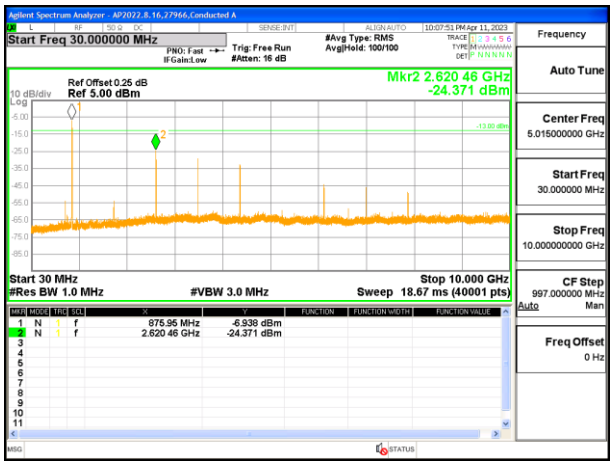
9.3.2. 5G NR n5

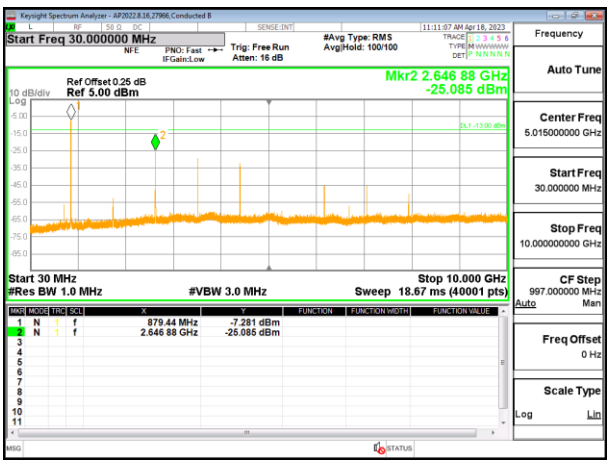
LIMITS

FCC: §22.917 (a)
The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

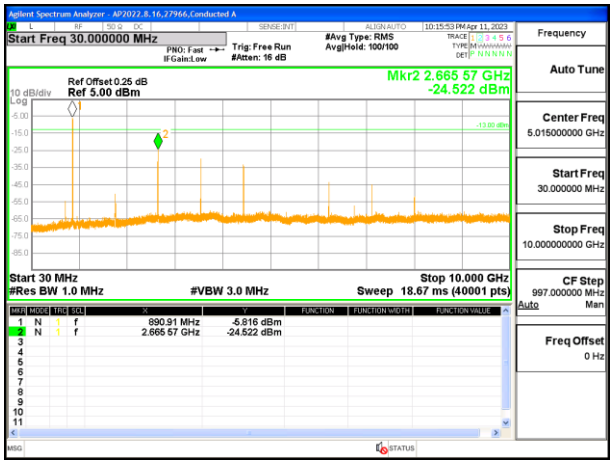
Antenna 1



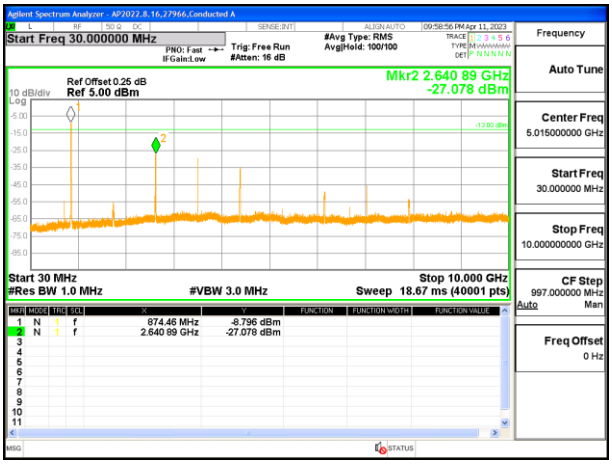
5G NR n5 10MHz QPSK Low Channel



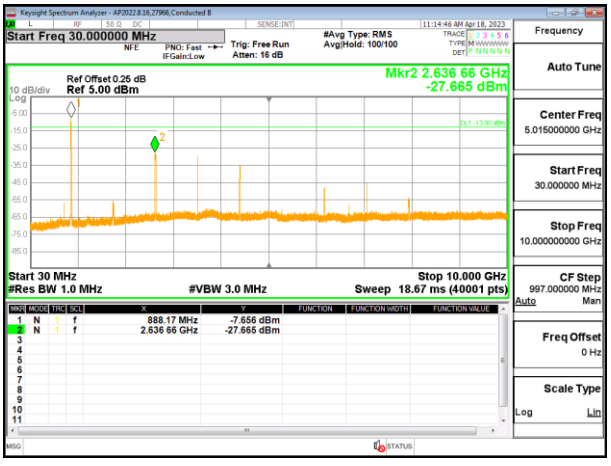
5G NR n5 10MHz QPSK Middle Channel



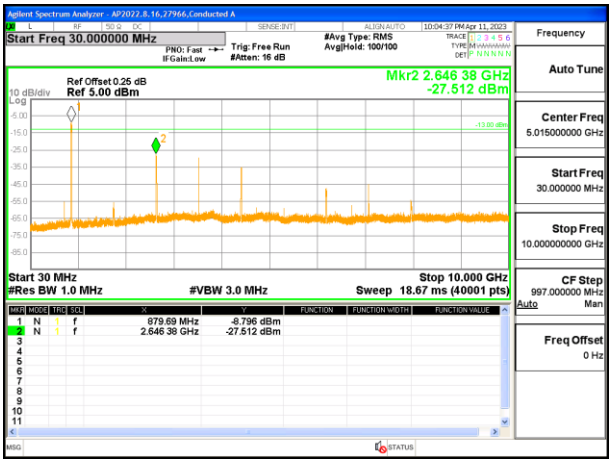
5G NR n5 10MHz QPSK High Channel



5G NR n5 20MHz QPSK Low Channel

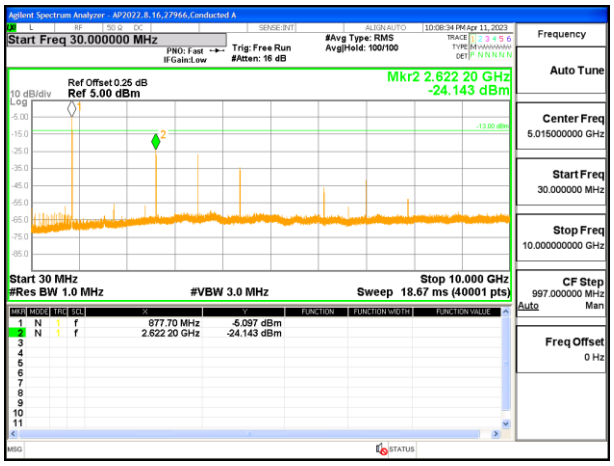


5G NR n5 20MHz QPSK Middle Channel

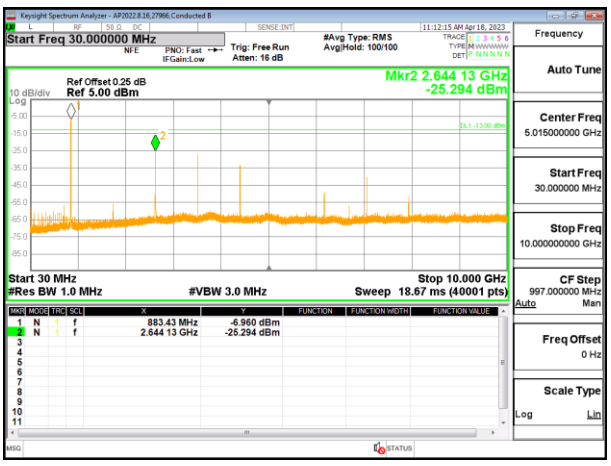


5G NR n5 20MHz QPSK High Channel

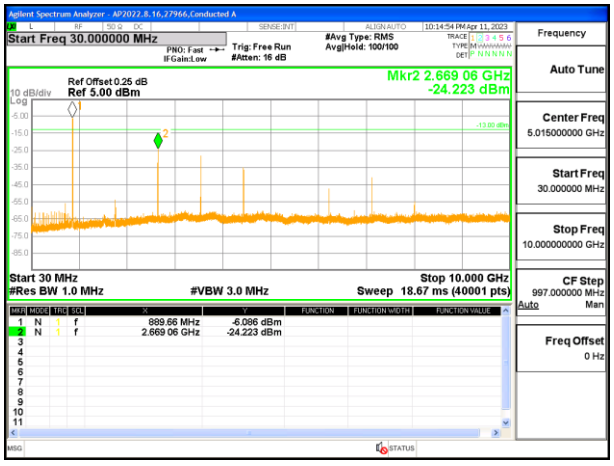
Antenna 2



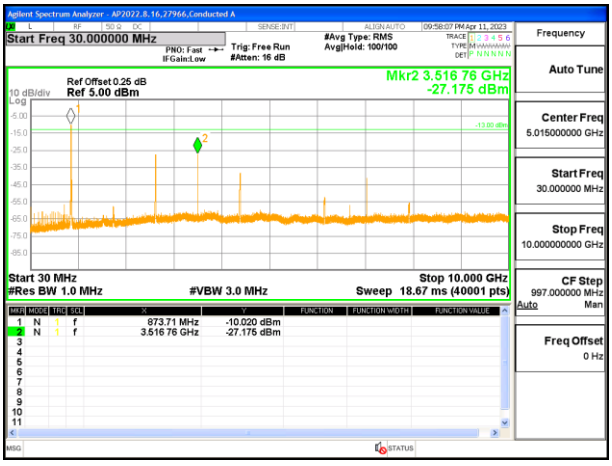
5G NR n5 10MHz QPSK Low Channel



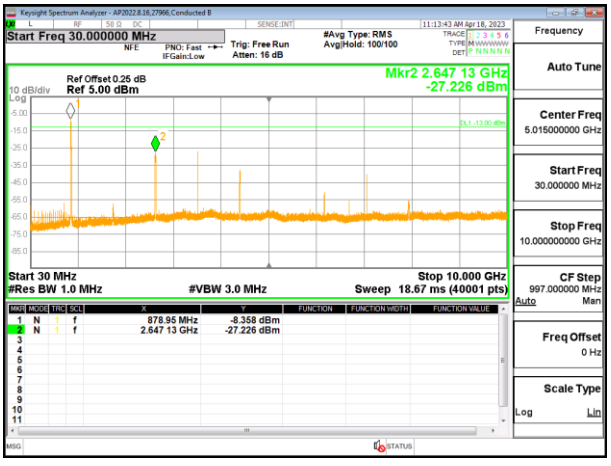
5G NR n5 10MHz QPSK Middle Channel



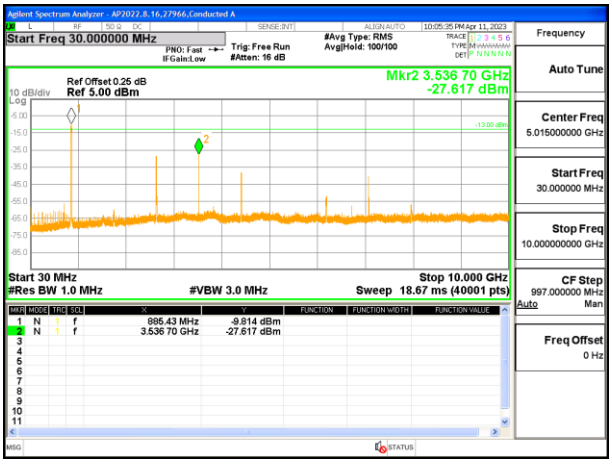
5G NR n5 10MHz QPSK High Channel



5G NR n5 20MHz QPSK Low Channel



5G NR n5 20MHz QPSK Middle Channel



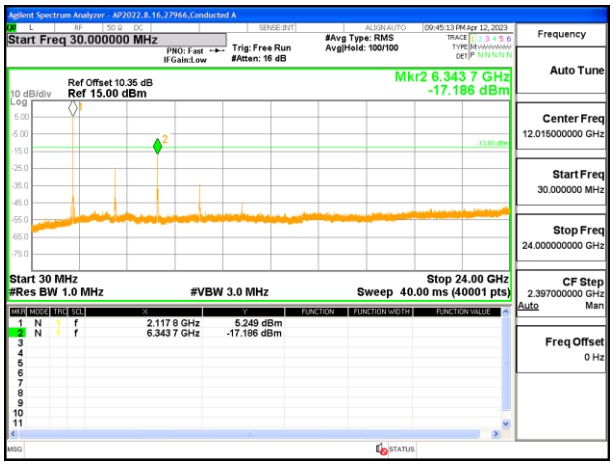
5G NR n5 20MHz QPSK High Channel

9.3.3. 5G NR n66

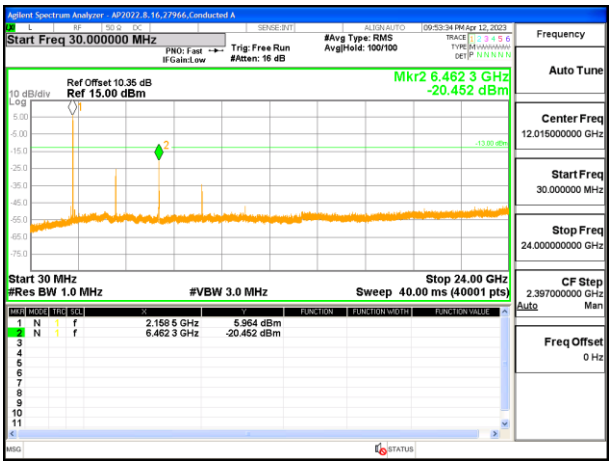
LIMITS

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.

