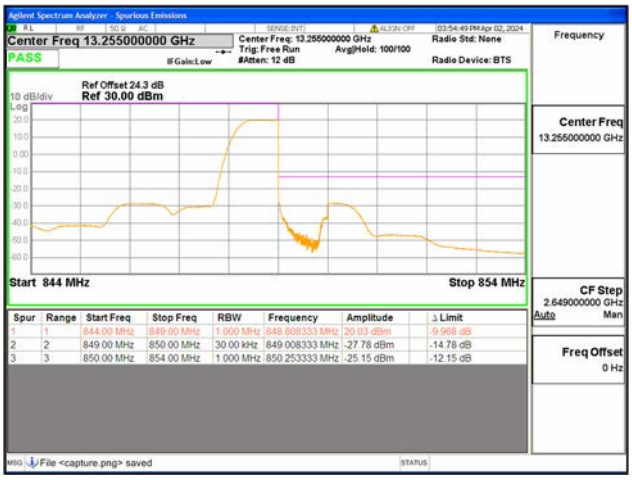
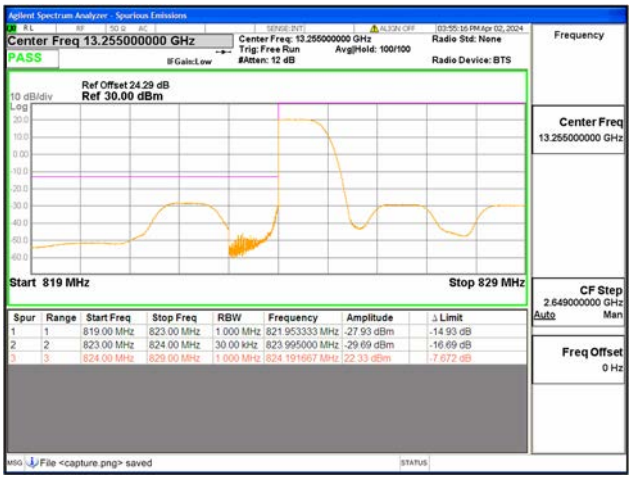
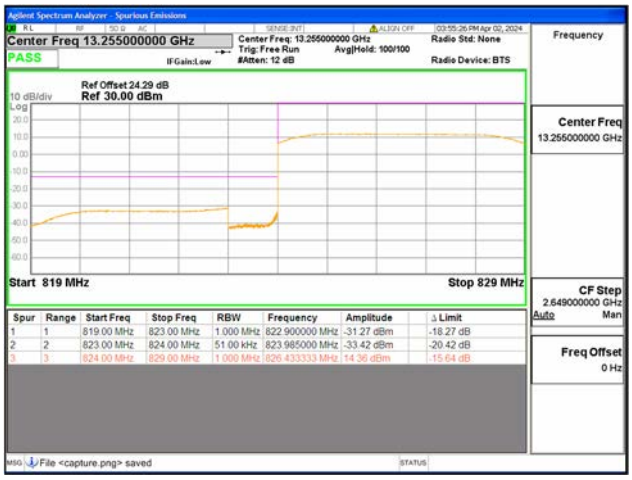


