

BW 15k\_CH 23182\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1554.400	-45.89	-13	-32.89	-52.00	9.00	2.90
	2331.600	-53.40	-13	-40.40	-60.34	10.52	3.58
	3108.800	-51.72	-13	-38.72	-59.35	11.76	4.12
	3886.000	-50.66	-13	-37.66	-58.66	12.60	4.60
	4663.200	-49.17	-13	-36.17	-56.73	12.66	5.10
	5440.400	-49.85	-13	-36.85	-57.32	13.08	5.61
V	1554.400	-41.79	-13	-28.79	-47.90	9.00	2.90
	2331.600	-53.55	-13	-40.55	-60.49	10.52	3.58
	3108.800	-51.12	-13	-38.12	-58.75	11.76	4.12
	3886.000	-51.32	-13	-38.32	-59.32	12.60	4.60
	4663.200	-48.91	-13	-35.91	-56.47	12.66	5.10
	5440.400	-48.04	-13	-35.04	-55.51	13.08	5.61

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 23182\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1554.400	-45.44	-13	-32.44	-51.55	9.00	2.90
	2331.600	-53.32	-13	-40.32	-60.26	10.52	3.58
	3108.800	-51.80	-13	-38.80	-59.43	11.76	4.12
	3886.000	-51.13	-13	-38.13	-59.13	12.60	4.60
	4663.200	-49.10	-13	-36.10	-56.66	12.66	5.10
	5440.400	-49.98	-13	-36.98	-57.45	13.08	5.61
V	1554.400	-41.82	-13	-28.82	-47.93	9.00	2.90
	2331.600	-53.50	-13	-40.50	-60.44	10.52	3.58
	3108.800	-51.30	-13	-38.30	-58.93	11.76	4.12
	3886.000	-51.50	-13	-38.50	-59.50	12.60	4.60
	4663.200	-48.74	-13	-35.74	-56.30	12.66	5.10
	5440.400	-48.30	-13	-35.30	-55.77	13.08	5.61

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 23230\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1564.000	-46.63	-13	-33.63	-52.76	9.03	2.91
	2346.000	-53.59	-13	-40.59	-60.53	10.52	3.59
	3128.000	-51.80	-13	-38.80	-59.46	11.80	4.14
	3910.000	-50.37	-13	-37.37	-58.36	12.60	4.61
	4692.000	-49.33	-13	-36.33	-56.87	12.66	5.11
	5474.000	-49.60	-13	-36.60	-57.08	13.11	5.63
V	1564.000	-43.19	-13	-30.19	-49.32	9.03	2.91
	2346.000	-54.25	-13	-41.25	-61.19	10.52	3.59
	3128.000	-51.90	-13	-38.90	-59.56	11.80	4.14
	3910.000	-51.27	-13	-38.27	-59.26	12.60	4.61
	4692.000	-49.87	-13	-36.87	-57.41	12.66	5.11
	5474.000	-49.50	-13	-36.50	-56.98	13.11	5.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 23230\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1564.000	-46.50	-13	-33.50	-52.63	9.03	2.91
	2346.000	-53.80	-13	-40.80	-60.74	10.52	3.59
	3128.000	-51.33	-13	-38.33	-58.99	11.80	4.14
	3910.000	-50.47	-13	-37.47	-58.46	12.60	4.61
	4692.000	-49.31	-13	-36.31	-56.85	12.66	5.11
	5474.000	-49.47	-13	-36.47	-56.95	13.11	5.63
V	1564.000	-43.08	-13	-30.08	-49.21	9.03	2.91
	2346.000	-54.35	-13	-41.35	-61.29	10.52	3.59
	3128.000	-51.40	-13	-38.40	-59.06	11.80	4.14
	3910.000	-51.40	-13	-38.40	-59.39	12.60	4.61
	4692.000	-49.62	-13	-36.62	-57.16	12.66	5.11
	5474.000	-49.70	-13	-36.70	-57.18	13.11	5.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 23278\_BPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1573.600	-48.55	-13	-35.55	-54.70	9.06	2.92
	2360.400	-53.69	-13	-40.69	-60.62	10.53	3.60
	3147.200	-51.32	-13	-38.32	-59.01	11.84	4.15
	3934.000	-50.77	-13	-37.77	-58.75	12.60	4.62
	4720.800	-48.59	-13	-35.59	-56.12	12.66	5.13
	5507.600	-48.86	-13	-35.86	-56.34	13.14	5.65
V	1573.600	-45.33	-13	-32.33	-51.48	9.06	2.92
	2360.400	-53.58	-13	-40.58	-60.51	10.53	3.60
	3147.200	-51.67	-13	-38.67	-59.36	11.84	4.15
	3934.000	-51.35	-13	-38.35	-59.33	12.60	4.62
	4720.800	-51.18	-13	-38.18	-58.71	12.66	5.13
	5507.600	-48.69	-13	-35.69	-56.17	13.14	5.65

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 23278\_QPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1573.600	-48.80	-13	-35.80	-54.95	9.06	2.92
	2360.400	-53.60	-13	-40.60	-60.53	10.53	3.60
	3147.200	-51.50	-13	-38.50	-59.19	11.84	4.15
	3934.000	-50.51	-13	-37.51	-58.49	12.60	4.62
	4720.800	-48.73	-13	-35.73	-56.26	12.66	5.13
	5507.600	-48.97	-13	-35.97	-56.45	13.14	5.65
V	1573.600	-45.17	-13	-32.17	-51.32	9.06	2.92
	2360.400	-53.68	-13	-40.68	-60.61	10.53	3.60
	3147.200	-51.55	-13	-38.55	-59.24	11.84	4.15
	3934.000	-51.05	-13	-38.05	-59.03	12.60	4.62
	4720.800	-51.14	-13	-38.14	-58.67	12.66	5.13
	5507.600	-48.40	-13	-35.40	-55.88	13.14	5.65

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	Module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 6 : LTE NB-IoT_Band 25		
Date of Test	2020/01/20	Test Site	CB2-H
Temperature (°C)	19.0	Humidity (%RH)	54.0

BW 3.75k\_CH 26042\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3700.400	-48.40	-13	-35.40	-56.50	12.61	4.51
	5550.600	-48.83	-13	-35.83	-56.29	13.13	5.67
	7400.800	-40.77	-13	-27.77	-45.49	11.32	6.60
	9251.000	-40.77	-13	-27.77	-45.39	11.83	7.20
	11101.200	-38.34	-13	-25.34	-42.05	11.66	7.96
	12951.400	-39.69	-13	-26.69	-44.68	13.63	8.63
V	3700.400	-46.26	-13	-33.26	-54.36	12.61	4.51
	5550.600	-48.38	-13	-35.38	-55.84	13.13	5.67
	7400.800	-41.85	-13	-28.85	-46.57	11.32	6.60
	9251.000	-39.88	-13	-26.88	-44.50	11.83	7.20
	11101.200	-39.09	-13	-26.09	-42.80	11.66	7.96
	12951.400	-38.78	-13	-25.78	-43.77	13.63	8.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26042\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3700.400	-47.69	-13	-34.69	-55.79	12.61	4.51
	5550.600	-47.59	-13	-34.59	-55.05	13.13	5.67
	7400.800	-40.52	-13	-27.52	-45.24	11.32	6.60
	9251.000	-39.95	-13	-26.95	-44.57	11.83	7.20
	11101.200	-38.16	-13	-25.16	-41.87	11.66	7.96
	12951.400	-39.30	-13	-26.30	-44.29	13.63	8.63
V	3700.400	-46.92	-13	-33.92	-55.02	12.61	4.51
	5550.600	-48.07	-13	-35.07	-55.53	13.13	5.67
	7400.800	-41.23	-13	-28.23	-45.95	11.32	6.60
	9251.000	-40.07	-13	-27.07	-44.69	11.83	7.20
	11101.200	-38.76	-13	-25.76	-42.47	11.66	7.96
	12951.400	-39.08	-13	-26.08	-44.07	13.63	8.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26365\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3765.000	-47.96	-13	-34.96	-56.02	12.60	4.54
	5647.500	-48.42	-13	-35.42	-55.82	13.10	5.70
	7530.000	-40.93	-13	-27.93	-45.55	11.24	6.61
	9412.500	-39.81	-13	-26.81	-44.30	11.79	7.29
	11295.000	-37.55	-13	-24.55	-41.42	11.94	8.07
	13177.500	-37.44	-13	-24.44	-42.03	13.30	8.71
V	3765.000	-47.06	-13	-34.06	-55.12	12.60	4.54
	5647.500	-47.36	-13	-34.36	-54.76	13.10	5.70
	7530.000	-40.80	-13	-27.80	-45.42	11.24	6.61
	9412.500	-40.00	-13	-27.00	-44.49	11.79	7.29
	11295.000	-37.61	-13	-24.61	-41.48	11.94	8.07
	13177.500	-37.14	-13	-24.14	-41.73	13.30	8.71

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26365\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3765.000	-47.71	-13	-34.71	-55.77	12.60	4.54
	5647.500	-47.73	-13	-34.73	-55.13	13.10	5.70
	7530.000	-41.12	-13	-28.12	-45.74	11.24	6.61
	9412.500	-39.83	-13	-26.83	-44.32	11.79	7.29
	11295.000	-37.29	-13	-24.29	-41.16	11.94	8.07
	13177.500	-37.36	-13	-24.36	-41.95	13.30	8.71
V	3765.000	-46.82	-13	-33.82	-54.88	12.60	4.54
	5647.500	-48.26	-13	-35.26	-55.66	13.10	5.70
	7530.000	-40.71	-13	-27.71	-45.33	11.24	6.61
	9412.500	-39.21	-13	-26.21	-43.70	11.79	7.29
	11295.000	-36.76	-13	-23.76	-40.63	11.94	8.07
	13177.500	-37.90	-13	-24.90	-42.49	13.30	8.71

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26688\_BPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3829.600	-48.18	-13	-35.18	-56.21	12.60	4.57
	5744.400	-47.32	-13	-34.32	-54.66	13.07	5.73
	7659.200	-41.17	-13	-28.17	-45.82	11.24	6.59
	9574.000	-38.15	-13	-25.15	-42.60	11.81	7.36
	11488.800	-37.99	-13	-24.99	-42.03	12.21	8.17
	13403.600	-36.59	-13	-23.59	-40.73	12.91	8.77
V	3829.600	-48.53	-13	-35.53	-56.56	12.60	4.57
	5744.400	-48.26	-13	-35.26	-55.60	13.07	5.73
	7659.200	-36.69	-13	-23.69	-41.34	11.24	6.59
	9574.000	-38.14	-13	-25.14	-42.59	11.81	7.36
	11488.800	-37.95	-13	-24.95	-41.99	12.21	8.17
	13403.600	-37.32	-13	-24.32	-41.46	12.91	8.77

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26688\_QPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3829.600	-48.01	-13	-35.01	-56.04	12.60	4.57
	5744.400	-48.00	-13	-35.00	-55.34	13.07	5.73
	7659.200	-40.19	-13	-27.19	-44.84	11.24	6.59
	9574.000	-38.83	-13	-25.83	-43.28	11.81	7.36
	11488.800	-37.51	-13	-24.51	-41.55	12.21	8.17
	13403.600	-37.35	-13	-24.35	-41.49	12.91	8.77
V	3829.600	-48.79	-13	-35.79	-56.82	12.60	4.57
	5744.400	-47.99	-13	-34.99	-55.33	13.07	5.73
	7659.200	-37.11	-13	-24.11	-41.76	11.24	6.59
	9574.000	-38.43	-13	-25.43	-42.88	11.81	7.36
	11488.800	-38.06	-13	-25.06	-42.10	12.21	8.17
	13403.600	-36.98	-13	-23.98	-41.12	12.91	8.77

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26042\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3700.400	-47.95	-13	-34.95	-56.05	12.61	4.51
	5550.600	-48.75	-13	-35.75	-56.21	13.13	5.67
	7400.800	-40.63	-13	-27.63	-45.35	11.32	6.60
	9251.000	-40.35	-13	-27.35	-44.97	11.83	7.20
	11101.200	-38.30	-13	-25.30	-42.01	11.66	7.96
	12951.400	-39.31	-13	-26.31	-44.30	13.63	8.63
V	3700.400	-46.71	-13	-33.71	-54.81	12.61	4.51
	5550.600	-48.25	-13	-35.25	-55.71	13.13	5.67
	7400.800	-41.53	-13	-28.53	-46.25	11.32	6.60
	9251.000	-40.18	-13	-27.18	-44.80	11.83	7.20
	11101.200	-37.81	-13	-24.81	-41.52	11.66	7.96
	12951.400	-38.75	-13	-25.75	-43.74	13.63	8.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26042\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3700.400	-47.89	-13	-34.89	-55.99	12.61	4.51
	5550.600	-47.63	-13	-34.63	-55.09	13.13	5.67
	7400.800	-40.66	-13	-27.66	-45.38	11.32	6.60
	9251.000	-40.19	-13	-27.19	-44.81	11.83	7.20
	11101.200	-38.60	-13	-25.60	-42.31	11.66	7.96
	12951.400	-39.14	-13	-26.14	-44.13	13.63	8.63
V	3700.400	-47.22	-13	-34.22	-55.32	12.61	4.51
	5550.600	-47.35	-13	-34.35	-54.81	13.13	5.67
	7400.800	-41.09	-13	-28.09	-45.81	11.32	6.60
	9251.000	-40.07	-13	-27.07	-44.69	11.83	7.20
	11101.200	-38.30	-13	-25.30	-42.01	11.66	7.96
	12951.400	-38.47	-13	-25.47	-43.46	13.63	8.63

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26365\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3765.000	-47.81	-13	-34.81	-55.87	12.60	4.54
	5647.500	-48.54	-13	-35.54	-55.94	13.10	5.70
	7530.000	-41.32	-13	-28.32	-45.94	11.24	6.61
	9412.500	-40.22	-13	-27.22	-44.71	11.79	7.29
	11295.000	-37.17	-13	-24.17	-41.04	11.94	8.07
	13177.500	-38.24	-13	-25.24	-42.83	13.30	8.71
V	3765.000	-46.99	-13	-33.99	-55.05	12.60	4.54
	5647.500	-47.32	-13	-34.32	-54.72	13.10	5.70
	7530.000	-41.38	-13	-28.38	-46.00	11.24	6.61
	9412.500	-40.04	-13	-27.04	-44.53	11.79	7.29
	11295.000	-36.80	-13	-23.80	-40.67	11.94	8.07
	13177.500	-37.47	-13	-24.47	-42.06	13.30	8.71

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26365\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3765.000	-47.66	-13	-34.66	-55.72	12.60	4.54
	5647.500	-47.07	-13	-34.07	-54.47	13.10	5.70
	7530.000	-40.66	-13	-27.66	-45.28	11.24	6.61
	9412.500	-39.67	-13	-26.67	-44.16	11.79	7.29
	11295.000	-36.32	-13	-23.32	-40.19	11.94	8.07
	13177.500	-37.66	-13	-24.66	-42.25	13.30	8.71
V	3765.000	-46.82	-13	-33.82	-54.88	12.60	4.54
	5647.500	-47.38	-13	-34.38	-54.78	13.10	5.70
	7530.000	-41.57	-13	-28.57	-46.19	11.24	6.61
	9412.500	-39.76	-13	-26.76	-44.25	11.79	7.29
	11295.000	-36.53	-13	-23.53	-40.40	11.94	8.07
	13177.500	-37.59	-13	-24.59	-42.18	13.30	8.71

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.



BW 15k\_CH 26688\_BPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3829.600	-49.10	-13	-36.10	-57.13	12.60	4.57
	5744.400	-47.49	-13	-34.49	-54.83	13.07	5.73
	7659.200	-40.32	-13	-27.32	-44.97	11.24	6.59
	9574.000	-37.08	-13	-24.08	-41.53	11.81	7.36
	11488.800	-37.25	-13	-24.25	-41.29	12.21	8.17
	13403.600	-36.88	-13	-23.88	-41.02	12.91	8.77
V	3829.600	-48.84	-13	-35.84	-56.87	12.60	4.57
	5744.400	-47.47	-13	-34.47	-54.81	13.07	5.73
	7659.200	-37.66	-13	-24.66	-42.31	11.24	6.59
	9574.000	-38.25	-13	-25.25	-42.70	11.81	7.36
	11488.800	-37.73	-13	-24.73	-41.77	12.21	8.17
	13403.600	-36.68	-13	-23.68	-40.82	12.91	8.77

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26688\_QPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3829.600	-48.34	-13	-35.34	-56.37	12.60	4.57
	5744.400	-47.30	-13	-34.30	-54.64	13.07	5.73
	7659.200	-41.02	-13	-28.02	-45.67	11.24	6.59
	9574.000	-38.33	-13	-25.33	-42.78	11.81	7.36
	11488.800	-37.47	-13	-24.47	-41.51	12.21	8.17
	13403.600	-36.68	-13	-23.68	-40.82	12.91	8.77
V	3829.600	-48.90	-13	-35.90	-56.93	12.60	4.57
	5744.400	-47.24	-13	-34.24	-54.58	13.07	5.73
	7659.200	-38.19	-13	-25.19	-42.84	11.24	6.59
	9574.000	-38.49	-13	-25.49	-42.94	11.81	7.36
	11488.800	-37.49	-13	-24.49	-41.53	12.21	8.17
	13403.600	-36.20	-13	-23.20	-40.34	12.91	8.77

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	Module		
Test Item	Radiated Spurious Emissions (Part 22)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/01/22	Test Site	CB2-H
Temperature (°C)	19.0	Humidity (%RH)	54.0

BW 3.75k\_CH 26792\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1648.400	-54.67	-13	-41.67	-60.97	9.29	2.99
	2472.600	-52.79	-13	-39.79	-59.69	10.59	3.68
	3296.800	-51.45	-13	-38.45	-59.36	12.17	4.26
	4121.000	-50.03	-13	-37.03	-57.91	12.61	4.74
	4945.200	-47.55	-13	-34.55	-54.94	12.65	5.26
	5769.400	-46.63	-13	-33.63	-53.95	13.06	5.74
V	1648.400	-55.65	-13	-42.65	-61.95	9.29	2.99
	2472.600	-53.45	-13	-40.45	-60.35	10.59	3.68
	3296.800	-51.66	-13	-38.66	-59.57	12.17	4.26
	4121.000	-49.77	-13	-36.77	-57.65	12.61	4.74
	4945.200	-46.95	-13	-33.95	-54.34	12.65	5.26
	5769.400	-47.24	-13	-34.24	-54.56	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26792\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1648.400	-54.85	-13	-41.85	-61.15	9.29	2.99
	2472.600	-52.86	-13	-39.86	-59.76	10.59	3.68
	3296.800	-51.07	-13	-38.07	-58.98	12.17	4.26
	4121.000	-50.33	-13	-37.33	-58.21	12.61	4.74
	4945.200	-47.67	-13	-34.67	-55.06	12.65	5.26
	5769.400	-46.80	-13	-33.80	-54.12	13.06	5.74
V	1648.400	-55.70	-13	-42.70	-62.00	9.29	2.99
	2472.600	-53.50	-13	-40.50	-60.40	10.59	3.68
	3296.800	-51.11	-13	-38.11	-59.02	12.17	4.26
	4121.000	-49.89	-13	-36.89	-57.77	12.61	4.74
	4945.200	-47.01	-13	-34.01	-54.40	12.65	5.26
	5769.400	-47.50	-13	-34.50	-54.82	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26915\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-54.48	-13	-41.48	-60.78	9.29	2.99
	2509.500	-52.57	-13	-39.57	-59.47	10.59	3.68
	3346.000	-50.68	-13	-37.68	-58.59	12.17	4.26
	4182.500	-49.73	-13	-36.73	-57.61	12.61	4.74
	5019.000	-46.88	-13	-33.88	-54.27	12.65	5.26
	5855.500	-47.16	-13	-34.16	-54.48	13.06	5.74
V	1673.000	-54.62	-13	-41.62	-60.92	9.29	2.99
	2509.500	-53.14	-13	-40.14	-60.04	10.59	3.68
	3346.000	-51.80	-13	-38.80	-59.71	12.17	4.26
	4182.500	-50.26	-13	-37.26	-58.14	12.61	4.74
	5019.000	-48.12	-13	-35.12	-55.51	12.65	5.26
	5855.500	-47.33	-13	-34.33	-54.65	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26915\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-54.64	-13	-41.64	-60.94	9.29	2.99
	2509.500	-52.55	-13	-39.55	-59.45	10.59	3.68
	3346.000	-50.10	-13	-37.10	-58.01	12.17	4.26
	4182.500	-49.79	-13	-36.79	-57.67	12.61	4.74
	5019.000	-46.90	-13	-33.90	-54.29	12.65	5.26
	5855.500	-47.32	-13	-34.32	-54.64	13.06	5.74
V	1673.000	-54.79	-13	-41.79	-61.09	9.29	2.99
	2509.500	-53.24	-13	-40.24	-60.14	10.59	3.68
	3346.000	-51.79	-13	-38.79	-59.70	12.17	4.26
	4182.500	-50.32	-13	-37.32	-58.20	12.61	4.74
	5019.000	-48.28	-13	-35.28	-55.67	12.65	5.26
	5855.500	-47.68	-13	-34.68	-55.00	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 27038\_BPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1697.600	-53.43	-13	-40.43	-59.83	9.44	3.03
	2546.400	-53.20	-13	-40.20	-60.15	10.69	3.74
	3395.200	-50.97	-13	-37.97	-59.02	12.38	4.33
	4244.000	-49.30	-13	-36.30	-57.10	12.63	4.82
	5092.800	-48.23	-13	-35.23	-55.61	12.74	5.36
	5941.600	-45.55	-13	-32.55	-52.77	13.02	5.80
V	1697.600	-49.97	-13	-36.97	-56.37	9.44	3.03
	2546.400	-52.68	-13	-39.68	-59.63	10.69	3.74
	3395.200	-51.19	-13	-38.19	-59.24	12.38	4.33
	4244.000	-48.74	-13	-35.74	-56.54	12.63	4.82
	5092.800	-48.34	-13	-35.34	-55.72	12.74	5.36
	5941.600	-45.69	-13	-32.69	-52.91	13.02	5.80

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 27038\_QPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1697.600	-53.57	-13	-40.57	-59.97	9.44	3.03
	2546.400	-53.18	-13	-40.18	-60.13	10.69	3.74
	3395.200	-50.86	-13	-37.86	-58.91	12.38	4.33
	4244.000	-49.50	-13	-36.50	-57.30	12.63	4.82
	5092.800	-48.63	-13	-35.63	-56.01	12.74	5.36
	5941.600	-45.76	-13	-32.76	-52.98	13.02	5.80
V	1697.600	-49.69	-13	-36.69	-56.09	9.44	3.03
	2546.400	-52.80	-13	-39.80	-59.75	10.69	3.74
	3395.200	-51.21	-13	-38.21	-59.26	12.38	4.33
	4244.000	-48.78	-13	-35.78	-56.58	12.63	4.82
	5092.800	-48.53	-13	-35.53	-55.91	12.74	5.36
	5941.600	-45.77	-13	-32.77	-52.99	13.02	5.80

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26792\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1648.400	-54.80	-13	-41.80	-61.10	9.29	2.99
	2472.600	-52.17	-13	-39.17	-59.07	10.59	3.68
	3296.800	-51.50	-13	-38.50	-59.41	12.17	4.26
	4121.000	-50.25	-13	-37.25	-58.13	12.61	4.74
	4945.200	-47.68	-13	-34.68	-55.07	12.65	5.26
	5769.400	-46.70	-13	-33.70	-54.02	13.06	5.74
V	1648.400	-55.57	-13	-42.57	-61.87	9.29	2.99
	2472.600	-53.14	-13	-40.14	-60.04	10.59	3.68
	3296.800	-51.69	-13	-38.69	-59.60	12.17	4.26
	4121.000	-49.80	-13	-36.80	-57.68	12.61	4.74
	4945.200	-46.84	-13	-33.84	-54.23	12.65	5.26
	5769.400	-47.50	-13	-34.50	-54.82	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26792\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1648.400	-54.71	-13	-41.71	-61.01	9.29	2.99
	2472.600	-52.25	-13	-39.25	-59.15	10.59	3.68
	3296.800	-52.21	-13	-39.21	-60.12	12.17	4.26
	4121.000	-50.57	-13	-37.57	-58.45	12.61	4.74
	4945.200	-47.50	-13	-34.50	-54.89	12.65	5.26
	5769.400	-46.90	-13	-33.90	-54.22	13.06	5.74
V	1648.400	-55.30	-13	-42.30	-61.60	9.29	2.99
	2472.600	-53.24	-13	-40.24	-60.14	10.59	3.68
	3296.800	-51.72	-13	-38.72	-59.63	12.17	4.26
	4121.000	-49.30	-13	-36.30	-57.18	12.61	4.74
	4945.200	-47.35	-13	-34.35	-54.74	12.65	5.26
	5769.400	-47.51	-13	-34.51	-54.83	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26915\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-54.49	-13	-41.49	-60.79	9.29	2.99
	2509.500	-52.72	-13	-39.72	-59.62	10.59	3.68
	3346.000	-50.35	-13	-37.35	-58.26	12.17	4.26
	4182.500	-49.71	-13	-36.71	-57.59	12.61	4.74
	5019.000	-46.89	-13	-33.89	-54.28	12.65	5.26
	5855.500	-47.44	-13	-34.44	-54.76	13.06	5.74
V	1673.000	-54.69	-13	-41.69	-60.99	9.29	2.99
	2509.500	-53.34	-13	-40.34	-60.24	10.59	3.68
	3346.000	-51.71	-13	-38.71	-59.62	12.17	4.26
	4182.500	-50.18	-13	-37.18	-58.06	12.61	4.74
	5019.000	-48.77	-13	-35.77	-56.16	12.65	5.26
	5855.500	-47.50	-13	-34.50	-54.82	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26915\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-54.50	-13	-41.50	-60.80	9.29	2.99
	2509.500	-52.89	-13	-39.89	-59.79	10.59	3.68
	3346.000	-50.71	-13	-37.71	-58.62	12.17	4.26
	4182.500	-49.40	-13	-36.40	-57.28	12.61	4.74
	5019.000	-46.30	-13	-33.30	-53.69	12.65	5.26
	5855.500	-47.68	-13	-34.68	-55.00	13.06	5.74
V	1673.000	-54.75	-13	-41.75	-61.05	9.29	2.99
	2509.500	-53.60	-13	-40.60	-60.50	10.59	3.68
	3346.000	-51.78	-13	-38.78	-59.69	12.17	4.26
	4182.500	-50.32	-13	-37.32	-58.20	12.61	4.74
	5019.000	-48.40	-13	-35.40	-55.79	12.65	5.26
	5855.500	-47.25	-13	-34.25	-54.57	13.06	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 27038\_BPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1697.600	-53.28	-13	-40.28	-59.68	9.44	3.03
	2546.400	-53.63	-13	-40.63	-60.58	10.69	3.74
	3395.200	-50.55	-13	-37.55	-58.60	12.38	4.33
	4244.000	-49.71	-13	-36.71	-57.51	12.63	4.82
	5092.800	-48.48	-13	-35.48	-55.86	12.74	5.36
	5941.600	-45.58	-13	-32.58	-52.80	13.02	5.80
V	1697.600	-49.74	-13	-36.74	-56.14	9.44	3.03
	2546.400	-52.76	-13	-39.76	-59.71	10.69	3.74
	3395.200	-51.69	-13	-38.69	-59.74	12.38	4.33
	4244.000	-48.58	-13	-35.58	-56.38	12.63	4.82
	5092.800	-48.20	-13	-35.20	-55.58	12.74	5.36
	5941.600	-45.19	-13	-32.19	-52.41	13.02	5.80

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 27038\_QPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1697.600	-53.78	-13	-40.78	-60.18	9.44	3.03
	2546.400	-53.80	-13	-40.80	-60.75	10.69	3.74
	3395.200	-50.24	-13	-37.24	-58.29	12.38	4.33
	4244.000	-49.82	-13	-36.82	-57.62	12.63	4.82
	5092.800	-48.99	-13	-35.99	-56.37	12.74	5.36
	5941.600	-45.78	-13	-32.78	-53.00	13.02	5.80
V	1697.600	-49.65	-13	-36.65	-56.05	9.44	3.03
	2546.400	-52.53	-13	-39.53	-59.48	10.69	3.74
	3395.200	-51.97	-13	-38.97	-60.02	12.38	4.33
	4244.000	-48.14	-13	-35.14	-55.94	12.63	4.82
	5092.800	-48.25	-13	-35.25	-55.63	12.74	5.36
	5941.600	-45.17	-13	-32.17	-52.39	13.02	5.80

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	Module		
Test Item	Radiated Spurious Emissions (Part 90)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/01/22~2020/06/06	Test Site	CB2-H
Temperature (°C)	19.0	Humidity (%RH)	54.0

BW 3.75k\_CH 26692\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1628.400	-55.77	-13	-42.77	-62.03	9.23	2.97
	2442.600	-52.94	-13	-39.94	-59.85	10.57	3.66
	3256.800	-51.67	-13	-38.67	-59.52	12.08	4.23
	4071.000	-50.24	-13	-37.24	-58.14	12.61	4.71
	4885.200	-48.15	-13	-35.15	-55.58	12.65	5.23
	5699.400	-47.01	-13	-34.01	-54.38	13.08	5.72
V	1628.400	-55.32	-13	-42.32	-61.58	9.23	2.97
	2442.600	-53.17	-13	-40.17	-60.08	10.57	3.66
	3256.800	-51.40	-13	-38.40	-59.25	12.08	4.23
	4071.000	-50.43	-13	-37.43	-58.33	12.61	4.71
	4885.200	-48.19	-13	-35.19	-55.62	12.65	5.23
	5699.400	-47.60	-13	-34.60	-54.97	13.08	5.72

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26692\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1628.400	-55.68	-13	-42.68	-61.94	9.23	2.97
	2442.600	-53.00	-13	-40.00	-59.91	10.57	3.66
	3256.800	-51.72	-13	-38.72	-59.57	12.08	4.23
	4071.000	-50.10	-13	-37.10	-58.00	12.61	4.71
	4885.200	-48.03	-13	-35.03	-55.46	12.65	5.23
	5699.400	-46.81	-13	-33.81	-54.18	13.08	5.72
V	1628.400	-55.33	-13	-42.33	-61.59	9.23	2.97
	2442.600	-53.27	-13	-40.27	-60.18	10.57	3.66
	3256.800	-51.70	-13	-38.70	-59.55	12.08	4.23
	4071.000	-50.35	-13	-37.35	-58.25	12.61	4.71
	4885.200	-48.56	-13	-35.56	-55.99	12.65	5.23
	5699.400	-48.10	-13	-35.10	-55.47	13.08	5.72

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.



