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	150	356	1 / 24	19.20	1.10	18.15	0.065	34.77	-16.62
680.50	5	QPSK	H	150	359	1 / 0	19.87	1.10	**18.82**	0.076	34.77	-15.95
695.50	5	QPSK	H	150	356	1 / 0	19.19	1.10	18.14	0.065	34.77	-16.63
680.50	5	16-QAM	H	150	359	1 / 0	19.16	1.10	**18.11**	0.065	34.77	-16.66
680.50	5	64-QAM	H	150	359	1 / 0	17.99	1.10	**16.94**	0.049	34.77	-17.83
668.00	10	QPSK	H	150	353	1 / 49	19.44	1.10	18.39	0.069	34.77	-16.38
680.50	10	QPSK	H	150	352	1 / 0	19.75	1.10	**18.70**	0.074	34.77	-16.07
693.00	10	QPSK	H	150	353	1 / 0	19.55	1.10	18.50	0.071	34.77	-16.27
680.50	10	16-QAM	H	150	352	1 / 0	19.04	1.10	**17.99**	0.063	34.77	-16.78
680.50	10	64-QAM	H	150	352	1 / 0	17.97	1.10	**16.92**	0.049	34.77	-17.85
670.50	15	QPSK	H	150	353	1 / 74	19.68	1.10	18.63	0.073	34.77	-16.14
680.50	15	QPSK	H	150	353	1 / 0	19.72	1.10	18.67	0.074	34.77	-16.10
690.50	15	QPSK	H	150	353	1 / 0	19.81	1.10	**18.76**	0.075	34.77	-16.01
690.50	15	16-QAM	H	150	353	1 / 0	19.15	1.10	**18.10**	0.065	34.77	-16.67
690.50	15	64-QAM	H	150	353	1 / 0	18.02	1.10	**16.97**	0.050	34.77	-17.80
673.00	20	QPSK	H	150	353	1 / 99	19.67	1.10	18.62	0.073	34.77	-16.15
680.50	20	QPSK	H	150	353	1 / 99	19.57	1.10	18.52	0.071	34.77	-16.25
688.00	20	QPSK	H	150	353	1 / 0	19.94	1.10	**18.89**	**0.077**	34.77	-15.88
688.00	20	16-QAM	H	150	353	1 / 0	19.15	1.10	**18.10**	0.065	34.77	-16.67
688.00	20	64-QAM	H	150	353	1 / 0	18.07	1.10	**17.02**	0.050	34.77	-17.75
688.00	20	QPSK	V	150	57	1 / 0	15.93	1.10	14.88	0.031	34.77	-19.89
688.00	20 (WCP)	QPSK	H	150	9	1 / 0	18.21	1.10	17.16	0.052	34.77	-17.61

Table 7-5. ERP Data (Band 71)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	150	8	3 / 2	19.52	1.10	18.47	0.070	34.77	-16.30	20.62	0.115	36.99	-16.37
707.50	1.4	QPSK	H	150	8	3 / 2	19.57	1.13	18.55	0.072	34.77	-16.22	20.70	0.117	36.99	-16.29
715.30	1.4	QPSK	H	150	8	3 / 2	19.74	1.16	**18.75**	0.075	34.77	-16.02	**20.90**	0.123	36.99	-16.09
715.30	1.4	16-QAM	H	150	8	3 / 2	18.84	1.16	**17.85**	0.061	34.77	-16.92	**20.00**	0.100	36.99	-16.99
715.30	1.4	64-QAM	H	150	8	3 / 2	17.94	1.16	**16.95**	0.050	34.77	-17.82	**19.10**	0.081	36.99	-17.89
700.50	3	QPSK	H	150	10	1 / 14	19.55	1.10	18.50	0.071	34.77	-16.27	20.65	0.116	36.99	-16.34
707.50	3	QPSK	H	150	10	1 / 14	19.58	1.13	18.56	0.072	34.77	-16.21	20.71	0.118	36.99	-16.28
714.50	3	QPSK	H	150	10	1 / 14	19.73	1.16	**18.74**	0.075	34.77	-16.03	**20.89**	0.123	36.99	-16.10
714.50	3	16-QAM	H	150	10	1 / 14	19.07	1.16	**18.08**	0.064	34.77	-16.69	**20.23**	0.105	36.99	-16.76
714.50	3	64-QAM	H	150	10	1 / 14	18.01	1.16	**17.02**	0.050	34.77	-17.75	**19.17**	0.083	36.99	-17.82

Table 7-6. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	H	150	358	1 / 24	19.42	1.11	18.38	0.069	34.77	-16.40	20.53	0.113	36.99	-16.46
707.50	5	QPSK	H	150	358	1 / 24	19.35	1.13	18.33	0.068	34.77	-16.44	20.48	0.112	36.99	-16.51
713.50	5	QPSK	H	150	358	1 / 24	19.48	1.15	**18.48**	0.071	34.77	-16.29	**20.63**	0.116	36.99	-16.36
713.50	5	16-QAM	H	150	358	1 / 24	18.78	1.15	**17.78**	0.060	34.77	-16.99	**19.93**	0.099	36.99	-17.06
713.50	5	64-QAM	H	150	358	1 / 24	17.72	1.15	**16.72**	0.047	34.77	-18.05	**18.87**	0.077	36.99	-18.12
704.00	10	QPSK	H	150	13	1 / 49	19.48	1.12	18.45	0.070	34.77	-16.32	20.60	0.115	36.99	-16.39
707.50	10	QPSK	H	150	13	1 / 49	19.52	1.13	18.50	0.071	34.77	-16.27	20.65	0.116	36.99	-16.34
711.00	10	QPSK	H	150	13	1 / 49	19.77	1.14	**18.76**	**0.075**	34.77	-16.01	**20.91**	**0.123**	36.99	-16.08
711.00	10	16-QAM	H	150	13	1 / 49	19.11	1.14	**18.10**	0.065	34.77	-16.67	**20.25**	0.106	36.99	-16.74
711.00	10	64-QAM	H	150	13	1 / 49	18.06	1.14	**17.05**	0.051	34.77	-17.72	**19.20**	0.083	36.99	-17.79
711.00	10.0	QPSK	V	150	41	3 / 2	19.07	1.14	18.06	0.064	34.77	-16.71	20.21	0.105	36.99	-16.78
711.00	10 (WCP)	QPSK	H	150	112	3 / 2	19.71	1.14	18.70	0.074	34.77	-16.07	20.85	0.122	36.99	-16.14

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	150	12	1 / 0	16.55	1.32	**15.72**	0.037	34.77	-19.05	**17.87**	0.061	36.99	-19.12
782.00	5	QPSK	V	150	10	1 / 0	15.96	1.33	15.14	0.033	34.77	-19.63	17.29	0.054	36.99	-19.70
784.50	5	QPSK	V	150	10	1 / 0	15.58	1.34	14.77	0.030	34.77	-20.00	16.92	0.049	36.99	-20.07
779.50	5	16-QAM	V	150	12	1 / 0	15.83	1.32	**15.00**	0.032	34.77	-19.77	**17.15**	0.052	36.99	-19.84
779.50	5	64-QAM	V	150	12	1 / 0	14.76	1.32	**13.93**	0.025	34.77	-20.84	**16.08**	0.041	36.99	-20.91
782.00	10	QPSK	V	150	14	1 / 0	16.57	1.33	**15.75**	**0.038**	34.77	-19.02	**17.90**	**0.062**	36.99	-19.09
782.00	10	16-QAM	V	150	14	1 / 0	15.85	1.33	**15.03**	0.032	34.77	-19.74	**17.18**	0.052	36.99	-19.81
782.00	10	64-QAM	V	150	14	1 / 0	14.75	1.33	**13.93**	0.025	34.77	-20.84	**16.08**	0.041	36.99	-20.91
782.00	10	QPSK	H	150	9	1 / 0	16.29	1.33	15.47	0.035	34.77	-19.30	17.62	0.058	36.99	-19.37
782.00	10 (WCP)	QPSK	V	150	14	1 / 0	16.16	1.33	15.34	0.034	34.77	-19.43	17.49	0.056	36.99	-19.50

Table 7-8. ERP Data (Band 13)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	191	3 / 2	17.60	1.50	16.95	0.050	38.45	-21.50	19.10	0.081	40.61	-21.51
836.50	1.4	QPSK	H	150	191	3 / 2	17.86	1.50	**17.21**	**0.053**	38.45	-21.24	**19.36**	**0.086**	40.61	-21.25
848.30	1.4	QPSK	H	150	190	3 / 2	17.86	1.50	**17.21**	**0.053**	38.45	-21.24	**19.36**	**0.086**	40.61	-21.25
836.50	1.4	16-QAM	H	150	191	1 / 0	17.06	1.50	**16.41**	0.044	38.45	-22.04	**18.56**	0.072	40.61	-22.05
836.50	1.4	64-QAM	H	150	191	1 / 0	16.17	1.50	**15.52**	0.036	38.45	-22.93	**17.67**	0.058	40.61	-22.94
825.50	3	QPSK	H	150	199	1 / 0	17.32	1.50	16.67	0.046	38.45	-21.78	18.82	0.076	40.61	-21.79
836.50	3	QPSK	H	150	199	1 / 14	17.59	1.50	16.94	0.049	38.45	-21.51	19.09	0.081	40.61	-21.52
847.50	3	QPSK	H	150	199	1 / 0	17.72	1.50	**17.07**	0.051	38.45	-21.38	**19.22**	0.084	40.61	-21.39
847.50	3	16-QAM	H	150	199	1 / 0	17.01	1.50	**16.36**	0.043	38.45	-22.09	**18.51**	0.071	40.61	-22.10
847.50	3	64-QAM	H	150	199	1 / 0	15.90	1.50	**15.25**	0.033	38.45	-23.20	**17.40**	0.055	40.61	-23.21
826.50	5	QPSK	H	150	355	1 / 0	17.49	1.50	16.84	0.048	38.45	-21.61	18.99	0.079	40.61	-21.62
836.50	5	QPSK	H	150	355	1 / 0	17.69	1.50	**17.04**	0.051	38.45	-21.41	**19.19**	0.083	40.61	-21.42
846.50	5	QPSK	H	150	355	1 / 24	17.64	1.50	16.99	0.050	38.45	-21.46	19.14	0.082	40.61	-21.47
836.50	5	16-QAM	H	150	355	1 / 0	17.06	1.50	**16.41**	0.044	38.45	-22.04	**18.56**	0.072	40.61	-22.05
836.50	5	64-QAM	H	150	355	1 / 0	16.05	1.50	**15.40**	0.035	38.45	-23.05	**17.55**	0.057	40.61	-23.06
829.00	10	QPSK	H	150	6	1 / 49	17.73	1.50	17.08	0.051	38.45	-21.37	19.23	0.084	40.61	-21.38
836.50	10	QPSK	H	150	7	1 / 0	17.83	1.50	**17.18**	0.052	38.45	-21.27	**19.33**	0.086	40.61	-21.28
844.00	10	QPSK	H	150	351	1 / 0	17.29	1.50	16.64	0.046	38.45	-21.81	18.79	0.076	40.61	-21.82
836.50	10	16-QAM	H	150	7	1 / 0	17.10	1.50	**16.45**	0.044	38.45	-22.00	**18.60**	0.072	40.61	-22.01
836.50	10	64-QAM	H	150	7	1 / 0	16.08	1.50	**15.43**	0.035	38.45	-23.02	**17.58**	0.057	40.61	-23.03
836.50	1.4	QPSK	V	150	287	3 / 2	14.71	1.50	14.06	0.025	38.45	-24.39	16.21	0.042	40.61	-24.40
836.50	1.4 (WCP)	QPSK	H	150	7	1 / 0	17.71	1.50	17.06	0.051	38.45	-21.39	19.21	0.083	40.61	-21.40

Table 7-9. ERP Data (Band 5)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	150	319	3 / 2	15.88	5.56	21.44	0.139	30.00	-8.56
1745.00	1.4	QPSK	H	150	325	3 / 2	17.09	5.32	**22.41**	0.174	30.00	-7.59
1779.30	1.4	QPSK	H	150	324	3 / 2	16.66	5.09	21.75	0.150	30.00	-8.25
1745.00	1.4	16-QAM	H	150	325	3 / 2	16.20	5.32	**21.52**	0.142	30.00	-8.48
1745.00	1.4	64-QAM	H	150	325	3 / 2	15.30	5.32	**20.62**	0.115	30.00	-9.38
1711.50	3	QPSK	H	150	324	1 / 14	15.83	5.55	21.38	0.137	30.00	-8.62
1745.00	3	QPSK	H	150	326	1 / 0	17.02	5.32	**22.34**	0.171	30.00	-7.66
1778.50	3	QPSK	H	150	326	1 / 0	16.74	5.10	21.84	0.153	30.00	-8.16
1745.00	3	16-QAM	H	150	326	1 / 0	16.35	5.32	**21.67**	0.147	30.00	-8.33
1745.00	3	64-QAM	H	150	326	1 / 0	15.29	5.32	**20.61**	0.115	30.00	-9.39
1712.50	5	QPSK	H	150	319	1 / 0	15.99	5.55	21.54	0.142	30.00	-8.46
1745.00	5	QPSK	H	150	328	1 / 24	16.89	5.32	**22.21**	0.166	30.00	-7.79
1777.50	5	QPSK	H	150	324	1 / 0	16.94	5.10	22.04	0.160	30.00	-7.96
1745.00	5	16-QAM	H	150	328	1 / 24	16.19	5.32	**21.51**	0.142	30.00	-8.49
1745.00	5	64-QAM	H	150	328	1 / 24	15.09	5.32	**20.41**	0.110	30.00	-9.59
1715.00	10	QPSK	H	150	321	1 / 49	16.15	5.53	21.68	0.147	30.00	-8.32
1745.00	10	QPSK	H	150	326	1 / 49	17.20	5.32	**22.52**	0.179	30.00	-7.48
1775.00	10	QPSK	H	150	323	1 / 0	16.96	5.12	22.08	0.161	30.00	-7.92
1745.00	10	16-QAM	H	150	326	1 / 49	16.42	5.32	**21.74**	0.149	30.00	-8.26
1745.00	10	64-QAM	H	150	326	1 / 49	15.33	5.32	**20.65**	0.116	30.00	-9.35
1717.50	15	QPSK	H	150	320	1 / 0	16.19	5.51	21.70	0.148	30.00	-8.30
1745.00	15	QPSK	H	150	325	1 / 0	17.43	5.32	**22.75**	**0.188**	30.00	-7.25
1772.50	15	QPSK	H	150	320	1 / 0	16.47	5.14	21.61	0.145	30.00	-8.39
1745.00	15	16-QAM	H	150	325	1 / 0	16.53	5.32	**21.85**	0.153	30.00	-8.15
1745.00	15	64-QAM	H	150	325	1 / 0	15.47	5.32	**20.79**	0.120	30.00	-9.21
1720.00	20	QPSK	H	150	323	1 / 99	16.59	5.49	22.08	0.162	30.00	-7.92
1745.00	20	QPSK	H	150	320	1 / 0	17.10	5.32	**22.42**	0.175	30.00	-7.58
1770.00	20	QPSK	H	150	325	1 / 0	17.16	5.15	22.31	0.170	30.00	-7.69
1745.00	20	16-QAM	H	150	320	1 / 0	16.41	5.32	**21.73**	0.149	30.00	-8.27
1745.00	20	64-QAM	H	150	320	1 / 0	15.28	5.32	**20.60**	0.115	30.00	-9.40
1745.00	15.0	QPSK	V	150	325	1 / 74	15.55	5.27	20.82	0.121	30.00	-9.18
1745.00	15 (WCP)	QPSK	H	150	136	1 / 0	17.05	5.32	22.37	0.173	30.00	-7.63

Table 7-10. EIRP Data (Band 66/4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	354	3 / 2	18.95	4.82	**23.77**	**0.238**	33.01	-9.24
1882.50	1.4	QPSK	H	150	354	1 / 5	18.16	4.73	22.89	0.195	33.01	-10.12
1914.30	1.4	QPSK	H	150	354	1 / 5	17.60	4.68	22.28	0.169	33.01	-10.73
1850.70	1.4	16-QAM	H	150	354	3 / 2	18.08	4.82	**22.90**	0.195	33.01	-10.11
1850.70	1.4	64-QAM	H	150	354	3 / 2	17.08	4.82	**21.90**	0.155	33.01	-11.11
1851.50	3	QPSK	H	150	2	1 / 0	18.30	4.82	**23.12**	0.205	33.01	-9.89
1882.50	3	QPSK	H	150	2	1 / 14	17.42	4.73	22.15	0.164	33.01	-10.86
1913.50	3	QPSK	H	150	2	1 / 0	17.80	4.68	22.48	0.177	33.01	-10.53
1851.50	3	16-QAM	H	150	2	1 / 0	17.59	4.82	**22.41**	0.174	33.01	-10.60
1851.50	3	64-QAM	H	150	2	1 / 0	16.60	4.82	**21.42**	0.139	33.01	-11.59
1852.50	5	QPSK	H	150	350	1 / 0	18.59	4.81	**23.40**	0.219	33.01	-9.61
1882.50	5	QPSK	H	150	350	1 / 24	17.37	4.73	22.10	0.162	33.01	-10.91
1912.50	5	QPSK	H	150	350	1 / 0	17.95	4.68	22.63	0.183	33.01	-10.38
1852.50	5	16-QAM	H	150	350	1 / 0	17.87	4.81	**22.68**	0.185	33.01	-10.33
1852.50	5	64-QAM	H	150	350	1 / 0	16.95	4.81	**21.76**	0.150	33.01	-11.25
1855.00	10	QPSK	H	150	354	1 / 0	17.36	4.81	**22.17**	0.165	33.01	-10.84
1882.50	10	QPSK	H	150	354	1 / 49	15.40	4.73	20.13	0.103	33.01	-12.88
1910.00	10	QPSK	H	150	35	1 / 0	14.88	4.68	19.56	0.090	33.01	-13.45
1855.00	10	16-QAM	H	150	354	1 / 0	16.60	4.81	**21.41**	0.138	33.01	-11.60
1855.00	10	64-QAM	H	150	354	1 / 0	15.60	4.81	**20.41**	0.110	33.01	-12.60
1857.50	15	QPSK	H	150	20	1 / 0	18.22	4.80	**23.02**	0.200	33.01	-9.99
1882.50	15	QPSK	H	150	20	1 / 0	17.18	4.73	21.91	0.155	33.01	-11.10
1907.50	15	QPSK	H	150	20	1 / 0	16.93	4.68	21.61	0.145	33.01	-11.40
1857.50	15	16-QAM	H	150	20	1 / 0	17.36	4.80	**22.16**	0.164	33.01	-10.85
1857.50	15	64-QAM	H	150	20	1 / 0	16.52	4.80	**21.32**	0.136	33.01	-11.69
1860.00	20	QPSK	H	150	17	1 / 0	18.05	4.79	**22.84**	0.192	33.01	-10.17
1882.50	20	QPSK	H	150	16	1 / 0	18.04	4.73	22.77	0.189	33.01	-10.24
1905.00	20	QPSK	H	150	17	1 / 0	17.16	4.68	21.84	0.153	33.01	-11.17
1860.00	20	16-QAM	H	150	17	1 / 0	17.25	4.79	**22.04**	0.160	33.01	-10.97
1860.00	20	64-QAM	H	150	17	1 / 0	16.46	4.79	**21.25**	0.133	33.01	-11.76
1850.70	1.4	QPSK	V	150	0	3 / 2	17.93	4.79	22.72	0.187	33.01	-10.29
1850.70	1.4 (WCP)	QPSK	H	150	230	3 / 2	18.90	4.82	23.72	0.235	33.01	-9.29

