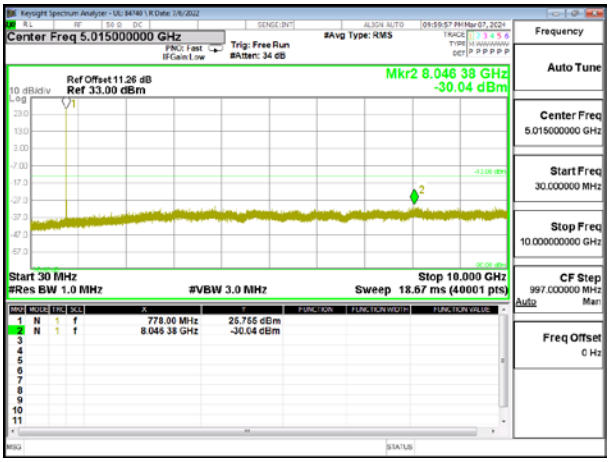
9.3.6. LTE BAND 13

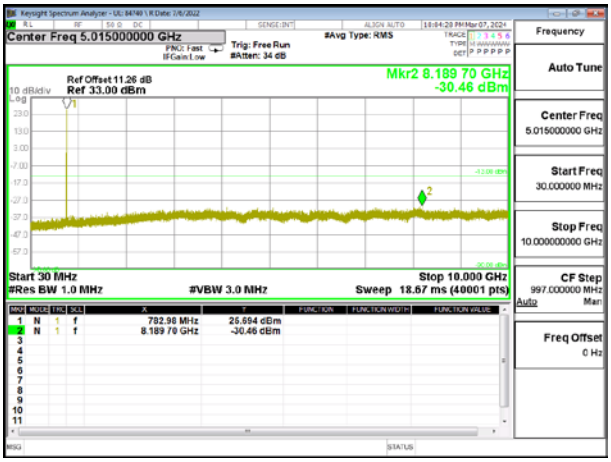
LIMITS

FCC: §27.53 (c), (f)
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts. 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.
Note: Radiated data in section 9.1.6 confirms a compliance for the emissions in GPS 1559-1610 MHz band were wideband emissions therefore the -40dBm/MHz limit was used.

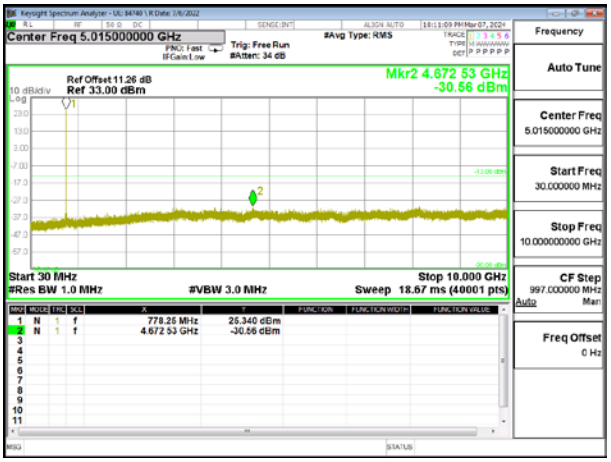
Test Engineer ID:	85502	Test Date:	2024-03-08	EUT Serial Number:	QV7700DSLQ



LTE B13 5MHz 16QAM Low Channel RB1-0



LTE B13 5MHz 16QAM High Channel RB1-0



LTE B13 10MHz 16QAM Middle Channel RB1-0

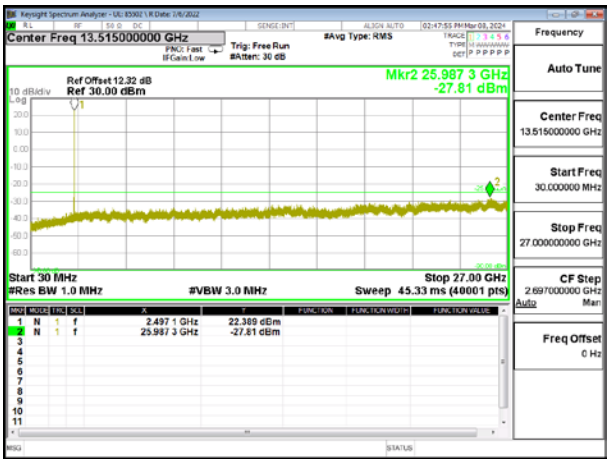
9.3.7. LTE BAND 41 AND 5G NR n41

LIMITS

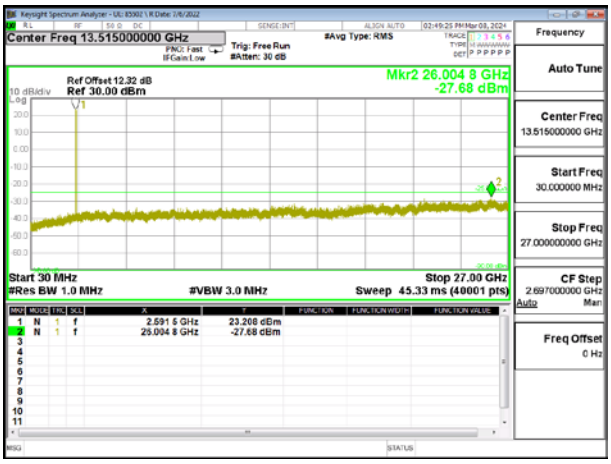
FCC: §27.53 (m)
The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

Test Engineer ID:	85502	Test Date:	2024-03-08	EUT Serial Number:	QV7700DSLQ

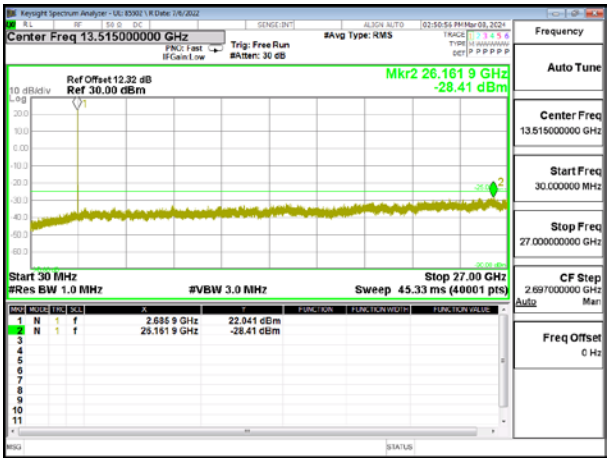
LTE BAND 41



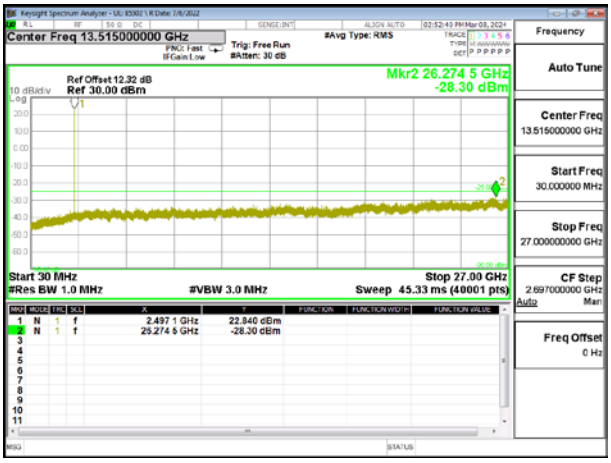
LTE B41 5MHz 16QAM Low Channel RB1-0



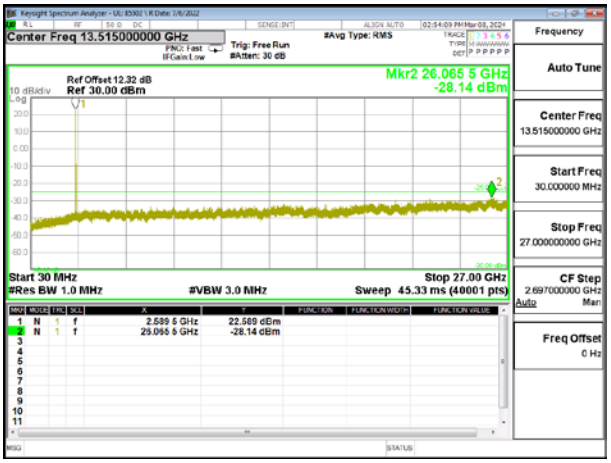
LTE B41 5MHz 16QAM Middle Channel RB1-0



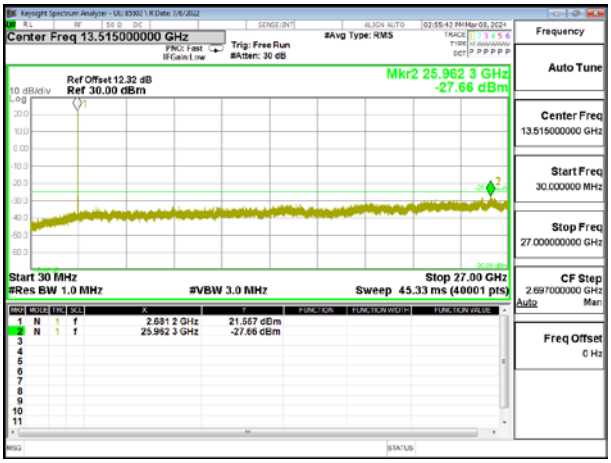
LTE B41 5MHz 16QAM High Channel RB1-0



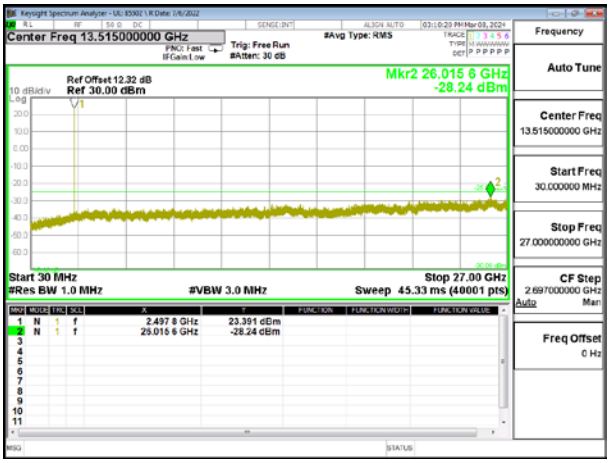
LTE B41 10MHz 16QAM Low Channel RB1-0



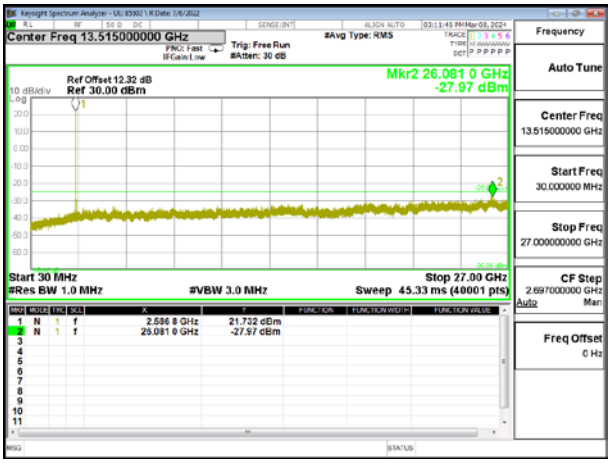
LTE B41 10MHz 16QAM Middle Channel RB1-0



