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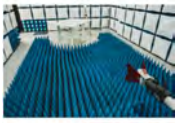

MEASUREMENT REPORT
FCC Part 30 5G mmWave

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
11/14/2019 - 1/31/2020
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1911140187-06-R4.A3L

FCC ID:	**A3LSMG988U**
APPLICANT:	**Samsung Electronics Co., Ltd.**

Application Type:	Certification
Model:	SM-G988U
Additional Model(s):	SM-G988U1, SM-G988W
EUT Type:	Portable Handset
FCC Classification:	Part 30 Mobile Transmitter (5GM)
FCC Rule Part(s):	30
Test Procedure(s):	ANSI C63.26-2015, KDB 971168 D01 v03r01, KDB 842590 D01 v01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

This revised Test Report (S/N: 1M1911140187-06-R4.A3L) supersedes and replaces the previously issued test report (S/N: 1M1911140187-06-R3.A3L) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

Randy Ortanez
President

ACCREDITED
TESTING CERT#2041.01

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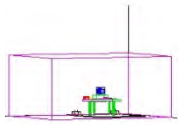
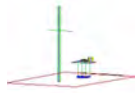


MEASUREMENT REPORT
FCC Part 30



Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	SISO	Ant1	50	1	27500 - 28350	0.089	19.48	45M8G7D	QPSK
n261	30	SISO	Ant1	50	1	27500 - 28350	0.058	17.65	45M7W7D	16QAM
n261	30	SISO	Ant1	50	1	27500 - 28350	0.027	14.32	46M0W7D	64QAM
n261	30	MIMO	Ant1	50	1	27500 - 28350	0.065	18.10	45M8G7D	QPSK
n261	30	MIMO	Ant1	50	1	27500 - 28350	0.048	16.77	45M7W7D	16QAM
n261	30	MIMO	Ant1	50	1	27500 - 28350	0.019	12.90	46M0W7D	64QAM
n261	30	SISO	Ant1	50	2	27500 - 28350	0.054	17.35	97M7G7D	QPSK
n261	30	SISO	Ant1	50	2	27500 - 28350	0.037	15.73	98M3W7D	16QAM
n261	30	SISO	Ant1	50	2	27500 - 28350	0.018	12.59	101MW7D	64QAM
n261	30	MIMO	Ant1	50	2	27500 - 28350	0.069	18.42	97M7G7D	QPSK
n261	30	MIMO	Ant1	50	2	27500 - 28350	0.032	15.07	98M3W7D	16QAM
n261	30	MIMO	Ant1	50	2	27500 - 28350	0.016	11.90	101MW7D	64QAM
n261	30	SISO	Ant1	100	1	27500 - 28350	0.085	19.29	93M3G7D	QPSK
n261	30	SISO	Ant1	100	1	27500 - 28350	0.050	17.03	93M2W7D	16QAM
n261	30	SISO	Ant1	100	1	27500 - 28350	0.028	14.41	93M7W7D	64QAM
n261	30	MIMO	Ant1	100	1	27500 - 28350	0.118	20.73	93M3G7D	QPSK
n261	30	MIMO	Ant1	100	1	27500 - 28350	0.067	18.25	93M2W7D	16QAM
n261	30	MIMO	Ant1	100	1	27500 - 28350	0.048	16.78	93M7W7D	64QAM
n261	30	SISO	Ant1	100	2	27500 - 28350	0.064	18.07	191MG7D	QPSK
n261	30	SISO	Ant1	100	2	27500 - 28350	0.039	15.96	191MW7D	16QAM
n261	30	SISO	Ant1	100	2	27500 - 28350	0.025	13.94	191MW7D	64QAM
n261	30	MIMO	Ant1	100	2	27500 - 28350	0.075	18.74	191MG7D	QPSK
n261	30	MIMO	Ant1	100	2	27500 - 28350	0.045	16.54	191MW7D	16QAM
n261	30	MIMO	Ant1	100	2	27500 - 28350	0.035	15.45	191MW7D	64QAM

EUT Overview (J Dipole / Ant1 - Band n261)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	SISO	Ant2	50	1	27500 - 28350	0.206	23.14	45M7G7D	QPSK
n261	30	SISO	Ant2	50	1	27500 - 28350	0.129	21.11	45M4W7D	16QAM
n261	30	SISO	Ant2	50	1	27500 - 28350	0.077	18.84	45M8W7D	64QAM
n261	30	MIMO	Ant2	50	1	27500 - 28350	0.231	23.63	45M7G7D	QPSK
n261	30	MIMO	Ant2	50	1	27500 - 28350	0.117	20.68	45M4W7D	16QAM
n261	30	MIMO	Ant2	50	1	27500 - 28350	0.059	17.71	45M8W7D	64QAM
n261	30	SISO	Ant2	50	2	27500 - 28350	0.100	20.02	96M5G7D	QPSK
n261	30	SISO	Ant2	50	2	27500 - 28350	0.072	18.60	97M3W7D	16QAM
n261	30	SISO	Ant2	50	2	27500 - 28350	0.043	16.30	96M0W7D	64QAM
n261	30	MIMO	Ant2	50	2	27500 - 28350	0.139	21.43	96M5G7D	QPSK
n261	30	MIMO	Ant2	50	2	27500 - 28350	0.064	18.08	97M3W7D	16QAM
n261	30	MIMO	Ant2	50	2	27500 - 28350	0.038	15.83	96M0W7D	64QAM
n261	30	SISO	Ant2	100	1	27500 - 28350	0.187	22.72	94M7G7D	QPSK
n261	30	SISO	Ant2	100	1	27500 - 28350	0.106	20.24	95M0W7D	16QAM
n261	30	SISO	Ant2	100	1	27500 - 28350	0.068	18.34	96M3W7D	64QAM
n261	30	MIMO	Ant2	100	1	27500 - 28350	0.219	23.41	94M7G7D	QPSK
n261	30	MIMO	Ant2	100	1	27500 - 28350	0.148	21.70	95M0W7D	16QAM
n261	30	MIMO	Ant2	100	1	27500 - 28350	0.072	18.55	96M3W7D	64QAM
n261	30	SISO	Ant2	100	2	27500 - 28350	0.089	19.50	192MG7D	QPSK
n261	30	SISO	Ant2	100	2	27500 - 28350	0.063	17.98	192MW7D	16QAM
n261	30	SISO	Ant2	100	2	27500 - 28350	0.038	15.82	194MW7D	64QAM
n261	30	MIMO	Ant2	100	2	27500 - 28350	0.175	22.43	192MG7D	QPSK
n261	30	MIMO	Ant2	100	2	27500 - 28350	0.094	19.72	192MW7D	16QAM
n261	30	MIMO	Ant2	100	2	27500 - 28350	0.058	17.66	194MW7D	64QAM

EUT Overview (J Patch / Ant2- Band n261)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	SISO	Ant4	50	1	27500 - 28350	0.167	22.23	49M0G7D	QPSK
n261	30	SISO	Ant4	50	1	27500 - 28350	0.123	20.89	46M3W7D	16QAM
n261	30	SISO	Ant4	50	1	27500 - 28350	0.066	18.18	45M6W7D	64QAM
n261	30	MIMO	Ant4	50	1	27500 - 28350	0.177	22.47	49M0G7D	QPSK
n261	30	MIMO	Ant4	50	1	27500 - 28350	0.110	20.41	46M3W7D	16QAM
n261	30	MIMO	Ant4	50	1	27500 - 28350	0.060	17.76	45M6W7D	64QAM
n261	30	SISO	Ant4	50	2	27500 - 28350	0.091	19.58	97M0G7D	QPSK
n261	30	SISO	Ant4	50	2	27500 - 28350	0.063	17.96	97M6W7D	16QAM
n261	30	SISO	Ant4	50	2	27500 - 28350	0.039	15.88	98M7W7D	64QAM
n261	30	MIMO	Ant4	50	2	27500 - 28350	0.137	21.35	97M0G7D	QPSK
n261	30	MIMO	Ant4	50	2	27500 - 28350	0.055	17.38	97M6W7D	16QAM
n261	30	MIMO	Ant4	50	2	27500 - 28350	0.038	15.78	98M7W7D	64QAM
n261	30	SISO	Ant4	100	1	27500 - 28350	0.184	22.64	92M8G7D	QPSK
n261	30	SISO	Ant4	100	1	27500 - 28350	0.134	21.26	92M6W7D	16QAM
n261	30	SISO	Ant4	100	1	27500 - 28350	0.079	19.00	93M3W7D	64QAM
n261	30	MIMO	Ant4	100	1	27500 - 28350	0.238	23.77	92M8G7D	QPSK
n261	30	MIMO	Ant4	100	1	27500 - 28350	0.142	21.52	92M6W7D	16QAM
n261	30	MIMO	Ant4	100	1	27500 - 28350	0.075	18.73	93M3W7D	64QAM
n261	30	SISO	Ant4	100	2	27500 - 28350	0.100	20.01	191MG7D	QPSK
n261	30	SISO	Ant4	100	2	27500 - 28350	0.069	18.37	191MW7D	16QAM
n261	30	SISO	Ant4	100	2	27500 - 28350	0.043	16.29	190MW7D	64QAM
n261	30	MIMO	Ant4	100	2	27500 - 28350	0.209	23.19	191MG7D	QPSK
n261	30	MIMO	Ant4	100	2	27500 - 28350	0.085	19.31	191MW7D	16QAM
n261	30	MIMO	Ant4	100	2	27500 - 28350	0.049	16.89	190MW7D	64QAM

EUT Overview (K Patch / Ant3 - Band n261)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	SISO	Ant3	50	1	27500 - 28350	0.186	22.70	45M7G7D	QPSK
n261	30	SISO	Ant3	50	1	27500 - 28350	0.115	20.60	45M7W7D	16QAM
n261	30	SISO	Ant3	50	1	27500 - 28350	0.074	18.70	45M8W7D	64QAM
n261	30	MIMO	Ant3	50	1	27500 - 28350	0.221	23.44	45M7G7D	QPSK
n261	30	MIMO	Ant3	50	1	27500 - 28350	0.122	20.85	45M7W7D	16QAM
n261	30	MIMO	Ant3	50	1	27500 - 28350	0.073	18.63	45M8W7D	64QAM
n261	30	SISO	Ant3	50	2	27500 - 28350	0.092	19.65	96M5G7D	QPSK
n261	30	SISO	Ant3	50	2	27500 - 28350	0.065	18.15	97M0W7D	16QAM
n261	30	SISO	Ant3	50	2	27500 - 28350	0.039	15.92	97M3W7D	64QAM
n261	30	MIMO	Ant3	50	2	27500 - 28350	0.182	22.59	96M5G7D	QPSK
n261	30	MIMO	Ant3	50	2	27500 - 28350	0.069	18.38	97M0W7D	16QAM
n261	30	MIMO	Ant3	50	2	27500 - 28350	0.037	15.70	97M3W7D	64QAM
n261	30	SISO	Ant3	100	1	27500 - 28350	0.148	21.72	92M8G7D	QPSK
n261	30	SISO	Ant3	100	1	27500 - 28350	0.089	19.50	92M5W7D	16QAM
n261	30	SISO	Ant3	100	1	27500 - 28350	0.056	17.48	93M2W7D	64QAM
n261	30	MIMO	Ant3	100	1	27500 - 28350	0.205	23.12	92M8G7D	QPSK
n261	30	MIMO	Ant3	100	1	27500 - 28350	0.114	20.56	92M5W7D	16QAM
n261	30	MIMO	Ant3	100	1	27500 - 28350	0.054	17.36	93M2W7D	64QAM
n261	30	SISO	Ant3	100	2	27500 - 28350	0.080	19.02	191MG7D	QPSK
n261	30	SISO	Ant3	100	2	27500 - 28350	0.053	17.24	191MW7D	16QAM
n261	30	SISO	Ant3	100	2	27500 - 28350	0.031	14.92	190MW7D	64QAM
n261	30	MIMO	Ant3	100	2	27500 - 28350	0.175	22.42	191MG7D	QPSK
n261	30	MIMO	Ant3	100	2	27500 - 28350	0.069	18.40	191MW7D	16QAM
n261	30	MIMO	Ant3	100	2	27500 - 28350	0.056	17.50	190MW7D	64QAM

EUT Overview (L Patch / Ant4 - Band n261)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	SISO	Ant1	50	1	37000 - 40000	0.056	17.45	46M0G7D	QPSK
n260	30	SISO	Ant1	50	1	37000 - 40000	0.036	15.52	45M8W7D	16QAM
n260	30	SISO	Ant1	50	1	37000 - 40000	0.022	13.50	46M5W7D	64QAM
n260	30	MIMO	Ant1	50	1	37000 - 40000	0.100	19.99	46M0G7D	QPSK
n260	30	MIMO	Ant1	50	1	37000 - 40000	0.072	18.59	45M8W7D	16QAM
n260	30	MIMO	Ant1	50	1	37000 - 40000	0.045	16.53	46M5W7D	64QAM
n260	30	SISO	Ant1	50	2	37000 - 40000	0.046	16.67	95M5G7D	QPSK
n260	30	SISO	Ant1	50	2	37000 - 40000	0.036	15.54	94M9W7D	16QAM
n260	30	SISO	Ant1	50	2	37000 - 40000	0.026	14.22	96M2W7D	64QAM
n260	30	MIMO	Ant1	50	2	37000 - 40000	0.080	19.01	95M5G7D	QPSK
n260	30	MIMO	Ant1	50	2	37000 - 40000	0.056	17.49	94M9W7D	16QAM
n260	30	MIMO	Ant1	50	2	37000 - 40000	0.033	15.13	96M2W7D	64QAM
n260	30	SISO	Ant1	100	1	37000 - 40000	0.074	18.72	95M6G7D	QPSK
n260	30	SISO	Ant1	100	1	37000 - 40000	0.044	16.46	94M1W7D	16QAM
n260	30	SISO	Ant1	100	1	37000 - 40000	0.025	13.97	94M5W7D	64QAM
n260	30	MIMO	Ant1	100	1	37000 - 40000	0.096	19.81	95M6G7D	QPSK
n260	30	MIMO	Ant1	100	1	37000 - 40000	0.085	19.29	94M1W7D	16QAM
n260	30	MIMO	Ant1	100	1	37000 - 40000	0.054	17.34	94M5W7D	64QAM
n260	30	SISO	Ant1	100	2	37000 - 40000	0.035	15.39	191MG7D	QPSK
n260	30	SISO	Ant1	100	2	37000 - 40000	0.027	14.29	192MW7D	16QAM
n260	30	SISO	Ant1	100	2	37000 - 40000	0.021	13.26	195MW7D	64QAM
n260	30	MIMO	Ant1	100	2	37000 - 40000	0.078	18.94	191MG7D	QPSK
n260	30	MIMO	Ant1	100	2	37000 - 40000	0.064	18.05	192MW7D	16QAM
n260	30	MIMO	Ant1	100	2	37000 - 40000	0.038	15.82	195MW7D	64QAM

EUT Overview (J Dipole / Ant1 - Band n260)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	SISO	Ant2	50	1	37000 - 40000	0.212	23.27	45M4G7D	QPSK
n260	30	SISO	Ant2	50	1	37000 - 40000	0.123	20.88	45M4W7D	16QAM
n260	30	SISO	Ant2	50	1	37000 - 40000	0.081	19.10	45M5W7D	64QAM
n260	30	MIMO	Ant2	50	1	37000 - 40000	0.139	21.42	45M4G7D	QPSK
n260	30	MIMO	Ant2	50	1	37000 - 40000	0.113	20.53	45M4W7D	16QAM
n260	30	MIMO	Ant2	50	1	37000 - 40000	0.062	17.92	45M5W7D	64QAM
n260	30	SISO	Ant2	50	2	37000 - 40000	0.106	20.24	94M9G7D	QPSK
n260	30	SISO	Ant2	50	2	37000 - 40000	0.076	18.78	94M7W7D	16QAM
n260	30	SISO	Ant2	50	2	37000 - 40000	0.042	16.24	94M6W7D	64QAM
n260	30	MIMO	Ant2	50	2	37000 - 40000	0.091	19.60	94M9G7D	QPSK
n260	30	MIMO	Ant2	50	2	37000 - 40000	0.066	18.21	94M7W7D	16QAM
n260	30	MIMO	Ant2	50	2	37000 - 40000	0.035	15.48	94M6W7D	64QAM
n260	30	SISO	Ant2	100	1	37000 - 40000	0.299	24.76	93M0G7D	QPSK
n260	30	SISO	Ant2	100	1	37000 - 40000	0.201	23.02	92M9W7D	16QAM
n260	30	SISO	Ant2	100	1	37000 - 40000	0.108	20.35	93M0W7D	64QAM
n260	30	MIMO	Ant2	100	1	37000 - 40000	0.149	21.73	93M0G7D	QPSK
n260	30	MIMO	Ant2	100	1	37000 - 40000	0.109	20.38	92M9W7D	16QAM
n260	30	MIMO	Ant2	100	1	37000 - 40000	0.075	18.75	93M0W7D	64QAM
n260	30	SISO	Ant2	100	2	37000 - 40000	0.075	18.72	191MG7D	QPSK
n260	30	SISO	Ant2	100	2	37000 - 40000	0.052	17.12	192MW7D	16QAM
n260	30	SISO	Ant2	100	2	37000 - 40000	0.031	14.90	192MW7D	64QAM
n260	30	MIMO	Ant2	100	2	37000 - 40000	0.094	19.73	191MG7D	QPSK
n260	30	MIMO	Ant2	100	2	37000 - 40000	0.069	18.39	192MW7D	16QAM
n260	30	MIMO	Ant2	100	2	37000 - 40000	0.038	15.76	192MW7D	64QAM

EUT Overview (J Patch / Ant2 - Band n260)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	SISO	Ant4	50	1	37000 - 40000	0.209	23.20	45M4G7D	QPSK
n260	30	SISO	Ant4	50	1	37000 - 40000	0.099	19.94	45M3W7D	16QAM
n260	30	SISO	Ant4	50	1	37000 - 40000	0.064	18.04	45M4W7D	64QAM
n260	30	MIMO	Ant4	50	1	37000 - 40000	0.204	23.09	45M4G7D	QPSK
n260	30	MIMO	Ant4	50	1	37000 - 40000	0.145	21.60	45M3W7D	16QAM
n260	30	MIMO	Ant4	50	1	37000 - 40000	0.091	19.57	45M4W7D	64QAM
n260	30	SISO	Ant4	50	2	37000 - 40000	0.170	22.30	94M8G7D	QPSK
n260	30	SISO	Ant4	50	2	37000 - 40000	0.133	21.25	95M7W7D	16QAM
n260	30	SISO	Ant4	50	2	37000 - 40000	0.071	18.50	100MW7D	64QAM
n260	30	MIMO	Ant4	50	2	37000 - 40000	0.124	20.92	94M8G7D	QPSK
n260	30	MIMO	Ant4	50	2	37000 - 40000	0.083	19.18	95M7W7D	16QAM
n260	30	MIMO	Ant4	50	2	37000 - 40000	0.046	16.65	100MW7D	64QAM
n260	30	SISO	Ant4	100	1	37000 - 40000	0.219	23.40	92M8G7D	QPSK
n260	30	SISO	Ant4	100	1	37000 - 40000	0.151	21.80	93M5W7D	16QAM
n260	30	SISO	Ant4	100	1	37000 - 40000	0.094	19.75	93M4W7D	64QAM
n260	30	MIMO	Ant4	100	1	37000 - 40000	0.205	23.12	92M8G7D	QPSK
n260	30	MIMO	Ant4	100	1	37000 - 40000	0.150	21.76	93M5W7D	16QAM
n260	30	MIMO	Ant4	100	1	37000 - 40000	0.093	19.69	93M4W7D	64QAM
n260	30	SISO	Ant4	100	2	37000 - 40000	0.184	22.66	191MG7D	QPSK
n260	30	SISO	Ant4	100	2	37000 - 40000	0.135	21.30	192MW7D	16QAM
n260	30	SISO	Ant4	100	2	37000 - 40000	0.091	19.61	192MW7D	64QAM
n260	30	MIMO	Ant4	100	2	37000 - 40000	0.125	20.96	191MG7D	QPSK
n260	30	MIMO	Ant4	100	2	37000 - 40000	0.088	19.46	192MW7D	16QAM
n260	30	MIMO	Ant4	100	2	37000 - 40000	0.049	16.92	192MW7D	64QAM

