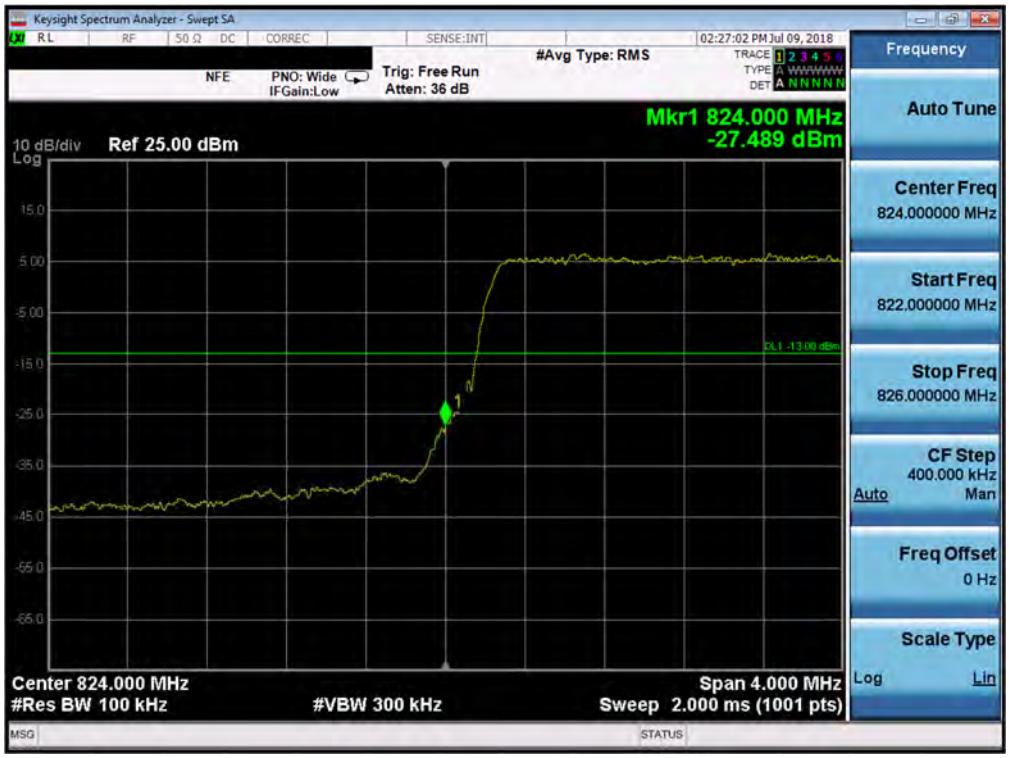
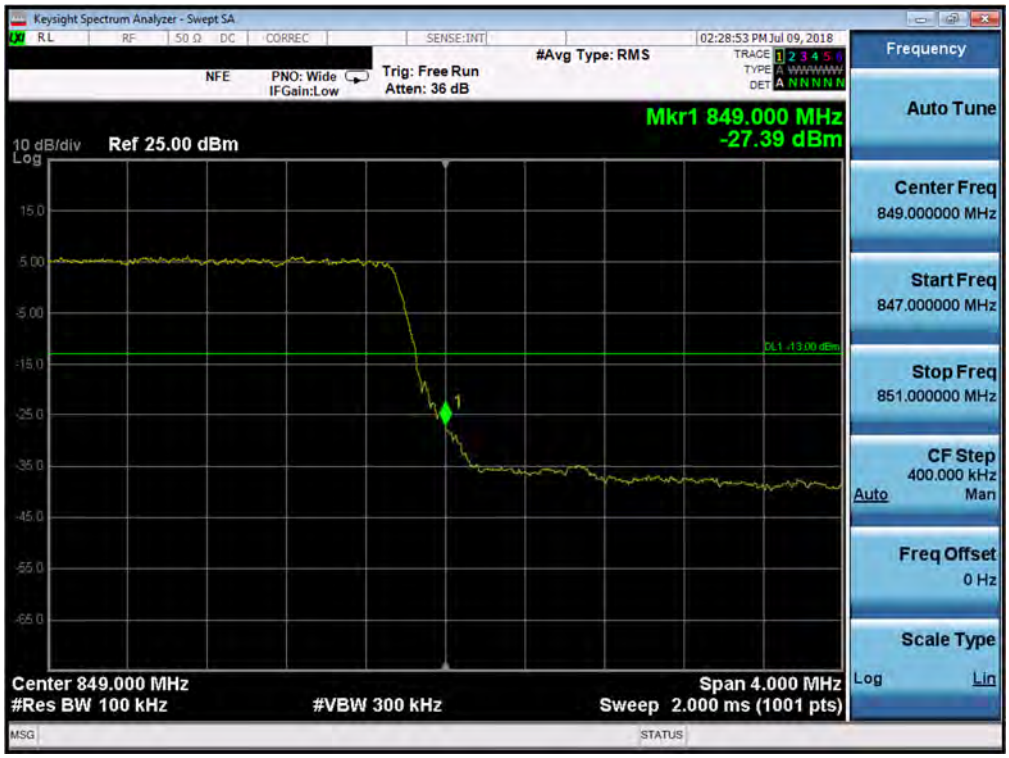
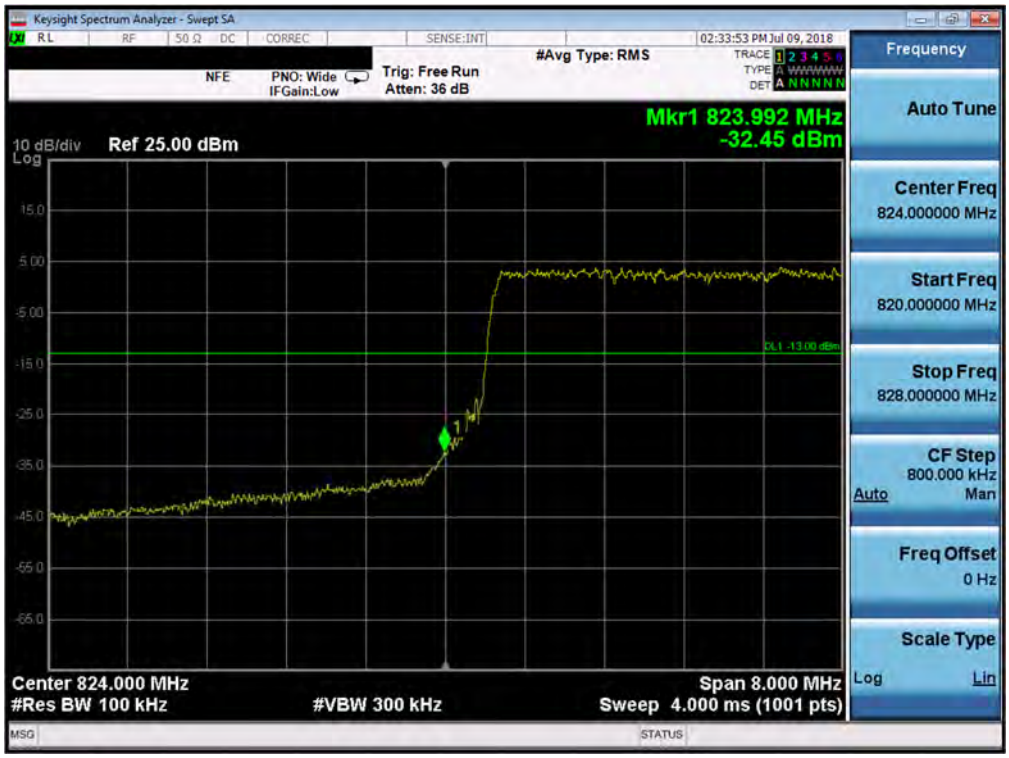


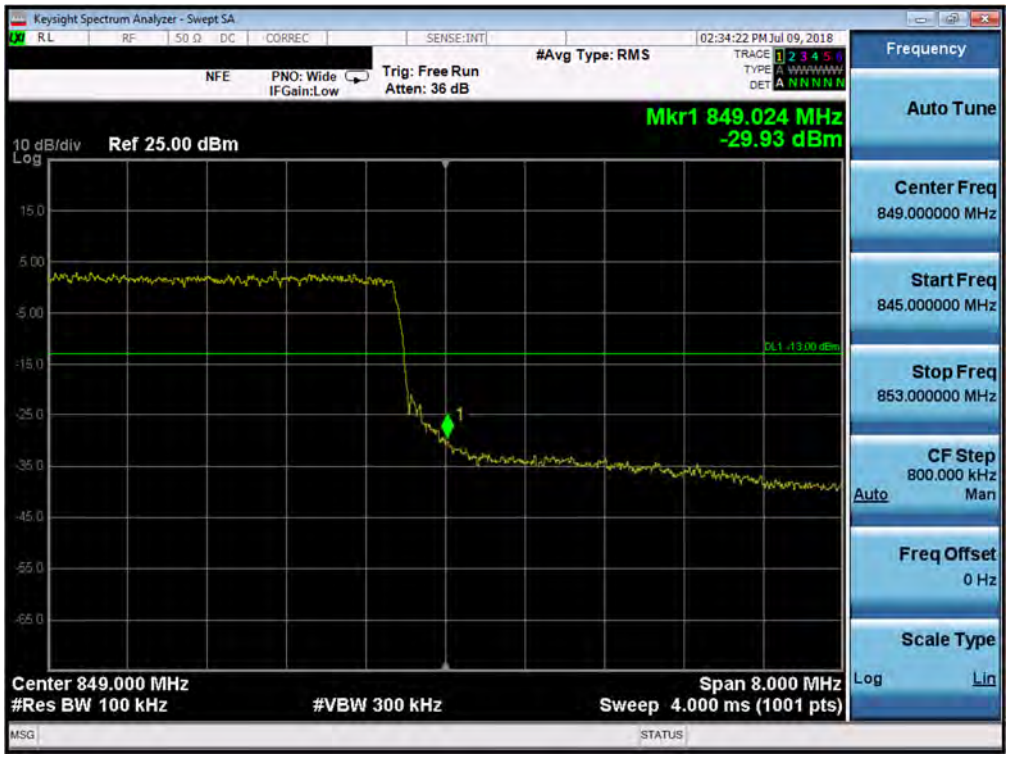
Plot 7-125. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-126. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

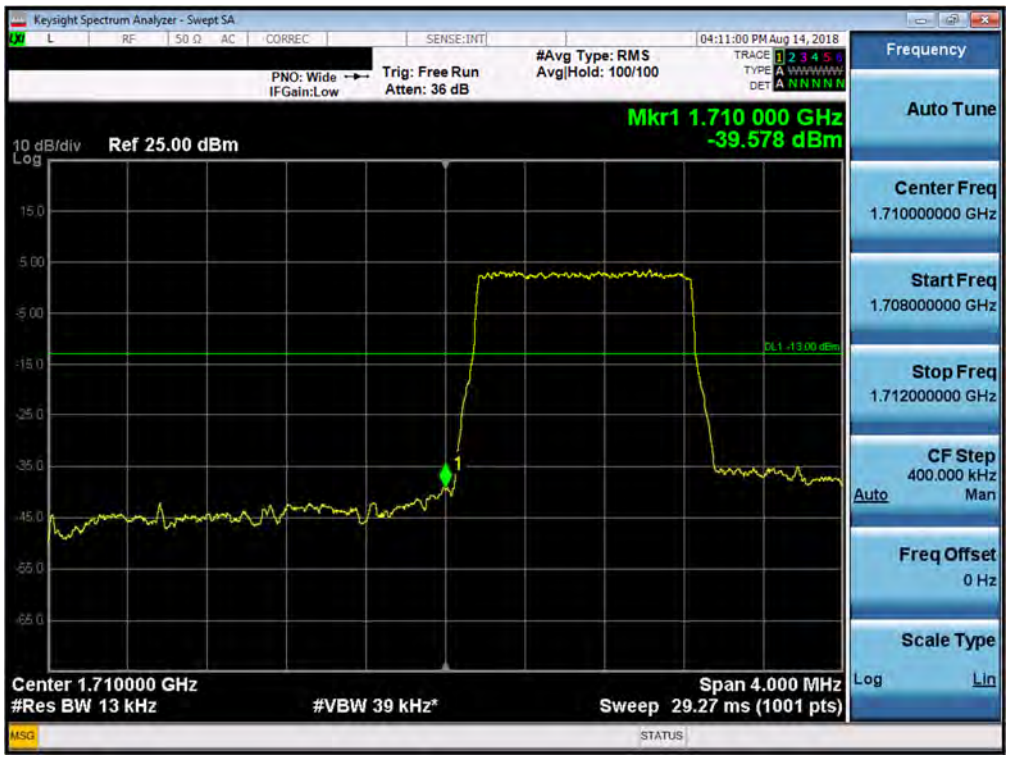


Plot 7-127. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

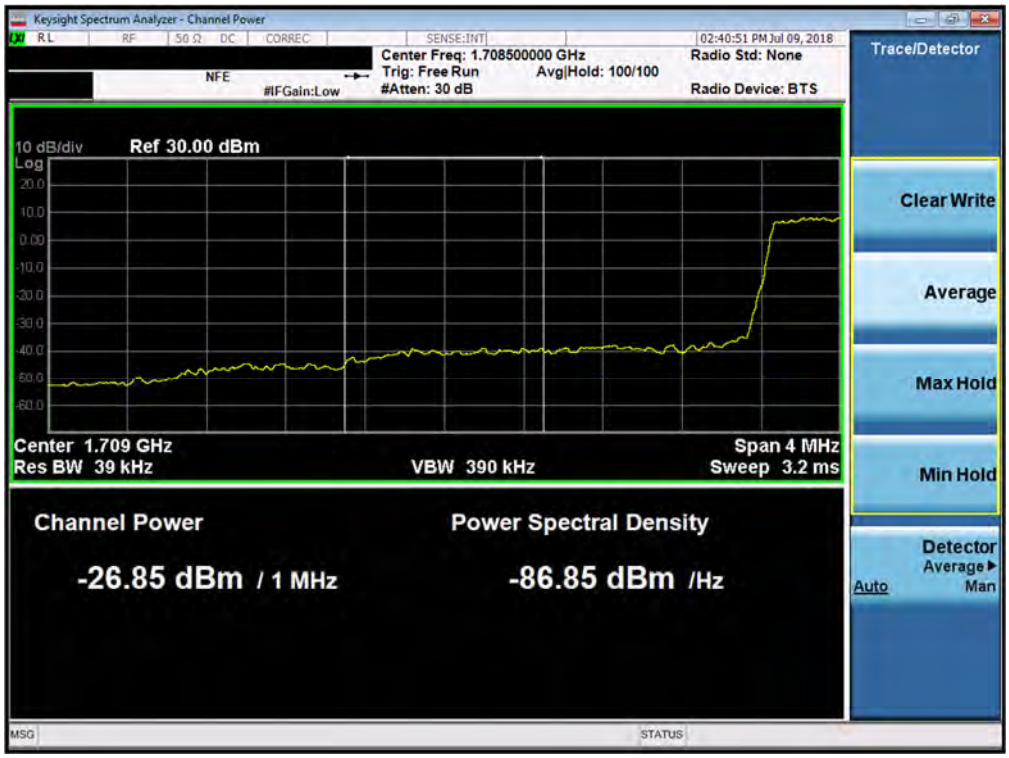


Plot 7-128. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

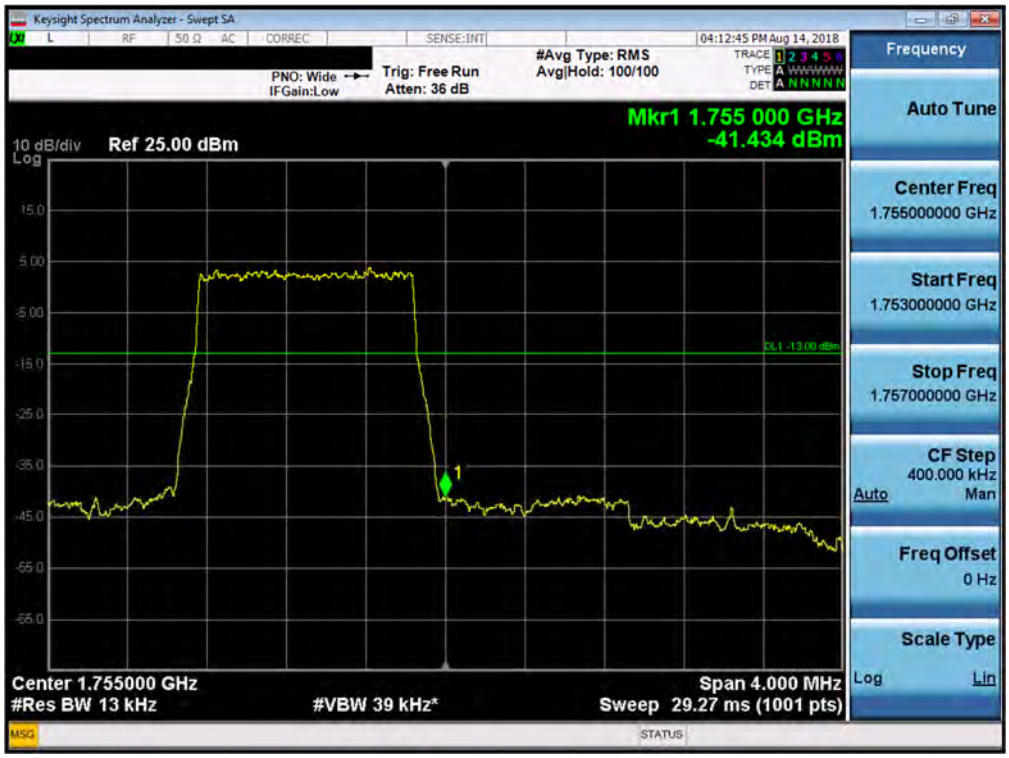
Band 4



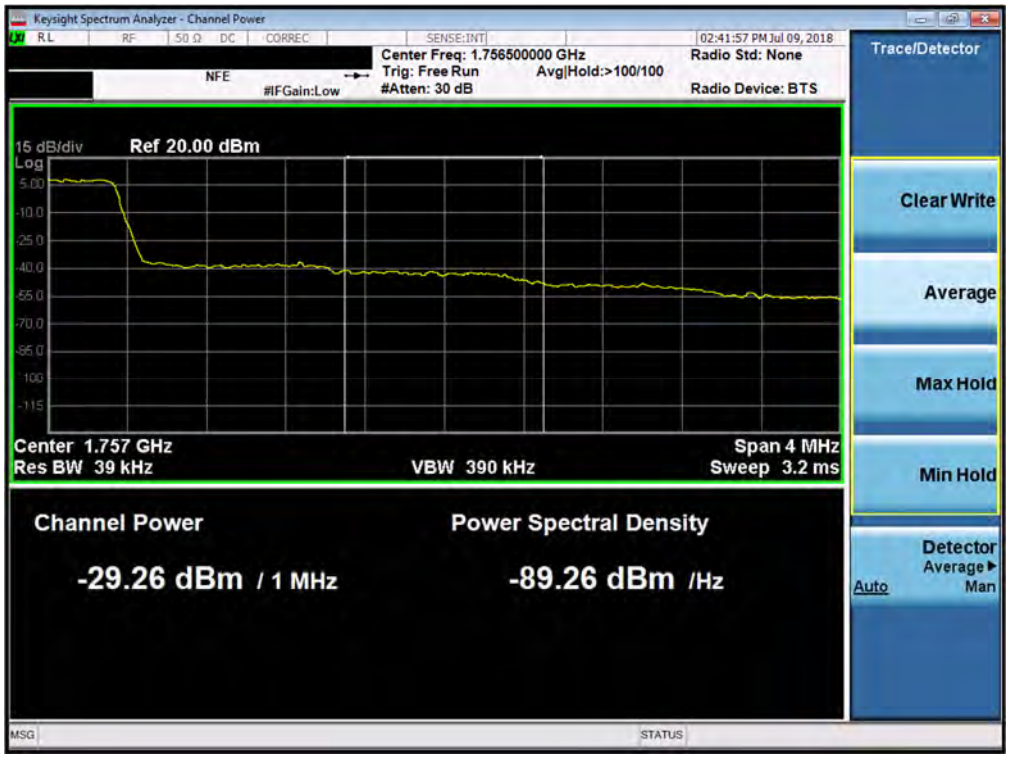
Plot 7-129. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



