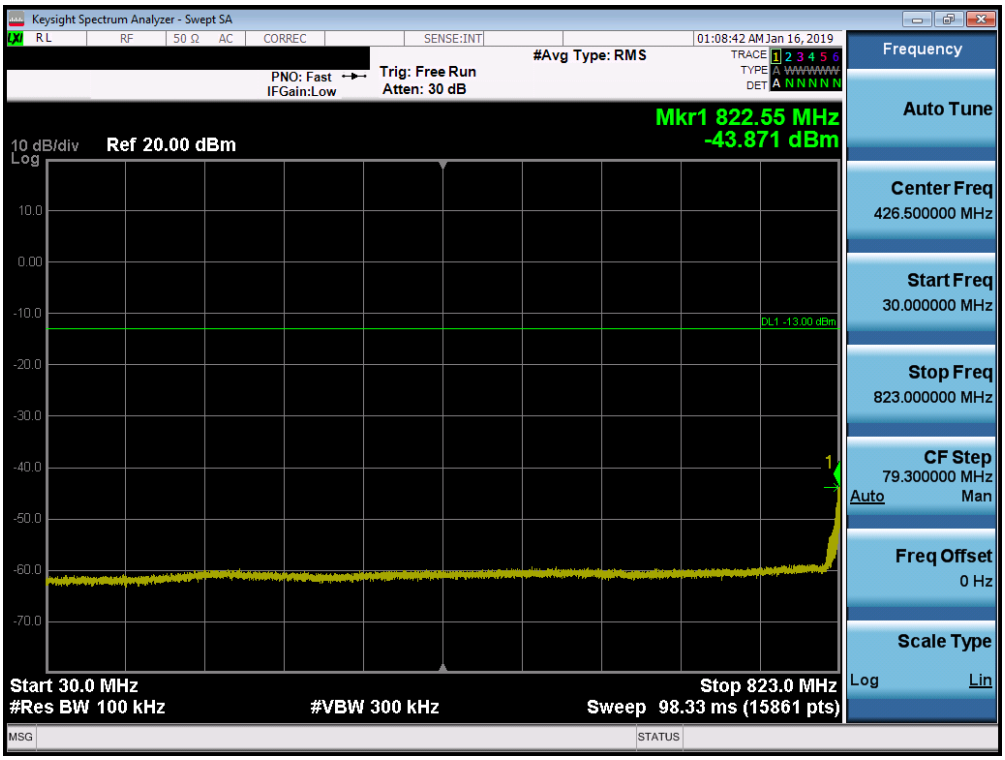
Uplink CA Cofiguration 5 B

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B5	5	20425	826.5	QPSK	1	24	LTE B5	10	20497	833.7	QPSK	1	0	24.63
Max	LTE B5	10	20450	829	QPSK	1	49	LTE B5	5	20522	836.2	QPSK	1	0	24.94
Max	LTE B5	10	20450	829	QPSK	1	49	LTE B5	10	20549	838.9	QPSK	1	0	24.95
Max	LTE B5	5	20525	836.5	QPSK	1	24	LTE B5	10	20597	843.7	QPSK	1	0	24.57
Max	LTE B5	10	20525	836.5	QPSK	1	49	LTE B5	5	20597	843.7	QPSK	1	0	24.61
Max	LTE B5	5	20625	846.5	QPSK	1	0	LTE B5	10	20553	839.3	QPSK	1	49	24.16
Max	LTE B5	10	20600	844	QPSK	1	0	LTE B5	5	20528	836.8	QPSK	1	24	24.64
Max	LTE B5	10	20600	844	QPSK	1	0	LTE B5	10	20501	834.1	QPSK	1	49	24.79

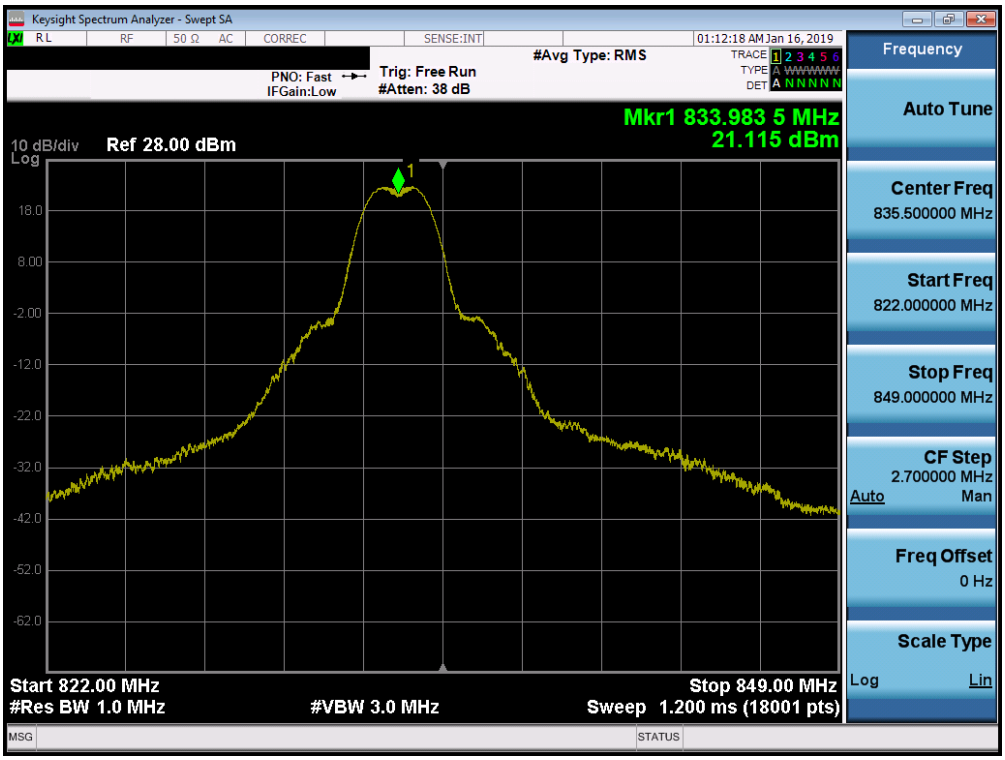
Table 7-4. Conducted Powers (Band 5 – PCC: RB Size 1 Offset Max SCC: RB Size 1 Offset 0)

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B5	10	20450	829	QPSK	1	0	LTE B5	10	20549	838.9	QPSK	1	0	15.31
Max	LTE B5	10	20450	829	QPSK	1	49	LTE B5	10	20549	838.9	QPSK	1	49	14.72
Max	LTE B5	10	20450	829	QPSK	1	0	LTE B5	10	20549	838.9	QPSK	1	49	14.86
Max	LTE B5	10	20450	829	QPSK	1	25	LTE B5	10	20549	838.9	QPSK	1	25	15.03
Max	LTE B5	10	20450	829	QPSK	1	49	LTE B5	10	20549	838.9	QPSK	1	0	24.95
Max	LTE B5	10	20450	829	QPSK	50	0	LTE B5	10	20549	838.9	QPSK	50	0	22.36
Max	LTE B5	10	20450	829	16-QAM	50	0	LTE B5	10	20549	838.9	16-QAM	50	0	21.51
Max	LTE B5	10	20450	829	64-QAM	50	0	LTE B5	10	20549	838.9	64-QAM	50	0	21.42

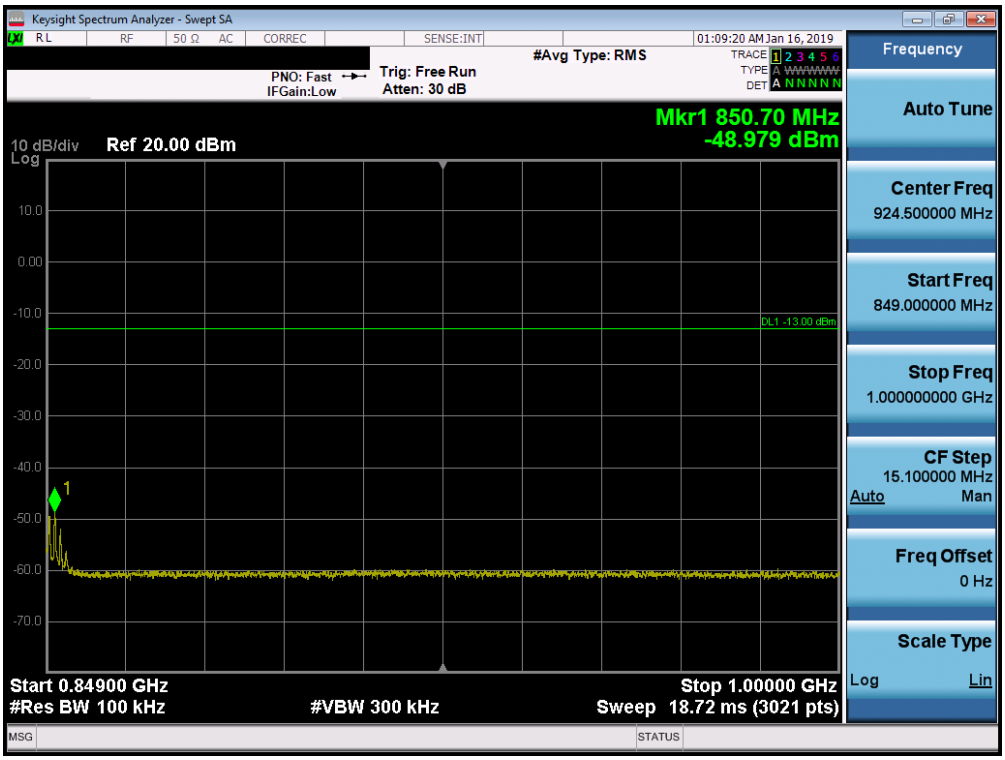
Table 7-5. Conducted Powers (Band 5 with Various Combinations for 10MHz Channel Bandwidth)



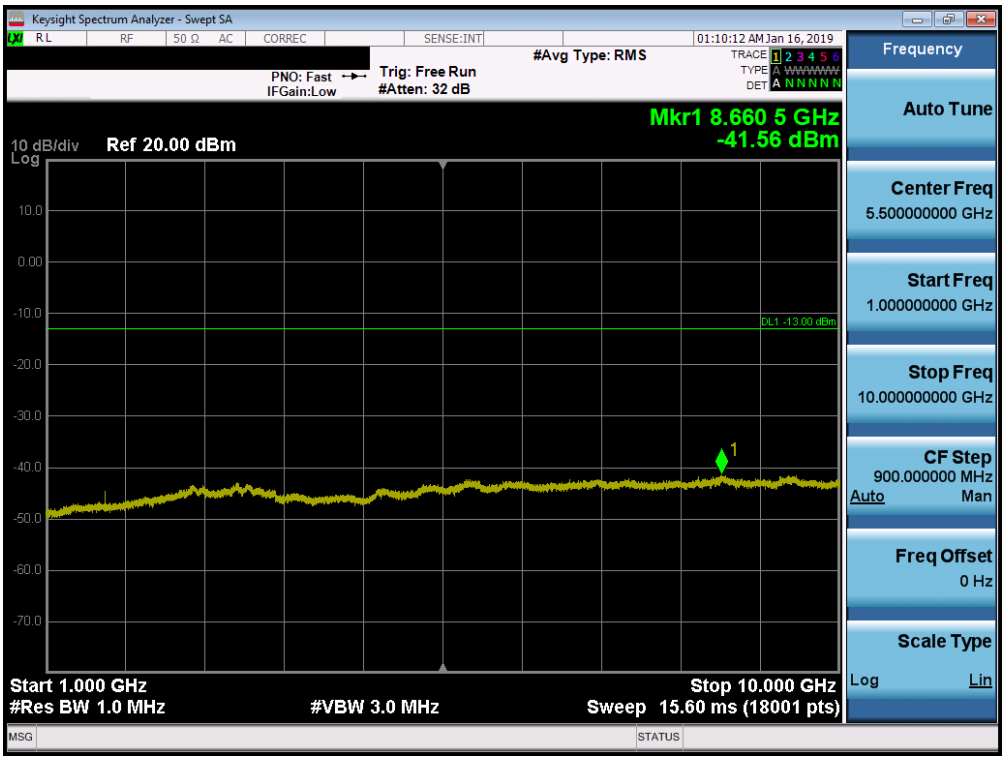
Plot 7-351. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



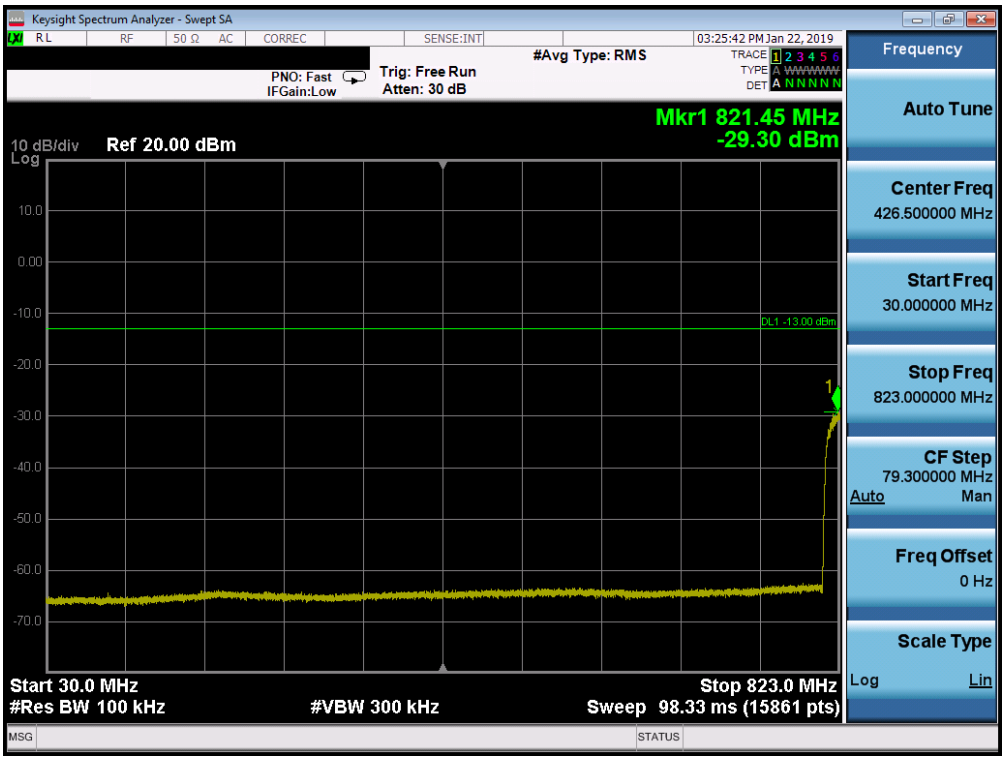
Plot 7-352. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



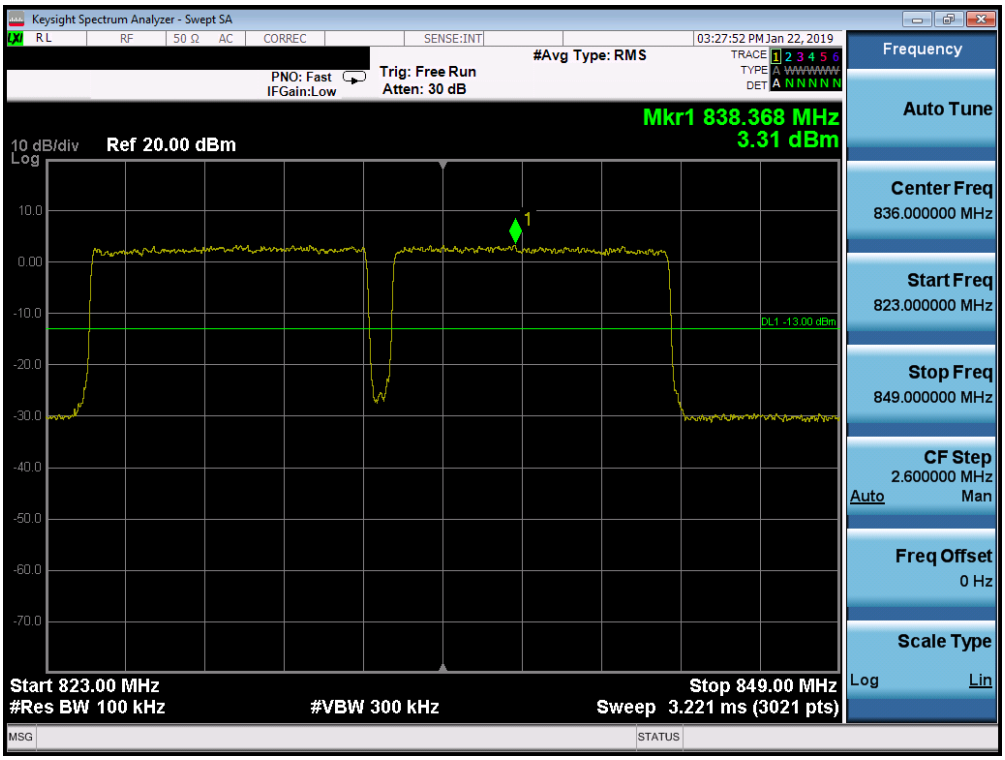
Plot 7-353. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



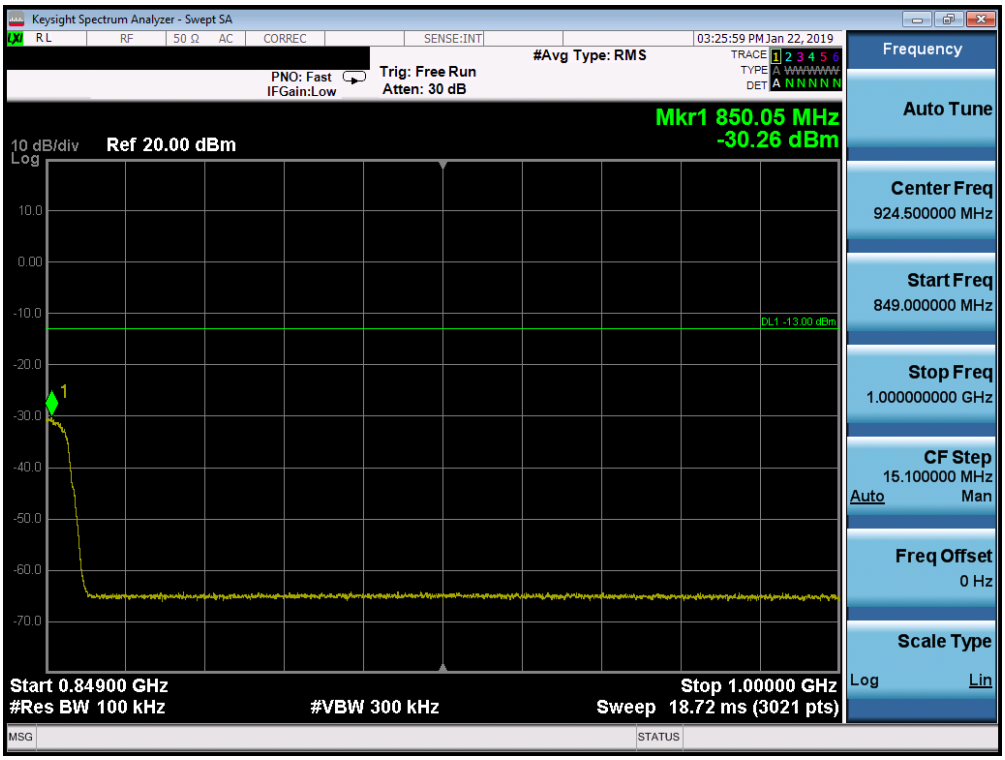
Plot 7-354. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



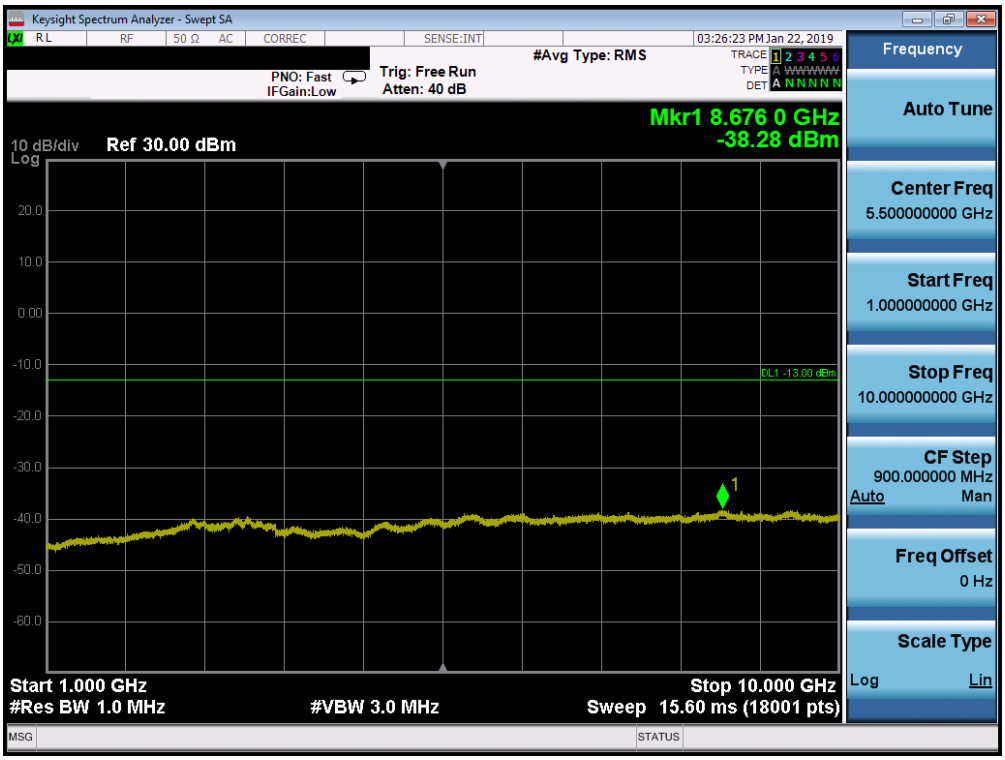
Plot 7-355. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 50/0 SCC 50/0 – Low Channel)



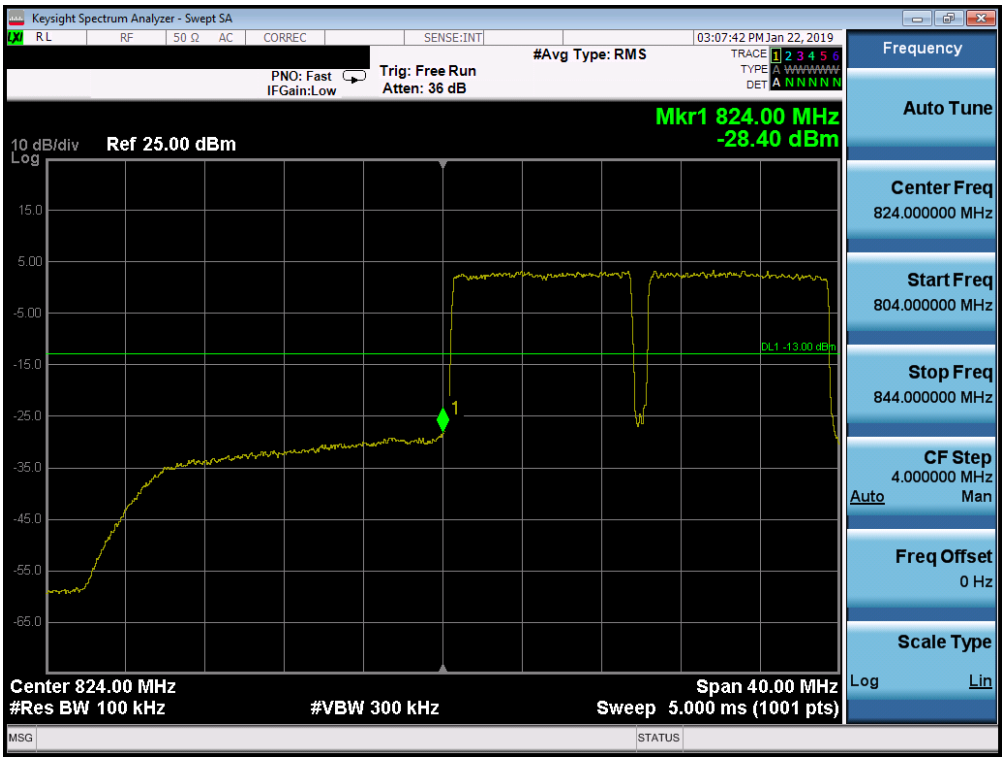
Plot 7-356. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 50/0 SCC 50/0 – Low Channel)



