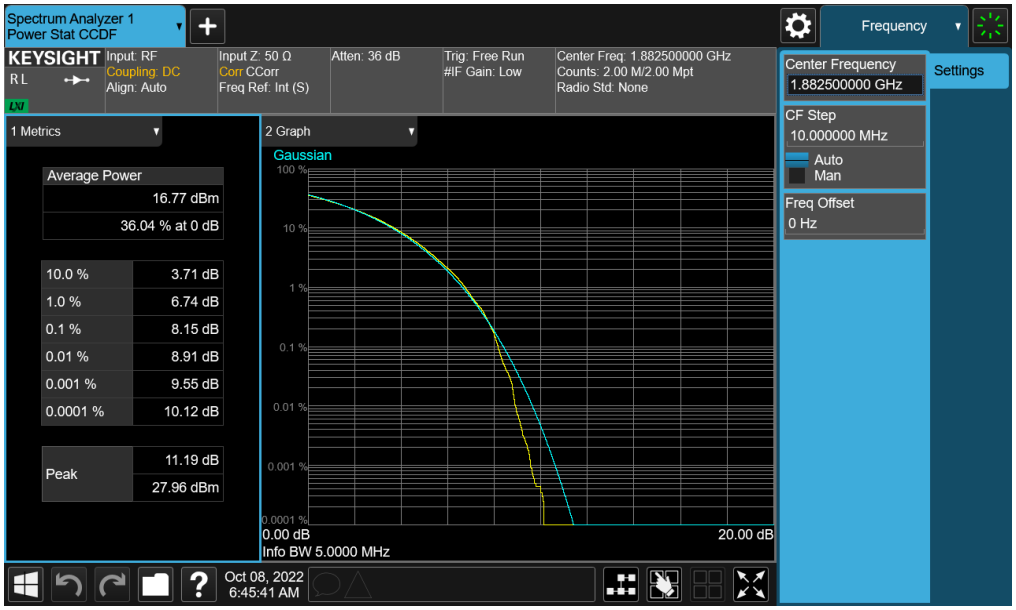
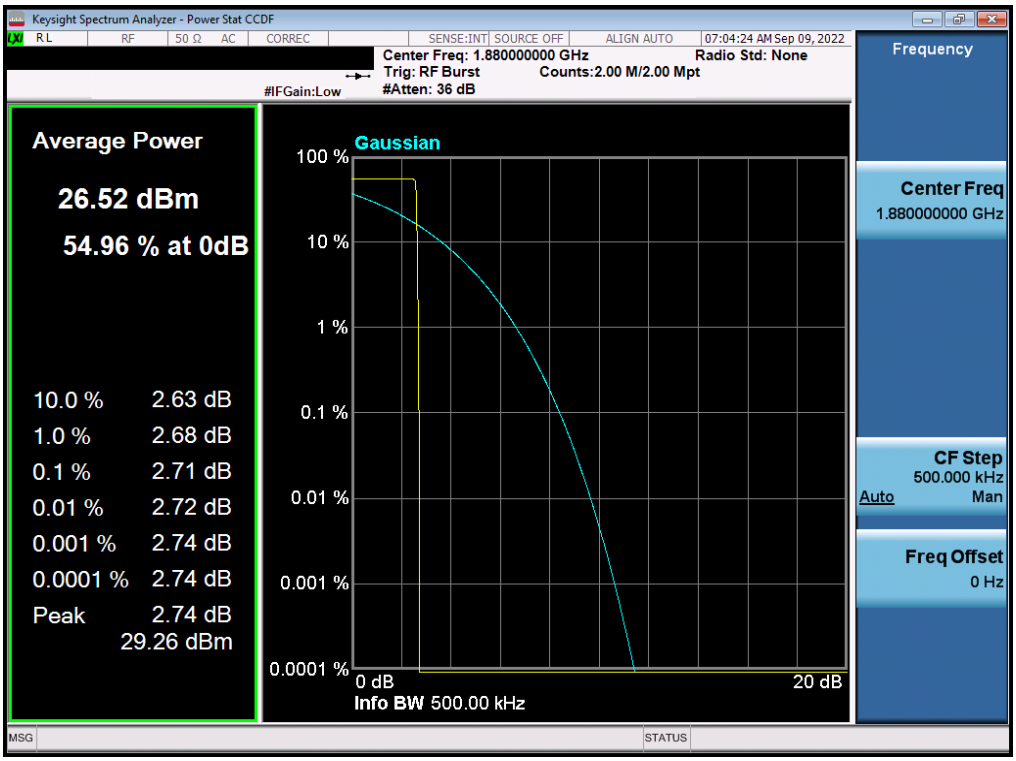
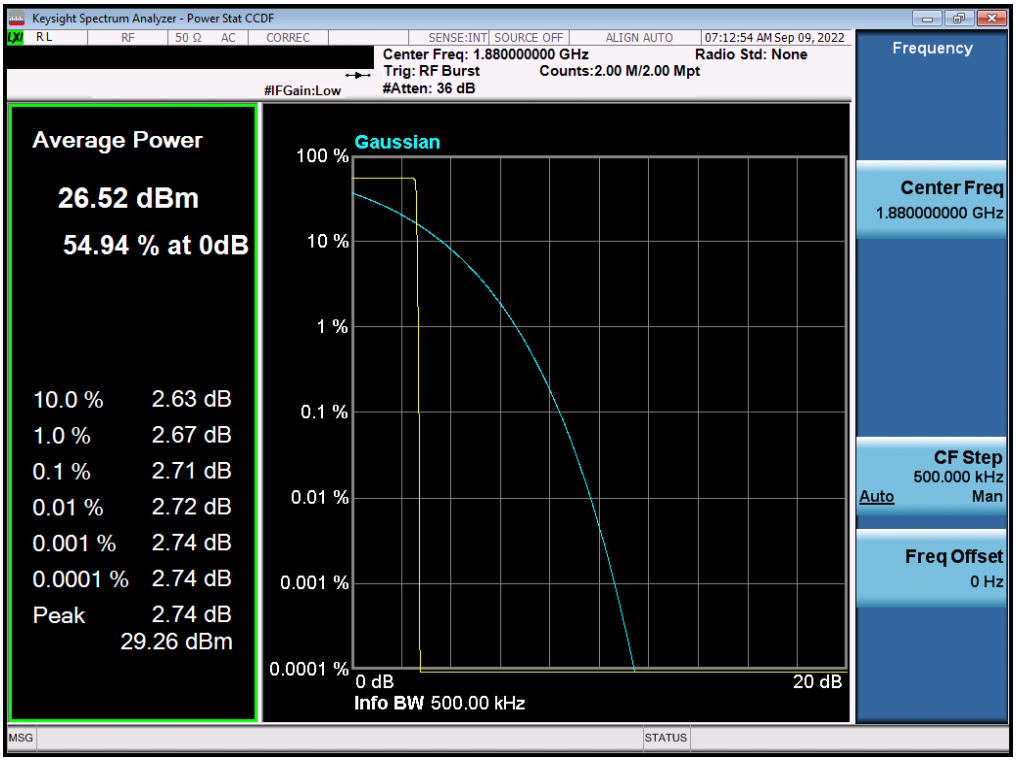


Plot 7-339. PAR Plot (NR Band n25/2 - 5.0MHz CP-OFDM 256-QAM - Full RB - Ant F)

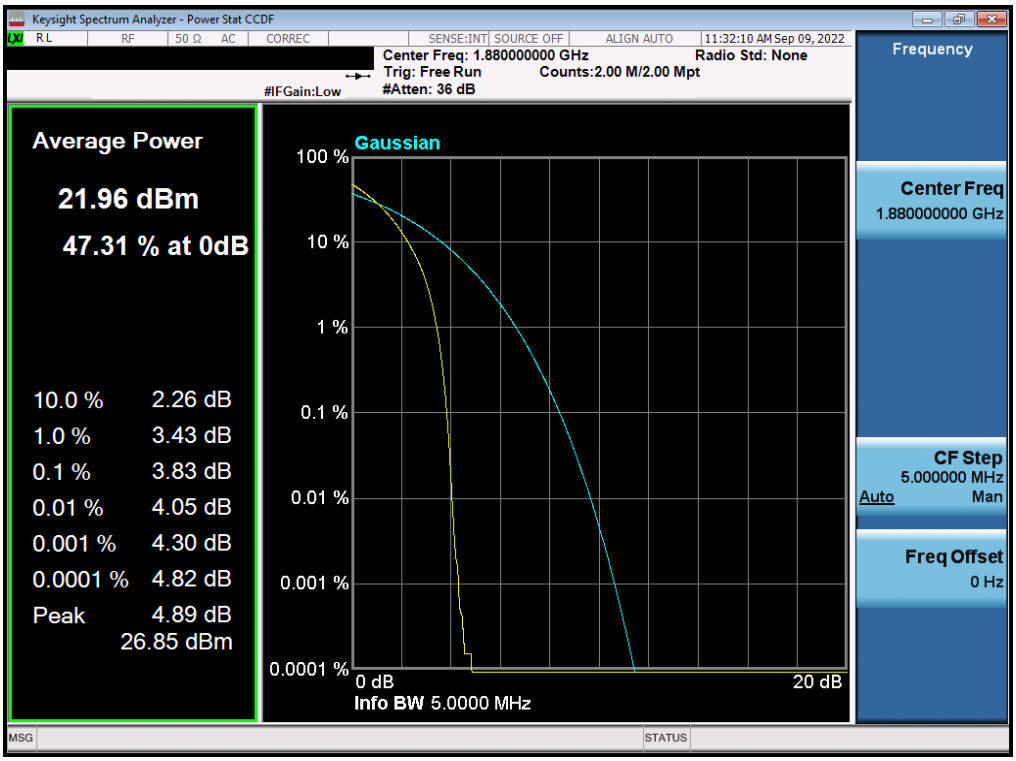


Plot 7-340. PAR Plot (GPRS, Ch. 661)



Plot 7-341. PAR Plot (EDGE, Ch. 661)

WCDMA PCS



Plot 7-342. PAR Plot (WCDMA, Ch. 9400)

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.

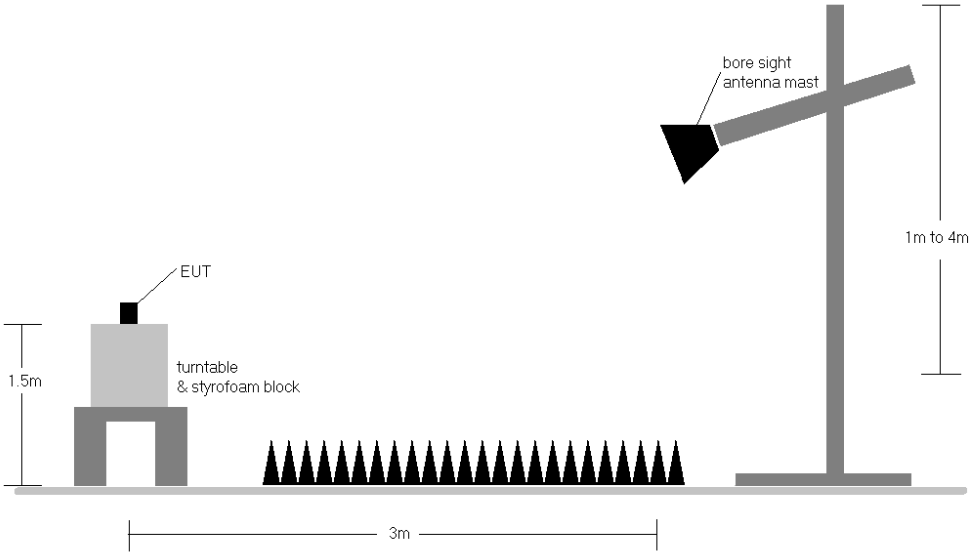


Figure 7-6. Radiated Test Setup >1GHz

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	1860.00	H	149	195	9.55	1 / 99	12.98	22.53	0.179	33.01	-10.48
	QPSK	1882.50	H	146	204	9.83	1 / 0	13.13	22.96	0.198	33.01	-10.05
	QPSK	1905.00	H	149	212	10.16	1 / 99	13.19	**23.35**	0.216	33.01	-9.66
	16-QAM	1905.00	H	149	212	10.16	1 / 99	12.62	22.78	0.190	33.01	-10.23
15 MHz	QPSK	1857.50	H	149	195	9.51	1 / 37	13.11	22.62	0.183	33.01	-10.39
	QPSK	1882.50	H	146	204	9.83	1 / 37	13.20	23.04	0.201	33.01	-9.97
	QPSK	1907.50	H	149	212	10.21	1 / 37	13.19	**23.40**	0.219	33.01	-9.62
	16-QAM	1907.50	H	149	212	10.21	1 / 74	12.41	22.62	0.183	33.01	-10.40
10 MHz	QPSK	1855.00	H	149	195	9.48	1 / 0	13.27	22.75	0.188	33.01	-10.26
	QPSK	1882.50	H	146	204	9.83	1 / 25	13.33	23.16	0.207	33.01	-9.85
	QPSK	1910.00	H	149	212	10.25	1 / 49	13.44	**23.69**	0.234	33.01	-9.32
	16-QAM	1910.00	H	149	212	10.25	1 / 49	12.69	22.94	0.197	33.01	-10.07
5 MHz	QPSK	1852.50	H	149	195	9.44	1 / 24	13.51	22.95	0.197	33.01	-10.06
	QPSK	1882.50	H	146	204	9.83	1 / 0	13.40	23.23	0.210	33.01	-9.78
	QPSK	1912.50	H	149	212	10.28	1 / 12	13.44	**23.72**	0.235	33.01	-9.29
	16-QAM	1912.50	H	149	212	10.28	1 / 12	12.85	23.13	0.206	33.01	-9.88
3 MHz	QPSK	1851.50	H	149	195	9.43	1 / 0	13.44	22.87	0.194	33.01	-10.14
	QPSK	1882.50	H	146	204	9.83	1 / 7	13.43	23.27	0.212	33.01	-9.74
	QPSK	1913.50	H	149	212	10.29	1 / 7	13.45	**23.73**	0.236	33.01	-9.28
	16-QAM	1913.50	H	149	212	10.29	1 / 7	12.62	22.90	0.195	33.01	-10.11
1.4 MHz	QPSK	1850.70	H	149	195	9.42	1 / 3	13.39	22.81	0.191	33.01	-10.20
	QPSK	1882.50	H	146	204	9.83	1 / 3	13.29	23.13	0.205	33.01	-9.88
	QPSK	1914.30	H	149	212	10.30	1 / 3	13.29	**23.59**	0.229	33.01	-9.42
	16-QAM	1914.30	H	149	212	10.30	1 / 0	12.43	22.73	0.188	33.01	-10.28
20 MHz	Opposite Pol.	1905.00	V	137	331	10.18	1 / 99	13.13	23.31	0.214	33.01	-9.70
	WCP	1905.00	H	135	214	10.16	1 / 50	13.17	23.33	0.215	33.01	-9.68