B5 / 3MHz / High CH / QPSK / 1 RB

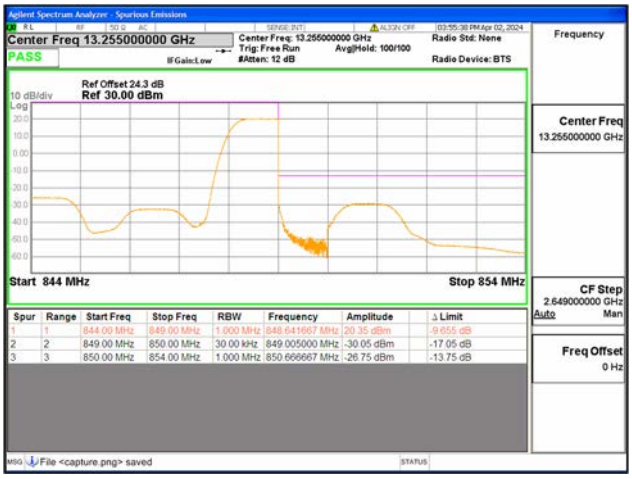
B5 / 3MHz / High CH / QPSK / FULL RB



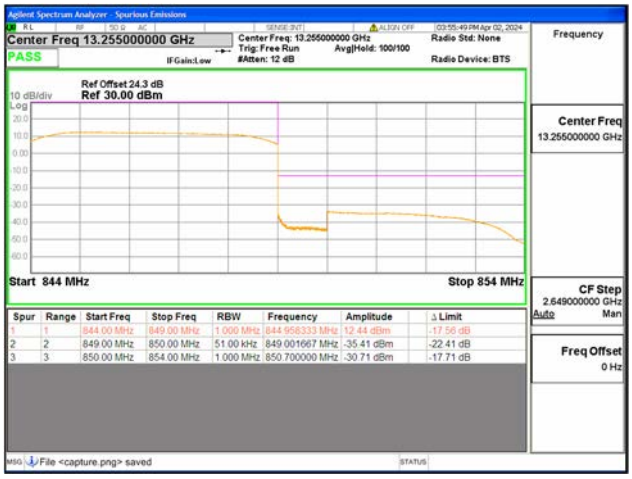
B5 / 5MHz / Low CH / QPSK / 1 RB



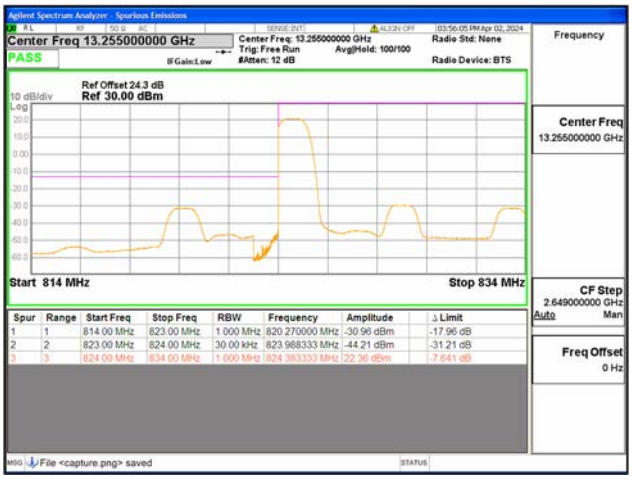
B5 / 5MHz / Low CH / QPSK / FULL RB



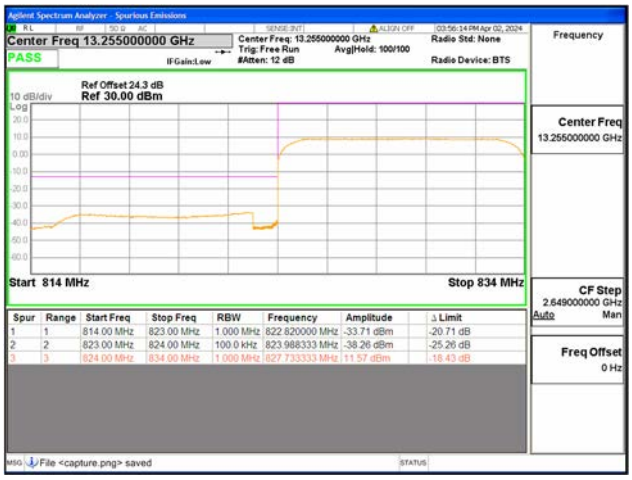
B5 / 5MHz / High CH / QPSK / 1 RB



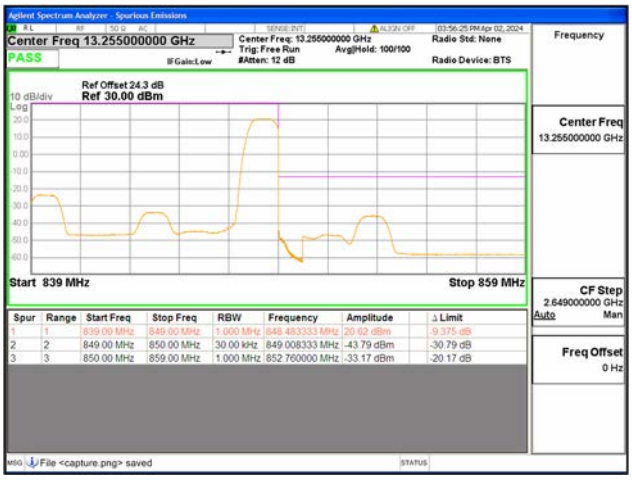
B5 / 5MHz / High CH / QPSK / FULL RB



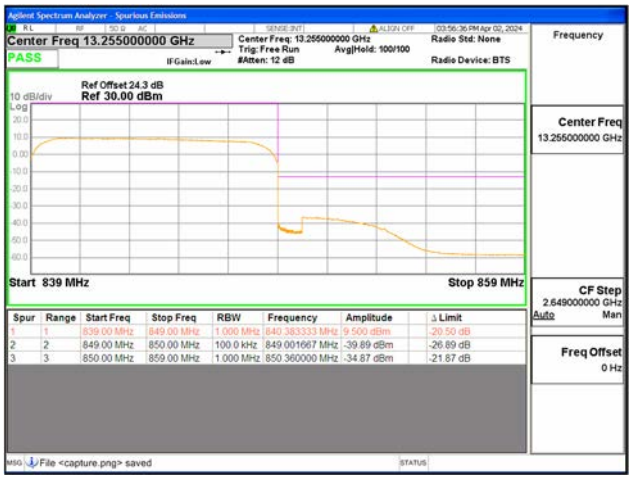
B5 / 10MHz / Low CH / QPSK / 1 RB



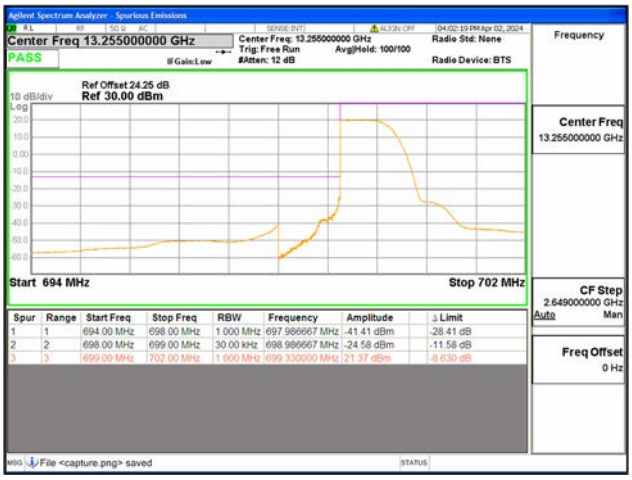
B5 / 10MHz / Low CH / QPSK / FULL RB



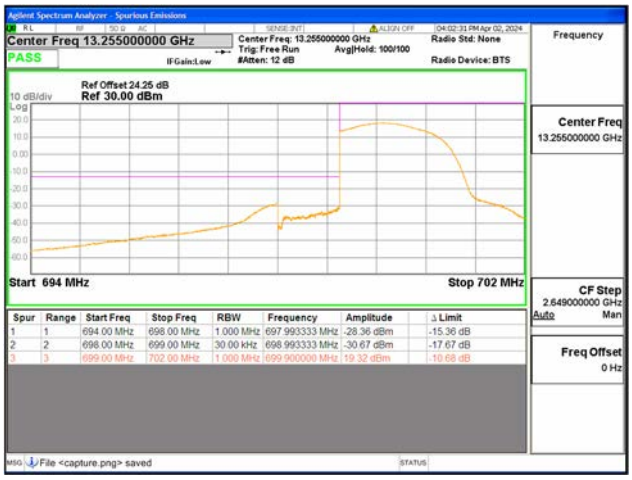
B5 / 10MHz / High CH / QPSK / 1 RB



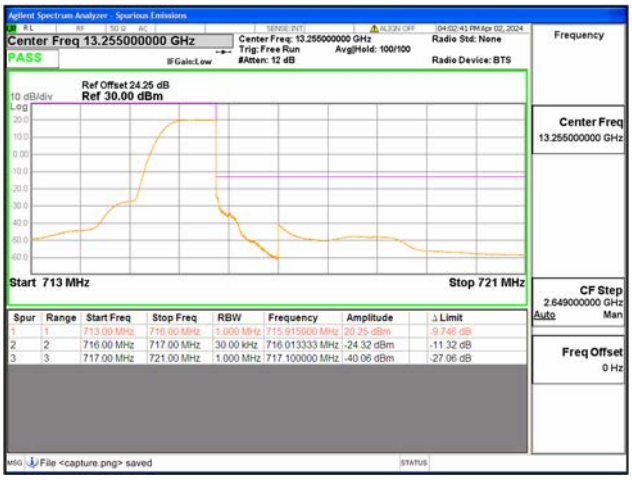
B5 / 10MHz / High CH / QPSK / FULL RB



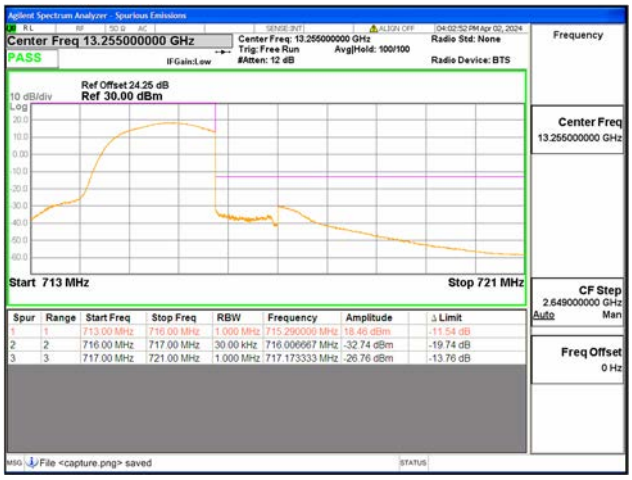
B12 / 1.4MHz / Low CH / QPSK / 1 RB



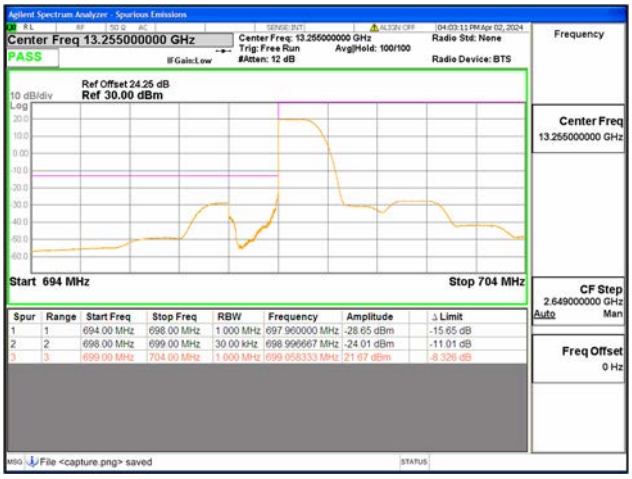
B12 / 1.4MHz / Low CH / QPSK / FULL RB



B12 / 1.4MHz / High CH / QPSK / 1 RB

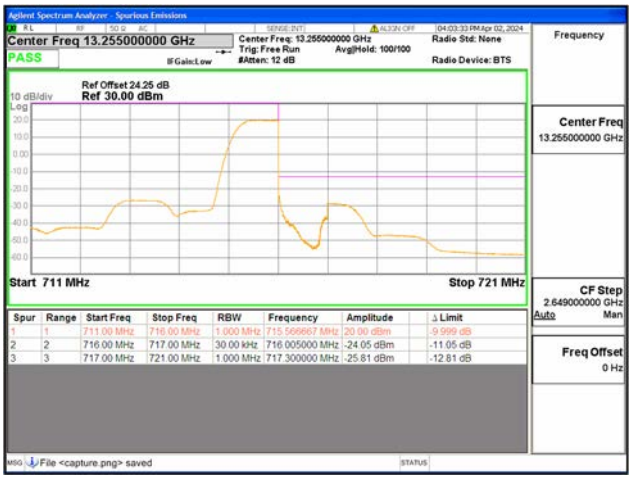


B12 / 1.4MHz / High CH / QPSK / FULL RB

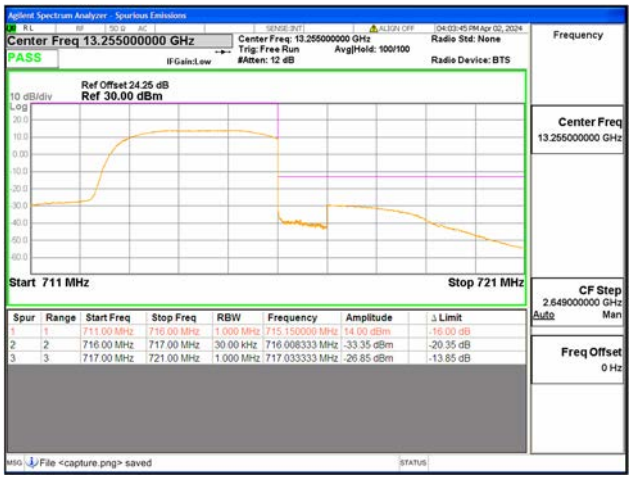


B12 / 3MHz / Low CH / QPSK / 1 RB

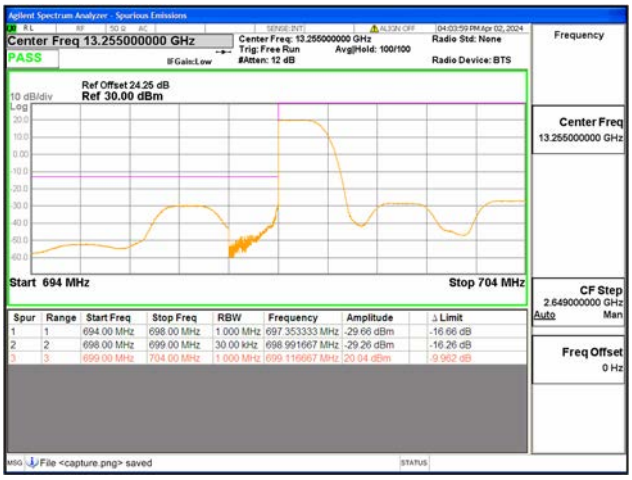
B12 / 3MHz / Low CH / QPSK / FULL RB



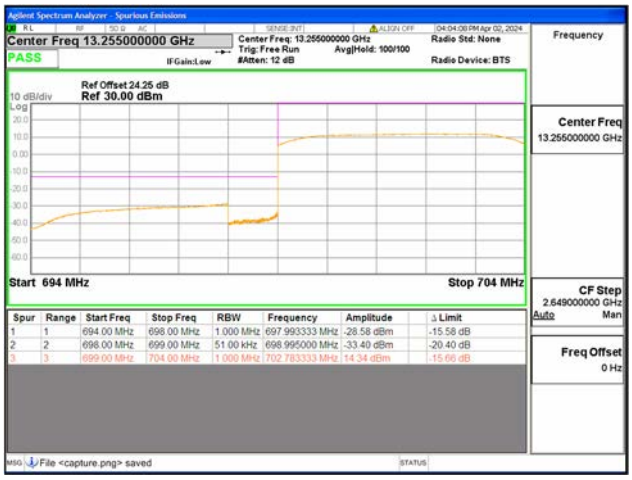
B12 / 3MHz / High CH / QPSK / 1 RB



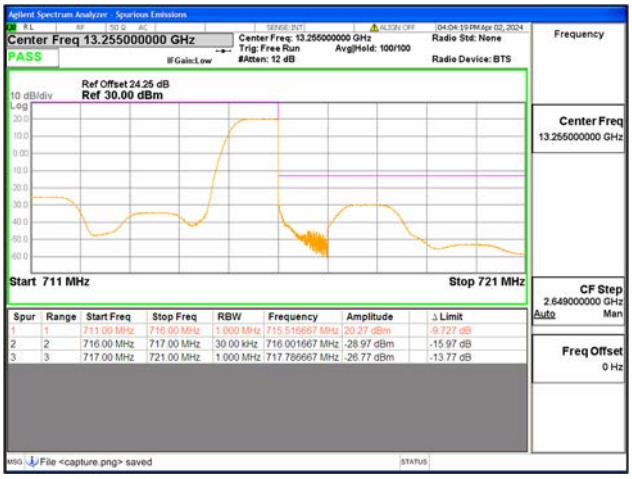
B12 / 3MHz / High CH / QPSK / FULL RB



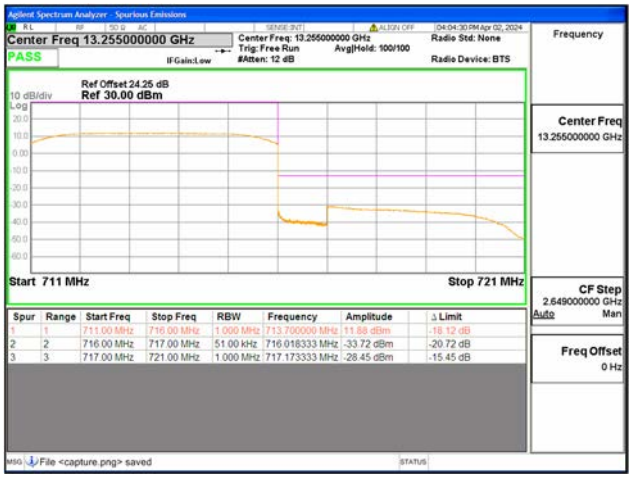
B12 / 5MHz / Low CH / QPSK / 1 RB



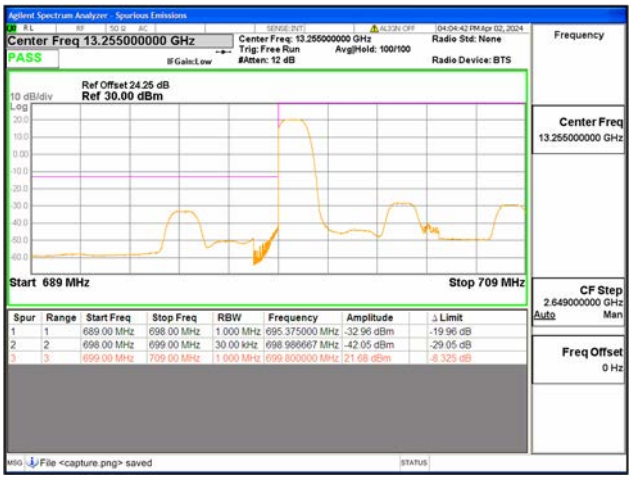
B12 / 5MHz / Low CH / QPSK / FULL RB



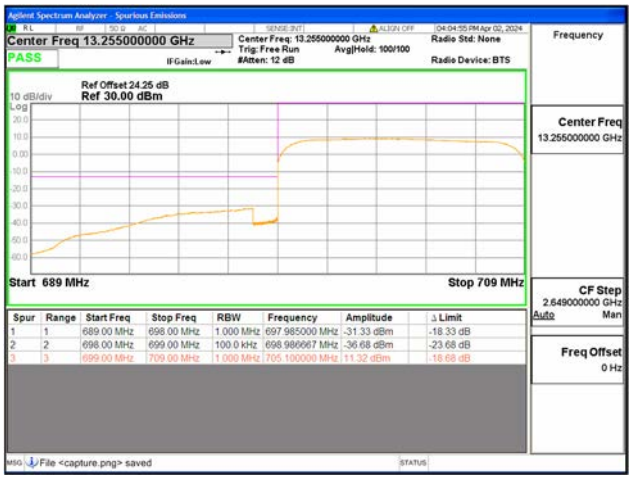
B12 / 5MHz / High CH / QPSK / 1 RB



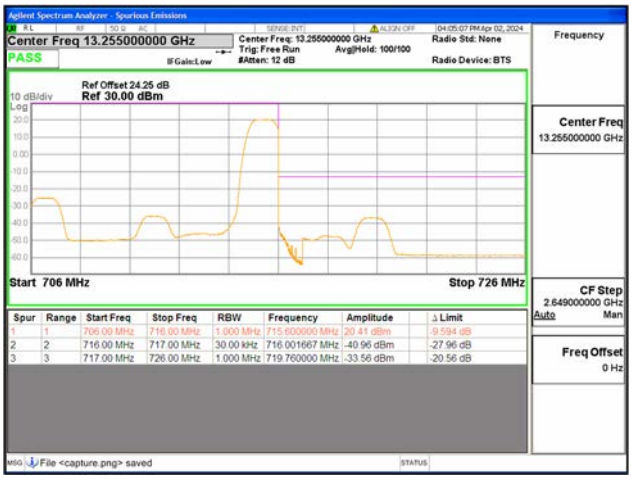
B12 / 5MHz / High CH / QPSK / FULL RB



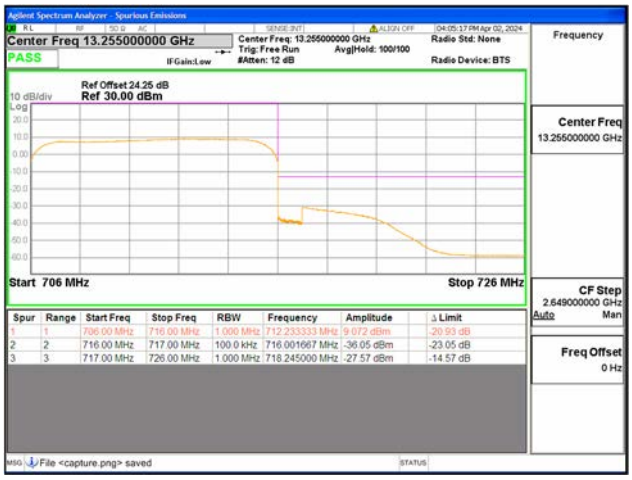
B12 / 10MHz / Low CH / QPSK / 1 RB



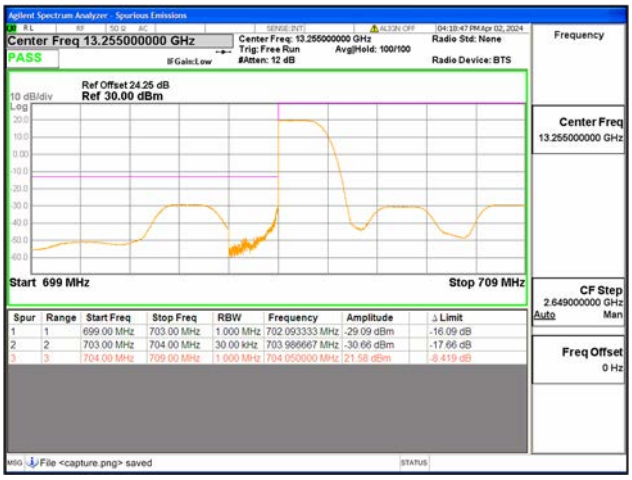
B12 / 10MHz / Low CH / QPSK / FULL RB



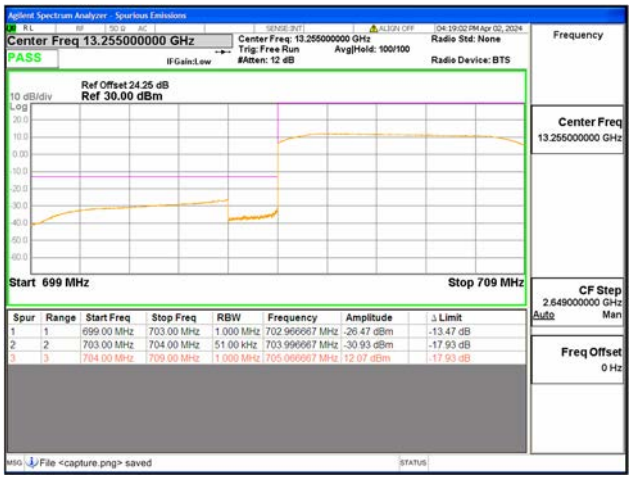
B12 / 10MHz / High CH / QPSK / 1 RB



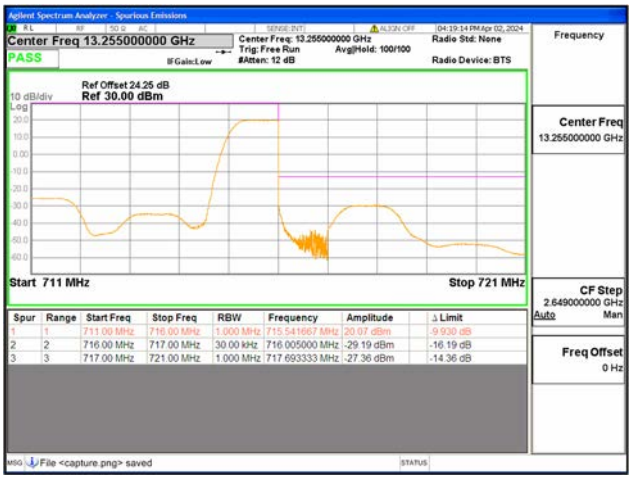
B12 / 10MHz / High CH / QPSK / FULL RB



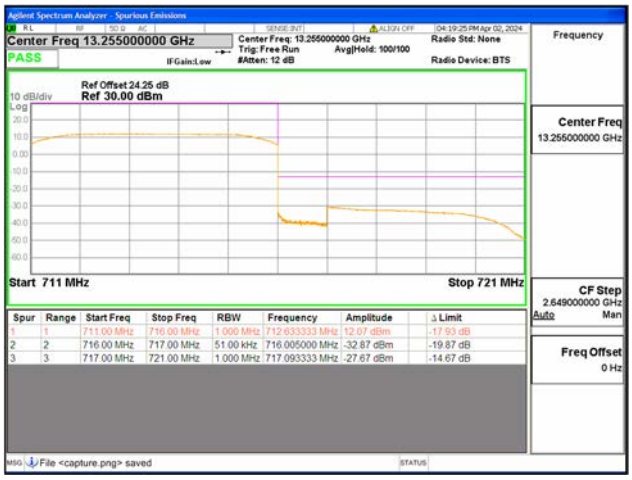
B17 / 5MHz / Low CH / QPSK / 1 RB



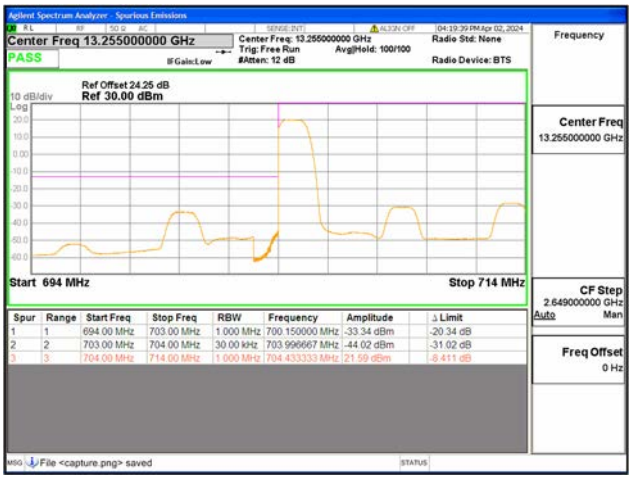
B17 / 5MHz / Low CH / QPSK / FULL RB



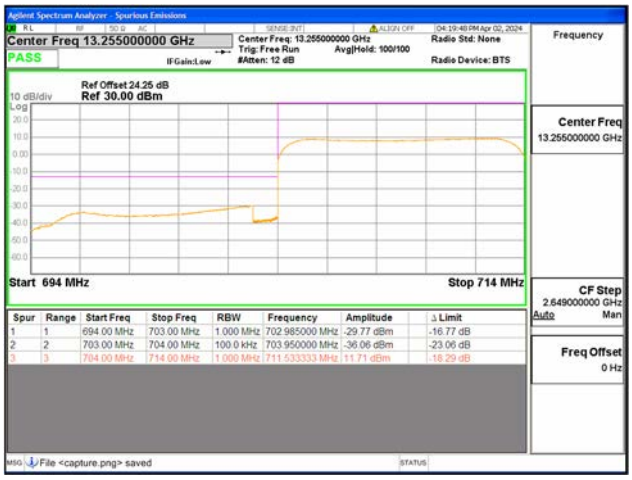
B17 / 5MHz / High CH / QPSK / 1 RB



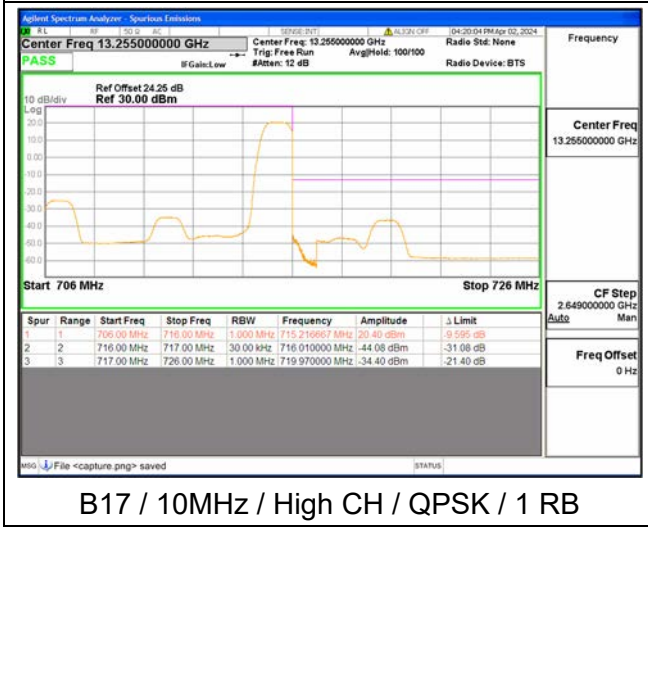
B17 / 5MHz / High CH / QPSK / FULL RB



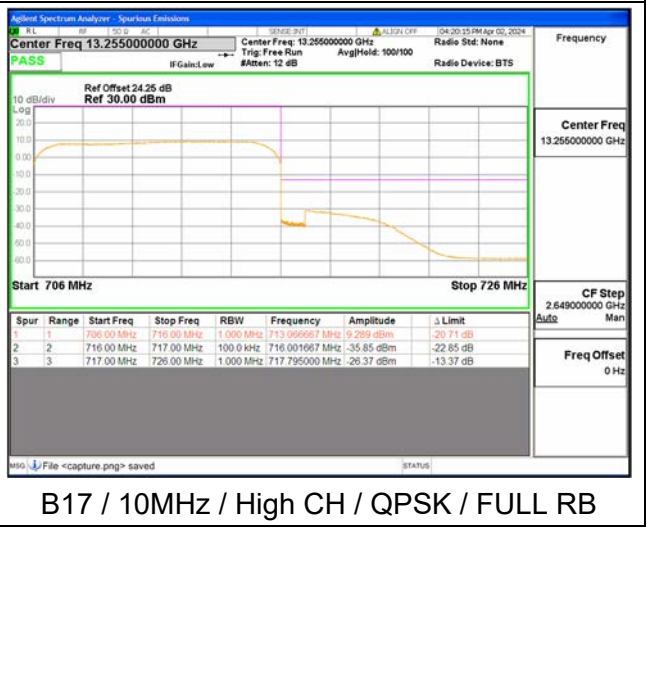
B17 / 10MHz / Low CH / QPSK / 1 RB



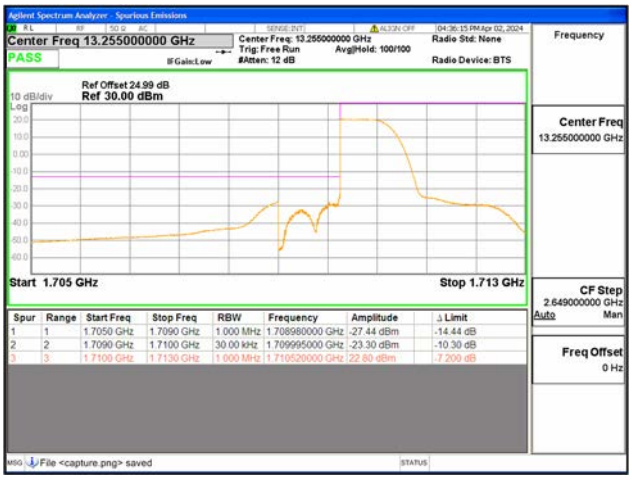
B17 / 10MHz / Low CH / QPSK / FULL RB



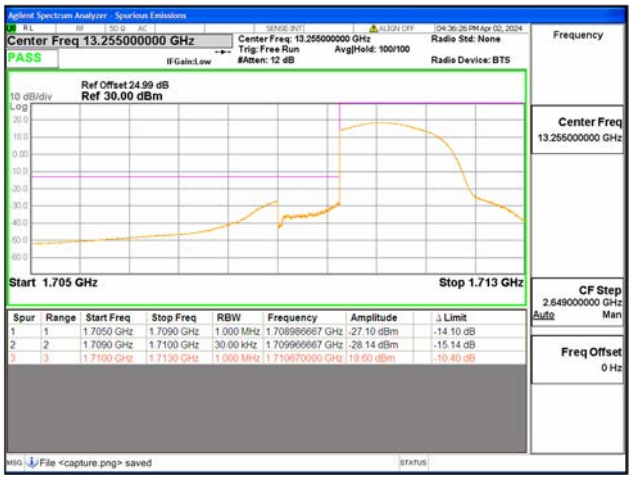
B17 / 10MHz / High CH / QPSK / 1 RB



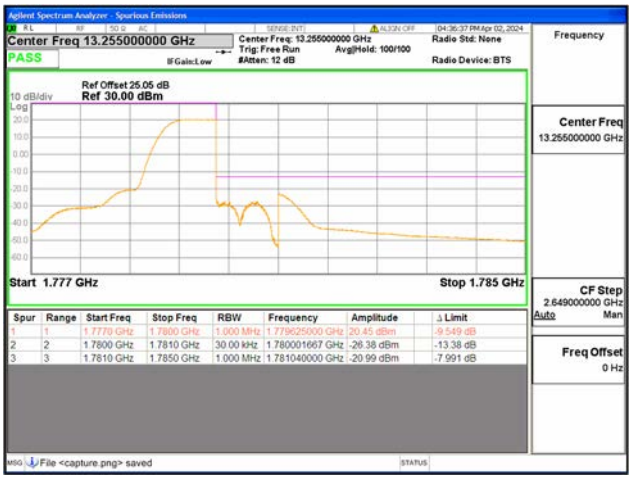
B17 / 10MHz / High CH / QPSK / FULL RB



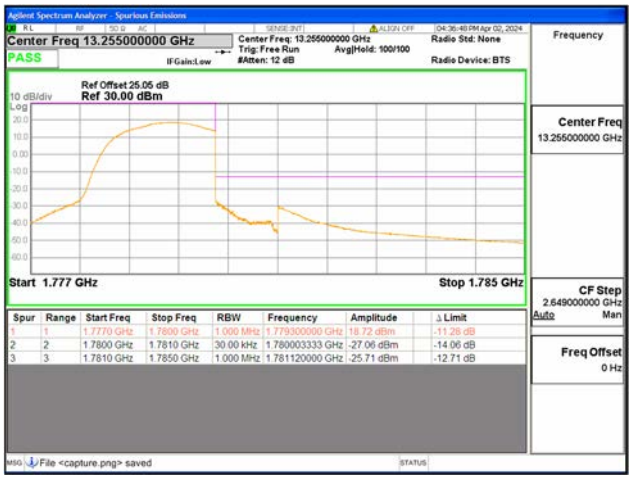
B66 / 1.4MHz / Low CH / QPSK / 1 RB



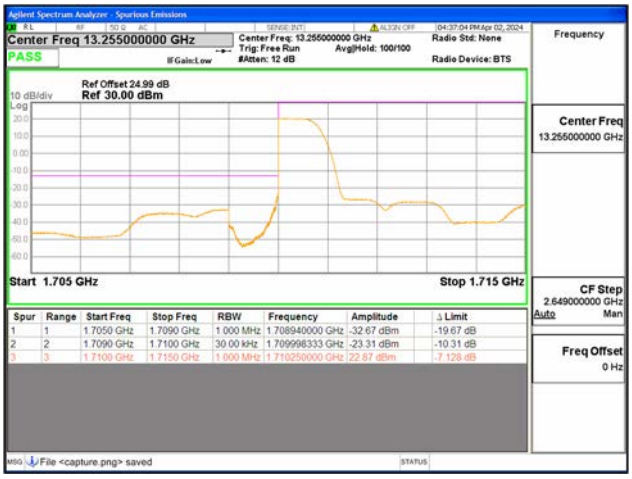
B66 / 1.4MHz / Low CH / QPSK / FULL RB



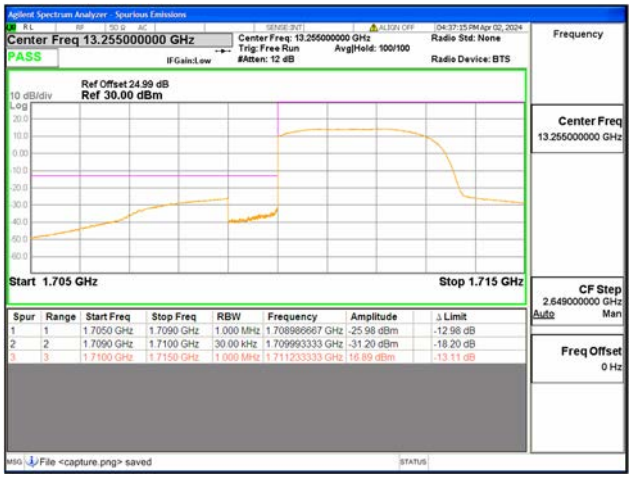