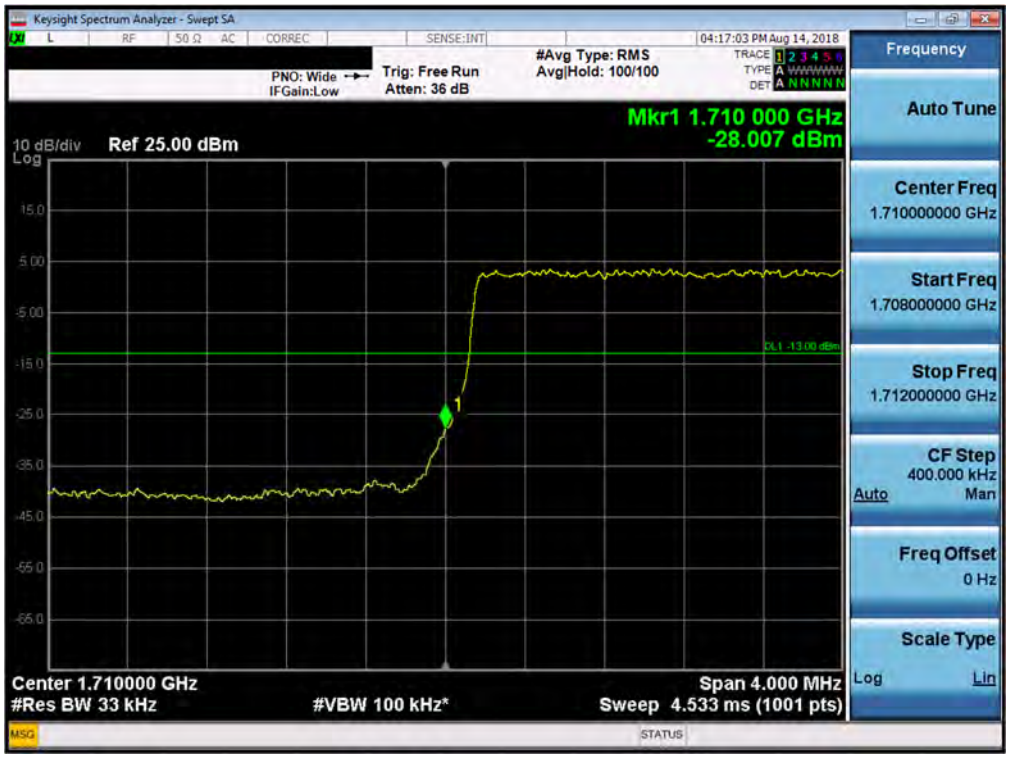
Plot 7-130. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



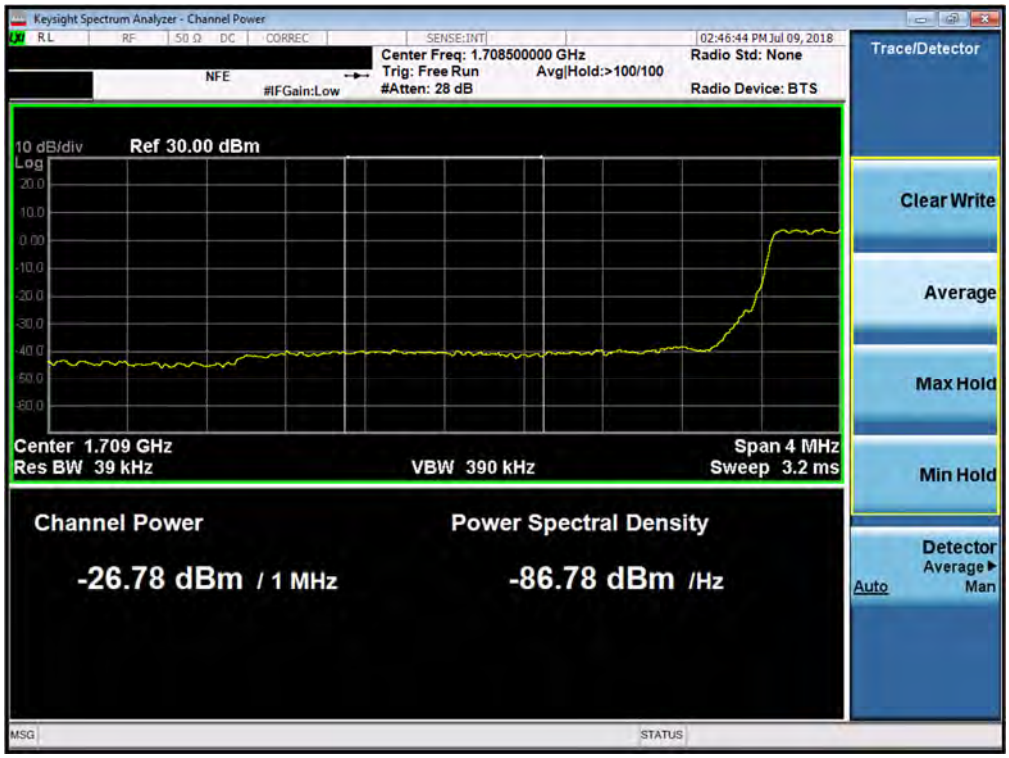
Plot 7-131. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



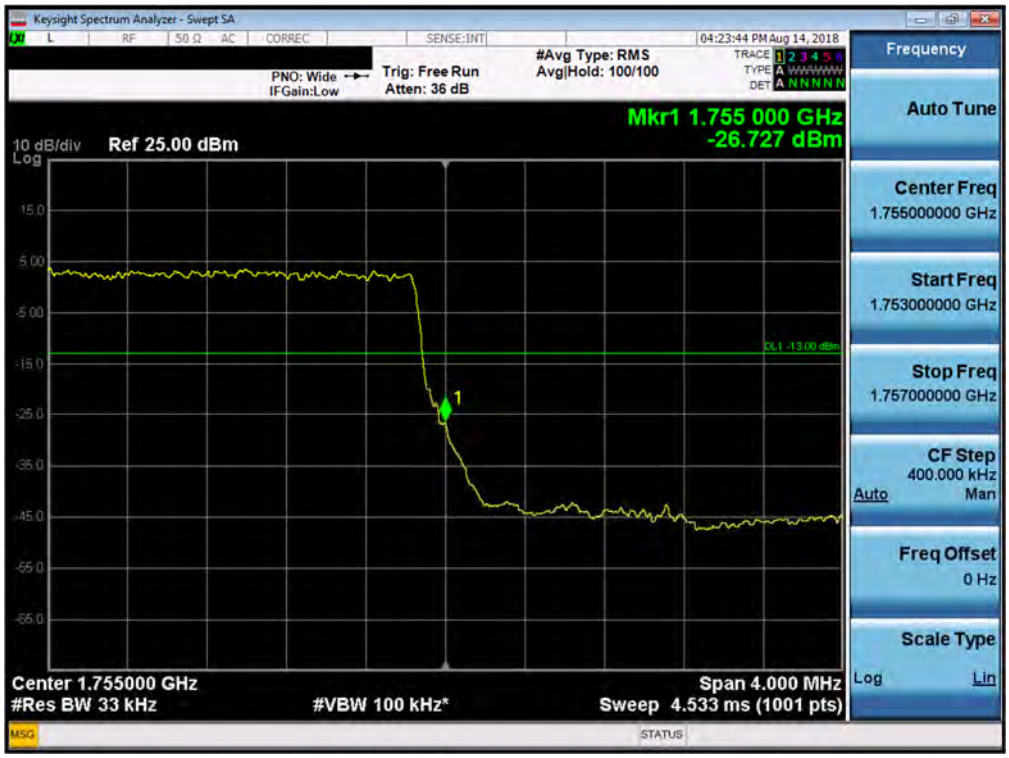
Plot 7-132. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



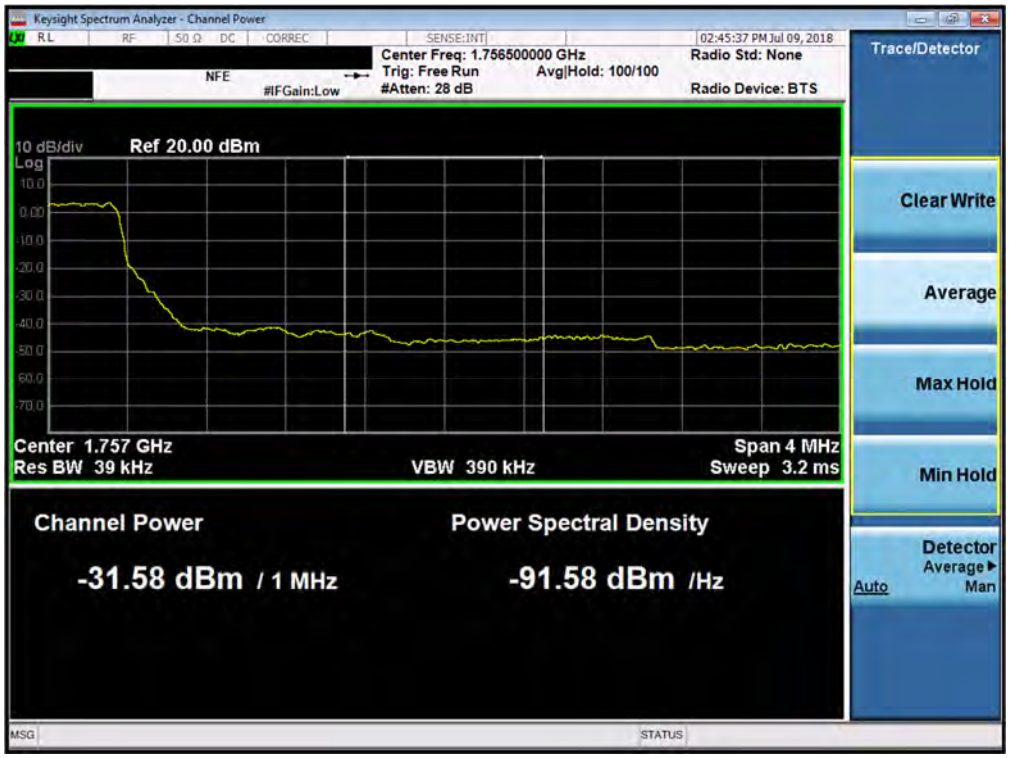
Plot 7-133. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



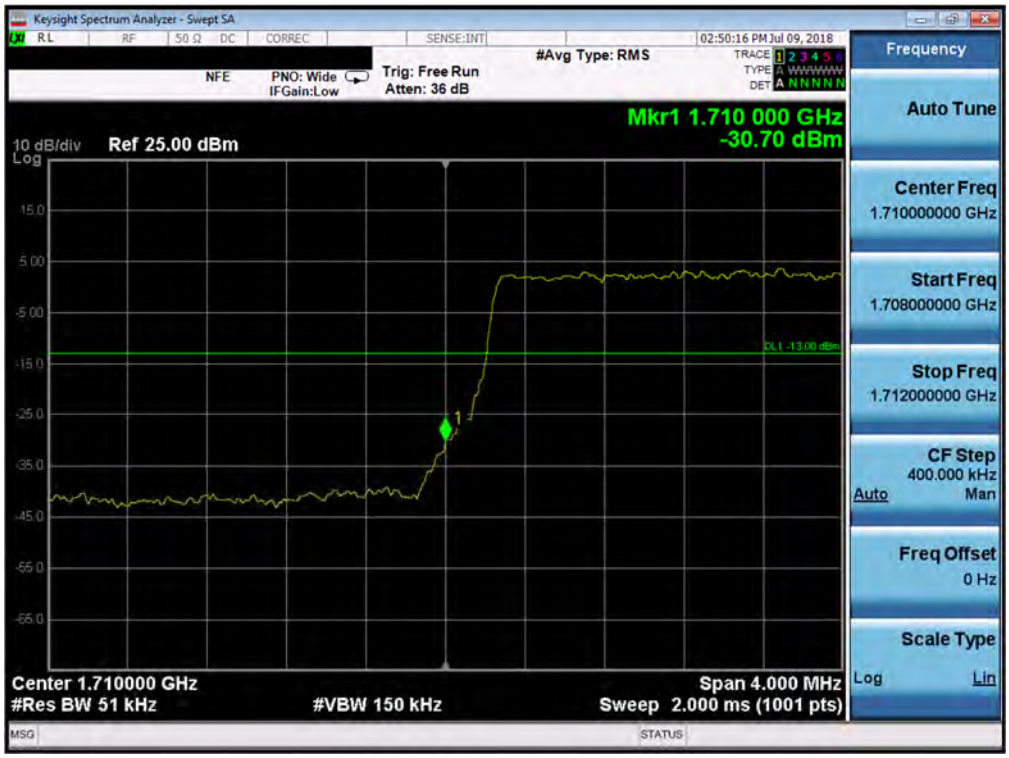
Plot 7-134. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



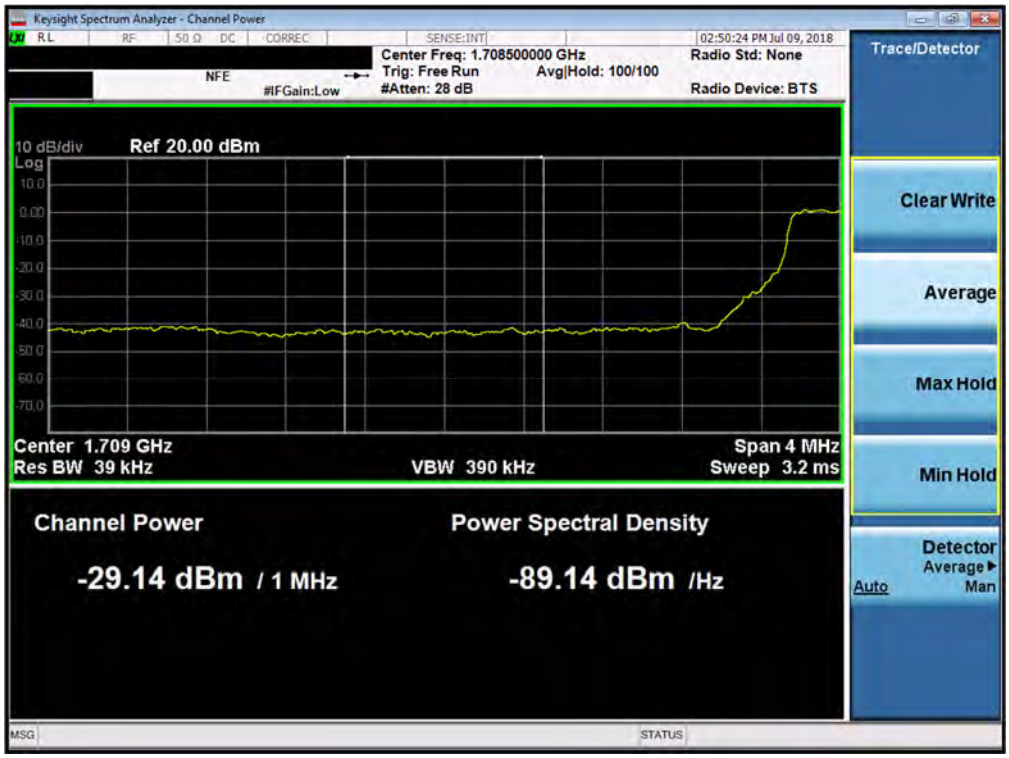
Plot 7-135. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