## BW 3.75k\_CH 26740\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1638.000	-54.69	-13	-41.69	-60.97	9.26	2.98
	2457.000	-52.49	-13	-39.49	-59.40	10.58	3.67
	3276.000	-51.32	-13	-38.32	-59.20	12.12	4.25
	4095.000	-49.88	-13	-36.88	-57.77	12.61	4.72
	4914.000	-48.24	-13	-35.24	-55.65	12.65	5.24
	5733.000	-47.26	-13	-34.26	-54.61	13.07	5.73
V	1638.000	-54.59	-13	-41.59	-60.87	9.26	2.98
	2457.000	-52.16	-13	-39.16	-59.07	10.58	3.67
	3276.000	-50.82	-13	-37.82	-58.70	12.12	4.25
	4095.000	-50.33	-13	-37.33	-58.22	12.61	4.72
	4914.000	-48.34	-13	-35.34	-55.75	12.65	5.24
	5733.000	-46.70	-13	-33.70	-54.05	13.07	5.73

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

## BW 3.75k\_CH 26740\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1638.000	-54.70	-13	-41.70	-60.98	9.26	2.98
	2457.000	-52.15	-13	-39.15	-59.06	10.58	3.67
	3276.000	-51.44	-13	-38.44	-59.32	12.12	4.25
	4095.000	-49.93	-13	-36.93	-57.82	12.61	4.72
	4914.000	-48.83	-13	-35.83	-56.24	12.65	5.24
	5733.000	-47.37	-13	-34.37	-54.72	13.07	5.73
V	1638.000	-54.63	-13	-41.63	-60.91	9.26	2.98
	2457.000	-52.30	-13	-39.30	-59.21	10.58	3.67
	3276.000	-50.92	-13	-37.92	-58.80	12.12	4.25
	4095.000	-50.28	-13	-37.28	-58.17	12.61	4.72
	4914.000	-48.50	-13	-35.50	-55.91	12.65	5.24
	5733.000	-46.31	-13	-33.31	-53.66	13.07	5.73

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26788\_BPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1647.600	-55.08	-13	-42.08	-61.38	9.29	2.99
	2471.400	-52.90	-13	-39.90	-59.80	10.59	3.68
	3295.200	-50.99	-13	-37.99	-58.89	12.16	4.26
	4119.000	-50.11	-13	-37.11	-57.99	12.61	4.74
	4942.800	-48.28	-13	-35.28	-55.67	12.65	5.26
	5766.600	-46.53	-13	-33.53	-53.85	13.07	5.74
V	1647.600	-54.27	-13	-41.27	-60.57	9.29	2.99
	2471.400	-53.27	-13	-40.27	-60.17	10.59	3.68
	3295.200	-51.37	-13	-38.37	-59.27	12.16	4.26
	4119.000	-49.55	-13	-36.55	-57.43	12.61	4.74
	4942.800	-47.36	-13	-34.36	-54.75	12.65	5.26
	5766.600	-47.13	-13	-34.13	-54.45	13.07	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 26788\_QPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1647.600	-54.73	-13	-41.73	-61.03	9.29	2.99
	2471.400	-52.73	-13	-39.73	-59.63	10.59	3.68
	3295.200	-50.86	-13	-37.86	-58.76	12.16	4.26
	4119.000	-49.87	-13	-36.87	-57.75	12.61	4.74
	4942.800	-48.45	-13	-35.45	-55.84	12.65	5.26
	5766.600	-46.46	-13	-33.46	-53.78	13.07	5.74
V	1647.600	-54.49	-13	-41.49	-60.79	9.29	2.99
	2471.400	-52.81	-13	-39.81	-59.71	10.59	3.68
	3295.200	-51.62	-13	-38.62	-59.52	12.16	4.26
	4119.000	-49.83	-13	-36.83	-57.71	12.61	4.74
	4942.800	-47.20	-13	-34.20	-54.59	12.65	5.26
	5766.600	-48.22	-13	-35.22	-55.54	13.07	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26692\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1628.400	-55.58	-13	-42.58	-61.84	9.23	2.97
	2442.600	-53.17	-13	-40.17	-60.08	10.57	3.66
	3256.800	-51.61	-13	-38.61	-59.46	12.08	4.23
	4071.000	-50.45	-13	-37.45	-58.35	12.61	4.71
	4885.200	-48.32	-13	-35.32	-55.75	12.65	5.23
	5699.400	-46.89	-13	-33.89	-54.26	13.08	5.72
V	1628.400	-55.26	-13	-42.26	-61.52	9.23	2.97
	2442.600	-53.05	-13	-40.05	-59.96	10.57	3.66
	3256.800	-51.07	-13	-38.07	-58.92	12.08	4.23
	4071.000	-50.32	-13	-37.32	-58.22	12.61	4.71
	4885.200	-48.20	-13	-35.20	-55.63	12.65	5.23
	5699.400	-47.53	-13	-34.53	-54.90	13.08	5.72

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26692\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1628.400	-55.44	-13	-42.44	-61.70	9.23	2.97
	2442.600	-53.18	-13	-40.18	-60.09	10.57	3.66
	3256.800	-51.92	-13	-38.92	-59.77	12.08	4.23
	4071.000	-48.17	-13	-35.17	-56.07	12.61	4.71
	4885.200	-46.74	-13	-33.74	-54.17	12.65	5.23
	5699.400	-46.67	-13	-33.67	-54.04	13.08	5.72
V	1628.400	-55.34	-13	-42.34	-61.60	9.23	2.97
	2442.600	-53.51	-13	-40.51	-60.42	10.57	3.66
	3256.800	-51.39	-13	-38.39	-59.24	12.08	4.23
	4071.000	-51.25	-13	-38.25	-59.15	12.61	4.71
	4885.200	-48.46	-13	-35.46	-55.89	12.65	5.23
	5699.400	-47.67	-13	-34.67	-55.04	13.08	5.72

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26740\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1638.000	-54.72	-13	-41.72	-61.00	9.26	2.98
	2457.000	-52.53	-13	-39.53	-59.44	10.58	3.67
	3276.000	-51.60	-13	-38.60	-59.48	12.12	4.25
	4095.000	-49.91	-13	-36.91	-57.80	12.61	4.72
	4914.000	-48.69	-13	-35.69	-56.10	12.65	5.24
	5733.000	-47.30	-13	-34.30	-54.65	13.07	5.73
V	1638.000	-54.77	-13	-41.77	-61.05	9.26	2.98
	2457.000	-52.53	-13	-39.53	-59.44	10.58	3.67
	3276.000	-50.70	-13	-37.70	-58.58	12.12	4.25
	4095.000	-50.10	-13	-37.10	-57.99	12.61	4.72
	4914.000	-48.53	-13	-35.53	-55.94	12.65	5.24
	5733.000	-46.77	-13	-33.77	-54.12	13.07	5.73

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26740\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1638.000	-54.78	-13	-41.78	-61.06	9.26	2.98
	2457.000	-52.43	-13	-39.43	-59.34	10.58	3.67
	3276.000	-51.50	-13	-38.50	-59.38	12.12	4.25
	4095.000	-49.87	-13	-36.87	-57.76	12.61	4.72
	4914.000	-48.34	-13	-35.34	-55.75	12.65	5.24
	5733.000	-47.20	-13	-34.20	-54.55	13.07	5.73
V	1638.000	-54.50	-13	-41.50	-60.78	9.26	2.98
	2457.000	-52.60	-13	-39.60	-59.51	10.58	3.67
	3276.000	-50.72	-13	-37.72	-58.60	12.12	4.25
	4095.000	-50.15	-13	-37.15	-58.04	12.61	4.72
	4914.000	-48.48	-13	-35.48	-55.89	12.65	5.24
	5733.000	-46.52	-13	-33.52	-53.87	13.07	5.73

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26788\_BPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1647.600	-54.53	-13	-41.53	-60.83	9.29	2.99
	2471.400	-53.18	-13	-40.18	-60.08	10.59	3.68
	3295.200	-50.91	-13	-37.91	-58.81	12.16	4.26
	4119.000	-49.93	-13	-36.93	-57.81	12.61	4.74
	4942.800	-48.17	-13	-35.17	-55.56	12.65	5.26
	5766.600	-46.83	-13	-33.83	-54.15	13.07	5.74
V	1647.600	-54.24	-13	-41.24	-60.54	9.29	2.99
	2471.400	-53.39	-13	-40.39	-60.29	10.59	3.68
	3295.200	-51.72	-13	-38.72	-59.62	12.16	4.26
	4119.000	-49.83	-13	-36.83	-57.71	12.61	4.74
	4942.800	-47.28	-13	-34.28	-54.67	12.65	5.26
	5766.600	-47.41	-13	-34.41	-54.73	13.07	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 26788\_QPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1647.600	-54.75	-13	-41.75	-61.05	9.29	2.99
	2471.400	-53.04	-13	-40.04	-59.94	10.59	3.68
	3295.200	-50.88	-13	-37.88	-58.78	12.16	4.26
	4119.000	-50.18	-13	-37.18	-58.06	12.61	4.74
	4942.800	-48.53	-13	-35.53	-55.92	12.65	5.26
	5766.600	-46.67	-13	-33.67	-53.99	13.07	5.74
V	1647.600	-54.53	-13	-41.53	-60.83	9.29	2.99
	2471.400	-53.49	-13	-40.49	-60.39	10.59	3.68
	3295.200	-51.88	-13	-38.88	-59.78	12.16	4.26
	4119.000	-49.77	-13	-36.77	-57.65	12.61	4.74
	4942.800	-47.14	-13	-34.14	-54.53	12.65	5.26
	5766.600	-47.53	-13	-34.53	-54.85	13.07	5.74

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	Module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 8 : LTE NB-IoT_Band 66		
Date of Test	2020/01/21	Test Site	CB2-H
Temperature (°C)	19.0	Humidity (%RH)	54.0

BW 3.75k\_CH 131974\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3420.400	-36.30	-13	-23.30	-44.38	12.44	4.35
	5130.600	-47.08	-13	-34.08	-54.47	12.78	5.39
	6840.800	-42.01	-13	-29.01	-47.49	11.84	6.36
	8551.000	-39.92	-13	-26.92	-44.88	11.87	6.91
	10261.200	-38.43	-13	-25.43	-42.68	11.87	7.61
	11971.400	-36.77	-13	-23.77	-41.67	13.12	8.22
V	3420.400	-34.33	-13	-21.33	-42.41	12.44	4.35
	5130.600	-47.19	-13	-34.19	-54.58	12.78	5.39
	6840.800	-42.50	-13	-29.50	-47.98	11.84	6.36
	8551.000	-39.67	-13	-26.67	-44.63	11.87	6.91
	10261.200	-38.13	-13	-25.13	-42.38	11.87	7.61
	11971.400	-37.01	-13	-24.01	-41.91	13.12	8.22

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 131974\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3420.400	-36.65	-13	-23.65	-44.73	12.44	4.35
	5130.600	-47.86	-13	-34.86	-55.25	12.78	5.39
	6840.800	-42.33	-13	-29.33	-47.81	11.84	6.36
	8551.000	-39.68	-13	-26.68	-44.64	11.87	6.91
	10261.200	-36.98	-13	-23.98	-41.23	11.87	7.61
	11971.400	-37.03	-13	-24.03	-41.93	13.12	8.22
V	3420.400	-34.31	-13	-21.31	-42.39	12.44	4.35
	5130.600	-47.13	-13	-34.13	-54.52	12.78	5.39
	6840.800	-42.74	-13	-29.74	-48.22	11.84	6.36
	8551.000	-39.33	-13	-26.33	-44.29	11.87	6.91
	10261.200	-37.59	-13	-24.59	-41.84	11.87	7.61
	11971.400	-36.60	-13	-23.60	-41.50	13.12	8.22

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 132322\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-36.28	-13	-23.28	-44.47	12.59	4.40
	5235.000	-47.17	-13	-34.17	-54.59	12.88	5.46
	6980.000	-42.22	-13	-29.22	-47.38	11.67	6.51
	8725.000	-39.98	-13	-26.98	-44.89	11.88	6.97
	10470.000	-38.40	-13	-25.40	-42.36	11.69	7.73
	12215.000	-36.89	-13	-23.89	-42.07	13.47	8.29
V	3490.000	-34.35	-13	-21.35	-42.54	12.59	4.40
	5235.000	-47.26	-13	-34.26	-54.68	12.88	5.46
	6980.000	-42.30	-13	-29.30	-47.46	11.67	6.51
	8725.000	-39.61	-13	-26.61	-44.52	11.88	6.97
	10470.000	-38.02	-13	-25.02	-41.98	11.69	7.73
	12215.000	-37.33	-13	-24.33	-42.51	13.47	8.29

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 132322\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-36.11	-13	-23.11	-44.30	12.59	4.40
	5235.000	-47.77	-13	-34.77	-55.19	12.88	5.46
	6980.000	-42.15	-13	-29.15	-47.31	11.67	6.51
	8725.000	-39.95	-13	-26.95	-44.86	11.88	6.97
	10470.000	-37.01	-13	-24.01	-40.97	11.69	7.73
	12215.000	-37.44	-13	-24.44	-42.62	13.47	8.29
V	3490.000	-34.10	-13	-21.10	-42.29	12.59	4.40
	5235.000	-47.88	-13	-34.88	-55.30	12.88	5.46
	6980.000	-42.45	-13	-29.45	-47.61	11.67	6.51
	8725.000	-39.22	-13	-26.22	-44.13	11.88	6.97
	10470.000	-37.65	-13	-24.65	-41.61	11.69	7.73
	12215.000	-37.71	-13	-24.71	-42.89	13.47	8.29

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 132670\_BPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3559.600	-43.15	-13	-30.15	-51.32	12.61	4.44
	5339.400	-48.42	-13	-35.42	-55.87	12.98	5.54
	7119.200	-42.18	-13	-29.18	-47.17	11.55	6.56
	8899.000	-42.29	-13	-29.29	-47.14	11.88	7.03
	10678.800	-40.46	-13	-27.46	-44.27	11.61	7.80
	12458.600	-41.21	-13	-28.21	-46.65	13.80	8.36
V	3559.600	-43.92	-13	-30.92	-52.09	12.61	4.44
	5339.400	-48.80	-13	-35.80	-56.25	12.98	5.54
	7119.200	-43.03	-13	-30.03	-48.02	11.55	6.56
	8899.000	-42.80	-13	-29.80	-47.65	11.88	7.03
	10678.800	-41.21	-13	-28.21	-45.02	11.61	7.80
	12458.600	-41.28	-13	-28.28	-46.72	13.80	8.36

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 3.75k\_CH 132670\_QPSK\_1RB47

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3559.600	-43.04	-13	-30.04	-51.21	12.61	4.44
	5339.400	-48.58	-13	-35.58	-56.03	12.98	5.54
	7119.200	-42.19	-13	-29.19	-47.18	11.55	6.56
	8899.000	-42.32	-13	-29.32	-47.17	11.88	7.03
	10678.800	-40.53	-13	-27.53	-44.34	11.61	7.80
	12458.600	-41.65	-13	-28.65	-47.09	13.80	8.36
V	3559.600	-43.89	-13	-30.89	-52.06	12.61	4.44
	5339.400	-48.75	-13	-35.75	-56.20	12.98	5.54
	7119.200	-43.06	-13	-30.06	-48.05	11.55	6.56
	8899.000	-42.77	-13	-29.77	-47.62	11.88	7.03
	10678.800	-41.23	-13	-28.23	-45.04	11.61	7.80
	12458.600	-41.44	-13	-28.44	-46.88	13.80	8.36

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.



BW 15k\_CH 131974\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3420.400	-37.18	-13	-24.18	-45.26	12.44	4.35
	5130.600	-46.38	-13	-33.38	-53.77	12.78	5.39
	6840.800	-42.40	-13	-29.40	-47.88	11.84	6.36
	8551.000	-39.60	-13	-26.60	-44.56	11.87	6.91
	10261.200	-38.39	-13	-25.39	-42.64	11.87	7.61
	11971.400	-36.94	-13	-23.94	-41.84	13.12	8.22
V	3420.400	-35.27	-13	-22.27	-43.35	12.44	4.35
	5130.600	-46.78	-13	-33.78	-54.17	12.78	5.39
	6840.800	-42.51	-13	-29.51	-47.99	11.84	6.36
	8551.000	-39.28	-13	-26.28	-44.24	11.87	6.91
	10261.200	-37.79	-13	-24.79	-42.04	11.87	7.61
	11971.400	-36.59	-13	-23.59	-41.49	13.12	8.22

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 131974\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3420.400	-37.43	-13	-24.43	-45.51	12.44	4.35
	5130.600	-46.72	-13	-33.72	-54.11	12.78	5.39
	6840.800	-42.50	-13	-29.50	-47.98	11.84	6.36
	8551.000	-39.41	-13	-26.41	-44.37	11.87	6.91
	10261.200	-38.19	-13	-25.19	-42.44	11.87	7.61
	11971.400	-37.03	-13	-24.03	-41.93	13.12	8.22
V	3420.400	-35.30	-13	-22.30	-43.38	12.44	4.35
	5130.600	-46.93	-13	-33.93	-54.32	12.78	5.39
	6840.800	-42.41	-13	-29.41	-47.89	11.84	6.36
	8551.000	-39.07	-13	-26.07	-44.03	11.87	6.91
	10261.200	-38.57	-13	-25.57	-42.82	11.87	7.61
	11971.400	-37.21	-13	-24.21	-42.11	13.12	8.22

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 132322\_BPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-37.09	-13	-24.09	-45.28	12.59	4.40
	5235.000	-46.65	-13	-33.65	-54.07	12.88	5.46
	6980.000	-42.23	-13	-29.23	-47.39	11.67	6.51
	8725.000	-39.17	-13	-26.17	-44.08	11.88	6.97
	10470.000	-38.68	-13	-25.68	-42.64	11.69	7.73
	12215.000	-36.66	-13	-23.66	-41.84	13.47	8.29
V	3490.000	-35.31	-13	-22.31	-43.50	12.59	4.40
	5235.000	-46.90	-13	-33.90	-54.32	12.88	5.46
	6980.000	-42.42	-13	-29.42	-47.58	11.67	6.51
	8725.000	-39.20	-13	-26.20	-44.11	11.88	6.97
	10470.000	-37.84	-13	-24.84	-41.80	11.69	7.73
	12215.000	-36.65	-13	-23.65	-41.83	13.47	8.29

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 132322\_QPSK\_1RB0

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-37.50	-13	-24.50	-45.69	12.59	4.40
	5235.000	-46.70	-13	-33.70	-54.12	12.88	5.46
	6980.000	-42.30	-13	-29.30	-47.46	11.67	6.51
	8725.000	-39.39	-13	-26.39	-44.30	11.88	6.97
	10470.000	-38.32	-13	-25.32	-42.28	11.69	7.73
	12215.000	-37.00	-13	-24.00	-42.18	13.47	8.29
V	3490.000	-35.10	-13	-22.10	-43.29	12.59	4.40
	5235.000	-47.16	-13	-34.16	-54.58	12.88	5.46
	6980.000	-42.18	-13	-29.18	-47.34	11.67	6.51
	8725.000	-39.57	-13	-26.57	-44.48	11.88	6.97
	10470.000	-38.63	-13	-25.63	-42.59	11.69	7.73
	12215.000	-37.77	-13	-24.77	-42.95	13.47	8.29

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

BW 15k\_CH 132670\_BPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3559.600	-43.11	-13	-30.11	-51.28	12.61	4.44
	5339.400	-48.47	-13	-35.47	-55.92	12.98	5.54
	7119.200	-42.23	-13	-29.23	-47.22	11.55	6.56
	8899.000	-42.33	-13	-29.33	-47.18	11.88	7.03
	10678.800	-40.40	-13	-27.40	-44.21	11.61	7.80
	12458.600	-41.61	-13	-28.61	-47.05	13.80	8.36
V	3559.600	-43.91	-13	-30.91	-52.08	12.61	4.44
	5339.400	-48.70	-13	-35.70	-56.15	12.98	5.54
	7119.200	-43.23	-13	-30.23	-48.22	11.55	6.56
	8899.000	-42.11	-13	-29.11	-46.96	11.88	7.03
	10678.800	-41.24	-13	-28.24	-45.05	11.61	7.80
	12458.600	-41.67	-13	-28.67	-47.11	13.80	8.36

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

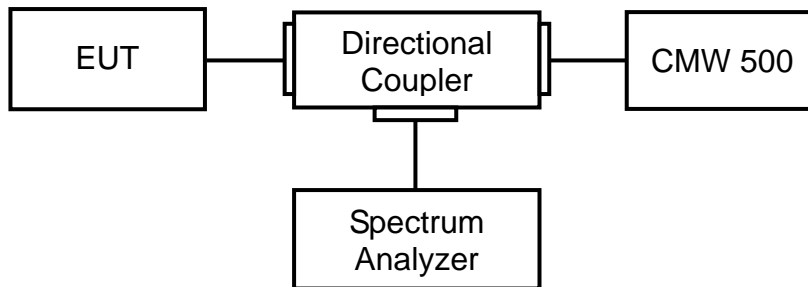
BW 15k\_CH 132670\_QPSK\_1RB11

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3559.600	-43.75	-13	-30.75	-51.92	12.61	4.44
	5339.400	-48.36	-13	-35.36	-55.81	12.98	5.54
	7119.200	-42.52	-13	-29.52	-47.51	11.55	6.56
	8899.000	-42.73	-13	-29.73	-47.58	11.88	7.03
	10678.800	-40.37	-13	-27.37	-44.18	11.61	7.80
	12458.600	-41.59	-13	-28.59	-47.03	13.80	8.36
V	3559.600	-43.87	-13	-30.87	-52.04	12.61	4.44
	5339.400	-48.10	-13	-35.10	-55.55	12.98	5.54
	7119.200	-44.41	-13	-31.41	-49.40	11.55	6.56
	8899.000	-42.68	-13	-29.68	-47.53	11.88	7.03
	10678.800	-41.70	-13	-28.70	-45.51	11.61	7.80
	12458.600	-41.17	-13	-28.17	-46.61	13.80	8.36

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

## 7. Spurious Emissions at Antenna Terminals

### 7.1. Test Setup



### 7.2. Test Procedure

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Coupler.
- EUT Communicate with CMW500, then select a channel for testing.
- Add a correction factor to the display of spectrum, and then test.
- The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

### 7.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1

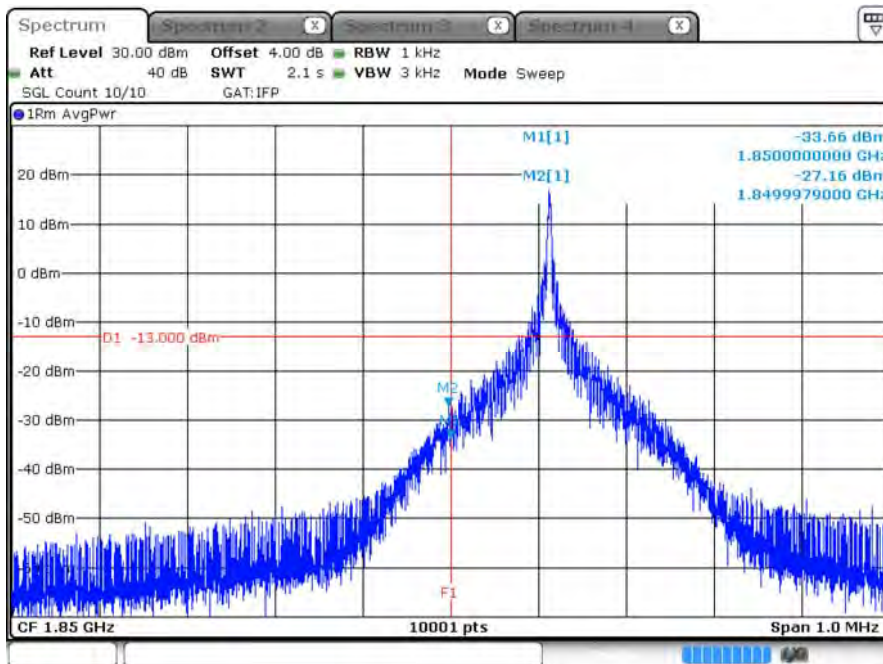
KDB 971168 D02 Misc Rev Approv License Devices v02r01

ANSI C63.26: 2015 Sub-clause 5.7

### 7.4. Test Result

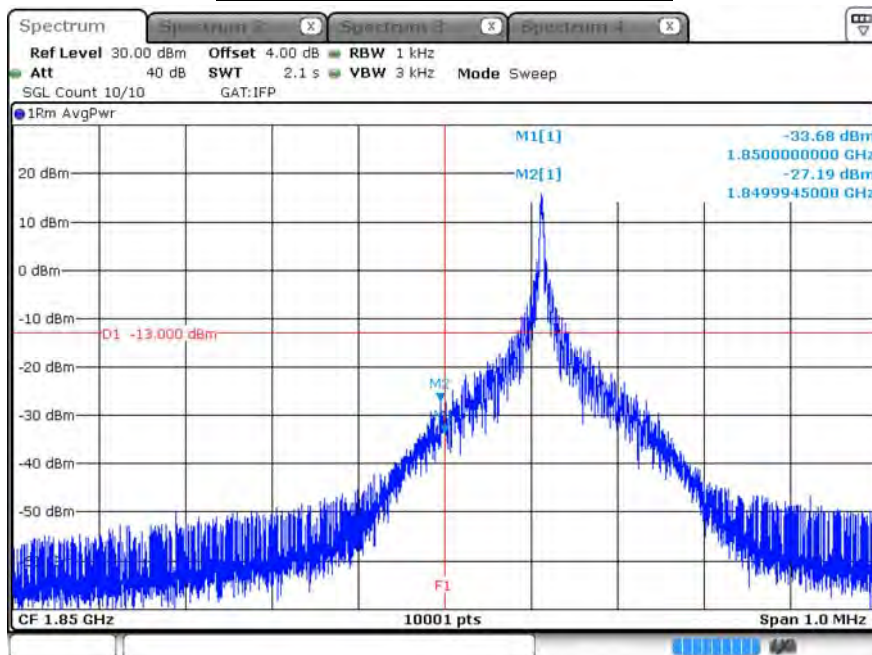
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 1 : LTE NB-IoT_Band 2		
Date of Test	2020/02/05	Test Site	SR12-H
Temperature (°C)	20.0	Humidity (%RH)	64.0

