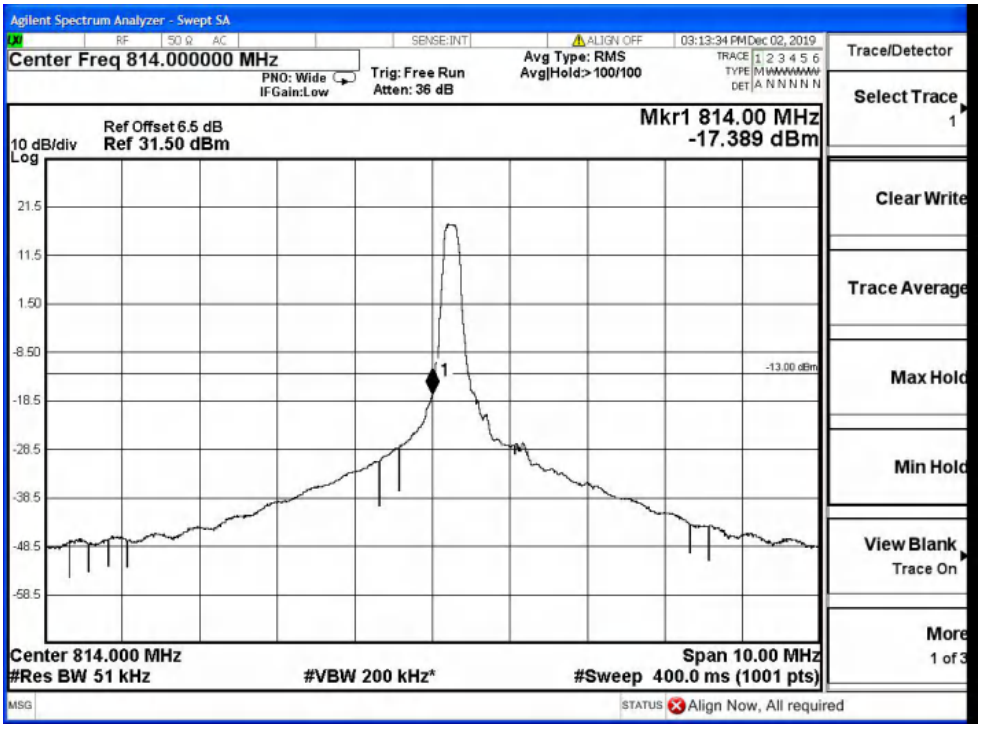
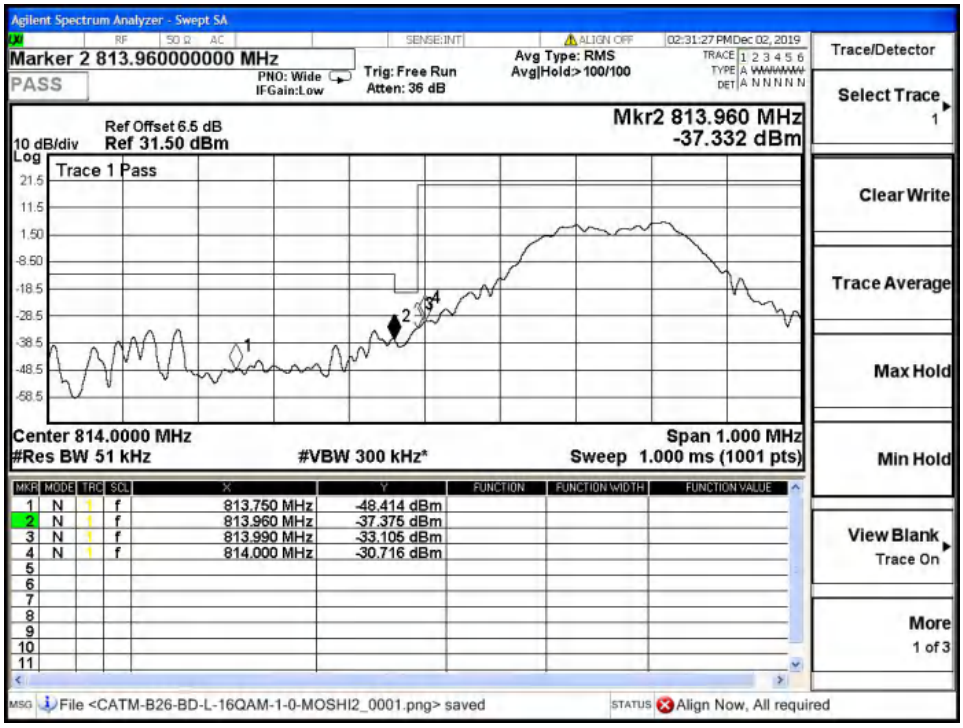
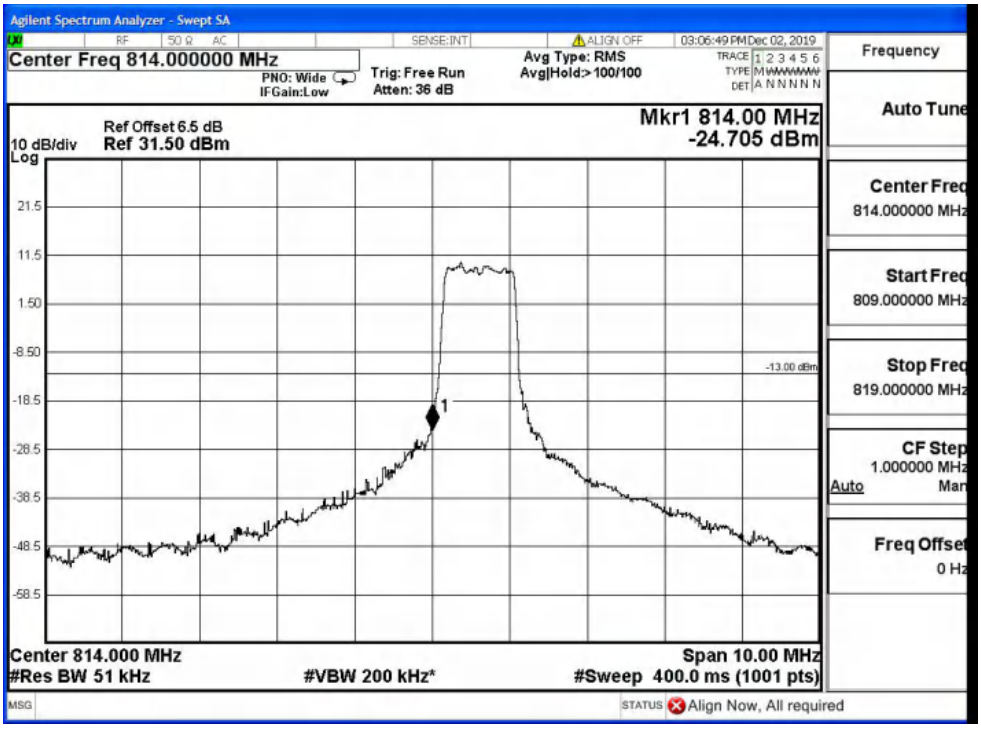


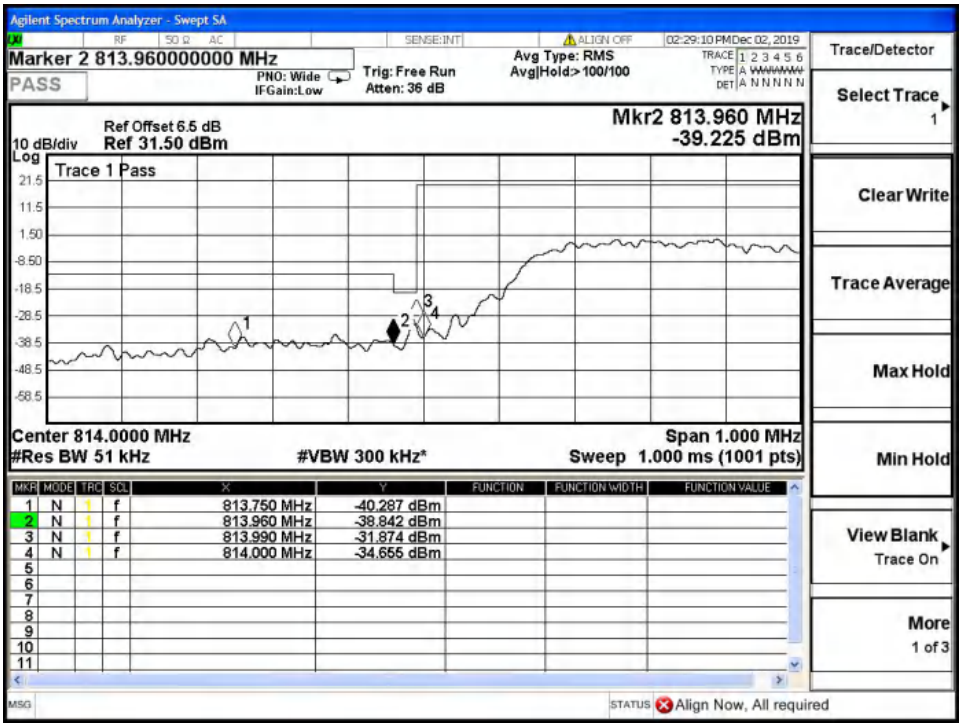
Band26-Low Channel-1.4MHz Bandwidth-1RB-QPSK



Band26-Low Channel-1.4MHz Bandwidth-1RB-QPSK



Band26-Low Channel-1.4MHz Bandwidth-6RB-16QAM



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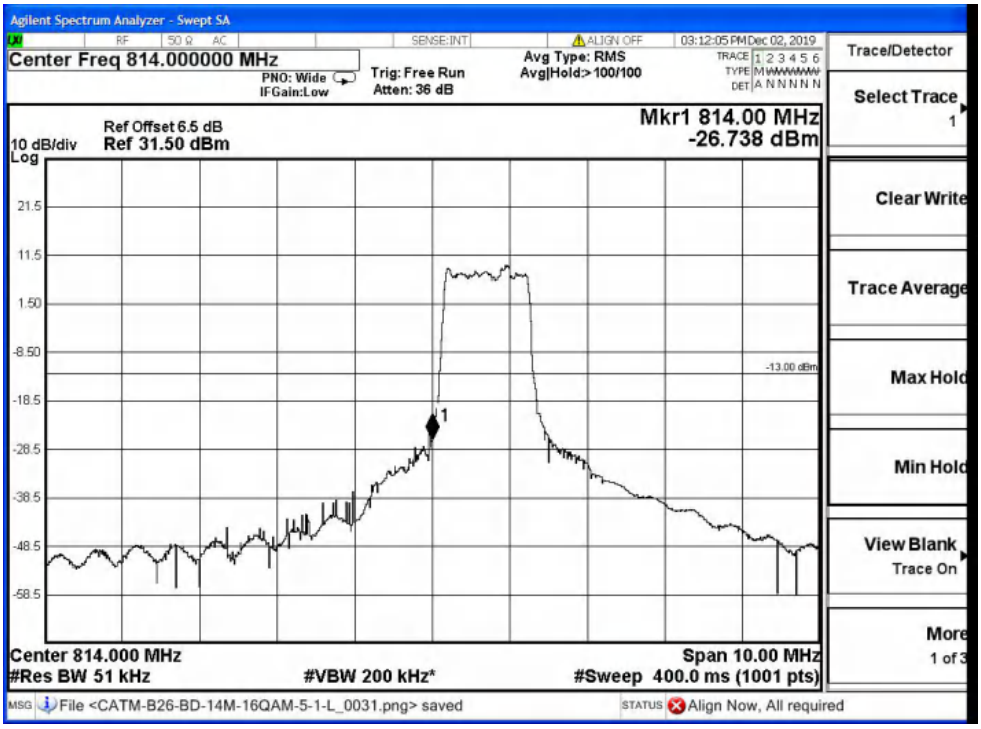

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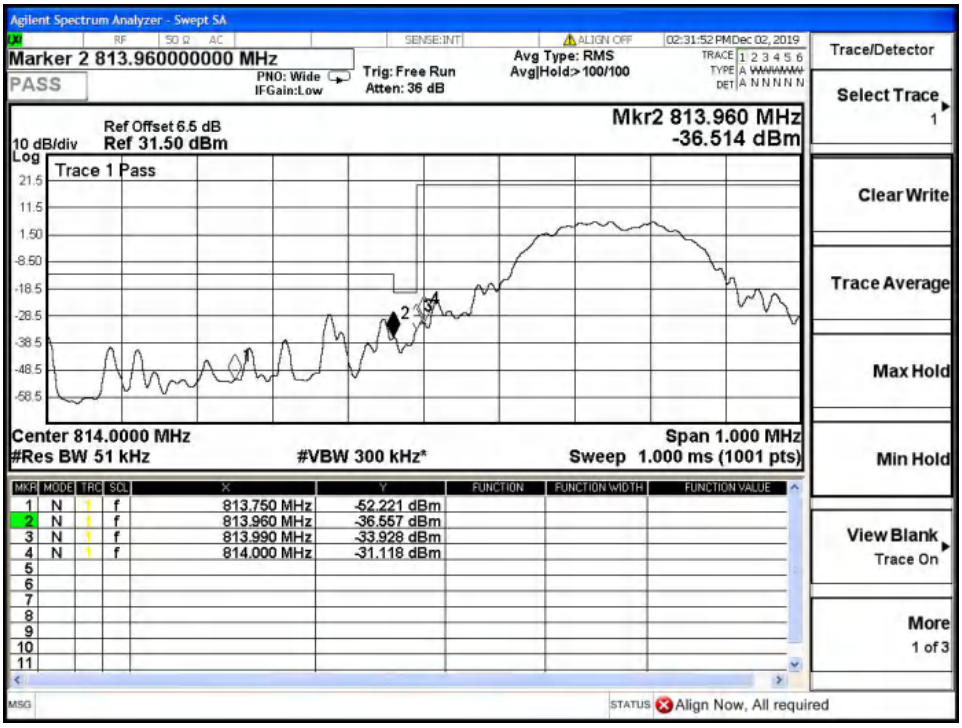

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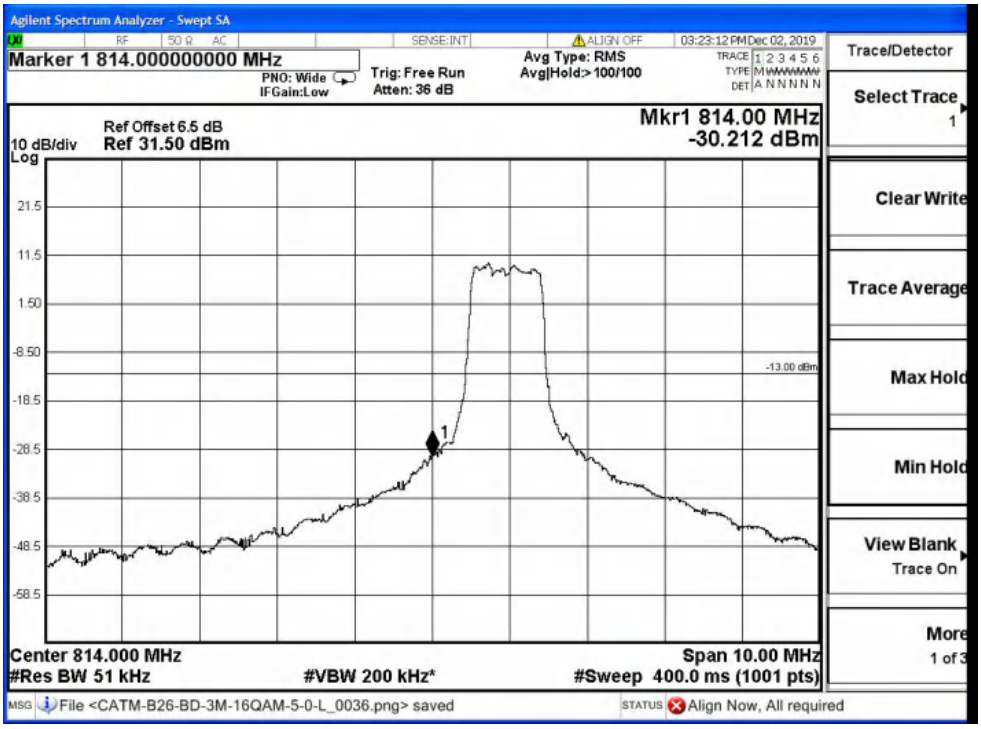
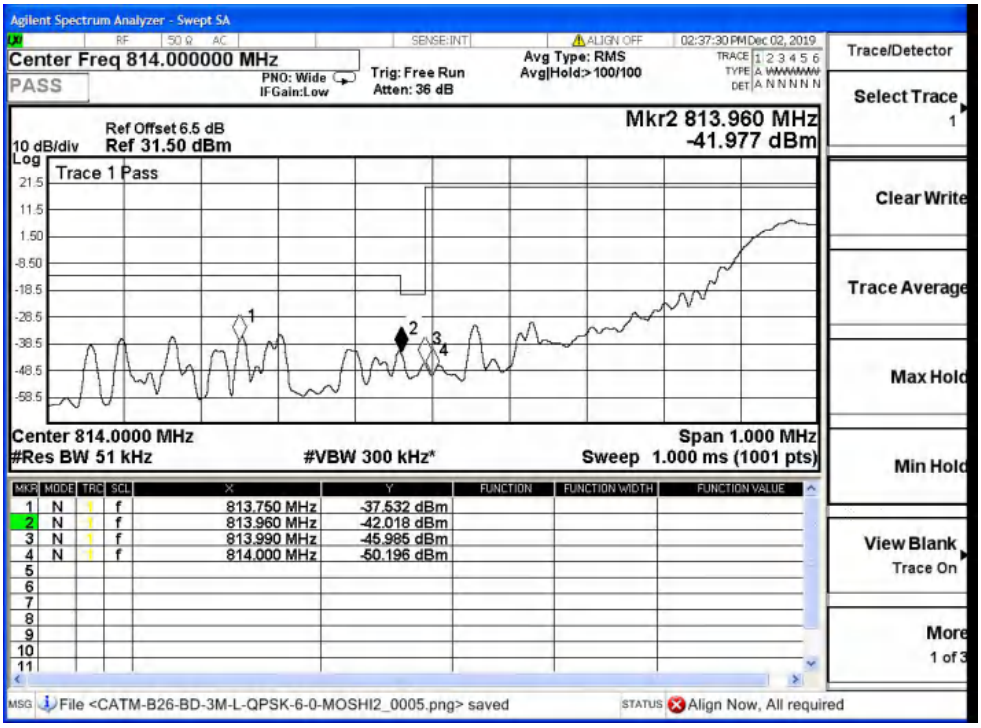
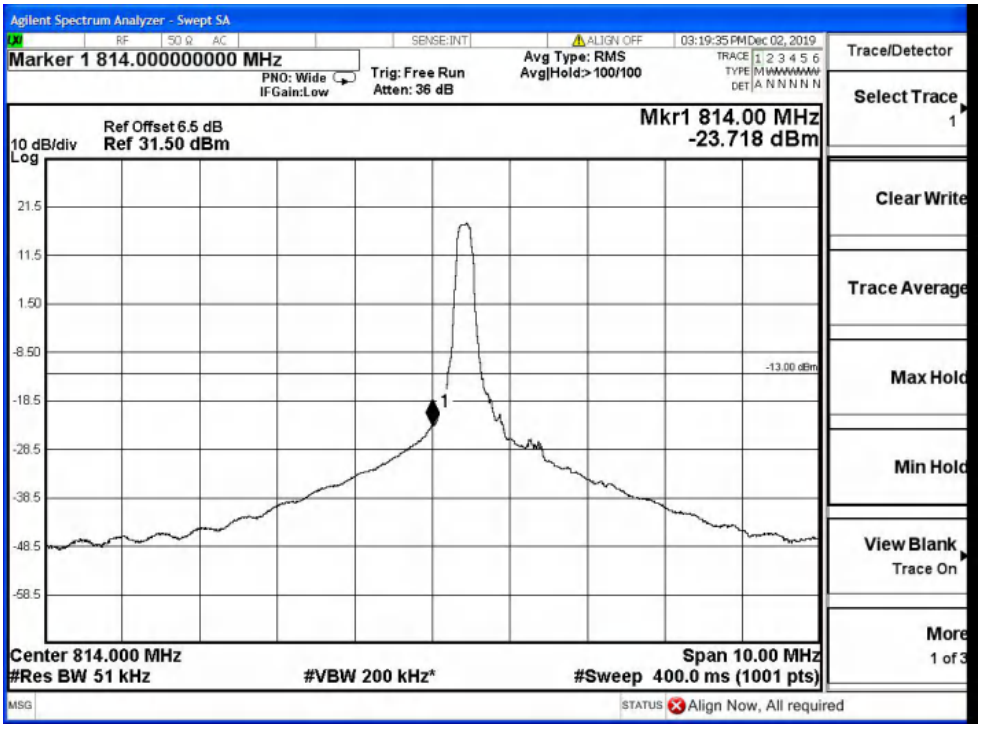


Band26-Low Channel-3MHz Bandwidth-5@1RB-16QAM



Band26-Low Channel-3MHz Bandwidth-1RB-16QAM



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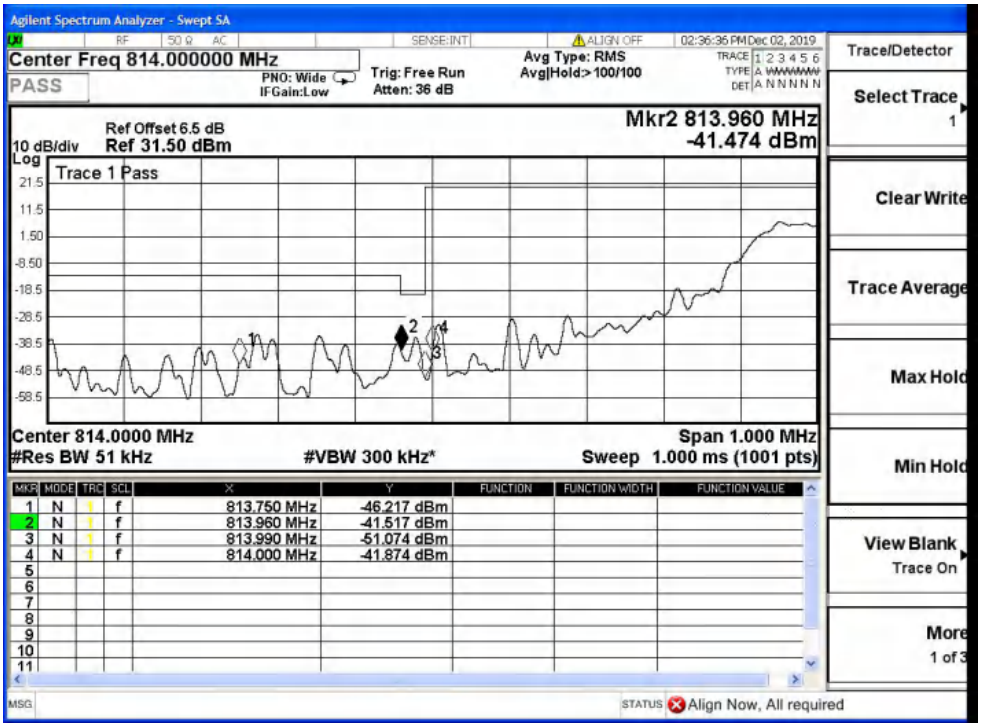

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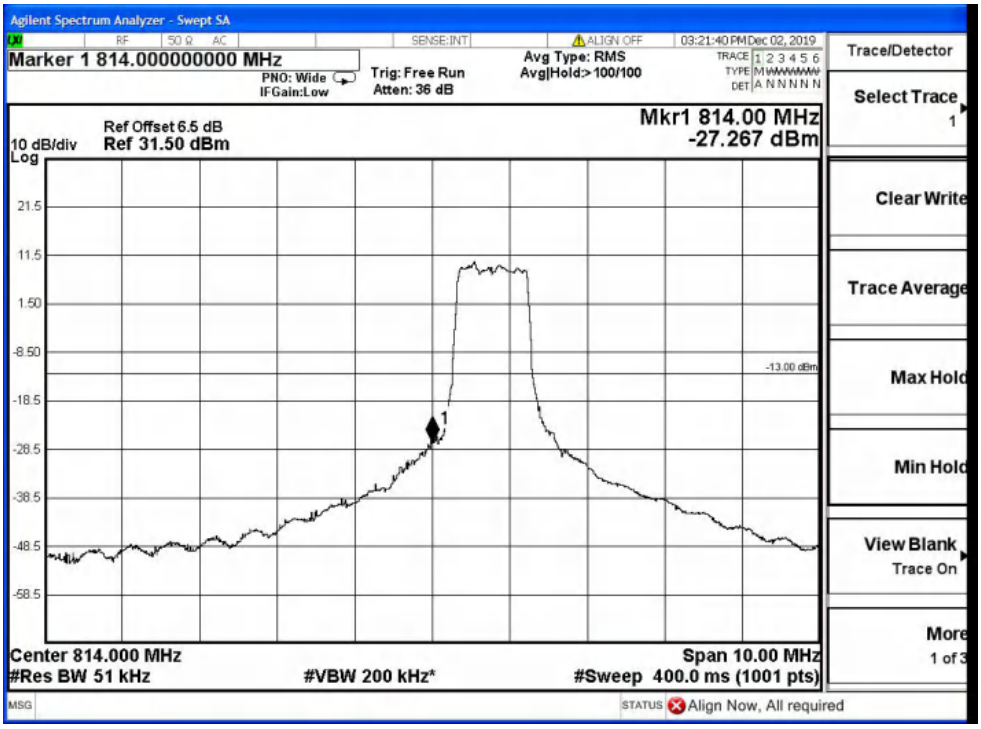

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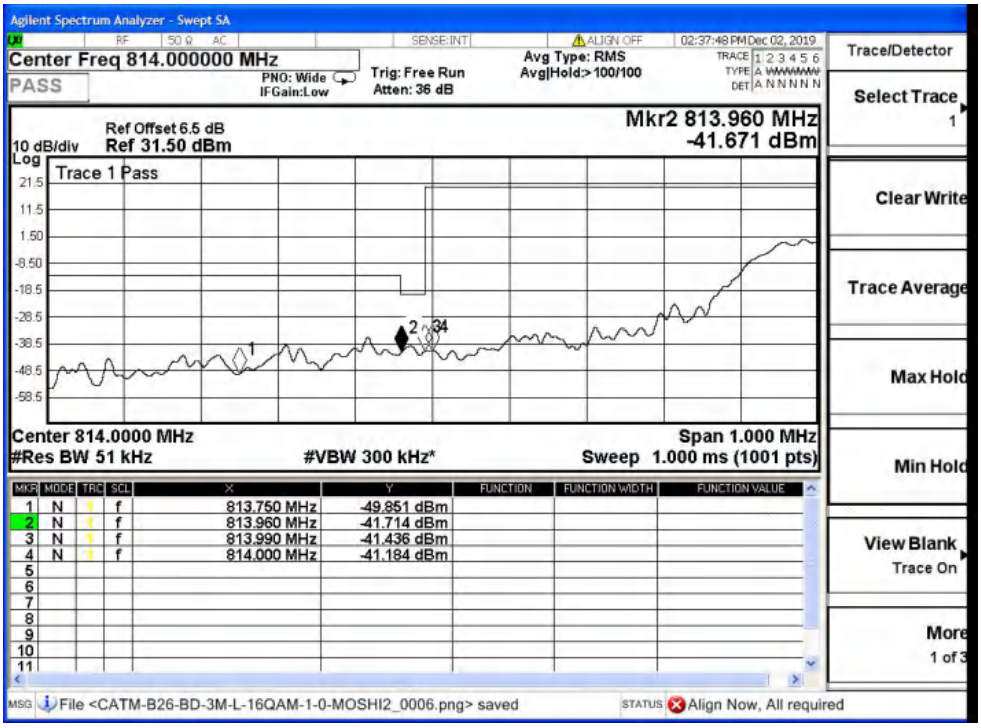

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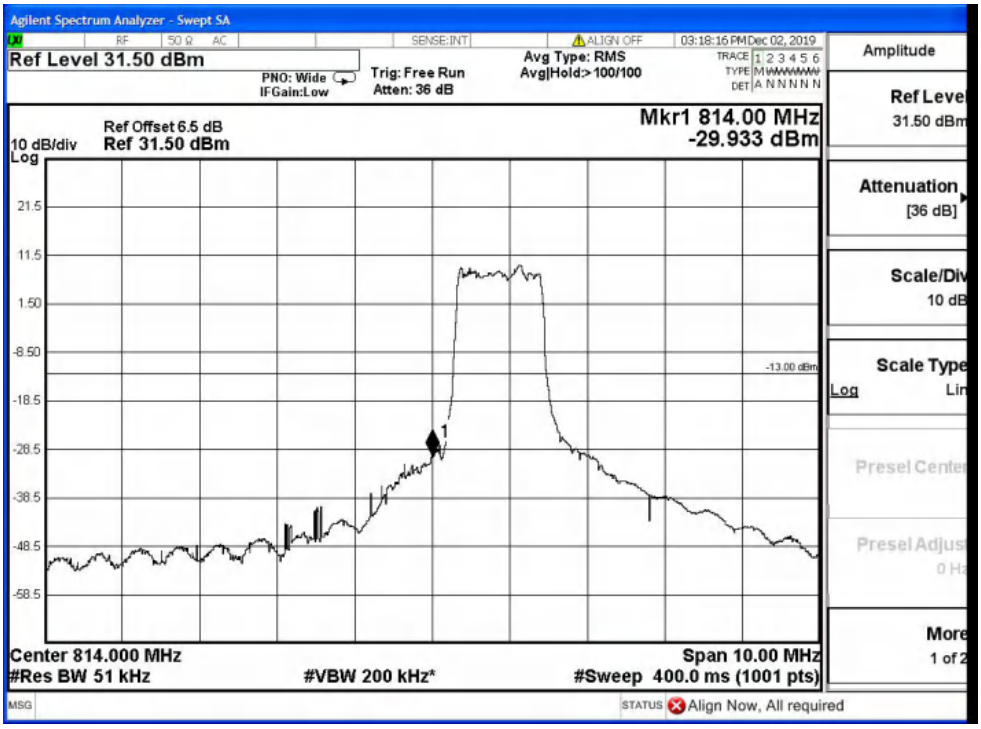

