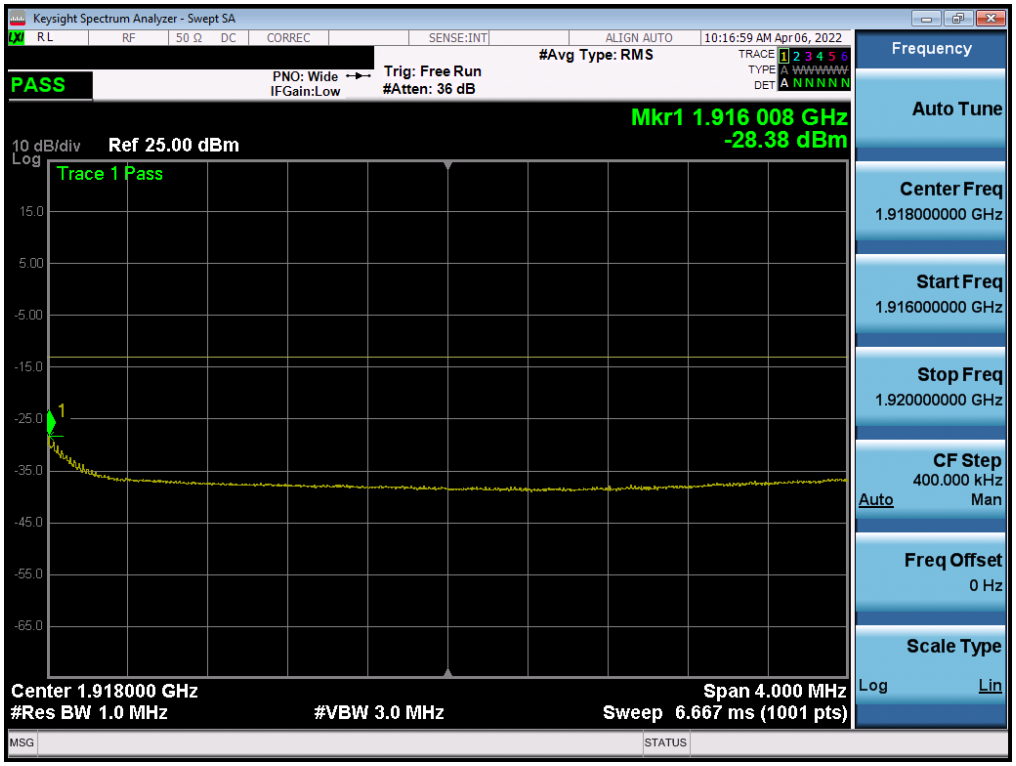
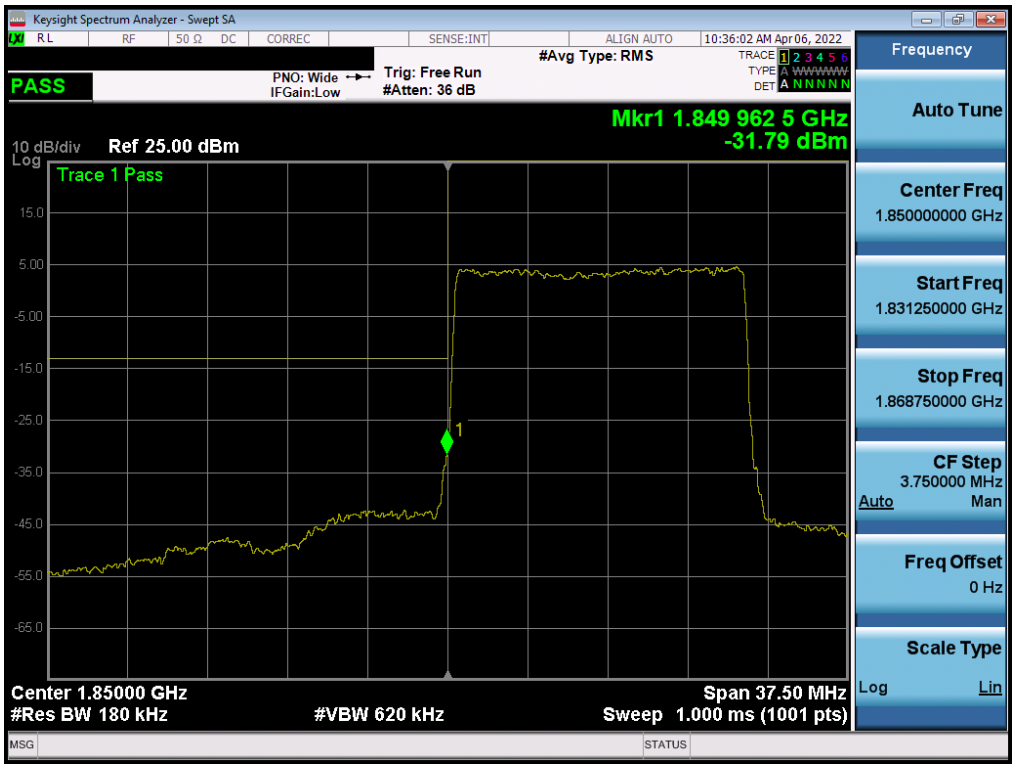
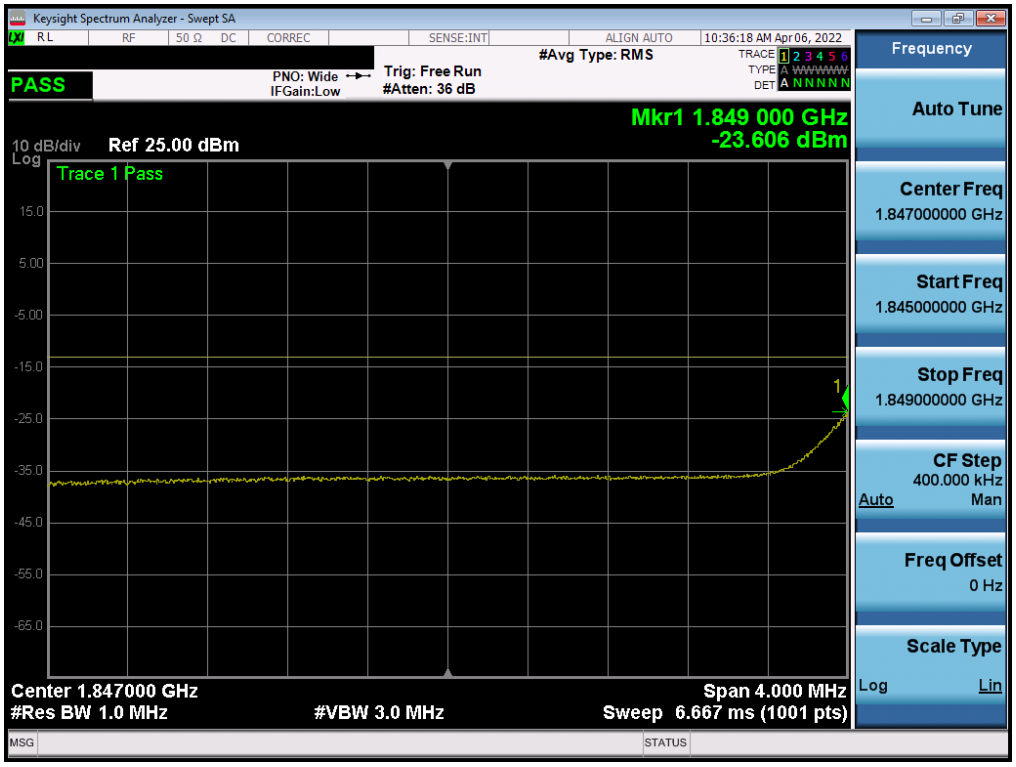
Plot 7-104. Upper Band Edge Plot (NR Band n25 - 20MHz QPSK – Full RB - Ant B)



Plot 7-105. Extended Upper Band Edge Plot (NR Band n25 - 20MHz QPSK – Full RB - Ant B)

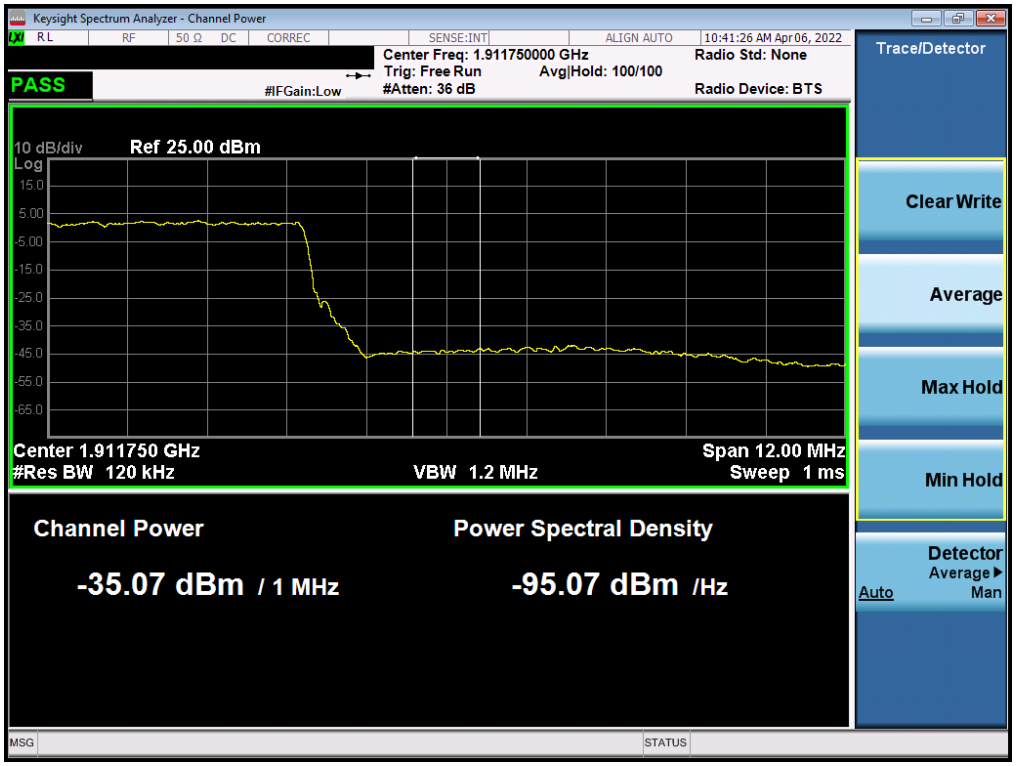


Plot 7-106. Lower Band Edge Plot (NR Band n25/2 - 15MHz QPSK – Full RB - Ant B)

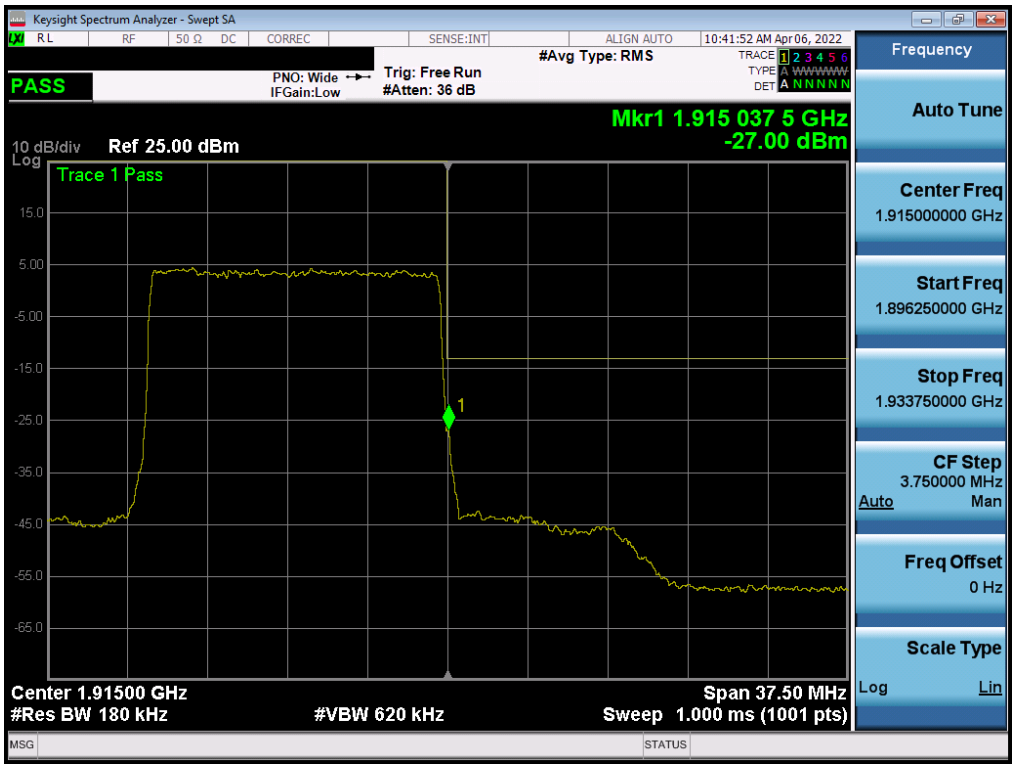


Plot 7-107. Extended Lower Band Edge Plot (NR Band n25/2 - 15MHz QPSK – Full RB - Ant B)

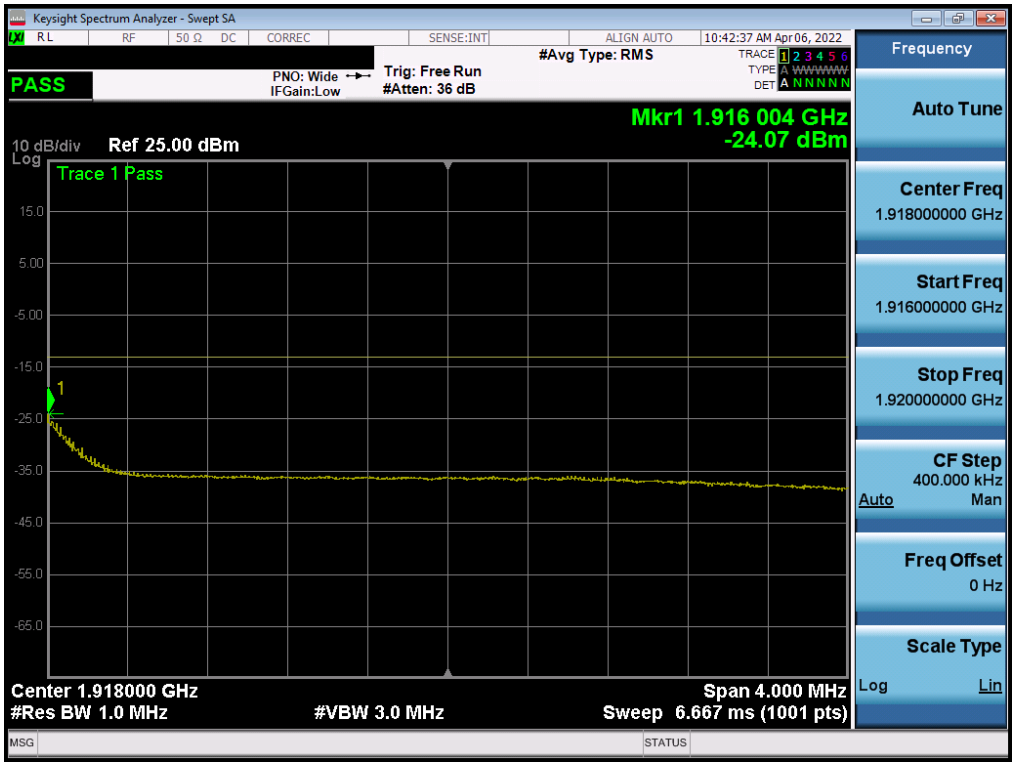
Plot 7-108. Upper Band Edge Plot (NR Band n2 - 15MHz QPSK – Full RB - Ant B)



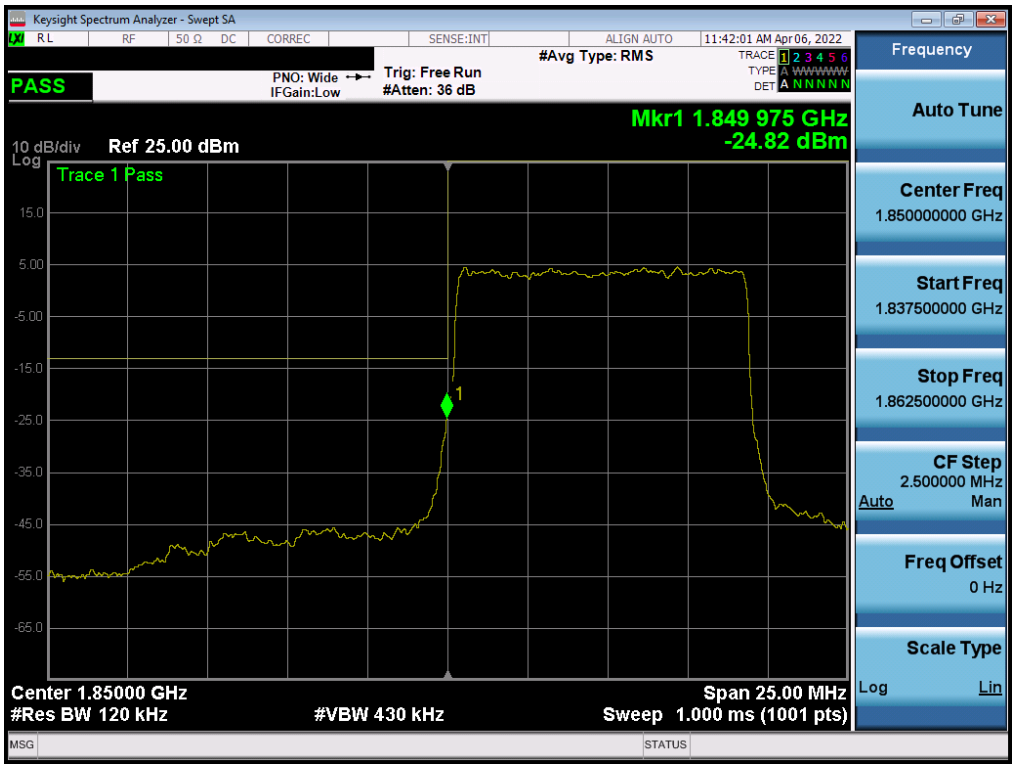
Plot 7-109. Extended Upper Band Edge Plot (NR Band n2 - 15MHz QPSK – Full RB - Ant B)



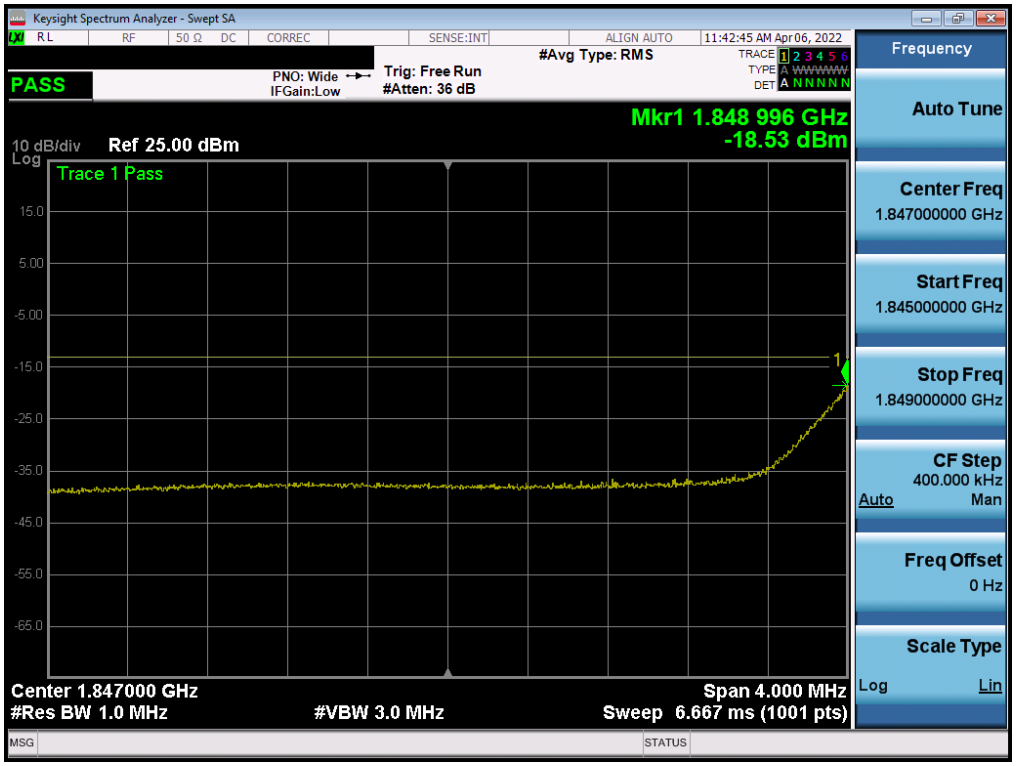
Plot 7-110. Upper Band Edge Plot (NR Band n25 - 15MHz QPSK – Full RB - Ant B)



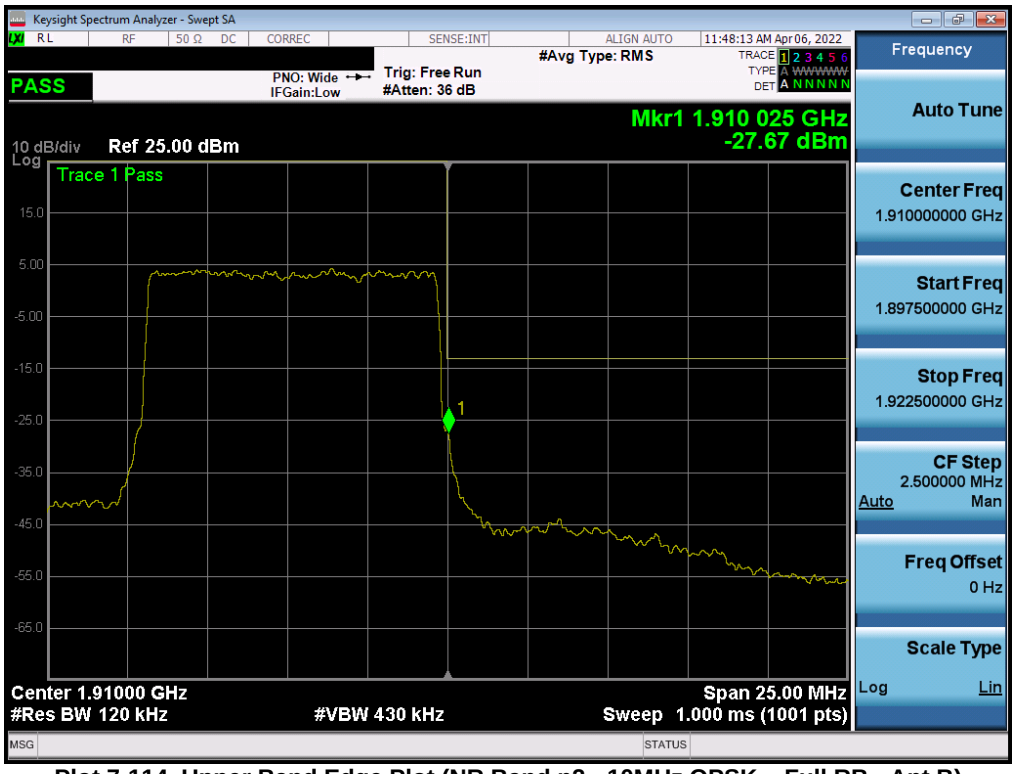
Plot 7-111. Extended Upper Band Edge Plot (NR Band n25 - 15MHz QPSK – Full RB - Ant B)



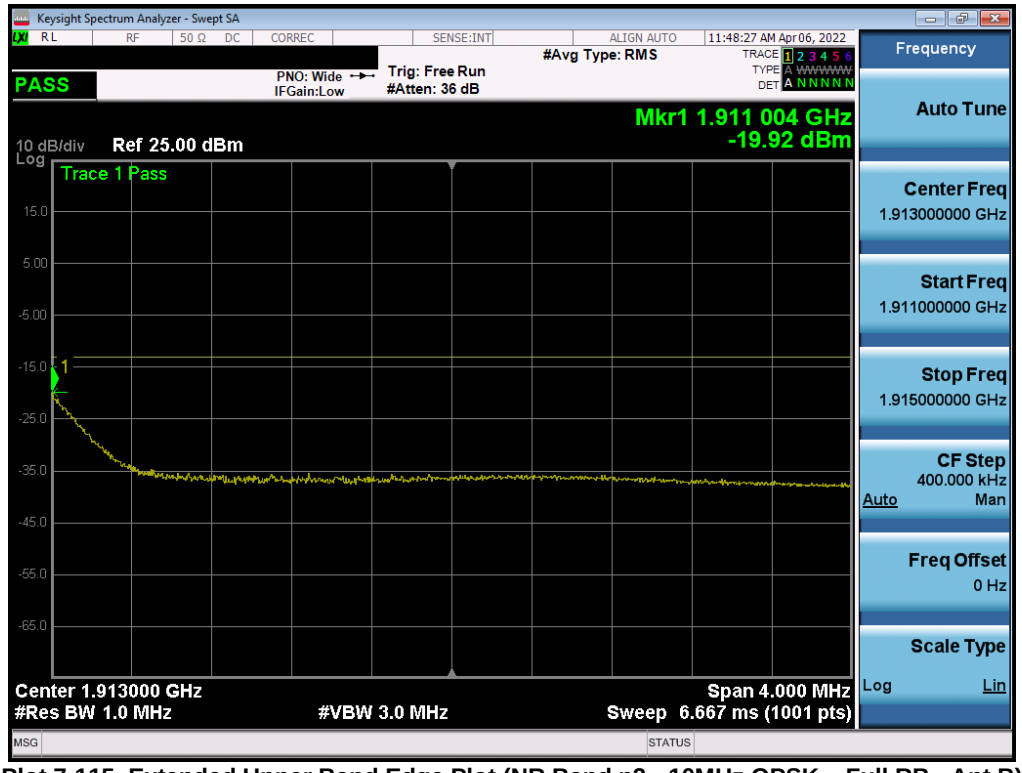
Plot 7-112. Lower Band Edge Plot (NR Band n25/2 - 10MHz QPSK – Full RB - Ant B)