Plot 7-357. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 50/0 SCC 50/0 – Low Channel)



Plot 7-358. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 50/0 SCC 50/0 – Low Channel)



Plot 7-359. Lower Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

Plot 7-360. Upper Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

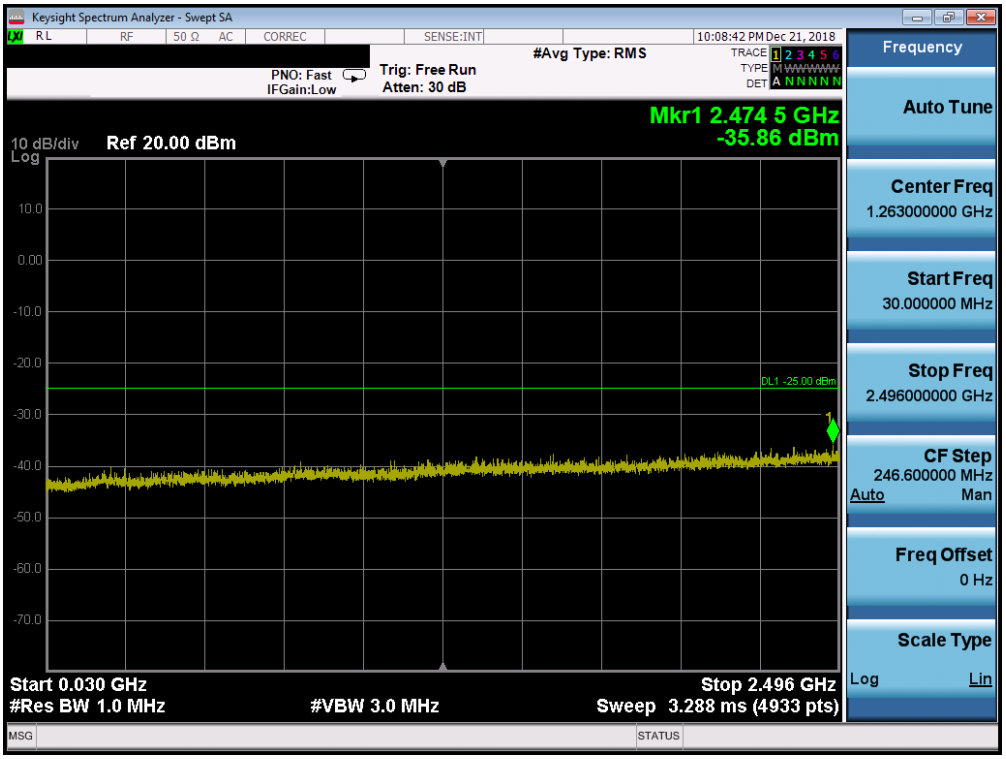
Uplink CA Cofiguration 41C

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	5	39675	2498.5	QPSK	1	24	LTE B41	20	39792	2510.2	QPSK	1	0	24.30
Max	LTE B41	10	39700	2501	QPSK	1	49	LTE B41	15	39820	2513	QPSK	1	0	24.58
Max	LTE B41	10	39700	2501	QPSK	1	49	LTE B41	20	39844	2515.4	QPSK	1	0	24.64
Max	LTE B41	15	39725	2503.5	QPSK	1	74	LTE B41	10	39845	2515.5	QPSK	1	0	24.28
Max	LTE B41	15	39725	2503.5	QPSK	1	74	LTE B41	15	39875	2518.5	QPSK	1	0	24.87
Max	LTE B41	15	39725	2503.5	QPSK	1	74	LTE B41	20	39896	2520.6	QPSK	1	0	24.85
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	5	39867	2517.7	QPSK	1	0	24.38
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	10	39894	2520.4	QPSK	1	0	24.47
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	15	39921	2523.1	QPSK	1	0	24.33
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	24.92
Max	LTE B41	10	40620	2593	QPSK	1	49	LTE B41	15	40740	2605	QPSK	1	0	24.52
Max	LTE B41	10	40620	2593	QPSK	1	49	LTE B41	20	40764	2607.4	QPSK	1	0	24.77
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	10	40740	2605	QPSK	1	0	24.40
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	15	40770	2608	QPSK	1	0	24.82
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	20	40791	2610.1	QPSK	1	0	24.86
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	5	40737	2604.7	QPSK	1	0	24.28
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	10	40764	2607.4	QPSK	1	0	24.23
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	15	40791	2610.1	QPSK	1	0	24.43
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	24.87
Max	LTE B41	5	41565	2687.5	QPSK	1	0	LTE B41	20	41448	2675.8	QPSK	1	99	24.49
Max	LTE B41	10	41540	2685	QPSK	1	0	LTE B41	15	41420	2673	QPSK	1	74	24.51
Max	LTE B41	10	41540	2685	QPSK	1	0	LTE B41	20	41396	2670.6	QPSK	1	99	24.33
Max	LTE B41	15	41515	2682.5	QPSK	1	0	LTE B41	10	41395	2670.5	QPSK	1	49	24.82
Max	LTE B41	15	41515	2682.5	QPSK	1	0	LTE B41	15	41365	2667.5	QPSK	1	74	24.69
Max	LTE B41	15	415	2682.5	QPSK	1	0	LTE B41	20	41344	2665.4	QPSK	1	99	24.47
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	5	41373	2668.3	QPSK	1	24	24.64
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	10	41346	2665.6	QPSK	1	49	24.67
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	15	41319	2662.9	QPSK	1	74	24.50
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	24.70

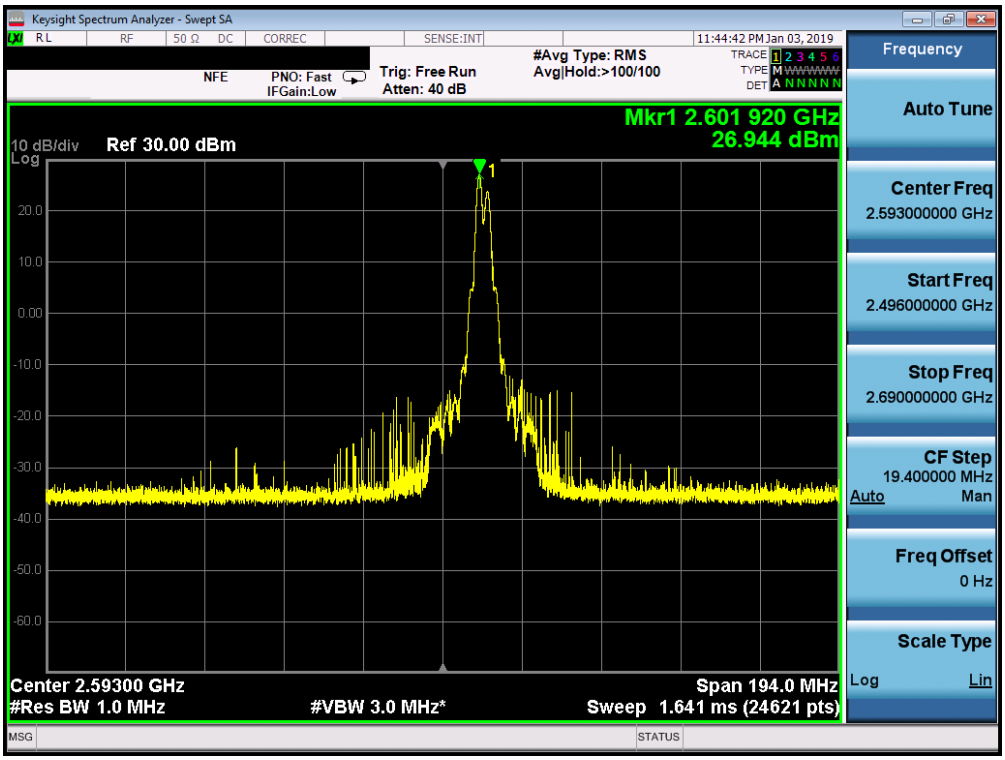
Table 7-6. Conducted Powers (B41 – PCC: RB Size 1 Offset Max SCC: RB Size 1 Offset 0)

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	0	20.46
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	99	20.45
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	99	15.35
Max	LTE B41	20	39750	2506	QPSK	1	50	LTE B41	20	39948	2525.8	QPSK	1	50	20.49
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	24.36
Max	LTE B41	20	39750	2506	QPSK	100	0	LTE B41	20	39948	2525.8	QPSK	100	0	22.83
Max	LTE B41	20	39750	2506	16-QAM	100	0	LTE B41	20	39948	2525.8	16-QAM	100	0	22.01
Max	LTE B41	20	39750	2506	64-QAM	100	0	LTE B41	20	39948	2525.8	64-QAM	100	0	22.02

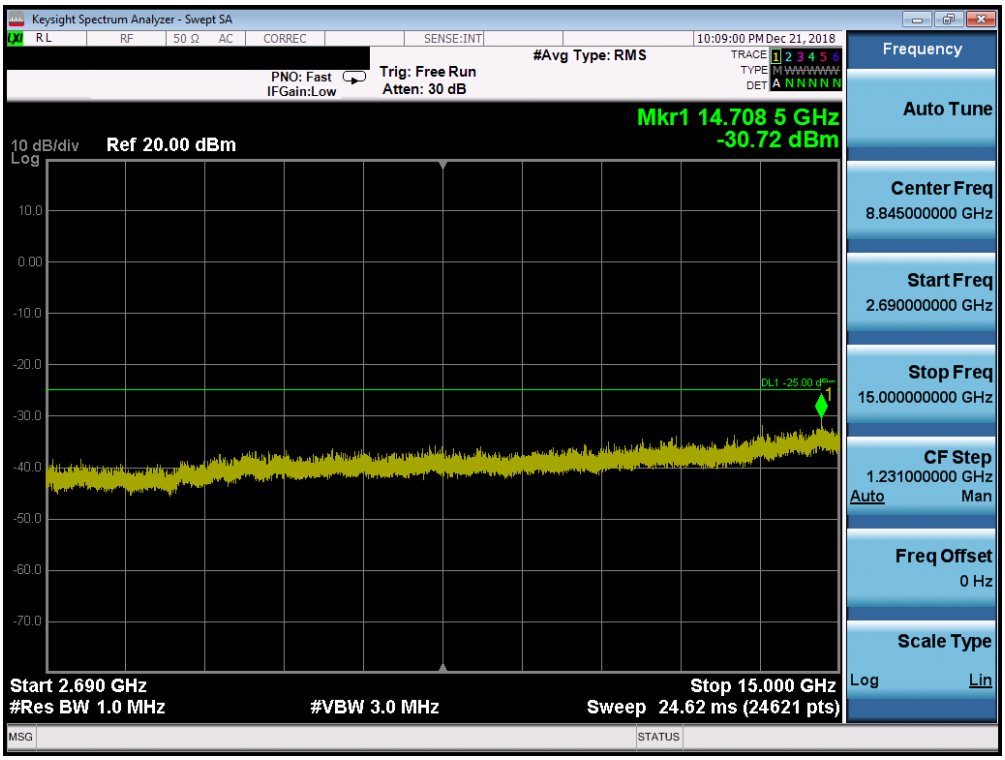
Table 7-7. Conducted Powers (B41 with Various Combinations for 20MHz Channel Bandwidth)



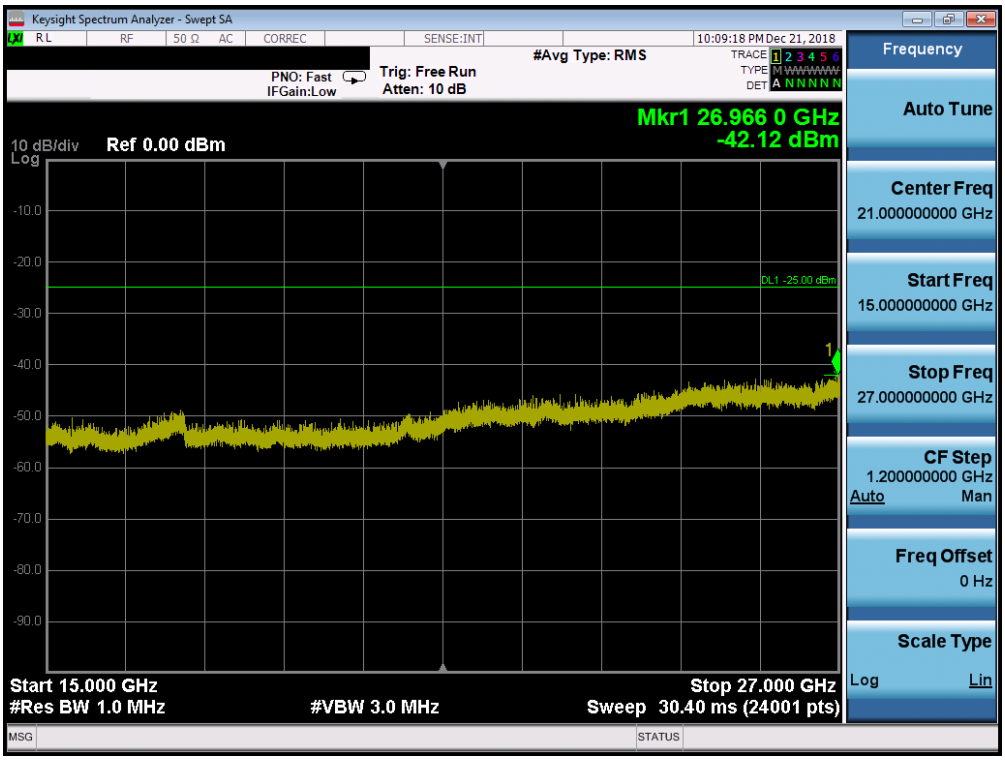
Plot 7-361. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



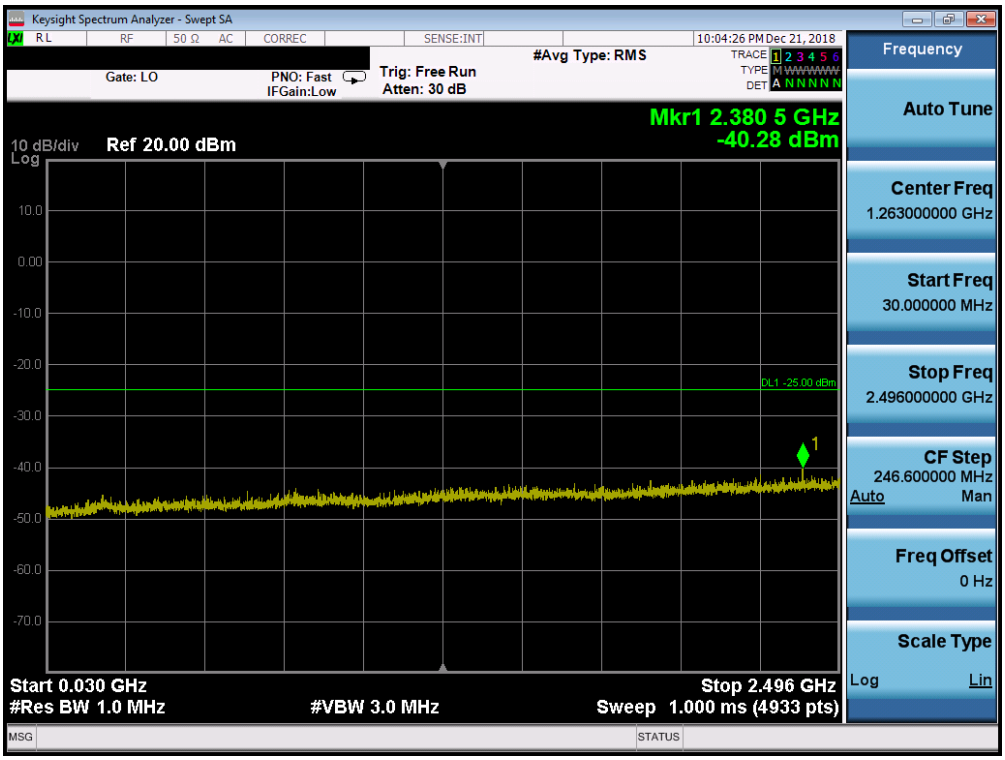
Plot 7-362. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



Plot 7-363. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

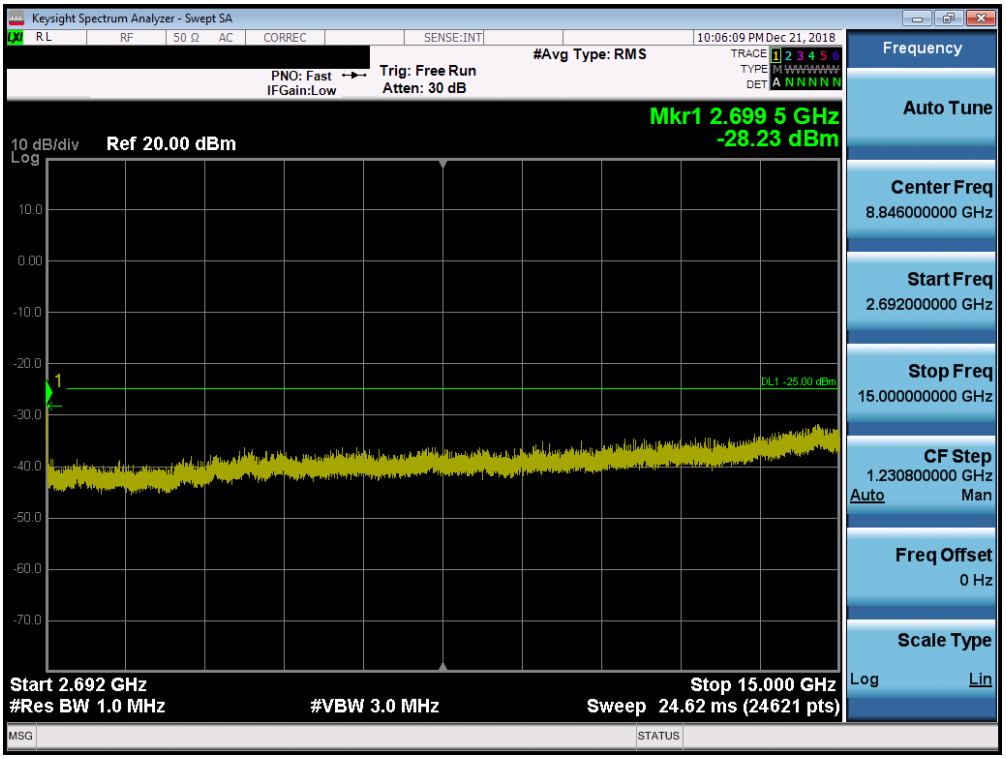


Plot 7-364. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



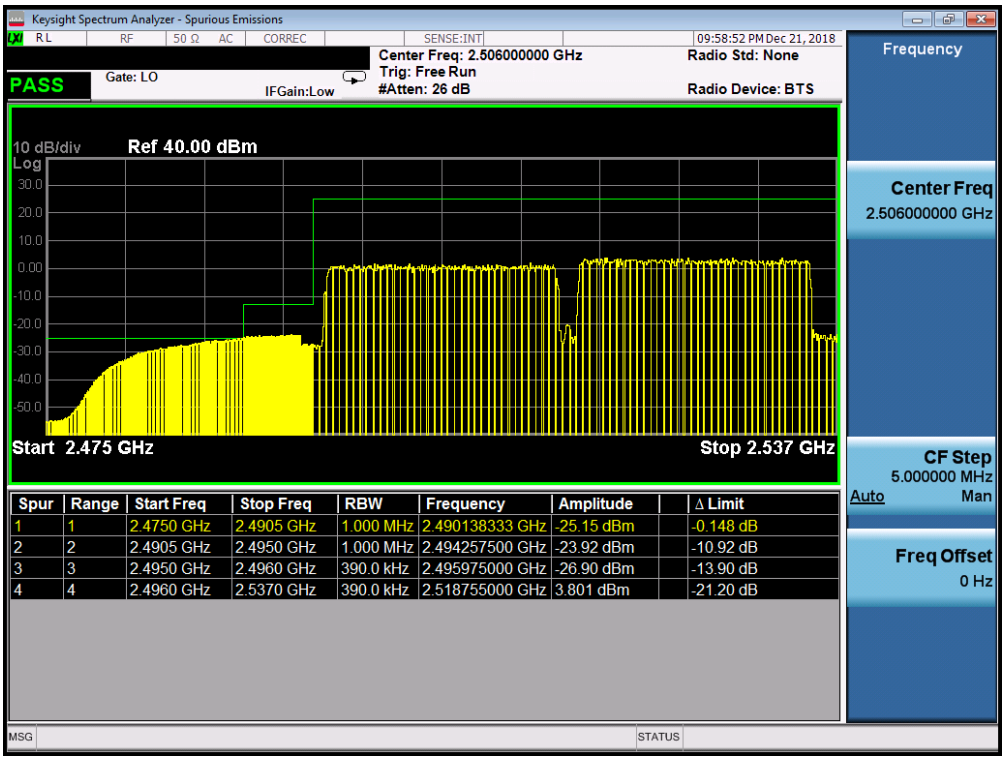
Plot 7-365. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

Plot 7-366. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

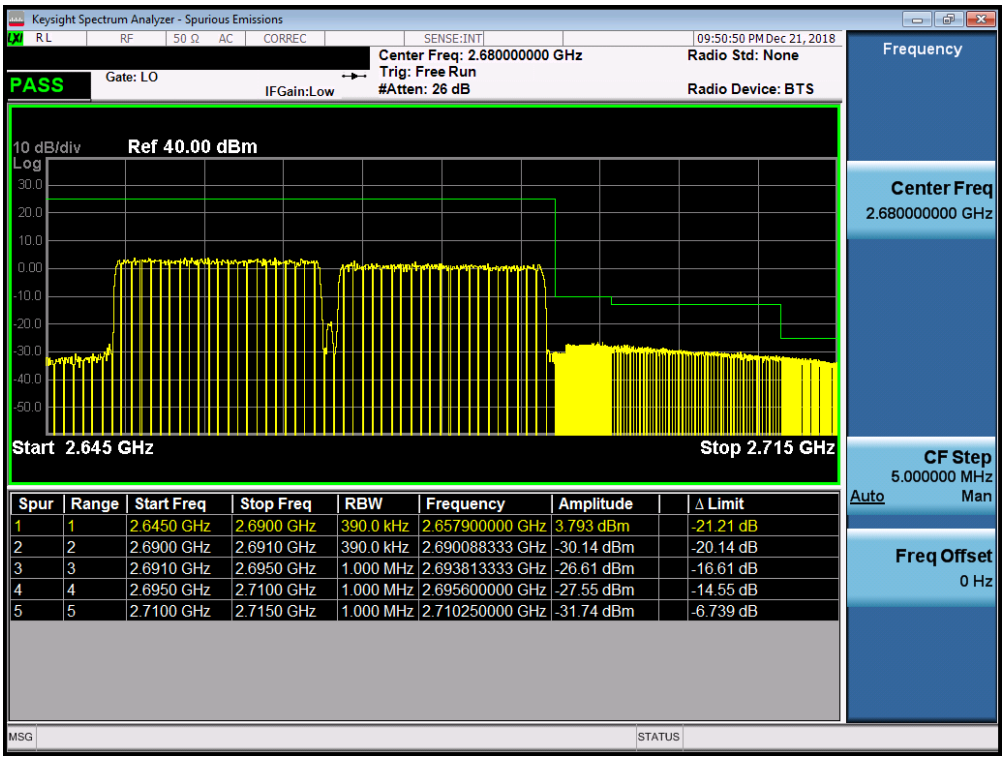


Plot 7-367. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

Plot 7-368. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)



Plot 7-369. Lower ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6450 GHz	2.6900 GHz	390.0 kHz	2.657900000 GHz	3.793 dBm	-21.21 dB
2	2	2.6900 GHz	2.6910 GHz	390.0 kHz	2.690088333 GHz	-30.14 dBm	-20.14 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.693813333 GHz	-26.61 dBm	-16.61 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.695600000 GHz	-27.55 dBm	-14.55 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.710250000 GHz	-31.74 dBm	-6.739 dB

Plot 7-370. Upper ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

7.8 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) 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 its maximum duty cycle, 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.