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	H	150	188	1 / 24	12.87	5.74	**18.61**	**0.073**	23.98	-5.37
2312.50	5	QPSK	H	150	179	1 / 0	12.83	5.74	18.57	0.072	23.98	-5.41
2312.50	5	16-QAM	H	150	179	1 / 0	11.50	5.74	**17.24**	0.053	23.98	-6.74
2312.50	5	64-QAM	H	150	179	1 / 0	10.72	5.74	16.46	0.044	23.98	-7.52
2310.00	10	QPSK	H	150	29	1 / 49	12.18	5.74	**17.92**	0.062	23.98	-6.06
2310.00	10	16-QAM	H	150	29	1 / 49	11.19	5.74	16.93	0.049	23.98	-7.05
2310.00	10	64-QAM	H	150	29	1 / 49	10.36	5.74	16.10	0.041	23.98	-7.88
2307.50	5	QPSK	V	150	238	1 / 0	11.85	5.56	17.41	0.055	23.98	-6.57
2307.50	5 (WCP)	QPSK	H	150	180	1 / 0	12.73	5.74	18.47	0.070	23.98	-5.51

Table 7-12. EIRP Data (Band 30)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	150	9	1 / 0	16.63	5.74	**22.37**	0.173	33.01	-10.64
2535.00	5	QPSK	H	150	7	1 / 24	16.48	5.86	22.34	0.171	33.01	-10.67
2567.50	5	QPSK	H	150	1	1 / 24	15.65	5.98	21.63	0.146	33.01	-11.38
2502.50	5	16-QAM	H	150	9	1 / 0	15.88	5.74	**21.62**	0.145	33.01	-11.39
2502.50	5	64-QAM	H	150	9	1 / 0	14.70	5.74	**20.44**	0.111	33.01	-12.57
2505.00	10	QPSK	H	150	6	1 / 0	16.71	5.75	**22.46**	0.176	33.01	-10.55
2535.00	10	QPSK	H	150	356	1 / 0	16.24	5.86	22.10	0.162	33.01	-10.91
2565.00	10	QPSK	H	150	6	1 / 0	15.83	5.97	21.80	0.151	33.01	-11.21
2505.00	10	16-QAM	H	150	6	1 / 0	16.11	5.75	**21.86**	0.153	33.01	-11.15
2505.00	10	64-QAM	H	150	6	1 / 0	14.71	5.75	**20.46**	0.111	33.01	-12.55
2507.50	15	QPSK	H	150	7	1 / 0	16.92	5.76	**22.68**	0.185	33.01	-10.33
2535.00	15	QPSK	H	150	4	1 / 0	16.28	5.86	22.14	0.164	33.01	-10.87
2562.50	15	QPSK	H	150	13	1 / 0	16.07	5.96	22.03	0.160	33.01	-10.98
2507.50	15	16-QAM	H	150	7	1 / 0	15.90	5.76	**21.66**	0.146	33.01	-11.35
2507.50	15	64-QAM	H	150	7	1 / 0	15.08	5.76	**20.84**	0.121	33.01	-12.17
2510.00	20	QPSK	H	150	8	1 / 0	17.13	5.77	**22.90**	**0.195**	33.01	-10.11
2535.00	20	QPSK	H	150	4	1 / 0	16.42	5.86	22.28	0.169	33.01	-10.73
2560.00	20	QPSK	H	150	0	1 / 0	16.21	5.95	22.16	0.165	33.01	-10.85
2510.00	20	16-QAM	H	150	8	1 / 0	15.98	5.77	**21.75**	0.150	33.01	-11.26
2510.00	20	64-QAM	H	150	8	1 / 0	15.26	5.77	**21.03**	0.127	33.01	-11.98
2510.00	20	QPSK	V	150	110	1 / 0	15.92	5.66	21.58	0.144	33.01	-11.43
2510.00	20 (WCP)	QPSK	H	150	256	1 / 99	14.23	5.86	20.09	0.102	33.01	-12.92

Table 7-13. EIRP Data (Band 7)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Positioner Azimuth [degree]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	366	356	1 / 24	18.57	5.73	**24.30**	**0.269**	33.01	-8.71
2593.00	5	QPSK	H	191	353	1 / 24	15.65	6.07	21.72	0.149	33.01	-11.29
2687.50	5	QPSK	H	182	363	1 / 0	14.65	6.48	21.13	0.130	33.01	-11.88
2498.50	5	16-QAM	H	366	356	1 / 24	16.61	5.73	**22.34**	0.171	33.01	-10.67
2498.50	5	64-QAM	H	366	356	1 / 24	15.17	5.73	**20.90**	0.123	33.01	-12.11
2501.00	10	QPSK	H	176	0	1 / 0	17.42	5.73	23.15	0.207	33.01	-9.86
2593.00	10	QPSK	H	187	358	1 / 49	17.66	6.07	**23.73**	0.236	33.01	-9.28
2685.00	10	QPSK	H	201	356	1 / 49	13.70	6.47	20.17	0.104	33.01	-12.84
2593.00	10	16-QAM	H	187	358	1 / 49	16.32	6.07	**22.39**	0.173	33.01	-10.62
2501.00	10	64-QAM	H	176	0	1 / 49	14.53	5.73	**20.26**	0.106	33.01	-12.75
2503.50	15	QPSK	H	172	359	1 / 0	18.02	5.74	**23.76**	0.238	33.01	-9.25
2593.00	15	QPSK	H	194	351	1 / 74	14.71	6.07	20.78	0.120	33.01	-12.23
2682.50	15	QPSK	H	187	363	1 / 74	13.77	6.46	20.23	0.106	33.01	-12.78
2503.50	15	16-QAM	H	172	359	1 / 74	16.76	5.74	**22.50**	0.178	33.01	-10.51
2503.50	15	64-QAM	H	172	359	1 / 74	14.75	5.74	**20.49**	0.112	33.01	-12.52
2506.00	20	QPSK	H	179	355	1 / 99	18.20	5.75	**23.95**	0.248	33.01	-9.06
2593.00	20	QPSK	H	184	1	1 / 99	16.04	6.07	22.11	0.163	33.01	-10.90
2680.00	20	QPSK	H	181	359	1 / 0	13.67	6.45	20.12	0.103	33.01	-12.89
2593.00	20	16-QAM	H	184	1	1 / 99	14.98	6.07	**21.05**	0.127	33.01	-11.96
2506.00	20	64-QAM	H	179	355	1 / 99	14.56	5.75	**20.31**	0.107	33.01	-12.70
2498.50	5	QPSK	V	166	0	1 / 24	15.87	5.59	21.46	0.140	33.01	-11.55
2498.50	5 (WCP)	QPSK	H	11	67	1 / 24	18.38	5.73	24.11	0.258	33.01	-8.90

Table 7-14. EIRP Data (Band 41)

7.8 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) §27.53(a)(4)

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 v03 – 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.

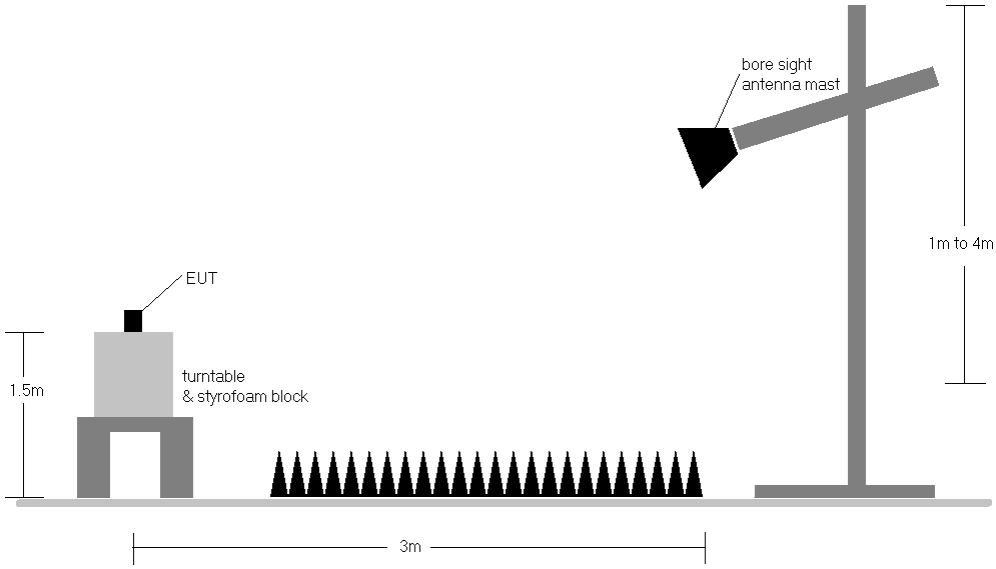


Figure 7-8. Test Instrument & Measurement Setup

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.

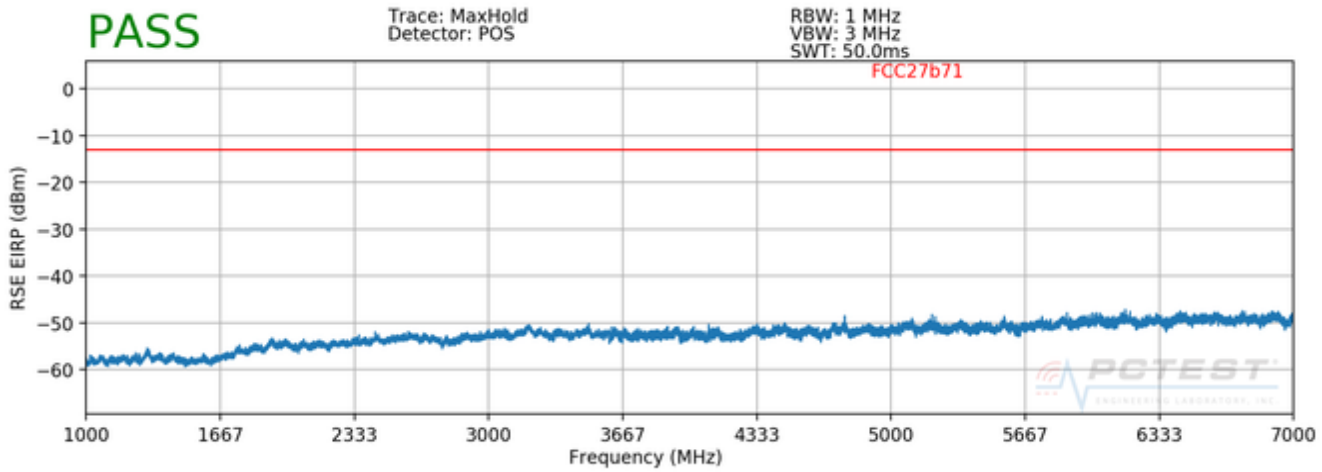
2) This unit was tested with its standard battery.

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

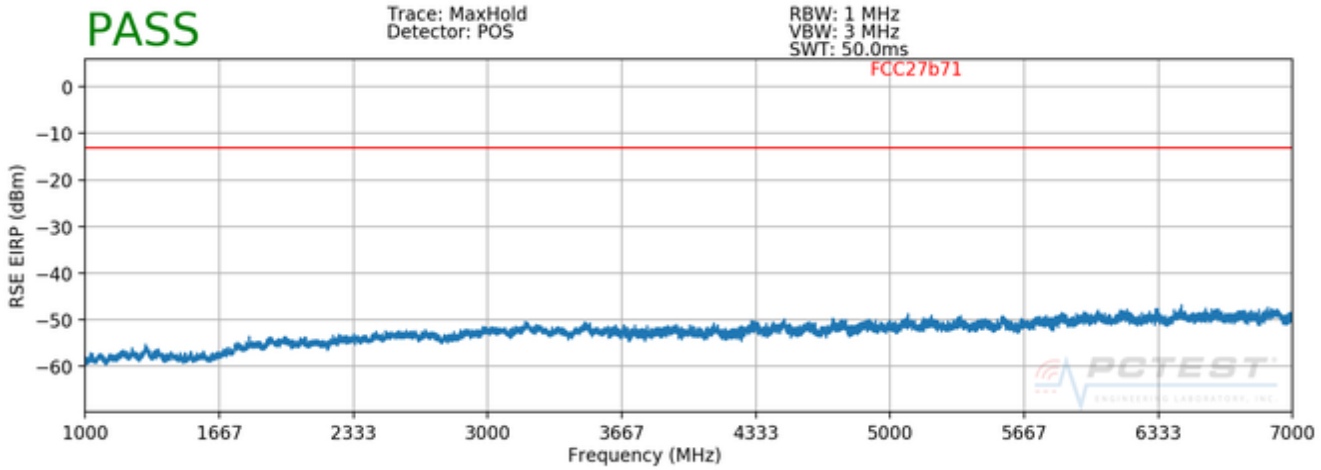
4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

Band 71



Plot 7-338. Radiated Spurious Plot above 1GHz (Band 71) – Pol. H



Plot 7-339. Radiated Spurious Plot above 1GHz (Band 71) – Pol. V

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	150	116	-68.85	3.92	-64.93	-51.9
2019.00	H	150	13	-67.23	4.75	-62.47	-49.5
2692.00	H	-	-	-66.29	5.34	-60.96	-48.0

Table 7-15. 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	150	307	-68.00	3.90	-64.10	-51.1
2041.50	H	150	15	-65.46	4.78	-60.69	-47.7
2722.00	H	-	-	-66.35	5.49	-60.87	-47.9

Table 7-16. 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	150	203	-64.68	3.85	-60.83	-47.8
2064.00	H	150	203	-65.79	4.79	-61.00	-48.0
2752.00	H	-	-	-66.85	5.68	-61.16	-48.2

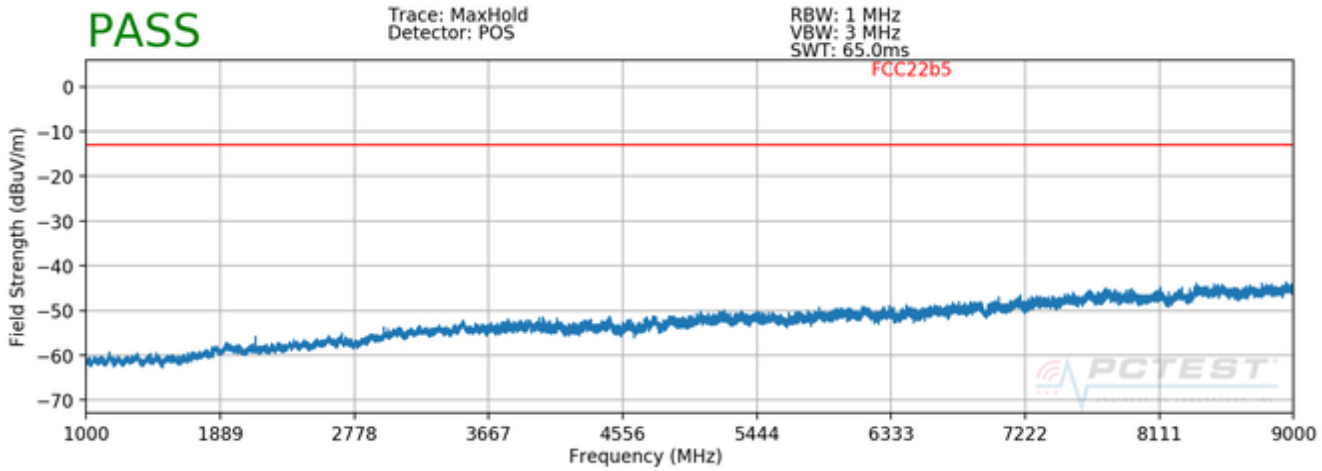
Table 7-17. Radiated Spurious Data (Band 71 – High Channel)

OPERATING FREQUENCY:	688.00	MHz
CHANNEL:	133297	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