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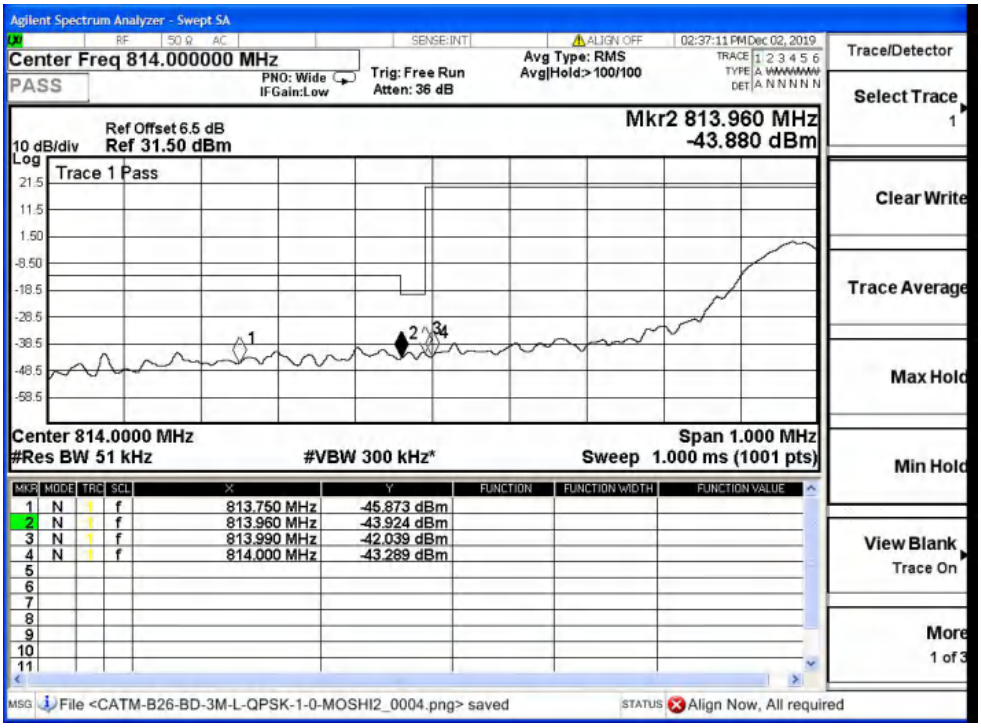

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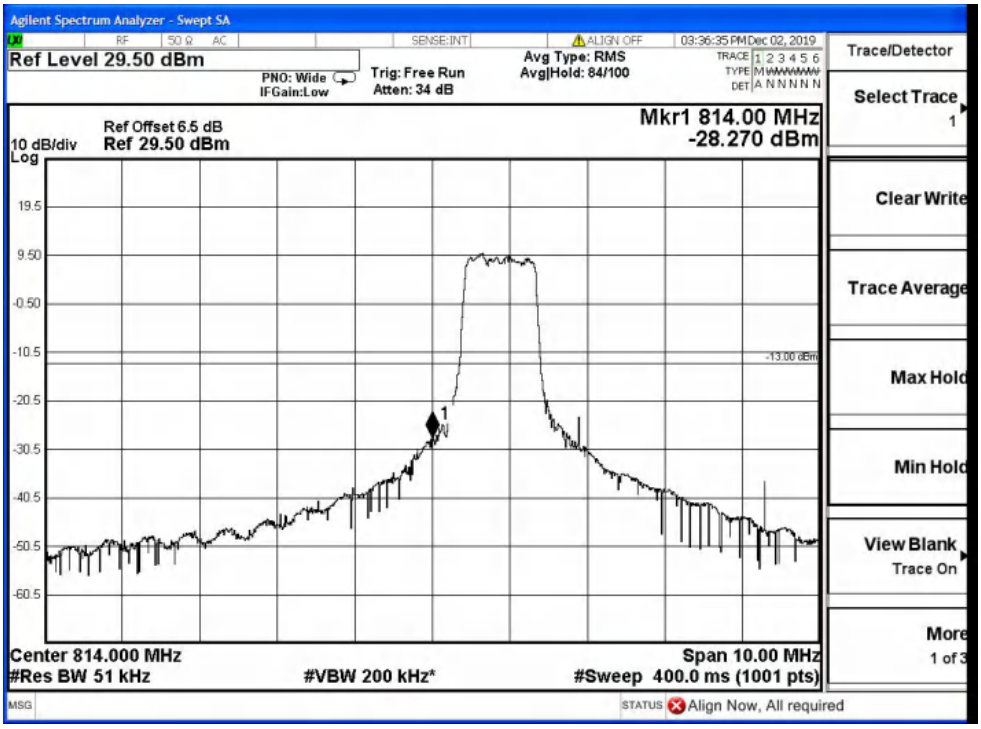
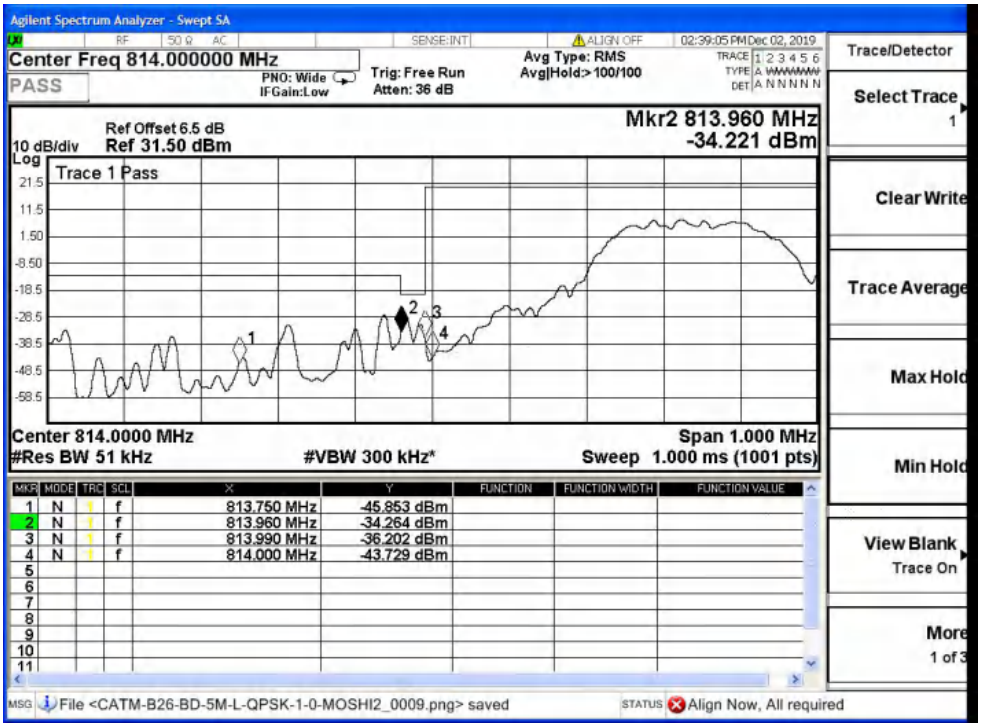
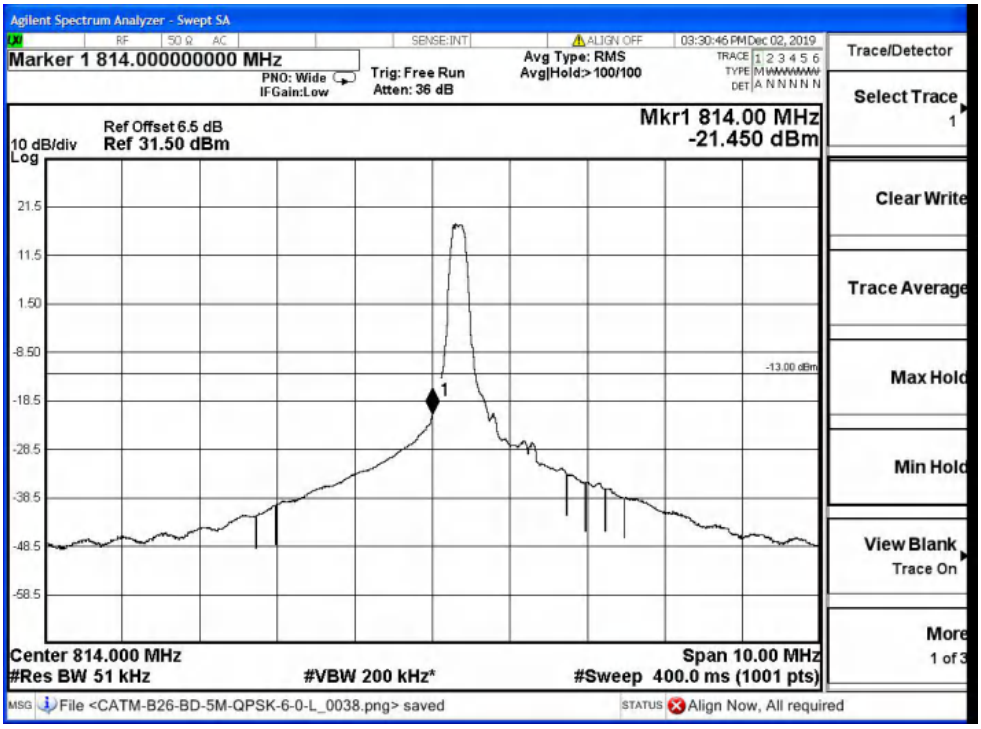


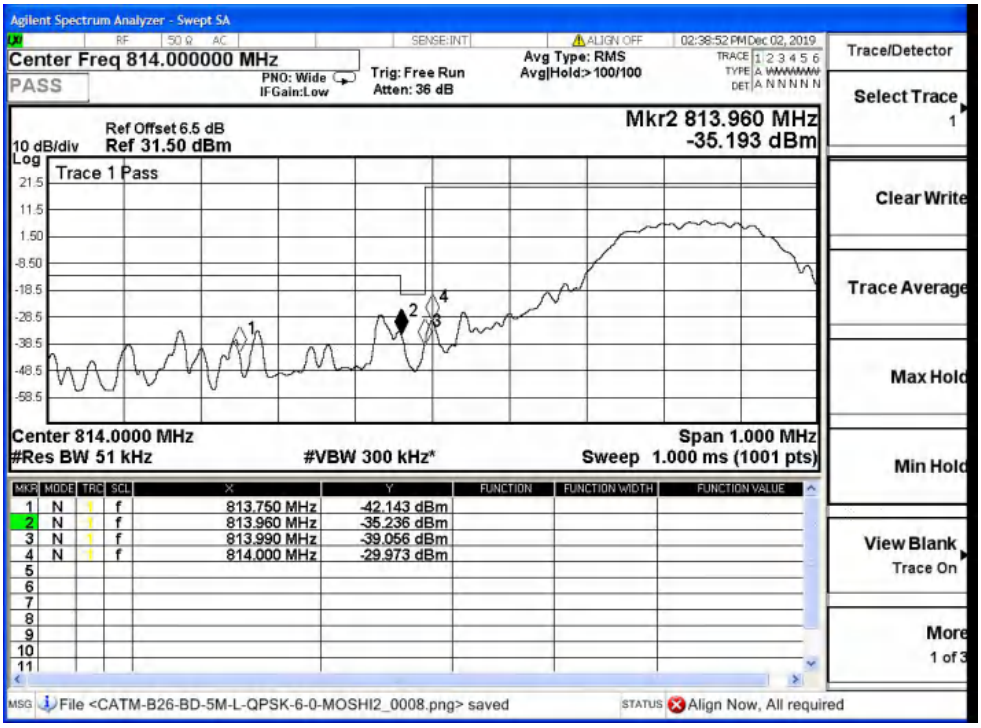
Band26-Low Channel-5MHz Bandwidth-5@1RB-16QAM



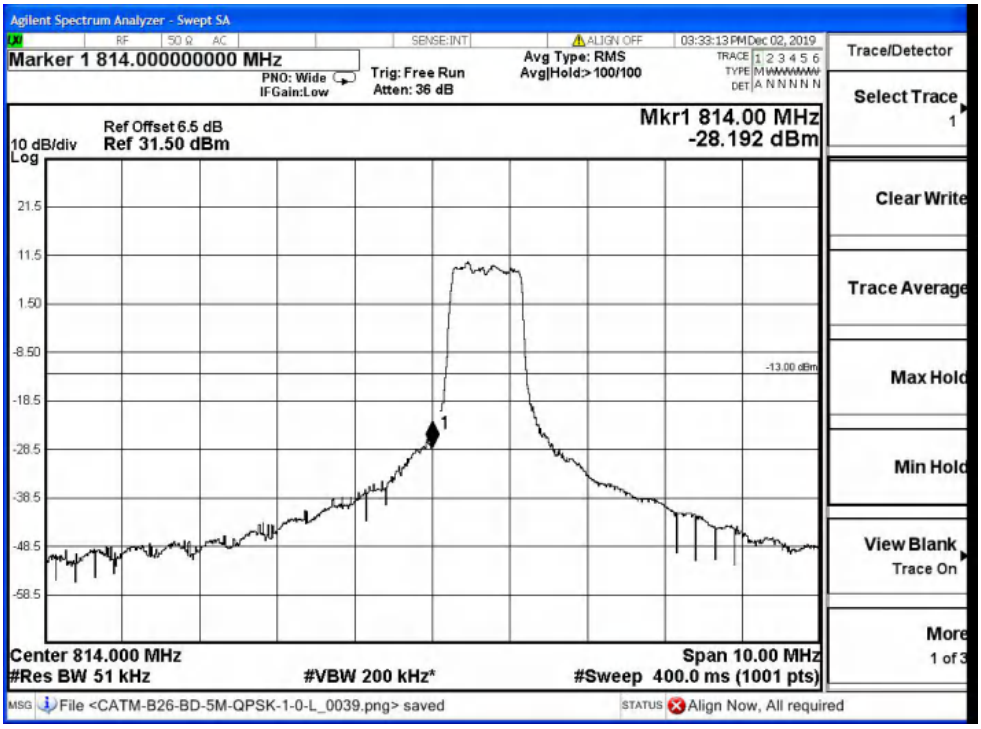
Band26-Low Channel-5MHz Bandwidth-1RB-16QAM



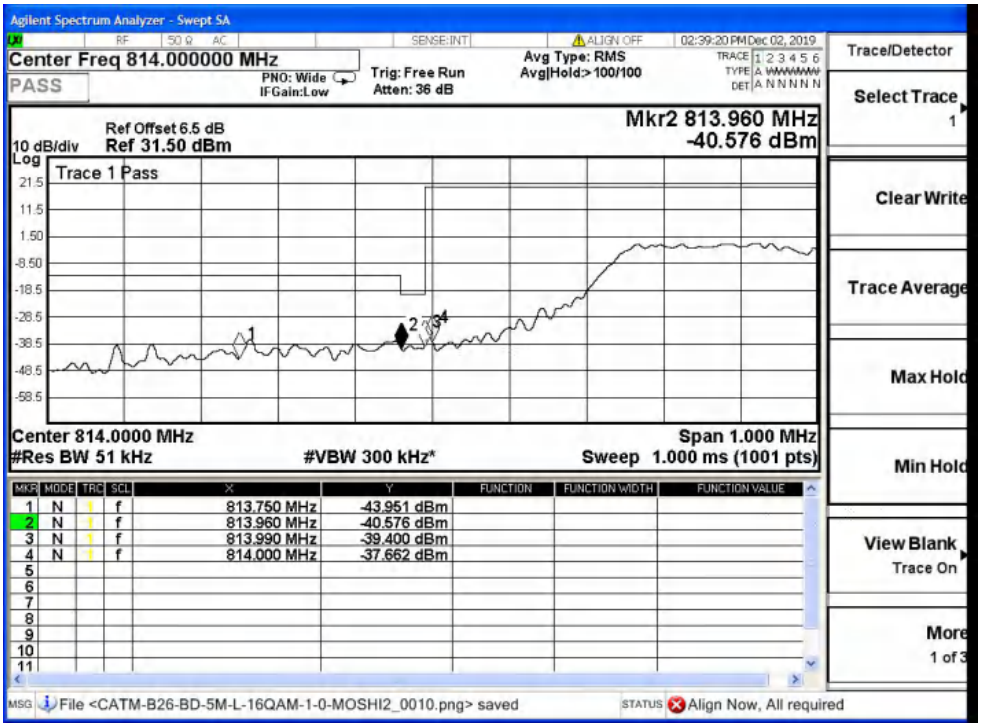
Band26-Low Channel-5MHz Bandwidth-1RB-QPSK



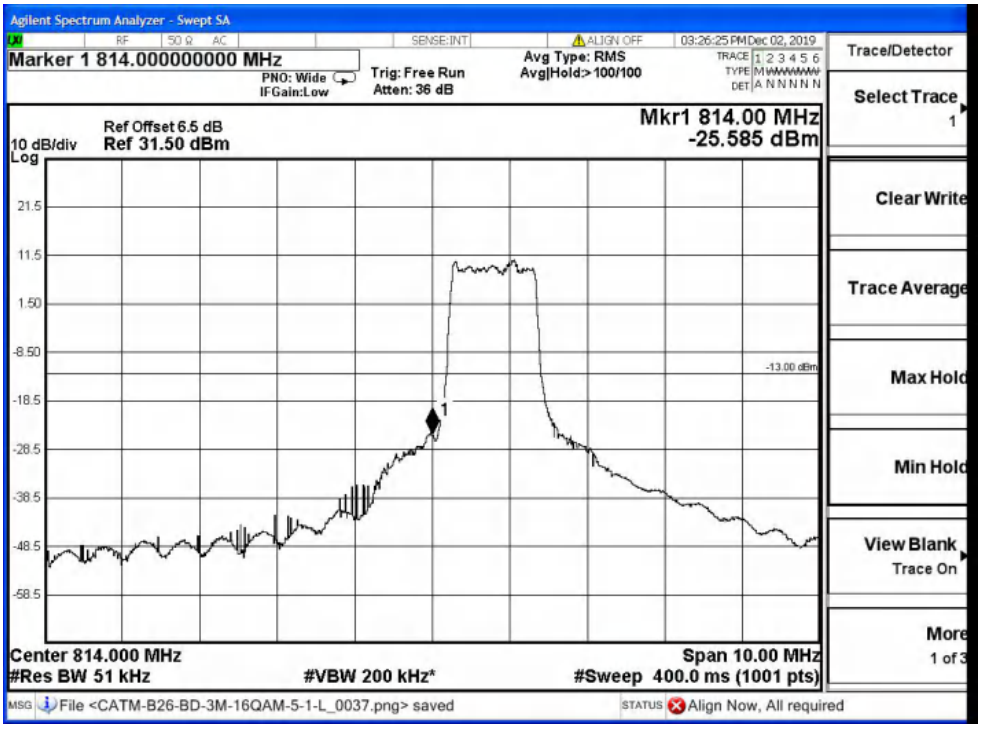
Band26-Low Channel-5MHz Bandwidth-1RB-QPSK



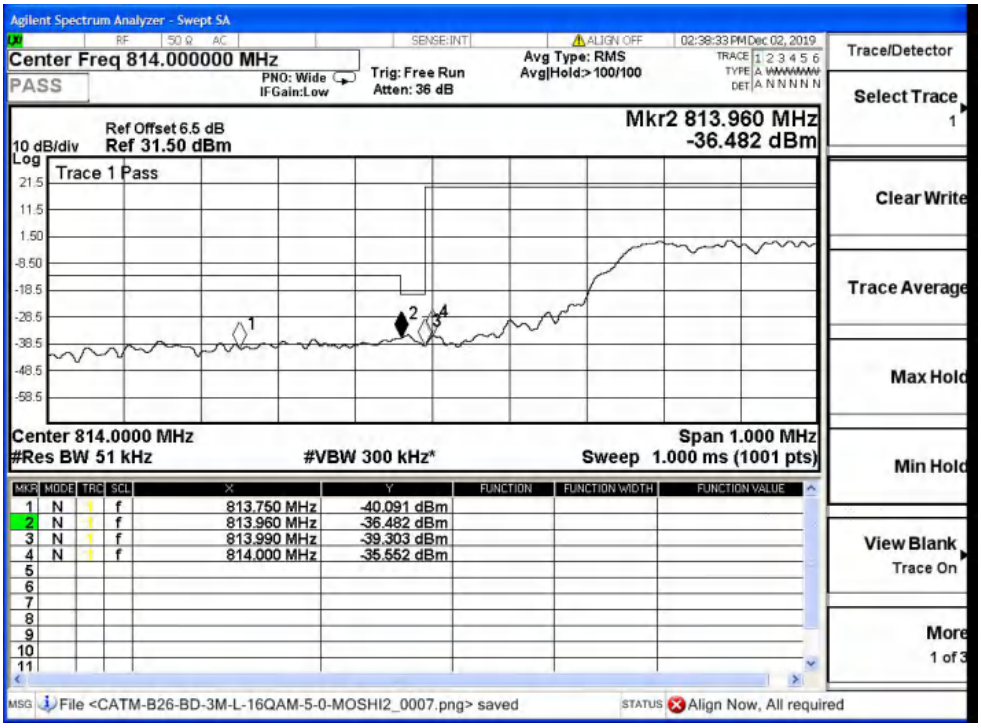
Band26-Low Channel-5MHz Bandwidth-6RB-16QAM



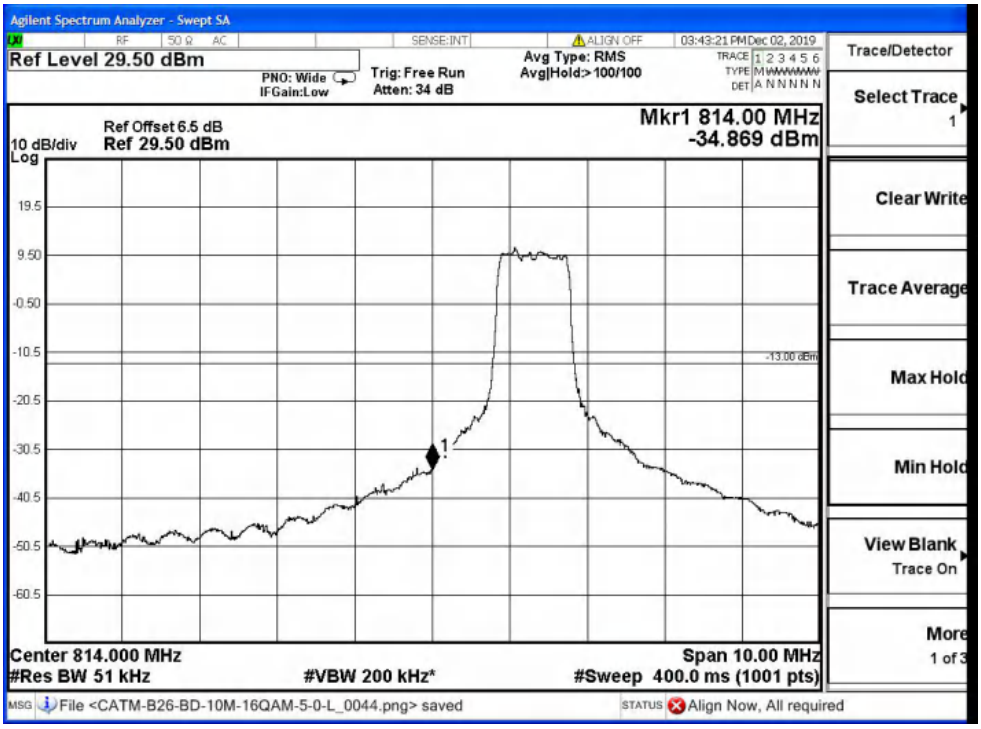
Band26-Low Channel-5MHz Bandwidth-6RB-16QAM



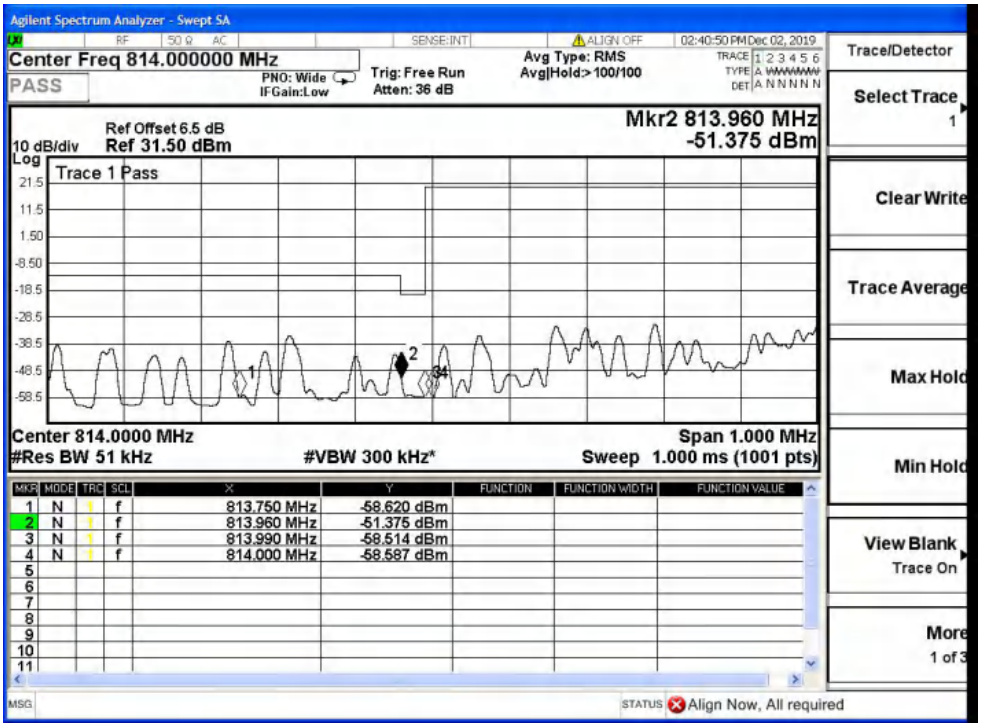
Band26-Low Channel-5MHz Bandwidth-6RB-QPSK



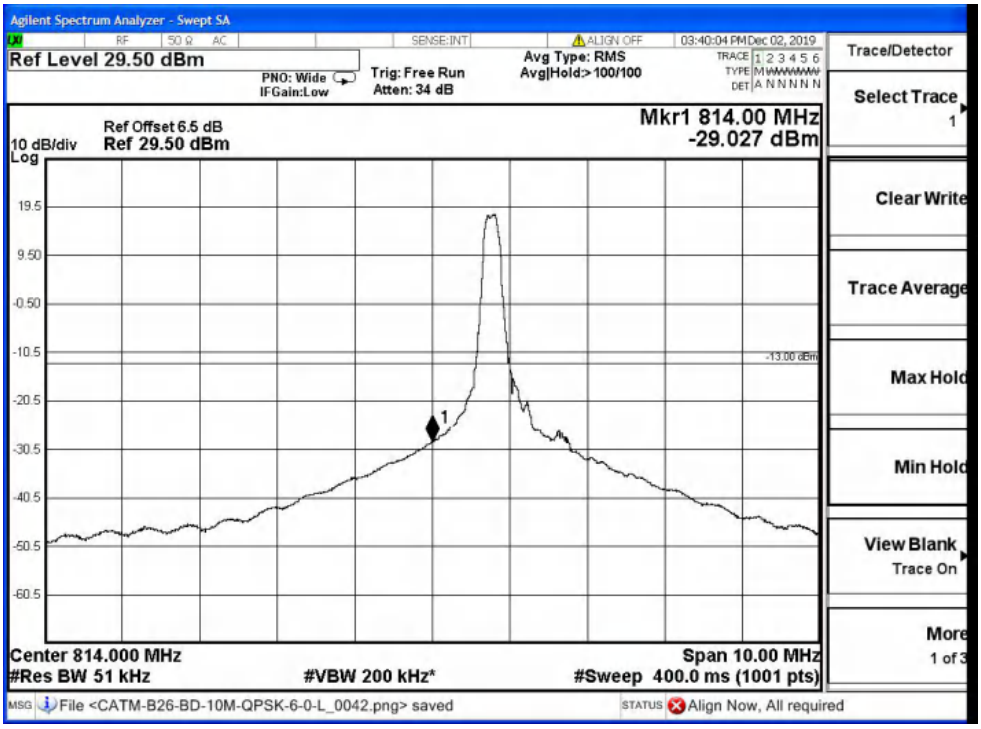
Band26-Low Channel-5MHz Bandwidth-6RB-QPSK



