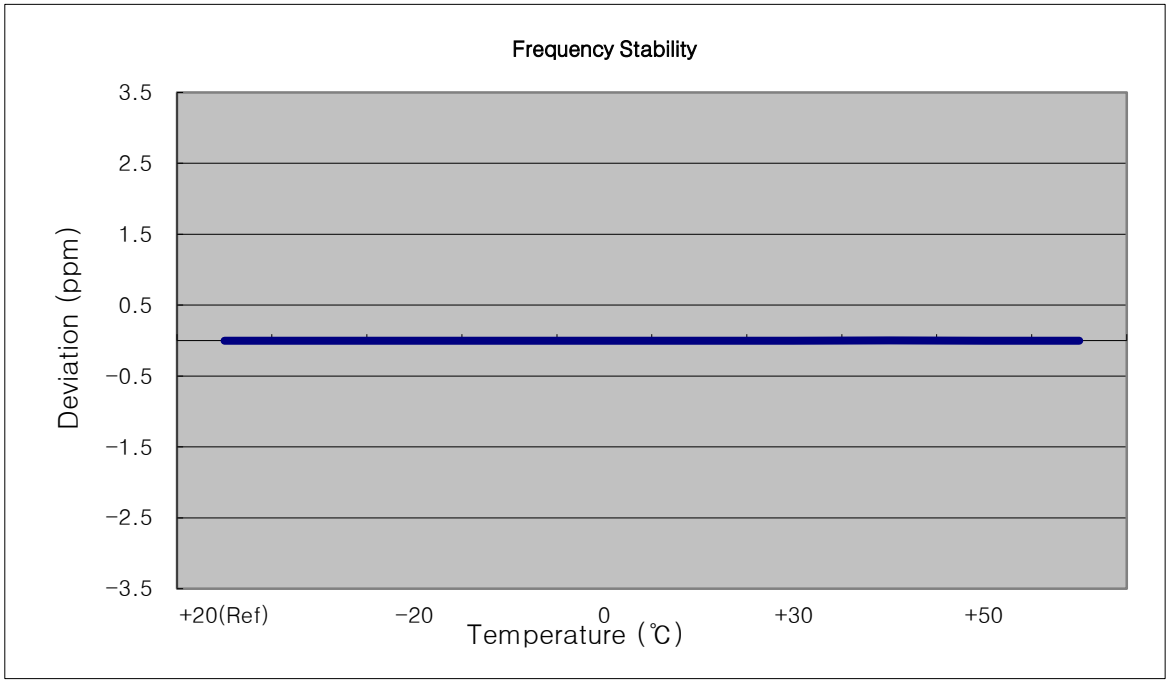
7.16 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

7.16.1 FREQUENCY STABILITY (1.4 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (1.4 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

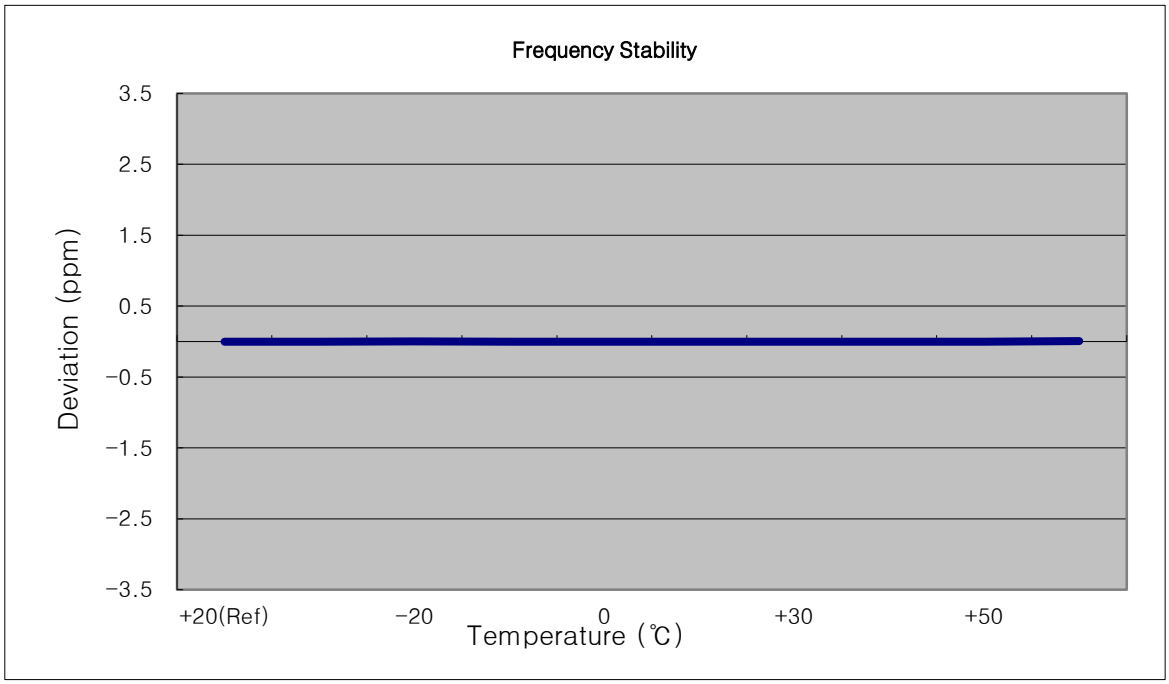
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1880 000 007	0	0.000 000	0.000
100%		-30	1880 000 004	-2.80	0.000 000	-0.001
100%		-20	1880 000 000	-7.20	0.000 000	-0.004
100%		-10	1880 000 002	-5.00	0.000 000	-0.003
100%		0	1880 000 003	-3.90	0.000 000	-0.002
100%		+10	1880 000 002	-5.20	0.000 000	-0.003
100%		+30	1880 000 001	-6.70	0.000 000	-0.004
100%		+40	1880 000 013	6.00	0.000 000	0.003
100%		+50	1880 000 001	-6.50	0.000 000	-0.003
Batt. Endpoint	3.27	+20	1880 000 003	-3.80	0.000 000	-0.002



7.16.2 FREQUENCY STABILITY (3 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (3 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

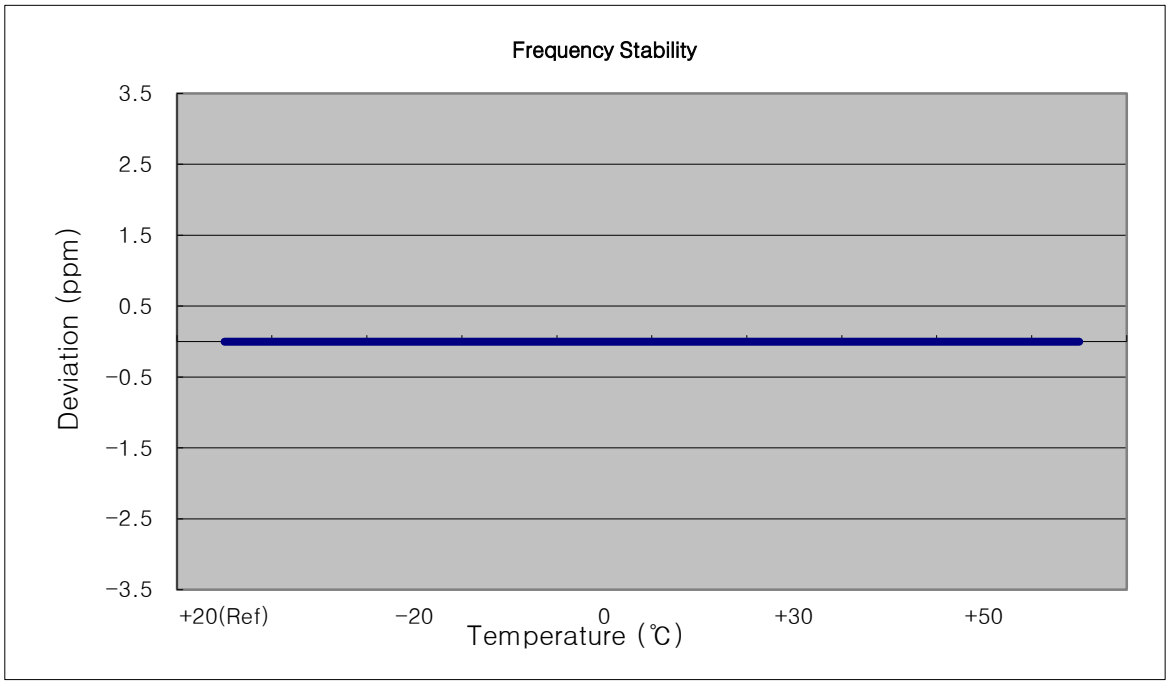
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1880 000 009	0	0.000 000	0.000
100%		-30	1880 000 002	-7.00	0.000 000	-0.004
100%		-20	1880 000 014	4.80	0.000 000	0.003
100%		-10	1880 000 002	-6.90	0.000 000	-0.004
100%		0	1880 000 005	-3.70	0.000 000	-0.002
100%		+10	1880 000 002	-7.10	0.000 000	-0.004
100%		+30	1880 000 003	-6.00	0.000 000	-0.003
100%		+40	1880 000 003	-6.60	0.000 000	-0.004
100%		+50	1880 000 001	-7.70	0.000 000	-0.004
Batt. Endpoint	3.27	+20	1880 000 018	9.00	0.000 000	0.005



7.16.3 FREQUENCY STABILITY (5 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (5 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

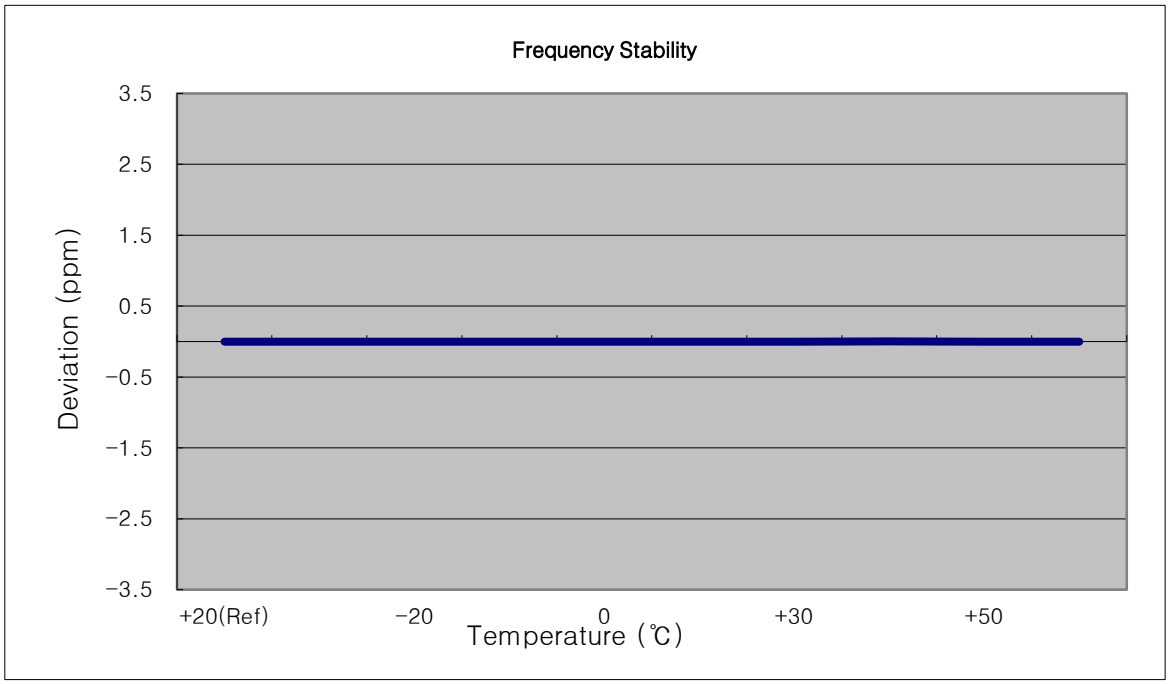
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1880 000 004	0	0.000 000	0.000
100%		-30	1879 999 997	-6.70	0.000 000	-0.004
100%		-20	1879 999 996	-7.90	0.000 000	-0.004
100%		-10	1879 999 999	-5.60	0.000 000	-0.003
100%		0	1880 000 000	-4.50	0.000 000	-0.002
100%		+10	1879 999 998	-5.80	0.000 000	-0.003
100%		+30	1879 999 999	-5.60	0.000 000	-0.003
100%		+40	1880 000 000	-3.80	0.000 000	-0.002
100%		+50	1879 999 999	-5.60	0.000 000	-0.003
Batt. Endpoint	3.27	+20	1879 999 999	-4.90	0.000 000	-0.003



7.16.4 FREQUENCY STABILITY (10 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (10 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

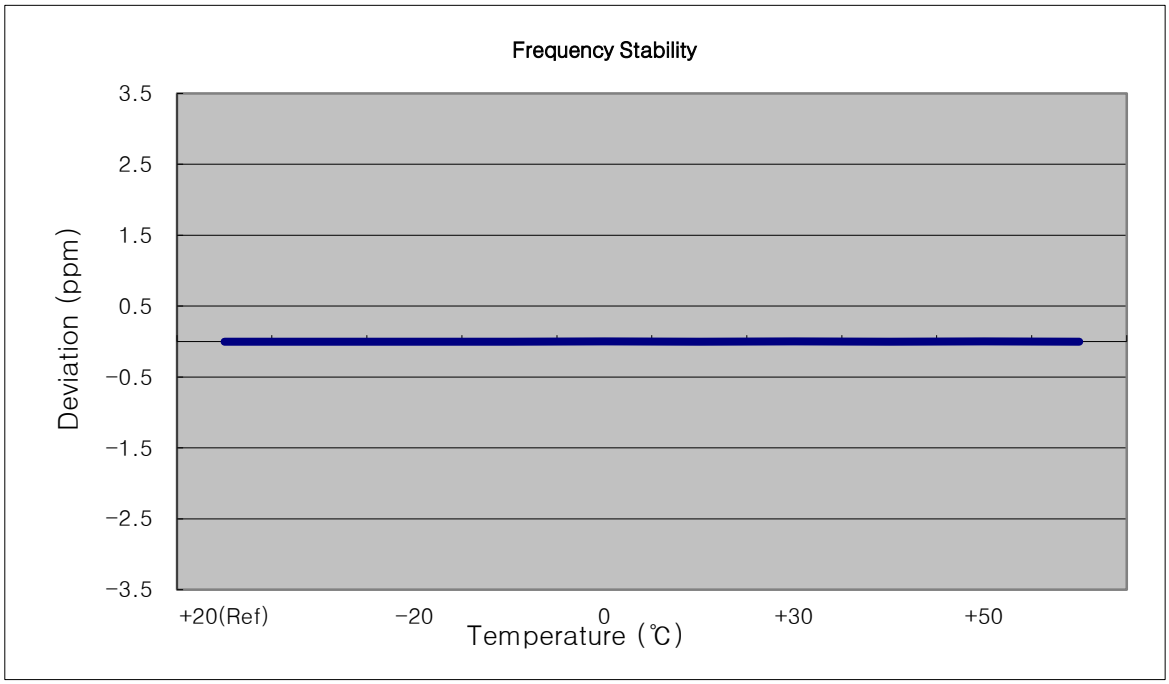
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1880 000 005	0	0.000 000	0.000
100%		-30	1880 000 003	-2.50	0.000 000	-0.001
100%		-20	1880 000 001	-4.10	0.000 000	-0.002
100%		-10	1879 999 998	-7.20	0.000 000	-0.004
100%		0	1879 999 997	-8.20	0.000 000	-0.004
100%		+10	1880 000 001	-4.90	0.000 000	-0.003
100%		+30	1880 000 000	-5.50	0.000 000	-0.003
100%		+40	1880 000 013	7.40	0.000 000	0.004
100%		+50	1880 000 001	-4.90	0.000 000	-0.003
Batt. Endpoint	3.27	+20	1879 999 999	-6.10	0.000 000	-0.003



7.16.5 FREQUENCY STABILITY (15 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (15 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

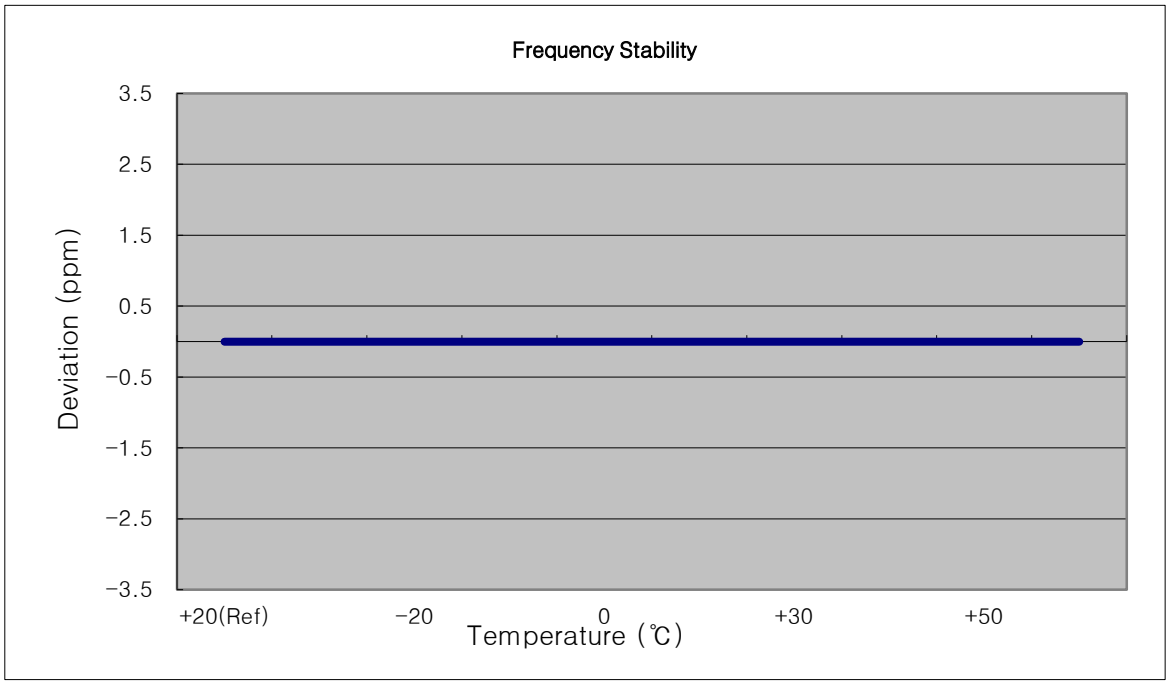
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1880 000 004	0	0.000 000	0.000
100%		-30	1879 999 996	-8.30	0.000 000	-0.004
100%		-20	1880 000 000	-4.60	0.000 000	-0.002
100%		-10	1879 999 998	-5.70	0.000 000	-0.003
100%		0	1880 000 010	5.60	0.000 000	0.003
100%		+10	1880 000 000	-4.30	0.000 000	-0.002
100%		+30	1880 000 007	3.30	0.000 000	0.002
100%		+40	1879 999 999	-4.70	0.000 000	-0.002
100%		+50	1880 000 009	4.60	0.000 000	0.002
Batt. Endpoint	3.27	+20	1879 999 997	-6.70	0.000 000	-0.004



7.16.6 FREQUENCY STABILITY (20 MHz Band 2 LTE)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 18900 (20 MHz)
- ▣ REFERENCE VOLTAGE: 3.85 VDC
- ▣ DEVIATION LIMIT: -

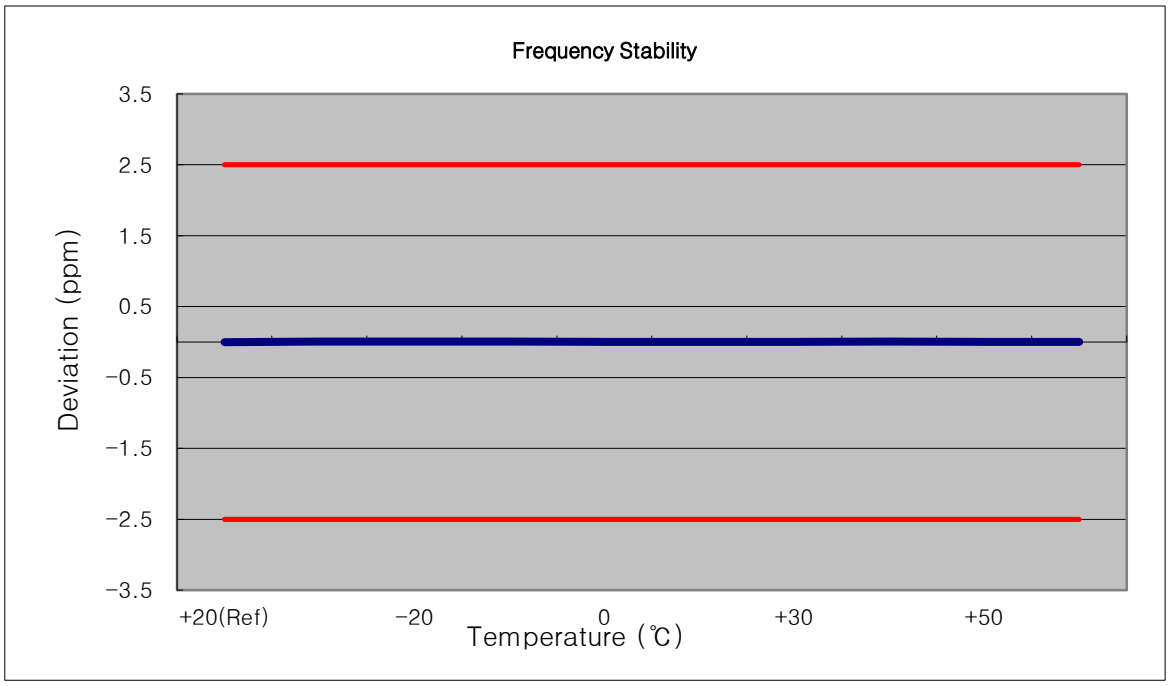
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	1879 999 995	0	0.000 000	0.000
100%		-30	1879 999 992	-3.50	0.000 000	-0.002
100%		-20	1879 999 991	-4.40	0.000 000	-0.002
100%		-10	1879 999 988	-6.80	0.000 000	-0.004
100%		0	1879 999 990	-5.40	0.000 000	-0.003
100%		+10	1879 999 990	-5.60	0.000 000	-0.003
100%		+30	1879 999 991	-4.40	0.000 000	-0.002
100%		+40	1879 999 990	-5.30	0.000 000	-0.003
100%		+50	1879 999 989	-6.00	0.000 000	-0.003
Batt. Endpoint	3.27	+20	1879 999 987	-8.00	0.000 000	-0.004



7.16.7 FREQUENCY STABILITY (1.4 MHz Band 5 LTE)

▣ OPERATING FREQUENCY: 836,500,000 Hz
▣ CHANNEL: 20525 (1.4 MHz)
▣ REFERENCE VOLTAGE: 3.85 VDC
▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

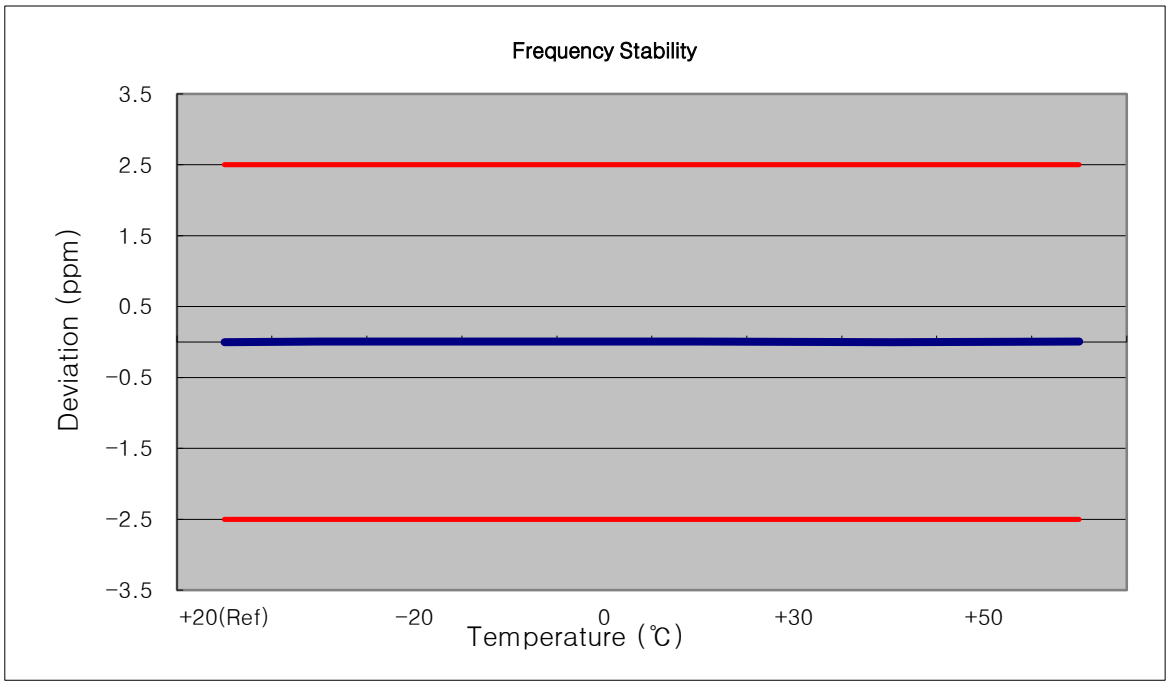
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	836 499 996	0	0.000 000	0.000
100%		-30	836 500 003	6.40	0.000 001	0.008
100%		-20	836 500 001	4.40	0.000 001	0.005
100%		-10	836 500 000	4.20	0.000 001	0.005
100%		0	836 499 999	2.50	0.000 000	0.003
100%		+10	836 499 998	1.50	0.000 000	0.002
100%		+30	836 499 999	2.60	0.000 000	0.003
100%		+40	836 500 003	6.60	0.000 001	0.008
100%		+50	836 499 998	2.20	0.000 000	0.003
Batt. Endpoint	3.27	+20	836 500 000	3.30	0.000 000	0.004



7.16.8 FREQUENCY STABILITY (3 MHz Band 5 LTE)

▣ OPERATING FREQUENCY: 836,500,000 Hz
▣ CHANNEL: 20525 (3 MHz)
▣ REFERENCE VOLTAGE: 3.85 VDC
▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

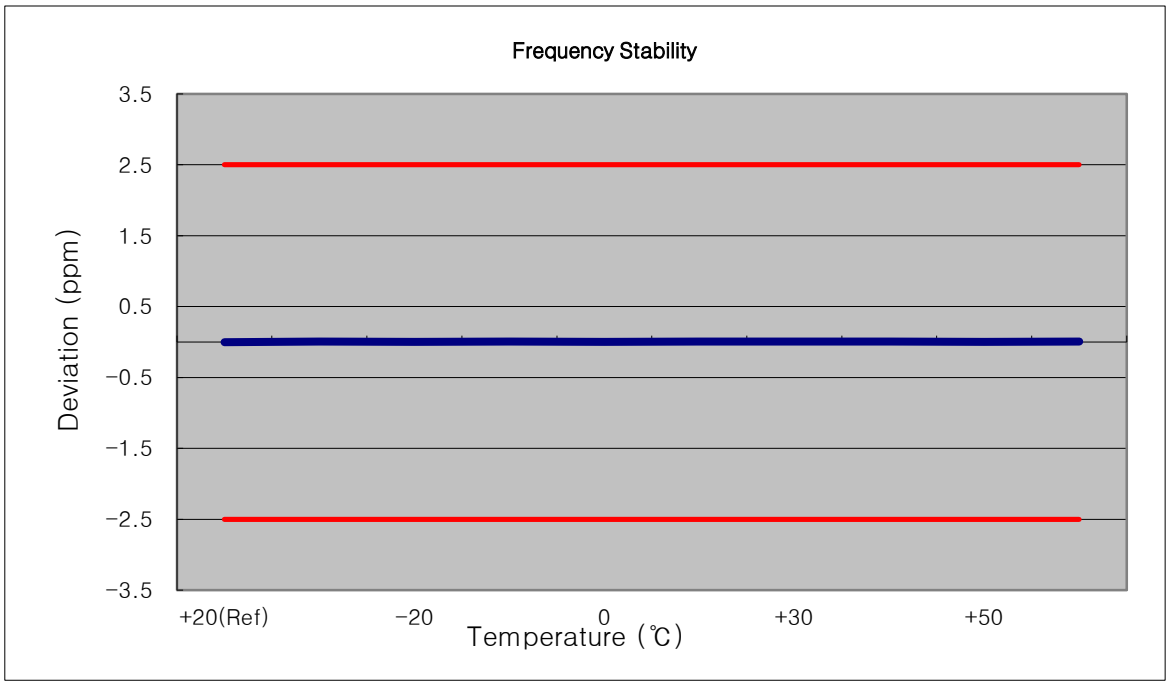
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	836 499 996	0	0.000 000	0.000
100%		-30	836 500 000	4.00	0.000 000	0.005
100%		-20	836 500 001	5.60	0.000 001	0.007
100%		-10	836 500 000	4.50	0.000 001	0.005
100%		0	836 500 000	3.80	0.000 000	0.005
100%		+10	836 500 002	6.00	0.000 001	0.007
100%		+30	836 500 000	3.70	0.000 000	0.004
100%		+40	836 499 994	-2.30	0.000 000	-0.003
100%		+50	836 499 999	3.40	0.000 000	0.004
Batt. Endpoint	3.27	+20	836 500 001	5.60	0.000 001	0.007



7.16.9 FREQUENCY STABILITY (5 MHz Band 5 LTE)

▣ OPERATING FREQUENCY: 836,500,000 Hz
▣ CHANNEL: 20525 (5 MHz)
▣ REFERENCE VOLTAGE: 3.85 VDC
▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

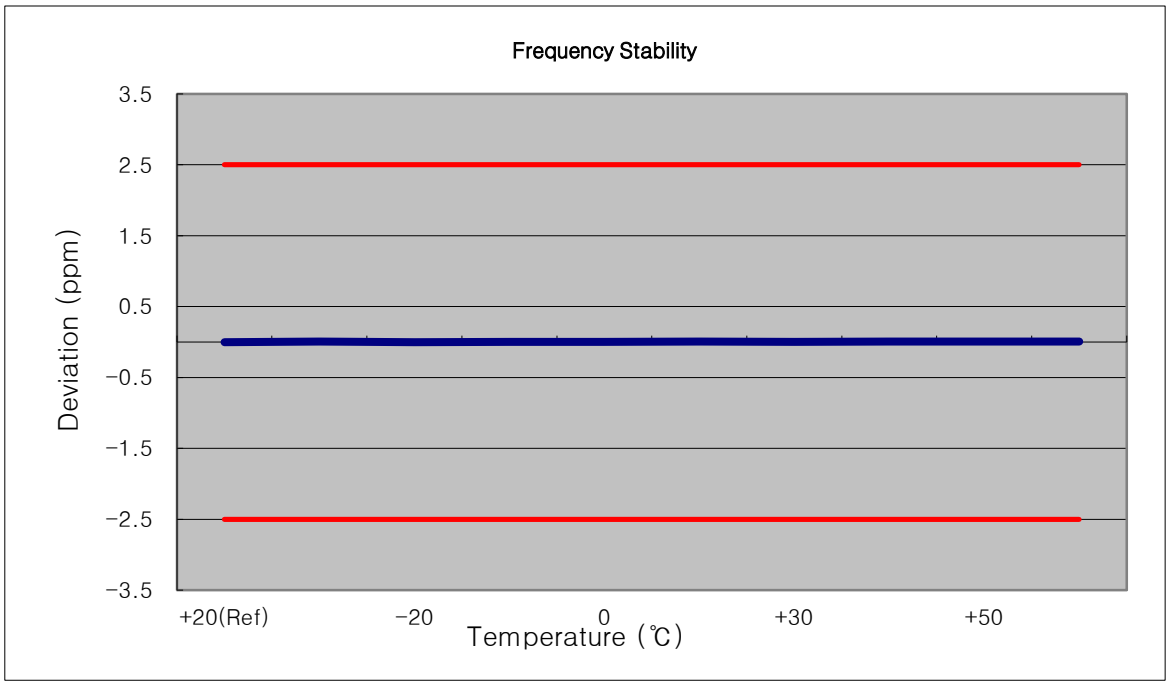
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	836 499 996	0	0.000 000	0.000
100%		-30	836 500 001	5.50	0.000 001	0.007
100%		-20	836 499 999	3.60	0.000 000	0.004
100%		-10	836 500 003	7.40	0.000 001	0.009
100%		0	836 499 999	3.40	0.000 000	0.004
100%		+10	836 500 000	4.60	0.000 001	0.005
100%		+30	836 500 001	4.90	0.000 001	0.006
100%		+40	836 500 000	4.20	0.000 001	0.005
100%		+50	836 499 999	3.60	0.000 000	0.004
Batt. Endpoint	3.27	+20	836 500 001	5.10	0.000 001	0.006