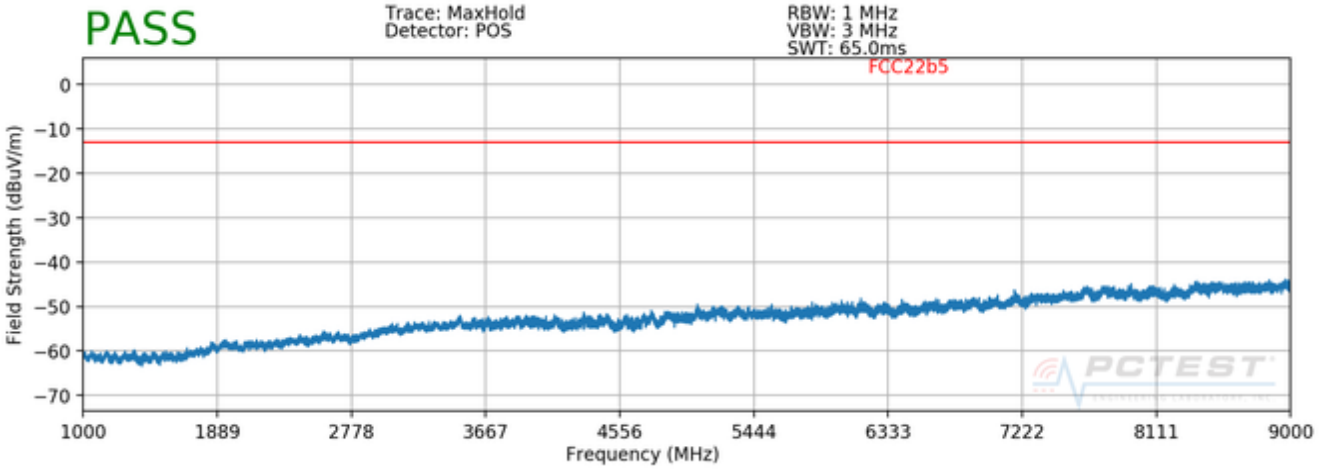
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	150	353	-64.62	3.85	-60.77	-47.8
2064.00	H	150	202	-66.10	4.79	-61.31	-48.3
2752.00	H	-	-	-66.52	5.68	-60.83	-47.8

Table 7-18. Radiated Spurious Data with WCP (Band 71 – High Channel)

Band 12/17



Plot 7-340. Radiated Spurious Plot above 1GHz (Band 12) – Pol. H



Plot 7-341. Radiated Spurious Plot above 1GHz (Band 12) – Pol. V

OPERATING FREQUENCY:	704.00	MHz
CHANNEL:	23060	
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	-	-	-67.60	3.77	-63.82	-50.8
2112.00	H	-	-	-68.30	4.80	-63.50	-50.5

Table 7-19. Radiated Spurious Data (Band 12/17 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
CHANNEL:	23095	
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	150	229	-67.29	3.90	-63.38	-50.4
2122.50	H	-	-	-67.12	4.78	-62.34	-49.3

Table 7-20. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	711.00	MHz
CHANNEL:	23130	
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	-	-	-69.22	4.04	-65.18	-52.2
2133.00	H	-	-	-67.76	4.76	-62.99	-50.0

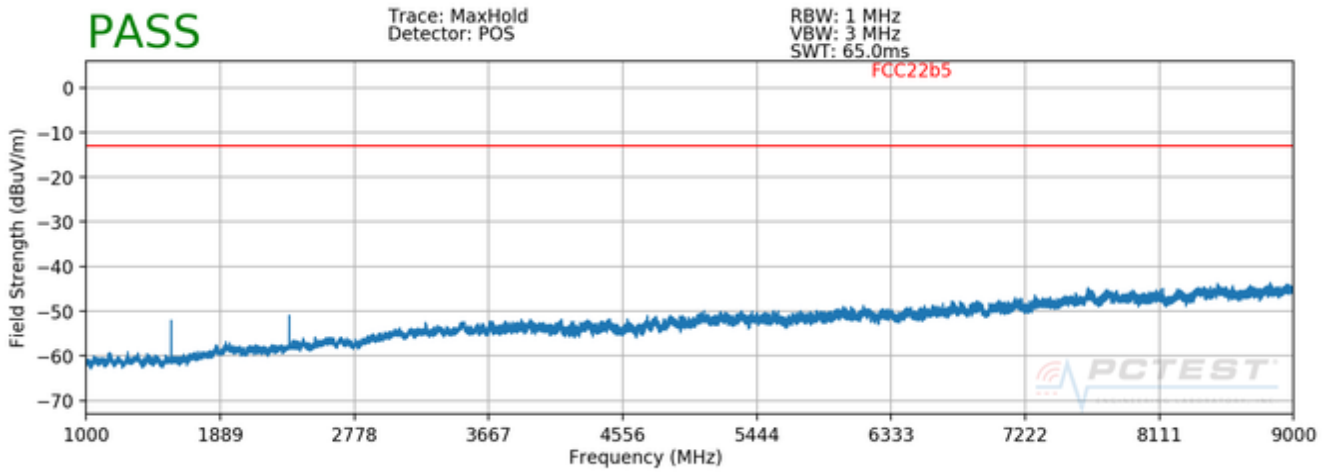
Table 7-21. Radiated Spurious Data (Band 12/17 – High Channel)

OPERATING FREQUENCY:	711.00	MHz
CHANNEL:	23130	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

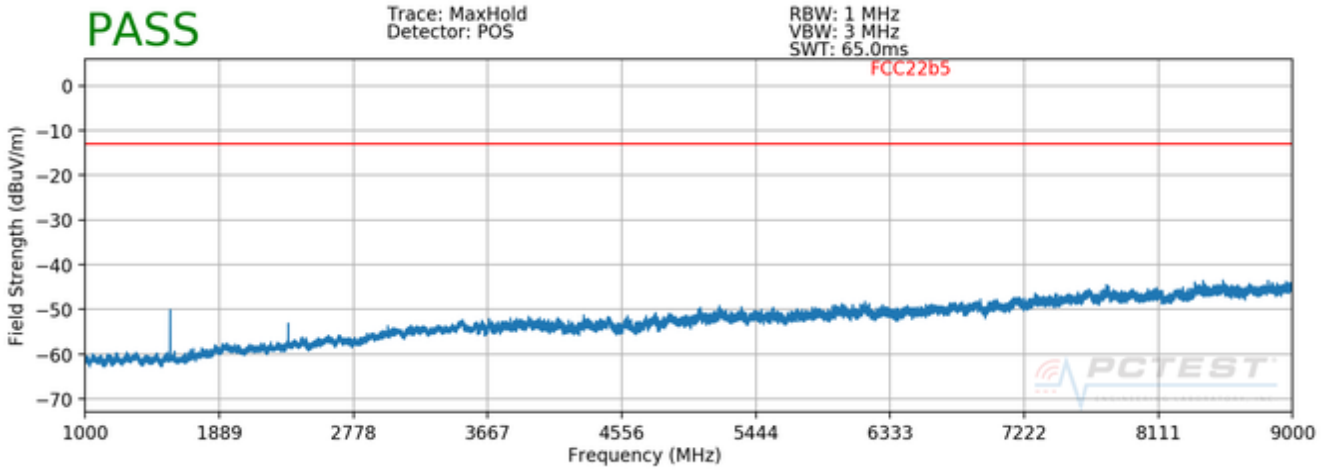
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	V	150	67	-63.41	4.04	-59.37	-46.4
2133.00	V	150	30	-54.55	4.76	-49.78	-36.8
2844.00	V	-	-	-66.37	5.79	-60.58	-47.6

Table 7-22. Radiated Spurious Data with WCP (Band 12/17 – High Channel)

Band 13



Plot 7-342. Radiated Spurious Plot above 1GHz (Band 13) – Pol. H



Plot 7-343. Radiated Spurious Plot above 1GHz (Band 13) – Pol. V

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	150	123	-66.36	4.50	-61.87	-48.9
3128.00	V	-	-	-67.60	4.88	-62.72	-49.7

Table 7-23. 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	-	-	-69.13	4.50	-64.64	-24.6

Table 7-24. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

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	150	213	-57.18	4.88	-52.30	-39.3
3128.00	V	-	-	-61.66	6.02	-55.64	-42.6

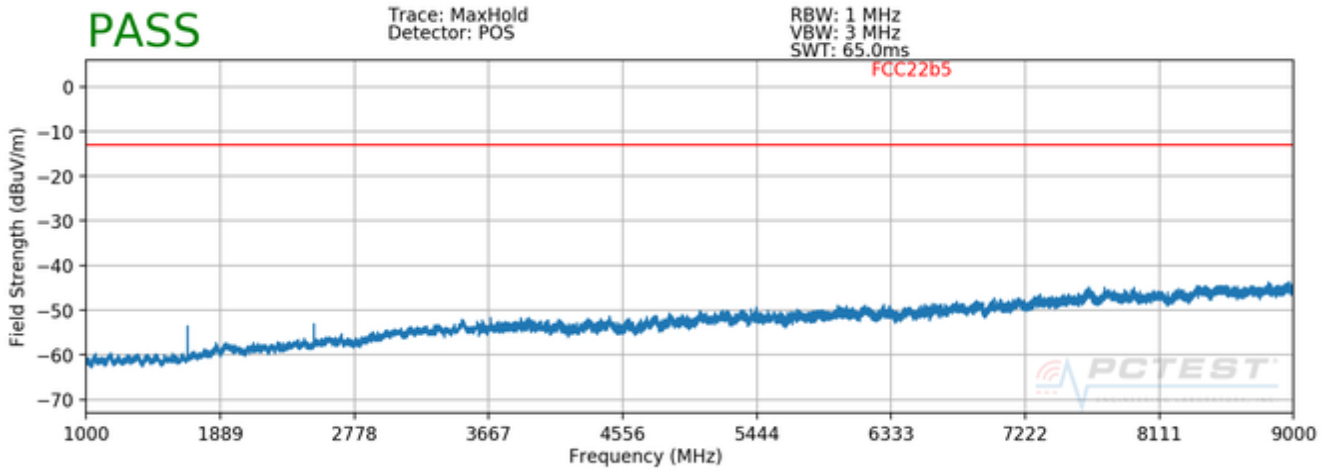
Table 7-25. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

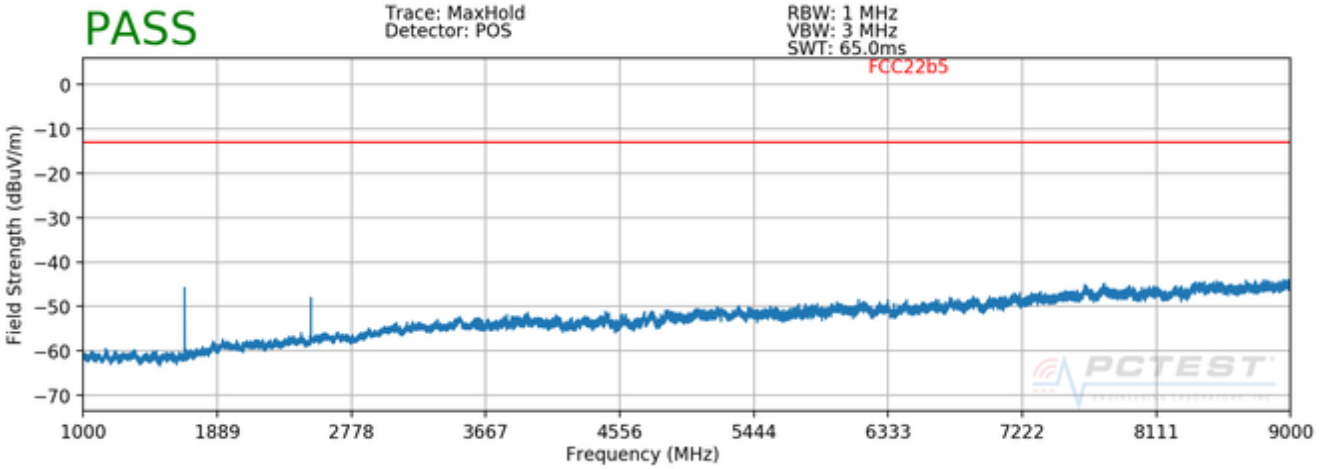
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	150	113	-58.92	4.50	-54.43	-14.4

Table 7-26. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

Band 5



Plot 7-344. Radiated Spurious Plot above 1GHz (Band 5) - Pol. H



Plot 7-345. Radiated Spurious Plot above 1GHz (Band 5) - Pol. V

OPERATING FREQUENCY:	824.70	MHz
CHANNEL:	20407	
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]
1649.40	V	-	-	-76.41	8.54	-67.87	-54.9
2474.10	V	150	336	-70.04	8.80	-61.25	-48.2
3298.80	V	-	-	-70.10	8.59	-61.51	-48.5

Table 7-27. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	20525	
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]
1673.00	V	-	-	-74.78	8.39	-66.39	-53.4
2509.50	V	150	330	-69.63	8.84	-60.79	-47.8
3346.00	V	-	-	-68.96	8.68	-60.27	-47.3

Table 7-28. Radiated Spurious Data (Band 5 – Mid Channel)

OPERATING FREQUENCY:	848.30	MHz
CHANNEL:	20643	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

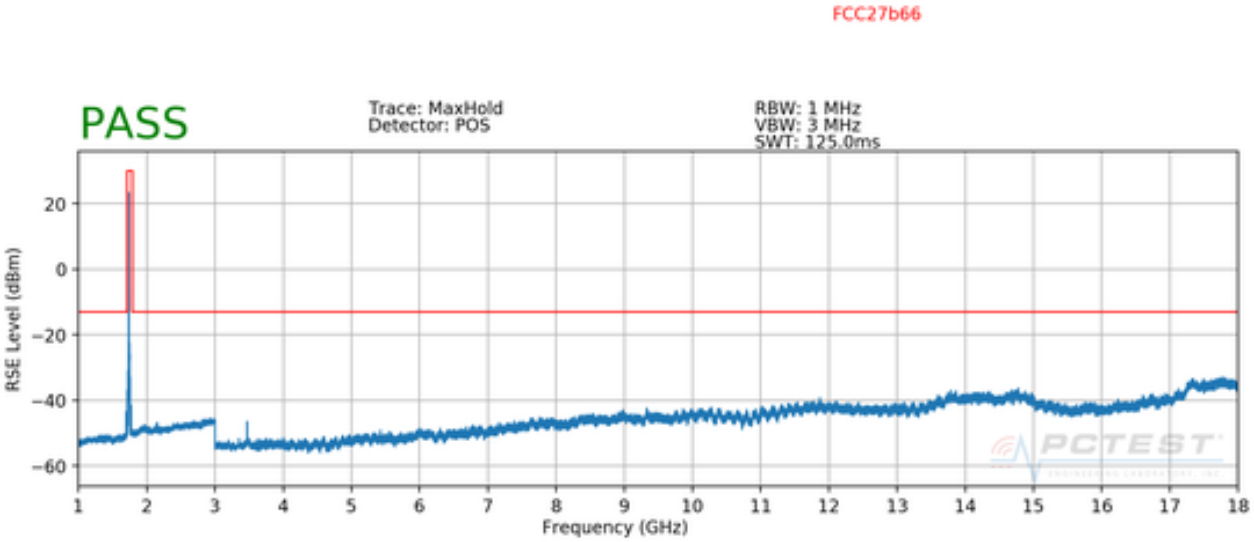
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1696.60	V	-	-	-75.83	8.24	-67.59	-54.6
2544.90	V	150	123	-73.56	8.85	-64.71	-51.7
3393.20	V	-	-	-70.99	8.78	-62.21	-49.2

Table 7-29. Radiated Spurious Data (Band 5 – High Channel)

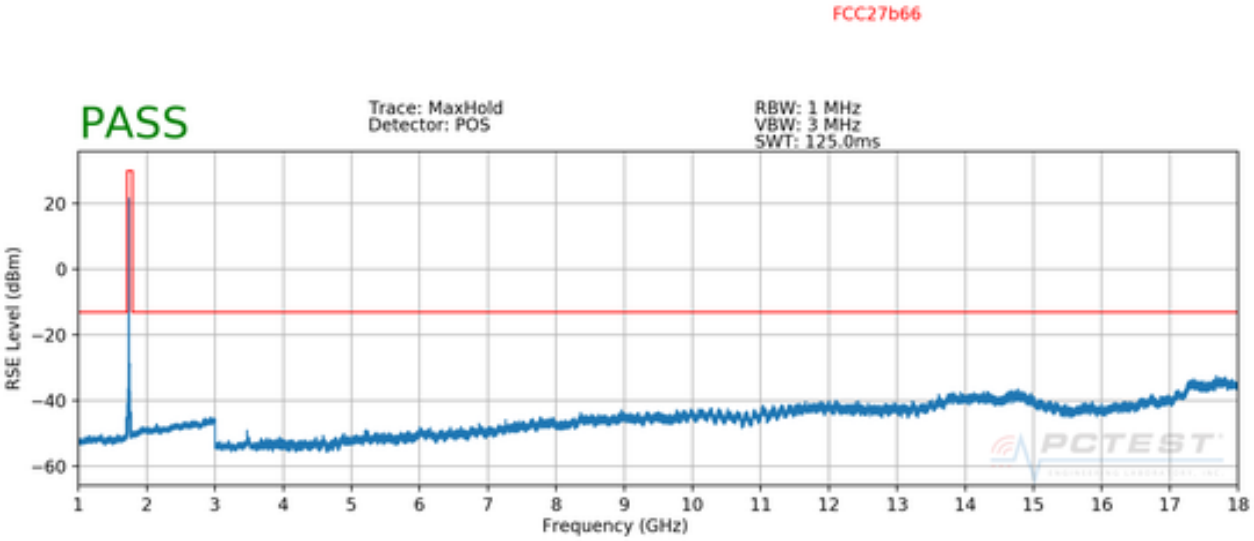
OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	20525	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