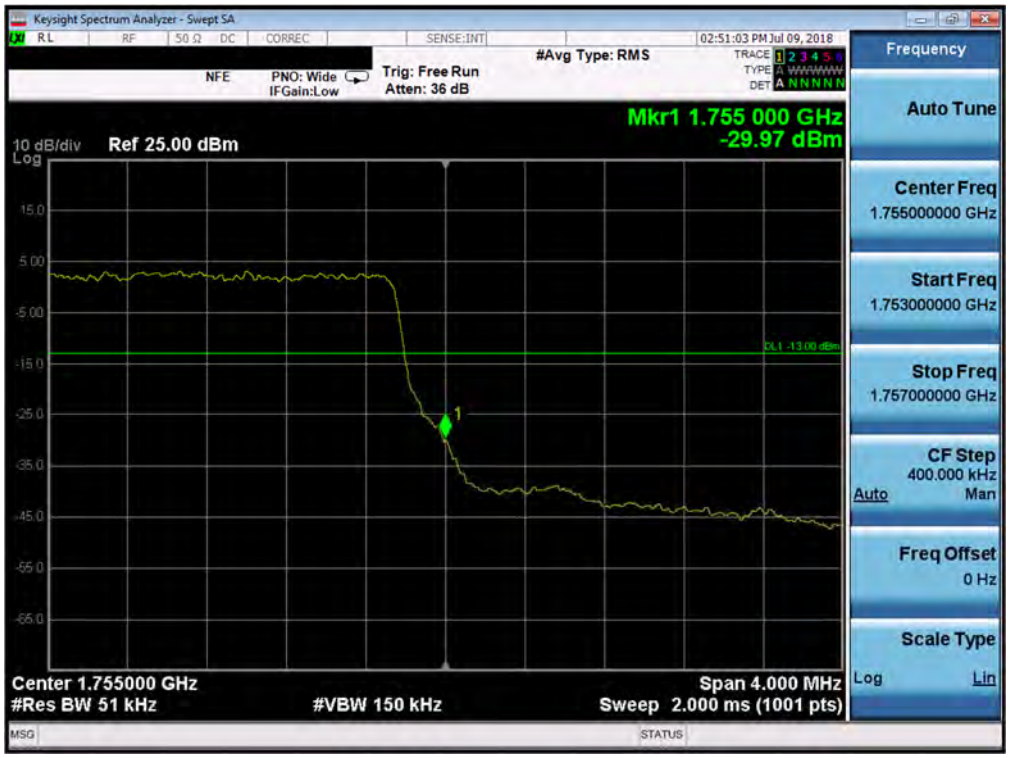
Plot 7-136. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



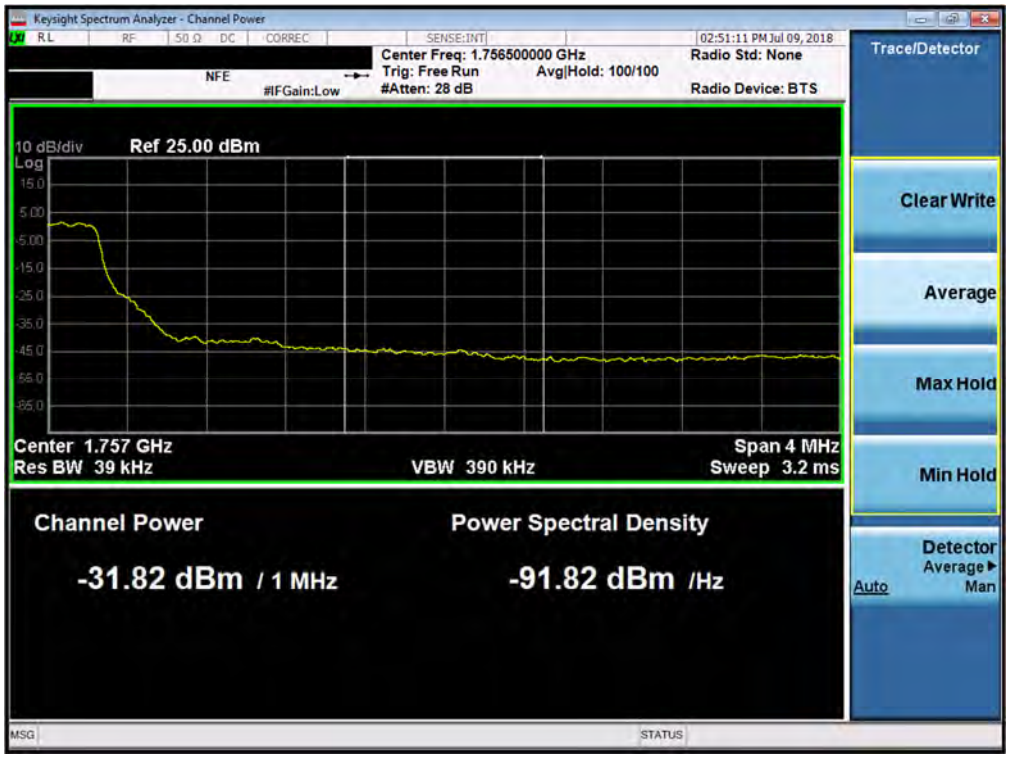
Plot 7-137. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



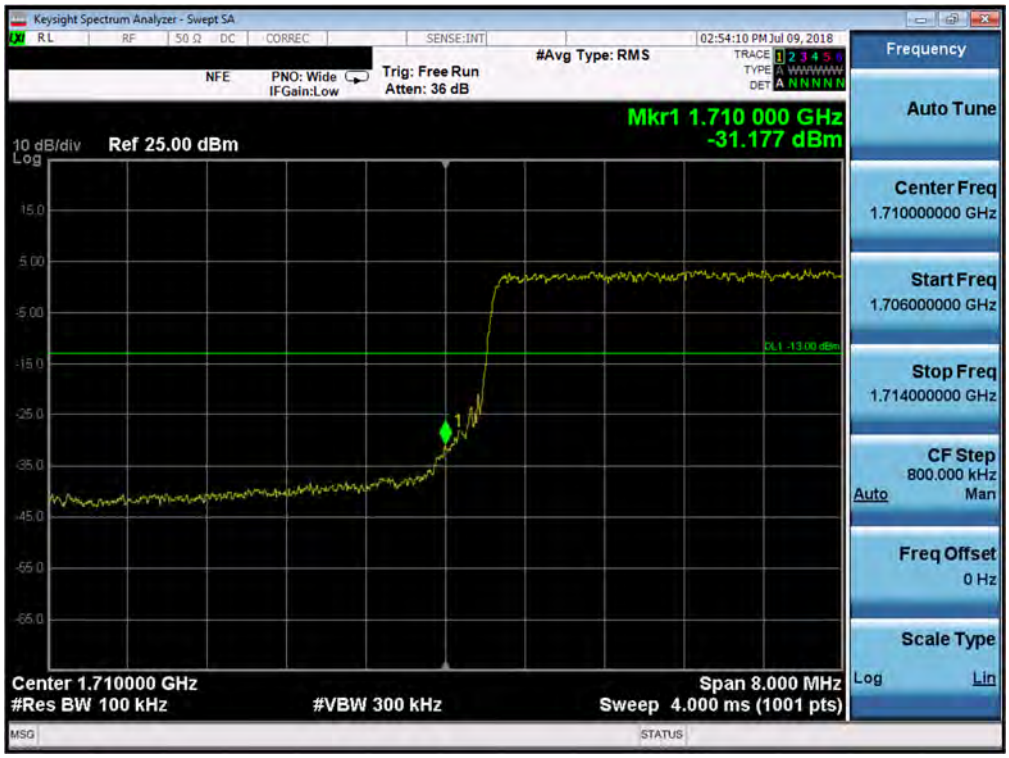
Plot 7-138. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



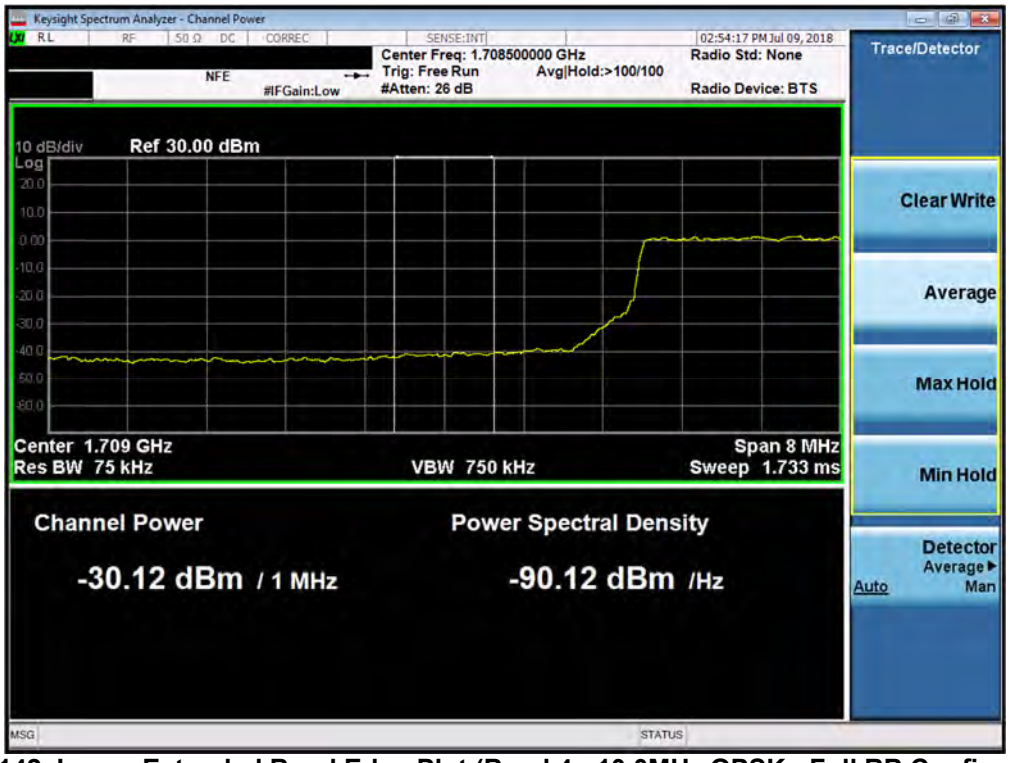
Plot 7-139. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



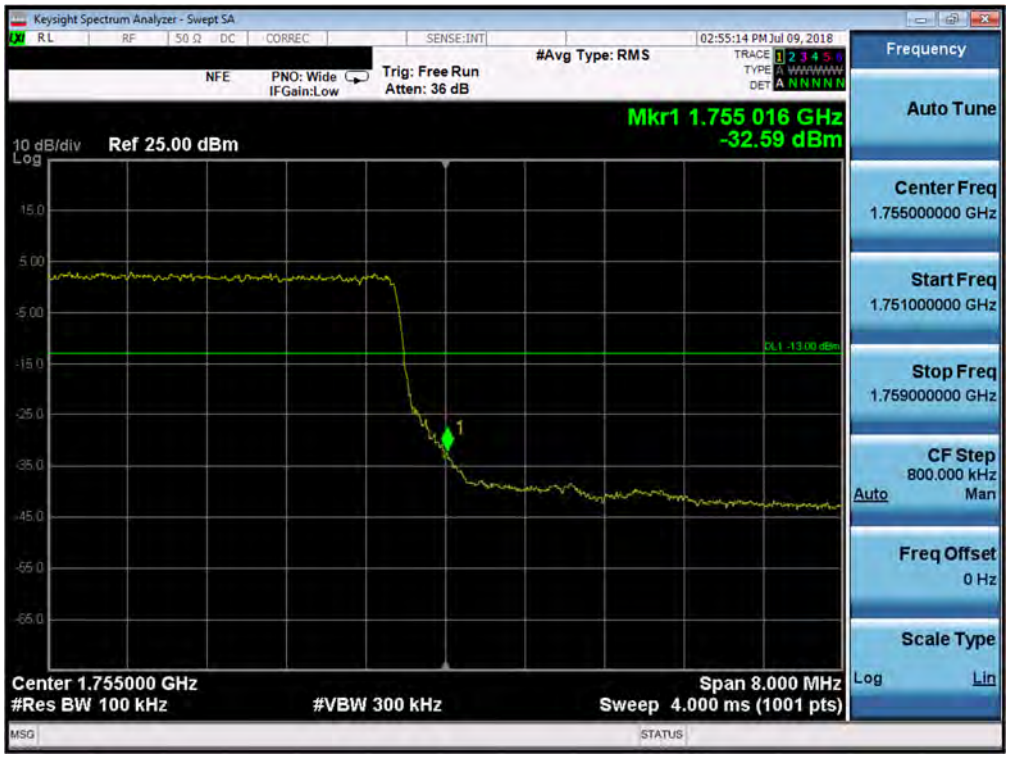
Plot 7-140. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



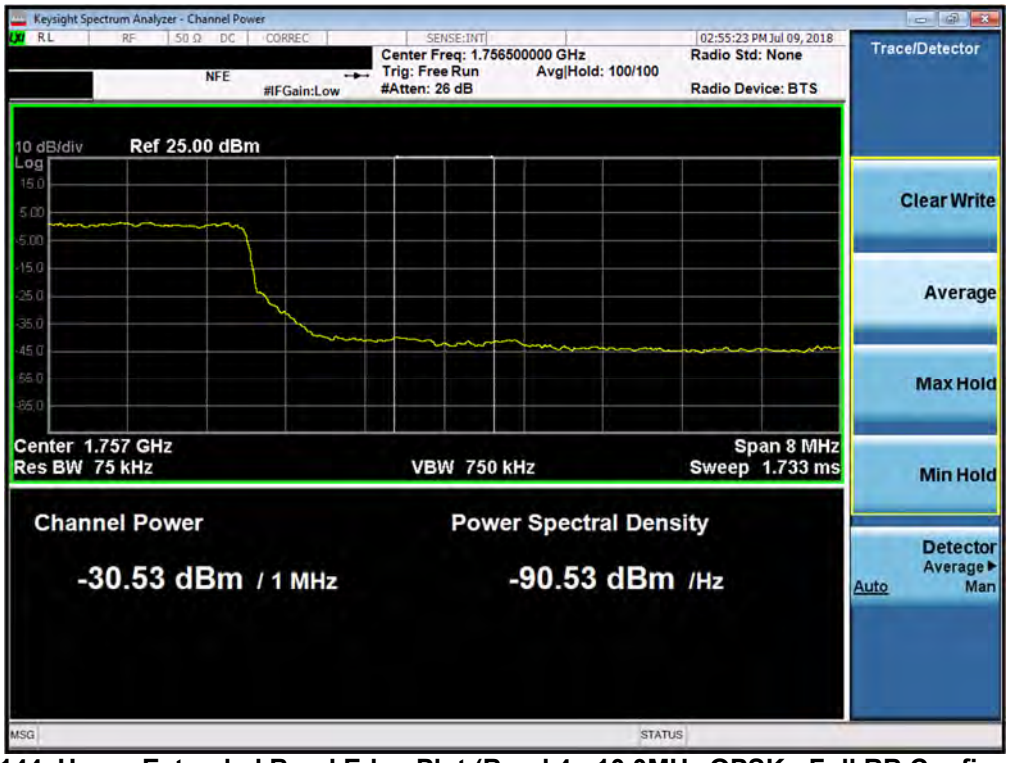
Plot 7-141. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



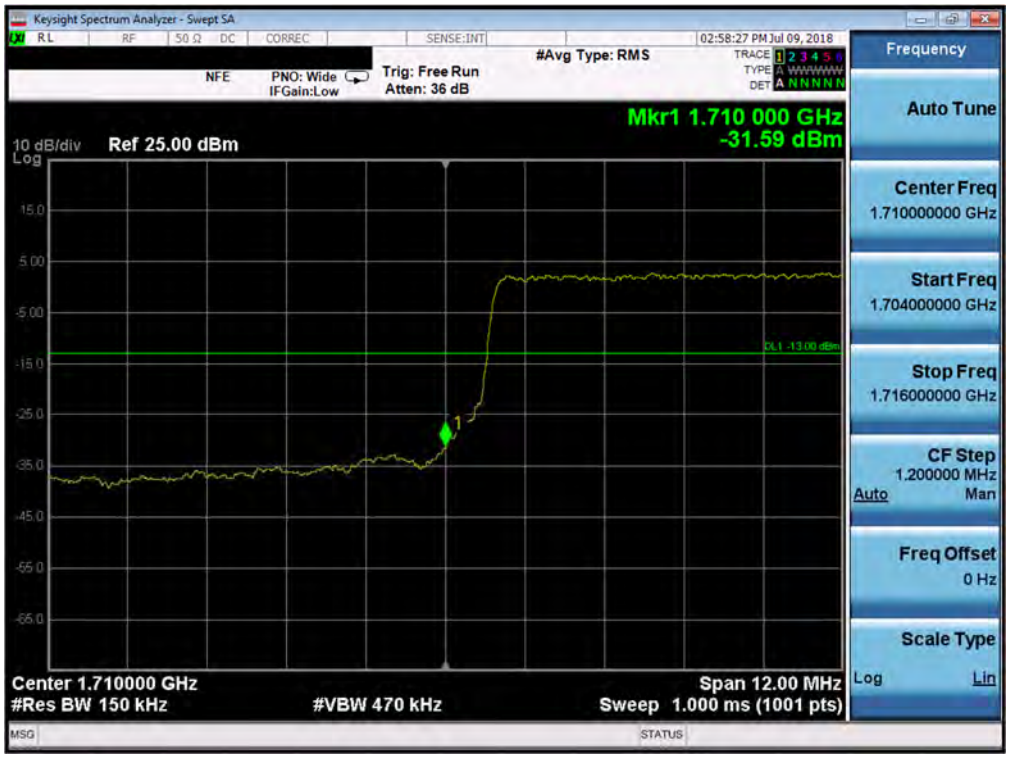
Plot 7-142. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