EUT Overview (K Patch / Ant3 - Band n260)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	SISO	Ant3	50	1	37000 - 40000	0.231	23.64	45M8G7D	QPSK
n260	30	SISO	Ant3	50	1	37000 - 40000	0.144	21.57	45M6W7D	16QAM
n260	30	SISO	Ant3	50	1	37000 - 40000	0.084	19.26	46M0W7D	64QAM
n260	30	MIMO	Ant3	50	1	37000 - 40000	0.188	22.74	45M8G7D	QPSK
n260	30	MIMO	Ant3	50	1	37000 - 40000	0.138	21.40	45M6W7D	16QAM
n260	30	MIMO	Ant3	50	1	37000 - 40000	0.098	19.92	46M0W7D	64QAM
n260	30	SISO	Ant3	50	2	37000 - 40000	0.170	22.31	94M5G7D	QPSK
n260	30	SISO	Ant3	50	2	37000 - 40000	0.131	21.17	95M3W7D	16QAM
n260	30	SISO	Ant3	50	2	37000 - 40000	0.070	18.44	95M5W7D	64QAM
n260	30	MIMO	Ant3	50	2	37000 - 40000	0.116	20.66	94M5G7D	QPSK
n260	30	MIMO	Ant3	50	2	37000 - 40000	0.079	18.98	95M3W7D	16QAM
n260	30	MIMO	Ant3	50	2	37000 - 40000	0.043	16.28	95M5W7D	64QAM
n260	30	SISO	Ant3	100	1	37000 - 40000	0.166	22.19	93M8G7D	QPSK
n260	30	SISO	Ant3	100	1	37000 - 40000	0.114	20.58	93M2W7D	16QAM
n260	30	SISO	Ant3	100	1	37000 - 40000	0.062	17.92	94M0W7D	64QAM
n260	30	MIMO	Ant3	100	1	37000 - 40000	0.177	22.49	93M8G7D	QPSK
n260	30	MIMO	Ant3	100	1	37000 - 40000	0.134	21.26	93M2W7D	16QAM
n260	30	MIMO	Ant3	100	1	37000 - 40000	0.091	19.61	94M0W7D	64QAM
n260	30	SISO	Ant3	100	2	37000 - 40000	0.169	22.28	192MG7D	QPSK
n260	30	SISO	Ant3	100	2	37000 - 40000	0.138	21.39	192MW7D	16QAM
n260	30	SISO	Ant3	100	2	37000 - 40000	0.080	19.02	193MW7D	64QAM
n260	30	MIMO	Ant3	100	2	37000 - 40000	0.130	21.14	192MG7D	QPSK
n260	30	MIMO	Ant3	100	2	37000 - 40000	0.086	19.37	192MW7D	16QAM
n260	30	MIMO	Ant3	100	2	37000 - 40000	0.048	16.82	193MW7D	64QAM

EUT Overview (L Patch / Ant4 - Band n260)

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMG988U**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The EUT has 2 array antenna configurations. Type1: 4 patches and 4 dipoles, placed on the rear side (denoted as J Patch and J Dipole). Type 2: 4 patches only, placed on the left and right side (denoted as K patch and L Patch). Each of the patch antennas is comprised of two separate antenna feeds - one for horizontal and one for vertical polarization. Only one array antenna can be active at a time. Dipole antenna does not radiate when patch antenna radiates.

The EUT supports up to 8CC for DL, and 2CC for UL. For each CC, the EUT supports both 50MHz bandwidth and 100MHz bandwidth. For modulation, the EUT supports a subcarrier spacing (SCS) of 120kHz with two transmission schemes, CP-OFDM and DFT-s-OFDM, with QPSK, 16-QAM, and 64-QAM modulations. Different Beam IDs are supported, each corresponding to a different position in space for each antenna. During testing, FTM (Factory Test Mode) was used to operate the transmitter. MIMO operation was achieved by enabling two Beam IDs at the same time: one is from the list of H Beam IDs and other is from the list of V Beam IDs.

Antenna	Name
Ant1	J Dipole
Ant2	J Patch
Ant3	K Patch
Ant4	L Patch

Test Device Serial No.: 0842M, 0860M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (n71, n5, n66, n2, n41, n260, n261), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, ANT+, Wireless Power Transfer

2.3 Test Configuration

The EUT was tested per the guidance of KDB 842590 D01 v01 and ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated tests.

EIRP Simulation data for all Beam IDs was used to determine the worst case Beam ID for SISO operation and Beam ID pair for MIMO operation. These Beam ID's were used for final measurements.

All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation. When implemented out in the field, the EUT will operate with a maximum uplink configuration (i.e., a maximum uplink duty cycle of 100%). The FTM software was also used for the EUT operation in the ENDC mode.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) and the guidance provided in KDB 842590 D01 v01 were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

§30.202, §30.203

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary for radiated emissions measurements in the spurious domain. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m for measurements above 1GHz.

Radiated power (EIRP) measurements were performed in a full anechoic chamber (FAC) conforming to the site validation requirements of CISPR 16-1-4. Radiated spurious emission measurements from 30MHz - 18GHz were performed in a semi anechoic chamber (SAC) conforming to the site validation requirements of CISPR 16-1-4. A positioner was used to manipulate the EUT through several positions in space by rotating about the roll axis as shown in the figure below. The positioner was mounted on top of a turntable bringing the total EUT height to 1.5m.

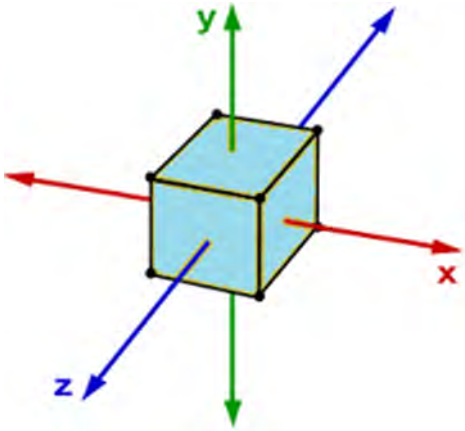

Figure 3-1. Rotation of the EUT Through Three Orthogonal Planes

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The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, "D" is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 3-1. Far-Field Distance & Measurment Distance per Frequency Range

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

The maximized power level is recorded using the spectrum analyzer “Channel Power” function with the integration bandwidth set to the emissions’ occupied bandwidth. The EIRP is calculated from the raw power level measured with the spectrum analyzer using the formulas shown below.

Effective Isotropic Radiated Power Sample Calculation

The measured e.i.r.p is converted to E-field in V/m. Then, the distance correction is applied before converting back to calculated e.i.r.p, as explained in KDB 971168 D01.

Field Strength [dBμV/m] = Measured Value [dBm] + AFCL [dB/m] + 107

= - 32.74 dBm + (40.7dB/m + 8.78dB) + 107 = 123.74dBuV/m

= 10^(123.74/20)/1000000 = 1.54 V/m

e.i.r.p. [dBm] = 10 * log((E-Field*D_m)^2/30) + 30dB

= 10*log((1.54V/m * 1.00m)^2/30) + 30dB

= 18.98 dBm e.i.r.p.

Sample MIMO e.i.r.p. Calculation:

The e.i.r.p of the H Beam and V Beam were first measured individually. The measured values were then summed in linear power units then converted back to dBm per the guidance of KDB 662911 D01.

Conversion to linear value = 10^(e.i.r.p/10) = 10^(17.45/10) = 55.59mW

MIMO e.i.r.p. = $e.i.r.p._H$ + $e.i.r.p._V$

= 55.59mW + 20.04mW

=10*log(75.63mW)

= 18.79dBm

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to an accredited ISO/IEC 17025 calibration facility. Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Agilent	N9030A	50GHz PXA Signal Analyzer	11/22/2019	Annual	11/22/2020	US51350301
COM-Power	AL-130R	Active Loop Antenna	8/22/2019	Annual	8/22/2020	121085
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	5/10/2019	Annual	5/10/2020	441112
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
Espec	ESX-2CA	Environmental Chamber	6/13/2019	Annual	6/13/2020	17620
ETS-Lindgren	3116C	DRG Horn Antenna	3/11/2019	Annual	3/11/2020	218893
Keysight Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	5/2/2019	Annual	5/2/2020	MY49430494
OML Inc.	M05RH	WR-05 Horn antenna,24 dBi, 140 to 200GHz	10/31/2019	Annual	10/31/2020	18073001
OML Inc.	M08RH	WR-08 Horn Antenna, 24dBi, 90 to 140 GHz	7/30/2018	Biennial	7/30/2020	18073001
OML Inc.	M12RH	WR-12 Horn Antenna, 24dBi, 60 to 90 GHz	10/31/2019	Annual	10/31/2020	18073001
OML Inc.	M19RH	WR-19 Horn Antenna, 24dBi, 40 to 60 GHz	10/31/2019	Annual	10/31/2020	18073001
Rohde & Schwarz	180-442-KF	Horn (Small)	8/21/2018	Biennial	8/21/2020	U157403-01
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	10/16/2019	Annual	10/16/2020	101716
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	5/6/2019	Annual	5/6/2020	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/8/2019	Annual	7/8/2020	102133
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107
Virginia Diodes Inc	SAX252	SAX Module (60 - 90GHz)	9/30/2019	Annual	9/30/2020	SAX252
Virginia Diodes Inc	SAX253	SAX Module (90 - 140GHz)	9/30/2019	Annual	9/30/2020	SAX253
Virginia Diodes Inc	SAX254	SAX Module (140 - 220GHz)	9/30/2019	Annual	9/30/2020	SAX254
Virginia Diodes Inc	SAX411	SAX Module (40 - 60GHz)	10/2/2019	Annual	10/2/2020	SAX411

Table 5-1. Test Equipment

Notes:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 800MG7D

BW = 800 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 802MW7D

BW = 802 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

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7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMG988U

FCC Classification: Part 30 Mobile Transmitter (5GM)

Mode(s): TDD

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	RADIATED	PASS	Section 7.2
2.1046, 30.202	Equivalent Isotropic Radiated Power	43dBm		PASS	Section 7.3
2.1051, 30.203	Spurious Emissions	-13dBm/MHz for all out-of-band emissions		PASS	Section 7.4
2.1051, 30.203	Out-of-Band Emissions at the Band Edge	-13dBm/MHz for all out-of-band emissions, -5dBm/MHz from the band edge up to 10% of the channel BW		PASS	Section 7.5
2.1055	Frequency Stability	Fundamental emissions stay within authorized frequency block		PASS	Section 7.6

Table 7-1. Summary of Radiated Test Results

Notes:

1) All modes of operation and modulations were investigated. The test results shown in the following sections represent the worst case emissions.
2) Per 2.1057(a)(2), spurious emissions were investigated up to 100GHz for n261 and up to 200GHz for n260.
3) All radiated emission measurements at the band edge are converted to an equivalent conductive power by subtracting the known antenna gain from the EIRP measured at each frequency of interest. These emissions are compared to the 30.203 spurious emission limits as conductive power levels.
4) The radiated RF output power and all out-of-band emissions in the spurious domain are evaluated to the EIRP limits.
5) “CC” refers to “Component Carriers”.
6) Beam IDs were chosed based on which Beam ID produces the highest EIRP during EIRP simulation.
7) All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation (100% duty cycle).
8) The CP-OFDM and DFT-s-OFDM QPSK transmission schemes were investigated fully for each test type and only the worst case data is included.

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7.2 Occupied Bandwidth

§2.1049

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 Section 5.4.3
KDB 842590 D01 v01 Section 4.3

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Notes

The EUT supports CP (QPSK) and DFT-s (QPSK). Both the types of QPSK modulations were investigated in detail. Data for the worst case has been included in the report.

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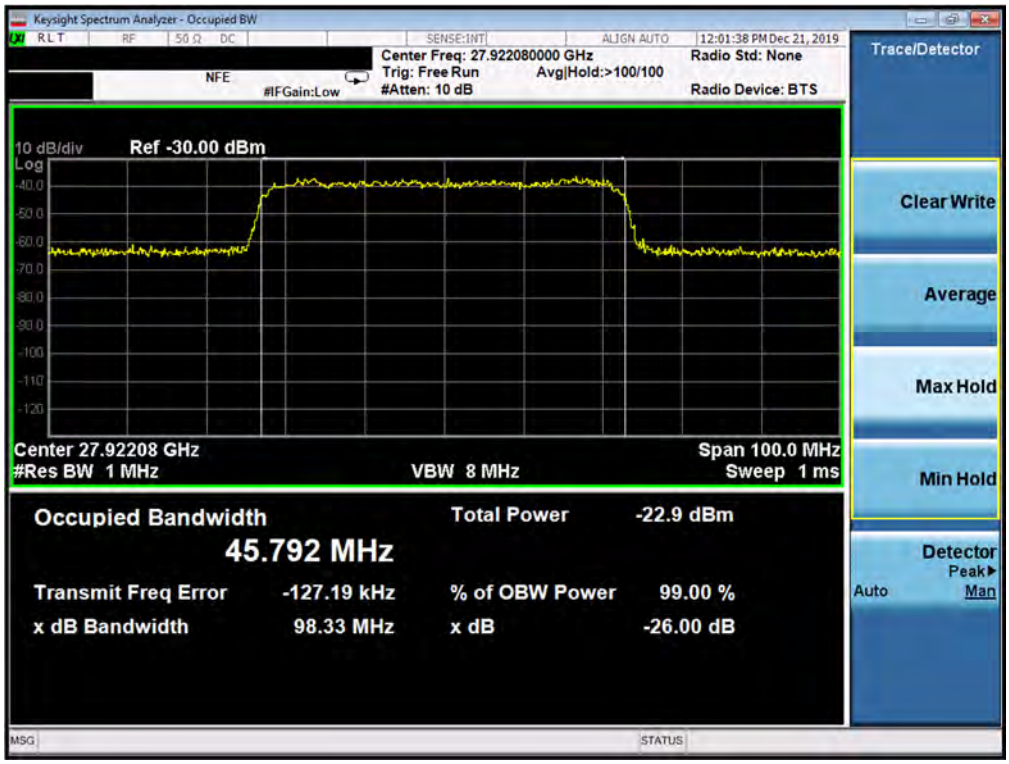
Band n261

Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.79
			16QAM	45.66
			64QAM	45.98
		2	QPSK	97.69
			16QAM	98.28
			64QAM	100.54
	100	1	QPSK	93.33
			16QAM	93.25
			64QAM	93.68
		2	QPSK	191.06
			16QAM	190.96
			64QAM	191.01

Table 7-2. Summary of Ant1 Occupied Bandwidths (n261)



Plot 7-1. Ant1 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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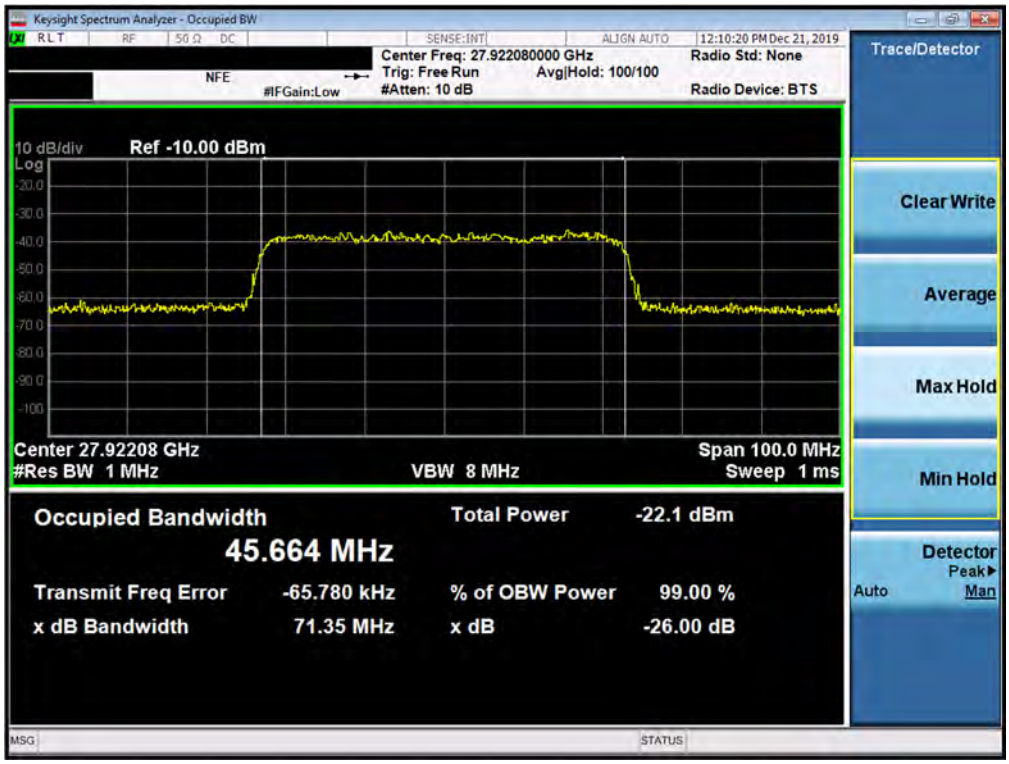
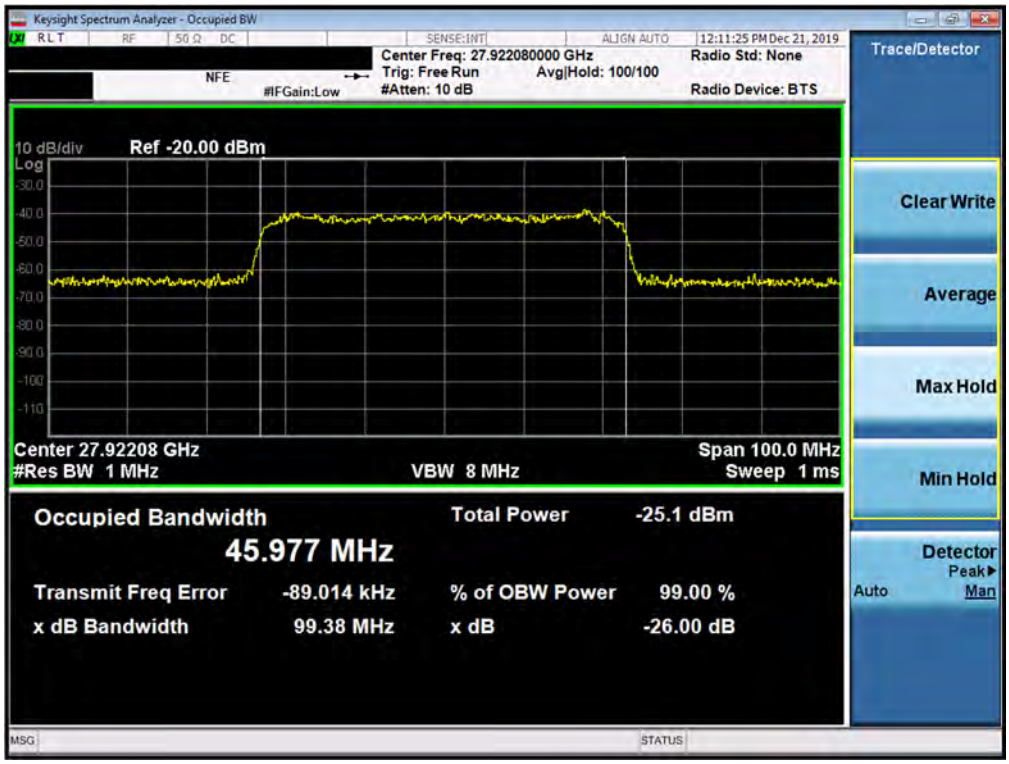


