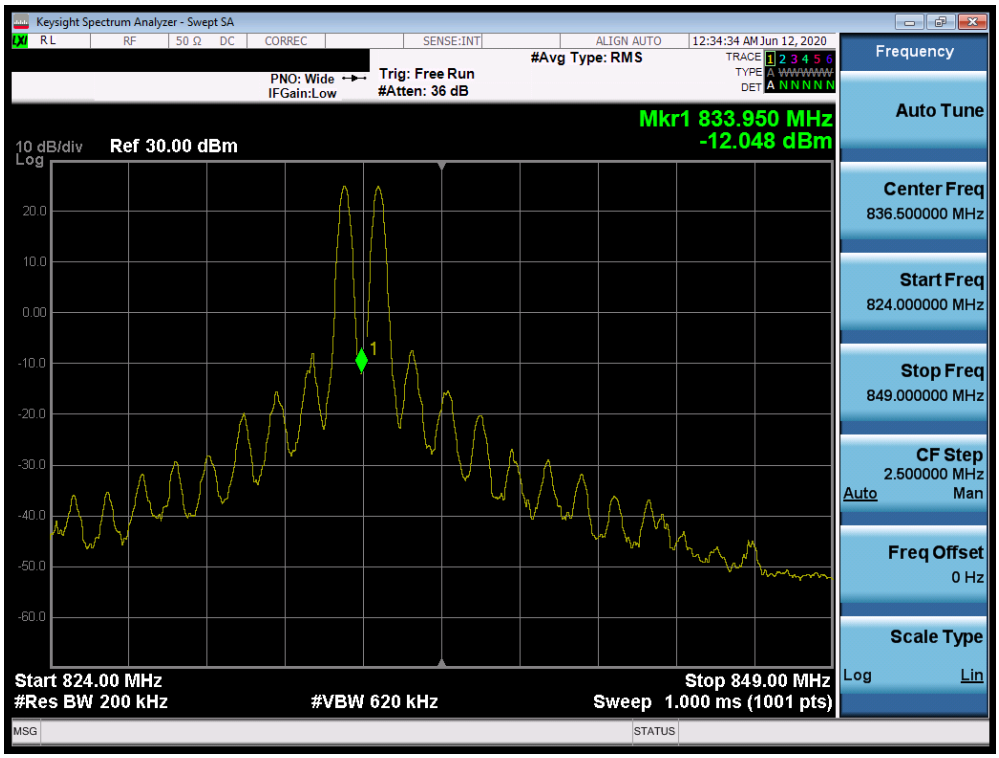
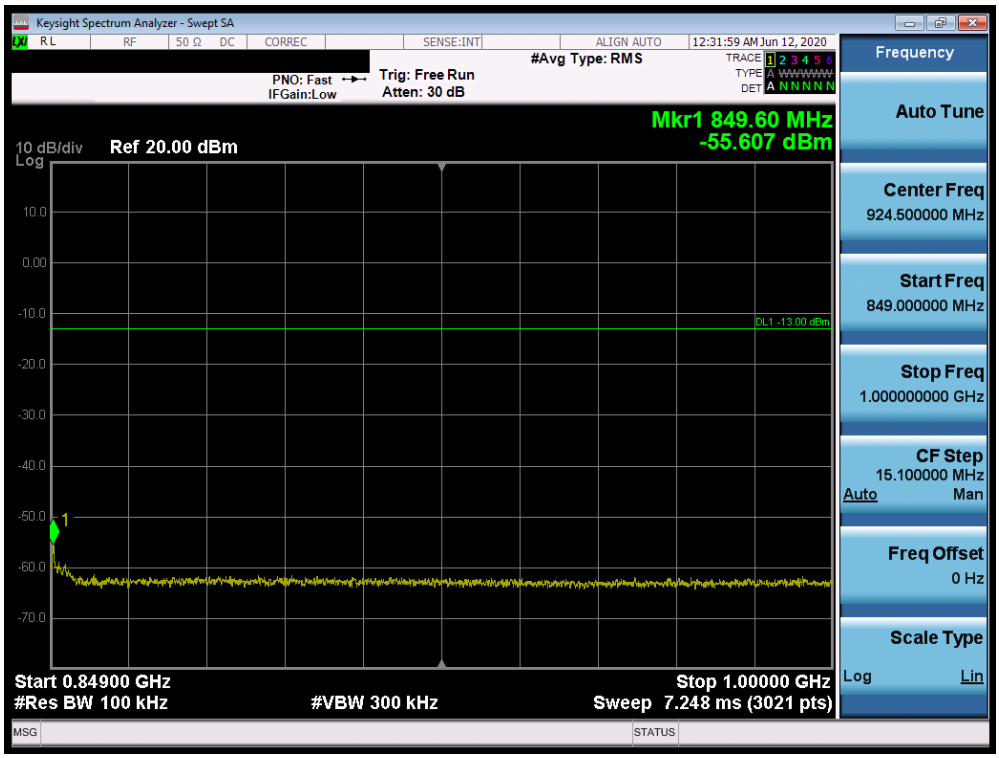
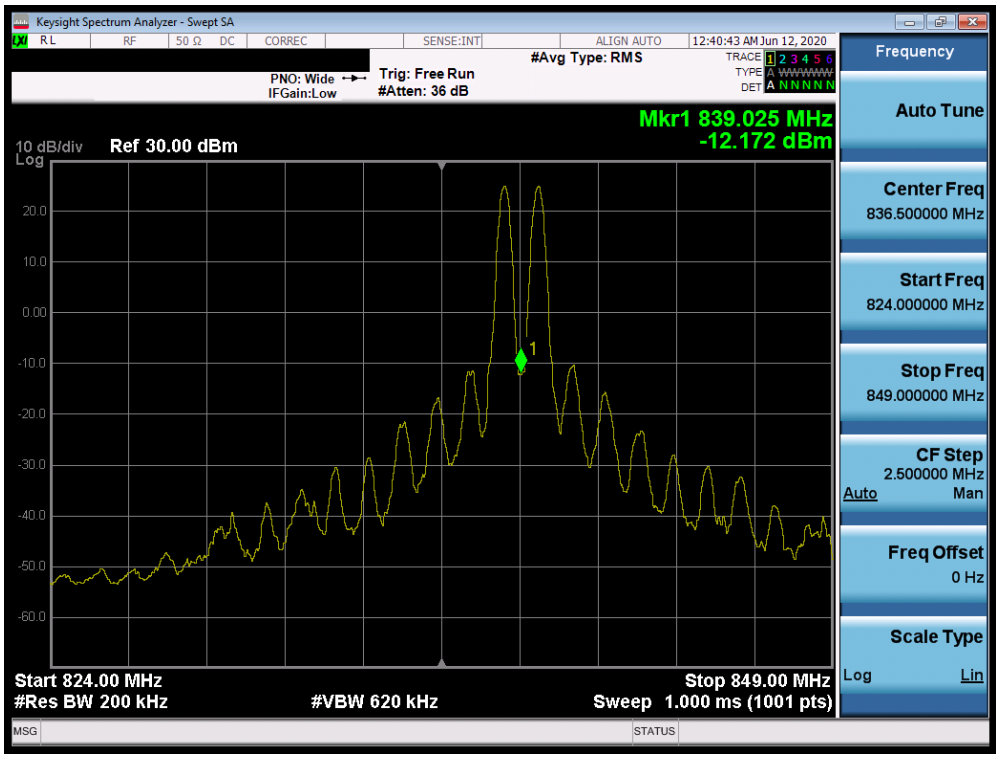


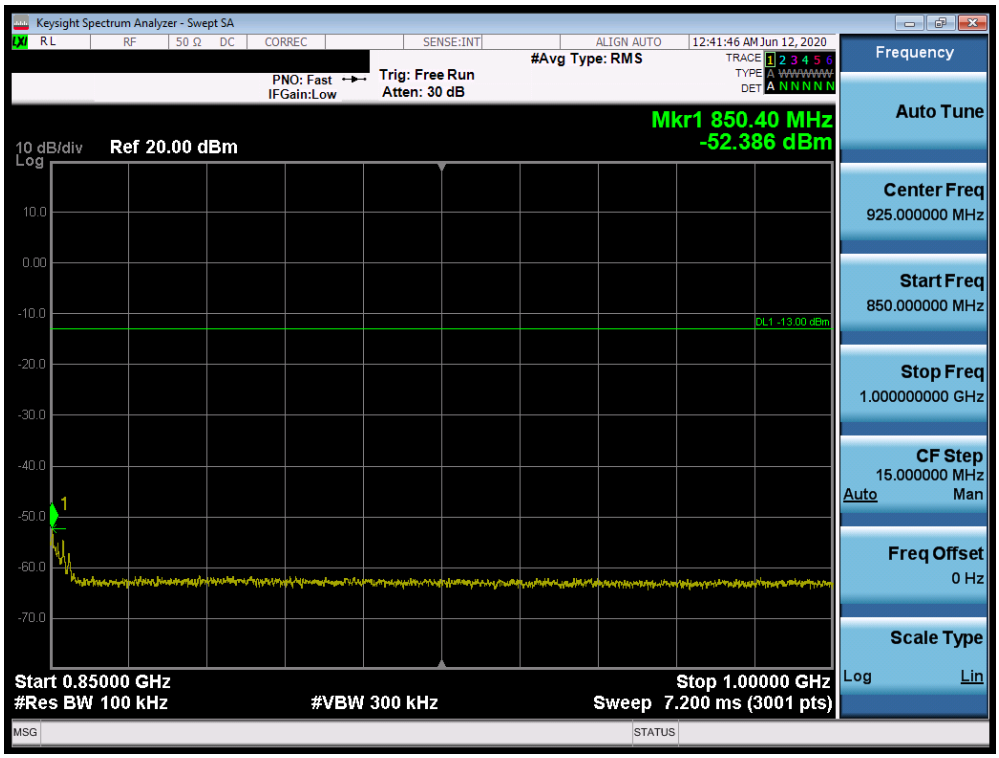
Plot 7-682. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



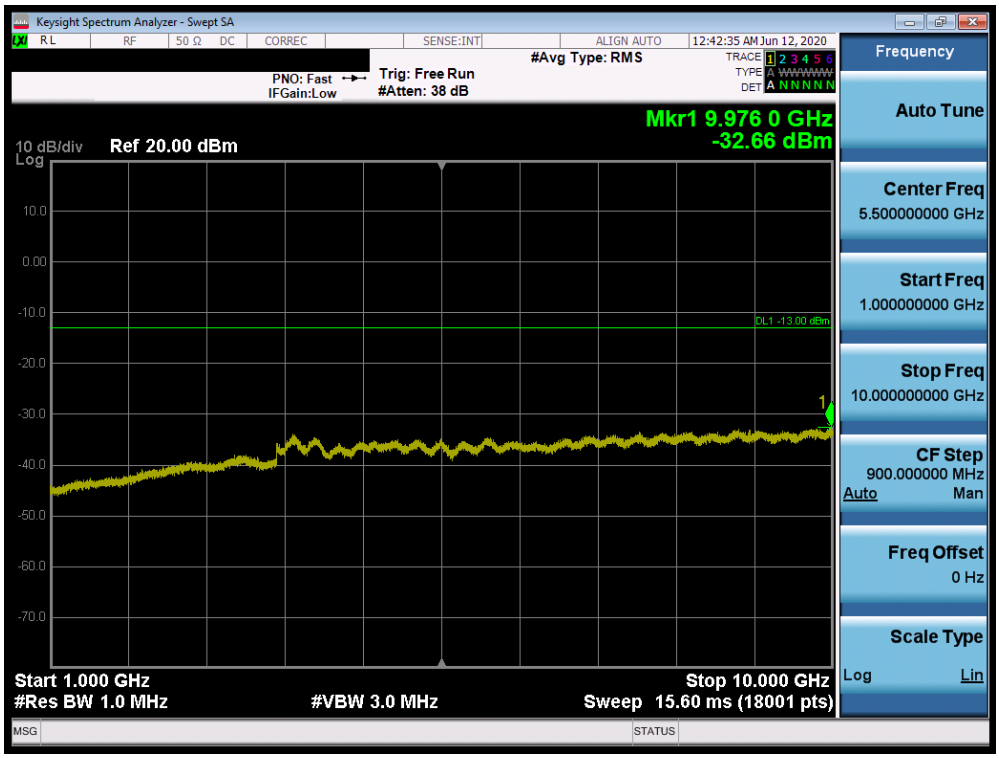
Plot 7-683. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



Plot 7-686. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

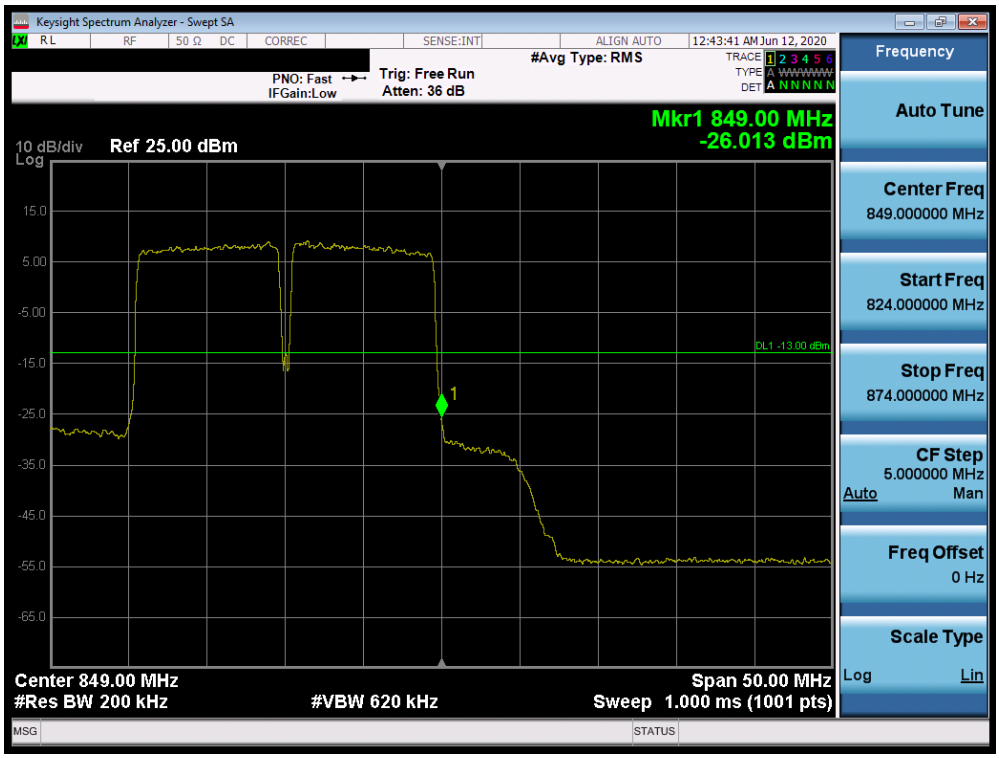


Plot 7-687. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Plot 7-688. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

Plot 7-689. Lower Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)



Plot 7-690. Upper Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

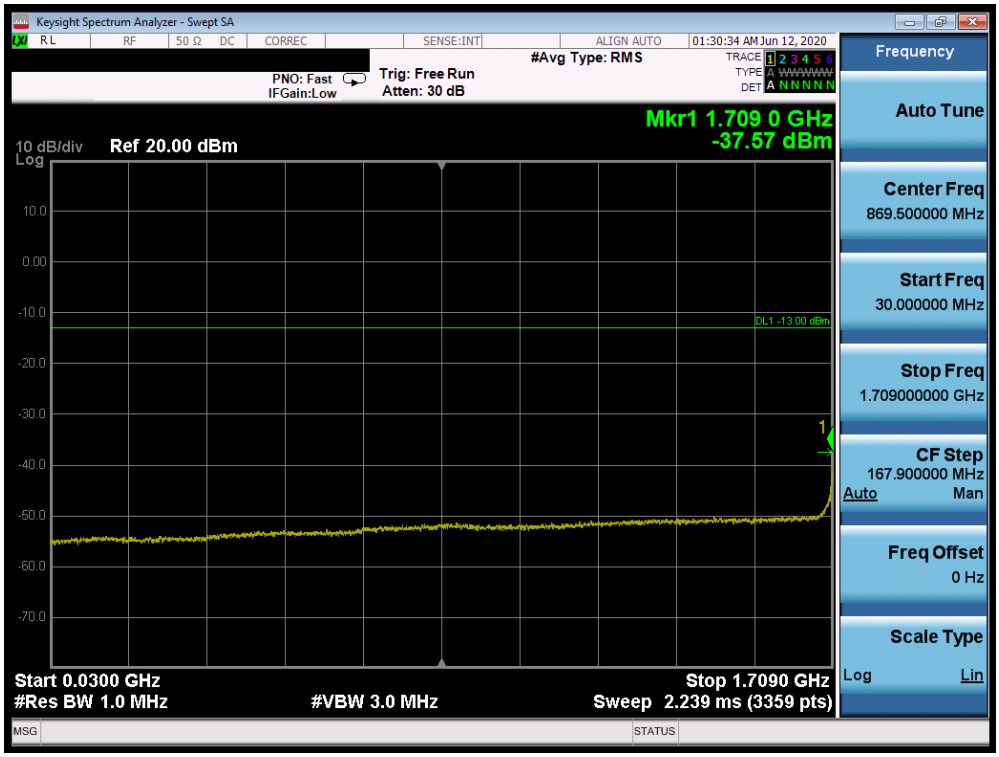
Uplink CA Configuration 66B/C

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	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B66	20	132072	1720	QPSK	1	99	LTE B66	20	132270	1739.8	QPSK	1	0	24.07
Max	LTE B66	20	132322	1745	QPSK	1	99	LTE B66	20	132520	1764.8	QPSK	1	0	24.12
Max	LTE B66	20	132572	1770	QPSK	1	0	LTE B66	20	132374	1750.2	QPSK	1	99	24.76

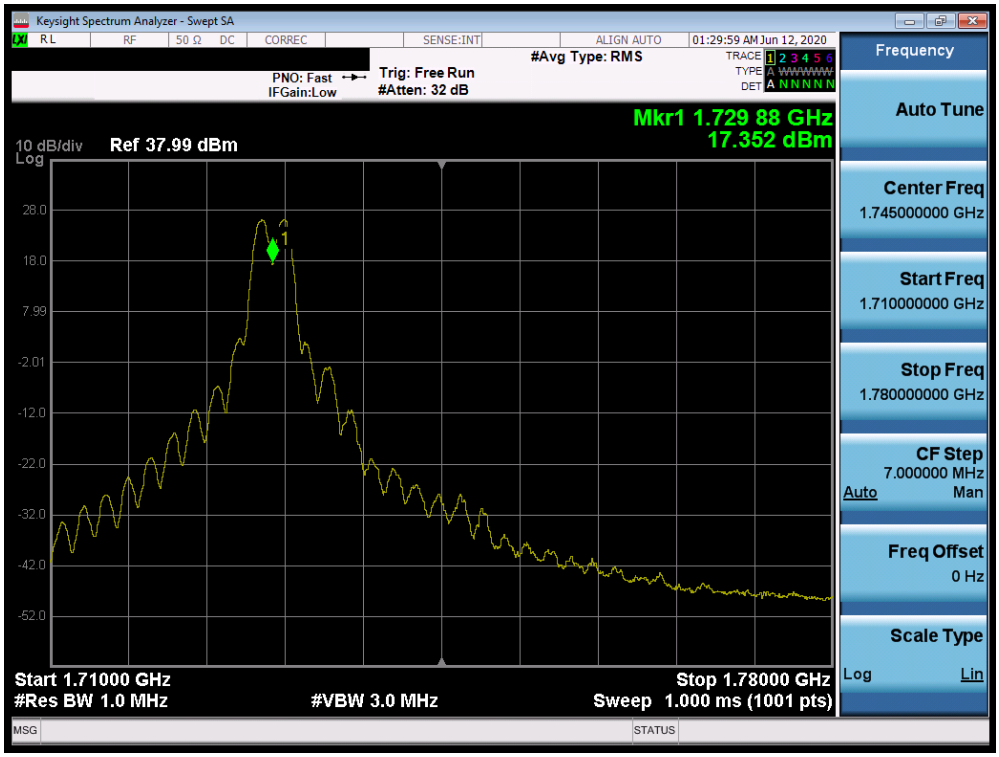
Table 7-5. Conducted Powers (B66 – 20MHz + 20MHz Channel Bandwidth – PCC/SCC: RB Size 1)

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	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B66	20	132572	1770	QPSK	100	0	LTE B66	20	132770	1789.8	QPSK	100	0	22.52
Max	LTE B66	20	132572	1770	16-QAM	100	0	LTE B66	20	132770	1789.8	16-QAM	100	0	21.34
Max	LTE B66	20	132572	1770	64-QAM	100	0	LTE B66	20	132770	1789.8	64-QAM	100	0	20.42
Max	LTE B66	20	132572	1770	256-QAM	100	0	LTE B66	20	132770	1789.8	256-QAM	100	0	18.66

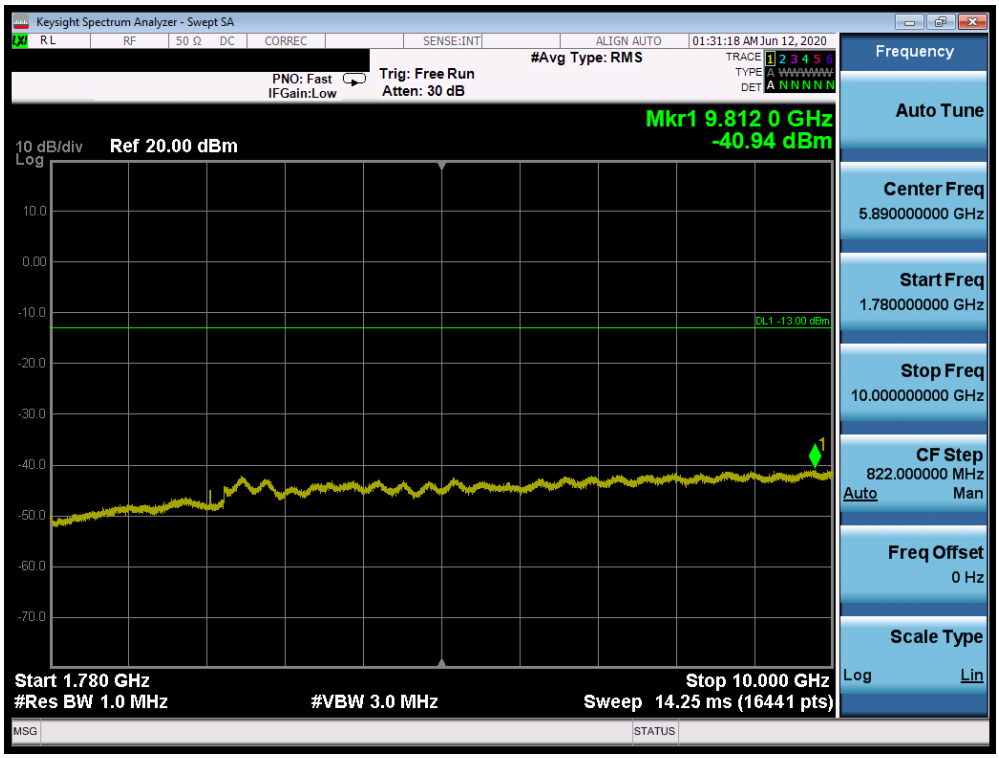
Table 7-6. Conducted Powers (B66 with Various Combinations for 20MHz + 20MHz Channel Bandwidth)



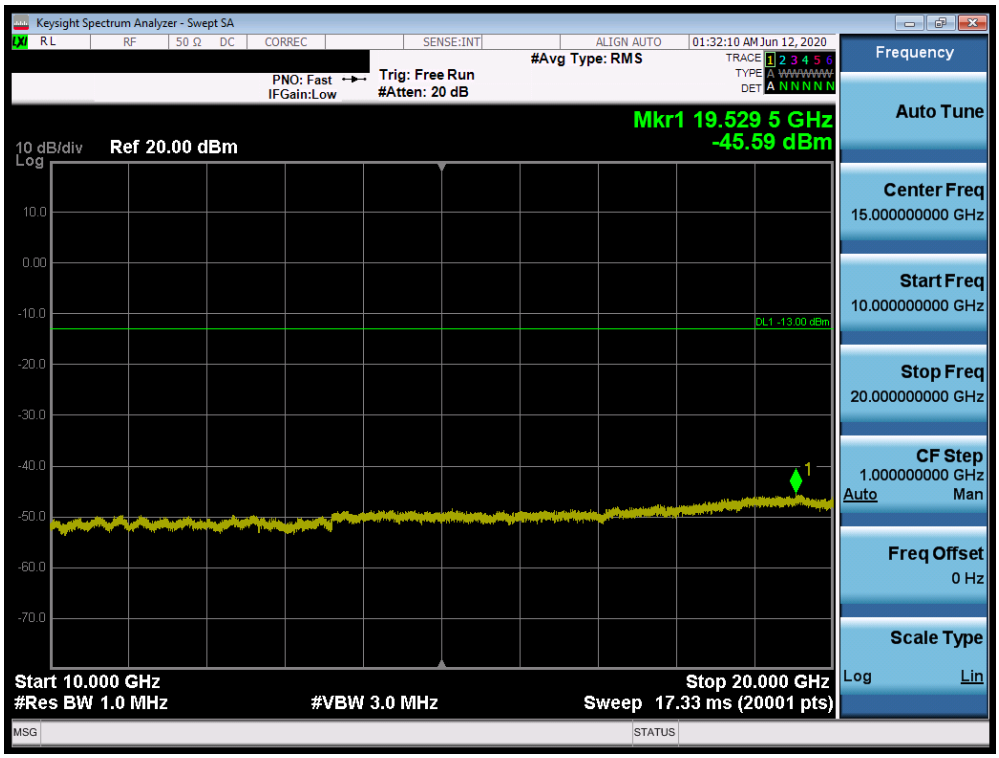
Plot 7-691. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



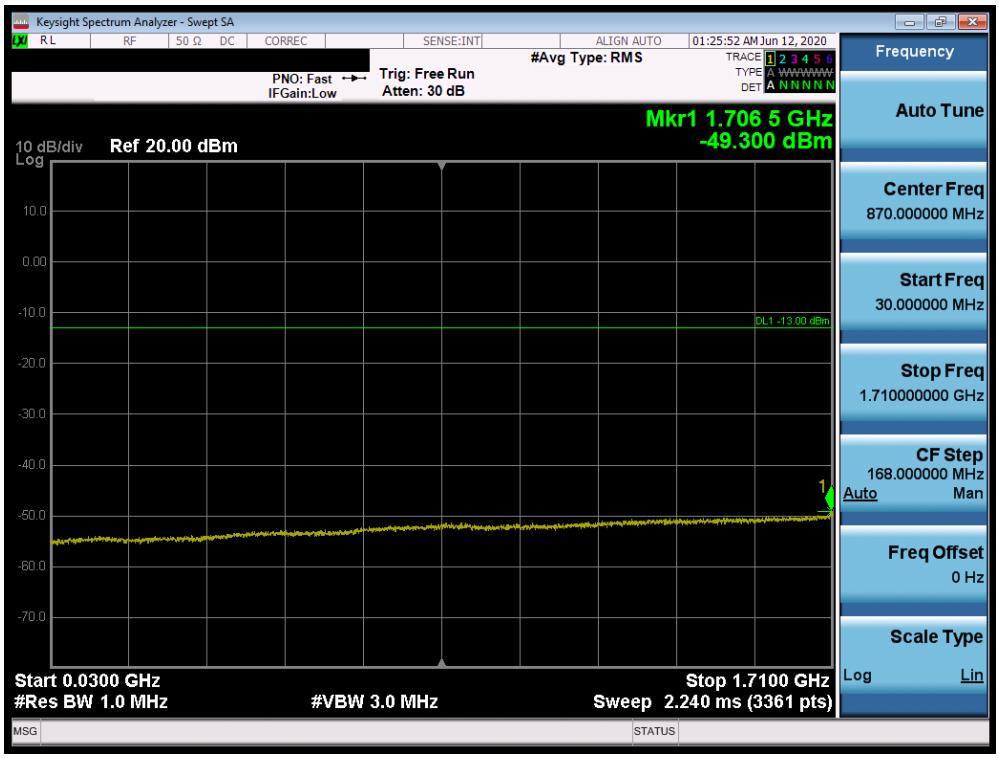
Plot 7-692. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



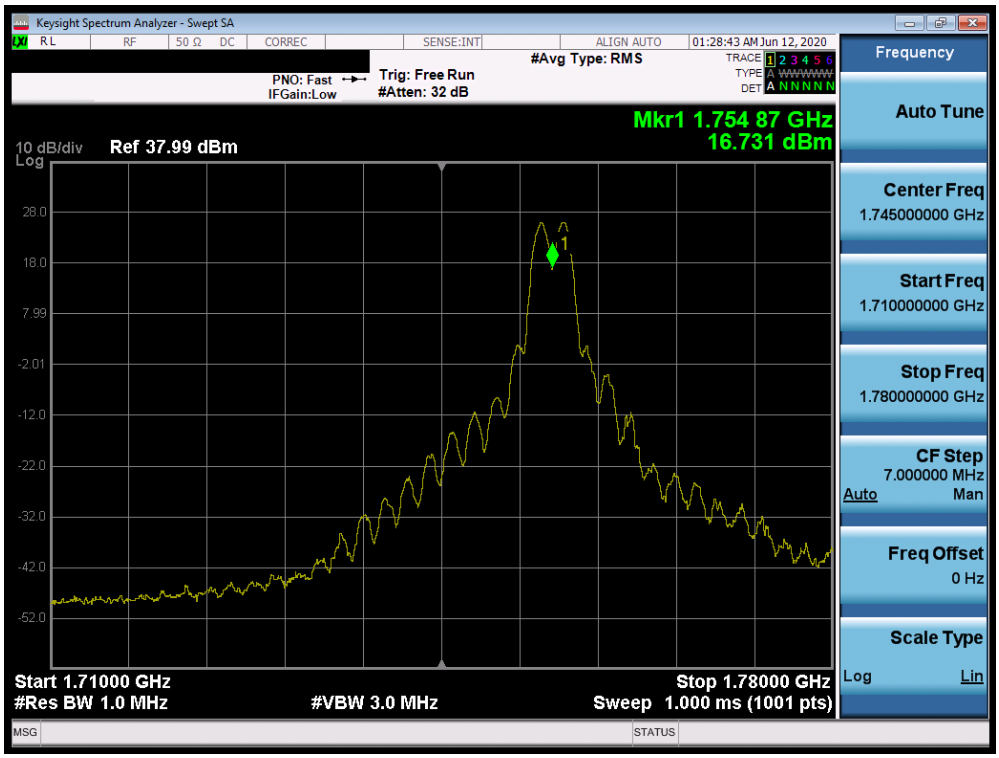
Plot 7-693. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