Plot 7-113. Extended Lower Band Edge Plot (NR Band n25/2 - 10MHz QPSK – Full RB - Ant B)

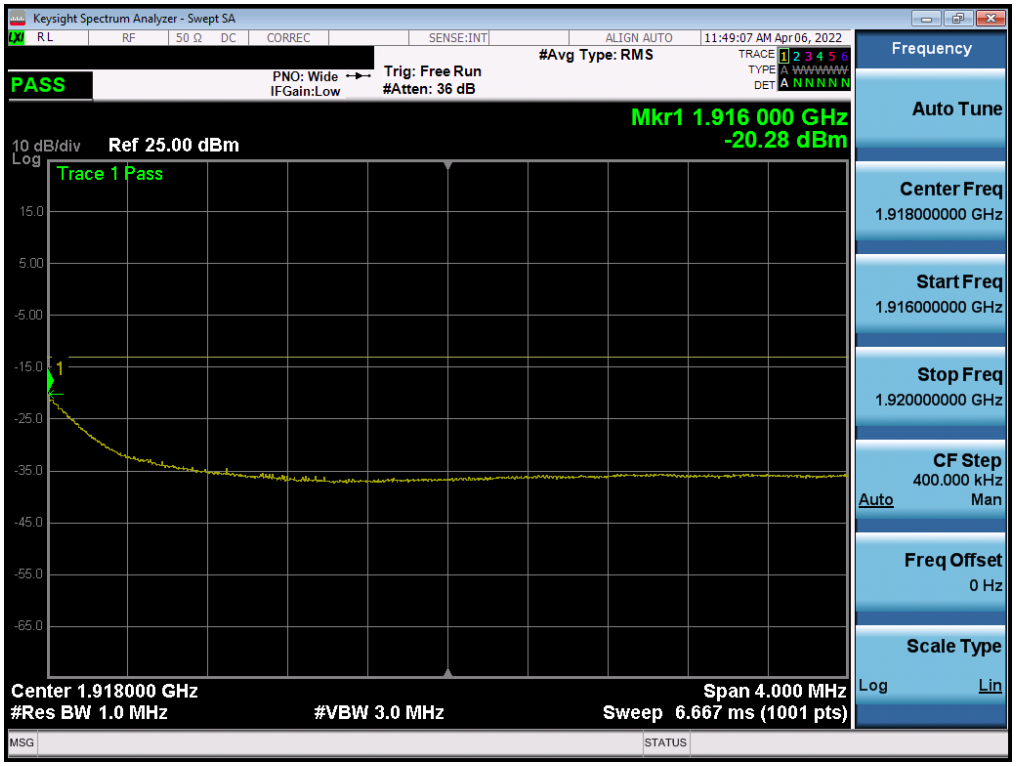


Plot 7-114. Upper Band Edge Plot (NR Band n2 - 10MHz QPSK – Full RB - Ant B)

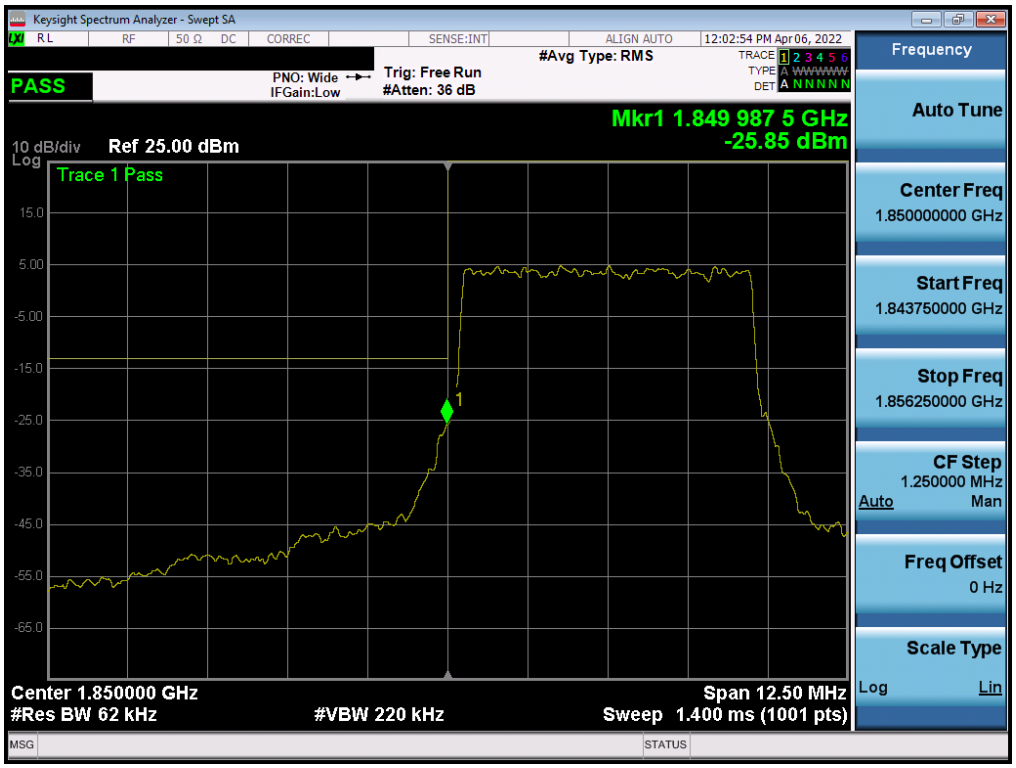


Plot 7-115. Extended Upper Band Edge Plot (NR Band n2 - 10MHz QPSK – Full RB - Ant B)

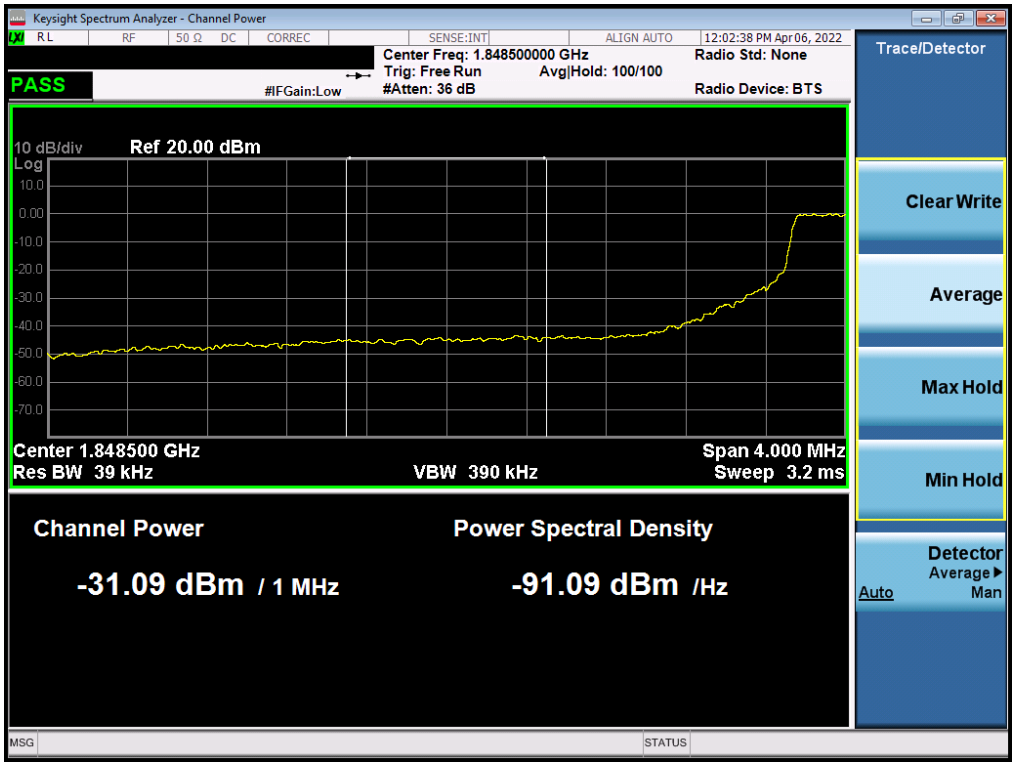
Plot 7-116. Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant B)



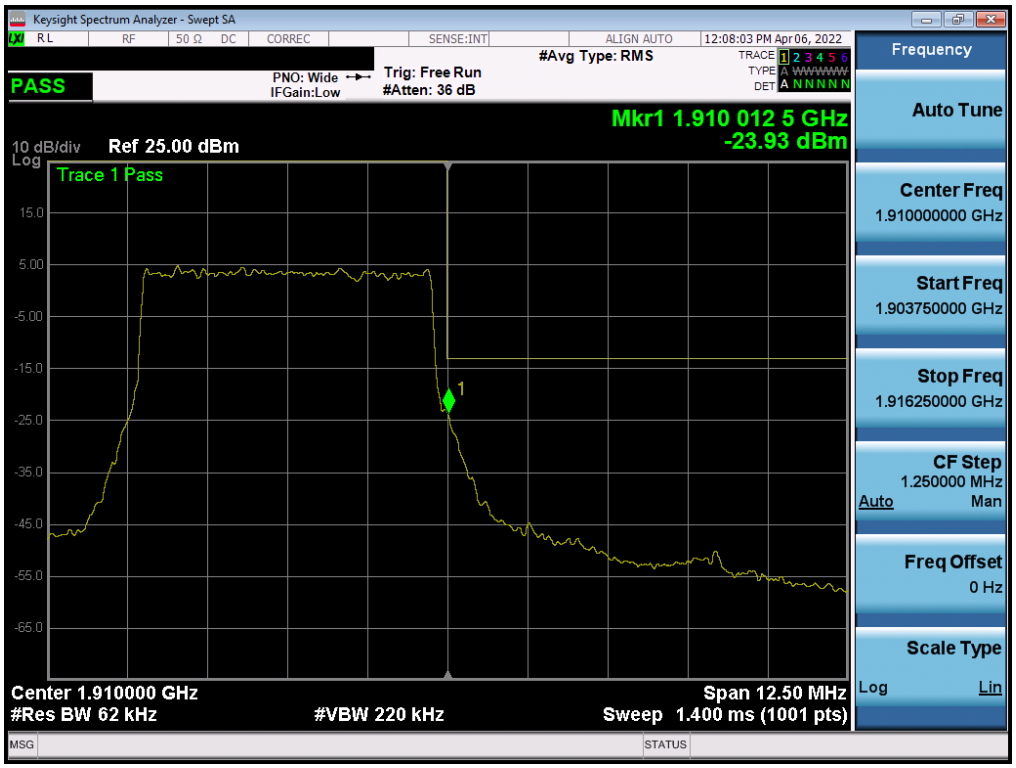
Plot 7-117. Extended Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant B)



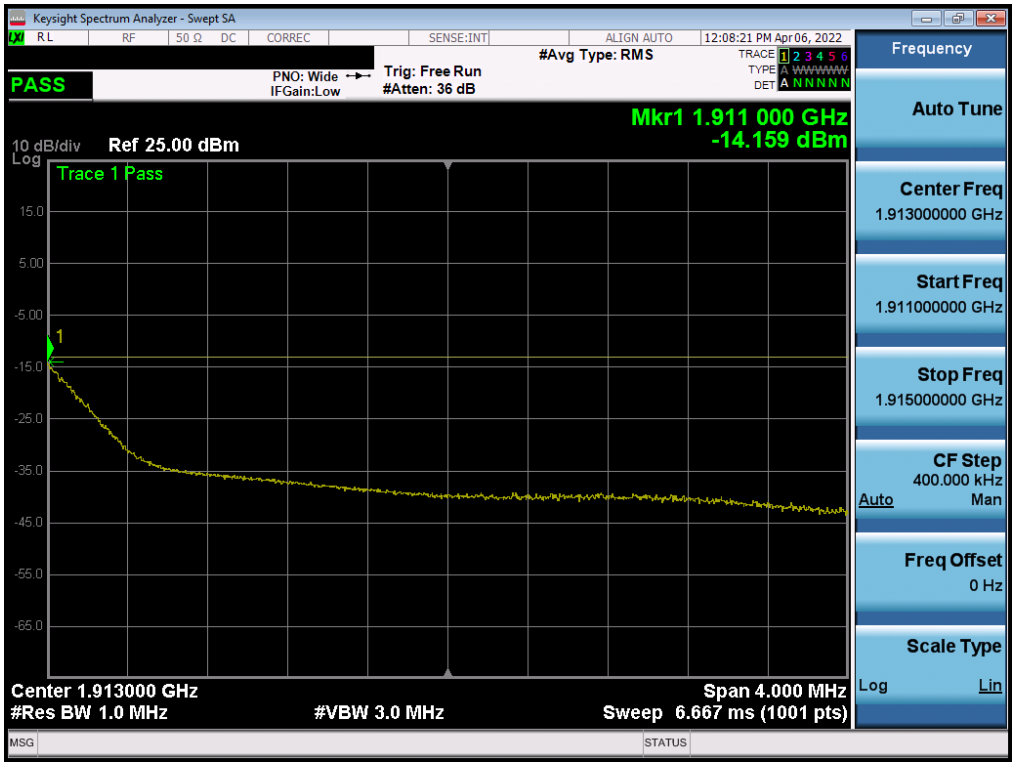
Plot 7-118. Lower Band Edge Plot (NR Band n25/2 – 5MHz QPSK – Full RB - Ant B)



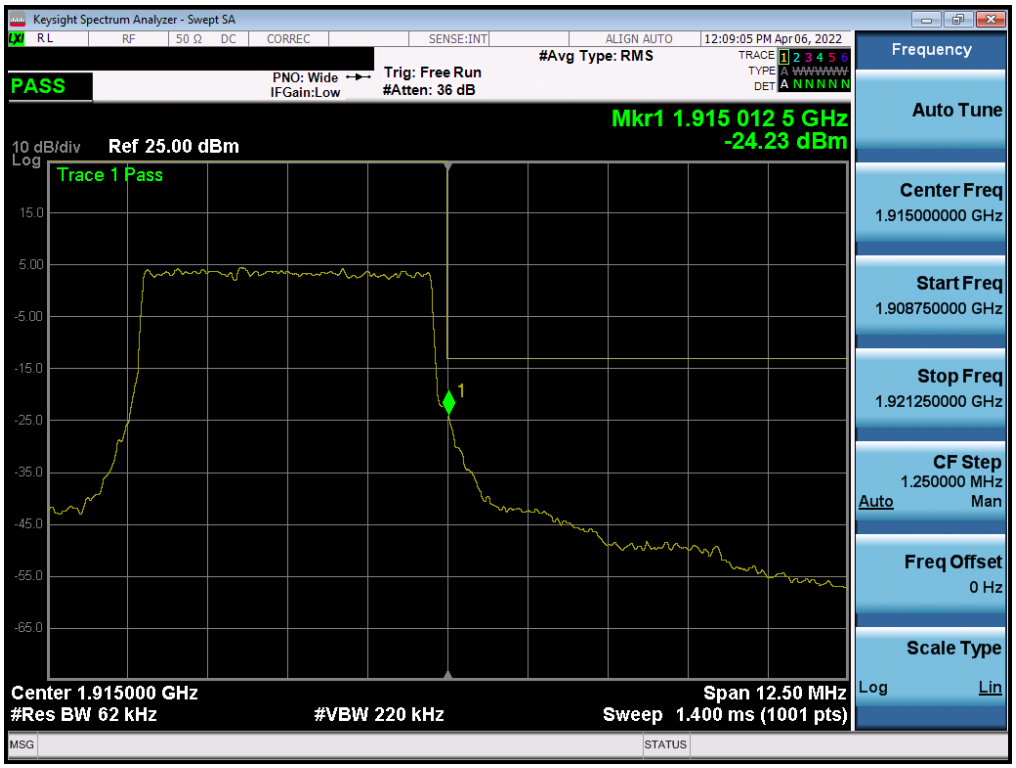
Plot 7-119. Extended Lower Band Edge Plot (NR Band n25/2 – 5MHz QPSK – Full RB - Ant B)



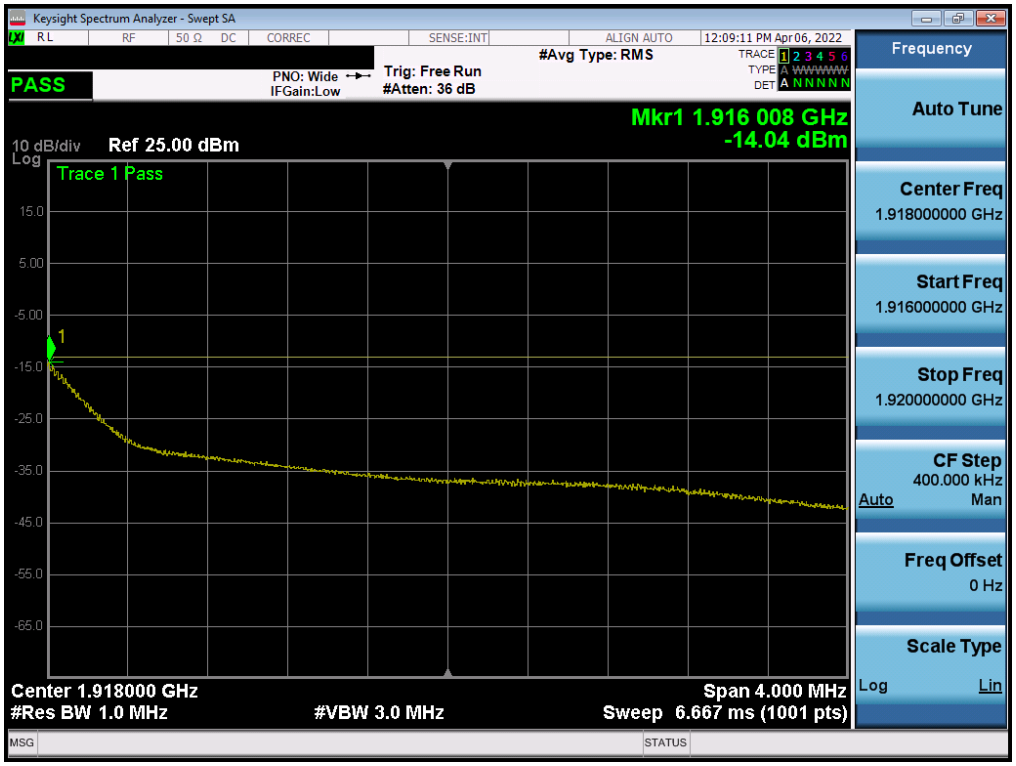
Plot 7-120. Upper Band Edge Plot (NR Band n2 – 5MHz QPSK – Full RB - Ant B)



Plot 7-121. Extended Upper Band Edge Plot (NR Band n2 – 5MHz QPSK – Full RB - Ant B)

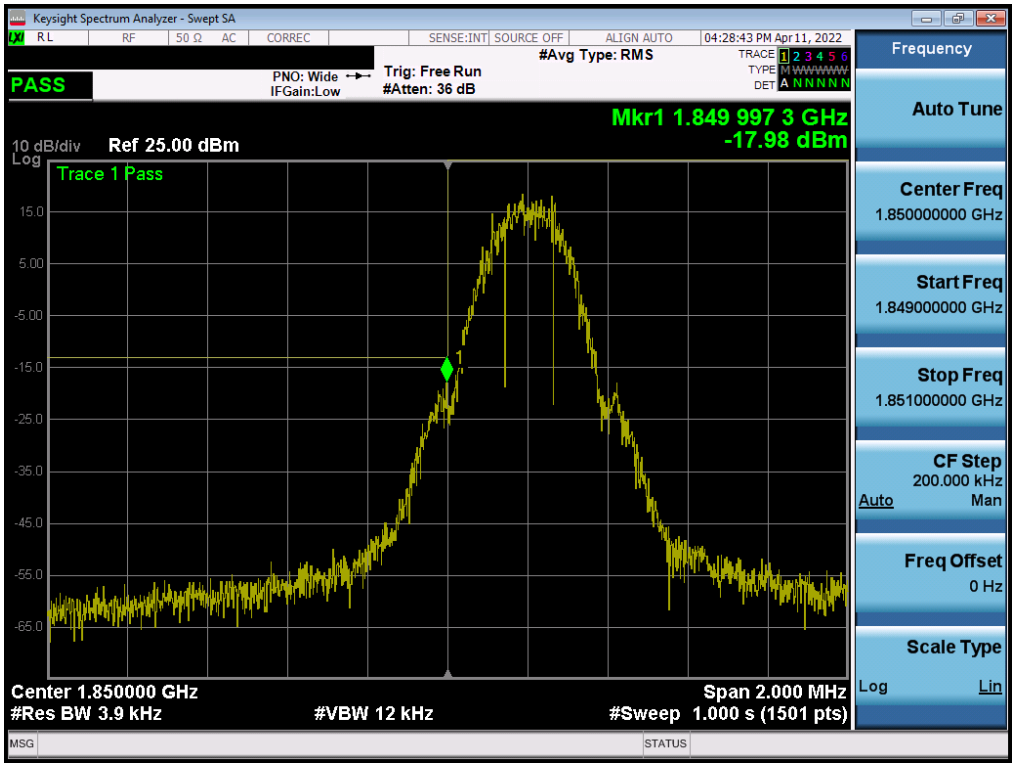


Plot 7-122. Upper Band Edge Plot (NR Band n25 – 5MHz QPSK – Full RB - Ant B)

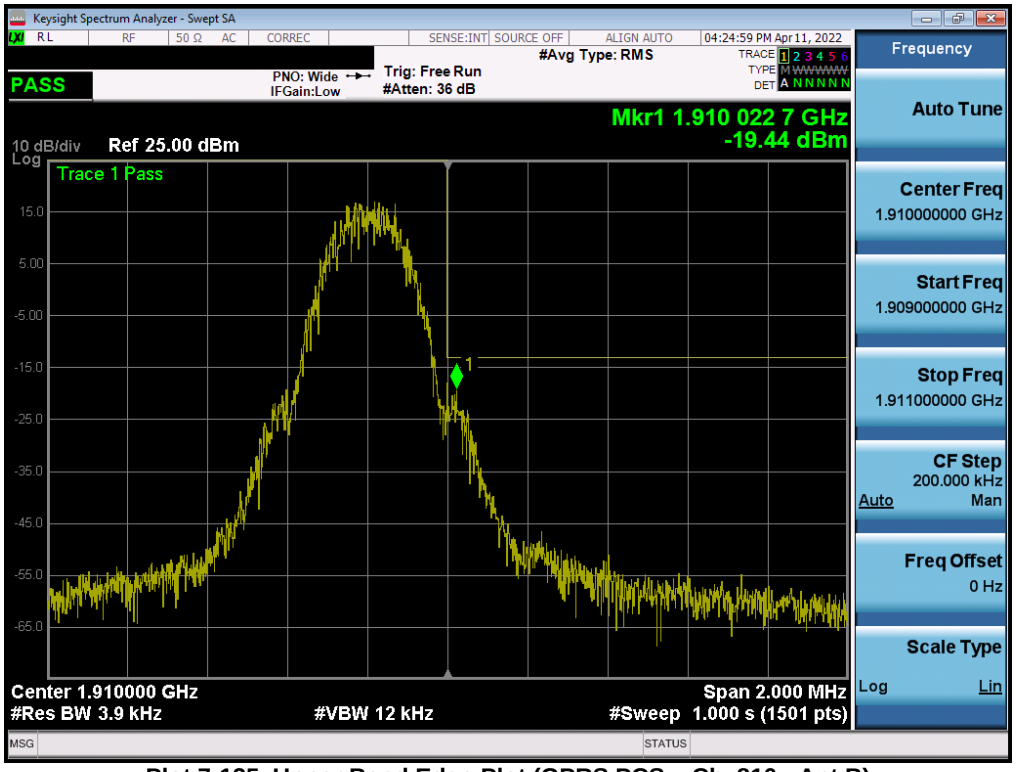


Plot 7-123. Extended Upper Band Edge Plot (NR Band n25 – 5MHz QPSK – Full RB - Ant B)

GSM/GPRS PCS – Ant B

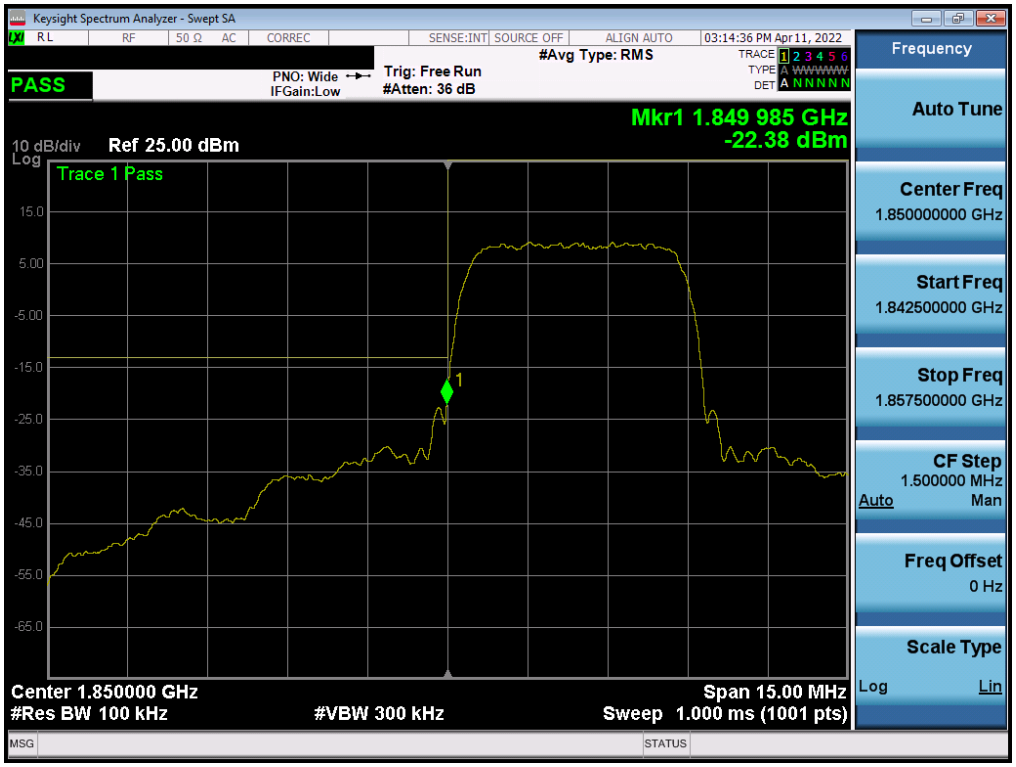


Plot 7-124. Lower Band Edge Plot (GPRS PCS – Ch. 512 - Ant B)