Table 7-11. EIRP Data (LTE Band 25/2 - Ant A)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.00	H	344	365	9.55	1 / 99	12.32	**21.87**	0.154	33.01	-11.14
	QPSK	1882.50	H	339	351	9.83	1 / 0	11.60	21.43	0.139	33.01	-11.58
	QPSK	1905.00	H	284	358	10.16	1 / 0	11.30	21.46	0.140	33.01	-11.55
	16-QAM	1860.00	H	344	365	9.55	1 / 99	11.68	21.23	0.133	33.01	-11.78
15 MHz	QPSK	1857.50	H	344	365	9.51	1 / 74	12.36	**21.87**	0.154	33.01	-11.14
	QPSK	1882.50	H	339	351	9.83	1 / 0	11.59	21.43	0.139	33.01	-11.58
	QPSK	1907.50	H	284	358	10.21	1 / 0	11.14	21.34	0.136	33.01	-11.67
	16-QAM	1857.50	H	344	365	9.51	1 / 74	11.82	21.34	0.136	33.01	-11.67
10 MHz	QPSK	1855.00	H	344	365	9.48	1 / 0	12.47	**21.95**	0.157	33.01	-11.07
	QPSK	1882.50	H	339	351	9.83	1 / 0	11.74	21.57	0.144	33.01	-11.44
	QPSK	1910.00	H	284	358	10.25	1 / 49	11.09	21.35	0.136	33.01	-11.66
	16-QAM	1855.00	H	344	365	9.48	1 / 0	11.71	21.19	0.132	33.01	-11.82
5 MHz	QPSK	1852.50	H	344	365	9.44	1 / 0	12.46	**21.90**	0.155	33.01	-11.11
	QPSK	1882.50	H	339	351	9.83	1 / 12	11.90	21.73	0.149	33.01	-11.28
	QPSK	1912.50	H	284	358	10.28	1 / 12	11.28	21.56	0.143	33.01	-11.45
	16-QAM	1852.50	H	344	365	9.44	1 / 0	11.75	21.19	0.132	33.01	-11.82
3 MHz	QPSK	1851.50	H	344	365	9.43	1 / 0	12.18	21.61	0.145	33.01	-11.40
	QPSK	1882.50	H	339	351	9.83	1 / 7	11.67	21.51	0.141	33.01	-11.51
	QPSK	1913.50	H	284	358	10.29	1 / 7	11.43	**21.72**	0.148	33.01	-11.29
	16-QAM	1913.50	H	284	358	10.29	1 / 7	10.94	21.23	0.133	33.01	-11.78
1.4 MHz	QPSK	1850.70	H	344	365	9.42	1 / 5	12.42	**21.84**	0.153	33.01	-11.17
	QPSK	1882.50	H	339	351	9.83	1 / 3	11.75	21.58	0.144	33.01	-11.43
	QPSK	1914.30	H	284	358	10.30	1 / 0	11.34	21.64	0.146	33.01	-11.37
	16-QAM	1850.70	H	344	365	9.42	1 / 5	11.97	21.39	0.138	33.01	-11.62
20 MHz	Opposite Pol.	1860.00	V	107	339	9.68	1 / 0	11.57	21.25	0.133	33.01	-11.76
	WCP	1860.00	H	104	333	9.55	1 / 0	11.45	21.00	0.126	33.01	-12.01

Table 7-12. EIRP Data (LTE Band 25/2 - Ant F)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1870.00	V	130	214	9.75	1 / 108	12.94	22.69	0.186	33.01	-10.32
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 108	12.78	**22.77**	0.189	33.01	-10.24
	π/2 BPSK	1895.00	V	127	214	10.12	1 / 161	12.58	22.70	0.186	33.01	-10.31
	QPSK	1870.00	V	130	214	9.75	1 / 108	12.89	22.64	0.184	33.01	-10.37
	QPSK	1882.50	V	127	216	9.99	1 / 108	12.10	22.09	0.162	33.01	-10.92
	QPSK	1895.00	V	127	214	10.12	1 / 54	11.62	21.74	0.149	33.01	-11.27
	16-QAM	1882.50	V	127	216	9.99	1 / 108	11.48	21.47	0.140	33.01	-11.54
30 MHz	π/2 BPSK	1865.00	V	130	214	9.72	1 / 80	13.13	**22.84**	0.192	33.01	-10.17
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 119	12.84	22.83	0.192	33.01	-10.18
	π/2 BPSK	1900.00	V	127	214	10.16	1 / 40	12.68	22.84	0.192	33.01	-10.17
	QPSK	1865.00	V	130	214	9.72	1 / 80	13.09	22.80	0.191	33.01	-10.21
	QPSK	1882.50	V	127	216	9.99	1 / 119	11.98	21.96	0.157	33.01	-11.05
	QPSK	1900.00	V	127	214	10.16	1 / 40	11.70	21.86	0.153	33.01	-11.15
	16-QAM	1865.00	V	130	214	9.72	1 / 80	11.78	21.50	0.141	33.01	-11.51
25 MHz	π/2 BPSK	1862.50	V	130	214	9.70	1 / 33	13.16	22.85	0.193	33.01	-10.16
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 99	12.68	22.67	0.185	33.01	-10.34
	π/2 BPSK	1902.50	V	127	214	10.17	1 / 33	12.32	22.50	0.178	33.01	-10.51
	QPSK	1862.50	V	130	214	9.70	1 / 33	13.34	**23.04**	0.201	33.01	-9.97
	QPSK	1882.50	V	127	216	9.99	1 / 33	11.84	21.83	0.152	33.01	-11.18
	QPSK	1902.50	V	127	214	10.17	1 / 33	11.65	21.82	0.152	33.01	-11.19
	16-QAM	1862.50	V	130	214	9.70	1 / 33	11.77	21.46	0.140	33.01	-11.55
20 MHz	π/2 BPSK	1860.00	V	130	214	9.68	1 / 26	13.32	23.00	0.199	33.01	-10.01
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 26	12.74	22.72	0.187	33.01	-10.29
	π/2 BPSK	1905.00	V	127	214	10.18	1 / 26	12.39	22.57	0.181	33.01	-10.44
	QPSK	1860.00	V	130	214	9.68	1 / 26	13.43	**23.11**	0.205	33.01	-9.90
	QPSK	1882.50	V	127	216	9.99	1 / 26	11.94	21.92	0.156	33.01	-11.09
	QPSK	1905.00	V	127	214	10.18	1 / 26	11.61	21.79	0.151	33.01	-11.22
	16-QAM	1860.00	V	130	214	9.68	1 / 26	11.91	21.59	0.144	33.01	-11.42
15 MHz	π/2 BPSK	1857.50	V	130	214	9.66	1 / 58	12.98	22.64	0.183	33.01	-10.37
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 20	12.78	22.76	0.189	33.01	-10.25
	π/2 BPSK	1907.50	V	127	214	10.19	1 / 20	12.32	22.51	0.178	33.01	-10.50
	QPSK	1857.50	V	130	214	9.66	1 / 58	13.16	**22.82**	0.191	33.01	-10.19
	QPSK	1882.50	V	127	216	9.99	1 / 20	11.97	21.96	0.157	33.01	-11.05
	QPSK	1907.50	V	127	214	10.19	1 / 20	11.62	21.81	0.152	33.01	-11.20
	16-QAM	1857.50	V	130	214	9.66	1 / 58	11.96	21.62	0.145	33.01	-11.39
10 MHz	π/2 BPSK	1855.00	V	130	214	9.64	1 / 38	13.05	22.69	0.186	33.01	-10.32
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 13	12.58	22.57	0.181	33.01	-10.45
	π/2 BPSK	1910.00	V	127	214	10.20	1 / 26	12.25	22.45	0.176	33.01	-10.56
	QPSK	1855.00	V	130	214	9.64	1 / 38	13.11	**22.75**	0.189	33.01	-10.26
	QPSK	1882.50	V	127	216	9.99	1 / 13	11.92	21.90	0.155	33.01	-11.11
	QPSK	1910.00	V	127	214	10.20	1 / 26	11.55	21.75	0.150	33.01	-11.26
	16-QAM	1855.00	V	130	214	9.64	1 / 38	11.89	21.53	0.142	33.01	-11.48
5 MHz	π/2 BPSK	1852.50	V	130	214	9.63	1 / 6	13.14	22.77	0.189	33.01	-10.24
	π/2 BPSK	1882.50	V	127	216	9.99	1 / 18	12.61	22.60	0.182	33.01	-10.41
	π/2 BPSK	1912.50	V	127	214	10.21	1 / 6	11.55	21.75	0.150	33.01	-11.26
	QPSK	1852.50	V	130	214	9.63	1 / 6	13.27	**22.90**	0.195	33.01	-10.11
	QPSK	1882.50	V	127	216	9.99	1 / 18	11.85	21.84	0.153	33.01	-11.17
	QPSK	1912.50	V	127	214	10.21	1 / 6	10.86	21.06	0.128	33.01	-11.95
	16-QAM	1852.50	V	130	214	9.63	1 / 6	11.89	21.52	0.142	33.01	-11.49
40 MHz	QPSK (CP-OFDM)	1882.50	V	105	322	9.75	1 / 12	11.55	21.30	0.135	33.01	-11.71
	QPSK (Opposite Pol.)	1882.50	H	192	206	9.66	1 / 12	11.38	21.04	0.127	33.01	-11.97
	QPSK (WCP)	1882.50	H	189	186	9.66	1 / 12	11.04	20.70	0.117	33.01	-12.31

Table 7-13. EIRP Data (NR Band n25/2 - Ant A)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1870.00	V	212	359	9.75	1 / 54	10.49	**20.24**	0.106	33.01	-12.77
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 108	9.07	19.06	0.080	33.01	-13.95
	π/2 BPSK	1895.00	V	202	9	10.12	1 / 108	9.52	19.64	0.092	33.01	-13.37
	QPSK	1870.00	V	212	359	9.75	1 / 54	10.36	20.11	0.103	33.01	-12.90
	QPSK	1882.50	V	199	6	9.99	1 / 108	8.96	18.95	0.078	33.01	-14.06
	QPSK	1895.00	V	202	9	10.12	1 / 108	9.32	19.44	0.088	33.01	-13.57
	16-QAM	1870.00	V	212	359	9.75	1 / 54	9.66	19.41	0.087	33.01	-13.60
30 MHz	π/2 BPSK	1865.00	V	212	359	9.72	1 / 40	10.49	**20.21**	0.105	33.01	-12.80
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 80	9.15	19.14	0.082	33.01	-13.87
	π/2 BPSK	1900.00	V	202	9	10.16	1 / 40	9.52	19.68	0.093	33.01	-13.33
	QPSK	1865.00	V	212	359	9.72	1 / 40	10.37	20.09	0.102	33.01	-12.92
	QPSK	1882.50	V	199	6	9.99	1 / 80	8.87	18.86	0.077	33.01	-14.15
	QPSK	1900.00	V	202	9	10.16	1 / 40	9.41	19.57	0.091	33.01	-13.44
	16-QAM	1865.00	V	212	359	9.72	1 / 40	9.67	19.39	0.087	33.01	-13.62
25 MHz	π/2 BPSK	1862.50	V	212	359	9.70	1 / 33	10.54	**20.24**	0.106	33.01	-12.77
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 66	9.21	19.20	0.083	33.01	-13.81
	π/2 BPSK	1902.50	V	202	9	10.17	1 / 33	9.56	19.73	0.094	33.01	-13.28
	QPSK	1862.50	V	212	359	9.70	1 / 33	10.15	19.85	0.097	33.01	-13.16
	QPSK	1882.50	V	199	6	9.99	1 / 66	8.59	18.58	0.072	33.01	-14.43
	QPSK	1902.50	V	202	9	10.17	1 / 33	9.07	19.24	0.084	33.01	-13.77
	16-QAM	1862.50	V	212	359	9.70	1 / 33	9.60	19.29	0.085	33.01	-13.72
20 MHz	π/2 BPSK	1860.00	V	212	359	9.68	1 / 53	10.71	**20.39**	0.109	33.01	-12.62
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 53	8.95	18.94	0.078	33.01	-14.07
	π/2 BPSK	1905.00	V	202	9	10.18	1 / 53	9.50	19.69	0.093	33.01	-13.32
	QPSK	1860.00	V	212	359	9.68	1 / 26	10.56	20.24	0.106	33.01	-12.77
	QPSK	1882.50	V	199	6	9.99	1 / 53	8.75	18.74	0.075	33.01	-14.27
	QPSK	1905.00	V	202	9	10.18	1 / 53	8.87	19.05	0.080	33.01	-13.96
	16-QAM	1860.00	V	212	359	9.68	1 / 26	9.74	19.42	0.087	33.01	-13.59
15 MHz	π/2 BPSK	1857.50	V	212	359	9.66	1 / 20	10.74	**20.40**	0.110	33.01	-12.61
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 20	9.20	19.19	0.083	33.01	-13.82
	π/2 BPSK	1907.50	V	202	9	10.19	1 / 58	9.37	19.56	0.090	33.01	-13.45
	QPSK	1857.50	V	212	359	9.66	1 / 20	10.46	20.12	0.103	33.01	-12.89
	QPSK	1882.50	V	199	6	9.99	1 / 20	8.66	18.65	0.073	33.01	-14.36
	QPSK	1907.50	V	202	9	10.19	1 / 58	9.05	19.24	0.084	33.01	-13.77
	16-QAM	1857.50	V	212	359	9.66	1 / 20	9.52	19.18	0.083	33.01	-13.83
10 MHz	π/2 BPSK	1855.00	V	212	359	9.64	1 / 26	10.66	**20.30**	0.107	33.01	-12.71
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 38	9.12	19.11	0.081	33.01	-13.90
	π/2 BPSK	1910.00	V	202	9	10.20	1 / 13	9.18	19.39	0.087	33.01	-13.62
	QPSK	1855.00	V	212	359	9.64	1 / 26	10.43	20.07	0.102	33.01	-12.94
	QPSK	1882.50	V	199	6	9.99	1 / 38	8.45	18.44	0.070	33.01	-14.57
	QPSK	1910.00	V	202	9	10.20	1 / 13	8.84	19.04	0.080	33.01	-13.97
	16-QAM	1855.00	V	212	359	9.64	1 / 26	9.06	18.71	0.074	33.01	-14.30
5 MHz	π/2 BPSK	1852.50	V	212	359	9.63	1 / 18	10.59	**20.22**	0.105	33.01	-12.79
	π/2 BPSK	1882.50	V	199	6	9.99	1 / 6	8.99	18.97	0.079	33.01	-14.04
	π/2 BPSK	1912.50	V	202	9	10.21	1 / 6	9.40	19.61	0.091	33.01	-13.40
	QPSK	1852.50	V	212	359	9.63	1 / 18	10.35	19.98	0.100	33.01	-13.03
	QPSK	1882.50	V	199	6	9.99	1 / 6	8.48	18.47	0.070	33.01	-14.54
	QPSK	1912.50	V	202	9	10.21	1 / 6	8.88	19.08	0.081	33.01	-13.93
	16-QAM	1852.50	V	212	359	9.63	1 / 18	9.28	18.90	0.078	33.01	-14.11
40 MHz	QPSK (CP-OFDM)	1870.00	V	210	348	9.75	1 / 54	8.79	18.54	0.072	33.01	-14.47
	QPSK (Opposite Pol.)	1870.00	H	342	2	9.66	1 / 161	10.15	19.81	0.096	33.01	-13.20
	QPSK (WCP)	1870.00	V	103	323	9.75	1 / 54	9.21	18.96	0.079	33.01	-14.05

