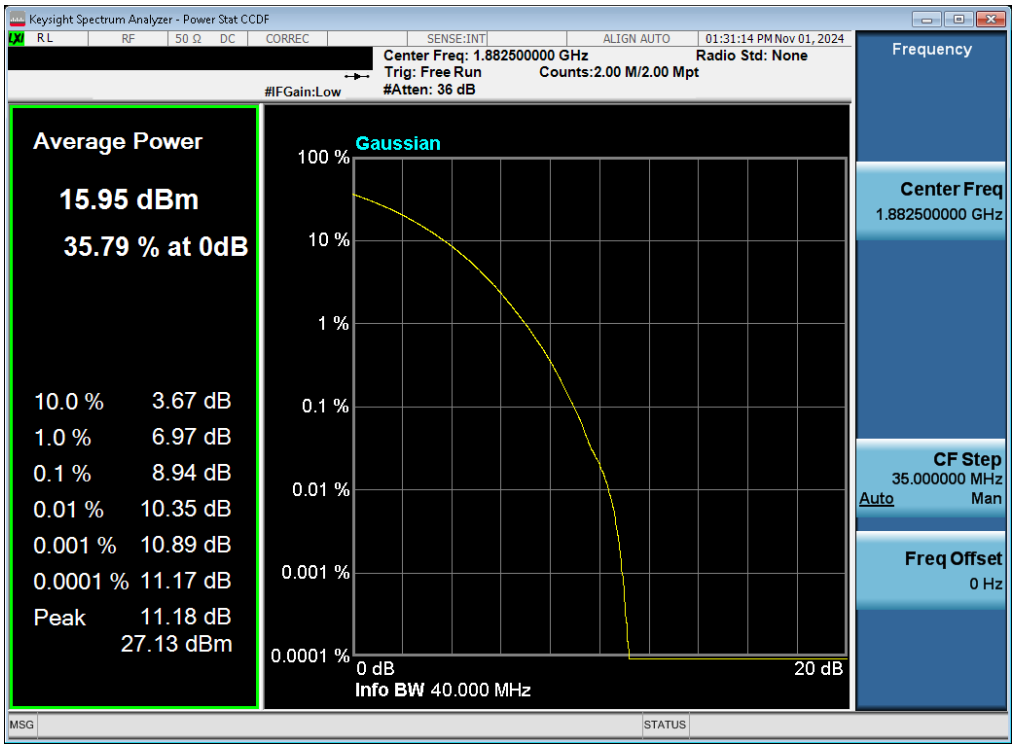
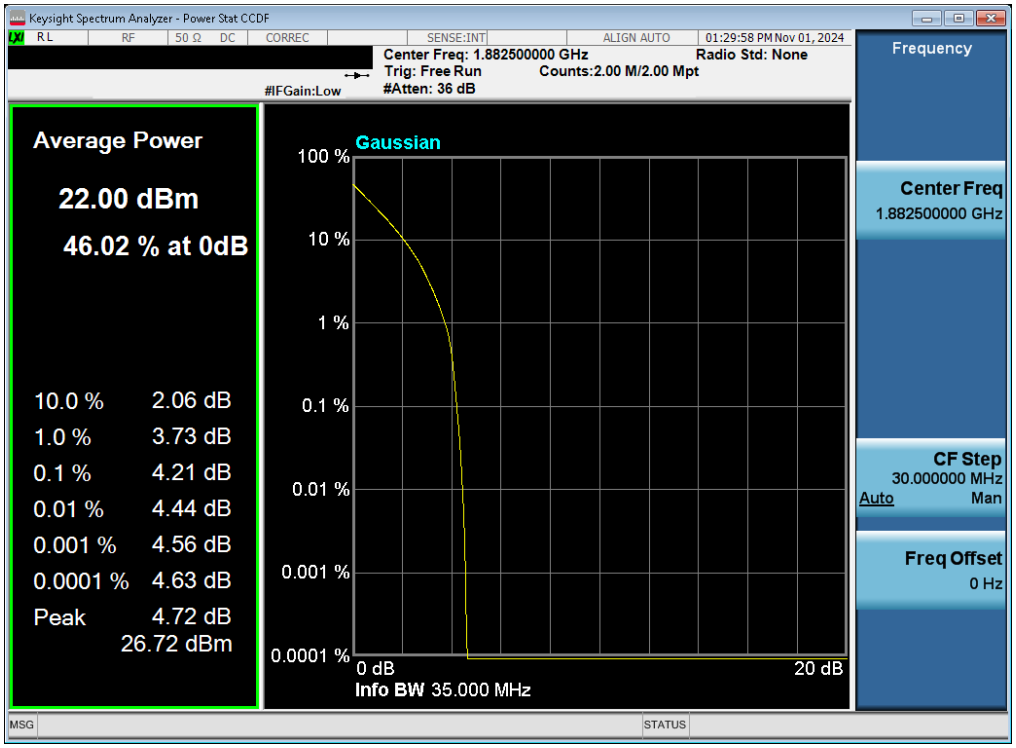
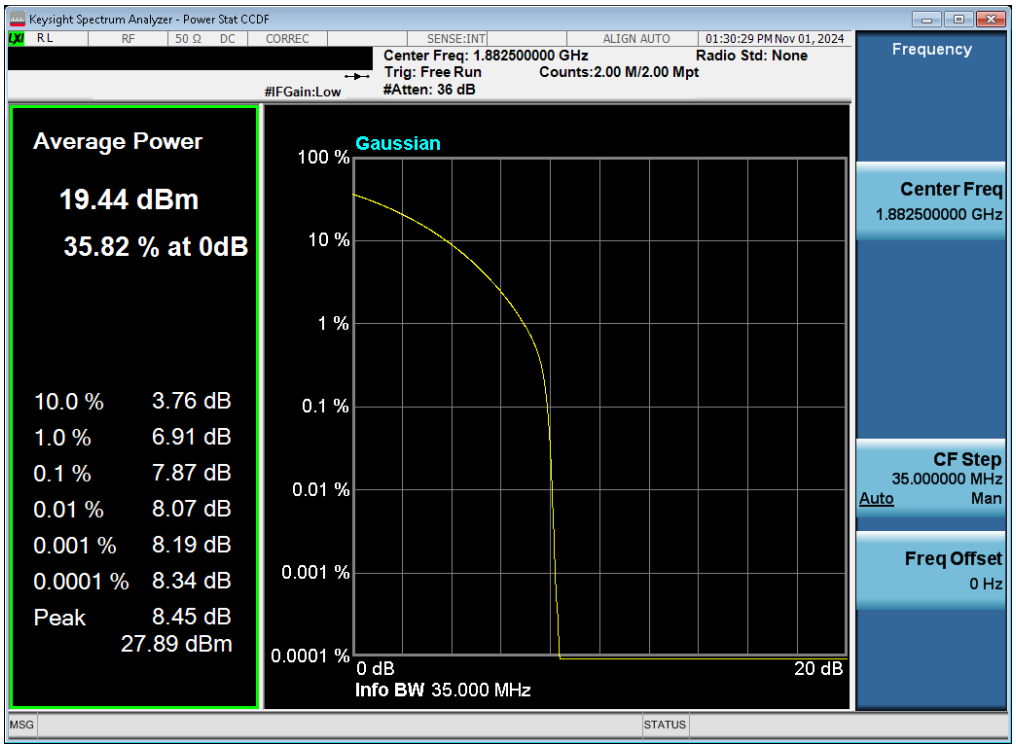


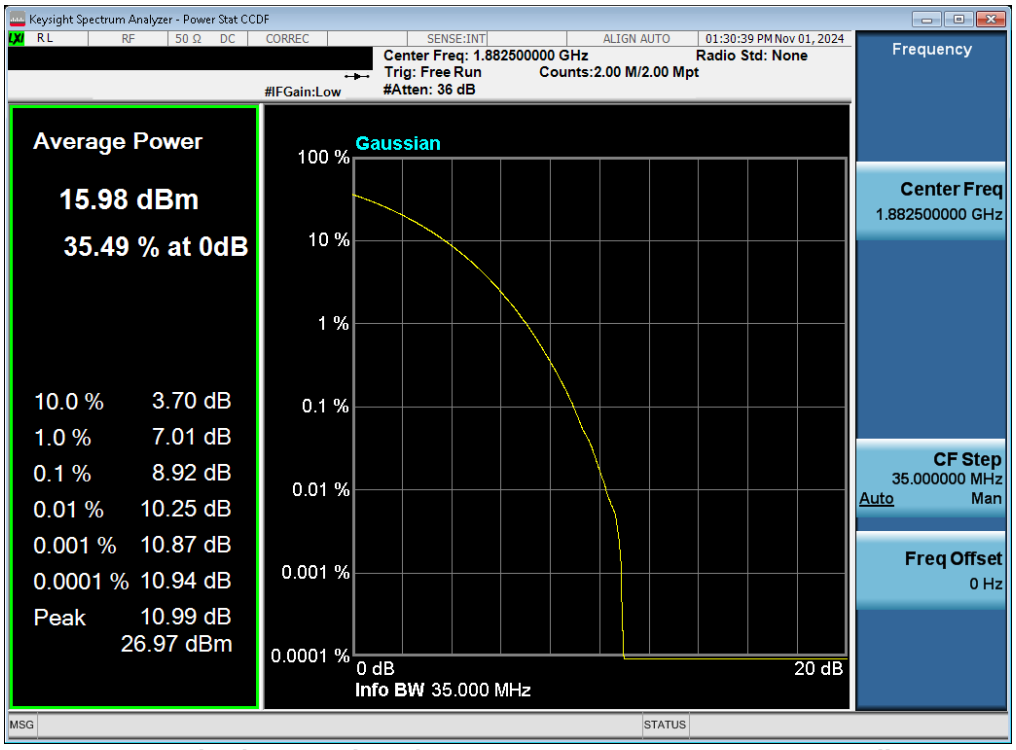
Plot 7-211. PAR Plot (NR Band n25/2 - 40.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



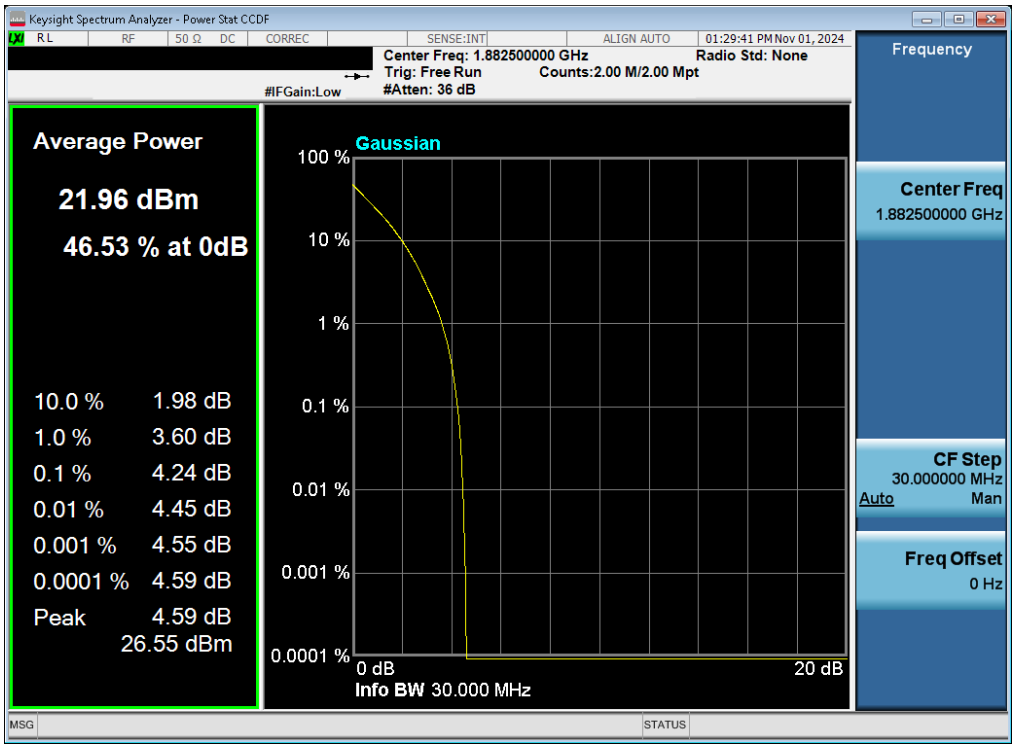
Plot 7-212. PAR Plot (NR Band n25/2 - 35.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



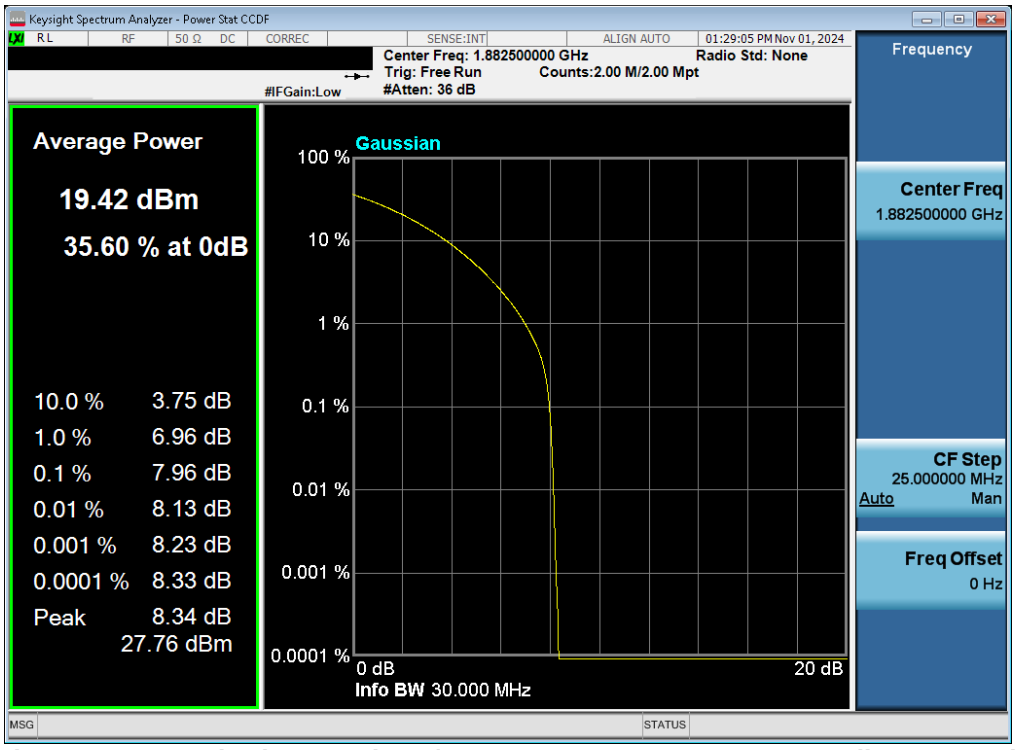
Plot 7-213. PAR Plot (NR Band n25/2 - 35.0MHz CP-OFDM QPSK - Full RB - ANT2)