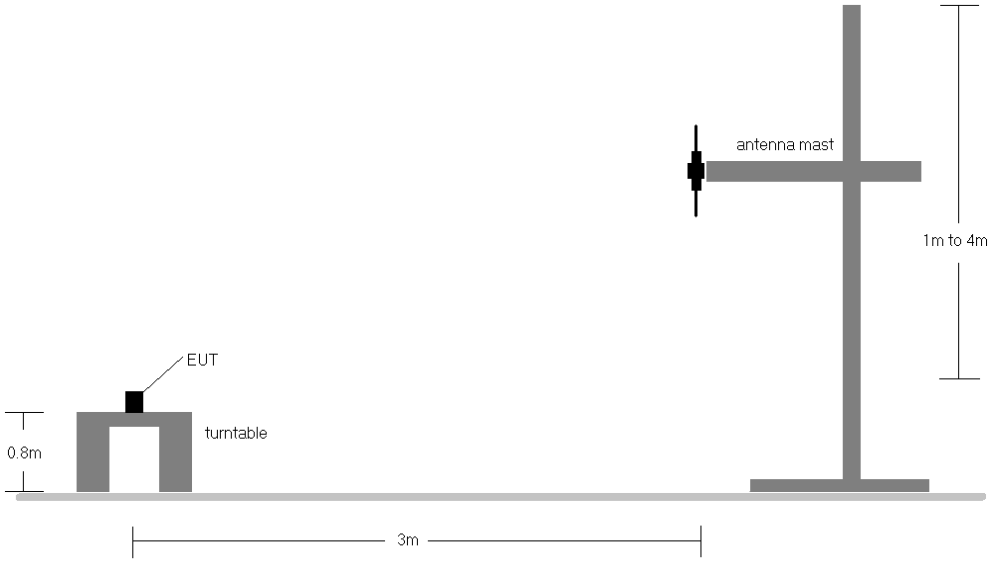


Figure 7-7. Radiated Test Setup <1GHz

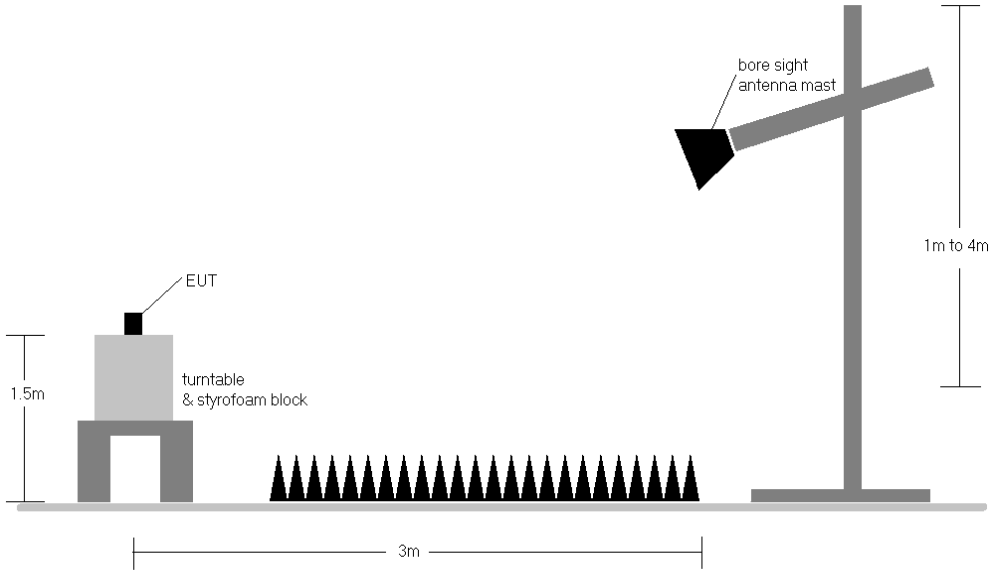


Figure 7-8. Radiated Test Setup >1GHz

Test Notes

1) 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.

2) This unit was tested with its standard battery.

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	H	148	118	1 / 24	17.10	3.84	18.79	0.076	34.77	-15.99
680.50	5	QPSK	H	136	111	1 / 24	18.51	3.91	**20.27**	**0.106**	34.77	-14.50
695.50	5	QPSK	H	141	109	1 / 0	16.90	3.98	18.73	0.075	34.77	-16.04
680.50	5	16-QAM	H	136	111	1 / 24	17.99	3.91	**19.75**	0.094	34.77	-15.02
680.50	5	64-QAM	H	136	111	1 / 24	16.80	3.91	**18.56**	0.072	34.77	-16.21
668.00	10	QPSK	H	157	108	1 / 49	17.78	3.85	19.48	0.089	34.77	-15.29
680.50	10	QPSK	H	136	108	1 / 49	17.74	3.91	**19.50**	0.089	34.77	-15.27
693.00	10	QPSK	H	144	107	1 / 0	17.48	3.97	19.30	0.085	34.77	-15.47
680.50	10	16-QAM	H	136	108	1 / 49	17.23	3.91	**18.99**	0.079	34.77	-15.78
680.50	10	64-QAM	H	136	108	1 / 49	16.20	3.91	**17.96**	0.062	34.77	-16.81
670.50	15	QPSK	H	127	115	1 / 74	16.87	3.86	18.58	0.072	34.77	-16.19
680.50	15	QPSK	H	134	111	1 / 74	17.69	3.91	**19.45**	0.088	34.77	-15.32
690.50	15	QPSK	H	142	111	1 / 0	17.20	3.96	19.01	0.080	34.77	-15.77
680.50	15	16-QAM	H	134	111	1 / 74	17.20	3.91	**18.96**	0.079	34.77	-15.81
680.50	15	64-QAM	H	134	111	1 / 0	15.89	3.91	**17.65**	0.058	34.77	-17.12
673.00	20	QPSK	H	129	115	1 / 99	16.59	3.87	18.31	0.068	34.77	-16.46
680.50	20	QPSK	H	140	108	1 / 99	18.09	3.91	**19.85**	0.097	34.77	-14.92
688.00	20	QPSK	H	135	113	1 / 0	16.80	3.94	18.59	0.072	34.77	-16.18
680.50	20	16-QAM	H	140	108	1 / 99	17.51	3.91	**19.27**	0.084	34.77	-15.50
680.50	20	64-QAM	H	140	108	1 / 99	16.71	3.91	**18.47**	0.070	34.77	-16.30
680.50	5	QPSK	V	100	40	1 / 24	12.11	3.61	13.57	0.023	34.77	-21.20
680.50	5 (WCP)	QPSK	H	132	174	1 / 24	11.92	3.91	13.68	0.023	34.77	-21.09

Table 7-8. ERP Data (Band 71)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	290	114	1 / 5	14.90	4.00	16.75	0.047	34.77	-18.02	18.90	0.078	36.99	-18.09
707.50	1.4	QPSK	H	299	107	1 / 5	14.60	4.22	16.67	0.046	34.77	-18.11	18.82	0.076	36.99	-18.17
715.30	1.4	QPSK	H	298	108	1 / 5	16.17	4.44	**18.46**	0.070	34.77	-16.31	**20.61**	0.115	36.99	-16.38
715.30	1.4	16-QAM	H	298	108	1 / 5	15.31	4.44	**17.60**	0.058	34.77	-17.17	**19.75**	0.094	36.99	-17.24
715.30	1.4	64-QAM	H	298	108	1 / 5	14.48	4.44	**16.77**	0.048	34.77	-18.00	**18.92**	0.078	36.99	-18.07
700.50	3	QPSK	H	296	111	1 / 0	15.98	4.01	17.84	0.061	34.77	-16.93	19.99	0.100	36.99	-17.00
707.50	3	QPSK	H	296	118	1 / 14	14.92	4.22	16.99	0.050	34.77	-17.79	19.14	0.082	36.99	-17.85
714.50	3	QPSK	H	296	109	1 / 0	16.43	4.41	**18.69**	0.074	34.77	-16.08	**20.84**	0.121	36.99	-16.15
714.50	3	16-QAM	H	296	109	1 / 0	15.69	4.41	**17.95**	0.062	34.77	-16.82	**20.10**	0.102	36.99	-16.89
714.50	3	64-QAM	H	296	109	1 / 0	14.83	4.41	**17.09**	0.051	34.77	-17.68	**19.24**	0.084	36.99	-17.75

Table 7-9. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	H	293	115	1 / 0	16.31	4.04	18.20	0.066	34.77	-16.57	20.35	0.108	36.99	-16.64
707.50	5	QPSK	H	297	103	1 / 24	15.18	4.22	17.25	0.053	34.77	-17.53	19.40	0.087	36.99	-17.59
713.50	5	QPSK	H	303	102	1 / 0	16.57	4.39	**18.81**	**0.076**	34.77	-15.96	**20.96**	**0.125**	36.99	-16.03
713.50	5	16-QAM	H	303	102	1 / 0	15.89	4.39	**18.13**	0.065	34.77	-16.64	**20.28**	0.107	36.99	-16.71
713.50	5	64-QAM	H	303	102	1 / 0	14.91	4.39	**17.15**	0.052	34.77	-17.62	**19.30**	0.085	36.99	-17.69
704.00	10	QPSK	H	289	108	1 / 0	15.99	4.12	**17.96**	0.062	34.77	-16.82	**20.11**	0.102	36.99	-16.88
707.50	10	QPSK	H	300	103	1 / 49	15.68	4.22	17.75	0.060	34.77	-17.03	19.90	0.098	36.99	-17.09
711.00	10	QPSK	H	303	118	1 / 49	15.09	4.32	17.26	0.053	34.77	-17.52	19.41	0.087	36.99	-17.58
704.00	10	16-QAM	H	289	108	1 / 0	15.25	4.12	**17.22**	0.053	34.77	-17.56	**19.37**	0.086	36.99	-17.62
704.00	10	64-QAM	H	289	108	1 / 0	14.34	4.12	**16.31**	0.043	34.77	-18.47	**18.46**	0.070	36.99	-18.53
713.50	5	QPSK	V	100	139	1 / 0	14.39	4.06	16.30	0.043	34.77	-18.47	18.45	0.070	36.99	-18.54
713.50	5 (WCP)	QPSK	H	227	318	1 / 0	12.92	4.39	15.16	0.033	34.77	-19.61	17.31	0.054	36.99	-19.68

Table 7-10. ERP Data (Band 17/12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	175	112	1 / 24	13.78	5.71	**17.34**	**0.054**	34.77	-17.43	**19.49**	**0.089**	36.99	-17.50
782.00	5	QPSK	V	167	122	25 / 0	13.50	5.77	17.12	0.052	34.77	-17.65	19.27	0.085	36.99	-17.72
784.50	5	QPSK	V	161	109	1 / 0	9.92	5.83	13.60	0.023	34.77	-21.17	15.75	0.038	36.99	-21.24
779.50	5	16-QAM	V	175	112	1 / 24	13.11	5.71	**16.67**	0.046	34.77	-18.10	**18.82**	0.076	36.99	-18.17
779.50	5	64-QAM	V	175	112	1 / 24	12.05	5.71	**15.61**	0.036	34.77	-19.16	**17.76**	0.060	36.99	-19.23
782.00	10	QPSK	V	161	122	25 / 12	13.37	5.77	**16.99**	0.050	34.77	-17.78	**19.14**	0.082	36.99	-17.85
782.00	10	16-QAM	V	161	122	1 / 49	12.28	5.77	**15.90**	0.039	34.77	-18.87	**18.05**	0.064	36.99	-18.94
782.00	10	64-QAM	V	161	122	1 / 49	11.35	5.77	**14.97**	0.031	34.77	-19.80	**17.12**	0.052	36.99	-19.87
779.50	5	QPSK	H	256	110	1 / 24	12.70	6.18	16.73	0.047	34.77	-18.05	18.88	0.077	36.99	-18.11
779.50	5 (WCP)	QPSK	V	125	112	1 / 24	7.67	5.71	11.23	0.013	34.77	-23.54	13.38	0.022	36.99	-23.61

Table 7-11. ERP Data (Band 13)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	203	358	1 / 0	9.10	6.75	13.70	0.023	38.45	-24.75	15.85	0.038	40.61	-24.76
836.50	1.4	QPSK	H	180	353	1 / 5	9.76	6.78	**14.39**	0.027	38.45	-24.07	**16.54**	0.045	40.61	-24.07
848.30	1.4	QPSK	H	201	356	1 / 0	9.00	6.80	13.65	0.023	38.45	-24.80	15.80	0.038	40.61	-24.81
836.50	1.4	16-QAM	H	180	353	1 / 0	9.36	6.78	**13.99**	0.025	38.45	-24.47	**16.14**	0.041	40.61	-24.47
836.50	1.4	64-QAM	H	180	353	1 / 5	8.46	6.78	**13.09**	0.020	38.45	-25.37	**15.24**	0.033	40.61	-25.37
825.50	3	QPSK	H	203	355	1 / 14	9.28	6.75	13.88	0.024	38.45	-24.57	16.03	0.040	40.61	-24.57
836.50	3	QPSK	H	182	354	1 / 0	10.15	6.78	**14.78**	0.030	38.45	-23.68	**16.93**	0.049	40.61	-23.68
847.50	3	QPSK	H	189	358	1 / 0	8.43	6.80	13.08	0.020	38.45	-25.37	15.23	0.033	40.61	-25.38
836.50	3	16-QAM	H	182	354	1 / 0	9.72	6.78	**14.35**	0.027	38.45	-24.11	**16.50**	0.045	40.61	-24.11
836.50	3	64-QAM	H	182	354	1 / 0	8.76	6.78	**13.39**	0.022	38.45	-25.07	**15.54**	0.036	40.61	-25.07
826.50	5	QPSK	H	223	341	1 / 24	10.30	6.76	**14.91**	**0.031**	38.45	-23.55	**17.06**	**0.051**	40.61	-23.55
836.50	5	QPSK	H	209	351	1 / 0	9.95	6.78	14.58	0.029	38.45	-23.88	16.73	0.047	40.61	-23.88
846.50	5	QPSK	H	208	337	1 / 24	8.77	6.80	13.42	0.022	38.45	-25.04	15.57	0.036	40.61	-25.04
826.50	5	16-QAM	H	223	341	1 / 24	9.75	6.76	**14.36**	0.027	38.45	-24.10	**16.51**	0.045	40.61	-24.10
826.50	5	64-QAM	H	223	341	1 / 24	8.96	6.76	**13.57**	0.023	38.45	-24.89	**15.72**	0.037	40.61	-24.89
829.00	10	QPSK	H	205	351	1 / 49	9.81	6.76	**14.42**	0.028	38.45	-24.03	**16.57**	0.045	40.61	-24.04
836.50	10	QPSK	H	203	351	1 / 0	9.56	6.78	14.19	0.026	38.45	-24.27	16.34	0.043	40.61	-24.27
844.00	10	QPSK	H	196	353	1 / 0	8.20	6.79	12.84	0.019	38.45	-25.61	14.99	0.032	40.61	-25.62
829.00	10	16-QAM	H	205	351	1 / 49	9.34	6.76	**13.95**	0.025	38.45	-24.50	**16.10**	0.041	40.61	-24.51
829.00	10	64-QAM	H	205	351	1 / 49	8.40	6.76	**13.01**	0.020	38.45	-25.44	**15.16**	0.033	40.61	-25.45
826.50	5	QPSK	V	101	143	1 / 24	8.71	6.76	13.32	0.021	38.45	-25.14	15.47	0.035	40.61	-25.14
826.50	5 (WCP)	QPSK	H	198	10	1 / 24	9.00	6.76	13.61	0.023	38.45	-24.85	15.76	0.038	40.61	-24.85

Table 7-12. ERP Data (Band 26/5)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	H	203	351	1 / 74	8.72	6.77	13.34	0.022	38.45	-25.12	15.49	0.035	40.61	-25.12
836.50	15	QPSK	H	205	351	1 / 0	8.54	6.78	13.17	0.021	38.45	-25.29	15.32	0.034	40.61	-25.29
841.50	15	QPSK	H	196	351	1 / 0	8.93	6.79	**13.57**	0.023	38.45	-24.89	**15.72**	0.037	40.61	-24.89
841.50	15	16-QAM	H	196	351	1 / 0	8.51	6.79	**13.15**	0.021	38.45	-25.31	**15.30**	0.034	40.61	-25.31
841.50	15	64-QAM	H	196	351	1 / 0	7.50	6.79	**12.14**	0.016	38.45	-26.32	**14.29**	0.027	40.61	-26.32
826.50	5	QPSK	V	101	143	1 / 24	8.71	6.76	13.32	0.021	38.45	-25.14	15.47	0.035	40.61	-25.14
826.50	5 (WCP)	QPSK	H	198	10	1 / 24	9.00	6.76	13.61	0.023	38.45	-24.85	15.76	0.038	40.61	-24.85

Table 7-13. ERP Data (Band 26)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	134	221	1 / 5	13.11	8.87	**21.98**	0.158	30.00	-8.02
1745.00	1.4	QPSK	H	134	219	1 / 5	12.46	8.59	21.05	0.127	30.00	-8.95
1779.30	1.4	QPSK	H	125	228	1 / 0	11.81	8.76	20.57	0.114	30.00	-9.43
1710.70	1.4	16-QAM	H	134	221	1 / 5	12.34	8.87	**21.21**	0.132	30.00	-8.79
1710.70	1.4	64-QAM	H	134	221	1 / 5	11.38	8.87	**20.25**	0.106	30.00	-9.75
1711.50	3	QPSK	H	123	225	1 / 14	12.88	8.86	**21.74**	0.149	30.00	-8.26
1745.00	3	QPSK	H	127	231	1 / 0	12.63	8.59	21.22	0.133	30.00	-8.78
1778.50	3	QPSK	H	125	229	1 / 14	11.69	8.75	20.44	0.111	30.00	-9.56
1711.50	3	16-QAM	H	123	225	1 / 14	12.16	8.86	**21.02**	0.126	30.00	-8.98
1711.50	3	64-QAM	H	123	225	1 / 14	11.14	8.86	**20.00**	0.100	30.00	-10.00
1712.50	5	QPSK	H	133	232	1 / 24	12.76	8.85	21.61	0.145	30.00	-8.39
1745.00	5	QPSK	H	123	219	1 / 24	13.12	8.59	**21.71**	0.148	30.00	-8.29
1777.50	5	QPSK	H	163	229	1 / 0	12.46	8.75	21.21	0.132	30.00	-8.79
1745.00	5	16-QAM	H	123	219	1 / 24	12.45	8.59	**21.04**	0.127	30.00	-8.96
1745.00	5	64-QAM	H	123	219	1 / 24	11.56	8.59	**20.15**	0.104	30.00	-9.85
1715.00	10	QPSK	H	175	233	1 / 0	13.27	8.83	22.10	0.162	30.00	-7.90
1745.00	10	QPSK	H	167	226	1 / 49	13.61	8.59	**22.20**	0.166	30.00	-7.80
1775.00	10	QPSK	H	160	237	1 / 0	12.60	8.73	21.33	0.136	30.00	-8.67
1745.00	10	16-QAM	H	167	226	1 / 49	12.99	8.59	**21.58**	0.144	30.00	-8.42
1745.00	10	64-QAM	H	167	226	1 / 49	11.98	8.59	**20.57**	0.114	30.00	-9.43
1717.50	15	QPSK	H	177	232	1 / 0	12.80	8.81	21.61	0.145	30.00	-8.39
1745.00	15	QPSK	H	171	228	1 / 74	13.40	8.59	**21.99**	0.158	30.00	-8.01
1772.50	15	QPSK	H	162	231	1 / 0	13.12	8.71	21.83	0.152	30.00	-8.17
1745.00	15	16-QAM	H	171	228	1 / 74	12.65	8.59	**21.24**	0.133	30.00	-8.76
1745.00	15	64-QAM	H	171	228	1 / 74	11.61	8.59	**20.20**	0.105	30.00	-9.80
1720.00	20	QPSK	H	129	223	1 / 0	13.96	8.79	**22.75**	**0.188**	30.00	-7.25
1745.00	20	QPSK	H	140	224	1 / 99	13.90	8.59	22.49	0.178	30.00	-7.51
1770.00	20	QPSK	H	129	223	1 / 0	13.32	8.69	22.01	0.159	30.00	-7.99
1720.00	20	16-QAM	H	129	223	1 / 0	13.30	8.79	**22.09**	0.162	30.00	-7.91
1720.00	20	64-QAM	H	129	223	1 / 0	12.32	8.79	**21.11**	0.129	30.00	-8.89
1720.00	20	QPSK	V	100	231	1 / 0	13.38	8.79	22.17	0.165	30.00	-7.83
1720.00	20 (WCP)	QPSK	H	128	192	1 / 0	10.24	8.79	19.03	0.080	30.00	-10.97

Table 7-14. EIRP Data (Band 66/4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	119	235	1 / 5	11.79	8.66	**20.45**	0.111	33.01	-12.56
1882.50	1.4	QPSK	H	108	235	1 / 5	11.61	8.34	19.95	0.099	33.01	-13.06
1914.30	1.4	QPSK	H	133	229	1 / 0	8.49	8.18	16.67	0.046	33.01	-16.35
1850.70	1.4	16-QAM	H	119	235	1 / 5	10.86	8.66	**19.52**	0.090	33.01	-13.49
1850.70	1.4	64-QAM	H	119	235	1 / 5	9.87	8.66	**18.53**	0.071	33.01	-14.48
1851.50	3	QPSK	H	119	234	1 / 14	12.77	8.65	**21.42**	**0.139**	33.01	-11.59
1882.50	3	QPSK	H	108	232	1 / 14	11.53	8.34	19.87	0.097	33.01	-13.14
1913.50	3	QPSK	H	136	235	1 / 0	8.92	8.17	17.09	0.051	33.01	-15.92
1851.50	3	16-QAM	H	119	234	1 / 14	11.88	8.65	**20.53**	0.113	33.01	-12.48
1851.50	3	64-QAM	H	119	234	1 / 14	10.96	8.65	**19.61**	0.091	33.01	-13.40
1852.50	5	QPSK	H	115	232	1 / 24	12.61	8.64	**21.25**	0.133	33.01	-11.76
1882.50	5	QPSK	H	153	235	1 / 24	11.63	8.34	19.97	0.099	33.01	-13.04
1912.50	5	QPSK	H	129	237	1 / 0	8.82	8.17	16.99	0.050	33.01	-16.02
1852.50	5	16-QAM	H	115	232	1 / 24	11.78	8.64	**20.42**	0.110	33.01	-12.59
1852.50	5	64-QAM	H	115	232	1 / 24	10.83	8.64	**19.47**	0.089	33.01	-13.54
1855.00	10	QPSK	H	115	235	1 / 49	11.87	8.61	**20.48**	0.112	33.01	-12.53
1882.50	10	QPSK	H	108	234	1 / 49	12.12	8.34	20.46	0.111	33.01	-12.55
1910.00	10	QPSK	H	134	232	1 / 49	8.70	8.17	16.87	0.049	33.01	-16.14
1855.00	10	16-QAM	H	115	235	1 / 49	10.99	8.61	**19.60**	0.091	33.01	-13.41
1855.00	10	64-QAM	H	115	235	1 / 49	10.06	8.61	**18.67**	0.074	33.01	-14.34
1857.50	15	QPSK	H	122	234	1 / 74	8.62	8.59	17.21	0.053	33.01	-15.80
1882.50	15	QPSK	H	108	236	1 / 74	12.73	8.34	**21.07**	0.128	33.01	-11.94
1907.50	15	QPSK	H	126	239	1 / 74	8.90	8.17	17.07	0.051	33.01	-15.94
1882.50	15	16-QAM	H	108	236	1 / 74	11.89	8.34	**20.23**	0.105	33.01	-12.78
1882.50	15	64-QAM	H	108	236	1 / 74	10.90	8.34	**19.24**	0.084	33.01	-13.77
1860.00	20	QPSK	H	122	237	1 / 99	11.90	8.56	20.46	0.111	33.01	-12.55
1882.50	20	QPSK	H	108	235	1 / 99	12.56	8.34	**20.90**	0.123	33.01	-12.11
1905.00	20	QPSK	H	108	239	1 / 0	10.64	8.17	18.81	0.076	33.01	-14.20
1882.50	20	16-QAM	H	108	235	1 / 99	11.71	8.34	**20.05**	0.101	33.01	-12.96
1882.50	20	64-QAM	H	108	235	1 / 99	10.83	8.34	**19.17**	0.083	33.01	-13.84
1851.50	3	QPSK	V	373	240	1 / 14	9.59	8.65	18.24	0.067	33.01	-14.77
1851.50	3 (WCP)	QPSK	H	163	175	1 / 14	7.75	8.65	16.40	0.044	33.01	-16.61