B66 / 1.4MHz / High CH / QPSK / 1 RB



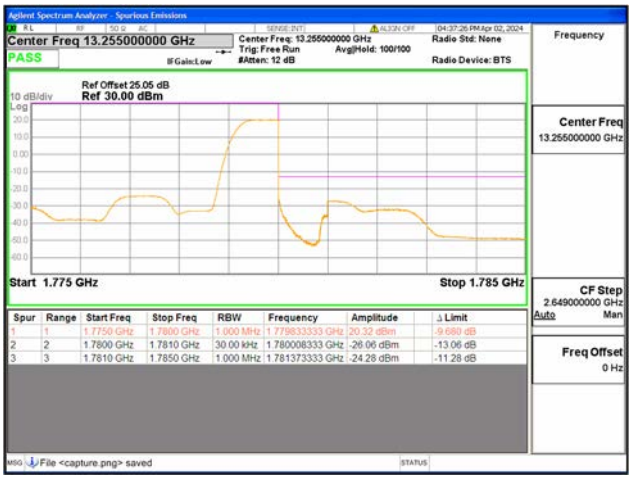
B66 / 1.4MHz / High CH / QPSK / FULL RB



B66 / 3MHz / Low CH / QPSK / 1 RB

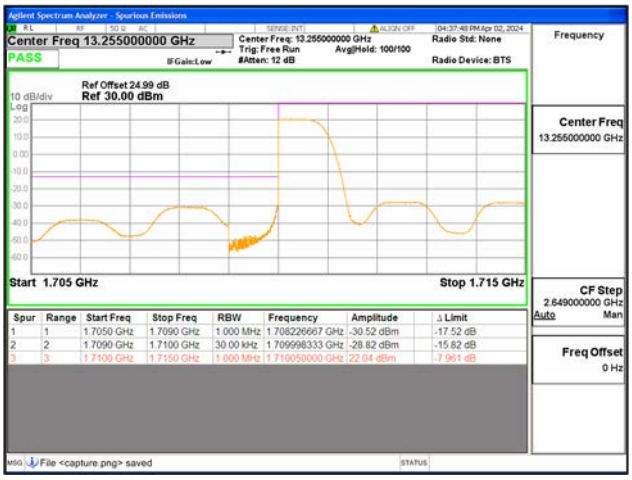


B66 / 3MHz / Low CH / QPSK / FULL RB

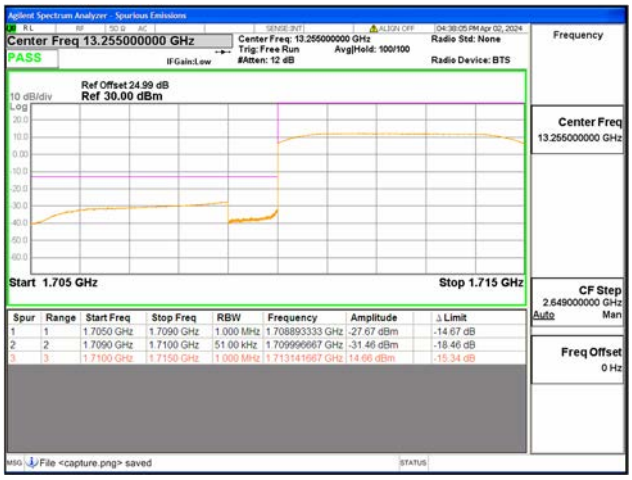


B66 / 3MHz / High CH / QPSK / 1 RB

B66 / 3MHz / High CH / QPSK / FULL RB

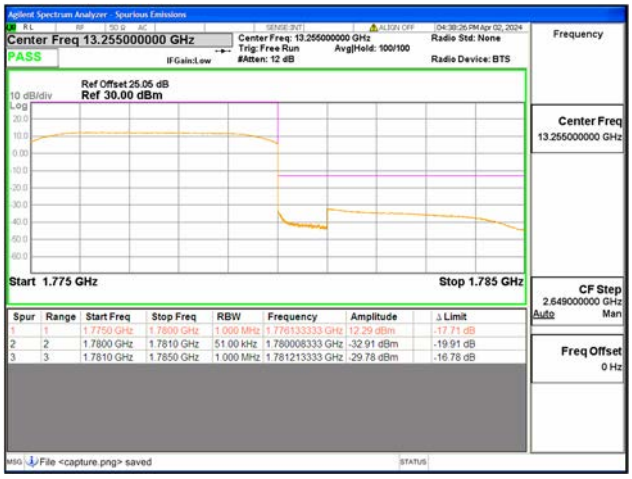


B66 / 5MHz / Low CH / QPSK / 1 RB

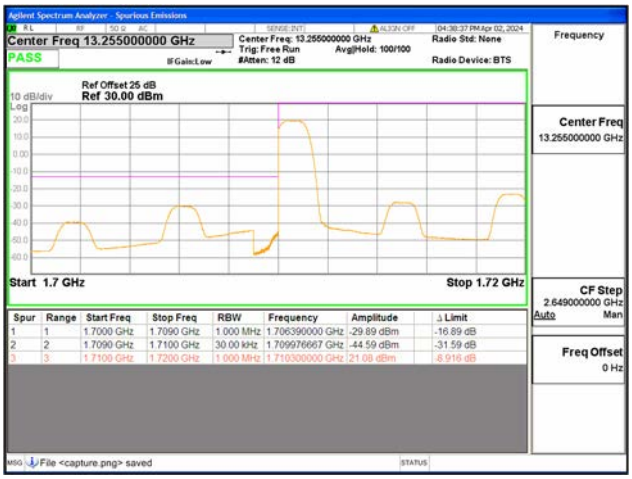


B66 / 5MHz / Low CH / QPSK / FULL RB

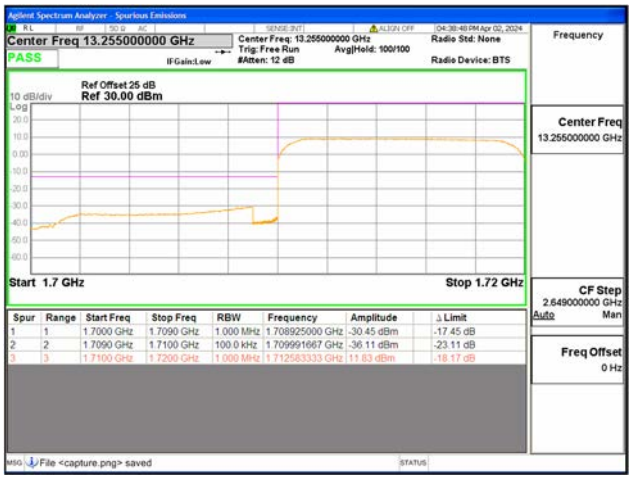
B66 / 5MHz / High CH / QPSK / 1 RB



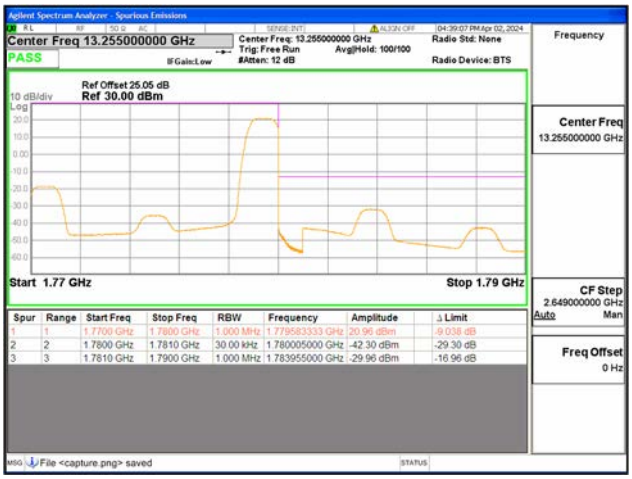
B66 / 5MHz / High CH / QPSK / FULL RB



B66 / 10MHz / Low CH / QPSK / 1 RB

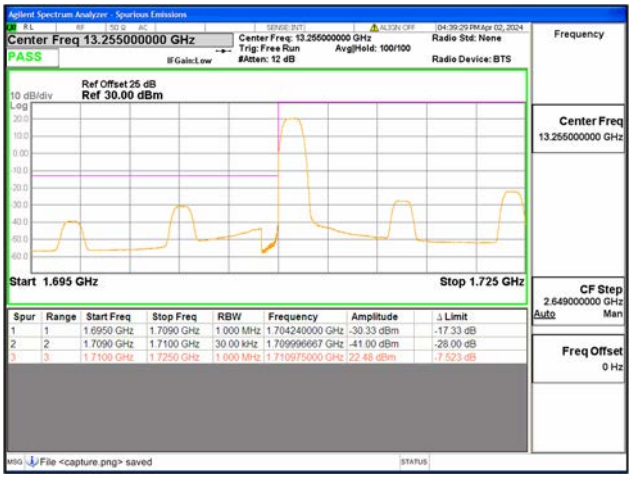


B66 / 10MHz / Low CH / QPSK / FULL RB

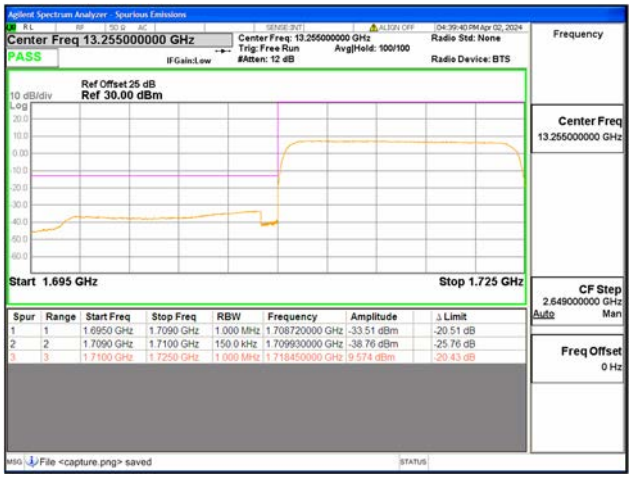


B66 / 10MHz / High CH / QPSK / 1 RB

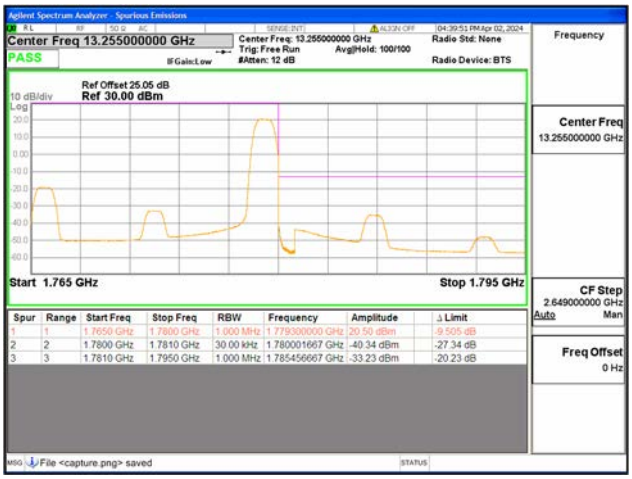
B66 / 10MHz / High CH / QPSK / FULL RB



B66 / 15MHz / Low CH / QPSK / 1 RB

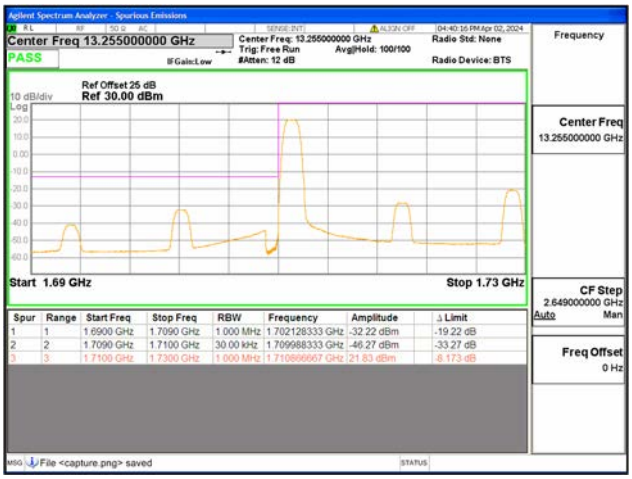


B66 / 15MHz / Low CH / QPSK / FULL RB



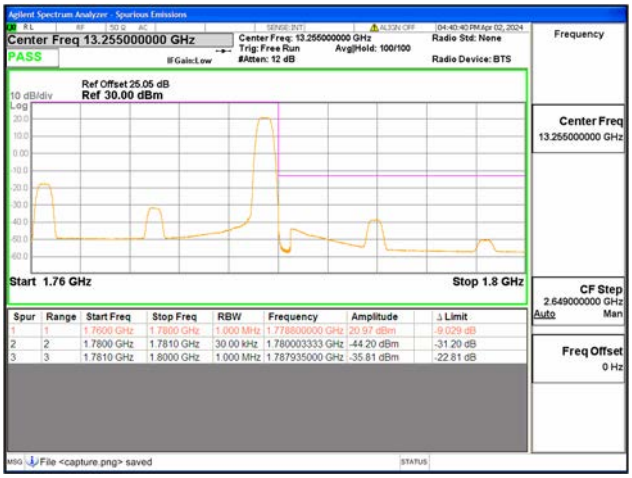
B66 / 15MHz / High CH / QPSK / 1 RB

B66 / 15MHz / High CH / QPSK / FULL RB

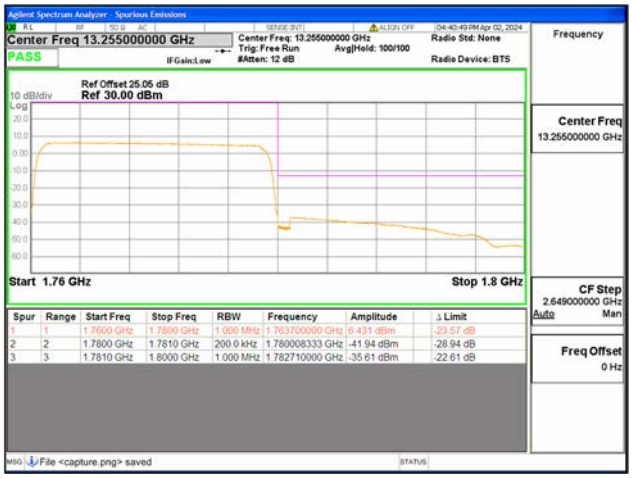


B66 / 20MHz / Low CH / QPSK / 1 RB

B66 / 20MHz / Low CH / QPSK / FULL RB



B66 / 20MHz / High CH / QPSK / 1 RB



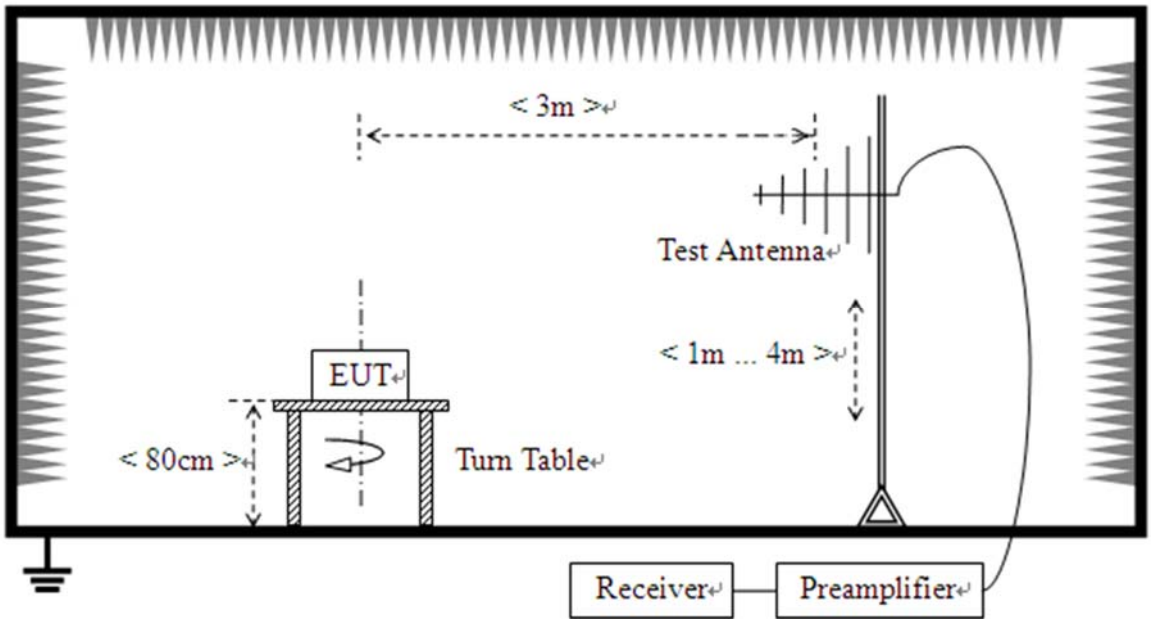
B66 / 20MHz / High CH / QPSK / FULL RB

2.7. Radiated Spurious Emissions

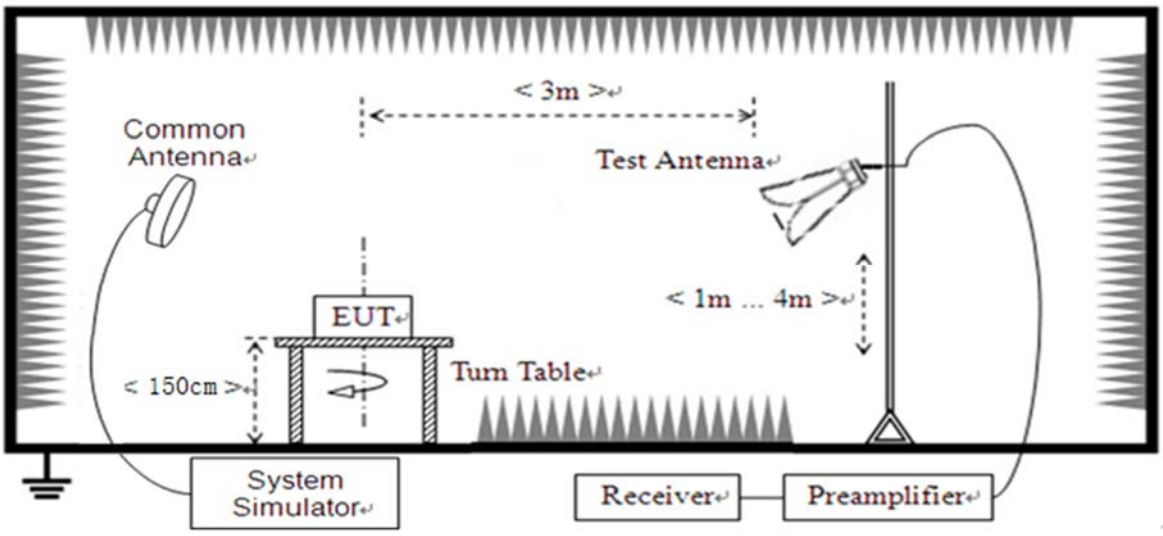
2.7.1. Requirement

According to FCC section 2.1051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.7.2. Test Description



(For the test frequency from 30MHz to1GHz)



(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.
A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.
In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360°to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

Note: When doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.7.3. Test Procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements.

For measurements above 1GHz (exclude 1559-1610 MHz) the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements.

2.7.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST_TX} - P_{SUBST_RX} - L_{SUBST_CABLES} + G_{SUBST_TX_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST_TX_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the test spectrum analyze, so spectrum analyze reading is the final values which contain the data of A_{TOT}.

Note1: The power of the EUT transmitting frequency should be ignored.

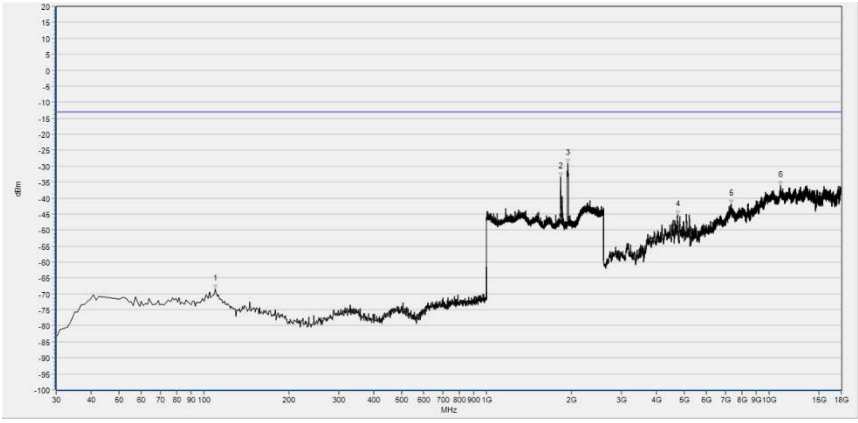
Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Note3: All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.

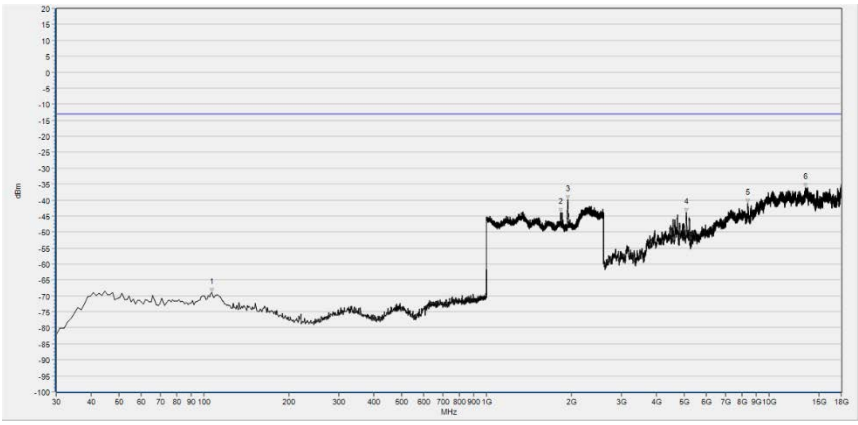
Note 4: N/A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.

