7.9 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

For Band 41, the minimum permissible attenuation level of any spurious emission is 55 + 10 $\log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

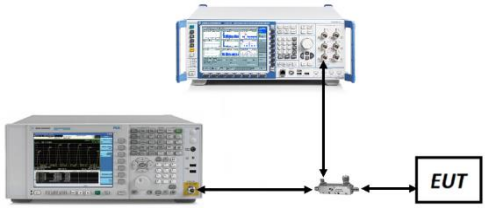

Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.

2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.

3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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Uplink CA Configuration 41 (PC2)

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	27.53
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	27.61
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	27.69

Table 7-5. Conducted Powers (B41 PC2 –20MHz + 20MHz Channel Bandwidth- PCC/SCC: 1RB)

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	41490	2680	QPSK	100	0	LTE B41	20	41292	2660.2	QPSK	100	0	25.96
Max	LTE B41	20	41490	2680	16-QAM	100	0	LTE B41	20	41292	2660.2	16-QAM	100	0	24.99
Max	LTE B41	20	41490	2680	64-QAM	100	0	LTE B41	20	41292	2660.2	64-QAM	100	0	24.14
Max	LTE B41	20	41490	2680	256-QAM	100	0	LTE B41	20	41292	2660.2	256-QAM	100	0	22.47

Table 7-6. Conducted Powers (B41 PC2 with Various Combinations for 20MHz + 20MHz Channel Bandwidth)

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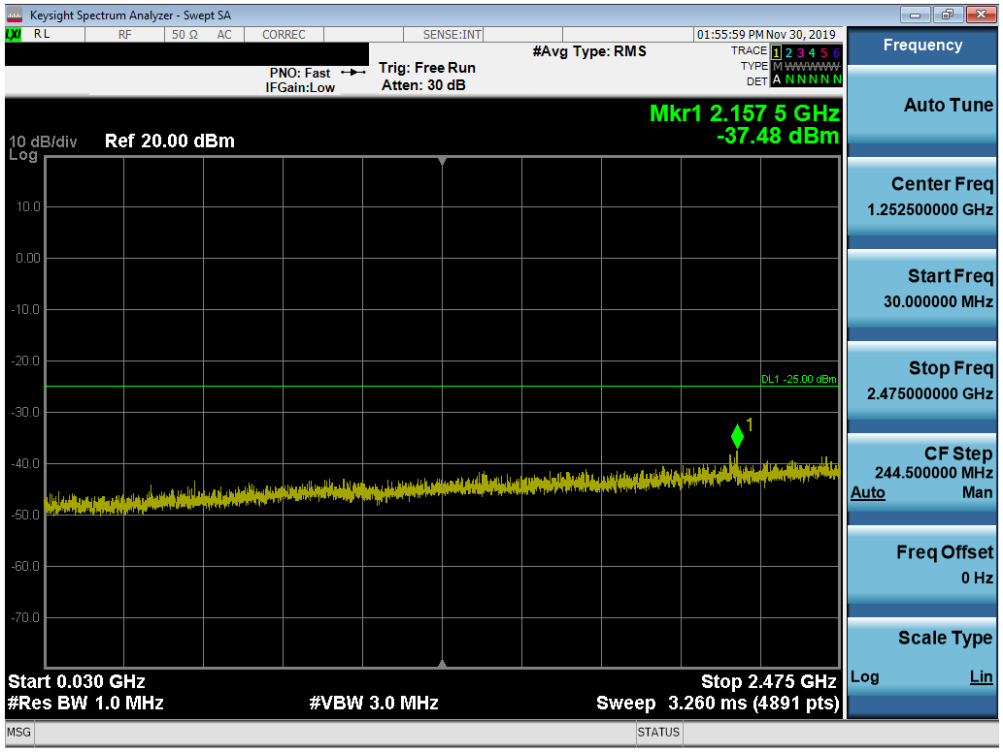
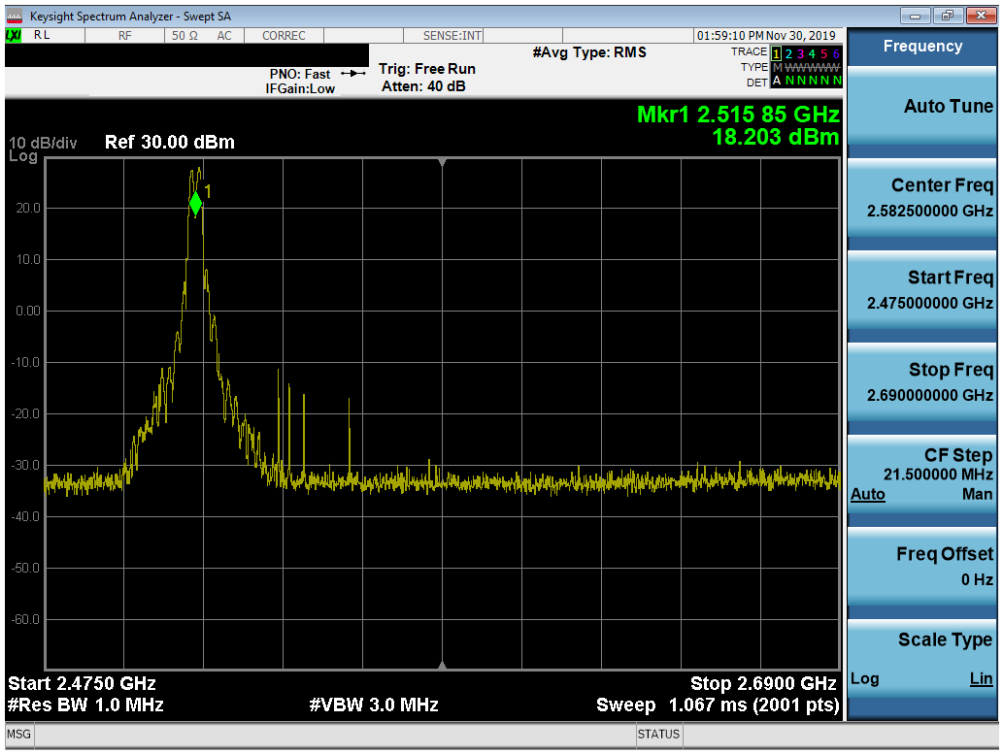


Plot 7-527. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



Plot 7-528. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

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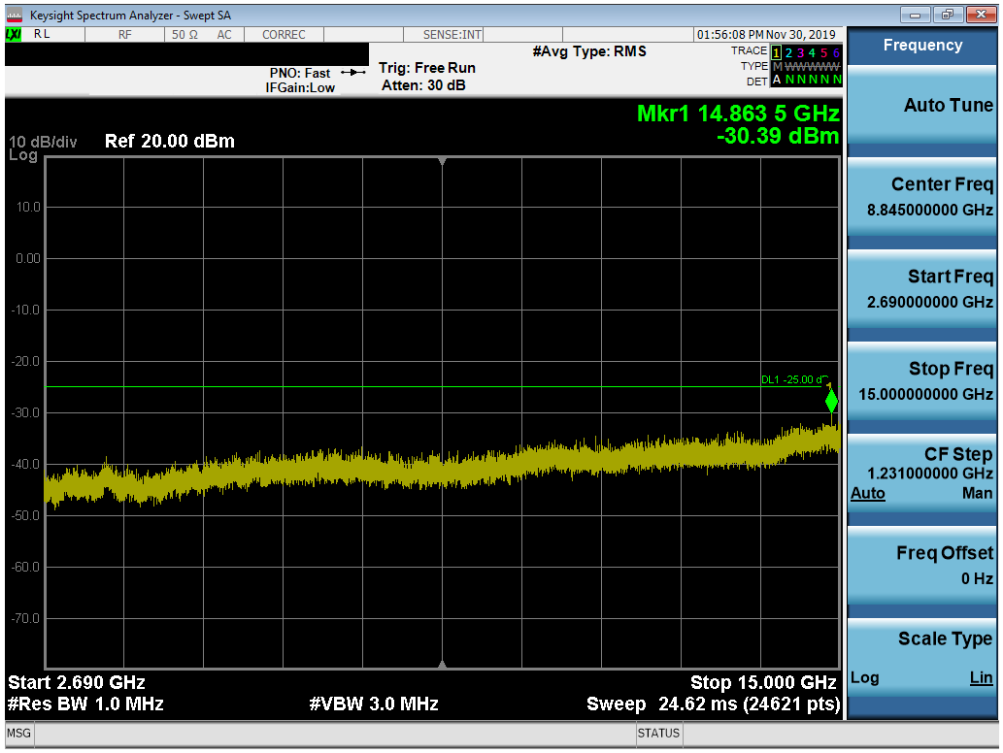
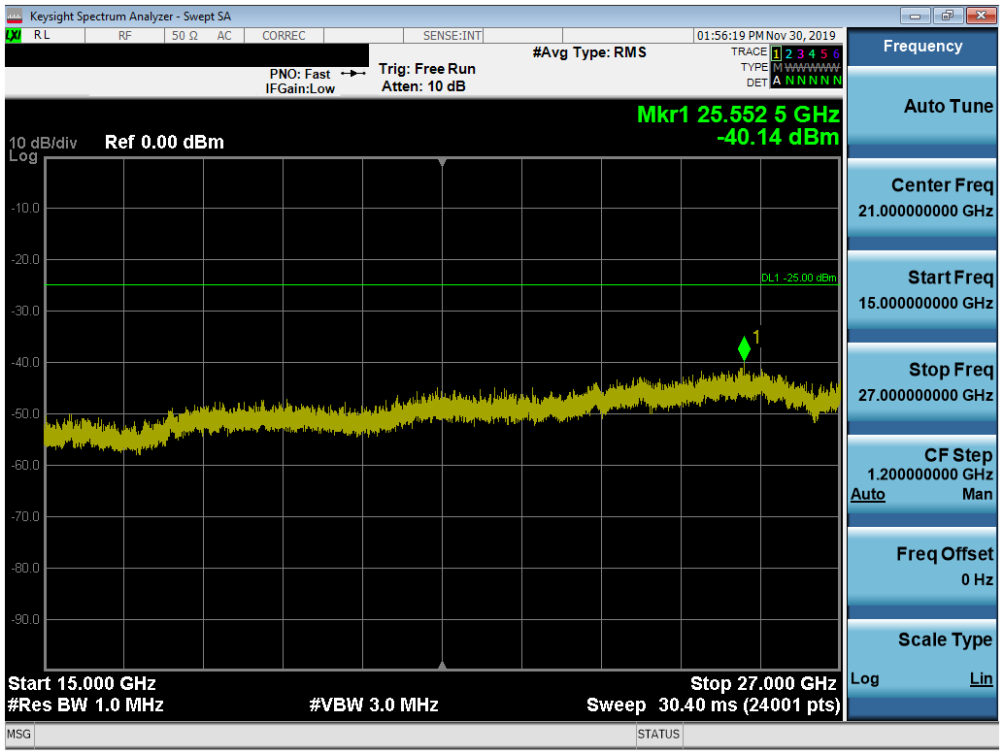


Plot 7-529. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



Plot 7-530. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

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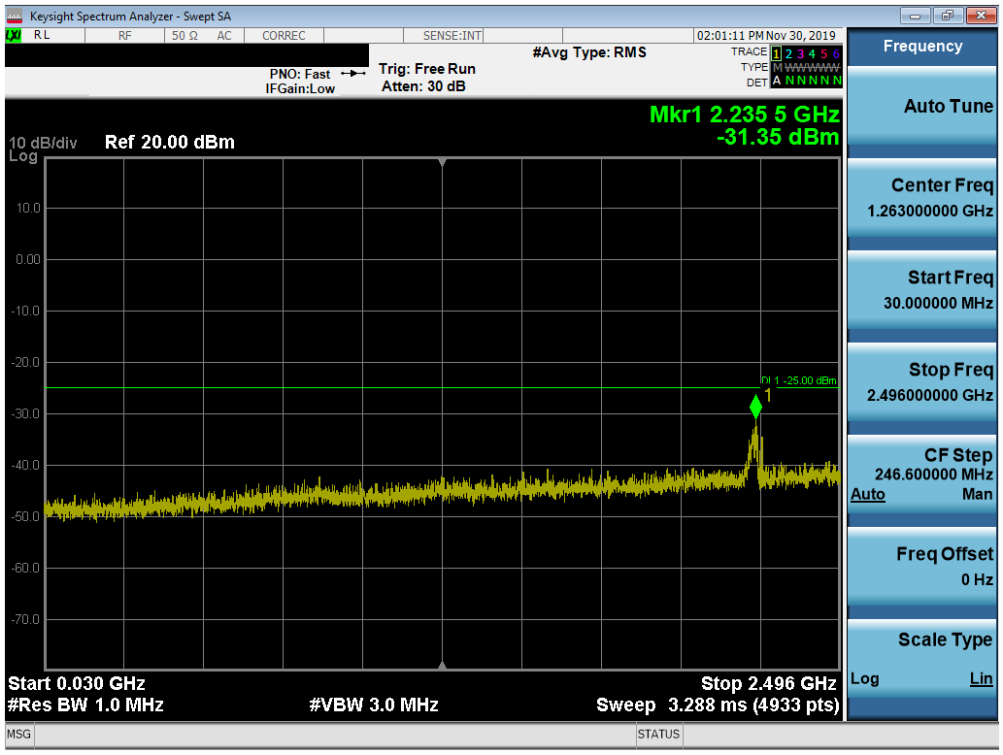

Table 7-531. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

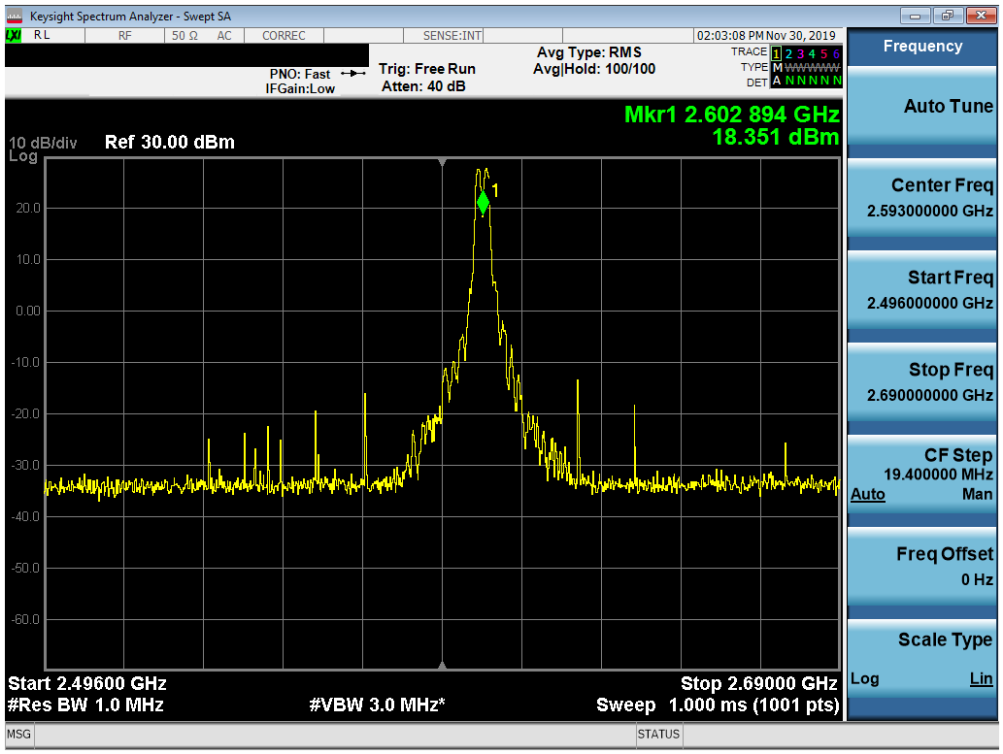

Table 7-532. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

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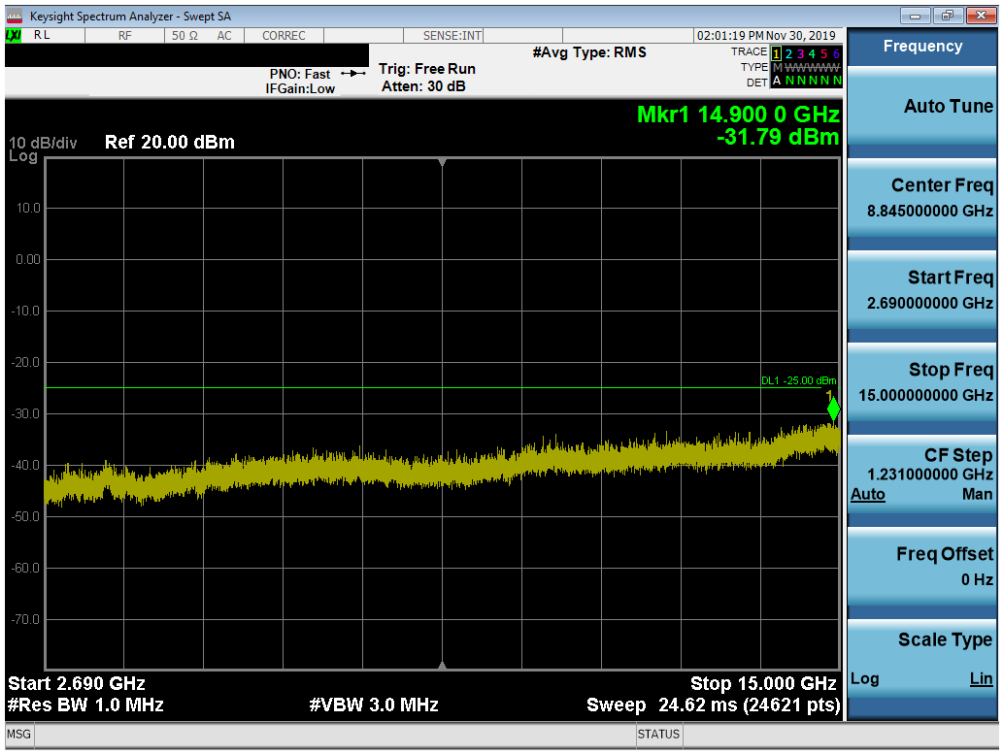

Table 7-533. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

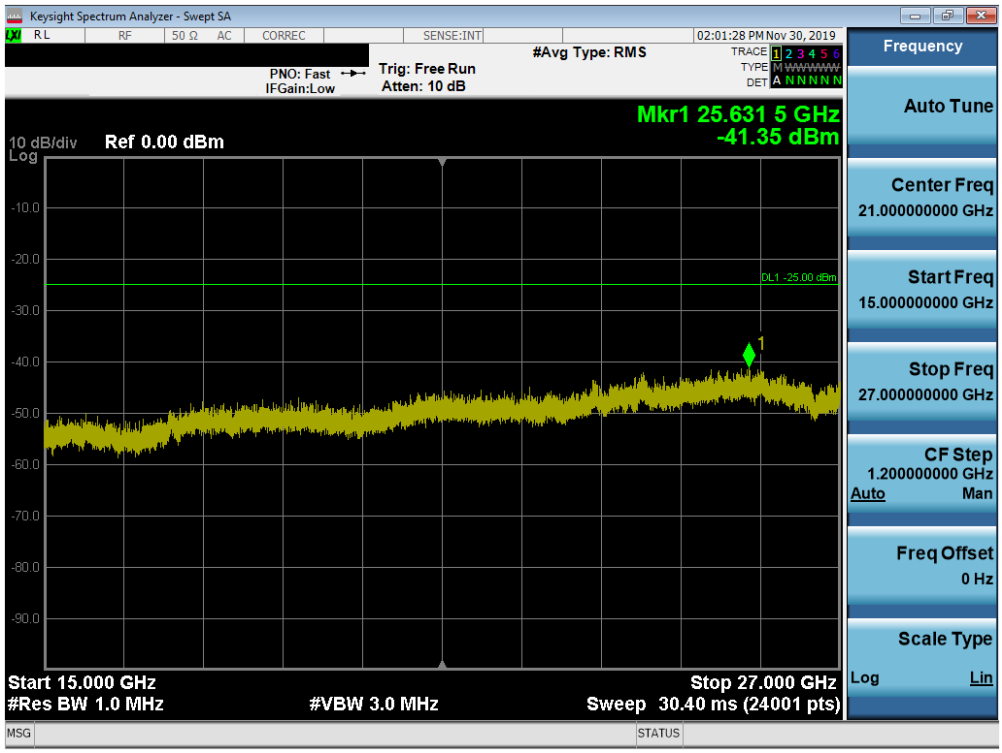

Table 7-534. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – Left Carrier 1/99 Right Carrier 1/0 – Mid Channel)

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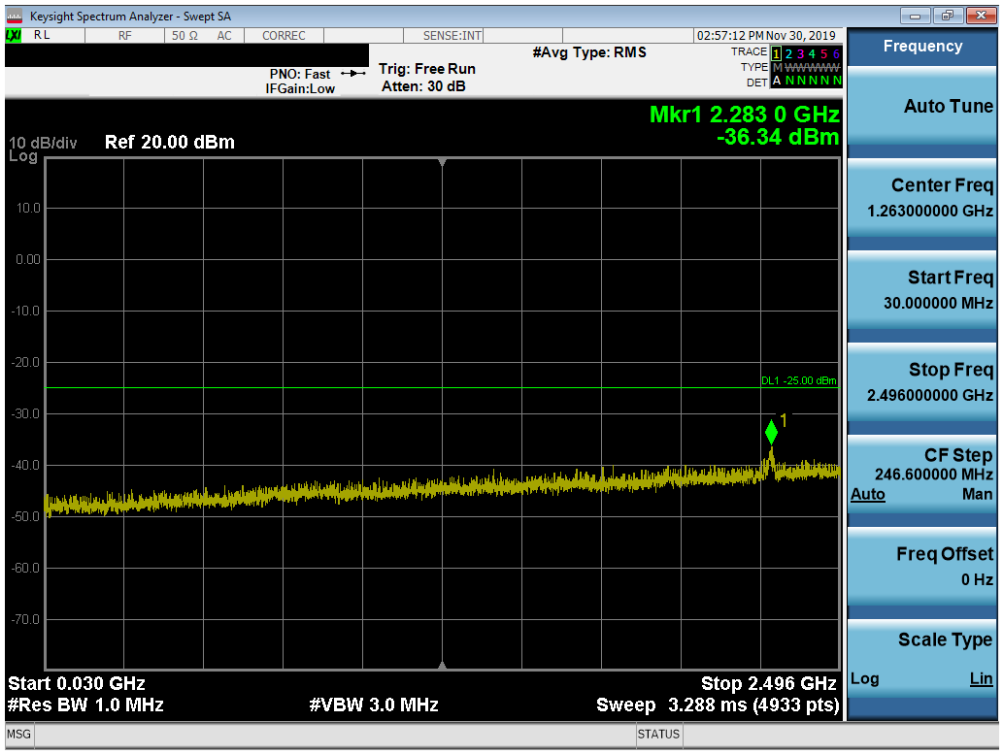
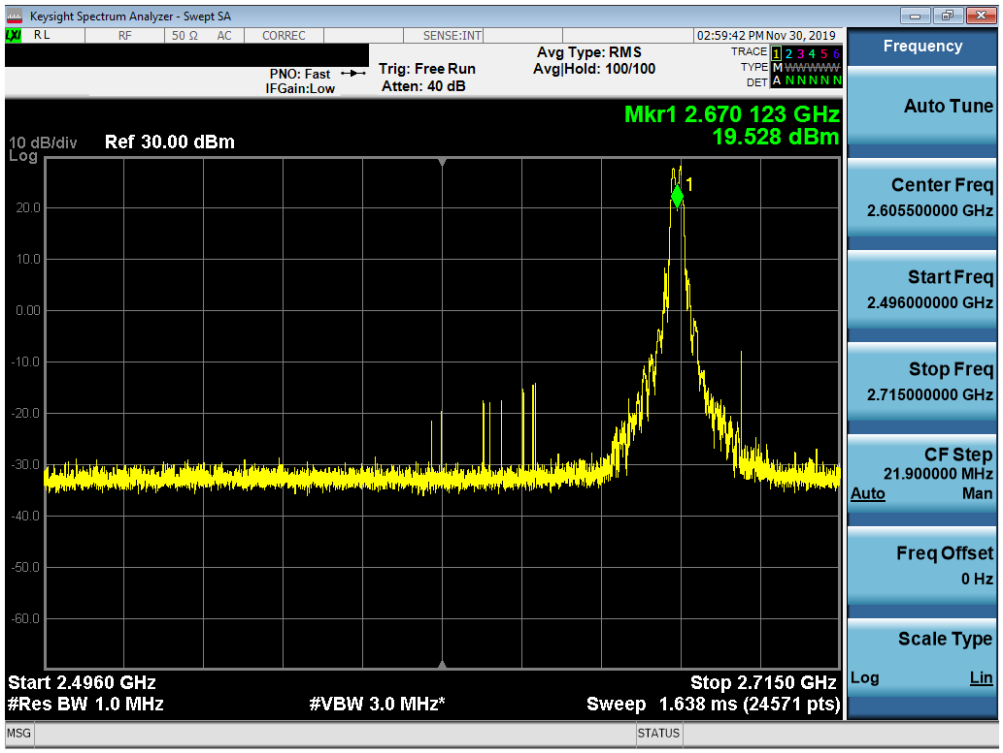


Plot 7-535. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)



Plot 7-536. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

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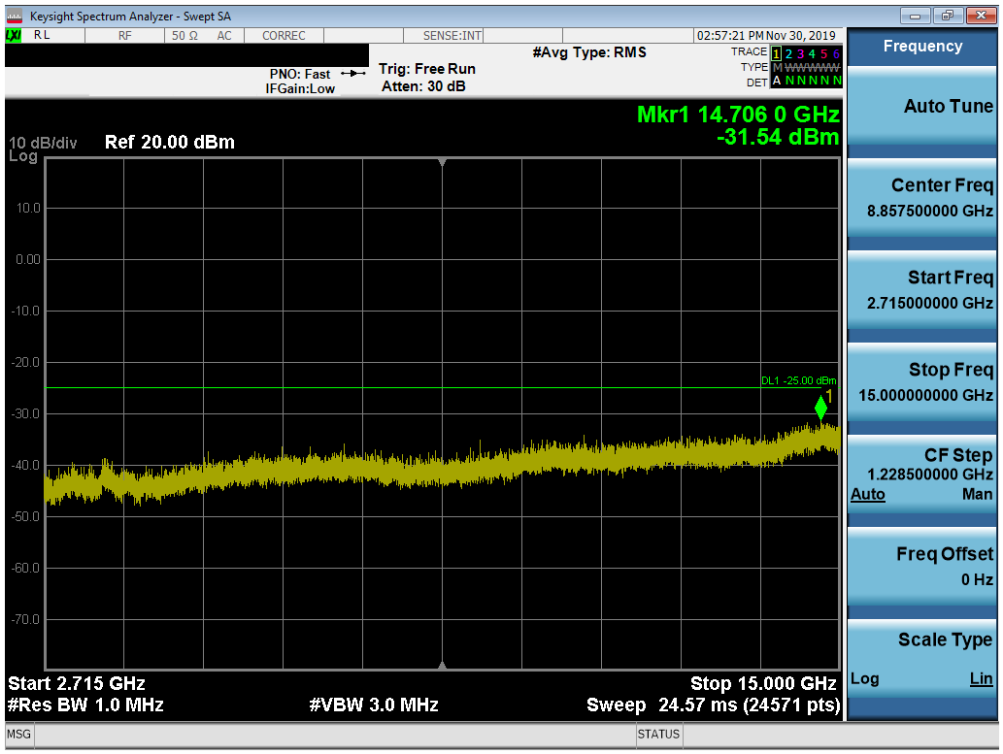
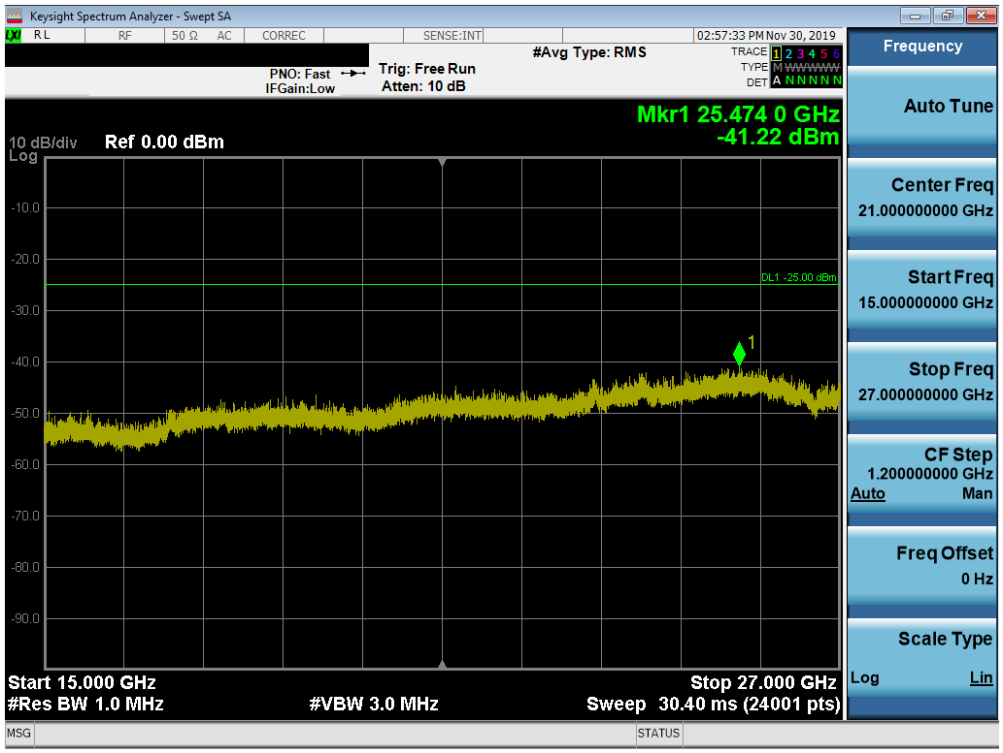


Plot 7-537. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)



Plot 7-538. Conducted Spurious Plot (Band 41 (PC2) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

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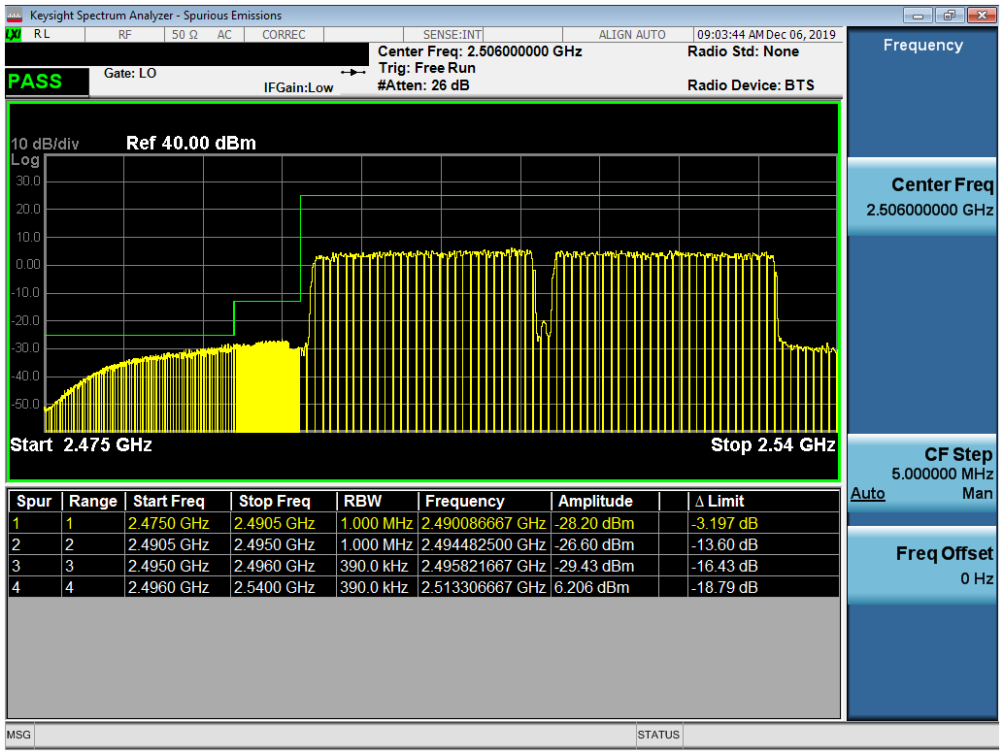
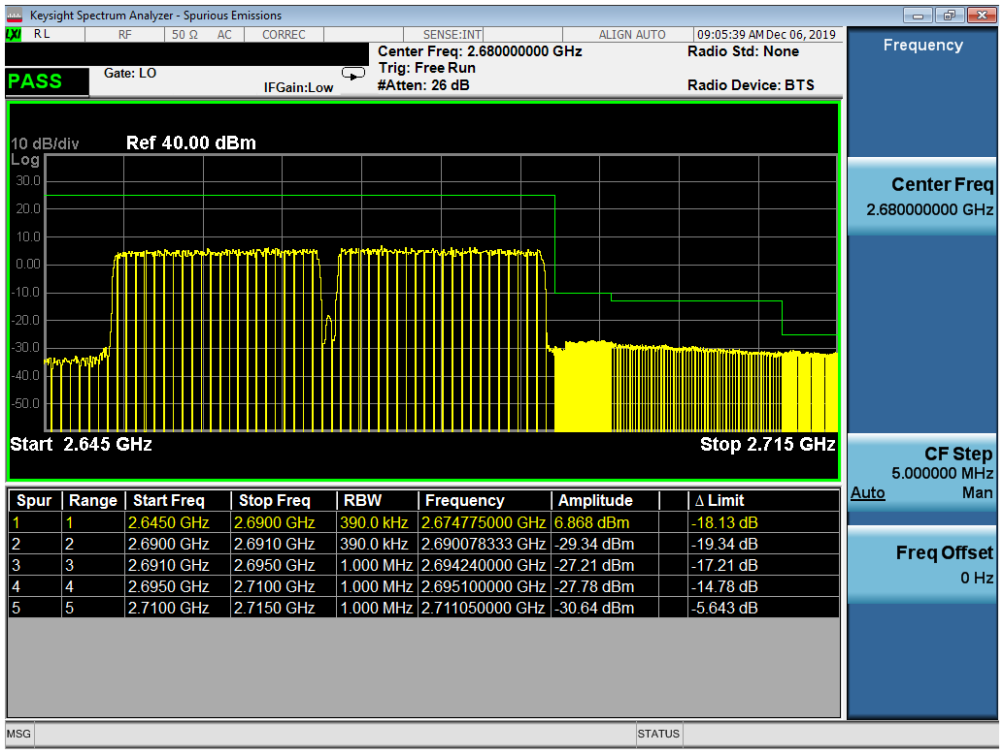


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490086667 GHz	-28.20 dBm	-3.197 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494482500 GHz	-26.60 dBm	-13.60 dB
3	3	2.4950 GHz	2.4960 GHz	390.0 kHz	2.495821667 GHz	-29.43 dBm	-16.43 dB
4	4	2.4960 GHz	2.5400 GHz	390.0 kHz	2.513306667 GHz	6.206 dBm	-18.79 dB

Plot 7-539. Lower ACP Plot (Band 41 (PC2) - QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6450 GHz	2.6900 GHz	390.0 kHz	2.674775000 GHz	6.868 dBm	-18.13 dB
2	2	2.6900 GHz	2.6910 GHz	390.0 kHz	2.690078333 GHz	-29.34 dBm	-19.34 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.694240000 GHz	-27.21 dBm	-17.21 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.695100000 GHz	-27.78 dBm	-14.78 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.711050000 GHz	-30.64 dBm	-5.643 dB

Plot 7-540. Upper ACP Plot (Band 41 (PC2) - QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

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7.7 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

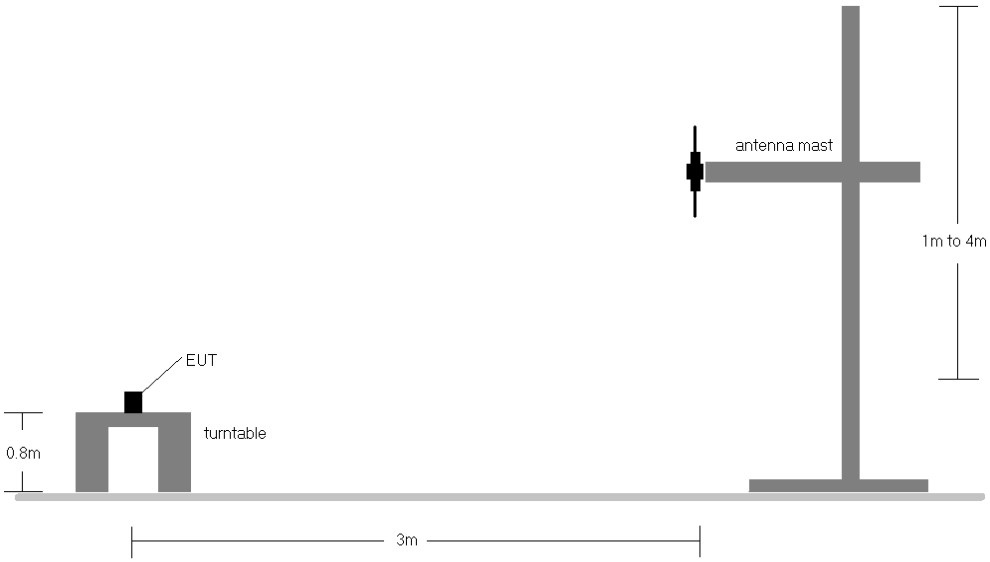

Figure 7-6. Radiated Test Setup <1GHz

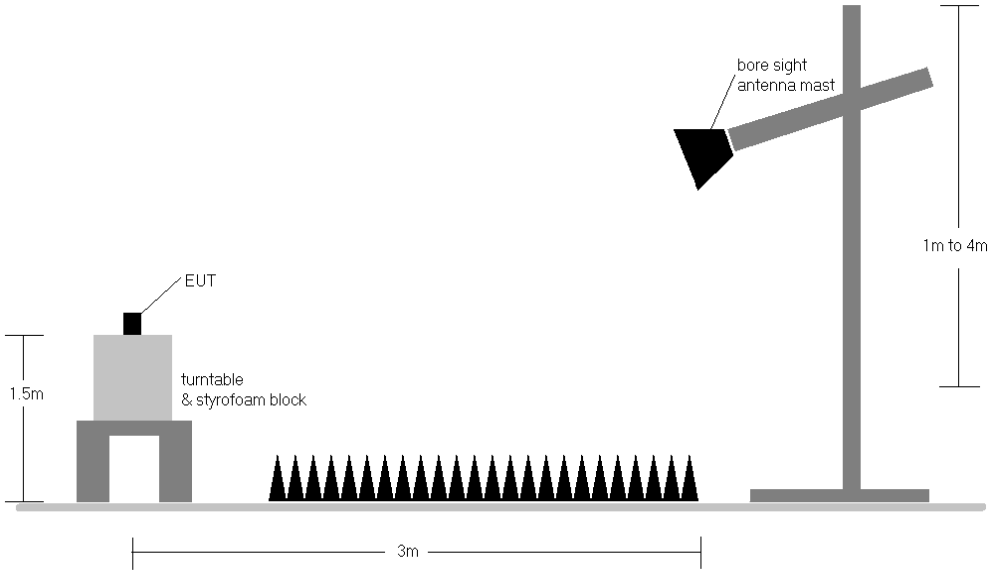

Figure 7-7. Radiated Test Setup >1GHz

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	179	360	1 / 24	16.58	3.75	18.18	0.066	34.77	-16.59
680.50	5	QPSK	V	180	358	1 / 0	16.12	4.20	18.17	0.066	34.77	-16.60
695.50	5	QPSK	V	170	349	1 / 0	15.99	4.50	**18.34**	0.068	34.77	-16.43
695.50	5	16-QAM	V	170	349	1 / 0	15.04	4.50	**17.39**	0.055	34.77	-17.38
695.50	5	64-QAM	V	170	349	1 / 0	14.16	4.50	**16.51**	0.045	34.77	-18.26
695.50	5	256-QAM	V	170	349	1 / 0	14.10	4.50	16.45	0.044	34.77	-18.32
668.00	10	QPSK	V	182	365	1 / 49	16.53	3.80	18.18	0.066	34.77	-16.59
680.50	10	QPSK	V	182	359	1 / 0	16.54	4.20	18.59	0.072	34.77	-16.18
693.00	10	QPSK	V	172	351	1 / 0	16.44	4.40	**18.69**	0.074	34.77	-16.08
693.00	10	16-QAM	V	172	351	1 / 0	15.99	4.40	**18.24**	0.067	34.77	-16.53
693.00	10	64-QAM	V	172	351	1 / 0	14.48	4.40	**16.73**	0.047	34.77	-18.04
693.00	10	256-QAM	V	172	351	1 / 0	14.03	4.40	16.28	0.042	34.77	-18.49
670.50	15	QPSK	V	181	360	1 / 74	16.48	3.90	18.23	0.067	34.77	-16.54
680.50	15	QPSK	V	184	362	1 / 0	16.53	4.20	18.58	0.072	34.77	-16.19
690.50	15	QPSK	V	170	355	1 / 0	16.54	4.40	**18.79**	**0.076**	34.77	-15.98
690.50	15	16-QAM	V	170	355	1 / 0	15.97	4.40	**18.22**	0.066	34.77	-16.55
690.50	15	64-QAM	V	170	355	1 / 0	14.65	4.40	**16.90**	0.049	34.77	-17.87
690.50	15	256-QAM	V	170	355	1 / 0	14.14	4.40	16.39	0.044	34.77	-18.38
673.00	20	QPSK	V	180	361	1 / 99	16.26	4.00	18.11	0.065	34.77	-16.66
680.50	20	QPSK	V	188	361	1 / 0	16.41	4.20	18.46	0.070	34.77	-16.31
688.00	20	QPSK	V	174	353	1 / 0	16.42	4.40	**18.67**	0.074	34.77	-16.10
688.00	20	16-QAM	V	174	353	1 / 0	15.67	4.40	**17.92**	0.062	34.77	-16.85
688.00	20	64-QAM	V	174	353	1 / 0	14.63	4.40	**16.88**	0.049	34.77	-17.89
688.00	20	256-QAM	V	174	353	1 / 0	14.14	4.40	**16.39**	**0.044**	34.77	-18.38
690.50	15	QPSK	H	188	361	1 / 0	15.43	3.30	16.58	0.045	34.77	-18.19
690.50	15 (WCP)	QPSK	V	284	369	1 / 0	11.60	4.40	13.85	0.024	34.77	-20.92

