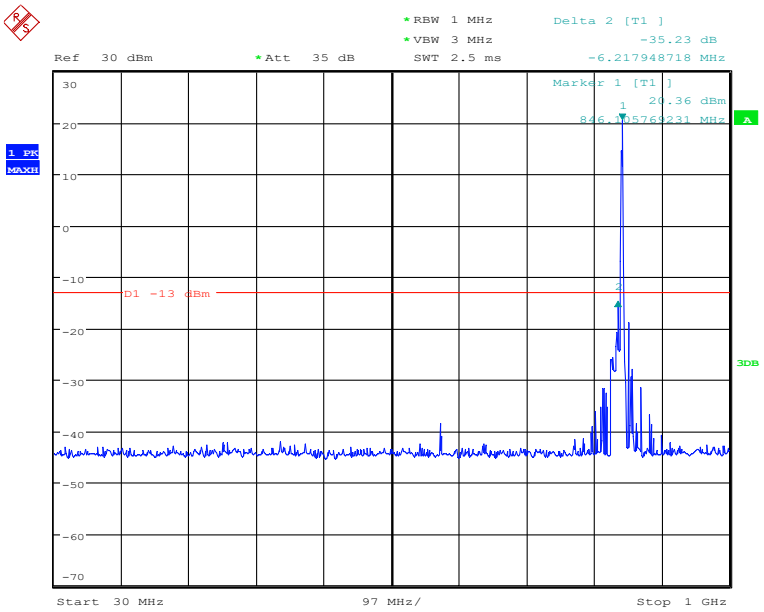
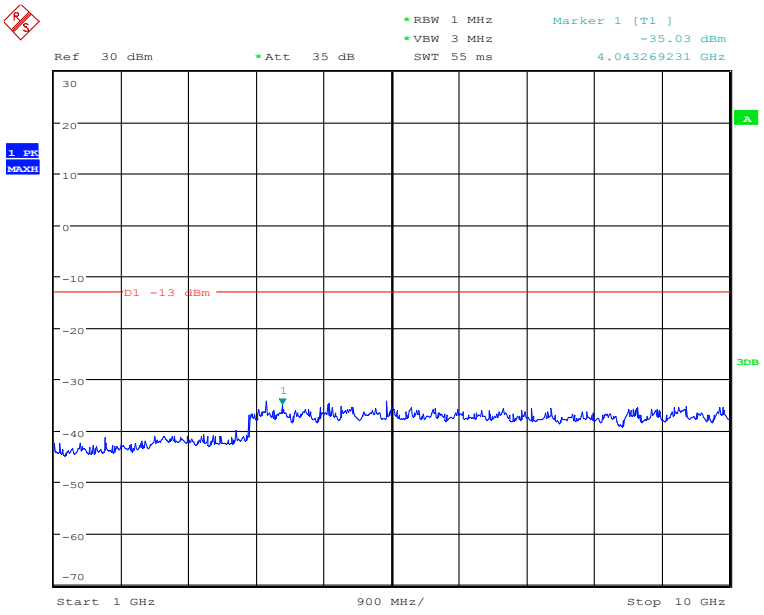
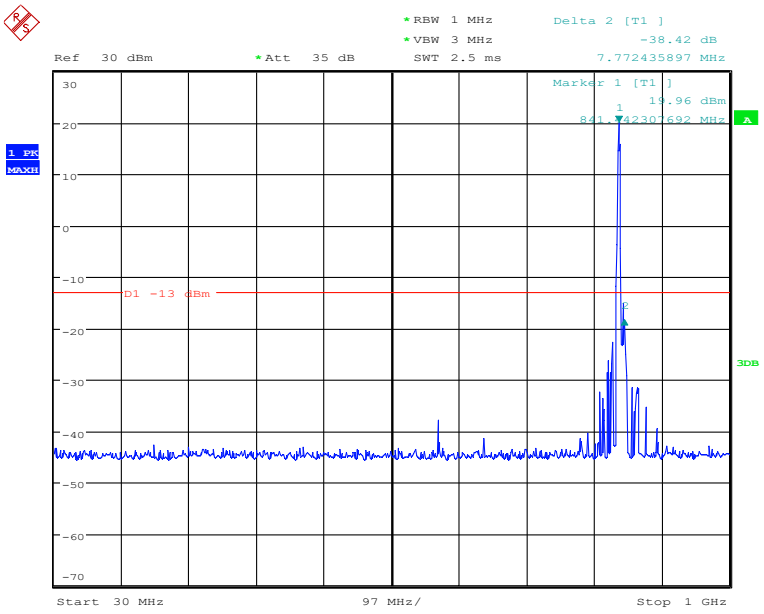


High Channel-5MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.

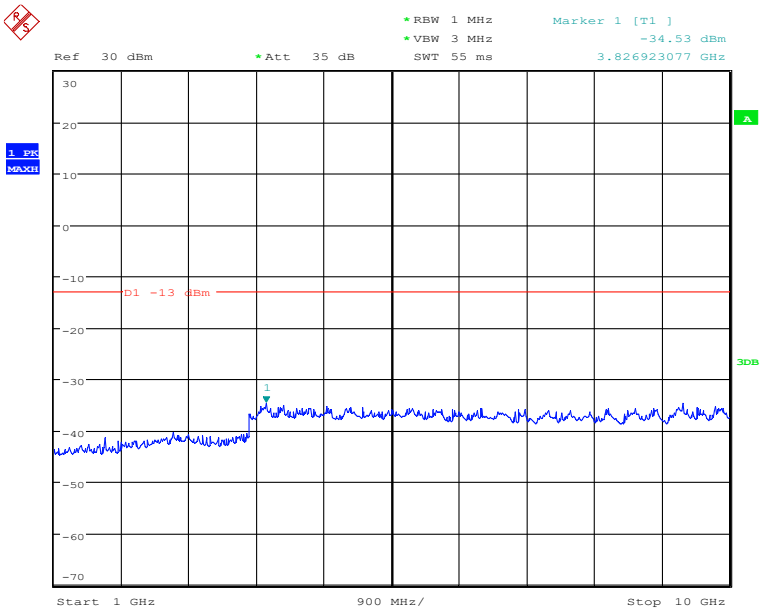


High Channel-5MHz Bandwidth-1GHz to 10GHz

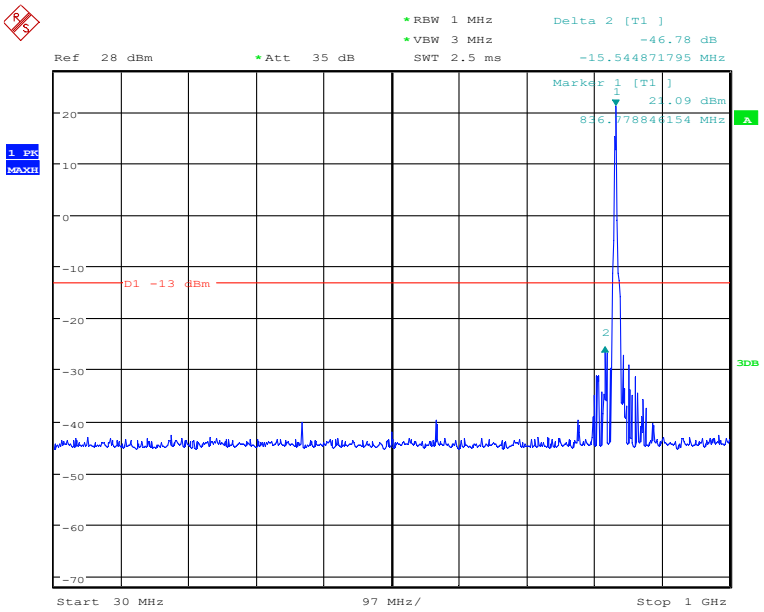


High Channel-10MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



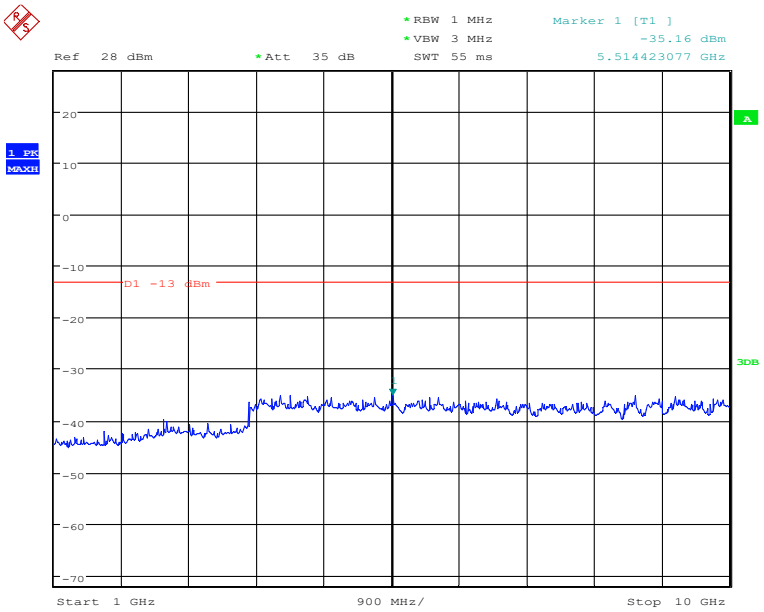
High Channel-10MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:41:30

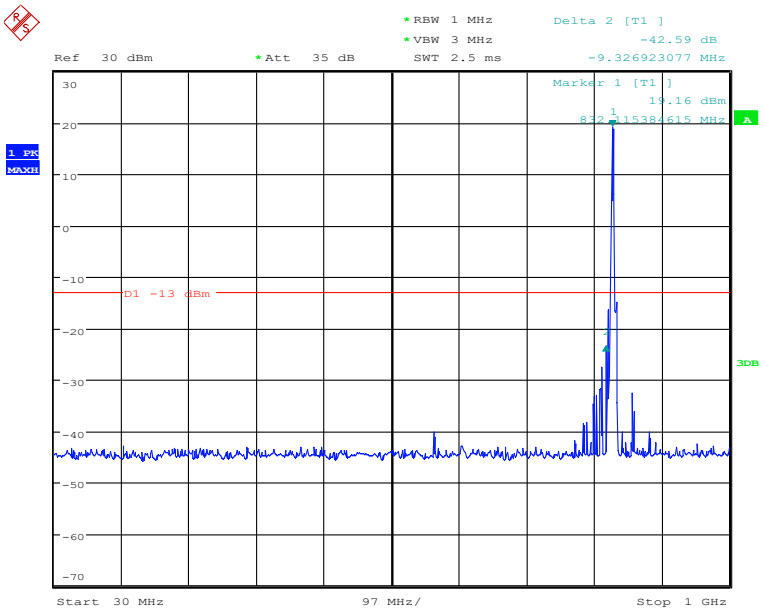
High Channel-15MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



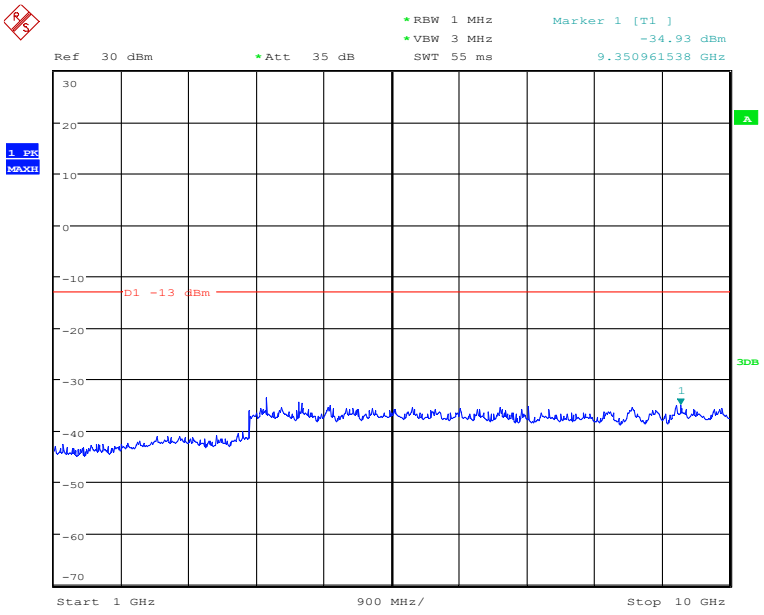
Date: 26.NOV.2019 02:41:44

High Channel-15MHz Bandwidth-1GHz to 10GHz

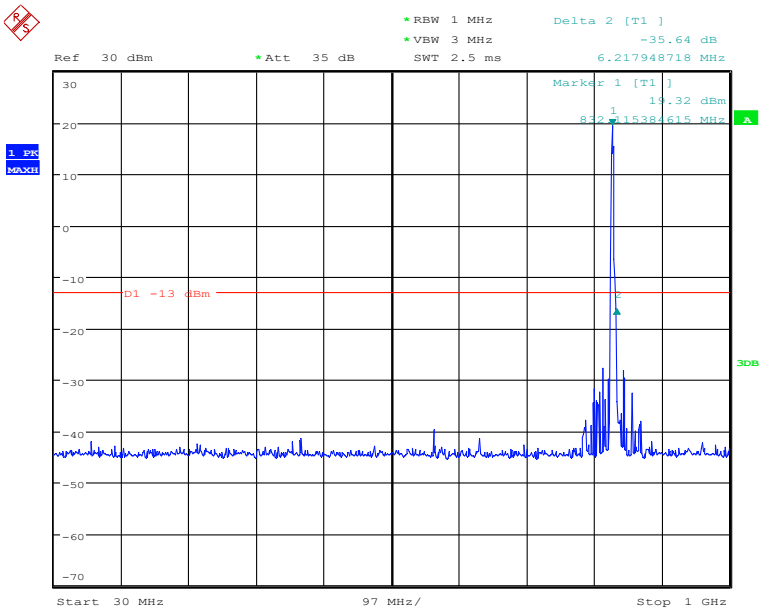


Middle Channel-1.4MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



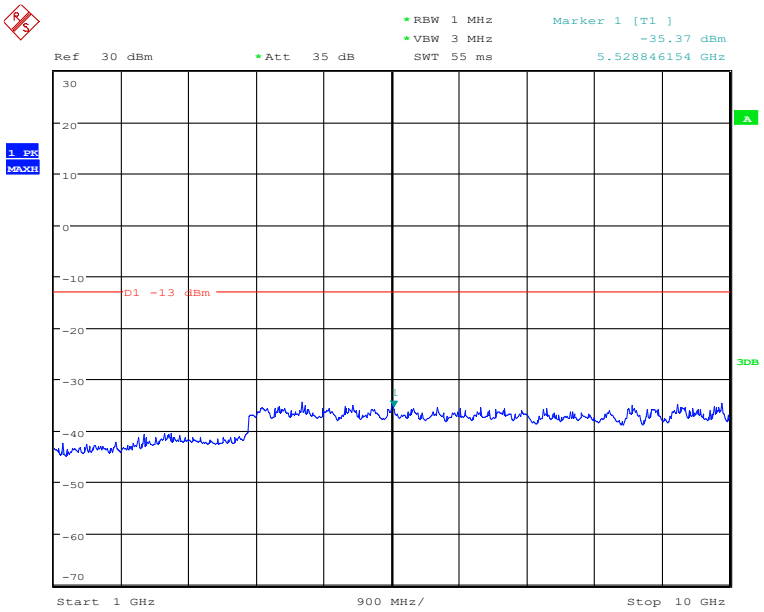
Middle Channel-1.4MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:14:17

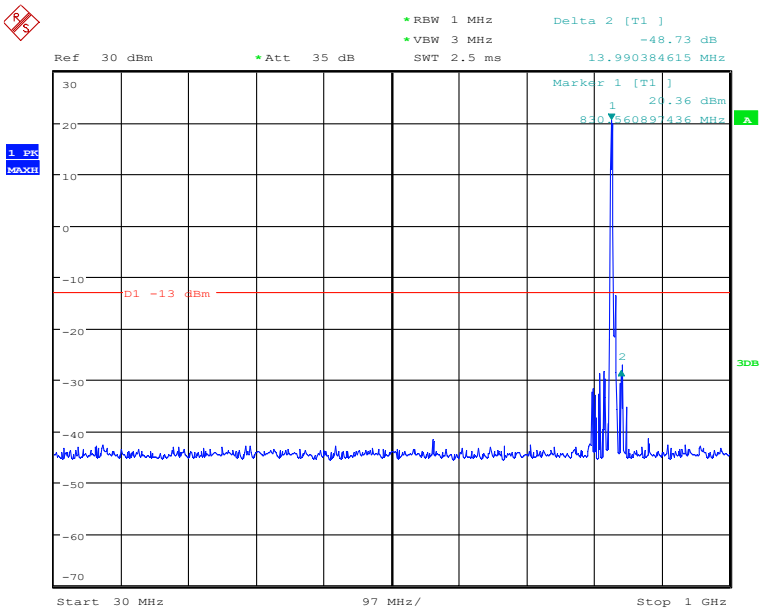
Middle Channel-3MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 26.NOV.2019 02:14:36

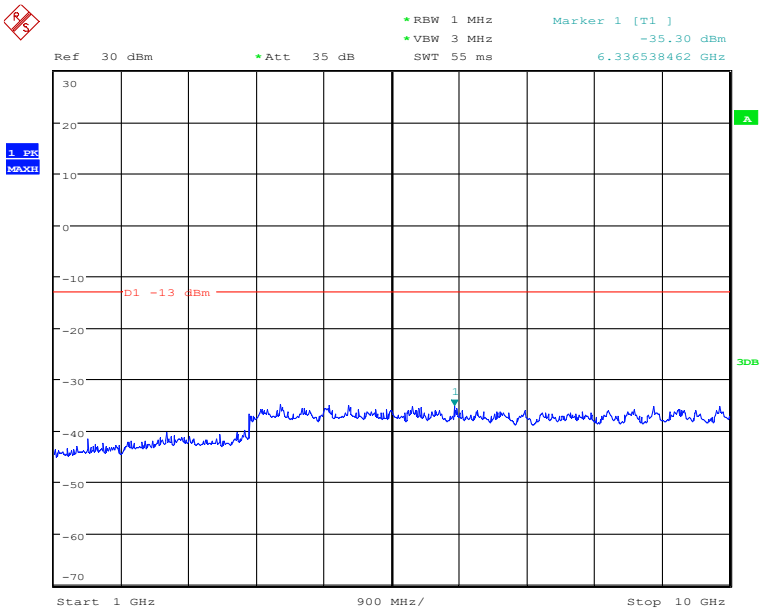
Middle Channel-3MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:20:55

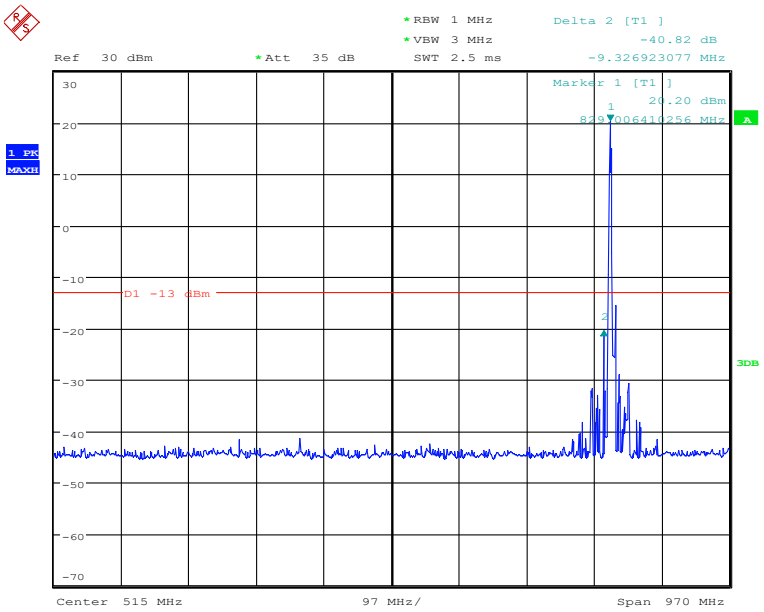
Middle Channel-5MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



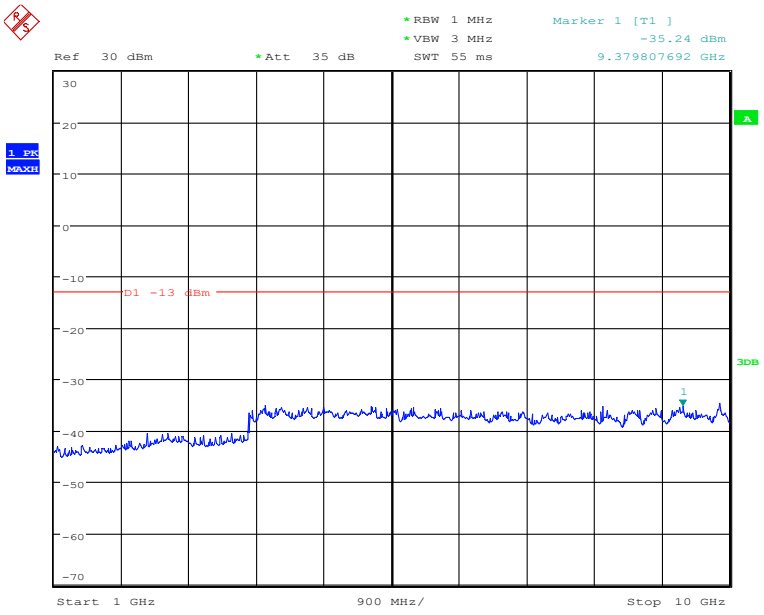
Date: 26.NOV.2019 02:20:35

Middle Channel-5MHz Bandwidth-1GHz to 10GHz

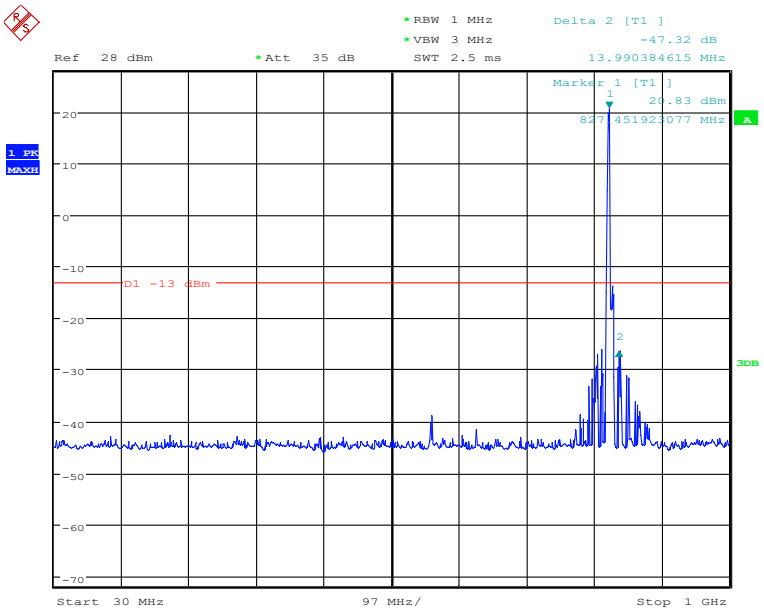


Middle Channel-10MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



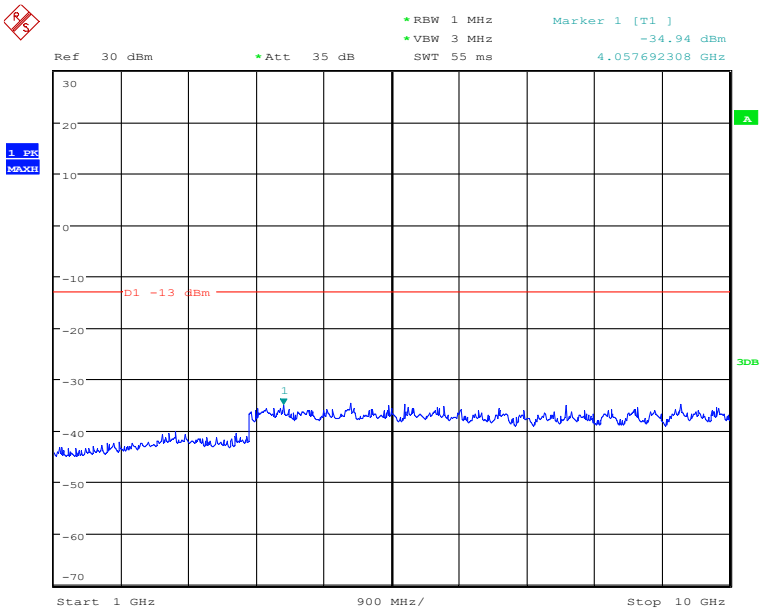
Middle Channel-10MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:40:02

Middle Channel-15MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



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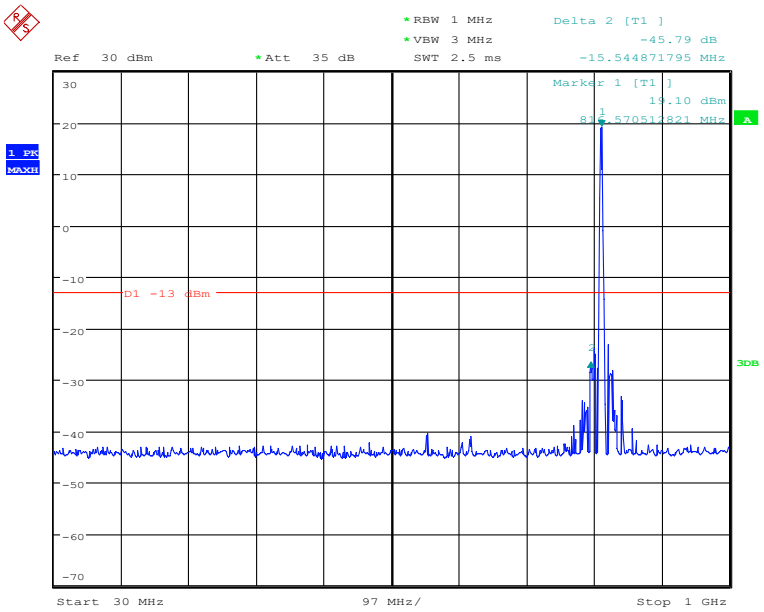
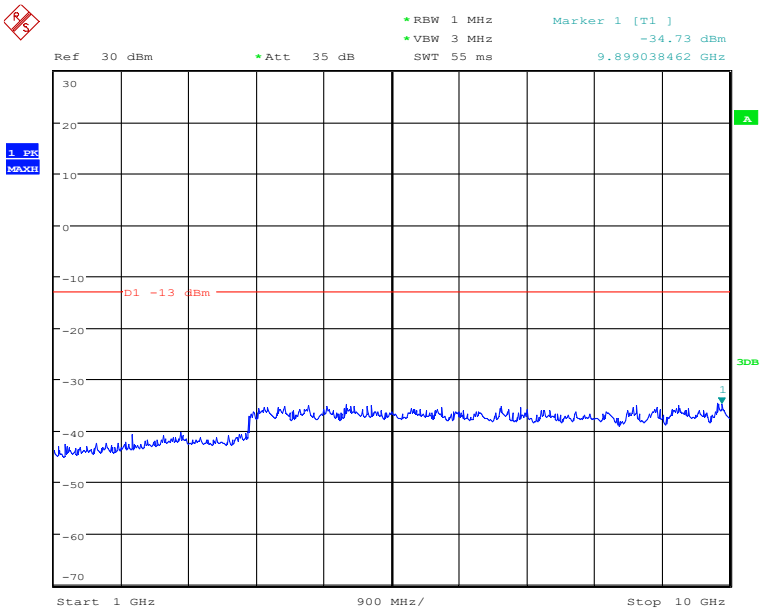
Middle Channel-15MHz Bandwidth-1GHz to 10GHz

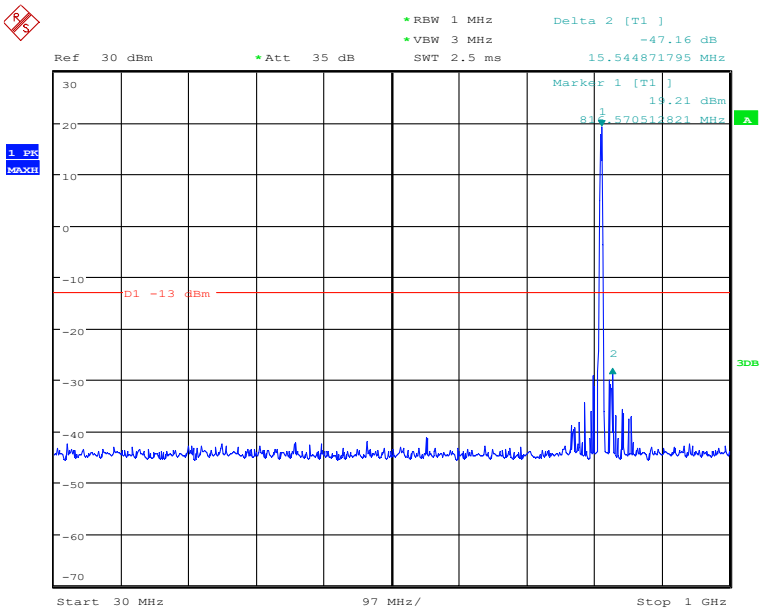


Low Channel-1.4MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



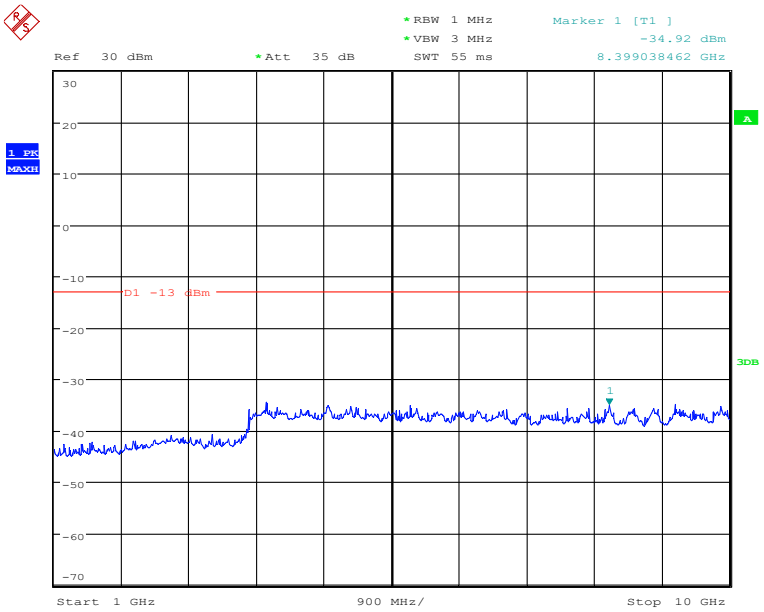
Low Channel-1.4MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:13:07