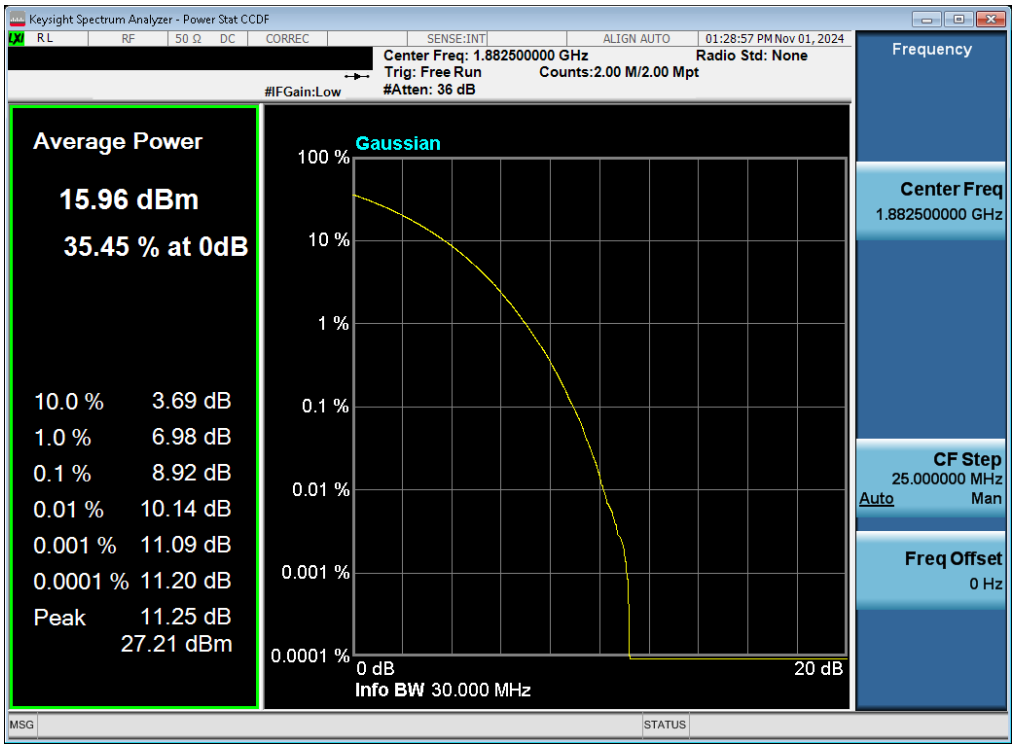
Plot 7-214. PAR Plot (NR Band n25/2 - 35.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



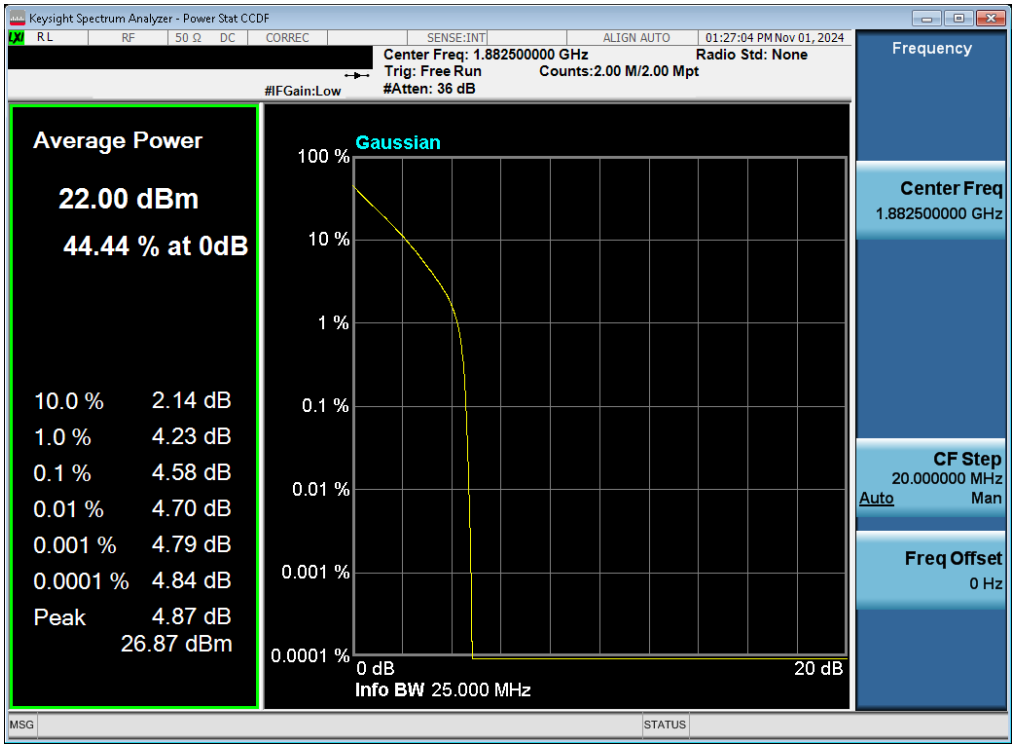
Plot 7-215. PAR Plot (NR Band n25/2 - 30.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



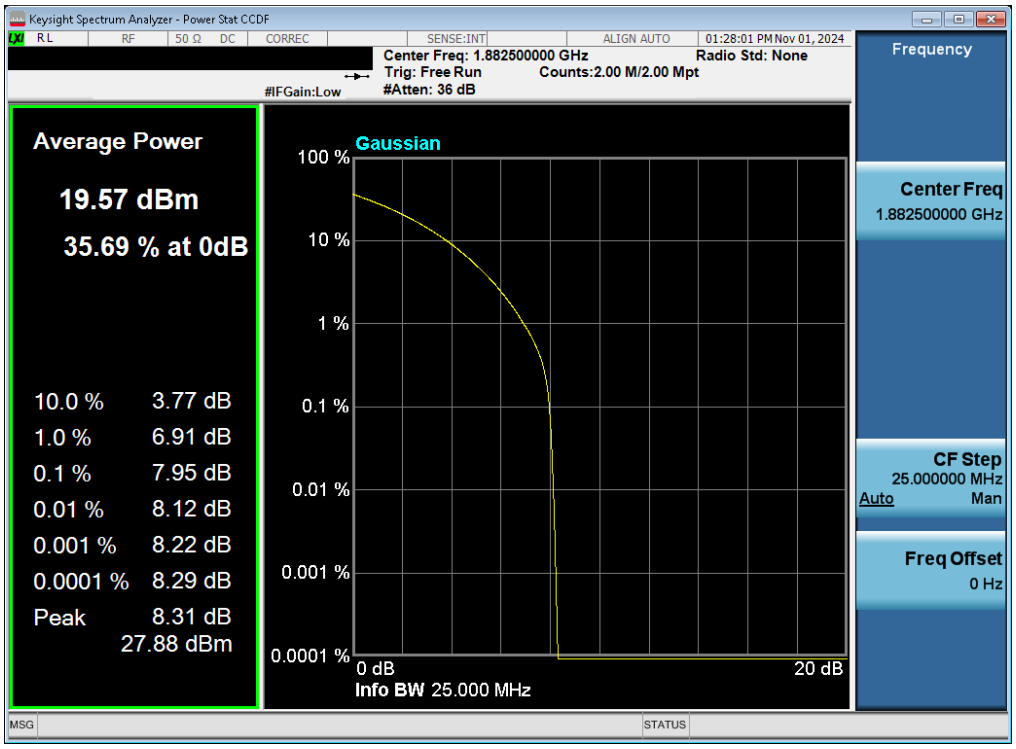
Plot 7-216. PAR Plot (NR Band n25/2 - 30.0MHz CP-OFDM QPSK - Full RB - ANT2)



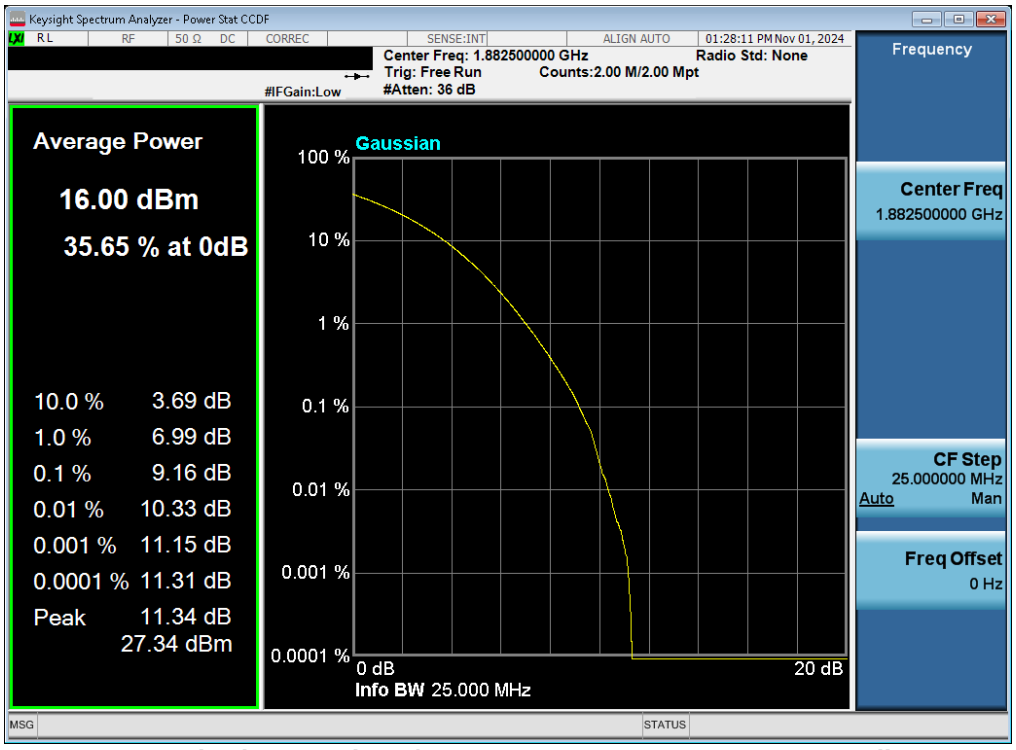
Plot 7-217. PAR Plot (NR Band n25/2 - 30.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



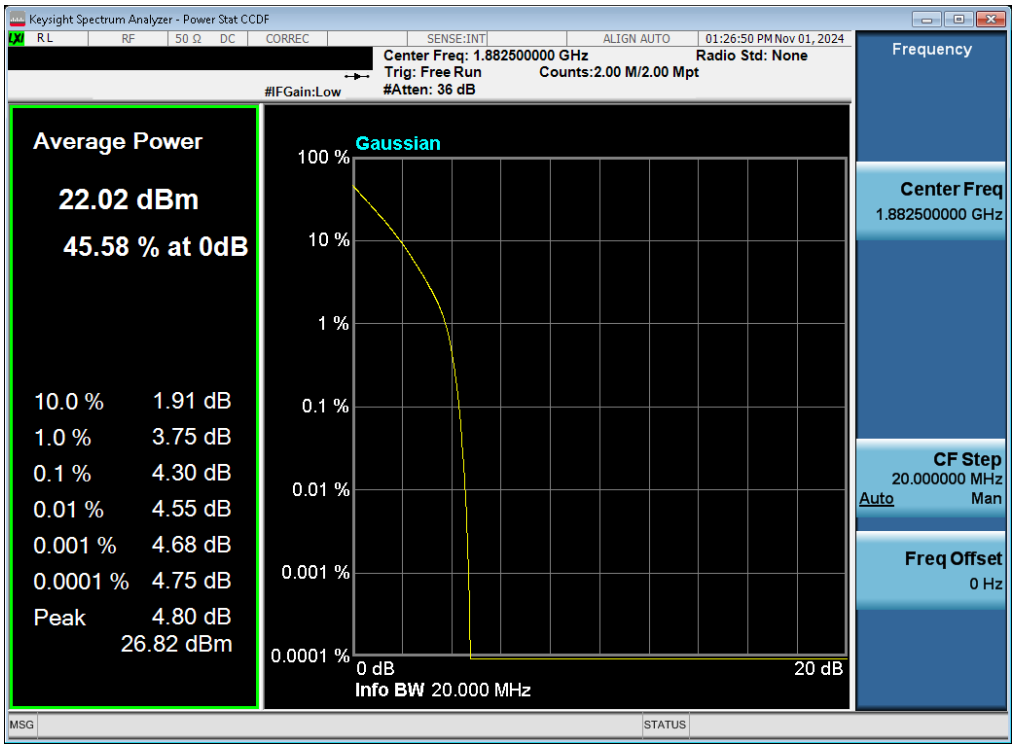
Plot 7-218. PAR Plot (NR Band n25/2 - 25.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



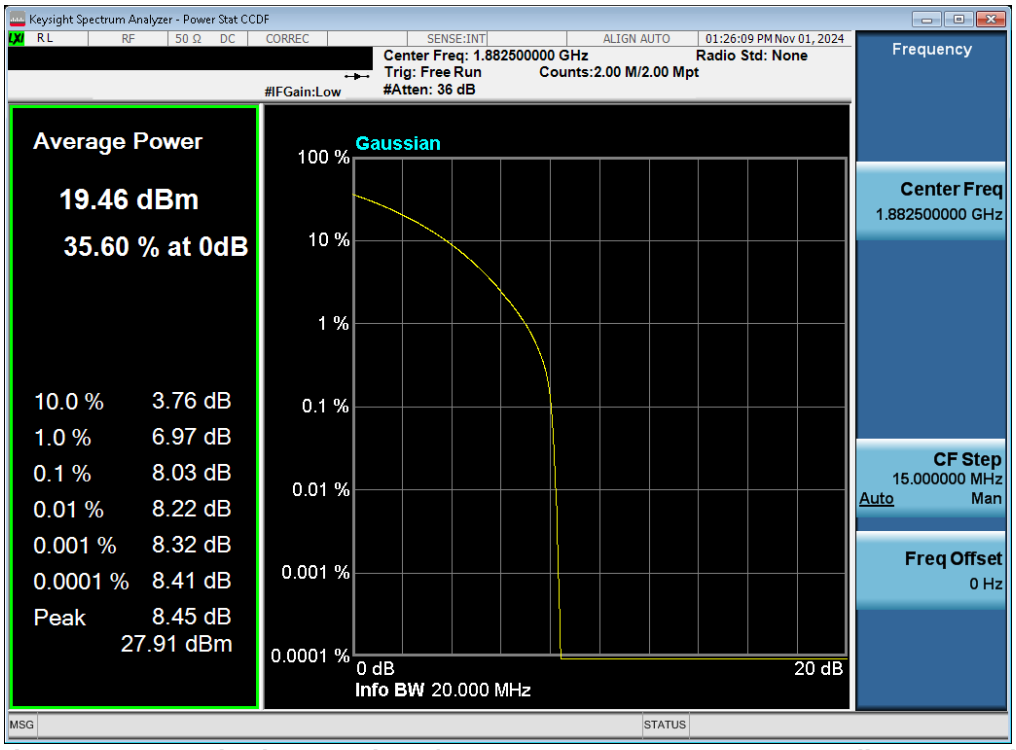
Plot 7-219. PAR Plot (NR Band n25/2 - 25.0MHz CP-OFDM QPSK - Full RB - ANT2)



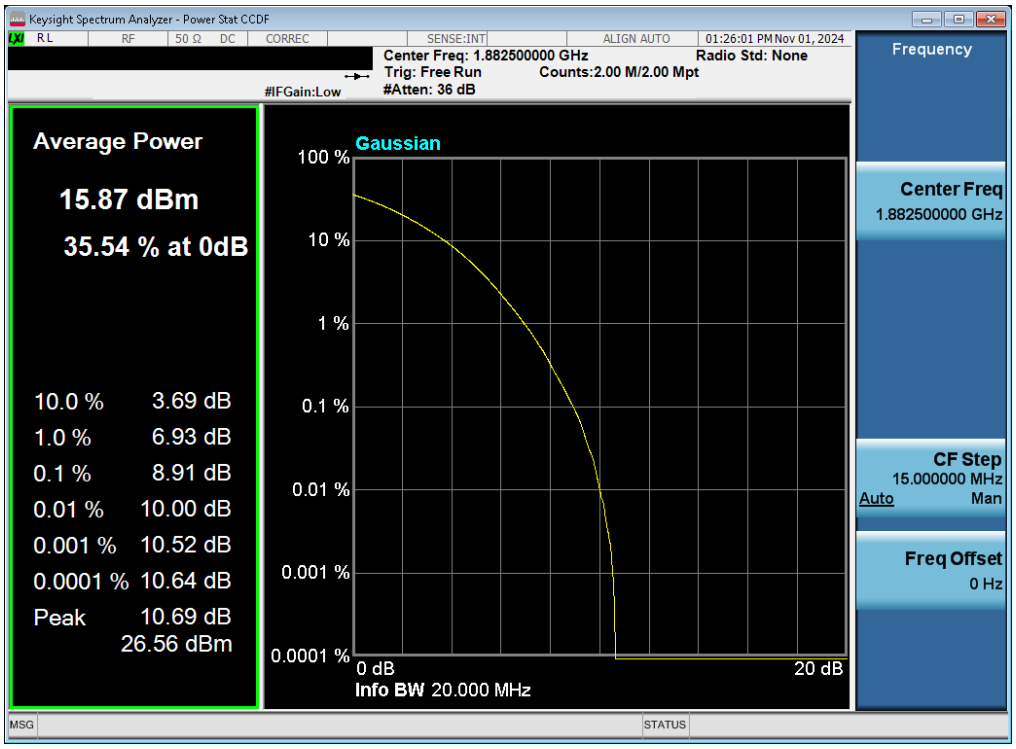
Plot 7-220. PAR Plot (NR Band n25/2 - 25.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