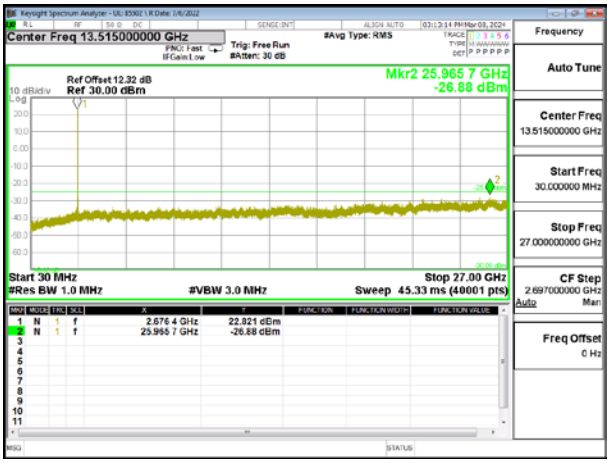
LTE B41 10MHz 16QAM High Channel RB1-0



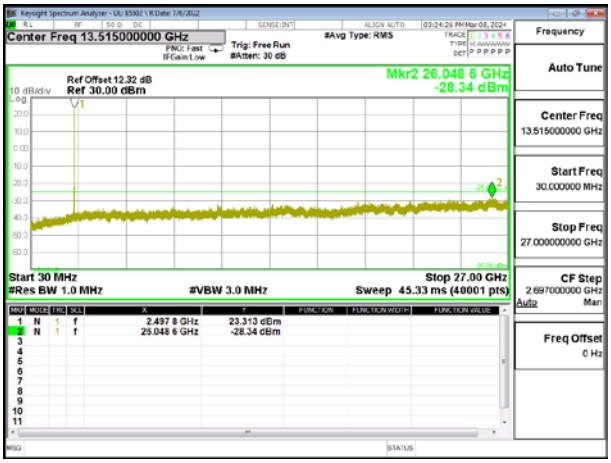
LTE B41 15MHz 16QAM Low Channel RB1-0



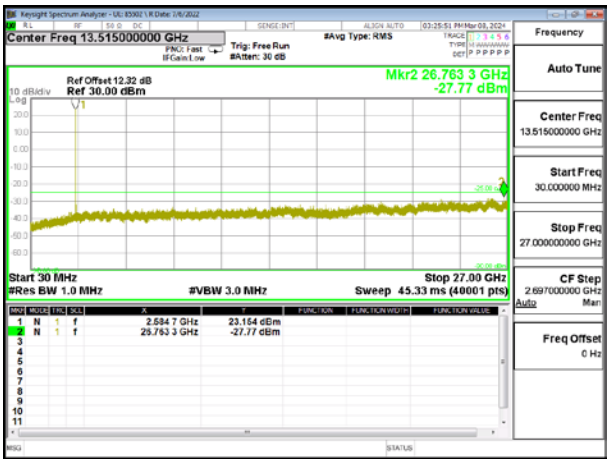
LTE B41 15MHz 16QAM Middle Channel RB1-0



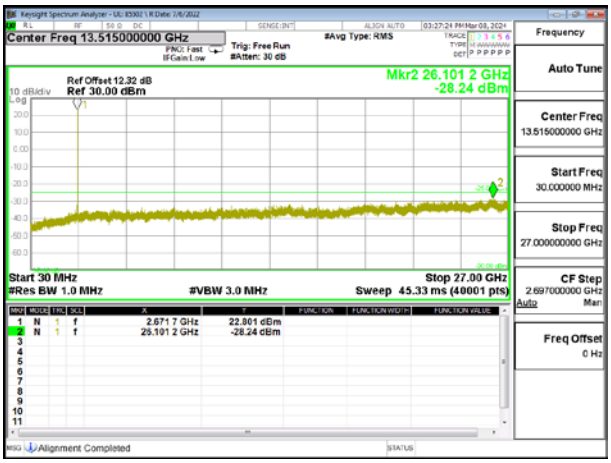
LTE B41 15MHz 16QAM High Channel RB1-0



LTE B41 20MHz 16QAM Low Channel RB1-0

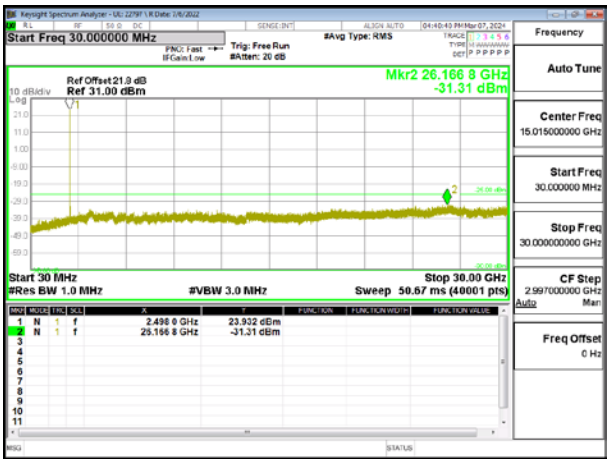


LTE B41 20MHz 16QAM Middle Channel RB1-0

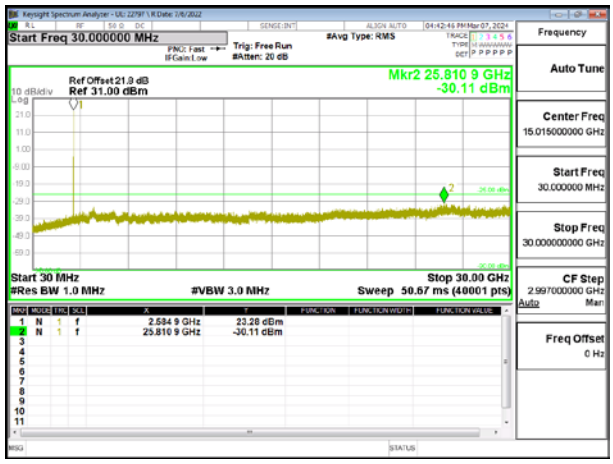


LTE B41 20MHz 16QAM High Channel RB1-0

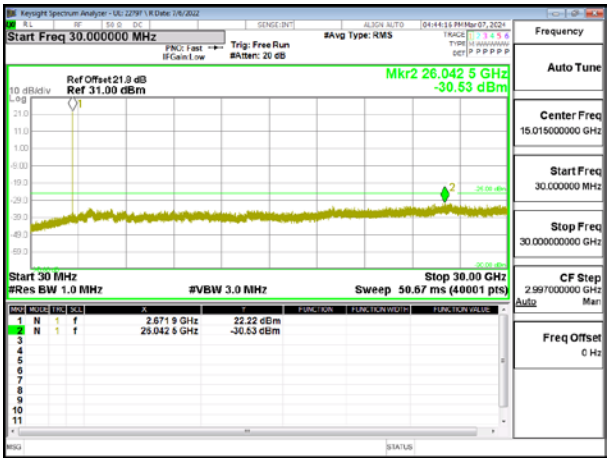
5G NR n41



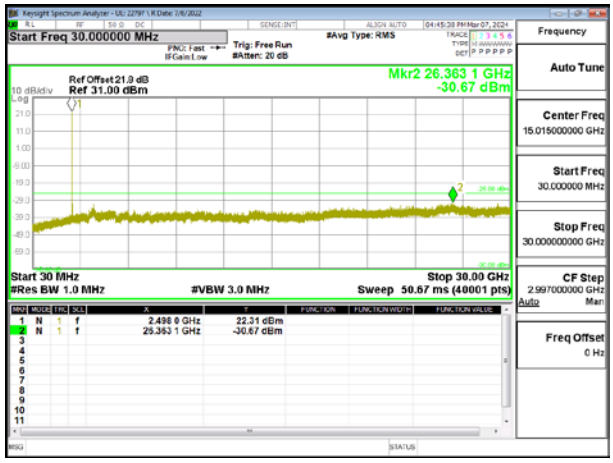
5G NR n41 20MHz QPSK Low Channel RB1-0



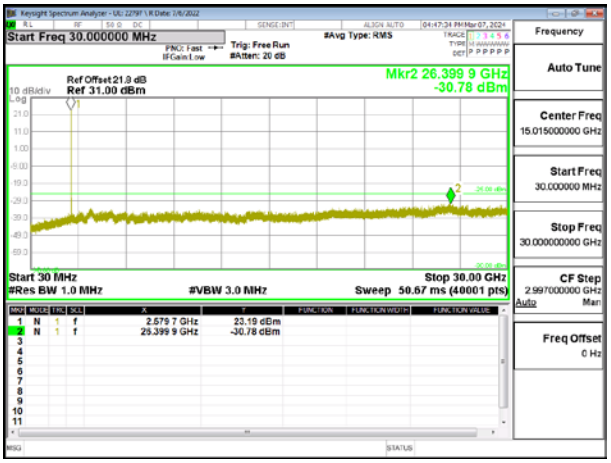
5G NR n41 20MHz QPSK Middle Channel RB1-0



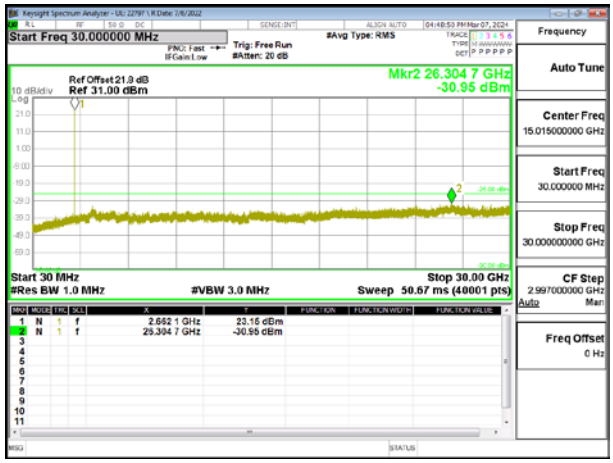
5G NR n41 20MHz QPSK High Channel RB1-0



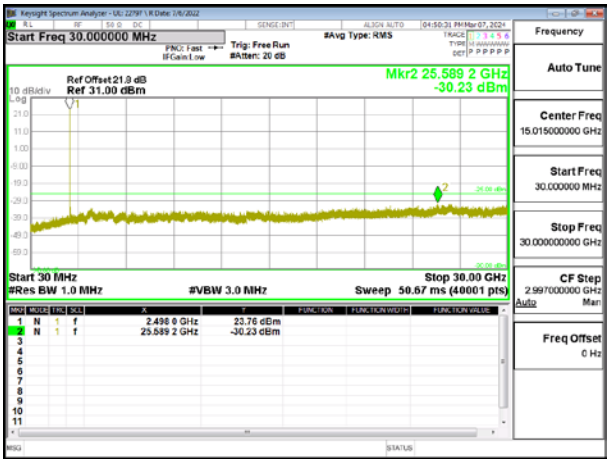
5G NR n41 30MHz QPSK Low Channel RB1-0



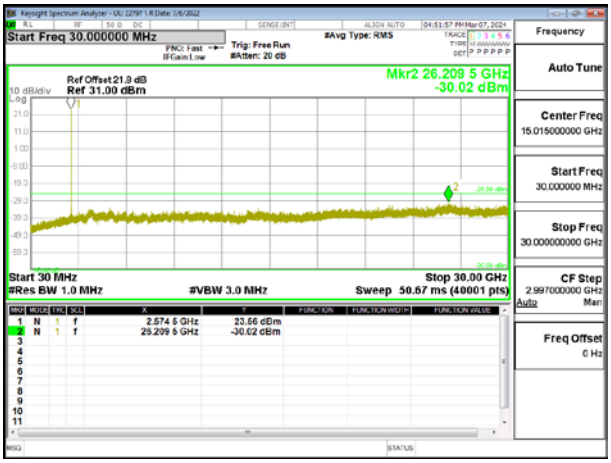
5G NR n41 30MHz QPSK Middle Channel RB1-0