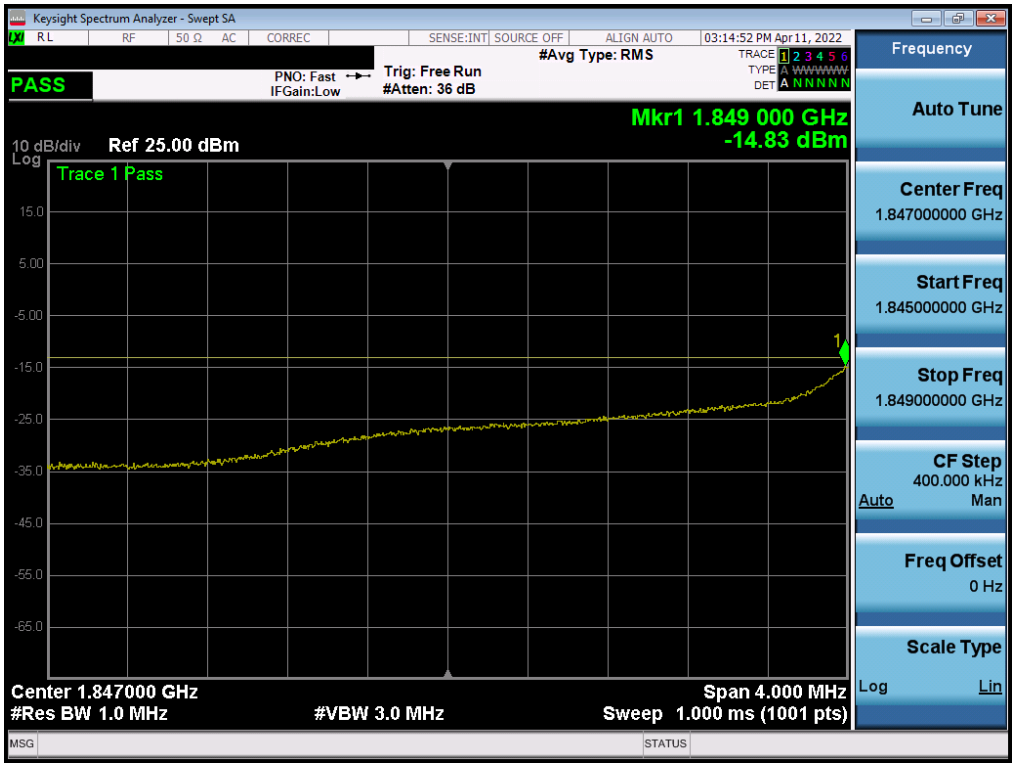


Plot 7-125. Upper Band Edge Plot (GPRS PCS – Ch. 810 - Ant B)

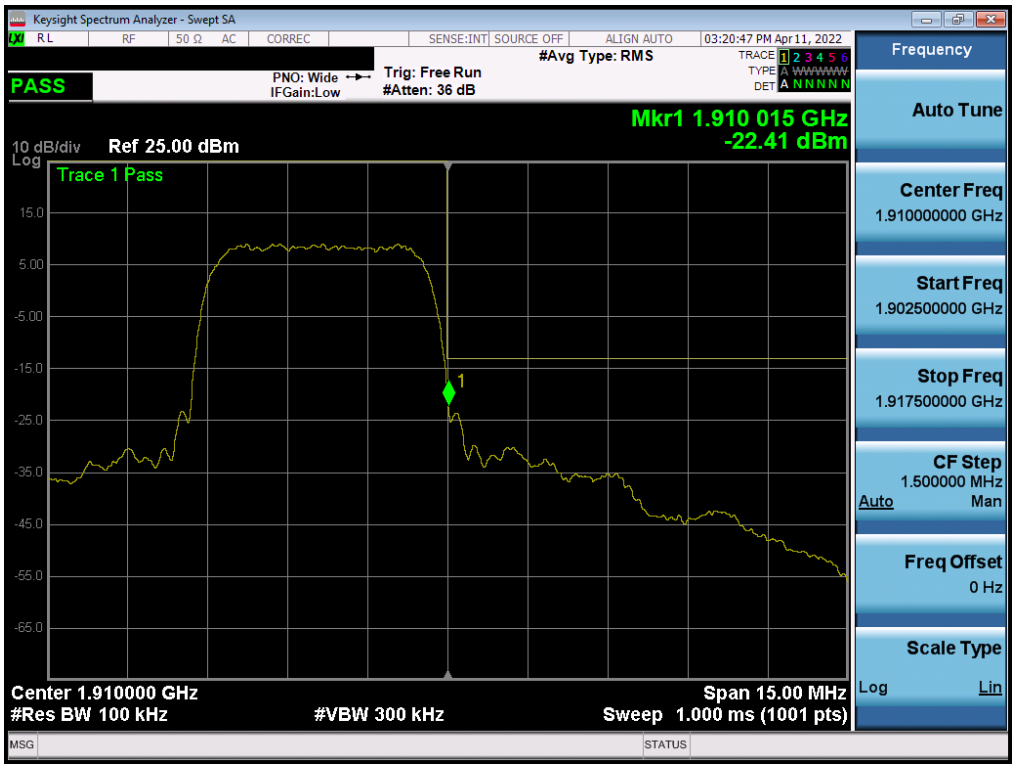
WCDMA PCS – Ant B



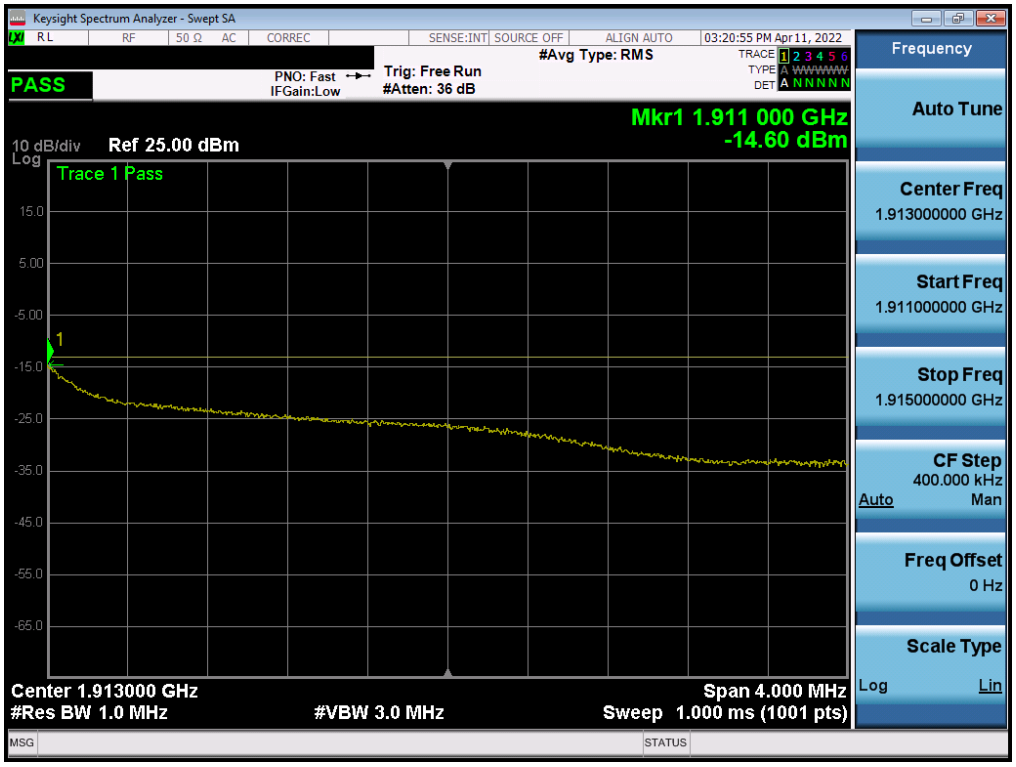
Plot 7-126. Lower Band Edge Plot (WCDMA PCS – Ch. 9262 - Ant B)



Plot 7-127. Extended Lower Band Edge Plot (WCDMA PCS – Ch. 9262 - Ant B)



Plot 7-128. Upper Band Edge Plot (WCDMA PCS – Ch. 9538 - Ant B)



Plot 7-129. Extended Upper Band Edge Plot (WCDMA PCS – Ch. 9538 - Ant B)

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.

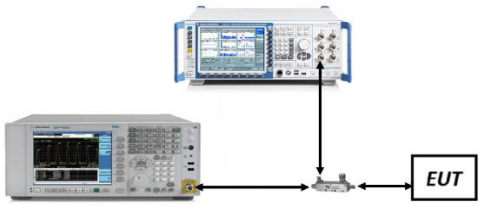
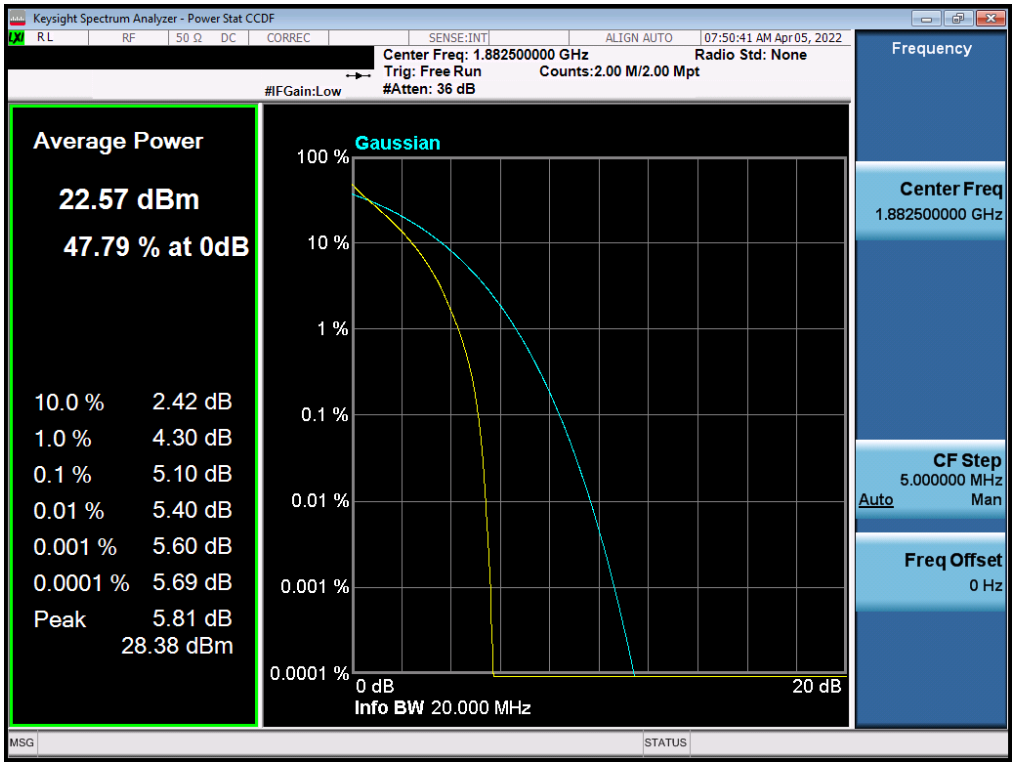


Figure 7-5. Test Instrument & Measurement Setup

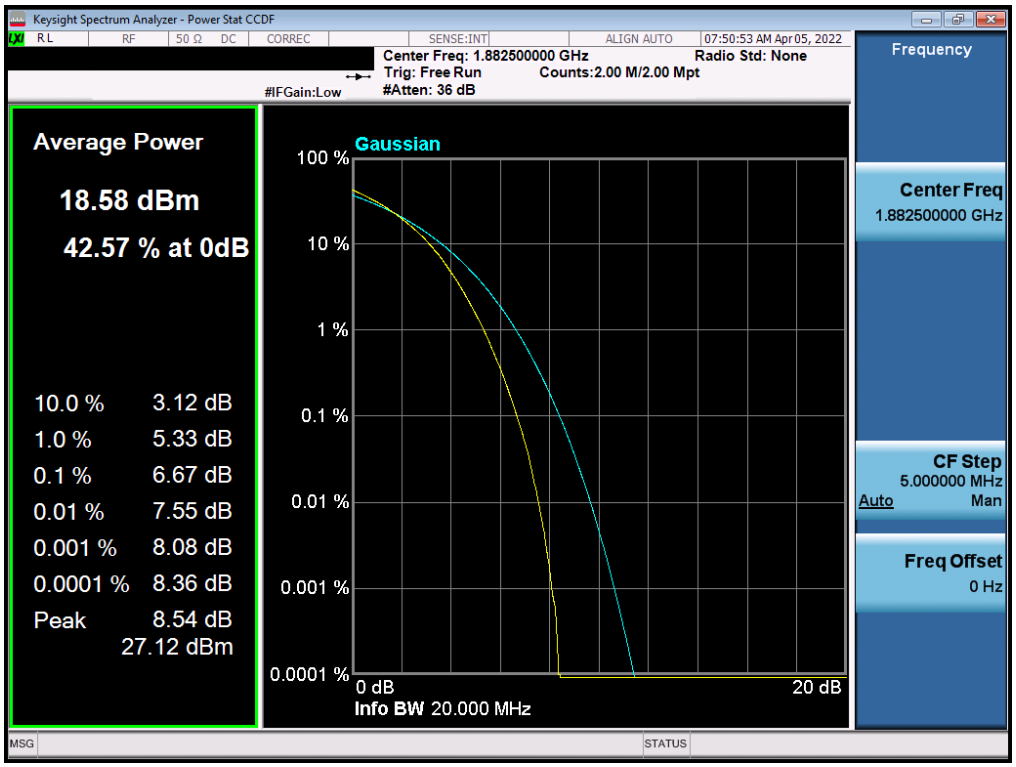
Test Notes

None.

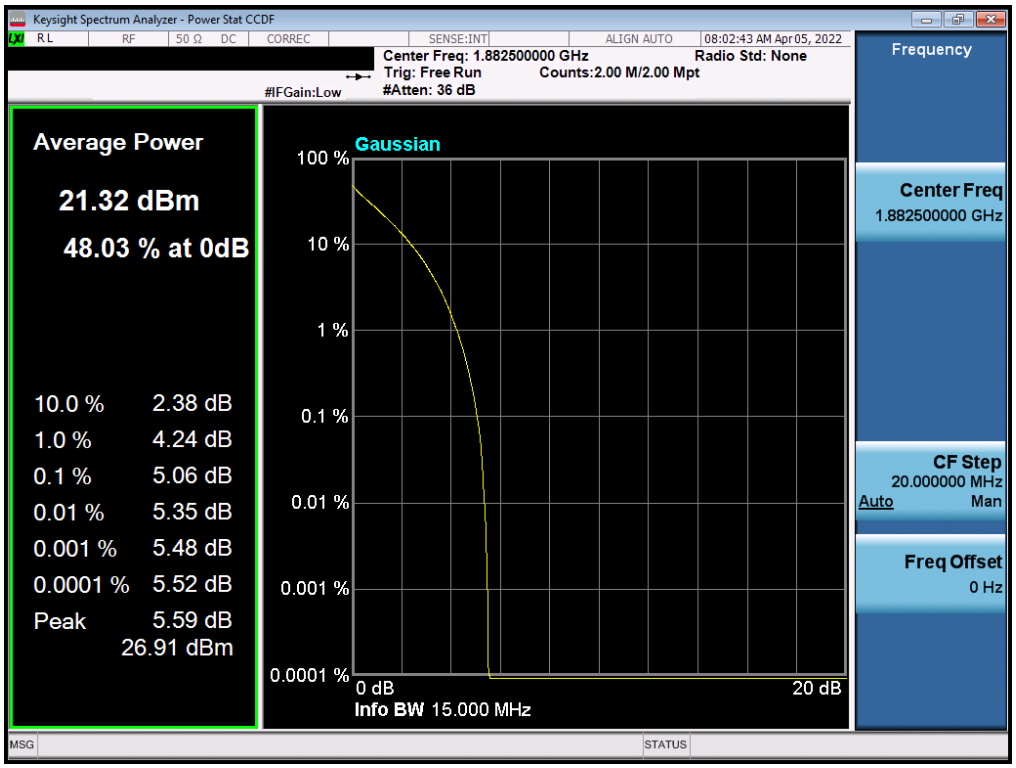
LTE Band 25/2 – Ant B



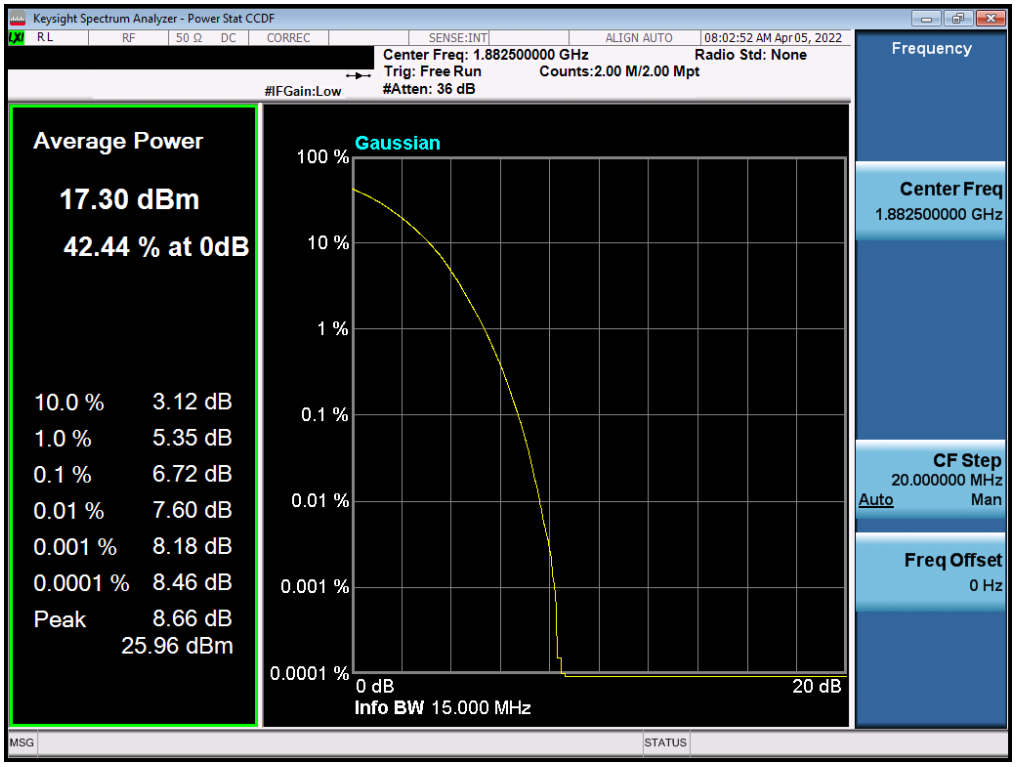
Plot 7-130. PAR Plot (LTE Band 25/2 - 20MHz QPSK - Full RB - Ant B)



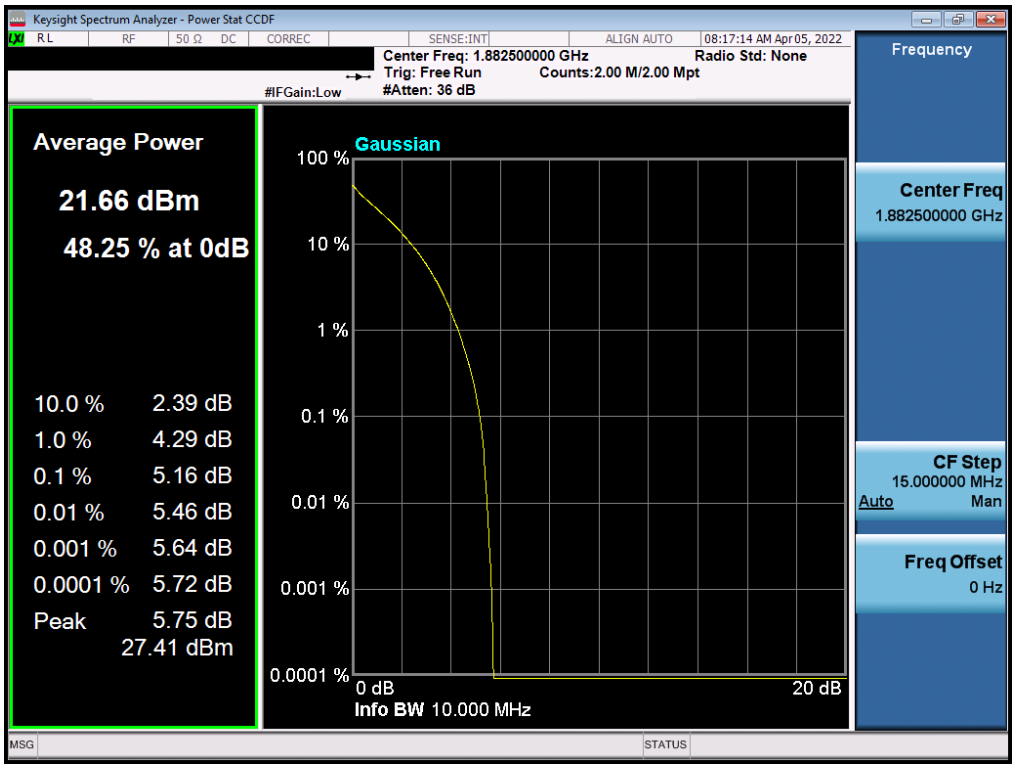
Plot 7-131. PAR Plot (LTE Band 25/2 - 20MHz 256-QAM - Full RB - Ant B)



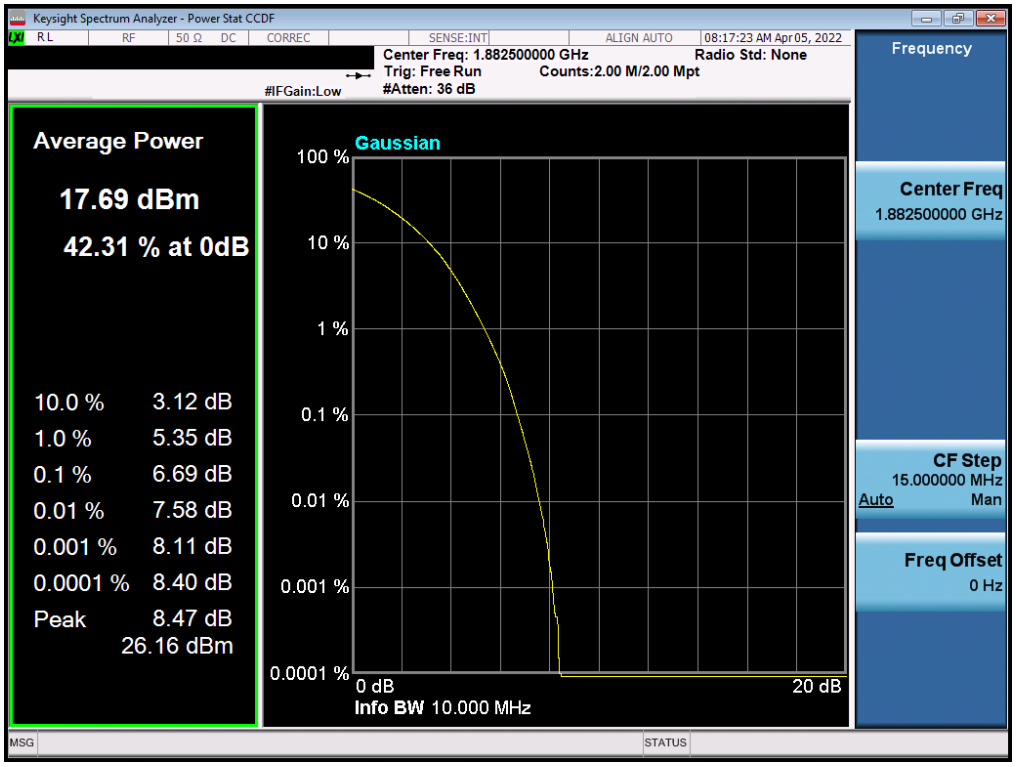
Plot 7-132. PAR Plot (LTE Band 25/2 - 15MHz QPSK - Full RB - Ant B)



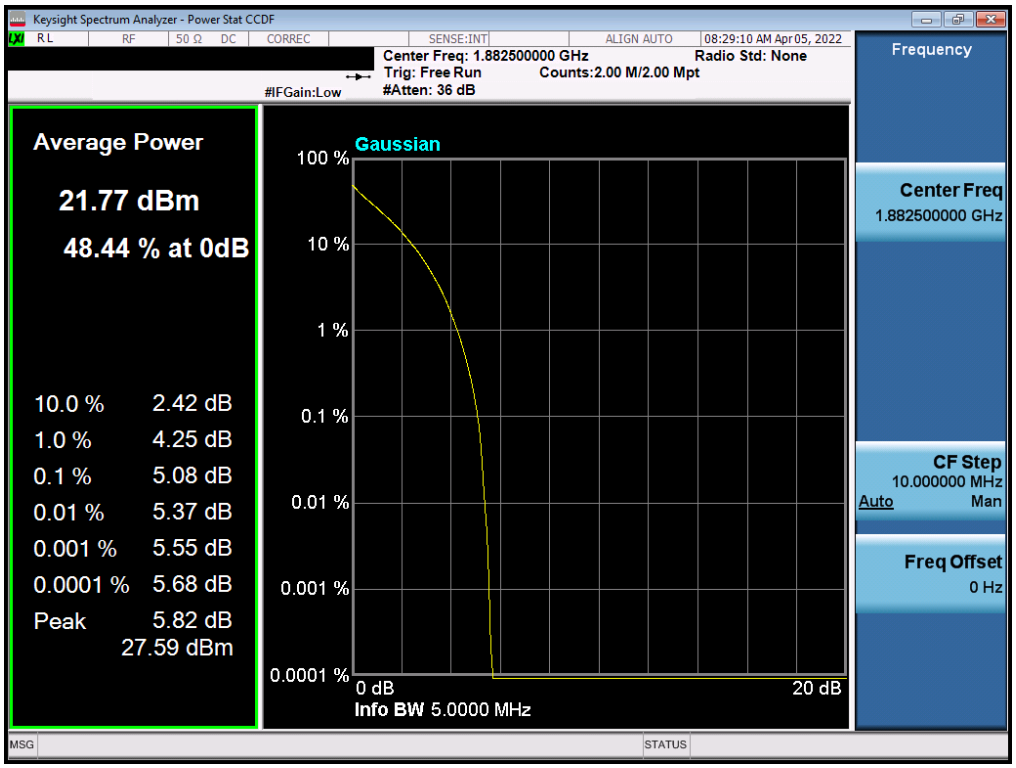
Plot 7-133. PAR Plot (LTE Band 25/2 - 15MHz 256-QAM - Full RB - Ant B)