Table 7-7. ERP Data (Band 71)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	V	149	60	1 / 5	14.99	4.50	17.34	0.054	34.77	-17.43	19.49	0.089	36.99	-17.50
707.50	1.4	QPSK	V	140	47	1 / 0	15.10	4.60	**17.55**	0.057	34.77	-17.22	**19.70**	0.093	36.99	-17.29
715.30	1.4	QPSK	V	102	38	1 / 5	14.93	4.63	17.41	0.055	34.77	-17.36	19.56	0.090	36.99	-17.43
707.50	1.4	16-QAM	V	140	47	1 / 0	14.41	4.60	**16.86**	0.049	34.77	-17.91	**19.01**	0.080	36.99	-17.98
707.50	1.4	64-QAM	V	140	47	1 / 0	13.27	4.60	**15.72**	0.037	34.77	-19.05	**17.87**	0.061	36.99	-19.12
707.50	1.4	256-QAM	V	140	47	1 / 0	11.67	4.60	14.12	0.026	34.77	-20.65	16.27	0.042	36.99	-20.72
700.50	3	QPSK	V	151	58	1 / 14	15.04	4.55	17.44	0.055	34.77	-17.33	19.59	0.091	36.99	-17.40
707.50	3	QPSK	V	137	49	1 / 0	15.13	4.60	**17.58**	0.057	34.77	-17.19	**19.73**	0.094	36.99	-17.26
714.50	3	QPSK	V	100	40	1 / 14	14.94	4.60	17.39	0.055	34.77	-17.38	19.54	0.090	36.99	-17.45
707.50	3	16-QAM	V	137	49	1 / 0	14.49	4.60	16.94	0.049	34.77	-17.83	19.09	0.081	36.99	-17.90
707.50	3	64-QAM	V	137	49	1 / 0	13.28	4.60	**15.73**	0.037	34.77	-19.04	**17.88**	0.061	36.99	-19.11
707.50	3	256-QAM	V	137	49	1 / 0	11.80	4.60	14.25	0.027	34.77	-20.52	16.40	0.044	36.99	-20.59

Table 7-8. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	V	150	61	1 / 24	15.07	4.60	**17.52**	0.056	34.77	-17.25	**19.67**	0.093	36.99	-17.32
707.50	5	QPSK	V	134	48	1 / 0	14.97	4.60	17.42	0.055	34.77	-17.35	19.57	0.091	36.99	-17.42
713.50	5	QPSK	V	101	37	1 / 24	14.92	4.60	17.37	0.055	34.77	-17.40	19.52	0.090	36.99	-17.47
701.50	5	16-QAM	V	150	61	1 / 24	14.45	4.60	**16.90**	0.049	34.77	-17.87	**19.05**	0.080	36.99	-17.94
701.50	5	64-QAM	V	150	61	1 / 24	13.33	4.60	**15.78**	0.038	34.77	-18.99	**17.93**	0.062	36.99	-19.06
701.50	5	256-QAM	V	150	61	1 / 24	11.91	4.60	**14.36**	**0.027**	34.77	-20.41	**16.51**	**0.045**	36.99	-20.48
704.00	10	QPSK	V	147	59	1 / 49	15.02	4.50	17.37	0.055	34.77	-17.40	19.52	0.090	36.99	-17.47
707.50	10	QPSK	V	136	49	1 / 0	15.05	4.60	17.50	0.056	34.77	-17.27	19.65	0.092	36.99	-17.34
711.00	10	QPSK	V	100	35	1 / 49	15.22	4.60	**17.67**	**0.058**	34.77	-17.10	**19.82**	**0.096**	36.99	-17.17
711.00	10	16-QAM	V	100	35	1 / 49	14.62	4.60	**17.07**	0.051	34.77	-17.70	**19.22**	0.084	36.99	-17.77
711.00	10	64-QAM	V	100	35	1 / 49	13.50	4.60	**15.95**	0.039	34.77	-18.82	**18.10**	0.065	36.99	-18.89
711.00	10	256-QAM	V	100	35	1 / 49	12.80	4.60	**15.25**	**0.033**	34.77	-19.52	**17.40**	**0.055**	36.99	-19.59
711.00	10	QPSK	H	186	96	1 / 49	15.12	3.70	16.67	0.046	34.77	-18.10	18.82	0.076	36.99	-18.17
711.00	10 (WCP)	QPSK	V	399	367	1 / 49	8.59	4.60	11.04	0.013	34.77	-23.73	13.19	0.021	36.99	-23.80

Table 7-9. ERP Data (Band 12/17)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	147	90	1 / 24	12.79	5.70	16.34	0.043	34.77	-18.43	18.49	0.071	36.99	-18.50
782.00	5	QPSK	V	216	134	1 / 24	13.03	5.80	16.68	0.047	34.77	-18.09	18.83	0.076	36.99	-18.16
784.50	5	QPSK	V	155	105	1 / 24	13.45	5.80	**17.10**	**0.051**	34.77	-17.67	**19.25**	**0.084**	36.99	-17.74
784.50	5	16-QAM	V	155	105	1 / 24	12.91	5.80	**16.56**	0.045	34.77	-18.21	**18.71**	0.074	36.99	-18.28
784.50	5	64-QAM	V	155	105	1 / 24	11.75	5.80	**15.40**	0.035	34.77	-19.37	**17.55**	0.057	36.99	-19.44
784.50	5	256-QAM	V	155	105	1 / 24	10.77	5.80	**14.42**	**0.028**	34.77	-20.35	**16.57**	**0.045**	36.99	-20.42
782.00	10	QPSK	V	208	124	1 / 0	13.15	5.80	**16.80**	0.048	34.77	-17.97	**18.95**	0.079	36.99	-18.04
782.00	10	16-QAM	V	208	124	1 / 0	12.51	5.80	**16.16**	0.041	34.77	-18.61	**18.31**	0.068	36.99	-18.68
782.00	10	64-QAM	V	208	124	1 / 0	11.44	5.80	**15.09**	0.032	34.77	-19.68	**17.24**	0.053	36.99	-19.75
782.00	10	256-QAM	V	208	124	1 / 0	10.58	5.80	**14.23**	**0.026**	34.77	-20.54	**16.38**	**0.043**	36.99	-20.61
784.50	5	QPSK	H	250	97	1 / 24	12.21	5.80	15.86	0.039	34.77	-18.91	18.01	0.063	36.99	-18.98
784.50	5 (WCP)	QPSK	V	268	87	1 / 24	5.57	5.80	9.22	0.008	34.77	-25.55	11.37	0.014	36.99	-25.62

Table 7-10. ERP Data (Band 13)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	145	39	1 / 5	11.42	6.30	15.57	0.036	38.45	-22.88	17.72	0.059	40.61	-22.89
836.50	1.4	QPSK	V	152	46	1 / 5	11.32	6.40	15.57	0.036	38.45	-22.88	17.72	0.059	40.61	-22.89
848.30	1.4	QPSK	V	140	42	1 / 0	11.27	6.50	**15.62**	0.036	38.45	-22.83	**17.77**	0.060	40.61	-22.84
848.30	1.4	16-QAM	V	140	42	1 / 0	10.78	6.50	15.13	0.033	38.45	-23.32	17.28	0.053	40.61	-23.33
848.30	1.4	64-QAM	V	140	42	1 / 0	9.40	6.50	13.75	0.024	38.45	-24.70	15.90	0.039	40.61	-24.71
848.30	1.4	256-QAM	V	140	42	1 / 0	8.75	6.50	**13.10**	**0.020**	38.45	-25.35	**15.25**	**0.033**	40.61	-25.36
825.50	3	QPSK	V	143	42	1 / 14	11.44	6.30	15.59	0.036	38.45	-22.86	17.74	0.059	40.61	-22.87
836.50	3	QPSK	V	150	41	1 / 14	11.42	6.40	15.67	0.037	38.45	-22.78	17.82	0.061	40.61	-22.79
847.50	3	QPSK	V	138	48	1 / 0	11.47	6.50	**15.82**	0.038	38.45	-22.63	**17.97**	0.063	40.61	-22.64
847.50	3	16-QAM	V	138	48	1 / 0	10.99	6.50	**15.34**	0.034	38.45	-23.11	**17.49**	0.056	40.61	-23.12
847.50	3	64-QAM	V	138	48	1 / 0	9.16	6.50	13.51	0.022	38.45	-24.94	15.66	0.037	40.61	-24.95
847.50	3	256-QAM	V	138	48	1 / 0	8.82	6.50	**13.17**	**0.021**	38.45	-25.28	**15.32**	**0.034**	40.61	-25.29
826.50	5	QPSK	V	141	47	1 / 24	11.48	6.30	15.63	0.037	38.45	-22.82	17.78	0.060	40.61	-22.83
836.50	5	QPSK	V	147	38	1 / 24	11.53	6.40	**15.78**	0.038	38.45	-22.67	**17.93**	0.062	40.61	-22.68
846.50	5	QPSK	V	142	51	1 / 0	11.39	6.50	15.74	0.037	38.45	-22.71	17.89	0.062	40.61	-22.72
836.50	5	16-QAM	V	147	38	1 / 24	10.81	6.40	15.06	0.032	38.45	-23.39	17.21	0.053	40.61	-23.40
836.50	5	64-QAM	V	147	38	1 / 24	9.67	6.40	**13.92**	0.025	38.45	-24.53	**16.07**	0.040	40.61	-24.54
836.50	5	256-QAM	V	147	38	1 / 24	8.81	6.40	13.06	0.020	38.45	-25.39	15.21	0.033	40.61	-25.40
829.00	10	QPSK	V	140	45	1 / 49	11.36	6.30	15.51	0.036	38.45	-22.94	17.66	0.058	40.61	-22.95
836.50	10	QPSK	V	151	40	1 / 49	11.49	6.40	**15.74**	0.037	38.45	-22.71	**17.89**	0.062	40.61	-22.72
844.00	10	QPSK	V	148	53	1 / 0	11.38	6.40	15.63	0.037	38.45	-22.82	17.78	0.060	40.61	-22.83
836.50	10	16-QAM	V	151	40	1 / 49	11.16	6.40	**15.41**	0.035	38.45	-23.04	**17.56**	0.057	40.61	-23.05
836.50	10	64-QAM	V	151	40	1 / 49	9.39	6.40	13.64	0.023	38.45	-24.81	15.79	0.038	40.61	-24.82
836.50	10	256-QAM	V	151	40	1 / 49	9.25	6.40	**13.50**	**0.022**	38.45	-24.95	**15.65**	**0.037**	40.61	-24.96
836.50	10	QPSK	H	391	99	1 / 0	10.07	6.40	14.32	0.027	38.45	-24.13	16.47	0.044	40.61	-24.14
836.50	10 (WCP)	QPSK	H	384	103	1 / 0	9.81	6.40	14.06	0.025	38.45	-24.39	16.21	0.042	40.61	-24.40

Table 7-11. ERP Data (Band 26/5)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	V	138	43	1 / 74	11.77	6.35	15.97	0.040	38.45	-22.48	18.12	0.065	40.61	-22.49
836.50	15	QPSK	V	149	46	1 / 74	11.71	6.40	15.96	0.039	38.45	-22.49	18.11	0.065	40.61	-22.50
841.50	15	QPSK	V	149	57	1 / 0	12.13	6.40	**16.38**	**0.043**	38.45	-22.07	**18.53**	**0.071**	40.61	-22.08
841.50	15	16-QAM	V	149	57	1 / 0	11.43	6.40	**15.68**	0.037	38.45	-22.77	**17.83**	0.061	40.61	-22.78
841.50	15	64-QAM	V	149	57	1 / 0	10.30	6.40	**14.55**	0.029	38.45	-23.90	**16.70**	0.047	40.61	-23.91
841.50	15	256-QAM	V	149	57	1 / 74	9.84	6.40	**14.09**	**0.026**	38.45	-24.36	**16.24**	**0.042**	40.61	-24.37
841.50	15	QPSK	H	221	88	1 / 0	11.35	6.40	15.60	0.036	38.45	-22.85	17.75	0.060	40.61	-22.86
841.50	15 (WCP)	QPSK	H	226	103	1 / 0	11.06	6.40	15.31	0.034	38.45	-23.14	17.46	0.056	40.61	-23.15

Table 7-12. ERP Data (Band 26)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	145	10	1 / 0	12.24	9.44	**21.68**	**0.147**	30.00	-8.32
1745.00	1.4	QPSK	H	142	8	1 / 0	11.69	9.23	20.92	0.124	30.00	-9.08
1779.30	1.4	QPSK	H	139	361	1 / 0	11.24	9.26	20.50	0.112	30.00	-9.50
1710.70	1.4	16-QAM	H	145	10	1 / 0	11.33	9.44	**20.77**	0.119	30.00	-9.23
1710.70	1.4	64-QAM	H	145	10	1 / 0	9.88	9.44	**19.32**	0.086	30.00	-10.68
1710.70	1.4	256-QAM	H	145	10	1 / 0	6.43	9.44	**15.87**	**0.039**	30.00	-14.13
1711.50	3	QPSK	H	143	7	1 / 0	12.24	9.44	**21.68**	0.147	30.00	-8.32
1745.00	3	QPSK	H	140	6	1 / 0	11.65	9.23	20.88	0.122	30.00	-9.12
1778.50	3	QPSK	H	136	356	1 / 0	11.17	9.26	20.43	0.110	30.00	-9.57
1711.50	3	16-QAM	H	143	7	1 / 0	11.29	9.44	**20.73**	0.118	30.00	-9.27
1711.50	3	64-QAM	H	143	7	1 / 0	9.41	9.44	**18.85**	0.077	30.00	-11.15
1711.50	3	256-QAM	H	143	7	1 / 0	6.28	9.44	**15.72**	**0.037**	30.00	-14.28
1712.50	5	QPSK	H	140	11	1 / 0	12.15	9.43	**21.58**	0.144	30.00	-8.42
1745.00	5	QPSK	H	137	10	1 / 0	11.51	9.23	20.74	0.119	30.00	-9.26
1777.50	5	QPSK	H	139	361	1 / 0	11.14	9.26	20.40	0.110	30.00	-9.60
1712.50	5	16-QAM	H	140	11	1 / 0	11.25	9.43	**20.68**	0.117	30.00	-9.32
1712.50	5	64-QAM	H	140	11	1 / 0	9.51	9.43	**18.94**	0.078	30.00	-11.06
1712.50	5	256-QAM	H	140	11	1 / 0	5.98	9.43	**15.41**	**0.035**	30.00	-14.59
1715.00	10	QPSK	H	143	9	1 / 0	11.87	9.42	**21.29**	0.134	30.00	-8.71
1745.00	10	QPSK	H	138	11	1 / 0	11.36	9.23	20.59	0.115	30.00	-9.41
1775.00	10	QPSK	H	137	358	1 / 0	10.95	9.25	20.20	0.105	30.00	-9.80
1715.00	10	16-QAM	H	143	9	1 / 0	11.12	9.42	**20.54**	0.113	30.00	-9.46
1715.00	10	64-QAM	H	143	9	1 / 0	9.31	9.42	**18.73**	0.075	30.00	-11.27
1715.00	10	256-QAM	H	143	9	1 / 0	6.09	9.42	15.51	0.036	30.00	-14.49
1717.50	15	QPSK	H	145	10	1 / 0	12.27	9.40	**21.67**	0.147	30.00	-8.33
1745.00	15	QPSK	H	140	8	1 / 0	11.81	9.23	21.04	0.127	30.00	-8.96
1772.50	15	QPSK	H	142	360	1 / 0	11.40	9.25	20.65	0.116	30.00	-9.35
1717.50	15	16-QAM	H	145	10	1 / 0	11.21	9.40	**20.61**	0.115	30.00	-9.39
1717.50	15	64-QAM	H	145	10	1 / 0	9.35	9.40	18.75	0.075	30.00	-11.25
1717.50	15	256-QAM	H	145	10	1 / 0	6.26	9.40	15.66	0.037	30.00	-14.34
1720.00	20	QPSK	H	147	8	1 / 0	11.88	9.38	**21.26**	0.134	30.00	-8.74
1745.00	20	QPSK	H	144	6	1 / 0	11.52	9.23	20.75	0.119	30.00	-9.25
1770.00	20	QPSK	H	139	357	1 / 0	11.17	9.24	20.41	0.110	30.00	-9.59
1720.00	20	16-QAM	H	147	8	1 / 0	11.12	9.38	**20.50**	0.112	30.00	-9.50
1720.00	20	64-QAM	H	147	8	1 / 0	9.44	9.38	18.82	0.076	30.00	-11.18
1720.00	20	256-QAM	H	147	8	1 / 0	6.84	9.38	**16.22**	**0.042**	30.00	-13.78
1710.70	1.4	QPSK	V	139	349	1 / 0	11.20	9.44	20.64	0.116	30.00	-9.36
1710.70	1.4 (WCP)	QPSK	H	147	245	1 / 0	9.80	9.44	19.24	0.084	30.00	-10.76

Table 7-13. EIRP Data (Band 66/4)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	160	340	1 / 0	11.02	9.48	20.50	0.112	33.01	-12.51
1882.50	1.4	QPSK	H	152	351	1 / 0	11.31	9.94	**21.25**	0.133	33.01	-11.77
1914.30	1.4	QPSK	H	142	342	1 / 0	10.34	10.29	20.63	0.116	33.01	-12.38
1882.50	1.4	16-QAM	H	152	351	1 / 0	10.95	9.94	**20.89**	0.123	33.01	-12.13
1882.50	1.4	64-QAM	H	152	351	1 / 0	9.72	9.94	**19.66**	0.092	33.01	-13.36
1882.50	1.4	256-QAM	H	152	351	1 / 0	9.31	9.94	**19.25**	**0.084**	33.01	-13.77
1851.50	3	QPSK	H	158	342	1 / 0	10.99	9.50	20.49	0.112	33.01	-12.52
1882.50	3	QPSK	H	155	340	1 / 0	11.27	9.94	**21.21**	0.132	33.01	-11.81
1913.50	3	QPSK	H	148	348	1 / 0	10.25	10.29	20.54	0.113	33.01	-12.48
1882.50	3	16-QAM	H	155	340	1 / 0	11.14	9.94	**21.08**	0.128	33.01	-11.94
1882.50	3	64-QAM	H	155	340	1 / 0	9.31	9.94	**19.25**	0.084	33.01	-13.77
1882.50	3	256-QAM	H	155	340	1 / 0	9.85	9.94	**19.79**	**0.095**	33.01	-13.23
1852.50	5	QPSK	H	162	348	1 / 0	10.92	9.51	20.43	0.110	33.01	-12.58
1882.50	5	QPSK	H	153	346	1 / 0	11.20	9.94	**21.14**	0.130	33.01	-11.88
1912.50	5	QPSK	H	151	363	1 / 0	10.36	10.28	20.64	0.116	33.01	-12.37
1882.50	5	16-QAM	H	153	346	1 / 0	10.80	9.94	**20.74**	0.118	33.01	-12.28
1882.50	5	64-QAM	H	153	346	1 / 0	9.39	9.94	**19.33**	0.086	33.01	-13.69
1882.50	5	256-QAM	H	153	346	1 / 0	8.91	9.94	**18.85**	**0.077**	33.01	-14.17
1855.00	10	QPSK	H	160	351	1 / 0	10.79	9.55	20.34	0.108	33.01	-12.67
1882.50	10	QPSK	H	152	348	1 / 0	11.08	9.94	**21.02**	0.126	33.01	-12.00
1910.00	10	QPSK	H	153	360	1 / 0	10.20	10.26	20.46	0.111	33.01	-12.55
1882.50	10	16-QAM	H	152	348	1 / 0	10.86	9.94	**20.80**	0.120	33.01	-12.22
1882.50	10	64-QAM	H	152	348	1 / 0	9.18	9.94	**19.12**	0.082	33.01	-13.90
1882.50	10	256-QAM	H	152	348	1 / 0	9.60	9.94	**19.54**	**0.090**	33.01	-13.48
1857.50	15	QPSK	H	158	350	1 / 0	11.10	9.58	20.68	0.117	33.01	-12.33
1882.50	15	QPSK	H	150	352	1 / 0	11.65	9.94	**21.59**	0.144	33.01	-11.43
1907.50	15	QPSK	H	151	361	1 / 0	10.60	10.24	20.84	0.121	33.01	-12.17
1882.50	15	16-QAM	H	150	352	1 / 0	11.13	9.94	**21.07**	0.128	33.01	-11.95
1882.50	15	64-QAM	H	150	352	1 / 0	10.02	9.94	**19.96**	0.099	33.01	-13.06
1882.50	15	256-QAM	H	150	352	1 / 0	9.64	9.94	**19.58**	**0.091**	33.01	-13.44
1860.00	20	QPSK	H	162	354	1 / 0	11.34	9.62	20.96	0.125	33.01	-12.05
1882.50	20	QPSK	H	149	355	1 / 0	11.69	9.94	**21.63**	**0.145**	33.01	-11.39
1905.00	20	QPSK	H	149	359	1 / 0	10.73	10.22	20.95	0.124	33.01	-12.06
1882.50	20	16-QAM	H	149	355	1 / 0	11.59	9.94	**21.53**	0.142	33.01	-11.49
1882.50	20	64-QAM	H	149	355	1 / 0	10.44	9.94	**20.38**	0.109	33.01	-12.64
1882.50	20	256-QAM	H	149	355	1 / 0	9.88	9.94	**19.82**	**0.096**	33.01	-13.20
1882.50	20	QPSK	V	133	351	1 / 0	9.68	9.94	19.62	0.092	33.01	-13.40
1882.50	20 (WCP)	QPSK	H	101	130	1 / 0	9.83	9.94	19.77	0.095	33.01	-13.25

Table 7-14. EIRP Data (Band 25/2)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	H	194	184	1 / 24	7.60	10.31	17.91	0.062	23.98	-6.07
2312.50	5	QPSK	H	191	185	1 / 0	7.71	10.31	**18.02**	0.063	23.98	-5.96
2312.50	5	16-QAM	H	191	185	1 / 0	7.03	10.31	**17.34**	0.054	23.98	-6.64
2312.50	5	64-QAM	H	191	185	1 / 0	6.01	10.31	16.32	0.043	23.98	-7.66
2312.50	5	256-QAM	H	191	185	1 / 24	3.89	10.31	**14.20**	**0.026**	23.98	-9.78
2310.00	10	QPSK	H	118	182	1 / 24	7.70	10.31	**18.01**	0.063	23.98	-5.97
2310.00	10	16-QAM	H	118	182	1 / 49	6.95	10.31	17.26	0.053	23.98	-6.72
2310.00	10	64-QAM	H	118	182	1 / 49	5.95	10.31	16.26	0.042	23.98	-7.72
2310.00	10	256-QAM	H	118	182	1 / 49	3.89	10.31	**14.20**	**0.026**	23.98	-9.78
2312.50	5	QPSK	V	188	265	1 / 0	7.89	10.21	18.10	**0.065**	23.98	-5.88
2312.50	5 (WCP)	QPSK	H	112	177	1 / 0	7.39	10.31	17.70	0.059	23.98	-6.28

Table 7-15. EIRP Data (Band 30)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	112	225	1 / 24	8.49	9.43	17.92	0.062	33.01	-15.09
2535.00	5	QPSK	H	106	214	1 / 24	9.07	9.39	**18.46**	0.070	33.01	-14.55
2567.50	5	QPSK	H	102	204	1 / 24	7.91	9.45	17.36	0.054	33.01	-15.65
2535.00	5	16-QAM	H	106	214	1 / 24	8.64	9.39	**18.03**	0.064	33.01	-14.98
2535.00	5	64-QAM	H	106	214	1 / 24	6.78	9.39	**16.17**	0.041	33.01	-16.84
2535.00	5	256-QAM	H	106	214	1 / 24	5.55	9.39	**14.94**	**0.031**	33.01	-18.07
2505.00	10	QPSK	H	110	226	1 / 49	8.61	9.43	18.04	0.064	33.01	-14.97
2535.00	10	QPSK	H	104	218	1 / 49	9.15	9.39	**18.54**	0.072	33.01	-14.47
2565.00	10	QPSK	H	103	201	1 / 49	8.23	9.44	17.67	0.058	33.01	-15.34
2535.00	10	16-QAM	H	104	218	1 / 49	8.61	9.39	**18.00**	0.063	33.01	-15.01
2535.00	10	64-QAM	H	104	218	1 / 49	6.59	9.39	15.98	0.040	33.01	-17.03
2535.00	10	256-QAM	H	104	218	1 / 49	5.35	9.39	14.74	0.030	33.01	-18.27
2507.50	15	QPSK	H	112	230	1 / 74	8.59	9.42	18.01	0.063	33.01	-15.00
2535.00	15	QPSK	H	105	220	1 / 74	9.15	9.39	**18.54**	0.072	33.01	-14.47
2562.50	15	QPSK	H	101	196	1 / 74	8.38	9.43	17.81	0.060	33.01	-15.20
2535.00	15	16-QAM	H	105	220	1 / 74	8.88	9.39	**18.27**	0.067	33.01	-14.74
2535.00	15	64-QAM	H	105	220	1 / 74	6.59	9.39	**15.98**	0.040	33.01	-17.03
2535.00	15	256-QAM	H	105	220	1 / 74	6.14	9.39	**15.53**	**0.036**	33.01	-17.48
2510.00	20	QPSK	H	110	226	1 / 99	8.74	9.42	18.16	0.065	33.01	-14.85
2535.00	20	QPSK	H	102	224	1 / 99	9.41	9.39	**18.80**	**0.076**	33.01	-14.21
2560.00	20	QPSK	H	103	190	1 / 99	8.31	9.42	17.73	0.059	33.01	-15.28
2535.00	20	16-QAM	H	102	224	1 / 99	8.83	9.39	**18.22**	0.066	33.01	-14.79
2535.00	20	64-QAM	H	102	224	1 / 99	7.42	9.39	**16.81**	0.048	33.01	-16.20
2535.00	20	256-QAM	H	102	224	1 / 99	6.43	9.39	**15.82**	**0.038**	33.01	-17.19
2535.00	20	QPSK	V	126	319	1 / 99	9.40	9.38	18.78	0.076	33.01	-14.23
2535.00	20 (WCP)	QPSK	H	106	222	1 / 99	9.19	9.39	18.58	0.072	33.01	-14.43

Table 7-16. EIRP Data (Band 7)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	V	181	320	1 / 24	14.90	9.40	24.30	0.269	33.01	-8.71
2593.00	5	QPSK	V	140	331	1 / 0	14.41	9.56	23.97	0.249	33.01	-9.04
2687.50	5	QPSK	V	163	338	1 / 24	13.26	9.69	22.95	0.197	33.01	-10.06
2498.50	5	16-QAM	V	181	320	1 / 24	14.80	9.40	24.20	0.263	33.01	-8.81
2498.50	5	64-QAM	V	181	320	1 / 24	12.53	9.40	21.93	0.156	33.01	-11.08
2498.50	5	256-QAM	V	181	320	1 / 24	11.95	9.40	21.35	0.136	33.01	-11.66
2501.00	10	QPSK	V	178	318	1 / 49	14.96	9.40	24.36	0.273	33.01	-8.65
2593.00	10	QPSK	V	143	327	1 / 0	14.22	9.56	23.78	0.239	33.01	-9.23
2685.00	10	QPSK	V	160	331	1 / 49	13.08	9.68	22.76	0.189	33.01	-10.25
2501.00	10	16-QAM	V	178	318	1 / 49	14.41	9.40	23.81	0.240	33.01	-9.20
2501.00	10	64-QAM	V	178	318	1 / 49	12.52	9.40	21.92	0.155	33.01	-11.09
2501.00	10	256-QAM	V	178	318	1 / 49	11.24	9.40	20.64	0.116	33.01	-12.37
2503.50	15	QPSK	V	180	320	1 / 74	15.09	9.39	24.48	0.281	33.01	-8.53
2593.00	15	QPSK	V	150	332	1 / 0	14.38	9.56	23.94	0.248	33.01	-9.07
2682.50	15	QPSK	V	166	338	1 / 74	13.43	9.68	23.11	0.205	33.01	-9.90
2503.50	15	16-QAM	V	180	320	1 / 74	14.97	9.39	24.36	0.273	33.01	-8.65
2503.50	15	64-QAM	V	180	320	1 / 74	12.20	9.39	21.59	0.144	33.01	-11.42
2503.50	15	256-QAM	V	180	320	1 / 74	11.74	9.39	21.13	0.130	33.01	-11.88
2506.00	20	QPSK	V	184	322	1 / 99	15.37	9.39	**24.76**	0.299	33.01	-8.25
2593.00	20	QPSK	V	149	337	1 / 0	14.26	9.56	23.82	0.241	33.01	-9.19
2680.00	20	QPSK	V	169	333	1 / 99	13.29	9.68	22.97	0.198	33.01	-10.04
2506.00	20	16-QAM	V	184	322	1 / 99	14.93	9.39	**24.32**	0.271	33.01	-8.69
2506.00	20	64-QAM	V	184	322	1 / 99	12.73	9.39	22.12	0.163	33.01	-10.89
2506.00	20	256-QAM	V	184	322	1 / 99	11.94	9.39	21.33	0.136	33.01	-11.68
2502.50	5	256-QAM	H	123	225	25 / 0	15.03	9.40	24.43	0.277	33.01	-8.59
2502.50	5 (WCP)	256-QAM	H	130	217	25 / 0	14.68	9.40	24.08	0.256	33.01	-8.94

Table 7-17. EIRP Data (Band 41 – PC2)

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7.8 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

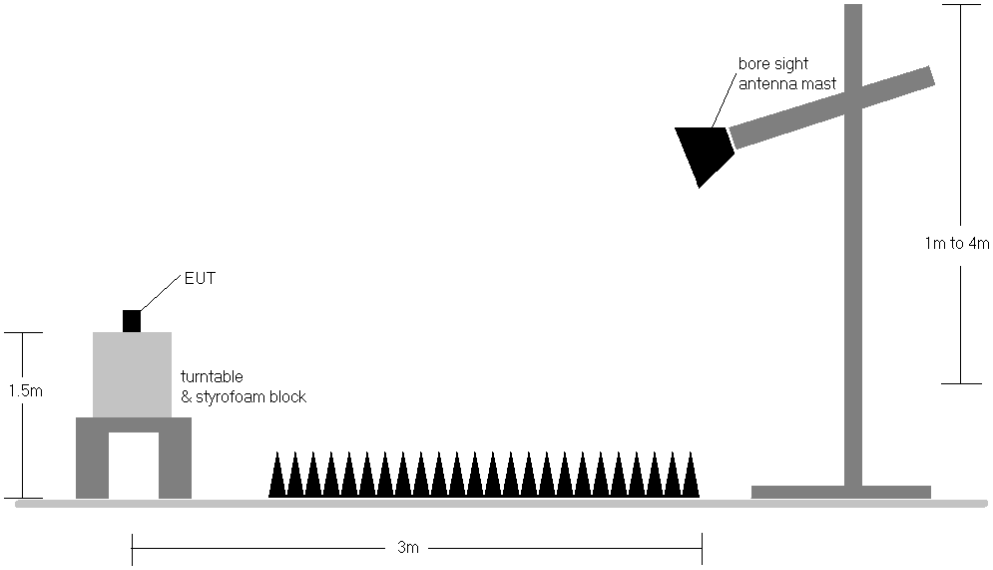

Figure 7-8. Test Instrument & Measurement Setup

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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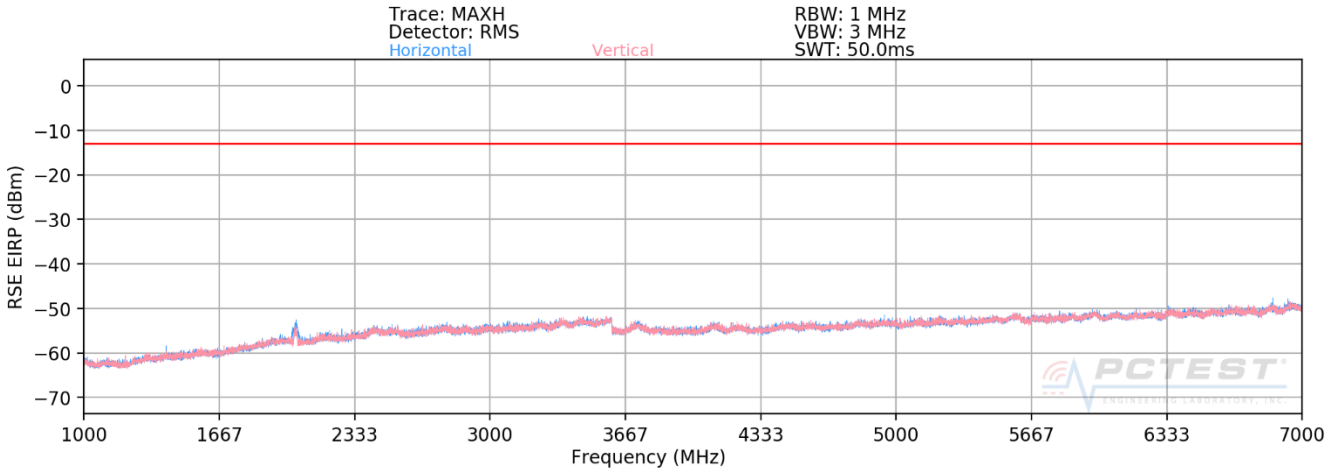
Band 71



Plot 7-541. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	673.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	H	114	223	-67.59	3.15	-64.44	-51.4
2019.00	H	112	210	-52.80	3.52	-49.28	-36.3
2692.00	H	-	-	-68.47	4.77	-63.70	-50.7
3365.00	H	-	-	-68.30	6.00	-62.30	-49.3

Table 7-18. Radiated Spurious Data (Band 71 – Low Channel)

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OPERATING FREQUENCY:	680.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	101	233	-65.97	3.04	-62.92	-49.9
2041.50	H	144	203	-48.81	3.49	-45.33	-32.3
2722.00	H	-	-	-68.27	4.83	-63.44	-50.4
3402.50	H	396	223	-68.37	6.16	-62.21	-49.2
4083.00	H	-	-	-69.59	7.51	-62.08	-49.1
4763.50	H	-	-	-70.45	8.48	-61.97	-49.0

Table 7-19. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	688.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	115	216	-62.12	2.88	-59.24	-46.2
2064.00	H	130	203	-47.82	3.50	-44.32	-31.3
2752.00	H	-	-	-68.05	4.88	-63.17	-50.2
3440.00	H	381	233	-66.18	6.22	-59.97	-47.0
4128.00	H	-	-	-69.60	7.61	-61.98	-49.0
4816.00	H	-	-	-69.58	8.47	-61.11	-48.1

Table 7-20. Radiated Spurious Data (Band 71 – High Channel)

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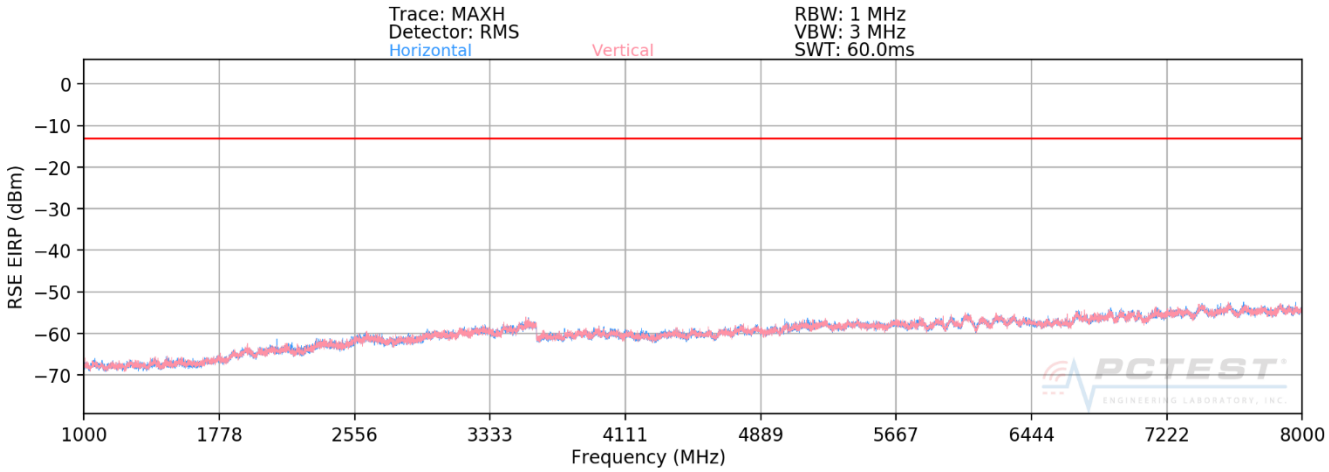
Band 12/17



Plot 7-542. Radiated Spurious Plot above 1GHz (Band 12/17)

OPERATING FREQUENCY:	704.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	H	319	1	-78.14	7.54	-70.60	-57.6
2112.00	H	-	-	-77.00	8.85	-68.15	-55.1

Table 7-21. Radiated Spurious Data (Band 12/17 – Low Channel)

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OPERATING FREQUENCY:	707.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	-	-	-78.13	7.63	-70.50	-57.5
2122.50	H	-	-	-76.83	8.86	-67.96	-55.0