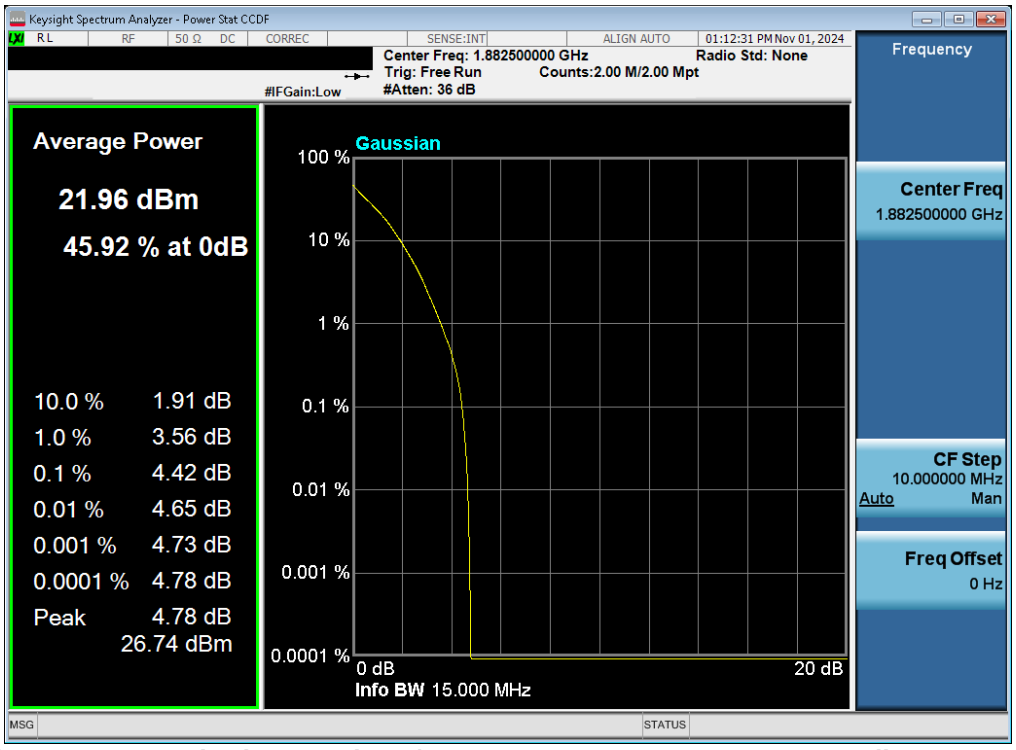
Plot 7-221. PAR Plot (NR Band n25/2 - 20.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



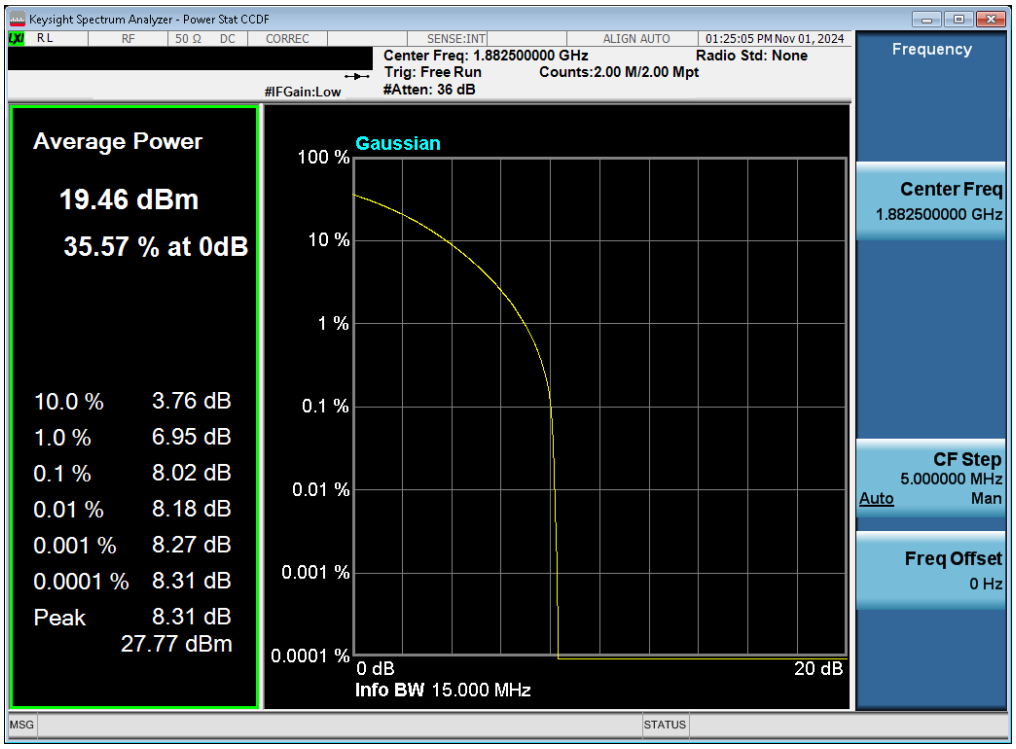
Plot 7-222. PAR Plot (NR Band n25/2 - 20.0MHz CP-OFDM QPSK - Full RB - ANT2)



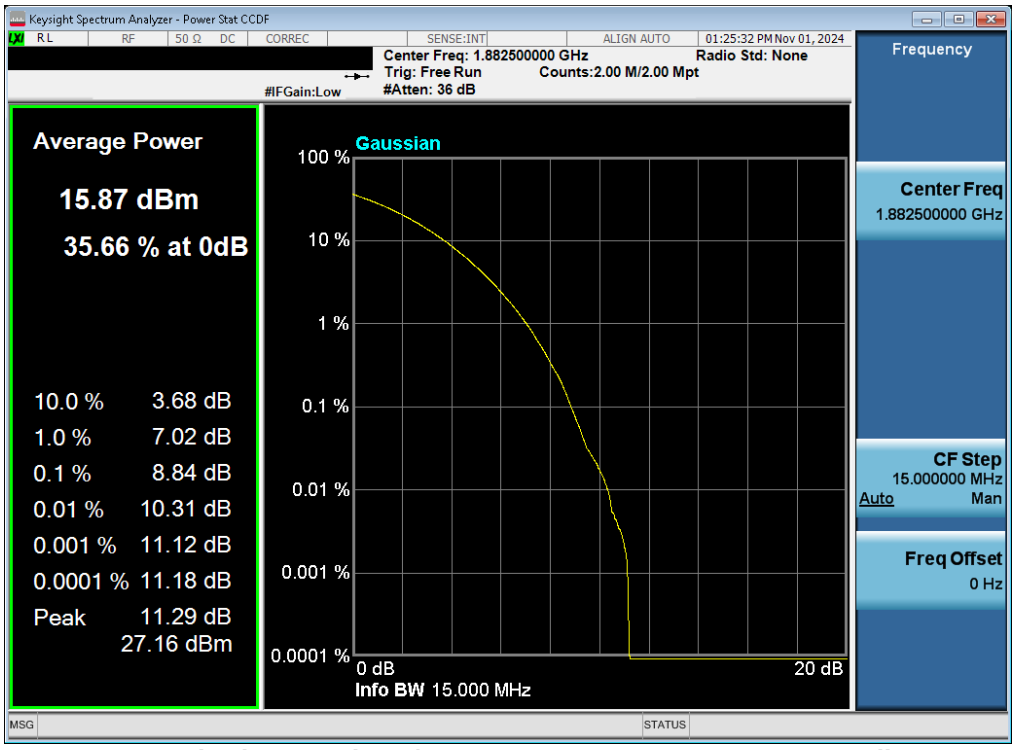
Plot 7-223. PAR Plot (NR Band n25/2 - 20.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



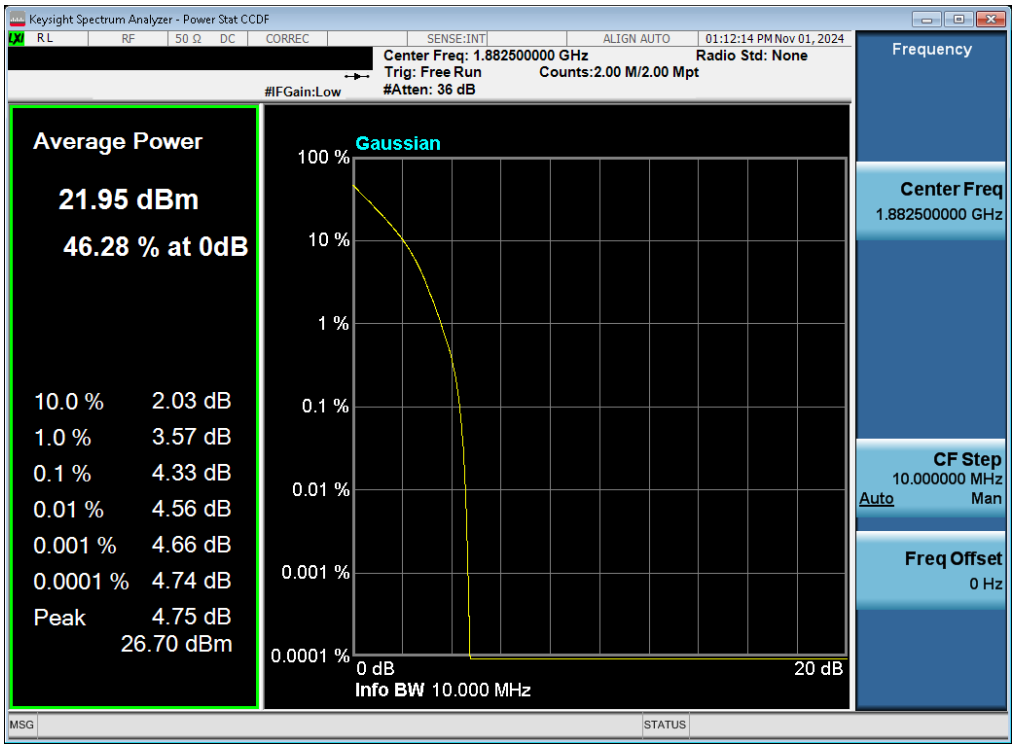
Plot 7-224. PAR Plot (NR Band n25/2 - 15.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



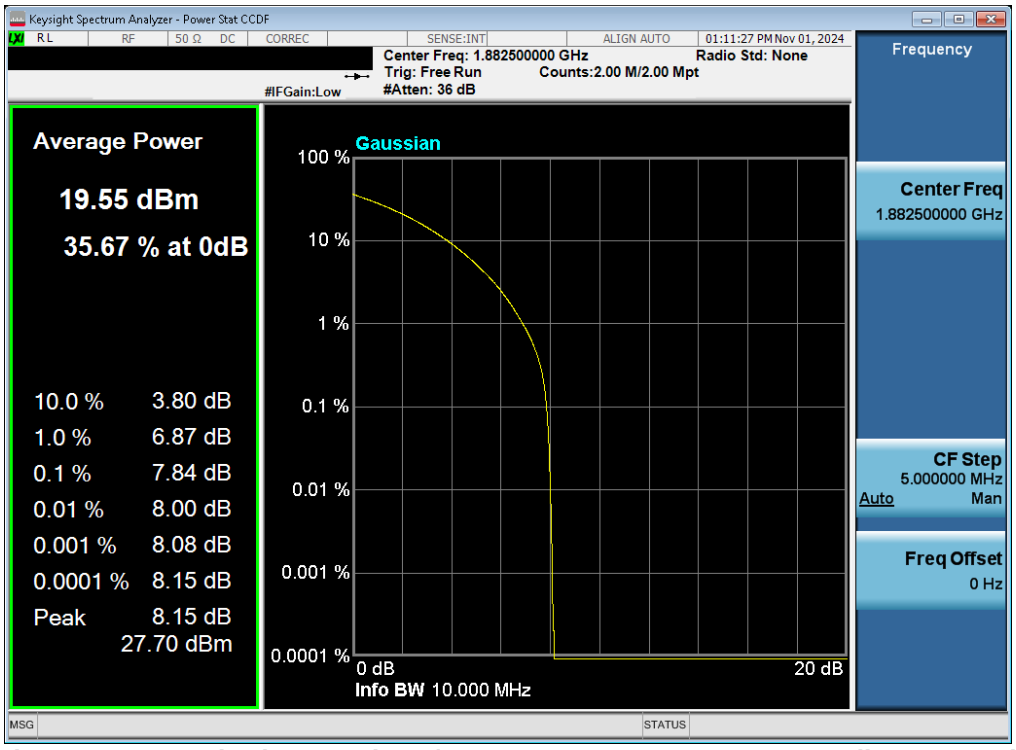
Plot 7-225. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM QPSK - Full RB - ANT2)



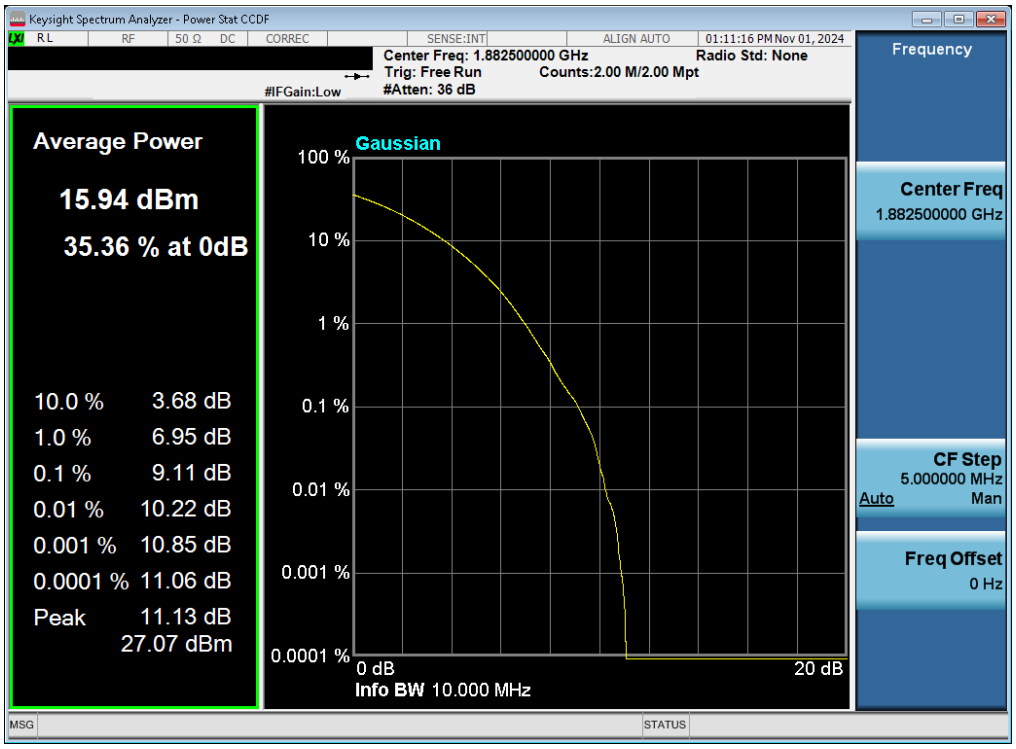
Plot 7-226. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