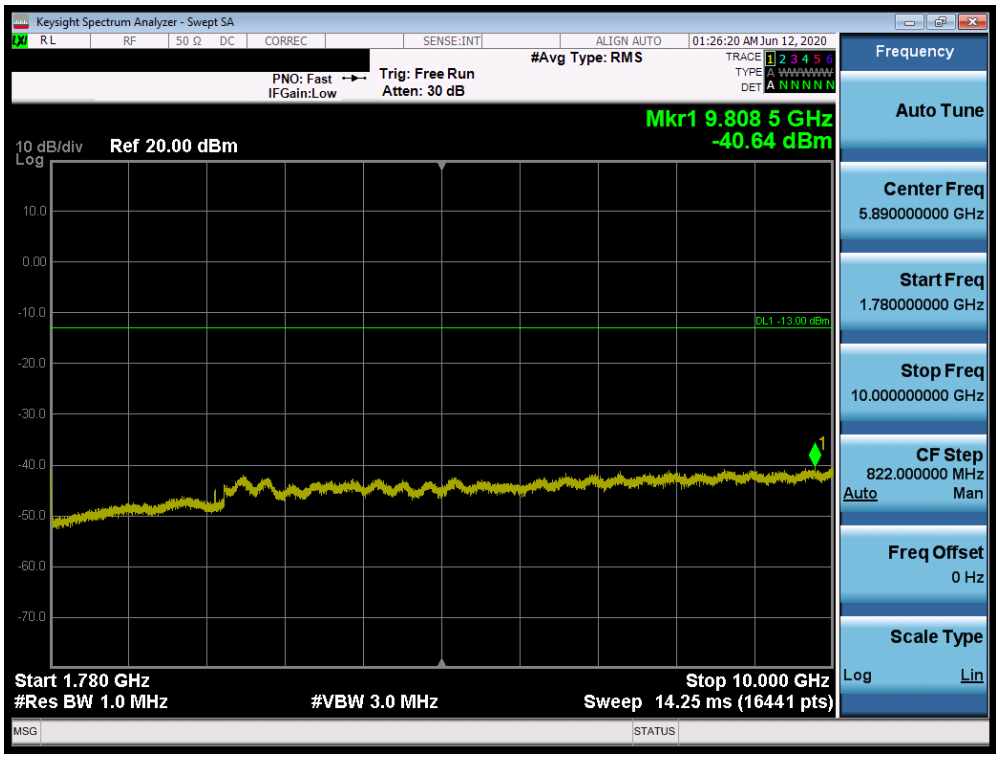
Plot 7-694. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



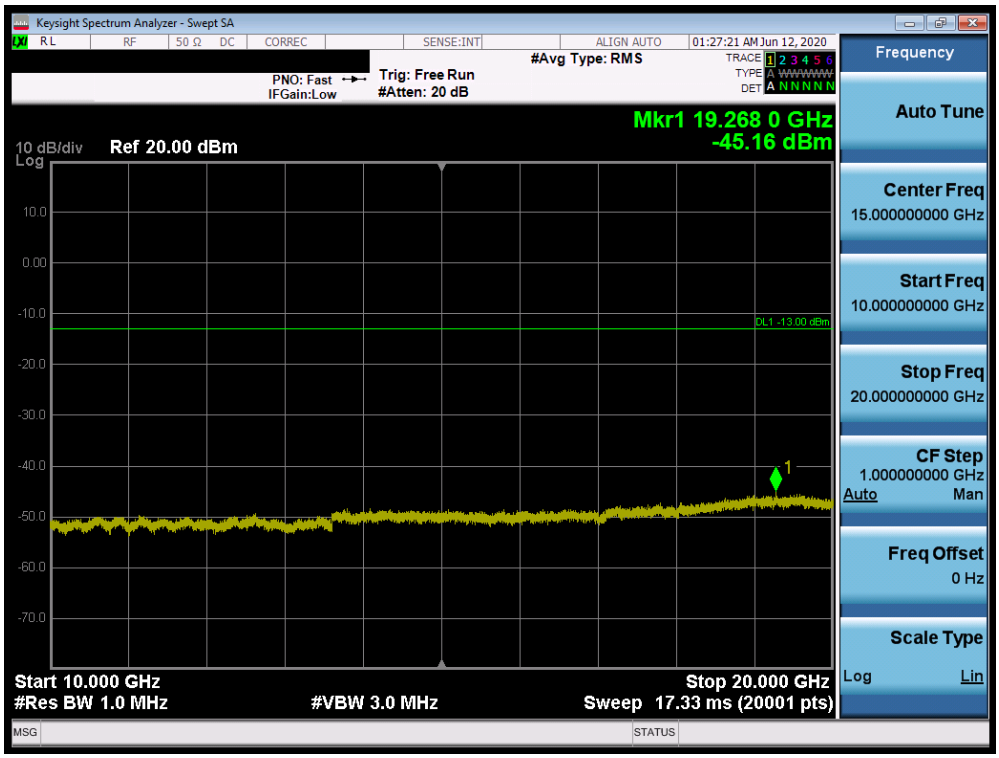
Plot 7-695. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



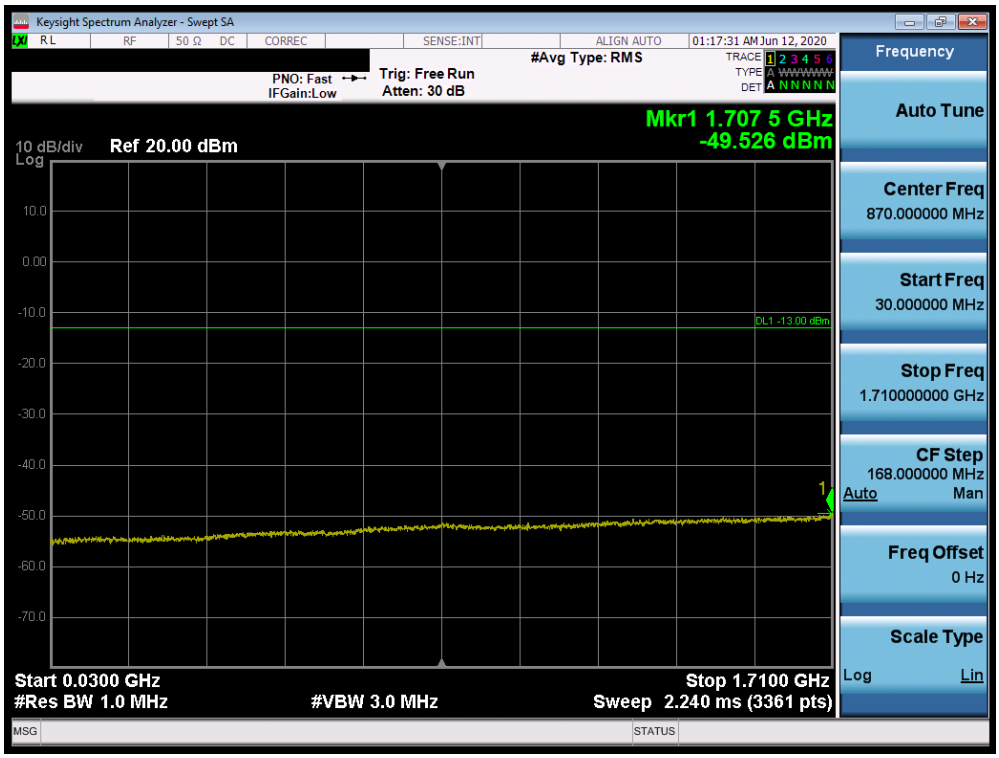
Plot 7-696. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



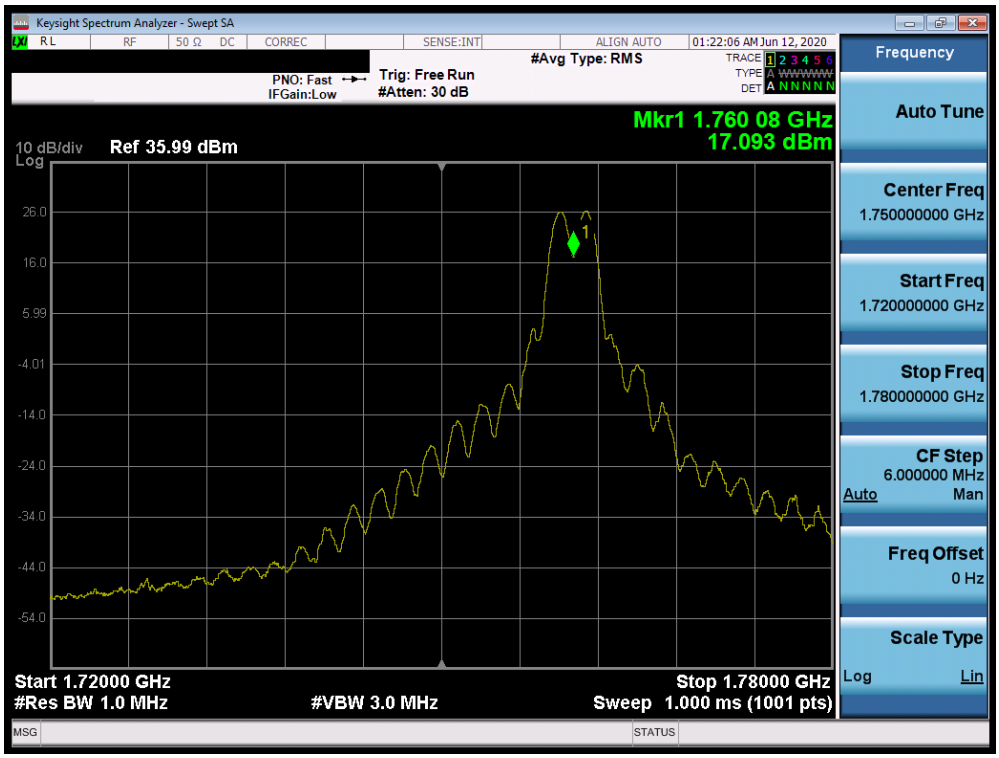
Plot 7-697. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



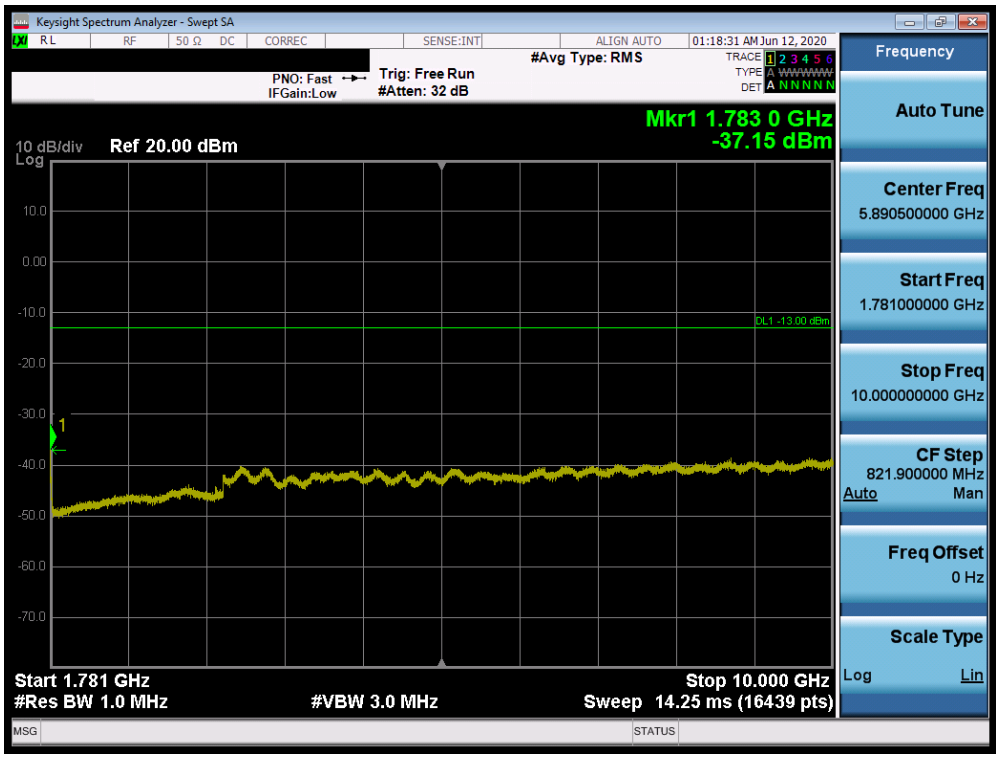
Plot 7-698. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



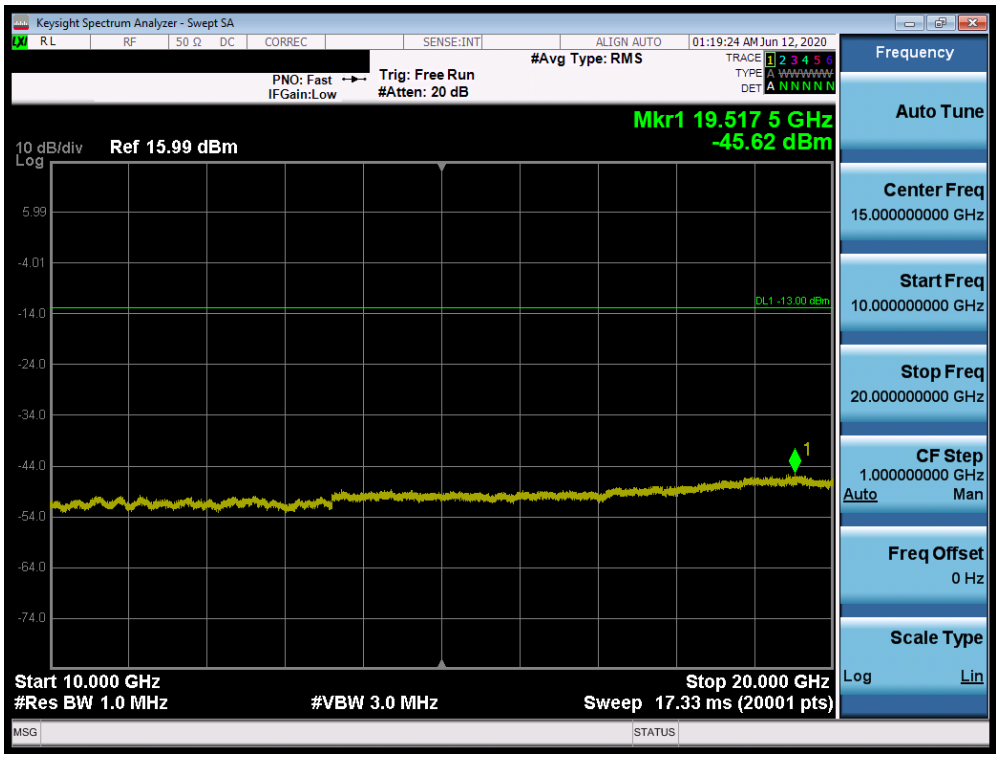
Plot 7-699. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)



Plot 7-700. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

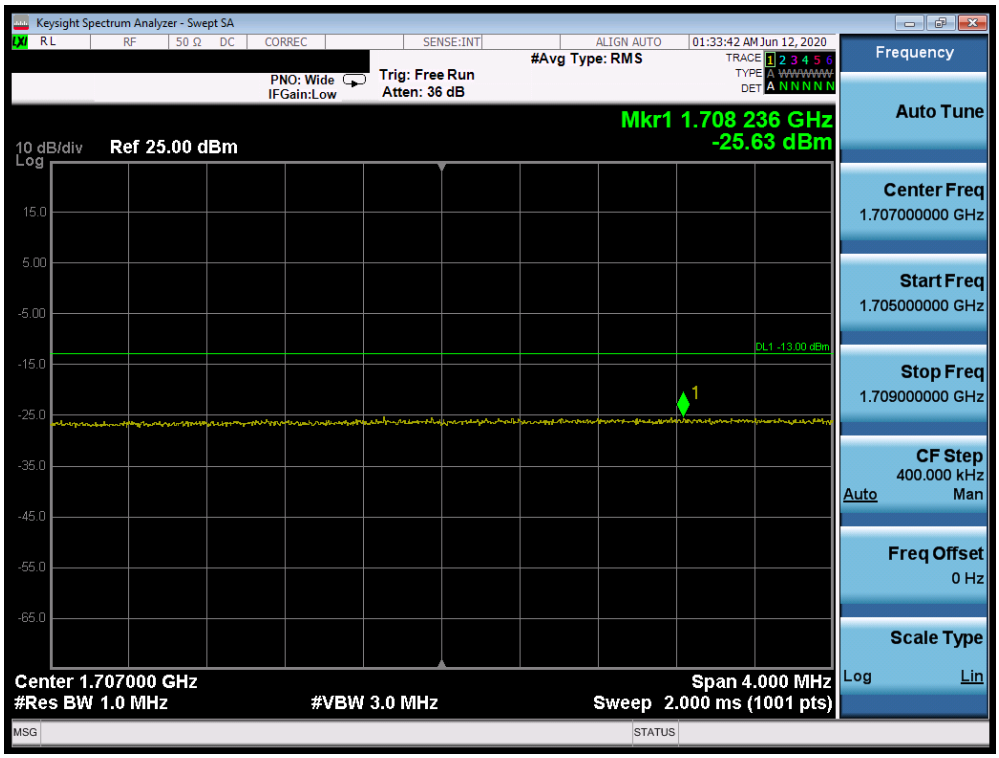


Plot 7-701. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

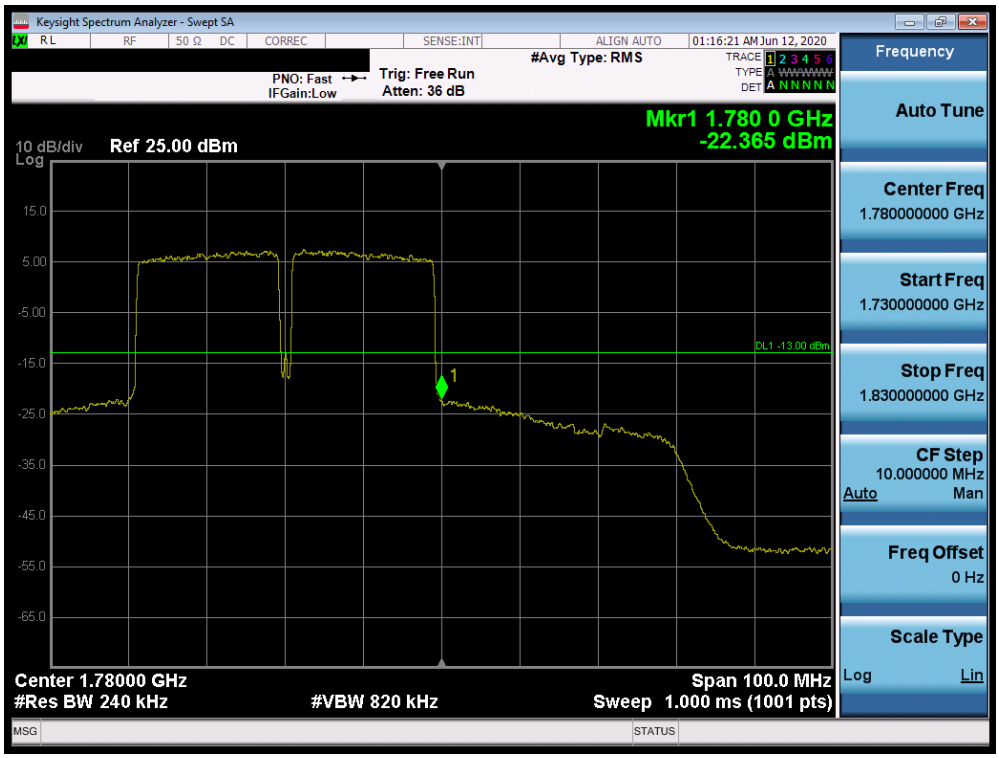


Plot 7-702. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

Plot 7-703. Lower Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)



Plot 7-704. Extended Lower Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)



Plot 7-705. Upper Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

Plot 7-706. Extended Upper Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

Uplink CA Configuration 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	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	25.25
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	25.72
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	**26.12**

Table 7-7. Conducted Powers (B41 – Left Carrier: RB Size 1 Offset Max Right Carrier: 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	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	41490	2680	QPSK	100	0	LTE B41	20	41292	2660.2	QPSK	100	0	25.12
Max	LTE B41	20	41490	2680	16-QAM	100	0	LTE B41	20	41292	2660.2	16-QAM	100	0	24.45
Max	LTE B41	20	41490	2680	64-QAM	100	0	LTE B41	20	41292	2660.2	64-QAM	100	0	23.39
Max	LTE B41	20	41490	2680	256-QAM	100	0	LTE B41	20	41292	2660.2	256-QAM	100	0	21.08

Table 7-8. Conducted Powers (B41 with Various Combinations for 20MHz Channel Bandwidth)

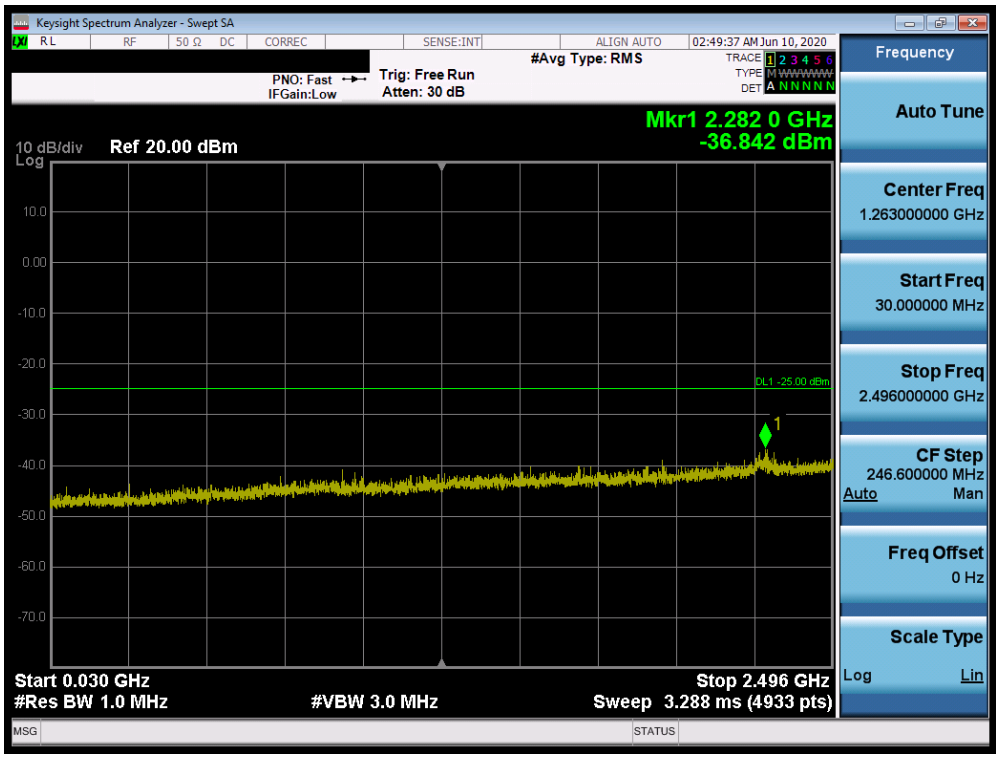


Table 7-707. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

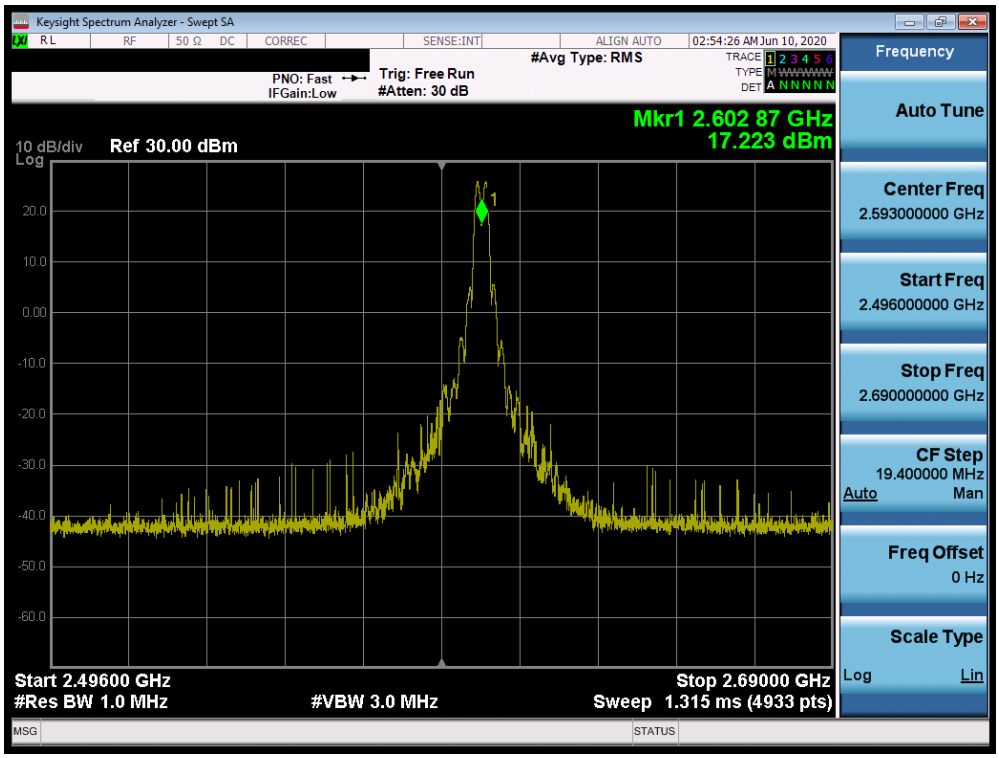


Table 7-708. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

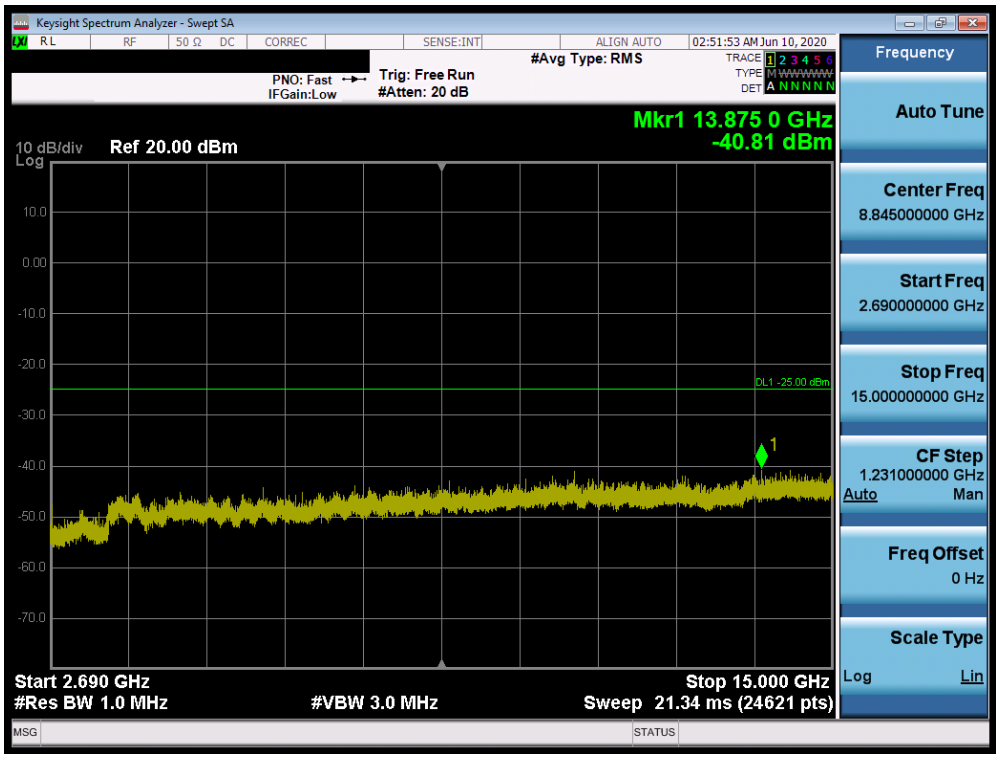


Table 7-709. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

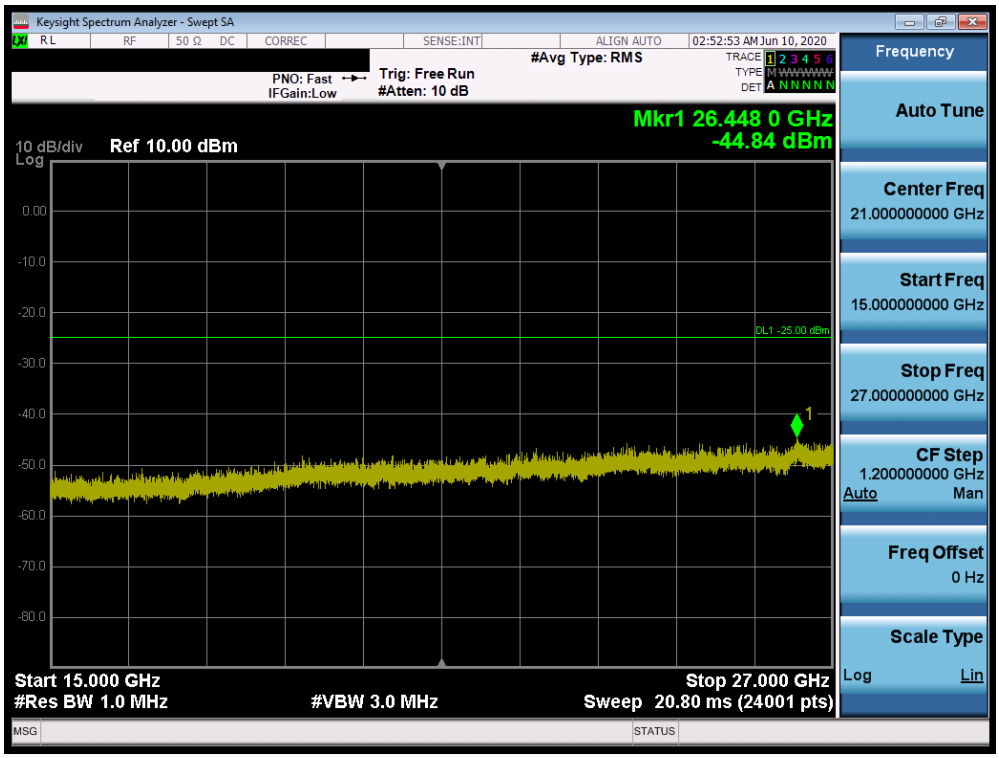


Table 7-710. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

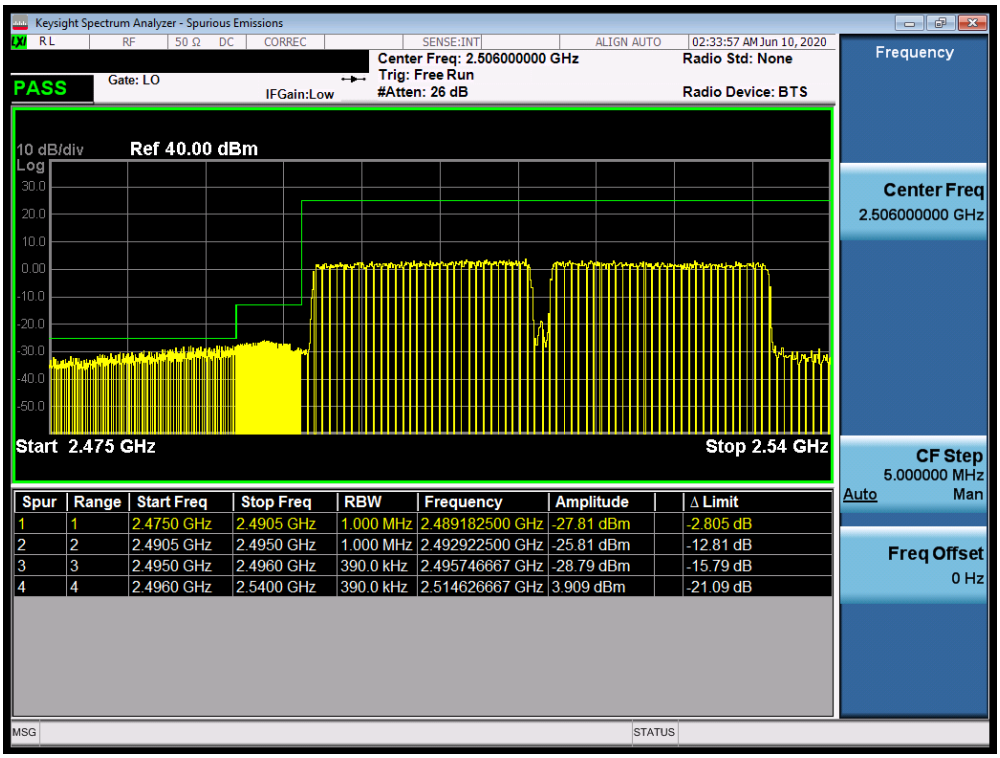
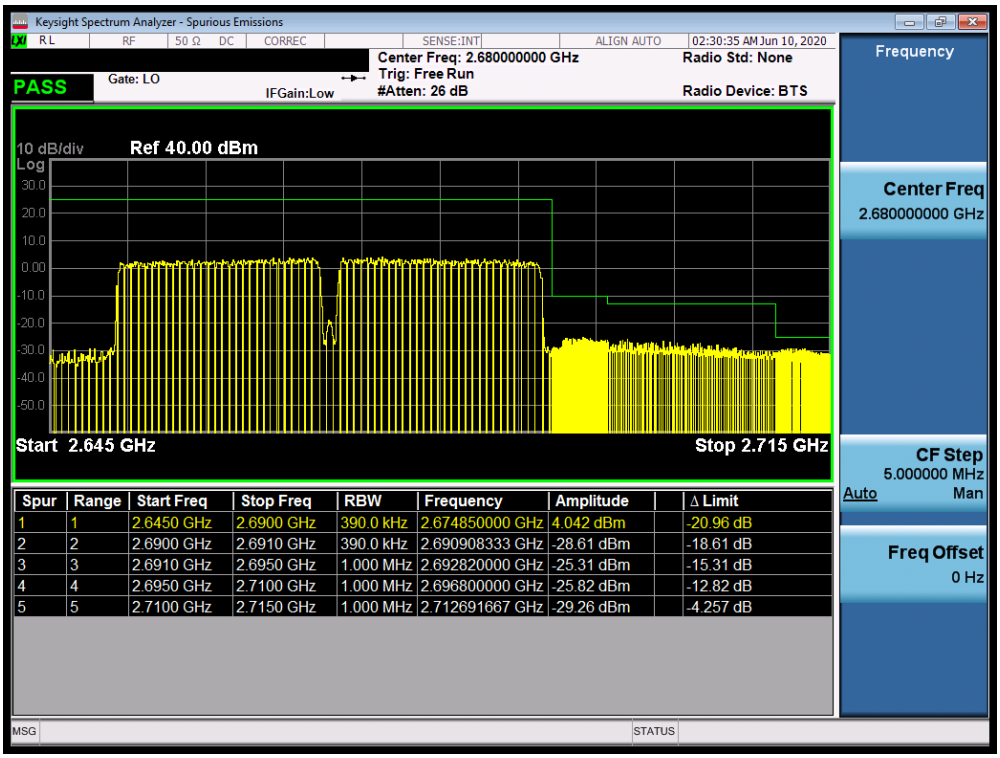