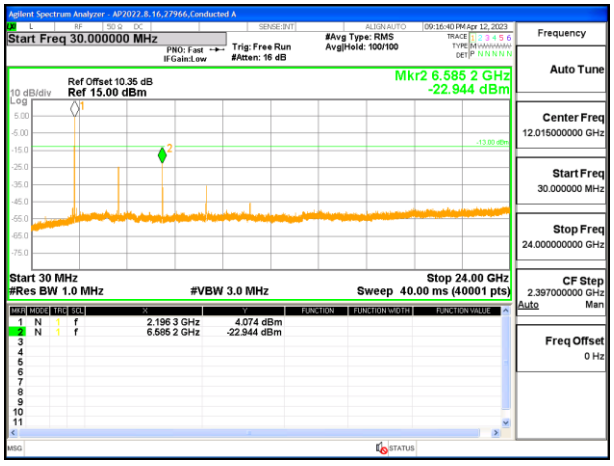
Antenna 1



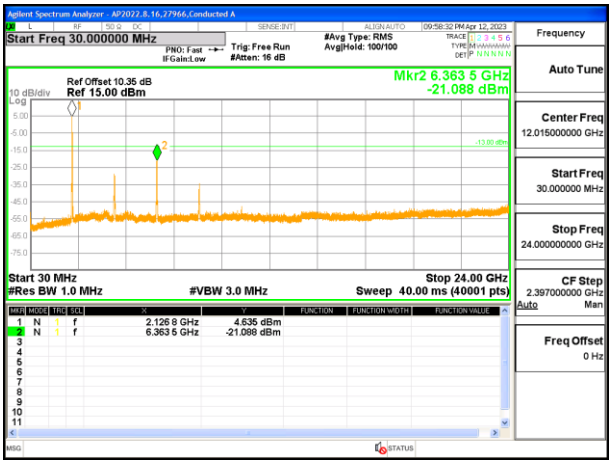
5G NR n66 10MHz QPSK Low Channel



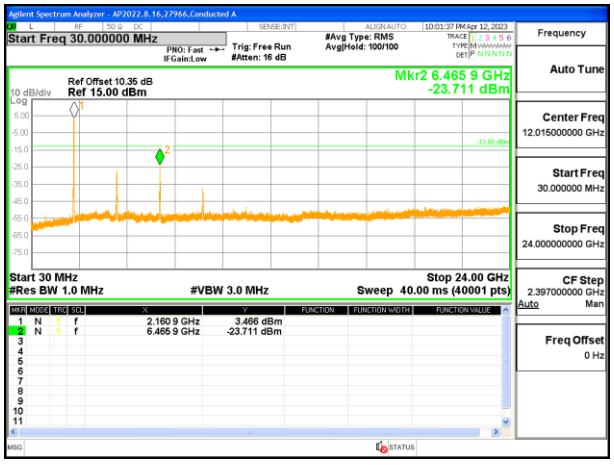
5G NR n66 10MHz QPSK Middle Channel



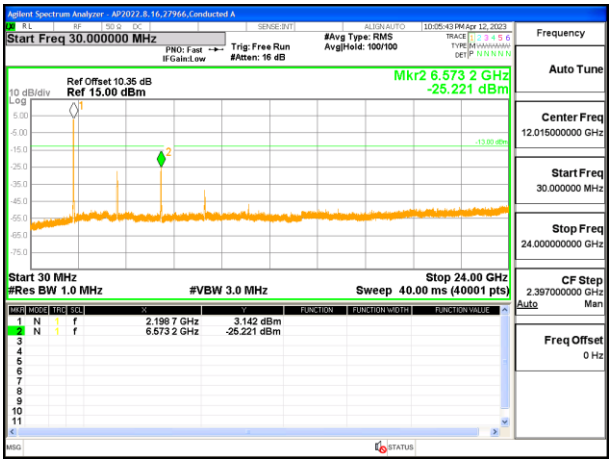
5G NR n66 10MHz QPSK High Channel



5G NR n66 20MHz QPSK Low Channel

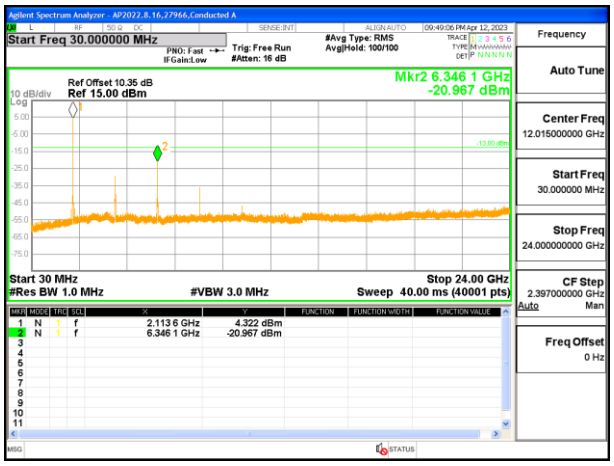


5G NR n66 20MHz QPSK Middle Channel

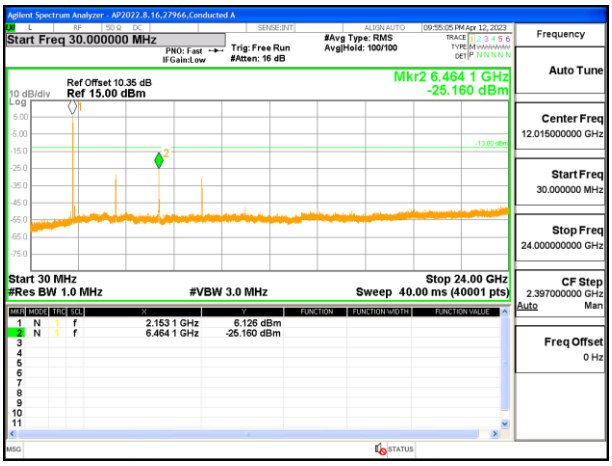


5G NR n66 20MHz QPSK High Channel

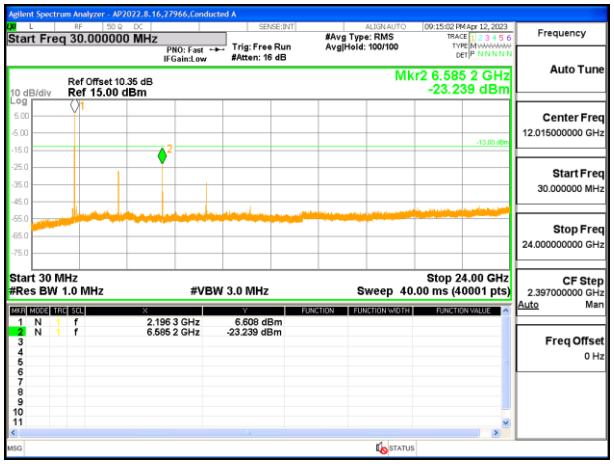
Antenna 2



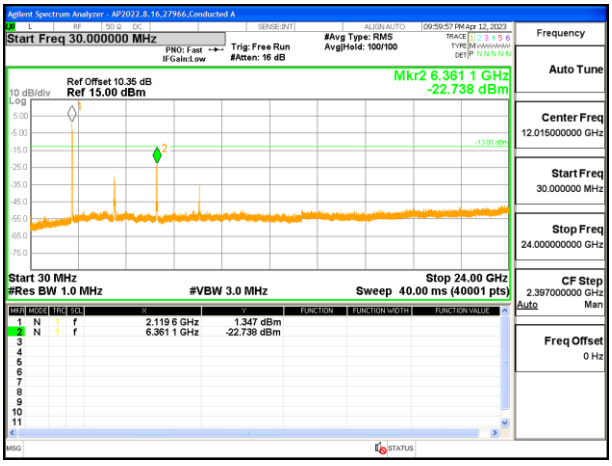
5G NR n66 10MHz QPSK Low Channel



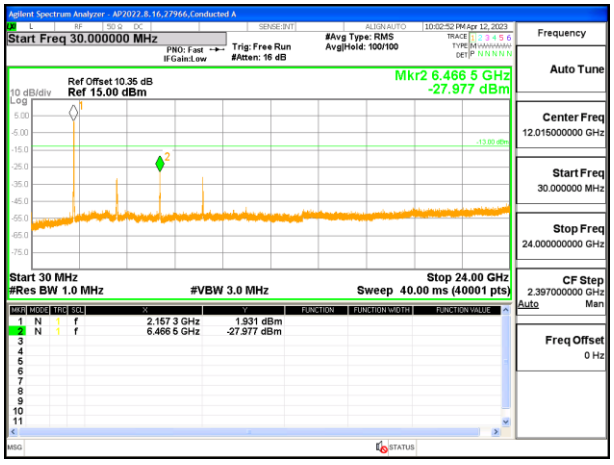
5G NR n66 10MHz QPSK Middle Channel



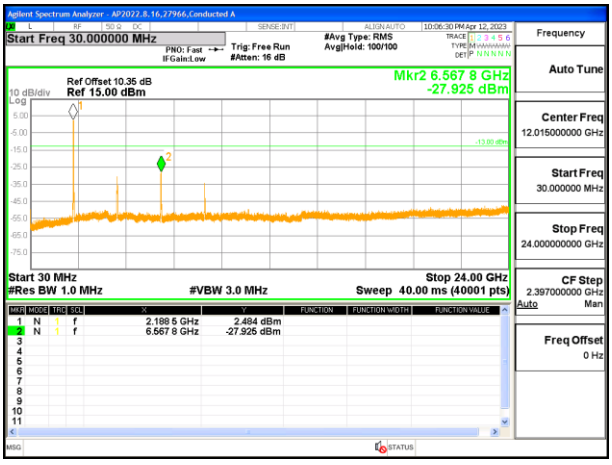
5G NR n66 10MHz QPSK High Channel



5G NR n66 20MHz QPSK Low Channel



5G NR n66 20MHz QPSK Middle Channel



5G NR n66 20MHz QPSK High Channel

9.4. FREQUENCY STABILITY

TEST PROCEDURE

FCC §2.1055

- Temp. = 0°C to +50°C
- Voltage = (85% - 115%)

Low voltage, 102VAC, Normal, 120VAC and High voltage, 138VAC.

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

Antenna port 1 is measured on the QPSK only as worst case.

9.4.1. 5G NR n2

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:	27966 PV	Test Date:	2023-04-14

5G NR n2 QPSK (20MHz BANDWIDTH)

Band	n2	Frequency Range (MHz)		Delta (MHz)	Limit	
Condition		1930	1990		N/A	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	1930.5350	1989.3050			
Extreme (50°C)		1930.7550	1989.2750	0.22	N/A	Yes
Extreme (40°C)		1930.5550	1989.3150	0.02	N/A	Yes
Extreme (30°C)		1930.6350	1989.2950	0.10	N/A	Yes
Extreme (10°C)		1930.5750	1989.3250	0.04	N/A	Yes
Extreme (0°C)		1930.6950	1989.3850	0.16	N/A	Yes
20°C	15%	1930.6750	1989.3250	0.14	N/A	Yes
	-15%	1930.6850	1989.2950	0.15	N/A	Yes

9.4.2. 5G NR n5

LIMITS

FCC: §22.355
The carrier frequency shall not depart from the reference frequency in excess of ±1.5 ppm for Base, fixed.

Test Engineer ID:	27966 PV	Test Date:	2023-04-25

5G NR n5 QPSK (20MHz BANDWIDTH)

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		869	894		1.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	869.7750	893.3030			
Extreme (50°C)		869.7755	893.3035	494	0.560	Yes
Extreme (40°C)		869.7760	893.3040	1014	1.150	Yes
Extreme (30°C)		869.7743	893.3023	-746	-0.846	Yes
Extreme (10°C)		869.7757	893.3037	706	0.801	Yes
Extreme (0°C)		869.7745	893.3025	-526	-0.597	Yes
20°C	15%	869.7756	893.3036	582	0.660	Yes
	-15%	869.7742	893.3022	-805	-0.913	Yes

9.4.3. 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:	27966 PV	Test Date:	2023-04-14

5G NR n66 QPSK (20MHz BANDWIDTH)

Band	n66	Frequency Range (MHz)		Delta (MHz)	Limit	
Condition		2110	2200		N/A	
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	2110.7350	2199.2580			
Extreme (50°C)		2110.7950	2199.0550	0.06	N/A	Yes
Extreme (40°C)		2110.8350	2199.2950	0.10	N/A	Yes
Extreme (30°C)		2110.7450	2199.2250	-0.03	N/A	Yes
Extreme (10°C)		2110.8350	2199.2950	0.10	N/A	Yes
Extreme (0°C)		2110.7350	2199.3050	0.05	N/A	Yes
20°C	15%	2110.7850	2199.2350	0.05	N/A	Yes
	-15%	2110.8050	2199.2550	0.07	N/A	Yes