Table 7-14. EIRP Data (NR Band n25/2 - Ant F)

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	159	336	18.79	9.61	28.40	0.692	33.01	-4.61
1880.00	GSM1900	V	148	336	20.09	9.96	**30.05**	**1.011**	33.01	-2.96
1909.80	GSM1900	V	151	330	19.65	10.20	29.85	0.966	33.01	-3.16
1880.00	GSM1900	H	219	198	18.23	9.79	28.02	0.635	33.01	-4.99
1880.00	EDGE1900	V	148	336	16.70	9.96	**26.66**	0.463	33.01	-6.35
1880.00	GSM1900 (WCP)	V	104	305	17.89	9.96	27.85	0.609	33.01	-5.16

Table 7-15. EIRP Data (GPRS PCS)

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	148	234	15.06	9.63	**24.69**	**0.294**	33.01	-8.33
1880.00	WCDMA1900	V	147	327	14.65	9.96	24.61	0.289	33.01	-8.40
1907.60	WCDMA1900	V	144	324	13.95	10.19	24.14	0.260	33.01	-8.87
1852.40	WCDMA1900	H	144	179	14.94	9.63	24.57	0.286	33.01	-8.45
1852.40	WCDMA1900 (WCP)	V	143	326	10.70	9.63	20.33	0.108	33.01	-12.69

Table 7-16. EIRP Data (WCDMA PCS)

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.

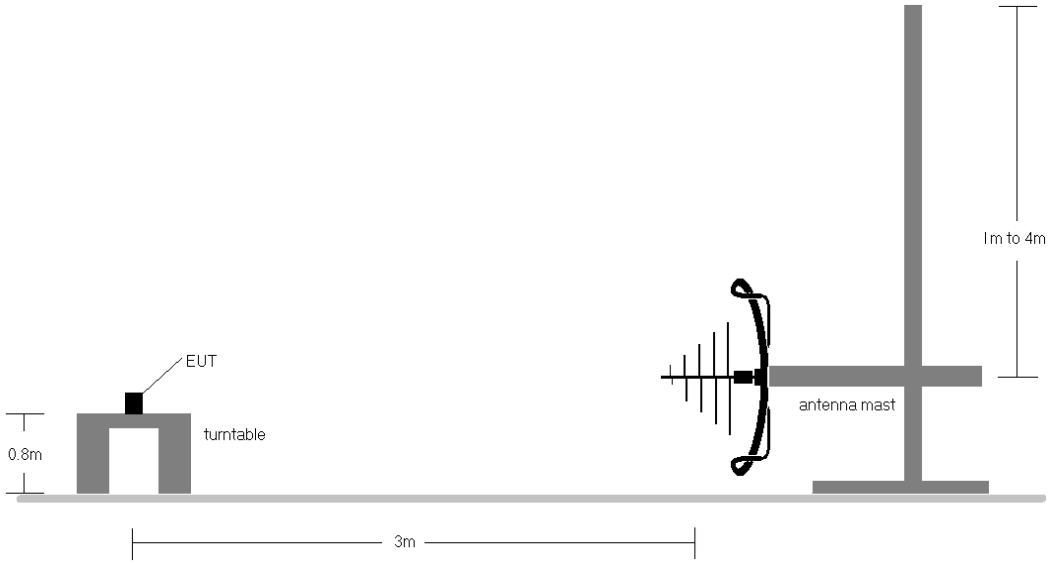


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

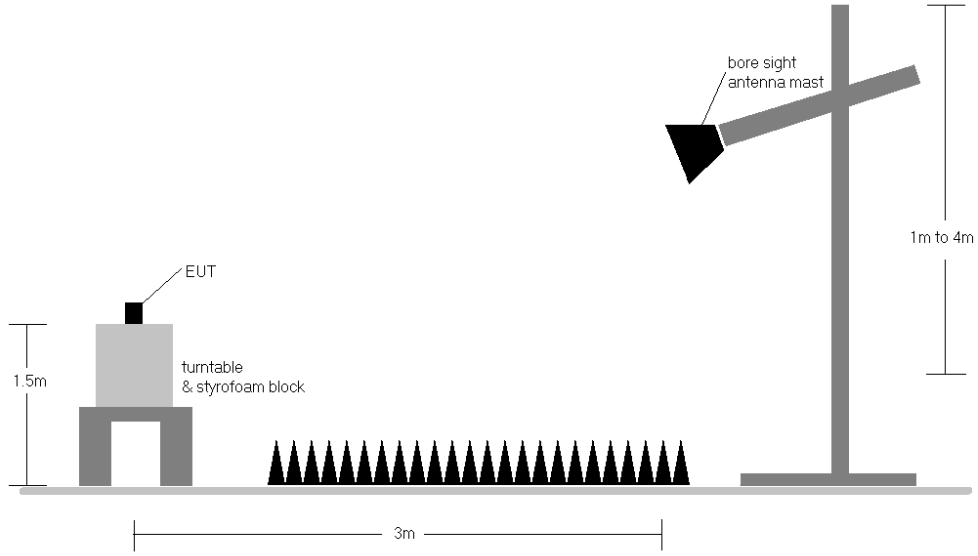


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

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.

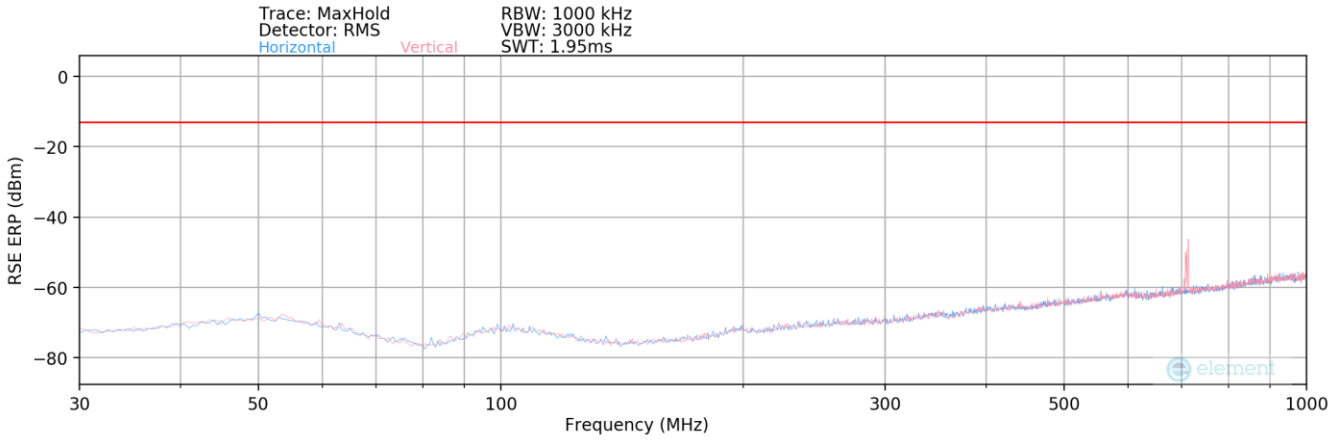
7) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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 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 A

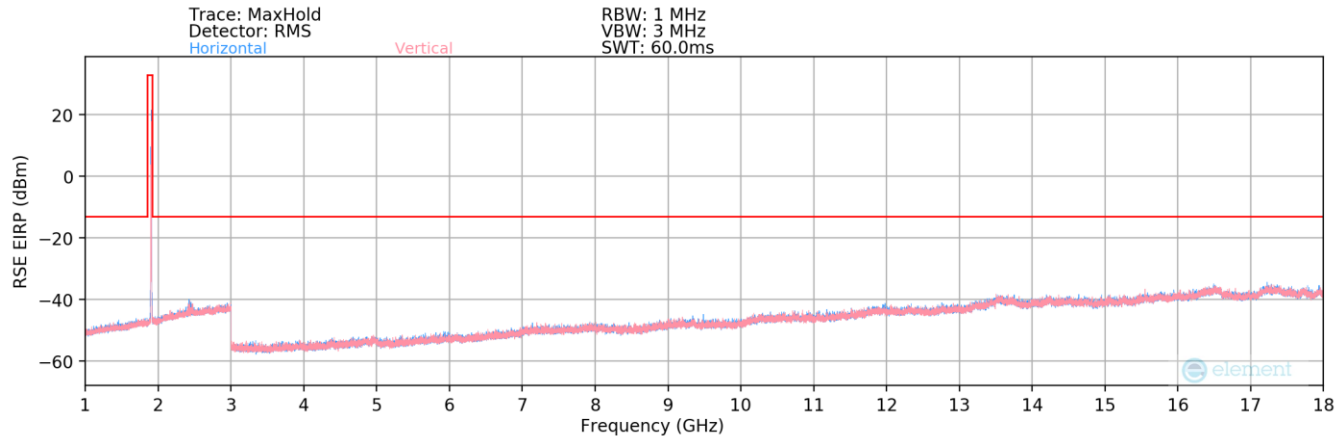


Plot 7-343. Radiated Spurious Plot (LTE Band 25/2 – Ant A) – Below 1GHz

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]
712.90	V	-	-	-80.20	-6.54	20.26	-77.15	-13.00	-64.15

Table 7-17. Radiated Spurious Data (LTE Band 25/2 – Ant A)



Plot 7-344. Radiated Spurious Plot (LTE Band 25/2 – Ant A) – Above 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]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.00	V	-	-	-80.05	7.55	34.50	-60.76	-13.00	-47.76
5580.00	V	-	-	-81.53	11.31	36.78	-58.48	-13.00	-45.48
7440.00	V	-	-	-82.42	15.31	39.89	-55.37	-13.00	-42.37

Table 7-18. Radiated Spurious Data (LTE Band 25/2 – Low Channel – Ant A)

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	V	-	-	-80.23	7.81	34.58	-60.68	-13.00	-47.68
5647.50	V	-	-	-81.57	10.99	36.42	-58.83	-13.00	-45.83
7530.00	V	-	-	-82.43	15.49	40.06	-55.20	-13.00	-42.20

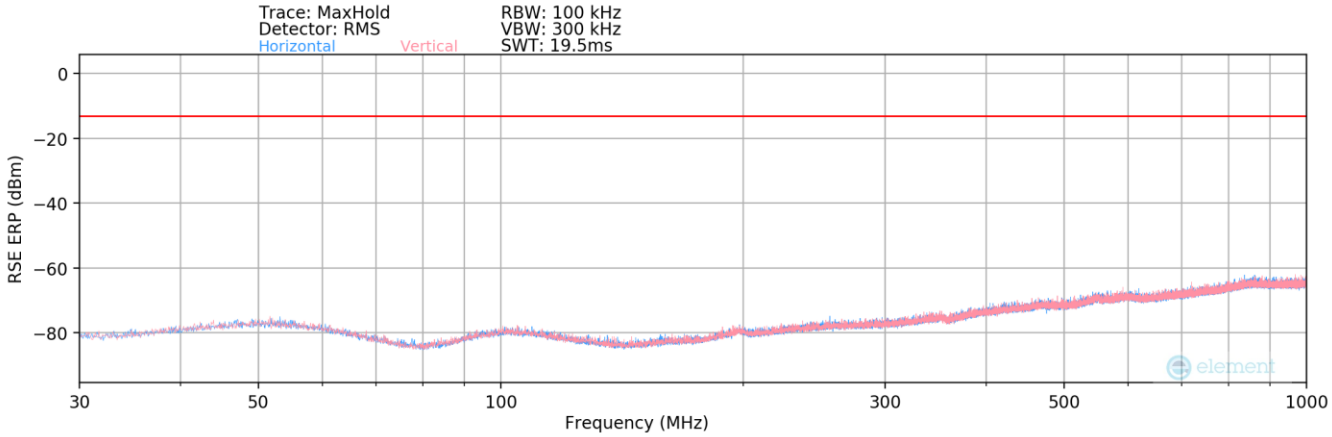
Table 7-19. Radiated Spurious Data (LTE Band 25/2 – Mid Channel – Ant A)

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	V	-	-	-80.42	7.78	34.36	-60.89	-13.00	-47.89
5715.00	V	-	-	-81.52	11.10	36.58	-58.67	-13.00	-45.67
7620.00	V	-	-	-82.35	15.99	40.64	-54.61	-13.00	-41.61

Table 7-20. Radiated Spurious Data (LTE Band 25/2 – High Channel – Ant A)