Table 7-22. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	711.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	H	330	344	-78.24	7.72	-70.52	-57.5
2133.00	H	-	-	-76.96	8.87	-68.09	-55.1

Table 7-23. Radiated Spurious Data (Band 12/17 – High Channel)

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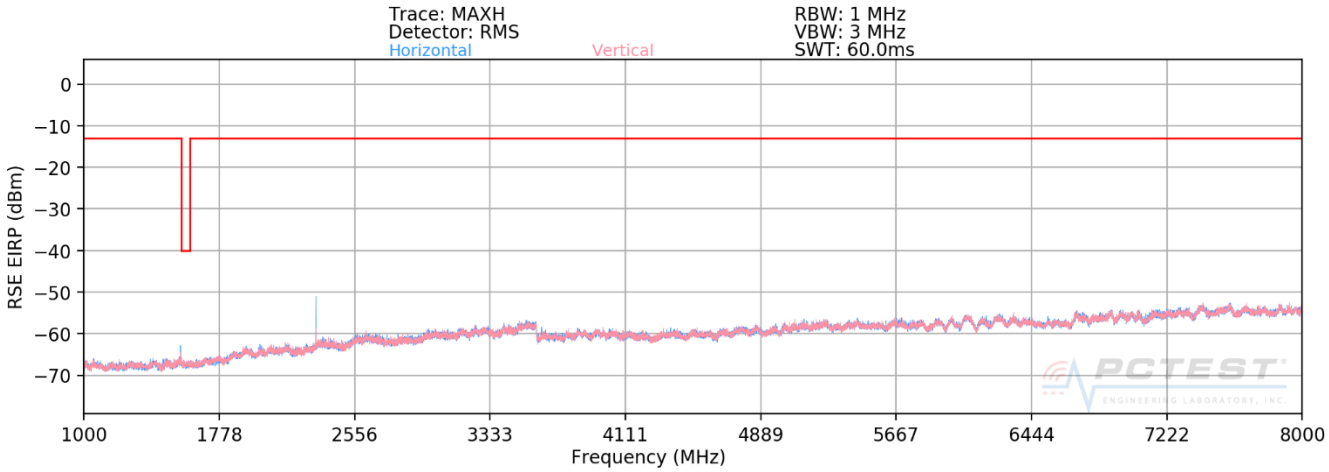
Band 13



Plot 7-543. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	779.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2338.50	H	112	212	-71.08	9.47	-61.61	-48.6
3118.00	H	-	-	-75.00	9.35	-65.65	-52.6

Table 7-24. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY:	782.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	182	233	-71.05	9.43	-61.62	-48.6
3128.00	H	-	-	-74.67	9.34	-65.33	-52.3

Table 7-25. Radiated Spurious Data (Band 13 – Mid Channel)

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OPERATING FREQUENCY:	784.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2353.50	H	177	230	-70.18	9.41	-60.77	-47.8
3138.00	H	-	-	-74.89	9.33	-65.56	-52.6

Table 7-26. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	H	-	-	-79.05	8.51	-70.53	-30.5
1564.00	H	-	-	-79.24	8.53	-70.71	-30.7
1569.00	H	-	-	-79.61	8.55	-71.06	-31.1

Table 7-27. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

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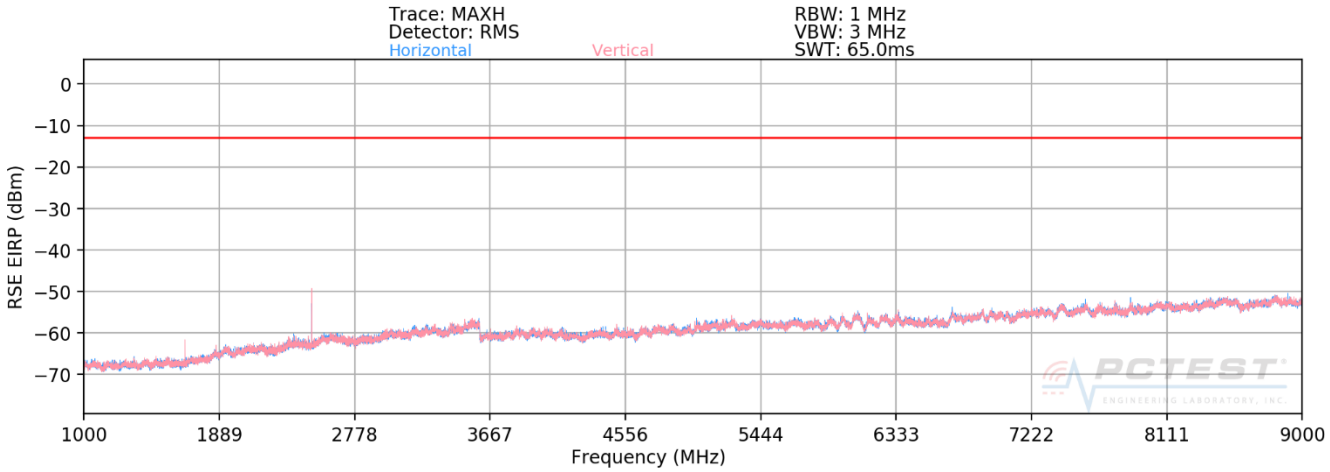
Band 26/5



Plot 7-544. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	831.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1663.00	H	347	102	-79.65	8.95	-70.70	-57.7
2494.50	H	151	236	-73.64	9.73	-63.91	-50.9
3326.00	H	-	-	-73.94	9.59	-64.34	-51.3
4157.50	H	-	-	-73.91	10.25	-63.66	-50.7

Table 7-28. Radiated Spurious Data (Band 26/5 – Low Channel)

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OPERATING FREQUENCY: 836.50 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	301	195	-79.24	8.95	-70.29	-57.3
2509.50	H	149	231	-71.42	9.75	-61.67	-48.7
3346.00	H	-	-	-74.67	9.60	-65.07	-52.1
4182.50	H	-	-	-74.76	10.34	-64.42	-51.4

Table 7-29. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY: 841.50 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1683.00	H	400	31	-79.44	8.95	-70.49	-57.5
2524.50	H	111	238	-71.27	9.75	-61.52	-48.5
3366.00	H	-	-	-74.90	9.67	-65.23	-52.2
4207.50	H	-	-	-74.82	10.44	-64.39	-51.4

Table 7-30. Radiated Spurious Data (Band 26/5 – High Channel)

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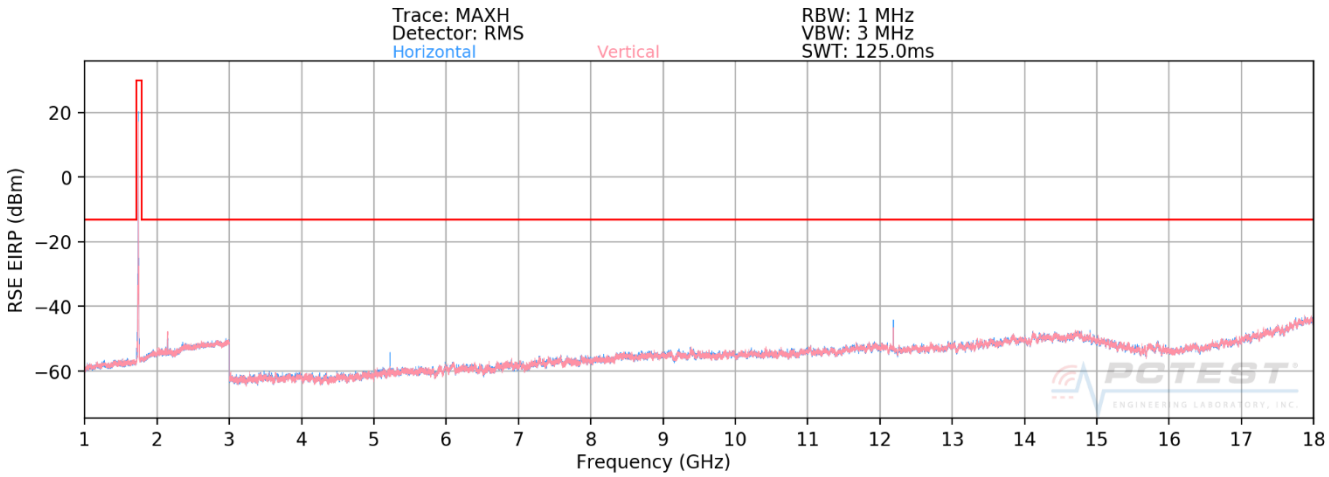
Band 66/4



Plot 7-545. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1710.70	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3421.40	V	-	-	-65.98	6.19	-59.79	-46.8
5132.10	V	-	-	-66.82	8.66	-58.16	-45.2

Table 7-31. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	399	56	-65.15	6.32	-58.83	-45.8
5235.00	V	-	-	-67.02	8.71	-58.31	-45.3

Table 7-32. Radiated Spurious Data (Band 66/4 – Mid Channel)

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OPERATING FREQUENCY:	1779.30	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3558.60	V	-	-	-65.80	6.32	-59.48	-46.5
5337.90	V	-	-	-67.59	8.71	-58.88	-45.9

Table 7-33. Radiated Spurious Data (Band 66/4 – High Channel)

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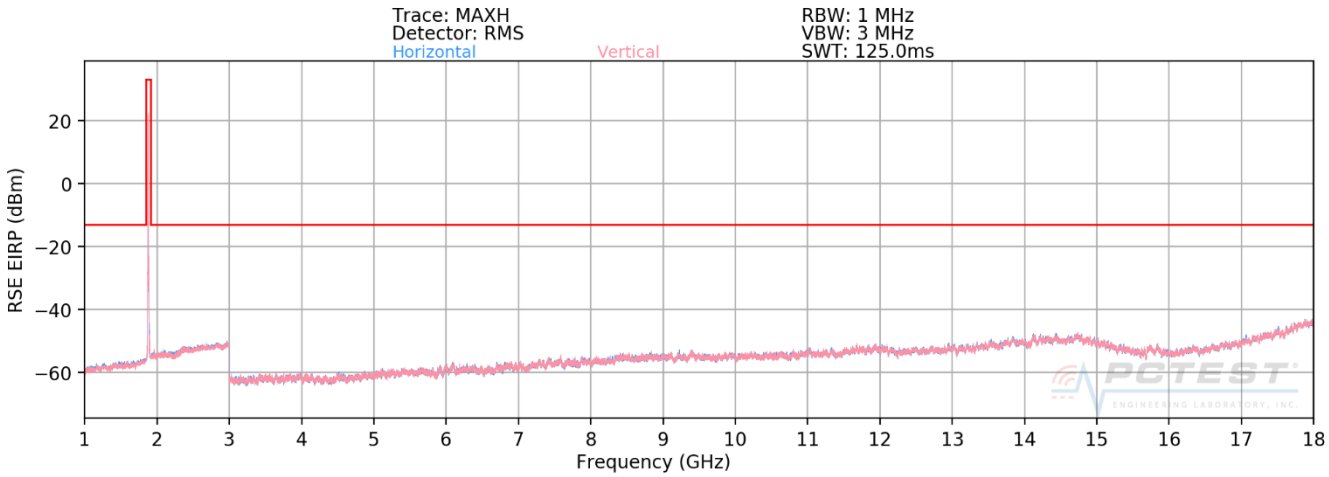
Band 25/2



Plot 7-546. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY:	1860.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	V	400	25	-72.73	9.51	-63.23	-50.2
5580.00	V	-	-	-72.12	10.99	-61.14	-48.1

Table 7-34. Radiated Spurious Data (Band 25/2 – Low Channel)

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OPERATING FREQUENCY: 1882.50 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	V	400	335	-72.96	9.36	-63.60	-50.6
5647.50	V	-	-	-71.42	11.19	-60.22	-47.2

Table 7-35. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY: 1905.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	V	398	207	-72.50	9.29	-63.20	-50.2
5715.00	V	-	-	-72.49	11.35	-61.14	-48.1

Table 7-36. Radiated Spurious Data (Band 25/2 – High Channel)

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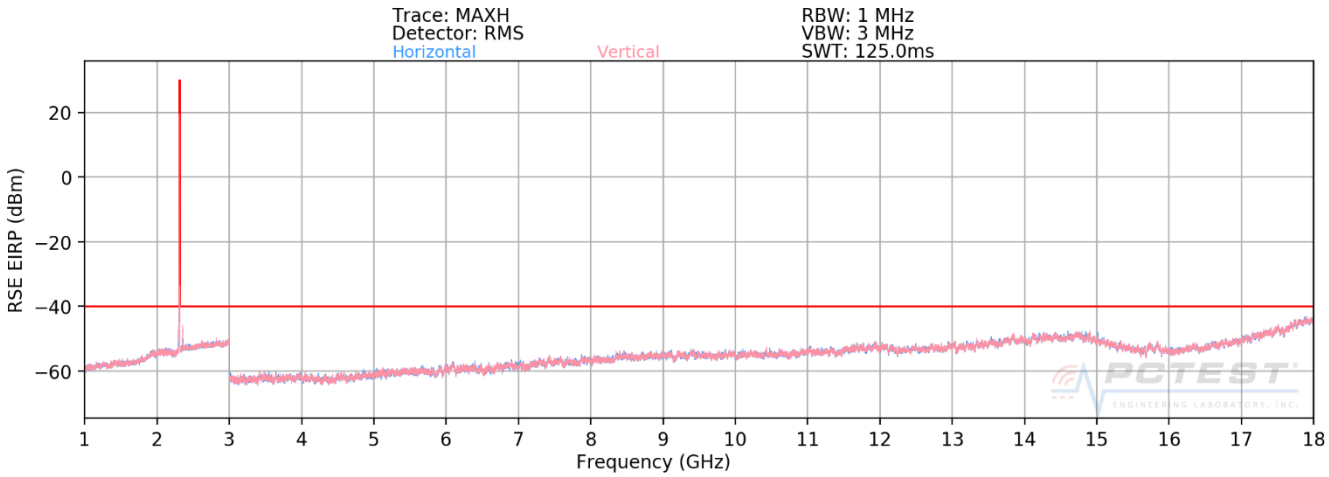
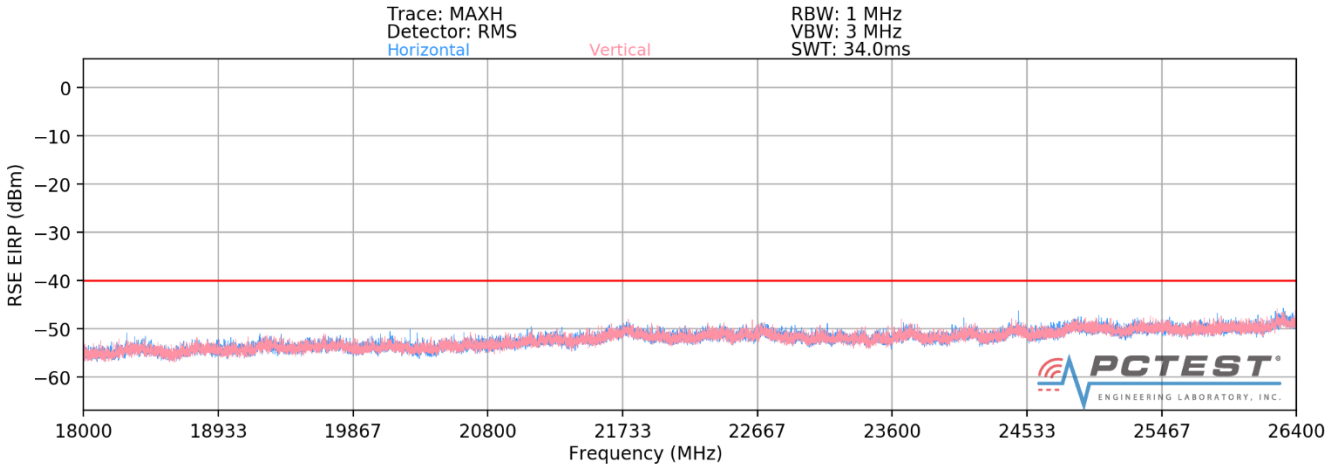
Band 30



Plot 7-547. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-548. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30)

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OPERATING FREQUENCY:	2312.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4625.00	H	178	177	-73.80	10.92	-62.88	-22.9
6937.50	H	-	-	-70.63	11.75	-58.88	-18.9

Table 7-37. Radiated Spurious Data (Band 30 – High Channel)

OPERATING FREQUENCY:	2312.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4625.00	V	-	-	-73.03	10.92	-62.11	-22.1
6937.50	V	184	164	-68.69	11.75	-56.94	-16.9
9250.00	V	-	-	-67.04	11.63	-55.40	-15.4

Table 7-38. Radiated Spurious Data with WCP (Band 30 – High Channel)

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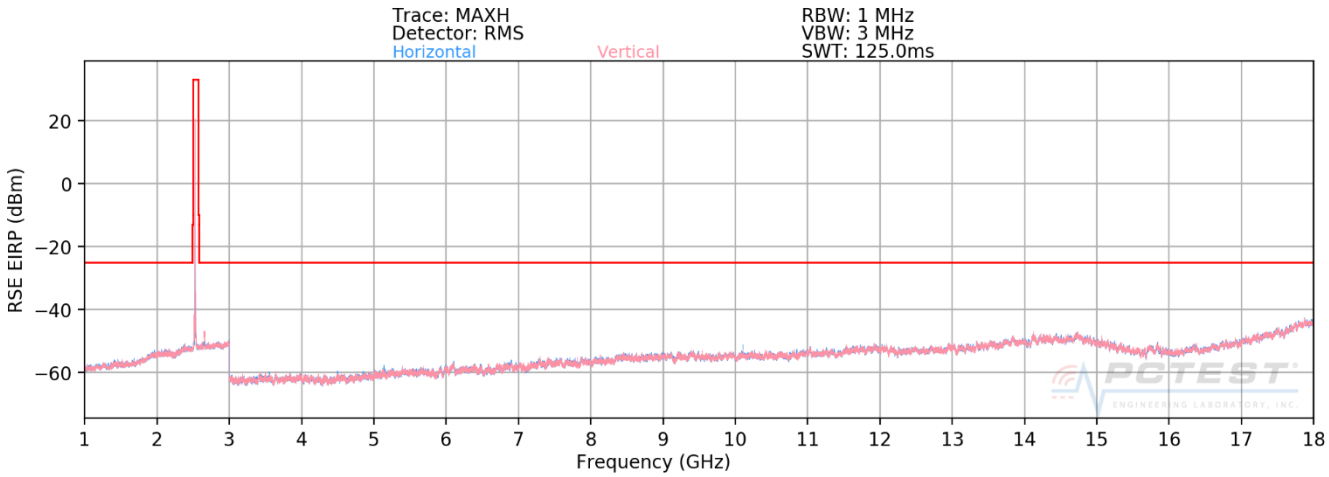
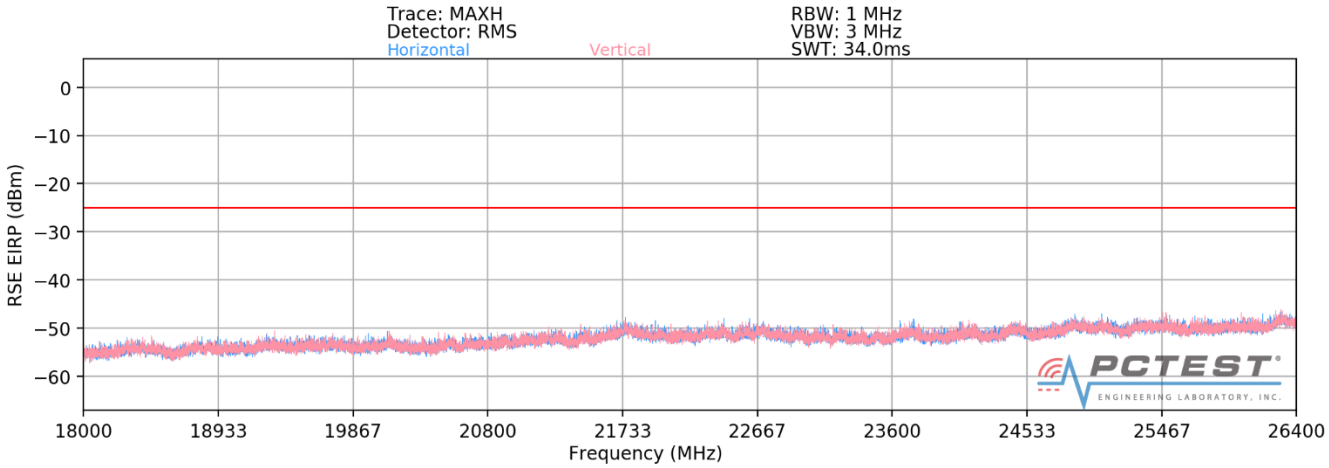
Band 7



Plot 7-549. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-550. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7)

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OPERATING FREQUENCY:	2510.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	127	351	-72.81	10.88	-61.92	-36.9
7530.00	H	155	28	-67.26	11.13	-56.13	-31.1
10040.00	H	138	329	-61.15	11.99	-49.17	-24.2
12550.00	H	-	-	-67.98	13.56	-54.42	-29.4

Table 7-39. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	H	178	342	-72.64	10.75	-61.89	-36.9
7605.00	H	133	27	-68.61	11.25	-57.36	-32.4
10140.00	H	127	334	-61.27	12.07	-49.20	-24.2
12675.00	H	-	-	-68.12	13.66	-54.46	-29.5

Table 7-40. Radiated Spurious Data (Band 7 – Mid Channel)

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OPERATING FREQUENCY:	2560.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	H	124	347	-71.25	10.68	-60.57	-35.6
7680.00	H	295	13	-68.63	11.39	-57.24	-32.2
10240.00	H	136	334	-60.71	12.18	-48.53	-23.5
12800.00	H	-	-	-66.79	13.50	-53.28	-28.3
15360.00	H	-	-	-69.08	15.29	-53.79	-28.8

Table 7-41. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2560.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	V	400	128	-69.21	10.68	-58.53	-33.5
7680.00	V	-	-	-69.05	11.39	-57.66	-32.7

Table 7-42. Radiated Spurious Data with WCP (Band 7 – High Channel)

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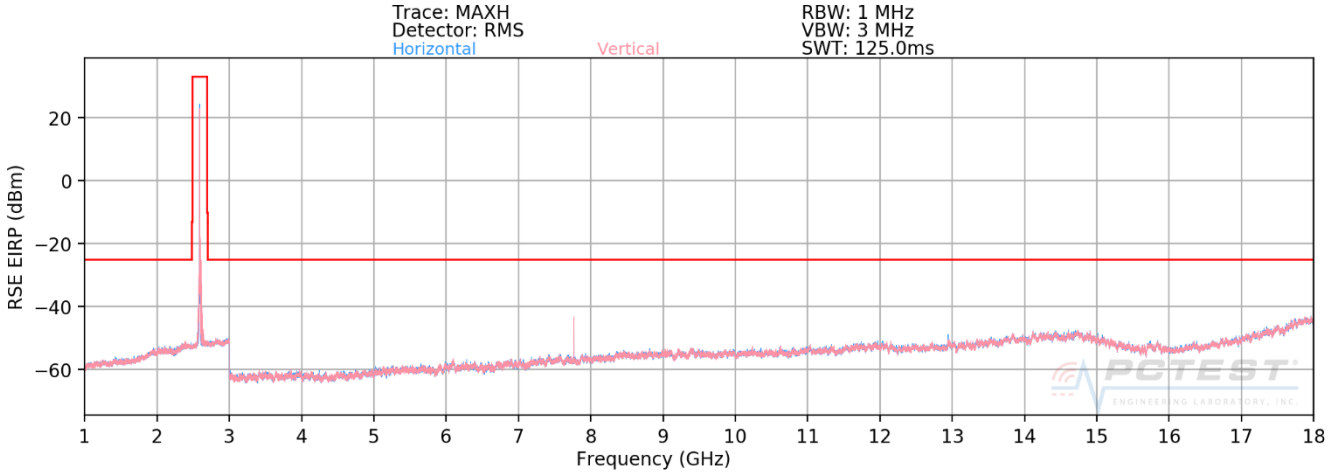
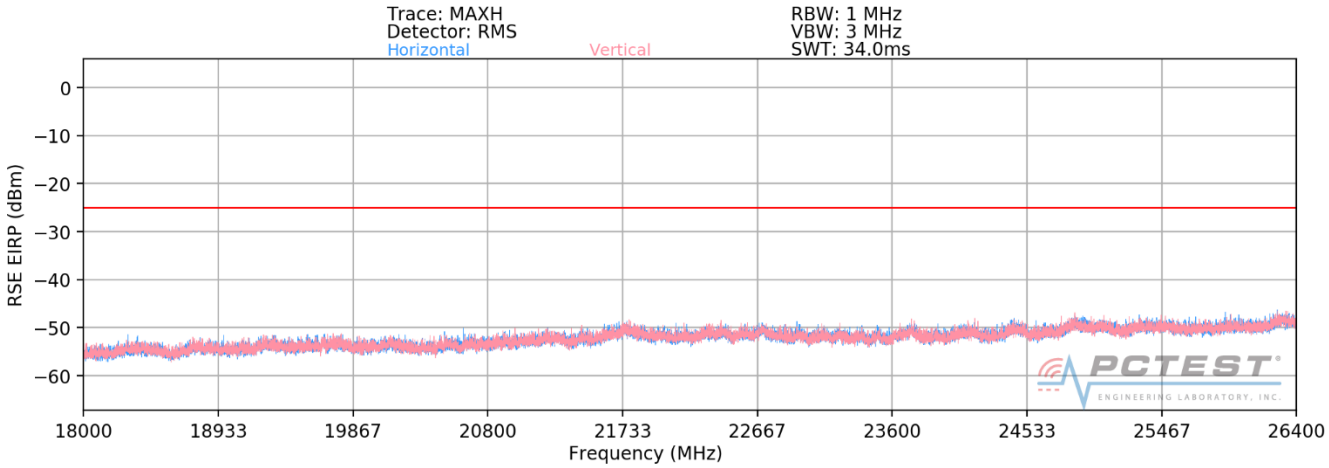
Band 41 (PC2)



Plot 7-551. Radiated Spurious Plot 1GHz - 18GHz (Band 41 (PC2))



Plot 7-552. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 (PC2))

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OPERATING FREQUENCY: 2506.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	113	352	-68.68	10.93	-57.75	-32.8
7518.00	H	339	348	-61.39	11.08	-50.31	-25.3
10024.00	H	131	326	-61.92	12.00	-49.92	-24.9
12530.00	H	134	330	-57.96	13.56	-44.40	-19.4
15036.00	H	-	-	-63.43	13.42	-50.02	-25.0

Table 7-43. Radiated Spurious Data (Band 41 (PC2) – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	129	322	-62.61	10.74	-51.87	-26.9
7779.00	H	144	35	-60.58	11.44	-49.14	-24.1
10372.00	H	145	328	-62.09	12.42	-49.67	-24.7
12965.00	H	120	332	-60.63	13.29	-47.33	-22.3
15558.00	H	-	-	-69.21	16.33	-52.88	-27.9

Table 7-44. Radiated Spurious Data (Band 41 (PC2) – Mid Channel)

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OPERATING FREQUENCY:	2680.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	153	55	-65.13	10.69	-54.45	-29.4
8040.00	H	290	229	-61.91	11.18	-50.74	-25.7
10720.00	H	164	55	-60.36	12.62	-47.75	-22.7
13400.00	H	-	-	-64.13	12.58	-51.55	-26.5

Table 7-45. Radiated Spurious Data (Band 41 (PC2) – High Channel)

OPERATING FREQUENCY:	2506.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	V	141	156	-68.78	10.92	-57.86	-32.9
7518.00	V	301	68	-53.65	11.08	-42.57	-17.6
10024.00	V	258	276	-64.94	12.00	-52.94	-27.9
12530.00	V	-	-	-66.16	13.56	-52.61	-27.6

Table 7-46. Radiated Spurious Data with WCP (Band 41 (PC2) – Low Channel)

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7.11Uplink Carrier Aggregation Radiated Measurements
§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. No. of sweep points ≥ 2 x span / RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

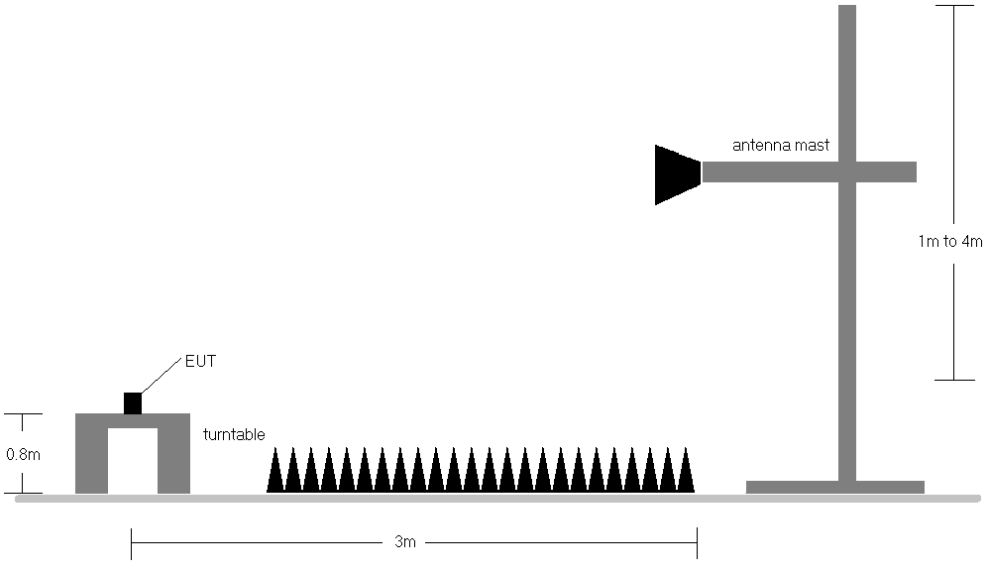

Figure 7-9. Test Instrument & Measurement Setup

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

6) No significant emissions were found as a result of two uplink carriers operating contiguously.

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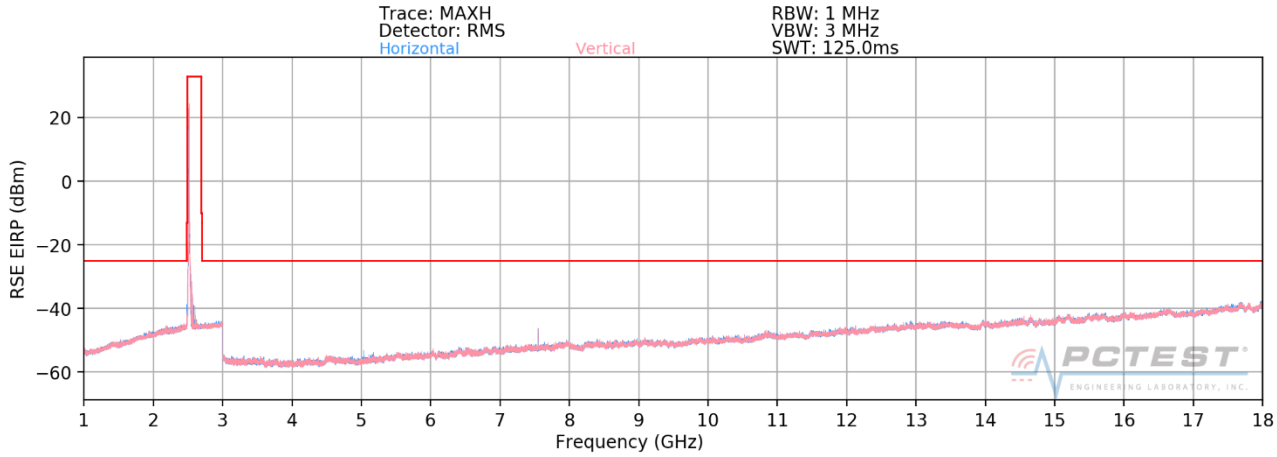
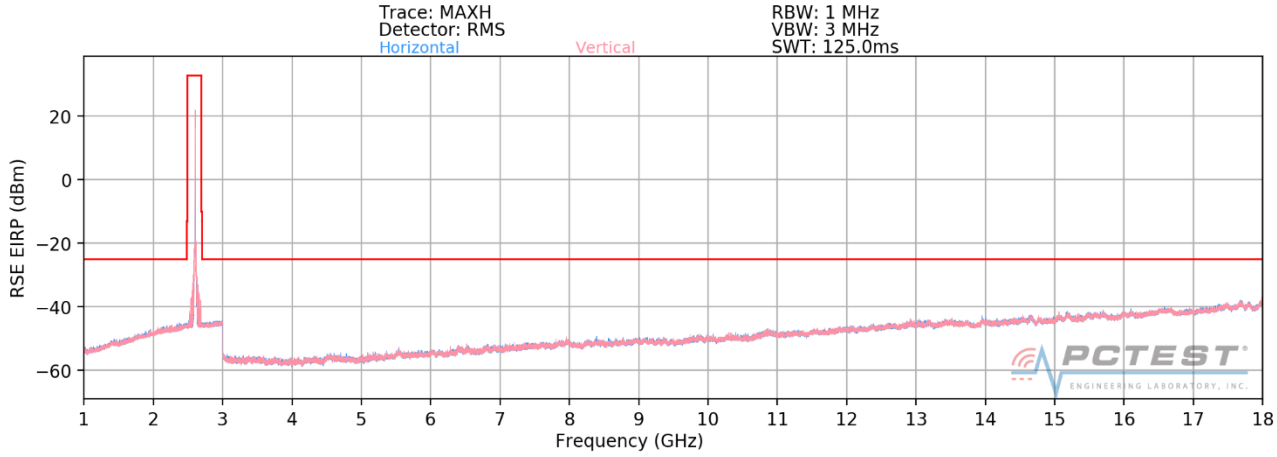
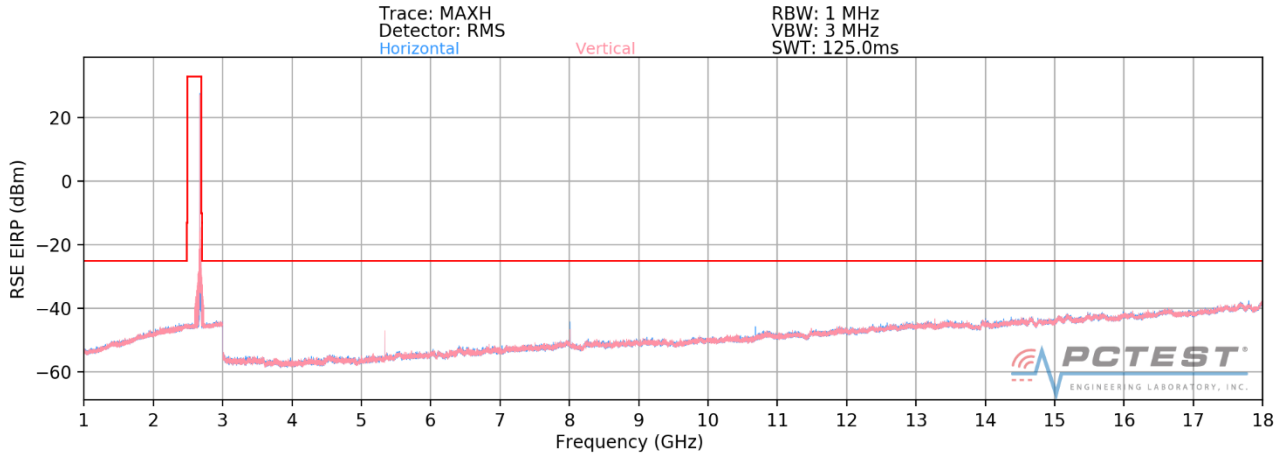
ULCA Band 41 (PC2)



Plot 7-553. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) Low Channel – PCC/SCC: 1RB)



Plot 7-554. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) Mid Channel – PCC/SCC: 1RB)



Plot 7-555. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) High Channel – PCC/SCC: 1RB)

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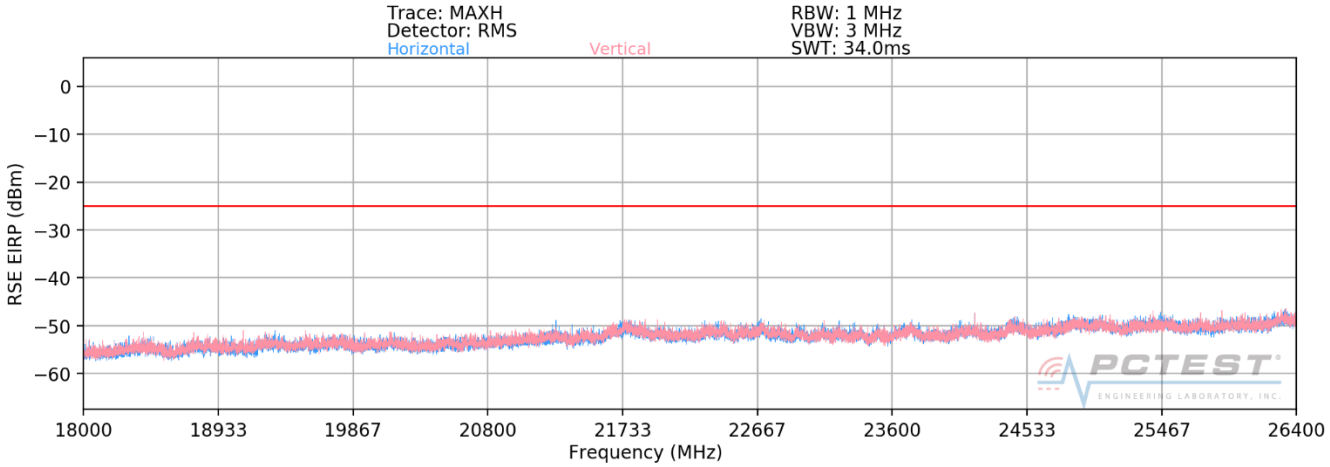

Plot 7-556. Radiated Spurious Plot 18GHz – 26.5GHz (ULCA Band 41 (PC2))

OPERATING FREQUENCY (PCC):	2506.00	MHz
OPERATING FREQUENCY (SCC):	2525.80	MHz
CHANNEL (PCC):	39750	
CHANNEL (SCC):	39948	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	191	7	-62.31	8.56	-53.75	-28.8
7518.00	H	32	346	-50.06	8.49	-41.57	-16.6
10024.00	H	177	339	-56.00	9.85	-46.15	-21.1
12530.00	H	-	-	-55.31	9.07	-46.24	-21.2
15036.00	H	-	-	-52.06	8.77	-43.29	-18.3

Plot 7-47. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)

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OPERATING FREQUENCY (PCC):	2593.00	MHz
OPERATING FREQUENCY (SCC):	2612.80	MHz
CHANNEL (PCC):	40620	
CHANNEL (SCC):	40818	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	169	336	-62.09	8.70	-53.39	-28.4
7779.00	H	290	260	-54.44	8.69	-45.75	-20.7
10372.00	H	198	648	-58.59	9.62	-48.96	-24.0
12965.00	H	-	-	-54.12	8.99	-45.13	-20.1
15558.00	H	-	-	-50.63	8.32	-42.31	-17.3

Plot 7-48. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)

OPERATING FREQUENCY (PCC):	2680.00	MHz
OPERATING FREQUENCY (SCC):	2660.20	MHz
CHANNEL (PCC):	41490	
CHANNEL (SCC):	41292	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	164	25	-51.39	8.70	-42.69	-17.7
8040.00	H	300	302	-49.30	8.95	-40.34	-15.3
10720.00	H	107	334	-53.21	9.32	-43.89	-18.9
13400.00	H	-	-	-53.46	8.77	-44.68	-19.7
16080.00	H	136	328	-47.36	8.01	-39.35	-14.4

Plot 7-49. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – High Channel)

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7.11 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