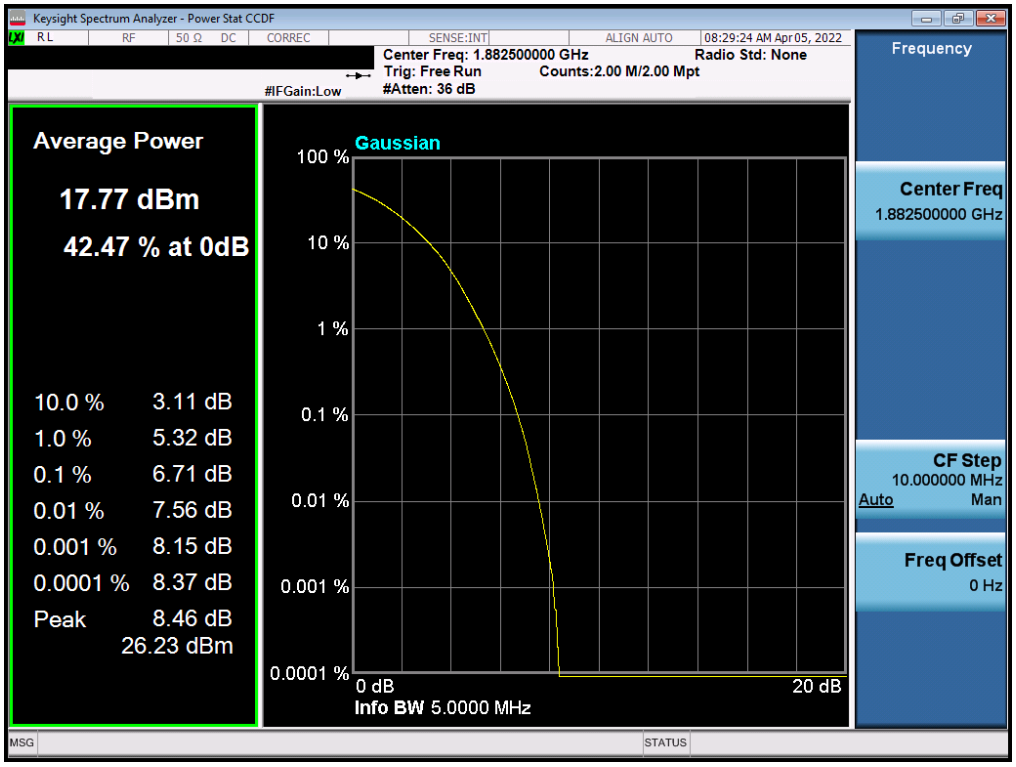
Plot 7-134. PAR Plot (LTE Band 25/2 - 10MHz QPSK - Full RB - Ant B)



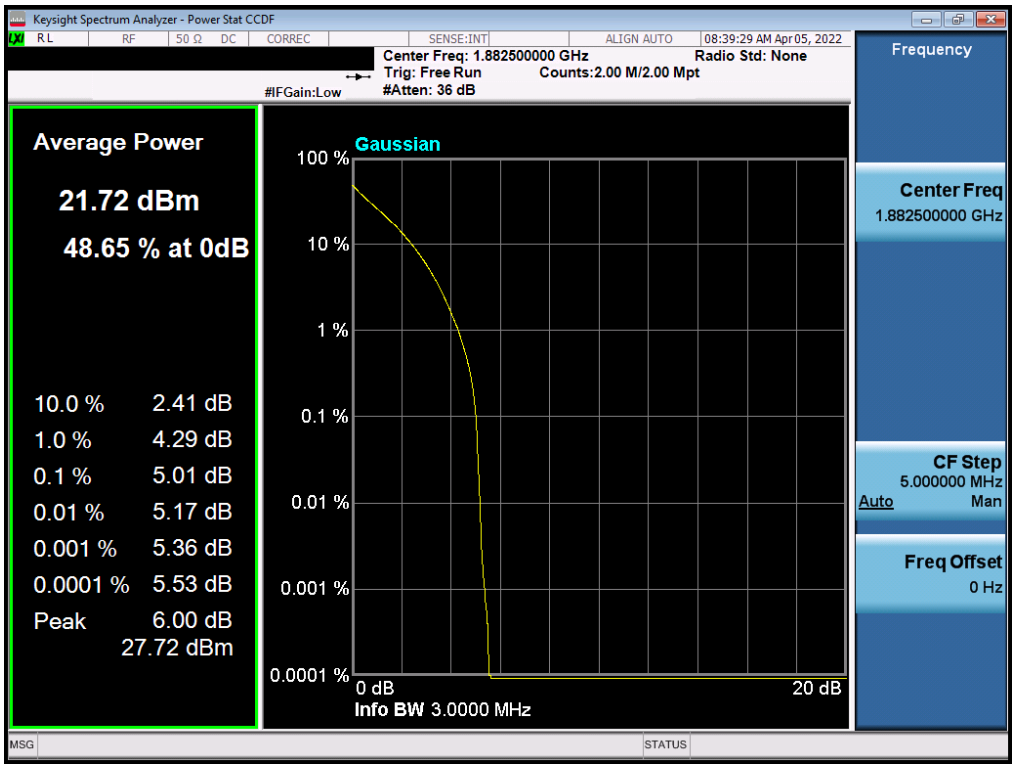
Plot 7-135. PAR Plot (LTE Band 25/2 - 10MHz 256-QAM - Full RB - Ant B)



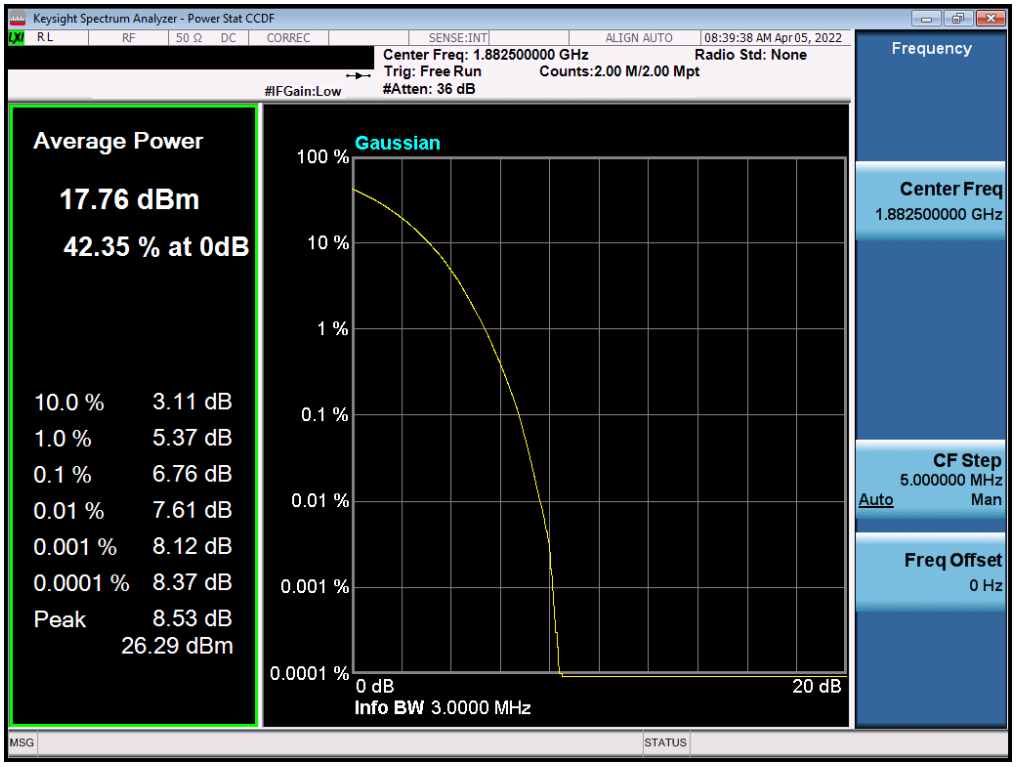
Plot 7-136. PAR Plot (LTE Band 25/2 - 5MHz QPSK - Full RB - Ant B)



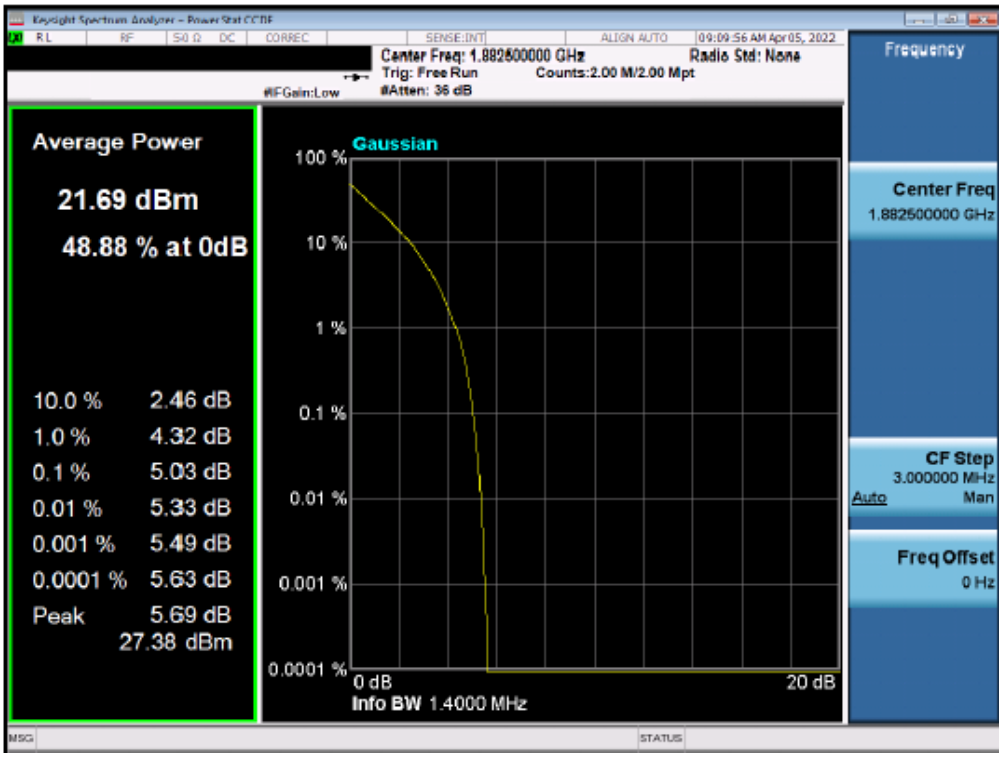
Plot 7-137. PAR Plot (LTE Band 25/2 - 5MHz 256-QAM - Full RB - Ant B)



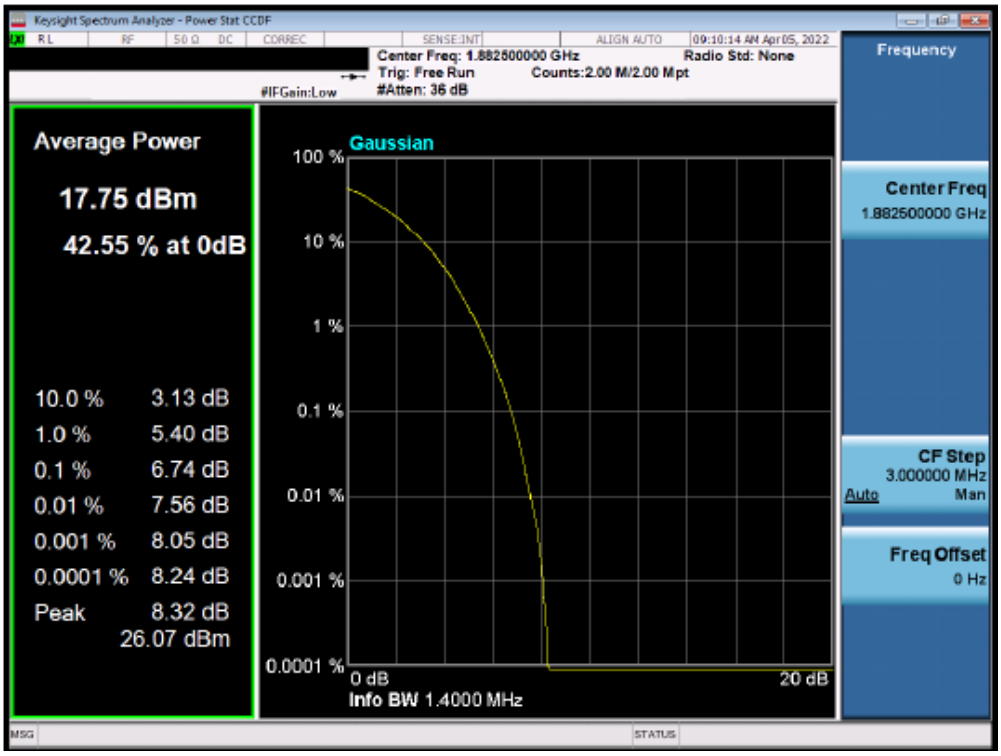
Plot 7-138. PAR Plot (LTE Band 25/2 - 3MHz QPSK - Full RB - Ant B)



Plot 7-139. PAR Plot (LTE Band 25/2 - 3MHz 256-QAM - Full RB - Ant B)

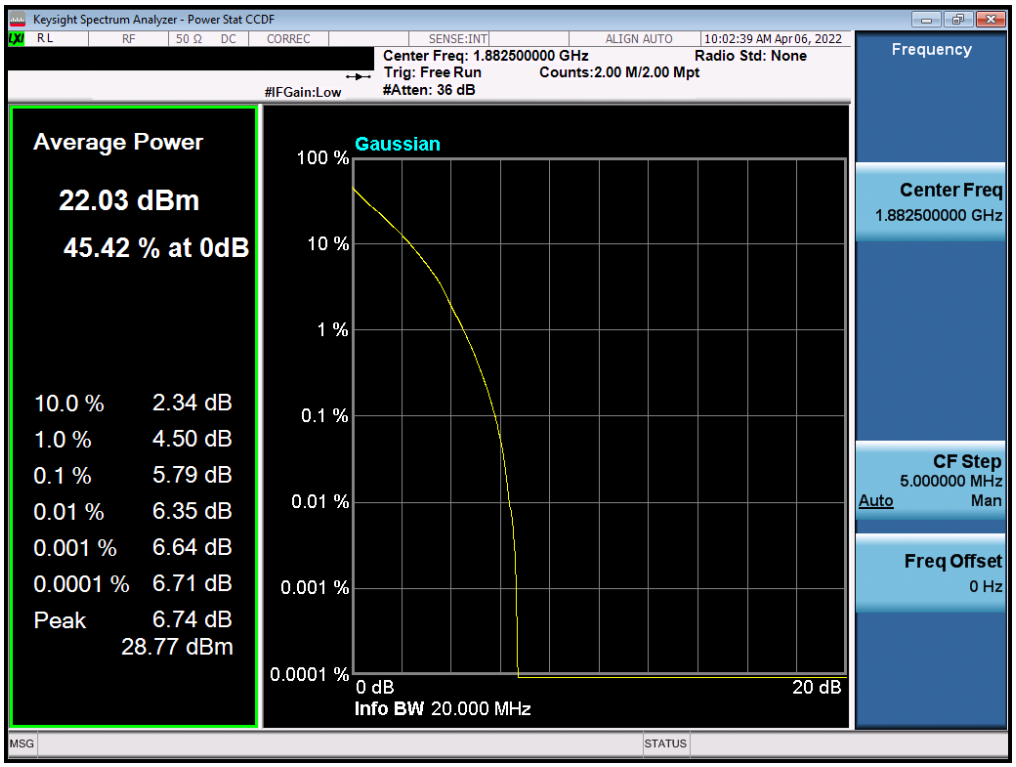


Plot 7-140. PAR Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB - Ant B)

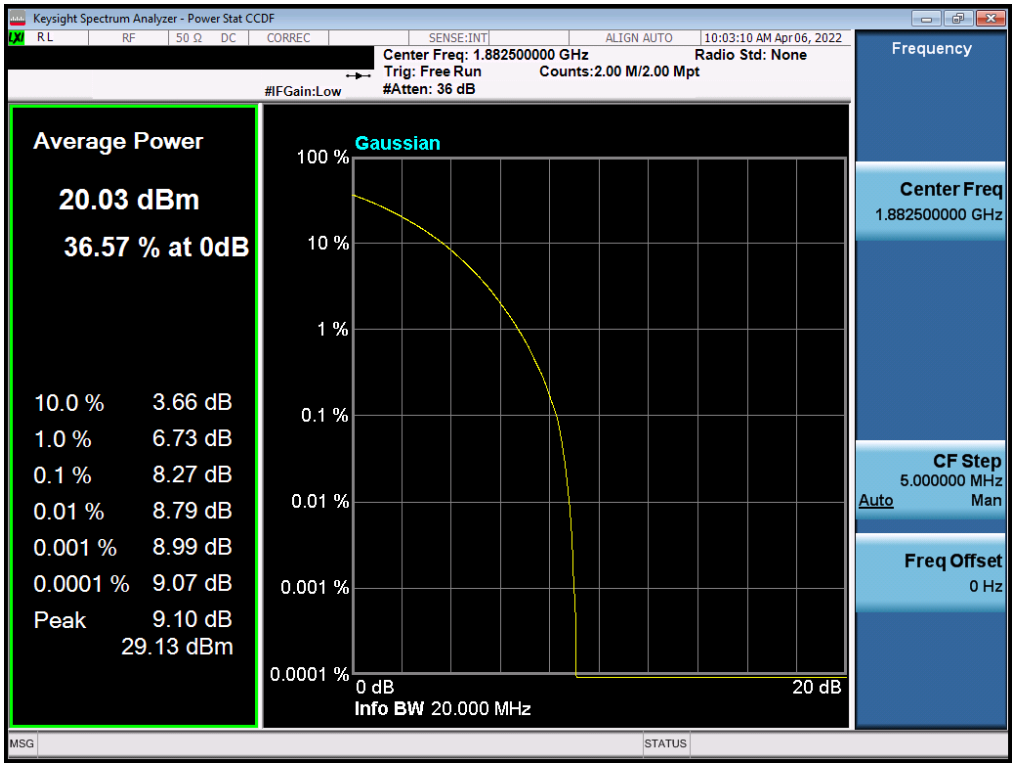


Plot 7-141. PAR Plot (LTE Band 25/2 - 1.4MHz 256-QAM - Full RB - Ant B)

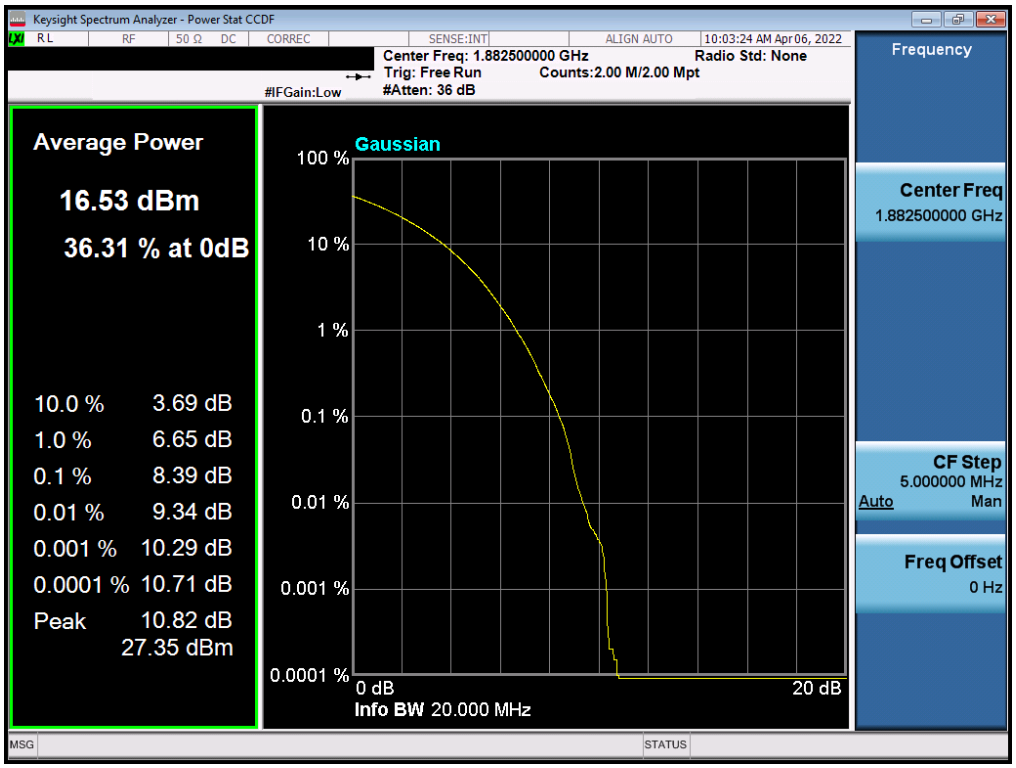
NR Band n25/2 – Ant B



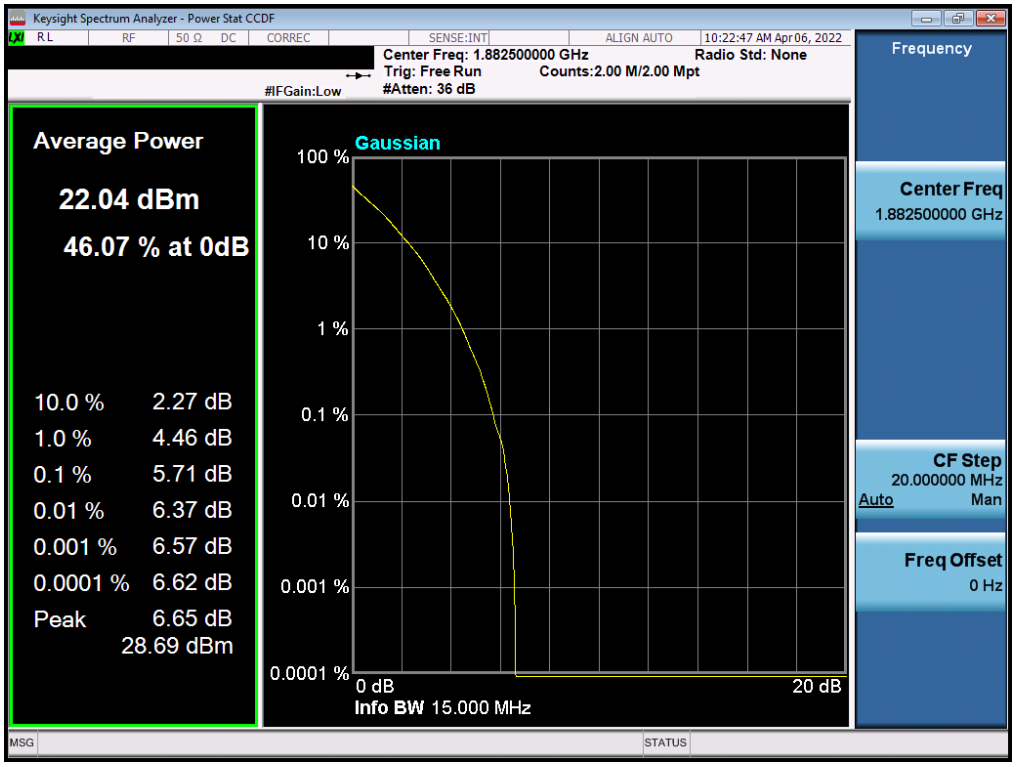
Plot 7-142. PAR Plot (NR Band n25/2 - 20.0MHz DFT-s-OFDM BPSK - Full RB - Ant B)



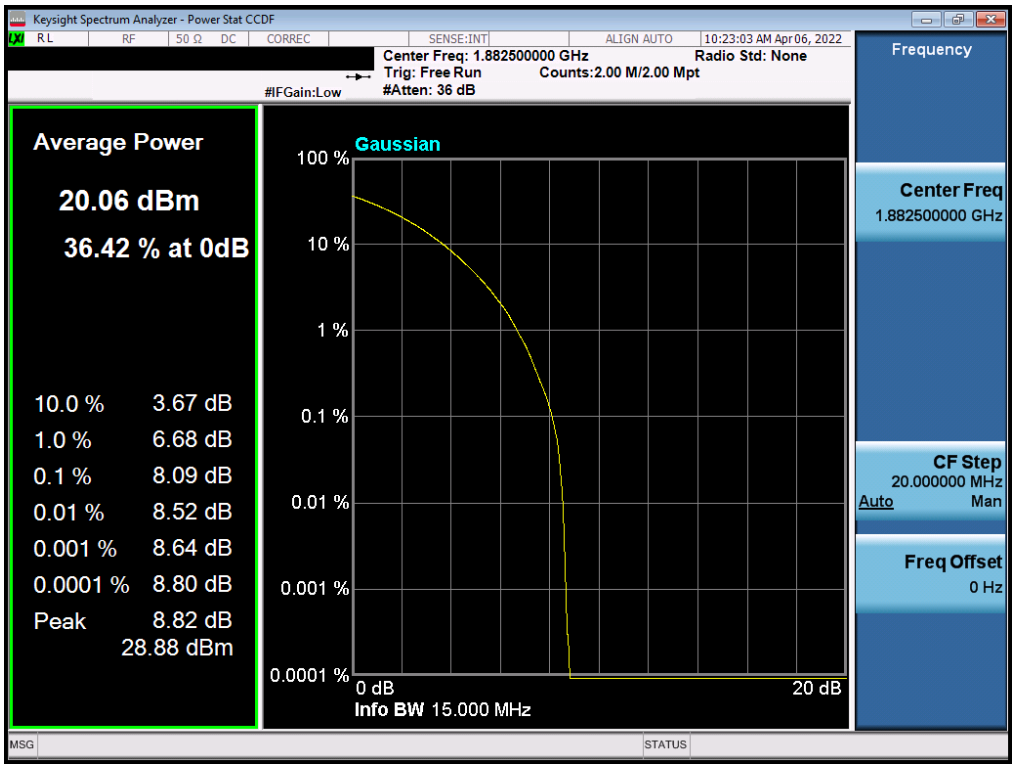
Plot 7-143. PAR Plot (NR Band n25/2 - 20.0MHz CP-OFDM QPSK - Full RB - Ant B)



