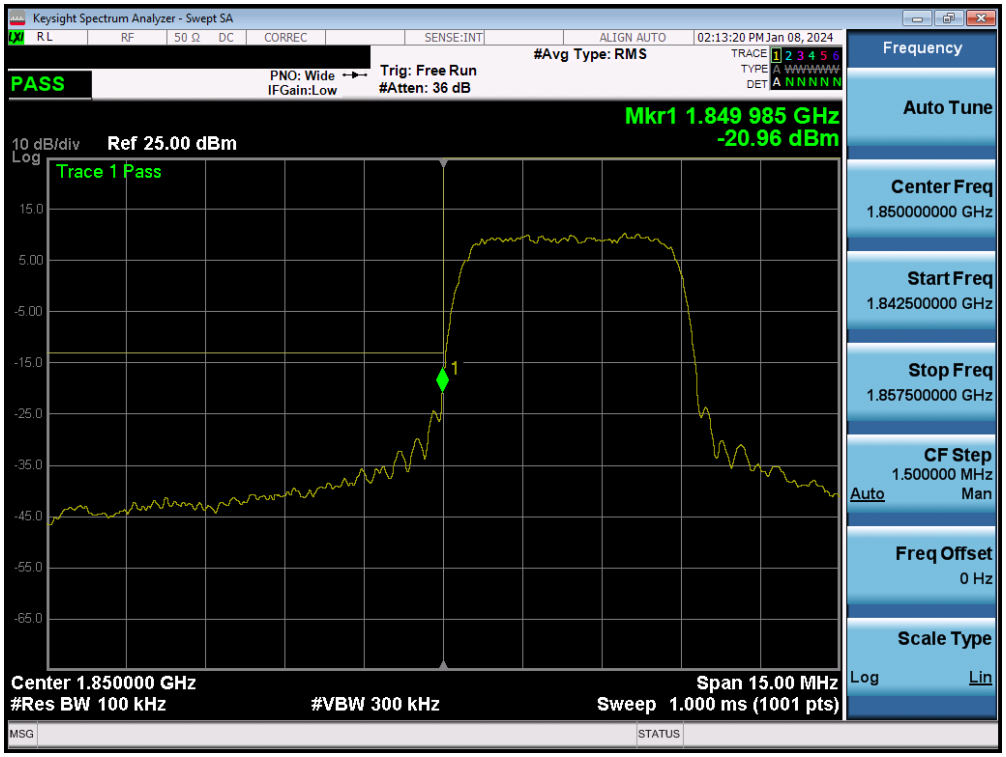
Plot 7-92. Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB – Ant4)

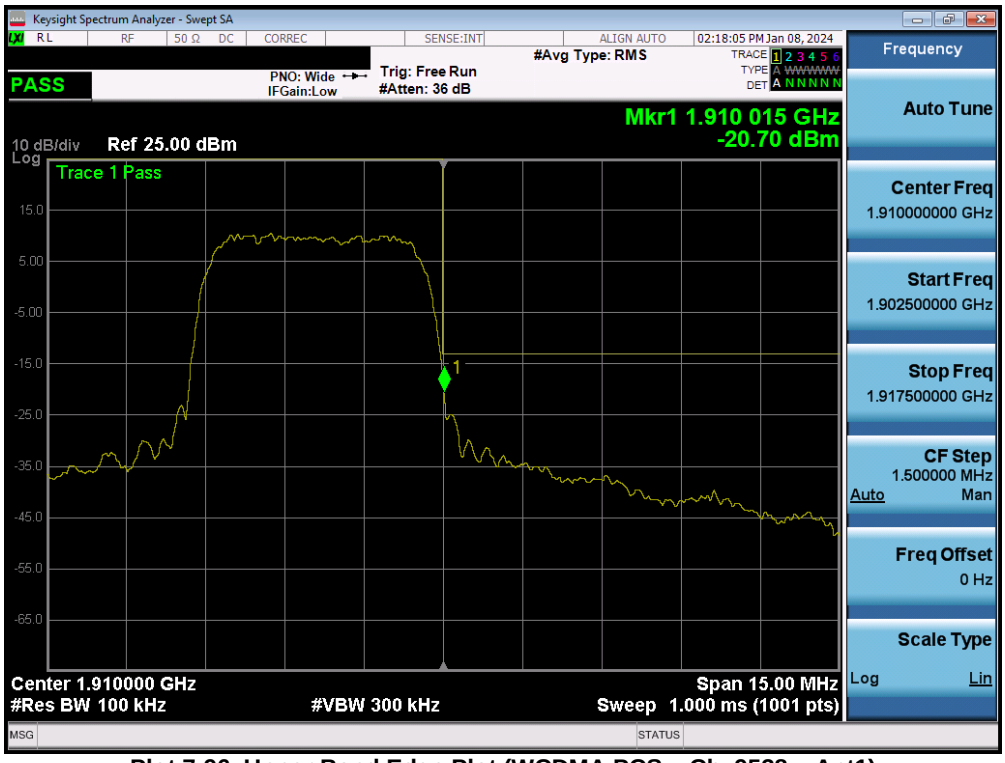
Plot 7-93. Extended Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB – Ant4)

WCDMA PCS – Ant1



Plot 7-94. Lower Band Edge Plot (WCDMA PCS – Ch. 9262 – Ant1)

Plot 7-95. Extended Lower Band Edge Plot (WCDMA PCS – Ch. 9262 – Ant1)



Plot 7-96. Upper Band Edge Plot (WCDMA PCS – Ch. 9538 – Ant1)

Plot 7-97. Extended Upper Band Edge Plot (WCDMA PCS – Ch. 9538 – Ant1)

7.6 Peak-Average Ratio

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2.3.4

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW ≥ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

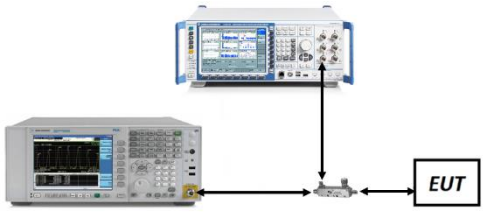


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

For the QAM modulations, 256QAM was found to have the worst-case peak-to-average ratio so it is the only QAM measurement included in this section.

Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
WCDMA-PCS	N/A	Spread Spectrum	24.94	2.85	13	-10.15
LTE-B25-2	20MHz	QPSK	23.64	4.91	13	-8.09
		256QAM	19.67	6.71	13	-6.29
	15MHz	QPSK	23.74	5.00	13	-8.00
		256QAM	19.79	6.66	13	-6.34
	10MHz	QPSK	23.86	4.96	13	-8.04
		256QAM	19.86	6.68	13	-6.32
	5MHz	QPSK	23.82	4.87	13	-8.13
		256QAM	19.81	6.69	13	-6.31
	3MHz	QPSK	23.83	4.67	13	-8.33
		256QAM	19.85	6.69	13	-6.31
	1.4MHz	QPSK	23.81	4.99	13	-8.01
		256QAM	19.82	6.75	13	-6.25

Table 7-12. Peak-Average Ratio Test Results – Ant1

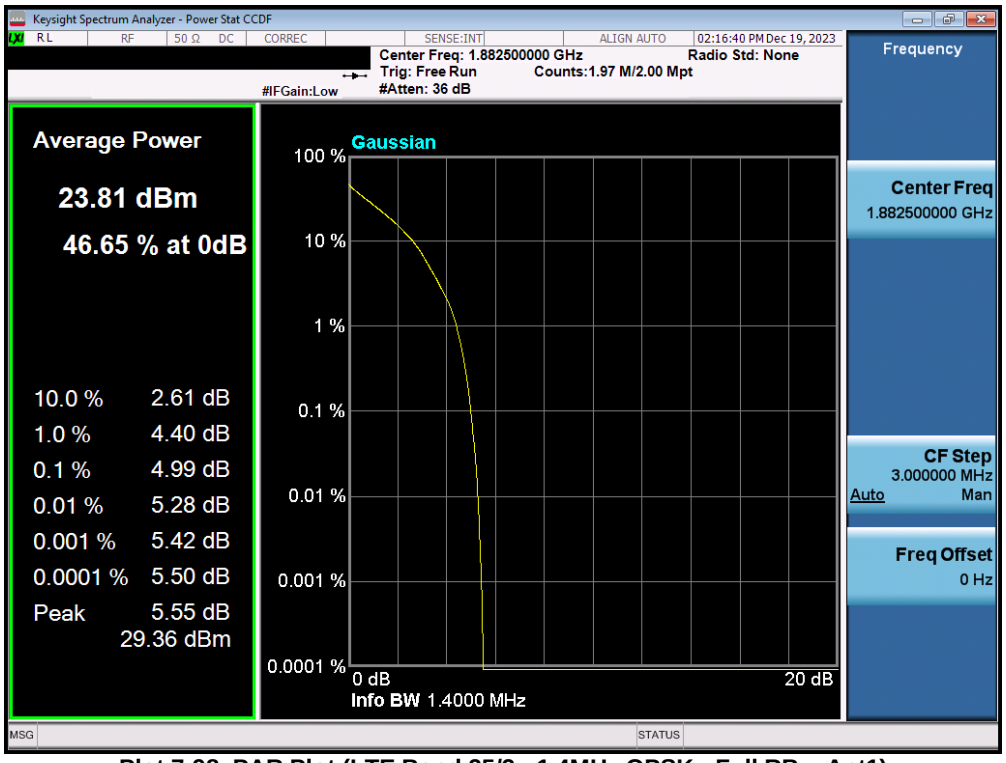
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n25-2	40MHz	BPSK	24.30	4.06	13	-8.94
		QPSK	21.81	6.60	13	-6.40
		256QAM	18.37	8.44	13	-4.56
	30MHz	BPSK	24.36	4.10	13	-8.90
		QPSK	21.76	6.56	13	-6.44
		256QAM	18.25	8.44	13	-4.56
	25MHz	BPSK	24.36	4.11	13	-8.89
		QPSK	21.81	6.73	13	-6.27
		256QAM	18.40	8.36	13	-4.64
	20MHz	BPSK	24.37	3.94	13	-9.06
		QPSK	21.88	6.50	13	-6.50
		256QAM	18.29	8.28	13	-4.72
	15MHz	BPSK	24.30	4.07	13	-8.93
		QPSK	21.88	6.51	13	-6.49
		256QAM	18.34	8.44	13	-4.56
	10MHz	BPSK	24.27	3.99	13	-9.01
		QPSK	21.73	6.59	13	-6.41
		256QAM	18.28	8.37	13	-4.63
	5MHz	BPSK	24.19	3.93	13	-9.07
		QPSK	21.81	6.40	13	-6.60
		256QAM	18.26	8.24	13	-4.76