Plot 7-2. Ant1 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-3. Ant1 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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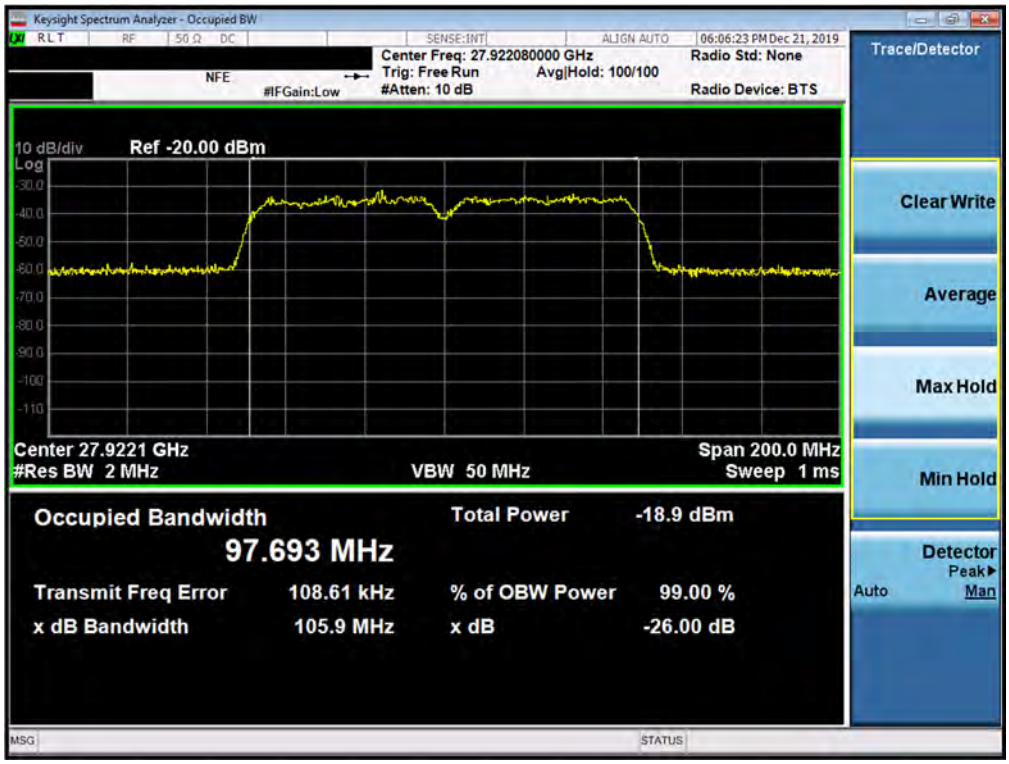
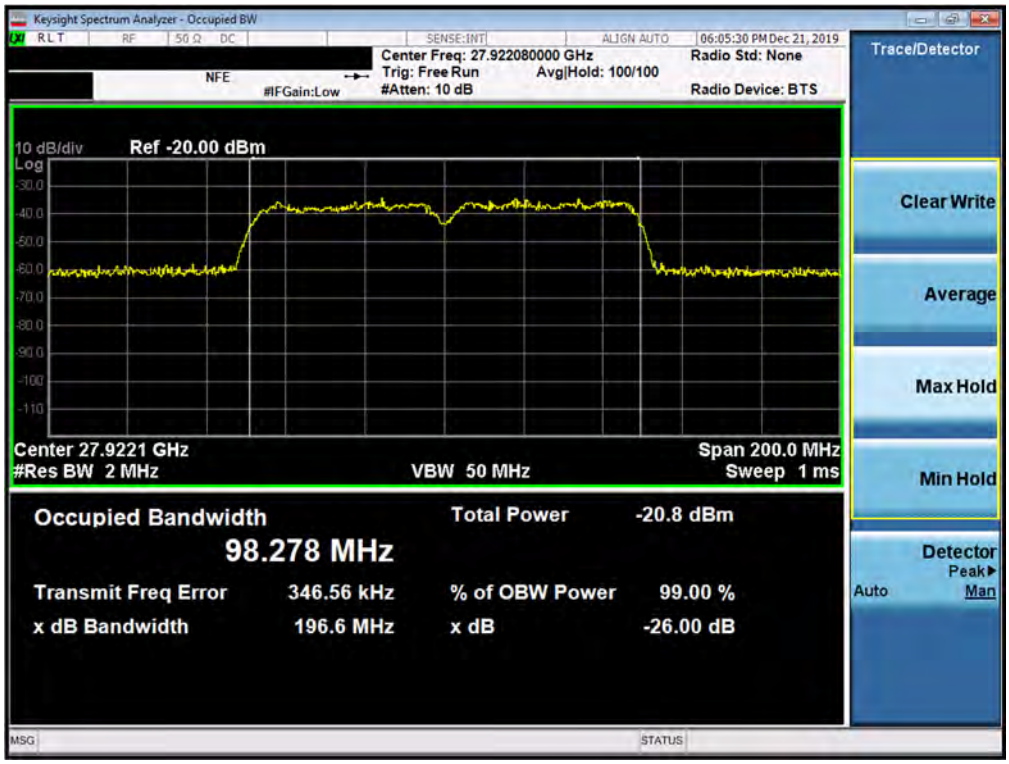


Plot 7-4. Ant1 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-5. Ant1 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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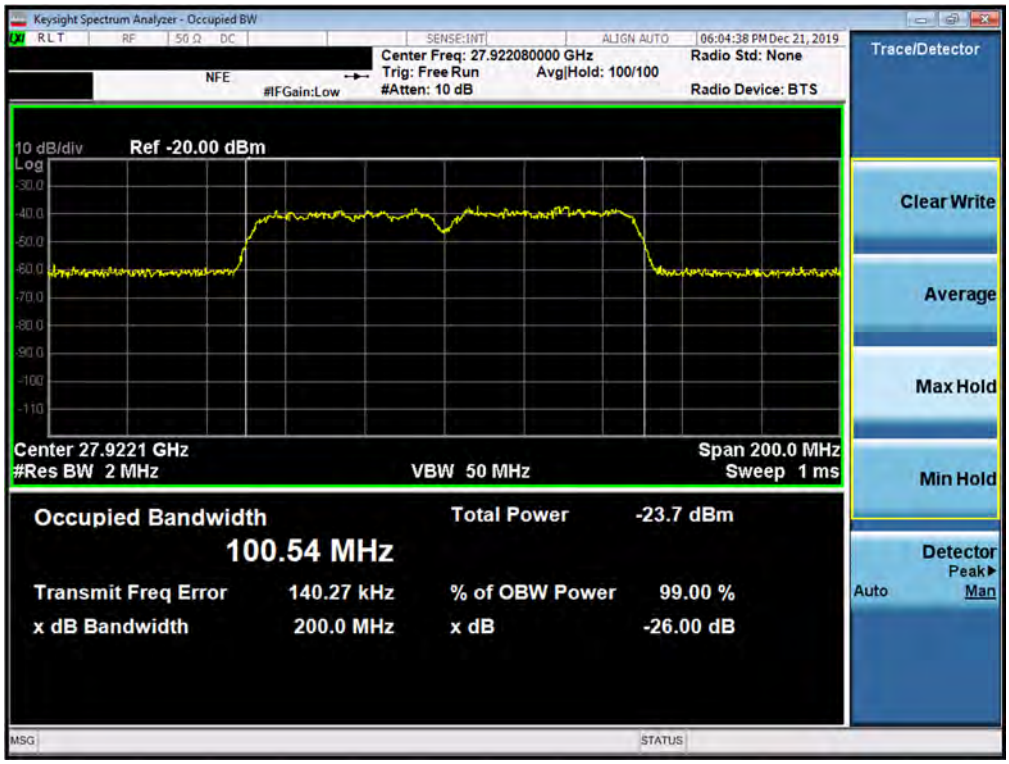
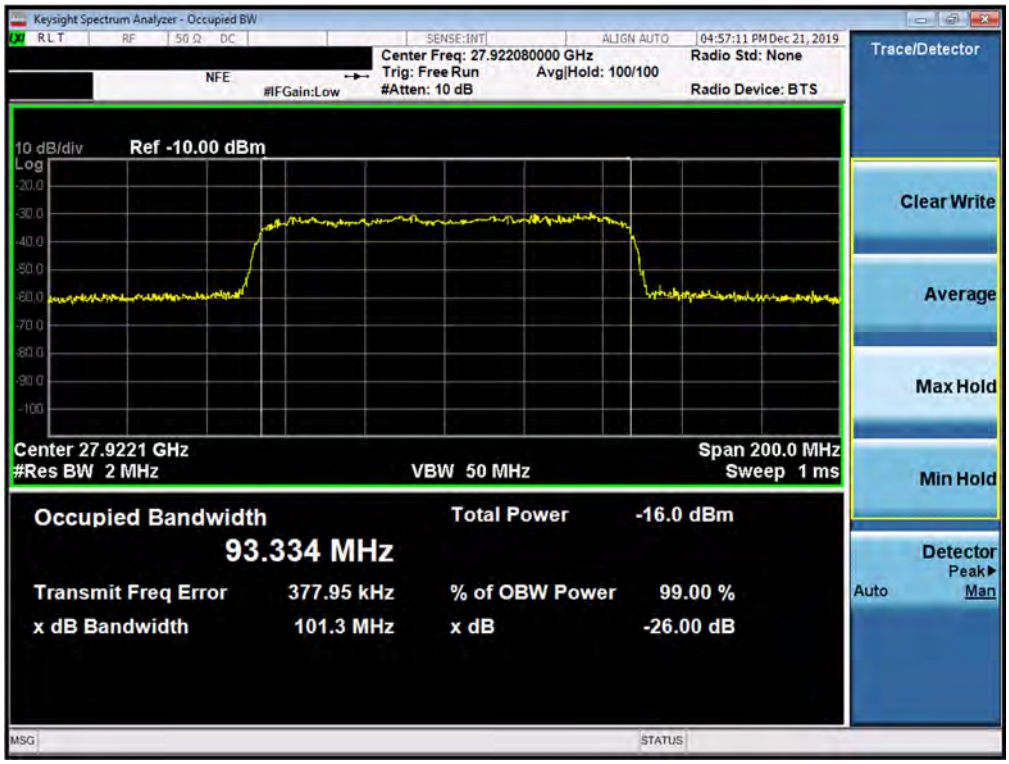


Plot 7-6. Ant1 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-7. Ant1 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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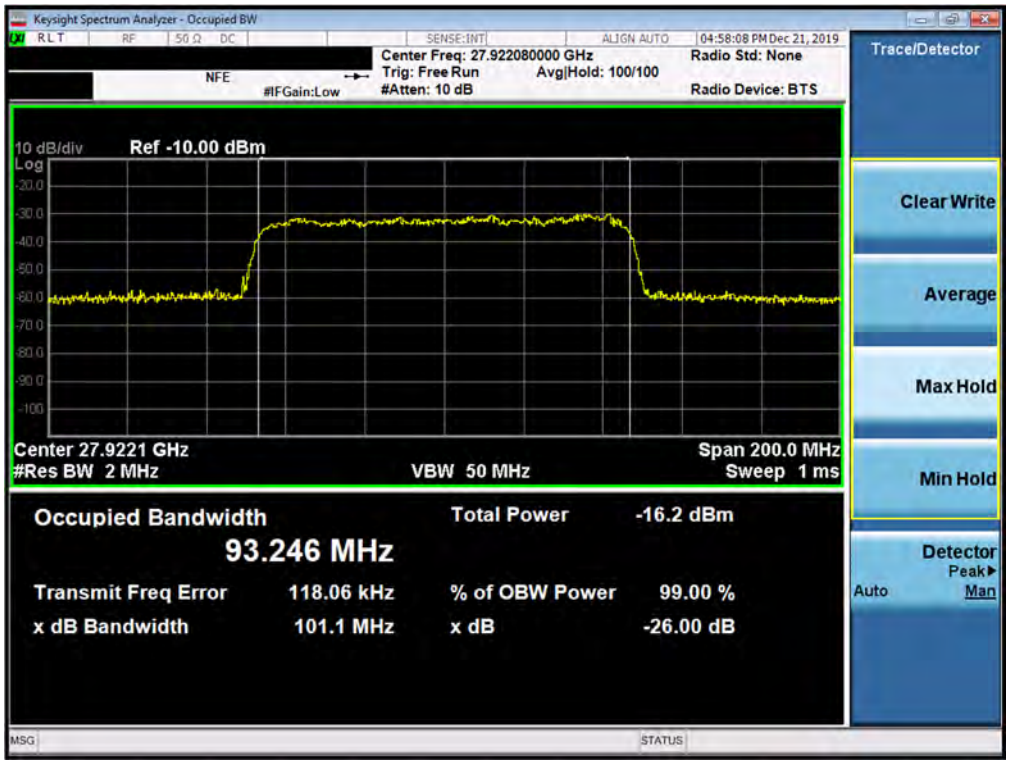
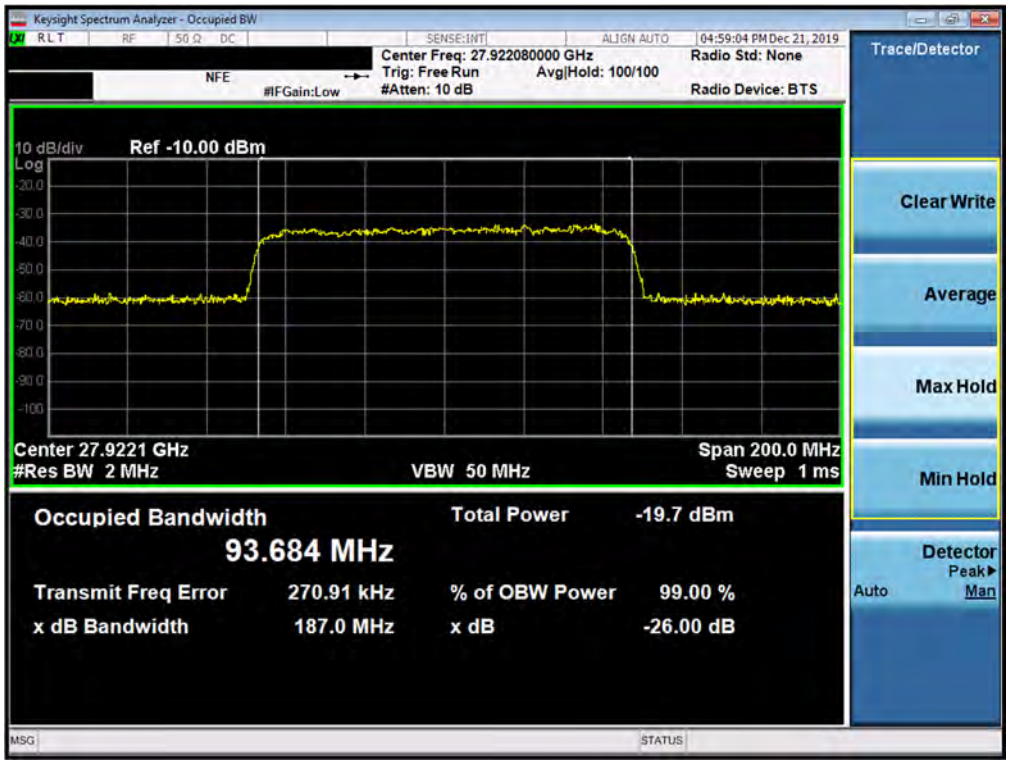


Plot 7-8. Ant1 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-9. Ant1 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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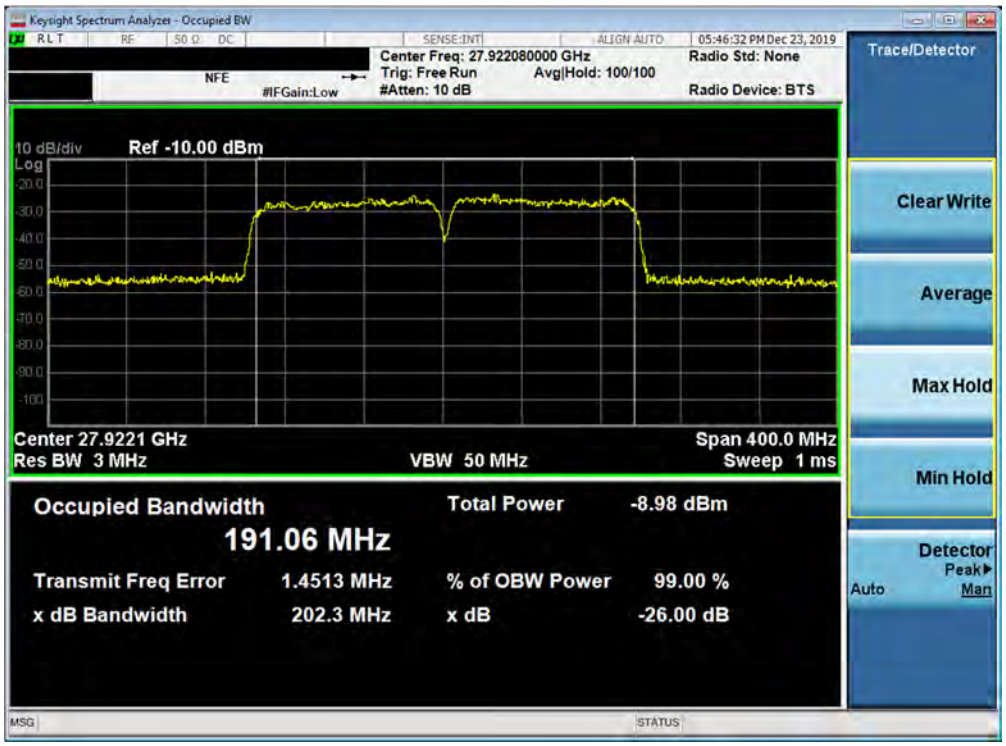
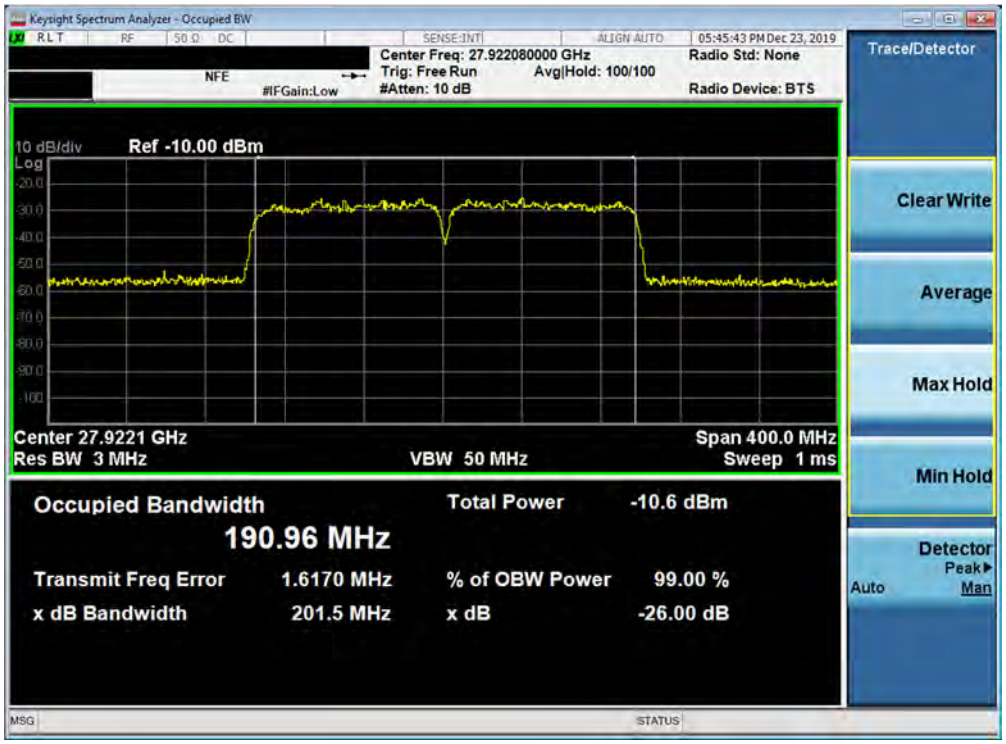