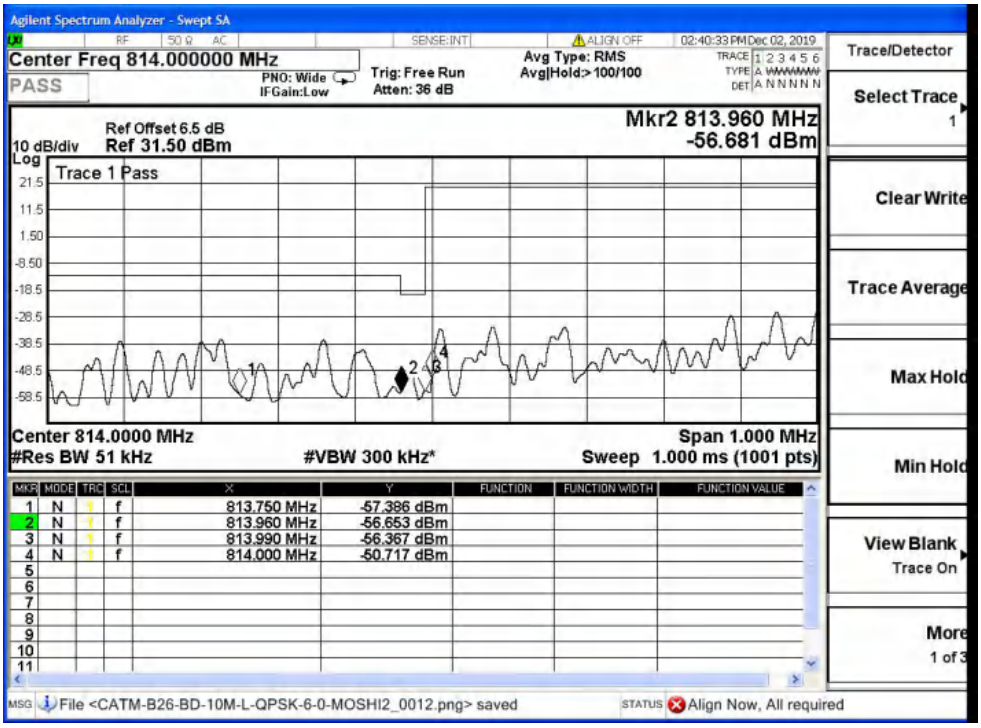
Band26-Low Channel-10MHz Bandwidth-5@1RB-16QAM



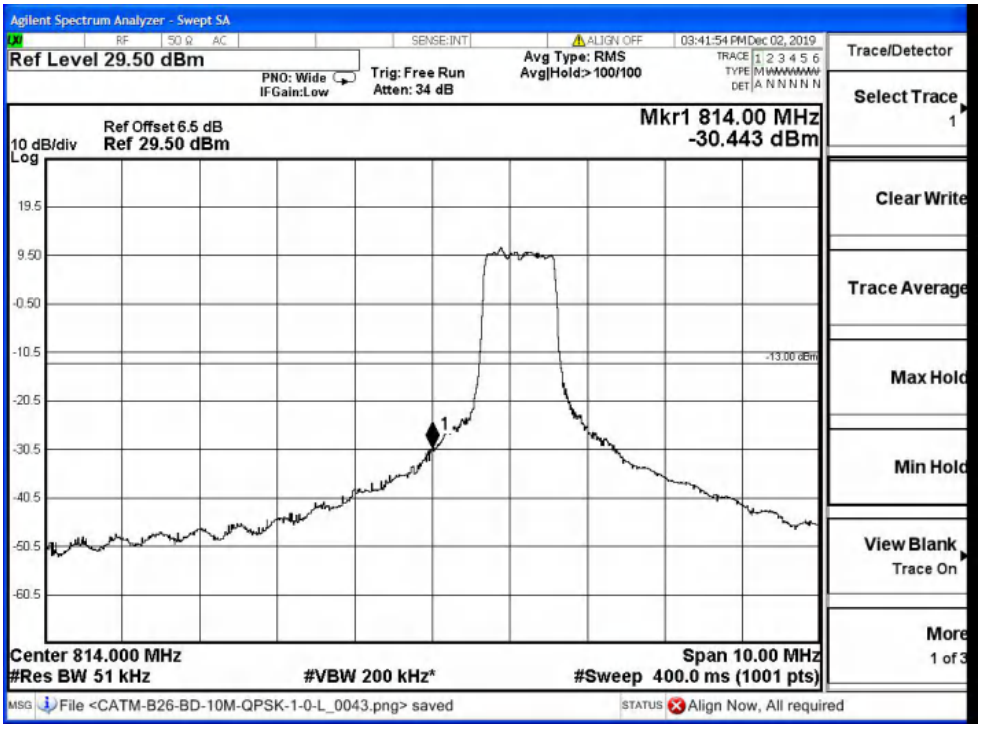
Band26-Low Channel-10MHz Bandwidth-1RB-16QAM



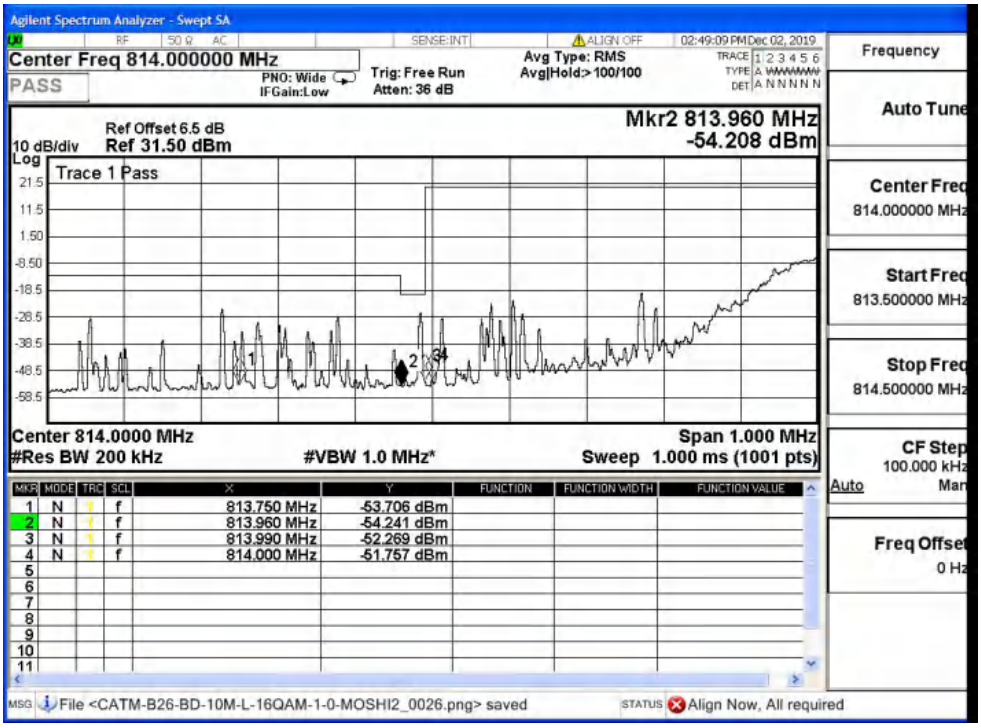
Band26-Low Channel-10MHz Bandwidth-1RB-QPSK



Band26-Low Channel-10MHz Bandwidth-1RB-QPSK



Band26-Low Channel-10MHz Bandwidth-6RB-16QAM



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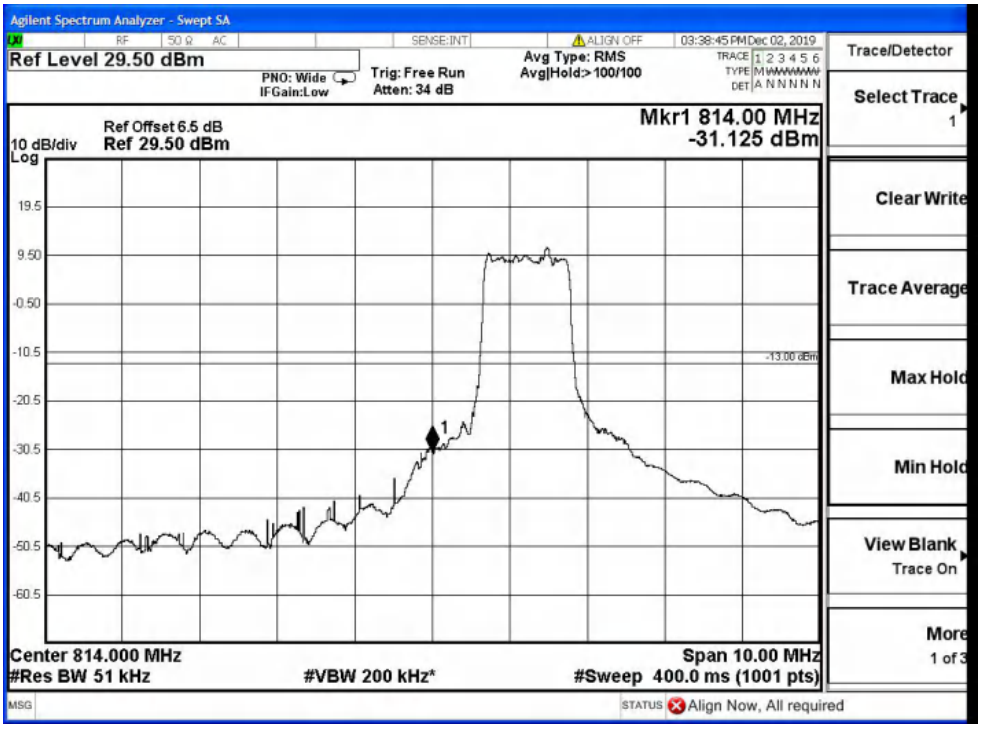
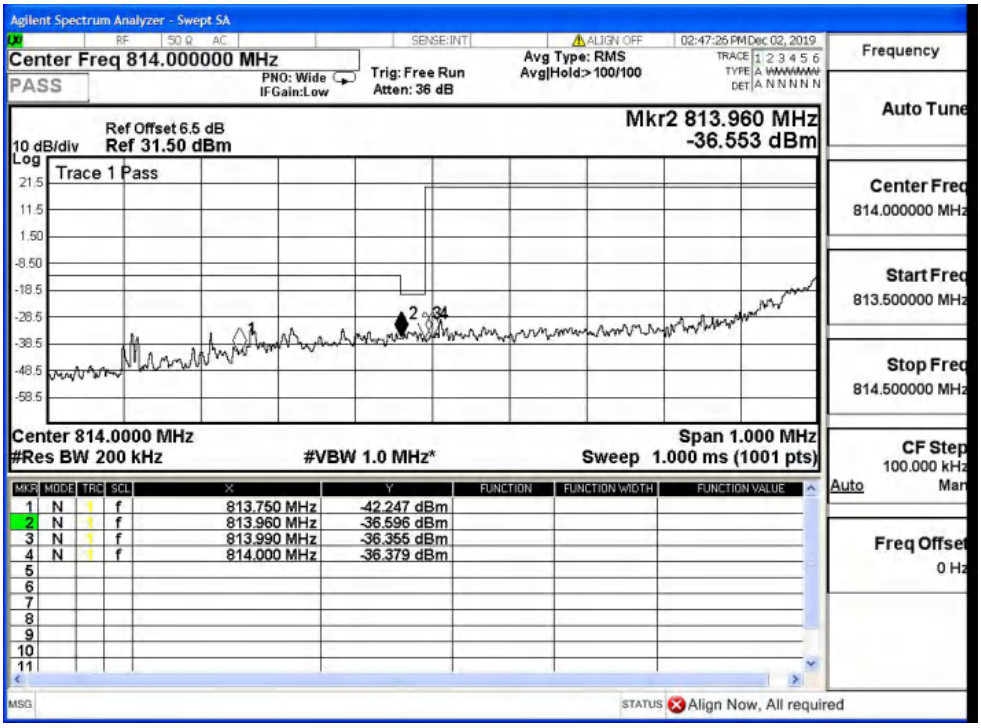
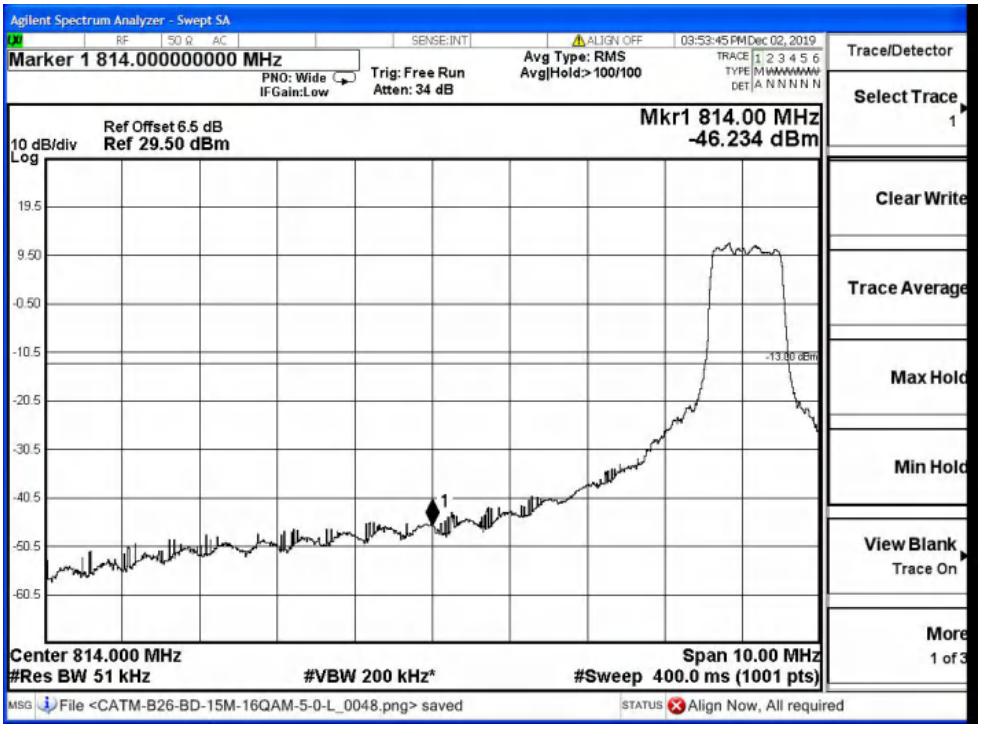


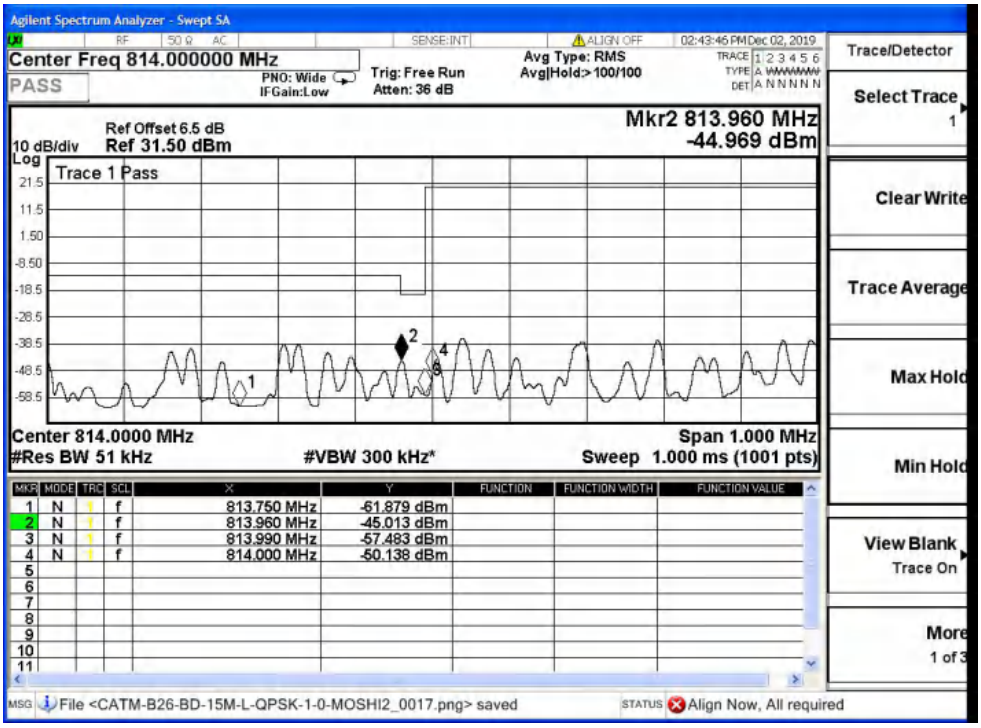
Band26-Low Channel-10MHz Bandwidth-6RB-QPSK



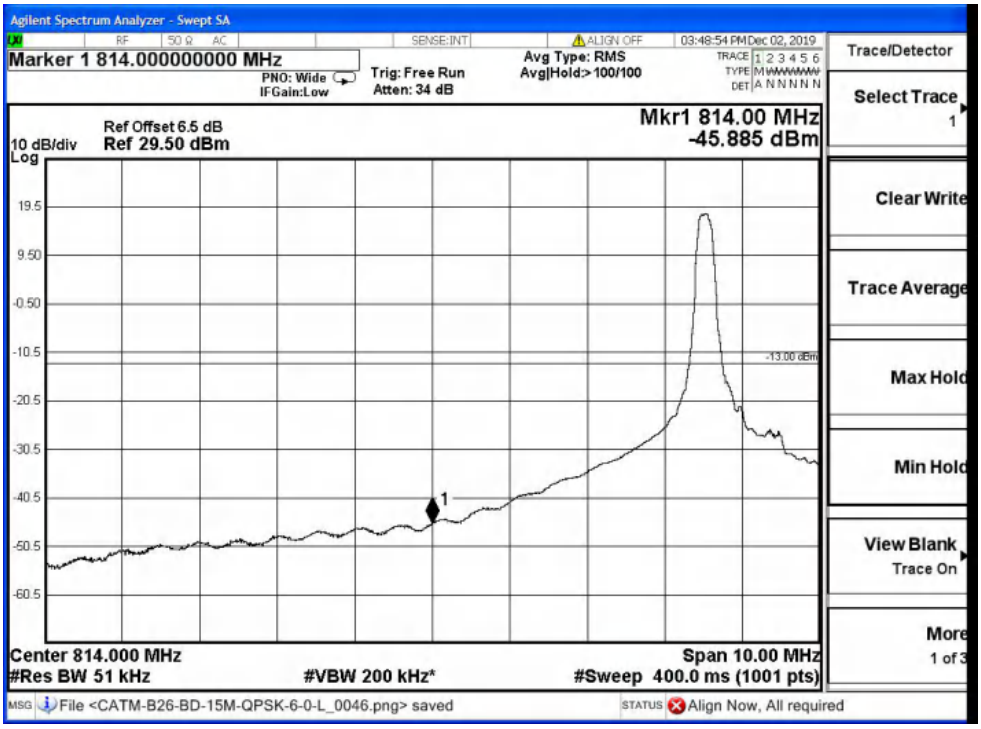
Band26-Low Channel-10MHz Bandwidth-6RB-QPSK



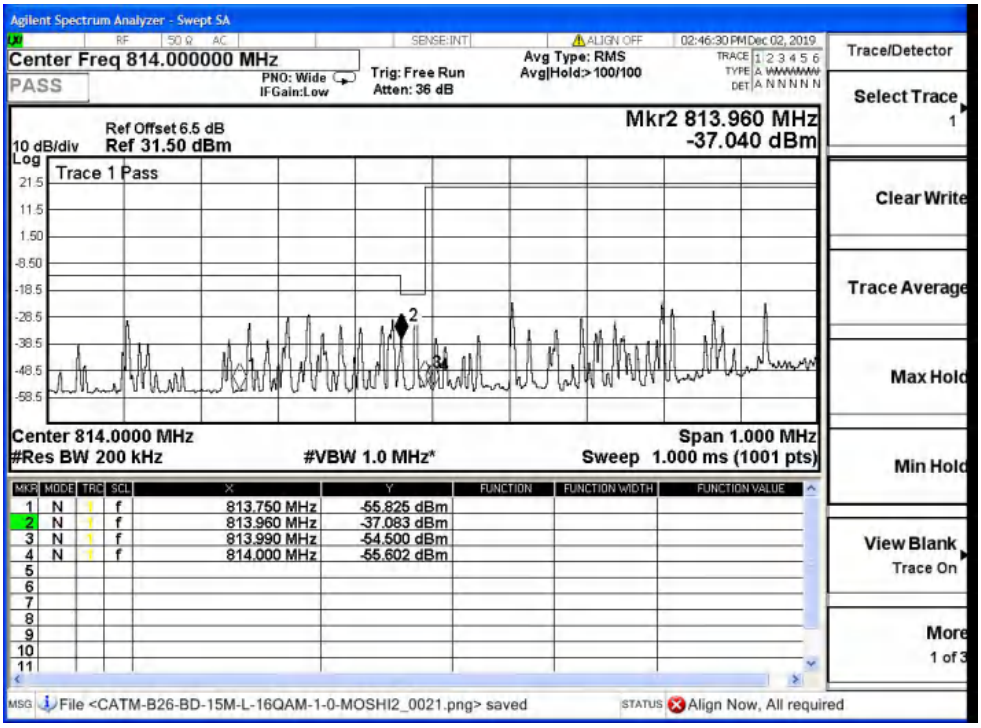
Band26-Low Channel-15MHz Bandwidth-5@1RB-16QAM



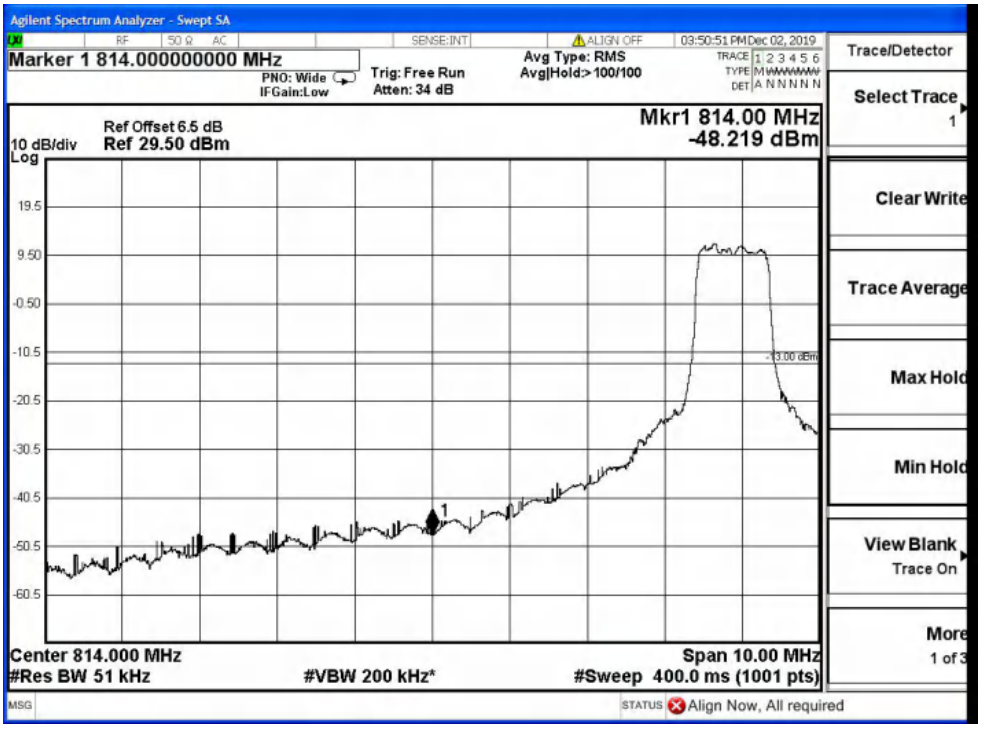
Band26-Low Channel-15MHz Bandwidth-1RB-16QAM



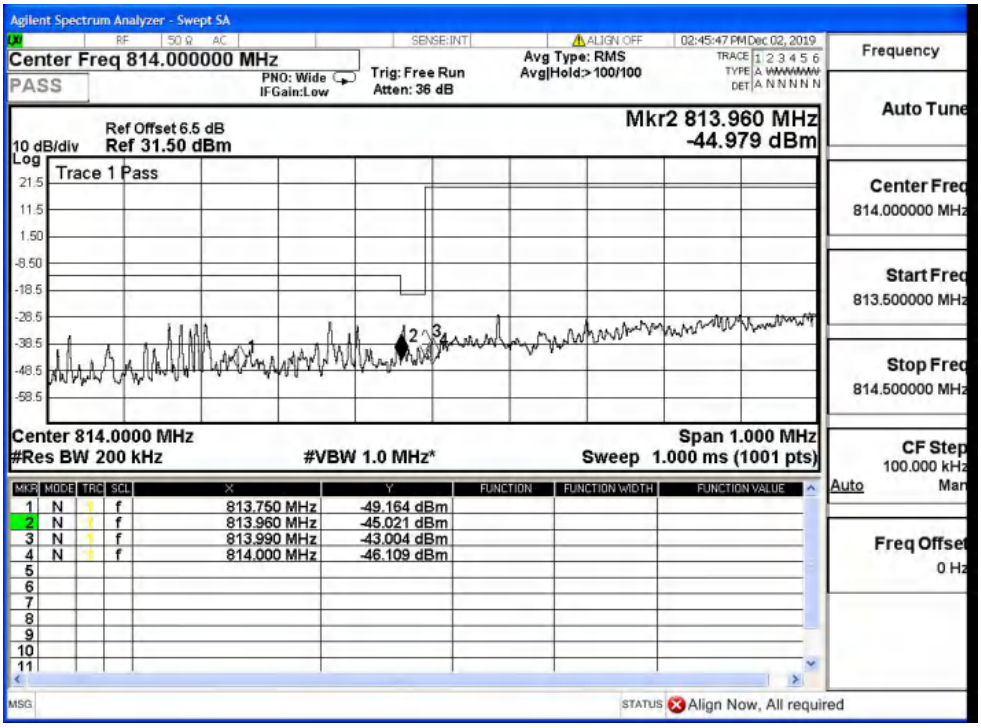
Band26-Low Channel-15MHz Bandwidth-1RB-QPSK



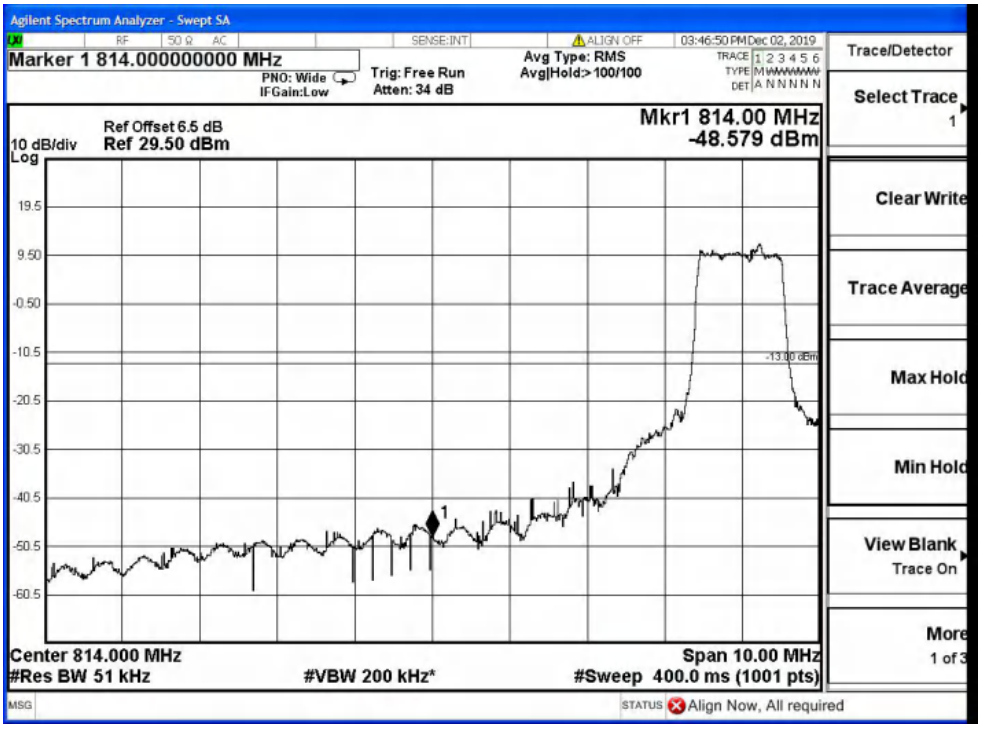
Band26-Low Channel-15MHz Bandwidth-1RB-QPSK



