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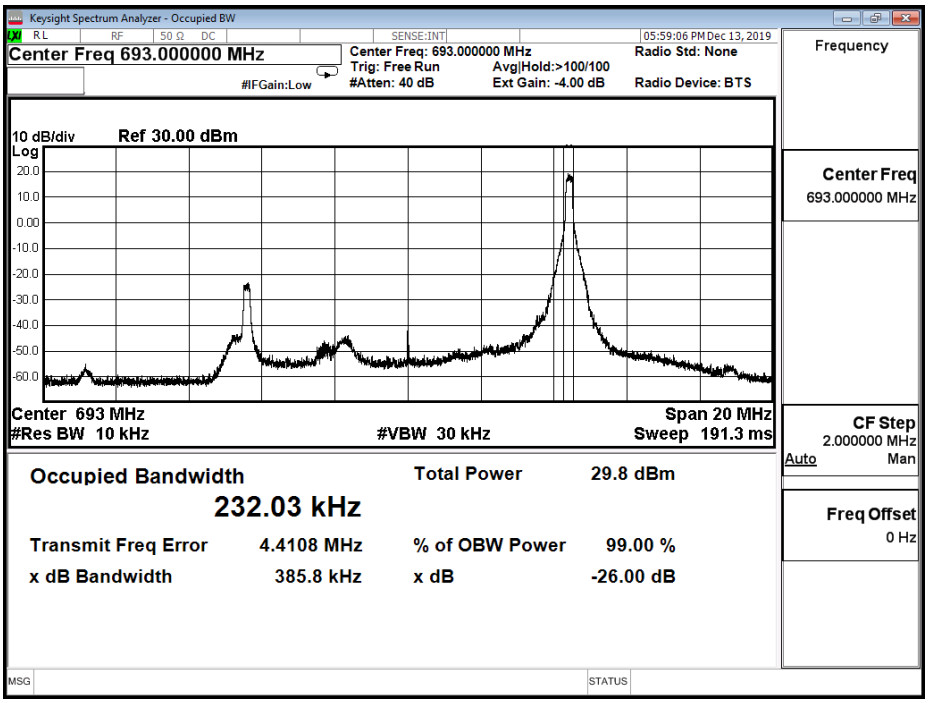

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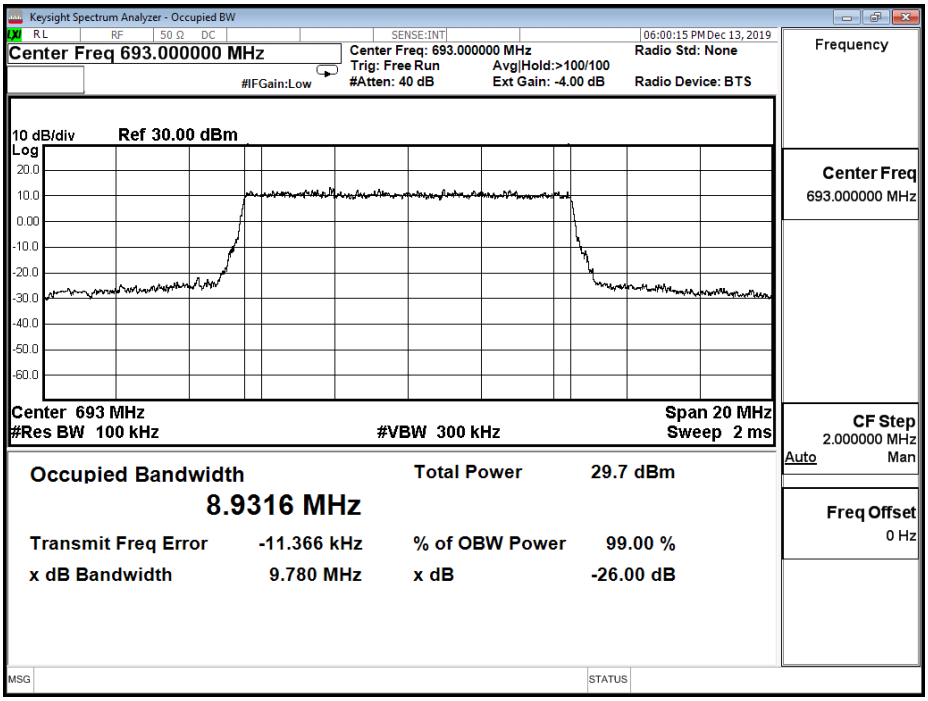

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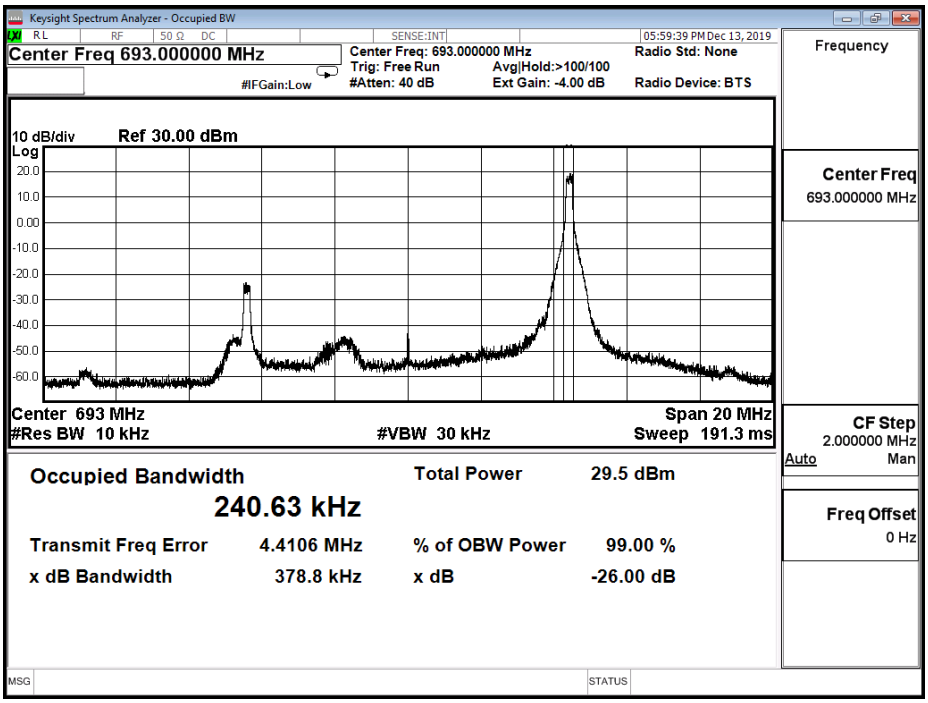

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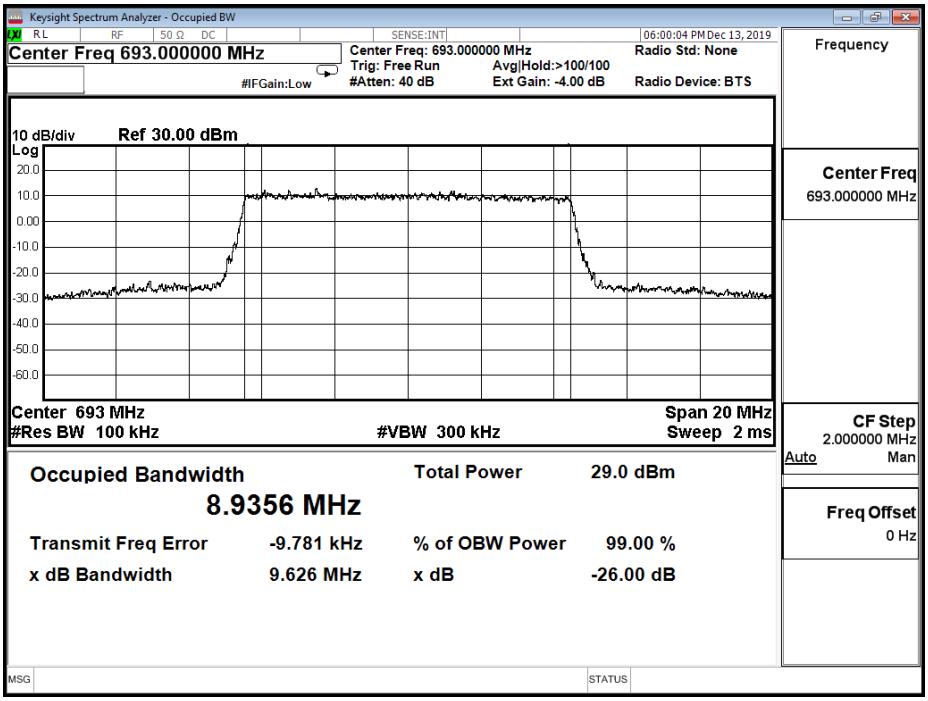

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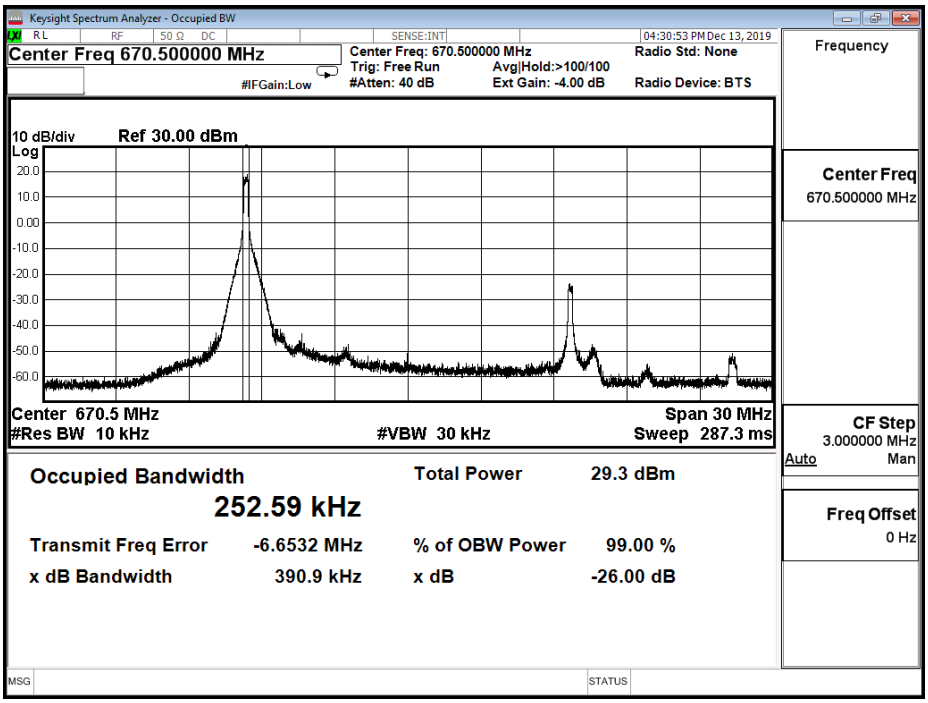

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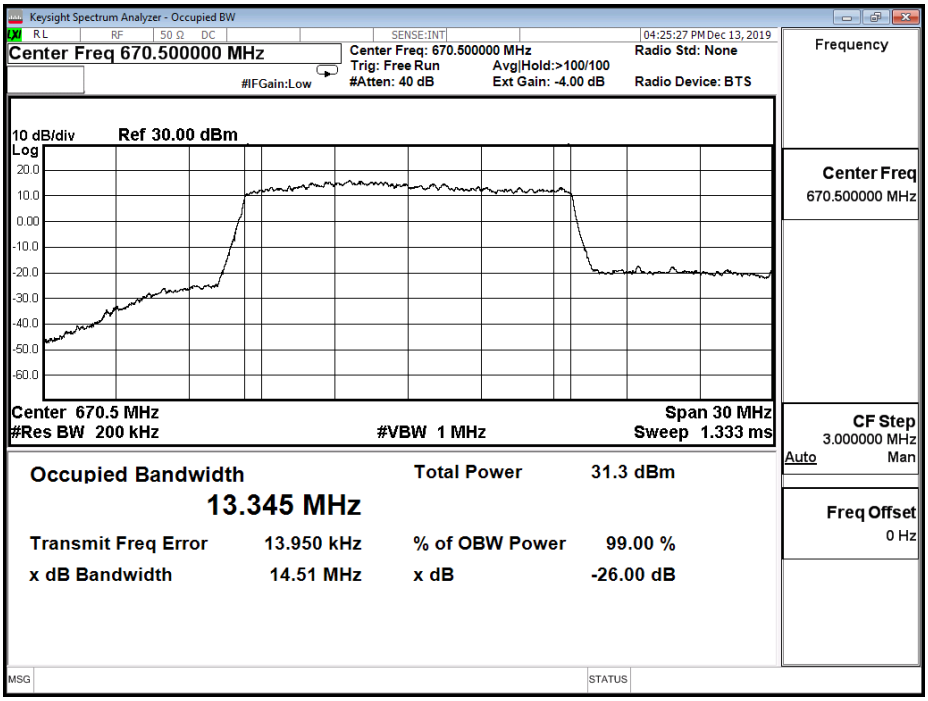

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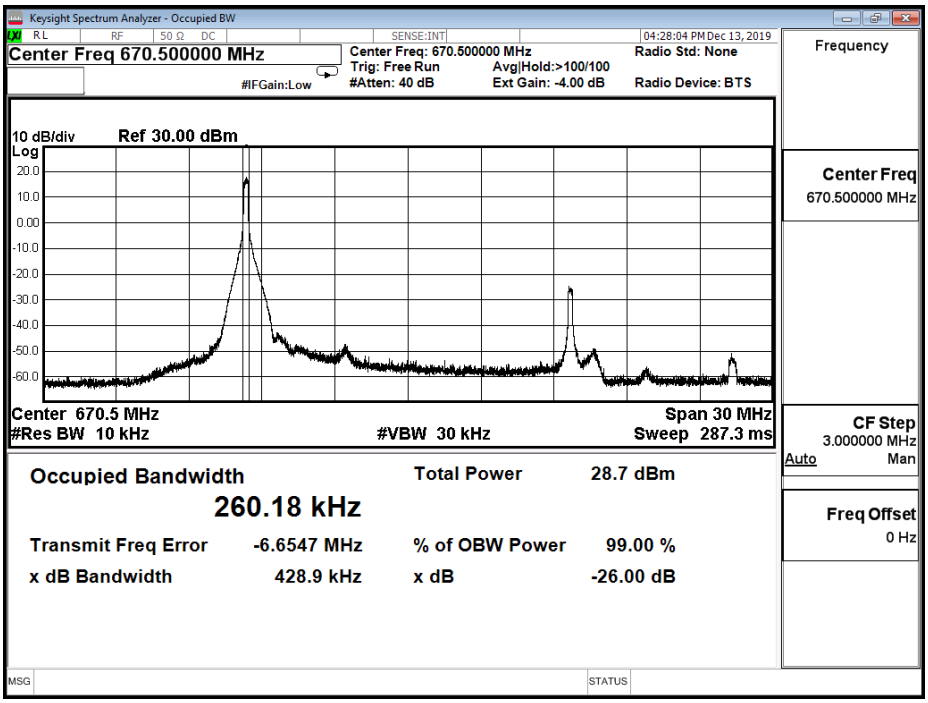

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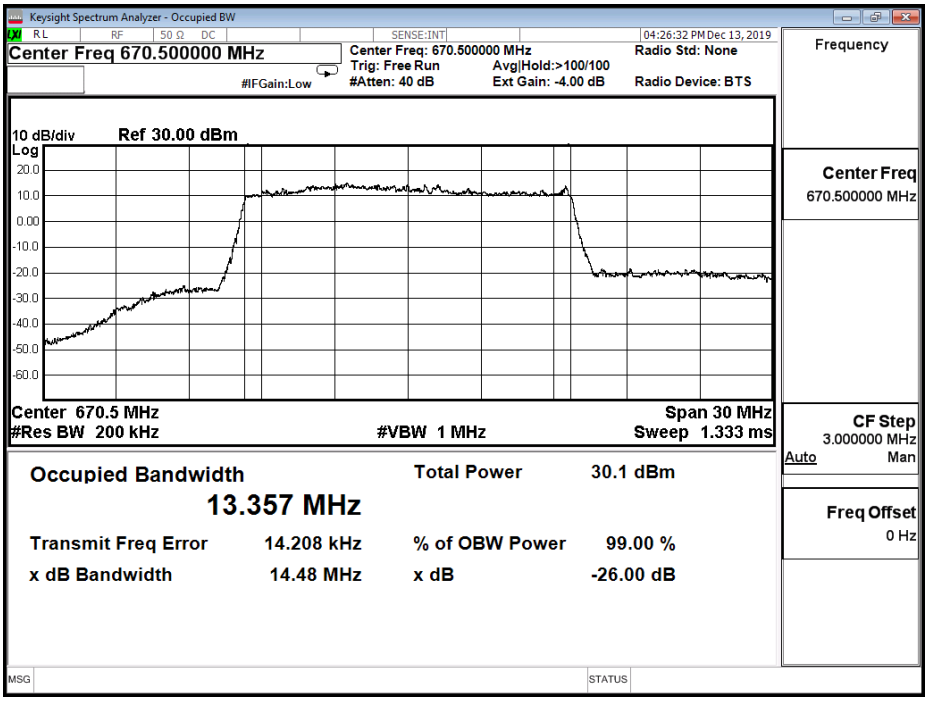

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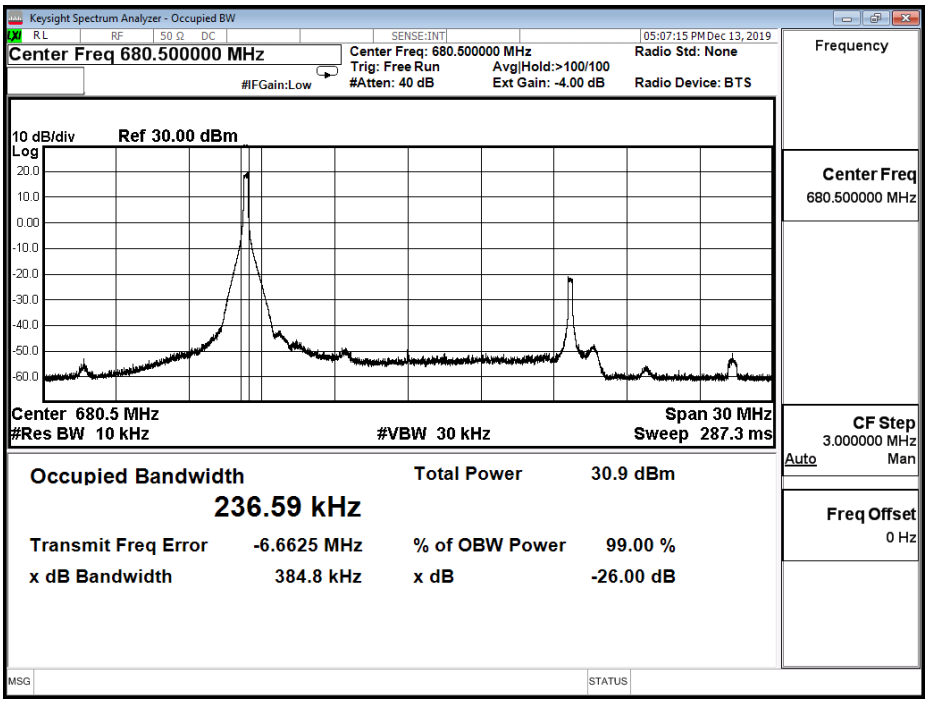

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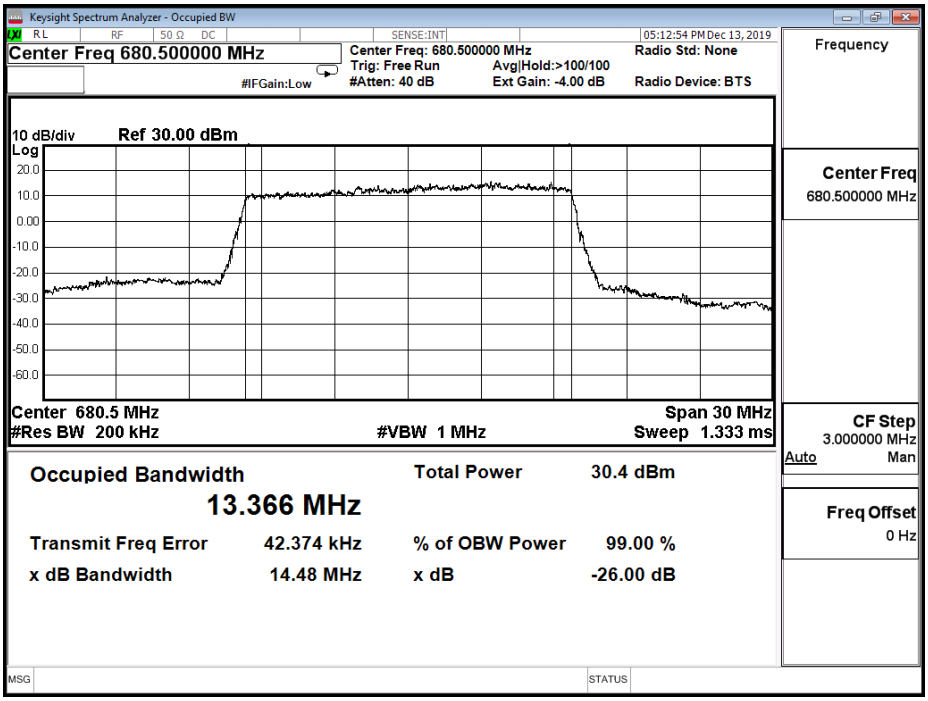

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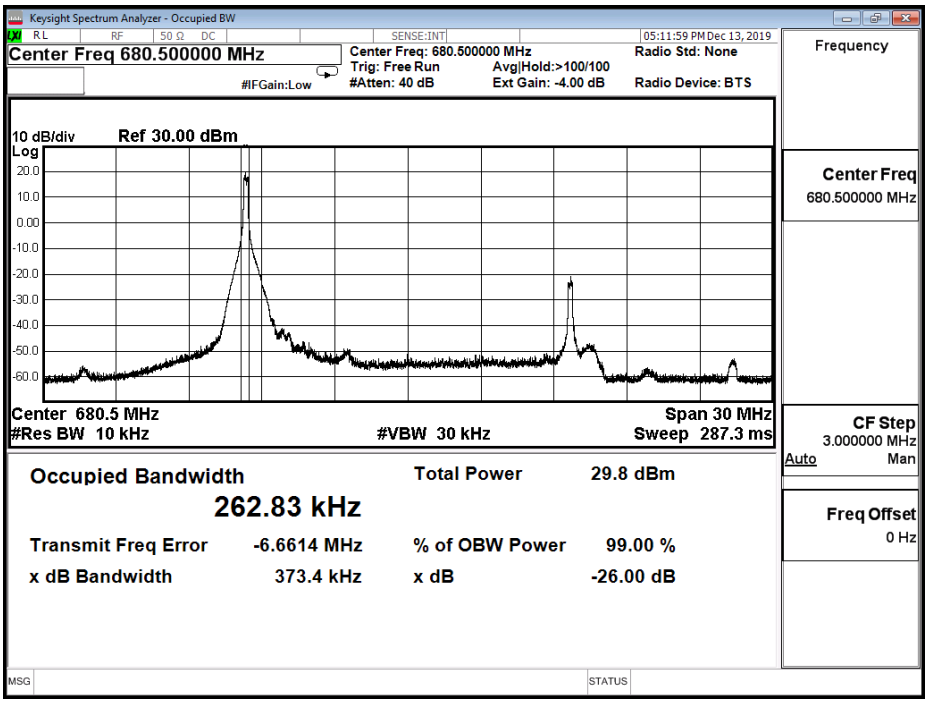

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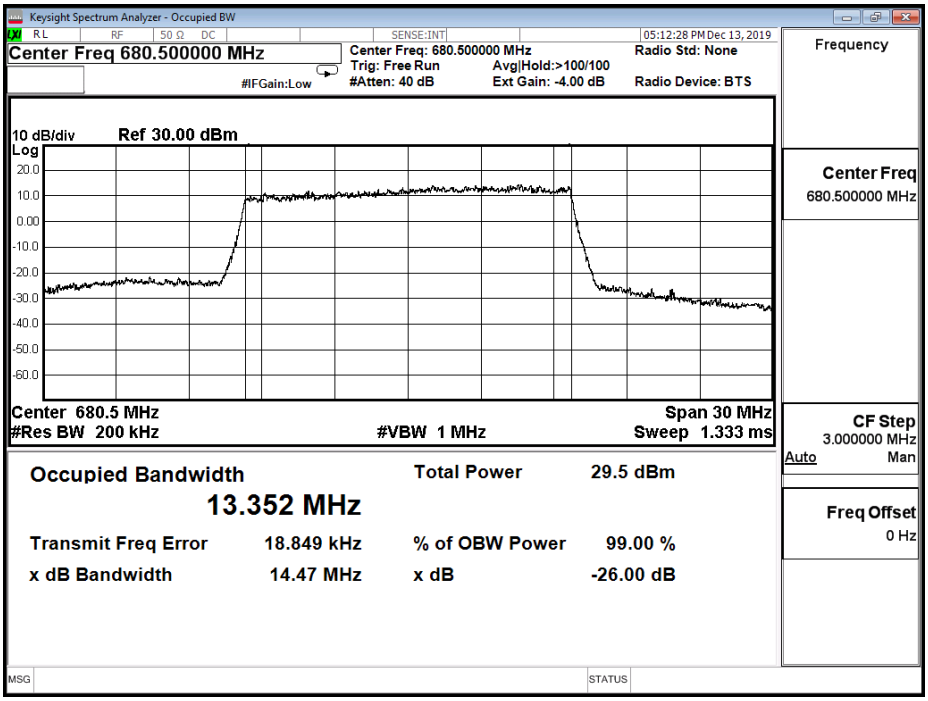

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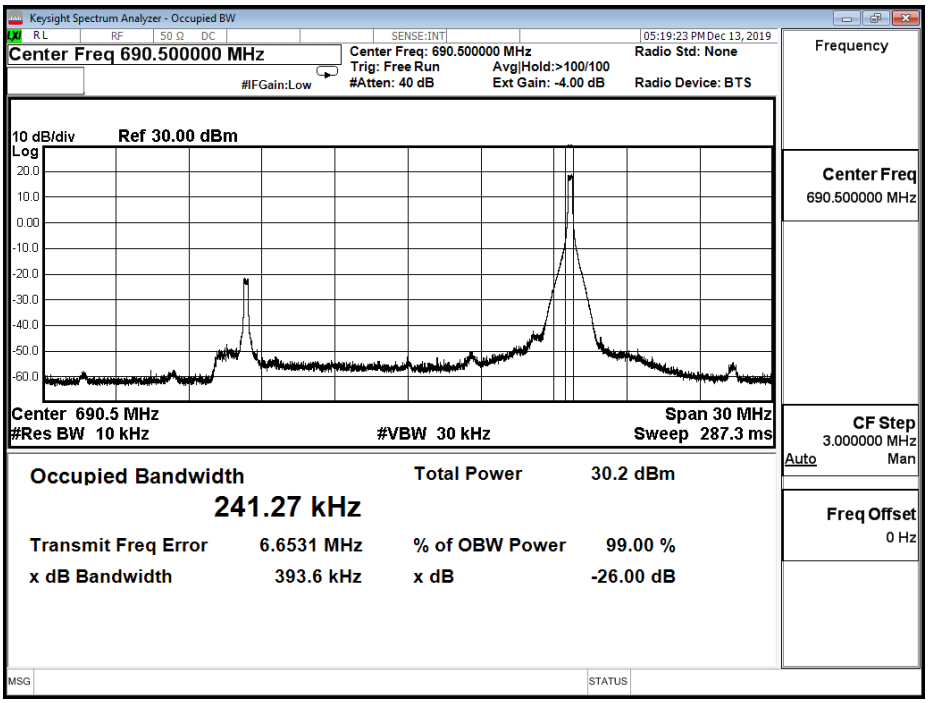

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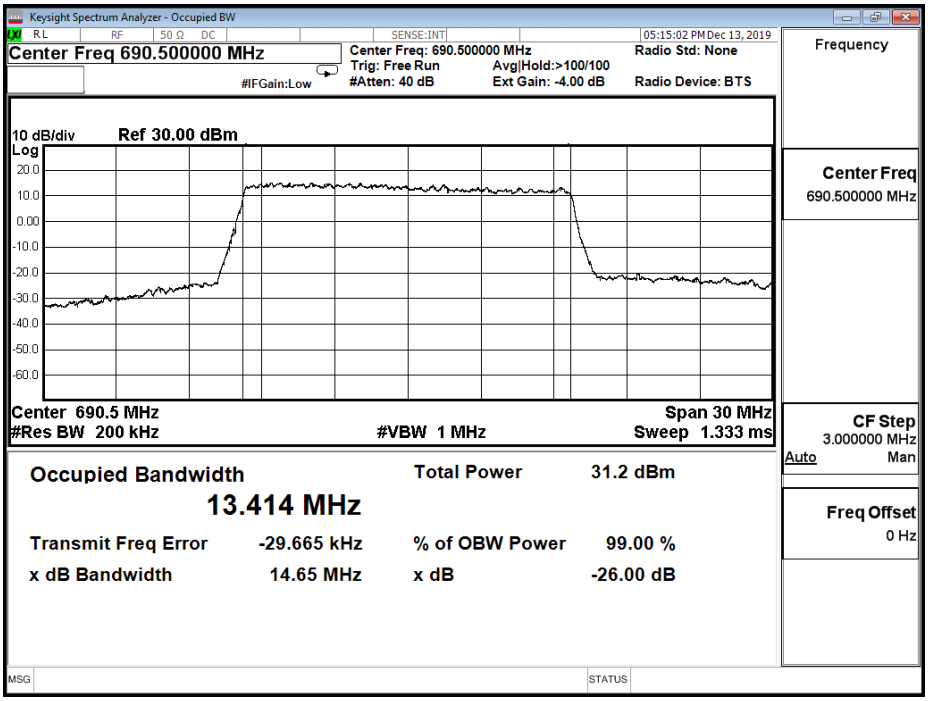

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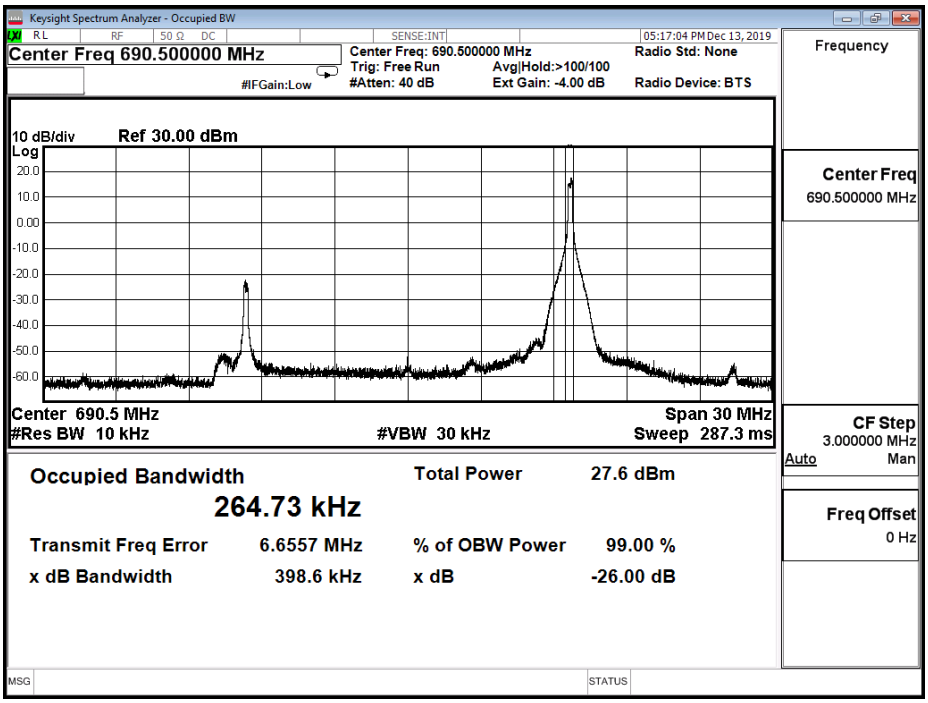