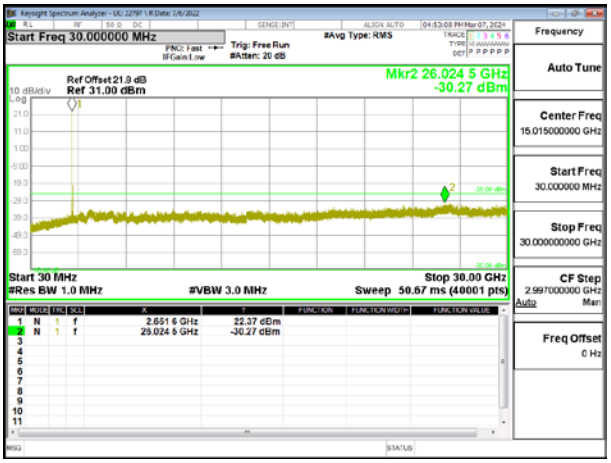
5G NR n41 30MHz QPSK High Channel RB1-0



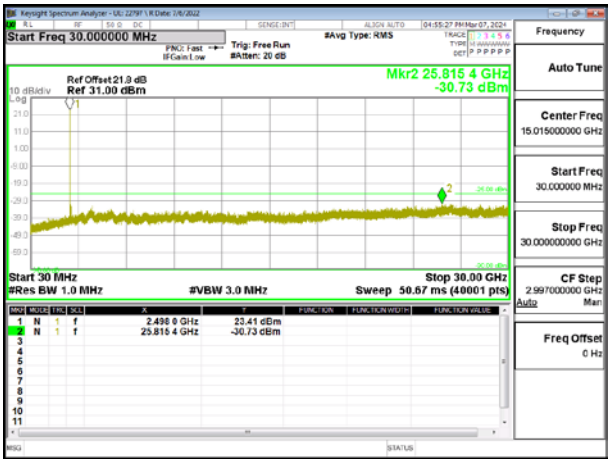
5G NR n41 40MHz QPSK Low Channel RB1-0



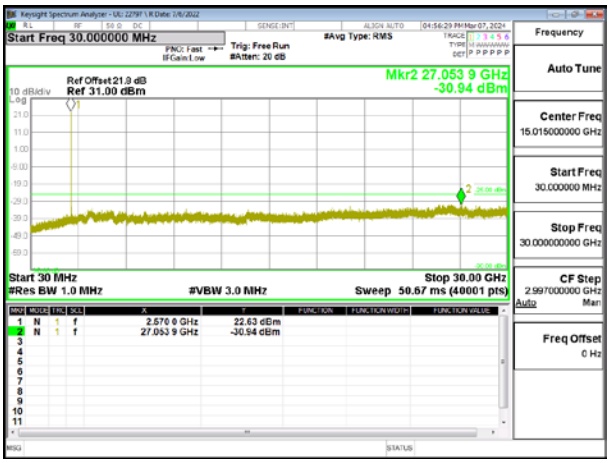
5G NR n41 40MHz QPSK Middle Channel RB1-0



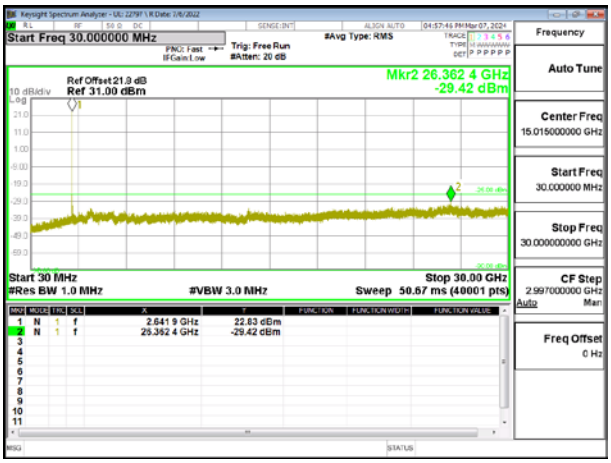
5G NR n41 40MHz QPSK High Channel RB1-0



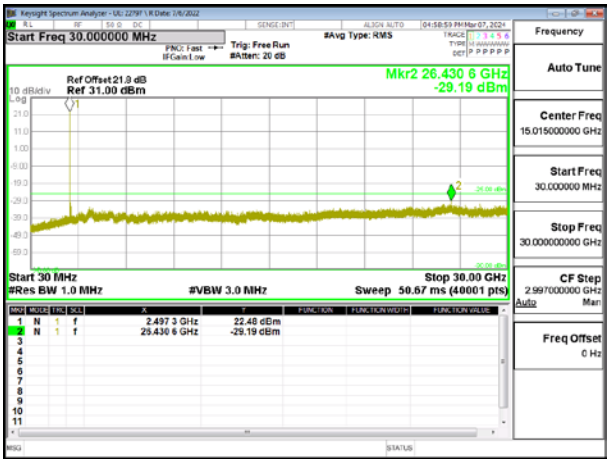
5G NR n41 50MHz QPSK Low Channel RB1-0



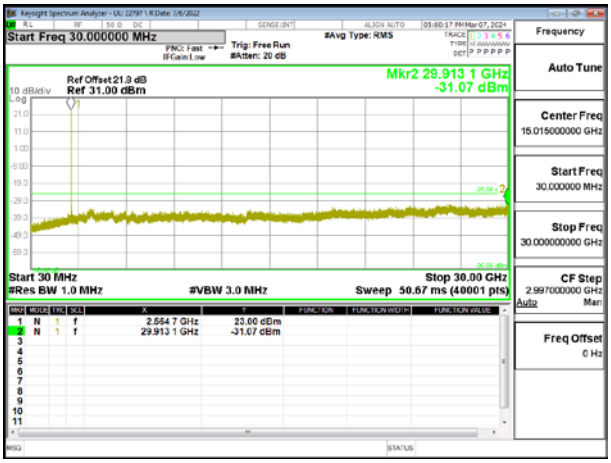
5G NR n41 50MHz QPSK Middle Channel RB1-0



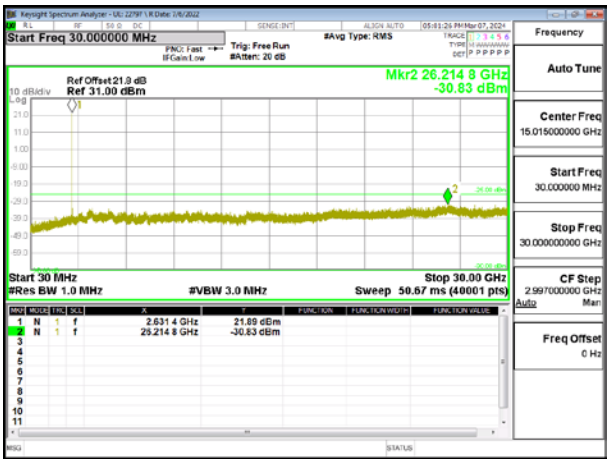
5G NR n41 50MHz QPSK High Channel RB1-0



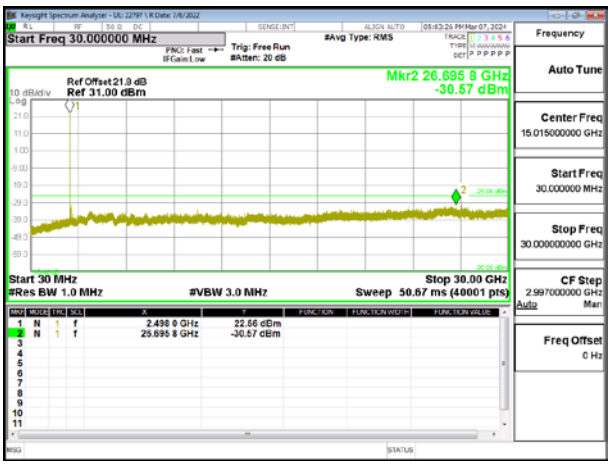
5G NR n41 60MHz QPSK Low Channel RB1-0



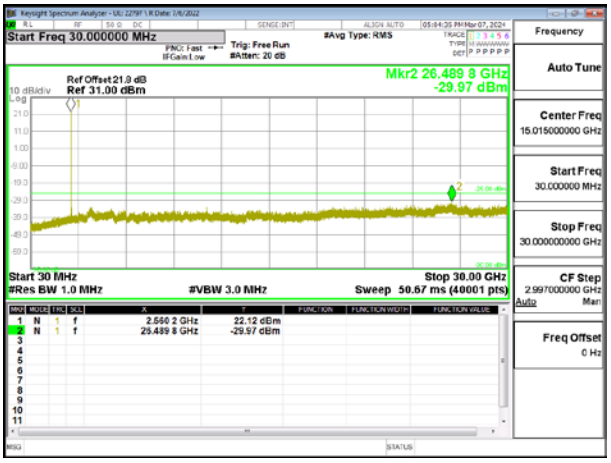
5G NR n41 60MHz QPSK Middle Channel RB1-0



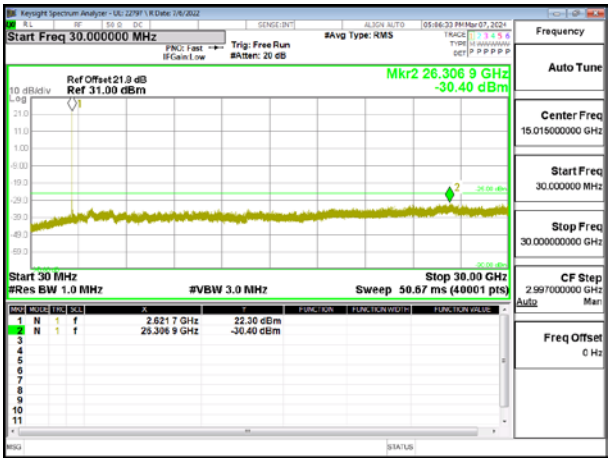
5G NR n41 60MHz QPSK High Channel RB1-0



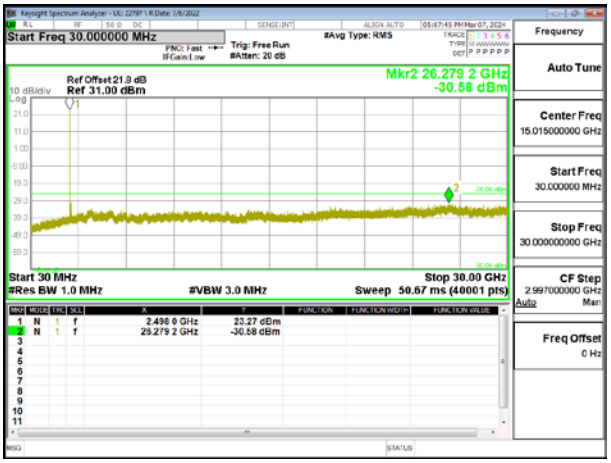
5G NR n41 70MHz QPSK Low Channel RB1-0



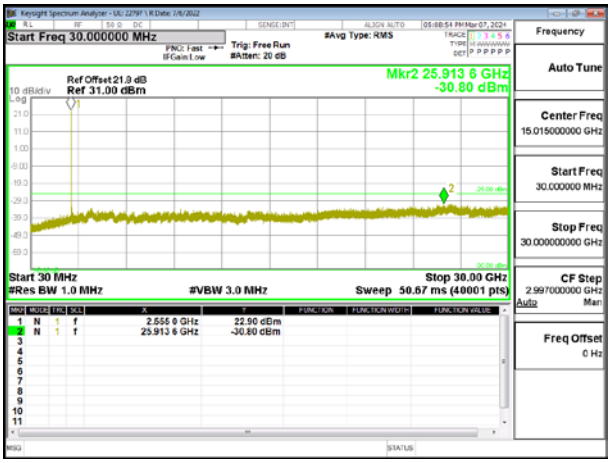
5G NR n41 70MHz QPSK Middle Channel RB1-0