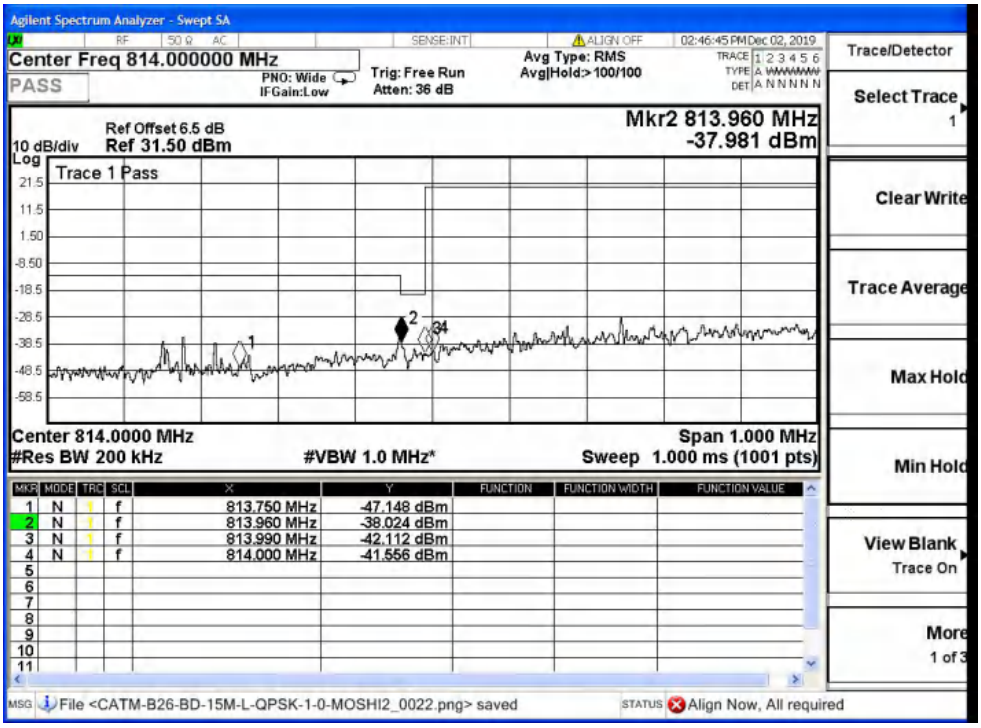
Band26-Low Channel-15MHz Bandwidth-6RB-16QAM



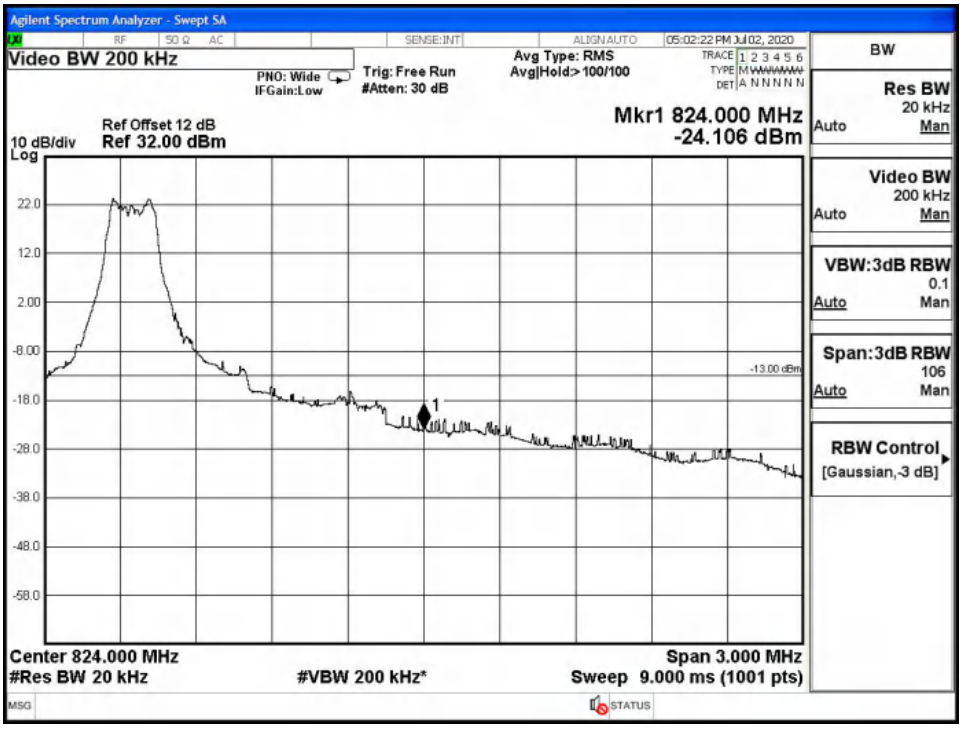
Band26-Low Channel-15MHz Bandwidth-6RB-16QAM



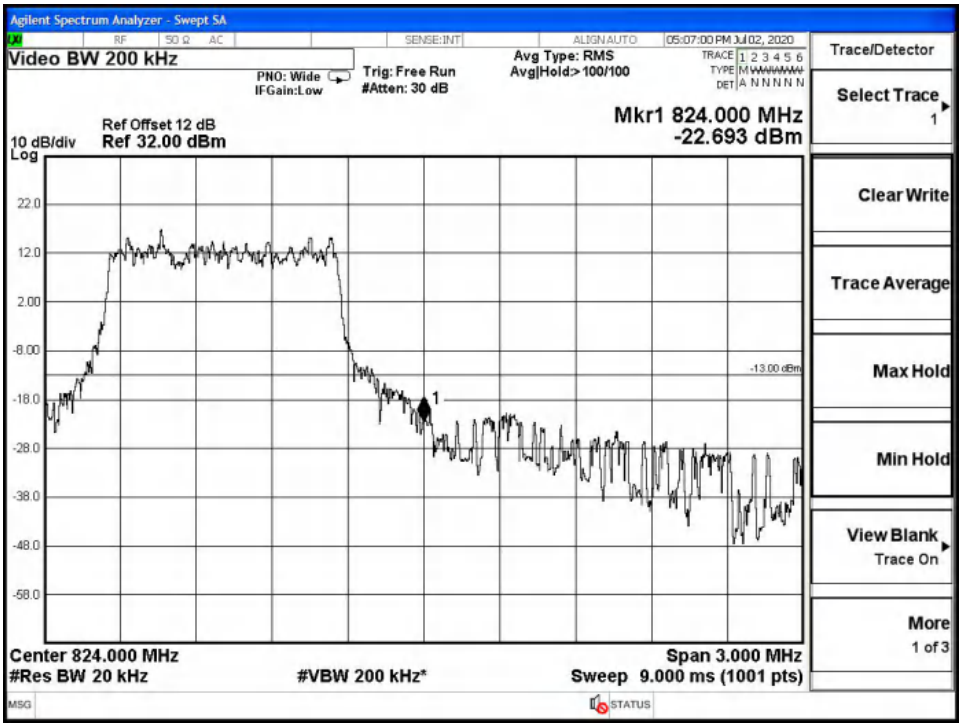
Band26-Low Channel-15MHz Bandwidth-6RB-QPSK



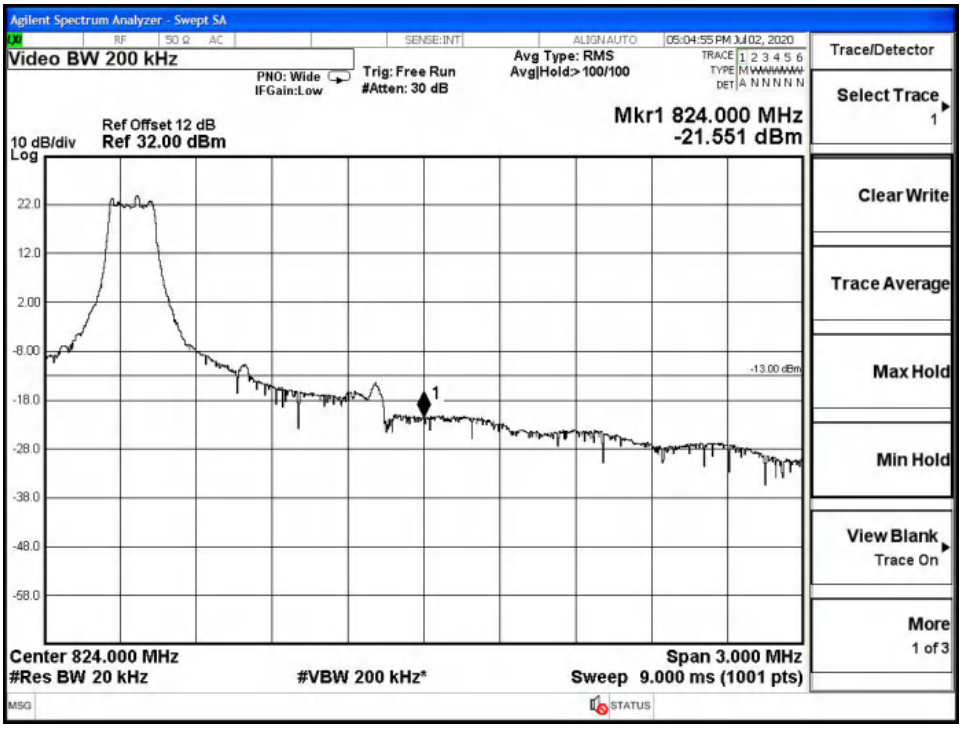
Band26-Low Channel-15MHz Bandwidth-6RB-QPSK



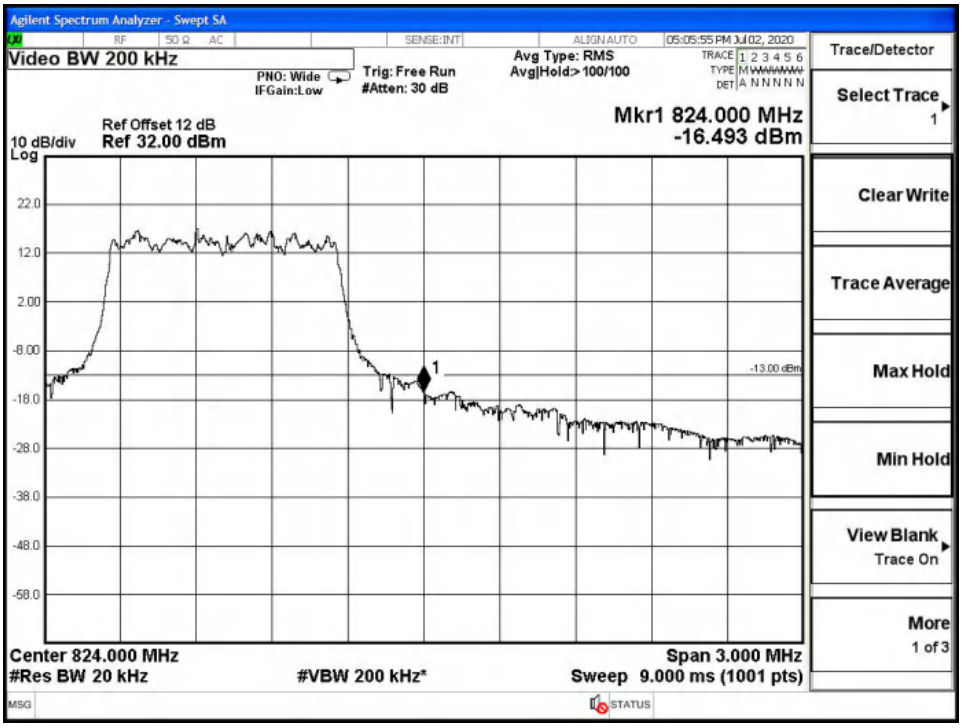
Band26-High Channel-1.4MHz Bandwidth-1RB-QPSK



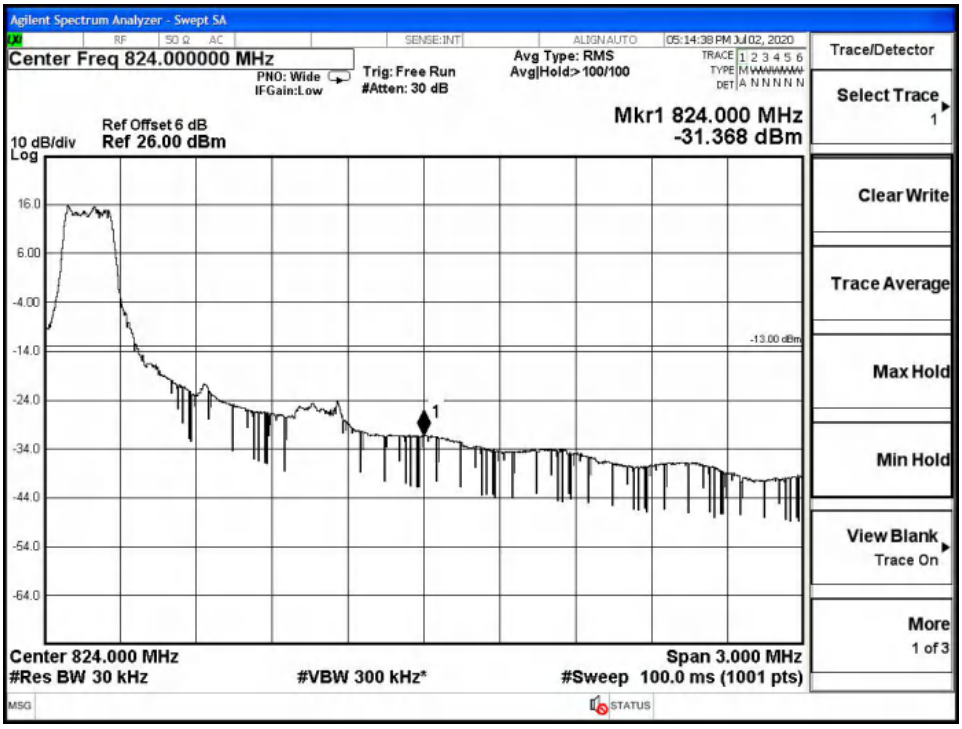
Band26-High Channel-1.4MHz Bandwidth-6RB-16QAM



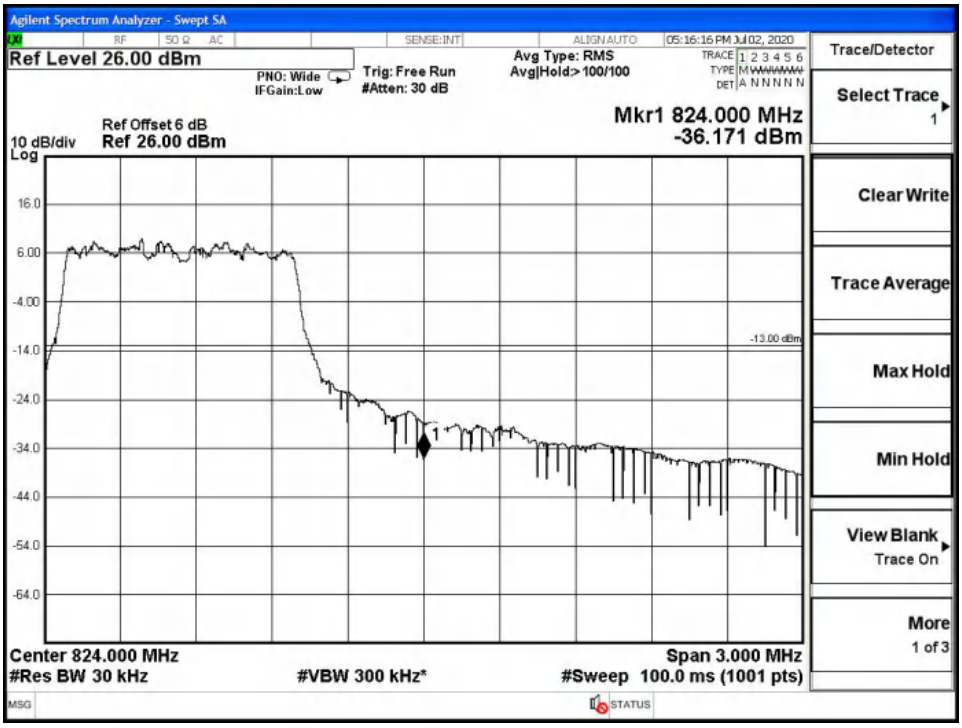
Band26-High Channel-1.4MHz Bandwidth-6RB-QPSK



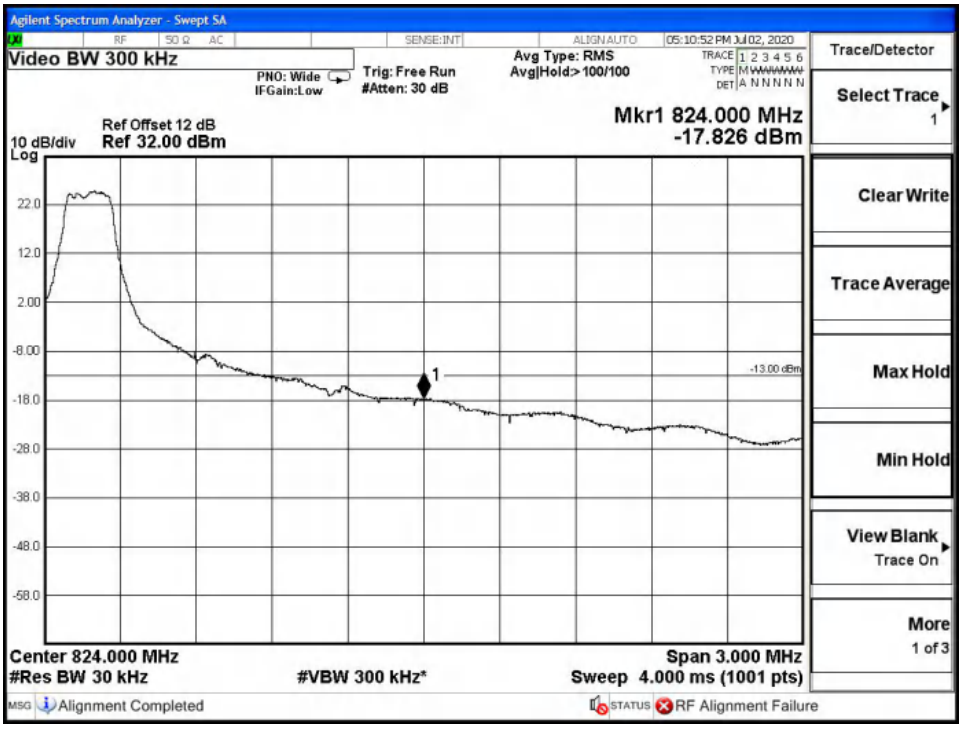
Band26-High Channel-3MHz Bandwidth-5@1RB-16QAM



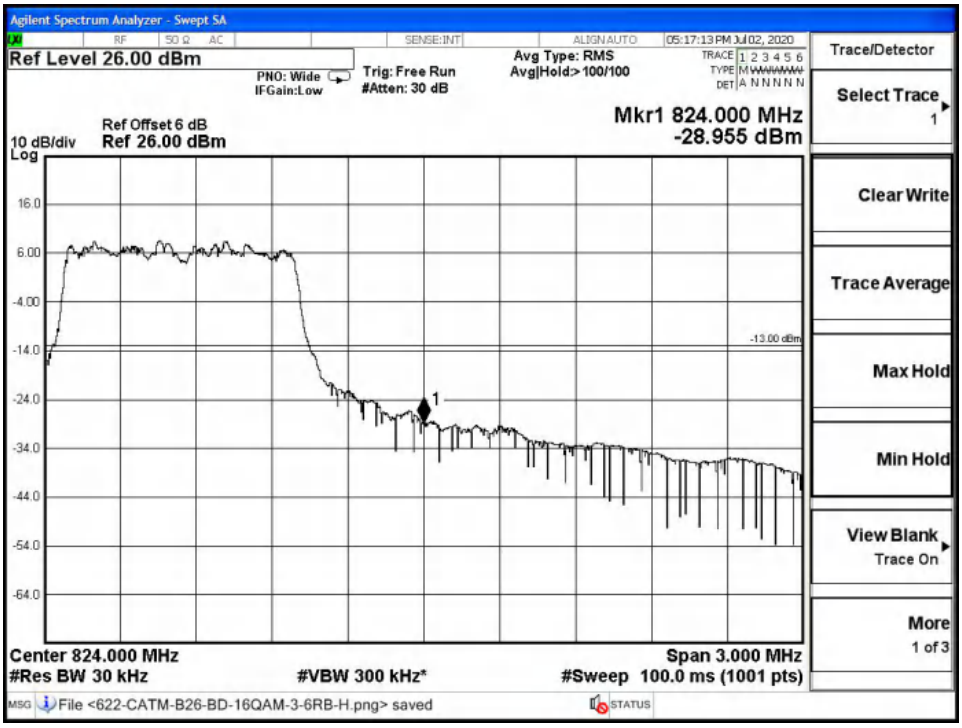
Band26-High Channel-3MHz Bandwidth-1RB-QPSK



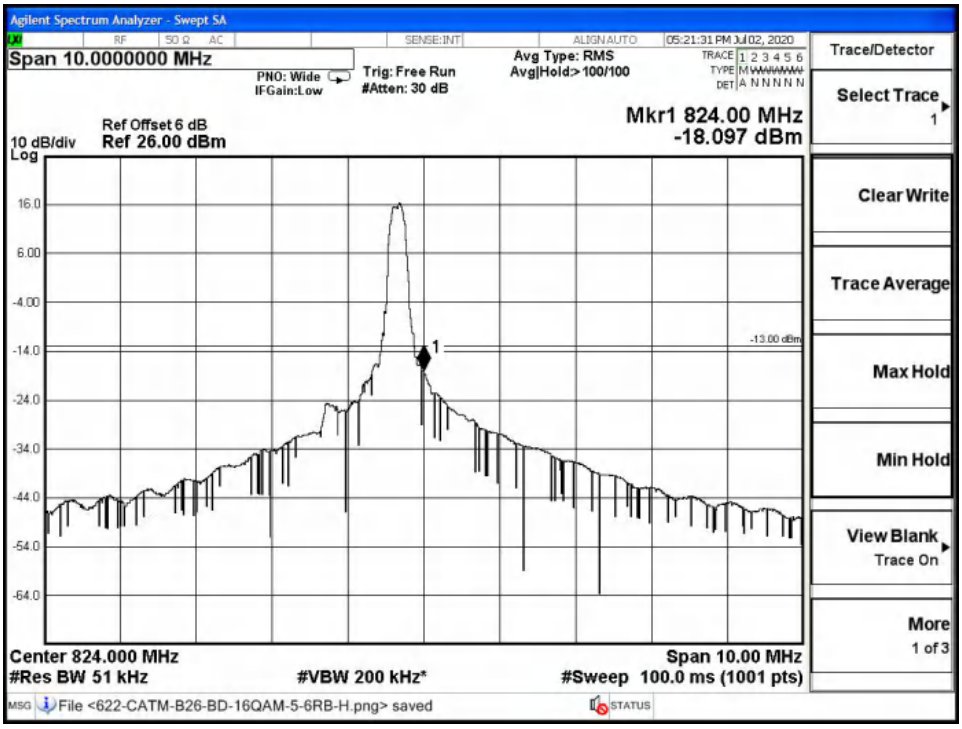
Band26-High Channel-3MHz Bandwidth-6RB-16QAM



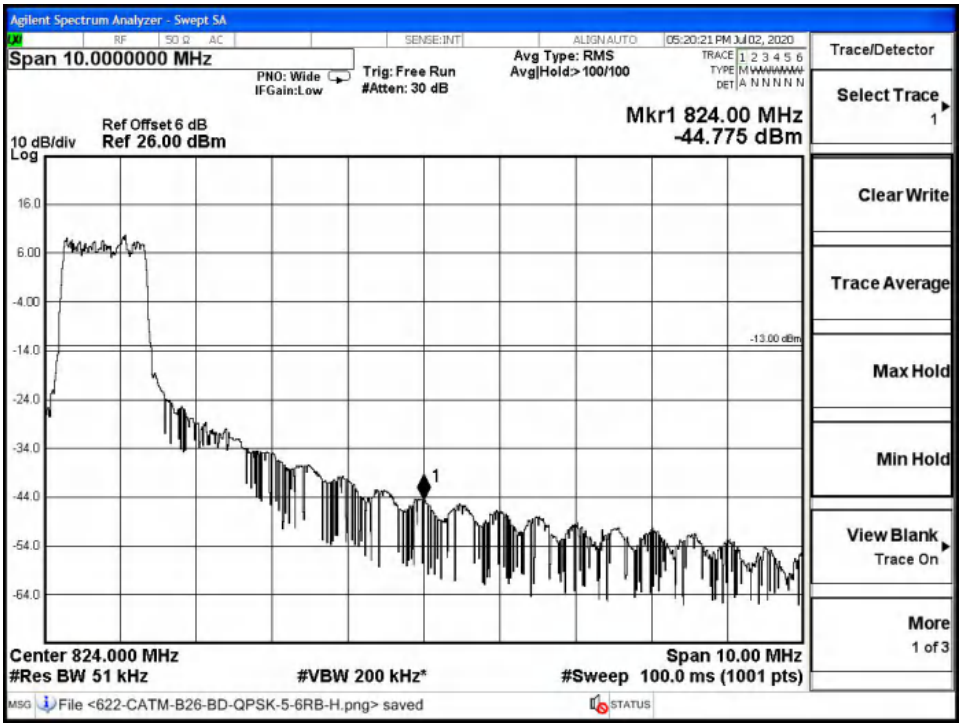
Band26-High Channel-3MHz Bandwidth-1RB-QPSK



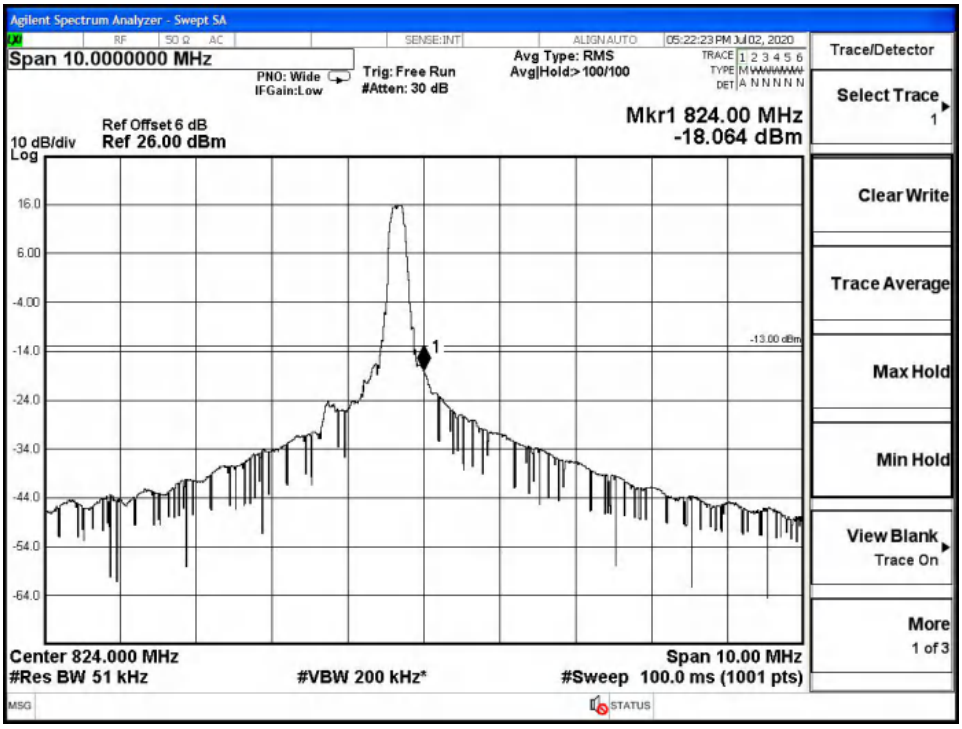
Band26-High Channel-3MHz Bandwidth-6RB-QPSK



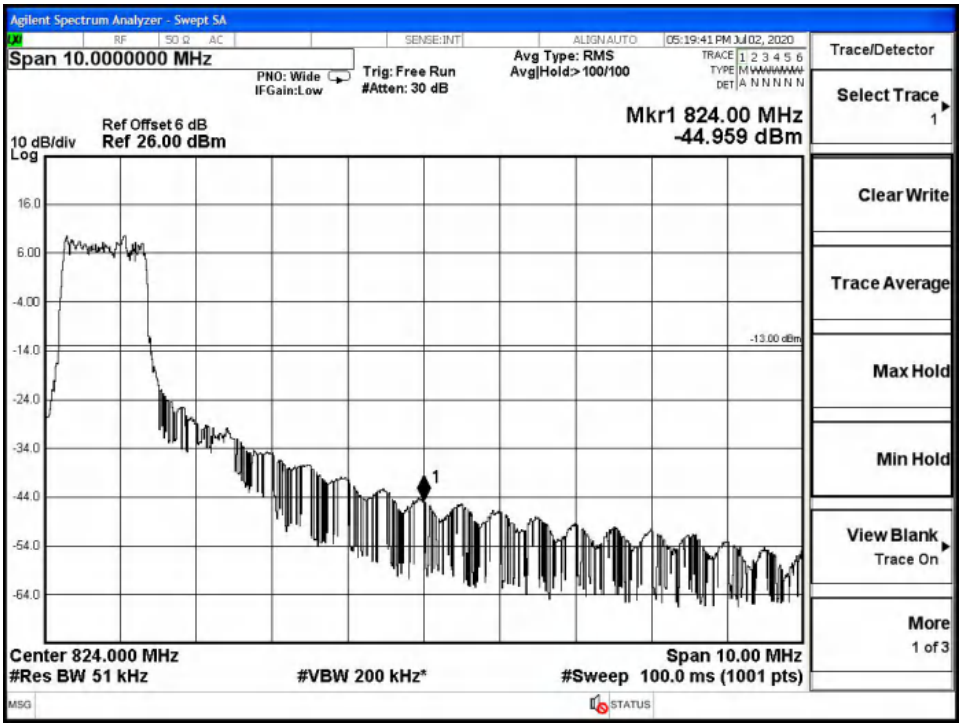
Band26-High Channel-5MHz Bandwidth-1RB-16QAM



Band26-High Channel-5MHz Bandwidth-6RB-16QAM



Band26-High Channel-5MHz Bandwidth-1RB-QPSK



Band26-High Channel-5MHz Bandwidth-6RB-QPSK

5.6 Frequency Stability over Temperature Variation

Specifications:	FCC Part 2.1055, 22.355, 24.235, 27.54,90.213
DUT Serial Number:	353081090297923
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

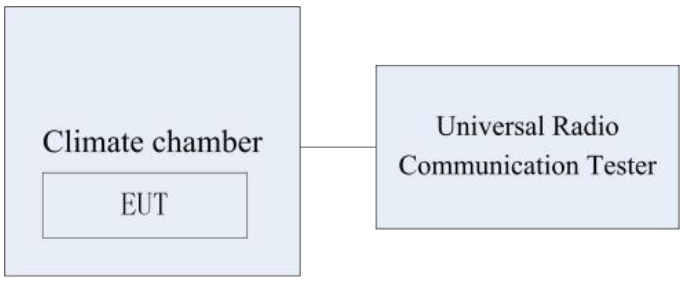
Limit	
Frequency deviation [ppm]	±2.5

Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty	15 Hz (k=2)

Test Setup

The EUT was placed in a temperature chamber, demonstrated as figure T. The Wireless Telecommunications Test Set was used to set the Tx channel and power level, modulate the TX signal with different bit patterns and measure the frequency of Tx.