7.16.10 FREQUENCY STABILITY (10 MHz Band 5 LTE)

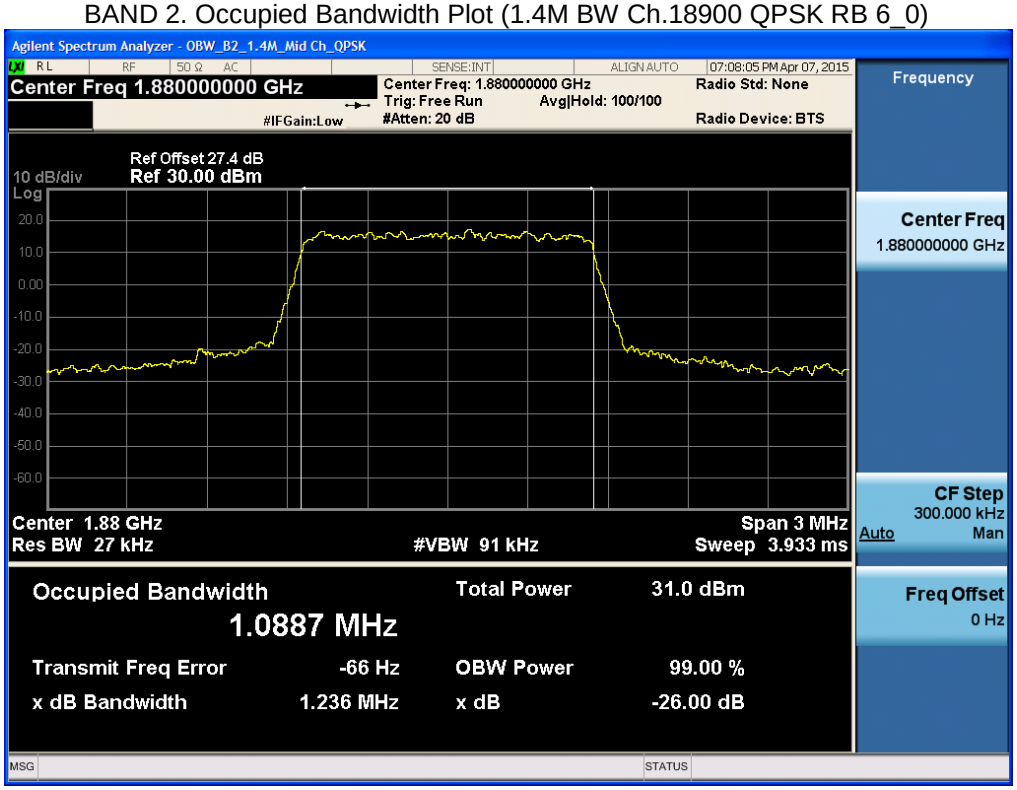
▣ OPERATING FREQUENCY: 836,500,000 Hz
▣ CHANNEL: 20525 (10 MHz)
▣ REFERENCE VOLTAGE: 3.85 VDC
▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.85	+20(Ref)	836 499 997	0	0.000 000	0.000
100%		-30	836 500 003	6.20	0.000 001	0.007
100%		-20	836 499 994	-2.30	0.000 000	-0.003
100%		-10	836 500 000	3.60	0.000 000	0.004
100%		0	836 500 000	3.40	0.000 000	0.004
100%		+10	836 500 001	4.10	0.000 000	0.005
100%		+30	836 500 000	3.40	0.000 000	0.004
100%		+40	836 500 002	5.30	0.000 001	0.006
100%		+50	836 500 001	4.40	0.000 001	0.005
Batt. Endpoint	3.27	+20	836 500 001	4.20	0.000 001	0.005

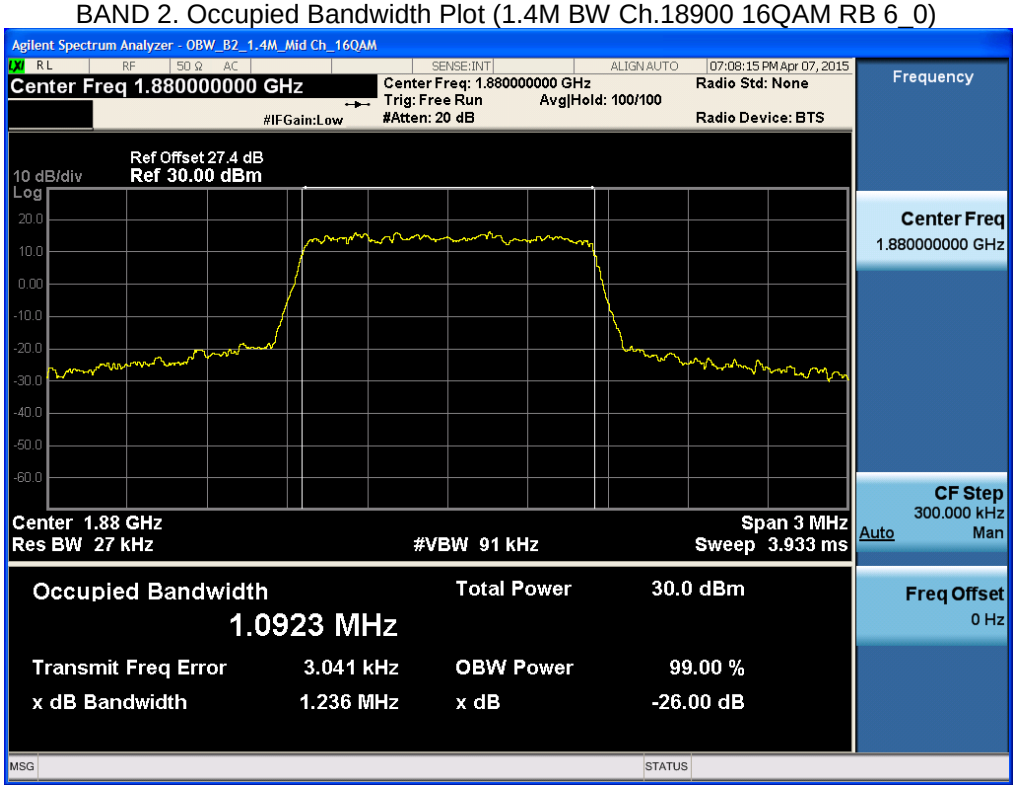


8. TEST PLOTS

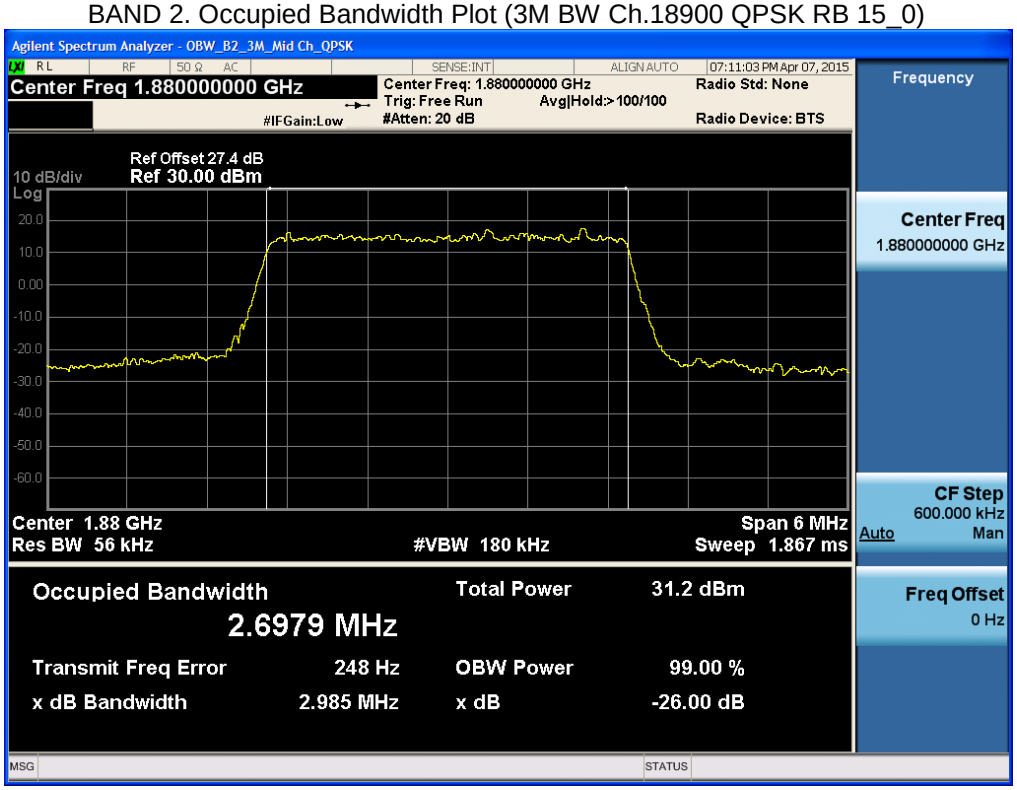
BAND 2. Occupied Bandwidth Plot (1.4M BW Ch.18900 QPSK RB 6_0)



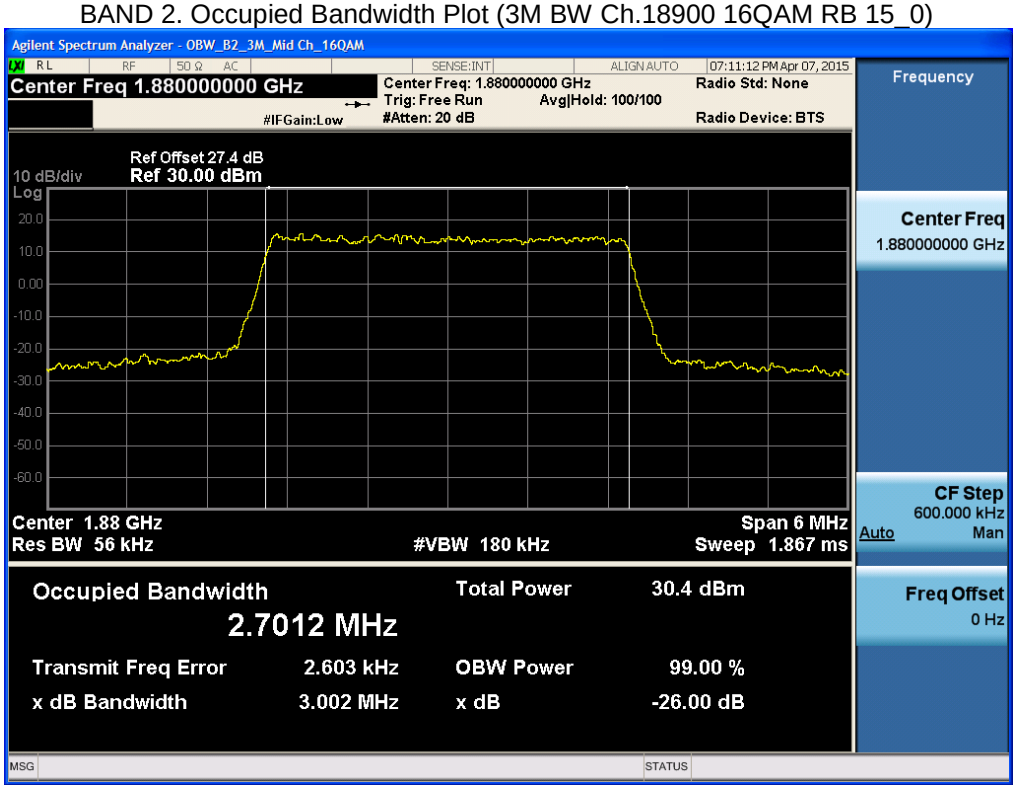
BAND 2. Occupied Bandwidth Plot (1.4M BW Ch.18900 16QAM RB 6_0)



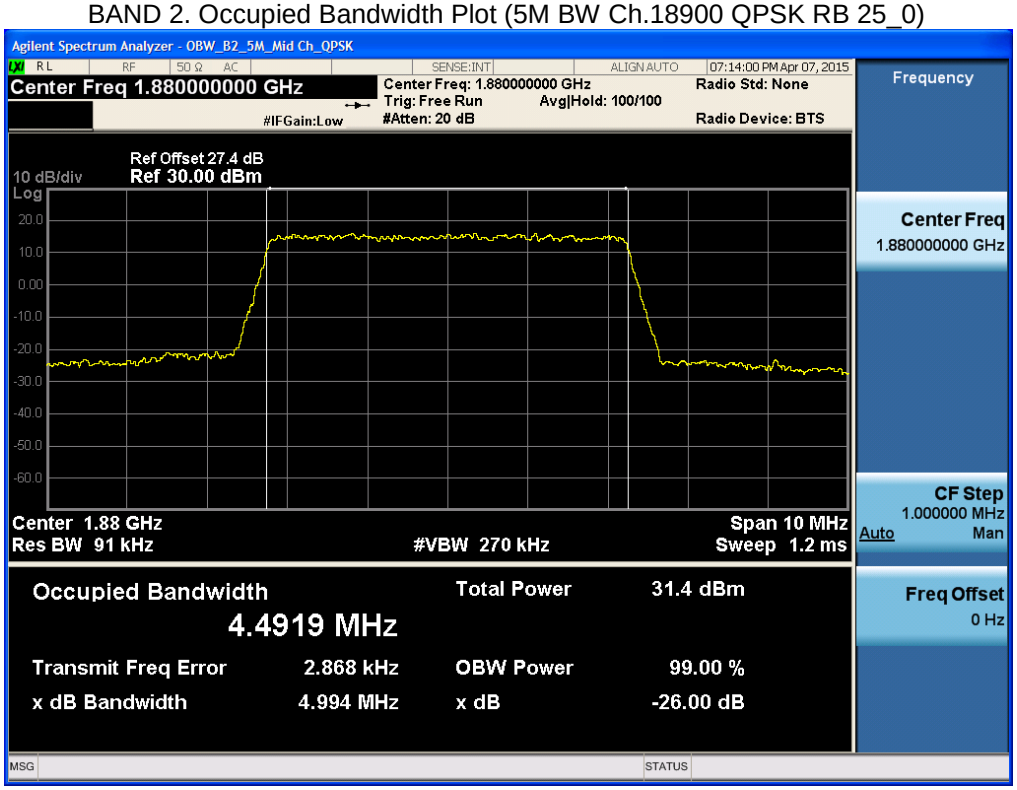
BAND 2. Occupied Bandwidth Plot (3M BW Ch.18900 QPSK RB 15_0)



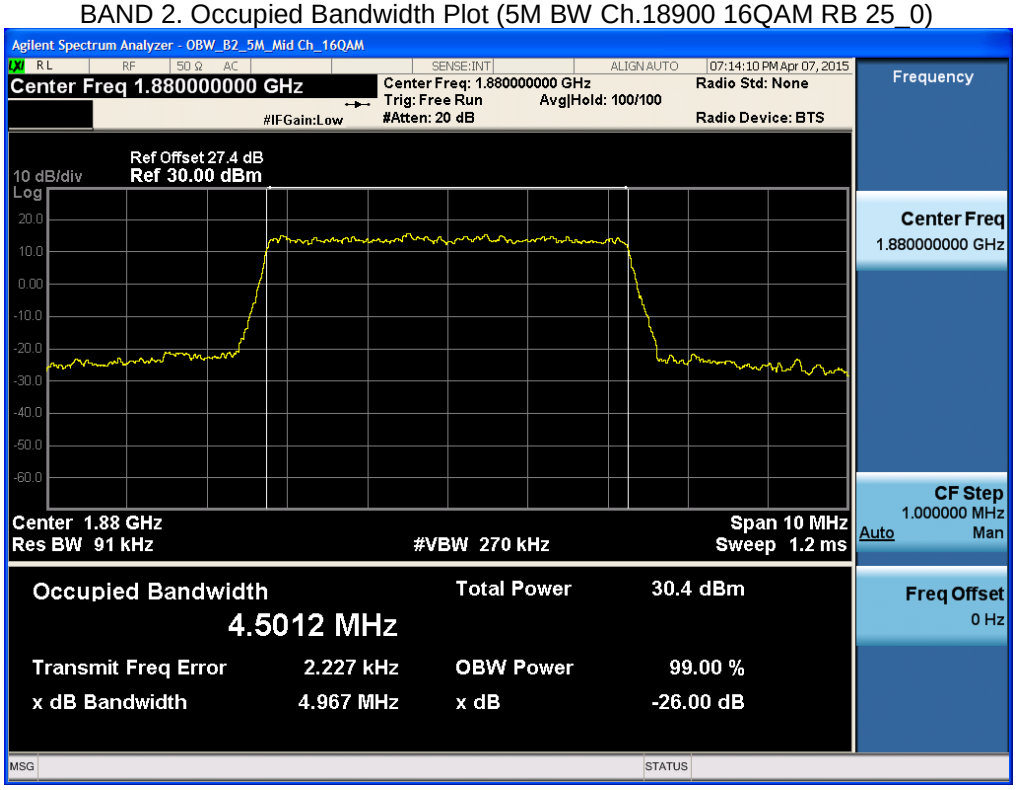
BAND 2. Occupied Bandwidth Plot (3M BW Ch.18900 16QAM RB 15_0)



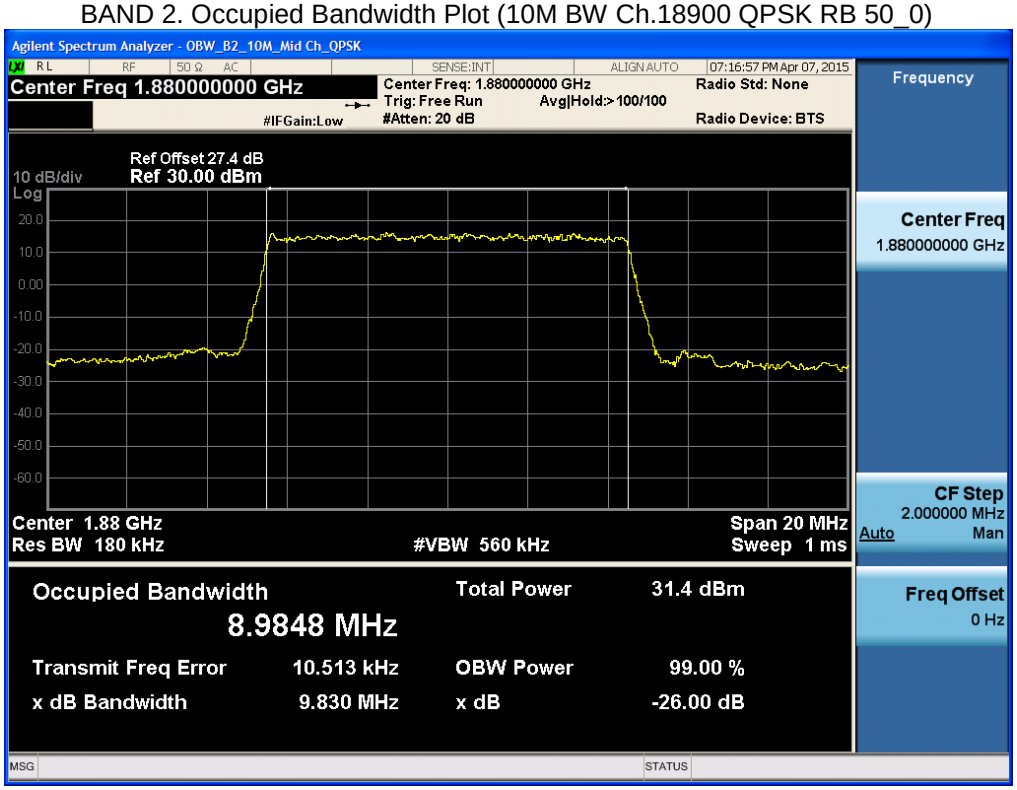
BAND 2. Occupied Bandwidth Plot (5M BW Ch.18900 QPSK RB 25_0)



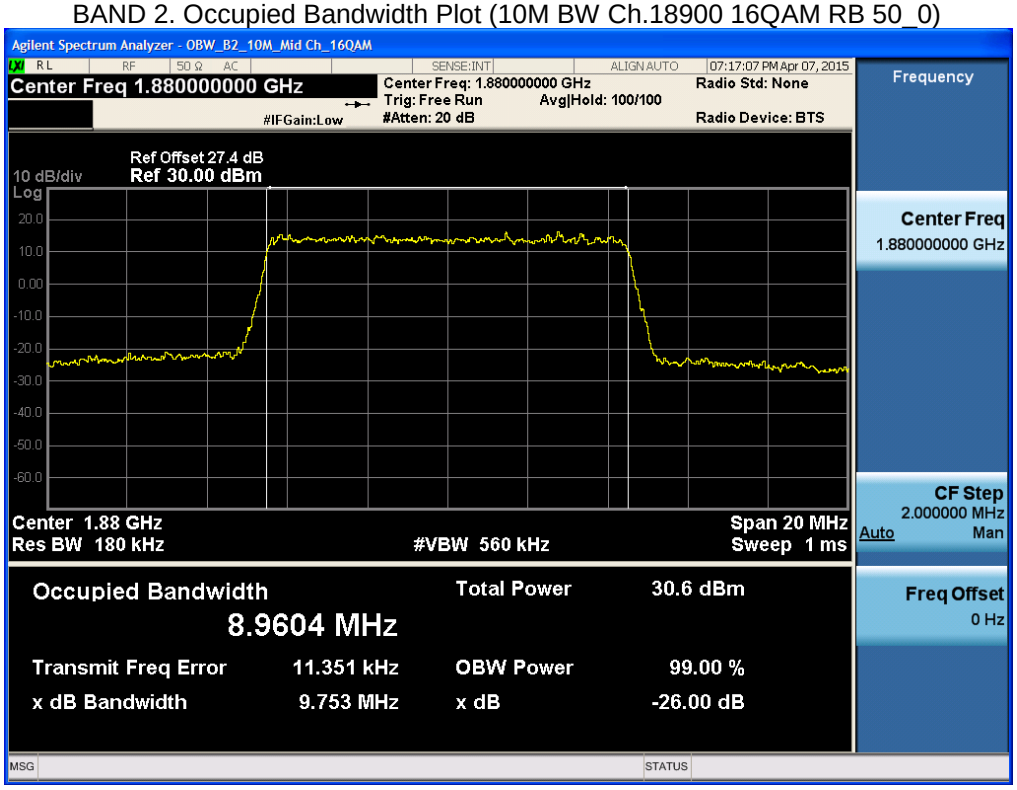
BAND 2. Occupied Bandwidth Plot (5M BW Ch.18900 16QAM RB 25_0)



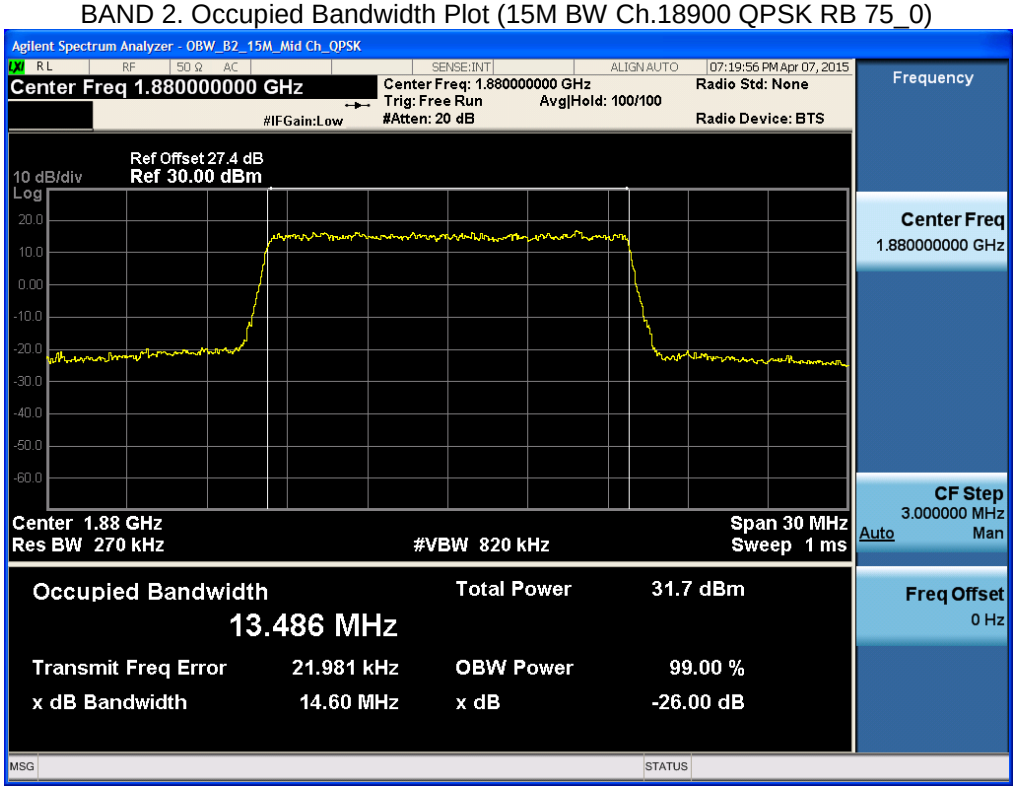
BAND 2. Occupied Bandwidth Plot (10M BW Ch.18900 QPSK RB 50_0)



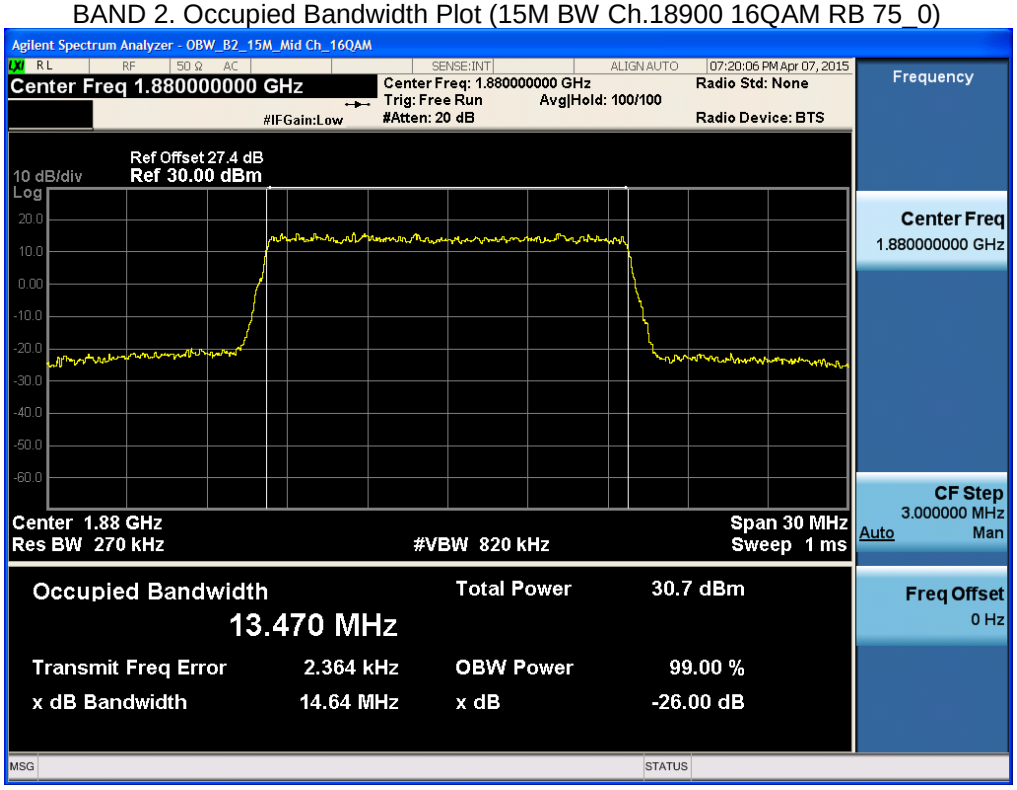
BAND 2. Occupied Bandwidth Plot (10M BW Ch.18900 16QAM RB 50_0)



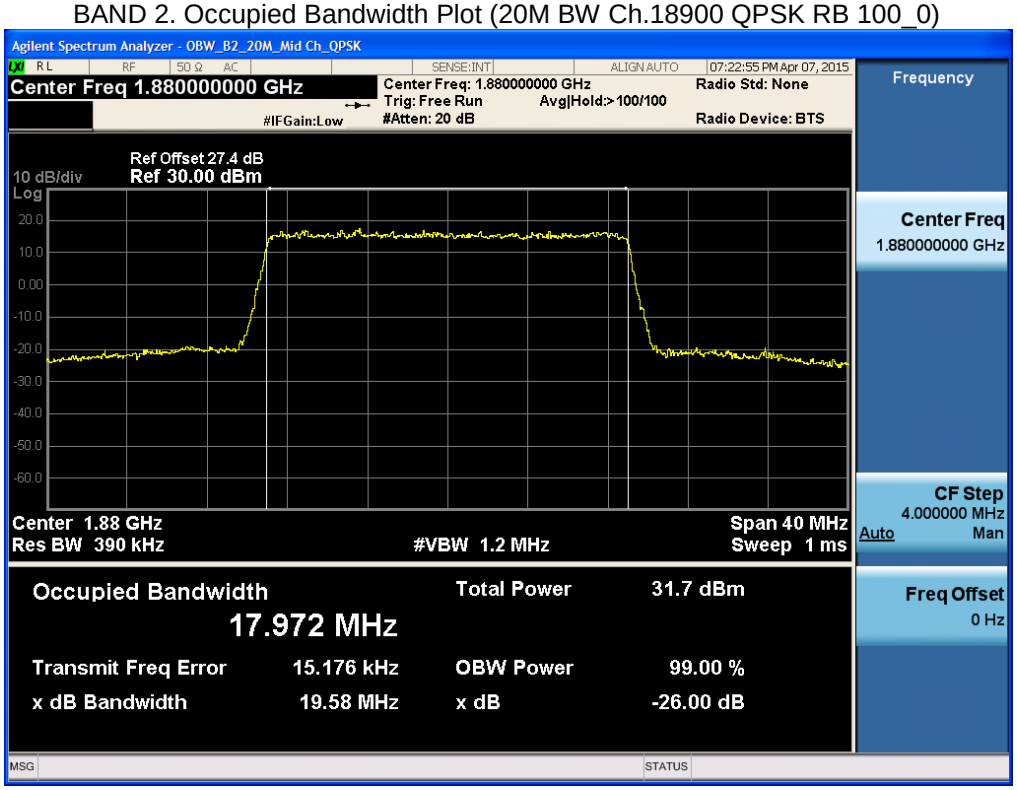
BAND 2. Occupied Bandwidth Plot (15M BW Ch.18900 QPSK RB 75_0)



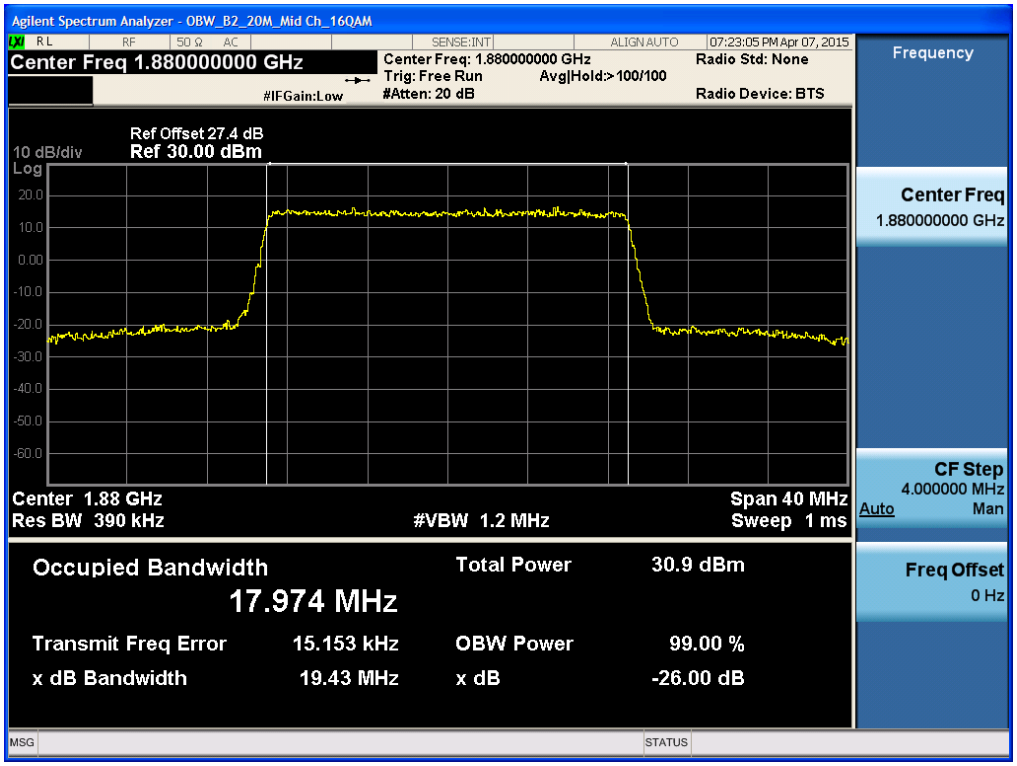
BAND 2. Occupied Bandwidth Plot (15M BW Ch.18900 16QAM RB 75_0)



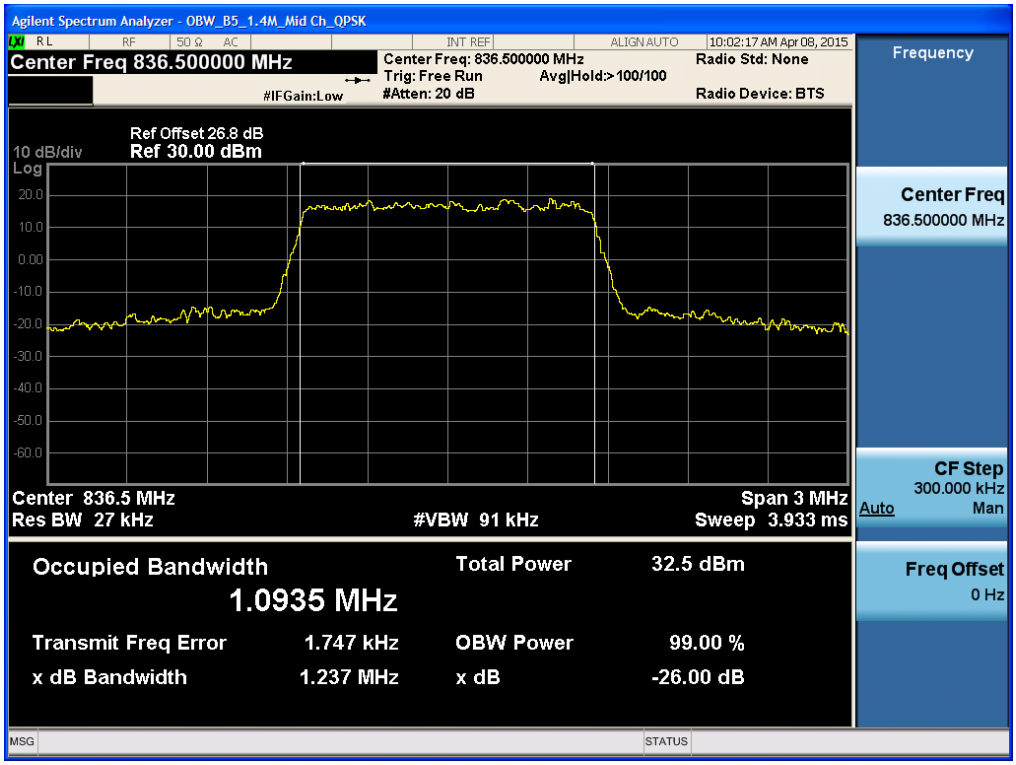
BAND 2. Occupied Bandwidth Plot (20M BW Ch.18900 QPSK RB 100_0)