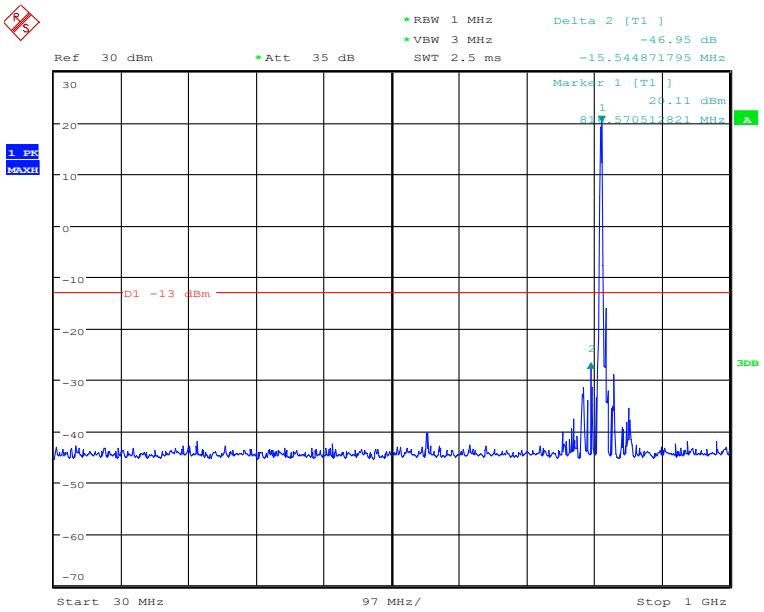
Low Channel-3MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 26.NOV.2019 02:12:44

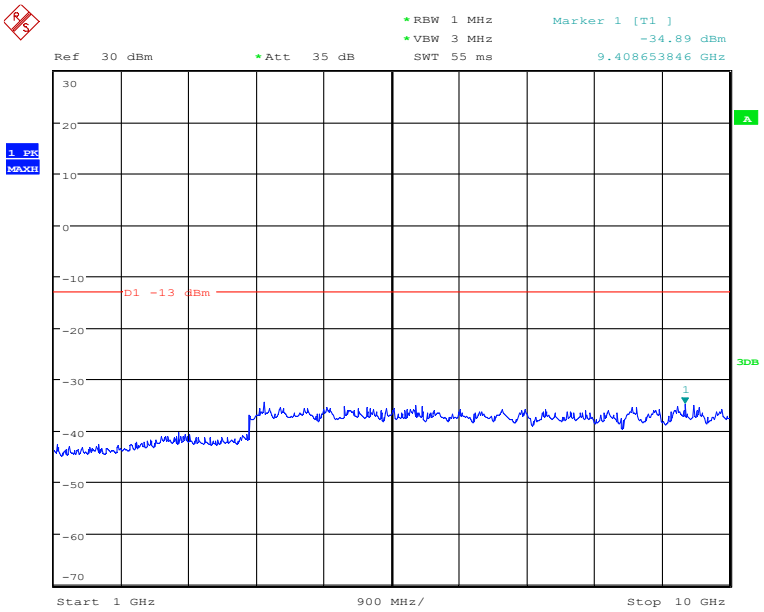
Low Channel-3MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:18:23

Low Channel-5MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



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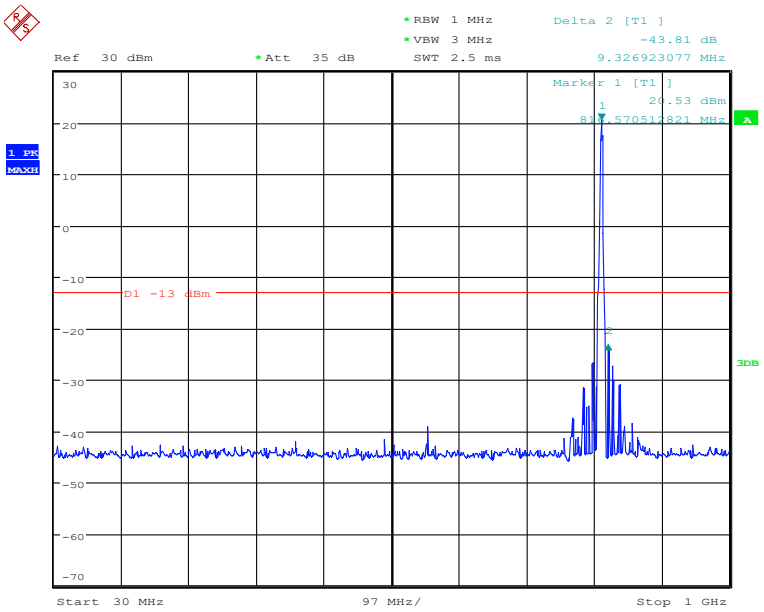
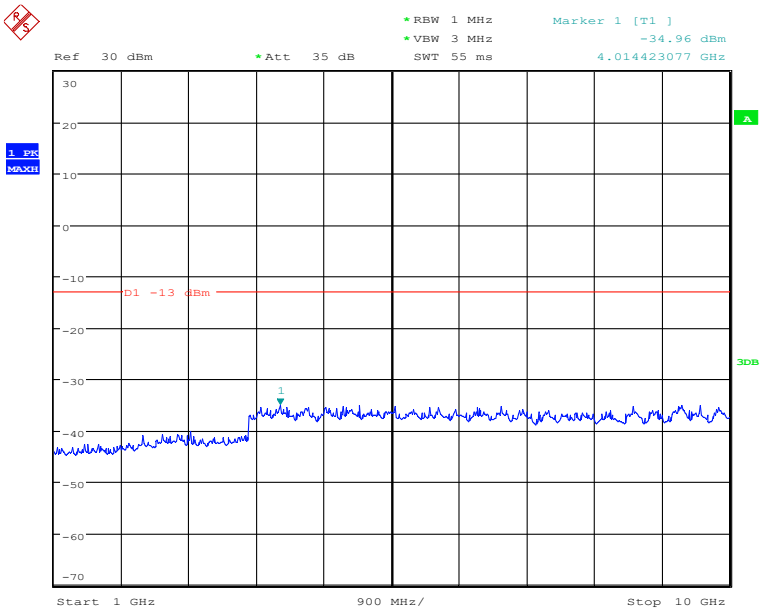
Low Channel-5MHz Bandwidth-1GHz to 10GHz

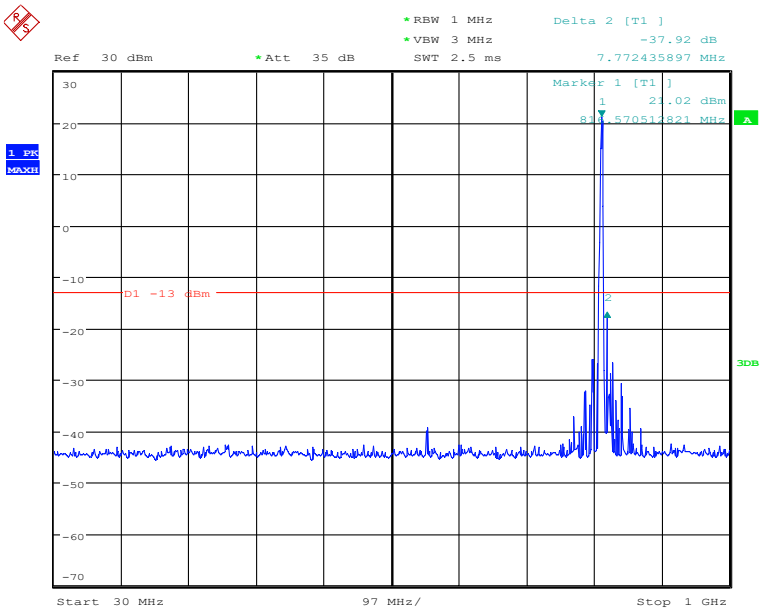


Low Channel-10MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



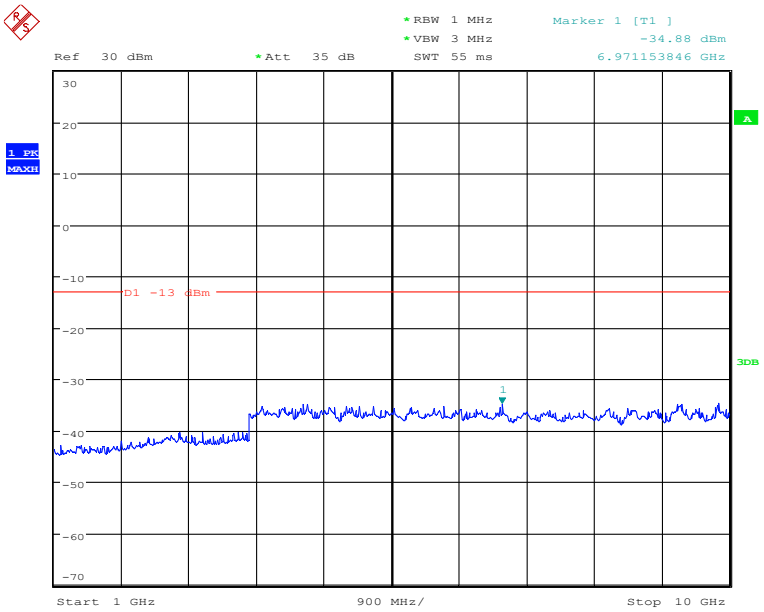
Low Channel-10MHz Bandwidth-1GHz to 10GHz



Date: 26.NOV.2019 02:36:29

Low Channel-15MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 26.NOV.2019 02:36:50

Low Channel-15MHz Bandwidth-1GHz to 10GHz

Part(814MHz-824MHz)

Middle Channel-1.4MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.

Middle Channel-1.4MHz Bandwidth-1GHz to 10GHz

Middle Channel-3MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.

Middle Channel-3MHz Bandwidth-1GHz to 10GHz

Middle Channel-5MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.

Middle Channel-5MHz Bandwidth-1GHz to 10GHz

Middle Channel-10MHz Bandwidth-30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.

Middle Channel-10MHz Bandwidth-1GHz to 10GHz

5.4 Radiated Spurious Emission

Specifications:	FCC Part 2.1051, 2.1053, 24.238, 22.917, 27.53,90.691
DUT Serial Number:	353081090308282
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

According to Part 22.917 (a), i.e., Out of Band emissions. 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.

According to Part 24.238 (a), i.e., Out of Band emissions. 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, so the limit level is: P(dBm)– (43 + 10 log(P)) dB= -13dBm.

According to Part 27.53(h):

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 Bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10(P) dB.

According to Part 27.53(g):

For operations in the 600 MHz Band and the 698-746 MHz Band, the power of any emission outside a licensee's frequency Band(s) of operation shall be attenuated below the transmitter power (P) within the licensed Band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution Bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz Bands immediately outside and adjacent to a licensee's frequency block, a resolution Bandwidth of at least 30 kHz may be employed.

According to Part 90.691

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power

(P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.
The power of any emission shall be attenuated below the mean output power P (dBW) by at least 43 + 10 log10(p), measured in a 100 kHz bandwidth for frequencies less than or equal to 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

Limits for Radiated spurious emissions(UE)	
Frequency range	**Limit Level /Resolution Bandwidth**
30 MHz to 20000 MHz	-13dBm/1MHz

Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty	5.15 dB (k=2)

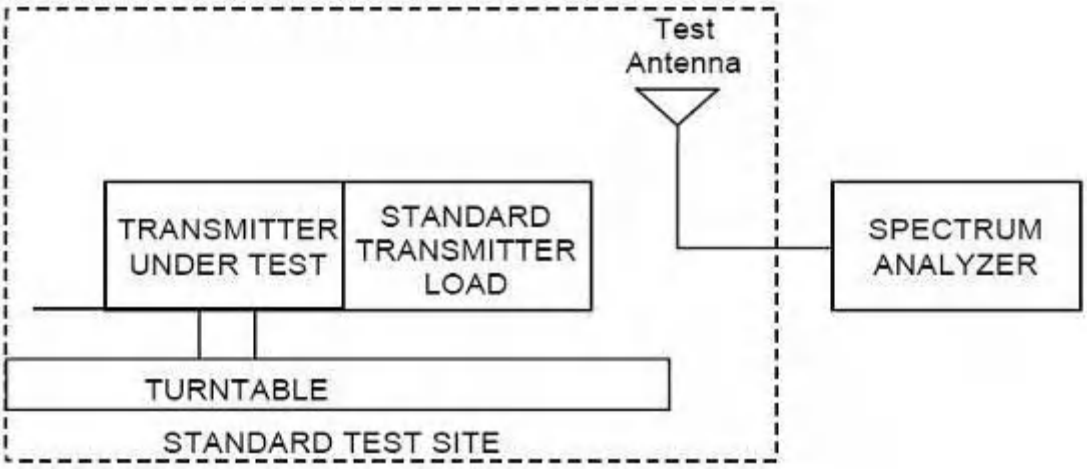
Test Setup:

The EUT was placed in an anechoic chamber. The Wireless Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

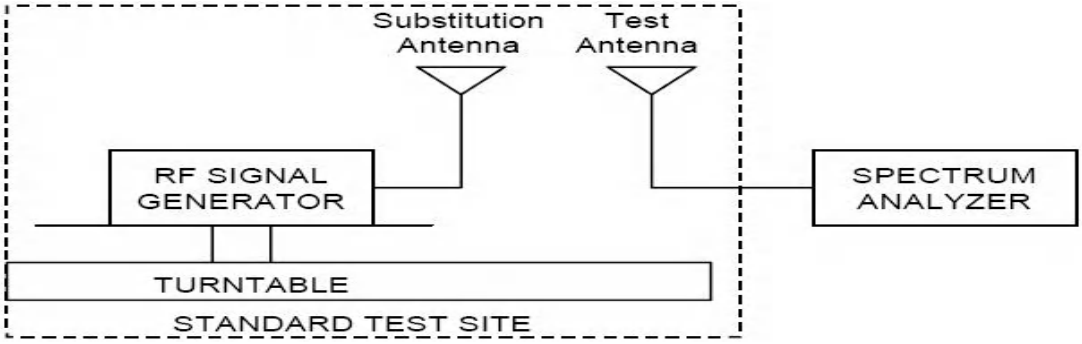
Test Method:

The measurement method is substitution method accordance with section 2.2.12 of ANSI/TIA-603-E: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

(a) Connect the equipment as illustrated and measure the spurious emissions as the method as above. The distance from the device to the antenna is 3 m .



(b) Reconnect the equipment as illustrated.



(c) Remove the transmitter and replace it with a substitution antenna. The center of the substitution antenna should be approximately at the same location as the center of the transmitter.

(d) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

(e) Repeat step d) with both antennas vertically polarized for each spurious frequency.

(f) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps d) and e) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

P_d(dBm) = P_g(dBm) – cable loss (dB) + antenna gain (dB)

where:

Pd is the dipole equivalent power and Pg is the generator output power into the substitution antenna.

Note: Only worst case result is given below.

5.4.1 GSM850 GMSK Radiated Spurious Emission Results

Test Data （GMSK Mode channel 128）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1648.80	-46.38	4.7	7.3	-43.78	-30.78	-13	H
2472.00	-59.36	5.9	6.8	-58.46	-45.46	-13	H
3296.40	-62.64	6.7	8.9	-60.44	-47.44	-13	V
4120.80	-60.89	7.6	9.2	-59.29	-46.29	-13	V
4945.20	-60.45	7.7	9.9	-58.25	-45.25	-13	V
5769.60	-68.84	1.4	10.9	-59.34	-46.34	-13	V

Test Data （GMSK Mode channel 190）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1672.80	-47.75	4.7	8.1	-44.35	-31.35	-13	H
2510.40	-58.54	5.9	6.8	-57.64	-44.64	-13	H
3346.80	-62.03	6.8	8.9	-59.93	-46.93	-13	V
4182.00	-62.33	7.8	9.2	-60.93	-47.93	-13	V
5019.60	-60.81	7.5	9.9	-58.41	-45.41	-13	V
5856.00	-69.74	1.1	10.9	-59.94	-46.94	-13	V

Test Data （GMSK Mode channel 251）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1696.80	-47.72	4.8	8.0	-44.52	-31.52	-13	H
2544.00	-58.66	5.9	6.9	-57.66	-44.66	-13	H
3392.40	-62.84	6.9	9.0	-60.74	-47.74	-13	V
4240.80	-61.96	7.8	9.2	-60.56	-47.56	-13	V
5089.20	-61.56	6.8	9.9	-58.46	-45.46	-13	V
5941.60	-68.02	1.4	10.9	-58.52	-45.52	-13	V

5.4.2 PCS1900 GMSK Radiated Spurious Emission Results

Test Data （GMSK Mode channel 512）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3700.65	-61.35	7.2	8.9	-59.65	-46.65	-13	V
5550.00	-69.28	2.0	10.5	-60.78	-47.78	-13	V
7401.41	-70.54	0.9	11.9	-59.54	-46.54	-13	V
9250.80	-69.57	1.0	11.8	-58.77	-45.77	-13	V
11100.30	-72.41	0.4	12.1	-60.71	-47.71	-13	V
12951.65	-71.99	0.4	12.4	-59.99	-46.99	-13	V

Test Data （GMSK Mode channel 661）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3760.80	-61.55	7.3	8.9	-59.95	-46.95	-13	V
5641.20	-66.98	1.8	10.5	-58.28	-45.28	-13	V
7517.40	-69.73	0.9	11.9	-58.73	-45.73	-13	V
9399.30	-69.78	0.7	11.8	-58.68	-45.68	-13	V
11278.50	-70.97	0.3	12.1	-59.17	-46.17	-13	V
13160.33	-71.24	0.4	12.4	-59.24	-46.24	-13	V

Test Data （GMSK Mode channel 810）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3818.40	-61.80	7.3	8.9	-60.20	-47.20	-13	V
5727.60	-69.06	1.8	10.5	-60.36	-47.36	-13	V
7636.20	-69.34	0.9	11.9	-58.34	-45.34	-13	V
9547.80	-71.24	0.7	11.8	-60.14	-47.14	-13	V
11454.00	-71.03	0.3	12.1	-59.23	-46.23	-13	V
13362.79	-73.00	0.4	12.4	-61.00	-48.00	-13	V

5.4.3 CAT-M B2 Radiated Spurious Emission Results

Test Data （10MHz bandwidth QPSK Mode channel 18650）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3700.34	-61.21	7.2	8.9	-59.51	-46.51	-13	V
5550.26	-69.28	2.0	10.5	-60.78	-47.78	-13	V
7400.76	-69.18	0.9	11.9	-58.18	-45.18	-13	V
9250.61	-71.32	1.0	11.8	-60.52	-47.52	-13	V
11100.36	-72.31	0.4	12.1	-60.61	-47.61	-13	V
12950.46	-70.89	0.4	12.4	-58.89	-45.89	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 18900）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3760.46	-60.14	7.4	8.9	-58.64	-45.64	-13	V
5640.36	-68.13	1.8	10.5	-59.43	-46.43	-13	V
7520.73	-69.89	0.9	11.9	-58.89	-45.89	-13	V
9400.14	-70.87	0.8	11.8	-59.87	-46.87	-13	V
11280.33	-70.77	0.3	12.2	-58.87	-45.87	-13	V
13160.47	-70.59	0.4	12.4	-58.59	-45.59	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 19150）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3820.24	-61.09	7.4	9.2	-59.29	-46.29	-13	V
5700.15	-67.58	1.7	10.5	-58.78	-45.78	-13	V

7580.29	-71.15	0.8	11.9	-60.05	-47.05	-13	V
9460.49	-71.87	0.8	11.8	-60.87	-47.87	-13	V
11340.74	-70.86	0.3	12.2	-58.96	-45.96	-13	V
13220.15	-70.92	0.4	12.4	-58.92	-45.92	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 18650）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3700.23	-61.17	7.2	8.9	-59.47	-46.47	-13	V
5550.42	-69.62	2.0	10.5	-61.12	-48.12	-13	V
7400.34	-69.45	0.9	11.9	-58.45	-45.45	-13	V
9250.63	-72.33	1.0	11.8	-61.53	-48.53	-13	V
11100.53	-71.29	0.4	12.1	-59.59	-46.59	-13	V
12950.39	-67.80	0.4	12.4	-55.80	-42.80	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 18900）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3760.52	-56.80	7.4	8.9	-55.30	-42.30	-13	V
5640.34	-69.88	1.8	10.5	-61.18	-48.18	-13	V
7520.63	-72.97	0.9	11.9	-61.97	-48.97	-13	V
9400.93	-71.50	0.8	11.8	-60.50	-47.50	-13	V
11280.45	-76.59	0.3	12.2	-64.69	-51.69	-13	V
13160.74	-70.75	0.4	12.4	-58.75	-45.75	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 19150）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]

3820.24	-58.08	7.4	9.2	-56.28	-43.28	-13	V
5700.15	-67.76	1.7	10.5	-58.96	-45.96	-13	V
7580.29	-69.60	0.8	11.9	-58.50	-45.50	-13	V
9460.49	-75.97	0.8	11.8	-64.97	-51.97	-13	V
11340.74	-75.90	0.3	12.2	-64.00	-51.00	-13	V
13220.15	-71.49	0.4	12.4	-59.49	-46.49	-13	V

5.4.4 CAT-M B4 Radiated Spurious Emission Results

Test Data （10MHz bandwidth QPSK Mode channel 20000）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3420.21	-61.95	6.9	8.9	-59.95	-46.95	-13	V
5130.22	-63.24	6.3	9.9	-59.64	-46.64	-13	V
6840.44	-71.92	0.8	11.9	-60.82	-47.82	-13	V
8550.72	-70.89	0.9	11.2	-60.59	-47.59	-13	V
10260.48	-71.11	0.5	12.0	-59.61	-46.61	-13	V
11970.34	-70.93	0.4	12.2	-59.13	-46.13	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 20175）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3465.46	-61.58	6.9	8.9	-59.58	-46.58	-13	V
5197.36	-65.00	5.8	9.9	-60.90	-47.90	-13	V
6930.73	-69.40	0.9	11.9	-58.40	-45.40	-13	V
8662.14	-71.28	0.9	11.2	-60.98	-47.98	-13	V
10395.33	-71.41	0.3	12.2	-59.51	-46.51	-13	V

12127.47	-71.75	0.6	12.2	-60.15	-47.15	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 20350）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3510.57	-61.04	7.0	8.9	-59.14	-46.14	-13	V
5265.84	-63.96	5.0	10.5	-58.46	-45.46	-13	V
7020.36	-71.38	1.2	11.9	-60.68	-47.68	-13	V
8775.46	-69.51	1.1	11.5	-59.11	-46.11	-13	V
10530.15	-72.12	0.6	12.2	-60.52	-47.52	-13	V
12285.67	-72.11	0.3	12.3	-60.11	-47.11	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 20000）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3420.43	-60.71	6.9	8.9	-58.71	-45.71	-13	V
5130.63	-61.51	6.3	9.9	-57.91	-44.91	-13	V
6840.12	-69.75	0.8	11.9	-58.65	-45.65	-13	V
8550.32	-71.02	0.9	11.2	-60.72	-47.72	-13	V
10260.25	-68.78	0.5	12.0	-57.28	-44.28	-13	V
11970.27	-76.61	0.4	12.2	-64.81	-51.81	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 20175）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3465.34	-58.56	6.9	8.9	-56.56	-43.56	-13	V

5197.42	-67.75	5.8	9.9	-63.65	-50.65	-13	V
6930.52	-67.10	0.9	11.9	-56.10	-43.10	-13	V
8662.73	-72.32	0.9	11.2	-62.02	-49.02	-13	V
10395.13	-71.82	0.3	12.2	-59.92	-46.92	-13	V
12127.36	-69.69	0.6	12.2	-58.09	-45.09	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 20350）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3510.73	-66.73	7.0	8.9	-64.83	-51.83	-13	V
5265.53	-70.29	5.0	10.5	-64.79	-51.79	-13	V
7020.64	-73.59	1.2	11.9	-62.89	-49.89	-13	V
8775.52	-70.12	1.1	11.5	-59.72	-46.72	-13	V
10530.44	-66.95	0.6	12.2	-55.35	-42.35	-13	V
12285.58	-74.17	0.3	12.3	-62.17	-49.17	-13	V

5.4.5 CAT-M B12 Radiated Spurious Emission Results

Test Data （1.4 MHz bandwidth QPSK Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1338.26	-45.10	4.3	7.5	-41.90	-28.90	-13	V
2007.69	-61.16	5.2	8.2	-58.16	-45.16	-13	V
2676.84	-59.48	6.1	6.8	-58.78	-45.78	-13	V
3345.42	-61.33	6.8	8.9	-59.23	-46.23	-13	V
4014.36	-60.69	7.6	9.2	-59.09	-46.09	-13	V

4683.77	-61.10	8.1	9.5	-59.70	-46.70	-13	V

Test Data （1.4 MHz bandwidth QPSK Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1415.40	-46.14	4.4	8.2	-42.34	-29.34	-13	V
2122.60	-60.79	5.4	8.1	-58.09	-45.09	-13	V
2830.40	-59.28	7.5	8.0	-58.78	-45.78	-13	V
3538.20	-59.63	8.9	8.9	-59.63	-46.63	-13	V
4245.05	-61.69	7.8	9.2	-60.29	-47.29	-13	V
4953.90	-62.10	7.7	9.9	-59.90	-46.90	-13	V

Test Data （1.4 MHz bandwidth QPSK Mode channel 23173）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1430.60	-47.58	4.4	8.3	-43.68	-30.68	-13	V
2145.90	-61.27	5.4	7.0	-59.67	-46.67	-13	V
2861.20	-60.38	6.4	8.0	-58.78	-45.78	-13	V
3576.50	-61.50	7.2	8.9	-59.80	-46.80	-13	V
4291.80	-60.72	7.8	9.5	-59.02	-46.02	-13	V
5007.10	-62.53	7.5	9.9	-60.13	-47.13	-13	V

Test Data （1.4 MHz bandwidth 16QAM Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1338.43	-54.54	4.3	7.5	-51.34	-38.34	-13	V

2007.56	-55.83	5.2	8.2	-52.83	-39.83	-13	V
2676.23	-51.01	6.1	6.8	-50.31	-37.31	-13	V
3345.77	-62.97	6.8	8.9	-60.87	-47.87	-13	V
4014.36	-65.93	7.6	9.2	-64.33	-51.33	-13	V
4683.95	-63.56	8.1	9.5	-62.16	-49.16	-13	V

Test Data （1.4 MHz bandwidth 16QAM Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1415.32	-50.49	4.4	8.2	-46.69	-33.69	-13	V
2122.53	-55.06	5.4	8.1	-52.36	-39.36	-13	V
2830.73	-49.21	7.5	8.0	-48.71	-35.71	-13	V
3538.89	-60.66	8.9	8.9	-60.66	-47.66	-13	V
4245.25	-60.84	7.8	9.2	-59.44	-46.44	-13	V
4953.78	-60.66	7.7	9.9	-58.46	-45.46	-13	V

Test Data （1.4 MHz bandwidth 16QAM Mode channel 23173）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1430.47	-58.44	4.4	8.3	-54.54	-41.54	-13	V
2145.62	-49.53	5.4	7.0	-47.93	-34.93	-13	V
2861.63	-56.28	6.4	8.0	-54.68	-41.68	-13	V
3576.66	-57.41	7.2	8.9	-55.71	-42.71	-13	V
4291.32	-64.09	7.8	9.5	-62.39	-49.39	-13	V
5007.30	-58.48	7.5	9.9	-56.08	-43.08	-13	V

5.4.6 CAT-M B13 Radiated Spurious Emission Results

Test Data （5MHz bandwidth QPSK Mode channel 23205）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1559.00	-56.64	4.6	8.5	-52.74	-39.74	-13	V
2338.50	-61.15	5.6	8.1	-58.65	-45.65	-13	V
3118.00	-61.18	6.5	8.9	-58.78	-45.78	-13	V
3897.50	-62.29	7.4	9.2	-60.49	-47.49	-13	V
4677.00	-60.39	8.1	9.5	-58.99	-45.99	-13	V
5456.50	-65.92	3.6	10.5	-59.02	-46.02	-13	V

Test Data （5MHz bandwidth QPSK Mode channel 23230）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1564.00	-56.06	4.6	8.5	-52.16	-39.16	-13	V
2346.00	-62.29	5.6	8.1	-59.79	-46.79	-13	V
3128.00	-61.18	6.5	8.9	-58.78	-45.78	-13	V
3910.00	-60.49	7.4	9.2	-58.69	-45.69	-13	V
4692.00	-60.66	8.1	9.5	-59.26	-46.26	-13	V
5474.00	-65.46	3.6	10.5	-58.56	-45.56	-13	V

Test Data （5MHz bandwidth QPSK Mode 23265）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1569.00	-57.44	4.6	8.5	-53.54	-40.54	-13	V

2353.50	-62.04	5.6	8.1	-59.54	-46.54	-13	V
3138.00	-61.18	6.5	8.9	-58.78	-45.78	-13	V
3922.50	-61.31	7.4	9.2	-59.51	-46.51	-13	V
4707.00	-59.64	8.1	9.5	-58.24	-45.24	-13	V
5491.50	-65.75	3.6	10.5	-58.85	-45.85	-13	V

Test Data （5MHz bandwidth 16QAM Mode channel 23205）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1559.23	-53.04	4.6	8.5	-49.14	-36.14	-13	V
2338.34	-57.36	5.6	8.1	-54.86	-41.86	-13	V
3118.34	-47.63	6.5	8.9	-45.23	-32.23	-13	V
3897.62	-66.77	7.4	9.2	-64.97	-51.97	-13	V
4677.25	-65.78	8.1	9.5	-64.38	-51.38	-13	V
5456.73	-64.31	3.6	10.5	-57.41	-44.41	-13	V

Test Data （5MHz bandwidth 16QAM Mode channel 23230）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1564.00	-54.52	4.6	8.5	-50.62	-37.62	-13	V
2346.00	-54.77	5.6	8.1	-52.27	-39.27	-13	V
3128.00	-54.12	6.5	8.9	-51.72	-38.72	-13	V
3910.00	-61.99	7.4	9.2	-60.19	-47.19	-13	V
4692.00	-65.73	8.1	9.5	-64.33	-51.33	-13	V
5474.00	-68.73	3.6	10.5	-61.83	-48.83	-13	V

Test Data （5MHz bandwidth 16QAM Mode 23265）

Frequency	Generator	Cable	Antenna	Spurious	Margin	Limit	Antenna

[MHz]	output power(Pg) [dBm]	loss [dB]	Gain [dB]	Emission Power (Pd) [dBm]	Value [dB]	[dBm]	Polarization [H/V]
1569.00	-55.62	4.6	8.5	-51.72	-38.72	-13	V
2353.50	-50.86	5.6	8.1	-48.36	-35.36	-13	V
3138.00	-54.70	6.5	8.9	-52.30	-39.30	-13	V
3922.50	-58.98	7.4	9.2	-57.18	-44.18	-13	V
4707.00	-57.90	8.1	9.5	-56.50	-43.50	-13	V
5491.50	-66.85	3.6	10.5	-59.95	-46.95	-13	V