Test Method

1、 The EUT was turned off and placed in the temperature chamber.

2、 The temperature of the chamber was set to -30℃ and allowed to stabilize.

3、 The EUT temperature was allowed to stabilize for 45 minutes.

4、 The EUT was turned on and set to transmit with Wireless Telecommunications Test Set.

5、 The maximum transmit frequency deviation during one minute period was measured by Wireless Communications Test Set.

6、 The steps 3-5 were repeated for -30℃,-20℃, -10℃, 0℃, 10℃, 20℃, 30℃, 40℃ and 50℃.

Note: Only worst case result is given below.

5.6.1 GSM Band Frequency Stability over Temperature Variation Results

Band	Frequency	Offset	Temperature[℃]								
			-30	-20	-10	0	10	20	30	40	50
GSM850 GMSK	836.6 MHz	Hz	9.83	-11.86	6.87	7.12	-4.93	6.71	10.10	-5.17	-9.61
		ppm	0.012	-0.014	0.008	0.009	-0.006	0.008	0.012	-0.006	-0.011
GSM850 8PSK	836.6 MHz	Hz	12.17	-8.72	6.57	-8.20	6.63	-4.97	5.15	-8.28	-5.14
		ppm	0.015	-0.010	0.008	-0.010	0.008	-0.006	0.006	-0.010	-0.006
PCS1900 GMSK	1880 MHz	Hz	6.05	-3.07	2.69	5.31	-7.38	5.19	-6.65	-9.82	7.17
		ppm	0.003	-0.002	0.001	0.003	-0.004	0.003	-0.004	-0.005	0.004
PCS1900 8PSK	1880 MHz	Hz	-7.69	8.12	4.45	15.19	-6.92	-5.83	2.92	-10.60	-5.97
		ppm	-0.004	0.004	0.002	0.008	-0.004	-0.003	0.002	-0.006	-0.003

5.6.2 NB-IoT Band Frequency Stability over Temperature Variation Results

Band	Frequency	Offset	Temperature[℃]								
			-30	-20	-10	0	10	20	30	40	50
2	1880 MHz	Hz	-12.17	-13.53	9.28	6.97	15.21	-11.15	6.89	-20.05	9.17
		ppm	-0.006	-0.007	0.005	0.004	0.008	-0.006	0.004	-0.010	0.005
4	1732.5 MHz	Hz	-6.59	8.06	10.25	5.72	-13.69	-11.48	7.36	-4.53	13.25
		ppm	-0.004	0.005	0.006	0.003	-0.008	-0.007	0.004	-0.003	0.008
12	707.5 MHz	Hz	-9.65	-6.57	3.58	-7.56	-7.53	12.37	8.49	15.16	-10.59
		ppm	-0.014	-0.009	0.005	-0.011	-0.011	0.017	0.012	0.021	-0.015
13	782 MHz	Hz	13.36	10.75	-8.13	-14.51	7.59	6.75	-14.31	-11.27	8.63
		ppm	0.018	0.014	-0.011	-0.019	0.010	0.009	-0.019	-0.015	0.011
26 (824-849 MHz)	836.5 MHz	Hz	6.25	-13.26	-7.47	9.71	6.53	-16.27	-8.05	15.37	-8.48
		ppm	0.007	-0.016	-0.009	0.012	0.008	-0.019	-0.010	0.018	-0.010
26 (814-824 MHz)	819 MHz	Hz	7.89	15.12	-9.26	-7.66	11.53	15.49	-11.52	-9.85	-7.63
		ppm	0.010	0.018	-0.011	-0.009	0.014	0.019	-0.014	-0.012	-0.009

5.6.3 CAT-M Band Frequency Stability over Temperature Variation Results

Band	Modulation	Frequency	Offset	Temperature[℃]								
				-30	-20	-10	0	10	20	30	40	50
2	QPSK	1880 MHz	Hz	6.46	-4.35	-8.12	11.25	-13.07	-8.19	10.53	-7.59	-5.69
			ppm	0.003	-0.002	-0.004	0.006	-0.007	-0.004	0.006	-0.004	-0.003
	16QAM		Hz	10.13	8.26	-12.48	16.07	-6.26	7.04	11.51	8.59	-12.07
			ppm	0.005	0.004	-0.007	0.009	-0.003	0.004	0.006	0.005	-0.006
4	QPSK	1732.5 MHz	Hz	15.65	-18.53	9.72	-9.68	7.26	6.33	-13.54	9.75	8.46
			ppm	0.009	-0.011	0.006	-0.006	0.004	0.004	-0.008	0.006	0.005
	16QAM		Hz	9.05	6.81	-12.17	-15.15	-10.23	13.15	9.82	-7.60	6.45
			ppm	0.005	0.004	-0.007	-0.009	-0.006	0.008	0.006	-0.004	0.004
12	QPSK	707.5 MHz	Hz	6.61	4.85	2.64	4.19	-3.67	5.14	-2.17	-1.86	3.55
			ppm	0.009	0.007	0.004	0.006	-0.005	0.007	-0.003	-0.003	0.005
	16QAM		Hz	9.27	7.15	-6.59	-10.75	11.13	-8.52	7.59	6.42	-8.06
			ppm	0.013	0.010	-0.009	-0.015	0.016	-0.012	0.011	0.009	-0.011
13	QPSK	782 MHz	Hz	3.19	-7.85	-9.53	6.25	-10.09	-4.57	6.19	-4.73	-3.58
			ppm	0.004	-0.010	-0.013	0.008	-0.013	-0.006	0.008	-0.006	-0.005
	16QAM		Hz	6.06	-10.12	4.59	12.25	-8.75	-6.42	-7.58	6.26	8.13
			ppm	0.008	-0.013	0.006	0.016	-0.011	-0.008	-0.010	0.008	0.010
26 (824-849 MHz)	QPSK	836.5 MHz	Hz	6.06	-5.42	8.59	-3.13	11.74	-6.96	-4.95	-13.57	11.55
			ppm	0.007	-0.006	0.010	-0.004	0.014	-0.008	-0.006	-0.016	0.014
	16QAM		Hz	-9.53	8.19	-5.27	-12.54	-7.14	8.47	14.52	-9.63	-7.66
			ppm	-0.011	0.010	-0.006	-0.015	-0.009	0.010	0.017	-0.012	-0.009
26 (814-824 MHz)	QPSK	819 MHz	Hz	15.96	-7.59	-12.65	-9.28	13.52	8.96	9.24	-10.62	7.82
			ppm	0.019	-0.009	-0.015	-0.011	0.016	0.011	0.011	-0.013	0.010
	16QAM		Hz	-13.92	-8.75	9.86	7.14	-6.05	11.54	13.67	-7.95	-8.16
			ppm	-0.017	-0.011	0.012	0.009	-0.007	0.014	0.017	-0.010	-0.010

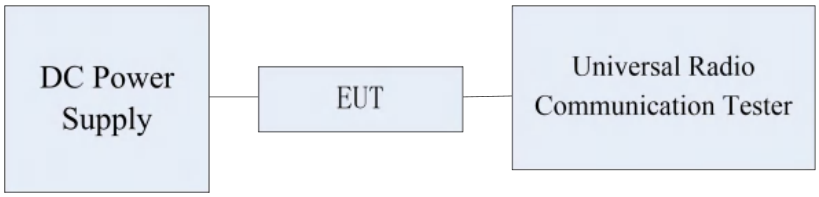
5.7 Frequency Stability over Voltage Variation

Specifications:	FCC Part 2.1055, 22.355, 24.235, 27.54,90.213
DUT Serial Number:	353081090297923
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit	
Frequency deviation [ppm]	±2.5

Test Setup

The EUT was placed in a shielding chamber and powered by an adjustable power supply, demonstrated as figure V. A Wireless Telecommunications Test Set was used to set the TX channel and power level, modulate the TX signal with different bit patterns and measure the frequency of TX.



Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty	15 Hz (k=2)

Test Method

The EUT was powered by the adjustable power supply. The frequency stability is measured by the Wireless Telecommunications Test Set.

Note: Only worst case result is given below.

5.7.1 GSM Band Frequency Stability over Voltage Variation Results

Test data:

Band	Frequency	Offset	Voltage (V)		
			3.4	3.8	4.2
GSM850 GMSK	836.6MHz	Hz	6.55	-3.76	5.63
		ppm	0.008	-0.004	0.007
GSM850 8PSK	836.6MHz	Hz	-4.57	-2.59	3.41
		ppm	-0.005	-0.003	0.004
PCS1900 GMSK	1880 MHz	Hz	2.67	-1.96	4.95
		ppm	0.001	-0.001	0.003
PCS1900 8PSK	1880 MHz	Hz	6.07	-3.83	-5.84
		ppm	0.003	-0.002	-0.003

5.7.2 NB-IoT Band Frequency Stability over Voltage Variation Results

Test data:

Band	Frequency	Offset	Voltage (V)		
			3.4	3.8	4.2
2	1880 MHz	Hz	8.15	-6.33	5.87
		ppm	0.004	-0.003	0.003
4	1732.5 MHz	Hz	4.57	10.06	-5.75
		ppm	0.003	0.006	-0.003
12	707.5 MHz	Hz	2.65	-1.87	4.55
		ppm	0.004	-0.003	0.006
13	782 MHz	Hz	3.93	1.85	-1.94
		ppm	0.005	0.002	-0.003
26 (824-849 MHz)	836.5 MHz	Hz	9.54	-5.36	-7.13
		ppm	0.011	-0.006	-0.008
26 (814-824 MHz)	819 MHz	Hz	15.2	-10.75	9.15
		ppm	0.019	-0.013	0.011

5.7.3 CAT-M Band Frequency Stability over Voltage Variation Results

Test data:

Band	Modulation	Frequency	Offset	Voltage (V)		
				3.4	3.8	4.2
2	QPSK	1880 MHz	Hz	9.63	-7.57	-5.52
			ppm	0.005	-0.004	-0.003
	16QAM		Hz	7.10	-9.62	-10.05
			ppm	0.004	-0.005	-0.005
4	QPSK	1732.5 MHz	Hz	6.16	-4.02	-6.12
			ppm	0.004	-0.002	-0.004
	16QAM		Hz	5.46	-9.82	-7.63
			ppm	0.003	-0.006	-0.004
12	QPSK	707.5 MHz	Hz	2.13	4.09	2.16
			ppm	0.003	0.006	0.003
	16QAM		Hz	5.04	-7.59	6.27
			ppm	0.007	-0.011	0.009
13	QPSK	782 MHz	Hz	3.69	-1.59	4.57
			ppm	0.005	-0.002	0.006
	16QAM		Hz	-5.95	4.57	-6.29
			ppm	-0.008	0.006	-0.008
26 (824-849 MHz)	QPSK	836.5 MHz	Hz	-6.98	-11.52	5.14
			ppm	-0.008	-0.014	0.006
	16QAM		Hz	-4.09	7.82	-6.53
			ppm	-0.005	0.009	-0.008
26 (814-824 MHz)	QPSK	819 MHz	Hz	8.63	-12.17	14.26
			ppm	0.011	-0.015	0.017
	16QAM		Hz	10.92	-8.27	-7.61
			ppm	0.013	-0.010	-0.009

5.8 Peak to Average Ratio

Specifications:	FCC Part 24.232, 27.50
DUT Serial Number:	353081090297923
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit

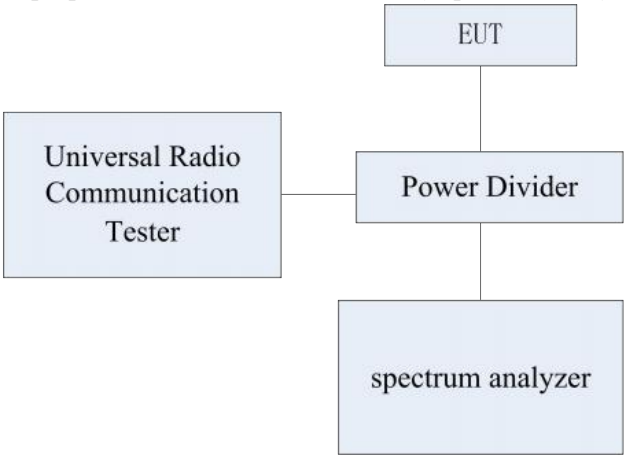
The EUT meets the requirement of having a peak to average ratio of less than 13dB.

Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty	0.52 dB (k=2)

Test Setup

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



Test Method

The transmitter output was connected to a CMW500 through a coaxial RF cable and directional coupler, and configured to operate at maximum power. The peak to average ratio was measured at the required operating frequencies in each Band on the Spectrum Analyzer.

Note: Only worst case result is given below.

5.8.1 GSM850 Peak to Average Ratio Results

Frequency (MHz)	Channel	Modulation	PAPR(dB)
836.6	190	GMSK	6.66
		8PSK	9.32

5.8.2 PCS1900 Peak to Average Ratio Results

Frequency (MHz)	Channel	Modulation	PAPR(dB)
1880	661	GMSK	5.97
		8PSK	5.86

5.8.3 NB-IoT Peak to Average Ratio Results

Mode	Channel	Frequency (MHz)	PAPR(dB)	PAPR(dB)
			QPSK	BPSK
Band2	18900	1880	7.75	7.89
Band4	20175	1732.5	8.02	8.19
Band12	23095	707.5	7.44	7.71
Band13	23230	782.0	7.56	7.77
Band26 (824MHz-849MHz)	26865	831.5	7.54	7.93
Band26 (814MHz-824MHz)	26740	819	9.28	11.23

5.8.4 CAT-M Peak to Average Ratio Results

Mode	Bandwidth	Modulation	Channel/Frequency（MHz）	PAPR（dB）
Band2	1.4MHz	QPSK	18900/1880	11.30
		16QAM	18900/1880	12.01
	3MHz	QPSK	18900/1880	11.39
		16QAM	18900/1880	12.12
	5MHz	QPSK	18900/1880	11.15
		16QAM	18900/1880	12.11
	10MHz	QPSK	18900/1880	12.86
		16QAM	18900/1880	11.69
	15MHz	QPSK	18900/1880	10.90
		16QAM	18900/1880	11.20
	20MHz	QPSK	18900/1880	10.80
		16QAM	18900/1880	11.24

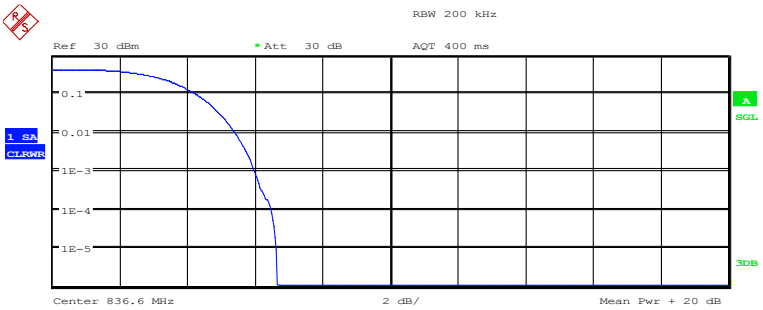
Mode	Bandwidth	Modulation	Channel/Frequency（MHz）	PAPR（dB）
Band4	1.4MHz	QPSK	20175/1732.5	11.62
		16QAM	20175/1732.5	12.89
	3MHz	QPSK	20175/1732.5	11.61
		16QAM	20175/1732.5	12.59
	5MHz	QPSK	20175/1732.5	12.59
		16QAM	20175/1732.5	12.47
	10MHz	QPSK	20175/1732.5	11.50
		16QAM	20175/1732.5	12.15
	15MHz	QPSK	20175/1732.5	11.26
		16QAM	20175/1732.5	11.73
	20MHz	QPSK	20175/1732.5	11.25
		16QAM	20175/1732.5	11.80

Mode	Bandwidth	Modulation	Channel/Frequency（MHz）	PAPR（dB）
Band12	1.4MHz	QPSK	23095/707.5	10.71
		16QAM	23095/707.5	12.41
	3MHz	QPSK	23095/707.5	11.07
		16QAM	23095/707.5	11.81
	5MHz	QPSK	23095/707.5	12.22
		16QAM	23095/707.5	11.58
	10MHz	QPSK	23095/707.5	10.69
		16QAM	23095/707.5	11.96

Mode	Bandwidth	Modulation	Channel/Frequency（MHz）	PAPR（dB）
Band13	5MHz	QPSK	23230/782.0	11.23
		16QAM	23230/782.0	12.20
	10MHz	QPSK	23230/782.0	11.77
		16QAM	23230/782.0	11.28

Mode	Bandwidth	Modulation	Channel/Frequency（MHz）	PAPR（dB）
Band26 (824MHz-849 MHz)	1.4MHz	QPSK	26865/831.5	11.41
		16QAM	26865/831.5	11.93
	3MHz	QPSK	26865/831.5	10.99
		16QAM	26865/831.5	12.39
	5MHz	QPSK	26865/831.5	11.94
		16QAM	26865/831.5	11.95
	10MHz	QPSK	26865/831.5	11.01
		16QAM	26865/831.5	11.75
Band26 (814MHz-824 MHz)	1.4MHz	QPSK	26740/819	12.22
		16QAM	26740/819	10.84
	3MHz	QPSK	26740/819	10.67
		16QAM	26740/819	10.40
	5MHz	QPSK	26740/819	11.29
		16QAM	26740/819	10.69
	10MHz	QPSK	26740/819	10.24
		16QAM	26740/819	10.24

Graphical for Peak to Average Ratio Results for GSM850:

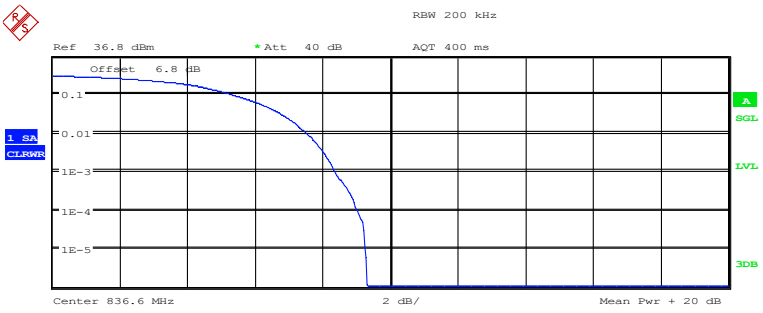


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	18.48 dBm
Peak	25.14 dBm
Crest	6.66 dB
10 %	4.26 dB
1 %	5.38 dB
.1 %	5.96 dB
.01 %	6.47 dB

Date: 14.DEC.2019 23:29:25

836.6MHz-CH190-GMSK



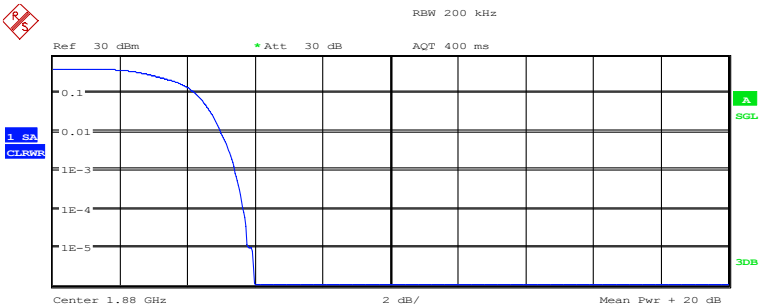
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	19.64 dBm
Peak	28.96 dBm
Crest	9.32 dB
10 %	5.35 dB
1 %	7.53 dB
.1 %	8.37 dB
.01 %	9.01 dB

Date: 19.DEC.2019 07:02:05

836.6MHz-CH190-8PSK

Graphical for Peak to Average Ratio Results for PCS1900:

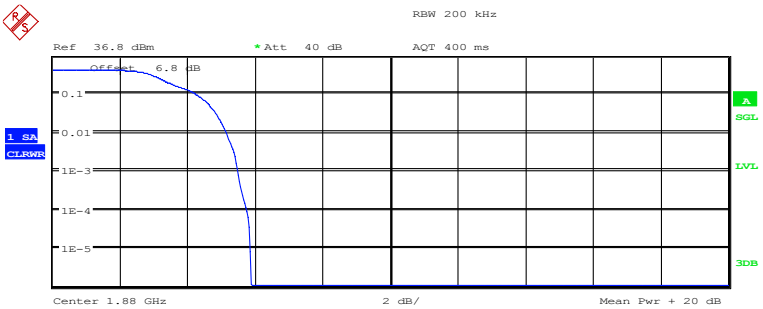


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	18.18 dBm
Peak	24.15 dBm
Crest	5.97 dB
10 %	4.23 dB
1 %	5.00 dB
.1 %	5.42 dB
.01 %	5.64 dB

Date: 14.DEC.2019 23:30:43

1880MHz-CH661-GMSK



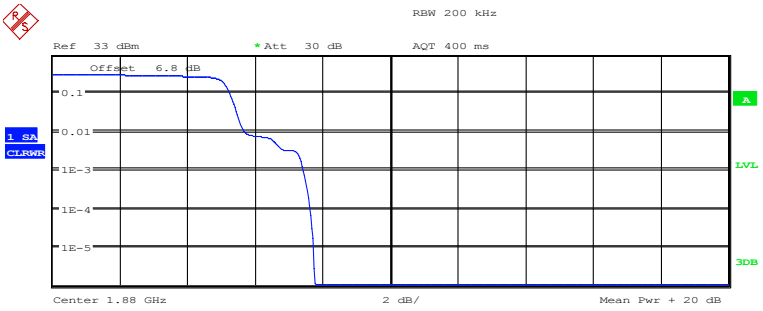
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	23.80 dBm
Peak	29.67 dBm
Crest	5.86 dB
10 %	4.26 dB
1 %	5.16 dB
.1 %	5.48 dB
.01 %	5.74 dB

Date: 19.DEC.2019 06:59:19

1880MHz-CH661-8PSK

Graphical for Peak to Average Ratio Results for NB-IoT:

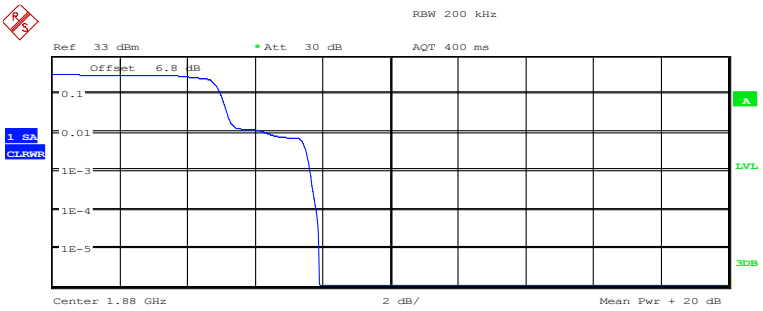


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	15.52 dBm
Peak	23.27 dBm
Crest	7.75 dB
10 %	5.26 dB
1 %	5.71 dB
.1 %	7.44 dB
.01 %	7.63 dB

Date: 6.DEC.2019 15:51:22

Band2-CH18900-1880MHz-QPSK

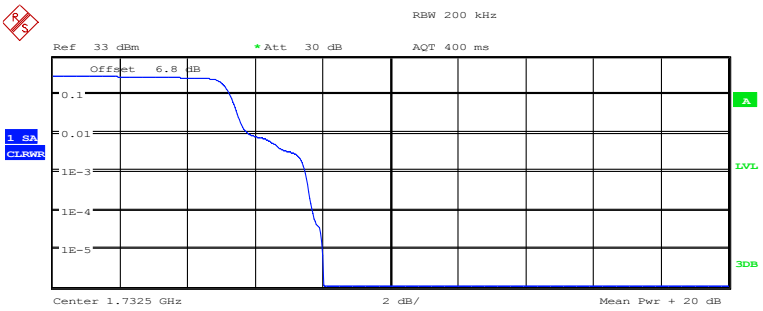


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	15.80 dBm
Peak	23.69 dBm
Crest	7.89 dB
10 %	5.00 dB
1 %	6.35 dB
.1 %	7.63 dB
.01 %	7.82 dB

Date: 6.DEC.2019 15:51:57

Band2-CH18900-1880MHz-BPSK

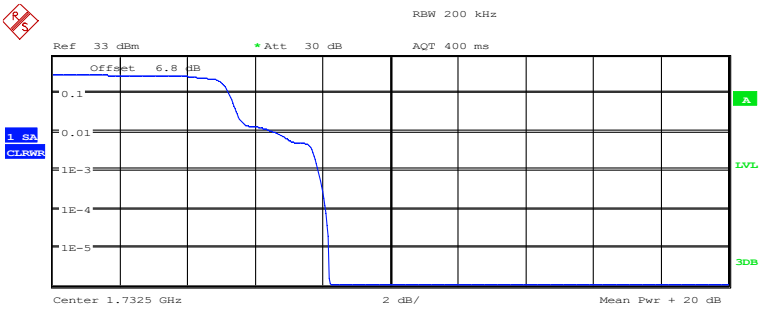


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	15.81 dBm
Peak	23.83 dBm
Crest	8.02 dB
10 %	5.26 dB
1 %	5.77 dB
.1 %	7.50 dB
.01 %	7.69 dB

Date: 6.DEC.2019 15:56:30

Band4-CH20175-1732.5MHz-QPSK

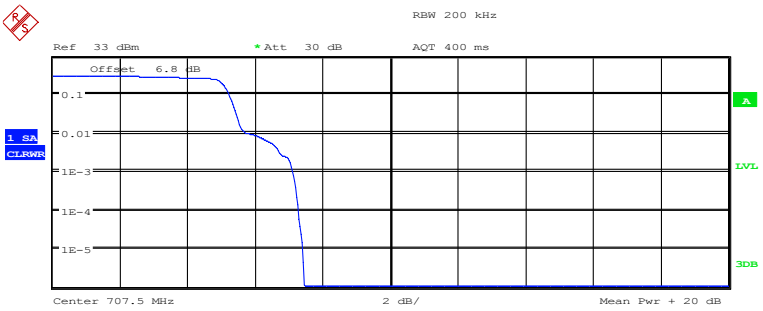


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	15.92 dBm
Peak	24.12 dBm
Crest	8.19 dB
10 %	5.22 dB
1 %	6.57 dB
.1 %	7.88 dB
.01 %	8.08 dB

Date: 6.DEC.2019 15:55:49

Band4- CH20175-1732.5MHz -BPSK

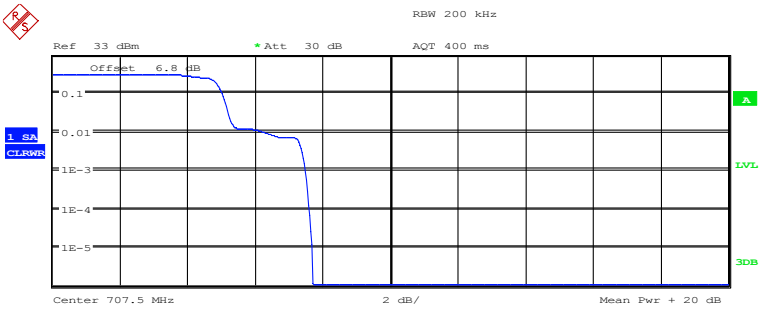


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	16.04 dBm
Peak	23.48 dBm
Crest	7.44 dB
10 %	5.22 dB
1 %	5.80 dB
.1 %	7.12 dB
.01 %	7.28 dB