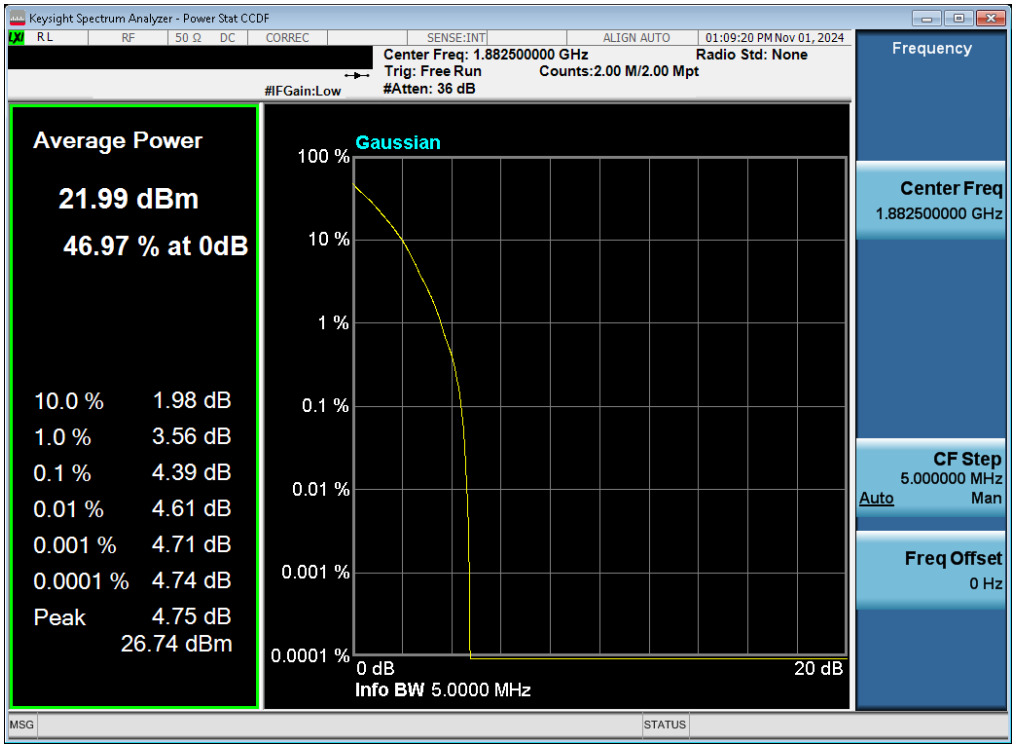
Plot 7-227. PAR Plot (NR Band n25/2 - 10.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



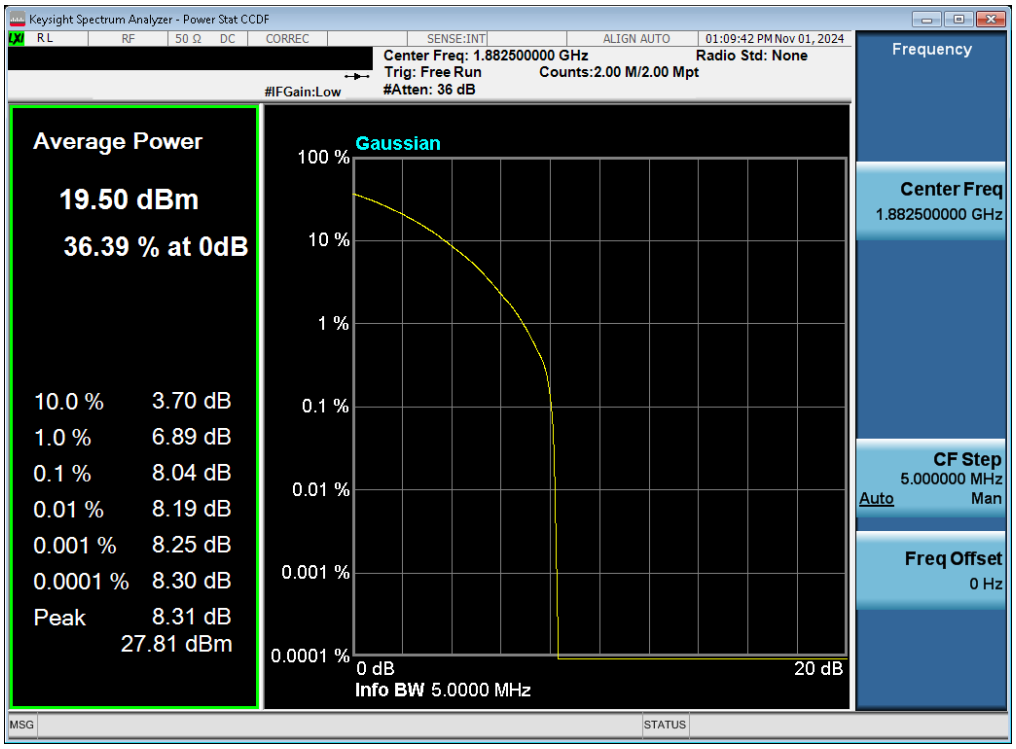
Plot 7-228. PAR Plot (NR Band n25/2 - 10.0MHz CP-OFDM QPSK - Full RB - ANT2)



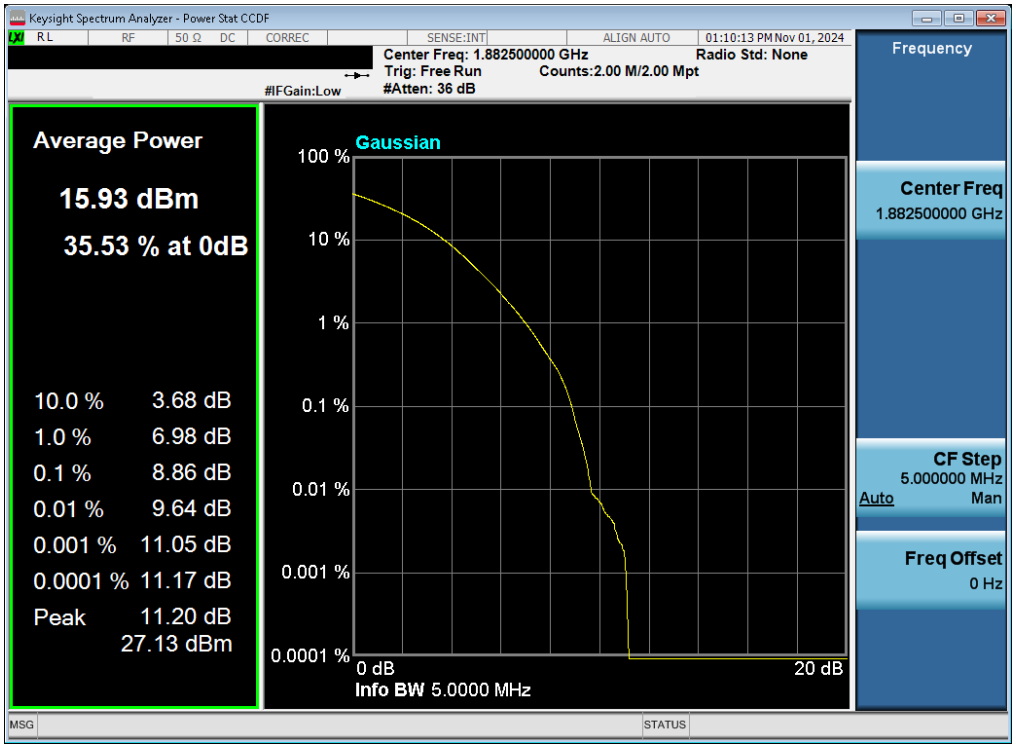
Plot 7-229. PAR Plot (NR Band n25/2 - 10.0MHz CP-OFDM 256-QAM - Full RB - ANT2)



Plot 7-230. PAR Plot (NR Band n25/2 - 5.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)



Plot 7-231. PAR Plot (NR Band n25/2 - 5.0MHz CP-OFDM QPSK - Full RB - ANT2)



Plot 7-232. PAR Plot (NR Band n25/2 - 5.0MHz CP-OFDM 256-QAM - Full RB - ANT2)

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.

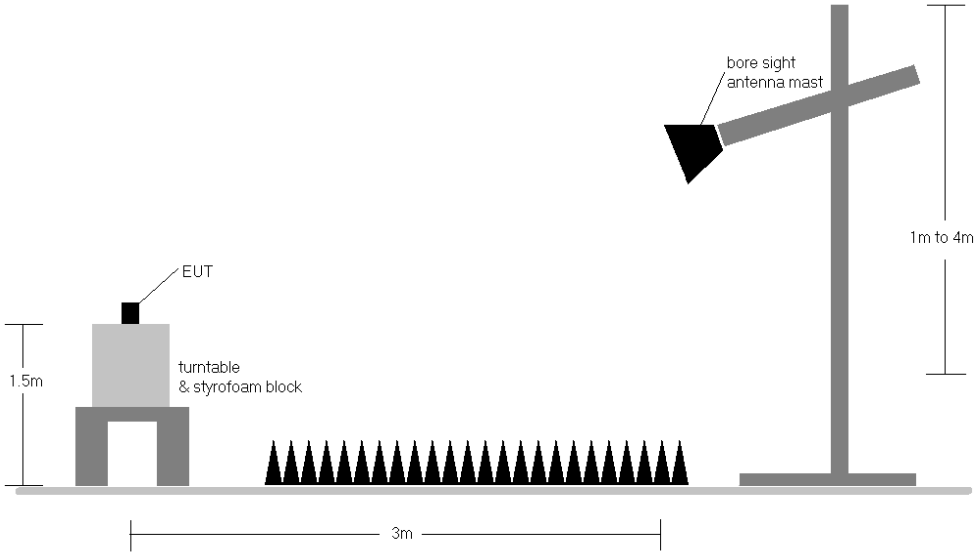


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers are reported in GPRS mode while transmitting with one slot active.

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) 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.

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]
1850.20	GSM1900	V	192	184	26.50	2.62	**29.12**	**0.817**	33.01	-3.89
1880.00	GSM1900	V	103	179	26.54	2.34	28.88	0.773	33.01	-4.13
1909.80	GSM1900	V	108	185	26.54	2.22	28.76	0.752	33.01	-4.25
1850.20	EDGE1900	V	192	184	22.43	2.62	**25.05**	0.320	33.01	-7.96
1850.20	GSM1900 (WCP)	V	192	184	24.48	2.62	27.10	0.513	33.01	-5.91

Table 7-16. EIRP Data (GPRS PCS – Ant1)

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	V	179	332	20.66	2.60	**23.26**	**0.212**	33.01	-9.75
1880.00	WCDMA1900	V	169	337	19.77	2.34	22.11	0.163	33.01	-10.90
1907.60	WCDMA1900	V	176	342	18.08	2.20	20.28	0.107	33.01	-12.73
1852.40	WCDMA1900	H	208	150	19.83	2.60	22.43	0.175	33.01	-10.58
1852.40	WCDMA1900 (WCP)	V	375	307	15.73	2.60	18.33	0.068	33.01	-14.68

Table 7-17. EIRP Data (WCDMA PCS – Ant1)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	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	X	142	214	2.79	0.00	21.61	24.40	0.276	33.01	-8.61
	QPSK	1882.50	H	X	136	209	2.65	0.00	21.82	**24.47**	0.280	33.01	-8.54
	QPSK	1905.00	H	X	135	211	2.54	0.00	21.88	24.42	0.277	33.01	-8.59
	16-QAM	1882.50	H	X	136	209	2.65	0.00	21.07	23.72	0.235	33.01	-9.29
15 MHz	QPSK	1857.50	H	X	142	214	2.81	1 / 74	21.52	24.33	0.271	33.01	-8.68
	QPSK	1882.50	H	X	136	209	2.65	1 / 37	21.85	**24.50**	0.282	33.01	-8.51
	QPSK	1907.50	H	X	135	211	2.54	1 / 37	21.85	24.40	0.275	33.01	-8.61
	16-QAM	1857.50	H	X	142	214	2.81	1 / 74	20.74	23.55	0.226	33.01	-9.46
10 MHz	QPSK	1855.00	H	X	142	214	2.82	1 / 0	21.55	24.38	0.274	33.01	-8.63
	QPSK	1882.50	H	X	136	209	2.65	1 / 25	21.96	**24.61**	0.289	33.01	-8.40
	QPSK	1910.00	H	X	135	211	2.55	1 / 0	21.90	24.45	0.278	33.01	-8.56
	16-QAM	1882.50	H	X	136	209	2.65	1 / 25	21.15	23.79	0.240	33.01	-9.22
5 MHz	QPSK	1852.50	H	X	142	214	2.84	1 / 12	21.60	24.44	0.278	33.01	-8.57
	QPSK	1882.50	H	X	136	209	2.65	1 / 12	21.96	**24.60**	0.289	33.01	-8.41
	QPSK	1912.50	H	X	135	211	2.55	1 / 12	21.93	24.47	0.280	33.01	-8.54
	16-QAM	1882.50	H	X	136	209	2.65	1 / 12	21.18	23.83	0.241	33.01	-9.18
3 MHz	QPSK	1851.50	H	X	142	214	2.85	1 / 7	21.66	**24.51**	0.283	33.01	-8.50
	QPSK	1882.50	H	X	136	209	2.65	1 / 0	21.77	24.42	0.277	33.01	-8.59
	QPSK	1913.50	H	X	135	211	2.55	1 / 7	21.93	24.48	0.280	33.01	-8.53
	16-QAM	1882.50	H	X	136	209	2.65	1 / 7	21.00	23.65	0.232	33.01	-9.36
1.4 MHz	QPSK	1850.70	H	X	142	214	2.85	1 / 0	21.53	24.39	0.275	33.01	-8.62
	QPSK	1882.50	H	X	136	209	2.65	1 / 0	21.83	**24.48**	0.280	33.01	-8.53
	QPSK	1914.30	H	X	135	211	2.55	1 / 0	21.92	24.47	0.280	33.01	-8.54
	16-QAM	1850.70	H	X	142	214	2.85	1 / 0	20.69	23.54	0.226	33.01	-9.47
20 MHz	Opposite Pol.	1882.50	V	Y	103	283	2.32	1 / 0	20.93	23.25	0.211	33.01	-9.76
	WCP	1882.50	H	X	144	211	2.54	1 / 0	21.71	24.25	0.266	33.01	-8.76