5.4.7 CAT-M B26 Radiated Spurious Emission Results

Test Data （10MHz bandwidth QPSK Mode channel 26740）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1638.00	-48.47	4.7	7.3	-45.87	-32.87	-13	V
2457.00	-57.32	6.0	6.8	-56.52	-43.52	-13	V
3276.00	-60.98	6.7	8.9	-58.78	-45.78	-13	V
4095.00	-62.54	7.6	9.2	-60.94	-47.94	-13	V
4914.00	-62.86	7.8	9.9	-60.76	-47.76	-13	V
5733.00	-69.85	1.5	10.5	-60.85	-47.85	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 26865）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1663.00	-48.58	4.7	7.3	-45.98	-32.98	-13	V

2494.50	-57.62	5.9	6.8	-56.72	-43.72	-13	V
3326.00	-60.88	6.8	8.9	-58.78	-45.78	-13	V
4157.50	-61.38	7.8	9.2	-59.98	-46.98	-13	V
4989.00	-62.97	7.5	9.9	-60.57	-47.57	-13	V
5820.50	-68.14	1.1	10.9	-58.34	-45.34	-13	V

Test Data （10MHz bandwidth QPSK Mode channel 26990）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1688.00	-47.99	4.8	8.1	-44.69	-31.69	-13	V
2532.00	-57.43	5.9	6.9	-56.43	-43.43	-13	V
3376.00	-60.78	6.9	8.9	-58.78	-45.78	-13	V
4220.00	-59.98	7.8	9.2	-58.58	-45.58	-13	V
5064.00	-61.85	7.1	9.9	-59.05	-46.05	-13	V
5908.00	-68.38	1.4	10.9	-58.88	-45.88	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 26740）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1638.00	-52.02	4.7	7.3	-49.42	-36.42	-13	V
2457.00	-52.59	6.0	6.8	-51.79	-38.79	-13	V
3276.00	-51.99	6.7	8.9	-49.79	-36.79	-13	V
4095.00	-65.66	7.6	9.2	-64.06	-51.06	-13	V
4914.00	-65.98	7.8	9.9	-63.88	-50.88	-13	V
5733.00	-64.26	1.5	10.5	-55.26	-42.26	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 26865）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1663.00	-45.27	4.7	7.3	-47.87	-34.87	-13	V
2494.50	-47.84	5.9	6.8	-48.74	-35.74	-13	V
3326.00	-47.38	6.8	8.9	-49.48	-36.48	-13	V
4157.50	-59.20	7.8	9.2	-60.60	-47.60	-13	V
4989.00	-56.47	7.5	9.9	-58.87	-45.87	-13	V
5820.50	-54.84	1.1	10.9	-64.64	-51.64	-13	V

Test Data （10MHz bandwidth 16QAM Mode channel 26990）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1688.00	-53.88	4.8	8.1	-50.58	-37.58	-13	V
2532.00	-54.44	5.9	6.9	-53.44	-40.44	-13	V
3376.00	-54.46	6.9	8.9	-52.46	-39.46	-13	V
4220.00	-64.59	7.8	9.2	-63.19	-50.19	-13	V
5064.00	-63.84	7.1	9.9	-61.04	-48.04	-13	V
5908.00	-67.70	1.4	10.9	-58.20	-45.20	-13	V

5.4.8 NB-IoT B2 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 18650）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3700.42	-61.85	7.2	8.9	-60.15	-47.15	-13	V

5550.32	-66.78	2.0	10.5	-58.28	-45.28	-13	V
7400.72	-71.66	0.9	11.9	-60.66	-47.66	-13	V
9250.13	-70.92	1.0	11.8	-60.12	-47.12	-13	V
11100.53	-71.50	0.4	12.1	-59.80	-46.80	-13	V
12950.97	-72.69	0.4	12.4	-60.69	-47.69	-13	V

Test Data （QPSK Mode channel 18900）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3760.22	-60.83	7.4	8.9	-59.33	-46.33	-13	V
5640.63	-66.75	1.8	10.5	-58.05	-45.05	-13	V
7520.84	-71.97	0.9	11.9	-60.97	-47.97	-13	V
9400.42	-69.76	0.8	11.8	-58.76	-45.76	-13	V
11280.86	-70.22	0.3	12.2	-58.32	-45.32	-13	V
13160.26	-70.56	0.4	12.4	-58.56	-45.56	-13	V

Test Data （QPSK Mode channel 19150）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3820.24	-61.99	7.4	9.2	-60.19	-47.19	-13	V
5700.15	-66.93	1.7	10.5	-58.13	-45.13	-13	V
7580.29	-70.14	0.8	11.9	-59.04	-46.04	-13	V
9460.49	-70.43	0.8	11.8	-59.43	-46.43	-13	V
11340.74	-70.75	0.3	12.2	-58.85	-45.85	-13	V
13220.15	-71.42	0.4	12.4	-59.42	-46.42	-13	V

5.4.9 NB-IoT B4 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 20000）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3420.46	-60.14	6.9	8.9	-58.14	-45.14	-13	V
5130.38	-63.44	6.3	9.9	-59.84	-46.84	-13	V
6840.13	-69.63	0.8	11.9	-58.53	-45.53	-13	V
8550.64	-71.30	0.9	11.2	-61.00	-48.00	-13	V
10260.71	-70.66	0.5	12.0	-59.16	-46.16	-13	V
11970.34	-70.51	0.4	12.2	-58.71	-45.71	-13	V

Test Data （QPSK Mode channel 20175）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3465.46	-60.94	6.9	8.9	-58.94	-45.94	-13	V
5197.36	-64.23	5.8	9.9	-60.13	-47.13	-13	V
6930.73	-70.26	0.9	11.9	-59.26	-46.26	-13	V
8662.14	-70.56	0.9	11.2	-60.26	-47.26	-13	V
10395.33	-70.31	0.3	12.2	-58.41	-45.41	-13	V
12127.47	-70.52	0.6	12.2	-58.92	-45.92	-13	V

Test Data （QPSK Mode channel 20350）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
3510.57	-59.95	7.0	8.9	-58.05	-45.05	-13	V
5265.84	-63.88	5.0	10.5	-58.38	-45.38	-13	V
7020.36	-71.46	1.2	11.9	-60.76	-47.76	-13	V
8775.46	-68.96	1.1	11.5	-58.56	-45.56	-13	V
10530.15	-71.79	0.6	12.2	-60.19	-47.19	-13	V
12285.67	-71.37	0.3	12.3	-59.37	-46.37	-13	V

5.4.10 NB-IoT B12 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1338.26	-45.74	4.3	7.5	-42.54	-29.54	-13	V
2007.69	-61.49	5.2	8.2	-58.49	-45.49	-13	V
2676.84	-59.39	6.1	6.8	-58.69	-45.69	-13	V
3345.42	-62.51	6.8	8.9	-60.41	-47.41	-13	V
4014.36	-60.26	7.6	9.2	-58.66	-45.66	-13	V
4683.77	-59.81	8.1	9.5	-58.41	-45.41	-13	V

Test Data （QPSK Mode channel 23017）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]

1415.40	-46.31	4.4	8.2	-42.51	-29.51	-13	V
2122.60	-62.27	5.4	8.1	-59.57	-46.57	-13	V
2830.40	-60.23	7.5	8.0	-59.73	-46.73	-13	V
3538.20	-58.00	8.9	8.9	-58.00	-45.00	-13	V
4245.05	-61.18	7.8	9.2	-59.78	-46.78	-13	V
4953.90	-62.66	7.7	9.9	-60.46	-47.46	-13	V

Test Data （QPSK Mode channel 23173）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1430.60	-46.55	4.4	8.3	-42.65	-29.65	-13	V
2145.90	-60.50	5.4	7.0	-58.90	-45.90	-13	V
2861.20	-61.05	6.4	8.0	-59.45	-46.45	-13	V
3576.50	-61.32	7.2	8.9	-59.62	-46.62	-13	V
4291.80	-61.41	7.8	9.5	-59.71	-46.71	-13	V
5007.10	-61.63	7.5	9.9	-59.23	-46.23	-13	V

5.4.11 NB-IoT B13 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 23205）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1559.00	-56.84	4.6	8.5	-52.94	-39.94	-13	V
2338.50	-60.80	5.6	8.1	-58.30	-45.30	-13	V
3118.00	-60.89	6.5	8.9	-58.49	-45.49	-13	V
3897.50	-60.17	7.4	9.2	-58.37	-45.37	-13	V
4677.00	-62.17	8.1	9.5	-60.77	-47.77	-13	V

5456.50	-65.86	3.6	10.5	-58.96	-45.96	-13	V

Test Data （QPSK Mode channel 23230）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1564.00	-57.38	4.6	8.5	-53.48	-40.48	-13	V
2346.00	-63.26	5.6	8.1	-60.76	-47.76	-13	V
3128.00	-63.07	6.5	8.9	-60.67	-47.67	-13	V
3910.00	-60.15	7.4	9.2	-58.35	-45.35	-13	V
4692.00	-60.63	8.1	9.5	-59.23	-46.23	-13	V
5474.00	-65.68	3.6	10.5	-58.78	-45.78	-13	V

Test Data （QPSK Mode channel 23265）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1569.00	-57.02	4.6	8.5	-53.12	-40.12	-13	V
2353.50	-62.57	5.6	8.1	-60.07	-47.07	-13	V
3138.00	-60.56	6.5	8.9	-58.16	-45.16	-13	V
3922.50	-60.92	7.4	9.2	-59.12	-46.12	-13	V
4707.00	-61.20	8.1	9.5	-59.80	-46.80	-13	V
5491.50	-65.25	3.6	10.5	-58.35	-45.35	-13	V

5.4.12 NB-IoT B26 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 26691）

Frequency [MHz]	Generator output	Cable loss	Antenna Gain	Spurious Emission	Margin Value	Limit [dBm]	Antenna Polarizati

	power(Pg) [dBm]	[dB]	[dB]	Power (Pd) [dBm]	[dB]		on [H/V]
1638.00	-48.56	4.7	7.3	-45.96	-32.96	-13	V
2457.00	-57.54	6.0	6.8	-56.74	-43.74	-13	V
3276.00	-60.95	6.7	8.9	-58.75	-45.75	-13	V
4095.00	-61.66	7.6	9.2	-60.06	-47.06	-13	V
4914.00	-60.27	7.8	9.9	-58.17	-45.17	-13	V
5733.00	-69.41	1.5	10.5	-60.41	-47.41	-13	V

Test Data （QPSK Mode channel 26865）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1663.00	-47.49	4.7	7.3	-44.89	-31.89	-13	V
2494.50	-58.03	5.9	6.8	-57.13	-44.13	-13	V
3326.00	-60.40	6.8	8.9	-58.30	-45.30	-13	V
4157.50	-59.46	7.8	9.2	-58.06	-45.06	-13	V
4989.00	-62.21	7.5	9.9	-59.81	-46.81	-13	V
5820.50	-69.07	1.1	10.9	-59.27	-46.27	-13	V

Test Data （QPSK Mode channel 27039）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Margin Value [dB]	Limit [dBm]	Antenna Polarization [H/V]
1688.00	-46.88	4.8	8.1	-43.58	-30.58	-13	V
2532.00	-58.10	5.9	6.9	-57.10	-44.10	-13	V
3376.00	-60.96	6.9	8.9	-58.96	-45.96	-13	V
4220.00	-61.69	7.8	9.2	-60.29	-47.29	-13	V

5064.00	-62.68	7.1	9.9	-59.88	-46.88	-13	V
5908.00	-69.73	1.4	10.9	-60.23	-47.23	-13	V

5.5 Band Edge

Specifications:	FCC Part 2.1051, 2.1053, 24.238, 22.917, 27.53,90.691
DUT Serial Number:	353081090297923
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

According to Part 22.917 and 24.238:

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.

According to Part 27.53(h):

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10(P) dB.

According to Part 90.691:

Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

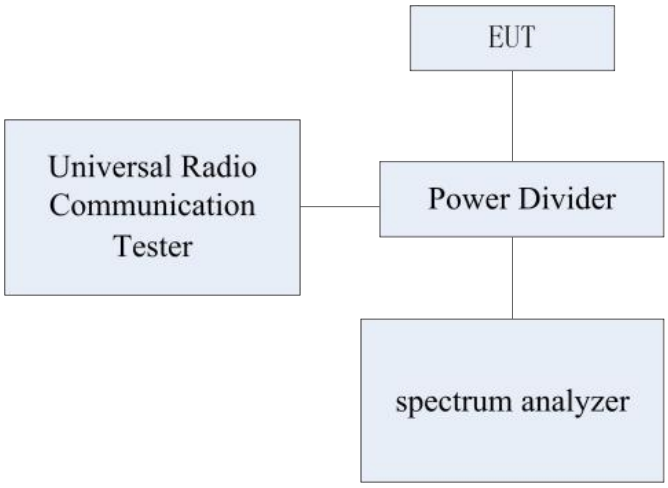
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

Measurement Uncertainty:

Item	Uncertainty	
Expanded Uncertainty	9kHz < f≤4GHz	0.71 dB (k=2)
	4GHz≤f < 12.75GHz	0.74 dB (k=2)
	12.75GHz≤f < 26GHz	2.70 dB (k=2)

Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method:

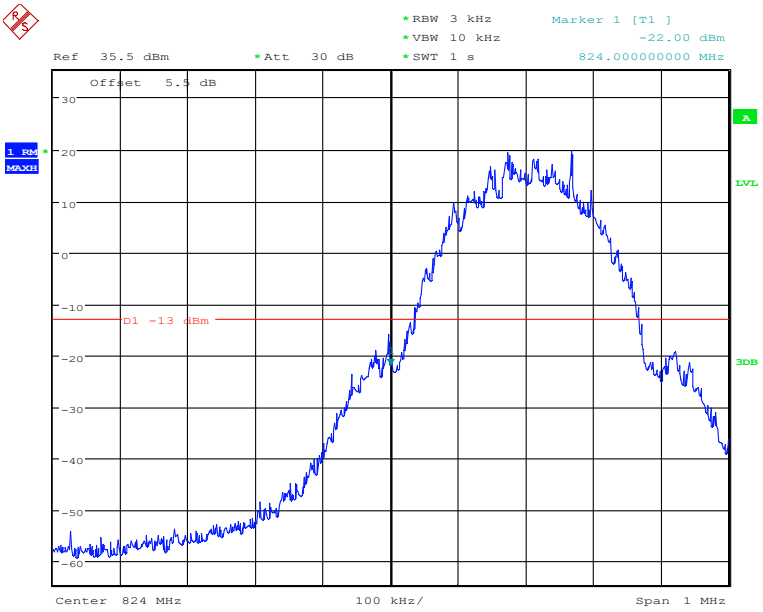
1) The EUT was coupled to the EMI test receiver analyzer mode and the base station simulator through a power divider. The lost of the cables the test system is calibrated to correct the readings.

2) The spectrum analyzer was set to Average Detector function and Maximum hold mode.

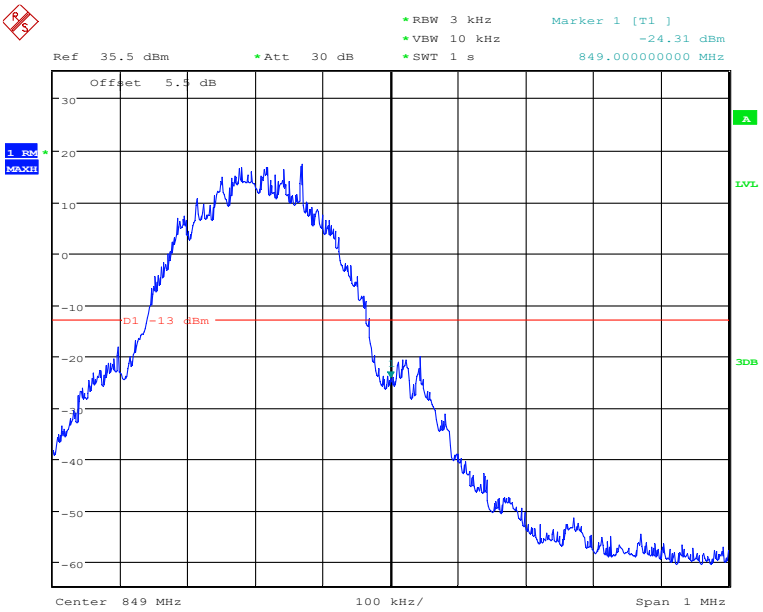
3) The resolution Bandwidth of the spectrum analyzer was a little greater than 1% of the 26dB emission Bandwidth.resolution Bandwidth of the spectrum analyzer was a little greater than 30kHz for Band12

Note: Only worst case result is given below.

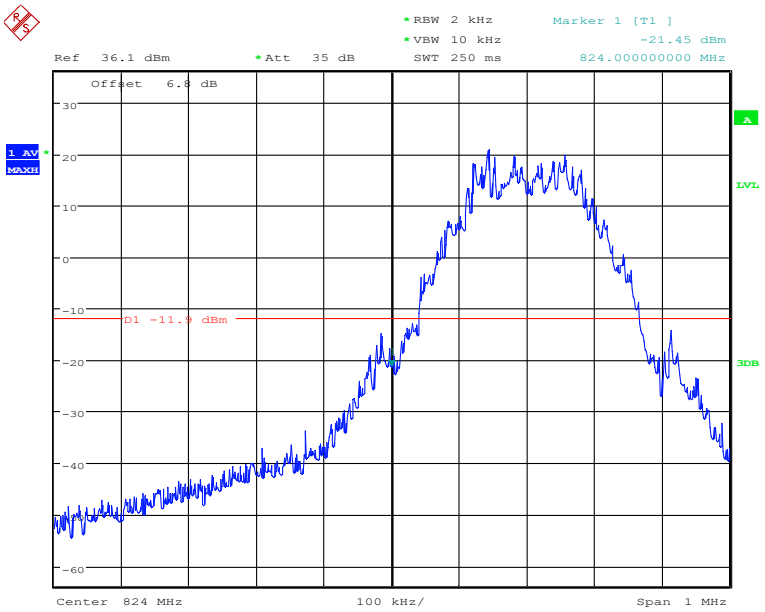
5.5.1 GSM850 Band Edge Results



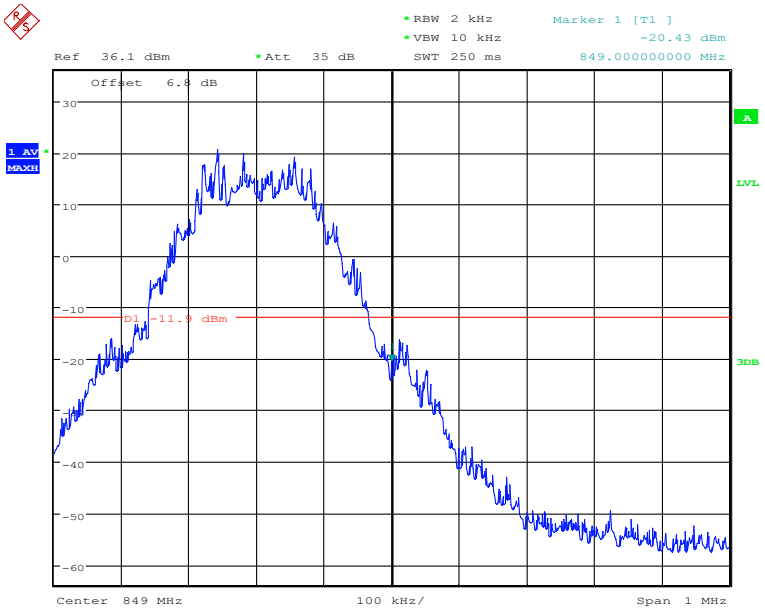
GSMK-Cellular low channel-below 824 MHz



GMSK-Cellular high channel-above 849 MHz

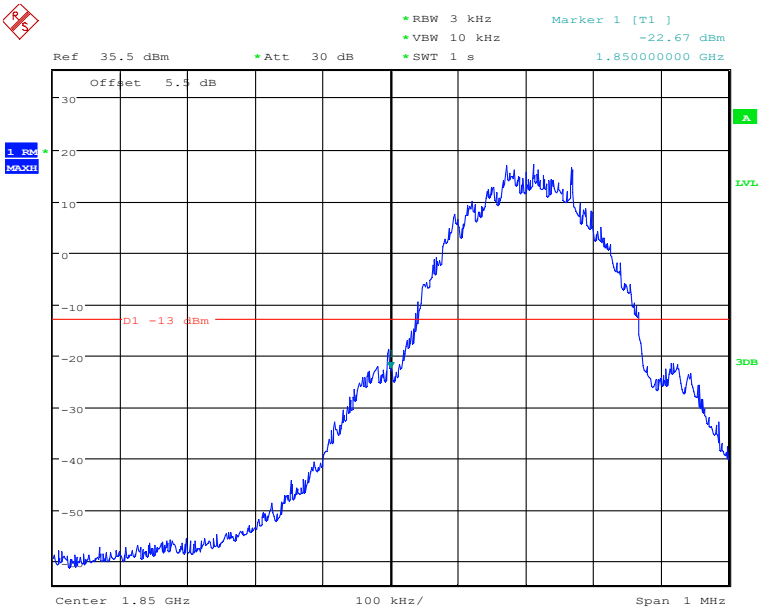


8PSK-Cellular low channel-below 824 MHz

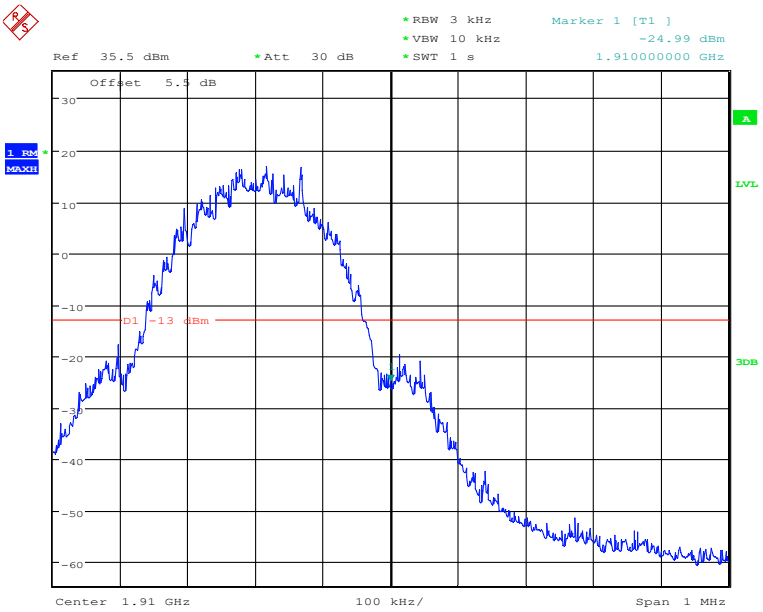


8PSK-Cellular high channel-above 849 MHz

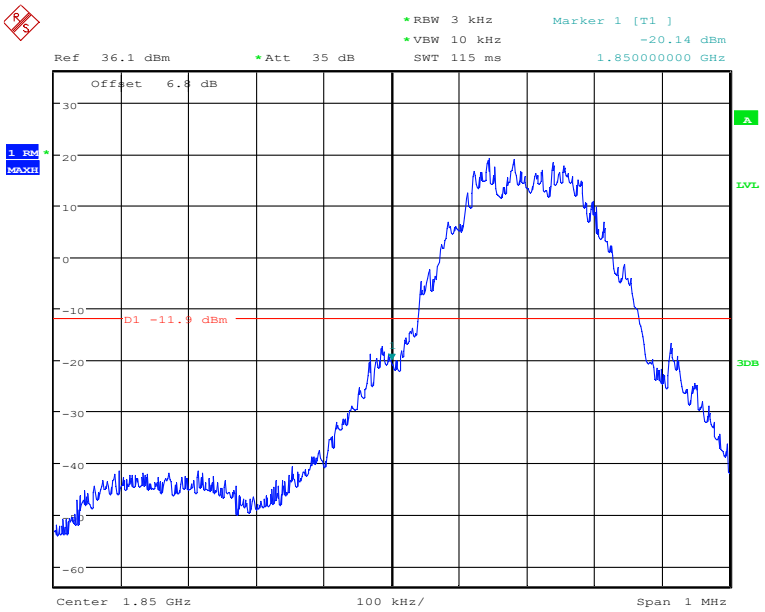
5.5.2 PCS1900 Band Edge Results



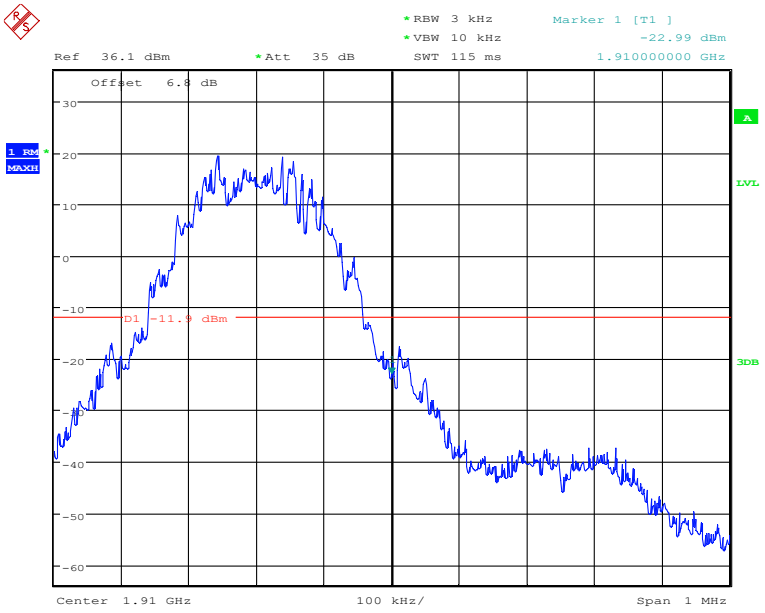
GMSK-PCS low channel-below 1850 MHz



GMSK-PCS high channel-above 1910 MHz

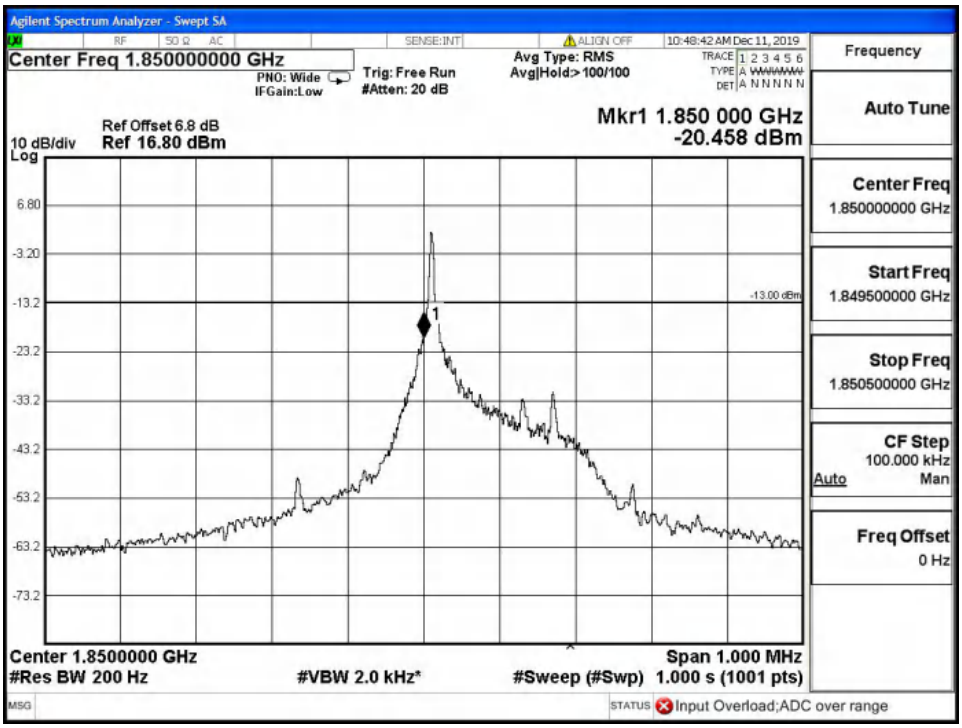


8PSK-PCS low channel-below 1850 MHz

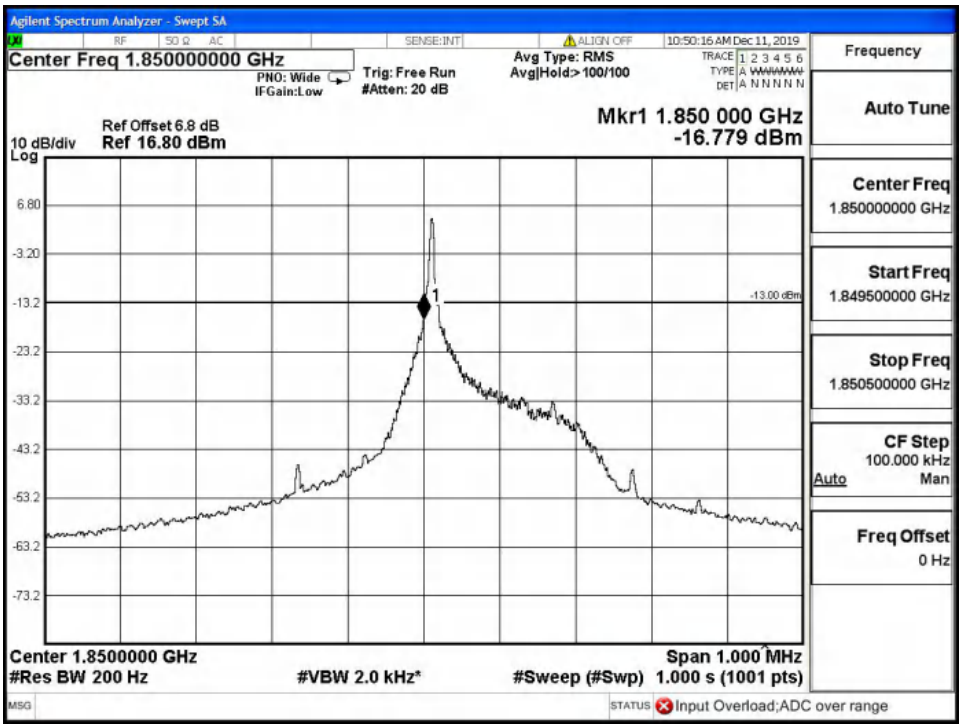


8PSK-PCS high channel-above 1910 MHz

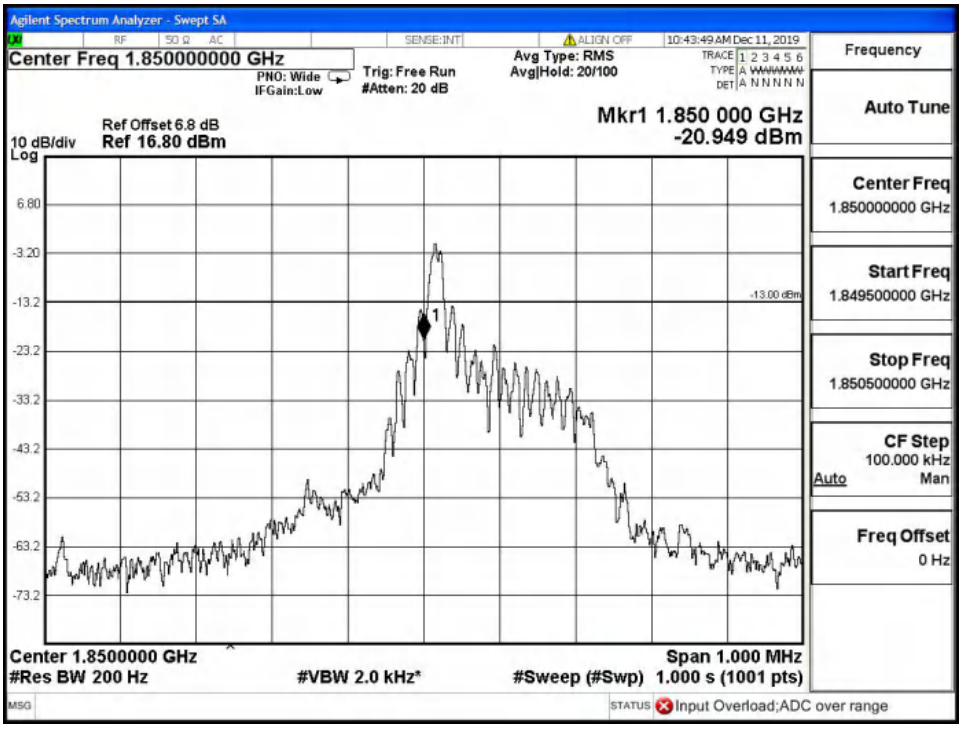
5.5.3 NB-IoT Band2 Edge Results



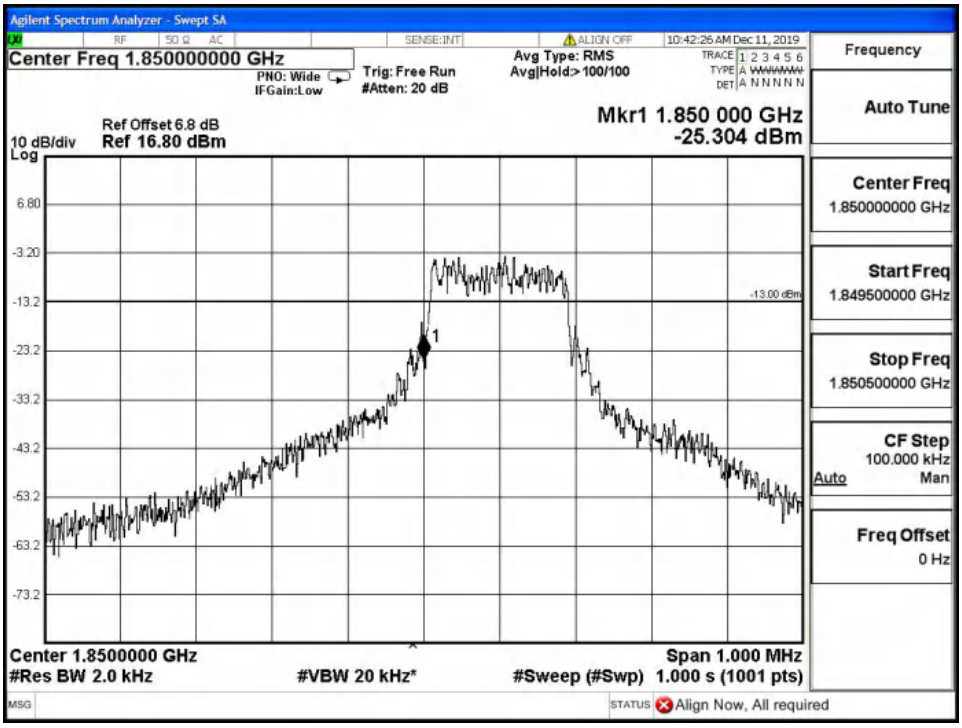
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