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Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (^{o}C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	680,499,908	-92	-0.0000135
100 %		- 20	680,500,400	400	0.0000588
100 %		- 10	680,500,097	97	0.0000143
100 %		0	680,500,283	283	0.0000416
100 %		+ 10	680,499,746	-254	-0.0000373
100 %		+ 20	680,500,123	123	0.0000181
100 %		+ 30	680,499,983	-17	-0.0000025
100 %		+ 40	680,499,656	-344	-0.0000506
100 %		+ 50	680,499,986	-14	-0.0000021
BATT. ENDPOINT	2.53	+ 20	680,500,226	226	0.0000332

Table 7-50. Frequency Stability Data (Band 71)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 71 Frequency Stability Measurements

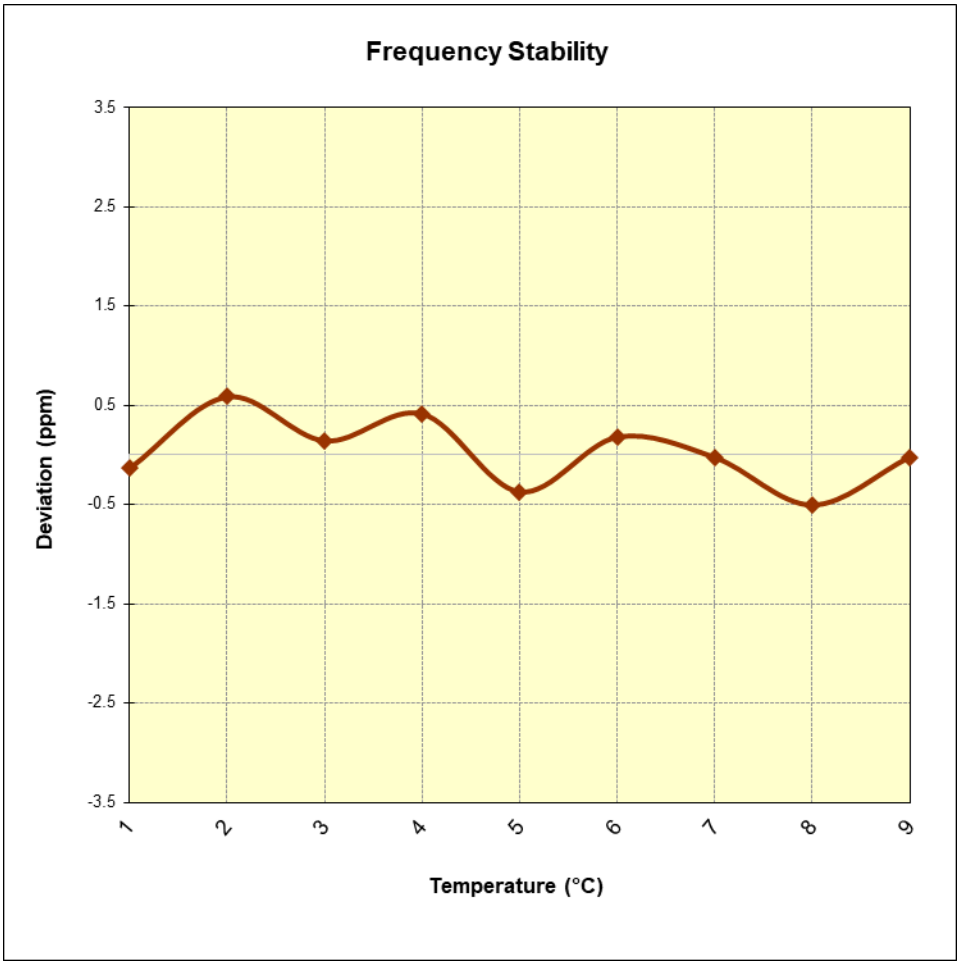

Figure 7-10. Frequency Stability Graph (Band 71)

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Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (^{o}C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	707,499,675	-325	-0.0000459
100 %		- 20	707,500,312	312	0.0000441
100 %		- 10	707,499,752	-248	-0.0000351
100 %		0	707,500,070	70	0.0000099
100 %		+ 10	707,500,164	164	0.0000232
100 %		+ 20	707,500,198	198	0.0000280
100 %		+ 30	707,499,979	-21	-0.0000030
100 %		+ 40	707,500,049	49	0.0000069
100 %		+ 50	707,500,062	62	0.0000088
BATT. ENDPOINT	2.53	+ 20	707,499,969	-31	-0.0000044

Table 7-51. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 12 Frequency Stability Measurements

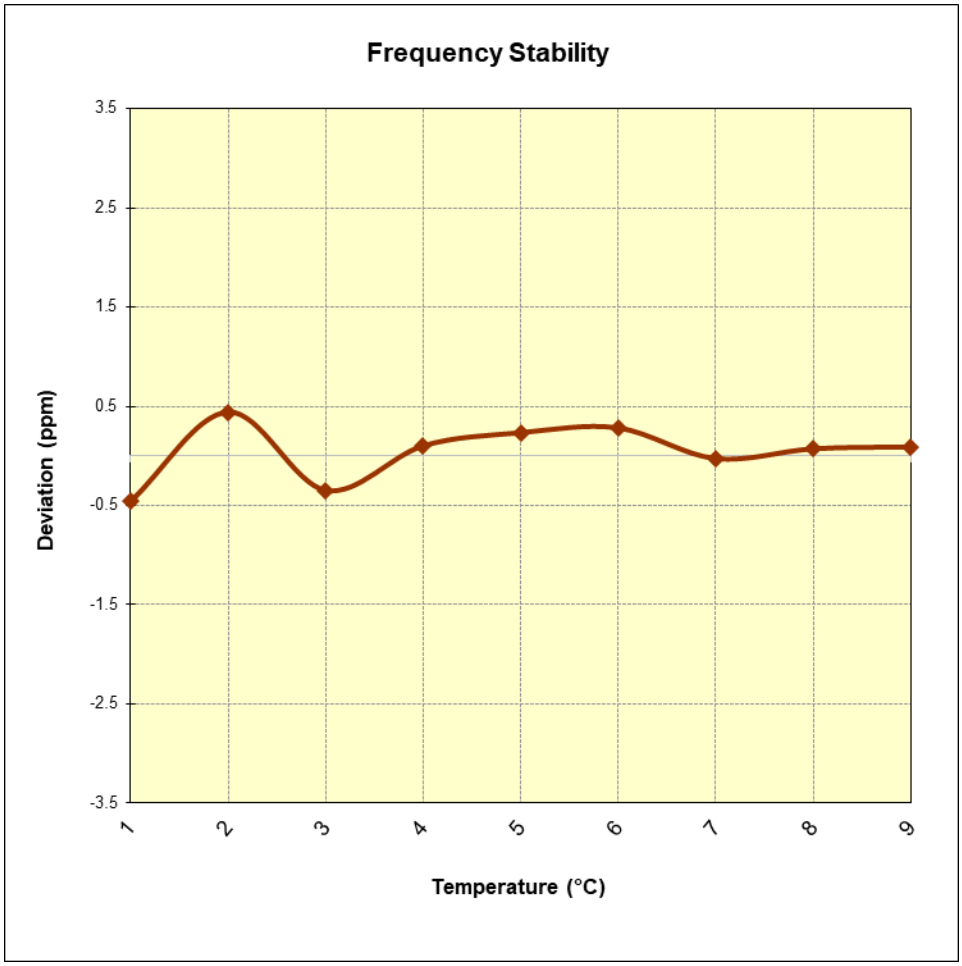

Figure 7-11. Frequency Stability Graph (Band 12)

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Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (^{o}C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	782,000,146	146	0.0000187
100 %		- 20	781,999,686	-314	-0.0000402
100 %		- 10	782,000,110	110	0.0000141
100 %		0	782,000,205	205	0.0000262
100 %		+ 10	781,999,835	-165	-0.0000211
100 %		+ 20	782,000,040	40	0.0000051
100 %		+ 30	781,999,920	-80	-0.0000102
100 %		+ 40	781,999,795	-205	-0.0000262
100 %		+ 50	781,999,950	-50	-0.0000064
BATT. ENDPOINT	2.53	+ 20	781,999,709	-291	-0.0000372

Table 7-52. Frequency Stability Data (Band 13)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 13 Frequency Stability Measurements

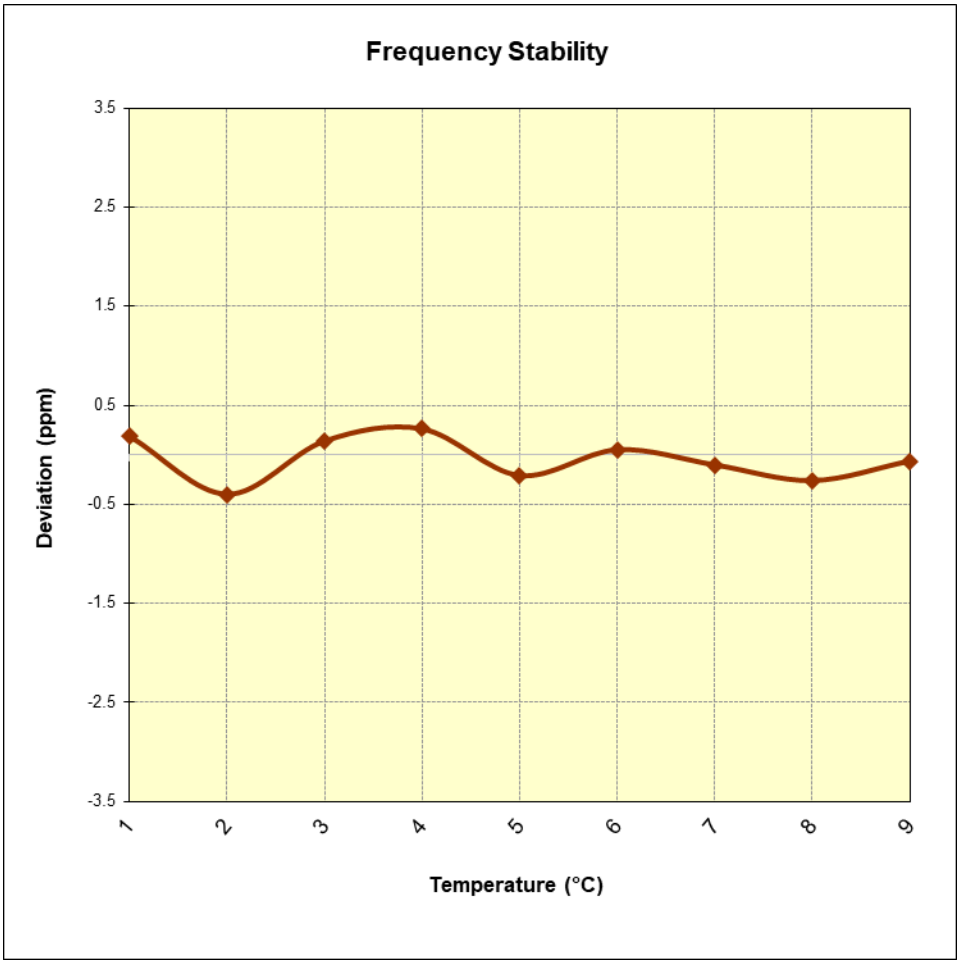

Figure 7-12. Frequency Stability Graph (Band 13)

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Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	831,499,576	-424	-0.0000510
100 %		- 20	831,499,697	-303	-0.0000364
100 %		- 10	831,499,816	-184	-0.0000221
100 %		0	831,500,148	148	0.0000178
100 %		+ 10	831,499,873	-127	-0.0000153
100 %		+ 20	831,500,092	92	0.0000111
100 %		+ 30	831,500,140	140	0.0000168
100 %		+ 40	831,500,131	131	0.0000158
100 %		+ 50	831,499,934	-66	-0.0000079
BATT. ENDPOINT	2.53	+ 20	831,499,583	-417	-0.0000502

Table 7-53. Frequency Stability Data (Band 26/5)

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Band 26/5 Frequency Stability Measurements

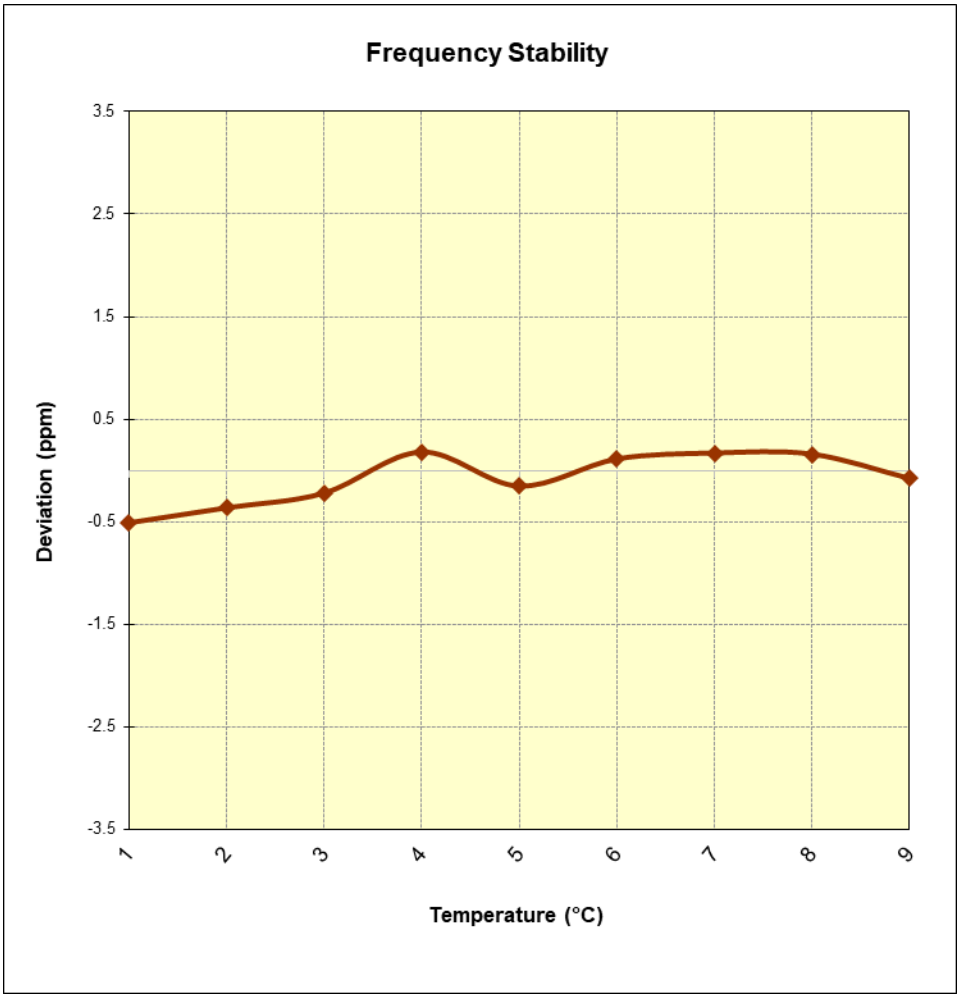

Figure 7-13. Frequency Stability Graph (Band 26/5)

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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	1,745,000,174	174	0.0000100
100 %		- 20	1,745,000,025	25	0.0000014
100 %		- 10	1,745,000,129	129	0.0000074
100 %		0	1,744,999,880	-120	-0.0000069
100 %		+ 10	1,745,000,150	150	0.0000086
100 %		+ 20	1,744,999,757	-243	-0.0000139
100 %		+ 30	1,744,999,979	-21	-0.0000012
100 %		+ 40	1,744,999,922	-78	-0.0000045
100 %		+ 50	1,744,999,567	-433	-0.0000248
BATT. ENDPOINT	2.53	+ 20	1,744,999,597	-403	-0.0000231

Table 7-54. Frequency Stability Data (Band 66/4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 66/4 Frequency Stability Measurements

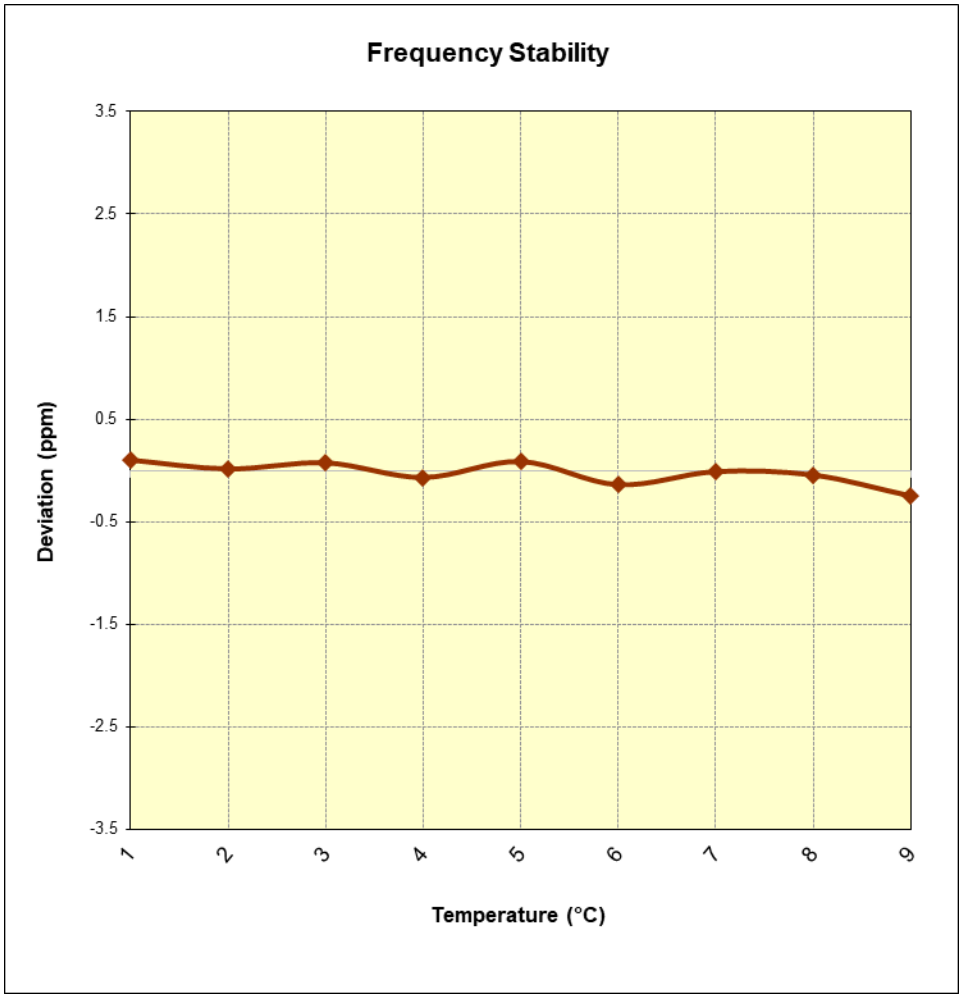

Figure 7-14. Frequency Stability Graph (Band 66/4)

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Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	1,882,500,063	63	0.0000033
100 %		- 20	1,882,499,776	-224	-0.0000119
100 %		- 10	1,882,500,215	215	0.0000114
100 %		0	1,882,499,756	-244	-0.0000130
100 %		+ 10	1,882,499,984	-16	-0.0000008
100 %		+ 20	1,882,500,127	127	0.0000067
100 %		+ 30	1,882,499,967	-33	-0.0000018
100 %		+ 40	1,882,499,950	-50	-0.0000027
100 %		+ 50	1,882,499,921	-79	-0.0000042
BATT. ENDPOINT	2.53	+ 20	1,882,500,033	33	0.0000018

Table 7-55. Frequency Stability Data (Band 25/2)

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Band 25/2 Frequency Stability Measurements

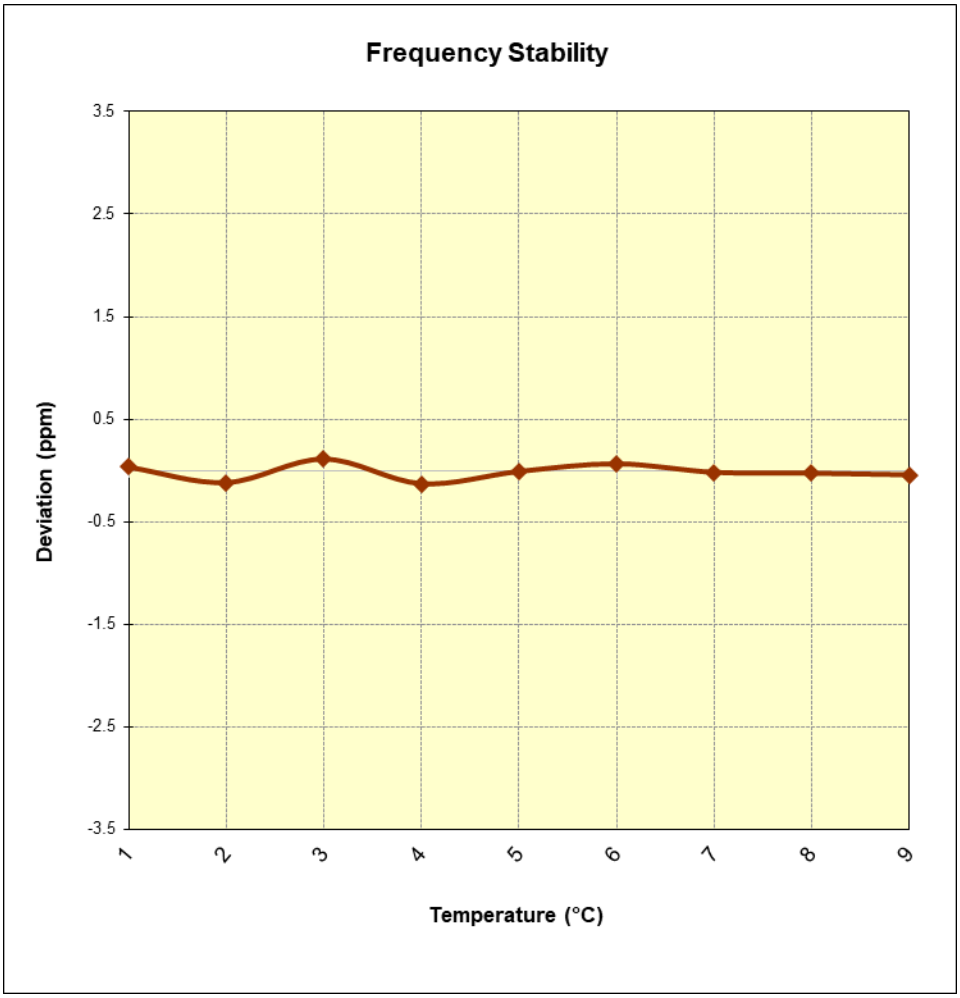

Figure 7-15. Frequency Stability Graph (Band 25/2)

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Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	2,310,000,157	157	0.0000068
100 %		- 20	2,310,000,046	46	0.0000020
100 %		- 10	2,310,000,209	209	0.0000090
100 %		0	2,310,000,059	59	0.0000026
100 %		+ 10	2,309,999,671	-329	-0.0000142
100 %		+ 20	2,310,000,378	378	0.0000164
100 %		+ 30	2,310,000,234	234	0.0000101
100 %		+ 40	2,310,000,081	81	0.0000035
100 %		+ 50	2,310,000,009	9	0.0000004
BATT. ENDPOINT	2.53	+ 20	2,309,999,807	-193	-0.0000084

Table 7-56. Frequency Stability Data (Band 30)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 30 Frequency Stability Measurements

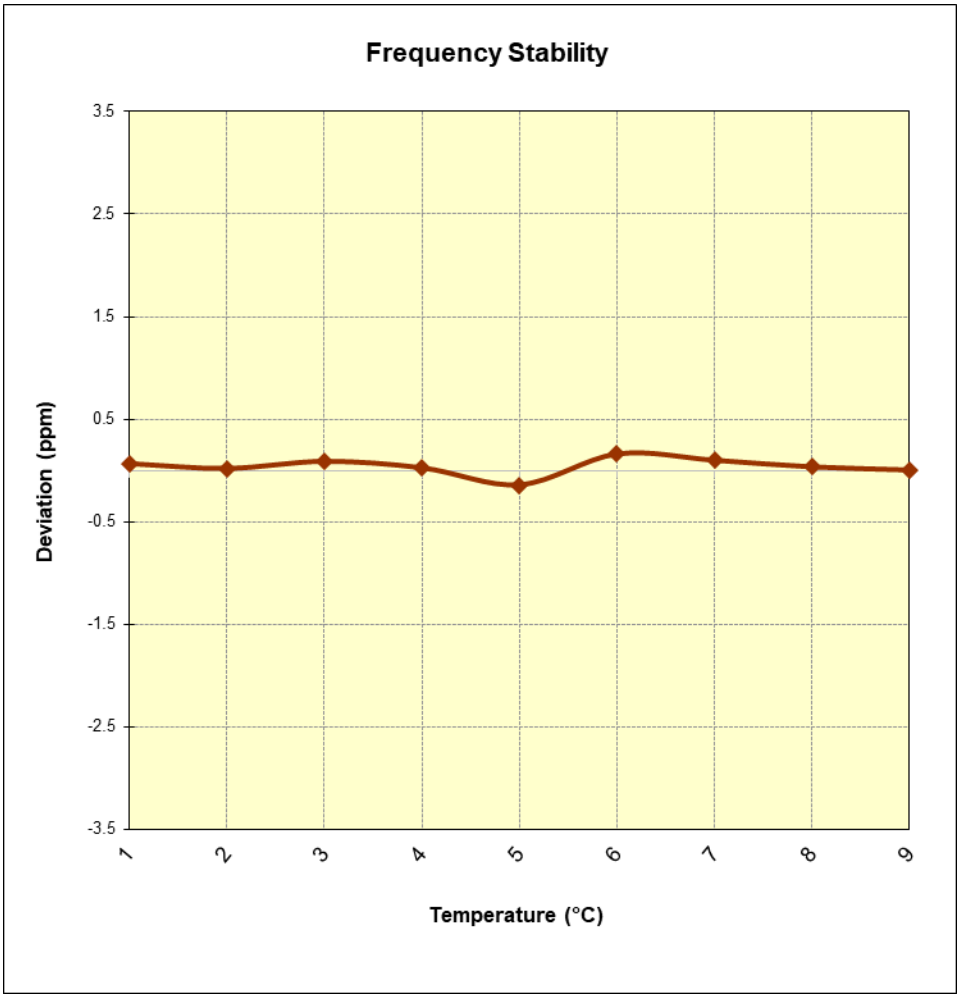

Figure 7-16. Frequency Stability Graph (Band 30)

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Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	2,534,999,975	-25	-0.0000010
100 %		- 20	2,535,000,233	233	0.0000092
100 %		- 10	2,534,999,747	-253	-0.0000100
100 %		0	2,534,999,873	-127	-0.0000050
100 %		+ 10	2,535,000,204	204	0.0000080
100 %		+ 20	2,535,000,201	201	0.0000079
100 %		+ 30	2,534,999,752	-248	-0.0000098
100 %		+ 40	2,535,000,057	57	0.0000022
100 %		+ 50	2,535,000,004	4	0.0000002
BATT. ENDPOINT	2.53	+ 20	2,535,000,107	107	0.0000042

Table 7-57. Frequency Stability Data (Band 7)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 7 Frequency Stability Measurements

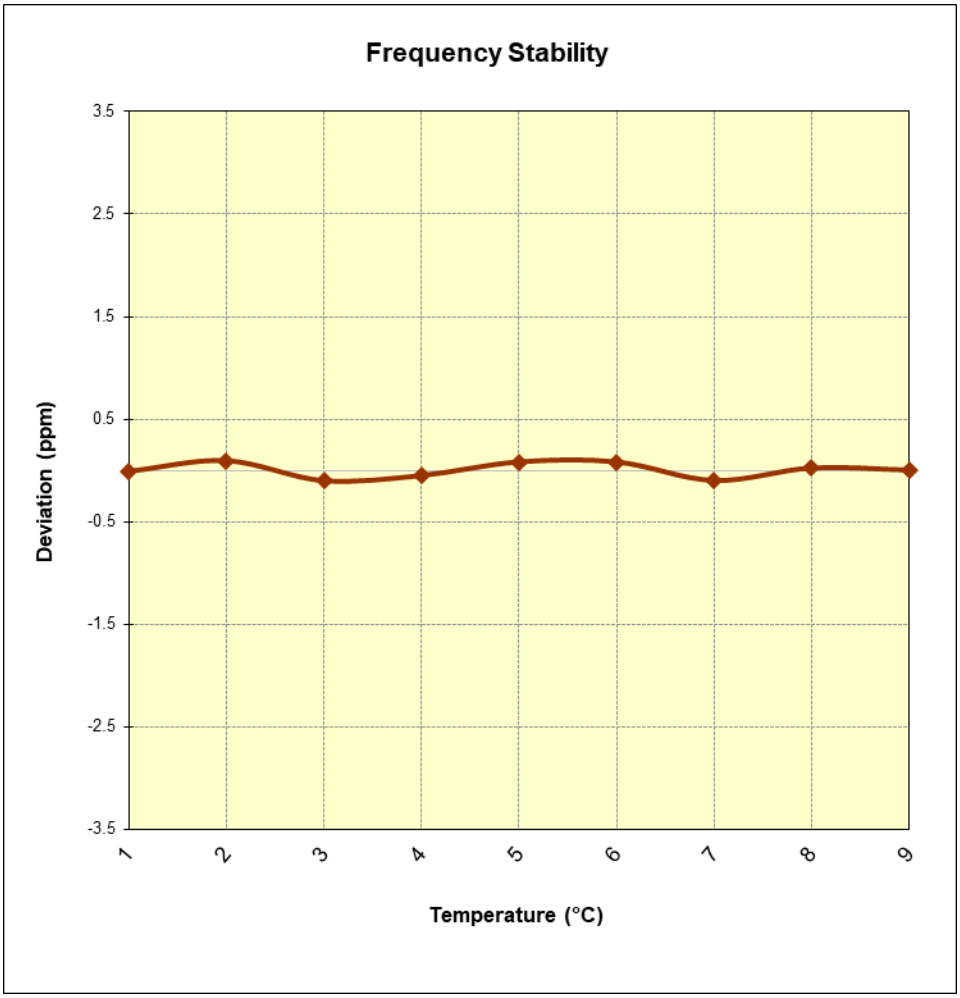

Figure 7-17. Frequency Stability Graph (Band 7)

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Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz

REFERENCE VOLTAGE: 4.26 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.26	- 30	2,592,999,735	-265	-0.0000102
100 %		- 20	2,592,999,716	-284	-0.0000110
100 %		- 10	2,592,999,795	-205	-0.0000079
100 %		0	2,592,999,850	-150	-0.0000058
100 %		+ 10	2,592,999,904	-96	-0.0000037
100 %		+ 20	2,592,999,885	-115	-0.0000044
100 %		+ 30	2,593,000,108	108	0.0000042
100 %		+ 40	2,592,999,987	-13	-0.0000005
100 %		+ 50	2,592,999,758	-242	-0.0000093
BATT. ENDPOINT	2.53	+ 20	2,593,000,004	4	0.0000002

Table 7-58. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 41 Frequency Stability Measurements

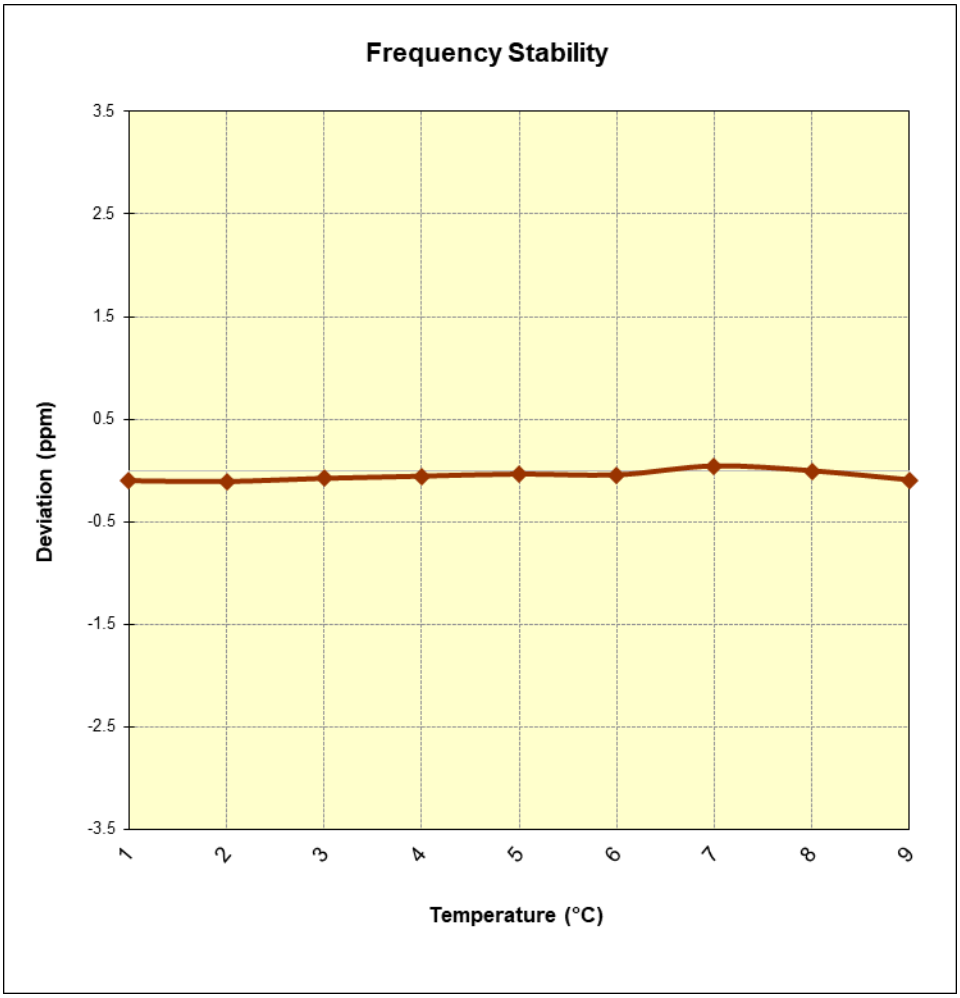

Figure 7-18. Frequency Stability Graph (Band 41)

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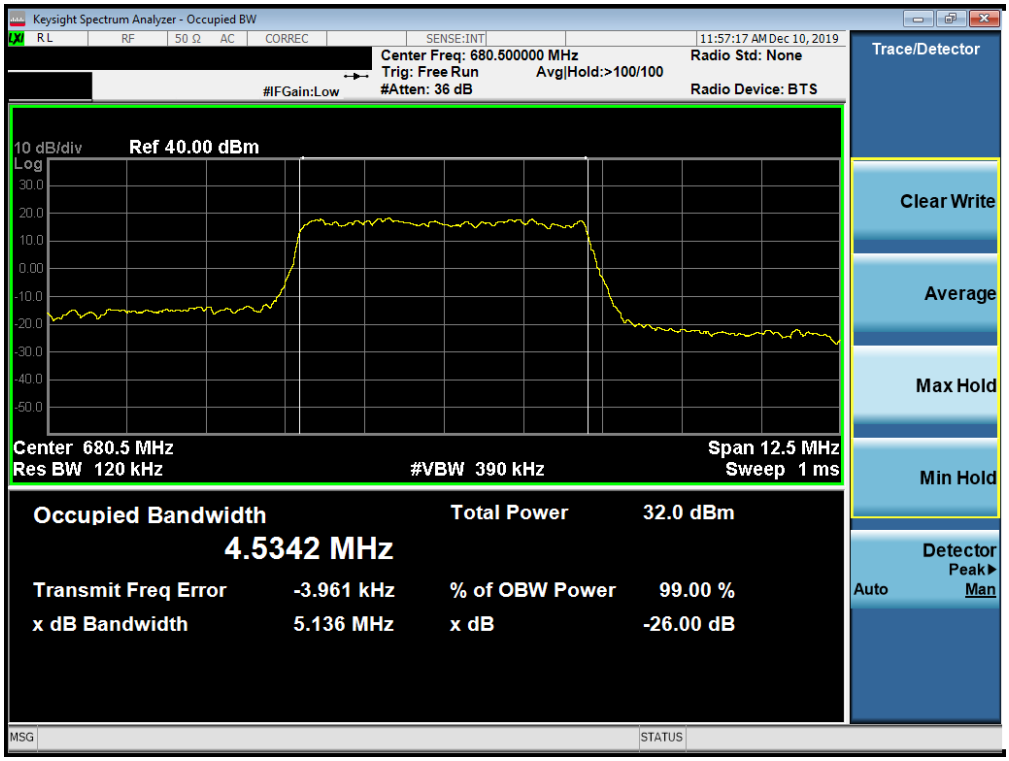
7.12 Sub 6GHz NR / EN-DC Test Results

Occupied Bandwidth

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NR Band n71



Plot 7-557. Occupied Bandwidth Plot (n71 5MHz QPSK-DFT-s-OFDM - Full RB Configuration)

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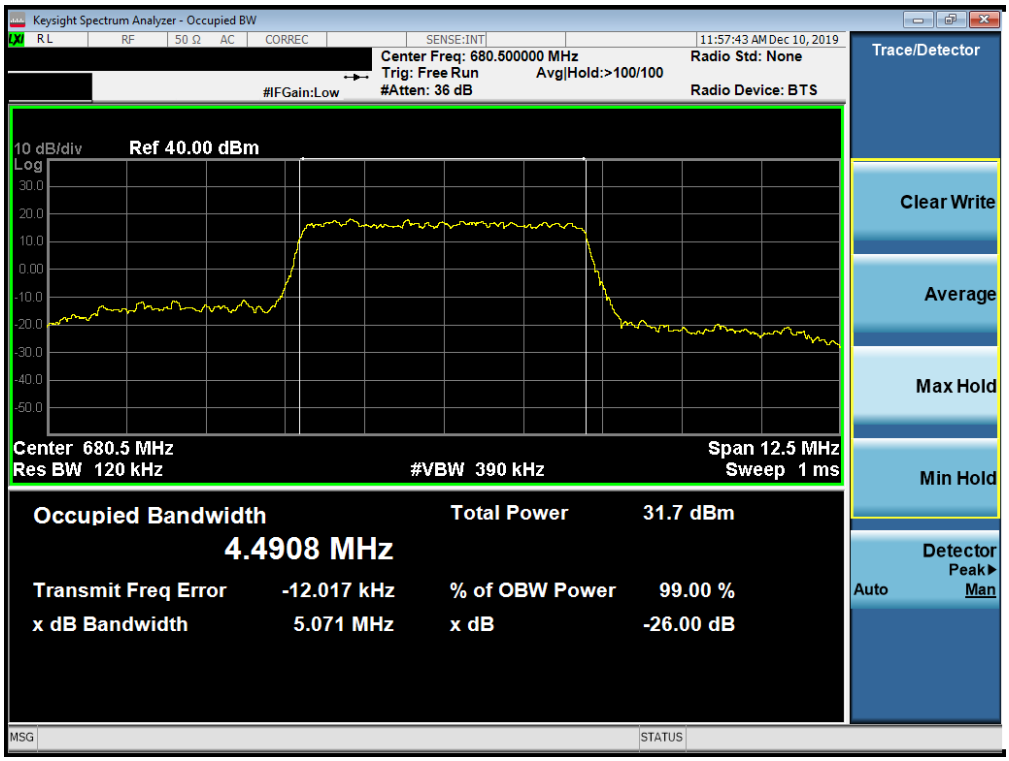
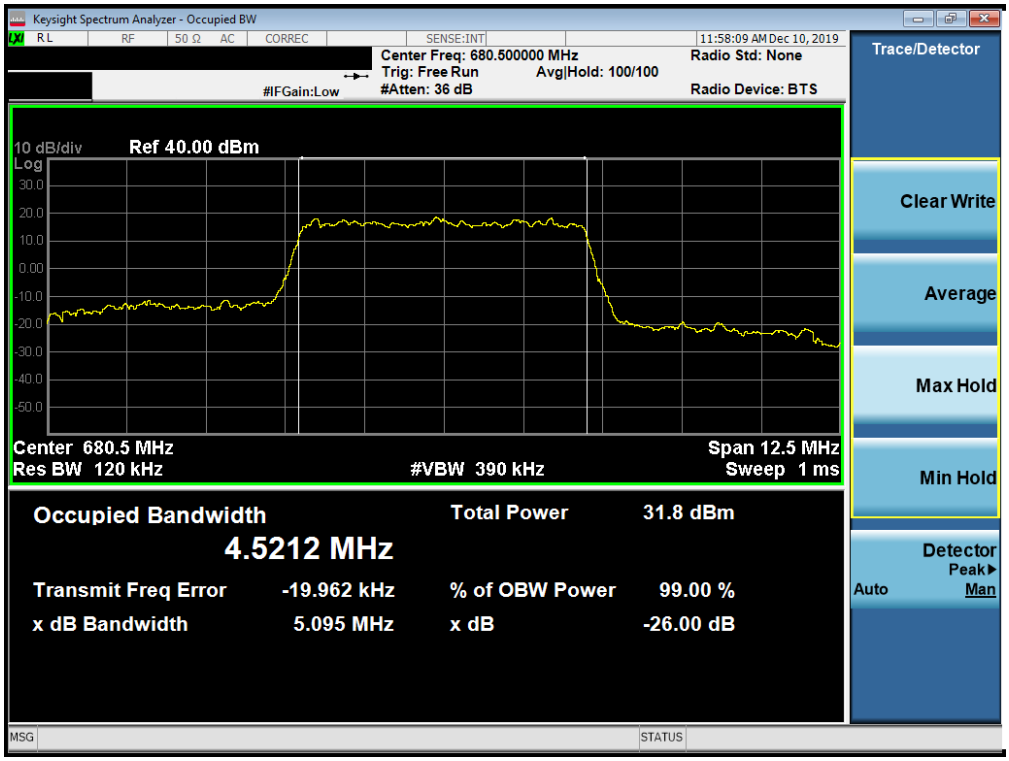