#### B2 3.75K CH18602 BPSK 1RB0



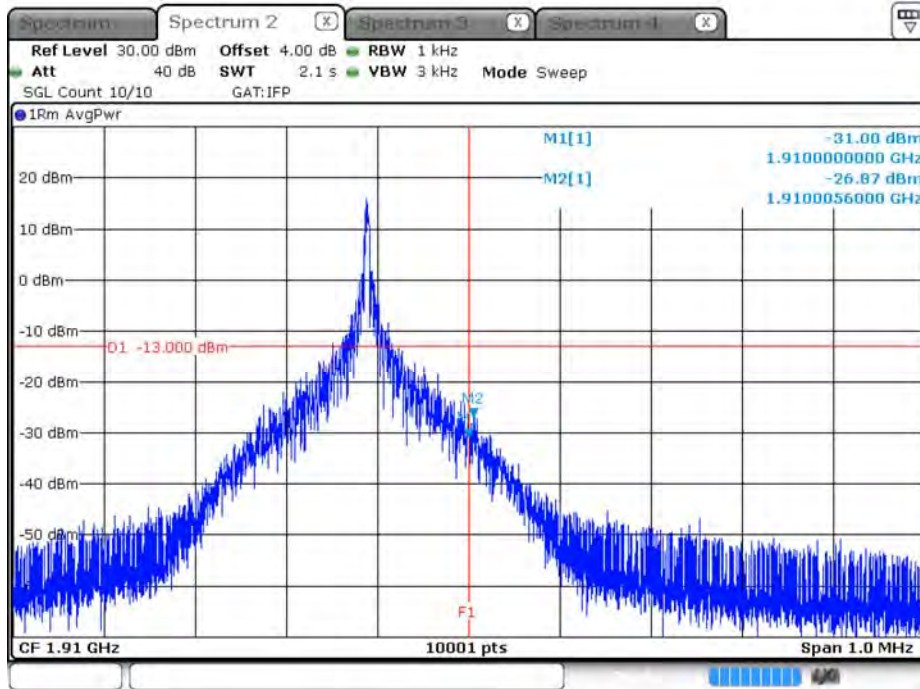
Date: 5.FEB.2020 10:43:06

#### B2 3.75K CH18602 QPSK 1RB0



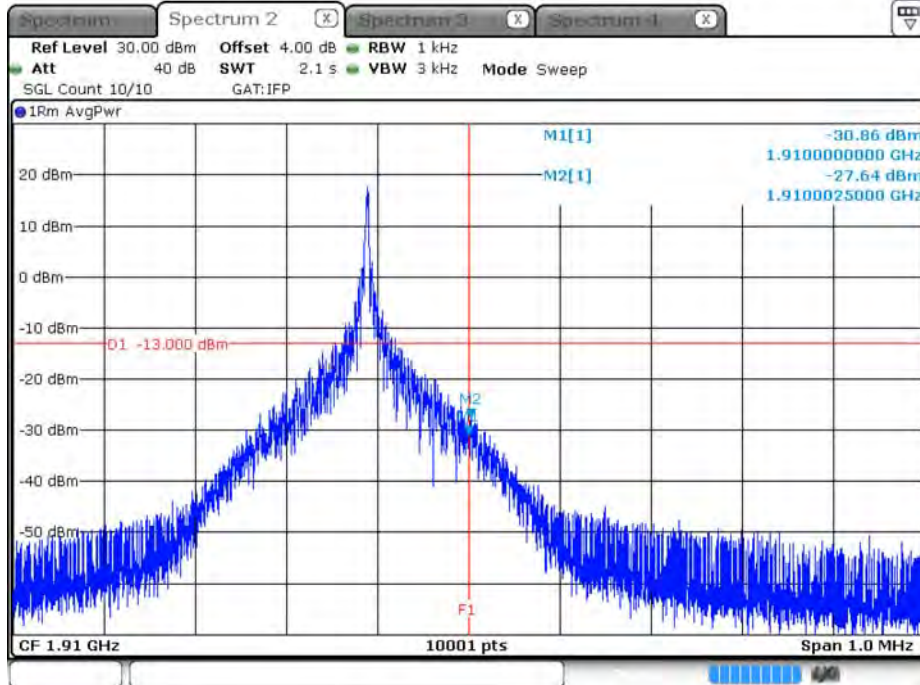
Date: 5.FEB.2020 10:39:22

**B2 3.75K CH19198 BPSK 1RB47**



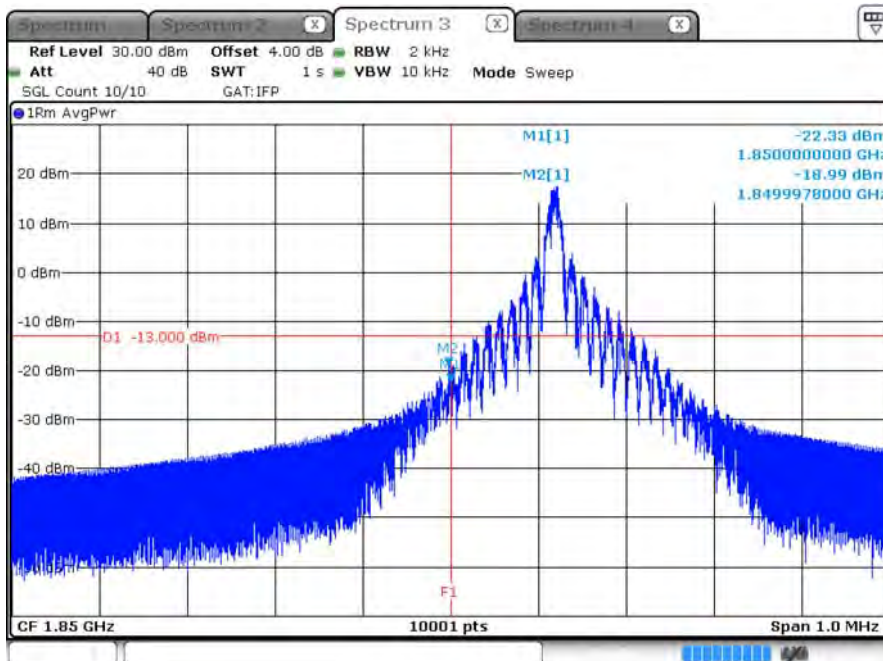
Date: 5.FEB.2020 10:30:58

**B2\_3.75K\_CH19198\_QPSK\_1RB47**



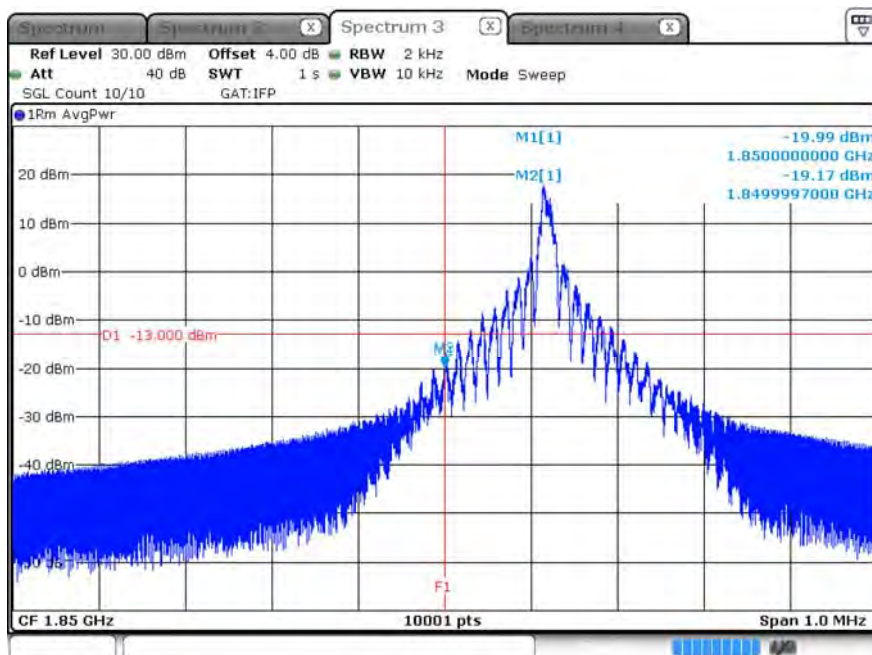
Date: 5.FEB.2020 10:33:37

### B2\_15K\_CH18602\_BPSK\_1RB0



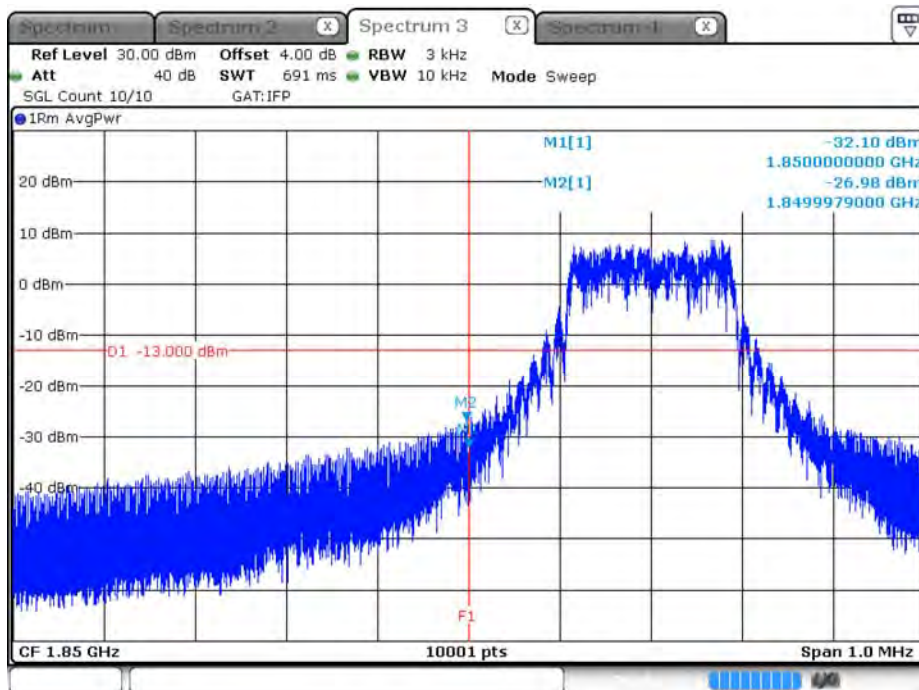
Date: 5.FEB.2020 10:56:01

### B2\_15K\_CH18602\_QPSK\_1RB0



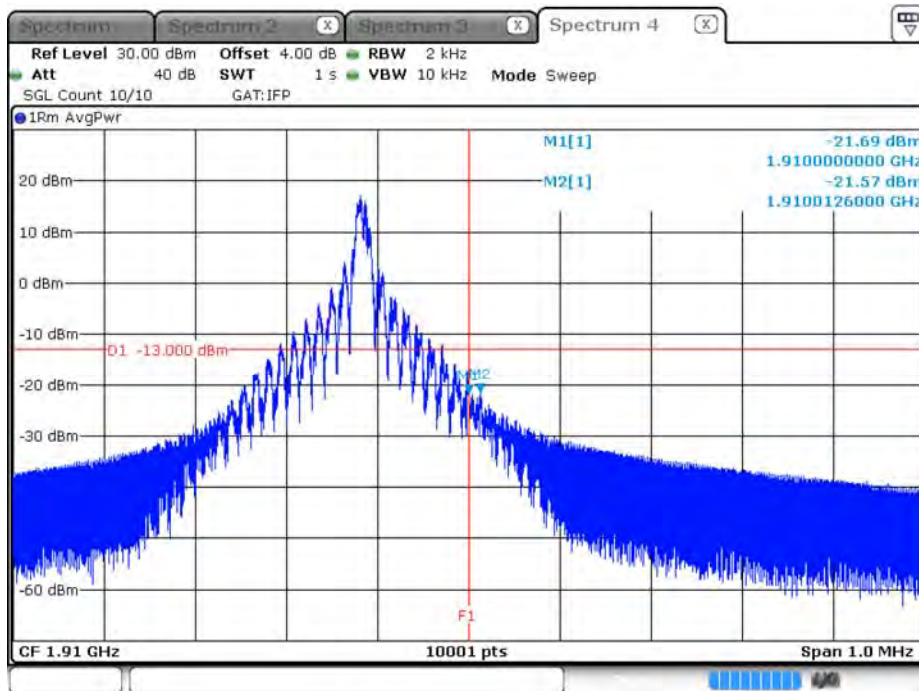
Date: 5.FEB.2020 11:09:25

### B2\_15K\_CH18602\_QPSK\_12RB0



Date: 5.FEB.2020 11:12:30

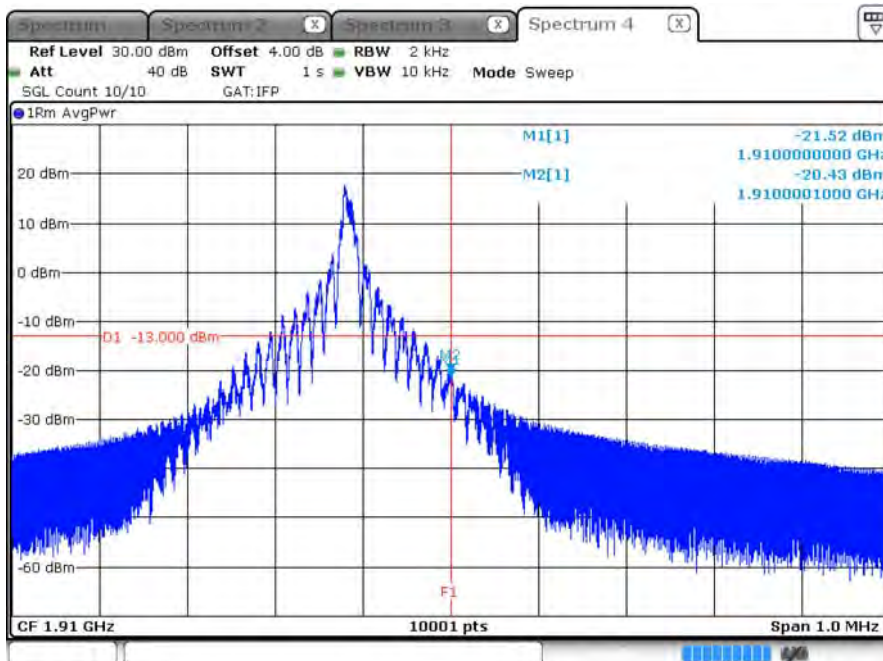
### B2\_15K\_CH19198\_BPSK\_1RB11



Date: 5.FEB.2020 11:50:56

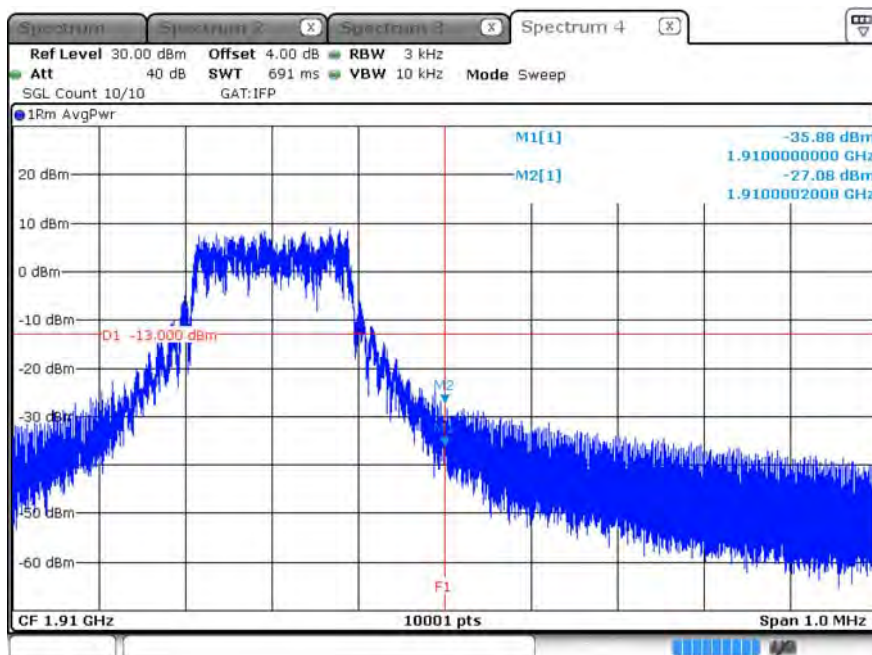


### B2\_15K\_CH19198\_QPSK\_1RB11



Date: 5.FEB.2020 11:39:16

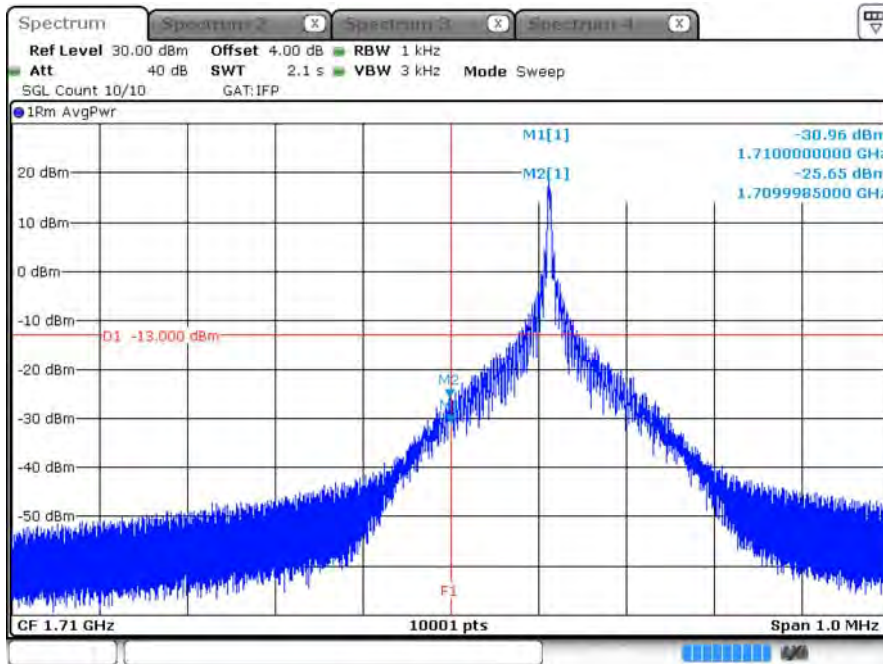
### B2\_15K\_CH19198\_QPSK\_12RB0



Date: 5.FEB.2020 11:16:51

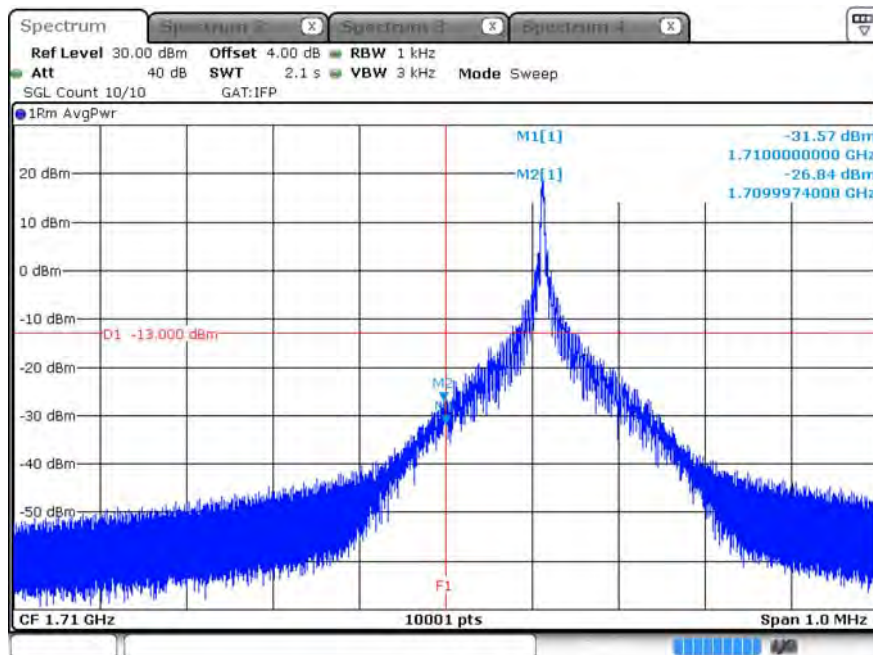
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 2 : LTE NB-IoT_Band 4		
Date of Test	2020/02/05	Test Site	SR12-H
Temperature (°C)	20.0	Humidity (%RH)	64.0

B4\_3.75K\_CH19952\_BPSK\_1RB0



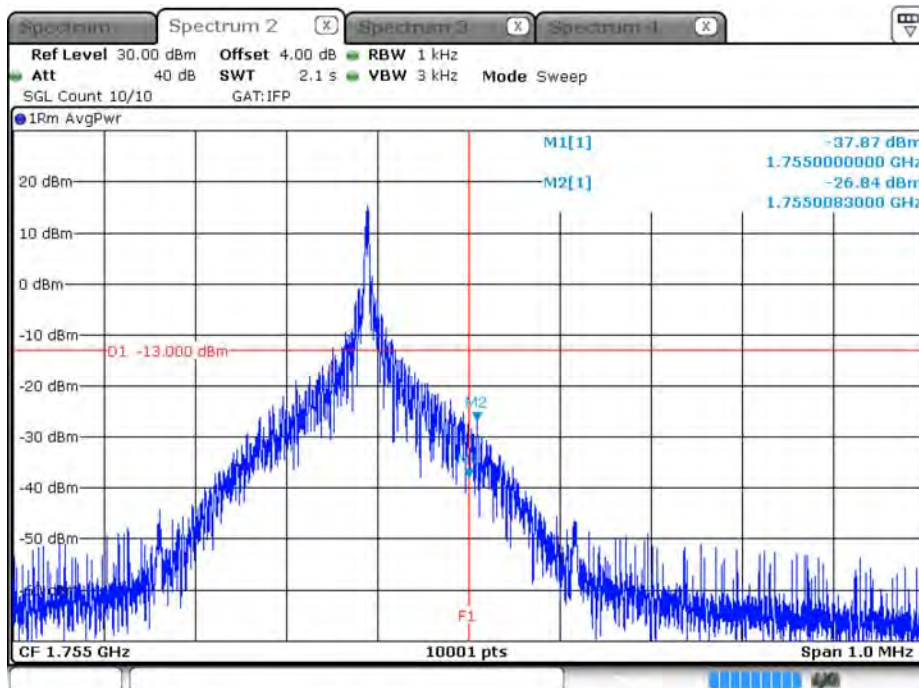
Date: 5.FEB.2020 14:32:18

B4\_3.75K\_CH19952\_QPSK\_1RB0



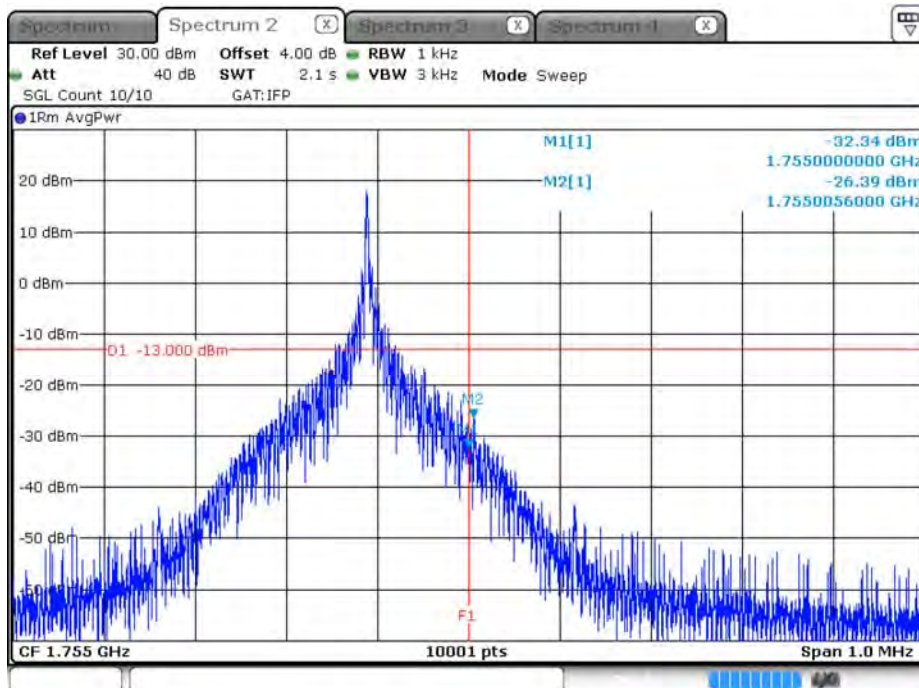
Date: 5.FEB.2020 14:36:09

### B4\_3.75K\_CH20398\_BPSK\_1RB47



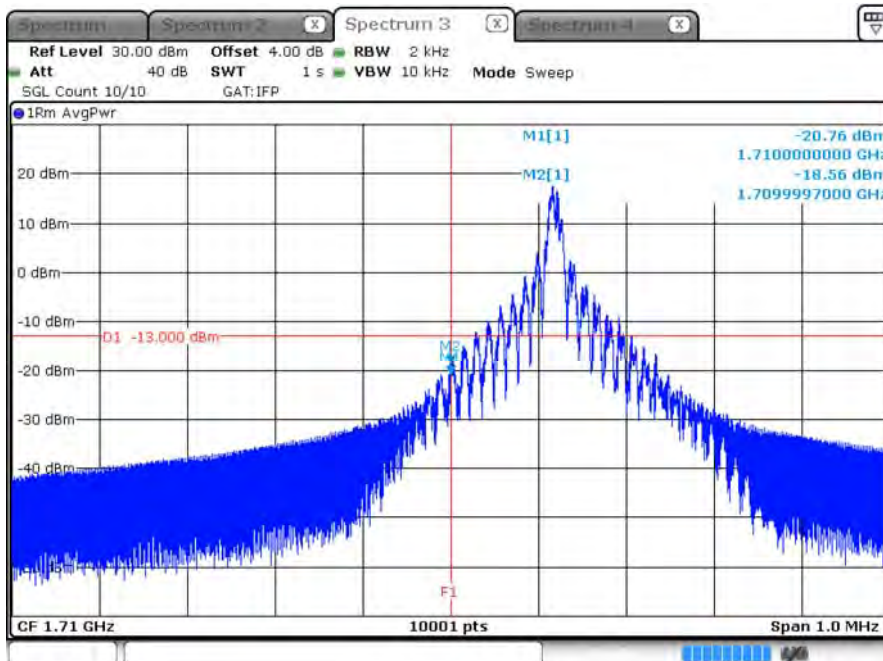
Date: 5.FEB.2020 14:28:22

### B4\_3.75K\_CH20398\_QPSK\_1RB47



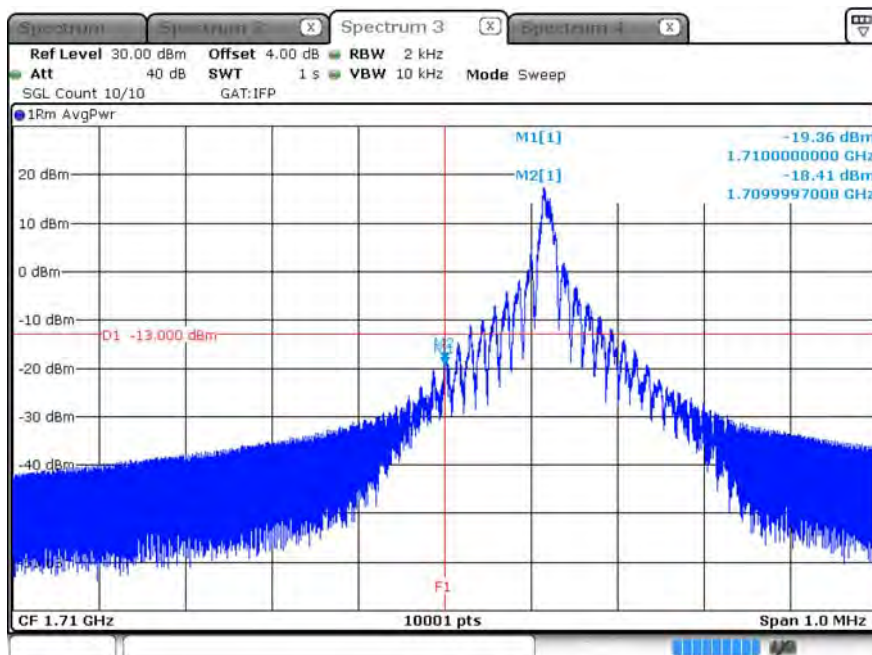
Date: 5.FEB.2020 14:23:16

### B4\_15K\_CH19952\_BPSK\_1RB0



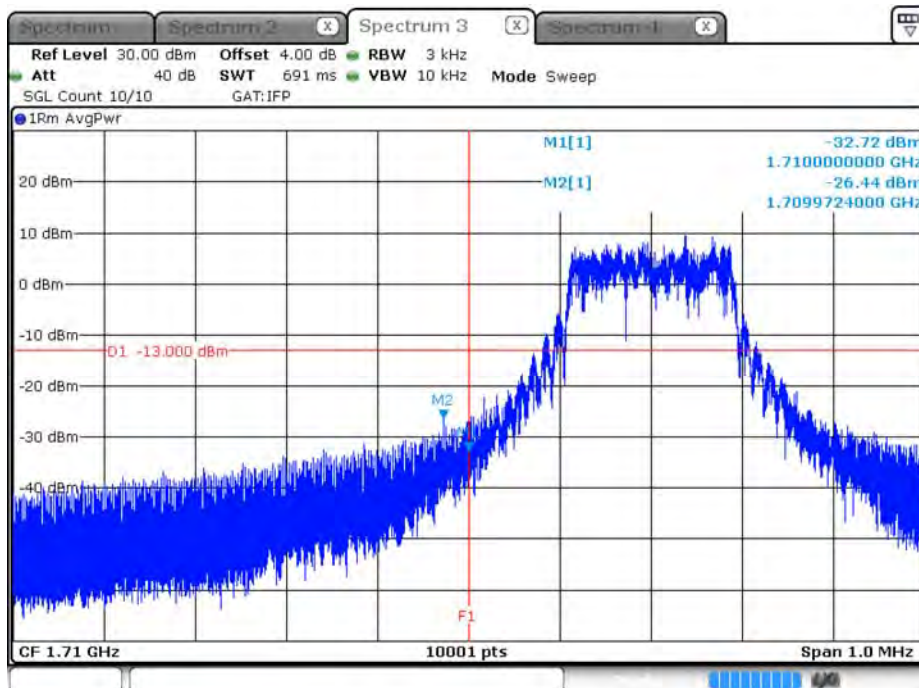
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### B4\_15K\_CH19952\_QPSK\_1RB0



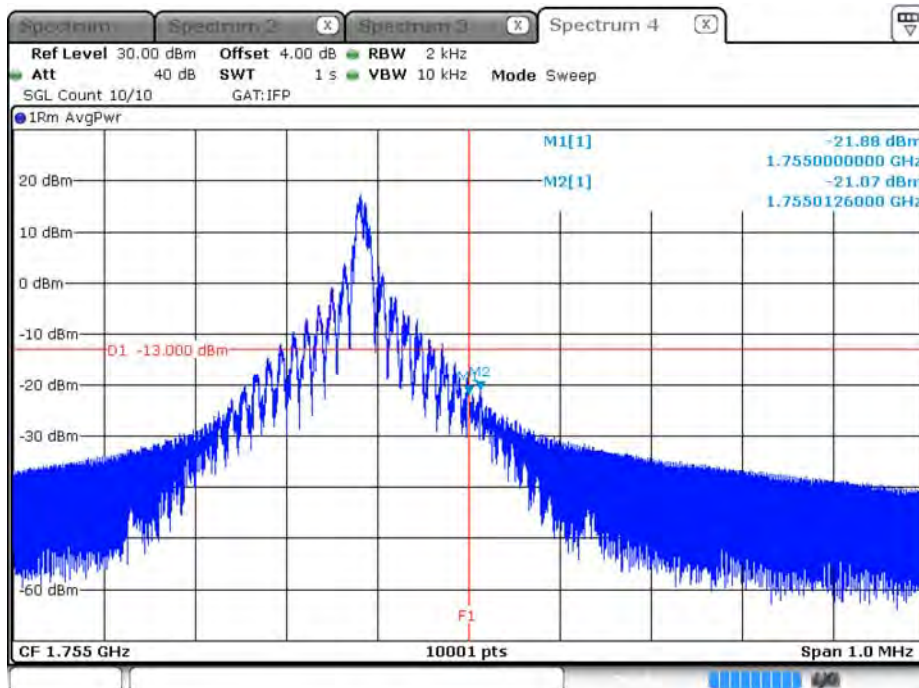
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### B4\_15K\_CH19952\_QPSK\_12RB0



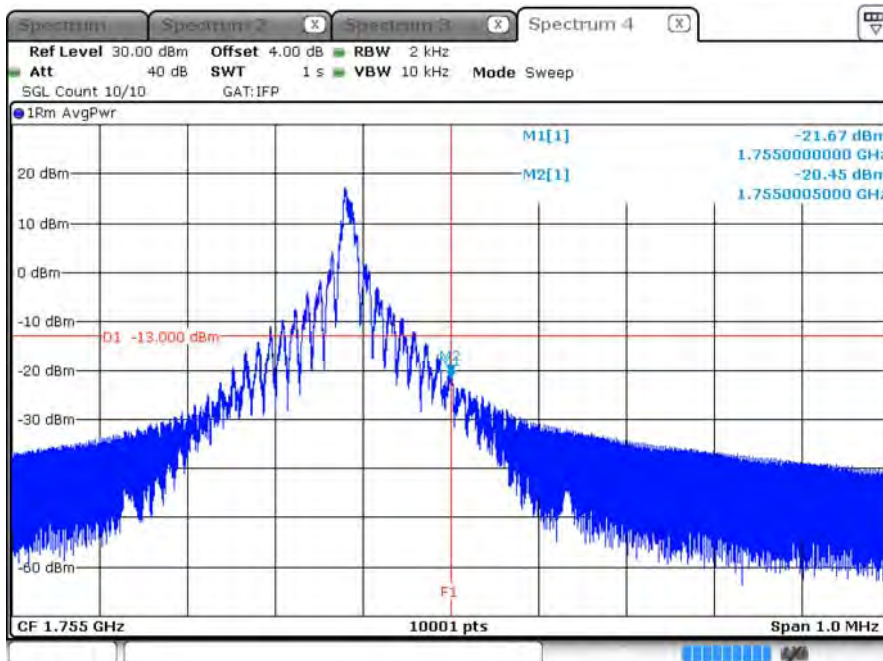
Date: 5.FEB.2020 13:26:27

### B4\_15K\_CH20398\_BPSK\_1RB11



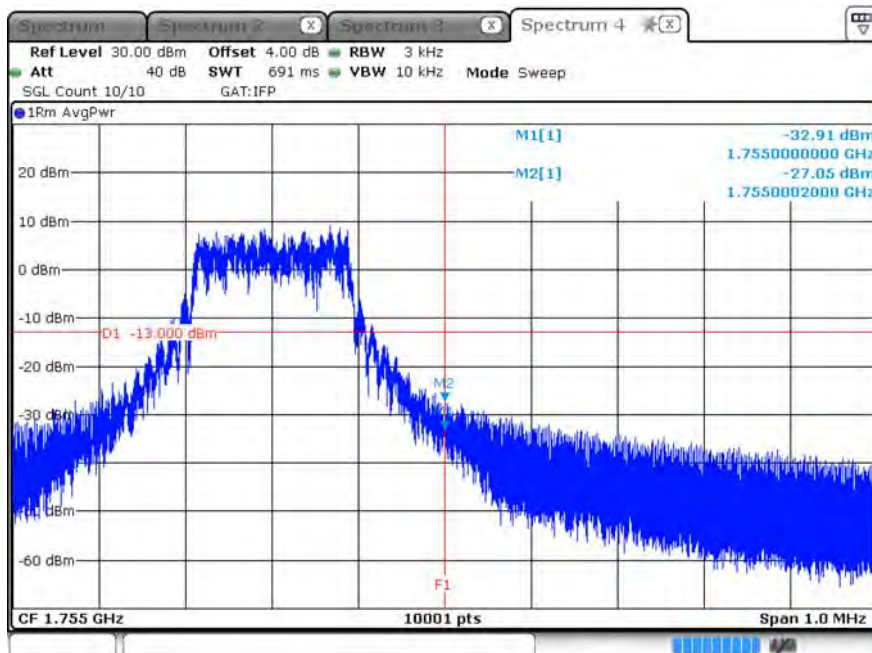
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### B4\_15K\_CH20398\_QPSK\_1RB11



Date: 5.FEB.2020 13:57:25

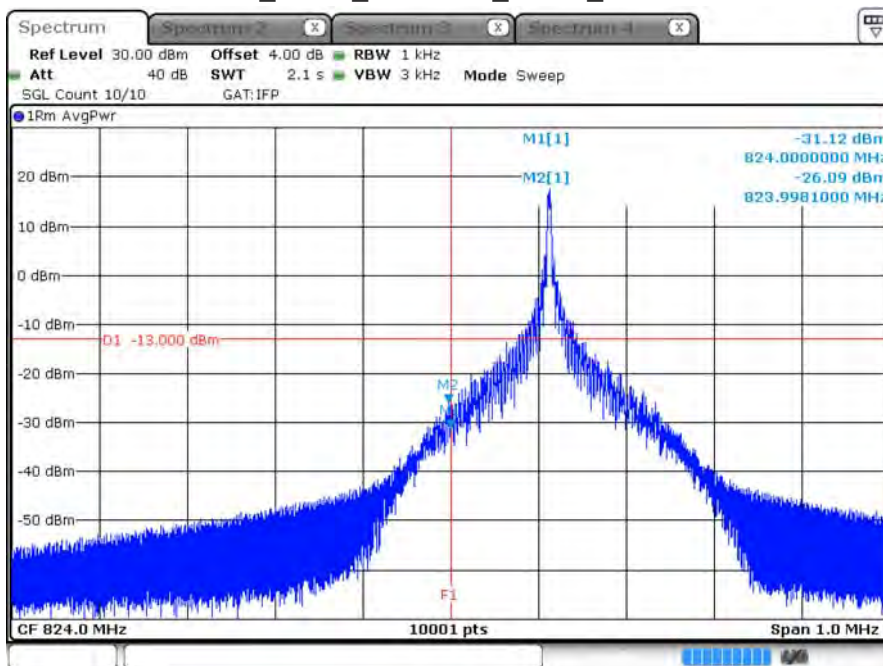
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Date: 5.FEB.2020 13:33:45

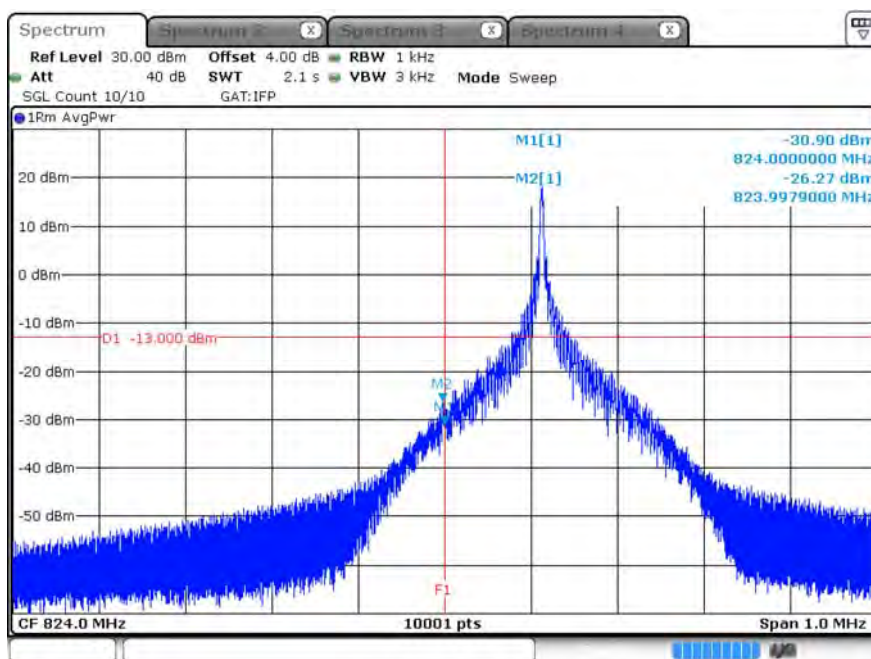
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 3 : LTE NB-IoT_Band 5		
Date of Test	2020/02/05	Test Site	SR12-H
Temperature (°C)	20.0	Humidity (%RH)	64.0

B5\_3.75K\_CH20402\_BPSK\_1RB0



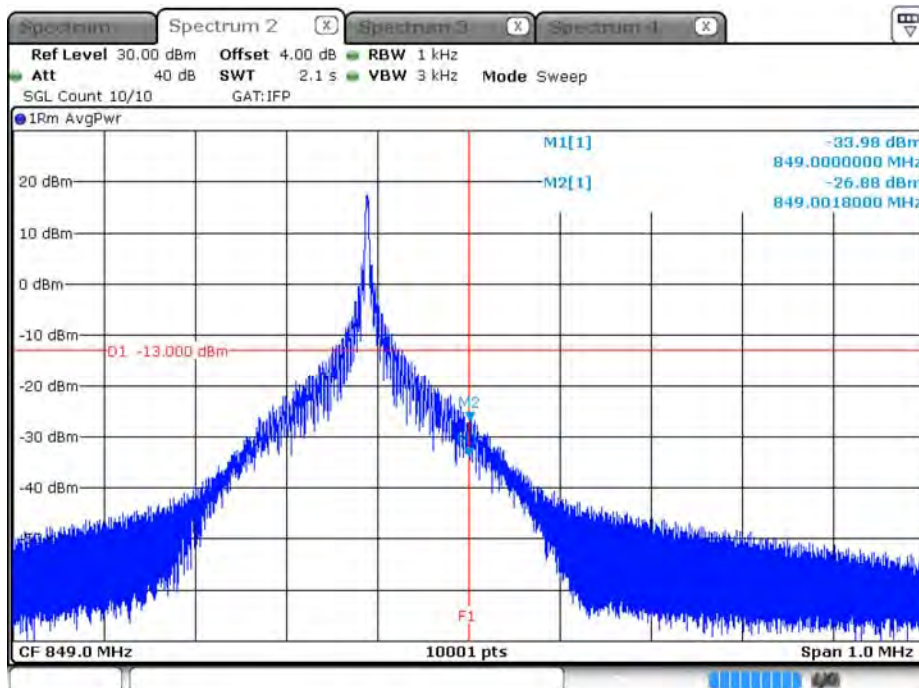
Date: 5.FEB.2020 15:08:09

B5\_3.75K\_CH20402\_QPSK\_1RB0



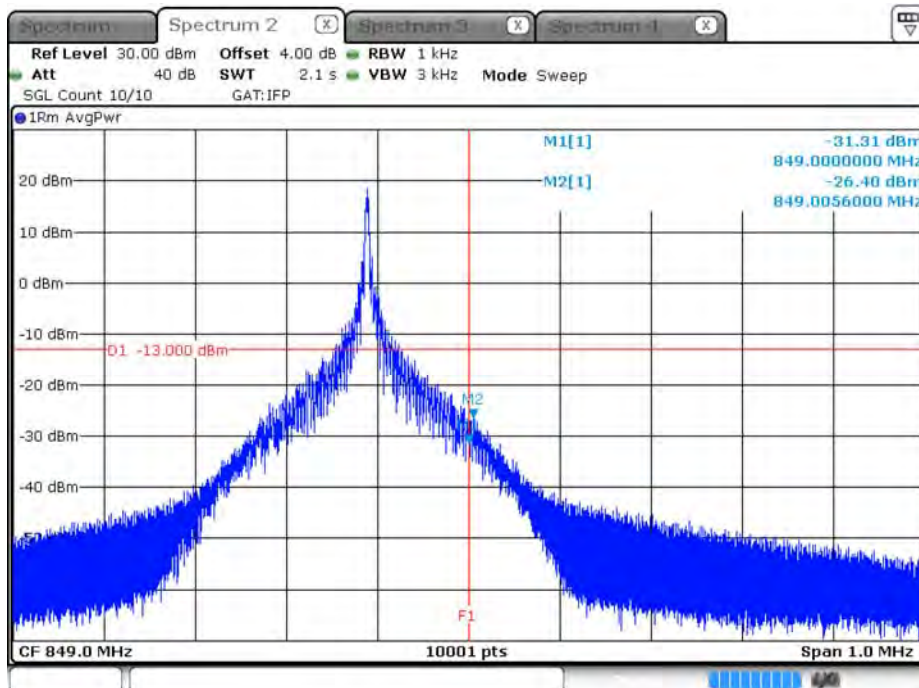
Date: 5.FEB.2020 15:11:29

### B5\_3.75K\_CH20648\_BPSK\_1RB47



Date: 5.FEB.2020 15:35:28

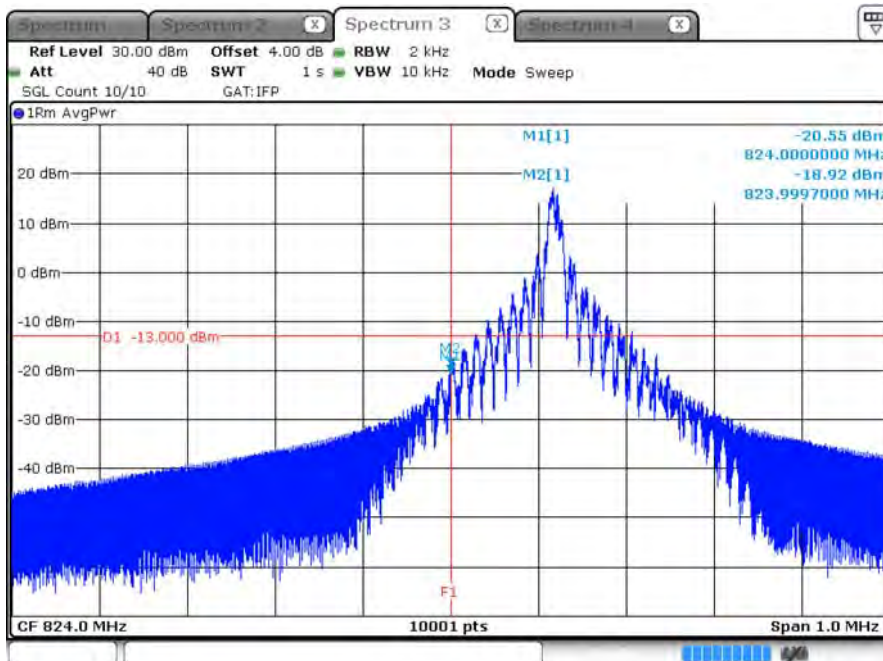
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Date: 5.FEB.2020 15:29:46

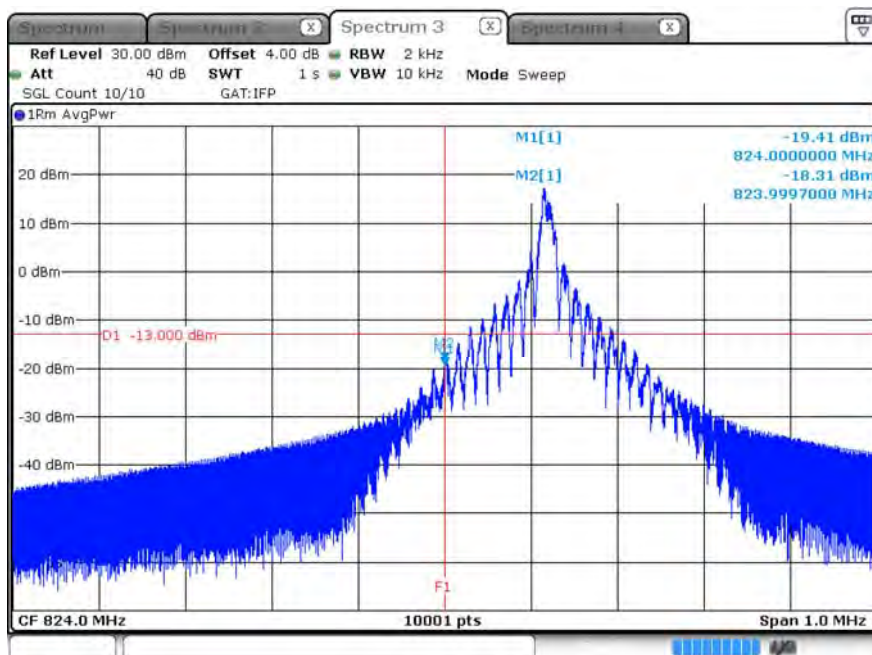


### B5\_15K\_CH20402\_BPSK\_1RB0



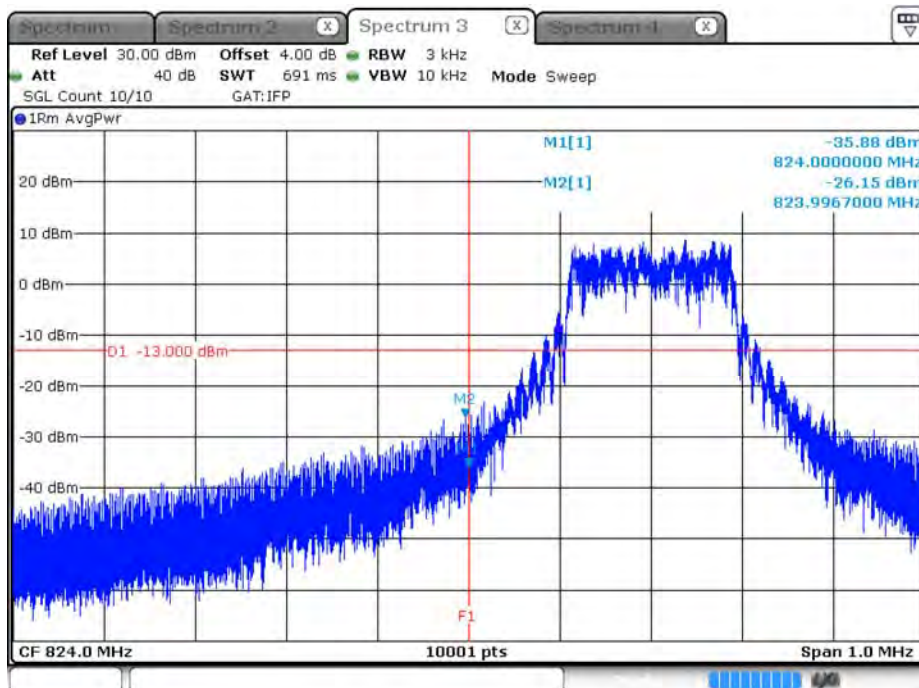
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### B5\_15K\_CH20402\_QPSK\_1RB0