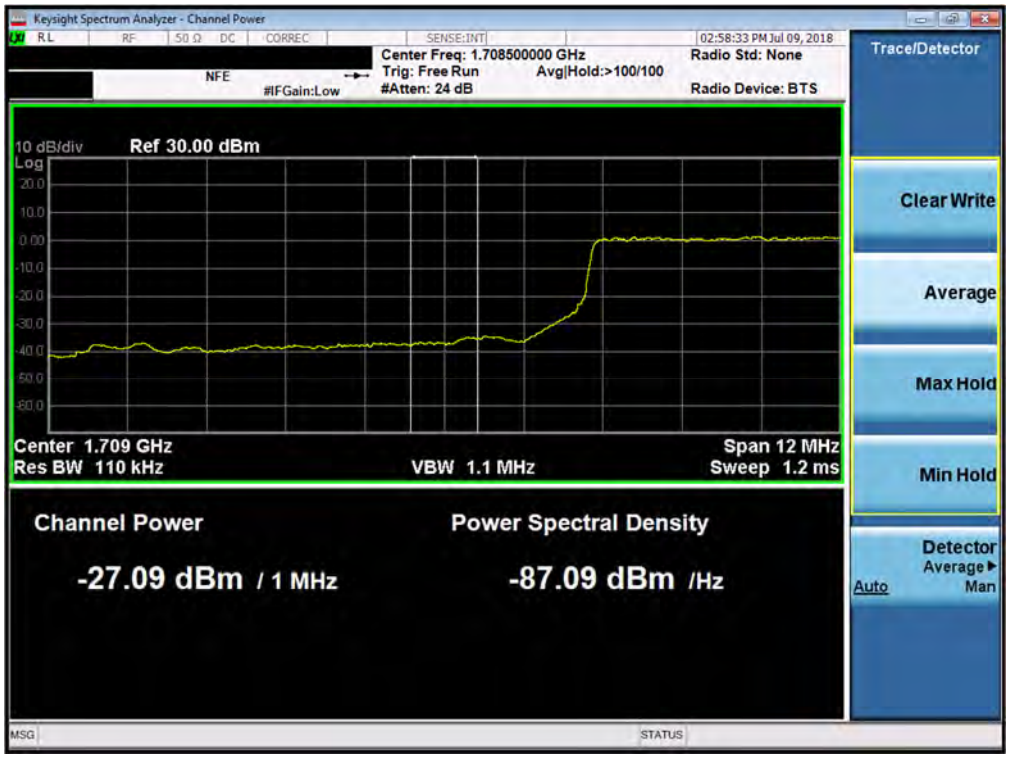
Plot 7-143. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-144. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

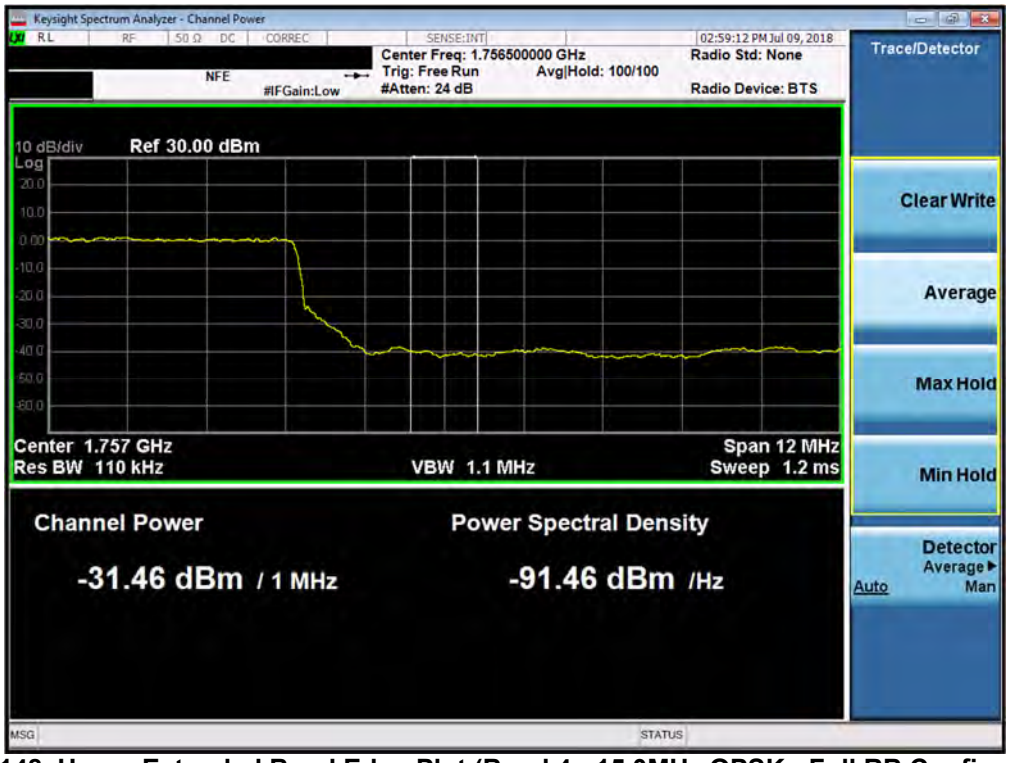


Plot 7-145. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

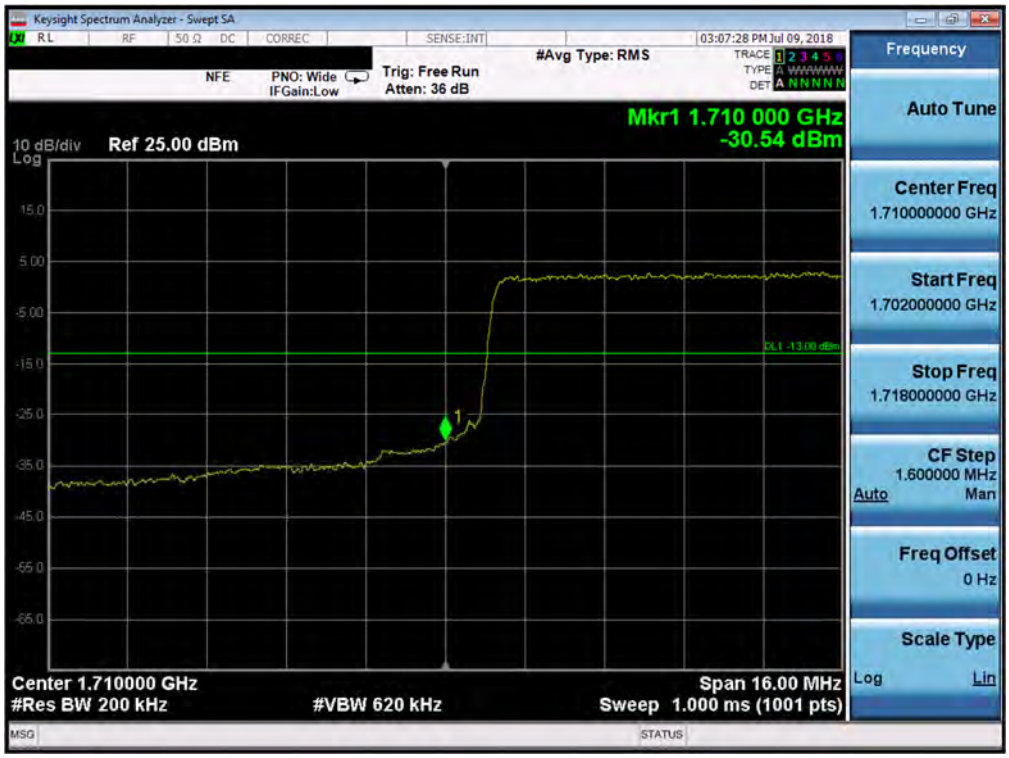


Plot 7-146. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

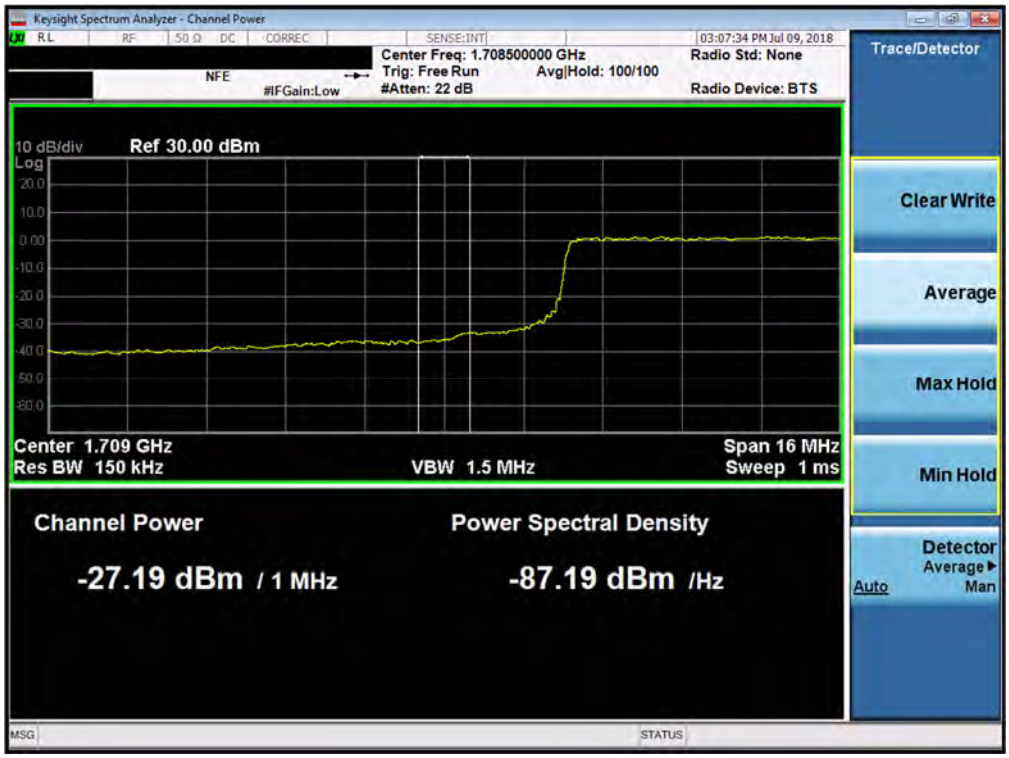
Plot 7-147. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



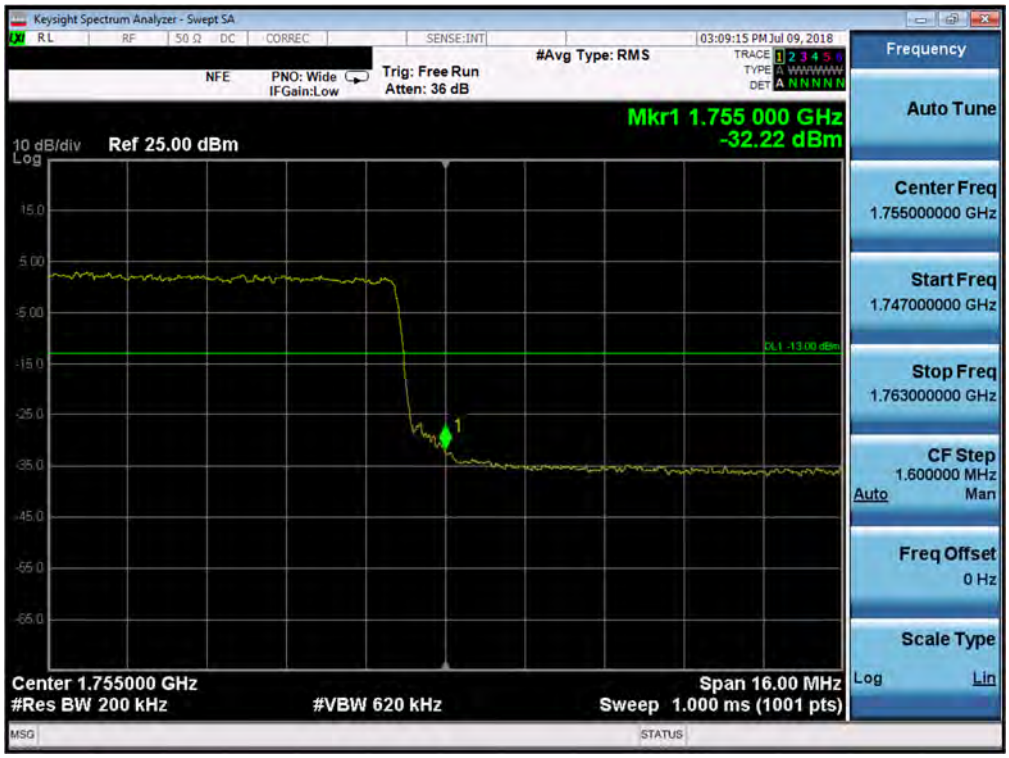
Plot 7-148. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



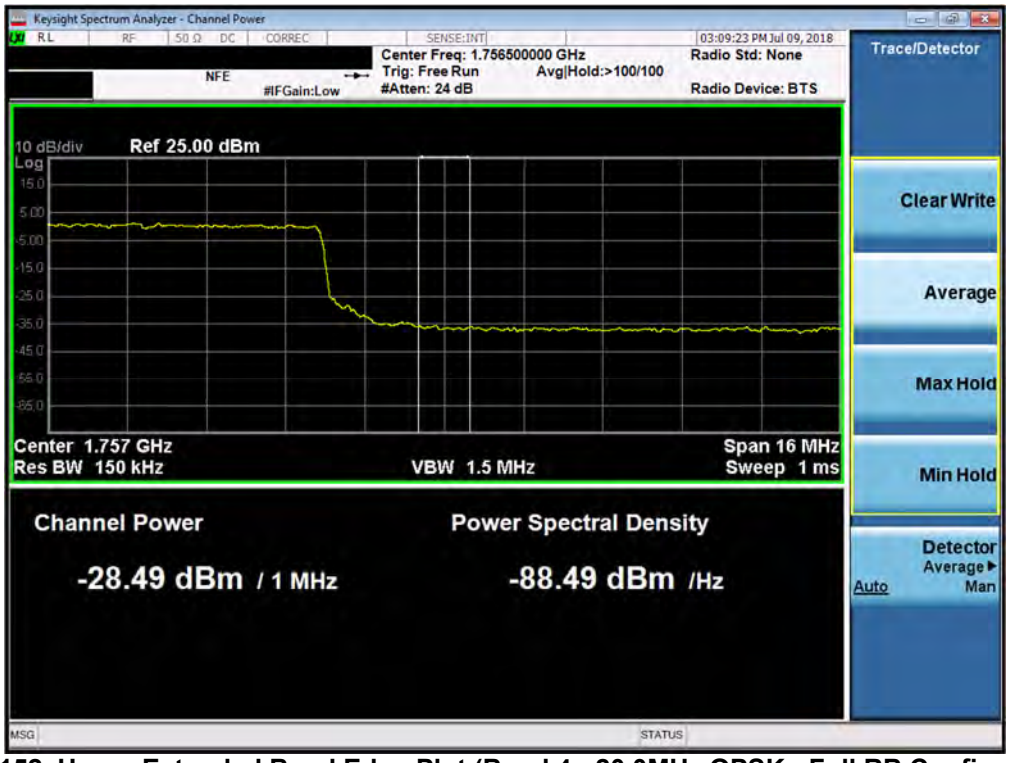
Plot 7-149. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



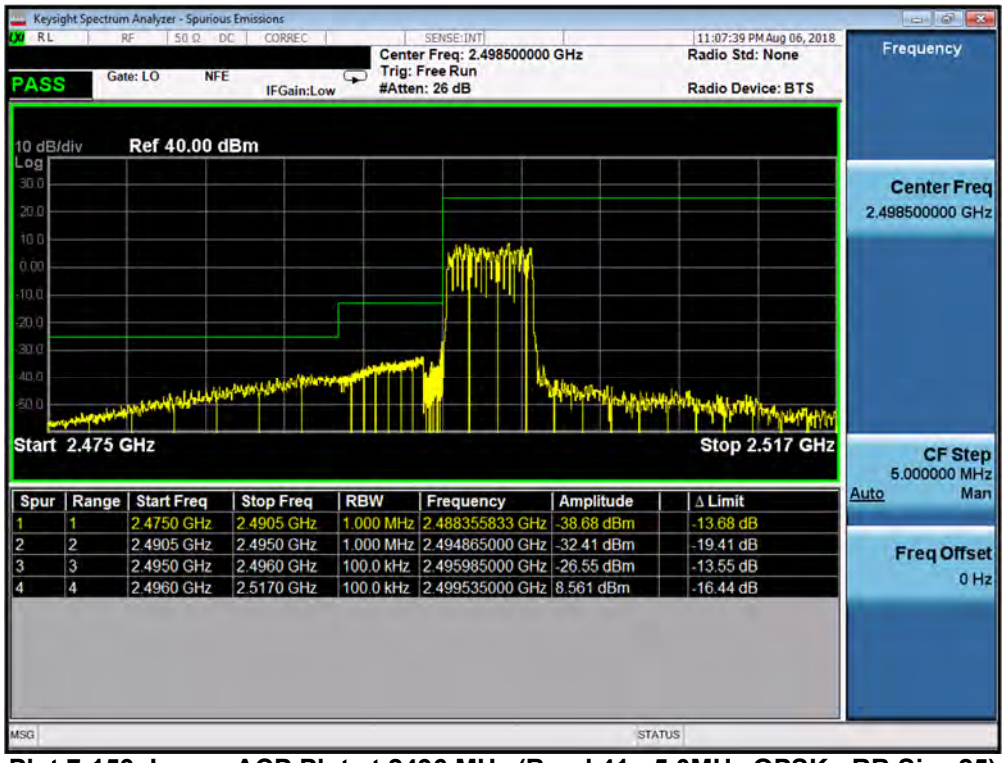
Plot 7-150. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-151. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