Top Antenna

LTE Band 2, 20MHz BW, Low Channel, QPSK

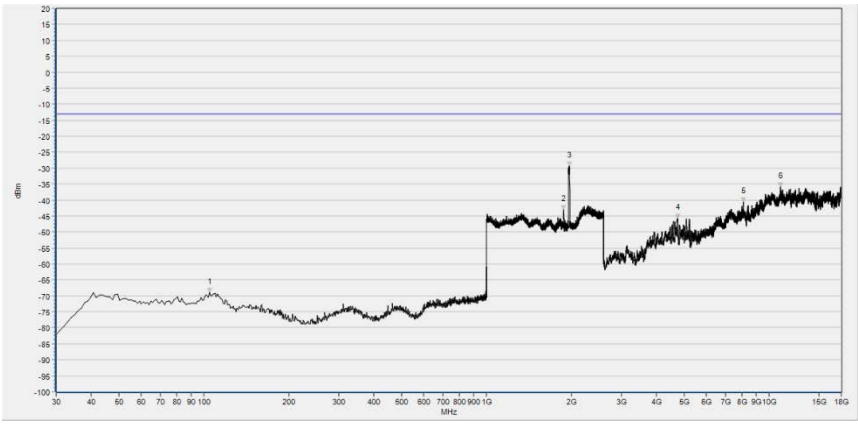


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	109.540	-68.60	-13.00	Horizontal	PASS
2	1832.973	-33.33	-13.00	Horizontal	N/A
3	1939.256	-29.15	-13.00	Horizontal	N/A
4	4742.390	-45.24	-13.00	Horizontal	PASS
5	7366.467	-41.81	-13.00	Horizontal	PASS
6	10998.727	-36.18	-13.00	Horizontal	PASS

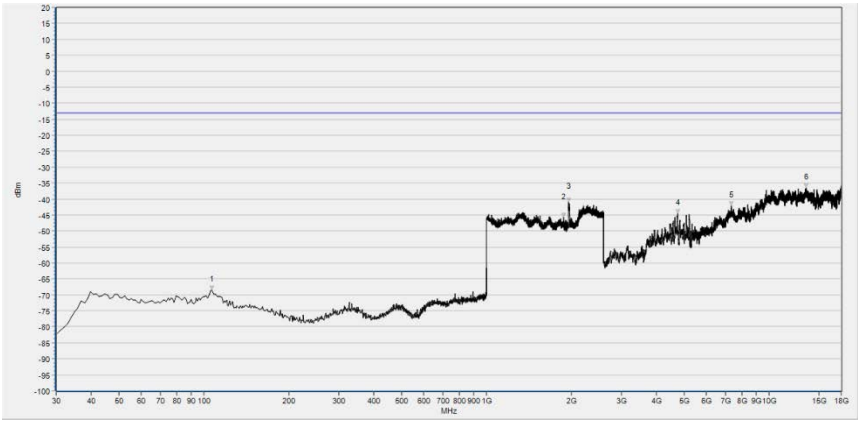


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	106.630	-68.99	-13.00	Vertical	PASS
2	1832.973	-43.97	-13.00	Vertical	N/A
3	1937.975	-39.97	-13.00	Vertical	N/A
4	5100.855	-43.89	-13.00	Vertical	PASS
5	8416.658	-41.10	-13.00	Vertical	PASS
6	13471.577	-36.10	-13.00	Vertical	PASS

LTE Band 2, 20MHz BW, Mid Channel, QPSK

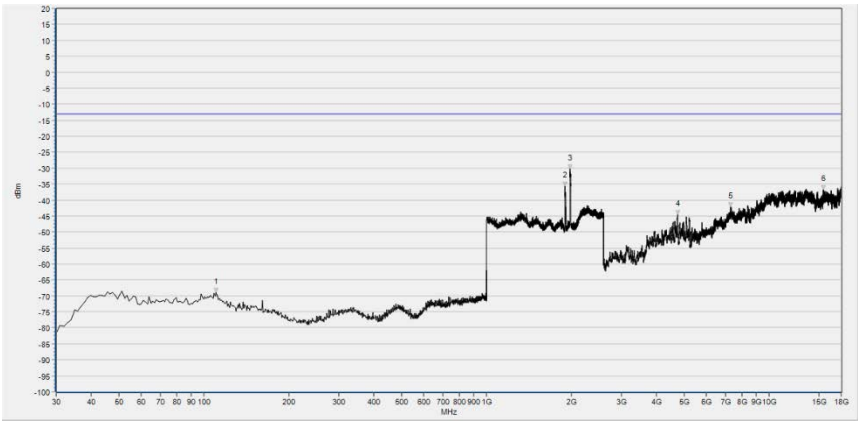


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	104.690	-68.89	-13.00	Horizontal	PASS
2	1877.791	-42.92	-13.00	Horizontal	N/A
3	1958.463	-29.30	-13.00	Horizontal	N/A
4	4739.589	-45.65	-13.00	Horizontal	PASS
5	8122.604	-40.64	-13.00	Horizontal	PASS
6	11004.328	-35.92	-13.00	Horizontal	PASS

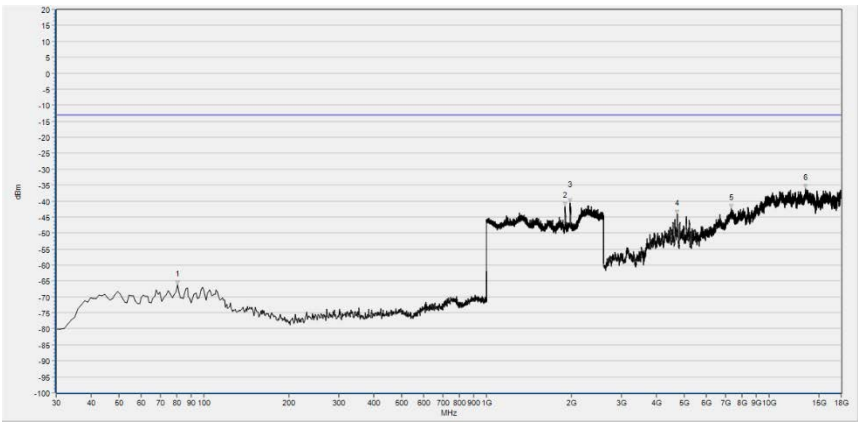


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	106.630	-68.59	-13.00	Vertical	PASS
2	1878.431	-45.76	-13.00	Vertical	N/A
3	1955.262	-41.00	-13.00	Vertical	N/A
4	4742.390	-44.55	-13.00	Vertical	PASS
5	7346.863	-42.10	-13.00	Vertical	PASS
6	13547.190	-36.53	-13.00	Vertical	PASS

LTE Band 2, 20MHz BW, High Channel, QPSK

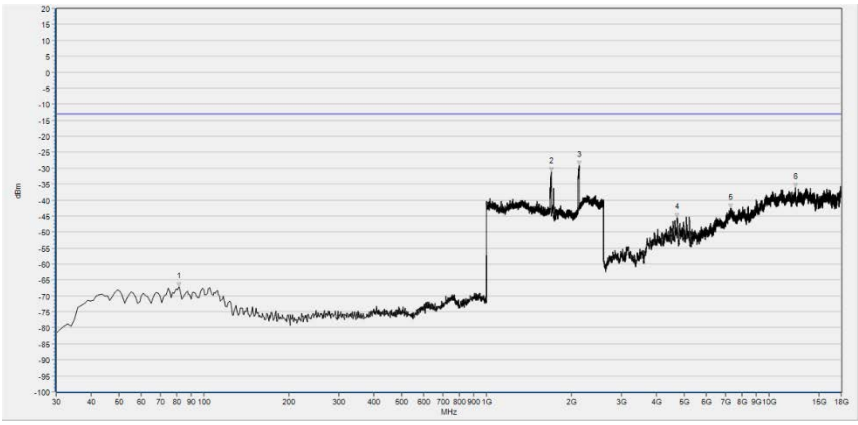


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	110.510	-68.84	-13.00	Horizontal	PASS
2	1899.560	-35.54	-13.00	Horizontal	N/A
3	1971.269	-30.22	-13.00	Horizontal	N/A
4	4739.589	-44.69	-13.00	Horizontal	PASS
5	7324.459	-42.18	-13.00	Horizontal	PASS
6	15543.953	-36.81	-13.00	Horizontal	PASS

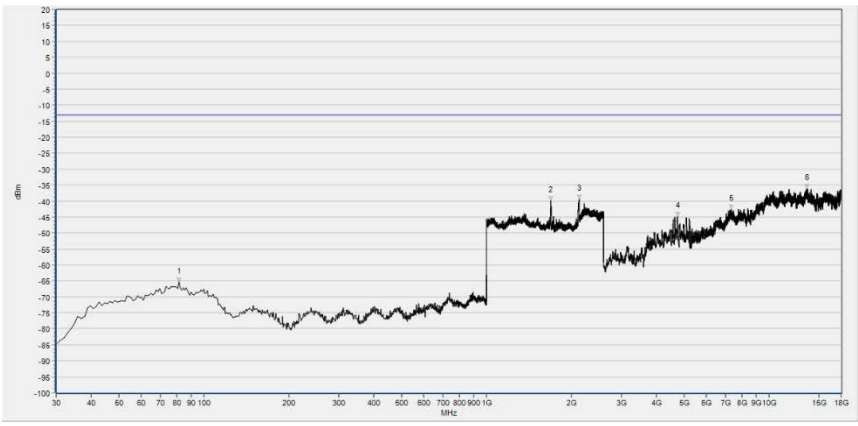


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.35	-13.00	Vertical	PASS
2	1898.920	-41.72	-13.00	Vertical	N/A
3	1973.830	-40.55	-13.00	Vertical	N/A
4	4736.789	-44.19	-13.00	Vertical	PASS
5	7341.262	-42.25	-13.00	Vertical	PASS
6	13482.779	-36.20	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, Low Channel, QPSK

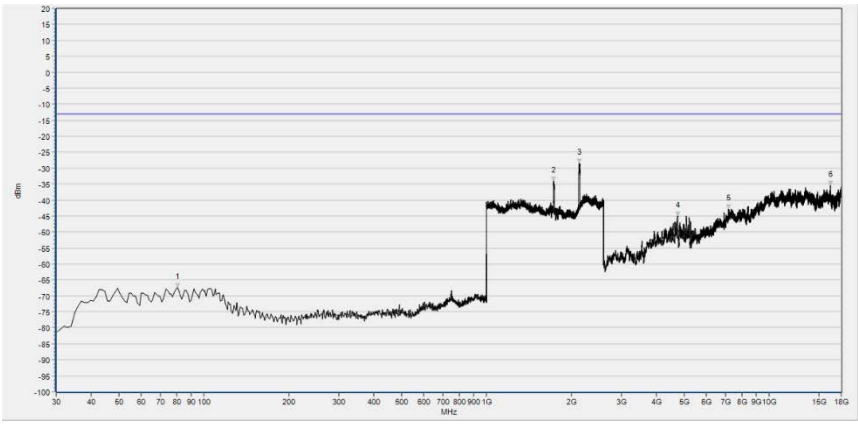


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	81.410	-67.07	-13.00	Horizontal	PASS
2	1693.397	-31.25	-13.00	Horizontal	N/A
3	2127.491	-29.07	-13.00	Horizontal	N/A
4	4731.187	-45.42	-13.00	Horizontal	PASS
5	7313.257	-42.59	-13.00	Horizontal	PASS
6	12429.787	-36.01	-13.00	Horizontal	PASS

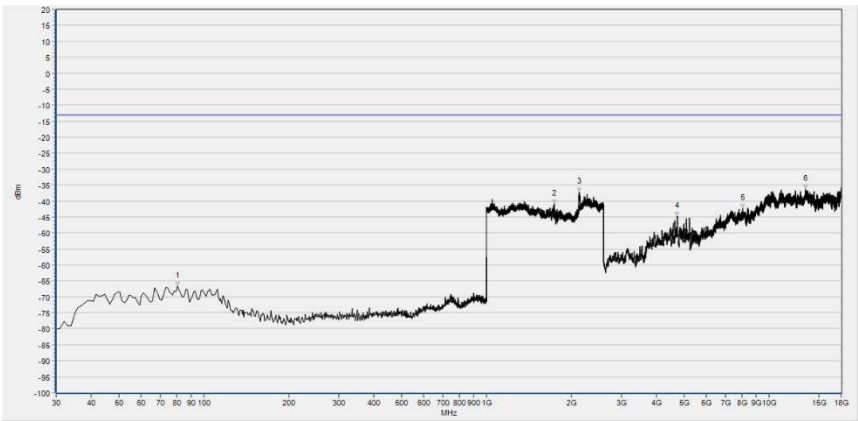


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	81.410	-65.39	-13.00	Vertical	PASS
2	1688.916	-39.98	-13.00	Vertical	N/A
3	2126.851	-39.45	-13.00	Vertical	N/A
4	4739.589	-44.79	-13.00	Vertical	PASS
5	7355.265	-42.58	-13.00	Vertical	PASS
6	13580.797	-36.05	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, Mid Channel, QPSK

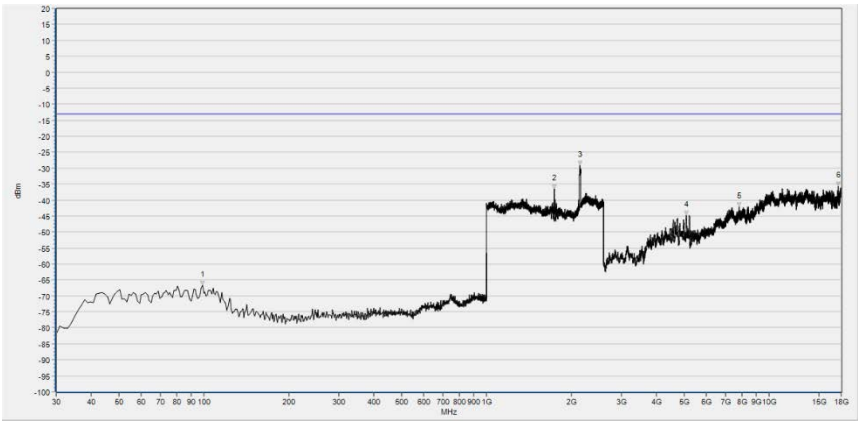


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-67.27	-13.00	Horizontal	PASS
2	1730.532	-34.01	-13.00	Horizontal	N/A
3	2129.412	-28.51	-13.00	Horizontal	N/A
4	4739.589	-45.11	-13.00	Horizontal	PASS
5	7198.436	-42.82	-13.00	Horizontal	PASS
6	16462.520	-35.34	-13.00	Horizontal	PASS

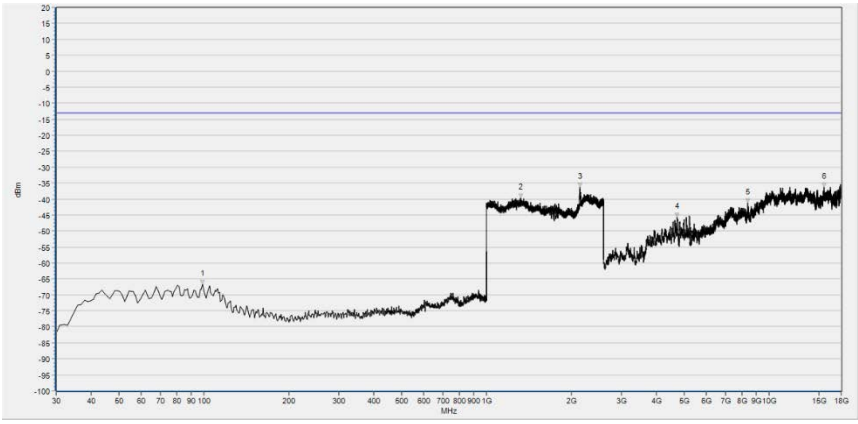


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.63	-13.00	Vertical	PASS
2	1733.093	-40.91	-13.00	Vertical	N/A
3	2133.894	-37.12	-13.00	Vertical	N/A
4	4736.789	-44.76	-13.00	Vertical	PASS
5	8080.596	-42.34	-13.00	Vertical	PASS
6	13474.377	-36.24	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, High Channel, QPSK

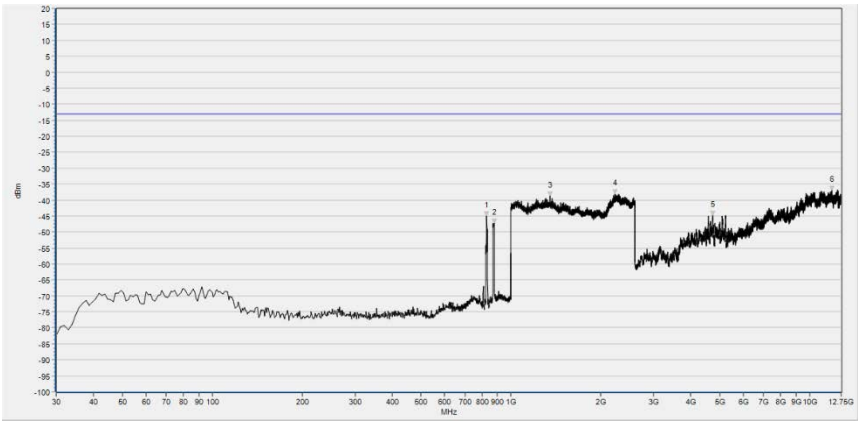


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	98.870	-66.80	-13.00	Horizontal	PASS
2	1736.935	-36.60	-13.00	Horizontal	N/A
3	2147.339	-29.07	-13.00	Horizontal	N/A
4	5103.655	-44.86	-13.00	Horizontal	PASS
5	7831.351	-42.02	-13.00	Horizontal	PASS
6	17585.525	-35.57	-13.00	Horizontal	PASS

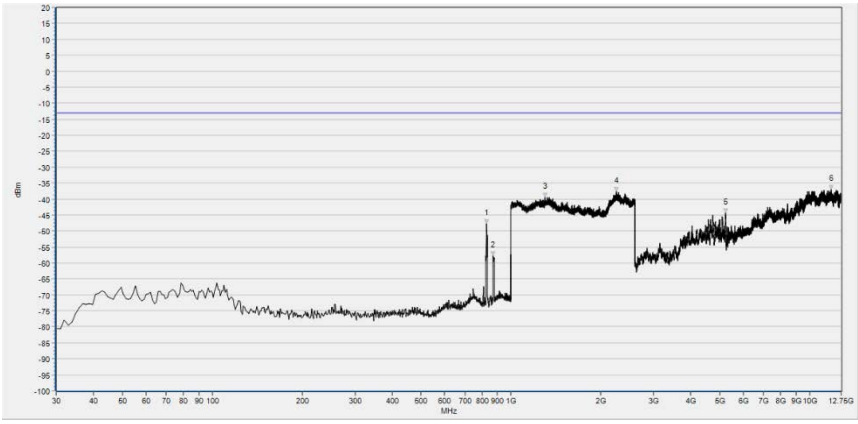


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	98.870	-66.81	-13.00	Vertical	PASS
2	1321.409	-39.65	-13.00	Vertical	PASS
3	2136.455	-36.26	-13.00	Vertical	N/A
4	4733.988	-45.74	-13.00	Vertical	PASS
5	8422.259	-41.25	-13.00	Vertical	PASS
6	15689.580	-36.33	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, Low Channel, QPSK

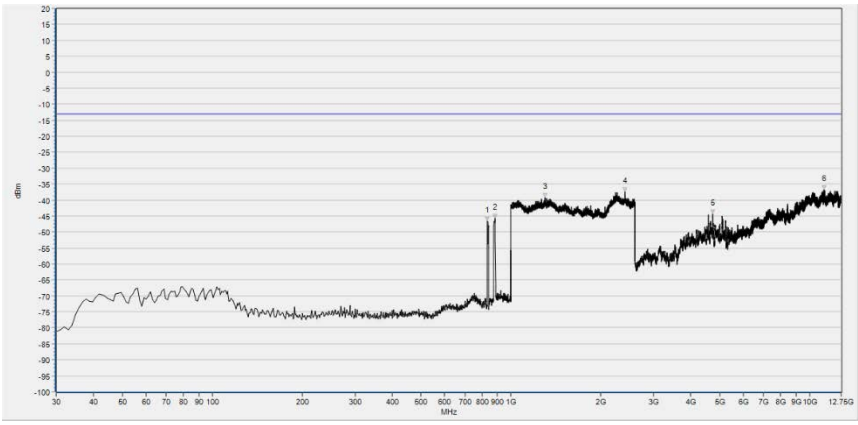


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	828.310	-45.14	-13.00	Horizontal	N/A
2	877.780	-47.35	-13.00	Horizontal	N/A
3	1352.141	-38.69	-13.00	Horizontal	PASS
4	2229.292	-38.10	-13.00	Horizontal	PASS
5	4737.425	-44.77	-13.00	Horizontal	PASS
6	11849.254	-37.07	-13.00	Horizontal	PASS

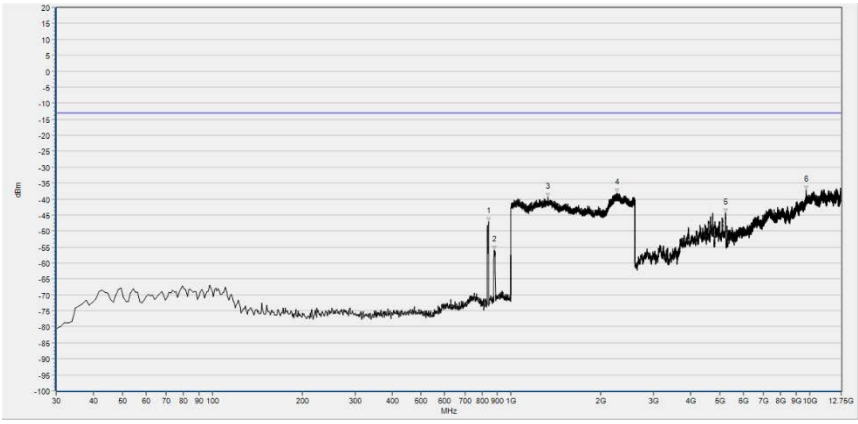


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	828.310	-47.66	-13.00	Vertical	N/A
2	871.960	-57.68	-13.00	Vertical	N/A
3	1300.920	-39.51	-13.00	Vertical	PASS
4	2258.743	-37.63	-13.00	Vertical	PASS
5	5230.251	-44.27	-13.00	Vertical	PASS
6	11804.955	-36.89	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, Mid Channel, QPSK

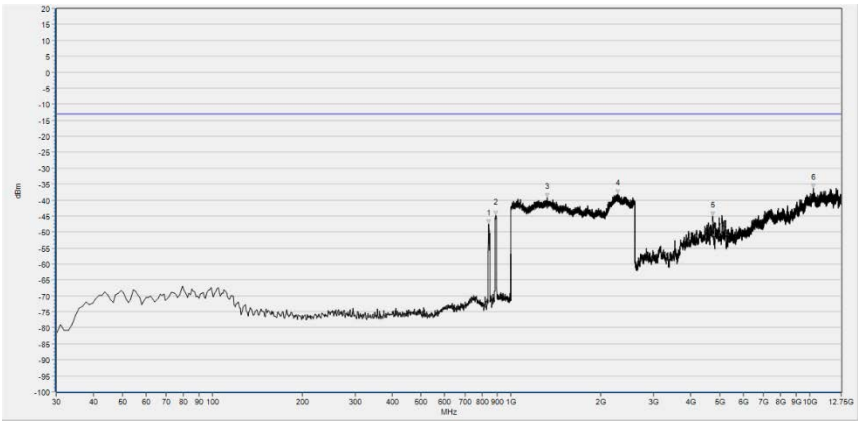


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	834.130	-46.69	-13.00	Horizontal	N/A
2	884.570	-45.70	-13.00	Horizontal	N/A
3	1299.000	-39.22	-13.00	Horizontal	PASS
4	2413.045	-37.49	-13.00	Horizontal	PASS
5	4742.962	-44.32	-13.00	Horizontal	PASS
6	11162.620	-36.74	-13.00	Horizontal	PASS

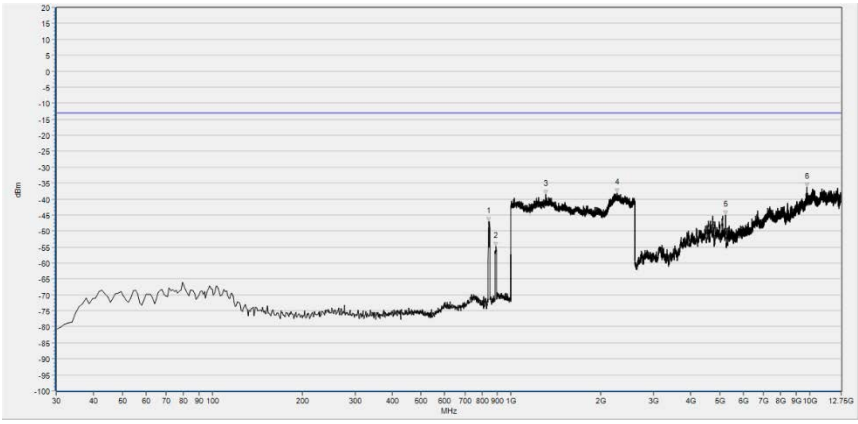


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	839.950	-47.00	-13.00	Vertical	N/A
2	877.780	-56.06	-13.00	Vertical	N/A
3	1332.293	-39.53	-13.00	Vertical	PASS
4	2270.268	-38.05	-13.00	Vertical	PASS
5	5226.559	-44.43	-13.00	Vertical	PASS
6	9752.437	-37.20	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, High Channel, QPSK