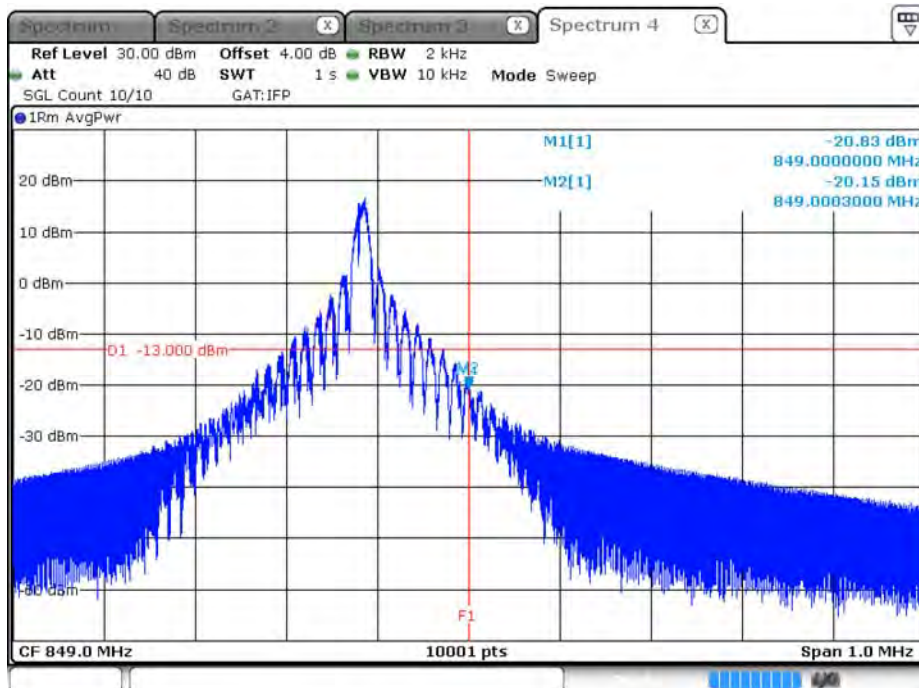
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### B5\_15K\_CH20402\_QPSK\_12RB0



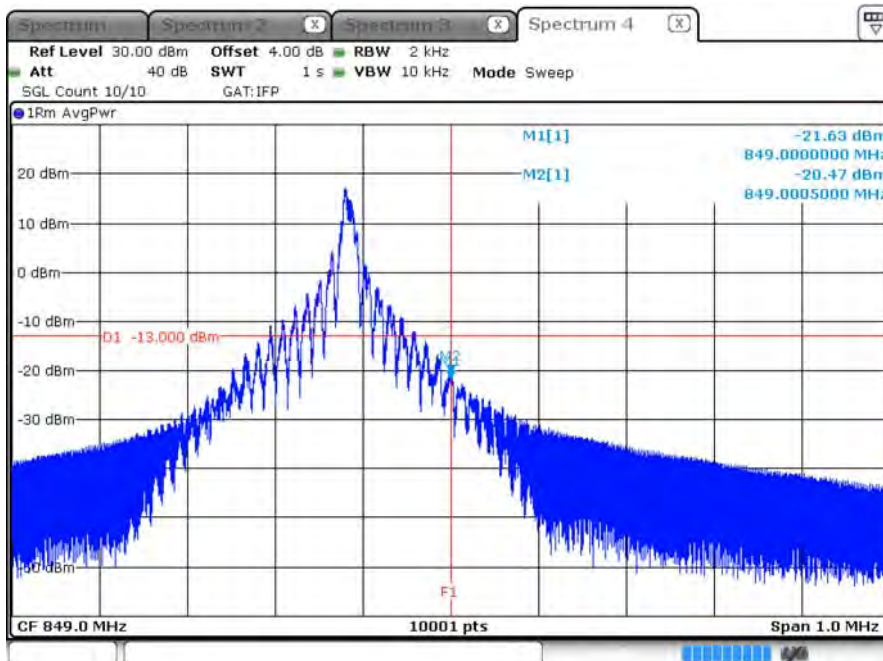
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### B5\_15K\_CH20648\_BPSK\_1RB11



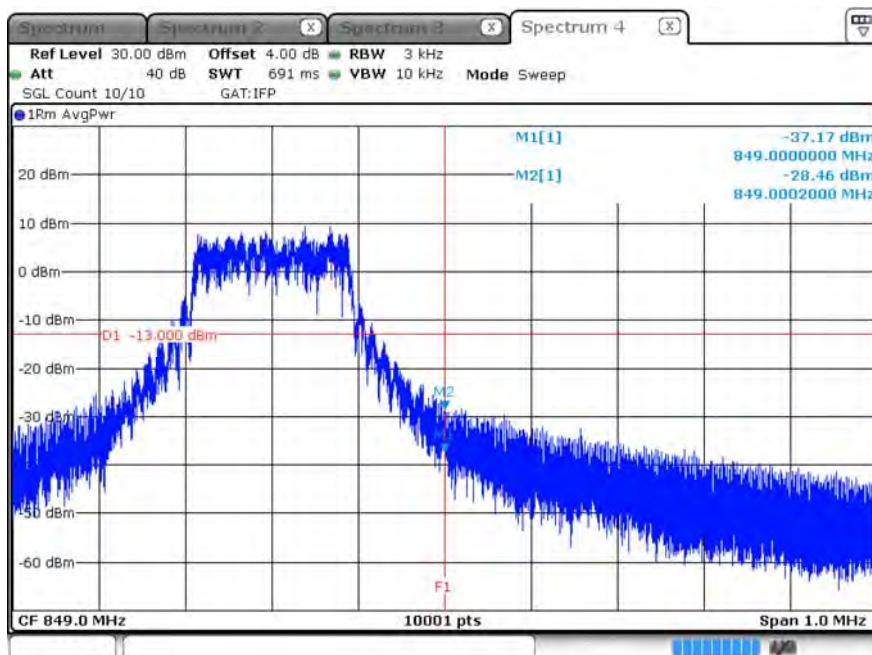
Date: 5.FEB.2020 15:50:20

### B5\_15K\_CH20648\_QPSK\_1RB11



Date: 5.FEB.2020 16:01:36

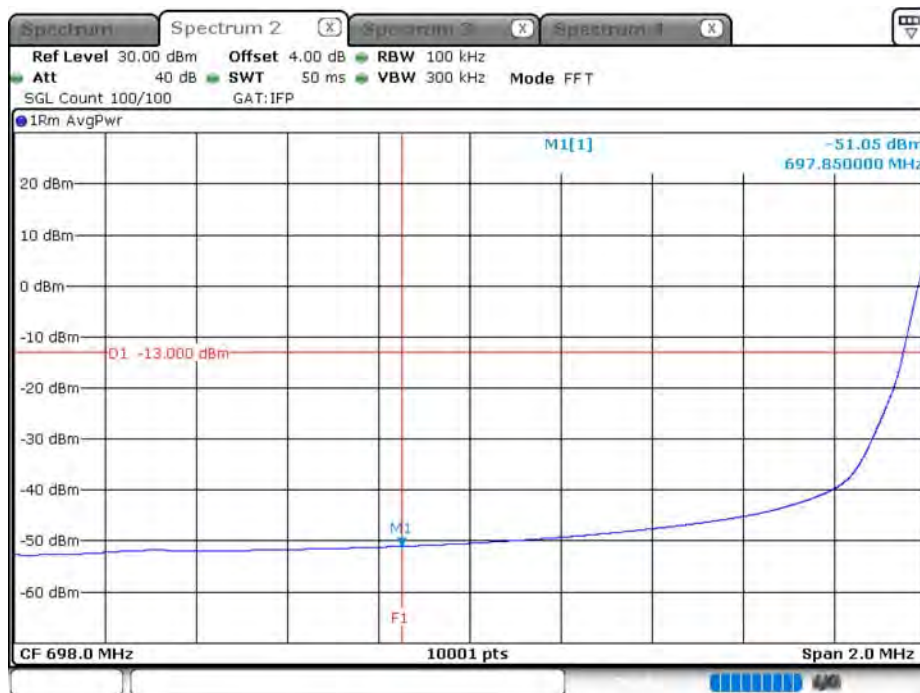
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Date: 5.FEB.2020 16:07:11

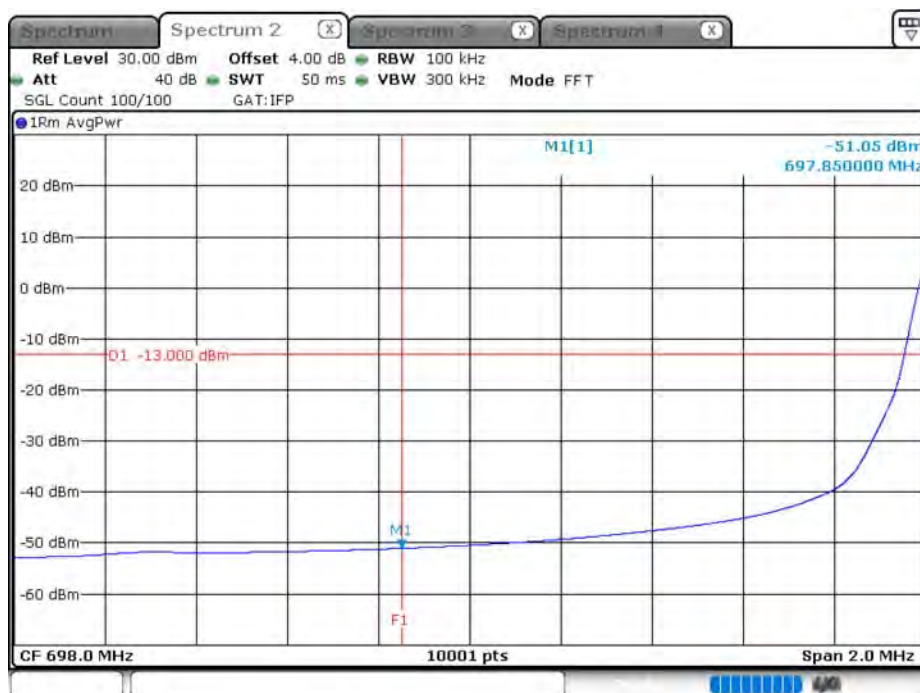
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 4 : LTE NB-IoT_Band 12		
Date of Test	2020/02/07~2020/06/05	Test Site	SR12-H
Temperature (°C)	20.0	Humidity (%RH)	60.0

B12\_3.75K\_CH23012\_BPSK\_1RB0-150k



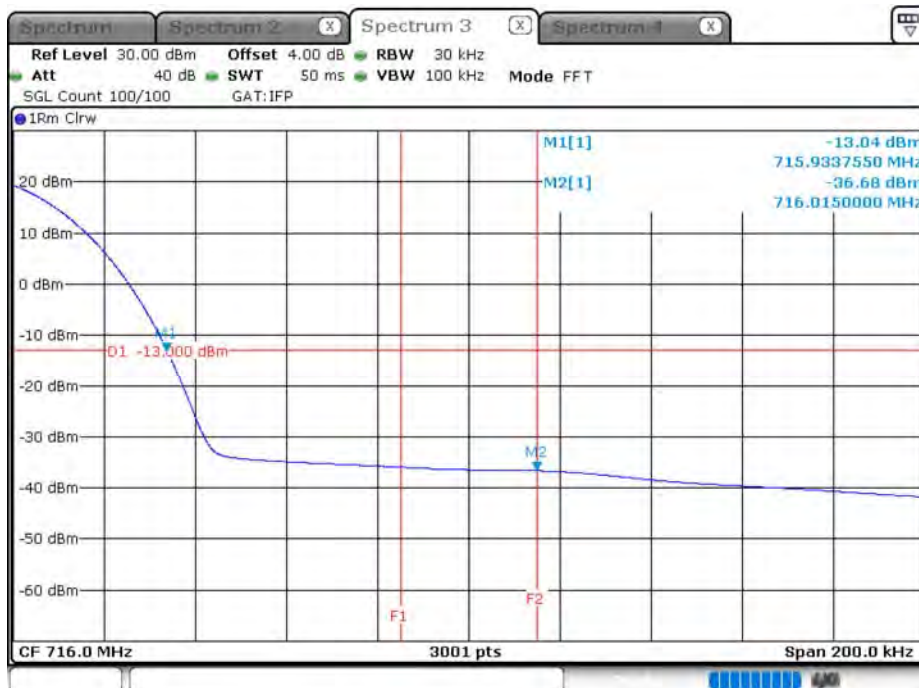
Date: 5.JUN.2020 17:52:59

B12\_3.75K\_CH23012\_QPSK\_1RB0-150k



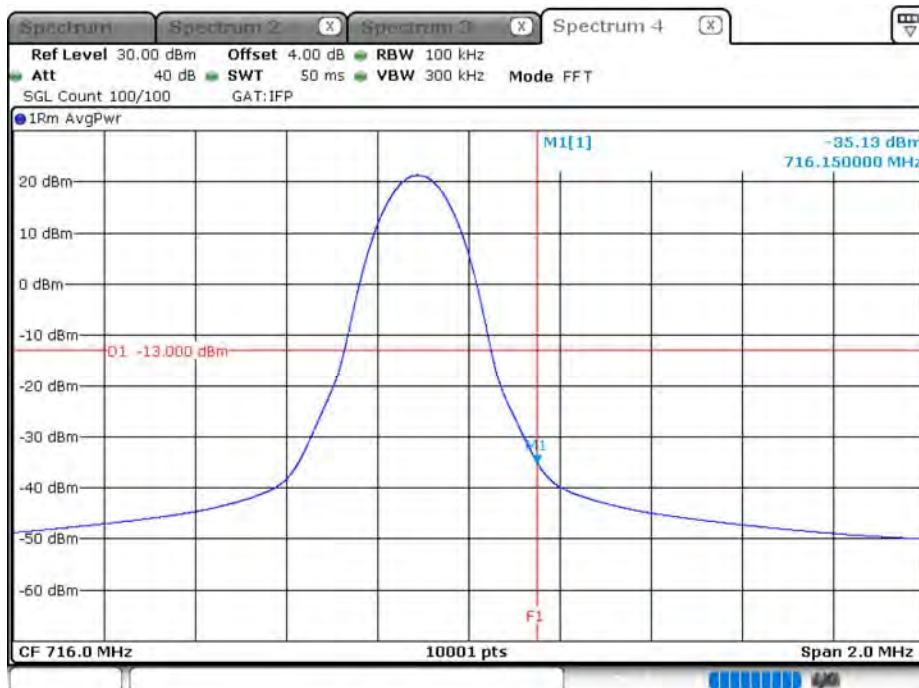
Date: 5.JUN.2020 17:55:52

### B12\_3.75K\_CH23178\_BPSK\_1RB47-15k



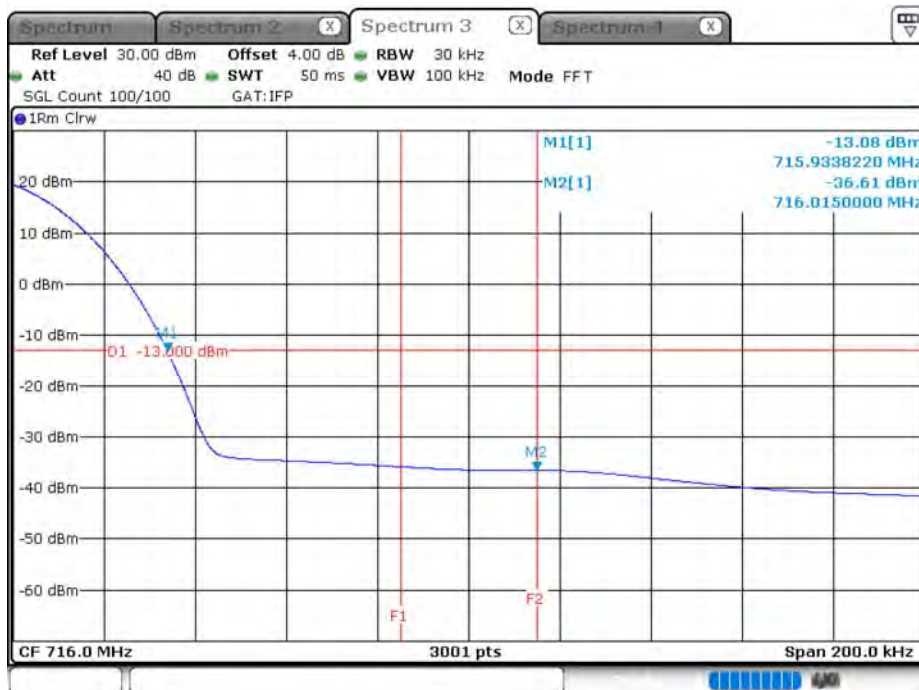
Date: 5.JUN.2020 18:07:05

### B12\_3.75K\_CH23178\_BPSK\_1RB47-150k



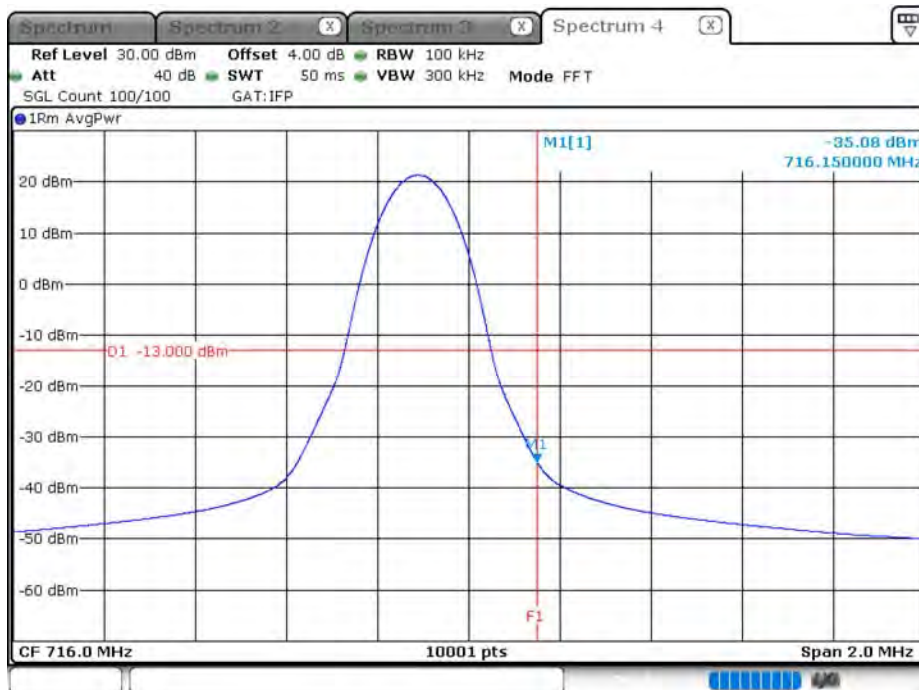
Date: 5.JUN.2020 18:04:34

### B12\_3.75K\_CH23178\_QPSK\_1RB47-15k



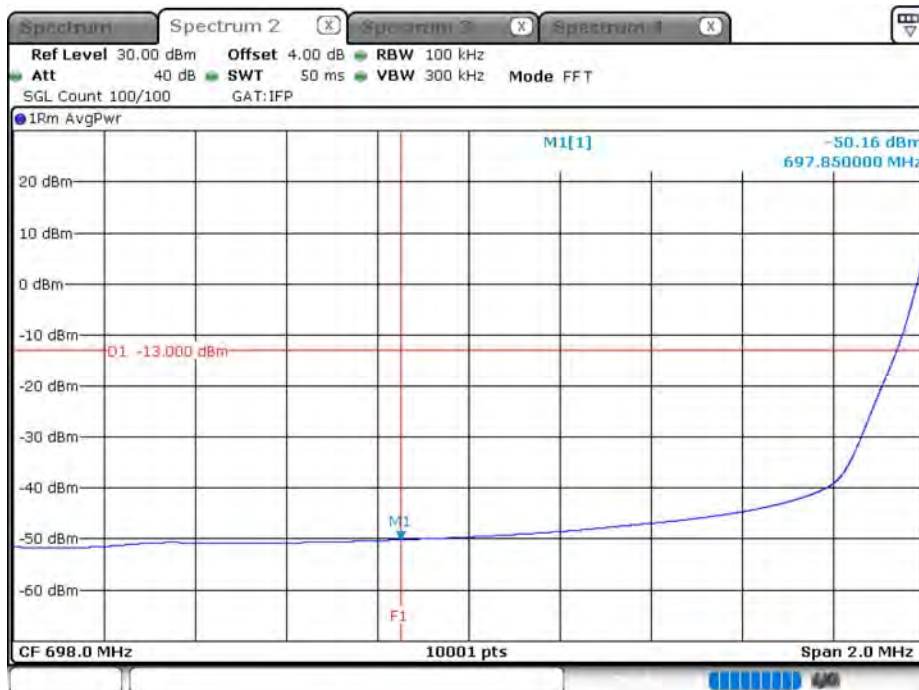
Date: 5.JUN.2020 17:59:08

### B12\_3.75K\_CH23178\_QPSK\_1RB47-150k



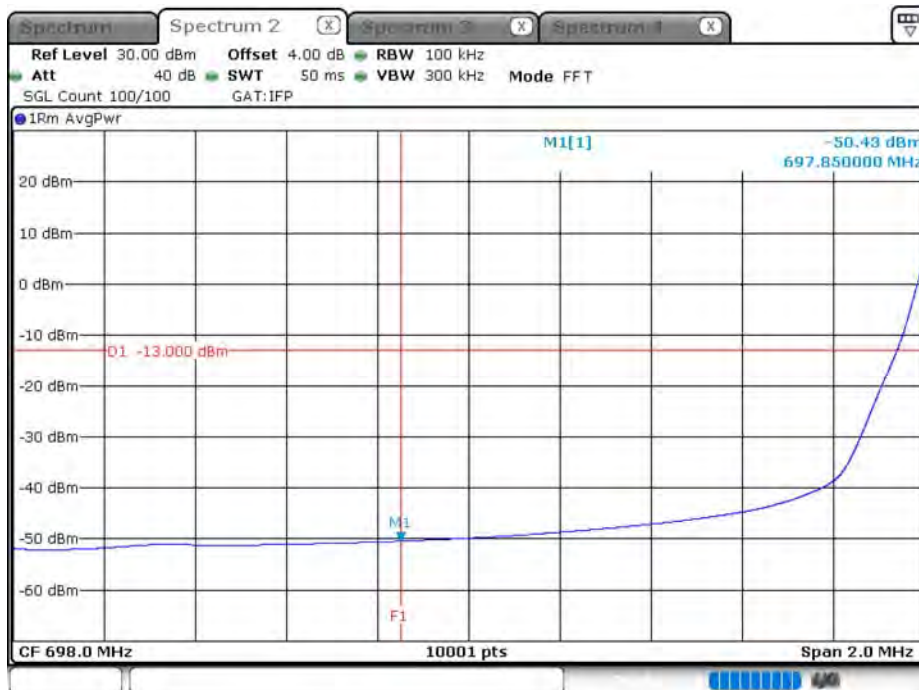
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### B12\_15K\_CH23012\_BPSK\_1RB0-150k



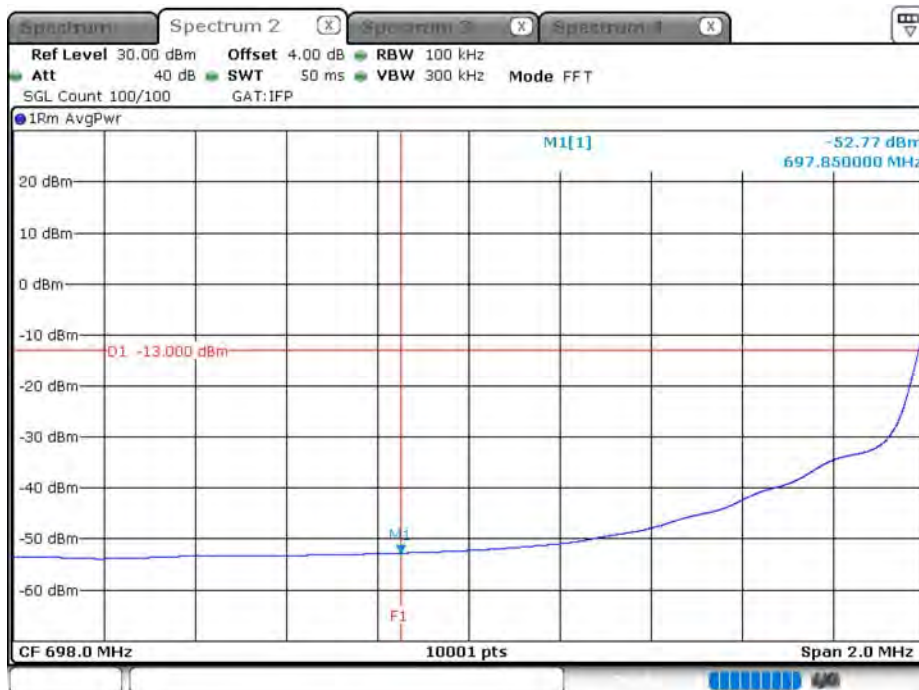
Date: 5.JUN.2020 17:44:49

### B12\_15K\_CH23012\_QPSK\_1RB0-150k



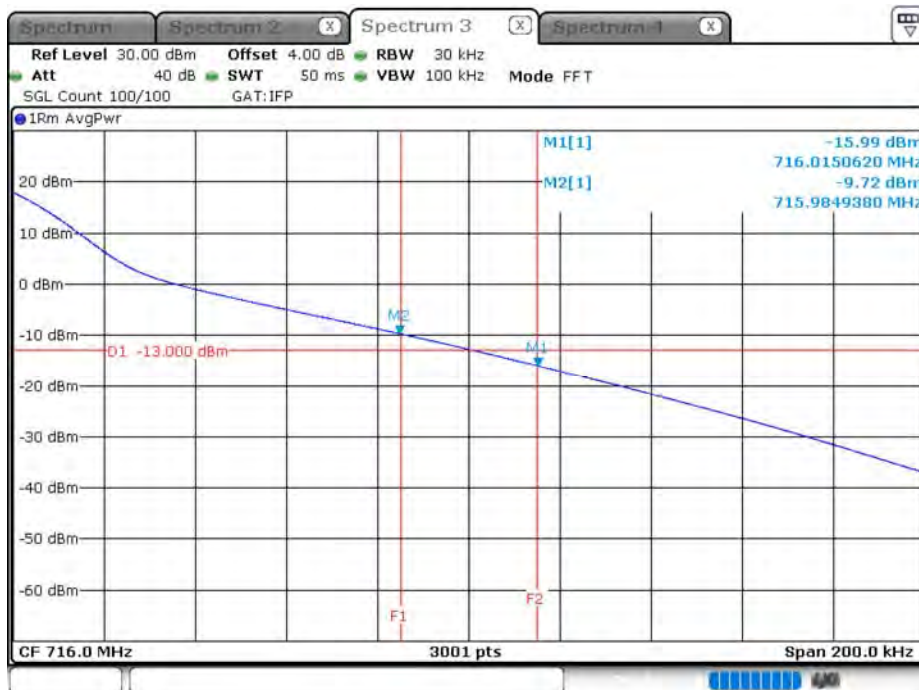
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### B12\_15K\_CH23012\_QPSK\_12RB0-150k



Date: 5.JUN.2020 17:40:27

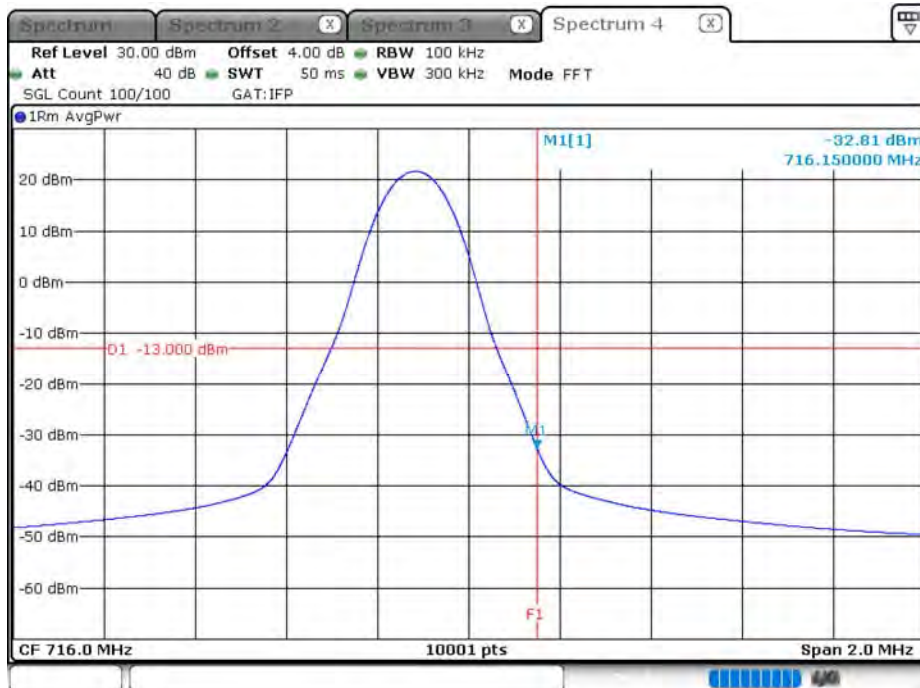
### B12\_15K\_CH23012\_QPSK\_12RB0-150k



Date: 29.MAY.2020 15:21:38

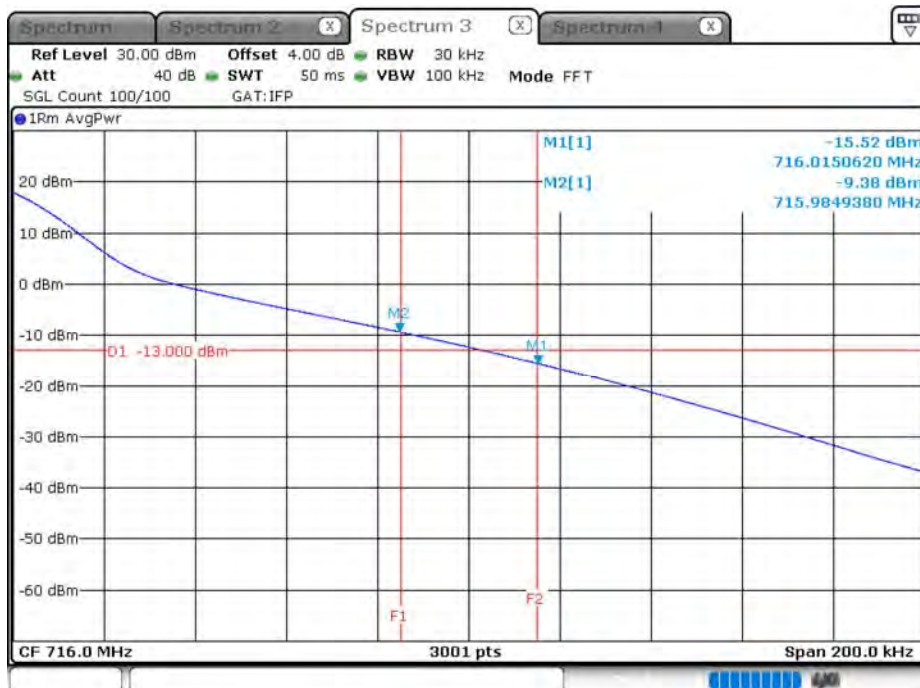


### B12\_15K\_CH23178\_BPSK\_1RB11-150k



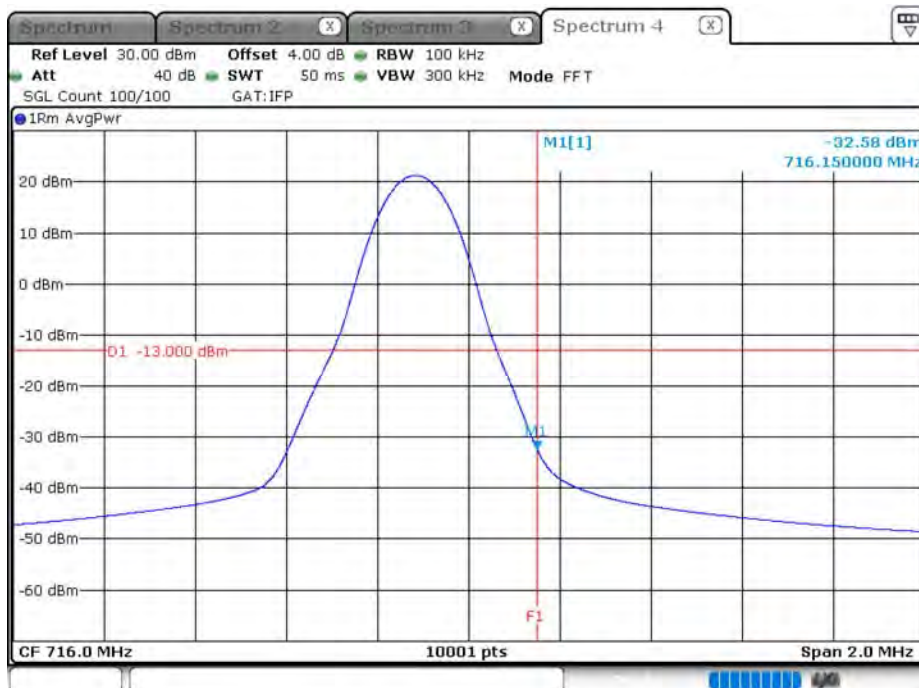
Date: 5.JUN.2020 17:27:07

### B12\_15K\_CH23178\_QPSK\_1RB11-15k



Date: 29.MAY.2020 15:22:33

B12\_15K\_CH23178\_QPSK\_1RB11-150k



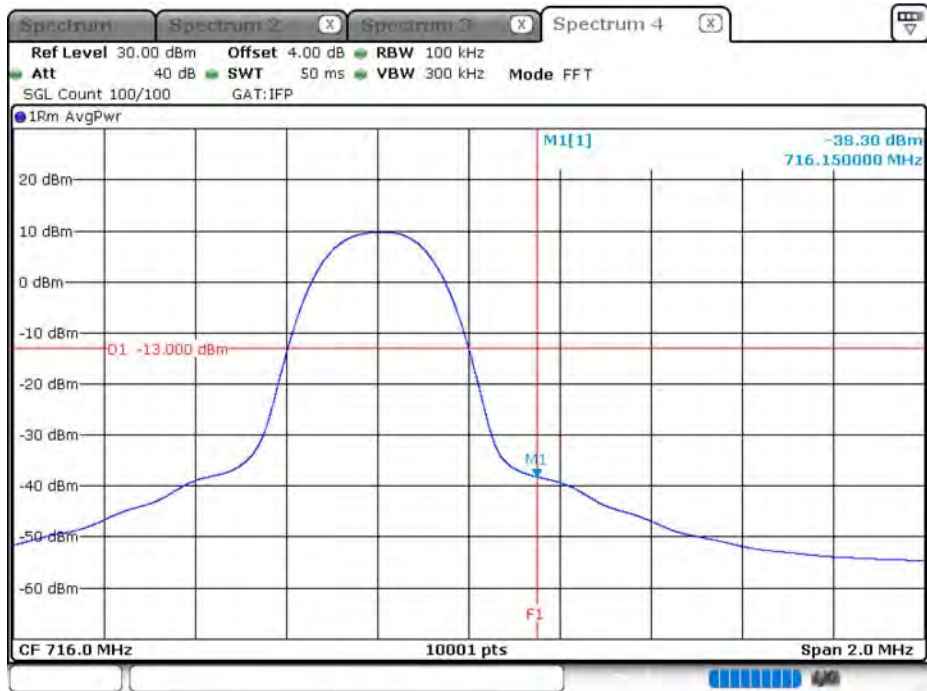
Date: 5.JUN.2020 17:24:03

B12\_15K\_CH23178\_QPSK\_12RB0-15k



Date: 5.JUN.2020 17:36:04

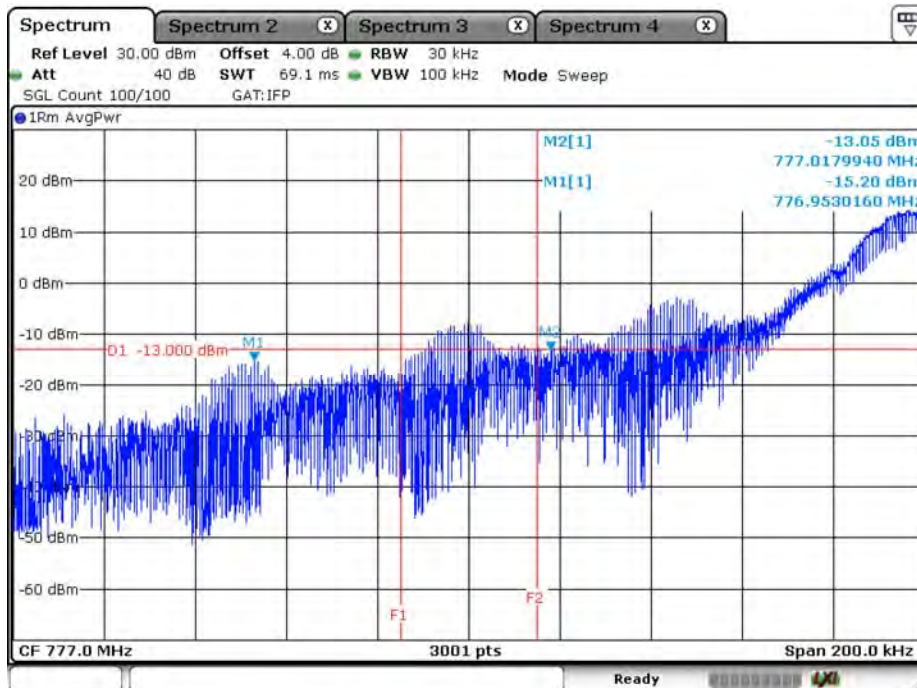
B12\_15K\_CH23178\_QPSK\_12RB0-150k



Date: 5.JUN.2020 17:33:13

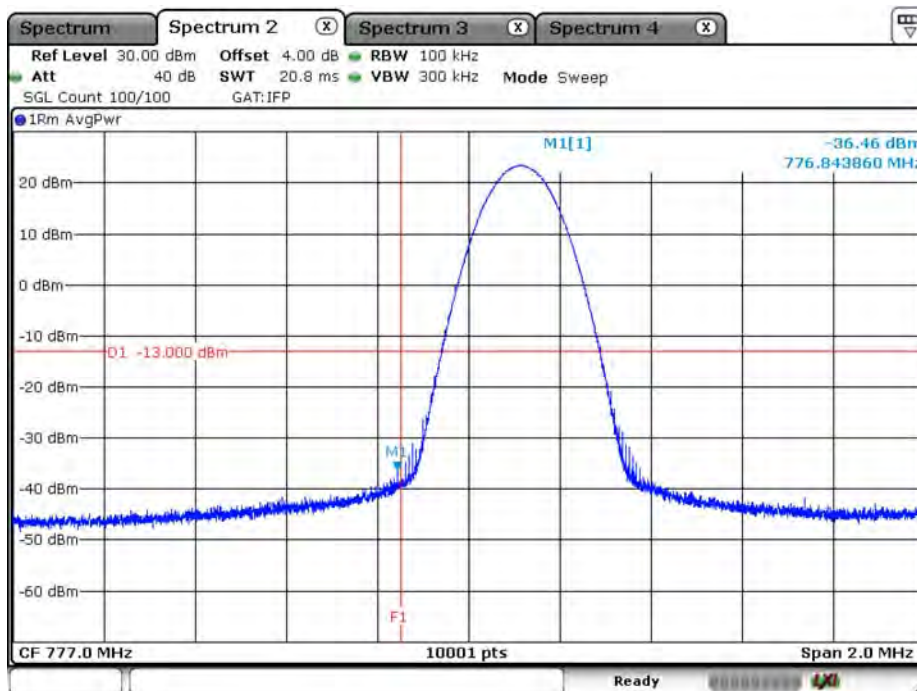
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 5 : LTE NB-IoT_Band 13		
Date of Test	2020/02/07	Test Site	SR12-H
Temperature (°C)	20.0	Humidity (%RH)	60.0