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.

TEST PROCEDURE

ANSI C63.10 Section 5.2.6 Peak-to-average power ratio
Some regulatory requirements specify a PAPR limit when the output power limits are specified in terms of average power. If it becomes necessary to provide measurement data to demonstrate compliance to a PAPR limit, then the appropriate procedure from those provided in 5.2.3 shall be utilized to determine the peak power (or peak PSD) and the appropriate procedure from those provided in 5.2.4 shall be used to determine the average power (or average PSD). The data from these measurements is then used in Equation (2) to determine the PAPR of a narrowband CW-like signal. See 5.2.3.4 for guidance on determining the PAPR of a broadband noise-like signal.

$PAPR\ (dB) = P_{Pk}\ (dBm\ or\ dBW) - P_{Avg}\ (dBm\ or\ dBW)$ (2)
Where

PAPR peak-to-average power ratio, in dB
P_{Pk} measured peak power or peak PSD level, in dBm or dBW

P_{Avg} measured average power or average PSD level, in dBm or dBW

RESULT

Both antenna ports are measured on the QPSK only as worst case.

The results from all CCDF measurements are passed with 13dB peak-to-average power ratio criteria.

Test Engineer ID:	27966 PV	Test Date:	2023-04-04 TO 2023-04-06

5G NR n2

Antenna 1

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n2	20MHz	1960.0	30	QPSK	15.07	6.93	8.14
				16QAM	14.91	6.91	8.00
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

Antenna 2

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n2	20MHz	1960.0	30	QPSK	13.13	5.11	8.02
				16QAM	12.97	5.06	7.91
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

5G NR n5

Antenna 1

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n5	20MHz	881.5	30	QPSK	5.34	-6.3	11.64
				16QAM	5.27	-6.44	11.71
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

Antenna 2

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n5	20MHz	881.5	30	QPSK	4.44	-6.5	10.94
				16QAM	4.29	-6.55	10.84
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

5G NR n66

Antenna 1

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n66	20MHz	2155.0	30	QPSK	14.14	6.11	8.03
				16QAM	14.07	6.09	7.98
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

Antenna 2

Band	Bandwidth (MHz)	Frequency (MHz)	SCS (kHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Power Ratio (dB)
					Peak	Average	
n66	20MHz	2155.0	30	QPSK	13.73	5.65	8.08
				16QAM	13.71	5.61	8.10
Duty Cycle Correction Factor (dB) =			4.66				
Peak-to-Average Power Ratio= Peak Reading - Average Reading							

10. RADIATED TEST RESULTS

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

RESULTS

Only QPSK and 20MHz bandwidth is tested.

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz

TEST PROCEDURE

KDB 971168 D01 v03r01/D02 v02/r01

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

RESULTS

For radiated emissions testing, both ports transmit during the test as worse case. Radiated emissions testing is performed on both QPSK and 16QAM , 5G NR (20MHz BW only as worse case), report only shows QPSK as worse result.