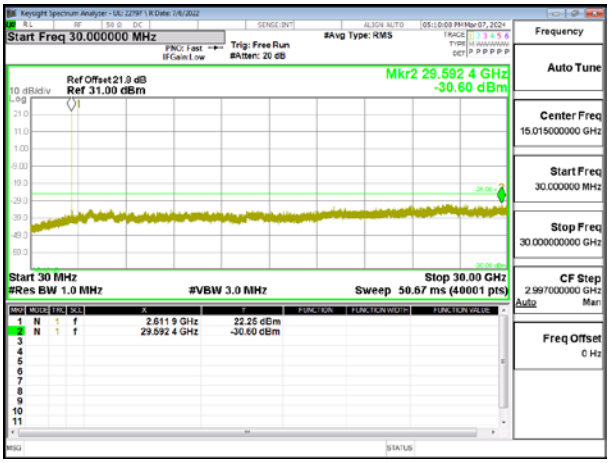
5G NR n41 70MHz QPSK High Channel RB1-0



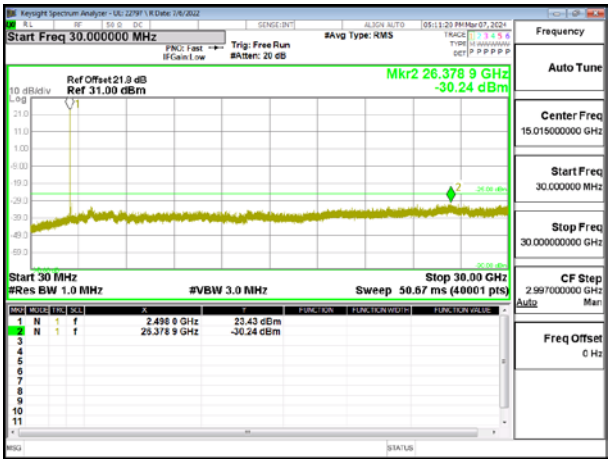
5G NR n41 80MHz QPSK Low Channel RB1-0



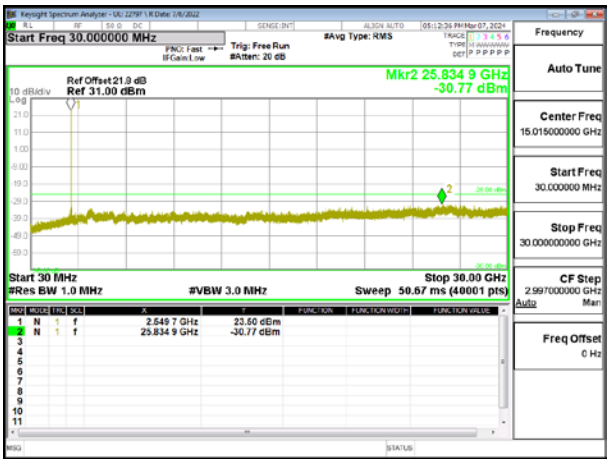
5G NR n41 80MHz QPSK Middle Channel RB1-0



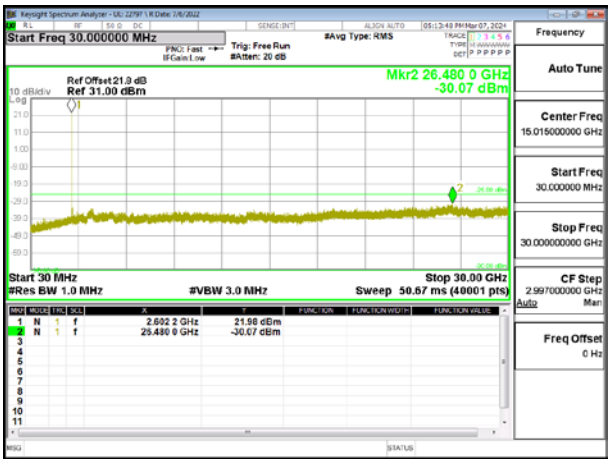
5G NR n41 80MHz QPSK High Channel RB1-0



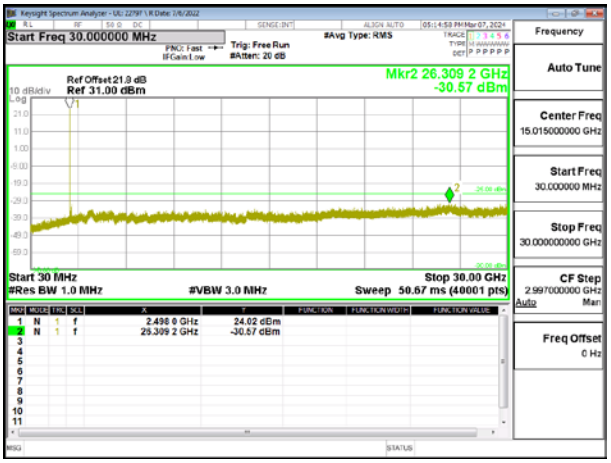
5G NR n41 90MHz QPSK Low Channel RB1-0



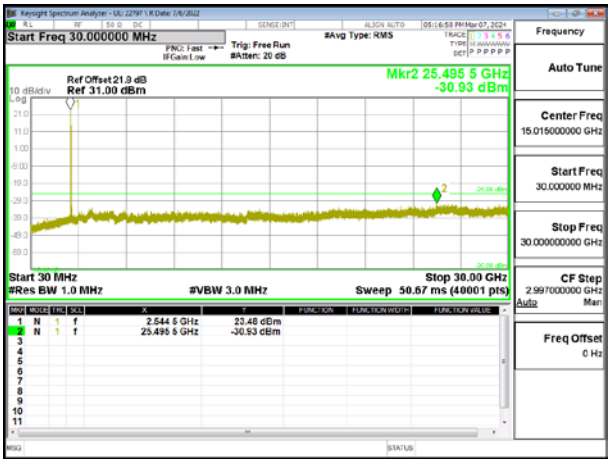
5G NR n41 90MHz QPSK Mid Channel RB1-0



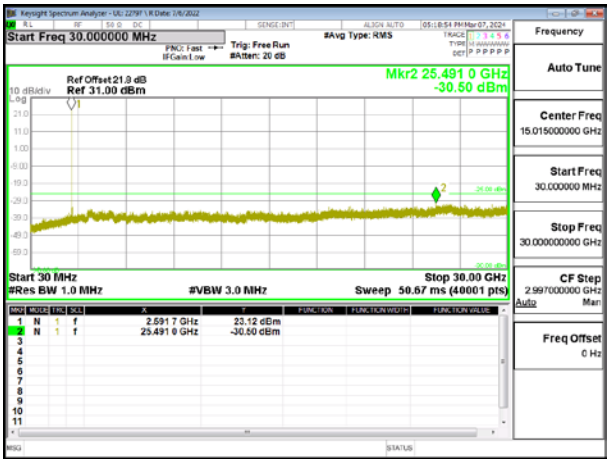
5G NR n41 90MHz QPSK High Channel RB1-0



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



5G NR n41 100MHz QPSK Middle Channel RB1-0



5G NR n41 100MHz QPSK High Channel RB1-0

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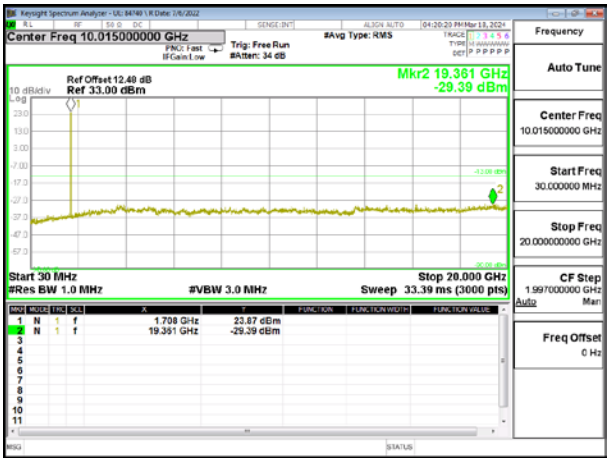
9.3.8. LTE BAND 66 AND 5G NR n66

LIMITS

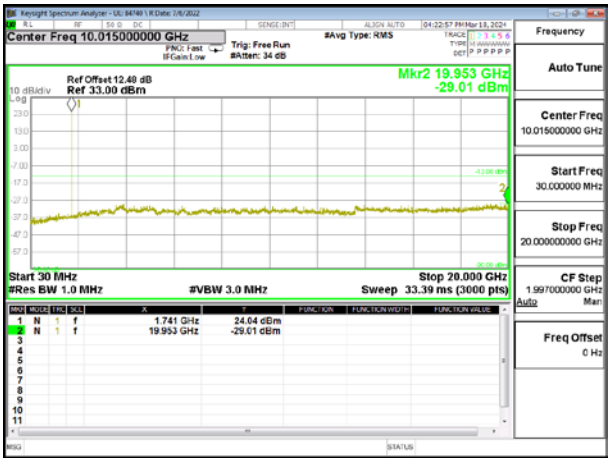
FCC: §27.53 (h)
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

Test Engineer ID:	33499/85502	**Test Date:**	2024-03-11 2024-03-18	**EUT Serial Number:**	QV77000KL2 QV7700DSLQ