R13 3.75K CH23182 BPSK 1RB0 15k



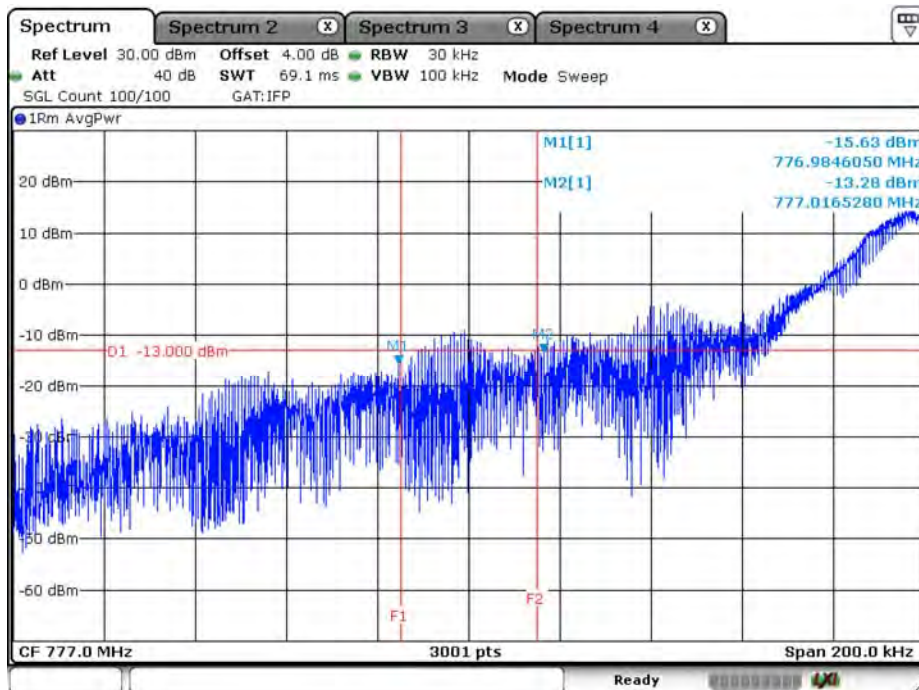
Date: 7.FEB.2020 15:16:33

R13 3.75K CH23182 BPSK 1RB0 150k



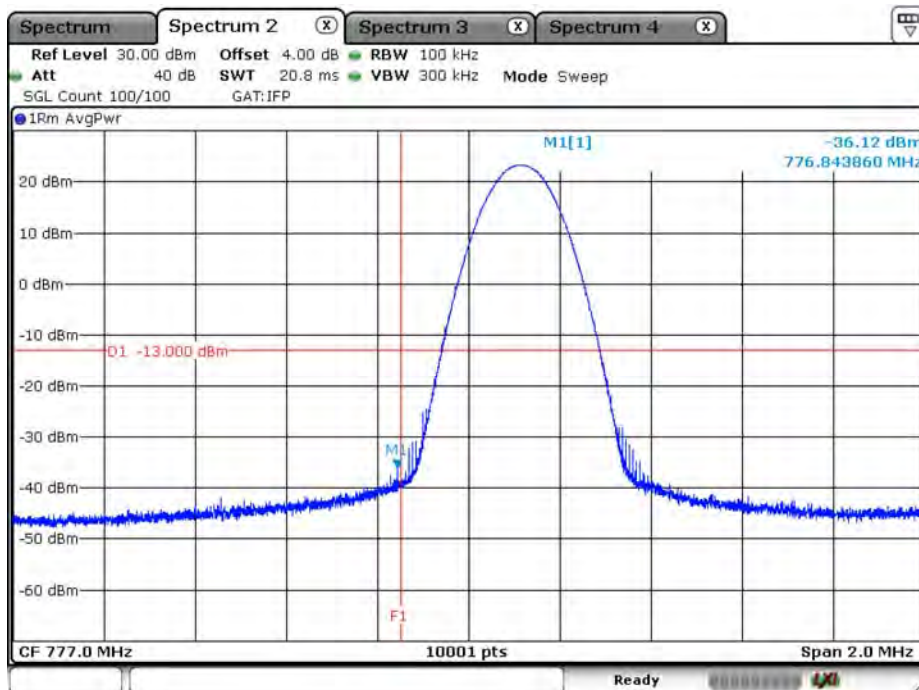
Date: 7.FEB.2020 15:18:27

### B13\_3.75K\_CH23182\_QPSK\_1RB0\_15k



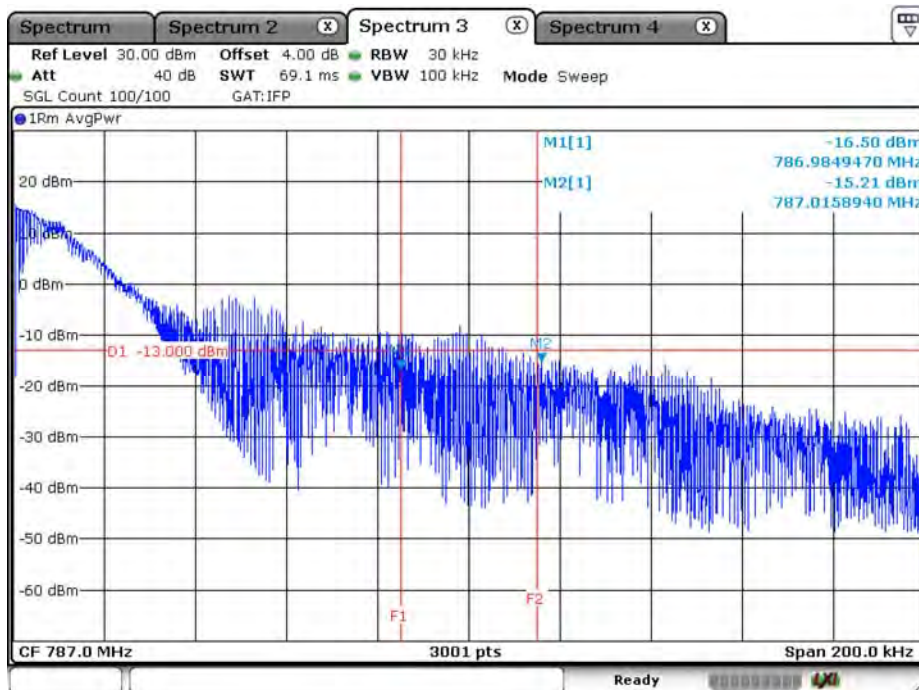
Date: 7.FEB.2020 15:22:08

### B13\_3.75K\_CH23182\_QPSK\_1RB0\_150k



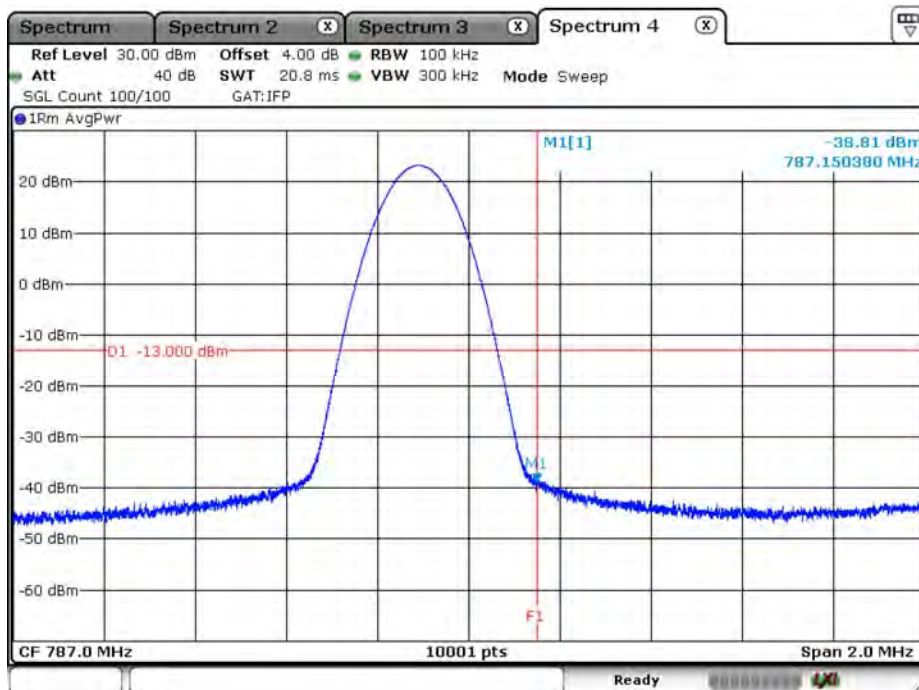
Date: 7.FEB.2020 15:20:13

### B13\_3.75K\_CH23278\_BPSK\_1RB47\_15k



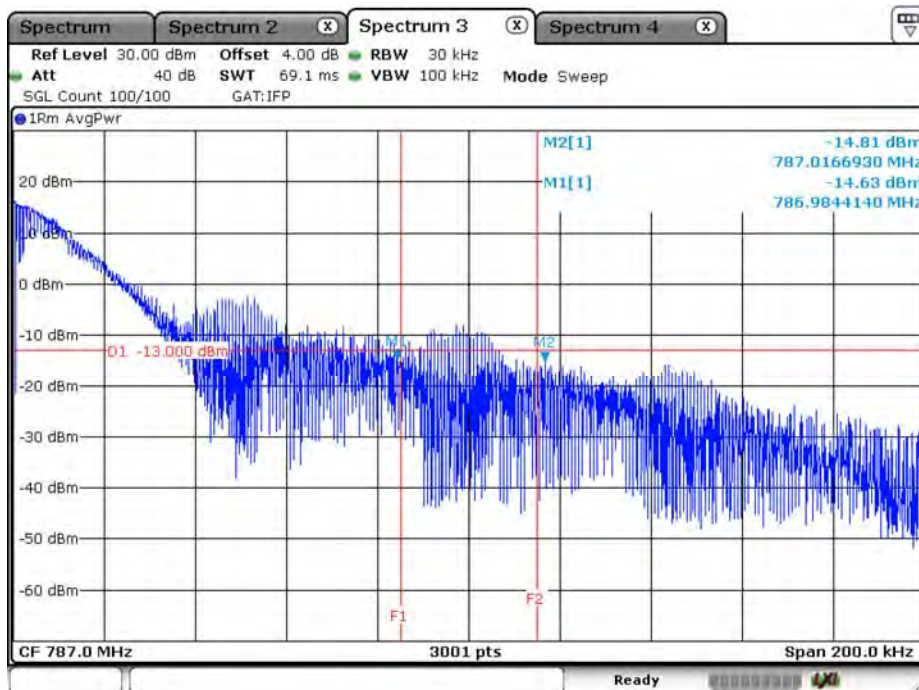
Date: 7.FEB.2020 15:14:21

### B13\_3.75K\_CH23278\_BPSK\_1RB47\_150k



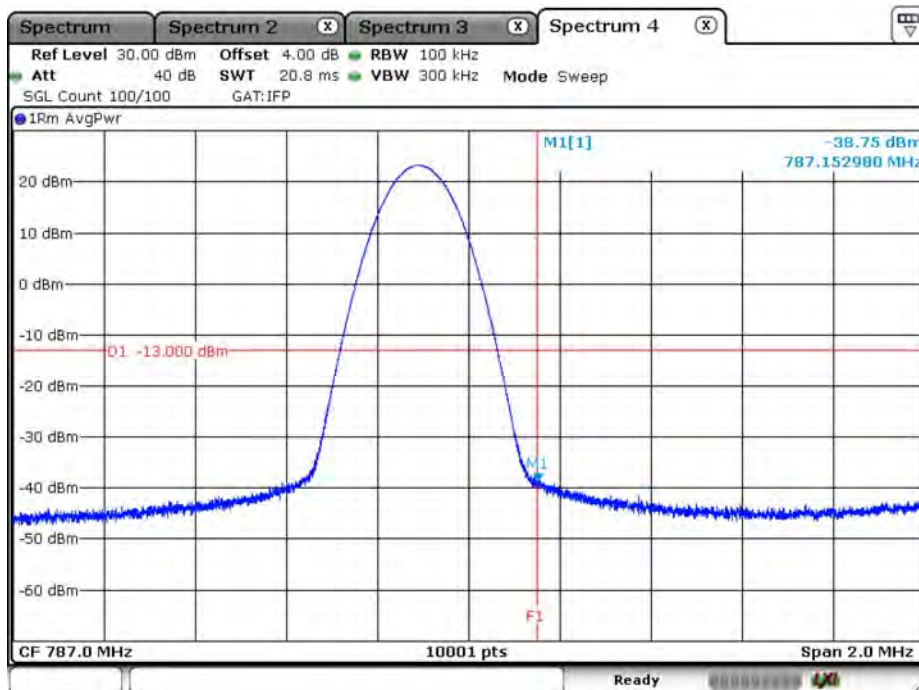
Date: 7.FEB.2020 15:13:09

### B13\_3.75K\_CH23278\_QPSK\_1RB47\_15k



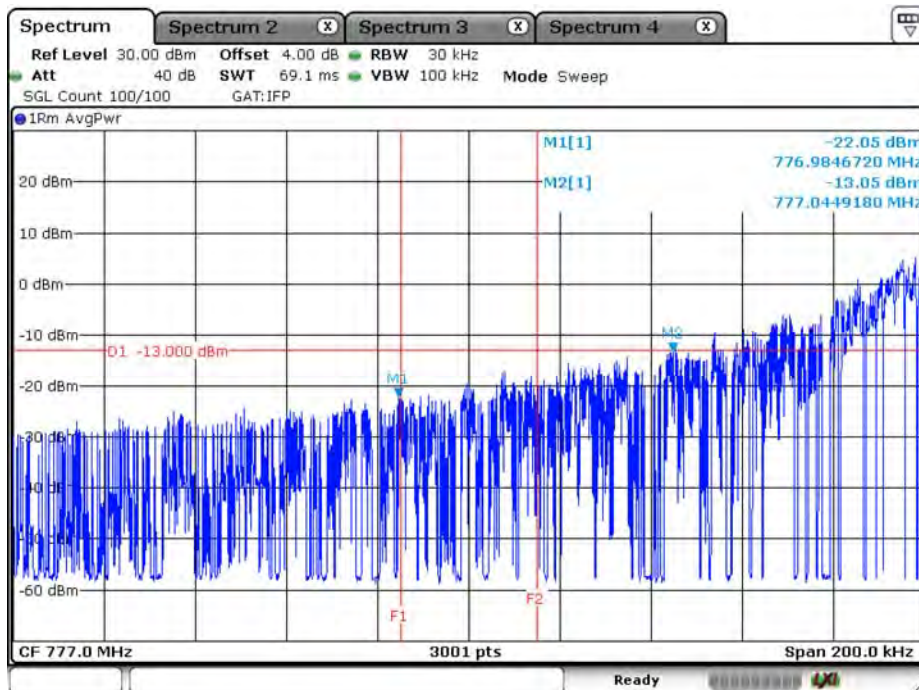
Date: 7.FEB.2020 15:11:01

### B13\_3.75K\_CH23278\_QPSK\_1RB47\_150k



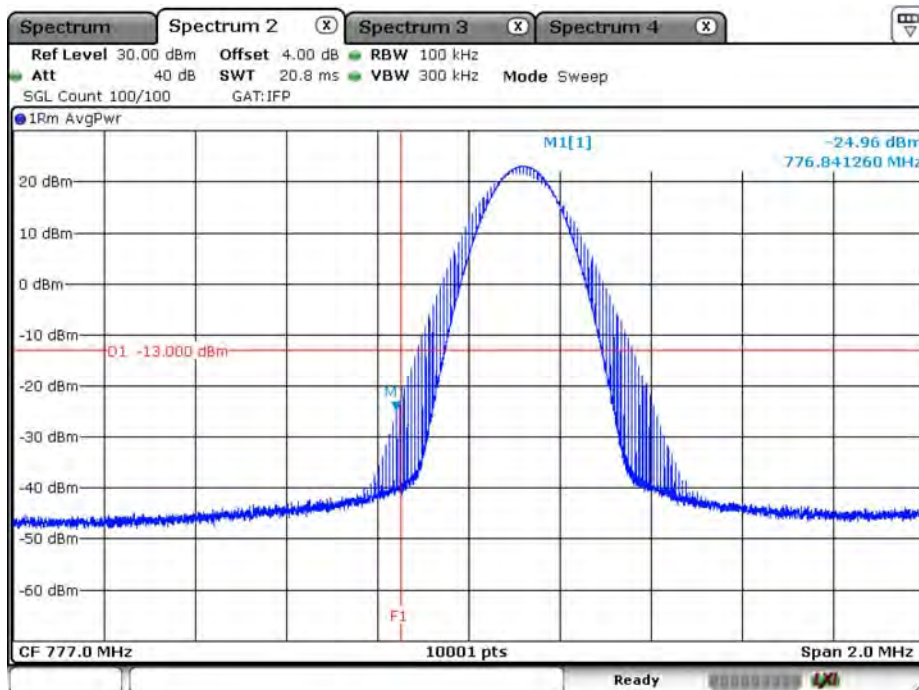
Date: 7.FEB.2020 15:12:02

### B13\_15K\_CH23182\_BPSK\_1RB0\_15k



Date: 7.FEB.2020 11:56:19

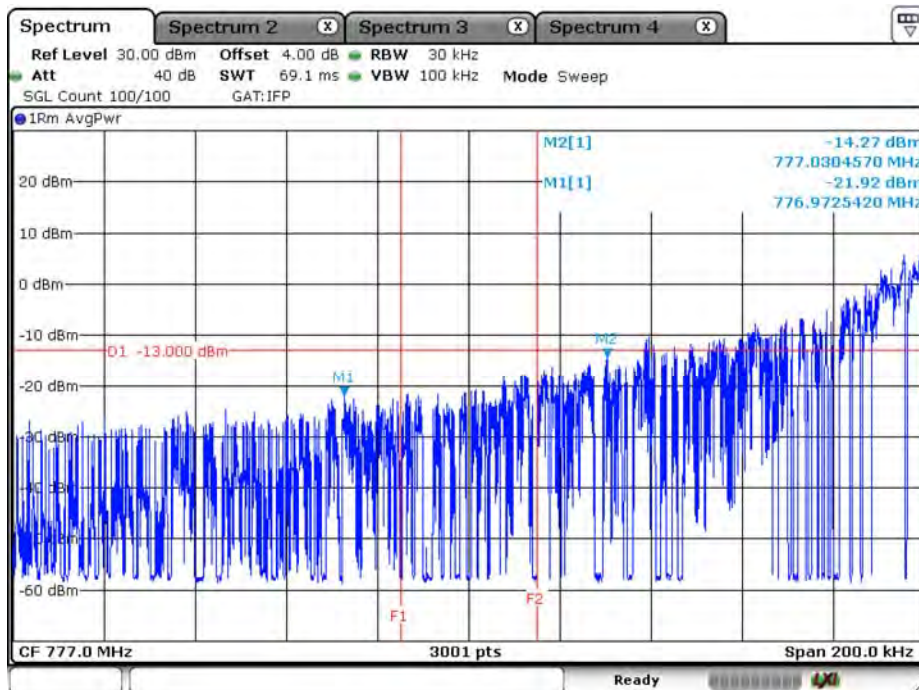
### B13\_15K\_CH23182\_BPSK\_1RB0\_150k



Date: 7.FEB.2020 12:17:15

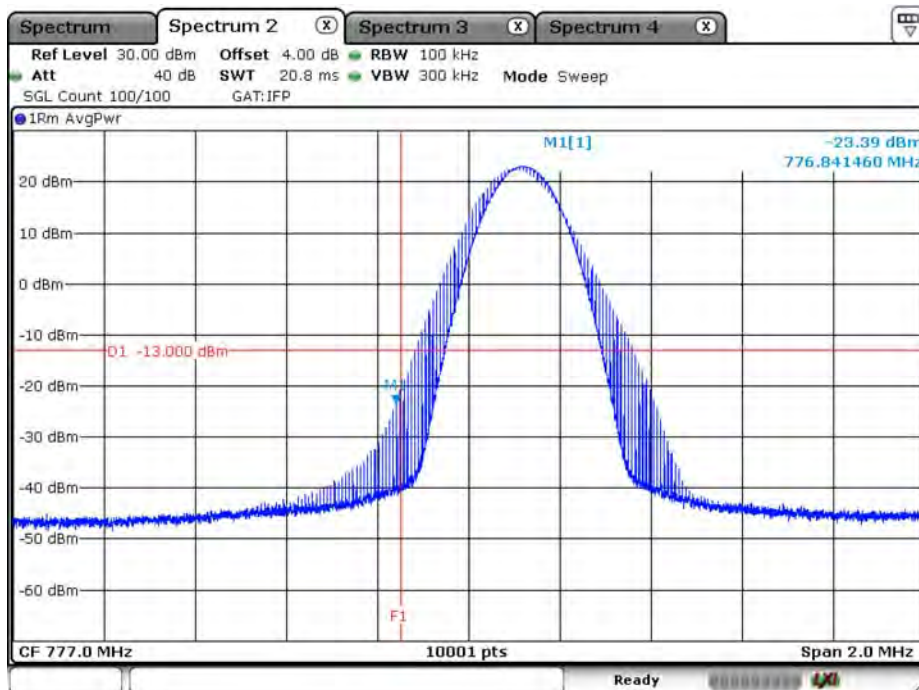


### B13\_15K\_CH23182\_QPSK\_1RB0\_15k



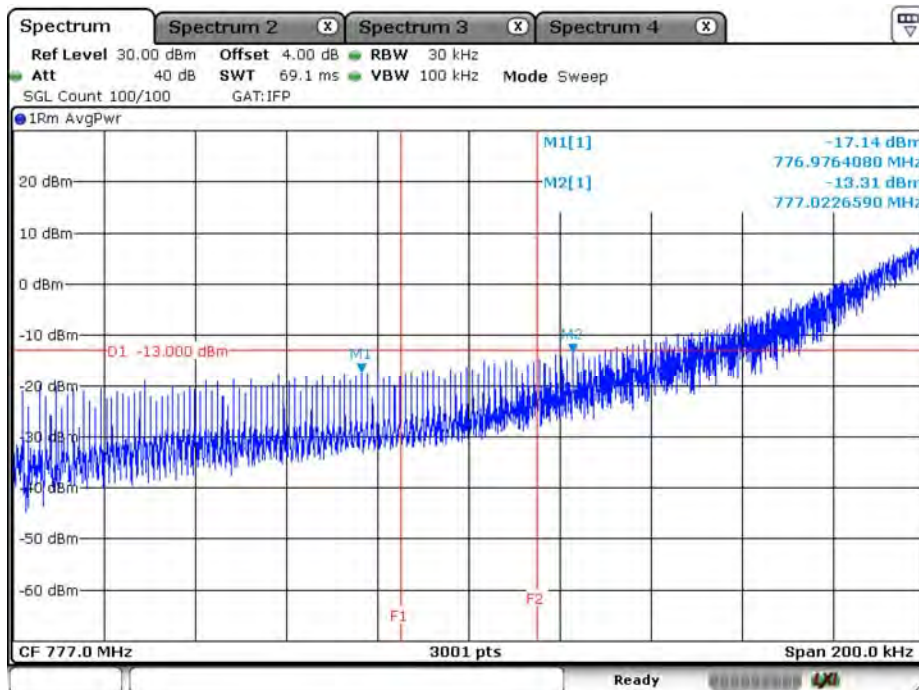
Date: 7.FEB.2020 13:43:31

### B13\_15K\_CH23182\_QPSK\_1RB0\_150k



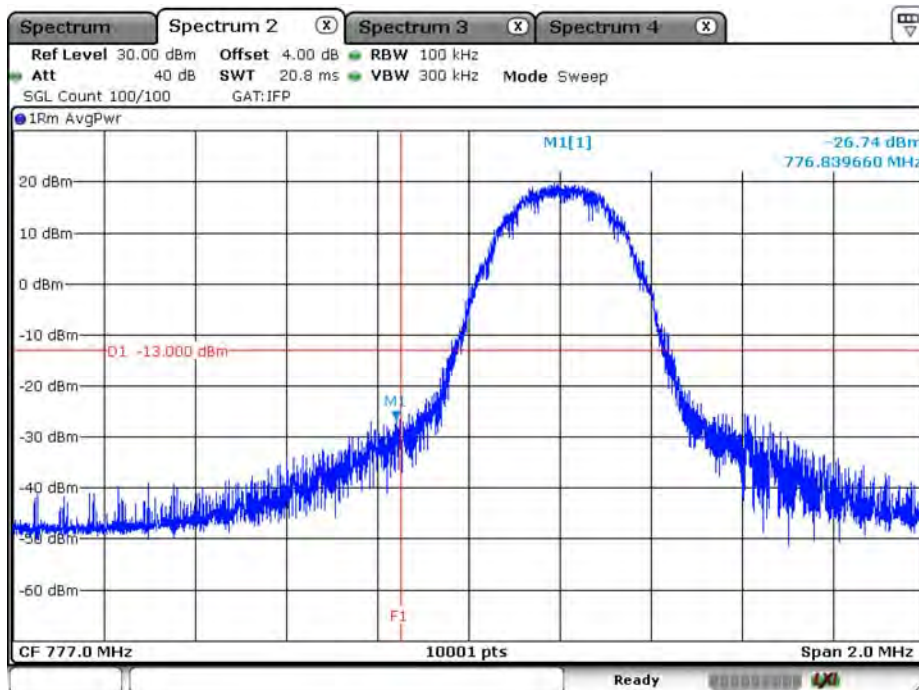
Date: 7.FEB.2020 13:27:58

### B13\_15K\_CH23182\_QPSK\_12RB0\_15k



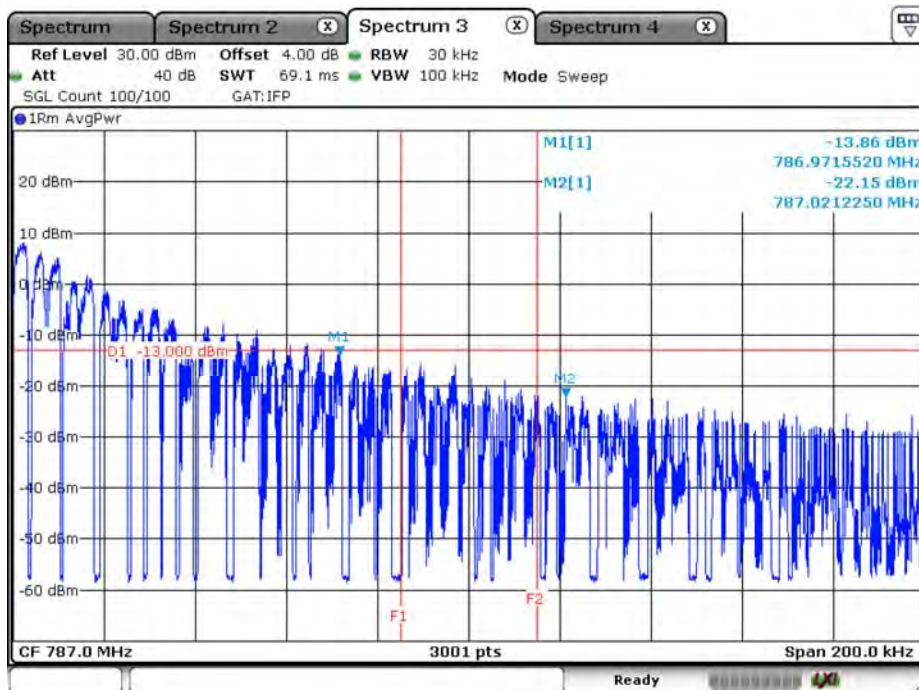
Date: 7.FEB.2020 13:50:22

### B13\_15K\_CH23182\_QPSK\_12RB0\_150k



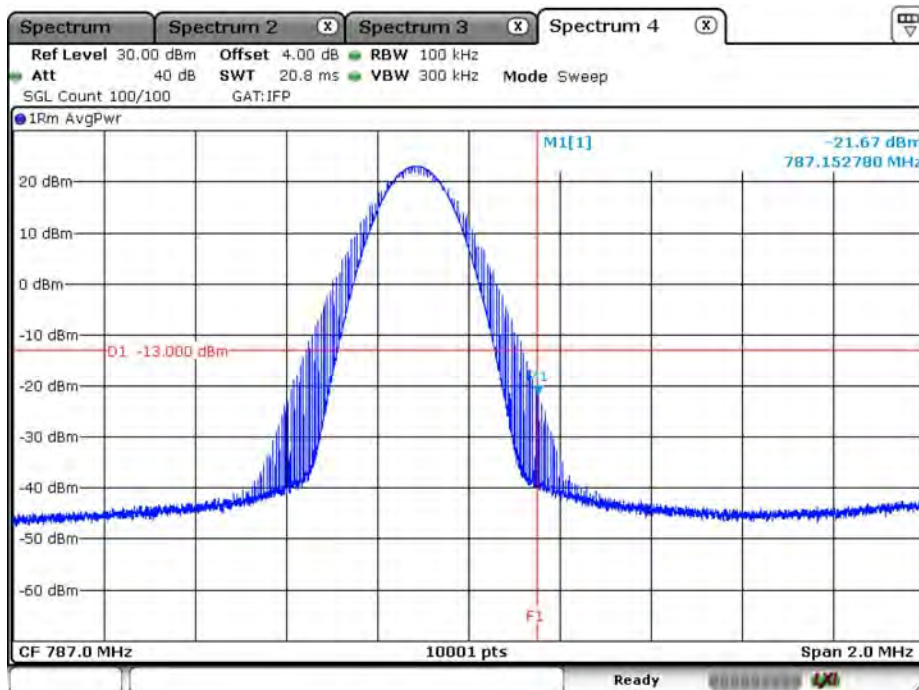
Date: 7.FEB.2020 13:52:39

### B13\_15K\_CH23278\_BPSK\_1RB11\_15k



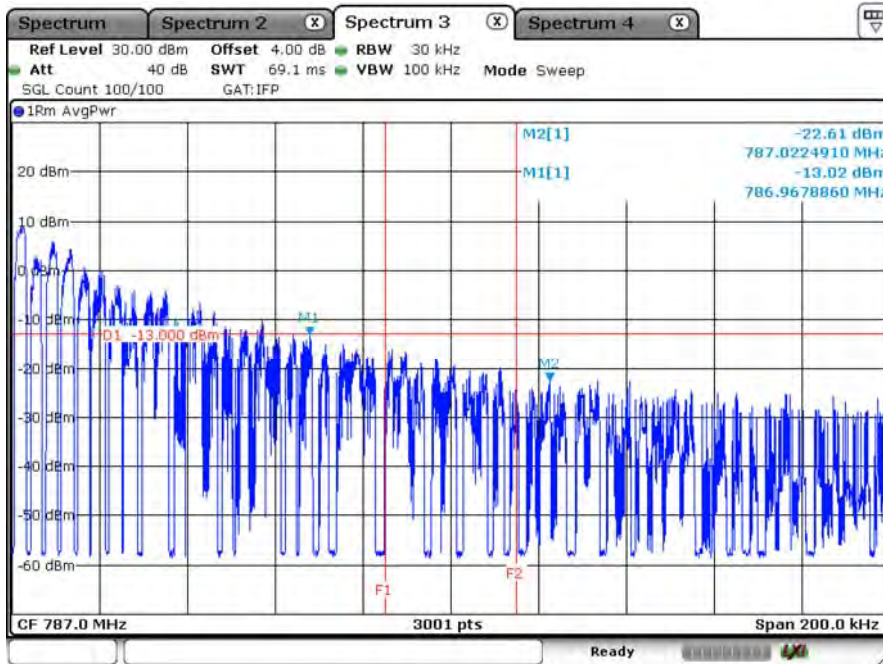
Date: 7.FEB.2020 14:29:43

### B13\_15K\_CH23278\_BPSK\_1RB11\_150k



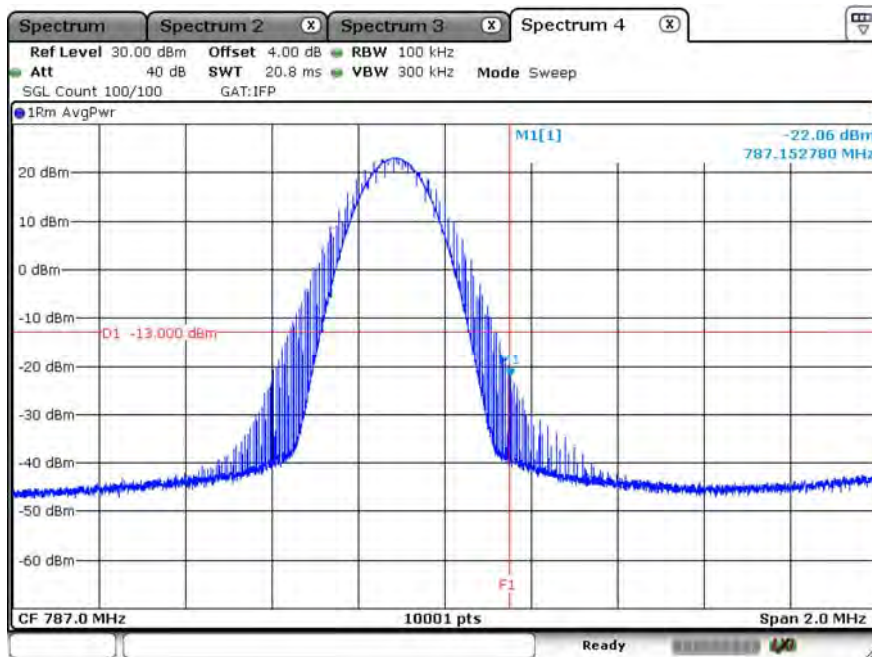
Date: 7.FEB.2020 14:45:48

### B13\_15K\_CH23278\_QPSK\_1RB11\_15k



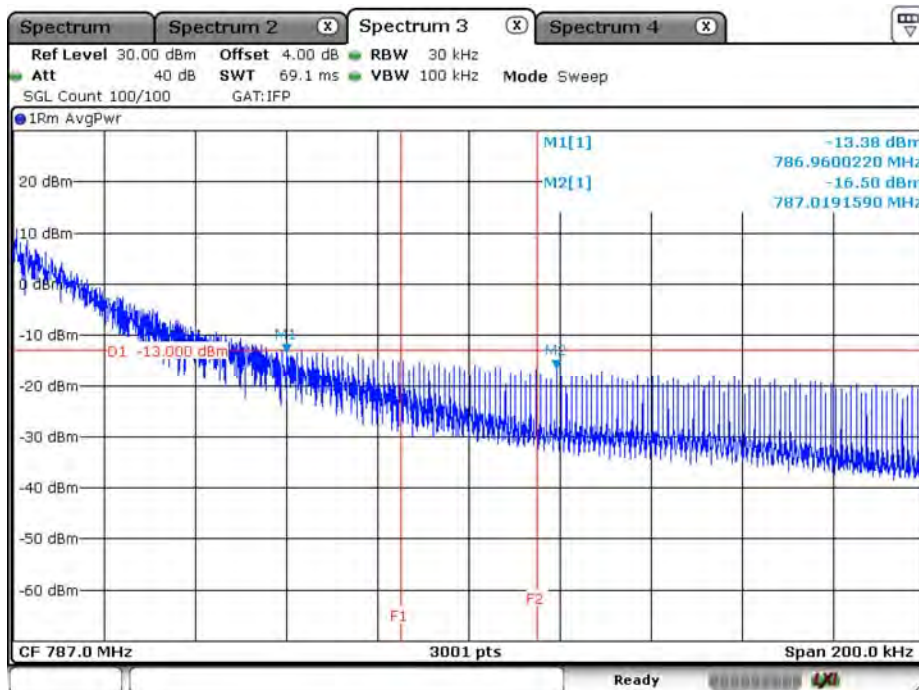
Date: 7.FEB.2020 14:28:22