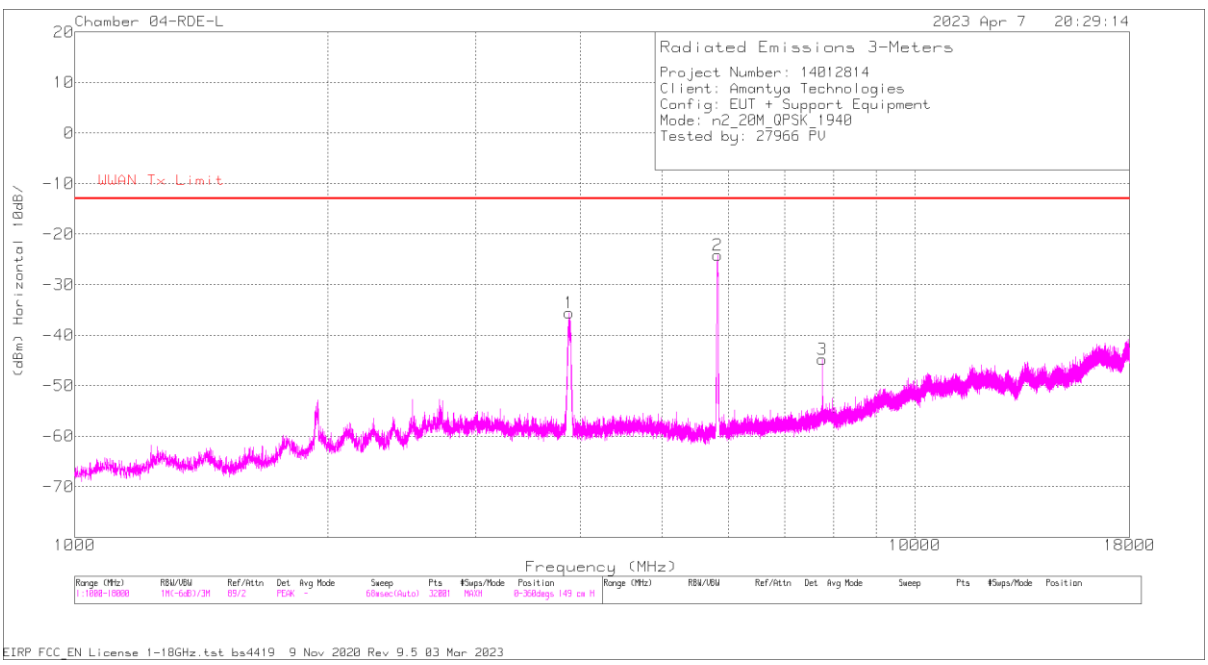
10.1.1. 5G NR n2

LIMITS

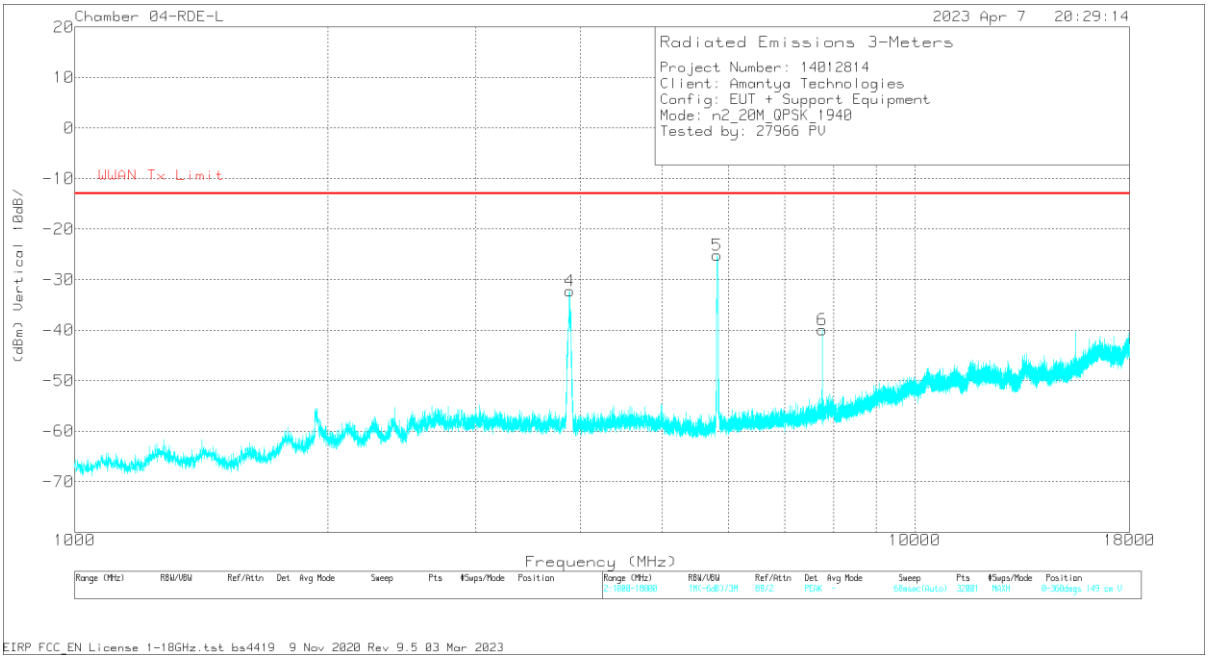
FCC: §24.238(a)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

5G NR n2 QPSK (20.0MHZ BANDWIDTH)

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	3875.656	54.25	Pk	33.6	-28.2	-95.2	0	-35.55	-13	-22.55	0-360	149	H
2	5826.136	63.74	PK2	35.4	-25.9	-95.2	0	-21.96	-13	-8.96	71	202	H
	5823.435	50.28	MAv1	35.4	-25.9	-95.2	4.66	-30.76	-13	-17.76	71	202	H
3	7760.156	37.46	Pk	36	-23	-95.2	0	-44.74	-13	-31.74	0-360	149	H

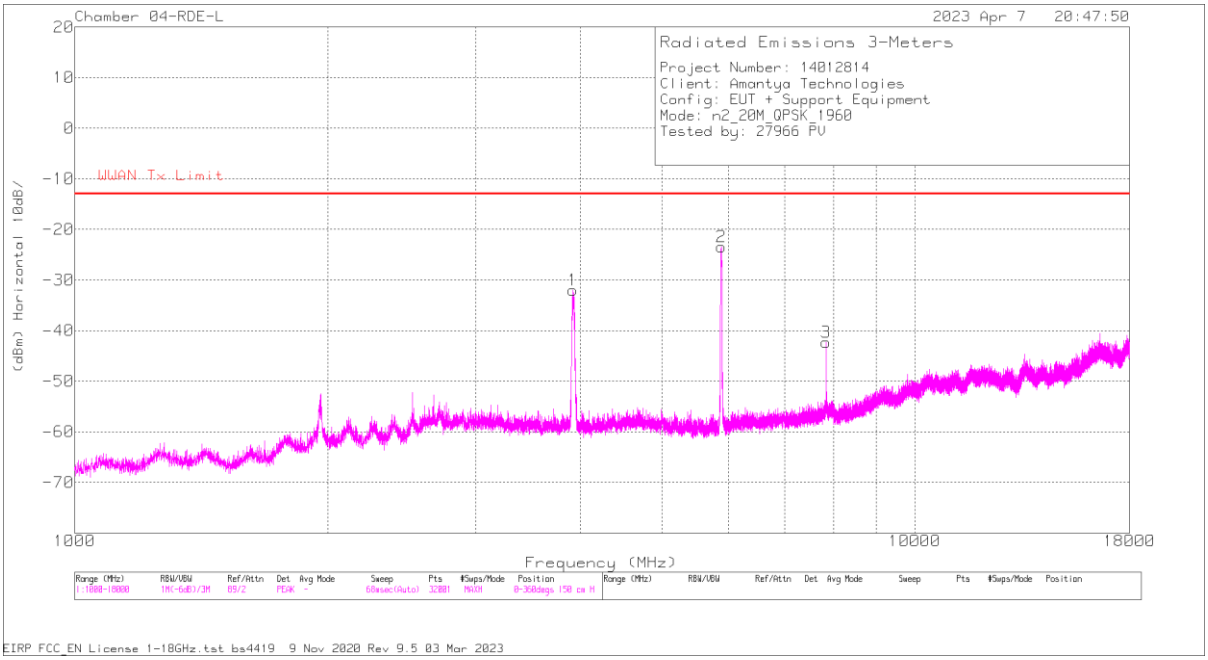
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	3879.905	61.52	PK2	33.5	-28.1	-95.2	0	-28.28	-13	-15.28	129	111	V
	3879.752	47.72	MAv1	33.5	-28.1	-95.2	4.66	-37.42	-13	-24.42	129	111	V
5	5814.01	64.58	PK2	35.3	-25.9	-95.2	0	-21.22	-13	-8.22	352	120	V
	5817.442	51.51	MAv1	35.3	-25.9	-95.2	4.66	-29.63	-13	-16.63	352	120	V
6	7760.156	42.23	Pk	36	-23	-95.2	0	-39.97	-13	-26.97	0-360	149	V

Pk - Peak detector

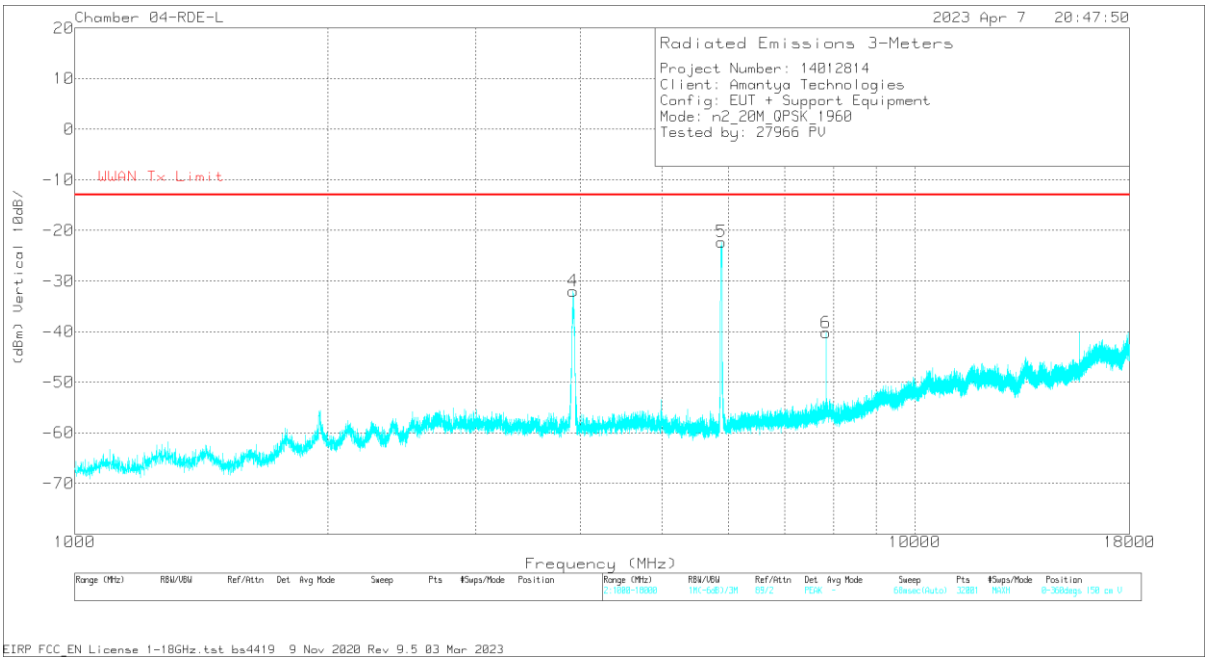
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	3919.629	63.86	PK2	33.6	-28.5	-95.2	0	-26.24	-13	-13.24	12	290	H
	3919.611	50.51	MAv1	33.6	-28.5	-95.2	4.66	-34.93	-13	-21.93	12	290	H
2	5882.17	64.99	PK2	35.5	-25.6	-95.2	0	-20.31	-13	-7.31	70	112	H
	5881.333	52.26	MAv1	35.5	-25.7	-95.2	4.66	-28.48	-13	-15.48	70	112	H
3	7839.844	39.52	Pk	36.1	-22.7	-95.2	0	-42.28	-13	-29.28	0-360	150	H

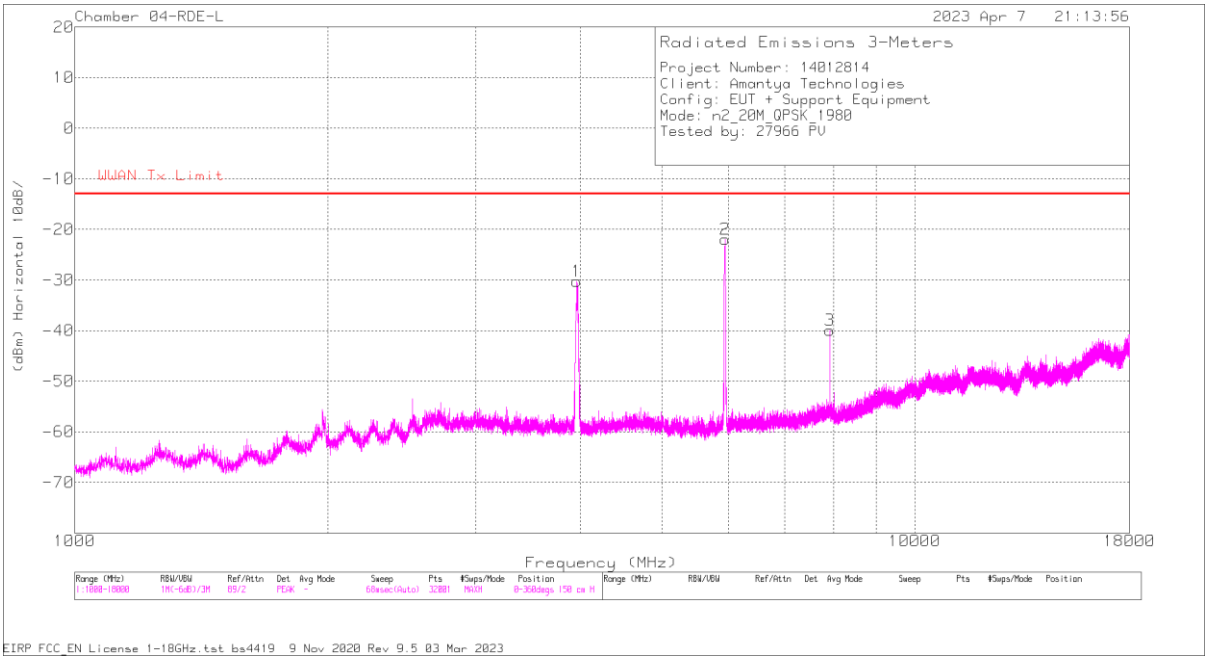
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	3920.167	61.63	PK2	33.6	-28.5	-95.2	0	-28.47	-13	-15.47	143	135	V
	3919.96	47.42	MAv1	33.6	-28.5	-95.2	4.66	-38.02	-13	-25.02	143	135	V
5	5883.924	65.47	PK2	35.5	-25.7	-95.2	0	-19.93	-13	-6.93	359	124	V
	5885.173	50.89	MAv1	35.5	-25.6	-95.2	4.66	-29.75	-13	-16.75	359	124	V
6	7840.375	41.66	Pk	36.1	-22.7	-95.2	0	-40.14	-13	-27.14	0-360	150	V