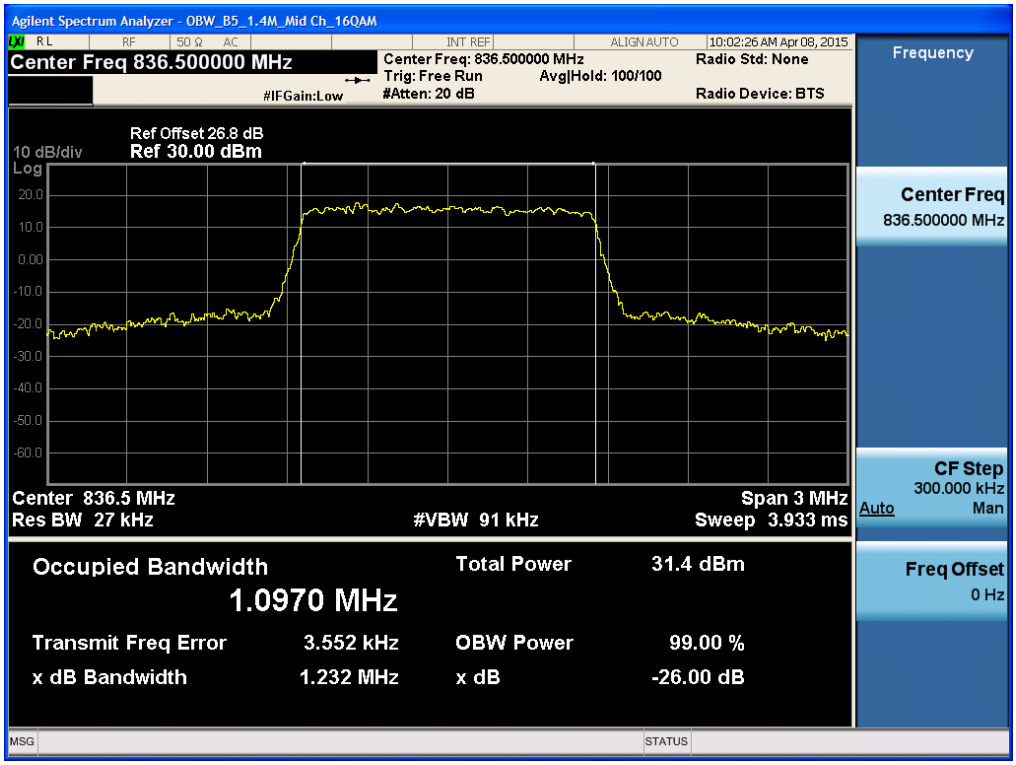
BAND 2. Occupied Bandwidth Plot (20M BW Ch.18900 16QAM RB 100_0)



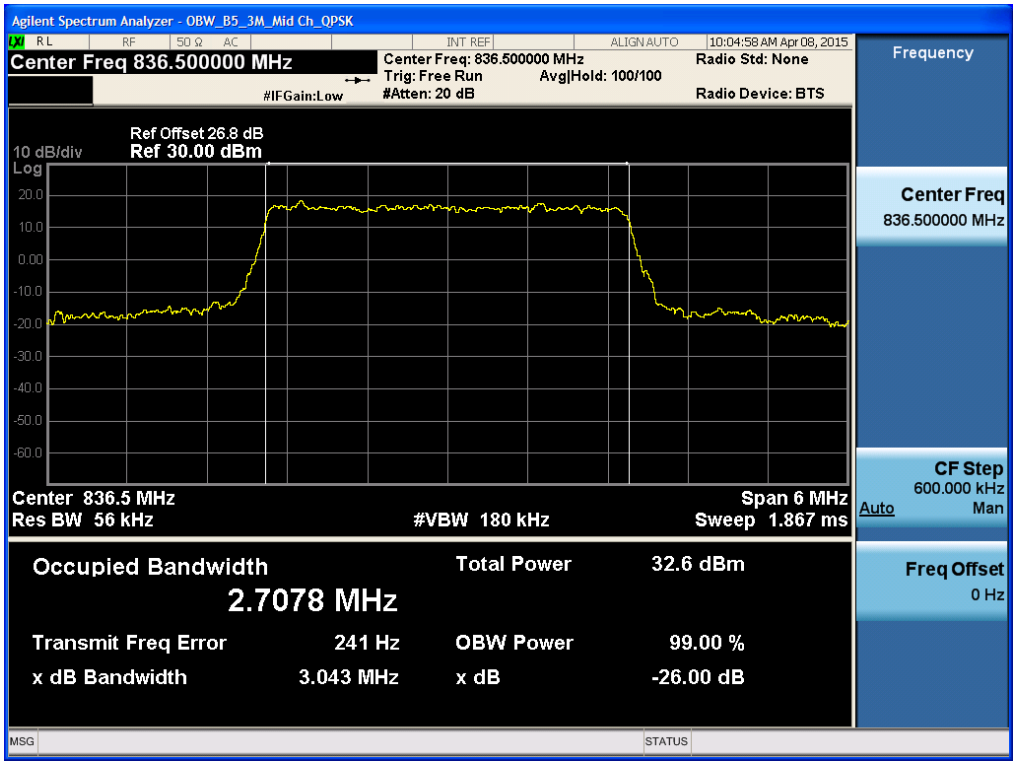
BAND 5. Occupied Bandwidth Plot (1.4M BW Ch.20525 QPSK_RB6_0)



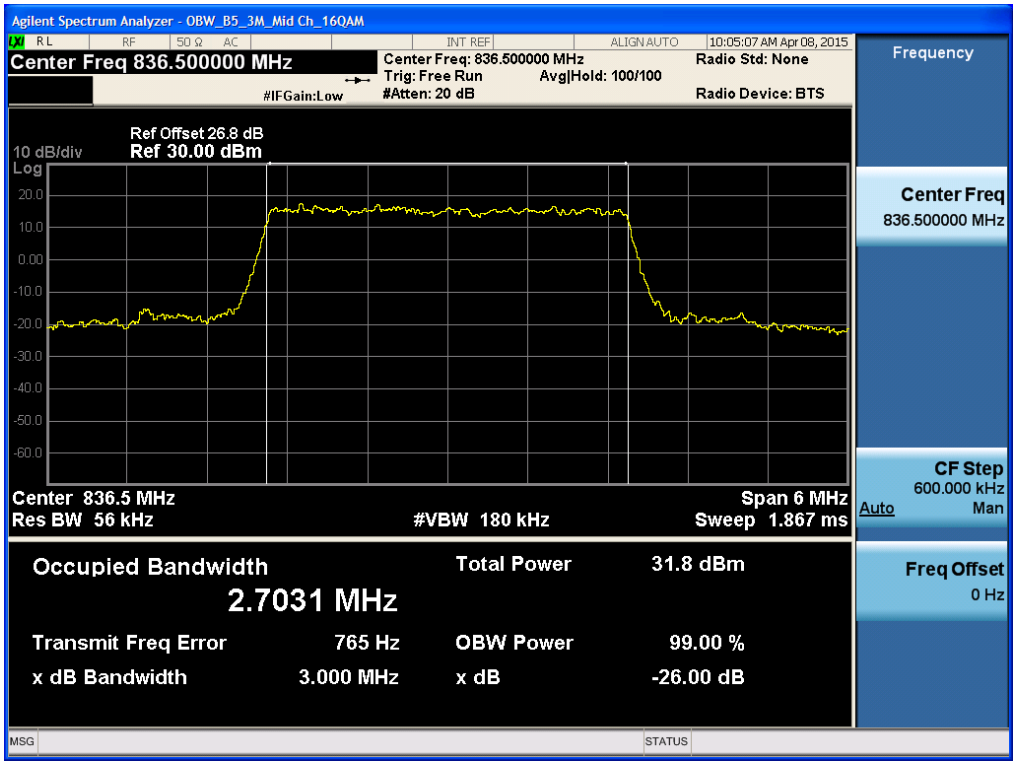
BAND 5. Occupied Bandwidth Plot (1.4M BW Ch.20525 16QAM_RB6_0)



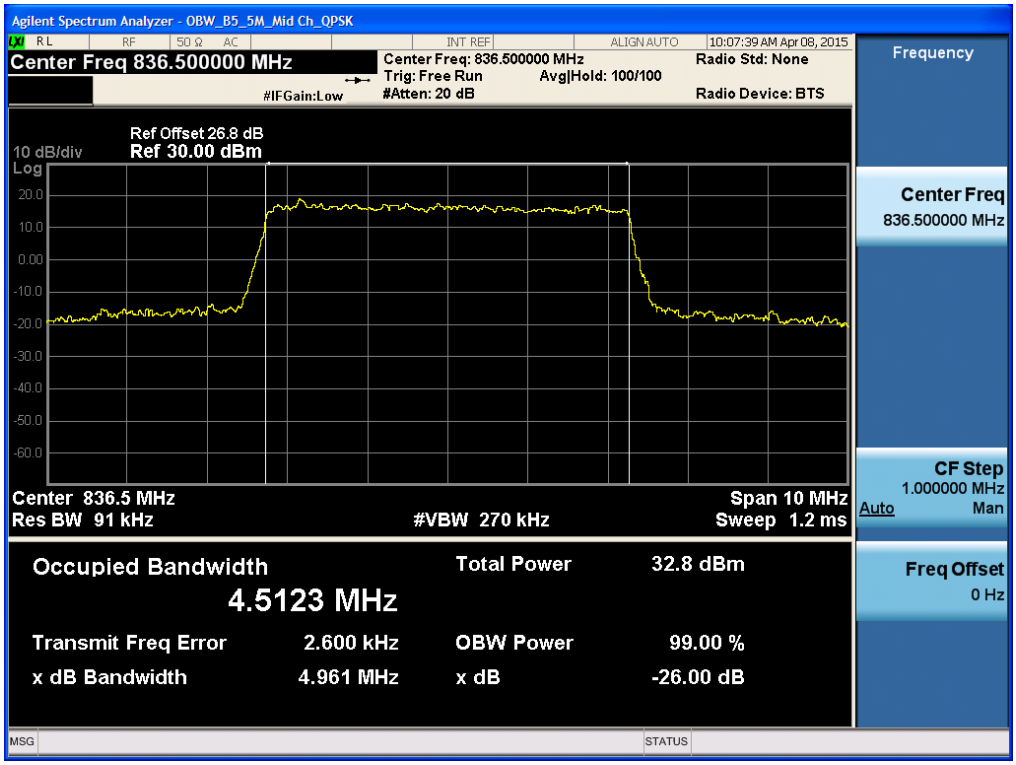
BAND 5. Occupied Bandwidth Plot (3M BW Ch.20525 QPSK_RB15_0)



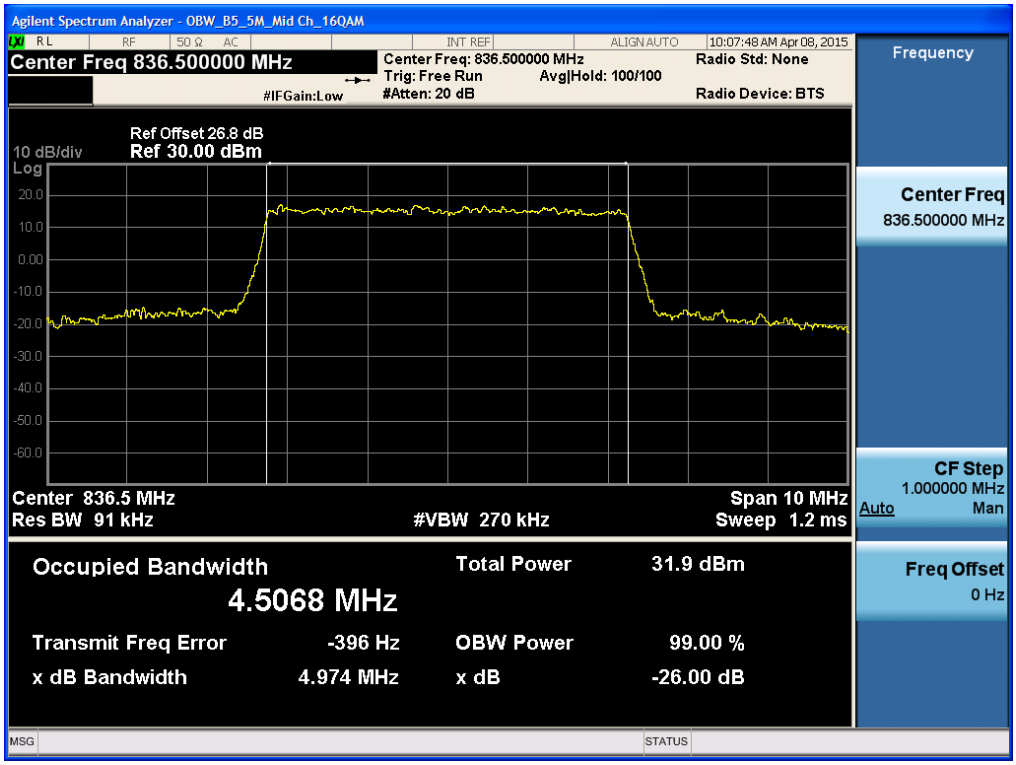
BAND 5. Occupied Bandwidth Plot (3M BW Ch.20525 16QAM_RB15_0)



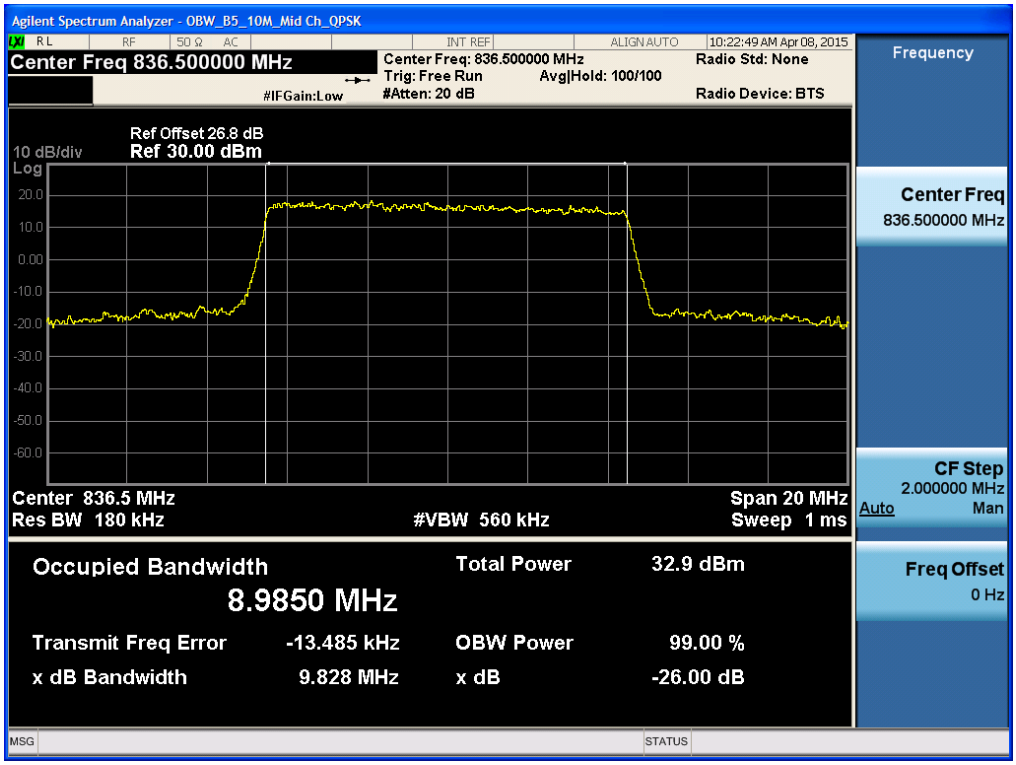
BAND 5. Occupied Bandwidth Plot (5M BW Ch.20525 QPSK_RB25_0)



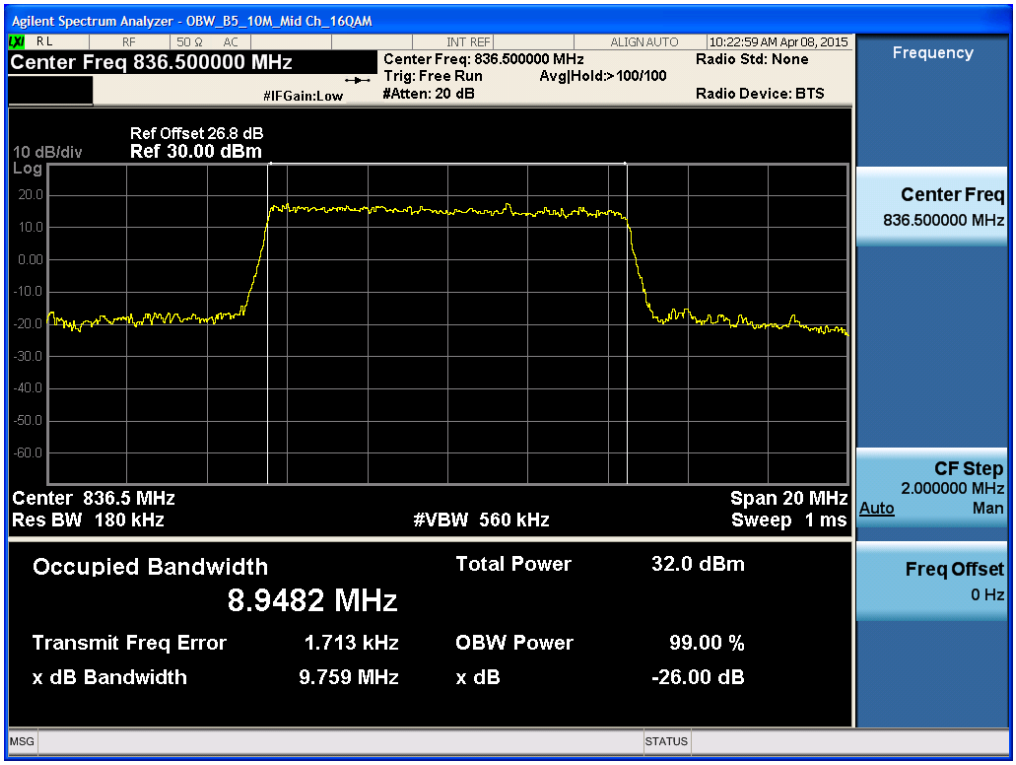
BAND 5. Occupied Bandwidth Plot (5M BW Ch.20525 16QAM_RB25_0)



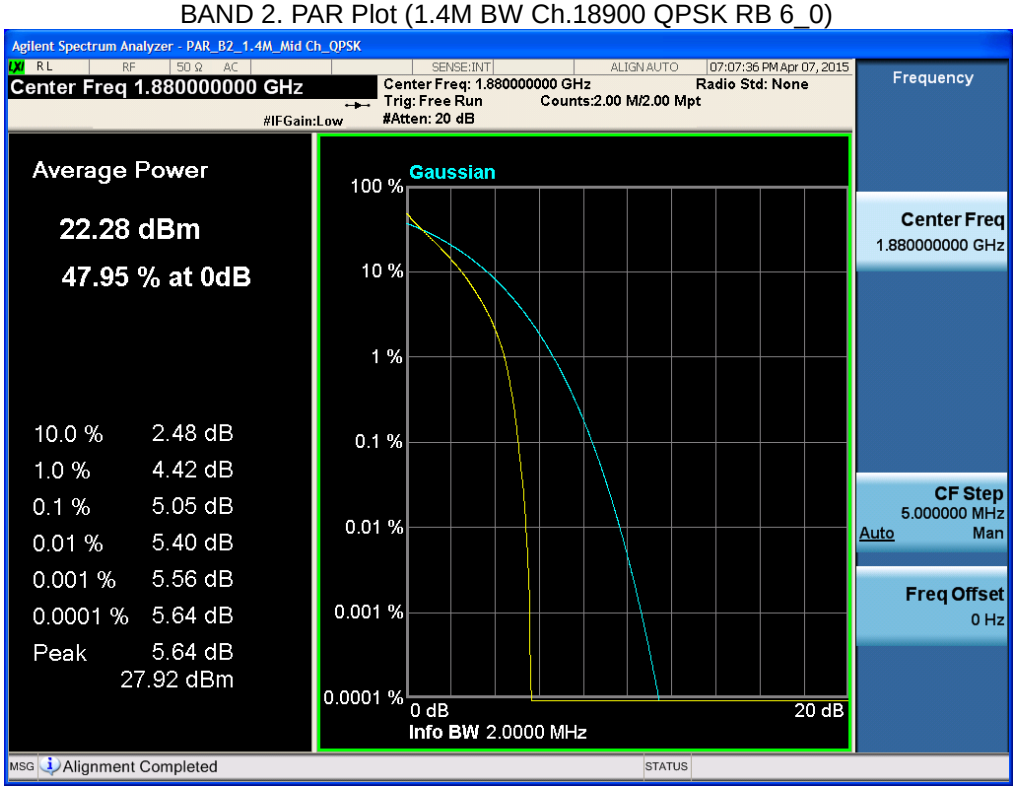
BAND 5. Occupied Bandwidth Plot (10M BW Ch.20525 QPSK_RB50_0)



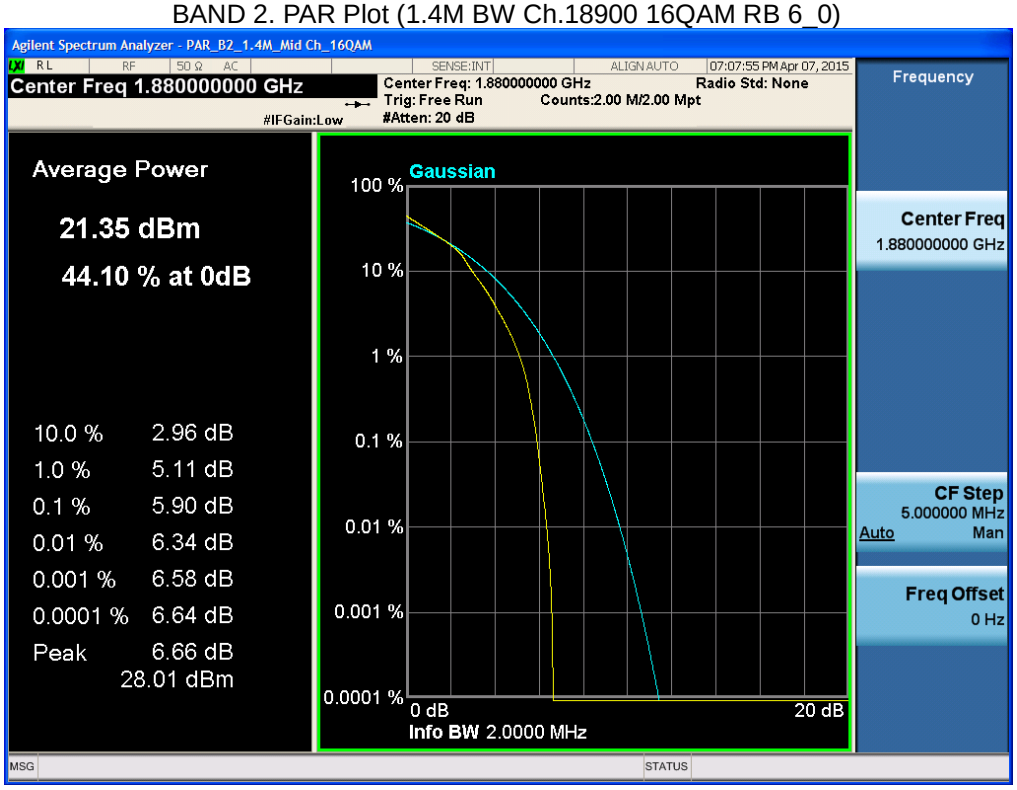
BAND 5. Occupied Bandwidth Plot (10M BW Ch.20525 16QAM_RB50_0)



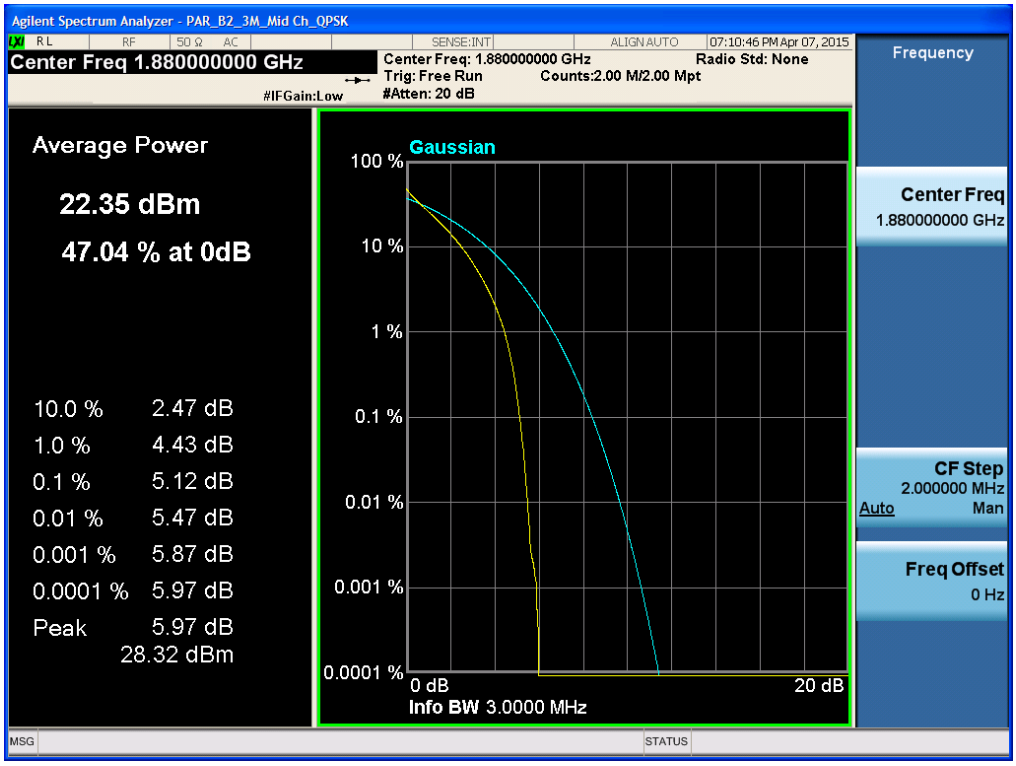
BAND 2. PAR Plot (1.4M BW Ch.18900 QPSK RB 6_0)



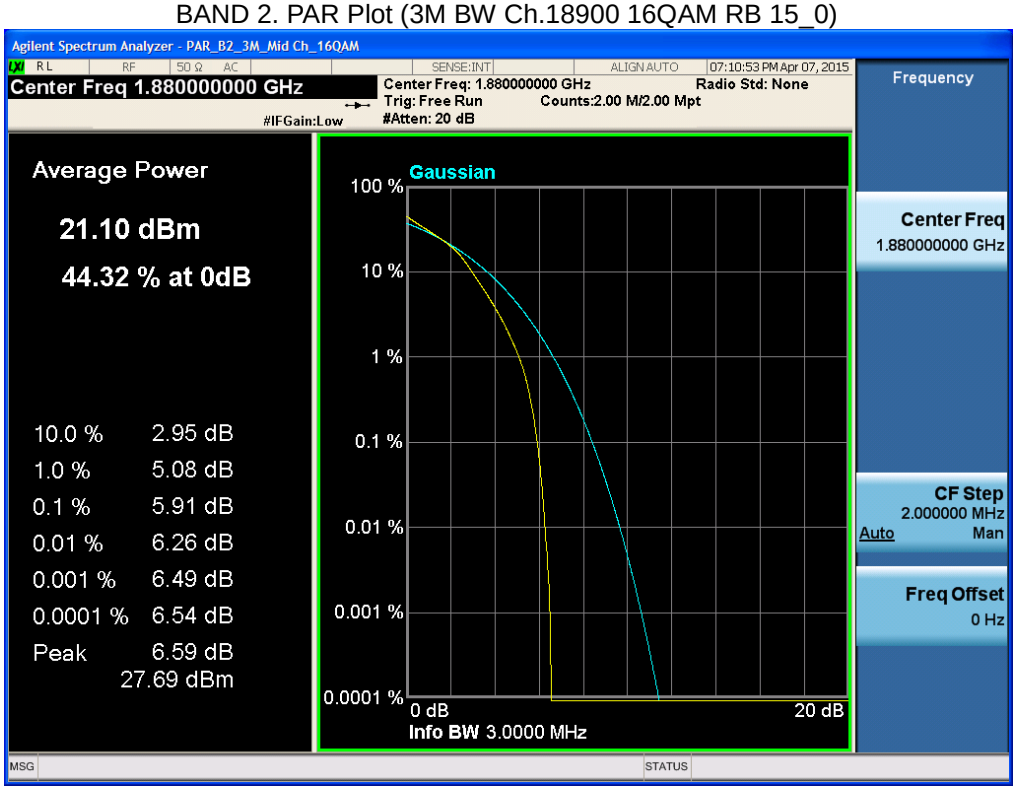
BAND 2. PAR Plot (1.4M BW Ch.18900 16QAM RB 6_0)



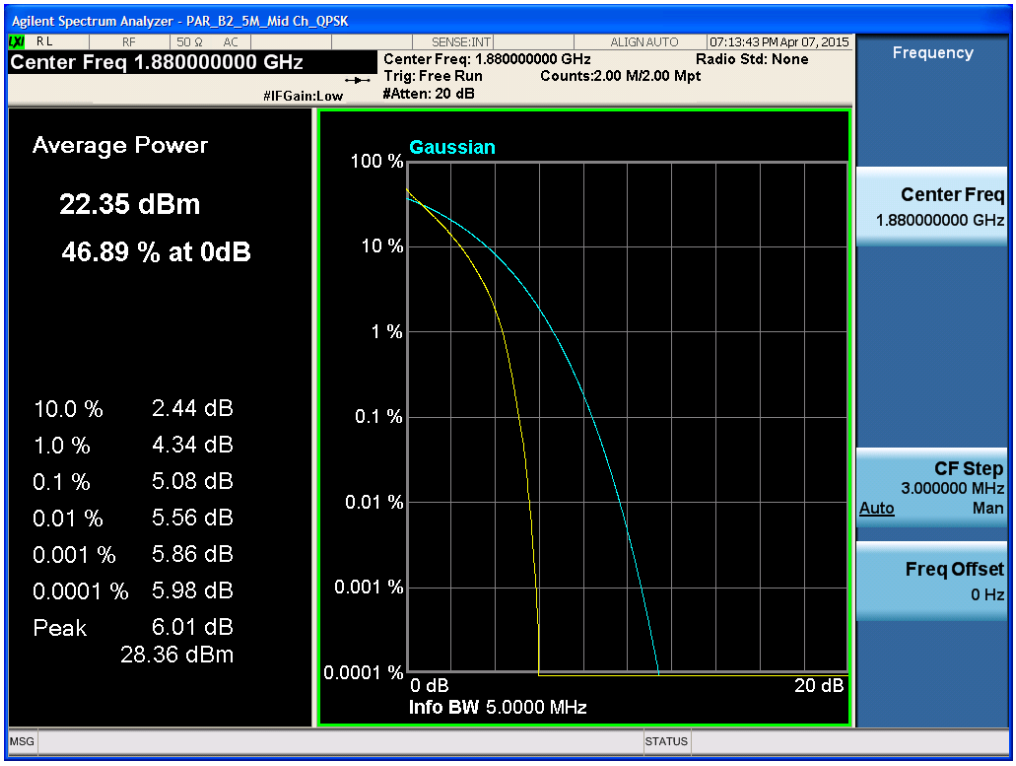
BAND 2. PAR Plot (3M BW Ch.18900 QPSK RB 15_0)



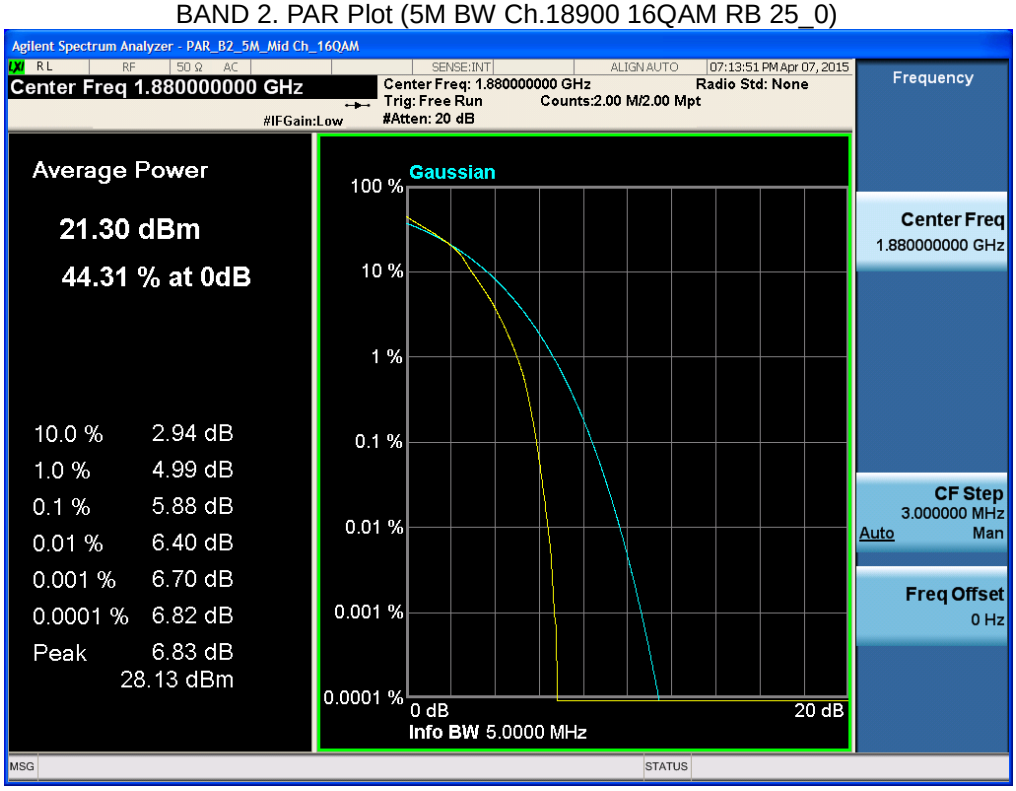
BAND 2. PAR Plot (3M BW Ch.18900 16QAM RB 15_0)



