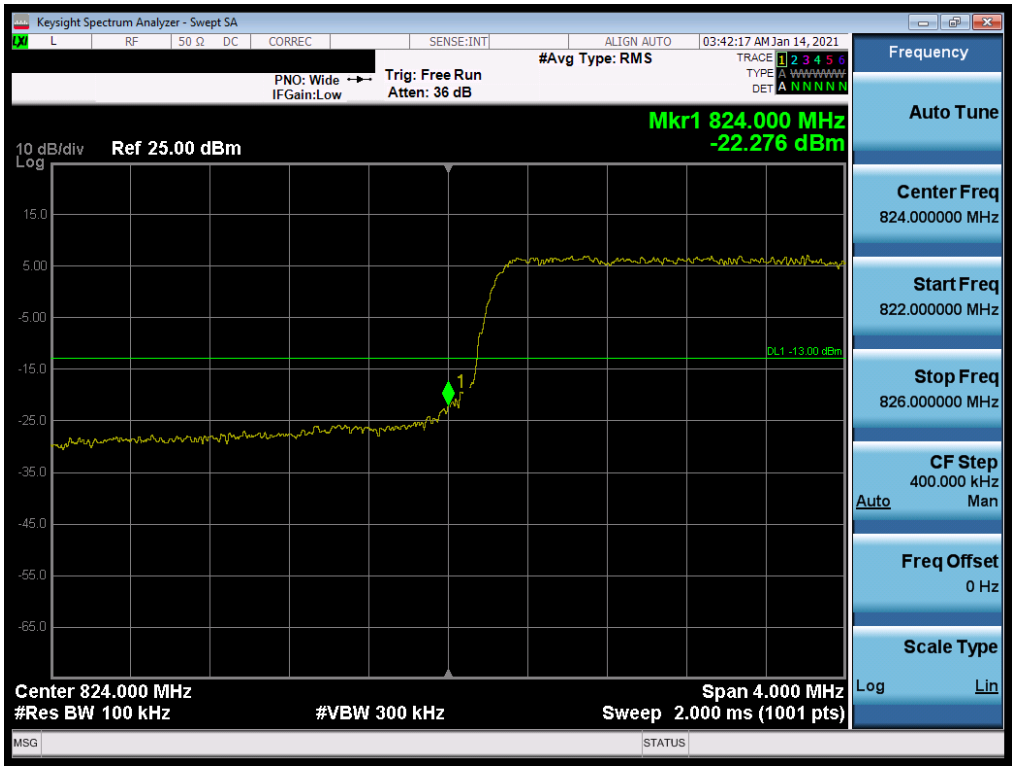
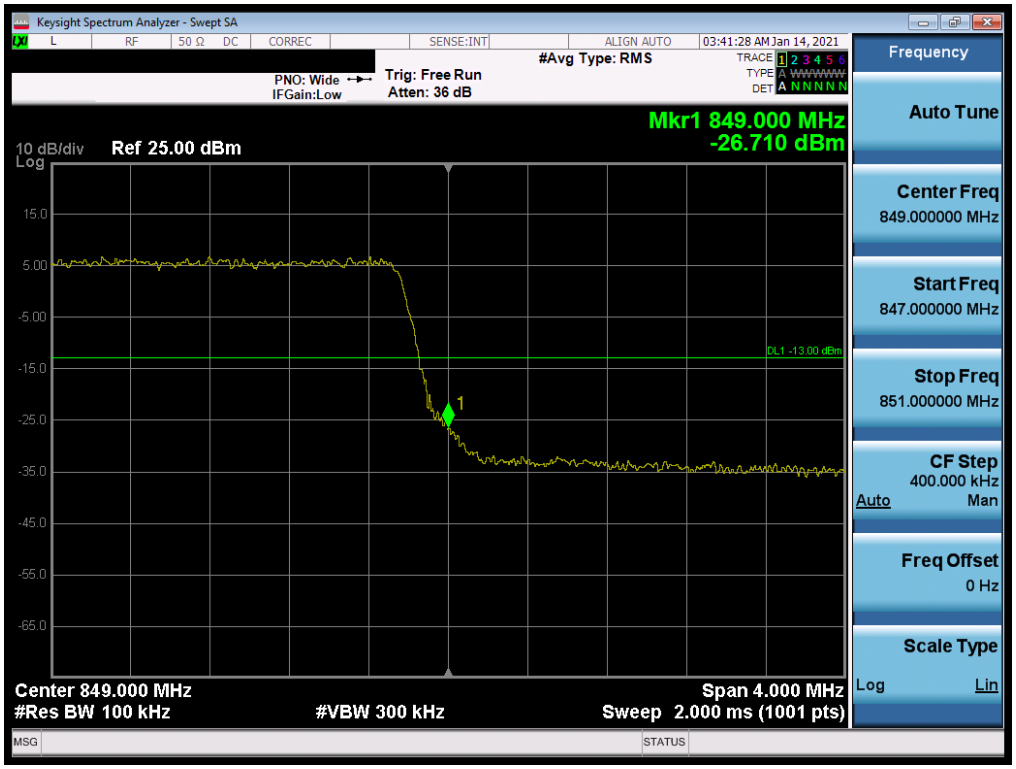
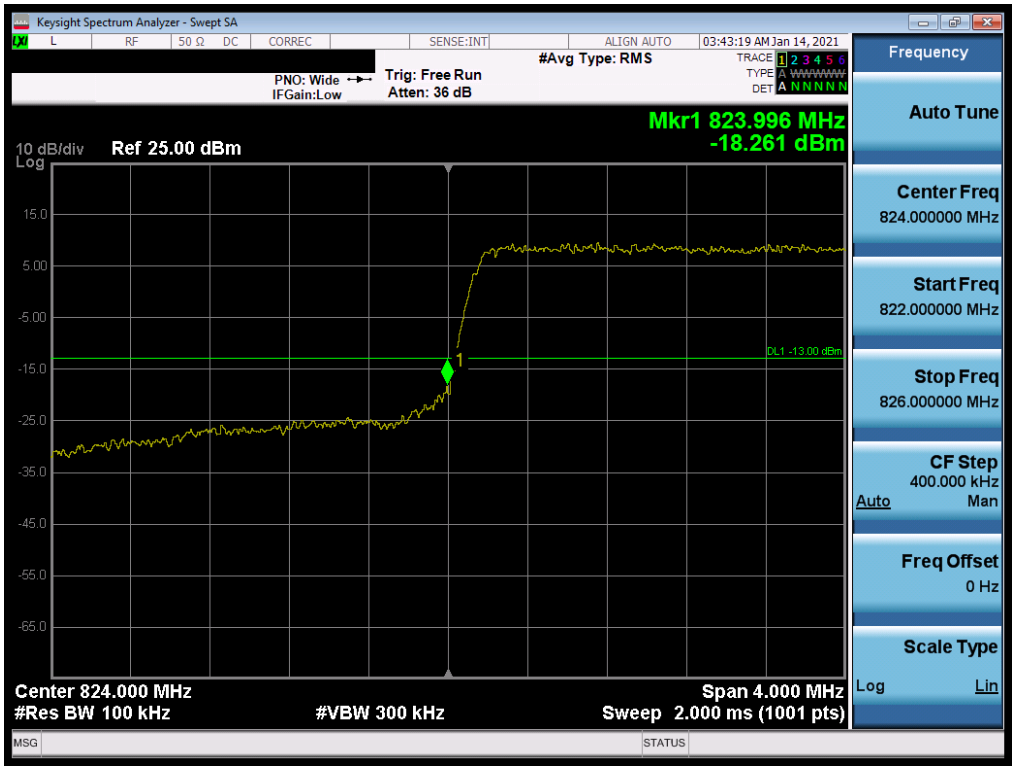


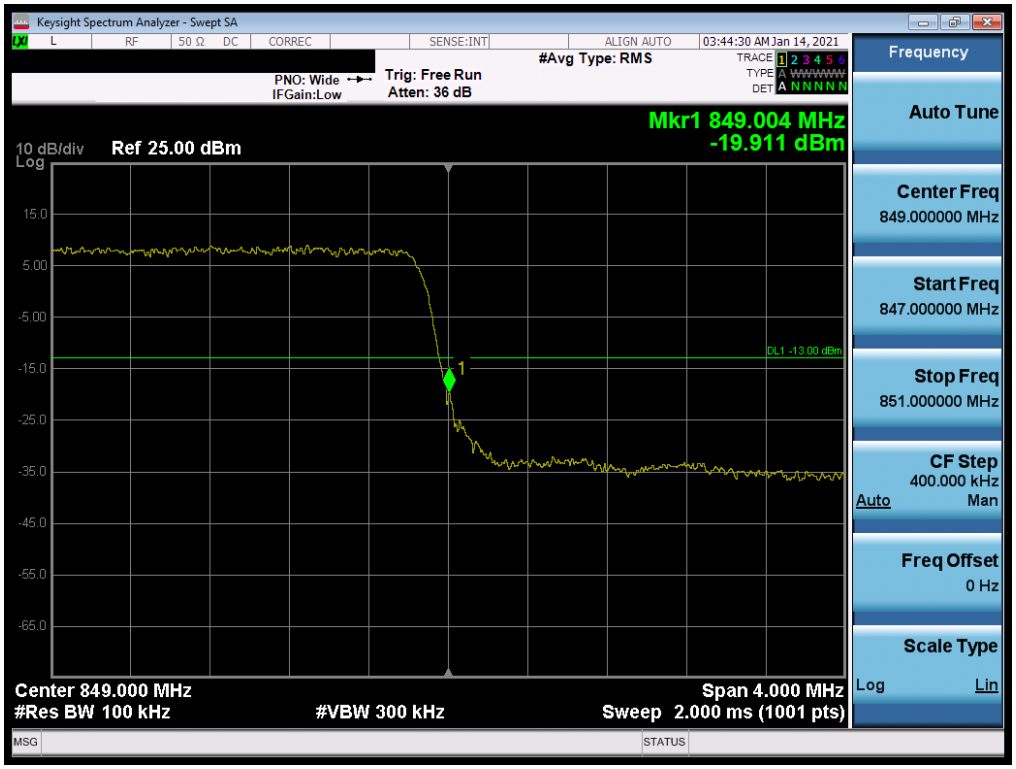
Plot 7-96. Lower Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB Configuration)



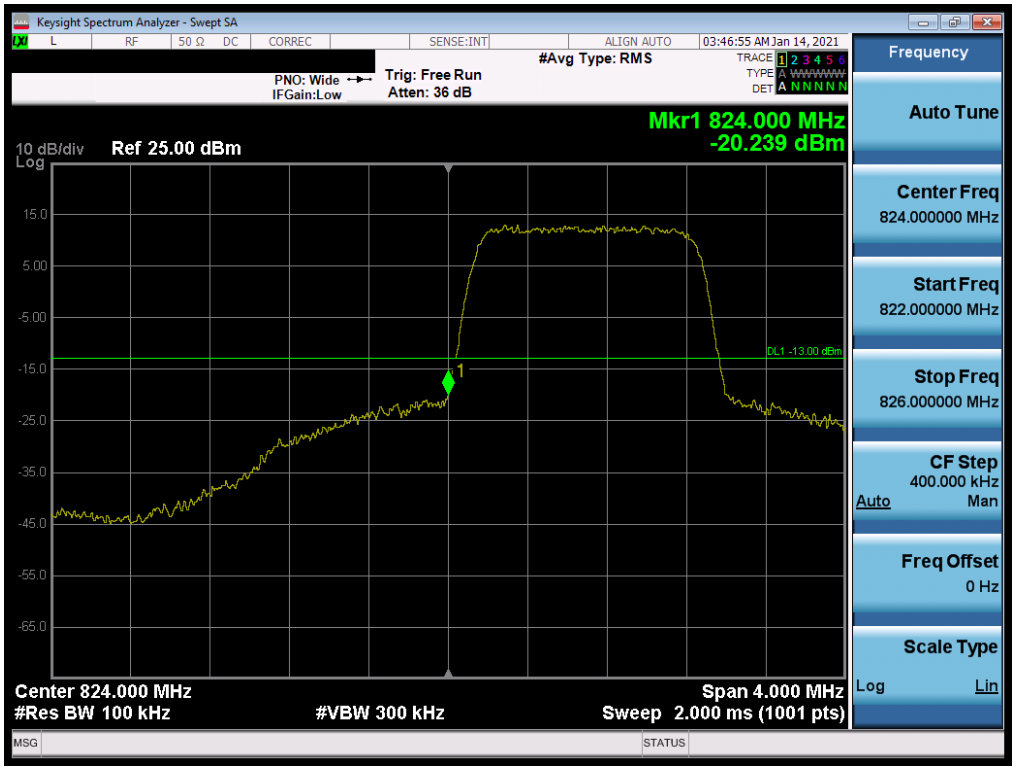
Plot 7-97. Upper Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB Configuration)



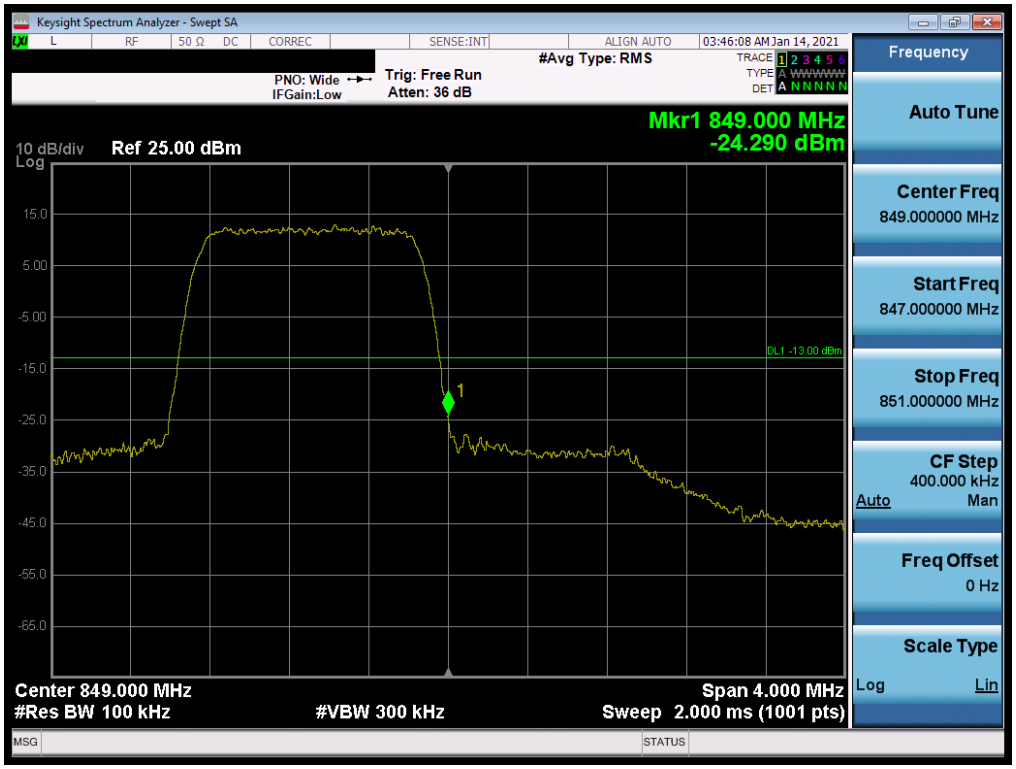
Plot 7-98. Lower Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB Configuration)