Plot 7-10. Ant1 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-11. Ant1 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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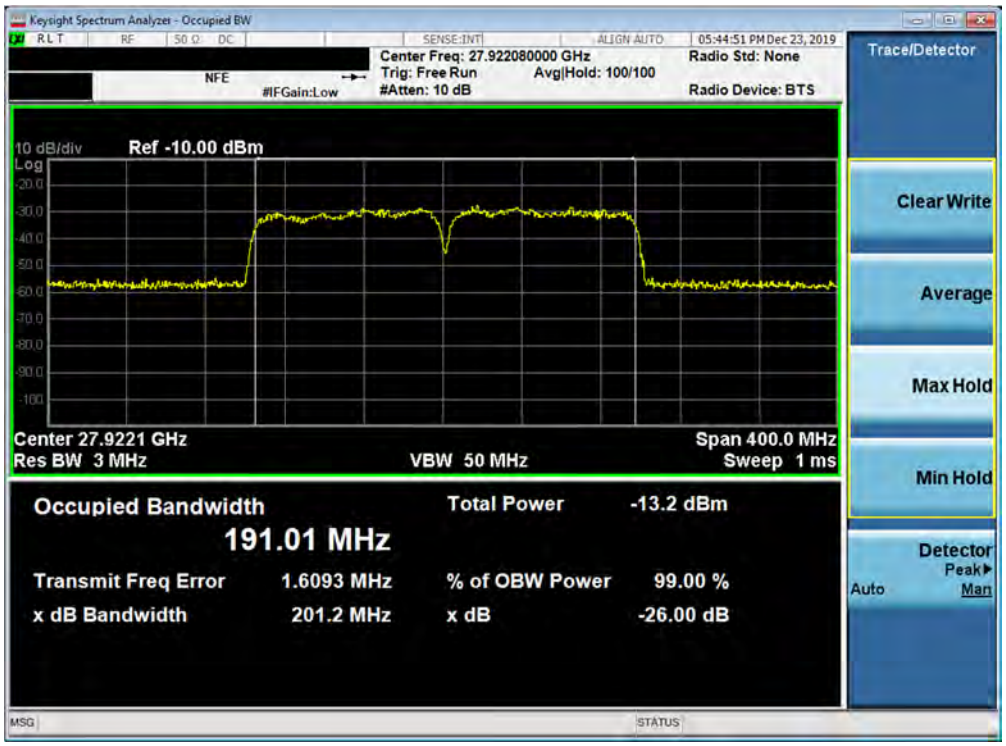

Plot 7-12. Ant1 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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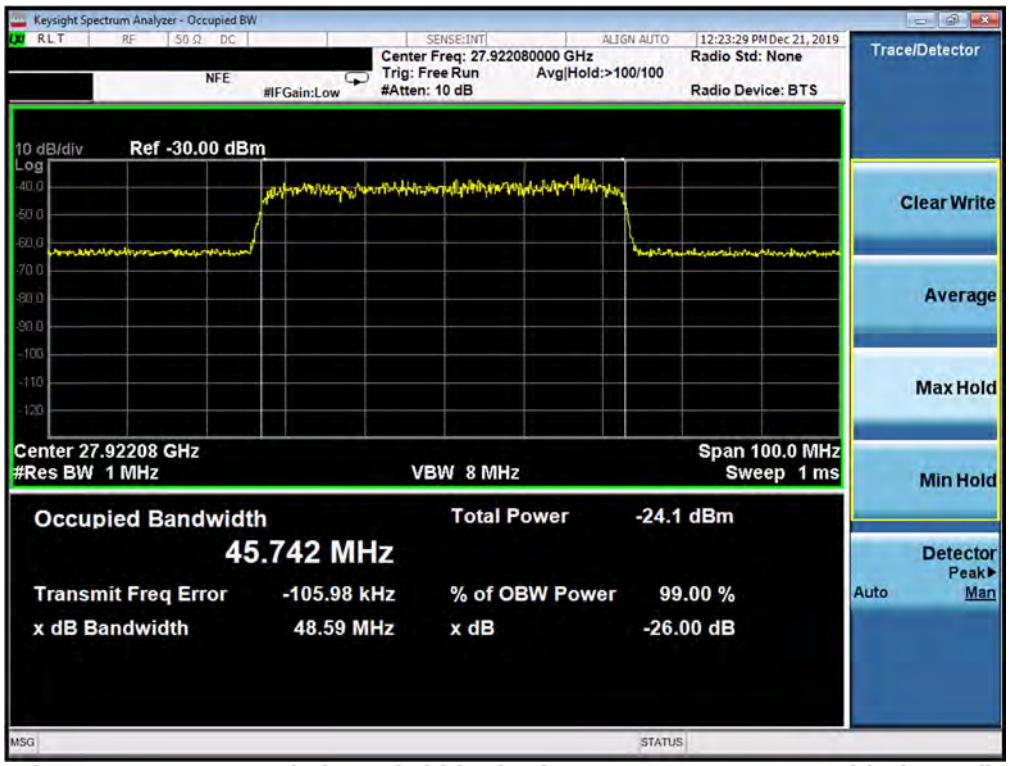
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.74
			16QAM	45.42
			64QAM	45.83
		2	QPSK	96.55
			16QAM	97.26
			64QAM	96.00
	100	1	QPSK	94.70
			16QAM	94.95
			64QAM	96.28
		2	QPSK	191.78
			16QAM	192.09
			64QAM	193.65

Table 7-3. Summary of Ant2 Occupied Bandwidths (n261)



Plot 7-13. Ant2 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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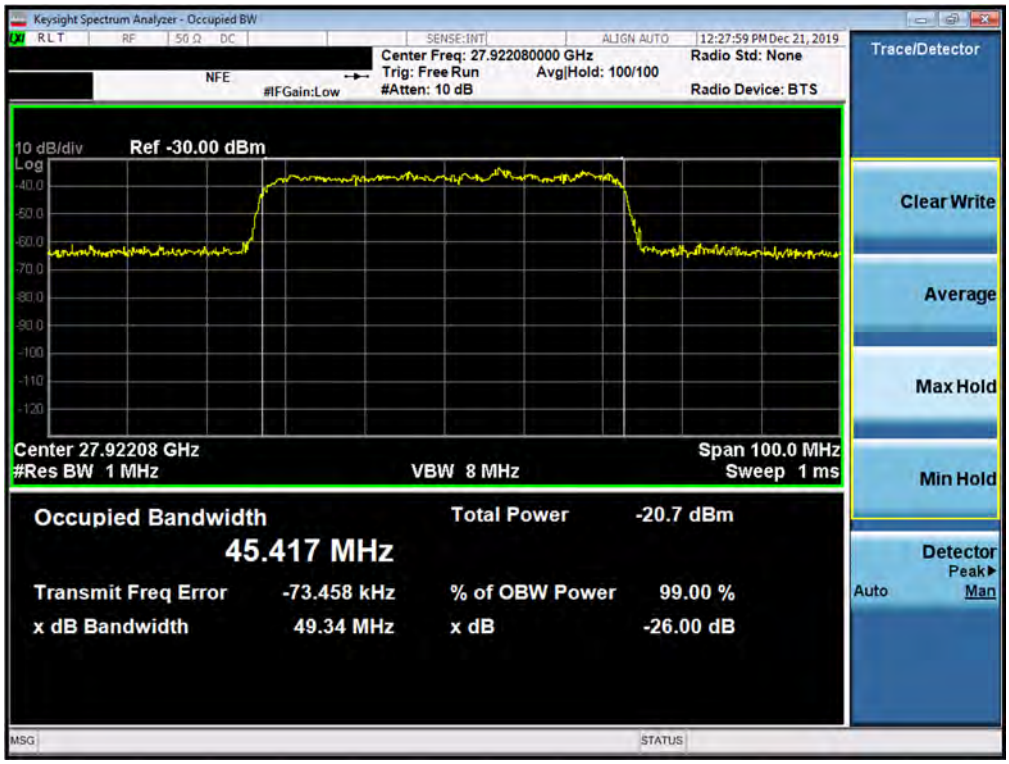
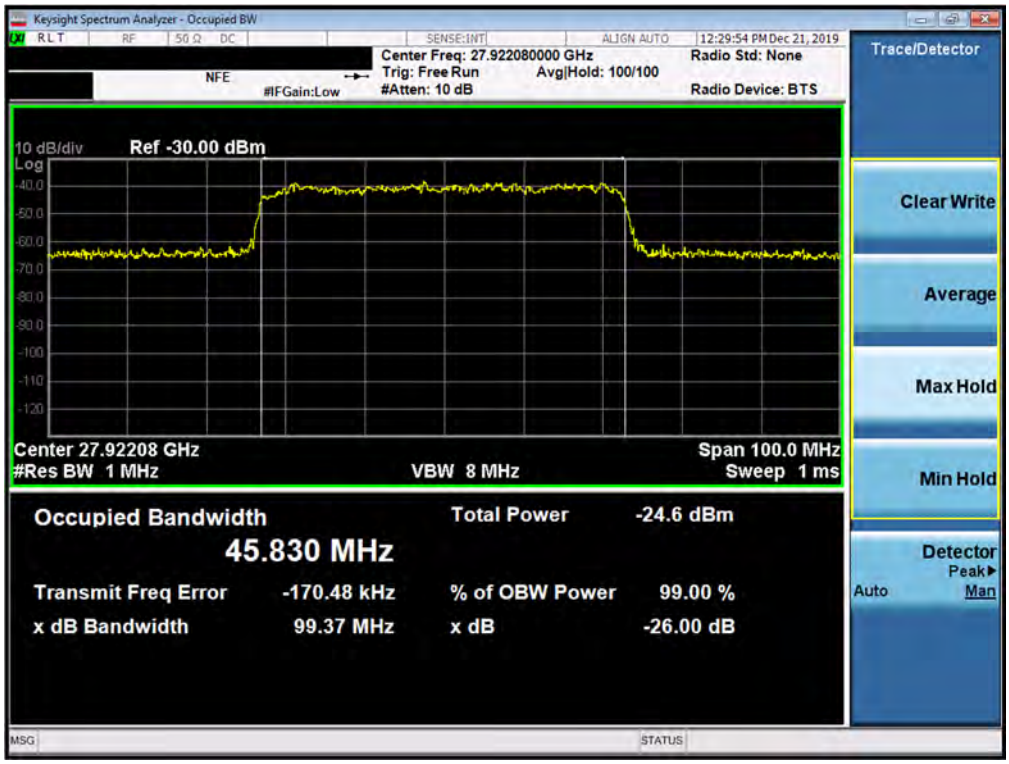


Plot 7-14. Ant2 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-15. Ant2 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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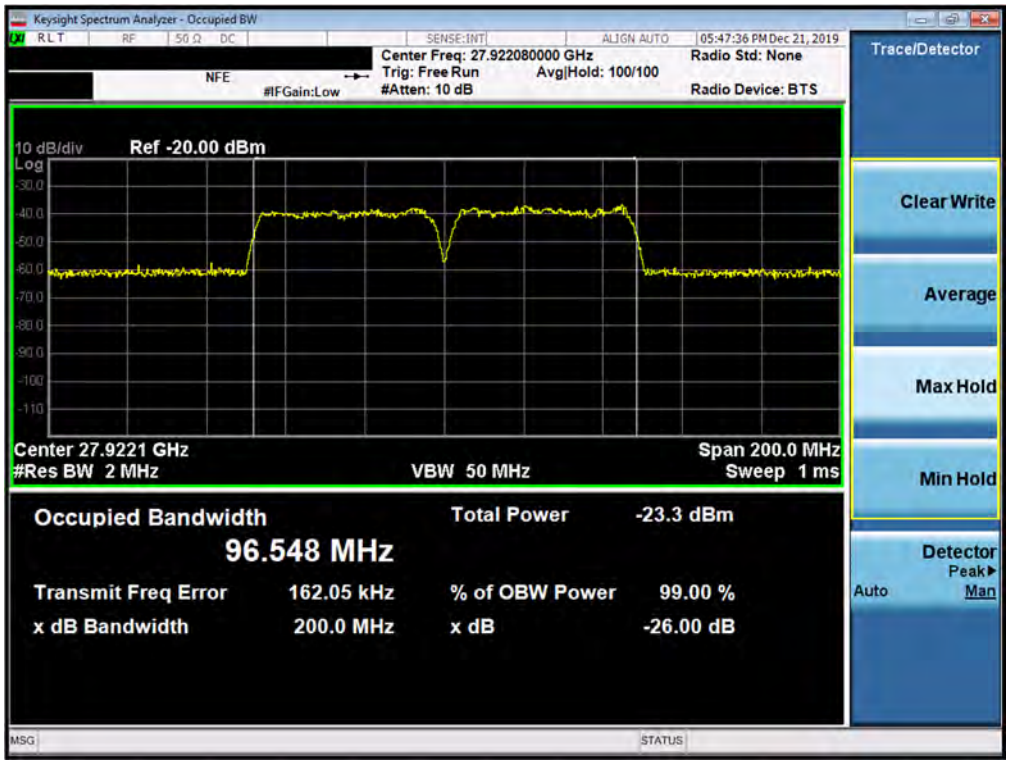
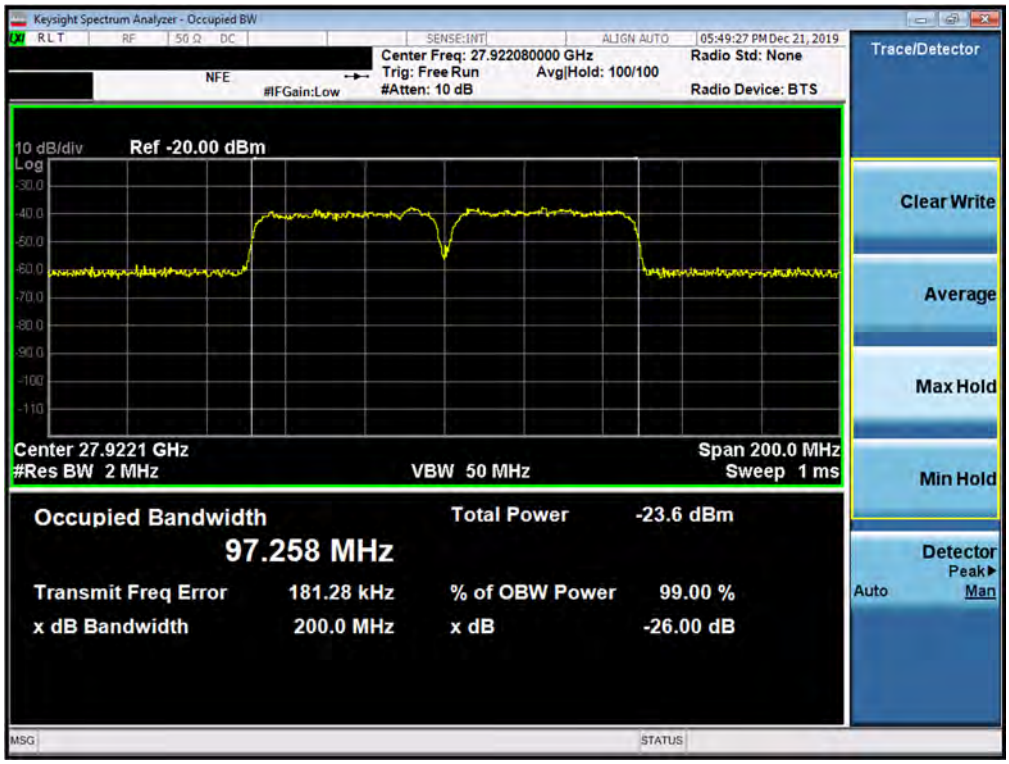


Plot 7-16. Ant2 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-17. Ant2 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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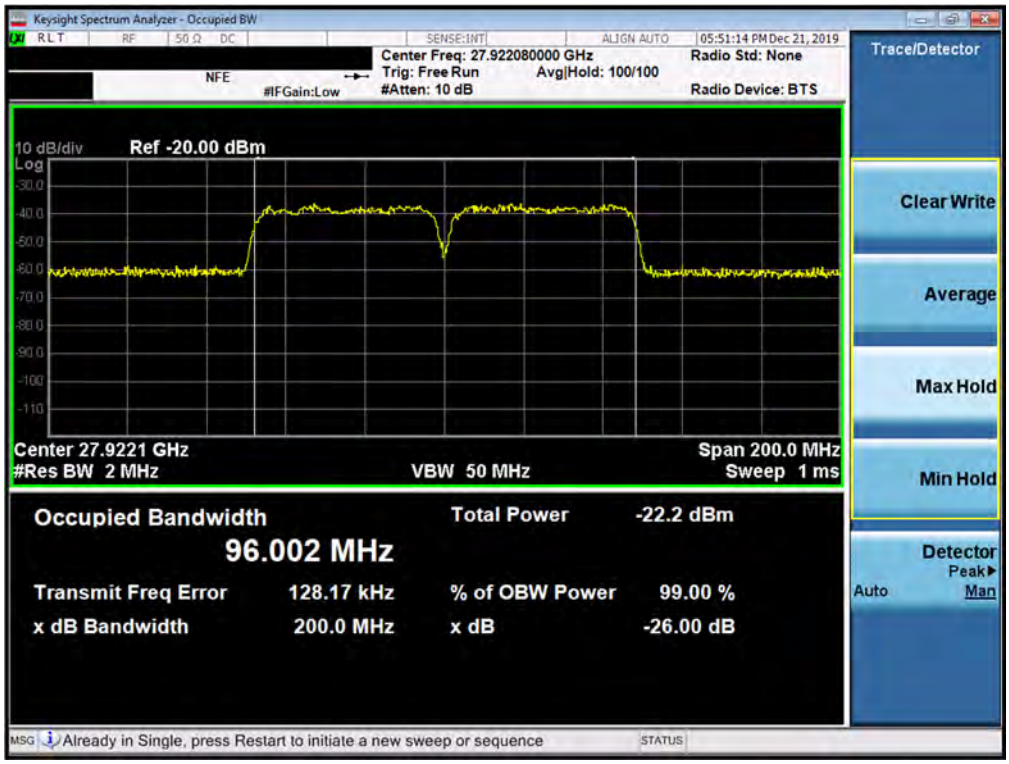
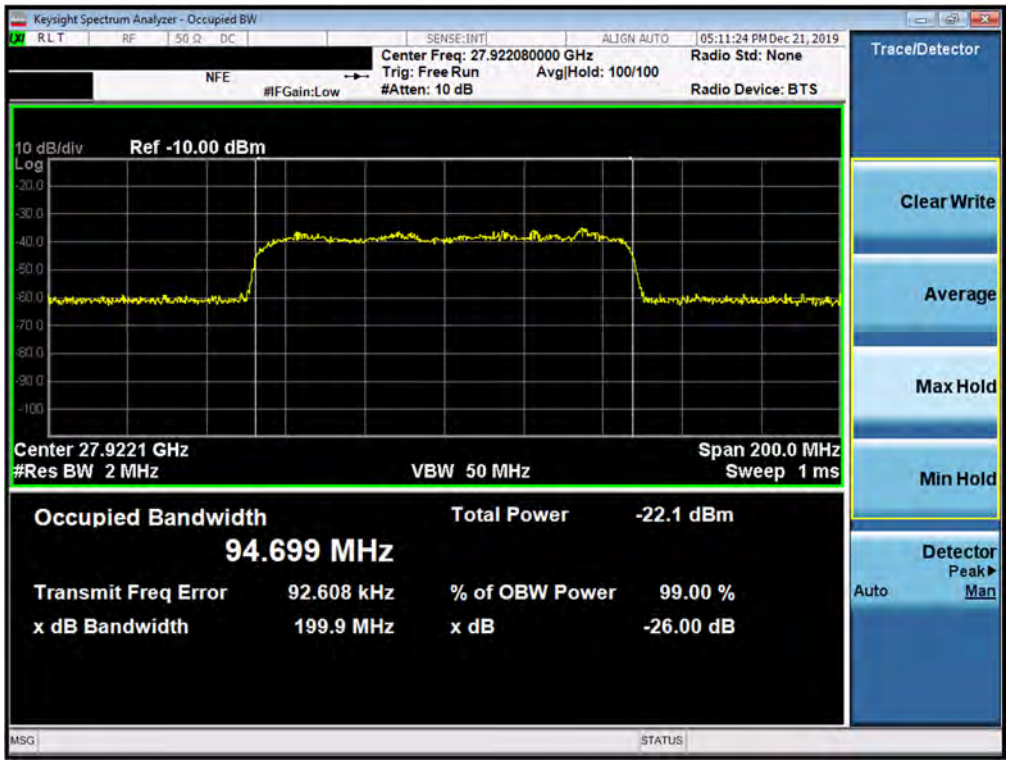