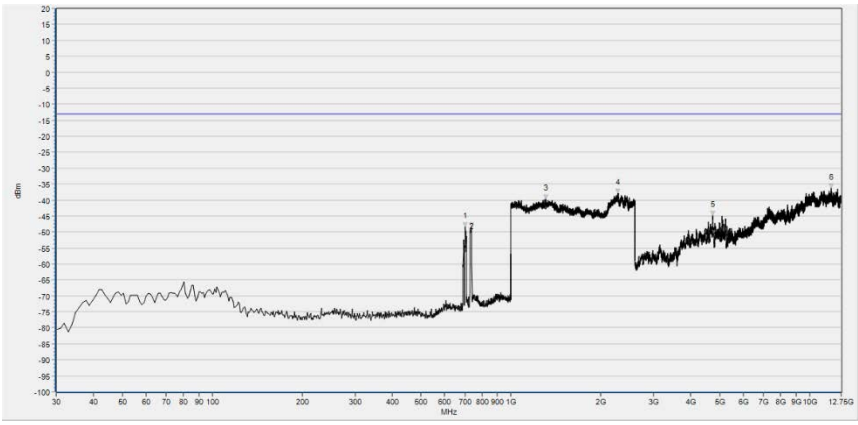


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	839.950	-47.58	-13.00	Horizontal	N/A
2	890.390	-44.90	-13.00	Horizontal	N/A
3	1323.970	-39.11	-13.00	Horizontal	PASS
4	2276.671	-38.09	-13.00	Horizontal	PASS
5	4741.117	-45.06	-13.00	Horizontal	PASS
6	10298.791	-36.39	-13.00	Horizontal	PASS

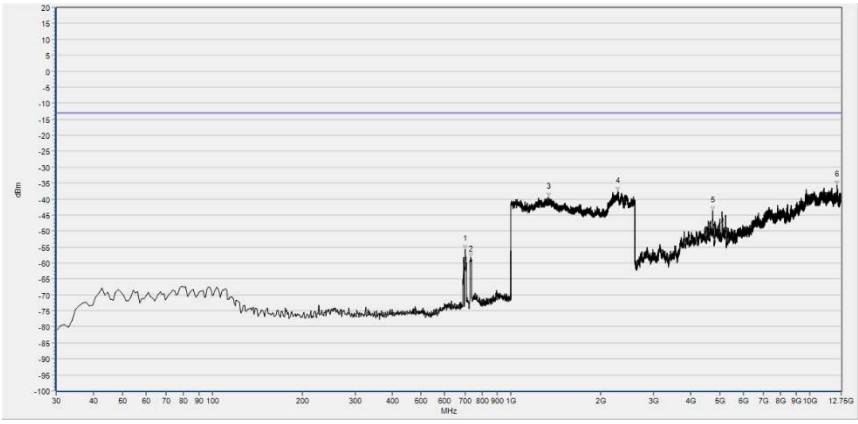


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	842.860	-47.14	-13.00	Vertical	N/A
2	891.360	-54.91	-13.00	Vertical	N/A
3	1307.963	-38.63	-13.00	Vertical	PASS
4	2266.427	-38.13	-13.00	Vertical	PASS
5	5230.251	-45.03	-13.00	Vertical	PASS
6	9769.049	-36.37	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, Low Channel, QPSK

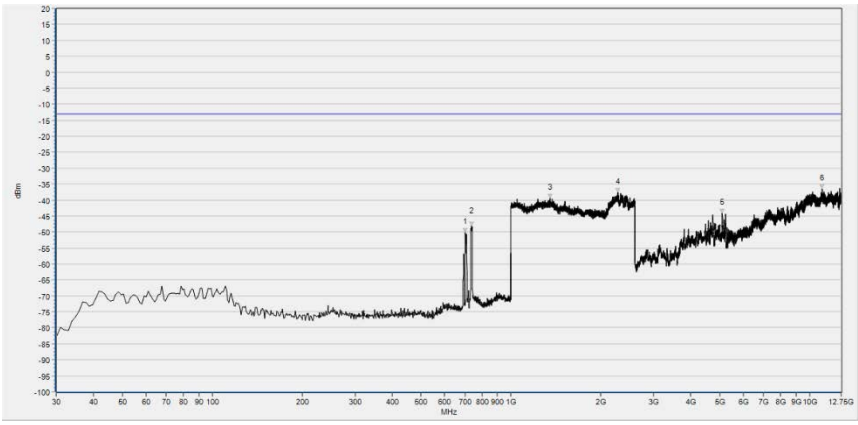


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	702.210	-48.48	-13.00	Horizontal	N/A
2	738.100	-48.37	-13.00	Horizontal	N/A
3	1306.042	-39.74	-13.00	Horizontal	PASS
4	2279.232	-37.96	-13.00	Horizontal	PASS
5	4741.117	-44.82	-13.00	Horizontal	PASS
6	11801.264	-36.36	-13.00	Horizontal	PASS

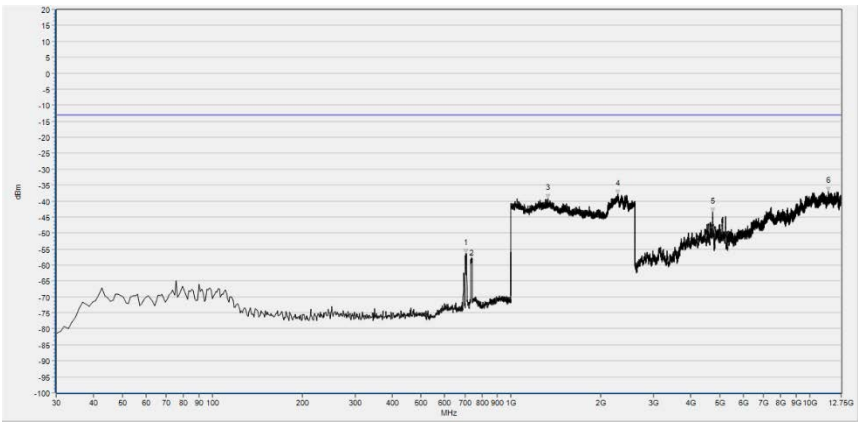


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	702.210	-55.70	-13.00	Vertical	N/A
2	734.220	-58.23	-13.00	Vertical	N/A
3	1337.415	-39.52	-13.00	Vertical	PASS
4	2278.591	-37.61	-13.00	Vertical	PASS
5	4741.117	-43.60	-13.00	Vertical	PASS
6	12369.767	-35.55	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, Mid Channel, QPSK

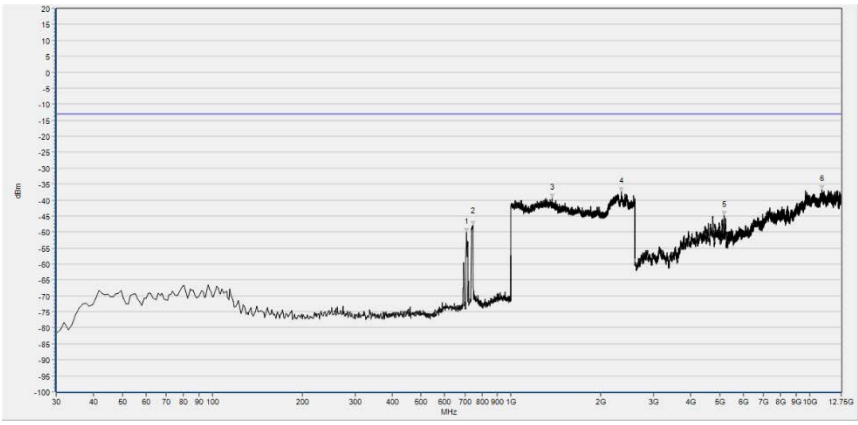


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	703.180	-50.16	-13.00	Horizontal	N/A
2	738.100	-48.23	-13.00	Horizontal	N/A
3	1352.781	-39.43	-13.00	Horizontal	PASS
4	2277.311	-37.65	-13.00	Horizontal	PASS
5	5101.046	-44.04	-13.00	Horizontal	PASS
6	11018.649	-36.58	-13.00	Horizontal	PASS

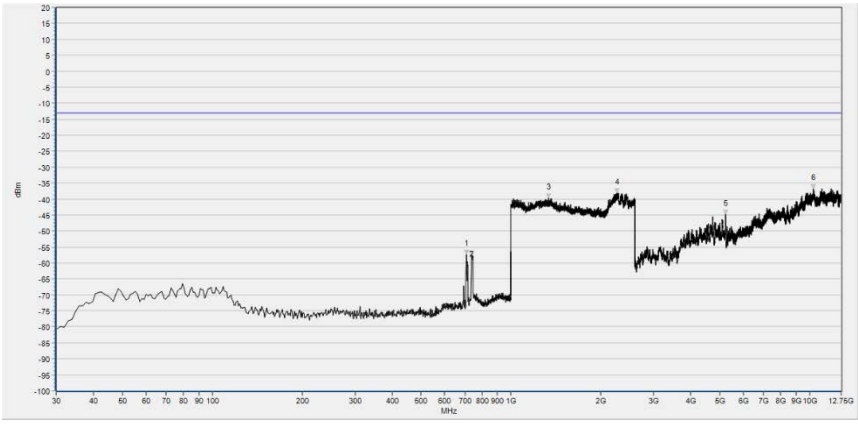


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	705.120	-56.51	-13.00	Vertical	N/A
2	739.070	-57.79	-13.00	Vertical	N/A
3	1332.293	-39.33	-13.00	Vertical	PASS
4	2272.829	-37.96	-13.00	Vertical	PASS
5	4741.117	-43.47	-13.00	Vertical	PASS
6	11520.704	-36.94	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, High Channel, QPSK

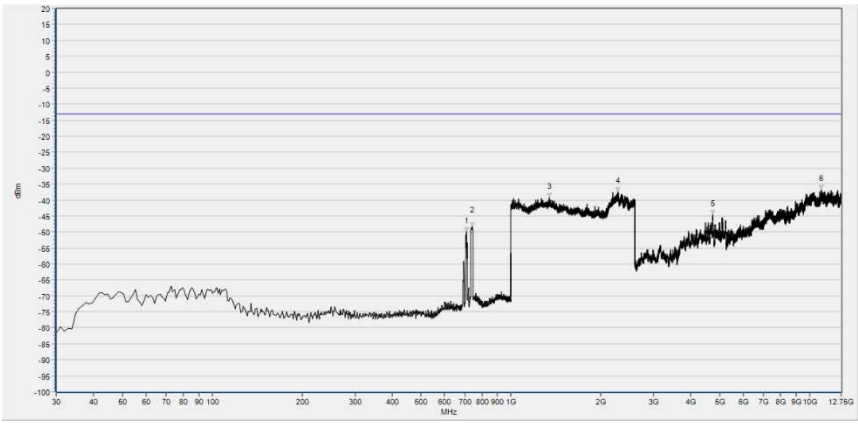


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-50.14	-13.00	Horizontal	N/A
2	743.920	-47.86	-13.00	Horizontal	N/A
3	1373.269	-39.53	-13.00	Horizontal	PASS
4	2338.776	-37.51	-13.00	Horizontal	PASS
5	5176.723	-44.72	-13.00	Horizontal	PASS
6	10981.733	-36.86	-13.00	Horizontal	PASS

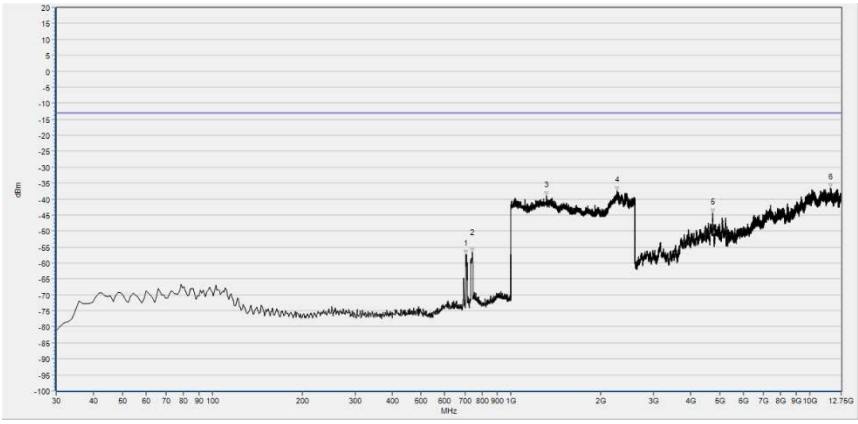


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-57.27	-13.00	Vertical	N/A
2	738.100	-57.58	-13.00	Vertical	N/A
3	1335.494	-39.68	-13.00	Vertical	PASS
4	2265.786	-38.18	-13.00	Vertical	PASS
5	5228.405	-44.88	-13.00	Vertical	PASS
6	10271.104	-36.77	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, Low Channel, QPSK

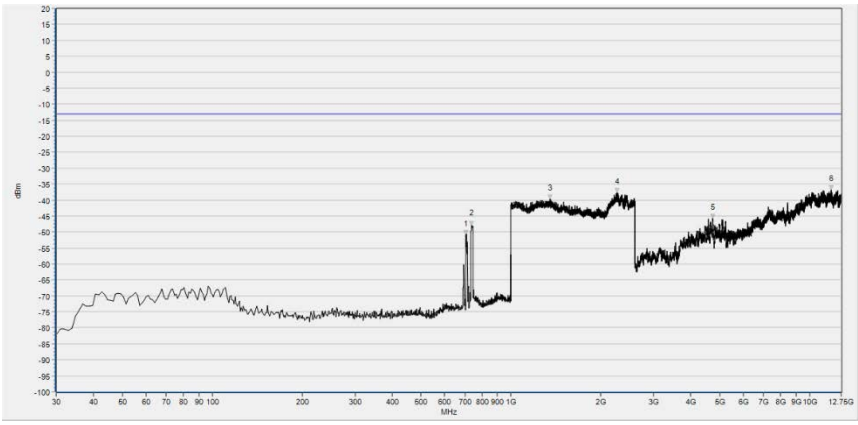


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-50.05	-13.00	Horizontal	N/A
2	741.980	-48.38	-13.00	Horizontal	N/A
3	1345.738	-39.29	-13.00	Horizontal	PASS
4	2277.311	-37.37	-13.00	Horizontal	PASS
5	4742.962	-44.58	-13.00	Horizontal	PASS
6	10959.584	-36.82	-13.00	Horizontal	PASS

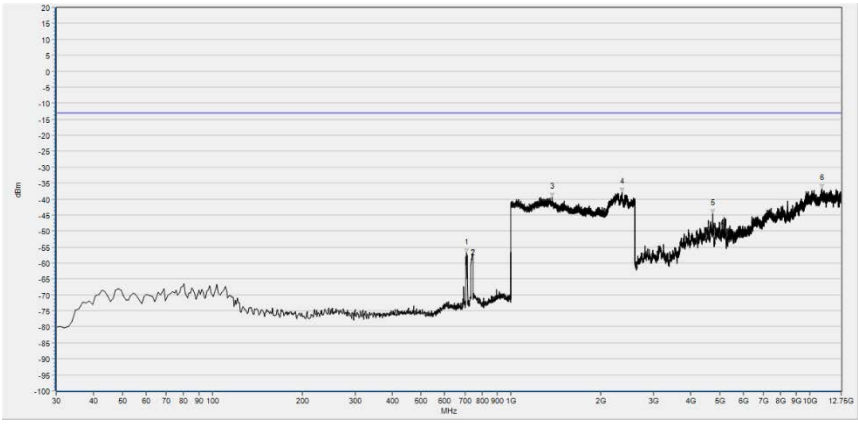


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	705.120	-57.35	-13.00	Vertical	N/A
2	741.980	-56.65	-13.00	Vertical	N/A
3	1316.287	-39.04	-13.00	Vertical	PASS
4	2260.664	-37.52	-13.00	Vertical	PASS
5	4741.117	-44.42	-13.00	Vertical	PASS
6	11710.820	-36.63	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, Mid Channel, QPSK

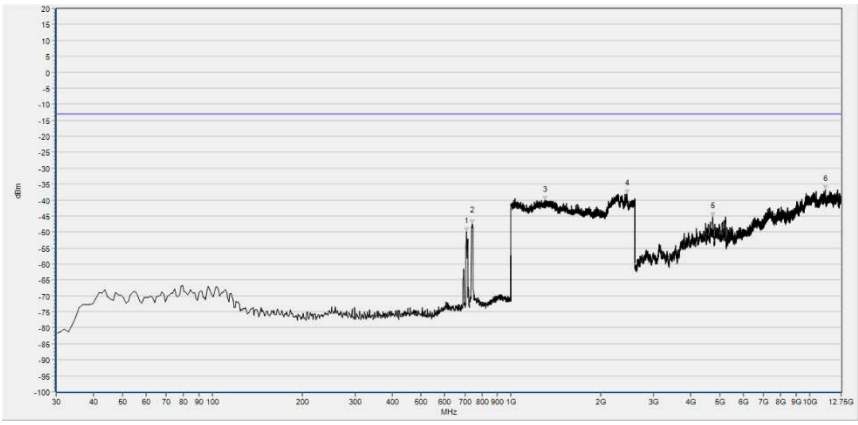


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	706.090	-50.76	-13.00	Horizontal	N/A
2	739.070	-47.89	-13.00	Horizontal	N/A
3	1352.781	-39.60	-13.00	Horizontal	PASS
4	2263.225	-37.58	-13.00	Horizontal	PASS
5	4742.962	-45.72	-13.00	Horizontal	PASS
6	11775.423	-36.79	-13.00	Horizontal	PASS

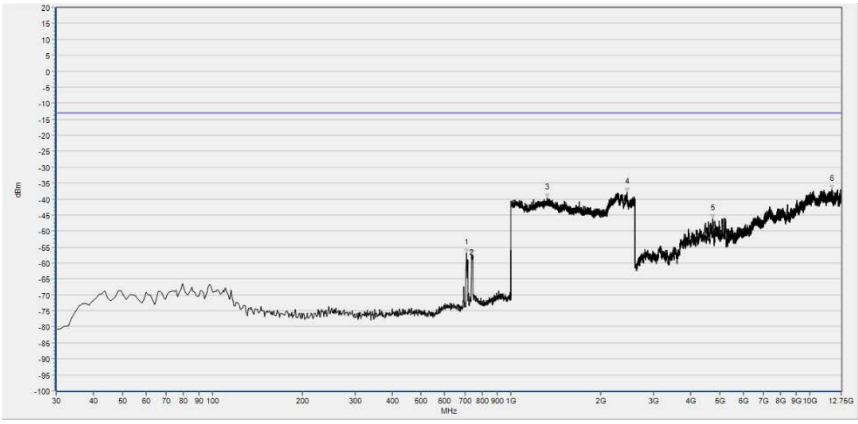


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-56.97	-13.00	Vertical	N/A
2	743.920	-57.10	-13.00	Vertical	N/A
3	1371.989	-39.54	-13.00	Vertical	PASS
4	2352.861	-37.87	-13.00	Vertical	PASS
5	4741.117	-44.52	-13.00	Vertical	PASS
6	11009.420	-36.85	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, High Channel, QPSK

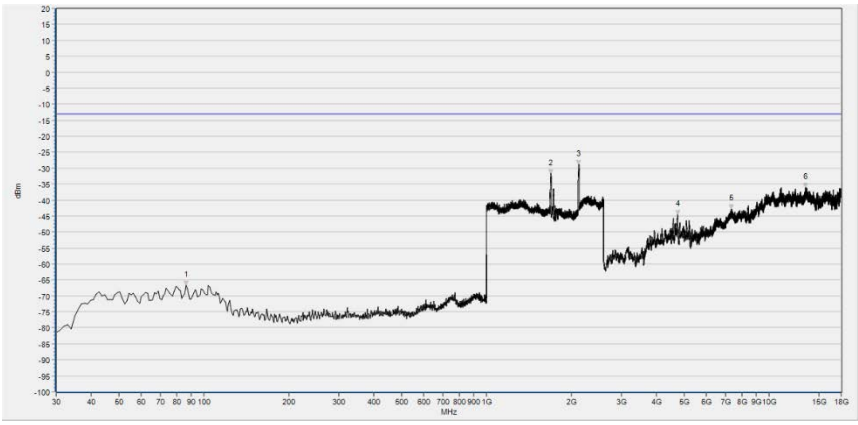


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-49.95	-13.00	Horizontal	N/A
2	742.950	-47.50	-13.00	Horizontal	N/A
3	1297.079	-40.02	-13.00	Horizontal	PASS
4	2443.137	-37.99	-13.00	Horizontal	PASS
5	4741.117	-45.20	-13.00	Horizontal	PASS
6	11310.284	-36.72	-13.00	Horizontal	PASS

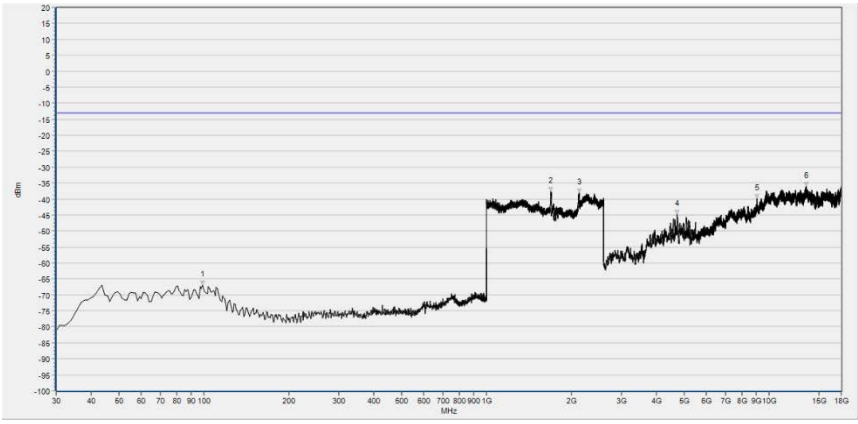


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-56.94	-13.00	Vertical	N/A
2	738.100	-57.38	-13.00	Vertical	N/A
3	1323.970	-39.70	-13.00	Vertical	PASS
4	2448.259	-37.84	-13.00	Vertical	PASS
5	4739.271	-46.20	-13.00	Vertical	PASS
6	11838.180	-36.92	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, Low Channel, QPSK