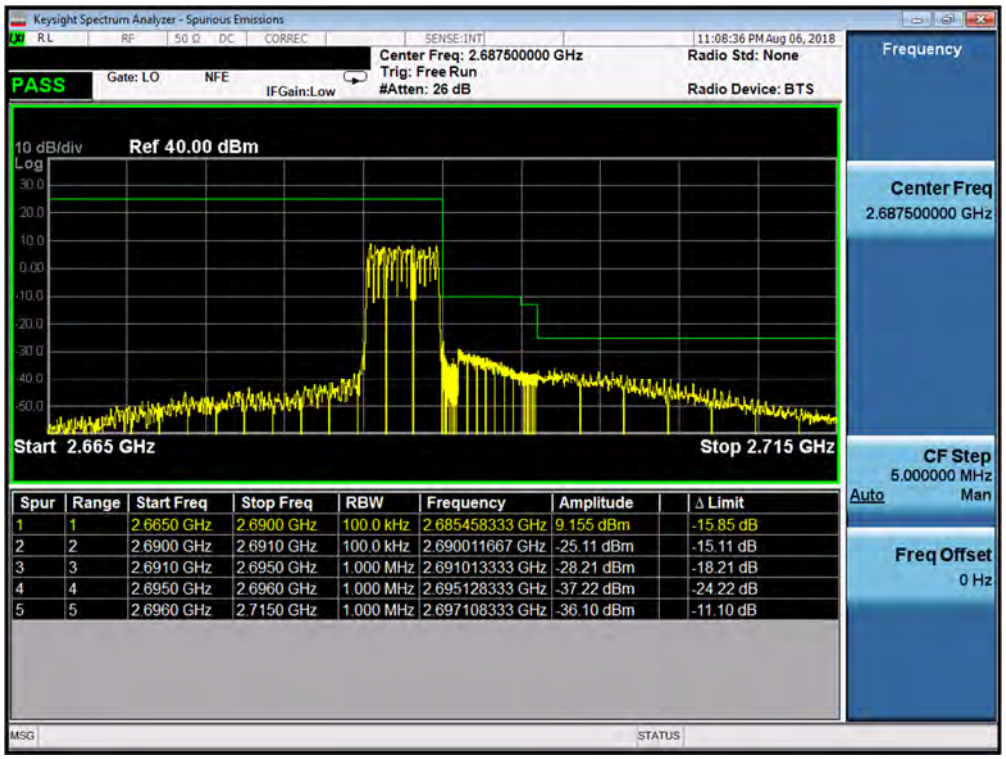


Plot 7-152. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



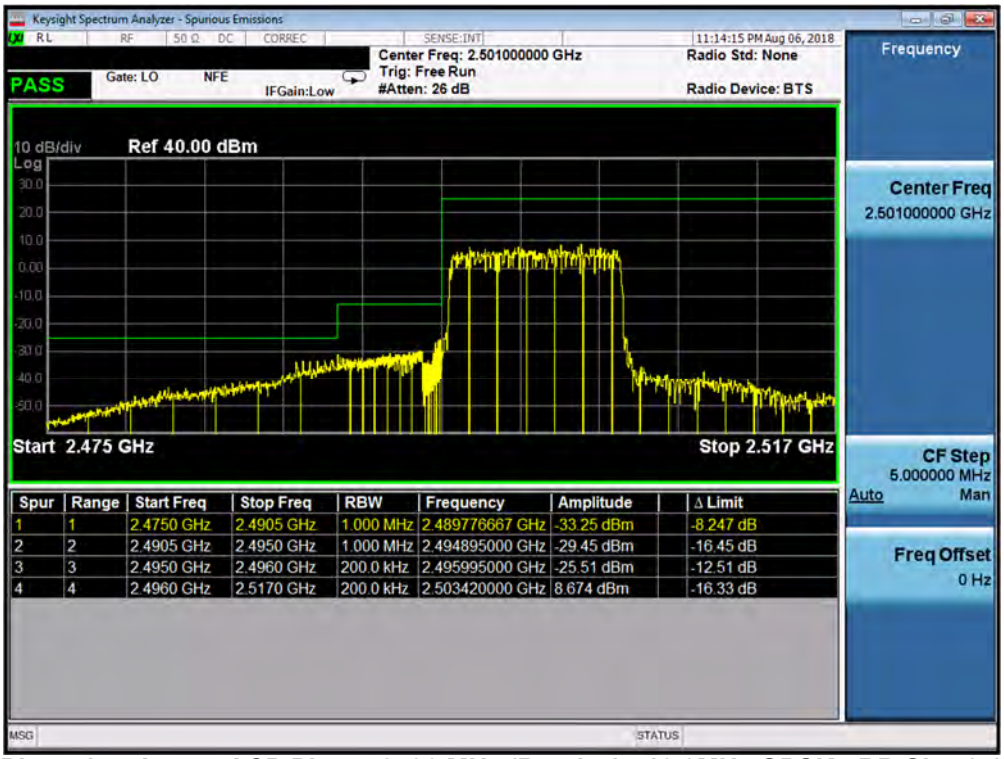
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488355833 GHz	-38.68 dBm	-13.68 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494865000 GHz	-32.41 dBm	-19.41 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495985000 GHz	-26.55 dBm	-13.55 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.499535000 GHz	8.561 dBm	-16.44 dB

Plot 7-153. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - RB Size 25)

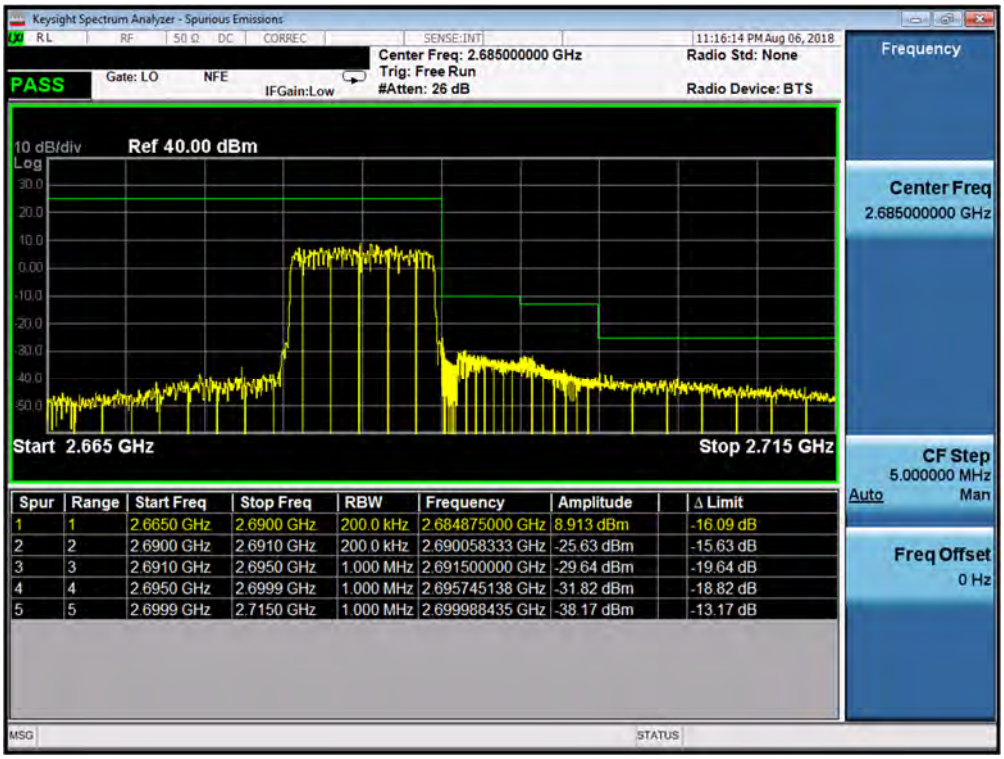


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	100.0 kHz	2.685458333 GHz	9.155 dBm	-15.85 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690011667 GHz	-25.11 dBm	-15.11 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691013333 GHz	-28.21 dBm	-18.21 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695128333 GHz	-37.22 dBm	-24.22 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.697108333 GHz	-36.10 dBm	-11.10 dB

Plot 7-154. Upper ACP Plot (Band 41 - 5.0MHz QPSK - RB Size 25)

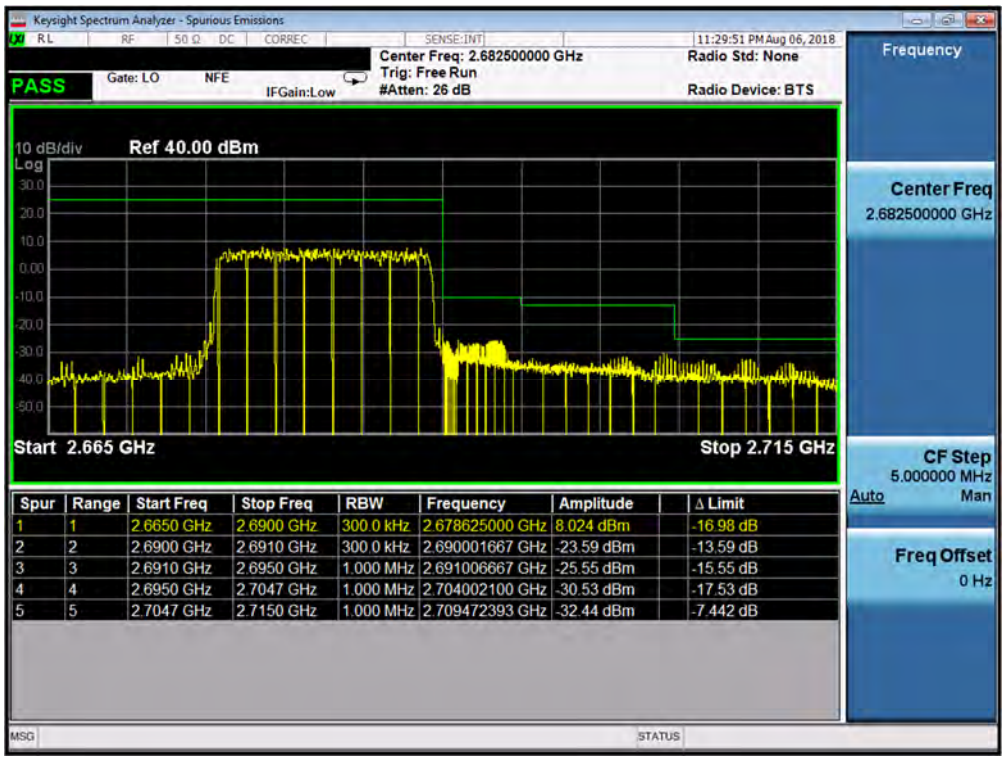


Plot 7-155. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - RB Size 25)



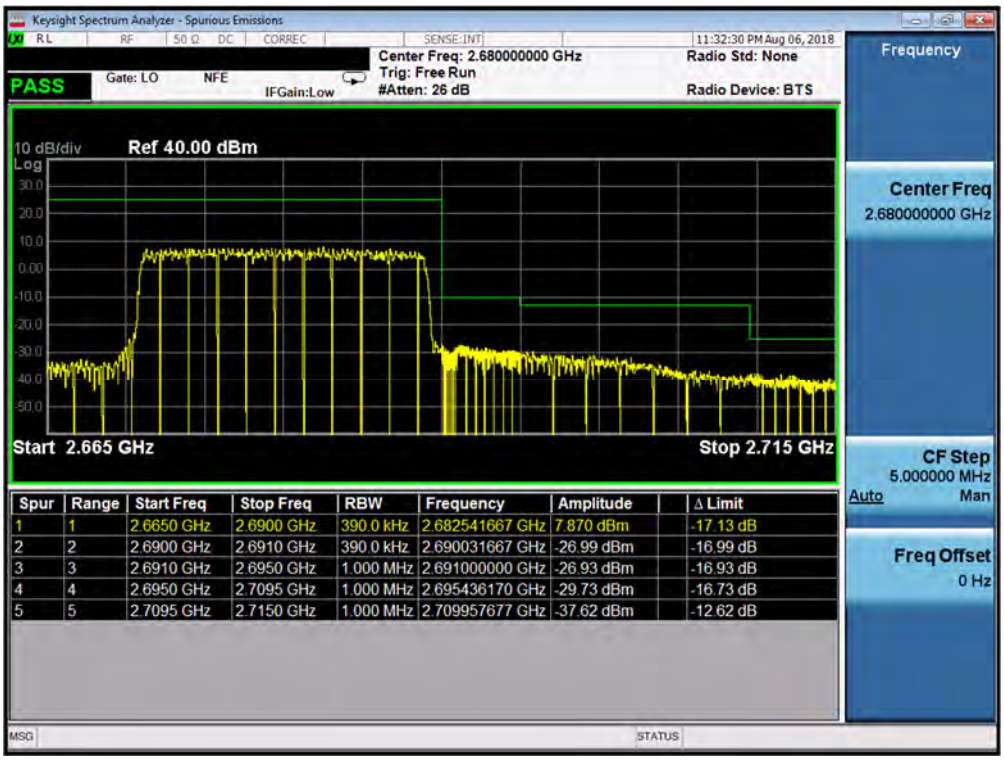
Plot 7-156. Upper ACP Plot (Band 41 - 10.0MHz QPSK - RB Size 25)

Plot 7-157. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - RB Size 25)



Plot 7-158. Upper ACP Plot (Band 41 - 15.0MHz QPSK - RB Size 25)

Plot 7-159. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - RB Size 25)



Plot 7-160. Upper ACP Plot (Band 41 - 20.0MHz QPSK - RB Size 25)

7.5 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Setup

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

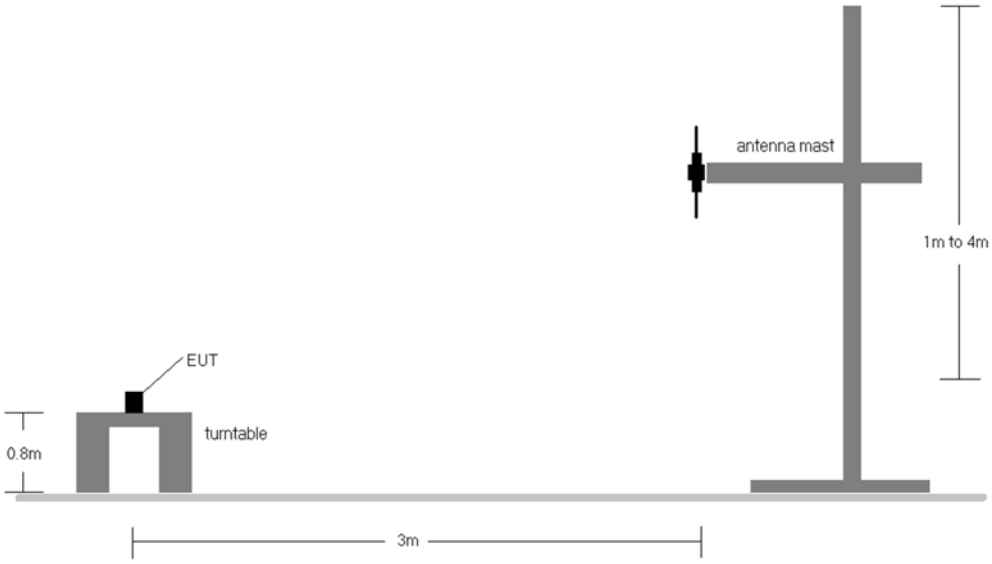


Figure 7-4. Radiated Test Setup <1GHz

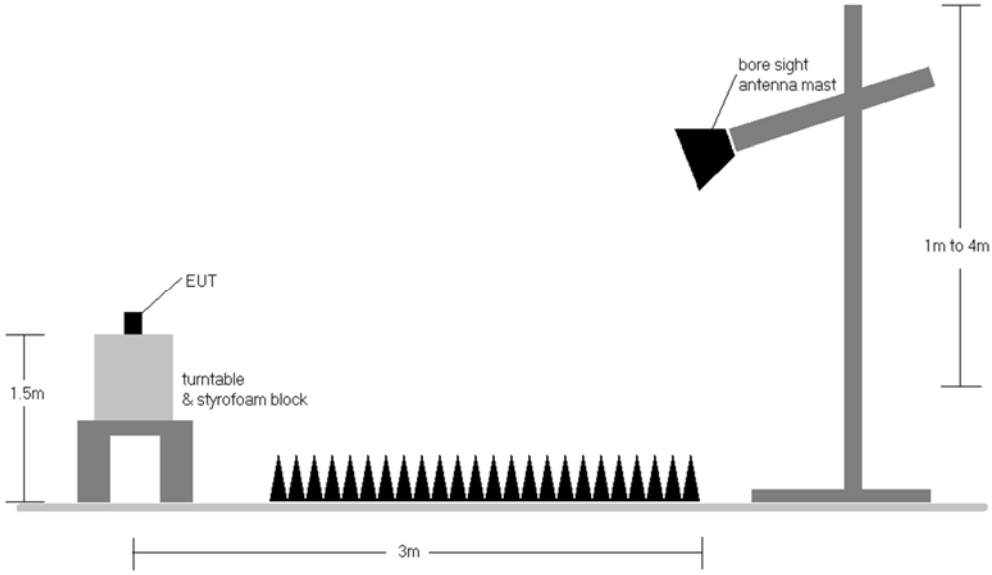


Figure 7-5. Radiated Test Setup >1GHz

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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	150	9	1 / 5	17.79	1.40	17.04	0.051	34.77	-17.73	19.19	0.083	36.99	-17.80
707.50	1.4	QPSK	H	150	1	1 / 5	18.29	1.43	17.57	0.057	34.77	-17.20	19.72	0.094	36.99	-17.27
715.30	1.4	QPSK	H	150	9	1 / 5	18.29	1.46	**17.60**	0.058	34.77	-17.17	**19.75**	0.095	36.99	-17.23
707.50	1.4	16-QAM	H	150	1	1 / 5	17.47	1.43	**16.75**	0.047	34.77	-18.02	**18.90**	0.078	36.99	-18.09
707.50	1.4	64-QAM	H	150	1	1 / 5	16.51	1.43	**15.79**	0.038	34.77	-18.98	**17.94**	0.062	36.99	-19.05
700.50	3	QPSK	H	150	354	1 / 14	17.92	1.40	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
707.50	3	QPSK	H	150	354	1 / 14	18.42	1.43	17.70	0.059	34.77	-17.07	19.85	0.097	36.99	-17.14
714.50	3	QPSK	H	150	17	1 / 14	18.60	1.46	**17.91**	0.062	34.77	-16.86	**20.06**	0.101	36.99	-16.93
714.50	3	16-QAM	H	150	17	1 / 14	17.37	1.46	**16.68**	0.047	34.77	-18.09	**18.83**	0.076	36.99	-18.16
714.50	3	64-QAM	H	150	17	1 / 14	16.19	1.46	**15.50**	0.035	34.77	-19.27	**17.65**	0.058	36.99	-19.34