Plot 7-558. Occupied Bandwidth Plot (n71 5MHz 16QAM-DFT-s-OFDM - Full RB Configuration)



Plot 7-559. Occupied Bandwidth Plot (n71 5MHz 64QAM-DFT-s-OFDM- Full RB Configuration)

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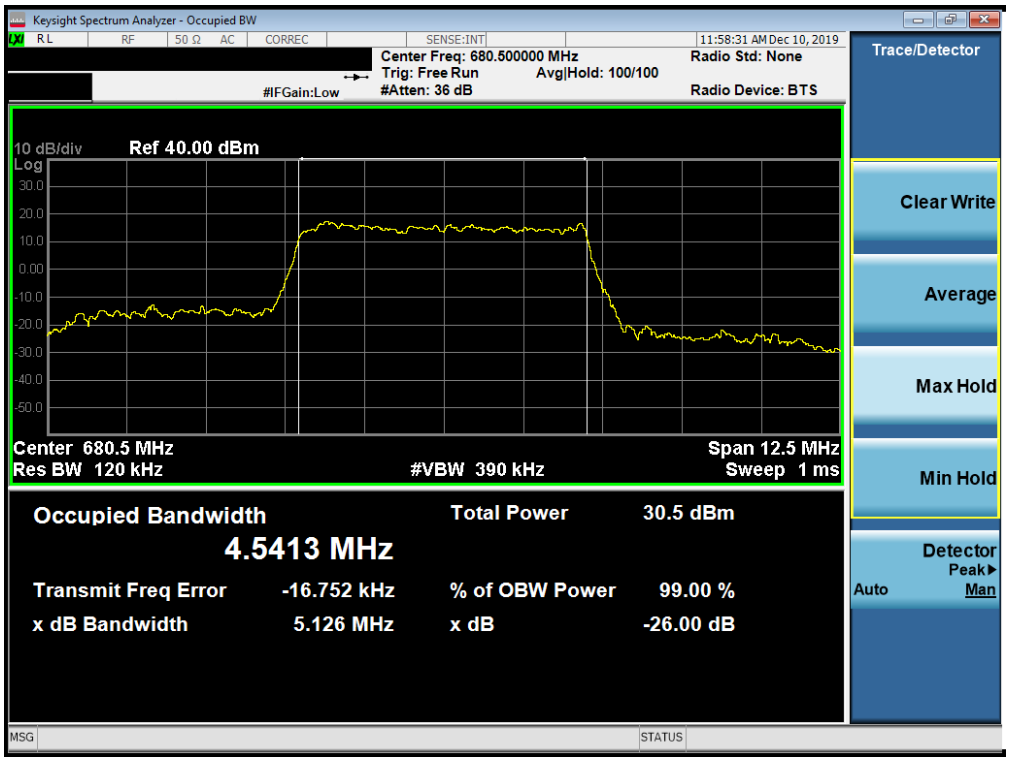
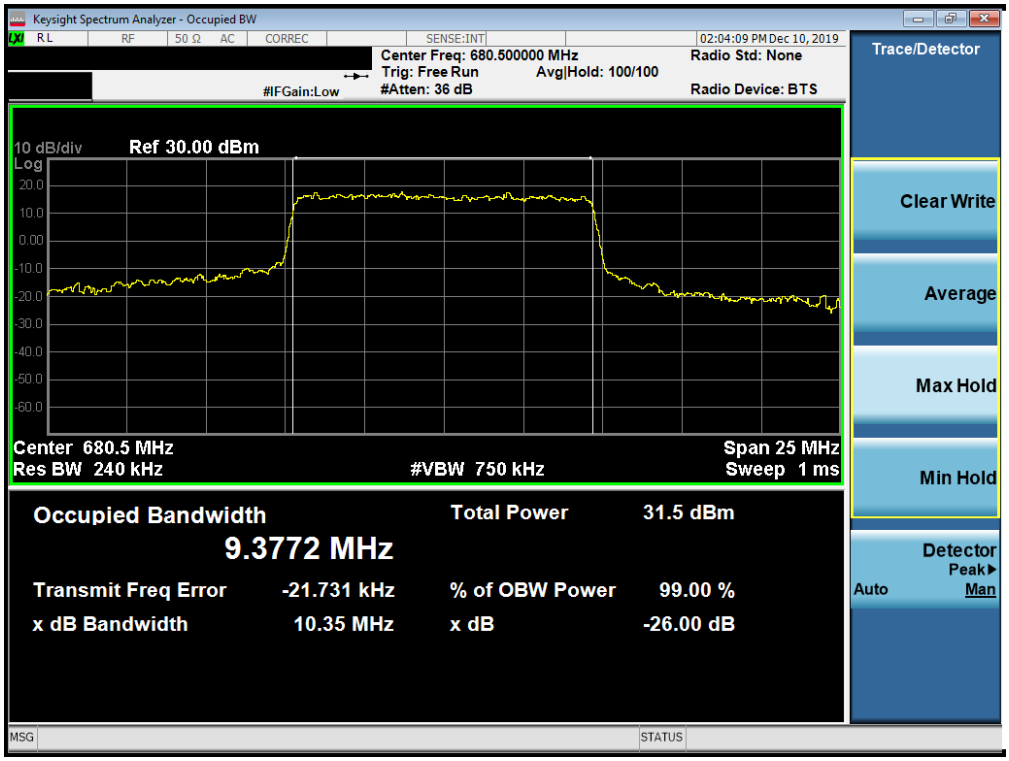


Plot 7-560. Occupied Bandwidth Plot (n71 5MHz 256QAM - DFT-s-OFDM - Full RB Configuration)



Plot 7-561. Occupied Bandwidth Plot (n71 10MHz QPSK - CP-OFDM - Full RB Configuration)

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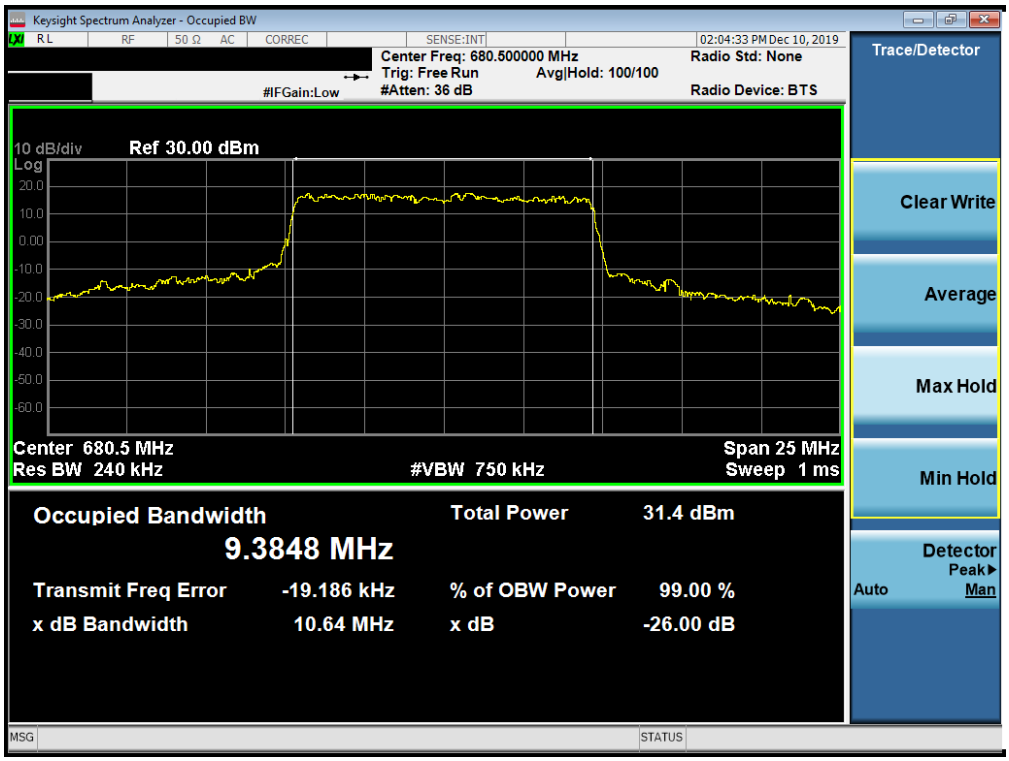
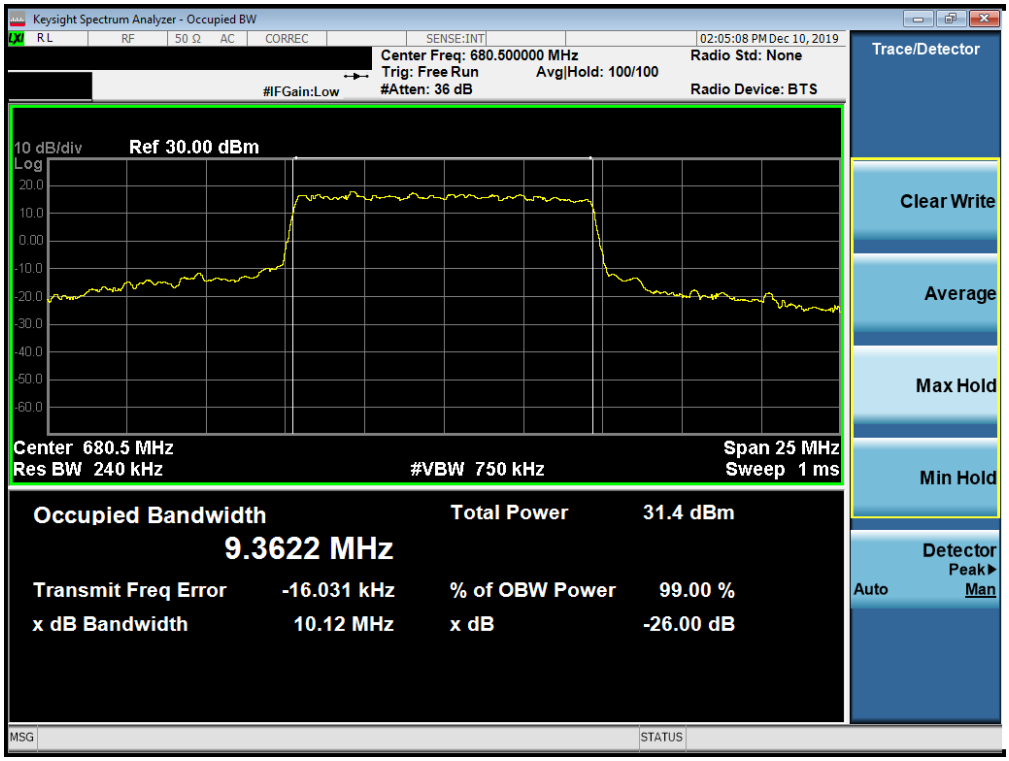


Plot 7-562. Occupied Bandwidth Plot (n71 10MHz 16QAM - CP-OFDM - Full RB Configuration)



Plot 7-563. Occupied Bandwidth Plot (n71 10MHz 64QAM - CP-OFDM- Full RB Configuration)

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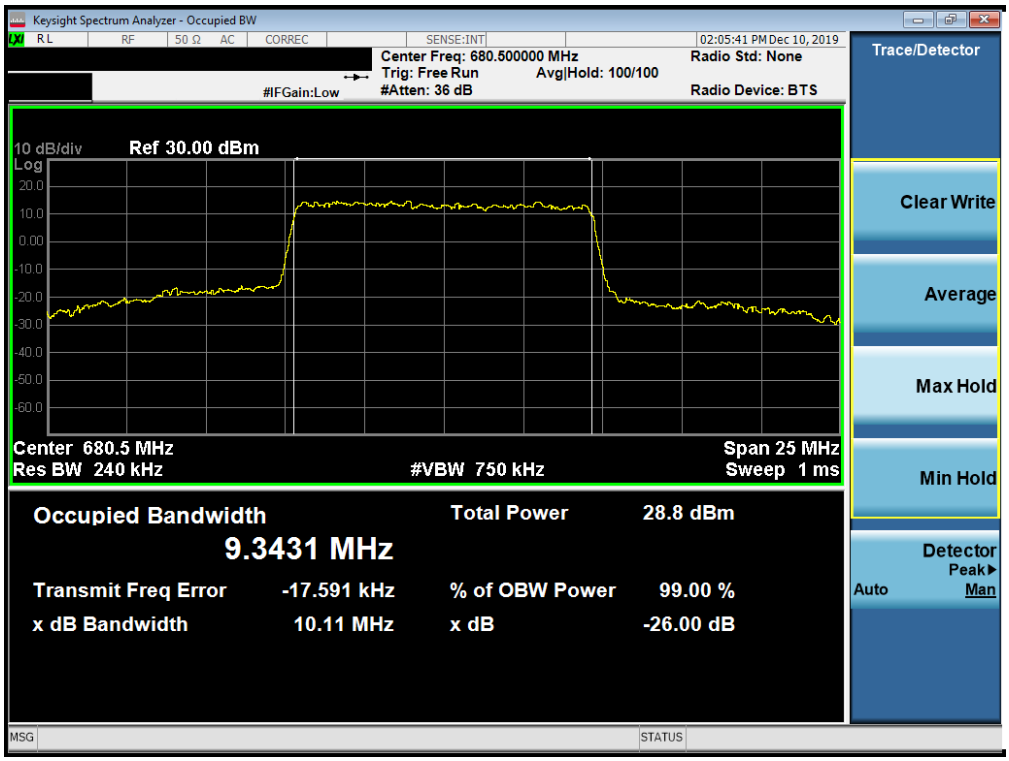
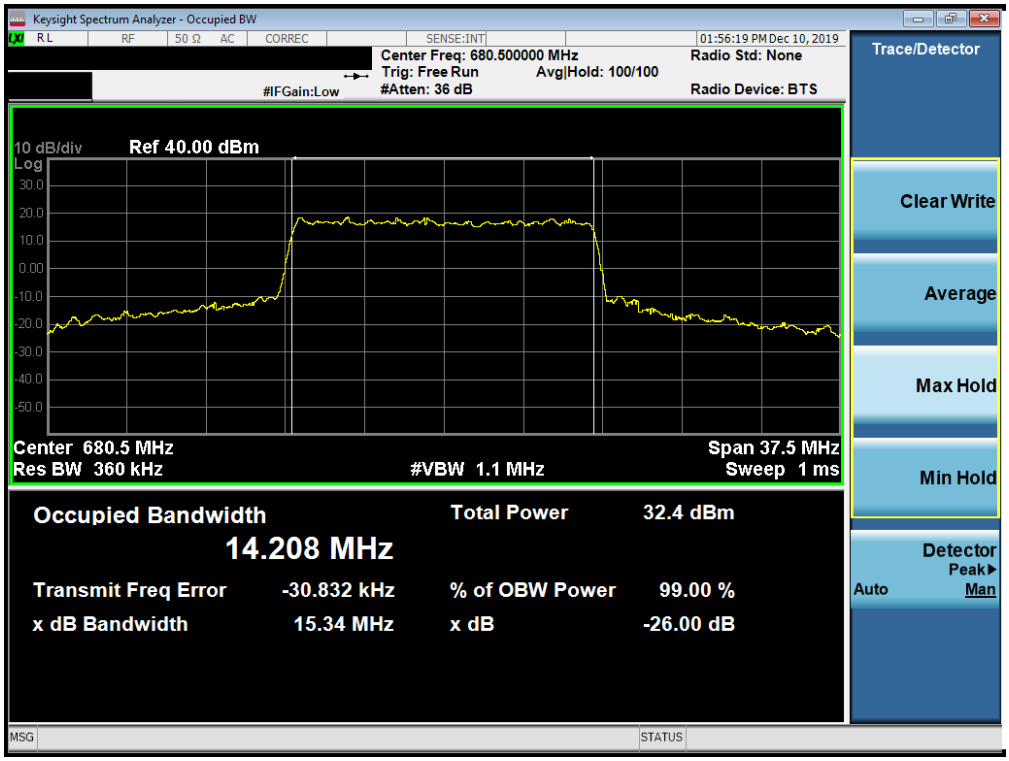


Plot 7-564. Occupied Bandwidth Plot (n71 10MHz 256QAM - CP-OFDM - Full RB Configuration)



Plot 7-565. Occupied Bandwidth Plot (n71 15MHz QPSK - CP-OFDM - Full RB Configuration)

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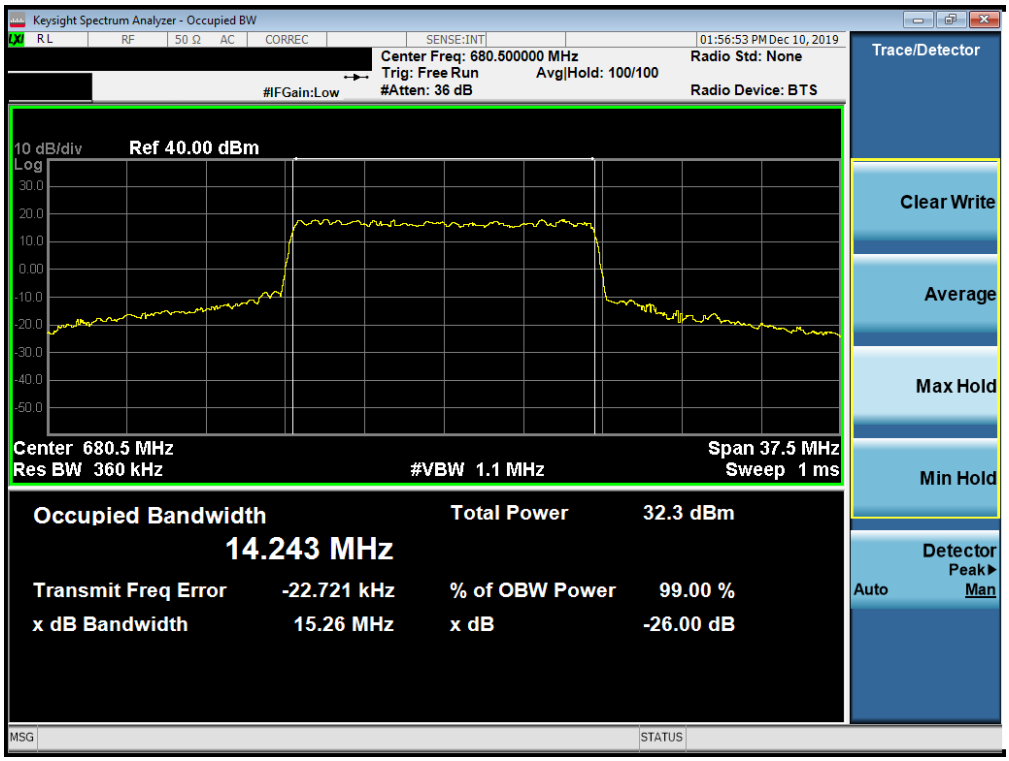
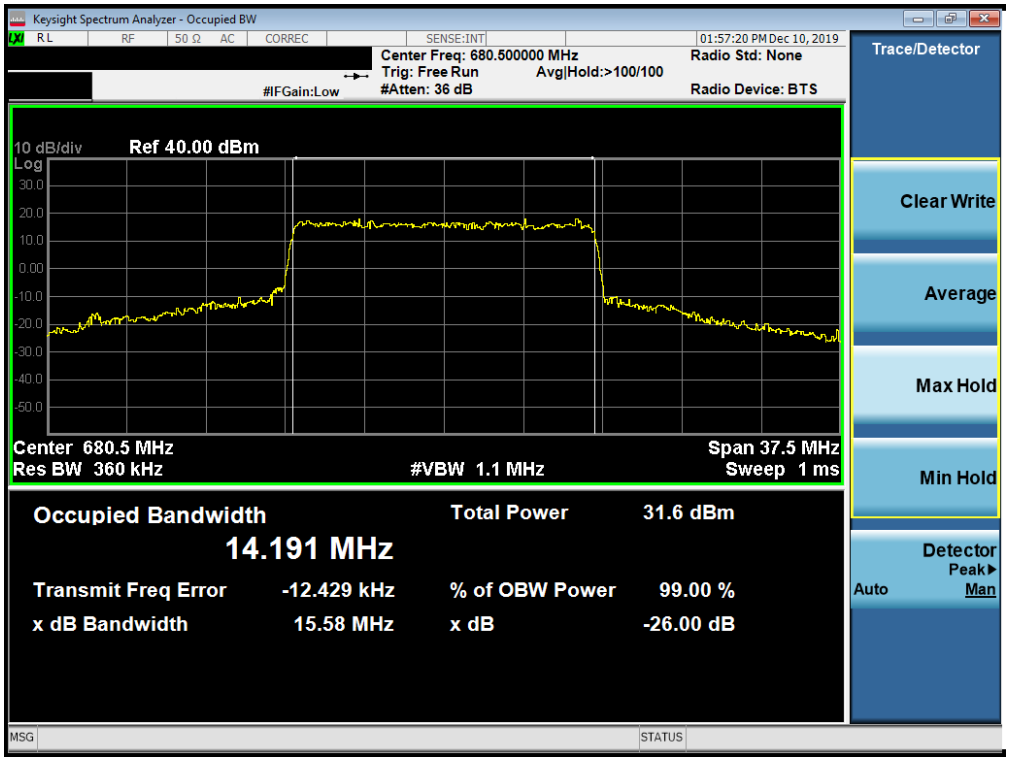


Plot 7-566. Occupied Bandwidth Plot (n71 15MHz 16QAM - CP-OFDM - Full RB Configuration)



Plot 7-567. Occupied Bandwidth Plot (n71 15MHz 64QAM - CP-OFDM- Full RB Configuration)

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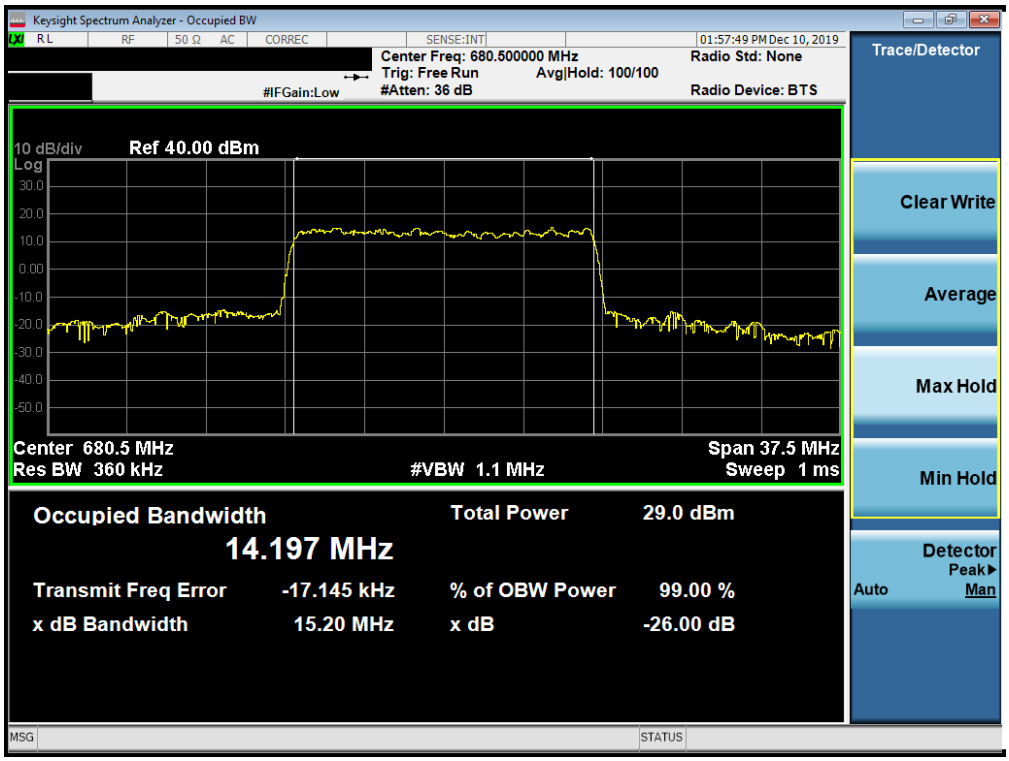
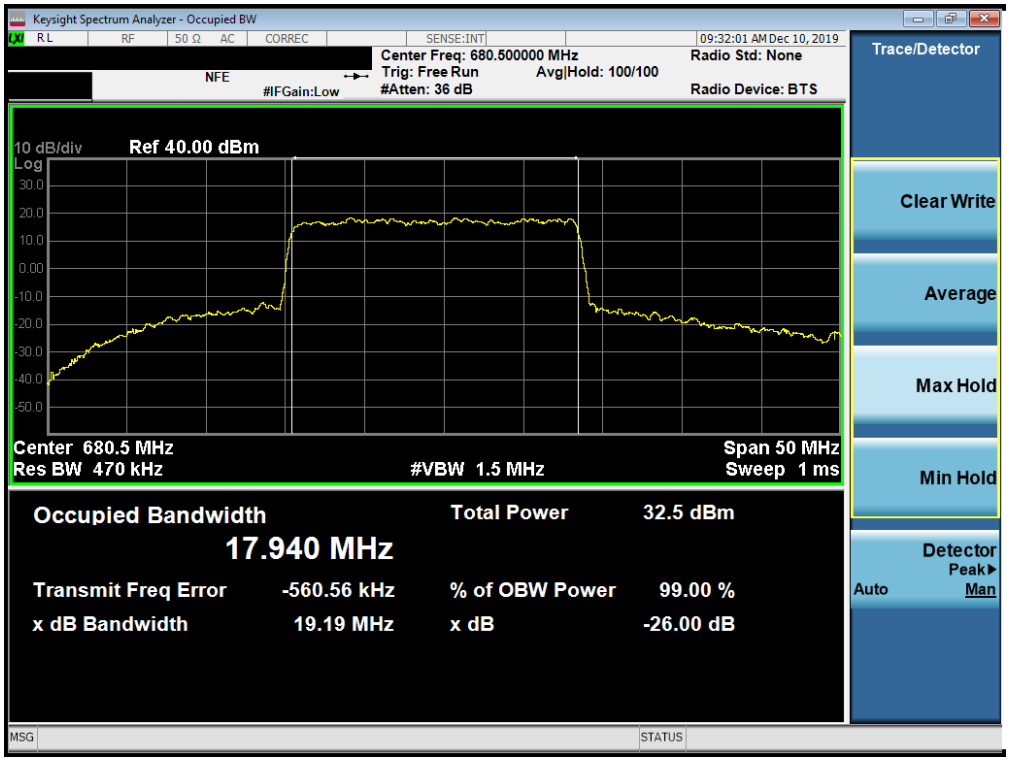


Plot 7-568. Occupied Bandwidth Plot (n71 15MHz 256QAM - CP-OFDM - Full RB Configuration)



Plot 7-569. Occupied Bandwidth Plot (n71 20MHz QPSK - CP-OFDM - Full RB Configuration)

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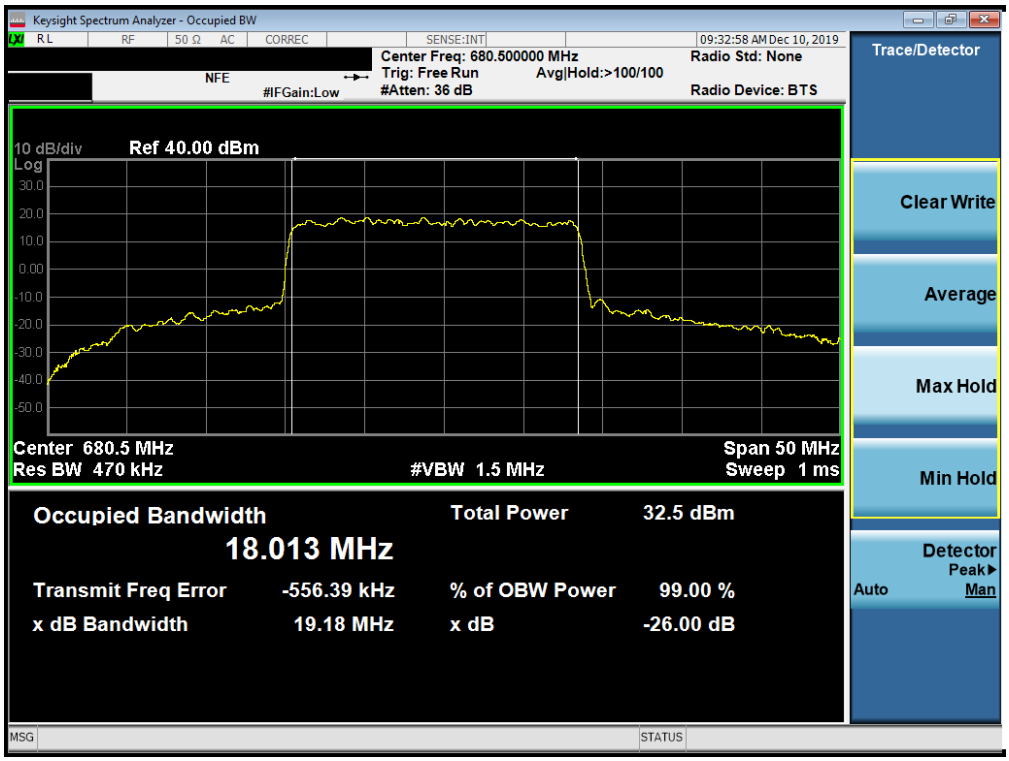
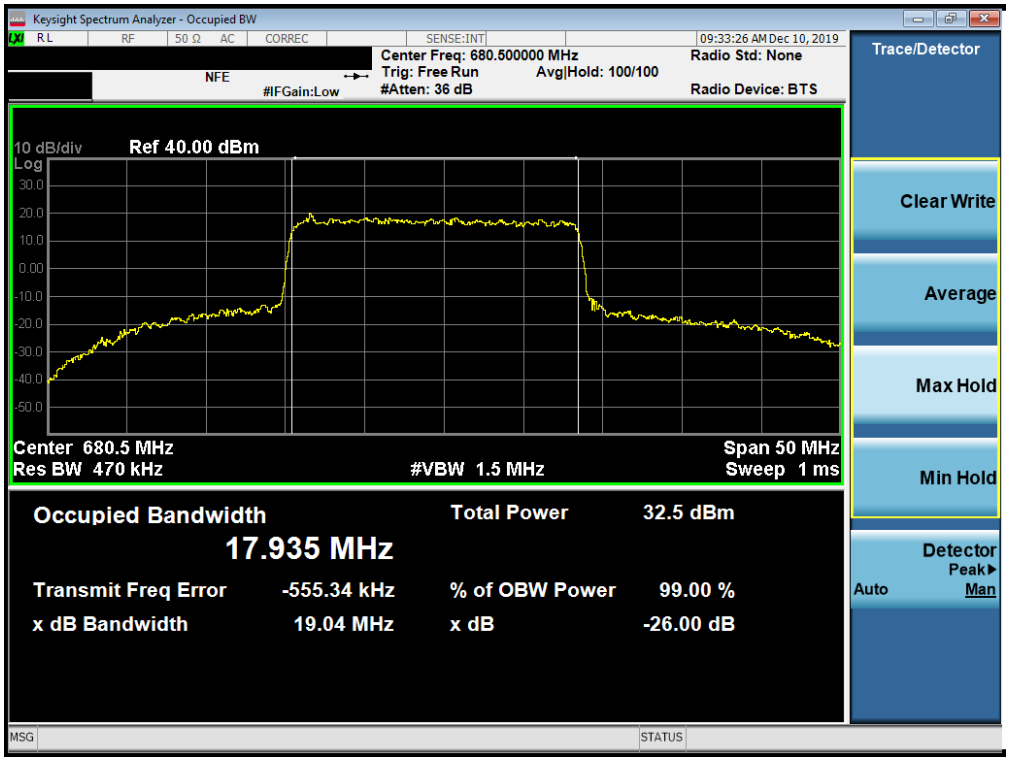


Plot 7-570. Occupied Bandwidth Plot (n71 20MHz 16QAM - CP-OFDM - Full RB Configuration)



Plot 7-571. Occupied Bandwidth Plot (n71 20MHz 64QAM - CP-OFDM- Full RB Configuration)

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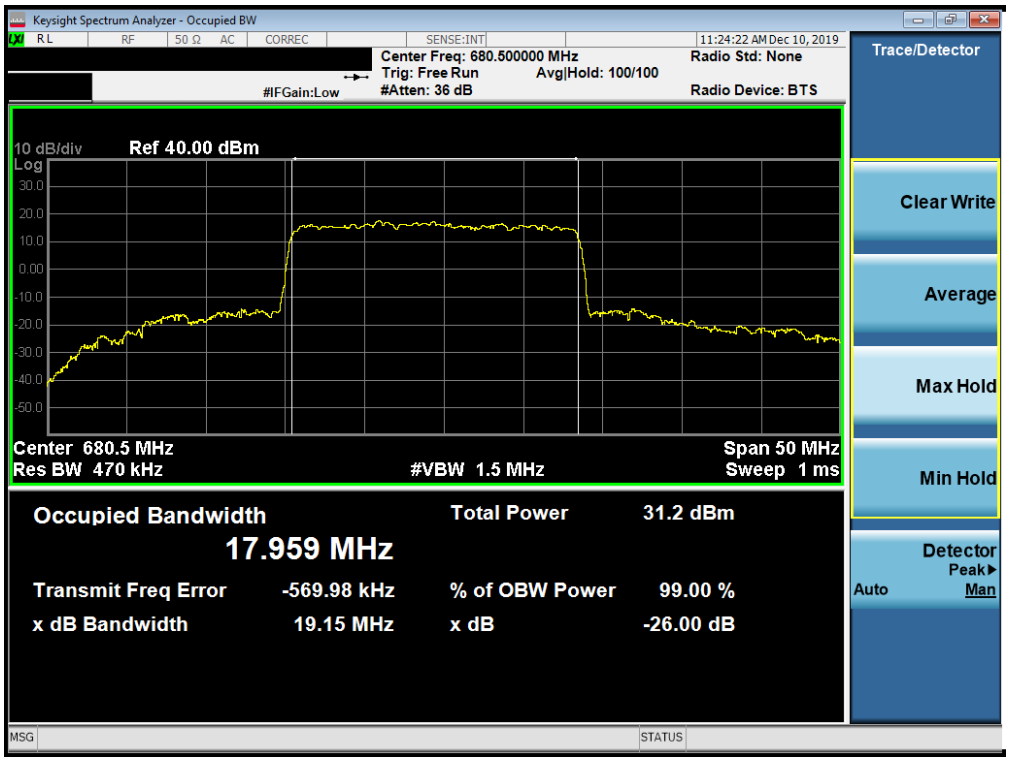

Plot 7-572. Occupied Bandwidth Plot (n71 20MHz 256QAM - CP-OFDM - Full RB Configuration)

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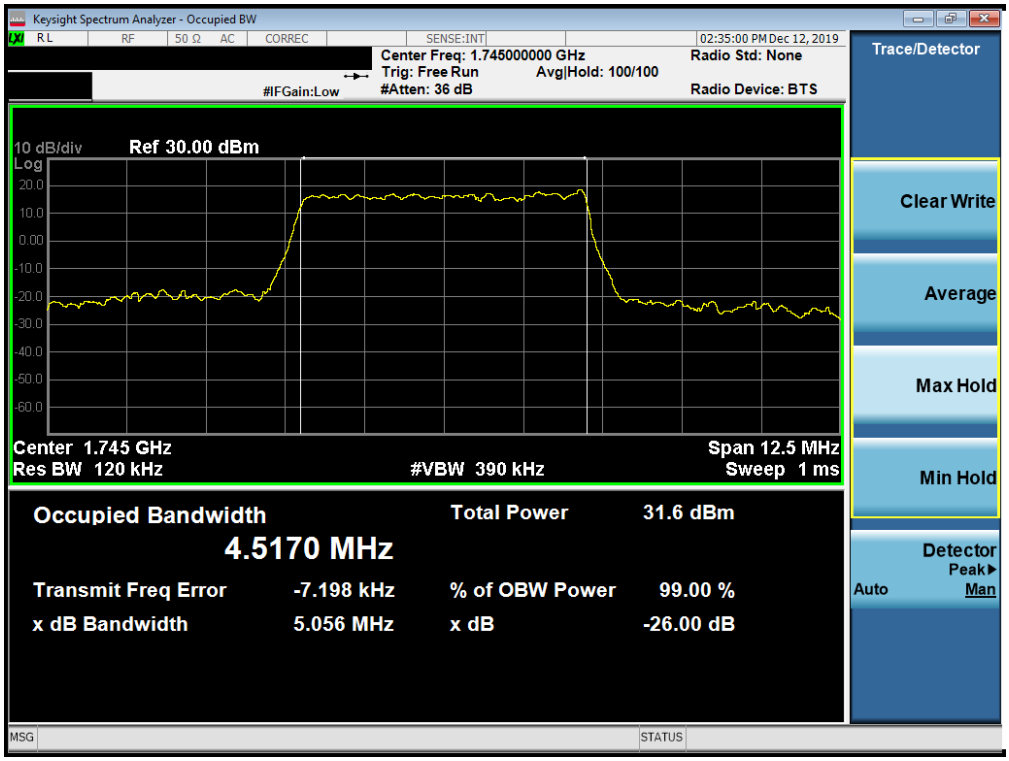
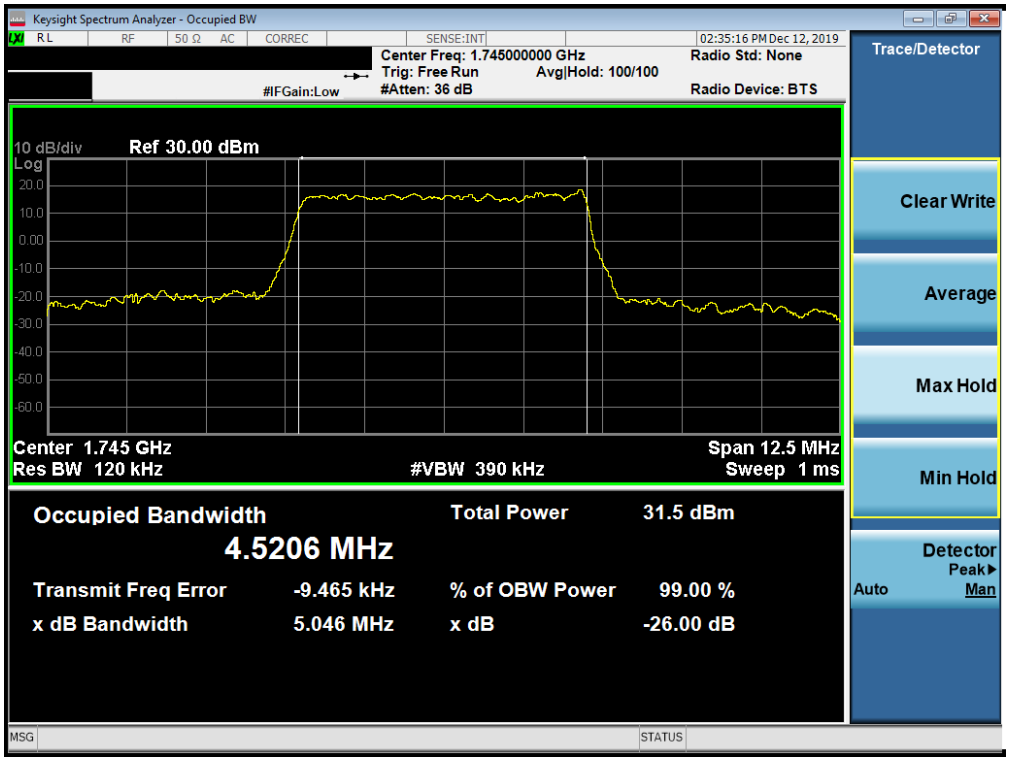
NR Band n66