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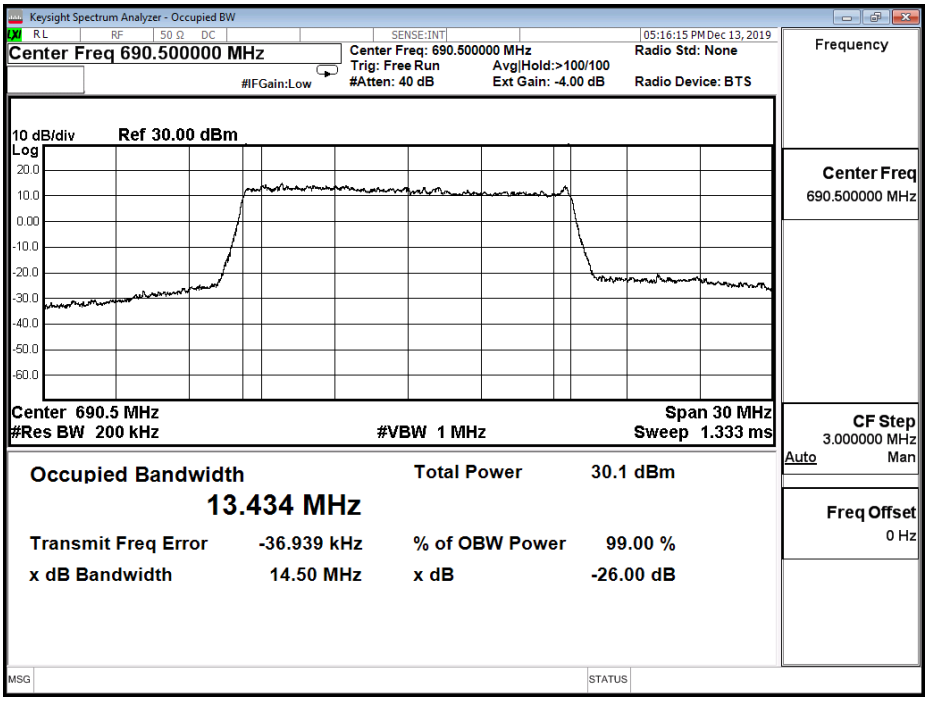

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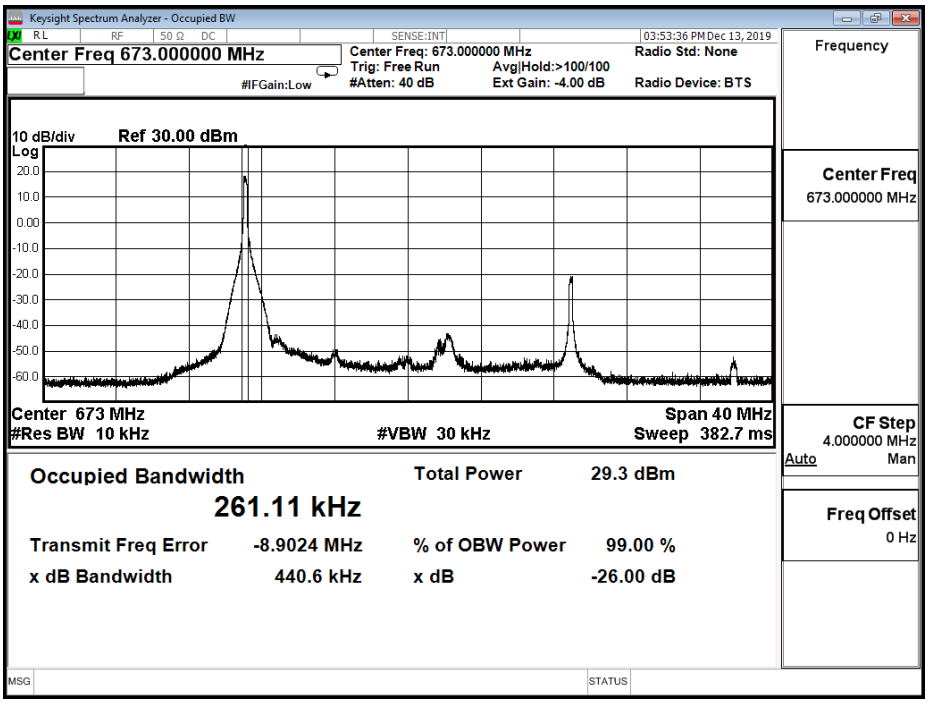

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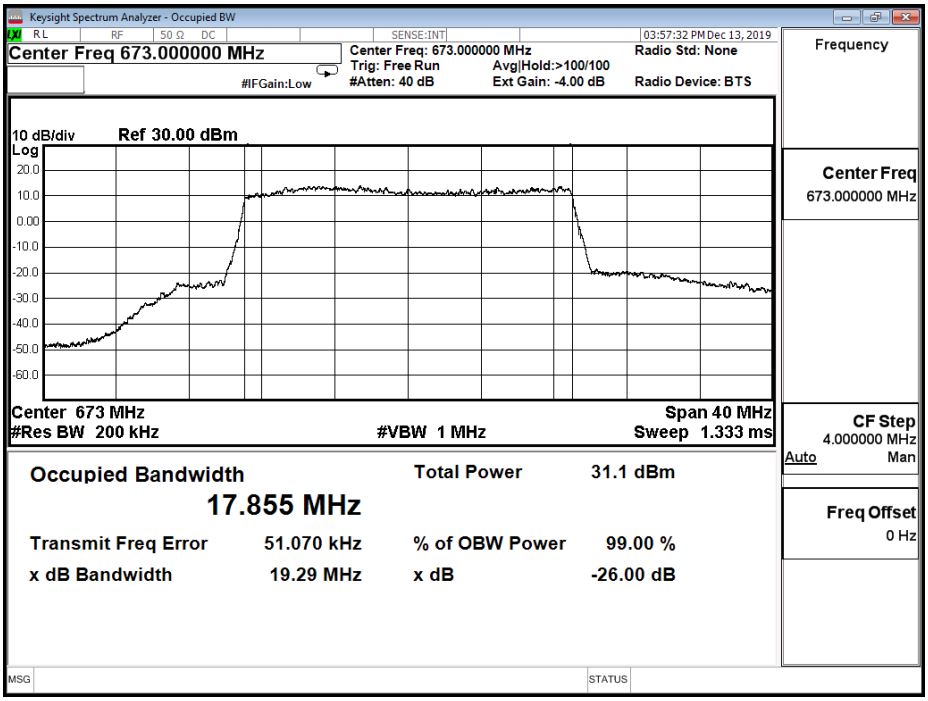

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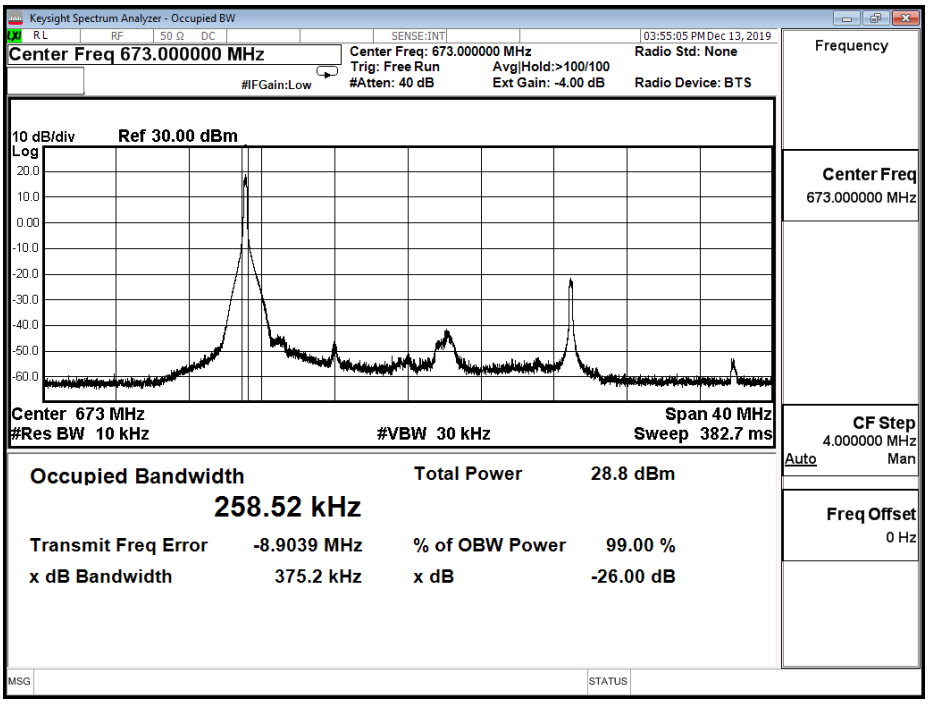

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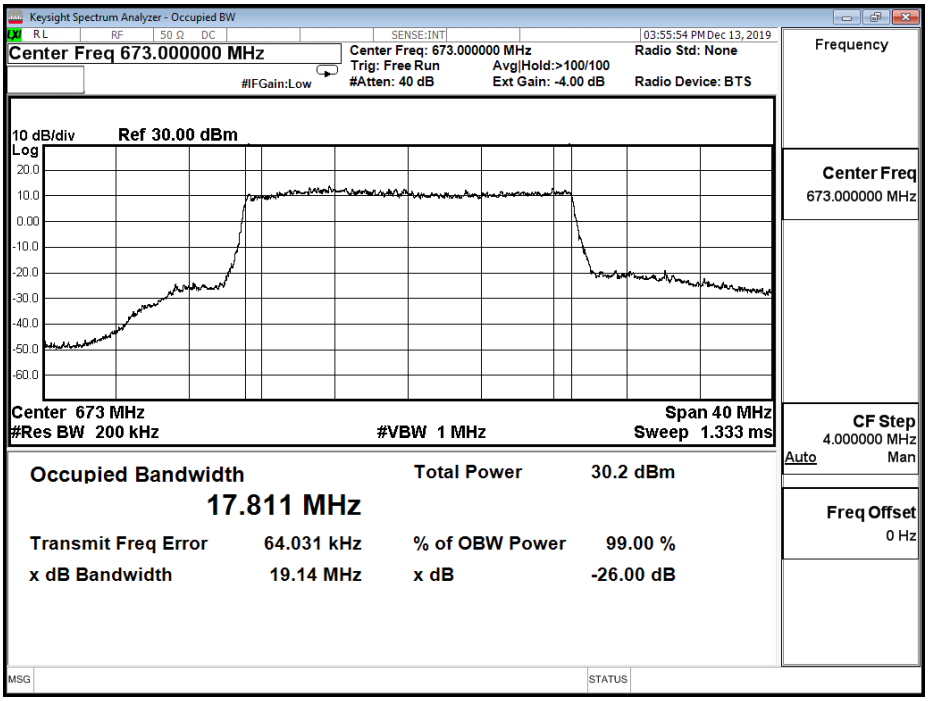

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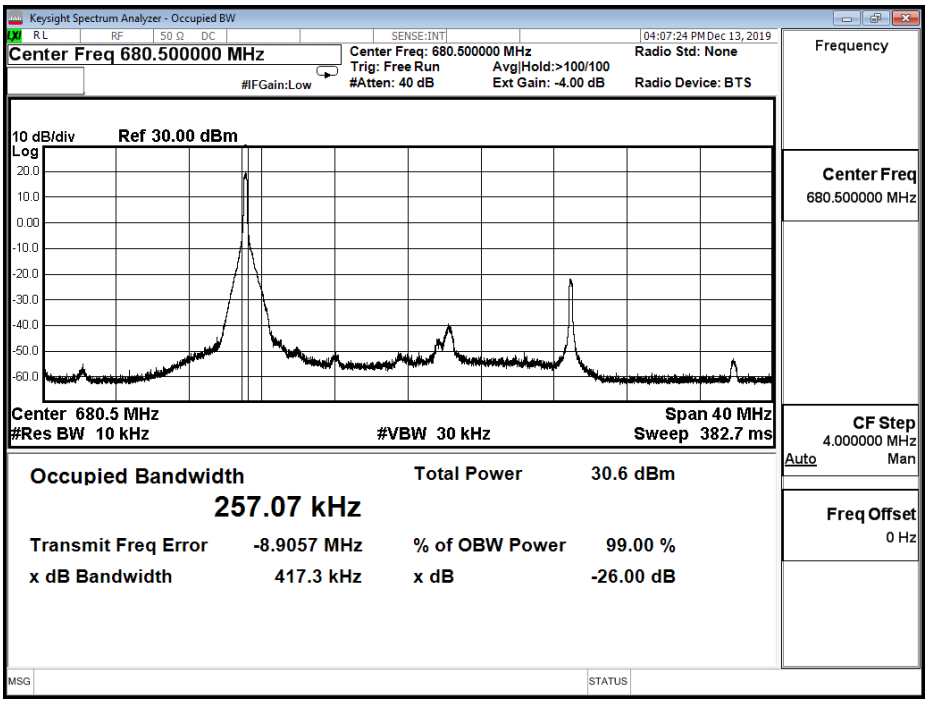

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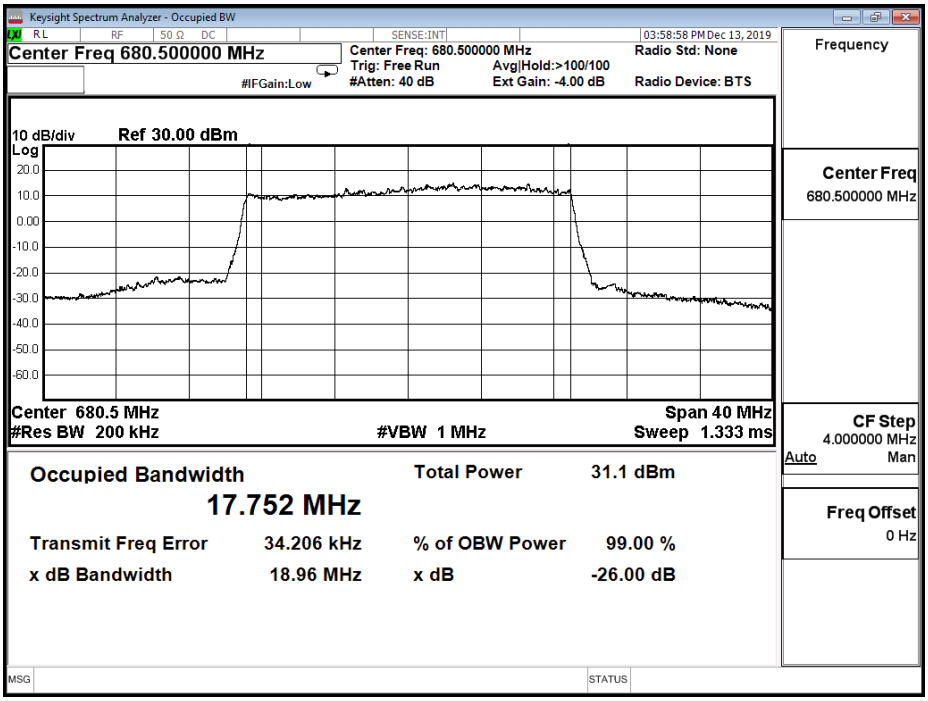

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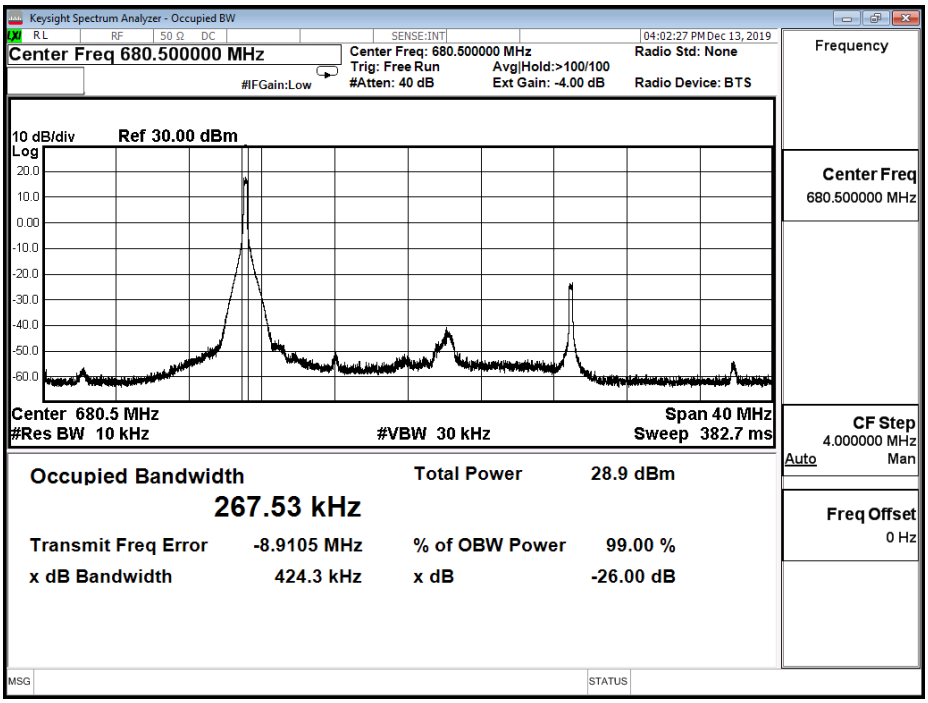

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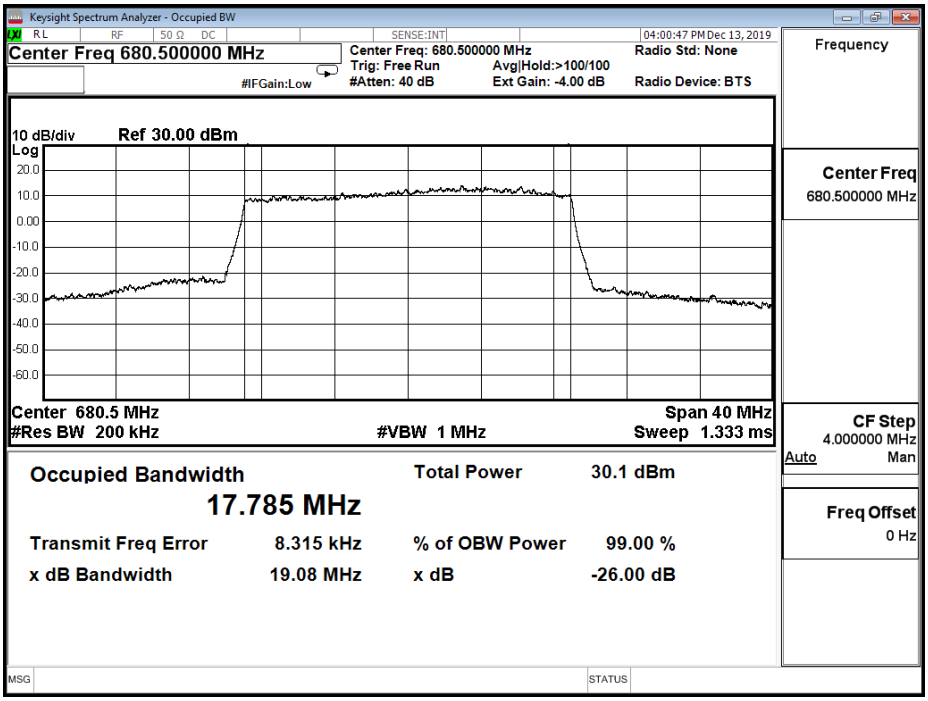

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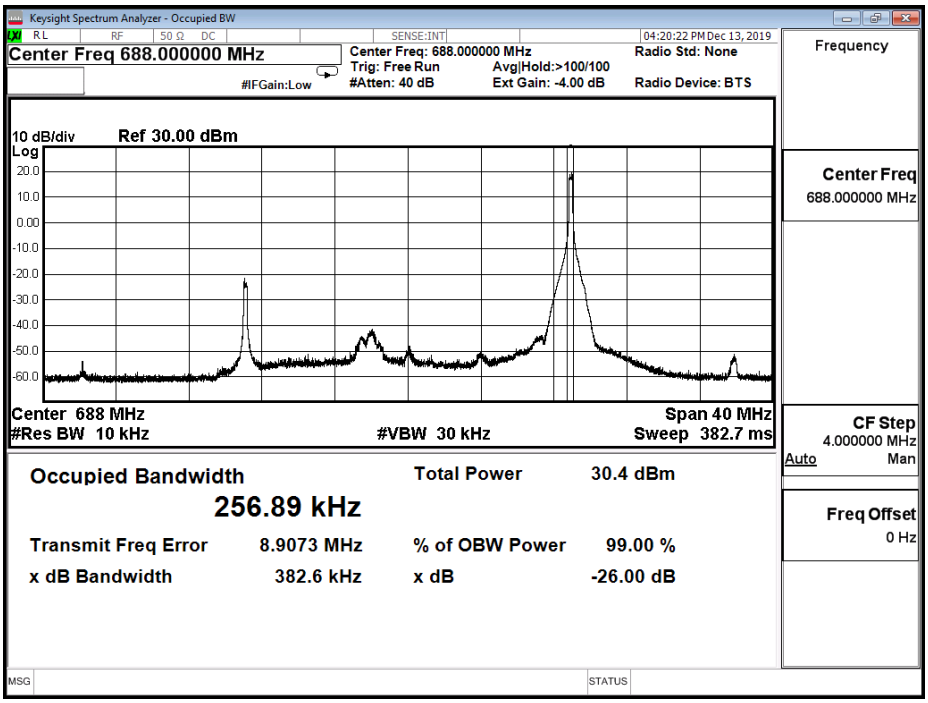

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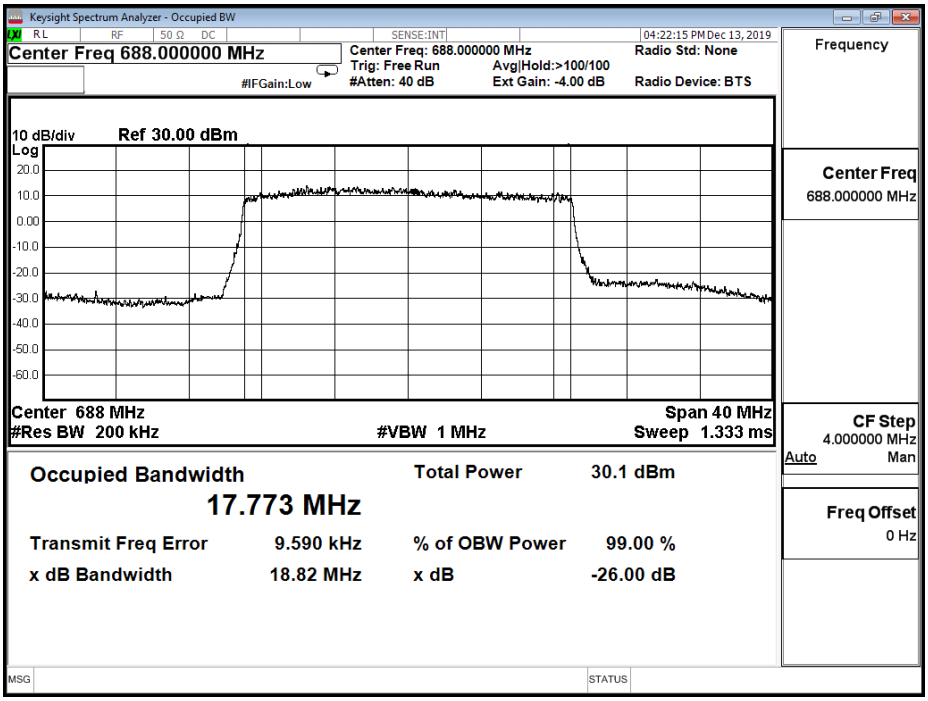

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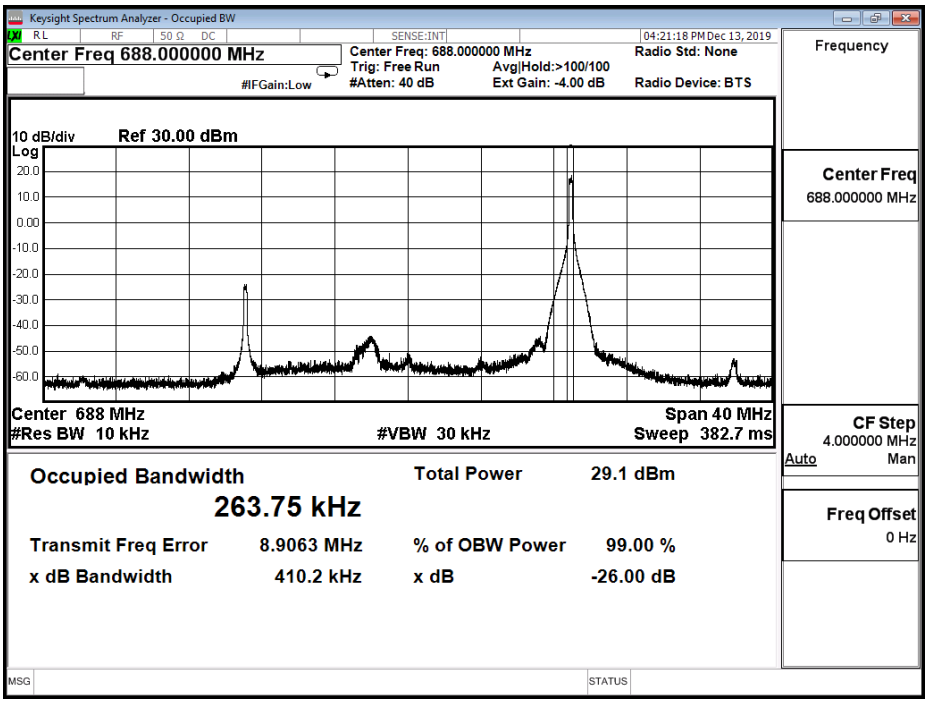

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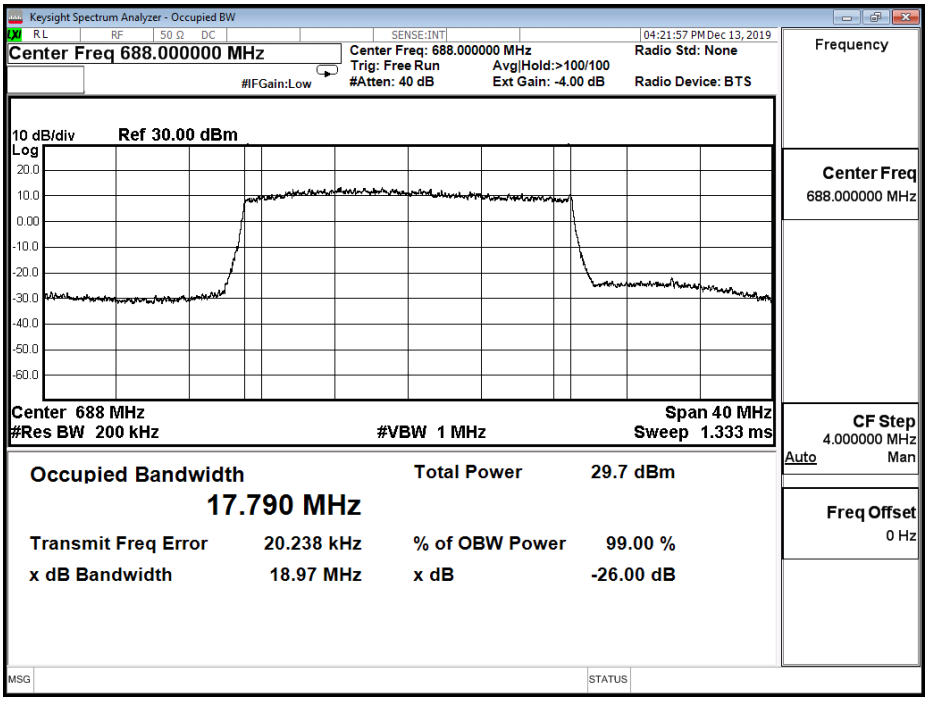
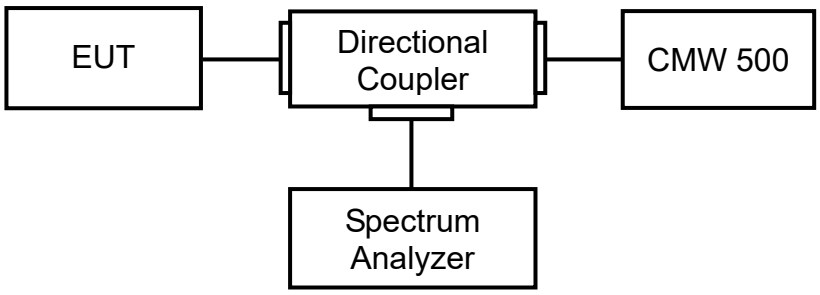


5. Peak To Average Ratio

5.1. Test Setup



5.2. Test Procedure

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1 %.

5.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.7.2
ANSI C63.26: 2015 Sub-clause 5.2.3.4

5.4. Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13dB.