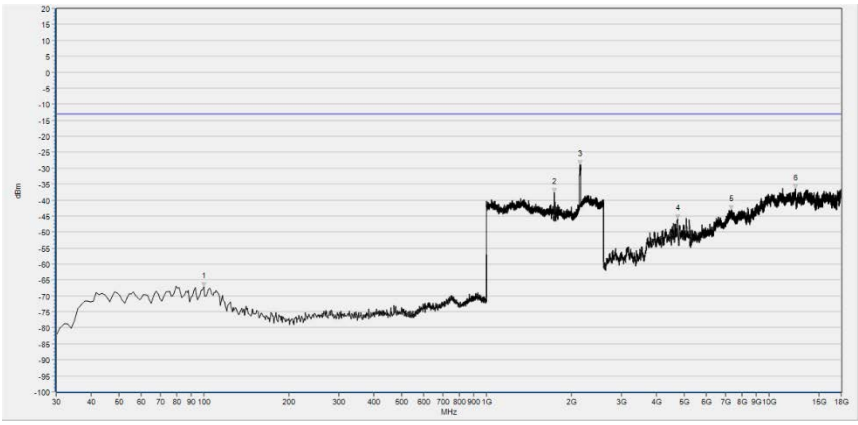


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	86.260	-66.68	-13.00	Horizontal	PASS
2	1692.117	-31.95	-13.00	Horizontal	N/A
3	2123.649	-28.83	-13.00	Horizontal	N/A
4	4747.991	-44.48	-13.00	Horizontal	PASS
5	7349.664	-42.77	-13.00	Horizontal	PASS
6	13477.178	-36.08	-13.00	Horizontal	PASS

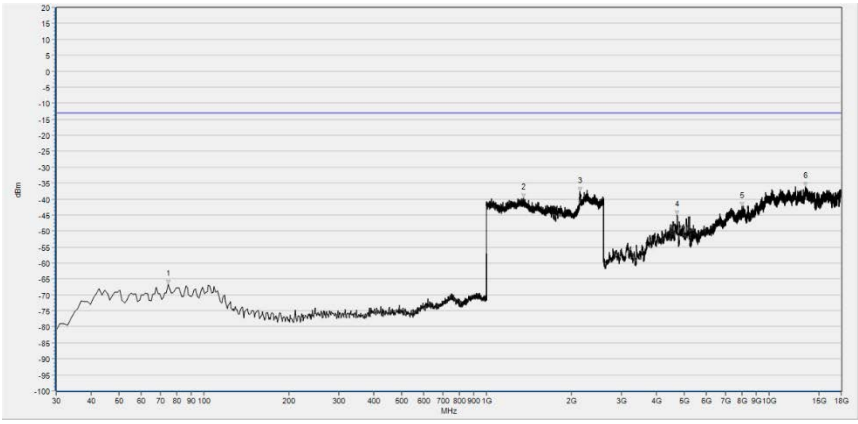


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	98.870	-66.85	-13.00	Vertical	PASS
2	1690.836	-37.73	-13.00	Vertical	N/A
3	2126.210	-38.11	-13.00	Vertical	N/A
4	4736.789	-44.76	-13.00	Vertical	PASS
5	9085.979	-39.80	-13.00	Vertical	PASS
6	13510.784	-36.10	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, Mid Channel, QPSK

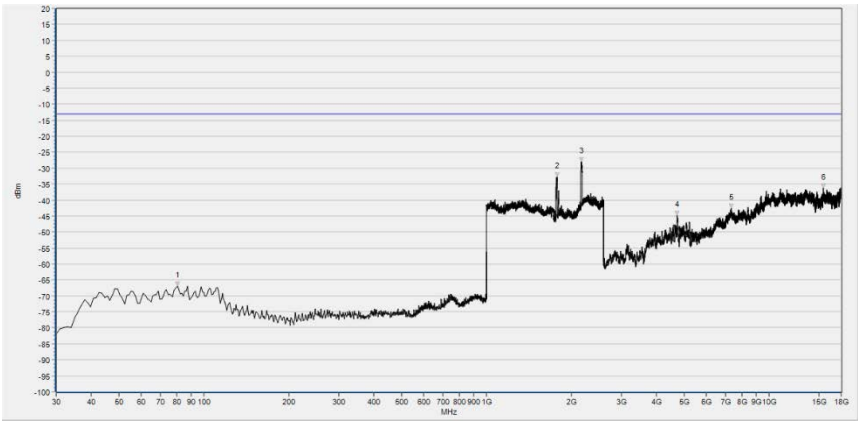


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	99.840	-67.20	-13.00	Horizontal	PASS
2	1736.295	-37.73	-13.00	Horizontal	N/A
3	2146.058	-28.83	-13.00	Horizontal	N/A
4	4739.589	-45.84	-13.00	Horizontal	PASS
5	7344.063	-43.10	-13.00	Horizontal	PASS
6	12370.977	-36.62	-13.00	Horizontal	PASS

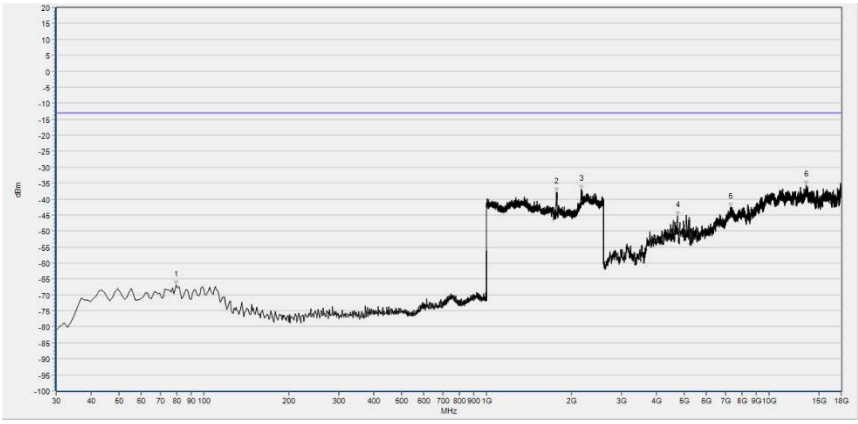


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	74.620	-66.61	-13.00	Vertical	PASS
2	1349.580	-39.69	-13.00	Vertical	PASS
3	2144.778	-37.67	-13.00	Vertical	N/A
4	4736.789	-45.02	-13.00	Vertical	PASS
5	8035.788	-42.29	-13.00	Vertical	PASS
6	13493.981	-36.13	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, High Channel, QPSK



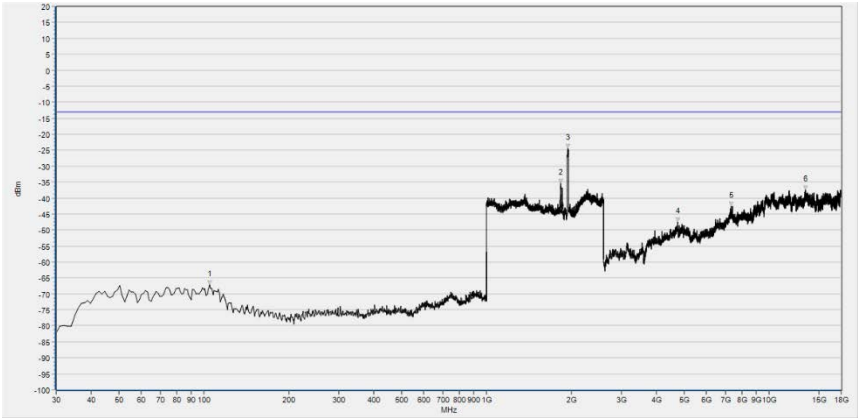
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.95	-13.00	Horizontal	PASS
2	1775.350	-32.77	-13.00	Horizontal	N/A
3	2168.467	-28.04	-13.00	Horizontal	N/A
4	4736.789	-44.81	-13.00	Horizontal	PASS
5	7352.464	-42.48	-13.00	Horizontal	PASS
6	15591.562	-36.29	-13.00	Horizontal	PASS



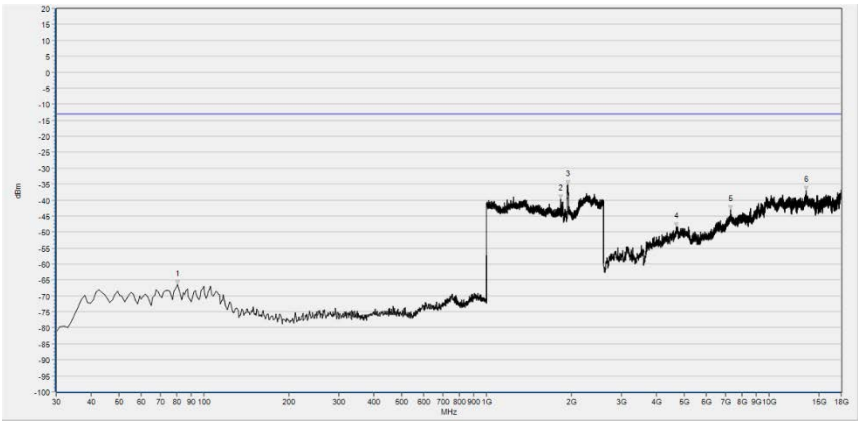
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	79.470	-66.88	-13.00	Vertical	PASS
2	1767.027	-37.85	-13.00	Vertical	N/A
3	2166.547	-36.96	-13.00	Vertical	N/A
4	4739.589	-45.28	-13.00	Vertical	PASS
5	7307.656	-42.58	-13.00	Vertical	PASS
6	13569.594	-35.56	-13.00	Vertical	PASS

Bottom Antenna

LTE Band 2, 20MHz BW, Low Channel, QPSK

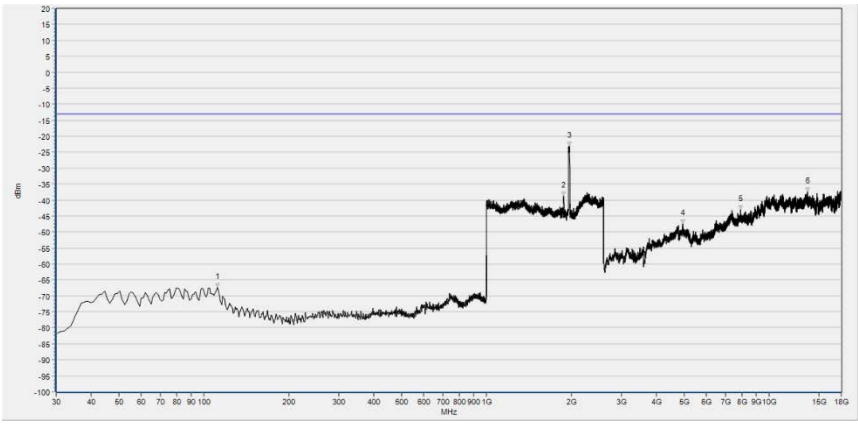


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	104.690	-67.04	-13.00	Horizontal	PASS
2	1832.333	-35.39	-13.00	Horizontal	N/A
3	1942.457	-24.46	-13.00	Horizontal	N/A
4	4739.589	-47.51	-13.00	Horizontal	PASS
5	7330.060	-42.68	-13.00	Horizontal	PASS
6	13451.973	-37.45	-13.00	Horizontal	PASS

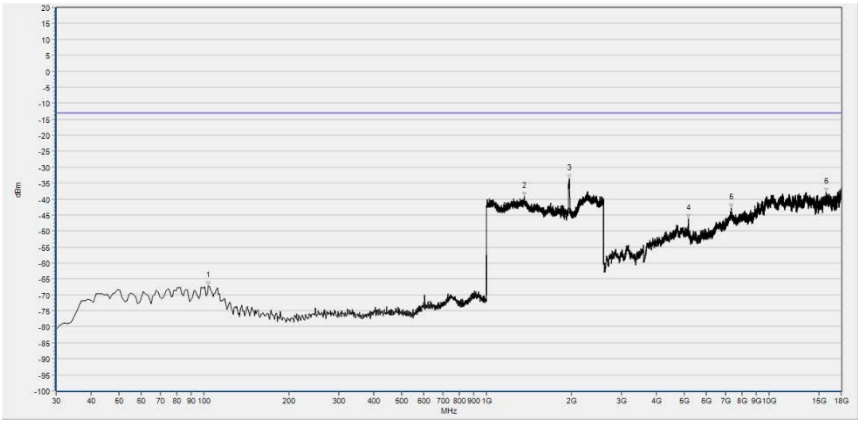


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.42	-13.00	Vertical	PASS
2	1833.613	-39.70	-13.00	Vertical	N/A
3	1940.536	-35.13	-13.00	Vertical	N/A
4	4705.983	-48.30	-13.00	Vertical	PASS
5	7307.656	-42.94	-13.00	Vertical	PASS
6	13519.185	-37.00	-13.00	Vertical	PASS

LTE Band 2, 20MHz BW, Mid Channel, QPSK

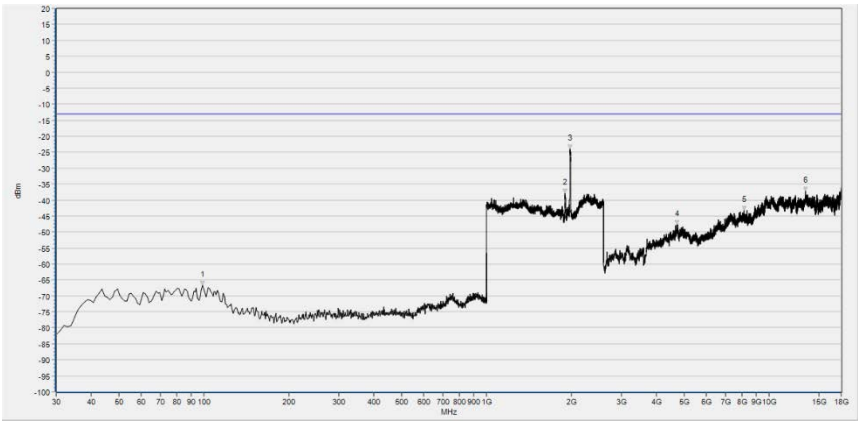


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	111.480	-67.33	-13.00	Horizontal	PASS
2	1875.870	-38.84	-13.00	Horizontal	N/A
3	1961.024	-23.23	-13.00	Horizontal	N/A
4	4955.228	-47.60	-13.00	Horizontal	PASS
5	7948.973	-42.94	-13.00	Horizontal	PASS
6	13681.615	-37.52	-13.00	Horizontal	PASS

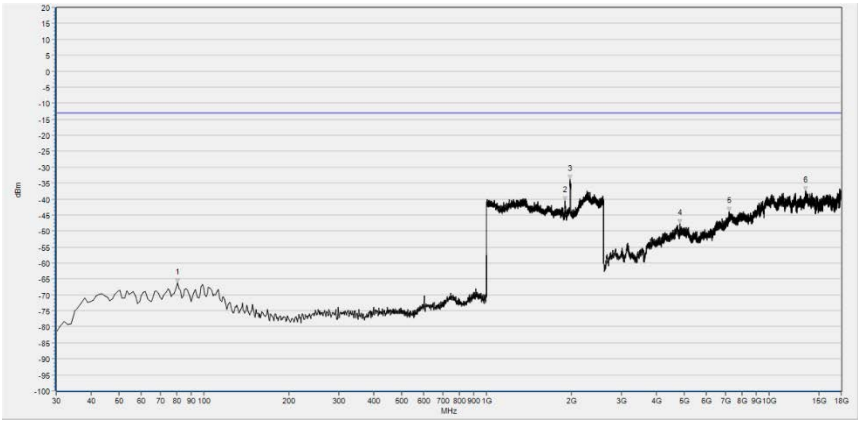


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	103.720	-67.19	-13.00	Vertical	PASS
2	1364.306	-39.23	-13.00	Vertical	PASS
3	1962.305	-33.62	-13.00	Vertical	N/A
4	5187.670	-46.08	-13.00	Vertical	PASS
5	7338.462	-42.86	-13.00	Vertical	PASS
6	15964.030	-37.97	-13.00	Vertical	PASS

LTE Band 2, 20MHz BW, High Channel, QPSK

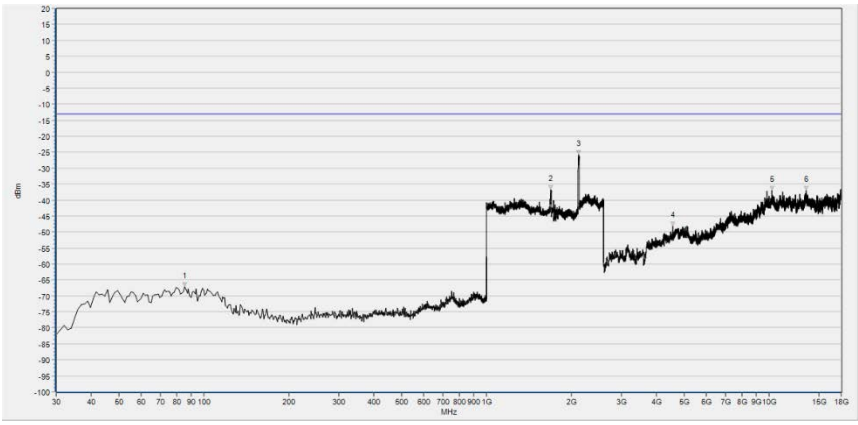


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	98.870	-66.72	-13.00	Horizontal	PASS
2	1896.999	-37.83	-13.00	Horizontal	N/A
3	1977.671	-24.08	-13.00	Horizontal	N/A
4	4728.387	-47.72	-13.00	Horizontal	PASS
5	8170.213	-43.26	-13.00	Horizontal	PASS
6	13491.180	-37.14	-13.00	Horizontal	PASS

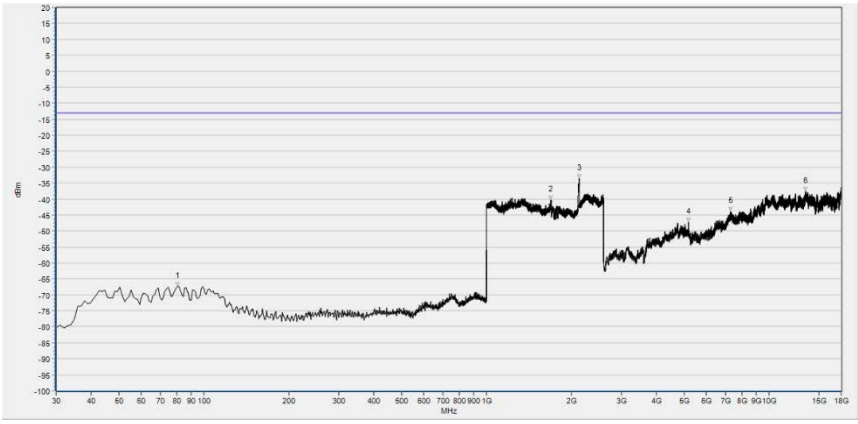


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.17	-13.00	Vertical	PASS
2	1900.200	-40.61	-13.00	Vertical	N/A
3	1977.671	-33.92	-13.00	Vertical	N/A
4	4843.208	-47.69	-13.00	Vertical	PASS
5	7223.641	-44.02	-13.00	Vertical	PASS
6	13468.776	-37.51	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, Low Channel, QPSK

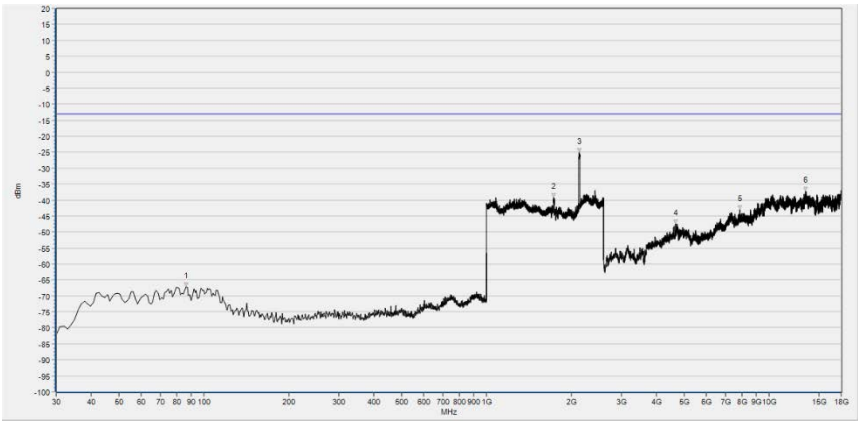


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	85.290	-67.09	-13.00	Horizontal	PASS
2	1689.556	-36.83	-13.00	Horizontal	PASS
3	2118.527	-25.81	-13.00	Horizontal	N/A
4	4568.758	-48.26	-13.00	Horizontal	PASS
5	10242.590	-36.90	-13.00	Horizontal	PASS
6	13566.794	-37.03	-13.00	Horizontal	PASS

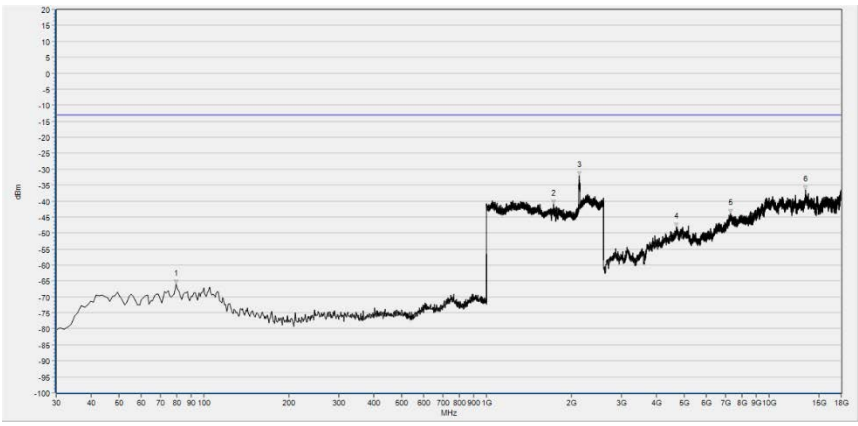


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-67.47	-13.00	Vertical	PASS
2	1688.916	-40.38	-13.00	Vertical	PASS
3	2126.851	-33.67	-13.00	Vertical	N/A
4	5173.668	-47.29	-13.00	Vertical	PASS
5	7299.254	-44.00	-13.00	Vertical	PASS
6	13451.973	-37.69	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, Mid Channel, QPSK

