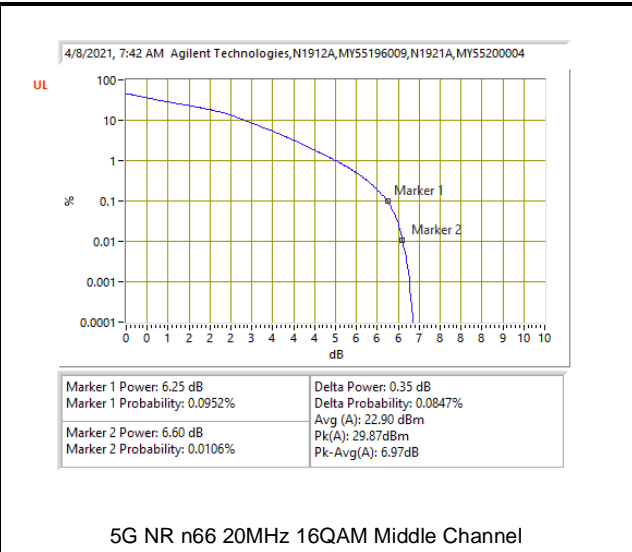
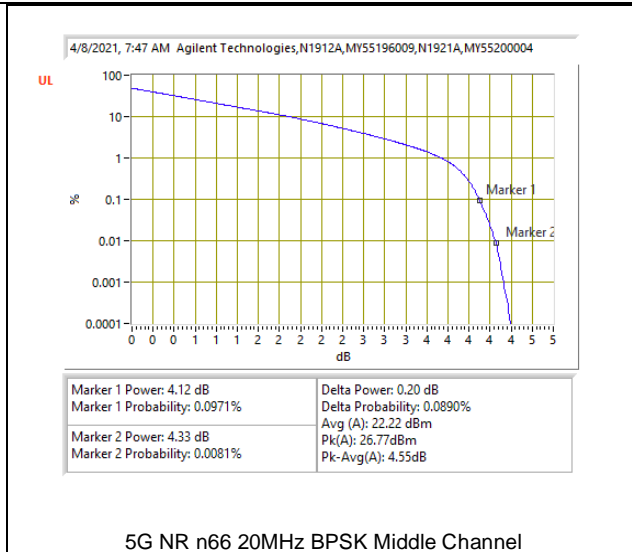
LTE BAND 66





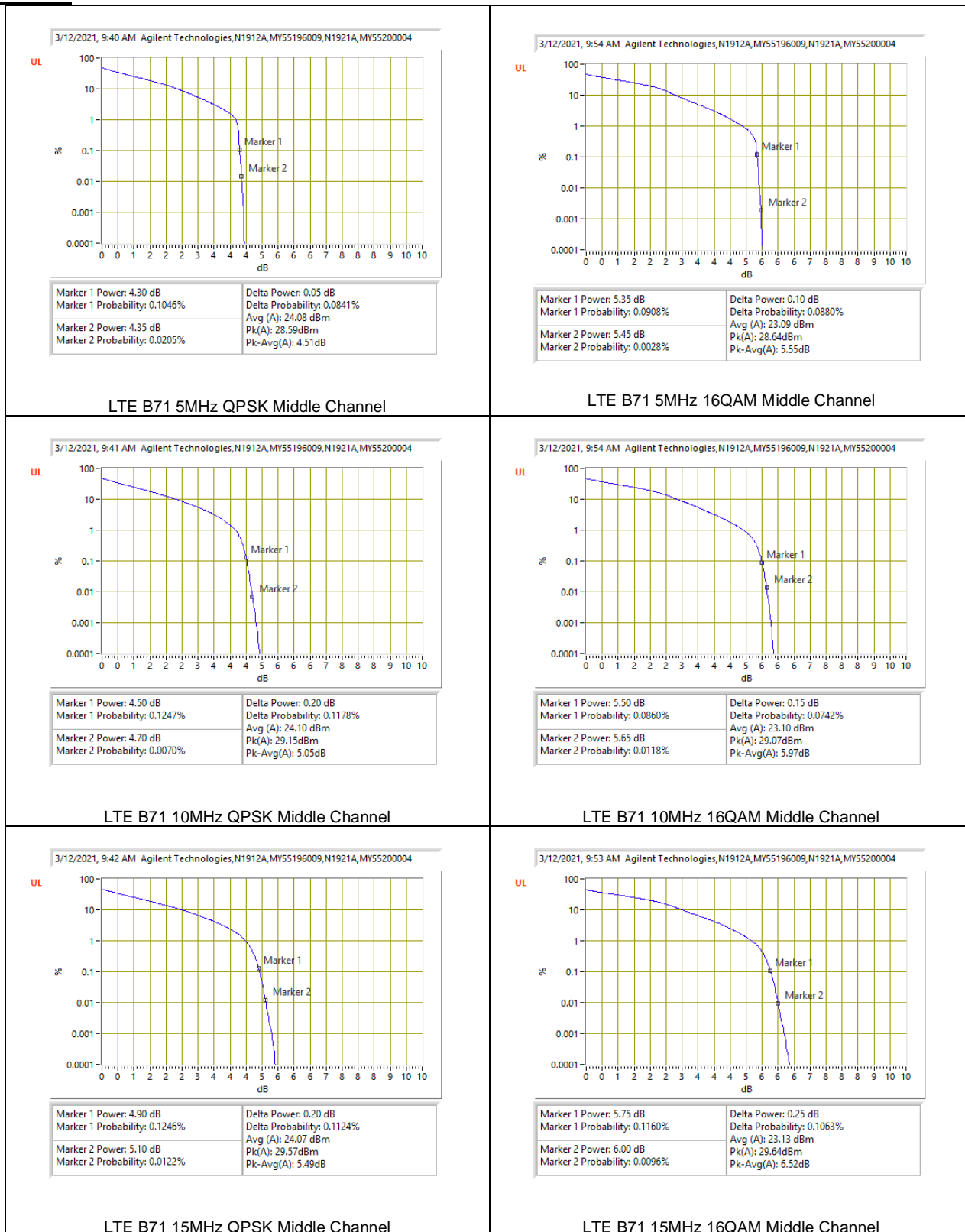
5G NR n66

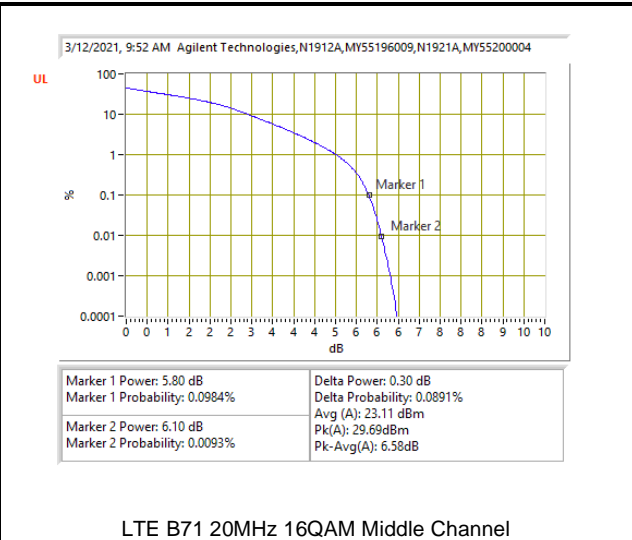
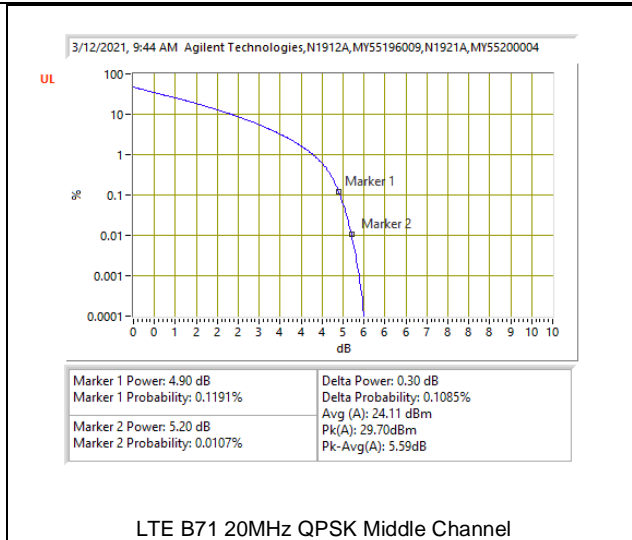




9.5.14. LTE BAND 71 AND 5G NR n71

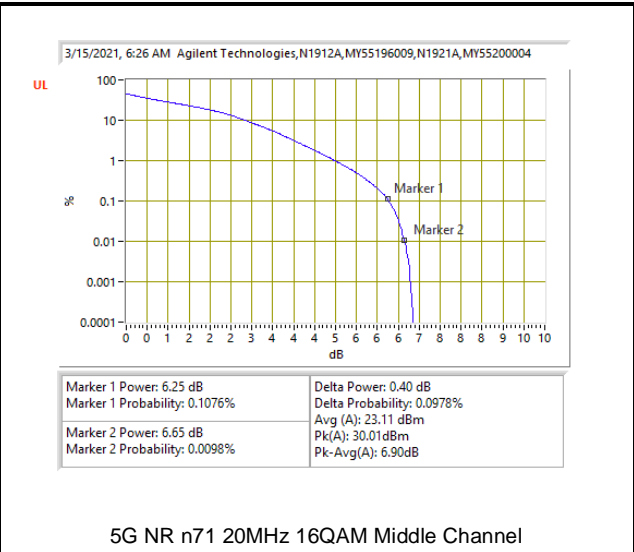
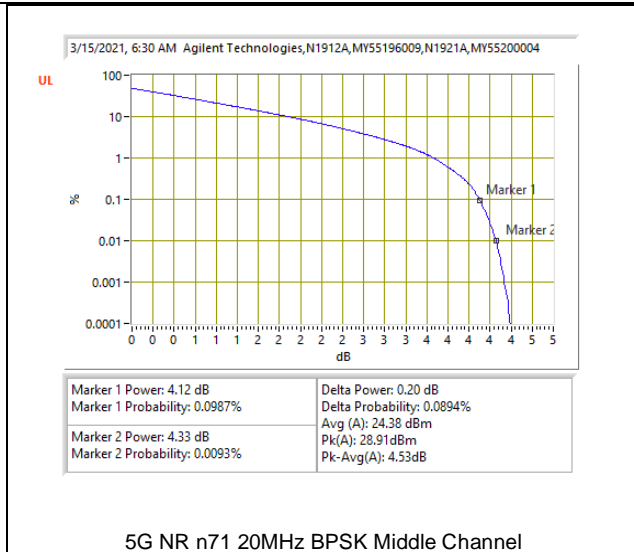
LTE BAND 71





5G NR n71





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

Test Engineer ID:	19431.	Test Date:	5/23/2021
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Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band n77	20MHz	3500.0	50	0	BPSK	31.62	26.82	4.80
					16QAM	31.83	25.87	5.96
	30MHz		75	0	BPSK	31.66	26.81	4.85
					16QAM	31.83	25.87	5.96
	40MHz		100	0	BPSK	31.93	26.91	5.02
					16QAM	31.71	25.92	5.79
	50MHz		128	0	BPSK	31.59	26.86	4.73
					16QAM	31.60	25.73	5.87
	60MHz		162	0	BPSK	31.25	26.46	4.79
					16QAM	31.66	25.55	6.11
	70MHz		180	0	BPSK	31.43	26.51	4.92
					16QAM	31.66	25.52	6.14
	80MHz		216	0	BPSK	30.89	26.67	4.22
					16QAM	31.25	25.63	5.62
	90MHz		243	0	BPSK	30.76	26.56	4.20
					16QAM	31.12	25.53	5.59
	100MHz		270	0	BPSK	30.58	26.51	4.07
					16QAM	31.05	25.61	5.44
Duty Cycle Correction Factor (dB) =								
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

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

Test Engineer ID:	19431	Test Date:	3/16/2021
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Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
Band n77	20MHz	3840.0	50	0	BPSK	31.62	26.82	4.80
					16QAM	31.83	25.87	5.96
	30MHz		75	0	BPSK	31.66	26.81	4.85
					16QAM	31.86	25.87	5.99
	40MHz		100	0	BPSK	31.93	26.91	5.02
					16QAM	31.71	25.92	5.79
	50MHz		128	0	BPSK	31.59	26.86	4.73
					16QAM	31.60	25.73	5.87
	60MHz		162	0	BPSK	31.25	26.46	4.79
					16QAM	31.66	25.55	6.11
	70MHz		180	0	BPSK	31.43	26.51	4.92
					16QAM	31.66	25.52	6.14
	80MHz		216	0	BPSK	30.89	26.67	4.22
					16QAM	31.25	25.63	5.62
	90MHz		243	0	BPSK	30.76	26.56	4.20
					16QAM	31.12	25.53	5.59
	100MHz		270	0	BPSK	30.58	26.51	4.07
					16QAM	31.05	25.61	5.44
Duty Cycle Correction Factor (dB) =								
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

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.

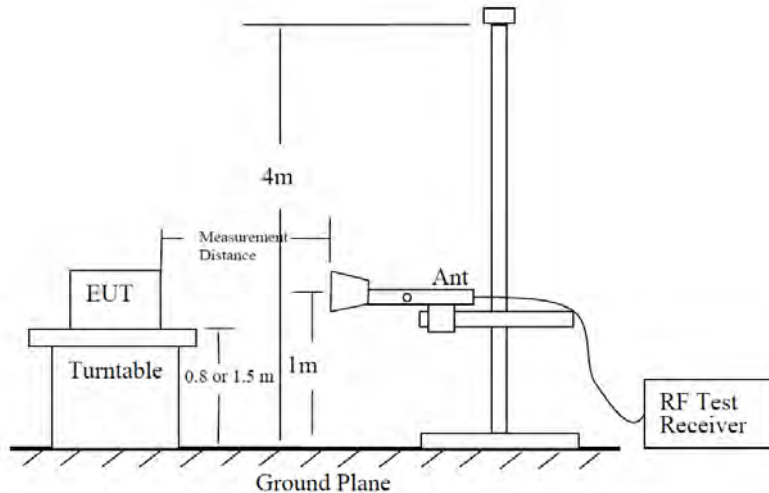


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

- a) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- b) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- c) $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.
- d) $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.

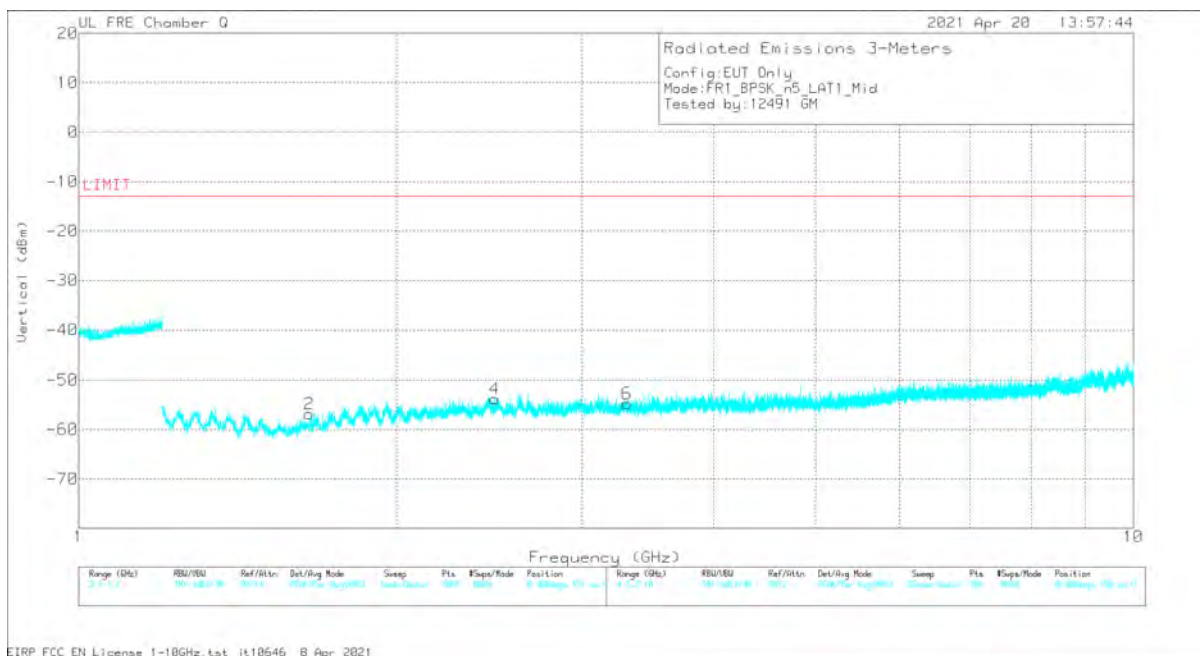
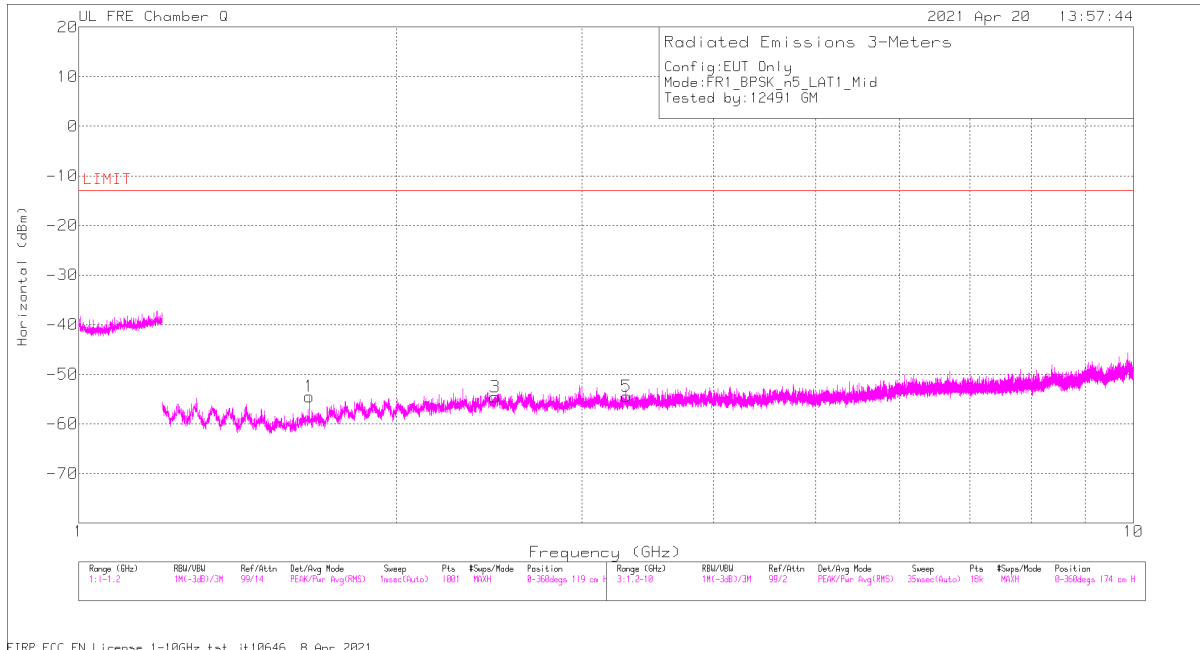
So, from d)

The measuring distance is usually at 3m, then $20 \cdot \log(3) = 9.5424$

Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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.