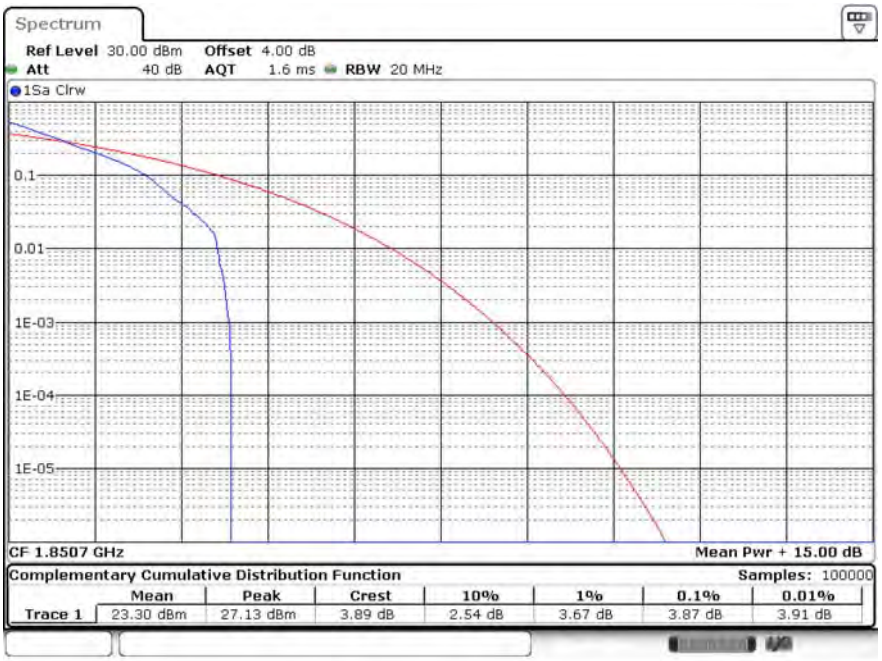
5.5. Test Result

Product	Module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2019/12/17	Test Site	SR12-H
Temperature (°C)	23.0°C	Humidity (%RH)	59%RH

Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	18607	1850.7	QPSK	27.13	23.30	3.87
			16-QAM	27.01	22.11	4.87
	18900	1880	QPSK	27.40	23.43	3.93
			16-QAM	27.53	22.35	5.07
	19193	1909.3	QPSK	27.30	23.09	4.15
			16-QAM	27.62	22.67	4.93
3M	18615	1851.5	QPSK	27.12	23.18	3.93
			16-QAM	26.97	22.11	4.80
	18900	1880	QPSK	26.95	22.74	4.20
			16-QAM	27.40	22.59	4.76
	19185	1908.5	QPSK	27.03	22.88	4.13
			16-QAM	27.27	22.43	4.78
5M	18625	1852.5	QPSK	26.81	22.79	4.00
			16-QAM	26.94	21.86	5.04
	18900	1880	QPSK	26.75	22.62	4.11
			16-QAM	26.77	21.64	5.07
	19175	1907.5	QPSK	26.91	22.82	4.04
			16-QAM	27.01	22.14	4.80
10M	18650	1855	QPSK	26.98	22.75	4.13
			16-QAM	27.05	22.13	4.85
	18900	1880	QPSK	27.12	23.09	3.96
			16-QAM	27.30	22.51	4.74
	19150	1905	QPSK	27.24	23.13	4.02
			16-QAM	27.27	22.10	5.09

Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
15M	18675	1857.5	QPSK	27.28	22.68	4.52
			16-QAM	27.30	22.14	5.09
	18900	1880	QPSK	26.97	22.87	4.07
			16-QAM	27.25	22.26	4.91
	19125	1902.5	QPSK	27.19	22.60	4.54
			16-QAM	27.05	21.53	5.43
20M	18700	1860	QPSK	27.39	22.79	4.50
			16-QAM	27.59	22.12	5.37
	18900	1880	QPSK	26.89	22.74	4.09
			16-QAM	26.79	21.51	5.20
	19100	1900	QPSK	27.88	23.22	4.61
			16-QAM	28.01	22.84	5.07

B2_CH18607_1.4M_1RB2_QPSK



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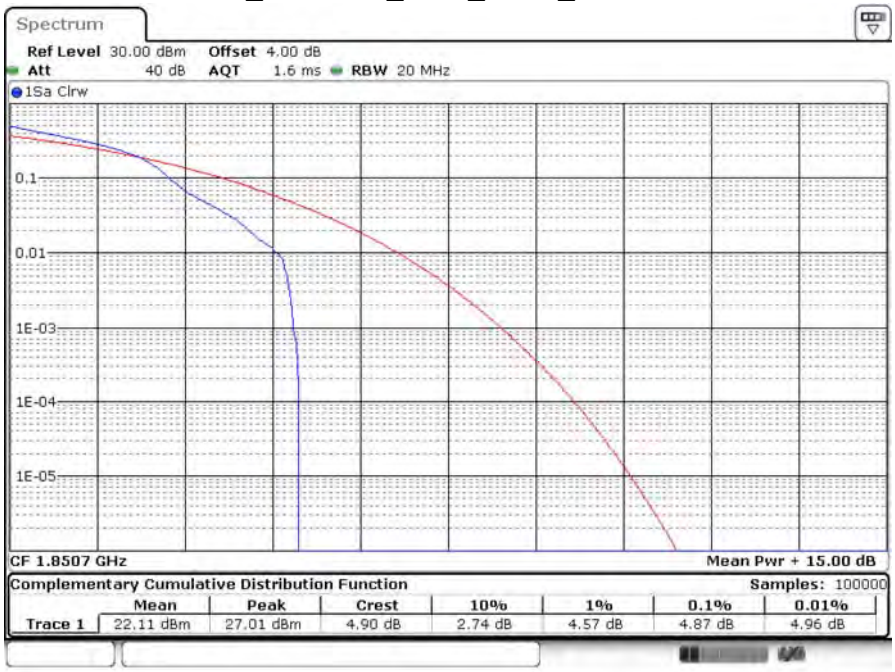

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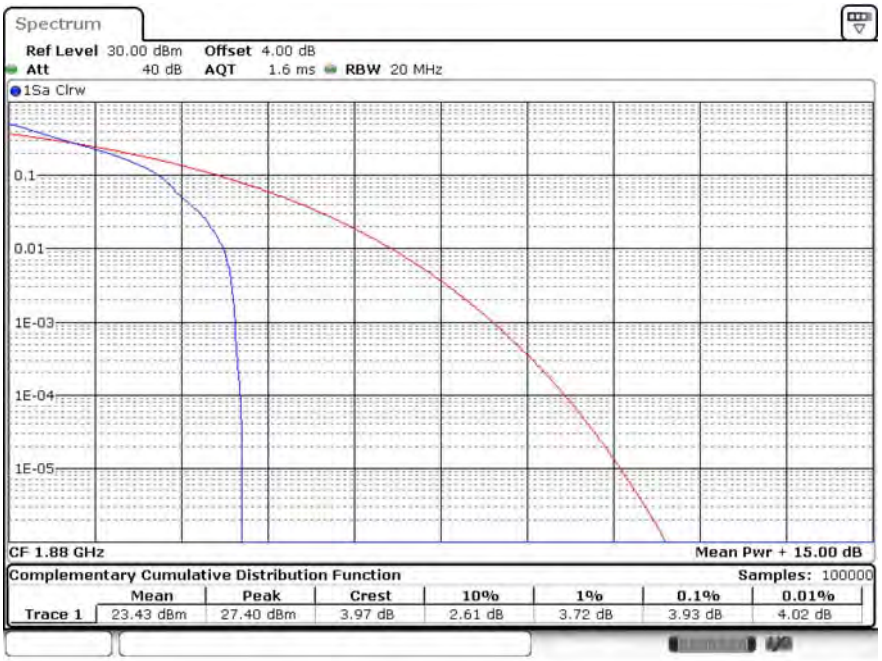

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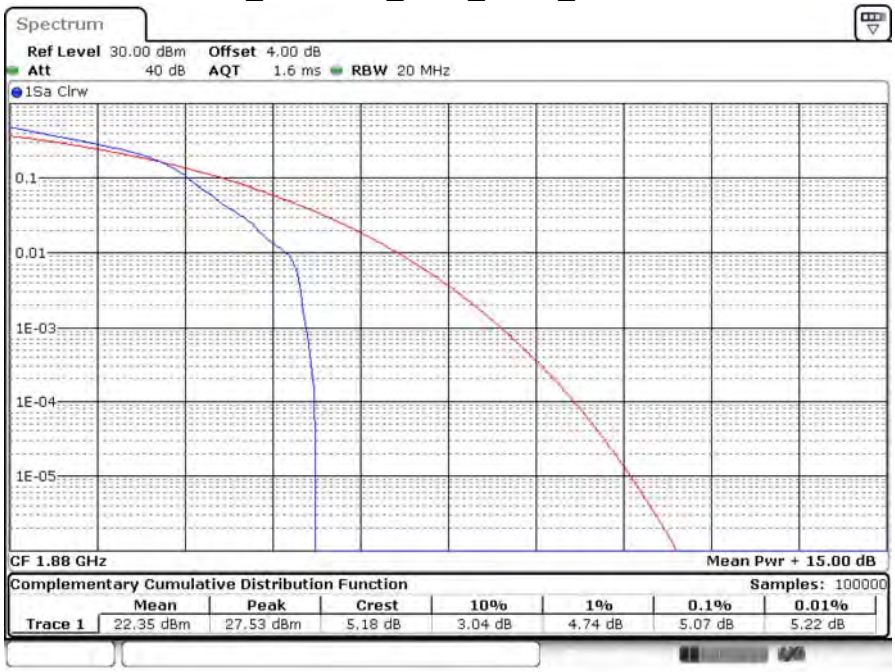

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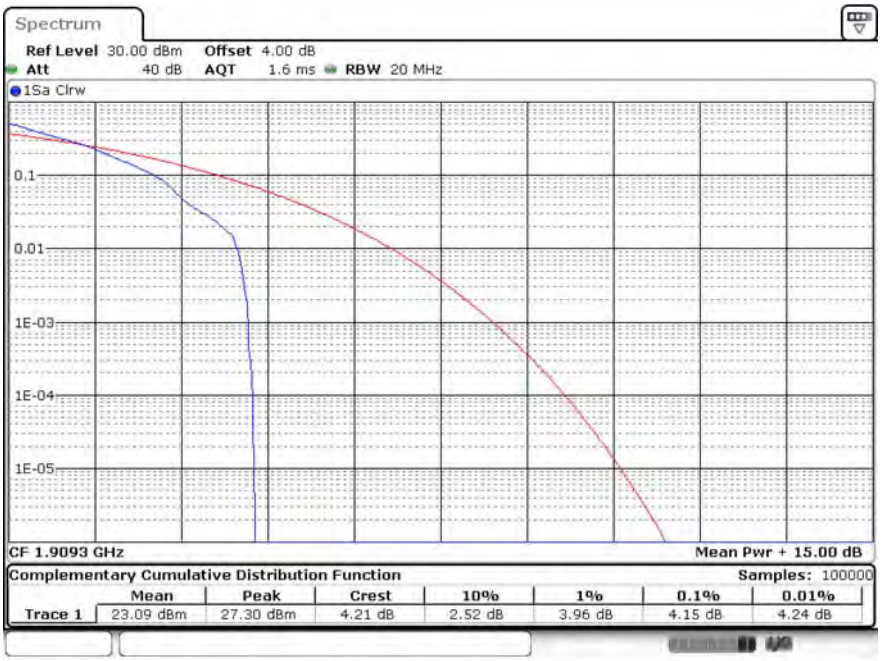

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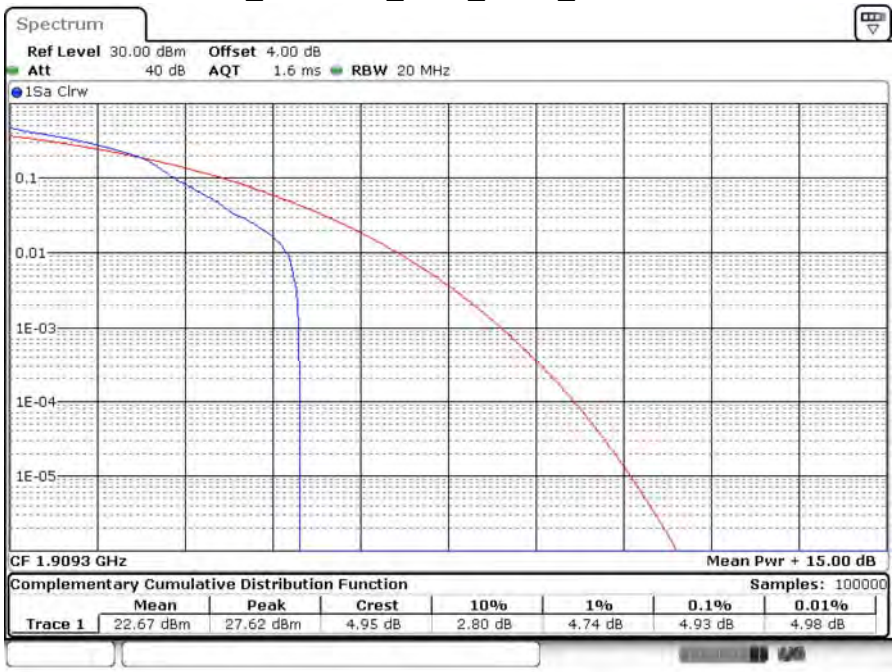

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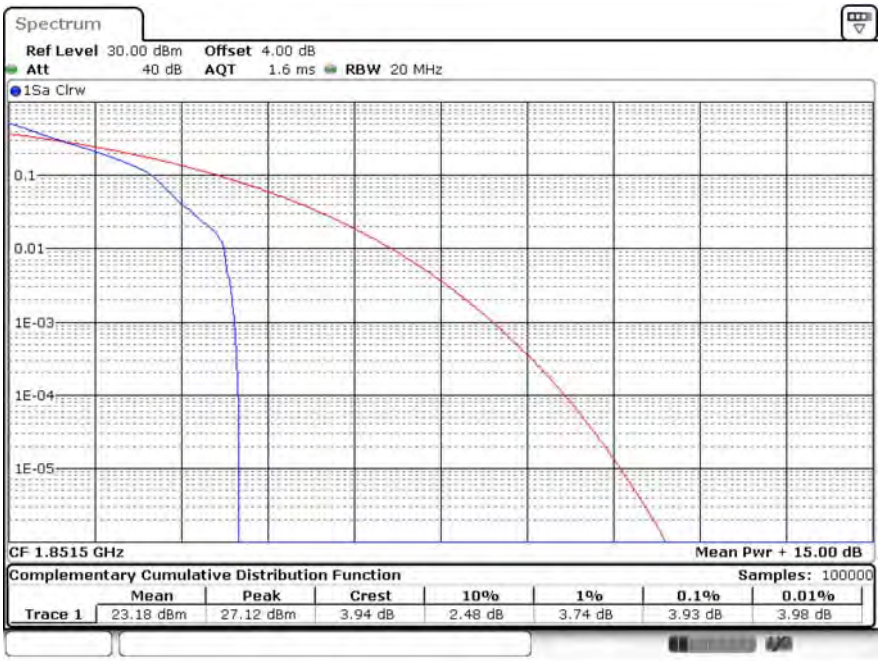

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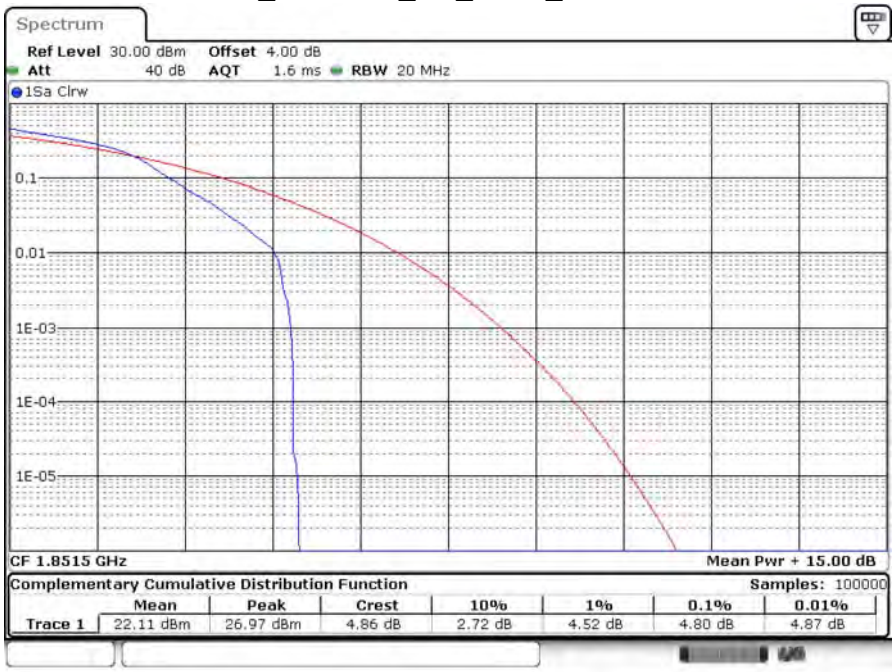

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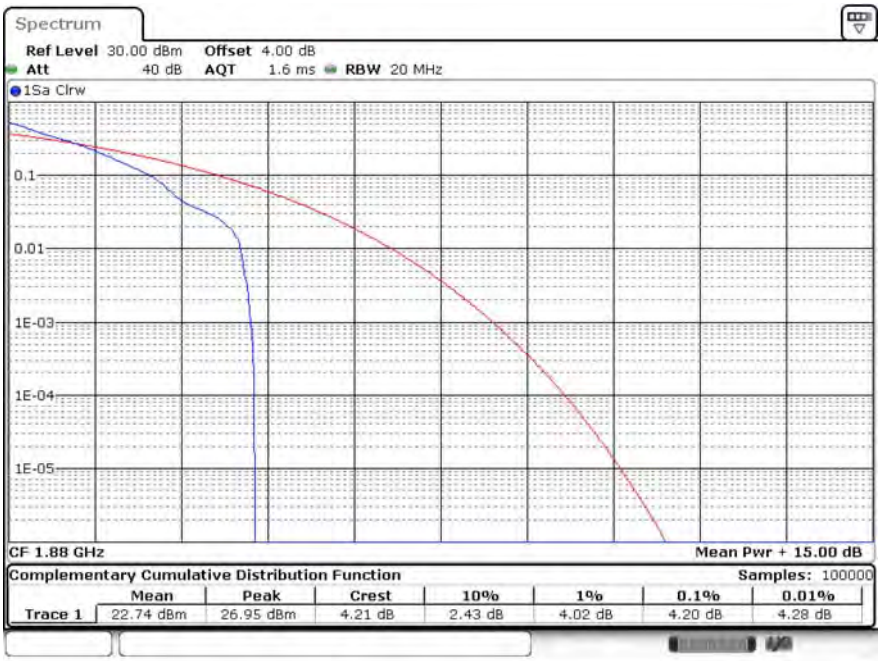

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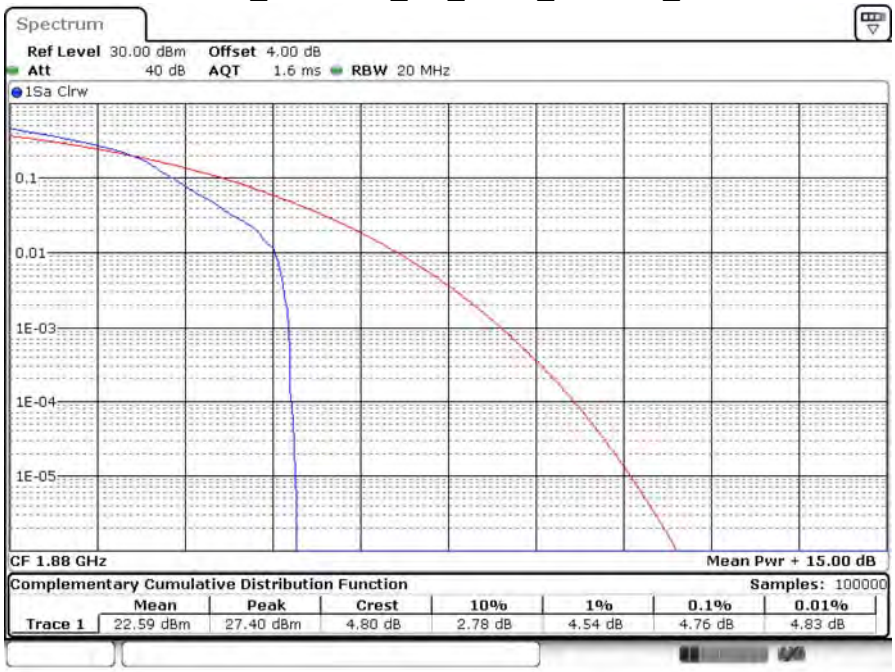

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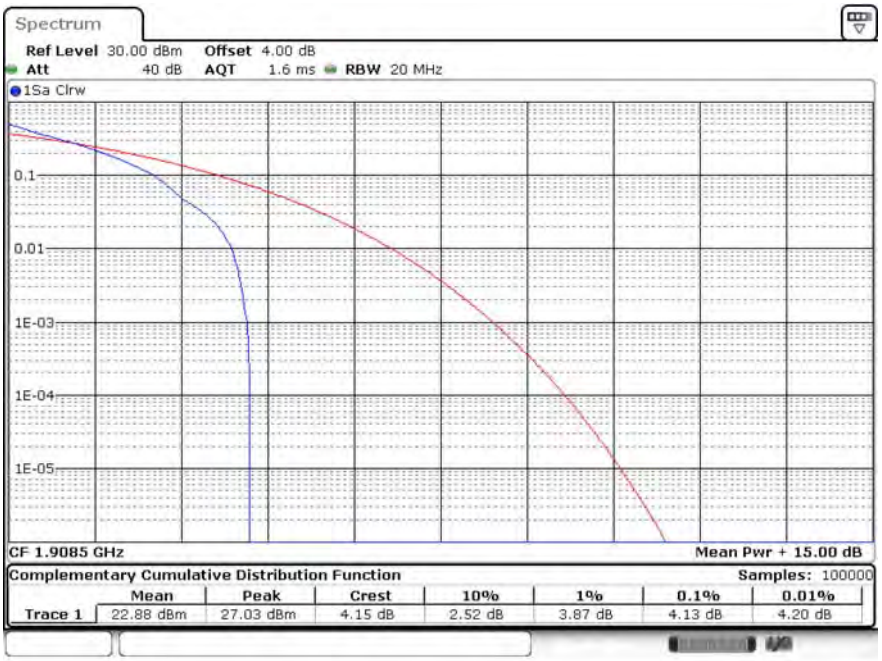

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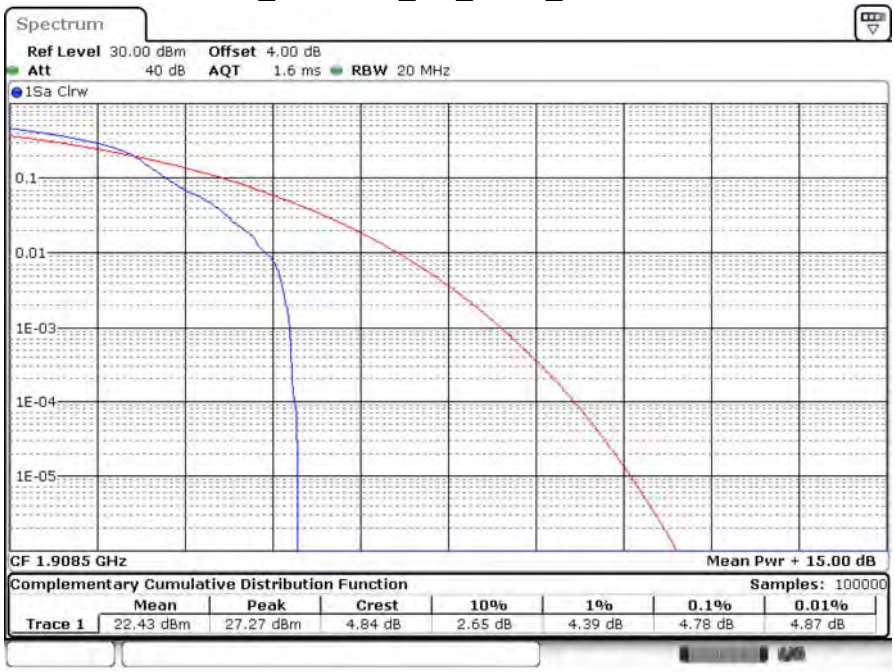

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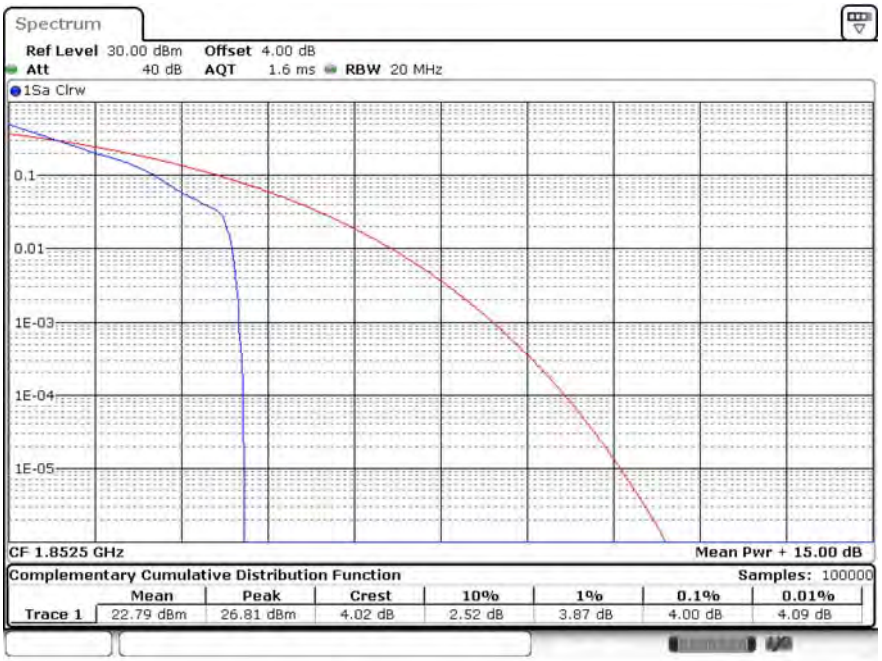

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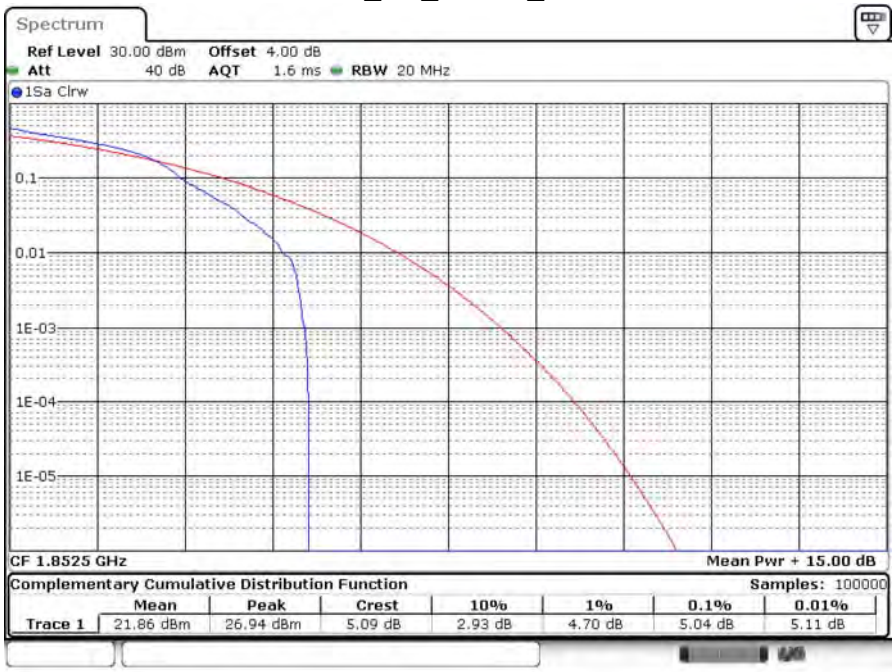
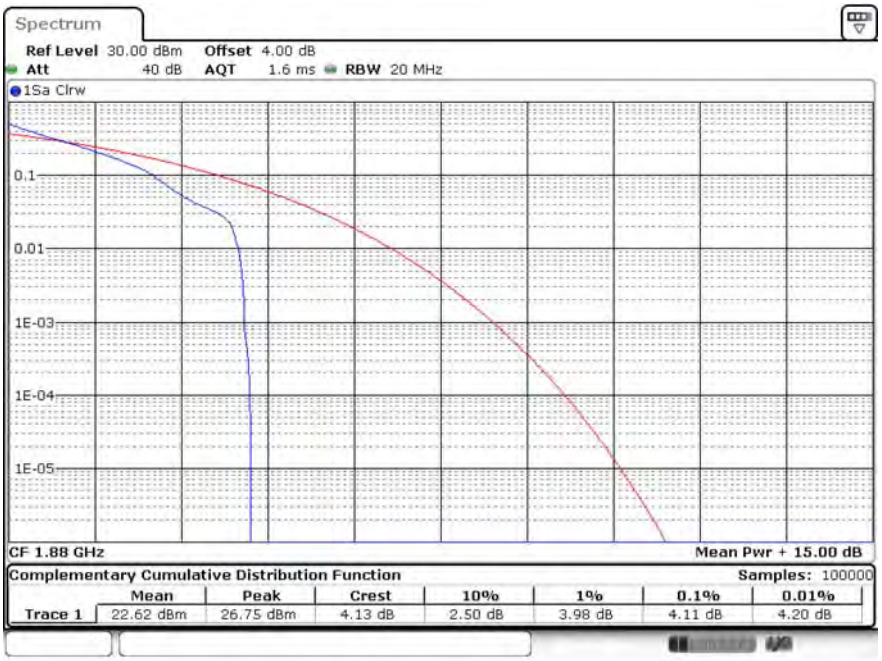
CH18625_5M_1RB12_16-QAM