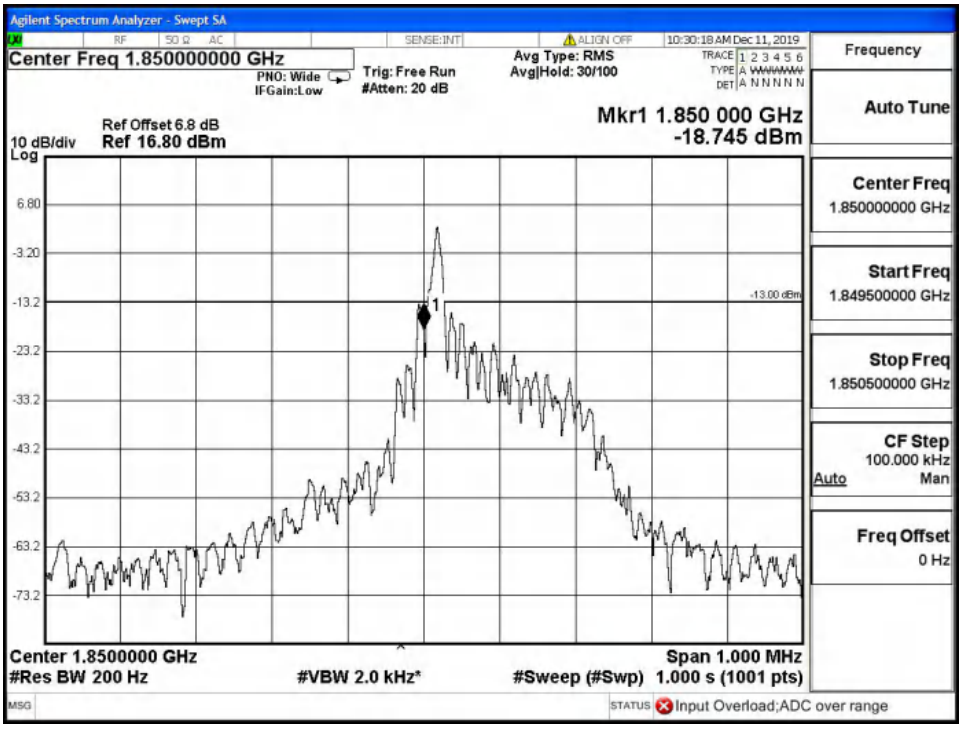
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



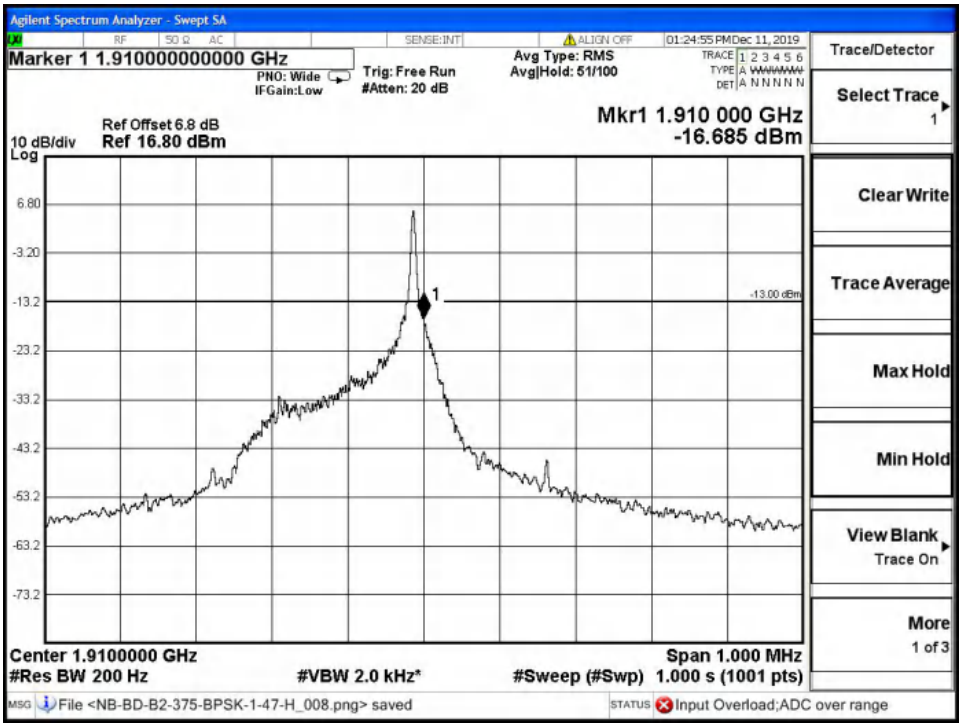
Low Channel, Subcarrier (15kHz), QPSK, 1@0



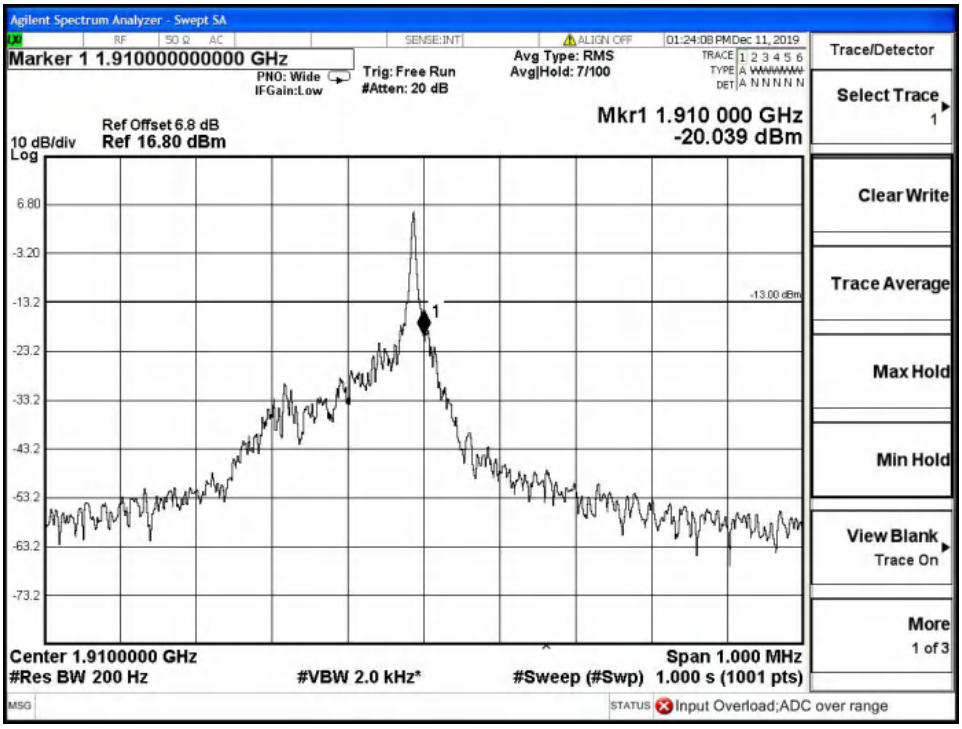
Low Channel, Subcarrier (15kHz), QPSK, 12@0



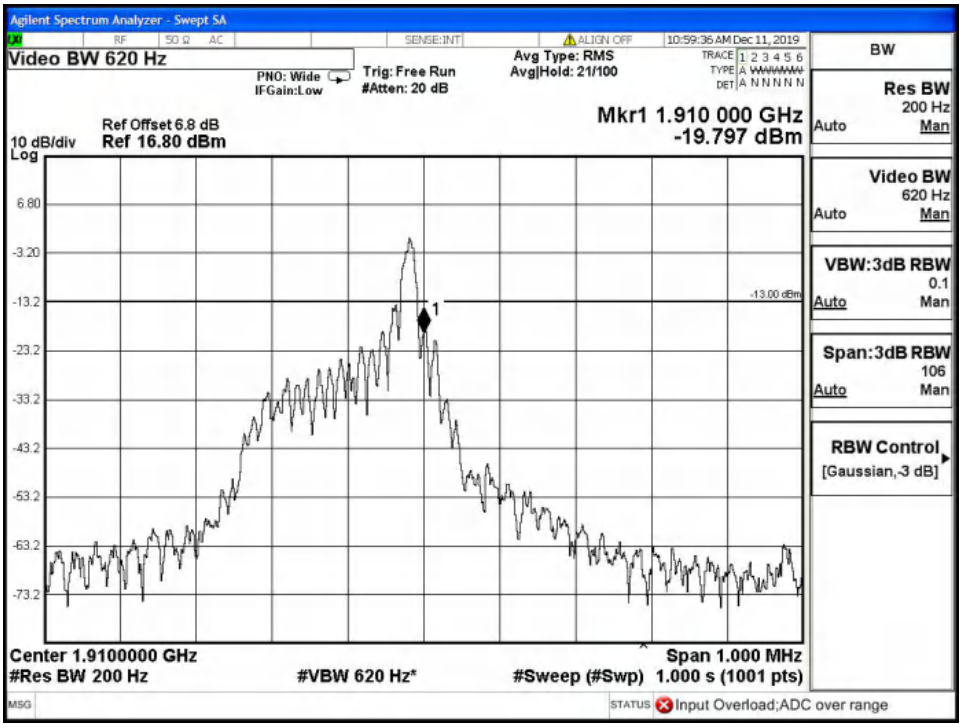
Low Channel, Subcarrier (15kHz), BPSK, 1@0



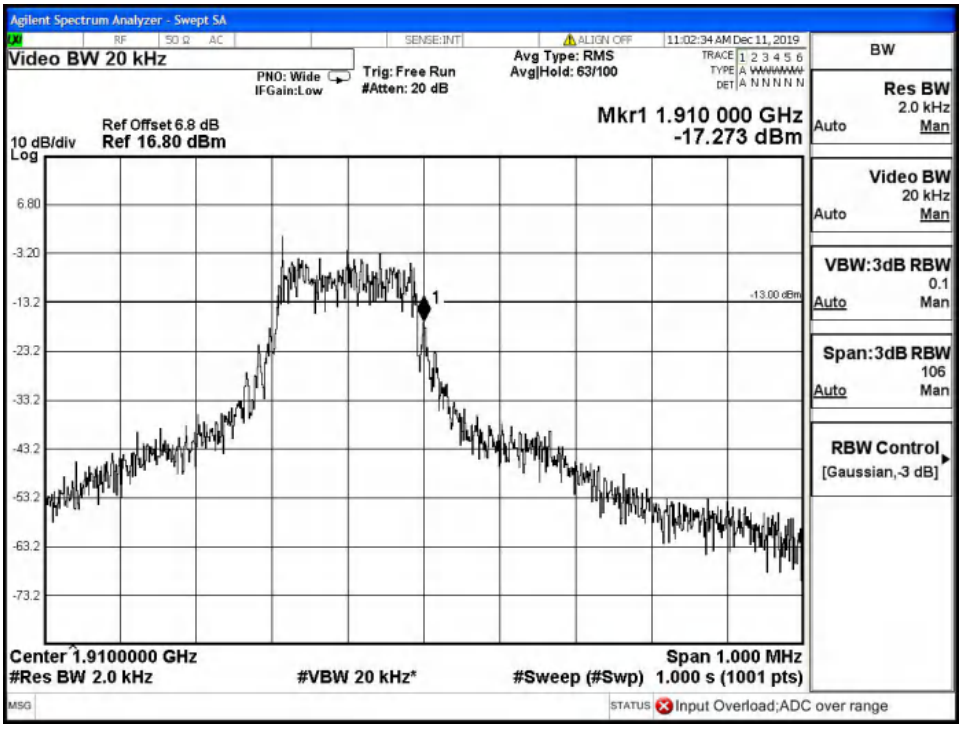
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



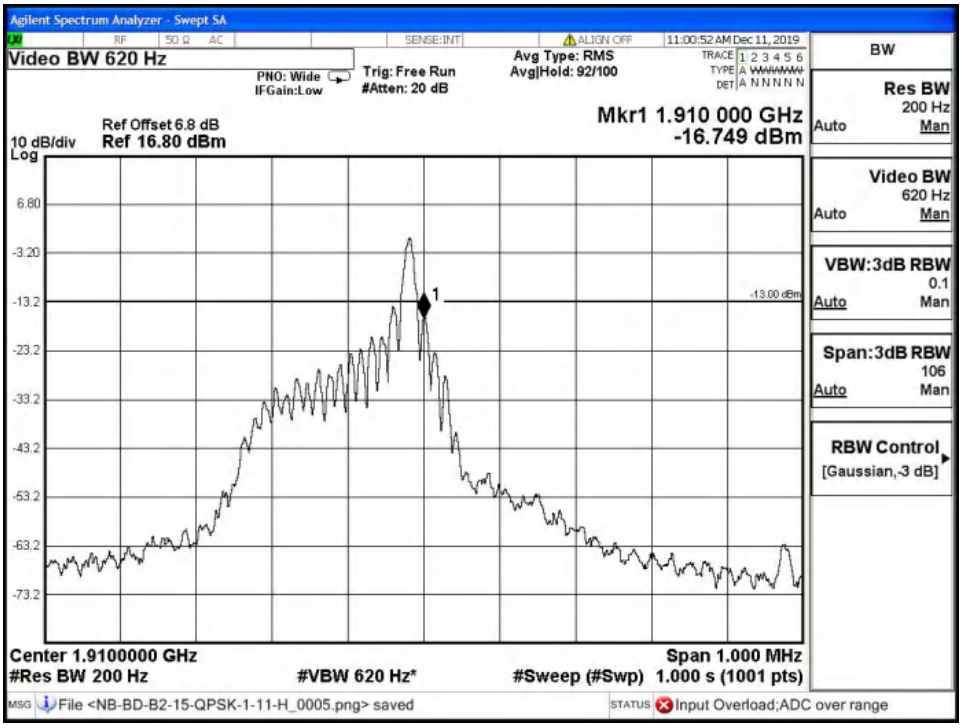
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11

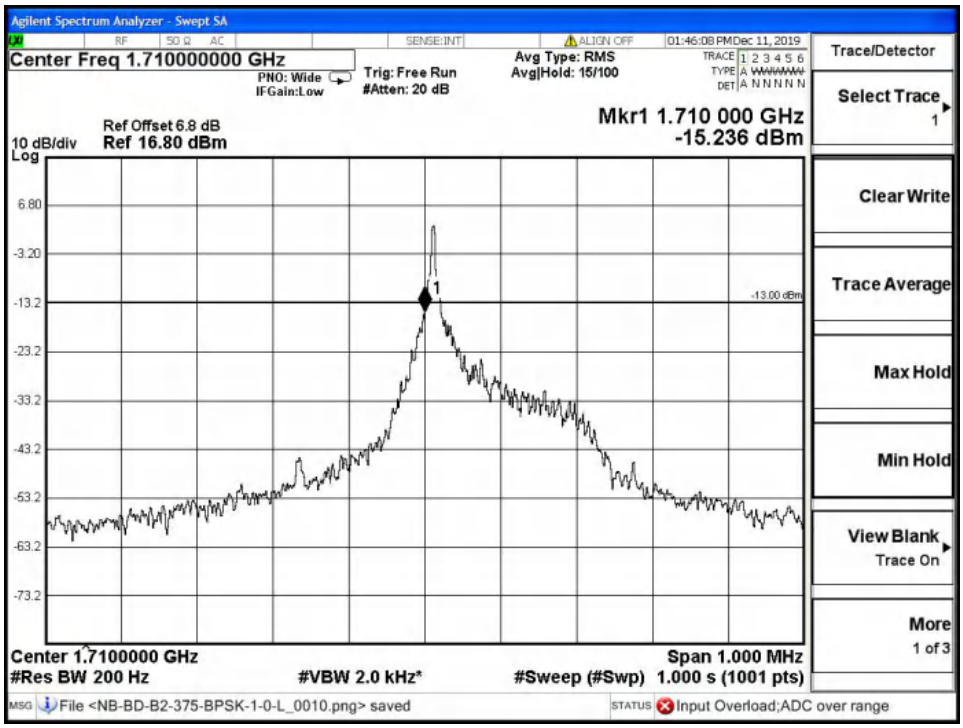


High Channel, Subcarrier (15kHz), QPSK, 12@0

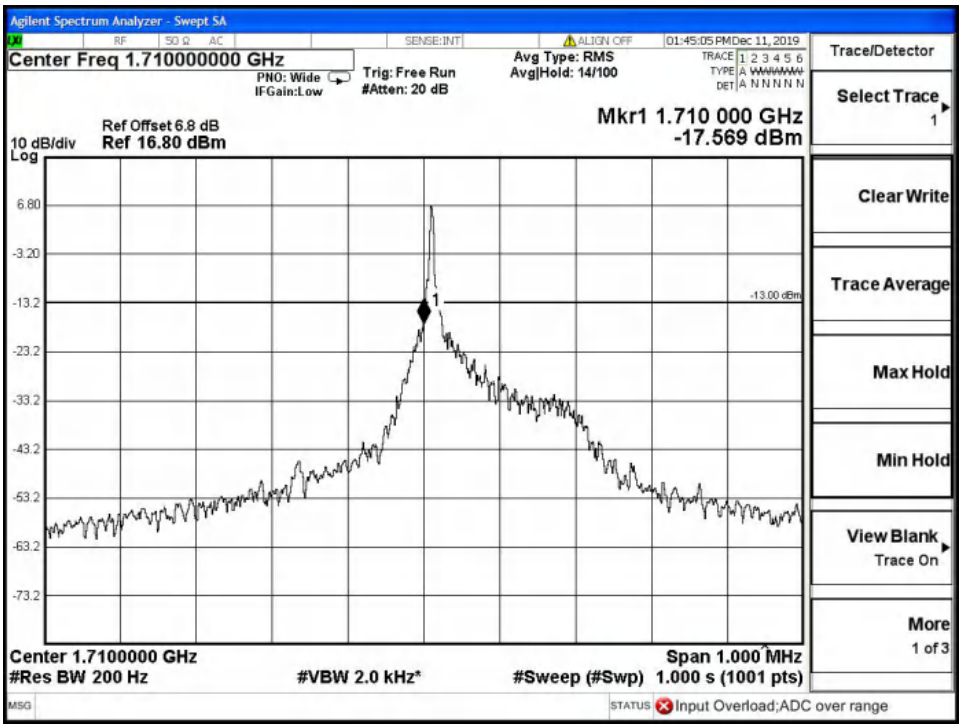


High Channel, Subcarrier (15kHz), BPSK, 1@11

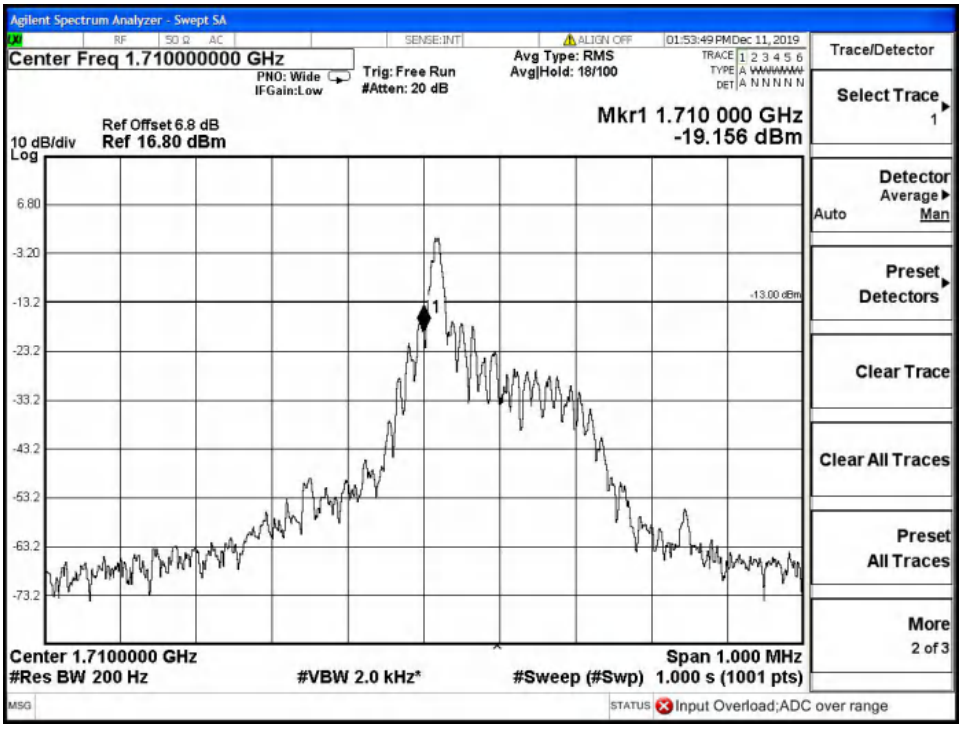
5.5.4 NB-IoT Band4 Edge Results



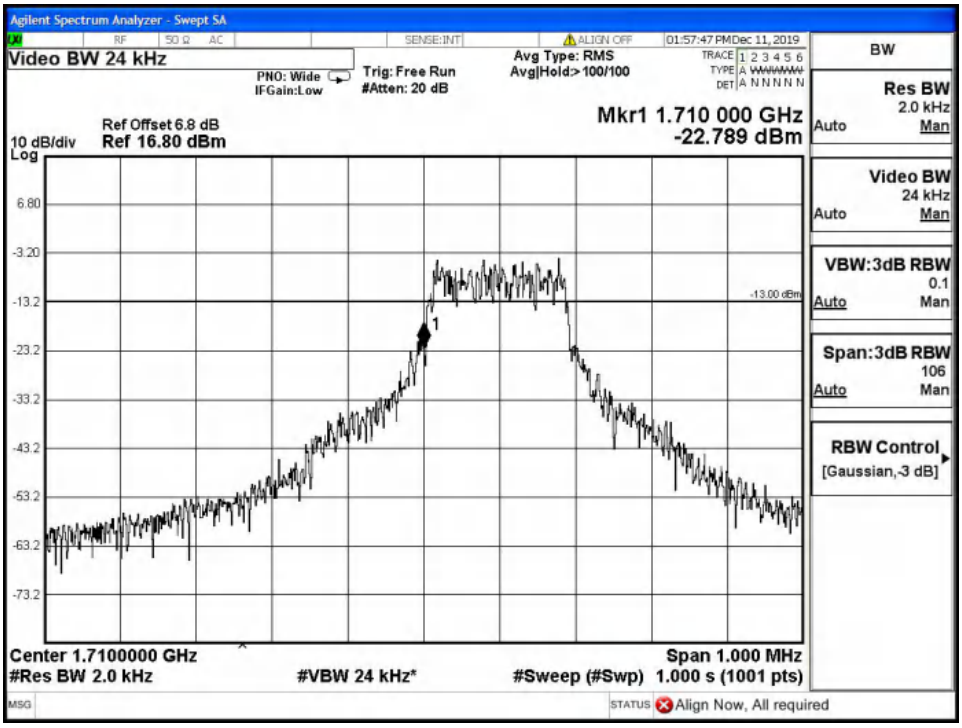
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



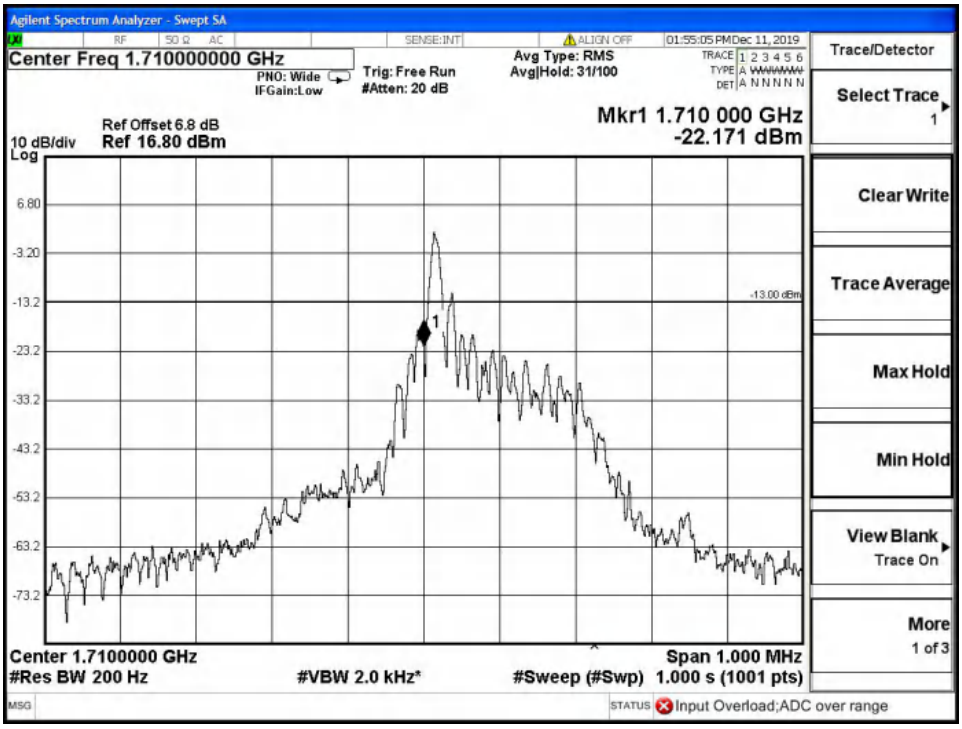
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



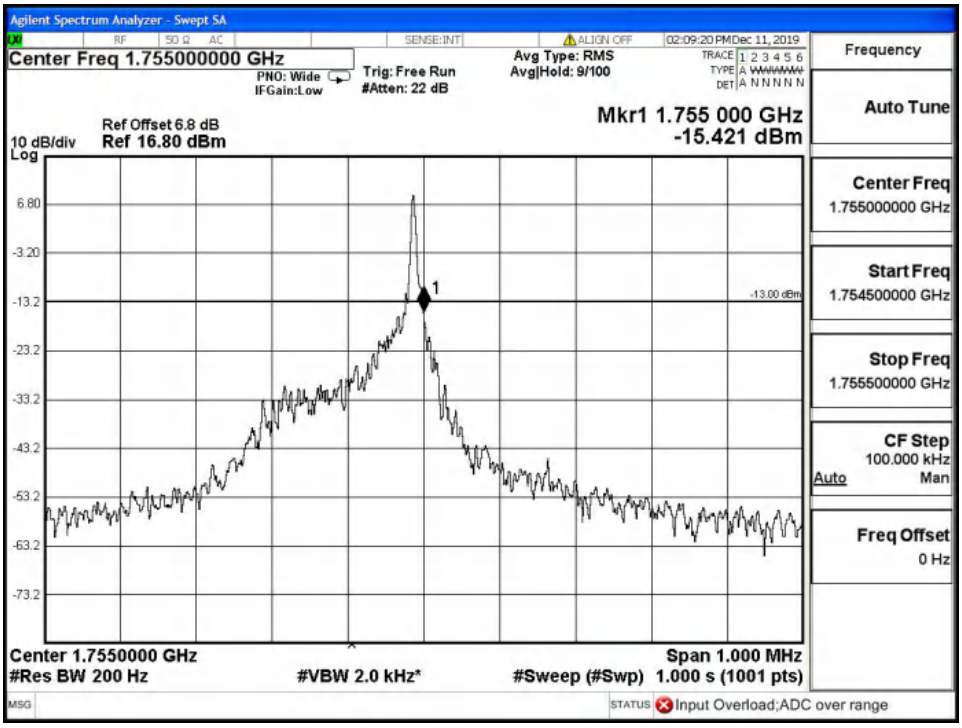
Low Channel, Subcarrier (15kHz), QPSK, 1@0