Date: 6.DEC.2019 16:32:38

Band12-CH23095-707.5MHz-QPSK

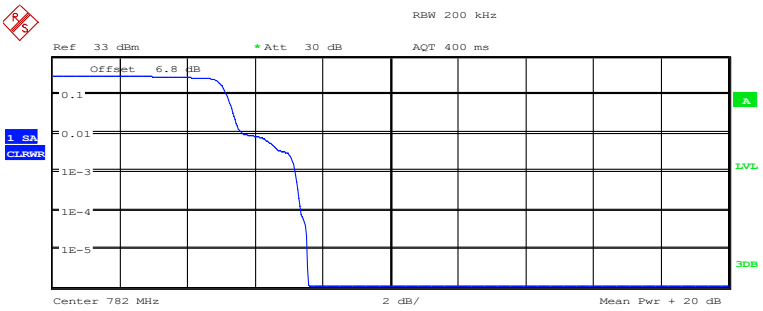


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	16.27 dBm
Peak	23.97 dBm
Crest	7.71 dB
10 %	5.03 dB
1 %	6.25 dB
.1 %	7.50 dB
.01 %	7.60 dB

Date: 6.DEC.2019 16:33:54

Band12- CH23095-707.5MHz -BPSK

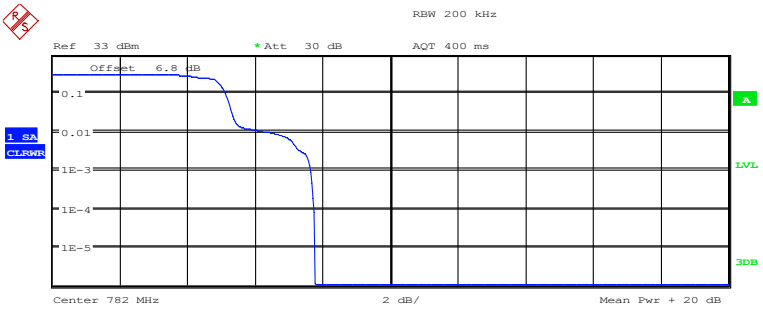


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	16.28 dBm
Peak	23.83 dBm
Crest	7.56 dB
10 %	5.16 dB
1 %	5.61 dB
.1 %	7.18 dB
.01 %	7.34 dB

Date: 6.DEC.2019 16:42:03

Band13-CH23230-782MHz-QPSK

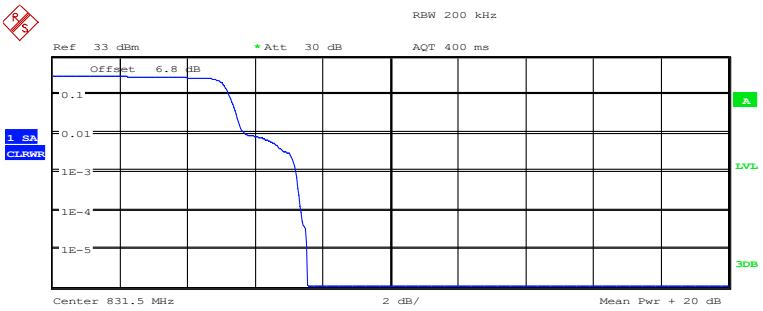


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	16.35 dBm
Peak	24.12 dBm
Crest	7.77 dB
10 %	5.13 dB
1 %	6.41 dB
.1 %	7.66 dB
.01 %	7.76 dB

Date: 6.DEC.2019 16:41:22

Band13- CH23230-782MHz -BPSK

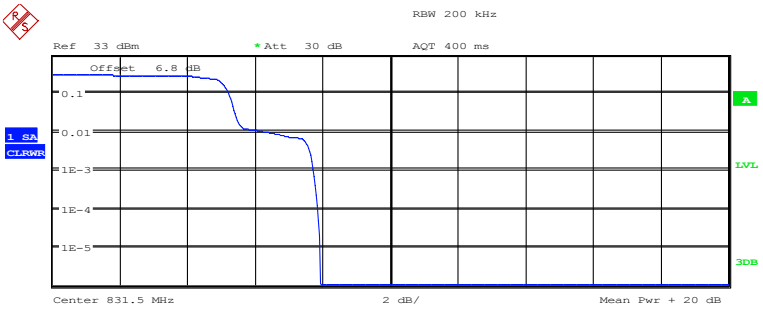


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

	Trace 1
Mean	16.36 dBm
Peak	23.90 dBm
Crest	7.54 dB
10 %	5.22 dB
1 %	5.67 dB
.1 %	7.21 dB
.01 %	7.37 dB

Date: 6.DEC.2019 16:53:25

Band26-CH26865-831.5MHz-QPSK

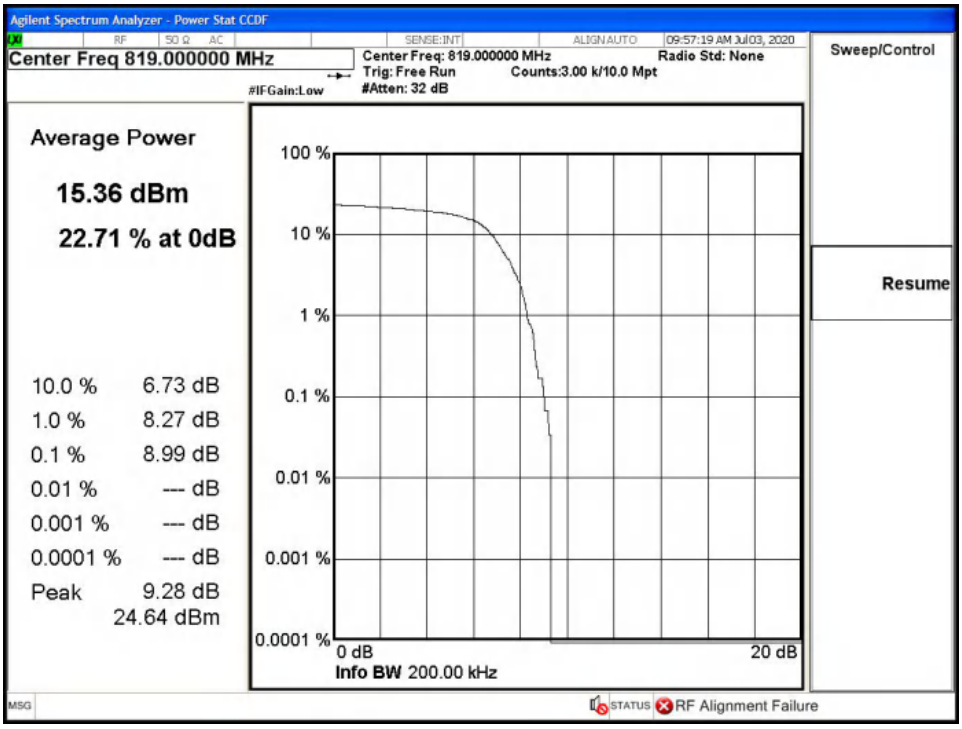


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 204kHz

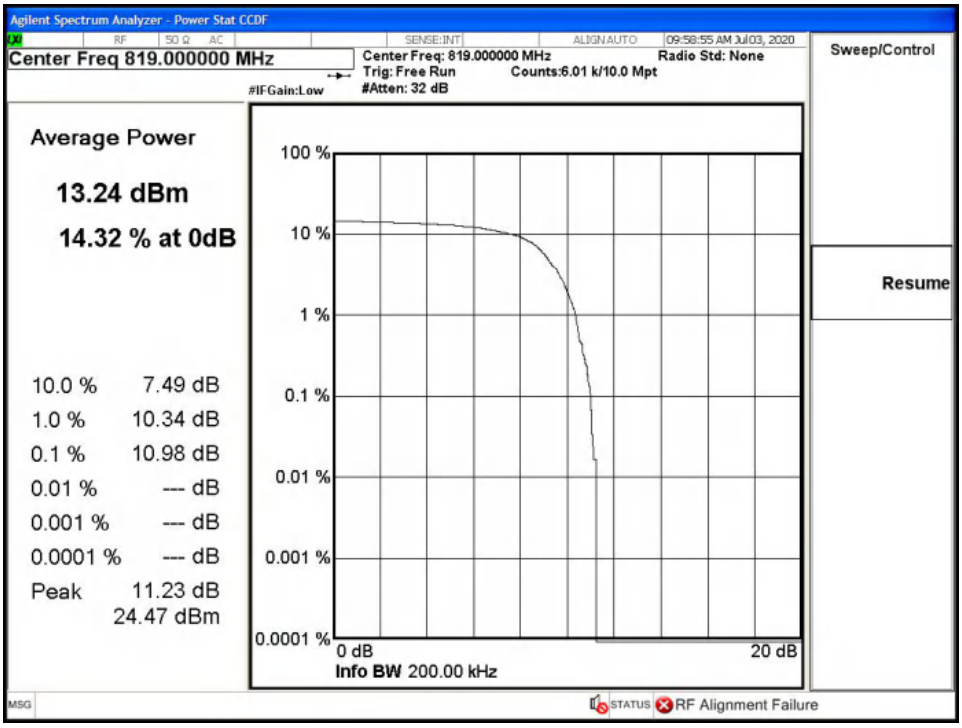
	Trace 1
Mean	16.40 dBm
Peak	24.33 dBm
Crest	7.93 dB
10 %	5.22 dB
1 %	6.41 dB
.1 %	7.72 dB
.01 %	7.85 dB

Date: 6.DEC.2019 16:52:58

Band26-CH26865-831.5MHz-BPSK

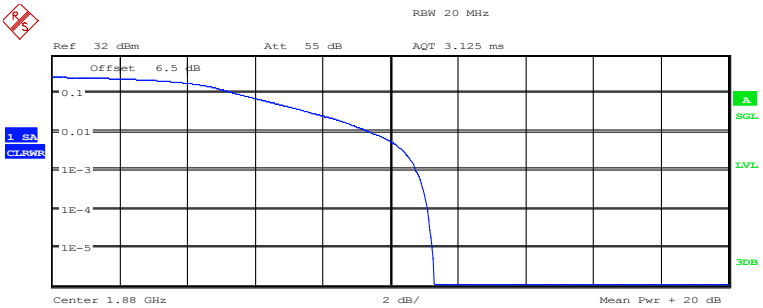


Band26-CH26740-819MHz-QPSK



Band26-CH26740-819MHz-BPSK

Graphical for Peak to Average Ratio Results for CAT-M:

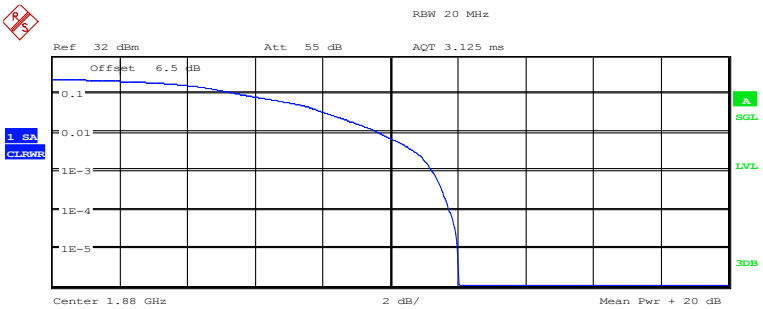


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	15.28 dBm
Peak	26.58 dBm
Crest	11.30 dB
10 %	5.48 dB
1 %	9.42 dB
.1 %	10.77 dB
.01 %	11.12 dB

Date: 29.NOV.2019 14:30:03

Band2-CH18900-1880MHz-1.4MHz Bandwidth-QPSK

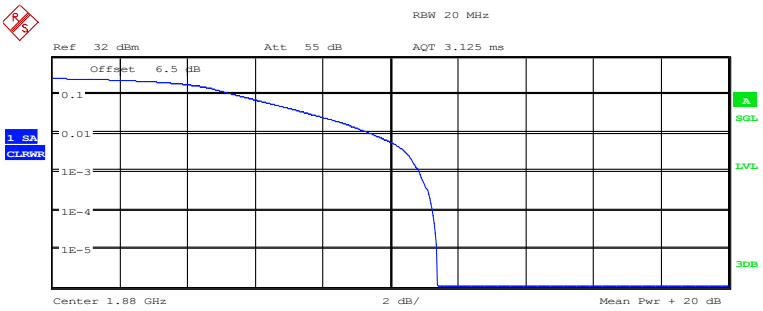


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	15.62 dBm
Peak	27.64 dBm
Crest	12.01 dB
10 %	5.64 dB
1 %	9.65 dB
.1 %	11.25 dB
.01 %	11.73 dB

Date: 29.NOV.2019 14:30:53

Band2-CH18900-1880MHz-1.4MHz Bandwidth-16QAM

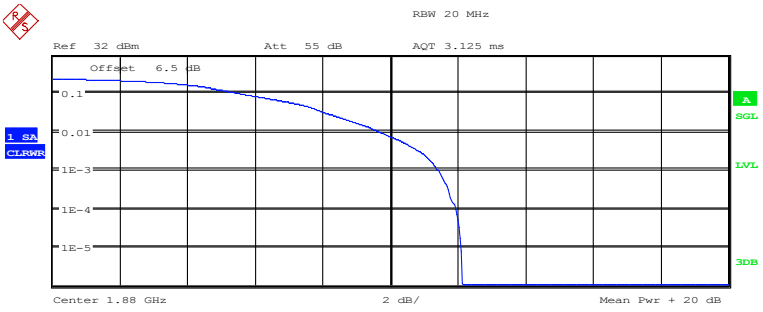


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	15.26 dBm
Peak	26.65 dBm
Crest	11.39 dB
10 %	5.48 dB
1 %	9.42 dB
.1 %	10.87 dB
.01 %	11.25 dB

Date: 29.NOV.2019 14:32:29

Band2-CH18900-1880MHz-3MHz Bandwidth-QPSK

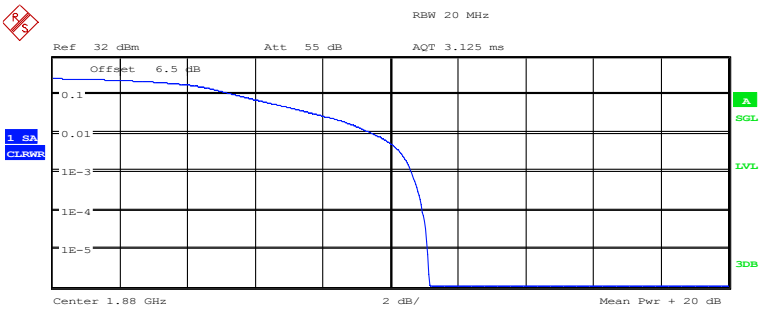


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	15.51 dBm
Peak	27.64 dBm
Crest	12.12 dB
10 %	5.61 dB
1 %	9.71 dB
.1 %	11.44 dB
.01 %	11.96 dB

Date: 29.NOV.2019 14:32:54

Band2-CH18900-1880MHz-3MHz Bandwidth-16QAM

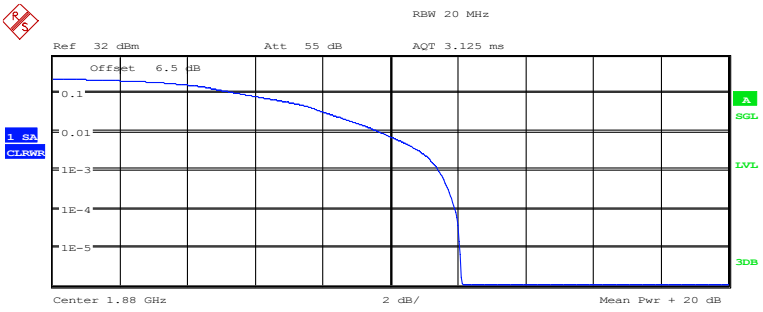


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.34 dBm
Peak	27.50 dBm
Crest	11.15 dB
10 %	5.48 dB
1 %	9.49 dB
.1 %	10.64 dB
.01 %	10.96 dB

Date: 29.NOV.2019 14:36:44

Band2-CH18900-1880MHz-5MHz Bandwidth-QPSK

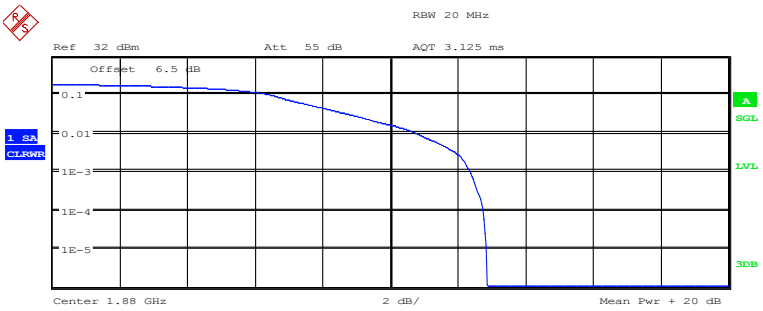


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	15.53 dBm
Peak	27.64 dBm
Crest	12.11 dB
10 %	5.61 dB
1 %	9.68 dB
.1 %	11.44 dB
.01 %	11.92 dB

Date: 29.NOV.2019 14:38:13

Band2-CH18900-1880MHz-5MHz Bandwidth-16QAM

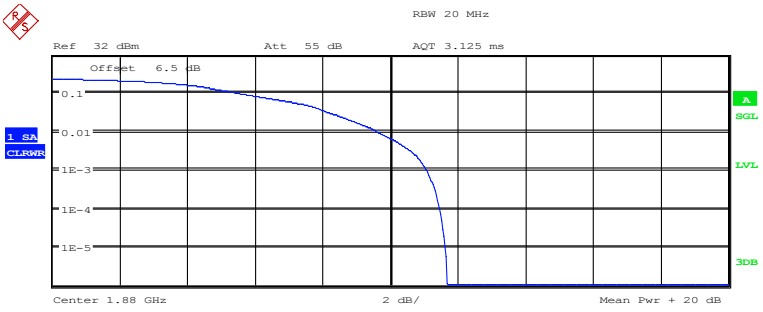


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	14.50 dBm
Peak	27.35 dBm
Crest	12.86 dB
10 %	6.47 dB
1 %	10.80 dB
.1 %	12.37 dB
.01 %	12.76 dB

Date: 29.NOV.2019 14:41:27

Band2-CH18900-1880MHz-10MHz Bandwidth-QPSK

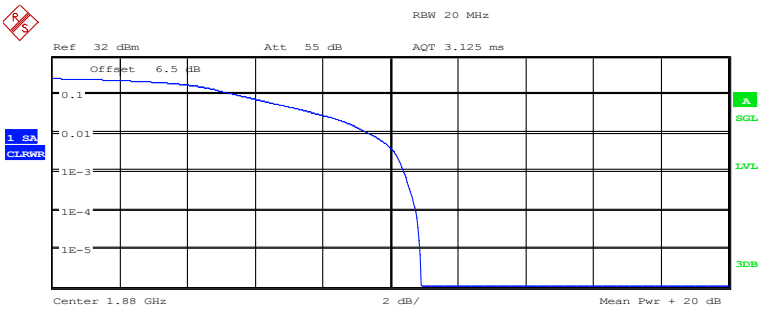


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.51 dBm
Peak	28.20 dBm
Crest	11.69 dB
10 %	5.64 dB
1 %	9.65 dB
.1 %	11.09 dB
.01 %	11.47 dB

Date: 29.NOV.2019 14:42:00

Band2-CH18900-1880MHz-10MHz Bandwidth-16QAM

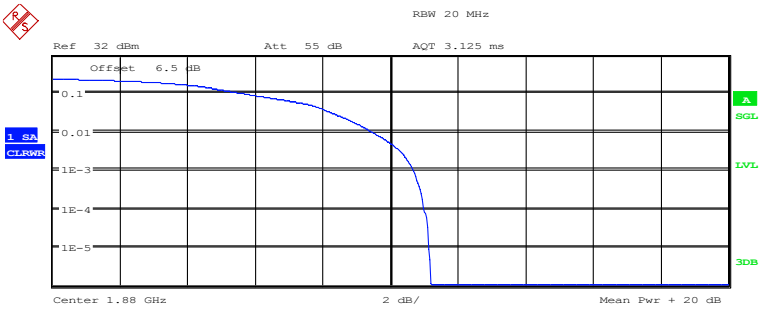


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.16 dBm
Peak	28.06 dBm
Crest	10.90 dB
10 %	5.51 dB
1 %	9.39 dB
.1 %	10.42 dB
.01 %	10.77 dB

Date: 29.NOV.2019 14:43:32

Band2-CH18900-1880MHz-15MHz Bandwidth-QPSK

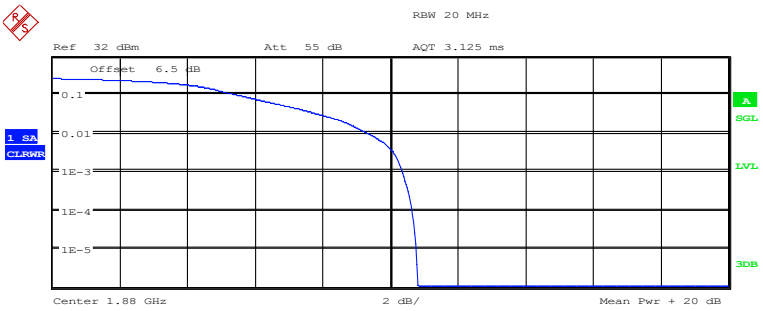


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.49 dBm
Peak	28.69 dBm
Crest	11.20 dB
10 %	5.74 dB
1 %	9.46 dB
.1 %	10.71 dB
.01 %	10.99 dB

Date: 29.NOV.2019 14:47:44

Band2-CH18900-1880MHz-15MHz Bandwidth-16QAM

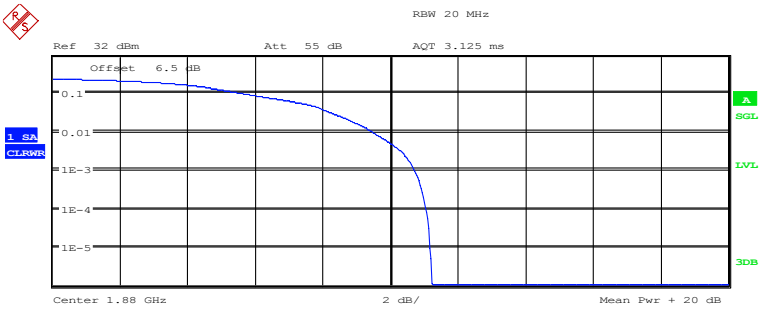


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.33 dBm
Peak	28.13 dBm
Crest	10.80 dB
10 %	5.51 dB
1 %	9.36 dB
.1 %	10.35 dB
.01 %	10.64 dB

Date: 29.NOV.2019 14:54:39

Band2-CH18900-1880MHz-20MHz Bandwidth-QPSK

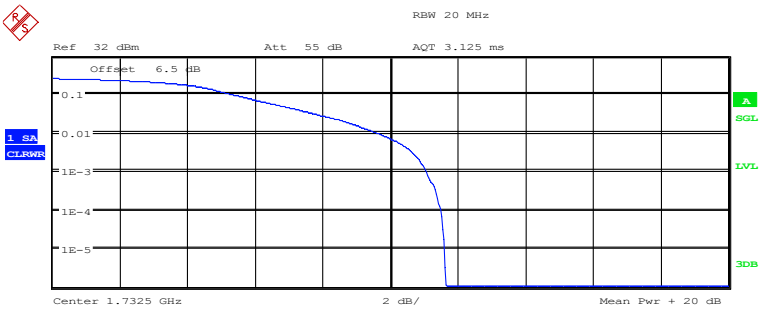


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.53 dBm
Peak	28.76 dBm
Crest	11.24 dB
10 %	5.71 dB
1 %	9.49 dB
.1 %	10.74 dB
.01 %	11.06 dB

Date: 29.NOV.2019 15:00:49

Band2-CH18900-1880MHz-20MHz Bandwidth-16QAM

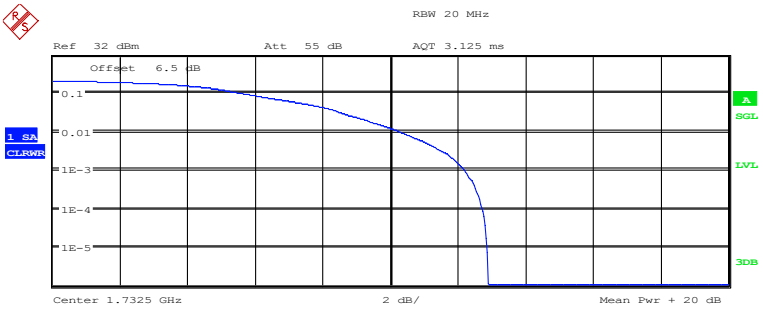


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.56 dBm
Peak	28.19 dBm
Crest	11.62 dB
10 %	5.42 dB
1 %	9.65 dB
.1 %	11.06 dB
.01 %	11.51 dB

Date: 29.NOV.2019 15:02:42

Band4-CH20175-707.5MHz -1.4MHz Bandwidth-QPSK

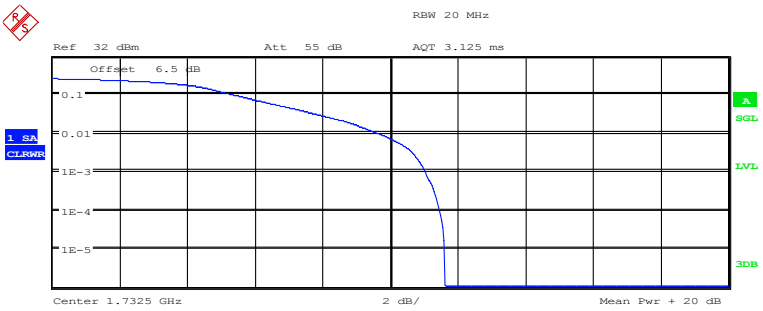


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.28 dBm
Peak	29.17 dBm
Crest	12.89 dB
10 %	5.74 dB
1 %	10.32 dB
.1 %	12.21 dB
.01 %	12.72 dB

Date: 29.NOV.2019 15:03:12

Band4-CH20175-707.5MHz -1.4MHz Bandwidth-16QAM

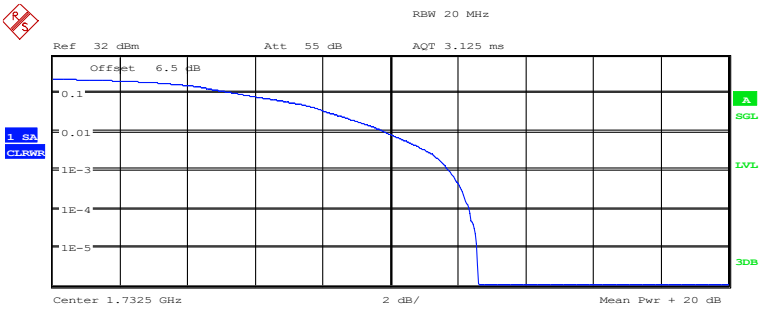


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.64 dBm
Peak	28.26 dBm
Crest	11.61 dB
10 %	5.42 dB
1 %	9.65 dB
.1 %	11.03 dB
.01 %	11.47 dB

Date: 29.NOV.2019 15:09:24

Band4-CH20175-707.5MHz -3MHz Bandwidth-QPSK

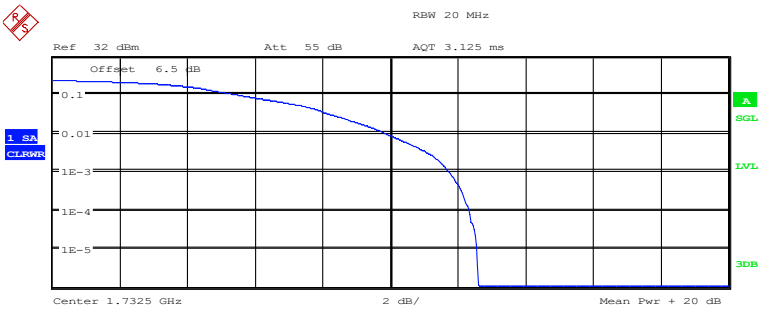


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.80 dBm
Peak	29.39 dBm
Crest	12.59 dB
10 %	5.54 dB
1 %	9.87 dB
.1 %	11.73 dB
.01 %	12.34 dB

Date: 29.NOV.2019 15:10:02

Band4-CH20175-707.5MHz -3MHz Bandwidth-16QAM

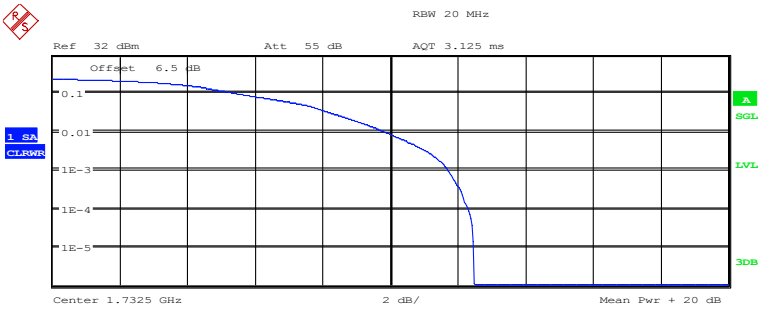


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.80 dBm
Peak	29.39 dBm
Crest	12.59 dB
10 %	5.54 dB
1 %	9.87 dB
.1 %	11.73 dB
.01 %	12.34 dB