Table 7-711. Lower ACP Plot (Band 41 QPSK – Left Carrier:20 MHz Right Carrier:20 MHz – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6450 GHz	2.6900 GHz	390.0 kHz	2.674850000 GHz	4.042 dBm	-20.96 dB
2	2	2.6900 GHz	2.6910 GHz	390.0 kHz	2.690908333 GHz	-28.61 dBm	-18.61 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692820000 GHz	-25.31 dBm	-15.31 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.696800000 GHz	-25.82 dBm	-12.82 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.712691667 GHz	-29.26 dBm	-4.257 dB

Table 7-712. Upper ACP Plot (Band 41 QPSK – Left Carrier:20 MHz Right Carrier:20 MHz – Full RB)

7.7 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.
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".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Setup

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

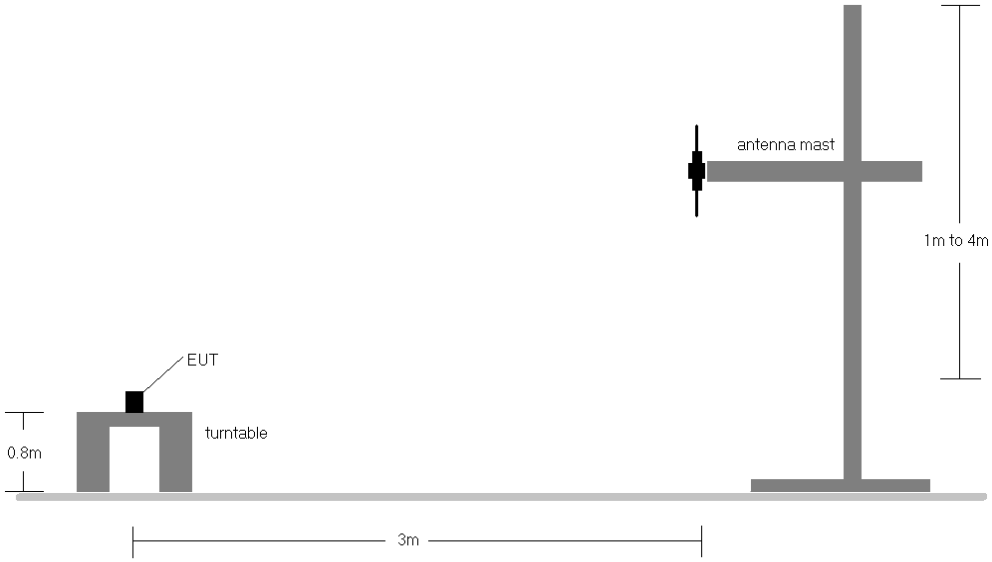


Figure 7-6. Radiated Test Setup <1GHz

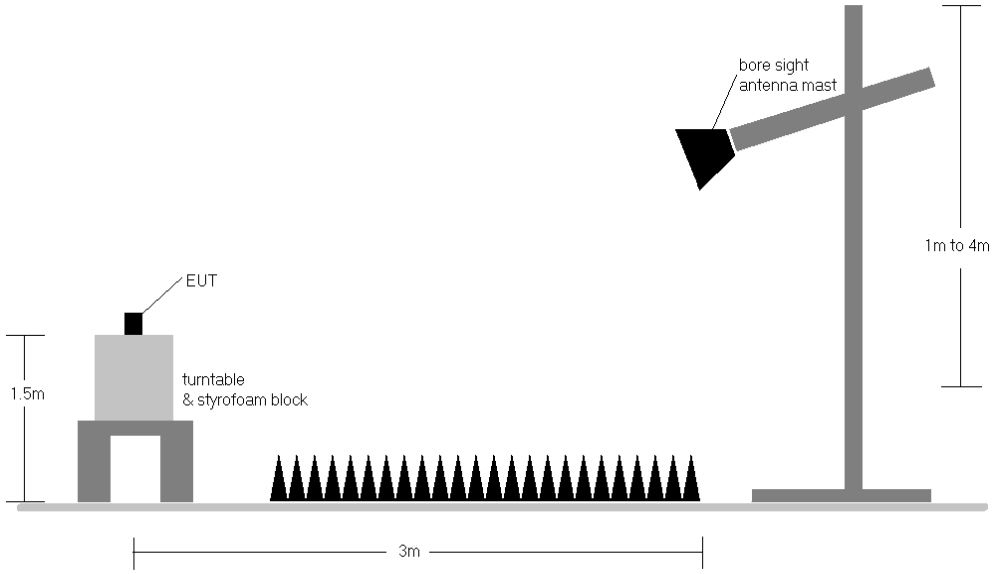


Figure 7-7. Radiated Test Setup >1GHz

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	325	298	1 / 0	17.24	2.99	**18.09**	0.064	34.77	-16.68
680.50	5	QPSK	H	299	275	1 / 24	16.91	3.19	17.95	0.062	34.77	-16.83
695.50	5	QPSK	H	306	270	1 / 24	16.82	3.38	18.04	0.064	34.77	-16.73
695.50	5	16-QAM	H	306	270	1 / 24	16.46	3.38	**17.68**	0.059	34.77	-17.09
695.50	5	64-QAM	H	306	270	1 / 24	15.42	3.38	**16.64**	0.046	34.77	-18.13
695.50	5	256-QAM	H	306	270	1 / 24	13.46	3.38	14.68	0.029	34.77	-20.09
668.00	10	QPSK	H	321	285	1 / 0	17.17	3.02	18.05	0.064	34.77	-16.72
680.50	10	QPSK	H	300	277	1 / 49	17.10	3.19	18.14	0.065	34.77	-16.64
693.00	10	QPSK	H	306	277	1 / 49	16.96	3.34	**18.15**	0.065	34.77	-16.62
680.50	10	16-QAM	H	300	277	1 / 49	16.84	3.19	**17.88**	0.061	34.77	-16.90
693.00	10	64-QAM	H	306	277	1 / 49	15.59	3.34	**16.78**	0.048	34.77	-17.99
693.00	10	256-QAM	H	306	277	1 / 49	13.37	3.34	**14.56**	**0.029**	34.77	-20.21
670.50	15	QPSK	H	322	290	1 / 0	17.07	3.06	17.98	0.063	34.77	-16.79
680.50	15	QPSK	H	299	280	1 / 74	17.09	3.19	**18.13**	0.065	34.77	-16.65
690.50	15	QPSK	H	311	281	1 / 74	16.91	3.31	18.07	0.064	34.77	-16.70
690.50	15	16-QAM	H	311	281	1 / 74	16.56	3.31	**17.72**	0.059	34.77	-17.05
690.50	15	64-QAM	H	311	281	1 / 74	15.62	3.31	**16.78**	0.048	34.77	-17.99
690.50	15	256-QAM	H	311	281	1 / 74	13.57	3.31	**14.73**	**0.030**	34.77	-20.04
673.00	20	QPSK	H	321	285	1 / 0	16.85	3.09	17.79	0.060	34.77	-16.98
680.50	20	QPSK	H	299	275	1 / 99	16.98	3.19	18.02	0.063	34.77	-16.76
688.00	20	QPSK	H	306	272	1 / 99	17.10	3.28	**18.23**	**0.067**	34.77	-16.54
688.00	20	16-QAM	H	306	272	1 / 99	16.39	3.28	**17.52**	0.057	34.77	-17.25
688.00	20	64-QAM	H	306	272	1 / 99	15.41	3.28	**16.54**	0.045	34.77	-18.23
688.00	20	256-QAM	H	306	272	1 / 99	13.56	3.28	**14.69**	**0.029**	34.77	-20.08
688.00	20	QPSK	V	254	113	1 / 99	16.72	3.28	17.85	0.061	34.77	-16.92

Table 7-9. ERP Data (Band 71)

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]
20 MHz	π/2 BPSK	673.0	H	102.0	273.0	3.09	1 / 50	13.27	14.21	0.026	34.77	-20.56
		680.5	H	166.0	280.0	3.19	1 / 50	13.13	14.17	0.026	34.77	-20.61
		688.0	H	166.0	272.0	3.28	1 / 50	14.98	**16.11**	0.041	34.77	-18.66
	QPSK	673.0	H	102.0	273.0	3.09	1 / 50	14.03	14.97	0.031	34.77	-19.80
		680.5	H	166.0	280.0	3.19	1 / 50	14.07	15.11	0.032	34.77	-19.67
		688.0	H	166.0	272.0	3.28	1 / 50	15.03	**16.16**	0.041	34.77	-18.61
	16-QAM	688.0	H	166.0	272.0	3.28	1 / 50	14.21	**15.34**	0.034	34.77	-19.43
	64-QAM	688.0	H	166.0	272.0	3.28	1 / 50	12.03	**13.16**	0.021	34.77	-21.61
	256-QAM	680.5	H	166.0	280.0	3.19	1 / 50	10.93	**11.97**	0.016	34.77	-22.81
15 MHz	π/2 BPSK	670.5	H	165.0	271.0	3.06	1 / 37	13.32	14.23	0.026	34.77	-20.54
		680.5	H	166.0	280.0	3.19	1 / 37	12.89	13.93	0.025	34.77	-20.85
		690.5	H	163.0	272.0	3.31	1 / 37	14.88	**16.04**	0.040	34.77	-18.73
	QPSK	670.5	H	165.0	271.0	3.06	1 / 37	13.64	14.55	0.029	34.77	-20.22
		680.5	H	166.0	280.0	3.19	1 / 37	13.80	14.84	0.030	34.77	-19.94
		690.5	H	163.0	272.0	3.31	1 / 37	14.76	**15.92**	0.039	34.77	-18.85
	16-QAM	690.5	H	163.0	272.0	3.31	1 / 37	14.32	**15.48**	0.035	34.77	-19.29
	64-QAM	690.5	H	163.0	272.0	3.31	1 / 37	11.99	**13.15**	0.021	34.77	-21.62
	256-QAM	680.5	H	166.0	280.0	3.19	1 / 37	10.72	**11.76**	0.015	34.77	-23.02
10 MHz	π/2 BPSK	668.0	H	165.0	266.0	3.02	1 / 25	13.11	13.99	0.025	34.77	-20.78
		680.5	H	163.0	280.0	3.19	1 / 25	13.18	14.22	0.026	34.77	-20.56
		693.0	H	161.0	270.0	3.34	1 / 25	14.90	**16.09**	0.041	34.77	-18.68
	QPSK	668.0	H	165.0	266.0	3.02	1 / 25	13.73	14.61	0.029	34.77	-20.16
		680.5	H	163.0	280.0	3.19	1 / 25	13.84	14.88	0.031	34.77	-19.90
		693.0	H	161.0	270.0	3.34	1 / 25	14.78	**15.97**	0.040	34.77	-18.80
	16-QAM	693.0	H	161.0	270.0	3.34	1 / 25	13.66	**14.85**	0.031	34.77	-19.92
	64-QAM	680.5	H	163.0	280.0	3.19	1 / 25	11.78	**12.82**	0.019	34.77	-21.96
	256-QAM	680.5	H	163.0	280.0	3.19	1 / 25	10.40	**11.44**	0.014	34.77	-23.34
5 MHz	π/2 BPSK	665.5	H	162.0	264.0	2.99	1 / 13	13.21	14.05	0.025	34.77	-20.72
		680.5	H	163.0	280.0	3.19	1 / 13	12.96	14.00	0.025	34.77	-20.78
		695.5	H	162.0	275.0	3.38	1 / 13	14.84	**16.06**	0.040	34.77	-18.71
	QPSK	665.5	H	162.0	264.0	2.99	1 / 13	13.97	14.81	0.030	34.77	-19.96
		680.5	H	163.0	280.0	3.19	1 / 13	13.91	14.95	0.031	34.77	-19.83
		695.5	H	162.0	275.0	3.38	1 / 13	14.80	**16.02**	0.040	34.77	-18.75
	16-QAM	695.5	H	162.0	275.0	3.38	1 / 13	14.05	**15.27**	0.034	34.77	-19.50
	64-QAM	680.5	H	163.0	280.0	3.19	1 / 13	11.88	**12.92**	0.020	34.77	-21.86
	256-QAM	680.5	H	163.0	280.0	3.19	1 / 13	10.44	11.48	0.014	34.77	-23.30
	QPSK (CP-OFDM)	688.0	H	179.0	272.0	3.28	1 / 50	10.81	**11.94**	0.016	34.77	-22.83
	PSK (Opposite Pc	688.0	V	224.0	263.0	3.28	1 / 50	11.72	12.85	0.019	34.77	-21.92
	QPSK (WCP)	688.0	H	186.0	265.0	3.28	1 / 50	7.47	8.60	0.007	34.77	-26.17

Table 7-10. ERP Data (Band n71)

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	V	175	320	1 / 5	16.72	4.56	19.13	0.082	34.77	-15.64	21.28	0.134	36.99	-15.71
707.50	1.4	QPSK	V	168	320	1 / 5	16.93	4.62	**19.40**	0.087	34.77	-15.37	**21.55**	0.143	36.99	-15.44
715.30	1.4	QPSK	V	177	320	1 / 0	16.69	4.72	19.26	0.084	34.77	-15.51	21.41	0.138	36.99	-15.58
707.50	1.4	16-QAM	V	168	320	1 / 5	16.42	4.62	**18.89**	0.078	34.77	-15.88	**21.04**	0.127	36.99	-15.95
699.70	1.4	64-QAM	V	175	320	1 / 5	15.22	4.56	**17.63**	0.058	34.77	-17.14	**19.78**	0.095	36.99	-17.21
699.70	1.4	256-QAM	V	175	320	1 / 5	13.57	4.56	**15.98**	**0.040**	34.77	-18.79	**18.13**	**0.065**	36.99	-18.86
700.50	3	QPSK	V	178	320	1 / 14	16.80	4.59	19.24	0.084	34.77	-15.53	21.39	0.138	36.99	-15.60
707.50	3	QPSK	V	168	321	1 / 14	17.02	4.62	**19.49**	0.089	34.77	-15.28	**21.64**	0.146	36.99	-15.35
714.50	3	QPSK	V	170	317	1 / 0	16.83	4.71	19.39	0.087	34.77	-15.38	21.54	0.143	36.99	-15.45
707.50	3	16-QAM	V	168	321	1 / 14	16.50	4.62	**18.97**	0.079	34.77	-15.80	**21.12**	0.130	36.99	-15.87
700.50	3	64-QAM	V	178	320	1 / 14	15.32	4.59	**17.76**	0.060	34.77	-17.01	**19.91**	0.098	36.99	-17.08
700.50	3	256-QAM	V	178	320	1 / 14	13.66	4.59	**16.10**	**0.041**	34.77	-18.67	**18.25**	**0.067**	36.99	-18.74
701.50	5	QPSK	V	177	320	1 / 24	16.79	4.60	19.24	0.084	34.77	-15.53	21.39	0.138	36.99	-15.60
707.50	5	QPSK	V	168	326	1 / 24	17.09	4.62	**19.56**	0.090	34.77	-15.21	**21.71**	0.148	36.99	-15.28
713.50	5	QPSK	V	170	317	1 / 0	16.76	4.70	19.31	0.085	34.77	-15.46	21.46	0.140	36.99	-15.53
707.50	5	16-QAM	V	168	326	1 / 24	16.28	4.62	**18.75**	0.075	34.77	-16.02	**20.90**	0.123	36.99	-16.09
701.50	5	64-QAM	V	177	320	1 / 24	15.15	4.60	**17.60**	0.058	34.77	-17.17	**19.75**	0.094	36.99	-17.24
701.50	5	256-QAM	V	177	320	1 / 24	13.39	4.60	**15.84**	**0.038**	34.77	-18.93	**17.99**	**0.063**	36.99	-19.00
704.00	10	QPSK	V	173	315	1 / 49	17.09	4.58	19.52	0.090	34.77	-15.25	21.67	0.147	36.99	-15.32
707.50	10	QPSK	V	168	326	1 / 49	17.30	4.62	**19.77**	**0.095**	34.77	-15.00	**21.92**	**0.156**	36.99	-15.07
711.00	10	QPSK	V	170	317	1 / 0	17.11	4.67	19.63	0.092	34.77	-15.14	21.78	0.151	36.99	-15.21
707.50	10	16-QAM	V	168	326	1 / 49	16.54	4.62	**19.01**	0.080	34.77	-15.76	**21.16**	0.131	36.99	-15.83
704.00	10	64-QAM	V	173	315	1 / 49	15.21	4.58	**17.64**	0.058	34.77	-17.13	**19.79**	0.095	36.99	-17.20
704.00	10	256-QAM	V	173	315	1 / 49	13.53	4.58	**15.96**	**0.039**	34.77	-18.81	**18.11**	**0.065**	36.99	-18.88
707.50	10	QPSK	H	288	279	1 / 49	16.53	4.62	19.00	0.080	34.77	-15.77	21.15	0.130	36.99	-15.84
707.50	10 (WCP)	QPSK	V	187	165	1 / 49	13.03	4.62	15.50	0.036	34.77	-19.27	17.65	0.058	36.99	-19.34

Table 7-11. 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]
779.50	5	QPSK	H	254	280	1 / 24	14.09	5.82	**17.76**	0.060	34.77	-17.02	**19.91**	0.098	36.99	-17.08
782.00	5	QPSK	H	253	276	1 / 24	13.79	5.89	17.53	0.057	34.77	-17.24	19.68	0.093	36.99	-17.31
784.50	5	QPSK	H	255	277	1 / 24	13.76	5.92	17.53	0.057	34.77	-17.24	19.68	0.093	36.99	-17.31
782.00	5	16-QAM	H	253	276	1 / 24	13.58	5.89	**17.32**	0.054	34.77	-17.45	**19.47**	0.089	36.99	-17.52
784.50	5	64-QAM	H	255	277	1 / 24	12.90	5.92	**16.67**	0.046	34.77	-18.10	**18.82**	0.076	36.99	-18.17
782.00	5	256-QAM	H	253	276	1 / 24	12.37	5.89	**16.11**	**0.041**	34.77	-18.66	**18.26**	**0.067**	36.99	-18.73
782.00	10	QPSK	H	253	276	1 / 49	14.28	5.89	**18.02**	**0.063**	34.77	-16.75	**20.17**	**0.104**	36.99	-16.82
782.00	10	16-QAM	H	253	276	1 / 49	13.67	5.89	**17.41**	0.055	34.77	-17.36	**19.56**	0.090	36.99	-17.43
782.00	10	64-QAM	H	253	276	1 / 49	12.64	5.89	**16.38**	0.043	34.77	-18.39	**18.53**	0.071	36.99	-18.46
782.00	10	256-QAM	H	253	276	1 / 49	10.18	5.89	**13.92**	**0.025**	34.77	-20.85	**16.07**	**0.040**	36.99	-20.92
782.00	10	QPSK	V	176	264	1 / 49	14.17	5.89	17.91	0.062	34.77	-16.86	20.06	0.101	36.99	-16.93
782.00	10 (WCP)	QPSK	H	218	186	1 / 49	10.85	5.89	14.59	0.029	34.77	-20.18	16.74	0.047	36.99	-20.25

Table 7-12. 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	V	155	260	1 / 5	14.72	6.36	18.92	0.078	38.45	-19.53	21.07	0.128	40.61	-19.54
836.50	1.4	QPSK	V	145	270	1 / 5	15.23	6.38	19.46	0.088	38.45	-18.99	21.61	0.145	40.61	-19.00
848.30	1.4	QPSK	V	145	270	1 / 0	15.31	6.50	**19.66**	0.093	38.45	-18.79	**21.81**	0.152	40.61	-18.79
848.30	1.4	16-QAM	V	145	270	1 / 0	14.36	6.50	**18.71**	0.074	38.45	-19.74	**20.86**	0.122	40.61	-19.74
848.30	1.4	64-QAM	V	145	270	1 / 0	13.68	6.50	**18.03**	0.064	38.45	-20.42	**20.18**	0.104	40.61	-20.42
824.70	1.4	256-QAM	V	155	260	1 / 5	11.38	6.36	**15.58**	**0.036**	38.45	-22.87	**17.73**	**0.059**	40.61	-22.88
825.50	3	QPSK	V	145	266	1 / 14	14.80	6.36	19.01	0.080	38.45	-19.44	21.16	0.131	40.61	-19.45
836.50	3	QPSK	V	145	274	1 / 14	15.26	6.38	19.49	0.089	38.45	-18.96	21.64	0.146	40.61	-18.97
847.50	3	QPSK	V	145	266	1 / 0	15.53	6.49	**19.88**	0.097	38.45	-18.57	**22.03**	0.159	40.61	-18.58
847.50	3	16-QAM	V	145	266	1 / 0	14.44	6.49	**18.79**	0.076	38.45	-19.66	**20.94**	0.124	40.61	-19.67
847.50	3	64-QAM	V	145	266	1 / 0	13.62	6.49	**17.97**	0.063	38.45	-20.48	**20.12**	0.103	40.61	-20.49
847.50	3	256-QAM	V	145	266	1 / 0	11.27	6.49	**15.62**	**0.036**	38.45	-22.83	**17.77**	**0.060**	40.61	-22.84
826.50	5	QPSK	V	144	266	1 / 24	14.64	6.37	18.86	0.077	38.45	-19.59	21.01	0.126	40.61	-19.59
836.50	5	QPSK	V	141	274	1 / 24	15.20	6.38	19.43	0.088	38.45	-19.02	21.58	0.144	40.61	-19.03
846.50	5	QPSK	V	145	266	1 / 0	15.60	6.48	**19.93**	**0.098**	38.45	-18.52	**22.08**	**0.162**	40.61	-18.53
846.50	5	16-QAM	V	145	266	1 / 0	14.47	6.48	**18.80**	0.076	38.45	-19.65	**20.95**	0.125	40.61	-19.66
846.50	5	64-QAM	V	145	266	1 / 0	13.68	6.48	**18.01**	0.063	38.45	-20.44	**20.16**	0.104	40.61	-20.45
846.50	5	256-QAM	V	145	266	1 / 0	11.36	6.48	**15.69**	**0.037**	38.45	-22.76	**17.84**	**0.061**	40.61	-22.77
829.00	10	QPSK	V	141	260	1 / 49	14.94	6.40	19.19	0.083	38.45	-19.26	21.34	0.136	40.61	-19.27
836.50	10	QPSK	V	141	274	1 / 49	15.23	6.38	19.46	0.088	38.45	-18.99	21.61	0.145	40.61	-19.00
844.00	10	QPSK	V	146	260	1 / 0	15.33	6.46	**19.64**	0.092	38.45	-18.81	**21.79**	0.151	40.61	-18.82
844.00	10	16-QAM	V	146	260	1 / 0	14.58	6.46	**18.89**	0.077	38.45	-19.56	**21.04**	0.127	40.61	-19.57
844.00	10	64-QAM	V	146	260	1 / 0	13.48	6.46	**17.79**	0.060	38.45	-20.66	**19.94**	0.099	40.61	-20.67
844.00	10	256-QAM	V	146	260	1 / 0	11.33	6.46	**15.64**	**0.037**	38.45	-22.81	**17.79**	**0.060**	40.61	-22.82
831.50	15	QPSK	V	145	275	1 / 74	14.64	6.43	18.92	0.078	38.45	-19.53	21.07	0.128	40.61	-19.54
836.50	15	QPSK	V	141	280	1 / 74	14.87	6.38	19.10	0.081	38.45	-19.35	21.25	0.133	40.61	-19.36
841.50	15	QPSK	V	146	260	1 / 0	15.53	6.43	**19.81**	0.096	38.45	-18.64	**21.96**	0.157	40.61	-18.65
841.50	15	16-QAM	V	146	260	1 / 0	14.15	6.43	**18.43**	0.070	38.45	-20.02	**20.58**	0.114	40.61	-20.03
841.50	15	64-QAM	V	146	260	1 / 0	13.84	6.43	**18.12**	0.065	38.45	-20.33	**20.27**	0.106	40.61	-20.34
841.50	15	256-QAM	V	146	260	1 / 0	11.54	6.43	**15.82**	**0.038**	38.45	-22.63	**17.97**	**0.063**	40.61	-22.64
846.50	5	QPSK	H	241	136	1 / 0	13.86	6.48	18.19	0.066	38.45	-20.26	20.34	0.108	40.61	-20.27

Table 7-13. ERP Data (Band 5/26)

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	275.0	188.0	6.75	1 / 25	13.77	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.08
		836.5	H	274.0	187.0	6.68	1 / 25	13.70	18.23	0.067	38.45	-20.22	20.38	0.109	40.61	-20.23
		839.0	H	273.0	184.0	6.70	1 / 25	13.83	**18.38**	0.069	38.45	-20.07	**20.53**	0.113	40.61	-20.07
	QPSK	834.0	H	275.0	188.0	6.75	1 / 25	13.86	18.46	0.070	38.45	-19.99	20.61	0.115	40.61	-19.99
		836.5	H	274.0	187.0	6.68	1 / 25	13.83	18.36	0.069	38.45	-20.09	20.51	0.112	40.61	-20.10
		839.0	H	273.0	184.0	6.70	1 / 25	14.01	**18.56**	0.072	38.45	-19.89	**20.71**	0.118	40.61	-19.89
	16-QAM	839.0	H	273.0	184.0	6.70	1 / 25	13.22	**17.77**	0.060	38.45	-20.68	**19.92**	0.098	40.61	-20.68
	64-QAM	839.0	H	273.0	184.0	6.70	1 / 25	12.18	**16.73**	0.047	38.45	-21.72	**18.88**	0.077	40.61	-21.72
	256-QAM	836.5	H	274.0	187.0	6.68	1 / 25	10.16	**14.69**	0.029	38.45	-23.76	**16.84**	0.048	40.61	-23.77
15 MHz	π/2 BPSK	831.5	H	275.0	188.0	6.73	1 / 37	9.50	**16.22**	0.042	38.45	-22.23	**16.22**	0.042	40.61	-24.38
		836.5	H	274.0	187.0	6.68	1 / 37	9.43	16.11	0.041	38.45	-22.34	16.11	0.041	40.61	-24.50
		841.5	H	273.0	184.0	6.63	1 / 37	9.53	16.16	0.041	38.45	-22.29	16.16	0.041	40.61	-24.44
	QPSK	831.5	H	275.0	188.0	6.73	1 / 37	9.67	16.39	0.044	38.45	-22.06	16.39	0.044	40.61	-24.21
		836.5	H	274.0	187.0	6.68	1 / 37	9.54	16.22	0.042	38.45	-22.23	16.22	0.042	40.61	-24.39
		841.5	H	273.0	184.0	6.63	1 / 37	9.90	**16.53**	0.045	38.45	-21.92	**16.53**	0.045	40.61	-24.07
	16-QAM	841.5	H	273.0	184.0	6.63	1 / 37	8.81	**15.44**	0.035	38.45	-23.01	**15.44**	0.035	40.61	-25.16
	64-QAM	841.5	H	273.0	184.0	6.63	1 / 37	7.97	**14.60**	0.029	38.45	-23.85	**14.60**	0.029	40.61	-26.00
	256-QAM	836.5	H	274.0	187.0	6.68	1 / 37	5.73	**12.41**	0.017	38.45	-26.04	**12.41**	0.017	40.61	-28.20
10 MHz	π/2 BPSK	829.0	H	275.0	188.0	6.80	1 / 25	9.56	**16.36**	0.043	38.45	-22.09	**16.36**	0.043	40.61	-24.24
		836.5	H	274.0	187.0	6.68	1 / 25	9.48	16.16	0.041	38.45	-22.29	16.16	0.041	40.61	-24.45
		844.0	H	273.0	184.0	6.66	1 / 25	9.64	16.29	0.043	38.45	-22.16	16.29	0.043	40.61	-24.31
	QPSK	829.0	H	275.0	188.0	6.80	1 / 25	9.38	16.18	0.042	38.45	-22.27	16.18	0.042	40.61	-24.42
		836.5	H	274.0	187.0	6.68	1 / 25	9.45	16.13	0.041	38.45	-22.32	16.13	0.041	40.61	-24.48
		844.0	H	273.0	184.0	6.66	1 / 25	9.60	**16.25**	0.042	38.45	-22.20	**16.25**	0.042	40.61	-24.35
	16-QAM	844.0	H	273.0	184.0	6.66	1 / 25	8.79	**15.44**	0.035	38.45	-23.01	**15.44**	0.035	40.61	-25.16
	64-QAM	844.0	H	273.0	184.0	6.66	1 / 25	7.97	**14.62**	0.029	38.45	-23.83	**14.62**	0.029	40.61	-25.98
	256-QAM	836.5	H	274.0	187.0	6.68	1 / 25	5.82	**12.50**	0.018	38.45	-25.95	**12.50**	0.018	40.61	-28.11
5 MHz	π/2 BPSK	829.0	H	275.0	188.0	6.77	1 / 12	9.75	**16.52**	0.045	38.45	-21.93	**16.52**	0.045	40.61	-24.08
		836.5	H	274.0	187.0	6.68	1 / 12	9.49	16.17	0.041	38.45	-22.28	16.17	0.041	40.61	-24.44
		844.0	H	273.0	184.0	6.68	1 / 12	9.82	16.50	0.045	38.45	-21.95	16.50	0.045	40.61	-24.10
	QPSK	829.0	H	275.0	188.0	6.77	1 / 12	9.74	16.51	0.045	38.45	-21.94	16.51	0.045	40.61	-24.09
		836.5	H	274.0	187.0	6.68	1 / 12	9.59	16.27	0.042	38.45	-22.18	16.27	0.042	40.61	-24.34
		844.0	H	273.0	184.0	6.68	1 / 12	9.98	**16.66**	0.046	38.45	-21.79	**16.66**	0.046	40.61	-23.94
	16-QAM	844.0	H	273.0	184.0	6.68	1 / 12	8.98	**15.66**	0.037	38.45	-22.79	**15.66**	0.037	40.61	-24.94
	64-QAM	844.0	H	273.0	184.0	6.68	1 / 12	8.31	**14.99**	0.032	38.45	-23.46	**14.99**	0.032	40.61	-25.61
	256-QAM	829.0	H	275.0	188.0	6.77	1 / 12	5.83	12.60	0.018	38.45	-25.85	12.60	0.018	40.61	-28.00
	QPSK (CP-OFDM)	839.0	H	276.0	181.0	6.70	1 / 25	10.11	**16.81**	0.048	38.45	-21.64	**18.96**	0.079	40.61	-21.64
	QPSK (Opposite	839.0	V	184.0	246.0	6.70	1 / 25	10.63	17.33	0.054	38.45	-21.12	19.48	0.089	40.61	-21.12
	QPSK (WCP)	839.0	H	189.0	178.0	6.70	1 / 25	7.45	14.15	0.026	38.45	-24.30	16.30	0.043	40.61	-24.30