Plot 7-18. Ant2 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-19. Ant2 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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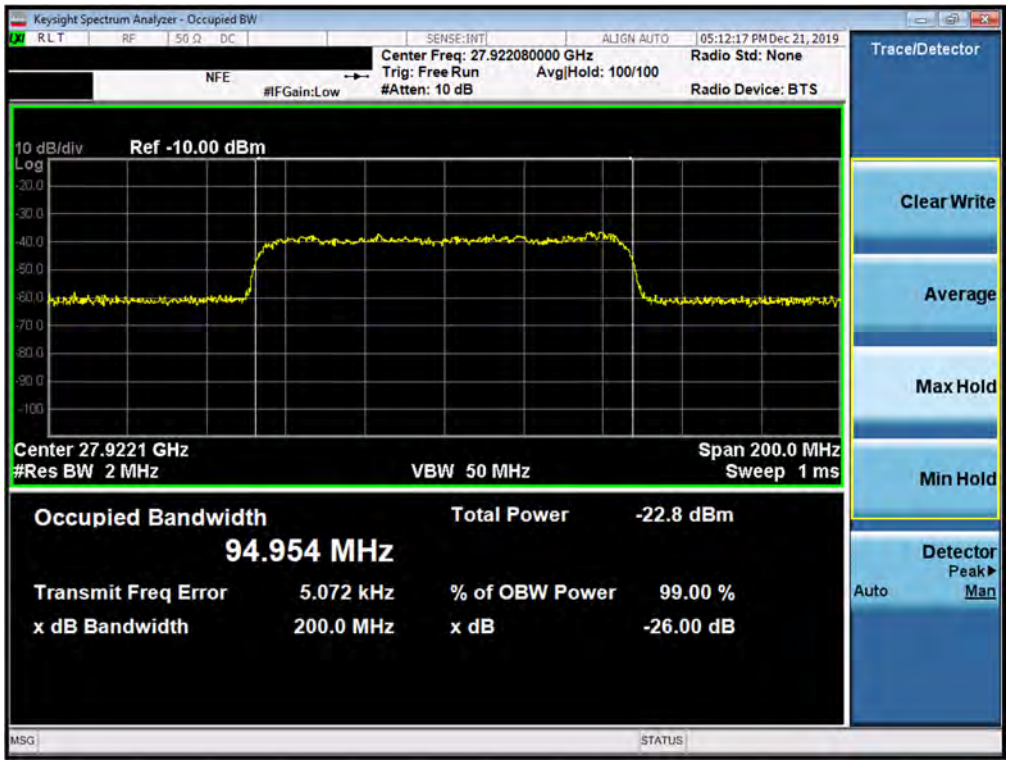
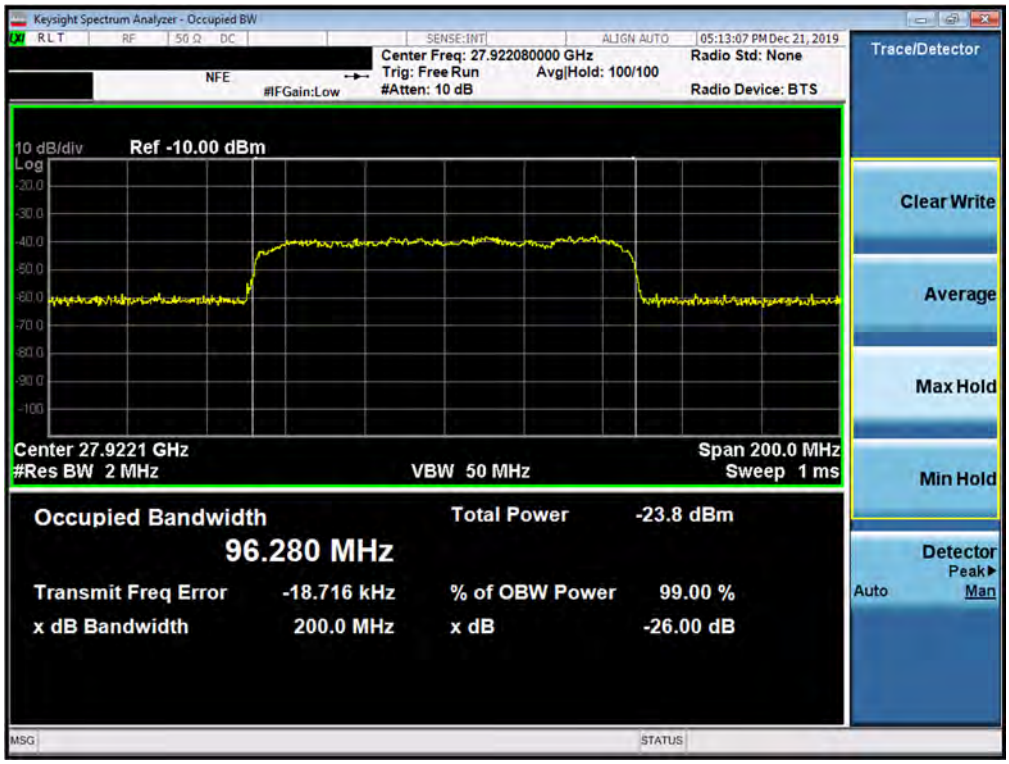


Plot 7-20. Ant2 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-21. Ant2 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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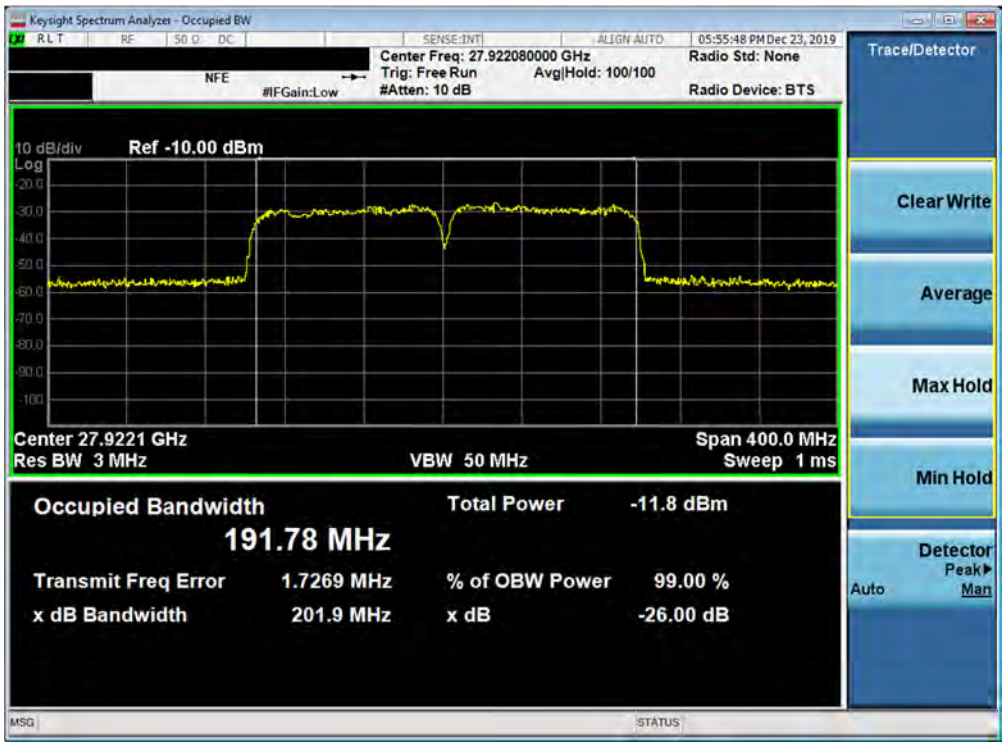
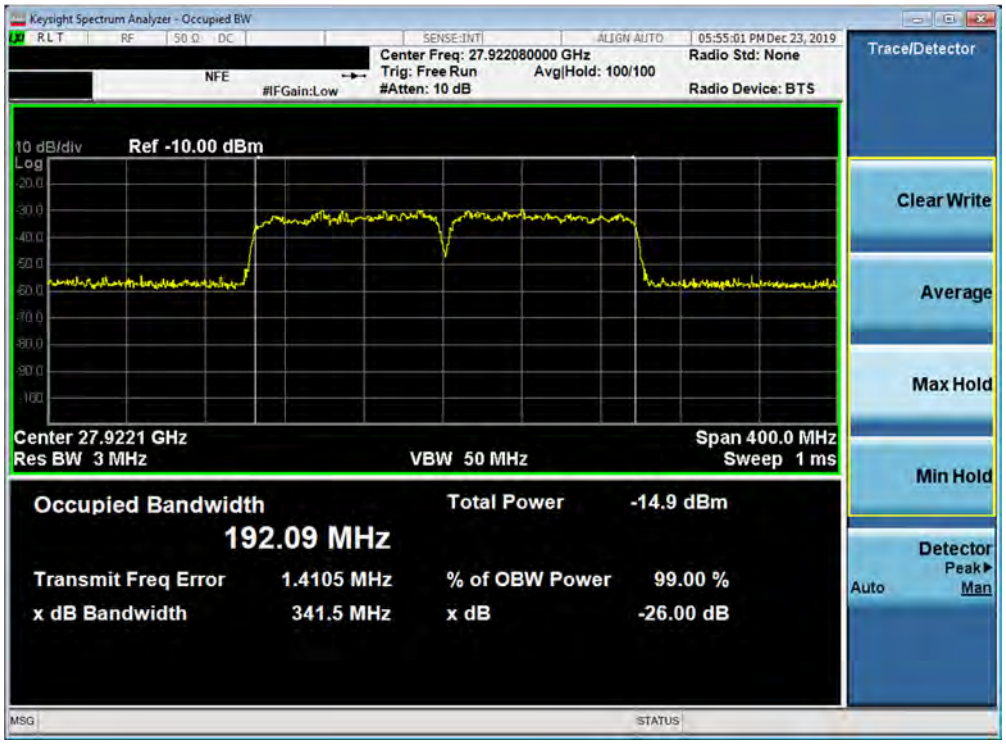


Plot 7-22. Ant2 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-23. Ant2 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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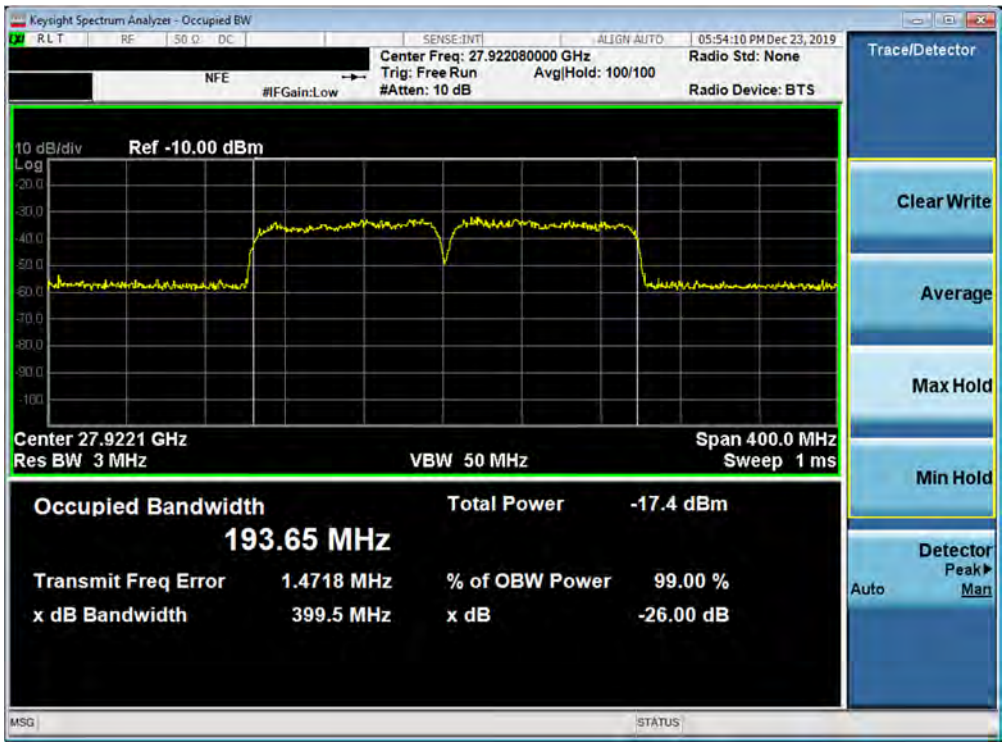

Plot 7-24. Ant2 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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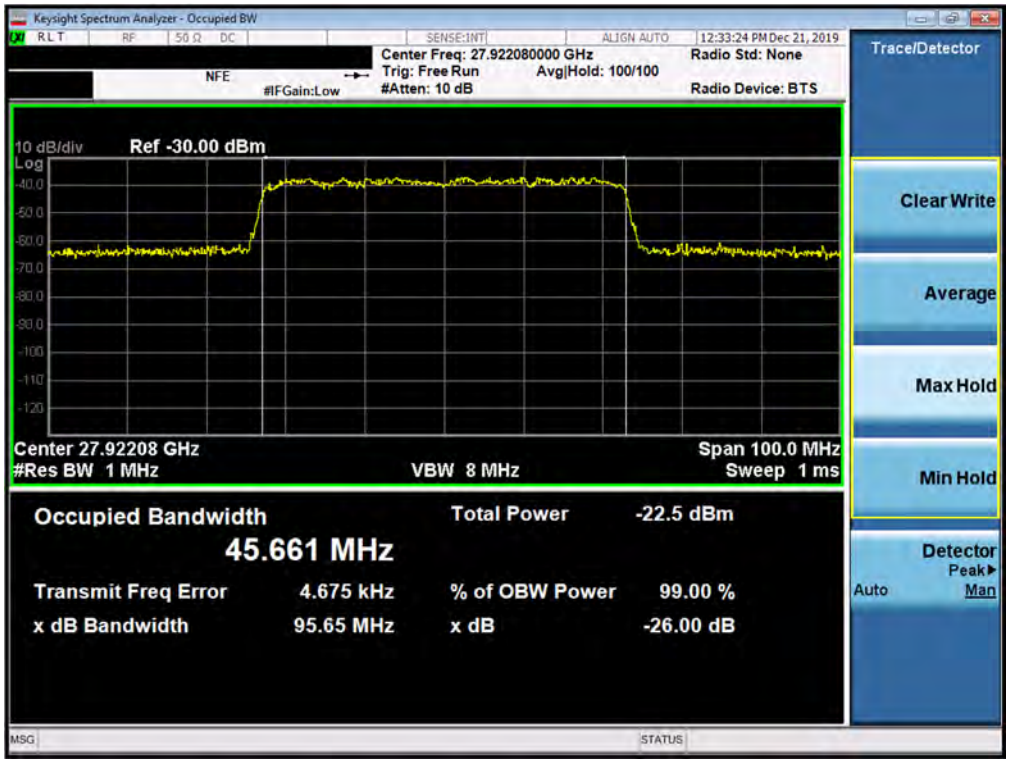
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.66
			16QAM	45.67
			64QAM	45.80
		2	QPSK	96.50
			16QAM	96.96
			64QAM	97.30
	100	1	QPSK	92.85
			16QAM	92.51
			64QAM	93.20
		2	QPSK	190.98
			16QAM	191.10
			64QAM	190.45

Table 7-4. Summary of Ant3 Occupied Bandwidths (n261)



Plot 7-25. Ant3 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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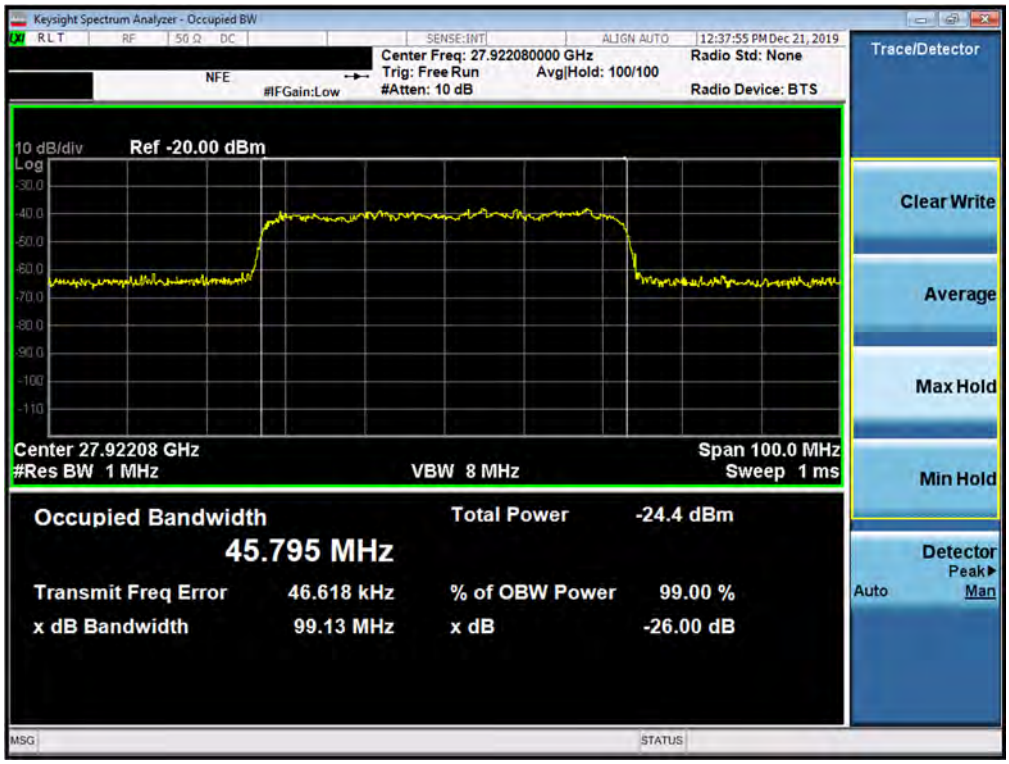
Plot 7-26. Ant3 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-27. Ant3 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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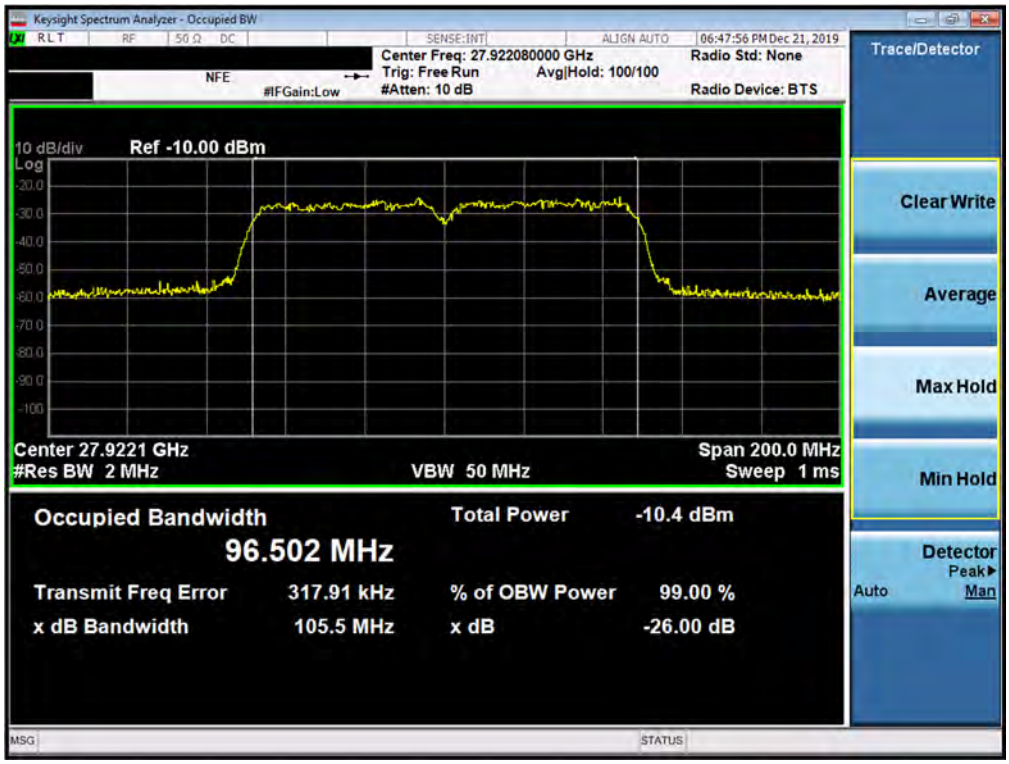
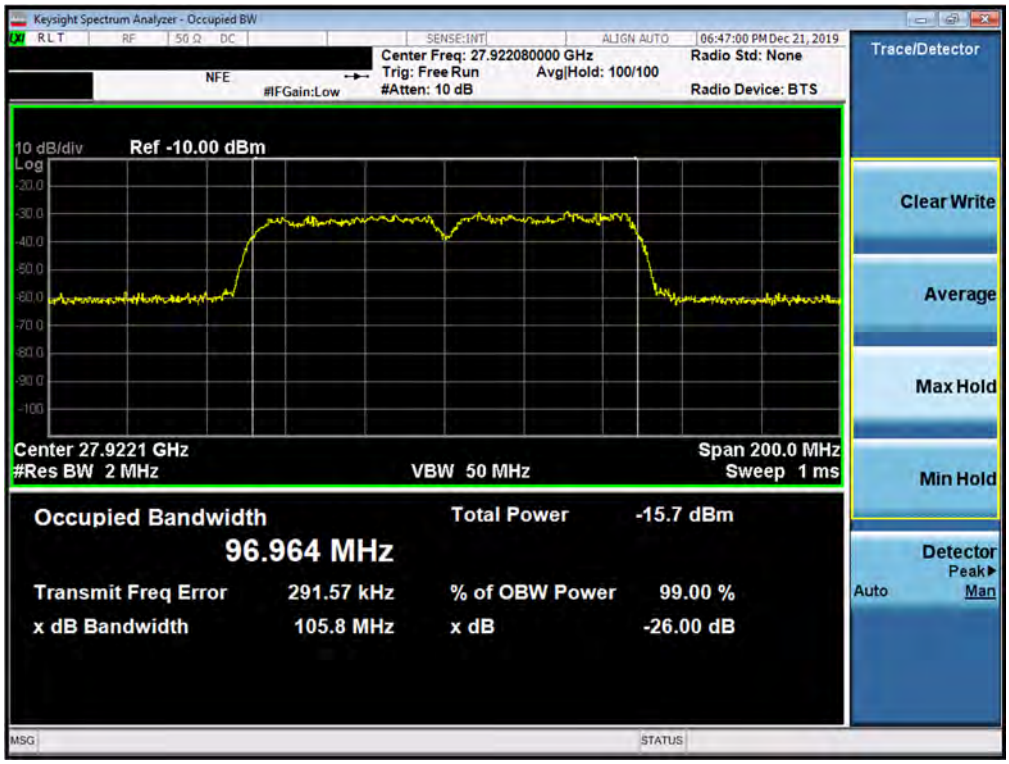