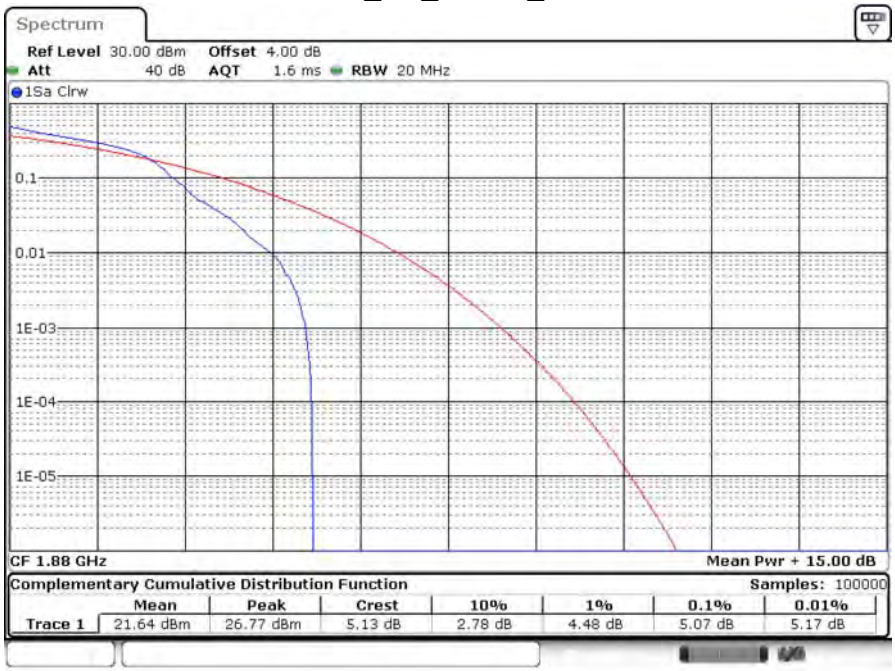
Date: 17.DEC.2019 18:40:02

B2_CH18900_5M_1RB12_QPSK



Date: 17.DEC.2019 18:44:53

CH18900_5M_1RB12_16-QAM

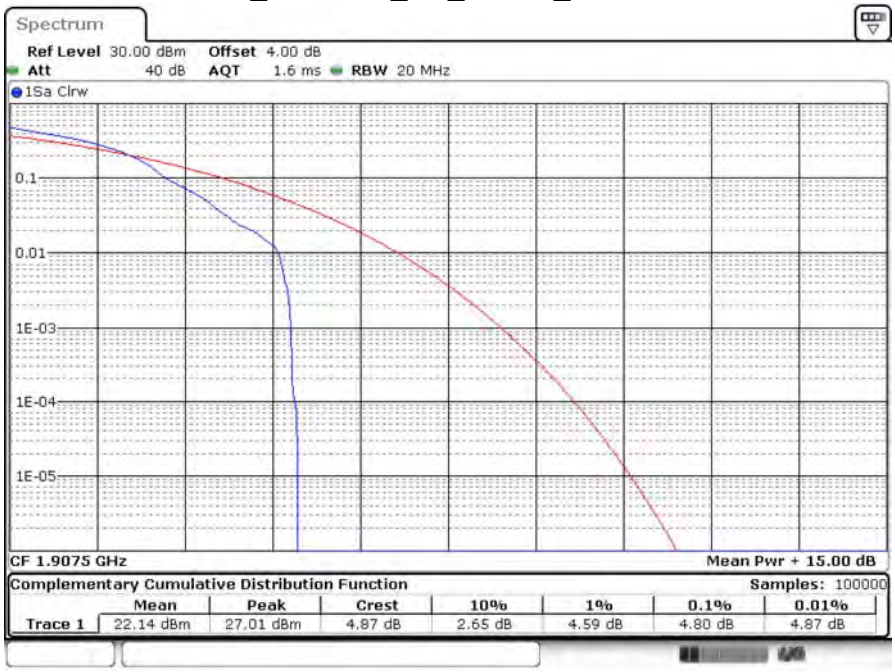


Date: 17.DEC.2019 18:42:10

B2_CH19175_5M_1RB12_QPSK

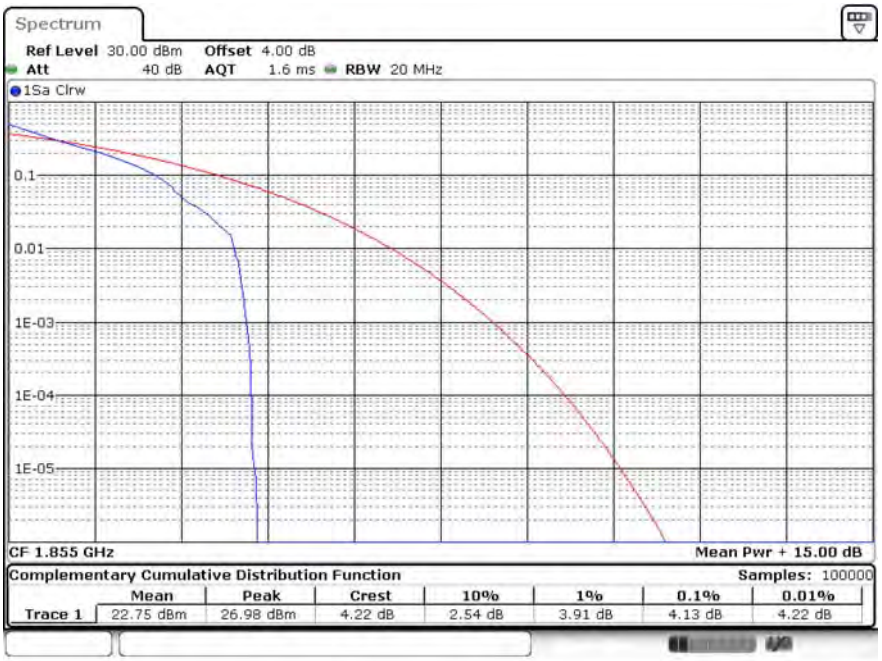
Date: 17.DEC.2019 18:47:39

B2_CH19175_5M_1RB12_16-QAM



Date: 17.DEC.2019 18:47:54

B2_CH18650_10M_1RB24_QPSK

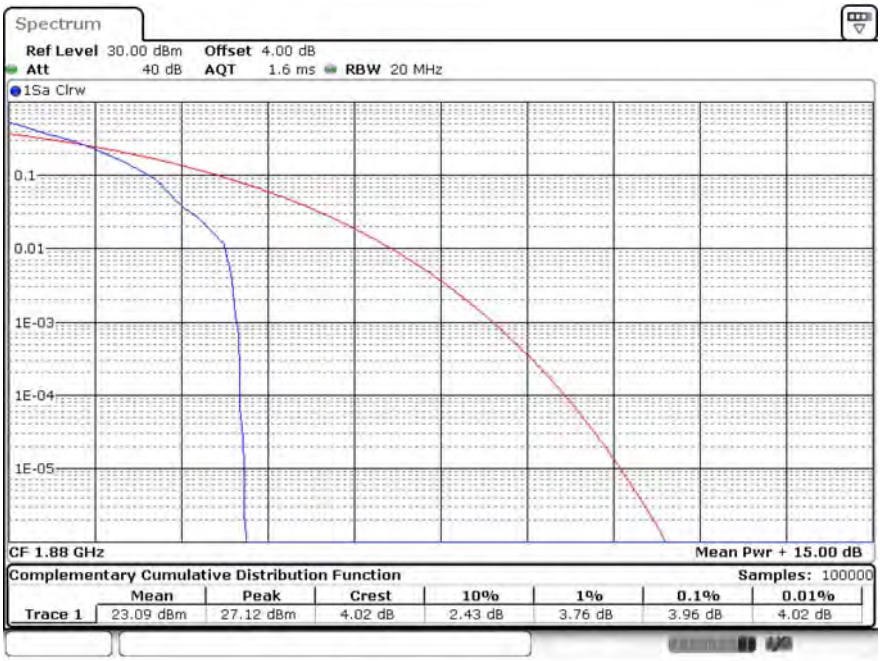


Date: 17.DEC.2019 19:26:48

B2_CH18650_10M_1RB24_16-QAM

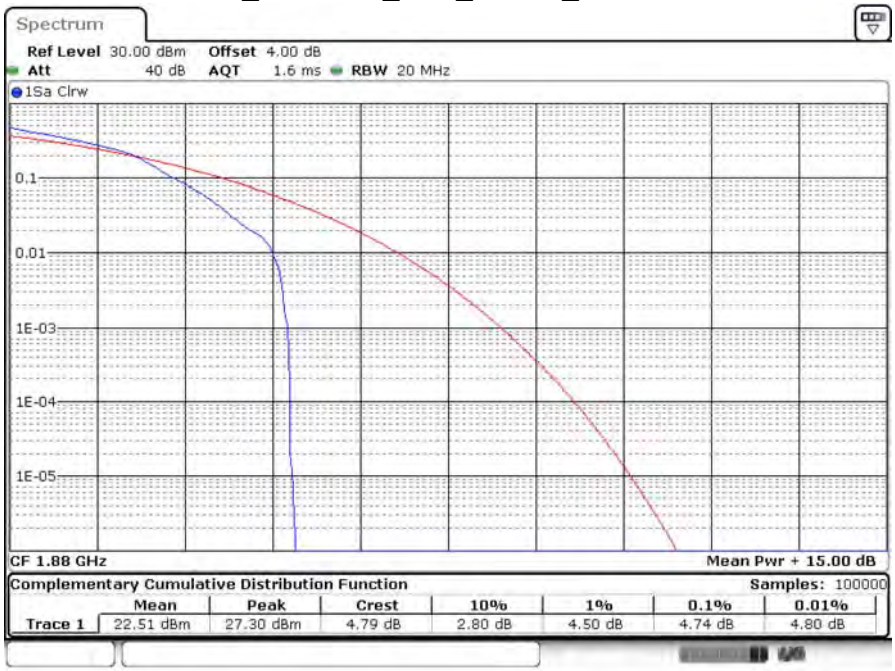
Date: 17.DEC.2019 19:29:20

B2_CH18900_10M_1RB24_QPSK



Date: 17.DEC.2019 19:38:18

B2_CH18900_10M_1RB24_16-QAM

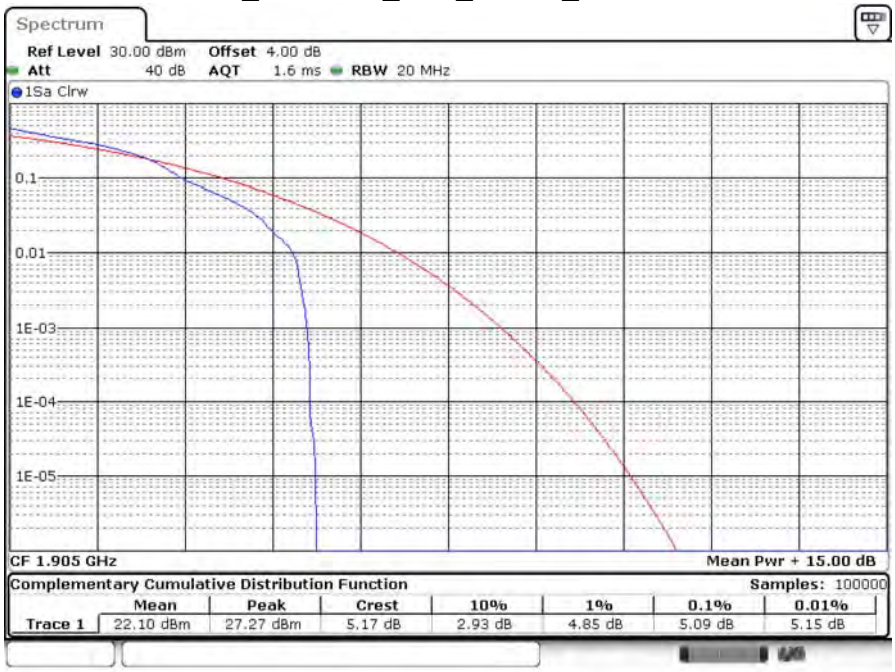


Date: 17.DEC.2019 19:38:04

B2_CH19150_10M_1RB24_QPSK

Date: 17.DEC.2019 19:42:56

B2_CH19150_10M_1RB24_16-QAM

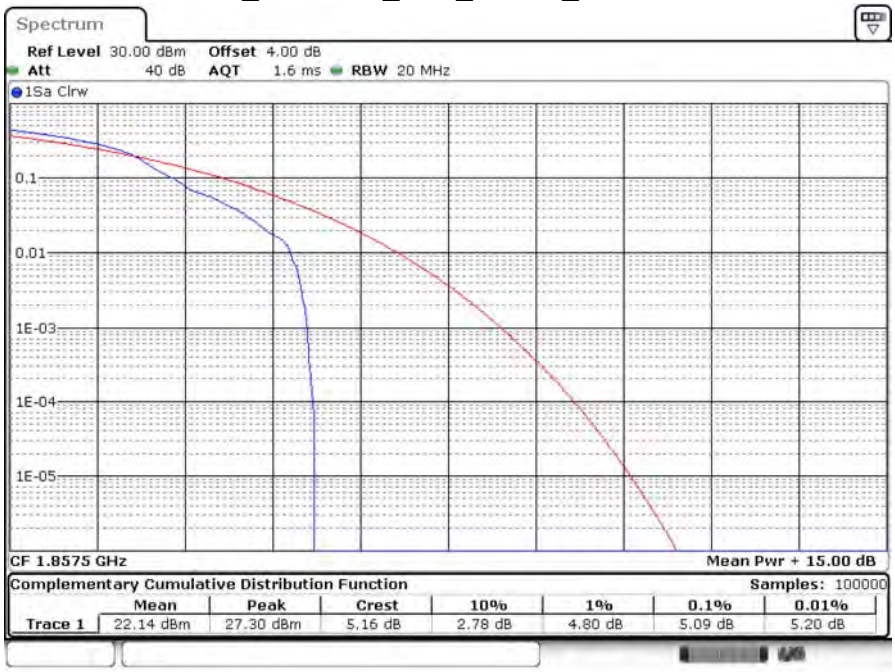


Date: 17.DEC.2019 19:43:15

B2_CH18675_15M_1RB37_QPSK

Date: 17.DEC.2019 19:51:59

B2_CH18675_15M_1RB37_16-QAM



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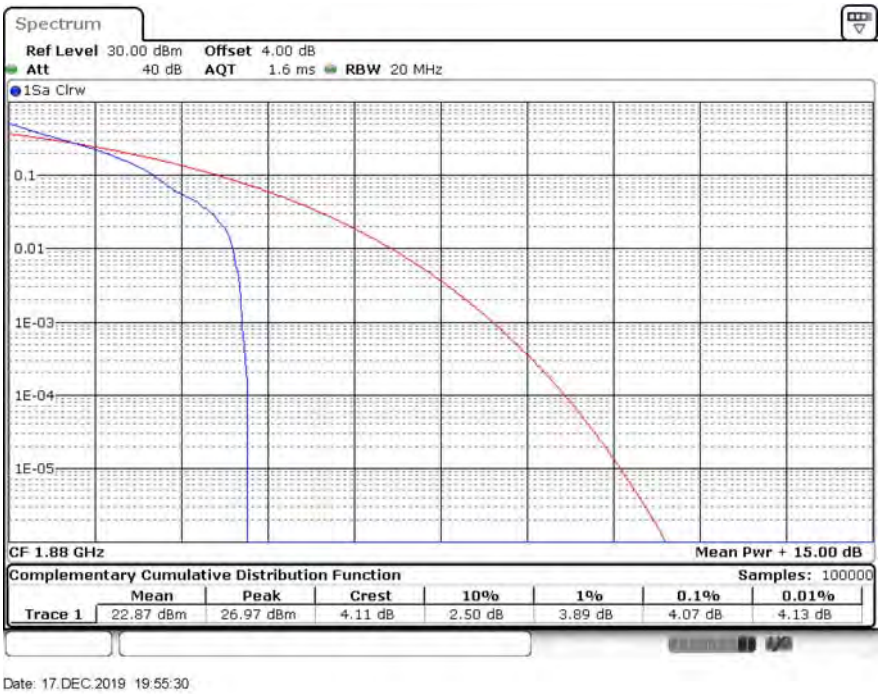
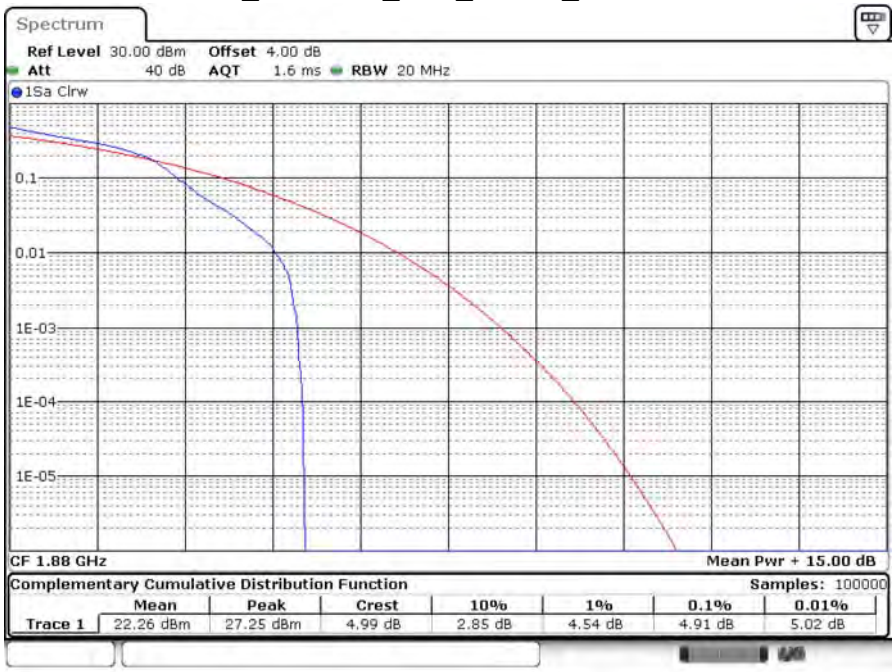


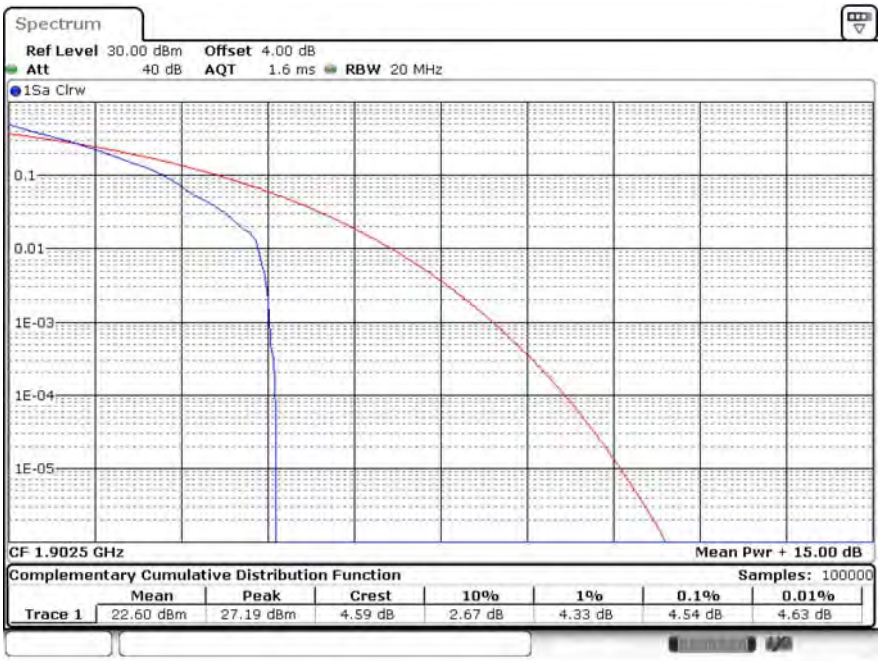
Date: 17.DEC.2019 19:55:30

B2_CH18900_15M_1RB37_16-QAM



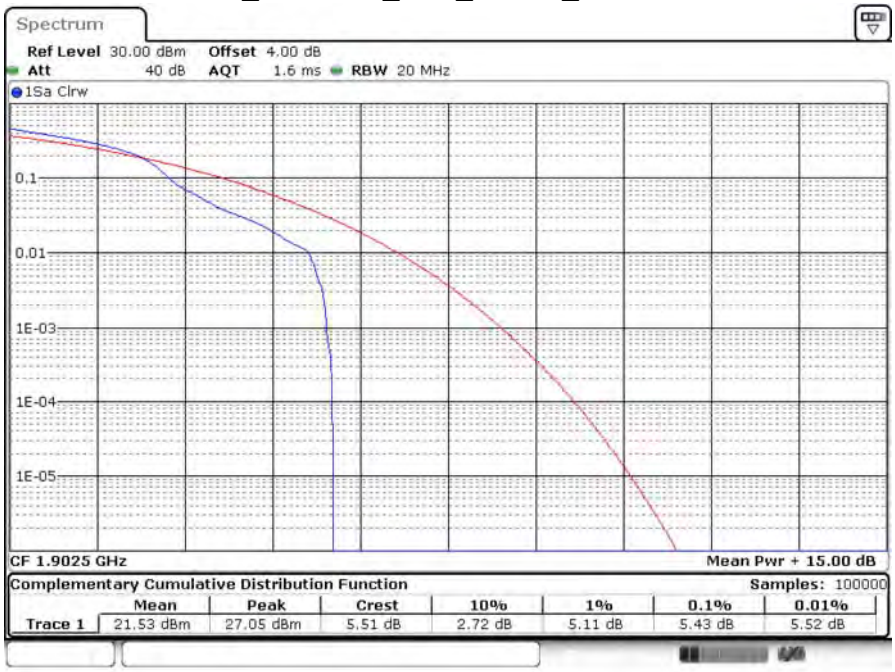
Date: 17.DEC.2019 19:55:18

B2_CH19125_15M_1RB37_QPSK



Date: 17.DEC.2019 19:57:56

B2_CH19125_15M_1RB37_16-QAM



Date: 17.DEC.2019 19:58:19

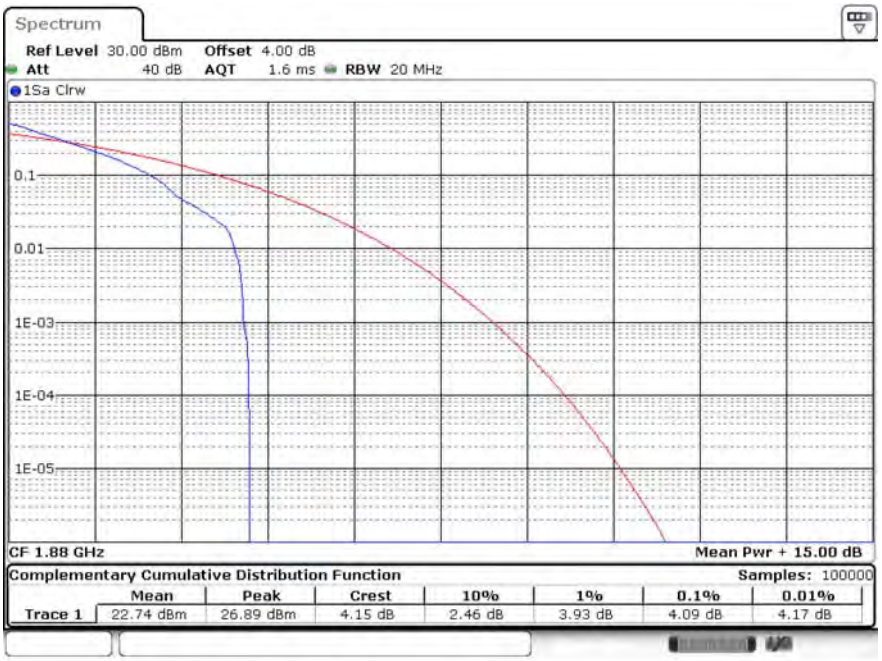
B2_CH18700_20M_1RB49_QPSK_

Date: 17.DEC.2019 20:10:26

B2_CH18700_20M_1RB49_16-QAM

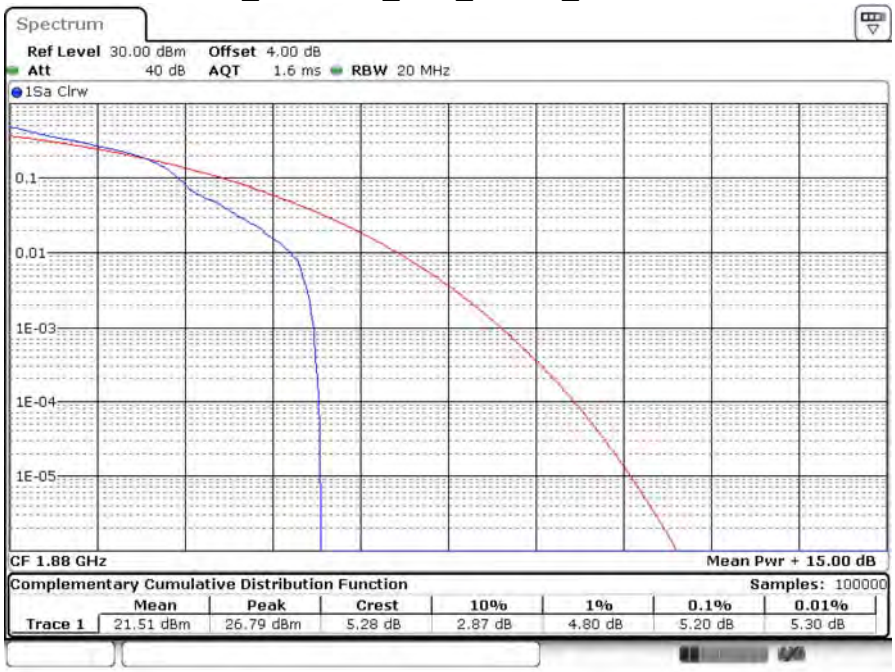
Date: 17.DEC.2019 20:10:38

B2_CH18900_20M_1RB49_QPSK



Date: 17.DEC.2019 20:19:28

B2_CH18900_20M_1RB49_16-QAM

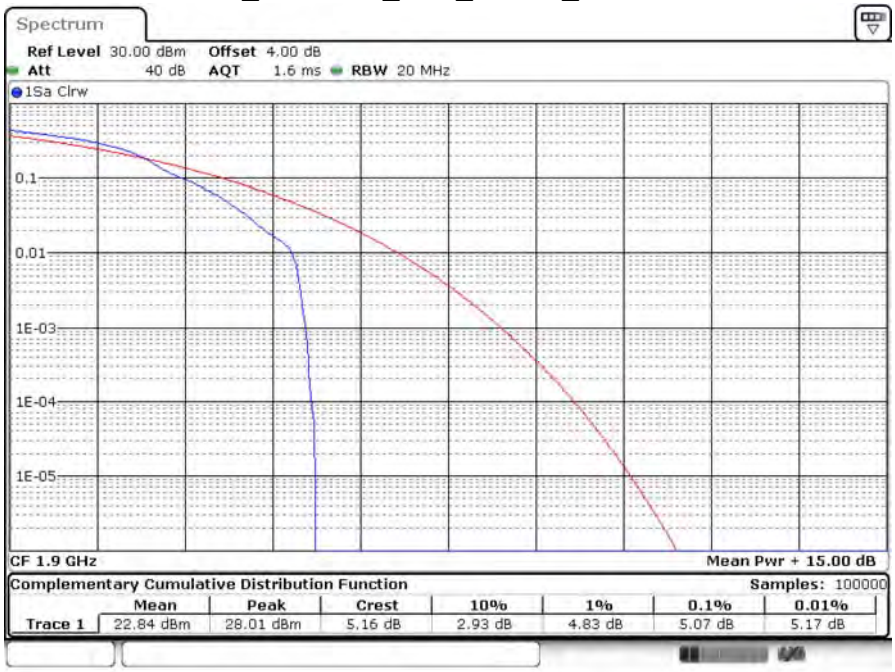


Date: 17.DEC.2019 20:13:10

B2_CH19100_20M_1RB49_QPSK

Date: 17.DEC.2019 20:20:16

B2_CH19100_20M_1RB49_16-QAM



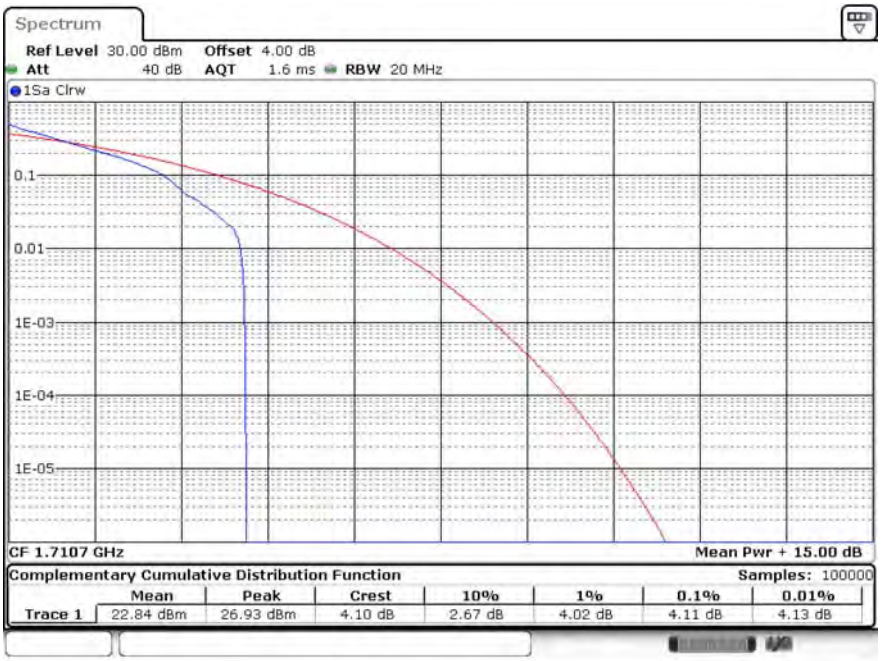
Date: 17.DEC.2019 20:20:35

Product	Module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2019/12/17	Test Site	SR12-H
Temperature (°C)	23.0°C	Humidity (%RH)	59%RH

Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	19957	1710.7	QPSK	26.93	22.84	4.11
			16-QAM	27.07	21.96	5.15
	20175	1732.5	QPSK	27.65	22.75	4.85
			16-QAM	27.62	21.72	5.85
	20393	1754.3	QPSK	27.37	22.95	4.41
			16-QAM	27.54	22.22	5.30
3M	19965	1711.5	QPSK	26.93	22.67	4.26
			16-QAM	27.12	21.94	5.15
	20175	1732.5	QPSK	27.59	22.79	4.76
			16-QAM	27.56	21.58	5.83
	20385	1753.5	QPSK	27.17	22.66	4.46
			16-QAM	27.03	21.72	5.26
5M	19975	1712.5	QPSK	26.80	22.37	4.39
			16-QAM	27.16	22.11	5.00
	20175	1732.5	QPSK	27.65	22.73	4.87
			16-QAM	27.71	22.24	5.43
	20375	1752.5	QPSK	27.06	22.56	4.48
			16-QAM	27.15	21.41	5.65
10M	20000	1715	QPSK	27.31	22.90	4.37
			16-QAM	27.44	22.10	5.30
	20175	1732.5	QPSK	27.76	22.79	4.89
			16-QAM	27.70	21.65	5.91
	20350	1750	QPSK	27.09	22.73	4.30
			16-QAM	27.28	21.72	5.50

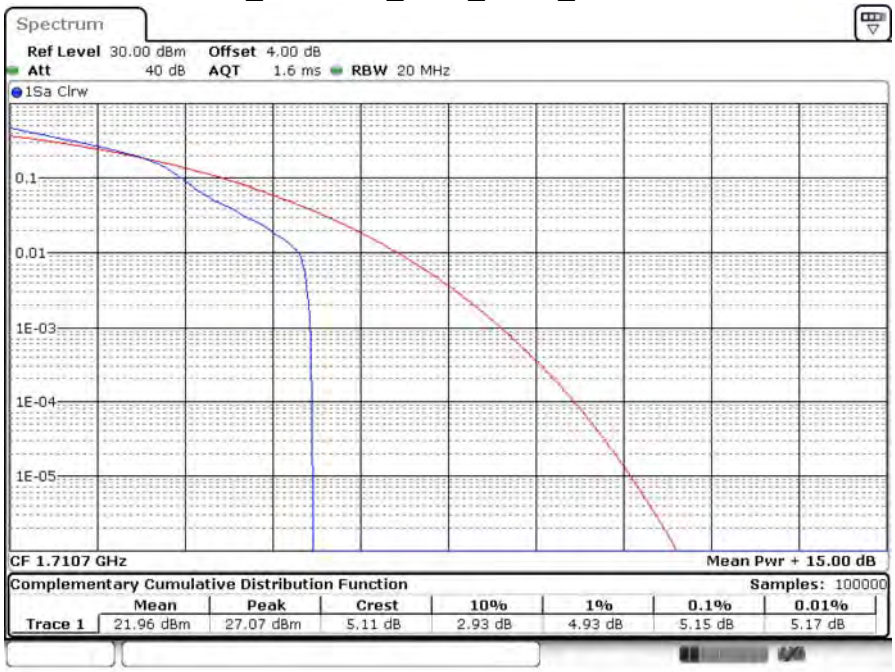
Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
15M	20025	1717.5	QPSK	27.25	22.58	4.63
			16-QAM	27.57	22.24	5.28
	20175	1732.5	QPSK	27.63	22.72	4.78
			16-QAM	27.74	21.95	5.70
	20325	1747.5	QPSK	27.22	22.84	4.35
			16-QAM	27.35	22.24	5.04
20M	20050	1720	QPSK	27.33	22.56	4.67
			16-QAM	27.63	22.51	5.07
	20175	1732.5	QPSK	27.60	22.96	4.59
			16-QAM	27.53	21.46	6.00
	20300	1745	QPSK	27.17	22.77	4.35
			16-QAM	27.36	21.92	5.39