Table 7-13. Peak-Average Ratio Test Results – Ant1

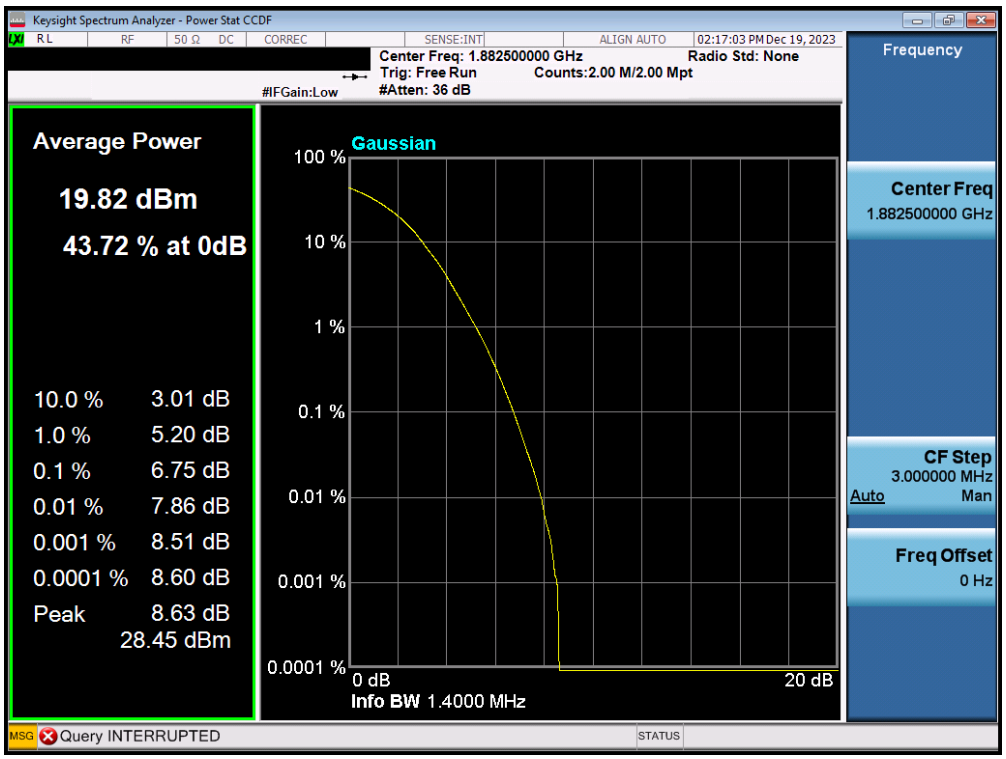
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n25-2	40MHz	BPSK	24.24	4.11	13	-8.89
		QPSK	21.79	6.73	13	-6.27
		256QAM	18.25	8.17	13	-4.83
	30MHz	BPSK	24.29	4.14	13	-8.86
		QPSK	21.75	6.61	13	-6.39
		256QAM	18.22	8.24	13	-4.76
	25MHz	BPSK	24.24	4.22	13	-8.78
		QPSK	21.72	6.73	13	-6.27
		256QAM	18.28	8.44	13	-4.56
	20MHz	BPSK	24.26	4.03	13	-8.97
		QPSK	21.76	6.54	13	-6.46
		256QAM	18.17	8.13	13	-4.87
	15MHz	BPSK	24.21	4.09	13	-8.91
		QPSK	21.69	6.47	13	-6.53
		256QAM	18.20	8.33	13	-4.67
	10MHz	BPSK	24.16	4.02	13	-8.98
		QPSK	21.64	6.64	13	-6.36
		256QAM	18.17	8.40	13	-4.60
	5MHz	BPSK	24.13	3.90	13	-9.10
		QPSK	21.69	6.44	13	-6.56
		256QAM	18.11	8.35	13	-4.65

Table 7-14. Peak-Average Ratio Test Results – Ant4

LTE Band 25/2 – Ant1

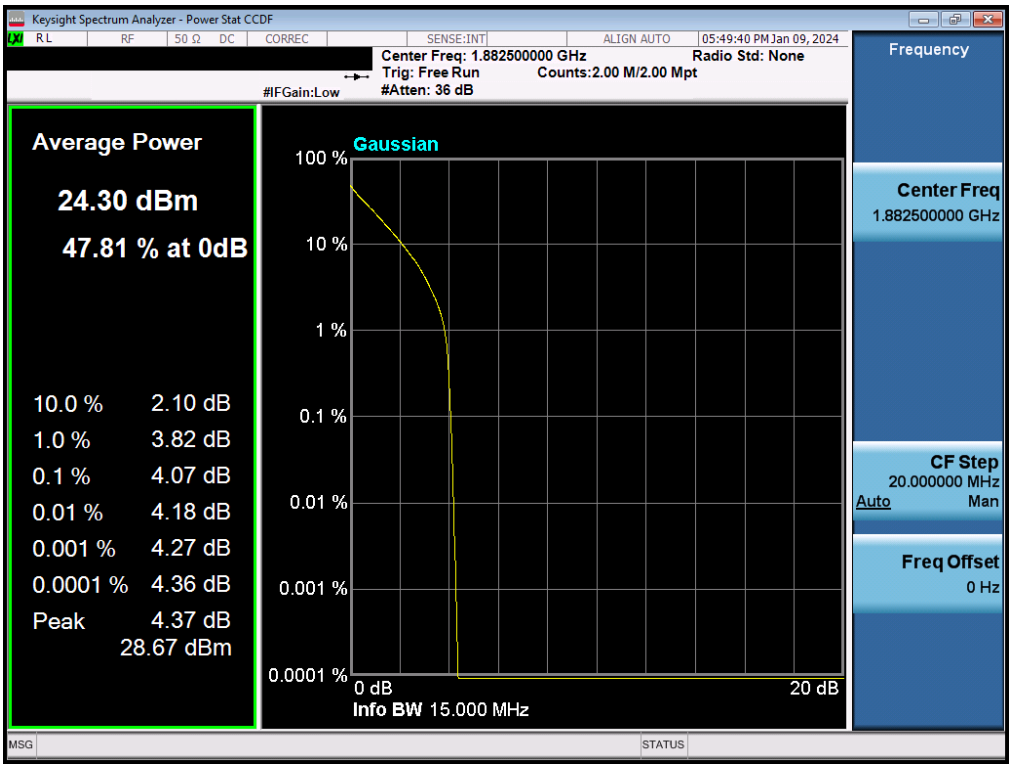


Plot 7-98. PAR Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB – Ant1)

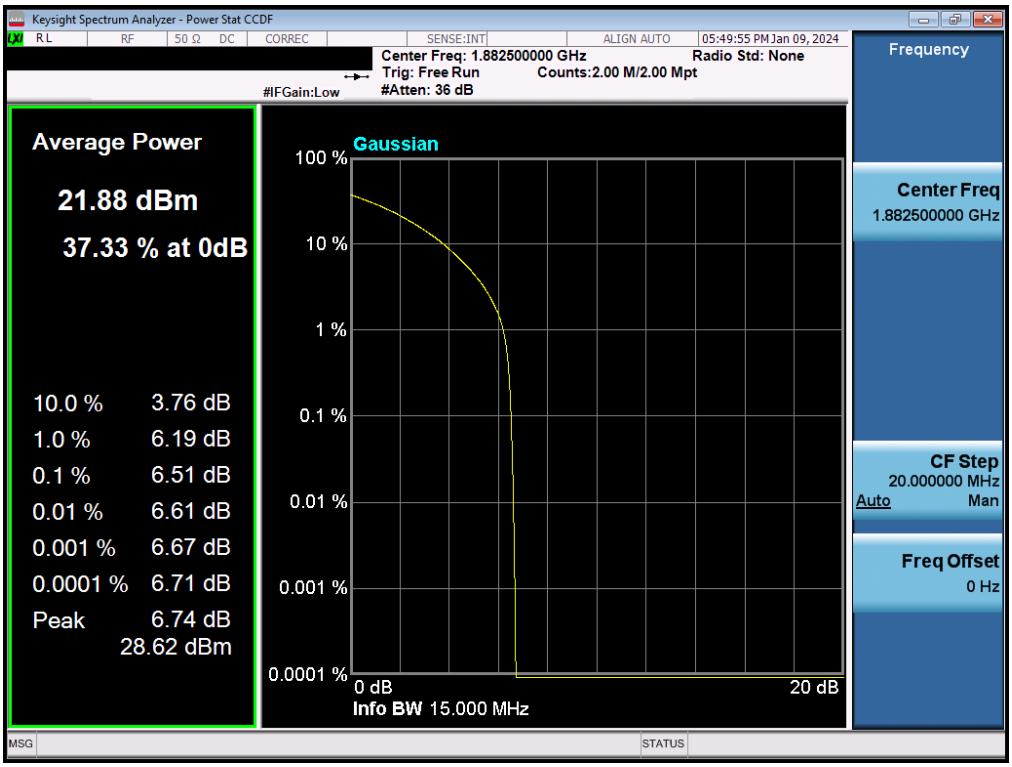


Plot 7-99. PAR Plot (LTE Band 25/2 - 1.4MHz 256-QAM - Full RB – Ant1)

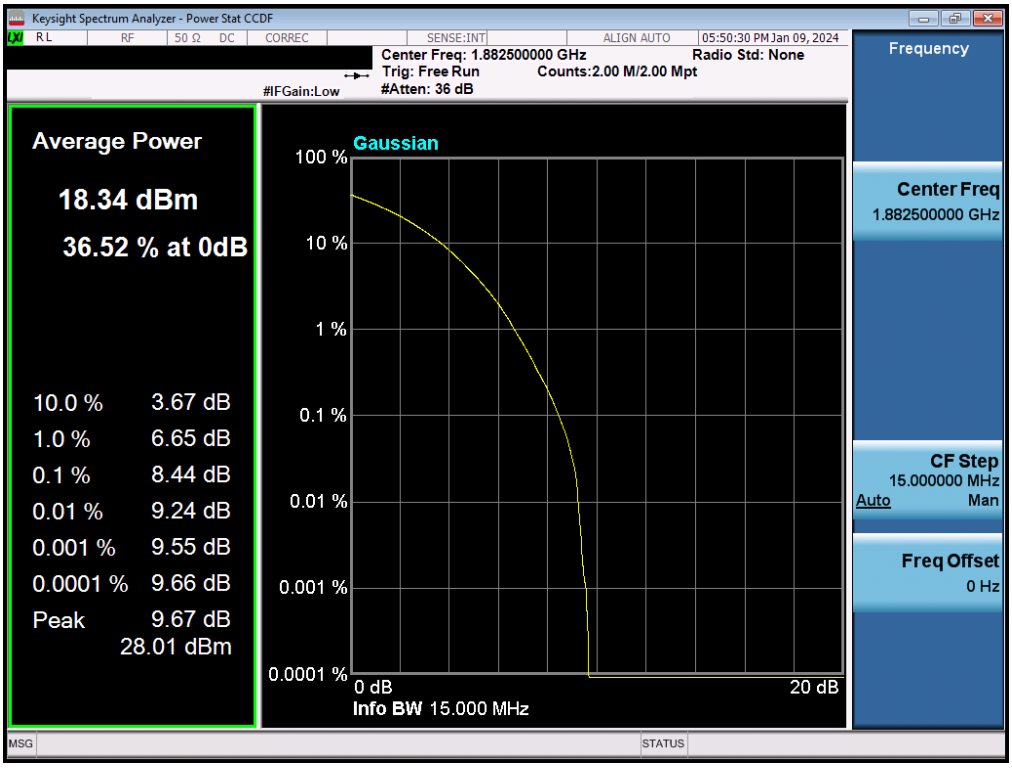
NR Band n25/2 – Ant1



Plot 7-100. PAR Plot (NR Band n25/2 - 15.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