Table 7-3. 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	25	1 / 24	18.27	1.41	17.53	0.057	34.77	-17.24	19.68	0.093	36.99	-17.31
707.50	5	QPSK	H	150	25	1 / 24	18.43	1.43	17.71	0.059	34.77	-17.06	19.86	0.097	36.99	-17.13
713.50	5	QPSK	H	150	364	1 / 24	19.03	1.46	**18.34**	**0.068**	34.77	-16.43	**20.49**	**0.112**	36.99	-16.50
713.50	5	16-QAM	H	150	364	1 / 24	18.16	1.46	**17.47**	0.056	34.77	-17.30	**19.62**	0.092	36.99	-17.37
707.50	5	64-QAM	H	150	25	1 / 24	17.08	1.43	**16.36**	0.043	34.77	-18.41	**18.51**	0.071	36.99	-18.48
704.00	10	QPSK	H	150	346	1 / 49	18.21	1.42	17.48	0.056	34.77	-17.29	19.63	0.092	36.99	-17.36
707.50	10	QPSK	H	150	346	1 / 49	18.51	1.43	**17.79**	0.060	34.77	-16.98	**19.94**	0.099	36.99	-17.05
711.00	10	QPSK	H	150	4	1 / 49	18.44	1.45	17.74	0.059	34.77	-17.03	19.89	0.097	36.99	-17.10
711.00	10	16-QAM	H	150	4	1 / 49	17.49	1.45	**16.79**	0.048	34.77	-17.98	**18.94**	0.078	36.99	-18.05
711.00	10	64-QAM	H	150	4	1 / 49	16.47	1.45	**15.77**	0.038	34.77	-19.00	**17.92**	0.062	36.99	-19.07
713.50	5	QPSK	V	150	300	1 / 24	7.07	1.46	6.38	0.004	34.77	-28.39	8.53	0.007	36.99	-28.46
713.50	5 (WCP)	QPSK	H	150	363	1 / 24	18.87	1.46	18.18	0.066	34.77	-16.59	20.33	0.108	36.99	-16.66

Table 7-4. 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	H	150	363	1 / 0	19.30	1.72	**18.87**	0.077	34.77	-15.90	**21.02**	0.127	36.99	-15.97
782.00	5	QPSK	H	150	363	1 / 0	19.24	1.73	18.82	0.076	34.77	-15.95	20.97	0.125	36.99	-16.02
784.50	5	QPSK	H	150	321	1 / 0	19.19	1.74	18.78	0.076	34.77	-15.99	20.93	0.124	36.99	-16.06
779.50	5	16-QAM	H	150	363	1 / 0	18.45	1.72	**18.02**	0.063	34.77	-16.75	**20.17**	0.104	36.99	-16.82
779.50	5	64-QAM	H	150	363	1 / 0	17.42	1.72	**16.99**	0.050	34.77	-17.78	**19.14**	0.082	36.99	-17.85
782.00	10	QPSK	H	150	364	1 / 0	20.11	1.73	**19.69**	**0.093**	34.77	-15.08	**21.84**	**0.153**	36.99	-15.15
782.00	10	16-QAM	H	150	364	1 / 0	19.17	1.73	**18.75**	0.075	34.77	-16.02	**20.90**	0.123	36.99	-16.09
782.00	10	64-QAM	H	150	364	1 / 0	18.19	1.73	**17.77**	0.060	34.77	-17.00	**19.92**	0.098	36.99	-17.07
782.00	10	QPSK	V	150	91	1 / 0	15.81	1.73	15.39	0.035	34.77	-19.38	17.54	0.057	36.99	-19.45
782.00	10 (WCP)	QPSK	H	150	325	1 / 0	19.99	1.73	19.57	0.091	34.77	-15.20	21.72	0.149	36.99	-15.27

Table 7-5. 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	13	1 / 0	19.22	1.65	**18.72**	0.074	38.45	-19.74	**20.87**	0.122	40.61	-19.74
836.50	1.4	QPSK	H	150	13	1 / 0	19.10	1.57	18.52	0.071	38.45	-19.93	20.67	0.117	40.61	-19.93
848.30	1.4	QPSK	H	150	13	1 / 0	18.48	1.50	17.83	0.061	38.45	-20.62	19.98	0.100	40.61	-20.63
836.50	1.4	16-QAM	H	150	13	1 / 0	18.35	1.57	**17.77**	0.060	38.45	-20.68	**19.92**	0.098	40.61	-20.68
836.50	1.4	64-QAM	H	150	13	1 / 0	17.46	1.57	**16.88**	0.049	38.45	-21.57	**19.03**	0.080	40.61	-21.57
825.50	3	QPSK	H	150	22	1 / 0	19.36	1.64	**18.85**	0.077	38.45	-19.60	**21.00**	0.126	40.61	-19.61
836.50	3	QPSK	H	150	22	1 / 14	19.08	1.57	18.50	0.071	38.45	-19.95	20.65	0.116	40.61	-19.95
847.50	3	QPSK	H	150	22	1 / 0	18.27	1.51	17.63	0.058	38.45	-20.82	19.78	0.095	40.61	-20.83
825.50	3	16-QAM	H	150	22	1 / 0	18.29	1.64	**17.78**	0.060	38.45	-20.67	**19.93**	0.098	40.61	-20.68
825.50	3	64-QAM	H	150	22	1 / 0	17.25	1.64	**16.74**	0.047	38.45	-21.71	**18.89**	0.077	40.61	-21.72
826.50	5	QPSK	H	150	30	1 / 24	19.42	1.63	**18.90**	**0.078**	38.45	-19.55	**21.05**	**0.127**	40.61	-19.55
836.50	5	QPSK	H	150	30	1 / 0	19.36	1.57	18.78	0.076	38.45	-19.67	20.93	0.124	40.61	-19.67
846.50	5	QPSK	H	150	30	1 / 0	18.62	1.51	17.98	0.063	38.45	-20.47	20.13	0.103	40.61	-20.47
826.50	5	16-QAM	H	150	30	1 / 24	18.44	1.63	**17.92**	0.062	38.45	-20.53	**20.07**	0.102	40.61	-20.53
826.50	5	64-QAM	H	150	30	1 / 24	17.45	1.63	**16.93**	0.049	38.45	-21.52	**19.08**	0.081	40.61	-21.52
829.00	10	QPSK	H	150	13	1 / 49	19.28	1.62	**18.75**	0.075	38.45	-19.70	**20.90**	0.123	40.61	-19.71
836.50	10	QPSK	H	150	13	1 / 0	19.21	1.57	18.63	0.073	38.45	-19.82	20.78	0.120	40.61	-19.82
844.00	10	QPSK	H	150	13	1 / 0	18.93	1.53	18.31	0.068	38.45	-20.14	20.46	0.111	40.61	-20.15
829.00	10	16-QAM	H	150	13	1 / 49	18.23	1.62	**17.70**	0.059	38.45	-20.75	**19.85**	0.097	40.61	-20.76
829.00	10	64-QAM	H	150	13	1 / 49	17.42	1.62	**16.89**	0.049	38.45	-21.56	**19.04**	0.080	40.61	-21.57
826.50	5	QPSK	V	150	96	1 / 24	11.31	1.63	10.79	0.012	38.45	-27.66	12.94	0.020	40.61	-27.66
826.50	5 (WCP)	QPSK	H	150	350	1 / 24	19.02	1.63	18.50	0.071	38.45	-19.95	20.65	0.116	40.61	-19.95

Table 7-6. 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	368	1 / 5	14.94	5.56	**20.50**	**0.112**	30.00	-9.50
1732.50	1.4	QPSK	H	150	368	1 / 5	14.22	5.41	19.63	0.092	30.00	-10.37
1754.30	1.4	QPSK	H	150	368	1 / 5	13.85	5.26	19.11	0.081	30.00	-10.89
1710.70	1.4	16-QAM	H	150	368	1 / 5	13.84	5.56	**19.40**	0.087	30.00	-10.60
1710.70	1.4	64-QAM	H	150	368	1 / 5	12.72	5.56	**18.28**	0.067	30.00	-11.72
1711.50	3	QPSK	H	150	363	1 / 0	13.98	5.55	19.53	0.090	30.00	-10.47
1732.50	3	QPSK	H	150	363	1 / 0	14.35	5.41	**19.76**	0.095	30.00	-10.24
1753.50	3	QPSK	H	150	363	1 / 0	13.70	5.26	18.96	0.079	30.00	-11.04
1732.50	3	16-QAM	H	150	363	1 / 0	13.44	5.41	**18.85**	0.077	30.00	-11.15
1732.50	3	64-QAM	H	150	363	1 / 0	12.33	5.41	**17.74**	0.059	30.00	-12.26
1712.50	5	QPSK	H	150	354	1 / 0	14.79	5.55	**20.34**	0.108	30.00	-9.66
1732.50	5	QPSK	H	150	363	1 / 0	14.52	5.41	19.93	0.098	30.00	-10.07
1752.50	5	QPSK	H	150	136	1 / 0	14.83	5.27	20.10	0.102	30.00	-9.90
1712.50	5	16-QAM	H	150	354	1 / 0	13.71	5.55	**19.26**	0.084	30.00	-10.74
1712.50	5	64-QAM	H	150	354	1 / 0	12.61	5.55	**18.16**	0.065	30.00	-11.84
1715.00	10	QPSK	H	150	366	1 / 0	14.23	5.53	**19.76**	0.095	30.00	-10.24
1732.50	10	QPSK	H	150	366	1 / 49	14.12	5.41	19.53	0.090	30.00	-10.47
1750.00	10	QPSK	H	150	366	1 / 0	13.19	5.29	18.48	0.070	30.00	-11.52
1732.50	10	16-QAM	H	150	366	1 / 49	13.71	5.41	**19.12**	0.082	30.00	-10.88
1732.50	10	64-QAM	H	150	366	1 / 49	12.60	5.41	**18.01**	0.063	30.00	-11.99
1717.50	15	QPSK	H	150	368	1 / 0	14.23	5.51	**19.74**	0.094	30.00	-10.26
1732.50	15	QPSK	H	150	368	1 / 74	14.31	5.41	19.72	0.094	30.00	-10.28
1747.50	15	QPSK	H	150	368	1 / 74	14.42	5.31	19.73	0.094	30.00	-10.27
1732.50	15	16-QAM	H	150	368	1 / 74	13.53	5.41	**18.94**	0.078	30.00	-11.06
1732.50	15	64-QAM	H	150	368	1 / 74	12.59	5.41	**18.00**	0.063	30.00	-12.00
1720.00	20	QPSK	H	150	359	1 / 99	14.23	5.49	19.72	0.094	30.00	-10.28
1732.50	20	QPSK	H	150	359	1 / 99	13.94	5.41	19.35	0.086	30.00	-10.65
1745.00	20	QPSK	H	150	359	1 / 0	14.47	5.32	**19.79**	0.095	30.00	-10.21
1745.00	20	16-QAM	H	150	359	1 / 0	13.38	5.32	**18.70**	0.074	30.00	-11.30
1720.00	20	64-QAM	H	150	359	1 / 99	12.17	5.49	**17.66**	0.058	30.00	-12.34
1710.70	1.4	QPSK	V	150	262	1 / 5	10.47	5.56	16.03	0.040	30.00	-13.97
1710.70	1.4 (WCP)	QPSK	H	150	263	1 / 5	14.87	5.56	20.43	0.110	30.00	-9.57

Table 7-7. EIRP Data (Band 4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	150	313	1 / 24	15.08	5.73	20.81	0.120	33.01	-12.20
2593.00	5	QPSK	H	150	337	1 / 24	16.92	6.07	22.99	0.199	33.01	-10.02
2687.50	5	QPSK	H	150	313	1 / 24	16.79	6.48	**23.27**	0.213	33.01	-9.74
2687.50	5	16-QAM	H	150	313	1 / 24	15.57	6.48	**22.05**	0.161	33.01	-10.96
2687.50	5	64-QAM	H	150	313	1 / 24	14.56	6.48	**21.04**	0.127	33.01	-11.97
2501.00	10	QPSK	H	150	59	1 / 49	15.14	5.75	20.89	0.123	33.01	-12.12
2593.00	10	QPSK	H	150	334	1 / 49	17.88	6.07	**23.95**	**0.248**	33.01	-9.06
2685.00	10	QPSK	H	150	7	1 / 0	15.02	6.47	21.49	0.141	33.01	-11.52
2593.00	10	16-QAM	H	150	334	1 / 49	16.54	6.07	**22.61**	0.183	33.01	-10.40
2593.00	10	64-QAM	H	150	334	1 / 49	15.41	6.07	**21.48**	0.141	33.01	-11.53
2503.50	15	QPSK	H	150	4	1 / 0	13.50	5.76	19.26	0.084	33.01	-13.75
2593.00	15	QPSK	H	150	4	1 / 74	13.47	6.07	19.54	0.090	33.01	-13.47
2682.50	15	QPSK	H	150	239	1 / 74	13.52	6.46	**19.98**	0.100	33.01	-13.03
2682.50	15	16-QAM	H	150	239	1 / 74	12.64	6.46	**19.10**	0.081	33.01	-13.91
2682.50	15	64-QAM	H	150	239	1 / 74	11.56	6.46	**18.02**	0.063	33.01	-14.99
2506.00	20	QPSK	H	150	22	1 / 0	14.99	5.77	**20.76**	0.119	33.01	-12.25
2593.00	20	QPSK	H	150	225	1 / 99	11.42	6.07	17.49	0.056	33.01	-15.52
2680.00	20	QPSK	H	150	22	1 / 0	14.21	6.45	20.66	0.116	33.01	-12.35
2506.00	20	16-QAM	H	150	22	1 / 0	13.81	5.77	19.58	0.091	33.01	-13.43
2506.00	20	64-QAM	H	150	22	1 / 0	12.99	5.77	18.76	0.075	33.01	-14.25
2593.00	10	QPSK	V	150	66	1 / 49	11.23	6.07	17.30	0.054	33.01	-15.71
2593.00	10 (WCP)	QPSK	H	150	3	1 / 49	17.15	6.07	**23.22**	0.210	33.01	-9.79

Table 7-8. EIRP Data (Band 41)

7.6 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.

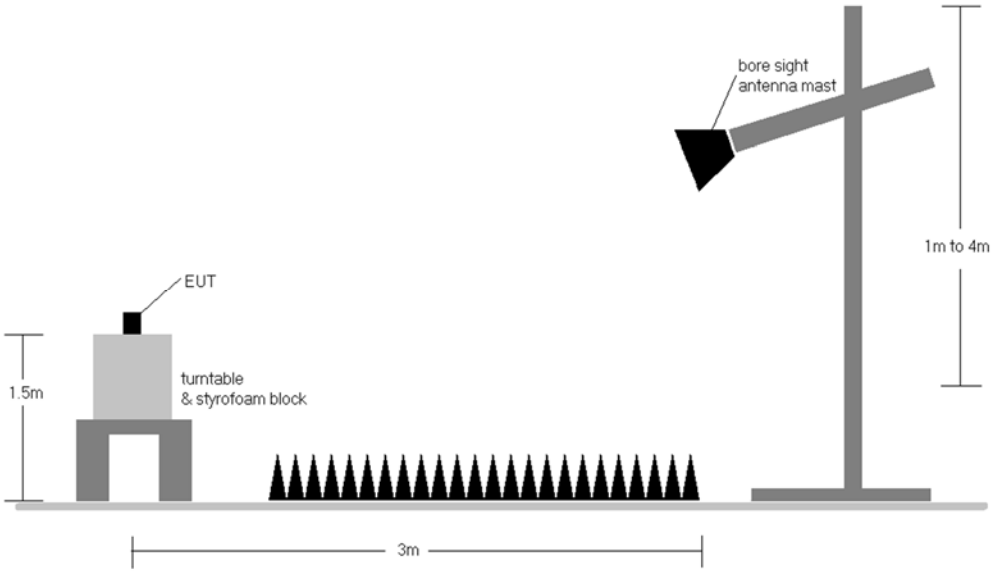


Figure 7-6. Test Instrument & Measurement Setup

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.