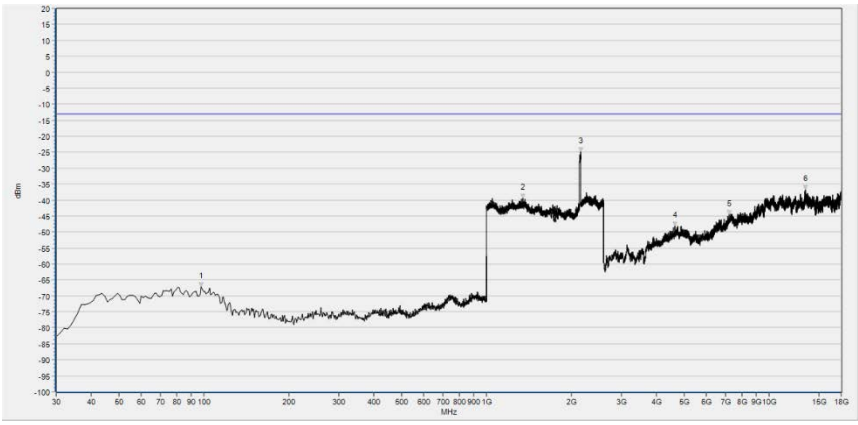


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	86.260	-67.25	-13.00	Horizontal	PASS
2	1732.453	-39.22	-13.00	Horizontal	N/A
3	2125.570	-25.03	-13.00	Horizontal	N/A
4	4677.978	-47.41	-13.00	Horizontal	PASS
5	7870.558	-42.96	-13.00	Horizontal	PASS
6	13463.175	-37.15	-13.00	Horizontal	PASS

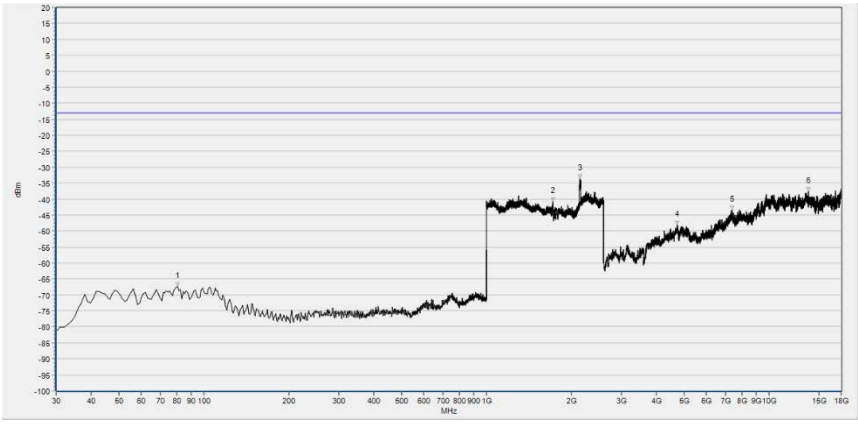


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	79.470	-66.11	-13.00	Vertical	PASS
2	1729.252	-41.04	-13.00	Vertical	N/A
3	2126.210	-32.09	-13.00	Vertical	N/A
4	4700.382	-48.09	-13.00	Vertical	PASS
5	7313.257	-43.99	-13.00	Vertical	PASS
6	13496.781	-36.48	-13.00	Vertical	PASS

LTE Band 4, 20MHz BW, High Channel, QPSK

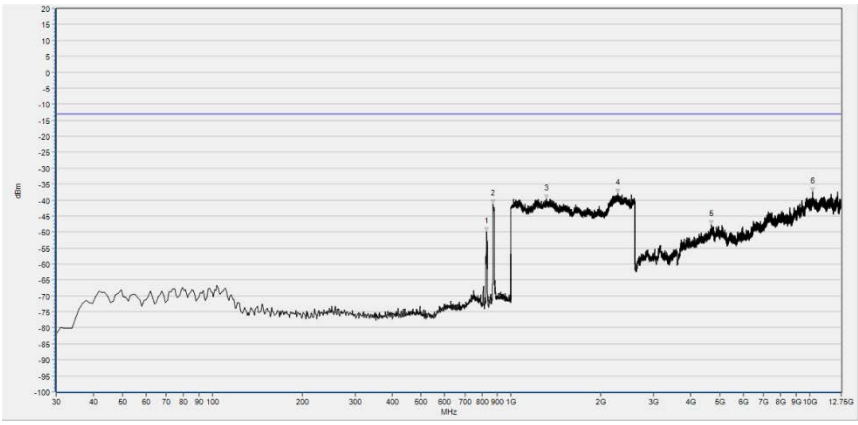


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	97.900	-67.13	-13.00	Horizontal	PASS
2	1347.659	-39.39	-13.00	Horizontal	PASS
3	2151.180	-24.89	-13.00	Horizontal	N/A
4	4638.771	-48.10	-13.00	Horizontal	PASS
5	7223.641	-44.53	-13.00	Horizontal	PASS
6	13482.779	-36.75	-13.00	Horizontal	PASS

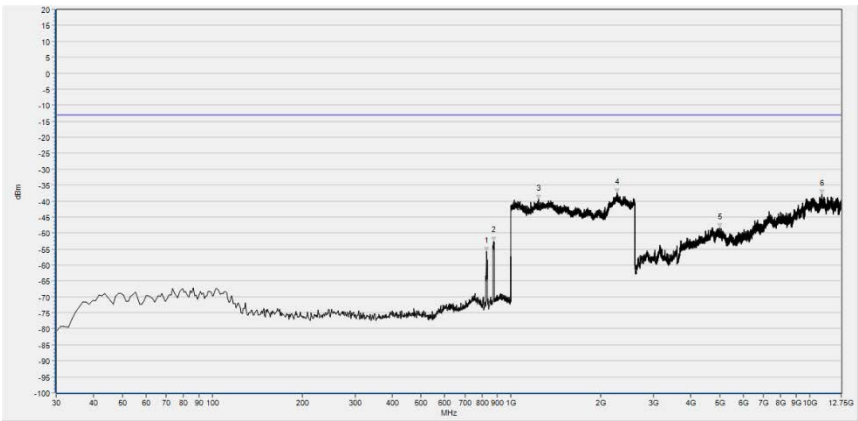


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-67.32	-13.00	Vertical	PASS
2	1713.245	-40.76	-13.00	Vertical	PASS
3	2144.138	-33.61	-13.00	Vertical	N/A
4	4736.789	-48.27	-13.00	Vertical	PASS
5	7402.873	-43.48	-13.00	Vertical	PASS
6	13774.032	-37.65	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, Low Channel, QPSK

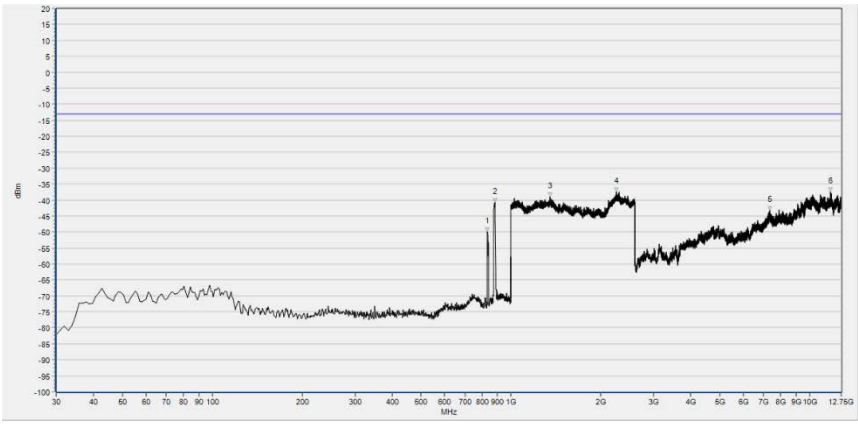


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	828.310	-49.89	-13.00	Horizontal	N/A
2	871.960	-41.22	-13.00	Horizontal	N/A
3	1311.805	-39.69	-13.00	Horizontal	PASS
4	2276.671	-37.80	-13.00	Horizontal	PASS
5	4691.280	-47.63	-13.00	Horizontal	PASS
6	10232.342	-37.33	-13.00	Horizontal	PASS

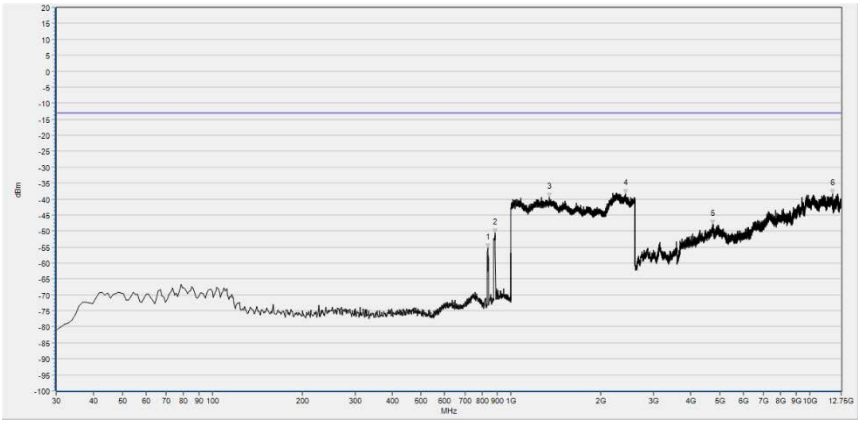


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	827.340	-55.71	-13.00	Vertical	N/A
2	876.810	-52.56	-13.00	Vertical	N/A
3	1235.614	-39.38	-13.00	Vertical	PASS
4	2260.024	-37.44	-13.00	Vertical	PASS
5	5012.448	-48.48	-13.00	Vertical	PASS
6	10998.345	-37.88	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, Mid Channel, QPSK

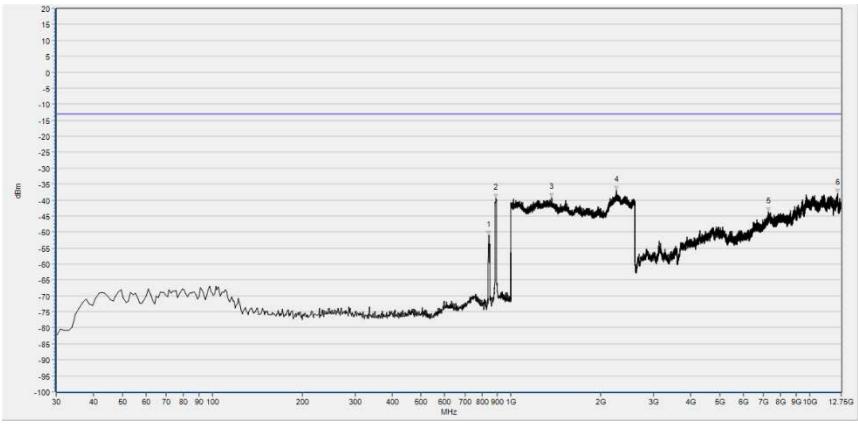


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	834.130	-49.86	-13.00	Horizontal	N/A
2	883.600	-40.74	-13.00	Horizontal	N/A
3	1353.421	-38.97	-13.00	Horizontal	PASS
4	2257.463	-37.34	-13.00	Horizontal	PASS
5	7360.293	-43.31	-13.00	Horizontal	PASS
6	11769.885	-37.33	-13.00	Horizontal	PASS

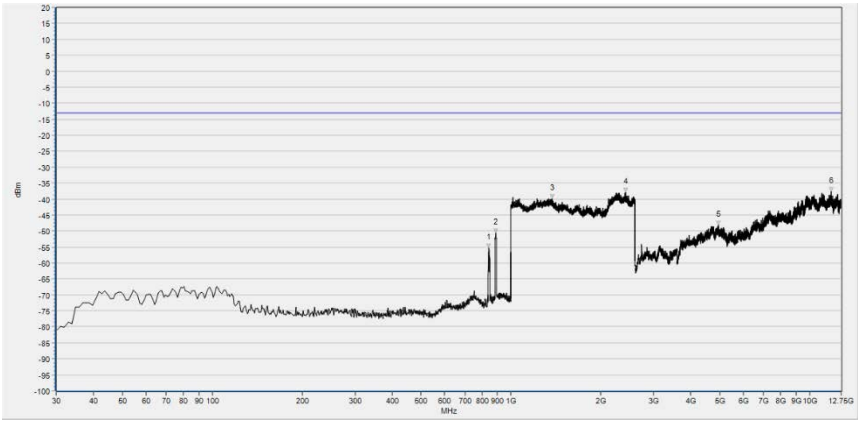


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	835.100	-55.25	-13.00	Vertical	N/A
2	884.570	-50.64	-13.00	Vertical	N/A
3	1341.897	-39.52	-13.00	Vertical	PASS
4	2414.326	-38.44	-13.00	Vertical	PASS
5	4741.117	-48.01	-13.00	Vertical	PASS
6	11917.549	-38.40	-13.00	Vertical	PASS

LTE Band 5, 10MHz BW, High Channel, QPSK

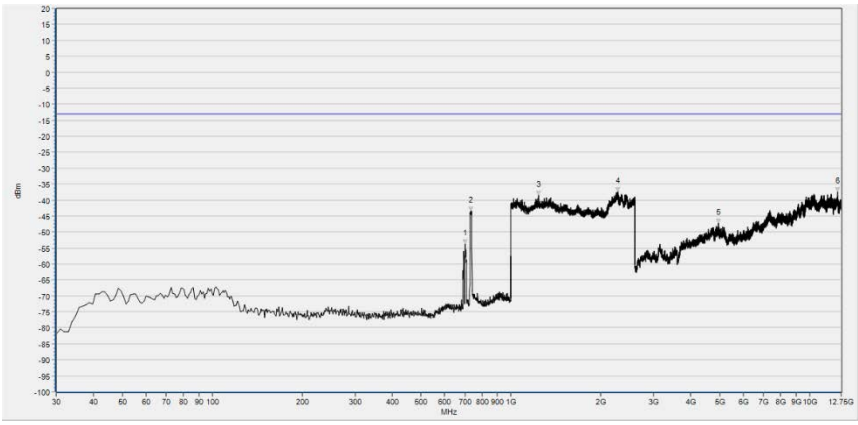


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	843.830	-51.14	-13.00	Horizontal	N/A
2	889.420	-39.43	-13.00	Horizontal	N/A
3	1369.428	-39.23	-13.00	Horizontal	PASS
4	2258.103	-37.09	-13.00	Horizontal	PASS
5	7288.307	-43.65	-13.00	Horizontal	PASS
6	12395.608	-37.91	-13.00	Horizontal	PASS

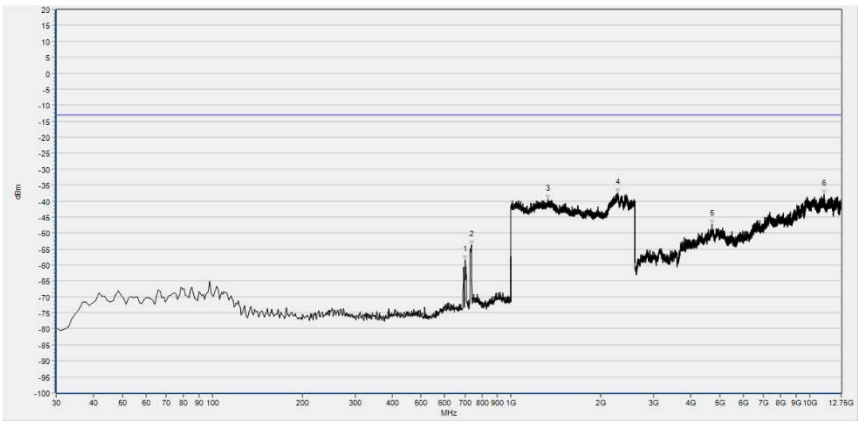


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	843.830	-55.23	-13.00	Vertical	N/A
2	888.450	-50.66	-13.00	Vertical	N/A
3	1376.471	-39.90	-13.00	Vertical	PASS
4	2420.728	-37.79	-13.00	Vertical	PASS
5	4938.616	-48.19	-13.00	Vertical	PASS
6	11797.572	-37.74	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, Low Channel, QPSK

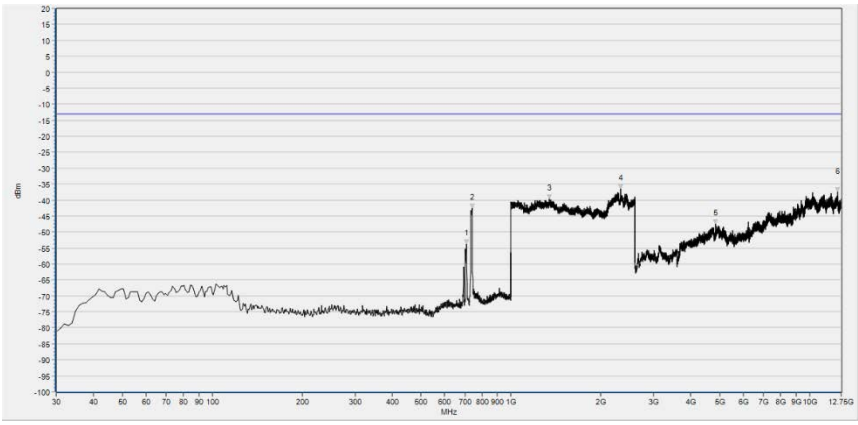


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	702.210	-53.78	-13.00	Horizontal	N/A
2	732.280	-43.53	-13.00	Horizontal	N/A
3	1237.535	-38.64	-13.00	Horizontal	PASS
4	2273.469	-37.40	-13.00	Horizontal	PASS
5	4957.074	-47.16	-13.00	Horizontal	PASS
6	12408.529	-37.38	-13.00	Horizontal	PASS

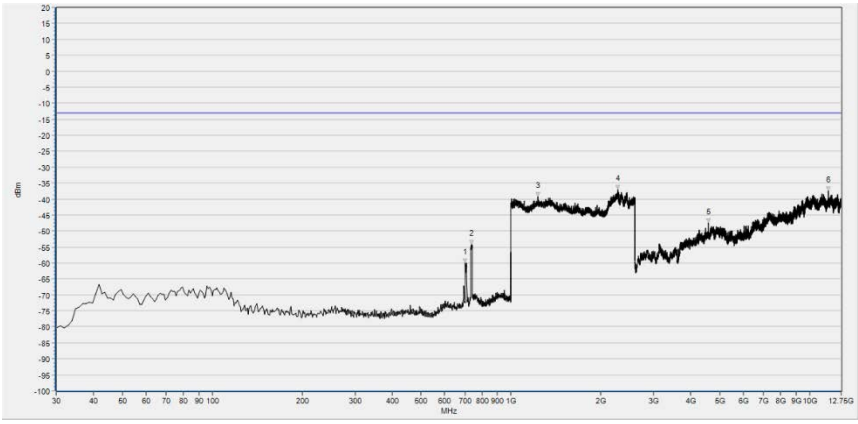


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	702.210	-58.40	-13.00	Vertical	N/A
2	736.160	-53.63	-13.00	Vertical	N/A
3	1326.531	-39.38	-13.00	Vertical	PASS
4	2277.951	-37.53	-13.00	Vertical	PASS
5	4709.738	-47.28	-13.00	Vertical	PASS
6	11201.382	-37.92	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, Mid Channel, QPSK

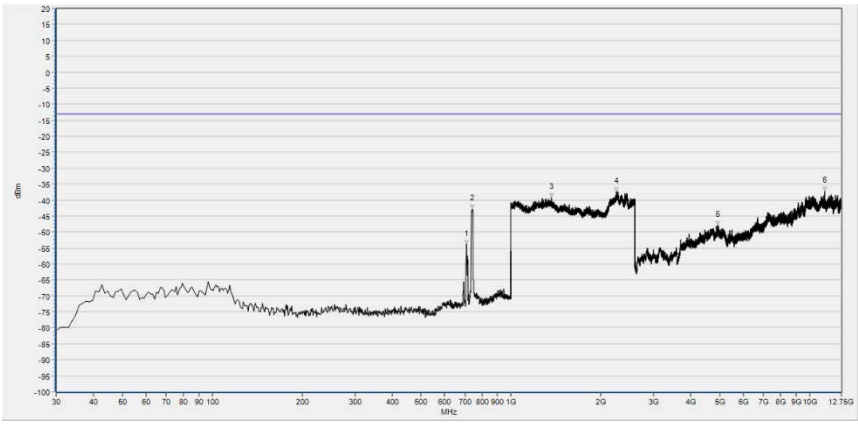


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.970	-53.75	-13.00	Horizontal	N/A
2	741.010	-42.59	-13.00	Horizontal	N/A
3	1343.177	-39.59	-13.00	Horizontal	PASS
4	2332.373	-36.52	-13.00	Horizontal	PASS
5	4842.635	-47.48	-13.00	Horizontal	PASS
6	12388.225	-37.42	-13.00	Horizontal	PASS

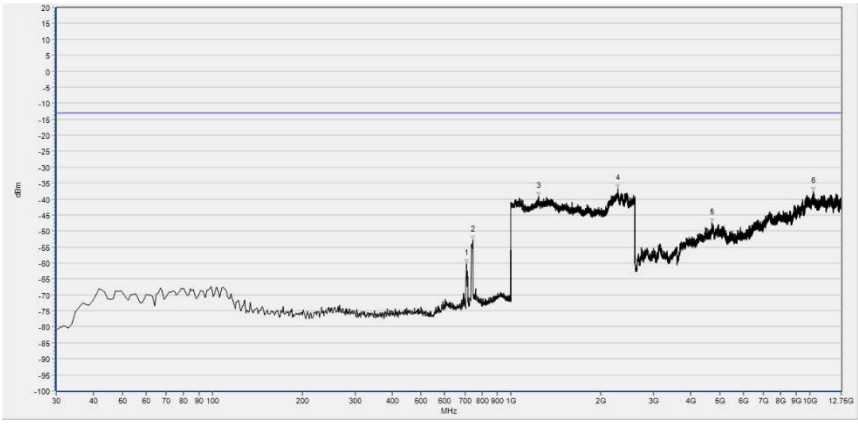


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	703.180	-59.91	-13.00	Vertical	N/A
2	736.160	-54.16	-13.00	Vertical	N/A
3	1229.212	-39.27	-13.00	Vertical	PASS
4	2277.951	-37.05	-13.00	Vertical	PASS
5	4578.687	-47.56	-13.00	Vertical	PASS
6	11555.774	-37.41	-13.00	Vertical	PASS