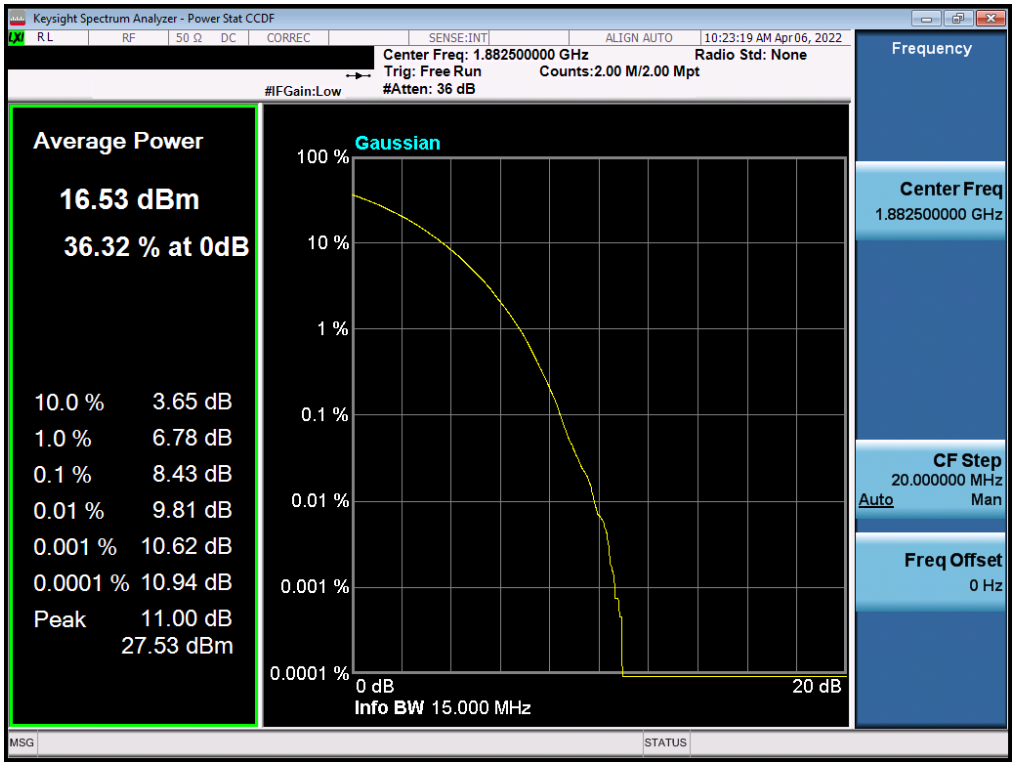
Plot 7-144. PAR Plot (NR Band n25/2 - 20.0MHz CP-OFDM 256-QAM - Full RB - Ant B)



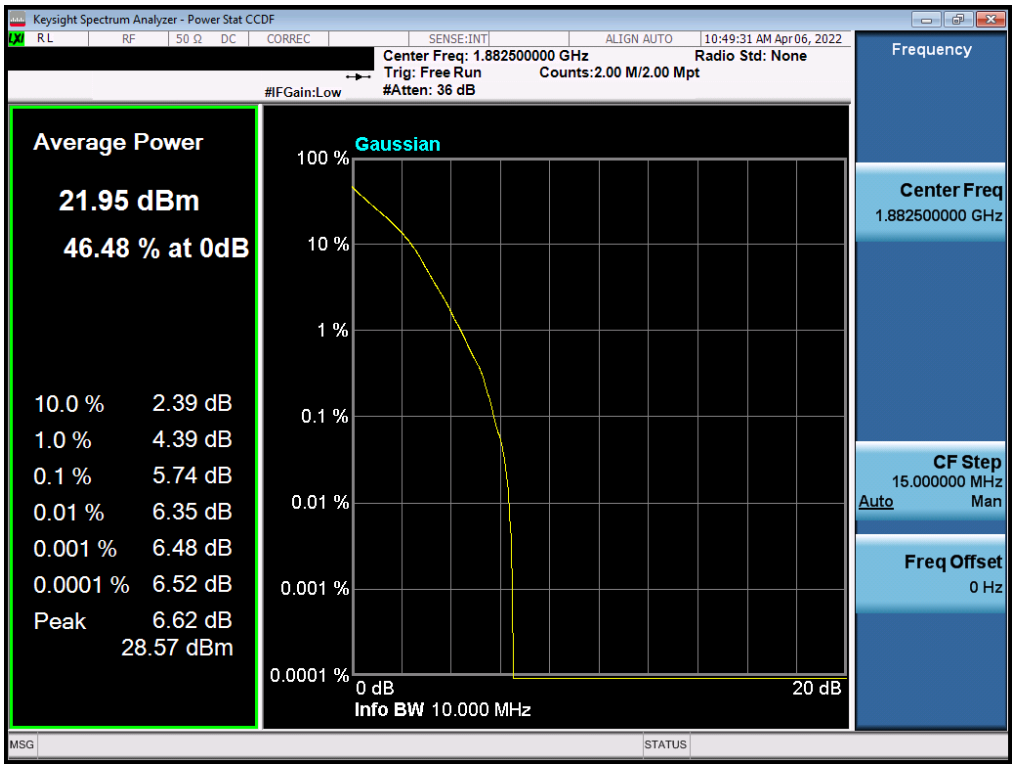
Plot 7-145. PAR Plot (NR Band n25/2 - 15.0MHz DFT-s-OFDM BPSK - Full RB - Ant B)



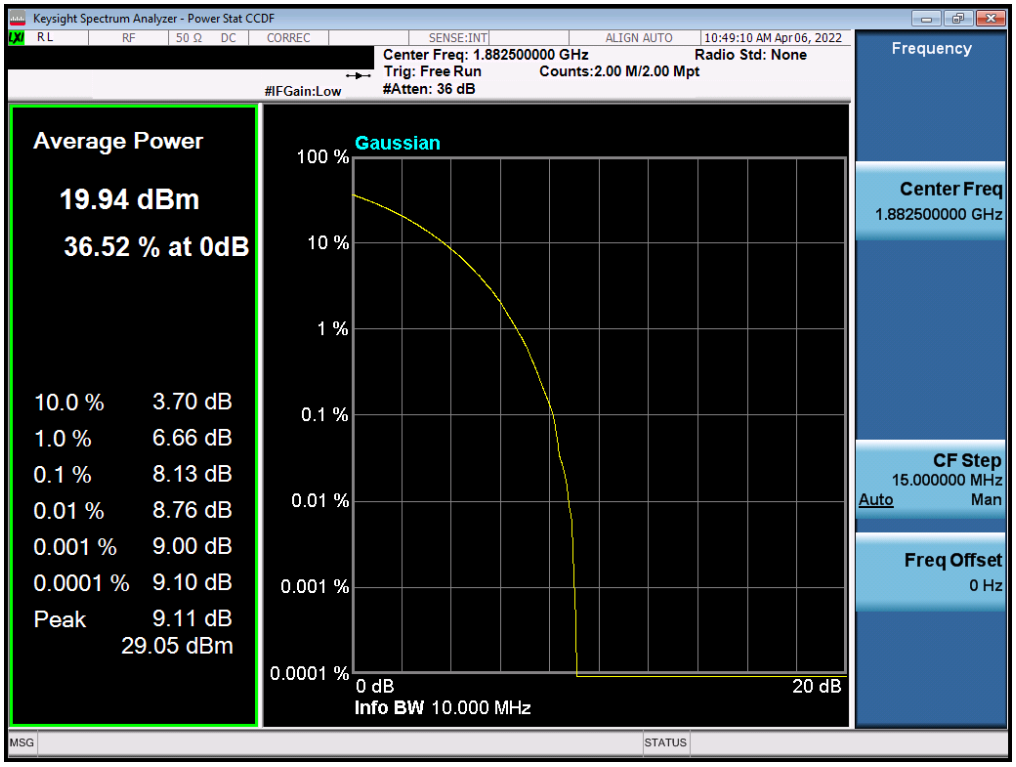
Plot 7-146. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM QPSK - Full RB - Ant B)



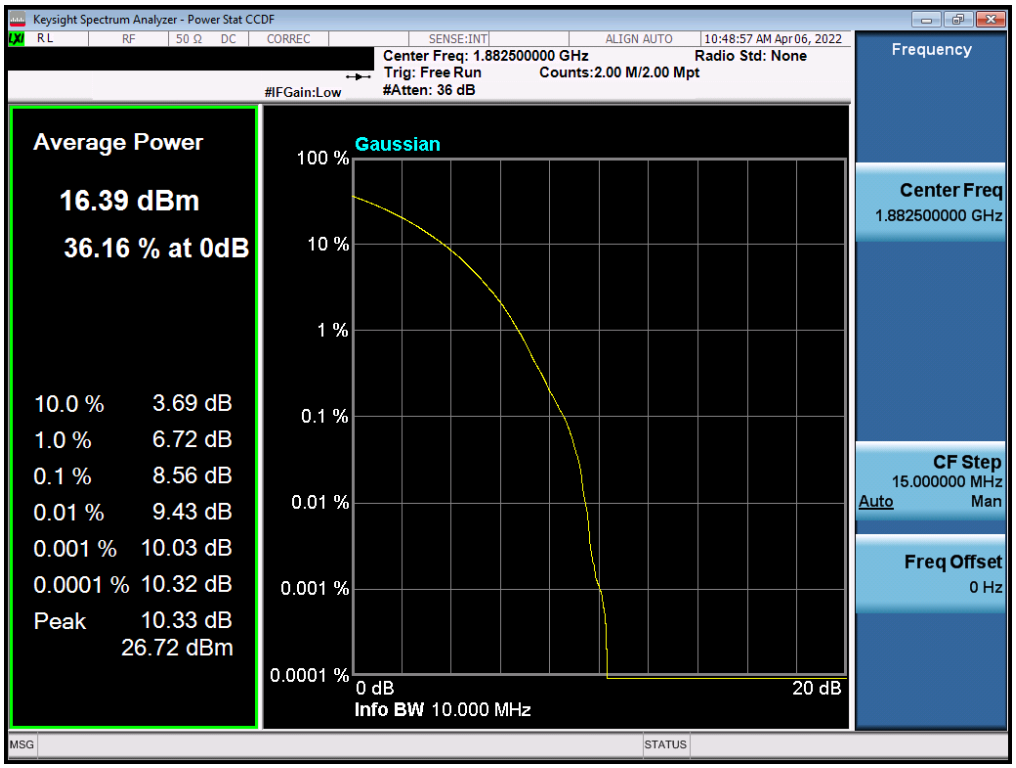
Plot 7-147. PAR Plot (NR Band n25/2 - 15.0MHz CP-OFDM 256-QAM - Full RB - Ant B)



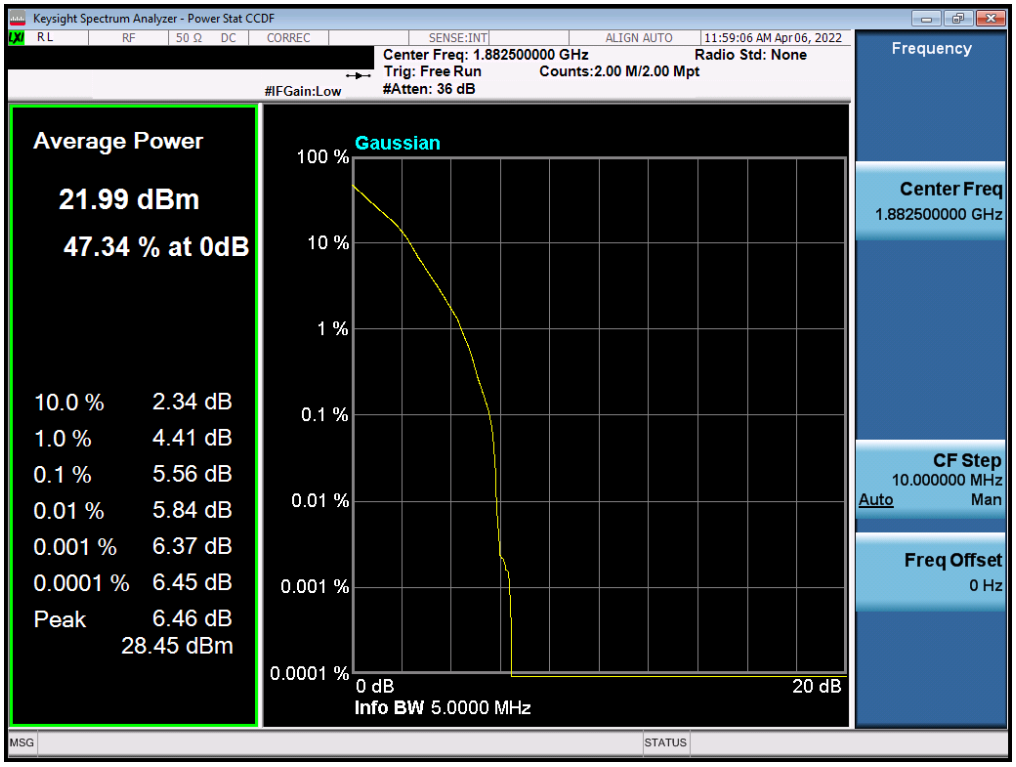
Plot 7-148. PAR Plot (NR Band n25/2 - 10.0MHz DFT-s-OFDM BPSK - Full RB - Ant B)



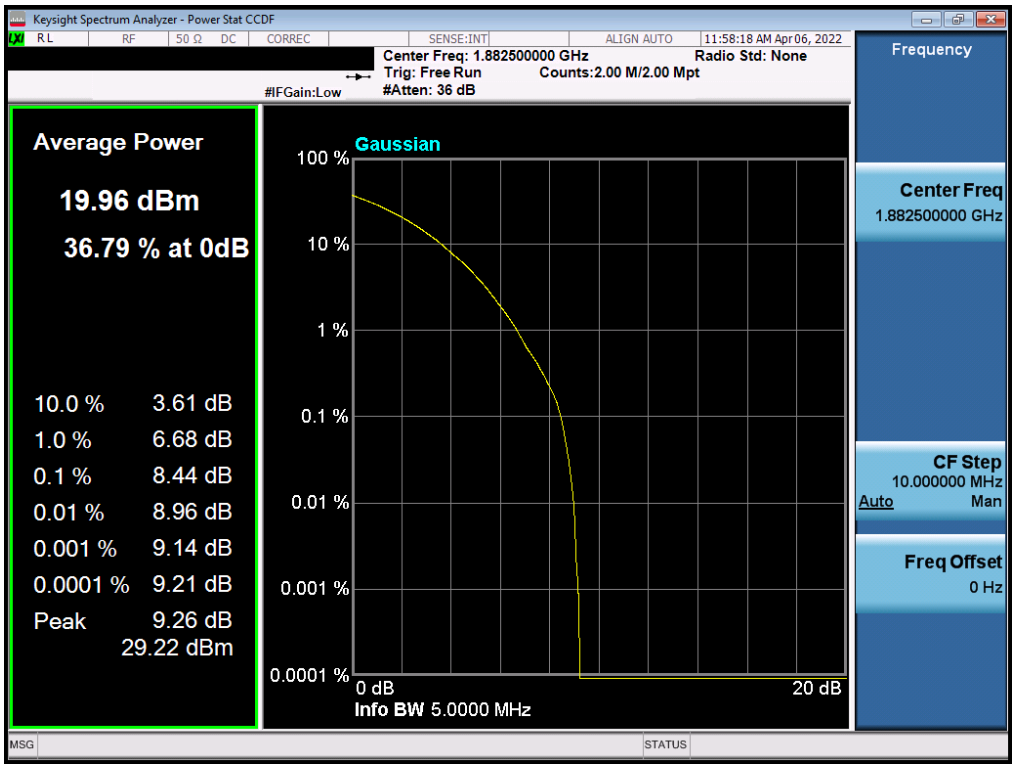
Plot 7-149. PAR Plot (NR Band n25/2 - 10.0MHz CP-OFDM QPSK - Full RB - Ant B)



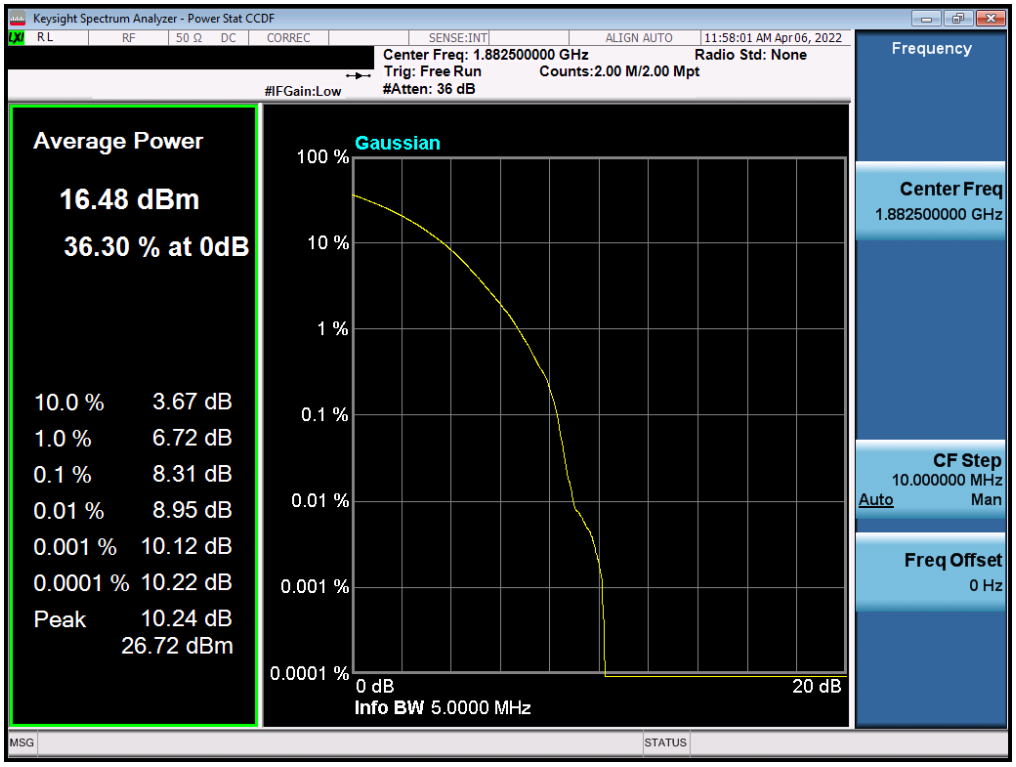
Plot 7-150. PAR Plot (NR Band n25/2 - 10.0MHz CP-OFDM 256-QAM - Full RB - Ant B)



Plot 7-151. PAR Plot (NR Band n25/2 - 5.0MHz DFT-s-OFDM BPSK - Full RB - Ant B)

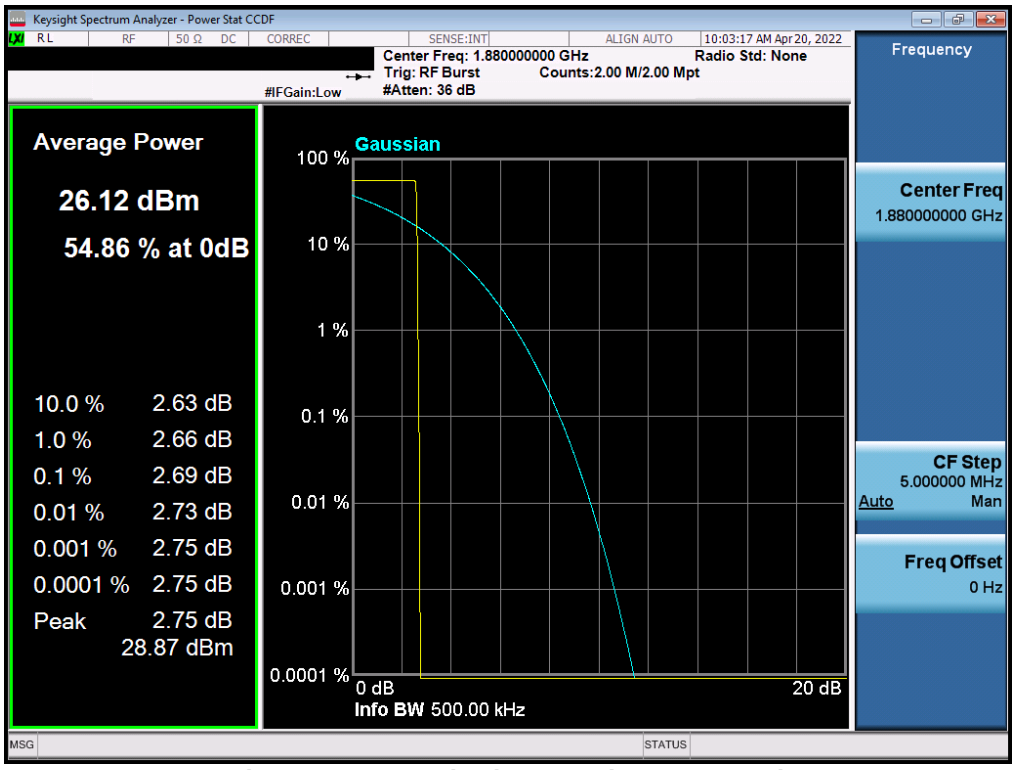


Plot 7-152. PAR Plot (NR Band n25/2 - 5.0MHz CP-OFDM QPSK - Full RB - Ant B)

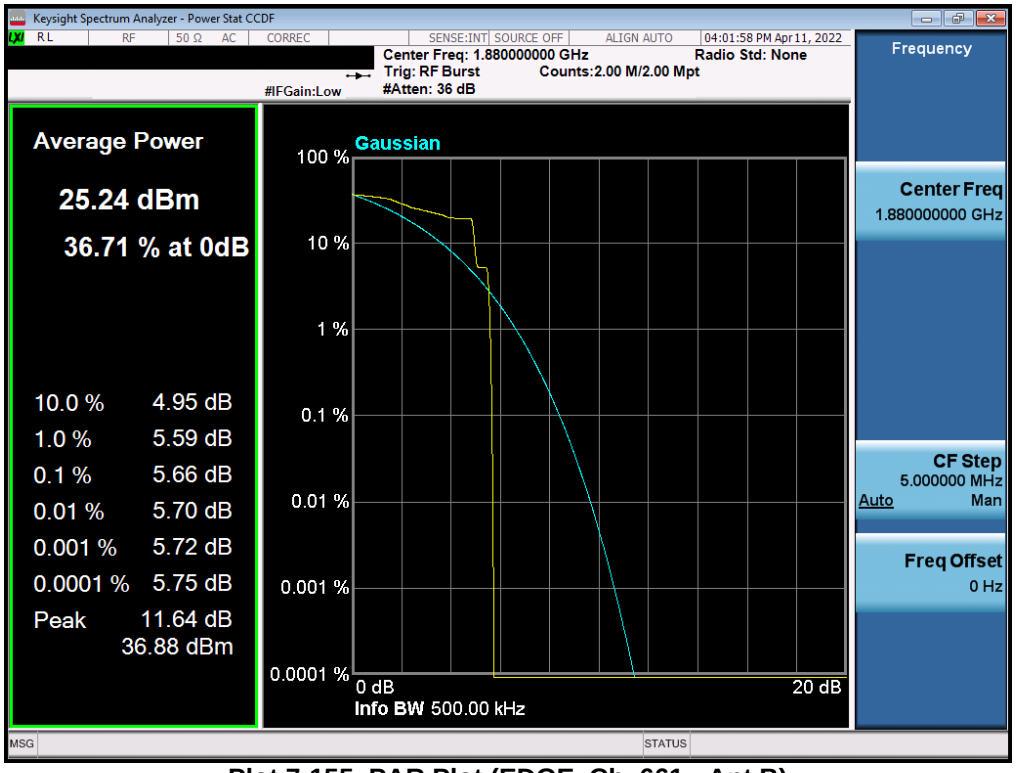


Plot 7-153. PAR Plot (NR Band n25/2 - 5.0MHz CP-OFDM 256-QAM - Full RB - Ant B)

GSM/GPRS PCS – Ant B

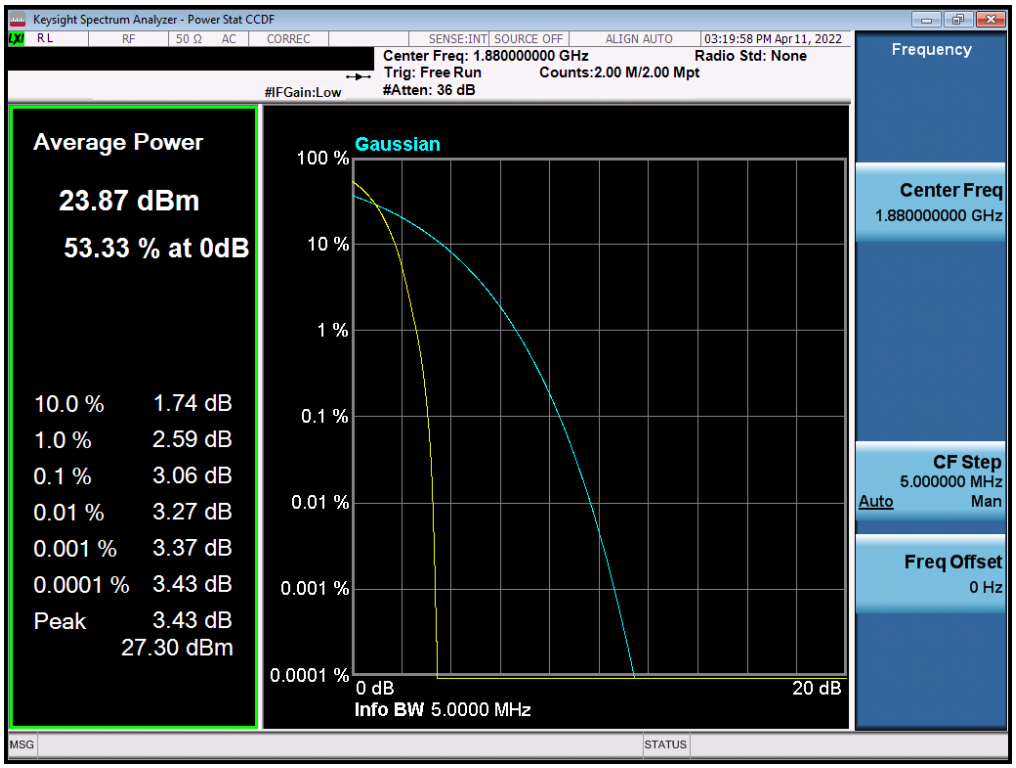


Plot 7-154. PAR Plot (GPRS, Ch. 661 - Ant B)



Plot 7-155. PAR Plot (EDGE, Ch. 661 - Ant B)

WCDMA PCS – Ant B



Plot 7-156. PAR Plot (WCDMA, Ch. 9400 - Ant B)

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.