Plot 7-99. Upper Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB Configuration)

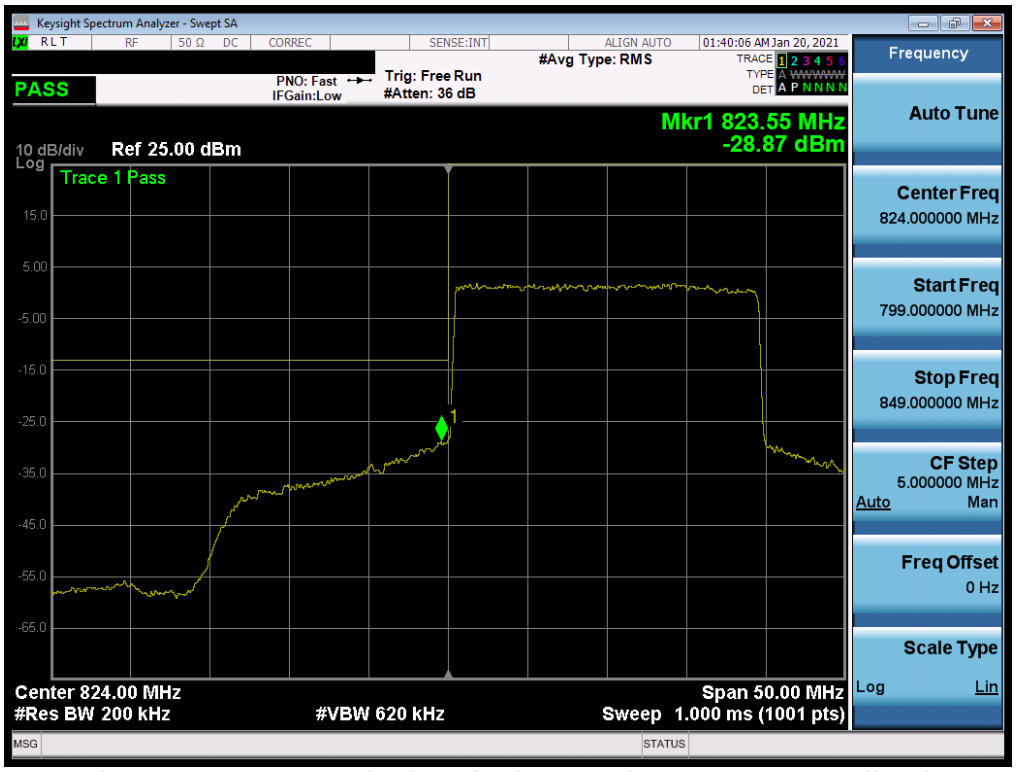


Plot 7-100. Lower Band Edge Plot (LTE Band 26/5 – 1.4MHz QPSK – Full RB Configuration)

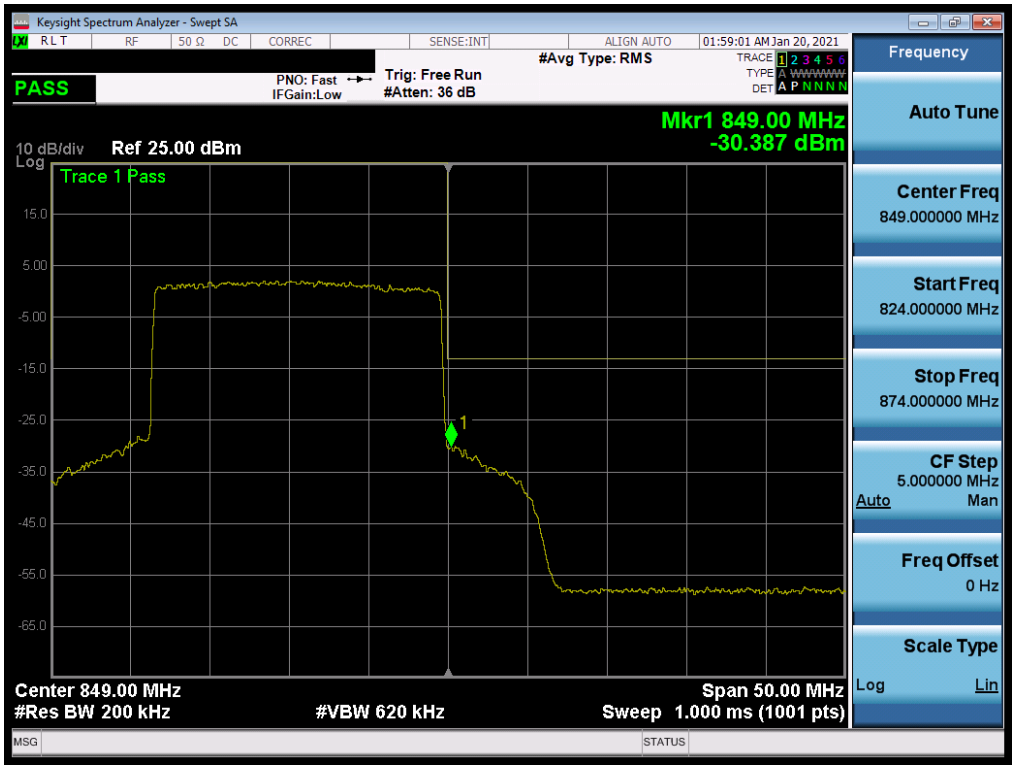


Plot 7-101. Upper Band Edge Plot (LTE Band 26/5 – 1.4MHz QPSK – Full RB Configuration)

NR Band n5



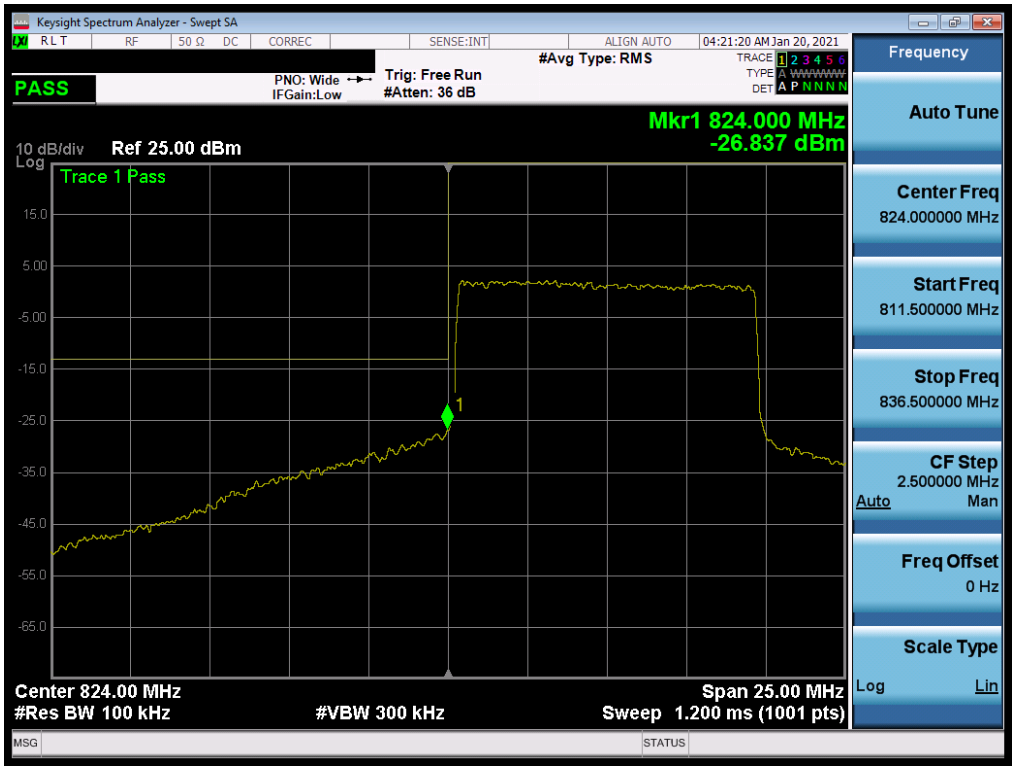
Plot 7-102. Lower Band Edge Plot (NR Band n5 – 20.0MHz - Full RB)



Plot 7-103. Upper Band Edge Plot (NR Band n5 – 20.0MHz - Full RB)

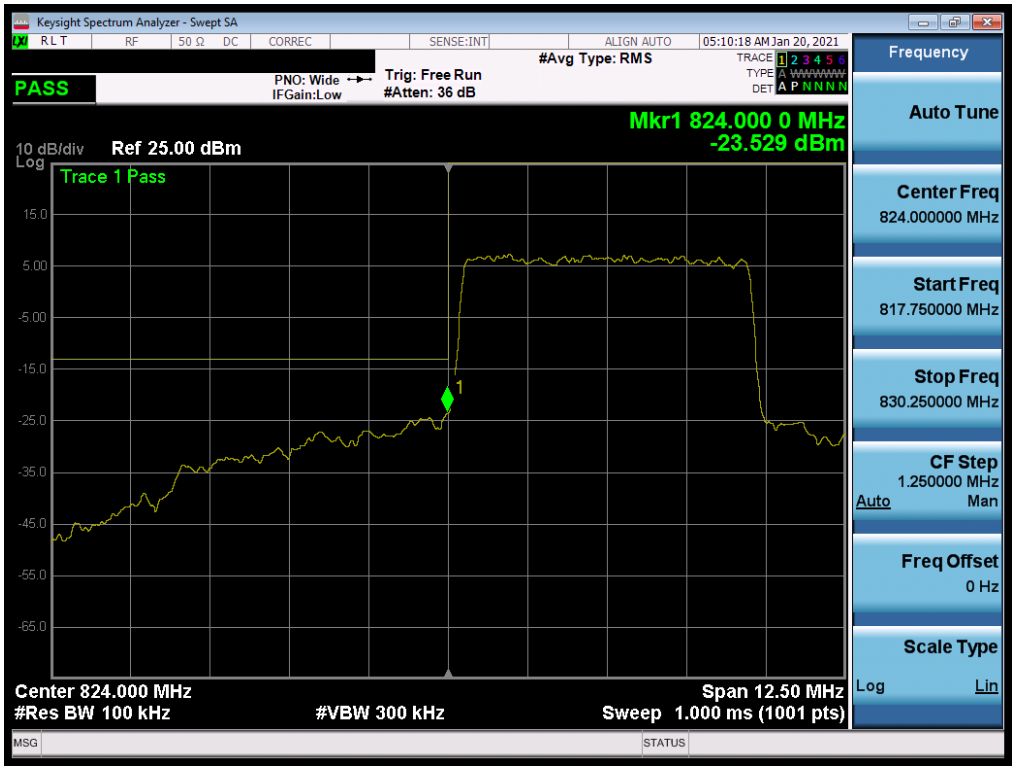
Plot 7-104. Lower Band Edge Plot (NR Band n5 – 15.0MHz - Full RB)

Plot 7-105. Upper Band Edge Plot (NR Band n5 – 15.0MHz - Full RB)



Plot 7-106. Lower Band Edge Plot (NR Band n5 – 10.0MHz - Full RB)

Plot 7-107. Upper Band Edge Plot (NR Band n5 – 10.0MHz - Full RB)



Plot 7-108. Lower Band Edge Plot (NR Band n5 – 5.0MHz - Full RB)

Plot 7-109. Upper Band Edge Plot (NR Band n5 – 5.0MHz - Full RB)

7.5 Radiated Power (ERP)

Test Overview

Effective Radiated Power (ERP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz 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

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

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.

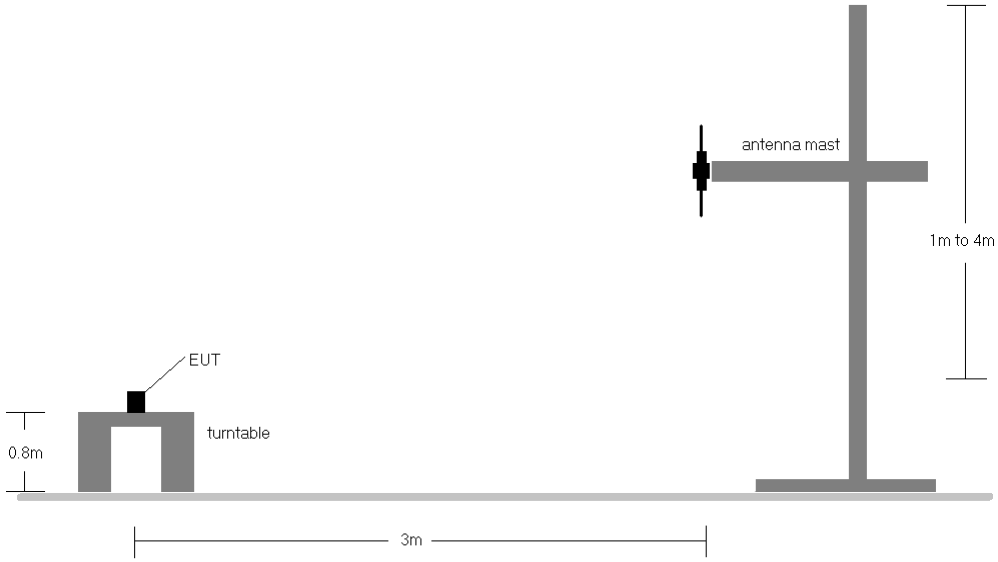


Figure 7-4. Radiated Test Setup <1GHz

Test Notes

1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is 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 power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

3) This device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.