B4_CH19957_1.4M_1RB2_QPSK



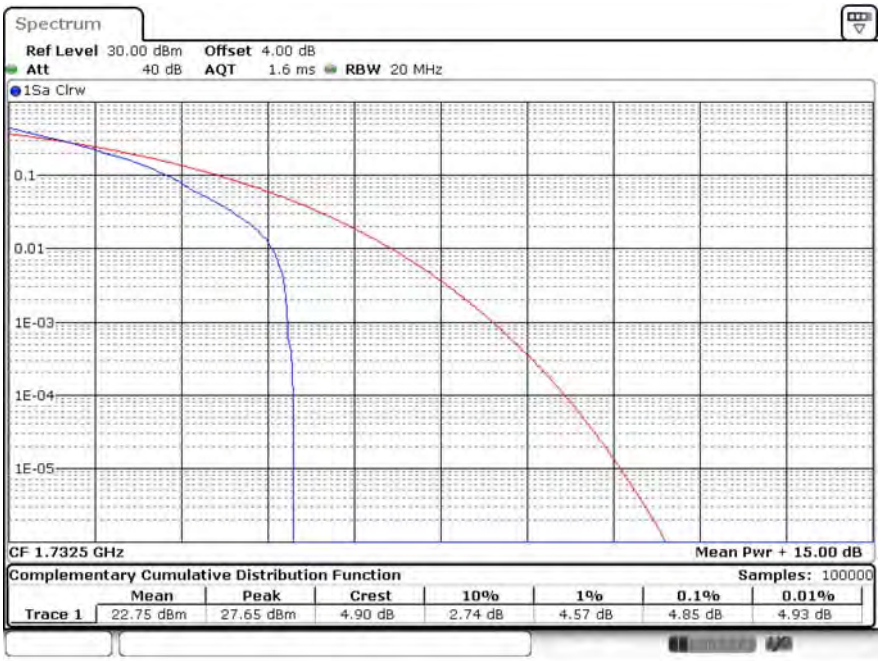
Date: 17.DEC.2019 21:13:39

B4_CH19957_1.4M_1RB2_16-QAM



Date: 17.DEC.2019 21:13:24

B4_CH20175_1.4M_1RB2_QPSK



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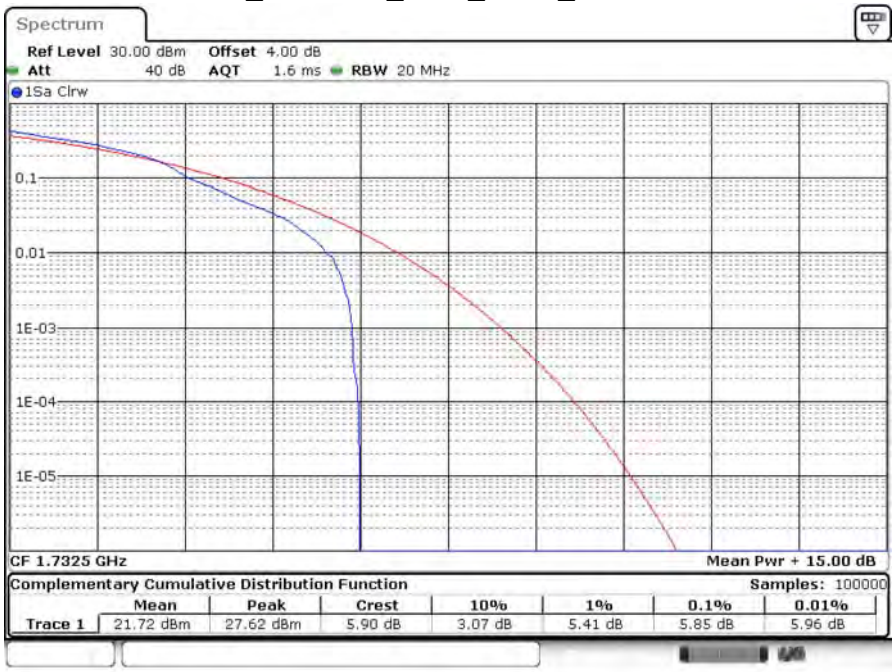


Date: 17.DEC.2019 21:14:11

B4_CH20393_1.4M_1RB2_QPSK

Date: 17.DEC.2019 21:14:42

B4_CH20393_1.4M_1RB2_16-QAM

Date: 17.DEC.2019 21:14:33

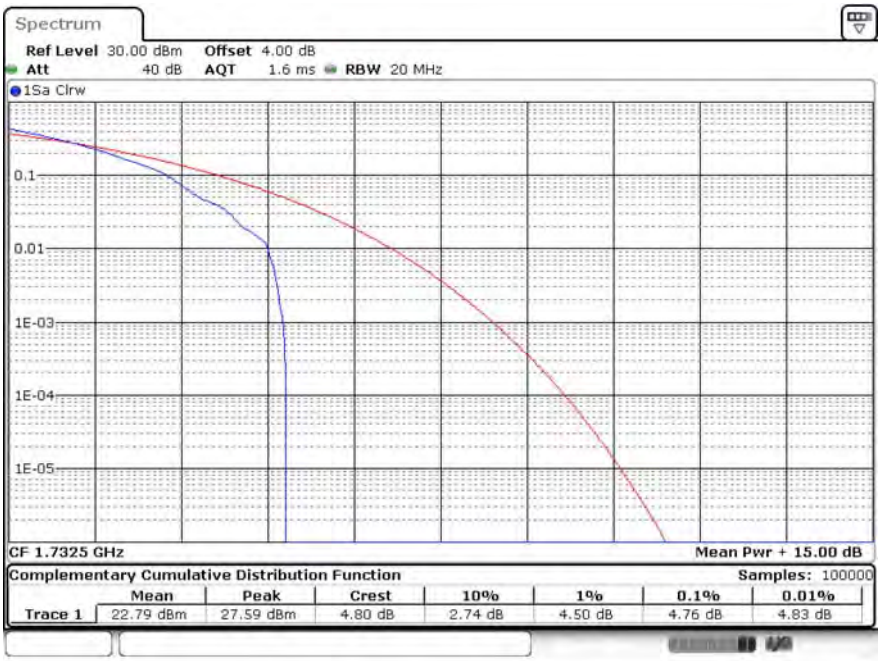
B4_CH19965_3M_1RB7_QPSK

Date: 17.DEC.2019 21:11:41

B4_CH19965_3M_1RB7_16-QAM

Date: 17.DEC.2019 21:11:29

B4_CH20175_3M_1RB7_QPSK



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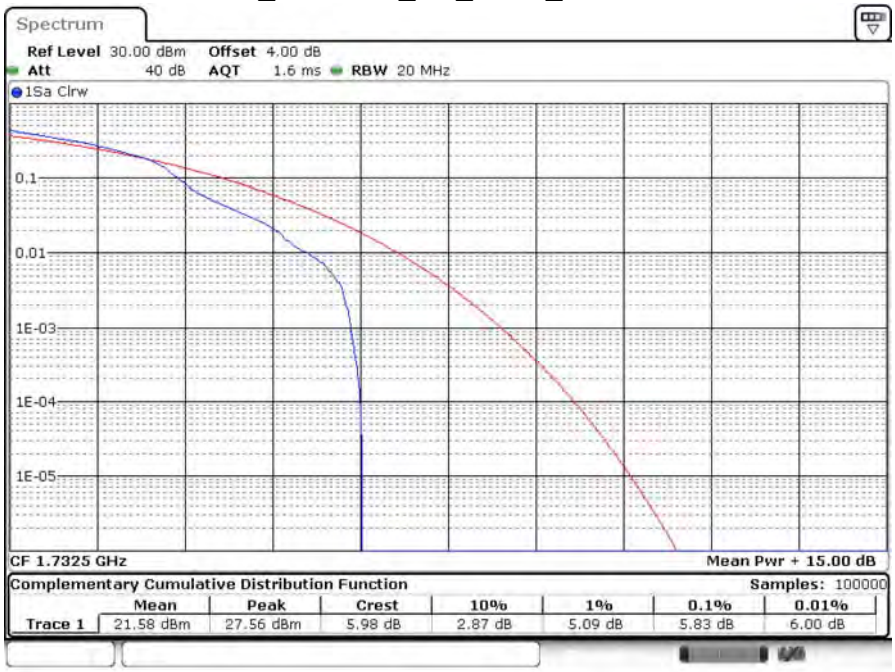
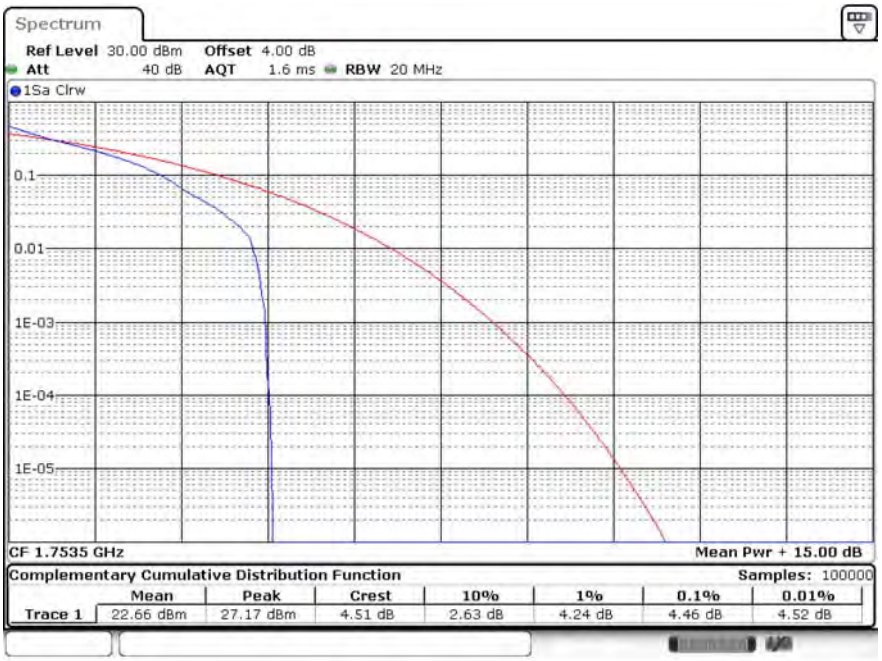


Date: 17.DEC.2019 21:12:04

B4_CH20385_3M_1RB7_QPSK



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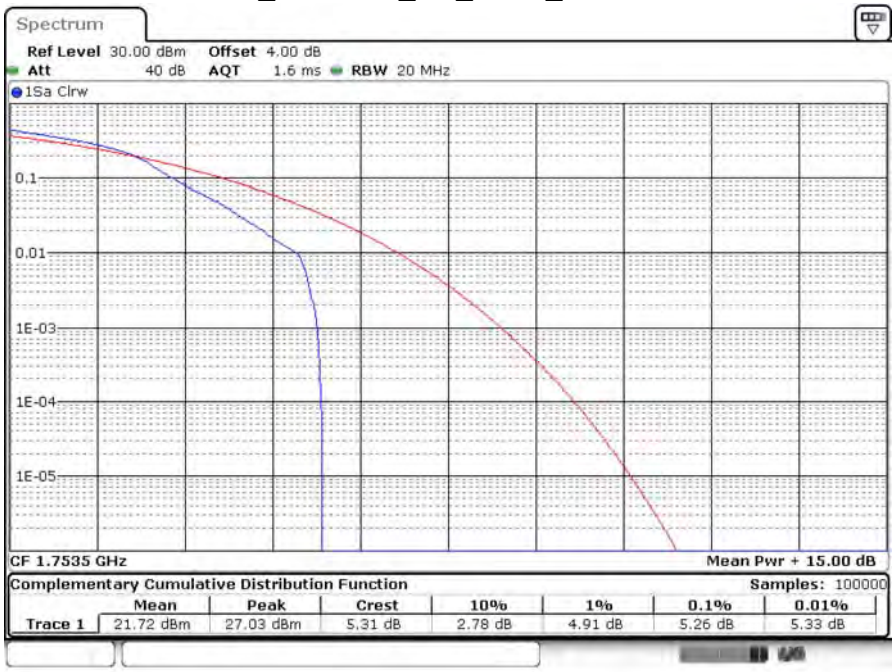
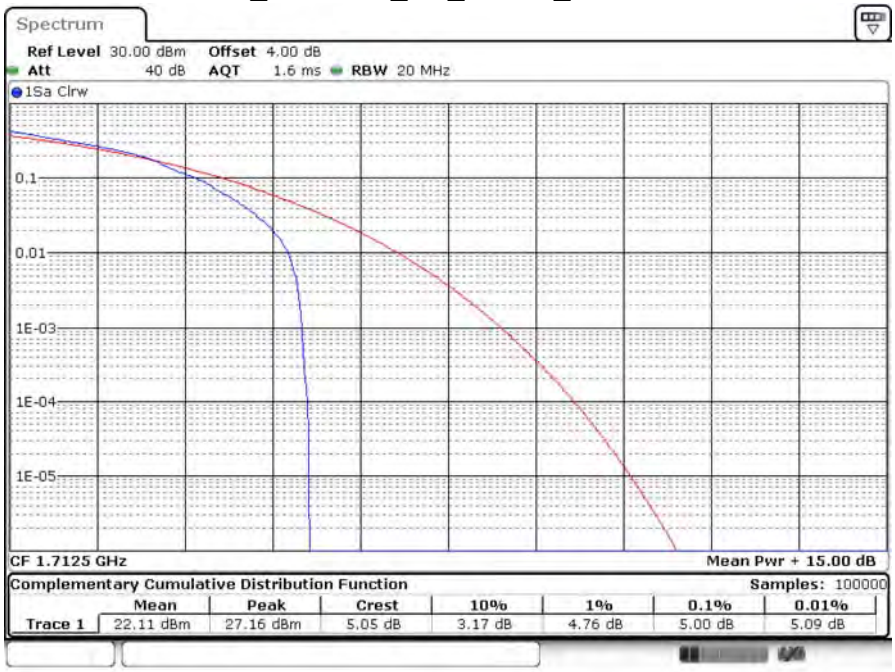


Date: 17.DEC.2019 21:12:18

B4_CH19975_5M_1RB12_QPSK

Date: 17.DEC.2019 21:01:16

B4_CH19975_5M_1RB12_16-QAM



Date: 17.DEC.2019 21:01:02

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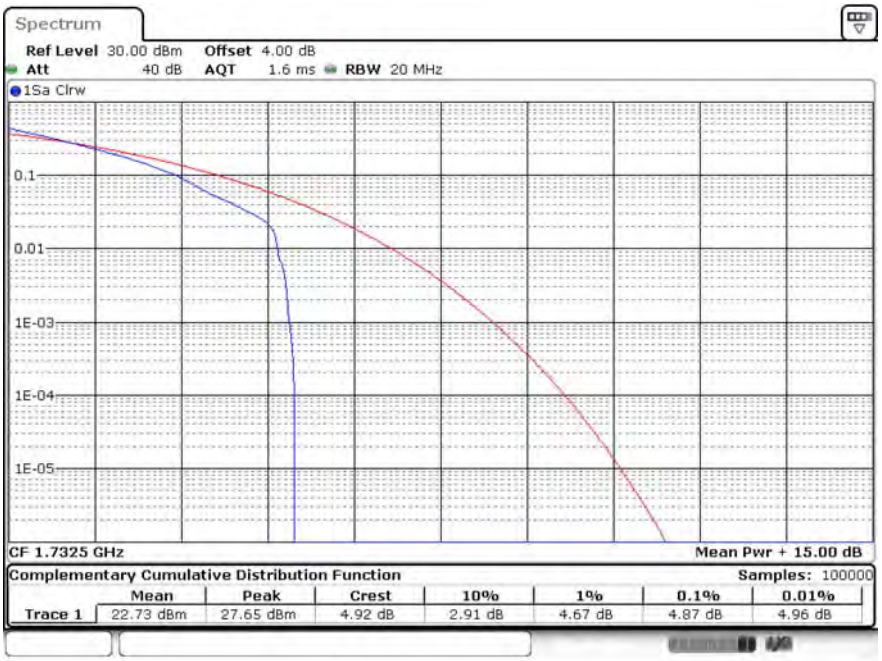
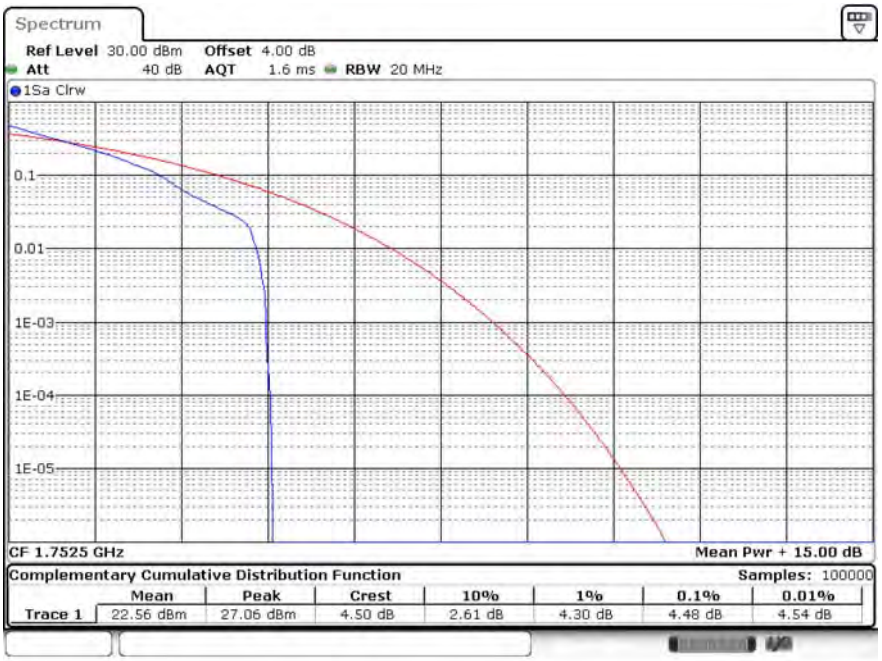


Date: 17.DEC.2019 21:02:20

B4_CH20175_5M_1RB12_16-QAM

Date: 17.DEC.2019 21:03:31

B4_CH20375_5M_1RB12_QPSK



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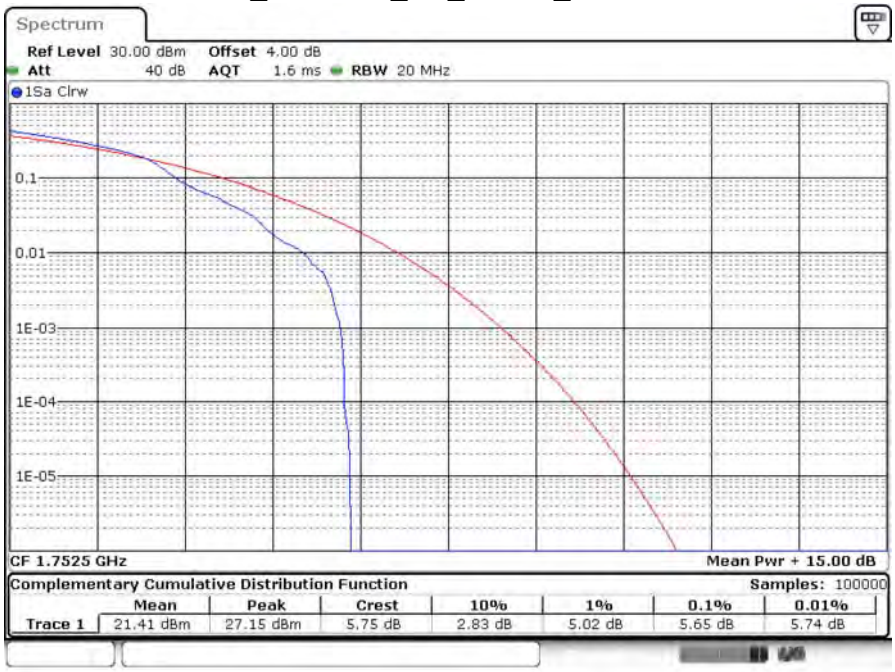

Date: 17.DEC.2019 21:04:13

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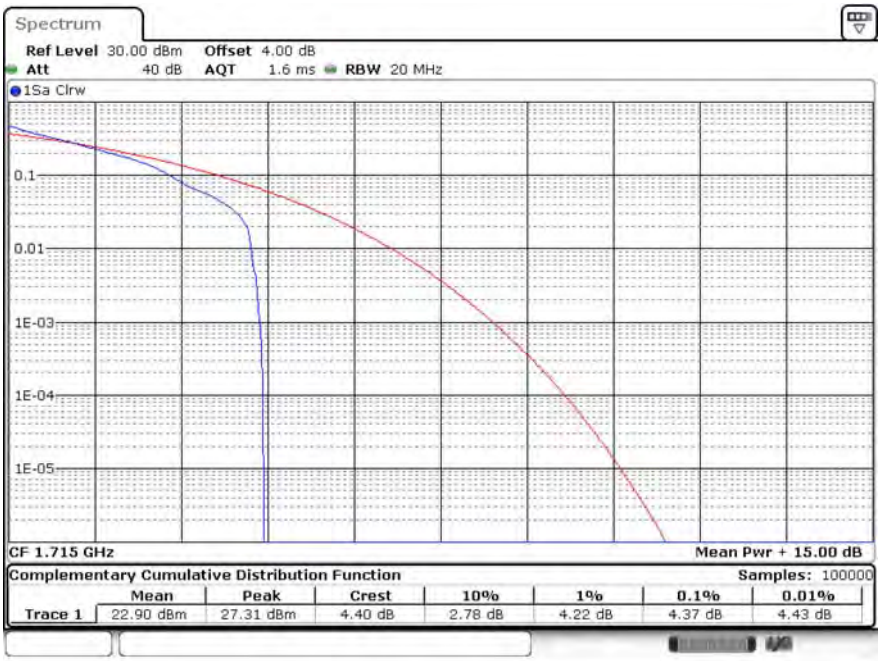
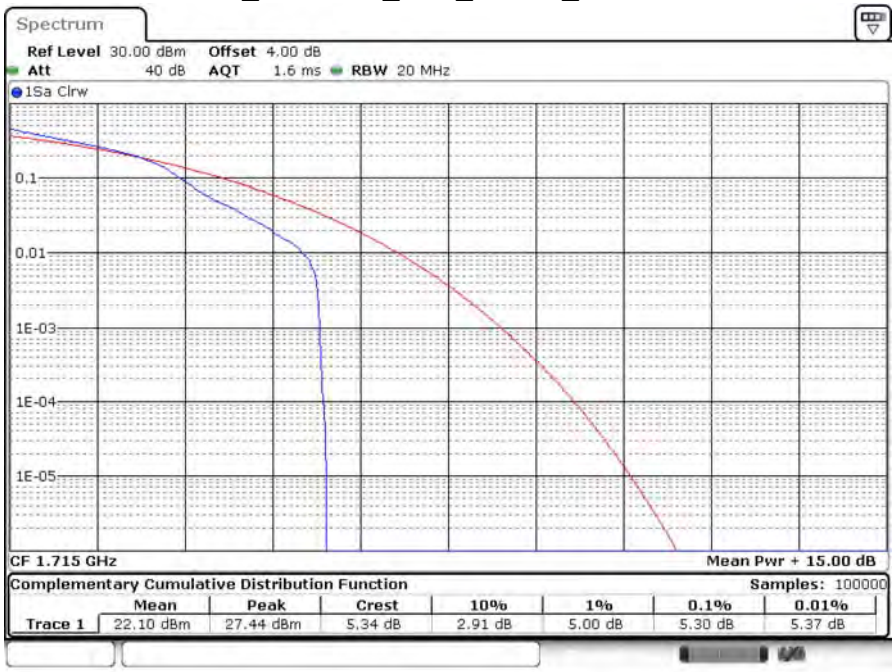