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]
1673.00	V	-	-	-75.42	8.39	-67.03	-54.0
2509.50	V	150	123	-72.18	8.84	-63.34	-50.3
3346.00	V	-	-	-70.66	8.68	-61.97	-49.0

Table 7-30. Radiated Spurious Data with WCP (Band 5 – Mid Channel)



Plot 7-346. Radiated Spurious Plot above 1GHz (Band 66/4) – Pol. H



Plot 7-347. Radiated Spurious Plot above 1GHz (Band 66/4) – Pol. V

OPERATING FREQUENCY:	1717.50	MHz
CHANNEL:	132047	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
3435.00	H	150	5	-65.46	6.50	-58.96	-46.0
5152.50	H	-	-	-65.90	8.44	-57.47	-44.5
6870.00	H	-	-	-63.42	8.71	-54.71	-41.7

Table 7-31. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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	-	-	-66.89	6.59	-60.30	-47.3
5235.00	H	-	-	-64.95	8.42	-56.53	-43.5
6980.00	H	-	-	-63.09	8.60	-54.48	-41.5

Table 7-32. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1772.50	MHz
CHANNEL:	132597	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
3545.00	H	-	-	-65.55	6.53	-59.02	-46.0
5317.50	H	-	-	-64.69	8.41	-56.28	-43.3
7090.00	H	-	-	-62.89	8.48	-54.41	-41.4

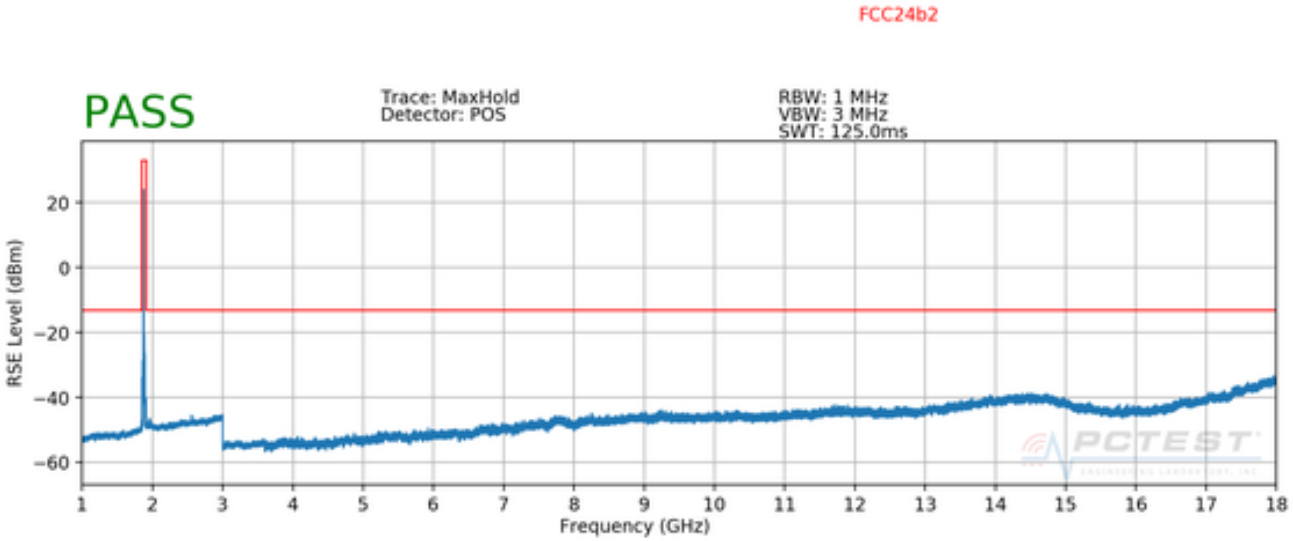
Table 7-33. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

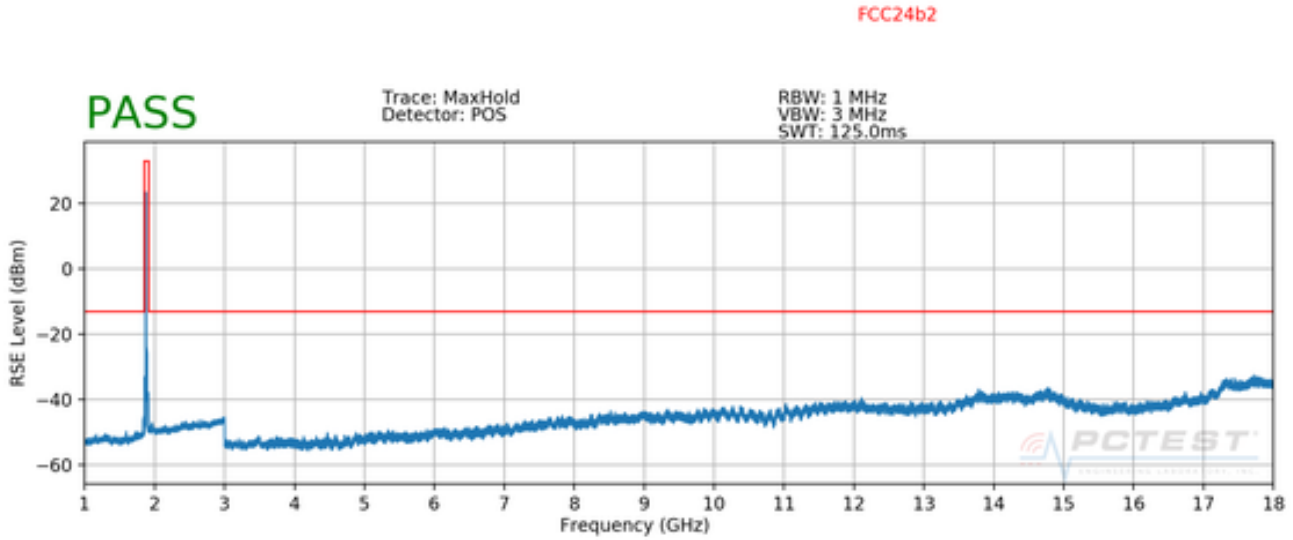
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	150	97	-64.83	6.59	-58.24	-45.2
5235.00	H	-	-	-64.83	8.42	-56.41	-43.4
6980.00	H	-	-	-63.23	8.60	-54.62	-41.6

Table 7-34. Radiated Spurious Data with WCP (Band 66/4 – Mid Channel)

Band 25/2



Plot 7-348. Radiated Spurious Plot above 1GHz (Band 25/2) – Pol. H



Plot 7-349. Radiated Spurious Plot above 1GHz (Band 25/2) – Pol. V

OPERATING FREQUENCY:	1850.70	MHz
CHANNEL:	26047	
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]
3701.40	H	150	345	-64.72	6.76	-57.95	-45.0
5552.10	H	-	-	-65.47	8.43	-57.03	-44.0

Table 7-35. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
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]
3765.00	H	-	-	-66.42	6.85	-59.57	-46.6
5647.50	H	-	-	-65.57	8.53	-57.04	-44.0

Table 7-36. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1914.30	MHz
CHANNEL:	26683	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

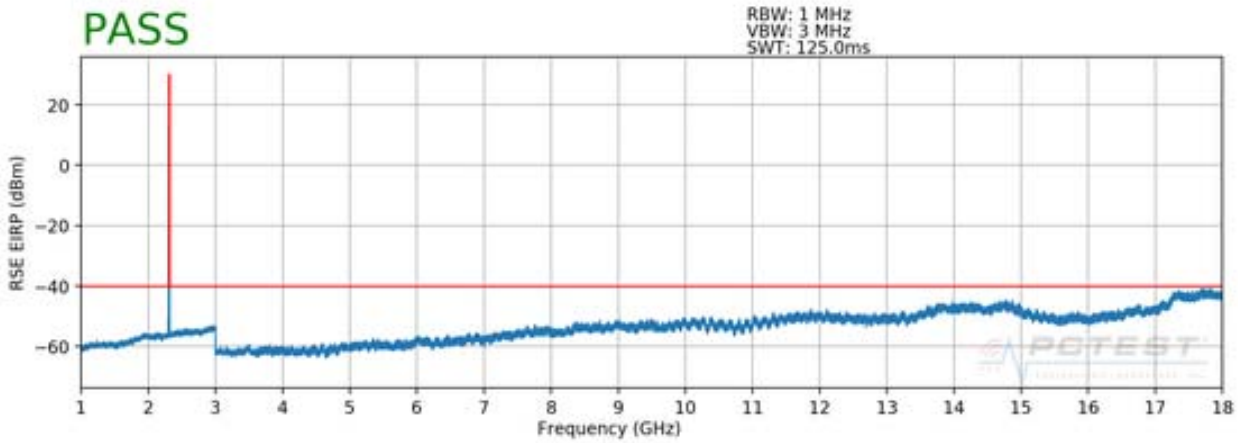
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3828.60	H	-	-	-66.49	7.03	-59.47	-46.5
5742.90	H	-	-	-65.33	8.58	-56.75	-43.8

Table 7-37. Radiated Spurious Data (Band 25/2 – High Channel)

OPERATING FREQUENCY:	1850.70	MHz
CHANNEL:	26047	
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]
3701.40	H	150	181	-64.06	6.76	-57.29	-44.3
5552.10	H	150	153	-64.57	8.43	-56.13	-43.1
7402.80	H	-	-	-62.09	8.26	-53.83	-40.8
9253.50	H	150	36	-61.02	9.88	-51.14	-38.1
11104.20	H	-	-	-60.47	9.29	-51.18	-38.2

Table 7-38. Radiated Spurious Data with WCP (Band 25/2 – Low Channel)



Plot 7-350. Radiated Spurious Plot 1GHz - 18GHz (Band 30) – Pol. H

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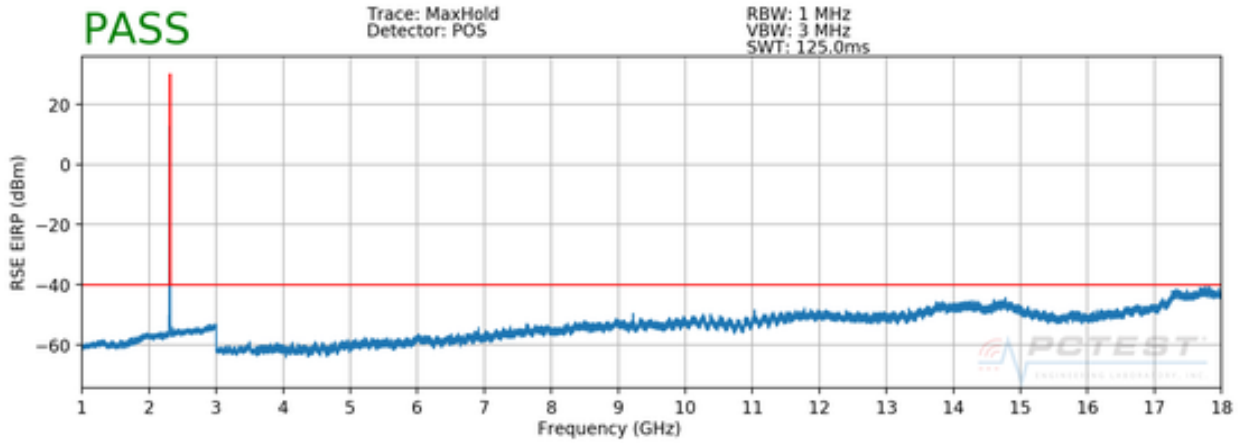


Plot 7-351. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30) – Pol. V

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	V	-	-	-66.53	8.10	-58.43	-18.4
6922.50	V	150	163	-58.85	8.68	-50.16	-10.2
9230.00	V	150	338	-60.42	9.90	-50.52	-10.5
11537.50	V	-	-	-59.94	9.11	-50.83	-10.8

Table 7-39. Radiated Spurious Data (Band 30 – Low Channel)

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

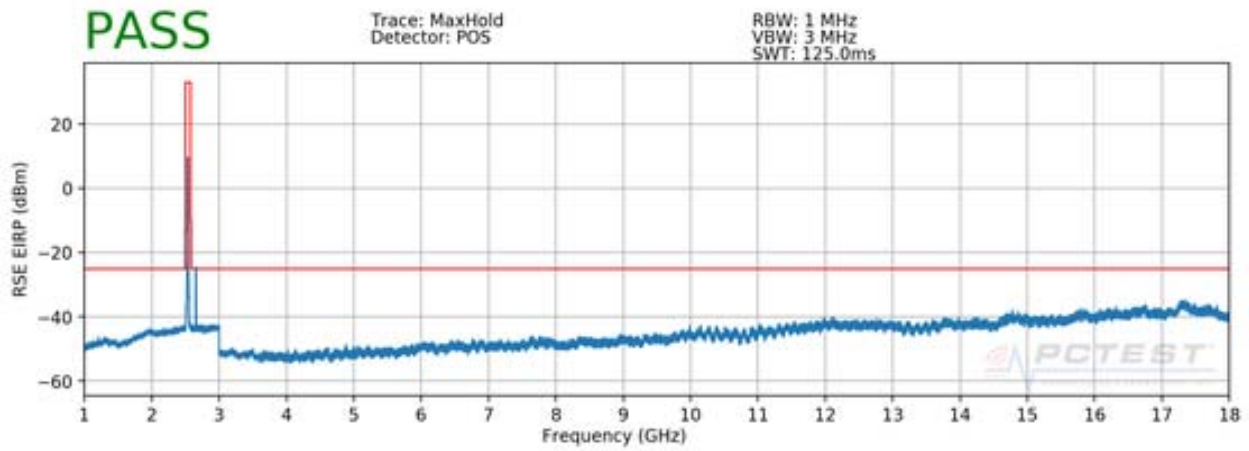
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4625.00	V	150	317	-60.51	8.10	-52.41	-12.4
6937.50	V	150	186	-58.41	8.66	-49.75	-9.8
9250.00	V	150	322	-57.30	9.88	-47.42	-7.4
11562.50	V	-	-	-58.82	9.11	-49.71	-9.7

Table 7-40. Radiated Spurious Data (Band 30 – High Channel)

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

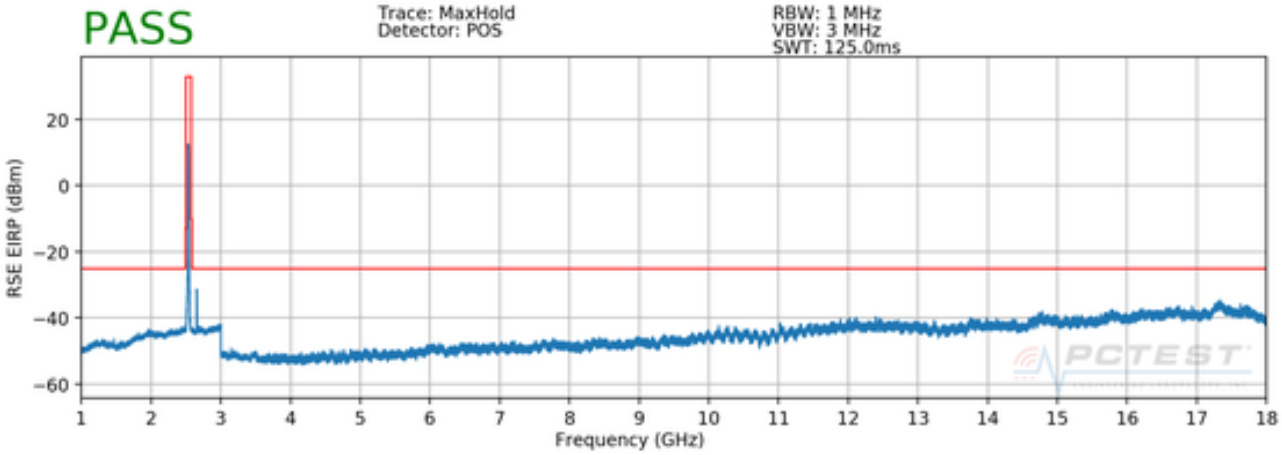
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	H	-	-	-66.17	8.10	-58.07	-18.1
6922.50	H	150	205	-61.41	8.68	-52.73	-12.7
9230.00	H	150	67	-59.04	9.90	-49.14	-9.1
11537.50	H	-	-	-59.18	9.11	-50.07	-10.1

Table 7-41. Radiated Spurious Data with WCP (Band 30 – Low Channel)



Plot 7-352. Radiated Spurious Plot 1GHz - 18GHz (Band 7) – Pol. H

FCC27b7



Plot 7-353. Radiated Spurious Plot 1GHz - 18GHz (Band 7) – Pol. V

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	150	132	-64.58	8.35	-56.24	-31.2
7530.00	H	150	258	-61.27	8.45	-52.82	-27.8
10040.00	H	150	8	-48.74	9.84	-38.90	-13.9
12550.00	H	-	-	-58.24	9.29	-48.95	-23.9

Table 7-42. 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	-	-	-64.91	8.39	-56.52	-31.5
7605.00	H	150	234	-59.39	8.51	-50.88	-25.9
10140.00	H	150	258	-49.41	9.70	-39.71	-14.7
12675.00	H	150	56	-54.64	9.24	-45.40	-20.4
15210.00	H	-	-	-53.58	9.31	-44.26	-19.3

Table 7-43. 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	-	-	-64.47	8.42	-56.05	-31.0
7680.00	H	150	65	-56.69	8.63	-48.05	-23.1
10240.00	H	150	283	-46.66	9.71	-36.95	-12.0
12800.00	H	-	-	-57.72	9.25	-48.48	-23.5