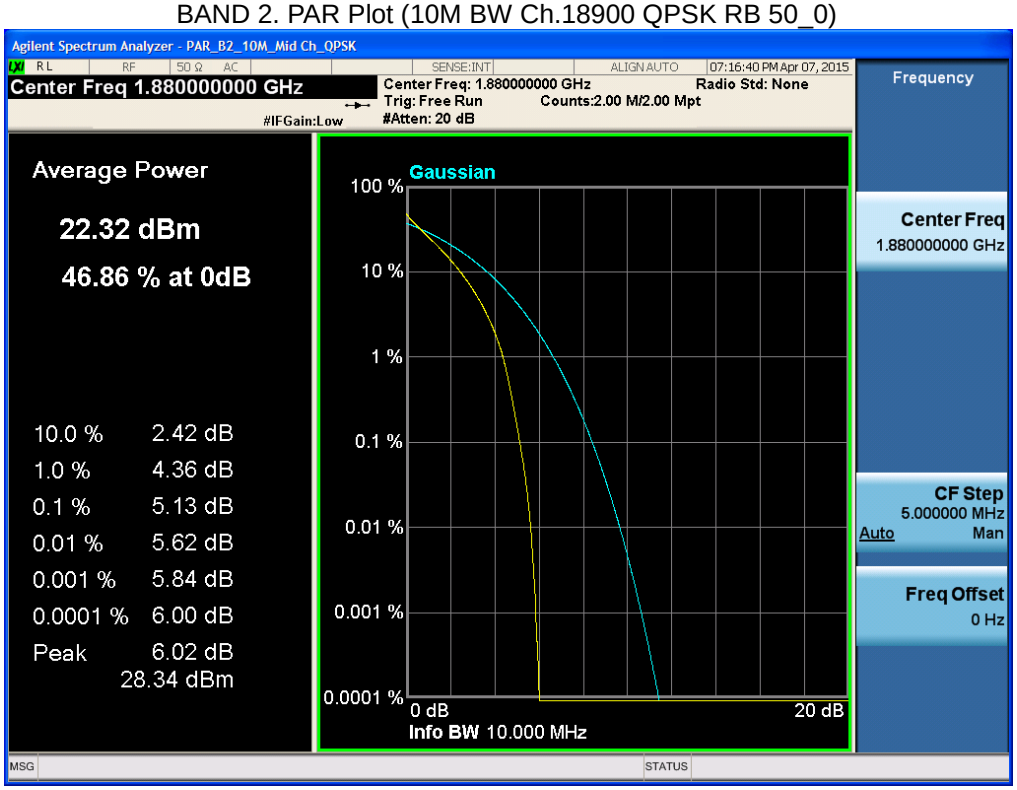
BAND 2. PAR Plot (5M BW Ch.18900 QPSK RB 25_0)



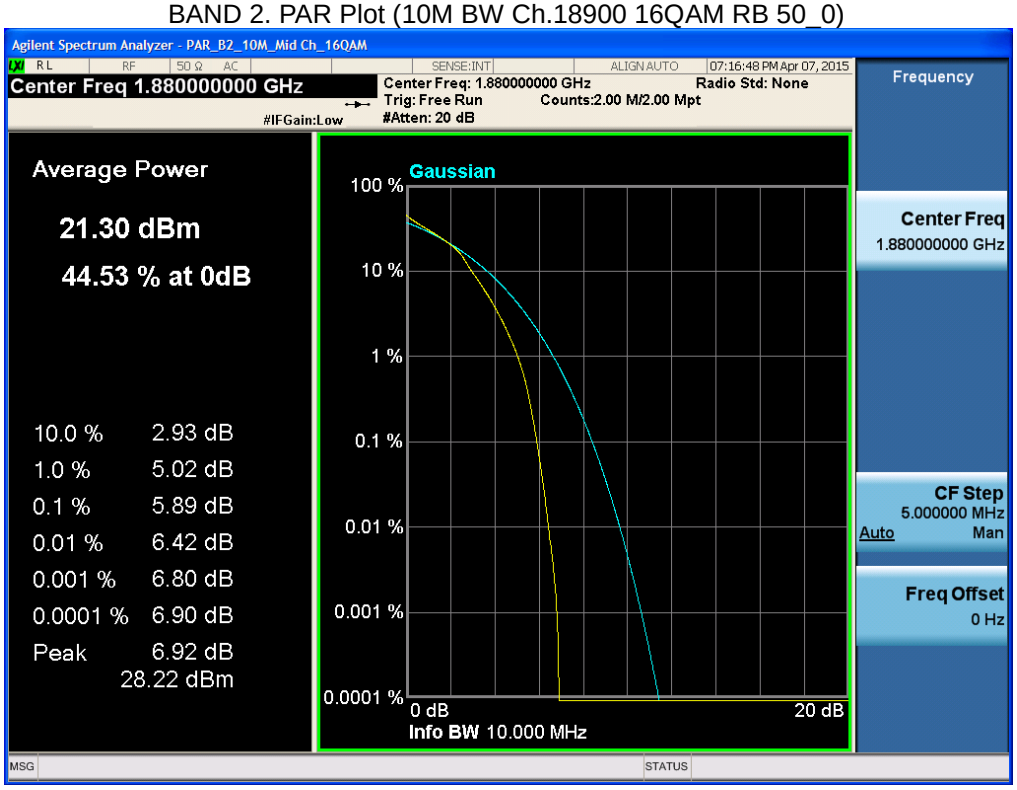
BAND 2. PAR Plot (5M BW Ch.18900 16QAM RB 25_0)



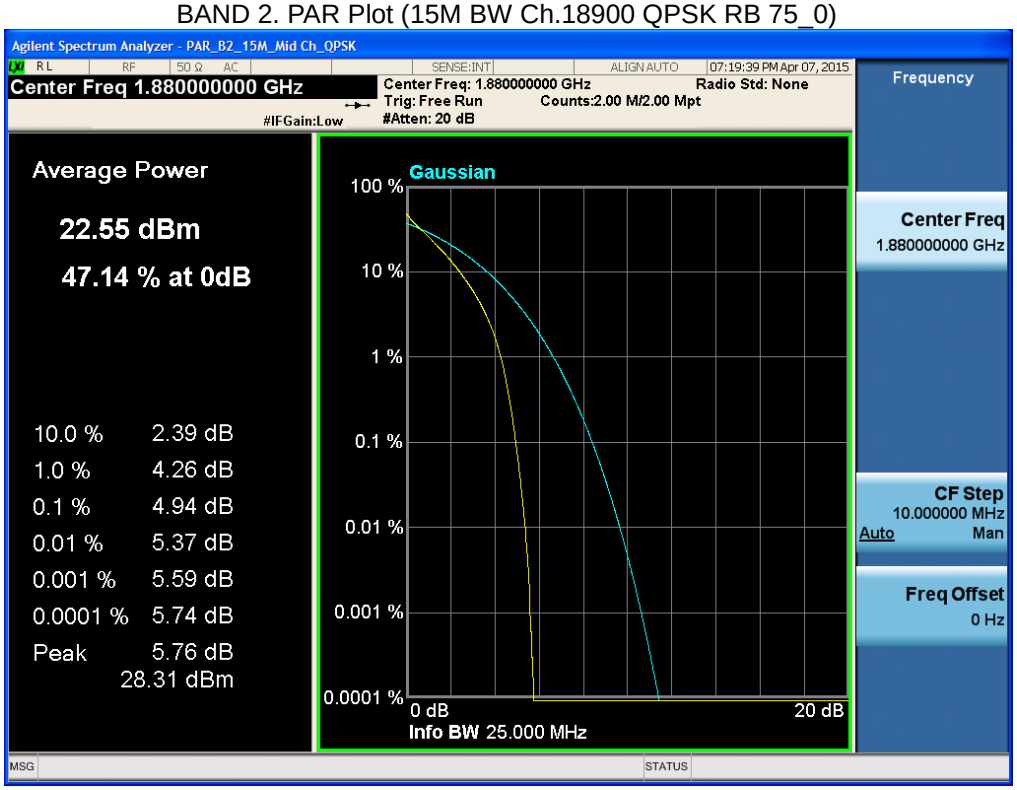
BAND 2. PAR Plot (10M BW Ch.18900 QPSK RB 50_0)



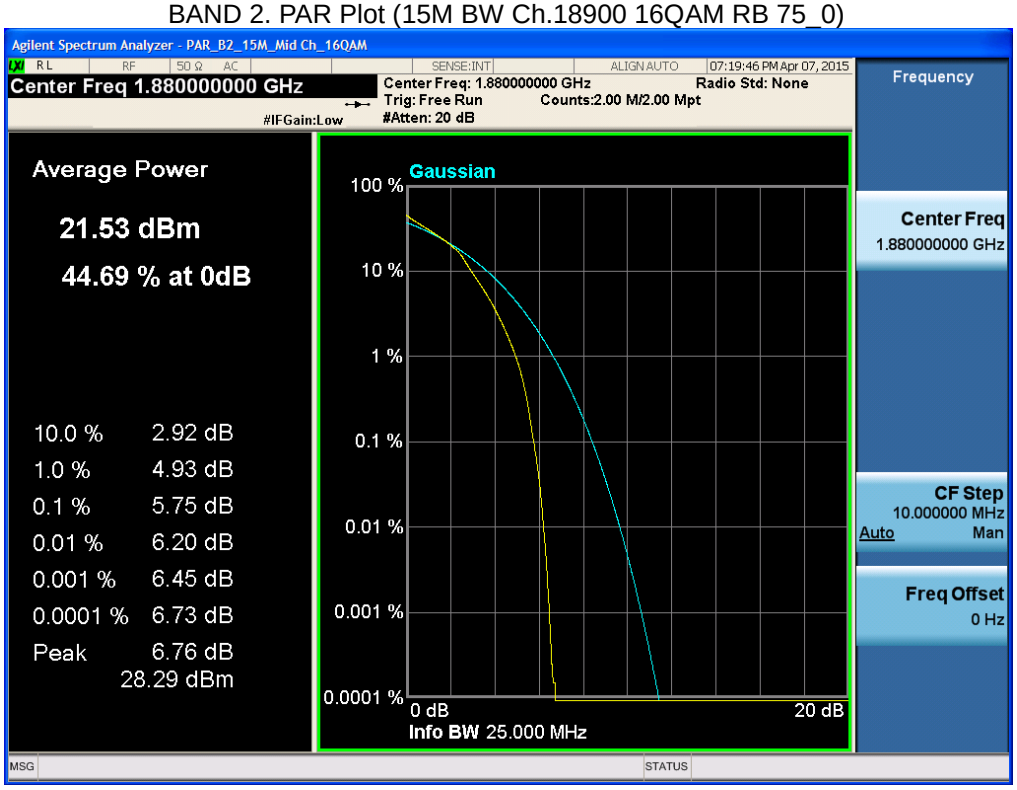
BAND 2. PAR Plot (10M BW Ch.18900 16QAM RB 50_0)



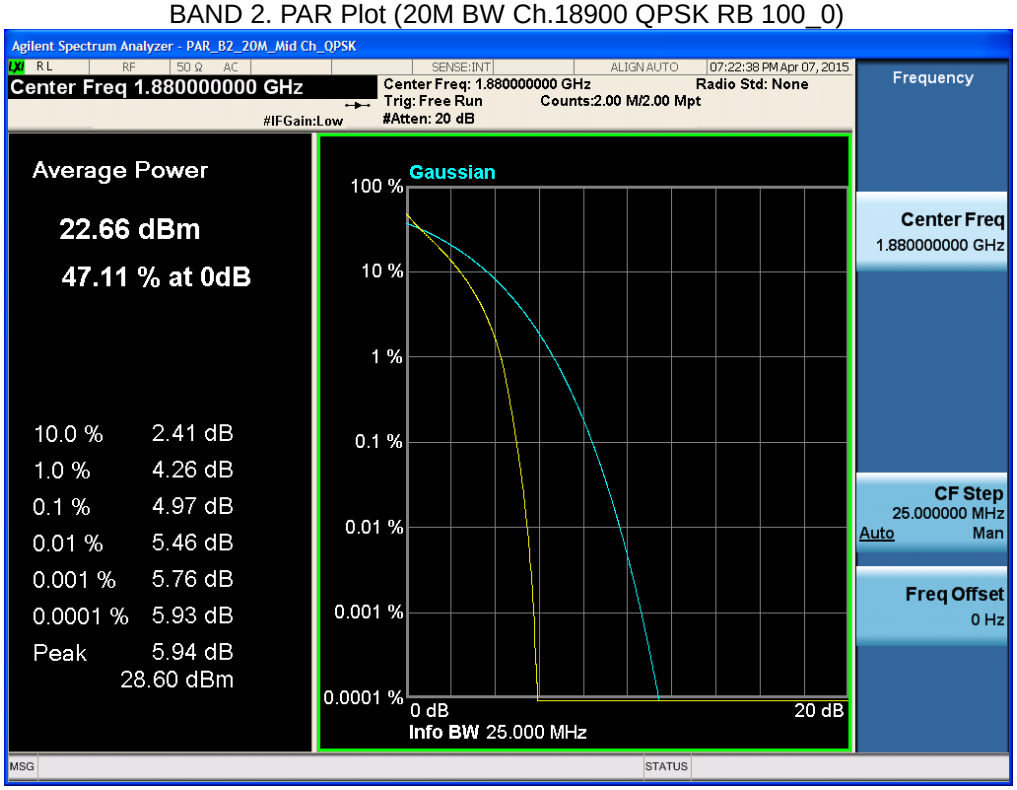
BAND 2. PAR Plot (15M BW Ch.18900 QPSK RB 75_0)



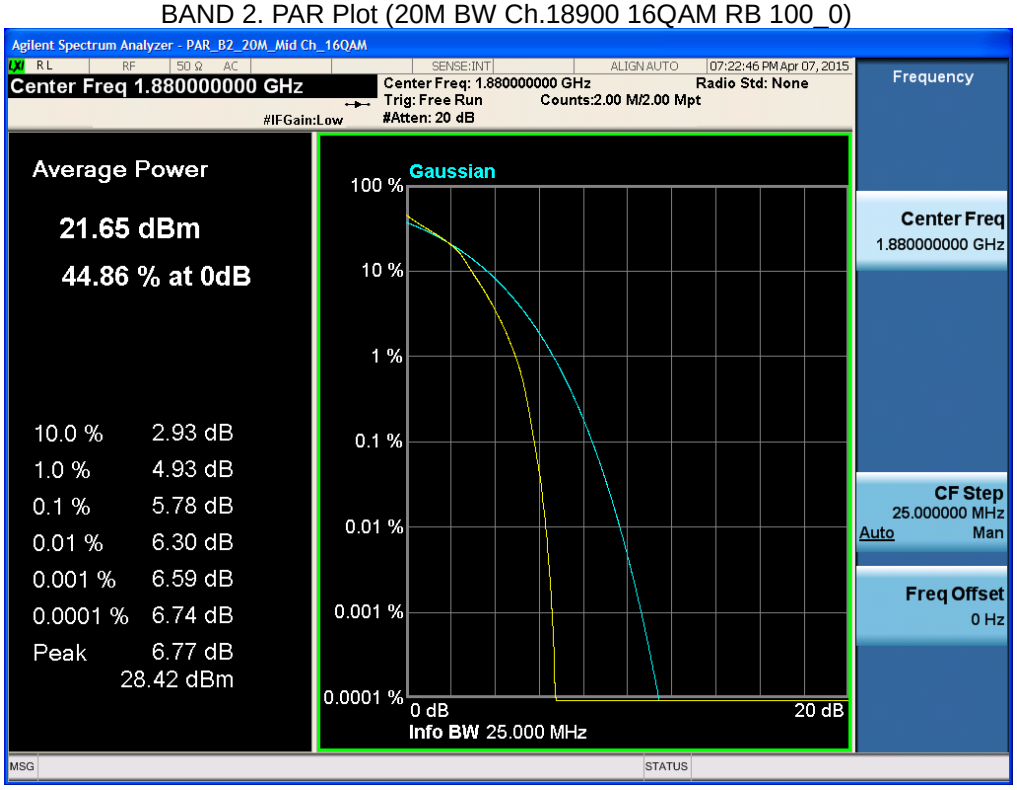
BAND 2. PAR Plot (15M BW Ch.18900 16QAM RB 75_0)



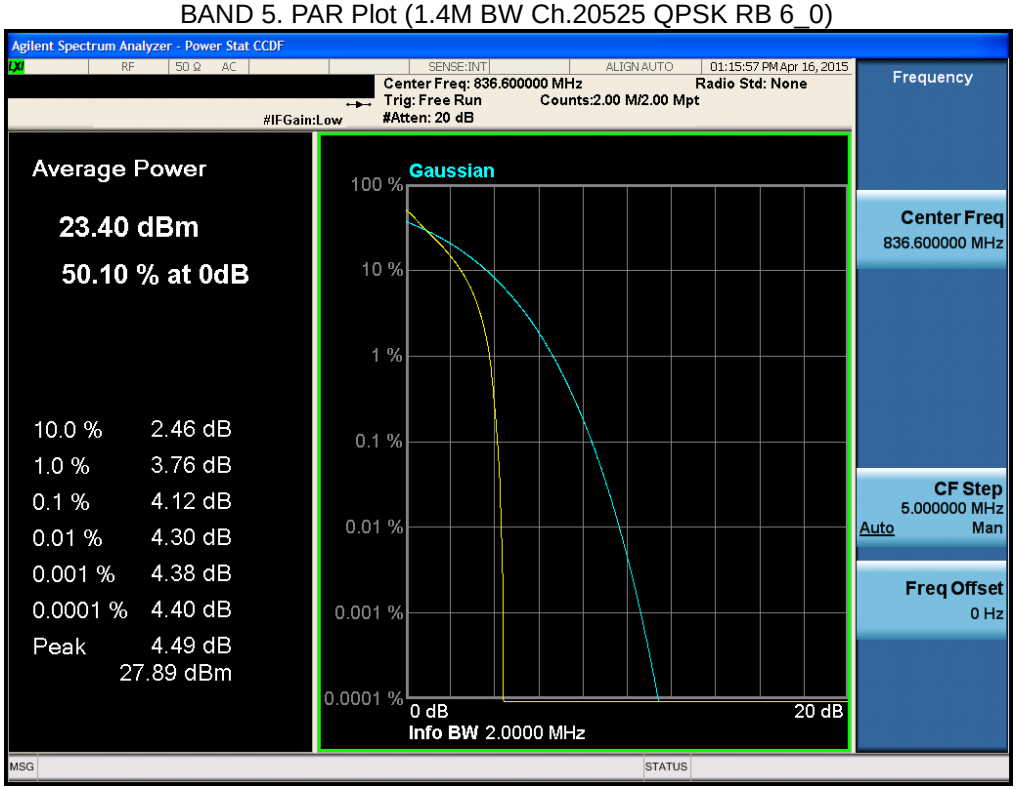
BAND 2. PAR Plot (20M BW Ch.18900 QPSK RB 100_0)



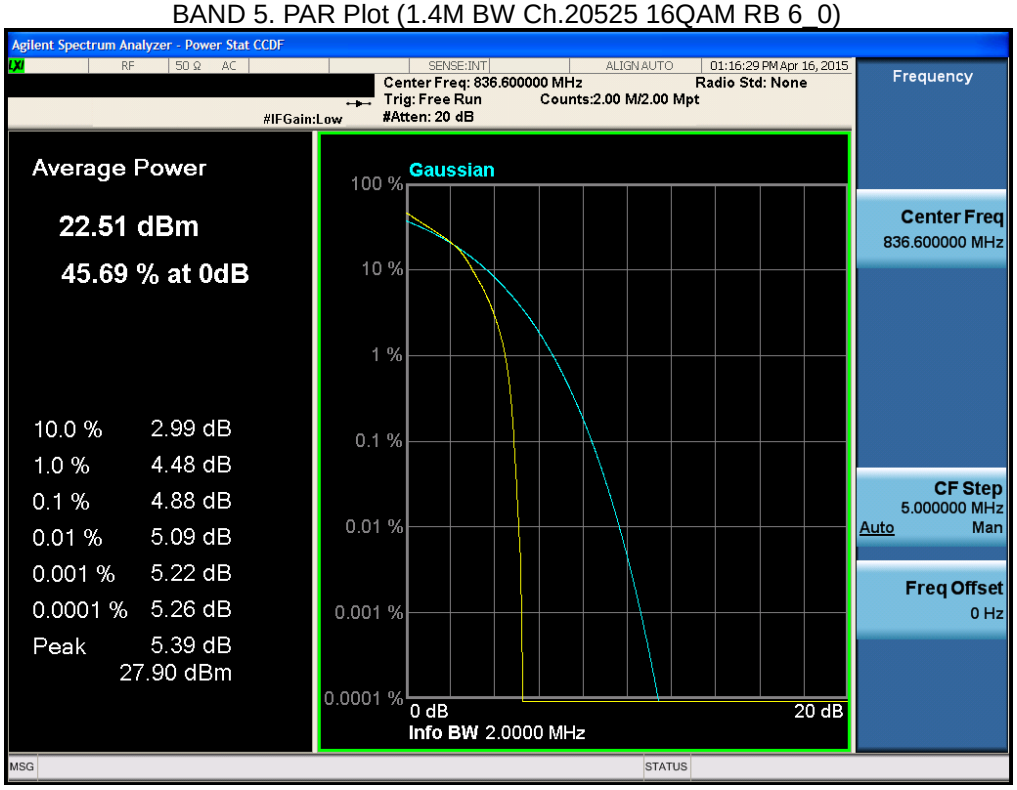
BAND 2. PAR Plot (20M BW Ch.18900 16QAM RB 100_0)



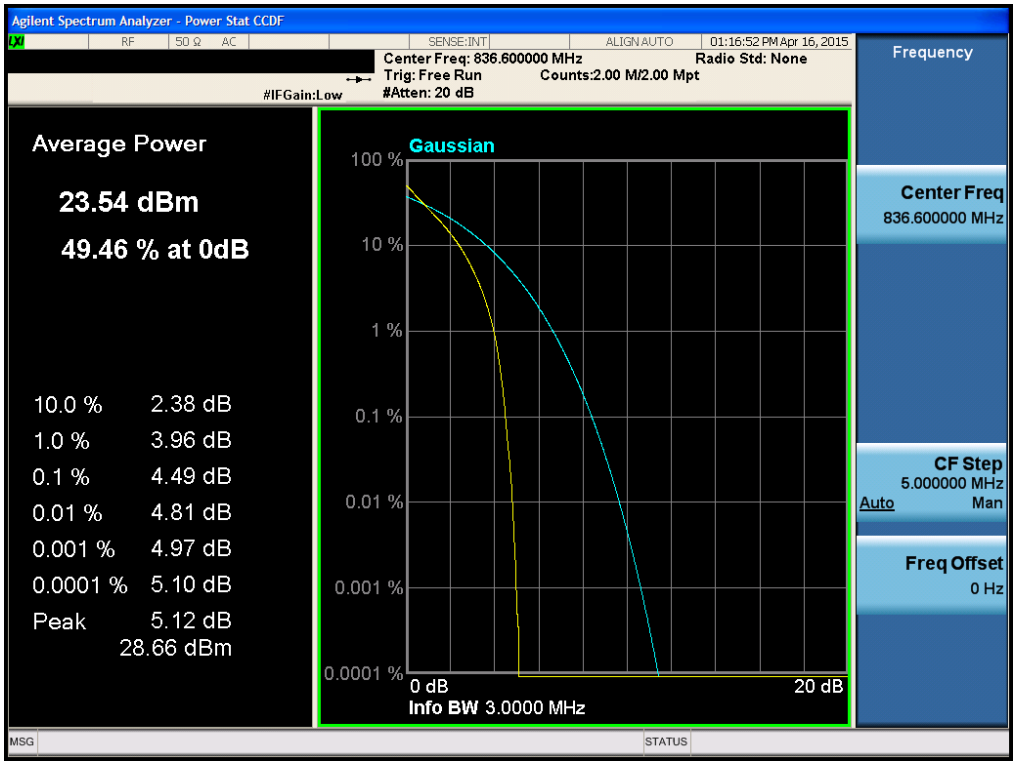
BAND 5. PAR Plot (1.4M BW Ch.20525 QPSK RB 6_0)



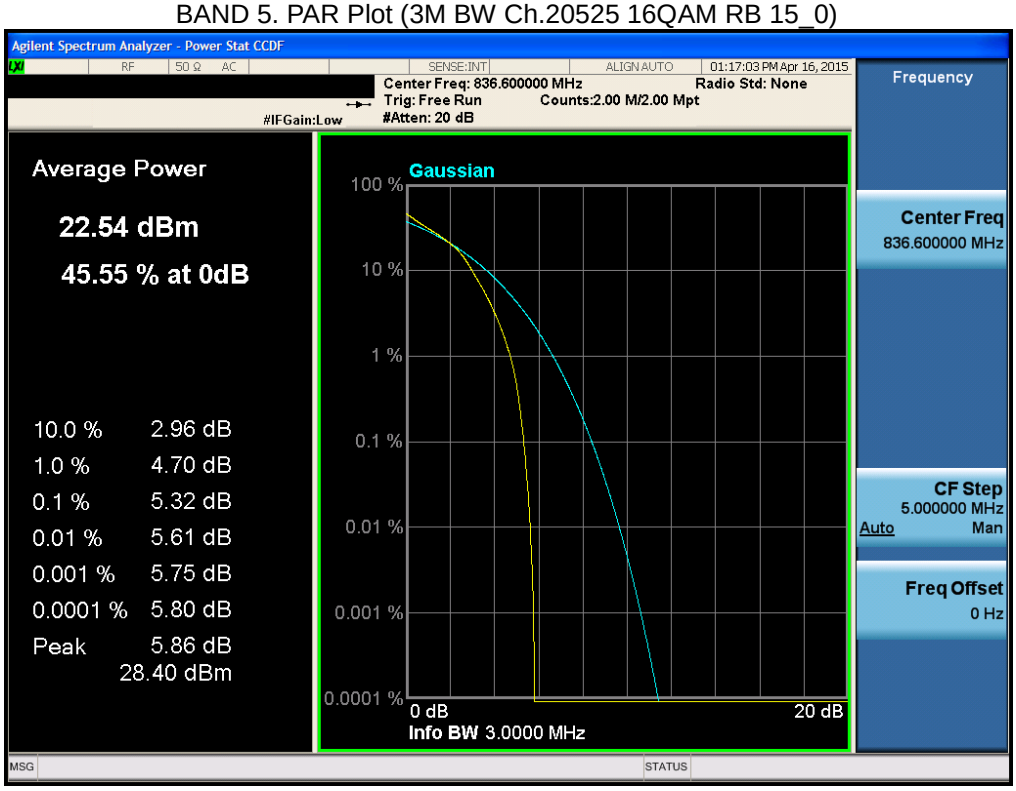
BAND 5. PAR Plot (1.4M BW Ch.20525 16QAM RB 6_0)



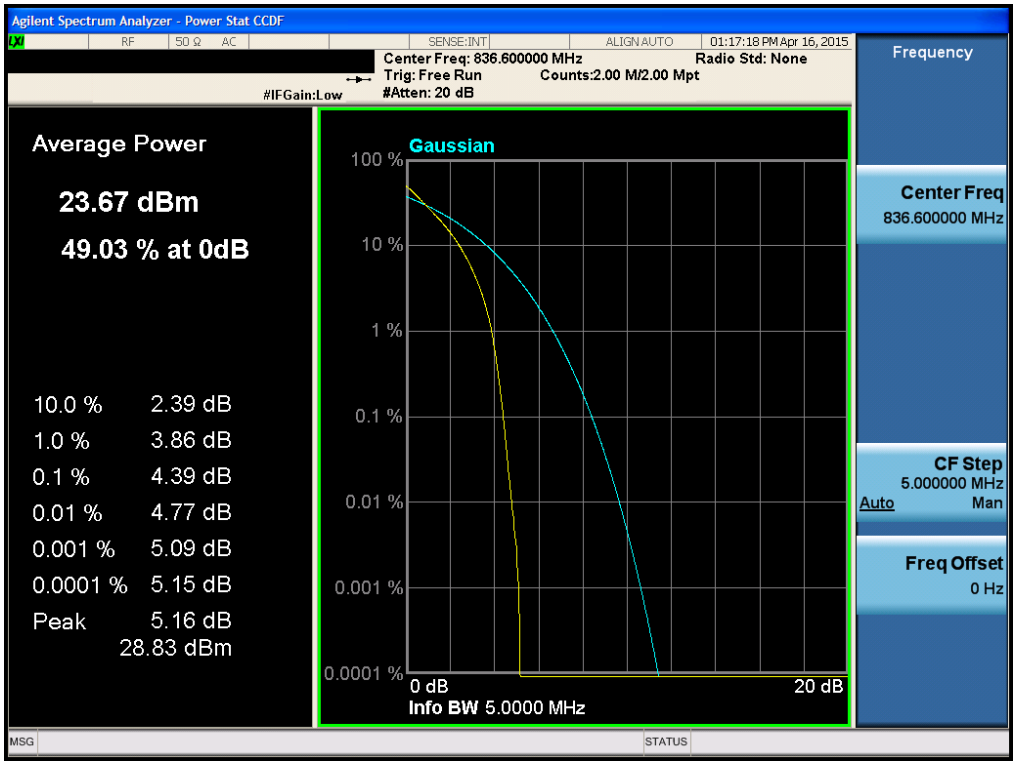
BAND 5. PAR Plot (3M BW Ch.20525 QPSK RB 15_0)



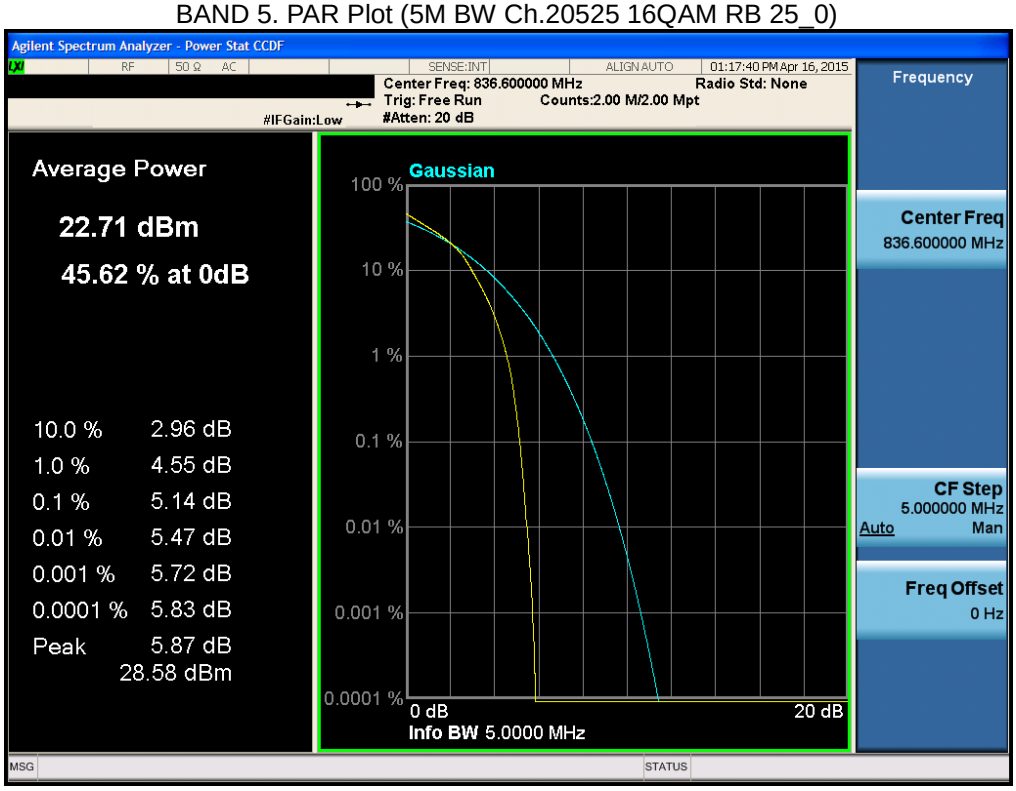
BAND 5. PAR Plot (3M BW Ch.20525 16QAM RB 15_0)



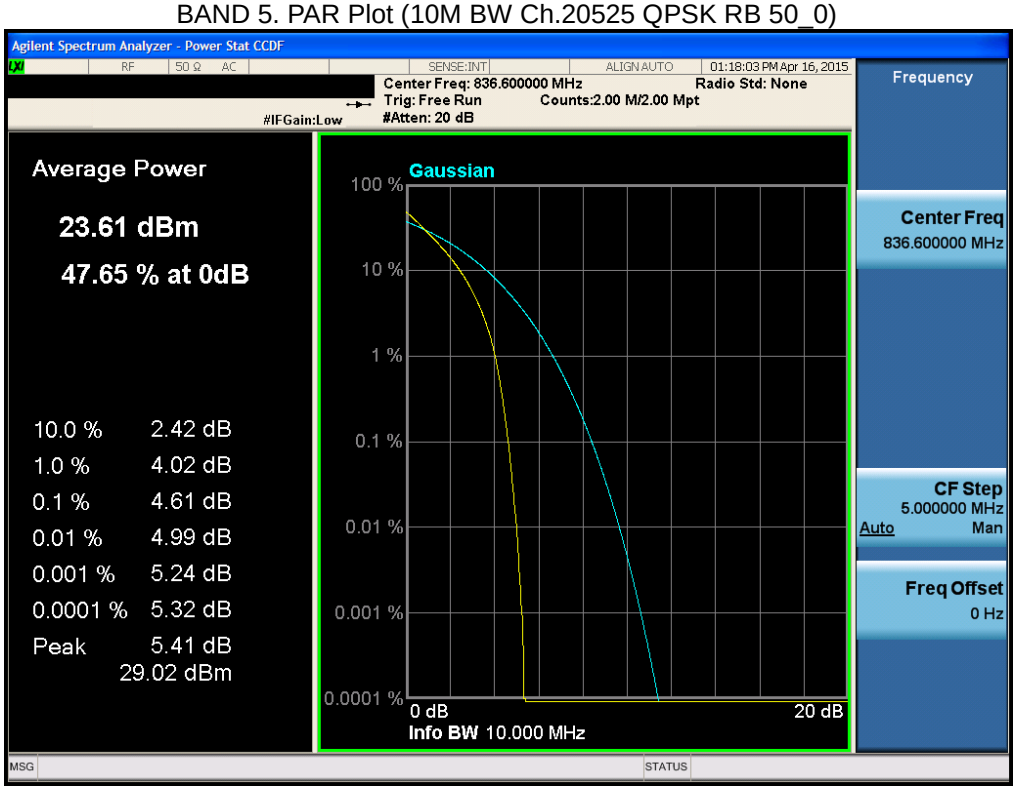
BAND 5. PAR Plot (5M BW Ch.20525 QPSK RB 25_0)