Date: 17.DEC.2019 20:59:03

B4_CH20000_10M_1RB24_16-QAM

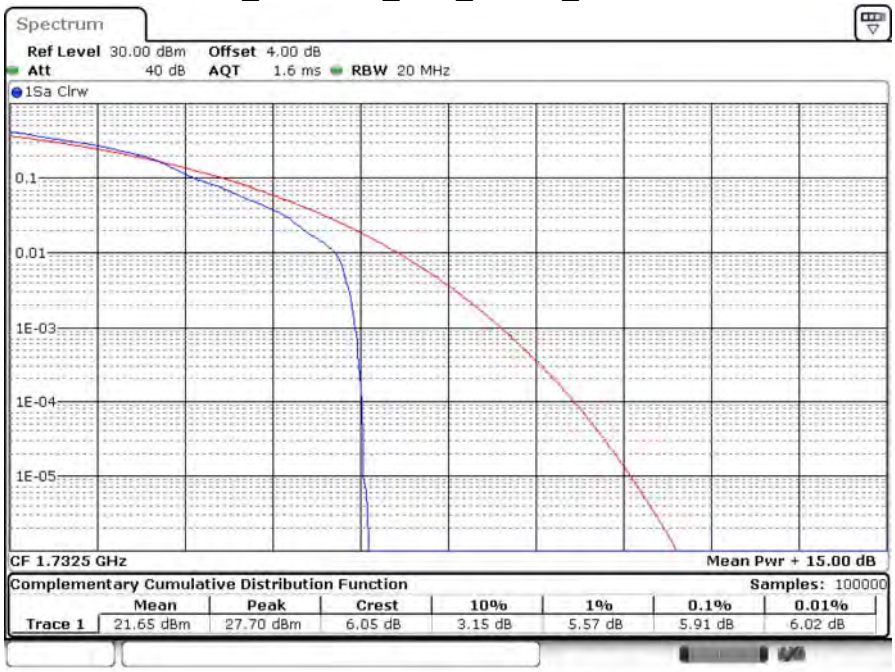


Date: 17.DEC.2019 20:55:01

B4_CH20175_10M_1RB24_QPSK

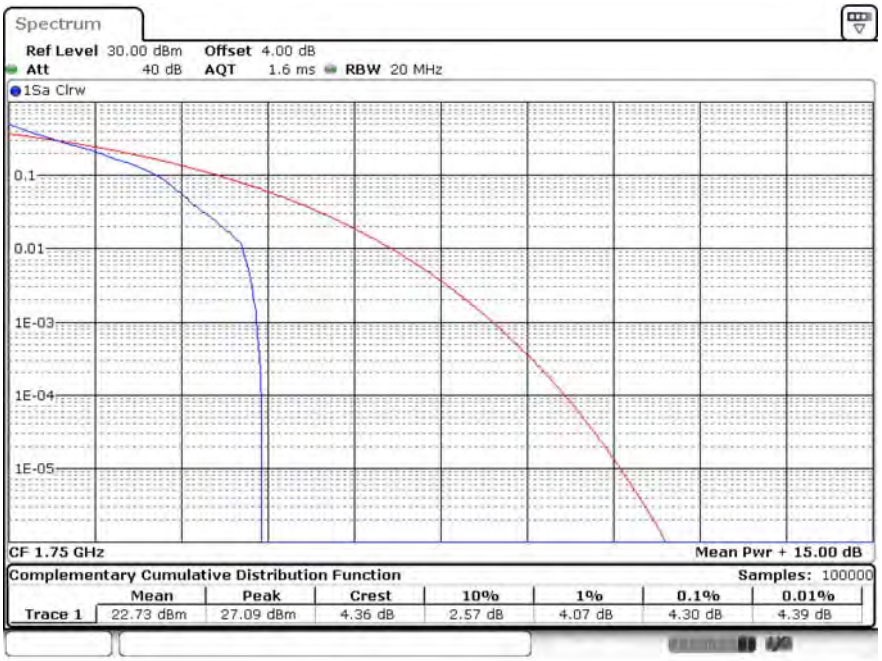
Date: 17.DEC.2019 20:59:29

B4_CH20175_10M_1RB24_16-QAM



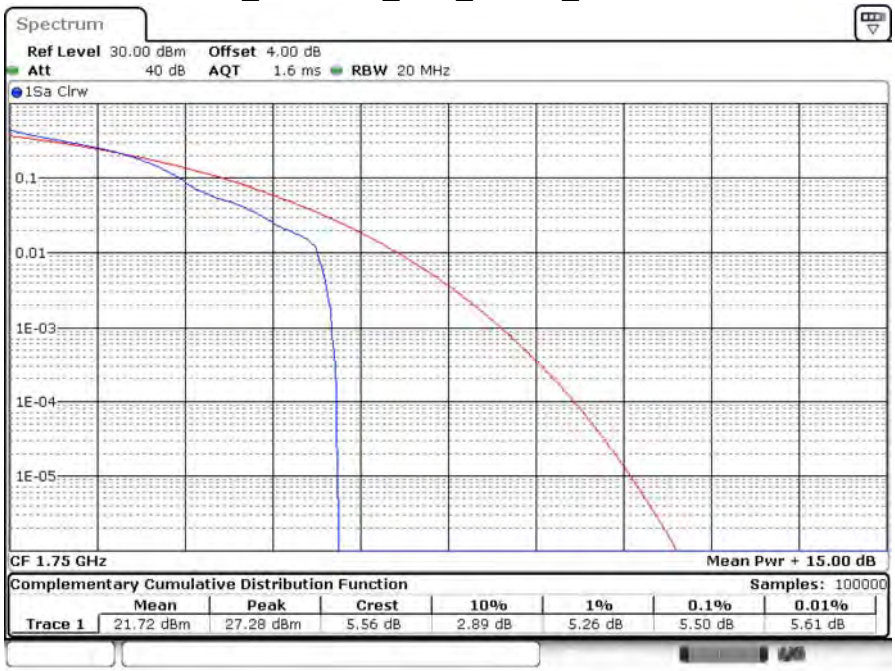
Date: 17.DEC.2019 20:59:38

B4_CH20350_10M_1RB24_QPSK



Date: 17.DEC.2019 21:00:36

B4_CH20350_10M_1RB24_16-QAM



Date: 17.DEC.2019 21:00:24

B4_CH20025_15M_1RB37_QPSK

Date: 17.DEC.2019 20:44:38

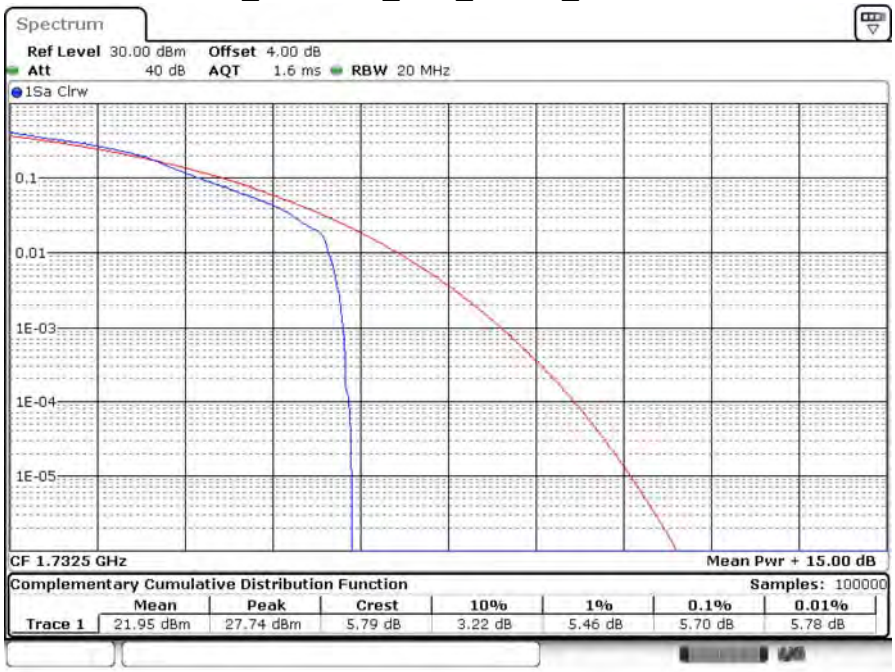
B4_CH20025_15M_1RB37_16-QAM

Date: 17.DEC.2019 20:44:29

B4_CH20175_15M_1RB37_QPSK

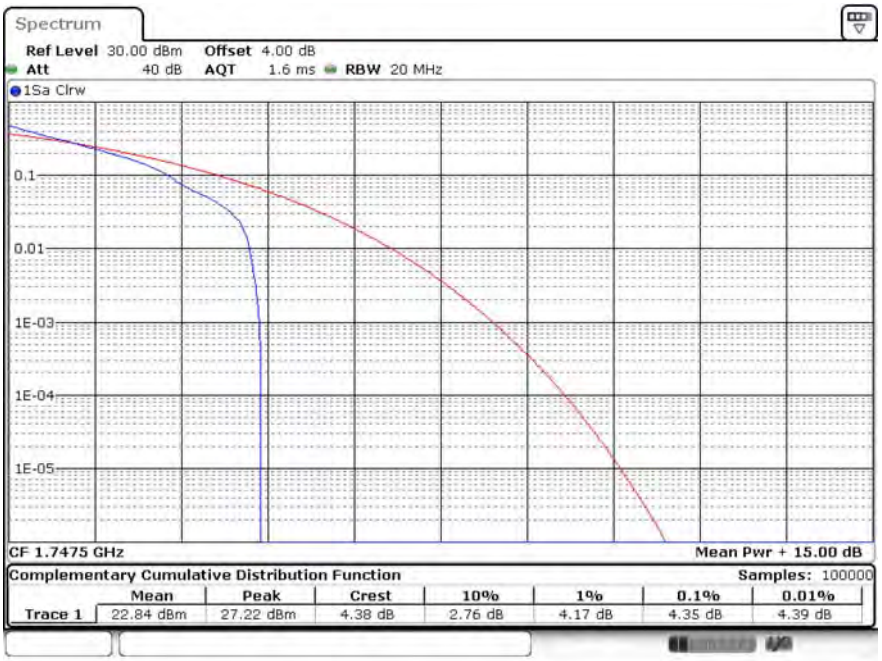
Date: 17.DEC.2019 20:38:18

B4_CH20175_15M_1RB37_16-QAM



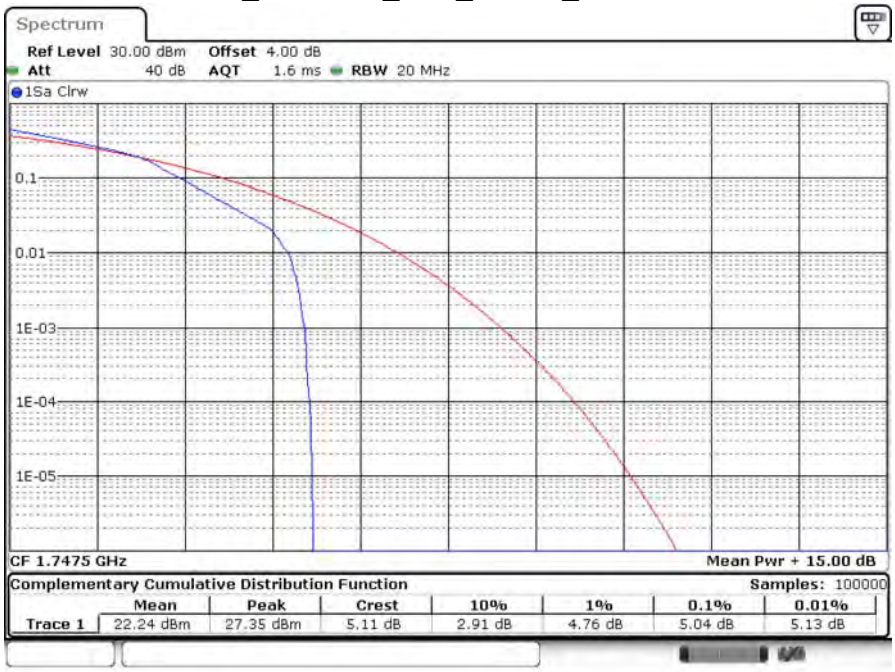
Date: 17.DEC.2019 20:38:28

B4_CH20325_15M_1RB37_QPSK



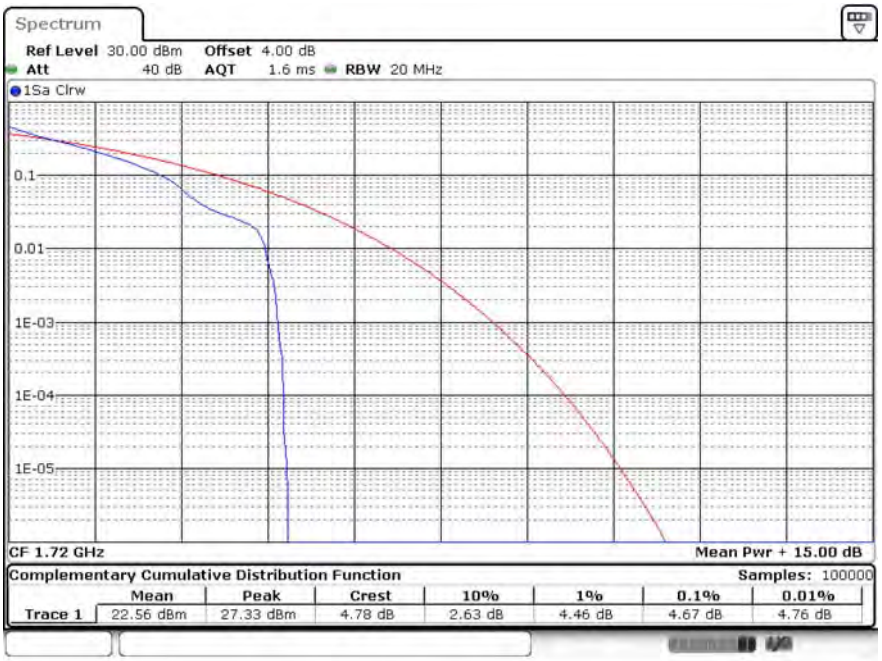
Date: 17.DEC.2019 20:37:01

B4_CH20325_15M_1RB37_16-QAM



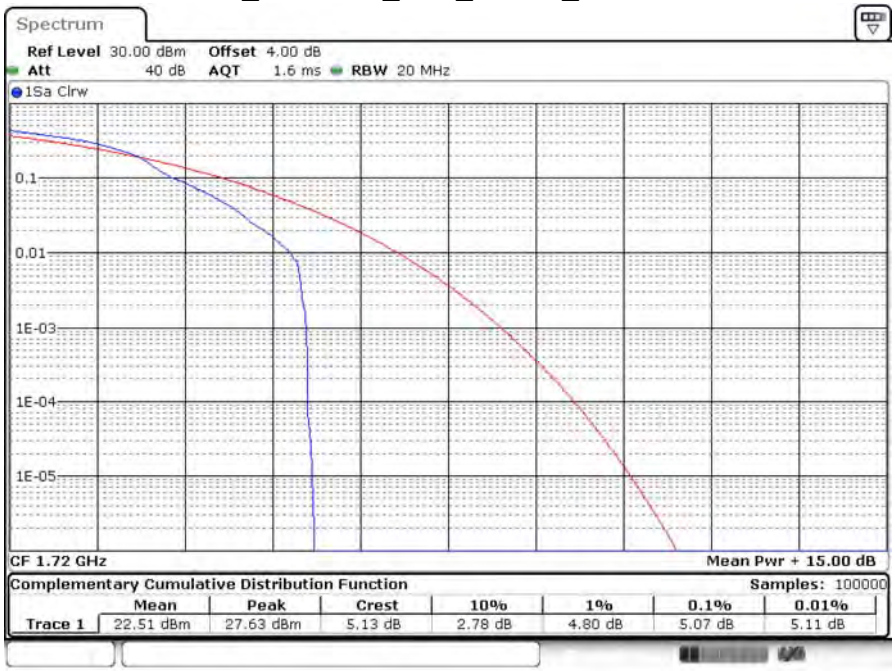
Date: 17.DEC.2019 20:36:34

B4_CH20050_20M_1RB49_QPSK_



Date: 17.DEC.2019 20:27:16

B4_CH20050_20M_1RB49_16-QAM



Date: 17.DEC.2019 20:25:38

B4_CH20175_20M_1RB49_QPSK

Date: 17.DEC.2019 20:28:35

B4_CH20175_20M_1RB49_16-QAM

Date: 17.DEC.2019 20:32:25

B4_CH20300_20M_1RB49_QPSK

Date: 17.DEC.2019 20:33:03

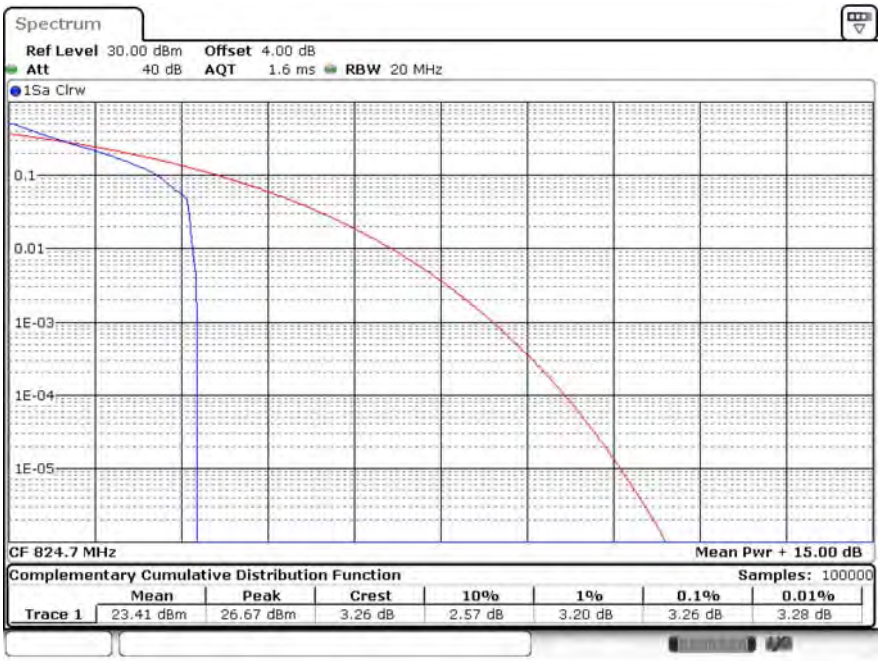
B4_CH20300_20M_1RB49_16-QAM

Date: 17.DEC.2019 20:32:52

Product	Module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2019/12/18	Test Site	SR12-H
Temperature (°C)	22.0°C	Humidity (%RH)	59%RH

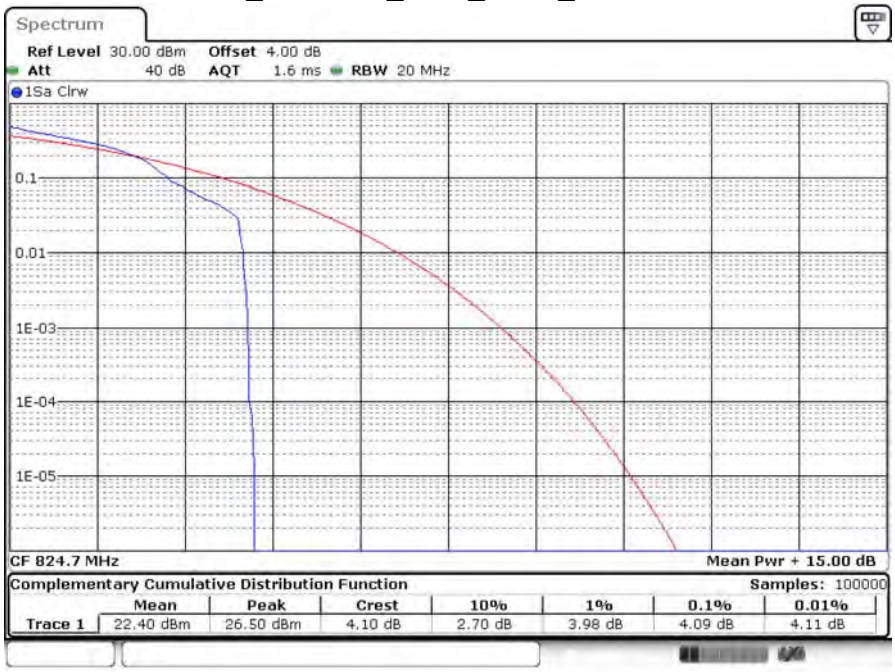
Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	20407	824.7	QPSK	26.67	23.41	3.26
			16-QAM	26.50	22.40	4.09
	20525	836.5	QPSK	25.93	22.84	3.11
			16-QAM	26.40	22.50	3.91
	20643	848.3	QPSK	26.76	23.40	3.30
			16-QAM	26.66	22.43	4.20
3M	20415	825.5	QPSK	26.23	23.08	3.20
			16-QAM	26.54	22.70	3.87
	20525	836.5	QPSK	25.99	22.86	3.17
			16-QAM	26.15	22.24	3.89
	20635	847.5	QPSK	26.14	23.11	3.02
			16-QAM	26.20	22.24	3.98
5M	20425	826.5	QPSK	26.67	23.37	3.20
			16-QAM	26.17	22.40	3.80
	20525	836.5	QPSK	25.87	22.81	3.04
			16-QAM	25.85	22.03	3.83
	20625	846.5	QPSK	25.87	22.96	2.89
			16-QAM	25.86	21.99	3.87
10M	20450	829	QPSK	26.09	23.05	2.98
			16-QAM	26.14	22.69	3.46
	20525	836.5	QPSK	26.21	23.02	3.09
			16-QAM	26.21	22.37	3.85
	20600	844	QPSK	26.09	22.95	3.15
			16-QAM	26.31	22.43	3.89

B5_CH20407_1.4M_1RB2_QPSK



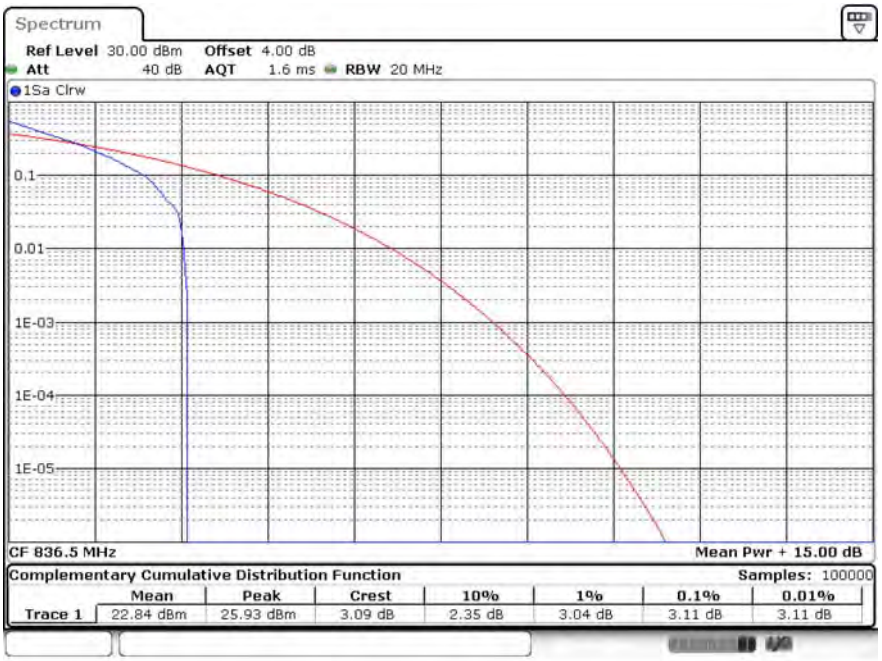
Date: 18.DEC.2019 11:00:47

B5_CH20407_1.4M_1RB2_16-QAM



Date: 18.DEC.2019 11:01:47

B5_CH20525_1.4M_1RB2_QPSK



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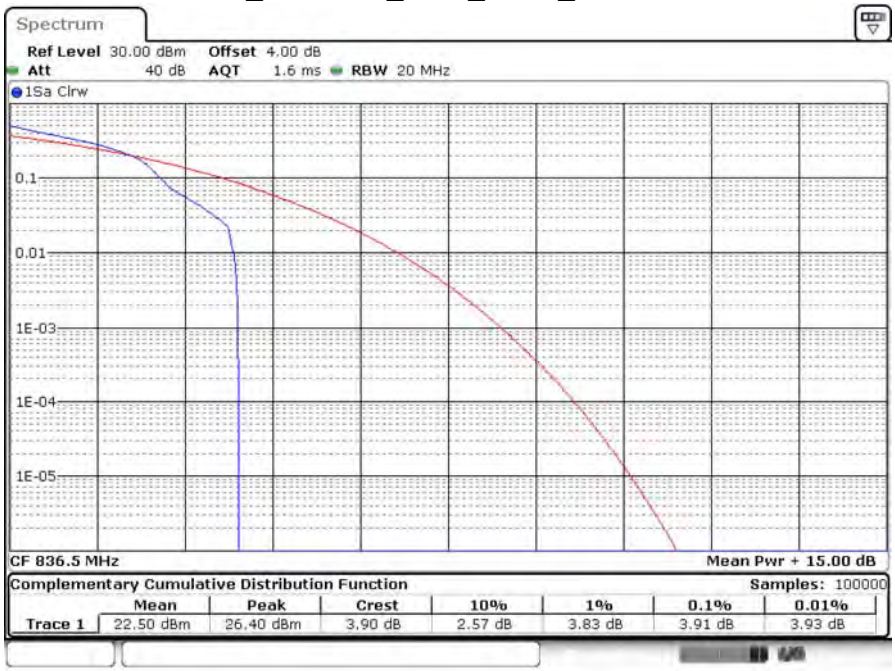
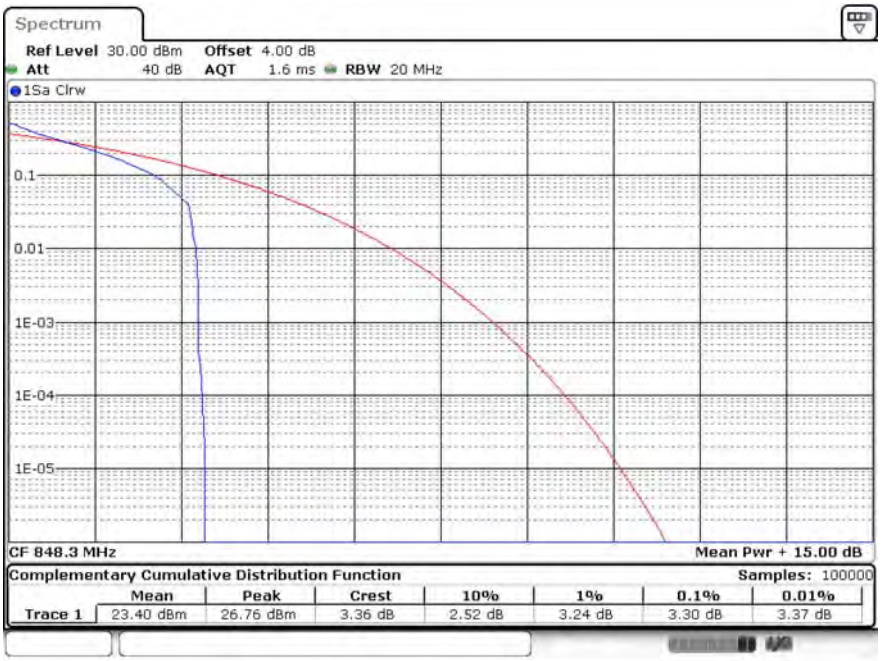
B5_CH20525_1.4M_1RB2_16-QAM



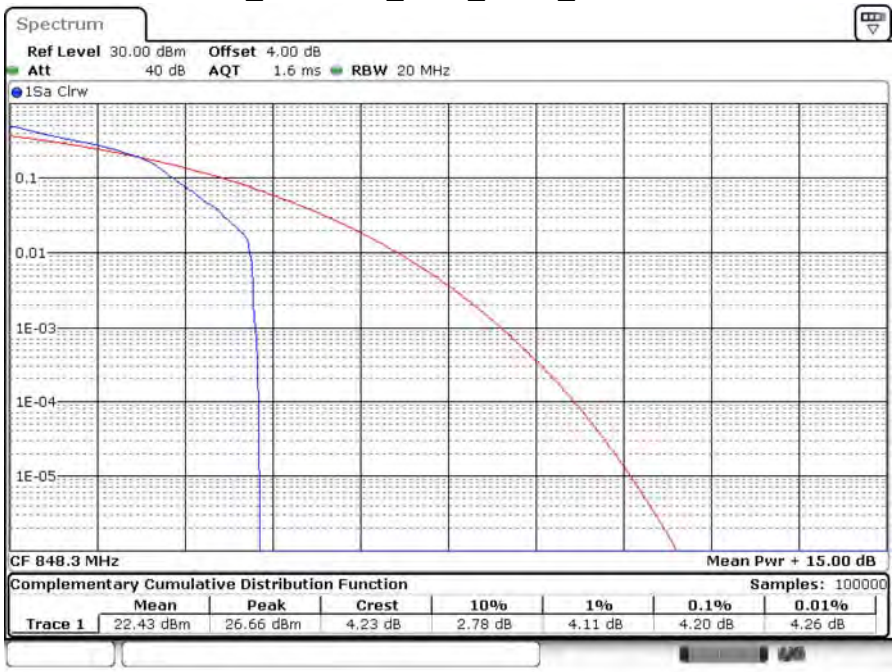
Date: 18.DEC.2019 11:29:47

B5_CH20643_1.4M_1RB2_QPSK



Date: 18.DEC.2019 11:49:14

B5_CH20643_1.4M_1RB2_16-QAM

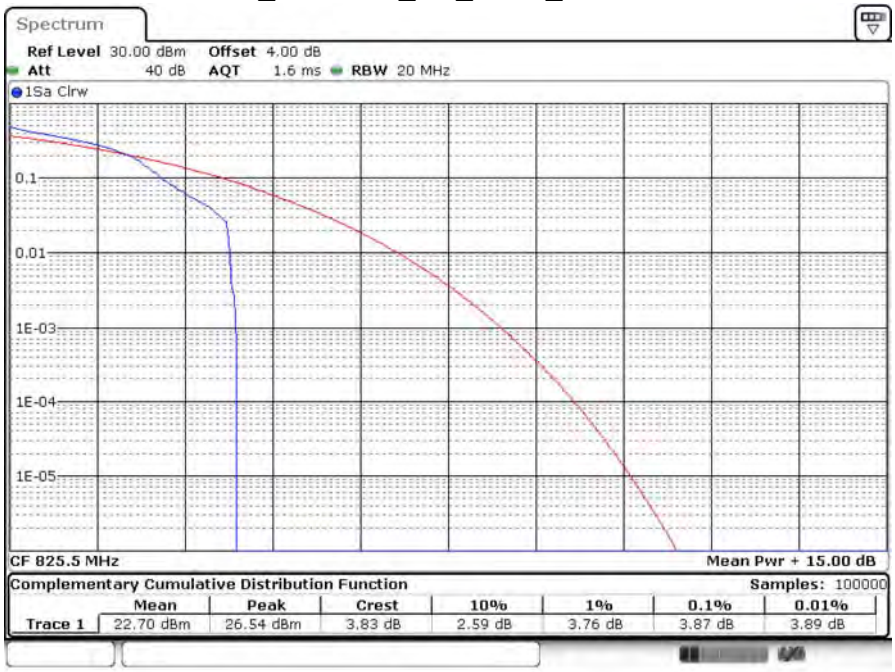


Date: 18.DEC.2019 11:49:28

B5_CH20415_3M_1RB7_QPSK

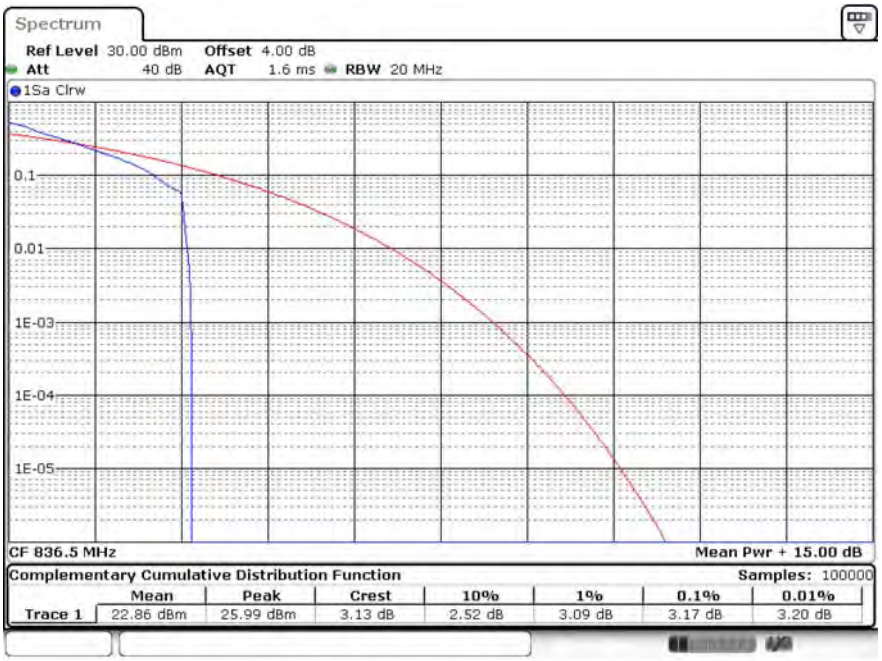
Date: 18.DEC.2019 13:31:57

B5_CH20415_3M_1RB7_16-QAM



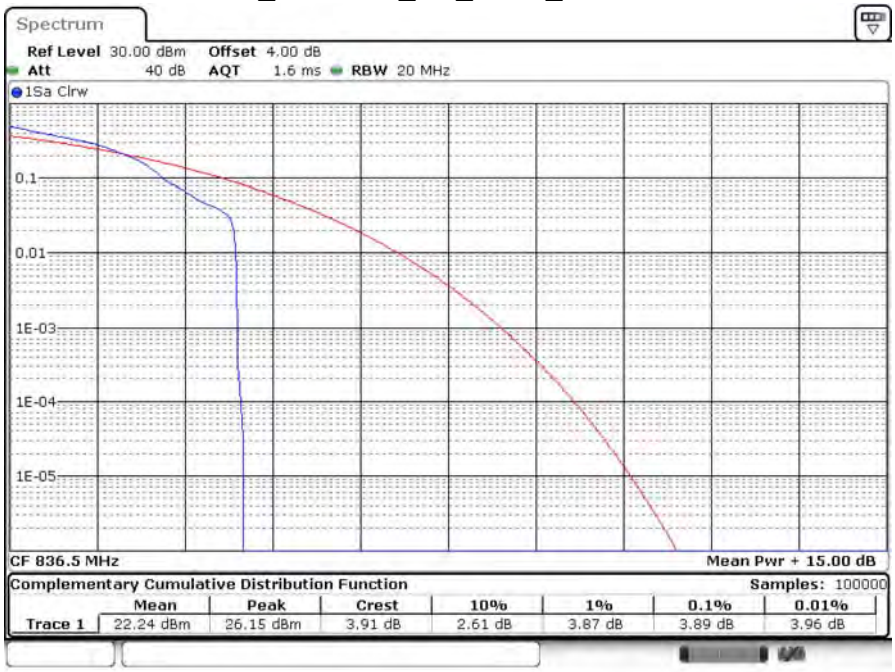
Date: 18.DEC.2019 13:32:08

B5_CH20525_3M_1RB7_QPSK



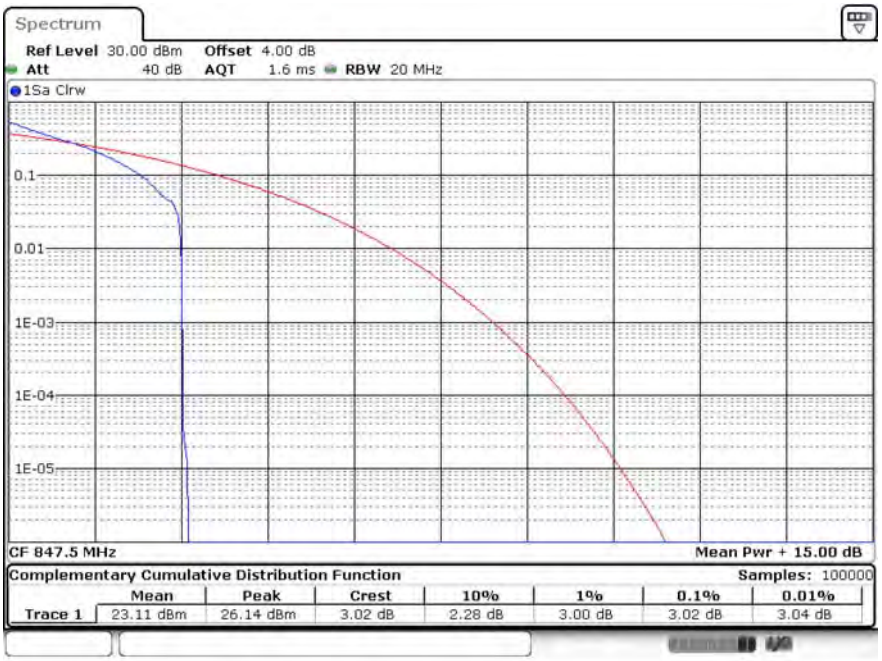
Date: 18.DEC.2019 13:33:27

B5_CH20525_3M_1RB7_16-QAM



Date: 18.DEC.2019 13:33:19

B5_CH20635_3M_1RB7_QPSK



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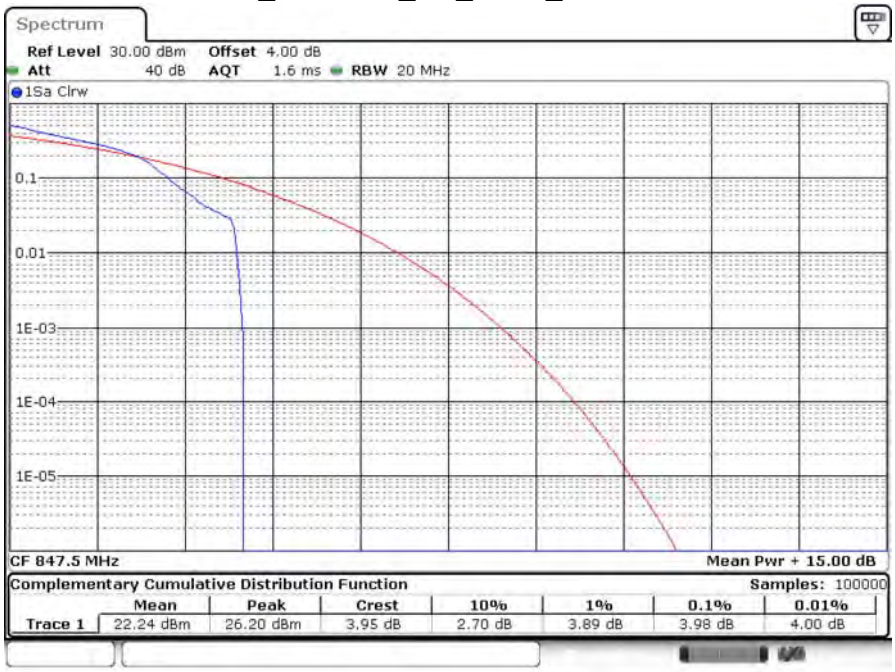
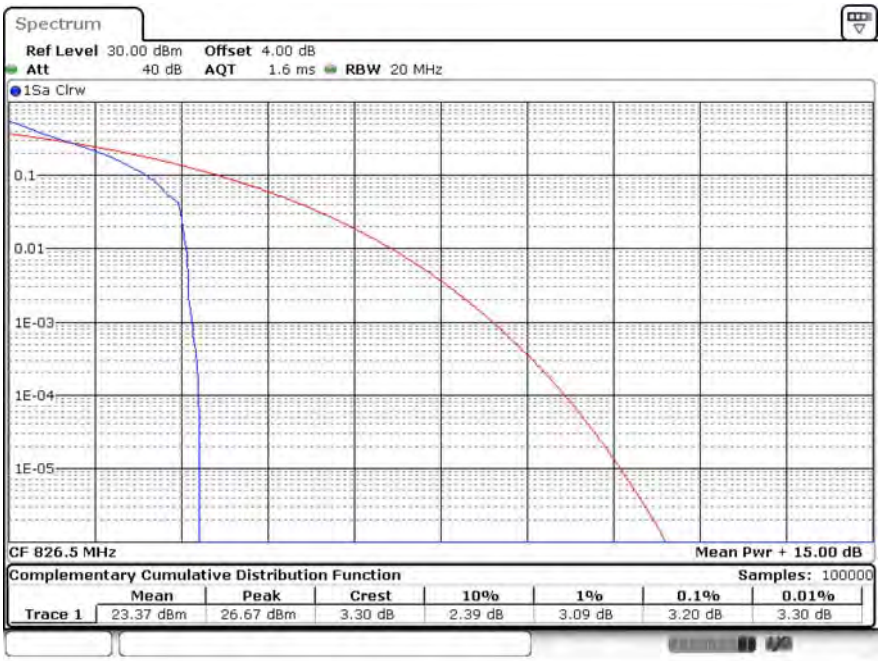
B5_CH20635_3M_1RB7_16-QAM