### B13\_15K\_CH23278\_QPSK\_1RB11\_150k



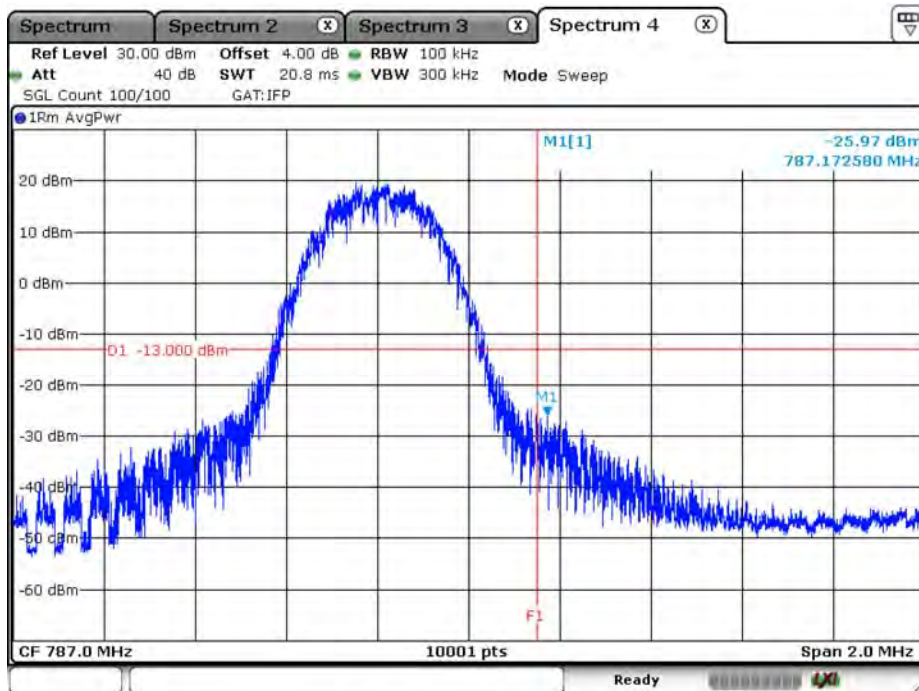
Date: 7.FEB.2020 14:24:10

### B13\_15K\_CH23278\_QPSK\_12RB0\_15k



Date: 7.FEB.2020 13:57:39

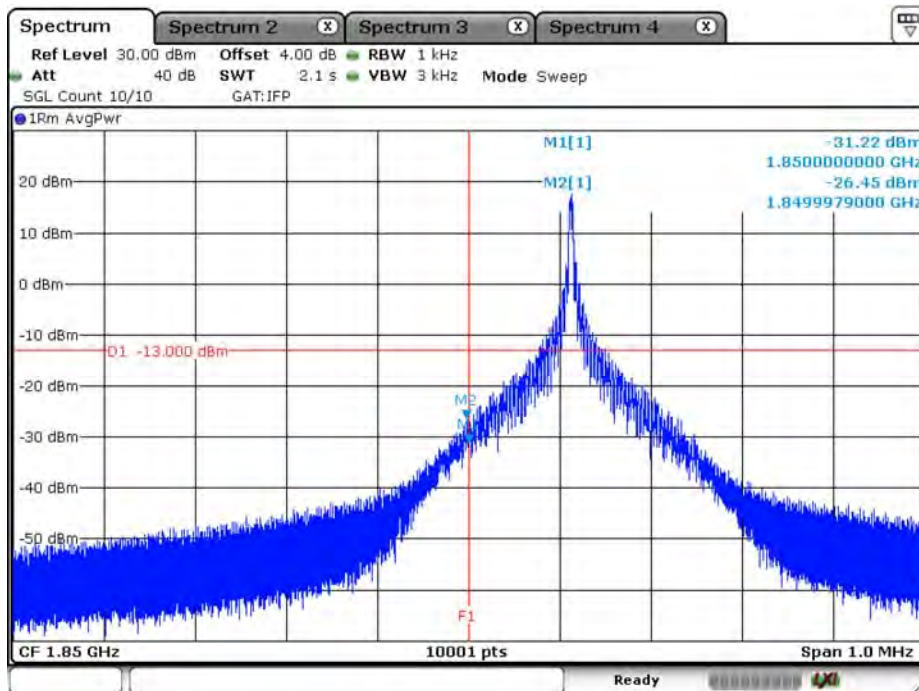
### B13\_15K\_CH23278\_QPSK\_12RB0\_150k



Date: 7.FEB.2020 14:19:08

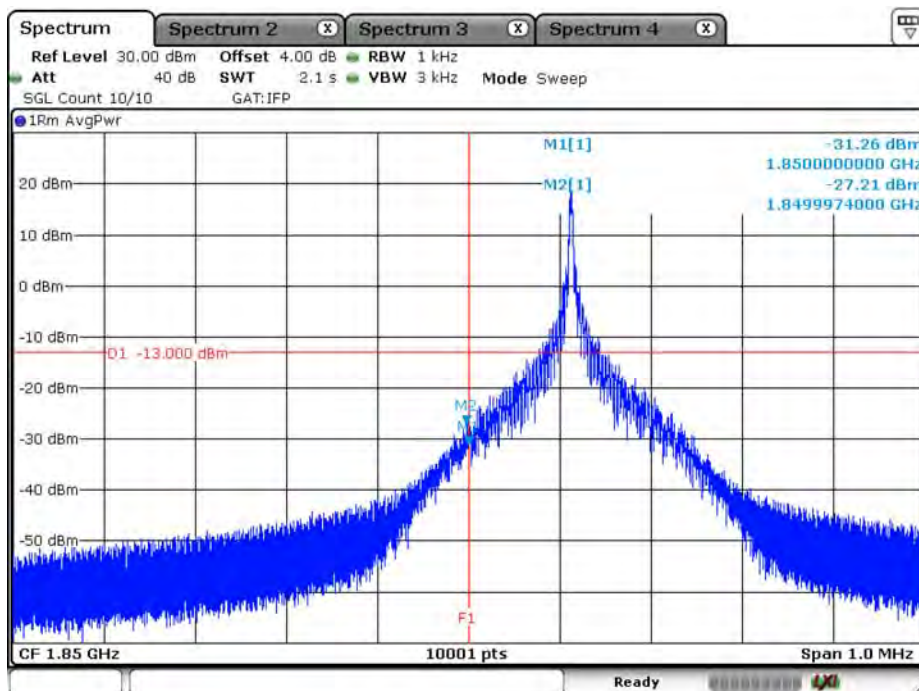
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 6 : LTE NB-IoT_Band 25		
Date of Test	2020/02/06	Test Site	SR12-H
Temperature (°C)	18.0	Humidity (%RH)	63.0

B25\_3.75K\_CH26042\_BPSK\_1RB0



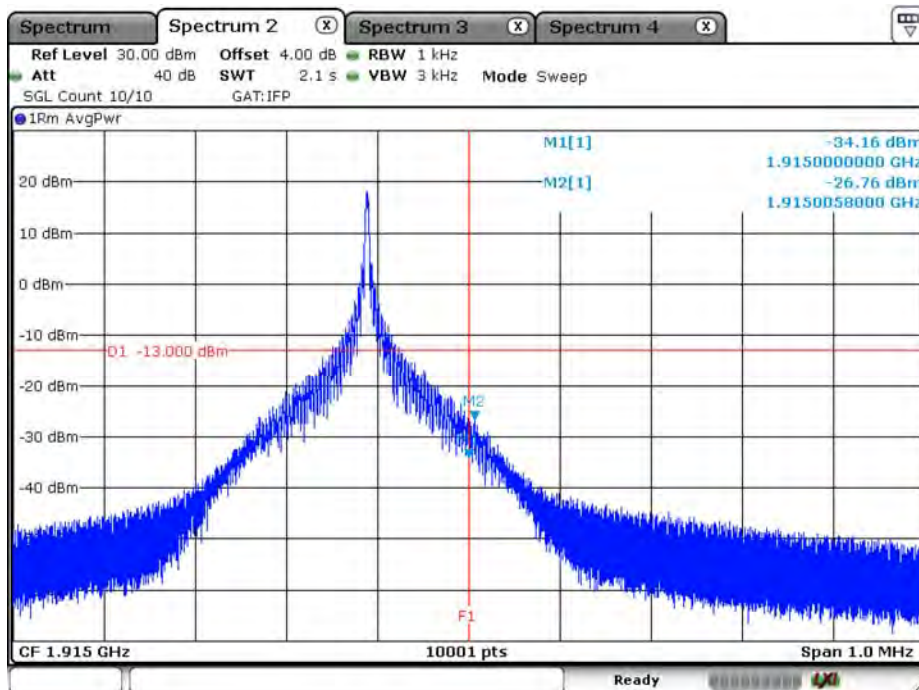
Date: 6.FEB.2020 15:57:17

B25\_3.75K\_CH26042\_QPSK\_1RB0



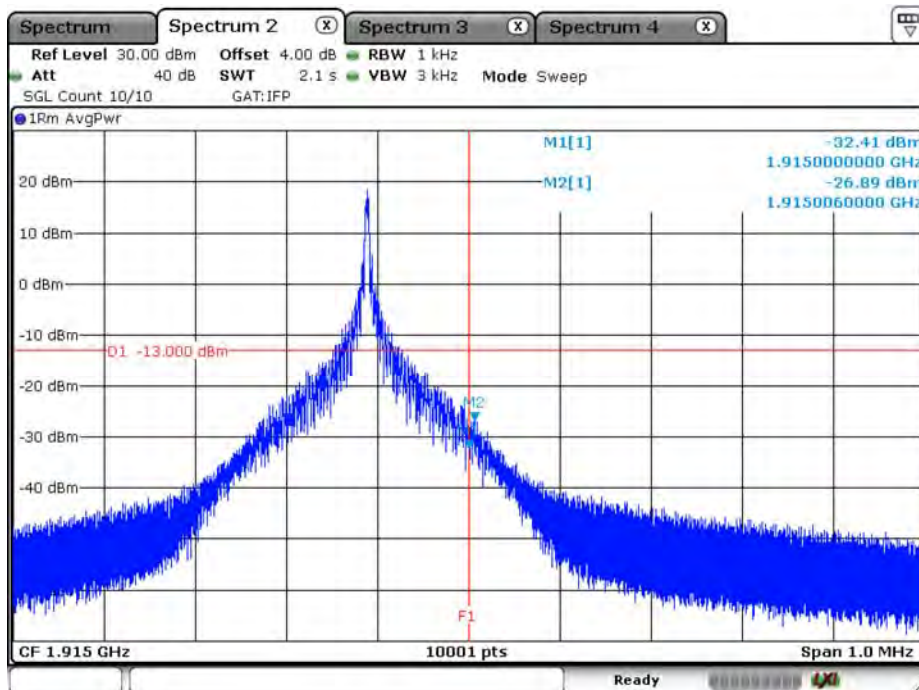
Date: 6.FEB.2020 15:54:19

B25\_3.75K\_CH26688\_BPSK\_1RB47



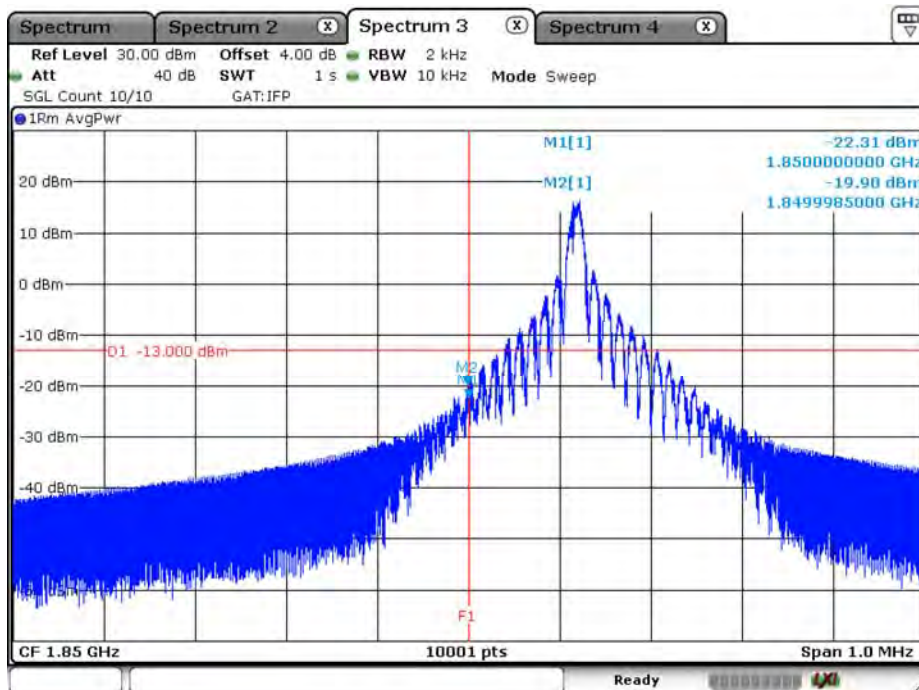
Date: 6.FEB.2020 15:39:22

B25\_3.75K\_CH26688\_QPSK\_1RB47



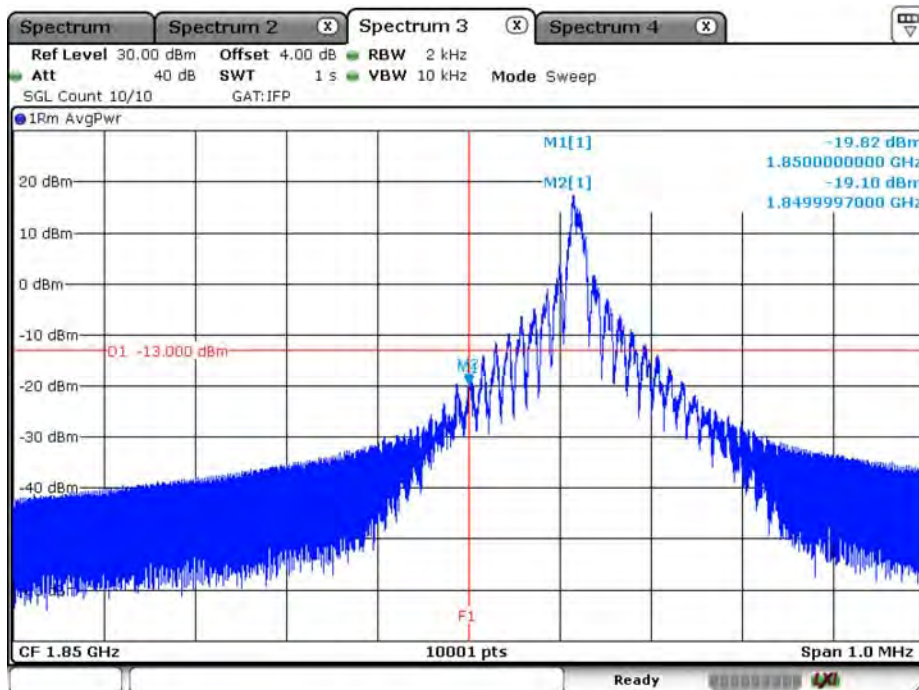
Date: 6.FEB.2020 15:35:19

### B25\_15K\_CH26042\_BPSK\_1RB0



Date: 6.FEB.2020 14:31:45

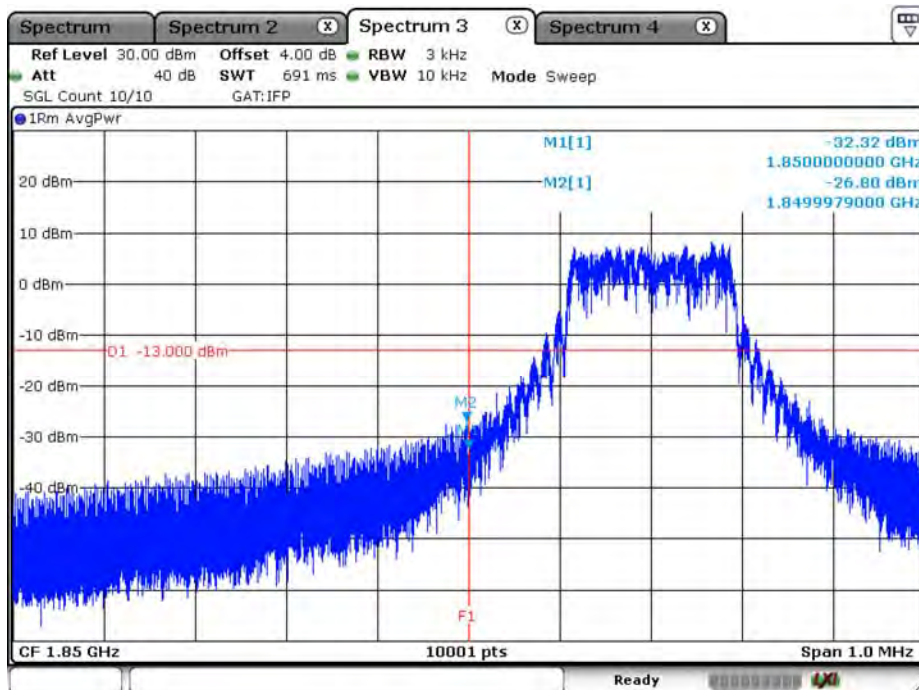
### B25\_15K\_CH26042\_QPSK\_1RB0



Date: 6.FEB.2020 14:53:14

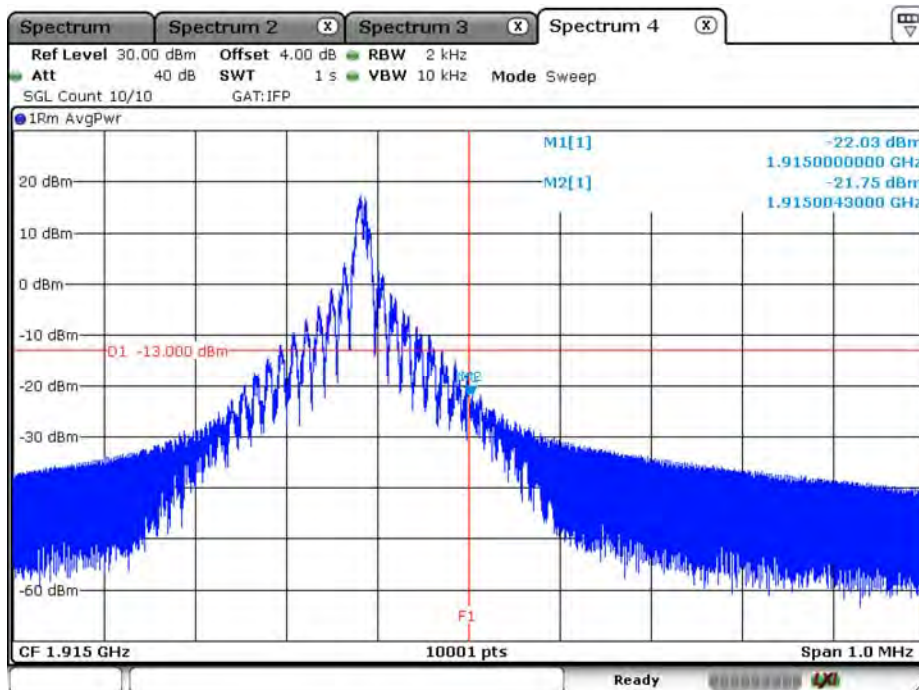


### B25\_15K\_CH26042\_QPSK\_12RB0



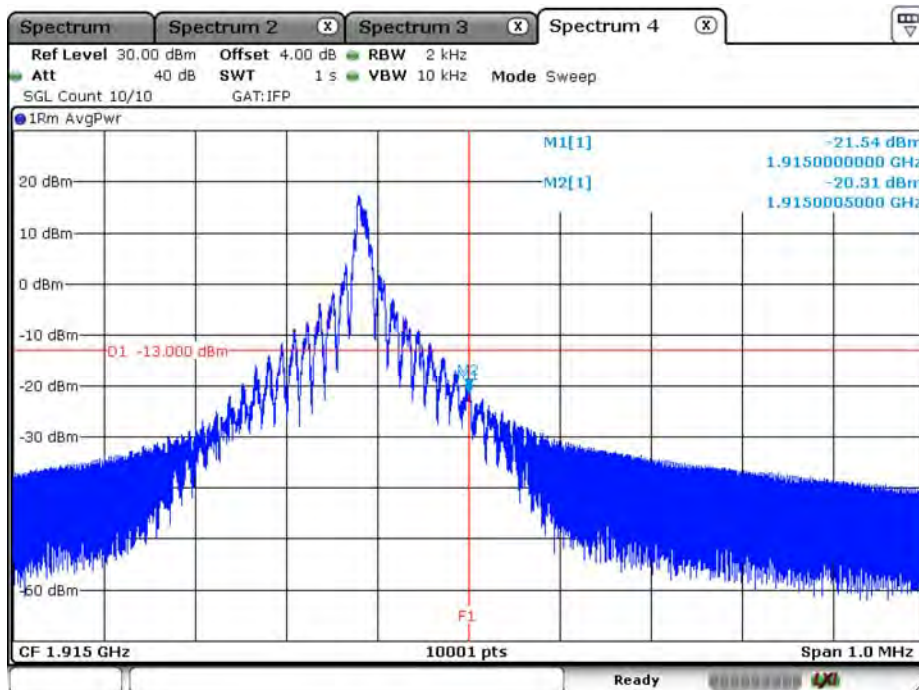
Date 6.FEB.2020 14:57:35

### B25\_15K\_CH26688\_BPSK\_1RB11



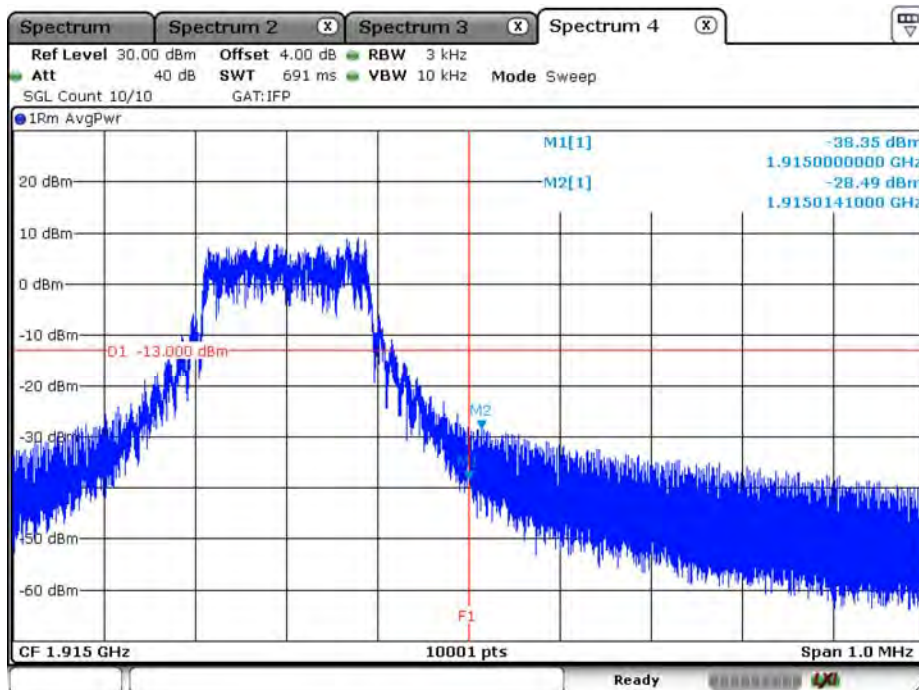
Date 6.FEB.2020 15:32:01

### B25\_15K\_CH26688\_QPSK\_1RB11



Date: 6.FEB.2020 15:18:14

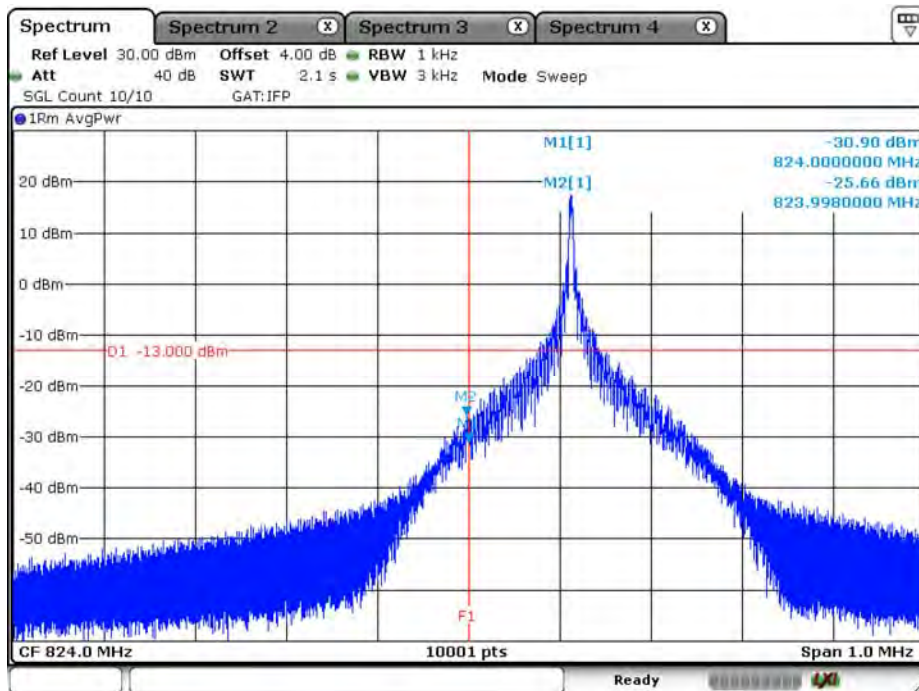
### B25\_15K\_CH26688\_QPSK\_12RB0



Date: 6.FEB.2020 15:07:08

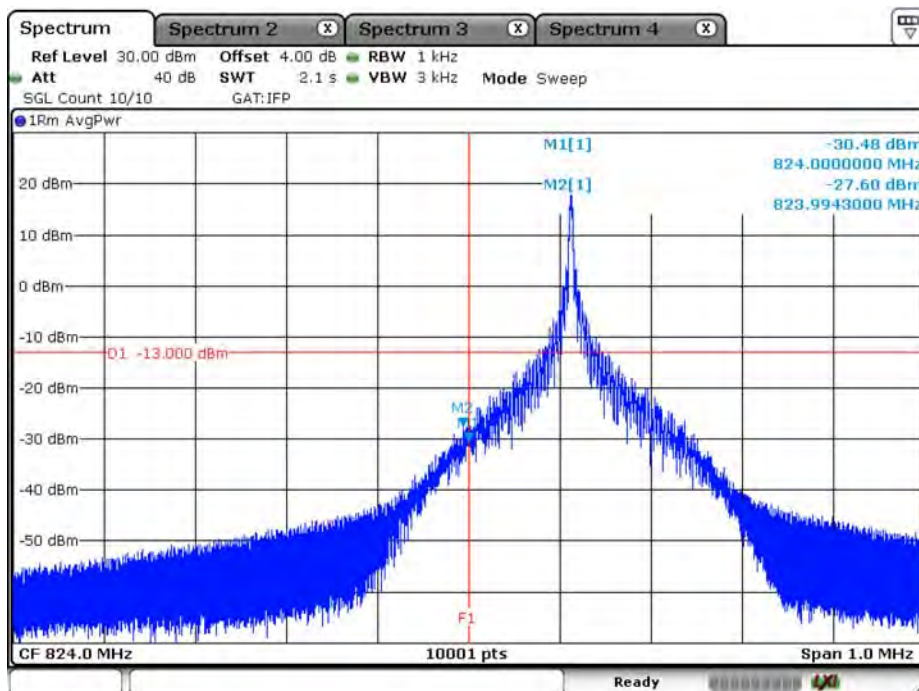
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals (Part 22)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/02/06	Test Site	SR12-H
Temperature (°C)	18.0	Humidity (%RH)	63.0

B26\_3.75K\_CH26792\_BPSK\_1RB0 (Part 22)



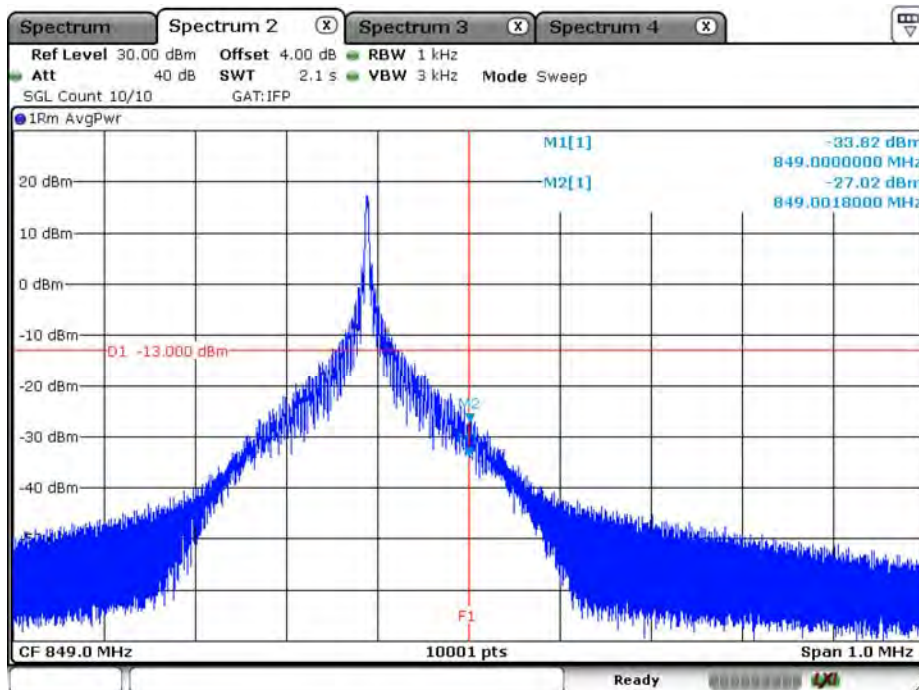
Date: 6.FEB.2020 16:02:21

B26\_3.75K\_CH26792\_QPSK\_1RB0 (Part 22)