Pk - Peak detector

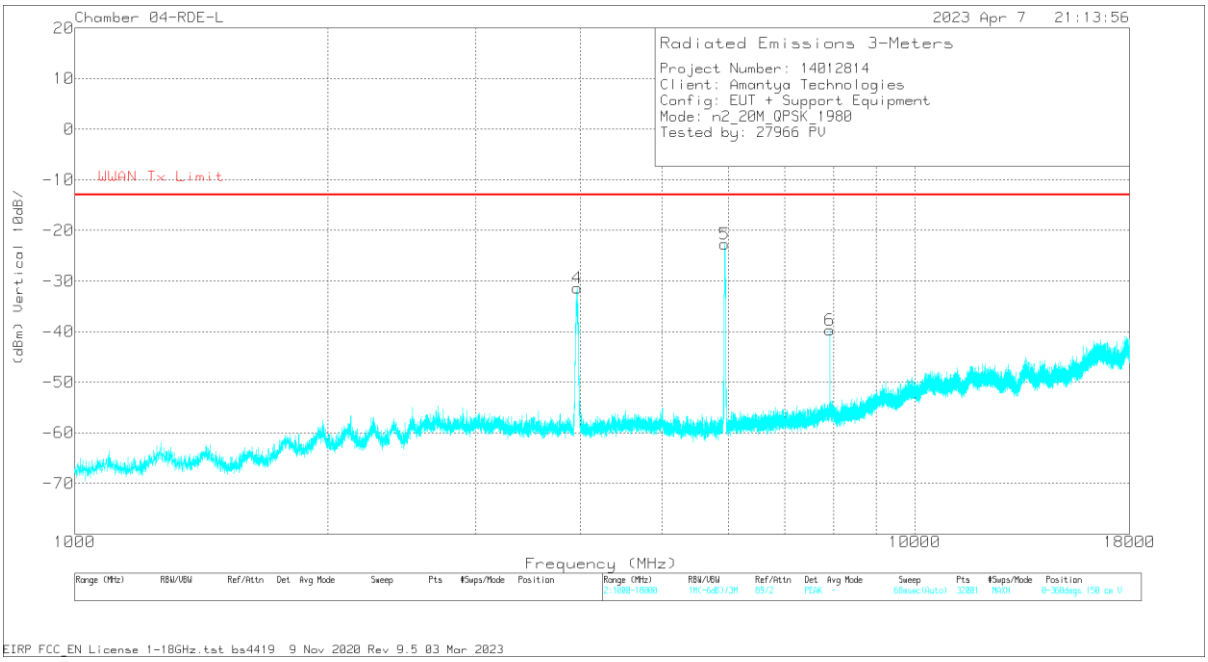
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	3956.019	65.25	PK2	33.6	-28.4	-95.2	0	-24.75	-13	-11.75	96	359	H
	3957.657	51.58	MAv1	33.6	-28.4	-95.2	4.66	-33.76	-13	-20.76	96	359	H
2	5943.872	69.04	PK2	35.5	-25.6	-95.2	0	-16.26	-13	-3.26	30	125	H
	5941.281	55.65	MAv1	35.5	-25.6	-95.2	4.66	-24.99	-13	-11.99	30	125	H
3	7920.063	41.46	Pk	36.1	-22.3	-95.2	0	-39.94	-13	-26.94	0-360	150	H

Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	3961.142	61.55	PK2	33.6	-28.4	-95.2	0	-28.45	-13	-15.45	123	155	V
	3959.906	48.22	MAv1	33.6	-28.3	-95.2	4.66	-37.02	-13	-24.02	123	155	V
5	5933.118	67.73	PK2	35.5	-25.6	-95.2	0	-17.57	-13	-4.57	142	377	V
	5933.139	53.86	MAv1	35.5	-25.6	-95.2	4.66	-26.78	-13	-13.78	142	377	V
6	7920.063	41.73	Pk	36.1	-22.3	-95.2	0	-39.67	-13	-26.67	0-360	150	V

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

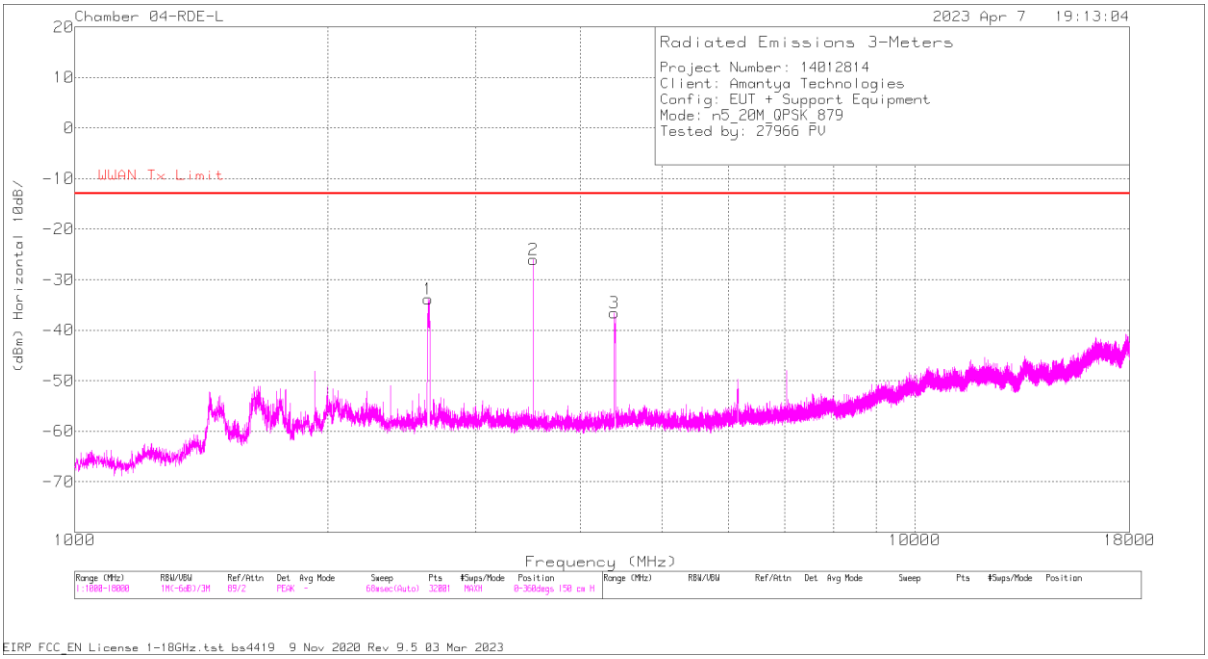
10.1.2. 5G NR n5

LIMITS

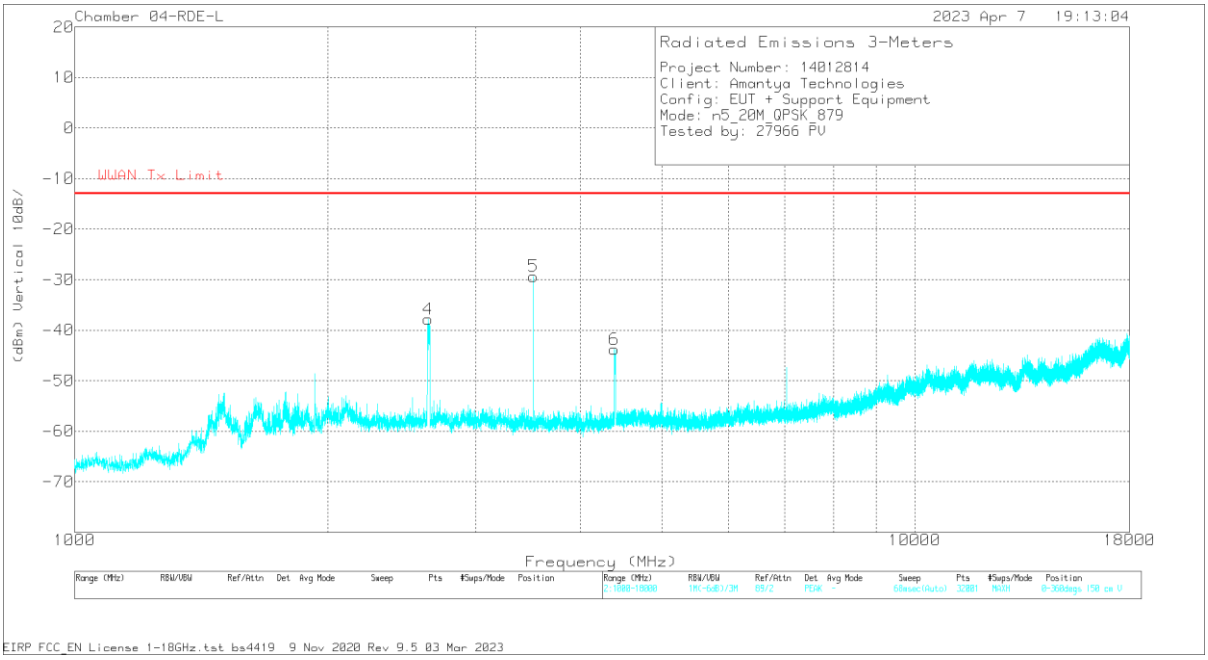
FCC: §22.917(a)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

5G NR n5 QPSK (20.0MHZ BANDWIDTH)

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	2632.531	58.21	Pk	32.6	-29.5	-95.2	0	-33.89	-13	-20.89	0-360	150	H
2	3516.012	66.4	PK2	33.3	-28.4	-95.2	0	-23.9	-13	-10.9	99	253	H
	3516.001	66.17	MAv1	33.3	-28.4	-95.2	4.66	-19.47	-13	-6.47	99	253	H
3	4387.25	51.78	Pk	34	-27.2	-95.2	0	-36.62	-13	-23.62	0-360	150	H