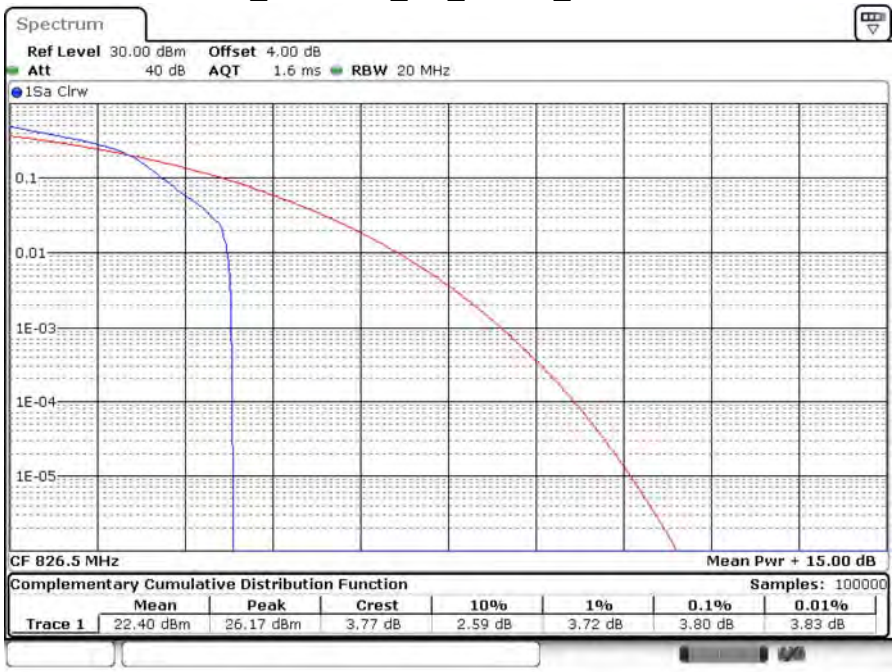
Date: 18.DEC.2019 13:55:30

B5_CH20425_5M_1RB12_QPSK



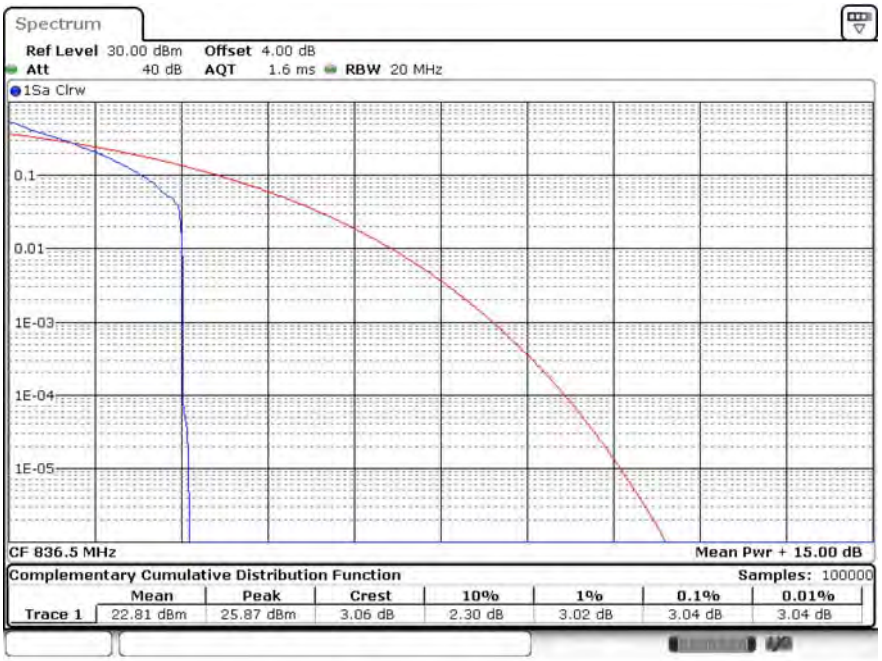
Date: 18.DEC.2019 14:02:50

B5_CH20425_5M_1RB12_16-QAM



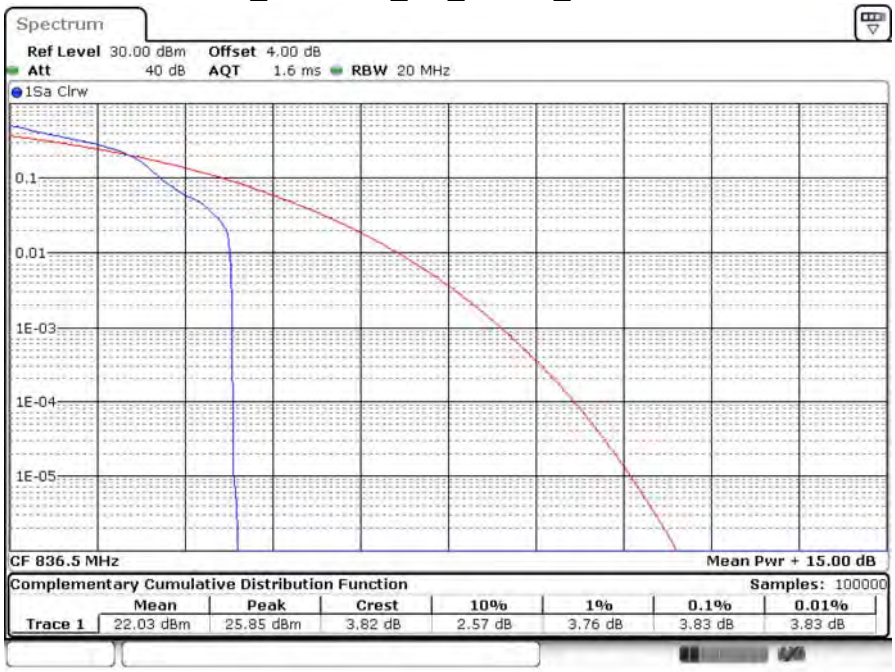
Date: 18.DEC.2019 14:03:09

B5_CH20525_5M_1RB12_QPSK



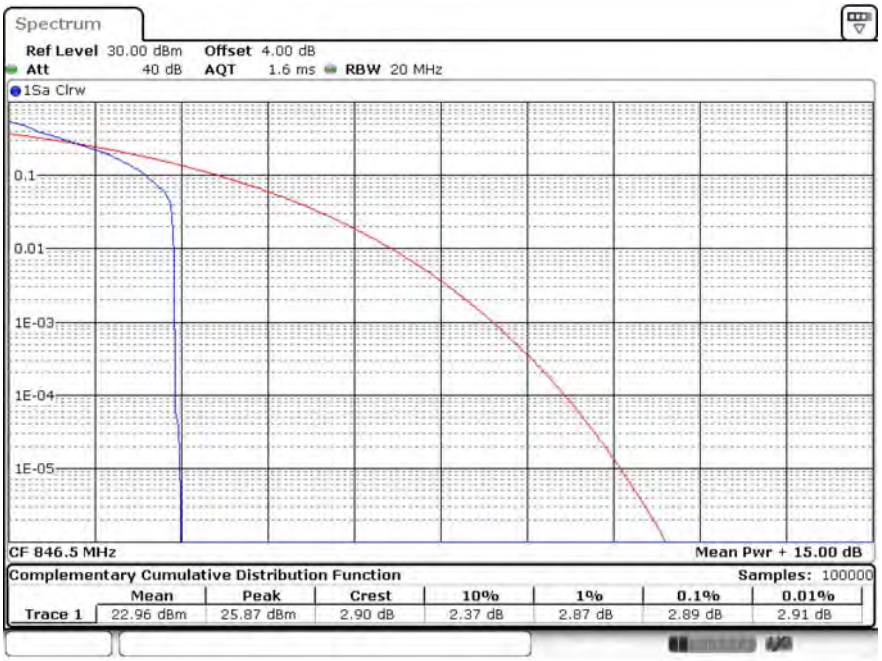
Date: 18.DEC.2019 14:01:50

B5_CH20525_5M_1RB12_16-QAM



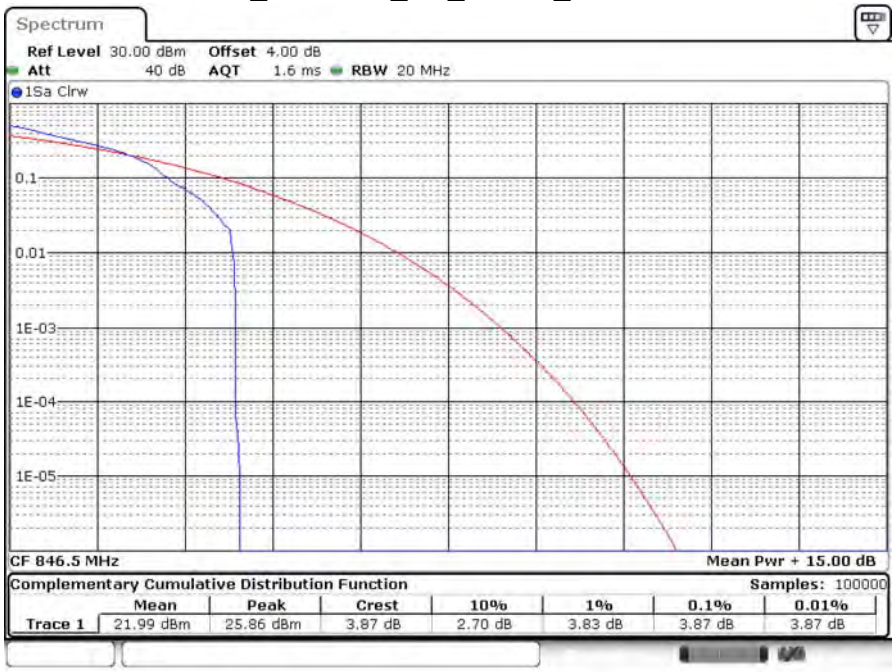
Date: 18.DEC.2019 14:01:19

B5_CH20625_5M_1RB12_QPSK



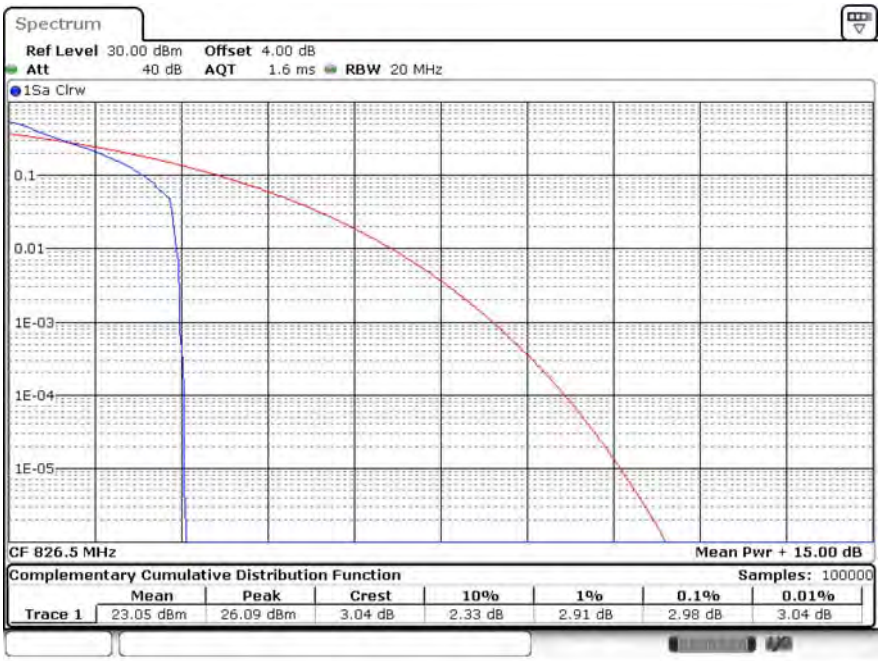
Date: 18.DEC.2019 13:59:19

B5_CH20625_5M_1RB12_16-QAM



Date: 18.DEC.2019 13:59:54

B5_CH20450_10M_1RB24_QPSK



Date: 18.DEC.2019 14:04:54

B5_CH20450_10M_1RB24_16-QAM

Date: 18.DEC.2019 14:05:11

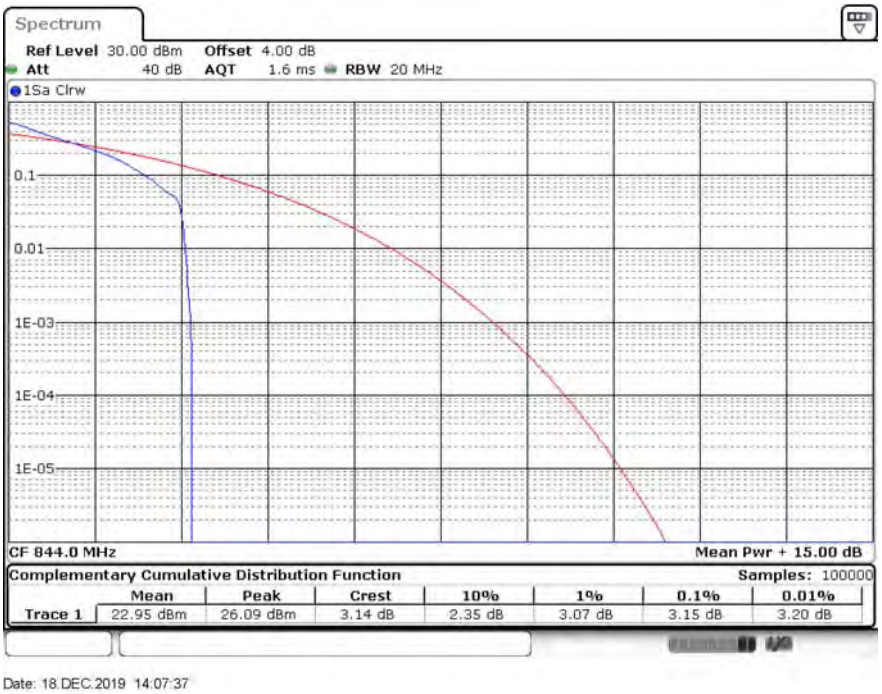
B5_CH20525_10M_1RB24_QPSK

Date: 18.DEC.2019 14:06:24

B5_CH20525_10M_1RB24_16-QAM

Date: 18.DEC.2019 14:06:35

B5_CH20600_10M_1RB24_QPSK



Date: 18.DEC.2019 14:07:37

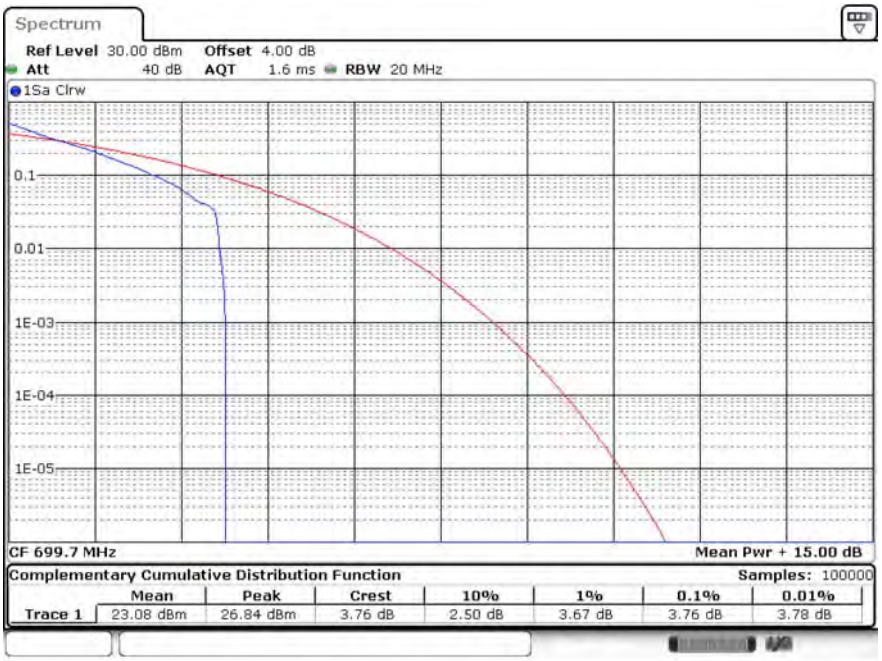
B5_CH20600_10M_1RB24_16-QAM

Date: 18.DEC.2019 14:07:26

Product	Module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2019/12/18	Test Site	SR12-H
Temperature (°C)	22.0°C	Humidity (%RH)	59%RH

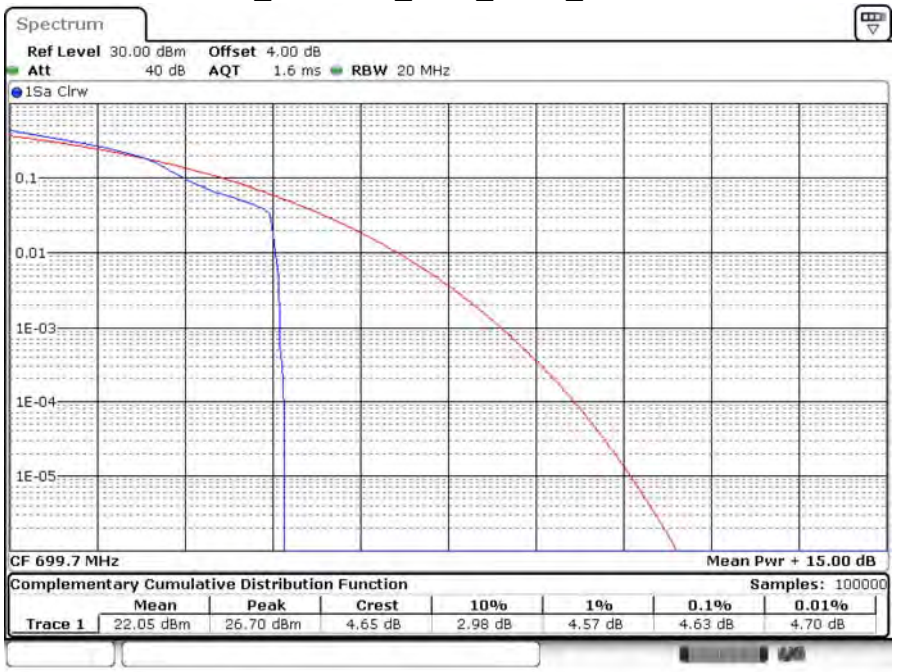
Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	23017	699.7	QPSK	26.84	23.08	3.76
			16-QAM	26.70	22.05	4.63
	23097	707.5	QPSK	26.09	22.63	3.48
			16-QAM	26.39	21.83	4.57
	23173	715.3	QPSK	25.60	22.59	3.00
			16-QAM	25.65	21.70	3.93
3M	23025	700.5	QPSK	26.23	22.58	3.70
			16-QAM	25.99	21.38	4.61
	23095	707.5	QPSK	25.81	22.30	3.54
			16-QAM	26.25	21.73	4.50
	23165	714.5	QPSK	25.43	22.44	3.02
			16-QAM	25.48	21.56	3.93
5M	23035	701.5	QPSK	25.86	22.28	3.57
			16-QAM	25.73	21.27	4.43
	23095	707.5	QPSK	25.98	22.43	3.54
			16-QAM	26.01	21.75	4.26
	23155	713.5	QPSK	25.89	22.50	3.46
			16-QAM	25.55	21.20	4.37
10M	23060	704	QPSK	25.98	22.81	3.20
			16-QAM	25.81	21.49	4.33
	23095	707.5	QPSK	26.05	22.44	3.61
			16-QAM	26.45	21.81	4.59
	23130	711	QPSK	26.30	22.54	3.76
			16-QAM	25.92	21.21	4.65