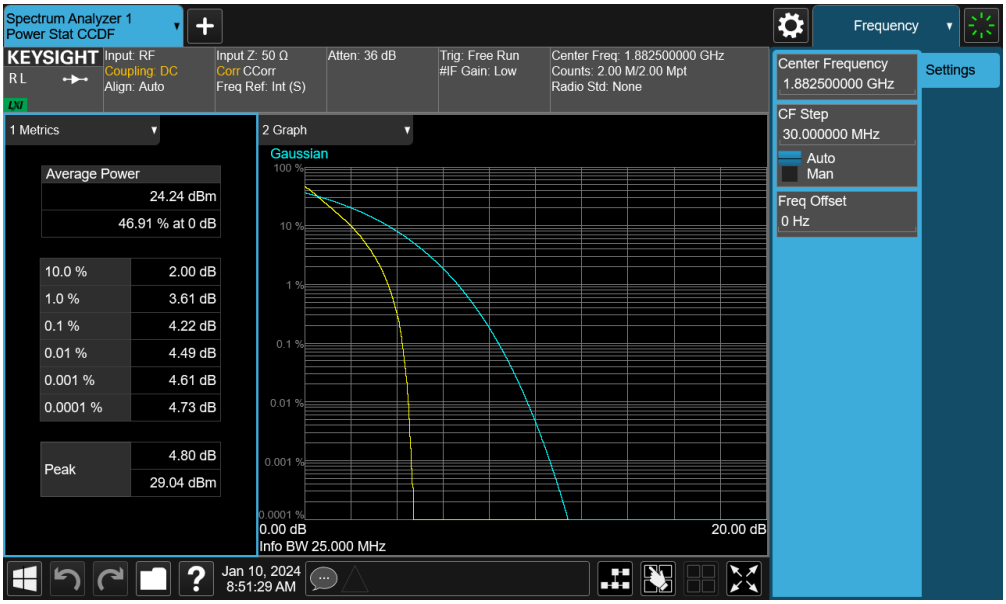


Plot 7-101. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM QPSK - Full RB – Ant1)

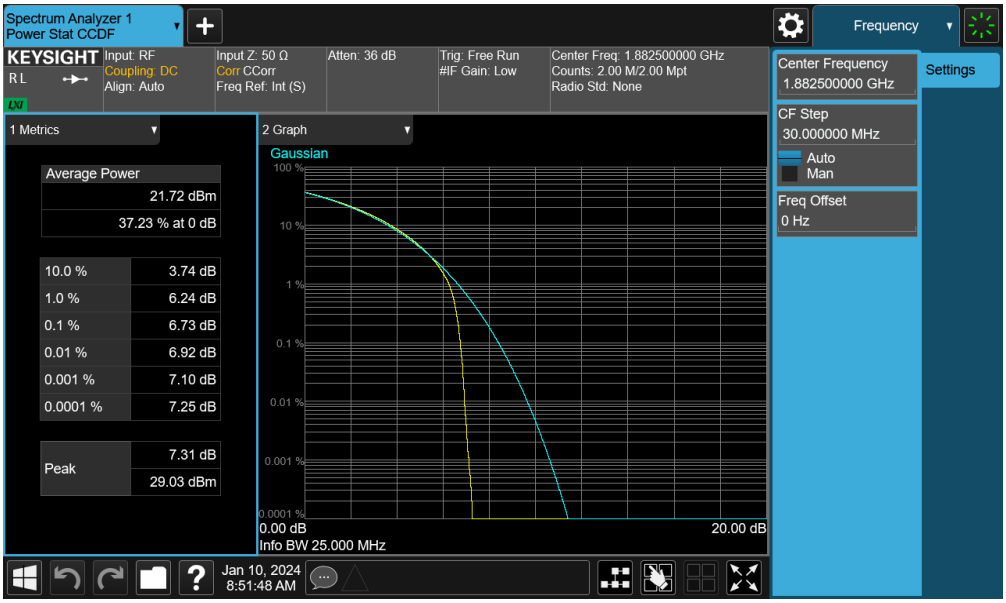


Plot 7-102. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM 256-QAM - Full RB – Ant1)

NR Band n25/2 – Ant4



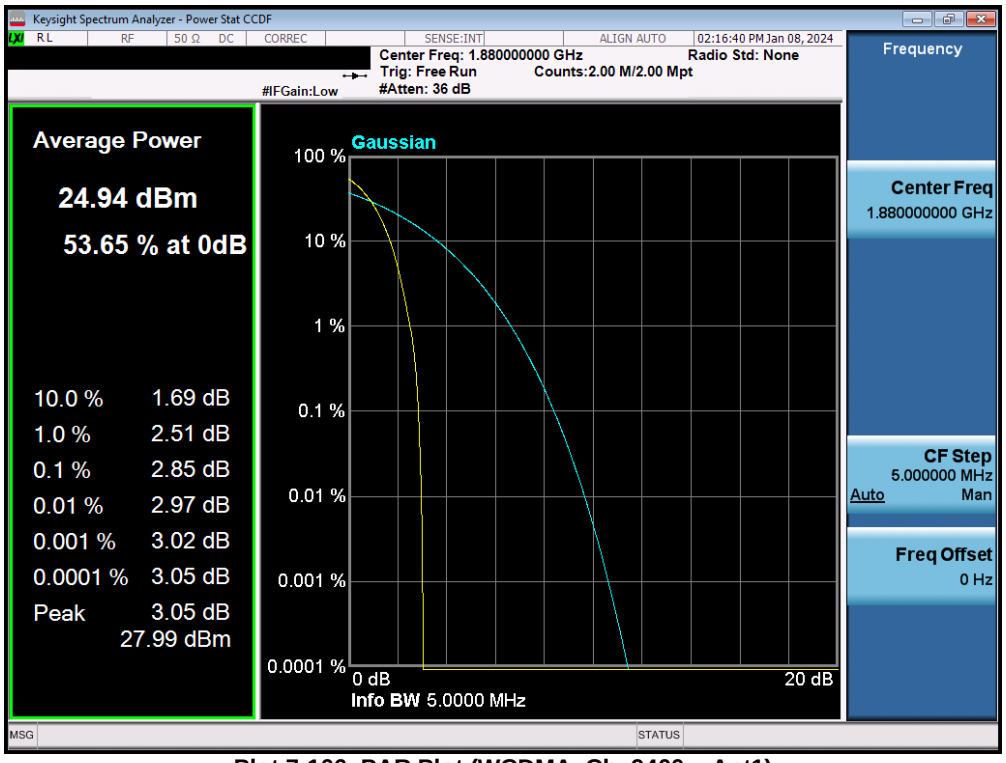
Plot 7-103. PAR Plot (NR Band n25 - 25.0MHz DFT-s-OFDM BPSK - Full RB – Ant4)



Plot 7-104. PAR Plot (NR Band n25 - 25.0MHz CP-OFDM QPSK - Full RB – Ant4)

Plot 7-105. PAR Plot (NR Band n25 - 25.0MHz CP-OFDM 256-QAM - Full RB – Ant4)

WCDMA PCS – Ant1



Plot 7-106. PAR Plot (WCDMA, Ch. 9400 – Ant1)

7.7 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

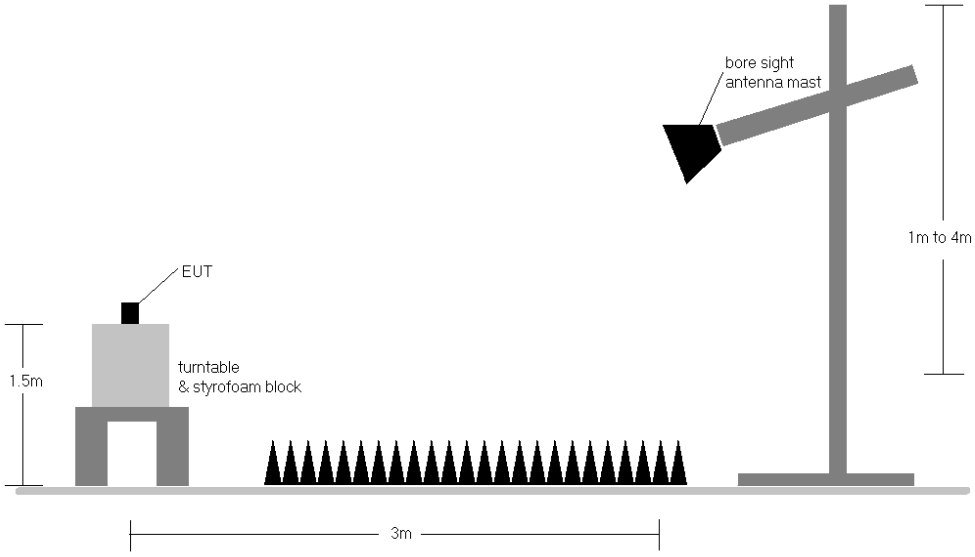


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

1) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest powers are reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

3) This unit was tested with its standard battery.

4) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.00	H	136	48	2.79	1 / 50	21.10	**23.89**	0.245	33.01	-9.12
	QPSK	1882.50	H	136	48	2.65	1 / 0	20.73	23.38	0.218	33.01	-9.63
	QPSK	1905.00	H	129	43	2.54	1 / 0	20.74	23.28	0.213	33.01	-9.73
	16-QAM	1860.00	H	136	48	2.79	1 / 50	20.39	23.18	0.208	33.01	-9.83
15 MHz	QPSK	1857.50	H	136	48	2.81	1 / 74	21.27	**24.08**	0.256	33.01	-8.93
	QPSK	1882.50	H	136	48	2.65	1 / 37	21.06	23.71	0.235	33.01	-9.30
	QPSK	1907.50	H	129	43	2.54	1 / 37	20.55	23.09	0.204	33.01	-9.92
	16-QAM	1857.50	H	136	48	2.81	1 / 74	20.59	23.40	0.219	33.01	-9.61
10 MHz	QPSK	1855.00	H	136	48	2.82	1 / 49	21.16	**23.98**	0.250	33.01	-9.03
	QPSK	1882.50	H	136	48	2.65	1 / 25	21.02	23.67	0.233	33.01	-9.34
	QPSK	1910.00	H	129	43	2.55	1 / 25	20.72	23.26	0.212	33.01	-9.75
	16-QAM	1855.00	H	136	48	2.82	1 / 25	20.55	23.37	0.217	33.01	-9.64
5 MHz	QPSK	1852.50	H	136	48	2.84	1 / 12	21.27	**24.11**	0.258	33.01	-8.90
	QPSK	1882.50	H	136	48	2.65	1 / 12	21.09	23.74	0.237	33.01	-9.27
	QPSK	1912.50	H	129	43	2.55	1 / 12	20.85	23.40	0.219	33.01	-9.61
	16-QAM	1852.50	H	136	48	2.84	1 / 12	20.61	23.45	0.221	33.01	-9.56
3 MHz	QPSK	1851.50	H	136	48	2.85	1 / 7	21.21	**24.05**	0.254	33.01	-8.96
	QPSK	1882.50	H	136	48	2.65	1 / 7	20.99	23.64	0.231	33.01	-9.37
	QPSK	1913.50	H	129	43	2.55	1 / 7	20.80	23.35	0.216	33.01	-9.66
	16-QAM	1851.50	H	136	48	2.85	1 / 0	20.73	23.57	0.228	33.01	-9.44
1.4 MHz	QPSK	1850.70	H	136	48	2.85	1 / 3	21.21	**24.06**	0.255	33.01	-8.95
	QPSK	1882.50	H	136	48	2.65	1 / 3	20.96	23.61	0.230	33.01	-9.40
	QPSK	1914.30	H	129	43	2.55	1 / 3	20.87	23.42	0.220	33.01	-9.59
	16-QAM	1850.70	H	136	48	2.85	1 / 3	20.63	23.48	0.223	33.01	-9.53