10.1. Plot Example



Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1.65369	56.6	Pk	28.4	-45.1	.8	-95.2	-54.5	-13	-41.5	H
1.65369	54.25	Pk	28.4	-45.1	.8	-95.2	-56.85	-13	-43.85	V
2.48089	52.88	Pk	32.4	-44.4	.5	-95.2	-53.82	-13	-40.82	V
2.48187	52.04	Pk	32.4	-44.3	.5	-95.2	-54.56	-13	-41.56	H
3.30711	50.01	Pk	32.4	-42.3	.7	-95.2	-54.39	-13	-41.39	H
3.30907	49.64	Pk	32.4	-42.3	.7	-95.2	-54.76	-13	-41.76	V

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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.

BPSK 5G NR n5 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/20/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	5G NR n5 BPSK 20MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	HPF 1.2GHz T137 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 834MHz										
1.64919	53.17	Pk	28.4	-45.1	.8	-95.2	-57.93	-13	-44.93	V
1.64922	55.16	Pk	28.4	-45.1	.8	-95.2	-55.94	-13	-42.94	H
2.47319	43.97	Pk	32.4	-44.4	.5	-95.2	-62.73	-13	-49.73	H
2.47436	43.47	Pk	32.4	-44.4	.5	-95.2	-63.23	-13	-50.23	V
3.29344	41.95	Pk	32.5	-42.5	.8	-95.2	-62.45	-13	-49.45	H
3.29628	41.44	Pk	32.5	-42.4	.8	-95.2	-62.86	-13	-49.86	V
Mid Channel, 836.5MHz										
1.6542	52.18	Pk	28.4	-45.1	.8	-95.2	-58.92	-13	-45.92	V
1.65421	53.85	Pk	28.4	-45.1	.8	-95.2	-57.25	-13	-44.25	H
2.48104	46.99	Pk	32.4	-44.4	.5	-95.2	-59.71	-13	-46.71	H
2.48108	44.31	Pk	32.4	-44.3	.5	-95.2	-62.29	-13	-49.29	V
3.30371	40.72	Pk	32.5	-42.3	.7	-95.2	-63.58	-13	-50.58	H
3.30772	41.22	Pk	32.4	-42.4	.7	-95.2	-63.28	-13	-50.28	V
High Channel, 839MHz										
1.65921	52.86	Pk	28.4	-45.1	.8	-95.2	-58.24	-13	-45.24	H
1.65921	51.85	Pk	28.4	-45.1	.8	-95.2	-59.25	-13	-46.25	V
2.48871	44.06	Pk	32.5	-44.3	.5	-95.2	-62.44	-13	-49.44	V
2.49387	43.9	Pk	32.5	-44.2	.6	-95.2	-62.4	-13	-49.4	H
3.38446	41.25	Pk	32.5	-42.2	.6	-95.2	-63.05	-13	-50.05	H
3.39187	40.51	Pk	32.5	-42.2	.6	-95.2	-63.79	-13	-50.79	V

Pk - Peak detector

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.

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/19-6/26/2021
Test Engineer:	19226 AR, 19480 BS
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	R, S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.01881	51.7	Pk	33.9	-41.9	.8	-95.2	-50.7	-25	-25.7	H
5.02065	52.01	Pk	33.9	-41.9	.7	-95.2	-50.49	-25	-25.49	V
7.53023	49.81	Pk	36.3	-38.9	.3	-95.2	-47.69	-25	-22.69	H
7.53127	49.41	Pk	36.3	-38.9	.3	-95.2	-48.09	-25	-23.09	V
10.04012	48.34	Pk	37.3	-36.9	.7	-95.2	-45.76	-25	-20.76	H
10.04208	48.28	Pk	37.3	-36.8	.7	-95.2	-45.72	-25	-20.72	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2535MHz										
5.05223	51.69	Pk	34.1	-42.1	.6	-95.2	-50.91	-25	-25.91	H
7.57446	48.93	Pk	35.8	-38.6	.4	-95.2	-48.67	-25	-23.67	H
10.11371	48.8	Pk	37.2	-36	.7	-95.2	-44.5	-25	-19.5	H
5.05258	51.38	Pk	34.1	-42.1	.6	-95.2	-51.22	-25	-26.22	V
7.57466	49.55	Pk	35.8	-38.6	.4	-95.2	-48.05	-25	-23.05	V
10.10778	48.8	Pk	37.2	-36	.7	-95.2	-44.5	-25	-19.5	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2560MHz										
5.12142	51.4	Pk	34.5	-41.7	.8	-95.2	-50.2	-25	-25.2	V
5.12145	51.27	Pk	34.5	-41.7	.8	-95.2	-50.33	-25	-25.33	H
7.65345	55.45	Pk	36.1	-38.5	.3	-95.2	-41.85	-25	-16.85	H
7.65378	49.31	Pk	36.1	-38.5	.3	-95.2	-47.99	-25	-22.99	V
10.23979	47.83	Pk	37.4	-36.7	.8	-95.2	-45.87	-25	-20.87	V
10.24193	48.04	Pk	37.4	-36.6	.8	-95.2	-45.56	-25	-20.56	H

Pk - Peak detector

BPSK 5G NR 7 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/5/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n7 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.03922	52.86	Pk	34	-41.8	.6	-95.2	-49.54	-25	-24.54	H
5.04188	52.3	Pk	34	-41.9	.6	-95.2	-50.2	-25	-25.2	V
7.56055	48.97	Pk	36.1	-38.8	.3	-95.2	-48.63	-25	-23.63	V
7.56063	49.48	Pk	36.1	-38.8	.3	-95.2	-48.12	-25	-23.12	H
10.07876	47.91	Pk	37.3	-36.8	.6	-95.2	-46.19	-25	-21.19	V
10.08223	47.89	Pk	37.3	-36.7	.6	-95.2	-46.11	-25	-21.11	H
Mid Channel, 2535MHz										
5.07066	51.12	Pk	34.3	-41.8	.7	-95.2	-50.88	-25	-25.88	H
5.07069	52.67	Pk	34.3	-41.8	.7	-95.2	-49.33	-25	-24.33	V
7.60478	49.98	Pk	36.2	-38.7	.4	-95.2	-47.32	-25	-22.32	H
7.60624	49.24	Pk	36.2	-38.7	.4	-95.2	-48.06	-25	-23.06	V
10.13927	46.76	Pk	37.3	-36.4	.7	-95.2	-46.84	-25	-21.84	H
10.13962	47.44	Pk	37.3	-36.4	.7	-95.2	-46.16	-25	-21.16	V
High Channel, 2550MHz										
5.10146	51.34	Pk	34.5	-41.6	.8	-95.2	-50.16	-25	-25.16	V
5.10221	52.63	Pk	34.5	-41.6	.8	-95.2	-48.87	-25	-23.87	H
7.64871	49.15	Pk	36.1	-38.5	.3	-95.2	-48.15	-25	-23.15	H
7.64965	49.89	Pk	36.1	-38.5	.3	-95.2	-47.41	-25	-22.41	V
10.20032	47.23	Pk	37.4	-36.5	.8	-95.2	-46.27	-25	-21.27	H
10.20206	47.47	Pk	37.4	-36.5	.8	-95.2	-46.03	-25	-21.03	V

Pk - Peak detector

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.

QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/8-3/18/2021
Test Engineer:	12492 KL, 50820 EC
Configuration:	EUT Only
Mode	LTE B12 QPSK 10MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.40709	56.4	Pk	28.5	-46.1	0.9	-95.2	-55.5	-13	-42.5	H
2.11366	56.02	Pk	31.6	-45.7	0.5	-95.2	-52.78	-13	-39.78	H
2.81931	55.5	Pk	32	-45	0.5	-95.2	-52.2	-13	-39.2	H
1.40841	55.97	Pk	28.5	-46.1	0.9	-95.2	-55.93	-13	-42.93	V
2.11127	55.96	Pk	31.5	-45.7	0.5	-95.2	-52.94	-13	-39.94	V
2.81764	55.43	Pk	32	-45	0.5	-95.2	-52.27	-13	-39.27	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 707.5MHz										
1.44306	54.04	Pk	28.6	-45.1	0.9	-95.2	-56.76	-13	-43.76	H
2.12572	52.68	Pk	31.1	-44.6	0.5	-95.2	-55.52	-13	-42.52	H
2.82909	50.67	Pk	31.8	-43.8	0.5	-95.2	-56.03	-13	-43.03	H
1.44784	52.96	Pk	28.5	-45.1	0.9	-95.2	-57.94	-13	-44.94	V
2.12466	54.53	Pk	31.1	-44.7	0.5	-95.2	-53.77	-13	-40.77	V
2.82909	50.22	Pk	31.8	-43.8	0.5	-95.2	-56.48	-13	-43.48	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 711MHz										
1.42191	57.47	Pk	28.4	-46	0.9	-95.2	-54.43	-13	-41.43	H
2.13365	56.24	Pk	31.7	-45.6	0.5	-95.2	-52.36	-13	-39.36	H
2.84393	54.45	Pk	32.2	-44.9	0.5	-95.2	-52.95	-13	-39.95	H
1.42058	57.42	Pk	28.4	-46	0.9	-95.2	-54.48	-13	-41.48	V
2.13142	55.86	Pk	31.7	-45.6	0.5	-95.2	-52.74	-13	-39.74	V
2.84146	54.43	Pk	32.2	-44.9	0.5	-95.2	-52.97	-13	-39.97	V

Pk - Peak detector

BPSK 5G NR n12 (15.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/28/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n12 BPSK 15MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 706.5MHz										
1.41137	54.93	Pk	28.6	-45	0.9	-95.2	-55.77	-13	-42.77	H
1.41397	55.89	Pk	28.5	-45	0.9	-95.2	-54.91	-13	-41.91	V
2.11774	55.51	Pk	31.6	-45.2	0.5	-95.2	-52.79	-13	-39.79	H
2.11897	55.91	Pk	31.6	-45.2	0.5	-95.2	-52.39	-13	-39.39	V
2.82585	53.4	Pk	32.8	-43.8	0.6	-95.2	-52.2	-13	-39.2	V
2.82653	53.91	Pk	32.8	-43.7	0.6	-95.2	-51.59	-13	-38.59	H
Mid Channel, 707.5MHz										
1.41469	56.47	Pk	28.5	-45	0.9	-95.2	-54.33	-13	-41.33	V
1.41545	57	Pk	28.5	-45	0.9	-95.2	-53.8	-13	-40.8	H
2.12126	52.67	Pk	31.6	-45.2	0.5	-95.2	-55.63	-13	-42.63	V
2.1237	52.79	Pk	31.6	-45.2	0.5	-95.2	-55.51	-13	-42.51	H
2.82927	54.96	Pk	32.8	-43.7	0.6	-95.2	-50.54	-13	-37.54	H
2.83046	56.06	Pk	32.8	-43.7	0.6	-95.2	-49.44	-13	-36.44	V
High Channel, 708.5MHz										
1.41594	57.01	Pk	28.5	-45	0.9	-95.2	-53.79	-13	-40.79	V
1.41703	57.44	Pk	28.4	-45	0.9	-95.2	-53.46	-13	-40.46	H
2.12667	54.1	Pk	31.7	-45.2	0.5	-95.2	-54.1	-13	-41.1	V
2.12742	53.63	Pk	31.7	-45.2	0.5	-95.2	-54.57	-13	-41.57	H
2.83301	54.84	Pk	32.7	-43.7	0.6	-95.2	-50.76	-13	-37.76	H
2.83303	55.02	Pk	32.7	-43.7	0.6	-95.2	-50.58	-13	-37.58	V

Pk - Peak detector

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.

QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/9/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE Band 13 QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 782MHz										
*1.56081	56.01	Pk	28	-44.5	.9	-95.2	-54.79	-40	-14.79	H
2.34623	63.1	Pk	31.8	-44	.6	-95.2	-43.7	-13	-30.7	H
3.12962	51.91	Pk	32.8	-41.7	.6	-95.2	-51.59	-13	-38.59	H
*1.56055	55.86	Pk	28	-44.5	.9	-95.2	-54.94	-40	-14.94	V
2.34644	74.23	Pk	31.8	-44	.6	-95.2	-32.57	-13	-19.57	V
3.12746	53.24	Pk	32.8	-41.7	.6	-95.2	-50.26	-13	-37.26	V

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

Pk - Peak detector

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

QPSK LTE BAND 14 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/9/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B14 QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 793MHz										
*1.58639	55.34	Pk	27.6	-45.2	0.7	-95.2	-56.76	-40	-16.76	H
2.37887	54.91	Pk	31.9	-44.3	0.5	-95.2	-52.19	-13	-39.19	H
3.18901	52.42	Pk	32.6	-42.8	0.4	-95.2	-52.58	-13	-39.58	H
*1.58403	55.86	Pk	27.6	-45.1	0.7	-95.2	-56.14	-40	-16.14	V
2.37904	55.62	Pk	31.9	-44.3	0.5	-95.2	-51.48	-13	-38.48	V
3.18925	52.68	Pk	32.6	-42.8	0.4	-95.2	-52.32	-13	-39.32	V

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

Pk - Peak detector

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.

QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/9/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B17 QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 710MHz										
1.36335	45.61	Pk	28.6	-45.4	0.9	-95.2	-65.49	-13	-52.49	H
2.10434	44.7	Pk	31	-44.6	0.5	-95.2	-63.6	-13	-50.6	H
2.83005	42.59	Pk	31.8	-43.9	0.5	-95.2	-64.21	-13	-51.21	H
1.36874	45.25	Pk	28.6	-45.4	0.9	-95.2	-65.85	-13	-52.85	V
2.11669	49.9	Pk	31	-44.6	0.5	-95.2	-58.4	-13	-45.4	V
2.83025	43.01	Pk	31.8	-43.9	0.5	-95.2	-63.79	-13	-50.79	V

Pk - Peak detector

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.

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/8-3/19/2021
Test Engineer:	12492 KL, 50820 EC
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.71964	52.77	Pk	33.6	-42.9	-95.2	-51.73	-13	-38.73	H
5.55395	51.32	Pk	34.4	-41.7	-95.2	-51.18	-13	-38.18	H
7.43967	49.49	Pk	35.8	-39.7	-95.2	-49.61	-13	-36.61	H
3.72214	52.43	Pk	33.5	-42.9	-95.2	-52.17	-13	-29.17	V
5.55321	56.79	Pk	34.4	-41.7	-95.2	-45.71	-13	-32.71	V
7.44205	49.28	Pk	35.8	-39.7	-95.2	-49.82	-13	-36.82	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 1882.5MHz									
3.7625	50.35	Pk	33.3	-41.4	-95.2	-52.95	-13	-39.95	H
5.64684	47.95	Pk	34.3	-40.1	-95.2	-53.05	-13	-40.05	H
7.53172	46.34	Pk	35.6	-38.3	-95.2	-51.56	-13	-38.56	H
3.76516	49.62	Pk	33.4	-41.4	-95.2	-53.58	-13	-40.58	V
5.62081	50.33	Pk	34.3	-40.2	-95.2	-50.77	-13	-37.77	V
7.53119	45.25	Pk	35.7	-38.3	-95.2	-52.55	-13	-39.55	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 1905MHz									
3.80988	52.86	Pk	33.5	-42.8	-95.2	-51.64	-13	-38.64	H
5.68823	55.49	Pk	34.7	-41.3	-95.2	-46.31	-13	-33.31	H
7.61858	48.84	Pk	35.9	-39.1	-95.2	-49.56	-13	-36.56	H
3.80856	53.26	Pk	33.5	-42.7	-95.2	-51.14	-13	-38.14	V
5.68835	57.56	Pk	34.7	-41.2	-95.2	-44.14	-13	-31.14	V
7.62039	48.68	Pk	35.9	-39.1	-95.2	-49.72	-13	-36.72	V

Pk - Peak detector

BPSK 5G NR 25 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/3/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.73831	51.07	Pk	33.5	-43	.7	-95.2	-52.93	-13	-39.93	H
3.74119	50.94	Pk	33.5	-43	.6	-95.2	-53.16	-13	-40.16	V
5.60983	48.32	Pk	34.5	-41.4	.5	-95.2	-53.28	-13	-40.28	V
5.61173	47.95	Pk	34.5	-41.4	.5	-95.2	-53.65	-13	-40.65	H
7.47911	46.99	Pk	35.8	-39.5	.4	-95.2	-51.51	-13	-38.51	H
7.47926	46.7	Pk	35.8	-39.5	.4	-95.2	-51.8	-13	-38.8	V
Mid Channel, 1882.5MHz										
3.76425	50.45	Pk	33.5	-42.9	.6	-95.2	-53.55	-13	-40.55	H
3.76605	50.39	Pk	33.5	-42.9	.6	-95.2	-53.61	-13	-40.61	V
5.64617	48.12	Pk	34.7	-41.5	.5	-95.2	-53.38	-13	-40.38	V
5.64661	48.4	Pk	34.7	-41.5	.5	-95.2	-53.1	-13	-40.1	H
7.52856	47.27	Pk	35.8	-39.4	.4	-95.2	-51.13	-13	-38.13	H
7.52996	46.62	Pk	35.8	-39.4	.4	-95.2	-51.78	-13	-38.78	V
High Channel, 1895MHz										
3.78915	50.25	Pk	33.2	-40.9	.7	-95.2	-51.95	-13	-38.95	H
3.79048	50.4	Pk	33.2	-40.9	.7	-95.2	-51.8	-13	-38.8	V
5.68332	48.69	Pk	34.3	-38.8	.5	-95.2	-50.51	-13	-37.51	V
5.68619	48.94	Pk	34.3	-38.9	.5	-95.2	-50.36	-13	-37.36	H
7.58007	46.79	Pk	35.5	-36.7	.5	-95.2	-49.11	-13	-36.11	V
7.58176	47.34	Pk	35.5	-36.7	.5	-95.2	-48.56	-13	-35.56	H