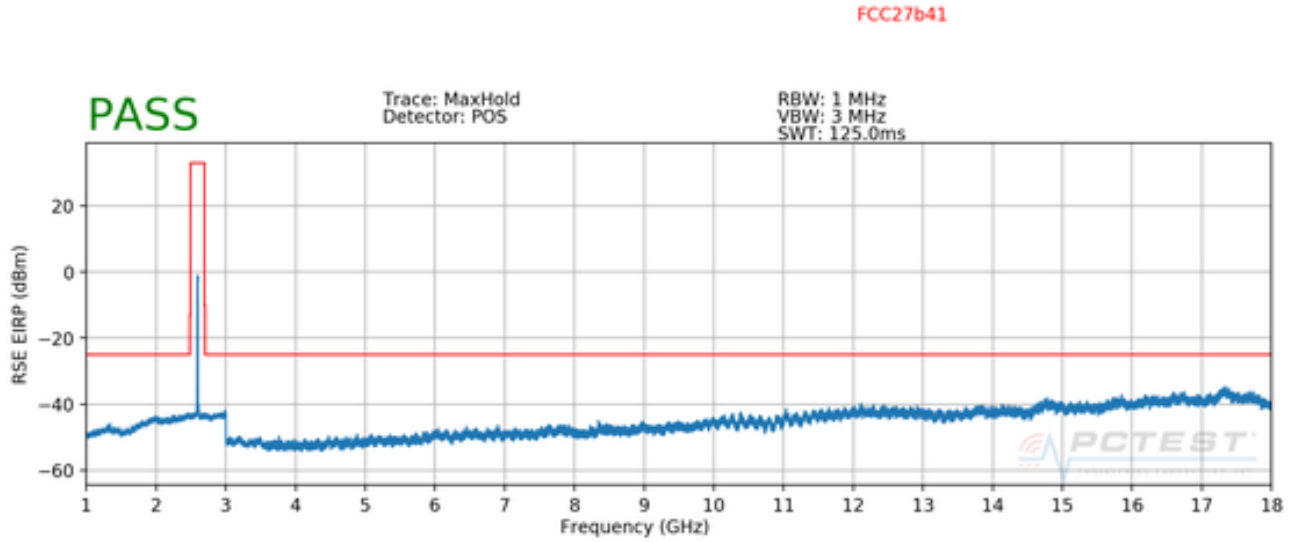
Table 7-44. Radiated Spurious Data (Band 7 – High Channel)

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

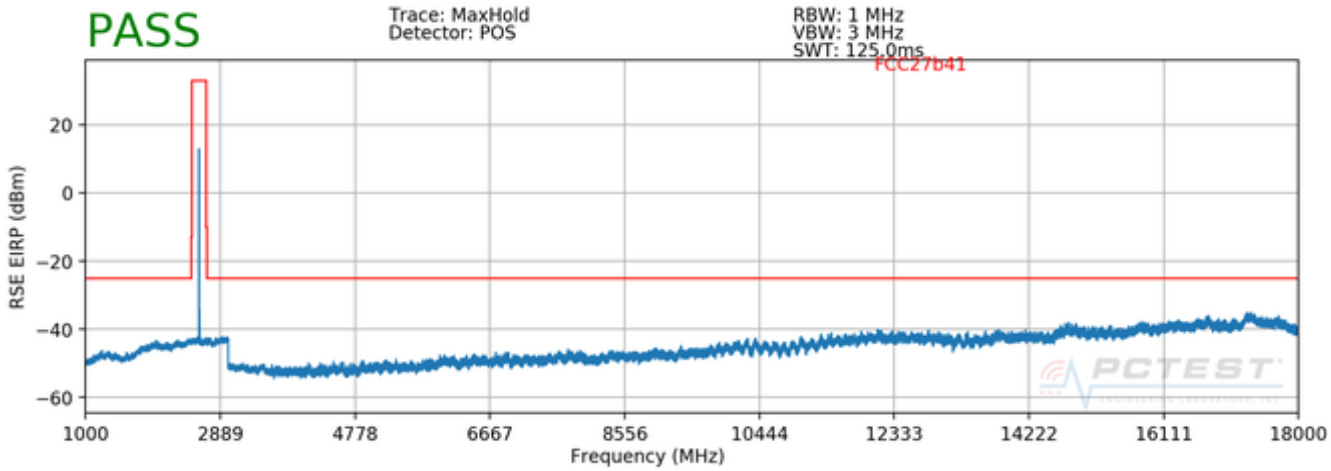
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	-	-	-65.64	8.35	-57.30	-32.3
7530.00	H	-	-	-61.89	8.45	-53.44	-28.4
10040.00	H	150	275	-55.50	9.84	-45.66	-20.7
12550.00	H	150	302	-54.71	9.29	-45.42	-20.4
15060.00	H	-	-	-54.72	9.36	-45.36	-20.4

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

Band 41



Plot 7-354. Radiated Spurious Plot 1GHz - 18GHz (Band 41) - Pol. H



Plot 7-355. Radiated Spurious Plot 1GHz - 18GHz (Band 41) – Pol. V

OPERATING FREQUENCY:	2498.50	MHz
CHANNEL:	39715	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	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]
4997.00	H	-	-	-55.94	8.33	-47.61	-22.6
7495.50	H	-	-	-52.71	8.43	-44.28	-19.3
9994.00	H	-	-	-57.31	9.88	-47.43	-22.4

Table 7-46. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
CHANNEL:	40620	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	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	-	-	-60.43	8.45	-51.98	-27.0
7779.00	H	150	70	-55.18	8.75	-46.43	-21.4
10372.00	H	-	-	-58.21	9.73	-48.48	-23.5

Table 7-47. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY:	2687.50	MHz
CHANNEL:	41565	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	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]
5375.00	H	-	-	-60.03	8.41	-51.63	-26.6
8062.50	H	150	4	-56.75	9.22	-47.53	-22.5
10750.00	H	-	-	-55.37	9.51	-45.86	-20.9

Table 7-48. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY:	2498.50	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]
4997.00	H	-	-	-65.64	8.35	-57.30	-32.3
7495.50	H	-	-	-61.89	8.45	-53.44	-28.4
9994.00	H	150	275	-55.50	9.84	-45.66	-20.7
12492.50	H	150	302	-54.71	9.29	-45.42	-20.4
14991.00	H	-	-	-54.72	9.36	-45.36	-20.4

Table 7-49. Radiated Spurious Data with WCP (Band 41 – Low Channel)

7.9 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

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

Test Setup

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

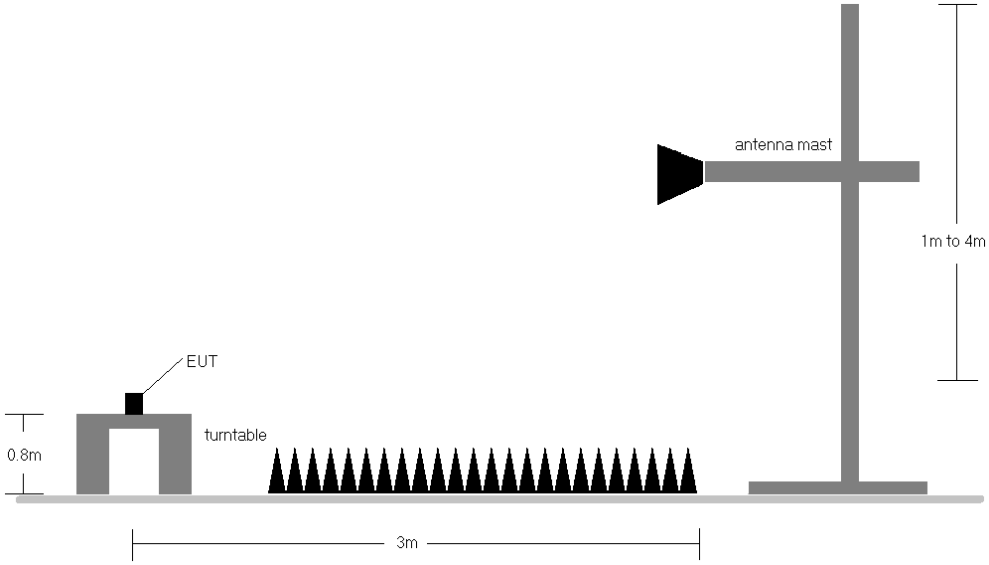


Figure 7-9. Test Instrument & Measurement Setup

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.

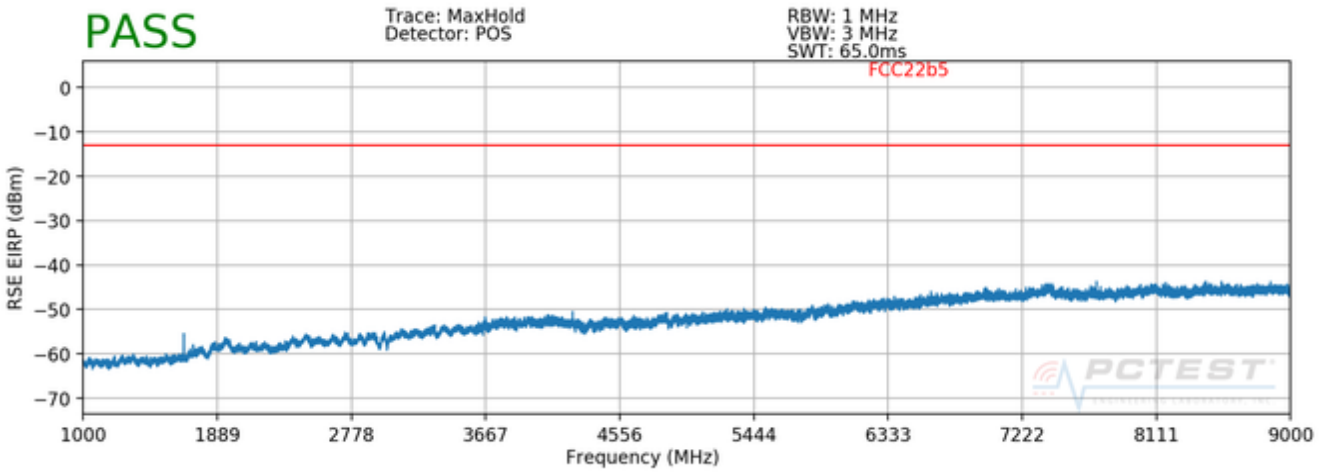
2) This unit was tested with its standard battery.

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.

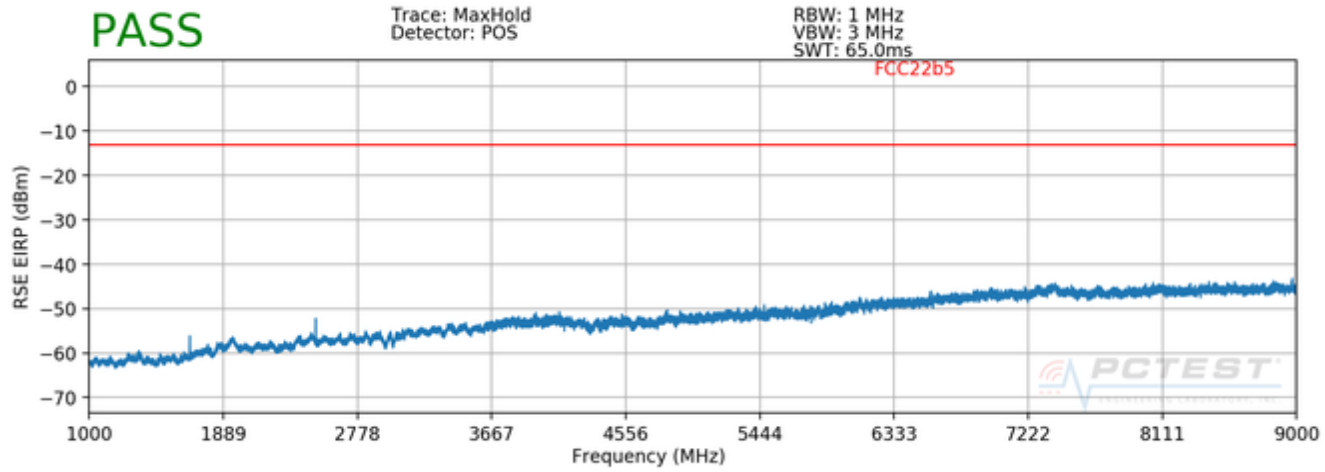
4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

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.

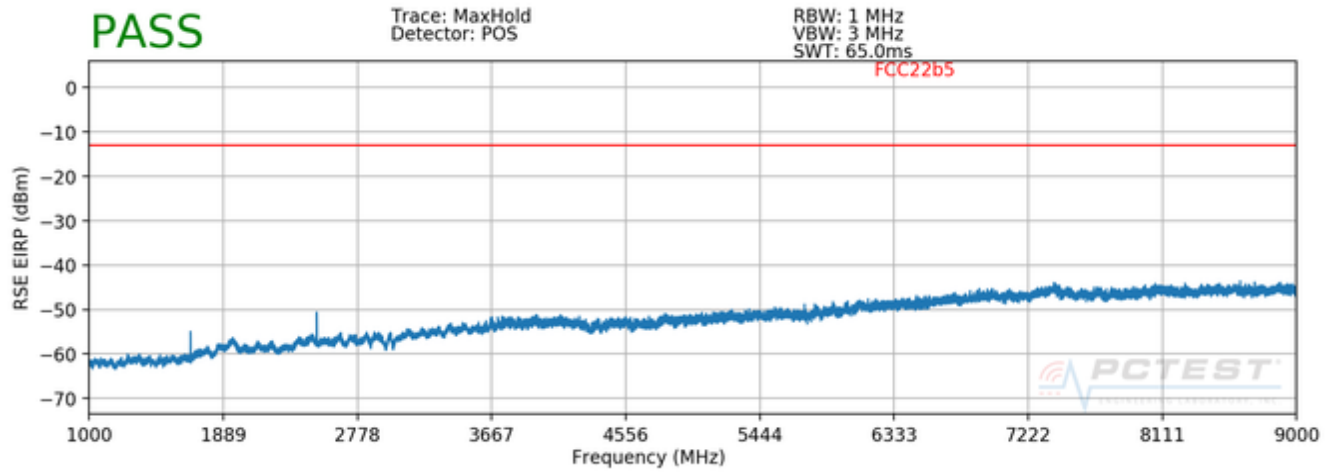
6) No significant emissions were found as a result of two uplink carriers operating contiguously.



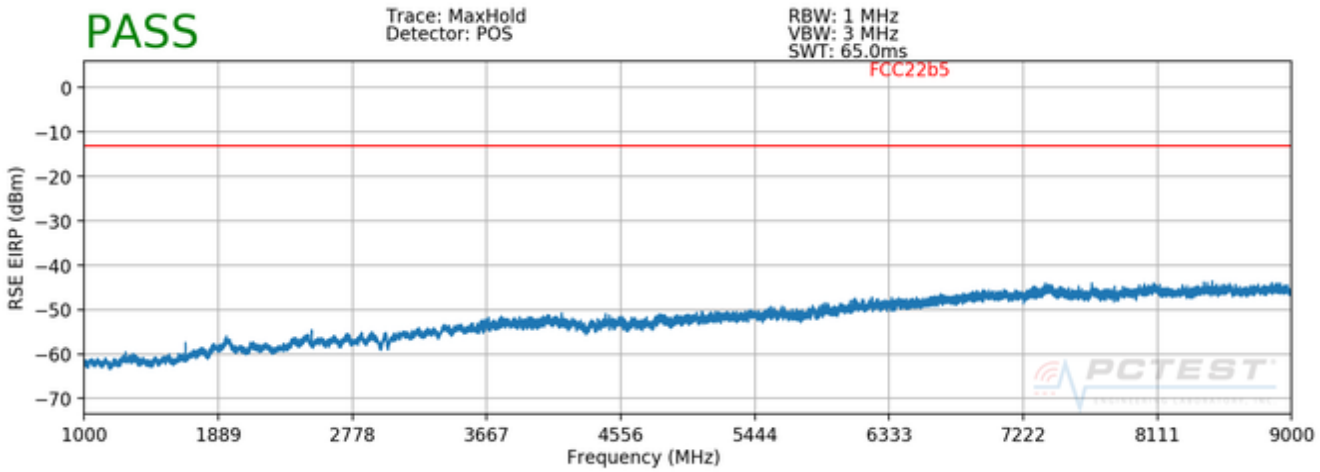
Plot 7-50. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. H – Low Channel)



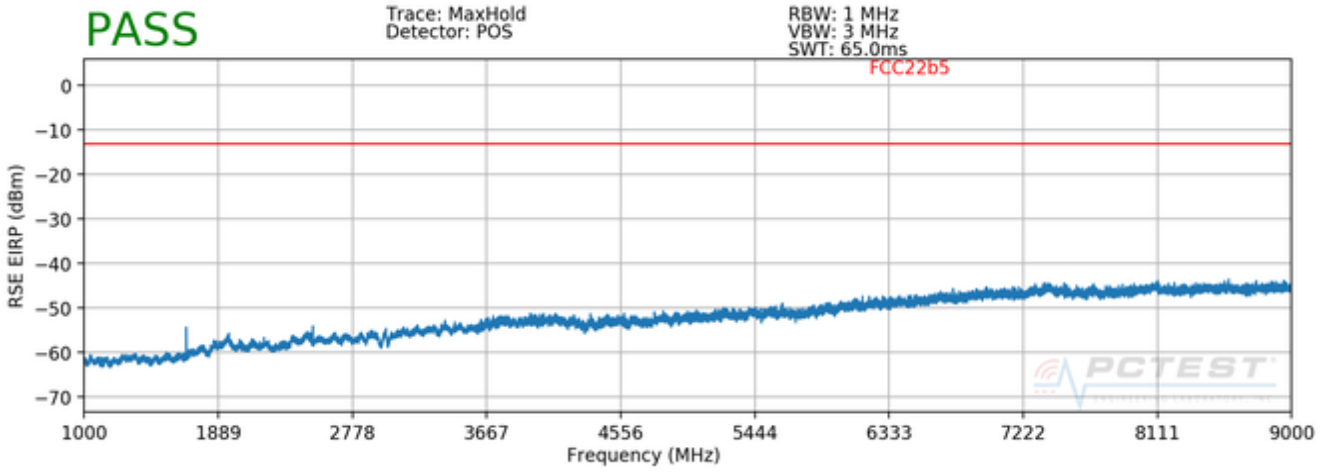
Plot 7-51. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. V – Low Channel)