LTE Band 25/2 – Ant F

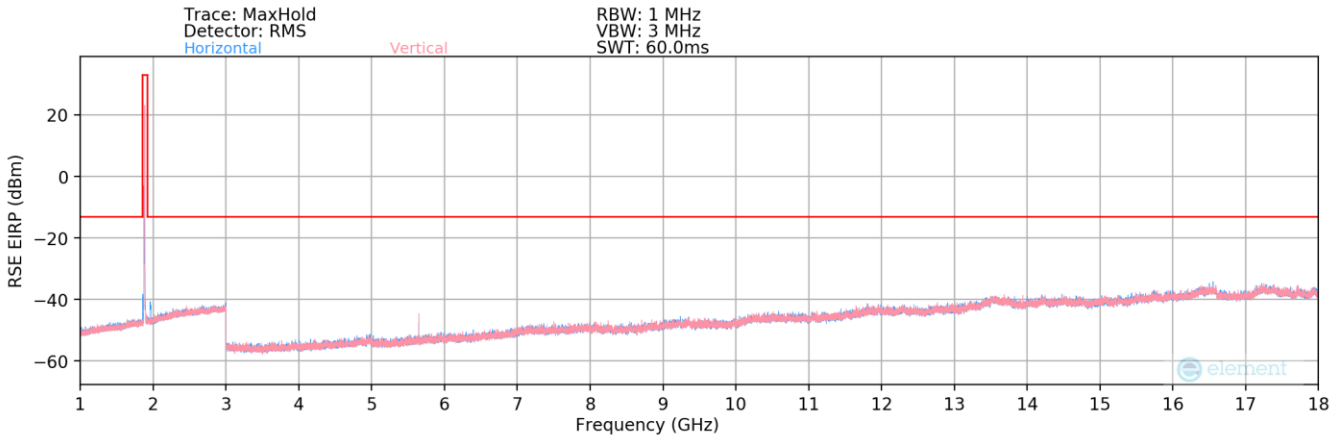


Plot 7-345. Radiated Spurious Plot (LTE Band 25/2 – Ant F) – Below 1GHz

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]
89.30	H	-	-	-74.55	-19.06	13.39	-84.01	-13.00	-71.01
255.20	H	-	-	-73.79	-15.06	18.15	-79.25	-13.00	-66.25

Table 7-21. Radiated Spurious Data (LTE Band 25/2 –Ant F)



Plot 7-346. Radiated Spurious Plot (LTE Band 25/2 – Ant F) – Above 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]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.00	V	-	-	-81.06	7.57	33.51	-61.74	-13.00	-48.74
5580.00	V	157	350	-71.66	11.49	46.83	-48.43	-13.00	-35.43
7440.00	V	-	-	-82.23	15.22	39.99	-55.26	-13.00	-42.26
9300.00	V	-	-	-83.73	17.82	41.09	-54.17	-13.00	-41.17
11160.00	V	-	-	-84.52	20.54	43.02	-52.24	-13.00	-39.24

Table 7-22. Radiated Spurious Data (LTE Band 25/2 – Low Channel – Ant F)

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	V	-	-	-79.99	7.81	34.82	-60.44	-13.00	-47.44
5647.50	V	201	350	-72.60	11.21	45.61	-49.64	-13.00	-36.64
7530.00	V	-	-	-83.12	15.43	39.31	-55.95	-13.00	-42.95
9412.50	V	-	-	-83.87	17.89	41.02	-54.24	-13.00	-41.24
11295.00	V	-	-	-84.97	20.74	42.77	-52.48	-13.00	-39.48

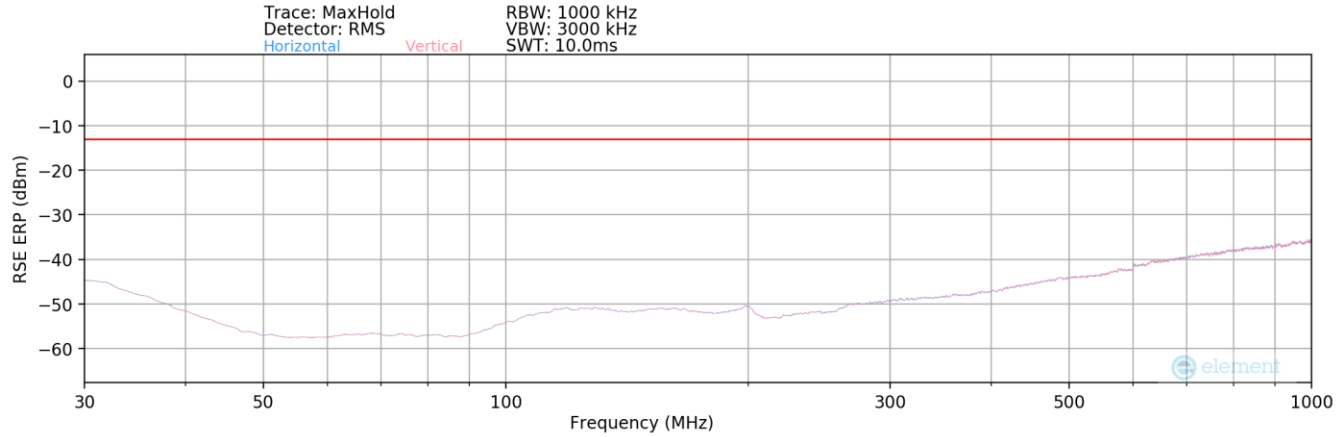
Table 7-23. Radiated Spurious Data (LTE Band 25/2 – Mid Channel – Ant F)

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	V	-	-	-80.99	7.96	33.97	-61.29	-13.00	-48.29
5715.00	V	144	344	-74.90	11.32	43.42	-51.84	-13.00	-38.84
7620.00	V	-	-	-83.16	15.82	39.66	-55.59	-13.00	-42.59
9525.00	V	-	-	-83.82	18.03	41.21	-54.05	-13.00	-41.05
11430.00	V	-	-	-84.46	21.15	43.69	-51.57	-13.00	-38.57

Table 7-24. Radiated Spurious Data (LTE Band 25/2 – High Channel – Ant F)

NR Band n25/2 – Ant A

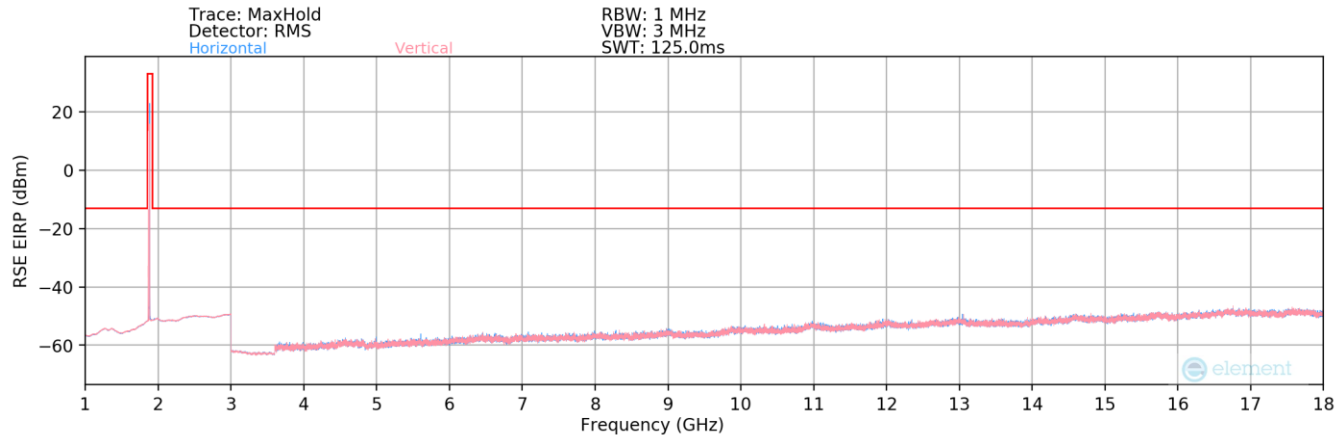


Plot 7-347. Radiated Spurious Plot (NR Band n25/2 – Ant A) – Below 1GHz

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]
497.00	H	-	-	-89.10	25.65	43.55	-53.85	-13.00	-40.85

Table 7-25. Radiated Spurious Data (NR Band n25/2 – Ant A)



Plot 7-348. Radiated Spurious Plot (NR Band n25/2 – Ant A) – Above 1GHz

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3740.00	H	153	164	-76.90	3.26	33.36	-61.90	-13.00	-48.90
5610.00	H	-	-	-78.75	5.38	33.63	-61.62	-13.00	-48.62
7480.00	H	-	-	-79.68	7.37	34.69	-60.57	-13.00	-47.57
9350.00	H	-	-	-80.95	9.82	35.87	-59.39	-13.00	-46.39

Table 7-26. Radiated Spurious Data (NR Band n25/2 – Low Channel – Ant A)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.00	H	152	167	-76.27	3.15	33.88	-61.38	-13.00	-48.38
5647.50	H	-	-	-78.93	5.29	33.36	-61.90	-13.00	-48.90
7530.00	H	-	-	-80.10	7.59	34.49	-60.77	-13.00	-47.77
9412.50	H	-	-	-81.40	10.03	35.63	-59.63	-13.00	-46.63

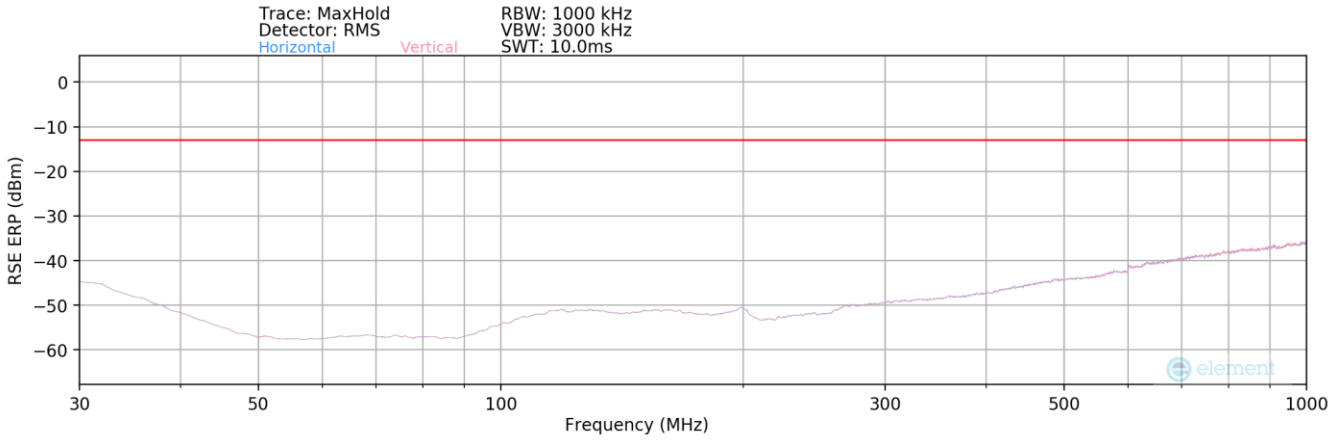
Table 7-27. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant A)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3790.00	H	370	168	-77.16	3.11	32.95	-62.31	-13.00	-49.31
5685.00	H	-	-	-78.88	5.53	33.65	-61.61	-13.00	-48.61
7580.00	H	-	-	-80.14	8.01	34.87	-60.39	-13.00	-47.39
9475.00	H	-	-	-81.41	9.95	35.54	-59.72	-13.00	-46.72

Table 7-28. Radiated Spurious Data (NR Band n25/2 – High Channel – Ant A)

NR Band n25/2 – Ant F

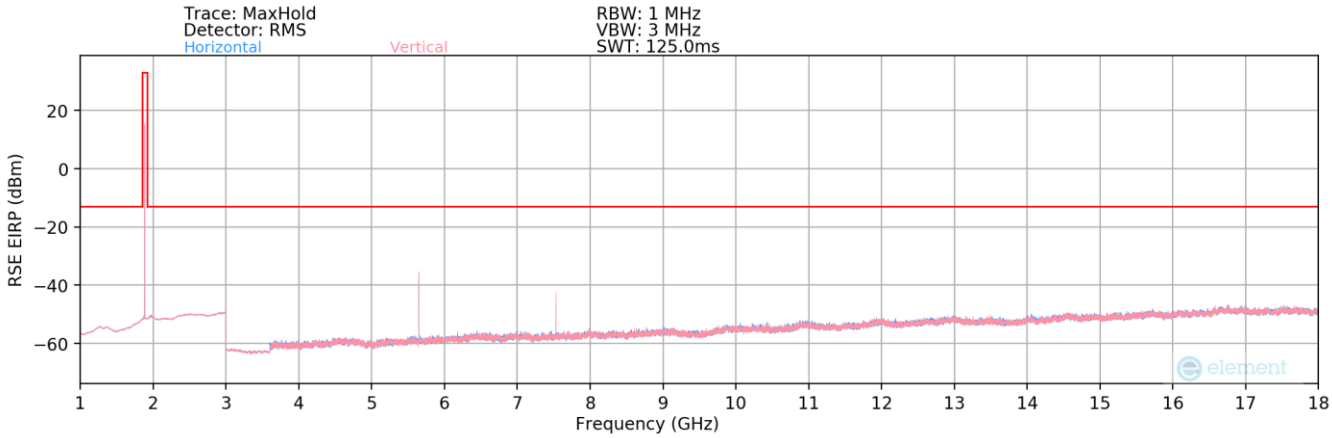


Plot 7-349. Radiated Spurious Plot (NR Band n25/2 – Ant F) – Below 1GHz

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
52.16	V	-	-	-84.03	14.50	37.47	-59.94	-13.00	-46.94
116.58	V	-	-	-84.08	20.39	43.31	-54.10	-13.00	-41.10
189.48	V	-	-	-83.93	18.76	41.83	-55.58	-13.00	-42.58

Table 7-29. Radiated Spurious Data (NR Band n25/2 – Ant F)