Table 7-14. ERP Data (Band n5)

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	V	165	322	1 / 0	13.38	9.47	**22.85**	**0.193**	30.00	-7.15
1745.00	1.4	QPSK	V	155	325	1 / 5	13.41	9.26	22.67	0.185	30.00	-7.33
1779.30	1.4	QPSK	V	148	345	1 / 0	13.39	9.29	22.68	0.185	30.00	-7.32
1710.70	1.4	16-QAM	V	165	322	1 / 0	12.30	9.47	**21.77**	0.150	30.00	-8.23
1710.70	1.4	64-QAM	V	165	322	1 / 0	10.32	9.47	**19.79**	0.095	30.00	-10.21
1745.00	1.4	256-QAM	V	155	325	1 / 5	8.78	9.26	**18.04**	**0.064**	30.00	-11.96
1711.50	3	QPSK	V	167	321	1 / 0	13.17	9.47	22.64	0.184	30.00	-7.36
1745.00	3	QPSK	V	155	325	1 / 14	13.42	9.26	**22.68**	0.185	30.00	-7.32
1778.50	3	QPSK	V	147	345	1 / 0	13.35	9.28	22.63	0.183	30.00	-7.37
1711.50	3	16-QAM	V	167	321	1 / 0	12.30	9.47	**21.77**	0.150	30.00	-8.23
1711.50	3	64-QAM	V	167	321	1 / 0	10.20	9.47	**19.67**	0.093	30.00	-10.33
1745.00	3	256-QAM	V	155	325	1 / 14	8.80	9.26	**18.06**	**0.064**	30.00	-11.94
1712.50	5	QPSK	V	166	331	1 / 0	13.18	9.46	**22.64**	0.184	30.00	-7.36
1745.00	5	QPSK	V	155	331	1 / 24	13.21	9.26	22.47	0.177	30.00	-7.53
1777.50	5	QPSK	V	147	345	1 / 0	13.35	9.28	22.63	0.183	30.00	-7.37
1712.50	5	16-QAM	V	166	331	1 / 0	12.36	9.46	**21.82**	0.152	30.00	-8.18
1712.50	5	64-QAM	V	166	331	1 / 0	10.30	9.46	**19.76**	0.095	30.00	-10.24
1745.00	5	256-QAM	V	155	331	1 / 24	8.90	9.26	**18.16**	**0.065**	30.00	-11.84
1715.00	10	QPSK	V	161	330	1 / 0	13.09	9.44	22.54	0.179	30.00	-7.46
1745.00	10	QPSK	V	155	331	1 / 49	12.81	9.26	22.07	0.161	30.00	-7.93
1775.00	10	QPSK	V	145	345	1 / 0	13.36	9.28	**22.63**	0.183	30.00	-7.37
1715.00	10	16-QAM	V	161	330	1 / 0	12.27	9.44	**21.72**	0.149	30.00	-8.28
1715.00	10	64-QAM	V	161	330	1 / 0	10.25	9.44	**19.70**	0.093	30.00	-10.30
1715.00	10	256-QAM	V	161	330	1 / 49	8.32	9.44	**17.77**	**0.060**	30.00	-12.23
1717.50	15	QPSK	V	160	330	1 / 0	13.22	9.43	**22.65**	0.184	30.00	-7.35
1745.00	15	QPSK	V	155	330	1 / 74	13.31	9.26	22.57	0.181	30.00	-7.43
1772.50	15	QPSK	V	146	340	1 / 0	13.32	9.27	22.59	0.182	30.00	-7.41
1717.50	15	16-QAM	V	160	330	1 / 0	12.21	9.43	**21.64**	0.146	30.00	-8.36
1772.50	15	64-QAM	V	146	340	1 / 74	10.51	9.27	**19.78**	0.095	30.00	-10.22
1745.00	15	256-QAM	V	155	330	1 / 74	8.76	9.26	**18.02**	**0.063**	30.00	-11.98
1720.00	20	QPSK	V	160	330	1 / 0	12.97	9.41	**22.38**	0.173	30.00	-7.62
1745.00	20	QPSK	V	151	335	1 / 99	12.86	9.26	22.12	0.163	30.00	-7.88
1770.00	20	QPSK	V	146	339	1 / 0	13.02	9.27	22.29	0.169	30.00	-7.71
1720.00	20	16-QAM	V	160	330	1 / 0	12.28	9.41	**21.69**	0.148	30.00	-8.31
1720.00	20	64-QAM	V	160	330	1 / 0	10.32	9.41	**19.73**	0.094	30.00	-10.27
1720.00	20	256-QAM	V	160	330	1 / 99	8.47	9.41	**17.88**	**0.061**	30.00	-12.12
1710.70	1.4	QPSK	H	146	237	1 / 0	12.32	9.41	21.73	0.149	30.00	-8.27
1710.70	1.4 (WCP)	QPSK	V	185	342	1 / 0	9.55	9.47	19.02	0.080	30.00	-10.98

Table 7-15. EIRP Data (Band 66/4)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	1720.0	H	185.0	155.0	9.41	1 / 0	7.87	17.28	0.054	30.00	-12.72
		1745.0	H	177.0	159.0	9.26	1 / 0	8.55	17.81	0.060	30.00	-12.19
		1770.0	H	175.0	161.0	9.27	1 / 50	8.69	**17.96**	0.062	30.00	-12.04
	QPSK	1720.0	H	185.0	155.0	9.41	1 / 0	8.62	18.03	0.064	30.00	-11.97
		1745.0	H	177.0	159.0	9.26	1 / 0	9.01	18.27	0.067	30.00	-11.73
		1770.0	H	175.0	161.0	9.27	1 / 50	9.09	**18.36**	0.069	30.00	-11.64
	16-QAM	1770.0	H	175.0	161.0	9.27	1 / 0	8.04	**17.31**	0.054	30.00	-12.69
	64-QAM	1720.0	H	185.0	155.0	9.41	1 / 50	6.74	**16.15**	0.041	30.00	-13.85
	256-QAM	1745.0	H	177.0	159.0	9.26	1 / 0	4.96	**14.22**	0.026	30.00	-15.78
15 MHz	π/2 BPSK	1717.5	H	185.0	155.0	9.43	1 / 37	8.10	17.53	0.057	30.00	-12.47
		1745.0	H	177.0	159.0	9.26	1 / 37	8.38	17.64	0.058	30.00	-12.36
		1772.5	H	175.0	161.0	9.27	1 / 37	9.06	**18.33**	0.068	30.00	-11.67
	QPSK	1717.5	H	185.0	155.0	9.43	1 / 37	8.77	18.20	0.066	30.00	-11.80
		1745.0	H	177.0	159.0	9.26	1 / 37	9.13	**18.39**	0.069	30.00	-11.61
		1772.5	H	175.0	161.0	9.27	1 / 37	9.02	18.29	0.067	30.00	-11.71
	16-QAM	1717.5	H	185.0	155.0	9.43	1 / 37	7.16	**16.59**	0.046	30.00	-13.41
	64-QAM	1717.5	H	185.0	155.0	9.43	1 / 37	6.35	**15.78**	0.038	30.00	-14.22
	256-QAM	1745.0	H	177.0	159.0	9.26	1 / 37	4.97	**14.23**	0.026	30.00	-15.77
10 MHz	π/2 BPSK	1715.0	H	185.0	155.0	9.44	1 / 25	8.10	17.54	0.057	30.00	-12.46
		1745.0	H	177.0	159.0	9.26	1 / 25	8.43	17.69	0.059	30.00	-12.31
		1775.0	H	175.0	161.0	9.28	1 / 25	9.07	**18.35**	0.068	30.00	-11.65
	QPSK	1715.0	H	185.0	155.0	9.44	1 / 25	8.58	18.02	0.063	30.00	-11.98
		1745.0	H	177.0	159.0	9.26	1 / 25	9.17	**18.43**	0.070	30.00	-11.57
		1775.0	H	175.0	161.0	9.28	1 / 25	9.11	18.39	0.069	30.00	-11.61
	16-QAM	1745.0	H	177.0	159.0	9.26	1 / 25	7.42	**16.68**	0.047	30.00	-13.32
	64-QAM	1715.0	H	185.0	155.0	9.44	1 / 25	5.74	**15.18**	0.033	30.00	-14.82
	256-QAM	1745.0	H	177.0	159.0	9.26	1 / 25	4.51	**13.77**	0.024	30.00	-16.23
5 MHz	π/2 BPSK	1712.5	H	185.0	155.0	9.46	1 / 12	8.02	17.48	0.056	30.00	-12.52
		1745.0	H	177.0	159.0	9.26	1 / 12	8.43	17.69	0.059	30.00	-12.31
		1777.5	H	175.0	161.0	9.28	1 / 12	9.08	**18.36**	0.069	30.00	-11.64
	QPSK	1712.5	H	185.0	155.0	9.46	1 / 12	8.62	18.08	0.064	30.00	-11.92
		1745.0	H	177.0	159.0	9.26	1 / 12	9.13	18.39	0.069	30.00	-11.61
		1777.5	H	175.0	161.0	9.28	1 / 12	9.45	**18.73**	0.075	30.00	-11.27
	16-QAM	1745.0	H	177.0	159.0	9.26	1 / 12	7.36	**16.62**	0.046	30.00	-13.38
	64-QAM	1712.5	H	185.0	155.0	9.46	1 / 12	5.98	**15.44**	0.035	30.00	-14.56
	256-QAM	1745.0	H	177.0	159.0	9.26	1 / 12	4.72	**13.98**	0.025	30.00	-16.02
	QPSK (CP-OFDM)	1770.0	H	159.0	126.0	9.27	1 / 50	4.33	13.60	0.023	30.00	-16.40
	QPSK (Opposite Pol.)	1770.0	V	109.0	338.0	9.27	1 / 50	8.50	17.77	0.060	30.00	-12.23
	QPSK (WCP)	1770.0	H	123.0	195.0	9.27	1 / 50	3.94	13.21	0.021	30.00	-16.79

Table 7-16. EIRP Data (Band n66)

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	V	152	216	1 / 5	12.34	9.51	**21.85**	0.153	33.01	-11.16
1882.50	1.4	QPSK	V	166	326	1 / 5	11.42	9.96	21.38	0.137	33.01	-11.63
1914.30	1.4	QPSK	V	198	271	1 / 0	11.38	10.32	21.69	0.148	33.01	-11.32
1850.70	1.4	16-QAM	V	152	216	1 / 5	11.41	9.51	**20.92**	0.124	33.01	-12.09
1850.70	1.4	64-QAM	V	152	216	1 / 5	9.58	9.51	**19.09**	0.081	33.01	-13.92
1850.70	1.4	256-QAM	V	152	216	1 / 5	7.63	9.51	**17.14**	**0.052**	33.01	-15.87
1851.50	3	QPSK	V	145	220	1 / 14	12.40	9.52	**21.92**	0.156	33.01	-11.09
1882.50	3	QPSK	V	166	326	1 / 14	11.54	9.96	21.50	0.141	33.01	-11.51
1913.50	3	QPSK	V	198	275	1 / 0	11.48	10.31	21.79	0.151	33.01	-11.22
1851.50	3	16-QAM	V	145	220	1 / 14	11.38	9.52	**20.90**	0.123	33.01	-12.11
1851.50	3	64-QAM	V	145	220	1 / 14	9.65	9.52	**19.17**	0.083	33.01	-13.84
1851.50	3	256-QAM	V	145	220	1 / 14	7.74	9.52	**17.26**	**0.053**	33.01	-15.75
1852.50	5	QPSK	V	144	220	1 / 24	12.36	9.54	**21.90**	0.155	33.01	-11.11
1882.50	5	QPSK	V	166	326	1 / 24	11.43	9.96	21.39	0.138	33.01	-11.62
1912.50	5	QPSK	V	207	270	1 / 0	11.59	10.30	21.89	0.154	33.01	-11.12
1852.50	5	16-QAM	V	144	220	1 / 24	11.40	9.54	**20.94**	0.124	33.01	-12.07
1852.50	5	64-QAM	V	144	220	1 / 24	9.51	9.54	**19.05**	0.080	33.01	-13.96
1852.50	5	256-QAM	V	144	220	1 / 24	7.72	9.54	**17.26**	**0.053**	33.01	-15.75
1855.00	10	QPSK	V	145	220	1 / 49	12.15	9.57	**21.73**	0.149	33.01	-11.28
1882.50	10	QPSK	V	166	325	1 / 49	11.21	9.96	21.17	0.131	33.01	-11.84
1910.00	10	QPSK	V	200	270	1 / 0	11.39	10.28	21.67	0.147	33.01	-11.34
1910.00	10	16-QAM	V	200	270	1 / 0	10.69	10.28	**20.97**	0.125	33.01	-12.04
1910.00	10	64-QAM	V	200	270	1 / 0	8.96	10.28	**19.24**	0.084	33.01	-13.77
1855.00	10	256-QAM	V	145	220	1 / 49	7.40	9.57	**16.98**	**0.050**	33.01	-16.03
1857.50	15	QPSK	V	141	220	1 / 74	11.95	9.61	21.56	0.143	33.01	-11.45
1882.50	15	QPSK	V	166	320	1 / 74	11.48	9.96	21.44	0.139	33.01	-11.57
1907.50	15	QPSK	V	200	268	1 / 0	11.50	10.26	**21.77**	0.150	33.01	-11.24
1907.50	15	16-QAM	V	200	268	1 / 0	10.44	10.26	**20.71**	0.118	33.01	-12.30
1907.50	15	64-QAM	V	200	268	1 / 0	9.09	10.26	**19.36**	0.086	33.01	-13.65
1857.50	15	256-QAM	V	141	220	1 / 74	7.29	9.61	**16.90**	**0.049**	33.01	-16.11
1860.00	20	QPSK	V	140	216	1 / 99	13.91	9.64	23.55	0.227	33.01	-9.46
1882.50	20	QPSK	V	165	320	1 / 99	13.33	9.96	23.29	0.213	33.01	-9.72
1905.00	20	QPSK	V	198	268	1 / 0	13.54	10.24	**23.78**	**0.239**	33.01	-9.23
1860.00	20	16-QAM	V	140	216	1 / 99	13.40	9.64	**23.04**	0.202	33.01	-9.97
1905.00	20	64-QAM	V	198	268	1 / 0	10.89	10.24	**21.13**	0.130	33.01	-11.88
1905.00	20	256-QAM	V	198	268	1 / 0	8.98	10.24	**19.22**	**0.084**	33.01	-13.79
1905.00	20	QPSK	H	119	1	1 / 0	12.75	9.64	22.39	0.174	33.01	-10.62
1905.00	20 (WCP)	QPSK	V	168	286	1 / 0	9.39	10.24	19.63	0.092	33.01	-13.38

Table 7-17. EIRP Data (Band 25/2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	1860.0	H	112.0	183.0	9.64	1 / 25	13.84	23.48	0.223	33.01	-9.53
		1880.0	H	121.0	179.0	9.93	1 / 25	13.94	23.87	0.244	33.01	-9.14
		1900.0	H	139.0	193.0	10.20	1 / 25	13.78	**23.98**	0.250	33.01	-9.03
	QPSK	1860.0	H	112.0	183.0	9.64	1 / 25	12.70	22.34	0.172	33.01	-10.67
		1880.0	H	121.0	179.0	9.93	1 / 25	12.81	**22.74**	0.188	33.01	-10.27
		1900.0	H	139.0	193.0	10.20	1 / 25	12.50	22.70	0.186	33.01	-10.31
	16-QAM	1900.0	H	139.0	193.0	10.20	1 / 25	11.40	**21.60**	0.145	33.01	-11.41
	64-QAM	1880.0	H	121.0	179.0	9.93	1 / 25	10.65	**20.58**	0.114	33.01	-12.43
	256-QAM	1900.0	H	139.0	193.0	10.20	1 / 25	8.72	**18.92**	0.078	33.01	-14.09
15 MHz	π/2 BPSK	1857.5	H	112.0	183.0	9.61	1 / 37	13.79	23.39	0.219	33.01	-9.62
		1880.0	H	121.0	179.0	9.93	1 / 37	14.01	23.94	0.248	33.01	-9.07
		1902.5	H	139.0	193.0	10.22	1 / 37	13.74	**23.96**	0.249	33.01	-9.05
	QPSK	1857.5	H	112.0	183.0	9.61	1 / 37	12.67	22.27	0.169	33.01	-10.74
		1880.0	H	121.0	179.0	9.93	1 / 37	13.05	22.98	0.198	33.01	-10.03
		1902.5	H	139.0	193.0	10.22	1 / 37	12.78	**23.00**	0.200	33.01	-10.01
	16-QAM	1902.5	H	139.0	193.0	10.22	1 / 37	11.68	**21.90**	0.155	33.01	-11.11
	64-QAM	1902.5	H	139.0	193.0	10.22	1 / 37	10.64	**20.86**	0.122	33.01	-12.15
	256-QAM	1880.0	H	121.0	179.0	9.93	1 / 37	8.62	**18.55**	0.072	33.01	-14.46
10 MHz	π/2 BPSK	1855.0	H	112.0	183.0	9.57	1 / 25	13.81	23.38	0.218	33.01	-9.63
		1880.0	H	121.0	179.0	9.93	1 / 25	14.04	**23.97**	0.249	33.01	-9.04
		1905.0	H	139.0	193.0	10.24	1 / 25	13.65	23.89	0.245	33.01	-9.12
	QPSK	1855.0	H	112.0	183.0	9.57	1 / 25	12.66	22.23	0.167	33.01	-10.78
		1880.0	H	121.0	179.0	9.93	1 / 25	12.87	**22.80**	0.190	33.01	-10.21
		1905.0	H	139.0	193.0	10.24	1 / 25	12.14	22.38	0.173	33.01	-10.63
	16-QAM	1880.0	H	121.0	179.0	9.93	1 / 25	11.76	**21.69**	0.147	33.01	-11.32
	64-QAM	1880.0	H	121.0	179.0	9.93	1 / 25	10.68	**20.61**	0.115	33.01	-12.40
	256-QAM	1880.0	H	121.0	179.0	9.93	1 / 25	8.32	**18.25**	0.067	33.01	-14.76
5 MHz	π/2 BPSK	1852.5	H	112.0	183.0	9.54	1 / 12	13.75	23.28	0.213	33.01	-9.73
		1880.0	H	121.0	179.0	9.93	1 / 12	13.90	23.83	0.241	33.01	-9.18
		1907.5	H	139.0	193.0	10.26	1 / 12	13.62	**23.88**	0.245	33.01	-9.13
	QPSK	1852.5	H	112.0	183.0	9.54	1 / 12	12.86	22.39	0.174	33.01	-10.62
		1880.0	H	121.0	179.0	9.93	1 / 12	12.95	**22.88**	0.194	33.01	-10.13
		1907.5	H	139.0	193.0	10.26	1 / 12	12.07	22.33	0.171	33.01	-10.68
	16-QAM	1880.0	H	121.0	179.0	9.93	1 / 12	11.56	**21.49**	0.141	33.01	-11.52
	64-QAM	1880.0	H	121.0	179.0	9.93	1 / 12	10.45	**20.38**	0.109	33.01	-12.63
	256-QAM	1907.5	H	139.0	193.0	10.26	1 / 12	7.96	18.22	0.066	33.01	-14.79
	QPSK (CP-OFDM)	1905.0	H	139.0	193.0	10.20	1 / 25	10.60	**20.80**	0.120	33.01	-12.21
	QPSK (Opposite Pol.)	1905.0	V	147.0	202.0	10.20	1 / 25	11.92	22.12	0.163	33.01	-10.89
	QPSK (WCP)	1905.0	H	187.0	183.0	10.20	1 / 25	8.60	18.80	0.076	33.01	-14.21

Table 7-18. EIRP Data (Band n25/2)

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	226	197	1 / 24	11.35	10.33	21.68	0.147	23.98	-2.29
2312.50	5	QPSK	H	226	201	1 / 0	11.52	10.34	**21.86**	0.153	23.98	-2.12
2312.50	5	16-QAM	H	226	201	1 / 24	10.85	10.34	**21.19**	0.131	23.98	-2.79
2312.50	5	64-QAM	H	226	201	1 / 24	9.97	10.34	20.31	0.107	23.98	-3.67
2312.50	5	256-QAM	H	226	201	1 / 24	7.54	10.34	**17.88**	**0.061**	23.98	-6.10
2310.00	10	QPSK	H	223	201	1 / 49	11.79	10.34	**22.13**	**0.163**	23.98	-1.85
2310.00	10	16-QAM	H	223	201	1 / 49	11.04	10.34	21.38	0.137	23.98	-2.60
2310.00	10	64-QAM	H	223	201	1 / 49	9.96	10.34	20.30	0.107	23.98	-3.68
2310.00	10	256-QAM	H	223	201	1 / 49	7.44	10.34	**17.78**	**0.060**	23.98	-6.20
2310.00	10	QPSK	V	368	286	1 / 49	11.45	10.34	21.79	0.151	23.98	-2.19
2310.00	10 (CLOSED)	QPSK	H	195	6	1 / 49	9.53	10.34	19.87	**0.097**	23.98	-4.11

Table 7-19. 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	V	110	289	1 / 24	12.77	9.42	**22.19**	0.166	33.01	-10.82
2535.00	5	QPSK	V	100	301	1 / 24	12.69	9.41	22.10	0.162	33.01	-10.91
2567.50	5	QPSK	V	115	280	1 / 0	12.34	9.48	21.82	0.152	33.01	-11.19
2502.50	5	16-QAM	V	110	289	1 / 0	11.79	9.42	**21.21**	0.132	33.01	-11.80
2502.50	5	64-QAM	V	110	289	1 / 0	10.20	9.42	**19.62**	0.092	33.01	-13.39
2502.50	5	256-QAM	V	110	289	1 / 0	8.42	9.42	**17.84**	**0.061**	33.01	-15.17
2505.00	10	QPSK	V	110	288	1 / 49	12.91	9.42	**22.33**	0.171	33.01	-10.68
2535.00	10	QPSK	V	105	302	1 / 49	12.79	9.41	22.20	0.166	33.01	-10.81
2565.00	10	QPSK	V	120	280	1 / 0	12.49	9.47	21.96	0.157	33.01	-11.05
2535.00	10	16-QAM	V	105	302	1 / 49	11.83	9.41	**21.24**	0.133	33.01	-11.77
2505.00	10	64-QAM	V	110	288	1 / 0	10.20	9.42	**19.62**	0.092	33.01	-13.39
2505.00	10	256-QAM	V	110	288	1 / 0	8.29	9.42	**17.71**	**0.059**	33.01	-15.30
2507.50	15	QPSK	V	109	284	1 / 74	12.92	9.42	**22.34**	0.171	33.01	-10.67
2535.00	15	QPSK	V	102	301	1 / 74	12.66	9.41	22.07	0.161	33.01	-10.94
2562.50	15	QPSK	V	116	279	1 / 0	12.45	9.46	21.91	0.155	33.01	-11.10
2535.00	15	16-QAM	V	102	301	1 / 74	11.73	9.41	**21.14**	0.130	33.01	-11.87
2535.00	15	64-QAM	V	102	301	1 / 74	10.06	9.41	**19.47**	0.089	33.01	-13.54
2507.50	15	256-QAM	V	109	284	1 / 0	8.29	9.42	**17.71**	**0.059**	33.01	-15.30
2510.00	20	QPSK	V	109	288	1 / 99	13.14	9.42	22.56	0.180	33.01	-10.45
2535.00	20	QPSK	V	100	301	1 / 99	13.31	9.41	**22.72**	**0.187**	33.01	-10.29
2560.00	20	QPSK	V	115	276	1 / 0	13.20	9.45	22.65	0.184	33.01	-10.36
2535.00	20	16-QAM	V	100	301	1 / 99	12.14	9.41	**21.55**	0.143	33.01	-11.46
2510.00	20	64-QAM	V	109	288	1 / 0	10.56	9.42	**19.98**	0.100	33.01	-13.03
2535.00	20	256-QAM	V	100	301	1 / 0	8.64	9.41	**18.05**	**0.064**	33.01	-14.96
2535.00	20	QPSK	H	149	2	1 / 99	11.71	9.41	21.12	0.130	33.01	-11.89

Table 7-20. 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	V	109	292	1 / 0	16.20	9.46	25.66	0.368	33.01	-7.35
2593.00	5	QPSK	V	109	278	1 / 24	16.06	9.58	25.64	0.367	33.01	-7.37
2687.50	5	QPSK	V	110	278	1 / 0	15.83	9.85	**25.68**	0.369	33.01	-7.33
2687.50	5	16-QAM	V	110	278	1 / 24	15.03	9.85	**24.88**	0.307	33.01	-8.13
2687.50	5	64-QAM	V	110	278	1 / 0	14.11	9.85	**23.96**	0.249	33.01	-9.05
2687.50	5	256-QAM	V	110	278	1 / 0	12.71	9.85	**22.56**	**0.180**	33.01	-10.45
2501.00	10	QPSK	V	109	292	1 / 0	14.57	9.46	24.02	0.253	33.01	-8.99
2593.00	10	QPSK	V	109	278	1 / 0	15.24	9.58	**24.82**	0.303	33.01	-8.19
2685.00	10	QPSK	V	110	278	1 / 0	14.95	9.85	24.80	0.302	33.01	-8.21
2501.00	10	16-QAM	V	109	292	1 / 0	14.10	9.46	23.55	0.227	33.01	-9.46
2501.00	10	64-QAM	V	109	292	1 / 49	13.39	9.46	**22.84**	0.193	33.01	-10.17
2685.00	10	256-QAM	V	110	278	1 / 0	10.02	9.85	**19.87**	**0.097**	33.01	-13.14
2503.50	15	QPSK	V	109	292	1 / 0	14.58	9.45	24.03	0.253	33.01	-8.98
2593.00	15	QPSK	V	109	278	1 / 0	15.41	9.58	24.99	0.316	33.01	-8.02
2682.50	15	QPSK	V	110	280	1 / 0	15.22	9.86	**25.08**	0.322	33.01	-7.93
2682.50	15	16-QAM	V	110	280	1 / 0	14.45	9.86	24.31	0.270	33.01	-8.70
2503.50	15	64-QAM	V	109	292	1 / 74	12.83	9.45	**22.28**	0.169	33.01	-10.73
2682.50	15	256-QAM	V	110	280	1 / 0	10.57	9.86	**20.43**	**0.110**	33.01	-12.58
2506.00	20	QPSK	V	109	292	1 / 0	14.66	9.45	24.11	0.258	33.01	-8.90
2593.00	20	QPSK	V	109	276	1 / 0	15.72	9.58	25.30	0.339	33.01	-7.71
2680.00	20	QPSK	V	109	282	1 / 0	15.86	9.86	**25.72**	**0.374**	33.01	-7.29
2680.00	20	16-QAM	V	109	282	1 / 0	14.75	9.86	**24.61**	0.289	33.01	-8.40
2680.00	20	64-QAM	V	109	282	1 / 0	13.20	9.86	**23.06**	0.202	33.01	-9.95
2680.00	20	256-QAM	V	109	282	1 / 0	11.65	9.86	**21.51**	**0.142**	33.01	-11.50
2680.00	20	QPSK	H	115	221	1 / 0	14.71	9.86	24.57	0.287	33.01	-8.44