Pk - Peak detector

10.2.8. LTE BAND 26 (FCC 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 #:	13571601
Date:	3/10/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE Band 26(90S) QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 819MHz										
1.6352	44.26	Pk	28.3	-45.1	0.6	-95.2	-67.14	-13	-54.14	H
2.4438	58.17	Pk	32.2	-44.2	0.5	-95.2	-48.53	-13	-35.53	H
3.25397	42.38	Pk	32.5	-42.7	0.5	-95.2	-62.52	-13	-49.52	H
1.63599	44.62	Pk	28.3	-45.1	0.6	-95.2	-66.78	-13	-53.78	V
2.44379	58.18	Pk	32.2	-44.2	0.5	-95.2	-48.52	-13	-35.52	V
3.25587	42.04	Pk	32.6	-42.6	0.5	-95.2	-62.66	-13	-49.66	V

Pk - Peak detector

10.2.9. LTE BAND 26 (FCC 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 #:	13571601
Date:	3/10/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE Band 26 (Part 22) QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 829MHz										
1.66334	55.29	Pk	28.4	-44.5	.8	-95.2	-55.21	-13	-53.05	H
2.49402	66.36	Pk	32.6	-43.9	.6	-95.2	-39.54	-13	-26.54	H
3.3261	50.8	Pk	32.3	-40.9	.6	-95.2	-52.4	-13	-39.4	H
1.66127	54.66	Pk	28.4	-44.5	.8	-95.2	-55.84	-13	-42.84	V
2.4939	65.25	Pk	32.6	-43.9	.6	-95.2	-40.65	-13	-27.65	V
3.32673	50.64	Pk	32.3	-41	.6	-95.2	-52.66	-13	-39.66	V
Mid Channel, 836.5MHz										
1.67326	55.99	Pk	28.4	-45.1	.7	-95.2	-55.21	-13	-42.21	H
2.5089	54.48	Pk	32.5	-44.4	.7	-95.2	-51.92	-13	-38.92	H
3.34523	49.78	Pk	32.5	-42.2	.6	-95.2	-54.52	-13	-41.52	H
1.67326	55.99	Pk	28.4	-45.1	.7	-95.2	-55.21	-13	-42.21	V
2.50388	54.31	Pk	32.5	-44.3	.7	-95.2	-51.99	-13	-38.99	V
3.34405	49.78	Pk	32.4	-42.2	.6	-95.2	-54.62	-13	-41.62	V
High Channel, 844MHz										
1.68336	54.56	Pk	28.5	-44.6	.7	-95.2	-56.04	-13	-43.04	H
2.52402	64.79	Pk	32.6	-43.8	.8	-95.2	-40.81	-13	-27.81	H
3.36616	51.04	Pk	32.2	-40.8	.6	-95.2	-52.16	-13	-39.16	H
1.68331	55.07	Pk	28.5	-44.6	.7	-95.2	-55.53	-13	-42.53	V
2.52401	62.22	Pk	32.6	-43.8	.8	-95.2	-43.38	-13	-30.38	V
3.36592	50.36	Pk	32.3	-40.8	.6	-95.2	-52.74	-13	-39.74	V

Pk - Peak detector

10.2.10. 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 #:	13571601
Date:	3/8/2021
Test Engineer:	12492 KL
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz									
4.62153	50.97	Pk	33.9	-42	-95.2	-52.33	-40	-12.33	H
6.91706	50.83	Pk	35.6	-38.6	-95.2	-47.37	-40	-7.37	H
9.23013	46.19	Pk	36.2	-36.1	-95.2	-48.91	-40	-8.91	H
4.63641	49.35	Pk	34	-42	-95.2	-53.85	-40	-13.85	V
6.89369	46.96	Pk	35.7	-38.5	-95.2	-51.04	-40	-11.04	V
9.23916	46.23	Pk	36.2	-36.2	-95.2	-48.97	-40	-8.97	V

Pk - Peak detector

BPSK 5G NR n30 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/4/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n30 BPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61526	57.8	Pk	33.9	-42.2	0.6	-95.2	-45.1	-40	-5.1	H
4.61585	51.53	Pk	33.9	-42.2	0.6	-95.2	-51.37	-40	-11.37	V
6.92969	48.25	Pk	35.6	-38.5	0.4	-95.2	-49.45	-40	-9.45	V
6.93088	48	Pk	35.6	-38.4	0.4	-95.2	-49.6	-40	-9.6	H
9.24137	47.18	Pk	36	-36.2	0.7	-95.2	-47.52	-40	-7.52	V
9.24186	46.76	Pk	36	-36.1	0.7	-95.2	-47.84	-40	-7.84	H

Pk - Peak detector

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 #:	13571601
Date:	4/19-6/26/2021
Test Engineer:	12491 GM, 19226 AR
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	R, S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.01285	53.53	Pk	33.9	-41.9	.8	-95.2	-48.87	-25	-23.87	H
5.01414	51.99	Pk	33.9	-41.9	.8	-95.2	-50.41	-25	-25.41	V
7.51768	49.15	Pk	36.2	-38.9	.3	-95.2	-48.45	-25	-23.45	H
7.51799	49.59	Pk	36.2	-38.9	.3	-95.2	-48.01	-25	-23.01	V
10.02291	48.11	Pk	37.3	-37.1	.6	-95.2	-46.29	-25	-21.29	V
10.02424	48.31	Pk	37.3	-37.1	.6	-95.2	-46.09	-25	-21.09	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2593MHz										
5.16422	47.11	Pk	34.2	-41.6	.7	-95.2	-54.79	-25	-29.79	H
7.75078	44.16	Pk	35.9	-38.5	.3	-95.2	-53.34	-25	-28.34	H
10.34016	46.55	Pk	37.5	-36.5	.7	-95.2	-46.95	-25	-21.95	H
5.15859	47.87	Pk	34.3	-41.6	.8	-95.2	-53.83	-25	-28.83	V
7.75313	45.04	Pk	35.9	-38.5	.3	-95.2	-52.46	-25	-27.46	V
10.33875	45.93	Pk	37.5	-36.5	.7	-95.2	-47.57	-25	-22.57	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2680MHz										
5.35997	50.64	Pk	34.5	-40.9	.5	-95.2	-50.46	-25	-25.46	V
5.36059	51.02	Pk	34.5	-40.9	.5	-95.2	-50.08	-25	-25.08	H
8.04151	47.75	Pk	36	-37.5	.4	-95.2	-48.55	-25	-23.55	H
8.04169	48.74	Pk	36	-37.4	.4	-95.2	-47.46	-25	-22.46	V
10.71898	47.14	Pk	37.9	-35	.6	-95.2	-44.56	-25	-19.56	V
10.72075	47.58	Pk	37.9	-35	.6	-95.2	-44.12	-25	-19.12	H

Pk - Peak detector

BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/11/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n41 BPSK 100MHz
Chamber #:	N

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213971	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09342	53.04	Pk	34.2	-43.4	.8	-95.2	-50.56	-25	-25.56	H
5.09346	52.48	Pk	34.2	-43.4	.8	-95.2	-51.12	-25	-26.12	V
7.63634	50.56	Pk	35.9	-41	.4	-95.2	-49.34	-25	-24.34	H
7.63665	50.66	Pk	35.9	-41	.4	-95.2	-49.24	-25	-24.24	V
10.18452	51.06	Pk	37.3	-40.4	.6	-95.2	-46.64	-25	-21.64	H
10.18601	51.3	Pk	37.3	-40.4	.7	-95.2	-46.3	-25	-21.3	V
Mid Channel, 2593MHz										
5.18647	52.42	Pk	34.4	-43.2	.8	-95.2	-50.78	-25	-25.78	H
5.18754	52.05	Pk	34.4	-43.2	.8	-95.2	-51.15	-25	-26.15	V
7.77828	50.18	Pk	35.9	-40.8	.3	-95.2	-49.62	-25	-24.62	H
7.77946	50.73	Pk	35.9	-40.8	.3	-95.2	-49.07	-25	-24.07	V
10.37149	51.4	Pk	37.5	-40.1	.8	-95.2	-45.6	-25	-20.6	H
10.37348	51.09	Pk	37.5	-40.2	.8	-95.2	-46.01	-25	-21.01	V
High Channel, 2640MHz										
5.28092	52.93	Pk	34.3	-43.3	.3	-95.2	-50.97	-25	-25.97	V
5.28174	52.65	Pk	34.3	-43.3	.3	-95.2	-51.25	-25	-26.25	H
7.9194	50.54	Pk	35.8	-41.1	.2	-95.2	-49.76	-25	-24.76	H
7.92138	50.72	Pk	35.8	-41.1	.2	-95.2	-49.58	-25	-24.58	V
10.55971	51.04	Pk	37.6	-40.6	.7	-95.2	-46.46	-25	-21.46	H
10.56069	51.3	Pk	37.6	-40.6	.7	-95.2	-46.2	-25	-21.2	V

Pk - Peak detector

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.

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/9-3/19-2021
Test Engineer:	12491 GM, 50820 EC
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.43927	53.12	Pk	32.8	-43.4	-95.2	-52.68	-13	-39.68	H
5.15995	52.37	Pk	34.2	-42.7	-95.2	-51.33	-13	-38.33	H
6.88232	49.51	Pk	35.7	-40.4	-95.2	-50.39	-13	-37.39	H
3.44094	53.16	Pk	32.8	-43.4	-95.2	-52.64	-13	-39.64	V
5.16349	51.88	Pk	34.2	-42.7	-95.2	-51.82	-13	-38.82	V
6.88127	49.95	Pk	35.7	-40.3	-95.2	-49.85	-13	-36.85	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 1745MHz									
3.48429	51.75	Pk	32.7	-41.8	-95.2	-52.55	-13	-39.55	H
5.20817	53.4	Pk	34.2	-41.4	-95.2	-49	-13	-36	H
6.96497	48.76	Pk	35.6	-38.5	-95.2	-49.34	-13	-36.34	H
3.48584	50.72	Pk	32.7	-41.8	-95.2	-53.58	-13	-40.58	V
5.20831	51.66	Pk	34.2	-41.4	-95.2	-50.74	-13	-37.74	V
6.95919	47.8	Pk	35.5	-38.5	-95.2	-50.4	-13	-37.4	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 1770MHz									
3.53744	52.91	Pk	32.7	-43.2	-95.2	-52.79	-13	-43.67	H
5.30862	51.94	Pk	34.5	-42.3	-95.2	-51.06	-13	-43.44	H
7.07914	50.06	Pk	35.7	-40.1	-95.2	-49.54	-13	-42.27	H
3.53913	52.86	Pk	32.7	-43.2	-95.2	-52.84	-13	-39.84	V
5.31081	51.61	Pk	34.5	-42.3	-95.2	-51.39	-13	-38.39	V
7.079	49.96	Pk	35.7	-40.1	-95.2	-49.64	-13	-36.64	V

Pk - Peak detector

BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/4/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45824	50.89	Pk	32.5	-40.8	.6	-95.2	-52.01	-13	-39.01	V
3.46105	50.81	Pk	32.5	-40.8	.6	-95.2	-52.09	-13	-39.09	H
5.18937	49.43	Pk	34	-40.4	.5	-95.2	-51.67	-13	-38.67	H
5.19158	49.91	Pk	34.1	-40.4	.5	-95.2	-51.09	-13	-38.09	V
6.9183	48.38	Pk	35.5	-38.4	.5	-95.2	-49.22	-13	-36.22	V
6.9195	49.02	Pk	35.5	-38.4	.5	-95.2	-48.58	-13	-35.58	H
Mid Channel, 1745MHz										
3.48921	50.76	Pk	32.6	-41	.7	-95.2	-52.14	-13	-39.14	H
3.49019	50.8	Pk	32.6	-41	.7	-95.2	-52.1	-13	-39.1	V
5.23554	49.69	Pk	34.1	-40	.6	-95.2	-50.81	-13	-37.81	H
5.23715	49.74	Pk	34.1	-40.1	.6	-95.2	-50.86	-13	-37.86	V
6.97926	47.8	Pk	35.5	-38.3	.5	-95.2	-49.7	-13	-36.7	H
6.98153	48.48	Pk	35.5	-38.2	.5	-95.2	-48.92	-13	-35.92	V
High Channel, 1760MHz										
3.52075	50.73	Pk	32.8	-40.9	.8	-95.2	-51.77	-13	-38.77	V
3.52162	51	Pk	32.8	-40.9	.8	-95.2	-51.5	-13	-38.5	H
5.27973	49.77	Pk	34.3	-40	.5	-95.2	-50.63	-13	-37.63	V
5.28217	49.71	Pk	34.2	-39.9	.5	-95.2	-50.69	-13	-37.69	H
7.03978	48.34	Pk	35.6	-38.1	.5	-95.2	-48.86	-13	-35.86	V
7.04022	48.28	Pk	35.6	-38.1	.5	-95.2	-48.92	-13	-35.92	H

Pk - Peak detector

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.

QPSK LTE BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/10-3/19/2021
Test Engineer:	12491 GM, 50820 EC
Configuration:	EUT Only
Mode	LTE B71 QPSK 20MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34719	54.69	Pk	29.1	-46.2	1	-95.2	-56.61	-13	-43.61	H
2.01895	56.37	Pk	30.9	-45.6	0.5	-95.2	-53.03	-13	-40.03	H
2.69127	55.74	Pk	32.5	-45.2	0.5	-95.2	-51.66	-13	-38.66	H
1.34676	54.37	Pk	29.1	-46.2	1	-95.2	-56.93	-13	-43.93	V
2.01914	56.02	Pk	30.9	-45.6	0.5	-95.2	-53.38	-13	-40.38	V
2.69338	55.75	Pk	32.5	-45.2	0.5	-95.2	-51.65	-13	-38.65	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 683MHz										
1.36829	54.05	Pk	29	-44.7	1	-95.2	-55.85	-13	-42.85	H
2.04739	54.84	Pk	31.4	-44.2	.6	-95.2	-52.56	-13	-39.56	H
2.73204	53.71	Pk	32.2	-43.7	.6	-95.2	-52.39	-13	-39.39	H
1.36709	54.72	Pk	29	-44.6	1	-95.2	-55.08	-13	-42.08	V
2.05057	54.71	Pk	31.4	-44.2	.6	-95.2	-52.69	-13	-39.69	V
2.73128	52.62	Pk	32.2	-43.7	.5	-95.2	-53.58	-13	-40.58	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 688MHz										
1.37618	56.36	Pk	29.5	-46.1	1	-95.2	-54.44	-13	-41.44	H
2.06548	55.89	Pk	31.3	-45.7	0.5	-95.2	-53.21	-13	-40.21	H
2.75239	56.34	Pk	32.2	-45	0.5	-95.2	-51.16	-13	-38.16	H
1.37551	57.1	Pk	29.5	-46.1	1	-95.2	-53.7	-13	-40.7	V
2.06254	55.28	Pk	31.3	-45.6	0.5	-95.2	-53.72	-13	-40.72	V
2.7538	52.48	Pk	32.2	-45.1	0.5	-95.2	-55.12	-13	-42.12	V

Pk - Peak detector

BPSK 5G NR n71 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/27-4/28/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n71 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34478	56.62	Pk	29.3	-45.1	0.9	-95.2	-53.48	-13	-40.48	H
1.34612	56.92	Pk	29.3	-45.1	0.9	-95.2	-53.18	-13	-40.18	V
2.01764	54.12	Pk	31.2	-45	0.5	-95.2	-54.38	-13	-41.38	V
2.01827	54.21	Pk	31.2	-45.1	0.5	-95.2	-54.39	-13	-41.39	H
2.69189	53.83	Pk	32.1	-44.3	0.6	-95.2	-52.97	-13	-39.97	H
2.69349	53.63	Pk	32.1	-44.3	0.6	-95.2	-53.17	-13	-40.17	V
Mid Channel, 680.5MHz										
1.34229	59.44	Pk	29.3	-45.1	0.9	-95.2	-50.66	-13	-37.66	H
1.34267	55.66	Pk	29.3	-45.1	0.9	-95.2	-54.44	-13	-41.44	V
2.01206	55.39	Pk	31.2	-45.1	0.5	-95.2	-53.21	-13	-40.21	V
2.01208	56.97	Pk	31.2	-45.1	0.5	-95.2	-51.63	-13	-38.63	H
2.72155	53.16	Pk	32.3	-44.1	0.6	-95.2	-53.24	-13	-40.24	V
2.72252	51.91	Pk	32.3	-44.1	0.6	-95.2	-54.49	-13	-41.49	H
High Channel, 688MHz										
1.37553	54.78	Pk	29	-45.1	0.9	-95.2	-55.62	-13	-42.62	V
1.3771	54.89	Pk	29	-45.1	0.9	-95.2	-55.51	-13	-42.51	H
2.06312	54.87	Pk	31.7	-45.1	0.5	-95.2	-53.23	-13	-40.23	H
2.06439	55.15	Pk	31.7	-45.1	0.5	-95.2	-52.95	-13	-39.95	V
2.75171	53.73	Pk	32.4	-44.1	0.6	-95.2	-52.57	-13	-39.57	H
2.75403	54.82	Pk	32.5	-44.1	0.6	-95.2	-51.38	-13	-38.38	V

Pk - Peak detector

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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.