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 EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

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

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GPRS850	V	136	216	24.24	6.35	28.44	0.698	38.45	-10.01
836.60	GPRS850	V	136	215	24.83	6.38	**29.06**	**0.805**	38.45	-9.39
848.80	GPRS850	V	219	262	21.24	6.51	25.60	0.363	38.45	-12.86
836.60	GPRS850	H	207	295	24.38	6.68	28.91	0.778	38.45	-9.54
836.60	EDGE850	V	136	215	20.65	6.38	**24.88**	0.308	38.45	-13.57

Table 7-2. ERP Data (GPRS Cell)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	V	136	285	14.08	6.37	**18.30**	**0.068**	38.45	-20.15
836.60	WCDMA850	V	126	238	13.36	6.38	17.59	0.057	38.45	-20.86
846.60	WCDMA850	V	146	236	13.64	6.48	17.97	0.063	38.45	-20.48
826.40	WCDMA850	H	115	299	13.03	6.77	17.65	0.058	38.45	-20.80

Table 7-3. ERP Data (WCDMA Cell)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	H	221	302	16.26	6.76	**20.87**	**0.122**	38.45	-17.59
836.52	CDMA850	H	203	288	15.01	6.68	19.54	0.090	38.45	-18.91
848.31	CDMA850	H	211	301	14.86	6.70	19.41	0.087	38.45	-19.04
824.70	CDMA850	V	136	290	15.54	6.36	19.75	0.094	38.45	-18.71

Table 7-4. ERP Data (CDMA Cell)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
15MHz (Band 26 only)	QPSK	831.5	H	221.0	292.0	6.73	1 / 0	16.73	**21.31**	0.135	38.45	-17.14	**23.46**	0.222	40.61	-17.15
		836.5	H	218.0	302.0	6.68	1 / 0	16.65	21.18	0.131	38.45	-17.27	23.33	0.215	40.61	-17.28
		841.5	H	103.0	315.0	6.63	1 / 0	14.92	19.40	0.087	38.45	-19.05	21.55	0.143	40.61	-19.06
	16-QAM	831.5	H	221.0	292.0	6.73	1 / 0	15.64	20.22	0.105	38.45	-18.23	22.37	0.172	40.61	-18.24
	64-QAM	836.5	H	218.0	302.0	6.68	1 / 0	15.68	20.21	0.105	38.45	-18.24	22.36	0.172	40.61	-18.25
10 MHz	QPSK	829.0	H	221.0	292.0	6.80	1 / 0	16.78	**21.43**	0.139	38.45	-17.02	**23.58**	0.228	40.61	-17.03
		836.5	H	218.0	302.0	6.68	1 / 49	16.70	21.23	0.133	38.45	-17.22	23.38	0.218	40.61	-17.23
		844.0	H	103.0	315.0	6.66	1 / 0	15.03	19.54	0.090	38.45	-18.91	21.69	0.148	40.61	-18.92
	16-QAM	829.0	H	221.0	292.0	6.80	1 / 0	15.54	20.19	0.104	38.45	-18.26	22.34	0.171	40.61	-18.27
	64-QAM	836.5	H	218.0	302.0	6.68	1 / 25	15.86	20.39	0.109	38.45	-18.06	22.54	0.179	40.61	-18.07
5 MHz	QPSK	826.5	H	221.0	292.0	6.77	1 / 12	16.73	**21.36**	0.137	38.45	-17.09	**23.51**	0.224	40.61	-17.10
		836.5	H	218.0	302.0	6.68	1 / 0	16.59	21.12	0.129	38.45	-17.33	23.27	0.212	40.61	-17.34
		846.5	H	103.0	315.0	6.68	1 / 0	14.97	19.50	0.089	38.45	-18.95	21.65	0.146	40.61	-18.96
	16-QAM	826.5	H	221.0	292.0	6.77	1 / 12	15.47	20.10	0.102	38.45	-18.35	22.25	0.168	40.61	-18.36
	64-QAM	836.5	H	218.0	302.0	6.68	1 / 0	15.76	20.29	0.107	38.45	-18.16	22.44	0.175	40.61	-18.17
3 MHz	QPSK	825.5	H	221.0	292.0	6.76	1 / 0	16.77	**21.39**	0.138	38.45	-17.06	**23.54**	0.226	40.61	-17.07
		836.5	H	218.0	302.0	6.68	1 / 14	16.67	21.20	0.132	38.45	-17.25	23.35	0.216	40.61	-17.26
		847.5	H	103.0	315.0	6.69	1 / 14	15.00	19.54	0.090	38.45	-18.91	21.69	0.148	40.61	-18.92
	16-QAM	836.5	H	218.0	302.0	6.68	1 / 7	15.53	20.06	0.101	38.45	-18.39	22.21	0.166	40.61	-18.40
	64-QAM	836.5	H	218.0	302.0	6.68	1 / 14	15.72	20.25	0.106	38.45	-18.20	22.40	0.174	40.61	-18.21
1.4 MHz	QPSK	824.7	H	221.0	292.0	6.76	1 / 2	16.63	**21.24**	0.133	38.45	-17.21	**23.39**	0.218	40.61	-17.22
		836.5	H	218.0	302.0	6.68	1 / 2	16.54	21.07	0.128	38.45	-17.38	23.22	0.210	40.61	-17.39
		848.3	H	103.0	315.0	6.70	1 / 2	14.77	19.32	0.086	38.45	-19.13	21.47	0.140	40.61	-19.14
	16-QAM	836.5	H	218.0	302.0	6.68	1 / 5	15.51	20.04	0.101	38.45	-18.41	22.19	0.166	40.61	-18.42
	64-QAM	836.5	H	218.0	302.0	6.68	1 / 2	15.66	20.19	0.104	38.45	-18.26	22.34	0.171	40.61	-18.27
15 MHz	Opposite Pol.	831.5	V	134.0	240.0	6.73	1 / 0	13.51	20.24	0.106	38.45	-18.21	22.39	0.173	40.61	-18.22

Table 7-5. ERP Data (LTE Band 26/5

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	834.0	H	202.0	290.0	6.75	1 / 50	11.55	16.15	0.041	38.45	-22.30	18.30	0.068	40.61	-22.30
		836.5	H	205.0	297.0	6.68	1 / 99	11.90	16.43	0.044	38.45	-22.02	18.58	0.072	40.61	-22.03
		839.0	H	204.0	301.0	6.70	1 / 50	12.20	16.75	0.047	38.45	-21.70	18.90	0.078	40.61	-21.70
	QPSK	834.0	H	202.0	290.0	6.75	1 / 50	11.53	16.13	0.041	38.45	-22.32	18.28	0.067	40.61	-22.32
		836.5	H	205.0	297.0	6.68	1 / 99	11.96	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97
		839.0	H	204.0	301.0	6.70	1 / 50	12.57	**17.12**	0.052	38.45	-21.33	**19.27**	0.085	40.61	-21.33
	16-QAM	839.0	H	204.0	301.0	6.70	1 / 50	11.46	16.01	0.040	38.45	-22.44	18.16	0.066	40.61	-22.44
	64-QAM	839.0	H	204.0	301.0	6.70	1 / 50	10.07	14.62	0.029	38.45	-23.83	16.77	0.048	40.61	-23.83
	256-QAM	839.0	H	204.0	301.0	6.70	1 / 50	8.05	12.60	0.018	38.45	-25.85	14.75	0.030	40.61	-25.85
15 MHz	π/2 BPSK	831.5	H	202.0	290.0	6.73	1 / 73	11.49	16.07	0.040	38.45	-22.38	18.22	0.066	40.61	-22.39
		836.5	H	205.0	297.0	6.68	1 / 1	11.95	16.48	0.044	38.45	-21.97	18.63	0.073	40.61	-21.98
		841.5	H	204.0	301.0	6.63	1 / 73	12.40	16.88	0.049	38.45	-21.58	19.03	0.080	40.61	-21.58
	QPSK	831.5	H	202.0	290.0	6.73	1 / 1	11.42	15.99	0.040	38.45	-22.46	18.14	0.065	40.61	-22.46
		836.5	H	205.0	297.0	6.68	1 / 1	11.75	16.28	0.042	38.45	-22.17	18.43	0.070	40.61	-22.18
		841.5	H	204.0	301.0	6.63	1 / 37	12.44	**16.92**	0.049	38.45	-21.53	**19.07**	0.081	40.61	-21.54
	16-QAM	841.5	H	204.0	301.0	6.63	1 / 1	11.84	16.32	0.043	38.45	-22.13	18.47	0.070	40.61	-22.13
	64-QAM	841.5	H	204.0	301.0	6.63	1 / 1	10.44	14.92	0.031	38.45	-23.53	17.07	0.051	40.61	-23.53
	256-QAM	841.5	H	204.0	301.0	6.63	75 / 0	8.19	12.67	0.018	38.45	-25.78	14.82	0.030	40.61	-25.79
10 MHz	π/2 BPSK	829.0	H	202.0	290.0	6.80	1 / 48	11.66	16.31	0.043	38.45	-22.14	18.46	0.070	40.61	-22.15
		836.5	H	205.0	297.0	6.68	1 / 25	11.99	16.52	0.045	38.45	-21.93	18.67	0.074	40.61	-21.94
		844.0	H	204.0	301.0	6.66	1 / 25	12.32	16.82	0.048	38.45	-21.63	18.97	0.079	40.61	-21.63
	QPSK	829.0	H	202.0	290.0	6.80	1 / 1	11.39	16.04	0.040	38.45	-22.41	18.19	0.066	40.61	-22.41
		836.5	H	205.0	297.0	6.68	1 / 25	12.01	16.54	0.045	38.45	-21.91	18.69	0.074	40.61	-21.92
		844.0	H	204.0	301.0	6.66	1 / 48	12.80	**17.31**	0.054	38.45	-21.14	**19.46**	0.088	40.61	-21.15
	16-QAM	844.0	H	204.0	301.0	6.66	1 / 25	11.97	16.48	0.044	38.45	-21.97	18.63	0.073	40.61	-21.98
	64-QAM	844.0	H	204.0	301.0	6.66	1 / 1	10.46	14.97	0.031	38.45	-23.48	17.12	0.051	40.61	-23.49
	256-QAM	844.0	H	204.0	301.0	6.66	1 / 1	8.38	12.89	0.019	38.45	-25.57	15.04	0.032	40.61	-25.57
5 MHz	π/2 BPSK	829.0	H	202.0	290.0	6.77	1 / 23	11.63	16.26	0.042	38.45	-22.19	18.41	0.069	40.61	-22.20
		836.5	H	205.0	297.0	6.68	1 / 23	12.27	16.80	0.048	38.45	-21.65	18.95	0.078	40.61	-21.66
		844.0	H	204.0	301.0	6.68	1 / 1	12.45	16.98	0.050	38.45	-21.47	19.13	0.082	40.61	-21.48
	QPSK	829.0	H	202.0	290.0	6.77	1 / 12	11.44	16.07	0.040	38.45	-22.39	18.22	0.066	40.61	-22.39
		836.5	H	205.0	297.0	6.68	1 / 23	12.13	16.66	0.046	38.45	-21.79	18.81	0.076	40.61	-21.80
		844.0	H	204.0	301.0	6.68	1 / 1	12.64	**17.17**	0.052	38.45	-21.28	**19.32**	0.085	40.61	-21.29
	16-QAM	844.0	H	204.0	301.0	6.68	1 / 23	11.80	16.33	0.043	38.45	-22.12	18.48	0.070	40.61	-22.13
	64-QAM	844.0	H	204.0	301.0	6.68	1 / 23	10.43	14.97	0.031	38.45	-23.49	17.12	0.051	40.61	-23.49
	256-QAM	844.0	H	204.0	301.0	6.68	1 / 12	8.26	12.80	0.019	38.45	-25.66	14.95	0.031	40.61	-25.66
20 MHz	QPSK (CP-OFDM)	839.0	H	210.0	308.0	6.70	1 / 50	8.61	**15.31**	0.034	38.45	-23.14	17.46	0.056	40.61	-23.14
20MHz	QPSK (Opposite Pol.)	839.0	V	134.0	237.0	6.70	1 / 50	10.20	16.90	0.049	38.45	-21.55	19.05	0.080	40.61	-21.55

Table 7-6. ERP Data (NR Band n5)

7.6 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates 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.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

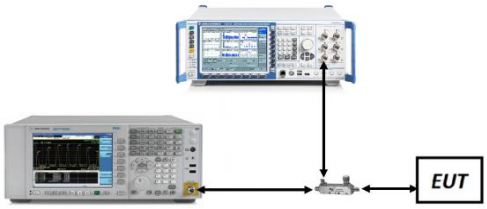


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

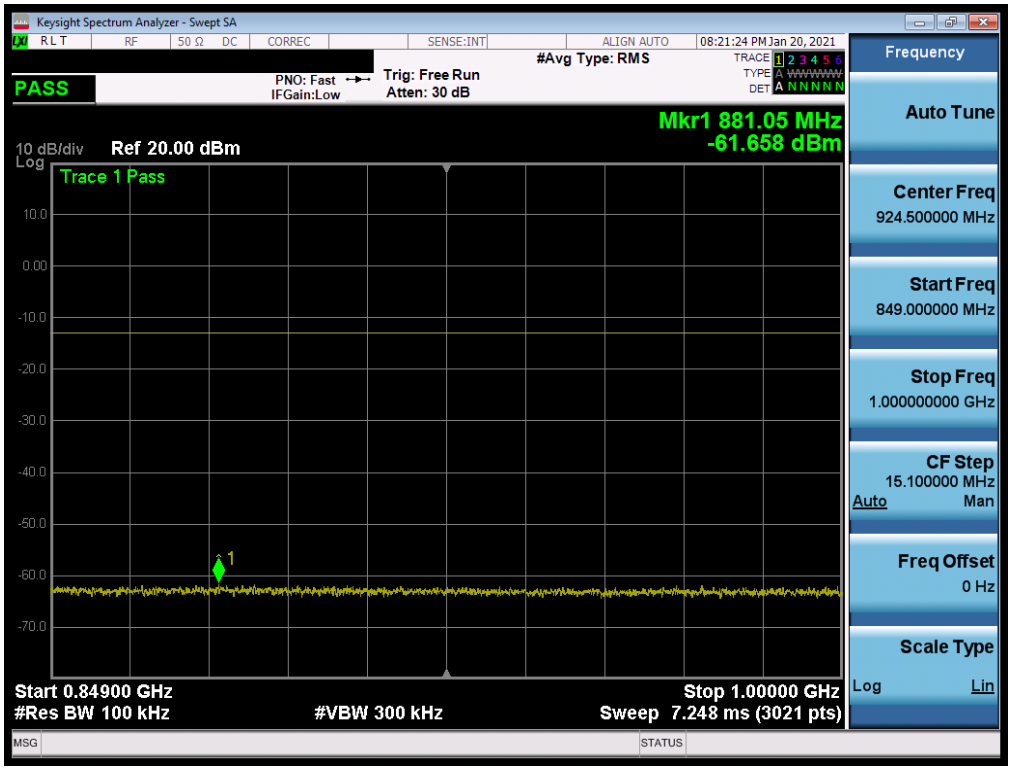
2. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Uplink CA Configuration 5B

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B5	10MHz + 10MHz	QPSK	20450	829.0	1	49	QPSK	20549	838.9	1	0	23.78
				20475	831.5	1	49		20574	841.4	1	0	23.91
				20600	844.0	1	0		20501	834.1	1	49	23.86
			QPSK	20475	831.5	50	0	QPSK	20574	841.4	50	0	22.37
			16-QAM	20475	831.5	50	0	16-QAM	20574	841.4	50	0	21.33
			64-QAM	20475	831.5	50	0	64-QAM	20574	841.4	50	0	21.29

Table 7 7. Conducted Powers (5B)