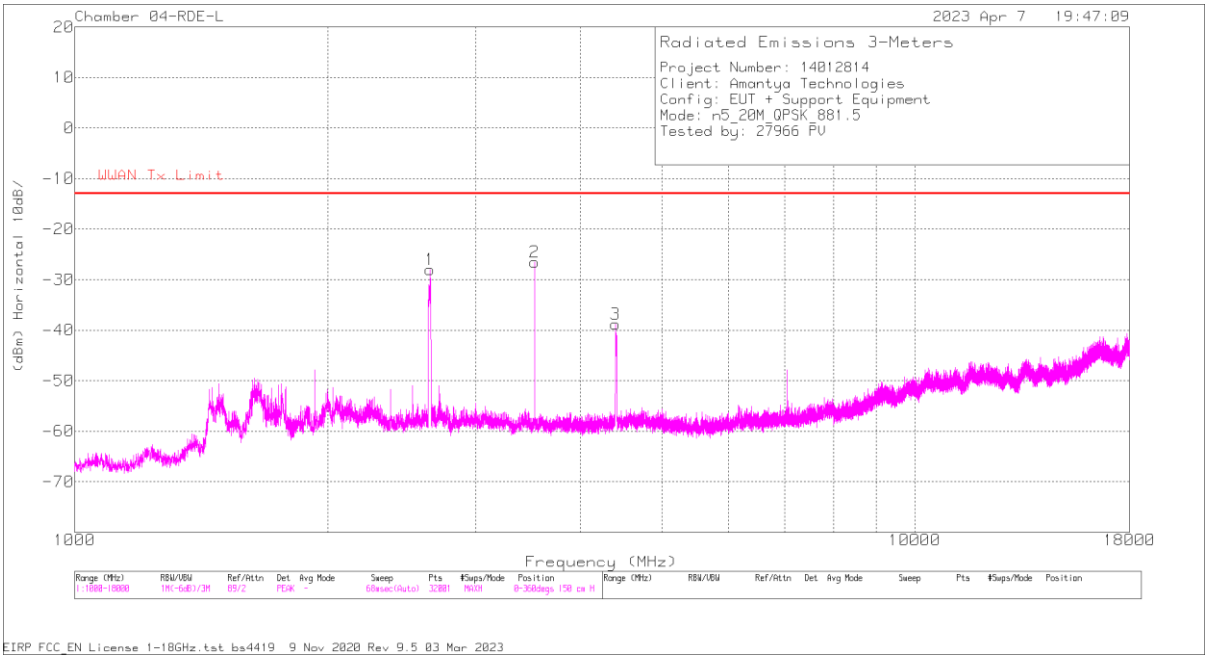
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	2635.188	54.13	Pk	32.6	-29.4	-95.2	0	-37.87	-13	-24.87	0-360	150	V
5	3515.994	62.14	PK2	33.3	-28.4	-95.2	0	-28.16	-13	-15.16	100	183	V
	3516.004	61.86	MAv1	33.3	-28.4	-95.2	4.66	-23.78	-13	-10.78	100	183	V
6	4388.313	44.65	Pk	34	-27.2	-95.2	0	-43.75	-13	-30.75	0-360	150	V

Pk - Peak detector

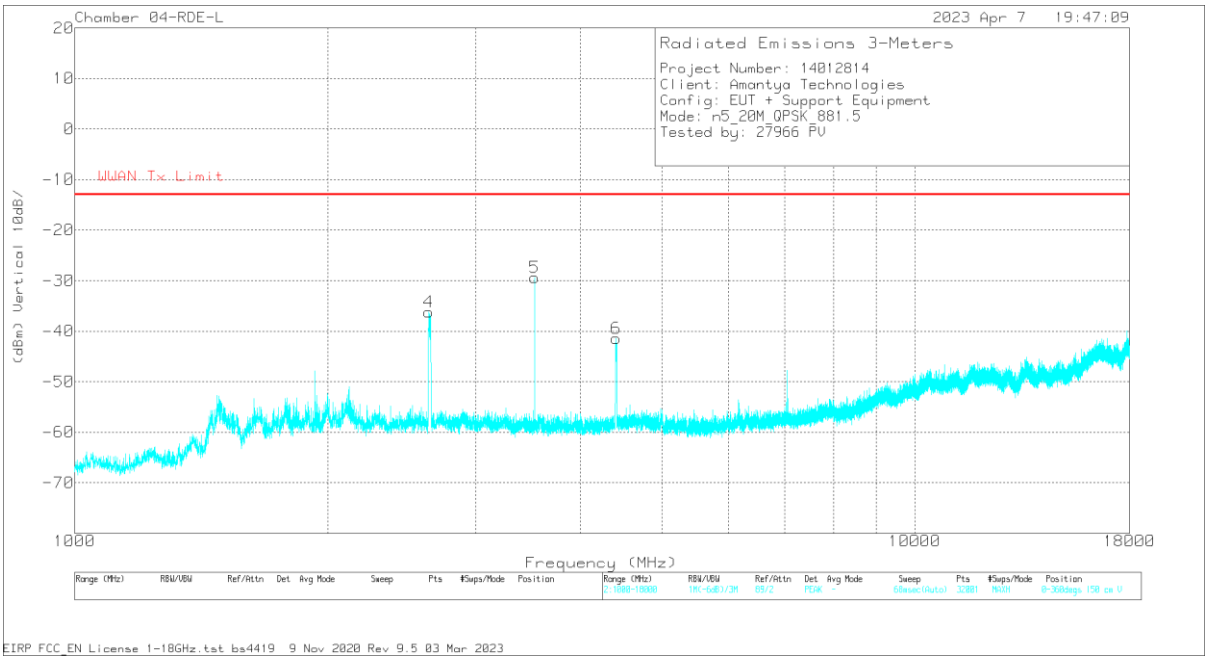
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	2649.853	68	PK2	32.6	-29.4	-95.2	0	-24	-13	-11	66	135	H
	2652.483	54.55	MAv1	32.6	-29.3	-95.2	4.66	-32.69	-13	-19.69	66	135	H
2	3526.014	66.4	PK2	33.3	-28.4	-95.2	0	-23.9	-13	-10.9	91	269	H
	3526.006	66.2	MAv1	33.3	-28.4	-95.2	4.66	-19.44	-13	-6.44	91	269	H
3	4404.781	49.66	Pk	34.1	-27.4	-95.2	0	-38.84	-13	-25.84	0-360	150	H

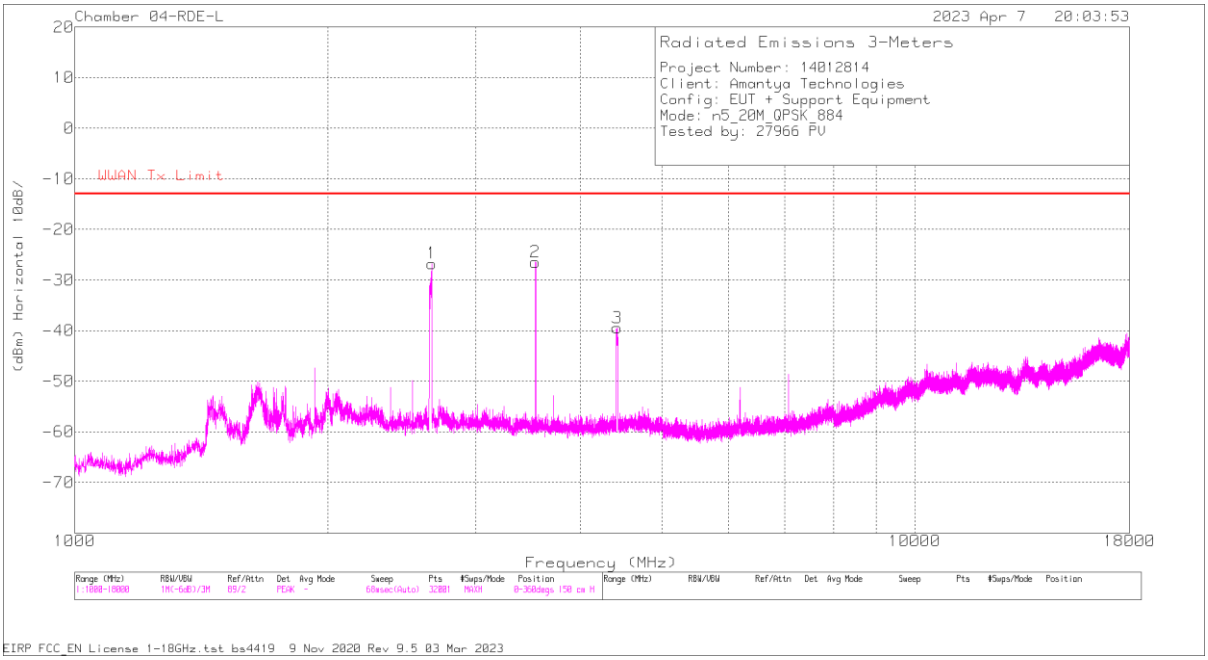
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	2636.781	55.75	Pk	32.6	-29.4	-95.2	0	-36.25	-13	-23.25	0-360	150	V
5	3525.978	62.6	PK2	33.3	-28.4	-95.2	0	-27.7	-13	-14.7	103	372	V
	3526	62.26	MAv1	33.3	-28.4	-95.2	4.66	-23.38	-13	-10.38	103	372	V
6	4409.563	47.04	Pk	34.1	-27.4	-95.2	0	-41.46	-13	-28.46	0-360	150	V