Plot 7-28. Ant3 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-29. Ant3 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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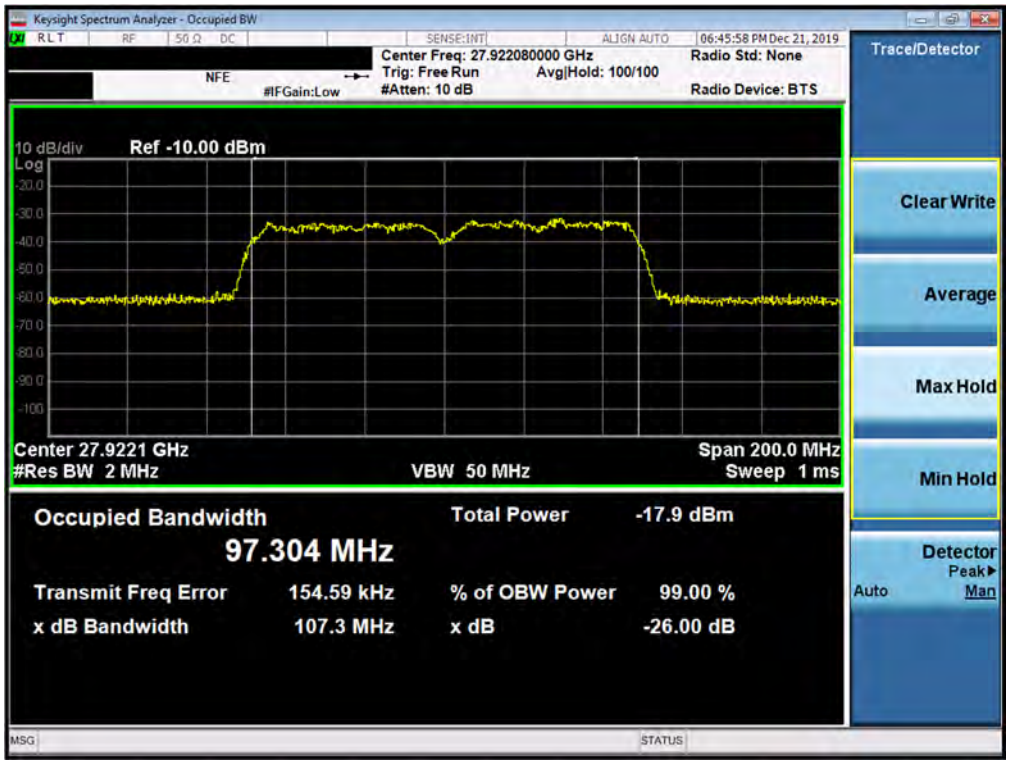
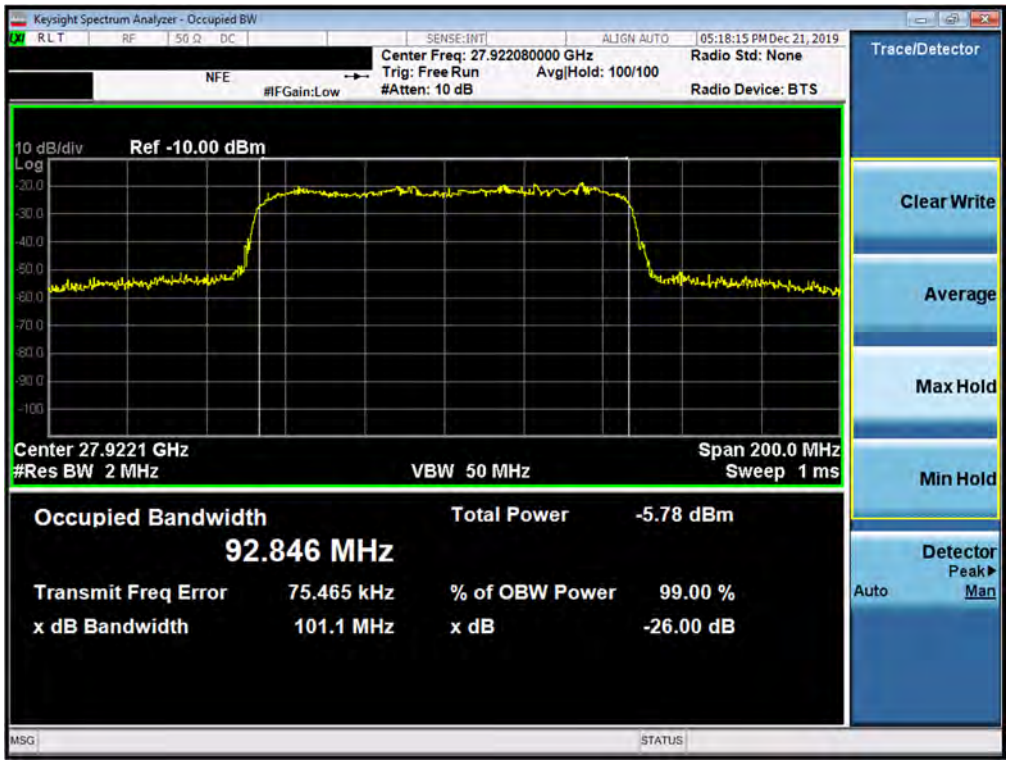


Plot 7-30. Ant3 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-31. Ant3 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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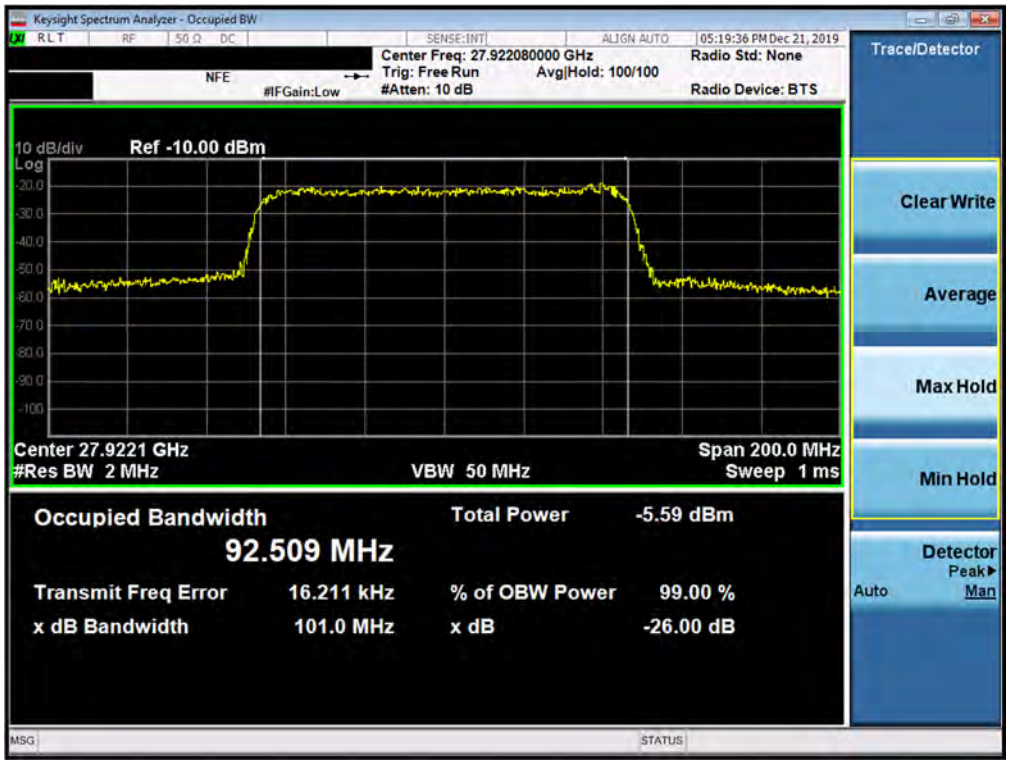
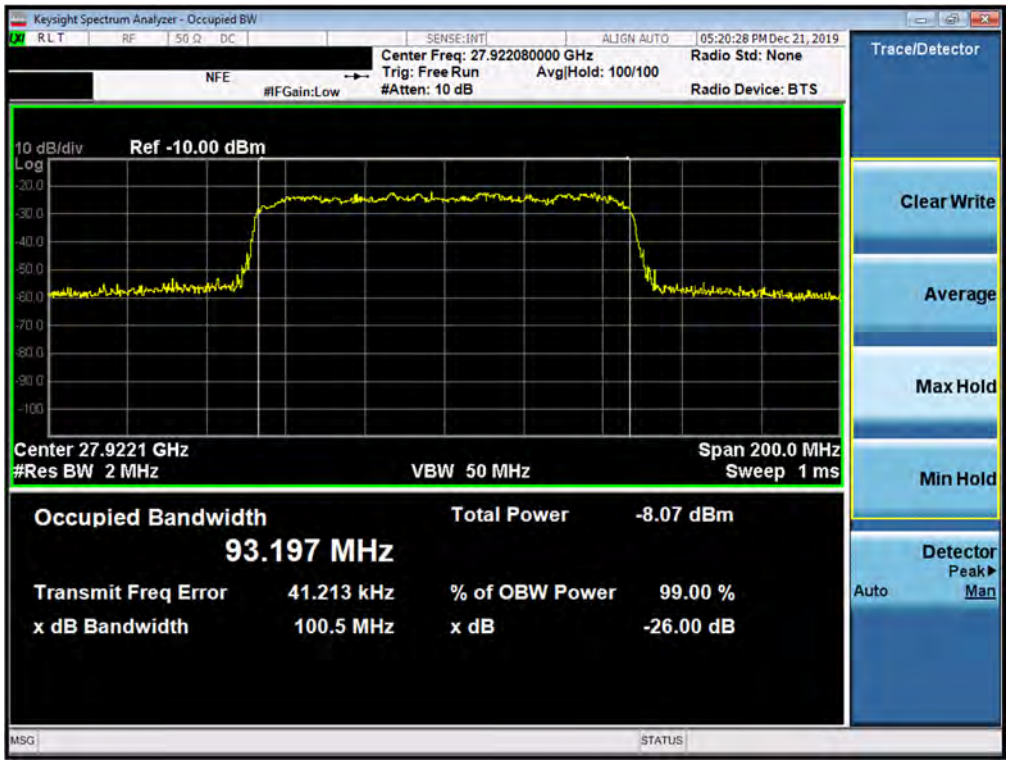


Plot 7-32. Ant3 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-33. Ant3 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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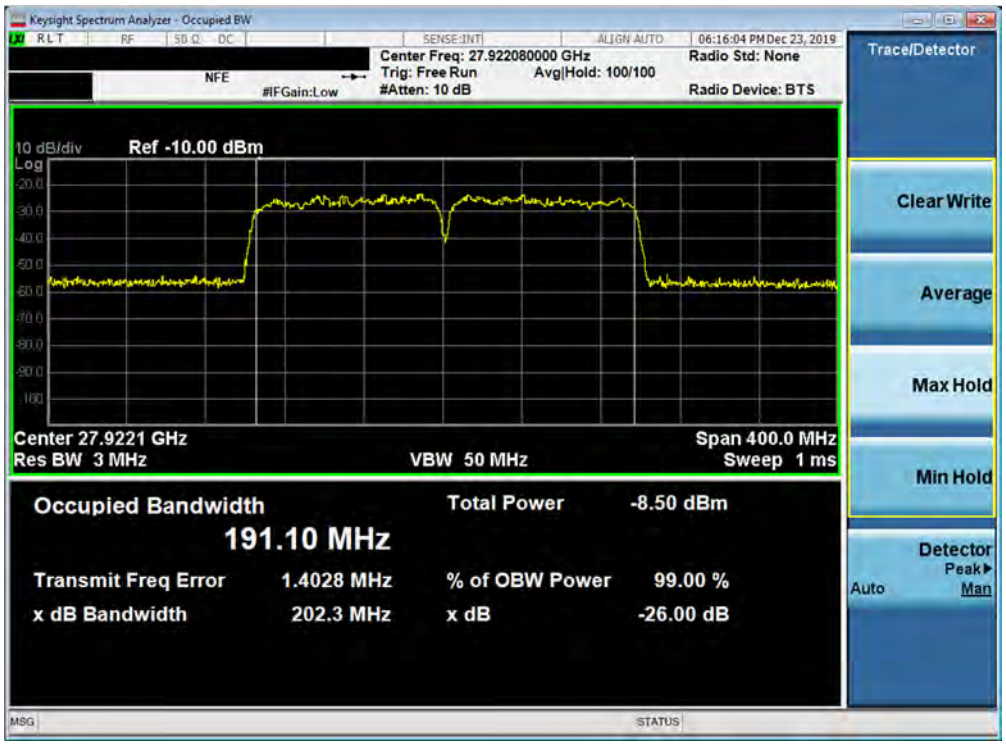
Plot 7-34. Ant3 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-35. Ant3 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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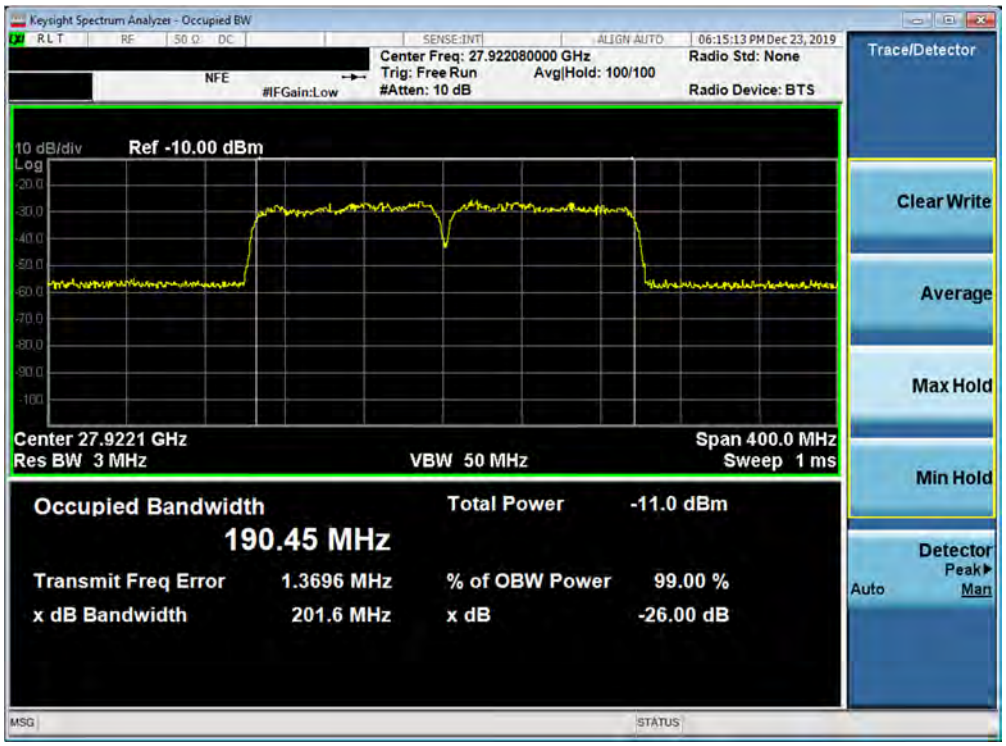

Plot 7-36. Ant3 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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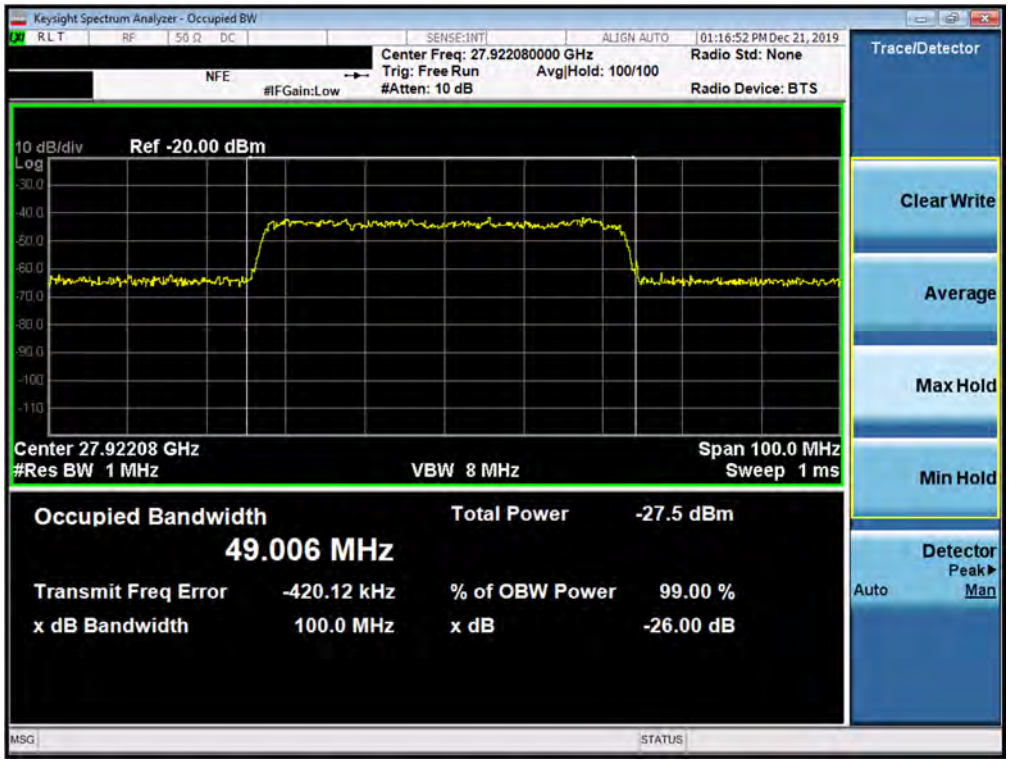
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	49.01
			16QAM	46.27
			64QAM	45.55
		2	QPSK	96.96
			16QAM	97.61
			64QAM	98.70
	100	1	QPSK	92.81
			16QAM	92.57
			64QAM	93.31
		2	QPSK	191.05
			16QAM	190.99
			64QAM	190.18

Table 7-5. Summary of Ant4 Occupied Bandwidths (n261)