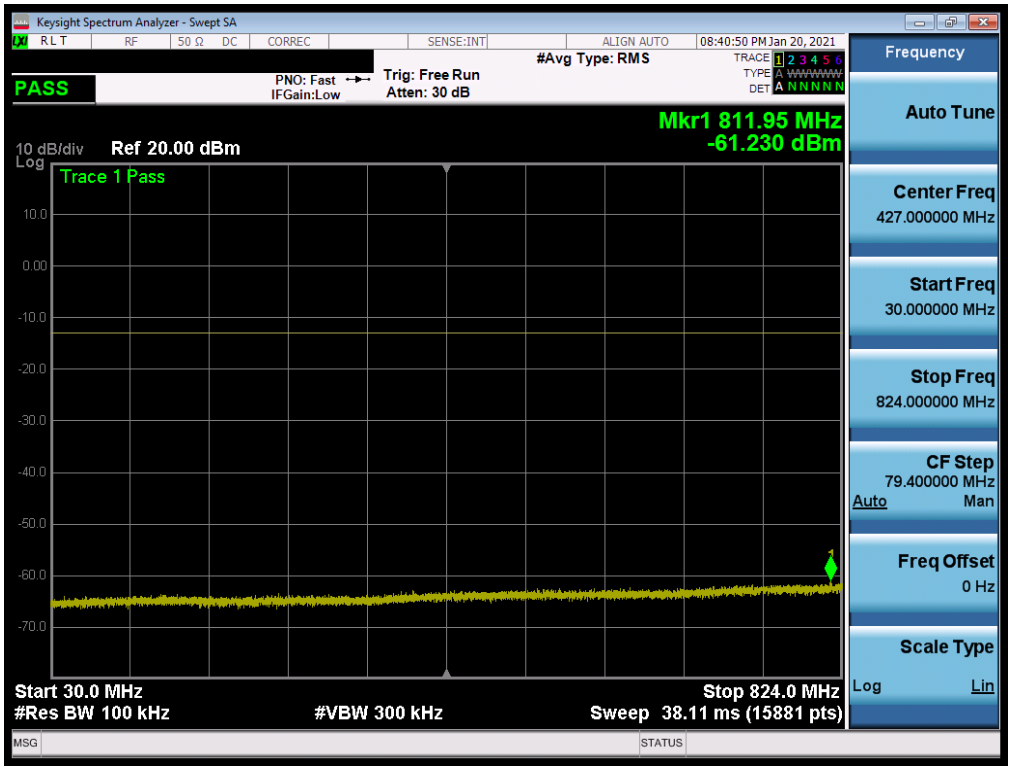
Plot 7-110. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



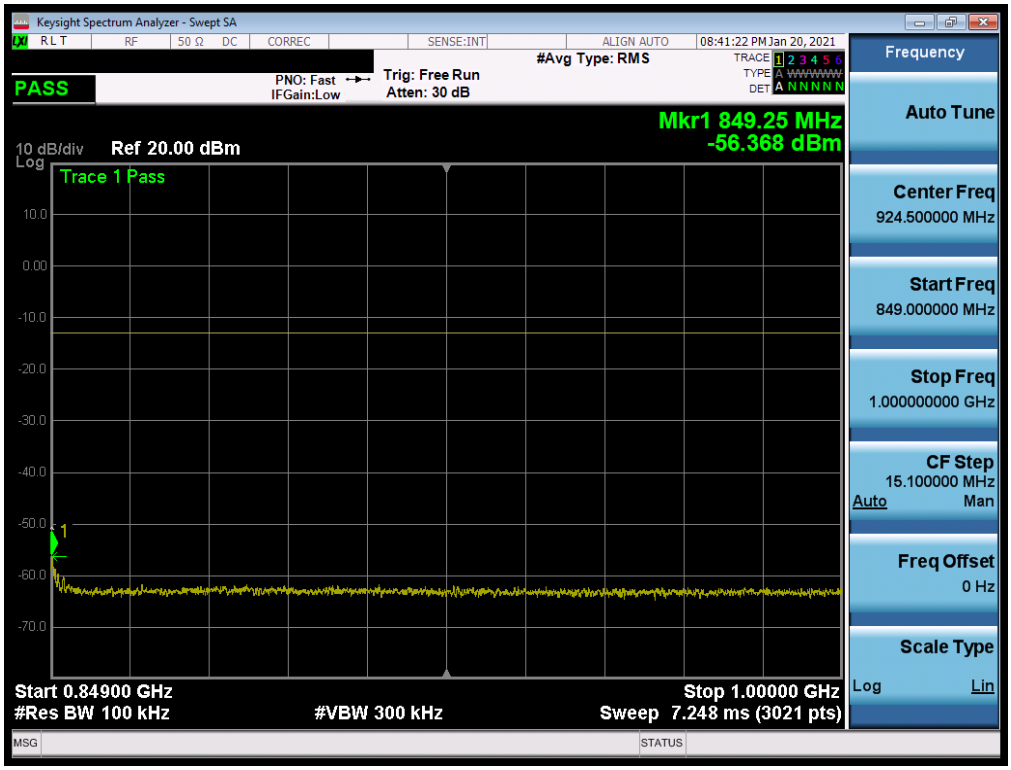
Plot 7-111. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

Plot 7-112. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

Plot 7-113. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

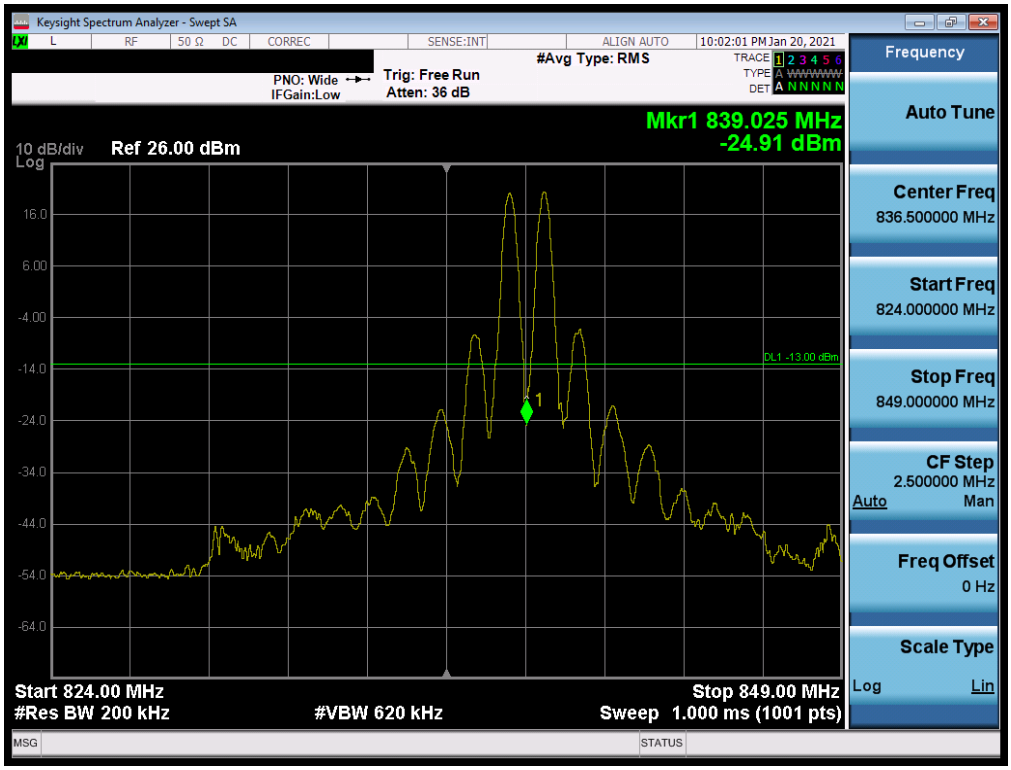


Plot 7-114. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

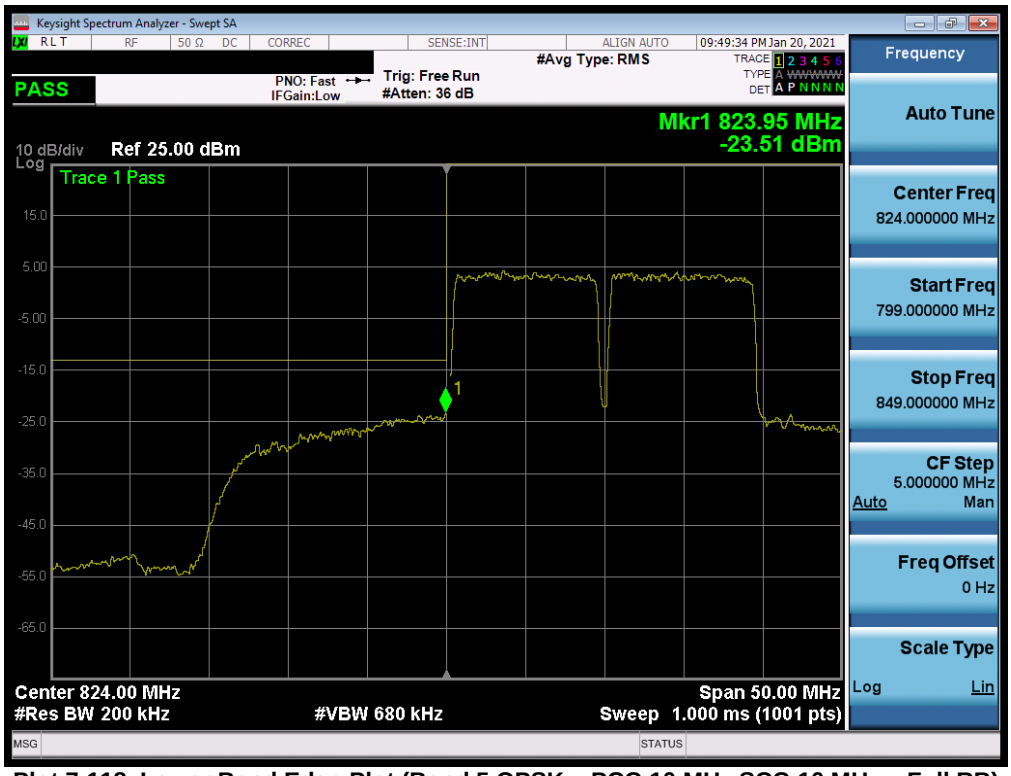


Plot 7-115. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

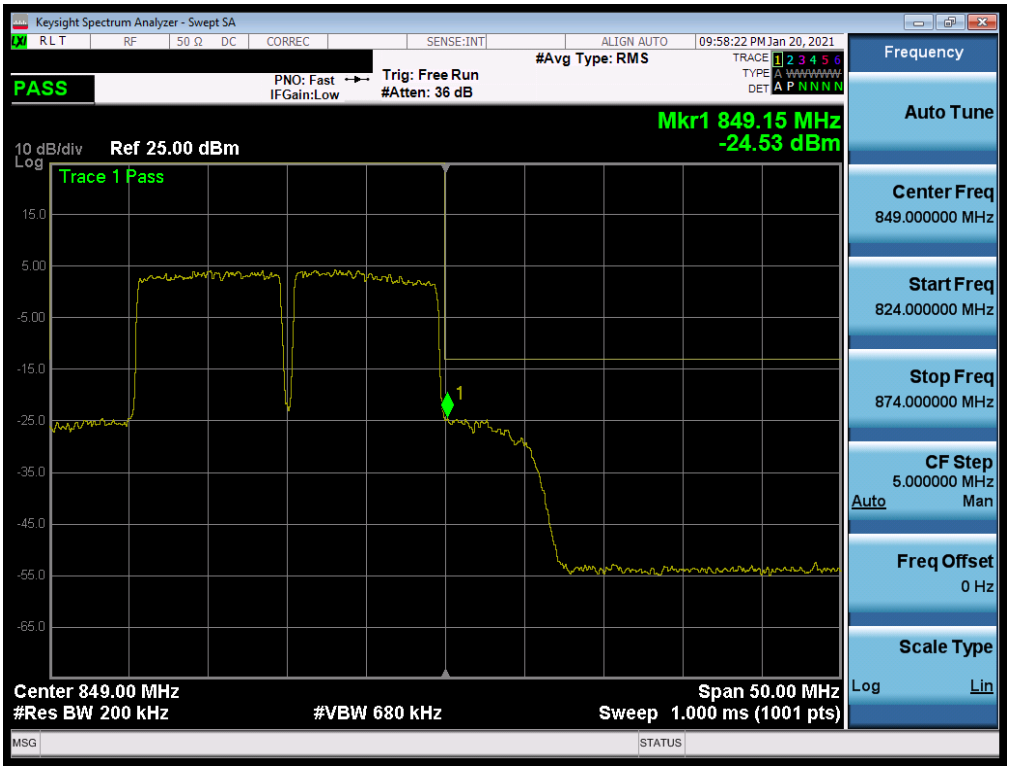
Plot 7-116. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Plot 7-117. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Plot 7-118. Lower Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)



Plot 7-119. Upper Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole 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

KDB 971168 D01 v03r01 – Section 5.8

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.

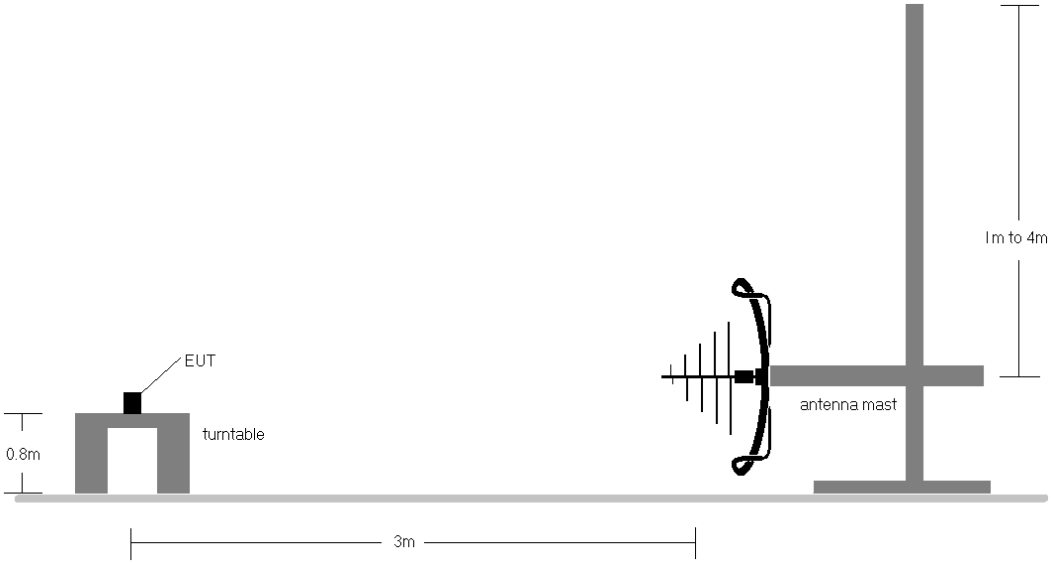


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

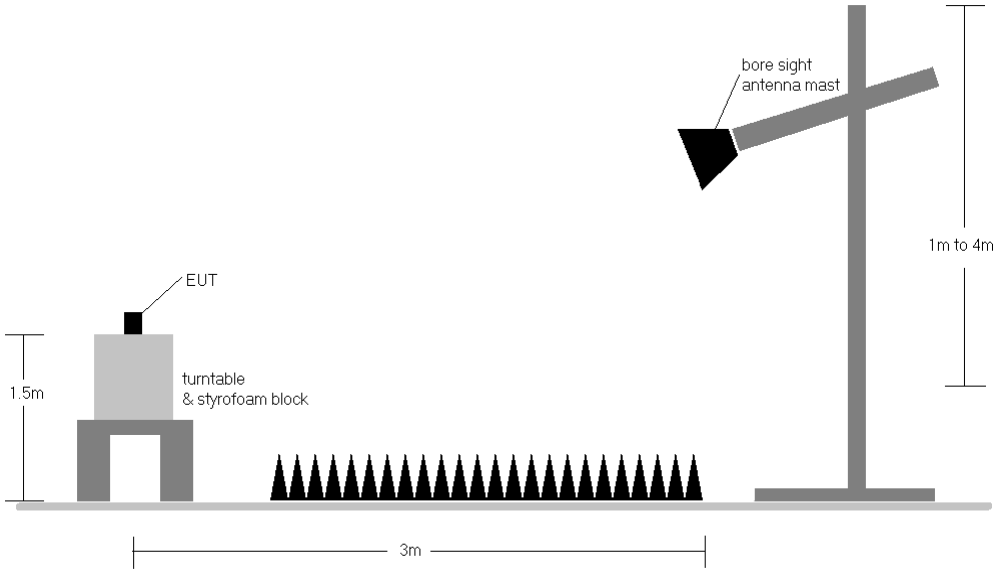


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
   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 is 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 power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

4) For CDMA, this device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.