B12_CH23017_1.4M_1RB2_QPSK



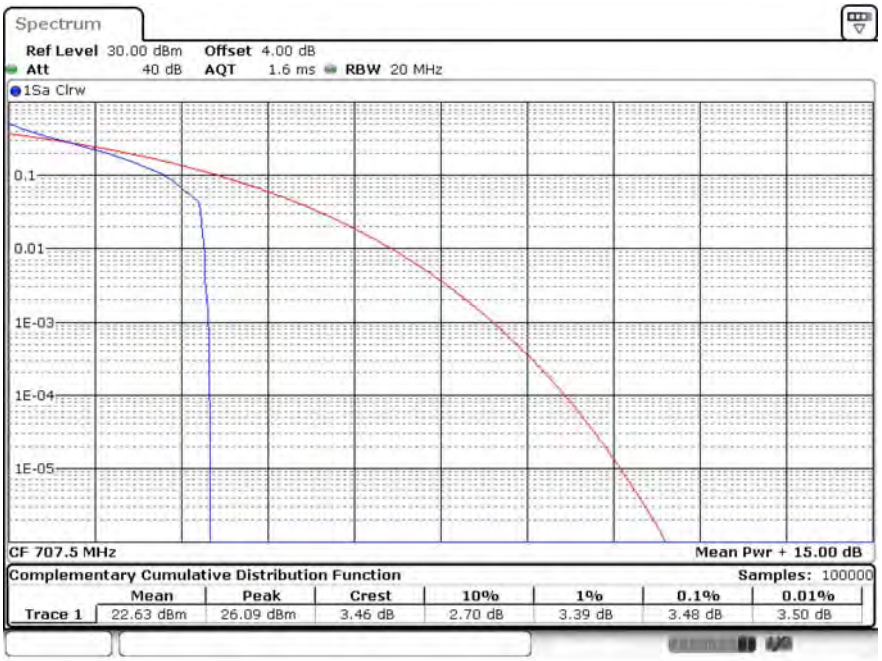
Date: 18.DEC.2019 14:21:38

B12_CH23017_1.4M_1RB2_16-QAM



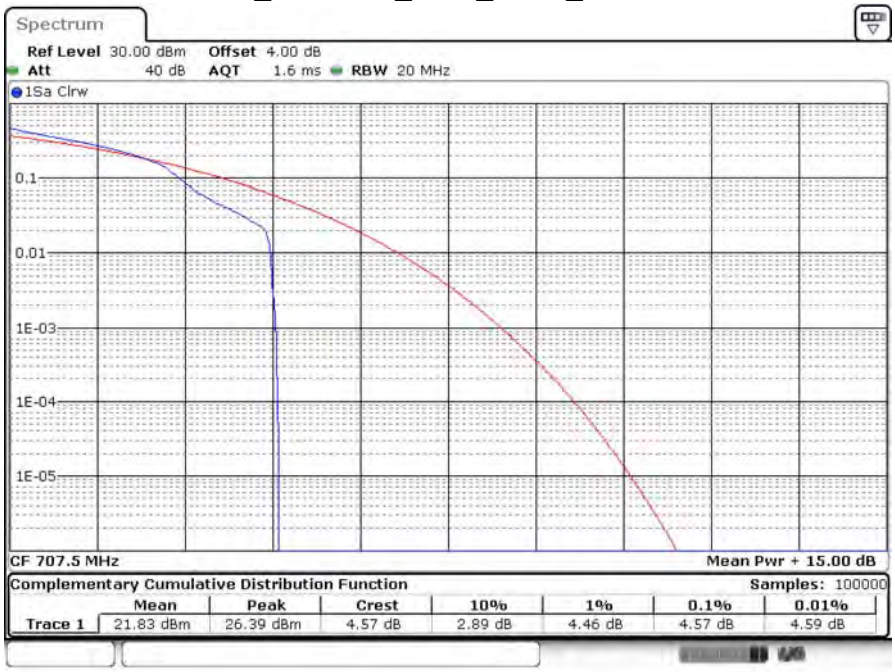
Date: 18.DEC.2019 14:22:16

B12_CH23097_1.4M_1RB2_QPSK



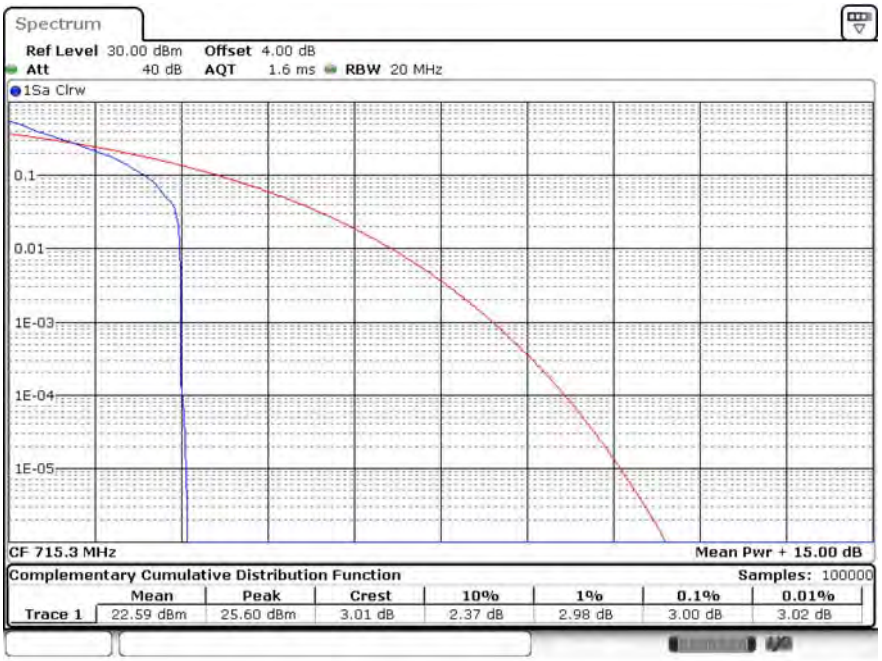
Date: 18.DEC.2019 14:24:05

B12_CH23097_1.4M_1RB2_16-QAM



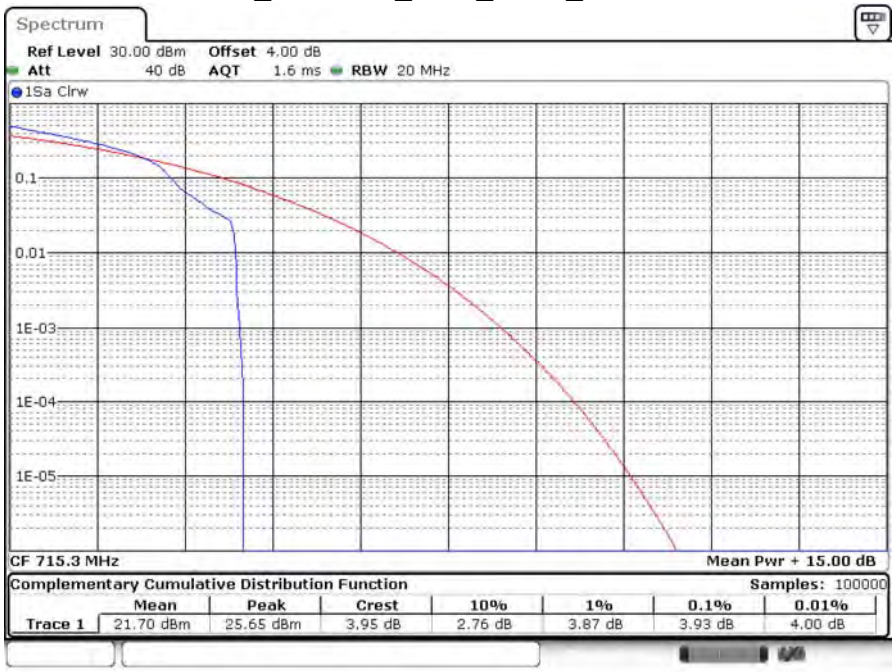
Date: 18.DEC.2019 14:23:35

B12_CH23173_1.4M_1RB2_QPSK



Date: 18.DEC.2019 14:25:35

B12_CH23173_1.4M_1RB2_16-QAM

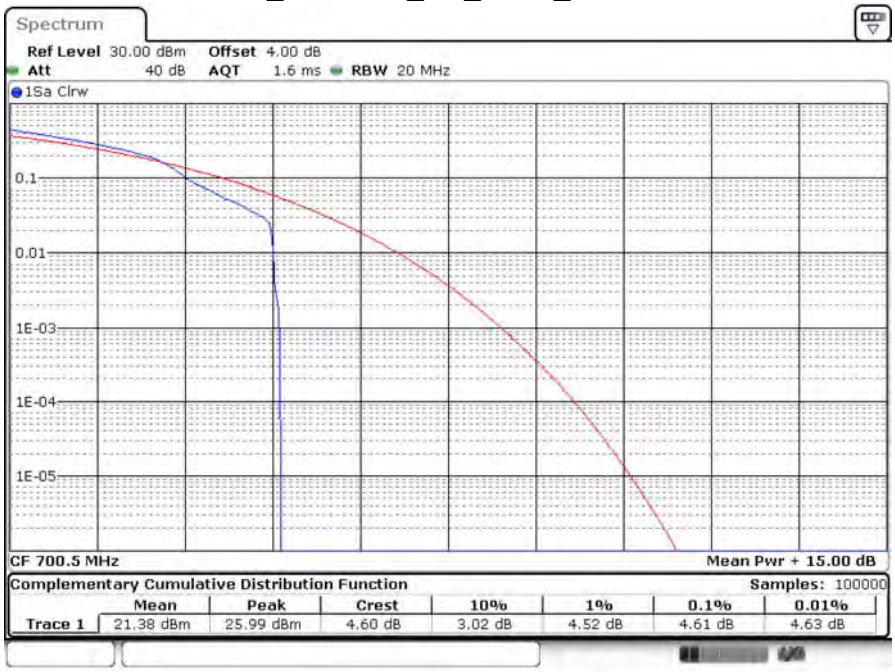


Date: 18.DEC.2019 14:25:44

B12_CH23025_3M_1RB7_QPSK

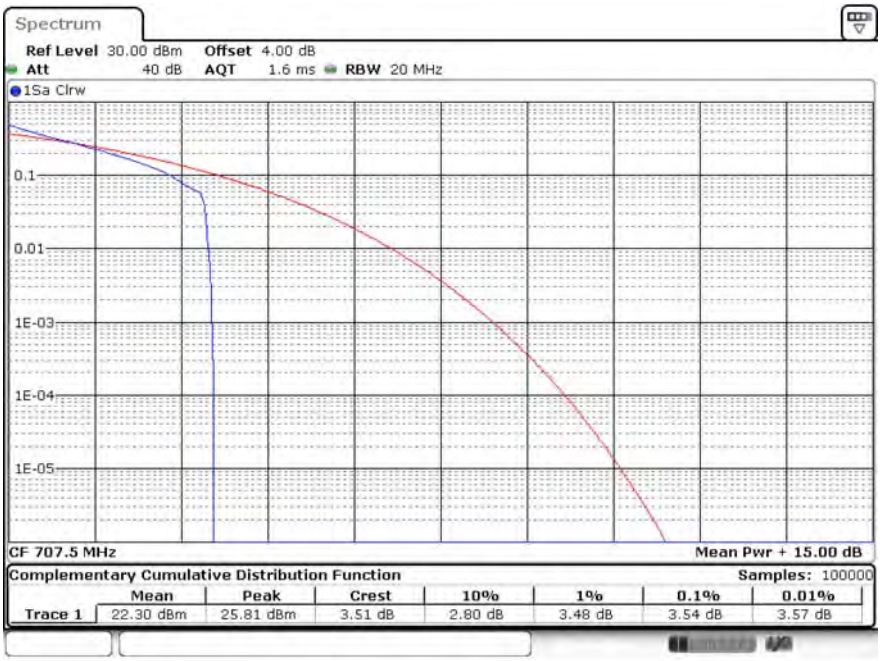
Date: 18.DEC.2019 14:29:49

B12_CH23025_3M_1RB7_16-QAM



Date: 18.DEC.2019 14:29:18

B12_CH23095_3M_1RB7_QPSK



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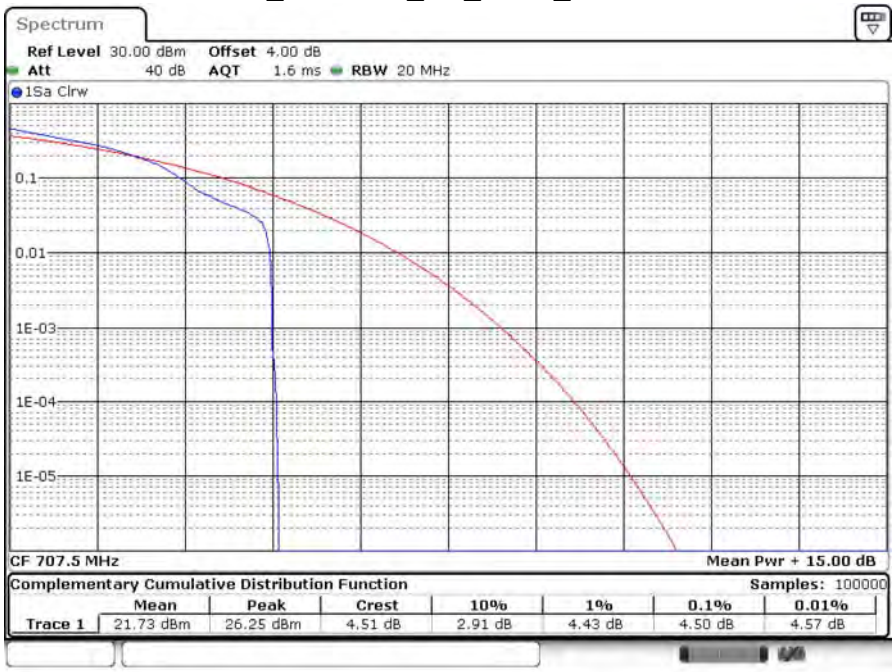
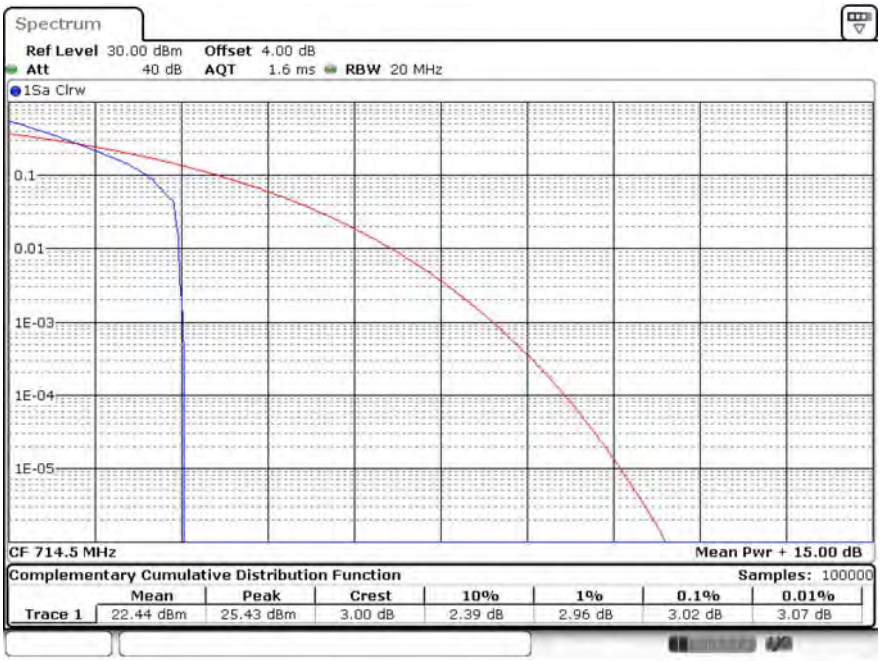
B12_CH23095_3M_1RB7_16-QAM



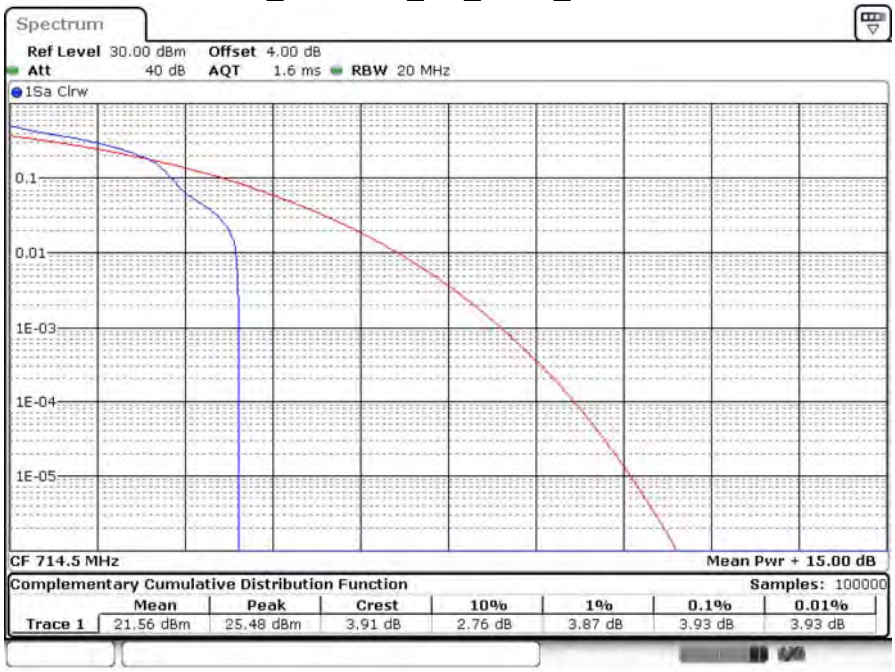
Date: 18.DEC.2019 14:56:54

B12_CH23165_3M_1RB7_QPSK



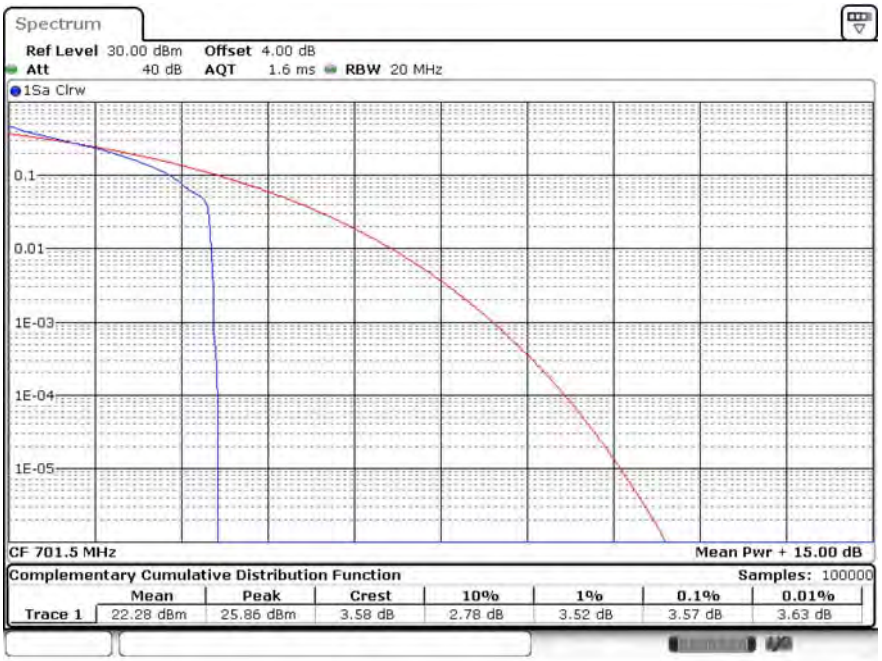
Date: 18.DEC.2019 15:03:28

B12_CH23165_3M_1RB7_16-QAM



Date: 18.DEC.2019 15:03:16

B12_CH23035_5M_1RB12_QPSK



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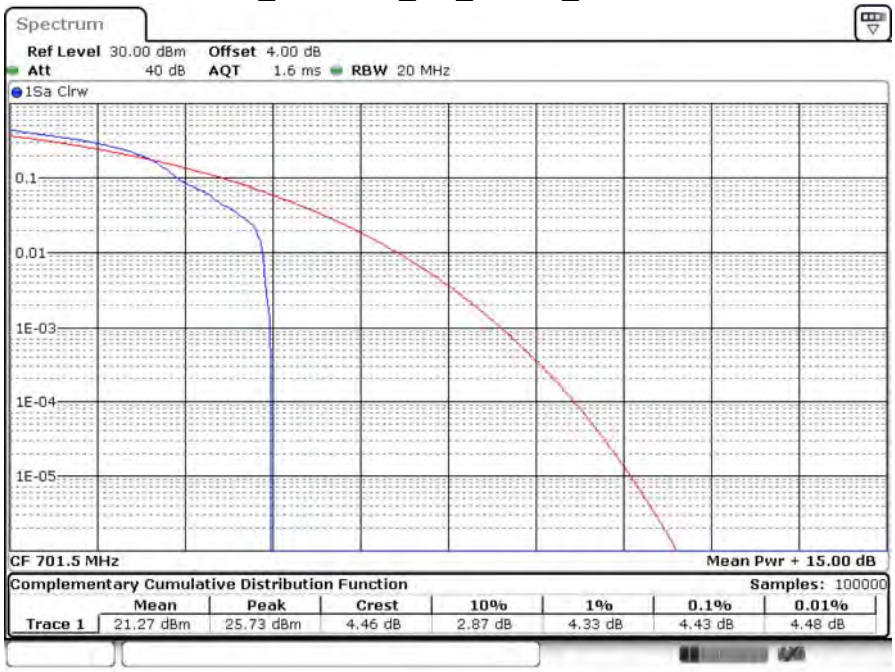
B12_CH23035_5M_1RB12_16-QAM

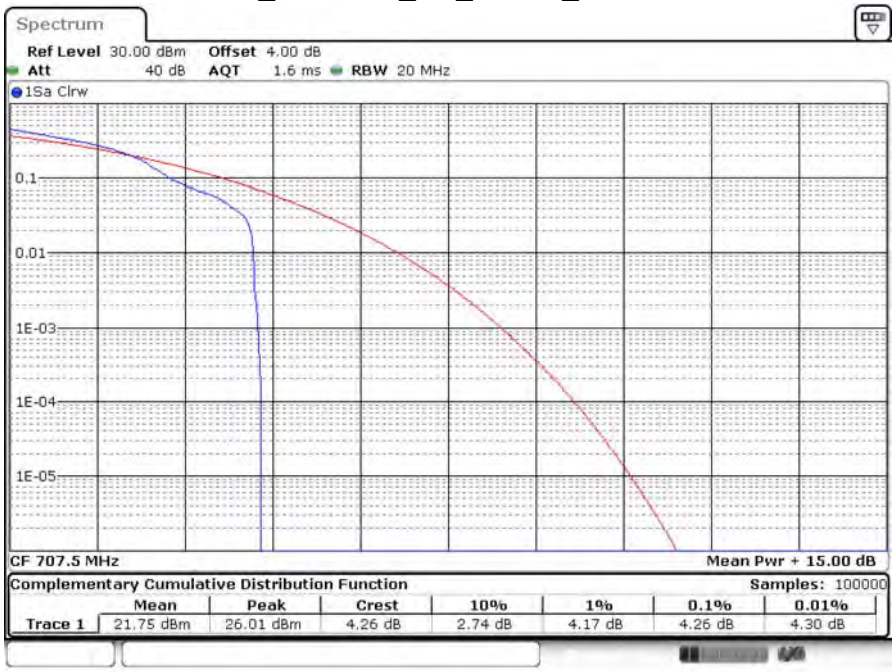


Date: 18.DEC.2019 15:19:07

B12_CH23095_5M_1RB12_QPSK

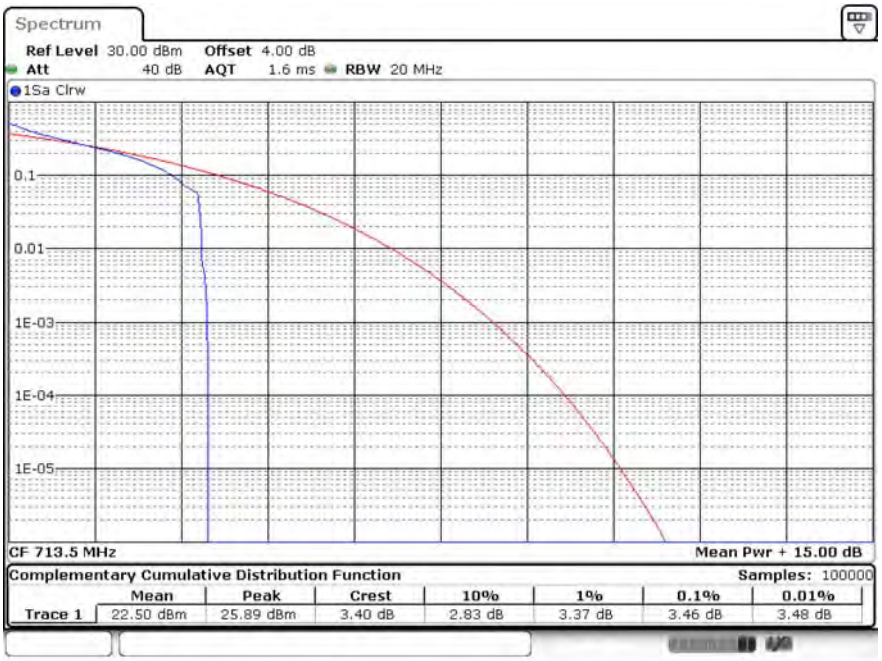
Date: 18.DEC.2019 15:20:45

B12_CH23095_5M_1RB12_16-QAM



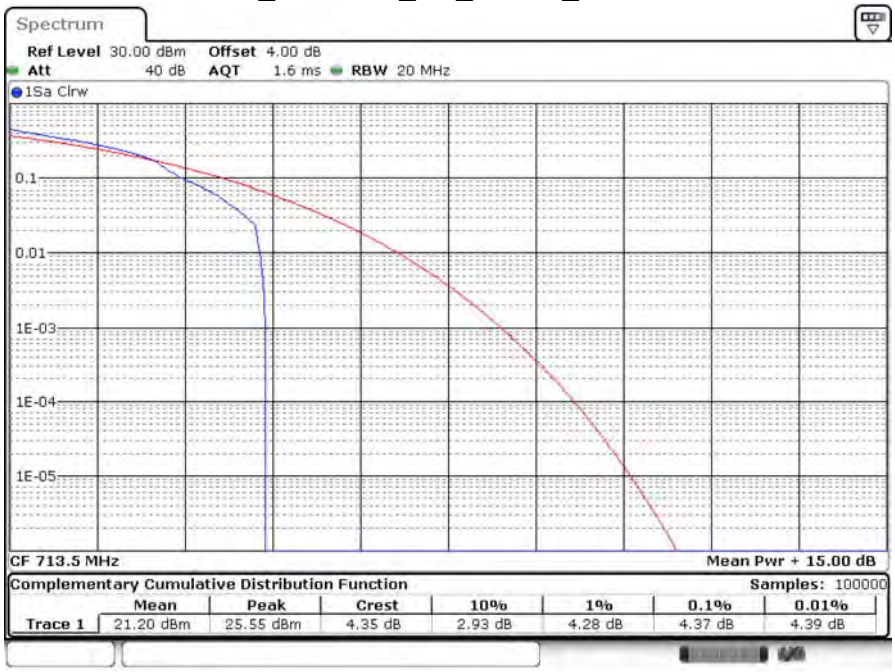
Date: 18.DEC.2019 15:21:07

B12_CH23155_5M_1RB12_QPSK



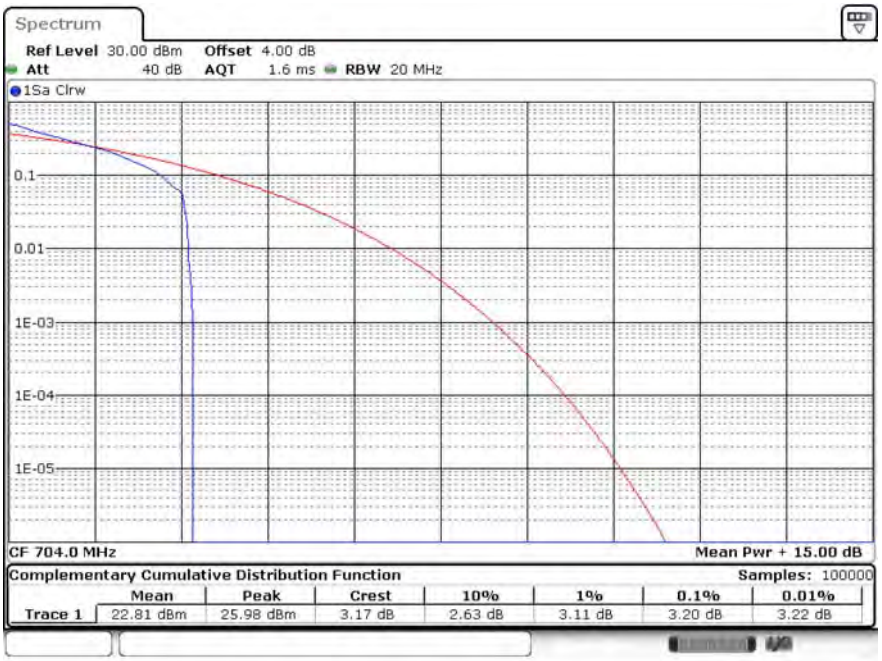
Date: 18.DEC.2019 15:23:31

B12_CH23155_5M_1RB12_16-QAM



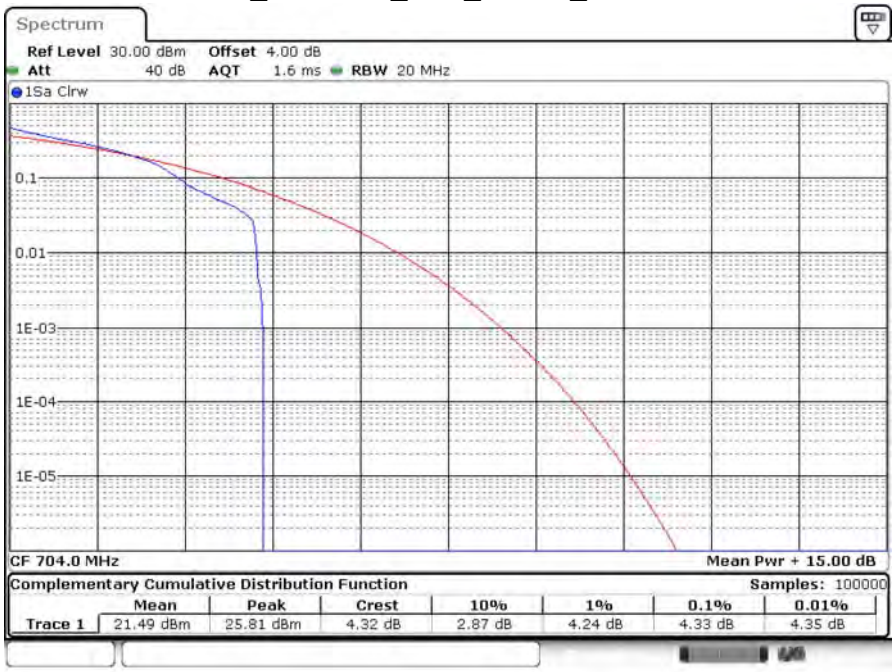
Date: 18.DEC.2019 15:23:04

B12_CH23060_10M_1RB24_QPSK



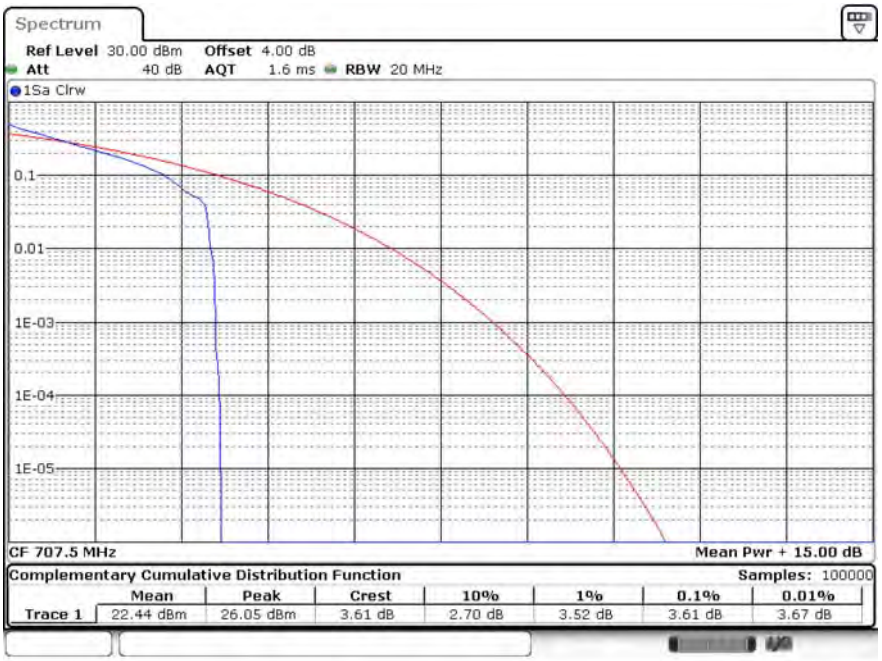
Date: 18.DEC.2019 15:27:32

B12_CH23060_10M_1RB24_16-QAM



Date: 18.DEC.2019 15:27:50

B12_CH23095_10M_1RB24_QPSK



Date: 18.DEC.2019 15:33:59

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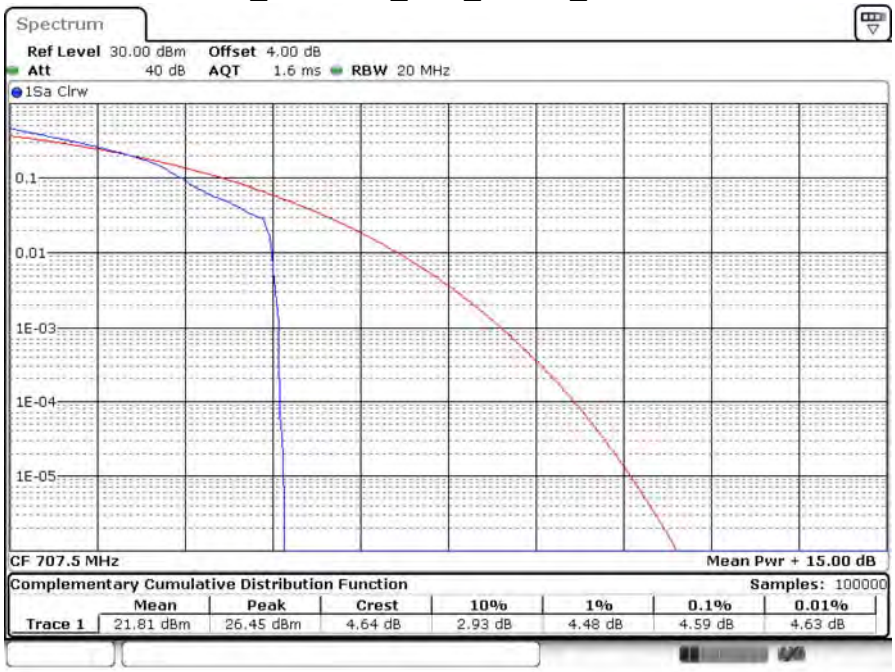
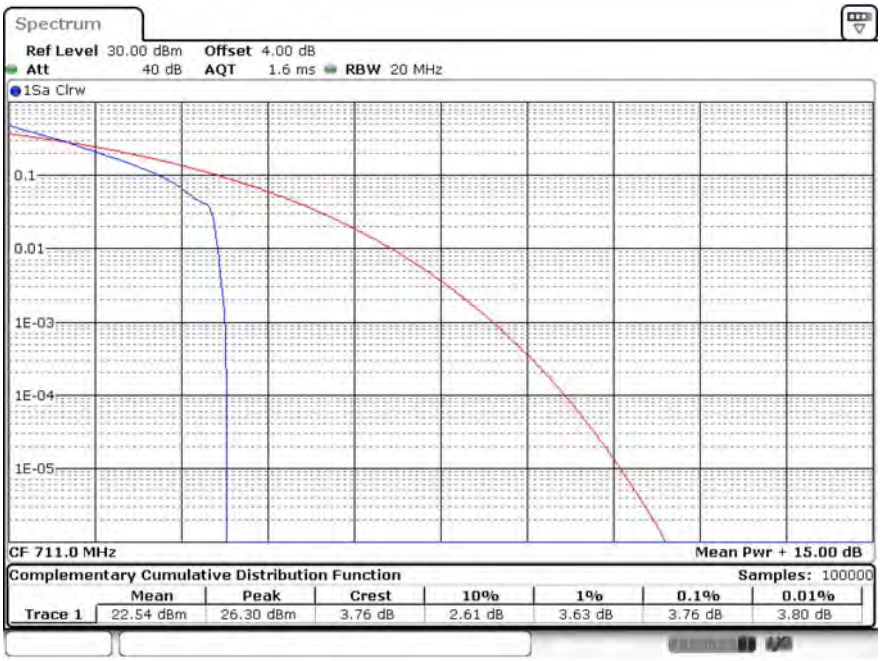


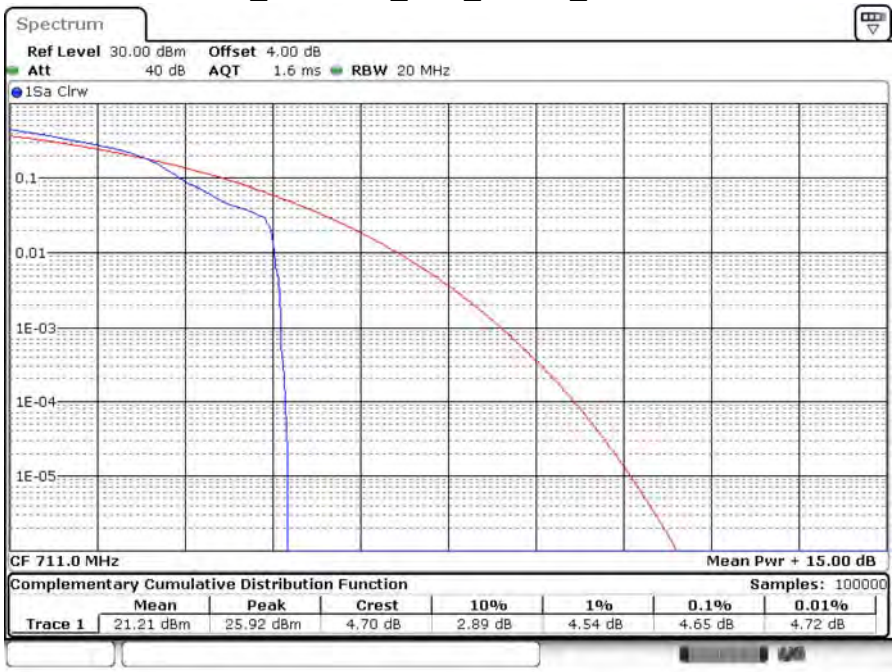
Date: 18.DEC.2019 15:33:49

B12_CH23130_10M_1RB24_QPSK



Date: 18.DEC.2019 15:34:16

B12_CH23130_10M_1RB24_16-QAM



Date: 18.DEC.2019 15:35:06

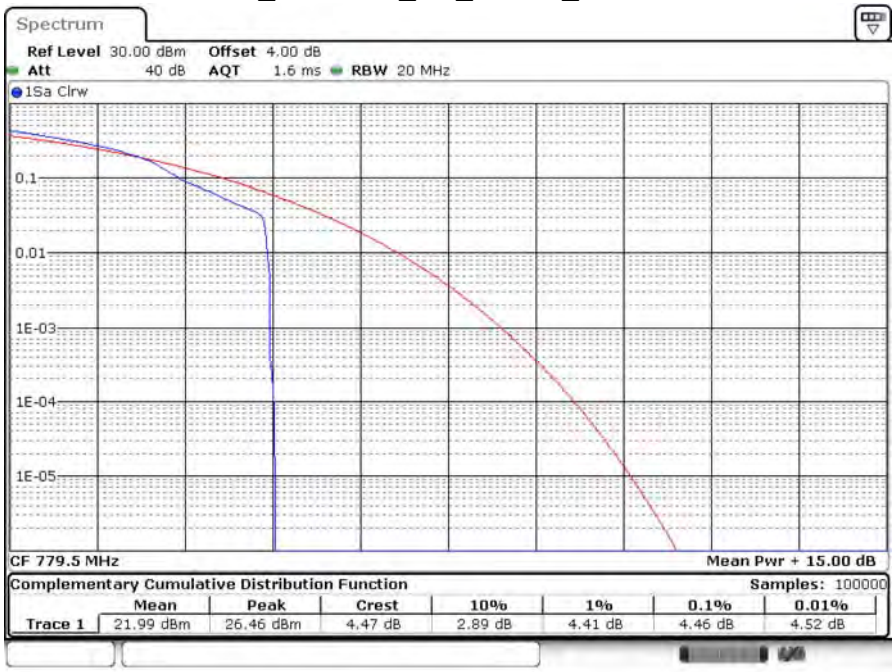
Product	Module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2019/12/18	Test Site	SR12-H
Temperature (°C)	22.0°C	Humidity (%RH)	59%RH

Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
5M	23205	779.5	QPSK	26.55	22.81	3.67
			16-QAM	26.46	21.99	4.46
	23230	782	QPSK	26.51	22.81	3.72
			16-QAM	26.82	22.33	4.48
	23255	784.5	QPSK	26.04	22.74	3.33
			16-QAM	26.03	22.08	3.91
10M	23230	782	QPSK	26.60	22.90	3.72
			16-QAM	26.25	21.92	4.33

B13_CH23205_5M_1RB12_QPSK

Date: 18.DEC.2019 15:45:47

B13_CH23205_5M_1RB12_16-QAM



Date: 18.DEC.2019 15:46:01