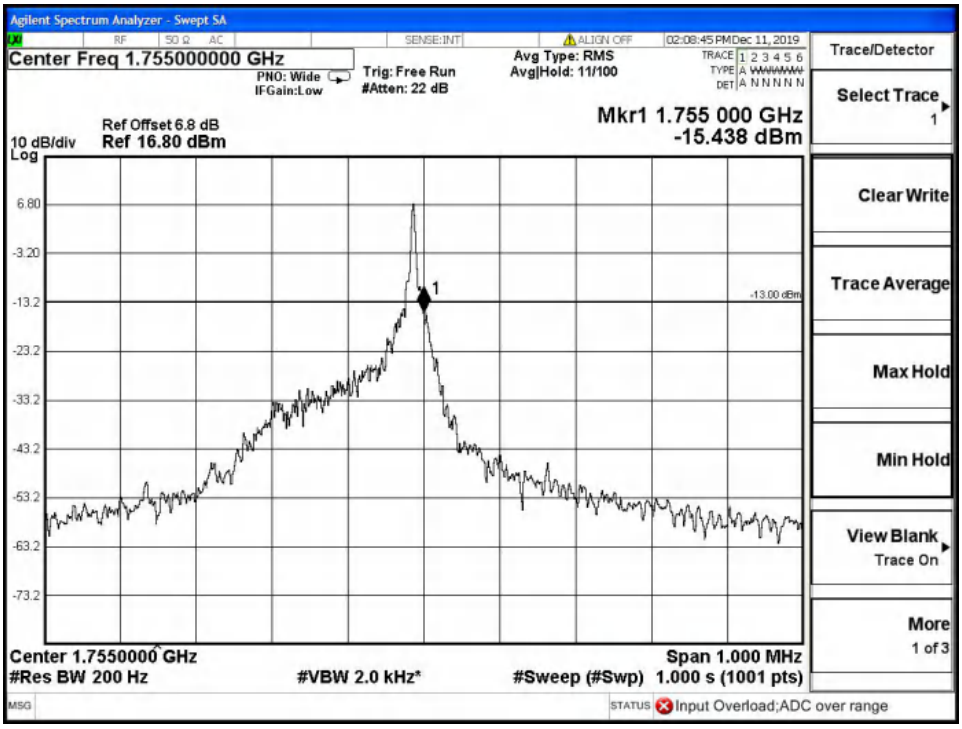
Low Channel, Subcarrier (15kHz), QPSK, 12@0



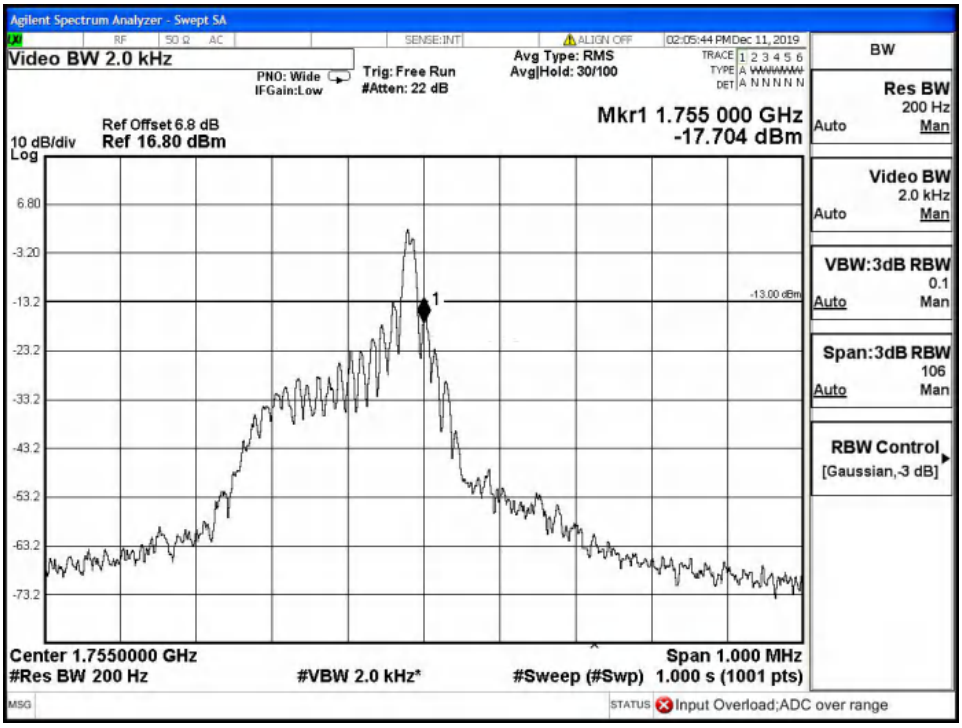
Low Channel, Subcarrier (15kHz), BPSK, 1@0



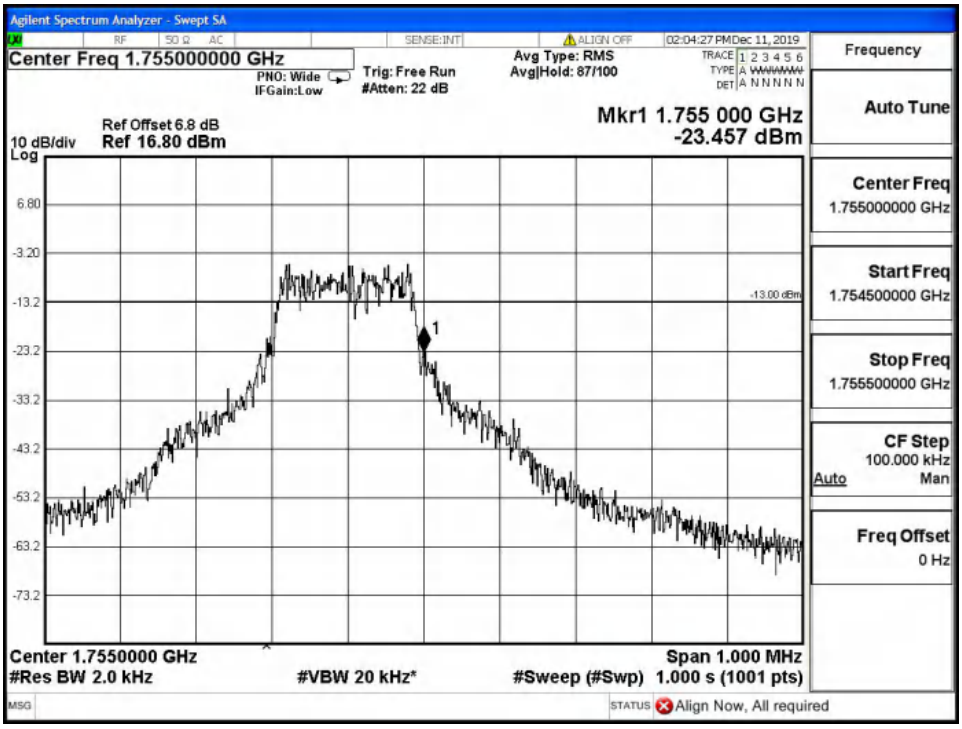
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



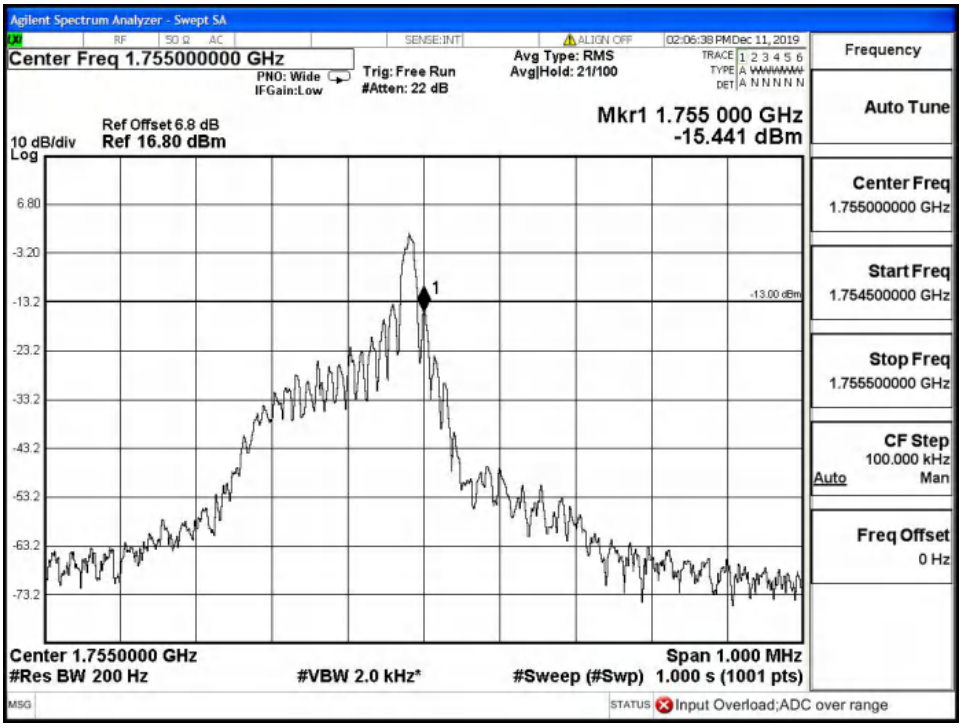
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11

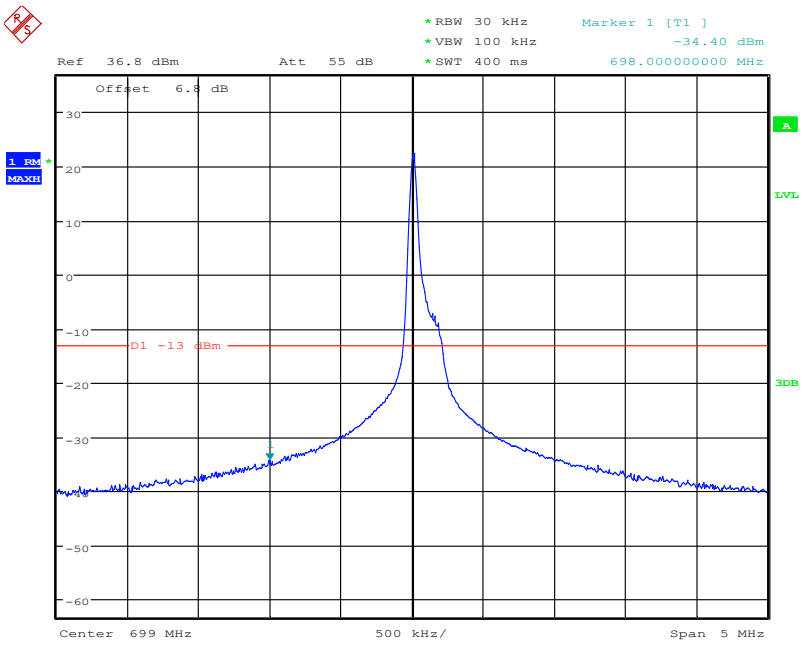


High Channel, Subcarrier (15kHz), QPSK, 12@0

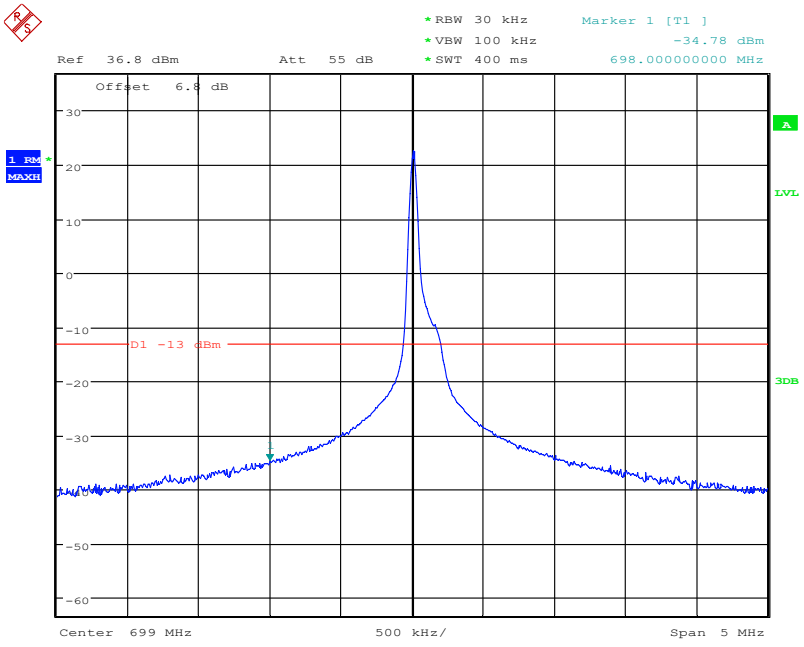


High Channel, Subcarrier (15kHz), BPSK, 1@11

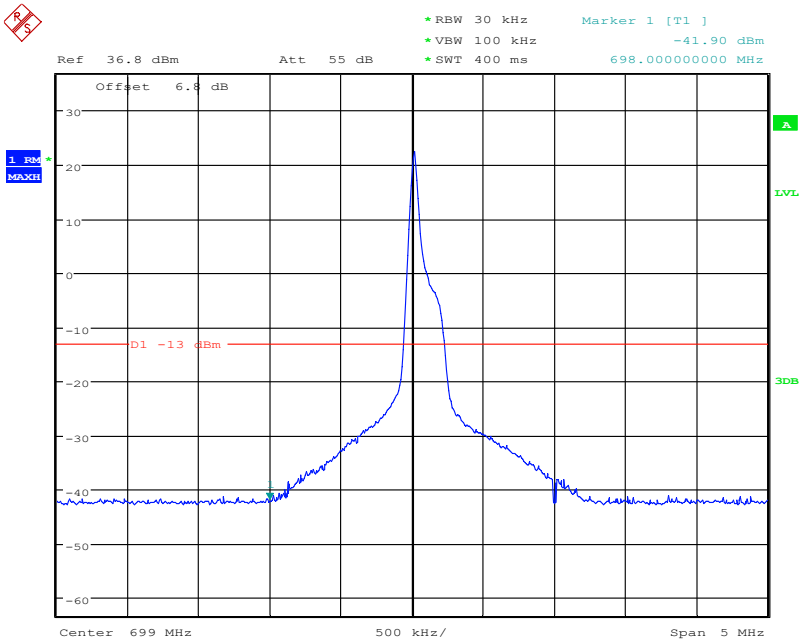
5.5.5 NB-IoT Band12 Edge Results



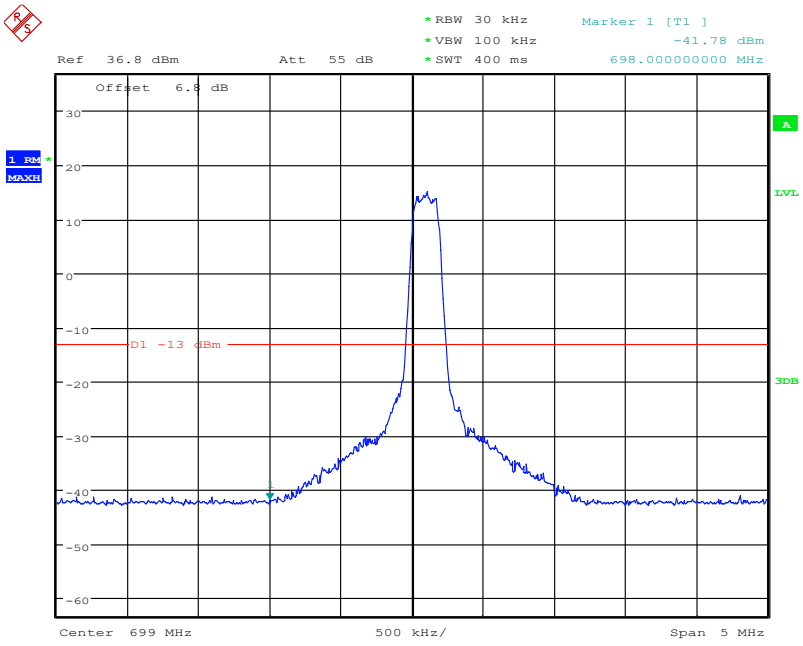
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



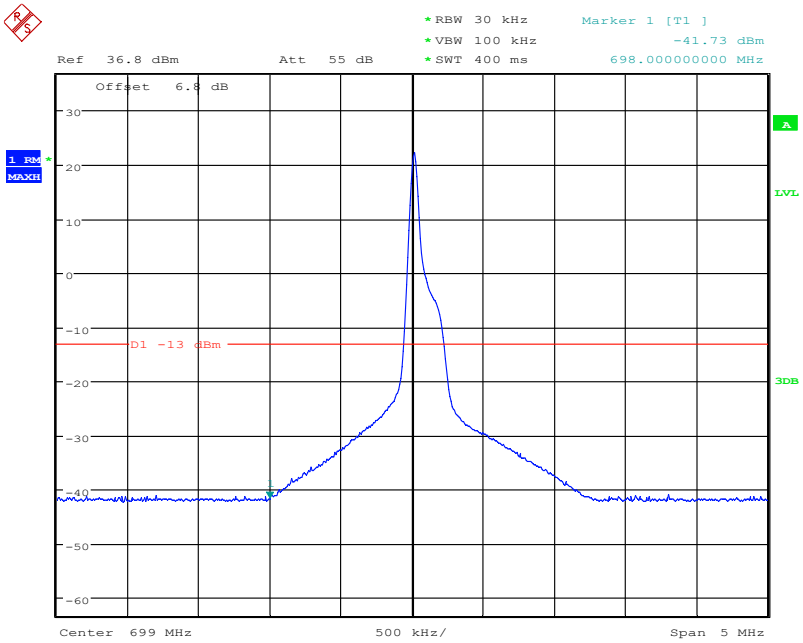
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



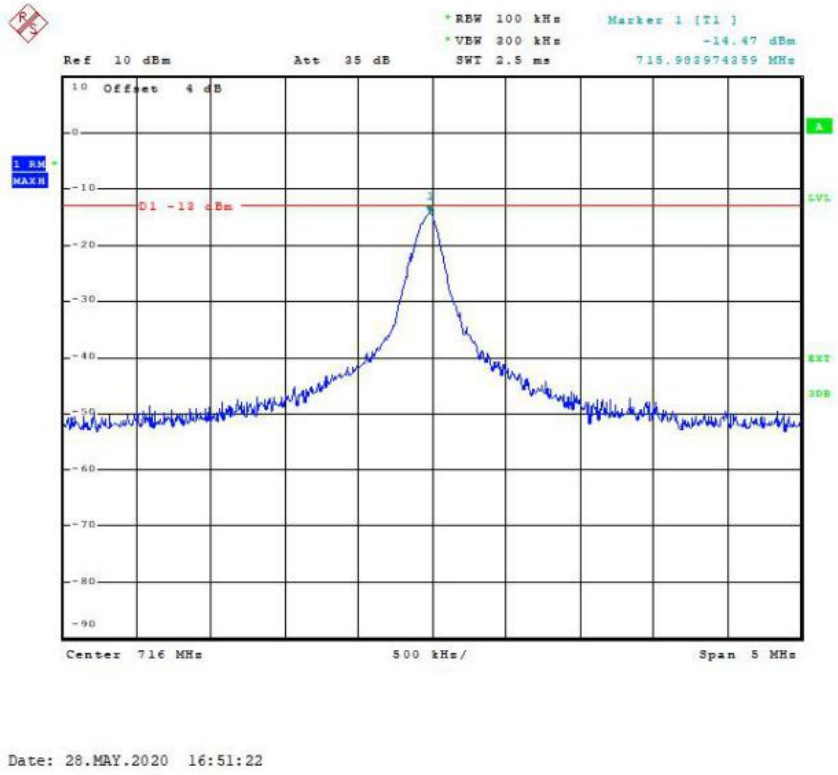
Low Channel, Subcarrier (15kHz), QPSK, 1@0



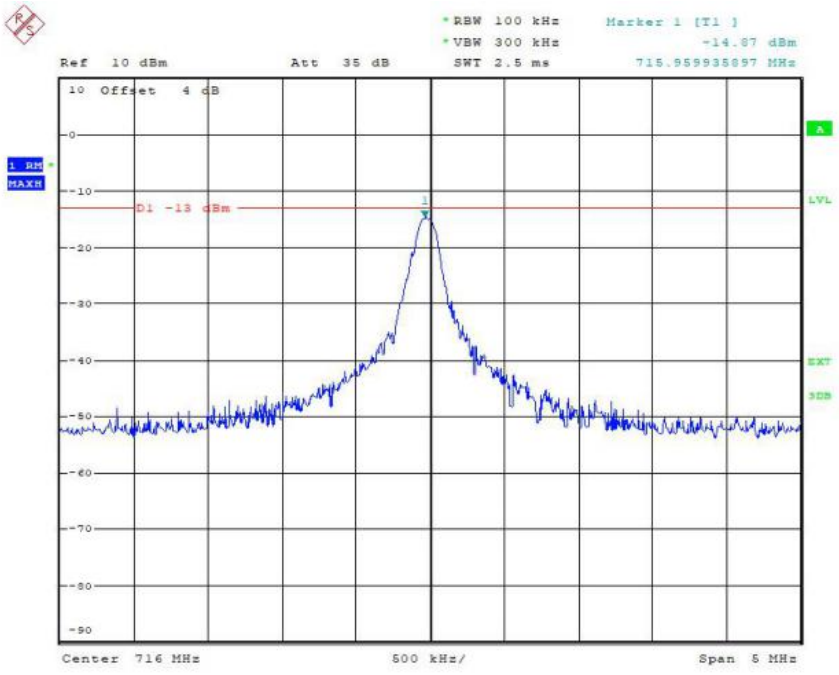
Low Channel, Subcarrier (15kHz), QPSK, 12@0



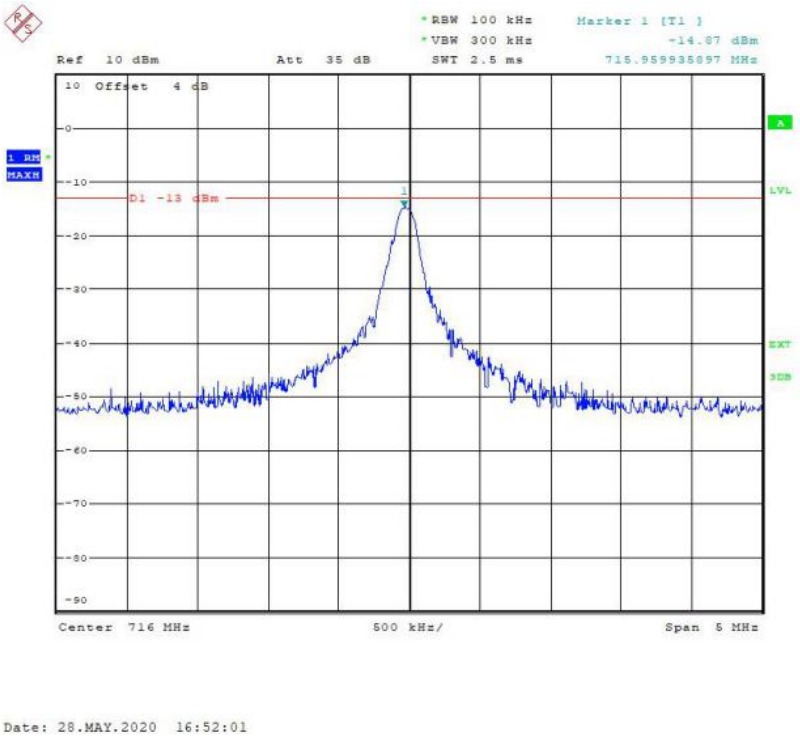
Low Channel, Subcarrier (15kHz), BPSK, 1@0



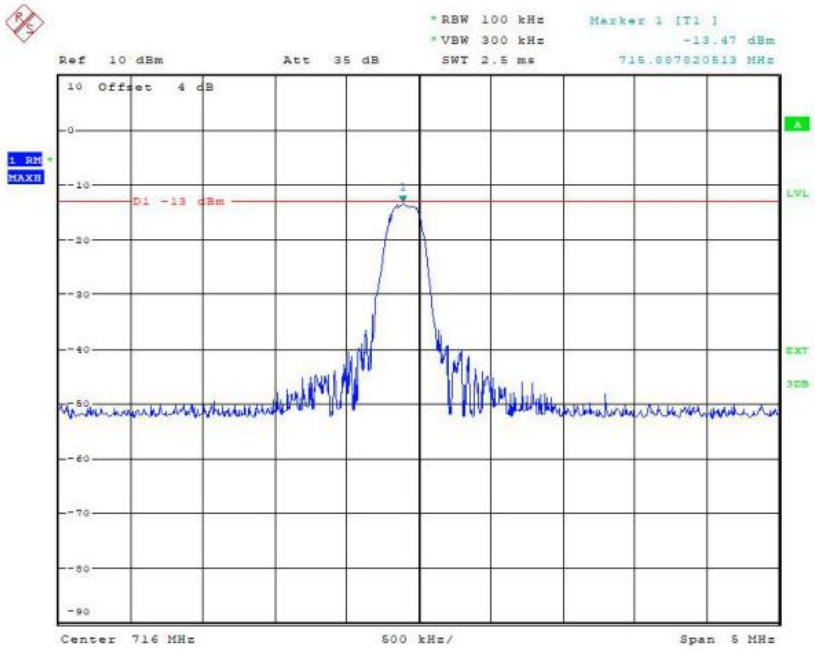
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



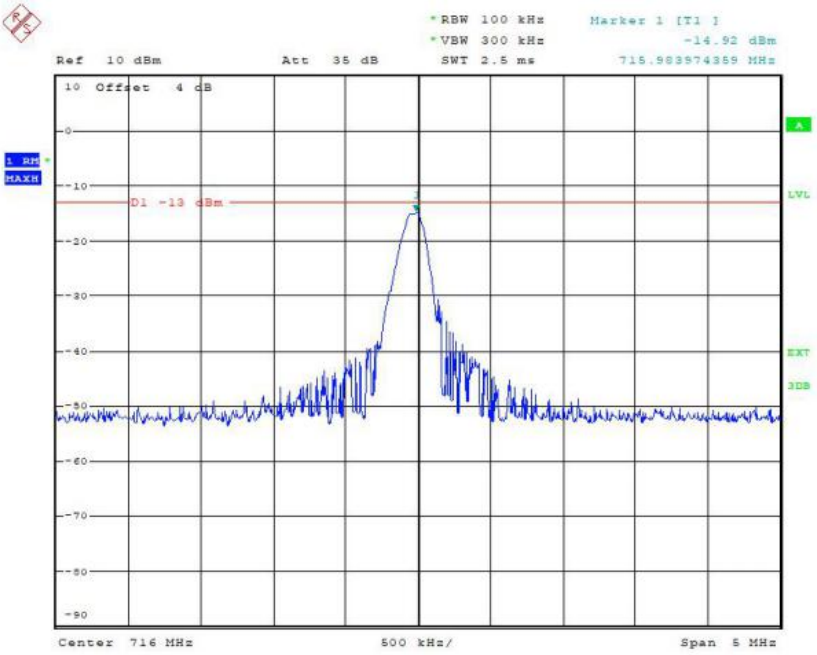
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11