Table 7-15. EIRP Data (LTE Band 25/2 – Ant1)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1870.00	H	133	311	2.73	1 / 108	20.78	23.51	0.224	33.01	-9.50
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 108	21.21	23.86	0.243	33.01	-9.15
	π/2 BPSK	1895.00	H	30	309	2.57	1 / 108	21.31	23.88	0.244	33.01	-9.13
	QPSK	1870.00	H	133	311	2.73	1 / 108	20.80	23.53	0.225	33.01	-9.48
	QPSK	1882.50	H	175	306	2.65	1 / 108	21.17	23.82	0.241	33.01	-9.19
	QPSK	1895.00	H	30	309	2.57	1 / 108	21.35	**23.92**	0.247	33.01	-9.09
	16-QAM	1895.00	H	30	309	2.57	1 / 108	20.10	22.67	0.185	33.01	-10.34
30 MHz	π/2 BPSK	1865.00	H	133	311	2.76	1 / 1	20.66	23.42	0.220	33.01	-9.59
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 158	21.23	23.88	0.244	33.01	-9.14
	π/2 BPSK	1900.00	H	30	309	2.54	1 / 158	21.44	23.98	0.250	33.01	-9.03
	QPSK	1865.00	H	133	311	2.76	1 / 158	20.82	23.58	0.228	33.01	-9.43
	QPSK	1882.50	H	175	306	2.65	1 / 158	21.09	23.74	0.237	33.01	-9.27
	QPSK	1900.00	H	30	309	2.54	1 / 158	21.48	**24.02**	0.253	33.01	-8.99
	16-QAM	1882.50	H	175	306	2.65	1 / 158	20.15	22.80	0.190	33.01	-10.21
25 MHz	π/2 BPSK	1862.50	H	133	311	2.78	1 / 1	20.67	23.45	0.221	33.01	-9.56
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 66	21.24	23.89	0.245	33.01	-9.12
	π/2 BPSK	1902.50	H	30	309	2.54	1 / 1	21.38	23.92	0.247	33.01	-9.09
	QPSK	1862.50	H	133	311	2.78	1 / 1	20.89	23.66	0.232	33.01	-9.35
	QPSK	1882.50	H	175	306	2.65	1 / 66	21.13	23.78	0.239	33.01	-9.23
	QPSK	1902.50	H	30	309	2.54	1 / 1	21.43	**23.97**	0.249	33.01	-9.04
	16-QAM	1862.50	H	133	311	2.78	1 / 1	20.78	23.55	0.227	33.01	-9.46
20 MHz	π/2 BPSK	1860.00	H	133	311	2.79	1 / 1	20.68	23.47	0.222	33.01	-9.54
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 1	21.26	23.91	0.246	33.01	-9.10
	π/2 BPSK	1905.00	H	30	309	2.54	1 / 1	21.39	**23.93**	0.247	33.01	-9.08
	QPSK	1860.00	H	133	311	2.79	1 / 1	20.79	23.59	0.228	33.01	-9.42
	QPSK	1882.50	H	175	306	2.65	1 / 1	21.14	23.79	0.239	33.01	-9.22
	QPSK	1905.00	H	30	309	2.54	1 / 1	21.37	23.91	0.246	33.01	-9.10
	16-QAM	1882.50	H	175	306	2.65	1 / 1	20.44	23.09	0.204	33.01	-9.92
15 MHz	π/2 BPSK	1857.50	H	133	311	2.81	1 / 77	20.66	23.47	0.222	33.01	-9.54
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 77	21.24	23.89	0.245	33.01	-9.12
	π/2 BPSK	1907.50	H	30	309	2.54	1 / 77	21.41	**23.96**	0.249	33.01	-9.05
	QPSK	1857.50	H	133	311	2.81	1 / 77	20.90	23.71	0.235	33.01	-9.30
	QPSK	1882.50	H	175	306	2.65	1 / 77	21.04	23.69	0.234	33.01	-9.32
	QPSK	1907.50	H	30	309	2.54	1 / 77	21.40	23.95	0.248	33.01	-9.06
	16-QAM	1857.50	H	133	311	2.81	1 / 77	20.20	23.00	0.200	33.01	-10.01
10 MHz	π/2 BPSK	1855.00	H	133	311	2.82	1 / 26	20.65	23.47	0.223	33.01	-9.54
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 1	21.15	**23.80**	0.240	33.01	-9.21
	π/2 BPSK	1910.00	H	30	309	2.55	1 / 50	21.25	23.80	0.240	33.01	-9.21
	QPSK	1855.00	H	133	311	2.82	1 / 26	20.65	23.47	0.222	33.01	-9.54
	QPSK	1882.50	H	175	306	2.65	1 / 1	20.91	23.56	0.227	33.01	-9.45
	QPSK	1910.00	H	30	309	2.55	1 / 50	21.21	23.75	0.237	33.01	-9.26
	16-QAM	1882.50	H	175	306	2.65	1 / 1	20.28	22.93	0.196	33.01	-10.08
5 MHz	π/2 BPSK	1852.50	H	133	311	2.84	1 / 12	20.67	23.51	0.224	33.01	-9.50
	π/2 BPSK	1882.50	H	175	306	2.65	1 / 1	21.16	23.81	0.241	33.01	-9.20
	π/2 BPSK	1912.50	H	30	309	2.55	1 / 12	21.43	**23.97**	0.250	33.01	-9.04
	QPSK	1852.50	H	133	311	2.84	1 / 12	20.62	23.47	0.222	33.01	-9.55
	QPSK	1882.50	H	175	306	2.65	1 / 1	20.89	23.54	0.226	33.01	-9.48
	QPSK	1912.50	H	30	309	2.55	1 / 12	21.42	23.96	0.249	33.01	-9.05
	16-QAM	1852.50	H	133	311	2.84	1 / 12	20.10	22.94	0.197	33.01	-10.07
40 MHz	QPSK (CP-OFDM)	1895.00	H	166	314	0.00	1 / 108	19.87	19.87	0.097	33.01	-13.14

Table 7-16. EIRP Data (NR Band n25/2 – Ant1)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1870.00	H	153	301	2.79	1 / 108	20.81	23.60	0.229	33.01	-9.41
	π/2 BPSK	1882.50	H	156	297	2.67	1 / 108	21.16	23.83	0.241	33.01	-9.19
	π/2 BPSK	1895.00	H	159	294	2.54	1 / 1	19.92	22.46	0.176	33.01	-10.55
	QPSK	1870.00	H	153	301	2.79	1 / 108	20.85	23.64	0.231	33.01	-9.37
	QPSK	1882.50	H	156	297	2.67	1 / 108	21.40	**24.07**	0.255	33.01	-8.95
	QPSK	1895.00	H	159	294	2.54	1 / 1	19.92	22.46	0.176	33.01	-10.55
	16-QAM	1882.50	H	156	297	2.67	1 / 108	20.48	23.15	0.206	33.01	-9.87
30 MHz	π/2 BPSK	1865.00	H	153	301	0.00	1 / 1	23.61	23.61	0.229	33.01	-9.40
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 1	23.86	23.86	0.243	33.01	-9.15
	π/2 BPSK	1900.00	H	159	294	0.00	1 / 1	22.70	22.70	0.186	33.01	-10.31
	QPSK	1865.00	H	153	301	0.00	1 / 1	23.79	23.79	0.239	33.01	-9.22
	QPSK	1882.50	H	156	297	0.00	1 / 1	24.37	**24.37**	0.274	33.01	-8.64
	QPSK	1900.00	H	159	294	0.00	1 / 1	22.56	22.56	0.180	33.01	-10.46
	16-QAM	1882.50	H	156	297	0.00	1 / 1	22.72	22.72	0.187	33.01	-10.29
25 MHz	π/2 BPSK	1862.50	H	153	301	0.00	1 / 131	23.75	23.75	0.237	33.01	-9.26
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 66	23.92	23.92	0.247	33.01	-9.09
	π/2 BPSK	1902.50	H	159	294	0.00	1 / 131	22.66	22.66	0.185	33.01	-10.35
	QPSK	1862.50	H	153	301	0.00	1 / 131	23.76	23.76	0.238	33.01	-9.25
	QPSK	1882.50	H	156	297	0.00	1 / 66	24.18	**24.18**	0.262	33.01	-8.83
	QPSK	1902.50	H	159	294	0.00	1 / 131	22.72	22.72	0.187	33.01	-10.29
	16-QAM	1882.50	H	156	297	0.00	1 / 66	22.69	22.69	0.186	33.01	-10.32
20 MHz	π/2 BPSK	1860.00	H	153	301	0.00	1 / 53	23.69	23.69	0.234	33.01	-9.32
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 53	24.04	24.04	0.254	33.01	-8.97
	π/2 BPSK	1905.00	H	159	294	0.00	1 / 53	22.67	22.67	0.185	33.01	-10.34
	QPSK	1860.00	H	153	301	0.00	1 / 53	23.62	23.62	0.230	33.01	-9.39
	QPSK	1882.50	H	156	297	0.00	1 / 53	24.17	**24.17**	0.261	33.01	-8.84
	QPSK	1905.00	H	159	294	0.00	1 / 53	22.78	22.78	0.190	33.01	-10.23
	16-QAM	1882.50	H	156	297	0.00	1 / 53	22.83	22.83	0.192	33.01	-10.18
15 MHz	π/2 BPSK	1857.50	H	153	301	0.00	1 / 39	23.66	23.66	0.232	33.01	-9.35
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 77	23.93	23.93	0.247	33.01	-9.08
	π/2 BPSK	1907.50	H	159	294	0.00	1 / 77	22.58	22.58	0.181	33.01	-10.43
	QPSK	1857.50	H	153	301	0.00	1 / 39	23.87	23.87	0.244	33.01	-9.14
	QPSK	1882.50	H	156	297	0.00	1 / 77	24.33	**24.33**	0.271	33.01	-8.68
	QPSK	1907.50	H	159	294	0.00	1 / 77	22.71	22.71	0.187	33.01	-10.30
	16-QAM	1882.50	H	156	297	0.00	1 / 77	22.88	22.88	0.194	33.01	-10.13
10 MHz	π/2 BPSK	1855.00	H	153	301	0.00	1 / 1	23.62	23.62	0.230	33.01	-9.39
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 26	23.88	23.88	0.244	33.01	-9.13
	π/2 BPSK	1910.00	H	159	294	0.00	1 / 1	22.56	22.56	0.180	33.01	-10.45
	QPSK	1855.00	H	153	301	0.00	1 / 26	23.47	23.47	0.222	33.01	-9.54
	QPSK	1882.50	H	156	297	0.00	1 / 26	24.37	**24.37**	0.274	33.01	-8.64
	QPSK	1910.00	H	159	294	0.00	1 / 1	22.69	22.69	0.186	33.01	-10.32
	16-QAM	1882.50	H	156	297	0.00	1 / 26	22.61	22.61	0.182	33.01	-10.40
5 MHz	π/2 BPSK	1852.50	H	153	301	0.00	1 / 1	23.58	23.58	0.228	33.01	-9.43
	π/2 BPSK	1882.50	H	156	297	0.00	1 / 12	23.74	23.74	0.236	33.01	-9.27
	π/2 BPSK	1912.50	H	159	294	0.00	1 / 1	22.50	22.50	0.178	33.01	-10.51
	QPSK	1852.50	H	153	301	0.00	1 / 1	23.65	23.65	0.232	33.01	-9.36
	QPSK	1882.50	H	156	297	0.00	1 / 12	24.30	**24.30**	0.269	33.01	-8.71
	QPSK	1912.50	H	159	294	0.00	1 / 1	22.59	22.59	0.181	33.01	-10.42
	16-QAM	1882.50	H	156	297	0.00	1 / 12	22.72	22.72	0.187	33.01	-10.29
40 MHz	QPSK (CP-OFDM)	1882.50	H	150	299	2.67	1 / 108	18.95	21.62	0.145	33.01	-11.40