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	H	123	203	1 / 24	10.12	9.64	**19.76**	**0.095**	23.98	-4.22
2312.50	5	QPSK	H	127	197	1 / 24	8.70	9.61	18.31	0.068	23.98	-5.67
2307.50	5	16-QAM	H	123	203	1 / 24	8.97	9.64	**18.61**	0.073	23.98	-5.37
2307.50	5	64-QAM	H	123	203	1 / 0	7.20	9.64	16.84	0.048	23.98	-7.14
2310.00	10	QPSK	H	129	202	1 / 49	9.50	9.62	**19.12**	0.082	23.98	-4.86
2310.00	10	16-QAM	H	129	202	1 / 49	8.71	9.62	18.33	0.068	23.98	-5.65
2310.00	10	64-QAM	H	129	202	1 / 49	7.72	9.62	17.34	0.054	23.98	-6.64
2307.50	5	QPSK	V	149	317	1 / 24	7.82	9.64	17.46	0.056	23.98	-6.52
2307.50	5 (WCP)	QPSK	H	147	20	1 / 24	7.29	9.64	16.93	0.049	23.98	-7.05

Table 7-16. EIRP Data (Band 30)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	117	218	1 / 24	8.23	9.75	**17.98**	0.063	33.01	-15.03
2535.00	5	QPSK	H	117	216	12 / 6	6.42	9.75	16.17	0.041	33.01	-16.84
2567.50	5	QPSK	H	123	216	1 / 24	8.11	9.74	17.85	0.061	33.01	-15.16
2502.50	5	16-QAM	H	117	218	1 / 24	7.51	9.75	**17.26**	0.053	33.01	-15.75
2502.50	5	64-QAM	H	117	218	1 / 24	6.54	9.75	**16.29**	0.043	33.01	-16.72
2505.00	10	QPSK	H	115	218	1 / 49	8.74	9.75	18.49	0.071	33.01	-14.52
2535.00	10	QPSK	H	110	219	1 / 49	8.96	9.75	18.71	0.074	33.01	-14.30
2565.00	10	QPSK	H	115	212	1 / 49	9.38	9.74	**19.12**	0.082	33.01	-13.89
2565.00	10	16-QAM	H	115	212	1 / 49	8.55	9.74	**18.29**	0.067	33.01	-14.72
2565.00	10	64-QAM	H	115	212	1 / 49	7.90	9.74	**17.64**	0.058	33.01	-15.37
2507.50	15	QPSK	H	123	210	1 / 74	9.40	9.75	**19.15**	0.082	33.01	-13.86
2535.00	15	QPSK	H	119	217	1 / 74	9.21	9.75	18.96	0.079	33.01	-14.05
2562.50	15	QPSK	H	112	214	1 / 74	8.97	9.74	18.71	0.074	33.01	-14.30
2507.50	15	16-QAM	H	123	210	1 / 74	8.52	9.75	**18.27**	0.067	33.01	-14.74
2507.50	15	64-QAM	H	123	210	1 / 74	7.63	9.75	**17.38**	0.055	33.01	-15.63
2510.00	20	QPSK	H	160	217	1 / 99	8.26	9.75	18.01	0.063	33.01	-15.00
2535.00	20	QPSK	H	169	221	1 / 99	10.30	9.75	**20.05**	**0.101**	33.01	-12.96
2560.00	20	QPSK	H	175	219	1 / 0	8.28	9.74	18.02	0.063	33.01	-14.99
2535.00	20	16-QAM	H	169	221	1 / 99	9.49	9.75	**19.24**	0.084	33.01	-13.77
2535.00	20	64-QAM	H	169	221	1 / 99	8.43	9.75	**18.18**	0.066	33.01	-14.83
2535.00	20	QPSK	V	121	137	1 / 99	-0.41	9.75	9.34	0.009	33.01	-23.67
2535.00	20 (WCP)	QPSK	H	136	213	1 / 99	9.01	9.75	18.76	0.075	33.01	-14.25

Table 7-17. EIRP Data (Band 7)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	129	211	1 / 24	10.99	7.90	18.89	0.077	33.01	-14.12
2593.00	5	QPSK	H	101	223	1 / 0	12.01	7.71	**19.72**	0.094	33.01	-13.29
2687.50	5	QPSK	H	117	222	1 / 0	6.08	7.52	13.60	0.023	33.01	-19.41
2593.00	5	16-QAM	H	101	223	1 / 0	11.35	7.71	**19.06**	0.081	33.01	-13.95
2593.00	5	64-QAM	H	101	223	1 / 0	10.26	7.71	**17.97**	0.063	33.01	-15.04
2501.00	10	QPSK	H	121	222	1 / 49	12.74	7.90	**20.64**	0.116	33.01	-12.37
2593.00	10	QPSK	H	106	221	1 / 0	12.17	7.71	19.88	0.097	33.01	-13.13
2685.00	10	QPSK	H	123	219	1 / 0	9.45	7.53	16.98	0.050	33.01	-16.03
2501.00	10	16-QAM	H	121	222	1 / 49	11.78	7.90	**19.68**	0.093	33.01	-13.33
2501.00	10	64-QAM	H	121	222	1 / 49	10.90	7.90	**18.80**	0.076	33.01	-14.21
2503.50	15	QPSK	H	119	216	1 / 74	12.44	7.89	**20.33**	0.108	33.01	-12.68
2593.00	15	QPSK	H	130	218	1 / 74	11.83	7.71	19.54	0.090	33.01	-13.47
2682.50	15	QPSK	H	113	226	1 / 0	9.54	7.53	17.07	0.051	33.01	-15.94
2503.50	15	16-QAM	H	119	216	1 / 74	11.42	7.89	**19.31**	0.085	33.01	-13.70
2503.50	15	64-QAM	H	119	216	1 / 74	11.68	7.89	**19.57**	0.091	33.01	-13.44
2506.00	20	QPSK	H	114	217	1 / 99	12.13	7.89	20.02	0.100	33.01	-12.99
2593.00	20	QPSK	H	101	221	1 / 0	12.32	7.71	**20.03**	0.101	33.01	-12.98
2680.00	20	QPSK	H	117	219	1 / 0	9.68	7.54	17.22	0.053	33.01	-15.80
2593.00	20	16-QAM	H	101	221	1 / 0	11.49	7.71	**19.20**	0.083	33.01	-13.81
2593.00	20	64-QAM	H	101	221	1 / 0	10.73	7.71	**18.44**	0.070	33.01	-14.57
2502.50	5	QPSK	V	146	131	1 / 24	12.53	7.70	20.23	0.105	33.01	-12.78
2502.50	5 (WCP)	QPSK	H	139	234	1 / 24	10.84	7.89	18.73	0.075	33.01	-14.28

Table 7-18. EIRP Data (Band 41 PC2)

7.9 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions 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.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

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.

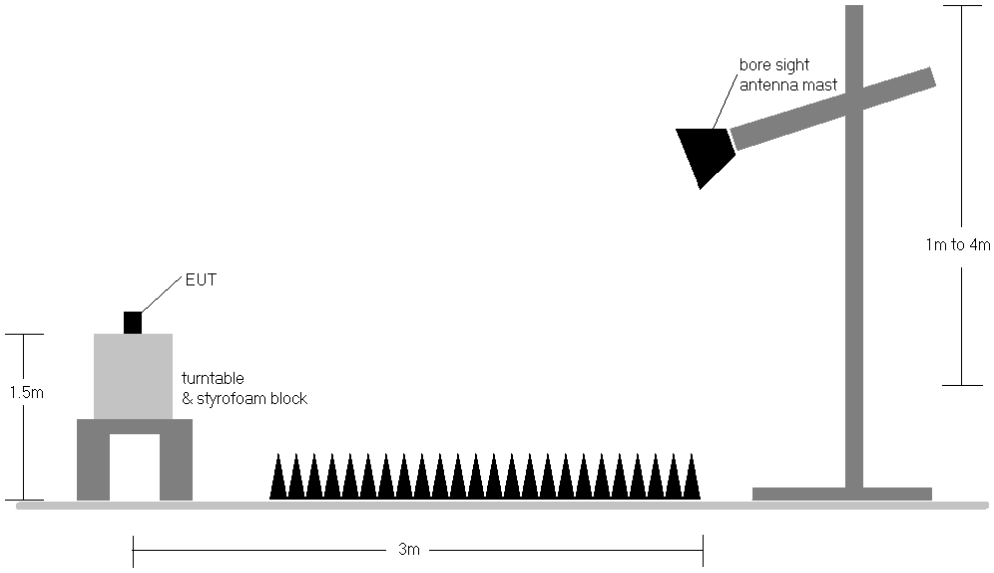


Figure 7-9. Test Instrument & Measurement Setup

Test Notes

1) 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.

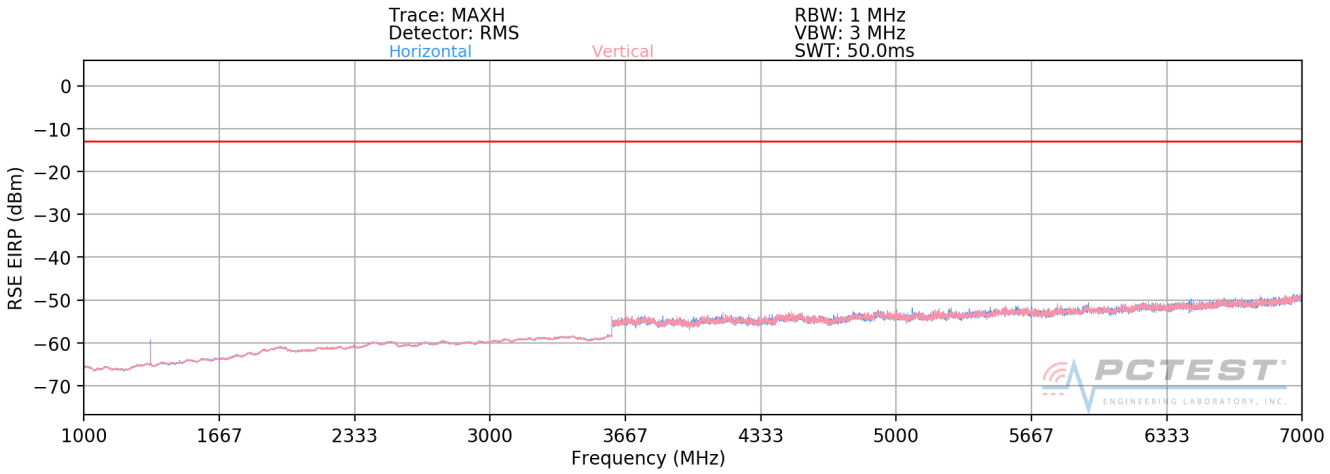
2) This unit was tested with its standard battery.

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

4) 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.

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

Band 71



Plot 7-371. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	665.50	MHz
CHANNEL:	133147	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1331.00	H	108	331	-61.69	3.09	-58.59	-45.6
1996.50	H	231	321	-66.29	3.53	-62.76	-49.8
2662.00	H	-	-	-66.68	4.68	-62.00	-49.0
3327.50	H	-	-	-66.63	5.86	-60.76	-47.8

Table 7-19. Radiated Spurious Data (Band 71 – Low Channel)

OPERATING FREQUENCY:	680.50	MHz
CHANNEL:	133297	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	162	332	-59.65	3.04	-56.61	-43.6
2041.50	H	-	-	-67.04	3.49	-63.55	-50.5
2722.00	H	-	-	-67.01	4.83	-62.18	-49.2

Table 7-20. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	695.50	MHz
CHANNEL:	133447	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1391.00	H	113	329	-55.61	2.72	-52.90	-39.9
2086.50	H	-	-	-67.01	3.54	-63.47	-50.5
2782.00	H	-	-	-66.58	4.90	-61.68	-48.7

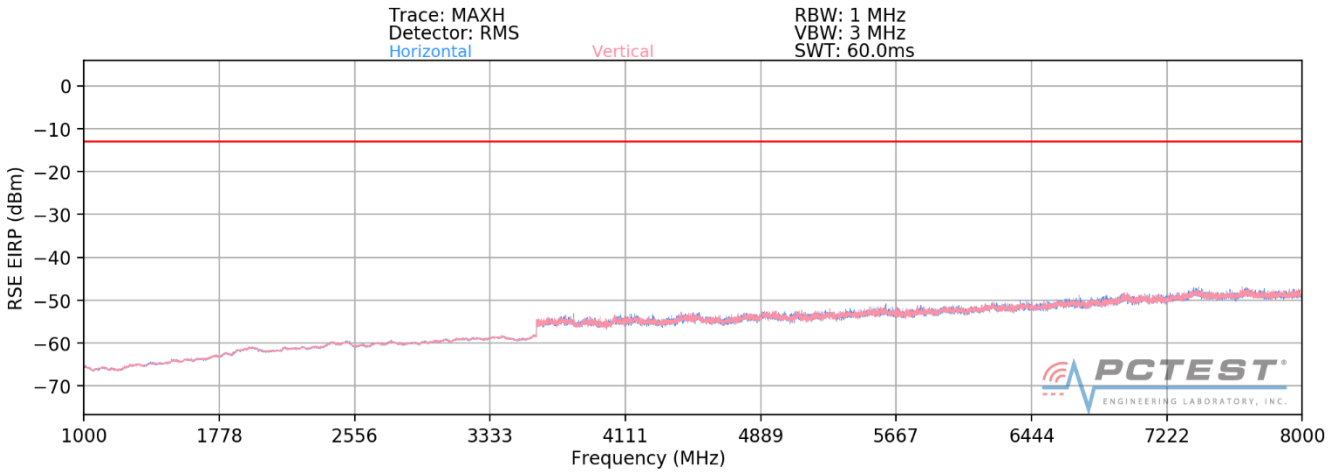
Table 7-21. Radiated Spurious Data (Band 71 – High Channel)

OPERATING FREQUENCY:	680.50	MHz
CHANNEL:	133297	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	151	258	-68.06	2.88	-65.18	-52.2
2041.50	H	-	-	-63.57	2.73	-60.84	-47.8
2722.00	H	-	-	-66.92	4.63	-62.29	-49.3

Table 7-22. Radiated Spurious Data with WCP (Band 71 –133297 Channel)

Band 17/12



Plot 7-372. Radiated Spurious Plot above 1GHz (Band 17/12)

OPERATING FREQUENCY:	701.50	MHz
CHANNEL:	23035	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1403.00	H	117	150	-72.17	7.47	-64.69	-51.7
2104.50	H	-	-	-71.46	8.84	-62.62	-49.6
2806.00	H	-	-	-72.98	10.14	-62.84	-49.8

Table 7-23. Radiated Spurious Data (Band 17/12 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
CHANNEL:	23095	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	100	189	-71.97	7.63	-64.34	-51.3
2122.50	H	-	-	-72.08	8.86	-63.22	-50.2
2830.00	H	-	-	-72.99	10.10	-62.90	-49.9

Table 7-24. Radiated Spurious Data (Band 17/12 – Mid Channel)

OPERATING FREQUENCY:	713.50	MHz
CHANNEL:	23155	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	147	172	-69.43	7.79	-61.65	-48.6
2140.50	H	-	-	-72.58	8.88	-63.70	-50.7
2854.00	H	-	-	-72.92	10.05	-62.86	-49.9

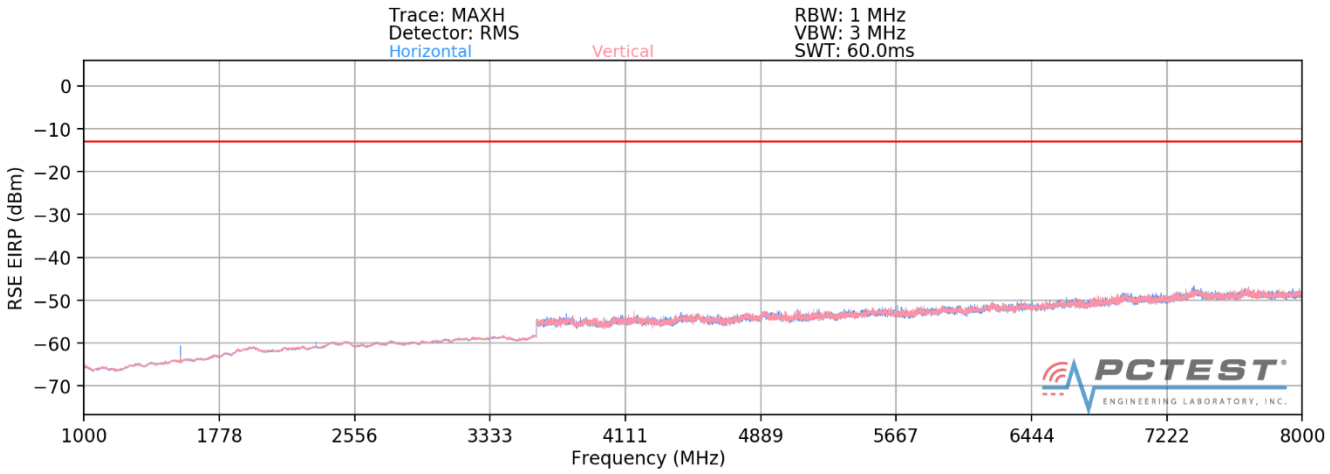
Table 7-25. Radiated Spurious Data (Band 17/12 – High Channel)

OPERATING FREQUENCY:	713.50	MHz
CHANNEL:	23155	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	106	18	-73.49	7.79	-65.71	-52.7
2140.50	H	-	-	-72.58	8.88	-63.70	-50.7
2854.00	H	-	-	-72.81	10.05	-62.75	-49.8

Table 7-26. Radiated Spurious Data with WCP (Band 17/12 – 23155 Channel)

Band 13



Plot 7-373. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	779.50	MHz
CHANNEL:	23205	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2338.50	H	168	5	-63.37	3.99	-59.38	-46.4
3118.00	H	-	-	-66.85	5.37	-61.48	-48.5
3897.50	H	-	-	-67.68	7.06	-60.62	-47.6

Table 7-27. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	165	212	-65.17	4.00	-61.16	-48.2
3128.00	H	-	-	-66.76	5.38	-61.37	-48.4
3910.00	H	-	-	-67.73	7.09	-60.64	-47.6

Table 7-28. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY:	784.50	MHz
CHANNEL:	23255	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2353.50	H	127	22	-58.05	4.02	-54.03	-41.0
3138.00	H	-	-	-66.60	5.40	-61.21	-48.2
3922.50	H	-	-	-67.69	7.13	-60.55	-47.6

Table 7-29. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	V	151	220	-62.59	3.53	-59.07	-19.1
1564.00	V	141	194	-62.53	3.53	-59.00	-19.0
1569.00	V	155	224	-61.05	3.53	-57.51	-17.5

Table 7-30. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

OPERATING FREQUENCY:	779.50	MHz
CHANNEL:	23205	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	V	-	-	-69.74	3.00	-66.74	-53.7
2338.50	V	-	-	-68.19	3.61	-64.58	-51.6

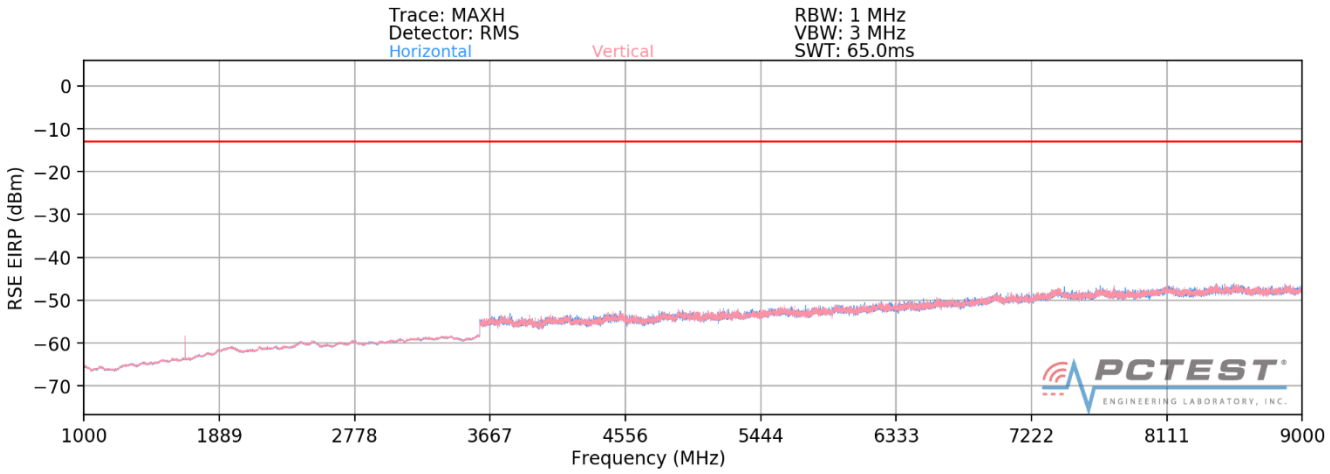
Table 7-31. Radiated Spurious Data with WCP (Band 13 – 23205 Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1569.00	V	128	3	-67.16	2.86	-64.30	-24.3

Table 7-32. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

Band 26/5



Plot 7-374. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	826.50	MHz
CHANNEL:	26815	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1653.00	V	302	48	-74.30	8.95	-65.35	-52.3
2479.50	V	-	-	-72.08	9.67	-62.41	-49.4
3306.00	V	-	-	-71.51	9.58	-61.93	-48.9

Table 7-33. Radiated Spurious Data (Band 26/5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	220	26	-71.12	8.95	-62.16	-49.2
2509.50	V	-	-	-72.57	9.75	-62.82	-49.8
3346.00	V	-	-	-71.42	9.60	-61.81	-48.8

Table 7-34. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	846.50	MHz
CHANNEL:	27015	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.00	V	156	27	-72.02	8.95	-63.06	-50.1
2539.50	V	-	-	-72.18	9.74	-62.44	-49.4
3386.00	V	-	-	-71.57	9.74	-61.82	-48.8