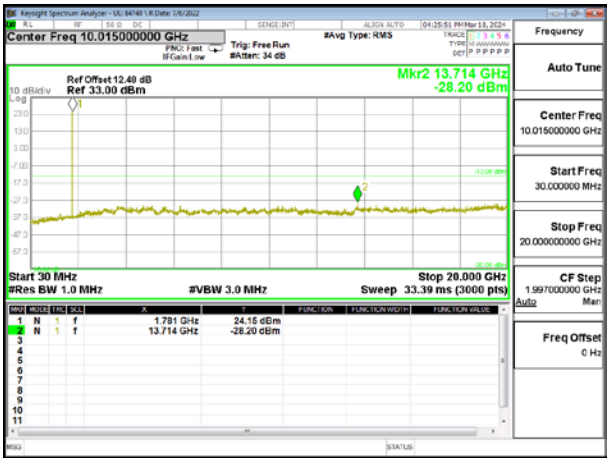
LTE BAND 66



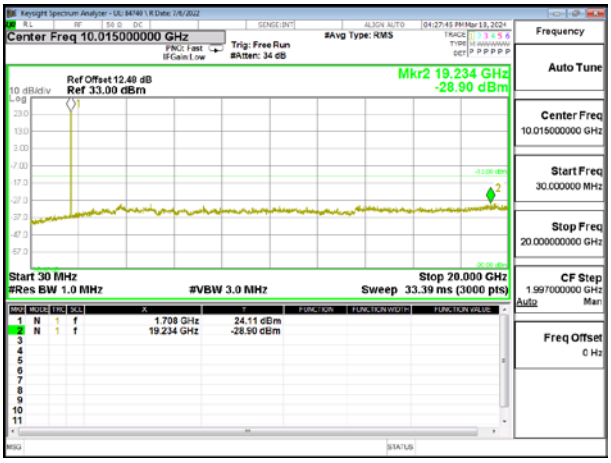
LTE B66 1.4MHz QPSK Low Channel RB1-0



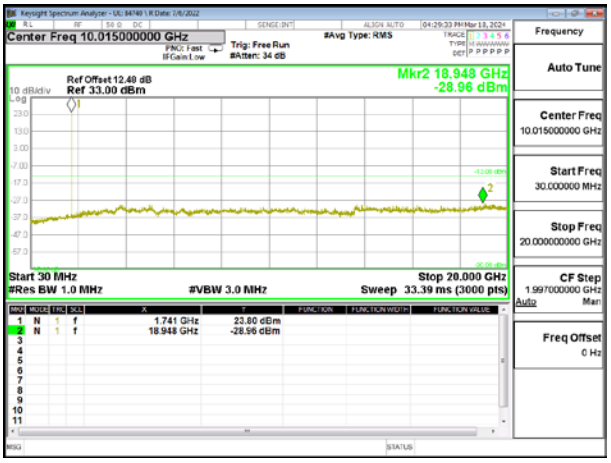
LTE B66 1.4MHz QPSK Middle Channel RB1-0