Table 7-17. EIRP Data (NR Band n25/2 – Ant4)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	H	143	306	21.20	2.84	24.04	0.254	33.01	-8.97
1880.00	WCDMA1900	H	179	306	21.34	2.67	24.01	0.251	33.01	-9.01
1907.60	WCDMA1900	H	149	54	21.59	2.54	**24.13**	**0.259**	33.01	-8.88

Table 7-18. EIRP Data (WCDMA PCS – Ant1)

7.8 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

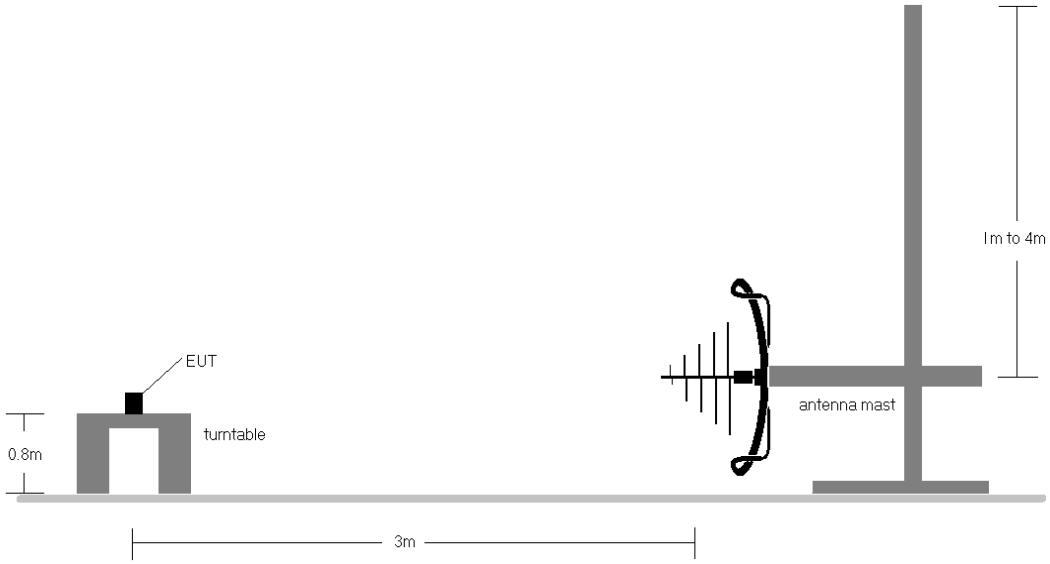


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

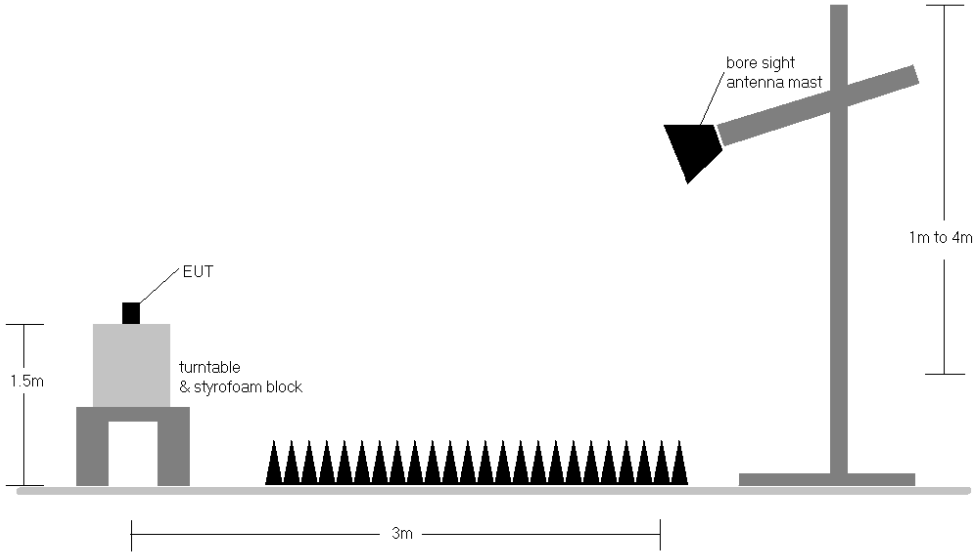


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
   a) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   b) EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest powers are reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

4) This unit was tested with its standard battery.

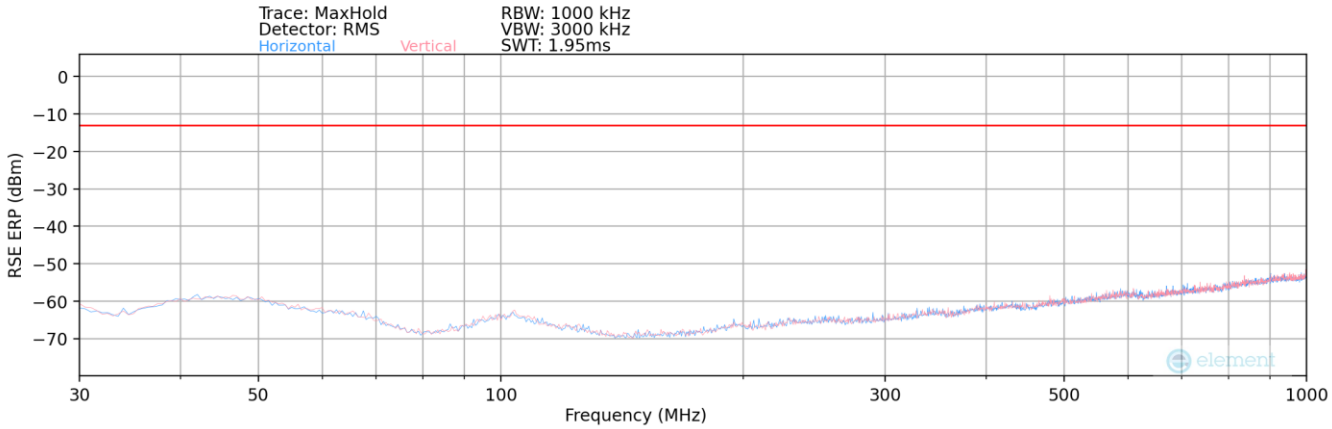
5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

6) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

7) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

8) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

LTE Band 25/2 – Ant1

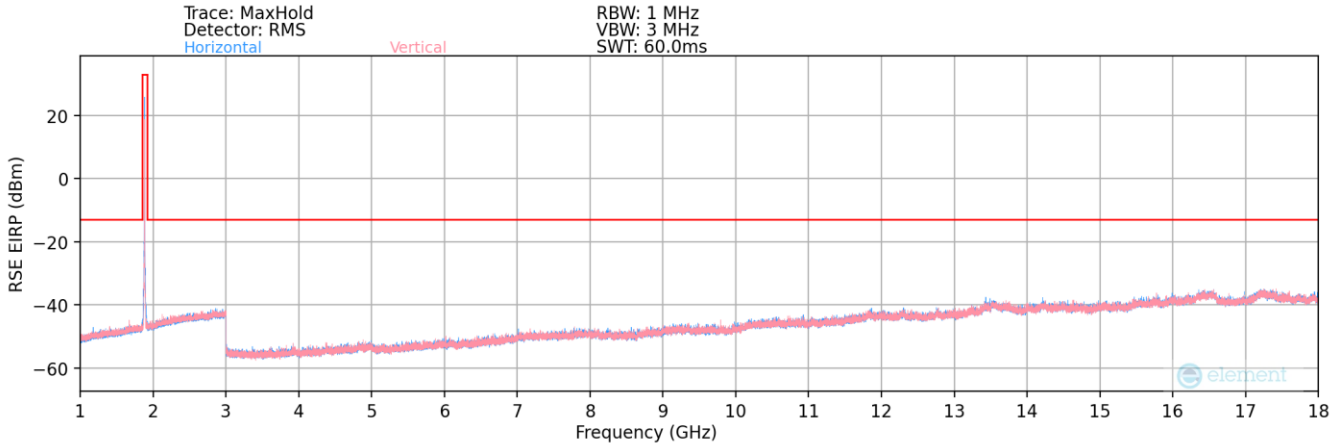


Plot 7-107. Radiated Spurious Plot Below 1GHz (LTE Band 25/2 – Ant1)

Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
706.54	H	-	-	-76.83	-3.46	26.71	-70.69	-13.00	-57.69

Table 7-19. Radiated Spurious Data (LTE Band 25/2 – Mid Channel – Ant1)



Plot 7-108. Radiated Spurious Plot Above 1GHz (LTE Band 25/2 – Ant1)

Bandwidth (MHz):	20
Frequency (MHz):	1860
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.00	H	-	-	-79.84	7.54	34.70	-60.56	-13.00	-47.56
5580.00	H	-	-	-81.64	11.46	36.82	-58.44	-13.00	-45.44
7440.00	H	-	-	-82.38	15.31	39.93	-55.32	-13.00	-42.32

Table 7-20. Radiated Spurious Data (LTE Band 25/2 – Low Channel – Ant1)

Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.00	H	-	-	-80.02	7.78	34.76	-60.50	-13.00	-47.50
5647.50	H	-	-	-81.37	11.41	37.04	-58.22	-13.00	-45.22
7530.00	H	-	-	-82.26	15.65	40.39	-54.87	-13.00	-41.87