Table 7-21. EIRP Data (Band 41 PC2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	2546.0	V	142.0	182.0	9.41	1 / 137	11.71	**21.12**	0.129	33.01	-11.89
		2593.0	V	190.0	74.0	9.59	1 / 137	10.46	20.05	0.101	33.01	-12.96
		2640.0	V	178.0	165.0	9.68	1 / 137	11.02	20.70	0.117	33.01	-12.31
	QPSK	2546.0	V	142.0	182.0	9.41	1 / 137	10.42	**19.83**	0.096	33.01	-13.18
		2593.0	V	190.0	74.0	9.59	1 / 0	10.09	19.68	0.093	33.01	-13.33
		2640.0	V	178.0	165.0	9.68	1 / 137	9.89	19.57	0.091	33.01	-13.44
	16-QAM	2546.0	V	142.0	182.0	9.41	1 / 137	9.19	**18.60**	0.072	33.01	-14.41
	64-QAM	2546.0	V	142.0	182.0	9.41	1 / 137	8.30	**17.71**	0.059	33.01	-15.30
	256-QAM	2640.0	V	178.0	165.0	9.68	1 / 137	6.15	**15.83**	0.038	33.01	-17.18
90 MHz	π/2 BPSK	2541.0	V	141.0	175.0	9.41	1 / 123	11.16	**20.57**	0.114	33.01	-12.44
		2593.0	V	190.0	74.0	9.59	1 / 123	10.24	19.83	0.096	33.01	-13.18
		2645.0	V	178.0	165.0	9.69	1 / 123	10.60	20.29	0.107	33.01	-12.72
	QPSK	2541.0	V	141.0	175.0	9.41	1 / 123	10.16	**19.57**	0.091	33.01	-13.44
		2593.0	V	190.0	74.0	9.59	1 / 123	9.30	18.89	0.077	33.01	-14.12
		2645.0	V	178.0	165.0	9.69	1 / 123	9.29	18.98	0.079	33.01	-14.03
	16-QAM	2645.0	V	178.0	165.0	9.69	1 / 123	7.89	**17.58**	0.057	33.01	-15.43
	64-QAM	2593.0	V	190.0	74.0	9.59	1 / 123	7.57	**17.16**	0.052	33.01	-15.85
	256-QAM	2645.0	V	178.0	165.0	9.69	1 / 123	5.94	**15.63**	0.037	33.01	-17.38
80 MHz	π/2 BPSK	2536.0	V	141.0	175.0	9.41	1 / 108	11.34	**20.75**	0.119	33.01	-12.26
		2593.0	V	190.0	75.0	9.59	1 / 108	10.65	20.24	0.106	33.01	-12.77
		2650.0	V	176.0	165.0	9.69	1 / 108	10.78	20.48	0.112	33.01	-12.53
	QPSK	2536.0	V	141.0	175.0	9.41	1 / 108	10.28	**19.69**	0.093	33.01	-13.32
		2593.0	V	190.0	75.0	9.59	1 / 108	9.49	19.08	0.081	33.01	-13.93
		2650.0	V	176.0	165.0	9.69	1 / 108	9.42	19.12	0.082	33.01	-13.89
	16-QAM	2650.0	V	176.0	165.0	9.69	1 / 108	8.54	**18.24**	0.067	33.01	-14.77
	64-QAM	2536.0	V	141.0	175.0	9.41	1 / 108	8.30	**17.71**	0.059	33.01	-15.30
	256-QAM	2650.0	V	176.0	165.0	9.69	1 / 108	6.46	**16.16**	0.041	33.01	-16.85
60 MHz	π/2 BPSK	2526.0	V	141.0	172.0	9.42	1 / 81	11.15	**20.57**	0.114	33.01	-12.44
		2593.0	V	190.0	75.0	9.59	1 / 81	10.56	20.15	0.103	33.01	-12.86
		2660.0	V	174.0	171.0	9.70	1 / 81	10.33	20.03	0.101	33.01	-12.98
	QPSK	2526.0	V	141.0	172.0	9.42	1 / 81	10.06	**19.48**	0.089	33.01	-13.53
		2593.0	V	190.0	75.0	9.59	1 / 81	9.46	19.05	0.080	33.01	-13.96
		2660.0	V	174.0	171.0	9.70	1 / 81	8.97	18.67	0.074	33.01	-14.34
	16-QAM	2660.0	V	174.0	171.0	9.70	1 / 81	8.11	**17.81**	0.060	33.01	-15.20
	64-QAM	2526.0	V	141.0	172.0	9.42	1 / 81	7.86	**17.28**	0.053	33.01	-15.73
	256-QAM	2660.0	V	174.0	171.0	9.70	1 / 81	5.78	**15.48**	0.035	33.01	-17.53
50 MHz	π/2 BPSK	2521.0	V	141.0	165.0	9.42	1 / 66	11.63	**21.05**	0.127	33.01	-11.96
		2593.0	V	190.0	74.0	9.59	1 / 66	10.71	20.30	0.107	33.01	-12.71
		2665.0	V	178.0	171.0	9.70	1 / 66	10.85	20.55	0.113	33.01	-12.46
	QPSK	2521.0	V	141.0	165.0	9.42	1 / 66	10.22	**19.64**	0.092	33.01	-13.37
		2593.0	V	190.0	74.0	9.59	1 / 66	9.47	19.06	0.080	33.01	-13.95
		2665.0	V	178.0	171.0	9.70	1 / 66	9.42	19.12	0.082	33.01	-13.89
	16-QAM	2665.0	V	178.0	171.0	9.70	1 / 66	8.22	**17.92**	0.062	33.01	-15.09
	64-QAM	2521.0	V	141.0	165.0	9.42	1 / 66	8.54	**17.96**	0.063	33.01	-15.05
	256-QAM	2665.0	V	178.0	171.0	9.70	1 / 66	6.57	**16.27**	0.042	33.01	-16.74
40 MHz	π/2 BPSK	2516.0	V	141.0	165.0	9.42	1 / 53	11.53	**20.95**	0.124	33.01	-12.06
		2593.0	V	190.0	74.0	9.59	1 / 53	10.85	20.44	0.111	33.01	-12.57
		2670.0	V	178.0	171.0	9.71	1 / 53	10.96	20.67	0.117	33.01	-12.34
	QPSK	2516.0	V	141.0	165.0	9.42	1 / 53	10.61	**20.03**	0.101	33.01	-12.98
		2593.0	V	190.0	74.0	9.59	1 / 53	9.82	19.41	0.087	33.01	-13.60
		2670.0	V	178.0	171.0	9.71	1 / 53	9.58	19.29	0.085	33.01	-13.72
	16-QAM	2516.0	V	141.0	165.0	9.42	1 / 53	9.14	**18.56**	0.072	33.01	-14.45
	64-QAM	2516.0	V	141.0	165.0	9.42	1 / 53	8.51	**17.93**	0.062	33.01	-15.08
	256-QAM	2670.0	V	178.0	171.0	9.71	1 / 53	6.28	**15.99**	0.040	33.01	-17.02
20 MHz	π/2 BPSK	2506.0	V	141.0	175.0	9.42	1 / 26	11.39	**20.81**	0.120	33.01	-12.20
		2593.0	V	195.0	76.0	9.59	1 / 26	10.67	20.26	0.106	33.01	-12.75
		2680.0	V	176.0	176.0	9.71	1 / 26	10.77	20.48	0.112	33.01	-12.53
	QPSK	2506.0	V	141.0	175.0	9.42	1 / 26	10.45	**19.87**	0.097	33.01	-13.14
		2593.0	V	195.0	76.0	9.59	1 / 26	9.61	19.20	0.083	33.01	-13.81
		2680.0	V	176.0	176.0	9.71	1 / 26	9.45	19.16	0.082	33.01	-13.85
	16-QAM	2506.0	V	141.0	175.0	9.42	1 / 26	8.93	**18.35**	0.068	33.01	-14.66
	64-QAM	2506.0	V	141.0	175.0	9.42	1 / 26	8.32	**17.74**	0.059	33.01	-15.27
	256-QAM	2680.0	V	176.0	176.0	9.71	1 / 26	6.18	**15.89**	0.039	33.01	-17.12
	QPSK (CP-OFDM)	2546.0	V	142.0	182.0	9.41	1 / 137	9.42	18.83	0.076	33.01	-14.18
	QPSK (Opposite Pol.)	2546.0	H	127.0	149.0	9.41	1 / 137	11.42	20.83	0.121	33.01	-12.18
	QPSK (WCP)	2546.0	V	142.0	182.0	9.41	1 / 137	5.51	14.92	0.031	33.01	-18.09
	BPSK (CLOSED)	2640.0	V	156.0	188.0	9.68	1 / 137	9.76	19.44	0.088	33.01	-13.57

Table 7-22. EIRP Data (Band n41)

7.8 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.

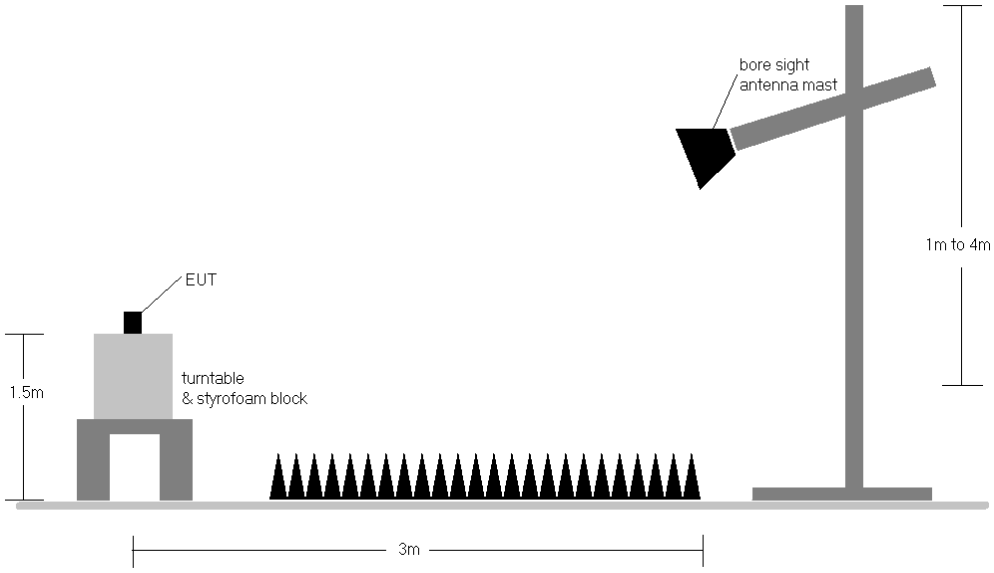


Figure 7-8. Test Instrument & Measurement Setup

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.

6) NR band RSEs are measuring using a field strength measurement method.

   Field Strength [dBuV/m] = RSE raw level [dBm] + AFCL [dB/m] + 107
   EIRP Spurious Level [dBm] = Field Strength + 20 log (D) – 104.8
   D: Test distance i.e. 3m in this case.

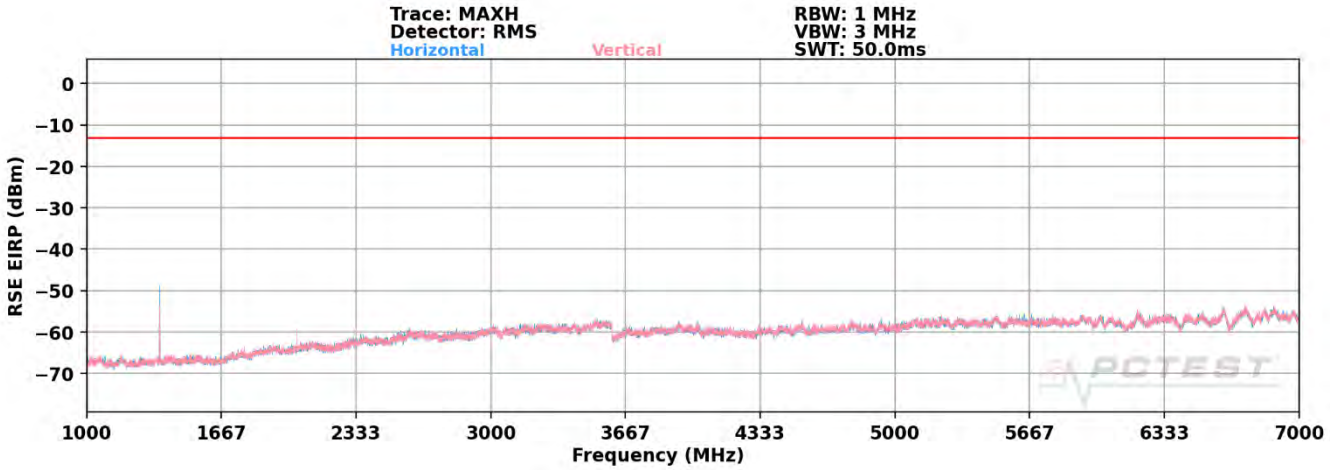
   Consider a raw level measurement, antenna factor and cable loss (AFCL) we use the formula,

   Field Strength [dBuV/m] = -71.85 + -6.21 dBm + 107 = 28.94 dBuV/m

   EIRP Spurious Level [dBm] = 28.94 + 20 log (3) – 104.8 = 28.94 – 95.25 = -66.32 dBm

   Limit [dBm] is -13 dBm and resultant Margin [dB] = -66.32 – (- 13) = -53.32 dB

Band 71



Plot 7-713. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	673.00	MHz
CHANNEL:	133222	
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]
1346.00	H	112	326	-58.30	8.79	-49.51	-36.5
2019.00	H	147	57	-79.10	10.24	-68.85	-55.9
2692.00	H	-	-	-77.42	9.84	-67.58	-54.6
3365.00	H	-	-	-74.85	7.34	-67.52	-54.5

Table 7-23. Radiated Spurious Data (Band 71 – Low Channel)

OPERATING FREQUENCY:	680.50	MHz
CHANNEL:	133297	
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]
1361.00	H	119	322	-58.89	8.64	-50.25	-37.3
2041.50	H	400	53	-78.68	10.06	-68.62	-55.6
2722.00	H	-	-	-77.06	9.60	-67.46	-54.5
3402.50	H	-	-	-74.36	7.36	-67.00	-54.0

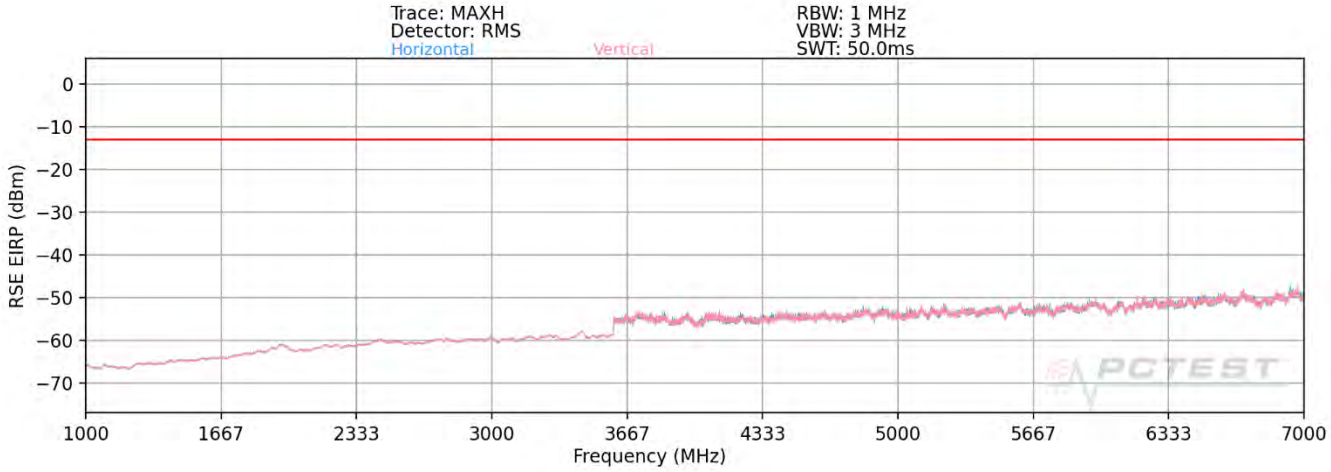
Table 7-24. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	688.00	MHz
CHANNEL:	133372	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

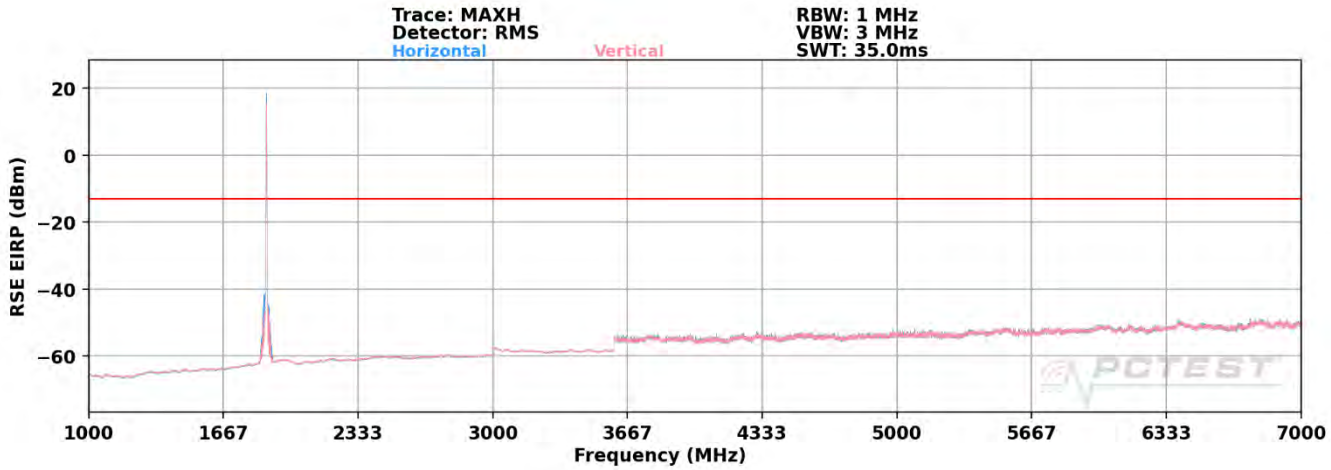
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	118	335	-59.34	8.44	-50.89	-37.9
2064.00	H	361	53	-76.14	9.90	-66.25	-53.2
2752.00	H	-	-	-77.16	9.33	-67.83	-54.8
3440.00	H	-	-	-74.75	7.54	-67.21	-54.2

Table 7-25. Radiated Spurious Data (Band 71 – High Channel)

Band n71



Plot 7-714. Radiated Spurious Plot above 1GHz (n71)



Plot 7-715. Radiated Spurious Plot above 1GHz (n71 + B2)

Bandwidth (MHz):	20
Frequency (MHz):	663.0
RB / Offset:	1 / 53
Mode:	SA

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]
1326.0	H	-	-	-74.21	-2.11	30.68	-64.58	-13.00	-51.58
1989.0	H	-	-	-74.43	1.84	34.41	-60.84	-13.00	-47.84
2652.0	H	-	-	-75.74	2.85	34.11	-61.14	-13.00	-48.14

Table 7-26. Radiated Spurious Data (n71 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	680.5
RB / Offset:	1 / 53
Mode:	SA

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]
1361.0	H	-	-	-73.59	-2.46	30.95	-64.30	-13.00	-51.30
2041.5	H	-	-	-73.63	0.91	34.28	-60.98	-13.00	-47.98
2722.0	H	-	-	-74.71	3.74	36.03	-59.22	-13.00	-46.22

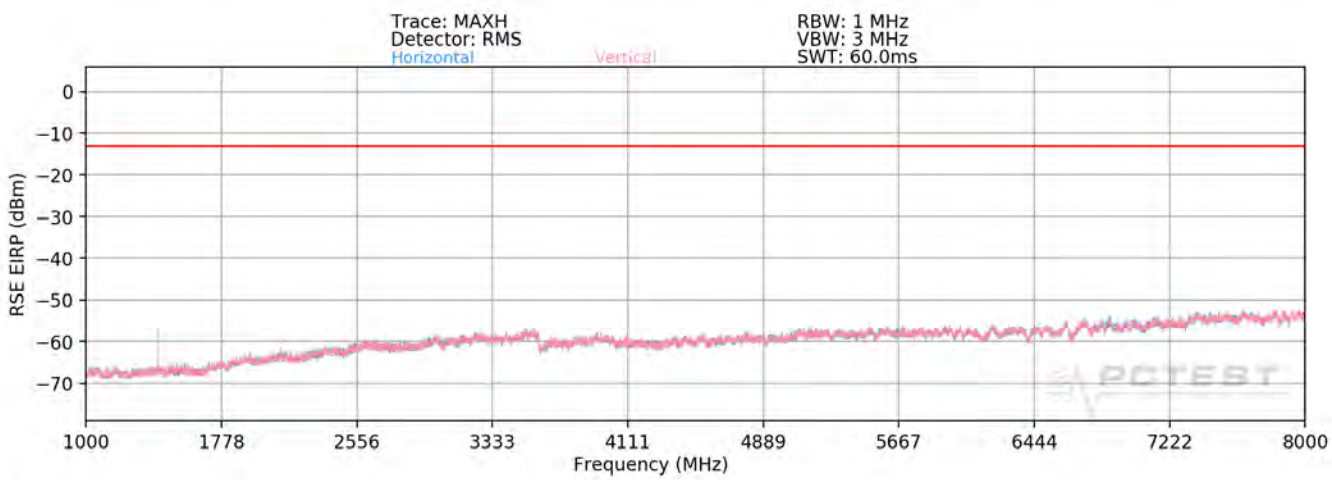
Table 7-27. Radiated Spurious Data (n71 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	698.0
RB / Offset:	1 / 53
Mode:	SA

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]
1396.0	H	-	-	-73.47	-2.24	31.29	-63.97	-13.00	-50.97
2094.0	H	-	-	-74.53	1.15	33.62	-61.64	-13.00	-48.64
2792.0	H	-	-	-74.81	3.82	36.01	-59.24	-13.00	-46.24

Table 7-28. Radiated Spurious Data (n71 – High Channel)

Band 12



Plot 7-716. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY:	704.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1408.00	H	111	323	-65.63	8.19	-57.44	-44.4
2112.00	H	398	42	-73.04	9.63	-63.41	-50.4
2816.00	H	-	-	-76.73	9.12	-67.61	-54.6
3520.00	H	-	-	-73.73	7.39	-66.33	-53.3

Table 7-29. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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	117	323	-66.89	8.25	-58.64	-45.6
2122.50	H	400	55	-73.52	9.61	-63.91	-50.9
2830.00	H	-	-	-76.42	9.13	-67.29	-54.3
3537.50	H	-	-	-74.00	7.28	-66.72	-53.7

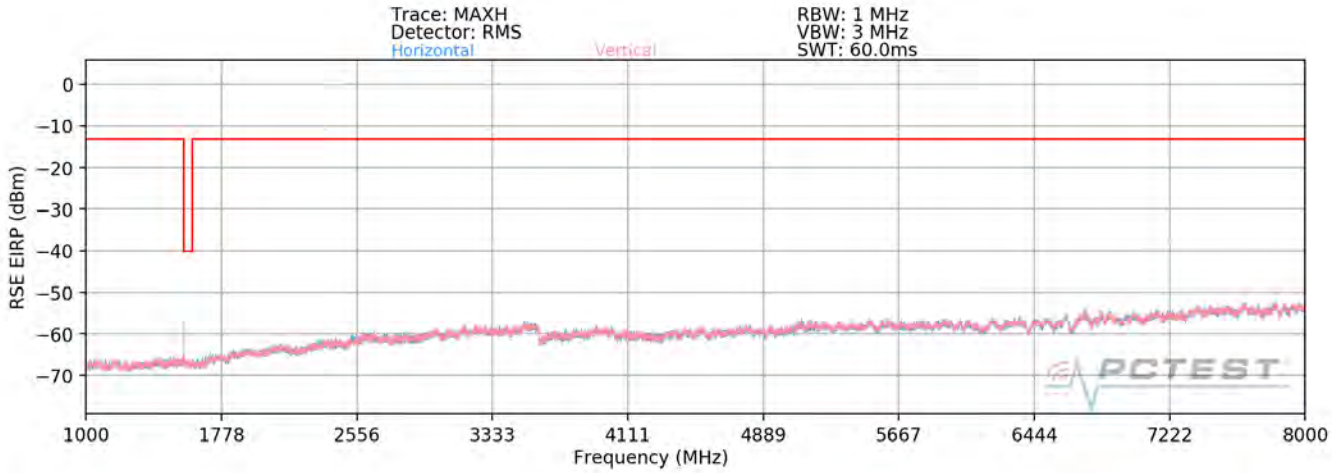
Table 7-30. Radiated Spurious Data (Band 12 – Mid Channel)

OPERATING FREQUENCY:	711.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1422.00	H	160	330	-69.64	8.30	-61.34	-48.3
2133.00	H	400	57	-73.83	9.60	-64.23	-51.2
2844.00	H	-	-	-76.78	9.14	-67.63	-54.6
3555.00	H	-	-	-73.97	7.18	-66.79	-53.8

Table 7-31. Radiated Spurious Data (Band 12 – High Channel)

Band 13



Plot 7-717. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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	V	397	217	-78.51	10.34	-68.17	-55.2
3128.00	V	-	-	-75.17	8.63	-66.54	-53.5
3910.00	V	-	-	-70.33	6.01	-64.32	-51.3

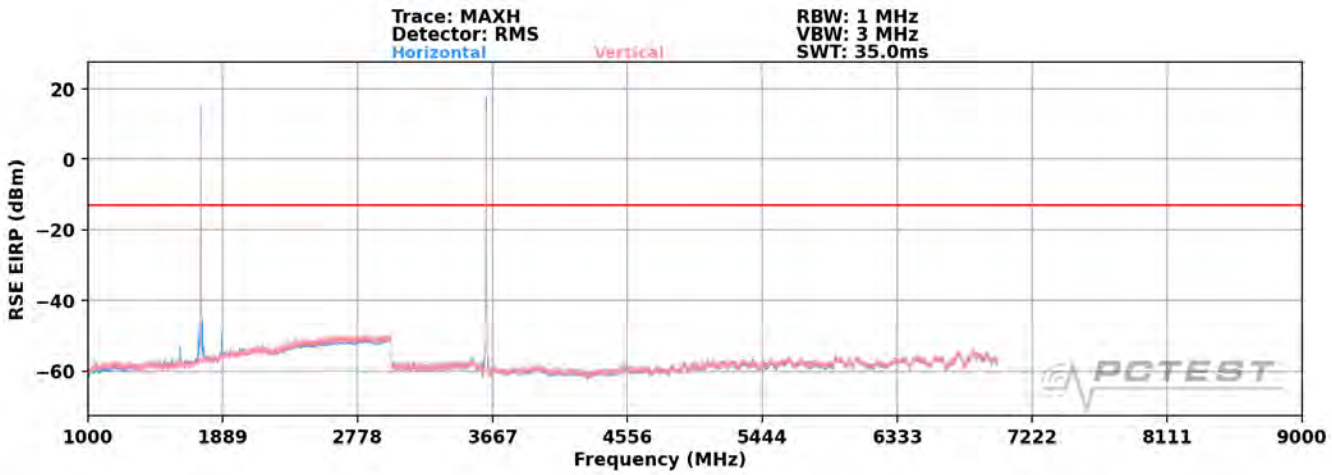
Table 7-32. Radiated Spurious Data (Band 13 – Mid Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	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]
1564.00	V	224	337	-66.16	9.47	-56.69	-16.7

Table 7-33. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

Band 5/26



Plot 7-718. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	829.00	MHz
CHANNEL:	26840	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1658.00	H	166	185	-72.50	9.58	-62.92	-49.9
2487.00	H	338	198	-63.06	9.47	-53.59	-40.6
3316.00	H	-	-	-70.84	7.47	-63.37	-50.4
4145.00	H	-	-	-70.53	8.08	-62.45	-49.4

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

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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	H	153	185	-73.43	9.57	-63.86	-50.9
2509.50	H	327	170	-65.14	9.45	-55.69	-42.7
3346.00	H	-	-	-70.00	7.35	-62.65	-49.7
4182.50	H	-	-	-69.28	8.19	-61.10	-48.1

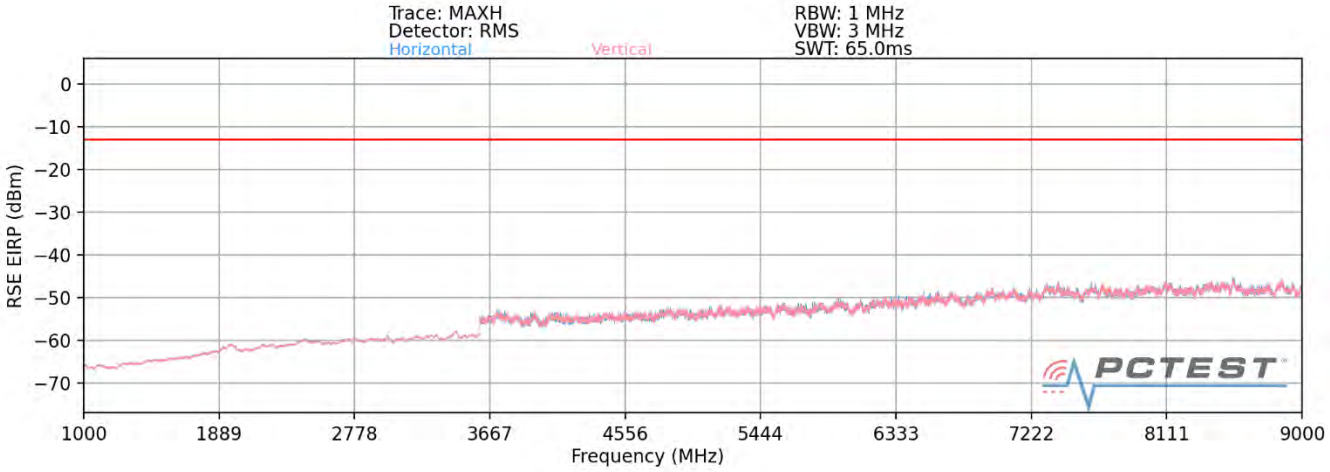
Table 7-35. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	844.00	MHz
CHANNEL:	26990	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

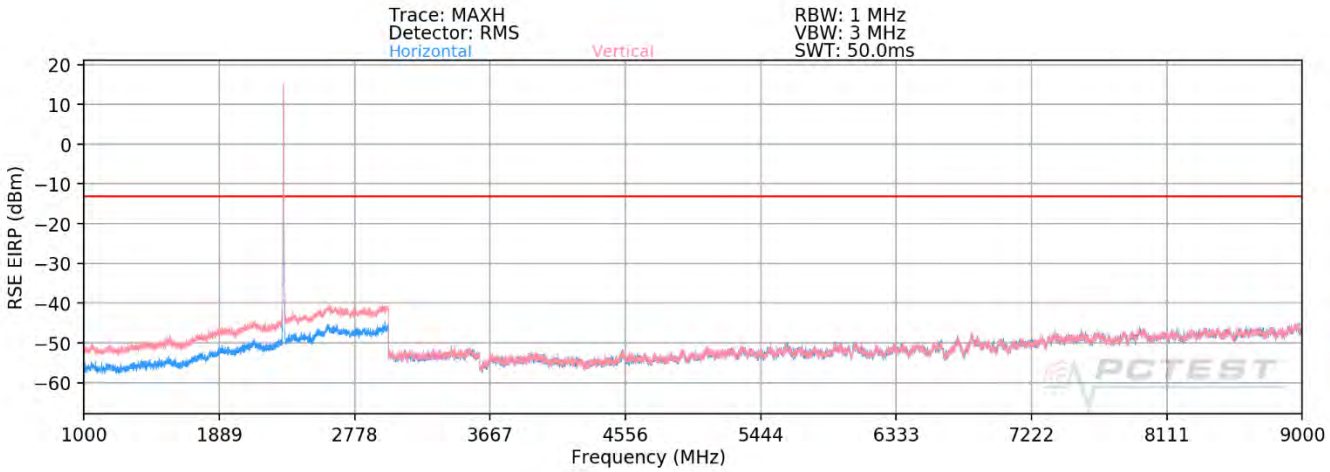
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	H	138	169	-72.44	9.55	-62.89	-49.9
2532.00	H	329	179	-64.53	9.43	-55.10	-42.1
3376.00	H	-	-	-70.41	7.34	-63.07	-50.1
4220.00	H	-	-	-70.77	8.36	-62.40	-49.4

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

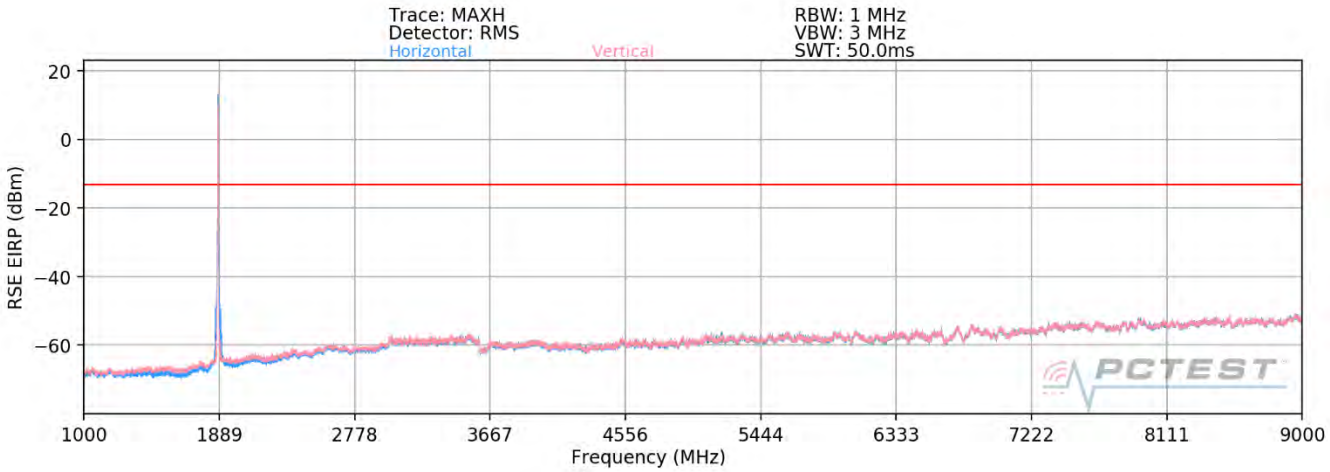
Band n5 (2/30/66 Anchors)



Plot 7-719. Radiated Spurious Plot above 1GHz (Band n5)



Plot 7-720. Radiated Spurious Plot above 1GHz (EN-DC Band n5 + B30)



Plot 7-721. Radiated Spurious Plot above 1GHz (EN-DC Band n5 + B2)