Pk - Peak detector

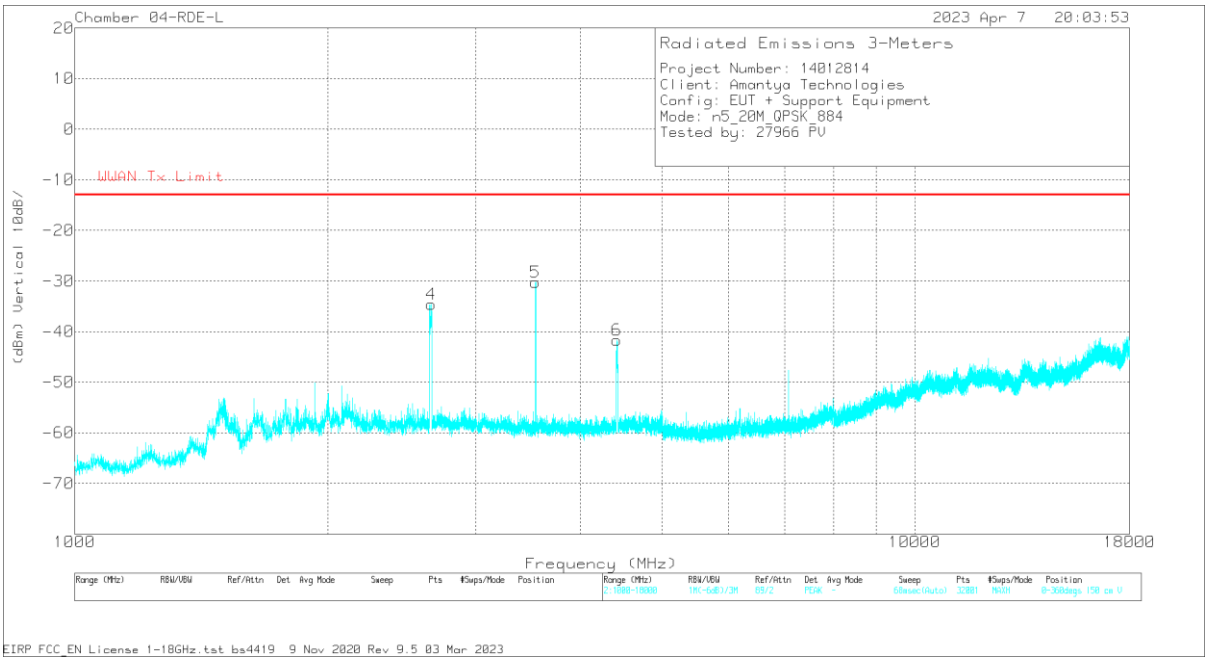
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	2657.364	68.5	PK2	32.6	-29.3	-95.2	0	-23.4	-13	-10.4	65	115	H
	2655.205	55.05	MAv1	32.6	-29.3	-95.2	4.66	-32.19	-13	-19.19	65	115	H
2	3536.016	66.17	PK2	33.3	-28.3	-95.2	0	-24.03	-13	-11.03	90	267	H
	3536.015	65.92	MAv1	33.3	-28.3	-95.2	4.66	-19.62	-13	-6.62	90	267	H
3	4420.719	49.1	Pk	34.1	-27.4	-95.2	0	-39.4	-13	-26.4	0-360	150	H

Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	2657.5	57.25	Pk	32.6	-29.3	-95.2	0	-34.65	-13	-21.65	0-360	150	V
5	3536.034	64.2	PK2	33.3	-28.3	-95.2	0	-26	-13	-13	108	373	V
	3535.998	63.91	MAv1	33.3	-28.3	-95.2	4.66	-21.63	-13	-8.63	108	373	V
6	4413.813	46.9	Pk	34.1	-27.5	-95.2	0	-41.7	-13	-28.7	0-360	150	V

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

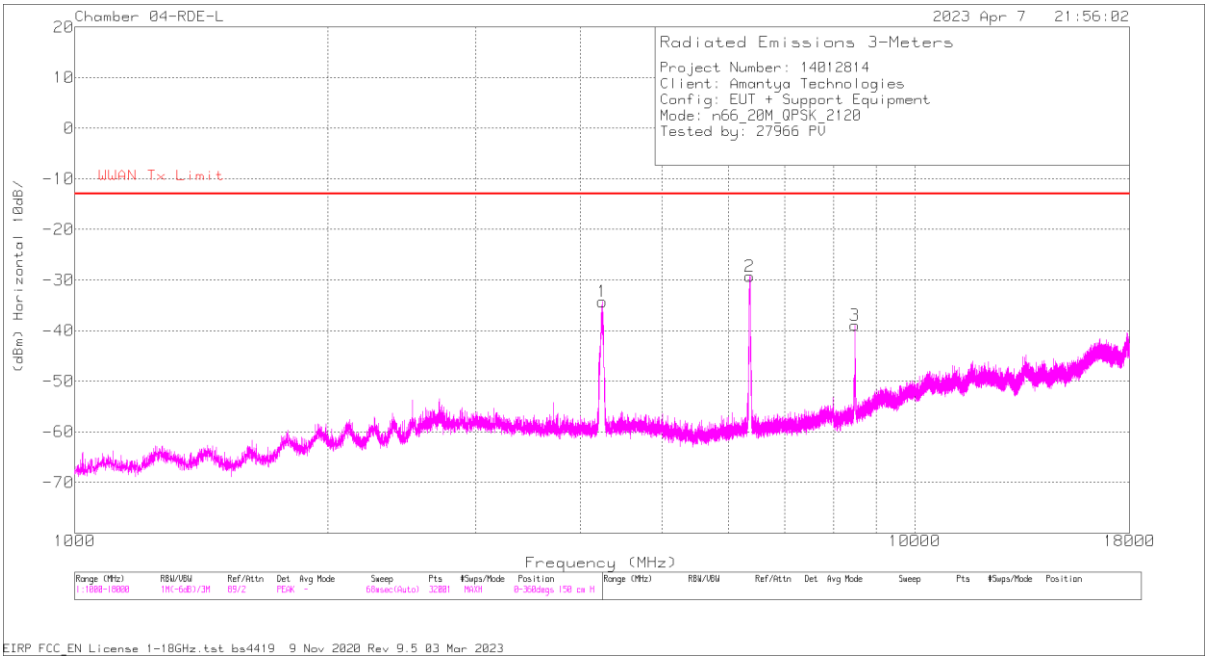
10.1.3. 5G NR n66

LIMITS

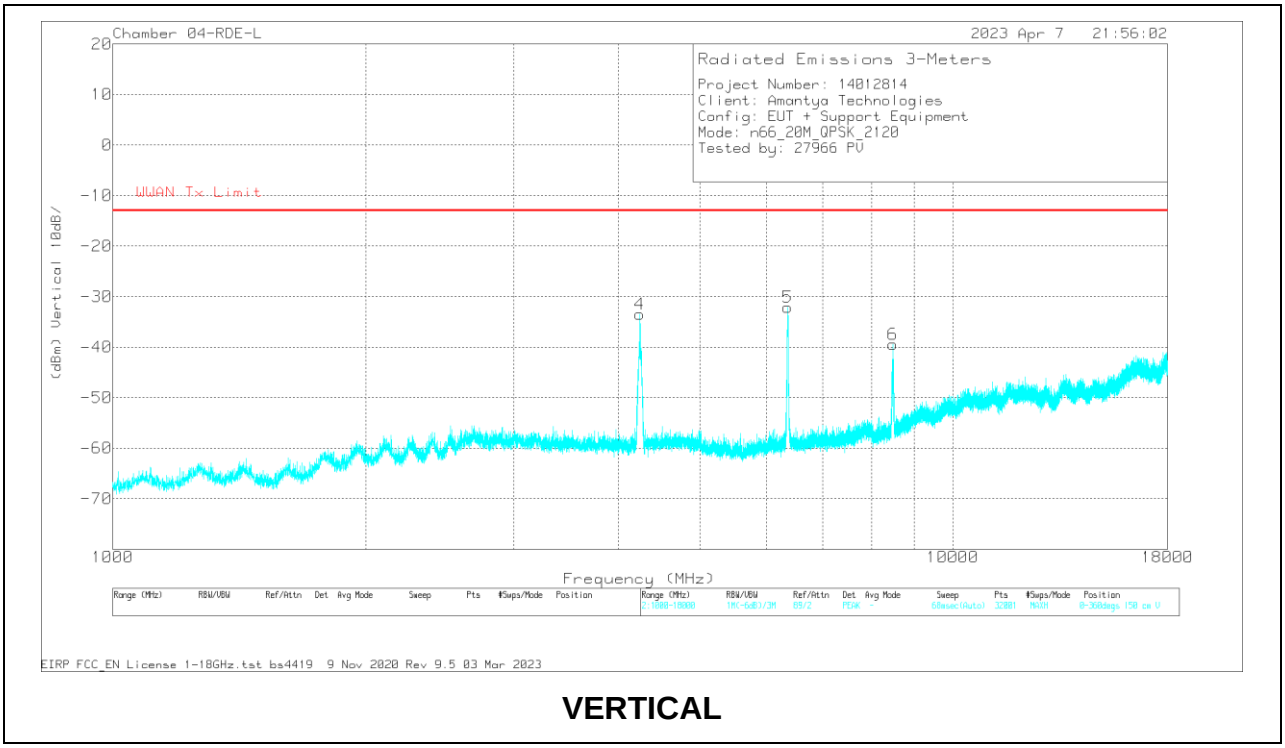
FCC: §27.53 (h)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

5G NR n66 QPSK (20.0MHZ BANDWIDTH)

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	4247.531	55.02	Pk	33.6	-27.7	-95.2	0	-34.28	-13	-21.28	0-360	150	H
2	6354.156	58.5	PK2	35.8	-25.1	-95.2	0	-26	-13	-13	28	132	H
	6353.024	44.87	MAv1	35.8	-25	-95.2	4.66	-34.87	-13	-21.87	28	132	H
3	8480	41.77	Pk	36.2	-21.7	-95.2	0	-38.93	-13	-25.93	0-360	150	H

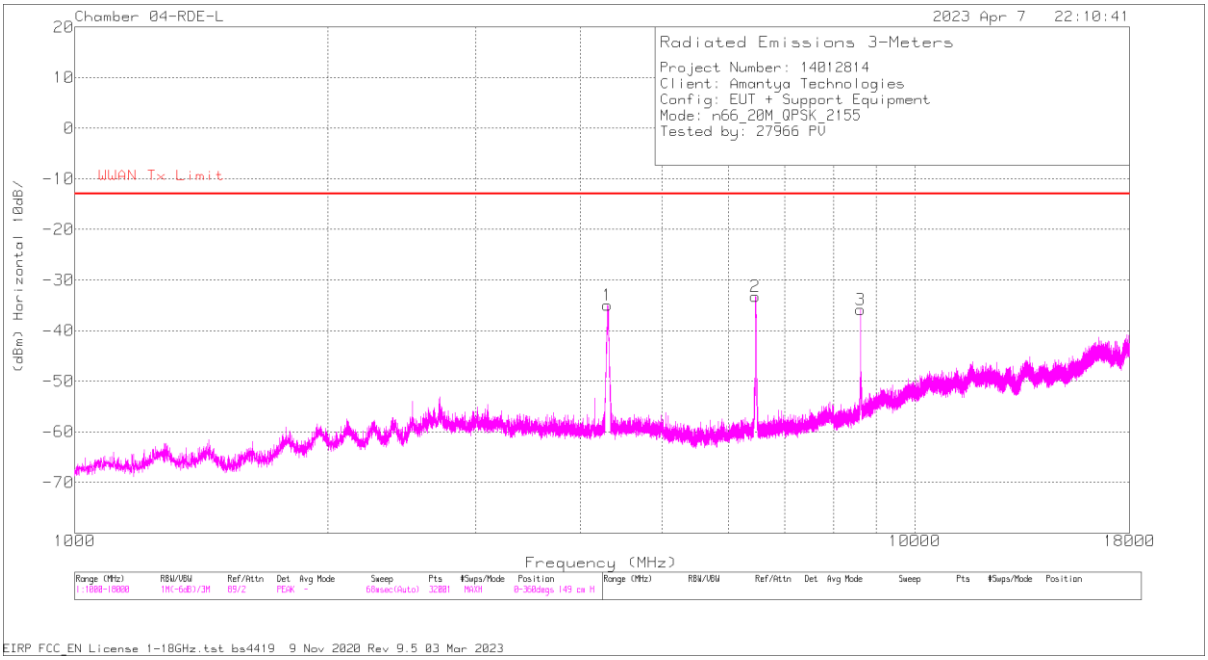
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	4241.688	55.96	Pk	33.6	-27.8	-95.2	0	-33.44	-13	-20.44	0-360	150	V
5	6360.078	54.9	PK2	35.8	-25	-95.2	0	-29.5	-13	-16.5	159	112	V
	6359.636	41.69	MAv1	35.8	-25	-95.2	4.66	-38.05	-13	-25.05	159	112	V
6	8480	41.27	Pk	36.2	-21.7	-95.2	0	-39.43	-13	-26.43	0-360	150	V