Date: 29.NOV.2019 15:45:36

Band4-CH20175-707.5MHz -5MHz Bandwidth-QPSK

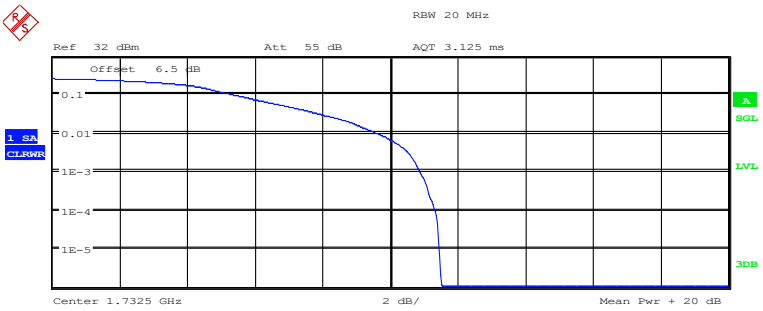


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.85 dBm
Peak	29.31 dBm
Crest	12.47 dB
10 %	5.54 dB
1 %	9.87 dB
.1 %	11.73 dB
.01 %	12.31 dB

Date: 29.NOV.2019 15:46:20

Band4-CH20175-707.5MHz-5MHz Bandwidth-16QAM

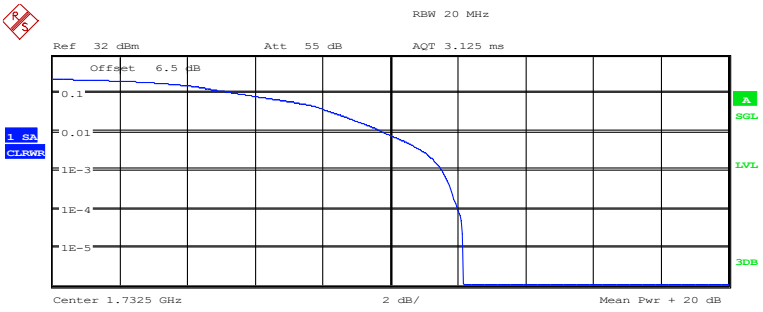


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.74 dBm
Peak	29.24 dBm
Crest	11.50 dB
10 %	5.42 dB
1 %	9.62 dB
.1 %	10.90 dB
.01 %	11.31 dB

Date: 29.NOV.2019 15:47:05

Band4-CH20175-707.5MHz-10MHz Bandwidth-QPSK

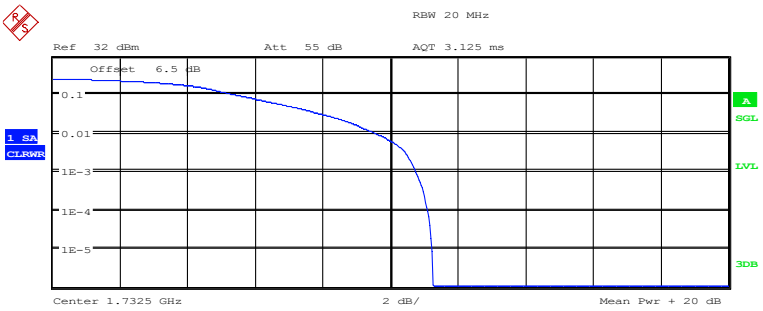


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	17.87 dBm
Peak	30.02 dBm
Crest	12.15 dB
10 %	5.58 dB
1 %	9.81 dB
.1 %	11.54 dB
.01 %	11.99 dB

Date: 29.NOV.2019 15:47:42

Band4-CH20175-707.5MHz-10MHz Bandwidth-16QAM

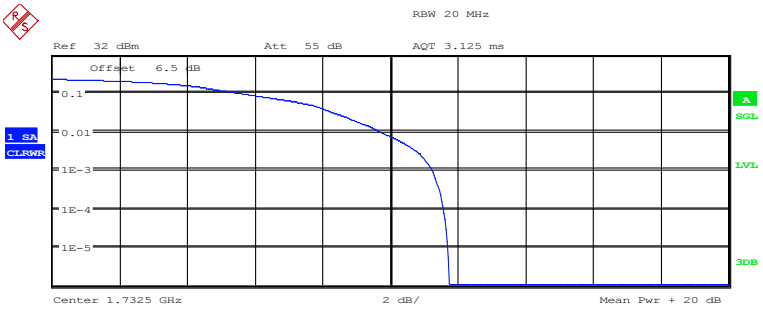


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	18.69 dBm
Peak	29.95 dBm
Crest	11.26 dB
10 %	5.48 dB
1 %	9.58 dB
.1 %	10.77 dB
.01 %	11.12 dB

Date: 29.NOV.2019 15:48:46

Band4-CH20175-707.5MHz -15MHz Bandwidth-QPSK

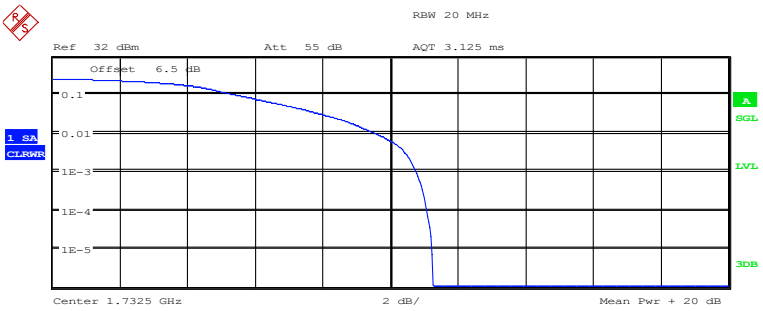


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	18.85 dBm
Peak	30.58 dBm
Crest	11.73 dB
10 %	5.67 dB
1 %	9.74 dB
.1 %	11.25 dB
.01 %	11.57 dB

Date: 29.NOV.2019 15:49:21

Band4-CH20175-707.5MHz-15MHz Bandwidth-16QAM

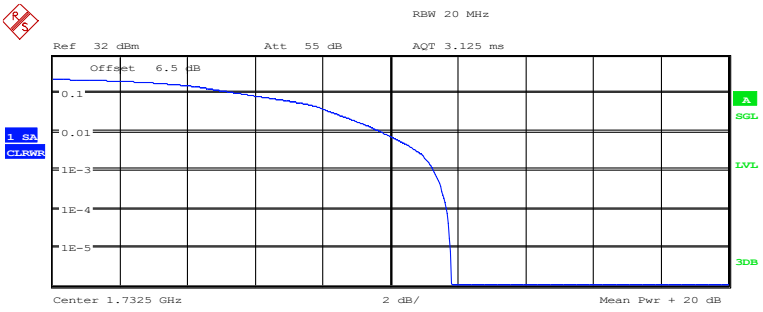


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	18.70 dBm
Peak	29.95 dBm
Crest	11.25 dB
10 %	5.48 dB
1 %	9.55 dB
.1 %	10.77 dB
.01 %	11.09 dB

Date: 29.NOV.2019 15:51:49

Band4-CH20175-707.5MHz-20MHz Bandwidth-QPSK

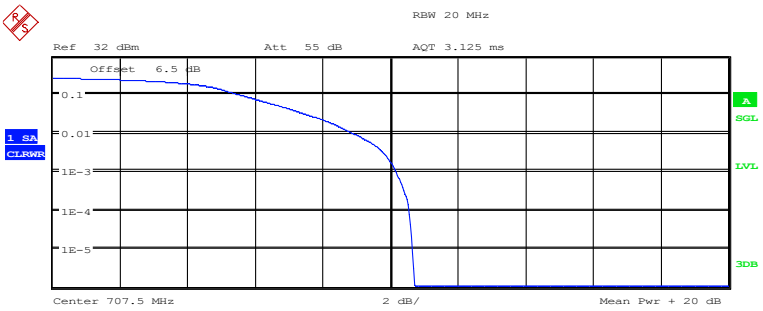


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	18.78 dBm
Peak	30.58 dBm
Crest	11.80 dB
10 %	5.67 dB
1 %	9.74 dB
.1 %	11.28 dB
.01 %	11.67 dB

Date: 29.NOV.2019 15:52:16

Band4-CH20175-707.5MHz-20MHz Bandwidth-16QAM

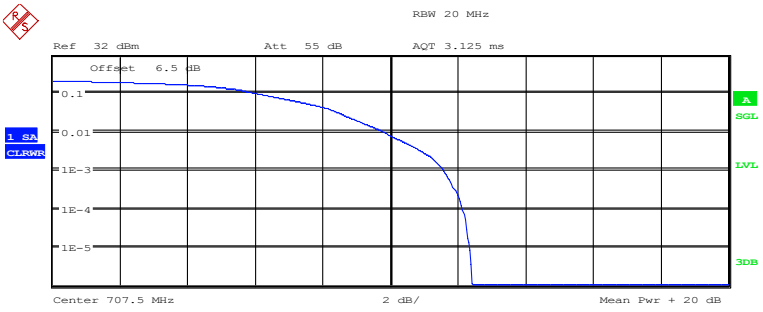


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.63 dBm
Peak	27.34 dBm
Crest	10.71 dB
10 %	5.58 dB
1 %	8.91 dB
.1 %	10.16 dB
.01 %	10.58 dB

Date: 29.NOV.2019 15:54:19

Band12-CH23095-707.5MHz-1.4MHz Bandwidth-QPSK

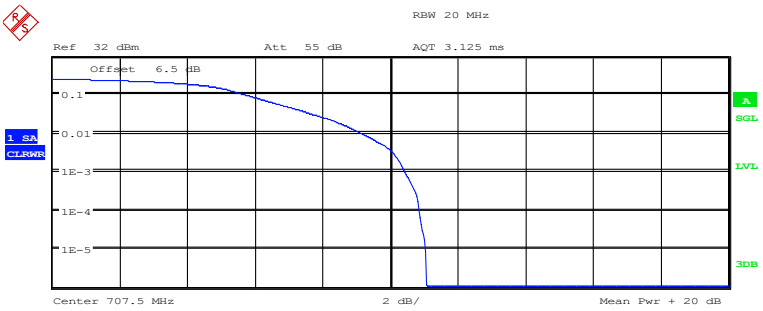


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.06 dBm
Peak	28.47 dBm
Crest	12.41 dB
10 %	6.12 dB
1 %	9.81 dB
.1 %	11.57 dB
.01 %	12.15 dB

Date: 29.NOV.2019 15:54:45

Band12-CH23095-707.5MHz-1.4MHz Bandwidth-16QAM

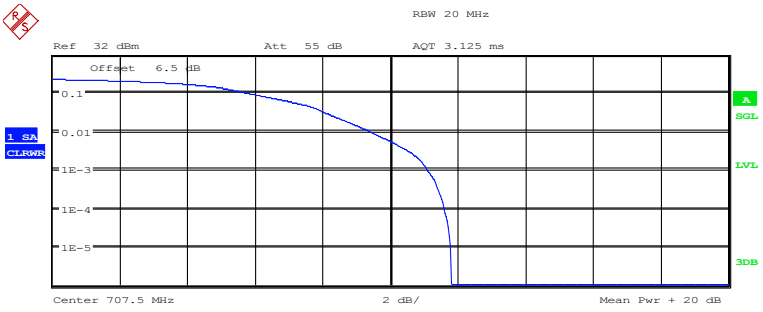


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.34 dBm
Peak	27.41 dBm
Crest	11.07 dB
10 %	5.74 dB
1 %	9.17 dB
.1 %	10.45 dB
.01 %	10.87 dB

Date: 29.NOV.2019 15:55:26

Band12-CH23095-707.5MHz-3MHz Bandwidth-QPSK

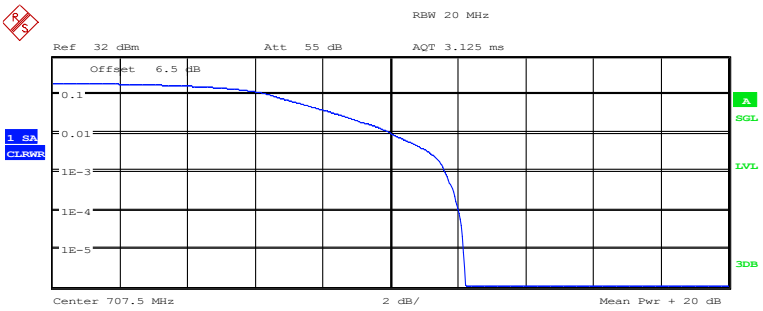


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.45 dBm
Peak	28.26 dBm
Crest	11.81 dB
10 %	5.90 dB
1 %	9.46 dB
.1 %	11.12 dB
.01 %	11.60 dB

Date: 29.NOV.2019 15:56:05

Band12-CH23095-707.5MHz-3MHz Bandwidth-16QAM

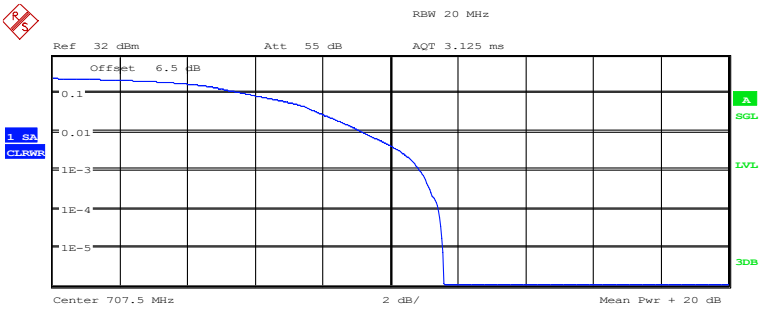


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.18 dBm
Peak	28.40 dBm
Crest	12.22 dB
10 %	6.47 dB
1 %	10.03 dB
.1 %	11.63 dB
.01 %	12.02 dB

Date: 29.NOV.2019 15:56:59

Band12-CH23095-707.5MHz-5MHz Bandwidth-QPSK

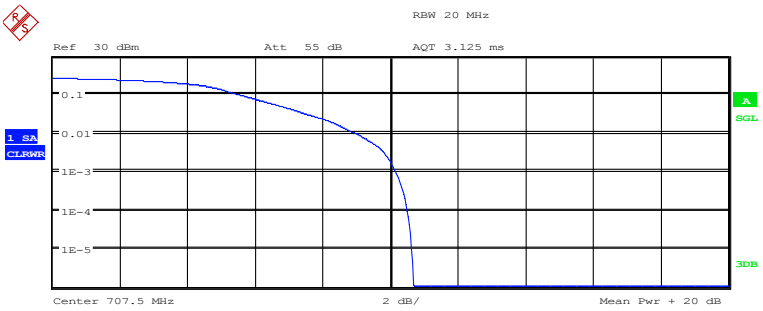


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	16.75 dBm
Peak	28.33 dBm
Crest	11.58 dB
10 %	5.77 dB
1 %	9.17 dB
.1 %	10.87 dB
.01 %	11.41 dB

Date: 29.NOV.2019 15:57:26

Band12-CH23095-707.5MHz-5MHz Bandwidth-16QAM

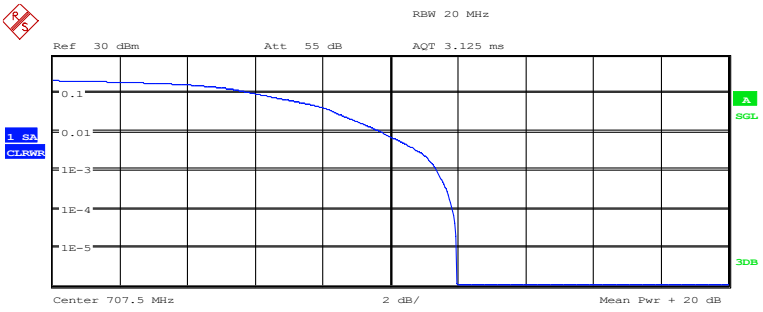


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.18 dBm
Peak	21.87 dBm
Crest	10.69 dB
10 %	5.58 dB
1 %	8.97 dB
.1 %	10.16 dB
.01 %	10.51 dB

Date: 29.NOV.2019 16:19:38

Band12-CH23095-707.5MHz-10MHz Bandwidth-QPSK

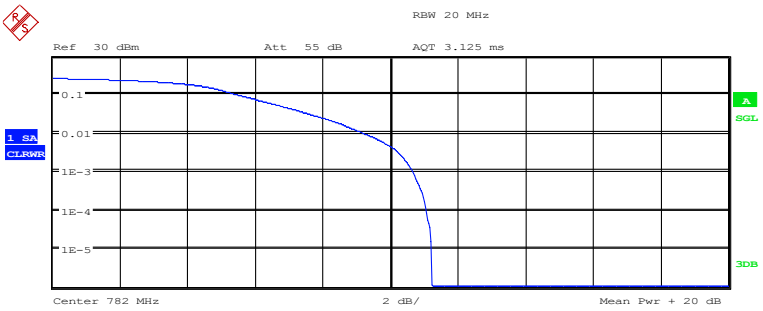


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	10.68 dBm
Peak	22.64 dBm
Crest	11.96 dB
10 %	6.06 dB
1 %	9.74 dB
.1 %	11.38 dB
.01 %	11.86 dB

Date: 29.NOV.2019 16:20:08

Band12-CH23095-707.5MHz-10MHz Bandwidth-16QAM

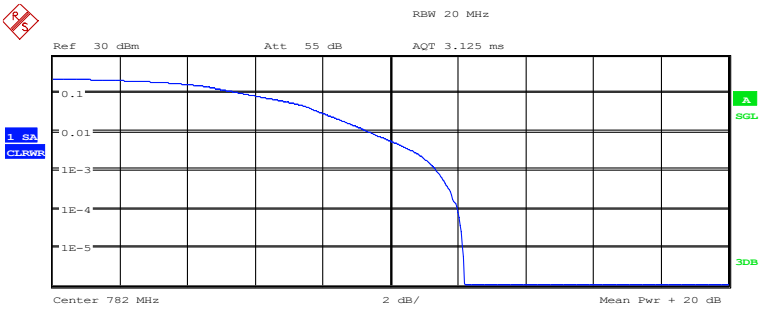


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.07 dBm
Peak	22.30 dBm
Crest	11.23 dB
10 %	5.54 dB
1 %	9.23 dB
.1 %	10.67 dB
.01 %	11.06 dB

Date: 29.NOV.2019 18:01:55

Band13-CH23230-782MHz-5MHz Bandwidth-QPSK

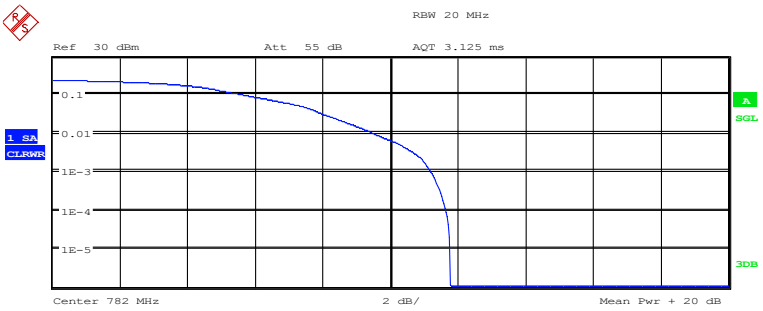


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	10.24 dBm
Peak	22.44 dBm
Crest	12.20 dB
10 %	5.71 dB
1 %	9.39 dB
.1 %	11.38 dB
.01 %	11.99 dB

Date: 29.NOV.2019 18:02:23

Band13-CH23230-782MHz-5MHz Bandwidth-16QAM

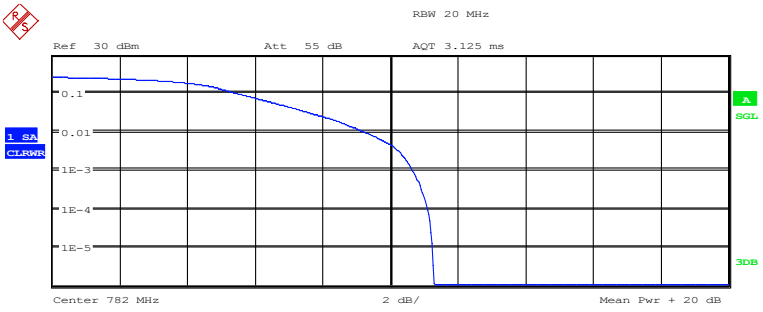


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.37 dBm
Peak	23.14 dBm
Crest	11.77 dB
10 %	5.71 dB
1 %	9.49 dB
.1 %	11.22 dB
.01 %	11.67 dB

Date: 29.NOV.2019 18:00:03

Band13-CH23230-782MHz-10MHz Bandwidth-QPSK



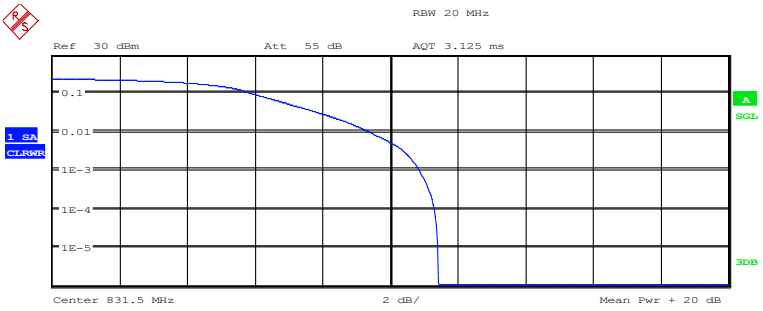
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.16 dBm
Peak	22.44 dBm
Crest	11.28 dB
10 %	5.54 dB
1 %	9.26 dB
.1 %	10.67 dB
.01 %	11.12 dB

Date: 29.NOV.2019 18:01:00

Band13-CH23230-782MHz-10MHz Bandwidth-16QAM

Part(824MHz-849MHz)

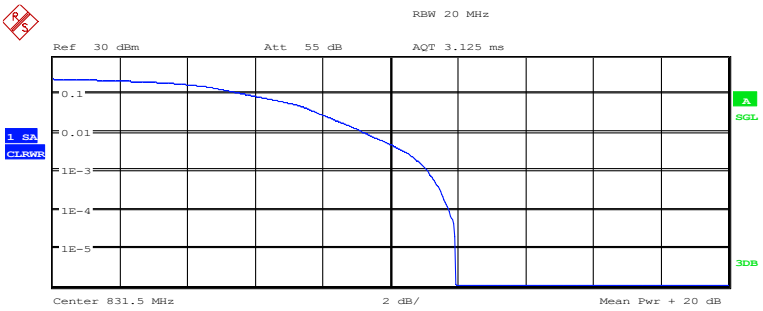


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	9.34 dBm
Peak	20.75 dBm
Crest	11.41 dB
10 %	5.93 dB
1 %	9.39 dB
.1 %	10.87 dB
.01 %	11.31 dB

Date: 29.NOV.2019 18:05:41

Band26-CH26865-831.5MHz-1.4MHz Bandwidth-QPSK

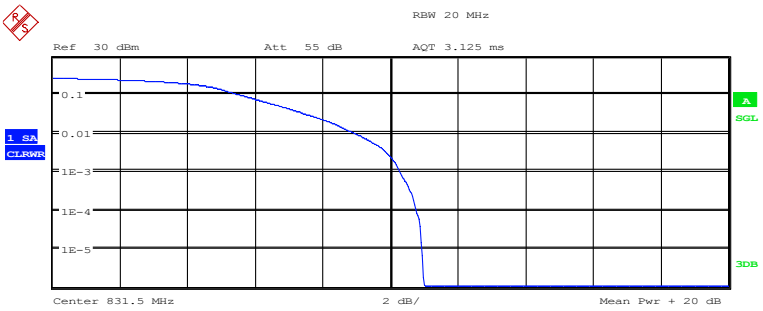


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	10.02 dBm
Peak	21.95 dBm
Crest	11.93 dB
10 %	5.77 dB
1 %	9.23 dB
.1 %	11.12 dB
.01 %	11.73 dB

Date: 29.NOV.2019 18:06:11

Band26-CH26865-831.5MHz-1.4MHz Bandwidth-16QAM

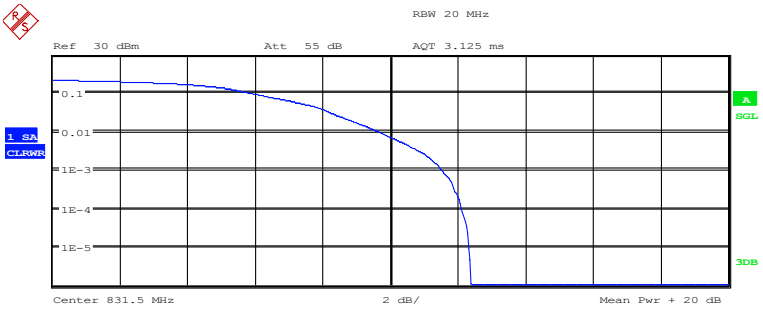


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	9.90 dBm
Peak	20.89 dBm
Crest	10.99 dB
10 %	5.61 dB
1 %	8.97 dB
.1 %	10.29 dB
.01 %	10.77 dB

Date: 29.NOV.2019 18:07:02

Band26-CH26865-831.5MHz-3MHz Bandwidth-QPSK

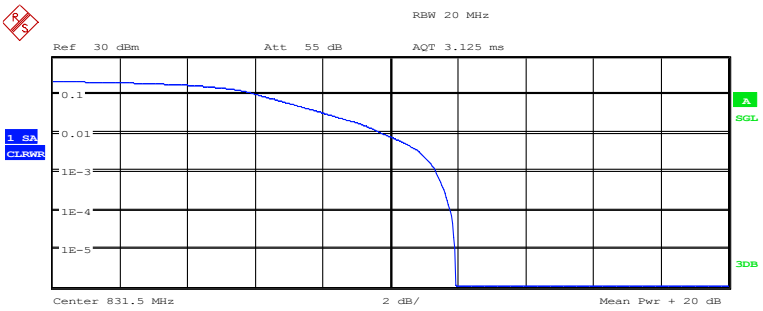


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	9.49 dBm
Peak	21.88 dBm
Crest	12.39 dB
10 %	5.99 dB
1 %	9.68 dB
.1 %	11.54 dB
.01 %	12.12 dB

Date: 29.NOV.2019 18:07:28

Band26-CH26865-831.5MHz-3MHz Bandwidth-16QAM

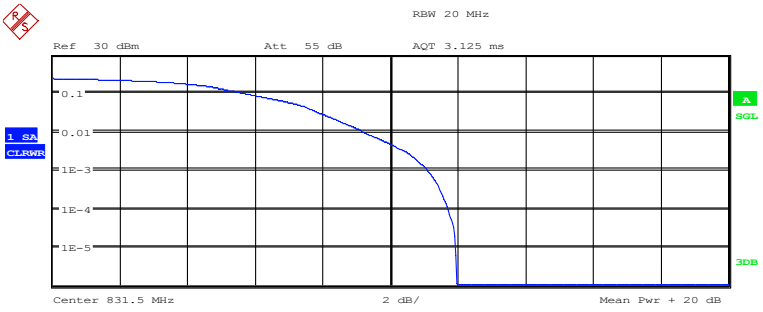


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	10.08 dBm
Peak	22.02 dBm
Crest	11.94 dB
10 %	6.12 dB
1 %	9.78 dB
.1 %	11.35 dB
.01 %	11.79 dB

Date: 29.NOV.2019 18:11:21

Band26-CH26865-831.5MHz-5MHz Bandwidth-QPSK

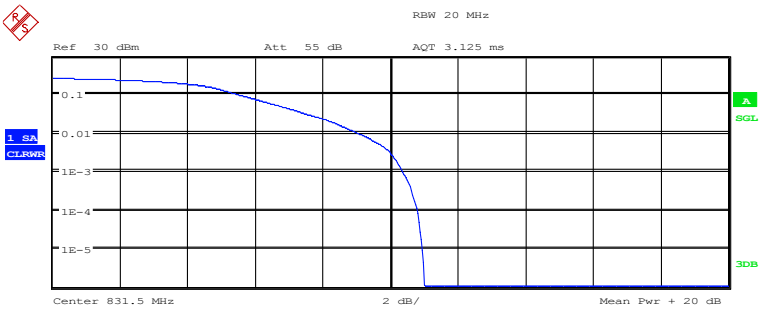


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	10.00 dBm
Peak	21.95 dBm
Crest	11.95 dB
10 %	5.77 dB
1 %	9.23 dB
.1 %	11.12 dB
.01 %	11.70 dB

Date: 29.NOV.2019 18:11:46

Band26-CH26865-831.5MHz-5MHz Bandwidth-16QAM

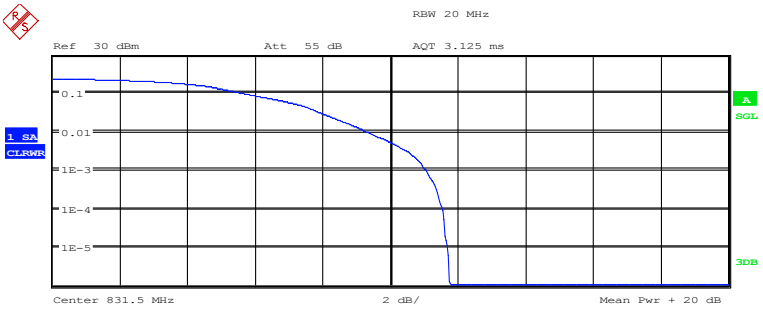


Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.01 dBm
Peak	22.02 dBm
Crest	11.01 dB
10 %	5.58 dB
1 %	9.07 dB
.1 %	10.35 dB
.01 %	10.80 dB