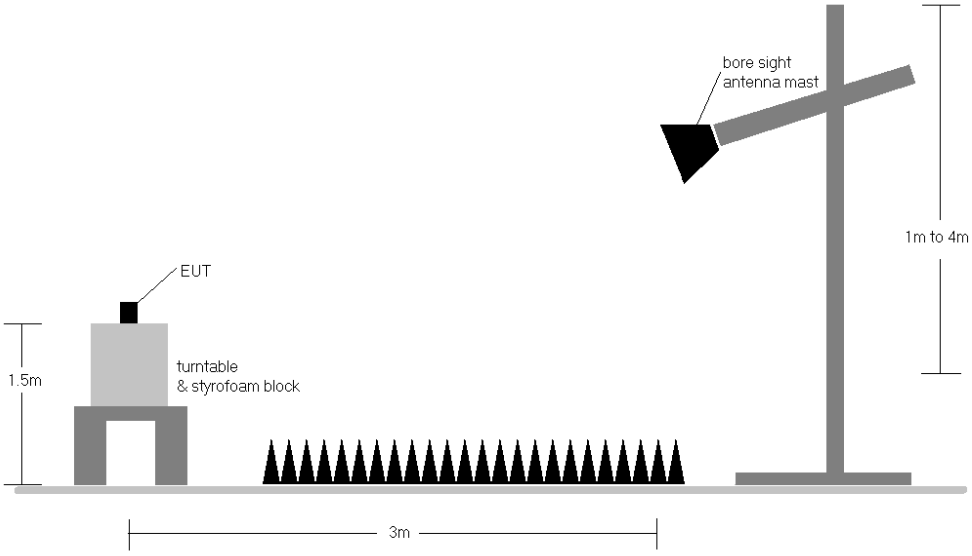


Figure 7-6. Radiated Test Setup >1GHz

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.

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	1860.0	H	156	42	9.55	1 / 99	12.67	22.22	0.167	33.01	-10.79
	QPSK	1882.5	H	150	40	9.83	1 / 0	13.31	23.14	0.206	33.01	-9.87
	QPSK	1905.0	H	143	29	10.16	1 / 50	13.27	**23.43**	0.220	33.01	-9.58
	16-QAM	1905.0	H	143	29	10.16	1 / 50	12.41	22.57	0.181	33.01	-10.44
15 MHz	QPSK	1857.5	H	156	42	9.51	1 / 37	13.14	22.65	0.184	33.01	-10.36
	QPSK	1882.5	H	150	40	9.83	1 / 37	12.65	22.49	0.177	33.01	-10.52
	QPSK	1907.5	H	143	29	10.21	1 / 0	13.20	**23.40**	0.219	33.01	-9.61
	16-QAM	1907.5	H	143	29	10.21	1 / 37	12.52	22.73	0.187	33.01	-10.28
10 MHz	QPSK	1855.0	H	156	42	9.48	1 / 25	13.30	22.78	0.190	33.01	-10.23
	QPSK	1882.5	H	150	40	9.83	1 / 25	12.41	22.24	0.168	33.01	-10.77
	QPSK	1910.0	H	143	29	10.25	1 / 25	13.47	**23.72**	0.236	33.01	-9.29
	16-QAM	1910.0	H	143	29	10.25	1 / 0	12.63	22.88	0.194	33.01	-10.13
5 MHz	QPSK	1852.5	H	156	42	9.44	1 / 12	13.48	22.92	0.196	33.01	-10.09
	QPSK	1882.5	H	150	40	9.83	1 / 12	12.58	22.41	0.174	33.01	-10.60
	QPSK	1912.5	H	143	29	10.28	1 / 0	13.29	**23.57**	0.227	33.01	-9.44
	16-QAM	1912.5	H	143	29	10.28	1 / 24	12.52	22.80	0.190	33.01	-10.21
3 MHz	QPSK	1851.5	H	156	42	9.43	1 / 7	13.33	22.76	0.189	33.01	-10.25
	QPSK	1882.5	H	150	40	9.83	1 / 14	12.50	22.34	0.171	33.01	-10.67
	QPSK	1913.5	H	143	29	10.29	1 / 7	13.32	**23.61**	0.230	33.01	-9.40
	16-QAM	1913.5	H	143	29	10.29	1 / 7	12.59	22.88	0.194	33.01	-10.13
1.4 MHz	QPSK	1850.7	H	156	42	9.42	1 / 5	13.33	22.75	0.188	33.01	-10.26
	QPSK	1882.5	H	150	40	9.83	1 / 3	12.49	22.33	0.171	33.01	-10.68
	QPSK	1914.3	H	143	29	10.30	1 / 0	13.11	**23.41**	0.219	33.01	-9.60
	16-QAM	1914.3	H	143	29	10.30	1 / 3	12.53	22.83	0.192	33.01	-10.18
10 MHz	Opposite Pol.	1905.0	V	120	273	10.18	1 / 25	10.57	20.75	0.119	33.01	-12.26
	Half	1905.0	H	183	239	10.16	1 / 25	11.99	22.15	0.164	33.01	-10.86
	WCP	1905.0	H	108	12	10.16	1 / 25	11.95	22.11	0.163	33.01	-10.90

Table 7-4. EIRP Data (LTE Band 25/2 – Ant B)

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	π/2 BPSK	1860.0	H	145	151	9.55	1 / 26	13.57	23.12	0.205	33.01	-9.89
	π/2 BPSK	1882.5	H	141	146	9.83	1 / 26	14.12	23.95	0.248	33.01	-9.06
	π/2 BPSK	1905.0	H	142	151	10.16	1 / 53	14.09	24.25	0.266	33.01	-8.76
	QPSK	1860.0	H	145	151	9.55	1 / 53	13.46	23.01	0.200	33.01	-10.00
	QPSK	1882.5	H	141	146	9.83	1 / 53	13.97	23.80	0.240	33.01	-9.21
	QPSK	1905.0	H	142	151	10.16	1 / 79	14.36	**24.52**	0.283	33.01	-8.50
	16-QAM	1905.0	H	142	151	10.16	1 / 26	13.37	23.53	0.225	33.01	-9.48
15 MHz	π/2 BPSK	1857.5	H	145	151	9.51	1 / 20	13.62	23.14	0.206	33.01	-9.87
	π/2 BPSK	1882.5	H	141	146	9.83	1 / 20	14.17	24.00	0.251	33.01	-9.01
	π/2 BPSK	1907.5	H	142	151	10.21	1 / 58	14.07	24.27	0.267	33.01	-8.74
	QPSK	1857.5	H	145	151	9.51	1 / 20	13.50	23.01	0.200	33.01	-10.00
	QPSK	1882.5	H	141	146	9.83	1 / 39	13.91	23.75	0.237	33.01	-9.26
	QPSK	1907.5	H	142	151	10.21	1 / 20	14.23	**24.44**	0.278	33.01	-8.57
	16-QAM	1907.5	H	142	151	10.21	1 / 58	13.06	23.27	0.212	33.01	-9.74
10 MHz	π/2 BPSK	1855.0	H	145	151	9.48	1 / 13	13.56	23.04	0.201	33.01	-9.97
	π/2 BPSK	1882.5	H	141	146	9.83	1 / 38	14.13	23.96	0.249	33.01	-9.05
	π/2 BPSK	1910.0	H	142	151	10.25	1 / 26	13.81	24.06	0.255	33.01	-8.95
	QPSK	1855.0	H	145	151	9.48	1 / 13	13.54	23.02	0.200	33.01	-9.99
	QPSK	1882.5	H	141	146	9.83	1 / 38	13.98	23.82	0.241	33.01	-9.19
	QPSK	1910.0	H	142	151	10.25	1 / 13	14.12	**24.37**	0.274	33.01	-8.64
	16-QAM	1910.0	H	142	151	10.25	1 / 13	13.06	23.31	0.214	33.01	-9.70
5 MHz	π/2 BPSK	1852.5	H	145	151	9.44	1 / 18	13.59	23.04	0.201	33.01	-9.97
	π/2 BPSK	1882.5	H	141	146	9.83	1 / 18	14.08	23.91	0.246	33.01	-9.10
	π/2 BPSK	1912.5	H	142	151	10.28	1 / 18	13.88	24.16	0.260	33.01	-8.85
	QPSK	1852.5	H	145	151	9.44	1 / 6	13.49	22.94	0.197	33.01	-10.07
	QPSK	1882.5	H	141	146	9.83	1 / 18	14.00	23.84	0.242	33.01	-9.17
	QPSK	1912.5	H	142	151	10.28	1 / 18	13.88	**24.16**	0.261	33.01	-8.85
	16-QAM	1912.5	H	142	151	10.28	1 / 12	13.04	23.32	0.215	33.01	-9.70
20 MHz	QPSK (CP-OFDM)	1905.0	H	142	151	10.01	1 / 26	12.38	22.39	0.173	33.01	-10.62
	QPSK (Opposite Pol.)	1905.0	V	130	295	10.12	1 / 26	13.01	23.13	0.206	33.01	-9.88
	QPSK (Half-Open)	1905.0	H	145	182	10.01	1 / 26	12.87	22.88	0.194	33.01	-10.13
	QPSK (WCP)	1905.0	H	146	162	10.01	1 / 26	13.96	23.97	0.249	33.01	-9.04

Table 7-5. EIRP Data (NR Band n25/2 – Ant B)

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	GPRS1900	H	112	38	17.62	9.41	27.03	0.505	33.01	-5.98
1880.00	GPRS1900	H	122	38	19.22	9.79	29.01	0.797	33.01	-4.00
1909.80	GPRS1900	H	115	38	19.68	10.25	**29.93**	**0.984**	33.01	-3.08
1909.80	GPRS1900	V	102	281	18.07	10.20	28.27	0.672	33.01	-4.74
1909.80	EDGE1900	H	115	38	14.88	10.25	**25.13**	0.326	33.01	-7.88
1909.80	GPRS1900 (CLOSED)	H	111	73	17.55	10.25	27.80	0.602	33.01	-5.21
1909.80	GPRS1900 (WCP)	H	141	226	17.89	10.25	28.14	0.651	33.01	-4.87

Table 7-6. EIRP Data (GPRS PCS – Ant B)

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	168	28	13.59	9.44	23.03	0.201	33.01	-9.98
1880.00	WCDMA1900	H	111	36	13.13	9.79	22.92	0.196	33.01	-10.09
1907.60	WCDMA1900	H	111	34	14.51	10.21	**24.72**	**0.296**	33.01	-8.29
1907.60	WCDMA1900	V	102	304	12.30	10.19	22.49	0.178	33.01	-10.52
1907.60	WCDMA1900 (HALF)	H	102	74	12.34	10.21	22.55	0.180	33.01	-10.46
1907.60	WCDMA1900 (WCP)	H	146	157	12.71	10.21	22.92	0.196	33.01	-10.09

Table 7-7. EIRP Data (WCDMA PCS – Ant B)

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.

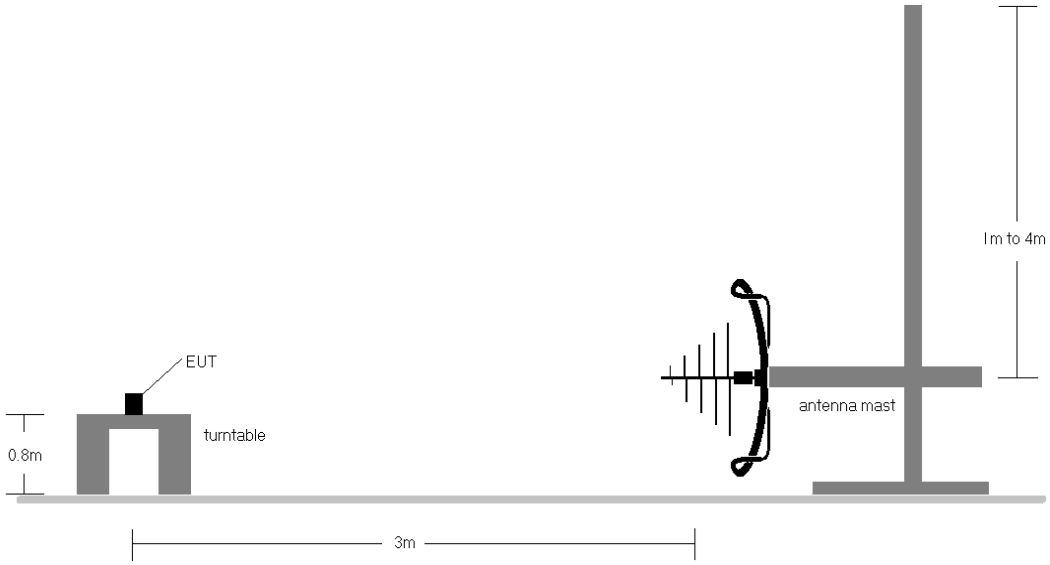


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

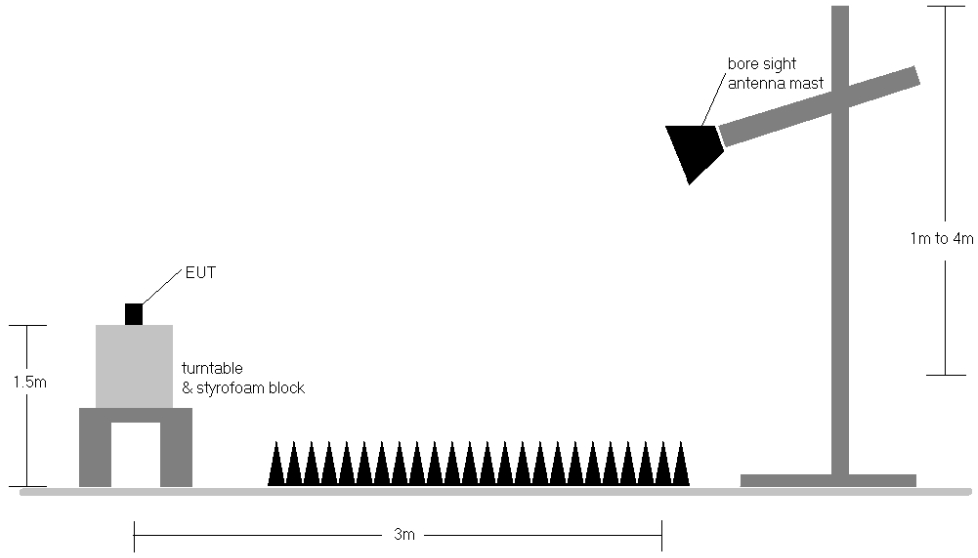


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

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) + Ant 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.

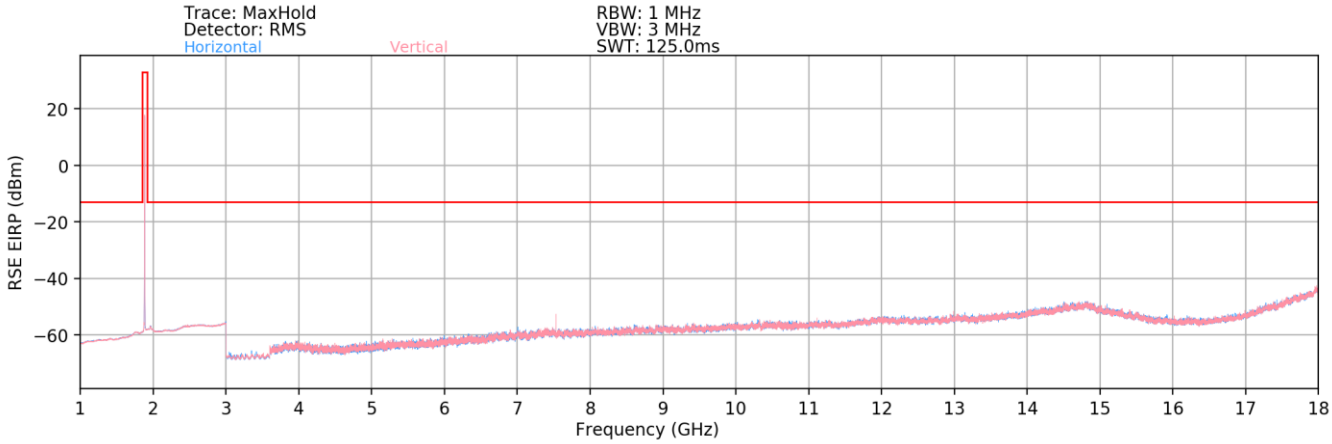
7) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

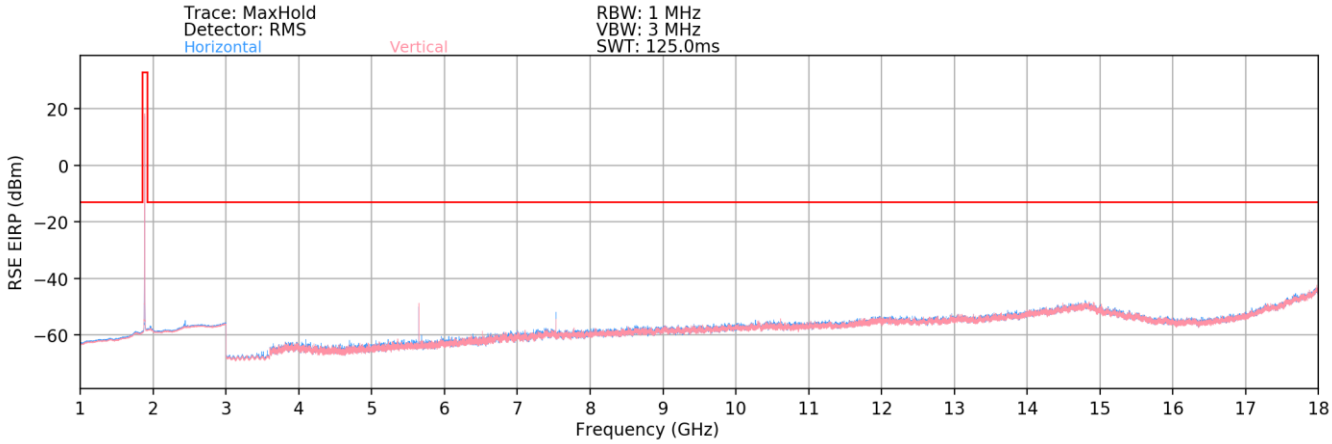
9) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

10) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). 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.

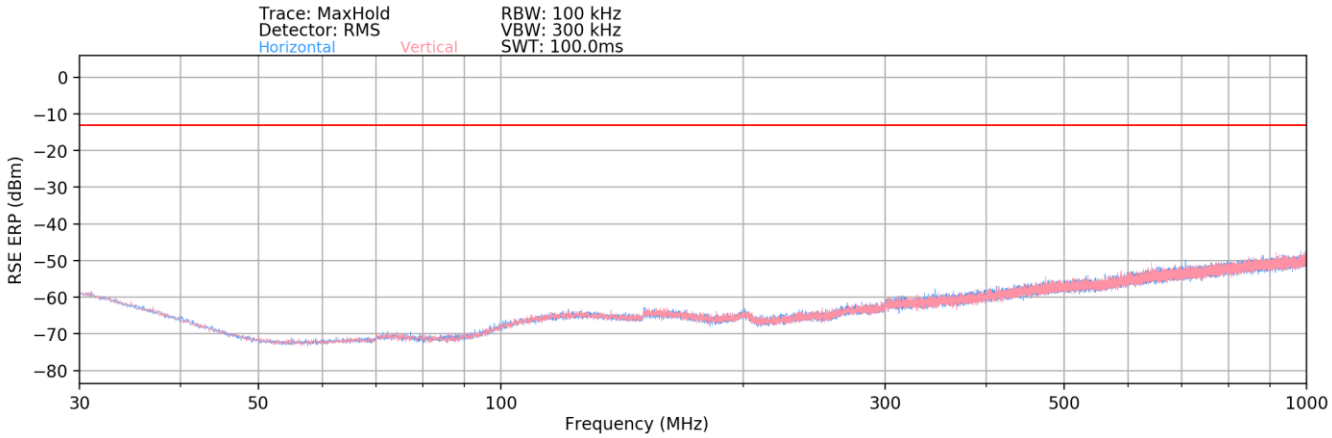
LTE Band 25/2 – Ant B



Plot 7-157. Radiated Spurious Plot (LTE Band 25/2 - Ant B - Open)



Plot 7-158. Radiated Spurious Plot (LTE Band 25/2 - Ant B - Closed)



Plot 7-159. Radiated Spurious Plot (LTE Band 25/2 - Ant B – Closed – Below 1GHz)

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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
60.0	V	-	-	-90.60	14.63	31.03	-66.38	-13.00	-53.38
97.0	V	-	-	-91.06	16.44	32.38	-65.03	-13.00	-52.03
295.0	V	-	-	-90.28	20.70	37.42	-59.98	-13.00	-46.98

Table 7-8. Radiated Spurious Data (LTE Band 25/2 – Below 1GHz - Ant B – Closed)

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]
3720.0	V	113	276	-70.98	-0.43	35.59	-59.67	-13.00	-46.67
5580.0	V	175	167	-62.34	2.73	47.39	-47.87	-13.00	-34.87
7440.0	V	273	47	-73.53	7.26	40.73	-54.52	-13.00	-41.52
9300.0	V	-	-	-81.52	9.85	35.33	-59.93	-13.00	-46.93
11160.0	V	-	-	-81.63	11.43	36.80	-58.46	-13.00	-45.46
13020.0	V	-	-	-81.10	13.18	39.08	-56.17	-13.00	-43.17

Table 7-9. Radiated Spurious Data (LTE Band 25/2 – Low Channel - Ant B – Closed)

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]
3765.0	V	125	84	-74.78	0.57	32.79	-62.47	-13.00	-49.47
5647.5	V	167	170	-62.66	2.82	47.16	-48.10	-13.00	-35.10
7530.0	V	400	36	-70.50	6.84	43.34	-51.92	-13.00	-38.92
9412.5	V	-	-	-80.92	9.90	35.98	-59.28	-13.00	-46.28
11295.0	V	-	-	-81.23	11.44	37.21	-58.05	-13.00	-45.05
13177.5	V	-	-	-81.38	13.30	38.92	-56.33	-13.00	-43.33

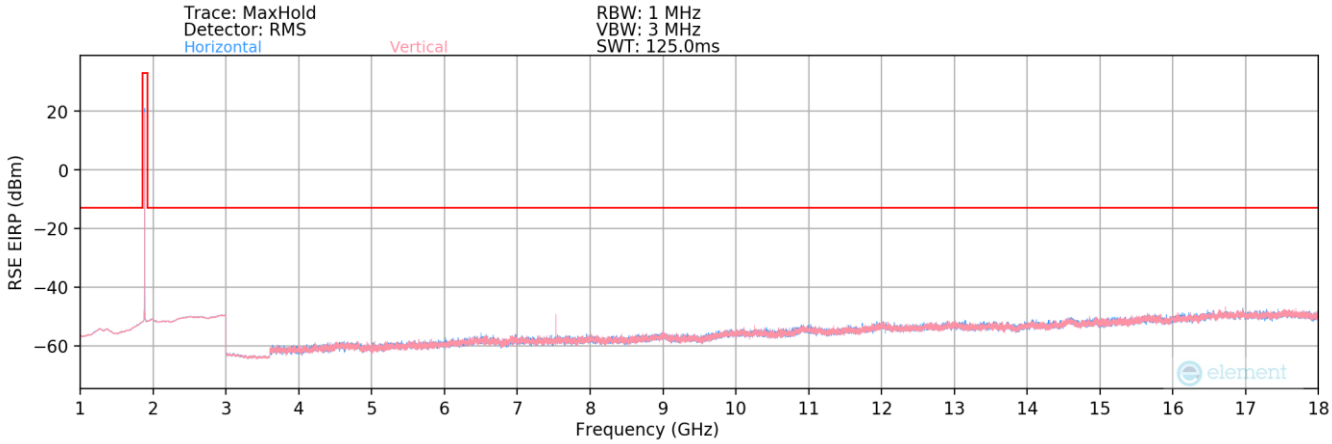
Table 7-10. Radiated Spurious Data (LTE Band 25/2 – Mid Channel - Ant B – Closed)