Frequency (MHz):	834.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1668.0	H	-	-	-73.65	-0.70	32.65	-62.61	-13.00	-49.61
2502.0	H	102	148	-70.09	3.03	39.94	-55.32	-13.00	-42.32
3336.0	H	-	-	-70.41	4.05	40.64	-54.62	-13.00	-41.62
4170.0	H	-	-	-71.00	5.53	41.53	-53.72	-13.00	-40.72

Table 7-37. Radiated Spurious Data (Band n5 – Low Channel)

Frequency (MHz):	836.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.0	H	159	220	-72.33	-0.70	33.97	-61.29	-13.00	-48.29
2509.5	H	104	143	-71.07	3.08	39.01	-56.25	-13.00	-43.25
3346.0	H	-	-	-72.86	4.18	38.32	-56.93	-13.00	-43.93
4182.5	H	-	-	-78.67	5.74	34.07	-61.18	-13.00	-48.18

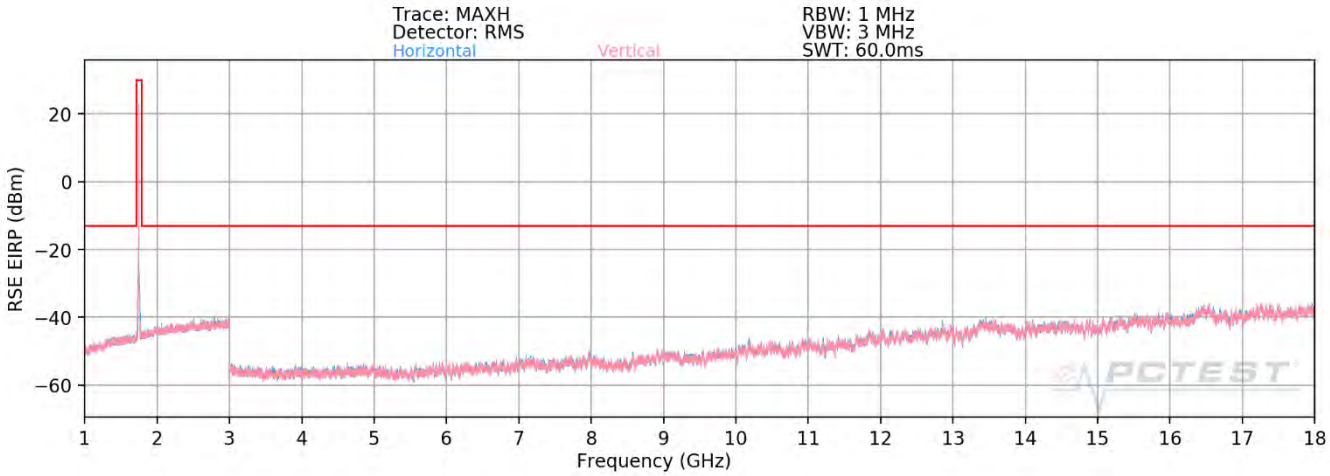
Table 7-38. Radiated Spurious Data (Band n5 – Mid Channel)

Frequency (MHz):	839.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1678.0	H	130	111	-71.69	-0.70	34.61	-60.65	-13.00	-47.65
2517.0	H	270	166	-65.33	3.15	44.82	-50.44	-13.00	-37.44
3356.0	H	-	-	-70.36	4.29	40.93	-54.32	-13.00	-41.32
4195.0	H	-	-	-70.81	5.33	41.52	-53.73	-13.00	-40.73

Table 7-39. Radiated Spurious Data (Band n5 – High Channel)

Band 66/4



Plot 7-722. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1710.70	MHz
CHANNEL:	131979	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	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]
3421.40	V	-	-	-72.93	7.54	-65.39	-52.4
5132.10	V	-	-	-74.67	11.13	-63.54	-50.5

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

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	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	398	369	-72.09	7.53	-64.55	-51.6
5235.00	V	-	-	-74.06	11.28	-62.78	-49.8
6980.00	V	-	-	-73.91	11.88	-62.03	-49.0

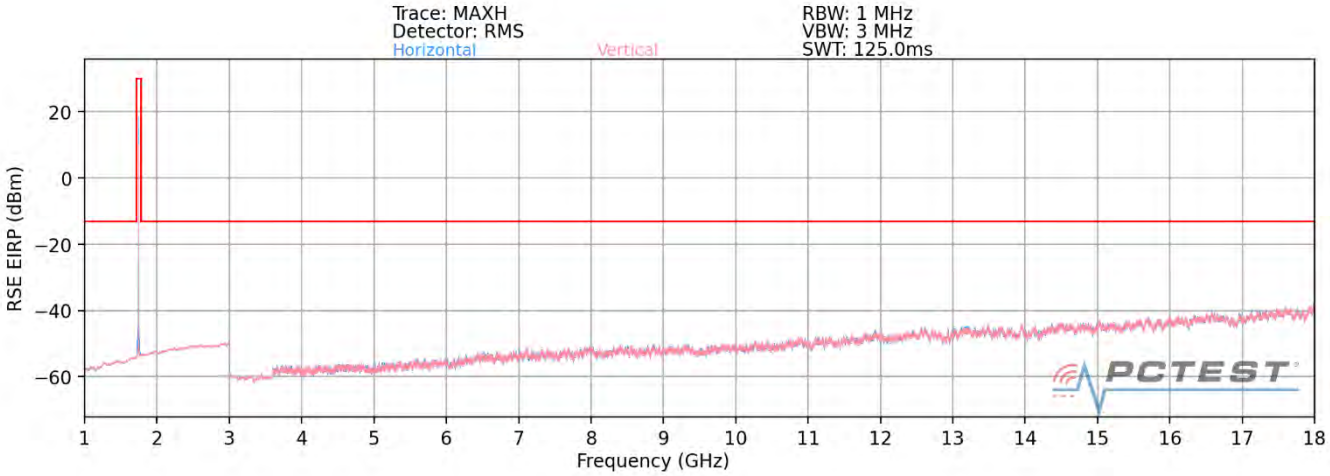
Table 7-41. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1779.30	MHz
CHANNEL:	132665	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

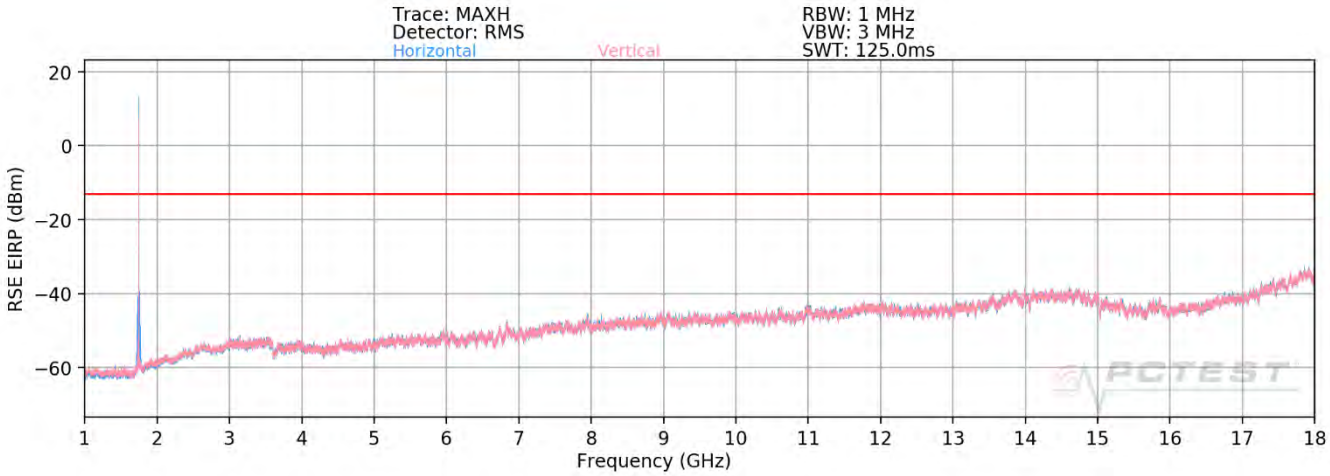
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3558.60	V	-	-	-73.70	7.27	-66.43	-53.4
5337.90	V	400	359	-73.80	11.53	-62.27	-49.3
7117.20	V	-	-	-74.49	11.97	-62.52	-49.5
8896.50	V	-	-	-66.38	7.65	-58.73	-45.7

Table 7-42. Radiated Spurious Data (Band 66/4 – High Channel)

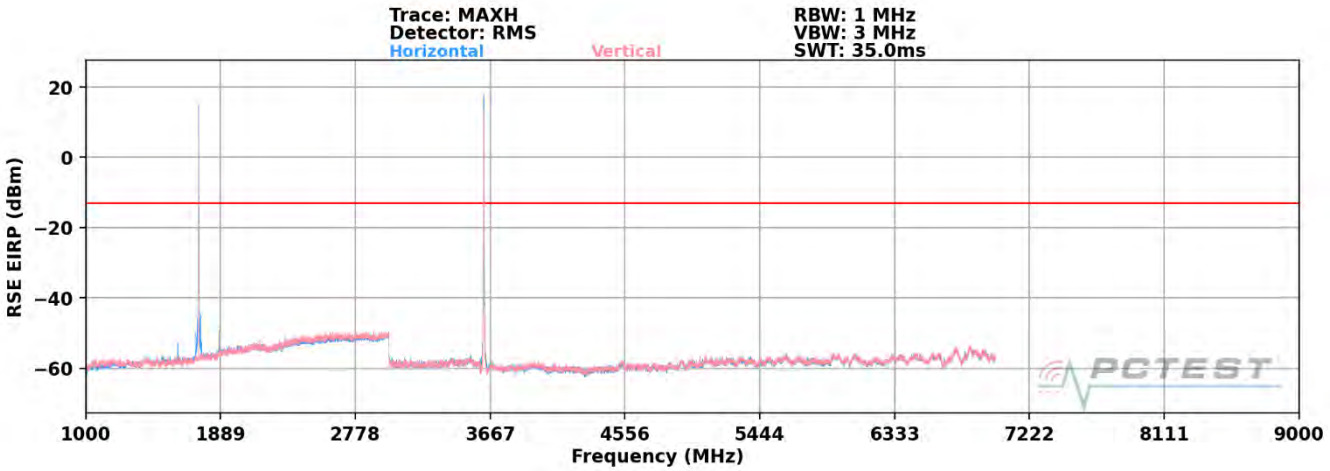
NR Band n66 (5/12/13/48 Anchors)



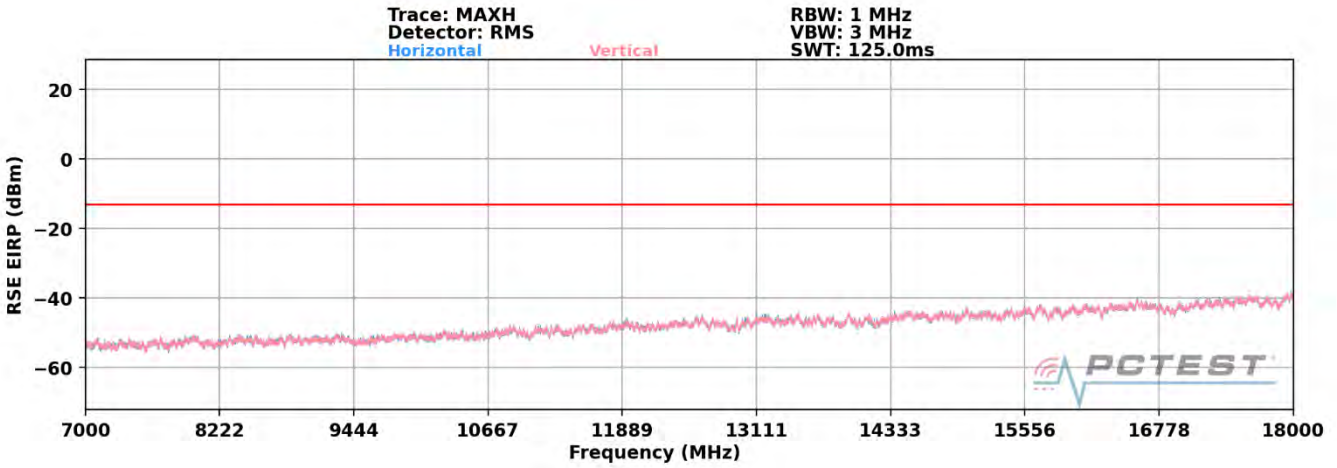
Plot 7-723. Radiated Spurious Plot above 1GHz (n66 Standalone)



Plot 7-724. Radiated Spurious Plot above 1GHz (n66+ Anchor B12 EN-DC)



Plot 7-725. Radiated Spurious Plot above 1GHz (n66+ Anchor B48 EN-DC 1GHz – 4GHz)



Plot 7-726. Radiated Spurious Plot above 1GHz (n66+ Anchor B48 EN-DC 4GHz – 18GHz)

Frequency (MHz):	1720.0
RB / Offset:	1 / 53
Mode:	SA

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]
3440.0	V	351	86	-74.25	7.41	40.16	-55.10	-13.00	-42.10
5160.0	V	-	-	-75.27	10.07	41.80	-53.45	-13.00	-40.45
6880.0	V	-	-	-76.02	13.63	44.61	-50.65	-13.00	-37.65
8600.0	V	-	-	-74.33	16.62	49.29	-45.97	-13.00	-32.97

Table 7-43. Radiated Spurious Data (n66 – Low Channel)

Frequency (MHz):	1745.0
RB / Offset:	1 / 53
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]
3490.0	V	-	-	-73.80	7.33	40.53	-54.73	-13.00	-41.73
5235.0	V	-	-	-75.25	9.86	41.61	-53.65	-13.00	-40.65
6980.0	V	-	-	-75.50	13.99	45.49	-49.76	-13.00	-36.76

Table 7-44. Radiated Spurious Data (n66 – Mid Channel)

Frequency (MHz):	1770.0
RB / Offset:	1 / 53
Mode:	SA

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]
3540.0	V	256	261	-73.84	7.80	40.96	-54.29	-13.00	-41.29
5310.0	V	-	-	-75.47	10.44	41.97	-53.28	-13.00	-40.28
7080.0	V	-	-	-75.63	14.64	46.01	-49.25	-13.00	-36.25
8850.0	V	-	-	-76.17	16.91	47.74	-47.52	-13.00	-34.52

Table 7-45. Radiated Spurious Data (n66 – High Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 50
Mode:	EN-DC
Anchor Band:	LTE Band 12

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	H	400	15	-77.73	1.11	30.38	-64.88	-13.00	-51.88
5235.0	H	-	-	-79.43	4.96	32.53	-62.73	-13.00	-49.73
6980.0	H	-	-	-79.80	6.31	33.51	-61.75	-13.00	-48.75

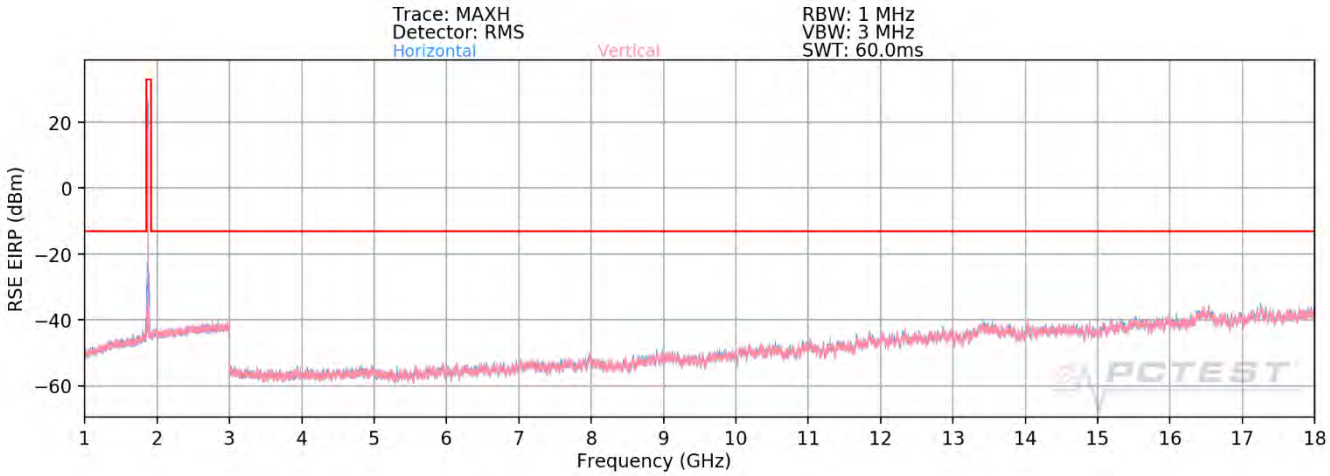
Table 7-46. Radiated Spurious Data (n66 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 50
Mode:	EN-DC
Anchor Band:	LTE 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]
1880.0	V	134	275	-65.84	5.39	46.55	-48.71	-13.00	-35.71
3490.0	V	398	152	-77.83	1.11	30.28	-64.98	-13.00	-51.98
5235.0	V	-	-	-79.92	4.96	32.04	-63.22	-13.00	-50.22
6980.0	V	-	-	-79.99	6.31	33.32	-61.94	-13.00	-48.94

Table 7-47. Radiated Spurious Data (n66 – Mid Channel)

Band 25/2



Plot 7-727. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY:	1860.00	MHz
CHANNEL:	26140	
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]
3720.00	V	-	-	-69.29	6.08	-63.21	-50.2
5580.00	V	-	-	-73.85	12.13	-61.71	-48.7

Table 7-48. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
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]
3765.00	V	-	-	-68.40	5.92	-62.47	-49.5
5647.50	V	-	-	-74.92	12.32	-62.59	-49.6
7530.00	V	-	-	-72.83	12.59	-60.24	-47.2

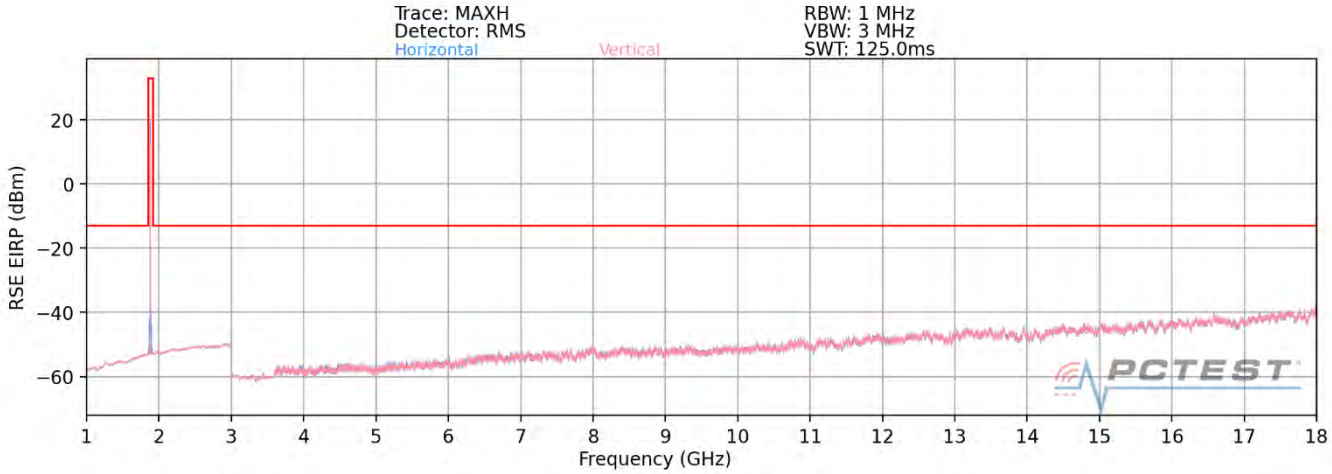
Table 7-49. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1905.00	MHz
CHANNEL:	26590	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

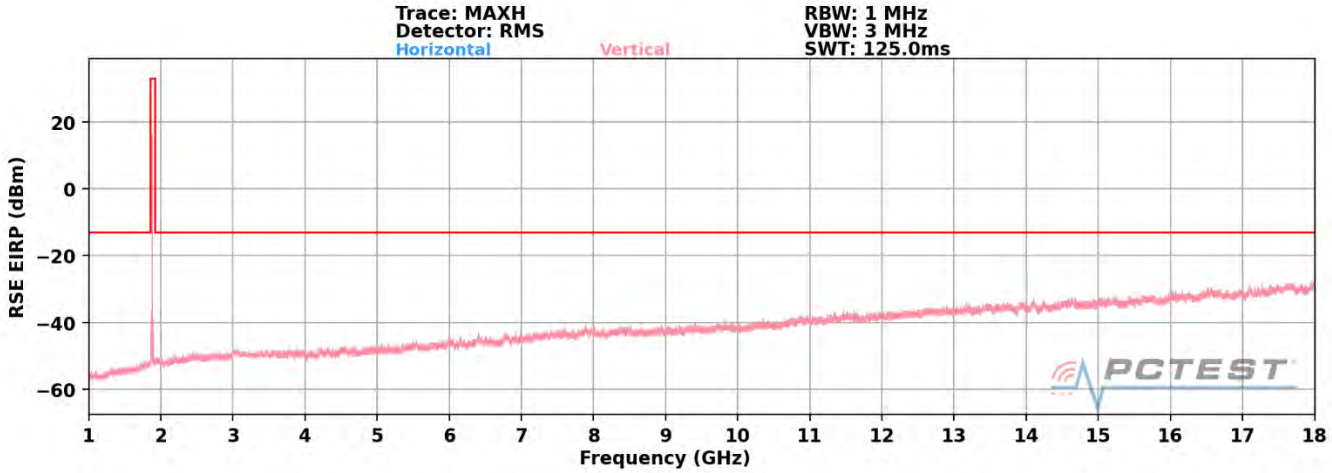
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	V	-	-	-68.02	5.87	-62.15	-49.2
5715.00	V	-	-	-73.54	12.46	-61.08	-48.1
7620.00	V	-	-	-71.59	12.42	-59.17	-46.2

Table 7-50. Radiated Spurious Data (Band 25/2 – High Channel)

NR Band n25/2 (5/12/13 Anchors)



Plot 7-728. Radiated Spurious Plot above 1GHz (n25/2 Standalone)



Plot 7-729. Radiated Spurious Plot above 1GHz (n25/2 + Anchor B12 EN-DC)

Bandwidth (MHz):	20
Frequency (MHz):	1860.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.0	H	-	-	-76.21	5.87	36.66	-58.60	-13.00	-45.60
5580.0	H	-	-	-76.95	7.92	37.97	-57.29	-13.00	-44.29
7440.0	H	-	-	-78.29	12.77	41.48	-53.77	-13.00	-40.77

Table 7-51. Radiated Spurious Data (n25/2 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1880.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	-	-	-77.46	6.04	35.58	-59.67	-13.00	-46.67
5640.0	H	-	-	-77.16	8.14	37.98	-57.28	-13.00	-44.28
7520.0	H	-	-	-78.13	12.84	41.71	-53.55	-13.00	-40.55

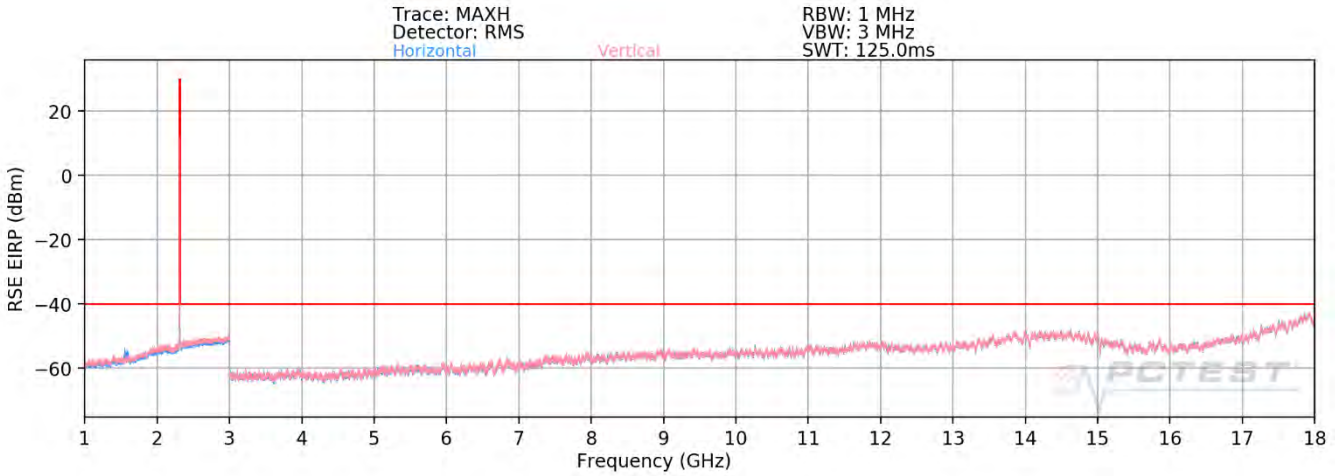
Table 7-52. Radiated Spurious Data (n25/2 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1900.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3800.0	H	-	-	-77.56	5.59	35.03	-60.22	-13.00	-47.22
5700.0	H	-	-	-77.23	8.25	38.02	-57.24	-13.00	-44.24
7600.0	H	-	-	-78.46	13.07	41.61	-53.65	-13.00	-40.65

Table 7-53. Radiated Spurious Data (n25/2 – High Channel)

Band 30



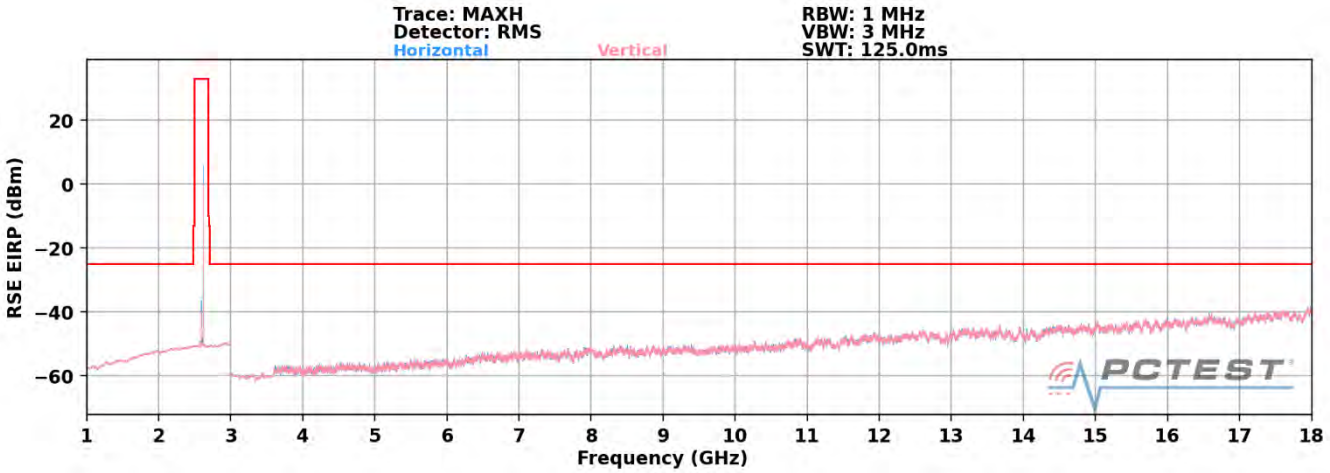
Plot 7-730. Radiated Spurious Plot above 1GHz (Band 30)

OPERATING FREQUENCY:	2310.00	MHz
CHANNEL:	27710	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

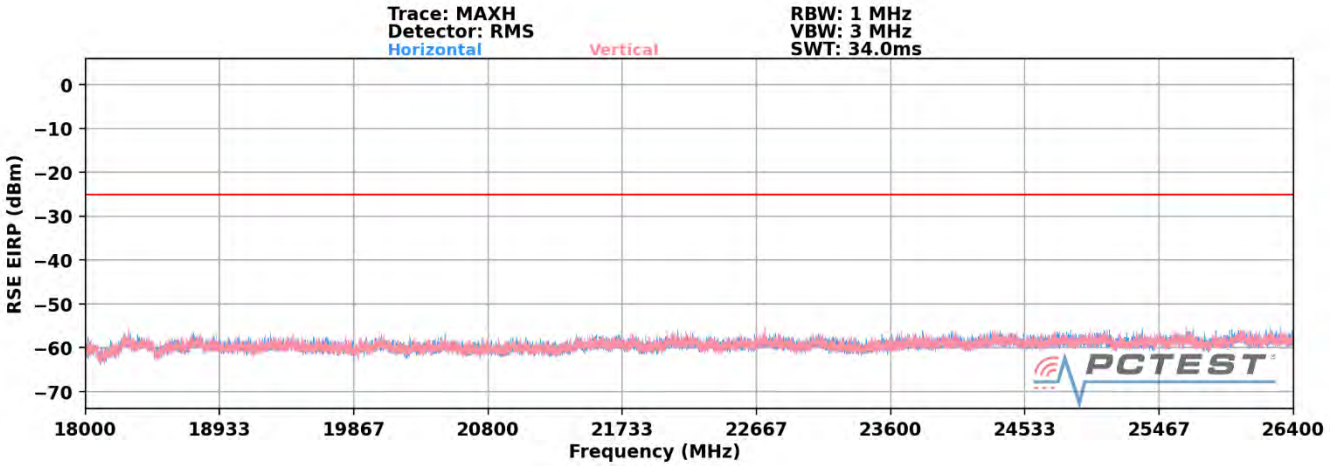
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4620.00	H	-	-	-74.37	9.67	-64.70	-24.7
6930.00	H	-	-	-73.25	11.83	-61.42	-21.4
9240.00	H	-	-	-67.24	8.70	-58.54	-18.5

Table 7-54. Radiated Spurious Data (Band 30)

Band 41/38



Plot 7-731. Radiated Spurious Plot above 1GHz (Band 41/38)



Plot 7-732. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38)

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

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	121	189	-64.45	10.80	-53.65	-28.7
7518.00	-	-	-69.97	12.59	-57.38	-32.4

Table 7-55. Radiated Spurious Data (Band 41/38 – Low Channel)

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

Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	111	208	-62.65	11.16	-51.48	-26.5
7779.00	-	-	-69.91	12.35	-57.56	-32.6

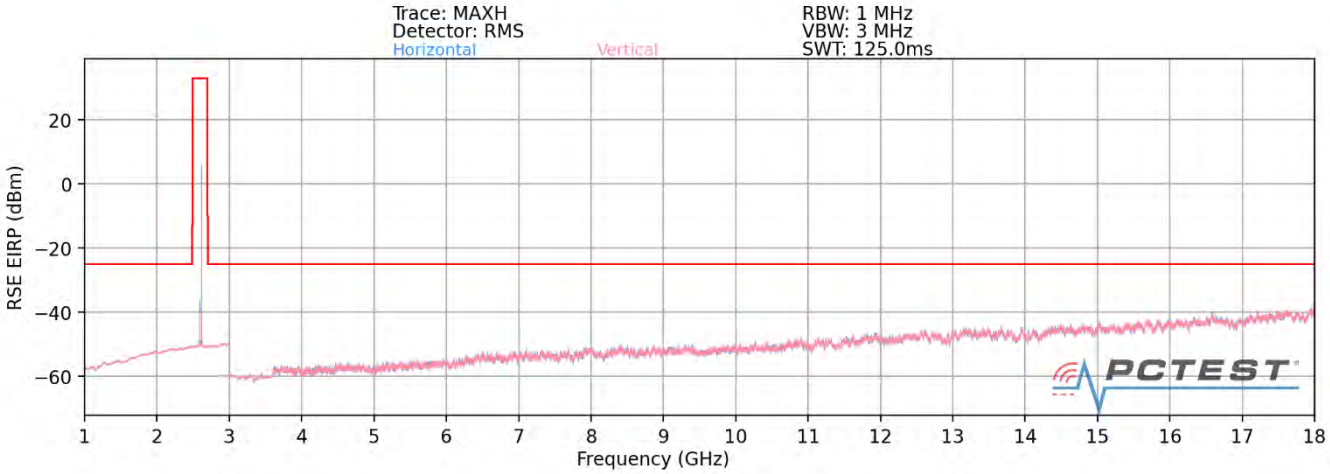
Table 7-56. Radiated Spurious Data (Band 41/38 – Mid Channel)