Table 7-18. EIRP Data (LTE Band 25/2 – Ant1)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	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	V	X	191	178	2.73	1 / 108	20.45	23.18	0.208	33.01	-9.83
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 214	20.41	23.06	0.202	33.01	-9.95
	π/2 BPSK	1895.00	V	X	191	178	2.57	1 / 108	20.62	23.19	0.208	33.01	-9.82
	QPSK	1870.00	V	X	191	178	2.73	1 / 108	20.46	23.19	0.208	33.01	-9.82
	QPSK	1882.50	V	X	191	178	2.65	1 / 214	20.50	23.15	0.207	33.01	-9.86
	QPSK	1895.00	V	X	191	178	2.57	1 / 108	20.64	**23.21**	0.209	33.01	-9.80
	16-QAM	1895.00	V	X	191	178	2.57	1 / 108	19.90	22.47	0.177	33.01	-10.54
35 MHz	π/2 BPSK	1867.50	V	X	191	178	2.74	1 / 1	20.64	**23.39**	0.218	33.01	-9.62
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 1	20.39	23.04	0.201	33.01	-9.97
	π/2 BPSK	1897.50	V	X	191	178	2.56	1 / 186	20.54	23.09	0.204	33.01	-9.92
	QPSK	1867.50	V	X	191	178	2.74	1 / 1	20.52	23.26	0.212	33.01	-9.75
	QPSK	1882.50	V	X	191	178	2.65	1 / 1	20.63	23.28	0.213	33.01	-9.73
	QPSK	1897.50	V	X	191	178	2.56	1 / 186	20.71	23.26	0.212	33.01	-9.75
	16-QAM	1867.50	V	X	191	178	2.74	1 / 1	19.93	22.68	0.185	33.01	-10.33
30 MHz	π/2 BPSK	1865.00	V	X	191	178	2.76	1 / 1	20.55	23.31	0.214	33.01	-9.70
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 1	20.41	23.06	0.202	33.01	-9.95
	π/2 BPSK	1900.00	V	X	191	178	2.54	1 / 1	20.61	23.15	0.207	33.01	-9.86
	QPSK	1865.00	V	X	191	178	2.76	1 / 1	20.78	23.54	0.226	33.01	-9.47
	QPSK	1882.50	V	X	191	178	2.65	1 / 1	20.63	23.28	0.213	33.01	-9.73
	QPSK	1900.00	V	X	191	178	2.54	1 / 1	21.05	**23.59**	0.228	33.01	-9.42
	16-QAM	1865.00	V	X	191	178	2.76	1 / 1	19.87	22.63	0.183	33.01	-10.38
25 MHz	π/2 BPSK	1862.50	V	X	191	178	2.78	1 / 1	20.62	23.40	0.219	33.01	-9.61
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 1	20.63	23.28	0.213	33.01	-9.73
	π/2 BPSK	1902.50	V	X	191	178	2.54	1 / 131	20.69	23.23	0.211	33.01	-9.78
	QPSK	1862.50	V	X	191	178	2.78	1 / 1	20.68	**23.46**	0.222	33.01	-9.55
	QPSK	1882.50	V	X	191	178	2.65	1 / 1	20.67	23.32	0.215	33.01	-9.69
	QPSK	1902.50	V	X	191	178	2.54	1 / 131	20.84	23.38	0.218	33.01	-9.63
	16-QAM	1902.50	V	X	191	178	2.54	1 / 131	19.93	22.47	0.177	33.01	-10.54
20 MHz	π/2 BPSK	1860.00	V	X	191	178	2.79	1 / 1	20.44	23.24	0.211	33.01	-9.77
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 1	20.31	22.96	0.198	33.01	-10.05
	π/2 BPSK	1905.00	V	X	191	178	2.54	1 / 1	20.54	23.08	0.203	33.01	-9.93
	QPSK	1860.00	V	X	191	178	2.79	1 / 1	20.59	**23.38**	0.218	33.01	-9.63
	QPSK	1882.50	V	X	191	178	2.65	1 / 1	20.40	23.05	0.202	33.01	-9.96
	QPSK	1905.00	V	X	191	178	2.54	1 / 1	20.82	23.36	0.217	33.01	-9.65
	16-QAM	1860.00	V	X	191	178	2.79	1 / 1	19.83	22.63	0.183	33.01	-10.38
15 MHz	π/2 BPSK	1857.50	V	X	191	178	2.81	1 / 1	20.62	**23.42**	0.220	33.01	-9.59
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 1	20.54	23.19	0.208	33.01	-9.82
	π/2 BPSK	1907.50	V	X	191	178	2.54	1 / 1	20.46	23.00	0.200	33.01	-10.01
	QPSK	1857.50	V	X	191	178	2.81	1 / 1	20.61	23.41	0.219	33.01	-9.60
	QPSK	1882.50	V	X	191	178	2.65	1 / 1	20.52	23.17	0.207	33.01	-9.84
	QPSK	1907.50	V	X	191	178	2.54	1 / 1	20.61	23.16	0.207	33.01	-9.85
	16-QAM	1907.50	V	X	191	178	2.54	1 / 1	19.98	22.53	0.179	33.01	-10.48
10 MHz	π/2 BPSK	1855.00	V	X	191	178	2.82	1 / 26	20.41	23.24	0.211	33.01	-9.77
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 50	20.36	23.01	0.200	33.01	-10.00
	π/2 BPSK	1910.00	V	X	191	178	2.55	1 / 50	20.62	23.16	0.207	33.01	-9.85
	QPSK	1855.00	V	X	191	178	2.82	1 / 26	20.54	**23.36**	0.217	33.01	-9.65
	QPSK	1882.50	V	X	191	178	2.65	1 / 50	20.32	22.97	0.198	33.01	-10.04
	QPSK	1910.00	V	X	191	178	2.55	1 / 50	20.73	23.28	0.213	33.01	-9.73
	16-QAM	1855.00	V	X	191	178	2.82	1 / 26	19.55	22.37	0.173	33.01	-10.64
5 MHz	π/2 BPSK	1852.50	V	X	191	178	2.84	1 / 1	20.46	**23.30**	0.214	33.01	-9.71
	π/2 BPSK	1882.50	V	X	191	178	2.65	1 / 23	20.32	22.96	0.198	33.01	-10.05
	π/2 BPSK	1912.50	V	X	191	178	2.55	1 / 1	20.46	23.01	0.200	33.01	-10.00
	QPSK	1852.50	V	X	191	178	2.84	1 / 1	20.42	23.26	0.212	33.01	-9.75
	QPSK	1882.50	V	X	191	178	2.65	1 / 23	20.24	22.89	0.195	33.01	-10.12
	QPSK	1912.50	V	X	191	178	2.55	1 / 1	20.72	23.27	0.212	33.01	-9.74
	16-QAM	1852.50	V	X	191	178	2.84	1 / 1	19.69	22.53	0.179	33.01	-10.48
40 MHz	QPSK (CP-OFDM)	1895.00	V	X	191	178	0.00	1 / 108	19.21	19.21	0.083	33.01	-13.80
	QPSK (WCP)	1895.00	V	WCP	192	178	0.00	1 / 108	20.39	20.39	0.109	33.01	-12.62

Table 7-19. EIRP Data (NR Band n25/2 – Ant1)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	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	X	119	303	2.79	1 / 50	19.22	**22.01**	0.159	33.01	-11.00
	QPSK	1882.50	H	X	114	304	2.65	1 / 99	19.36	22.01	0.159	33.01	-11.00
	QPSK	1905.00	H	X	107	299	2.54	1 / 0	19.26	21.80	0.151	33.01	-11.21
	16-QAM	1905.00	H	X	107	299	2.54	1 / 0	18.64	21.18	0.131	33.01	-11.83
15 MHz	QPSK	1857.50	H	X	119	303	2.81	1 / 37	19.23	**22.04**	0.160	33.01	-10.97
	QPSK	1882.50	H	X	114	304	2.65	1 / 74	19.23	21.88	0.154	33.01	-11.13
	QPSK	1907.50	H	X	107	299	2.54	1 / 37	19.09	21.63	0.146	33.01	-11.38
	16-QAM	1857.50	H	X	119	303	2.81	1 / 37	18.28	21.09	0.129	33.01	-11.92
10 MHz	QPSK	1855.00	H	X	119	303	2.82	1 / 25	19.12	21.94	0.156	33.01	-11.07
	QPSK	1882.50	H	X	114	304	2.65	1 / 25	19.46	**22.11**	0.162	33.01	-10.90
	QPSK	1910.00	H	X	107	299	2.55	1 / 0	19.13	21.68	0.147	33.01	-11.33
	16-QAM	1910.00	H	X	107	299	2.55	1 / 0	18.71	21.26	0.134	33.01	-11.75
5 MHz	QPSK	1852.50	H	X	119	303	2.84	1 / 0	19.19	22.03	0.160	33.01	-10.98
	QPSK	1882.50	H	X	114	304	2.65	1 / 24	19.53	**22.18**	0.165	33.01	-10.83
	QPSK	1912.50	H	X	107	299	2.55	1 / 24	19.23	21.77	0.150	33.01	-11.24
	16-QAM	1882.50	H	X	114	304	2.65	1 / 24	18.62	21.27	0.134	33.01	-11.74
3 MHz	QPSK	1851.50	H	X	119	303	2.85	1 / 7	19.18	22.03	0.160	33.01	-10.98
	QPSK	1882.50	H	X	114	304	2.65	1 / 7	19.46	**22.11**	0.163	33.01	-10.90
	QPSK	1913.50	H	X	107	299	2.55	1 / 14	19.15	21.70	0.148	33.01	-11.31
	16-QAM	1851.50	H	X	119	303	2.85	1 / 7	18.29	21.14	0.130	33.01	-11.87
1.4 MHz	QPSK	1850.70	H	X	119	303	2.85	1 / 5	19.15	**22.01**	0.159	33.01	-11.00
	QPSK	1882.50	H	X	114	304	2.65	1 / 3	19.29	21.93	0.156	33.01	-11.08
	QPSK	1914.30	H	X	107	299	2.55	1 / 3	19.18	21.73	0.149	33.01	-11.28
	16-QAM	1914.30	H	X	107	299	2.55	1 / 0	18.68	21.23	0.133	33.01	-11.78
20 MHz	Opposite Pol.	1860.00	V	Y	131	234	2.53	1 / 50	18.25	20.78	0.120	33.01	-12.23
	WCP	1860.00	H	X	105	314	2.79	1 / 50	18.88	21.67	0.147	33.01	-11.34

Table 7-20. EIRP Data (LTE Band 25/2 – Ant2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	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	V	X	165	287	2.73	1 / 108	18.50	21.23	0.133	33.01	-11.78
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 1	18.58	21.23	0.133	33.01	-11.78
	π/2 BPSK	1895.00	V	X	163	286	2.57	1 / 1	18.47	21.04	0.127	33.01	-11.97
	QPSK	1870.00	V	X	165	287	2.73	1 / 108	18.48	21.21	0.132	33.01	-11.80
	QPSK	1882.50	V	X	165	287	2.65	1 / 1	18.67	**21.32**	0.136	33.01	-11.69
	QPSK	1895.00	V	X	163	286	2.57	1 / 1	18.42	20.99	0.126	33.01	-12.02
	16-QAM	1882.50	V	X	165	287	2.65	1 / 1	17.79	20.44	0.111	33.01	-12.57
35 MHz	π/2 BPSK	1867.50	V	X	165	287	2.74	1 / 186	18.49	21.24	0.133	33.01	-11.77
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 94	18.53	21.18	0.131	33.01	-11.83
	π/2 BPSK	1897.50	V	X	163	286	2.56	1 / 94	18.63	21.18	0.131	33.01	-11.83
	QPSK	1867.50	V	X	165	287	2.74	1 / 186	18.29	21.03	0.127	33.01	-11.98
	QPSK	1882.50	V	X	165	287	2.65	1 / 94	18.80	**21.45**	0.140	33.01	-11.56
	QPSK	1897.50	V	X	163	286	2.56	1 / 94	18.73	21.28	0.134	33.01	-11.73
	16-QAM	1882.50	V	X	165	287	2.65	1 / 94	17.94	20.59	0.115	33.01	-12.42
30 MHz	π/2 BPSK	1865.00	V	X	165	287	2.76	1 / 158	18.63	21.39	0.138	33.01	-11.62
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 158	18.56	21.21	0.132	33.01	-11.80
	π/2 BPSK	1900.00	V	X	163	286	2.54	1 / 158	18.61	21.15	0.130	33.01	-11.86
	QPSK	1865.00	V	X	165	287	2.76	1 / 158	18.40	21.16	0.130	33.01	-11.85
	QPSK	1882.50	V	X	165	287	2.65	1 / 158	18.78	**21.43**	0.139	33.01	-11.58
	QPSK	1900.00	V	X	163	286	2.54	1 / 158	18.81	21.35	0.136	33.01	-11.66
	16-QAM	1882.50	V	X	165	287	2.65	1 / 158	17.76	20.41	0.110	33.01	-12.60
25 MHz	π/2 BPSK	1862.50	V	X	165	287	2.78	1 / 66	18.45	21.22	0.133	33.01	-11.79
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 131	18.60	21.25	0.133	33.01	-11.76
	π/2 BPSK	1902.50	V	X	163	286	2.54	1 / 66	18.60	21.15	0.130	33.01	-11.86
	QPSK	1862.50	V	X	165	287	2.78	1 / 66	18.41	21.19	0.131	33.01	-11.82
	QPSK	1882.50	V	X	165	287	2.65	1 / 131	18.71	**21.36**	0.137	33.01	-11.65
	QPSK	1902.50	V	X	163	286	2.54	1 / 66	18.67	21.21	0.132	33.01	-11.80
	16-QAM	1862.50	V	X	165	287	2.78	1 / 66	17.70	20.47	0.112	33.01	-12.54
20 MHz	π/2 BPSK	1860.00	V	X	165	287	2.79	1 / 53	18.29	21.08	0.128	33.01	-11.93
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 53	18.58	21.23	0.133	33.01	-11.78
	π/2 BPSK	1905.00	V	X	163	286	2.54	1 / 104	18.49	21.04	0.127	33.01	-11.97
	QPSK	1860.00	V	X	165	287	2.79	1 / 53	18.23	21.02	0.126	33.01	-11.99
	QPSK	1882.50	V	X	165	287	2.65	1 / 53	18.68	**21.33**	0.136	33.01	-11.68
	QPSK	1905.00	V	X	163	286	2.54	1 / 104	18.45	20.99	0.126	33.01	-12.02
	16-QAM	1860.00	V	X	165	287	2.79	1 / 53	17.59	20.38	0.109	33.01	-12.63
15 MHz	π/2 BPSK	1857.50	V	X	165	287	2.81	1 / 1	18.33	21.14	0.130	33.01	-11.87
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 77	18.52	21.17	0.131	33.01	-11.84
	π/2 BPSK	1907.50	V	X	163	286	2.54	1 / 77	18.63	21.17	0.131	33.01	-11.84
	QPSK	1857.50	V	X	165	287	2.81	1 / 1	18.52	**21.33**	0.136	33.01	-11.68
	QPSK	1882.50	V	X	165	287	2.65	1 / 77	18.54	21.19	0.131	33.01	-11.82
	QPSK	1907.50	V	X	163	286	2.54	1 / 77	18.49	21.04	0.127	33.01	-11.98
	16-QAM	1857.50	V	X	165	287	2.81	1 / 1	17.60	20.40	0.110	33.01	-12.61
10 MHz	π/2 BPSK	1855.00	V	X	165	287	2.82	1 / 50	18.24	21.07	0.128	33.01	-11.94
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 1	18.47	21.12	0.129	33.01	-11.89
	π/2 BPSK	1910.00	V	X	163	286	2.55	1 / 26	18.48	21.03	0.127	33.01	-11.98
	QPSK	1855.00	V	X	165	287	2.82	1 / 50	18.11	20.94	0.124	33.01	-12.07
	QPSK	1882.50	V	X	165	287	2.65	1 / 1	18.70	**21.35**	0.137	33.01	-11.66
	QPSK	1910.00	V	X	163	286	2.55	1 / 26	18.70	21.25	0.133	33.01	-11.77
	16-QAM	1855.00	V	X	165	287	2.82	1 / 50	17.53	20.35	0.108	33.01	-12.66
5 MHz	π/2 BPSK	1852.50	V	X	165	287	2.84	1 / 23	18.33	21.17	0.131	33.01	-11.84
	π/2 BPSK	1882.50	V	X	165	287	2.65	1 / 1	18.60	**21.25**	0.133	33.01	-11.76
	π/2 BPSK	1912.50	V	X	163	286	2.55	1 / 1	18.51	21.06	0.128	33.01	-11.95
	QPSK	1852.50	V	X	165	287	2.84	1 / 23	18.34	21.18	0.131	33.01	-11.83
	QPSK	1882.50	V	X	165	287	2.65	1 / 1	18.52	21.17	0.131	33.01	-11.84
	QPSK	1912.50	V	X	163	286	2.55	1 / 1	18.44	20.99	0.125	33.01	-12.02
	16-QAM	1852.50	V	X	165	287	2.84	1 / 23	17.85	20.69	0.117	33.01	-12.32
40 MHz	QPSK (CP-OFDM)	1882.50	V	X	165	287	2.65	1 / 108	16.99	19.64	0.092	33.01	-13.37
	QPSK (WCP)	1882.50	V	WCP	165	287	2.65	1 / 1	17.20	19.85	0.097	33.01	-13.16

Table 7-21. EIRP Data (NR Band n25/2 – Ant2)

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.