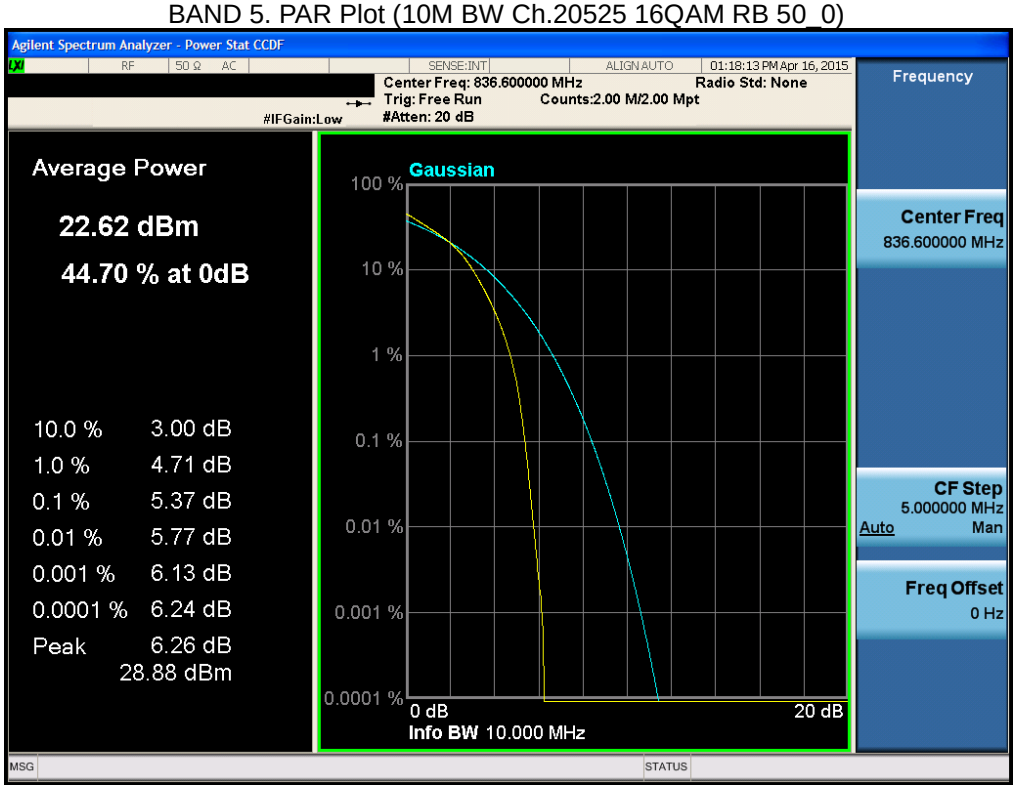
BAND 5. PAR Plot (5M BW Ch.20525 16QAM RB 25_0)



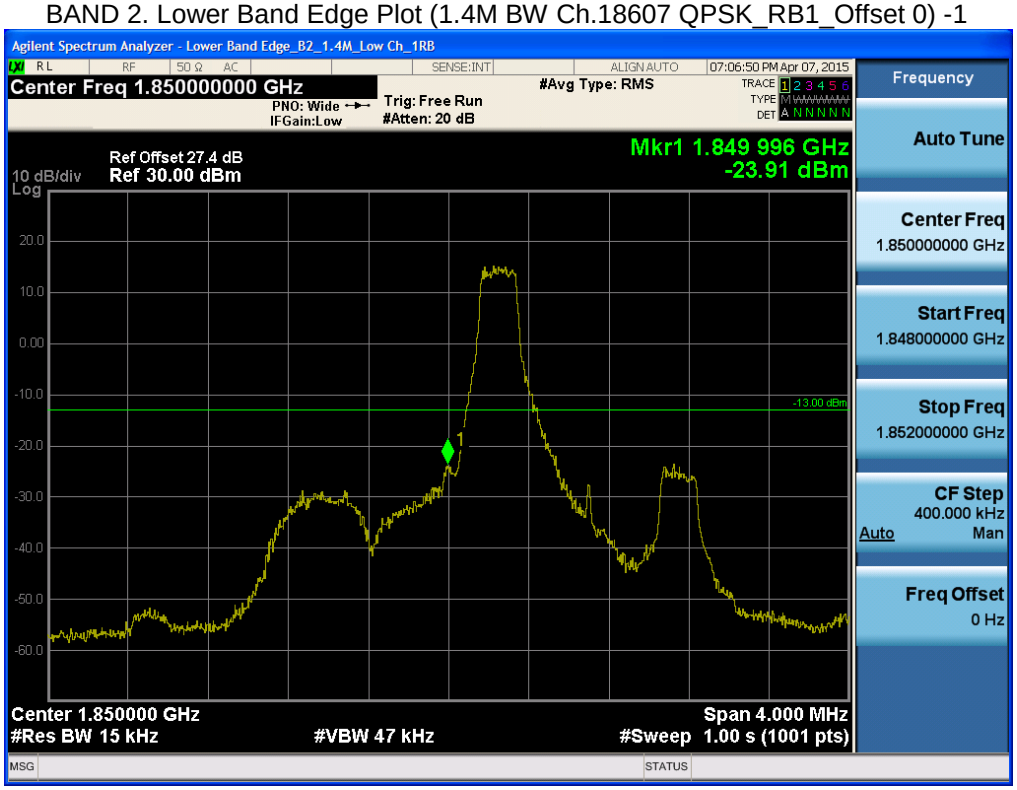
BAND 5. PAR Plot (10M BW Ch.20525 QPSK RB 50_0)



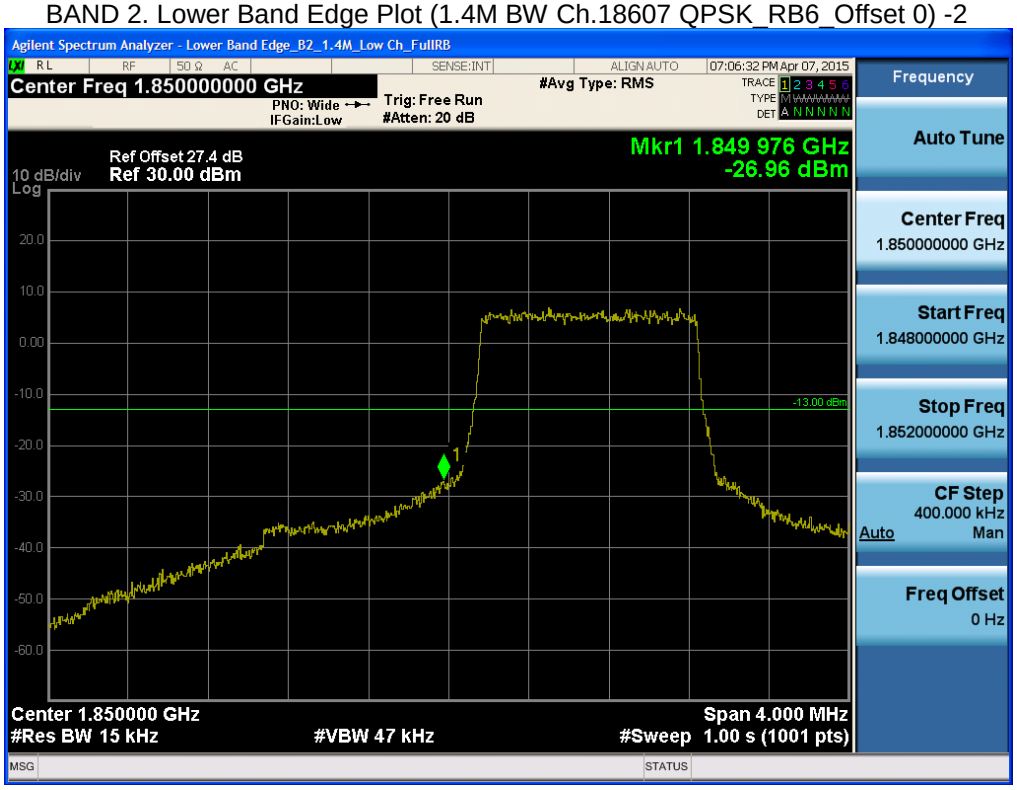
BAND 5. PAR Plot (10M BW Ch.20525 16QAM RB 50_0)



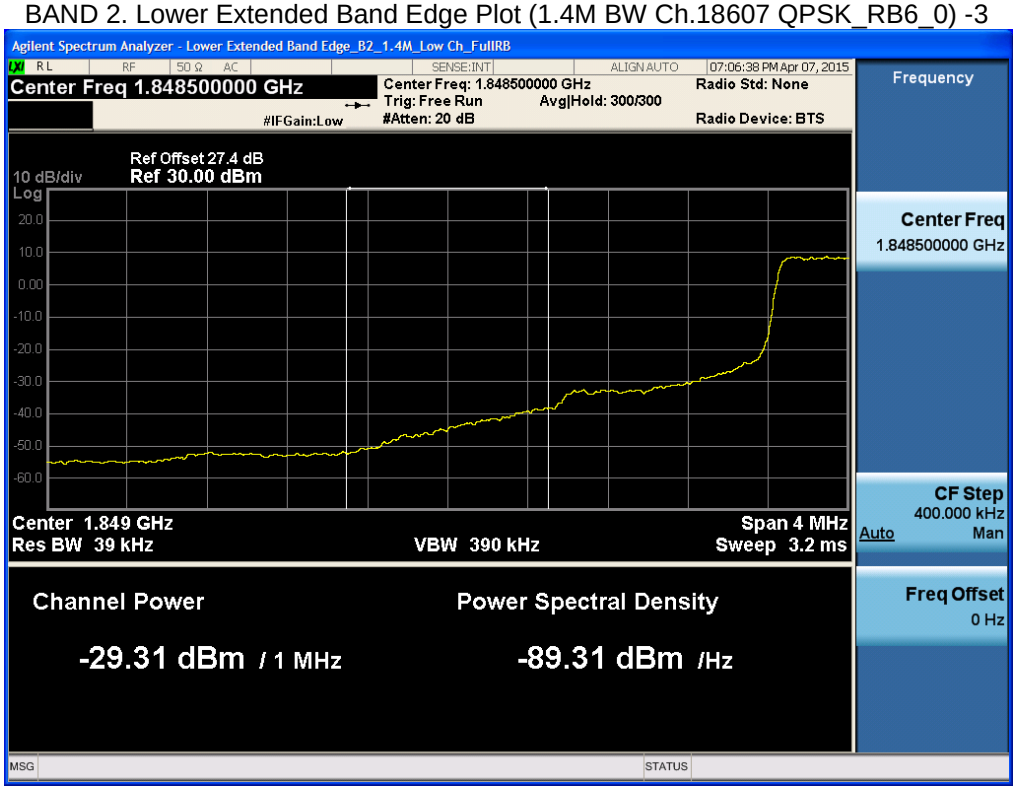
BAND 2. Lower Band Edge Plot (1.4M BW Ch.18607 QPSK_RB1_Offset 0) -1



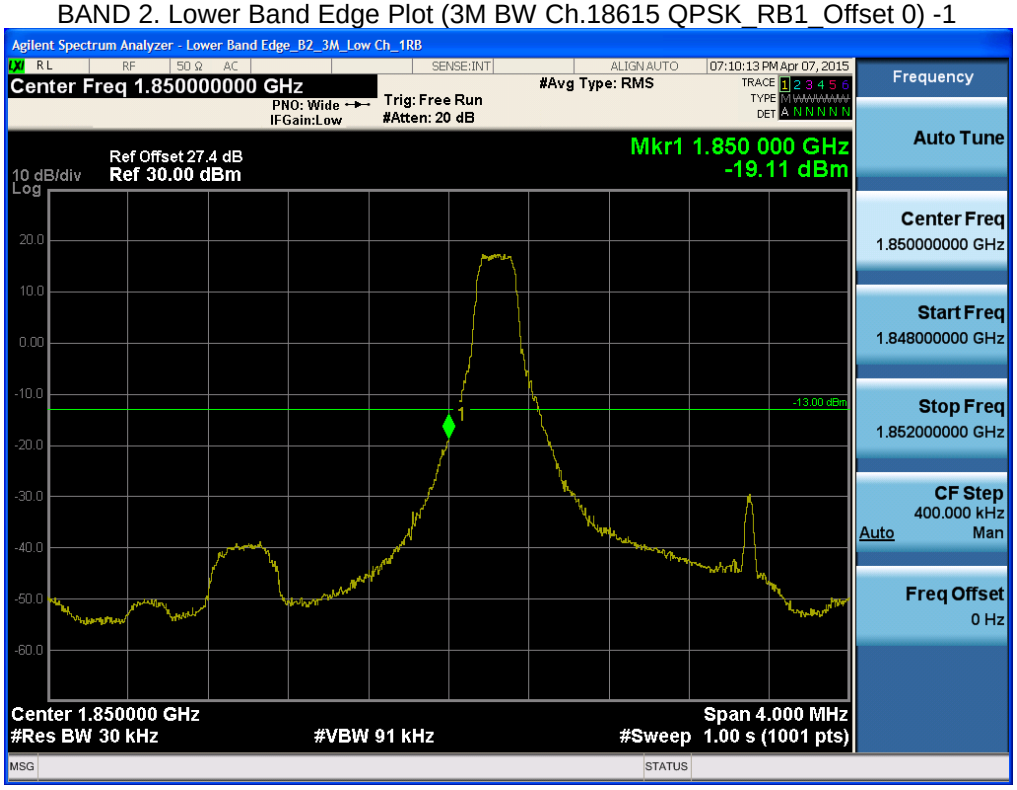
BAND 2. Lower Band Edge Plot (1.4M BW Ch.18607 QPSK_RB6_Offset 0) -2



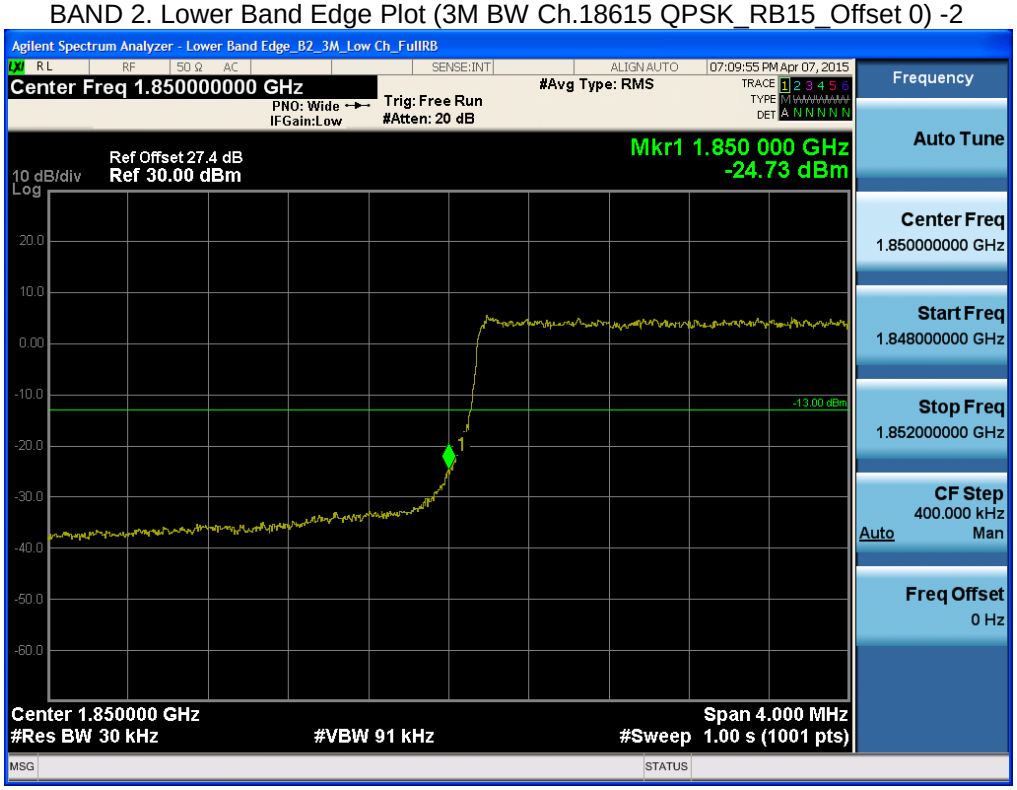
BAND 2. Lower Extended Band Edge Plot (1.4M BW Ch.18607 QPSK_RB6_0) -3



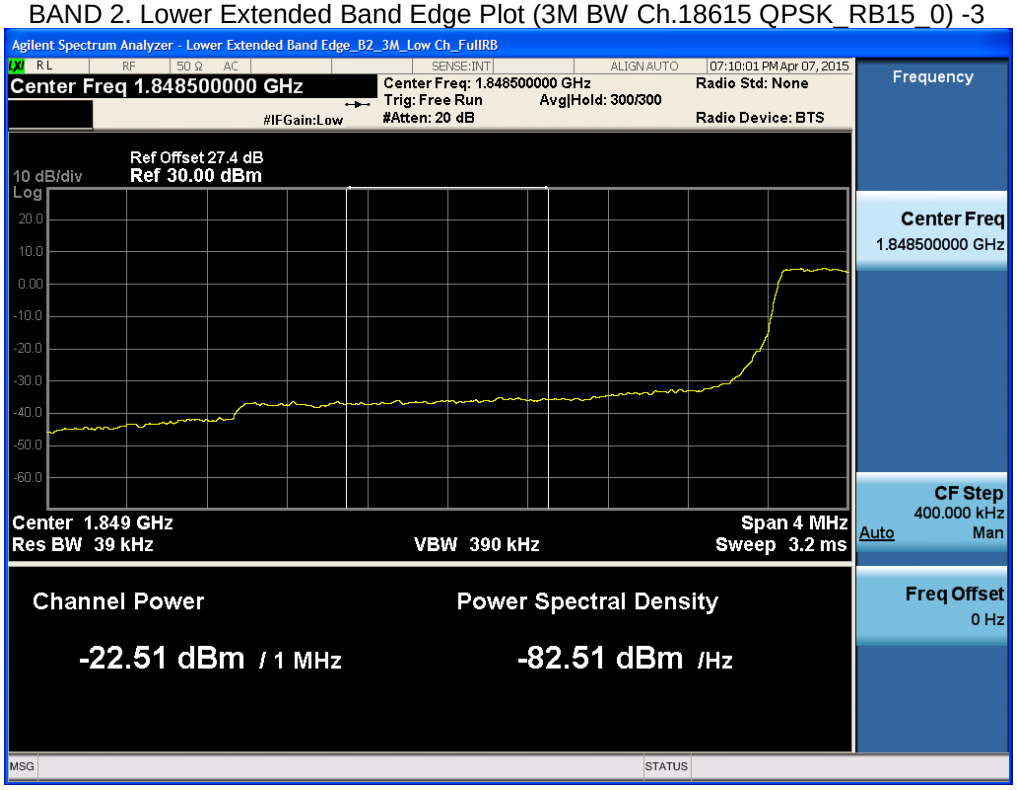
BAND 2. Lower Band Edge Plot (3M BW Ch.18615 QPSK_RB1_Offset 0) -1



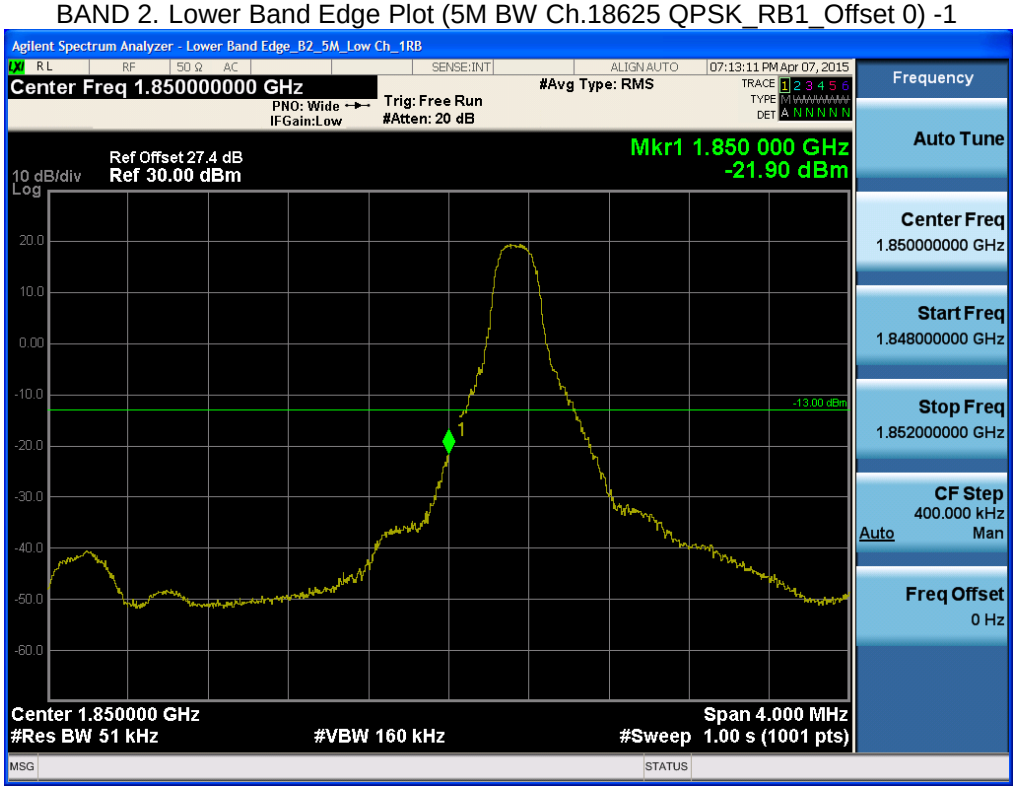
BAND 2. Lower Band Edge Plot (3M BW Ch.18615 QPSK_RB15_Offset 0) -2



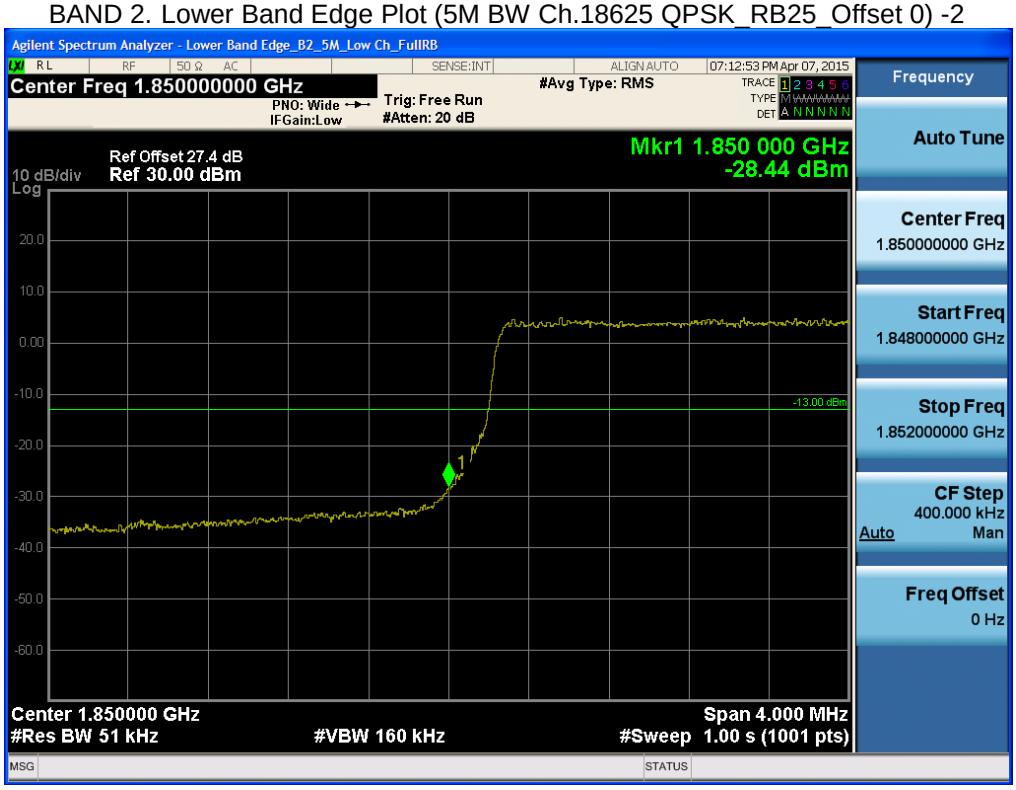
BAND 2. Lower Extended Band Edge Plot (3M BW Ch.18615 QPSK_RB15_0) -3



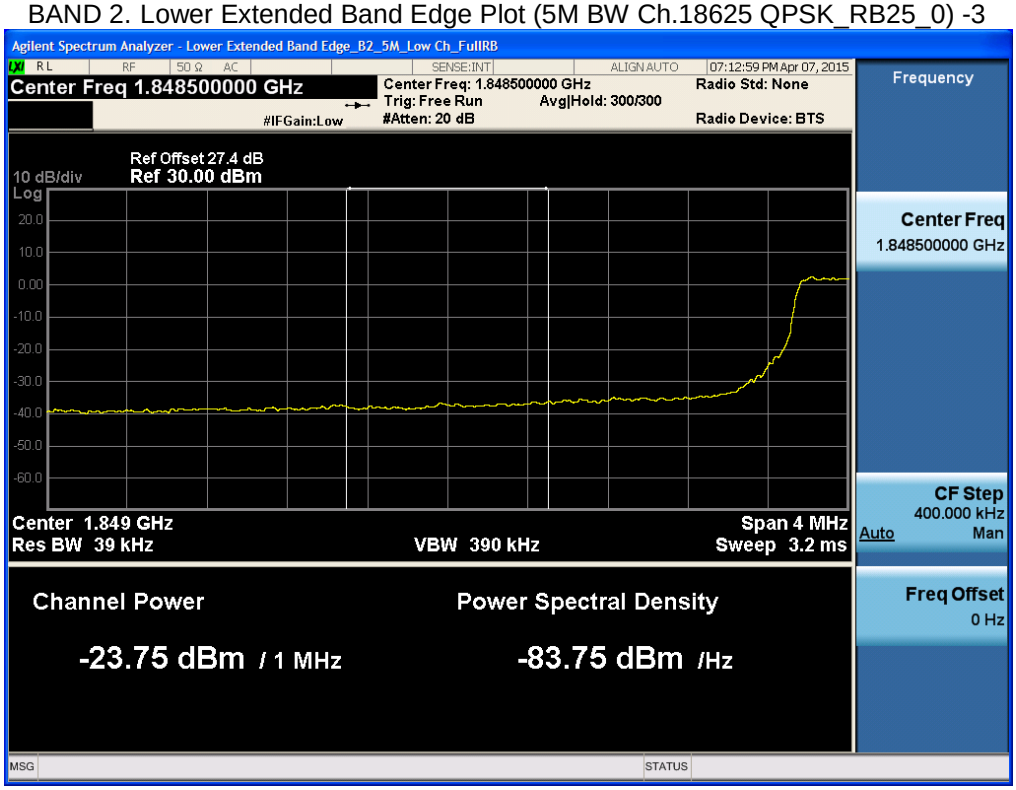
BAND 2. Lower Band Edge Plot (5M BW Ch.18625 QPSK_RB1_Offset 0) -1



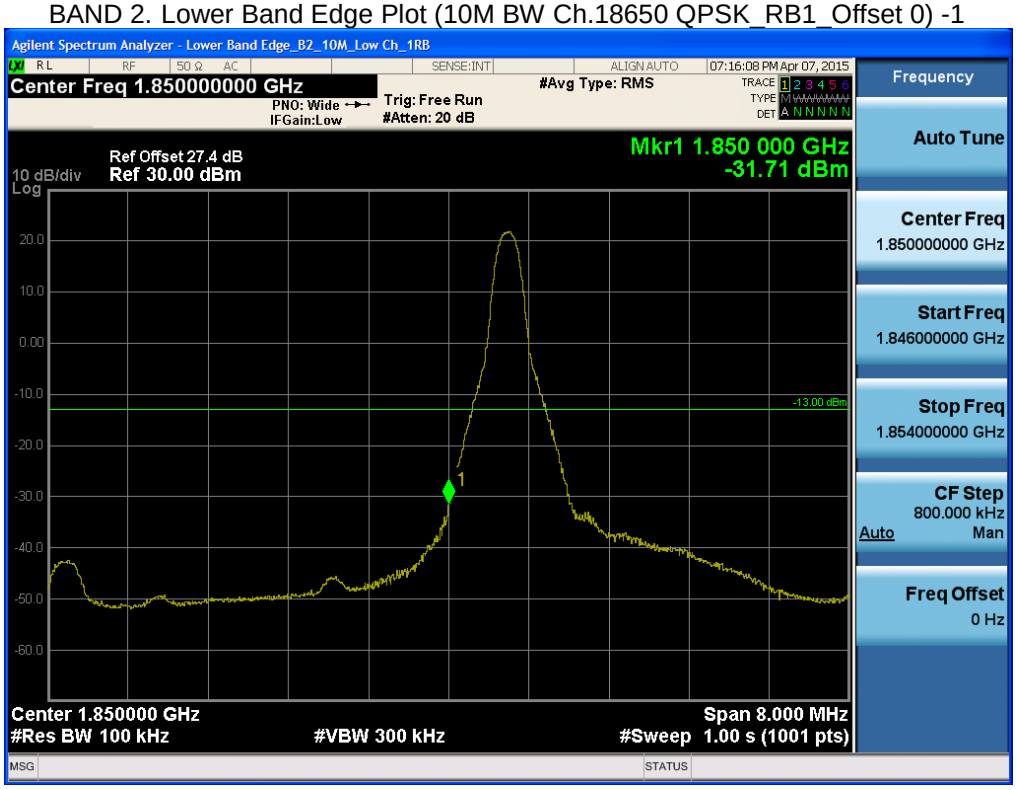
BAND 2. Lower Band Edge Plot (5M BW Ch.18625 QPSK_RB25_Offset 0) -2



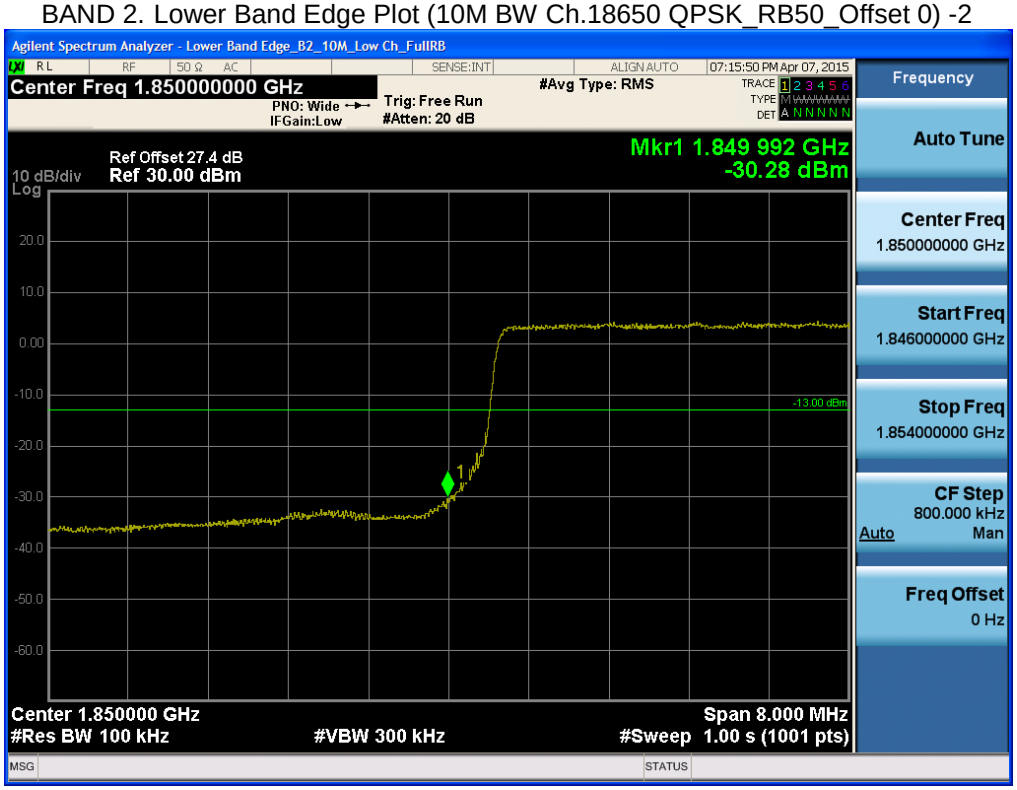
BAND 2. Lower Extended Band Edge Plot (5M BW Ch.18625 QPSK_RB25_0) -3



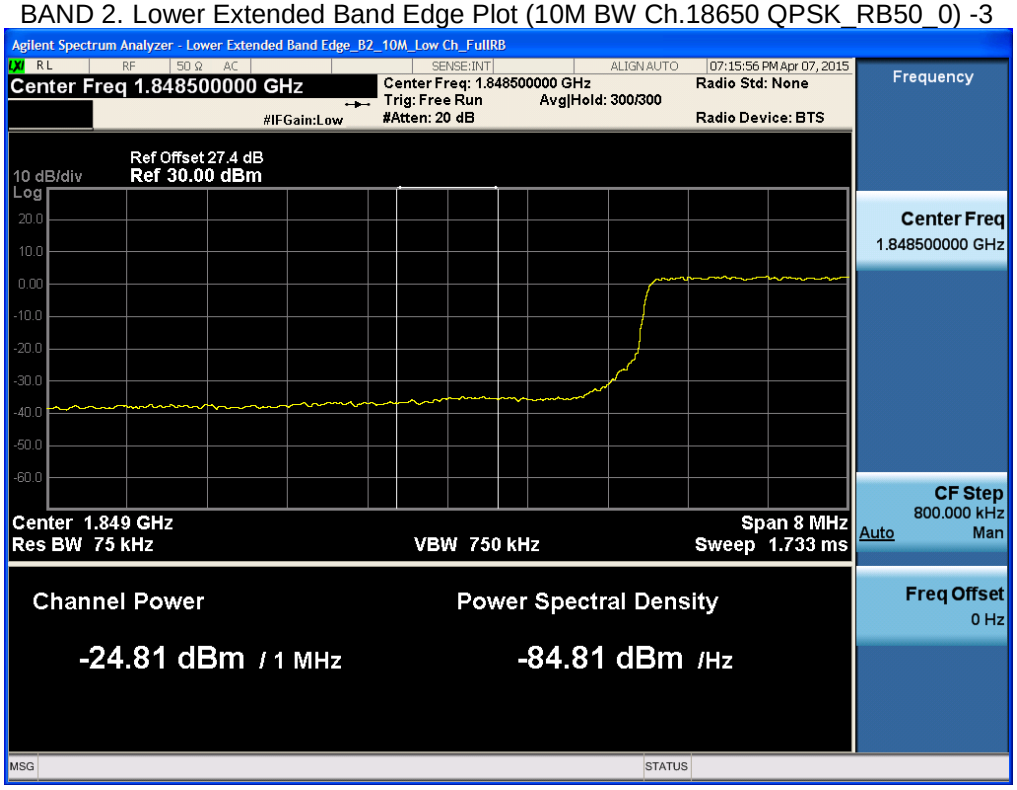
BAND 2. Lower Band Edge Plot (10M BW Ch.18650 QPSK_RB1_Offset 0) -1