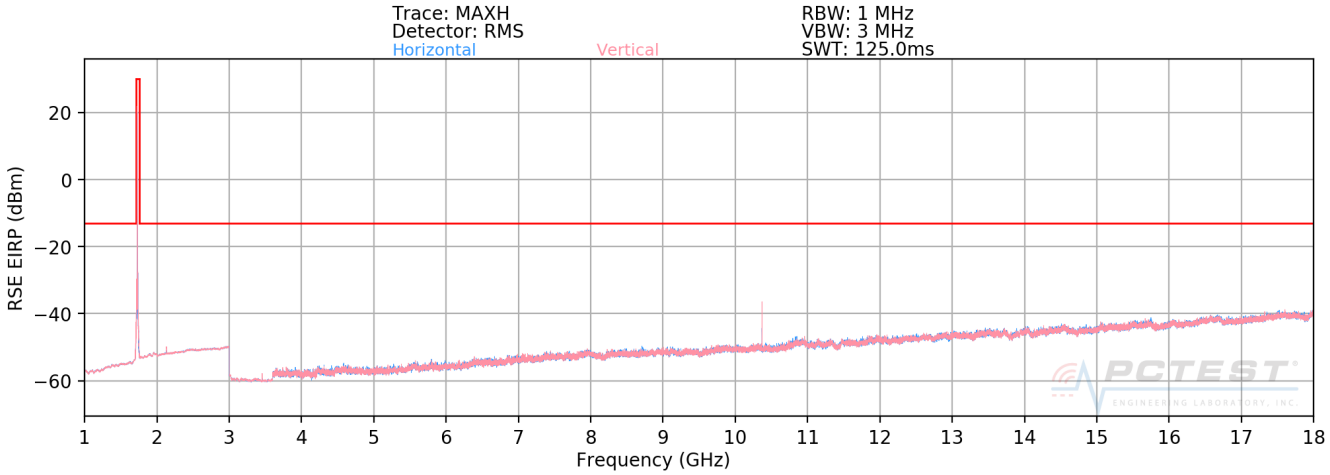
Table 7-35. Radiated Spurious Data (Band 26/5 – High Channel)

OPERATING FREQUENCY:	826.50	MHz
CHANNEL:	26815	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1653.00	V	169	144	-73.87	8.95	-64.92	-51.9
2479.50	V	-	-	-72.66	9.67	-62.99	-50.0
3306.00	V	-	-	-71.83	9.58	-62.25	-49.2

Table 7-36. Radiated Spurious Data with WCP (Band 26/5 –26185 Channel)

Band 66/4



Plot 7-375. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1720.00	MHz
CHANNEL:	132072	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	336	23	-71.32	9.84	-61.48	-48.5
5160.00	V	339	370	-71.81	10.71	-61.10	-48.1
6880.00	V	-	-	-72.32	11.68	-60.63	-47.6
8600.00	V	-	-	-67.70	11.08	-56.62	-43.6
10320.00	V	115	359	-49.92	12.38	-37.54	-24.5
12040.00	V	183	15	-55.32	12.71	-42.61	-29.6
13760.00	V	-	-	-63.89	11.99	-51.91	-38.9
15480.00	V	400	362	-70.14	15.88	-54.26	-41.3
17200.00	V	-	-	-63.23	13.05	-50.18	-37.2

Table 7-37. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	293	9	-67.61	9.91	-57.70	-44.7
5235.00	V	-	-	-73.08	10.73	-62.35	-49.3
6980.00	V	-	-	-72.62	11.82	-60.80	-47.8
8725.00	V	-	-	-68.58	11.00	-57.58	-44.6
10470.00	V	362	340	-48.02	12.58	-35.43	-22.4
12215.00	V	180	21	-53.34	13.11	-40.23	-27.2
13960.00	V	-	-	-63.91	11.85	-52.06	-39.1
15705.00	V	196	1	-67.78	16.63	-51.15	-38.2
17450.00	V	-	-	-61.53	12.24	-49.29	-36.3

Table 7-38. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1770.00	MHz
CHANNEL:	132572	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	V	312	203	-71.71	9.89	-61.82	-48.8
5310.00	V	-	-	-73.41	10.69	-62.72	-49.7
7080.00	V	-	-	-72.34	11.79	-60.56	-47.6
8850.00	V	237	346	-66.13	11.00	-55.14	-42.1
10620.00	V	367	335	-44.51	12.58	-31.93	-18.9
12390.00	V	-	-	-68.50	13.33	-55.16	-42.2
14160.00	V	-	-	-63.26	11.53	-51.73	-38.7
15930.00	V	-	-	-71.96	16.76	-55.20	-42.2
17700.00	V	-	-	-57.83	10.54	-47.30	-34.3

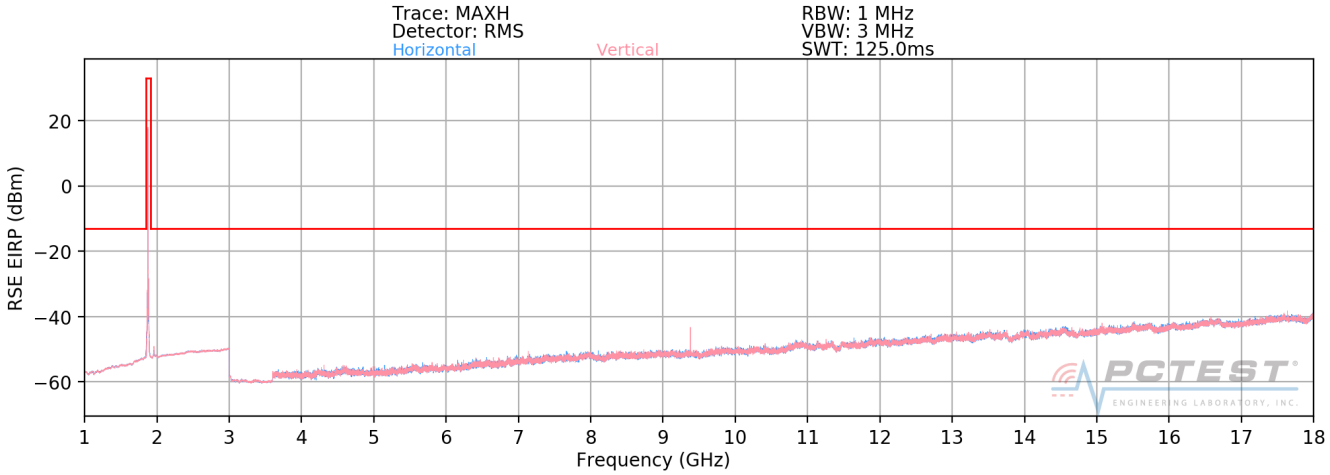
Table 7-39. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY:	1720.00	MHz
CHANNEL:	132072	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	270	87	-64.25	6.28	-57.97	-45.0
5160.00	V	-	-	-68.92	8.98	-59.94	-46.9
6880.00	V	-	-	-66.99	9.42	-57.57	-44.6
8600.00	V	-	-	-64.63	9.62	-55.01	-42.0
10320.00	V	146	45	-50.29	9.56	-40.72	-27.7
12040.00	V	152	309	-58.24	9.24	-49.00	-36.0
13760.00	V	-	-	-57.14	8.72	-48.42	-35.4
15480.00	V	-	-	-54.18	8.32	-45.85	-32.9

Table 7-40. Radiated Spurious Data with WCP (Band 66/4 – 132072 Channel)

Band 25/2



Plot 7-376. Radiated Spurious Plot above 1GHz (Band 25)

OPERATING FREQUENCY:	1851.50	MHz
CHANNEL:	26055	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3703.00	V	-	-	-73.02	9.57	-63.45	-50.4
5554.50	V	-	-	-73.57	10.95	-62.62	-49.6
7406.00	V	120	23	-67.82	10.96	-56.86	-43.9
9257.50	V	282	42	-56.66	11.63	-45.03	-32.0
11109.00	V	368	336	-52.38	12.74	-39.64	-26.6
12960.50	V	192	4	-63.54	13.29	-50.24	-37.2
14812.00	V	-	-	-63.85	12.47	-51.38	-38.4

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

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	V	-	-	-72.89	9.36	-63.54	-50.5
5647.50	V	-	-	-73.21	11.19	-62.01	-49.0
7530.00	V	238	352	-66.61	11.13	-55.48	-42.5
9412.50	V	114	47	-51.74	11.57	-40.17	-27.2
11295.00	V	185	5	-59.51	12.71	-46.80	-33.8
13177.50	V	-	-	-65.96	13.13	-52.83	-39.8
15060.00	V	-	-	-66.27	13.58	-52.70	-39.7

Table 7-42. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1913.50	MHz
CHANNEL:	26675	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3827.00	V	396	11	-71.83	9.31	-62.52	-49.5
5740.50	V	-	-	-73.33	11.42	-61.91	-48.9
7654.00	V	389	355	-69.09	11.36	-57.72	-44.7
9567.50	V	228	39	-59.89	11.82	-48.07	-35.1
11481.00	V	363	346	-59.72	12.81	-46.91	-33.9
13394.50	V	-	-	-65.37	12.77	-52.60	-39.6
15308.00	V	-	-	-67.60	15.15	-52.45	-39.5

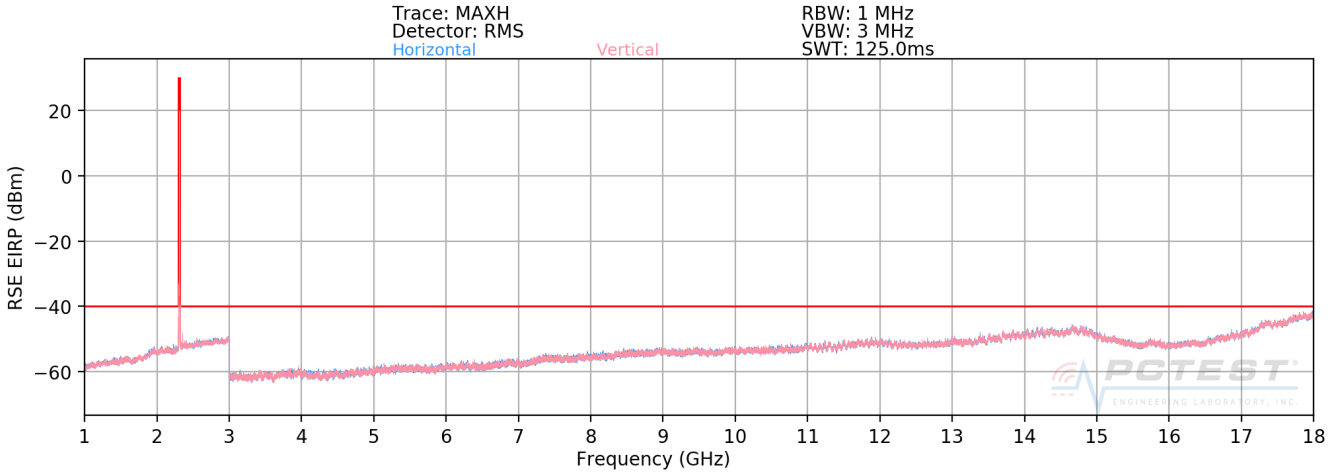
Table 7-43. Radiated Spurious Data (Band 25/2 – High Channel)

OPERATING FREQUENCY:	1851.50	MHz
CHANNEL:	26055	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

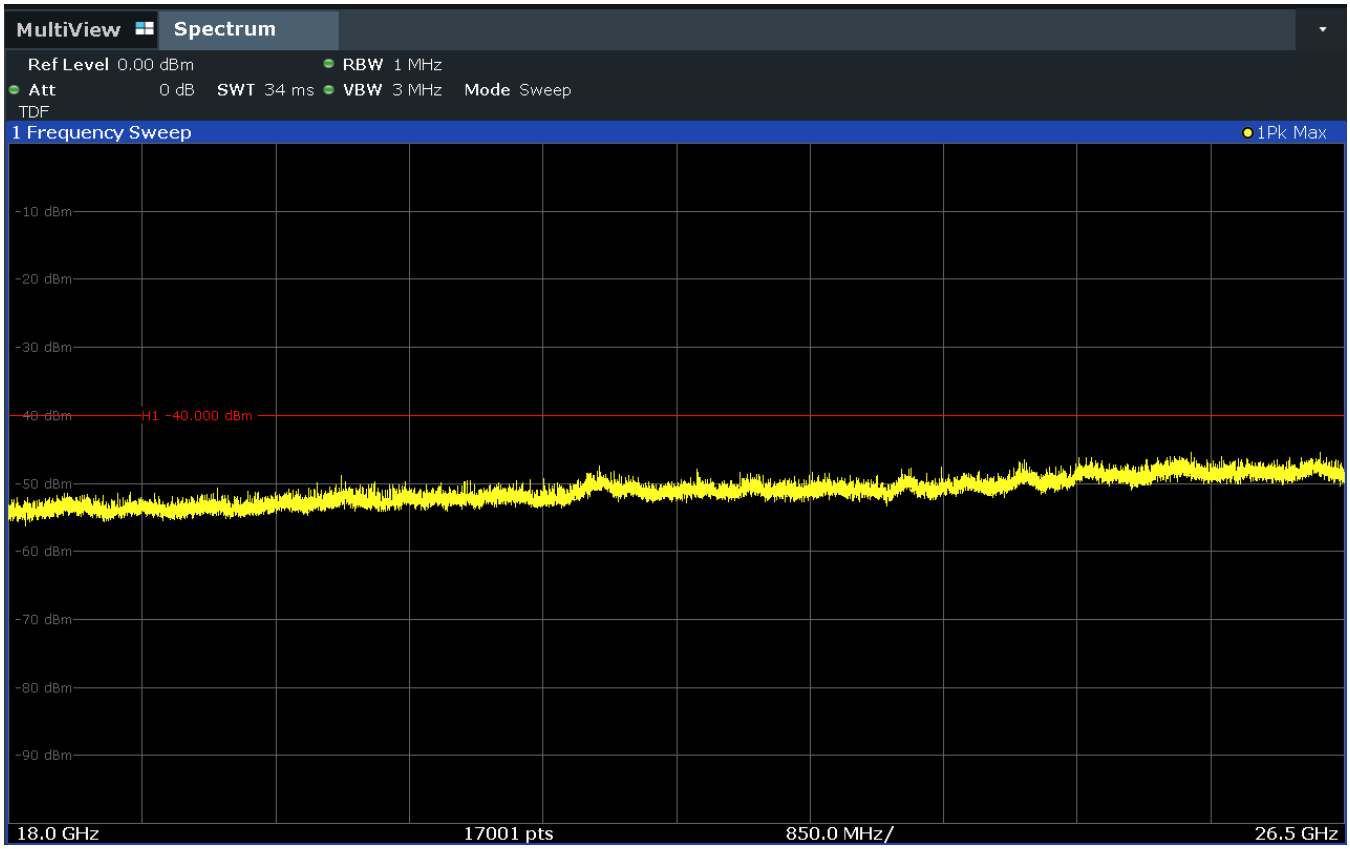
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3703.00	V	-	-	-68.15	6.89	-61.26	-48.3
5554.50	V	-	-	-68.48	9.02	-59.46	-46.5
7406.00	V	-	-	-66.15	9.22	-56.93	-43.9

Table 7-44. Radiated Spurious Data with WCP (Band 25/2 – 26055 Channel)

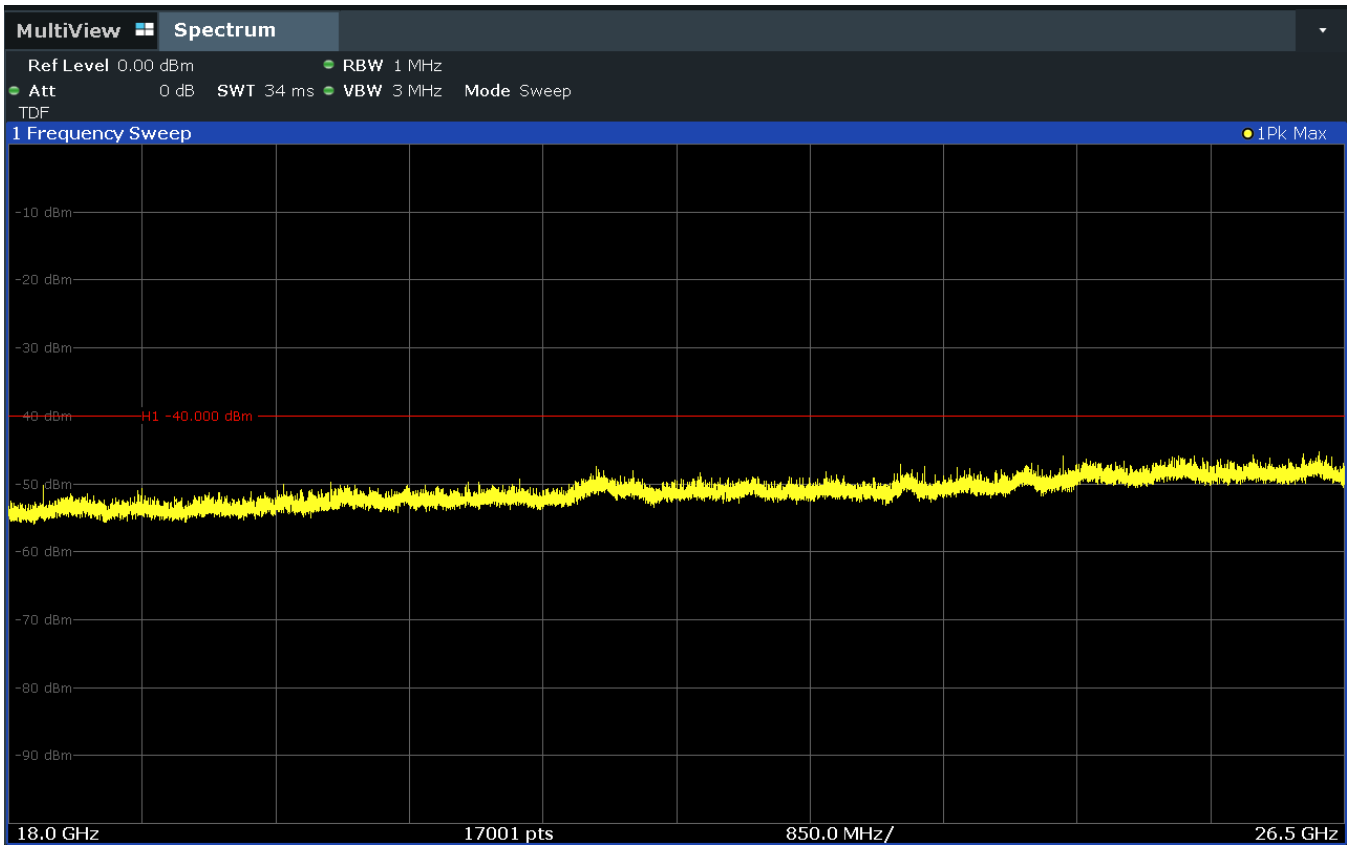
Band 30



Plot 7-377. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-378. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30) - H



Plot 7-379. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30) - V

OPERATING FREQUENCY:	2307.50	MHz
CHANNEL:	27685	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	V	286	348	-70.11	10.91	-59.19	-19.2
6922.50	V	-	-	-69.39	11.73	-57.66	-17.7
9230.00	V	-	-	-64.21	11.61	-52.60	-12.6

Table 7-45. Radiated Spurious Data (Band 30 – Low Channel)

OPERATING FREQUENCY:	2312.50	MHz
CHANNEL:	27735	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4625.00	V	297	356	-70.18	10.92	-59.26	-19.3
6937.50	V	400	20	-68.87	11.75	-57.12	-17.1
9250.00	V	-	-	-64.19	11.63	-52.56	-12.6
11562.50	V	-	-	-66.28	12.71	-53.57	-13.6

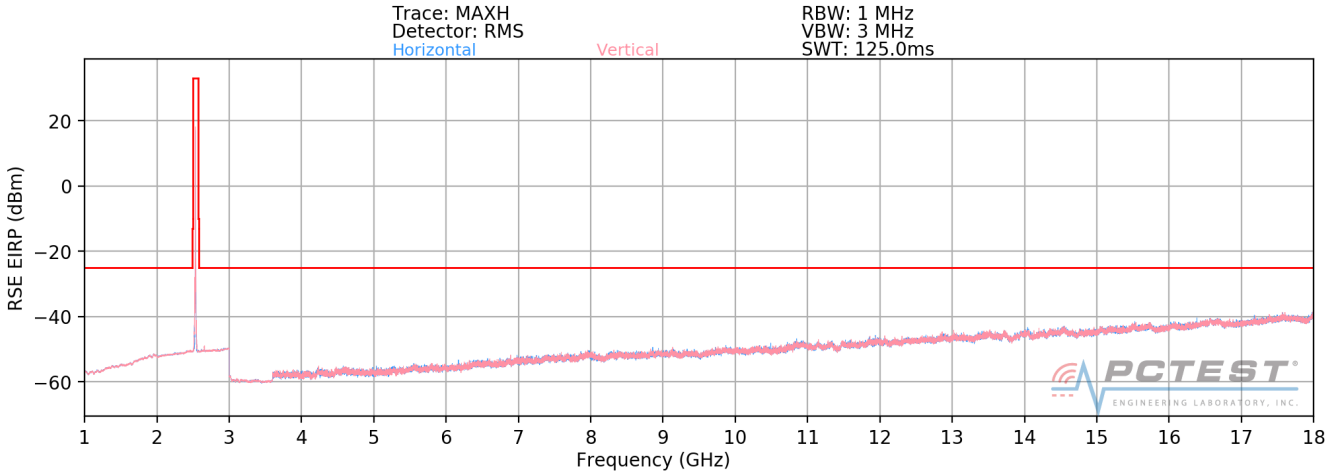
Table 7-46. Radiated Spurious Data (Band 30 – High Channel)

OPERATING FREQUENCY:	2307.50	MHz
CHANNEL:	27685	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

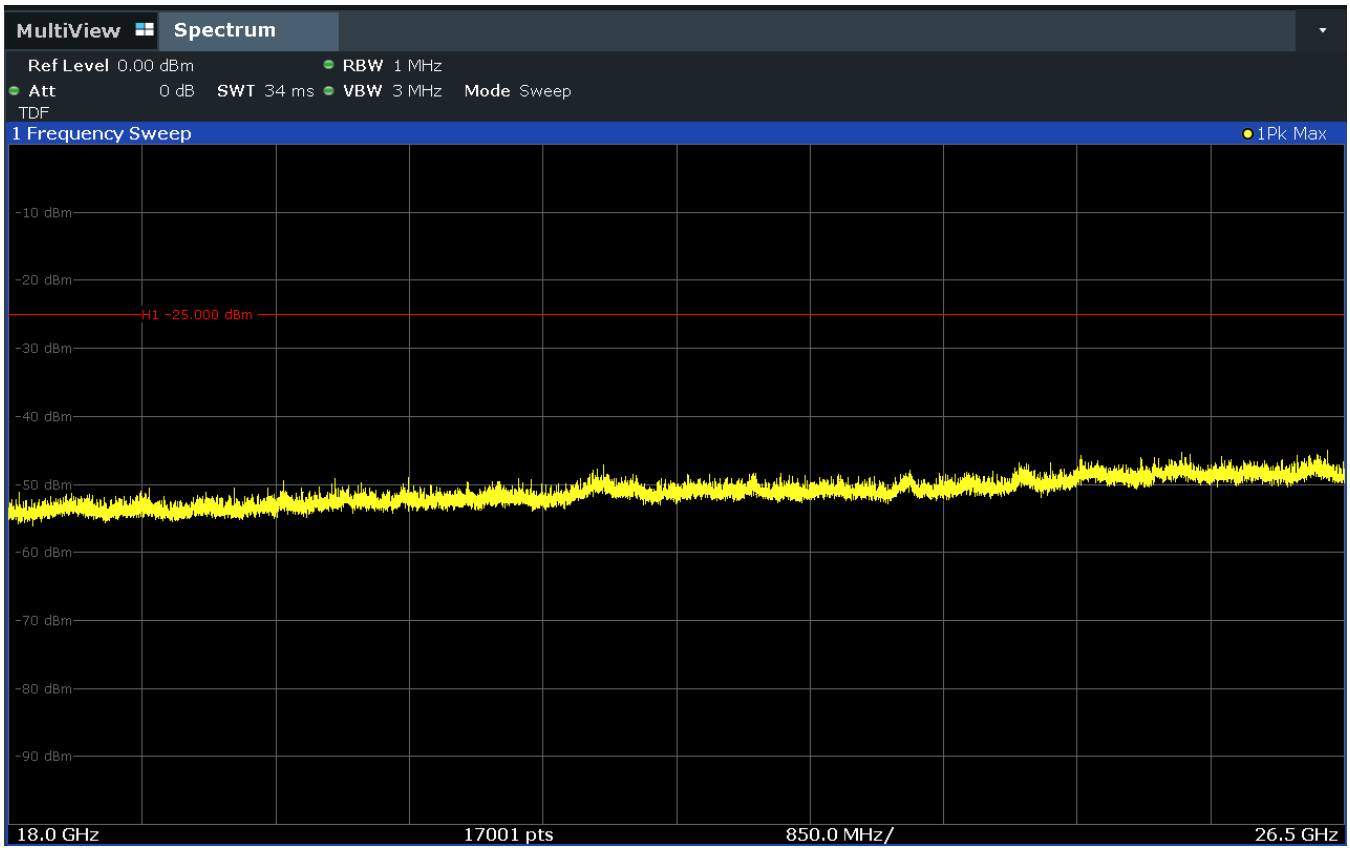
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	H	119	7	-68.72	10.91	-57.80	-17.8
6922.50	H	-	-	-71.76	11.73	-60.03	-20.0
9230.00	H	-	-	-66.47	11.61	-54.86	-14.9