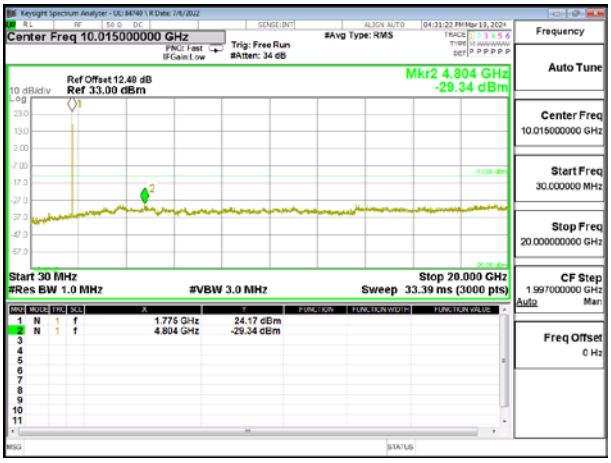
LTE B66 1.4MHz QPSK High Channel RB1-0



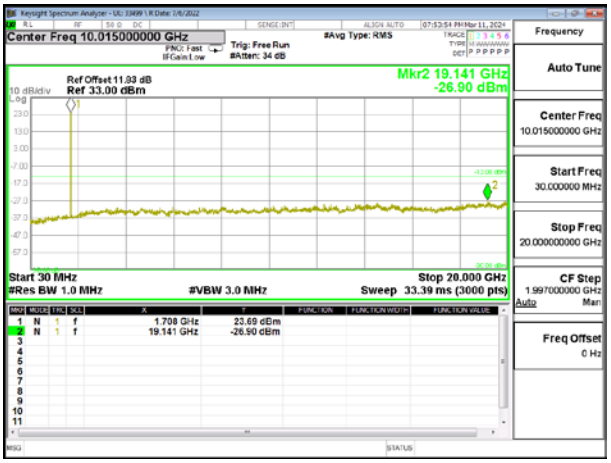
LTE B66 3MHz QPSK Low Channel RB1-0



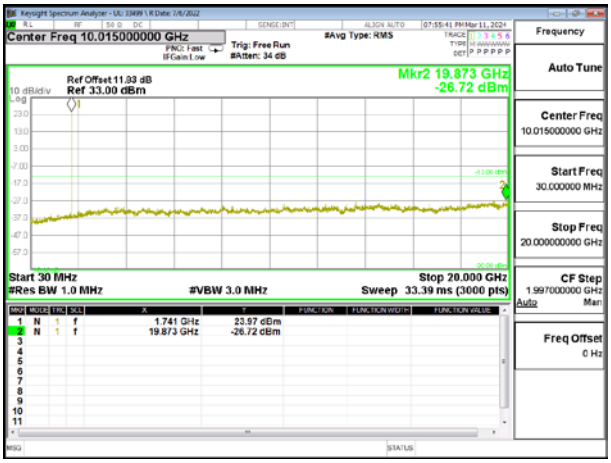
LTE B66 3MHz QPSK Middle Channel RB1-0



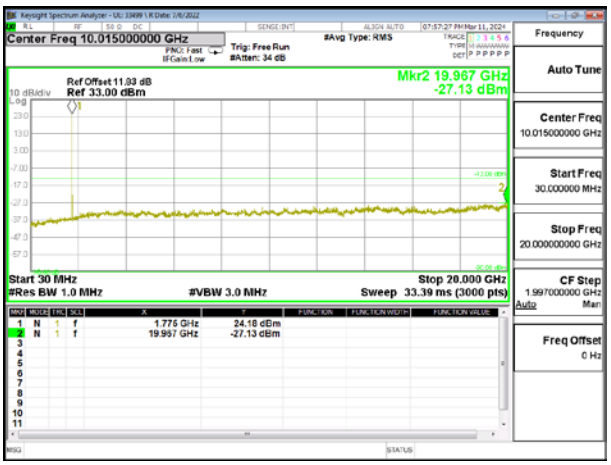
LTE B66 3MHz QPSK High Channel RB1-0



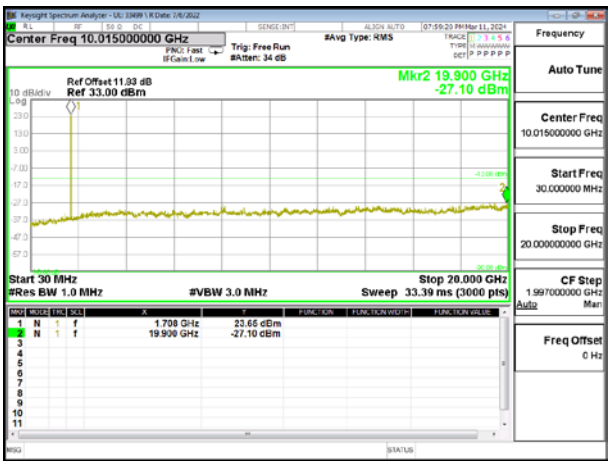
LTE B66 5MHz QPSK Low Channel RB1-0



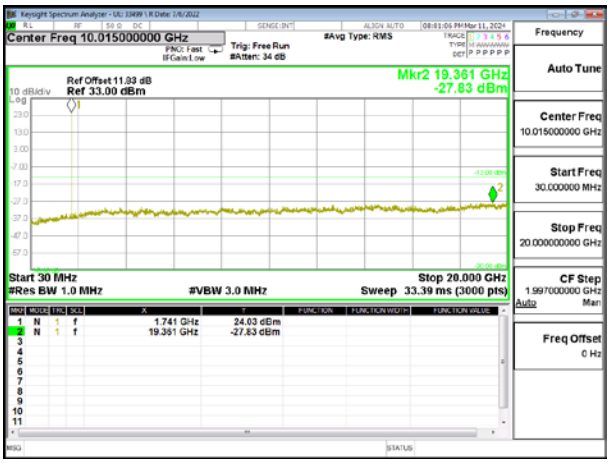
LTE B66 5MHz QPSK Middle Channel RB1-0



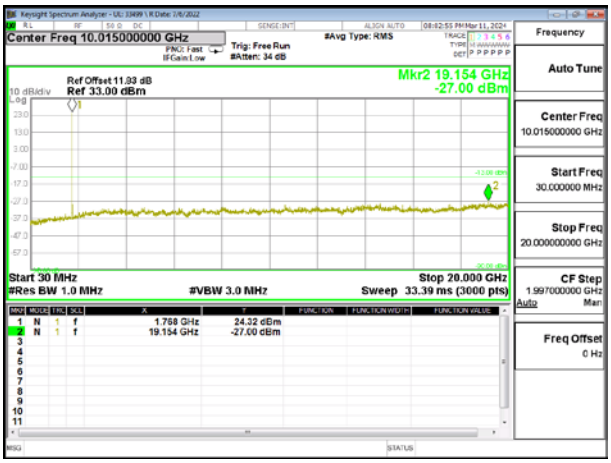
LTE B66 5MHz QPSK High Channel RB1-0



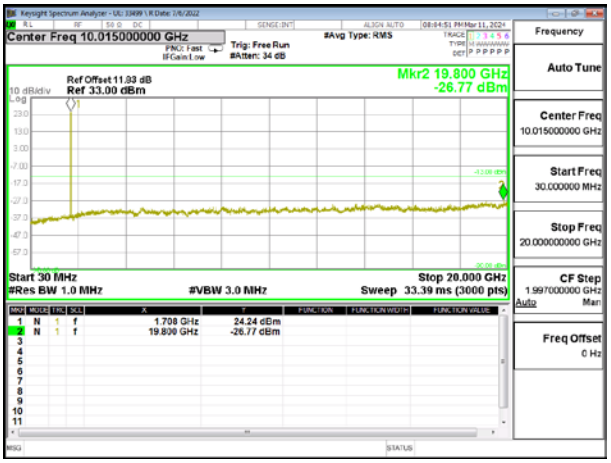
LTE B66 10MHz QPSK Low Channel RB1-0



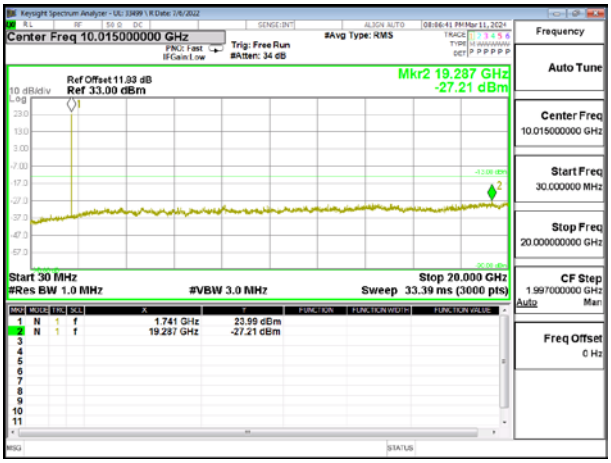
LTE B66 10MHz QPSK Middle Channel RB1-0



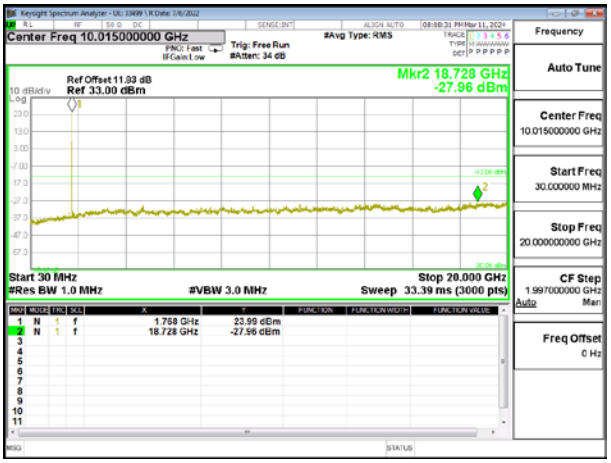
LTE B66 10MHz QPSK High Channel RB1-0



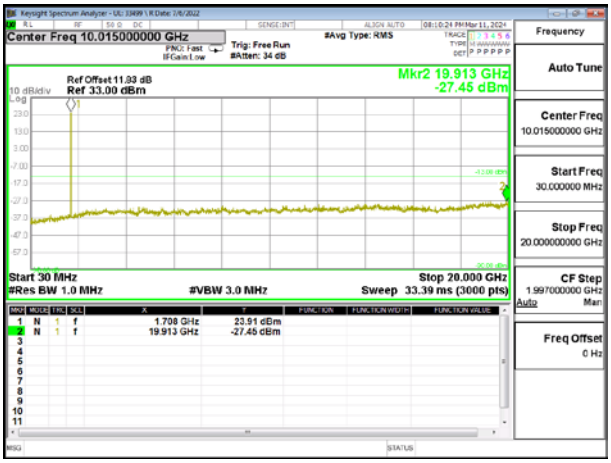
LTE B66 15MHz QPSK Low Channel RB1-0



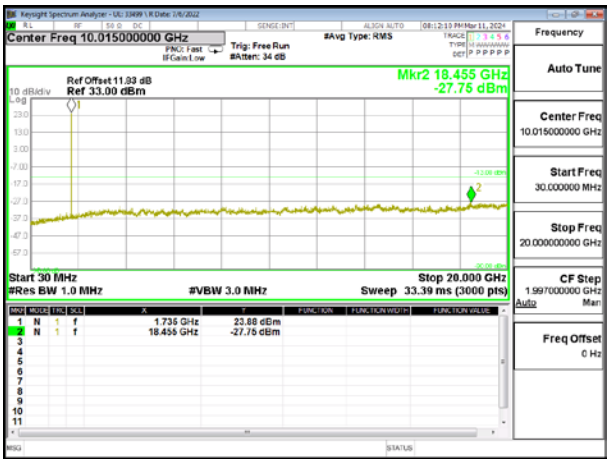
LTE B66 15MHz QPSK Middle Channel RB1-0



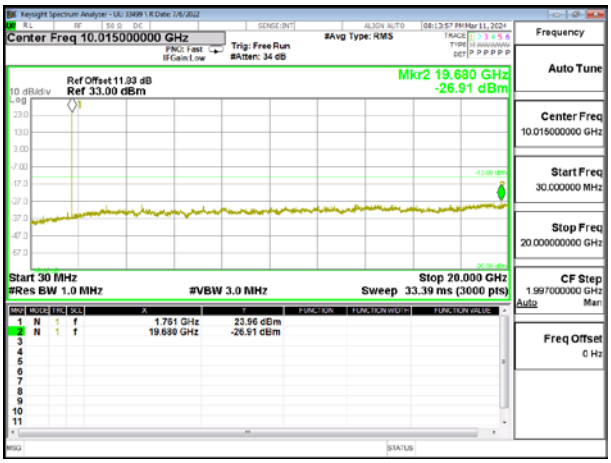
LTE B66 15MHz QPSK High Channel RB1-0



LTE B66 20MHz QPSK Low Channel RB1-0



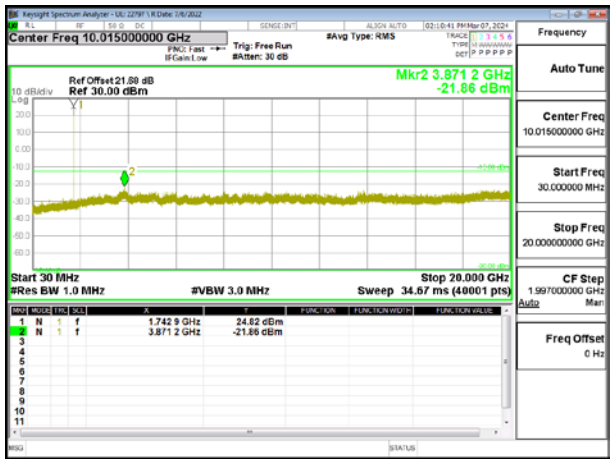
LTE B66 20MHz QPSK Middle Channel RB1-0



LTE B66 20MHz QPSK High Channel RB1-0

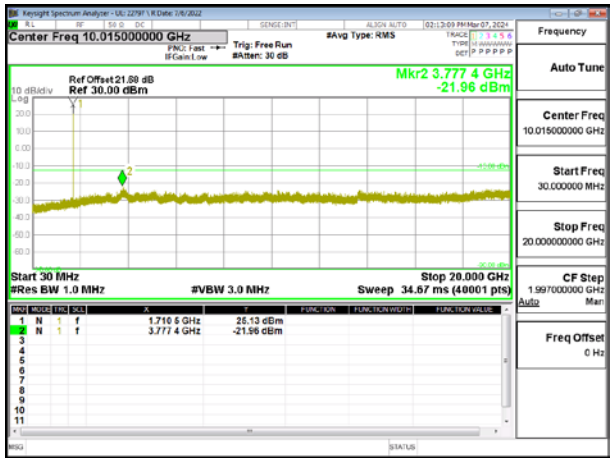
5G NR n66

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

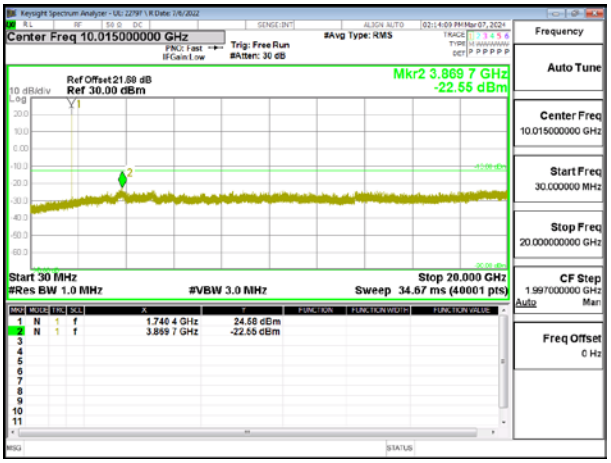


5G NR n66 5MHz BPSK Middle Channel RB1-0

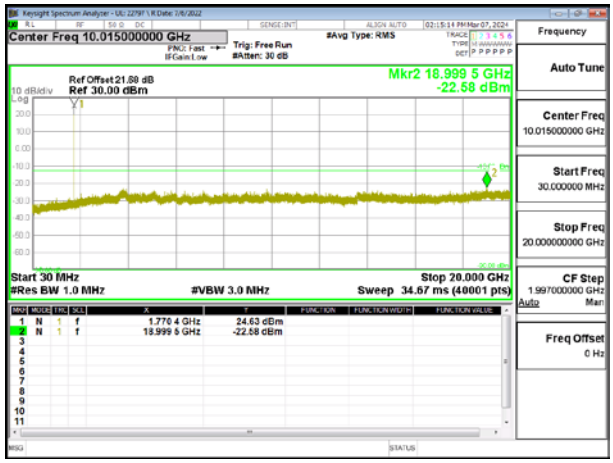
5G NR n66 5MHz BPSK High Channel RB1-0



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

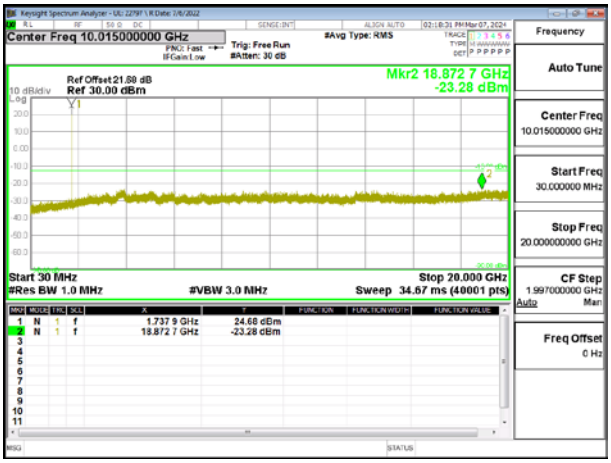


5G NR n66 10MHz BPSK Middle Channel RB1-0



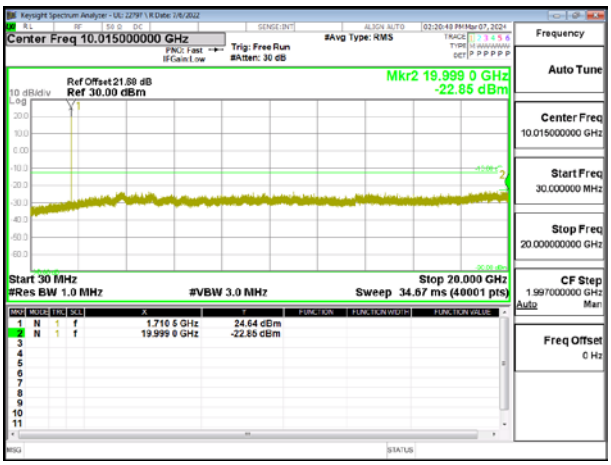
5G NR n66 10MHz BPSK High Channel RB1-0

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



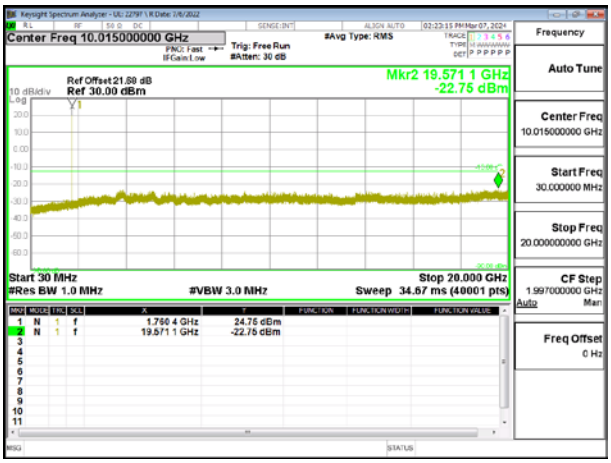
5G NR n66 15MHz BPSK Middle Channel RB1-0

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



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

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



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

9.4. FREQUENCY STABILITY

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = −30°C to +50°C
- Voltage = (End Point)

  Normal, 3.89VDC
  End Point, 3.69VDC.

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

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

RESULTS

See the following pages.