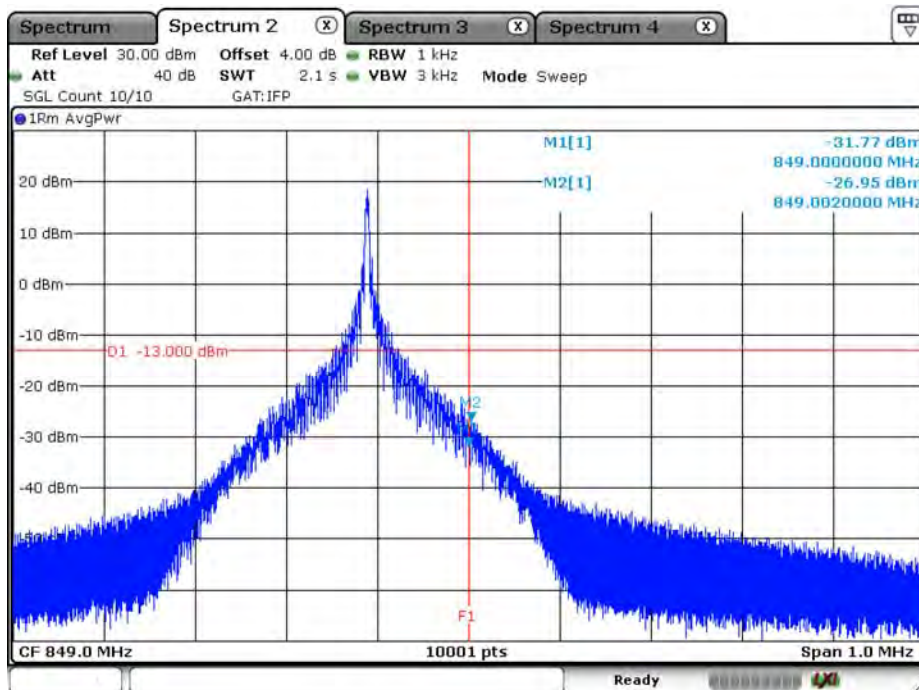
Date: 6.FEB.2020 16:09:34

### B26\_3.75K\_CH27038\_BPSK\_1RB47 (Part 22)



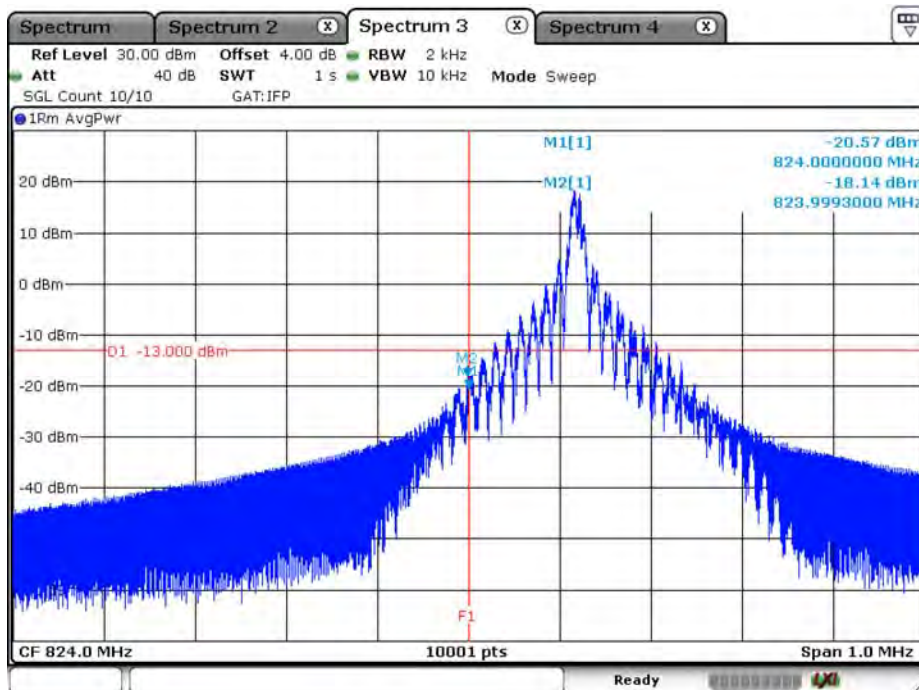
Date: 6.FEB.2020 16:19:33

### B26\_3.75K\_CH27038\_QPSK\_1RB47 (Part 22)



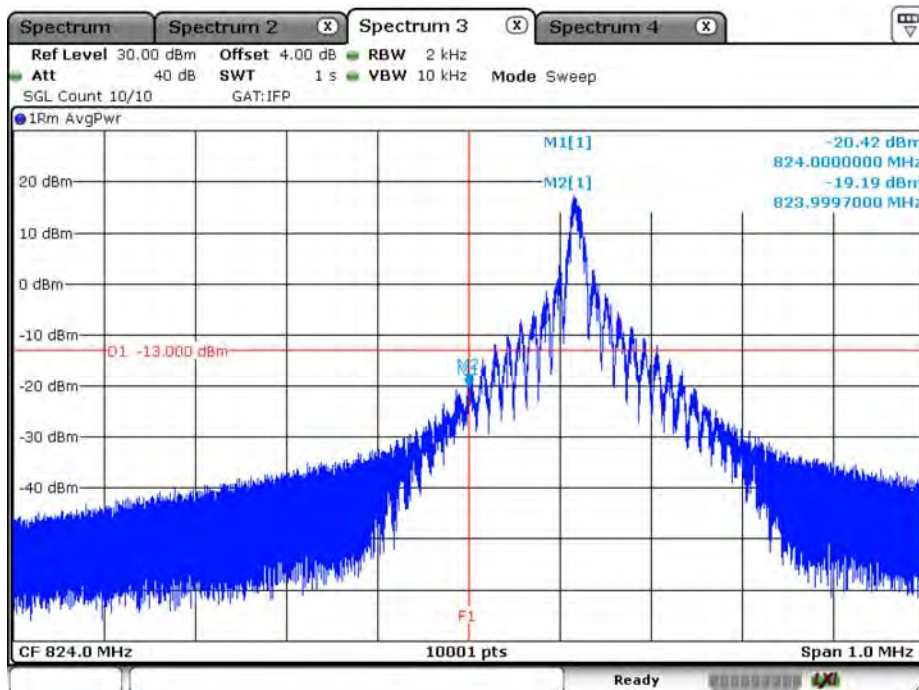
Date: 6.FEB.2020 16:14:55

### B26\_15K\_CH26792\_BPSK\_1RB0 (Part 22)



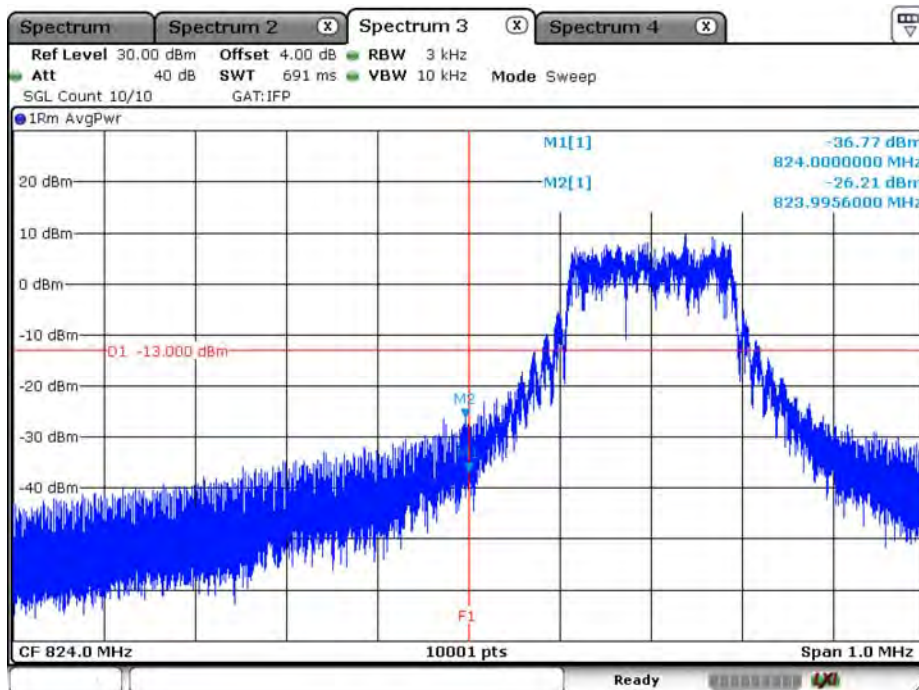
Date: 6.FEB.2020 17:11:02

### B26\_15K\_CH26792\_QPSK\_1RB0 (Part 22)



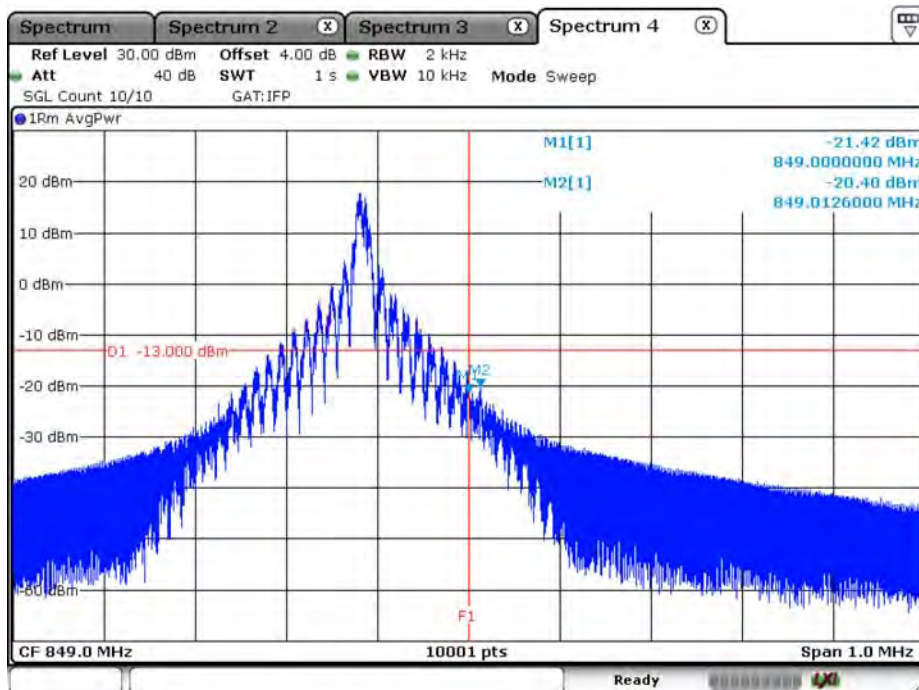
Date: 6.FEB.2020 16:59:44

### B26\_15K\_CH26792\_QPSK\_12RB0 (Part 22)



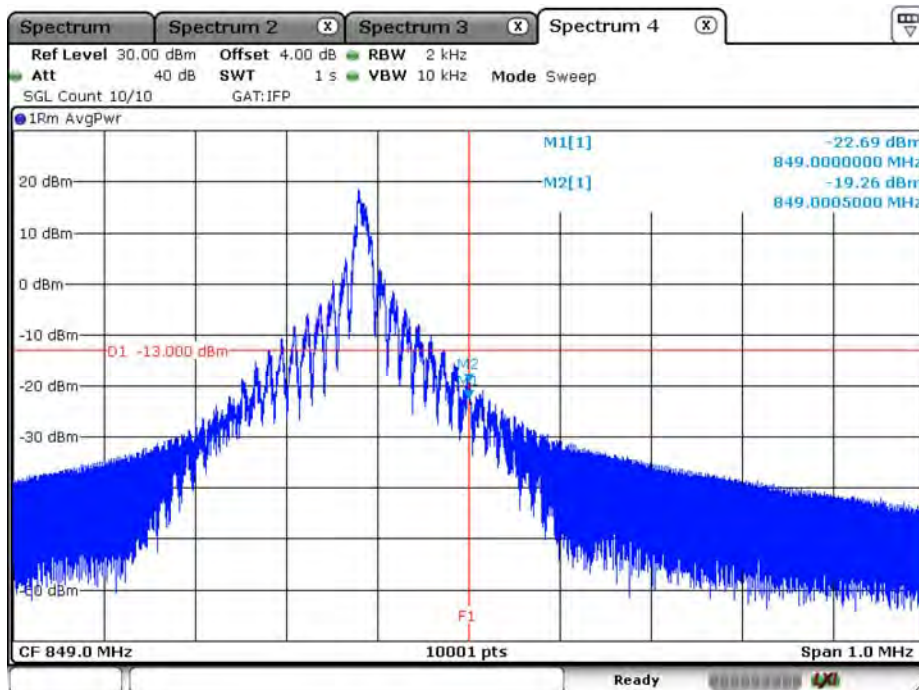
Date: 6.FEB.2020 16:51:56

### B26\_15K\_CH27038\_BPSK\_1RB11 (Part 22)



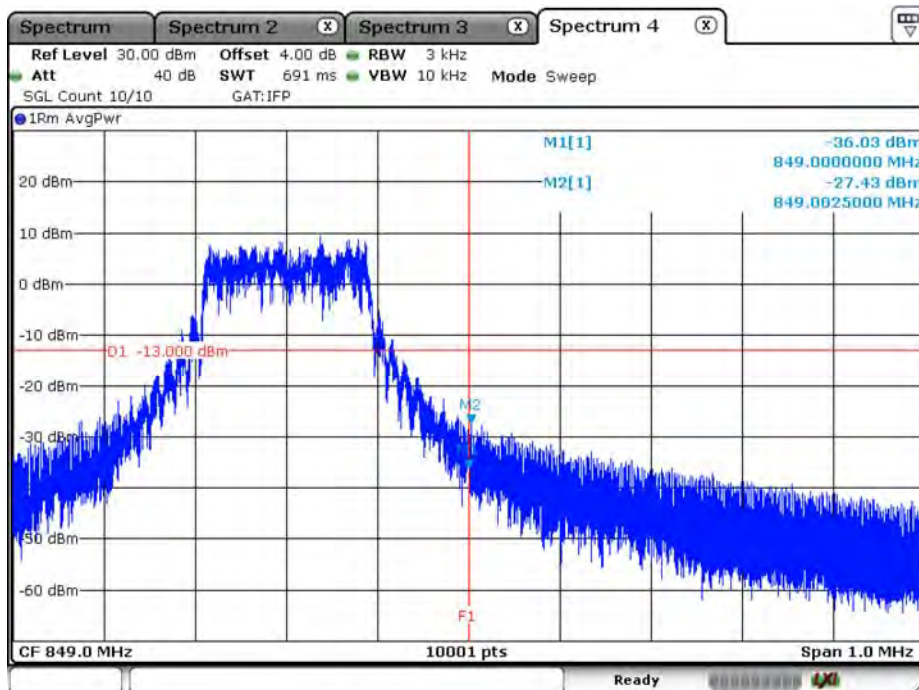
Date: 6.FEB.2020 16:32:00

### B26\_15K\_CH27038\_QPSK\_1RB11 (Part 22)



Date 6.FEB.2020 16:43:41

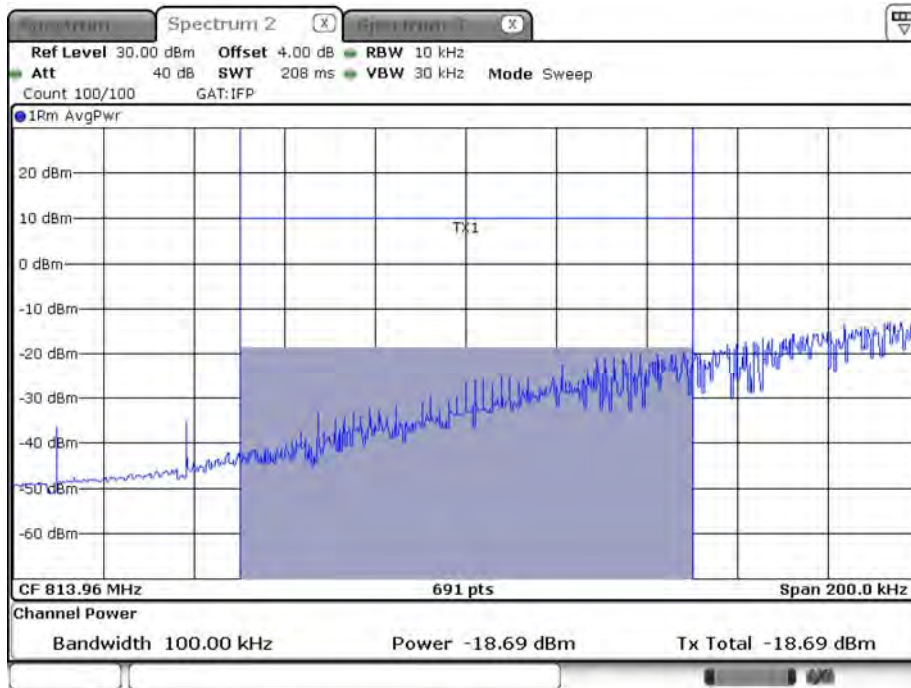
### B26\_15K\_CH27038\_QPSK\_12RB0 (Part 22)



Date 6.FEB.2020 16:47:26

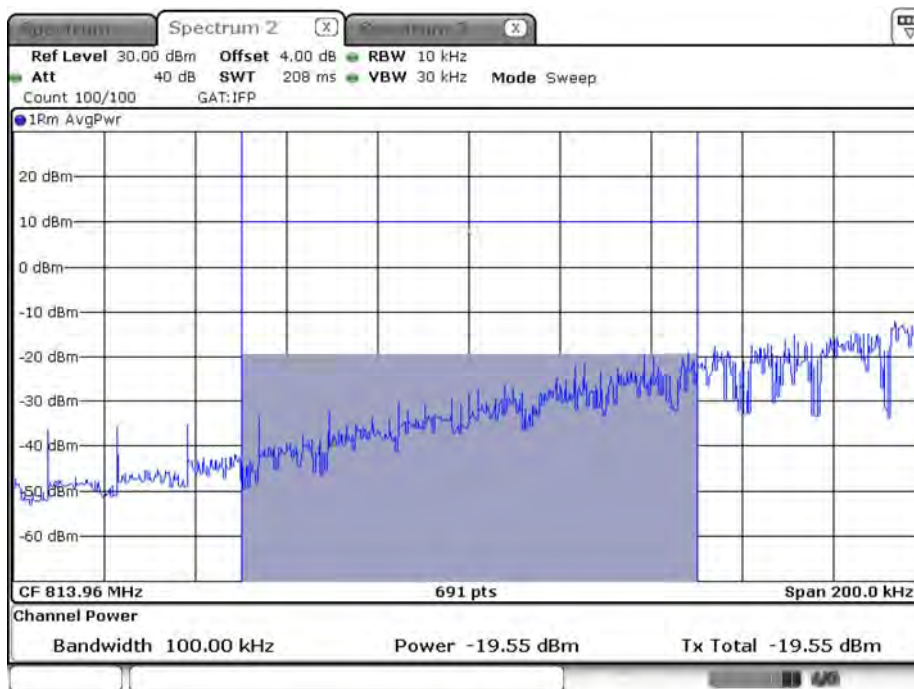
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals (Part 90)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/02/10~2020/06/12	Test Site	SR12-H
Temperature (°C)	18.0	Humidity (%RH)	55.0

B26\_3.75K\_CH26692\_BPSK\_1RB0 (Part 90)



Date: 12 JUN 2020 01:58:46

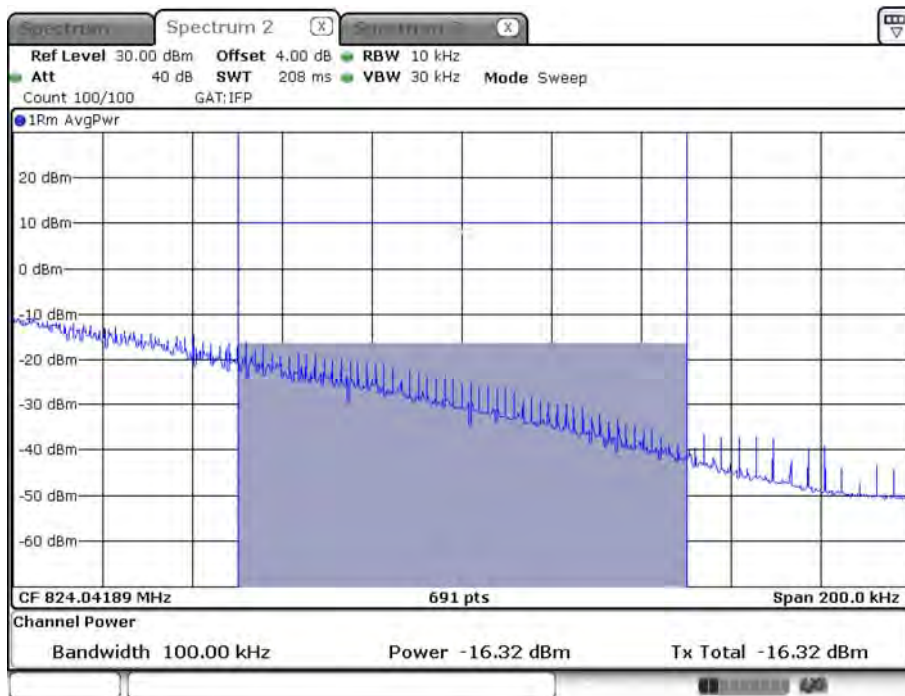
B26\_3.75K\_CH26692\_QPSK\_1RB0 (Part 90)



Date: 12 JUN 2020 02:01:28

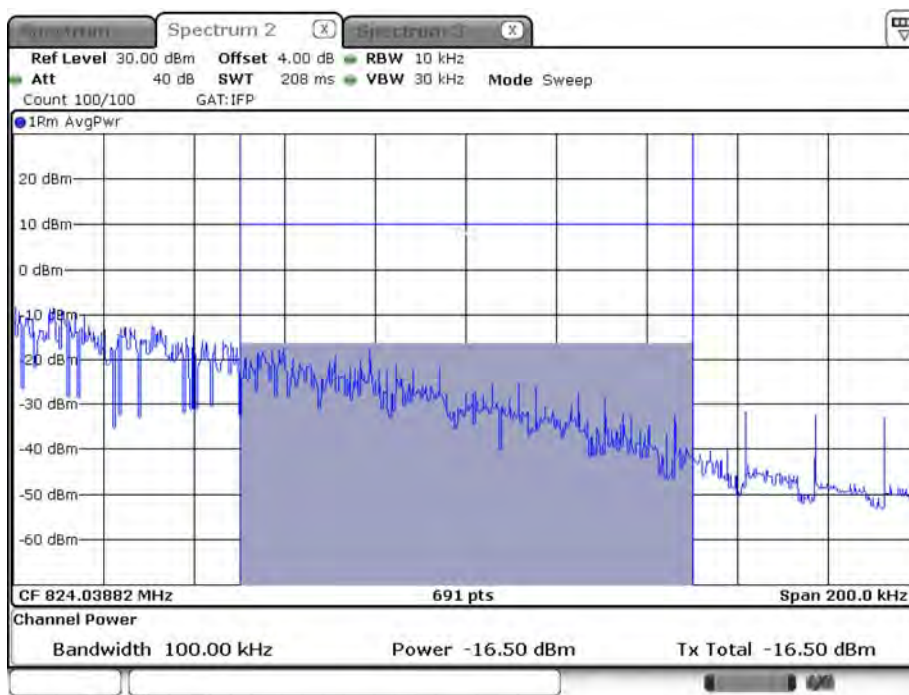


### B26\_3.75K\_CH26788\_BPSK\_1RB47 (Part 90)



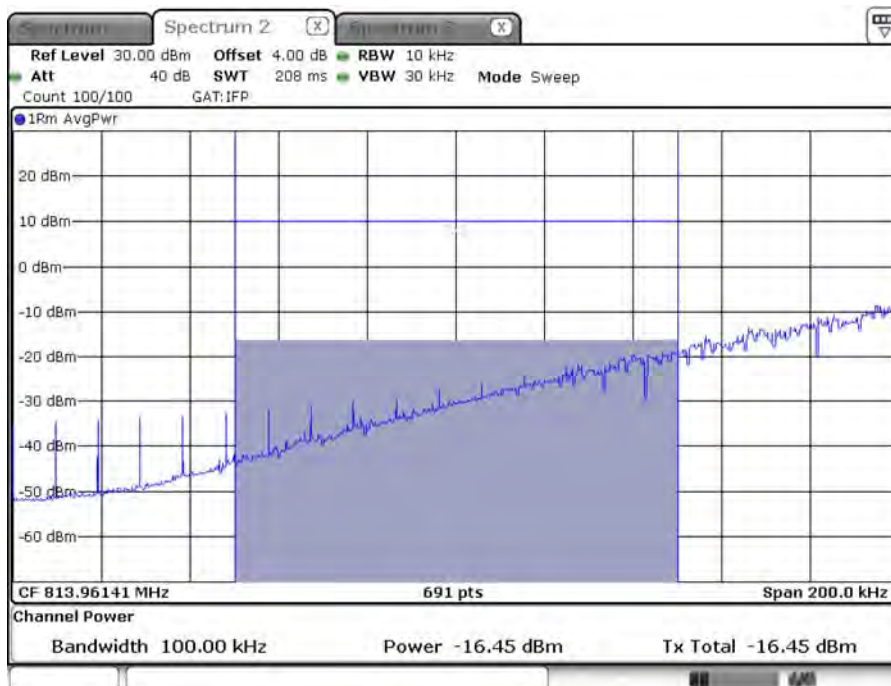
Date: 12 JUN 2020 01:20:53

### B26\_3.75K\_CH26788\_QPSK\_1RB47 (Part 90)



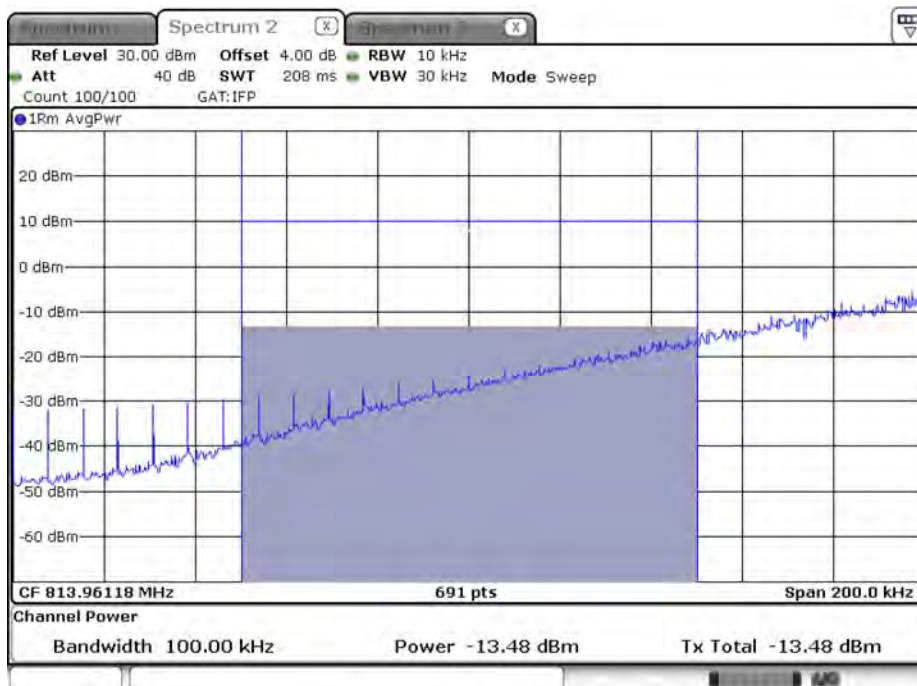
Date: 12 JUN 2020 01:31:34

### B26\_15K\_CH26692\_BPSK\_1RB0 (Part 90)



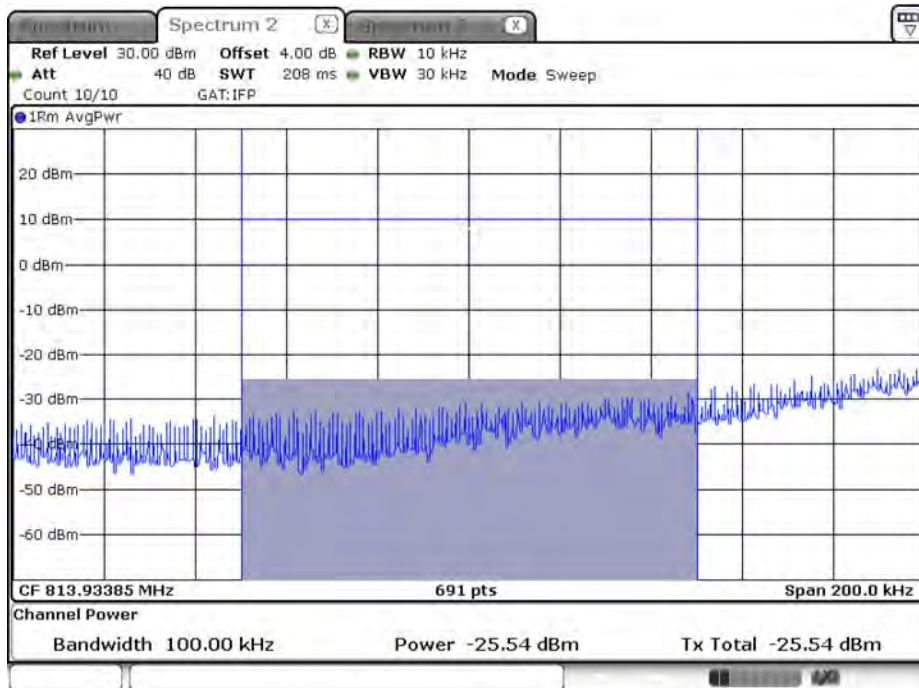
Date: 12 JUN 2020 01:54:30

### B26\_15K\_CH26692\_QPSK\_1RB0 (Part 90)



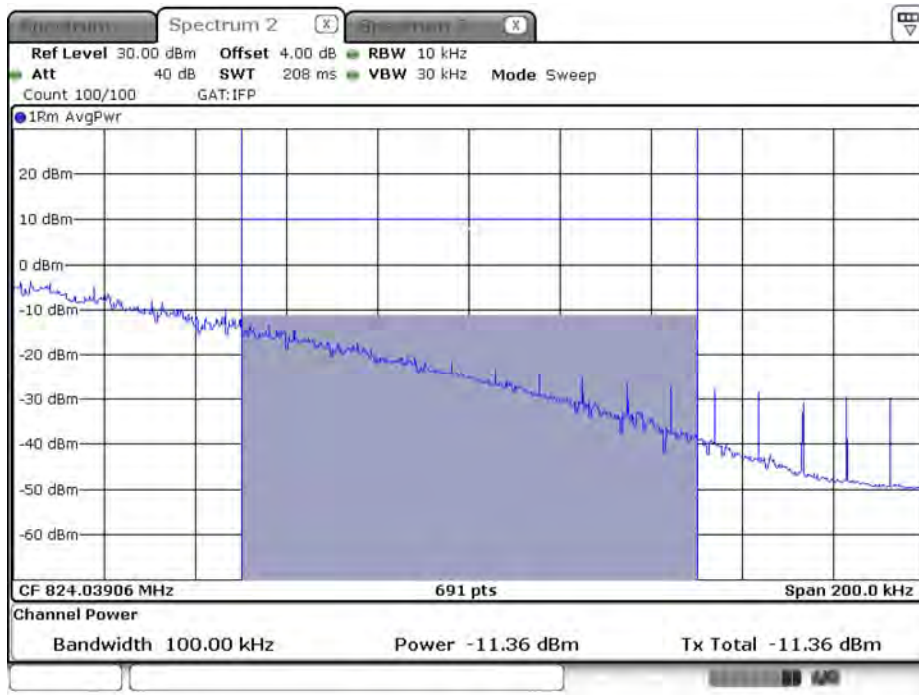
Date: 12 JUN 2020 01:52:08

B26\_15K\_CH26692\_QPSK\_12RB0 (Part 90)



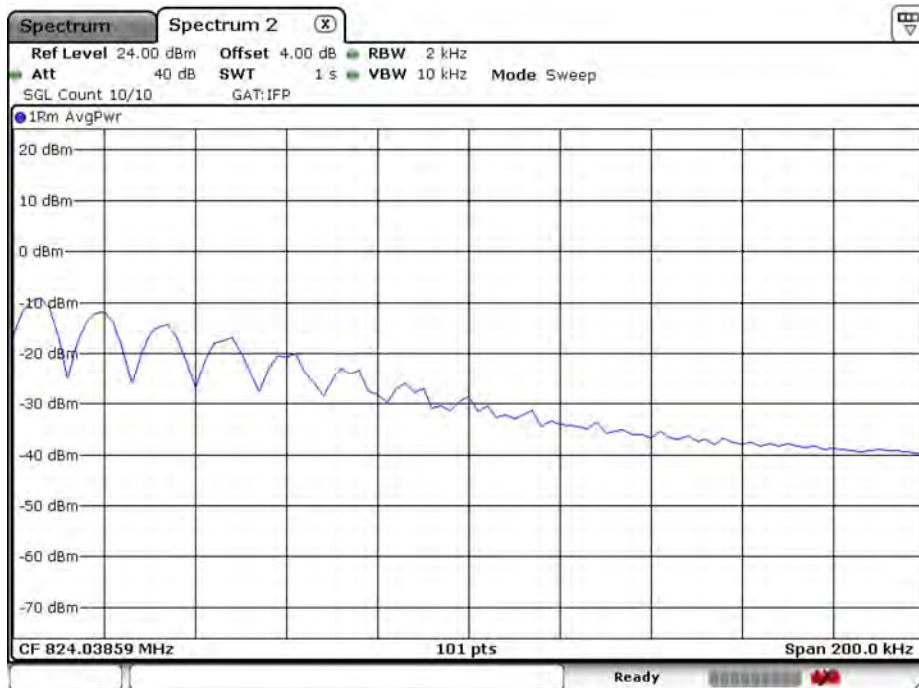
Date: 12 JUN 2020 01:49:18

### B26\_15K\_CH26788\_BPSK\_1RB11 (Part 90)



Date: 12 JUN 2020 01:43:13

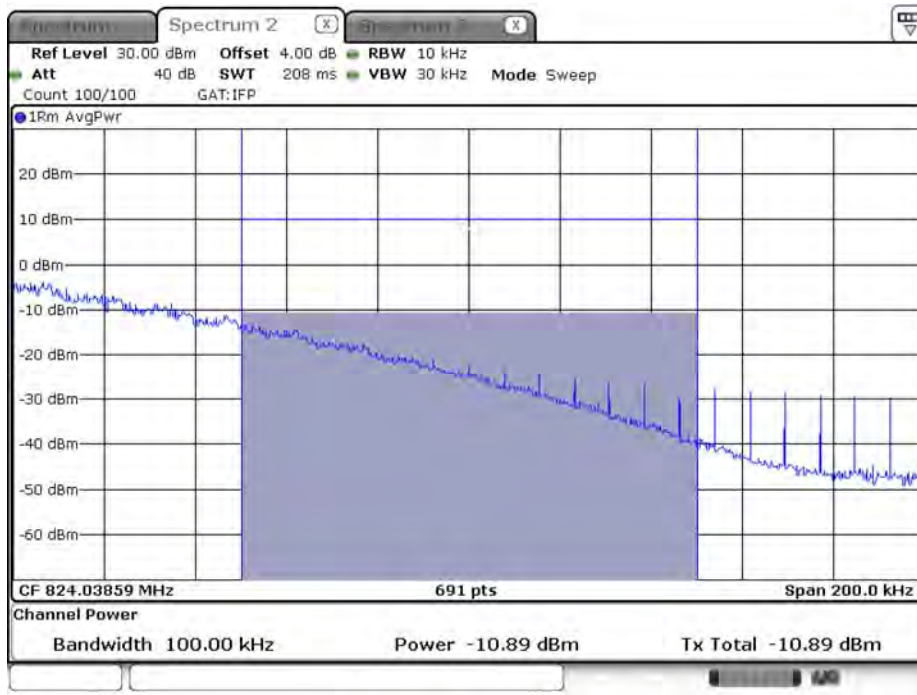
### B26\_15K\_CH26788\_BPSK\_1RB11 (Part 90) (Trace)



Date: 12 JUN 2020 16:18:03

Note: Integration Power (from 824.03659MHz to 824.13659MHz) = -17.9631 dBm

B26\_15K\_CH26788\_QPSK\_1RB11 (Part 90)



Date: 12 JUN 2020 01:38:00

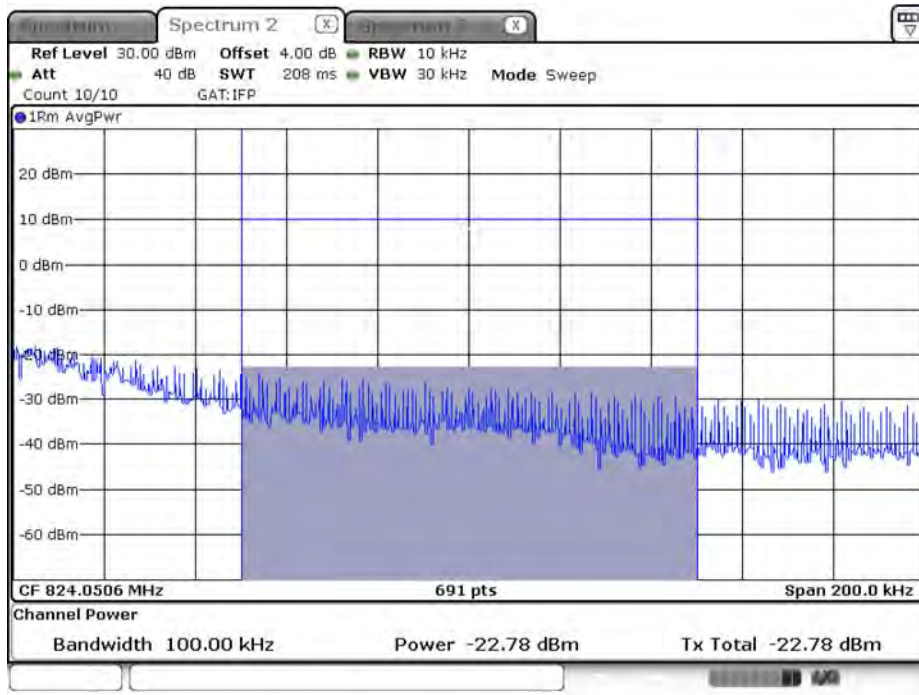
B26\_15K\_CH26788\_QPSK\_1RB11 (Part 90) (Trace)