Plot 7-37. Ant4 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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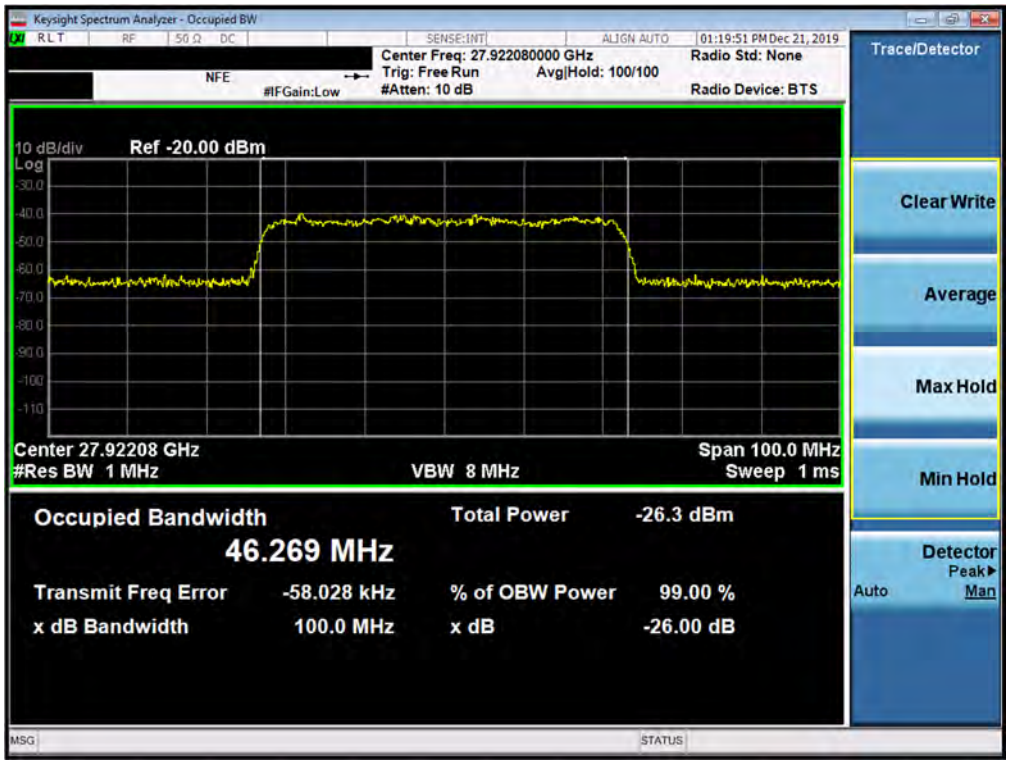
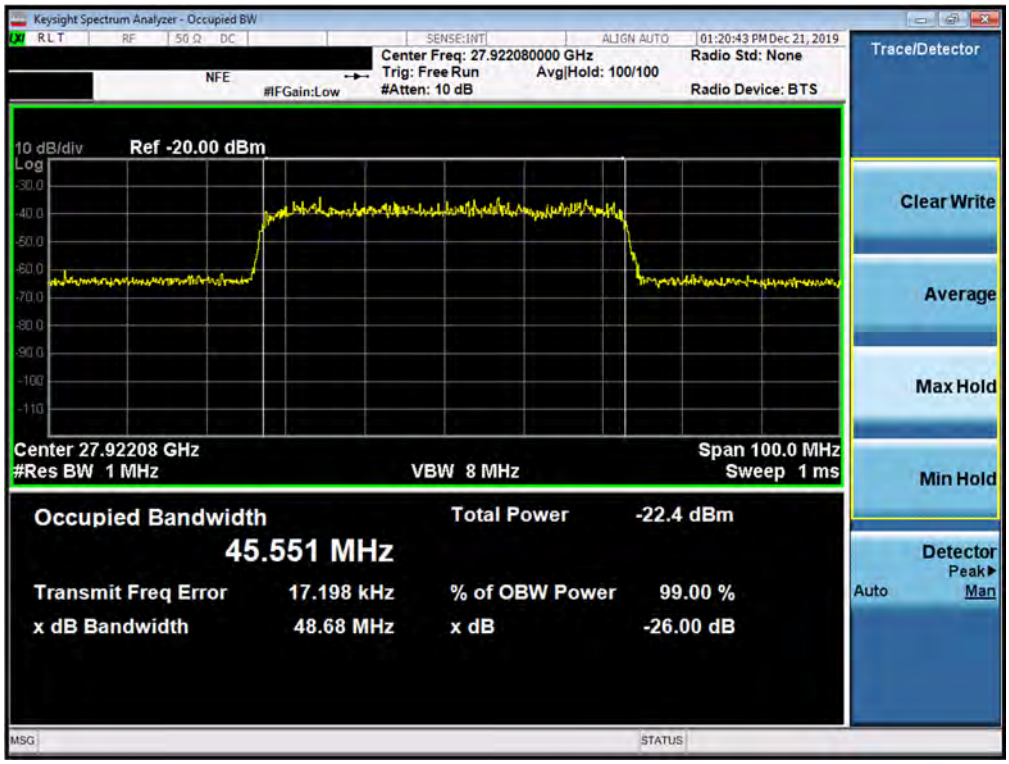


Plot 7-38. Ant4 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-39. Ant4 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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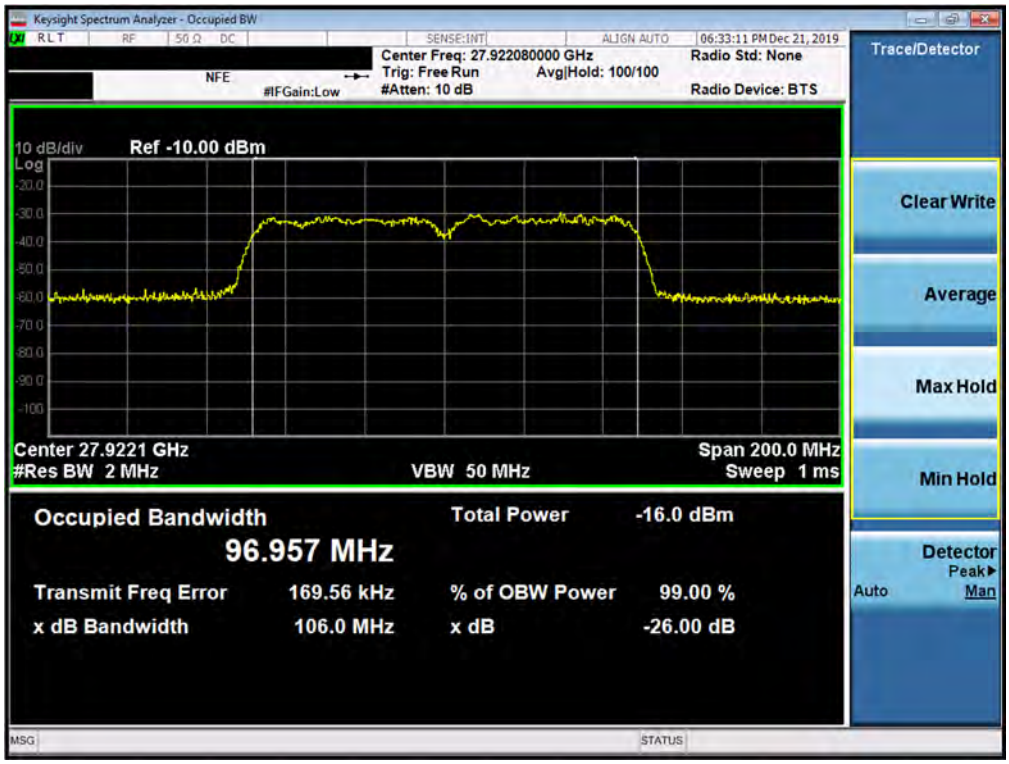
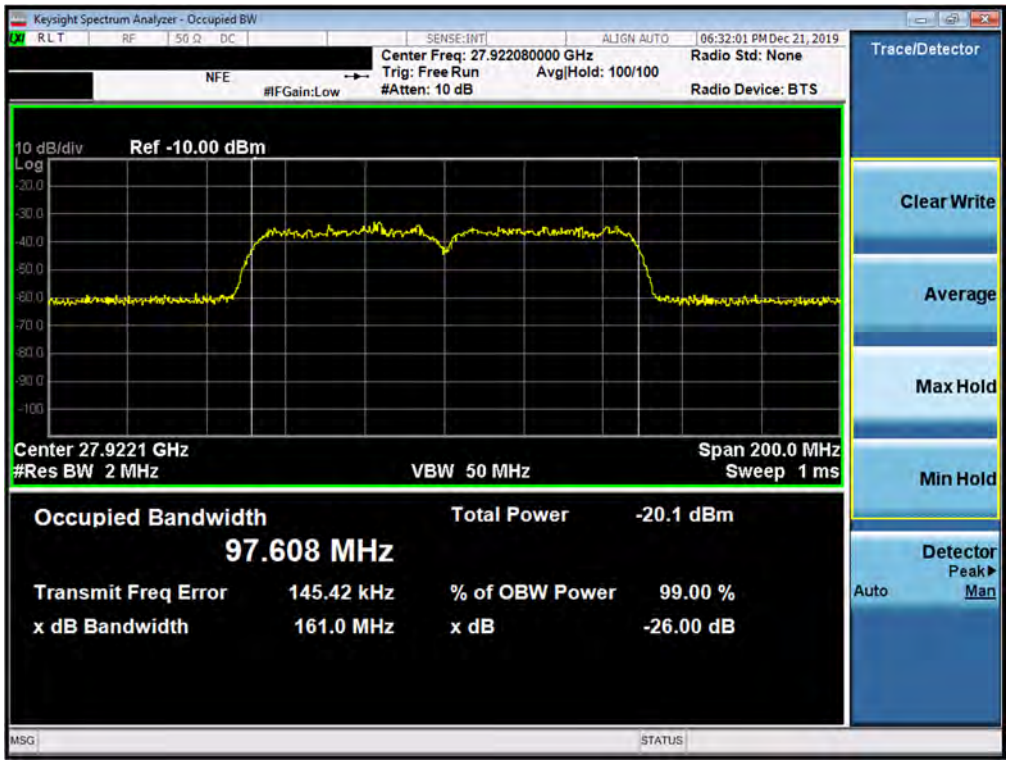


Plot 7-40. Ant4 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-41. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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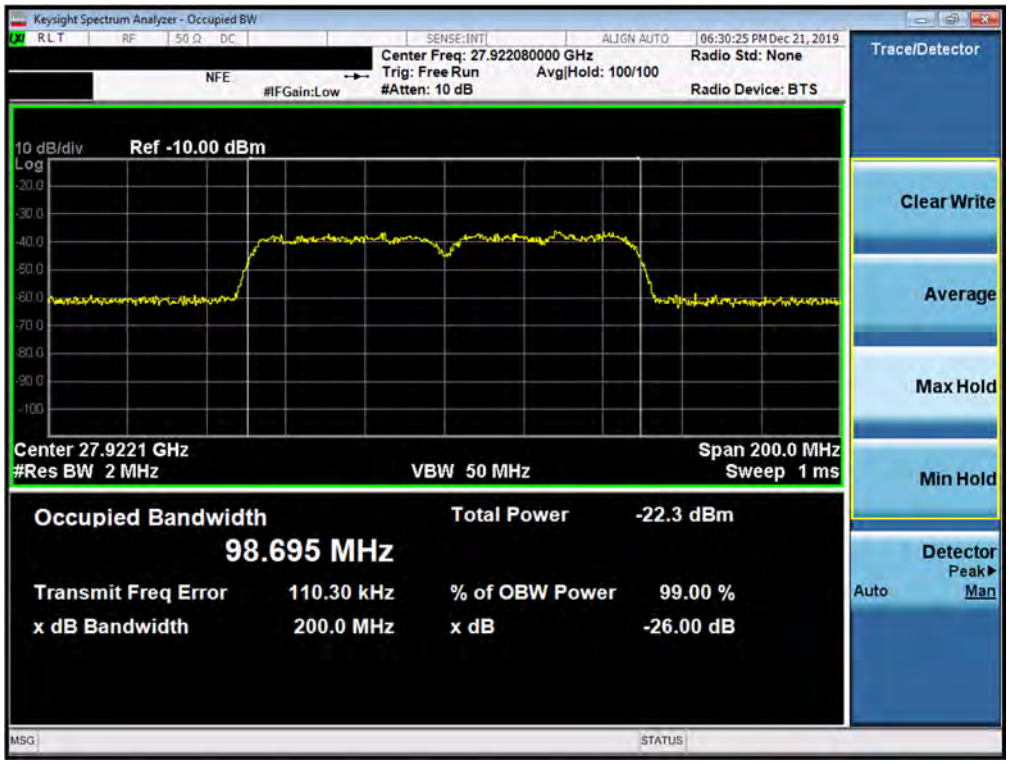
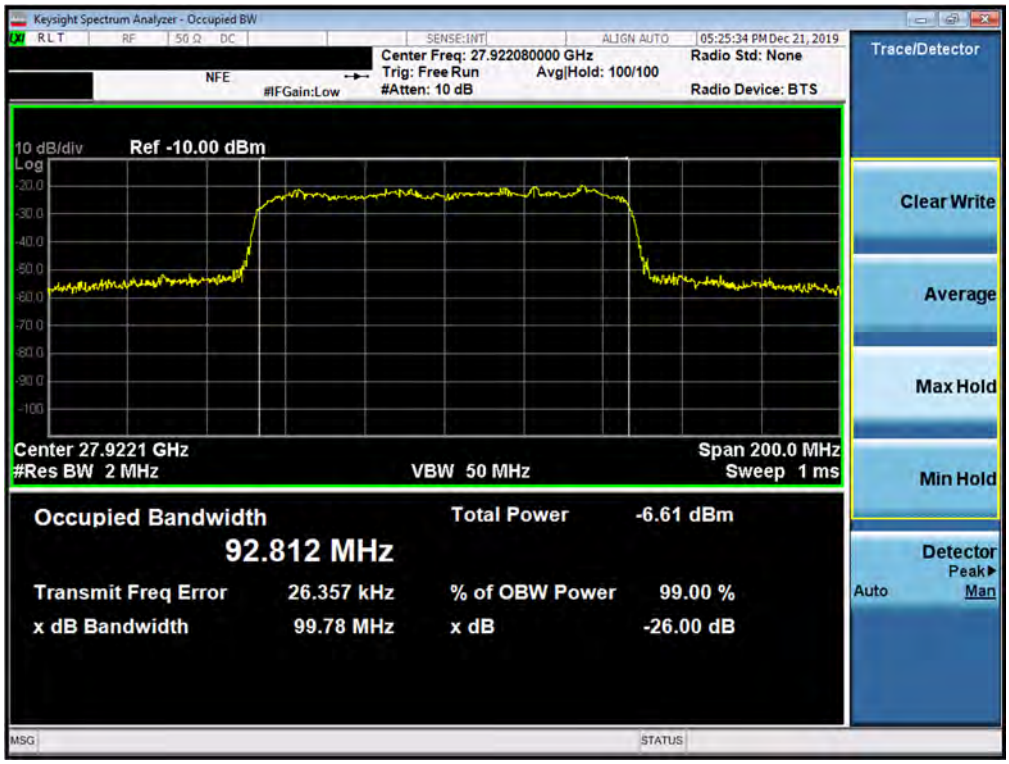


Plot 7-42. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-43. Ant4 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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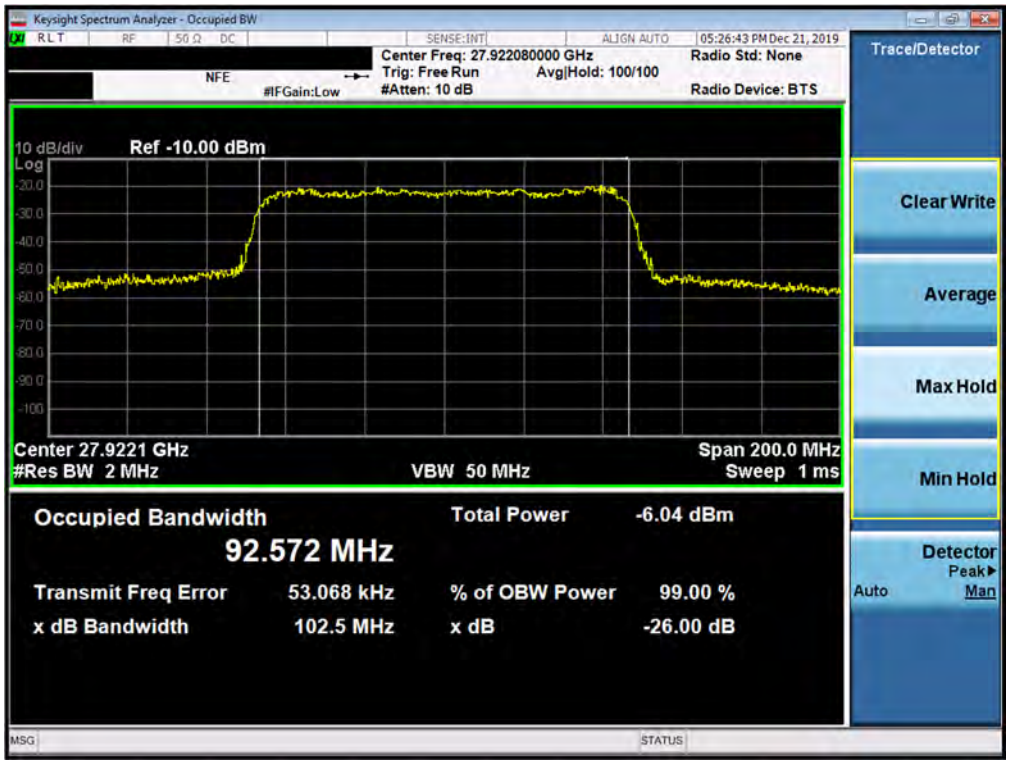
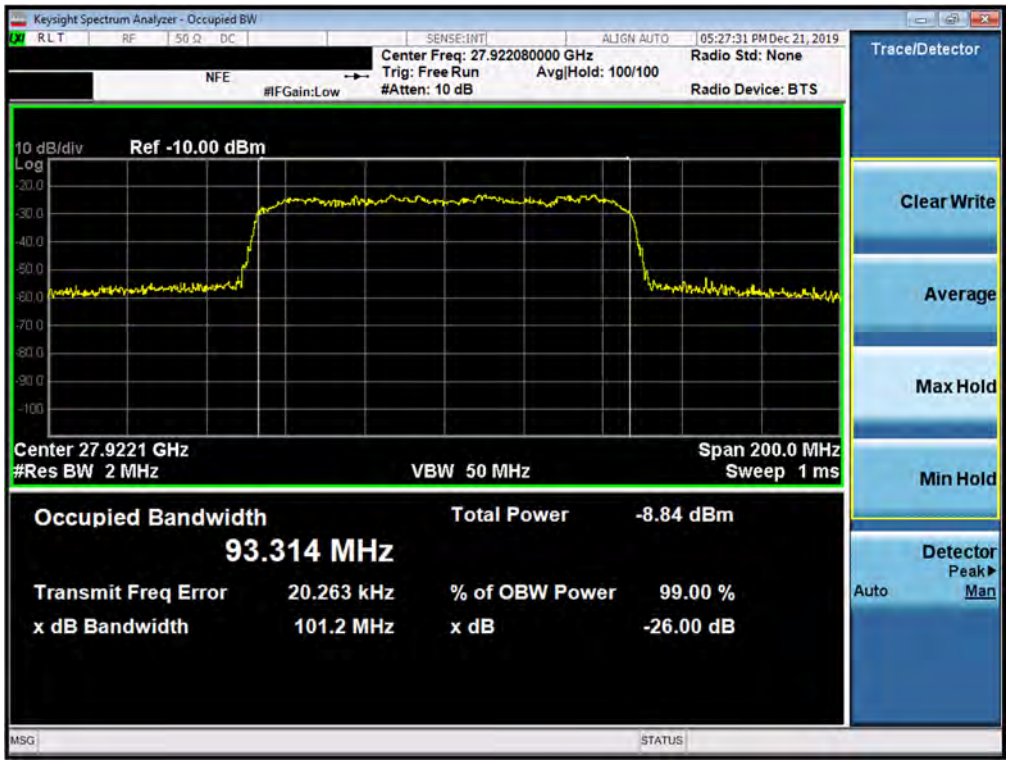