Plot 7-350. Radiated Spurious Plot (NR Band n25/2 – Ant F) – Above 1GHz

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3740.00	V	373	33	-75.86	3.26	34.40	-60.86	-13.00	-47.86
5610.00	V	155	352	-50.31	5.38	62.07	-33.18	-13.00	-20.18
7480.00	V	156	32	-65.49	7.37	48.88	-46.38	-13.00	-33.38
9350.00	V	-	-	-79.81	9.82	37.01	-58.25	-13.00	-45.25
11220.00	V	-	-	-80.33	12.00	38.67	-56.59	-13.00	-43.59
13090.00	V	-	-	-80.13	13.91	40.78	-54.47	-13.00	-41.47

Table 7-30. Radiated Spurious Data (NR Band n25/2 – Low Channel – Ant F)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.00	V	232	167	-73.73	3.15	36.42	-58.84	-13.00	-45.84
5647.50	V	142	347	-52.16	5.29	60.13	-35.13	-13.00	-22.13
7530.00	V	147	36	-64.96	7.59	49.63	-45.63	-13.00	-32.63
9412.50	V	-	-	-79.35	10.03	37.68	-57.58	-13.00	-44.58
11295.00	V	-	-	-80.37	12.16	38.79	-56.47	-13.00	-43.47
13177.50	V	-	-	-80.34	13.94	40.60	-54.66	-13.00	-41.66

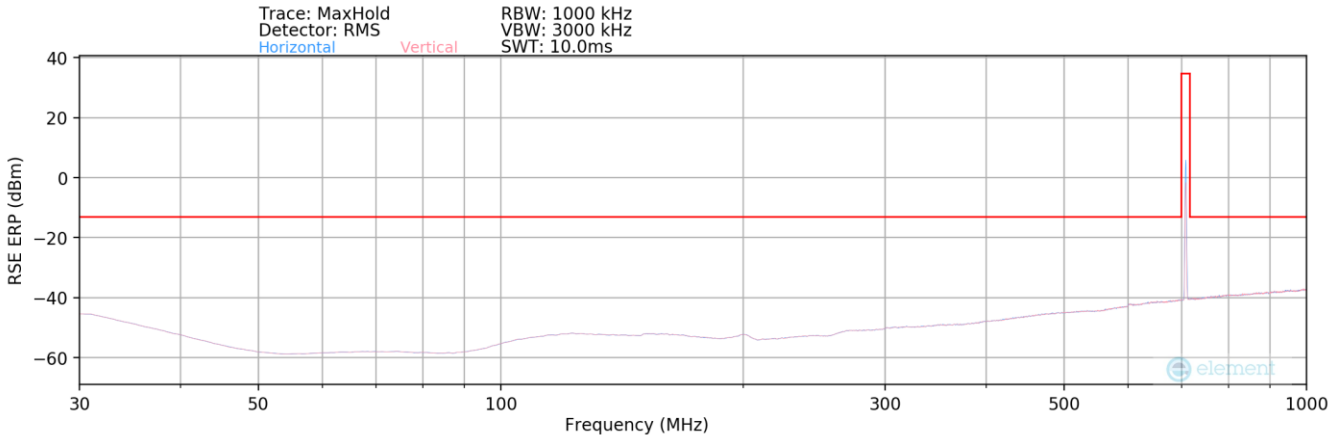
Table 7-31. Radiated Spurious Data (NR Band n25/2 – Mid Channel – Ant F)

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

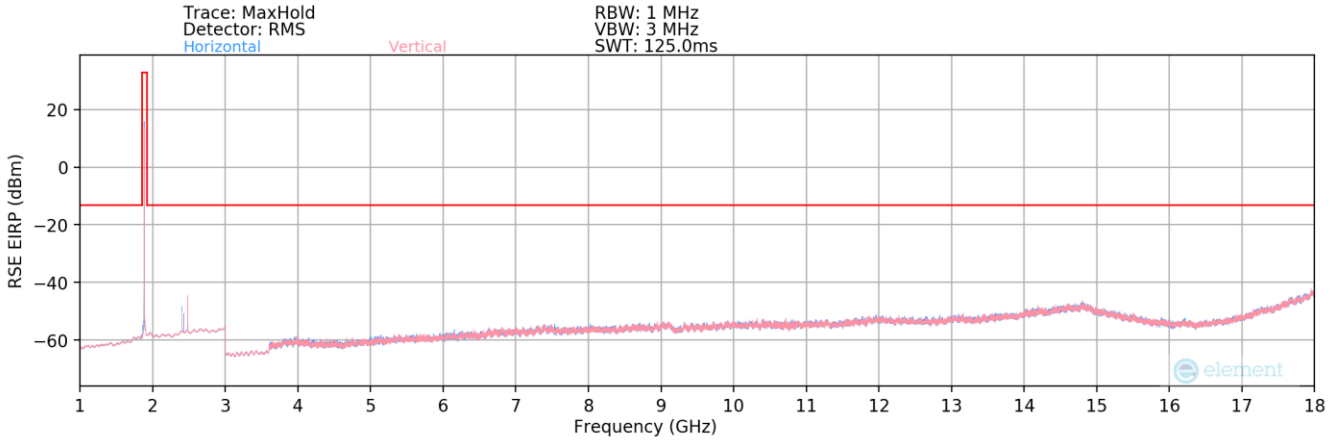
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3790.00	V	298	40	-75.90	3.11	34.21	-61.05	-13.00	-48.05
5685.00	V	151	352	-52.50	5.53	60.03	-35.23	-13.00	-22.23
7580.00	V	148	26	-63.01	8.01	52.00	-43.26	-13.00	-30.26
9475.00	V	-	-	-79.97	9.95	36.98	-58.28	-13.00	-45.28
11370.00	V	-	-	-80.38	11.99	38.61	-56.64	-13.00	-43.64
13265.00	V	-	-	-80.10	13.86	40.76	-54.50	-13.00	-41.50

Table 7-32. Radiated Spurious Data (NR Band n25/2 – High Channel – Ant F)

EN-DC: NR Band n25/2 ANT A – LTE Band 12



Plot 7-351. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n25/2 ANT A – LTE Band 12)



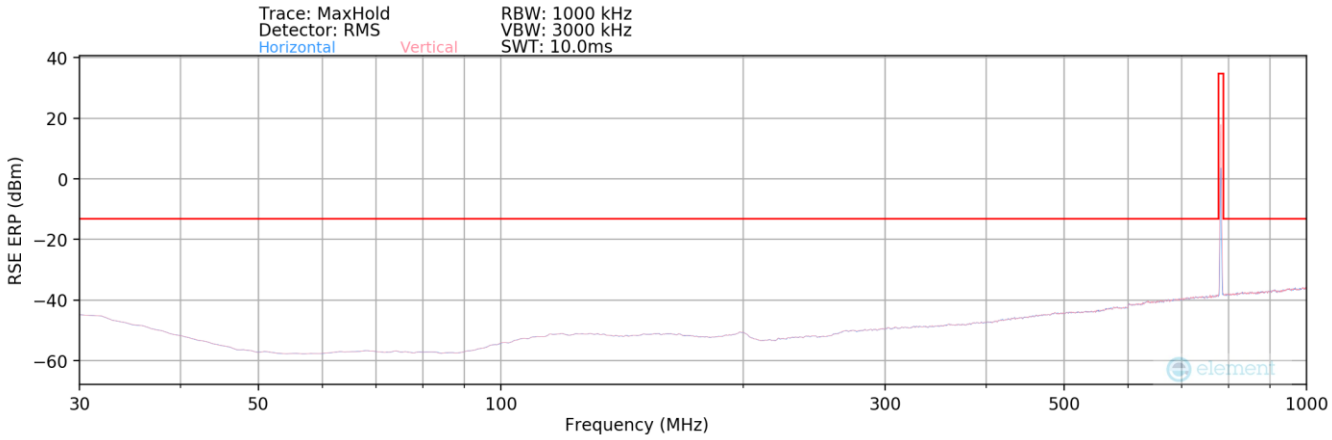
Plot 7-352. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n25/2 ANT A – LTE Band 12)

Bandwidth (MHz):	40 & 10
Frequency (MHz):	1882.5 & 707.5
RB / Offset:	1 / 108 & 1 / 25
Mode:	EN-DC
Anchor Band:	LTE B12

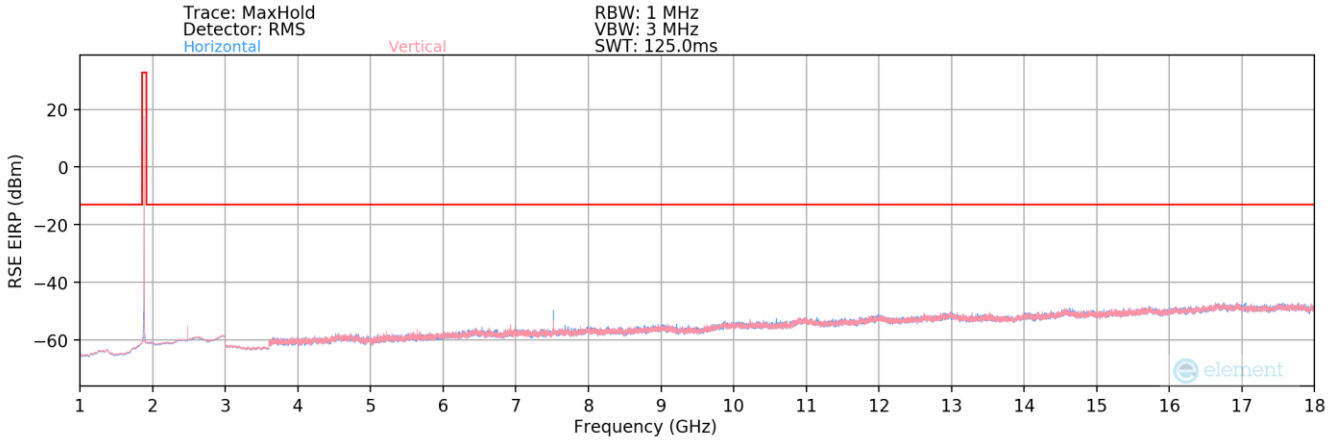
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
240.00	V	-	-	-85.34	18.65	40.31	-54.95	-13.00	-41.95
1175.00	V	316	246	-58.66	-2.48	45.86	-49.40	-13.00	-36.40
2590.00	V	316	251	-59.79	3.27	50.48	-44.78	-13.00	-31.78
3765.00	V	-	-	-74.44	-1.35	31.21	-64.05	-13.00	-51.05
5647.50	V	-	-	-75.00	0.71	32.71	-62.55	-13.00	-49.55
7530.00	V	-	-	-75.44	4.27	35.83	-59.43	-13.00	-46.43

Table 7-33. Radiated Spurious Data (EN-DC: NR Band n25/2 ANT A – LTE Band 12)

EN-DC: NR Band n2 ANT A – LTE Band 13



Plot 7-353. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n2 ANT A – LTE Band 13)



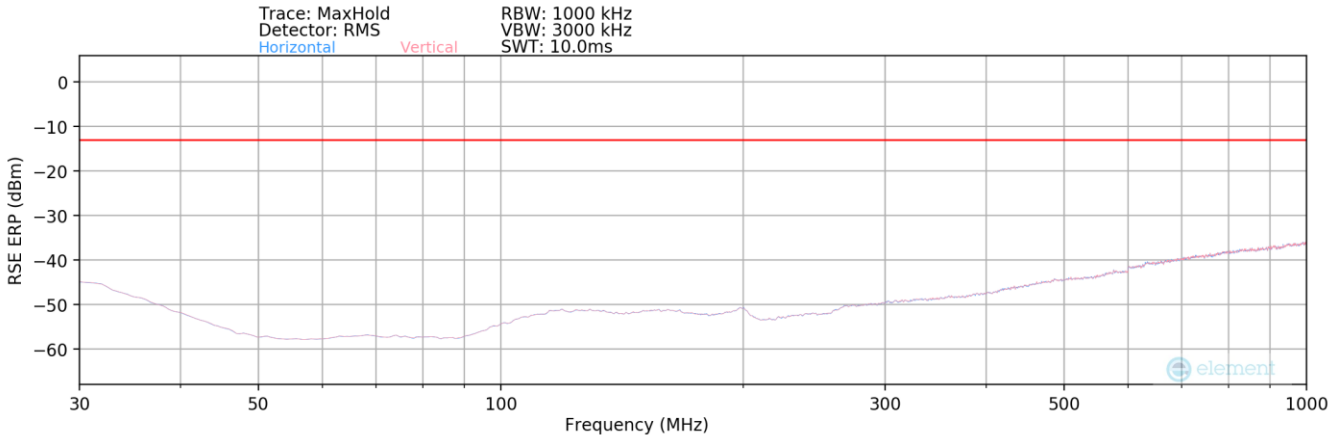
Plot 7-354. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n2 ANTA – LTE Band 13)

Bandwidth (MHz):	20 & 10
Frequency (MHz):	1880 & 782
RB / Offset:	1 / 53 & 1 / 25
Mode:	EN-DC
Anchor Band:	LTE B13

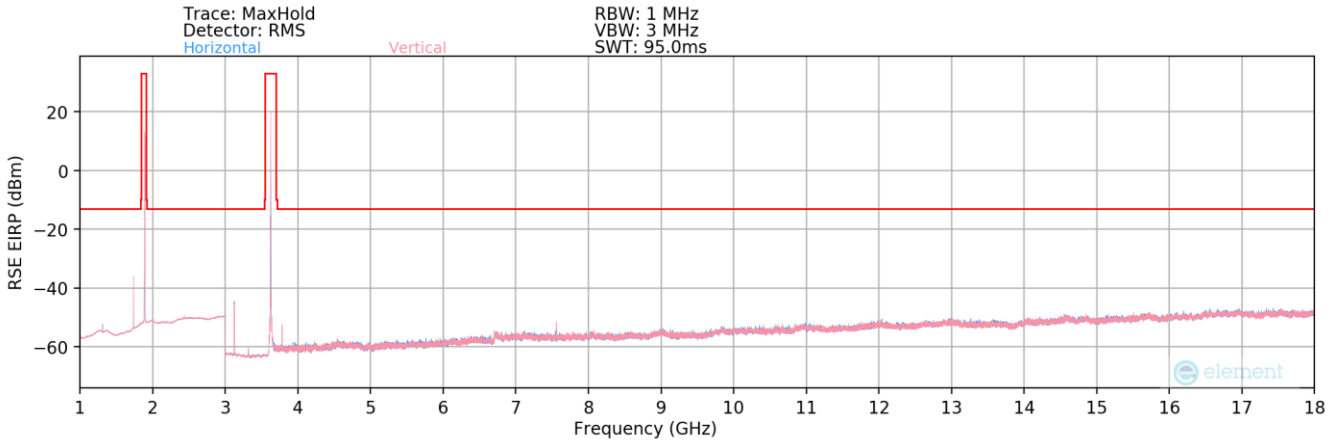
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
632.00	V	-	-	-100.35	28.49	35.14	-60.12	-13.00	-47.12
2496.00	V	120	116	-73.48	0.67	34.19	-61.07	-13.00	-48.07
3294.00	V	-	-	-74.29	2.56	35.27	-59.98	-13.00	-46.98
4076.00	V	-	-	-77.10	3.20	33.10	-62.16	-13.00	-49.16
5008.00	V	-	-	-77.41	4.34	33.93	-61.33	-13.00	-48.33
7520.00	H	318	357	-74.12	7.51	40.39	-54.87	-13.00	-41.87