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

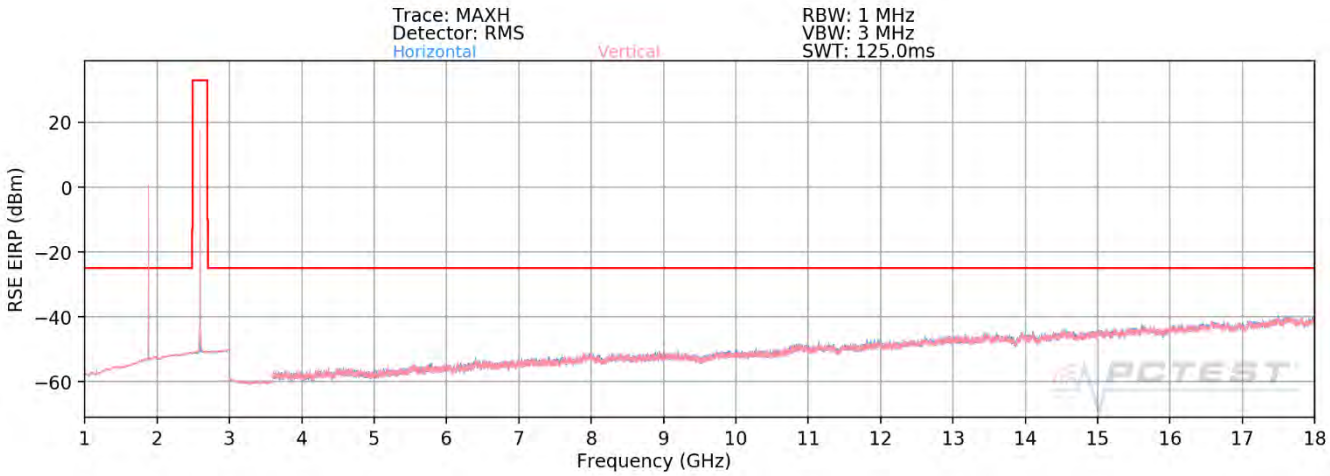
Frequency [MHz]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	121	187	-69.23	11.51	-57.72	-32.7
8040.00	-	-	-69.28	12.05	-57.23	-32.2

Table 7-57. Radiated Spurious Data (Band 41/38 – High Channel)

NR Band n41(2/66 Anchors)



Plot 7-733. Radiated Spurious Plot above 1GHz (n41 Standalone)



Plot 7-734. Radiated Spurious Plot above 1GHz (n41 + Anchor B2 EN-DC)

Bandwidth (MHz):	100
Frequency (MHz):	2546.0

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]
5092.0	V	118	209	-74.36	6.61	39.25	-65.55	-25.00	-40.55
7638.0	V	-	-	-78.51	12.99	41.48	-63.32	-25.00	-38.32
10184.0	V	-	-	-79.89	14.01	41.12	-63.68	-25.00	-38.68

Table 7-58. Radiated Spurious Data (Band n41 – Low Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2593.0

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]
5186.0	V	337	192	-75.68	7.33	38.65	-66.15	-25.00	-41.15
7779.0	V	-	-	-78.62	12.83	41.21	-63.59	-25.00	-38.59
10372.0	V	-	-	-80.21	15.64	42.43	-62.37	-25.00	-37.37

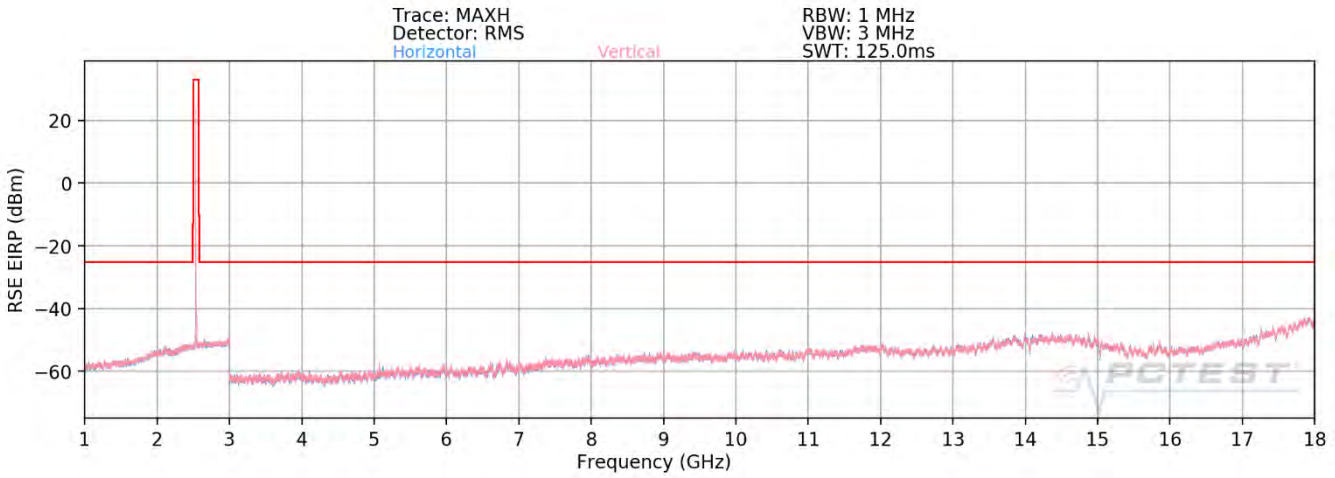
Table 7-59. Radiated Spurious Data (Band n41 – Mid Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2640.0

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]
5280.0	V	216	200	-76.33	6.97	37.64	-67.16	-25.00	-42.16
7920.0	V	-	-	-78.11	14.15	43.04	-61.76	-25.00	-36.76
10560.0	V	-	-	-79.62	15.79	43.17	-61.63	-25.00	-36.63

Table 7-60. Radiated Spurious Data (Band n41 – High Channel)

Band 7



Plot 7-735. Radiated Spurious Plot above 1GHz (Band 7)

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	394	352	-68.72	10.83	-57.89	-32.9
7530.00	H	-	-	-72.33	12.59	-59.73	-34.7

Table 7-61. 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	400	358	-67.25	10.95	-56.30	-31.3
7605.00	H	-	-	-72.90	12.43	-60.46	-35.5

Table 7-62. 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	393	353	-68.59	11.02	-57.57	-32.6
7680.00	H	-	-	-71.63	12.38	-59.25	-34.3

Table 7-63. Radiated Spurious Data (Band 7 – High Channel)

7.9 Uplink Carrier Aggregation Radiated Measurements

§2.1053,

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.

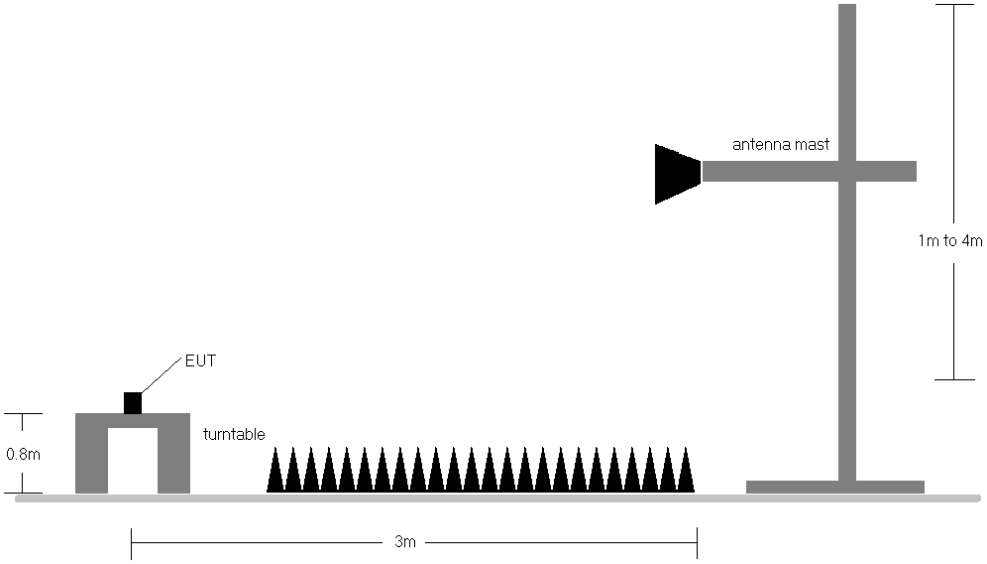


Figure 7-9. Test Instrument & Measurement Setup

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.

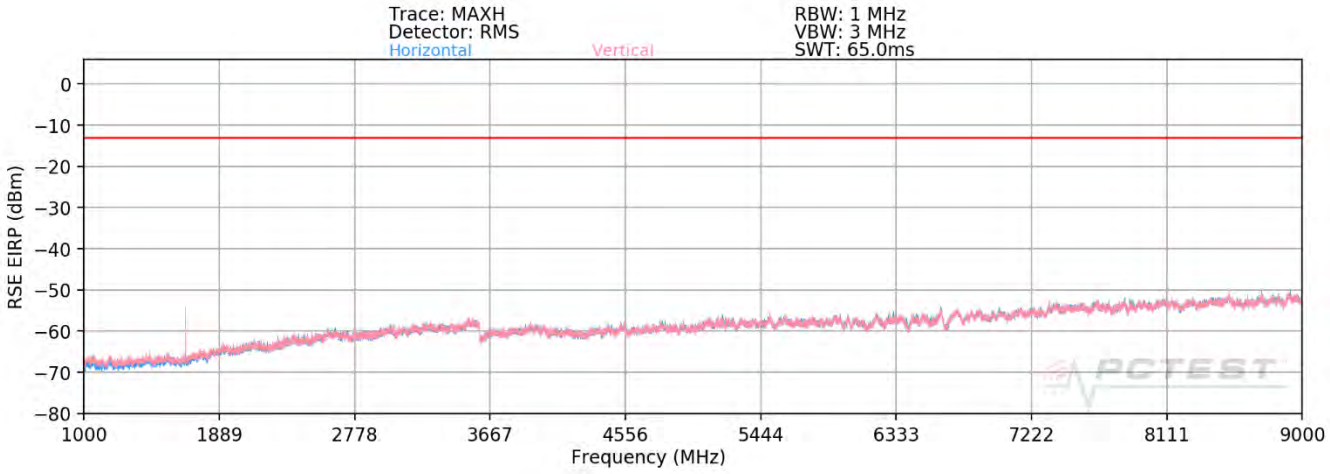
3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

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

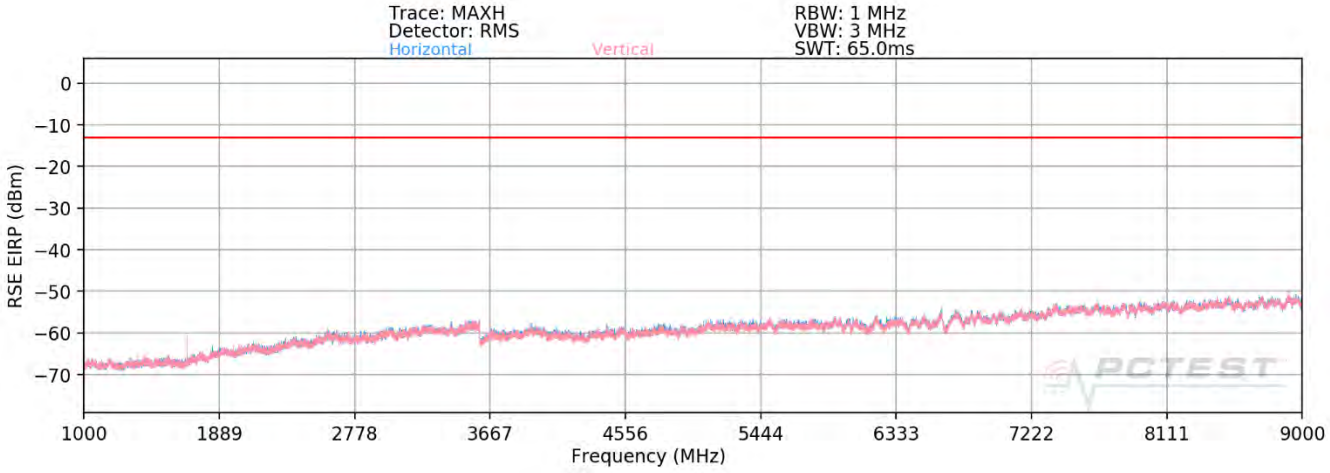
5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

ULCA Band 5



Plot 7-736. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 5 Low Channel – PCC/SCC: 1RB)



Plot 7-737. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 5 High Channel – PCC/SCC: 1RB)

OPERATING FREQUENCY (PCC):	829.00	MHz
OPERATING FREQUENCY (SCC):	838.90	MHz
CHANNEL (PCC):	20450	
CHANNEL (SCC):	20549	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1658.00	V	400	26	-65.53	9.58	-55.95	-43.0
2487.00	V	400	358	-77.76	9.47	-68.29	-55.3
3316.00	V	-	-	-72.98	7.47	-65.50	-52.5
4145.00	V	-	-	-72.21	8.08	-64.12	-51.1

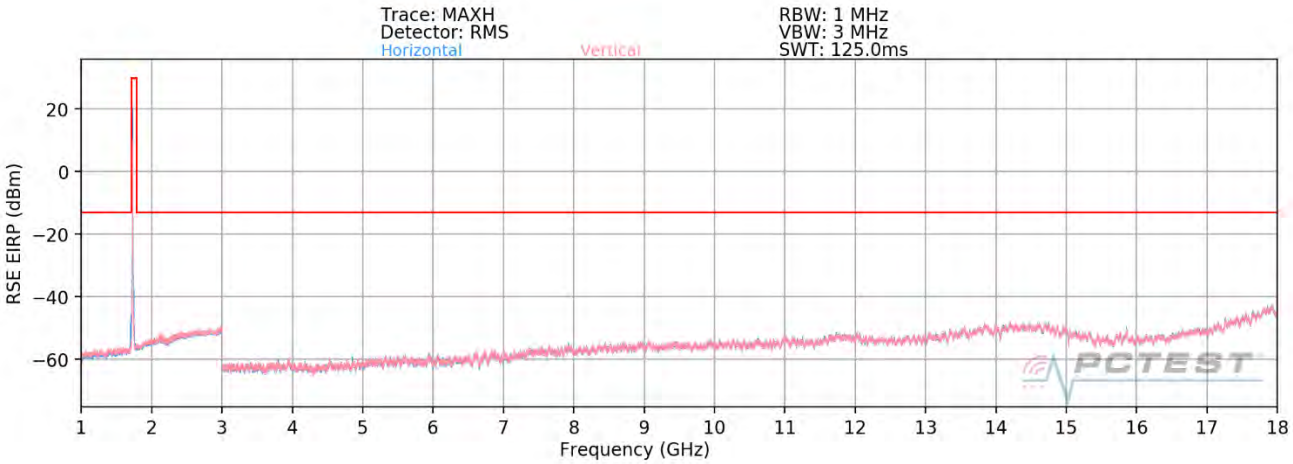
Plot 7-64. Radiated Spurious Data (ULCA B5 PCC: RB 1 Offset 49, SCC: RB 1 Offset 0 – Low Channel)

OPERATING FREQUENCY (PCC):	844.00	MHz
OPERATING FREQUENCY (SCC):	834.10	MHz
CHANNEL (PCC):	20600	
CHANNEL (SCC):	20501	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

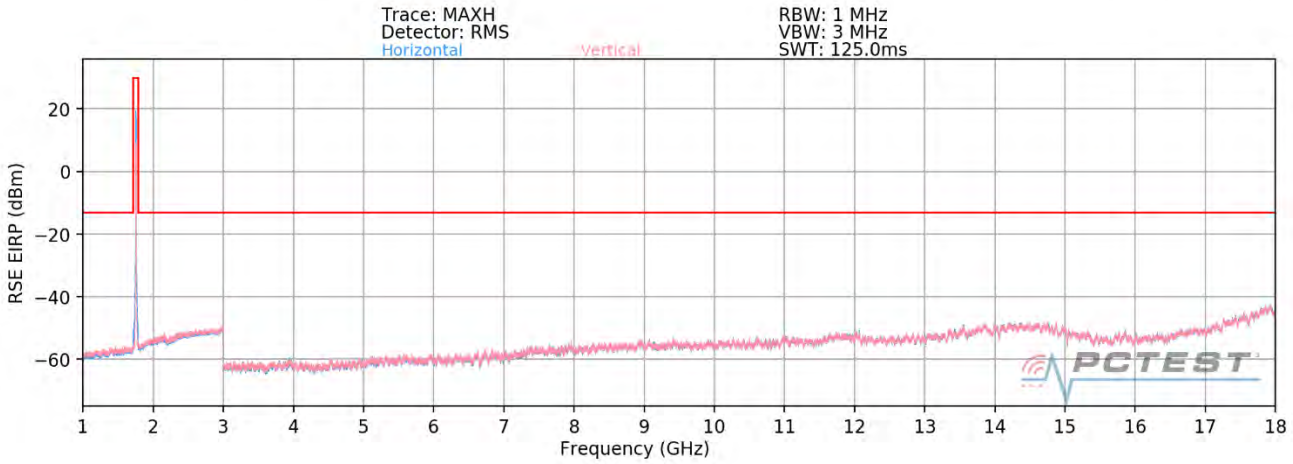
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	V	398	15	-70.42	9.55	-60.87	-47.9
2532.00	V	400	14	-76.89	9.43	-67.46	-54.5
3376.00	V	-	-	-74.44	7.34	-67.10	-54.1
4220.00	V	-	-	-74.61	8.36	-66.24	-53.2

Plot 7-65. Radiated Spurious Data (ULCA B5 PCC: RB 1 Offset 0, SCC: RB 1 Offset 49 – High Channel)

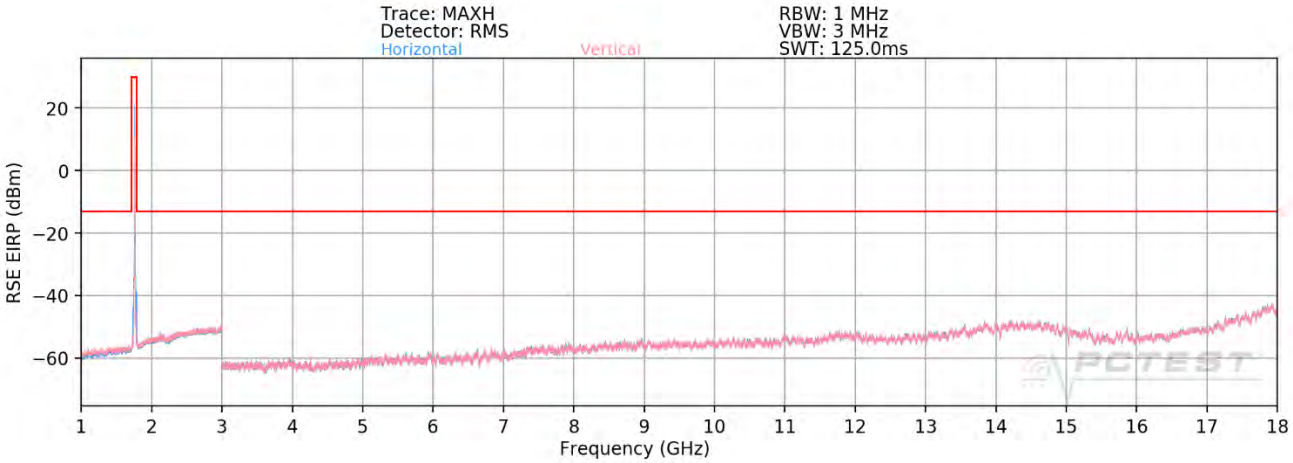
ULCA Band 66



Plot 7-738. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 66 Low Channel – PCC/SCC: 1RB)



Plot 7-739. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 66 Mid Channel – PCC/SCC: 1RB)



Plot 7-740. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 66 High Channel – PCC/SCC: 1RB)

OPERATING FREQUENCY (PCC):	1720.00	MHz
OPERATING FREQUENCY (SCC):	1739.80	MHz
CHANNEL (PCC):	132072	
CHANNEL (SCC):	132270	
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	H	-	-	-71.20	6.28	-64.92	-51.9
5160.00	H	400	35	-71.67	8.98	-62.68	-49.7
6880.00	H	-	-	-71.64	9.42	-62.22	-49.2
8600.00	H	-	-	-69.16	9.62	-59.54	-46.5

Plot 7-66. Radiated Spurious Data (ULCA B66 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)

OPERATING FREQUENCY (PCC):	1745.00	MHz
OPERATING FREQUENCY (SCC):	1764.80	MHz
CHANNEL (PCC):	132322	
CHANNEL (SCC):	132520	
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	H	-	-	-71.29	6.47	-64.82	-51.8
5235.00	H	400	248	-70.31	8.97	-61.34	-48.3
6980.00	H	-	-	-70.89	9.23	-61.66	-48.7
8725.00	H	-	-	-67.66	9.59	-58.06	-45.1

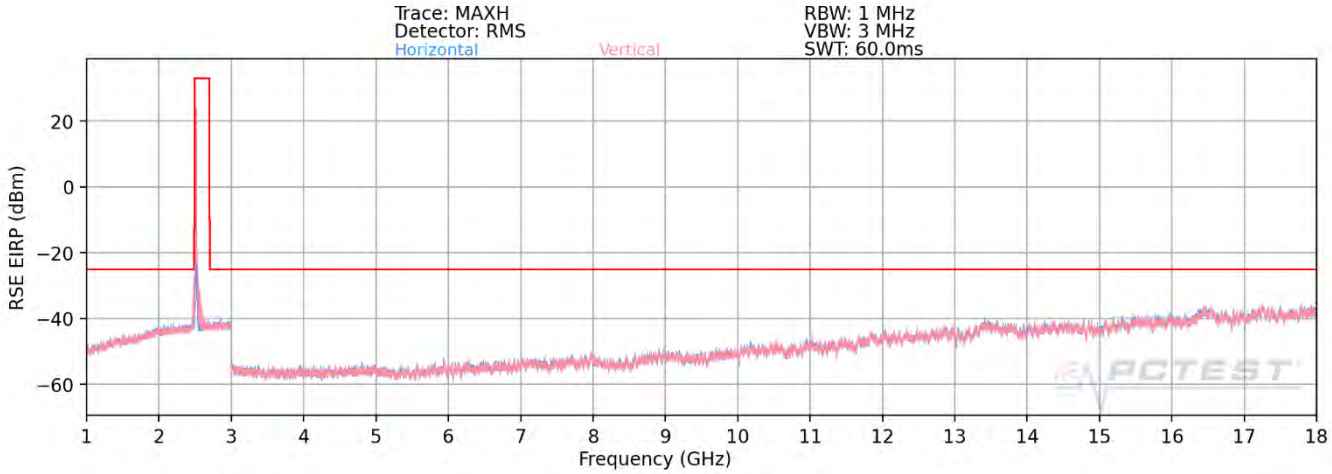
Plot 7-67. Radiated Spurious Data (ULCA B66 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)

OPERATING FREQUENCY (PCC):	1770.00	MHz
OPERATING FREQUENCY (SCC):	1750.20	MHz
CHANNEL (PCC):	132572	
CHANNEL (SCC):	132374	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

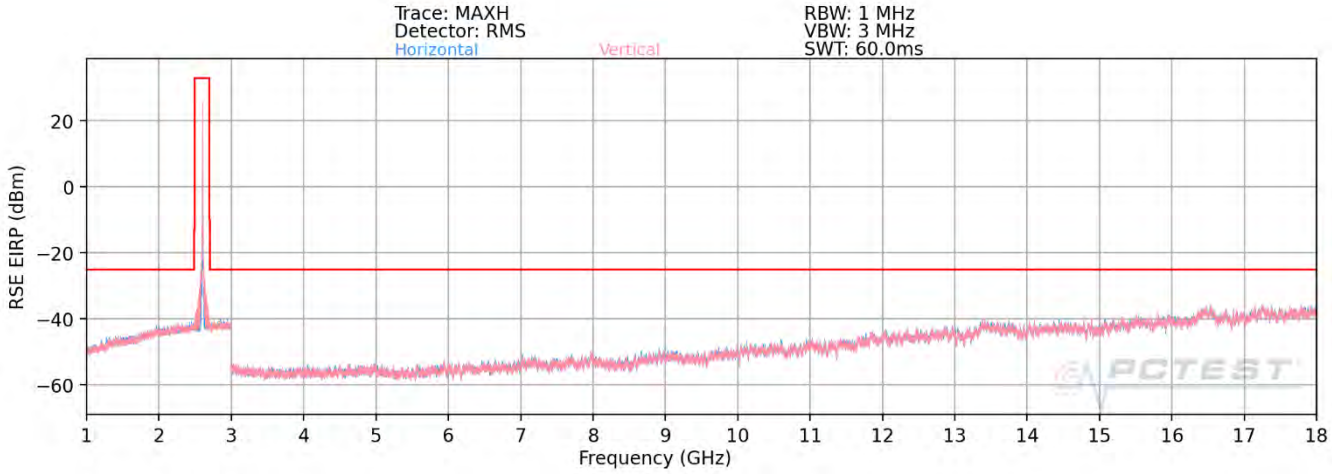
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	H	-	-	-70.49	6.45	-64.04	-51.0
5310.00	H	394	211	-70.16	9.09	-61.07	-48.1
7080.00	H	-	-	-70.35	9.17	-61.18	-48.2
8850.00	H	-	-	-68.18	9.57	-58.61	-45.6

Plot 7-68. Radiated Spurious Data (ULCA B66 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – High Channel)

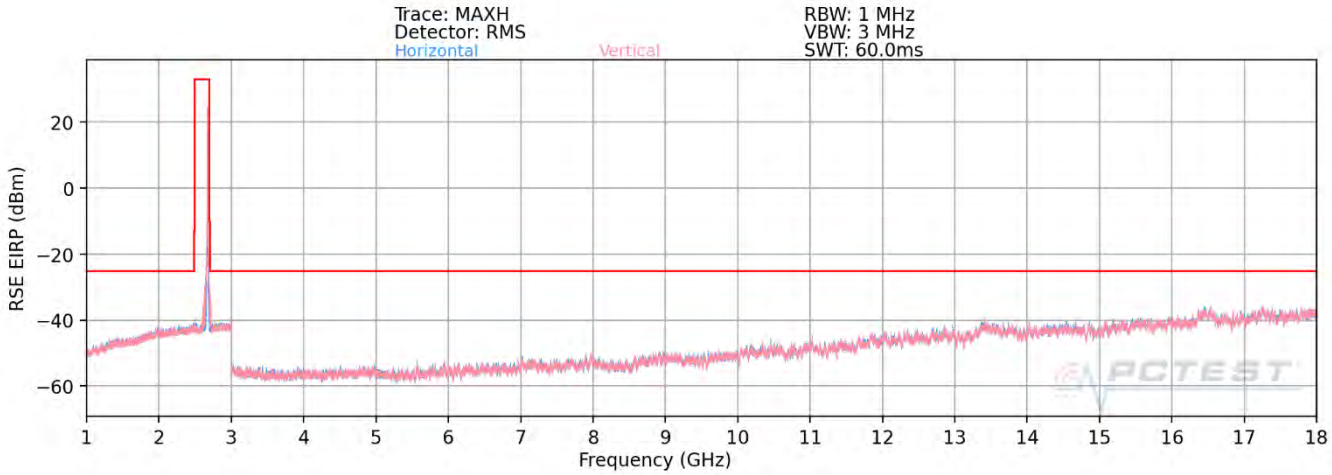
ULCA Band 41



Plot 7-741. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 Low Channel – PCC/SCC: 1RB)



Plot 7-742. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 Mid Channel – PCC/SCC: 1RB)



Plot 7-743. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 High Channel – PCC/SCC: 1RB)

OPERATING FREQUENCY (PCC):	2506.00	MHz
OPERATING FREQUENCY (SCC):	2525.80	MHz
CHANNEL (PCC):	39750	
CHANNEL (SCC):	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	101	122	-61.53	8.75	-52.78	-27.8
7518.00	H	-	-	-59.70	9.32	-50.39	-25.4
10024.00	H	-	-	-59.13	9.80	-49.33	-24.3
12530.00	H	-	-	-50.89	8.87	-42.02	-17.0

Plot 7-69. Radiated Spurious Plot (ULCA B41 Left Carrier: RB 1 Offset 99, Right Carrier: RB 1 Offset 0)

OPERATING FREQUENCY (PCC):	2593.00	MHz
OPERATING FREQUENCY (SCC):	2612.80	MHz
CHANNEL (PCC):	40620	
CHANNEL (SCC):	40818	
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	255	271	-59.91	9.03	-50.89	-25.9
7779.00	H	-	-	-59.80	9.29	-50.51	-25.5
10372.00	H	-	-	-57.53	9.50	-48.03	-23.0
12965.00	H	-	-	-48.73	8.75	-39.97	-15.0

Plot 7-70. Radiated Spurious Plot (ULCA B41 Left Carrier: RB 100 Offset 0, Right Carrier: RB 100 Offset 0)

OPERATING FREQUENCY (PCC):	2680.00	MHz
OPERATING FREQUENCY (SCC):	2660.20	MHz
CHANNEL (PCC):	41490	
CHANNEL (SCC):	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	103	343	-60.58	8.99	-51.59	-26.6
8040.00	H	-	-	-58.20	9.35	-48.84	-23.8
10720.00	H	-	-	-57.43	9.39	-48.04	-23.0
13400.00	H	-	-	-49.44	8.67	-40.77	-15.8

Plot 7-71. Radiated Spurious Data (ULCA B41 Left Carrier: RB 1 Offset 0, Right Carrier: RB 1 Offset 99)

7.10 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:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	680,500,014	14	0.0000021
100 %		- 30	680,500,068	68	0.0000100
100 %		- 20	680,500,081	81	0.0000119
100 %		- 10	680,499,839	-161	-0.0000237
100 %		0	680,499,876	-124	-0.0000182
100 %		+ 10	680,499,635	-365	-0.0000536
100 %		+ 20	680,499,814	-186	-0.0000273
100 %		+ 30	680,500,335	335	0.0000492
100 %		+ 40	680,500,301	301	0.0000442
100 %		+ 50	680,500,069	69	0.0000101
BATT. ENDPOINT	3.85	+ 20	680,500,077	77	0.0000113