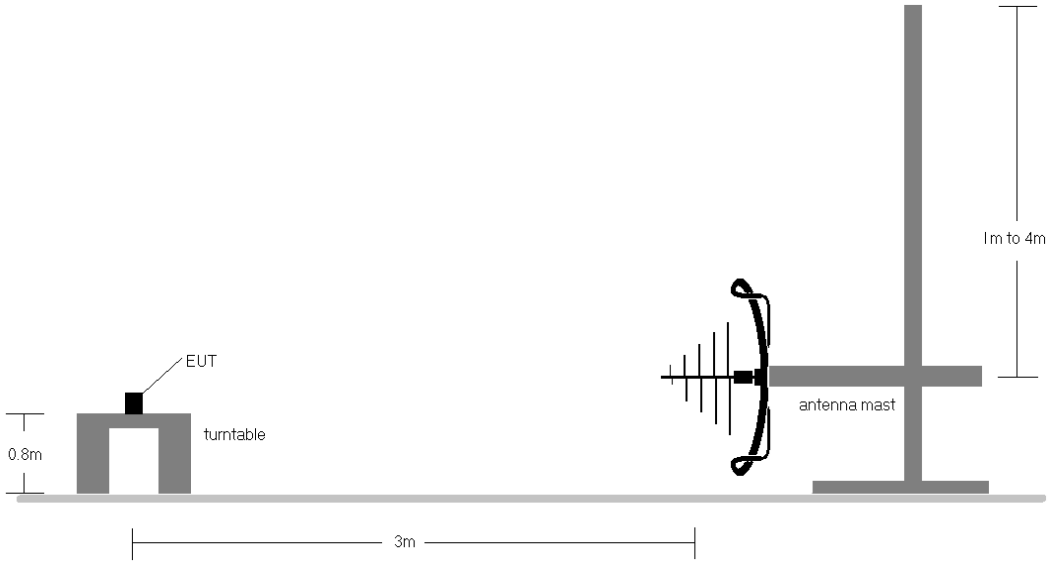


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

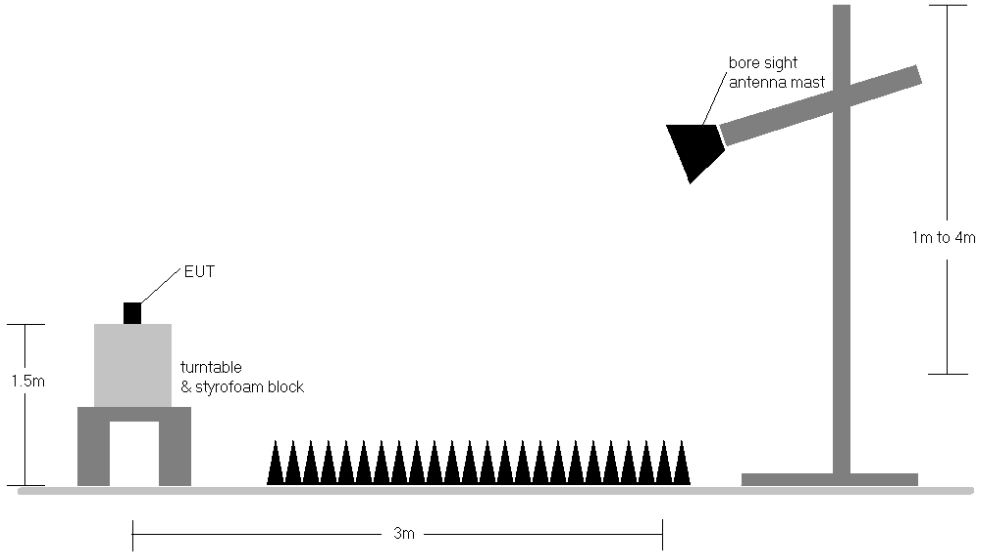


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

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 GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers are reported in GPRS mode while transmitting with one slot active.

3) 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”.

4) 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.

5) This unit was tested with its standard battery.

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

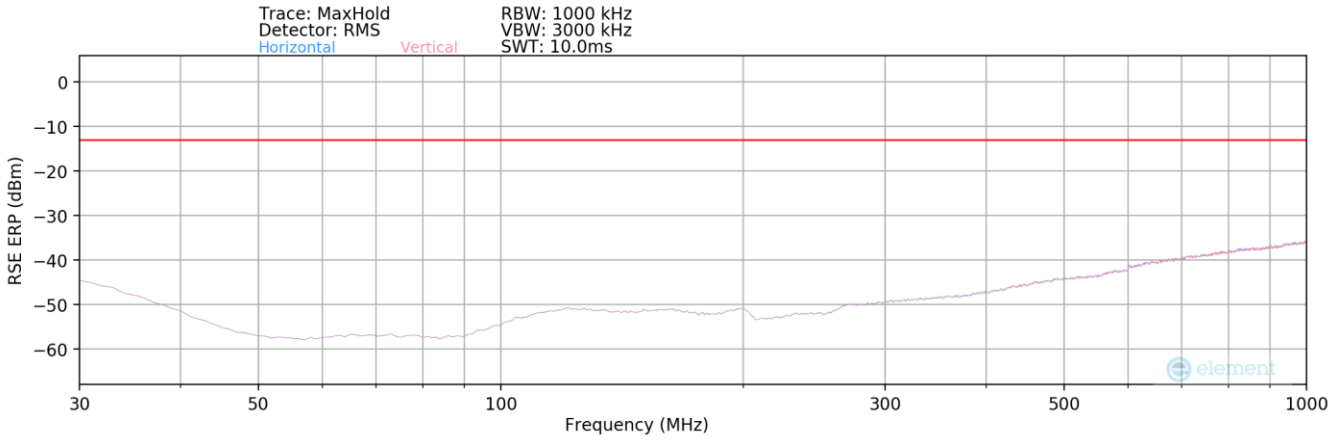
7) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

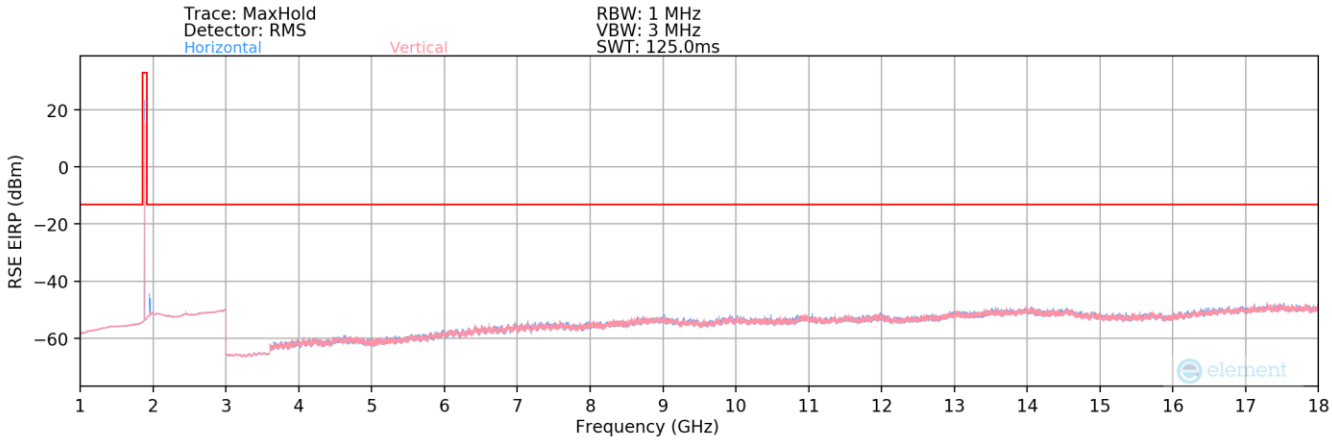
9) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

10) Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

GSM/GPRS PCS – Ant1



Plot 7-233. Radiated Spurious Plot (GPRS PCS - Ant1)



Plot 7-234. Radiated Spurious Plot (GPRS PCS - Ant1)

Mode:	GPRS 1 Tx Slot
Channel:	661
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]
412.00	V	-	-	-84.91	23.77	45.86	-51.55	-13.00	-38.55

Table 7-22. Radiated Spurious Data (GPRS PCS – Ant1)

Mode:	GPRS 1 Tx Slot
Channel:	512
Frequency (MHz):	1850.2

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]
3700.40	V	-	-	-76.83	1.11	31.28	-63.98	-13.00	-50.98
5550.60	V	-	-	-76.37	4.42	35.05	-60.21	-13.00	-47.21
7400.80	V	-	-	-77.14	9.39	39.25	-56.01	-13.00	-43.01

Table 7-23. Radiated Spurious Data (GPRS PCS – Low Channel - Ant1)

Mode:	GPRS 1 Tx Slot
Channel:	661
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	V	-	-	-76.63	1.02	31.39	-63.87	-13.00	-50.87
5640.00	V	-	-	-76.88	4.63	34.75	-60.51	-13.00	-47.51
7520.00	V	-	-	-77.75	9.27	38.52	-56.73	-13.00	-43.73

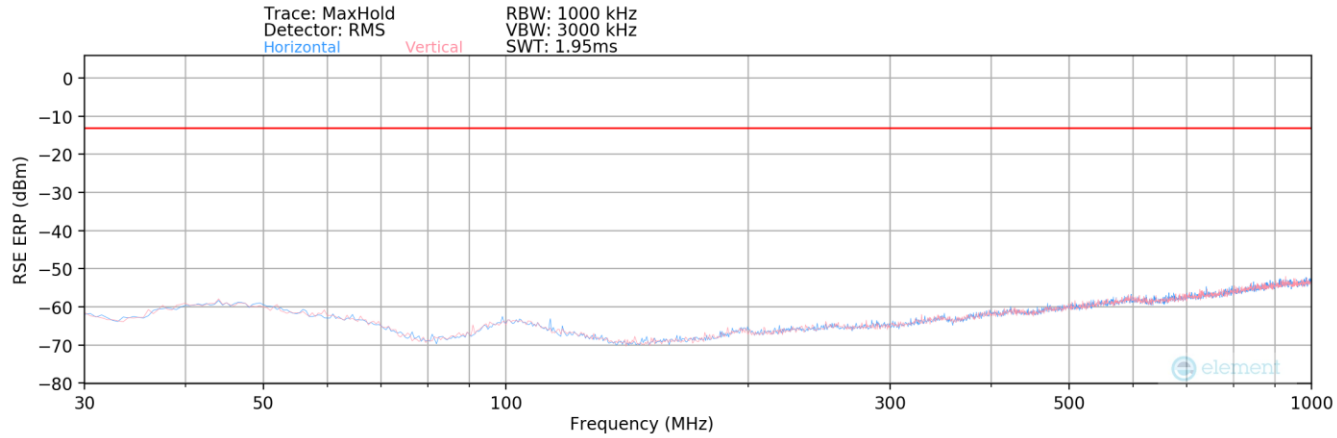
Table 7-24. Radiated Spurious Data (GPRS PCS – Mid Channel - Ant1)

Mode:	GPRS 1 Tx Slot
Channel:	810
Frequency (MHz):	1909.8

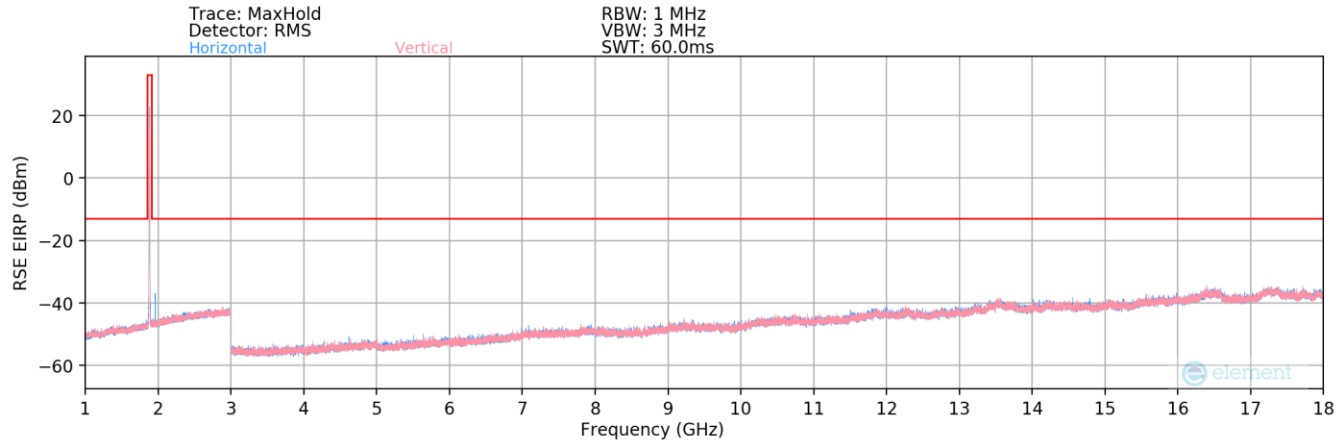
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.60	V	-	-	-75.96	1.09	32.13	-63.13	-13.00	-50.13
5729.40	V	-	-	-76.84	4.75	34.91	-60.35	-13.00	-47.35
7639.20	V	-	-	-78.46	9.33	37.87	-57.38	-13.00	-44.38

Table 7-25. Radiated Spurious Data (GPRS PCS – High Channel - Ant1)

WCDMA PCS – Ant1



Plot 7-235. Radiated Spurious Plot (WCDMA PCS - Ant1)



Plot 7-236. Radiated Spurious Plot (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]
99.11	V	294	335	-78.29	-13.77	14.94	-82.46	-13.00	-69.46

Table 7-26. Radiated Spurious Data (WCDMA PCS – Low Channel - 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	V	-	-	-78.20	7.71	36.51	-58.75	-13.00	-45.75
5557.20	V	-	-	-77.73	11.42	40.69	-54.57	-13.00	-41.57
7409.60	V	-	-	-79.01	15.03	43.02	-52.24	-13.00	-39.24

Table 7-27. 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	V	-	-	-78.16	7.92	36.76	-58.50	-13.00	-45.50
5640.00	V	-	-	-78.83	11.47	39.64	-55.62	-13.00	-42.62
7520.00	V	-	-	-79.36	15.64	43.28	-51.98	-13.00	-38.98

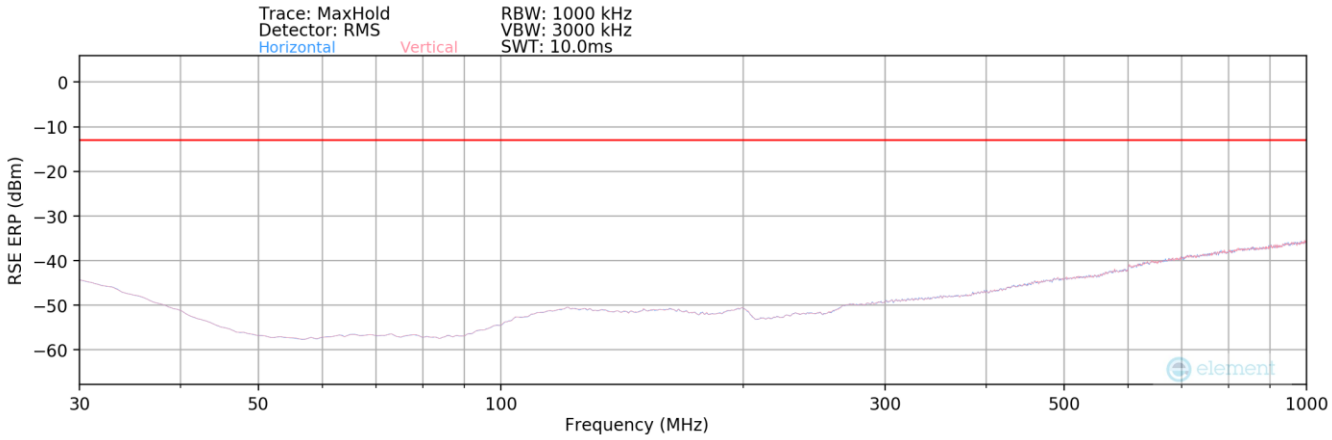
Table 7-28. Radiated Spurious Data (WCDMA PCS – Mid Channel - Ant1)

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

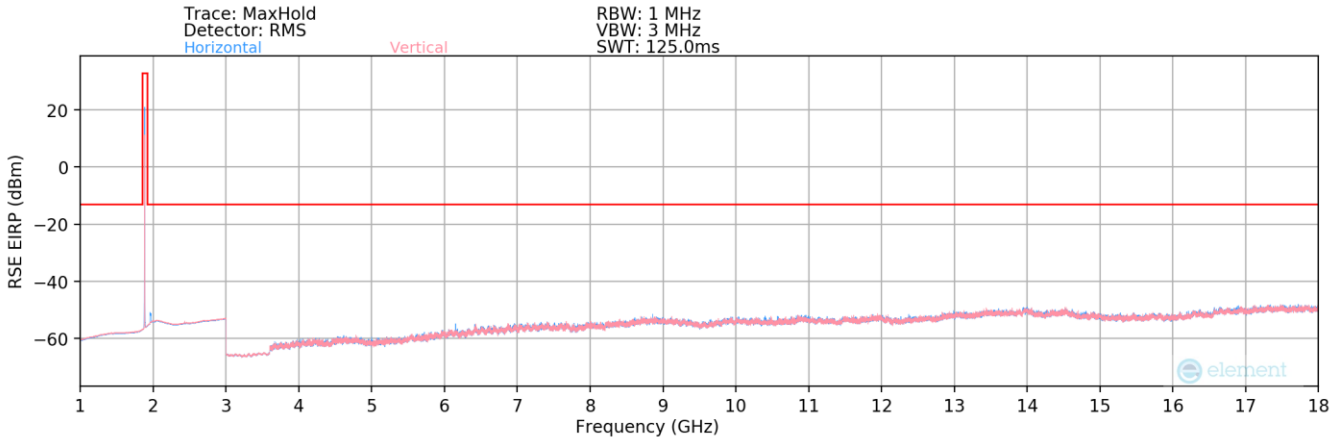
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.20	V	-	-	-78.06	7.99	36.93	-58.32	-13.00	-45.32
5722.80	V	-	-	-78.79	11.54	39.75	-55.51	-13.00	-42.51
7630.40	V	-	-	-80.60	15.70	42.10	-53.16	-13.00	-40.16