Table 7-47. Radiated Spurious Data with WCP (Band 30 – 27685 Channel)

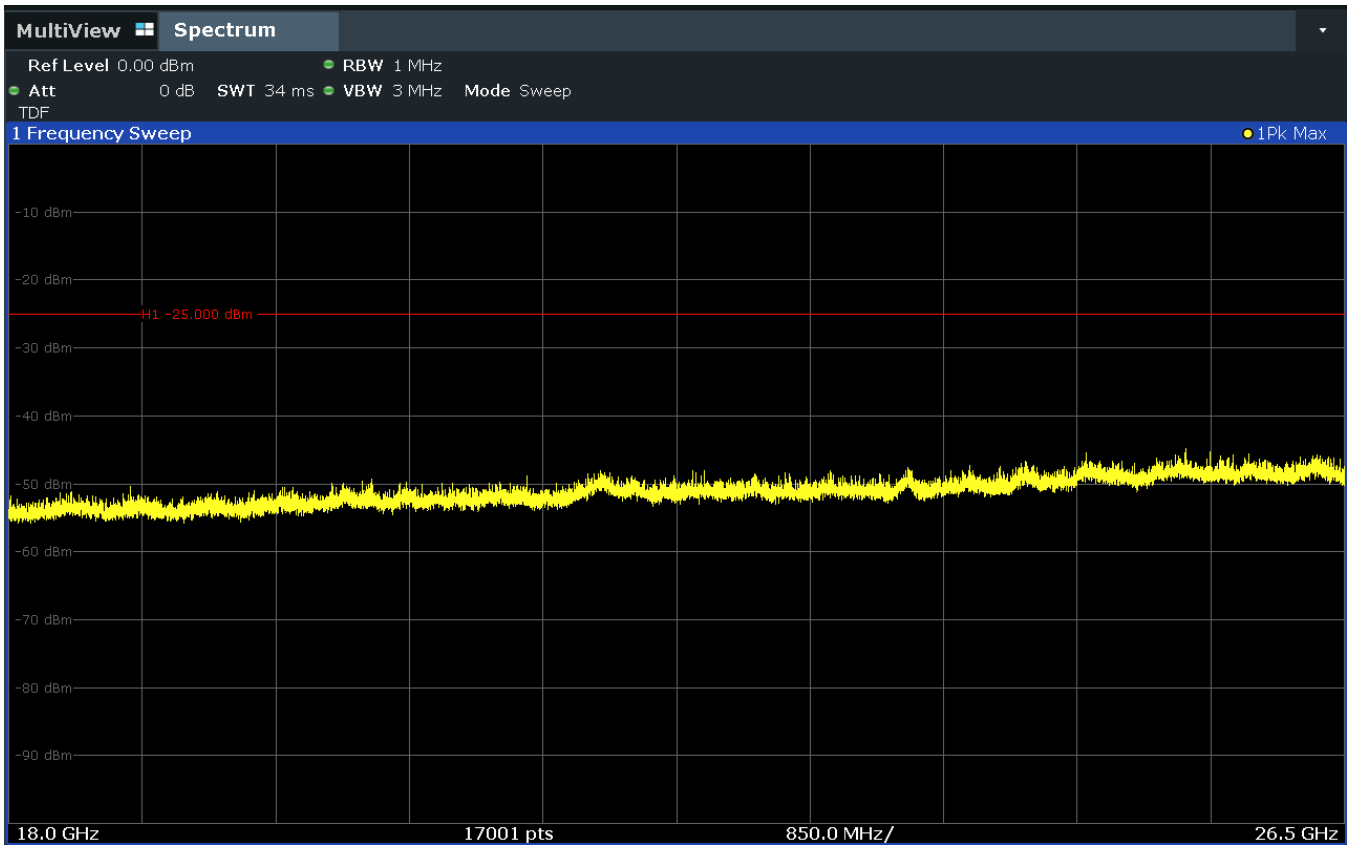
Band 7



Plot 7-380. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-381. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7) - H



Plot 7-382. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7) - V

OPERATING FREQUENCY:	2510.00	MHz
CHANNEL:	20850	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	-	-	-73.49	10.88	-62.61	-37.6
7530.00	H	140	26	-63.34	11.13	-52.21	-27.2
10040.00	H	-	-	-68.79	11.99	-56.81	-31.8
12550.00	H	153	19	-67.41	13.56	-53.85	-28.8
15060.00	H	200	315	-65.87	13.58	-52.30	-27.3
17570.00	H	-	-	-60.85	11.59	-49.25	-24.3

Table 7-48. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	H	121	322	-72.18	10.75	-61.43	-36.4
7605.00	H	278	53	-61.92	11.25	-50.67	-25.7
10140.00	H	-	-	-68.35	12.07	-56.28	-31.3
12675.00	H	200	303	-65.60	13.66	-51.94	-26.9
15210.00	H	218	16	-64.93	14.71	-50.22	-25.2
17745.00	H	-	-	-57.64	10.38	-47.26	-22.3

Table 7-49. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY:	2560.00	MHz
CHANNEL:	21350	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	H	-	-	-73.33	10.68	-62.65	-37.7
7680.00	H	182	65	-62.33	11.39	-50.94	-25.9
10240.00	H	-	-	-68.37	12.18	-56.18	-31.2
12800.00	H	116	14	-66.33	13.50	-52.83	-27.8
15360.00	H	205	20	-65.14	15.29	-49.86	-24.9
17920.00	H	-	-	-55.43	9.40	-46.03	-21.0

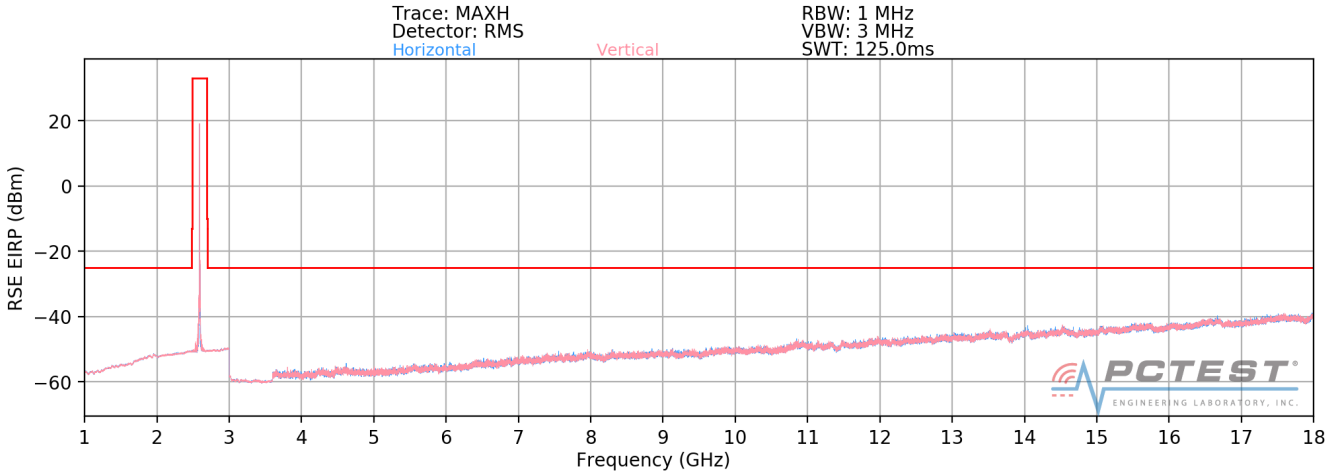
Table 7-50. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

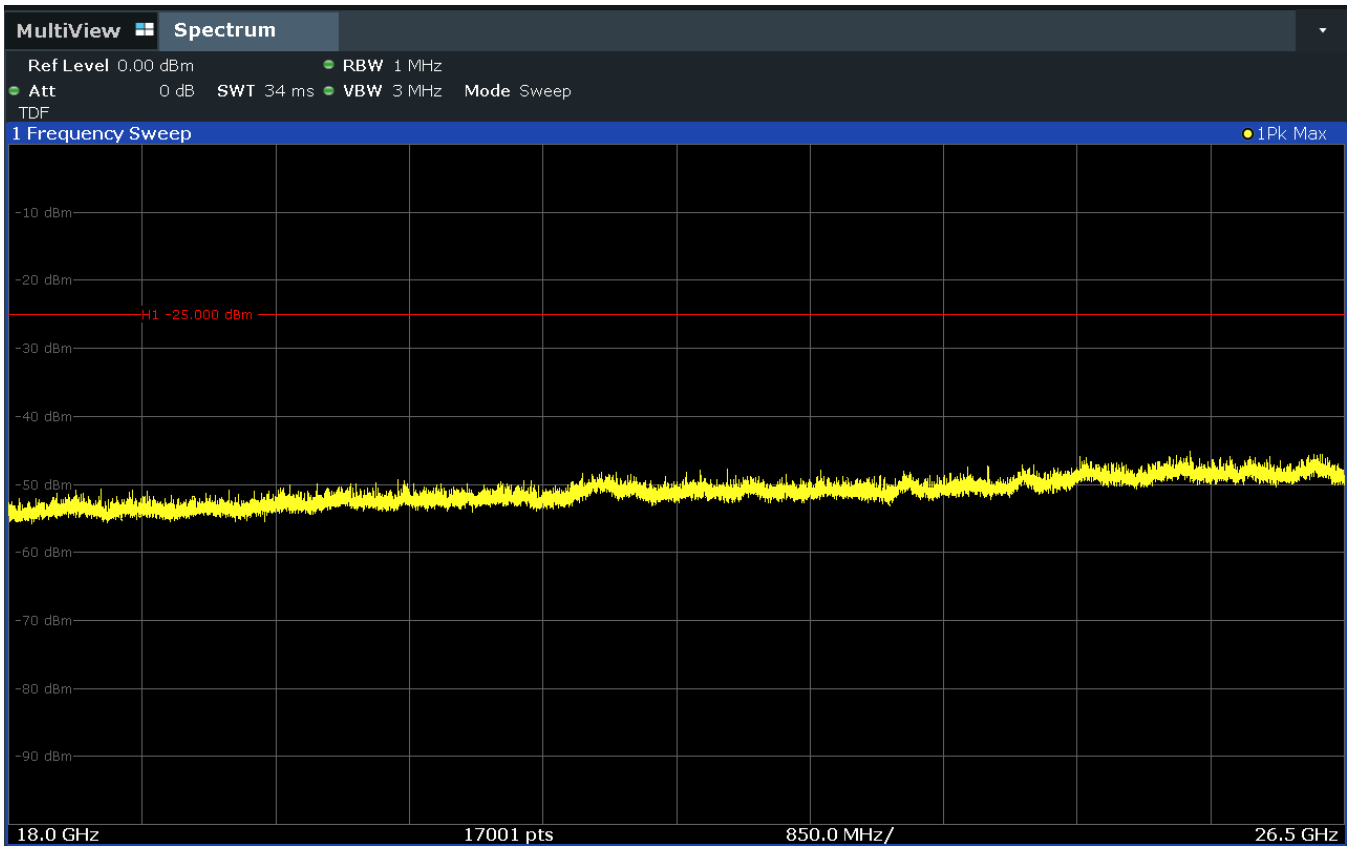
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	H	-	-	-75.21	10.75	-64.46	-39.5
7605.00	H	201	22	-69.75	11.25	-58.50	-33.5
10140.00	H	-	-	-71.22	12.07	-59.15	-34.2
12675.00	H	-	-	-70.78	13.66	-57.12	-32.1

Table 7-51. Radiated Spurious Data with WCP (Band 7 – 21100 Channel)

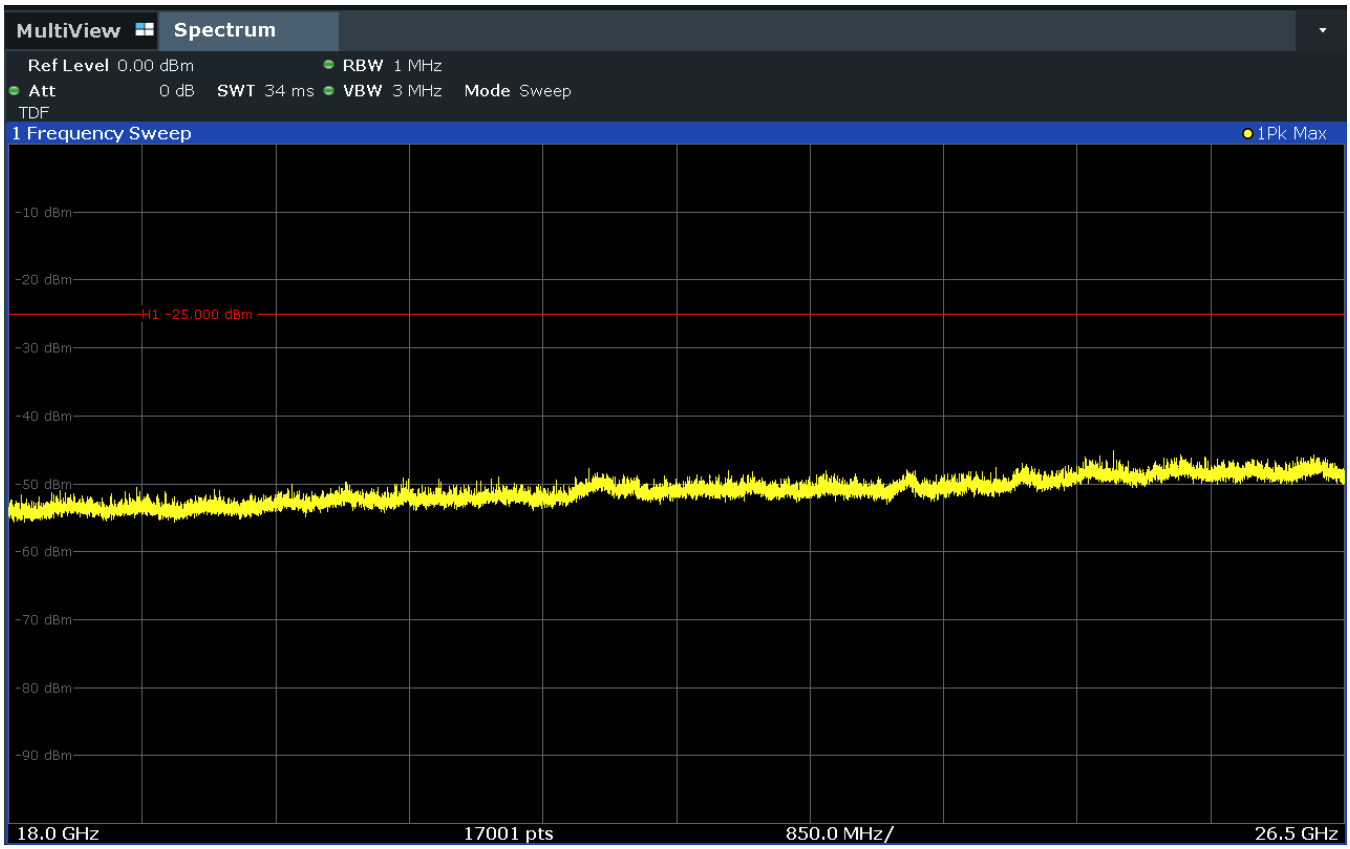
Band 41 PC2



Plot 7-383. Radiated Spurious Plot 1GHz - 18GHz (Band 41 PC2)



Plot 7-384. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 PC2) - H



Plot 7-385. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 PC2) - V

OPERATING FREQUENCY:	2510.00	MHz
CHANNEL:	39790	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	-	-	-66.86	8.78	-58.08	-33.1
7530.00	H	109	321	-60.34	9.31	-51.03	-26.0
10040.00	H	-	-	-60.26	9.78	-50.48	-25.5

Table 7-52. Radiated Spurious Data (Band 41 PC2 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
CHANNEL:	40620	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	-	-	-67.41	9.03	-58.39	-33.4
7779.00	H	106	342	-60.29	9.29	-51.00	-26.0
10372.00	H	-	-	-59.24	9.50	-49.74	-24.7

Table 7-53. Radiated Spurious Data (Band 41 PC2 – Mid Channel)

OPERATING FREQUENCY:	2680.00	MHz
CHANNEL:	41490	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	-	-	-66.77	8.99	-57.78	-32.8
8040.00	H	118	332	-59.24	9.35	-49.89	-24.9
10720.00	H	-	-	-57.49	9.39	-48.10	-23.1

Table 7-54. Radiated Spurious Data (Band 41 PC2 – High Channel)

OPERATING FREQUENCY:	2510.00	MHz
CHANNEL:	39715	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	-	-	-67.07	8.73	-58.35	-33.3
7530.00	H	242	12	-55.80	9.32	-46.48	-21.5
10040.00	H	-	-	-59.85	9.82	-50.03	-25.0

Table 7-55. Radiated Spurious Data with WCP (Band 41 PC2 – 39715 Channel)

7.10 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. No. of sweep points ≥ 2 x span / RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

Test Setup

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

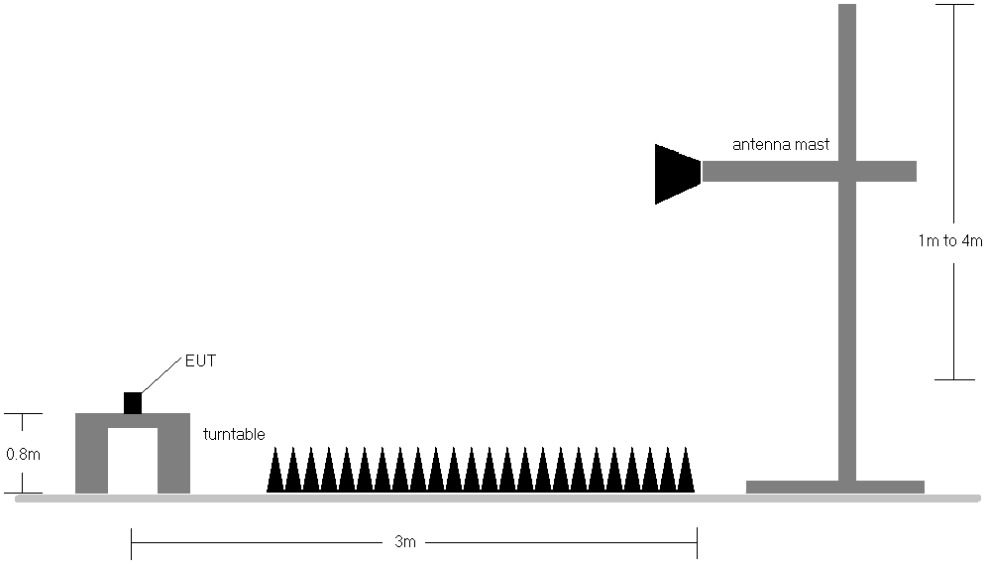


Figure 7-10. Test Instrument & Measurement Setup

Test Notes

1) 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.

2) This unit was tested with its standard battery.

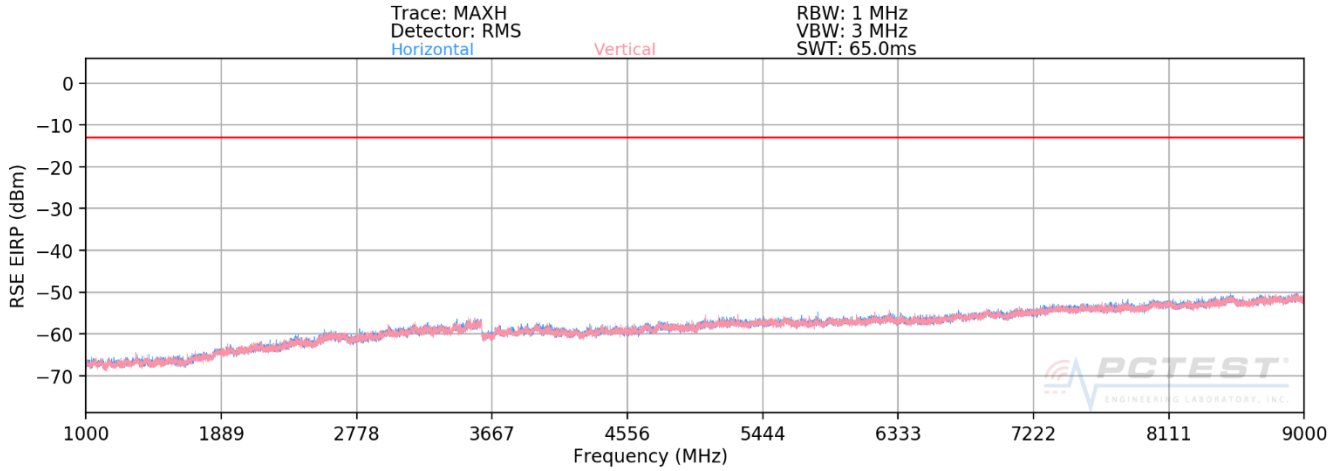
3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

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

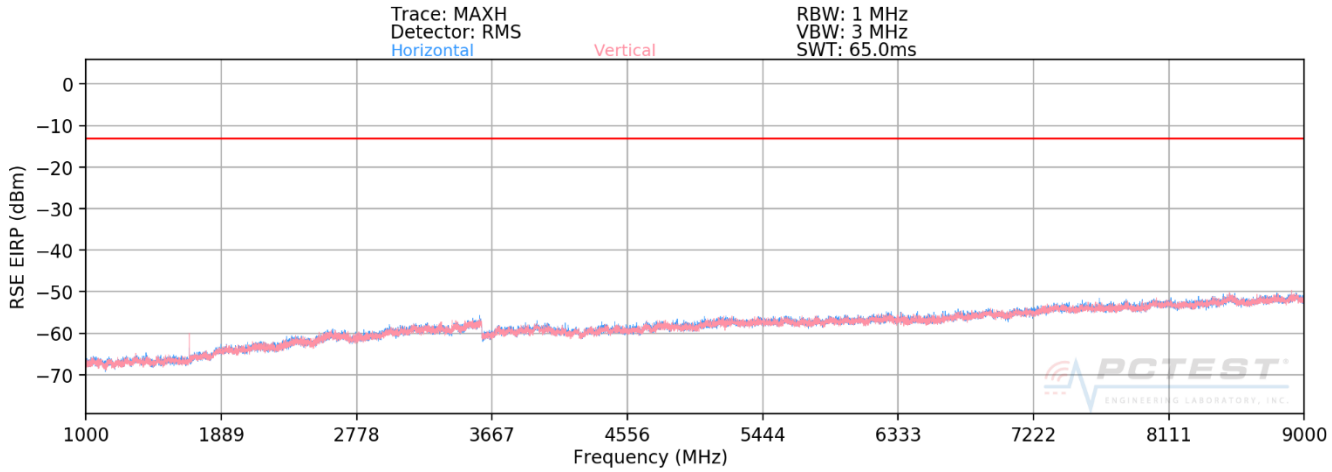
5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

6) No significant emissions were found as a result of two uplink carriers operating contiguously.