Table 7-72. 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

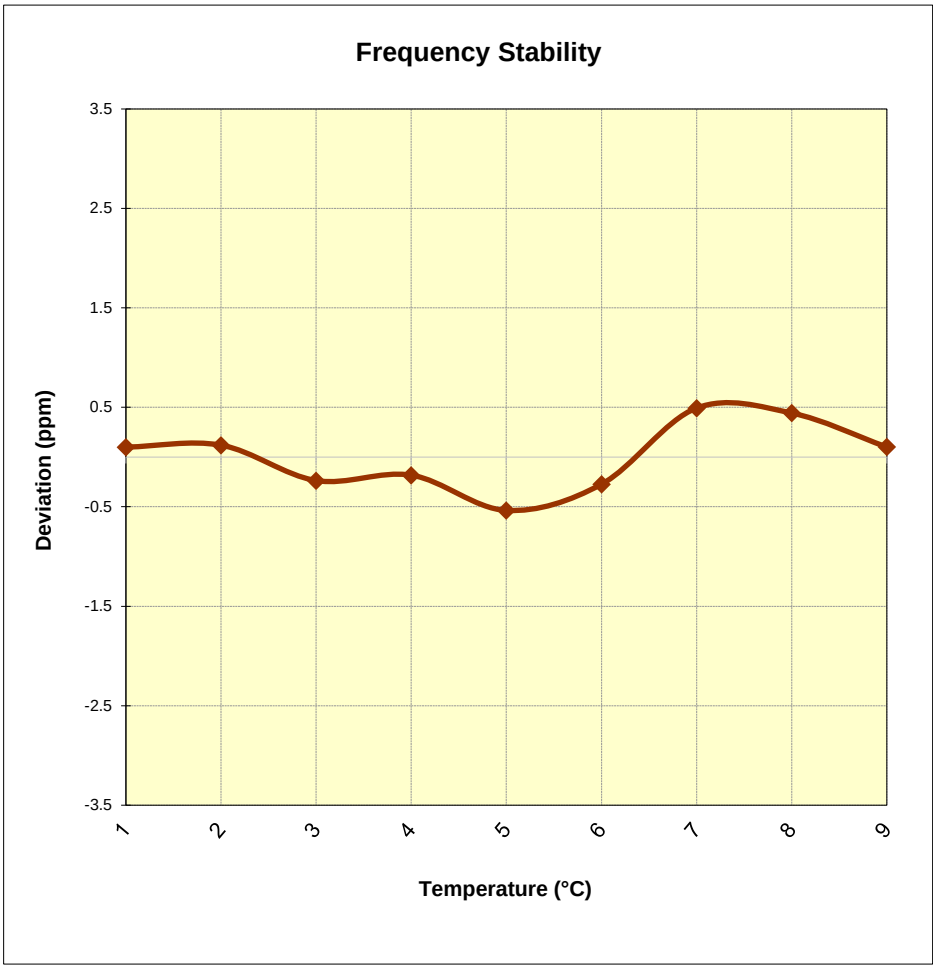


Figure 7-10. Frequency Stability Graph (Band 71)

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	707,500,007	7	0.0000010
100 %		- 30	707,499,999	-1	-0.0000001
100 %		- 20	707,500,175	175	0.0000247
100 %		- 10	707,500,116	116	0.0000164
100 %		0	707,499,985	-15	-0.0000021
100 %		+ 10	707,500,203	203	0.0000287
100 %		+ 20	707,499,943	-57	-0.0000081
100 %		+ 30	707,499,911	-89	-0.0000126
100 %		+ 40	707,499,835	-165	-0.0000233
100 %		+ 50	707,500,182	182	0.0000257
BATT. ENDPOINT	3.85	+ 20	707,499,726	-274	-0.0000387

Table 7-73. Frequency Stability Data (Band 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 12 Frequency Stability Measurements

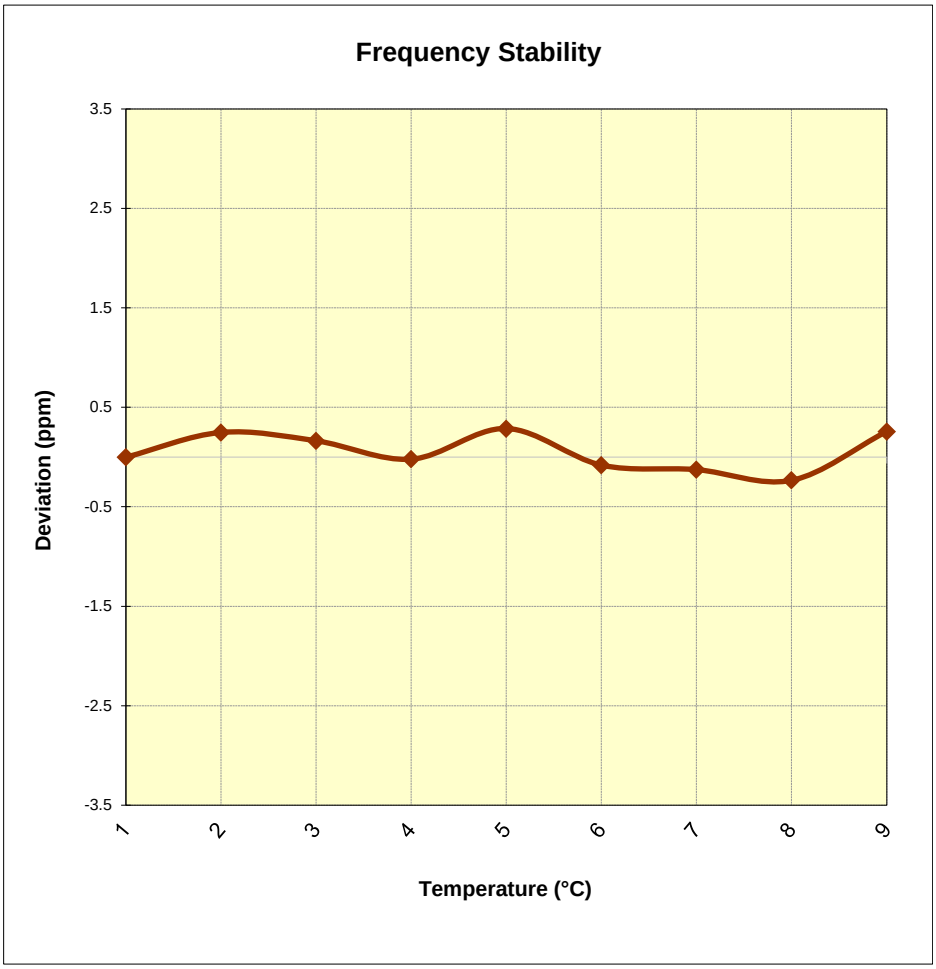


Figure 7-11. Frequency Stability Graph (Band 12)

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	781,999,826	-174	-0.0000223
100 %		- 30	782,000,117	117	0.0000150
100 %		- 20	782,000,135	135	0.0000173
100 %		- 10	782,000,147	147	0.0000188
100 %		0	781,999,838	-162	-0.0000207
100 %		+ 10	782,000,120	120	0.0000153
100 %		+ 20	782,000,016	16	0.0000020
100 %		+ 30	782,000,006	6	0.0000008
100 %		+ 40	781,999,966	-34	-0.0000043
100 %		+ 50	781,999,946	-54	-0.0000069
BATT. ENDPOINT	3.85	+ 20	782,000,014	14	0.0000018

Table 7-74. 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

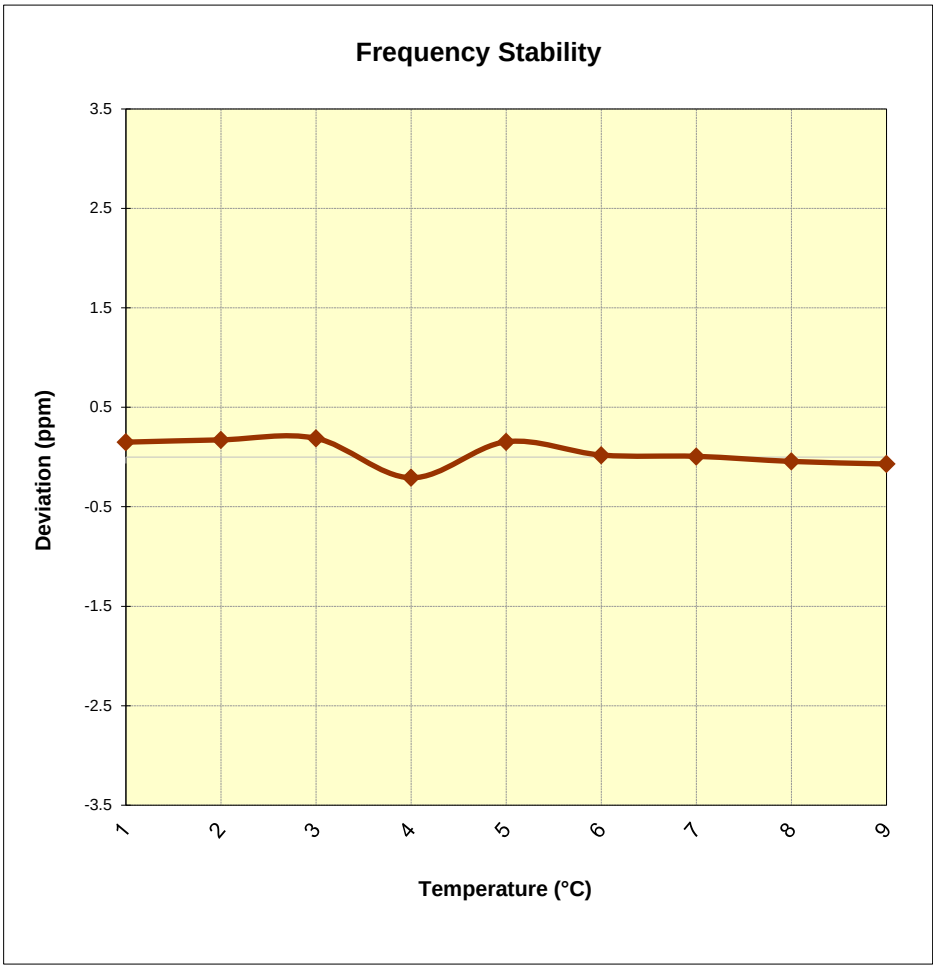


Figure 7-12. Frequency Stability Graph (Band 13)

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	831,500,000	Hz
CHANNEL:	26865	
REFERENCE VOLTAGE:	4.21	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	831,499,998	-2	-0.0000002
100 %		- 30	831,499,680	-320	-0.0000385
100 %		- 20	831,499,915	-85	-0.0000102
100 %		- 10	831,499,671	-329	-0.0000396
100 %		0	831,499,739	-261	-0.0000314
100 %		+ 10	831,500,190	190	0.0000229
100 %		+ 20	831,499,793	-207	-0.0000249
100 %		+ 30	831,500,319	319	0.0000384
100 %		+ 40	831,500,190	190	0.0000229
100 %		+ 50	831,500,102	102	0.0000123
BATT. ENDPOINT	3.85	+ 20	831,499,872	-128	-0.0000154

Table 7-75. Frequency Stability Data (Band 26/5)

Band 26/5 Frequency Stability Measurements

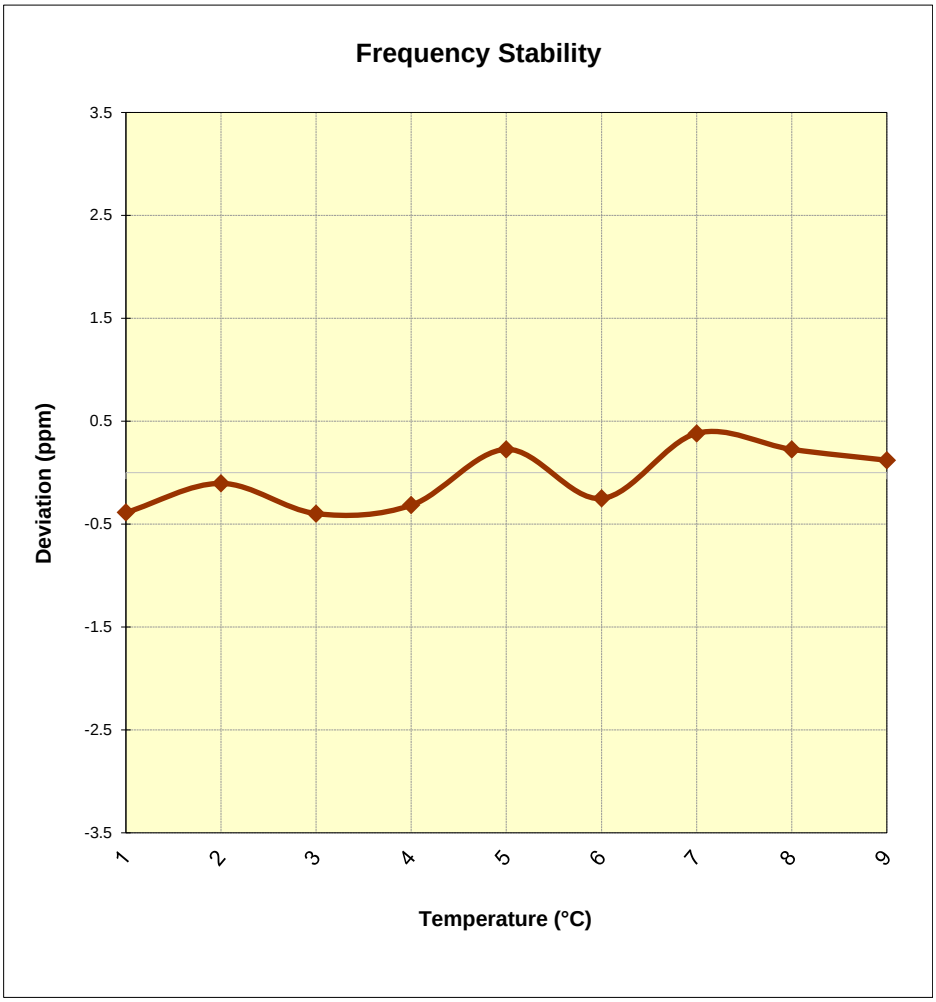


Figure 7-13. Frequency Stability Graph (Band 26/5)

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	1,745,000,243	243	0.0000139
100 %		- 30	1,745,000,114	114	0.0000065
100 %		- 20	1,745,000,026	26	0.0000015
100 %		- 10	1,744,999,656	-344	-0.0000197
100 %		0	1,745,000,127	127	0.0000073
100 %		+ 10	1,744,999,619	-381	-0.0000218
100 %		+ 20	1,745,000,099	99	0.0000057
100 %		+ 30	1,744,999,848	-152	-0.0000087
100 %		+ 40	1,744,999,858	-142	-0.0000081
100 %		+ 50	1,745,000,126	126	0.0000072
BATT. ENDPOINT	3.85	+ 20	1,745,000,294	294	0.0000168

Table 7-76. 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

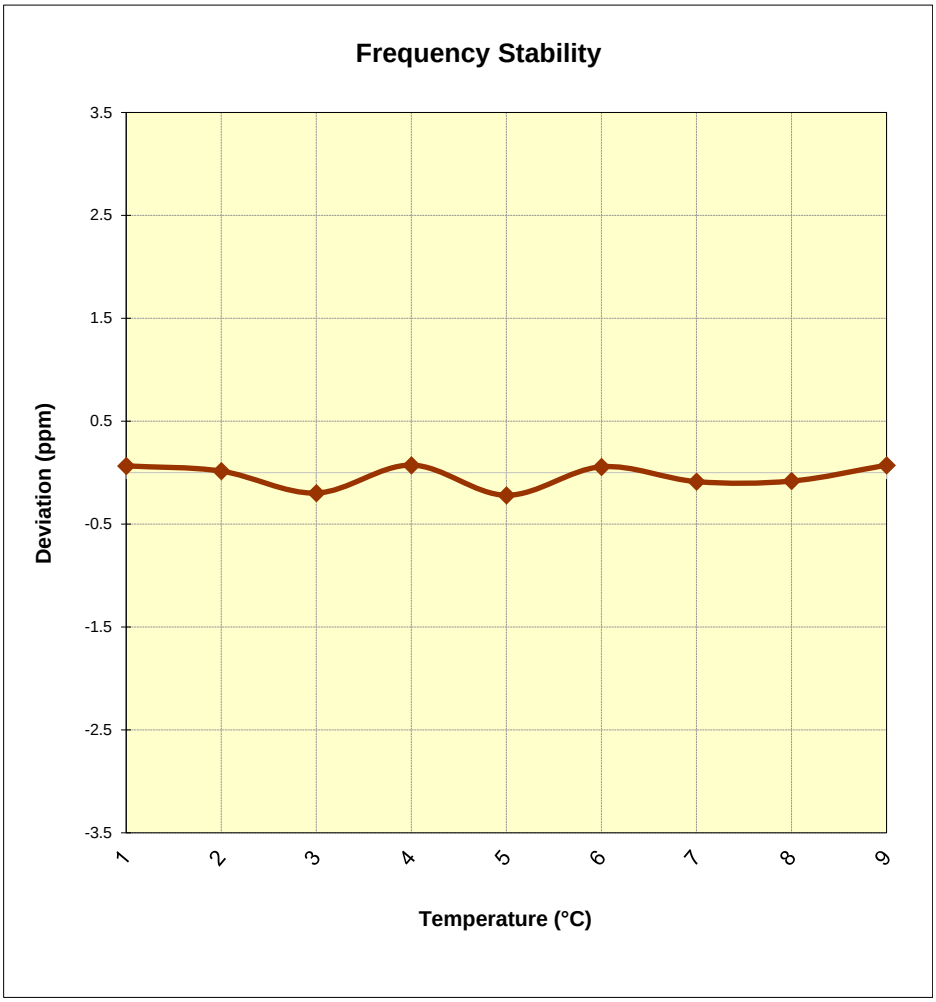


Figure 7-14. Frequency Stability Graph (Band 66/4)

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	4.21	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	1,882,499,693	-307	-0.0000163
100 %		- 30	1,882,499,890	-110	-0.0000058
100 %		- 20	1,882,499,807	-193	-0.0000103
100 %		- 10	1,882,499,991	-9	-0.0000005
100 %		0	1,882,500,107	107	0.0000057
100 %		+ 10	1,882,500,175	175	0.0000093
100 %		+ 20	1,882,499,998	-2	-0.0000001
100 %		+ 30	1,882,499,928	-72	-0.0000038
100 %		+ 40	1,882,500,261	261	0.0000139
100 %		+ 50	1,882,500,031	31	0.0000016
BATT. ENDPOINT	3.85	+ 20	1,882,500,178	178	0.0000095

Table 7-77. Frequency Stability Data (Band 25/2)

Band 25/2 Frequency Stability Measurements

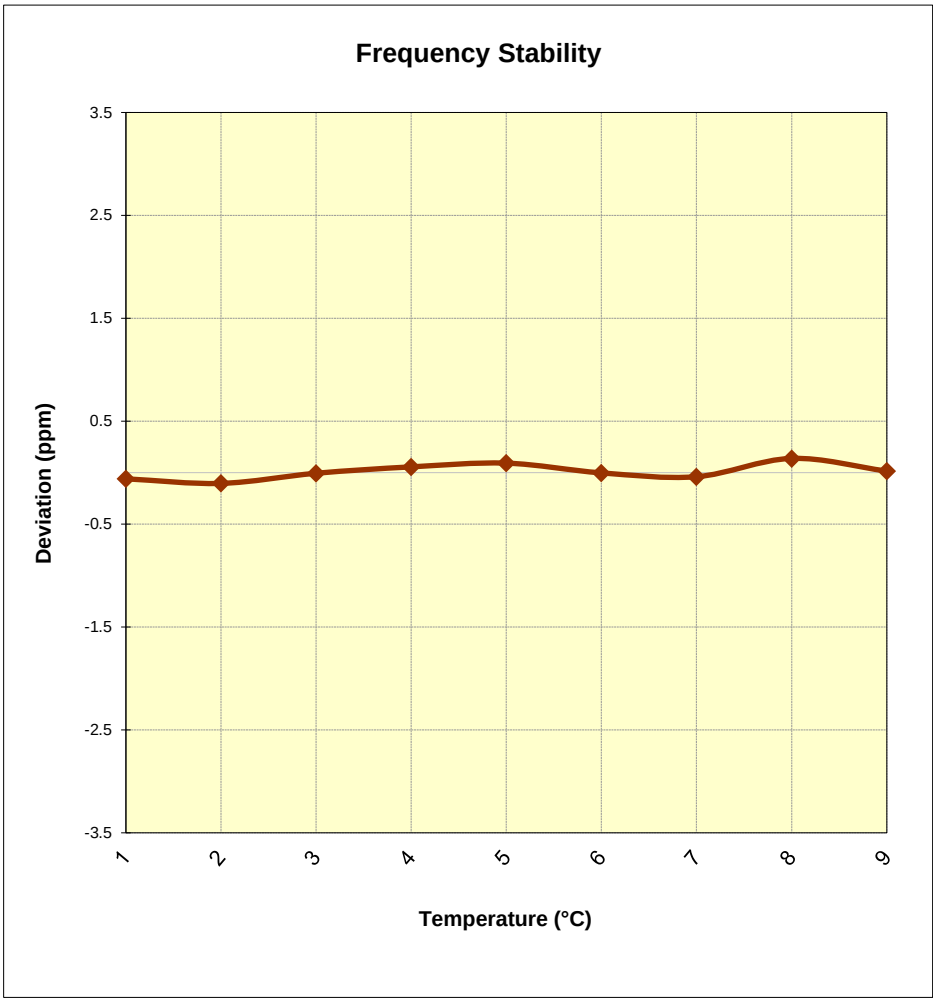


Figure 7-15. Frequency Stability Graph (Band 25/2)

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	2,309,999,989	-11	-0.0000005
100 %		- 30	2,309,999,907	-93	-0.0000040
100 %		- 20	2,309,999,997	-3	-0.0000001
100 %		- 10	2,309,999,881	-119	-0.0000052
100 %		0	2,309,999,932	-68	-0.0000029
100 %		+ 10	2,309,999,795	-205	-0.0000089
100 %		+ 20	2,310,000,278	278	0.0000120
100 %		+ 30	2,309,999,871	-129	-0.0000056
100 %		+ 40	2,310,000,046	46	0.0000020
100 %		+ 50	2,309,999,982	-18	-0.0000008
BATT. ENDPOINT	3.85	+ 20	2,309,999,916	-84	-0.0000036

Table 7-78. 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

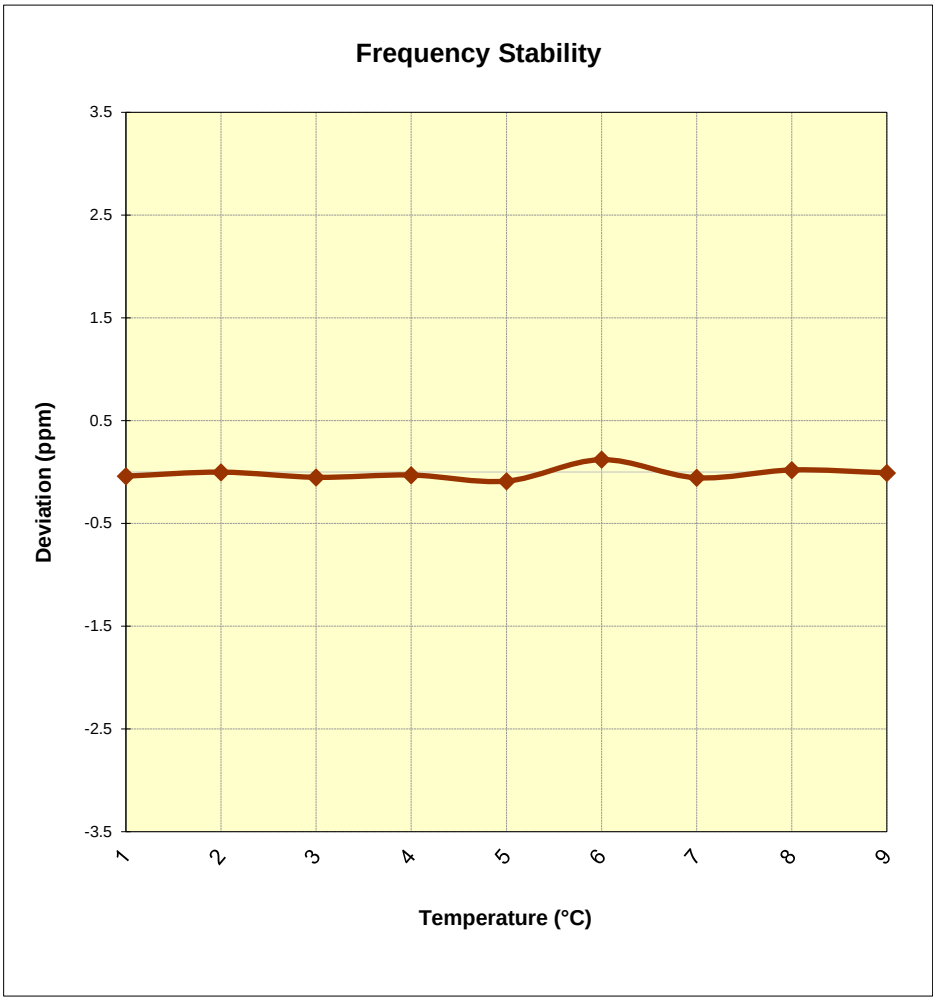


Figure 7-16. Frequency Stability Graph (Band 30)

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	2,592,999,994	-6	-0.0000002
100 %		- 30	2,593,000,040	40	0.0000015
100 %		- 20	2,592,999,780	-220	-0.0000085
100 %		- 10	2,593,000,058	58	0.0000022
100 %		0	2,593,000,017	17	0.0000007
100 %		+ 10	2,592,999,969	-31	-0.0000012
100 %		+ 20	2,593,000,035	35	0.0000013
100 %		+ 30	2,593,000,039	39	0.0000015
100 %		+ 40	2,592,999,967	-33	-0.0000013
100 %		+ 50	2,592,999,921	-79	-0.0000030
BATT. ENDPOINT	3.85	+ 20	2,592,999,655	-345	-0.0000133

Table 7-79. 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

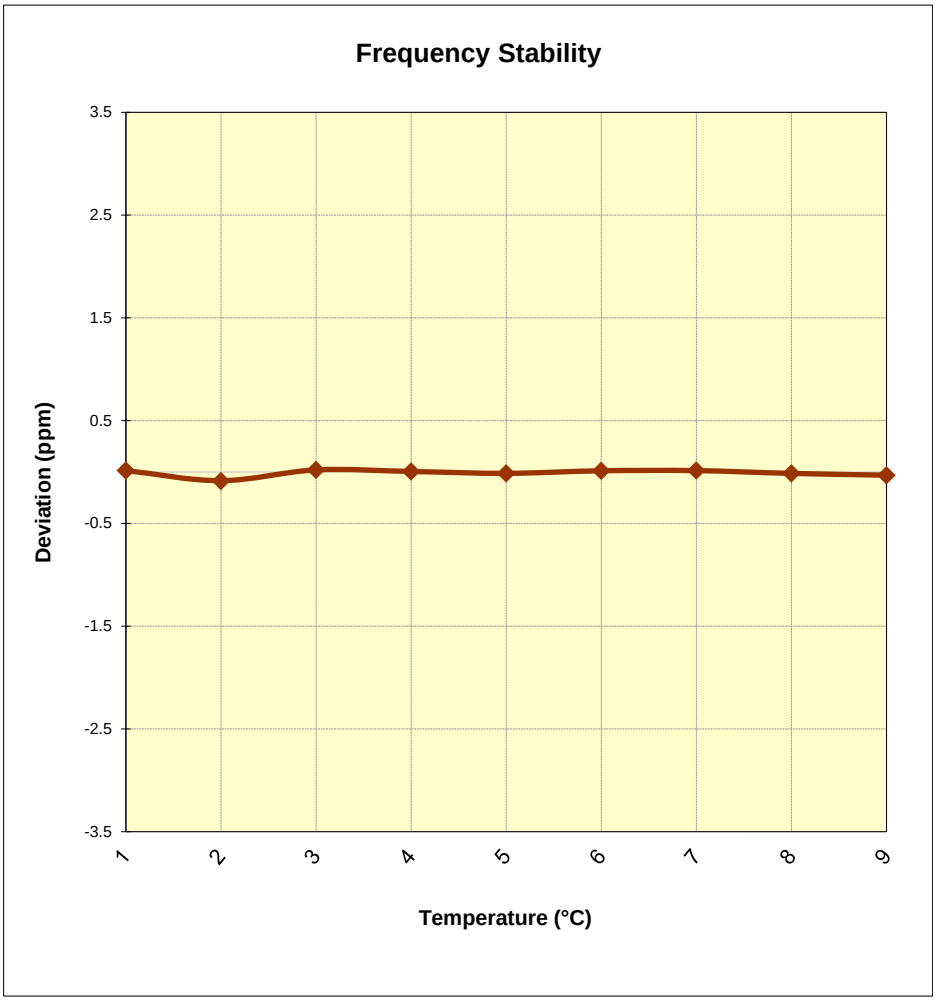


Figure 7-17. Frequency Stability Graph (Band 41)

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	
REFERENCE VOLTAGE:	4.21	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	+ 20 (Ref)	2,535,000,188	188	0.0000074
100 %		- 30	2,535,000,233	233	0.0000092
100 %		- 20	2,535,000,024	24	0.0000009
100 %		- 10	2,535,000,218	218	0.0000086
100 %		0	2,535,000,036	36	0.0000014
100 %		+ 10	2,534,999,965	-35	-0.0000014
100 %		+ 20	2,535,000,211	211	0.0000083
100 %		+ 30	2,535,000,243	243	0.0000096
100 %		+ 40	2,535,000,144	144	0.0000057
100 %		+ 50	2,534,999,942	-58	-0.0000023
BATT. ENDPOINT	3.85	+ 20	2,535,000,191	191	0.0000075

Table 7-80. 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

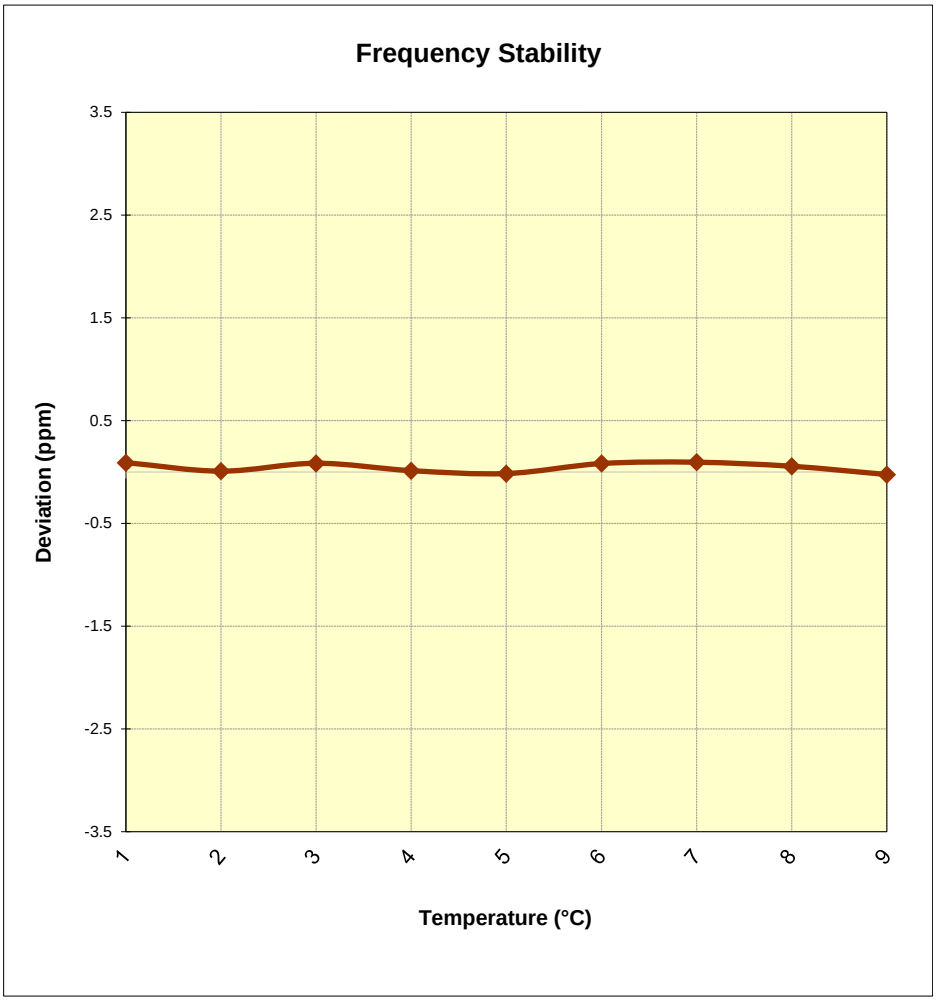


Figure 7-18. Frequency Stability Graph (Band 7)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF707U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.