Table 7-34. Radiated Spurious Data (EN-DC: NR Band n2 ANTA – LTE Band 13)

EN-DC: NR Band n2 ANT A – LTE Band 48



Plot 7-355. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n2 ANT F – LTE Band 30)



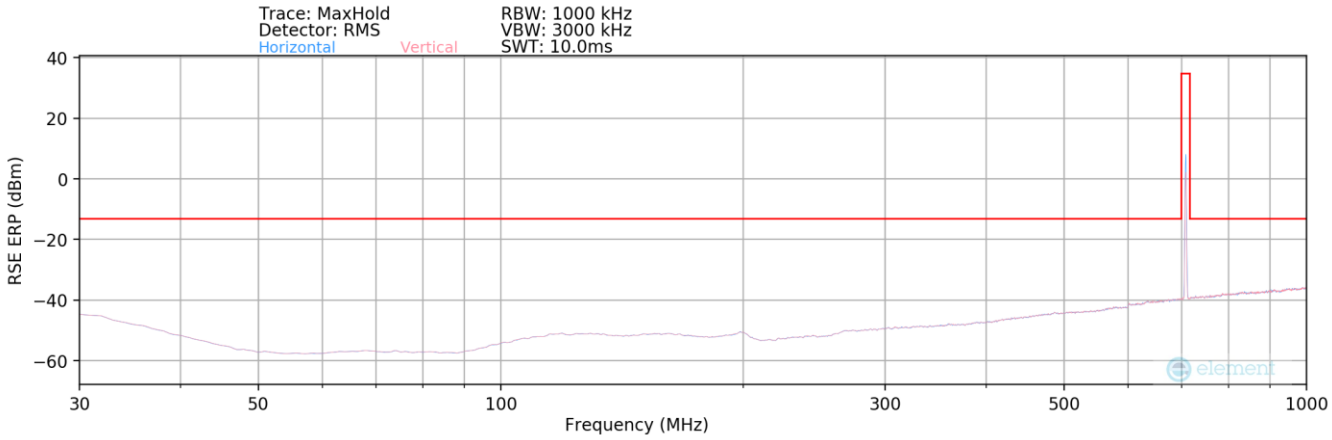
Plot 7-356. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n2 ANTF – LTE Band 30)

Bandwidth (MHz):	20 & 20
Frequency (MHz):	1880 & 3625
RB / Offset:	1/53 & 1/50
Mode:	EN-DC
Anchor Band:	LTE B48

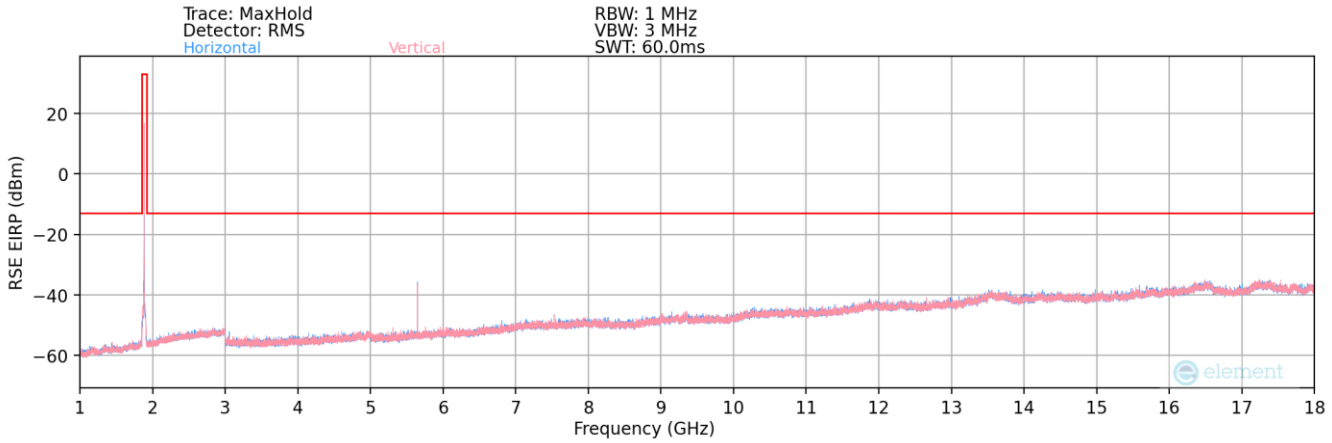
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
405.00	H	-	-	-98.09	23.40	32.31	-62.95	-13.00	-49.95
1310.00	H	191	361	-42.34	5.85	70.51	-24.75	-13.00	-11.75
1735.00	H	246	10	-55.25	7.03	58.78	-36.48	-13.00	-23.48
3123.00	H	359	355	-67.45	3.19	42.74	-52.52	-13.00	-39.52
3318.00	V	120	159	-71.09	2.67	38.58	-56.68	-13.00	-43.68
3780.00	V	119	22	-67.87	3.14	42.27	-52.99	-13.00	-39.99
7560.00	V	323	22	-73.45	8.08	41.63	-53.62	-13.00	-40.62

Table 7-35. Radiated Spurious Data (EN-DC: NR Band n2 ANTF – LTE Band 30)

EN-DC: NR Band n25/2 ANT F – LTE Band 12



Plot 7-357. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n25/2 ANT F – LTE Band 12)



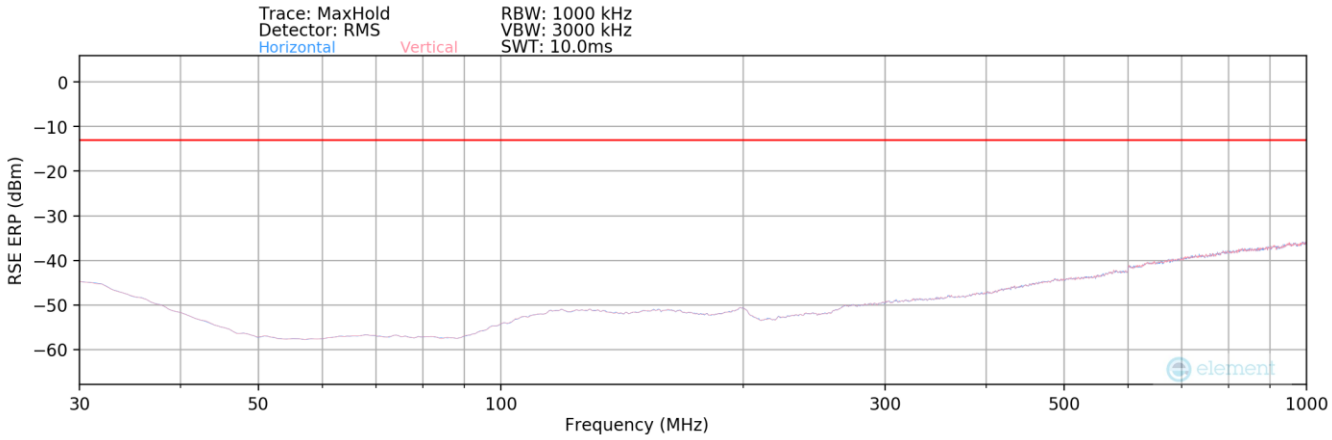
Plot 7-358. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n25/2 ANT F – LTE Band 12)

Bandwidth (MHz):	1882.5 & 707.5
Frequency (MHz):	40 & 10
RB / Offset:	1/108 & 1/25
Mode:	EN-DC
Anchor Band:	LTE B12

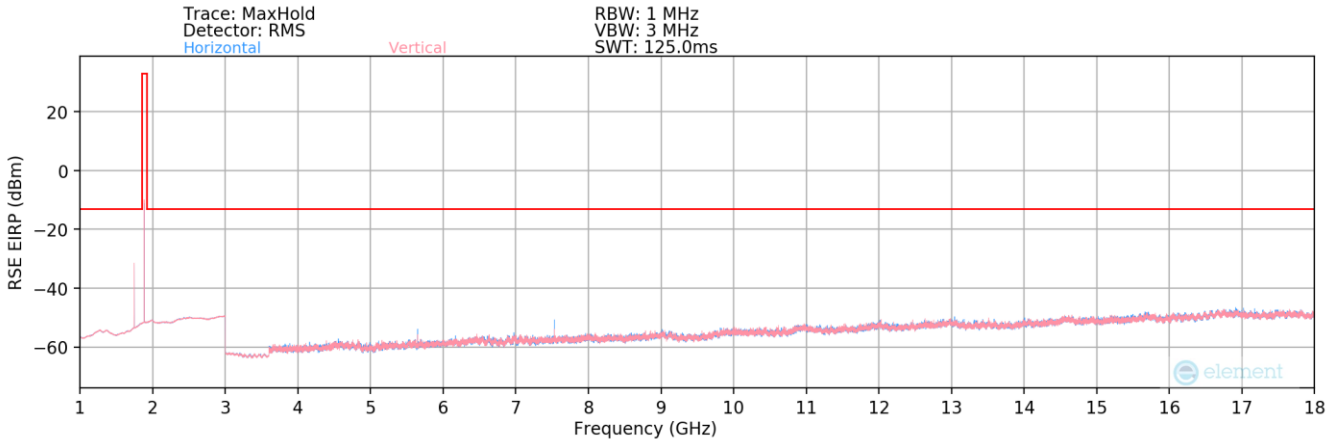
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
480.00	H	-	-	-108.29	25.44	24.15	-71.11	-13.00	-58.11
5647.50	H	103	43	-66.45	11.21	51.76	-43.49	-13.00	-30.49
7542.50	H	-	-	-82.12	15.29	40.17	-55.09	-13.00	-42.09
9652.50	H	-	-	-83.77	18.40	41.63	-53.63	-13.00	-40.63
12470.00	H	-	-	-84.00	22.87	45.87	-49.39	-13.00	-36.39

Table 7-36. Radiated Spurious Data (EN-DC: NR Band n25/2 ANT F – LTE Band 12)

EN-DC: NR Band n25 ANT F – LTE Band 66



Plot 7-359. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n25 ANT F – LTE Band 66)



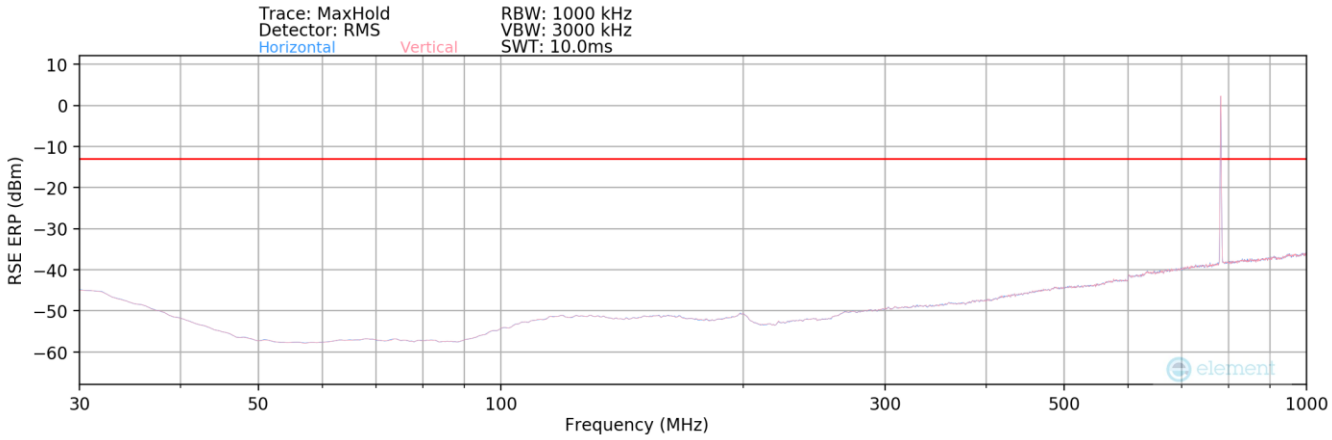
Plot 7-360. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n25 ANT F – LTE Band 66)

Bandwidth (MHz):	20/20
Frequency (MHz):	1882.5/ 1745
RB / Offset:	1/108 1/50
Mode:	EN-DC
Anchor Band:	LTE B66

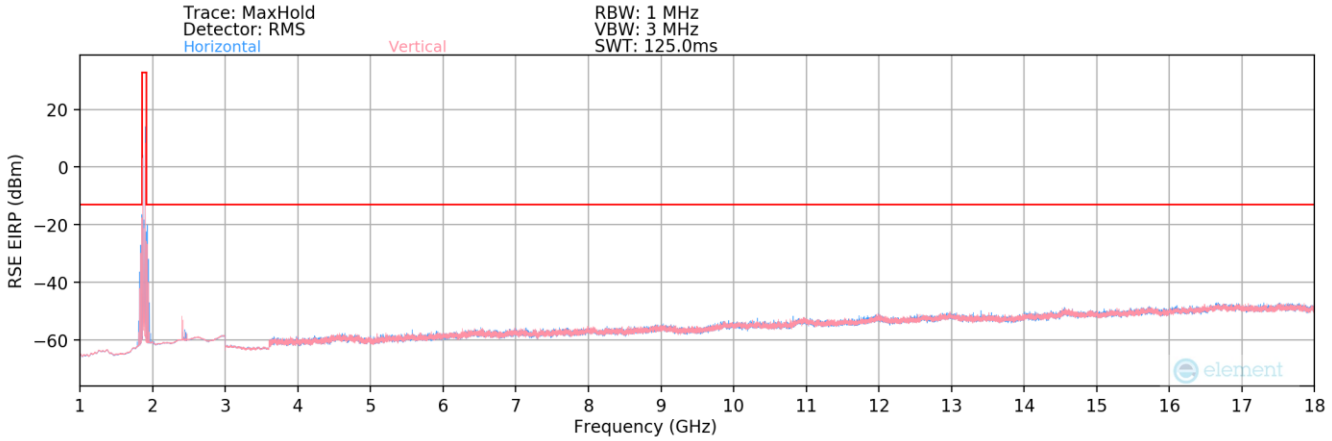
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2020.00	H	-	-	-72.40	91.99	126.59	31.33	-13.00	44.33
1607.00	H	-	-	-73.38	89.36	122.98	27.73	-13.00	40.73
2157.00	H	-	-	-72.45	90.85	125.40	30.14	-13.00	43.14
5647.50	H	173	346	-70.52	5.29	41.77	-53.49	-13.00	-40.49
7530.00	H	136	12	-72.40	7.59	42.19	-53.07	-13.00	-40.07
9412.50	H	-	-	-78.81	10.03	38.22	-57.04	-13.00	-44.04
11295.00	H	-	-	-78.96	12.16	40.20	-55.06	-13.00	-42.06