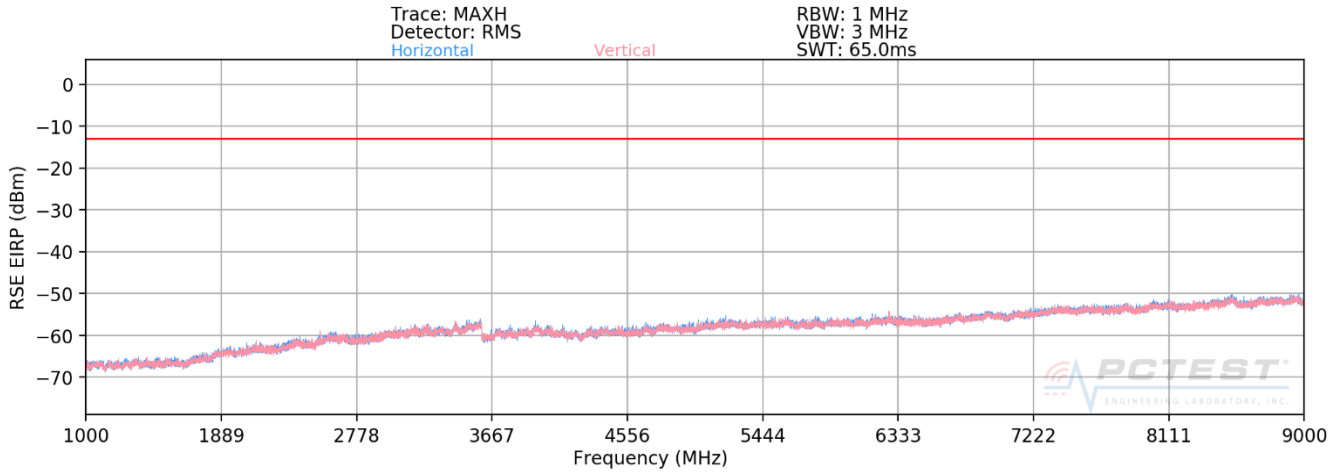
Uplink CA Configuration 5B



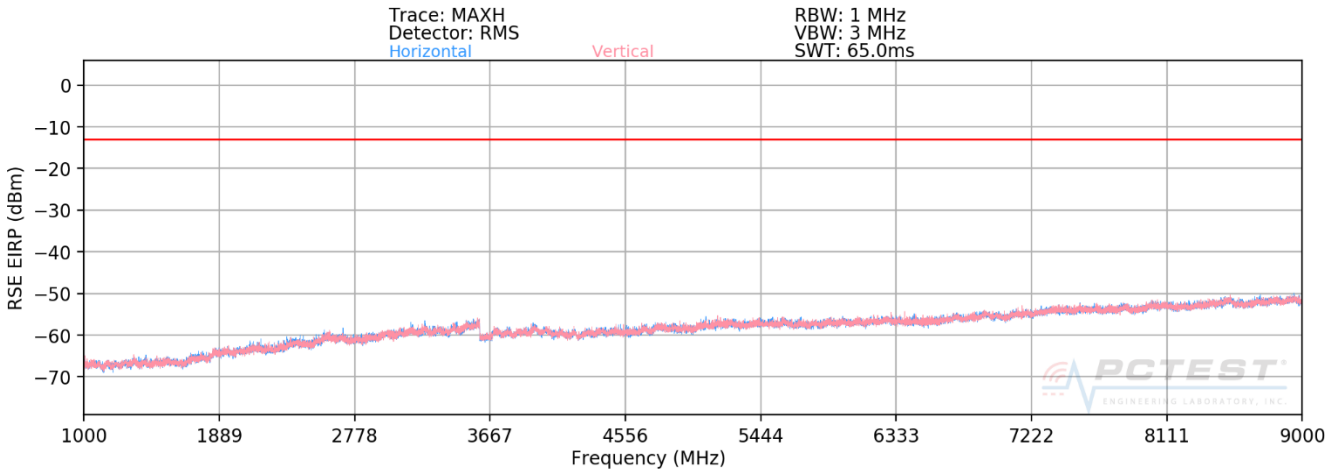
Plot 7-386. Radiated Spruious Plot (ULCA B5 PCC: RB 1 Offset 49, SCC: RB 1 Offset 0 – Low Channel)



Plot 7-387. Radiated Spruious Plot (ULCA B5 PCC: RB 1 Offset 0, SCC: RB 1 Offset 49 – High Channel)



Plot 7-388. Radiated Spruious Plot (ULCA B5 PCC: RB 50 Offset 0, SCC: RB 50 Offset 0 – Low Channel)



Plot 7-389. Radiated Spruious Plot (ULCA B5 PCC: RB 50 Offset 0, SCC: RB 50 Offset 0 – High Channel)

PCC OPERATING FREQUENCY:	829.00	MHz
SCC OPERATING FREQUENCY:	838.90	MHz
PCC CHANNEL:	20450	
SCC CHANNEL:	20549	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10+10	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	150	33	-69.04	8.95	-60.09	-47.1
2487.00	125	38	-66.33	9.70	-56.63	-43.6
3316.00	153	264	-68.57	9.59	-58.98	-46.0
4145.00	-	-	-74.89	10.22	-64.67	-51.7
4974.00	-	-	-74.64	10.93	-63.72	-50.7

Table 7-56. Radiated Spurious Data (ULCA B5 PCC: RB 1 Offset 49, SCC: RB 1 Offset 0 – Low Channel)

PCC OPERATING FREQUENCY:	844.00	MHz
SCC OPERATING FREQUENCY:	834.10	MHz
PCC CHANNEL:	20600	
SCC CHANNEL:	20501	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10+10	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	131	23	-68.21	8.95	-59.26	-46.3
2532.00	150	25	-64.20	9.75	-54.45	-41.5
3376.00	-	-	-74.70	9.71	-64.99	-52.0
4220.00	-	-	-74.61	10.48	-64.13	-51.1

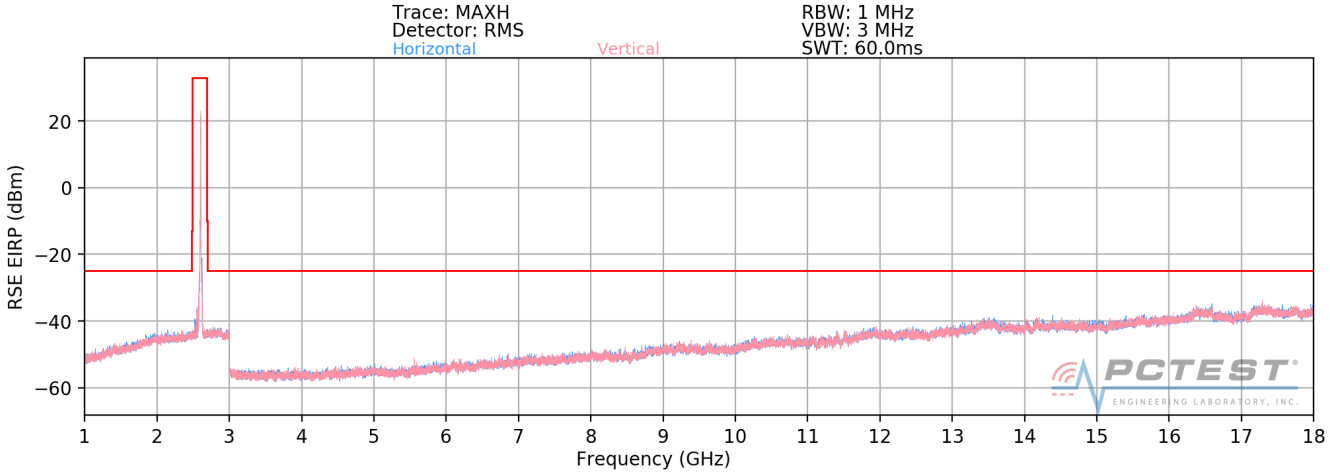
Table 7-57. Radiated Spurious Data (ULCA B5 PCC: RB 1 Offset 0, SCC: RB 1 Offset 49 – High Channel)

PCC OPERATING FREQUENCY:	844.00	MHz
SCC OPERATING FREQUENCY:	834.10	MHz
PCC CHANNEL:	20600	
SCC CHANNEL:	20501	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10+10	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

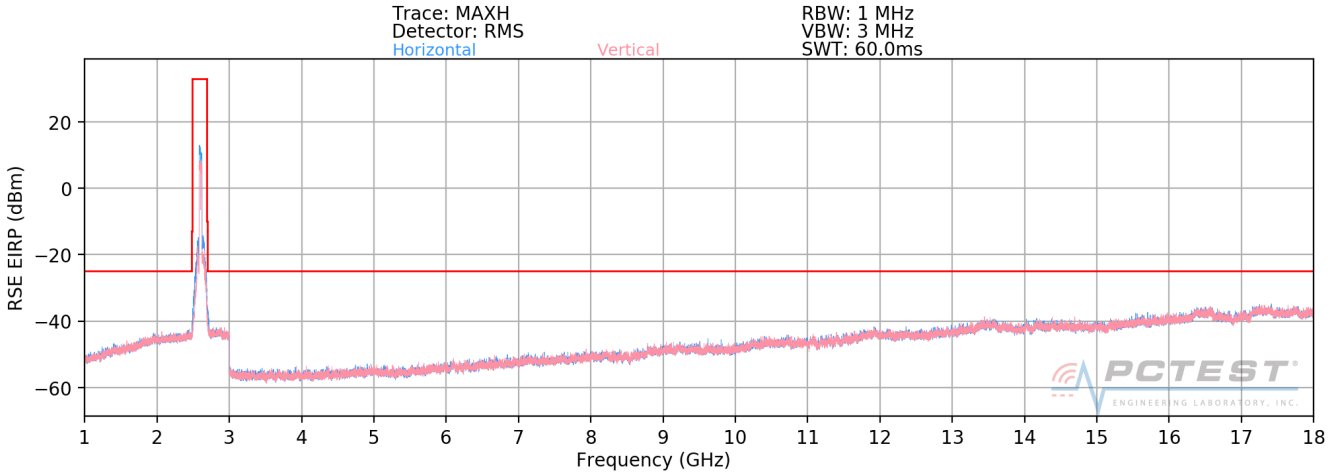
Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	155	107	-75.14	8.95	-66.19	-53.2
2532.00	268	35	-71.96	9.75	-62.21	-49.2
3376.00	189	208	-74.24	9.71	-64.53	-51.5
4220.00	-	-	-74.45	10.48	-63.97	-51.0

Table 7-58. Radiated Spurious Data with WCP (ULCA B5 PCC: RB 1 Offset 0, SCC: RB 1 Offset 49 – High Channel)

Uplink CA Configuration 41C



Plot 7-59. Radiated Spruious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0)



Plot 7-60. Radiated Spruious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0)

OPERATING FREQUENCY:	2506.00	MHz
OPERATING FREQUENCY:	2525.80	MHz
CHANNEL:	39750	
CHANNEL:	39948	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	-	-	-70.73	10.88	-59.85	-34.8
7518.00	H	-	-	-67.97	11.13	-56.84	-31.8
10024.00	H	-	-	-65.52	11.99	-53.54	-28.5

Plot 7-61. Radiated Spruious Data (ULCA B41 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
OPERATING FREQUENCY:	2612.20	MHz
CHANNEL:	40620	
CHANNEL:	40812	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	-	-	-71.34	10.74	-60.60	-35.6
7779.00	H	-	-	-68.12	11.44	-56.68	-31.7
10372.00	H	-	-	-55.41	12.42	-42.99	-18.0

Plot 7-62. Radiated Spruious Data (ULCA B41 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 - Mid Channel)

OPERATING FREQUENCY:	2680.00	MHz
OPERATING FREQUENCY:	2660.20	MHz
CHANNEL:	41490	
CHANNEL:	41292	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	-	-	-69.76	10.70	-59.06	-34.1
8040.00	H	-	-	-66.84	11.16	-55.68	-30.7
10720.00	H	-	-	-64.25	12.59	-51.66	-26.7

Plot 7-63. Radiated Spruious Data (ULCA B41 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 - High Channel)

OPERATING FREQUENCY:	2680.00	MHz
OPERATING FREQUENCY:	2660.20	MHz
CHANNEL:	41490	
CHANNEL:	41292	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	-	-	-71.28	10.92	-60.36	-35.4
8040.00	H	-	-	-67.73	11.08	-56.65	-31.6
10720.00	H	-	-	-64.72	12.00	-52.72	-27.7

Plot 7-64. Radiated Spruious Data with WCP (ULCA B41 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99)

7.11 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, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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

Band 71 Frequency Stability Measurements

OPERATING FREQUENCY:	680,500,000	Hz
CHANNEL:	133297	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	680,500,192	192	0.0000282
100 %	4.23	- 30	680,500,307	307	0.0000451
100 %		- 20	680,500,098	98	0.0000144
100 %		- 10	680,500,024	24	0.0000035
100 %		0	680,500,311	311	0.0000457
100 %		+ 10	680,499,927	-73	-0.0000107
100 %		+ 20	680,499,914	-86	-0.0000126
100 %		+ 30	680,499,894	-106	-0.0000156
100 %		+ 40	680,500,295	295	0.0000434
100 %		+ 50	680,500,009	9	0.0000013
BATT. ENDPOINT	3.58	+ 20	680,500,166	166	0.0000244

Table 7-65. Frequency Stability Data (Band 71)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 71 Frequency Stability Measurements

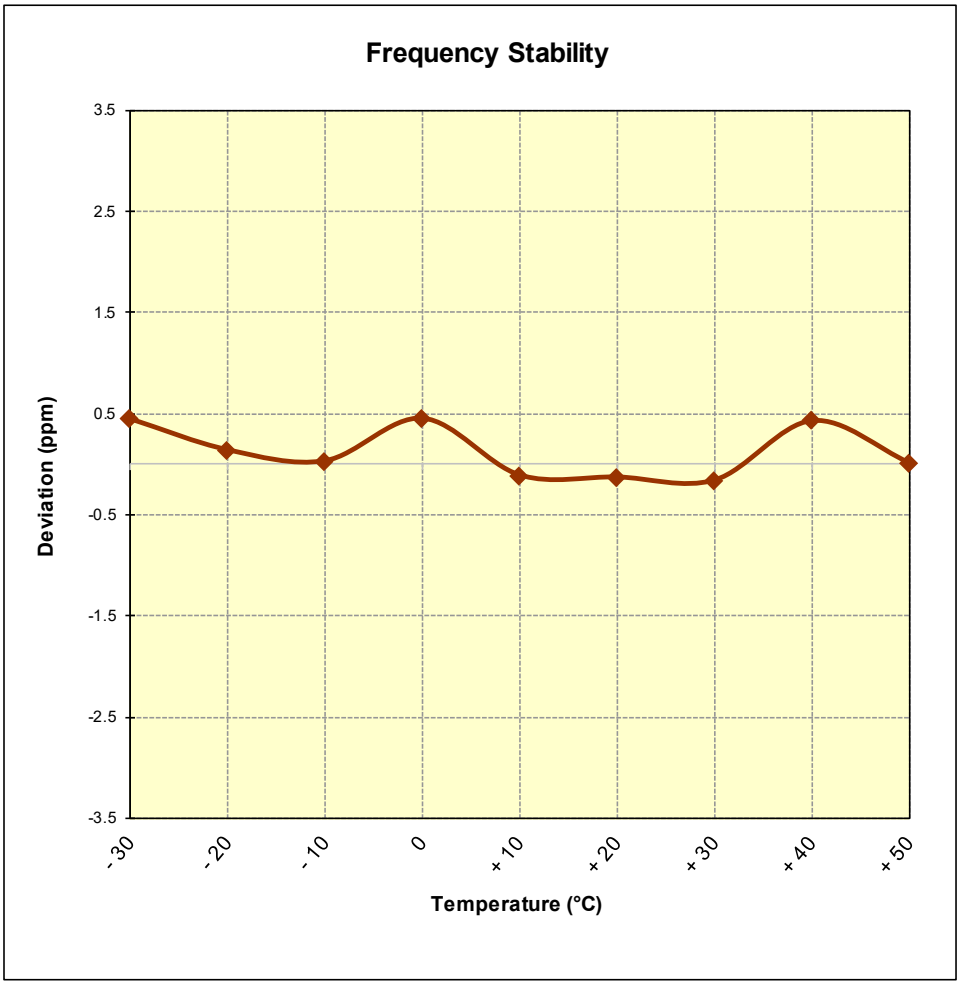


Figure 7-11. Frequency Stability Graph (Band 71)

Band 17/12 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	707,499,691	-309	-0.0000437
100 %	4.23	- 30	707,500,129	129	0.0000182
100 %		- 20	707,500,114	114	0.0000161
100 %		- 10	707,499,868	-132	-0.0000187
100 %		0	707,499,972	-28	-0.0000040
100 %		+ 10	707,499,827	-173	-0.0000245
100 %		+ 20	707,500,300	300	0.0000424
100 %		+ 30	707,500,268	268	0.0000379
100 %		+ 40	707,500,144	144	0.0000204
100 %		+ 50	707,499,998	-2	-0.0000003
BATT. ENDPOINT	3.58	+ 20	707,499,931	-69	-0.0000098

Table 7-66. Frequency Stability Data (Band 17/12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 17/12 Frequency Stability Measurements

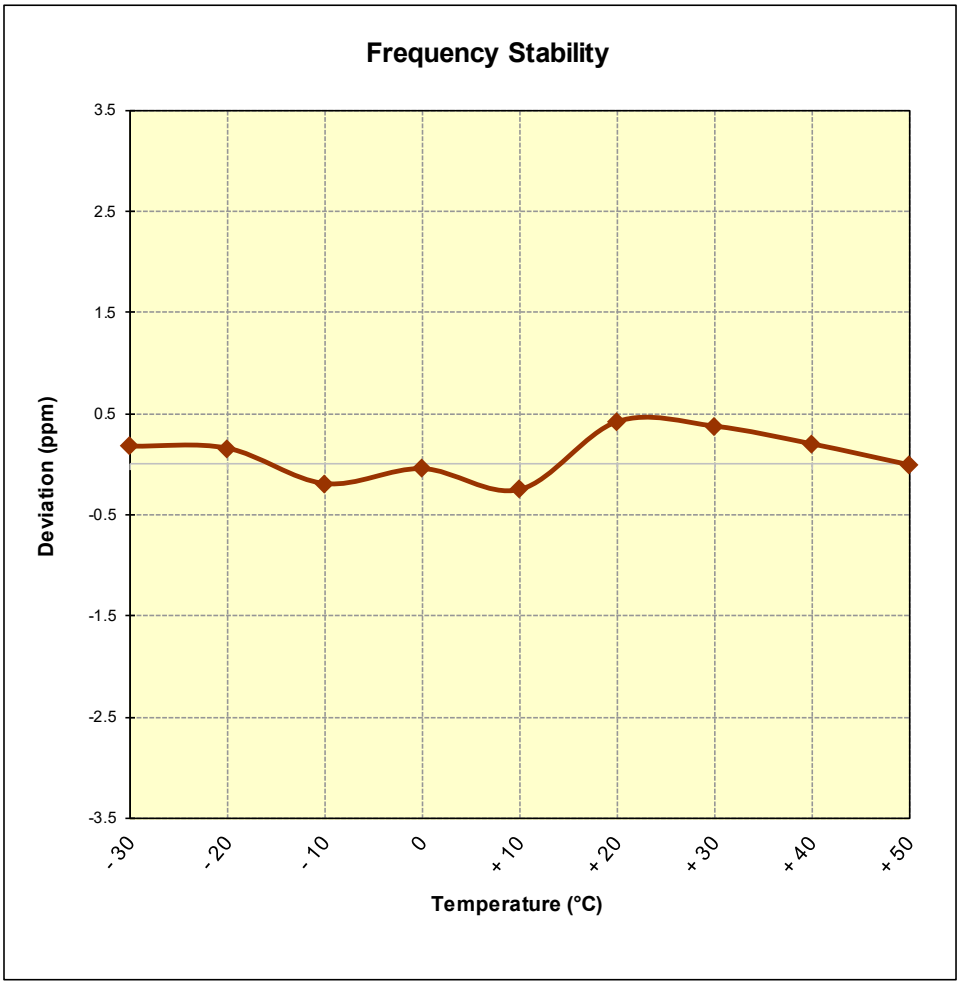


Figure 7-12. Frequency Stability Graph (Band 17/12)

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	781,999,791	-209	-0.0000267
100 %	4.23	- 30	782,000,123	123	0.0000157
100 %		- 20	781,999,815	-185	-0.0000237
100 %		- 10	782,000,038	38	0.0000049
100 %		0	782,000,178	178	0.0000228
100 %		+ 10	781,999,757	-243	-0.0000311
100 %		+ 20	781,999,938	-62	-0.0000079
100 %		+ 30	782,000,010	10	0.0000013
100 %		+ 40	781,999,972	-28	-0.0000036
100 %		+ 50	782,000,345	345	0.0000441
BATT. ENDPOINT	3.58	+ 20	782,000,198	198	0.0000253

Table 7-67. Frequency Stability Data (Band 13)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 13 Frequency Stability Measurements

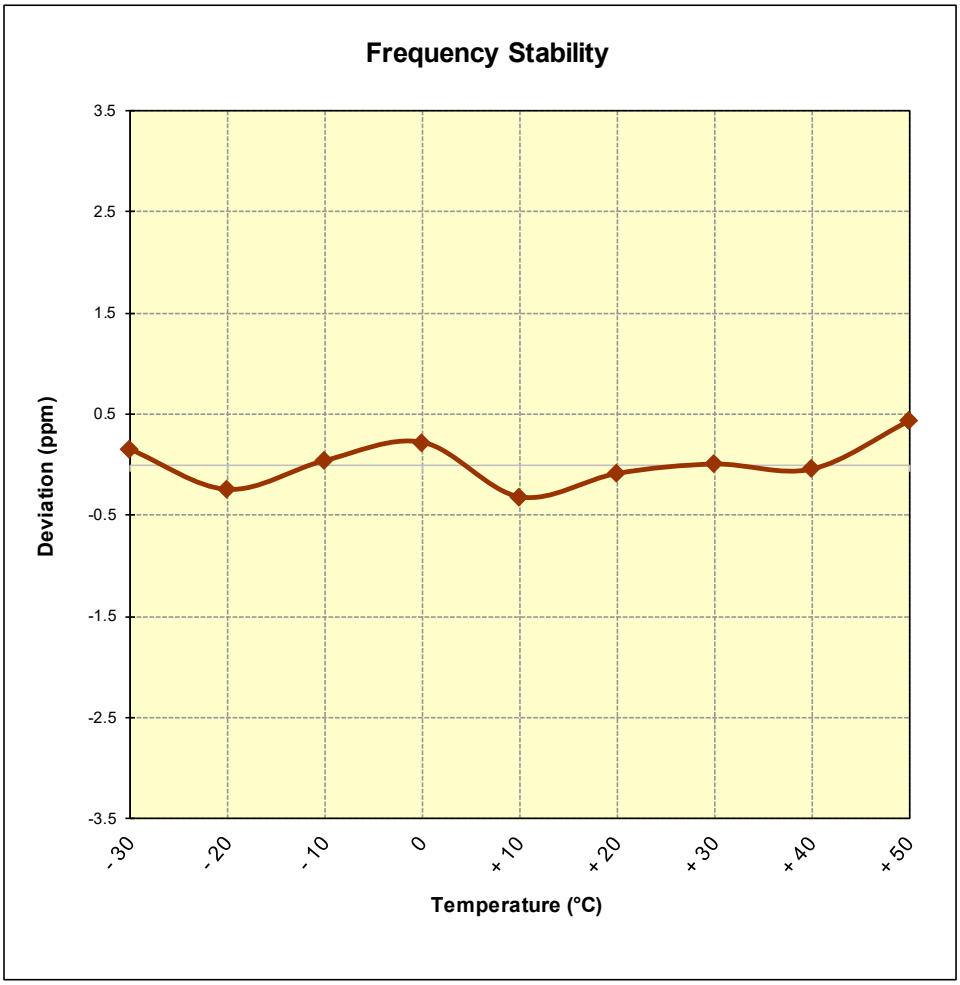


Figure 7-13. Frequency Stability Graph (Band 13)