Table 7-29. Radiated Spurious Data (WCDMA PCS – High Channel - Ant1)

LTE Band 25/2 – Ant1



Plot 7-237. Radiated Spurious Plot (LTE Band 25/2 - Ant1)



Plot 7-238. Radiated Spurious Plot (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]
296.00	V	-	-	-90.23	21.19	37.96	-59.45	-13.00	-46.45

Table 7-30. Radiated Spurious Data (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	-	-	-78.95	1.09	29.14	-66.12	-13.00	-53.12
5580.00	H	-	-	-79.09	4.54	32.45	-62.80	-13.00	-49.80
7440.00	H	-	-	-79.53	9.21	36.68	-58.58	-13.00	-45.58

Table 7-31. 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	-	-	-78.63	1.00	29.37	-65.89	-13.00	-52.89
5647.50	H	-	-	-78.94	4.69	32.75	-62.51	-13.00	-49.51
7530.00	H	-	-	-79.88	9.28	36.40	-58.85	-13.00	-45.85

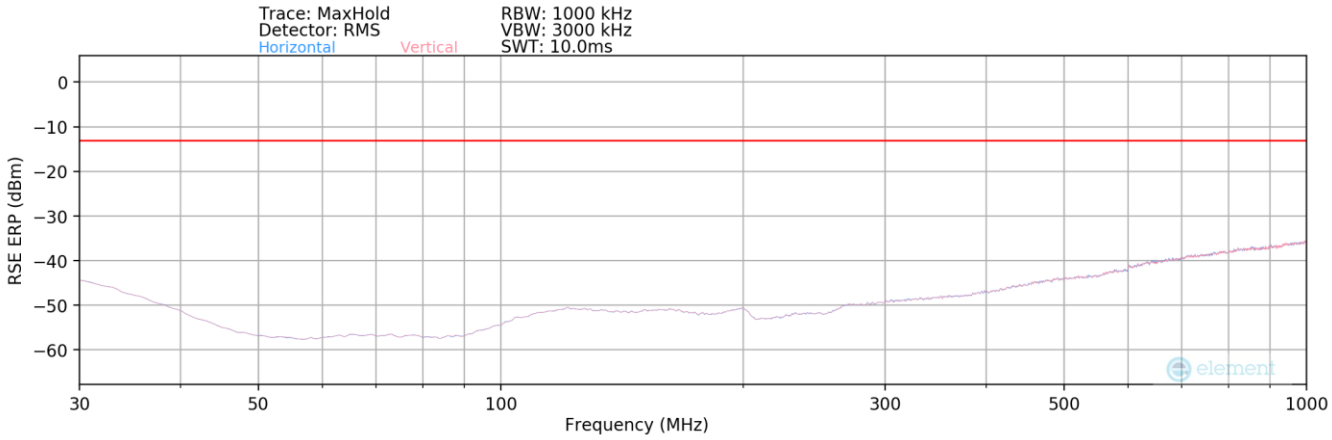
Table 7-32. Radiated Spurious Data (LTE Band 25/2 – Mid Channel - Ant1)

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

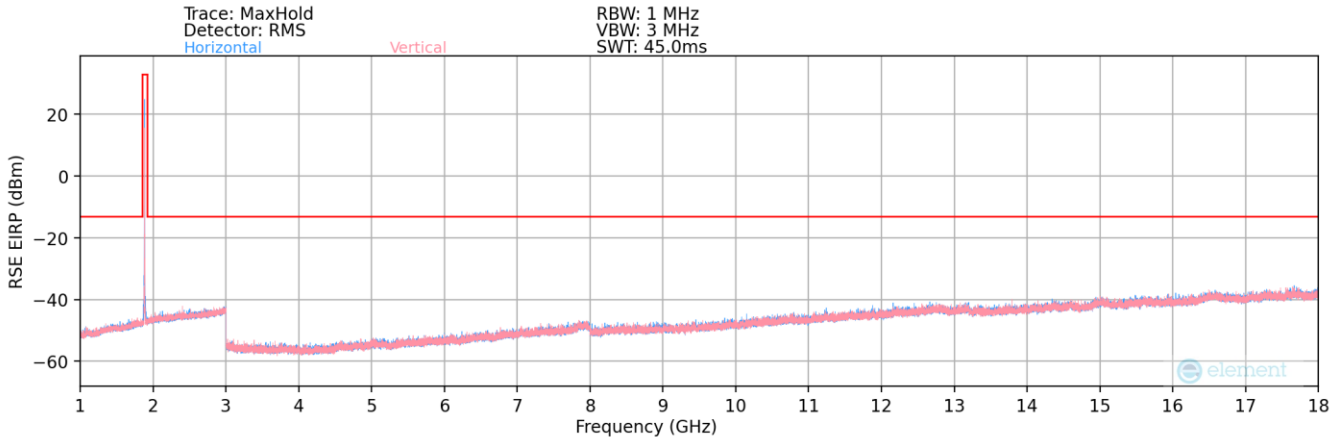
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	H	-	-	-78.24	1.07	29.83	-65.43	-13.00	-52.43
5715.00	H	-	-	-78.95	4.63	32.68	-62.58	-13.00	-49.58
7620.00	H	-	-	-80.00	9.67	36.67	-58.59	-13.00	-45.59

Table 7-33. Radiated Spurious Data (LTE Band 25/2 – High Channel - Ant1)

NR Band n25/2 – Ant1



Plot 7-239. Radiated Spurious Plot (NR Band n25/2 - Ant1)



Plot 7-240. Radiated Spurious Plot (NR Band n25/2 - Ant1)

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

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]
54.14	H	-	-	-107.94	14.28	13.34	-84.07	-13.00	-71.07
127.96	H	-	-	-108.13	20.29	19.16	-78.25	-13.00	-65.25
295.91	H	-	-	-107.64	21.19	20.55	-76.86	-13.00	-63.86

Table 7-34. Radiated Spurious Data (NR Band n25/2 – Ant1)

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

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	V	-	-	-79.89	5.54	32.65	-62.61	-13.00	-49.61
5610.00	V	-	-	-80.10	8.03	34.93	-60.32	-13.00	-47.32
7480.00	V	-	-	-82.04	12.68	37.64	-57.62	-13.00	-44.62

Table 7-35. Radiated Spurious Data (NR Band n25/2 – Low Channel - Ant1)

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

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	V	-	-	-80.01	5.65	32.64	-62.62	-13.00	-49.62
5647.50	V	-	-	-80.54	8.26	34.72	-60.54	-13.00	-47.54
7530.00	V	-	-	-81.91	13.01	38.10	-57.16	-13.00	-44.16

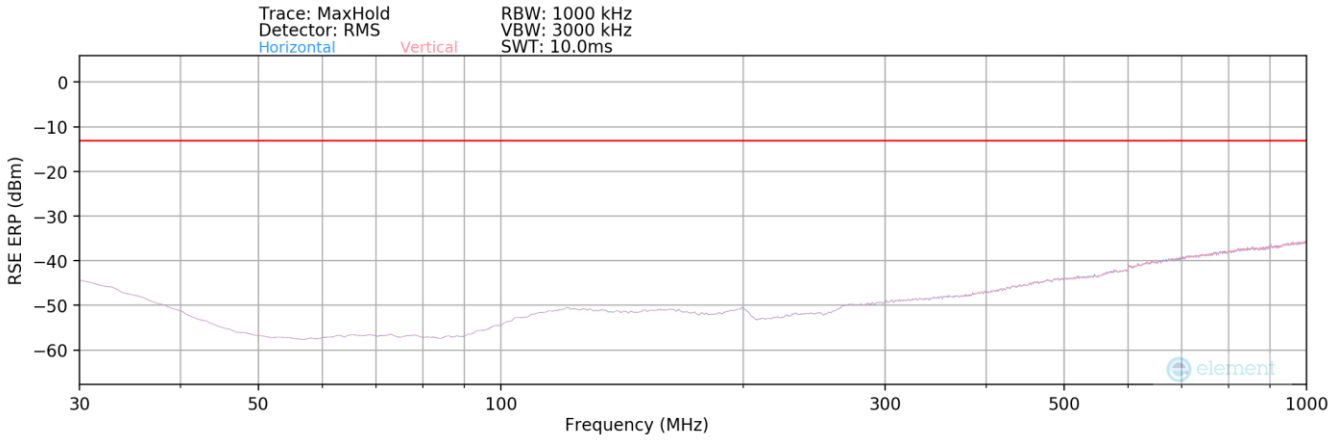
Table 7-36. Radiated Spurious Data (NR Band n25/2 – Mid Channel - Ant1)

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

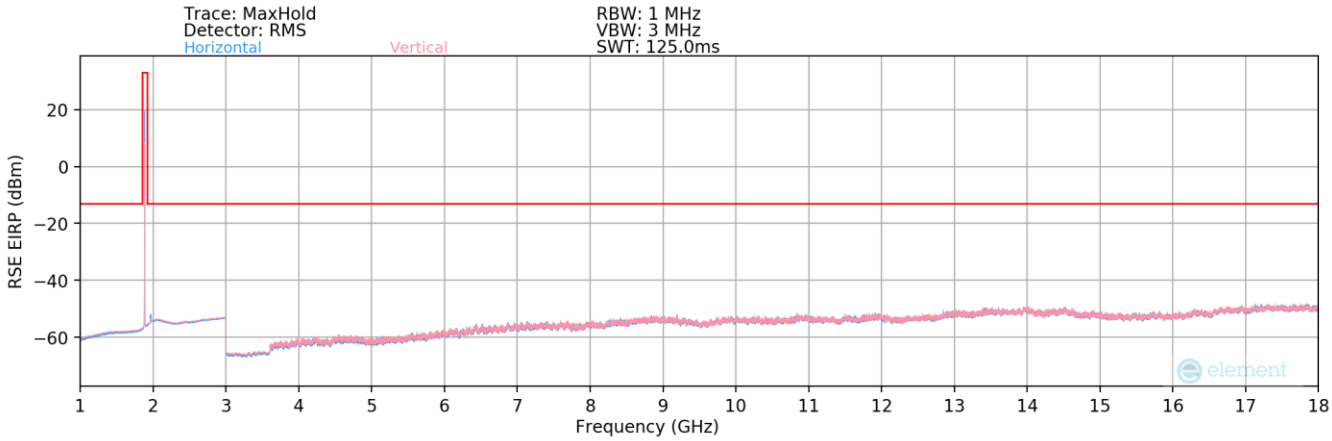
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3790.00	V	-	-	-80.06	5.87	32.81	-62.45	-13.00	-49.45
5685.00	V	-	-	-80.15	8.29	35.14	-60.12	-13.00	-47.12
7580.00	V	-	-	-81.55	12.86	38.31	-56.95	-13.00	-43.95

Table 7-37. Radiated Spurious Data (NR Band n25/2 – High Channel - Ant1)

LTE Band 25/2 – Ant2



Plot 7-241. Radiated Spurious Plot (LTE Band 25/2 - Ant2)



Plot 7-242. Radiated Spurious Plot (LTE Band 25/2 - Ant2)

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]
551.00	H	-	-	-89.77	26.57	43.80	-53.61	-13.00	-40.61

Table 7-38. Radiated Spurious Data (LTE Band 25/2 – Ant2)

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	-	-	-78.94	1.09	29.15	-66.11	-13.00	-53.11
5580.00	H	-	-	-79.18	4.54	32.36	-62.89	-13.00	-49.89
7440.00	H	-	-	-79.56	9.21	36.65	-58.61	-13.00	-45.61

Table 7-39. Radiated Spurious Data (LTE Band 25/2 – Low Channel - Ant2)

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	-	-	-78.70	1.00	29.30	-65.96	-13.00	-52.96
5647.50	H	-	-	-78.92	4.69	32.77	-62.49	-13.00	-49.49
7530.00	H	-	-	-79.91	9.28	36.37	-58.88	-13.00	-45.88

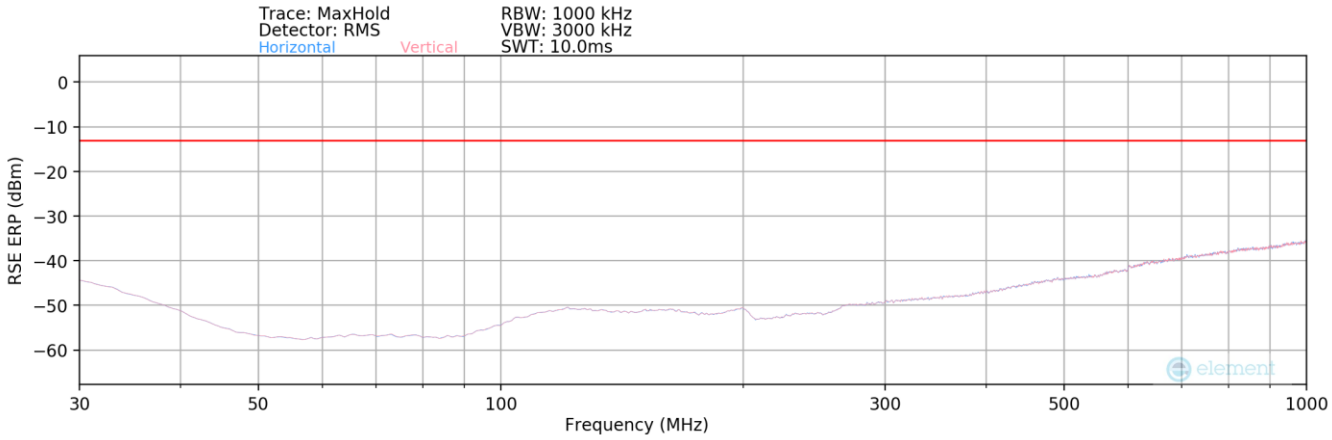
Table 7-40. Radiated Spurious Data (LTE Band 25/2 – Mid Channel - Ant2)

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

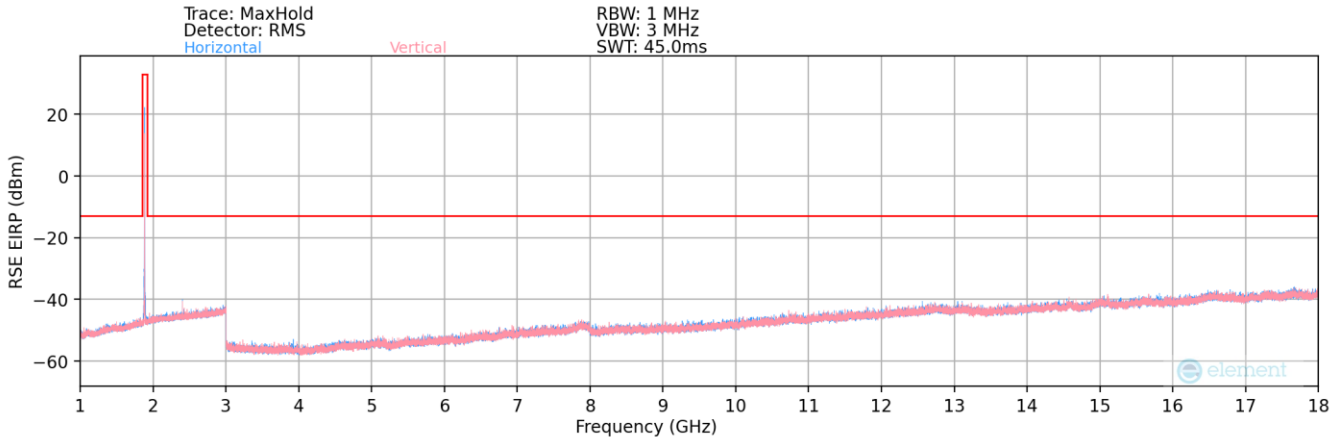
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	H	-	-	-78.22	1.07	29.85	-65.41	-13.00	-52.41
5715.00	H	-	-	-78.97	4.63	32.66	-62.60	-13.00	-49.60
7620.00	H	-	-	-80.02	9.67	36.65	-58.61	-13.00	-45.61