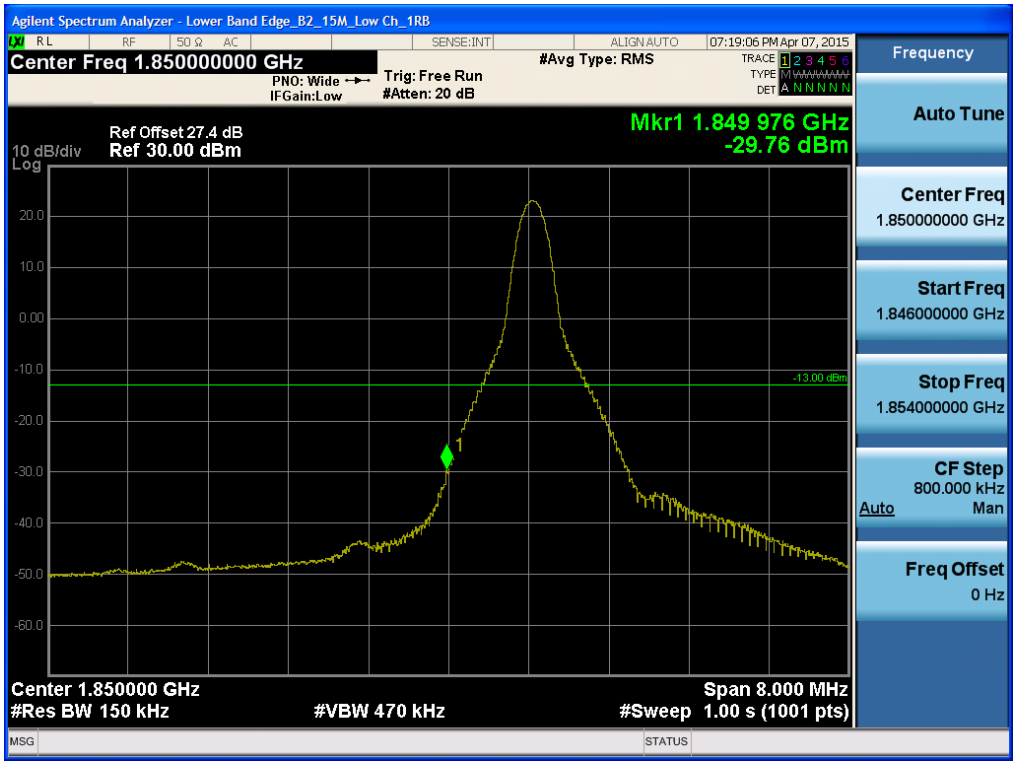
BAND 2. Lower Band Edge Plot (10M BW Ch.18650 QPSK_RB50_Offset 0) -2



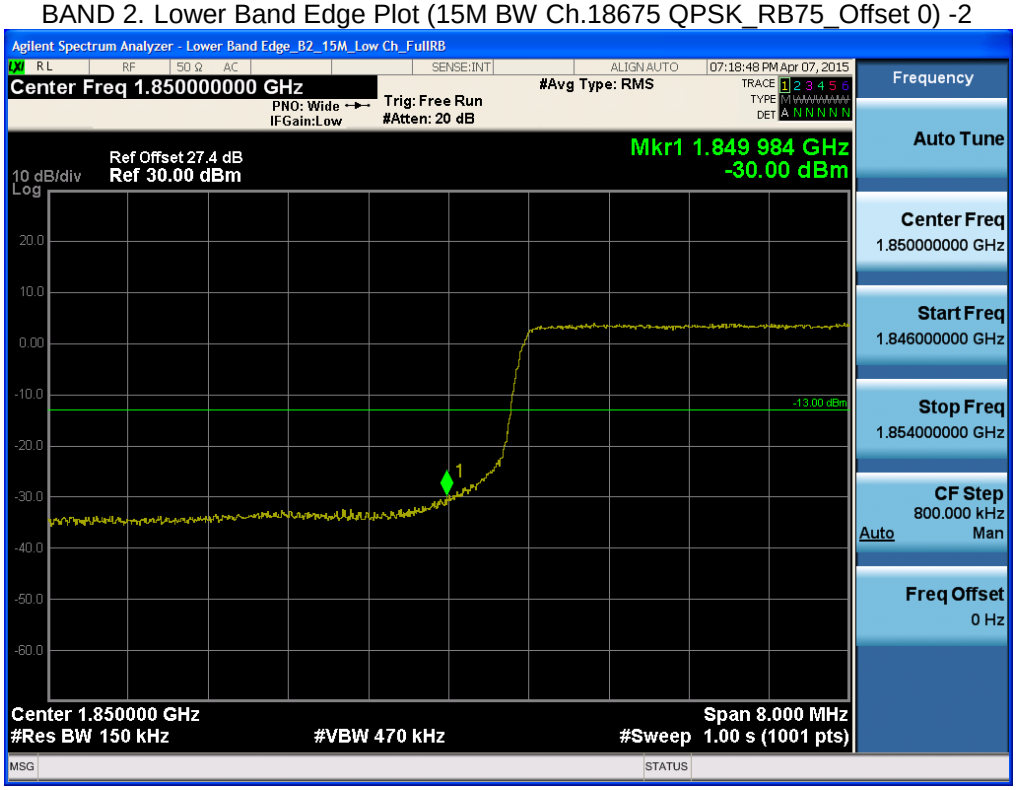
BAND 2. Lower Extended Band Edge Plot (10M BW Ch.18650 QPSK_RB50_0) -3



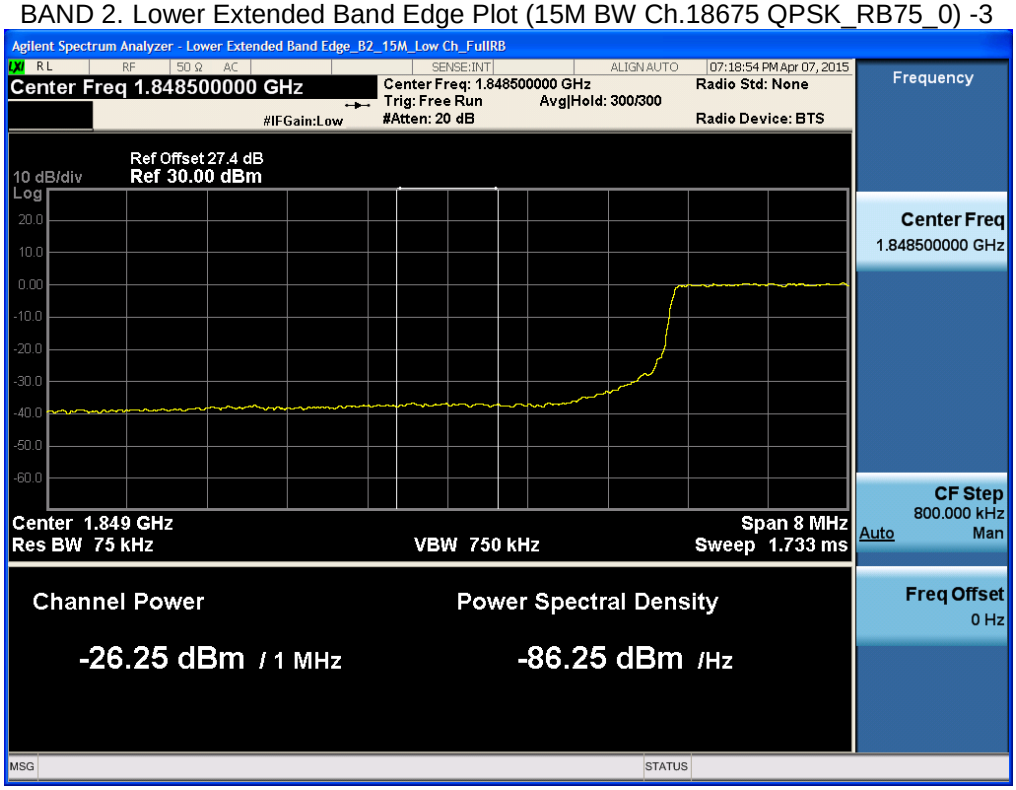
BAND 2. Lower Band Edge Plot (15M BW Ch.18675 QPSK_RB75_Offset 0) -1



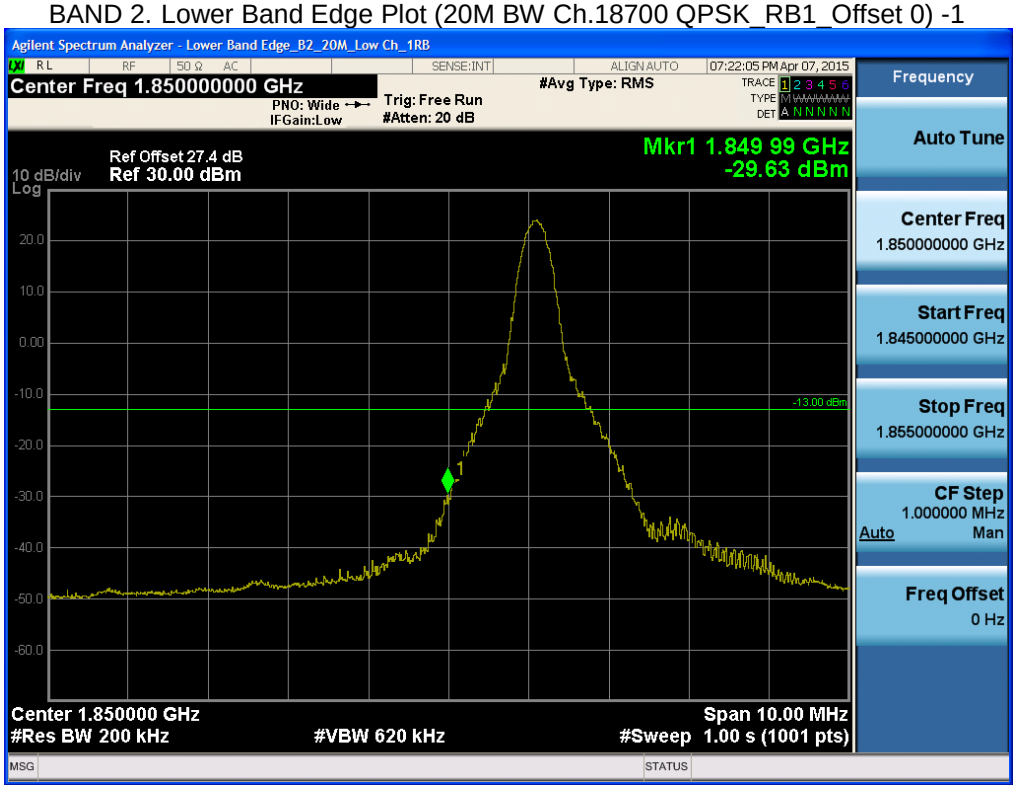
BAND 2. Lower Band Edge Plot (15M BW Ch.18675 QPSK_RB75_Offset 0) -2



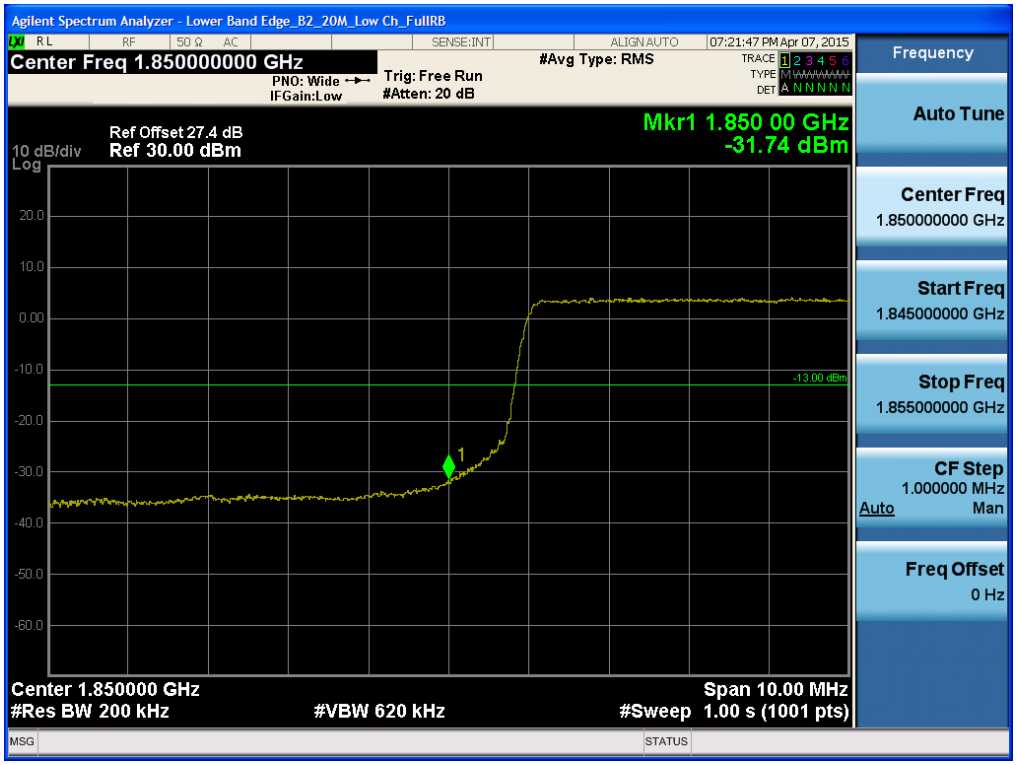
BAND 2. Lower Extended Band Edge Plot (15M BW Ch.18675 QPSK_RB75_0) -3



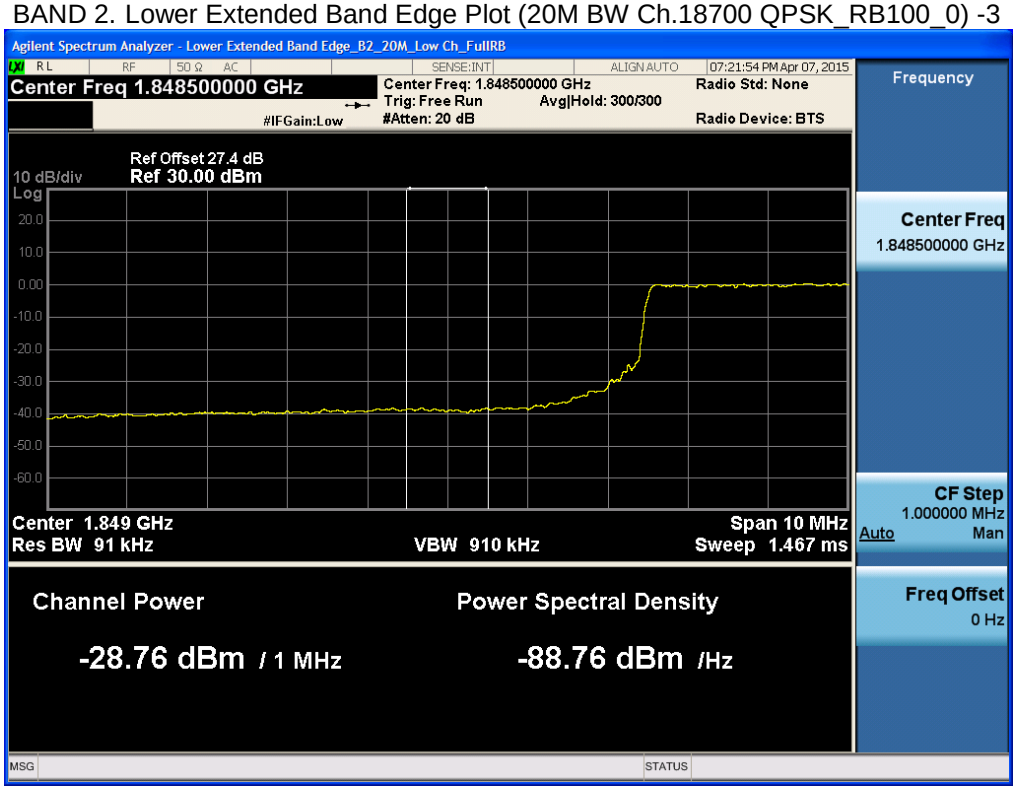
BAND 2. Lower Band Edge Plot (20M BW Ch.18700 QPSK_RB1_Offset 0) -1



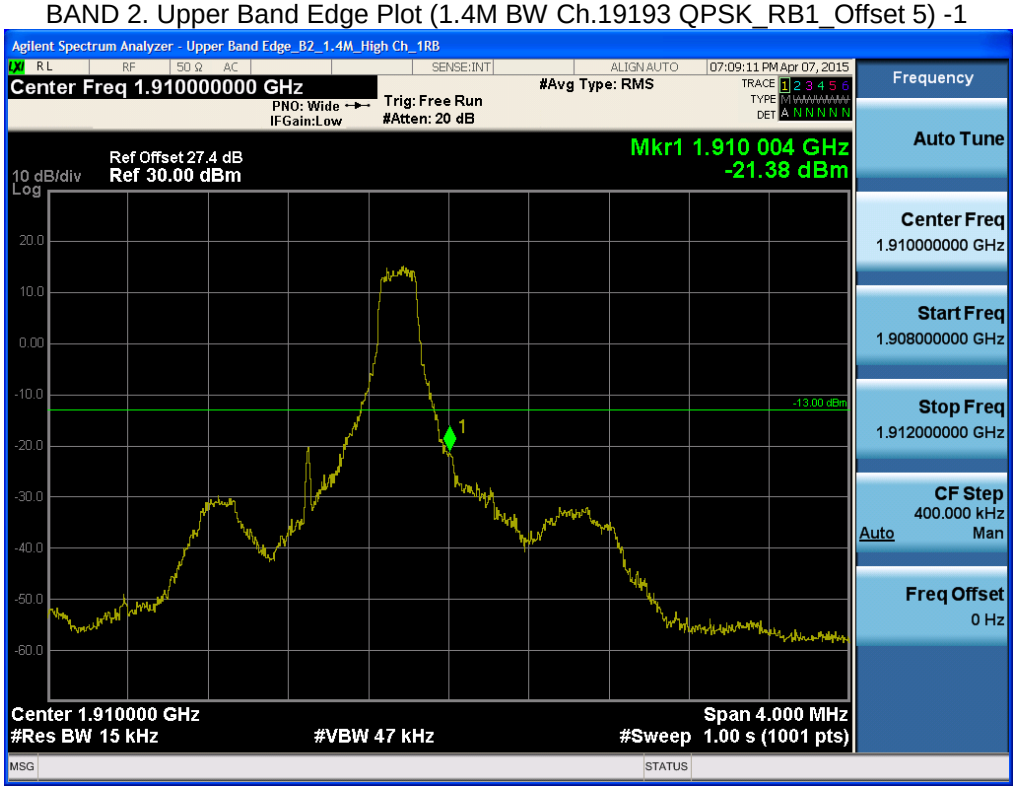
BAND 2. Lower Band Edge Plot (20M BW Ch.18700 QPSK_RB100_Offset 0) -2



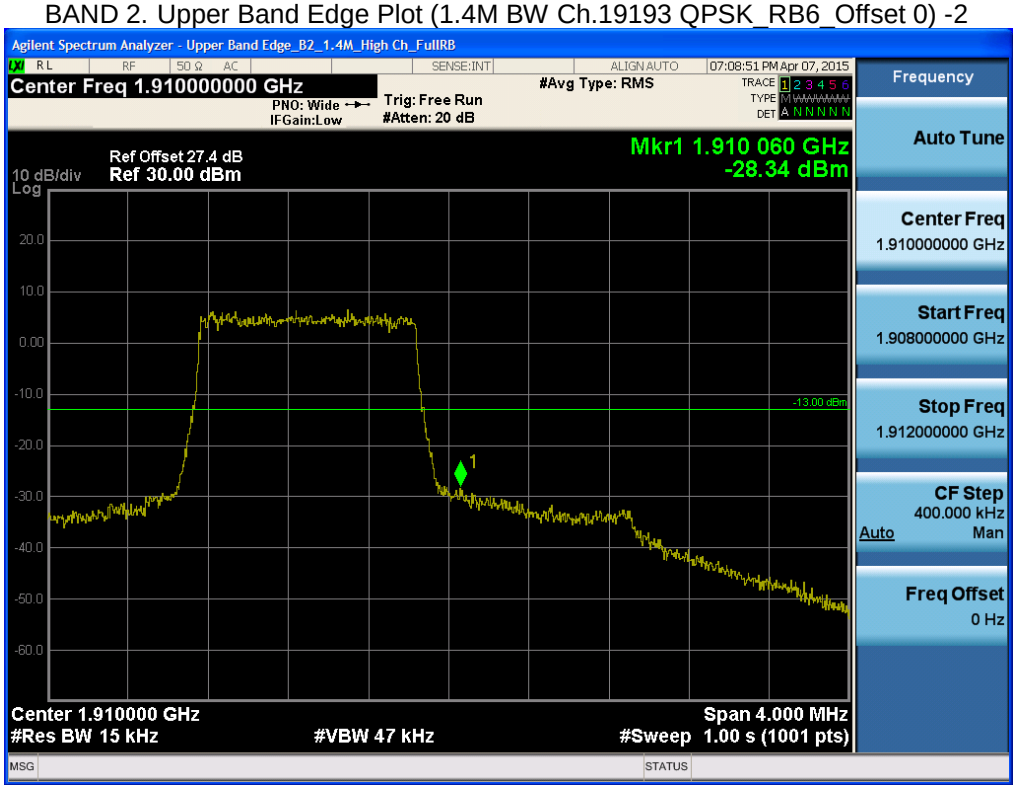
BAND 2. Lower Extended Band Edge Plot (20M BW Ch.18700 QPSK_RB100_0) -3



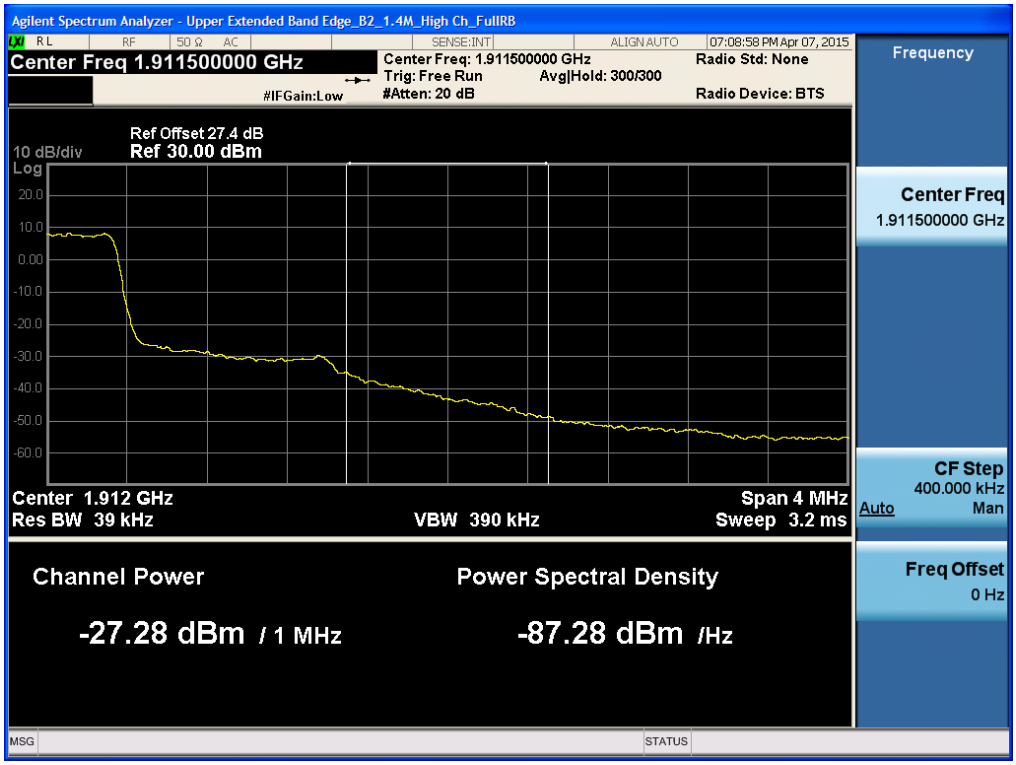
BAND 2. Upper Band Edge Plot (1.4M BW Ch.19193 QPSK_RB1_Offset 5) -1



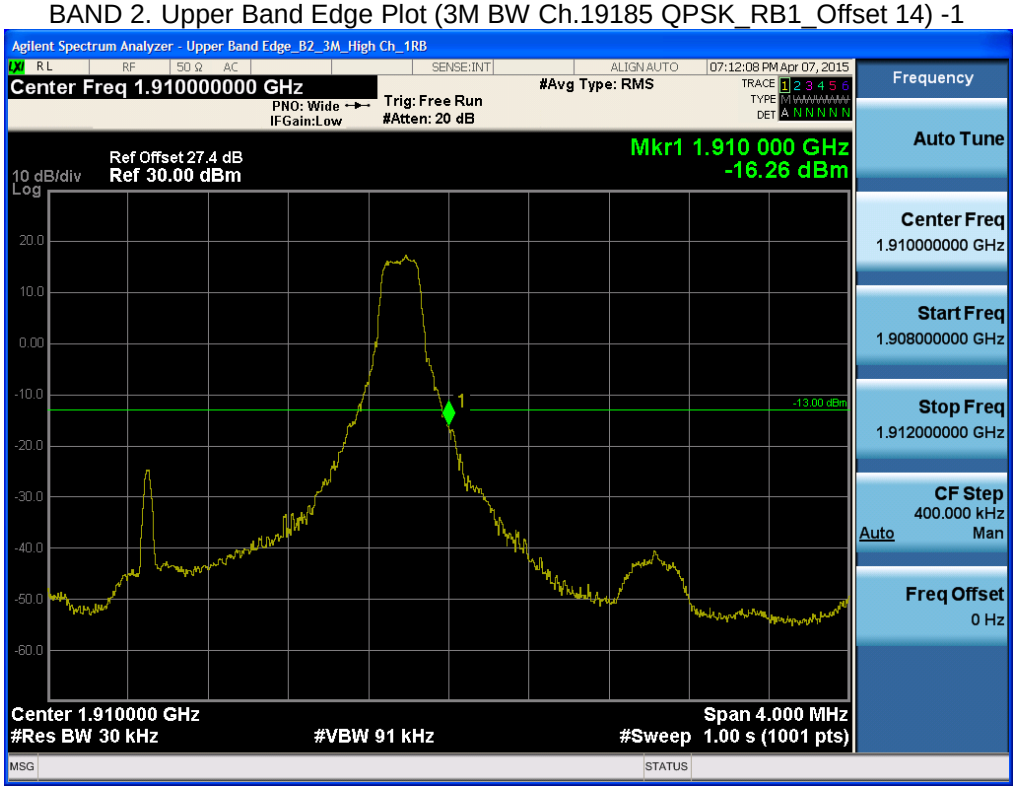
BAND 2. Upper Band Edge Plot (1.4M BW Ch.19193 QPSK_RB6_Offset 0) -2



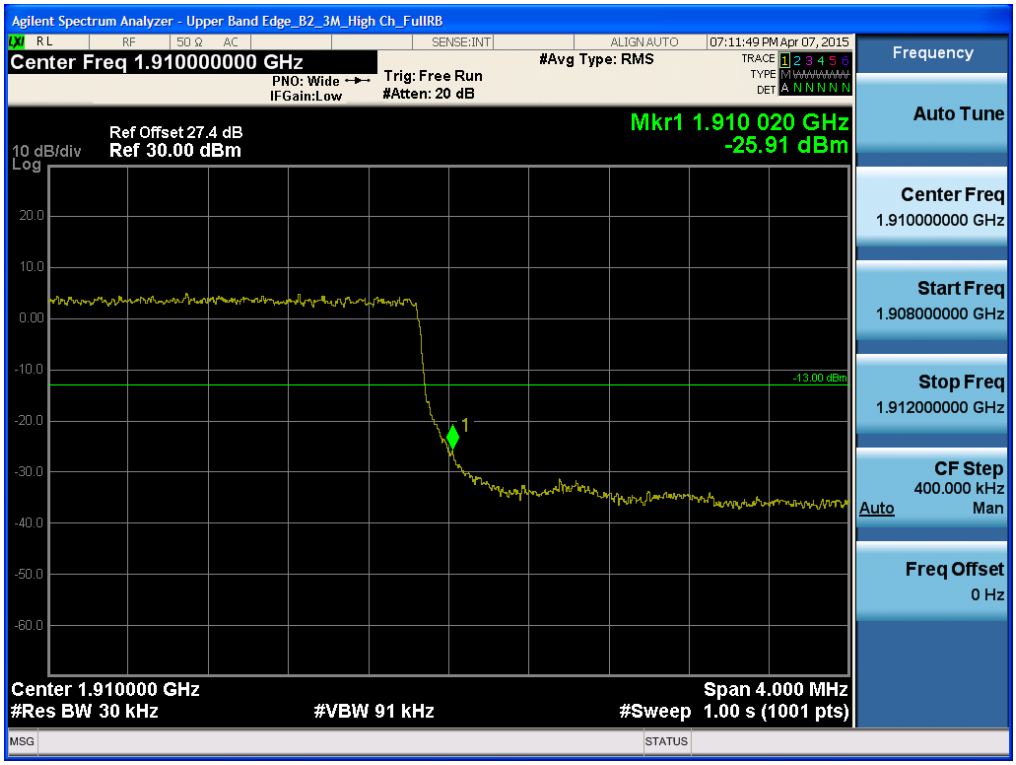
BAND 2. Upper Extended Band Edge Plot (1.4M BW Ch.19193 QPSK_RB6_0) -3



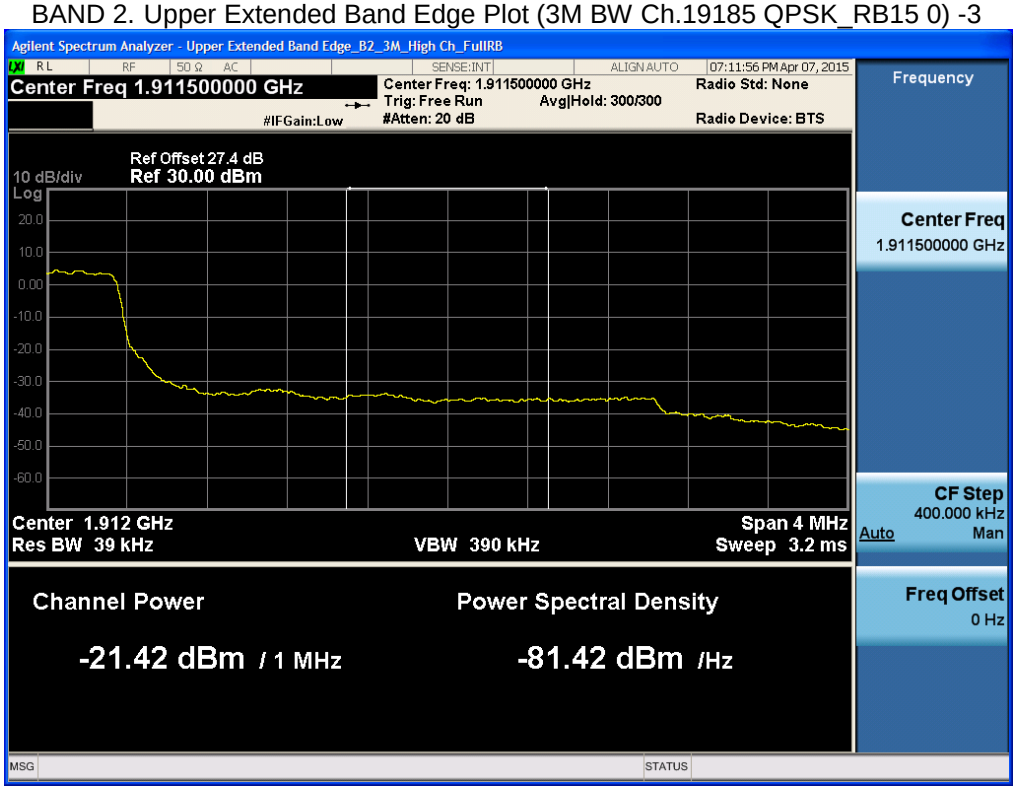
BAND 2. Upper Band Edge Plot (3M BW Ch.19185 QPSK_RB1_Offset 14) -1



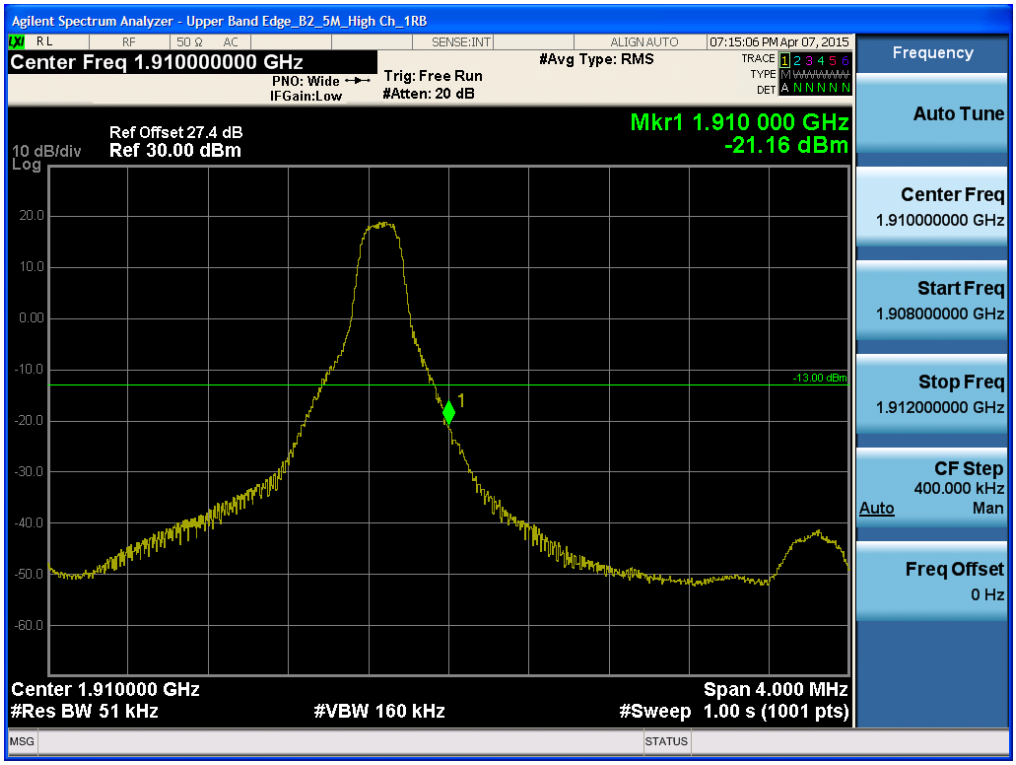
BAND 2. Upper Band Edge Plot (3M BW Ch.19185 QPSK_RB15_Offset 0) -2