5) 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.

6) This unit was tested with its standard battery.

7) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

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

9) 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.

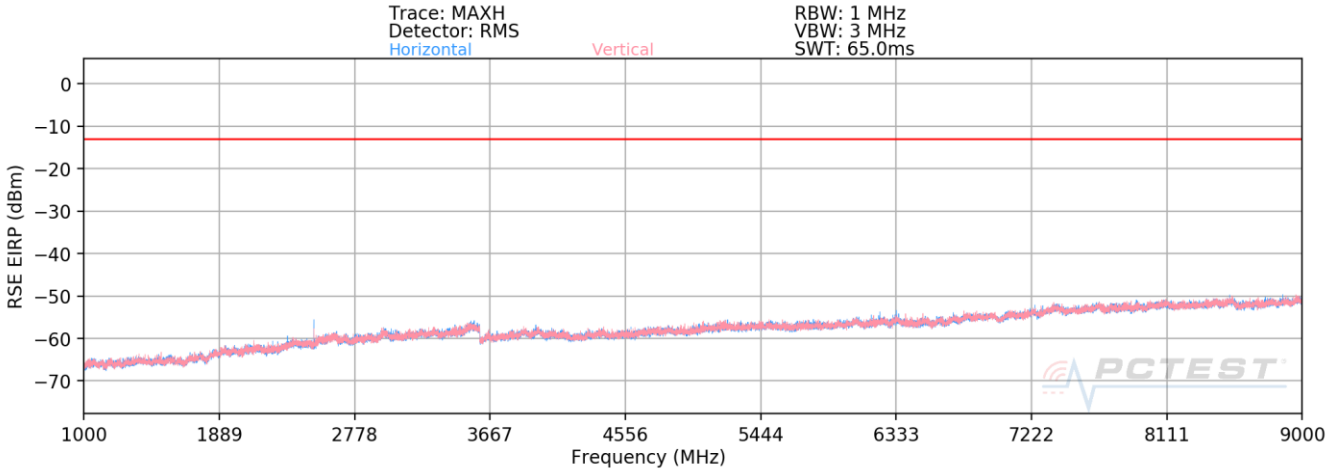
10) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

11) ULCA spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

12) 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.

13) 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, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

LTE Band 26/5



Plot 7-120. Radiated Spurious Plot (LTE Band 26/5)

Bandwidth (MHz):	10
Frequency (MHz):	829
RB / Offset:	1 / 25

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]
1658.0	H	-	-	-76.29	-5.56	25.15	-70.11	-13.00	-57.11
2487.0	H	135	219	-63.98	-2.46	40.56	-54.70	-13.00	-41.70
3316.0	H	-	-	-76.62	0.64	31.02	-64.24	-13.00	-51.24
4145.0	H	-	-	-77.52	1.92	31.40	-63.85	-13.00	-50.85

Table 7-7. Radiated Spurious Data (LTE Band 26/5 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	836.5
RB / Offset:	1 / 25

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]
1673.0	H	-	-	-76.31	-5.27	25.42	-69.84	-13.00	-56.84
2509.5	H	121	217	-66.57	-2.27	38.16	-57.09	-13.00	-44.09
3346.0	H	-	-	-77.23	0.41	30.18	-65.08	-13.00	-52.08
4182.5	H	-	-	-77.73	2.10	31.37	-63.89	-13.00	-50.89

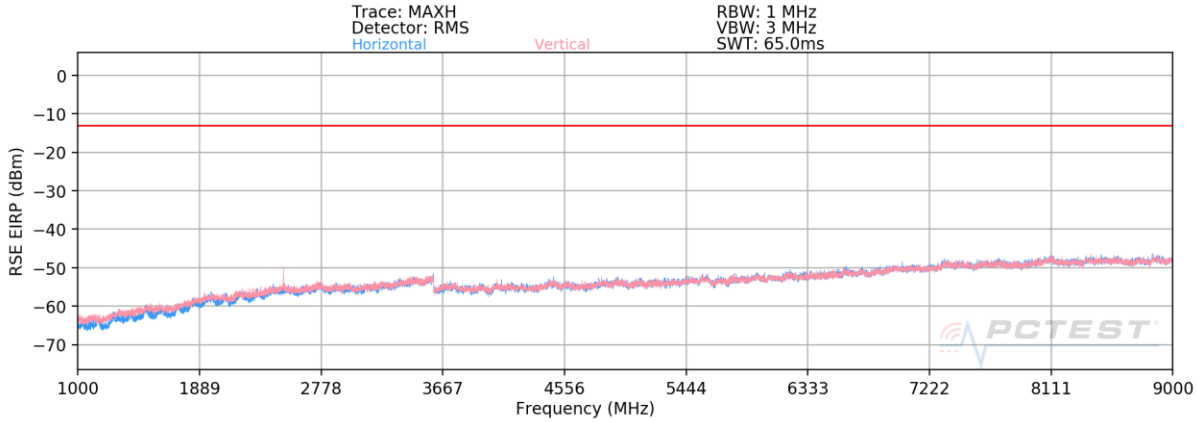
Table 7-8. Radiated Spurious Data (LTE Band 26/5 – Mid Channel)

Bandwidth (MHz):	10
Frequency (MHz):	844.0
RB / Offset:	1 / 25

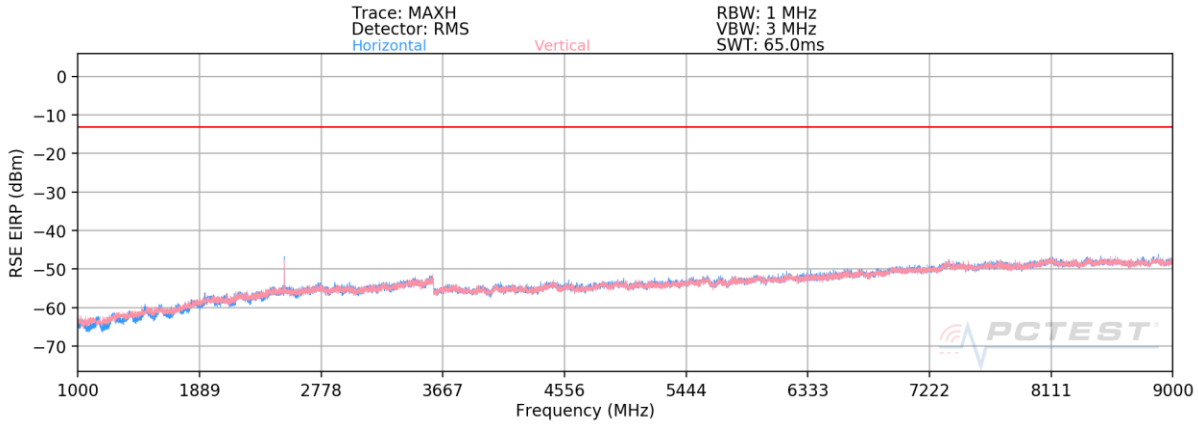
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.00	H	-	-	-76.27	-4.84	25.89	-69.37	-13.00	-56.37
2532.00	H	136	229	-76.13	-1.92	28.95	-66.31	-13.00	-53.31
3376.00	H	-	-	-76.85	0.24	30.39	-64.86	-13.00	-51.86
4220.00	H	-	-	-77.96	1.88	30.92	-64.33	-13.00	-51.33

Table 7-9. Radiated Spurious Data (LTE Band 26/5 – High Channel)

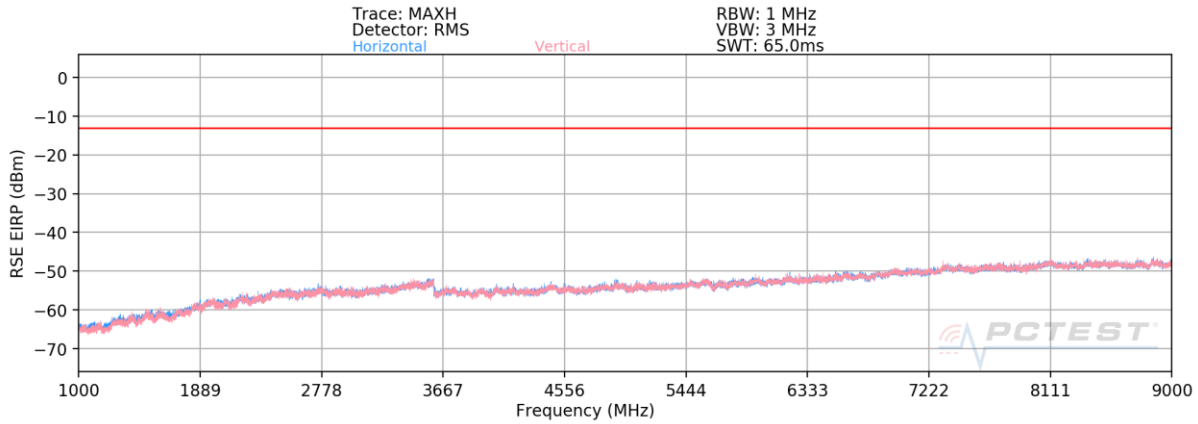
ULCA LTE Band 5



Plot 7-121. Radiated Spurious Plot (ULCA LTE Band 5-Low Channel)



Plot 7-122. Radiated Spurious Plot (ULCA LTE Band 5-Mid Channel)



Plot 7-123. Radiated Spurious Plot (ULCA LTE Band 5- High Channel)

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	829.0
PCC RB / Offset:	1 / 49
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	838.9
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.0	H	-	-	-77.04	-0.53	29.43	-65.83	-13.00	-52.83
2487.0	H	144	230	-66.32	3.45	44.13	-51.13	-13.00	-38.13
3316.0	H	-	-	-78.06	4.77	33.71	-61.55	-13.00	-48.55
4145.0	H	-	-	-78.83	6.17	34.34	-60.92	-13.00	-47.92
4974.0	H	-	-	-79.28	7.16	34.88	-60.38	-13.00	-47.38

Table 7-10. Radiated Spurious Data (ULCA LTE Band 5 – Low Channel)

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	831.5
PCC RB / Offset:	1 / 49
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	841.4
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1663.0	H	-	-	-77.01	-0.44	29.55	-65.70	-13.00	-52.70
2494.5	H	218	225	-64.72	3.49	45.77	-49.48	-13.00	-36.48
3326.0	H	-	-	-78.07	4.91	33.84	-61.41	-13.00	-48.41
4157.5	H	-	-	-78.61	6.01	34.40	-60.85	-13.00	-47.85
4989.0	H	-	-	-78.98	6.84	34.86	-60.40	-13.00	-47.40

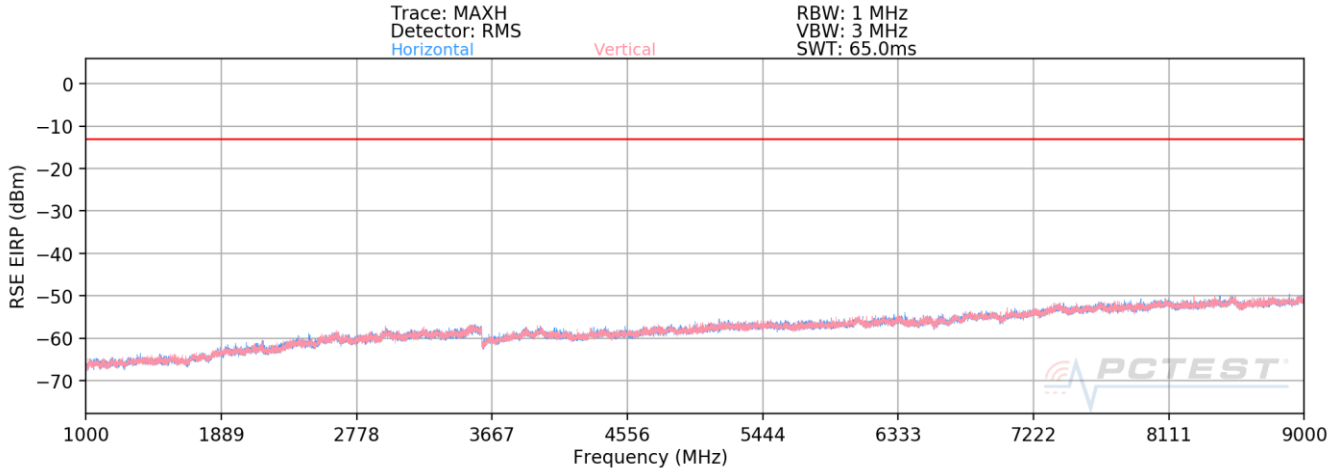
Table 7-11. Radiated Spurious Data (ULCA LTE Band 5 – Mid Channel)

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	844.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	834.1
SCC RB / Offset:	1 / 49

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]
1688.0	H	-	-	-76.88	-0.71	29.41	-65.85	-13.00	-52.85
2532.0	H	-	-	-77.27	3.43	33.16	-62.09	-13.00	-49.09
3376.0	H	-	-	-78.44	5.19	33.75	-61.50	-13.00	-48.50
4220.0	H	-	-	-78.42	5.69	34.27	-60.99	-13.00	-47.99
5064.0	H	-	-	-79.16	7.04	34.88	-60.38	-13.00	-47.38

Table 7-12. Radiated Spurious Data (ULCA LTE Band 5 – High Channel)

NR Band n5



Plot 7-124. Radiated Spurious Plot (NR Band n5)

Bandwidth (MHz):	20
Frequency (MHz):	834.0
RB / Offset:	1 / 50
Mode:	Standalone

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]
1668.0	V	-	-	-72.80	3.59	37.79	-57.46	-13.00	-44.46
2502.0	V	-	-	-72.16	6.82	41.66	-53.60	-13.00	-40.60
3336.0	V	-	-	-71.30	9.79	45.49	-49.77	-13.00	-36.77
4170.0	V	-	-	-75.57	11.60	43.03	-52.23	-13.00	-39.23

Table 7-13. Radiated Spurious Data (NR Band n5 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	836.5
RB / Offset:	1 / 50
Mode:	Standalone

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]
1673.0	V	-	-	-72.15	3.67	38.52	-56.74	-13.00	-43.74
2509.5	V	-	-	-72.38	6.89	41.51	-53.75	-13.00	-40.75
3346.0	V	-	-	-73.92	9.76	42.84	-52.42	-13.00	-39.42
4182.5	V	-	-	-75.90	11.57	42.67	-52.59	-13.00	-39.59