Plot 7-573. Occupied Bandwidth Plot (n66 5MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-574. Occupied Bandwidth Plot (n66 5MHz 16QAM - CP-OFDM - Full RB Configuration)

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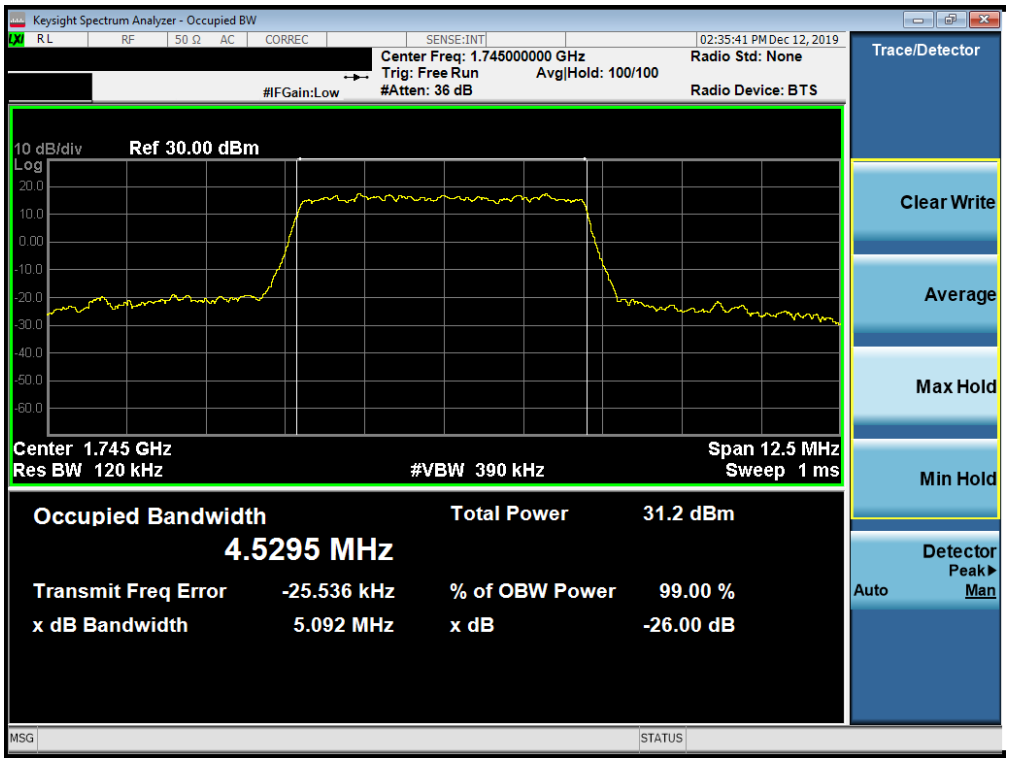
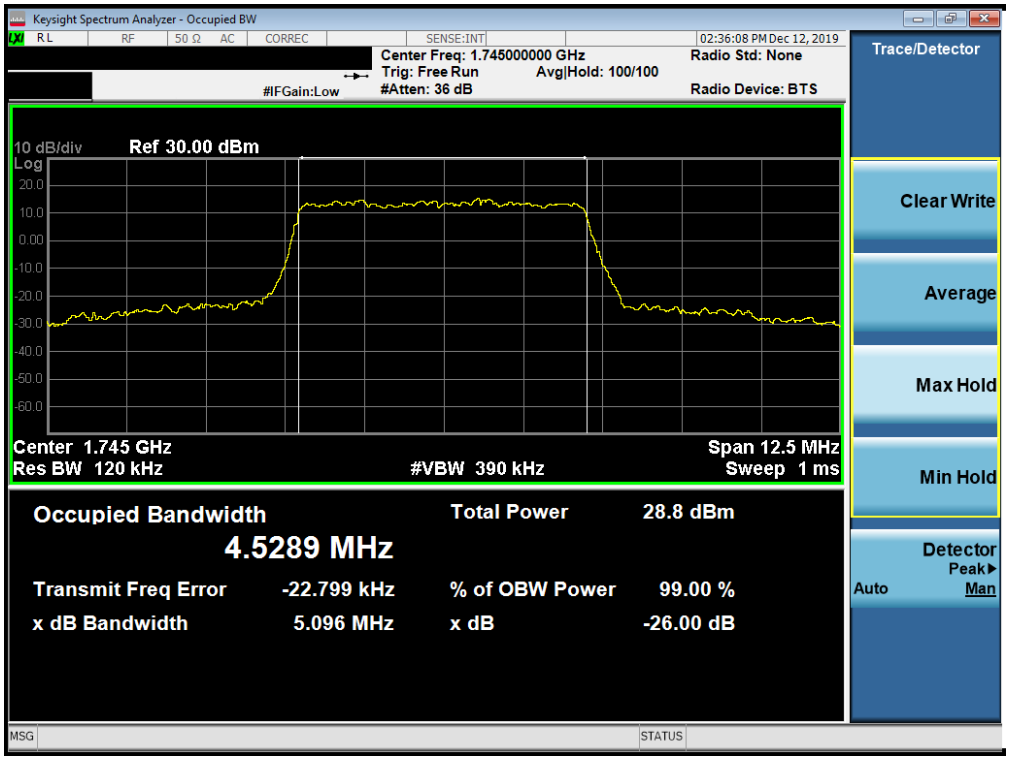


Plot 7-575. Occupied Bandwidth Plot (n66 5MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-576. Occupied Bandwidth Plot (n66 5MHz 256QAM - CP-OFDM - Full RB Configuration)

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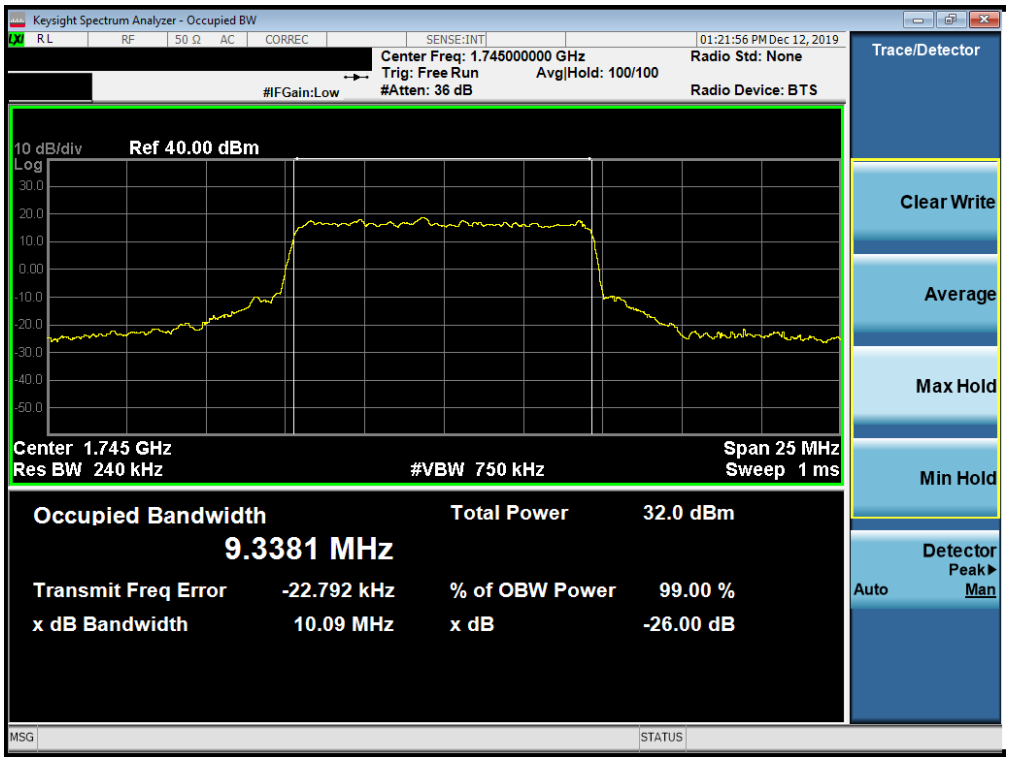
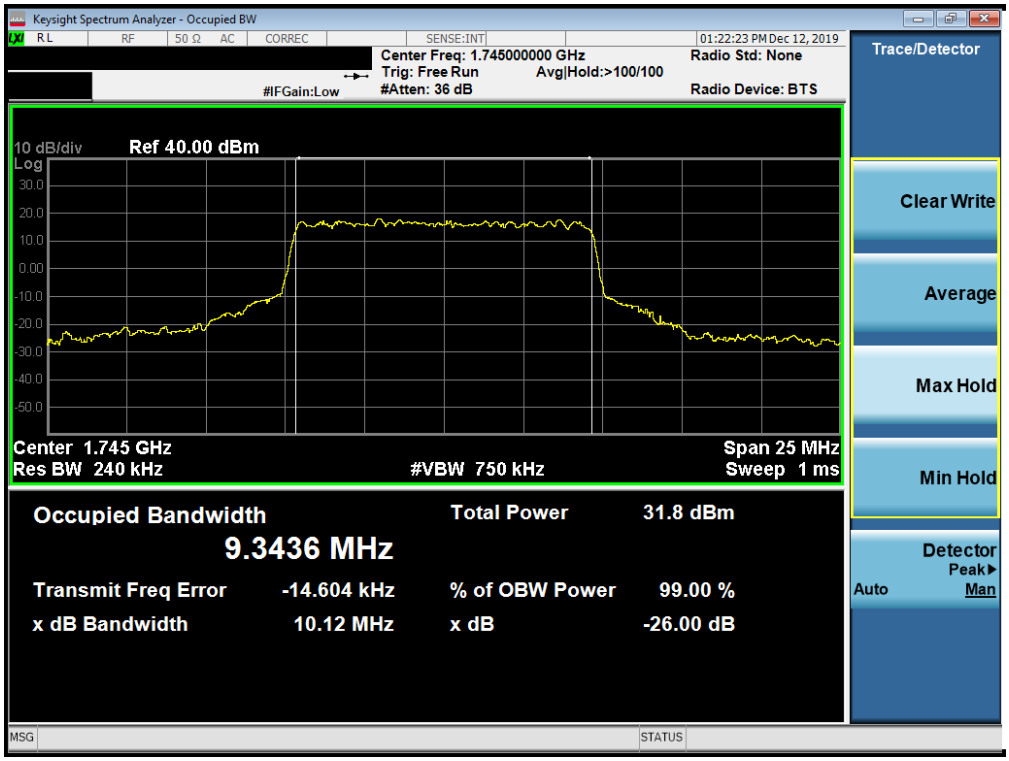


Plot 7-577. Occupied Bandwidth Plot (n66 10MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-578. Occupied Bandwidth Plot (n66 10MHz 16QAM - CP-OFDM - Full RB Configuration)

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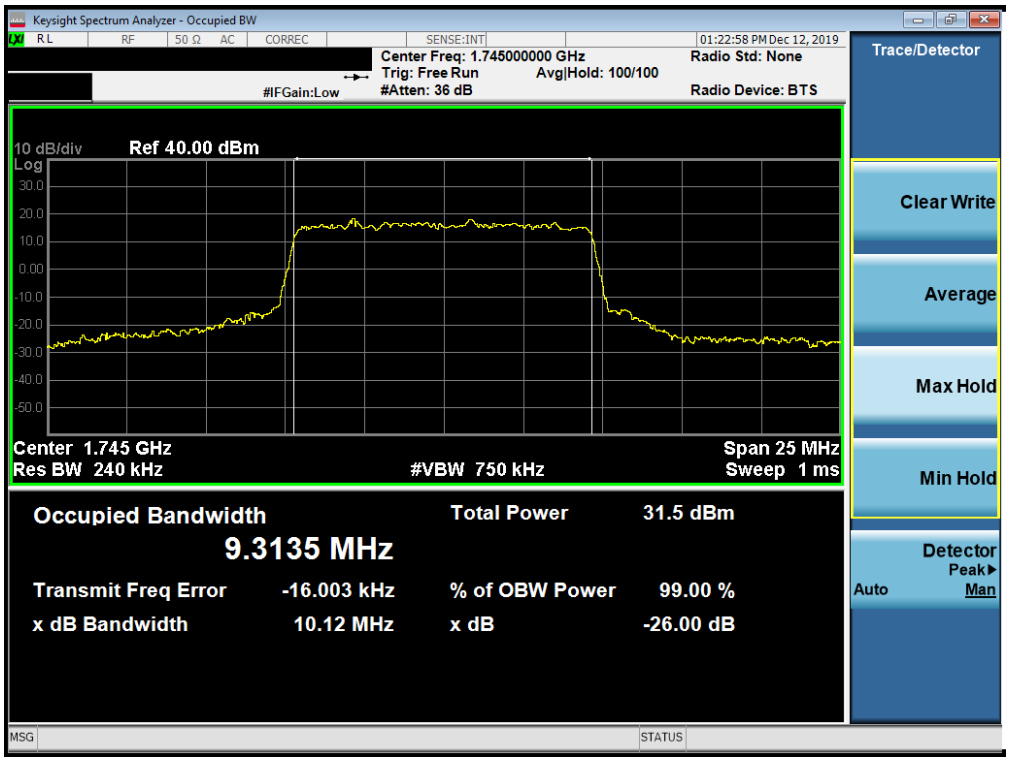
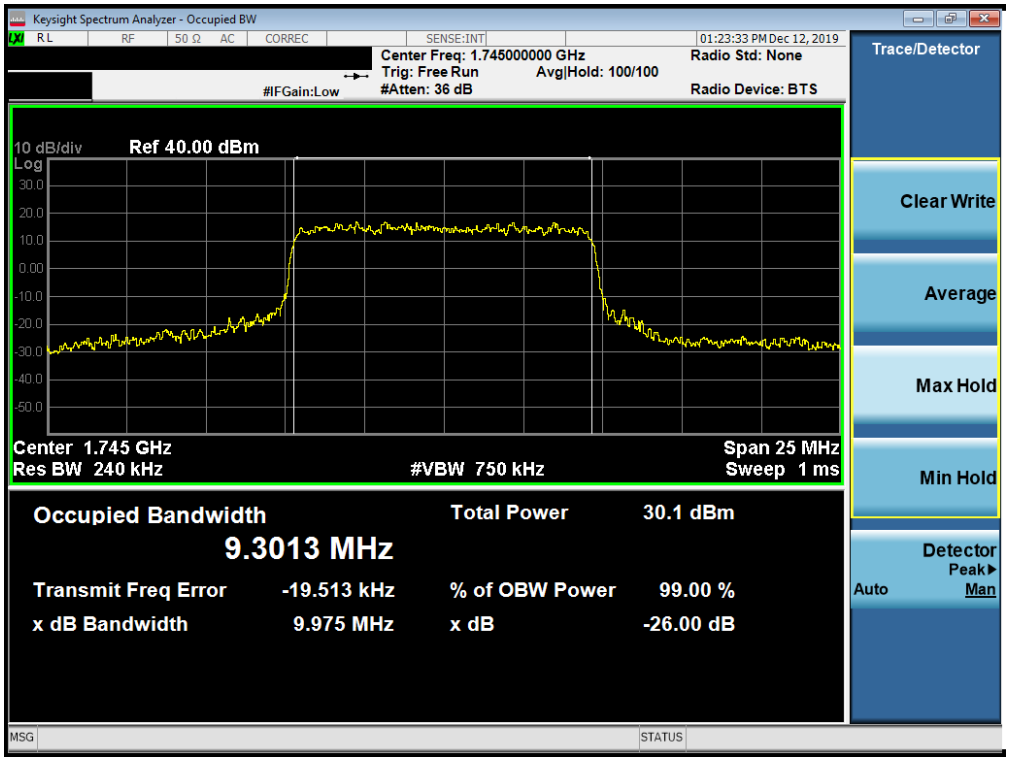


Plot 7-579. Occupied Bandwidth Plot (n66 10MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-580. Occupied Bandwidth Plot (n66 10MHz 256QAM - CP-OFDM - Full RB Configuration)

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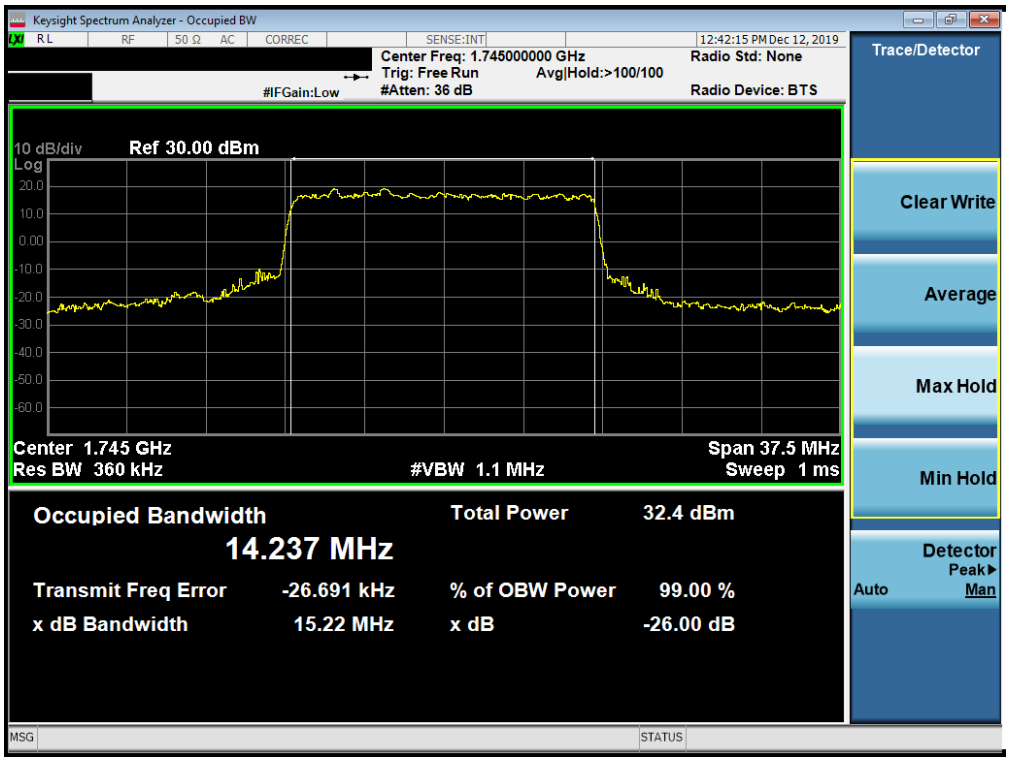
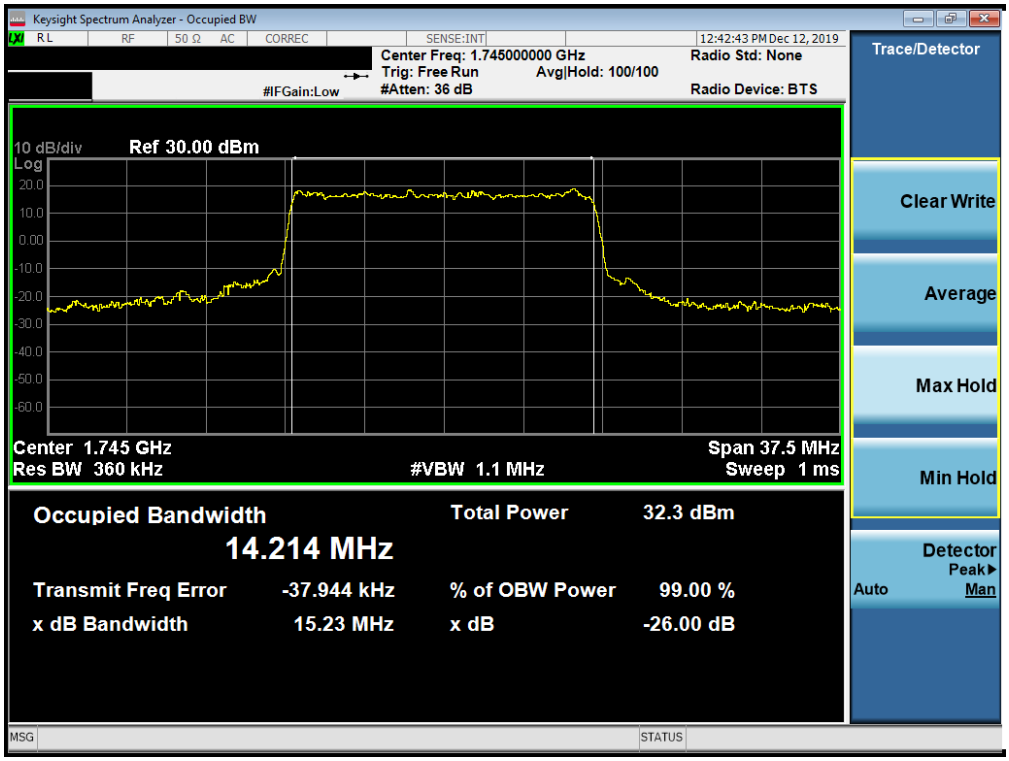


Plot 7-581. Occupied Bandwidth Plot (n66 15MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-582. Occupied Bandwidth Plot (n66 15MHz 16QAM - CP-OFDM - Full RB Configuration)

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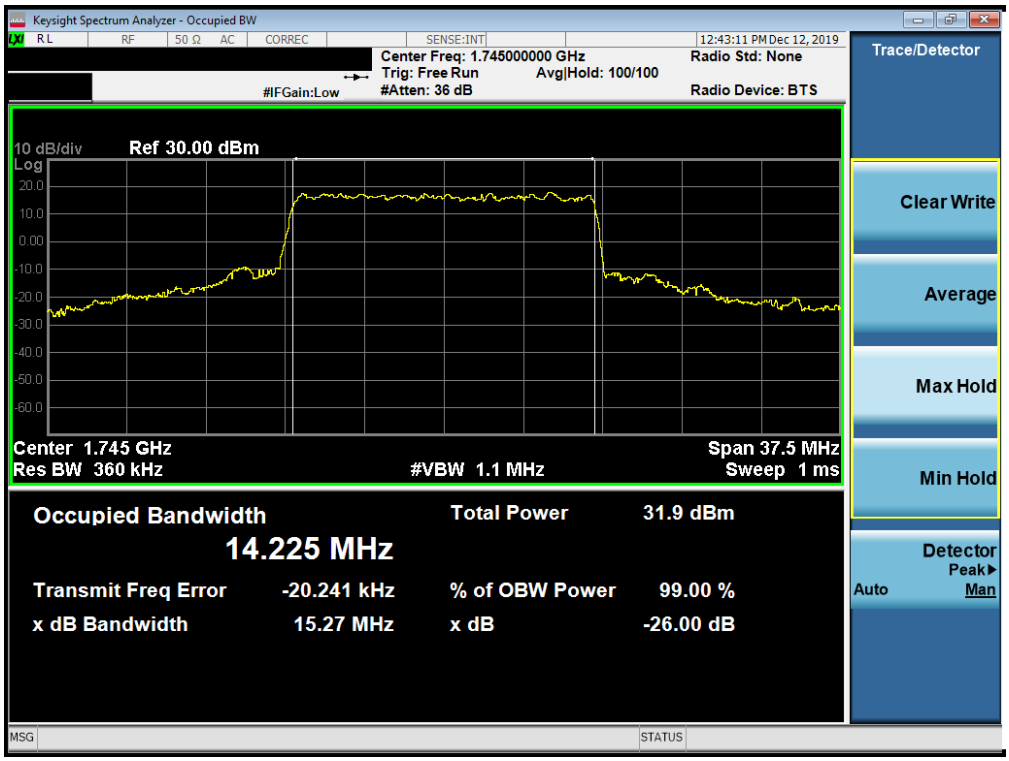
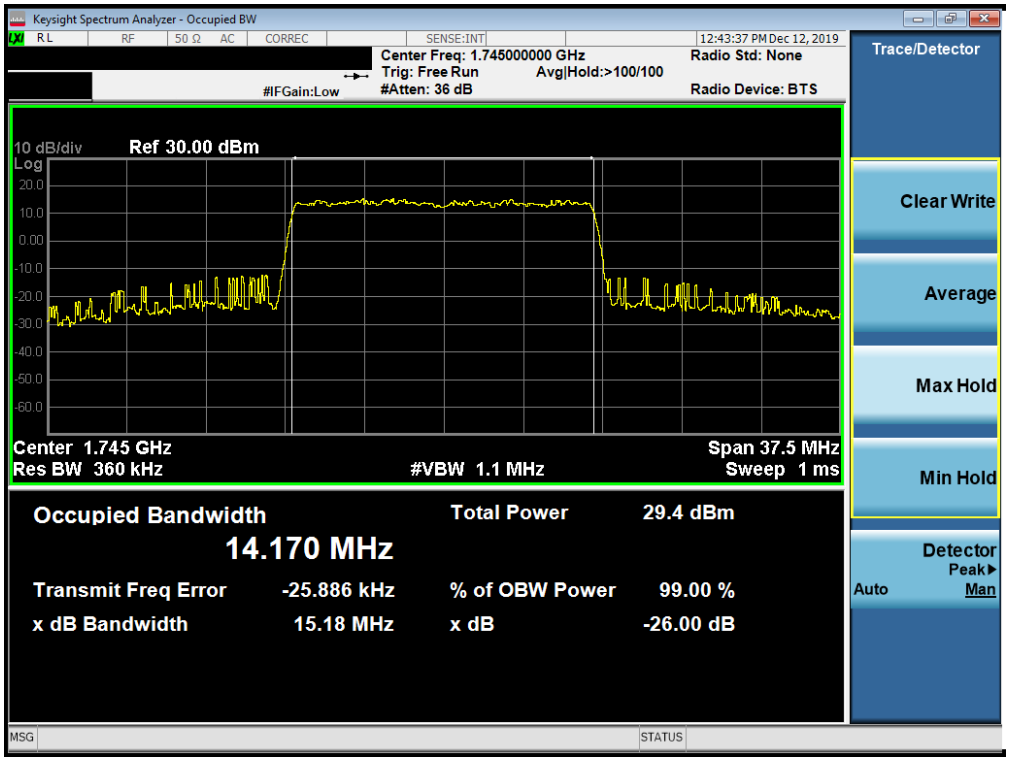


Plot 7-583. Occupied Bandwidth Plot (n66 15MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-584. Occupied Bandwidth Plot (n66 15MHz 256QAM - CP-OFDM - Full RB Configuration)

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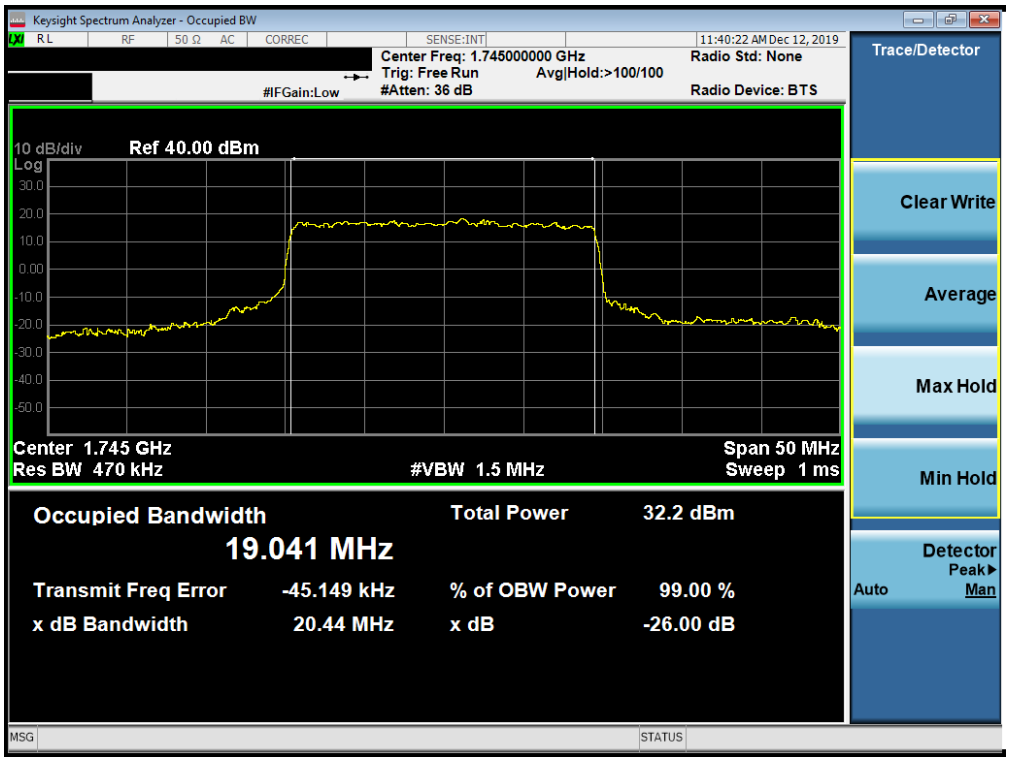
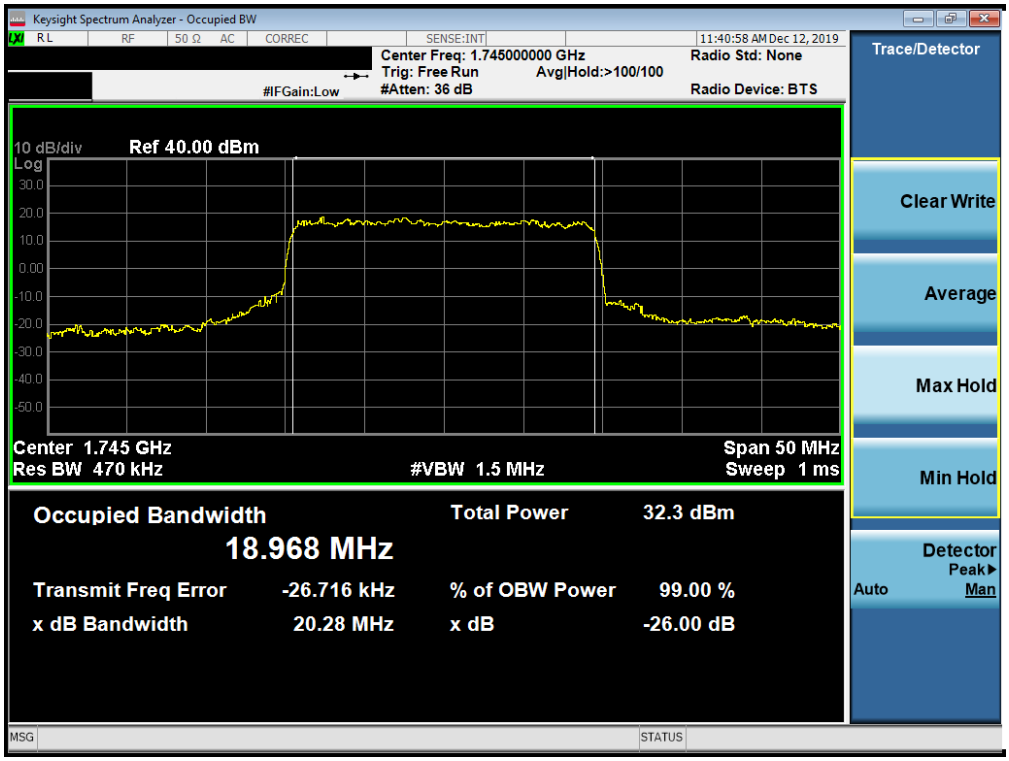


Plot 7-585. Occupied Bandwidth Plot (n66 20MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-586. Occupied Bandwidth Plot (n66 20MHz 16QAM - CP-OFDM - Full RB Configuration)

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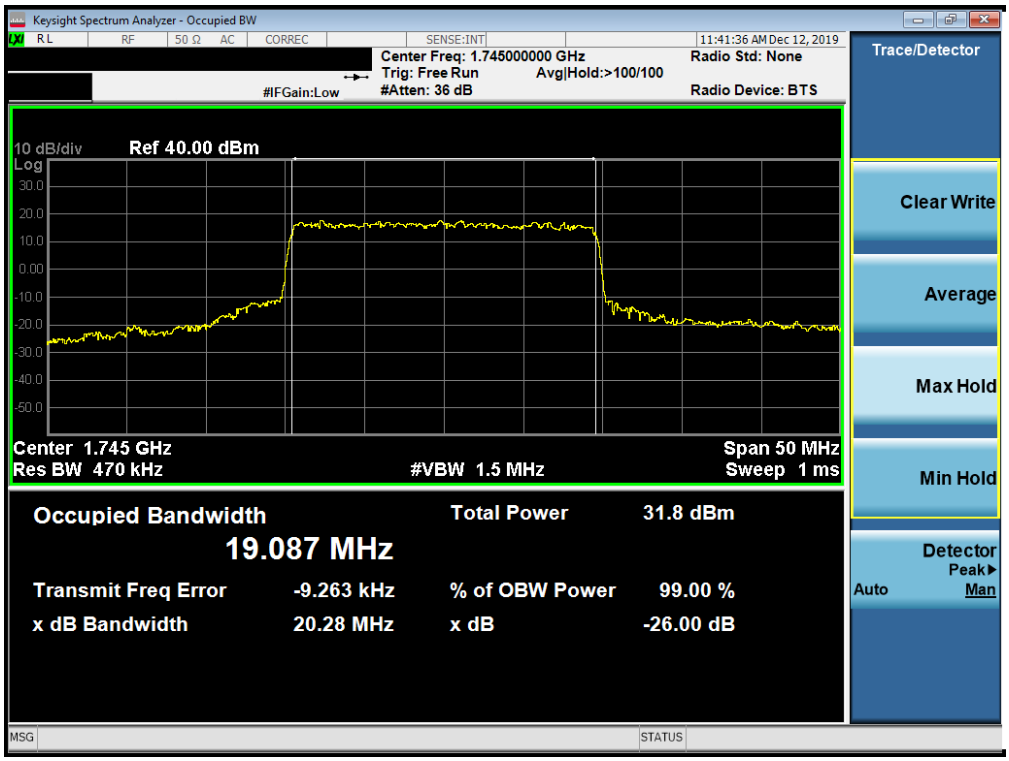
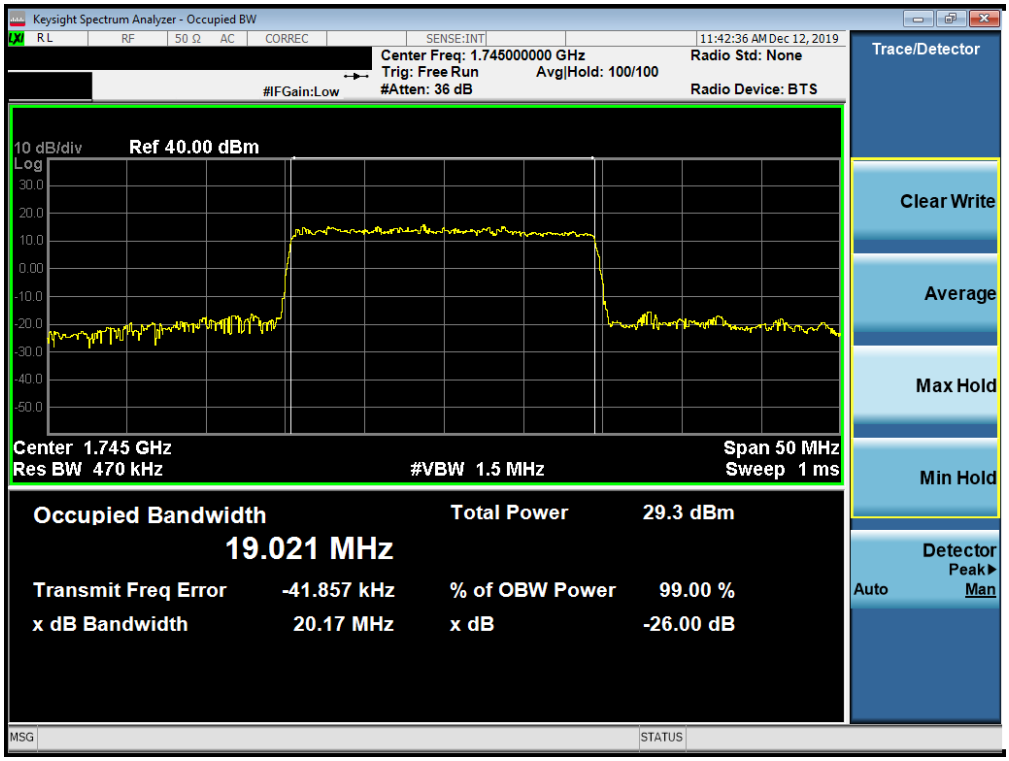


Plot 7-587. Occupied Bandwidth Plot (n66 20MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-588. Occupied Bandwidth Plot (n66 20MHz 256QAM - CP-OFDM - Full RB Configuration)