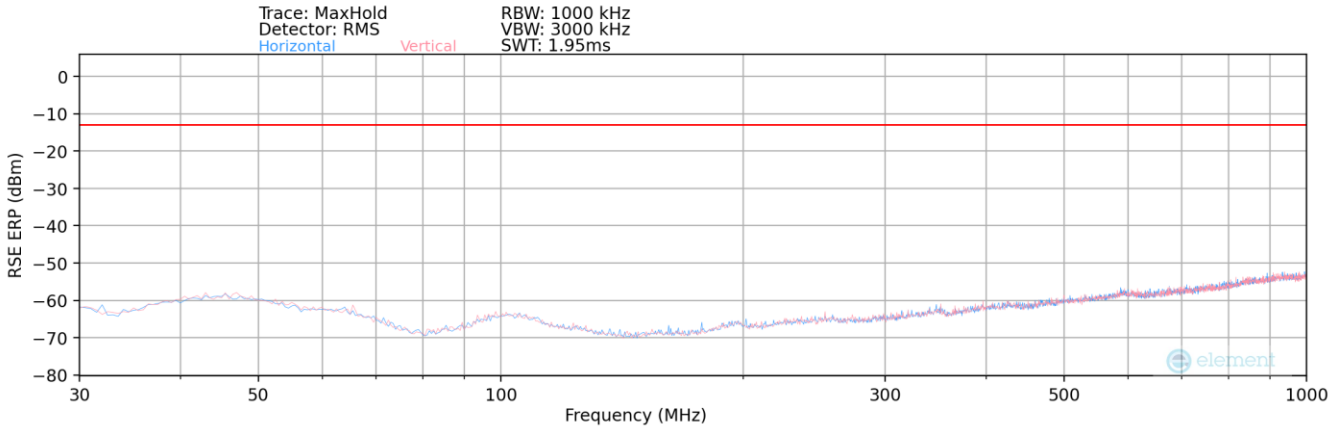
Table 7-21. Radiated Spurious Data (LTE Band 25/2 – Mid Channel – Ant1)

Bandwidth (MHz):	20
Frequency (MHz):	1905
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	H	-	-	-79.97	8.01	35.04	-60.22	-13.00	-47.22
5715.00	H	-	-	-81.42	11.36	36.94	-58.32	-13.00	-45.32
7620.00	H	-	-	-82.31	15.89	40.58	-54.68	-13.00	-41.68

Table 7-22. Radiated Spurious Data (LTE Band 25/2 – High Channel – Ant1)

ULCA Band 2 – Ant1

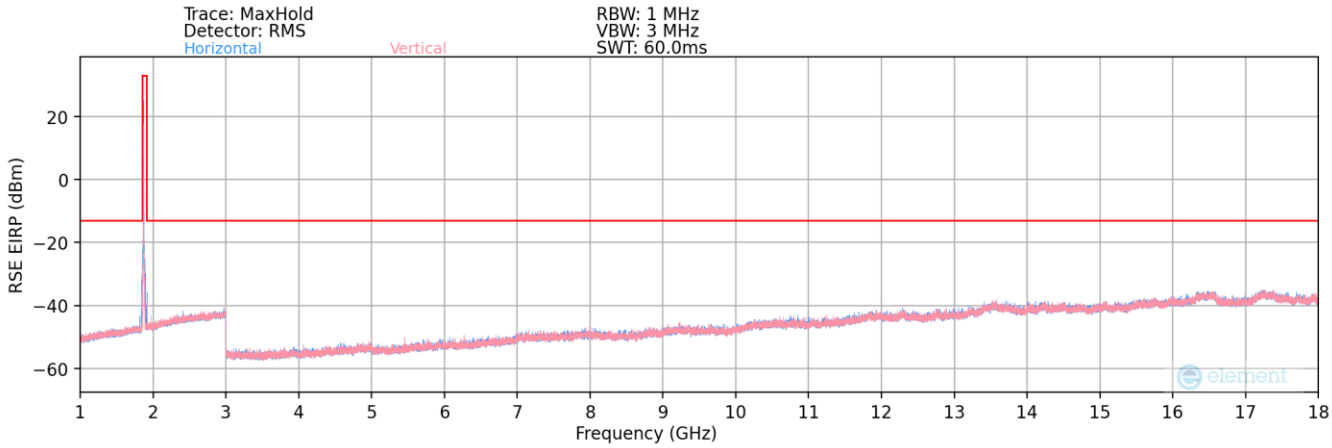


Plot 7-109. Radiated Spurious Plot Below 1GHz (ULCA Band 2 – Ant1)

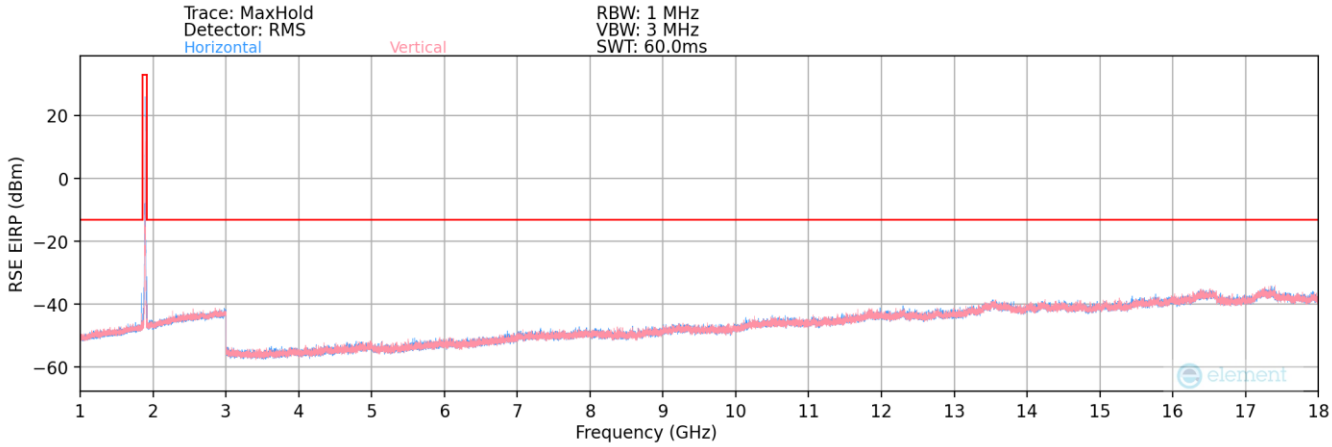
PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1880
PCC RB / Offset:	1 / 50
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1899.8
SCC RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
754.45	H	-	-	-75.61	-2.54	28.85	-68.56	-13.00	-55.56

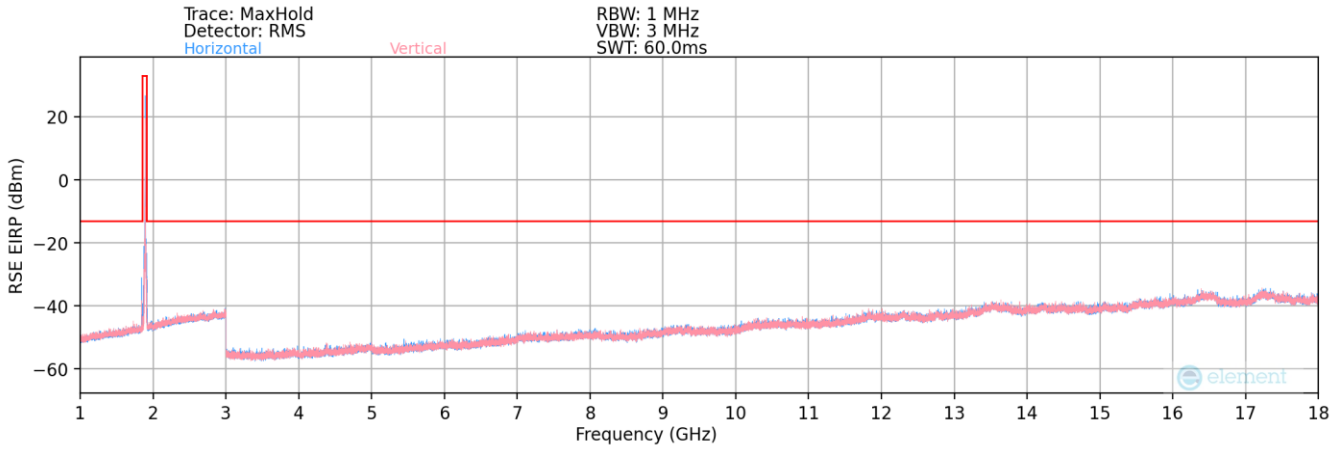
Table 7-23. Radiated Spurious Data (ULCA Band 2 – Mid Channel – Ant1)



Plot 7-110. Radiated Spurious Plot Above 1GHz (ULCA Band 2 – Low Channel– Ant1)



Plot 7-111. Radiated Spurious Plot Above 1GHz (ULCA Band 2 – Mid Channel– Ant1)



Plot 7-112. Radiated Spurious Plot Above 1GHz (ULCA Band 2 – High Channel – Ant1)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1860
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1879.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3759.60	H	-	-	-79.98	7.70	34.72	-60.54	-13.00	-47.54
5639.40	H	-	-	-81.42	11.47	37.05	-58.21	-13.00	-45.21
7519.20	H	-	-	-82.40	15.77	40.37	-54.88	-13.00	-41.88

Table 7-24. Radiated Spurious Data (ULCA Band 2 – Low Channel – Ant1)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1880
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1899.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3799.60	H	-	-	-80.21	8.03	34.82	-60.44	-13.00	-47.44
5699.40	H	-	-	-81.47	11.07	36.60	-58.66	-13.00	-45.66
7599.20	H	-	-	-82.61	15.60	39.99	-55.27	-13.00	-42.27

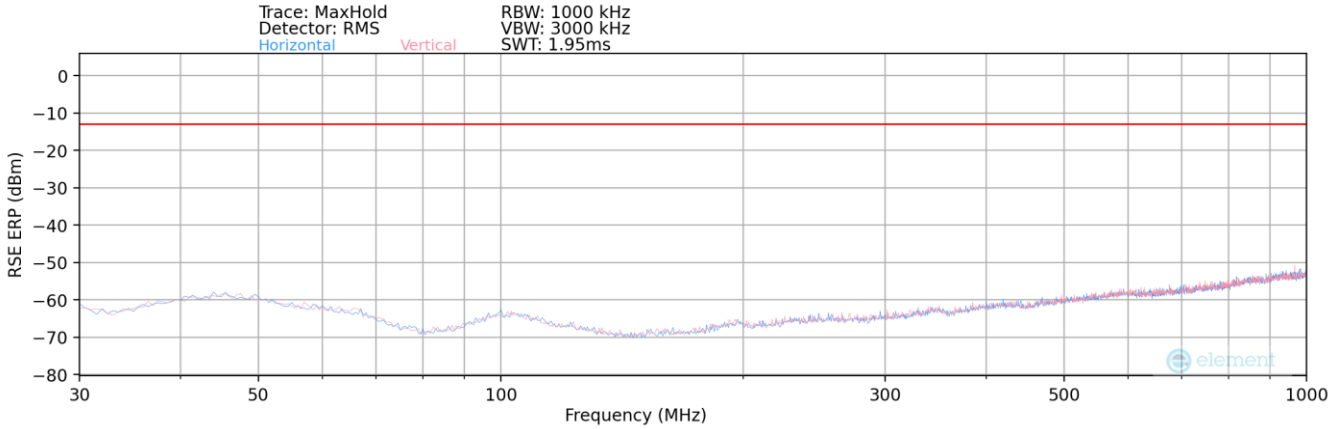
Table 7-25. Radiated Spurious Data (ULCA Band 2 – Mid Channel – Ant1)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1900
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1880.2
SCC RB / Offset:	1 / 99