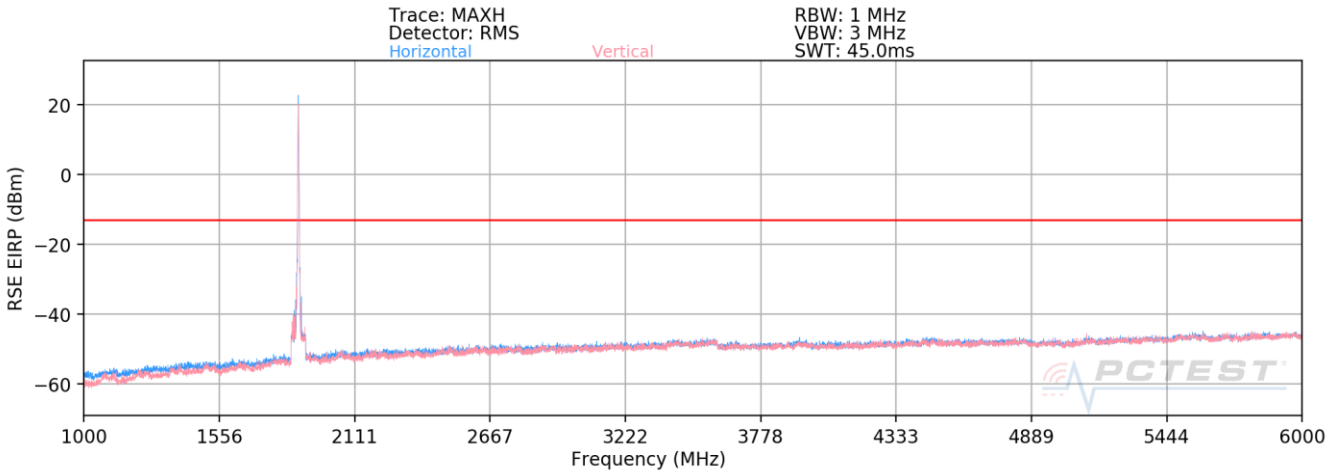
Table 7-14. Radiated Spurious Data (NR Band n5 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	839.0
RB / Offset:	1 / 50
Mode:	Standalone

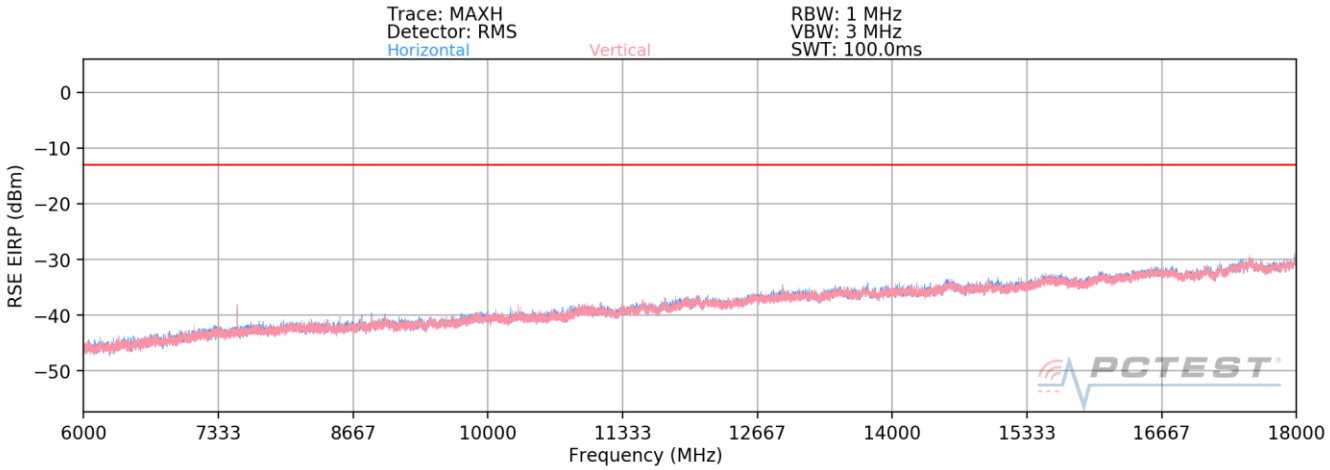
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1678.0	V	-	-	-72.72	3.74	38.02	-57.24	-13.00	-44.24
2517.0	V	-	-	-74.89	6.86	38.97	-56.28	-13.00	-43.28
3356.0	V	-	-	-74.19	9.70	42.51	-52.74	-13.00	-39.74
4195.0	V	-	-	-76.14	11.52	42.38	-52.88	-13.00	-39.88

Table 7-15. Radiated Spurious Data (NR Band n5 – High Channel)

NR Band n5 – B2



Plot 7-125. Radiated Spurious Plot (NR Band n5 – B2 – 1-6 GHz)



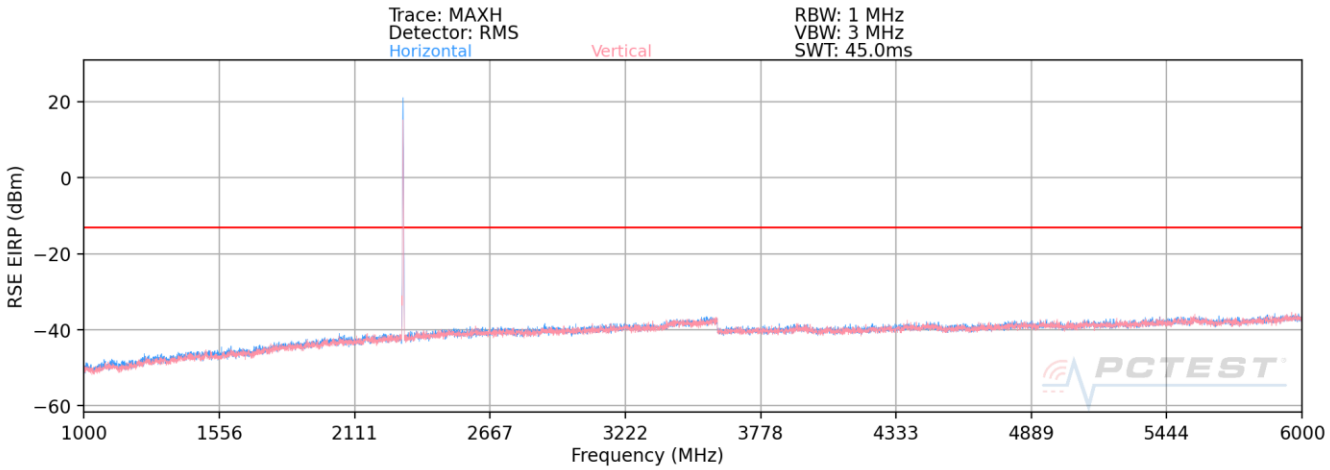
Plot 7-126. Radiated Spurious Plot (NR Band n5 – B2 – 6-18 GHz)

Bandwidth (MHz):	20
Frequency (MHz):	836.5 / 1880
RB / Offset:	1 -53 / 1 / 50
Mode:	EN-DC
Anchor Band:	B2

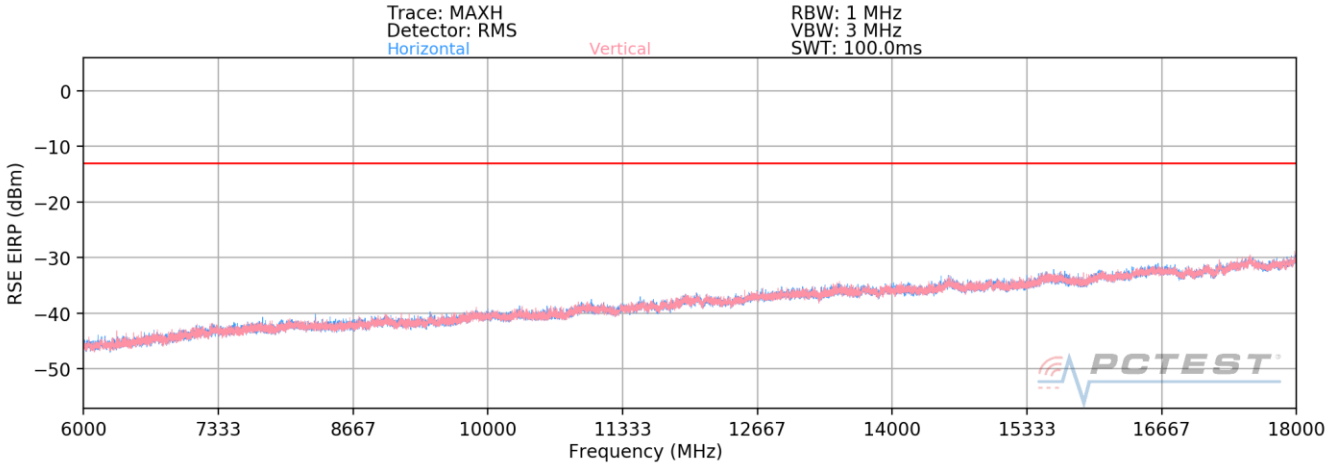
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1250.5	H	-	-	-71.31	6.44	42.13	-53.13	-13.00	-40.13
2294.0	H	-	-	-70.13	11.70	48.57	-46.68	-13.00	-33.68
2923.5	H	-	-	-70.03	13.36	50.33	-44.92	-13.00	-31.92
3337.5	H	-	-	-69.29	14.03	51.74	-43.52	-13.00	-30.52
3967.0	H	-	-	-75.25	15.35	47.10	-48.16	-13.00	-35.16
7520.0	H	109	58	-72.49	21.46	55.97	-39.29	-13.00	-26.29

Table 7-16. Radiated Spurious Data (NR Band n5 – B2)

NR Band n5 – B30



Plot 7-127. Radiated Spurious Plot (NR Band n5 – B30 – 1-6 GHz)



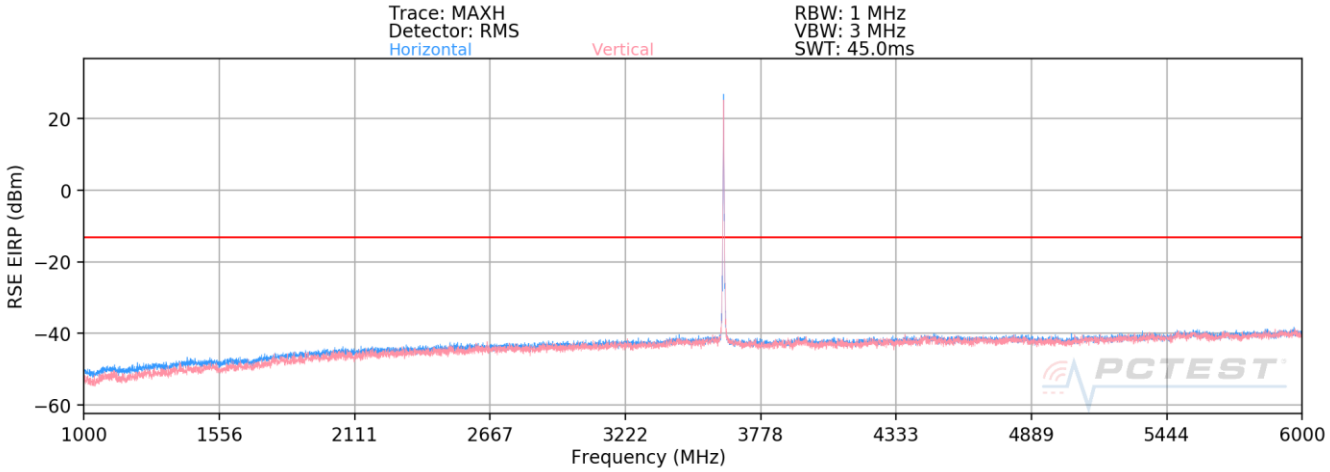
Plot 7-128. Radiated Spurious Plot (NR Band n5 – B30 – 6-18 GHz)

Bandwidth (MHz):	20 / 10
Frequency (MHz):	836.5 / 2310
RB / Offset:	1 -53 / 1 / 25
Mode:	EN-DC
Anchor Band:	B30

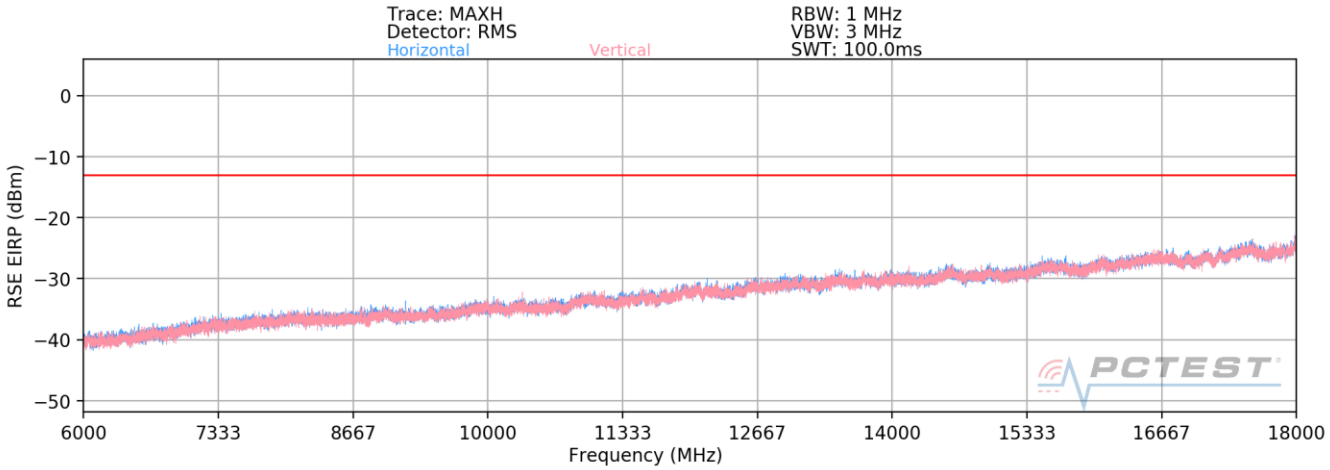
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2110.0	V	-	-	-72.02	11.12	46.10	-49.16	-13.00	-36.16
3584.0	V	-	-	-76.58	14.59	45.01	-50.25	-13.00	-37.25
3783.0	V	-	-	-76.24	14.70	45.46	-49.80	-13.00	-36.80
5057.0	V	-	-	-77.60	16.56	45.96	-49.30	-13.00	-36.30
5257.0	V	-	-	-77.98	17.05	46.07	-49.19	-13.00	-36.19

Table 7-17. Radiated Spurious Data (NR Band n5 – B30)

NR Band n5 – B48



Plot 7-129. Radiated Spurious Plot (NR Band n5 – B48 – 1-6 GHz)