BPSK 5G NR n5 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/4/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n5 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 834MHz										
1.66714	56.47	Pk	28.4	-45	.7	-95.2	-54.63	-13	-41.63	H
1.6677	55.4	Pk	28.4	-45	.7	-95.2	-55.7	-13	-42.7	V
2.5018	54.93	Pk	32.3	-44.8	.6	-95.2	-52.17	-13	-39.17	V
2.50186	55.22	Pk	32.3	-44.8	.6	-95.2	-51.88	-13	-38.88	H
3.33526	50.64	Pk	32.3	-41.6	.5	-95.2	-53.36	-13	-40.36	H
3.33583	50.53	Pk	32.3	-41.6	.5	-95.2	-53.47	-13	-40.47	V
Mid Channel, 836.5MHz										
1.67179	56.24	Pk	28.4	-45	.7	-95.2	-54.86	-13	-41.86	H
1.67187	56.09	Pk	28.4	-45	.7	-95.2	-55.01	-13	-42.01	V
2.50733	54.83	Pk	32.3	-44.8	.7	-95.2	-52.17	-13	-39.17	H
2.50745	54.65	Pk	32.3	-44.8	.7	-95.2	-52.35	-13	-39.35	V
3.34747	51.06	Pk	32.2	-41.6	.5	-95.2	-53.04	-13	-40.04	H
3.34815	51.16	Pk	32.2	-41.6	.5	-95.2	-52.94	-13	-39.94	V
High Channel, 839MHz										
1.67775	58.02	Pk	28.5	-44.9	.7	-95.2	-52.88	-13	-39.88	H
1.67995	57.37	Pk	28.4	-44.9	.7	-95.2	-53.63	-13	-40.63	V
2.5156	51.85	Pk	32.3	-44.8	.7	-95.2	-55.15	-13	-42.15	V
2.51566	52.41	Pk	32.3	-44.8	.7	-95.2	-54.59	-13	-41.59	H
3.35655	53.74	Pk	32.2	-41.6	.6	-95.2	-50.26	-13	-37.26	H
3.35686	52.74	Pk	32.2	-41.6	.6	-95.2	-51.26	-13	-38.26	V

Pk - Peak detector

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.

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/16-3/24/2021
Test Engineer:	12491 GM, 50820 EC
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz									
5.02205	51.65	Pk	34	-42.8	-95.2	-52.35	-25	-27.35	H
7.53234	49.49	Pk	35.8	-39.4	-95.2	-49.31	-25	-24.31	H
10.04127	48.35	Pk	37.2	-36.5	-95.2	-46.15	-25	-21.15	H
5.01991	51.49	Pk	34	-42.8	-95.2	-52.51	-25	-27.51	V
7.52863	49.09	Pk	35.8	-39.4	-95.2	-49.71	-25	-24.71	V
10.0392	47.61	Pk	37.2	-36.5	-95.2	-46.89	-25	-21.89	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2535MHz									
5.0534	51.1	Pk	34.1	-42	-95.2	-51.4	-25	-26.4	H
7.57743	48.69	Pk	35.8	-38.6	-95.2	-48.81	-25	-23.81	H
10.11972	47.92	Pk	37.3	-36	-95.2	-45.28	-25	-20.28	H
5.0502	51.1	Pk	34.1	-42.1	-95.2	-51.5	-25	-26.5	V
10.11972	47.92	Pk	37.3	-36	-95.2	-45.28	-25	-20.28	V
10.15089	47.63	Pk	37.3	-36.2	-95.2	-45.87	-25	-20.87	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2560MHz									
5.11902	52.55	Pk	34.1	-42.8	-95.2	-51.35	-25	-26.25	H
7.68237	48.95	Pk	35.8	-38.9	-95.2	-49.35	-25	-24.35	H
10.24174	48.53	Pk	37.4	-37.1	-95.2	-46.37	-25	-21.37	H
5.11866	52.44	Pk	34	-42.8	-95.2	-51.56	-25	-26.56	V
7.67859	48.31	Pk	35.9	-38.8	-95.2	-49.79	-25	-24.79	V
10.24135	49.01	Pk	37.4	-37.1	-95.2	-45.89	-25	-20.89	V

Pk - Peak detector

BPSK 5G NR n7 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/5/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n7 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.03853	51.49	Pk	34	-41.8	.6	-95.2	-50.91	-25	-25.91	V
5.03871	51.86	Pk	34	-41.8	.6	-95.2	-50.54	-25	-25.54	H
7.55887	48.97	Pk	36.2	-38.9	.3	-95.2	-48.63	-25	-23.63	H
7.55966	49.28	Pk	36.2	-38.9	.3	-95.2	-48.32	-25	-23.32	V
10.07928	47.58	Pk	37.3	-36.8	.6	-95.2	-46.52	-25	-21.52	H
10.08211	47.24	Pk	37.3	-36.7	.6	-95.2	-46.76	-25	-21.76	V
Mid Channel, 2535MHz										
5.0699	51.76	Pk	34.3	-41.7	.7	-95.2	-50.14	-25	-25.14	V
5.07207	50.9	Pk	34.3	-41.7	.7	-95.2	-51	-25	-26	H
7.60628	49.34	Pk	36.2	-38.7	.4	-95.2	-47.96	-25	-22.96	V
7.60645	50.15	Pk	36.2	-38.7	.4	-95.2	-47.15	-25	-22.15	H
10.13953	47.63	Pk	37.3	-36.4	.7	-95.2	-45.97	-25	-20.97	V
10.14058	47.42	Pk	37.3	-36.4	.6	-95.2	-46.28	-25	-21.28	H
High Channel, 2550MHz										
5.06128	52.37	Pk	34.3	-41.8	0.6	-95.2	-49.73	-25	-24.73	V
5.06214	51.26	Pk	34.3	-41.8	.6	-95.2	-50.84	-25	-25.84	H
7.64944	48.29	Pk	36.1	-38.5	.3	-95.2	-49.01	-25	-24.01	H
7.65113	48.75	Pk	36.1	-38.5	.3	-95.2	-48.55	-25	-23.55	V
10.19915	46.85	Pk	37.4	-36.5	.8	-95.2	-46.65	-25	-21.65	H
10.19996	47.26	Pk	37.4	-36.5	.8	-95.2	-46.24	-25	-21.24	V

Pk - Peak detector

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.

QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/10-3/22/2021
Test Engineer:	19226 AR, 50820 EC
Configuration:	EUT Only
Mode	LTE B12 QPSK 10MHZ
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 704MHz										
1.40919	55.08	Pk	28.5	-46.1	0.9	-95.2	-56.82	-13	-43.82	H
2.11146	55.75	Pk	31.5	-45.7	0.5	-95.2	-53.15	-13	-40.15	H
2.81559	55.62	Pk	31.9	-45	0.5	-95.2	-52.18	-13	-39.18	H
1.40816	55.57	Pk	28.5	-46.1	0.9	-95.2	-56.33	-13	-43.33	V
2.1133	55.46	Pk	31.6	-45.7	0.5	-95.2	-53.34	-13	-40.34	V
2.81812	55.86	Pk	32	-45	0.5	-95.2	-51.84	-13	-38.84	V
Mid Channel, 707.5MHz										
1.42063	57.94	Pk	28.4	-46	0.9	-95.2	-53.96	-13	-40.96	H
2.12011	56.19	Pk	31.6	-45.6	0.5	-95.2	-52.51	-13	-39.51	H
2.81968	55.76	Pk	32	-45	0.5	-95.2	-51.94	-13	-38.94	H
1.42113	57.65	Pk	28.4	-46	0.9	-95.2	-54.25	-13	-41.25	V
2.12056	56.37	Pk	31.6	-45.6	0.5	-95.2	-52.33	-13	-39.33	V
2.81721	56.04	Pk	31.9	-45	0.5	-95.2	-51.76	-13	-38.76	V
Low Channel, 711MHz										
1.42405	58.01	Pk	28.4	-45.9	0.9	-95.2	-53.79	-13	-40.79	H
2.13229	56.26	Pk	31.7	-45.6	0.5	-95.2	-52.34	-13	-39.34	H
2.84207	54.35	Pk	32.2	-44.9	0.5	-95.2	-53.05	-13	-40.05	H
1.42362	58.17	Pk	28.4	-45.9	0.9	-95.2	-53.63	-13	-40.63	V
2.13158	56.11	Pk	31.7	-45.6	0.5	-95.2	-52.49	-13	-39.49	V
2.84329	54.19	Pk	32.2	-44.9	0.5	-95.2	-53.21	-13	-40.21	V

Pk - Peak detector

BPSK 5G NR n12 (15.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/29/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n12 BPSK 15MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 706.5MHz										
1.41172	57.08	Pk	28.6	-45	0.9	-95.2	-53.62	-13	-40.62	H
1.41332	57.84	Pk	28.5	-45	0.9	-95.2	-52.96	-13	-39.96	V
2.1185	52.48	Pk	31.6	-45.2	0.5	-95.2	-55.82	-13	-42.82	V
2.12062	51.89	Pk	31.6	-45.2	0.5	-95.2	-56.41	-13	-43.41	H
2.8248	55.33	Pk	32.8	-43.8	0.5	-95.2	-50.37	-13	-37.37	V
2.82524	55.73	Pk	32.8	-43.8	0.5	-95.2	-49.97	-13	-36.97	H
Mid Channel, 707.5MHz										
1.41495	57.49	Pk	28.5	-45	0.9	-95.2	-53.31	-13	-40.31	V
1.41573	56.89	Pk	28.5	-45	0.5	-95.2	-54.31	-13	-41.31	H
2.12205	52.29	Pk	31.6	-45.2	0.5	-95.2	-56.01	-13	-43.01	H
2.12328	53.14	Pk	31.6	-45.2	0.9	-95.2	-54.76	-13	-41.76	V
2.83168	54.77	Pk	32.8	-43.7	0.5	-95.2	-50.83	-13	-37.83	H
2.83178	54.46	Pk	32.8	-43.7	0.5	-95.2	-51.14	-13	-38.14	V
High Channel, 708.5MHz										
1.41615	57.39	Pk	28.5	-45	0.9	-95.2	-53.41	-13	-40.41	V
1.41687	56.53	Pk	28.5	-45	0.9	-95.2	-54.27	-13	-41.27	H
2.12595	53.4	Pk	31.7	-45.2	0.5	-95.2	-54.8	-13	-41.8	H
2.12678	53.77	Pk	31.7	-45.2	0.5	-95.2	-54.43	-13	-41.43	V
2.83322	54.12	Pk	32.7	-43.7	0.5	-95.2	-51.58	-13	-38.58	V
2.83416	54.54	Pk	32.7	-43.6	0.5	-95.2	-51.06	-13	-38.06	H

Pk - Peak detector

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.

QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/10/2021
Test Engineer:	19226 A
Configuration:	EUT Only
Mode	LTE Band 13 QPSK 10MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 782MHz										
*1.56561	56.17	Pk	27.8	-46	0.7	-95.2	-56.53	-40	-16.53	H
2.33247	55.62	Pk	31.9	-45.4	0.5	-95.2	-52.58	-13	-39.58	H
3.12759	54.28	Pk	32.9	-44.1	0.4	-95.2	-51.72	-13	-38.72	H
1.56477	56.14	Pk	27.8	-46	0.7	-95.2	-56.56	-40	-16.56	V
2.33291	56.54	Pk	31.9	-45.4	0.5	-95.2	-51.66	-13	-38.66	V
3.1273	54.5	Pk	32.9	-44.1	0.4	-95.2	-51.5	-13	-38.5	V

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

Pk - Peak detector

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

QPSK LTE BAND 14 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/10/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B14 QPSK 10MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 793MHz										
1.58624	55.82	Pk	28.2	-46	0.7	-95.2	-56.48	-40	-16.48	H
2.37798	56.09	Pk	32.3	-45.5	0.5	-95.2	-51.81	-13	-38.81	H
3.17175	54.75	Pk	32.9	-44	0.4	-95.2	-51.15	-13	-38.15	H
1.58611	56.86	Pk	28.2	-46	0.7	-95.2	-55.44	-40	-15.44	V
2.37994	55.65	Pk	32.4	-45.5	0.5	-95.2	-52.15	-13	-39.15	V
3.17214	54.17	Pk	32.9	-44	0.4	-95.2	-51.73	-13	-38.73	V

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

Pk - Peak detector

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.

QPSK LTE BAND 17 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/10/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B17 QPSK 10MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 710MHz										
1.42119	57.62	Pk	28.4	-46	0.9	-95.2	-54.28	-13	-41.28	H
2.1296	55.79	Pk	31.7	-45.6	0.5	-95.2	-52.81	-13	-39.81	H
2.83876	54.35	Pk	32.2	-44.9	0.5	-95.2	-53.05	-13	-40.05	H
1.41972	57.29	Pk	28.4	-46	0.9	-95.2	-54.61	-13	-41.61	V
2.12872	56.04	Pk	31.7	-45.6	0.5	-95.2	-52.56	-13	-39.56	V
2.84169	54.3	Pk	32.2	-44.9	0.5	-95.2	-53.1	-13	-40.1	V

Pk - Peak detector

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.

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/12-3/23/2021
Test Engineer:	19226 AR, 50820 EC
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.72066	52.81	Pk	33.5	-42.9	-95.2	-51.79	-13	-38.79	H
5.58043	50.22	Pk	34.4	-41.6	-95.2	-52.18	-13	-39.18	H
7.4415	49.11	Pk	35.8	-39.7	-95.2	-49.99	-13	-36.99	H
3.71974	53.17	Pk	33.6	-42.9	-95.2	-51.33	-13	-38.33	V
5.58146	51.47	Pk	34.4	-41.6	-95.2	-50.93	-13	-37.93	V
7.43906	49.05	Pk	35.8	-39.6	-95.2	-49.95	-13	-36.95	V
Mid Channel, 1882.5MHz									
3.76466	51.77	Pk	33.5	-42.9	-95.2	-52.83	-13	-39.83	H
5.64618	51.25	Pk	34.7	-41.5	-95.2	-50.75	-13	-37.75	H
7.52857	48.6	Pk	35.8	-39.4	-95.2	-50.2	-13	-37.2	H
3.76592	52.34	Pk	33.5	-42.9	-95.2	-52.26	-13	-39.26	V
5.64626	51.09	Pk	34.7	-41.5	-95.2	-50.91	-13	-37.91	V
7.52947	49.35	Pk	35.8	-39.4	-95.2	-49.45	-13	-36.45	V
High Channel, 1905MHz									
3.81006	52.45	Pk	33.5	-42.8	-95.2	-52.05	-13	-39.05	H
5.71648	50.64	Pk	34.7	-41.3	-95.2	-51.16	-13	-38.16	H
7.622	48.03	Pk	35.9	-39.1	-95.2	-50.37	-13	-37.37	H
3.80887	52.04	Pk	33.5	-42.7	-95.2	-52.36	-13	-39.36	V
5.7155	50.04	Pk	34.7	-41.3	-95.2	-51.76	-13	-38.76	V
7.61913	48.36	Pk	35.9	-39.1	-95.2	-50.04	-13	-37.04	V

Pk - Peak detector

BPSK 5G NR n25 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/5/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.73887	50.64	Pk	33.2	-40.9	.7	-95.2	-51.56	-13	-38.56	H
3.742	50.46	Pk	33.2	-40.9	.6	-95.2	-51.84	-13	-38.84	V
5.60819	48.58	Pk	34.3	-39	.5	-95.2	-50.82	-13	-37.82	H
5.61098	49.7	Pk	34.3	-39	.5	-95.2	-49.7	-13	-36.7	V
7.48074	46.36	Pk	35.5	-37	.4	-95.2	-49.94	-13	-36.94	H
7.48246	46.12	Pk	35.5	-37	.4	-95.2	-50.18	-13	-37.18	V
Mid Channel, 1882.5MHz										
3.76345	50.15	Pk	33.3	-41	.6	-95.2	-52.15	-13	-39.15	V
3.76606	50.77	Pk	33.3	-41	.6	-95.2	-51.53	-13	-38.53	H
5.64673	47.98	Pk	34.3	-39	.5	-95.2	-51.42	-13	-38.42	H
5.64847	48.49	Pk	34.3	-39	.5	-95.2	-50.91	-13	-37.91	V
7.52821	46.37	Pk	35.6	-36.9	.4	-95.2	-49.73	-13	-36.73	H
7.53014	46.79	Pk	35.6	-36.9	.4	-95.2	-49.31	-13	-36.31	V
High Channel, 1895MHz										
3.78915	50.24	Pk	33.2	-40.9	.7	-95.2	-51.96	-13	-38.96	H
3.7898	50.37	Pk	33.2	-40.9	.7	-95.2	-51.83	-13	-38.83	V
5.6851	48.29	Pk	34.3	-38.9	.5	-95.2	-51.01	-13	-38.01	H
5.68596	48.26	Pk	34.3	-38.9	.5	-95.2	-51.04	-13	-38.04	V
7.57807	46.83	Pk	35.5	-36.7	.5	-95.2	-49.07	-13	-36.07	V
7.57931	46.98	Pk	35.5	-36.7	.5	-95.2	-48.92	-13	-35.92	H

Pk - Peak detector

10.3.8. LTE BAND 26 (FCC 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 #:	13571601
Date:	3/11/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 26(90S) QPSK 10MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 819MHz										
1.6375	55.84	Pk	28.4	-46	0.6	-95.2	-56.36	-13	-43.36	H
2.45589	55.78	Pk	32.2	-45.4	0.5	-95.2	-52.12	-13	-39.12	H
3.27784	53.97	Pk	32.7	-43.8	0.5	-95.2	-51.83	-13	-38.83	H
1.6368	55.9	Pk	28.4	-46	0.6	-95.2	-56.3	-13	-43.3	V
2.45564	55.33	Pk	32.2	-45.4	0.5	-95.2	-52.57	-13	-39.57	V
3.2753	54.47	Pk	32.6	-43.8	0.5	-95.2	-51.43	-13	-38.43	V