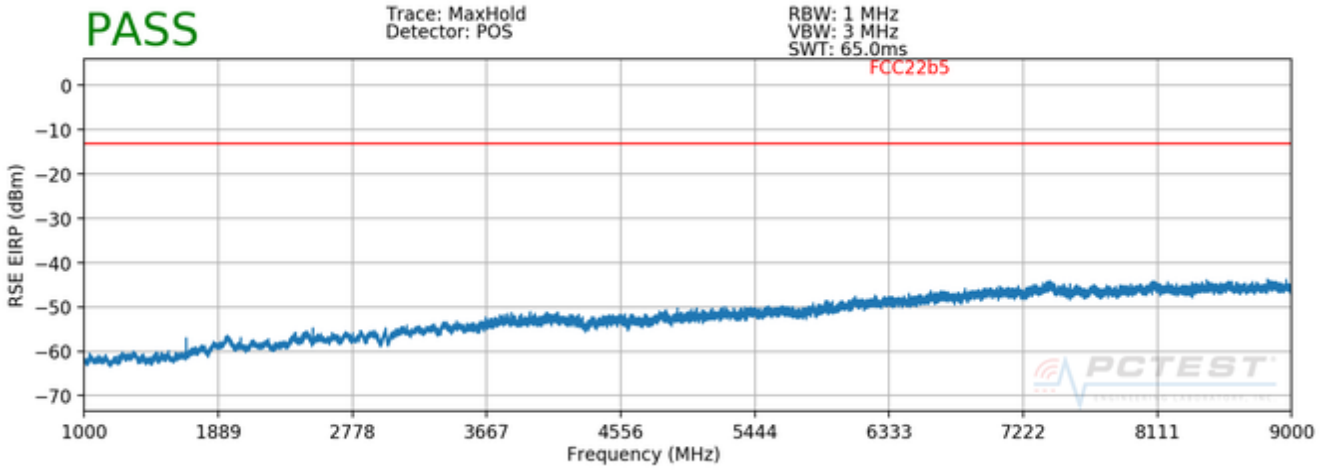
Plot 7-52. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. H – Mid Channel)



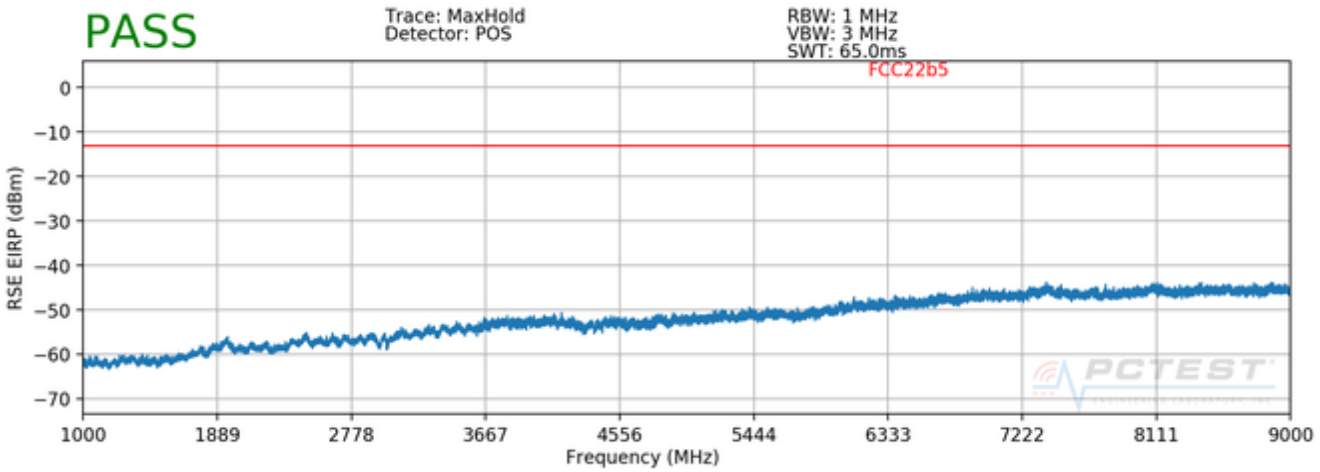
Plot 7-53. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. V – Mid Channel)



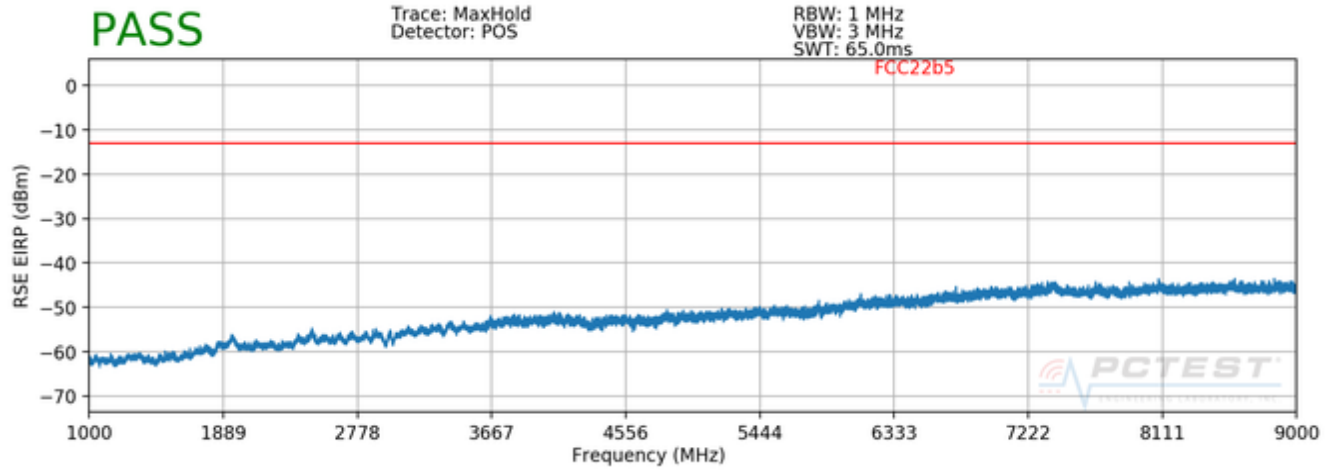
Plot 7-54. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. H – High Channel)



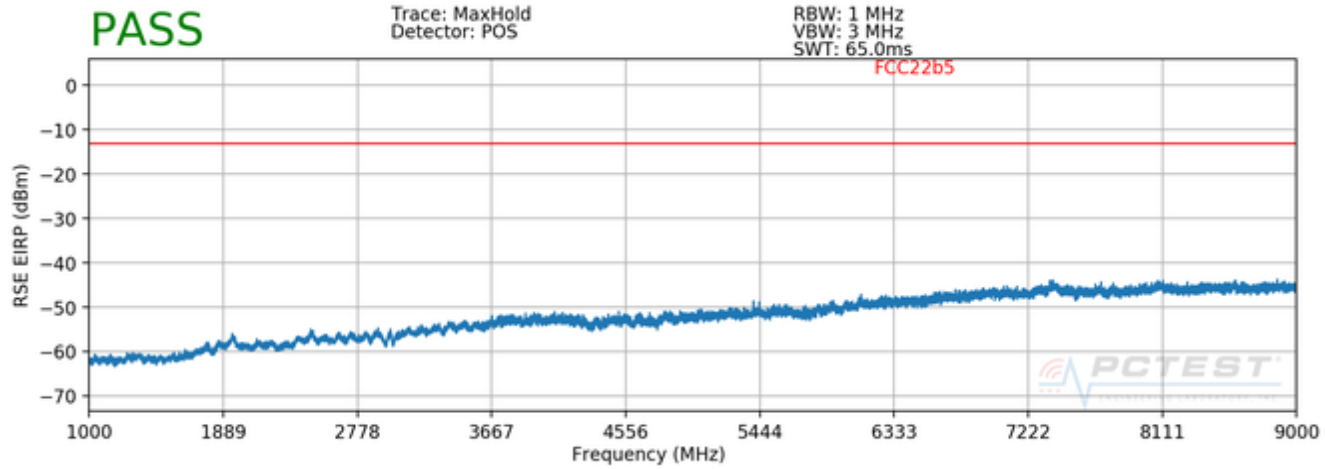
Plot 7-55. Radiated Spurious Plot (ULCA B5 – 10MHz+10MHz - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0, Ant. Pol. V – High Channel)



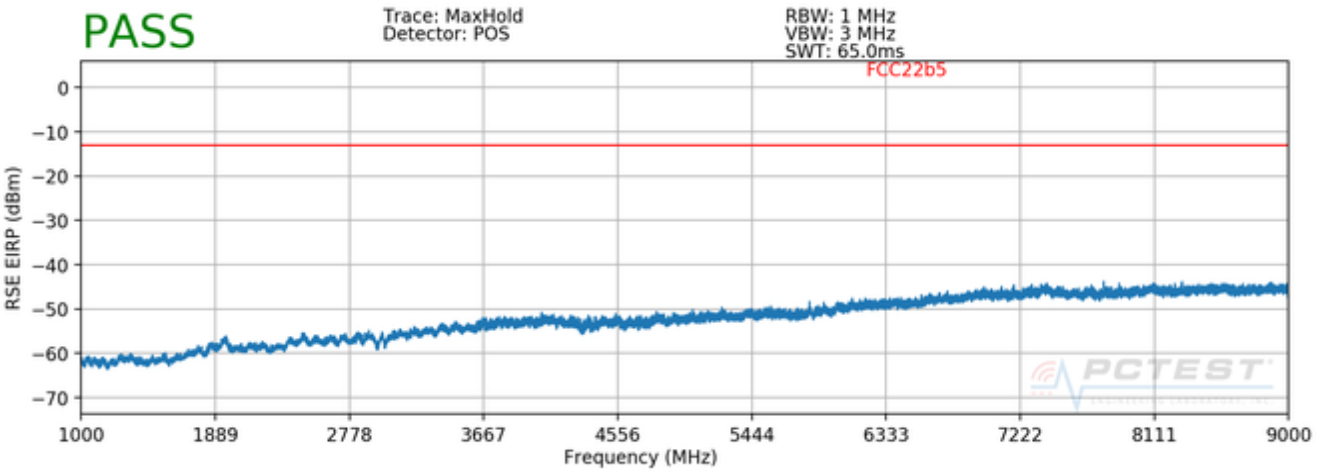
Plot 7-56. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. H – Low Channel)



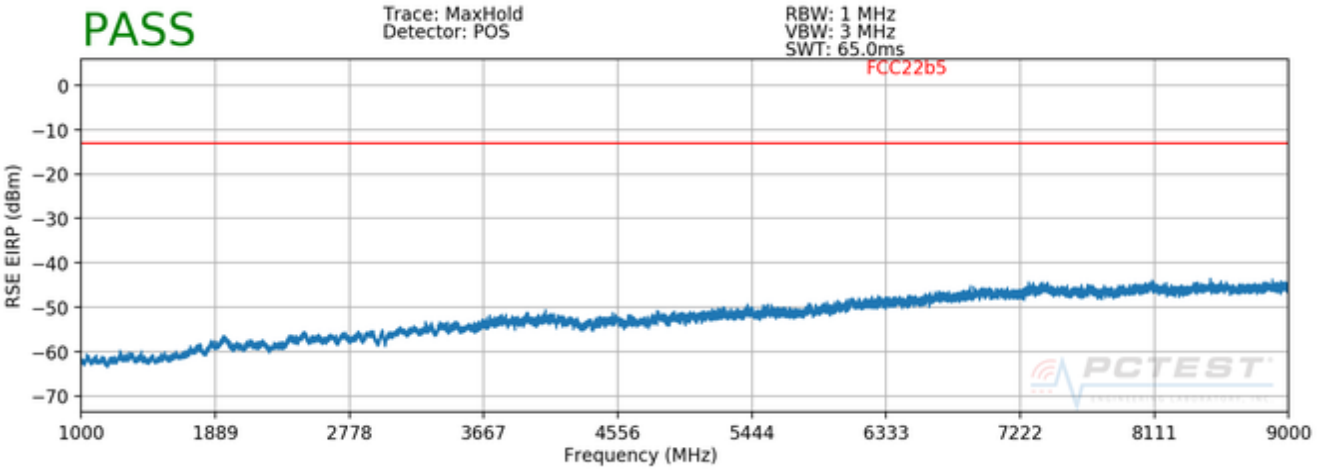
Plot 7-57. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. V – Low Channel)



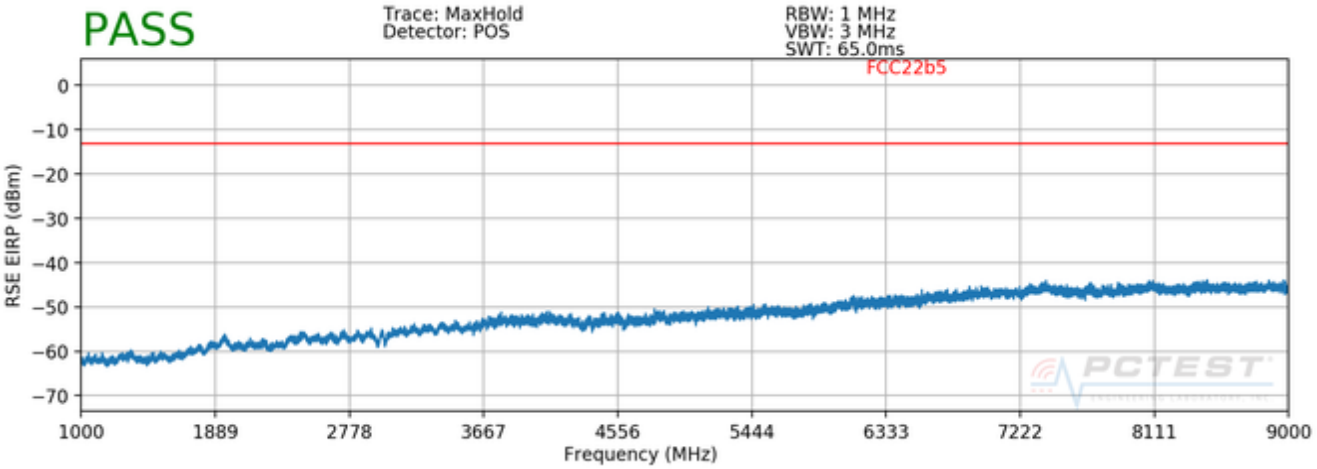
Plot 7-58. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. H – Mid Channel)



Plot 7-59. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. V – Mid Channel)



Plot 7-60. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. H – High Channel)



Plot 7-61. Radiated Spurious Plot (ULCA B5– 10MHz+10MHz - PCC:RB 50 Offset 0, SCC:RB 50 Offset 0, Ant. Pol. V – High Channel)

OPERATING FREQUENCY (PCC):	829.00	MHz
OPERATING FREQUENCY (SCC):	838.90	MHz
CHANNEL (PCC):	20450	
CHANNEL (SCC):	20549	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10 + 10	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	100	319	-69.75	8.96	-60.79	-47.8
2487.00	H	104	251	-72.04	9.13	-62.91	-49.9
3316.00	H	-	-	-74.44	9.36	-65.08	-52.1

Table 7-62. Radiated Spurious Data (ULCA B5 - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0 – Low Channel)

OPERATING FREQUENCY (PCC):	831.60	MHz
OPERATING FREQUENCY (SCC):	841.50	MHz
CHANNEL (PCC):	20476	
CHANNEL (SCC):	20575	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10 + 10	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]
1663.20	H	100	321	-72.71	10.75	-61.96	-49.0
2494.80	H	144	251	-73.20	11.40	-61.80	-48.8
3326.40	H	-	-	-77.51	12.59	-64.92	-51.9

Table 7-63. Radiated Spurious Data (ULCA B5 - PCC: RB 1 Offset 49, SCC: RB 1 Offset 0 – Mid Channel)

OPERATING FREQUENCY (SCC):	834.10	MHz
OPERATING FREQUENCY (PCC):	844.00	MHz
CHANNEL (SCC):	20501	
CHANNEL (PCC):	20600	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10 + 10	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]
1668.20	H	100	327	-69.33	8.88	-60.45	-47.4
2502.30	H	104	258	-71.00	9.15	-61.85	-48.8
3336.40	H	-	-	-75.55	9.36	-66.19	-53.2

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

7.10 Frequency Stability / Temperature Variation

§2.1055 §22.355 §24.235 §27.54

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

§2.1055 §27.54

OPERATING FREQUENCY:	680,500,000	Hz
CHANNEL:	133297	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	680,499,575	-425	-0.0000625
100 %		- 30	680,499,960	-40	-0.0000059
100 %		- 20	680,499,773	-227	-0.0000334
100 %		- 10	680,499,885	-115	-0.0000169
100 %		0	680,499,868	-132	-0.0000194
100 %		+ 10	680,500,065	65	0.0000096
100 %		+ 20	680,499,965	-35	-0.0000051
100 %		+ 30	680,500,178	178	0.0000262
100 %		+ 40	680,499,980	-20	-0.0000029
100 %		+ 50	680,500,270	270	0.0000397
BATT. ENDPOINT	3.40	+ 20	680,500,223	223	0.0000328