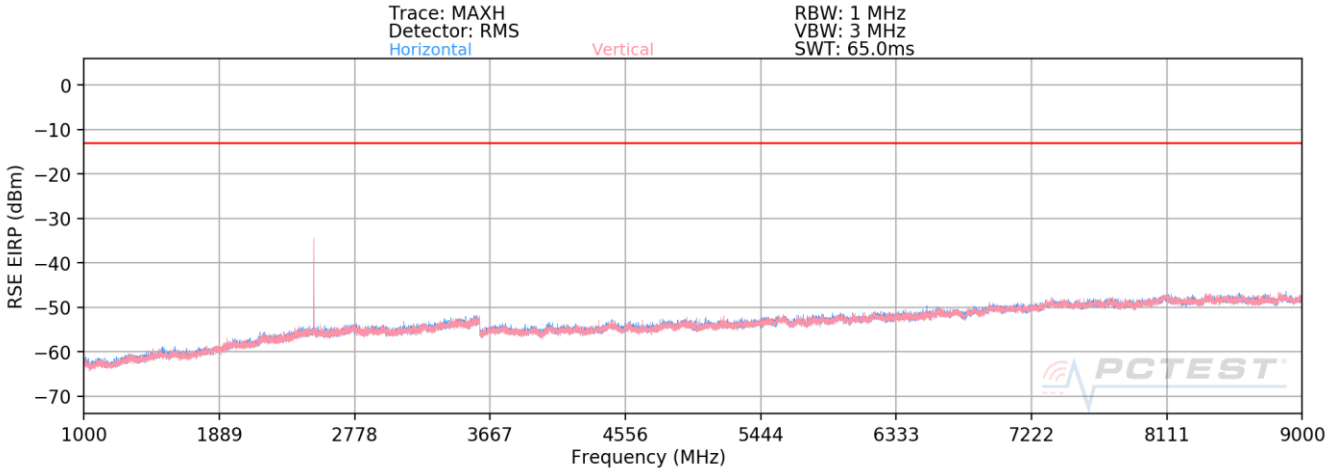
Plot 7-130. Radiated Spurious Plot (NR Band n5 – B48 – 6-18 GHz)

Bandwidth (MHz):	20 / 20
Frequency (MHz):	836.5 / 3625
RB / Offset:	1 - 53 / 1 - 50
Mode:	EN-DC
Anchor Band:	48

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]
1952.0	V	-	-	-74.16	11.97	44.81	-50.44	-13.00	-37.44
4740.5	V	-	-	-75.22	18.49	50.27	-44.99	-13.00	-31.99
6413.5	V	-	-	-75.36	22.46	54.10	-41.16	-13.00	-28.16
7529.0	V	-	-	-76.01	25.44	56.43	-38.83	-13.00	-25.83
9202.0	V	-	-	-76.21	28.11	58.90	-36.35	-13.00	-23.35

Table 7-18. Radiated Spurious Data (NR Band n5 – B48)

GSM/GPRS Cell



Plot 7-131. Radiated Spurious Plot (GPRS Cell)

Mode:	GPRS 1 Tx Slot
Channel:	128
Frequency (MHz):	824.2

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]
1648.4	H	270	354	-70.87	-0.71	35.42	-59.84	-13.00	-46.84
2472.6	H	197	228	-47.61	3.39	62.78	-32.48	-13.00	-19.48
3296.8	H	202	218	-72.08	4.46	39.38	-55.88	-13.00	-42.88
4121.0	H	-	-	-76.30	5.78	36.48	-58.77	-13.00	-45.77
4945.2	H	-	-	-76.65	7.29	37.64	-57.61	-13.00	-44.61

Table 7-19. Radiated Spurious Data (GPRS Cell – Low Channel)

Mode:	GPRS 1 Tx Slot
Channel:	190
Frequency (MHz):	836.6

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]
1673.2	H	398	210	-72.57	-0.57	33.86	-61.39	-13.00	-48.39
2509.8	H	107	300	-45.15	3.53	65.38	-29.87	-13.00	-16.87
3346.4	H	-	-	-73.47	5.20	38.73	-56.52	-13.00	-43.52
4183.0	H	-	-	-75.95	6.13	37.18	-58.08	-13.00	-45.08

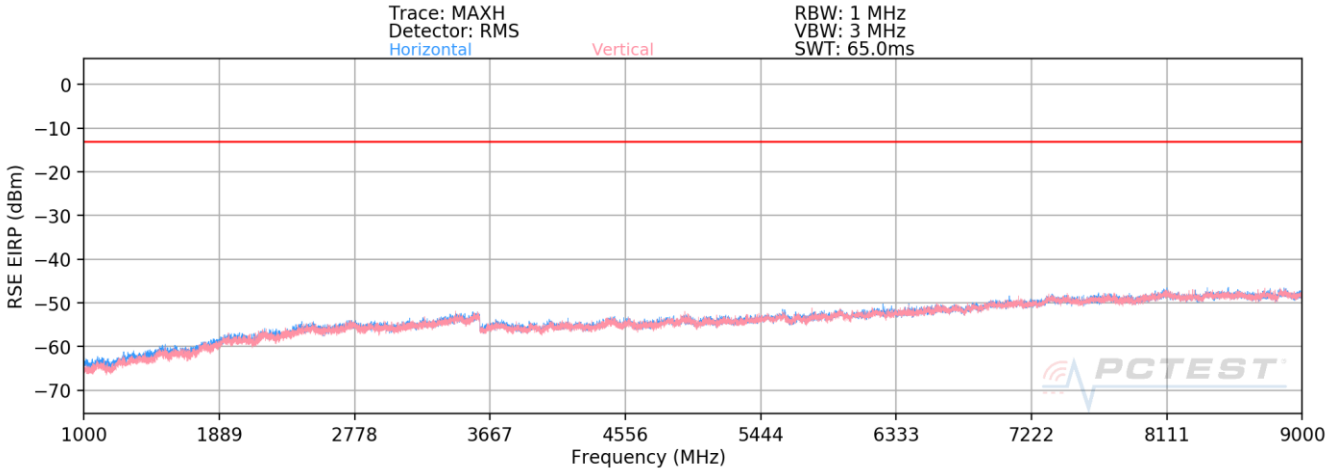
Table 7-20. Radiated Spurious Data (GPRS Cell – Mid Channel)

Mode:	GPRS 1 Tx Slot
Channel:	251
Frequency (MHz):	848.8

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]
1697.6	H	102	19	-66.92	-0.55	39.53	-55.73	-13.00	-42.73
2546.4	H	102	338	-45.48	3.33	64.85	-30.41	-13.00	-17.41
3395.2	H	-	-	-72.86	4.98	39.12	-56.14	-13.00	-43.14
4244.0	H	-	-	-75.22	5.65	37.43	-57.83	-13.00	-44.83

Table 7-21. Radiated Spurious Data (GPRS Cell – High Channel)

WCDMA Cell



Plot 7-132. Radiated Spurious Plot (WCDMA Cell)

Mode:	WCDMA RMC
Channel:	4132
Frequency (MHz):	826.4

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]
1652.8	H	-	-	-77.82	-0.63	28.55	-66.71	-13.00	-53.71
2479.2	H	-	-	-77.05	3.42	33.37	-61.89	-13.00	-48.89
3305.6	H	-	-	-77.57	4.57	34.00	-61.26	-13.00	-48.26

Table 7-22. Radiated Spurious Data (WCDMA Cell – Low Channel)

Mode:	WCDMA RMC
Channel:	4183
Frequency (MHz):	836.6

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]
1673.2	H	-	-	-76.64	-0.57	29.79	-65.46	-13.00	-52.46
2509.8	H	-	-	-77.11	3.53	33.42	-61.83	-13.00	-48.83
3346.4	H	-	-	-78.11	5.20	34.09	-61.16	-13.00	-48.16

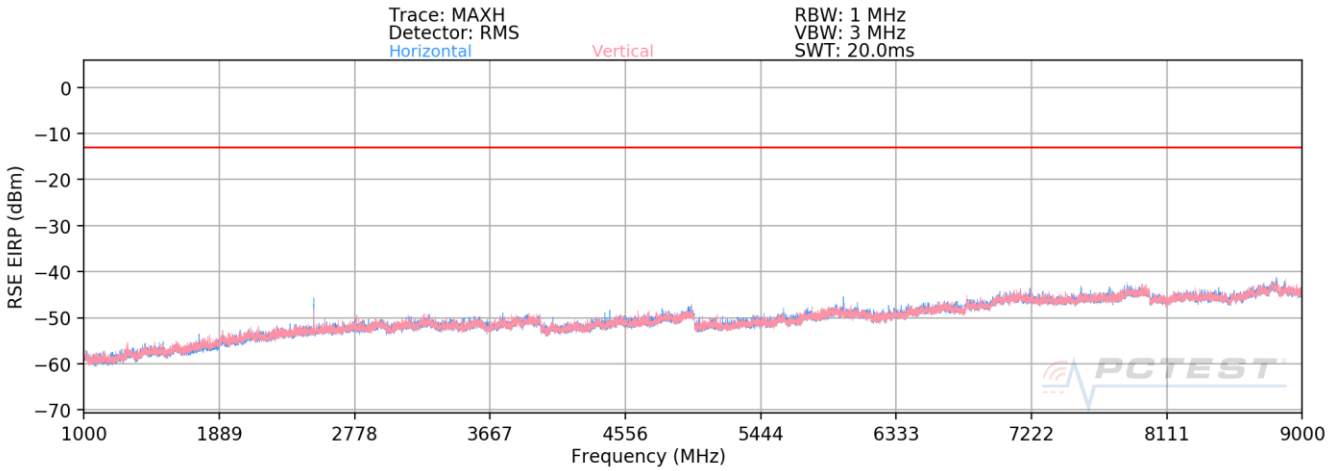
Table 7-23. Radiated Spurious Data (WCDMA Cell – Mid Channel)

Mode:	WCDMA RMC
Channel:	4233
Frequency (MHz):	846.6

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]
1693.2	H	-	-	-77.03	-0.62	29.35	-65.91	-13.00	-52.91
2539.8	H	-	-	-77.39	3.38	32.99	-62.27	-13.00	-49.27
3386.4	H	-	-	-77.59	5.08	34.49	-60.77	-13.00	-47.77

Table 7-24. Radiated Spurious Data (WCDMA Cell – High Channel)

CDMA Cell



Plot 7-133. Radiated Spurious Plot (CDMA Cell)

Mode:	CDMA
Channel:	1013
Frequency (MHz):	824.7

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]
1649.40	H	-	-	-73.35	0.57	34.22	-61.04	-13.00	-48.04
2474.10	H	124	220	-65.44	5.19	46.75	-48.51	-13.00	-35.51
3298.80	H	-	-	-73.08	6.99	40.91	-54.35	-13.00	-41.35
4123.50	H	-	-	-73.43	8.07	41.64	-53.62	-13.00	-40.62

Table 7-25. Radiated Spurious Data (CDMA Cell – Low Channel)

Mode:	CDMA
Channel:	384
Frequency (MHz):	836.52

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]
1673.04	H	-	-	-72.75	1.02	35.27	-59.99	-13.00	-46.99
2509.56	H	131	220	-66.19	5.17	45.98	-49.27	-13.00	-36.27
3346.08	H	-	-	-73.15	6.75	40.60	-54.66	-13.00	-41.66
4182.60	H	-	-	-74.81	8.61	40.80	-54.45	-13.00	-41.45

Table 7-26. Radiated Spurious Data (CDMA Cell – Mid Channel)

Mode:	CDMA
Channel:	777
Frequency (MHz):	848.31

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]
1696.62	H	-	-	-70.10	1.44	38.34	-56.92	-13.00	-43.92
2544.93	H	101	250	-69.71	5.45	42.74	-52.52	-13.00	-39.52
3393.24	H	-	-	-74.77	7.34	39.57	-55.69	-13.00	-42.69
4241.55	H	-	-	-74.78	8.13	40.35	-54.91	-13.00	-41.91

Table 7-27. Radiated Spurious Data (CDMA Cell – High Channel)

7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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 22 and RSS-132, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Test Procedure Used

ANSI/TIA-603-E-2016

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

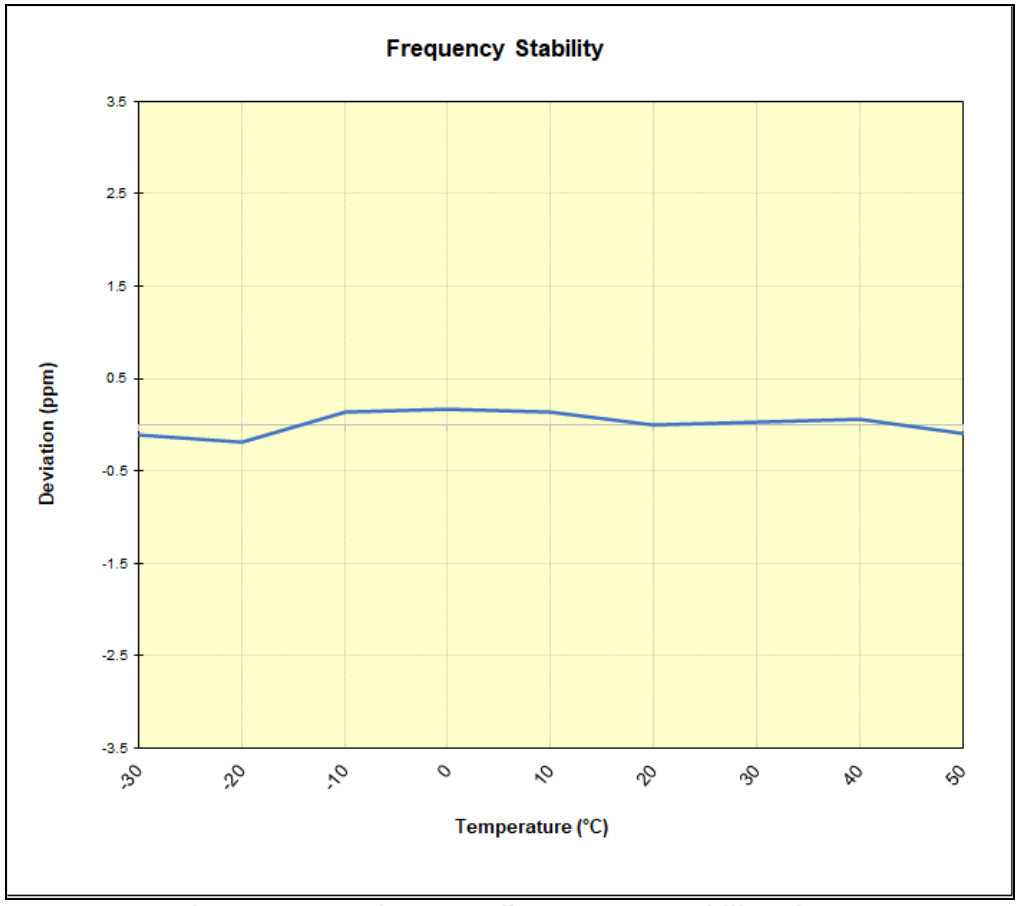
None

GSM/GPRS Cellular

Operating Frequency (Hz):	836,600,000
Ref. Voltage (VDC):	4.31
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	836,599,865	-93	-0.0000111
		- 20	836,599,798	-160	-0.0000191
		- 10	836,600,069	111	0.0000133
		0	836,600,106	148	0.0000177
		+ 10	836,600,078	120	0.0000143
		+ 20 (Ref)	836,599,958	0	0.0000000
		+ 30	836,599,978	20	0.0000024
		+ 40	836,600,016	58	0.0000069
		+ 50	836,599,879	-79	-0.0000094
Battery Endpoint	3.51	+ 20	836,600,050	92	0.0000110