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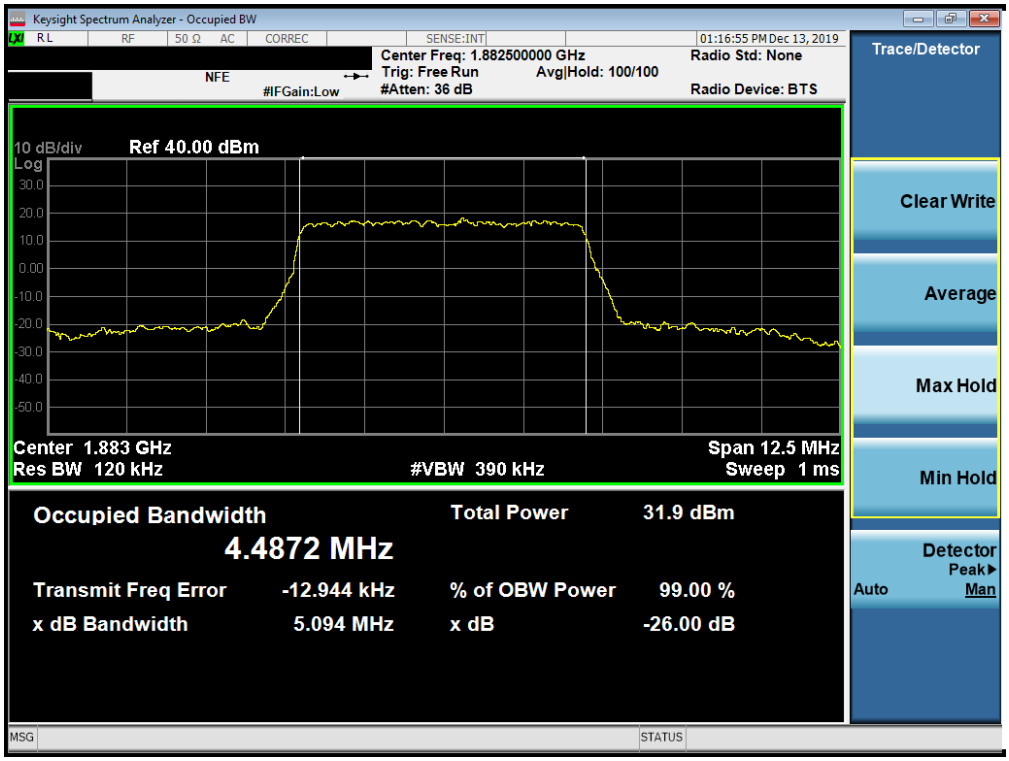
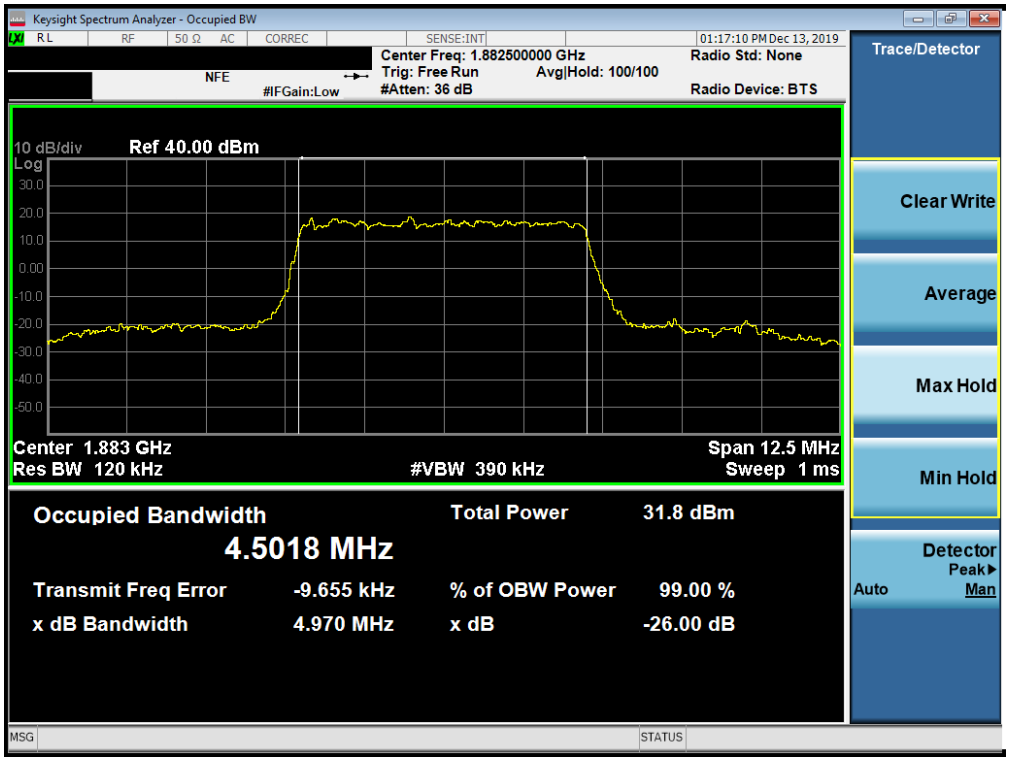
NR Band n25/2



Plot 7-589. Occupied Bandwidth Plot (n25/2 5MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-590. Occupied Bandwidth Plot (n25/2 5MHz 16QAM - CP-OFDM - Full RB Configuration)

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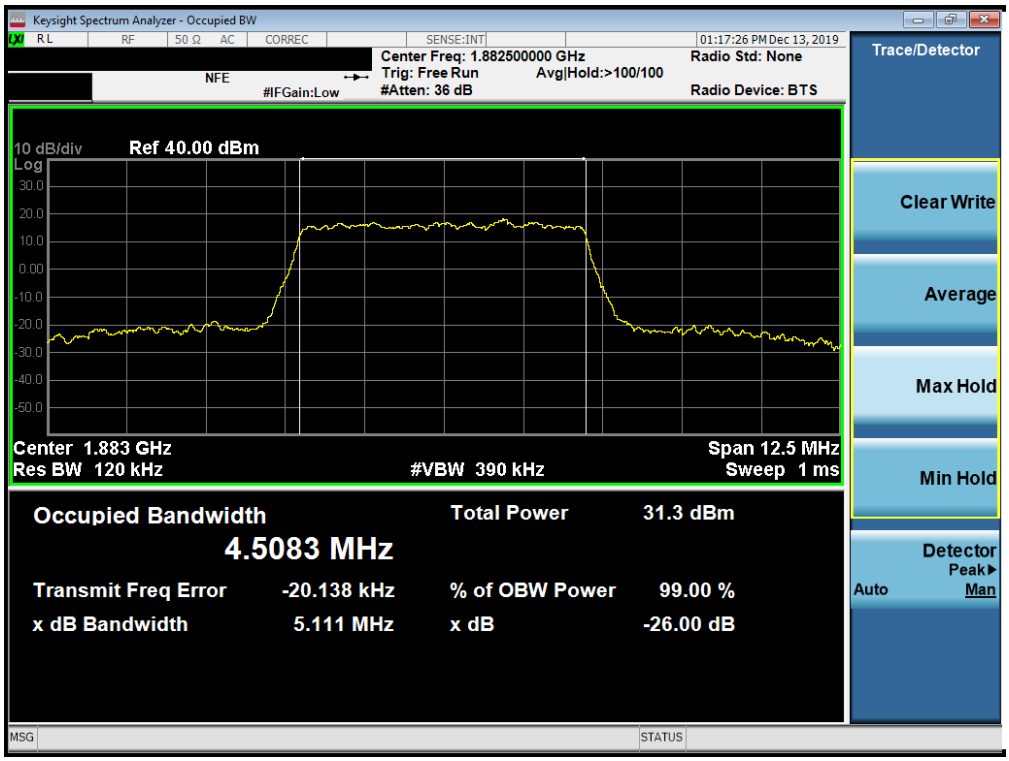
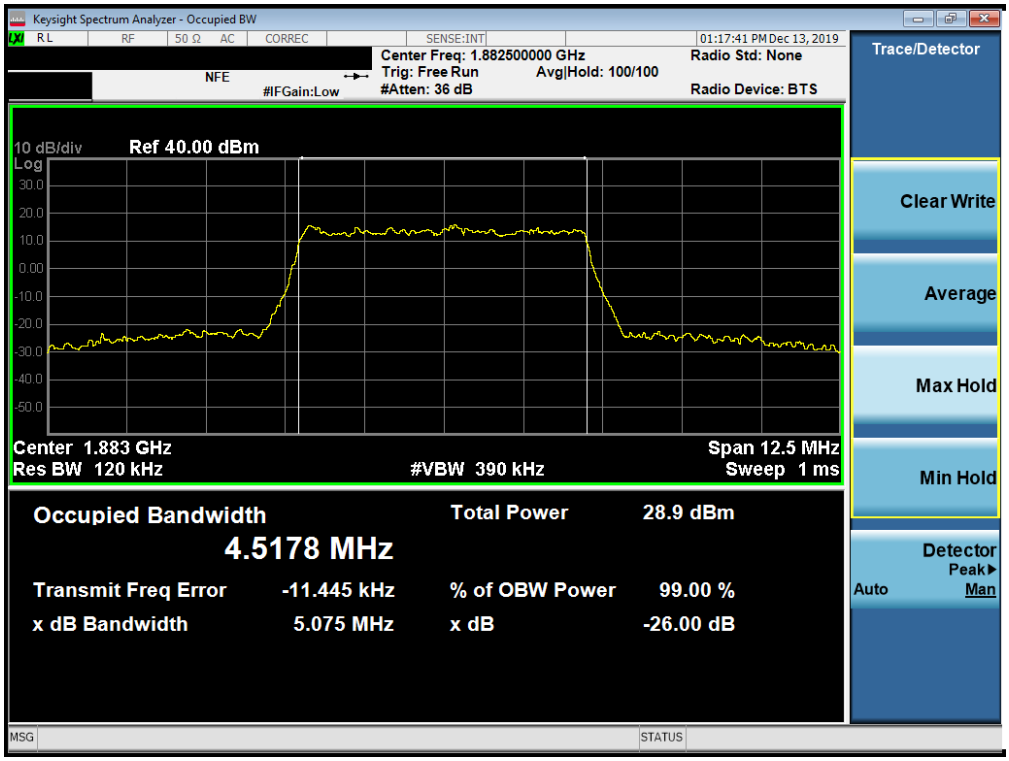


Plot 7-591. Occupied Bandwidth Plot (n25/2 5MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-592. Occupied Bandwidth Plot (n25/2 5MHz 256QAM - CP-OFDM - Full RB Configuration)

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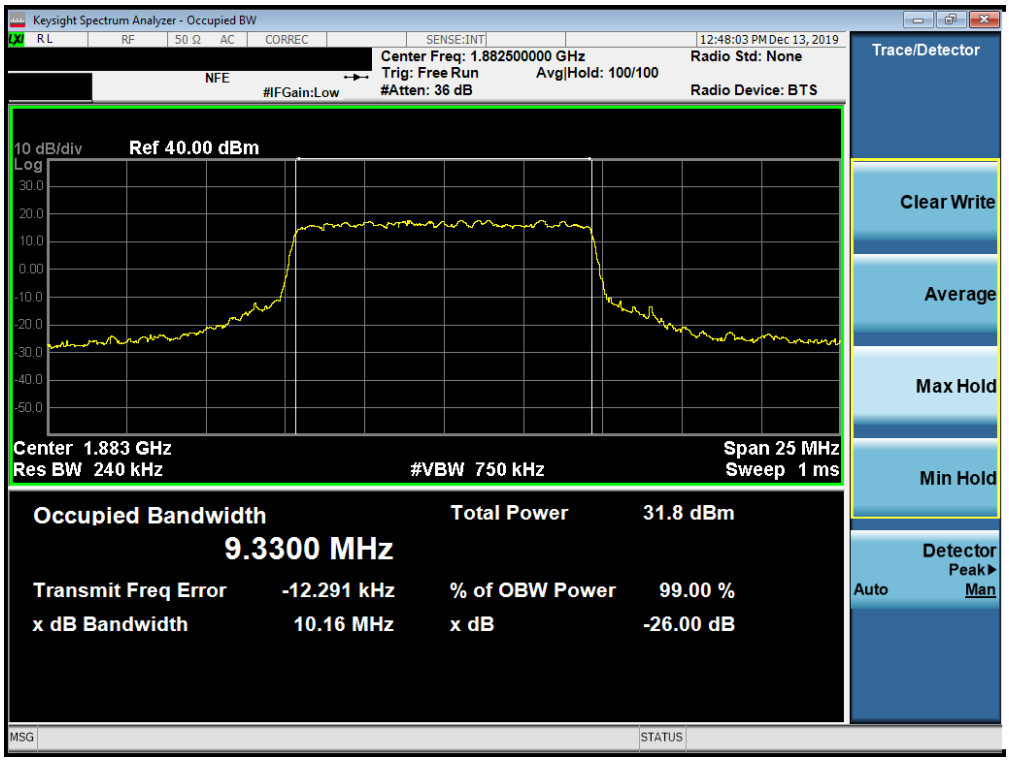
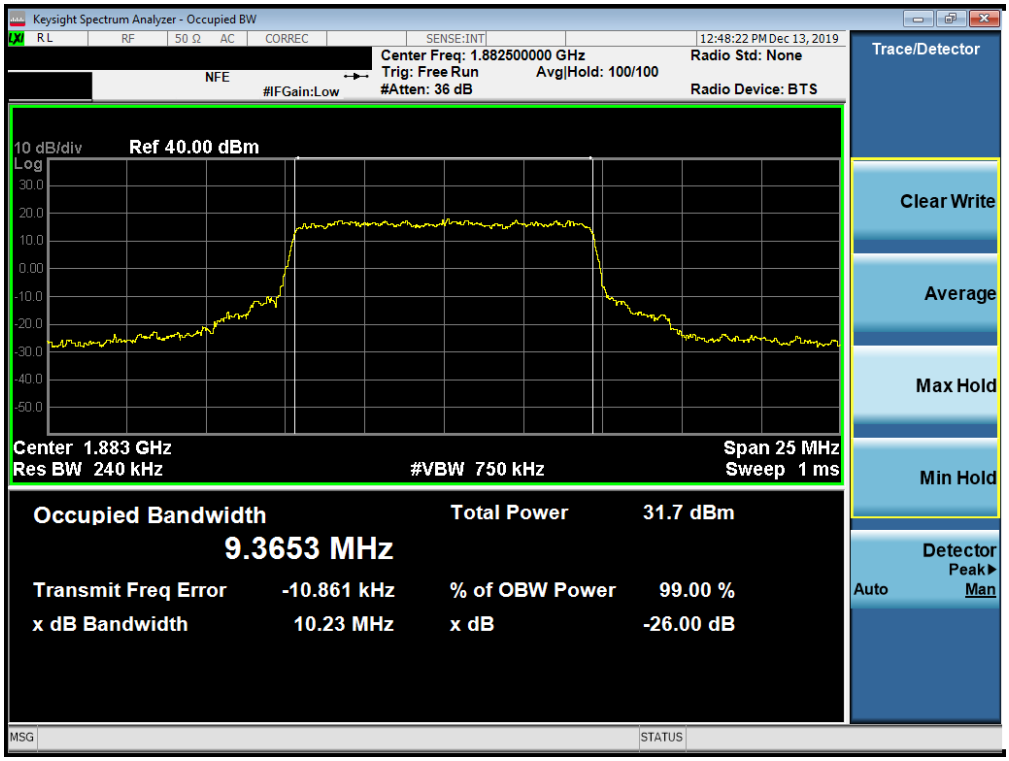


Plot 7-593. Occupied Bandwidth Plot (n25/2 10MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-594. Occupied Bandwidth Plot (n25/2 10MHz 16QAM - CP-OFDM - Full RB Configuration)

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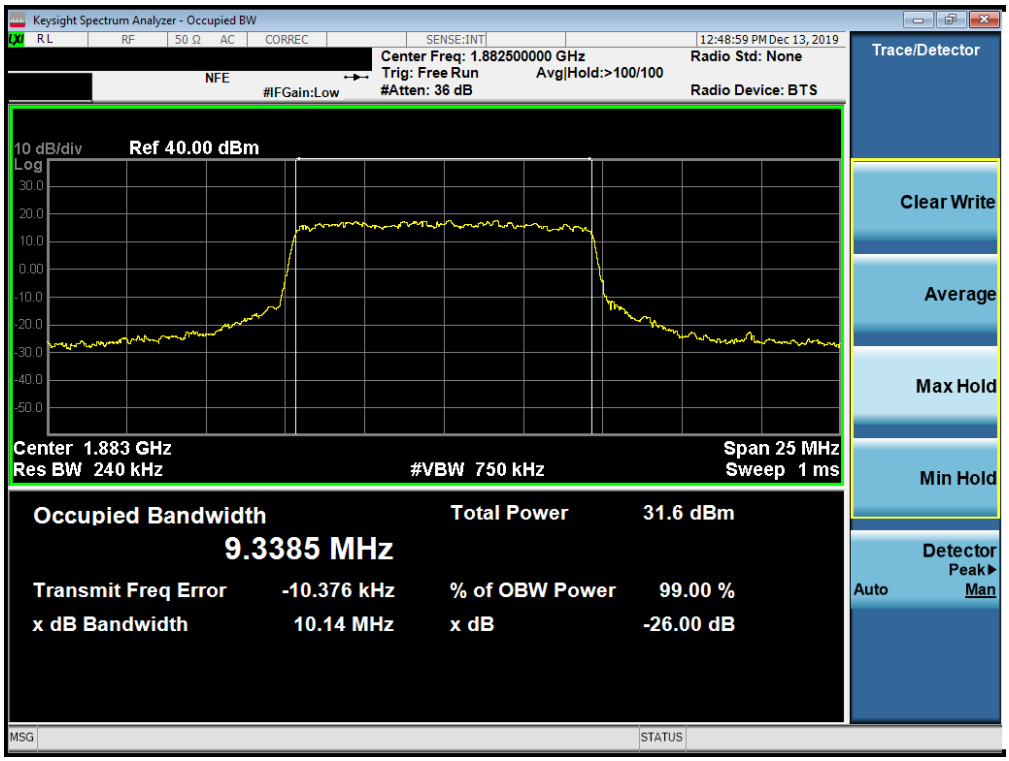
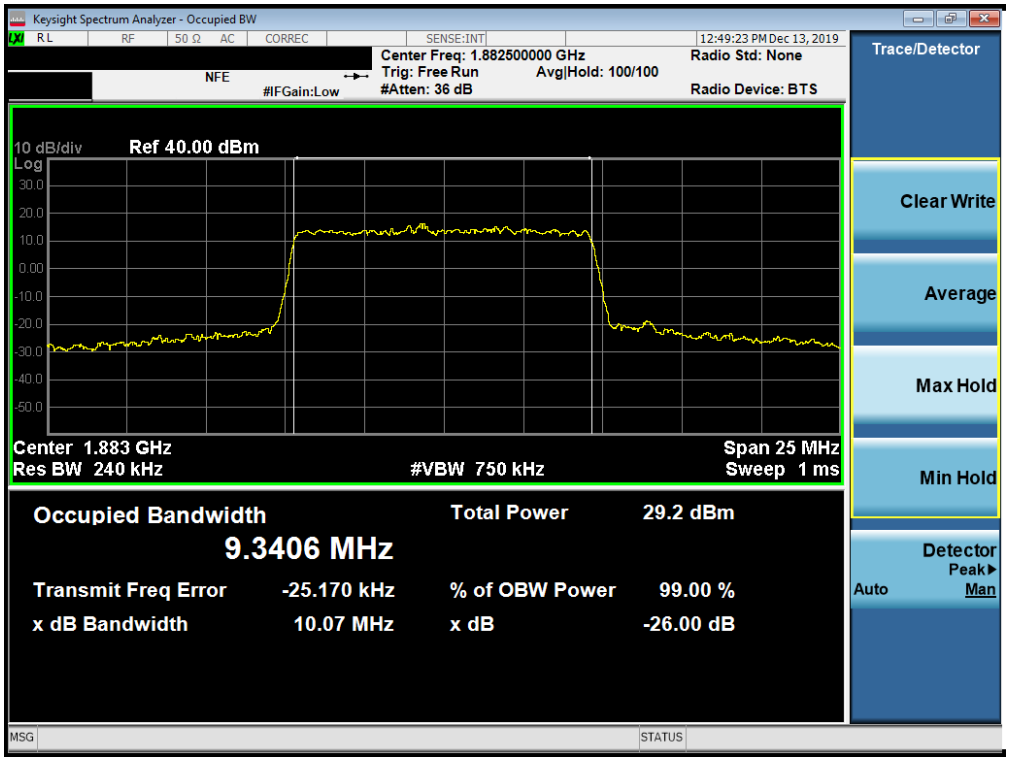


Plot 7-595. Occupied Bandwidth Plot (n25/2 10MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-596. Occupied Bandwidth Plot (n25/2 10MHz 256QAM - CP-OFDM - Full RB Configuration)

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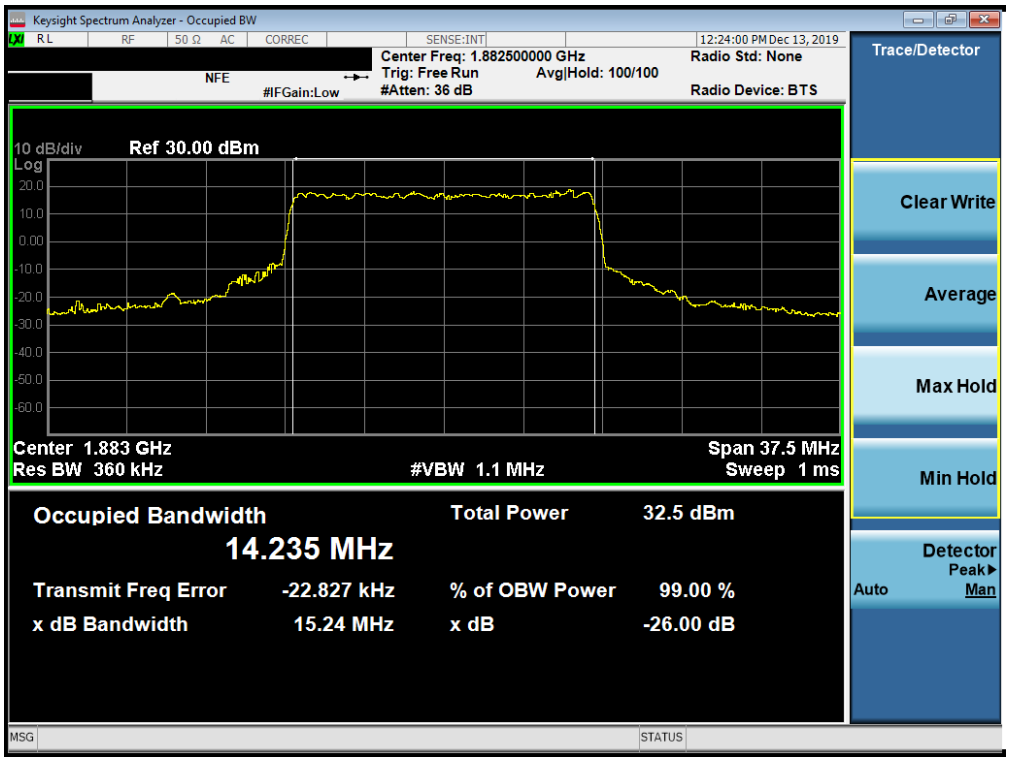
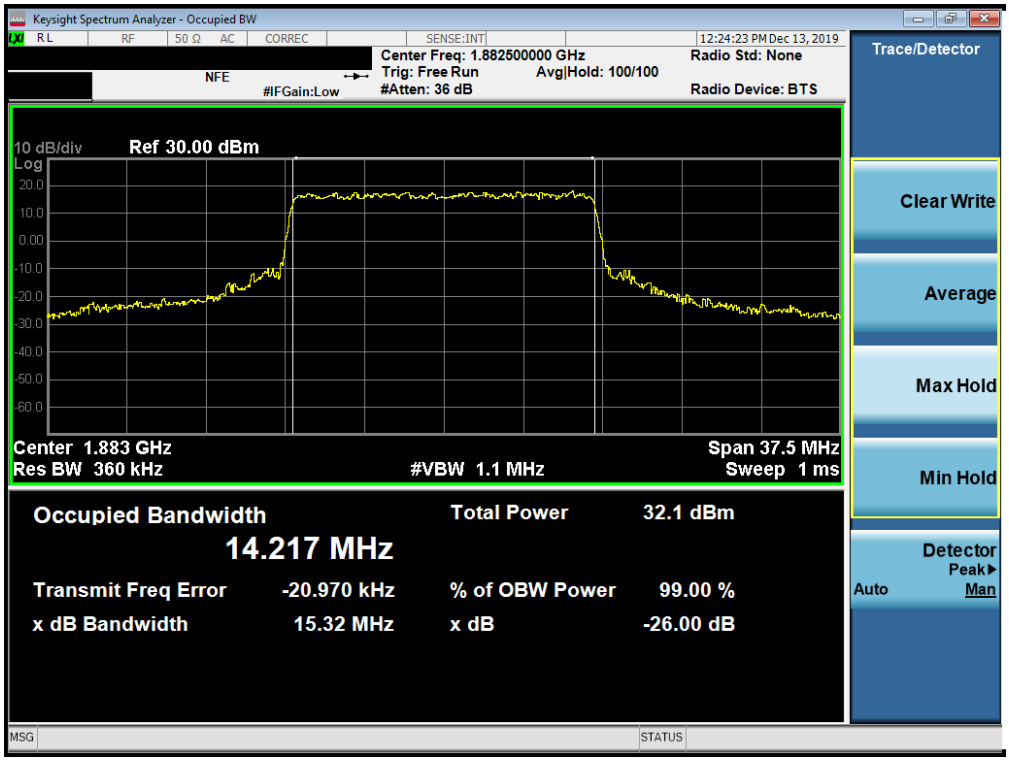


Plot 7-597. Occupied Bandwidth Plot (n25/2 15MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-598. Occupied Bandwidth Plot (n25/2 15MHz 16QAM - CP-OFDM - Full RB Configuration)

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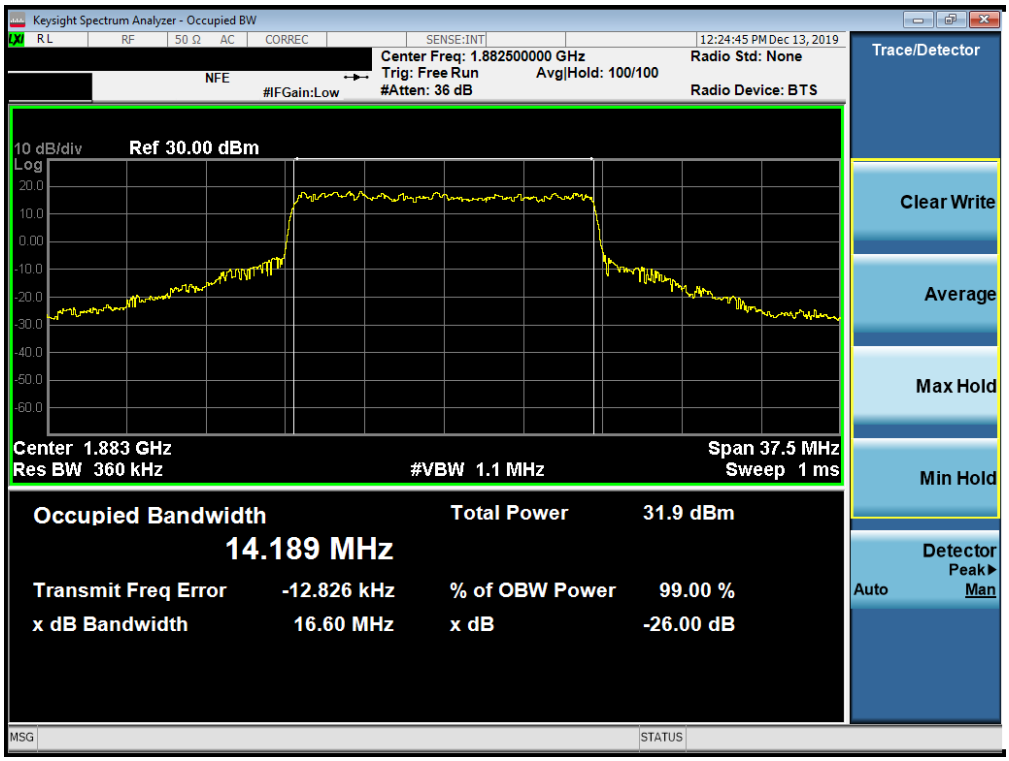
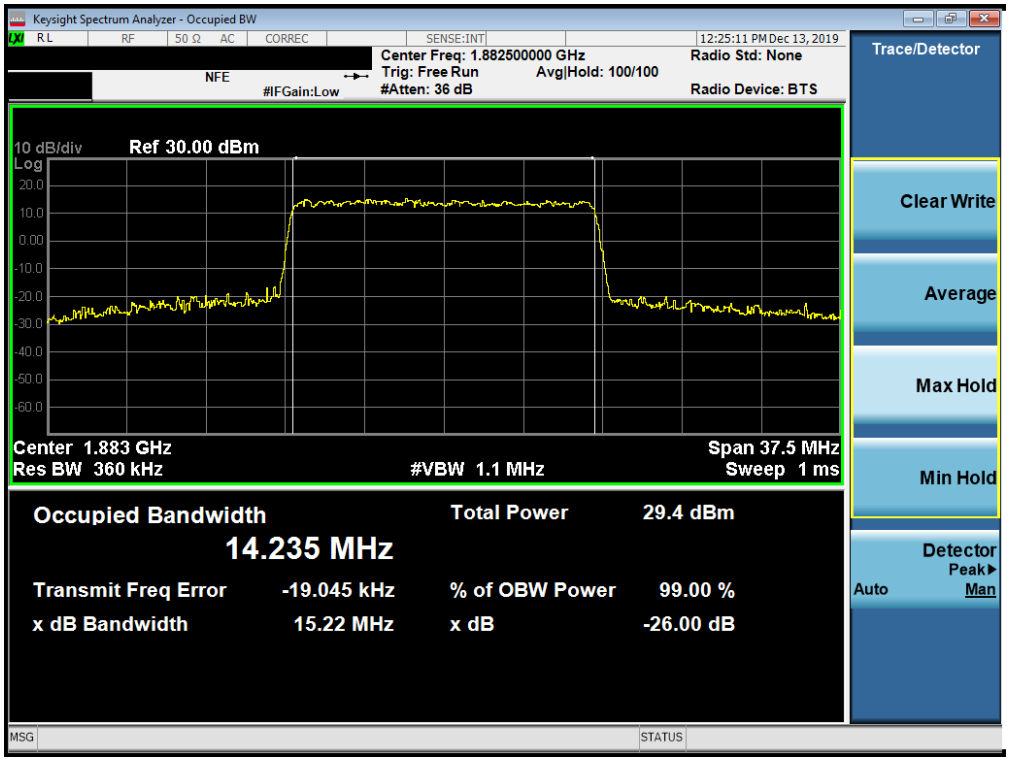


Plot 7-599. Occupied Bandwidth Plot (n25/2 15MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-600. Occupied Bandwidth Plot (n25/2 15MHz 256QAM - CP-OFDM - Full RB Configuration)

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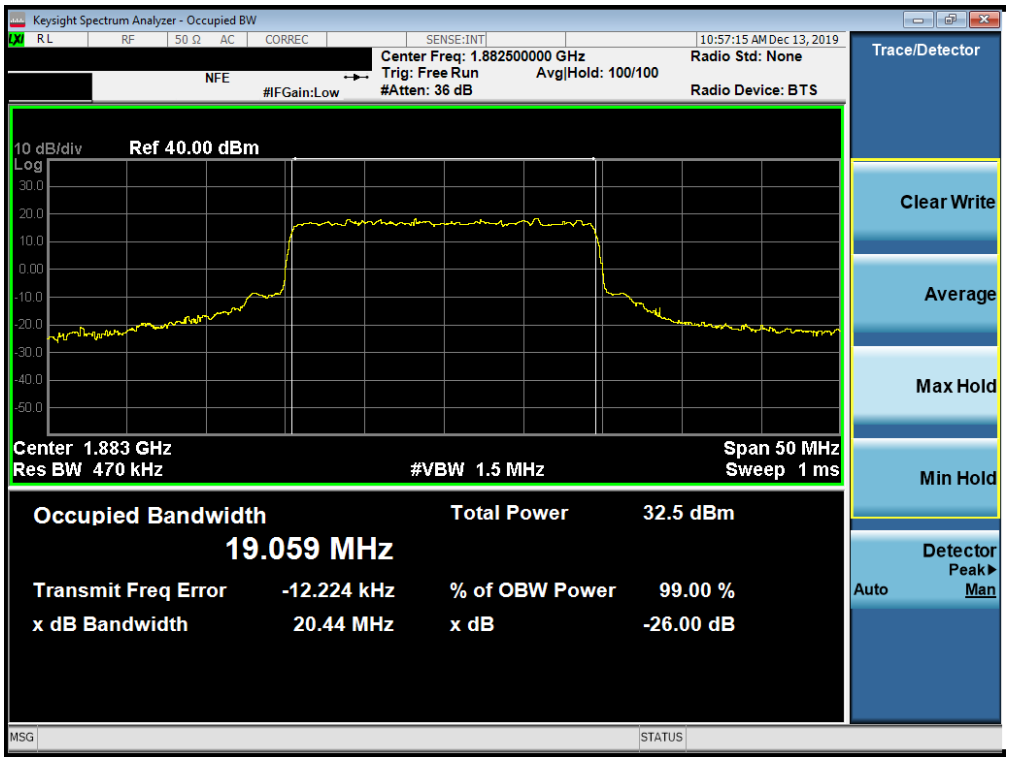
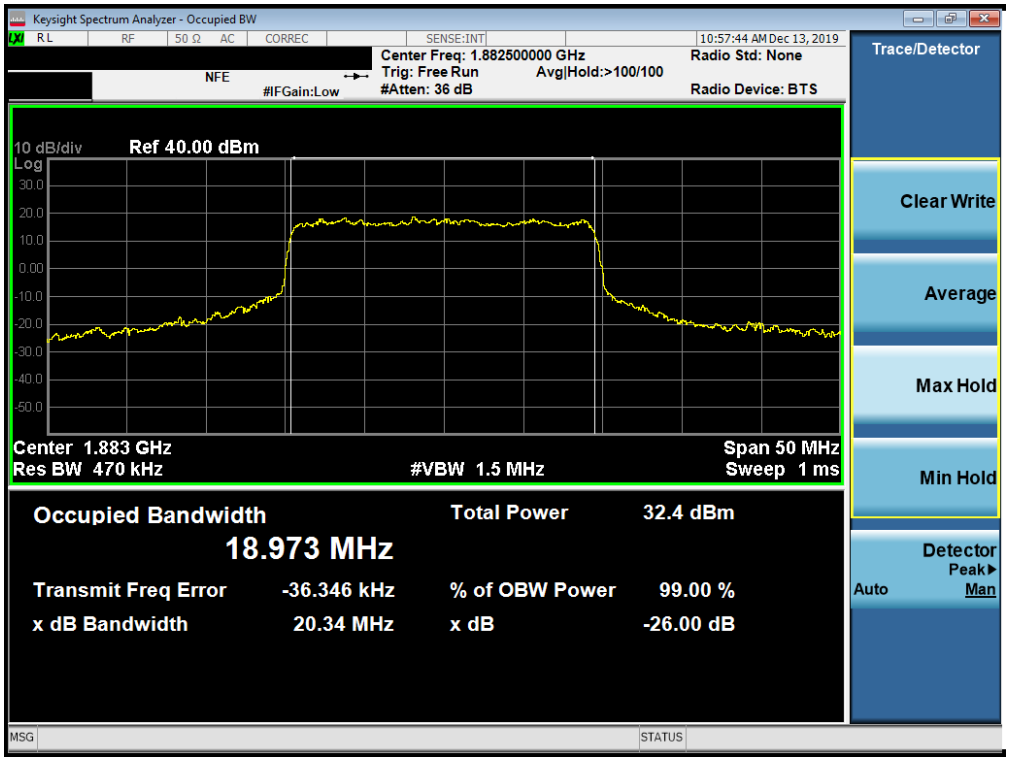


Plot 7-601. Occupied Bandwidth Plot (n25/2 20MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-602. Occupied Bandwidth Plot (n25/2 20MHz 16QAM - CP-OFDM - Full RB Configuration)

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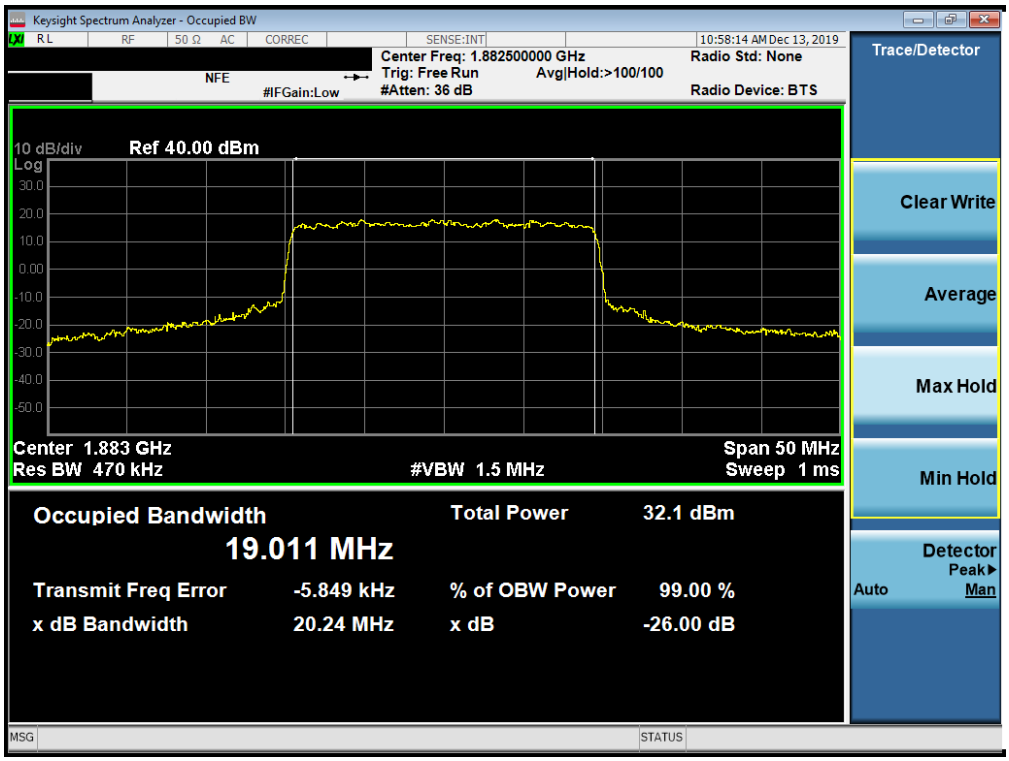
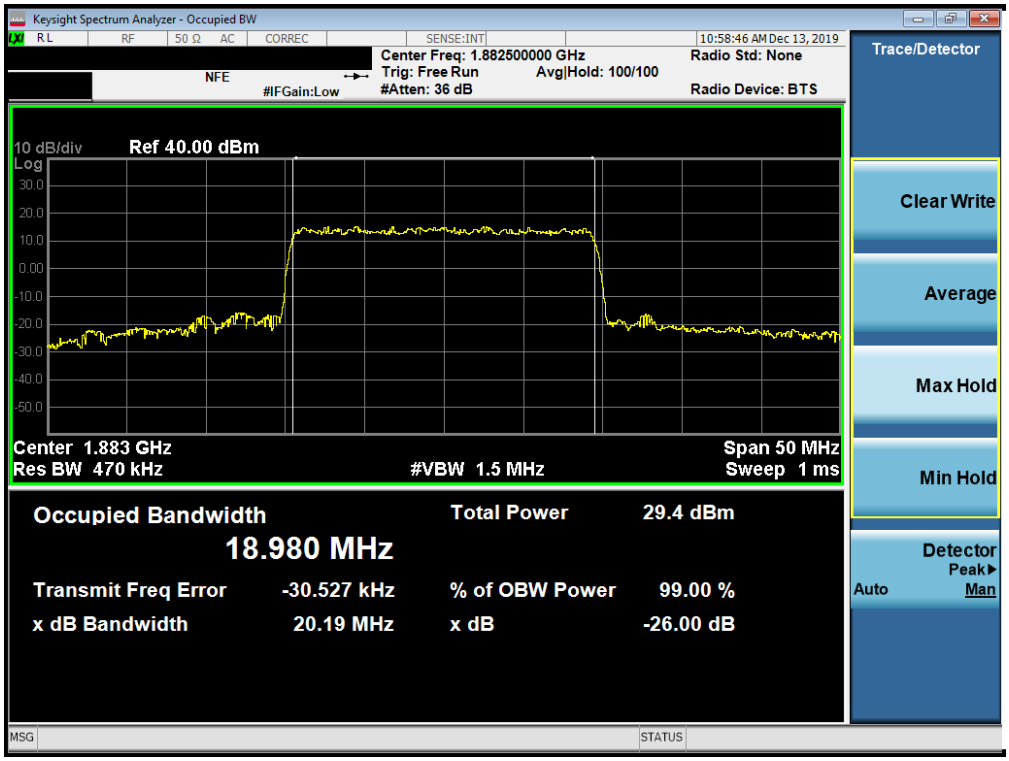