Date: 12 JUN 2020 16:01:06

Note: Integration Power (from 824.03659MHz to 824.13659MHz) = -21.3478 dBm

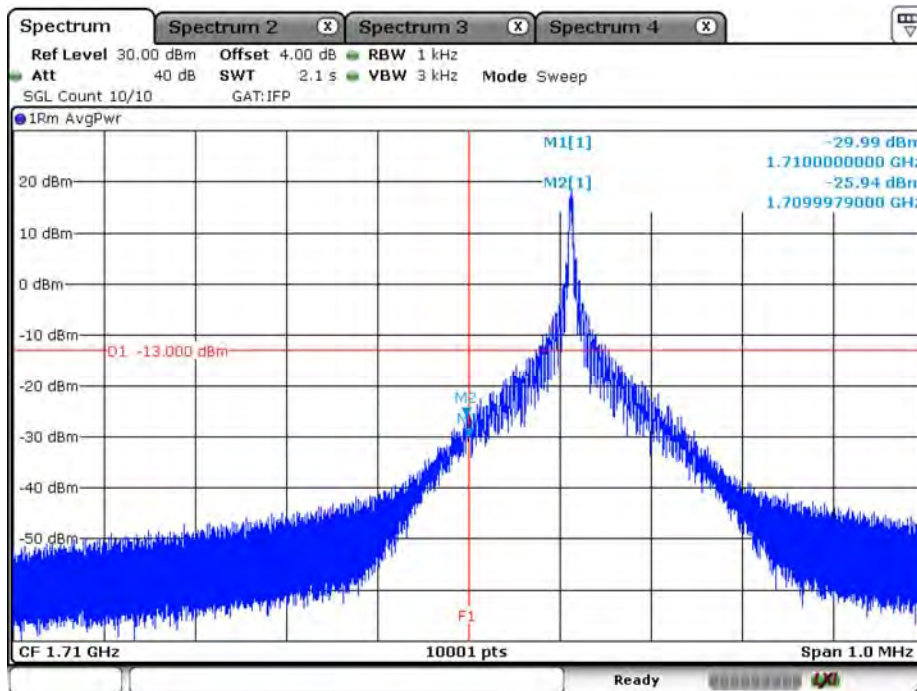
### B26\_15K\_CH26788\_QPSK\_12RB0 (Part 90)



Date: 12 JUN 2020 01:45:53

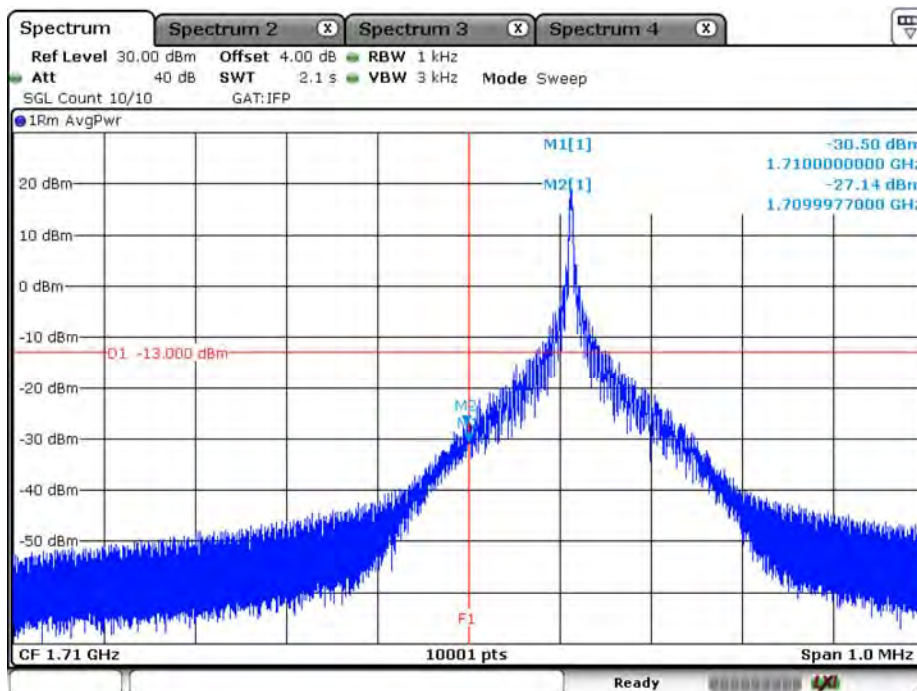
Product	Module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 8 : LTE NB-IoT_Band 66		
Date of Test	2020/02/06~2020/02/07	Test Site	SR12-H
Temperature (°C)	18.0	Humidity (%RH)	63.0

B66\_3.75K\_CH131974\_BPSK\_1RB0



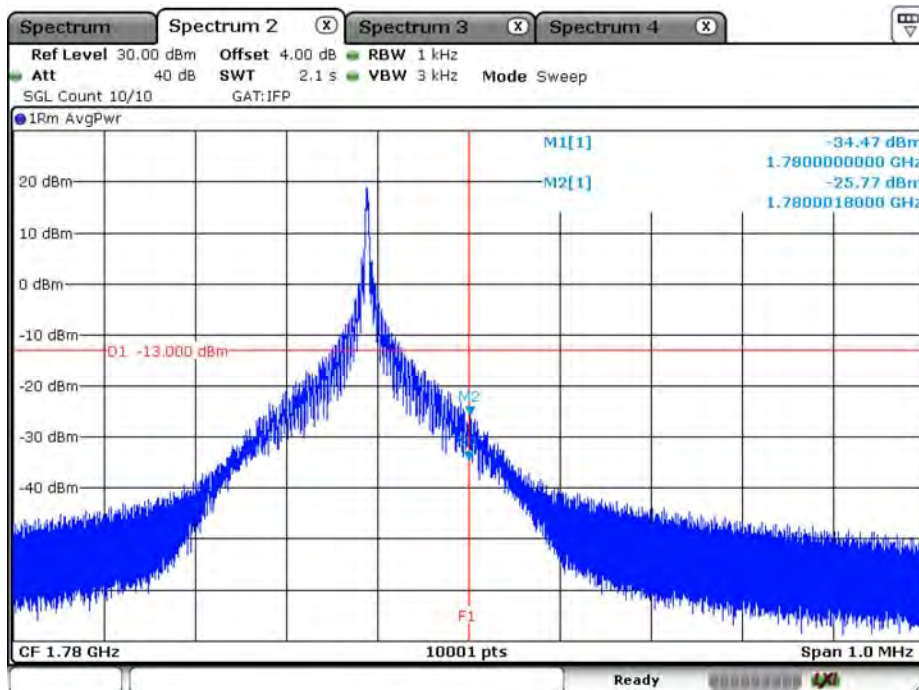
Date: 7.FEB.2020 10:02:52

B66\_3.75K\_CH131974\_QPSK\_1RB0



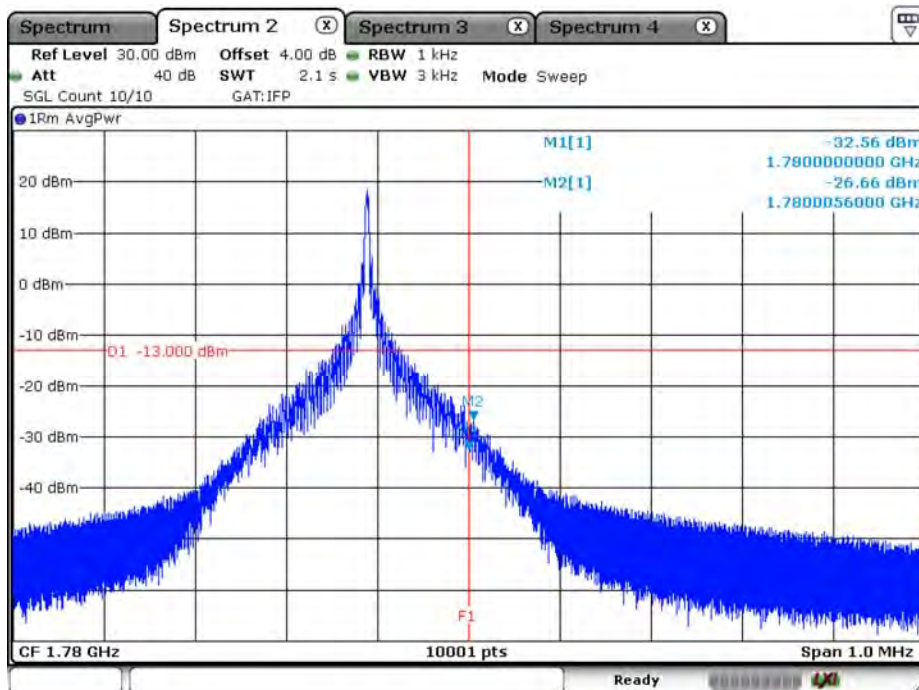
Date: 7.FEB.2020 09:53:22

### B66\_3.75K\_CH132670\_BPSK\_1RB47



Date: 7.FEB.2020 10:06:38

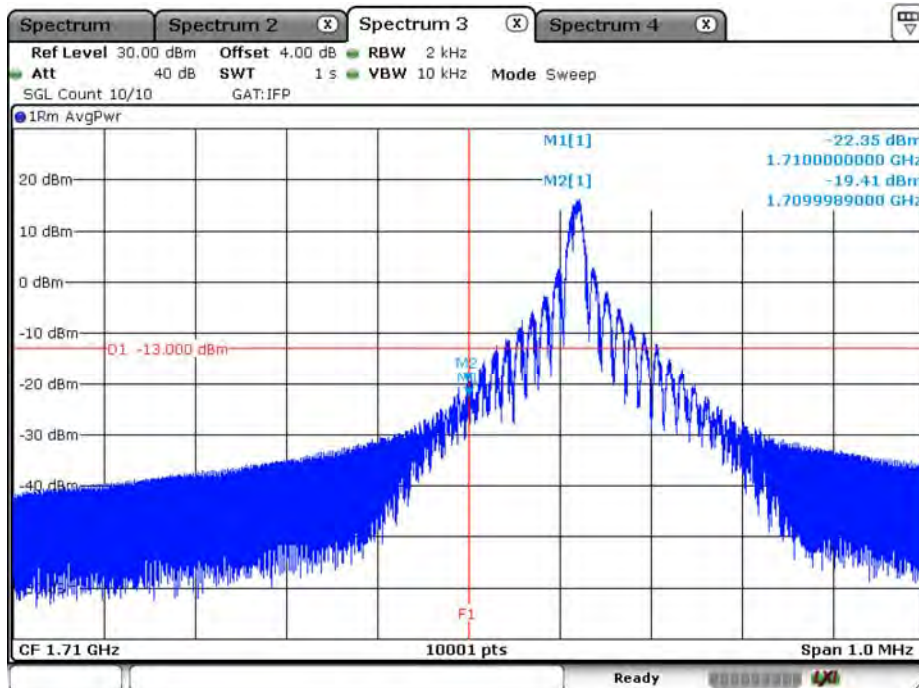
### B66\_3.75K\_CH132670\_QPSK\_1RB47



Date: 7.FEB.2020 10:10:46

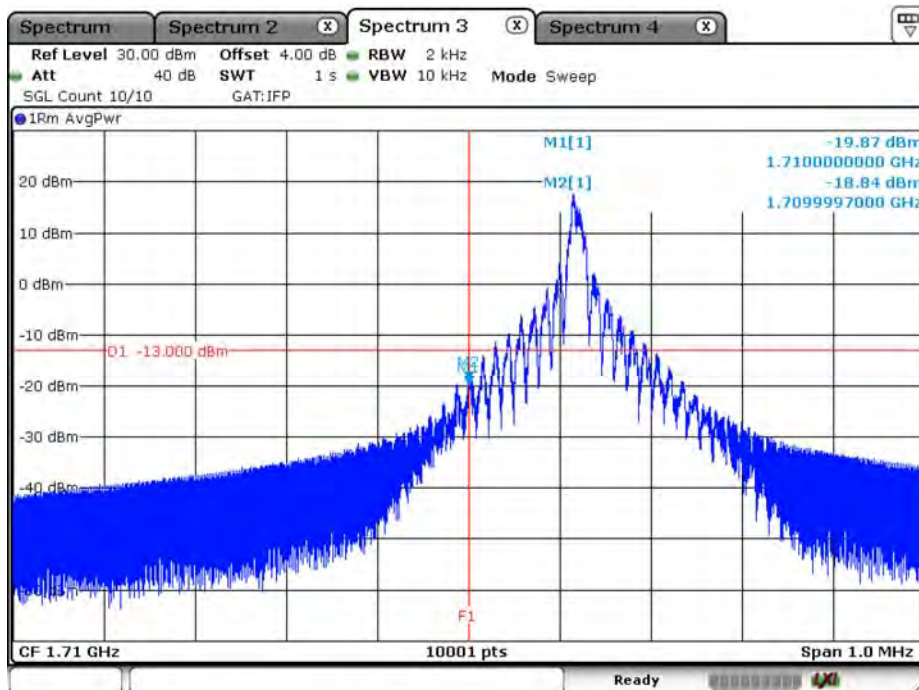


### B66\_15K\_CH131974\_BPSK\_1RB0



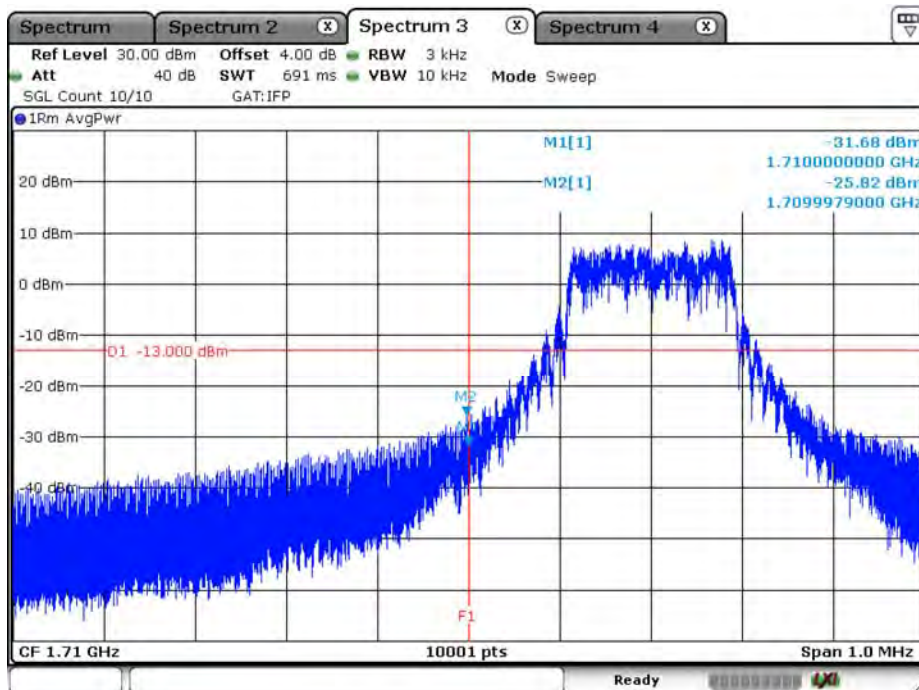
Date 6.FEB.2020 17:24:37

### B66\_15K\_CH131974\_QPSK\_1RB0



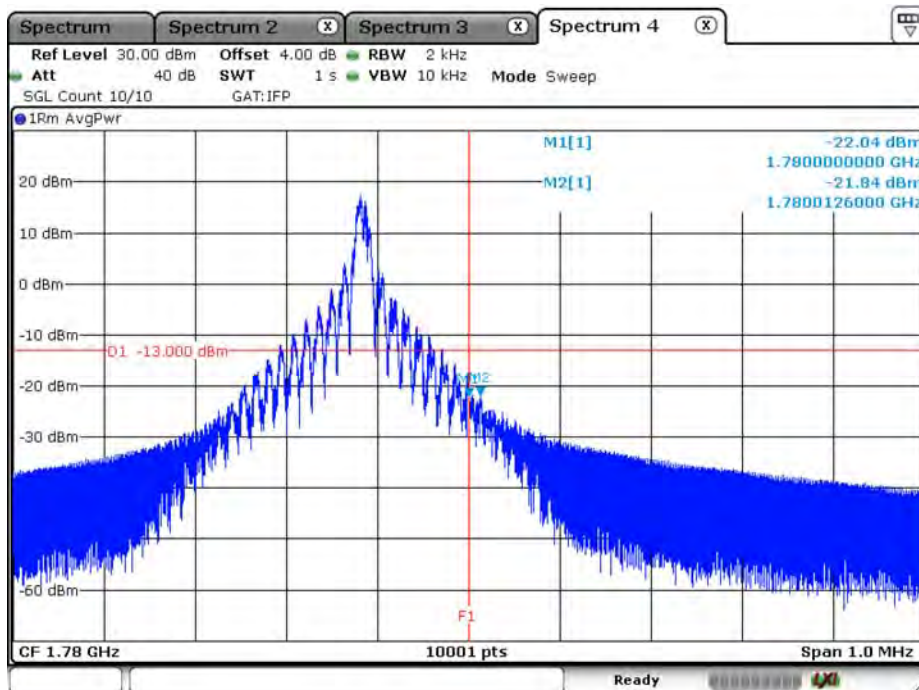
Date 6.FEB.2020 17:38:57

### B66\_15K\_CH131974\_QPSK\_12RB0



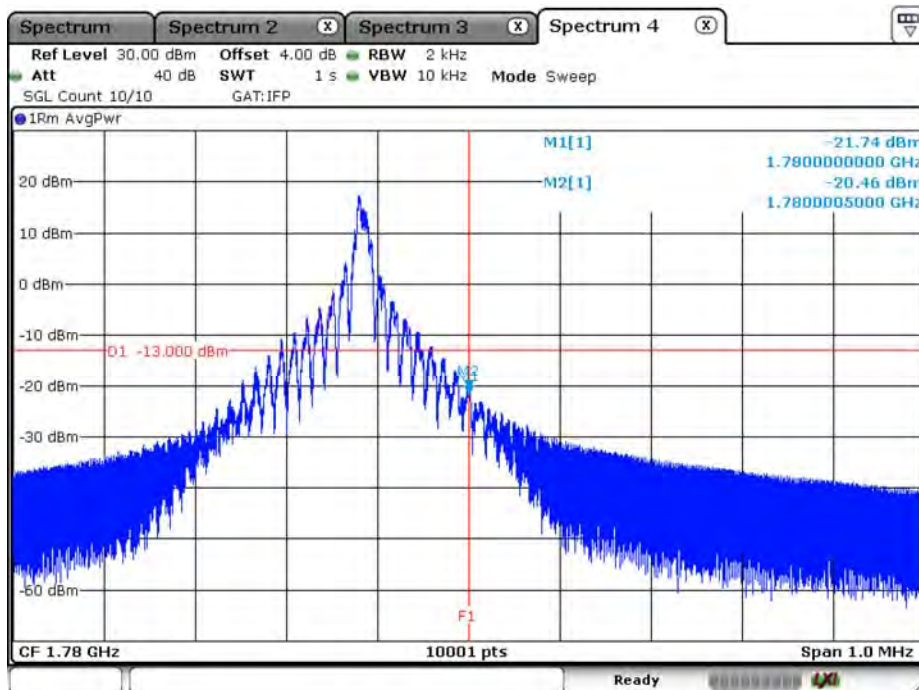
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### B66\_15K\_CH132670\_BPSK\_1RB11



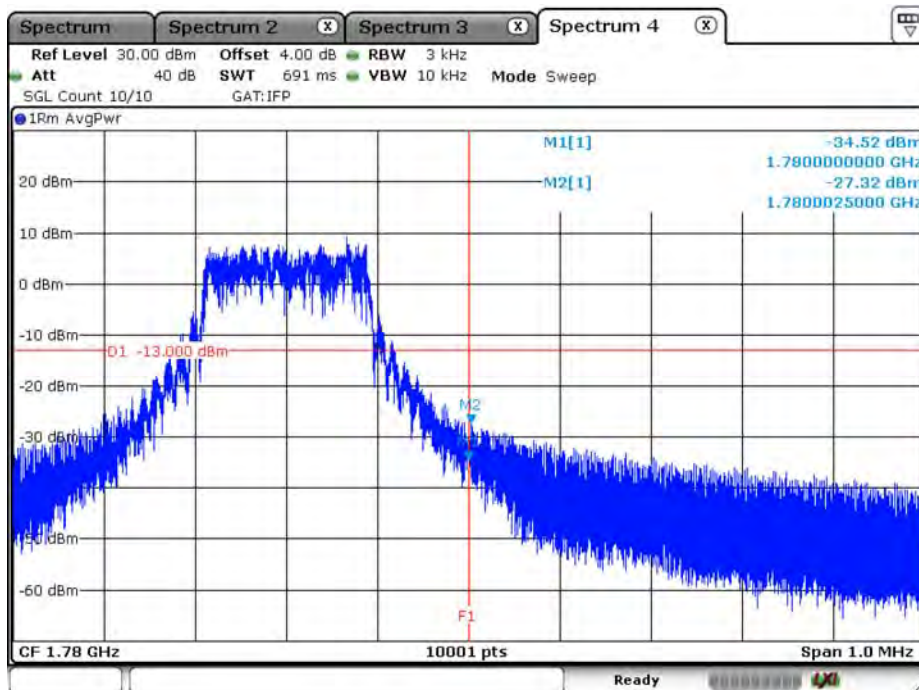
Date: 6.FEB.2020 18:10:08

### B66\_15K\_CH132670\_QPSK\_1RB11



Date: 6.FEB.2020 17:59:10

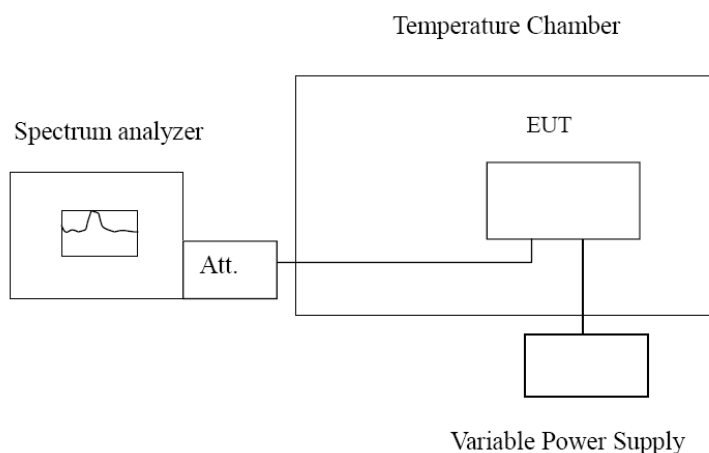
### B66\_15K\_CH132670\_QPSK\_12RB0



Date: 6.FEB.2020 17:46:57

## 8. Frequency Stability

### 8.1. Test Setup



### 8.2. Test Procedure

#### Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

#### Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation ( $\pm 15\%$ ) and endpoint, record the maximum frequency change.

### 8.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 9  
ANSI C63.26: 2015 Sub-clause 5.6

**8.4. Test Result**

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1 : LTE NB-IoT_Band 2		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 2 1850.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.23	0.0012
3.7	2	0.0011
3.2	2.40	0.0013

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	1.04	0.0006
-20	2.21	0.0012
-10	2.37	0.0013
0	1.88	0.0010
10	1.74	0.0009
20	0.64	0.0003
30	1.35	0.0007
40	1.66	0.0009
50	1.58	0.0009
60	1.38	0.0007
70	2.11	0.0011

LTE-Band 2 1880MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.4	0.0013
3.7	3	0.0016
3.2	1.87	0.0010

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	1.3	0.0007
-20	2.44	0.0013
-10	2.34	0.0012
0	2.64	0.0014
10	3.14	0.0017
20	3.52	0.0019
30	2.9	0.0015
40	2.89	0.0015
50	1.9	0.0010
60	2.71	0.0014
70	2	0.0011

LTE-Band 2 1909.8MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	3.02	0.0016
3.7	3	0.0016
3.2	2.26	0.0012

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.75	0.0014
-20	2.25	0.0012
-10	2.64	0.0014
0	2.54	0.0013
10	3.01	0.0016
20	3.58	0.0019
30	2.45	0.0013
40	1.33	0.0007
50	3.22	0.0017
60	2.82	0.0015
70	2.94	0.0015

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 2 : LTE NB-IoT_Band 4		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 4 1710.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.8	0.0016
3.7	3	0.0018
3.2	2.76	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.59	0.0015
-20	2.43	0.0014
-10	2.85	0.0017
0	2.2	0.0013
10	2.6	0.0015
20	2.42	0.0014
30	1.92	0.0011
40	2.51	0.0015
50	2.72	0.0016
60	2.46	0.0014
70	2.88	0.0017



LTE-Band 4 1732.5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.69	0.0016
3.7	3	0.0017
3.2	2.19	0.0013

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.46	0.0014
-20	1.99	0.0011
-10	2.74	0.0016
0	2.69	0.0016
10	1.77	0.0010
20	2.2	0.0013
30	3.50	0.0020
40	1.77	0.0010
50	3.02	0.0017
60	1.73	0.0010
70	2.66	0.0015

LTE-Band 4 1754.8MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.72	0.0016
3.7	3	0.0017
3.2	2.40	0.0014

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.6	0.0015
-20	2.58	0.0015
-10	2.82	0.0016
0	1.69	0.0010
10	3.33	0.0019
20	2.22	0.0013
30	1.58	0.0009
40	2.82	0.0016
50	2.04	0.0012
60	2.63	0.0015
70	1.94	0.0011

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 3 : LTE NB-IoT_Band 5		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 5 824.2MHz

Voltage

Operator Signed:

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.03	0.0025
3.7	3	0.0036
3.2	2.71	0.0033

Temperature

Operator Signed:

Max

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	3.32	0.0040
-20	2.76	0.0033
-10	2.11	0.0026
0	2.24	0.0027
10	2.36	0.0029
20	3.38	0.0041
30	1.65	0.0020
40	2.22	0.0027
50	2.97	0.0036
60	1.95	0.0024
70	3.11	0.0038

LTE-Band 5 836.5MHz

Voltage

Operator Signed:

Max

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	1.91	0.0023
3.7	3	0.0036
3.2	1.78	0.0021

Temperature

Operator Signed:

Max

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	3.65	0.0044
-20	2.37	0.0028
-10	2.78	0.0033
0	2.42	0.0029
10	2.68	0.0032
20	2.28	0.0027
30	2.87	0.0034
40	3.42	0.0041
50	2.54	0.0030
60	2.69	0.0032
70	2.03	0.0024

LTE-Band 5 848.8MHz

Voltage

Operator Signed:

Max

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.8	0.0033
3.7	3	0.0035
3.2	2.51	0.0030

Temperature

Operator Signed:

Max

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.24	0.0026
-20	1.51	0.0018
-10	2.87	0.0034
0	2.36	0.0028
10	2.05	0.0024
20	2.31	0.0027
30	2.87	0.0034
40	3.10	0.0037
50	2.59	0.0031
60	2.13	0.0025
70	2.77	0.0033

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 4 : LTE NB-IoT_Band 12		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 12 699.2MHz

Voltage

Operator Signed:

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.47	0.0035
3.70	3.23	0.0046
3.20	4.15	0.0059

Temperature

Operator Signed:

Max

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.3	0.0033
-20	2.02	0.0029
-10	3.33	0.0048
0	2.46	0.0035
10	2.37	0.0034
20	3.41	0.0049
30	2.25	0.0032
40	2.89	0.0041
50	2.49	0.0036
60	1.56	0.0022
70	1.04	0.0015

LTE-Band 12 707.5MHz

Voltage	Operator Signed:	Max
Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.38	0.0034
3.7	3	0.0042
3.2	2.66	0.0038

Temperature	Operator Signed:	Max
TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.69	0.0038
-20	3.03	0.0043
-10	2.87	0.0041
0	2.97	0.0042
10	3.28	0.0046
20	2.87	0.0041
30	3	0.0042
40	3.59	0.0051
50	2.02	0.0029
60	1.83	0.0026
70	1.76	0.0025

LTE-Band 12 715.8MHz

Voltage	Operator Signed:	Max
Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.64	0.0037
3.70	3.86	0.0054
3.20	2.85	0.0040

Temperature	Operator Signed:	Max
TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.77	0.0039
-20	3.59	0.0050
-10	2.32	0.0032
0	1.17	0.0016
10	3.37	0.0047
20	1.08	0.0015
30	2.13	0.0030
40	3.18	0.0044
50	2.28	0.0032
60	1.64	0.0023
70	2.09	0.0029



Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 5 : LTE NB-IoT_Band 13		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 13 777.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	1.73	0.0022
3.7	3	0.0039
3.2	1.21	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.17	0.0028
-20	3.05	0.0039
-10	2.23	0.0029
0	2.75	0.0035
10	2.87	0.0037
20	1.72	0.0022
30	2.47	0.0032
40	1.6	0.0021
50	2.35	0.0030
60	2.6	0.0033
70	3.01	0.0039

LTE-Band 13 782MHz

Voltage Operator Signed:

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	3.10	0.0040
3.7	3	0.0038
3.2	3.08	0.0039

Temperature Operator Signed: Max

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	3.43	0.0044
-20	2.79	0.0036
-10	2.06	0.0026
0	1.75	0.0022
10	3.22	0.0041
20	2.62	0.0034
30	1.63	0.0021
40	2.09	0.0027
50	2.07	0.0026
60	2.22	0.0028
70	2.38	0.0030

LTE-Band 13 786.8MHz

Voltage	Operator Signed:	Max
Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.56	0.0033
3.7	3	0.0038
3.2	3.92	0.0050

Temperature	Operator Signed:	Max
TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.84	0.0036
-20	3.31	0.0042
-10	2.46	0.0031
0	2.5	0.0032
10	1.59	0.0020
20	2.31	0.0029
30	2.11	0.0027
40	3.24	0.0041
50	2.56	0.0033
60	2.25	0.0029
70	2.39	0.0030

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 6 : LTE NB-IoT_Band 25		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 25 1850.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.97	0.0016
3.7	3	0.0016
3.2	2.97	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	1.68	0.0009
-20	3.08	0.0017
-10	3.08	0.0017
0	3.04	0.0016
10	2.53	0.0014
20	2.86	0.0015
30	3.24	0.0018
40	2.61	0.0014
50	2.3	0.0012
60	2.47	0.0013
70	2.56	0.0014

LTE-Band 25 1882.5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.01	0.0011
3.7	3	0.0016
3.2	2.64	0.0014

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.73	0.0015
-20	2.34	0.0012
-10	3.14	0.0017
0	1.88	0.0010
10	3.16	0.0017
20	2.79	0.0015
30	2.31	0.0012
40	2.71	0.0014
50	3.59	0.0019
60	2.55	0.0014
70	2.41	0.0013

LTE-Band 25 1914.8MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.98	0.0016
3.7	3	0.0016
3.2	1.94	0.0010

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.83	0.0015
-20	2.11	0.0011
-10	2.46	0.0013
0	2.58	0.0013
10	2.06	0.0011
20	2.08	0.0011
30	3.04	0.0016
40	3.47	0.0018
50	2.52	0.0013
60	3.33	0.0017
70	2.94	0.0015

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations (Part 22)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 26(Part 22) 824.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	1.85	0.0022
3.7	3	0.0036
3.2	3.46	0.0042

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.27	0.0028
-20	2.57	0.0031
-10	2.94	0.0036
0	2.27	0.0028
10	2.37	0.0029
20	1.49	0.0018
30	2.92	0.0035
40	2.9	0.0035
50	2.2	0.0027
60	2.83	0.0034
70	3.19	0.0039

LTE-Band 26(Part 22) 836.5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.92	0.0035
3.7	3	0.0036
3.2	3.27	0.0039

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	3.26	0.0039
-20	2.88	0.0034
-10	2.03	0.0024
0	2.55	0.0030
10	2.81	0.0034
20	2.73	0.0033
30	2.63	0.0031
40	2.51	0.0030
50	1.8	0.0022
60	2.33	0.0028
70	3.08	0.0037



LTE-Band 26 (Part 22) 848.8MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.34	0.0028
3.7	3	0.0035
3.2	2.26	0.0027

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.43	0.0029
-20	3.04	0.0036
-10	2.37	0.0028
0	2.25	0.0027
10	2.41	0.0028
20	2.5	0.0029
30	2.29	0.0027
40	1.92	0.0023
50	2.81	0.0033
60	2.29	0.0027
70	3.07	0.0036

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations (Part 90)		
Test Mode	Mode 7 : LTE NB-IoT_Band 26		
Date of Test	2020/02/15~2020/06/06	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	59.0

LTE-Band 26(Part 90) 814.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.26	0.0028
3.70	3.01	0.0037
3.20	2.92	0.0036

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.37	0.0029
-20	1.50	0.0018
-10	3.94	0.0048
0	2.15	0.0026
10	3.26	0.0040
20	2.20	0.0027
30	1.29	0.0016
40	1.57	0.0019
50	3.24	0.0040
50	1.91	0.0023
60	2.76	0.0034

LTE-Band 26(Part 90) 819MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	1.87	0.0023
3.7	3	0.0037
3.2	2.29	0.0028

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.32	0.0028
-20	1.85	0.0023
-10	2.76	0.0034
0	1.46	0.0018
10	1.52	0.0019
20	2.86	0.0035
30	2.24	0.0027
40	2	0.0024
50	2.67	0.0033
60	2.37	0.0029
70	2.44	0.0030

## LTE-Band 26(Part 90) 823.8MHz

## Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.10	0.0025
3.70	2.02	0.0025
3.20	2.26	0.0027

## Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.96	0.0036
-20	2.56	0.0031
-10	2.60	0.0032
0	2.24	0.0027
10	3.39	0.0041
20	3.06	0.0037
30	2.36	0.0029
40	2.58	0.0031
50	2.13	0.0026
60	3.78	0.0046
70	3.41	0.0041

Product	Module		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 8 : LTE NB-IoT_Band 66		
Date of Test	2020/02/15	Test Site	SR12-H
Temperature (°C)	22.0	Temperature (°C)	59.0

LTE-Band 66 1710.2MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	1.51	0.0009
3.7	3	0.0018
3.2	2.59	0.0015

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2	0.0012
-20	3.2	0.0019
-10	2.46	0.0014
0	3.25	0.0019
10	2.43	0.0014
20	2.34	0.0014
30	3.03	0.0018
40	2.39	0.0014
50	2.41	0.0014
60	3.31	0.0019
70	2.87	0.0017

LTE-Band 66 1745MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.44	0.0014
3.7	3	0.0017
3.2	2.62	0.0015

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	2.49	0.0014
-20	2.83	0.0016
-10	1.77	0.0010
0	2.24	0.0013
10	2.79	0.0016
20	1.77	0.0010
30	1.53	0.0009
40	2	0.0011
50	1.61	0.0009
60	2.82	0.0016
70	2.45	0.0014

LTE-Band 66 1779.8MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.35	2.73	0.0015
3.7	3	0.0017
3.2	2.65	0.0015

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-30	3.46	0.0019
-20	2.02	0.0011
-10	2.51	0.0014
0	1.95	0.0011
10	1.92	0.0011
20	2.32	0.0013
30	2.18	0.0012
40	2.16	0.0012
50	2.6	0.0015
60	2.26	0.0013
70	2.54	0.0014