Pk - Peak detector

10.3.9. LTE BAND 26 (FCC 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 #:	13571601
Date:	3/11/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 26 (Part 22) QPSK 10MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 829MHz										
1.66385	54.4	Pk	28.4	-44.6	.8	-95.2	-56.2	-13	-43.2	H
2.49461	54.39	Pk	32.6	-43.9	.6	-95.2	-51.51	-13	-38.51	H
3.3262	50.49	Pk	32.3	-40.9	.6	-95.2	-52.71	-13	-39.71	H
1.66325	54.76	Pk	28.4	-44.5	.8	-95.2	-55.74	-13	-42.74	V
2.49344	52.97	Pk	32.6	-44	.6	-95.2	-53.03	-13	-40.03	V
3.32455	50.52	Pk	32.4	-40.9	.6	-95.2	-52.58	-13	-39.58	V
Mid Channel, 831.5MHz										
1.67225	56.7	Pk	29.1	-46	0.6	-95.2	-54.8	-13	-41.8	H
2.50983	55.51	Pk	32.1	-45.4	0.5	-95.2	-52.49	-13	-39.49	H
3.34605	53.63	Pk	32.7	-43.6	0.5	-95.2	-51.97	-13	-38.97	H
1.67244	56.98	Pk	29.1	-46	0.6	-95.2	-54.52	-13	-41.52	V
2.50831	55.65	Pk	32.1	-45.4	0.5	-95.2	-52.35	-13	-39.35	V
3.34553	53.75	Pk	32.7	-43.6	0.5	-95.2	-51.85	-13	-38.85	V
High Channel, 844MHz										
1.68528	55.13	Pk	28.5	-44.5	.7	-95.2	-55.37	-13	-42.37	H
2.5245	53.91	Pk	32.6	-43.8	.8	-95.2	-51.69	-13	-38.69	H
3.36634	50.57	Pk	32.2	-40.8	.6	-95.2	-52.63	-13	-39.63	H
1.68162	54.12	Pk	28.5	-44.6	.7	-95.2	-56.48	-13	-43.48	V
2.52497	54.17	Pk	32.6	-43.9	.8	-95.2	-51.53	-13	-38.53	V
3.36689	50.47	Pk	32.2	-40.9	.6	-95.2	-52.83	-13	-39.83	V

Pk - Peak detector

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 #:	13571601
Date:	3/16/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.62036	47.44	Pk	33.9	-42.2	.6	-95.2	-55.46	-40	-15.46	H
6.9303	44.14	Pk	35.6	-38.5	.4	-95.2	-53.56	-40	-13.56	H
9.24073	46.59	Pk	36	-36.2	.7	-95.2	-48.11	-40	-8.11	H
4.62036	45.98	Pk	33.9	-42.2	.6	-95.2	-56.92	-40	-16.92	V
6.9303	43.91	Pk	35.6	-38.5	.4	-95.2	-53.79	-40	-13.79	V
9.24073	44.1	Pk	36	-36.2	.7	-95.2	-50.6	-40	-10.6	V

Pk - Peak detector

BPSK 5G NR n30 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/6/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n30 BPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61512	57.95	Pk	33.9	-42.2	0.6	-95.2	-44.95	-40	-4.95	H
4.61859	51.95	Pk	33.9	-42.2	0.6	-95.2	-50.95	-40	-10.95	V
6.92941	47.87	Pk	35.6	-38.4	0.4	-95.2	-49.73	-40	-9.73	V
6.93217	48.31	Pk	35.6	-38.4	0.4	-95.2	-49.29	-40	-9.29	H
9.23863	47.06	Pk	36	-36	0.7	-95.2	-47.44	-40	-7.44	V
9.23986	46.81	Pk	36	-36	0.7	-95.2	-47.69	-40	-7.69	H

Pk - Peak detector

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.

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/16-3/24/2021
Test Engineer:	124921 GM, 50820 EC
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	Q, O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz									
5.0135	51.53	Pk	34.1	-42.8	-95.2	-52.37	-25	-27.37	H
7.51925	48.79	Pk	35.7	-39.4	-95.2	-50.11	-25	-25.11	H
10.02255	47.41	Pk	37.2	-36.6	-95.2	-47.19	-25	-22.19	H
5.01049	51.83	Pk	34	-42.8	-95.2	-52.17	-25	-27.17	V
7.5197	48.72	Pk	35.7	-39.4	-95.2	-50.18	-25	-25.18	V
10.02329	47.11	Pk	37.2	-36.6	-95.2	-47.49	-25	-22.49	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2593MHz										
5.16094	46.9	Pk	34.2	-41.7	.8	-95.2	-55	-25	-30	H
7.75222	50.25	Pk	35.9	-38.5	.3	-95.2	-47.25	-25	-22.25	H
10.34391	47.15	Pk	37.5	-36.6	.7	-95.2	-46.45	-25	-21.45	H
5.16281	48.4	Pk	34.2	-41.7	.7	-95.2	-53.6	-25	-28.6	V
7.75226	52.55	Pk	35.9	-38.5	.3	-95.2	-44.95	-25	-19.95	V
10.34391	47.12	Pk	37.5	-36.6	.7	-95.2	-46.48	-25	-21.48	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2680MHz									
5.35988	50.8	Pk	34.6	-42.1	-95.2	-51.9	-25	-26.9	H
8.03869	49.23	Pk	35.8	-38.3	-95.2	-48.47	-25	-23.47	H
10.72055	47.99	Pk	37.9	-36.4	-95.2	-45.71	-25	-20.71	H
5.35934	51.11	Pk	34.6	-42.1	-95.2	-51.59	-25	-26.59	V
8.04212	48.59	Pk	35.8	-38.3	-95.2	-49.11	-25	-24.11	V
10.72023	48.05	Pk	37.9	-36.4	-95.2	-45.65	-25	-20.65	V

Pk - Peak detector

BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/11-5/14/2021
Test Engineer:	19226 AR, 50820 EC
Configuration:	EUT Only
Mode	5G NR n41 BPSK 100MHz
Chamber #:	N, P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213971	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09126	53.16	Pk	34.2	-43.4	.8	-95.2	-50.44	-25	-25.44	V
5.0921	52.3	Pk	34.2	-43.4	.8	-95.2	-51.3	-25	-26.3	H
7.63748	50.49	Pk	35.9	-41.1	.4	-95.2	-49.51	-25	-24.51	H
7.63928	50.46	Pk	35.9	-41.1	.4	-95.2	-49.54	-25	-24.54	V
10.18399	50.9	Pk	37.3	-40.4	.6	-95.2	-46.8	-25	-21.8	V
10.18544	50.92	Pk	37.3	-40.4	.6	-95.2	-46.78	-25	-21.78	H
Mid Channel, 2593MHz										
5.18437	52.35	Pk	34.3	-43.2	.7	-95.2	-51.05	-25	-26.05	H
5.18563	52.31	Pk	34.3	-43.2	.8	-95.2	-50.99	-25	-25.99	V
7.78068	50.65	Pk	35.9	-40.9	.3	-95.2	-49.25	-25	-24.25	V
7.78125	50.21	Pk	35.9	-40.9	.3	-95.2	-49.69	-25	-24.69	H
10.37255	52.06	Pk	37.5	-40.1	.8	-95.2	-44.94	-25	-19.94	H
10.37438	51.73	Pk	37.5	-40.2	.8	-95.2	-45.37	-25	-20.37	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 2640MHz										
5.27852	49.8	Pk	34.3	-39.8	.3	-95.2	-50.6	-25	-25.6	V
5.27984	49.33	Pk	34.3	-40	.3	-95.2	-51.27	-25	-26.27	H
7.91813	46.91	Pk	35.7	-36.5	.2	-95.2	-48.89	-25	-23.89	V
7.92098	46.94	Pk	35.7	-36.4	.2	-95.2	-48.76	-25	-23.76	H
10.5612	46.3	Pk	37.5	-35	.7	-95.2	-45.7	-25	-20.7	H
10.56125	46.62	Pk	37.5	-35	.7	-95.2	-45.38	-25	-20.38	V

Pk - Peak detector

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.

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/12-3/23/2021
Test Engineer:	19226 AR, 50820 EC
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHZ
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.44084	53.22	Pk	32.8	-43.4	-95.2	-52.58	-13	-39.58	H
5.15923	52.56	Pk	34.2	-42.7	-95.2	-51.14	-13	-38.14	H
6.87834	49.69	Pk	35.7	-40.3	-95.2	-50.11	-13	-37.11	H
3.44065	52.86	Pk	32.8	-43.4	-95.2	-52.94	-13	-39.94	V
5.1597	52.09	Pk	34.2	-42.7	-95.2	-51.61	-13	-38.61	V
6.8782	49.99	Pk	35.7	-40.3	-95.2	-49.81	-13	-36.81	V
Mid Channel, 1745MHz									
3.48998	53.42	Pk	32.8	-43.3	-95.2	-52.28	-13	-39.68	H
5.23641	51.89	Pk	34.4	-42.6	-95.2	-51.51	-13	-38.51	H
6.9787	49.92	Pk	35.7	-40.3	-95.2	-49.88	-13	-36.88	H
3.49065	53.02	Pk	32.8	-43.3	-95.2	-52.68	-13	-39.68	V
5.23577	51.76	Pk	34.4	-42.6	-95.2	-51.64	-13	-38.64	V
6.9819	49.69	Pk	35.7	-40.4	-95.2	-50.21	-13	-37.21	V
High Channel, 1770MHz									
3.54191	53.68	Pk	32.7	-43.2	-95.2	-52.02	-13	-39.02	H
5.30849	52.04	Pk	34.5	-42.3	-95.2	-50.96	-13	-37.96	H
7.07816	49.15	Pk	35.7	-40.2	-95.2	-50.55	-13	-37.55	H
3.53986	53.82	Pk	32.7	-43.2	-95.2	-51.88	-13	-38.88	V
5.31122	51.58	Pk	34.5	-42.3	-95.2	-51.42	-13	-38.42	V
7.08085	49.44	Pk	35.7	-40.2	-95.2	-50.26	-13	-37.26	V

Pk - Peak detector

BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/6/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45976	50.87	Pk	32.5	-40.9	.6	-95.2	-52.13	-13	-39.13	V
3.46008	50.9	Pk	32.5	-40.9	.6	-95.2	-52.1	-13	-39.1	H
5.19	49.3	Pk	34.1	-40.4	.5	-95.2	-51.7	-13	-38.7	V
5.19031	49.31	Pk	34.1	-40.4	.5	-95.2	-51.69	-13	-38.69	H
6.91953	47.82	Pk	35.5	-38.4	.5	-95.2	-49.78	-13	-36.78	H
6.92171	47.61	Pk	35.5	-38.4	.5	-95.2	-49.99	-13	-36.99	V
Mid Channel, 1745MHz										
3.4891	50.67	Pk	32.6	-41	.7	-95.2	-52.23	-13	-39.23	H
3.49255	50.57	Pk	32.6	-40.9	.7	-95.2	-52.23	-13	-39.23	V
5.20369	54.67	Pk	34	-40.3	.5	-95.2	-46.33	-13	-33.33	V
5.20414	58.08	Pk	34	-40.3	.5	-95.2	-42.92	-13	-29.92	H
6.97966	47.93	Pk	35.5	-38.2	.5	-95.2	-49.47	-13	-36.47	H
6.98007	47.99	Pk	35.5	-38.2	.5	-95.2	-49.41	-13	-36.41	V
High Channel, 1760MHz										
3.52013	50.78	Pk	32.8	-40.9	.8	-95.2	-51.72	-13	-38.72	H
3.52207	51.27	Pk	32.8	-40.9	.8	-95.2	-51.23	-13	-38.23	V
5.27579	53.98	Pk	34.2	-39.8	.6	-95.2	-46.22	-13	-33.22	H
5.27581	52.54	Pk	34.2	-39.8	.6	-95.2	-47.66	-13	-34.66	V
7.04049	47.97	Pk	35.6	-38.1	.5	-95.2	-49.23	-13	-36.23	H
7.04218	47.96	Pk	35.6	-38.2	.5	-95.2	-49.34	-13	-36.34	V

Pk - Peak detector

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.

QPSK LTE BAND 71 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/11-3/23/2021
Test Engineer:	19226 AR, 50820 EC
Configuration:	EUT Only
Mode	LTE B71 QPSK 20MHz
Chamber #:	O, Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34491	54.65	Pk	29.1	-46.2	1	-95.2	-56.65	-13	-43.65	H
2.01786	55.78	Pk	30.8	-45.6	0.5	-95.2	-53.72	-13	-40.72	H
2.69035	56.26	Pk	32.5	-45.1	0.5	-95.2	-51.04	-13	-38.04	H
1.34536	54.67	Pk	29.1	-46.2	1	-95.2	-56.63	-13	-43.63	V
2.01989	56.37	Pk	30.9	-45.6	0.5	-95.2	-53.03	-13	-40.03	V
2.69192	56.15	Pk	32.5	-45.1	0.5	-95.2	-51.15	-13	-38.15	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 683MHz										
1.36034	57.14	Pk	29.4	-46.1	1	-95.2	-53.76	-13	-40.76	H
2.04047	55.74	Pk	31.3	-45.7	0.5	-95.2	-53.36	-13	-40.36	H
2.7226	54.19	Pk	32.4	-45.1	0.5	-95.2	-53.21	-13	-40.21	H
1.36011	56.88	Pk	29.4	-46.1	1	-95.2	-54.02	-13	-41.02	V
2.04249	55.48	Pk	31.3	-45.7	0.5	-95.2	-53.62	-13	-40.62	V
2.72103	54.12	Pk	32.4	-45.1	0.5	-95.2	-53.28	-13	-40.28	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	1.2G HPF PRE0182423	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
High Channel, 688MHz										
1.37529	56.8	Pk	29.5	-46.1	1	-95.2	-54	-13	-41	H
2.06328	56.01	Pk	31.3	-45.7	0.5	-95.2	-53.09	-13	-40.09	H
2.75181	55.93	Pk	32.2	-45.1	0.5	-95.2	-51.67	-13	-38.67	H
1.37472	57.22	Pk	29.5	-46.1	1	-95.2	-53.58	-13	-40.58	V
2.06335	55.88	Pk	31.3	-45.7	0.5	-95.2	-53.22	-13	-40.22	V
2.75383	56.63	Pk	32.2	-45.1	0.5	-95.2	-50.97	-13	-37.97	V

Pk - Peak detector

BPSK 5G NR n71 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/28/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n71 BPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 673MHz										
1.34464	57.74	Pk	29.3	-45.1	1	-95.2	-52.26	-13	-39.26	V
1.34519	48.24	Avg	29.3	-45.1	1	-95.2	-61.76	-13	-48.76	H
2.01783	56.66	Pk	31.2	-45	0.5	-95.2	-51.84	-13	-38.84	H
2.01949	56.91	Pk	31.3	-45.1	0.5	-95.2	-51.59	-13	-38.59	V
2.69063	55.49	Pk	32.1	-44.3	0.5	-95.2	-51.41	-13	-38.41	H
2.69135	55.84	Pk	32.1	-44.3	0.5	-95.2	-51.06	-13	-38.06	V
Mid Channel, 680.5MHz										
1.36077	54.57	Pk	29.3	-45.1	1	-95.2	-55.43	-13	-42.43	V
1.36091	53.85	Pk	29.3	-45.1	1	-95.2	-56.15	-13	-43.15	H
2.03972	52.37	Pk	31.5	-45.1	0.5	-95.2	-55.93	-13	-42.93	H
2.04034	52.69	Pk	31.5	-45.1	0.5	-95.2	-55.61	-13	-42.61	V
2.72043	51.75	Pk	32.4	-44.1	0.5	-95.2	-54.65	-13	-41.65	V
2.72378	51.11	Pk	32.3	-44.1	0.5	-95.2	-55.39	-13	-42.39	H
High Channel, 688MHz										
1.37625	50.87	Pk	29	-45.1	1	-95.2	-59.43	-13	-46.43	V
1.37766	51.44	Pk	29	-45.1	1	-95.2	-58.86	-13	-45.86	H
2.06383	55.11	Pk	31.7	-45.1	0.5	-95.2	-52.99	-13	-39.99	V
2.06559	55	Pk	31.7	-45.1	0.5	-95.2	-53.1	-13	-40.1	H
2.75089	56.64	Pk	32.4	-44.1	0.5	-95.2	-49.76	-13	-36.76	H
2.7519	55.96	Pk	32.4	-44.1	0.5	-95.2	-50.44	-13	-37.44	V

Pk - Peak detector

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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.

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/19/2021
Test Engineer:	18868 GM
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	A

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.05172	38.23	Pk	34.3	-26.3	.6	-95.2	-48.37	-25	-23.37	H
5.06766	35.54	Pk	34.3	-26	.6	-95.2	-50.76	-25	-25.76	V
7.61813	33.52	Pk	35.8	-22.5	.4	-95.2	-47.98	-25	-22.98	V
7.62234	34.13	Pk	35.9	-22.4	.4	-95.2	-47.17	-25	-22.17	H
10.14984	31.59	Pk	37.5	-20.5	.6	-95.2	-46.01	-25	-21.01	H
10.15828	31.71	Pk	37.5	-20.4	.6	-95.2	-45.79	-25	-20.79	V
Mid Channel, 2535MHz										
5.05172	38.23	Pk	34.3	-26.3	.6	-95.2	-48.37	-25	-23.37	H
5.06766	35.54	Pk	34.3	-26	.6	-95.2	-50.76	-25	-25.76	V
7.61813	33.52	Pk	35.8	-22.5	.4	-95.2	-47.98	-25	-22.98	V
7.62234	34.13	Pk	35.9	-22.4	.4	-95.2	-47.17	-25	-22.17	H
10.14984	31.59	Pk	37.5	-20.5	.6	-95.2	-46.01	-25	-21.01	H
10.15828	31.71	Pk	37.5	-20.4	.6	-95.2	-45.79	-25	-20.79	V
High Channel, 2560MHz										
5.11641	34.73	Pk	34.5	-26.4	.8	-95.2	-51.57	-25	-26.57	V
5.13844	34.75	Pk	34.6	-26.2	.8	-95.2	-51.25	-25	-26.25	H
7.62516	33.12	Pk	35.9	-22.4	.4	-95.2	-48.18	-25	-23.18	H
7.62984	33.89	Pk	35.9	-22.3	.4	-95.2	-47.31	-25	-22.31	V
10.23469	31.51	Pk	37.6	-20	.8	-95.2	-45.29	-25	-20.29	H
10.23563	31.21	Pk	37.6	-20	.8	-95.2	-45.59	-25	-20.59	V

Pk - Peak detector

BPSK 5G NR n7 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/6/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n7 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.04137	51.88	Pk	34	-41.9	.6	-95.2	-50.62	-25	-25.62	V
5.04153	52.17	Pk	34	-41.9	.6	-95.2	-50.33	-25	-25.33	H
7.55863	49.48	Pk	36.2	-38.9	.3	-95.2	-48.12	-25	-23.12	H
7.56186	49.5	Pk	36.2	-38.9	.4	-95.2	-48	-25	-23	V
10.07966	47.34	Pk	37.3	-36.8	.6	-95.2	-46.76	-25	-21.76	V
10.0817	47.56	Pk	37.3	-36.7	.6	-95.2	-46.44	-25	-21.44	H
Mid Channel, 2535MHz										
5.06972	51.69	Pk	34.3	-41.7	.7	-95.2	-50.21	-25	-25.21	H
5.07118	52.37	Pk	34.3	-41.8	.7	-95.2	-49.63	-25	-24.63	V
7.60405	49.38	Pk	36.2	-38.7	.4	-95.2	-47.92	-25	-22.92	V
7.6054	49.35	Pk	36.2	-38.7	.4	-95.2	-47.95	-25	-22.95	H
10.13951	47.38	Pk	37.3	-36.4	.7	-95.2	-46.22	-25	-21.22	H
10.14155	47.35	Pk	37.3	-36.4	.6	-95.2	-46.35	-25	-21.35	V
High Channel, 2550MHz										
5.09988	52.12	Pk	34.5	-41.7	.8	-95.2	-49.48	-25	-24.48	H
5.10109	52.6	Pk	34.5	-41.6	.8	-95.2	-48.9	-25	-23.9	V
7.64879	48.95	Pk	36.1	-38.5	.3	-95.2	-48.35	-25	-23.35	V
7.65171	49.04	Pk	36.1	-38.5	.3	-95.2	-48.26	-25	-23.26	H
10.19961	47.45	Pk	37.4	-36.5	.8	-95.2	-46.05	-25	-21.05	H
10.20052	47.37	Pk	37.4	-36.5	.8	-95.2	-46.13	-25	-21.13	V

Pk - Peak detector

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.