9.4.1. GSM850

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:	84740	Test Date:	2024-03-05	EUT Serial Number:	QV7700DSLQ

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	824.00001903	848.80001903			
Extreme (50°C)		824.00004126	848.80004126	22.23	0.027	Yes
Extreme (40°C)		824.00003938	848.80003938	20.35	0.024	Yes
Extreme (30°C)		824.00003872	848.80003872	19.69	0.024	Yes
Extreme (10°C)		824.00004359	848.80004359	24.56	0.029	Yes
Extreme (0°C)		824.00004144	848.80004144	22.41	0.027	Yes
Extreme (-10°C)		824.00004470	848.80004470	25.67	0.031	Yes
Extreme (-20°C)		824.00003855	848.80003855	19.52	0.023	Yes
Extreme (-30°C)		824.00003796	848.80003796	18.93	0.023	Yes
20°C	End Point Voltage	824.0000	848.8000	22.48	0.027	Yes

9.4.2. GSM1900

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:	84740	Test Date:	2024-03-05	EUT Serial Number:	QV7700DSLQ

Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	1850.20002274	1909.80002274			
Extreme (50°C)		1850.2000	1909.8000	26.36	0.014	Yes
Extreme (40°C)		1850.2000	1909.8000	26.5	0.014	Yes
Extreme (30°C)		1850.2000	1909.8000	26.03	0.014	Yes
Extreme (10°C)		1850.2000	1909.8000	25.9	0.014	Yes
Extreme (0°C)		1850.2000	1909.8000	24.87	0.013	Yes
Extreme (-10°C)		1850.2000	1909.8000	26.89	0.014	Yes
Extreme (-20°C)		1850.2000	1909.8000	25.57	0.014	Yes
Extreme (-30°C)		1850.2001	1909.8001	27.85	0.015	Yes
20°C	End Point Voltage	1850.2000	1909.8000	23.62	0.013	Yes

9.4.3. WCDMA5

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:	85502	Test Date:	2024-03-06	EUT Serial Number:	QV770018L2

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)		826.40000279	846.59999684			
Extreme (50°C)		826.39999781	846.59999186	-4.98	-0.006	Yes
Extreme (40°C)		826.39999811	846.59999216	-4.68	-0.006	Yes
Extreme (30°C)		826.39999876	846.59999281	-4.03	-0.005	Yes
Extreme (10°C)	Normal	826.40000639	846.60000044	3.6	0.004	Yes
Extreme (0°C)		826.39999854	846.59999259	-4.25	-0.005	Yes
Extreme (-10°C)		826.39999762	846.59999167	-5.17	-0.006	Yes
Extreme (-20°C)		826.40000824	846.60000229	5.45	0.007	Yes
Extreme (-30°C)		826.40000719	846.60000124	4.4	0.005	Yes
20°C	End Point Voltage	826.40000056	846.59999461	-2.23	-0.003	Yes

9.4.4. LTE BAND 5 AND 5G NR n5

LIMITS

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

Test Engineer ID:	85502	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

LTE BAND 5 QPSK (10MHz BANDWIDTH)

5G NR n5 BPSK (20MHz BANDWIDTH)

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	824.5250	847.4500			
Extreme (50°C)		824.5256	847.4506	554	0.662	Yes
Extreme (40°C)		824.5245	847.4495	-460	-0.550	Yes
Extreme (30°C)		824.5253	847.4503	326	0.390	Yes
Extreme (10°C)		824.5253	847.4503	327	0.391	Yes
Extreme (0°C)		824.5248	847.4498	-175	-0.209	Yes
Extreme (-10°C)		824.5253	847.4503	269	0.322	Yes
Extreme (-20°C)		824.5255	847.4505	512	0.612	Yes
Extreme (-30°C)		824.5249	847.4499	-117	-0.140	Yes
20°C	End Point Voltage	824.5248	847.4498	-236	-0.282	Yes

9.4.5. LTE BAND 12

LIMITS

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

Test Engineer ID:	85502	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

LTE BAND 12 QPSK (10MHz BANDWIDTH)

Band	12	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		699	716			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	703.45500000	710.54500000			
Extreme (50°C)		703.45499670	710.54499670	-3.3	-0.005	Yes
Extreme (40°C)		703.45500310	710.54500310	3.1	0.004	Yes
Extreme (30°C)		703.45500270	710.54500270	2.7	0.004	Yes
Extreme (10°C)		703.45500450	710.54500450	4.5	0.006	Yes
Extreme (0°C)		703.4550	710.5450	4	0.006	Yes
Extreme (-10°C)		703.4550	710.5450	2.3	0.003	Yes
Extreme (-20°C)		703.4550	710.5450	3.6	0.005	Yes
Extreme (-30°C)		703.4550	710.5450	5.9	0.008	Yes
20°C	End Point Voltage	703.4550	710.5450	3.2	0.005	Yes

9.4.6. LTE BAND 13

LIMITS

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

Test Engineer ID:	85502	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

QPSK (10MHz BANDWIDTH)

Band	13	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		777	787			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	779.22800000	784.77200000			
Extreme (50°C)		779.22800440	784.77200440	4.4	0.006	Yes
Extreme (40°C)		779.22800420	784.77200420	4.2	0.005	Yes
Extreme (30°C)		779.22800390	784.77200390	3.9	0.005	Yes
Extreme (10°C)		779.22800280	784.77200280	2.8	0.004	Yes
Extreme (0°C)		779.2280048	784.7720048	4.8	0.006	Yes
Extreme (-10°C)		779.22800390	784.77200390	3.9	0.005	Yes
Extreme (-20°C)		779.2280049	784.7720049	4.9	0.006	Yes
Extreme (-30°C)		779.2280043	784.7720043	4.3	0.005	Yes
20°C	End Point Voltage	779.22800480	784.77200480	4.8	0.006	Yes

9.4.7. 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:	84740	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

LTE BAND 41 QPSK (20MHz BANDWIDTH)

Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	2514.92100000	2671.10700000			
Extreme (50°C)		2514.92100640	2671.10700640	6.4	0.002	Yes
Extreme (40°C)		2514.92100410	2671.10700410	4.1	0.002	Yes
Extreme (30°C)		2514.92100450	2671.10700450	4.5	0.002	Yes
Extreme (10°C)		2514.92100390	2671.10700390	3.9	0.002	Yes
Extreme (0°C)		2514.92100140	2671.10700140	1.4	0.001	Yes
Extreme (-10°C)		2514.92100360	2671.10700360	3.6	0.001	Yes
Extreme (-20°C)		2514.92100150	2671.10700150	1.5	0.001	Yes
Extreme (-30°C)		2514.92100470	2671.10700470	4.7	0.002	Yes
20°C	End Point Voltage	2514.92100220	2671.10700220	2.2	0.001	Yes

5G NR n41 BPSK (100MHz BANDWIDTH)

Band	41	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		2496	2690			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	2496.2100	2688.6750			
Extreme (50°C)		2496.2127	2688.6777	2704	1.043	Yes
Extreme (40°C)		2496.2120	2688.6770	1957	0.755	Yes
Extreme (30°C)		2496.2122	2688.6772	2174	0.838	Yes
Extreme (10°C)		2496.2213	2688.6863	11347	4.376	Yes
Extreme (0°C)		2496.2129	2688.6779	2855	1.101	Yes
Extreme (-10°C)		2496.2173	2688.6823	7345	2.833	Yes
Extreme (-20°C)		2496.2150	2688.6800	5018	1.935	Yes
Extreme (-30°C)		2496.2135	2688.6785	3472	1.339	Yes
20°C	End Point Voltage	2496.2101	2688.6751	65	0.025	Yes

9.4.8. 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:	84740	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

LTE BAND 66 QPSK (20MHz BANDWIDTH)

Band	66	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1780			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	1728.92700000	1761.09600000			
Extreme (50°C)		1728.92700500	1761.09600500	5.0	0.003	Yes
Extreme (40°C)		1728.92700330	1761.09600330	3.3	0.002	Yes
Extreme (30°C)		1728.92700840	1761.09600840	8.4	0.005	Yes
Extreme (10°C)		1728.92700650	1761.09600650	6.5	0.004	Yes
Extreme (0°C)		1728.92700570	1761.09600570	5.7	0.003	Yes
Extreme (-10°C)		1728.92700460	1761.09600460	4.6	0.003	Yes
Extreme (-20°C)		1728.92700510	1761.09600510	5.1	0.003	Yes
Extreme (-30°C)		1728.92700320	1761.09600320	3.2	0.002	Yes
20°C	End Point Voltage	1728.92700290	1761.09600290	2.9	0.002	Yes

5G NR n66 BPSK (40MHz BANDWIDTH)

Band	66	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1780			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	1710.2180	1778.7260			
Extreme (50°C)		1710.2156	1778.7236	-2444	-1.401	Yes
Extreme (40°C)		1710.2177	1778.7257	-253	-0.145	Yes
Extreme (30°C)		1710.2190	1778.7270	1047	0.600	Yes
Extreme (10°C)		1710.2182	1778.7262	212	0.121	Yes
Extreme (0°C)		1710.2239	1778.7319	5922	3.394	Yes
Extreme (-10°C)		1710.2188	1778.7268	845	0.484	Yes
Extreme (-20°C)		1710.2204	1778.7284	2409	1.381	Yes
Extreme (-30°C)		1710.2206	1778.7286	2594	1.487	Yes
20°C	End Point Voltage	1710.2174	1778.7254	-604	-0.346	Yes

9.5. PEAK TO AVERAGE RATIO

LIMITS

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.

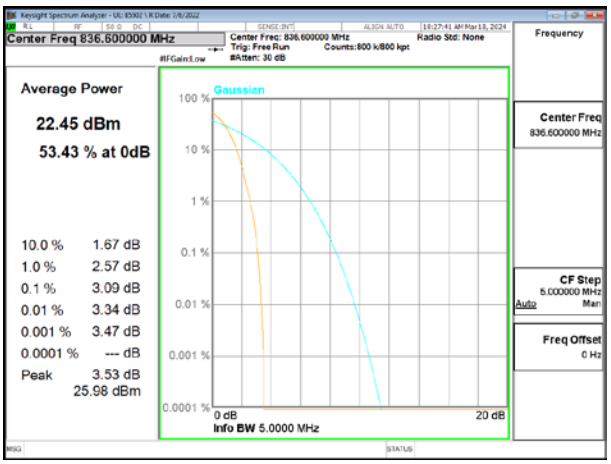
RESULT

9.5.1. GSM

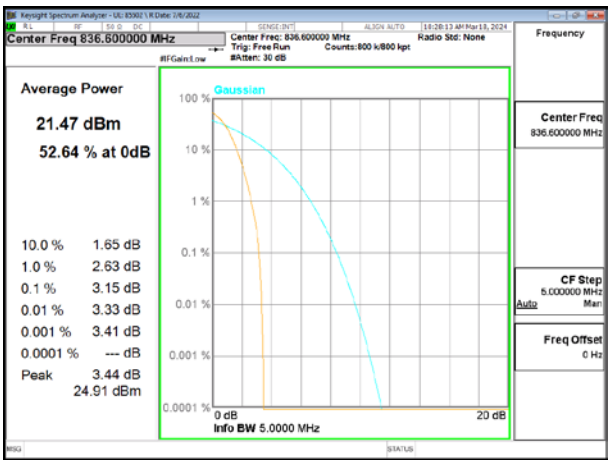
Bandwidth (MHz)	Frequency (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
			Peak	Average	
GSM 850	836.6	GMSK	33.08	32.9	0.18
		8PSK	32.97	27.4	5.57
GSM 1900	1880.0	GMSK	28.03	28.0	0.03
		8PSK	29.90	26.9	3.00