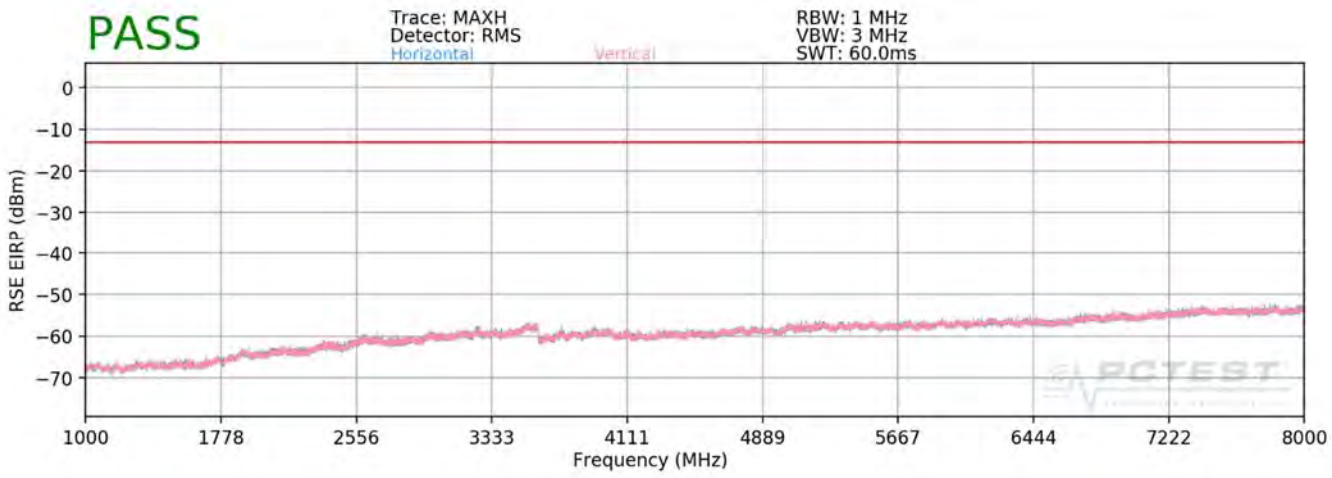
2) This unit was tested with its standard battery.

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 12/17



Plot 7-161. Radiated Spurious Plot above 1GHz (Band 12/17)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1403.00	H	308	206	-75.01	4.39	-70.62	-57.6
2104.50	H	275	239	-73.62	5.27	-68.36	-55.4
2806.00	H	-	-	-72.77	6.98	-65.78	-52.8

Table 7-9. Radiated Spurious Data (Band 12/17 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	316	262	-74.27	4.56	-69.71	-56.7
2122.50	H	289	253	-73.34	5.31	-68.03	-55.0
2830.00	H	-	-	-73.21	7.02	-66.19	-53.2

Table 7-10. Radiated Spurious Data (Band 12/17 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	347	201	-73.20	4.72	-68.48	-55.5
2140.50	H	279	124	-71.49	5.35	-66.15	-53.1
2854.00	H	-	-	-72.95	7.05	-65.90	-52.9

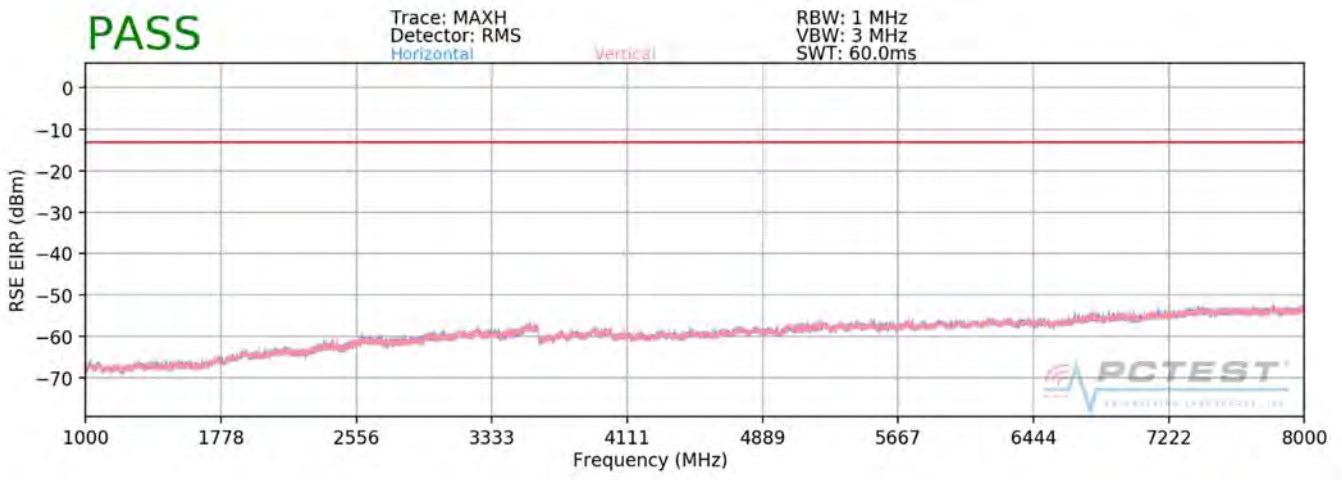
Table 7-11. Radiated Spurious Data (Band 12/17 – High Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	129	75	-75.65	4.72	-70.93	-57.9
2140.50	H	236	28	-73.60	5.35	-68.26	-55.3
2854.00	H	-	-	-72.75	7.05	-65.70	-52.7

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

Band 13



Plot 7-162. 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	H	-	-	-73.01	5.72	-67.28	-54.3

Table 7-13. 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	H	-	-	-76.38	5.88	-70.50	-30.5

Table 7-14. 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	H	-	-	-72.93	5.72	-67.20	-54.2

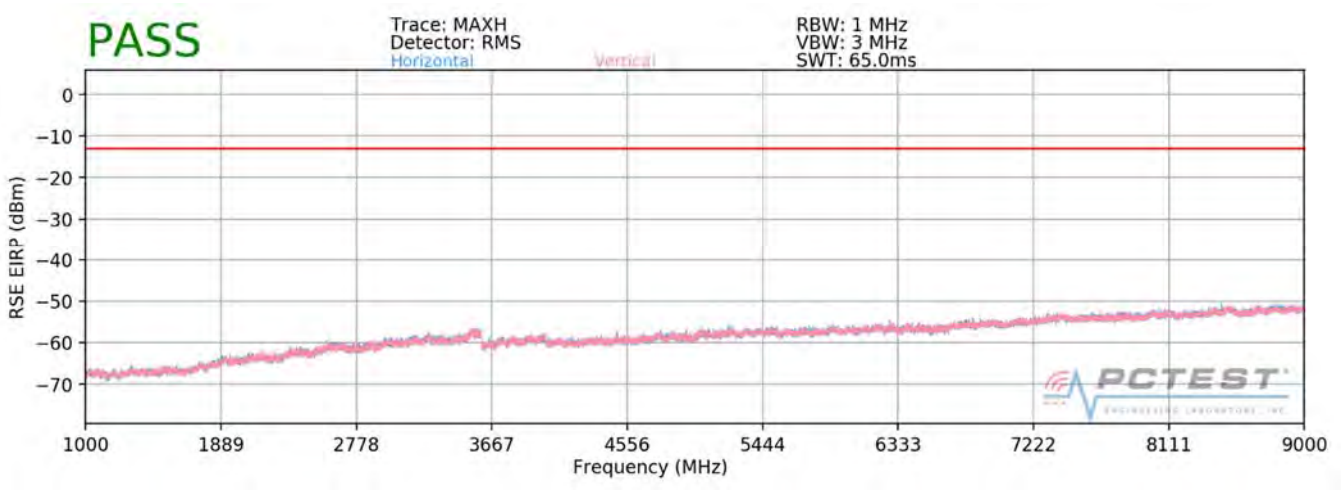
Table 7-15. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

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	H	-	-	-76.18	5.88	-70.30	-30.3

Table 7-16. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

Band 5



Plot 7-163. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY:	826.50	MHz
CHANNEL:	20425	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1653.00	H	-	-	-65.77	5.80	-59.98	-47.0
2479.50	H	-	-	-63.14	5.73	-57.42	-44.4

Table 7-17. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	20525	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	-	-	-65.81	5.73	-60.09	-47.1
2509.50	H	-	-	-61.62	5.77	-55.85	-42.9

Table 7-18. Radiated Spurious Data (Band 5 – Mid Channel)

OPERATING FREQUENCY:	846.50	MHz
CHANNEL:	20625	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.00	H	-	-	-64.37	5.66	-58.71	-45.7
2539.50	H	-	-	-61.82	5.88	-55.94	-42.9

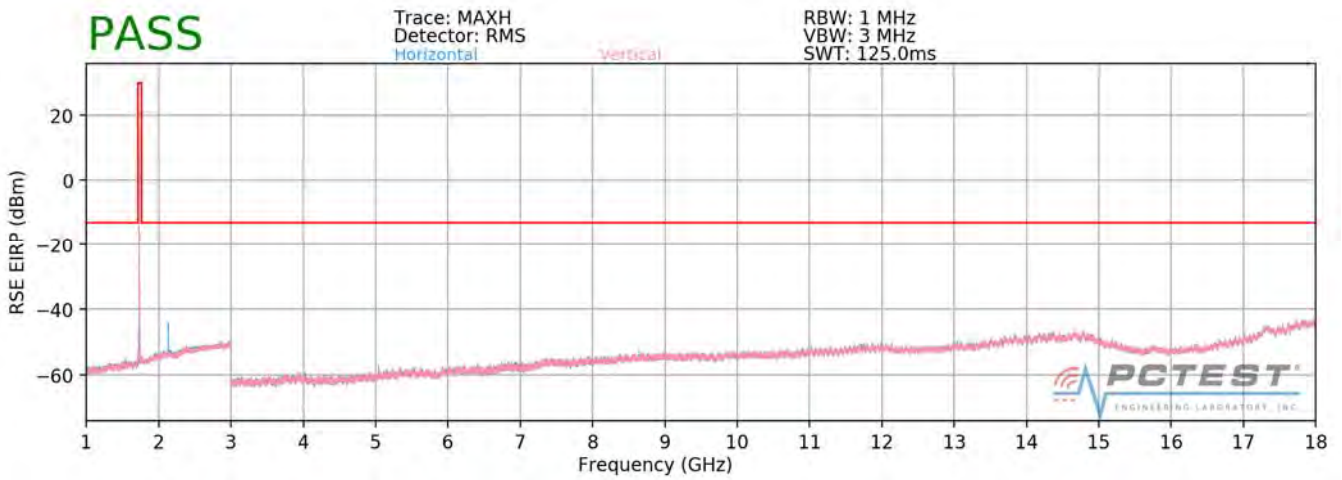
Table 7-19. Radiated Spurious Data (Band 5 – High Channel)

OPERATING FREQUENCY:	826.50	MHz
CHANNEL:	20425	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1653.00	H	-	-	-68.72	5.80	-62.92	-49.9
2479.50	H	-	-	-65.93	5.73	-60.21	-47.2

Table 7-20. Radiated Spurious Data with WCP (Band 5 – Low Channel)

Band 4



Plot 7-164. Radiated Spurious Plot above 1GHz (Band 4)

OPERATING FREQUENCY:	1710.70	MHz
CHANNEL:	19957	
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	H	305	19	-71.04	8.09	-62.95	-49.9
5132.10	H	106	349	-73.77	10.23	-63.53	-50.5
6842.80	H	157	259	-70.27	11.36	-58.91	-45.9
8553.50	H	148	38	-67.31	13.06	-54.25	-41.3
10264.20	H	-	-	-70.97	13.12	-57.85	-44.9

Table 7-21. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY:	1732.50	MHz
CHANNEL:	20175	
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]
3465.00	V	380	23	-69.90	8.33	-61.57	-48.6
5197.50	V	122	357	-72.36	10.27	-62.09	-49.1
6930.00	V	113	322	-70.55	11.42	-59.13	-46.1
8662.50	V	163	42	-66.43	13.09	-53.34	-40.3
10395.00	V	-	-	-70.83	13.12	-57.71	-44.7

Table 7-22. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY:	1754.30	MHz
CHANNEL:	20393	
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]
3508.60	V	370	39	-68.85	8.52	-60.33	-47.3
5262.90	V	136	340	-71.59	10.29	-61.30	-48.3
7017.20	V	104	214	-69.33	11.51	-57.83	-44.8
8771.50	V	167	10	-65.42	13.12	-52.30	-39.3
10525.80	V	-	-	-70.88	13.14	-57.74	-44.7

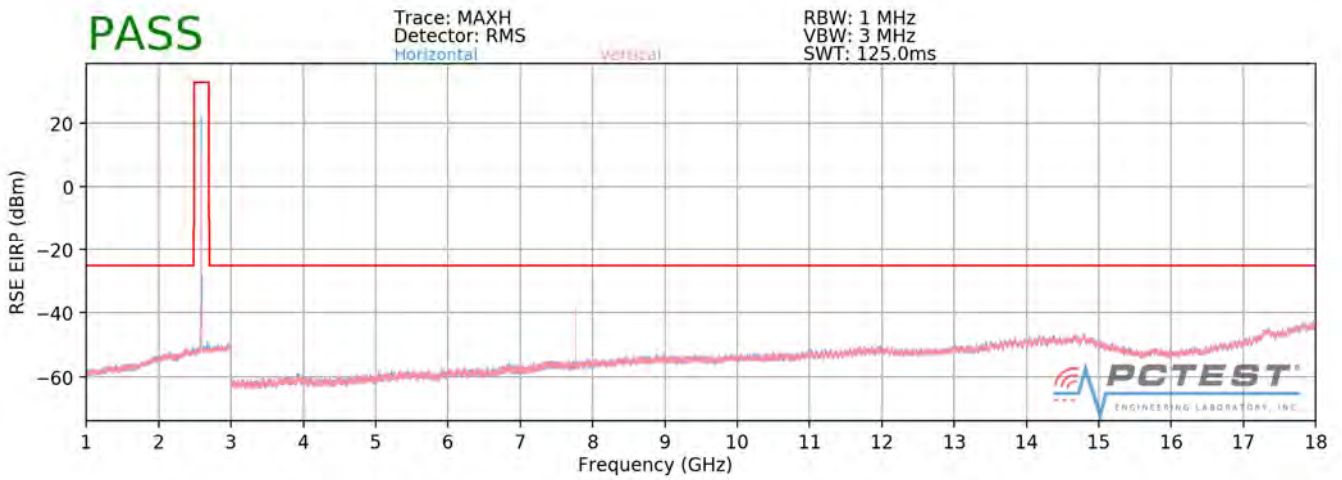
Table 7-23. Radiated Spurious Data (Band 4 – High Channel)

OPERATING FREQUENCY:	1710.70	MHz
CHANNEL:	19957	
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	H	154	39	-71.48	8.09	-63.39	-50.4
5132.10	H	169	305	-73.72	10.23	-63.48	-50.5
6842.80	H	-	-	-73.13	11.36	-61.77	-48.8

Table 7-24. Radiated Spurious Data with WCP (Band 4 – Low Channel)

Band 41



Plot 7-165. Radiated Spurious Plot 1GHz - 18GHz (Band 41)

OPERATING FREQUENCY:	2501.00	MHz
CHANNEL:	39700	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
5002.00	H	112	234	-62.67	10.10	-52.58	-27.6
7503.00	H	112	325	-44.00	12.11	-31.89	-6.9
10004.00	H	139	123	-66.95	13.18	-53.77	-28.8
12505.00	H	113	155	-64.68	13.24	-51.44	-26.4
15006.00	H	-	-	-64.14	14.08	-50.06	-25.1

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

OPERATING FREQUENCY:	2593.00	MHz
CHANNEL:	40620	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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	113	274	-62.69	10.27	-52.43	-27.4
7779.00	H	249	118	-44.04	12.28	-31.75	-6.8
10372.00	H	135	183	-67.97	13.12	-54.85	-29.8
12965.00	H	124	163	-67.97	13.38	-54.59	-29.6
15558.00	H	-	-	-67.49	14.04	-53.44	-28.4

Table 7-26. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY:	2685.00	MHz
CHANNEL:	41540	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
5370.00	H	400	26	-69.70	10.42	-59.27	-34.3
8055.00	H	112	333	-44.85	12.60	-32.24	-7.2
10740.00	H	149	238	-66.92	13.12	-53.80	-28.8
13425.00	H	134	175	-63.02	13.94	-49.08	-24.1
16110.00	H	-	-	-67.09	13.62	-53.47	-28.5

Table 7-27. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY:	2501.00	MHz
CHANNEL:	39700	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
5002.00	H	135	158	-64.46	10.27	-54.20	-29.2
7503.00	H	149	354	-48.02	12.28	-35.73	-10.7
10004.00	H	-	-	-68.77	13.12	-55.65	-30.6

Table 7-28. Radiated Spurious Data with WCP (Band 41 – Low Channel)

7.7 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 12 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	4.28	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	+ 20 (Ref)	707,500,029	29	0.0000041
100 %		- 30	707,500,082	82	0.0000116
100 %		- 20	707,500,015	15	0.0000021
100 %		- 10	707,500,074	74	0.0000105
100 %		0	707,500,137	137	0.0000194
100 %		+ 10	707,499,942	-58	-0.0000082
100 %		+ 20	707,499,858	-142	-0.0000201
100 %		+ 30	707,500,150	150	0.0000212
100 %		+ 40	707,500,029	29	0.0000041
100 %		+ 50	707,499,877	-123	-0.0000174
BATT. ENDPOINT	3.31	+ 20	707,499,956	-44	-0.0000062