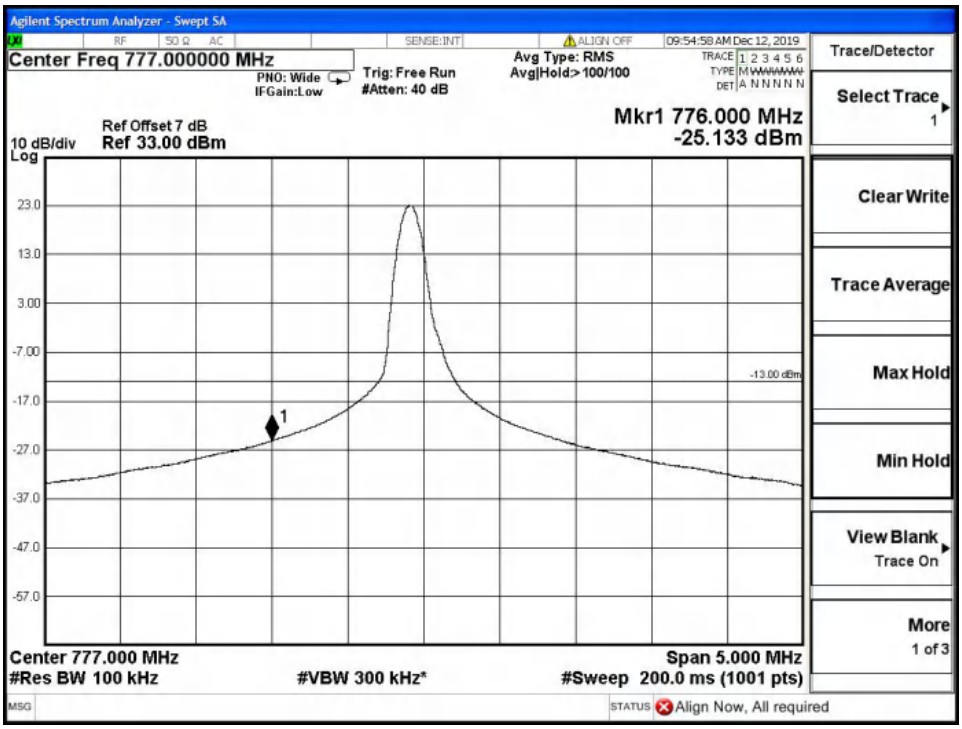


High Channel, Subcarrier (15kHz), QPSK, 12@0

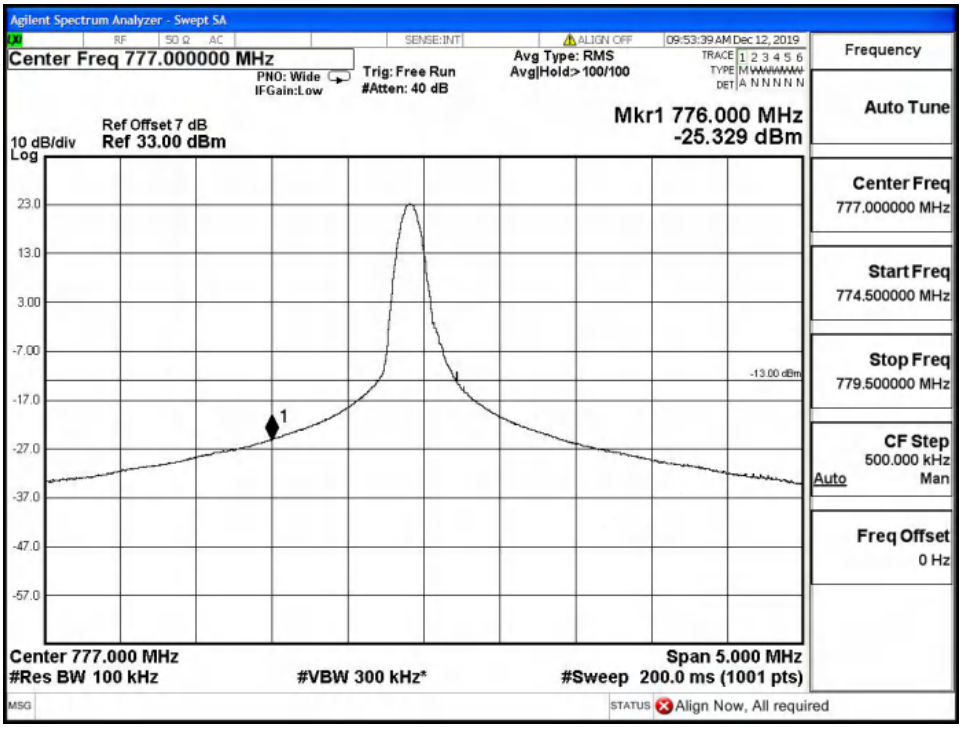


High Channel, Subcarrier (15kHz), BPSK, 1@11

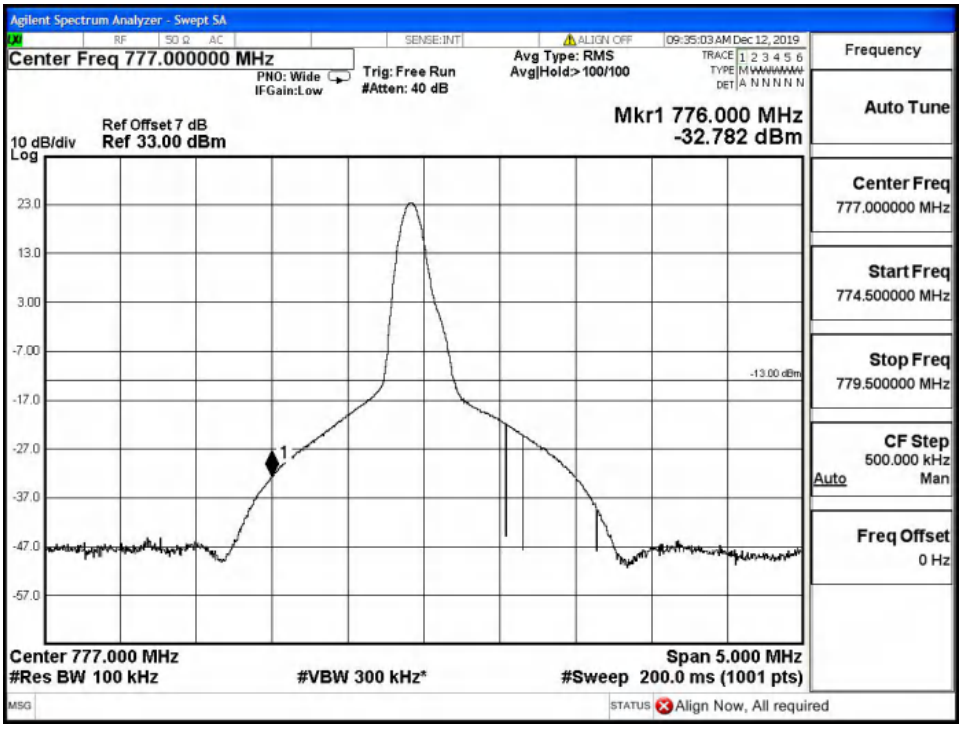
5.5.6 NB-IoT Band 13 Edge Results



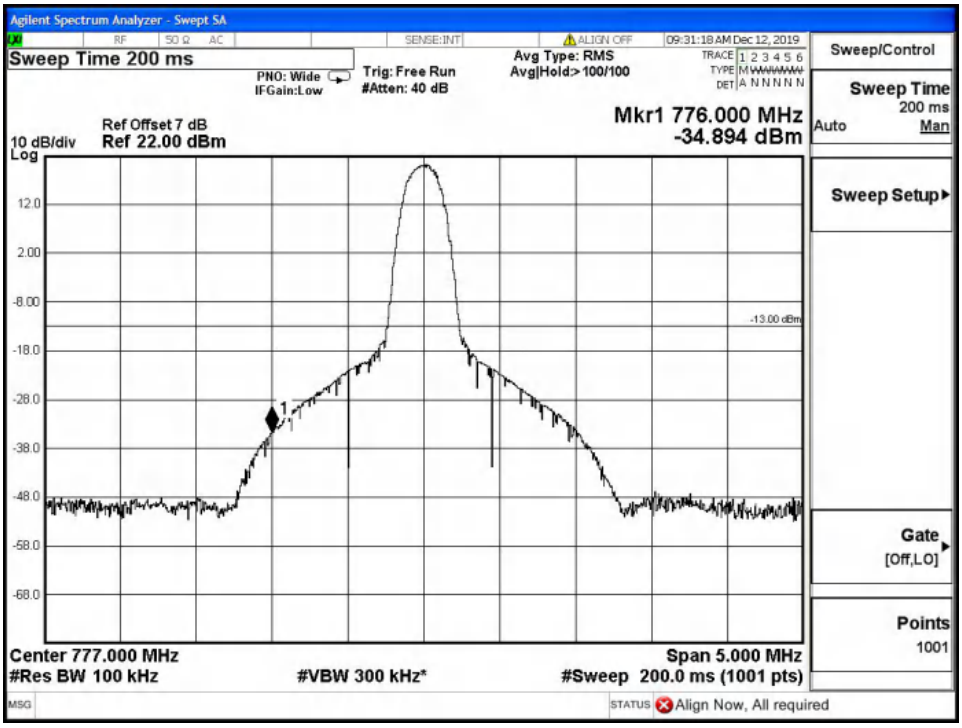
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



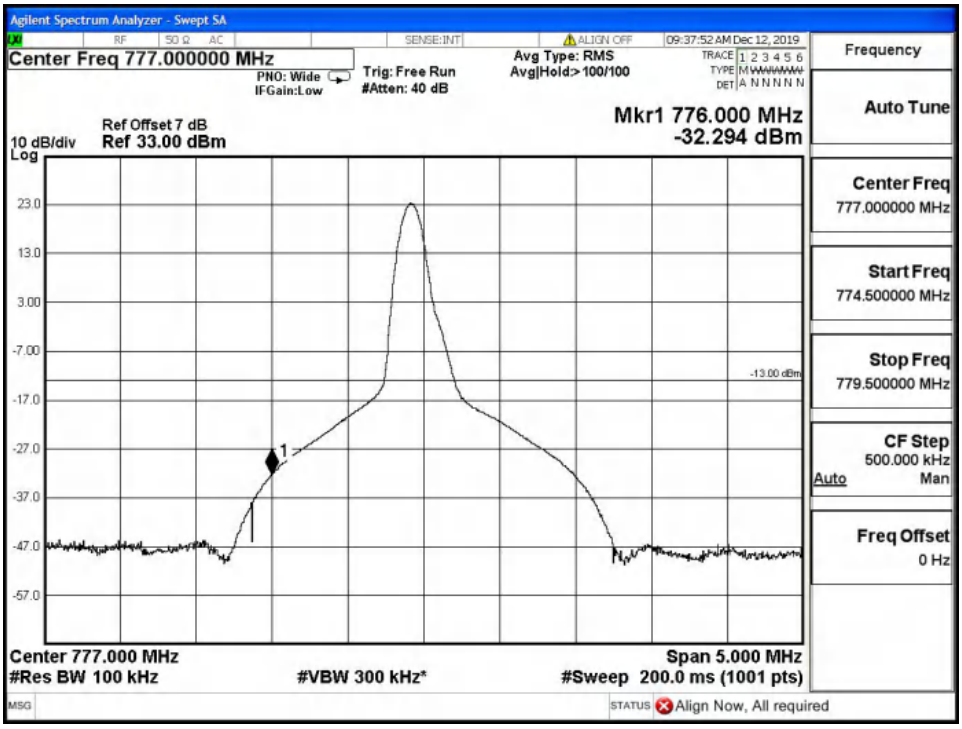
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



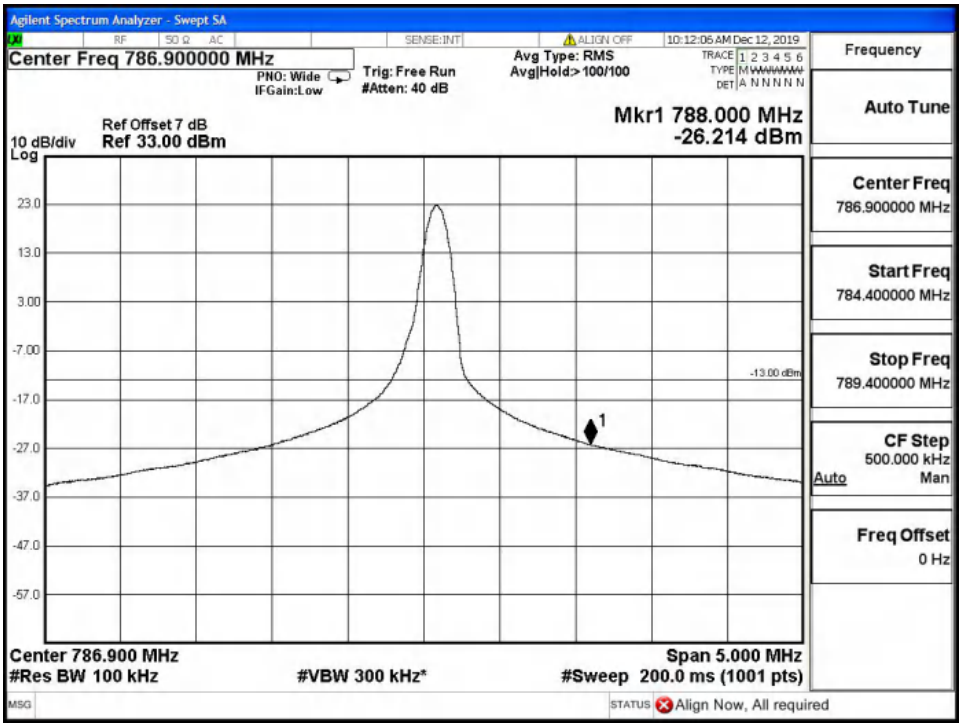
Low Channel, Subcarrier (15kHz), QPSK, 1@0



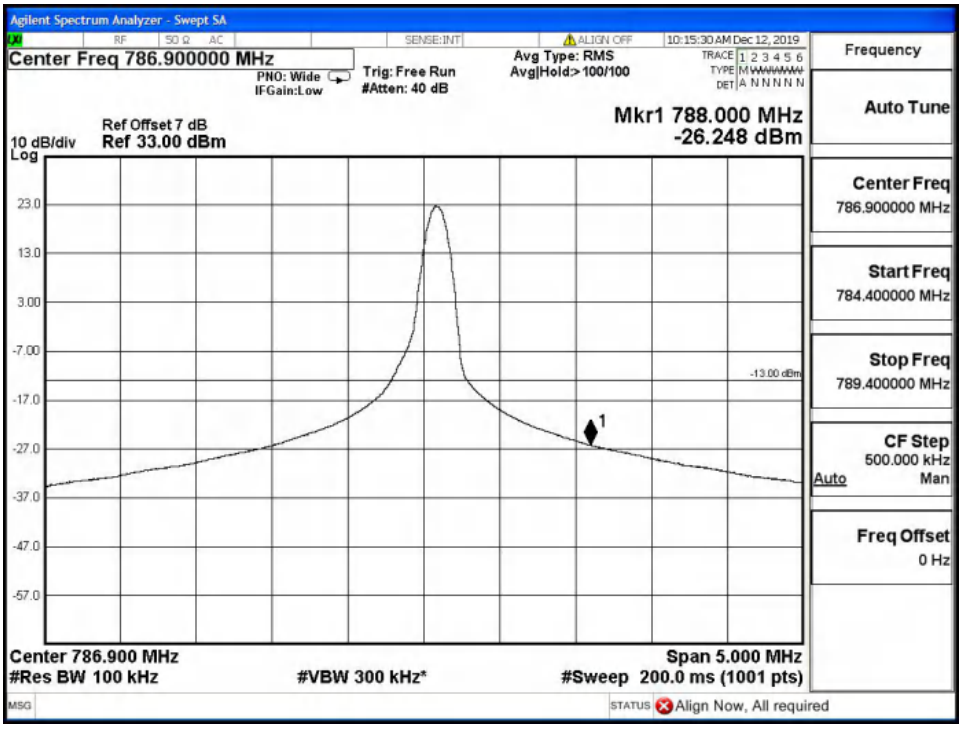
Low Channel, Subcarrier (15kHz), QPSK, 12@0



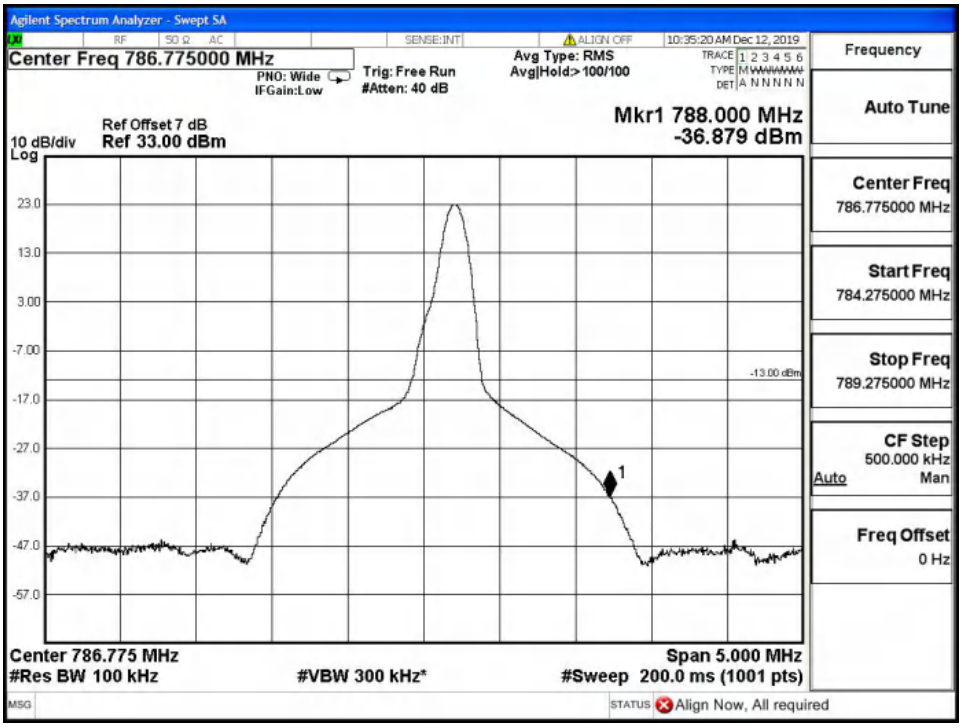
Low Channel, Subcarrier (15kHz), BPSK, 1@0



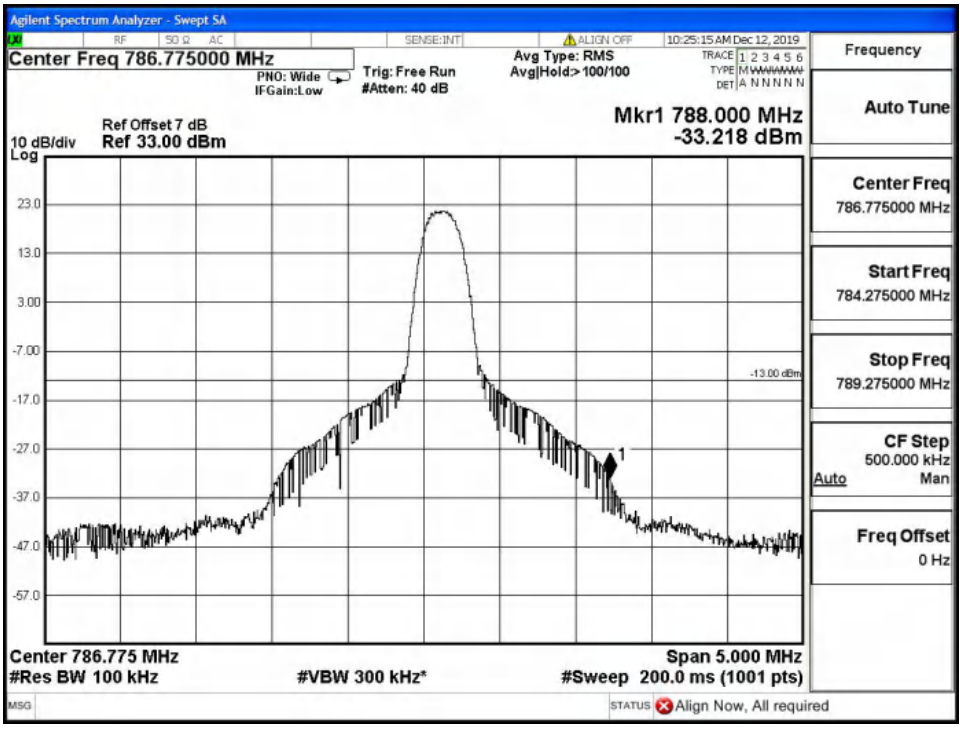
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



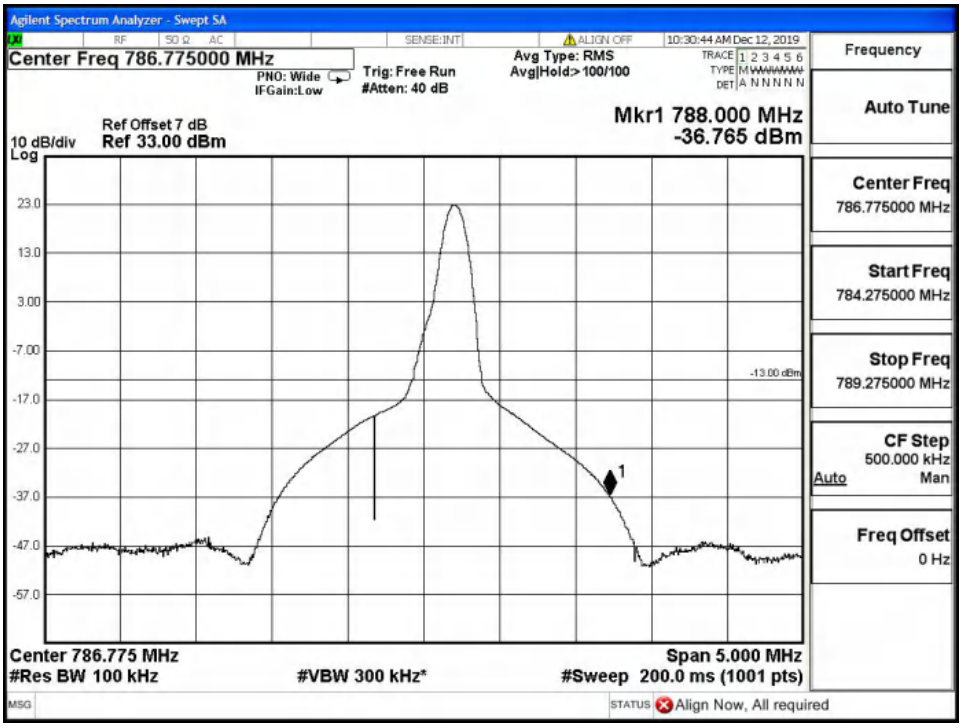
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11



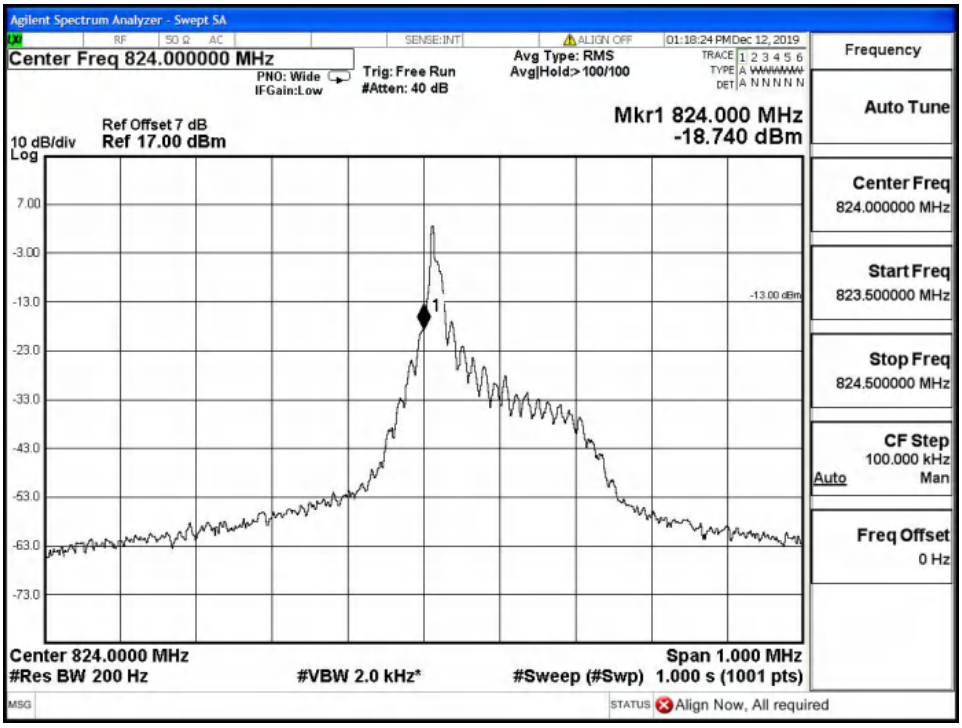
High Channel, Subcarrier (15kHz), QPSK, 12@0



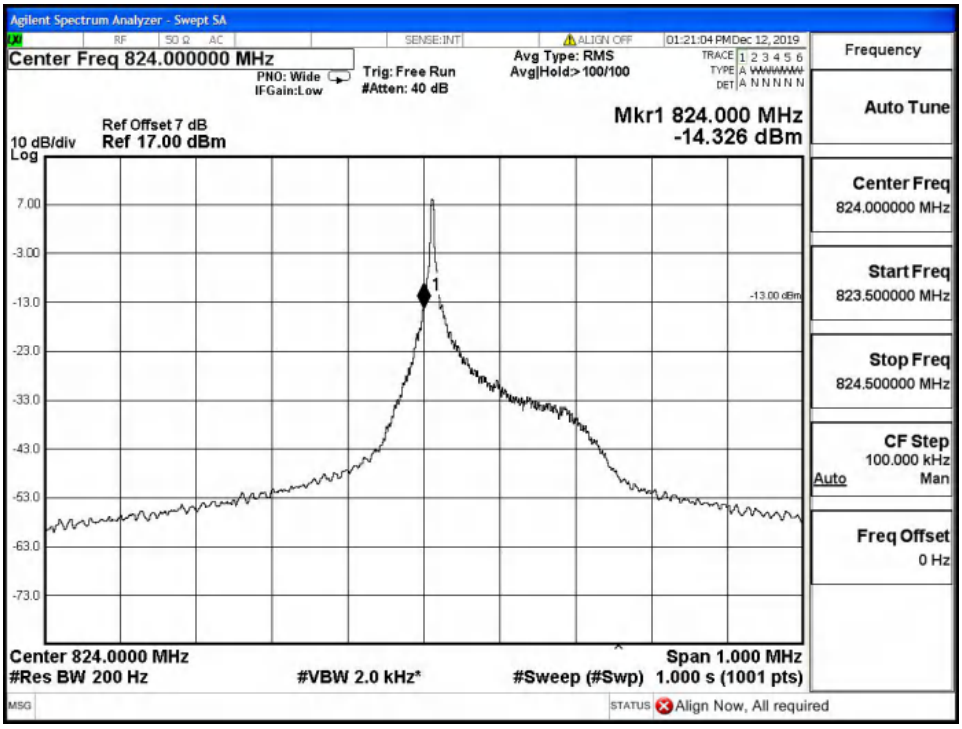
High Channel, Subcarrier (15kHz), BPSK, 1@11

5.5.7 NB-IoT Band26 Edge Results

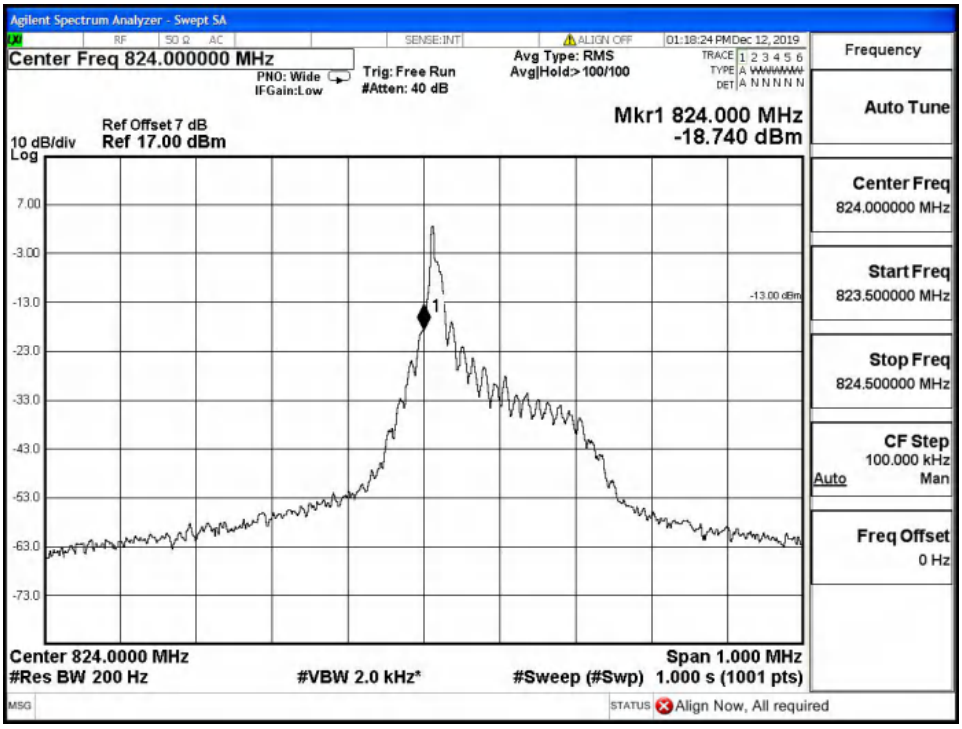
Part(824MHz-849MHz)



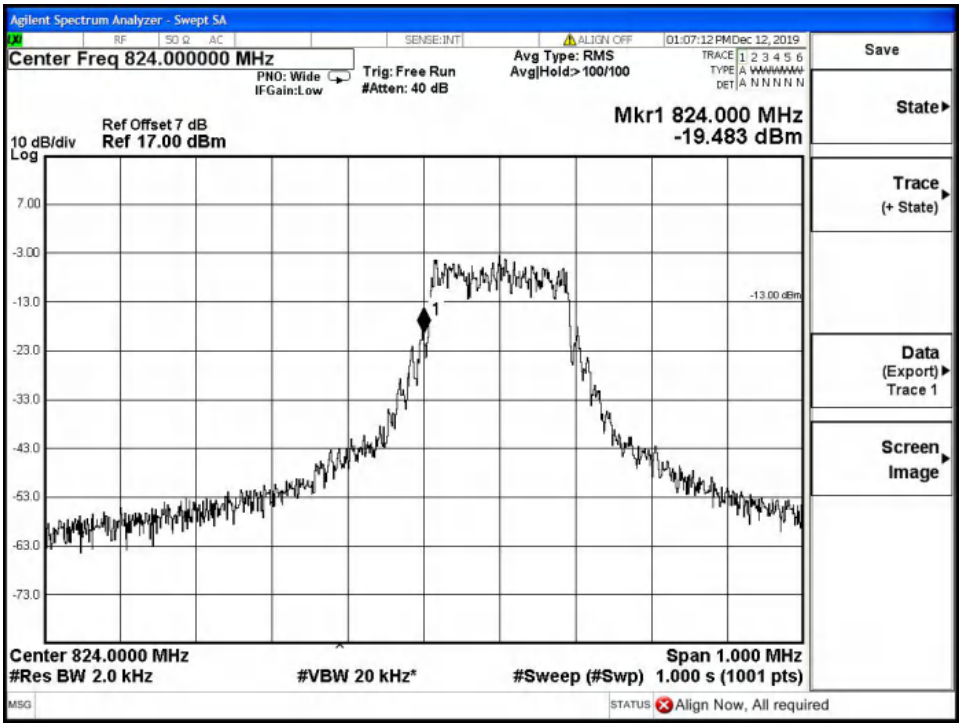
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



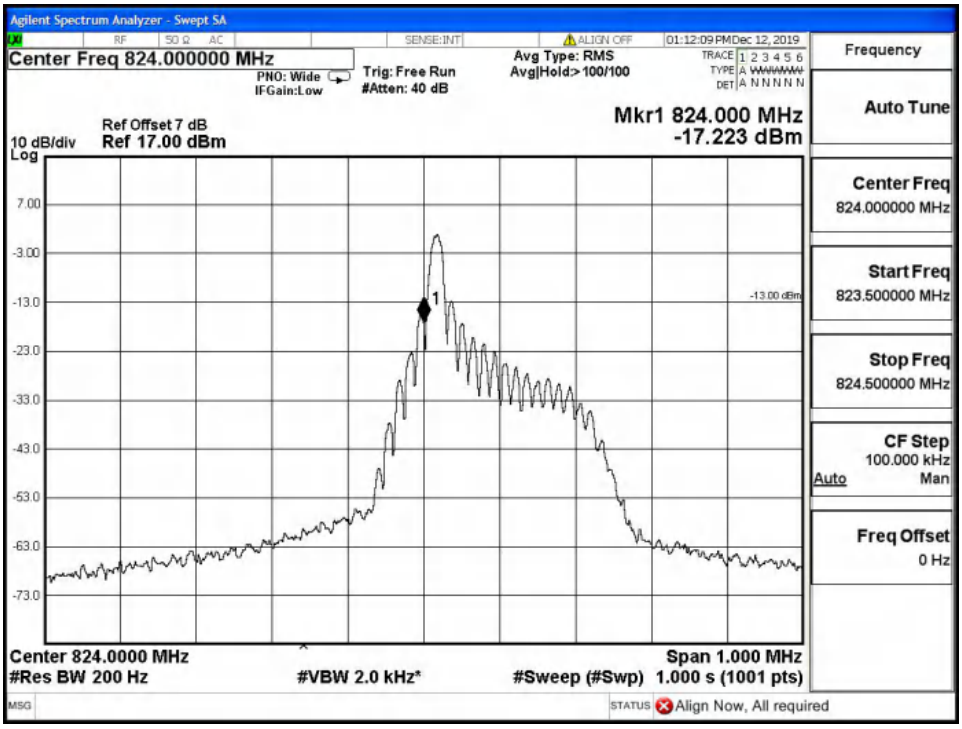
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