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/26/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.71908	40.72	Pk	33.6	-31	-95.2	-51.88	-13	-38.88	H
5.58047	38.73	Pk	34.4	-29.5	-95.2	-51.57	-13	-38.57	H
7.44137	36.57	Pk	35.8	-27.6	-95.2	-50.43	-13	-37.43	H
3.71964	41.06	Pk	33.6	-31.2	-95.2	-51.74	-13	-38.74	V
5.58018	39.62	Pk	34.4	-29.5	-95.2	-50.68	-13	-37.68	V
7.44054	37.24	Pk	35.8	-27.6	-95.2	-49.76	-13	-36.76	V
Mid Channel, 1882.5MHz									
3.76707	39.96	Pk	33.5	-31.4	-95.2	-53.14	-13	-40.14	H
5.64682	38.58	Pk	34.7	-29.4	-95.2	-51.32	-13	-38.32	H
7.52997	37.19	Pk	35.8	-27.6	-95.2	-49.81	-13	-36.81	H
3.76593	39.96	Pk	33.5	-31.2	-95.2	-52.94	-13	-39.94	V
5.64727	38.91	Pk	34.7	-29.3	-95.2	-50.89	-13	-37.89	V
7.52876	37.27	Pk	35.8	-27.6	-95.2	-49.73	-13	-36.73	V
High Channel, 1905MHz									
3.81177	40.64	Pk	33.5	-31.6	-95.2	-52.66	-13	-39.66	H
5.68831	39.38	Pk	34.7	-28.8	-95.2	-49.92	-13	-36.92	H
7.61979	36.39	Pk	35.9	-26.9	-95.2	-49.81	-13	-36.81	H
3.80946	40.61	Pk	33.5	-31.3	-95.2	-52.39	-13	-39.39	V
5.68857	39.16	Pk	34.7	-29	-95.2	-50.34	-13	-37.34	V
7.62174	37.45	Pk	35.9	-27	-95.2	-48.85	-13	-35.85	V

Pk - Peak detector

BPSK 5G NR n25 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/7/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.47073	50.55	Pk	32.6	-40.7	.6	-95.2	-52.15	-13	-39.15	V
3.47176	50.18	Pk	32.6	-40.8	.6	-95.2	-52.62	-13	-39.62	H
5.60898	48.43	Pk	34.3	-39	.5	-95.2	-50.97	-13	-37.97	V
5.61051	48.57	Pk	34.3	-39	.5	-95.2	-50.83	-13	-37.83	H
7.48037	47.02	Pk	35.5	-37	.4	-95.2	-49.28	-13	-36.28	V
7.48254	47.31	Pk	35.5	-37	.4	-95.2	-48.99	-13	-35.99	H
Mid Channel, 1882.5MHz										
3.76447	50.86	Pk	33.3	-41	.6	-95.2	-51.44	-13	-38.44	H
3.76477	50.31	Pk	33.3	-41	.6	-95.2	-51.99	-13	-38.99	V
5.64623	48.44	Pk	34.3	-39	.5	-95.2	-50.96	-13	-37.96	H
5.64667	48.32	Pk	34.3	-39	.5	-95.2	-51.08	-13	-38.08	V
7.53012	46.97	Pk	35.6	-36.9	.4	-95.2	-49.13	-13	-36.13	V
7.53047	47.02	Pk	35.6	-36.9	.4	-95.2	-49.08	-13	-36.08	H
High Channel, 1895MHz										
3.78908	50.36	Pk	33.2	-40.9	.7	-95.2	-51.84	-13	-38.84	H
3.79192	50.82	Pk	33.2	-40.9	.7	-95.2	-51.38	-13	-38.38	V
5.68082	56.43	Pk	34.3	-38.9	.5	-95.2	-42.87	-13	-29.87	V
5.68088	52.32	Pk	34.3	-38.9	.5	-95.2	-46.98	-13	-33.98	H
7.58061	46.98	Pk	35.5	-36.7	.5	-95.2	-48.92	-13	-35.92	V
7.58164	46.75	Pk	35.5	-36.7	.5	-95.2	-49.15	-13	-36.15	H

Pk - Peak detector

10.4.3. 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 #:	13571601
Date:	4/16/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.62036	48.8	Pk	33.9	-42.2	.6	-95.2	-54.1	-40	-14.10	H
4.62036	47.51	Pk	33.9	-42.2	.6	-95.2	-55.39	-40	-15.39	V
6.93079	44.29	Pk	35.6	-38.4	.4	-95.2	-53.31	-40	-13.31	H
6.93079	43.18	Pk	35.6	-38.4	.4	-95.2	-54.42	-40	-14.42	V
9.24073	45.63	Pk	36	-36.2	.7	-95.2	-49.07	-40	-9.07	H
9.24073	43.42	Pk	36	-36.2	.7	-95.2	-51.28	-40	-11.28	V

Pk - Peak detector

BPSK 5G NR n30 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/10/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n30 BPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61838	52.09	Pk	33.9	-42.2	0.6	-95.2	-50.81	-40	-10.81	H
4.62217	51.45	Pk	33.9	-42.2	0.6	-95.2	-51.45	-40	-11.45	V
6.92865	48.35	Pk	35.6	-38.4	0.4	-95.2	-49.25	-40	-9.25	V
6.93107	48.35	Pk	35.6	-38.4	0.4	-95.2	-49.25	-40	-9.25	H
9.24049	46.91	Pk	36	-36.1	0.7	-95.2	-47.69	-40	-7.69	V
9.24223	47.47	Pk	36	-36.1	0.7	-95.2	-47.13	-40	-7.13	H

Pk - Peak detector

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.

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/19-4/20/2021
Test Engineer:	18868 GM, 19226 AR
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	A, S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.18719	34.53	Pk	34.6	-26	.8	-95.2	-51.27	-25	-26.27	V
5.19141	34.27	Pk	34.6	-25.9	.8	-95.2	-51.43	-25	-26.43	H
7.77047	33.71	Pk	35.9	-22.5	.3	-95.2	-47.79	-25	-22.79	V
7.78406	33.34	Pk	35.9	-22.4	.4	-95.2	-47.96	-25	-22.96	H
10.37813	31.19	Pk	37.7	-19.9	.8	-95.2	-45.41	-25	-20.41	V
10.37906	30.96	Pk	37.7	-19.9	.8	-95.2	-45.64	-25	-20.64	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2593MHz										
5.18738	51.57	Pk	34.4	-41.4	.8	-95.2	-49.83	-25	-24.83	V
5.18786	51.17	Pk	34.4	-41.4	.8	-95.2	-50.23	-25	-25.23	H
7.78026	48.63	Pk	36	-37.9	.3	-95.2	-48.17	-25	-23.17	H
7.78106	48.19	Pk	36	-37.9	.3	-95.2	-48.61	-25	-23.61	V
10.37268	48.49	Pk	37.5	-36.4	.8	-95.2	-44.81	-25	-19.81	V
10.375	48.87	Pk	37.6	-36.3	.8	-95.2	-44.23	-25	-19.23	H
High Channel, 2680MHz										
5.35965	51.26	Pk	34.5	-40.9	.5	-95.2	-49.84	-25	-24.84	H
5.36204	51.17	Pk	34.5	-40.9	.5	-95.2	-49.93	-25	-24.93	V
8.04105	47.99	Pk	36	-37.5	.4	-95.2	-48.31	-25	-23.31	H
8.0425	47.57	Pk	36	-37.4	.4	-95.2	-48.63	-25	-23.63	V
10.71964	48.21	Pk	37.9	-35	.6	-95.2	-43.49	-25	-18.49	V
10.72067	47.37	Pk	37.9	-35	.6	-95.2	-44.33	-25	-19.33	H

Pk - Peak detector

BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/10/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n41 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.09187	50.93	Pk	34.4	-41.6	.8	-95.2	-50.67	-25	-25.67	V
5.09415	52.13	Pk	34.4	-41.6	.8	-95.2	-49.47	-25	-24.47	H
7.63682	48.79	Pk	36.1	-38.6	.4	-95.2	-48.51	-25	-23.51	V
7.63698	47.8	Pk	36.1	-38.6	.4	-95.2	-49.5	-25	-24.5	H
10.18444	47.17	Pk	37.4	-36.3	.6	-95.2	-46.33	-25	-21.33	V
10.18556	47.63	Pk	37.4	-36.4	.7	-95.2	-45.87	-25	-20.87	H
Mid Channel, 2593MHz										
5.1859	51.3	Pk	34.4	-41.5	.8	-95.2	-50.2	-25	-25.2	V
5.18708	51.38	Pk	34.4	-41.4	.8	-95.2	-50.02	-25	-25.02	H
7.77864	48.94	Pk	36	-38	.3	-95.2	-47.96	-25	-22.96	H
7.78087	48.55	Pk	36	-37.9	.3	-95.2	-48.25	-25	-23.25	V
10.37286	48.16	Pk	37.5	-36.4	.8	-95.2	-45.14	-25	-20.14	V
10.37429	49.31	Pk	37.6	-36.4	.8	-95.2	-43.89	-25	-18.89	H
High Channel, 2640MHz										
5.2662	50.82	Pk	34.5	-41.1	.3	-95.2	-50.68	-25	-25.68	V
5.28211	50.98	Pk	34.6	-41	.3	-95.2	-50.32	-25	-25.32	H
7.91874	48.09	Pk	36	-37.7	.2	-95.2	-48.61	-25	-23.61	H
7.91881	48.4	Pk	36	-37.7	.2	-95.2	-48.3	-25	-23.3	V
10.55973	47.17	Pk	37.7	-36.3	.7	-95.2	-45.93	-25	-20.93	V
10.56241	46.9	Pk	37.8	-36.3	.8	-95.2	-46	-25	-21	H

Pk - Peak detector

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.

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/29/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHZ
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.44117	41.16	Pk	32.8	-31.4	-95.2	-52.64	-13	-39.64	H
5.16029	39.49	Pk	34.2	-30.7	-95.2	-52.21	-13	-39.21	H
6.8821	37.83	Pk	35.7	-28.1	-95.2	-49.77	-13	-36.77	H
3.43807	41.83	Pk	32.8	-31.6	-95.2	-52.17	-13	-39.17	V
5.16241	40.19	Pk	34.2	-30.7	-95.2	-51.51	-13	-38.51	V
6.88149	38.36	Pk	35.7	-28.3	-95.2	-49.44	-13	-36.44	V
Mid Channel, 1745MHz									
3.49264	41.36	Pk	32.8	-31.1	-95.2	-52.14	-13	-39.14	H
5.23581	40	Pk	34.4	-30.2	-95.2	-51	-13	-38	H
6.9808	37.78	Pk	35.7	-28.3	-95.2	-50.02	-13	-37.02	H
3.48939	41.49	Pk	32.8	-31.3	-95.2	-52.21	-13	-39.21	V
5.23737	39.93	Pk	34.4	-30.5	-95.2	-51.37	-13	-38.37	V
6.98077	38.3	Pk	35.7	-28.4	-95.2	-49.6	-13	-36.6	V
High Channel, 1770MHz									
3.54221	41.09	Pk	32.7	-31.6	-95.2	-53.01	-13	-40.01	H
5.31077	40.27	Pk	34.5	-29.9	-95.2	-50.33	-13	-37.33	H
7.08102	37.95	Pk	35.7	-28	-95.2	-49.55	-13	-36.55	H
3.54212	41.58	Pk	32.7	-31.8	-95.2	-52.72	-13	-39.72	V
5.30961	39.56	Pk	34.5	-30.2	-95.2	-51.34	-13	-38.34	V
7.07796	37.78	Pk	35.7	-28.1	-95.2	-49.82	-13	-36.82	V

Pk - Peak detector

BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/6/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.46	50.64	Pk	32.5	-40.9	.6	-95.2	-52.36	-13	-39.36	V
3.4612	50.82	Pk	32.5	-40.8	.6	-95.2	-52.08	-13	-39.08	H
5.18942	49.38	Pk	34	-40.4	.5	-95.2	-51.72	-13	-38.72	V
5.18999	49.73	Pk	34.1	-40.4	.5	-95.2	-51.27	-13	-38.27	H
6.91858	47.84	Pk	35.5	-38.4	.5	-95.2	-49.76	-13	-36.76	H
6.91859	48.46	Pk	35.5	-38.4	.5	-95.2	-49.14	-13	-36.14	V
Mid Channel, 1745MHz										
3.49029	50.79	Pk	32.6	-41	.7	-95.2	-52.11	-13	-39.11	H
3.49101	50.64	Pk	32.6	-41	.7	-95.2	-52.26	-13	-39.26	V
5.2359	50.16	Pk	34.1	-40	.6	-95.2	-50.34	-13	-37.34	H
5.23659	49.75	Pk	34.1	-40	.6	-95.2	-50.75	-13	-37.75	V
6.97853	48.22	Pk	35.5	-38.3	.5	-95.2	-49.28	-13	-36.28	V
6.97966	49.11	Pk	35.5	-38.2	.5	-95.2	-48.29	-13	-35.29	H
High Channel, 1760MHz										
3.51831	50.97	Pk	32.8	-41	.8	-95.2	-51.63	-13	-38.63	H
3.52122	51.96	Pk	32.8	-40.9	.8	-95.2	-50.54	-13	-37.54	V
5.27838	49.47	Pk	34.3	-39.8	.6	-95.2	-50.63	-13	-37.63	V
5.27964	49.47	Pk	34.3	-40	.5	-95.2	-50.93	-13	-37.93	H
7.03986	48.29	Pk	35.6	-38.2	.5	-95.2	-49.01	-13	-36.01	V
7.04139	48.32	Pk	35.6	-38.1	.5	-95.2	-48.88	-13	-35.88	H

Pk - Peak detector

10.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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.

QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/21/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE 7 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2510MHz										
5.02125	45.81	Pk	33.6	-40.9	.7	-95.2	-55.99	-25	-30.99	H
5.02125	44.76	Pk	33.6	-40.9	.7	-95.2	-57.04	-25	-32.04	V
7.52953	43.72	Pk	35.6	-36.9	.3	-95.2	-52.48	-25	-27.48	H
7.52953	41.62	Pk	35.6	-36.9	.3	-95.2	-54.58	-25	-29.58	V
10.04016	44.81	Pk	37	-34.7	.7	-95.2	-47.39	-25	-22.39	H
10.04016	43.21	Pk	37	-34.7	.7	-95.2	-48.99	-25	-23.99	V
Mid Channel, 2535MHz										
5.07004	53.49	Pk	34.3	-41.7	.7	-95.2	-48.41	-25	-23.41	V
5.07157	52.24	Pk	34.3	-41.8	.7	-95.2	-49.76	-25	-24.76	H
7.60352	49.16	Pk	36.2	-38.7	.4	-95.2	-48.14	-25	-23.14	V
7.60359	49.91	Pk	36.2	-38.7	.4	-95.2	-47.39	-25	-22.39	H
10.13991	48.26	Pk	37.3	-36.4	.7	-95.2	-45.34	-25	-20.34	H
10.14207	48.37	Pk	37.3	-36.4	.6	-95.2	-45.33	-25	-20.33	V
High Channel, 2560MHz										
5.12146	51.91	Pk	34.5	-41.7	.8	-95.2	-49.69	-25	-24.69	V
5.12223	52.11	Pk	34.5	-41.7	.8	-95.2	-49.49	-25	-24.49	H
7.67899	49.37	Pk	36.1	-38.4	.5	-95.2	-47.63	-25	-22.63	V
7.68192	49.21	Pk	36.1	-38.4	.5	-95.2	-47.79	-25	-22.79	H
10.23913	48.1	Pk	37.4	-36.7	.8	-95.2	-45.6	-25	-20.6	H
10.23921	47.6	Pk	37.4	-36.7	.8	-95.2	-46.1	-25	-21.1	V

Pk - Peak detector

BPSK 5G NR n7 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/6/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n7 BPSK 40MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2520MHz										
5.03896	52.17	Pk	34	-41.8	.6	-95.2	-50.23	-25	-25.23	V
5.04123	52.13	Pk	34	-41.9	.6	-95.2	-50.37	-25	-25.37	H
7.55894	49.78	Pk	36.1	-38.9	.3	-95.2	-47.92	-25	-22.92	V
7.56107	49.59	Pk	36.1	-38.8	.4	-95.2	-47.91	-25	-22.91	H
10.07947	47.59	Pk	37.3	-36.8	.6	-95.2	-46.51	-25	-21.51	V
10.08119	47.55	Pk	37.3	-36.7	.6	-95.2	-46.45	-25	-21.45	H
Mid Channel, 2535MHz										
5.06892	50.1	Pk	33.8	-40.7	.7	-95.2	-51.3	-25	-26.3	H
5.07074	50.88	Pk	33.8	-40.7	.7	-95.2	-50.52	-25	-25.52	V
7.60569	46.74	Pk	35.7	-36.8	.4	-95.2	-49.16	-25	-24.16	H
7.60612	47.25	Pk	35.7	-36.8	.4	-95.2	-48.65	-25	-23.65	V
10.14043	46.16	Pk	37.1	-34.8	.6	-95.2	-46.14	-25	-21.14	H
10.14119	46.41	Pk	37.1	-34.8	.6	-95.2	-45.89	-25	-20.89	V
High Channel, 2550MHz										
5.09898	51.32	Pk	34.5	-41.6	.8	-95.2	-50.18	-25	-25.18	V
5.09954	52.79	Pk	34.5	-41.6	.8	-95.2	-48.71	-25	-23.71	H
7.65096	49.02	Pk	36.1	-38.5	.3	-95.2	-48.28	-25	-23.28	H
7.65177	48.46	Pk	36	-38.5	.3	-95.2	-48.94	-25	-23.94	V
10.19887	47.84	Pk	37.4	-36.5	.8	-95.2	-45.66	-25	-20.66	V
10.20024	47.2	Pk	37.4	-36.5	.8	-95.2	-46.3	-25	-21.3	H

Pk - Peak detector

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.

QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/30/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	LTE B25 QPSK 20MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1860MHz									
3.72118	40.66	Pk	33.5	-31.1	-95.2	-52.14	-13	-39.14	H
5.57918	38.85	Pk	34.4	-29.6	-95.2	-51.55	-13	-38.55	H
7.43903	37.83	Pk	35.8	-27.5	-95.2	-49.07	-13	-36.07	H
3.71988	40.9	Pk	33.6	-31.2	-95.2	-51.9	-13	-38.9	V
5.58118	39.01	Pk	34.4	-29.6	-95.2	-51.39	-13	-38.39	V
7.43876	37.38	Pk	35.8	-27.5	-95.2	-49.52	-13	-36.52	V
Mid Channel, 1882.5MHz									
3.76455	39.64	Pk	33.5	-31.3	-95.2	-53.36	-13	-40.36	H
5.64704	38.8	Pk	34.7	-29.4	-95.2	-51.1	-13	-38.1	H
7.52988	37.07	Pk	35.8	-27.6	-95.2	-49.93	-13	-36.93	H
3.76604	40.78	Pk	33.5	-31.2	-95.2	-52.12	-13	-39.12	V
5.6466	38.81	Pk	34.7	-29.3	-95.2	-50.99	-13	-37.99	V
7.53123	37.11	Pk	35.8	-27.6	-95.2	-49.89	-13	-36.89	V
High Channel, 1905MHz									
3.80917	40.81	Pk	33.5	-31.4	-95.2	-52.29	-13	-39.29	H
5.71666	38.88	Pk	34.7	-29.1	-95.2	-50.72	-13	-37.72	H
7.61919	36.52	Pk	35.9	-26.9	-95.2	-49.68	-13	-36.68	H
3.80994	40.58	Pk	33.5	-31.3	-95.2	-52.42	-13	-39.42	V
5.71335	38.6	Pk	34.7	-29.2	-95.2	-51.1	-13	-38.1	V
7.61964	38.12	Pk	35.9	-27.1	-95.2	-48.28	-13	-35.28	V

Pk - Peak detector

BPSK 5G NR n25 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/11/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n25 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1870MHz										
3.74045	51.07	Pk	33.2	-40.9	.6	-95.2	-51.23	-13	-38.23	H
3.74061	50.77	Pk	33.2	-40.9	.6	-95.2	-51.53	-13	-38.53	V
5.60861	49.57	Pk	34.3	-39	.5	-95.2	-49.83	-13	-36.83	H
5.61197	49.08	Pk	34.3	-39	.5	-95.2	-50.32	-13	-37.32	V
7.47964	46.9	Pk	35.5	-37	.4	-95.2	-49.4	-13	-36.4	V
7.4815	46.98	Pk	35.5	-37	.4	-95.2	-49.32	-13	-36.32	H
Mid Channel, 1882.5MHz										
3.76361	49.31	Pk	33.3	-41	.6	-95.2	-52.99	-13	-39.99	V
3.76377	50.83	Pk	33.3	-40.9	.6	-95.2	-51.37	-13	-38.37	H
5.61646	52.42	Pk	34.2	-39	.6	-95.2	-46.98	-13	-33.98	H
5.61659	54.6	Pk	34.2	-39	.6	-95.2	-44.8	-13	-31.8	V
7.52878	46.66	Pk	35.6	-36.9	.4	-95.2	-49.44	-13	-36.44	V
7.53183	46.98	Pk	35.6	-37	.4	-95.2	-49.22	-13	-36.22	H
High Channel, 1895MHz										
3.79049	50.7	Pk	33.2	-40.9	.7	-95.2	-51.5	-13	-38.5	H
3.79124	50.39	Pk	33.2	-40.9	.7	-95.2	-51.81	-13	-38.81	V
5.68354	48.82	Pk	34.3	-38.8	.5	-95.2	-50.38	-13	-37.38	H
5.68504	48.33	Pk	34.3	-38.9	.5	-95.2	-50.97	-13	-37.97	V
7.5815	47.15	Pk	35.5	-36.7	.5	-95.2	-48.75	-13	-35.75	H
7.5817	46.7	Pk	35.5	-36.7	.5	-95.2	-49.2	-13	-36.2	V

Pk - Peak detector

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 #:	13571601
Date:	4/16/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B30 QPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.62084	48.49	Pk	33.9	-42.2	.6	-95.2	-54.41	-40	-14.41	H
4.62084	47.1	Pk	33.9	-42.2	.6	-95.2	-55.8	-40	-15.8	V
6.9303	43.78	Pk	35.6	-38.5	.4	-95.2	-53.92	-40	-13.92	H
6.9303	42.28	Pk	35.6	-38.5	.4	-95.2	-55.42	-40	-15.42	V
9.24025	44.79	Pk	36	-36.1	.7	-95.2	-49.81	-40	-9.81	H
9.24025	44.38	Pk	36	-36.1	.7	-95.2	-50.22	-40	-10.22	V

Pk - Peak detector

BPSK 5G NR n30 (10.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/10/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n30 BPSK 10MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 2310MHz										
4.61928	52.47	Pk	33.9	-42.2	0.6	-95.2	-50.43	-40	-10.43	H
4.62027	52.04	Pk	33.9	-42.2	0.6	-95.2	-50.86	-40	-10.86	V
6.92845	48.76	Pk	35.6	-38.4	0.4	-95.2	-48.84	-40	-8.84	V
6.92885	48.29	Pk	35.6	-38.4	0.4	-95.2	-49.31	-40	-9.31	H
9.23844	47.19	Pk	36	-36	0.7	-95.2	-47.31	-40	-7.31	V
9.24019	47.23	Pk	36	-36.1	0.7	-95.2	-47.37	-40	-7.37	H

Pk - Peak detector

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.

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	4/21/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE Band 41 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2506MHz										
5.01281	45.35	Pk	33.7	-41	.8	-95.2	-56.35	-25	-31.35	H
5.01281	44.45	Pk	33.7	-41	.8	-95.2	-57.25	-25	-32.25	V
7.51875	42.46	Pk	35.6	-36.9	.3	-95.2	-53.74	-25	-28.74	H
7.51875	42.55	Pk	35.6	-36.9	.3	-95.2	-53.65	-25	-28.65	V
10.02422	43.62	Pk	37	-34.5	.6	-95.2	-48.48	-25	-23.48	H
10.02422	44.2	Pk	37	-34.5	.6	-95.2	-47.9	-25	-22.9	V
Mid Channel, 2593MHz										
5.18484	53.15	Pk	34.4	-41.5	.8	-95.2	-48.35	-25	-23.35	H
5.185	51.49	Pk	34.4	-41.5	.8	-95.2	-50.01	-25	-25.01	V
7.77773	47.8	Pk	36	-37.9	.3	-95.2	-49	-25	-24	V
7.78123	48.23	Pk	36	-37.9	.3	-95.2	-48.57	-25	-23.57	H
10.37116	49.16	Pk	37.5	-36.4	.8	-95.2	-44.14	-25	-19.14	H
10.37144	48.75	Pk	37.5	-36.4	.8	-95.2	-44.55	-25	-19.55	V
High Channel, 2680MHz										
5.36076	51.47	Pk	34.5	-40.9	.5	-95.2	-49.63	-25	-24.63	H
5.36158	50.55	Pk	34.5	-40.9	.5	-95.2	-50.55	-25	-25.55	V
8.04054	48.04	Pk	36	-37.5	.4	-95.2	-48.26	-25	-23.26	V
8.04153	48.05	Pk	36	-37.4	.4	-95.2	-48.15	-25	-23.15	H
10.72116	47.94	Pk	37.9	-35	.6	-95.2	-43.76	-25	-18.76	V
10.7214	47.13	Pk	37.9	-35.1	.6	-95.2	-44.67	-25	-19.67	H

Pk - Peak detector

BPSK 5G NR n41 (100.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/10/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n41 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	BRF 2495-2690MHz T1790 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 2546MHz										
5.01012	50.29	Pk	33.7	-41	.8	-95.2	-51.41	-25	-26.41	V
5.01247	50.26	Pk	33.7	-41	.8	-95.2	-51.44	-25	-26.44	H
7.51685	46.68	Pk	35.6	-36.9	.3	-95.2	-49.52	-25	-24.52	V
7.51755	46.75	Pk	35.6	-36.9	.3	-95.2	-49.45	-25	-24.45	H
10.02307	45.95	Pk	37	-34.4	.6	-95.2	-46.05	-25	-21.05	V
10.02375	45.86	Pk	37	-34.5	.6	-95.2	-46.24	-25	-21.24	H
Mid Channel, 2593MHz										
5.18554	50.75	Pk	34.4	-41.5	.8	-95.2	-50.75	-25	-25.75	H
5.18712	51	Pk	34.4	-41.4	.8	-95.2	-50.4	-25	-25.4	V
7.77814	47.75	Pk	36	-37.9	.3	-95.2	-49.05	-25	-24.05	V
7.78036	47.63	Pk	36	-37.9	.3	-95.2	-49.17	-25	-24.17	H
10.3736	48.52	Pk	37.6	-36.4	.8	-95.2	-44.68	-25	-19.68	V
10.37373	48.85	Pk	37.6	-36.4	.8	-95.2	-44.35	-25	-19.35	H
High Channel, 2640MHz										
5.36031	49.29	Pk	34.4	-39.7	.5	-95.2	-50.71	-25	-25.71	H
5.36056	49.02	Pk	34.4	-39.7	.5	-95.2	-50.98	-25	-25.98	V
8.0389	46.06	Pk	35.7	-36.2	.4	-95.2	-49.24	-25	-24.24	V
8.04177	45.74	Pk	35.7	-36.2	.4	-95.2	-49.56	-25	-24.56	H
10.71872	45.85	Pk	37.7	-34.5	.6	-95.2	-45.55	-25	-20.55	H
10.72021	46.4	Pk	37.7	-34.4	.6	-95.2	-44.9	-25	-19.9	V

Pk - Peak detector

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 #:	13571601
Date:	4/15/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213831	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.11904	50.16	Pk	35.6	-38.6	.5	-95.2	-47.54	-40	-7.54	V
7.12125	49.47	Pk	35.6	-38.6	.5	-95.2	-48.23	-40	-8.23	H
10.67883	48.08	Pk	37.8	-35.4	.6	-95.2	-44.12	-40	-4.12	H
10.67931	47.88	Pk	37.8	-35.4	.6	-95.2	-44.32	-40	-4.32	V
14.23888	46.26	Pk	38.7	-35.6	.8	-95.2	-45.04	-40	-5.04	V
14.24163	46.69	Pk	38.8	-35.6	.8	-95.2	-44.51	-40	-4.51	H
Mid Channel, 3625MHz										
7.25049	49.54	Pk	35.6	-38.6	.6	-95.2	-48.06	-40	-8.06	V
7.25104	49.68	Pk	35.6	-38.6	.6	-95.2	-47.92	-40	-7.92	H
10.87474	47.06	Pk	37.8	-34.4	.5	-95.2	-44.24	-40	-4.24	H
10.87599	47.23	Pk	37.8	-34.4	.5	-95.2	-44.07	-40	-4.07	V
14.50181	46.9	Pk	39.3	-36.3	.8	-95.2	-44.5	-40	-4.5	H
14.50235	46.61	Pk	39.3	-36.4	.8	-95.2	-44.89	-40	-4.89	V
High Channel, 3690MHz										
7.38141	50.24	Pk	35.6	-38.4	.7	-95.2	-47.06	-40	-7.06	V
7.38181	49.12	Pk	35.6	-38.5	.7	-95.2	-48.28	-40	-8.28	H
11.06776	47.1	Pk	38	-34.5	.6	-95.2	-44	-40	-4	H
11.0718	47.1	Pk	37.9	-34.5	.6	-95.2	-44.1	-40	-4.1	V
14.07718	46.93	Pk	38.6	-35	.7	-95.2	-43.97	-40	-3.97	V
14.0786	47.54	Pk	38.6	-35	.7	-95.2	-43.36	-40	-3.36	H

Pk - Peak detector

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.

QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	3/29/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	LTE B66 QPSK 20MHz
Chamber #:	O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1720MHz									
3.44226	41.44	Pk	32.8	-31.4	-95.2	-52.36	-13	-39.36	H
5.15936	40.3	Pk	34.2	-30.7	-95.2	-51.4	-13	-38.4	H
6.88184	38.01	Pk	35.7	-28.1	-95.2	-49.59	-13	-36.59	H
3.43969	41.34	Pk	32.8	-31.5	-95.2	-52.56	-13	-39.56	V
5.15951	40.09	Pk	34.2	-30.7	-95.2	-51.61	-13	-38.61	V
6.88031	38.85	Pk	35.7	-28.2	-95.2	-48.85	-13	-35.85	V
Mid Channel, 1745MHz									
3.49018	41.77	Pk	32.8	-31.1	-95.2	-51.73	-13	-38.73	H
5.23641	39.96	Pk	34.4	-30.2	-95.2	-51.04	-13	-38.04	H
6.98114	37.85	Pk	35.7	-28.3	-95.2	-49.95	-13	-36.95	H
3.48946	41.63	Pk	32.8	-31.3	-95.2	-52.07	-13	-39.07	V
5.23417	40.05	Pk	34.4	-30.5	-95.2	-51.25	-13	-38.25	V
6.98037	37.79	Pk	35.7	-28.4	-95.2	-50.11	-13	-37.11	V
High Channel, 1770MHz									
3.54015	41.78	Pk	32.7	-31.6	-95.2	-52.32	-13	-39.32	H
5.31181	39.79	Pk	34.5	-29.9	-95.2	-50.81	-13	-37.81	H
7.079	38.12	Pk	35.7	-28	-95.2	-49.38	-13	-36.38	H
3.53967	41.2	Pk	32.7	-31.8	-95.2	-53.1	-13	-40.1	V
5.30926	40.22	Pk	34.5	-30.2	-95.2	-50.68	-13	-37.68	V
7.07902	37.62	Pk	35.7	-28	-95.2	-49.88	-13	-36.88	V

Pk - Peak detector

BPSK 5G NR n66 (40.0MHZ BANDWIDTH)

Project #:	13571601
Date:	5/11-5/12/2021
Test Engineer:	50820 EC
Configuration:	EUT Only
Mode	5G NR n66 BPSK 40MHz
Chamber #:	P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1730MHz										
3.45898	51.25	Pk	32.5	-40.8	.6	-95.2	-51.65	-13	-38.65	H
3.46174	50.35	Pk	32.5	-40.8	.6	-95.2	-52.55	-13	-39.55	V
5.18837	49.68	Pk	34	-40.3	.5	-95.2	-51.32	-13	-38.32	H
5.18915	49.56	Pk	34	-40.4	.5	-95.2	-51.54	-13	-38.54	V
6.91905	48.01	Pk	35.5	-38.4	.5	-95.2	-49.59	-13	-36.59	V
6.92002	47.8	Pk	35.5	-38.5	.5	-95.2	-49.9	-13	-36.9	H
Mid Channel, 1745MHz										
3.49028	50.49	Pk	32.6	-41	.7	-95.2	-52.41	-13	-39.41	H
3.49114	50.54	Pk	32.6	-40.9	.7	-95.2	-52.26	-13	-39.26	V
5.23482	49.97	Pk	34.1	-40.1	.6	-95.2	-50.63	-13	-37.63	H
5.23589	50.18	Pk	34.1	-40	.6	-95.2	-50.32	-13	-37.32	V
6.98061	48.42	Pk	35.5	-38.2	.5	-95.2	-48.98	-13	-35.98	V
6.9816	47.89	Pk	35.5	-38.2	.5	-95.2	-49.51	-13	-36.51	H
High Channel, 1760MHz										
3.51835	51.66	Pk	32.8	-41	.8	-95.2	-50.94	-13	-37.94	H
3.51856	51.82	Pk	32.8	-41	.8	-95.2	-50.78	-13	-37.78	V
5.27847	49.78	Pk	34.3	-39.8	.6	-95.2	-50.32	-13	-37.32	H
5.2804	50.21	Pk	34.2	-40	.5	-95.2	-50.29	-13	-37.29	V
7.03986	48.02	Pk	35.6	-38.2	.5	-95.2	-49.28	-13	-36.28	V
7.04208	47.91	Pk	35.6	-38.2	.5	-95.2	-49.39	-13	-36.39	H

Pk - Peak detector

10.5.7. 5G NR n77 (FCC 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 #:	13571601
Date:	5/15/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.99888	50.32	Pk	35.9	-39.5	.5	-95.2	-47.98	-13	-34.98	V
6.99955	49.1	Pk	35.9	-39.5	.5	-95.2	-49.2	-13	-36.2	H
10.49883	47.52	Pk	37.6	-36.1	.6	-95.2	-45.58	-13	-32.58	H
10.50231	47.89	Pk	37.6	-36.2	.6	-95.2	-45.31	-13	-32.31	V
13.99912	46.31	Pk	38.6	-34.7	.7	-95.2	-44.29	-13	-31.29	V
13.99999	46.76	Pk	38.6	-34.7	.7	-95.2	-43.84	-13	-30.84	H

Pk - Peak detector

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

LIMITS

FCC: §27.53

(1) 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 #:	13571601
Date:	5/17/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49894	49.21	Pk	36.1	-39.3	.6	-95.2	-48.59	-13	-35.59	H
7.50135	49.5	Pk	36.1	-39.2	.6	-95.2	-48.2	-13	-35.2	V
11.25059	47.16	Pk	38.1	-35.3	.9	-95.2	-44.34	-13	-31.34	V
11.25253	47.37	Pk	38.1	-35.2	.9	-95.2	-44.03	-13	-31.03	H
14.99944	47.3	Pk	39.6	-34.5	.9	-95.2	-41.9	-13	-28.9	H
14.99948	47.39	Pk	39.6	-34.5	.9	-95.2	-41.81	-13	-28.81	V
Mid Channel, 3840MHz										
7.67977	48.34	Pk	36.1	-38.7	.9	-95.2	-48.56	-13	-35.56	H
7.6812	48.83	Pk	36.1	-38.8	.9	-95.2	-48.17	-13	-35.17	V
11.51821	46.24	Pk	38.4	-34.6	.9	-95.2	-44.26	-13	-31.26	H
11.52178	45.21	Pk	38.4	-34.5	.9	-95.2	-45.19	-13	-32.19	V
15.35928	47.3	Pk	40.4	-33.7	.8	-95.2	-40.4	-13	-27.4	V
15.3593	46.95	Pk	40.4	-33.7	.8	-95.2	-40.75	-13	-27.75	H
High Channel, 3930MHz										
7.85836	48.34	Pk	36	-38.2	.7	-95.2	-48.36	-13	-35.36	V
7.86079	48.17	Pk	36	-38.2	.8	-95.2	-48.43	-13	-35.43	H
11.78976	46.84	Pk	38.5	-34.5	1	-95.2	-43.36	-13	-30.36	H
11.79119	46.93	Pk	38.5	-34.5	1.1	-95.2	-43.17	-13	-30.17	V
15.71832	46.33	Pk	40.3	-34.6	1.3	-95.2	-41.87	-13	-28.87	H
15.72186	46.75	Pk	40.4	-34.5	1.3	-95.2	-41.25	-13	-28.25	V

Pk - Peak detector

10.6. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 7

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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 .

QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	6/27/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.1202	50.48	Pk	35.6	-38.6	.5	-95.2	-47.22	-40	-7.22	V
7.12097	49.83	Pk	35.6	-38.6	.5	-95.2	-47.87	-40	-7.87	H
10.67953	48.18	Pk	37.8	-35.3	.6	-95.2	-43.92	-40	-3.92	H
10.67983	47.99	Pk	37.8	-35.3	.6	-95.2	-44.11	-40	-4.11	V
14.23658	46.81	Pk	38.7	-35.5	.8	-95.2	-44.39	-40	-4.39	H
14.23814	47.23	Pk	38.7	-35.6	.8	-95.2	-44.07	-40	-4.07	V
Mid Channel, 3625MHz										
7.25105	49.62	Pk	35.6	-38.6	.6	-95.2	-47.98	-40	-7.98	V
7.25162	49.77	Pk	35.5	-38.6	.6	-95.2	-47.93	-40	-7.93	H
10.87403	47.56	Pk	37.8	-34.3	.5	-95.2	-43.64	-40	-3.64	V
10.87407	47.73	Pk	37.8	-34.3	.5	-95.2	-43.47	-40	-3.47	H
14.50969	47	Pk	39.3	-36.4	.8	-95.2	-44.5	-40	-4.5	H
14.51018	46.74	Pk	39.3	-36.5	.8	-95.2	-44.86	-40	-4.86	V
High Channel, 3690MHz										
7.38081	49.53	Pk	35.6	-38.4	.7	-95.2	-47.77	-40	-7.77	H
7.38198	50.15	Pk	35.6	-38.5	.7	-95.2	-47.25	-40	-7.25	V
11.06849	47.38	Pk	38	-34.5	.6	-95.2	-43.72	-40	-3.72	H
11.06978	46.85	Pk	38	-34.5	.6	-95.2	-44.25	-40	-4.25	V
14.76102	47.19	Pk	39.6	-35.6	.8	-95.2	-43.21	-40	-3.21	H
14.76116	47.13	Pk	39.5	-35.6	.8	-95.2	-43.37	-40	-3.37	V

Pk - Peak detector

10.6.2. 5G NR n77 (FCC 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 #:	13571601
Date:	5/15/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
7.00095	49.66	Pk	35.9	-39.5	.5	-95.2	-48.64	-13	-35.64	V
7.00193	49.12	Pk	35.9	-39.5	.5	-95.2	-49.18	-13	-36.18	H
10.49915	47.84	Pk	37.6	-36.1	.6	-95.2	-45.26	-13	-32.26	H
10.49938	48.13	Pk	37.6	-36.1	.6	-95.2	-44.97	-13	-31.97	V
14.00038	46.81	Pk	38.6	-34.7	.7	-95.2	-43.79	-13	-30.79	H
14.00193	47.17	Pk	38.7	-34.7	.7	-95.2	-43.33	-13	-30.33	V

Pk - Peak detector

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

LIMITS

FCC: §27.53

(1) 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 #:	13571601
Date:	5/15/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49895	49.07	Pk	36.1	-39.3	.6	-95.2	-48.73	-13	-35.73	V
7.50225	49.47	Pk	36.2	-39.2	.6	-95.2	-48.13	-13	-35.13	H
11.25171	47.56	Pk	38.1	-35.3	.9	-95.2	-43.94	-13	-30.94	H
11.252	47.61	Pk	38.1	-35.3	.9	-95.2	-43.89	-13	-30.89	V
15.00028	47.23	Pk	39.6	-34.5	.9	-95.2	-41.97	-13	-28.97	H
15.0007	47.16	Pk	39.6	-34.5	.9	-95.2	-42.04	-13	-29.04	V
Mid Channel, 3840MHz										
7.68003	49.22	Pk	36.1	-38.7	.9	-95.2	-47.68	-13	-34.68	H
7.68137	48.74	Pk	36.1	-38.7	.9	-95.2	-48.16	-13	-35.16	V
11.51917	45.41	Pk	38.4	-34.6	.9	-95.2	-45.09	-13	-32.09	V
11.52152	45.29	Pk	38.4	-34.5	.9	-95.2	-45.11	-13	-32.11	H
15.35889	47.38	Pk	40.4	-33.7	.8	-95.2	-40.32	-13	-27.32	H
15.35892	47.48	Pk	40.4	-33.7	.8	-95.2	-40.22	-13	-27.22	V
High Channel, 3930MHz										
7.85956	47.94	Pk	36	-38.2	.7	-95.2	-48.76	-13	-35.76	V
7.86142	48.11	Pk	36	-38.2	.8	-95.2	-48.49	-13	-35.49	H
11.78957	47.68	Pk	38.5	-34.5	1	-95.2	-42.52	-13	-29.52	H
11.7901	47.14	Pk	38.5	-34.5	1	-95.2	-43.06	-13	-30.06	V
15.72169	46.8	Pk	40.4	-34.5	1.3	-95.2	-41.2	-13	-28.2	H
15.72194	47.25	Pk	40.4	-34.5	1.3	-95.2	-40.75	-13	-27.75	V

Pk - Peak detector

10.7. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 8

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

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

RESULTS

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.

QPSK LTE BAND 48 (20.0MHZ BANDWIDTH)

Project #:	13571601
Date:	6/27/2021
Test Engineer:	12491 GM
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHZ
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRf	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.11923	49.85	Pk	35.6	-38.6	.5	-95.2	-47.85	-40	-7.85	V
7.12045	50.58	Pk	35.6	-38.6	.5	-95.2	-47.12	-40	-7.12	H
10.67863	47.93	Pk	37.8	-35.4	.6	-95.2	-44.27	-40	-4.27	H
10.6799	47.86	Pk	37.8	-35.3	.6	-95.2	-44.24	-40	-4.24	V
14.23996	47.22	Pk	38.7	-35.6	.8	-95.2	-44.08	-40	-4.08	H
14.24267	47.02	Pk	38.8	-35.6	.8	-95.2	-44.18	-40	-4.18	V
Mid Channel, 3625MHz										
7.2278	49.4	Pk	35.6	-38.6	0.5	-95.2	-48.3	-40	-8.3	H
7.23013	49.77	Pk	35.6	-38.6	0.5	-95.2	-47.93	-40	-7.93	V
10.84014	47.68	Pk	37.8	-34.5	0.6	-95.2	-43.62	-40	-3.62	H
10.84733	47.71	Pk	37.9	-34.3	0.6	-95.2	-43.29	-40	-3.29	V
14.46077	46.06	Pk	39.2	-36.2	0.8	-95.2	-45.34	-40	-5.34	V
14.46315	46.17	Pk	39.2	-36.2	0.8	-95.2	-45.23	-40	-5.23	H
High Channel, 3690MHz										
7.37982	49.59	Pk	35.6	-38.4	.7	-95.2	-47.71	-40	-7.71	V
7.38262	49.5	Pk	35.6	-38.4	.7	-95.2	-47.8	-40	-7.8	H
11.07146	47.03	Pk	38	-34.5	.6	-95.2	-44.07	-40	-4.07	H
11.07351	46.82	Pk	37.9	-34.5	.7	-95.2	-44.28	-40	-4.28	V
14.75979	47.23	Pk	39.5	-35.5	.8	-95.2	-43.17	-40	-3.17	H
14.76147	47.01	Pk	39.5	-35.6	.8	-95.2	-43.49	-40	-3.49	V

Pk - Peak detector

10.7.2. 5G NR n77 (FCC 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 #:	13571601
Date:	5/15/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.99997	49.36	Pk	35.9	-39.5	.5	-95.2	-48.94	-13	-35.94	H
7.00086	49.4	Pk	35.9	-39.5	.5	-95.2	-48.9	-13	-35.9	V
10.49955	47.96	Pk	37.6	-36.1	.6	-95.2	-45.14	-13	-32.14	H
10.5024	47.94	Pk	37.6	-36.2	.6	-95.2	-45.26	-13	-32.26	V
13.99885	46.3	Pk	38.6	-34.7	.7	-95.2	-44.3	-13	-31.3	H
14.00191	47.21	Pk	38.7	-34.7	.7	-95.2	-43.29	-13	-30.29	V

Pk - Peak detector

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

LIMITS

FCC: §27.53

(1) 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 #:	13571601
Date:	5/15-5/17/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49835	49.58	Pk	36.2	-39.2	.6	-95.2	-48.02	-13	-35.02	H
7.5001	49.85	Pk	36.1	-39.2	.6	-95.2	-47.85	-13	-34.85	V
11.24997	47.35	Pk	38.1	-35.4	.9	-95.2	-44.25	-13	-31.25	V
11.25194	47.71	Pk	38.1	-35.3	.9	-95.2	-43.79	-13	-30.79	H
14.99943	46.65	Pk	39.6	-34.5	.9	-95.2	-42.55	-13	-29.55	H
15.00138	47.59	Pk	39.6	-34.5	.9	-95.2	-41.61	-13	-28.61	V
Mid Channel, 3840MHz										
7.68108	49.86	Pk	36.1	-38.8	.9	-95.2	-47.14	-13	-34.14	V
7.6815	48.94	Pk	36.1	-38.7	.9	-95.2	-47.96	-13	-34.96	H
11.37178	47.05	Pk	38.2	-35.5	.9	-95.2	-44.55	-13	-31.55	V
11.37184	47.48	Pk	38.2	-35.5	.9	-95.2	-44.12	-13	-31.12	H
15.35838	47.58	Pk	40.4	-33.7	.8	-95.2	-40.12	-13	-27.12	V
15.36034	47.57	Pk	40.4	-33.7	.8	-95.2	-40.13	-13	-27.13	H
High Channel, 3930MHz										
7.86132	48.43	Pk	36	-38.2	.8	-95.2	-48.17	-13	-35.17	H
7.86144	48.56	Pk	36	-38.2	.8	-95.2	-48.04	-13	-35.04	V
11.78967	47	Pk	38.5	-34.5	1	-95.2	-43.2	-13	-30.2	V
11.78993	47.49	Pk	38.5	-34.5	1	-95.2	-42.71	-13	-29.71	H
15.72176	47.11	Pk	40.4	-34.5	1.3	-95.2	-40.89	-13	-27.89	H
15.72246	47.16	Pk	40.4	-34.5	1.3	-95.2	-40.84	-13	-27.84	V

Pk - Peak detector

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.

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

RESULTS

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 #:	13571601
Date:	6/27/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	LTE B48 QPSK 20MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3560MHz										
7.11987	49.87	Pk	35.6	-38.7	.5	-95.2	-47.93	-40	-7.93	H
7.12105	49.85	Pk	35.6	-38.6	.5	-95.2	-47.85	-40	-7.85	V
10.68061	47.77	Pk	37.8	-35.4	.6	-95.2	-44.43	-40	-4.43	V
10.6812	47.5	Pk	37.8	-35.4	.6	-95.2	-44.7	-40	-4.7	H
14.23778	47.08	Pk	38.7	-35.6	.8	-95.2	-44.22	-40	-4.22	H
14.2395	46.43	Pk	38.7	-35.6	.8	-95.2	-44.87	-40	-4.87	V
Mid Channel, 3625MHz										
7.24899	49.4	Pk	35.6	-38.7	.6	-95.2	-48.3	-40	-8.3	V
7.24963	49.39	Pk	35.6	-38.6	.6	-95.2	-48.21	-40	-8.21	H
10.8733	47.81	Pk	37.8	-34.3	.5	-95.2	-43.39	-40	-3.39	V
10.87526	47.03	Pk	37.8	-34.4	.5	-95.2	-44.27	-40	-4.27	H
14.50051	47.17	Pk	39.3	-36.3	.8	-95.2	-44.23	-40	-4.23	V
14.50062	46.87	Pk	39.3	-36.3	.8	-95.2	-44.53	-40	-4.53	H
High Channel, 3690MHz										
7.37894	49.51	Pk	35.6	-38.5	.7	-95.2	-47.89	-40	-7.89	V
7.38095	50.32	Pk	35.6	-38.4	.7	-95.2	-46.98	-40	-6.98	H
11.06831	46.88	Pk	38	-34.5	.6	-95.2	-44.22	-40	-4.22	H
11.07167	46.35	Pk	38	-34.5	.6	-95.2	-44.75	-40	-4.75	V
14.75824	46.61	Pk	39.5	-35.5	.8	-95.2	-43.79	-40	-3.79	H
14.76034	46.52	Pk	39.5	-35.5	.8	-95.2	-43.88	-40	-3.88	V

Pk - Peak detector

10.8.2. 5G NR n77 (FCC 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 #:	13571601
Date:	5/15/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Mid Channel, 3500MHz										
6.9984	49.54	Pk	35.9	-39.5	.5	-95.2	-48.76	-13	-35.76	V
7.00025	49.58	Pk	35.9	-39.5	.5	-95.2	-48.72	-13	-35.72	H
10.49834	47.06	Pk	37.6	-36.1	.6	-95.2	-46.04	-13	-33.04	V
10.49857	47.27	Pk	37.6	-36.1	.6	-95.2	-45.83	-13	-32.83	H
14.00094	46.9	Pk	38.7	-34.7	.7	-95.2	-43.6	-13	-30.6	V
14.00184	46.46	Pk	38.7	-34.7	.7	-95.2	-44.04	-13	-31.04	H

Pk - Peak detector

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

LIMITS

FCC: §27.53

(1) 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 #:	13571601
Date:	5/17/2021
Test Engineer:	19226 AR
Configuration:	EUT Only
Mode	5G NR n77 BPSK 100MHz
Chamber #:	S

Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833	Amp/Cbl (dB)	T1792 3400-3800MHz BRF	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 3750MHz										
7.49859	49.13	Pk	36.2	-39.2	.6	-95.2	-48.47	-13	-35.47	V
7.49915	49.57	Pk	36.1	-39.2	.6	-95.2	-48.13	-13	-35.13	H
11.25075	47.61	Pk	38.1	-35.3	.9	-95.2	-43.89	-13	-30.89	V
11.25195	48.02	Pk	38.1	-35.3	.9	-95.2	-43.48	-13	-30.48	H
14.99838	47.2	Pk	39.6	-34.5	.9	-95.2	-42	-13	-29	V
15.00105	46.71	Pk	39.6	-34.5	.9	-95.2	-42.49	-13	-29.49	H
Mid Channel, 3840MHz										
7.67995	48.81	Pk	36.1	-38.7	.9	-95.2	-48.09	-13	-35.09	V
7.68078	48.77	Pk	36.1	-38.8	.9	-95.2	-48.23	-13	-35.23	H
11.51983	44.91	Pk	38.4	-34.6	.9	-95.2	-45.59	-13	-32.59	H
11.52116	45.13	Pk	38.4	-34.5	.9	-95.2	-45.27	-13	-32.27	V
15.35976	47.62	Pk	40.4	-33.7	.8	-95.2	-40.08	-13	-27.08	V
15.35998	47.36	Pk	40.4	-33.7	.8	-95.2	-40.34	-13	-27.34	H
High Channel, 3930MHz										
7.86065	49.19	Pk	36	-38.2	.8	-95.2	-47.41	-13	-34.41	V
7.86087	48.07	Pk	36	-38.2	.8	-95.2	-48.53	-13	-35.53	H
11.78873	47.35	Pk	38.6	-34.5	1	-95.2	-42.75	-13	-29.75	H
11.78991	47.25	Pk	38.5	-34.5	1	-95.2	-42.95	-13	-29.95	V
15.72145	46.85	Pk	40.4	-34.5	1.3	-95.2	-41.15	-13	-28.15	V
15.72212	47.49	Pk	40.4	-34.5	1.3	-95.2	-40.51	-13	-27.51	H

Pk - Peak detector

11. SETUP PHOTOS

Please refer to 13571601-EP1V1 FCC IC Setup_Photo for setup photos

END OF REPORT