Table 7-41. Radiated Spurious Data (LTE Band 25/2 – High Channel - Ant2)

NR Band n25/2 – Ant2



Plot 7-243. Radiated Spurious Plot (NR Band n25/2 - Ant2)



Plot 7-244. Radiated Spurious Plot (NR Band n25/2 - Ant2)

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

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]
74.57	V	-	-	-107.68	14.48	13.80	-83.60	-13.00	-70.60
130.69	V	-	-	-108.07	20.20	19.13	-78.28	-13.00	-65.28
295.75	V	-	-	-107.73	21.18	20.45	-76.96	-13.00	-63.96

Table 7-42. Radiated Spurious Data (NR Band n25/2 – Ant2)

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

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	-	-	-79.67	5.49	32.82	-62.44	-13.00	-49.44
5610.00	H	-	-	-80.64	8.34	34.70	-60.56	-13.00	-47.56
7480.00	H	-	-	-81.73	12.59	37.86	-57.39	-13.00	-44.39

Table 7-43. Radiated Spurious Data (NR Band n25/2 – Low Channel - Ant2)

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

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	-	-	-80.26	5.65	32.39	-62.87	-13.00	-49.87
5647.50	H	-	-	-81.00	8.26	34.26	-61.00	-13.00	-48.00
7530.00	H	-	-	-82.13	13.01	37.88	-57.38	-13.00	-44.38

Table 7-44. Radiated Spurious Data (NR Band n25/2 – Mid Channel - Ant2)

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

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	-	-	-80.67	5.91	32.24	-63.02	-13.00	-50.02
5685.00	H	-	-	-81.22	8.41	34.19	-61.06	-13.00	-48.06
7580.00	H	-	-	-81.42	12.79	38.37	-56.89	-13.00	-43.89

Table 7-45. Radiated Spurious Data (NR Band n25/2 – High Channel - Ant2)

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

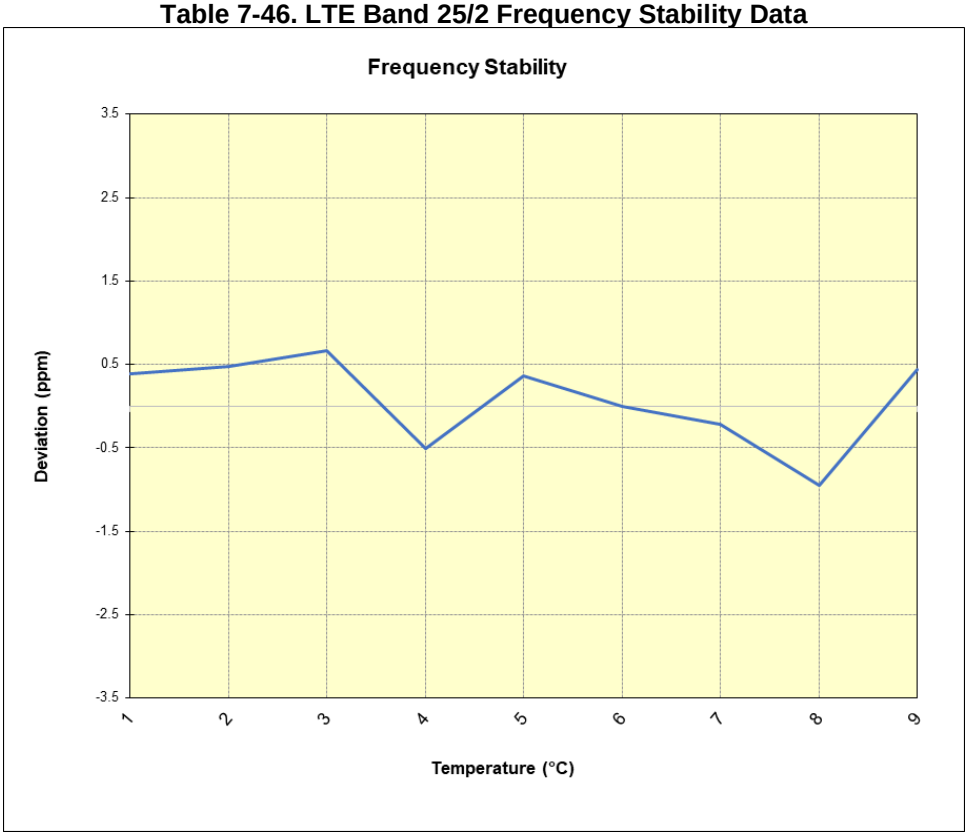
None

LTE Band 25/2

LTE Band 25/2	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	3.85

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,882,596,724	734	0.0000390
		- 20	1,882,596,883	893	0.0000474
		- 10	1,882,597,244	1,254	0.0000666
		0	1,882,595,046	-944	-0.0000501
		+ 10	1,882,596,678	688	0.0000365
		+ 20 (Ref)	1,882,595,990	0	0.0000000
		+ 30	1,882,595,589	-401	-0.0000213
		+ 40	1,882,594,196	-1,794	-0.0000953
		+ 50	1,882,596,816	826	0.0000439
Battery Endpoint	3.21	+ 20	1,882,595,633	-357	-0.0000190

Table 7-46. LTE Band 25/2 Frequency Stability Data



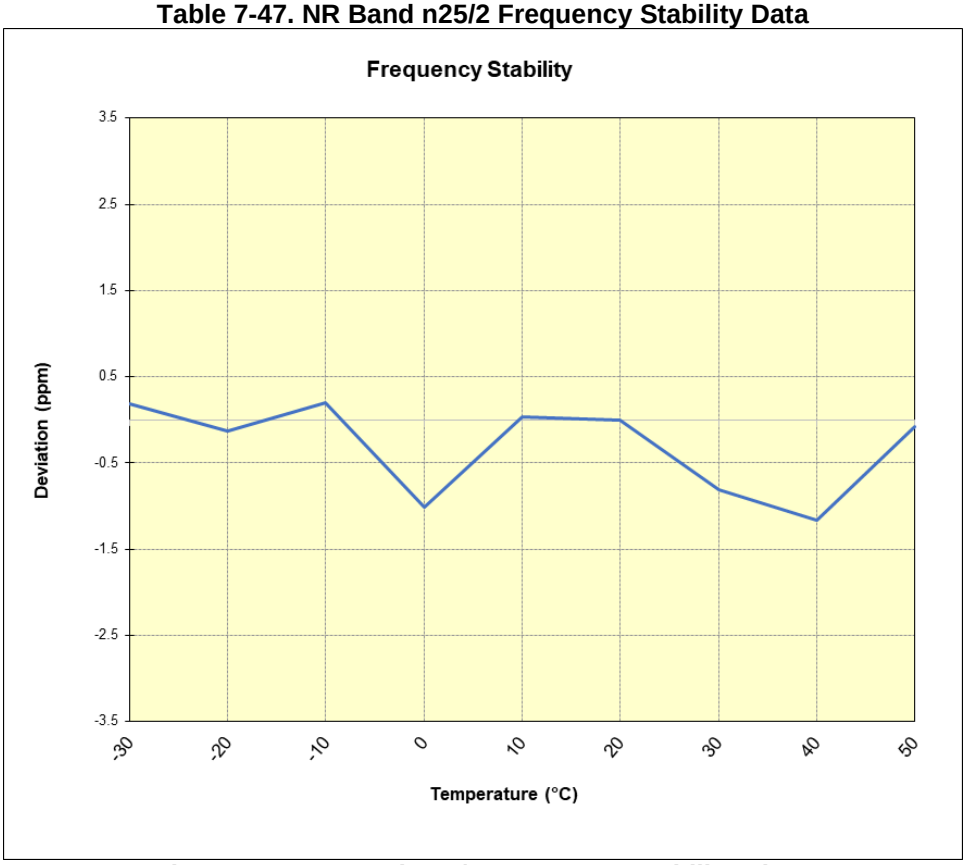
Plot 7-245. LTE Band 25/2 Frequency Stability Chart

NR Band n25/2

NR Band n25/2	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	3.85

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,882,597,273	357	0.0000190
		- 20	1,882,596,683	-233	-0.0000124
		- 10	1,882,597,283	367	0.0000195
		0	1,882,595,021	-1,895	-0.0001007
		+ 10	1,882,596,973	57	0.0000030
		+ 20 (Ref)	1,882,596,916	0	0.0000000
		+ 30	1,882,595,388	-1,528	-0.0000812
		+ 40	1,882,594,731	-2,185	-0.0001161
		+ 50	1,882,596,780	-136	-0.0000072
Battery Endpoint	3.21	+ 20	1,882,595,618	-1,298	-0.0000689

Table 7-47. NR Band n25/2 Frequency Stability Data



Plot 7-246. NR Band n25/2 Frequency Stability Chart

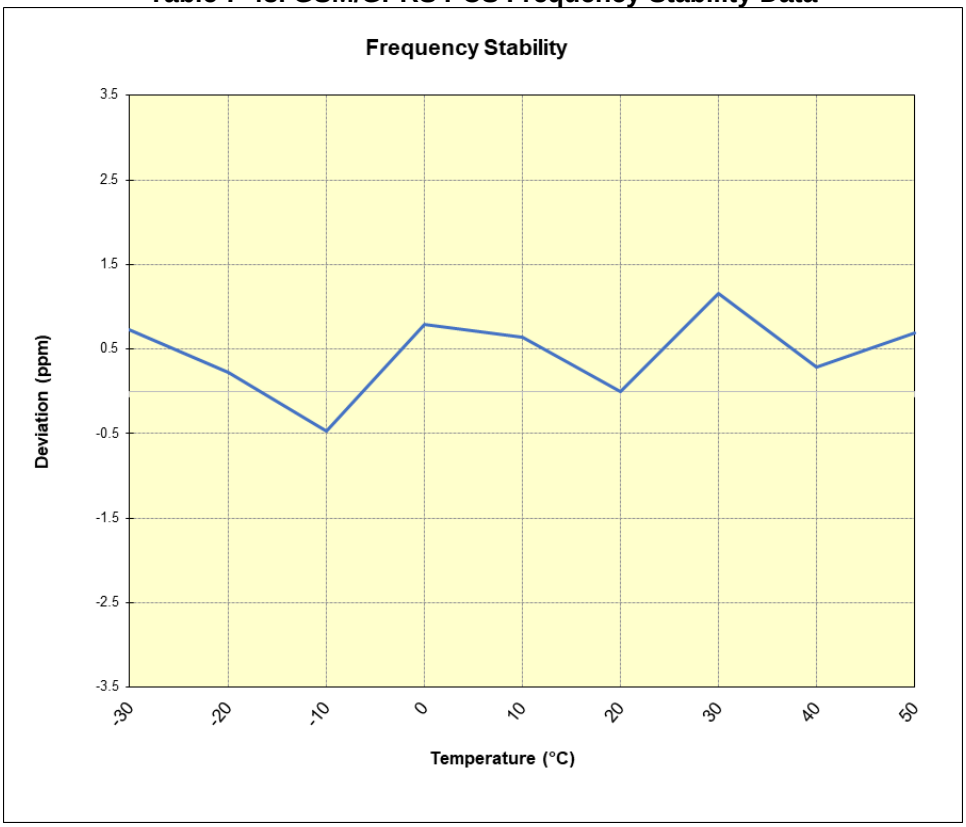
GSM/GPRS PCS

GSM/GPRS PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	3.85

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,002,411	1,378	0.0000733
		- 20	1,880,001,452	419	0.0000223
		- 10	1,880,000,144	-889	-0.0000473
		0	1,880,002,521	1,488	0.0000791
		+ 10	1,880,002,238	1,205	0.0000641
		+ 20 (Ref)	1,880,001,033	0	0.0000000
		+ 30	1,880,003,218	2,185	0.0001162
		+ 40	1,880,001,571	538	0.0000286
		+ 50	1,880,002,328	1,295	0.0000689
Battery Endpoint	3.21	+ 20	1,880,001,233	200	0.0000106

Table 7-48. GSM/GPRS PCS Frequency Stability Data



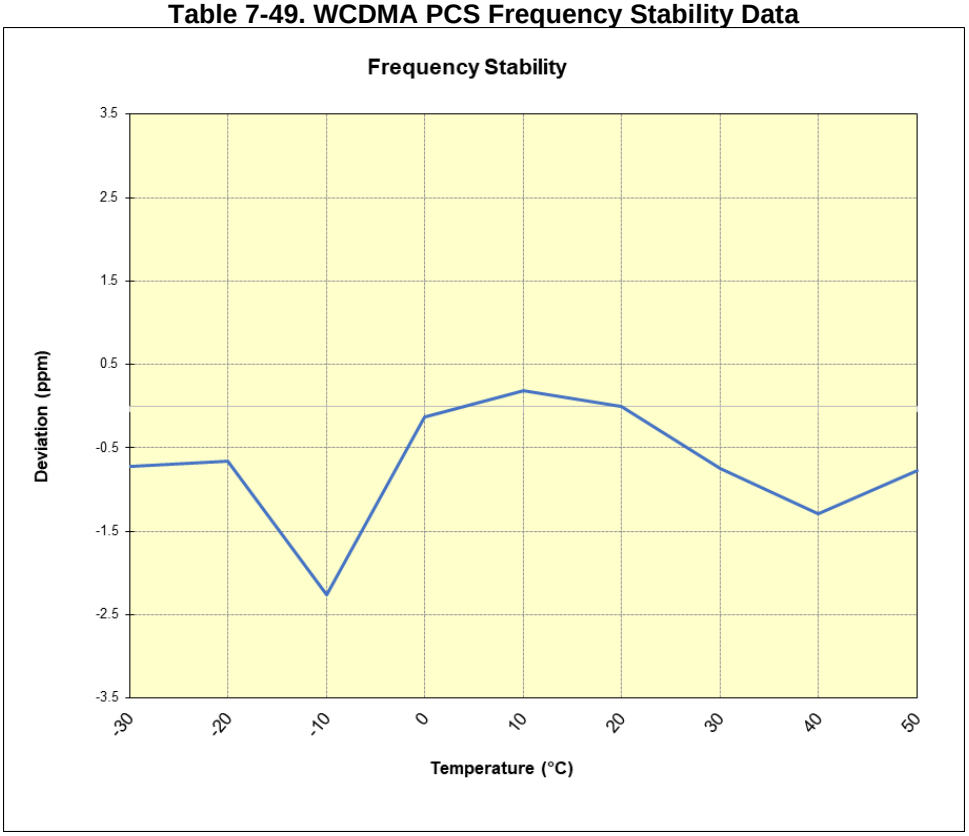
Plot 7-247. GSM/GPRS PCS Frequency Stability Chart

WCDMA PCS

WCDMA PCS	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	3.85

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,075,224	-1,356	-0.0000721
		- 20	1,880,075,336	-1,244	-0.0000662
		- 10	1,880,072,325	-4,255	-0.0002263
		0	1,880,076,342	-238	-0.0000127
		+ 10	1,880,076,921	341	0.0000181
		+ 20 (Ref)	1,880,076,580	0	0.0000000
		+ 30	1,880,075,179	-1,401	-0.0000745
		+ 40	1,880,074,154	-2,426	-0.0001290
		+ 50	1,880,075,122	-1,458	-0.0000776
Battery Endpoint	3.21	+ 20	1,880,074,225	-2,355	-0.0001253

Table 7-49. WCDMA PCS Frequency Stability Data



Plot 7-248. WCDMA PCS Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMS938B** complies with all the requirements of Part 24 of the FCC rules.