Table 7-37. Radiated Spurious Data (EN-DC: NR Band n25 ANT F – LTE Band 66)

EN-DC: NR Band n2 ANT F – LTE Band 13



Plot 7-361. Radiated Spurious Plot 30MHz-1GHz (EN-DC: NR Band n2 ANT F – LTE Band 13)



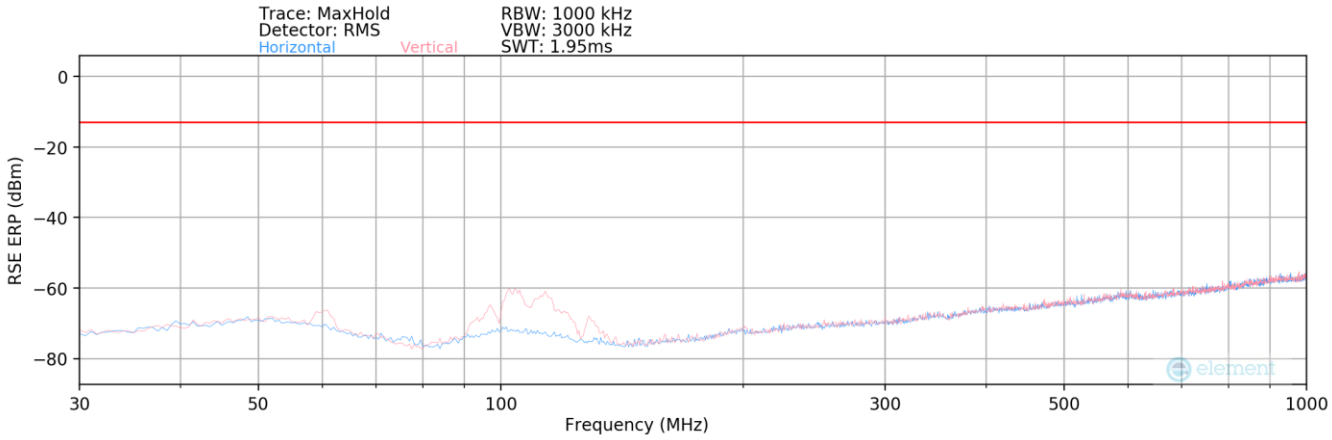
Plot 7-362. Radiated Spurious Plot 1-18GHz (EN-DC: NR Band n2 ANTF – LTE Band 13)

Bandwidth (MHz):	20 & 10
Frequency (MHz):	1880 & 782
RB / Offset:	1 / 53 & 1 / 25
Mode:	EN-DC
Anchor Band:	LTE B13

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]
316.00	H	-	-	-84.30	21.42	44.12	-51.14	-13.00	-38.14
1414.00	H	-	-	-70.30	5.50	42.20	-53.05	-13.00	-40.05
2512.00	H	-	-	-73.02	10.58	44.56	-50.70	-13.00	-37.70
2978.00	H	-	-	-71.69	11.18	46.49	-48.76	-13.00	-35.76

Table 7-38. Radiated Spurious Data (EN-DC: NR Band n2 ANTF – LTE Band 13)

GSM/GPRS PCS

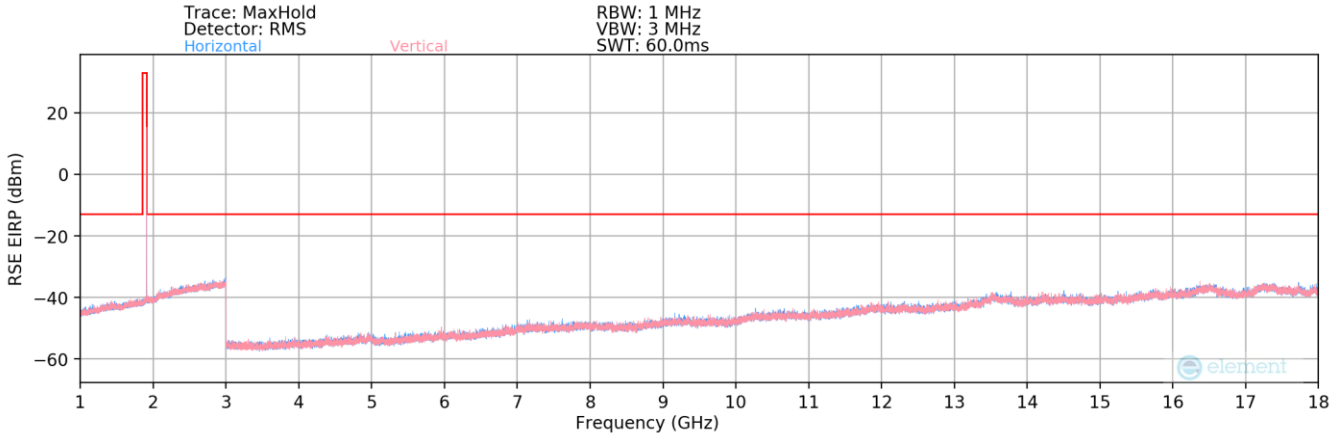


Plot 7-363. Radiated Spurious Plot (GPRS PCS) – Below 1GHz

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]
107.32	H	333	142	-56.45	-16.79	33.76	-63.65	-13.00	-50.65
713.07	H	332	59	-47.10	-6.54	53.36	-44.05	-13.00	-31.05

Table 7-39. Radiated Spurious Data (GPRS PCS)



Plot 7-364. Radiated Spurious Plot (GPRS PCS) – Above 1GHz

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	H	180	160	-68.16	7.55	46.39	-48.87	-13.00	-35.87
5550.60	H	121	220	-70.79	11.20	47.41	-47.85	-13.00	-34.85
7400.80	H	-	-	-72.68	14.99	49.31	-45.95	-13.00	-32.95
9251.00	H	-	-	-74.67	17.67	50.00	-45.26	-13.00	-32.26
11101.20	H	-	-	-75.12	20.78	52.66	-42.60	-13.00	-29.60

Table 7-40. Radiated Spurious Data (GPRS PCS – Low Channel)

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	H	147	230	-67.55	7.73	47.18	-48.07	-13.00	-35.07
5640.00	H	327	146	-72.34	11.12	45.78	-49.48	-13.00	-36.48
7520.00	H	-	-	-73.10	15.58	49.48	-45.78	-13.00	-32.78
9400.00	H	-	-	-74.41	18.11	50.70	-44.56	-13.00	-31.56
11280.00	H	-	-	-75.13	21.18	53.05	-42.20	-13.00	-29.20

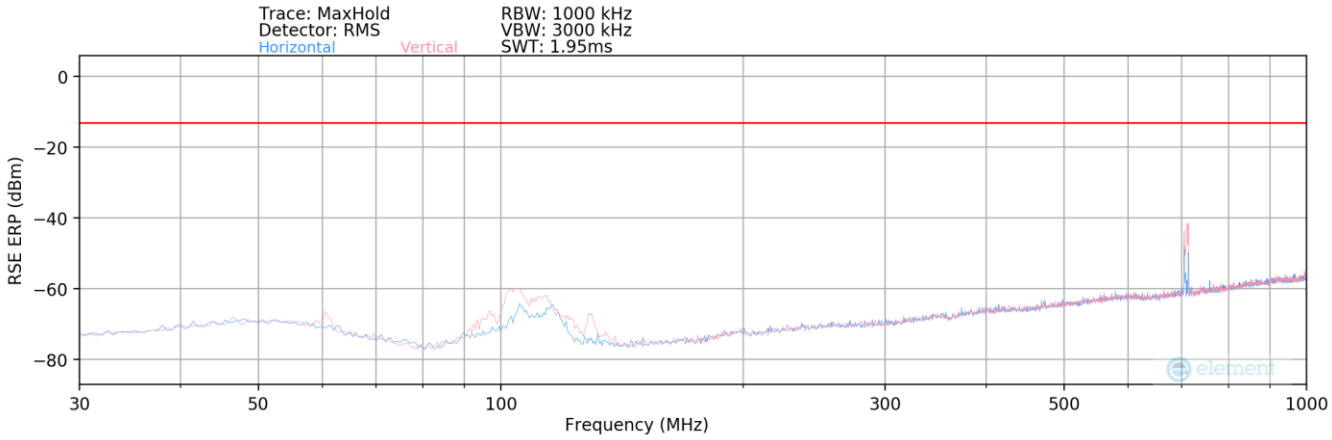
Table 7-41. Radiated Spurious Data (GPRS PCS – Mid Channel)

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	H	105	233	-69.95	7.52	44.57	-50.69	-13.00	-37.69
5729.40	H	150	152	-72.16	11.52	46.36	-48.90	-13.00	-35.90
7639.20	H	-	-	-72.34	15.89	50.55	-44.71	-13.00	-31.71
9549.00	H	-	-	-73.54	18.71	52.17	-43.09	-13.00	-30.09
11458.80	H	-	-	-75.53	20.95	52.42	-42.84	-13.00	-29.84

Table 7-42. Radiated Spurious Data (GPRS PCS – High Channel)

WCDMA PCS

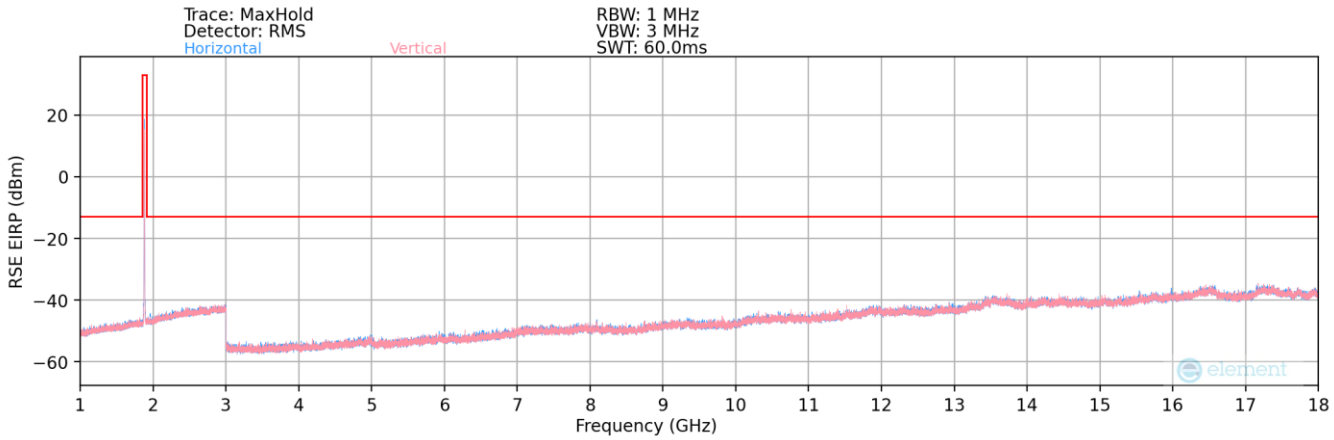


Plot 7-365. Radiated Spurious Plot (WCDMA PCS) – Below 1GHz

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]
99.18	V	-	-	-76.93	-16.82	13.25	-84.16	-13.00	-71.16
704.00	V	-	-	-79.88	-6.56	20.56	-76.85	-13.00	-63.85

Table 7-43. Radiated Spurious Data (WCDMA PCS)



Plot 7-366. Radiated Spurious Plot (WCDMA PCS) – Above 1GHz

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	-	-	-80.15	7.56	34.41	-60.84	-13.00	-47.84
5557.20	V	-	-	-81.54	11.17	36.63	-58.63	-13.00	-45.63
7409.60	V	-	-	-82.33	15.09	39.76	-55.50	-13.00	-42.50

Table 7-44. Radiated Spurious Data (WCDMA PCS – Low Channel)

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	-	-	-80.20	7.73	34.53	-60.72	-13.00	-47.72
5640.00	V	-	-	-81.45	11.12	36.67	-58.59	-13.00	-45.59
7520.00	V	-	-	-82.61	15.58	39.97	-55.29	-13.00	-42.29

Table 7-45. Radiated Spurious Data (WCDMA PCS – Mid Channel)

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	-	-	-80.29	7.64	34.35	-60.91	-13.00	-47.91
5722.80	V	-	-	-81.61	11.34	36.73	-58.52	-13.00	-45.52
7630.40	V	-	-	-82.67	15.90	40.23	-55.02	-13.00	-42.02

Table 7-46. Radiated Spurious Data (WCDMA PCS – High Channel)