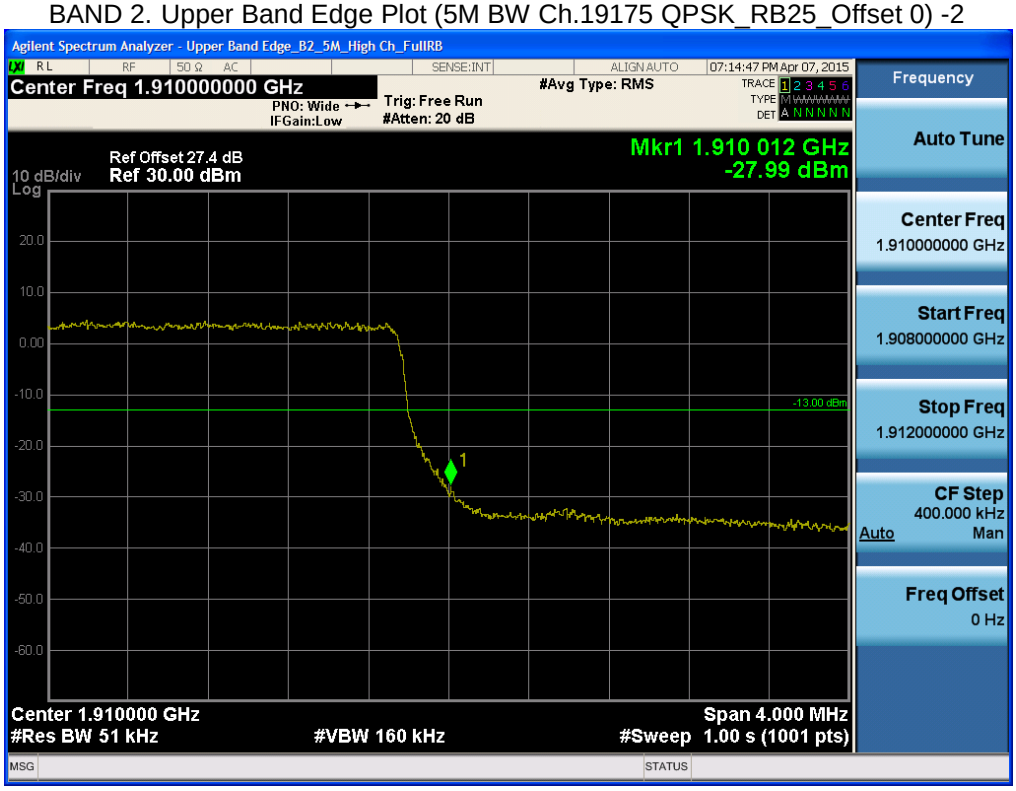
BAND 2. Upper Extended Band Edge Plot (3M BW Ch.19185 QPSK_RB15 0) -3



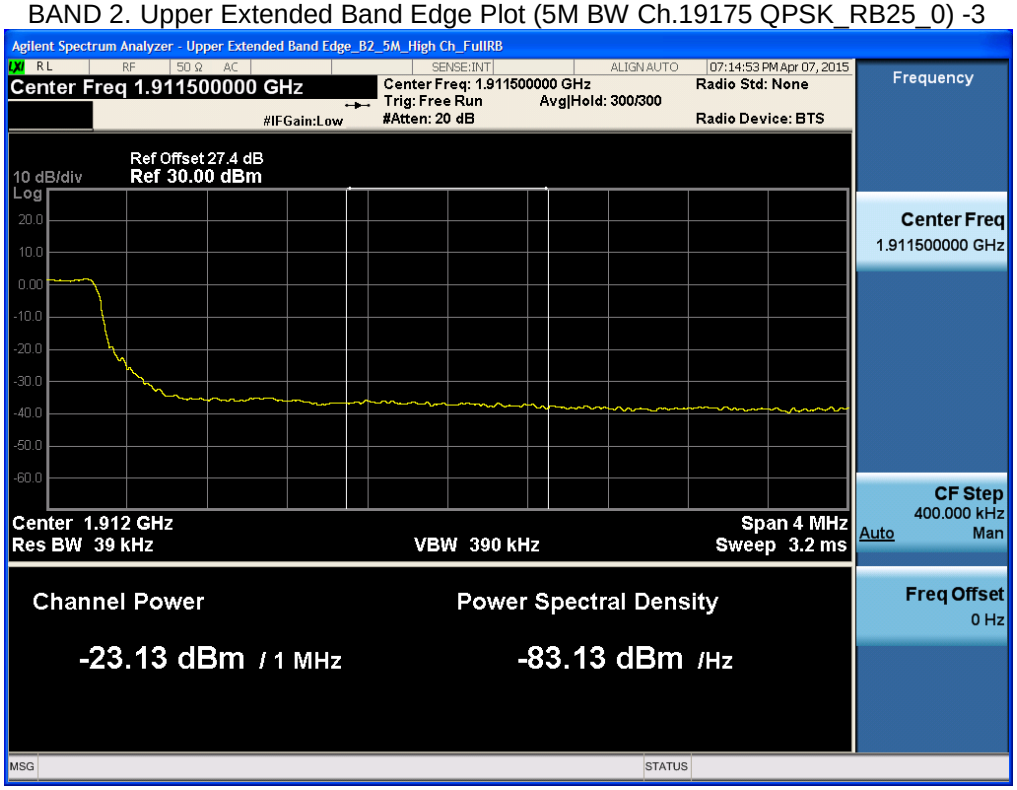
BAND 2. Upper Band Edge Plot (5M BW Ch.19175 QPSK_RB1_Offset 24) -1



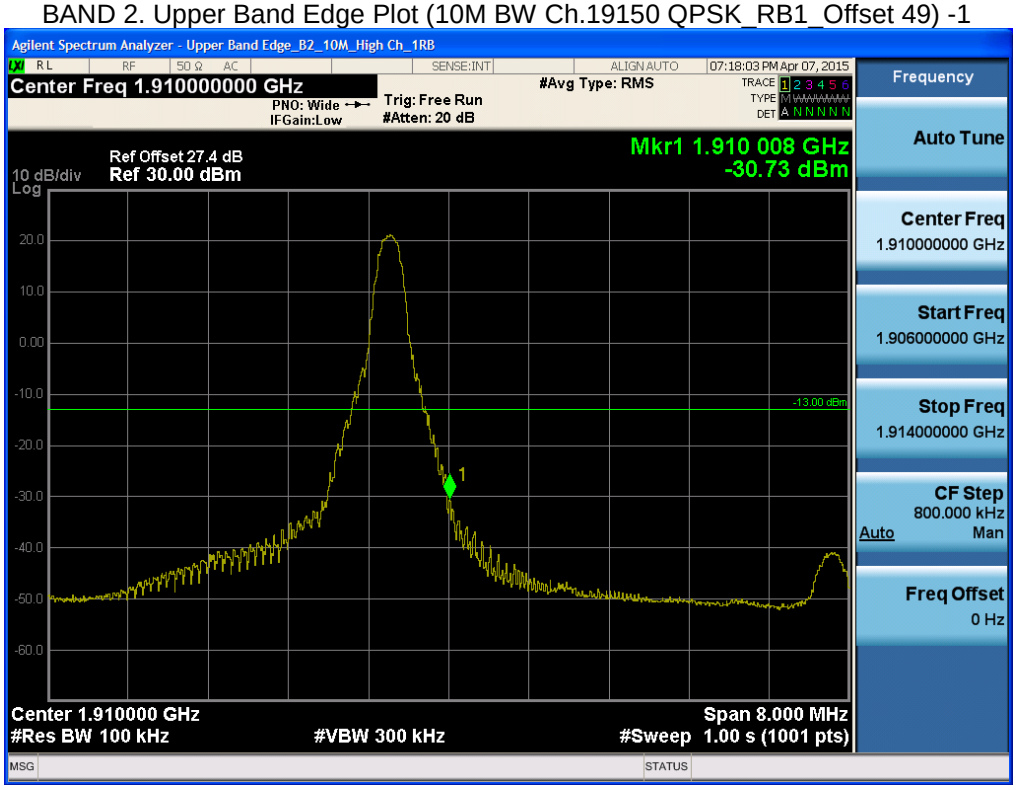
BAND 2. Upper Band Edge Plot (5M BW Ch.19175 QPSK_RB25_Offset 0) -2



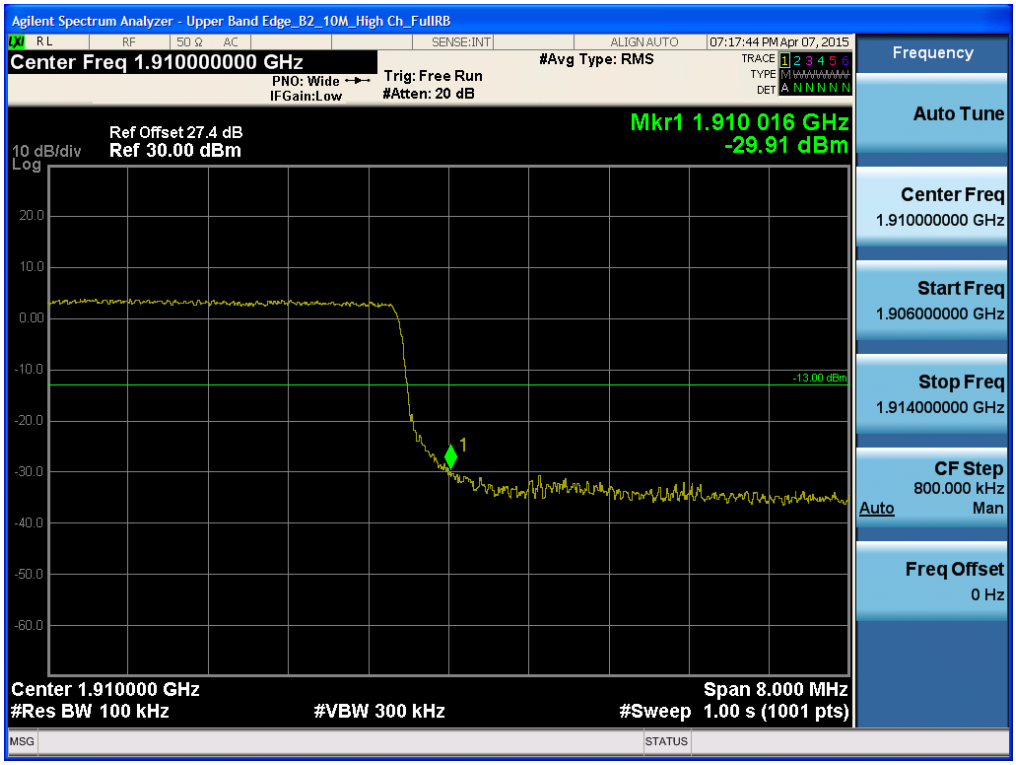
BAND 2. Upper Extended Band Edge Plot (5M BW Ch.19175 QPSK_RB25_0) -3



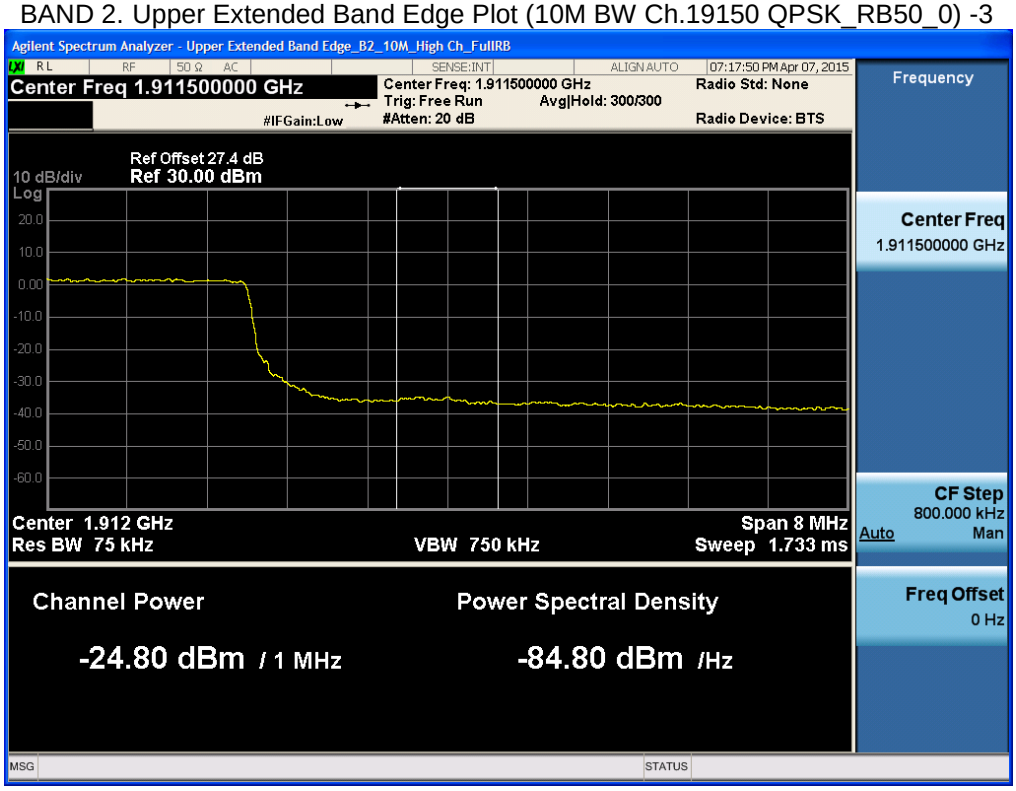
BAND 2. Upper Band Edge Plot (10M BW Ch.19150 QPSK_RB1_Offset 49) -1



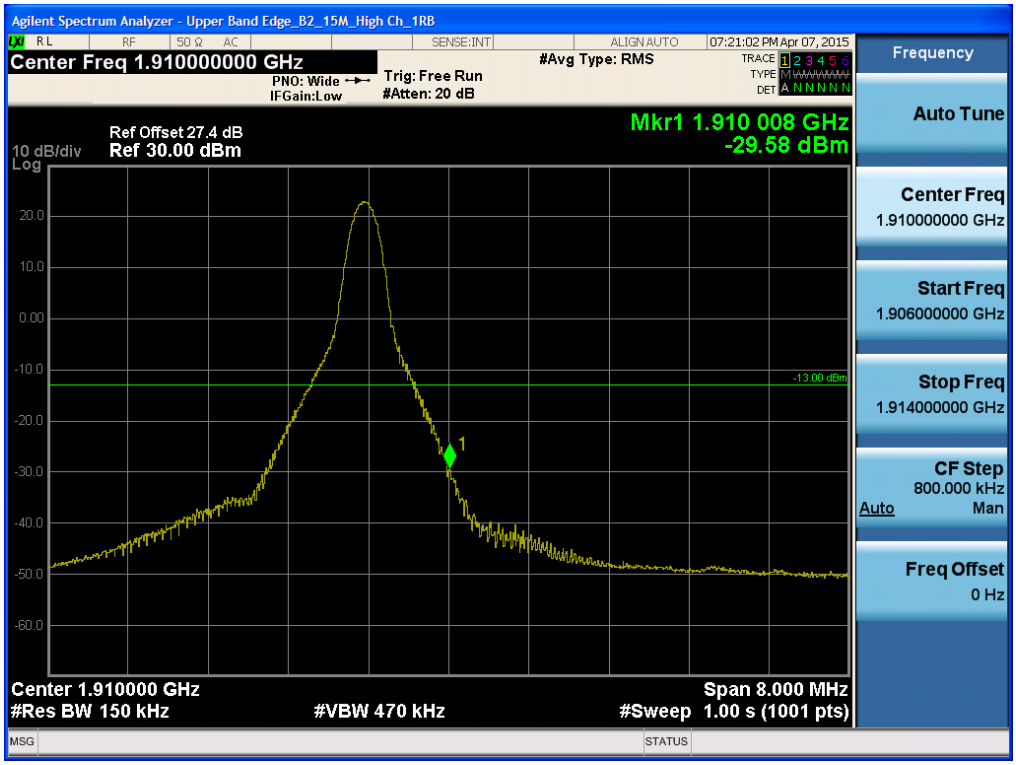
BAND 2. Upper Band Edge Plot (10M BW Ch.19150 QPSK_RB50_Offset 0) -2



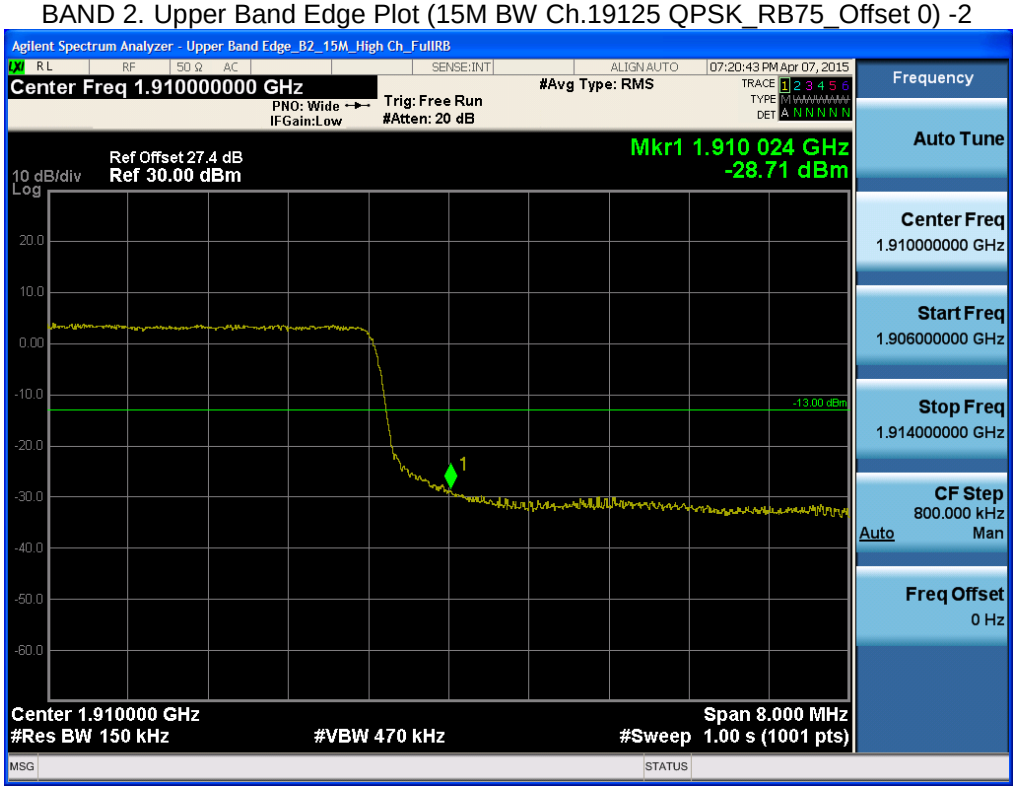
BAND 2. Upper Extended Band Edge Plot (10M BW Ch.19150 QPSK_RB50_0) -3



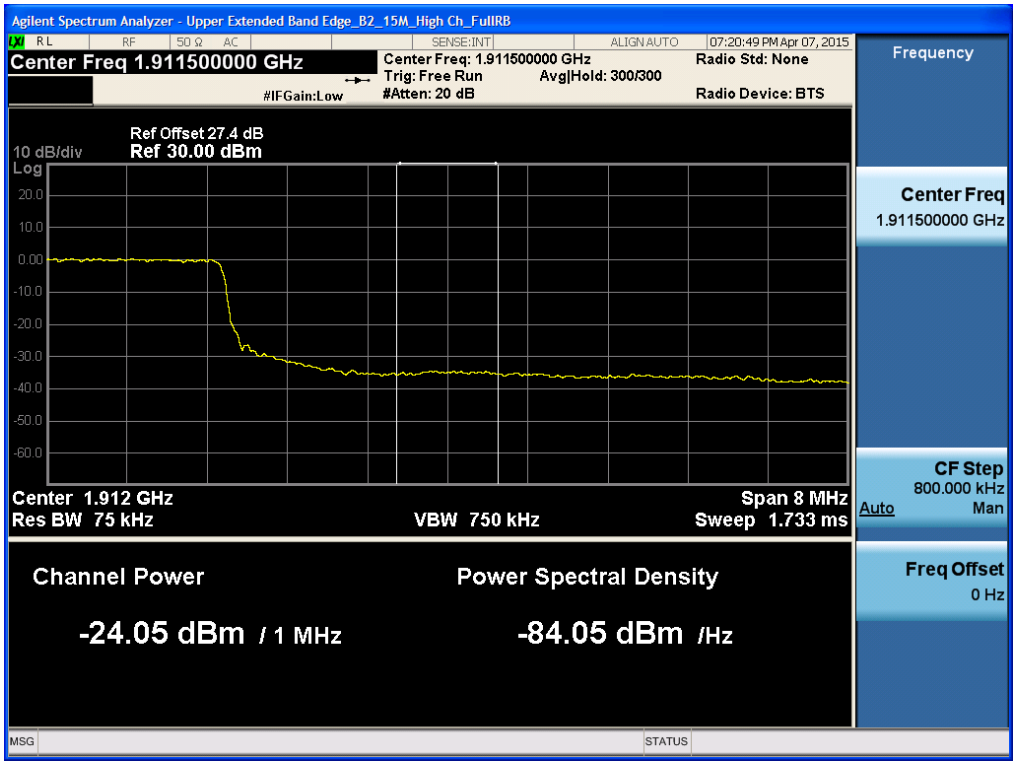
BAND 2. Upper Band Edge Plot (15M BW Ch.19125 QPSK_RB1_Offset 74) -1



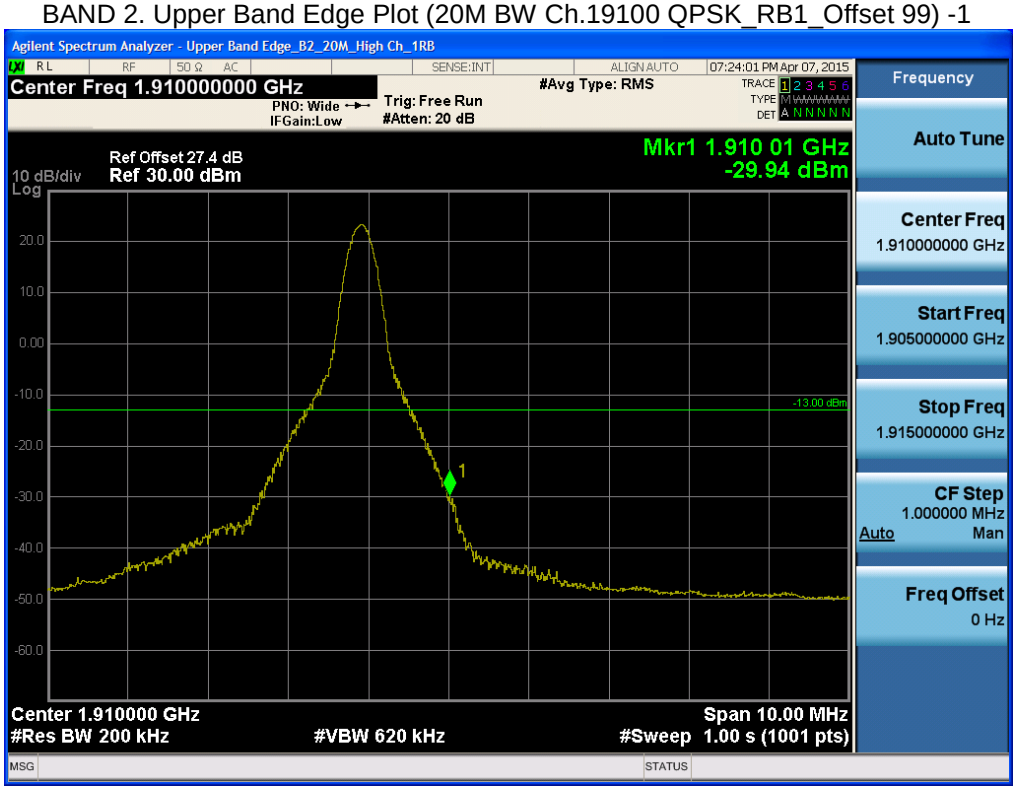
BAND 2. Upper Band Edge Plot (15M BW Ch.19125 QPSK_RB75_Offset 0) -2



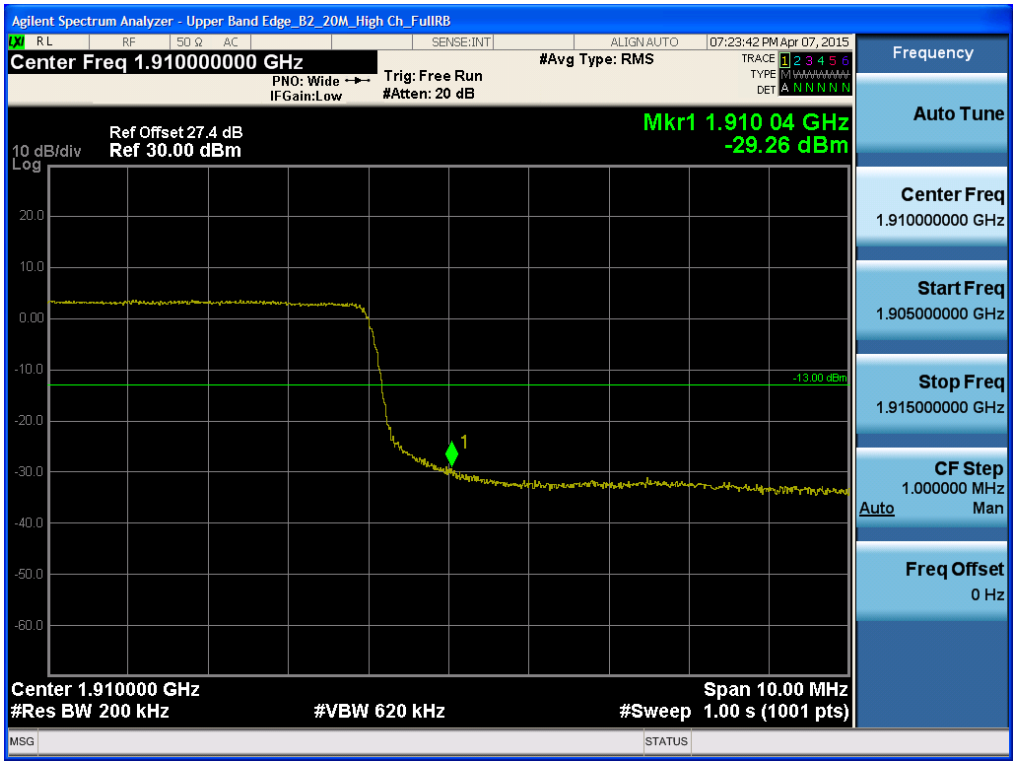
BAND 2. Upper Extended Band Edge Plot (15M BW Ch.19125 QPSK_RB75_0) -3



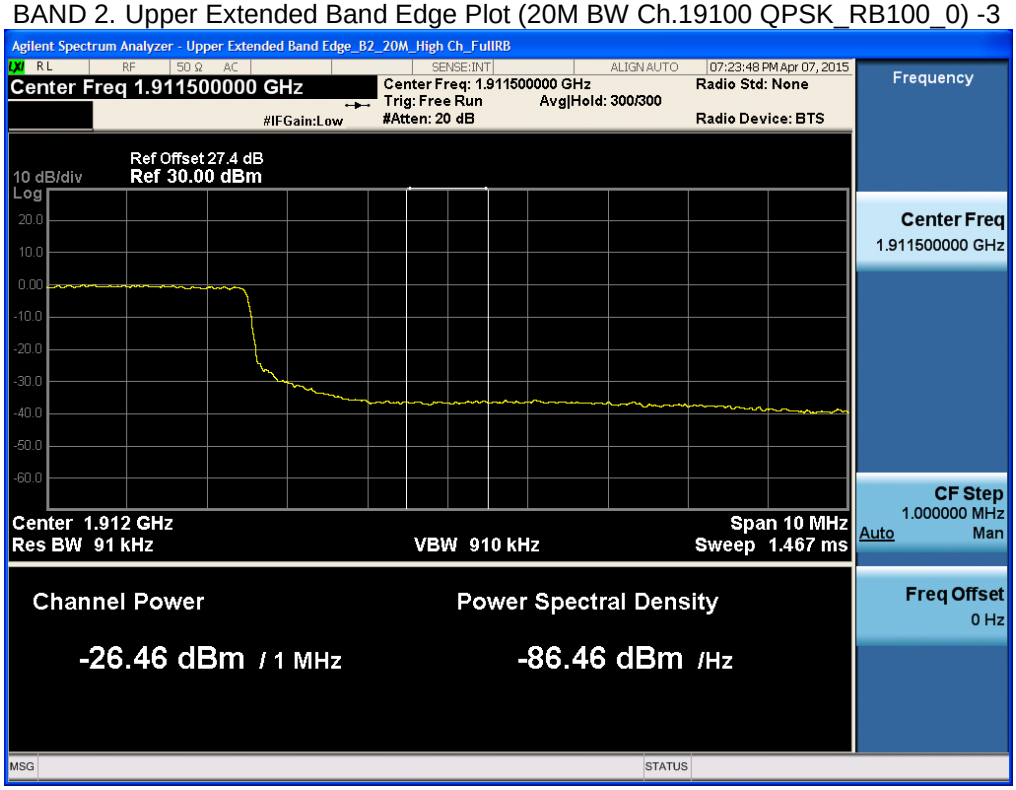
BAND 2. Upper Band Edge Plot (20M BW Ch.19100 QPSK_RB1_Offset 99) -1



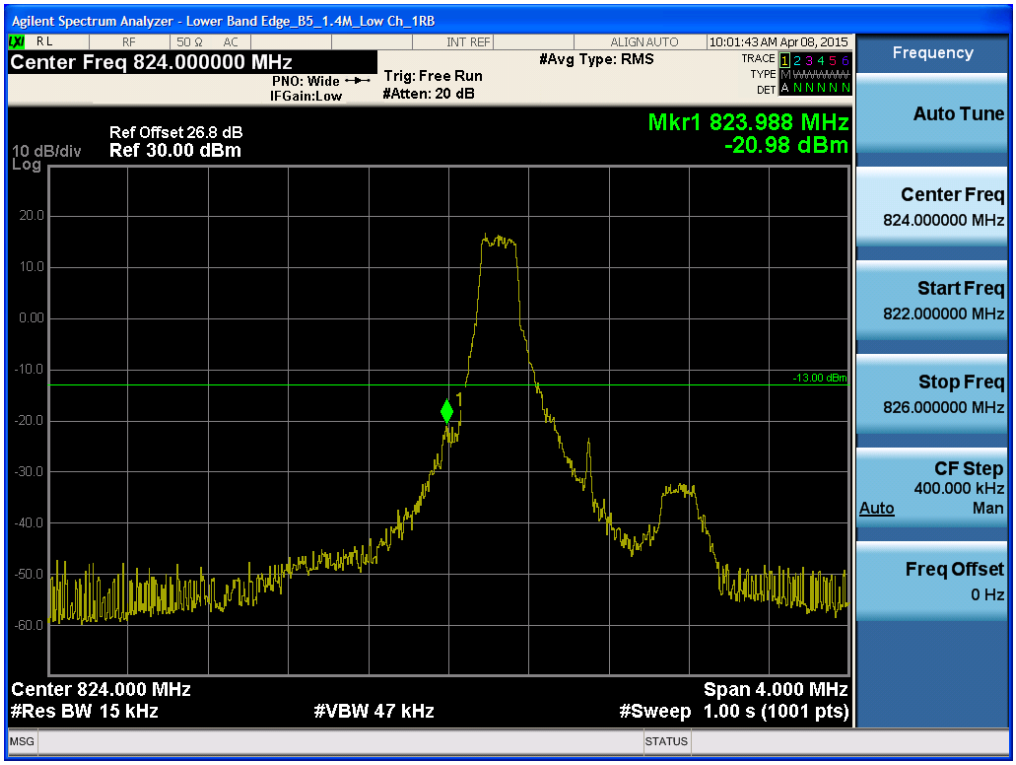
BAND 2. Upper Band Edge Plot (20M BW Ch.19100 QPSK_RB100_Offset 0) -2



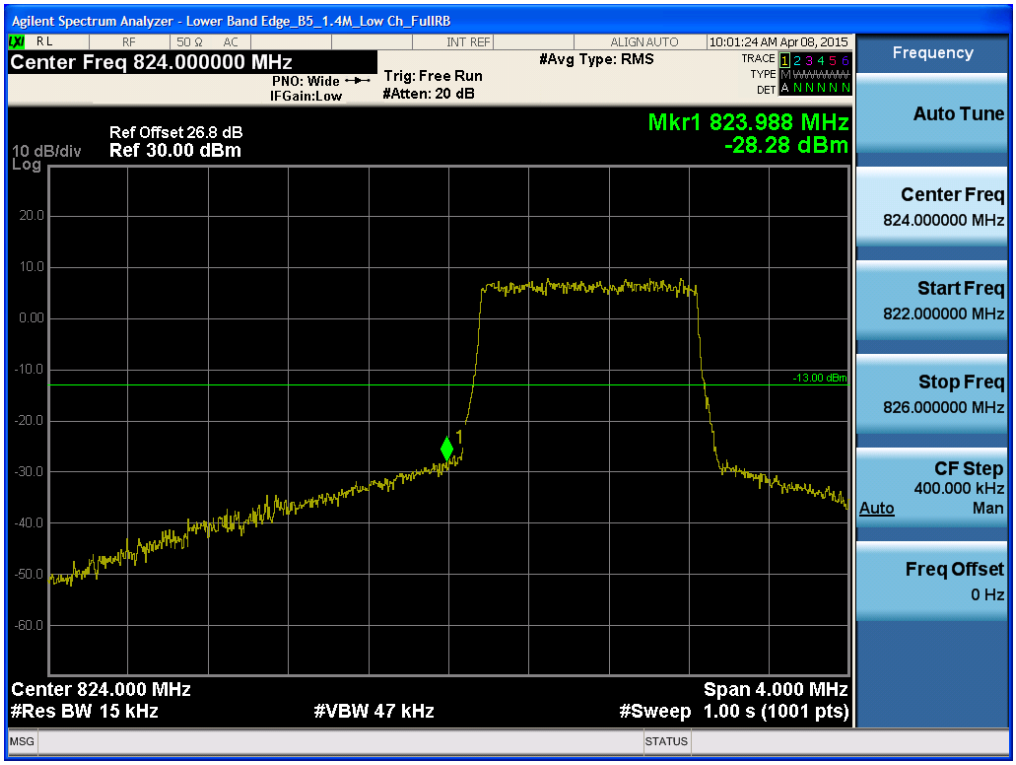
BAND 2. Upper Extended Band Edge Plot (20M BW Ch.19100 QPSK_RB100_0) -3