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.40	H	-	-	-80.09	7.83	34.74	-60.52	-13.00	-47.52
5640.60	H	-	-	-81.40	11.87	37.47	-57.79	-13.00	-44.79
7520.80	H	-	-	-82.48	15.93	40.45	-54.80	-13.00	-41.80

Table 7-26. Radiated Spurious Data (ULCA Band 2 – High Channel – Ant1)

NR Band n25/2 – Ant1

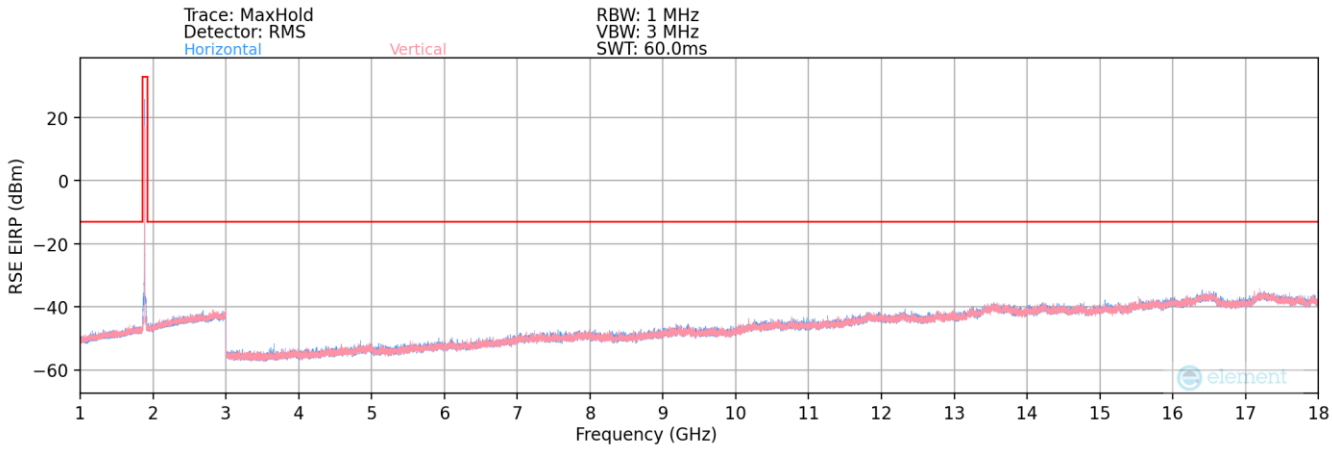


Plot 7-113. Radiated Spurious Plot Below 1GHz (NR Band n25/2 – Ant1)

Bandwidth (MHz):	40
Frequency (MHz):	1882.5
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
754.38	H	-	-	-76.06	-2.55	28.39	-69.02	-13.00	-56.02

Table 7-27. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant1)



Plot 7-114. Radiated Spurious Plot Above 1GHz (NR Band n25/2 – Ant1)

Bandwidth (MHz):	40
Frequency (MHz):	1870
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3740.00	H	-	-	-80.05	7.51	34.46	-60.80	-13.00	-47.80
5610.00	H	-	-	-81.15	11.34	37.19	-58.07	-13.00	-45.07
7480.00	H	-	-	-82.34	15.60	40.26	-55.00	-13.00	-42.00

Table 7-28. Radiated Spurious Data (NR Band n25/2 – Low Channel – Ant1)

Bandwidth (MHz):	40
Frequency (MHz):	1882.5
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.00	H	-	-	-79.78	7.78	35.00	-60.26	-13.00	-47.26
5647.50	H	-	-	-81.27	11.41	37.14	-58.12	-13.00	-45.12
7530.00	H	-	-	-82.42	15.65	40.23	-55.03	-13.00	-42.03

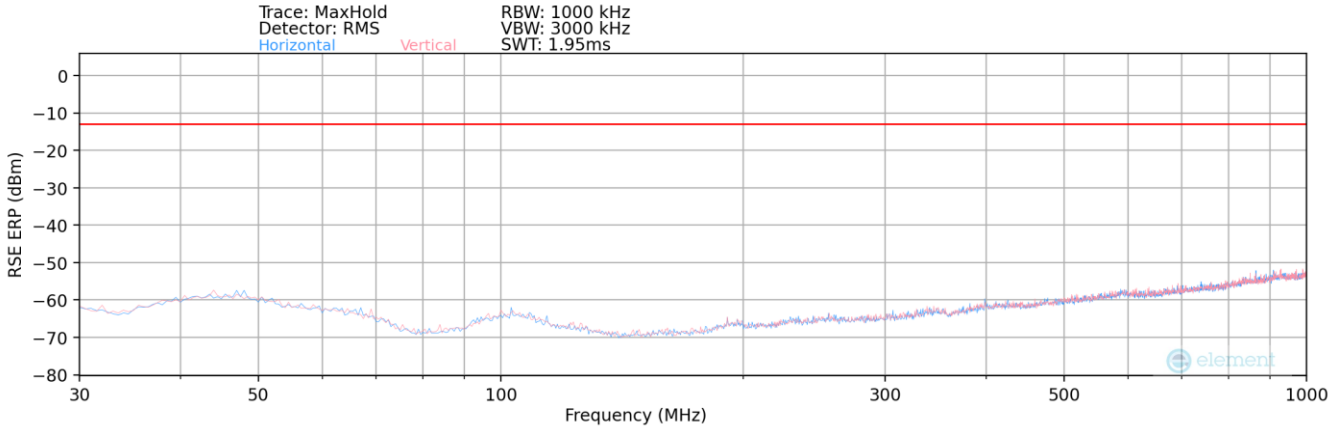
Table 7-29. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant1)

Bandwidth (MHz):	40
Frequency (MHz):	1895
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3790.00	H	-	-	-79.96	8.07	35.11	-60.15	-13.00	-47.15
5685.00	H	-	-	-81.19	11.01	36.82	-58.43	-13.00	-45.43
7580.00	H	-	-	-82.39	15.72	40.33	-54.93	-13.00	-41.93

Table 7-30. Radiated Spurious Data (NR Band n25/2 – High Channel – Ant1)

NR Band n25/2 – Ant4

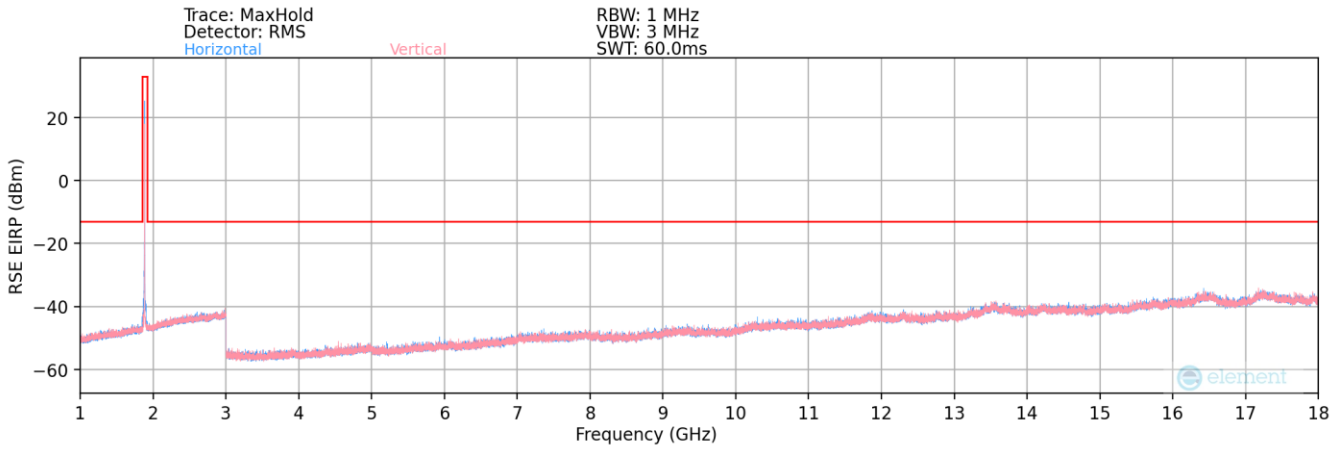


Plot 7-115. Radiated Spurious Plot Below 1GHz (NR Band n25/2 – Ant4)

Bandwidth (MHz):	40
Frequency (MHz):	1882.5
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
934.28	H	-	-	-77.70	-0.35	28.95	-68.45	-13.00	-55.45

Table 7-31. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant4)



Plot 7-116. Radiated Spurious Plot Above 1GHz (NR Band n25/2 – Ant4)

Bandwidth (MHz):	40
Frequency (MHz):	1870
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3740.00	H	-	-	-79.75	7.54	34.79	-60.47	-13.00	-47.47
5610.00	H	-	-	-81.19	11.46	37.27	-57.99	-13.00	-44.99
7480.00	H	-	-	-82.51	15.31	39.80	-55.45	-13.00	-42.45

Table 7-32. Radiated Spurious Data (NR Band n25/2 – Low Channel – Ant4)

Bandwidth (MHz):	40
Frequency (MHz):	1882.5
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.00	H	-	-	-79.65	7.78	35.13	-60.13	-13.00	-47.13
5647.50	H	-	-	-81.59	11.41	36.82	-58.44	-13.00	-45.44
7530.00	H	-	-	-82.50	15.65	40.15	-55.11	-13.00	-42.11

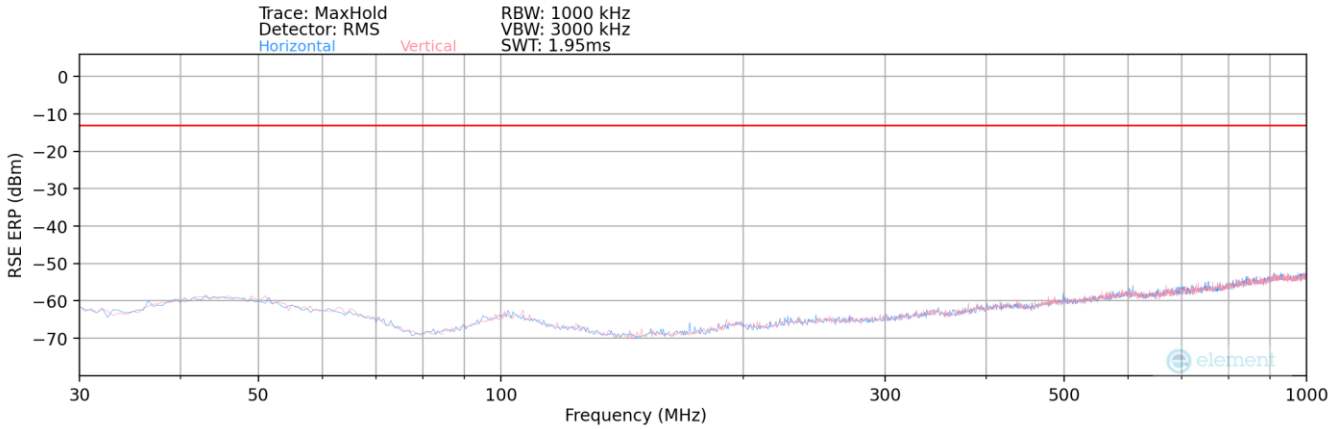
Table 7-33. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant4)