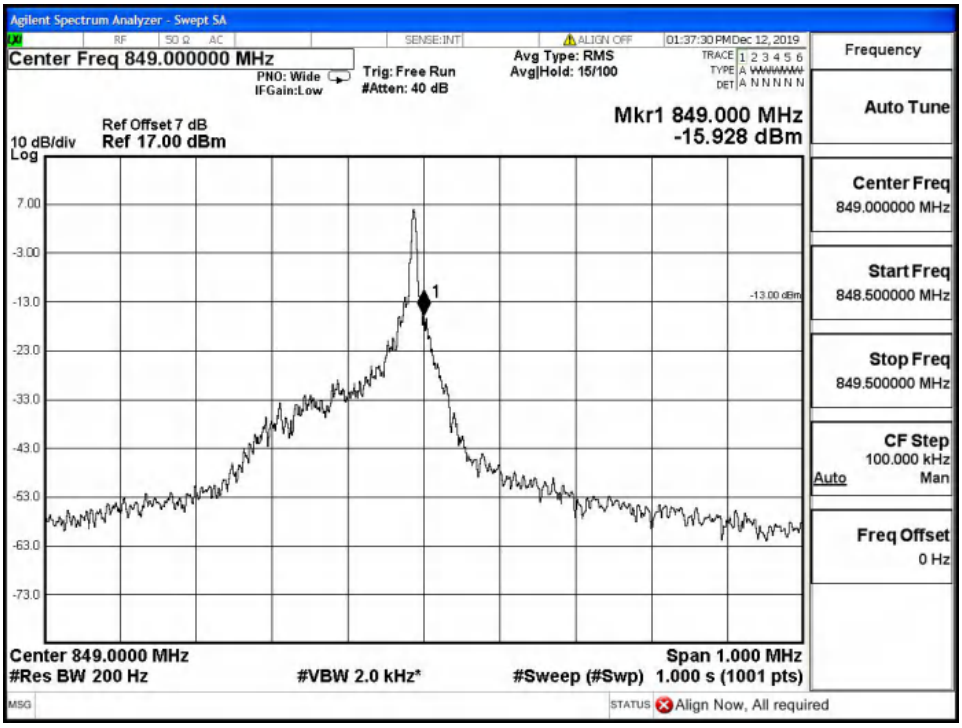
Low Channel, Subcarrier (15kHz), QPSK, 1@0



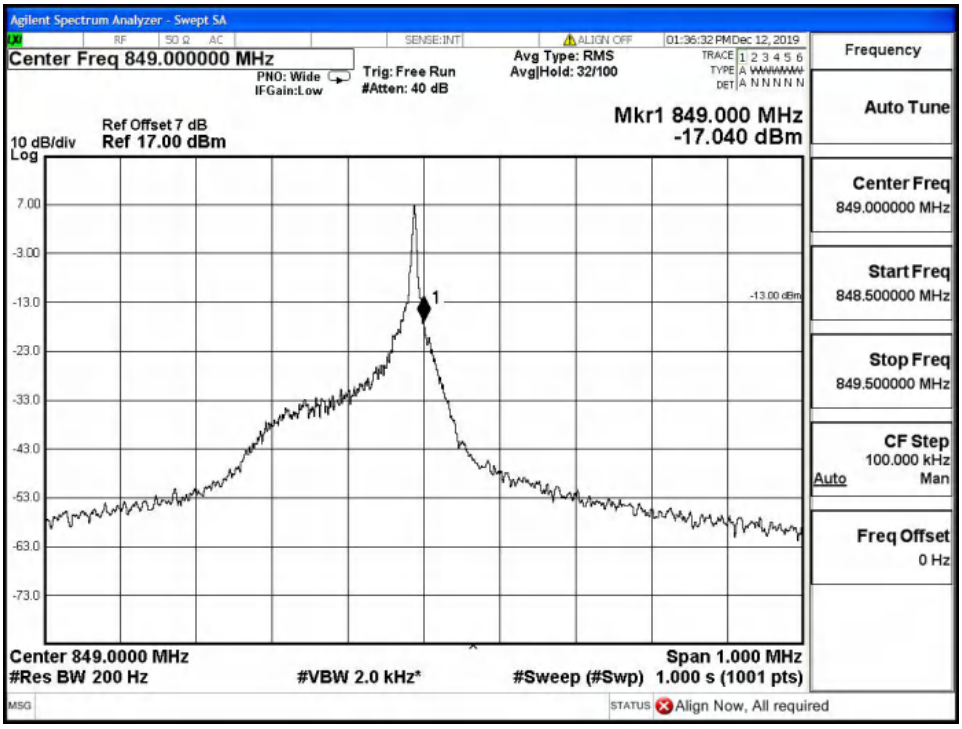
Low Channel, Subcarrier (15kHz), QPSK, 12@0



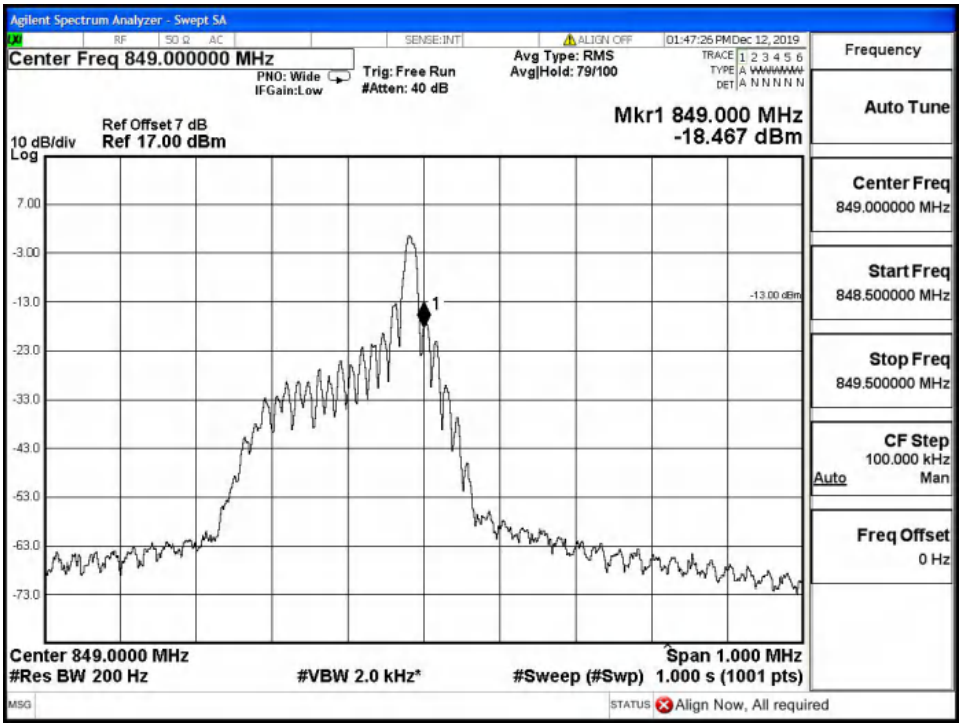
Low Channel, Subcarrier (15kHz), BPSK, 1@0



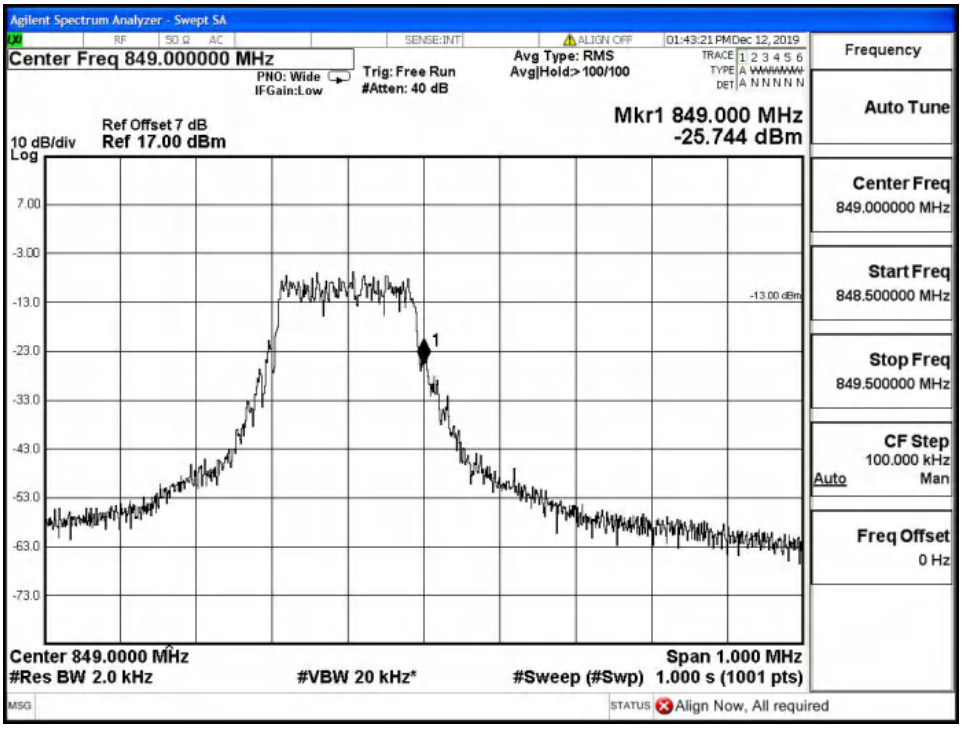
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



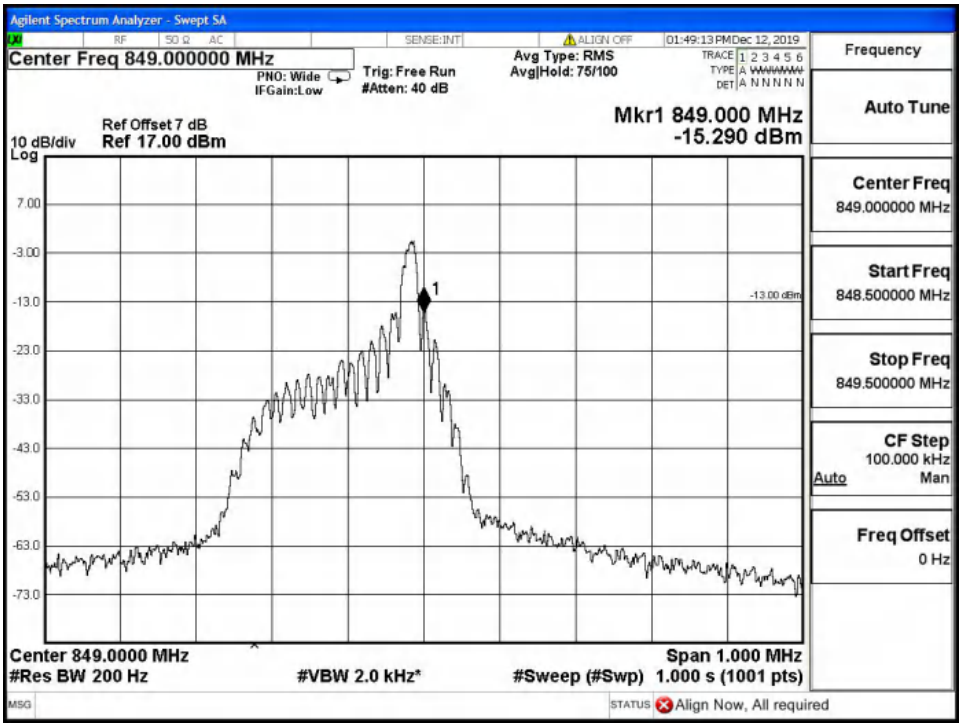
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11

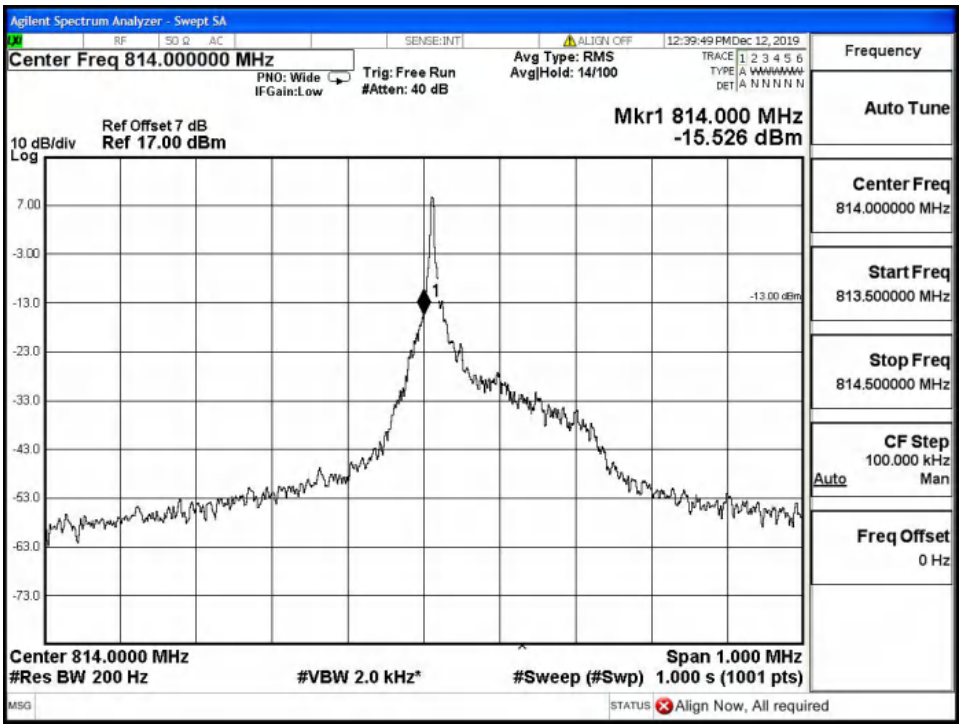


High Channel, Subcarrier (15kHz), QPSK, 12@0

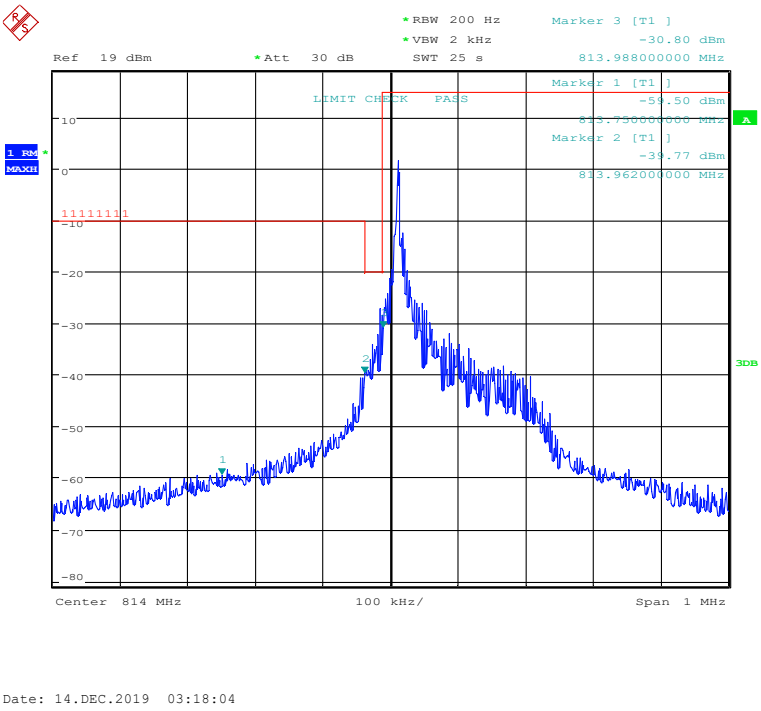


High Channel, Subcarrier (15kHz), BPSK, 1@11

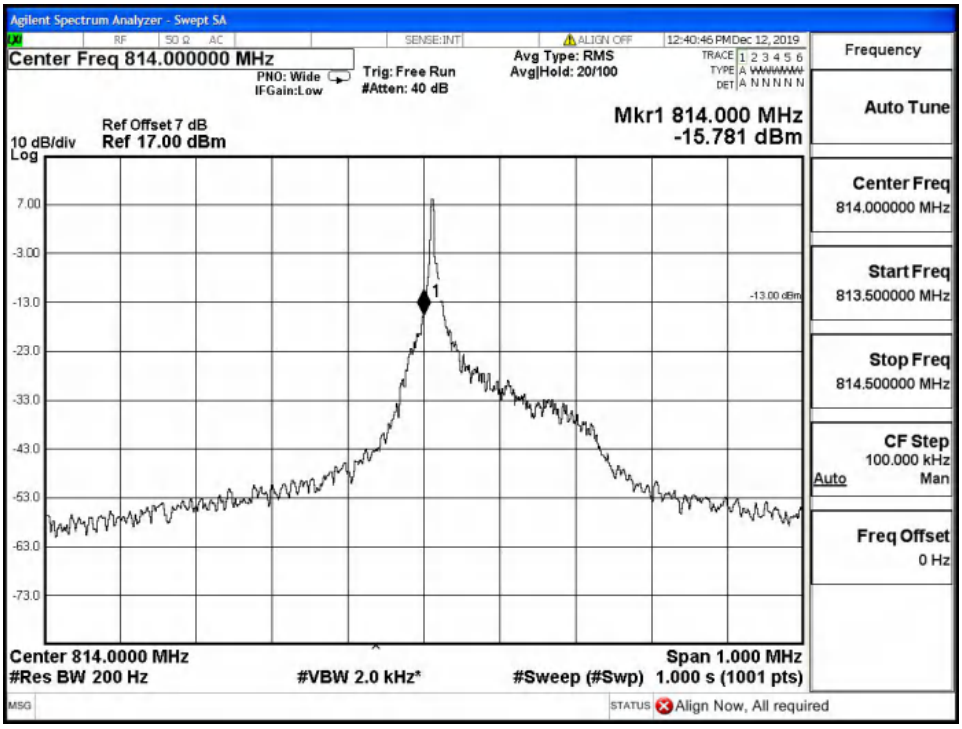
Part(814MHz-824MHz)



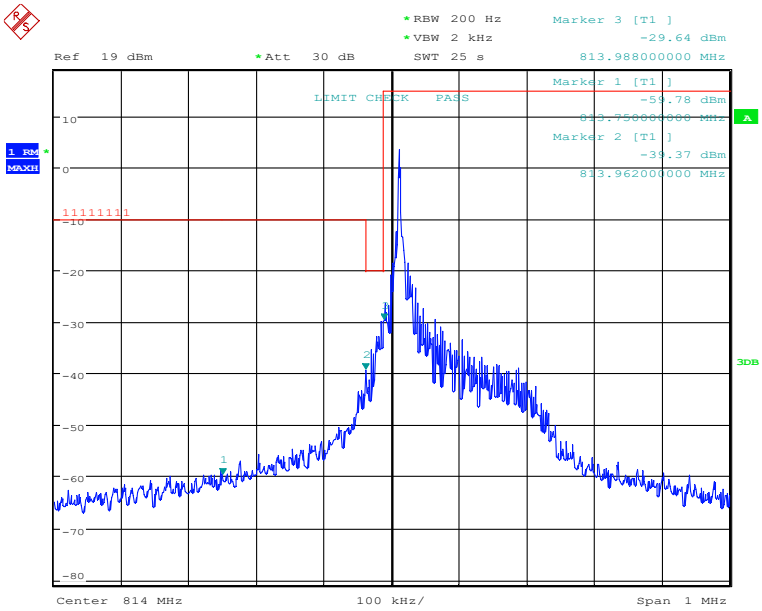
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



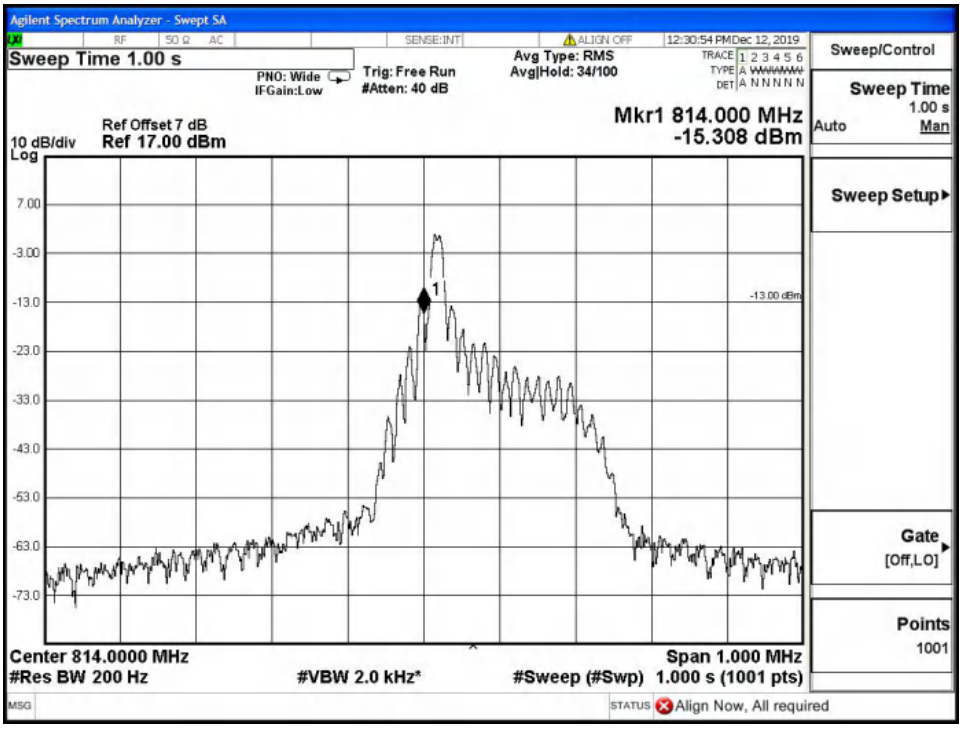
Low Channel, Subcarrier (3.75kHz), QPSK, 1@0



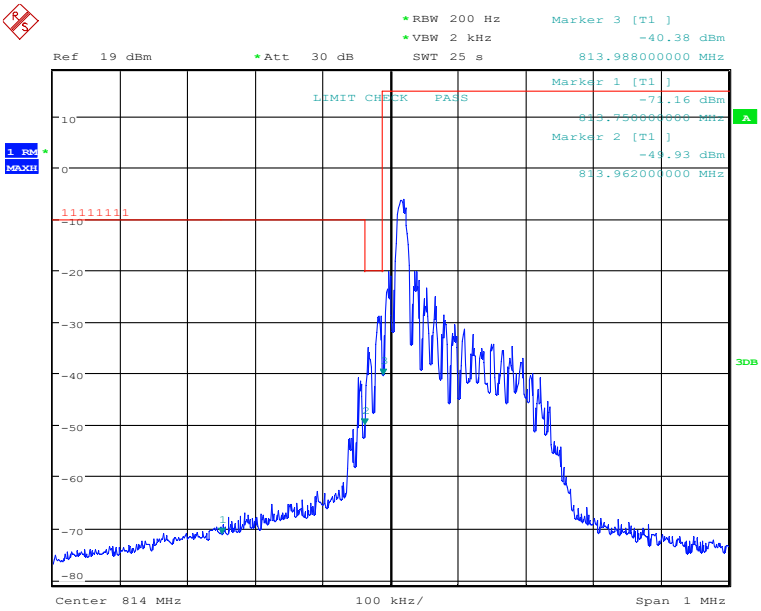
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



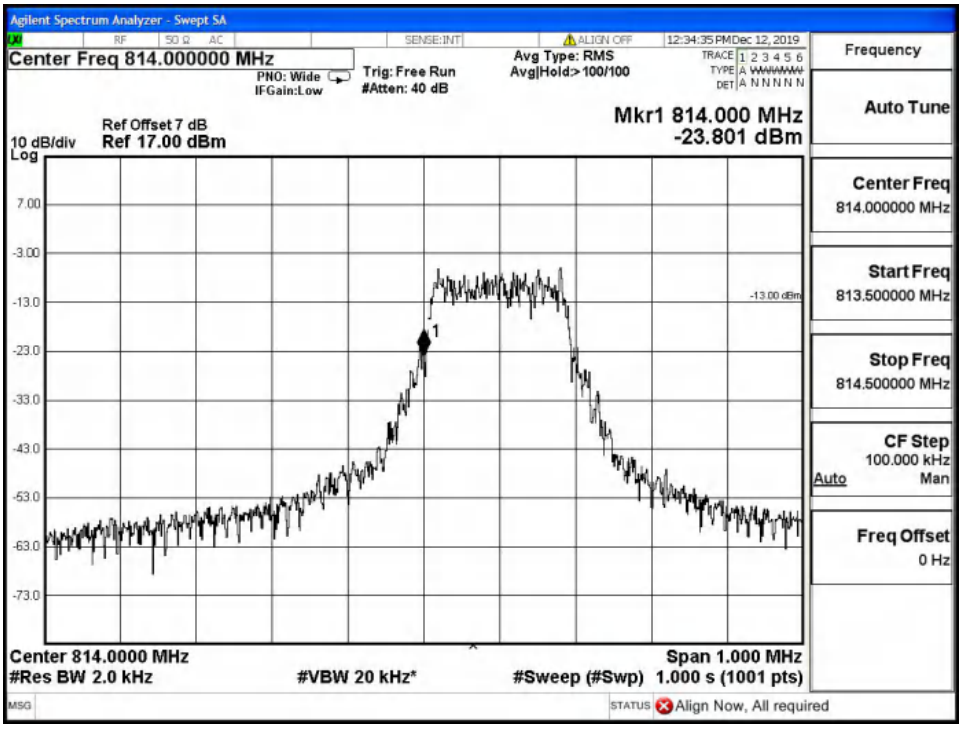
Low Channel, Subcarrier (3.75kHz), BPSK, 1@0



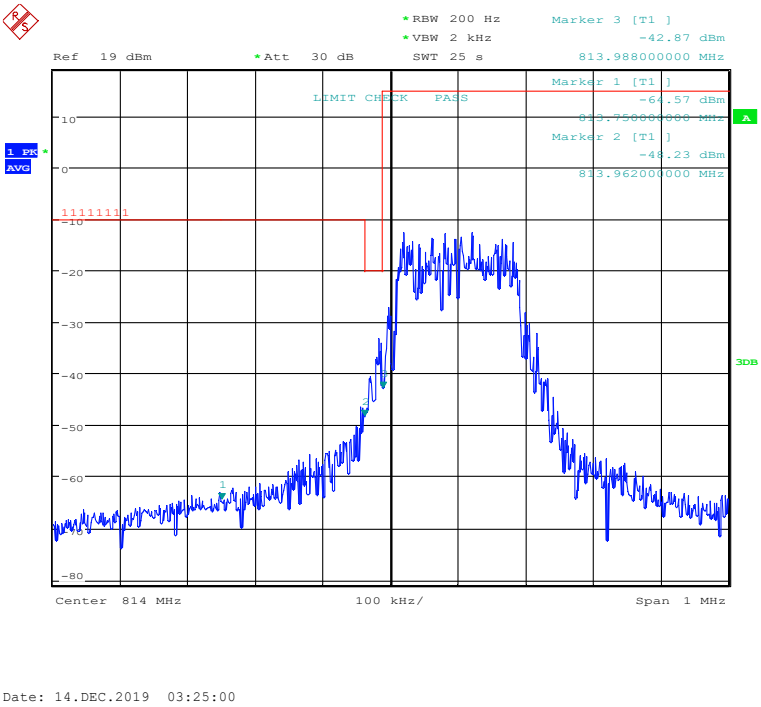
Low Channel, Subcarrier (15kHz), QPSK, 1@0



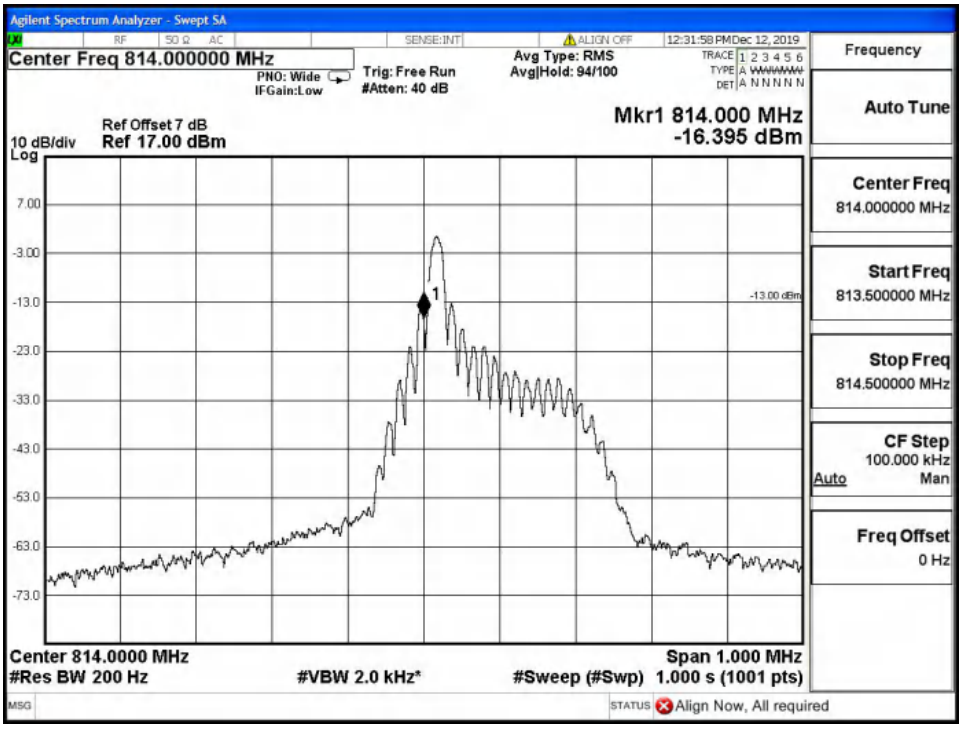
Low Channel, Subcarrier (15kHz), QPSK, 1@0



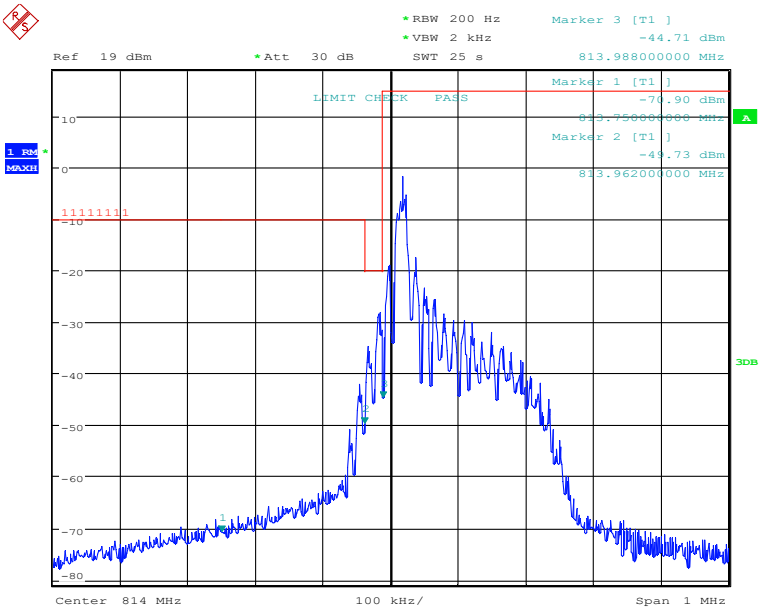
Low Channel, Subcarrier (15kHz), QPSK, 12@0