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	831,500,000	Hz
CHANNEL:	26865	
REFERENCE VOLTAGE:	4.23	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	831,499,818	-182	-0.0000219
100 %	4.23	- 30	831,499,763	-237	-0.0000285
100 %		- 20	831,499,911	-89	-0.0000107
100 %		- 10	831,499,628	-372	-0.0000447
100 %		0	831,500,232	232	0.0000279
100 %		+ 10	831,499,867	-133	-0.0000160
100 %		+ 20	831,499,873	-127	-0.0000153
100 %		+ 30	831,499,618	-382	-0.0000459
100 %		+ 40	831,500,350	350	0.0000421
100 %		+ 50	831,499,986	-14	-0.0000017
BATT. ENDPOINT	3.58	+ 20	831,500,262	262	0.0000315

Table 7-68. Frequency Stability Data (Band 26/5)

Band 26/5 Frequency Stability Measurements

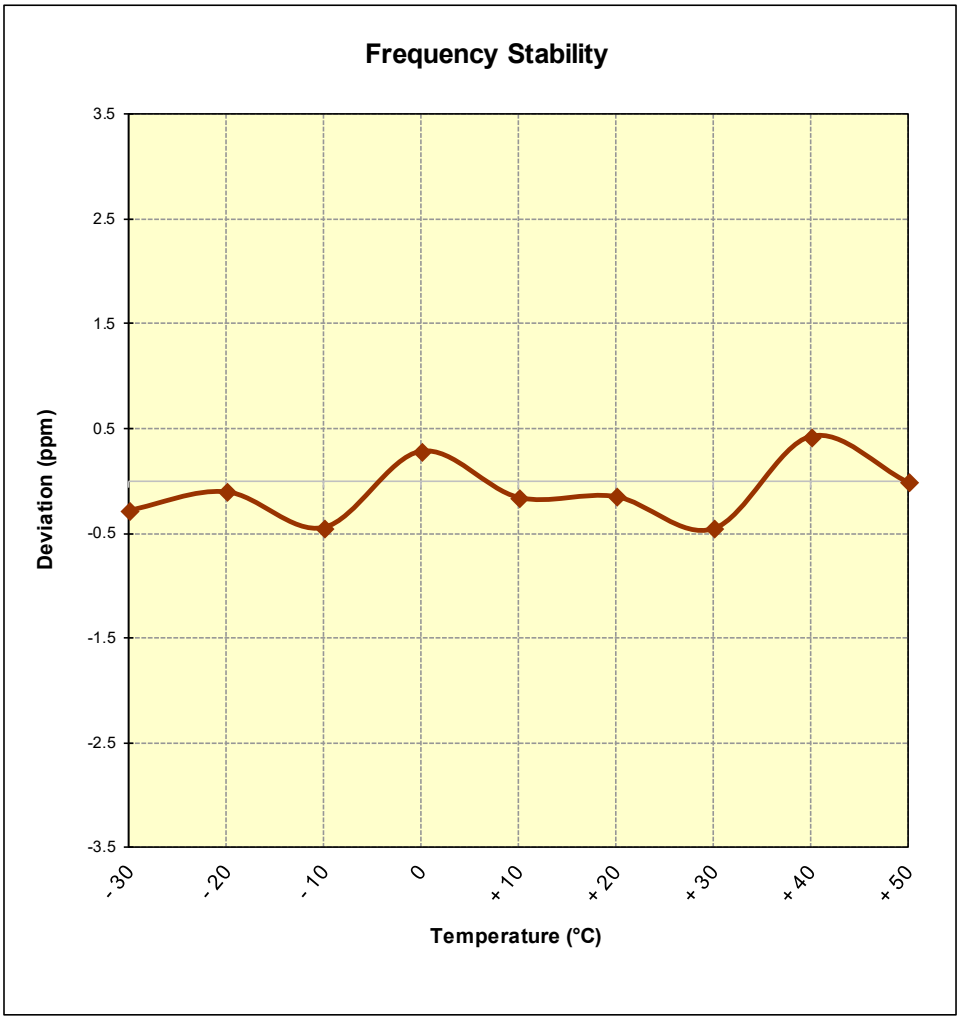


Figure 7-14. Frequency Stability Graph (Band 26/5)

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	1,744,999,962	-38	-0.0000022
100 %	4.23	- 30	1,744,999,984	-16	-0.0000009
100 %		- 20	1,745,000,182	182	0.0000104
100 %		- 10	1,745,000,373	373	0.0000214
100 %		0	1,745,000,169	169	0.0000097
100 %		+ 10	1,745,000,299	299	0.0000171
100 %		+ 20	1,744,999,955	-45	-0.0000026
100 %		+ 30	1,744,999,695	-305	-0.0000175
100 %		+ 40	1,744,999,897	-103	-0.0000059
100 %		+ 50	1,745,000,286	286	0.0000164
BATT. ENDPOINT	3.58	+ 20	1,745,000,188	188	0.0000108

Table 7-69. Frequency Stability Data (Band 66/4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 66/4 Frequency Stability Measurements

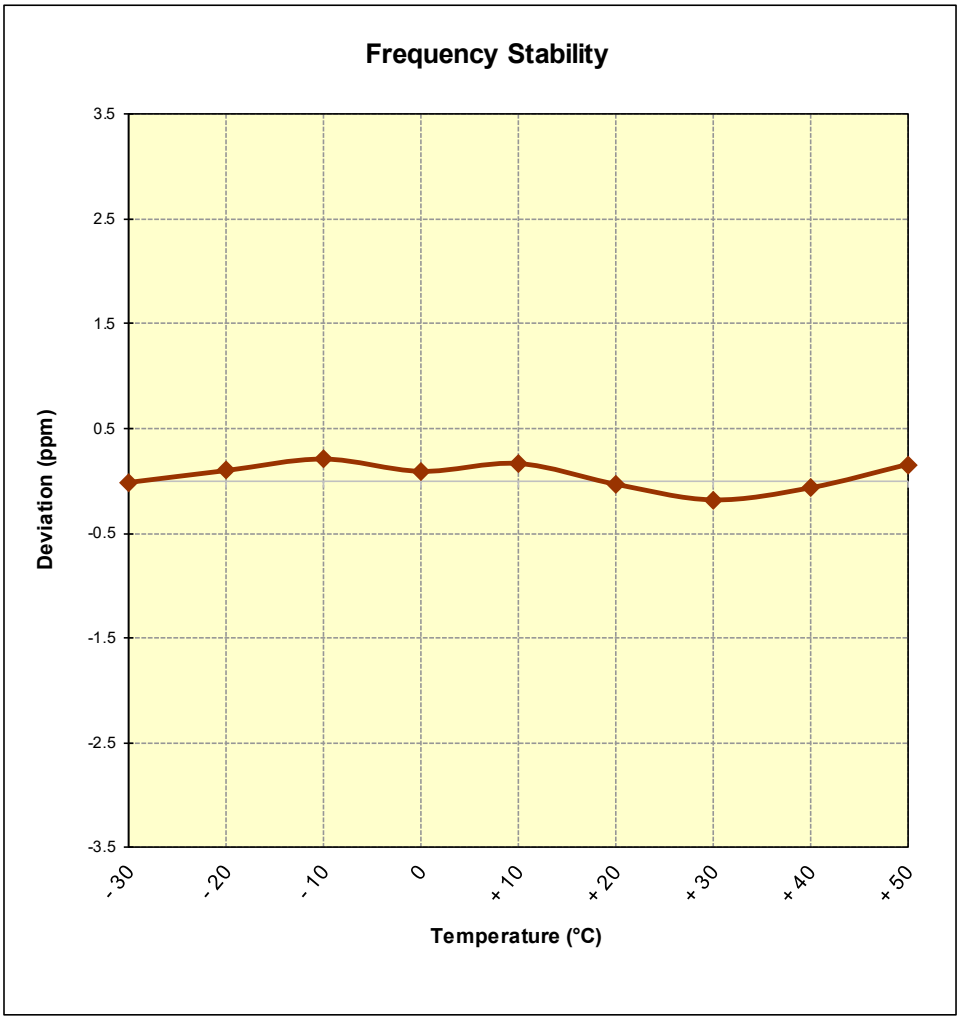


Figure 7-15. Frequency Stability Graph (Band 66/4)

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	4.23	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	1,882,499,987	-13	-0.0000007
100 %	4.23	- 30	1,882,499,927	-73	-0.0000039
100 %		- 20	1,882,499,777	-223	-0.0000118
100 %		- 10	1,882,500,098	98	0.0000052
100 %		0	1,882,499,902	-98	-0.0000052
100 %		+ 10	1,882,500,191	191	0.0000101
100 %		+ 20	1,882,499,909	-91	-0.0000048
100 %		+ 30	1,882,499,724	-276	-0.0000147
100 %		+ 40	1,882,499,987	-13	-0.0000007
100 %		+ 50	1,882,499,916	-84	-0.0000045
BATT. ENDPOINT	3.58	+ 20	1,882,499,905	-95	-0.0000050

Table 7-70. Frequency Stability Data (Band 25/2)

Band 25/2 Frequency Stability Measurements

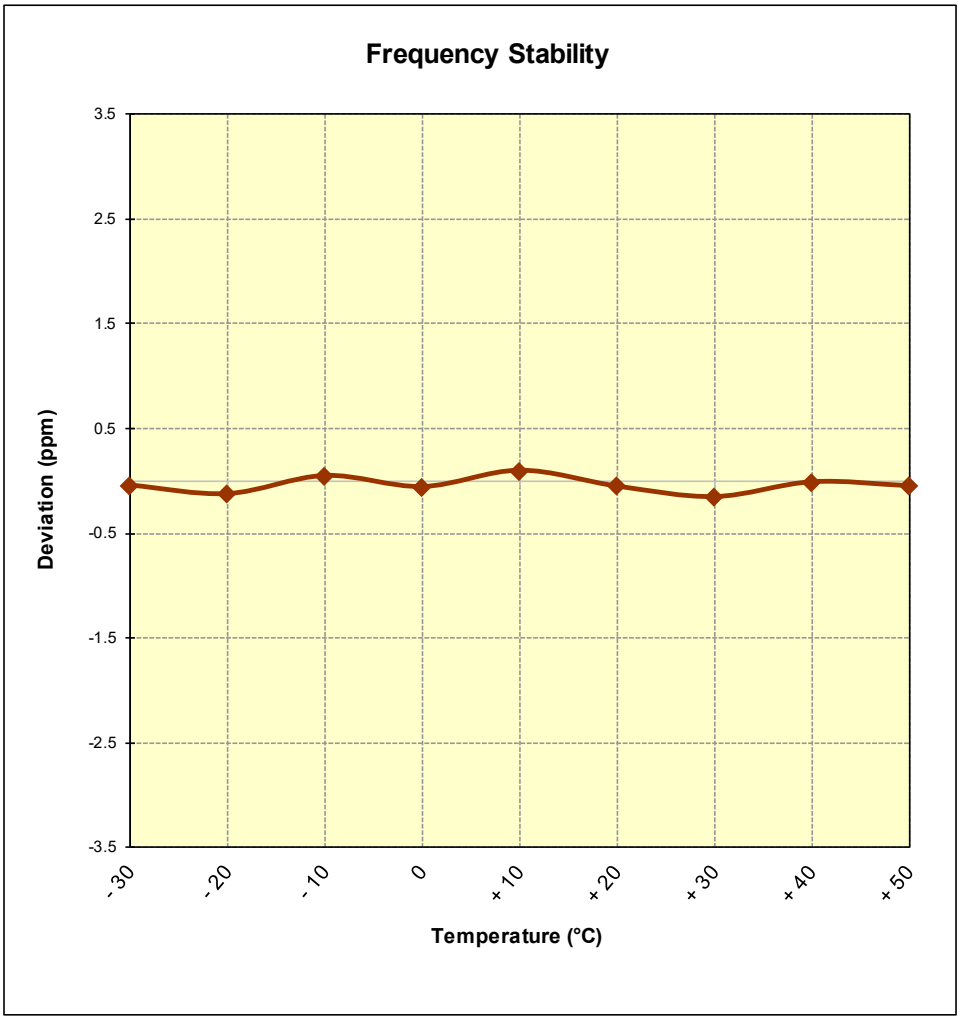


Figure 7-16. Frequency Stability Graph (Band 25/2)

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	2,309,999,971	-29	-0.0000013
100 %	4.23	- 30	2,310,000,136	136	0.0000059
100 %		- 20	2,309,999,870	-130	-0.0000056
100 %		- 10	2,310,000,166	166	0.0000072
100 %		0	2,310,000,215	215	0.0000093
100 %		+ 10	2,310,000,106	106	0.0000046
100 %		+ 20	2,310,000,126	126	0.0000055
100 %		+ 30	2,309,999,720	-280	-0.0000121
100 %		+ 40	2,309,999,846	-154	-0.0000067
100 %		+ 50	2,309,999,985	-15	-0.0000006
BATT. ENDPOINT	3.58	+ 20	2,309,999,913	-87	-0.0000038

Table 7-71. Frequency Stability Data (Band 30)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 30 Frequency Stability Measurements

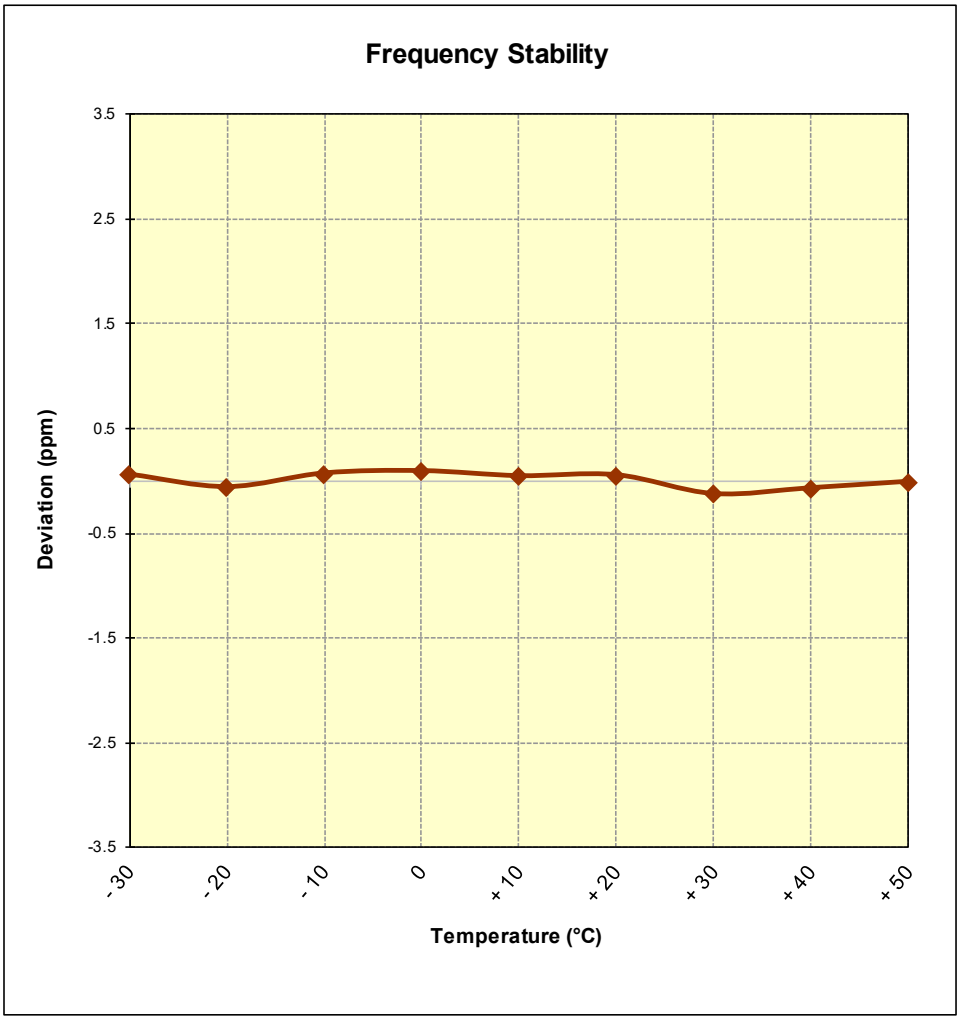


Figure 7-17. Frequency Stability Graph (Band 30)

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	2,535,000,152	152	0.0000060
100 %	4.23	- 30	2,535,000,235	235	0.0000093
100 %		- 20	2,535,000,114	114	0.0000045
100 %		- 10	2,534,999,716	-284	-0.0000112
100 %		0	2,534,999,613	-387	-0.0000153
100 %		+ 10	2,534,999,976	-24	-0.0000009
100 %		+ 20	2,534,999,980	-20	-0.0000008
100 %		+ 30	2,535,000,067	67	0.0000026
100 %		+ 40	2,534,999,924	-76	-0.0000030
100 %		+ 50	2,534,999,817	-183	-0.0000072
BATT. ENDPOINT	3.58	+ 20	2,535,000,090	90	0.0000036

Table 7-72. Frequency Stability Data (Band 7)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 7 Frequency Stability Measurements

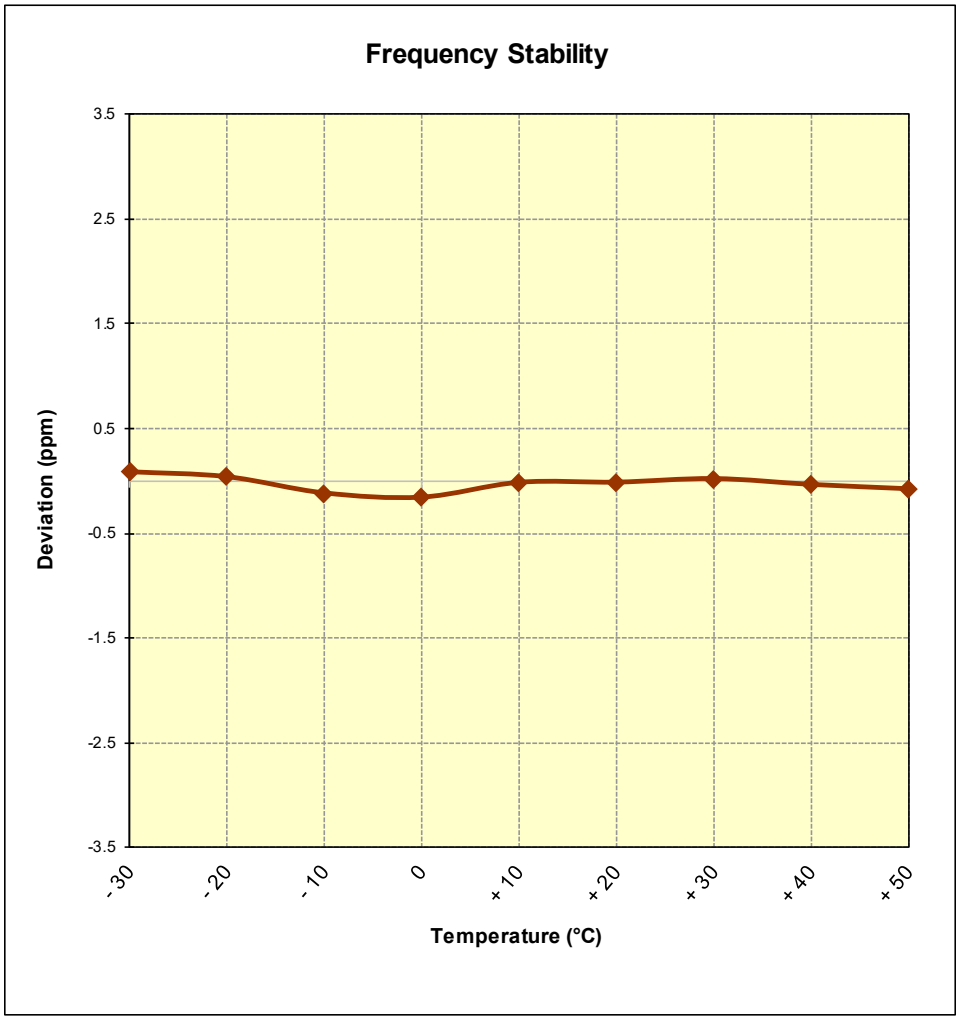


Figure 7-18. Frequency Stability Graph (Band 7)

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	4.23	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	2,592,999,799	-201	-0.0000078
100 %	4.23	- 30	2,593,000,101	101	0.0000039
100 %		- 20	2,592,999,838	-162	-0.0000062
100 %		- 10	2,593,000,190	190	0.0000073
100 %		0	2,593,000,219	219	0.0000084
100 %		+ 10	2,593,000,210	210	0.0000081
100 %		+ 20	2,593,000,070	70	0.0000027
100 %		+ 30	2,592,999,723	-277	-0.0000107
100 %		+ 40	2,593,000,104	104	0.0000040
100 %		+ 50	2,593,000,141	141	0.0000054
BATT. ENDPOINT	3.58	+ 20	2,592,999,820	-180	-0.0000069

Table 7-73. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 41 Frequency Stability Measurements

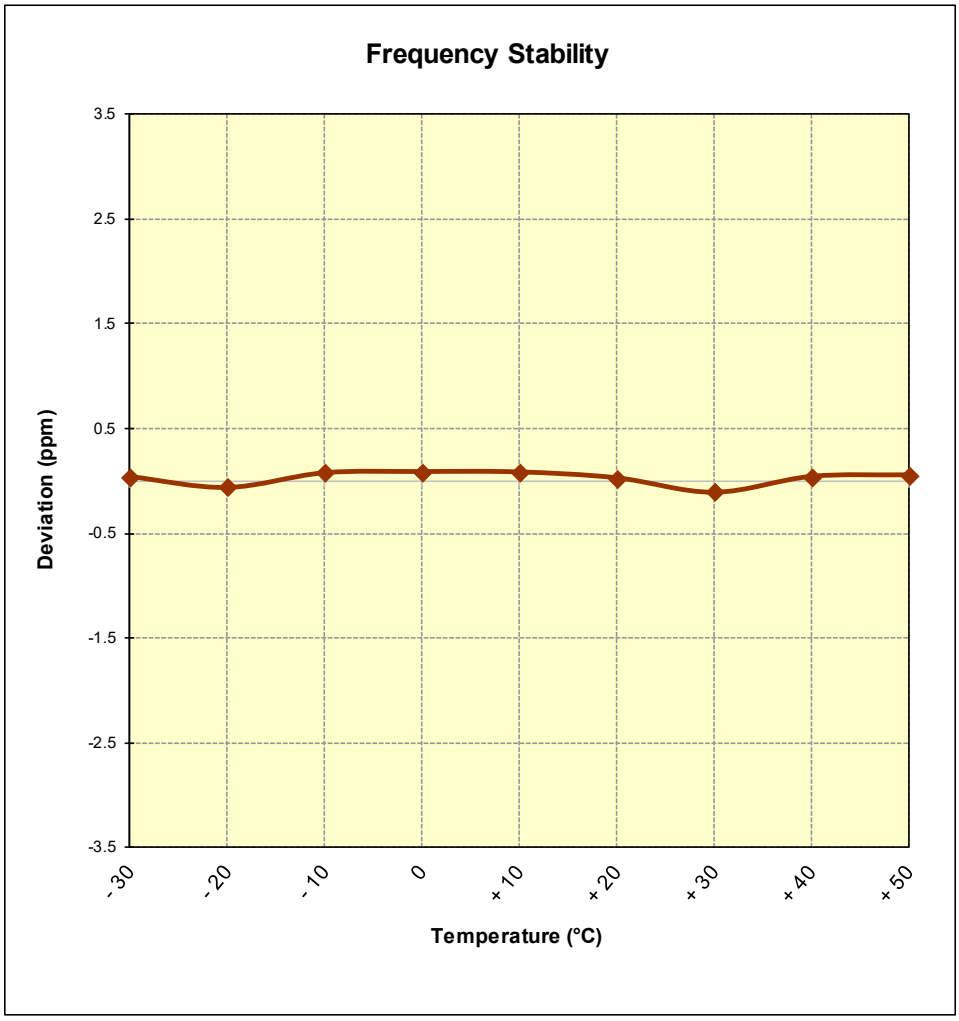


Figure 7-19. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFG820UM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.