Table 7-29. 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

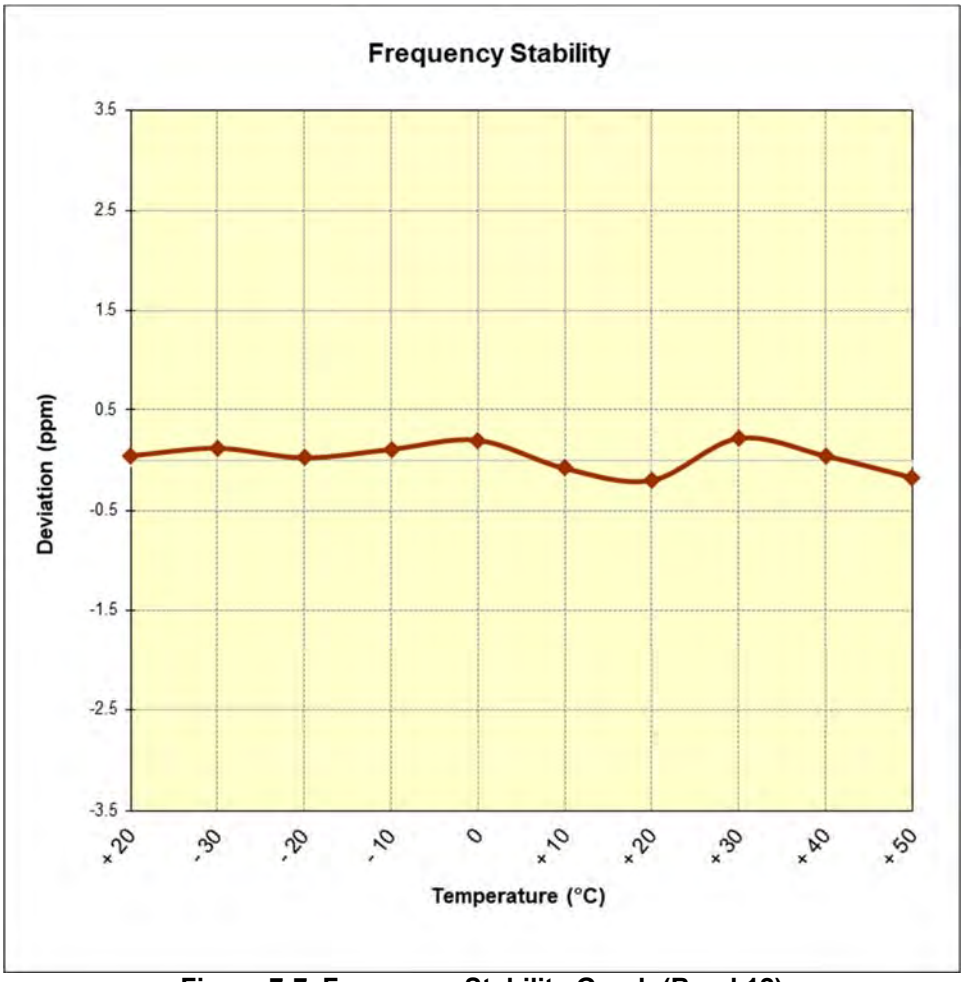


Figure 7-7. Frequency Stability Graph (Band 12)

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	4.28	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	+ 20 (Ref)	781,999,872	-128	-0.0000164
100 %		- 30	782,000,082	82	0.0000105
100 %		- 20	782,000,026	26	0.0000033
100 %		- 10	782,000,102	102	0.0000130
100 %		0	781,999,891	-109	-0.0000139
100 %		+ 10	781,999,940	-60	-0.0000077
100 %		+ 20	782,000,035	35	0.0000045
100 %		+ 30	782,000,136	136	0.0000174
100 %		+ 40	781,999,940	-60	-0.0000077
100 %		+ 50	782,000,069	69	0.0000088
BATT. ENDPOINT	3.31	+ 20	781,999,865	-135	-0.0000173

Table 7-30. 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

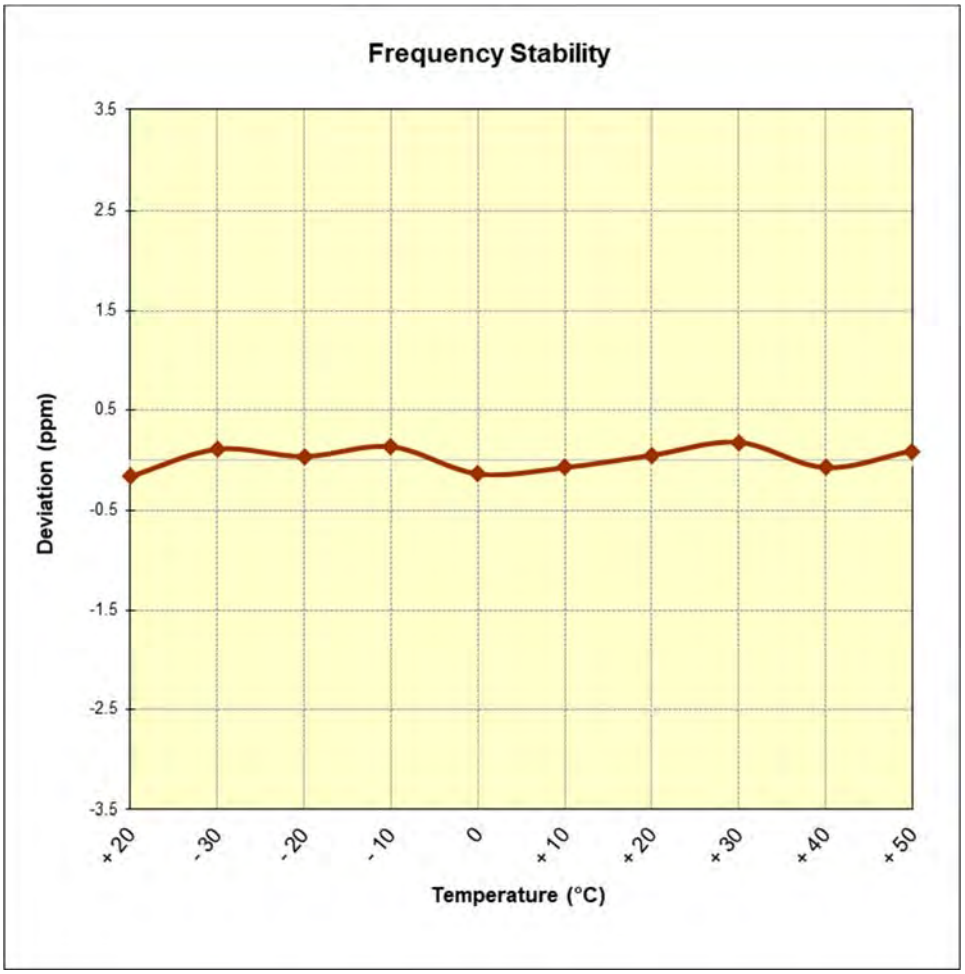


Figure 7-8. Frequency Stability Graph (Band 13)

Band 5 Frequency Stability Measurements

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	20525	
REFERENCE VOLTAGE:	4.28	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	+ 20 (Ref)	836,500,140	140	0.0000167
100 %		- 30	836,500,095	95	0.0000114
100 %		- 20	836,500,137	137	0.0000164
100 %		- 10	836,499,869	-131	-0.0000157
100 %		0	836,499,877	-123	-0.0000147
100 %		+ 10	836,500,009	9	0.0000011
100 %		+ 20	836,500,011	11	0.0000013
100 %		+ 30	836,499,993	-7	-0.0000008
100 %		+ 40	836,499,932	-68	-0.0000081
100 %		+ 50	836,500,046	46	0.0000055
BATT. ENDPOINT	3.31	+ 20	836,499,882	-118	-0.0000141

Table 7-31. Frequency Stability Data (Band 5)

Band 5 Frequency Stability Measurements

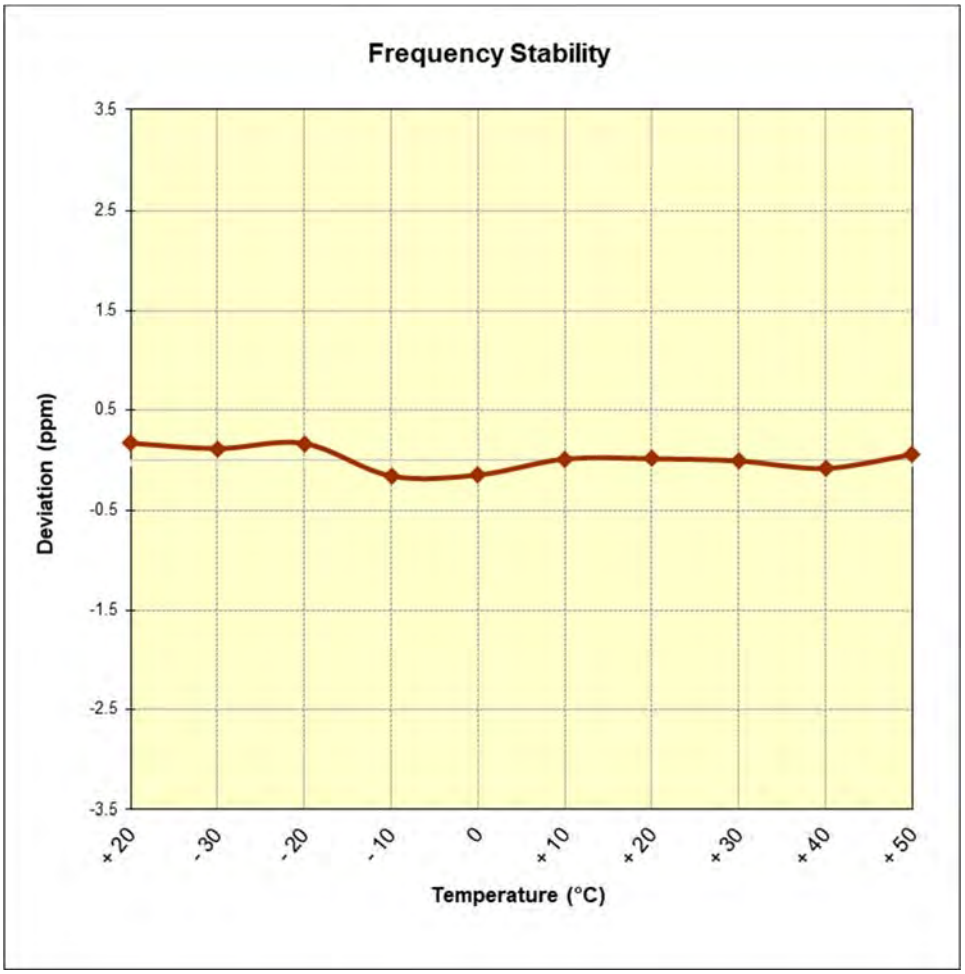


Figure 7-9. Frequency Stability Graph (Band 5)

Band 4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,732,500,000	Hz
CHANNEL:	20175	
REFERENCE VOLTAGE:	4.28	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	+ 20 (Ref)	1,732,500,145	145	0.0000084
100 %		- 30	1,732,500,012	12	0.0000007
100 %		- 20	1,732,499,945	-55	-0.0000032
100 %		- 10	1,732,499,934	-66	-0.0000038
100 %		0	1,732,500,134	134	0.0000077
100 %		+ 10	1,732,500,080	80	0.0000046
100 %		+ 20	1,732,499,916	-84	-0.0000048
100 %		+ 30	1,732,499,922	-78	-0.0000045
100 %		+ 40	1,732,499,911	-89	-0.0000051
100 %		+ 50	1,732,500,119	119	0.0000069
BATT. ENDPOINT	3.31	+ 20	1,732,500,066	66	0.0000038

Table 7-32. Frequency Stability Data (Band 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 4 Frequency Stability Measurements

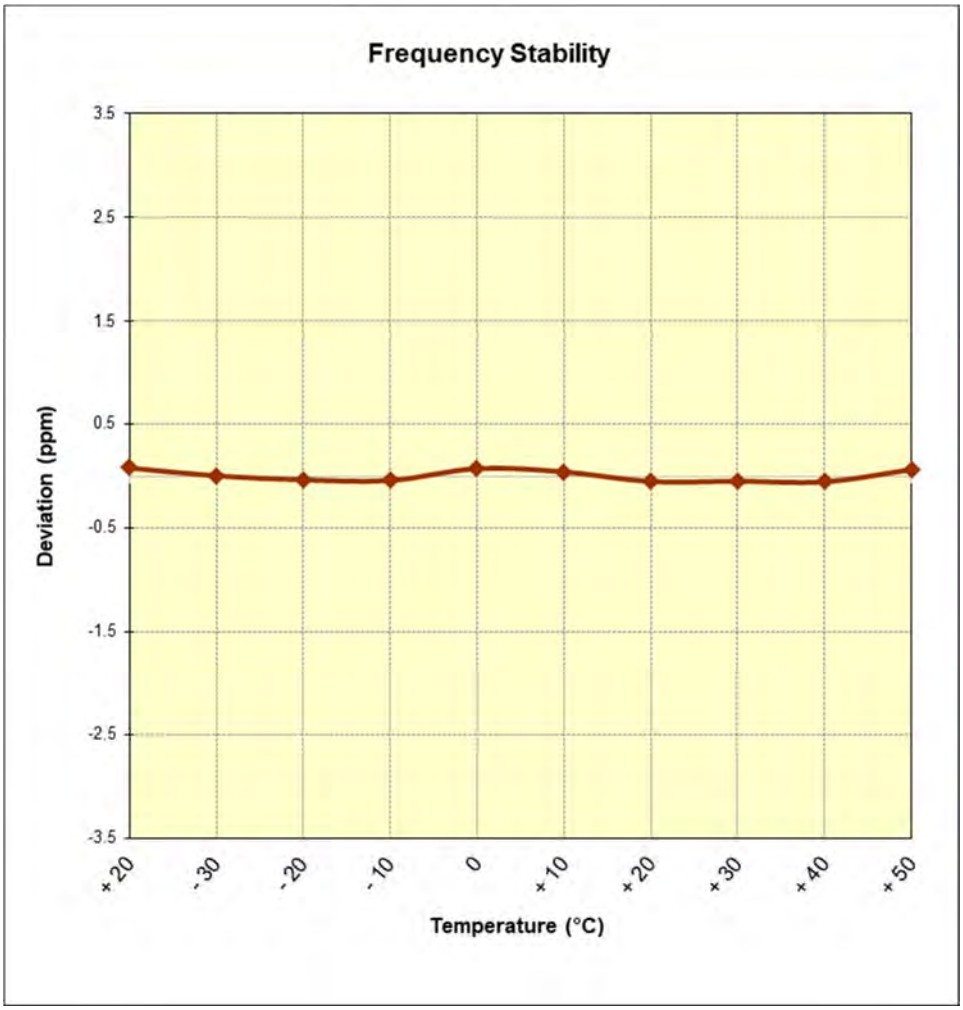


Figure 7-10. Frequency Stability Graph (Band 4)

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	4.28	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	+ 20 (Ref)	2,593,000,024	24	0.0000009
100 %		- 30	2,593,000,074	74	0.0000029
100 %		- 20	2,592,999,856	-144	-0.0000056
100 %		- 10	2,592,999,893	-107	-0.0000041
100 %		0	2,593,000,103	103	0.0000040
100 %		+ 10	2,592,999,999	-1	0.0000000
100 %		+ 20	2,592,999,858	-142	-0.0000055
100 %		+ 30	2,593,000,080	80	0.0000031
100 %		+ 40	2,593,000,108	108	0.0000042
100 %		+ 50	2,592,999,859	-141	-0.0000054
BATT. ENDPOINT	3.31	+ 20	2,592,999,927	-73	-0.0000028

Table 7-33. 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

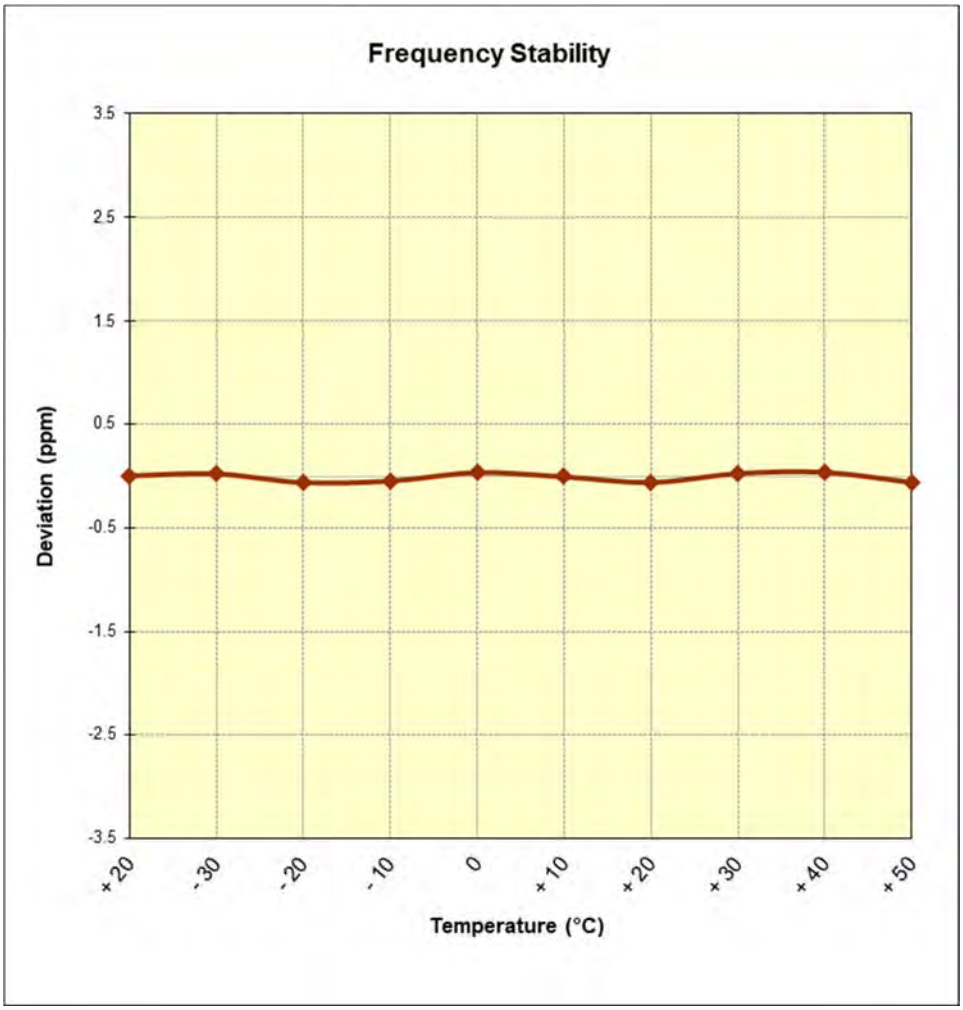


Figure 7-11. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSC01L** complies with all the requirements of Part 22 & 27 of the FCC Rules for LTE operation only.