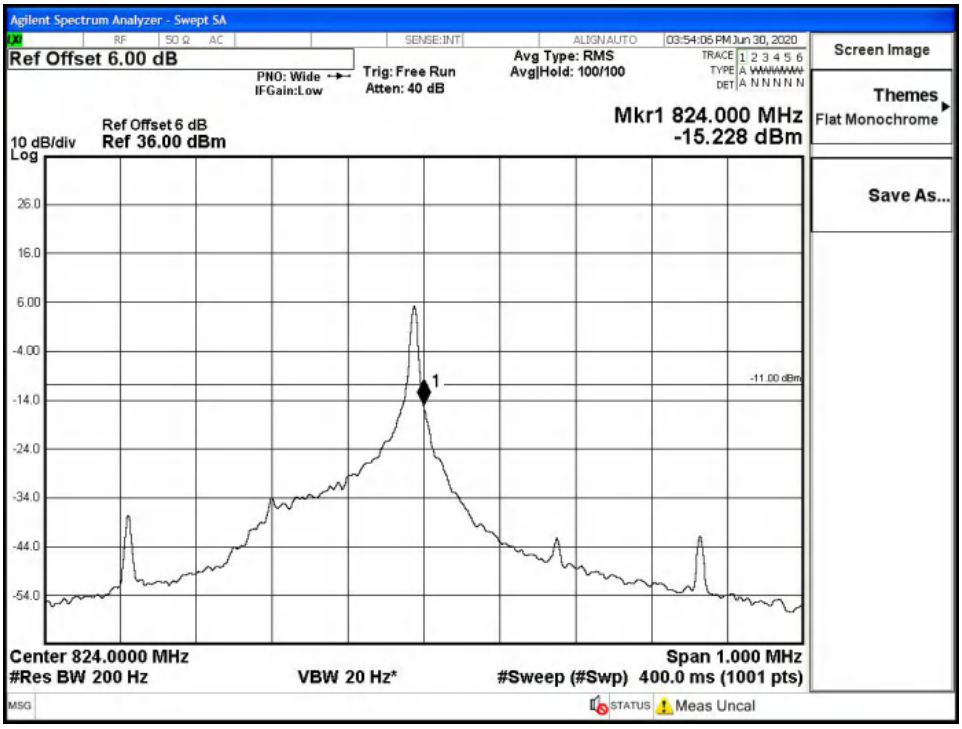
Low Channel, Subcarrier (15kHz), QPSK, 12@0



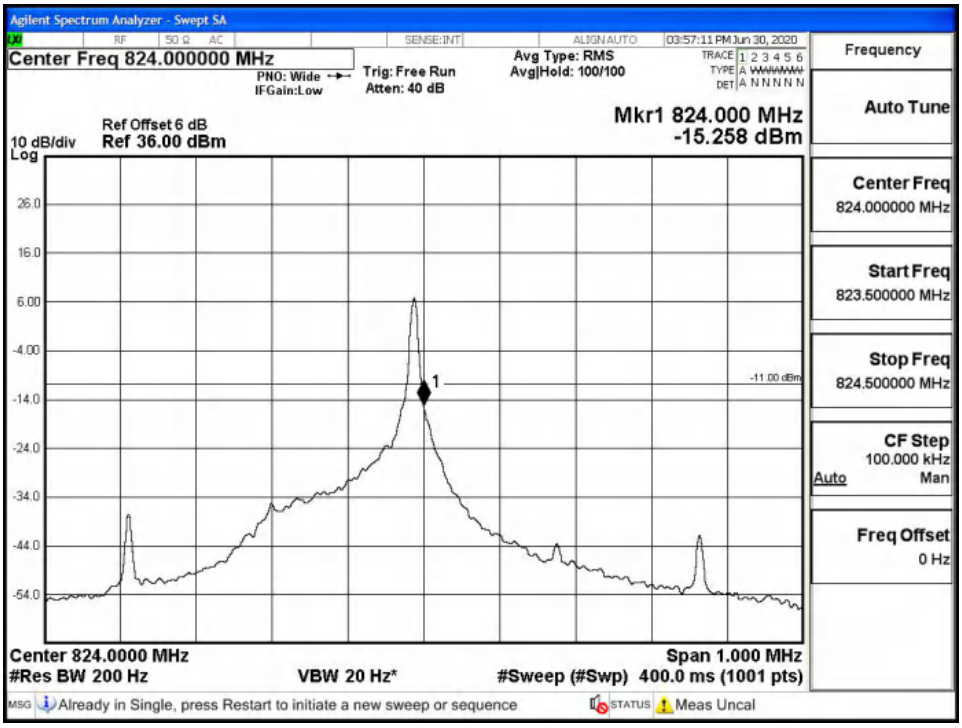
Low Channel, Subcarrier (15kHz), BPSK, 1@0



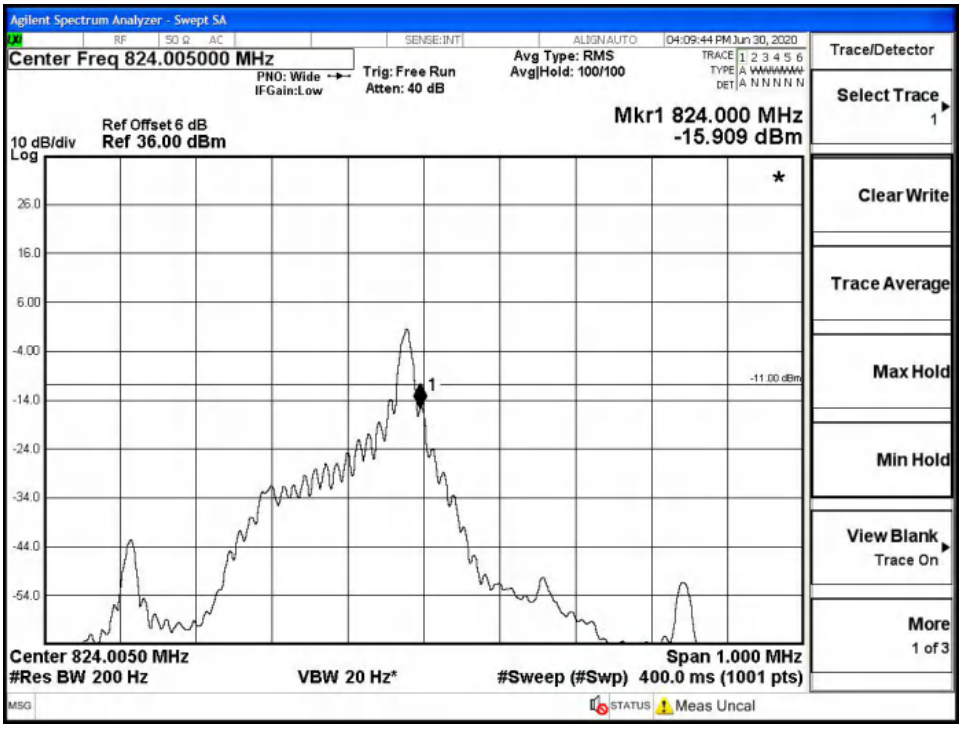
Low Channel, Subcarrier (15kHz), BPSK, 1@0



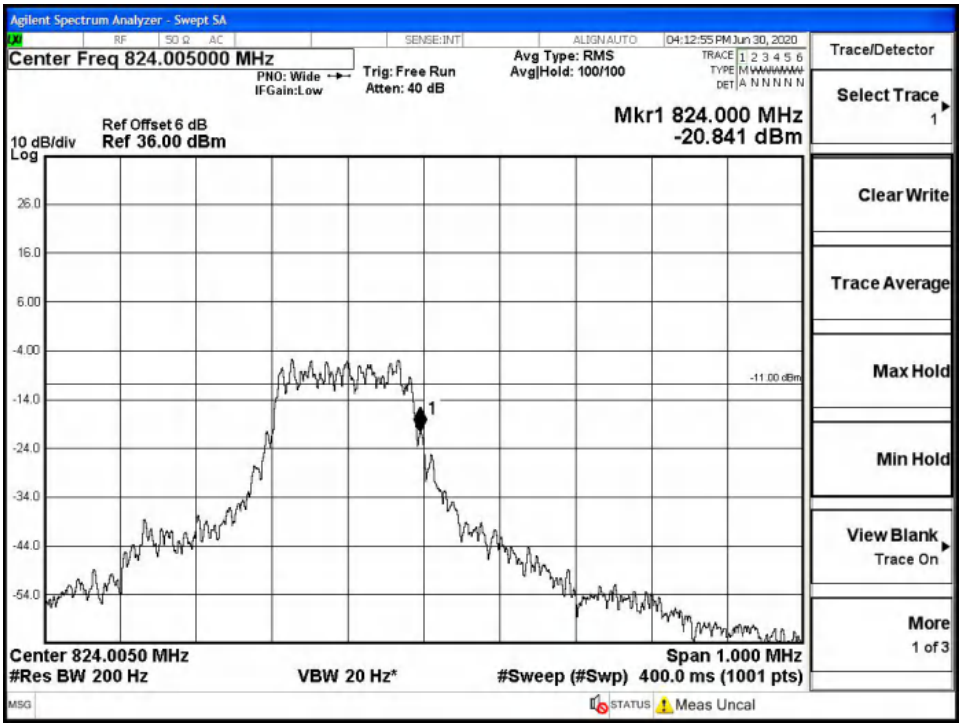
High Channel, Subcarrier (3.75kHz), QPSK, 1@47



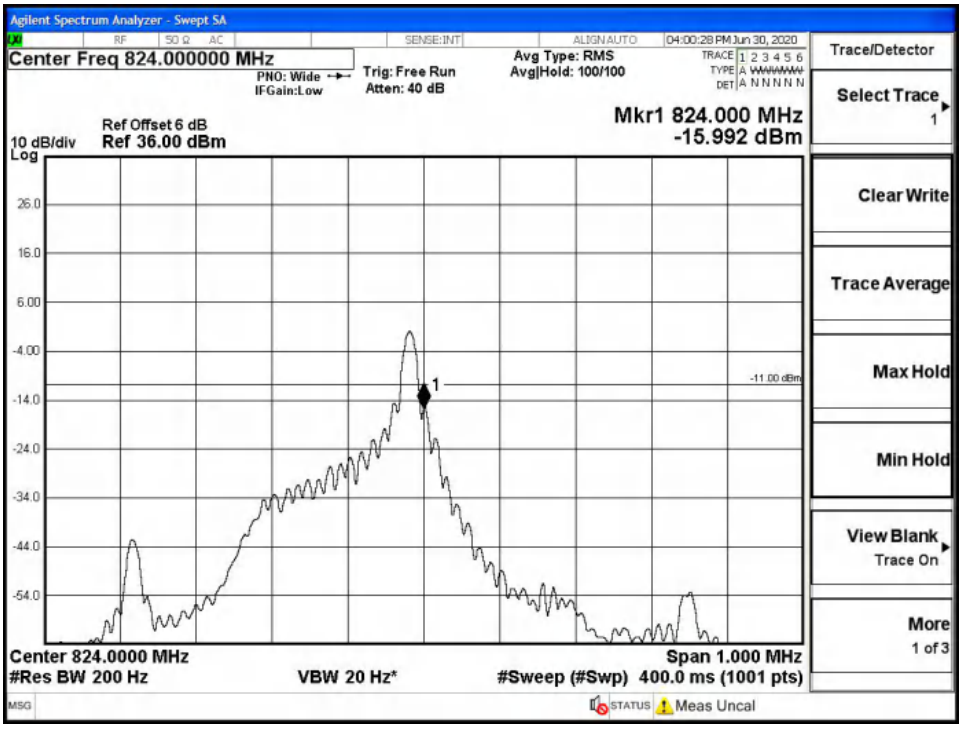
High Channel, Subcarrier (3.75kHz), BPSK, 1@47



High Channel, Subcarrier (15kHz), QPSK, 1@11

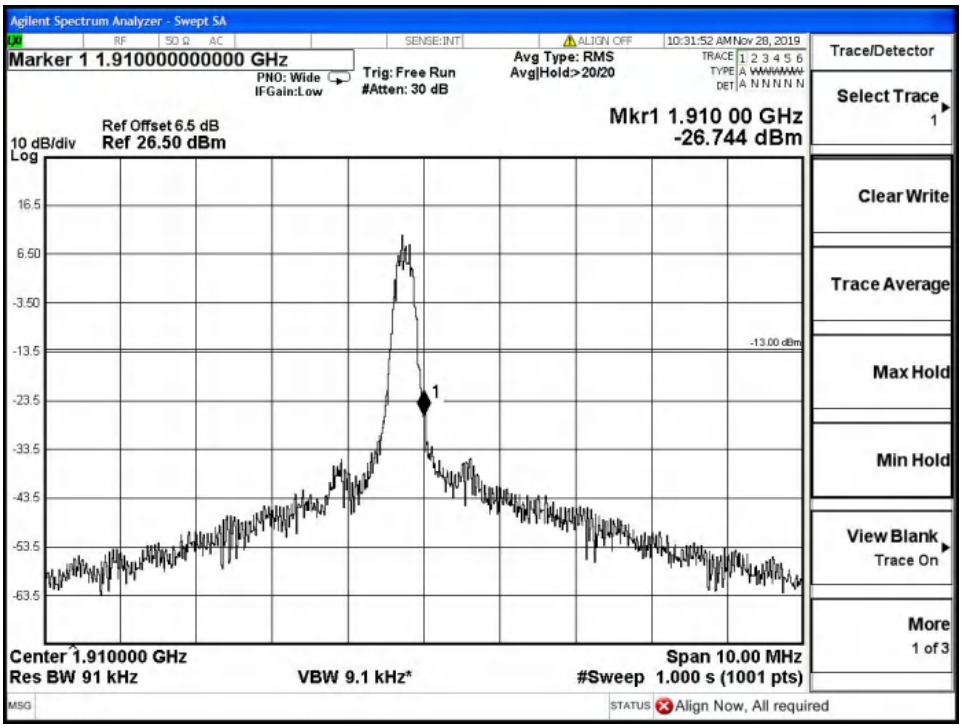


High Channel, Subcarrier (15kHz), QPSK, 12@0

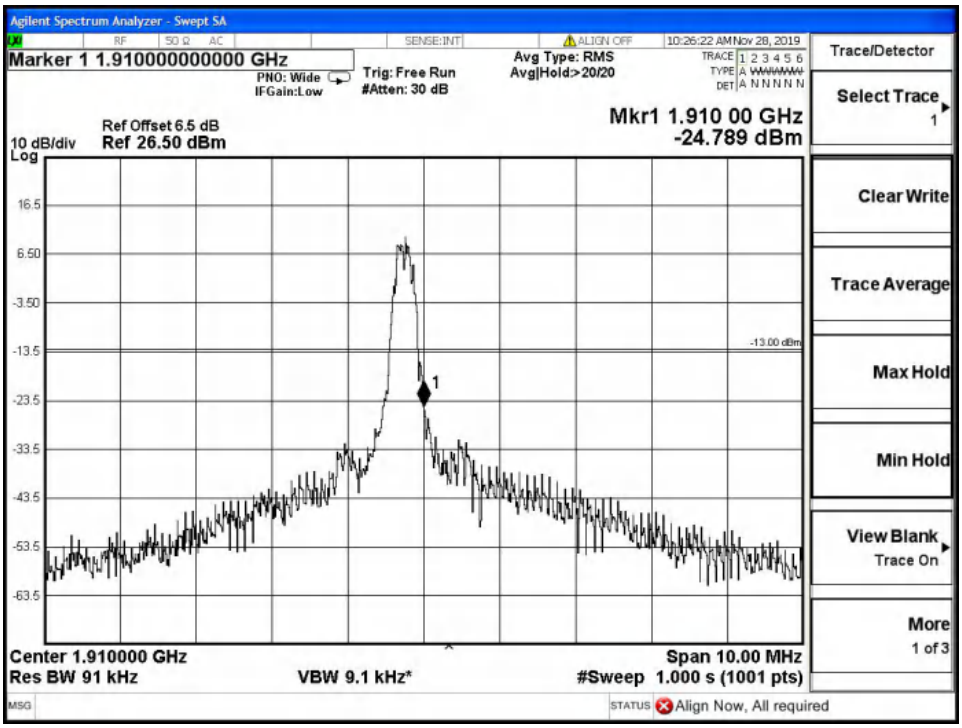


High Channel, Subcarrier (15kHz), BPSK, 1@11

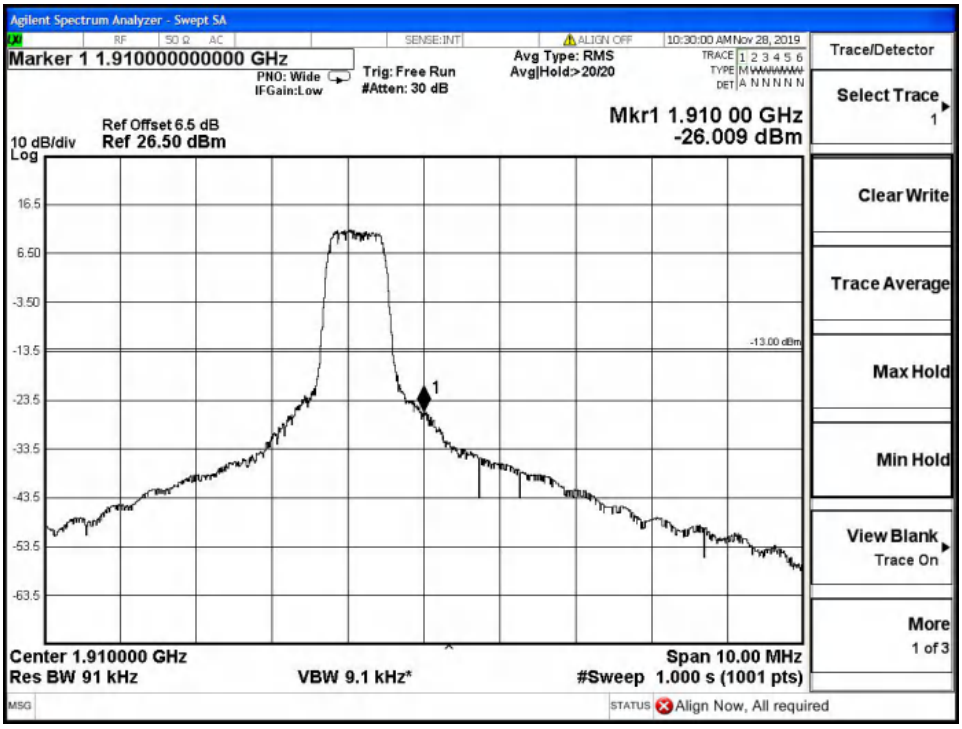
5.5.8 CAT-M Band2 Edge Results



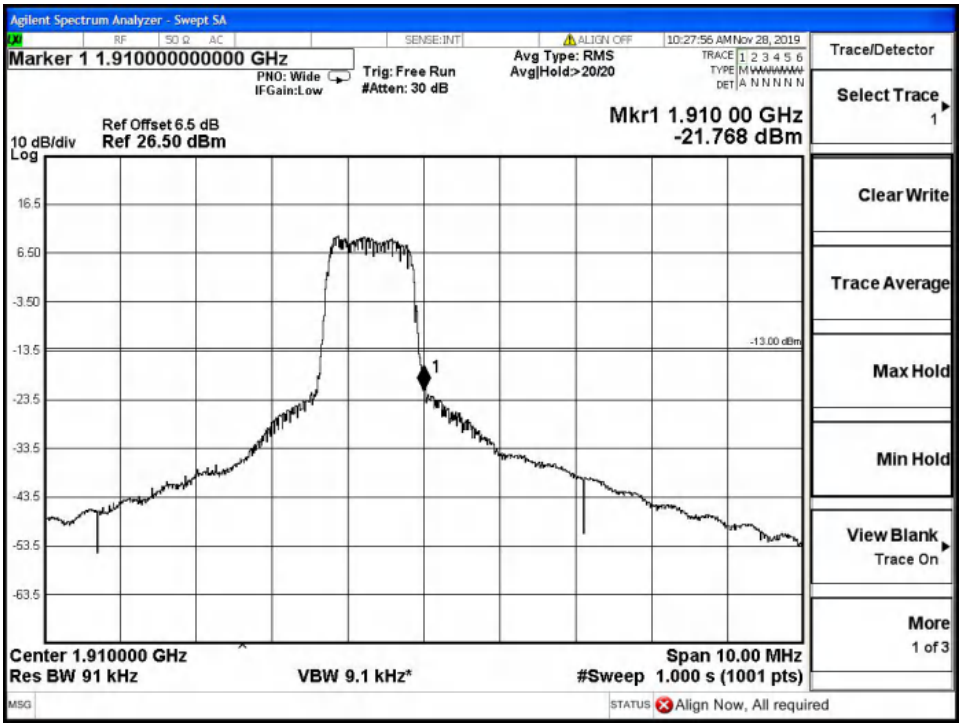
Band2-High Channel-1.4MHz Bandwidth-1RB-16QAM



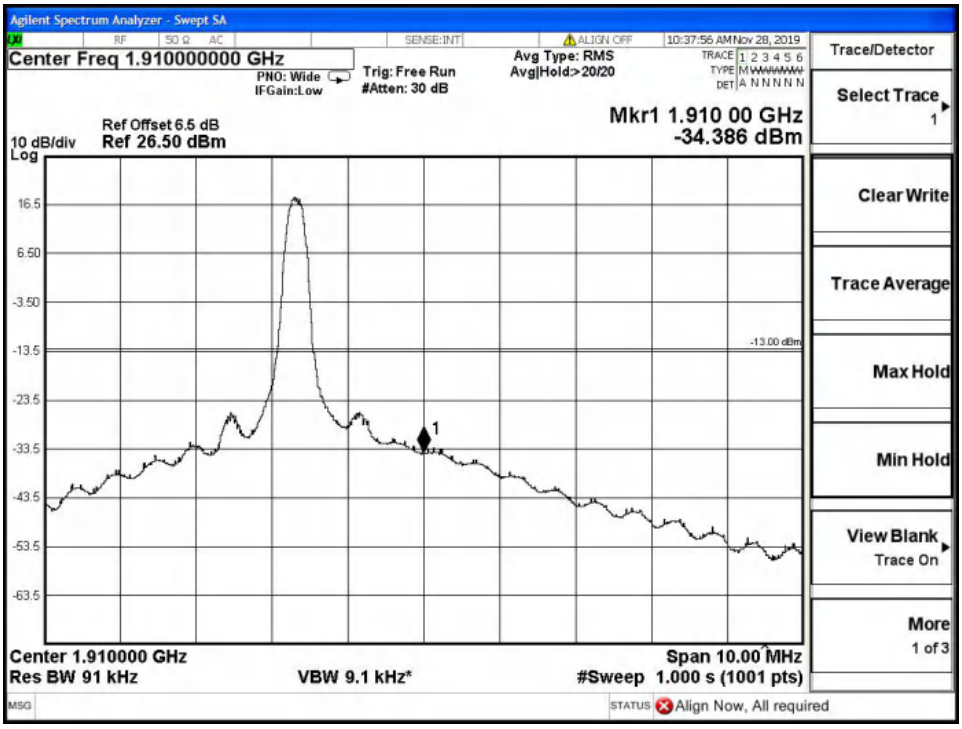
Band2-High Channel-1.4MHz Bandwidth-1RB-QPSK



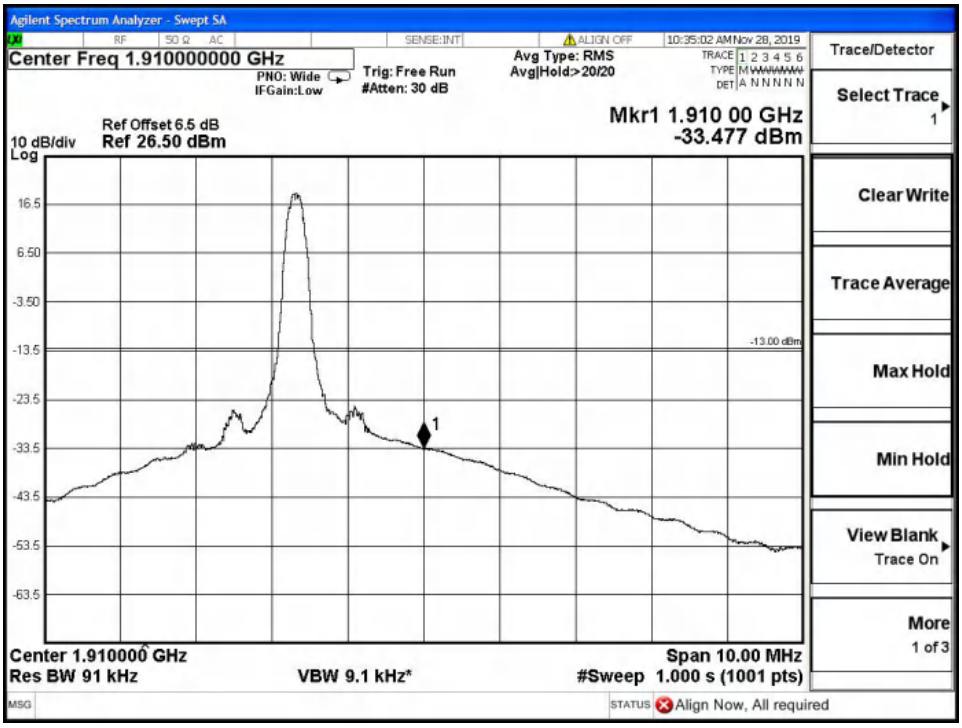
Band2-High Channel-1.4MHz Bandwidth-6RB-16QAM



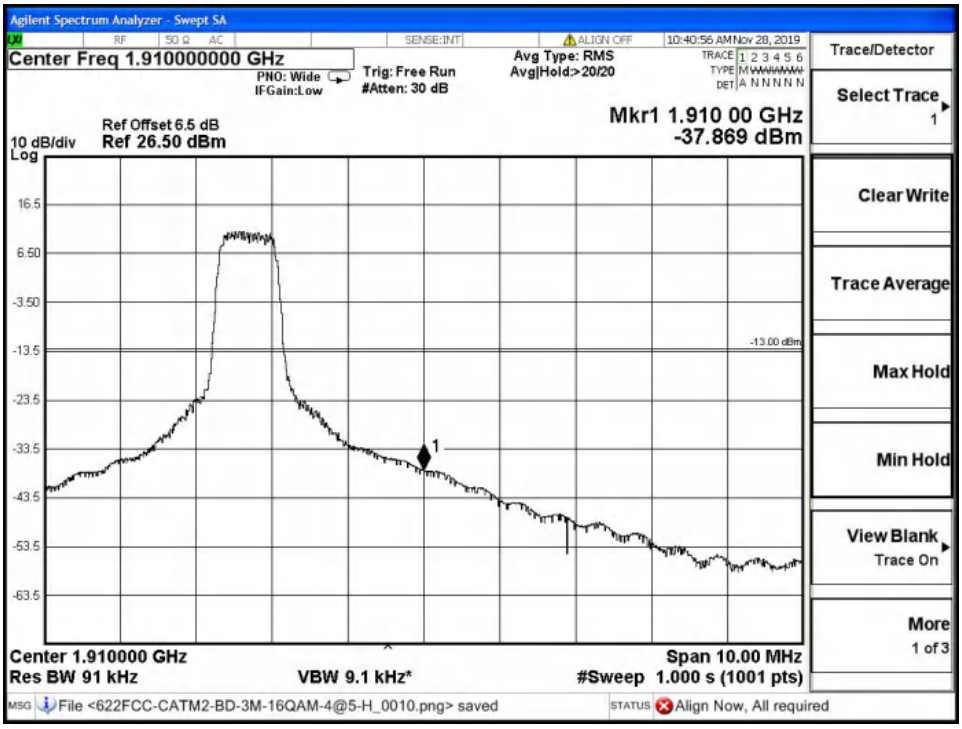
Band2-High Channel-1.4MHz Bandwidth-6RB-QPSK



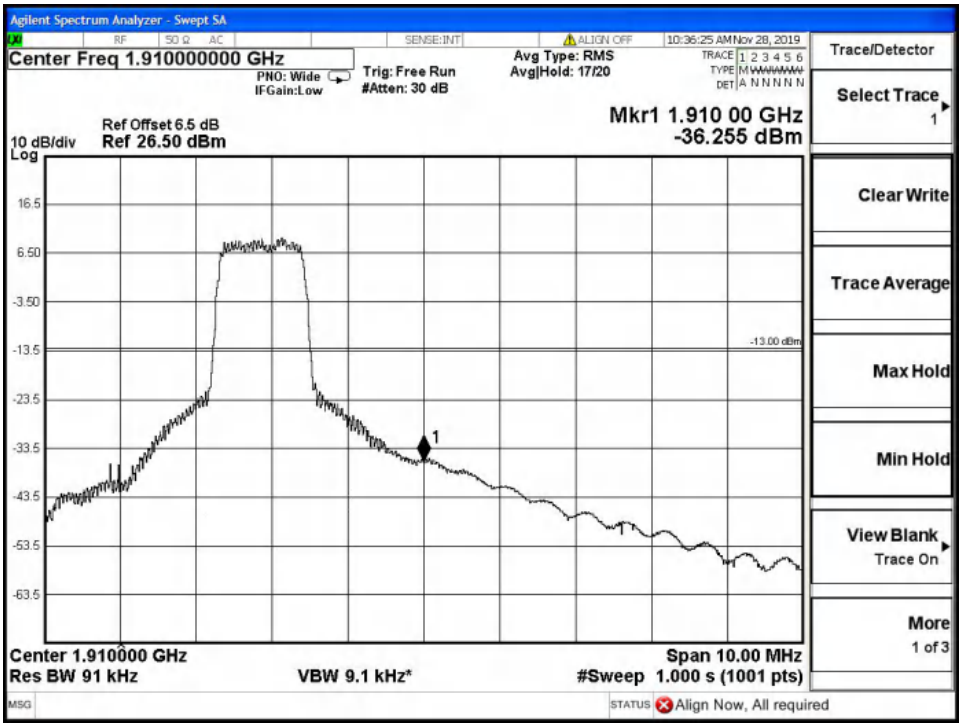
Band2-High Channel-3MHz Bandwidth-1RB-16QAM



Band2-High Channel-3MHz Bandwidth-1RB-QPSK



Band2-High Channel-3MHz Bandwidth-6RB-16QAM



Band2-High Channel-3MHz Bandwidth-6RB-QPSK