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

Note:

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

Band 71 Frequency Stability Measurements
§2.1055 §27.54

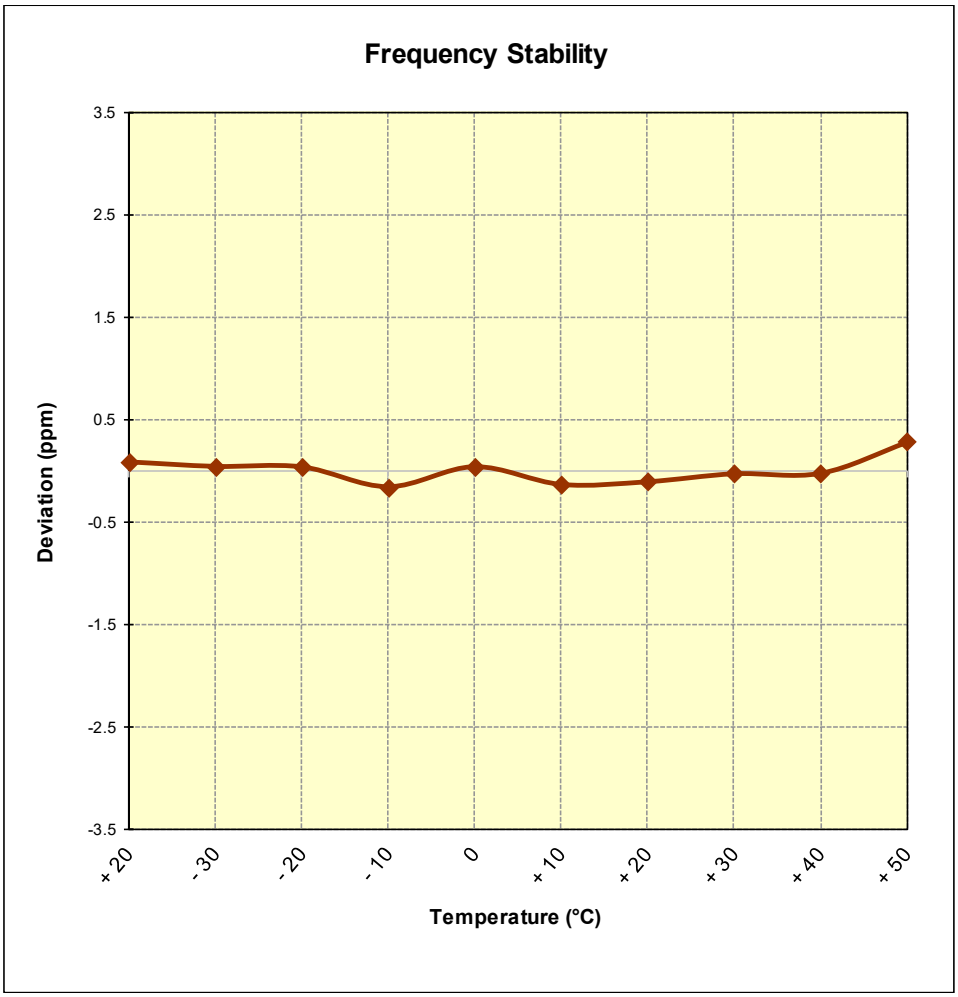


Figure 7-10. Frequency Stability Graph (Band 71)

Band 12/17 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,500,061	61	0.0000086
100 %		- 30	707,500,029	29	0.0000041
100 %		- 20	707,500,026	26	0.0000037
100 %		- 10	707,499,886	-114	-0.0000161
100 %		0	707,500,027	27	0.0000038
100 %		+ 10	707,499,902	-98	-0.0000139
100 %		+ 20	707,499,921	-79	-0.0000112
100 %		+ 30	707,499,977	-23	-0.0000033
100 %		+ 40	707,499,981	-19	-0.0000027
100 %		+ 50	707,500,199	199	0.0000281
BATT. ENDPOINT	3.40	+ 20	707,500,106	106	0.0000150

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

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 12/17 Frequency Stability Measurements
§2.1055 §27.54

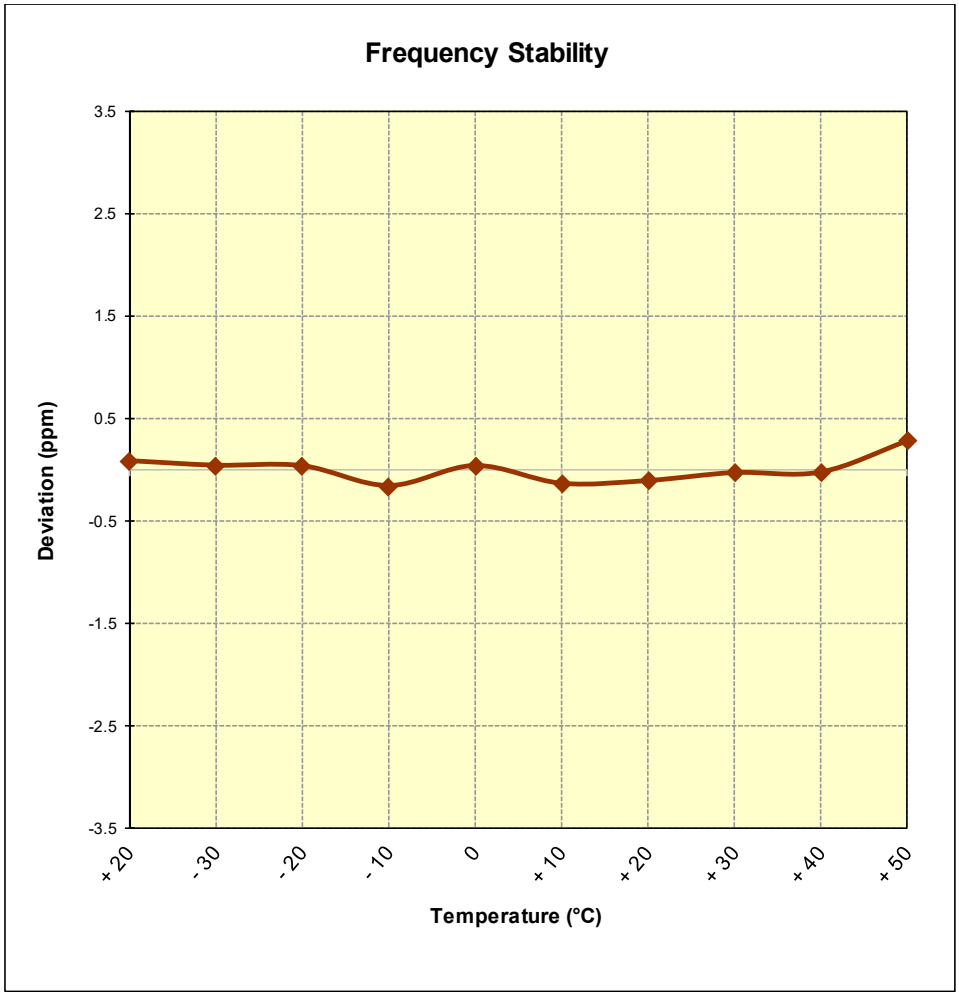


Figure 7-11. Frequency Stability Graph (Band 12/17)

Band 13 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	782,000,018	18	0.0000023
100 %		- 30	782,000,202	202	0.0000258
100 %		- 20	782,000,355	355	0.0000454
100 %		- 10	781,999,892	-108	-0.0000138
100 %		0	782,000,082	82	0.0000105
100 %		+ 10	782,000,188	188	0.0000240
100 %		+ 20	781,999,611	-389	-0.0000497
100 %		+ 30	781,999,835	-165	-0.0000211
100 %		+ 40	782,000,360	360	0.0000460
100 %		+ 50	781,999,926	-74	-0.0000095
BATT. ENDPOINT	3.40	+ 20	782,000,180	180	0.0000230

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

Note:

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

Band 13 Frequency Stability Measurements
§2.1055 §27.54

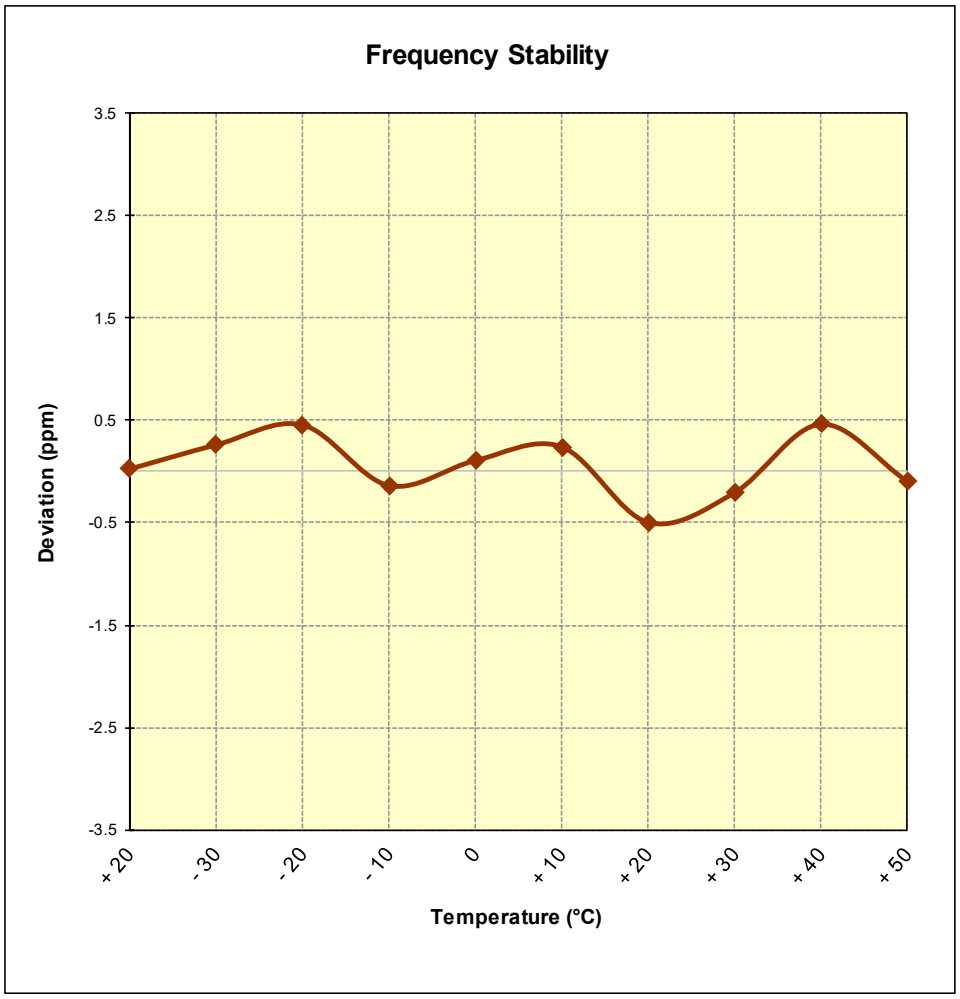


Figure 7-12. Frequency Stability Graph (Band 13)

Band 5 Frequency Stability Measurements

§2.1055 §22.355

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	20525	
REFERENCE VOLTAGE:	3.80	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,500,089	89	0.0000106
100 %		- 30	836,499,961	-39	-0.0000047
100 %		- 20	836,500,046	46	0.0000055
100 %		- 10	836,500,127	127	0.0000152
100 %		0	836,499,850	-150	-0.0000179
100 %		+ 10	836,499,943	-57	-0.0000068
100 %		+ 20	836,500,138	138	0.0000165
100 %		+ 30	836,499,940	-60	-0.0000072
100 %		+ 40	836,500,049	49	0.0000059
100 %		+ 50	836,499,949	-51	-0.0000061
BATT. ENDPOINT	3.40	+ 20	836,499,832	-168	-0.0000201

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

Band 5 Frequency Stability Measurements
§2.1055 §22.355

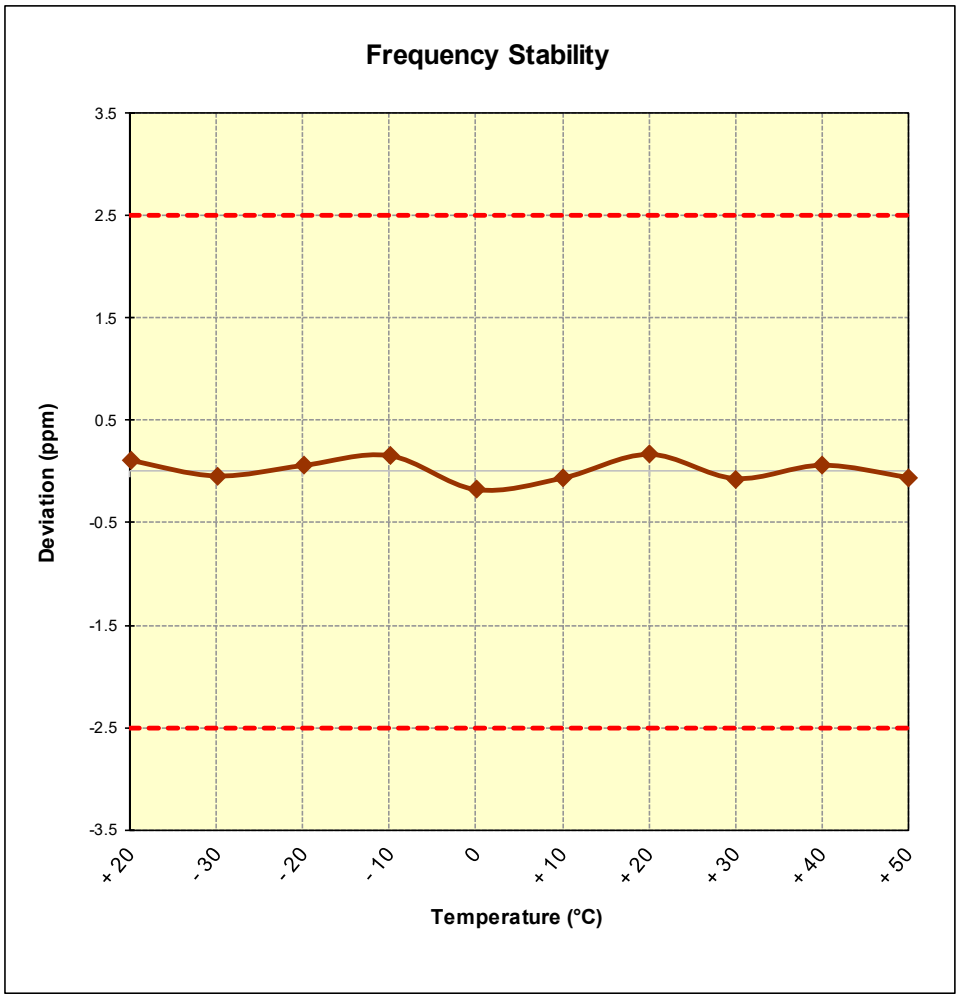


Figure 7-13. Frequency Stability Graph (Band 5)

Band 66/4 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,744,999,990	-10	-0.0000006
100 %		- 30	1,745,000,175	175	0.0000100
100 %		- 20	1,745,000,270	270	0.0000155
100 %		- 10	1,745,000,096	96	0.0000055
100 %		0	1,744,999,914	-86	-0.0000049
100 %		+ 10	1,744,999,795	-205	-0.0000117
100 %		+ 20	1,745,000,185	185	0.0000106
100 %		+ 30	1,745,000,135	135	0.0000077
100 %		+ 40	1,744,999,822	-178	-0.0000102
100 %		+ 50	1,744,999,971	-29	-0.0000017
BATT. ENDPOINT	3.40	+ 20	1,745,000,056	56	0.0000032

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

Note:

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

Band 66/4 Frequency Stability Measurements
§2.1055 §27.54

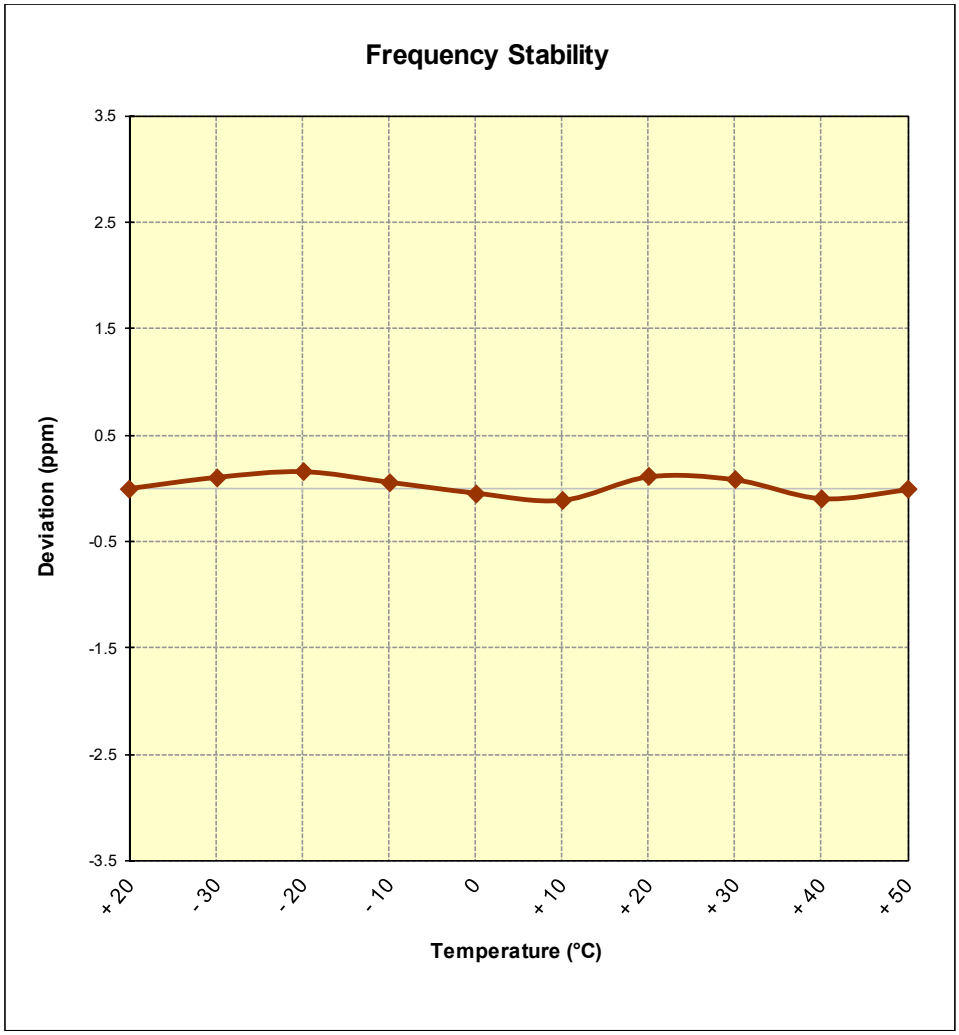


Figure 7-14. Frequency Stability Graph (Band 66/4)