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

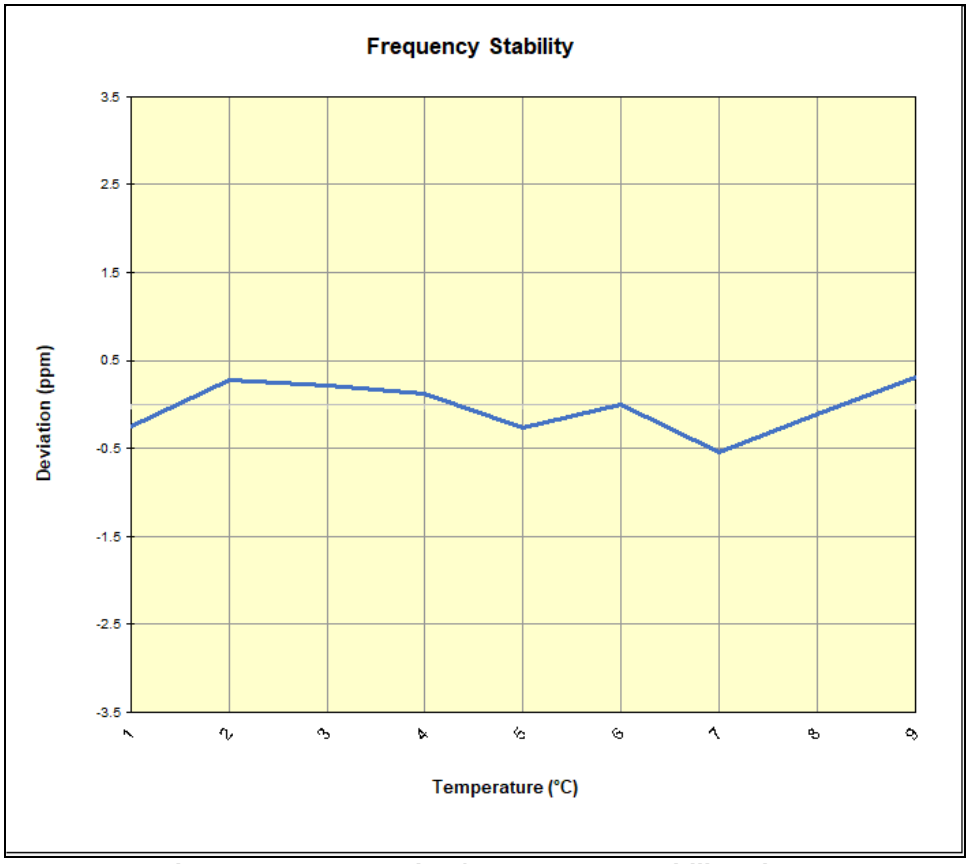
None

LTE Band 25/2

LTE Band 25/2	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	4.34

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,882,593,981	-452	-0.0000240
		- 20	1,882,594,967	534	0.0000283
		- 10	1,882,594,834	401	0.0000213
		0	1,882,594,671	238	0.0000127
		+ 10	1,882,593,951	-482	-0.0000256
		+ 20 (Ref)	1,882,594,433	0	0.0000000
		+ 30	1,882,593,416	-1,017	-0.0000540
		+ 40	1,882,594,218	-215	-0.0000114
		+ 50	1,882,595,003	570	0.0000303
Battery Endpoint	3.71	+ 20	1,882,594,269	-163	-0.0000087

Table 7-47. LTE Band 25/2 Frequency Stability Data



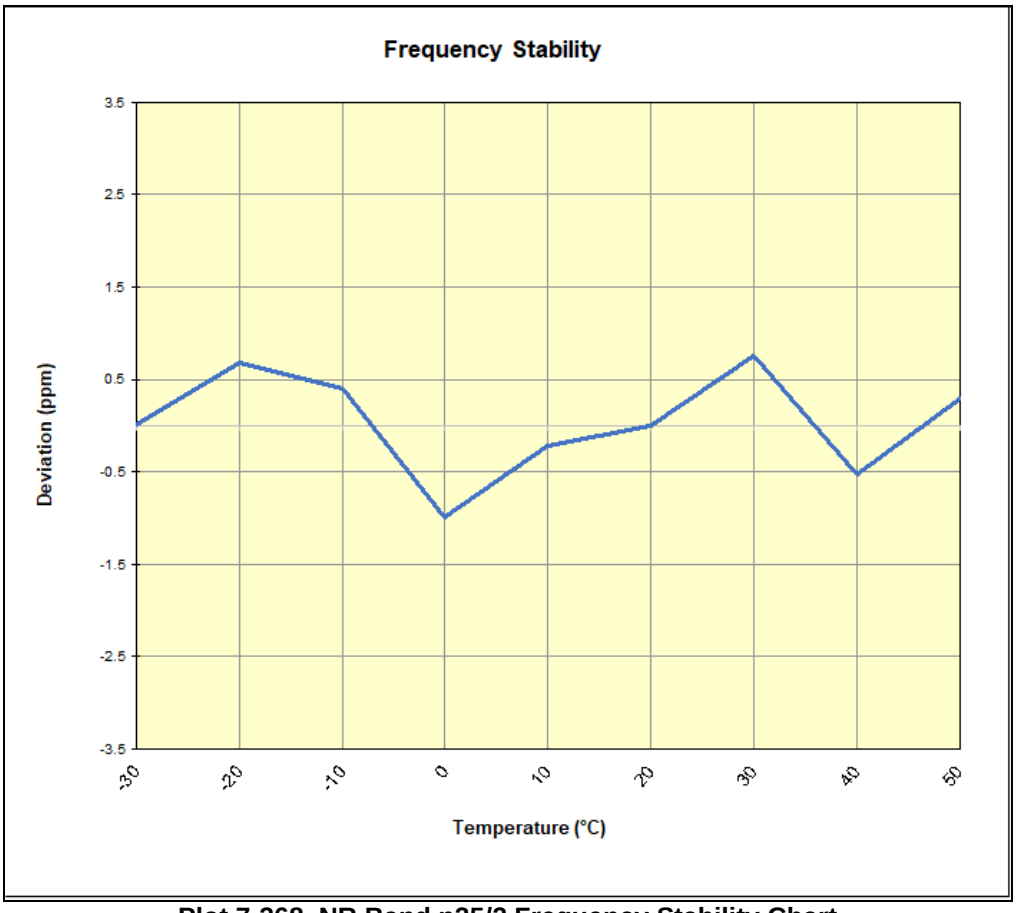
Plot 7-367. LTE Band 25/2 Frequency Stability Chart

NR Band n25/2

NR Band n25/2	
Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	4.34

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,882,493,131	23	0.0000012
		- 20	1,882,494,376	1,268	0.0000674
		- 10	1,882,493,877	769	0.0000409
		0	1,882,491,230	-1,878	-0.0000998
		+ 10	1,882,492,691	-417	-0.0000222
		+ 20 (Ref)	1,882,493,108	0	0.0000000
		+ 30	1,882,494,527	1,419	0.0000754
		+ 40	1,882,492,116	-992	-0.0000527
		+ 50	1,882,493,649	541	0.0000287
Battery Endpoint	3.71	+ 20	1,882,492,239	-869	-0.0000462

Table 7-48. NR Band n25/2 Frequency Stability Data



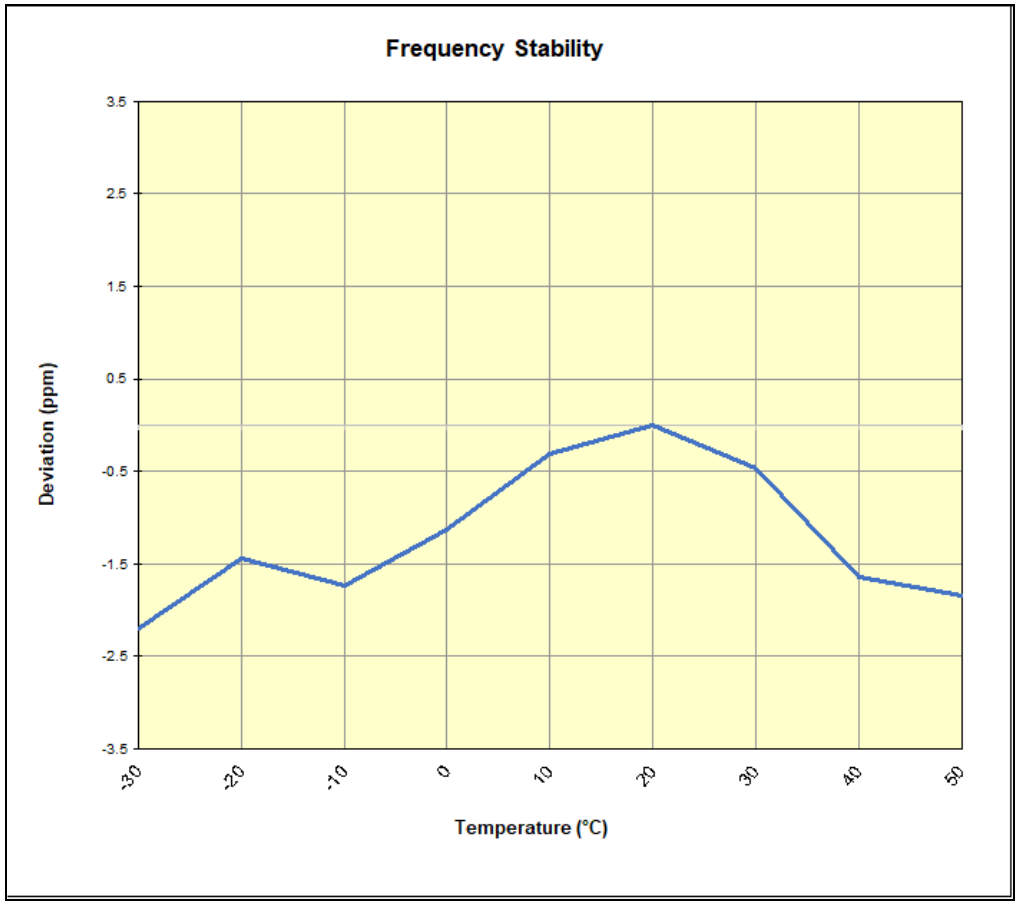
Plot 7-368. NR Band n25/2 Frequency Stability Chart

GSM/GPRS PCS

GSM/GPRS PCS	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.34

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,880,000,391	-4,133	-0.0002199
		- 20	1,880,001,813	-2,711	-0.0001442
		- 10	1,880,001,260	-3,264	-0.0001736
		0	1,880,002,386	-2,138	-0.0001137
		+ 10	1,880,003,954	-570	-0.0000303
		+ 20 (Ref)	1,880,004,524	0	0.0000000
		+ 30	1,880,003,644	-880	-0.0000468
		+ 40	1,880,001,435	-3,089	-0.0001643
		+ 50	1,880,001,051	-3,473	-0.0001847
Battery Endpoint	3.71	+ 20	1,880,002,523	-2,001	-0.0001064

Table 7-49. GSM/GPRS PCS Frequency Stability Data



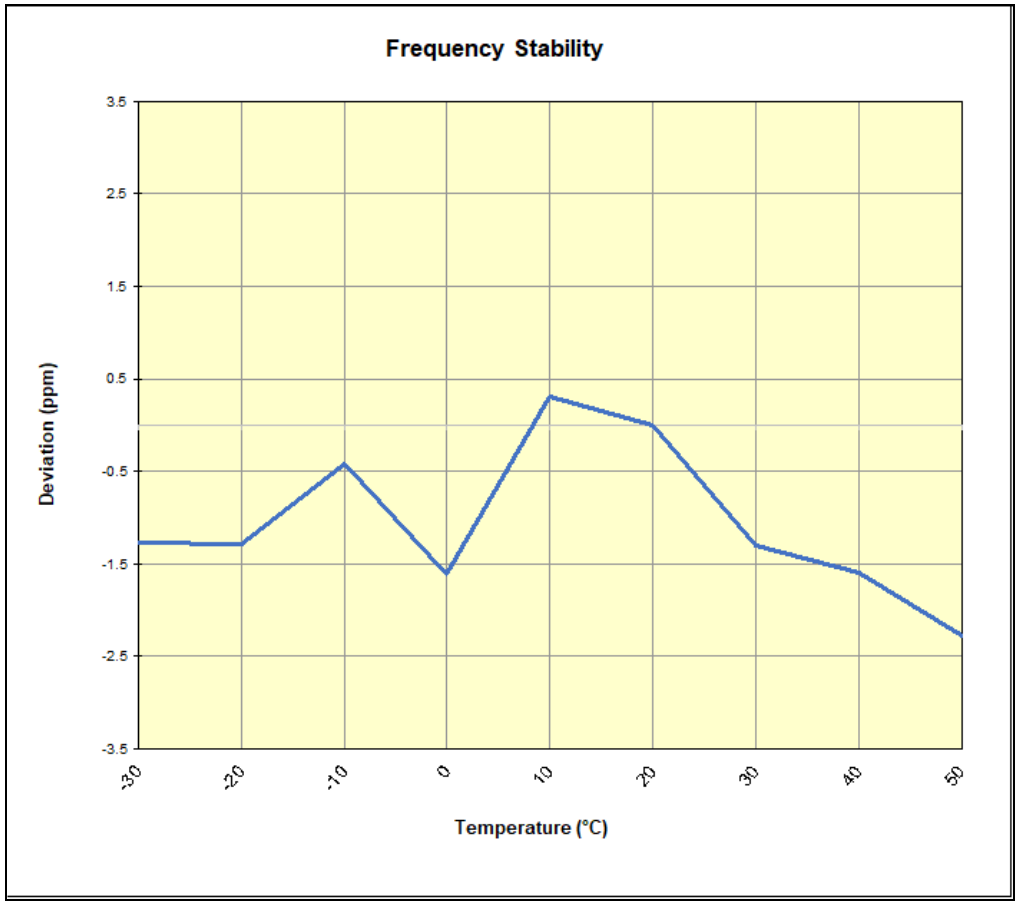
Plot 7-369. GSM/GPRS PCS Frequency Stability Chart

WCDMA PCS

WCDMA PCS	
Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	4.34

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.34	- 30	1,880,005,726	-2,377	-0.0001264
		- 20	1,880,005,688	-2,414	-0.0001284
		- 10	1,880,007,323	-779	-0.0000415
		0	1,880,005,085	-3,018	-0.0001605
		+ 10	1,880,008,673	570	0.0000303
		+ 20 (Ref)	1,880,008,103	0	0.0000000
		+ 30	1,880,005,651	-2,452	-0.0001304
		+ 40	1,880,005,109	-2,994	-0.0001593
		+ 50	1,880,003,815	-4,288	-0.0002281
Battery Endpoint	3.71	+ 20	1,880,008,045	-58	-0.0000031

Table 7-50. WCDMA PCS Frequency Stability Data



Plot 7-370. 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: A3LSMS911U** complies with all the requirements of Part 24 of the FCC rules.