LTE Band 12, 10MHz BW, High Channel, QPSK

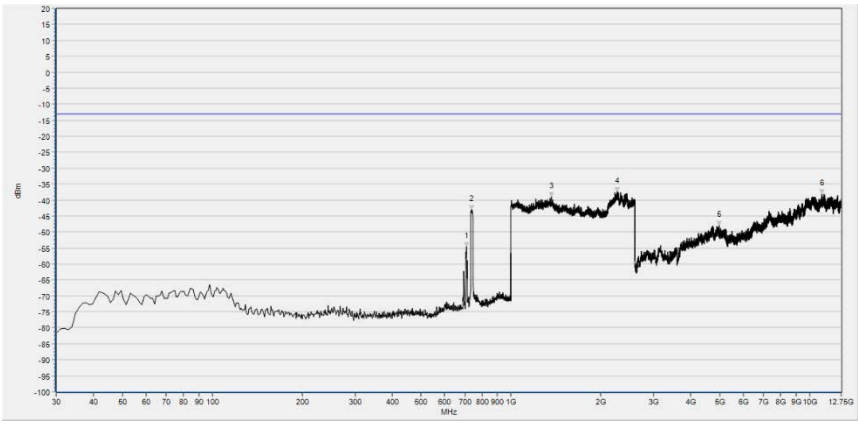


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-53.87	-13.00	Horizontal	N/A
2	741.010	-42.80	-13.00	Horizontal	N/A
3	1369.428	-39.29	-13.00	Horizontal	PASS
4	2252.981	-37.49	-13.00	Horizontal	PASS
5	4925.696	-47.92	-13.00	Horizontal	PASS
6	11205.074	-37.12	-13.00	Horizontal	PASS

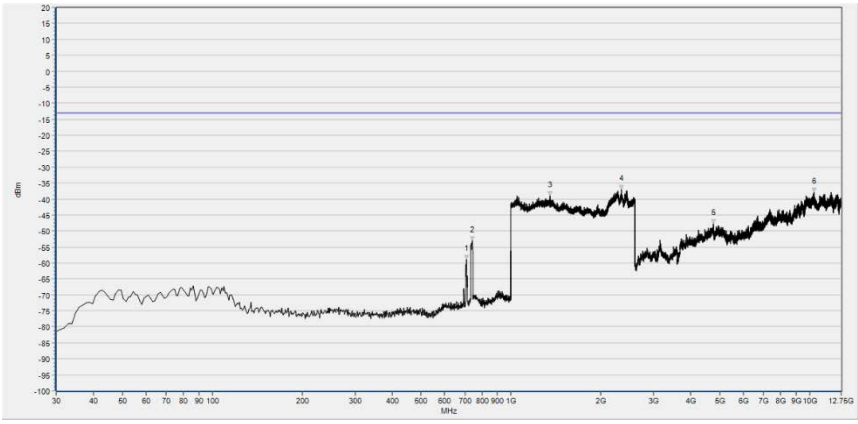


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-60.22	-13.00	Vertical	N/A
2	743.920	-52.95	-13.00	Vertical	N/A
3	1234.974	-39.25	-13.00	Vertical	PASS
4	2278.591	-36.78	-13.00	Vertical	PASS
5	4707.892	-47.38	-13.00	Vertical	PASS
6	10274.795	-37.55	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, Low Channel, QPSK

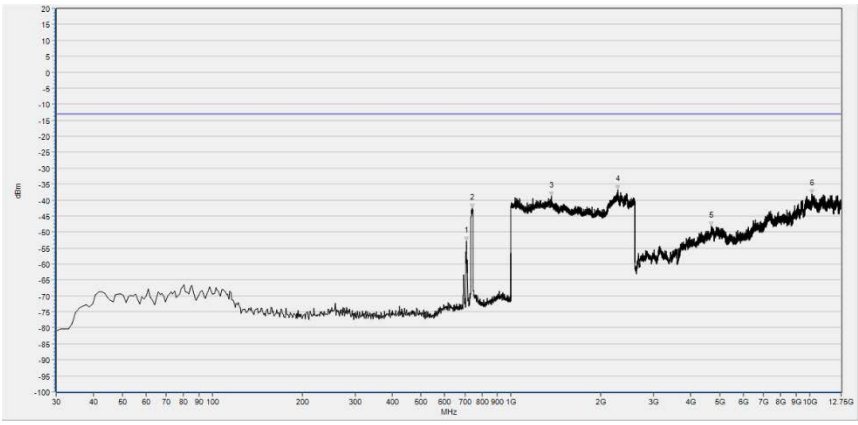


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-54.73	-13.00	Horizontal	N/A
2	737.130	-42.97	-13.00	Horizontal	N/A
3	1363.665	-39.03	-13.00	Horizontal	PASS
4	2263.866	-37.53	-13.00	Horizontal	PASS
5	4966.303	-47.90	-13.00	Horizontal	PASS
6	10979.887	-38.16	-13.00	Horizontal	PASS

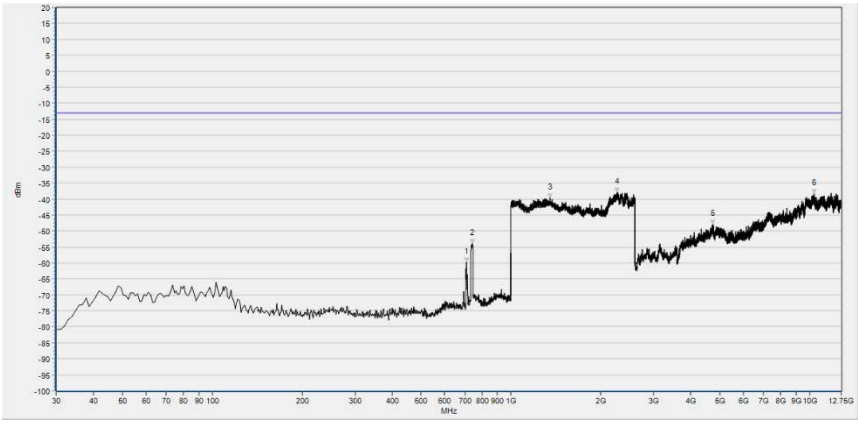


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-58.85	-13.00	Vertical	N/A
2	741.980	-53.04	-13.00	Vertical	N/A
3	1350.860	-38.96	-13.00	Vertical	PASS
4	2344.538	-37.04	-13.00	Vertical	PASS
5	4750.346	-47.76	-13.00	Vertical	PASS
6	10357.856	-37.79	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, Mid Channel, QPSK

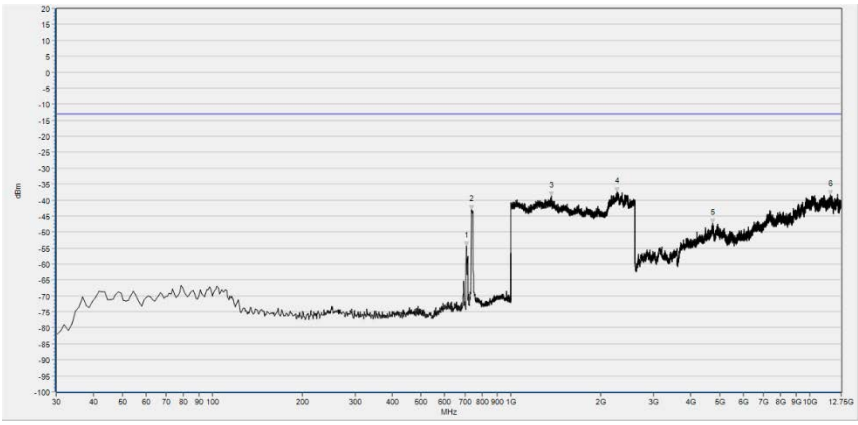


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-52.87	-13.00	Horizontal	N/A
2	741.010	-42.61	-13.00	Horizontal	N/A
3	1367.507	-38.77	-13.00	Horizontal	PASS
4	2280.512	-36.65	-13.00	Horizontal	PASS
5	4685.743	-48.23	-13.00	Horizontal	PASS
6	10154.819	-38.01	-13.00	Horizontal	PASS

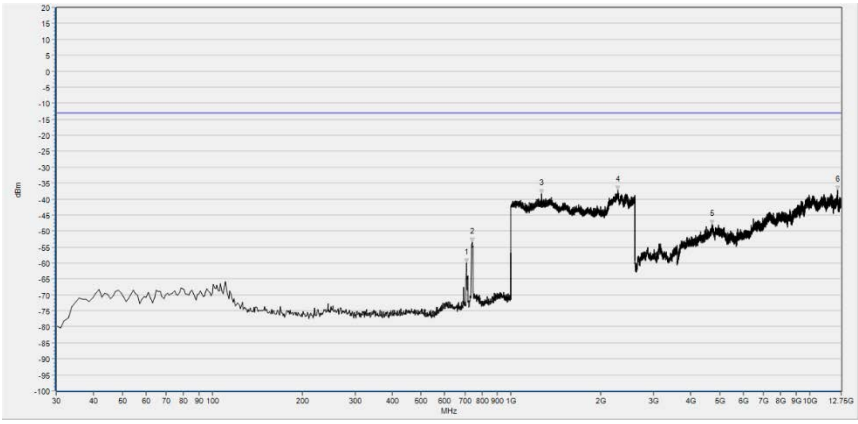


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-59.82	-13.00	Vertical	N/A
2	741.980	-53.96	-13.00	Vertical	N/A
3	1352.781	-39.73	-13.00	Vertical	PASS
4	2261.305	-37.93	-13.00	Vertical	PASS
5	4733.733	-48.04	-13.00	Vertical	PASS
6	10363.393	-38.29	-13.00	Vertical	PASS

LTE Band 17, 10MHz BW, High Channel, QPSK

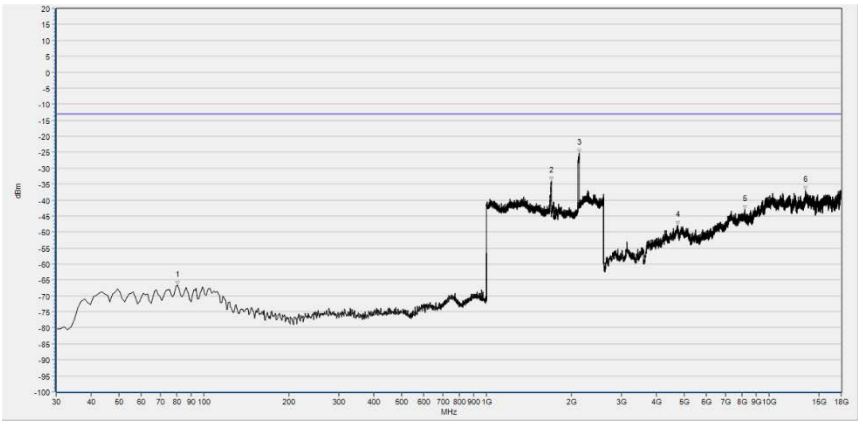


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.000	-54.39	-13.00	Horizontal	N/A
2	739.070	-42.95	-13.00	Horizontal	N/A
3	1365.586	-38.84	-13.00	Horizontal	PASS
4	2271.549	-37.41	-13.00	Horizontal	PASS
5	4733.733	-47.30	-13.00	Horizontal	PASS
6	11756.965	-38.23	-13.00	Horizontal	PASS

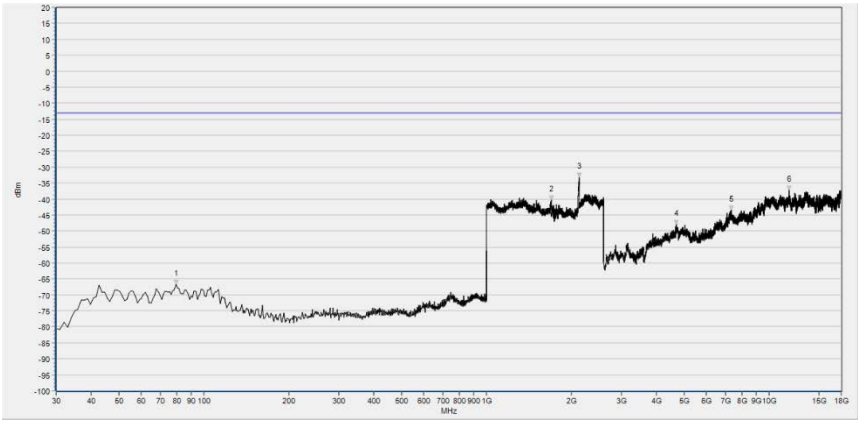


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	709.970	-59.94	-13.00	Vertical	N/A
2	741.980	-53.47	-13.00	Vertical	N/A
3	1267.627	-38.43	-13.00	Vertical	PASS
4	2277.311	-37.17	-13.00	Vertical	PASS
5	4720.813	-47.94	-13.00	Vertical	PASS
6	12375.305	-37.23	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, Low Channel, QPSK

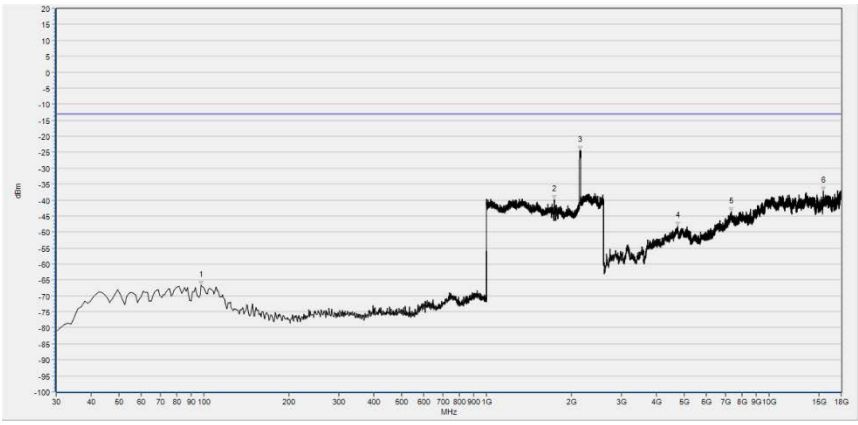


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.440	-66.63	-13.00	Horizontal	PASS
2	1694.038	-34.06	-13.00	Horizontal	PASS
3	2128.131	-25.47	-13.00	Horizontal	N/A
4	4739.589	-47.99	-13.00	Horizontal	PASS
5	8226.223	-42.95	-13.00	Horizontal	PASS
6	13437.971	-37.04	-13.00	Horizontal	PASS

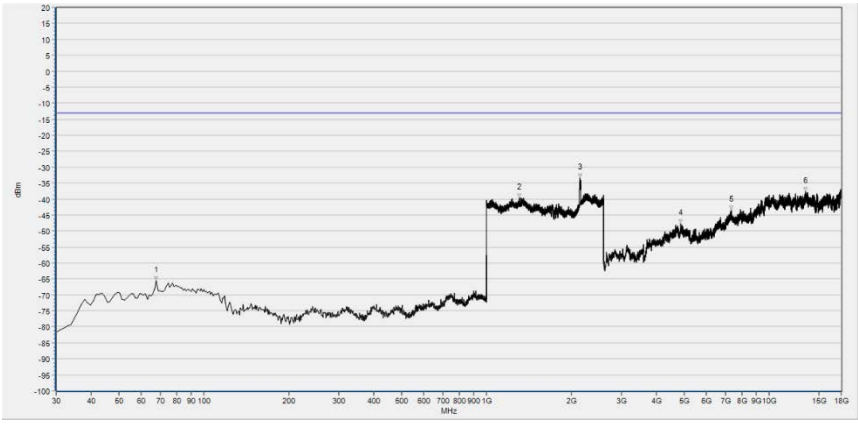


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	79.470	-66.66	-13.00	Vertical	PASS
2	1693.397	-40.37	-13.00	Vertical	PASS
3	2125.570	-33.13	-13.00	Vertical	N/A
4	4703.182	-48.02	-13.00	Vertical	PASS
5	7355.265	-43.43	-13.00	Vertical	PASS
6	11780.069	-37.20	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, Mid Channel, QPSK

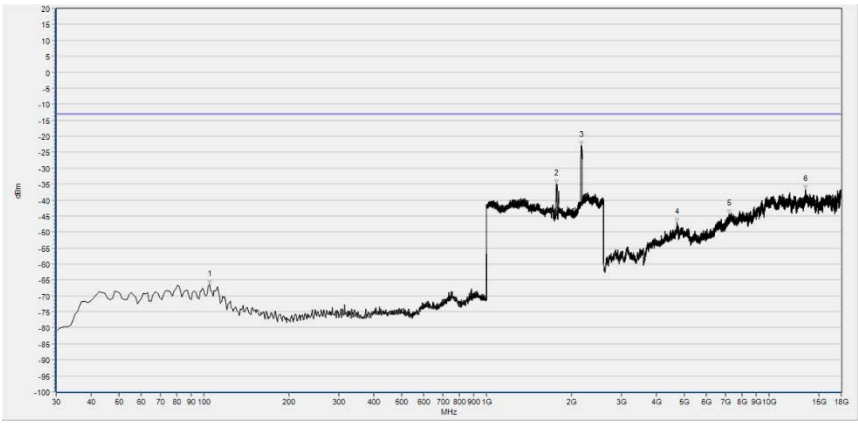


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	97.900	-66.65	-13.00	Horizontal	PASS
2	1737.575	-39.94	-13.00	Horizontal	N/A
3	2142.857	-24.51	-13.00	Horizontal	N/A
4	4745.190	-48.23	-13.00	Horizontal	PASS
5	7344.063	-43.77	-13.00	Horizontal	PASS
6	15588.762	-37.25	-13.00	Horizontal	PASS

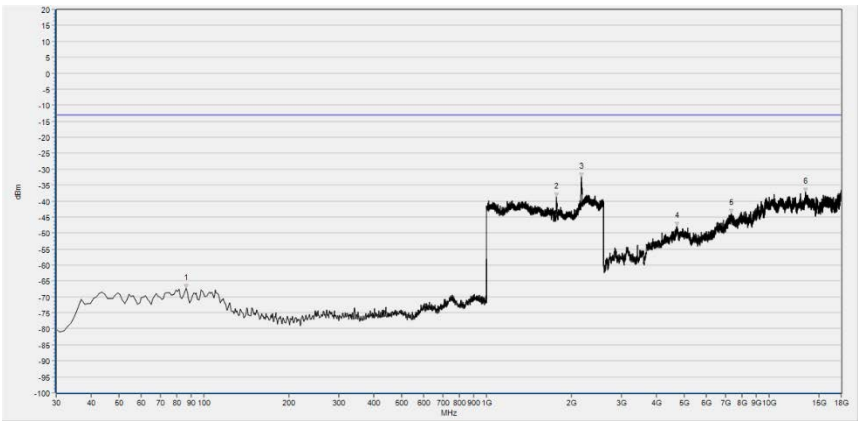


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	67.830	-65.58	-13.00	Vertical	PASS
2	1308.603	-39.74	-13.00	Vertical	PASS
3	2144.778	-33.37	-13.00	Vertical	N/A
4	4868.412	-47.74	-13.00	Vertical	PASS
5	7355.265	-43.40	-13.00	Vertical	PASS
6	13482.779	-37.76	-13.00	Vertical	PASS

LTE Band 66, 20MHz BW, High Channel, QPSK



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	104.690	-66.44	-13.00	Horizontal	PASS
2	1765.746	-34.94	-13.00	Horizontal	N/A
3	2168.467	-22.90	-13.00	Horizontal	N/A
4	4731.187	-47.15	-13.00	Horizontal	PASS
5	7218.040	-44.33	-13.00	Horizontal	PASS
6	13440.771	-36.84	-13.00	Horizontal	PASS



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	86.260	-67.36	-13.00	Vertical	PASS
2	1766.387	-38.88	-13.00	Vertical	N/A
3	2162.705	-32.53	-13.00	Vertical	N/A
4	4711.584	-47.83	-13.00	Vertical	PASS
5	7349.664	-43.98	-13.00	Vertical	PASS
6	13477.178	-37.25	-13.00	Vertical	PASS

Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test Items	Uncertainty
Output Power	±2.22 dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Band Edge	±2.77 dB
Equivalent Isotropic Radiated Power	±2.22 dB
Radiated Spurious Emissions	±6 dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

4. Test Equipment Utilized

4.1 Conducted Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Signal Analyzer	MY51511149	N9020A	Agilent	2023.06.21	2024.06.20
Communication Test Station	6200995016	MT8820C	Anritsu	2023.06.21	2024.06.20
Temperature Chamber	S022177101 00089002	KMT-36LF 1A0	KOMEG	2023.09.19	2024.09.18

4.2 List of Software Used

Description	Manufacturer	Software Version
MOE-2023E Test System	MORLAB	V7.99
MORLAB EMCR	MORLAB	V1.2

4.3 Radiated Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
System Simulator	152038	CMW500	R&S	2023.10.17	2024.10.16
Receiver	MY54130016	N9038A	Agilent	2023.06.21	2024.06.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2023.07.01	2024.06.30
Test Antenna - Horn	9120D-963	BBHA 9120D	Schwarzbeck	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2023.07.04	2024.07.03
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KK F-2	Qualwave	2023.07.04	2024.07.03
Preamplifier (10MHz-6GHz)	46732	S10M100L380 2	LUCIX CORP.	2023.07.04	2024.07.03
Preamplifier (2GHz-18GHz)	61171/61172	S020180L320 3	LUCIX CORP.	2023.06.27	2024.06.26
Notch Filter	N/A	WRCGV -LTE B2	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B4	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B5	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B12	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B17	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B66	Wainwright	N/A	N/A

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

END OF REPORT