Band 25/2 Frequency Stability Measurements

§2.1055 §24.235

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,882,499,977	-23	-0.0000012
100 %		- 30	1,882,499,781	-219	-0.0000116
100 %		- 20	1,882,499,852	-148	-0.0000079
100 %		- 10	1,882,499,844	-156	-0.0000083
100 %		0	1,882,499,674	-326	-0.0000173
100 %		+ 10	1,882,500,327	327	0.0000174
100 %		+ 20	1,882,499,912	-88	-0.0000047
100 %		+ 30	1,882,499,905	-95	-0.0000050
100 %		+ 40	1,882,500,068	68	0.0000036
100 %		+ 50	1,882,500,129	129	0.0000069
BATT. ENDPOINT	3.40	+ 20	1,882,500,007	7	0.0000004

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

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 25/2 Frequency Stability Measurements
§2.1055 §24.235

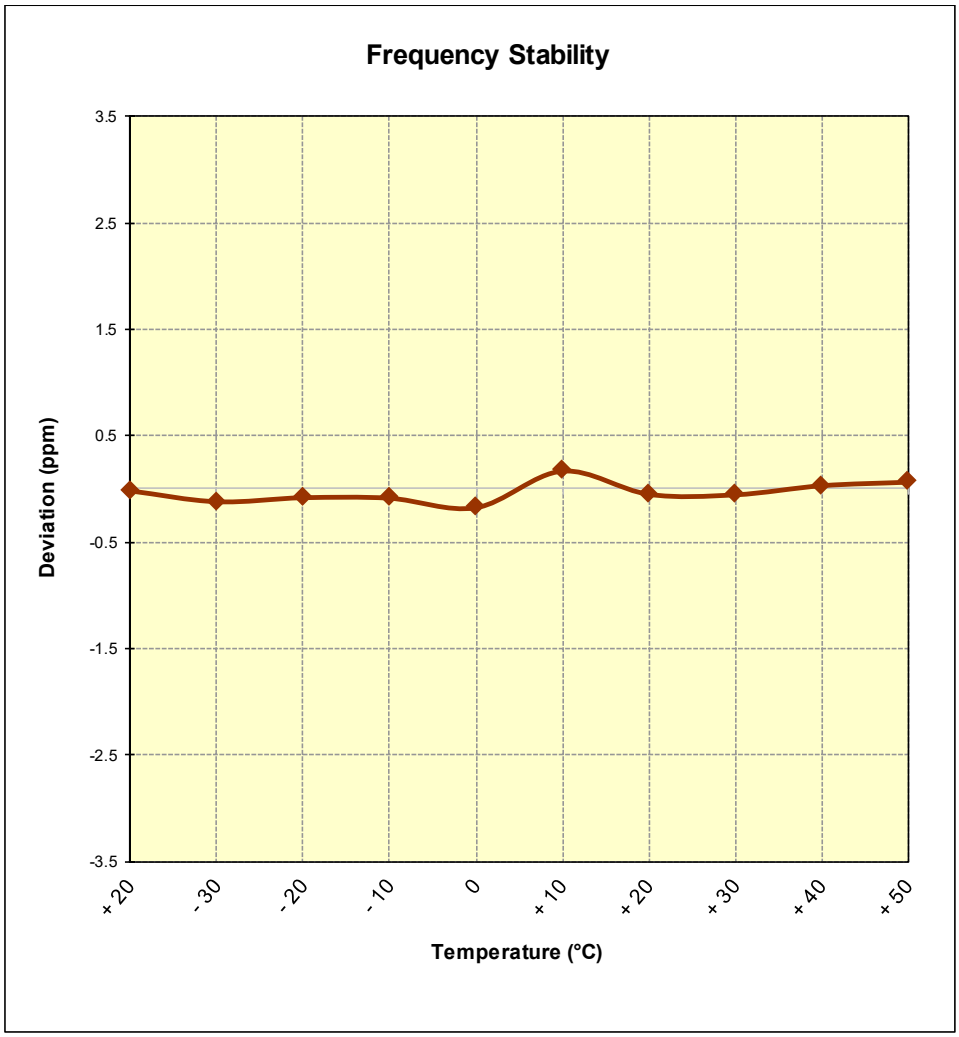


Figure 7-15. Frequency Stability Graph (Band 25/2)

Band 30 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,310,000,352	352	0.0000152
100 %		- 30	2,310,000,334	334	0.0000145
100 %		- 20	2,310,000,027	27	0.0000012
100 %		- 10	2,309,999,871	-129	-0.0000056
100 %		0	2,310,000,205	205	0.0000089
100 %		+ 10	2,310,000,178	178	0.0000077
100 %		+ 20	2,309,999,818	-182	-0.0000079
100 %		+ 30	2,309,999,917	-83	-0.0000036
100 %		+ 40	2,310,000,012	12	0.0000005
100 %		+ 50	2,310,000,138	138	0.0000060
BATT. ENDPOINT	3.40	+ 20	2,309,999,577	-423	-0.0000183

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

Note:

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

Band 30 Frequency Stability Measurements

§2.1055 §27.54

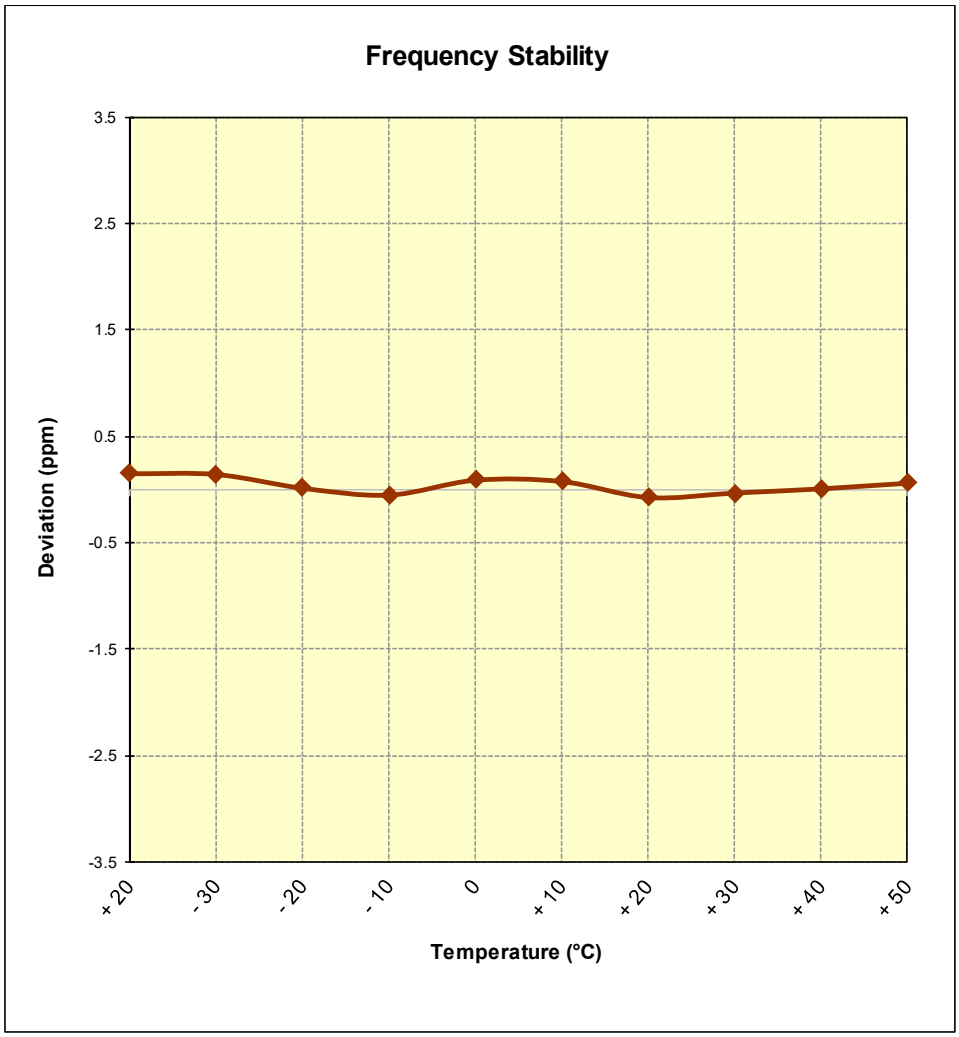


Figure 7-16. Frequency Stability Graph (Band 30)

Band 7 Frequency Stability Measurements
§2.1055 §27.54

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,535,000,176	176	0.0000069
100 %		- 30	2,534,999,979	-21	-0.0000008
100 %		- 20	2,534,999,973	-27	-0.0000011
100 %		- 10	2,534,999,950	-50	-0.0000020
100 %		0	2,535,000,022	22	0.0000009
100 %		+ 10	2,534,999,902	-98	-0.0000039
100 %		+ 20	2,535,000,196	196	0.0000077
100 %		+ 30	2,534,999,794	-206	-0.0000081
100 %		+ 40	2,535,000,013	13	0.0000005
100 %		+ 50	2,534,999,896	-104	-0.0000041
BATT. ENDPOINT	3.40	+ 20	2,535,000,003	3	0.0000001

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

Note:

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

Band 7 Frequency Stability Measurements

§2.1055 §27.54

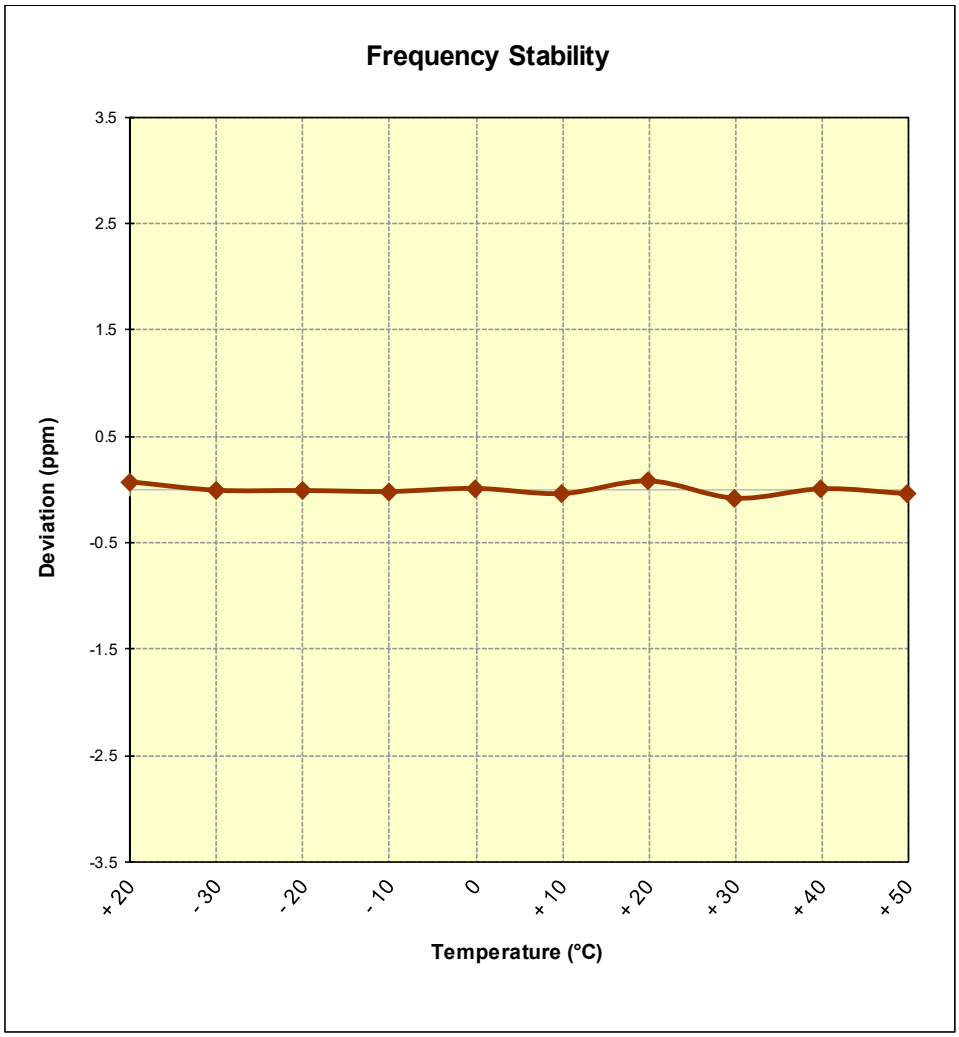


Figure 7-17. Frequency Stability Graph (Band 7)

Band 41 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,592,999,561	-439	-0.0000169
100 %		- 30	2,593,000,354	354	0.0000137
100 %		- 20	2,592,999,985	-15	-0.0000006
100 %		- 10	2,593,000,034	34	0.0000013
100 %		0	2,592,999,797	-203	-0.0000078
100 %		+ 10	2,592,999,652	-348	-0.0000134
100 %		+ 20	2,592,999,987	-13	-0.0000005
100 %		+ 30	2,593,000,146	146	0.0000056
100 %		+ 40	2,593,000,154	154	0.0000059
100 %		+ 50	2,592,999,833	-167	-0.0000064
BATT. ENDPOINT	3.40	+ 20	2,592,999,524	-476	-0.0000184

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

Note:

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

Band 41 Frequency Stability Measurements
§2.1055 §27.54

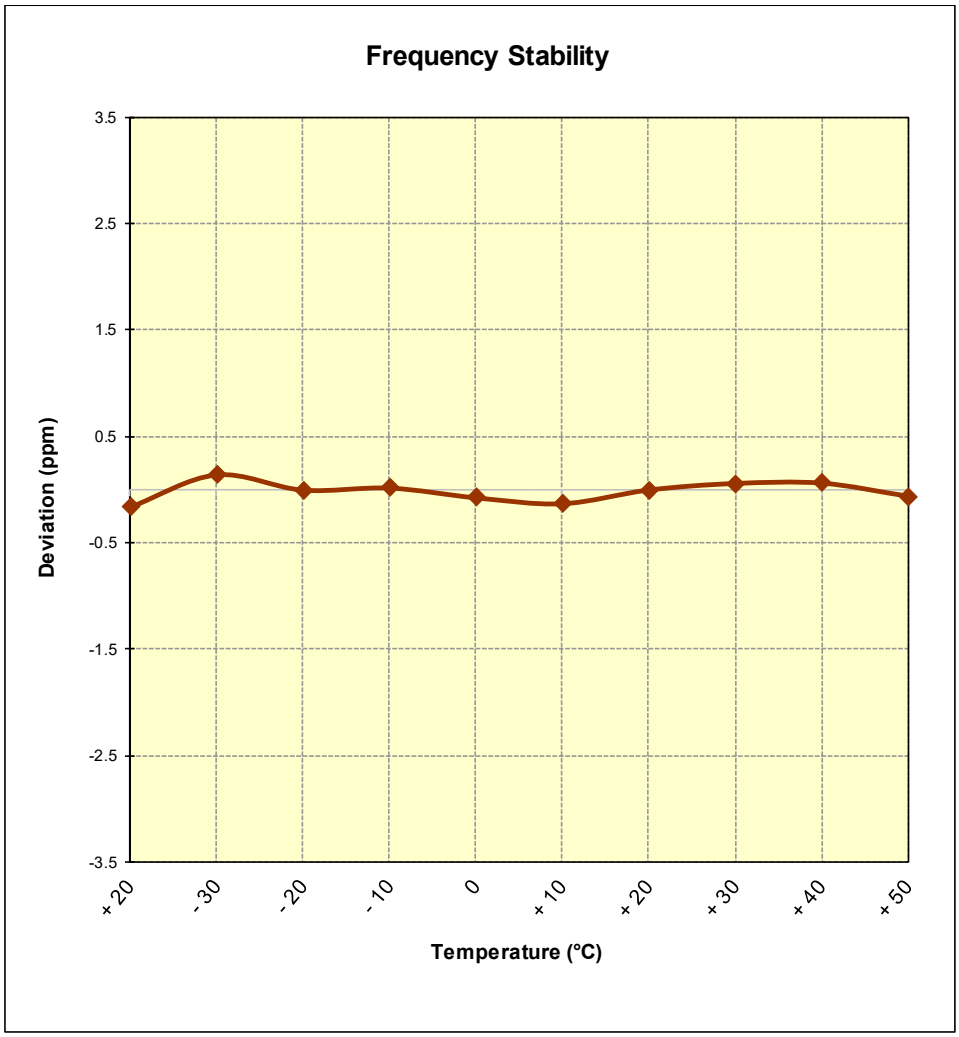


Figure 7-18. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFG710TM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.