Test Engineer ID:	27338/44389	**Test Date:**	2024-02-21 2024-03-07	**EUT Serial Number:**	QV770018L2

9.5.1. WCDMA



WCDMA Band 5 Rel 99 Middle Channel



WCDMA Band 5 HSDPA Middle Channel

Test Engineer ID:	85502	Test Date:	2024-03-18	EUT Serial Number:	QV770018L2

9.5.2. LTE BAND 5

Test Engineer ID:	85502	Test Date:	2024-03-04	EUT Serial Number:	QV770018L2

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 5	1.4MHz	836.5	6	0	QPSK	24.85	20.2	4.65
					16QAM	25.83	20.34	5.49
	3MHz		15	0	QPSK	24.82	20.27	4.55
					16QAM	25.87	20.3	5.57
	5MHz		25	0	QPSK	25.01	20.28	4.73
					16QAM	26.27	20.25	6.02
	10MHz		50	0	QPSK	24.93	20.23	4.70
					16QAM	26.17	20.27	5.90
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.3. 5G NR n5

Test Engineer ID:	27338/44389	Test Date:	2024-01-05 2024-01-08	EUT Serial Number:	QV77000KL2

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
5G NR n5	5MHz	836.5	25	0	BPSK	24.78	21.35	3.43
					16QAM	25.96	20.8	5.16
	10MHz		50	0	BPSK	24.68	21.35	3.33
					16QAM	25.73	20.81	4.92
	15MHz		75	0	BPSK	24.68	21.19	3.49
					16QAM	25.74	20.77	4.97
	20MHz		100	0	BPSK	24.90	21.38	3.52
					16QAM	25.96	20.79	5.17
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.4. LTE BAND 66

Test Engineer ID:	27338/44389	Test Date:	01-19-2024 02-05-2024	EUT Serial Number:	QV77001AL2

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 66	1.4MHz	1747.5	6	0	QPSK	23.20	19.99	3.21
					16QAM	23.27	20.1	3.17
	3MHz		15	0	QPSK	23.17	20.1	3.12
					16QAM	24.45	20.11	4.34
	5MHz		25	0	QPSK	24.63	20.07	4.56
					16QAM	24.58	20.12	4.46
	10MHz		50	0	QPSK	24.63	19.99	4.64
					16QAM	23.24	20.02	3.22
	15MHz		75	0	QPSK	23.32	19.86	3.46
					16QAM	23.18	19.91	3.27
	20MHz		100	0	QPSK	24.59	20.0	4.61
					16QAM	24.56	19.98	4.58
Duty Cycle Correction Factor (dB) =			0.00					
Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor								

9.5.5. 5G NR n66

Test Engineer ID:	27338/44389	Test Date:	01-19-2024 02-05-2024	EUT Serial Number:	QV77001AL2

Band	Bandwidth (MHz)	Frequency (MHz)	RB Allocation	RB OffSet	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
						Peak	Average	
LTE Band 66	5MHz	1747.5	25	0	BPSK	24.50	19.8	4.70
					16QAM	24.63	20.89	3.74
	10MHz		50	0	BPSK	23.36	20.62	2.74
					16QAM	23.15	19.52	3.63
	15MHz		75	0	BPSK	23.13	20.51	2.62
					16QAM	24.60	19.4	5.20
	20MHz		100	0	BPSK	24.48	20.5	3.94
					16QAM	24.37	19.99	4.38
Duty Cycle Correction Factor (dB) =			0.00					
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.

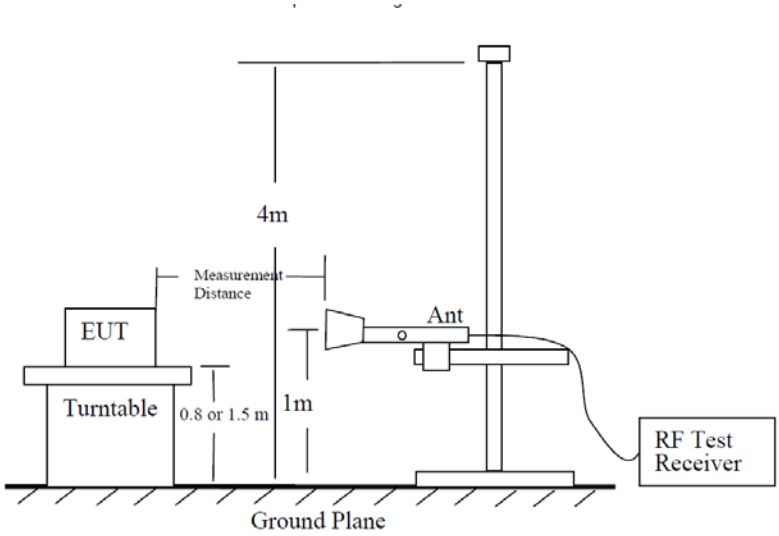


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

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

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

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

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

So, from d)

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

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

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r02

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

RESULTS

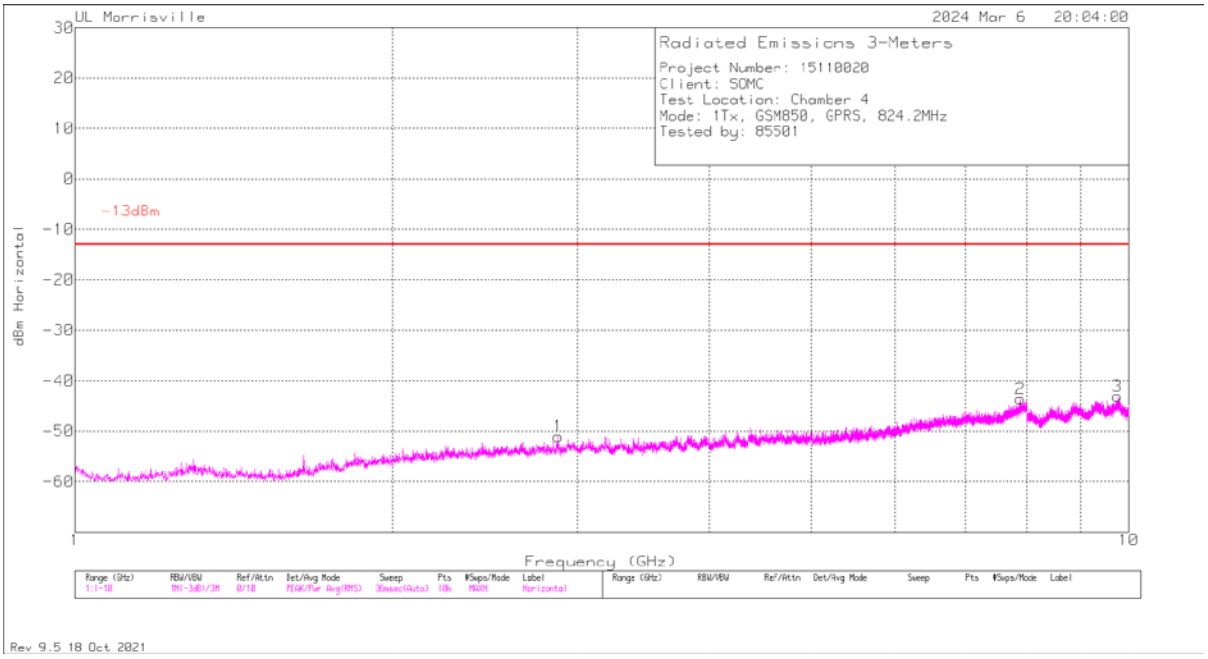
10.1.1. GSM 850

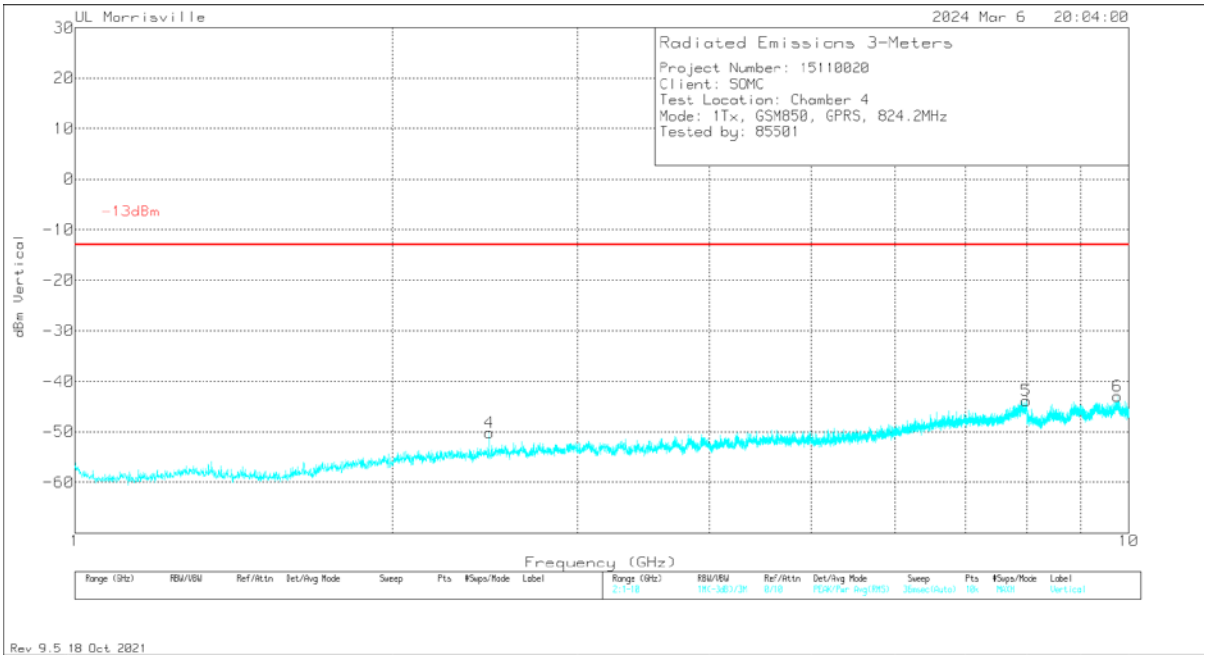
LIMITS

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.

EUT Serial Number:	QV7700NTLQ

GPRS GSM 850 Low Channel





Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.4724	-58.51	Pk	32.3	-36.1	.3	11.8	-50.21	-13	-37.21	0-360	200	V
1	2.8747	-59.92	Pk	32.4	-35.7	.4	11.8	-51.02	-13	-38.02	0-360	100	H
2	7.8904	-63.51	Pk	35.8	-28.1	.4	11.8	-43.61	-13	-30.61	0-360	200	H
5	7.9876	-63.99	Pk	35.8	-27.9	.4	11.8	-43.89	-13	-30.89	0-360	200	V
3	9.7534	-65.95	Pk	36.9	-26.4	.5	11.8	-43.15	-13	-30.15	0-360	100	H
6	9.7615	-66.05	Pk	36.9	-26.1	.5	11.8	-42.95	-13	-29.95	0-360	200	V

Pk - Peak detector