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

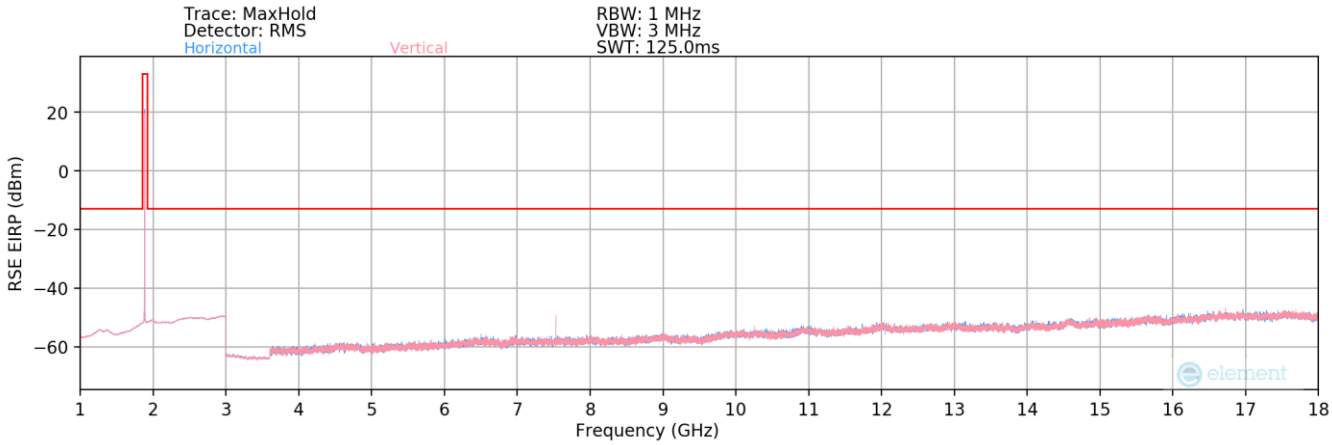
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.0	V	109	348	-75.09	0.80	32.71	-62.55	-13.00	-49.55
5715.0	V	142	164	-65.15	3.09	44.94	-50.32	-13.00	-37.32
7620.0	V	165	40	-73.12	7.20	41.08	-54.17	-13.00	-41.17
9525.0	V	-	-	-81.23	9.75	35.52	-59.74	-13.00	-46.74
11430.0	V	-	-	-81.73	11.34	36.61	-58.65	-13.00	-45.65
13335.0	V	-	-	-80.90	13.12	39.22	-56.03	-13.00	-43.03

Table 7-11. Radiated Spurious Data (LTE Band 25/2 – High Channel - Ant B – Closed)

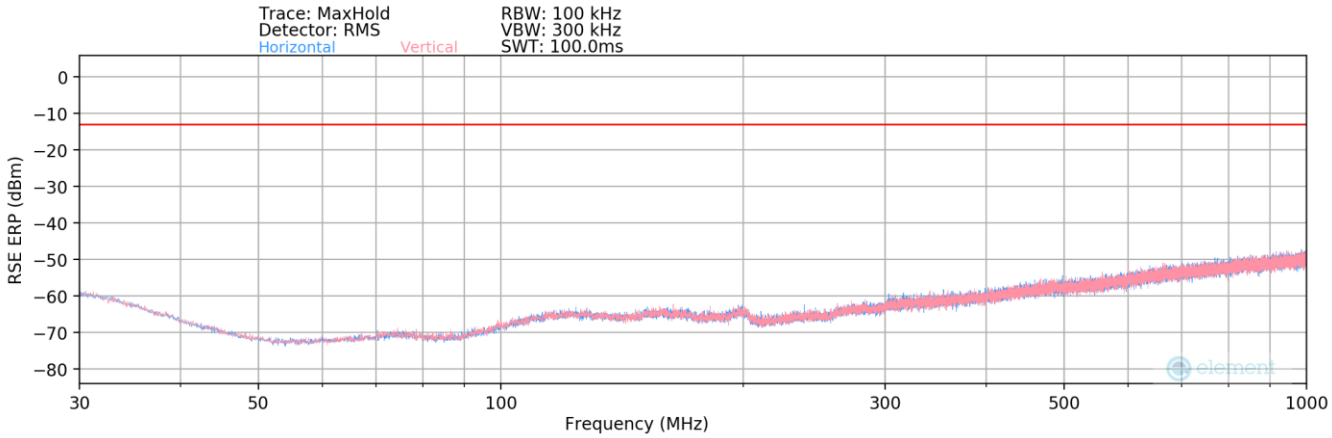
NR Band n25/2 – Ant B



Plot 7-160. Radiated Spurious Plot (NR n25/2 - Ant B – Open)



Plot 7-161. Radiated Spurious Plot (NR n25/2 - Ant B – Closed)



Plot 7-162. Radiated Spurious Plot (NR n25/2 - Ant B – Closed – Below 1GHz)

Bandwidth (MHz):	20
Frequency (MHz):	1860
RB / Offset:	1 / 53

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]
507.0	V	-	-	-90.02	25.86	42.84	-54.57	-13.00	-41.57

Table 7-12. Radiated Spurious Data (NR Band n25/2 – Below 1GHz – Ant B - Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1860
RB / Offset:	1 / 53

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]
3720.0	V	124	10	-77.20	3.26	33.06	-62.20	-13.00	-49.20
5580.0	V	320	152	-52.47	5.13	59.66	-35.60	-13.00	-22.60
7440.0	V	280	15	-68.16	7.67	46.51	-48.74	-13.00	-35.74
9300.0	V	261	179	-78.50	9.44	37.94	-57.32	-13.00	-44.32
11160.0	V	-	-	-79.83	12.22	39.39	-55.87	-13.00	-42.87
13020.0	V	-	-	-80.38	14.32	40.94	-54.32	-13.00	-41.32
14880.0	V	-	-	-81.04	16.16	42.12	-53.13	-13.00	-40.13

Table 7-13. Radiated Spurious Data (NR Band n25/2 – Low Channel – Ant B – Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 53

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]
3765.0	V	-	-	-78.14	3.17	32.03	-63.23	-13.00	-50.23
5647.5	V	312	159	-53.19	5.45	59.26	-36.00	-13.00	-23.00
7530.0	V	282	19	-70.50	7.87	44.37	-50.89	-13.00	-37.89
9412.5	V	-	-	-80.13	10.16	37.03	-58.23	-13.00	-45.23
11295.0	V	-	-	-80.14	12.19	39.05	-56.20	-13.00	-43.20
13177.5	V	-	-	-80.44	13.90	40.46	-54.80	-13.00	-41.80

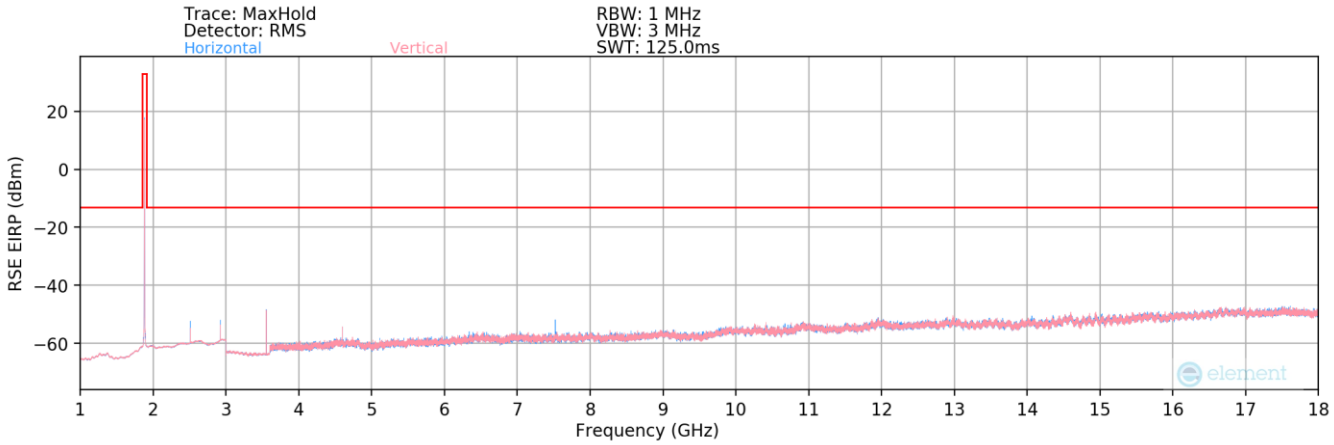
Table 7-14. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant B – Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1905
RB / Offset:	1 / 53

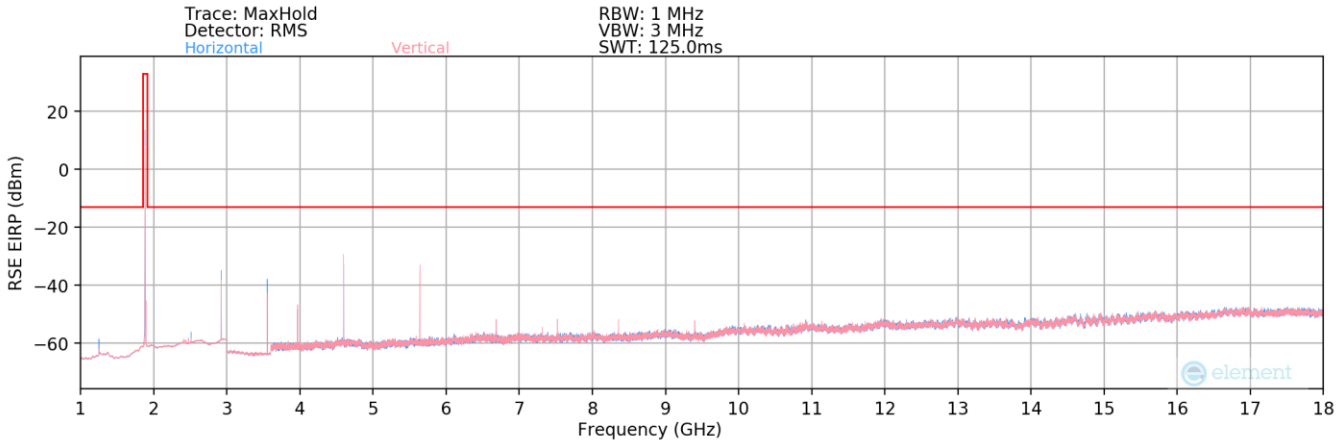
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.0	V	-	-	-77.81	2.96	32.15	-63.10	-13.00	-50.10
5715.0	V	304	154	-54.31	5.45	58.14	-37.11	-13.00	-24.11
7620.0	V	279	15	-69.73	8.17	45.44	-49.82	-13.00	-36.82
9525.0	V	252	290	-76.91	9.93	40.02	-55.24	-13.00	-42.24
11430.0	V	-	-	-80.92	12.82	38.90	-56.36	-13.00	-43.36
13335.0	V	-	-	-80.24	14.06	40.82	-54.44	-13.00	-41.44
15240.0	V	-	-	-80.36	15.93	42.57	-52.69	-13.00	-39.69

Table 7-15. Radiated Spurious Data (NR Band n25/2 – High Channel – Ant B – Closed)

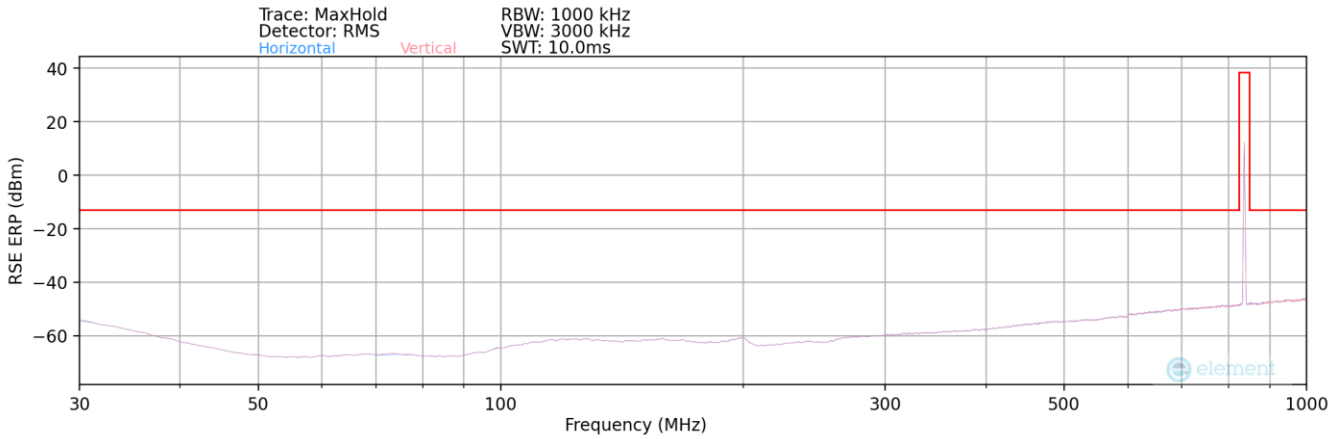
EN-DC n2 (Ant B) – Band 5



Plot 7-163. Radiated Spurious Plot (NR n2 – Band 5 – Ant B – Open)



Plot 7-164. Radiated Spurious Plot (NR n2 – Band 5 – Ant B – Closed)



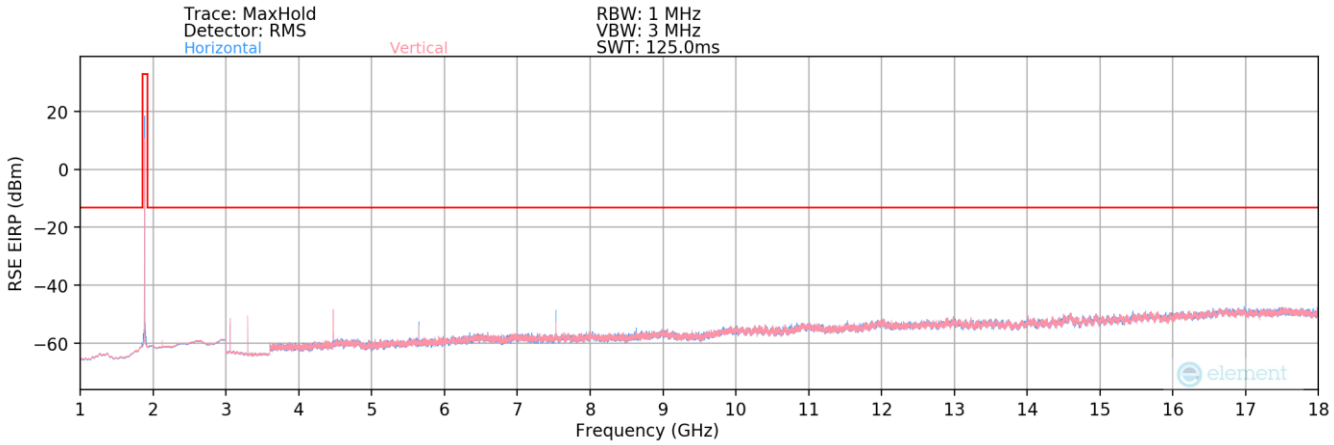
Plot 7-165. Radiated Spurious Plot (NR n2 – Band 5 – Ant B – Closed – Below 1GHz)

Case:	n2 + B5
Bandwidth (MHz):	20 & 10
Frequency (MHz):	1880 & 836.5
RB / Offset:	1/53 & 1/25
Mode:	EN-DC
Anchor Band:	LTE Band 5

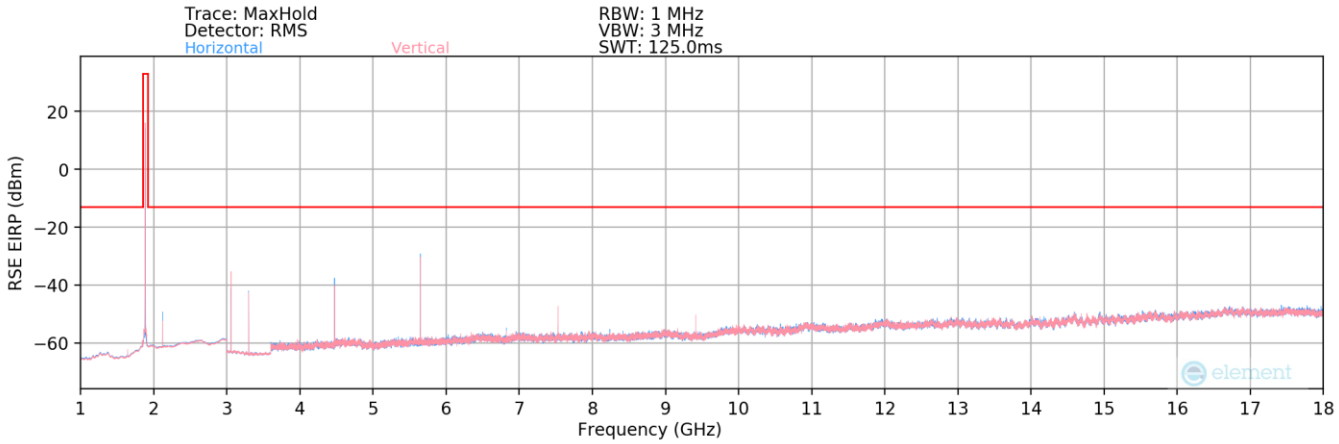
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
207.0	H	-	-	-90.21	17.78	34.57	-60.68	-13.00	-47.68
1250.5	H	166	10	-69.27	-3.06	34.67	-60.59	-13.00	-47.59
2923.5	H	150	64	-50.54	2.12	58.58	-36.68	-13.00	-23.68
3553.0	H	141	62	-55.16	2.43	54.27	-40.98	-13.00	-27.98
3967.0	V	398	7	-70.40	3.33	39.93	-55.32	-13.00	-42.32
4596.5	V	347	16	-52.13	4.76	59.63	-35.63	-13.00	-22.63
5640.0	V	121	28	-53.53	5.52	58.99	-36.27	-13.00	-23.27
6683.5	V	310	4	-75.65	6.64	37.99	-57.26	-13.00	-44.26
7520.0	V	134	299	-75.77	7.83	39.06	-56.20	-13.00	-43.20
8356.5	V	126	17	-78.34	8.54	37.20	-58.06	-13.00	-45.06
9400.0	V	-	-	-80.03	10.22	37.19	-58.07	-13.00	-45.07

Table 7-16. Radiated Spurious Data (NR Band n2-B5 – Ant B – Closed)

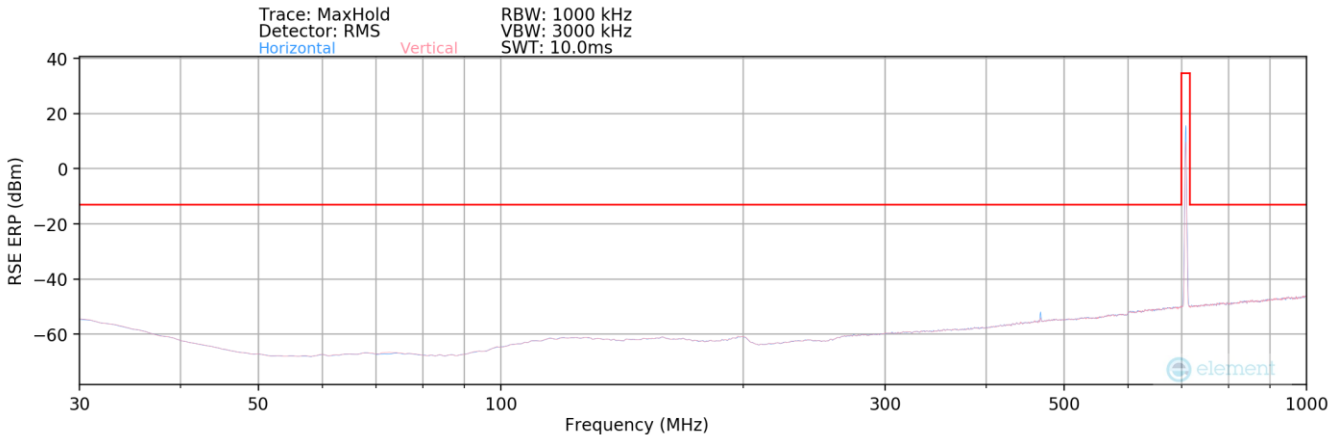
EN-DC n25 (Ant B) – Band 12



Plot 7-166. Radiated Spurious Plot (NR n25 – Band 12 – Ant B – Open)



Plot 7-167. Radiated Spurious Plot (NR n25 – Band 12 – Ant B – Closed)



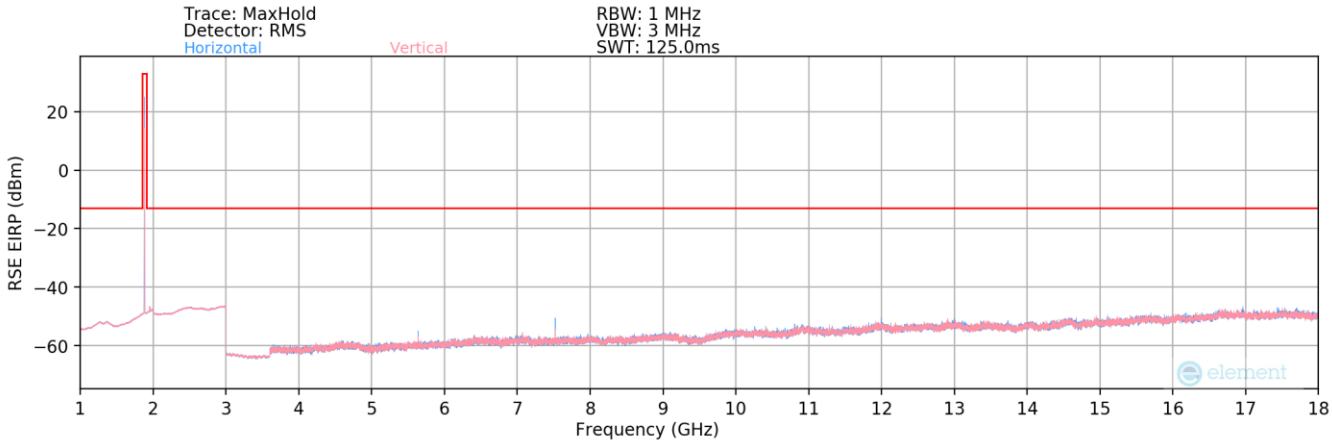
Plot 7-168. Radiated Spurious Plot (NR n25 – Band 12 – Ant B – Closed – Below 1GHz)

Case:	n25 + B12
Bandwidth (MHz):	20 & 10
Frequency (MHz):	1882.5 & 707.5
RB / Offset:	1/53 & 1/25
Mode:	EN-DC
Anchor Band:	LTE Band 12

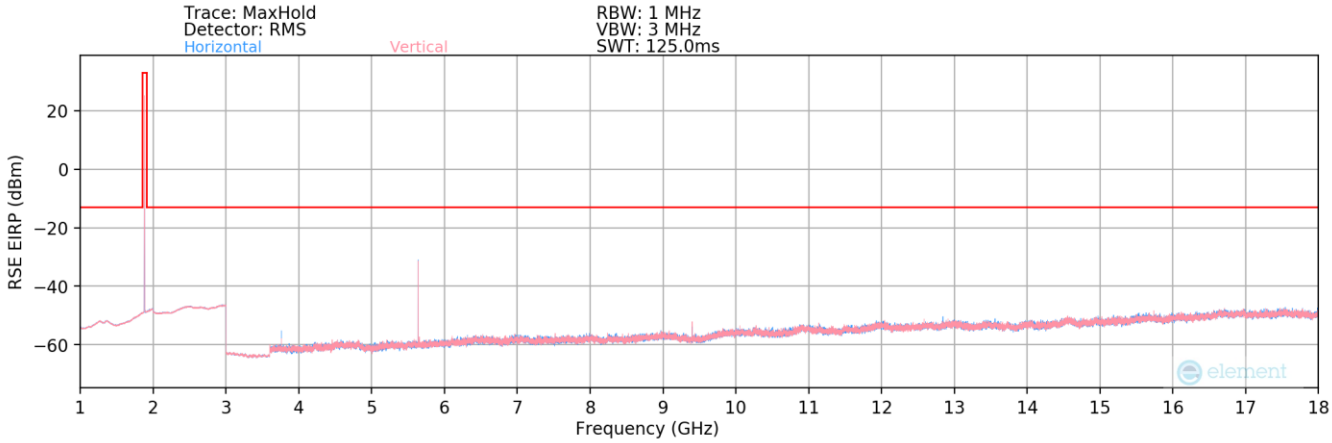
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
467.5	H	204	143	-81.45	25.37	50.92	-44.34	-13.00	-31.34
2122.5	H	383	347	-58.86	-0.25	47.89	-47.36	-13.00	-34.36
3057.5	V	124	231	-52.56	3.13	57.57	-37.68	-13.00	-24.68
3297.5	H	352	136	-52.17	2.44	57.27	-37.99	-13.00	-24.99
4472.5	H	269	120	-56.23	3.77	54.54	-40.71	-13.00	-27.71
5647.5	H	248	208	-51.68	5.45	60.77	-34.49	-13.00	-21.49
6822.5	H	-	-	-79.09	7.86	35.77	-59.48	-13.00	-46.48
7530.0	V	284	12	-66.68	7.87	48.19	-47.07	-13.00	-34.07
9412.5	V	-	-	-80.37	10.16	36.79	-58.47	-13.00	-45.47

Table 7-17. Radiated Spurious Data (NR Band n25-B12 – Ant B – Closed)

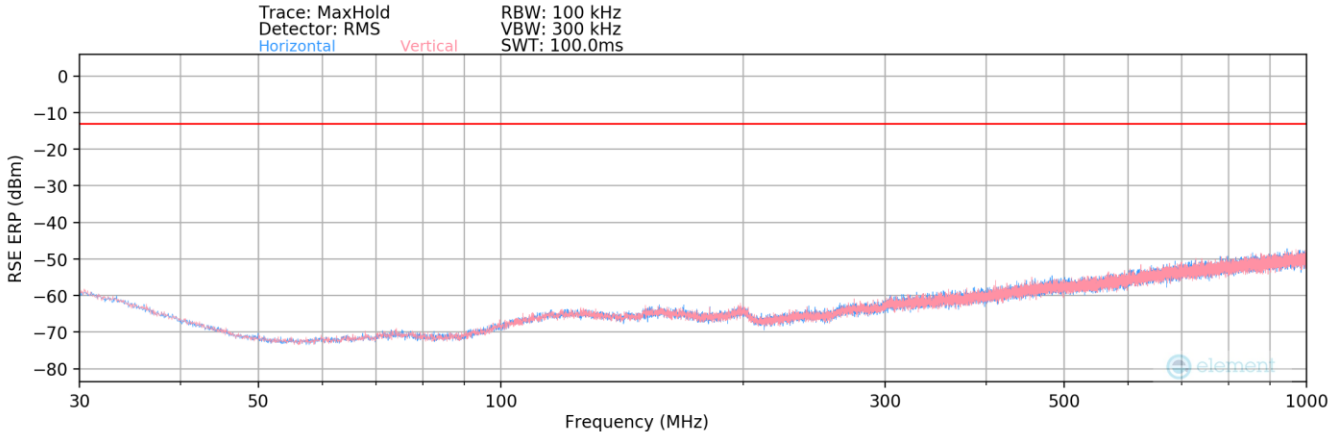
GSM/GPRS PCS – Ant B



Plot 7-169. Radiated Spurious Plot (GPRS PCS - Ant B – Open)