Date: 29.NOV.2019 18:12:30

Band26-CH26865-831.5MHz-10MHz Bandwidth-QPSK



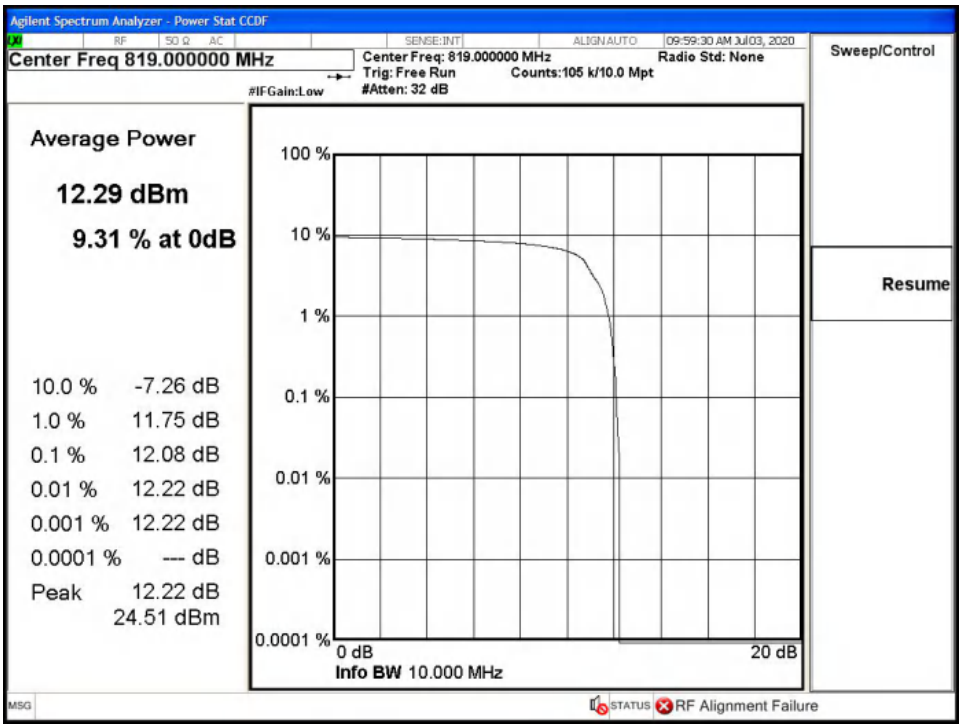
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

	Trace 1
Mean	11.25 dBm
Peak	23.00 dBm
Crest	11.75 dB
10 %	5.74 dB
1 %	9.33 dB
.1 %	11.06 dB
.01 %	11.54 dB

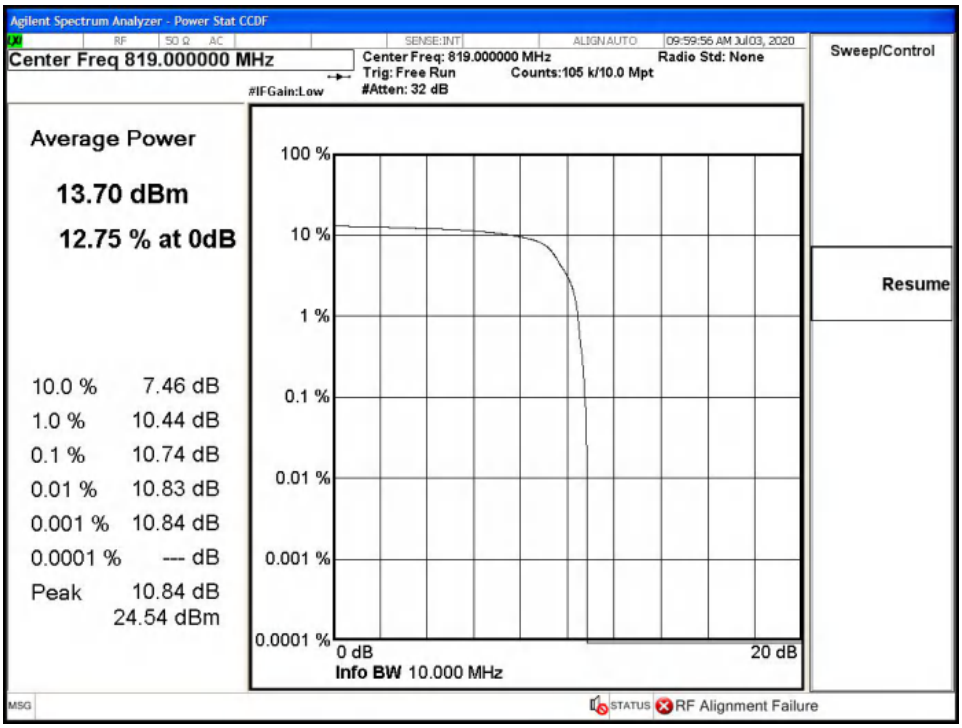
Date: 29.NOV.2019 18:12:59

Band26-CH26865-831.5MHz-10MHz Bandwidth-16QAM

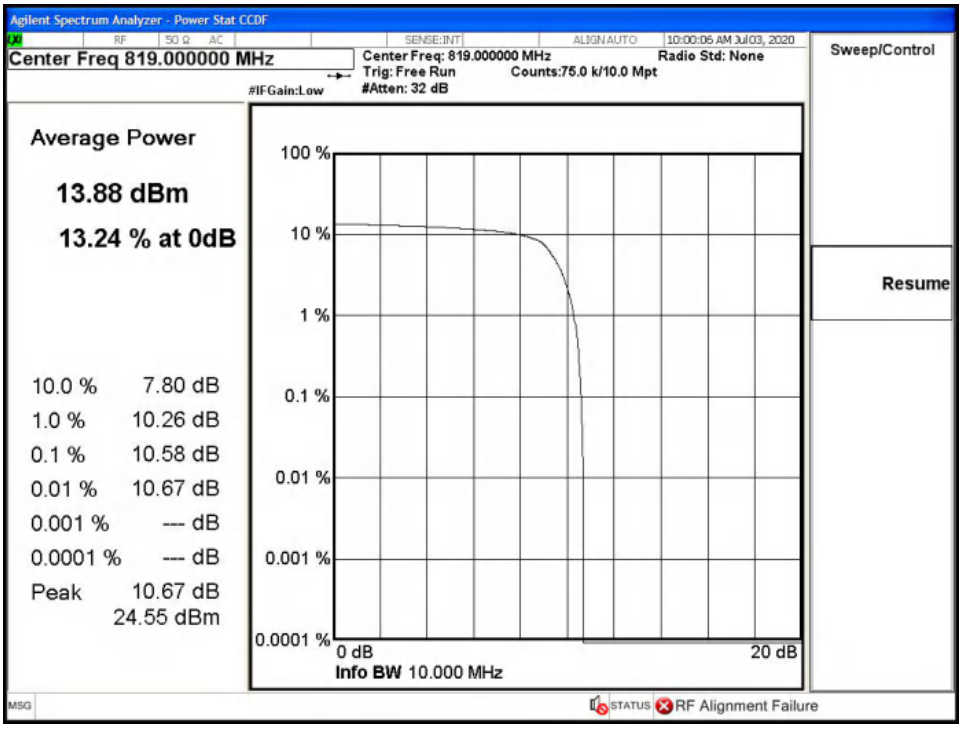
Part(814MHz-824MHz)



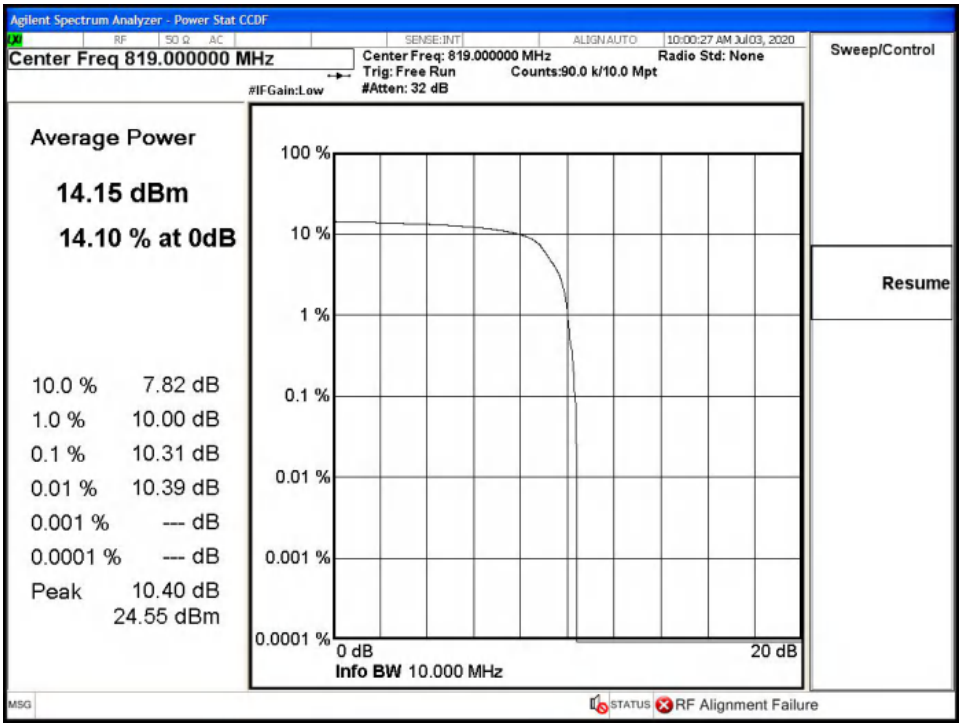
Band26-CH26740-819MHz-1.4MHz Bandwidth-QPSK



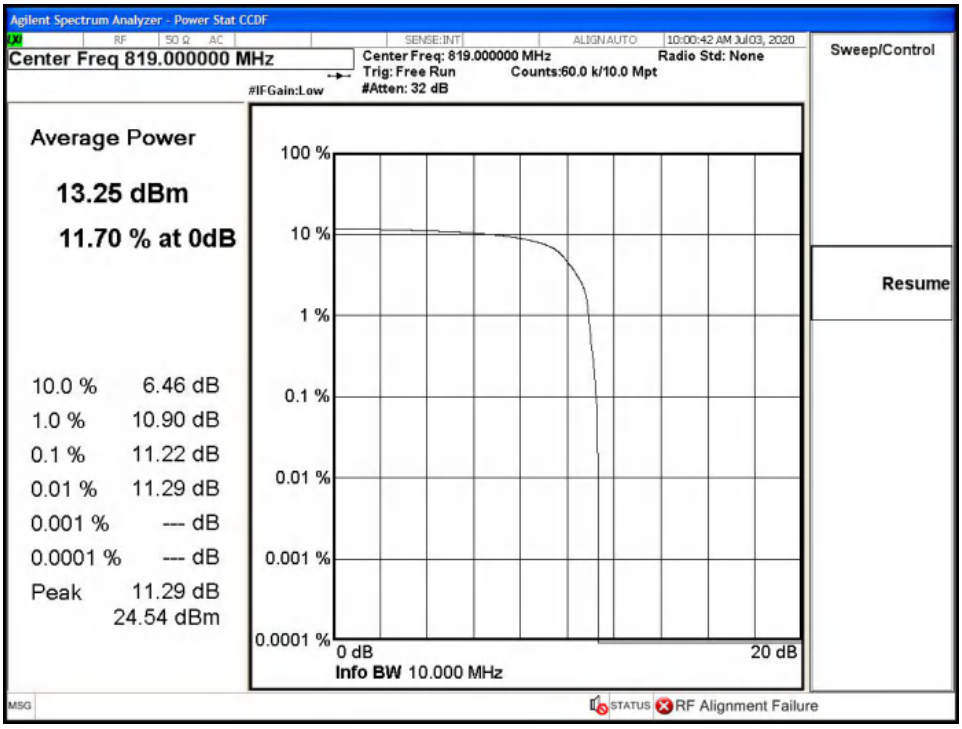
Band26-CH26740-819MHz-1.4MHz Bandwidth-16QAM



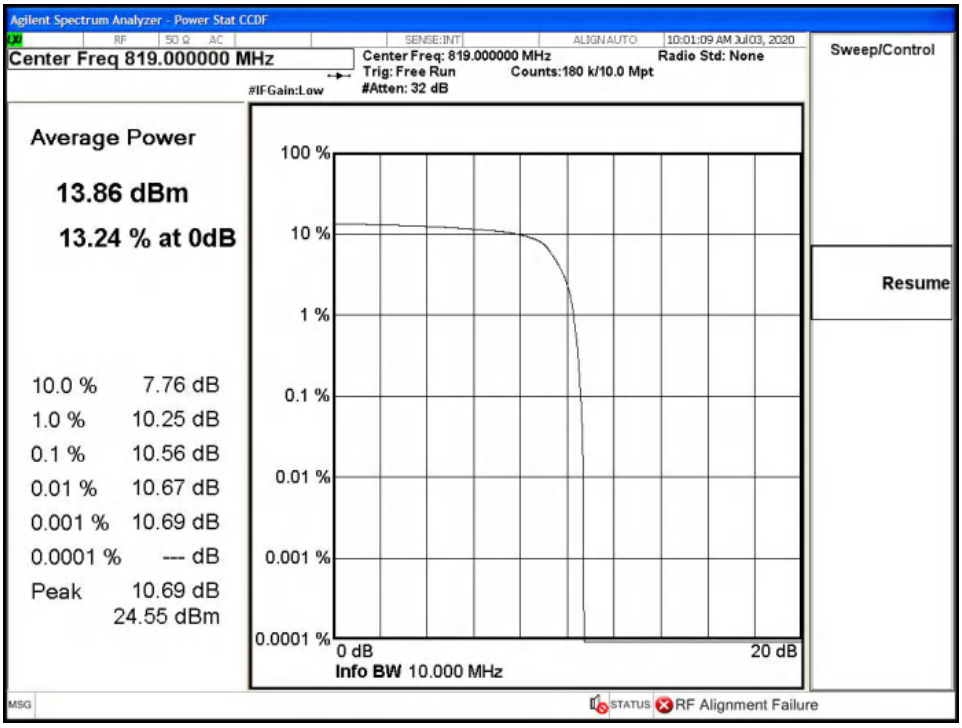
Band26-CH26740-819MHz-3MHz Bandwidth-QPSK



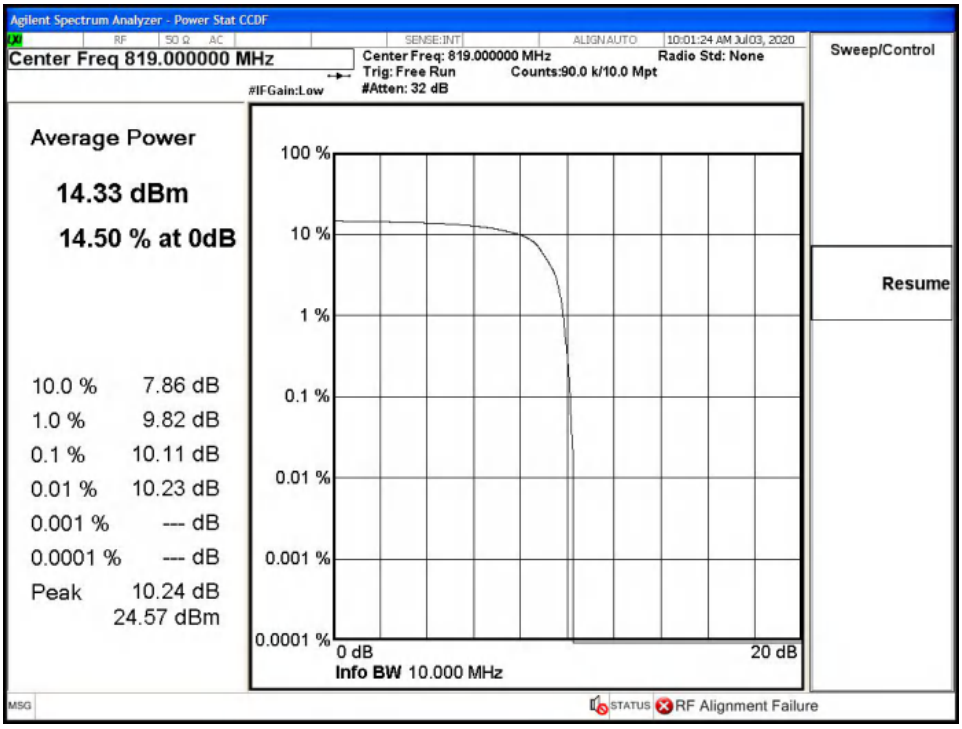
Band26-CH26740-819MHz-3MHz Bandwidth-16QAM



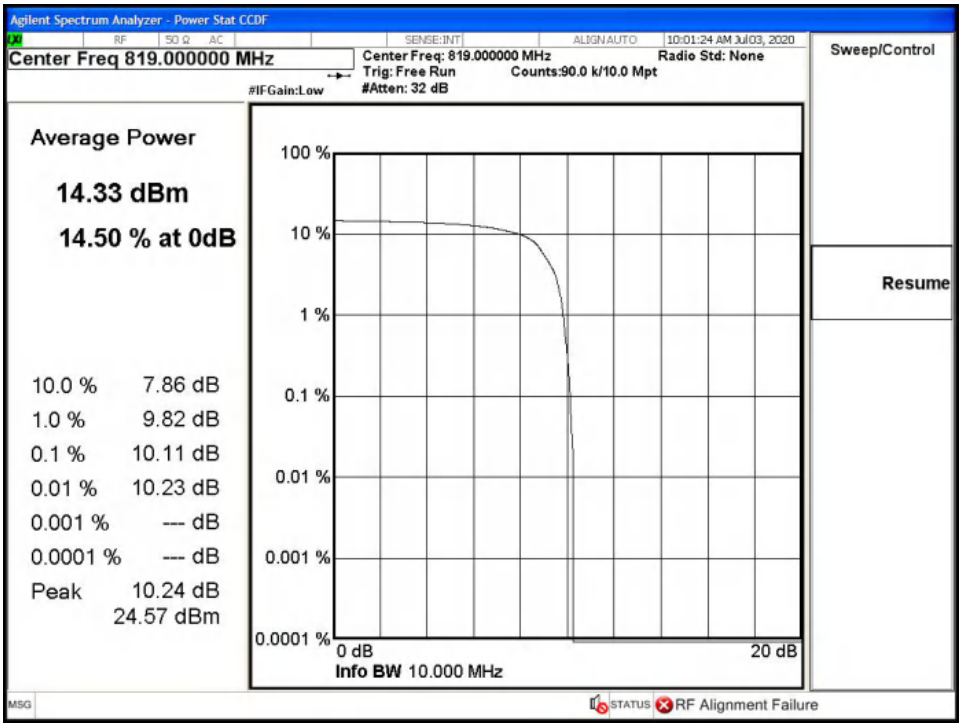
Band26-CH26740-819MHz-5MHz Bandwidth-QPSK



Band26-CH26740-819MHz-5MHz Bandwidth-16QAM



Band26-CH26740-819MHz-10MHz Bandwidth-QPSK



Band26-CH26740-819MHz-10MHz Bandwidth-16QAM

5.9 ERP and EIRP

Specifications:	FCC Part 24.232(b), 27.50(d), 27.50(h)(2), 27.50(c),90.635(b)
DUT Serial Number:	353081090308282
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

This is the test for the maximum radiated power from the EUT.

According to Part 24.232(c),"Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power"and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

According to Part 27.50(d), “Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”.

According to Part 27.50(h)(2) “Mobile stations are limited to 2.0 watts EIRP.”.

According to Part 27.50(c), specifies “Portable stations (hand-held de-vices) are limited to 3 watts ERP.”.

Test Setup

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

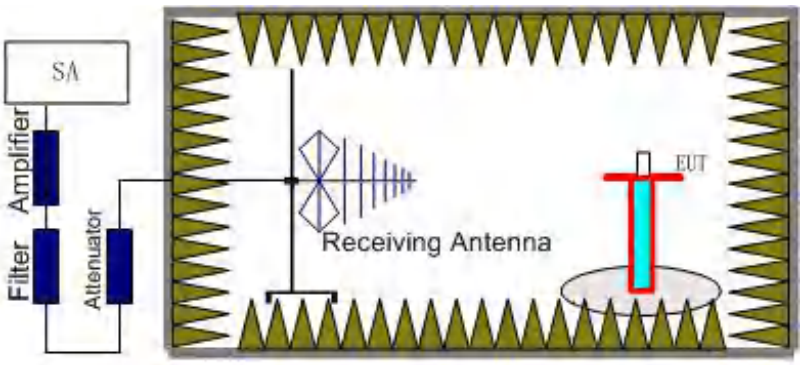
Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty	5.15 dB (k=2)

Method of Measurement

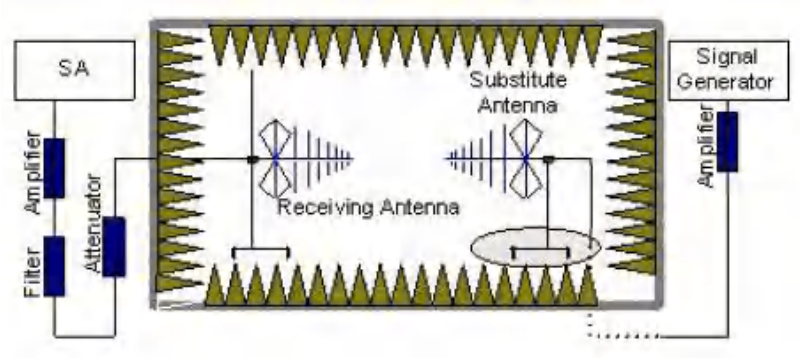
The measurements procedures in TIA-603E-2016 are used.

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from thereceive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUTfor emission measurements. The height of receiving antenna is 1.5m. The test setup refers tofigure below. Detected emissions were maximized at each frequency by rotating the EUTthrough 360° and adjusting the receiving antenna polarization. The radiated emissionmeasurements of all transmit frequencies in three channels (High, Middle, Low) weremeasured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level duringthe test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at thereference point of the chamber. An RF Signal source for the frequency band of interest isconnected to the substitution antenna with a cable that has been constructed to not interferewith the radiation pattern of the antenna. A power (PMea) is applied to the input of thesubstitution antenna, and adjust the level of the signal generator output until the value of thereceiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. Thetest should be performed by rotating the test item and adjusting the receiving antennapolarization.

4. A amplifier should be connected to the Signal Source output port. And the cable should beconnect between the Amplifier and the Substitution Antenna.

The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should berecorded after test.

The measurement results are obtained as described below:

Power(EIRP)=PMea+ PAg- Pcl+ Ga

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole,

ERP=S.G output(dBM)-cable loss (dB) + antenna gain (dBd)

EIRP=S.G output(dBM)-cable loss (dB) + antenna gain (dBi)

Note: Only worst case result is given below.

5.9.1 GSM 850 ERP

GMSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
824.2	26.61	3.4	8.0	31.21	V
836.6	28.25	3.4	6.6	31.45	V
848.8	26.94	3.4	7.5	31.04	V

8PSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
824.2	26.52	3.4	8.0	31.12	V
836.6	28.09	3.4	6.6	31.29	V
848.8	26.79	3.4	7.5	30.89	V

5.9.2 GSM 1900 EIRP

GMSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1850.2	27.45	5.0	8.2	30.65	V
1880.0	28.25	5.0	7.2	30.45	V
1909.8	28.79	5.1	6.8	30.49	V

8PSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1850.2	27.23	5.0	8.2	30.43	V
1880.0	28.58	5.0	7.2	30.78	V
1909.8	28.42	5.1	6.8	30.12	V

5.9.3 NB-IoT Band 2 EIRP

NB-IoT Band 2 _QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1850.0	18.66	5.0	6.7	20.36	V
1880.0	18.59	5.0	6.9	20.49	V
1910.0	18.32	5.1	7.2	20.42	V

NB-IoT Band 2_BPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1850.0	18.52	5.0	6.7	20.22	V
1880.0	18.26	5.0	6.9	20.16	V
1910.0	18.04	5.1	7.2	20.14	V

5.9.4 NB-IoT Band 4 EIRP

NB-IoT Band 4_QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1710.0	16.27	4.8	7.9	19.37	V
1732.5	16.45	4.9	8.1	19.65	V
1755.0	16.29	4.9	8.1	19.49	V

NB-IoT Band 4_BPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1710.0	16.35	4.8	7.9	19.45	V
1732.5	16.23	4.9	8.1	19.43	V
1755.0	16.27	4.9	8.1	19.47	V

5.9.5 NB-IoT Band 12 ERP

NB-IoT Band 12_ QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
699.1	13.59	3.1	8.9	19.39	V
707.5	13.42	3.1	9.1	19.42	V
715.9	-20.29	3.1	9.1	-14.29	V

NB-IoT Band 12_BPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
699.1	12.54	3.1	8.9	19.34	V
707.5	12.20	3.1	9.1	19.20	V
715.9	-20.85	3.1	9.1	-14.85	V

5.9.6 NB-IoT Band 13 ERP

NB-IoT Band 13_QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
777.0	14.56	3.3	8.1	19.36	V
782.0	14.57	3.3	8.1	19.37	V
787.0	14.41	3.3	8.1	19.21	V

NB-IoT Band 13_BPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
777.0	14.51	3.3	8.1	19.31	V
782.0	14.64	3.3	8.1	19.44	V
787.0	14.51	3.3	8.1	19.31	V

5.9.7 NB-IoT Band 26 ERP

NB-IoT Band 26_QPSK(814MHz-824MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
814.1	14.76	3.4	8.0	19.36	V
819.0	14.65	3.4	8.0	19.25	V
824.0	14.93	3.4	8.0	19.53	V

NB-IoT Band 26_QPSK(824MHz-849MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
824.0	14.93	3.4	8.0	19.53	V
837.5	15.58	3.4	7.3	19.48	V
848.9	16.34	3.4	6.6	19.54	V

NB-IoT Band 26_BPSK(814MHz-824MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
814.1	14.68	3.4	8.0	19.28	V
819.0	14.93	3.4	8.0	19.53	V
824.0	14.64	3.4	8.0	19.24	V

NB-IoT Band 26_BPSK(824MHz-849MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
824.0	14.64	3.4	8.0	19.24	V
837.5	15.58	3.4	7.3	19.48	V

848.9	16.34	3.4	6.6	19.54	V

5.9.3 CAT-M Band 8 Measurement result

CAT-M Band 2_20 MHz_QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1860.0	17.45	5.0	6.7	19.15	V
1880.0	17.72	5.0	6.9	19.62	V
1900.0	17.39	5.1	7.2	19.49	V

CAT-M Band 2_20 MHz_16QAM

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1860.0	18.46	5.0	6.7	20.16	19.36
1880.0	17.42	5.0	6.9	19.32	19.32
1900.0	17.12	5.1	7.2	19.22	18.92

5.9.9 CAT-M Band 4 Measurement result

CAT-M Band 4_20 MHz_QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1720.0	16.26	4.8	7.9	19.36	V
1732.5	16.25	4.9	8.1	19.45	V
1745.0	15.96	4.9	8.1	19.16	V

CAT-M Band 4_20 MHz_16QAM

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	EIRP [dBm]	Antenna Polarization [H/V]
1720.0	16.36	4.8	7.9	19.46	V
1732.5	17.64	4.9	8.1	20.84	V

1745.0	16.44	4.9	8.1	19.64	V

5.9.10 CAT-M Band 12 Measurement result

CAT-M Band 12_10MHz_ QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
704.0	13.56	3.1	8.9	19.36	V
707.5	13.54	3.1	9.1	19.54	V
711.0	13.34	3.1	9.1	19.34	V

CAT-M Band 12_10MHz_ 16QAM

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
704.0	13.43	3.1	8.9	19.23	V
707.5	13.47	3.1	9.1	19.47	V
711.0	13.16	3.1	9.1	19.16	V

5.9.11 CAT-M Band 13 Measurement result

CAT-M Band 13_5MHz_QPSK

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
779.5	14.48	3.3	8.1	19.28	V
782.0	14.94	3.3	8.1	19.74	V
784.5	14.66	3.3	8.1	19.46	V

CAT-M Band 13_5MHz_16QAM

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
779.5	14.51	3.3	8.1	19.31	V

782.0	14.82	3.3	8.1	19.62	V
784.5	14.48	3.3	8.1	19.28	V

5.9.12 CAT-M Band 26 Measurement result

CAT-M Band 26_10MHz_QPSK(814MHz-824MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
819.0	14.82	3.4	8.0	19.42	V

CAT-M Band 26_10MHz_QPSK(824MHz-849MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
829.0	14.86	3.4	8.0	19.46	V
837.5	15.44	3.4	7.3	19.34	V
844.0	16.21	3.4	6.6	19.41	V

CAT-M Band 26_10MHz_16QAM(814MHz-824MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
819.0	14.78	3.4	8.0	19.38	V

CAT-M Band 26_10MHz_16QAM(824MHz-849MHz)

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	ERP [dBm]	Antenna Polarization [H/V]
829.0	14.90	3.4	8.0	19.50	V
837.5	15.35	3.4	7.3	19.25	V
844.0	16.17	3.4	6.6	19.37	V

Annex A EUT Photos

See the document”L710-External Photos”.
See the document”L710-Internal Photos”.

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

End Of Report