Bandwidth (MHz):	40
Frequency (MHz):	1895
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3790.00	H	-	-	-80.05	8.01	34.96	-60.30	-13.00	-47.30
5685.00	H	-	-	-81.29	11.36	37.07	-58.19	-13.00	-45.19
7580.00	H	-	-	-82.33	15.89	40.56	-54.70	-13.00	-41.70

Table 7-34. Radiated Spurious Data (NR Band n25/2 – High Channel – Ant4)

WCDMA PCS – Ant1

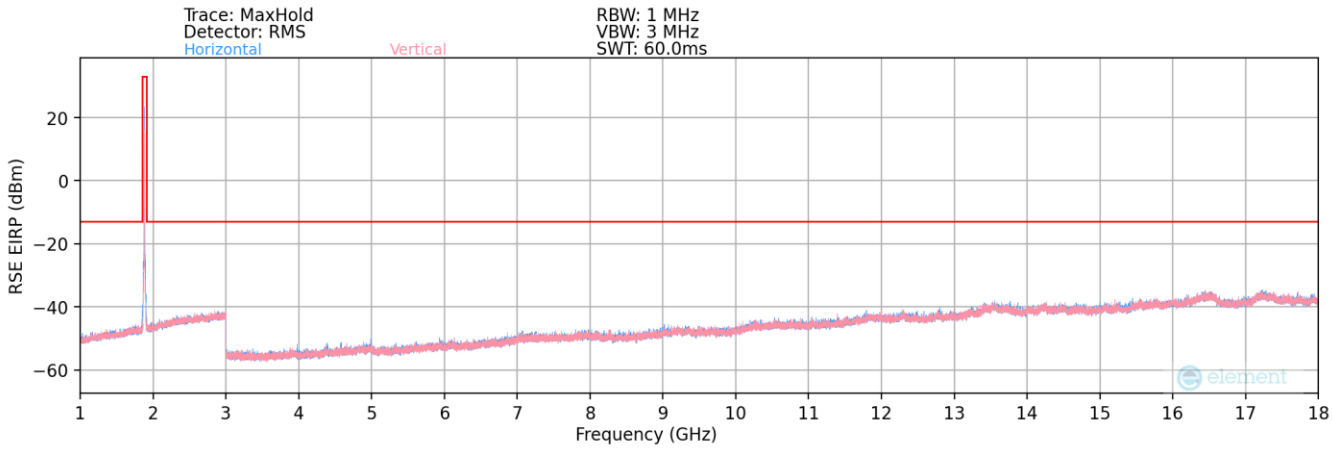


Plot 7-117. Radiated Spurious Plot Below 1GHz (WCDMA PCS – Ant1)

Mode:	WCDMA RMC
Channel:	9400
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
477.00	H	-	-	-75.46	-7.24	24.30	-73.11	-13.00	-60.11

Table 7-35. Radiated Spurious Data (WCDMA PCS – Mid Channel – Ant1)



Plot 7-118. Radiated Spurious Plot Above 1GHz (WCDMA PCS – Ant1)

Mode:	WCDMA RMC
Channel:	9262
Frequency (MHz):	1852.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3704.80	H	-	-	-79.88	7.65	34.77	-60.49	-13.00	-47.49
5557.20	H	-	-	-81.10	11.43	37.33	-57.93	-13.00	-44.93
7409.60	H	-	-	-81.78	15.11	40.33	-54.93	-13.00	-41.93

Table 7-36. Radiated Spurious Data (WCDMA PCS – Low Channel – Ant1)

Mode:	WCDMA RMC
Channel:	9400
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.00	H	-	-	-80.19	7.71	34.52	-60.74	-13.00	-47.74
5640.00	H	-	-	-81.25	11.46	37.21	-58.04	-13.00	-45.04
7520.00	H	-	-	-82.43	15.78	40.35	-54.91	-13.00	-41.91

Table 7-37. Radiated Spurious Data (WCDMA PCS – Mid Channel – Ant1)

Mode:	WCDMA RMC
Channel:	9538
Frequency (MHz):	1907.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.20	H	-	-	-80.24	7.99	34.75	-60.50	-13.00	-47.50
5722.80	H	-	-	-81.24	11.60	37.36	-57.89	-13.00	-44.89
7630.40	H	-	-	-82.48	15.86	40.38	-54.88	-13.00	-41.88

Table 7-38. Radiated Spurious Data (WCDMA PCS – High Channel – Ant1)

7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

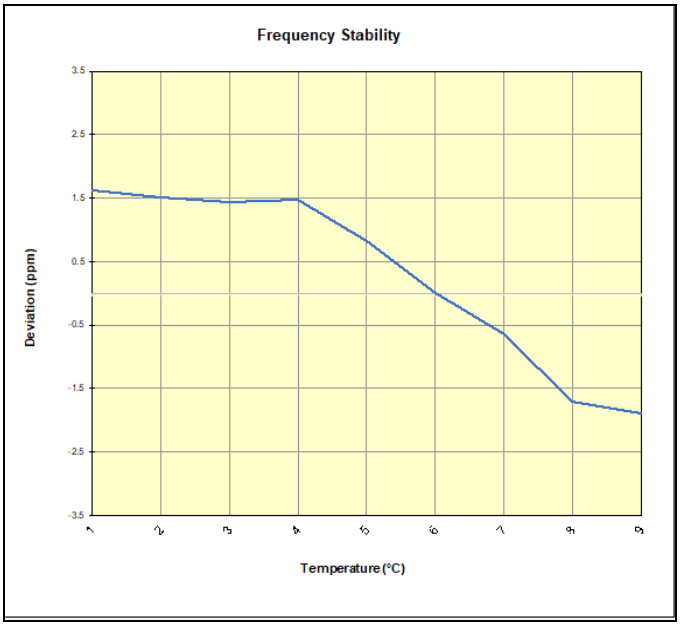
LTE Band 25/2

LTE Band 25/2

Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	8.8

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	8.8	- 30	1,882,506,533	3,049	0.0001620
		- 20	1,882,506,313	2,829	0.0001503
		- 10	1,882,506,186	2,701	0.0001435
		0	1,882,506,262	2,777	0.0001475
		+ 10	1,882,505,028	1,544	0.0000820
		+ 20 (Ref)	1,882,503,484	0	0.0000000
		+ 30	1,882,502,256	-1,228	-0.0000653
		+ 40	1,882,500,280	-3,204	-0.0001702
		+ 50	1,882,499,909	-3,575	-0.0001899
Battery Endpoint	6.0	+ 20	1,882,503,300	-184	-0.0000098

Table 7-39. LTE Band 25/2 Frequency Stability Data



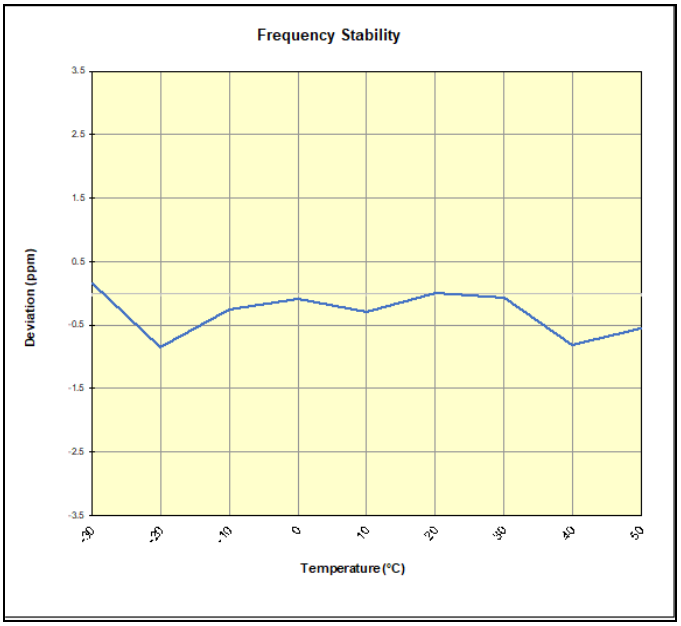
Plot 7-119. LTE Band 25/2 Frequency Stability Chart

NR Band n25/2

NR Band n25/2	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	8.8

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	8.8	- 30	1,882,494,811	281	0.0000149
		- 20	1,882,492,929	-1,601	-0.0000850
		- 10	1,882,494,061	-469	-0.0000249
		0	1,882,494,361	-169	-0.0000090
		+ 10	1,882,493,994	-536	-0.0000285
		+ 20 (Ref)	1,882,494,530	0	0.0000000
		+ 30	1,882,494,397	-133	-0.0000070
		+ 40	1,882,492,984	-1,546	-0.0000821
		+ 50	1,882,493,502	-1,028	-0.0000546
Battery Endpoint	6.0	+ 20	1,882,493,810	-720	-0.0000383

Table 7-40. NR Band n25/2 Frequency Stability Data



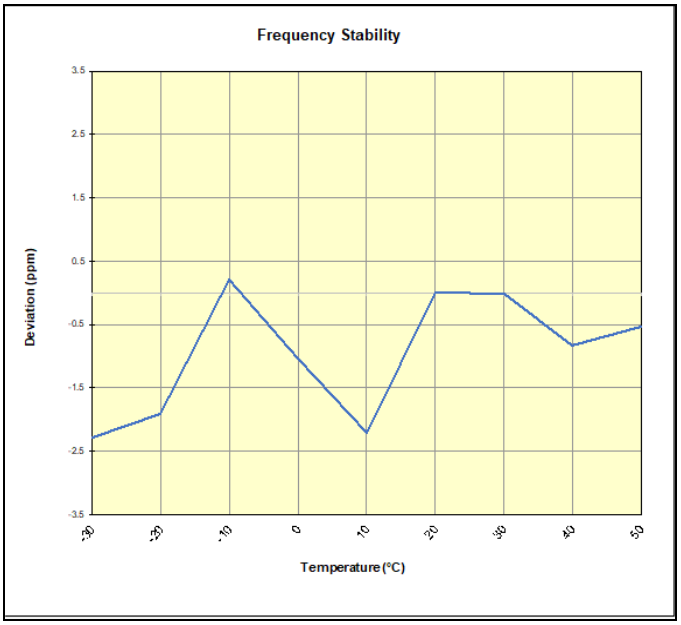
Plot 7-120. NR Band n25/2 Frequency Stability Chart

WCDMA PCS

WCDMA PCS	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	8.8

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	8.8	- 30	1,880,002,930	-4,308	-0.0002291
		- 20	1,880,003,626	-3,612	-0.0001921
		- 10	1,880,007,644	406	0.0000216
		0	1,880,005,269	-1,968	-0.0001047
		+ 10	1,880,003,068	-4,170	-0.0002218
		+ 20 (Ref)	1,880,007,238	0	0.0000000
		+ 30	1,880,007,198	-40	-0.0000021
		+ 40	1,880,005,678	-1,560	-0.0000830
		+ 50	1,880,006,242	-995	-0.0000530
Battery Endpoint	6.0	+ 20	1,880,008,951	1,714	0.0000912

Table 7-41. WCDMA PCS Frequency Stability Data



Plot 7-121. WCDMA PCS Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Microsoft Corporation Portable Computing Device FCC ID: C3K2077 / IC: 3048A-2077** complies with all the requirements of Part 24 of the FCC rules and RSS-133 of the ISED rules.