Plot 7-170. Radiated Spurious Plot (GPRS PCS - Ant B – Closed)



Plot 7-171. Radiated Spurious Plot (GPRS PCS – Below 1GHz – Ant B – Closed)

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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
199.8	V	-	-	-81.24	20.25	46.01	-51.40	-13.00	-38.40

Table 7-18. Radiated Spurious Data (GPRS PCS – Below 1GHz – High Channel – Ant B – Closed)

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]
3700.4	H	350	191	-67.36	3.57	43.21	-52.04	-13.00	-39.04
5550.6	H	231	118	-44.15	5.12	67.97	-27.28	-13.00	-14.28
7400.8	V	376	27	-62.98	7.68	51.70	-43.56	-13.00	-30.56
9251.0	V	206	164	-64.47	8.84	51.37	-43.89	-13.00	-30.89
11101.2	H	-	-	-78.08	12.47	41.39	-53.87	-13.00	-40.87
12951.4	H	-	-	-78.38	14.17	42.79	-52.46	-13.00	-39.46
14801.6	H	-	-	-78.73	15.69	43.96	-51.30	-13.00	-38.30

Table 7-19. Radiated Spurious Data (GPRS PCS – Low Channel – Ant B – Closed)

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]
3760.0	H	334	197	-68.04	3.16	42.12	-53.13	-13.00	-40.13
5640.0	H	223	110	-44.01	5.52	68.51	-26.75	-13.00	-13.75
7520.0	V	381	25	-63.25	7.83	51.58	-43.68	-13.00	-30.68
9400.0	V	225	165	-64.10	10.22	53.12	-42.14	-13.00	-29.14
11280.0	H	-	-	-78.36	12.48	41.12	-54.14	-13.00	-41.14
13160.0	H	-	-	-77.68	13.95	43.27	-51.99	-13.00	-38.99
15040.0	H	-	-	-78.64	15.61	43.97	-51.29	-13.00	-38.29

Table 7-20. Radiated Spurious Data (GPRS PCS – Mid Channel – Ant B – Closed)

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]
3819.6	H	353	187	-66.45	3.00	43.55	-51.71	-13.00	-38.71
5729.4	H	199	90	-41.97	5.41	70.44	-24.82	-13.00	-11.82
7639.2	V	366	22	-64.85	7.95	50.10	-45.16	-13.00	-32.16
9549.0	V	235	164	-58.46	9.95	58.49	-36.77	-13.00	-23.77
11458.8	H	-	-	-78.82	12.58	40.76	-54.49	-13.00	-41.49
13368.6	H	-	-	-78.22	13.84	42.62	-52.63	-13.00	-39.63
15278.4	H	-	-	-77.98	16.17	45.19	-50.07	-13.00	-37.07

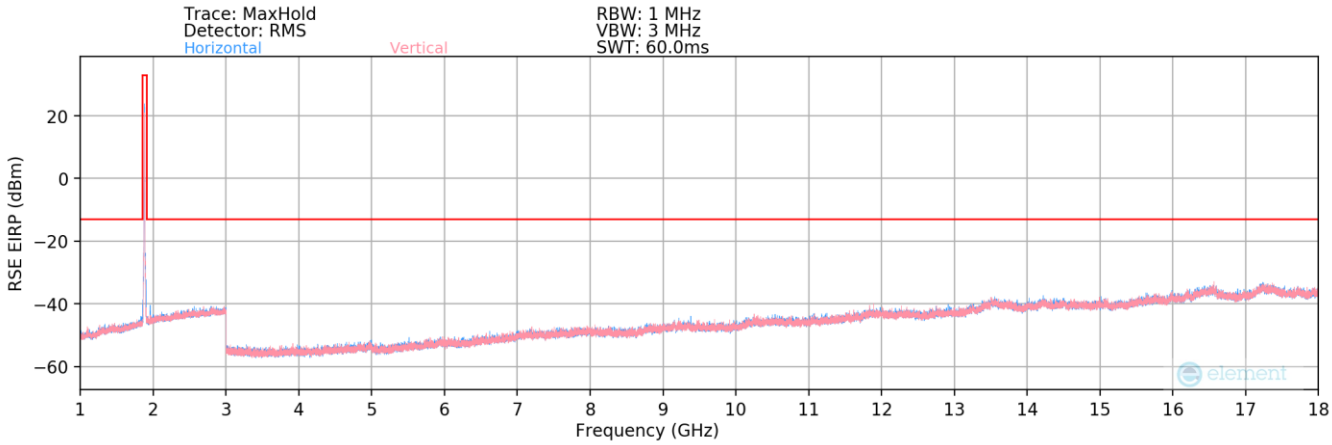
Table 7-21. Radiated Spurious Data (GPRS PCS – High Channel – Ant B – Closed)

Case:	w/ Wireless Charging Pad
Mode:	GPRS 1 Tx Slot
Channel:	810
Frequency (MHz):	1909.8

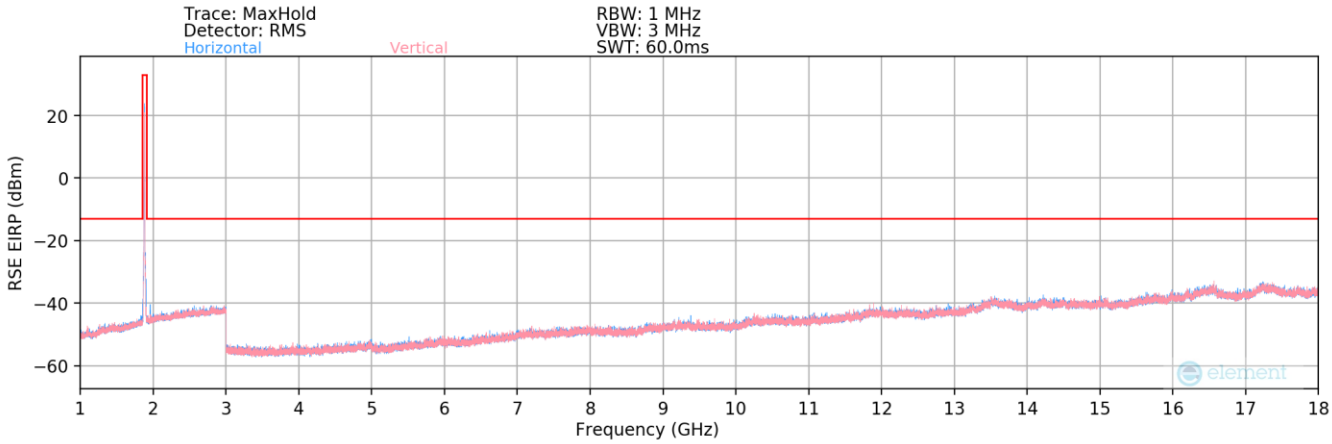
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.6	H	299	211	-65.70	3.00	44.30	-50.96	-13.00	-37.96
5729.4	H	246	132	-42.71	5.41	69.70	-25.56	-13.00	-12.56
7639.2	V	214	359	-68.96	7.95	45.99	-49.27	-13.00	-36.27
9549.0	V	198	112	-60.67	9.95	56.28	-38.98	-13.00	-25.98
11458.8	H	-	-	-78.37	12.58	41.21	-54.04	-13.00	-41.04
13368.6	H	-	-	-78.25	13.84	42.59	-52.66	-13.00	-39.66
15278.4	H	-	-	-78.11	16.17	45.06	-50.20	-13.00	-37.20

Table 7-22. Radiated Spurious Data with WCP (GPRS PCS - Ant B – Closed)

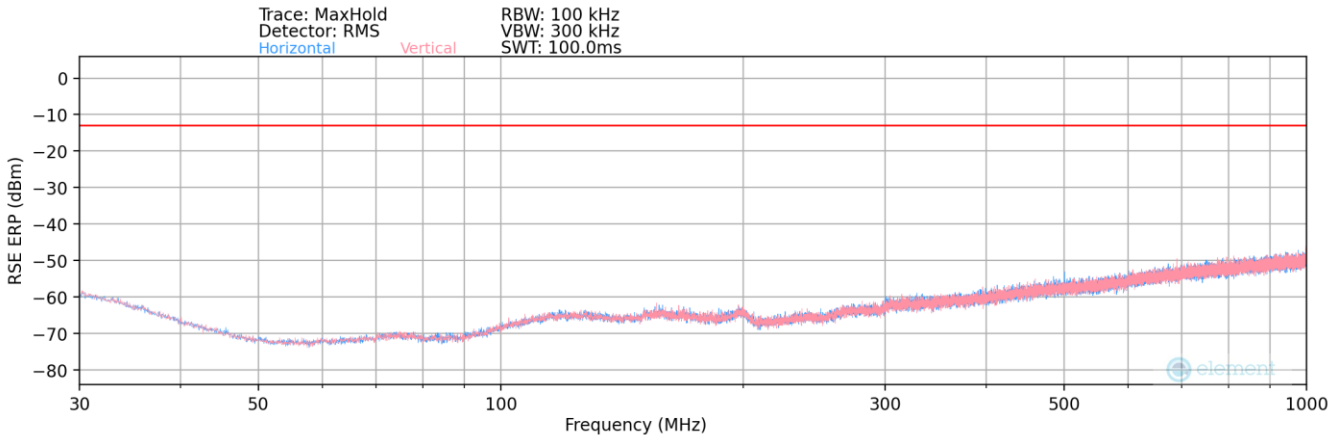
WCDMA PCS – Ant B



Plot 7-172. Radiated Spurious Plot (WCDMA PCS – Ant B – OPEN)



Plot 7-173. Radiated Spurious Plot (WCDMA PCS – Ant B – CLOSED)



Plot 7-174. Radiated Spurious Plot (WCDMA PCS – Below 1GHz – Ant B – CLOSED)

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]
266.0	V	-	-	-90.13	20.37	37.24	-60.16	-13.00	-47.16

Table 7-23. Radiated Spurious Data (WCDMA PCS – Below 1GHz – Mid Channel - Ant B – Closed)

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]
3704.8	V	-	-	-80.00	7.86	34.86	-60.39	-13.00	-47.39
5557.2	V	103	45	-73.40	11.79	45.39	-49.87	-13.00	-36.87
7409.6	V	-	-	-82.29	15.60	40.31	-54.95	-13.00	-41.95
9262.0	V	-	-	-83.17	18.64	42.47	-52.79	-13.00	-39.79
11114.4	V	-	-	-84.13	21.76	44.63	-50.63	-13.00	-37.63

Table 7-24. Radiated Spurious Data (WCDMA PCS – Low Channel - Ant B – Closed)

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]
3760.0	V	-	-	-80.34	8.17	34.83	-60.43	-13.00	-47.43
5640.0	V	108	48	-68.97	11.64	49.67	-45.59	-13.00	-32.59
7520.0	V	-	-	-82.90	16.08	40.18	-55.07	-13.00	-42.07
9400.0	V	-	-	-83.60	18.76	42.16	-53.10	-13.00	-40.10
11280.0	V	-	-	-83.98	21.65	44.67	-50.59	-13.00	-37.59

Table 7-25. Radiated Spurious Data (WCDMA PCS – Mid Channel - Ant B – Closed)

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]
3815.2	V	-	-	-80.60	8.31	34.71	-60.55	-13.00	-47.55
5722.8	V	105	45	-67.46	11.99	51.53	-43.73	-13.00	-30.73
7630.4	V	-	-	-83.11	16.62	40.51	-54.75	-13.00	-41.75
9538.0	V	-	-	-84.09	19.03	41.94	-53.32	-13.00	-40.32
11445.6	V	-	-	-84.36	21.95	44.59	-50.67	-13.00	-37.67

Table 7-26. Radiated Spurious Data (WCDMA PCS – High Channel - Ant B – Closed)

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

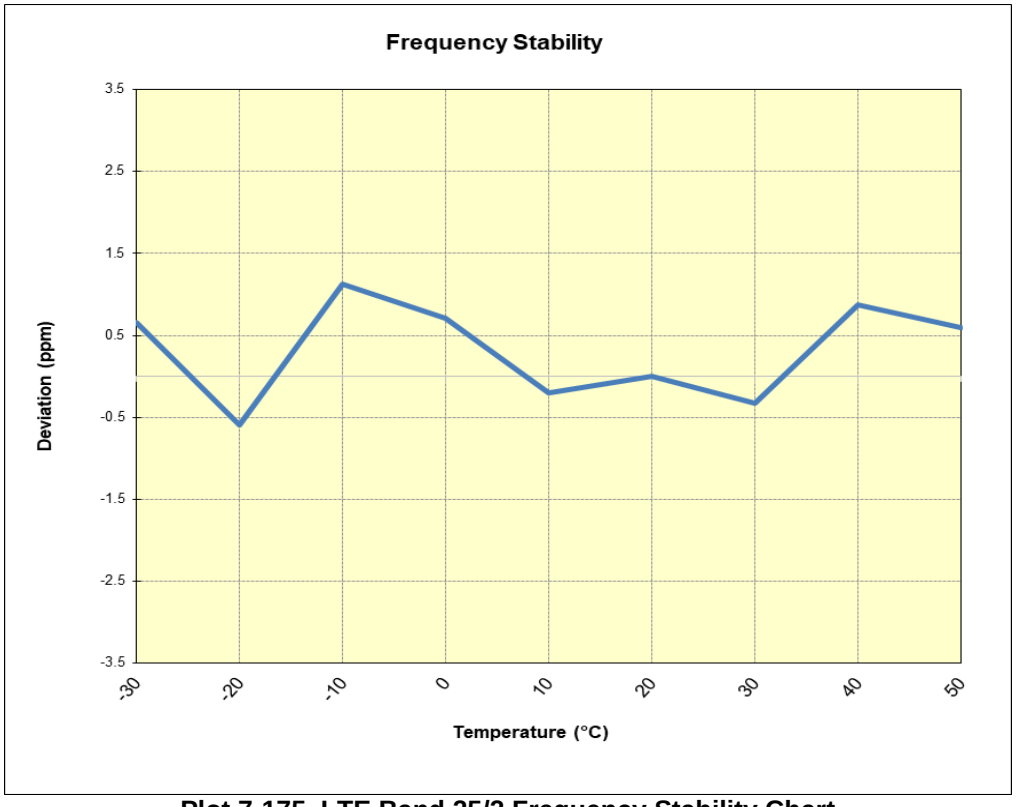
None

Frequency Stability / Temperature Variation

LTE Band 25	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	4.38

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,882,502,501	1,249	0.0000663
		- 20	1,882,500,132	-1,120	-0.0000595
		- 10	1,882,503,366	2,114	0.0001123
		0	1,882,502,598	1,346	0.0000715
		+ 10	1,882,500,875	-377	-0.0000200
		+ 20 (Ref)	1,882,501,252	0	0.0000000
		+ 30	1,882,500,638	-614	-0.0000326
		+ 40	1,882,502,897	1,645	0.0000874
		+ 50	1,882,502,377	1,125	0.0000598
Battery Endpoint	3.35	+ 20	1,882,501,859	607	0.0000322

Table 7-27. LTE Band 25/2 Frequency Stability Data



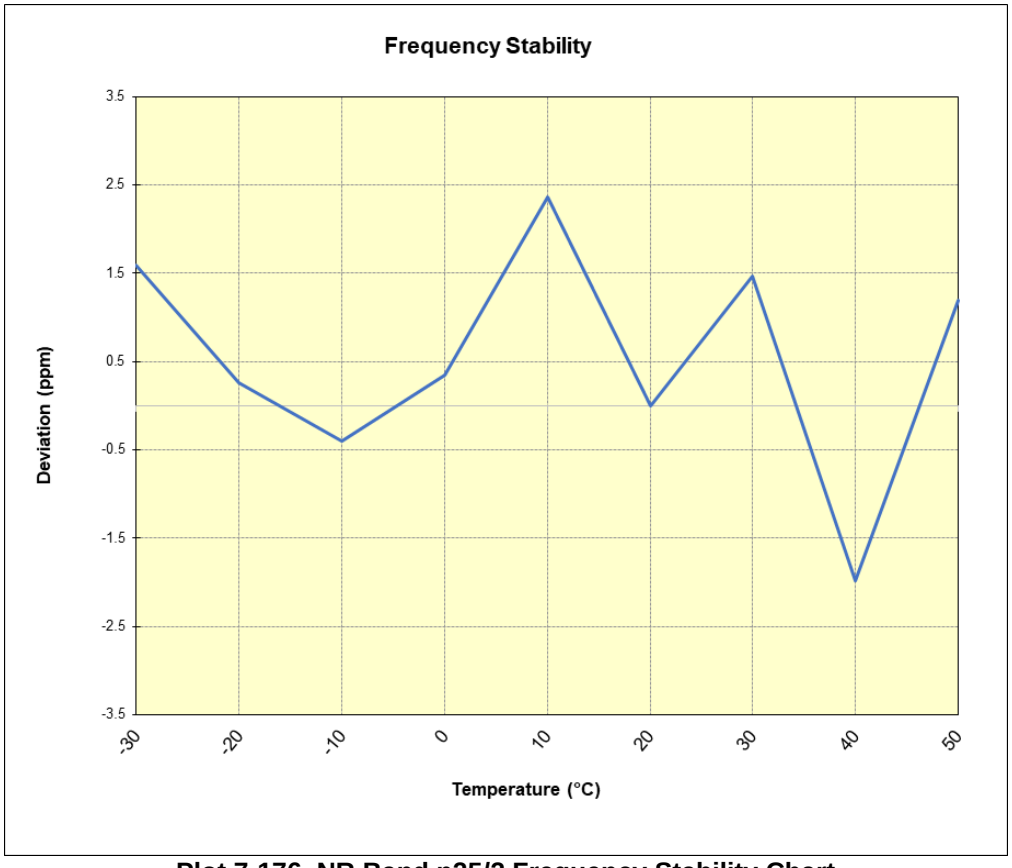
Plot 7-175. LTE Band 25/2 Frequency Stability Chart

Frequency Stability / Temperature Variation

NR Band n25/2	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.38

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,879,522,951	2,991	0.0001591
		- 20	1,879,520,452	492	0.0000262
		- 10	1,879,519,199	-761	-0.0000405
		0	1,879,520,603	643	0.0000342
		+ 10	1,879,524,403	4,442	0.0002364
		+ 20 (Ref)	1,879,519,960	0	0.0000000
		+ 30	1,879,522,729	2,768	0.0001473
		+ 40	1,879,516,236	-3,724	-0.0001981
		+ 50	1,879,522,197	2,237	0.0001190
Battery Endpoint	3.35	+ 20	1,879,516,660	-3,300	-0.0001756

Table 7-28. NR Band n25/2 Frequency Stability Data



Plot 7-176. NR Band n25/2 Frequency Stability Chart

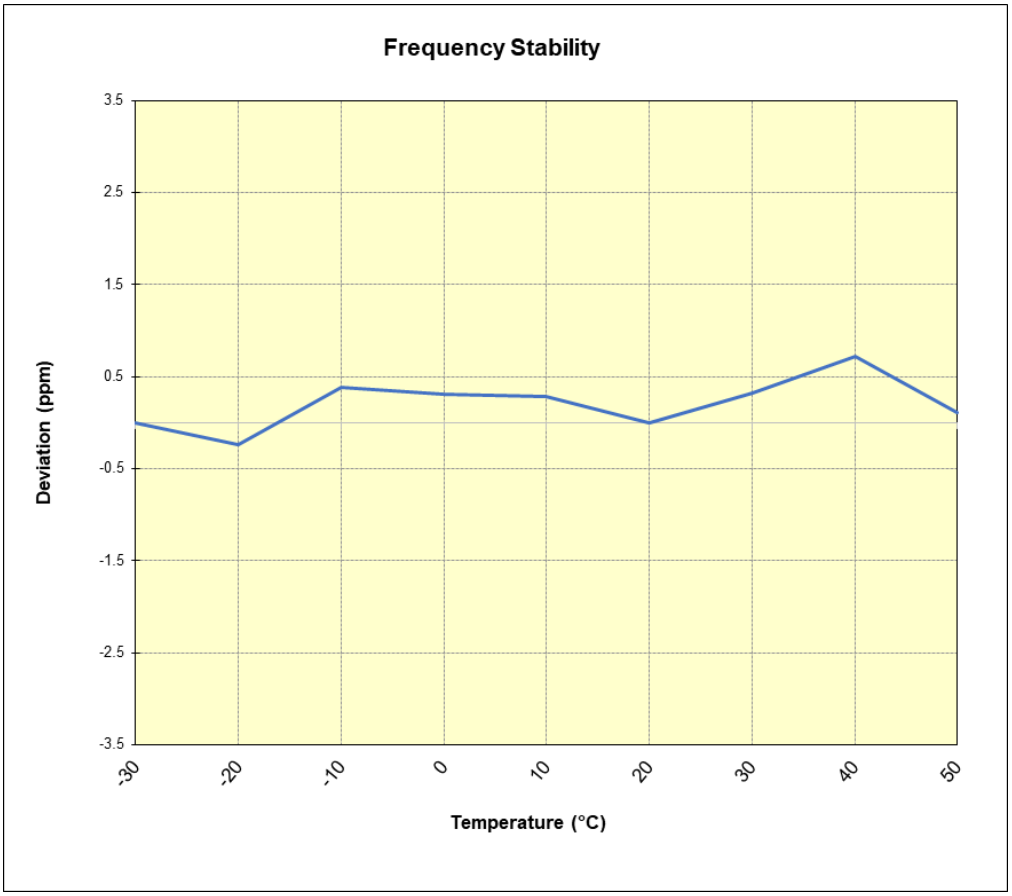
Frequency Stability / Temperature Variation

GSM/GPRS PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.38

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,879,999,852	-11	-0.0000006
		- 20	1,879,999,421	-442	-0.0000235
		- 10	1,880,000,578	715	0.0000380
		0	1,880,000,450	587	0.0000312
		+ 10	1,880,000,404	541	0.0000288
		+ 20 (Ref)	1,879,999,863	0	0.0000000
		+ 30	1,880,000,479	616	0.0000328
		+ 40	1,880,001,210	1,347	0.0000716
		+ 50	1,880,000,062	199	0.0000106
Battery Endpoint	3.35	+ 20	1,880,001,149	1,286	0.0000684

Table 7-29. GSM/GPRS PCS Frequency Stability Data



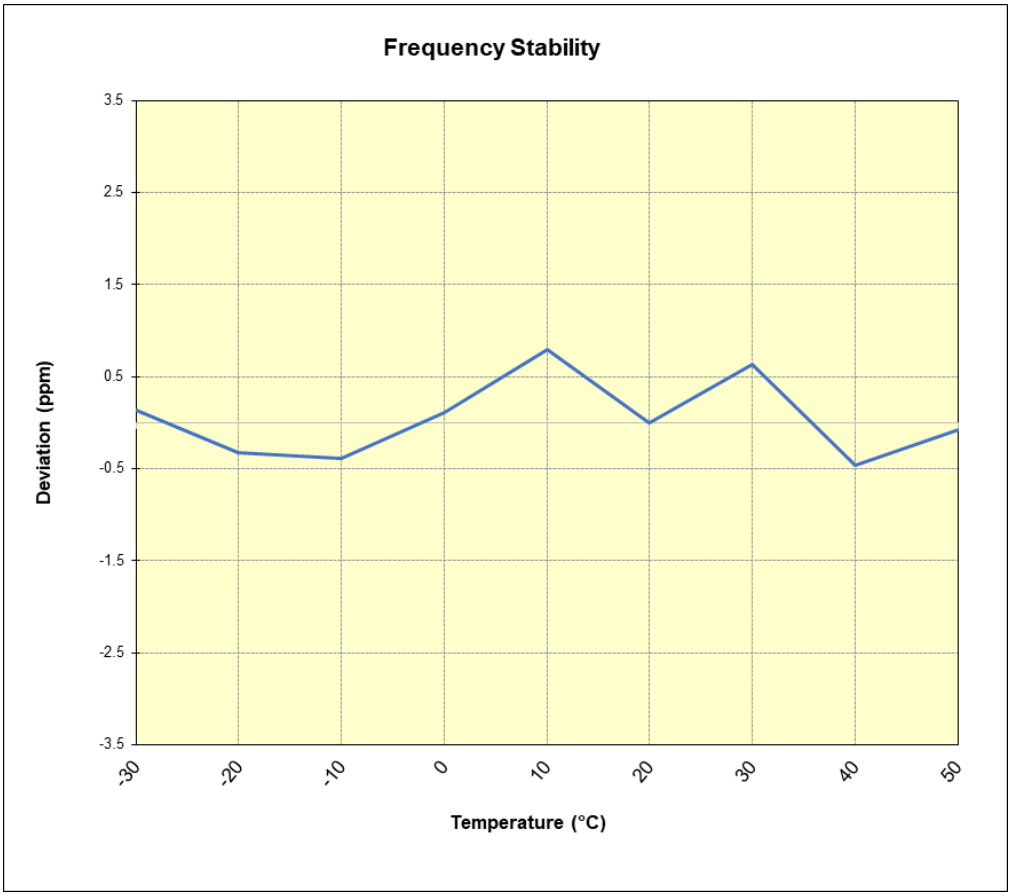
Plot 7-177. GSM/GPRS PCS Frequency Stability Chart

Frequency Stability / Temperature Variation

WCDMA PCS	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.38

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,879,999,781	250	0.0000133
		- 20	1,879,998,930	-601	-0.0000320
		- 10	1,879,998,799	-732	-0.0000389
		0	1,879,999,741	210	0.0000112
		+ 10	1,880,001,026	1,495	0.0000795
		+ 20 (Ref)	1,879,999,531	0	0.0000000
		+ 30	1,880,000,725	1,194	0.0000635
		+ 40	1,879,998,654	-877	-0.0000466
		+ 50	1,879,999,382	-149	-0.0000079
Battery Endpoint	3.35	+ 20	1,879,999,820	289	0.0000154

Table 7-30. WCDMA PCS Frequency Stability Data



Plot 7-178. 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: A3LSMF936B** complies with all the requirements of Part 24 of the FCC rules.