Table 7-28. GSM/GPRS Cell Frequency Stability Data



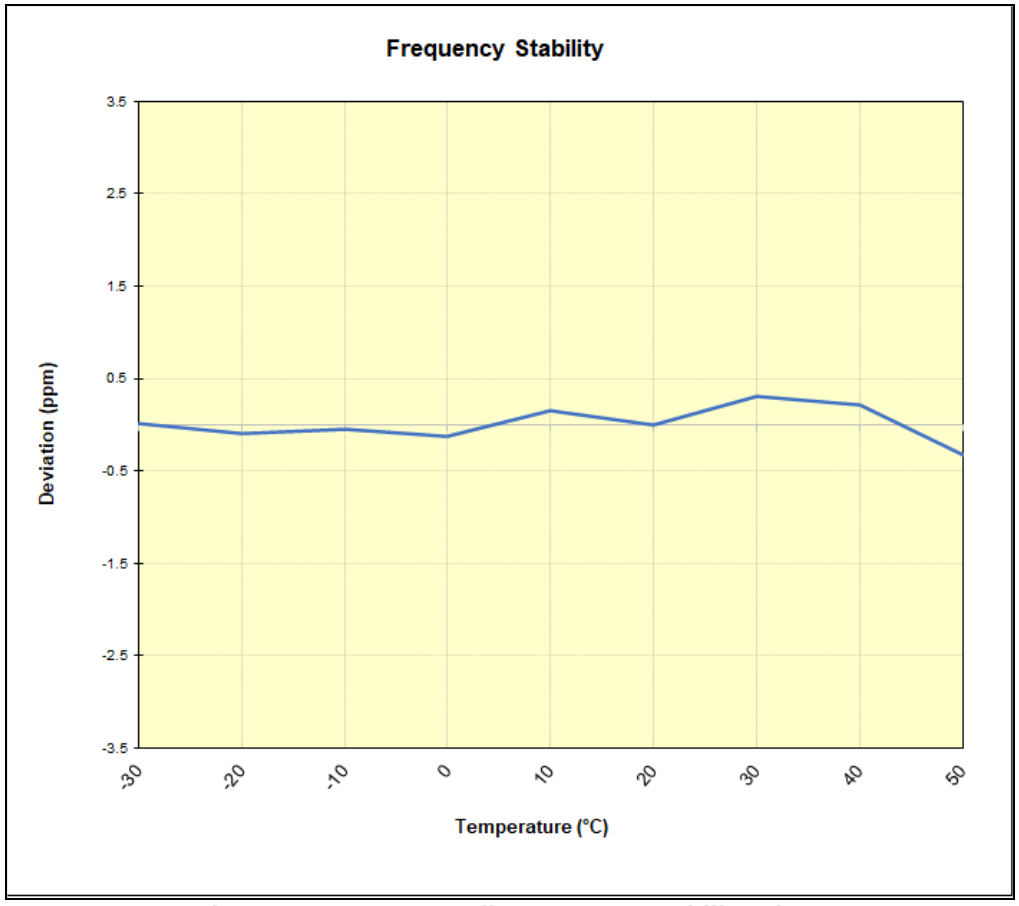
Plot 7-134. GSM/GPRS Cell Frequency Stability Chart

WCDMA Cellular

Operating Frequency (Hz):	836,600,000
Ref. Voltage (VDC):	4.31
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	836,599,985	11	0.0000013
		- 20	836,599,890	-84	-0.0000100
		- 10	836,599,930	-44	-0.0000053
		0	836,599,876	-98	-0.0000117
		+ 10	836,600,104	130	0.0000155
		+ 20 (Ref)	836,599,974	0	0.0000000
		+ 30	836,600,237	263	0.0000314
		+ 40	836,600,151	177	0.0000212
		+ 50	836,599,708	-266	-0.0000318
Battery Endpoint	3.51	+ 20	836,600,056	82	0.0000098

Table 7-29. WCDMA Cell Frequency Stability Data



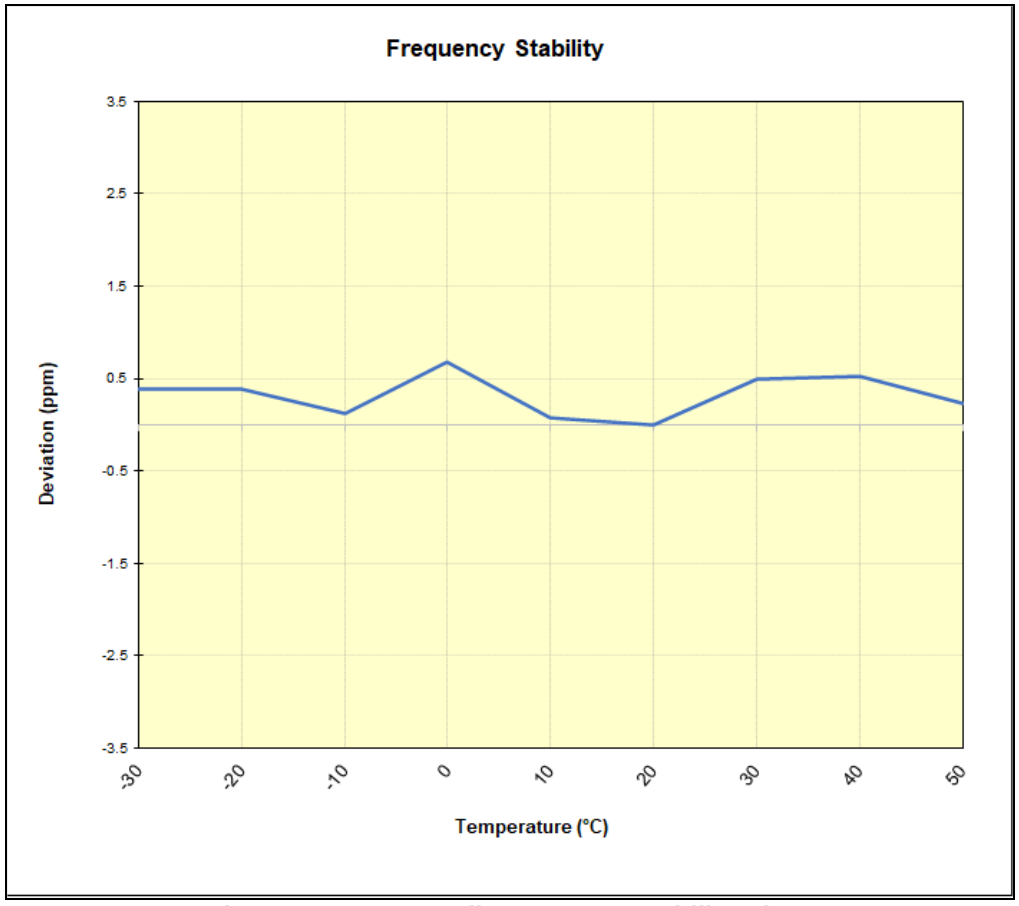
Plot 7-135. WCDMA Cell Frequency Stability Chart

CDMA Cellular

Operating Frequency (Hz):	836,520,000
Ref. Voltage (VDC):	4.31
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	836,520,049	320	0.0000383
		- 20	836,520,059	330	0.0000394
		- 10	836,519,834	105	0.0000126
		0	836,520,297	568	0.0000679
		+ 10	836,519,793	64	0.0000077
		+ 20 (Ref)	836,519,729	0	0.0000000
		+ 30	836,520,142	413	0.0000494
		+ 40	836,520,164	435	0.0000520
		+ 50	836,519,917	188	0.0000225
Battery Endpoint	3.51	+ 20	836,519,999	270	0.0000323

Table 7-30. CDMA Cell Frequency Stability Data



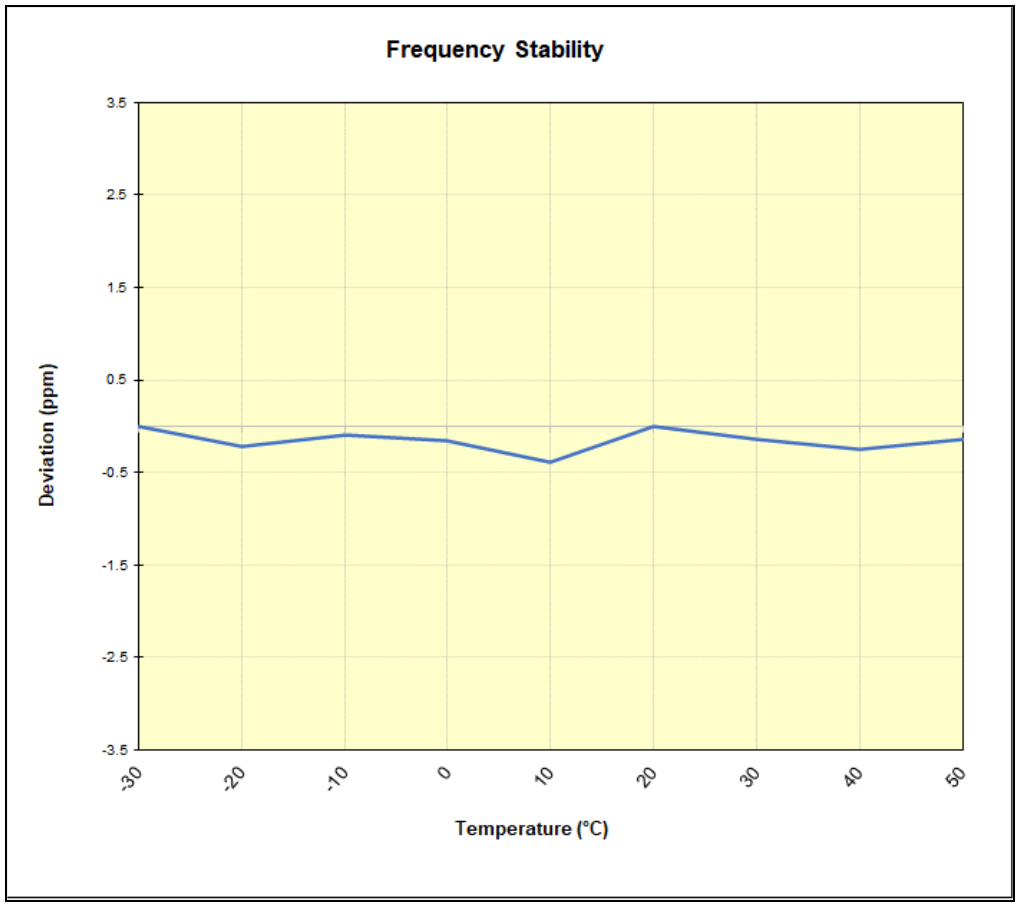
Plot 7-136. CDMA Cell Frequency Stability Chart

LTE Band 26/5

Operating Frequency (Hz):	836,500,000
Ref. Voltage (VDC):	4.31
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	836,500,120	0	0.0000000
		- 20	836,499,945	-175	-0.0000209
		- 10	836,500,038	-82	-0.0000098
		0	836,499,993	-127	-0.0000152
		+ 10	836,499,794	-326	-0.0000390
		+ 20 (Ref)	836,500,120	0	0.0000000
		+ 30	836,500,008	-112	-0.0000134
		+ 40	836,499,915	-205	-0.0000245
		+ 50	836,499,999	-121	-0.0000145
Battery Endpoint	3.51	+ 20	836,500,090	-30	-0.0000036

Table 7-31. LTE Band 26/5 Frequency Stability Data



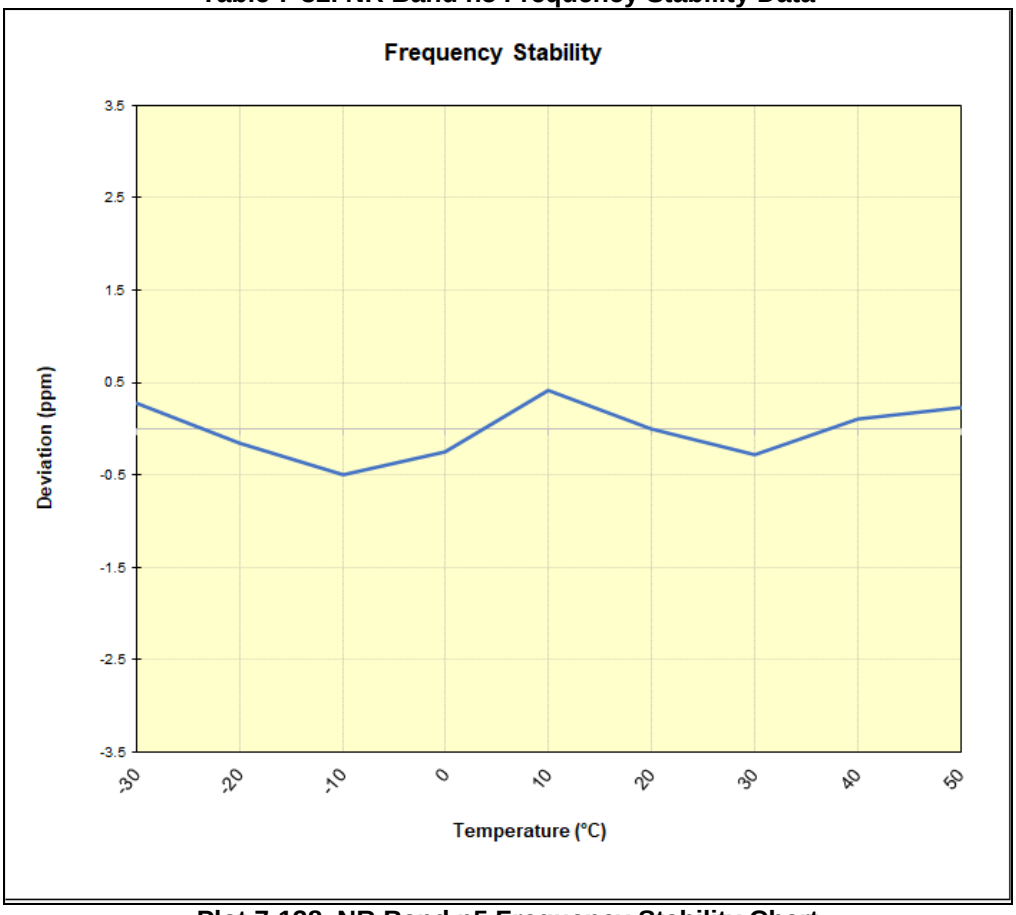
Plot 7-137. LTE Band 26/5 Frequency Stability Chart

NR Band n5

Operating Frequency (Hz):	836,500,000
Ref. Voltage (VDC):	4.31
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	836,500,233	228	0.0000273
		- 20	836,499,873	-132	-0.0000158
		- 10	836,499,591	-414	-0.0000495
		0	836,499,804	-201	-0.0000240
		+ 10	836,500,355	350	0.0000418
		+ 20 (Ref)	836,500,005	0	0.0000000
		+ 30	836,499,777	-228	-0.0000273
		+ 40	836,500,101	96	0.0000115
		+ 50	836,500,202	197	0.0000236
Battery Endpoint	3.51	+ 20	836,499,888	-117	-0.0000140

Table 7-32. NR Band n5 Frequency Stability Data



Plot 7-138. NR Band n5 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: A3LSMA426U** complies with all the requirements of Part 22 of the FCC rules.