Pk - Peak detector

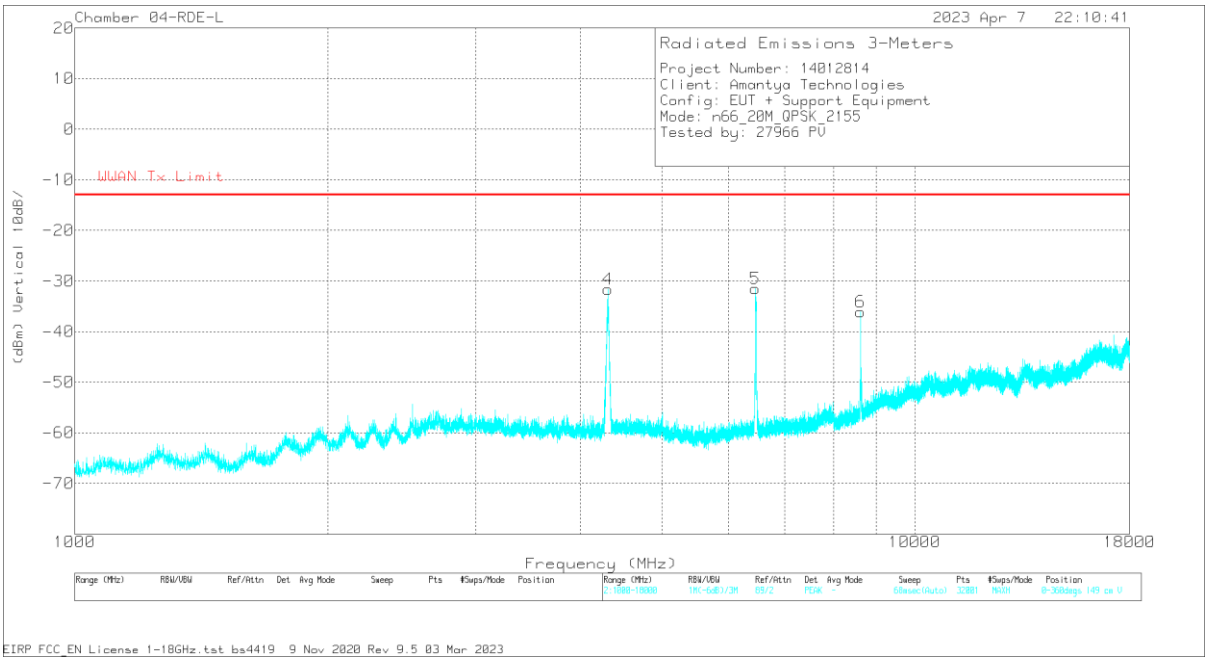
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	4303.844	54.16	Pk	33.8	-27.7	-95.2	0	-34.94	-13	-21.94	0-360	149	H
2	6462.71	60.07	PK2	35.8	-25	-95.2	0	-24.33	-13	-11.33	26	118	H
	6460.702	46.06	MAv1	35.8	-25	-95.2	4.66	-33.68	-13	-20.68	26	118	H
3	8620.25	44.52	Pk	36.1	-21.3	-95.2	0	-35.88	-13	-22.88	0-360	149	H

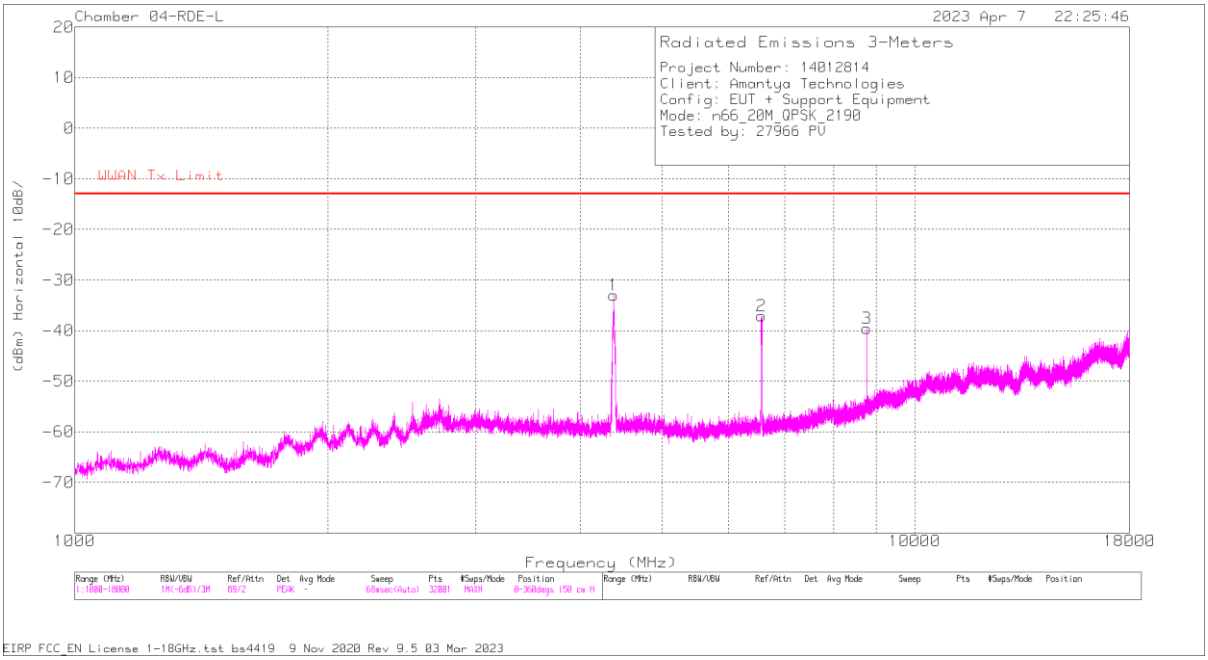
Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	4309.968	63.36	PK2	33.8	-27.7	-95.2	0	-25.74	-13	-12.74	17	206	V
	4309.931	51.35	MAv1	33.8	-27.7	-95.2	4.66	-33.09	-13	-20.09	17	206	V
5	6462.742	60.55	PK2	35.8	-25	-95.2	0	-23.85	-13	-10.85	22	120	V
	6464.373	46.48	MAv1	35.8	-24.9	-95.2	4.66	-33.16	-13	-20.16	22	120	V
6	8620.25	44.36	Pk	36.1	-21.3	-95.2	0	-36.04	-13	-23.04	0-360	149	V

Pk - Peak detector

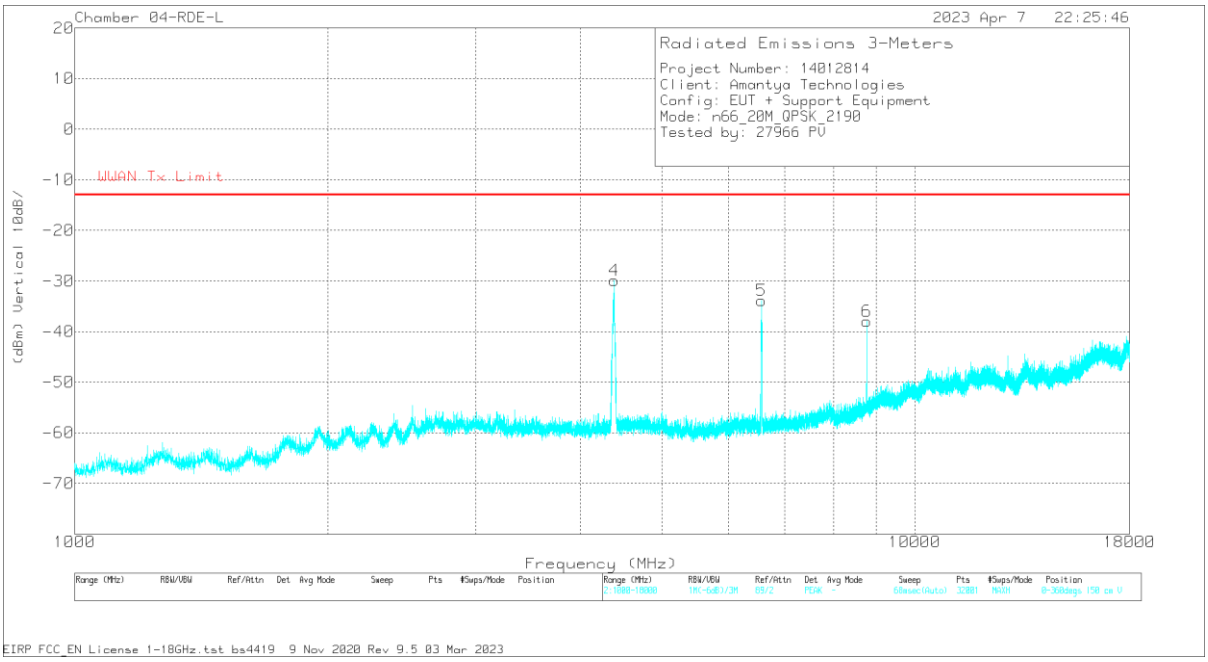
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

Trace Markers

Range 1: Horizontal 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
1	4379.875	62.78	PK2	34	-27.2	-95.2	0	-25.62	-13	-12.62	85	359	H
	4380.016	50.32	MAv1	34	-27.2	-95.2	4.66	-33.42	-13	-20.42	85	359	H
2	6569.625	47.15	Pk	35.8	-24.8	-95.2	0	-37.05	-13	-24.05	0-360	150	H
3	8759.969	40.53	Pk	36.2	-21.1	-95.2	0	-39.57	-13	-26.57	0-360	150	H

Range 2: Vertical 1000 - 18000MHz													
Marker	**Frequency (MHz)**	**Meter Reading (dBuV)**	**Det**	**Horn 1mH**	**Amp/Cbl (dB)**	**EIRP CF (dB)**	**DCCF (dB)**	**Corrected Reading (dBm)**	**WWAN Tx Limit (dBm)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
4	4381.286	61.27	PK2	34	-27.2	-95.2	0	-27.13	-13	-14.13	10	203	V
	4381.343	47.26	MAv1	34	-27.2	-95.2	4.66	-36.48	-13	-23.48	10	203	V
5	6571.75	50.33	Pk	35.8	-24.8	-95.2	0	-33.87	-13	-20.87	0-360	150	V
6	8759.969	42.14	Pk	36.2	-21.1	-95.2	0	-37.96	-13	-24.96	0-360	150	V

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average