Plot 7-603. Occupied Bandwidth Plot (n25/2 20MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-604. Occupied Bandwidth Plot (n25/2 20MHz 256QAM - CP-OFDM - Full RB Configuration)

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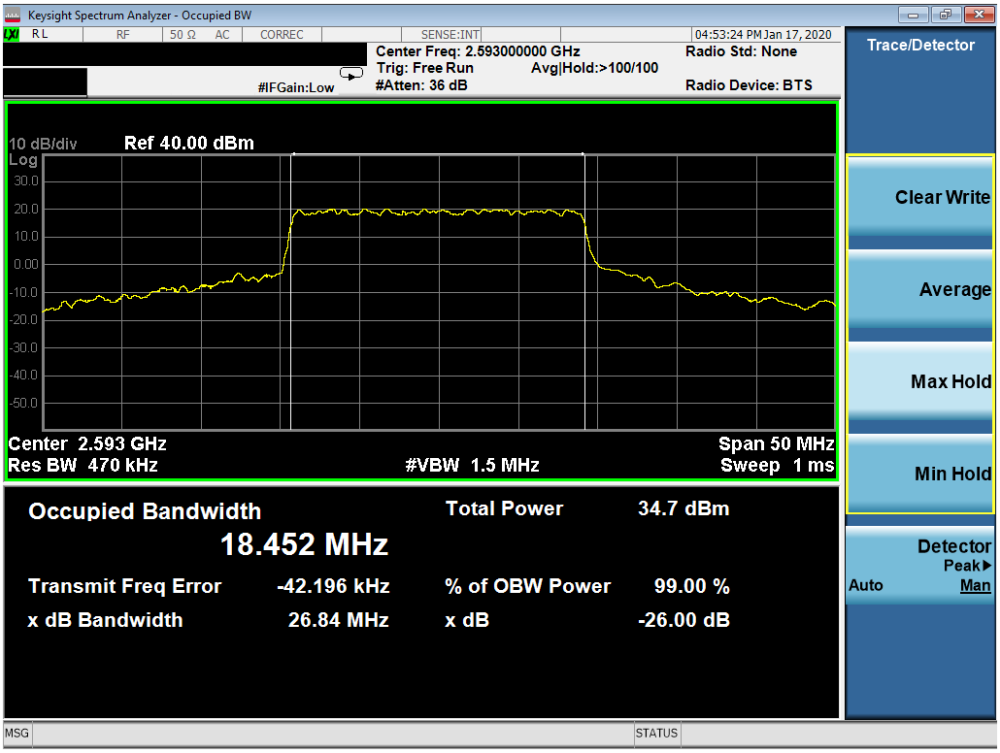
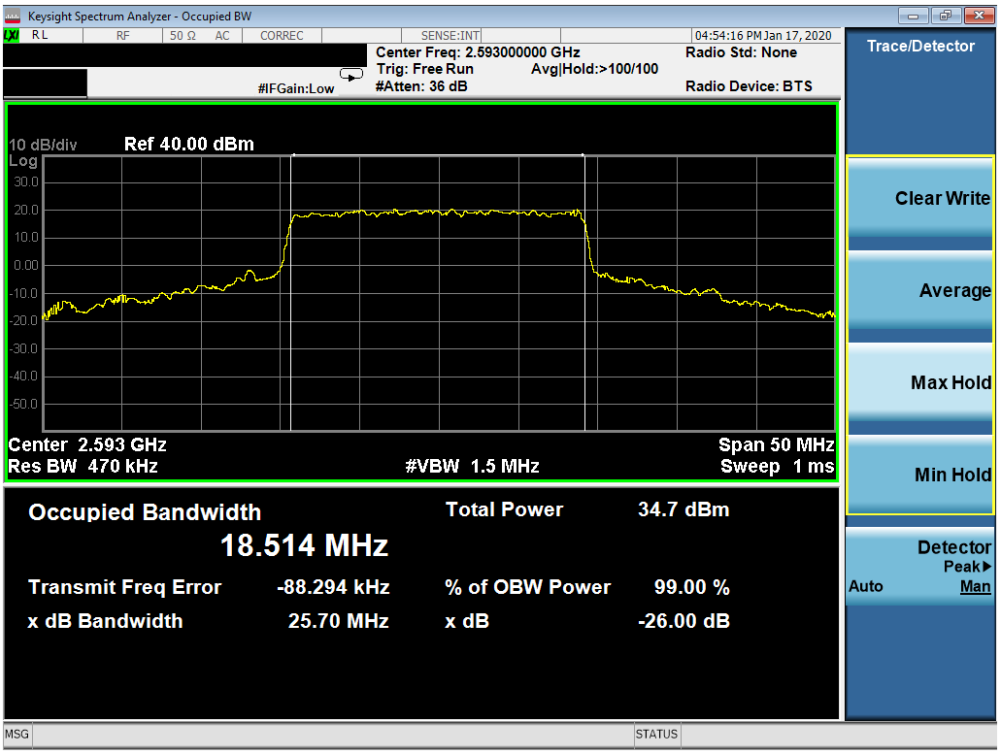
NR Band n41 (PC2)



Plot 7-605. Occupied Bandwidth Plot (n41 (PC2) 20MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-606. Occupied Bandwidth Plot (n41 (PC2) 20MHz 16QAM - CP-OFDM - Full RB Configuration)

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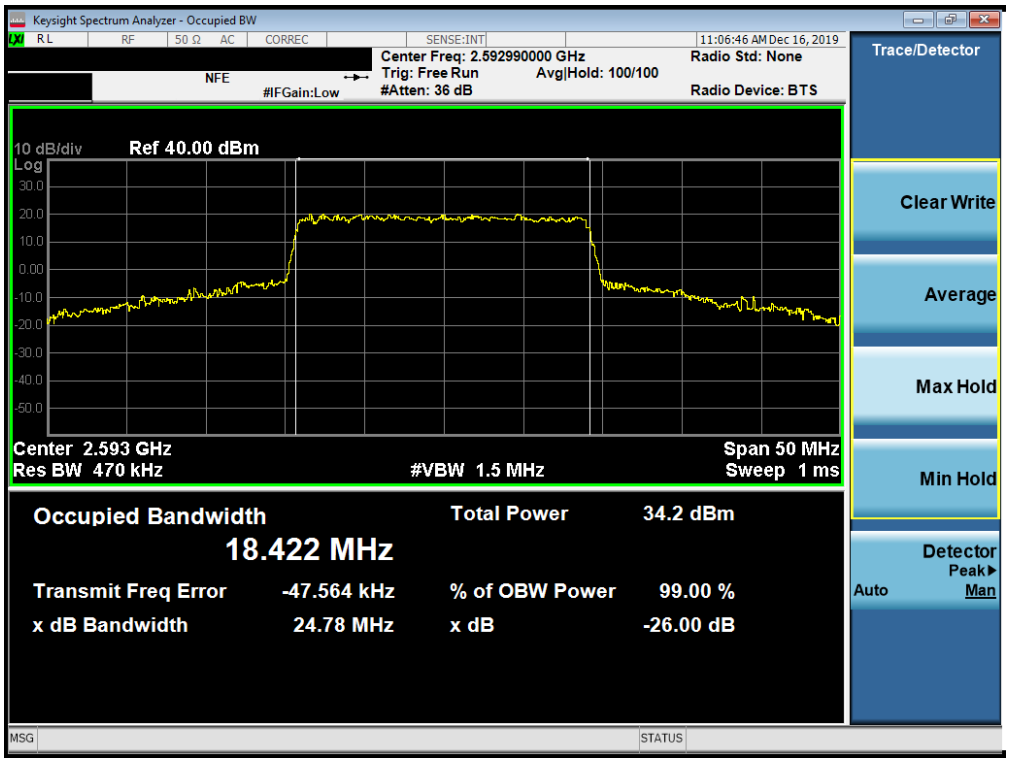

Plot 7-607. Occupied Bandwidth Plot (n41 (PC2) 20MHz 64QAM - CP-OFDM- Full RB Configuration)

Plot 7-608. Occupied Bandwidth Plot (n41 (PC2) 20MHz 256QAM - CP-OFDM - Full RB Configuration)

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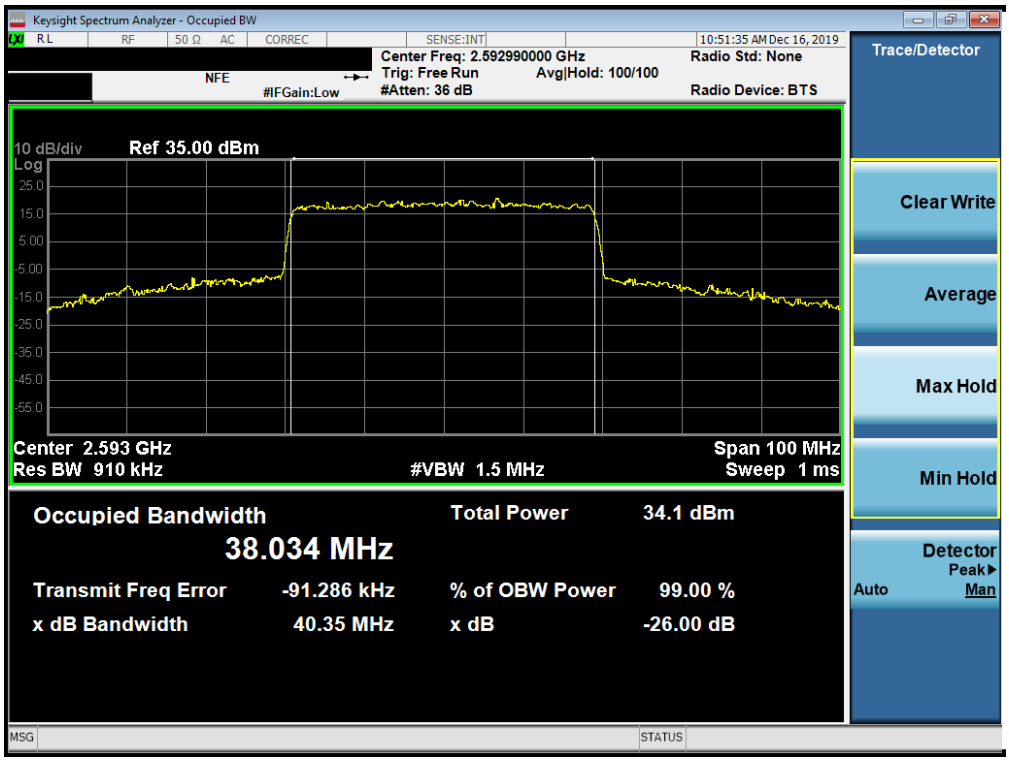
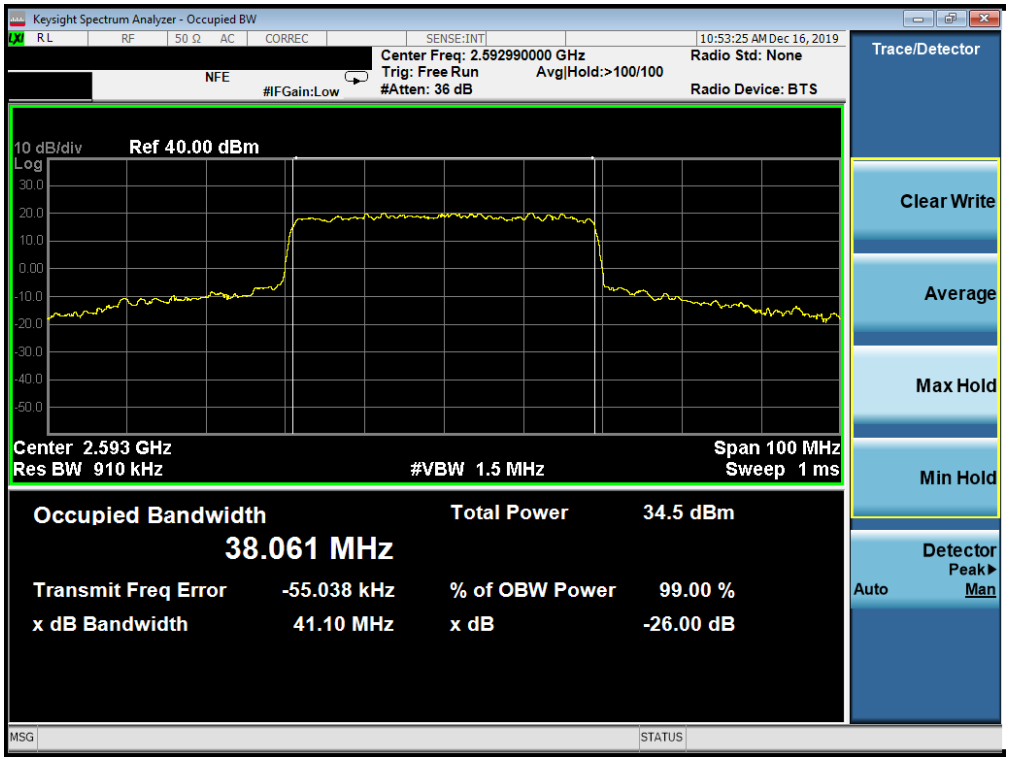


Plot 7-609. Occupied Bandwidth Plot (n41 (PC2) 40MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-610. Occupied Bandwidth Plot (n41 (PC2) 40MHz 16QAM - CP-OFDM - Full RB Configuration)

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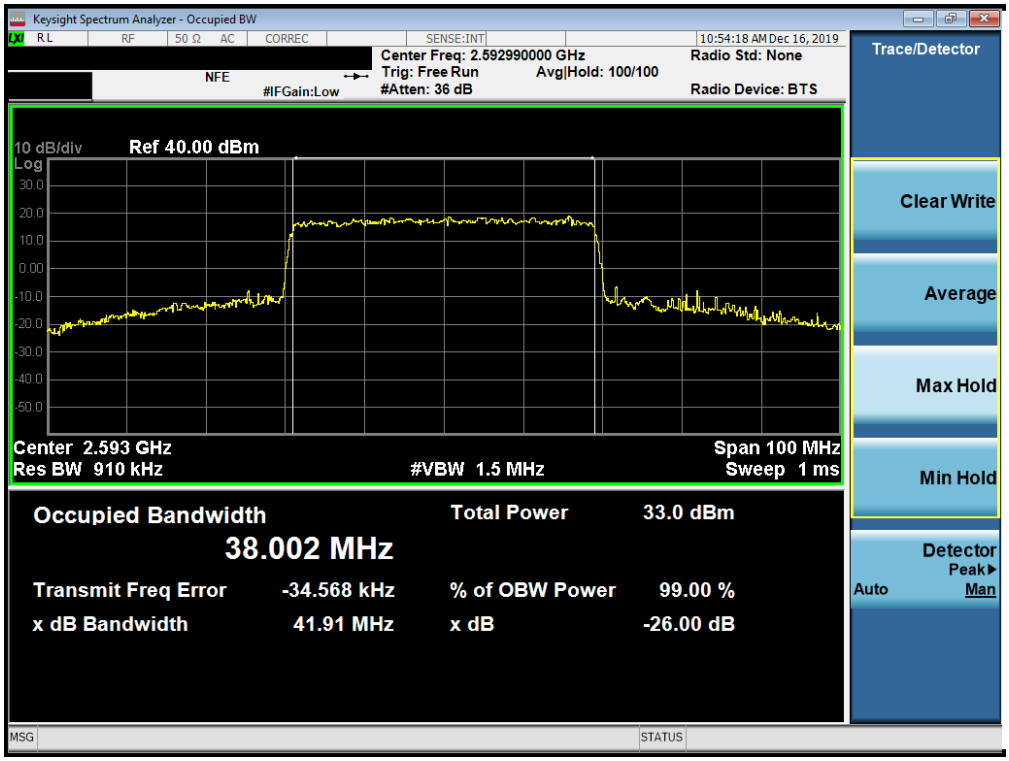
Plot 7-611. Occupied Bandwidth Plot (n41 (PC2) 40MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-612. Occupied Bandwidth Plot (n41 (PC2) 40MHz 256QAM - CP-OFDM - Full RB Configuration)

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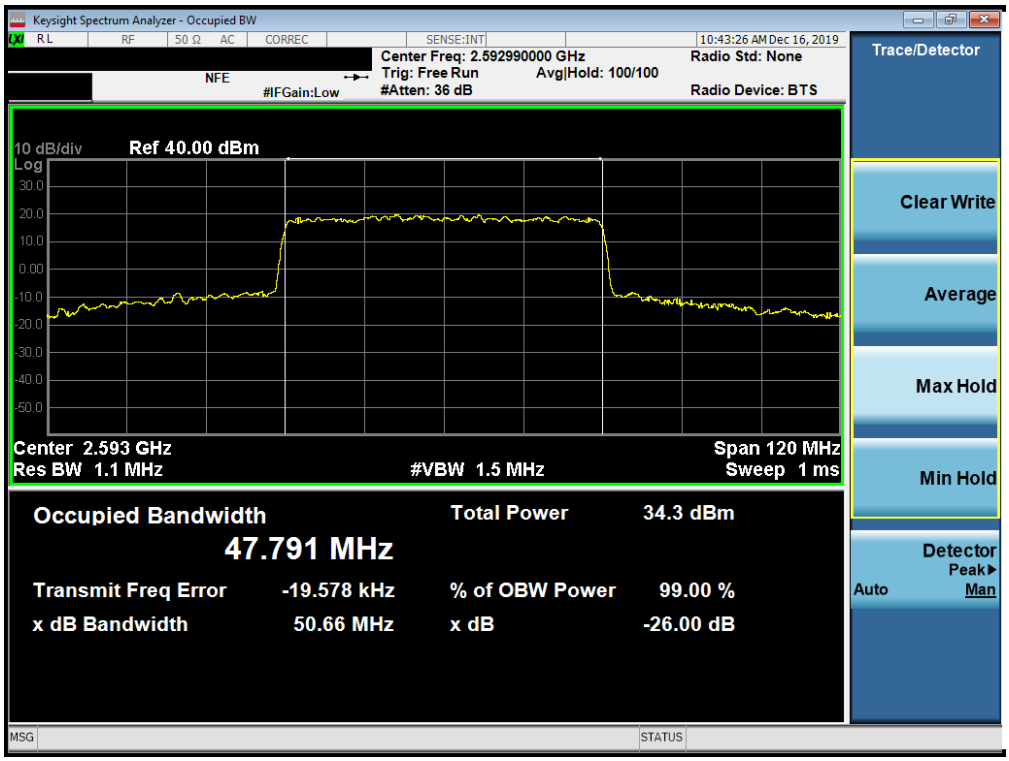

Plot 7-613. Occupied Bandwidth Plot (n41 (PC2) 50MHz QPSK - CP-OFDM - Full RB Configuration)

Plot 7-614. Occupied Bandwidth Plot (n41 (PC2) 50MHz 16QAM - CP-OFDM - Full RB Configuration)

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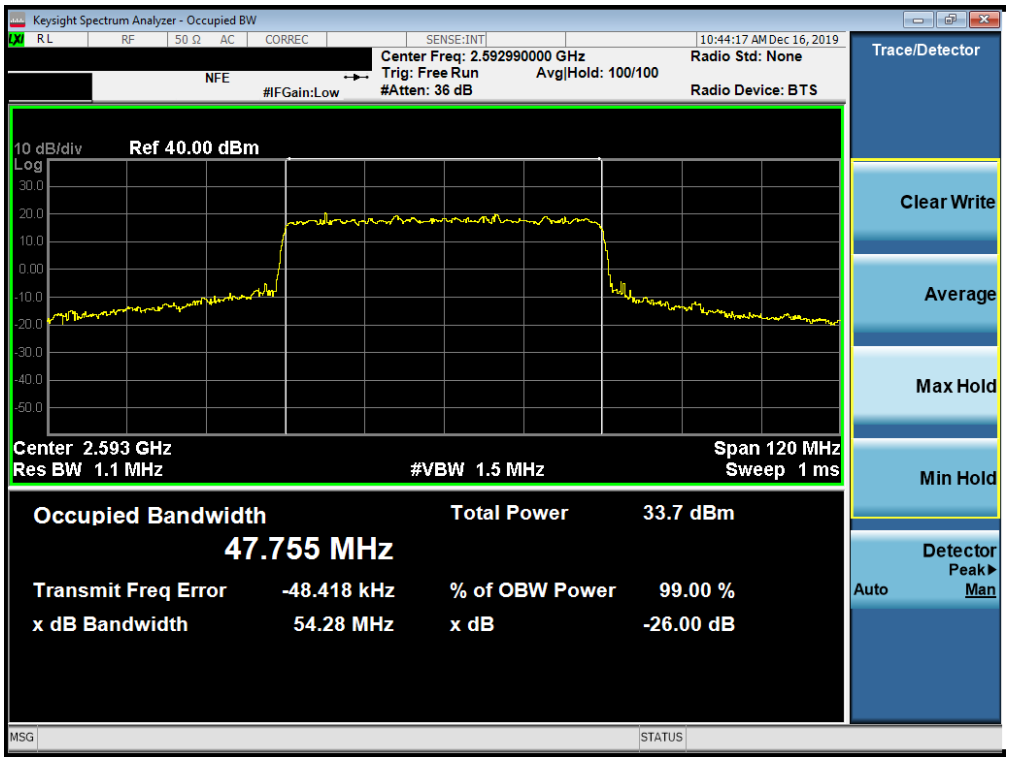
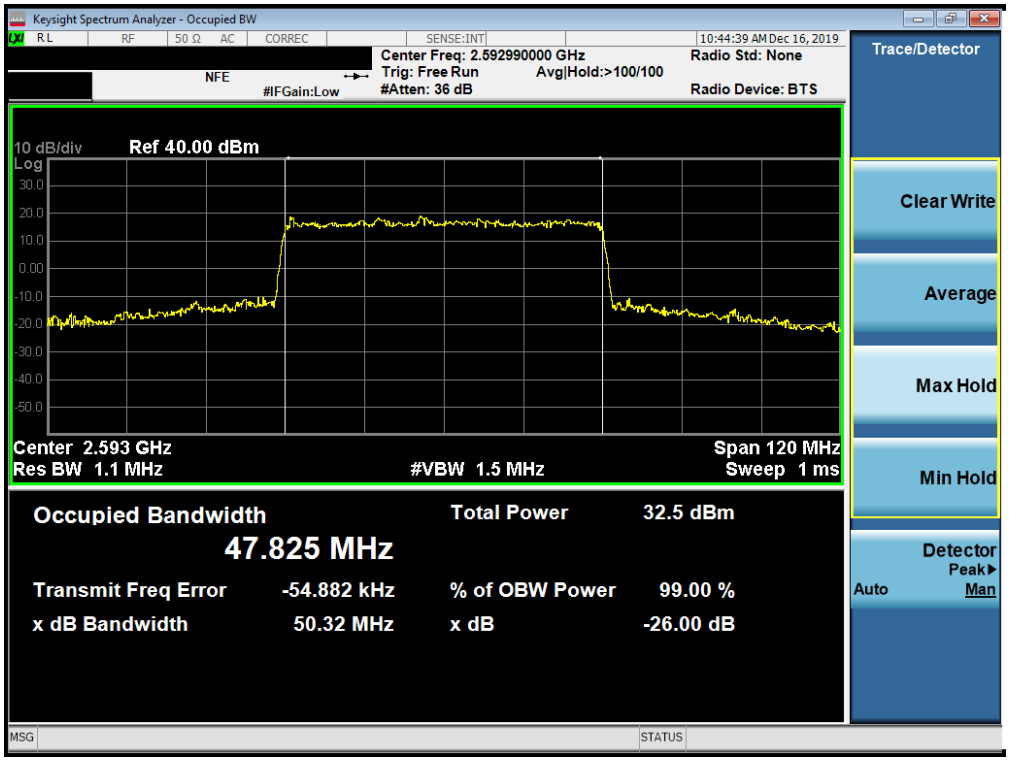


Plot 7-615. Occupied Bandwidth Plot (n41 (PC2) 50MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-616. Occupied Bandwidth Plot (n41 (PC2) 50MHz 256QAM - CP-OFDM - Full RB Configuration)

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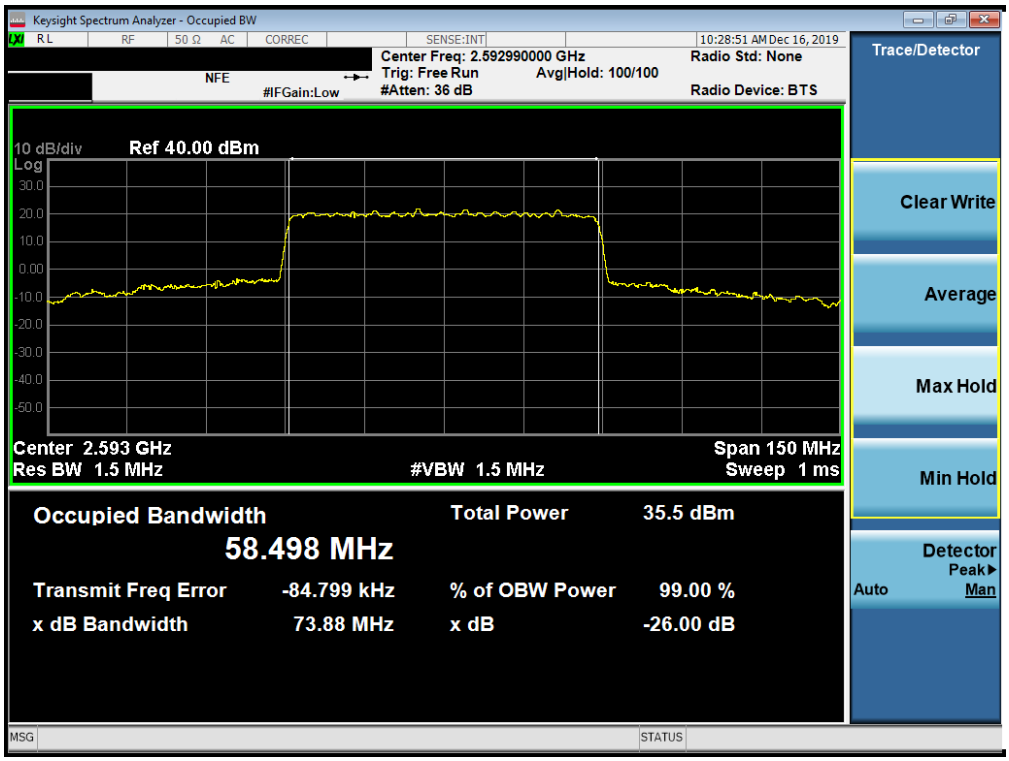

Plot 7-617. Occupied Bandwidth Plot (n41 (PC2) 60MHz QPSK - CP-OFDM - Full RB Configuration)

Plot 7-618. Occupied Bandwidth Plot (n41 (PC2) 60MHz 16QAM - CP-OFDM - Full RB Configuration)

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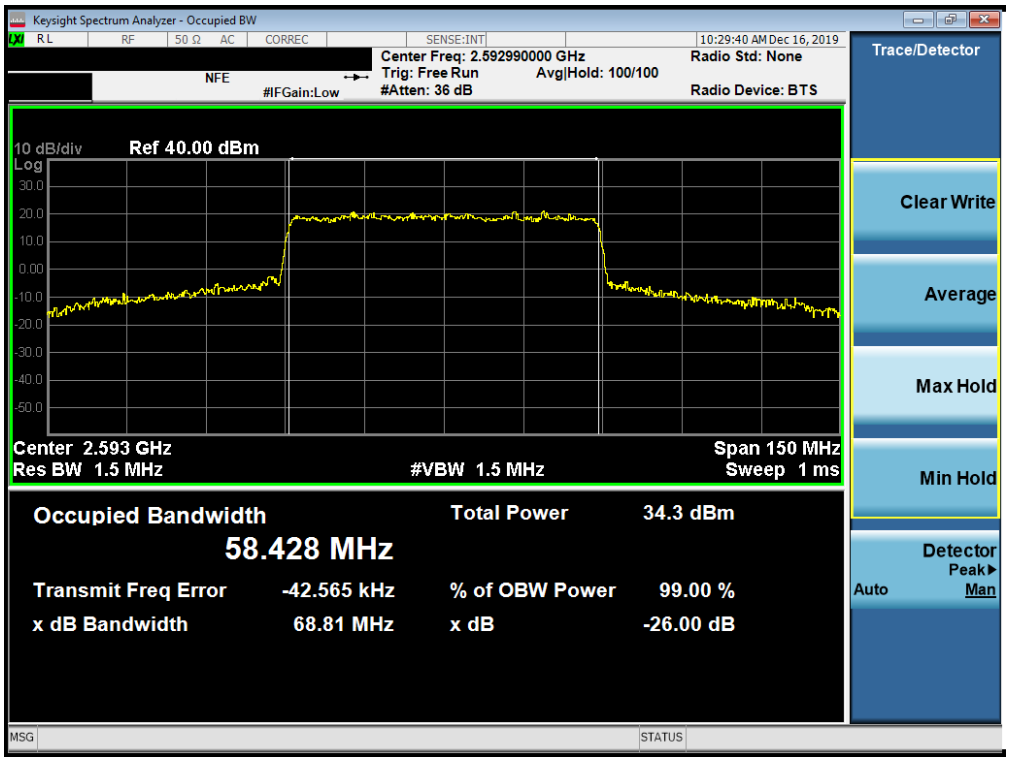

Plot 7-619. Occupied Bandwidth Plot (n41 (PC2) 60MHz 64QAM - CP-OFDM- Full RB Configuration)

Plot 7-620. Occupied Bandwidth Plot (n41 (PC2) 60MHz 256QAM - CP-OFDM - Full RB Configuration)

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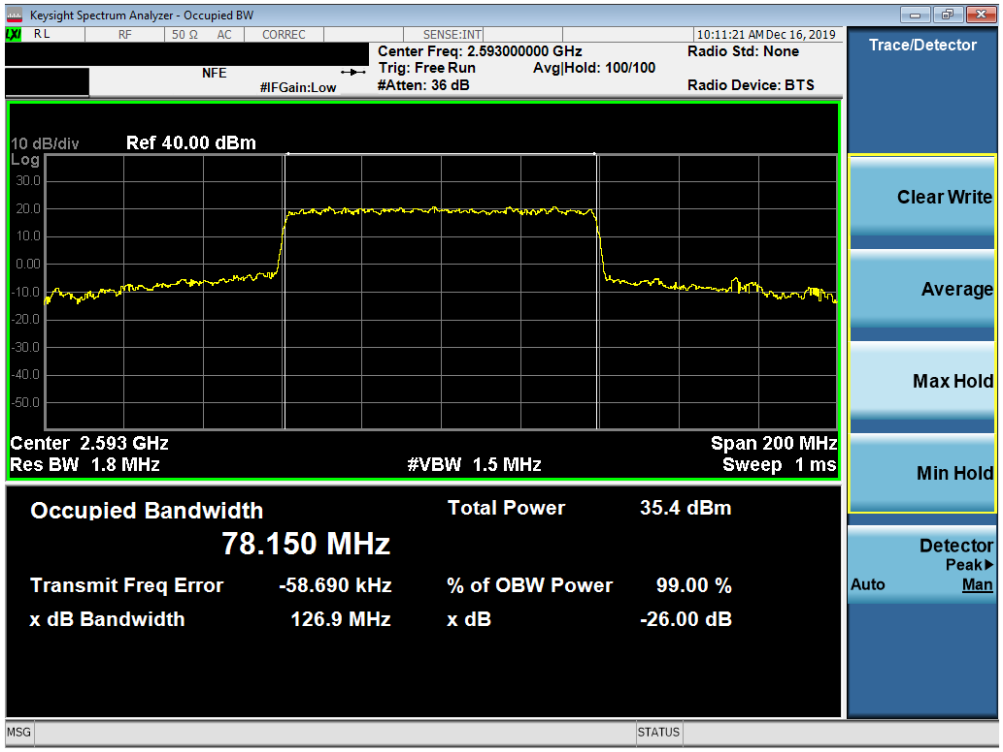
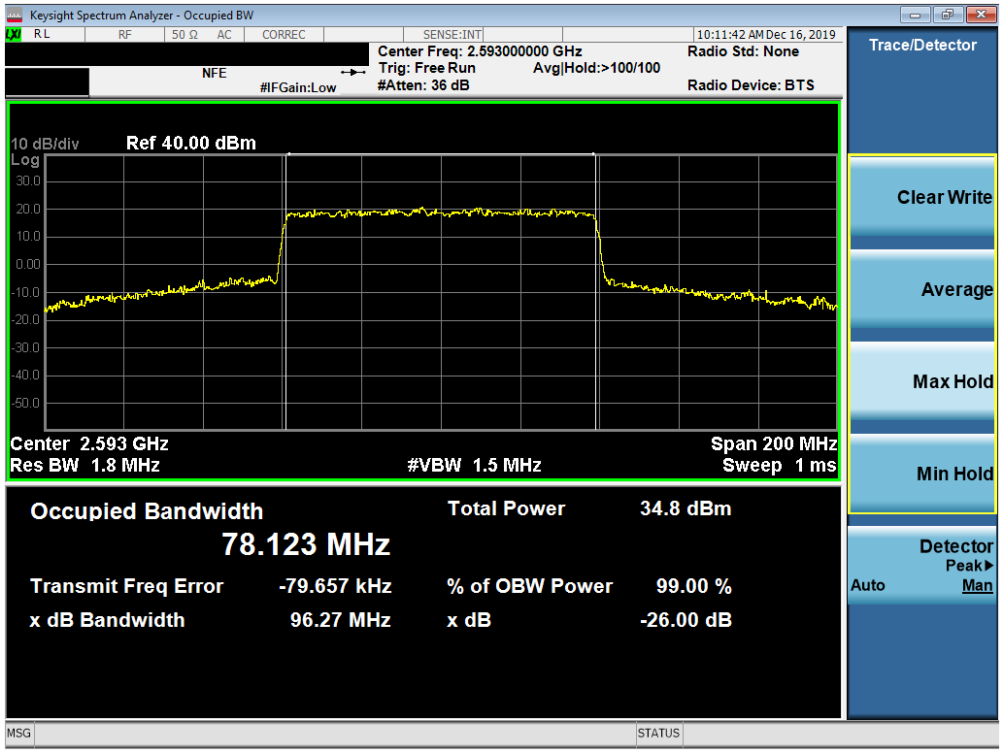


Plot 7-621. Occupied Bandwidth Plot (n41 (PC2) 80MHz QPSK - CP-OFDM - Full RB Configuration)



Plot 7-622. Occupied Bandwidth Plot (n41 (PC2) 80MHz 16QAM - CP-OFDM - Full RB Configuration)

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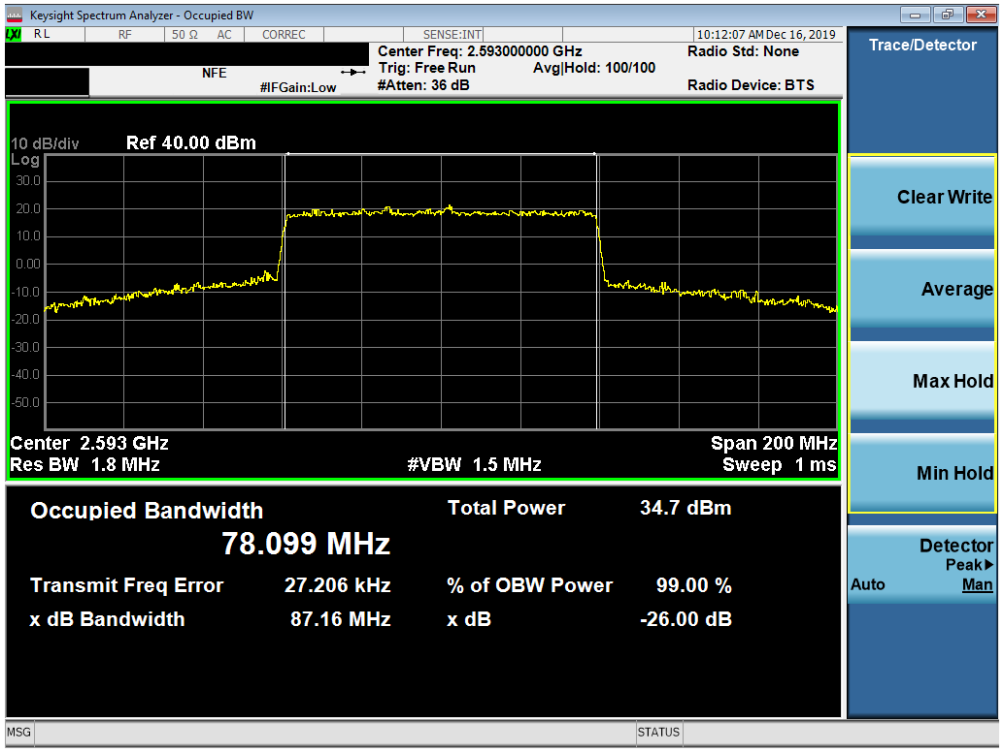
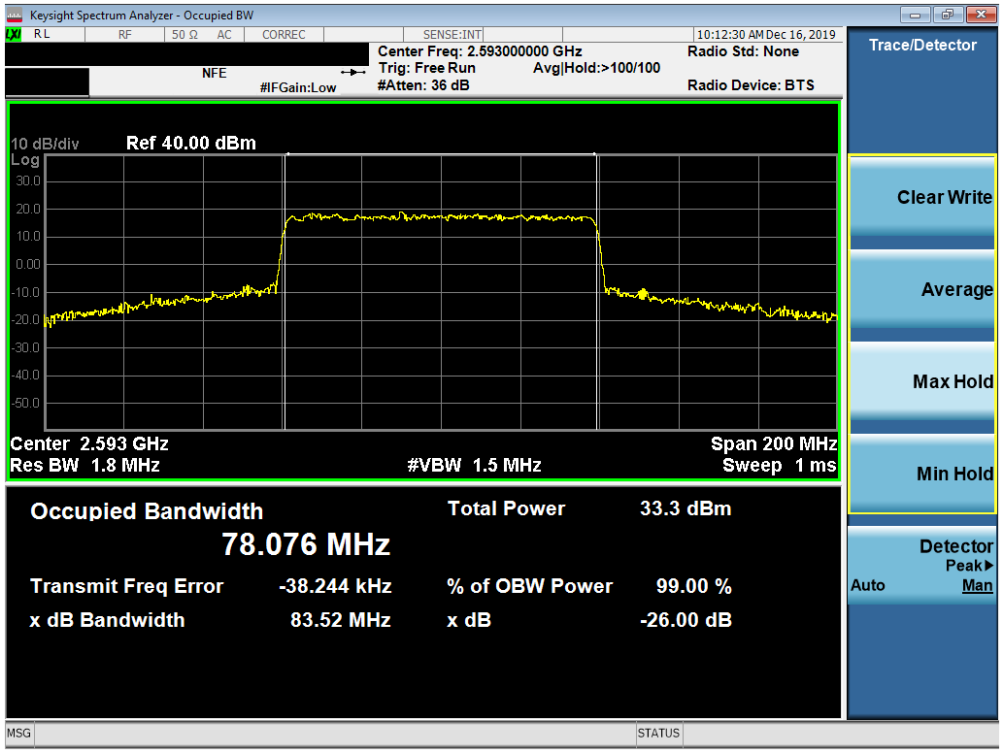


Plot 7-623. Occupied Bandwidth Plot (n41 (PC2) 80MHz 64QAM - CP-OFDM- Full RB Configuration)



Plot 7-624. Occupied Bandwidth Plot (n41 (PC2) 80MHz 256QAM - CP-OFDM - Full RB Configuration)

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