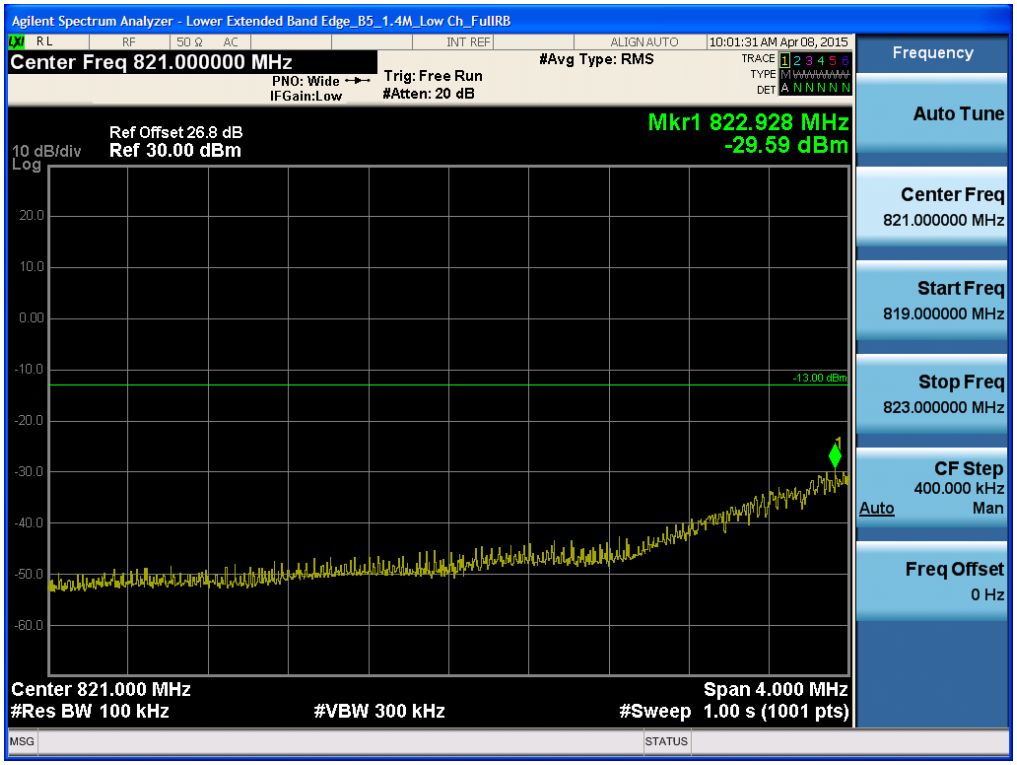
BAND 5. Lower Band Edge Plot (1.4M BW Ch.20407 QPSK_RB1_Offset 0)



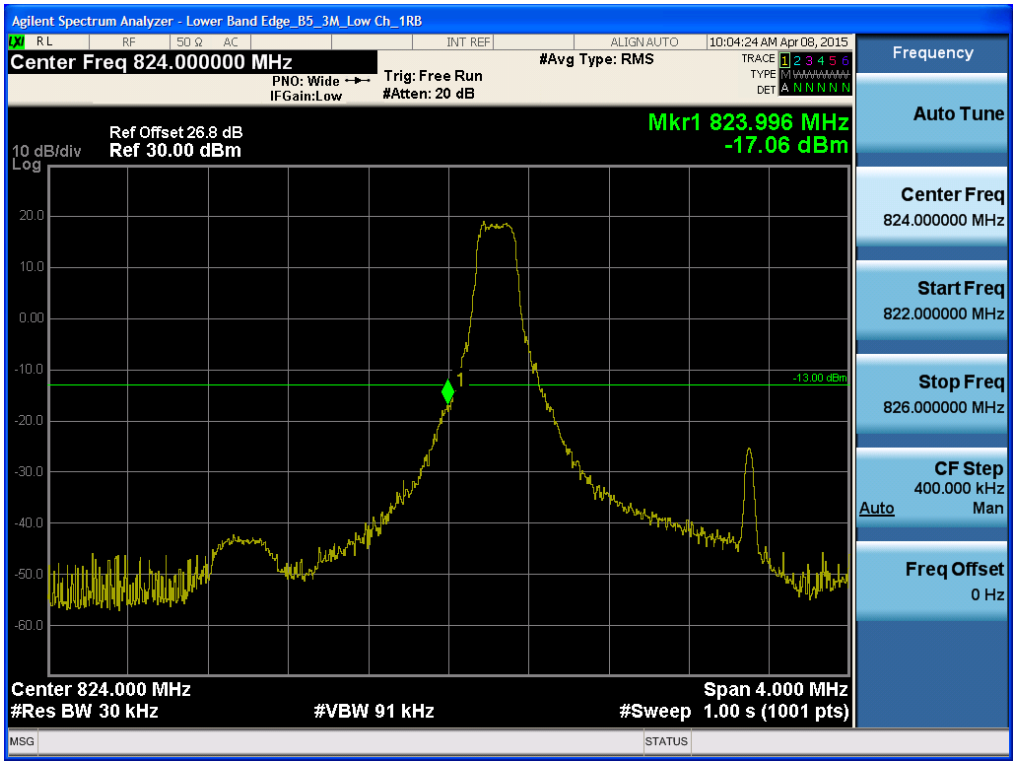
BAND 5. Lower Band Edge Plot (1.4M BW Ch.20407 QPSK_RB6_Offset 0)



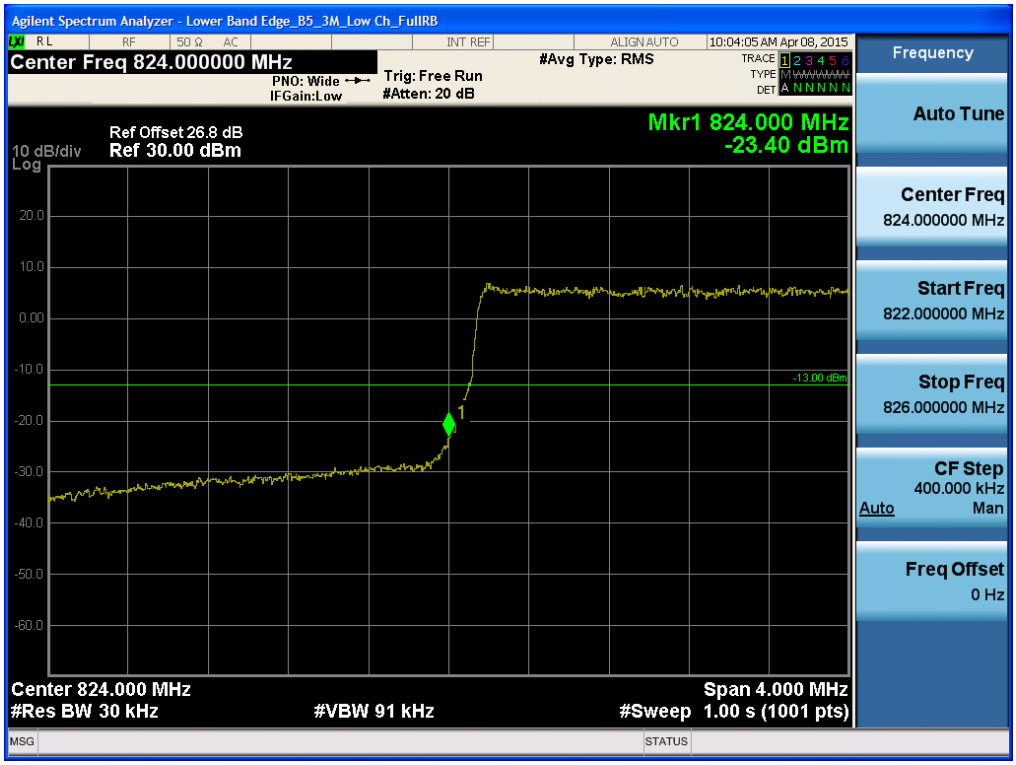
BAND 5. Lower Extended Band Edge Plot (1.4M BW Ch.20407 QPSK_RB6_0)



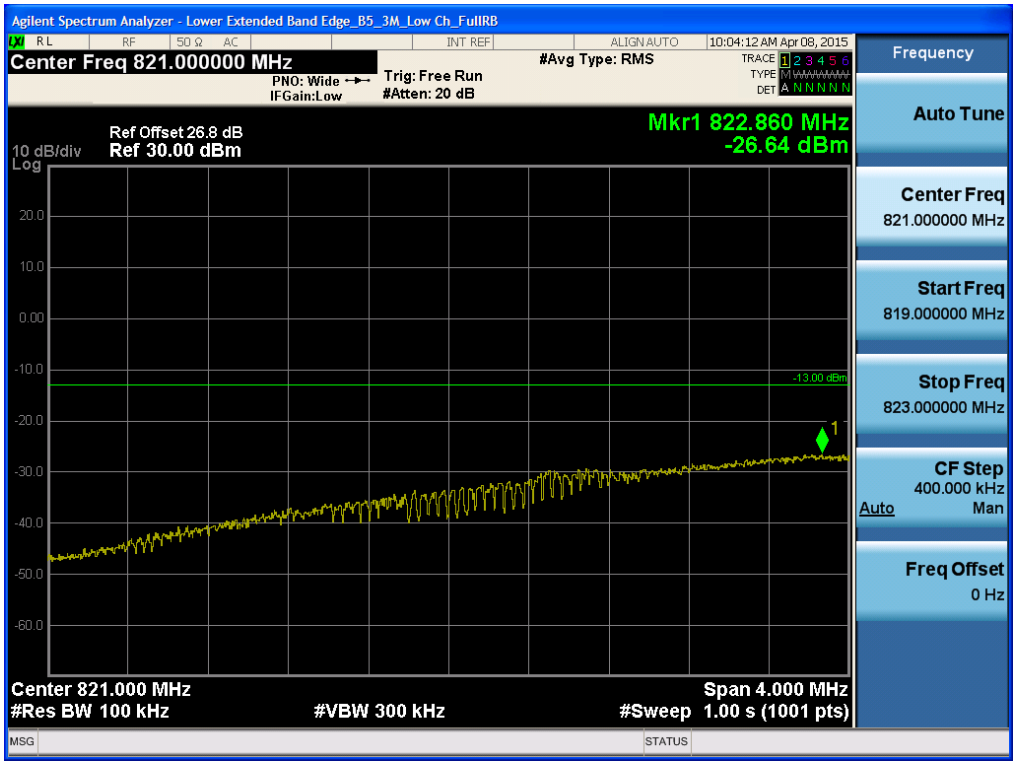
BAND 5. Lower Band Edge Plot (3M BW Ch.20415 QPSK_RB1_Offset 0)



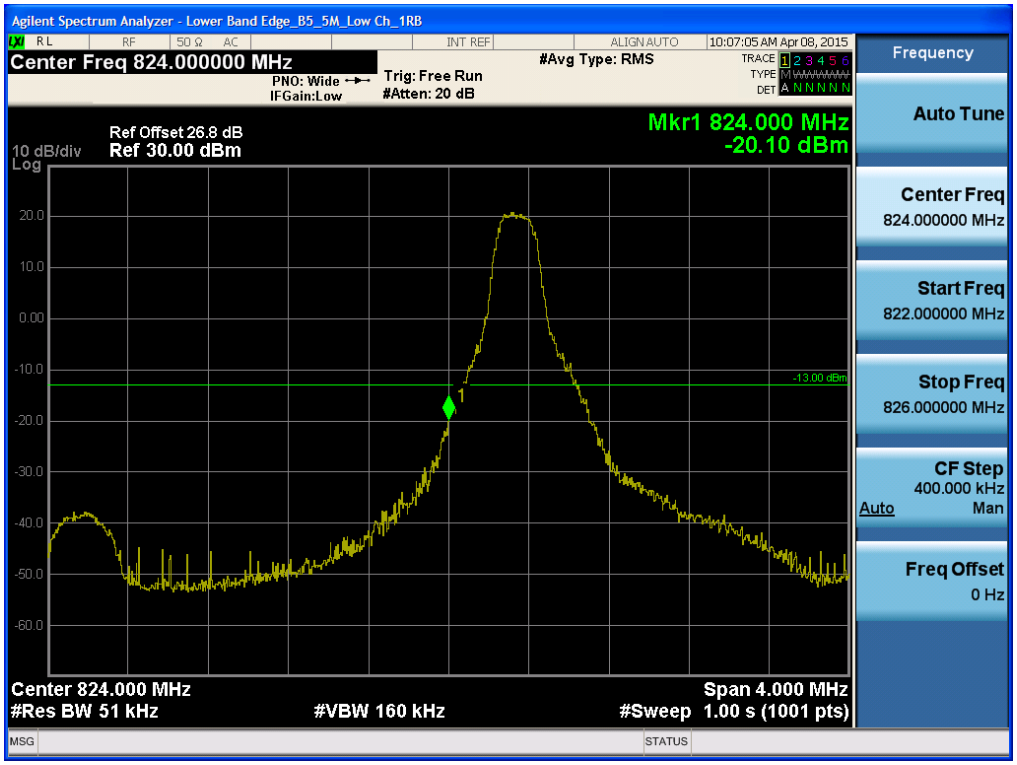
BAND 5. Lower Band Edge Plot (3M BW Ch.20415 QPSK_RB15_Offset 0)



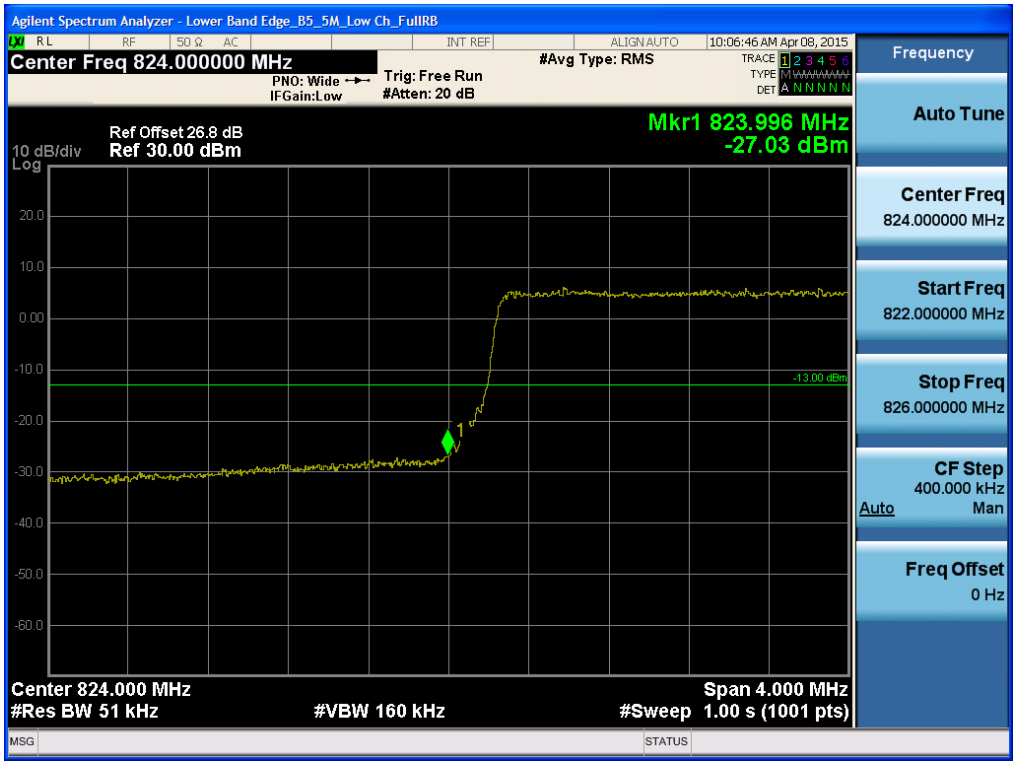
BAND 5. Lower Extended Band Edge Plot (3M BW Ch.20415 QPSK_RB15_0)



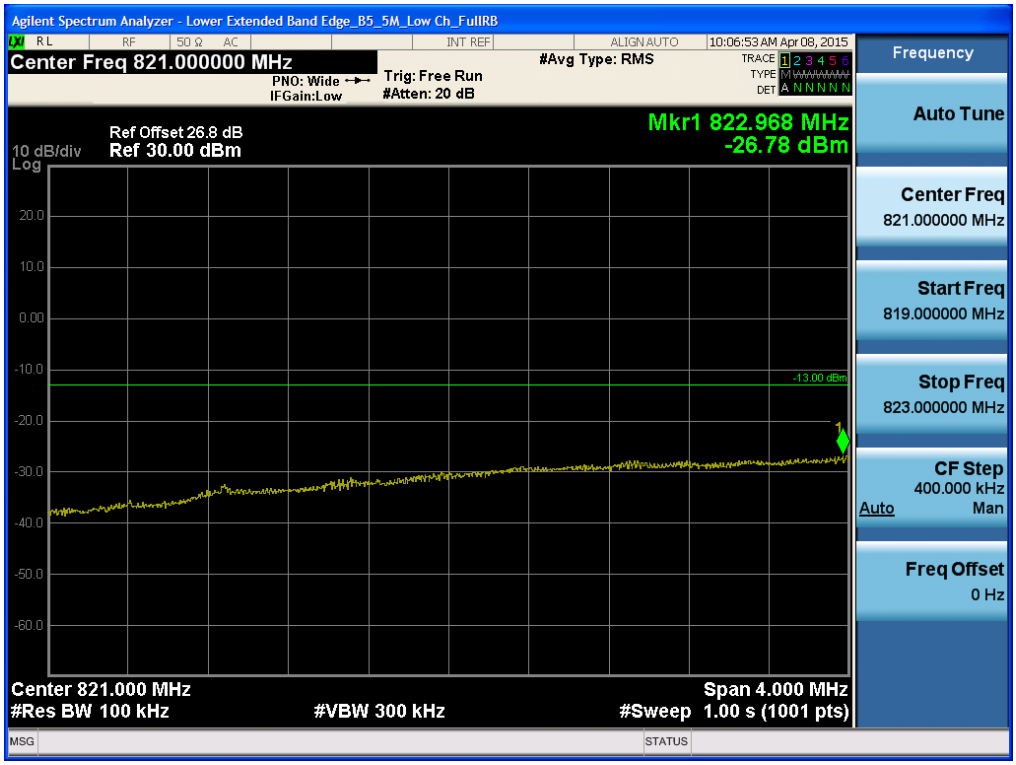
BAND 5. Lower Band Edge Plot (5M BW Ch.20425 QPSK_RB1_Offset 0)



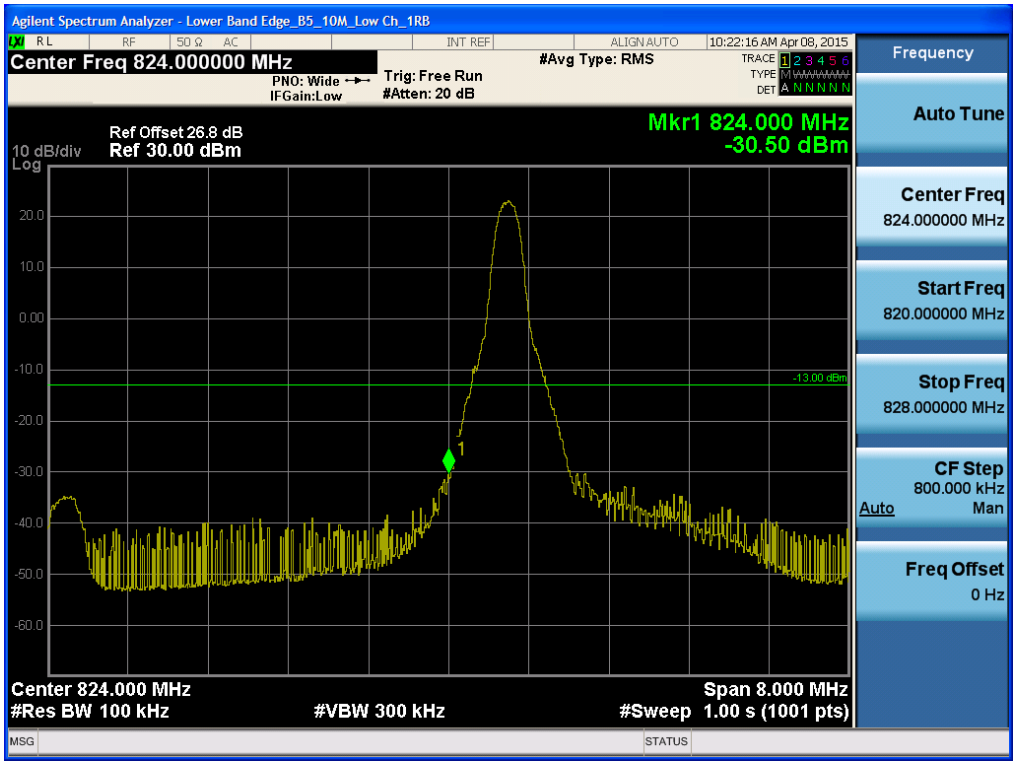
BAND 5. Lower Band Edge Plot (5M BW Ch.20425 QPSK_RB25_Offset 0)



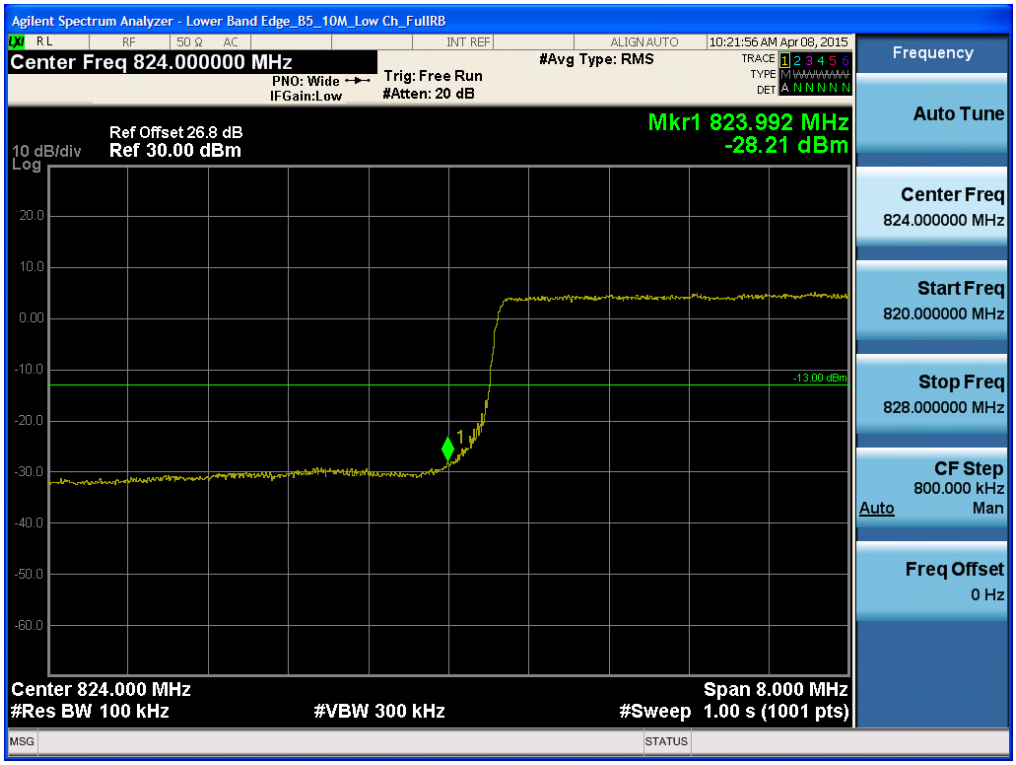
BAND 5. Lower Extended Band Edge Plot (5M BW Ch.20425 QPSK_RB25_0)



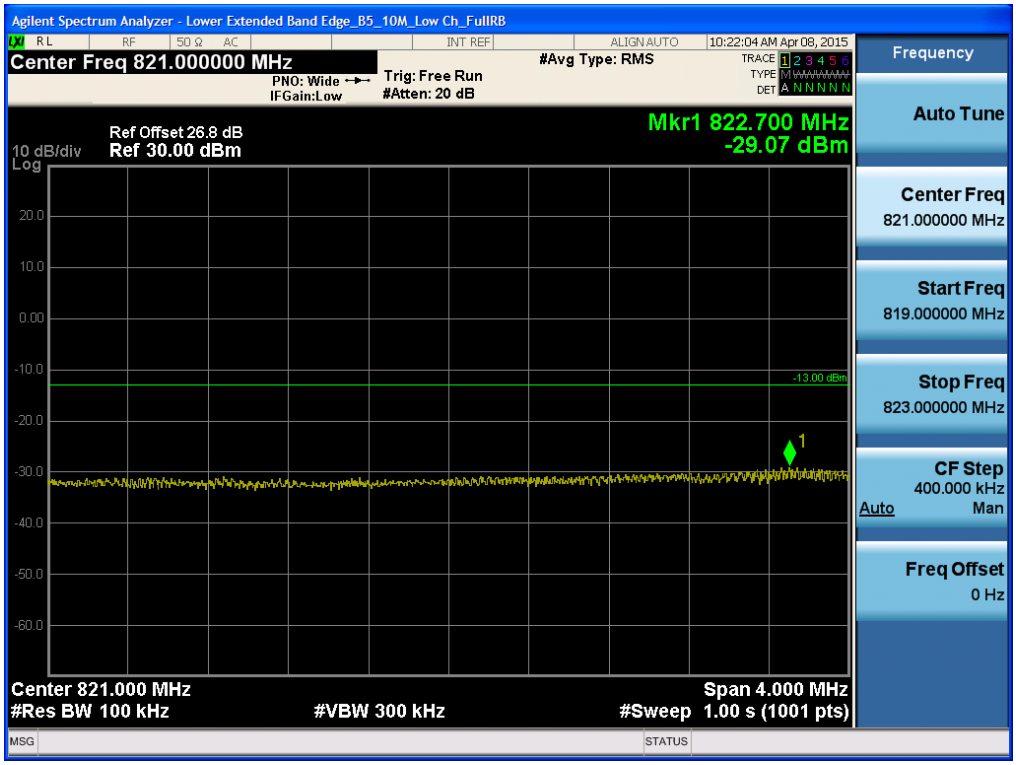
BAND 5. Lower Band Edge Plot (10M BW Ch.20450 QPSK_RB1_Offset 0)



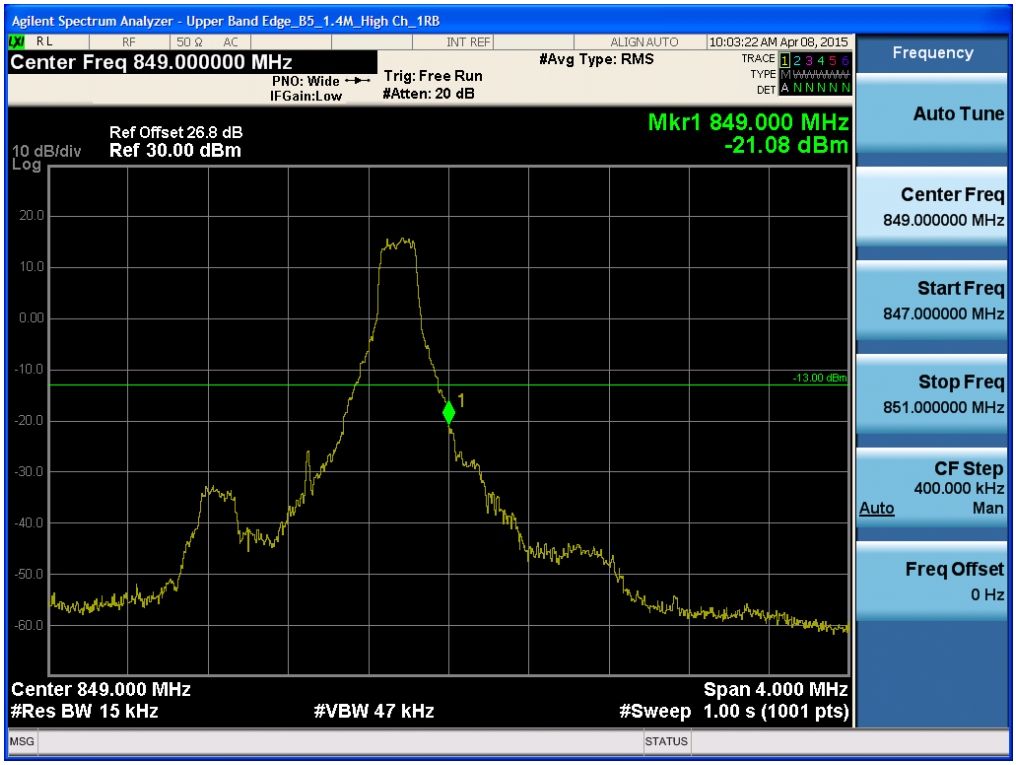
BAND 5. Lower Band Edge Plot (10M BW Ch.20450 QPSK_RB50_Offset 0)



BAND 5. Lower Extended Band Edge Plot (10M BW Ch.20450 QPSK_RB50_0)

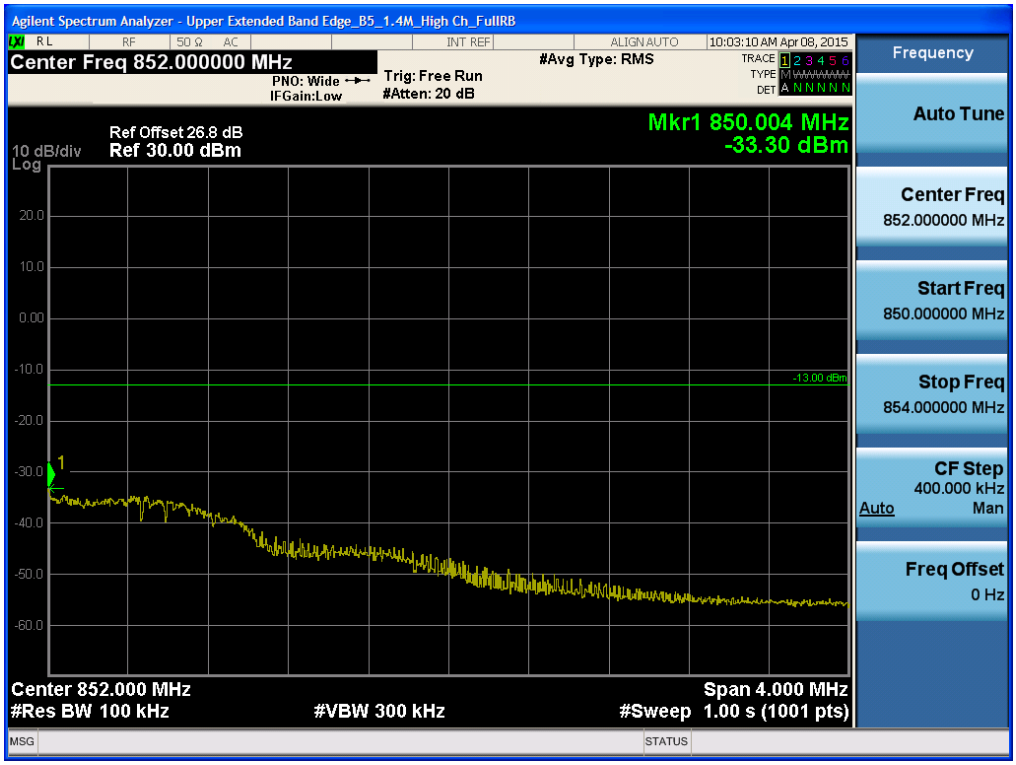
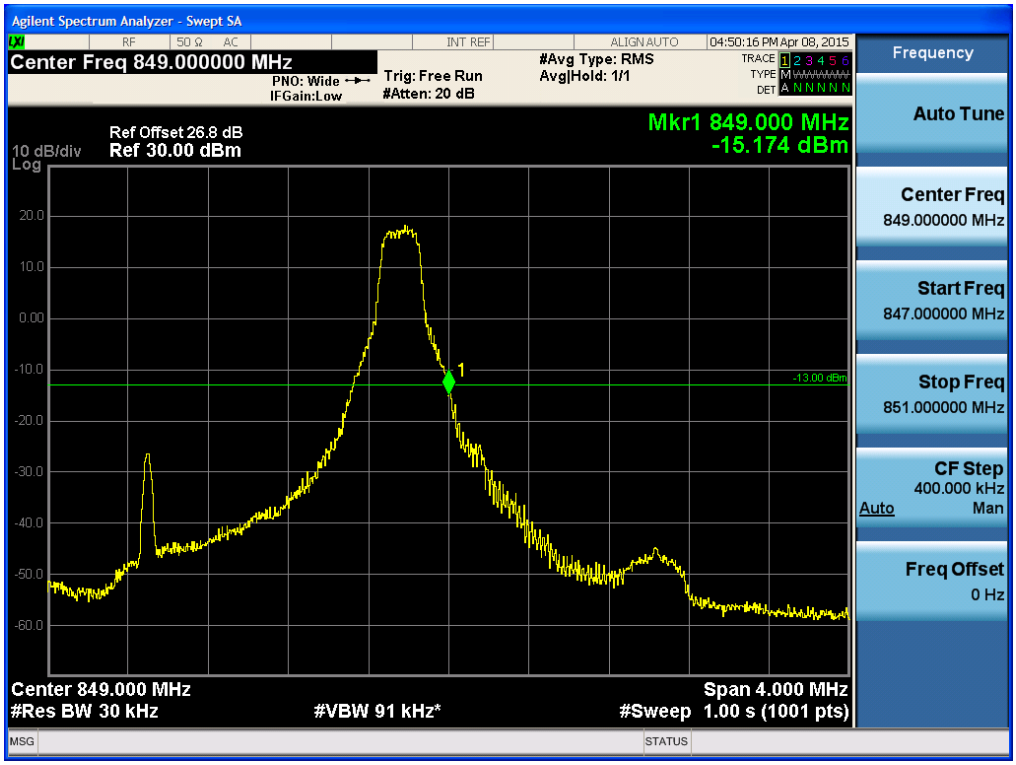


BAND 5. Upper Band Edge Plot (1.4M BW Ch.20643 QPSK_RB1_Offset 5)



BAND 5. Upper Band Edge Plot (1.4M BW Ch.20643 QPSK_RB6_Offset 0)

BAND 5. Upper Extended Band Edge Plot (1.4M BW Ch.20643 QPSK_RB6_0)



BAND 5. Upper Band Edge Plot (3M BW Ch.20635 QPSK_RB1_Offset 14)