Plot 7-44. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-45. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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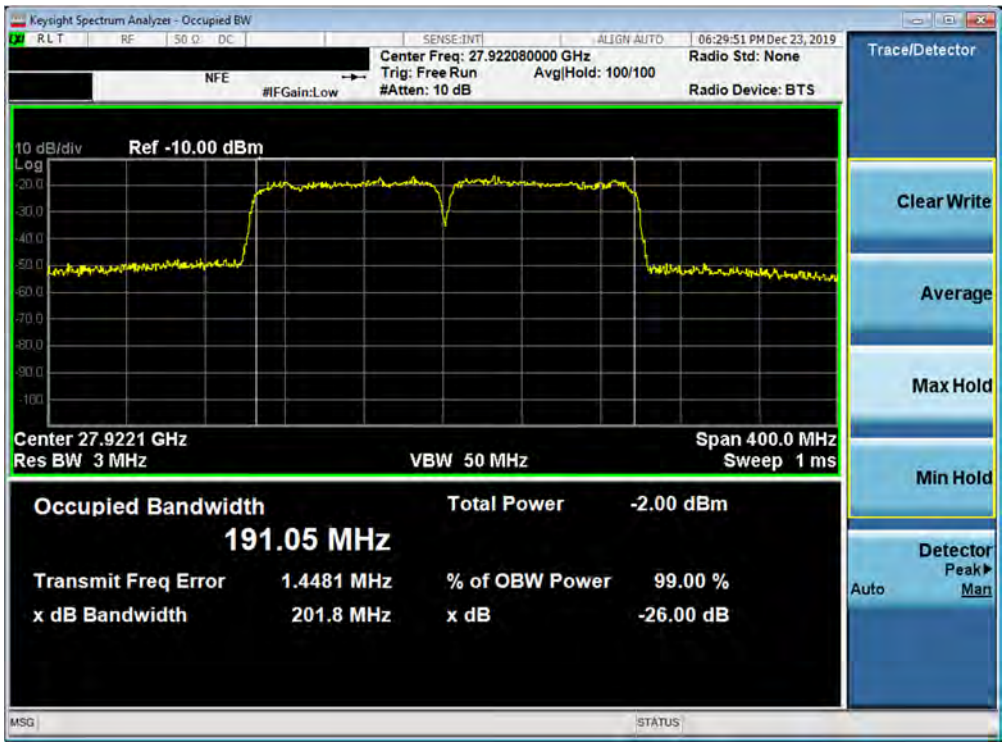
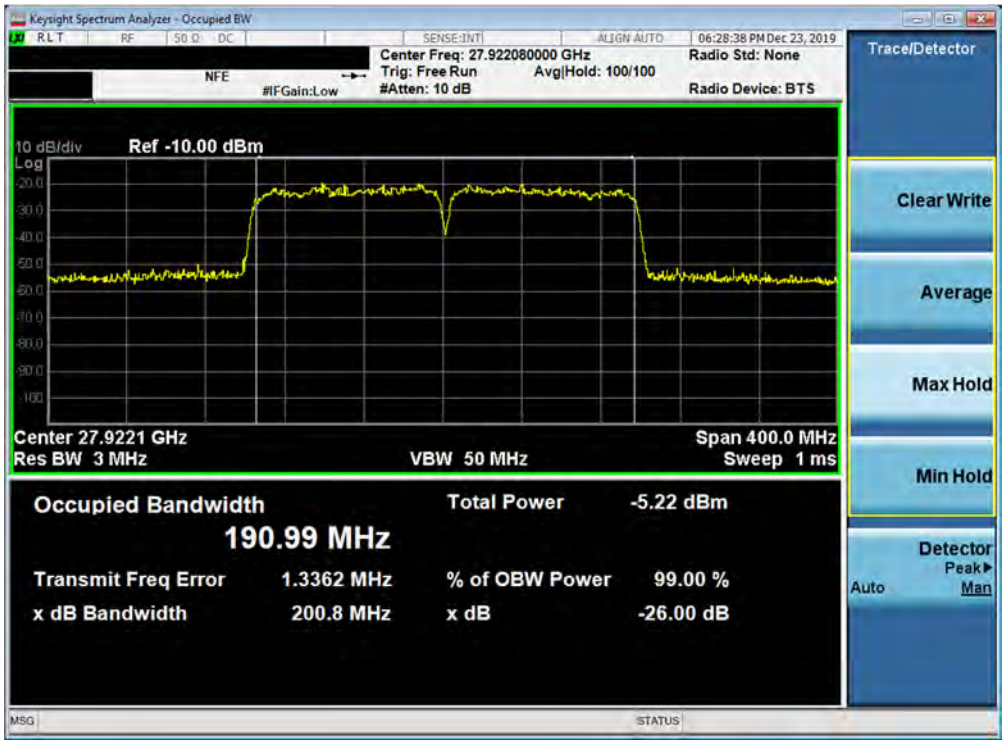


Plot 7-46. Ant4 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-47. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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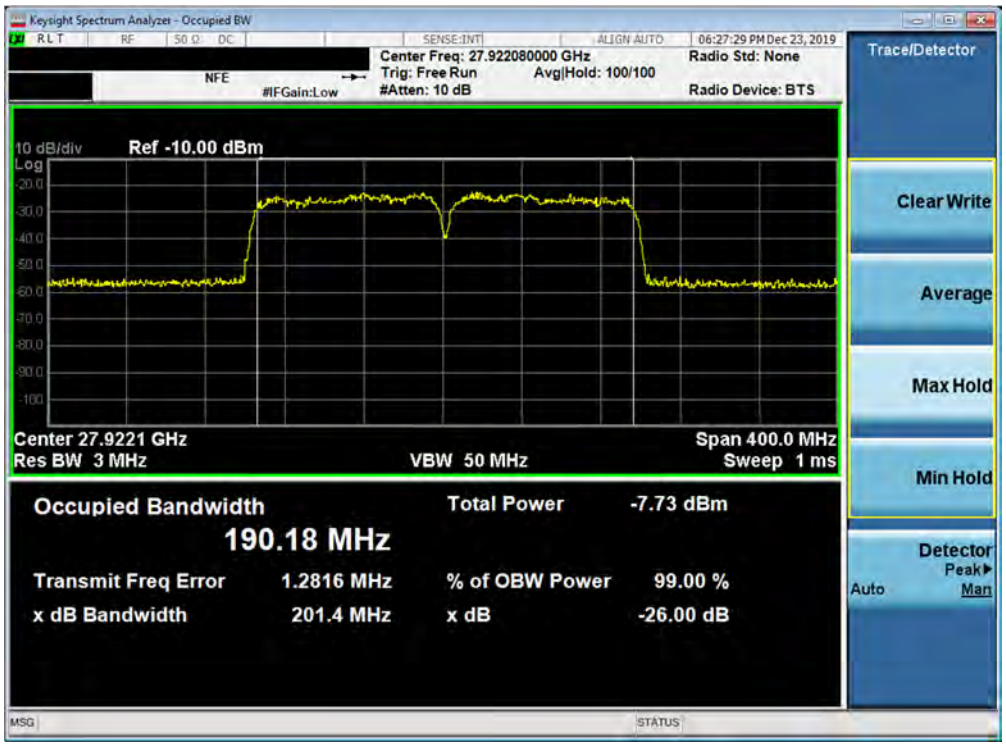

Plot 7-48. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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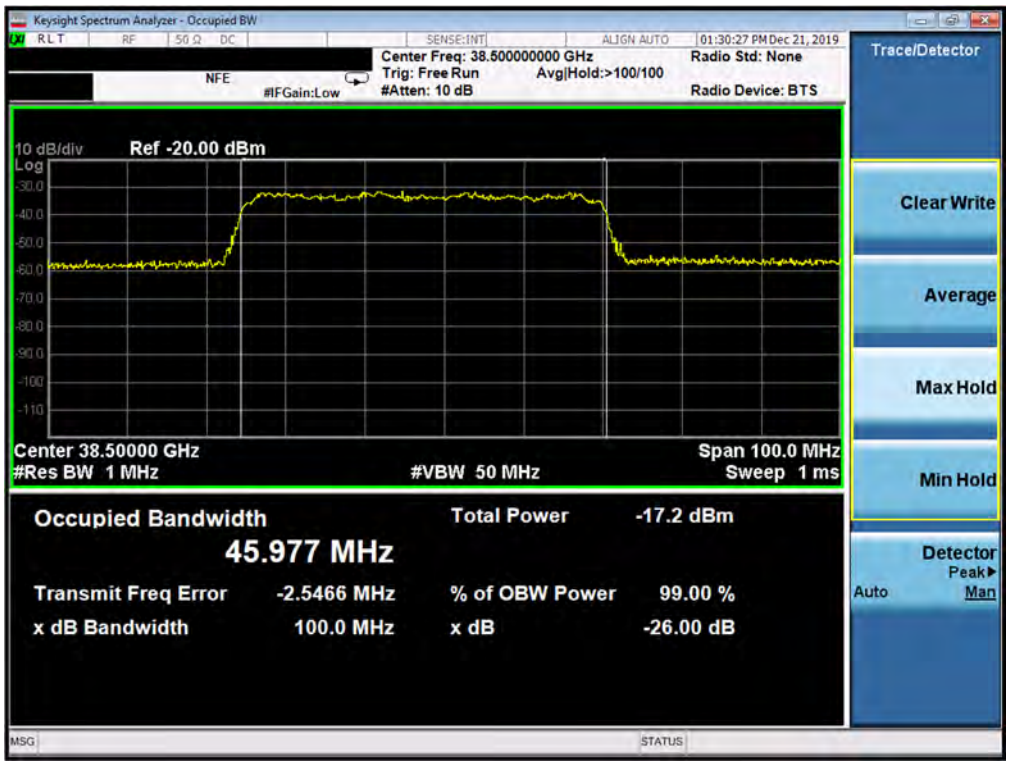
Band n260

Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.98
			16QAM	45.80
			64QAM	46.55
		2	QPSK	95.47
			16QAM	94.88
			64QAM	96.19
	100	1	QPSK	95.57
			16QAM	94.09
			64QAM	94.49
		2	QPSK	190.70
			16QAM	191.70
			64QAM	194.79

Table 7-6. Summary of Ant1 Occupied Bandwidths (n260)



Plot 7-49. Ant1 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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Plot 7-50. Ant1 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)

Plot 7-51. Ant1 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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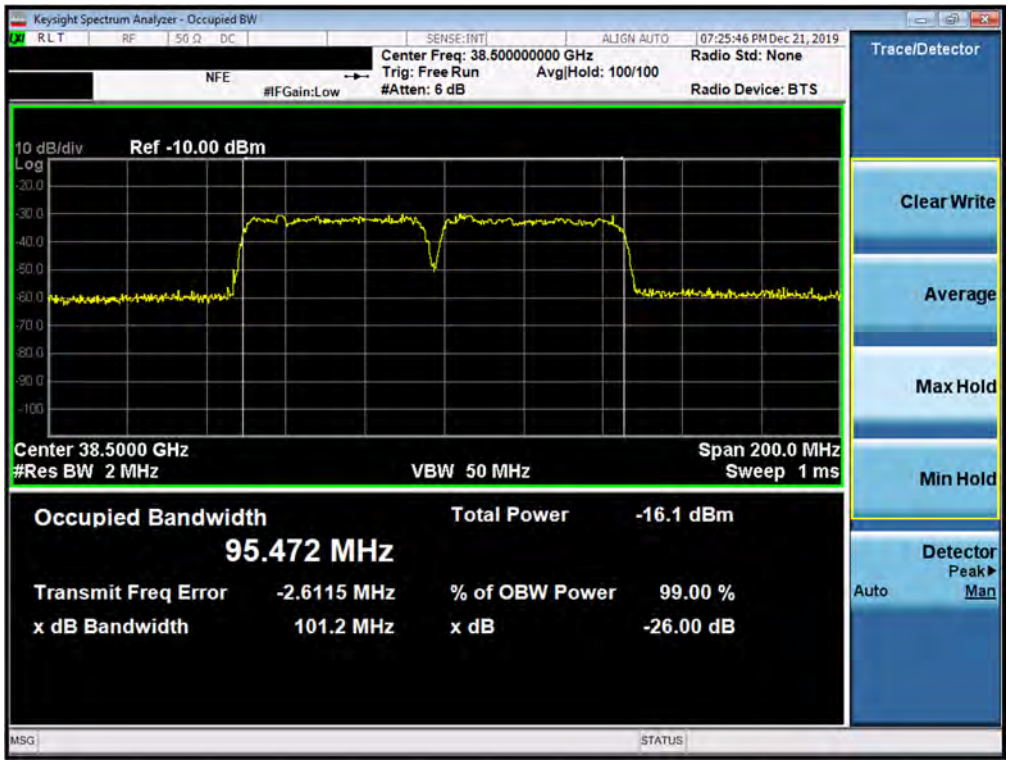
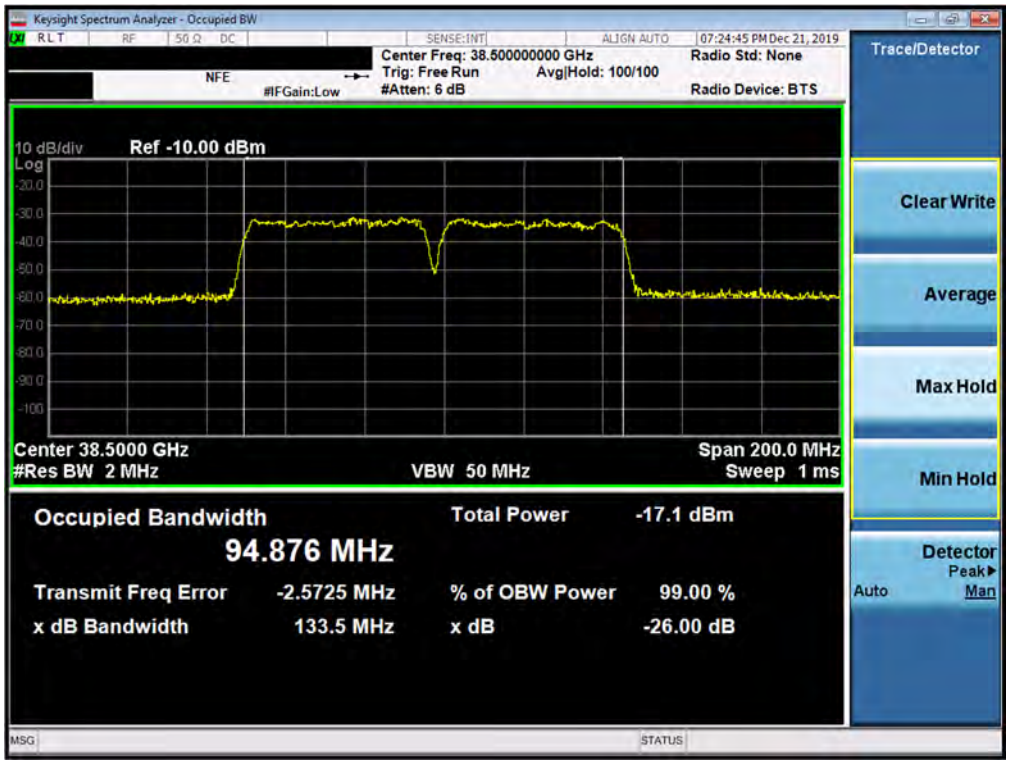


Plot 7-52. Ant1 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-53. Ant1 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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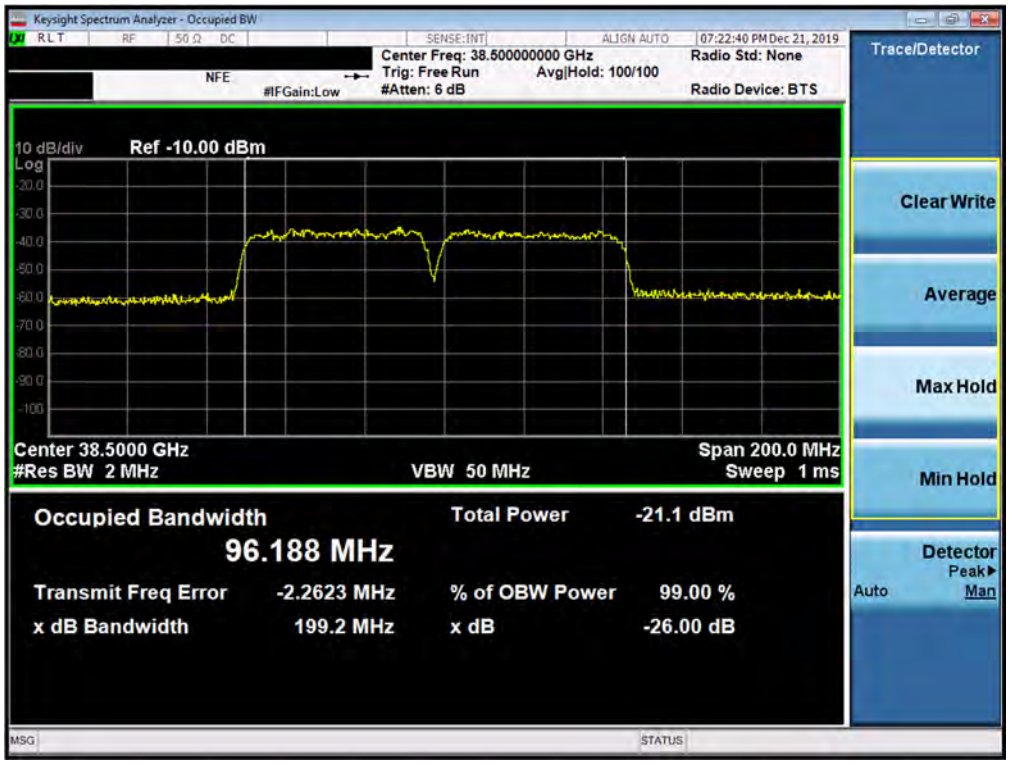
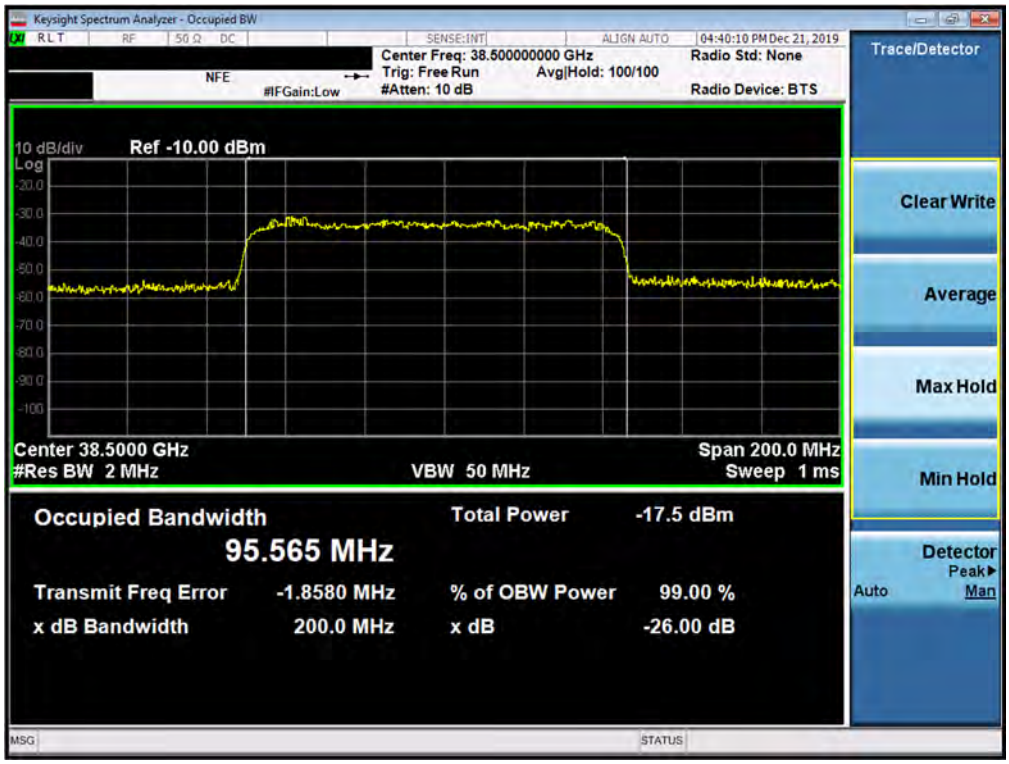


Plot 7-54. Ant1 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-55. Ant1 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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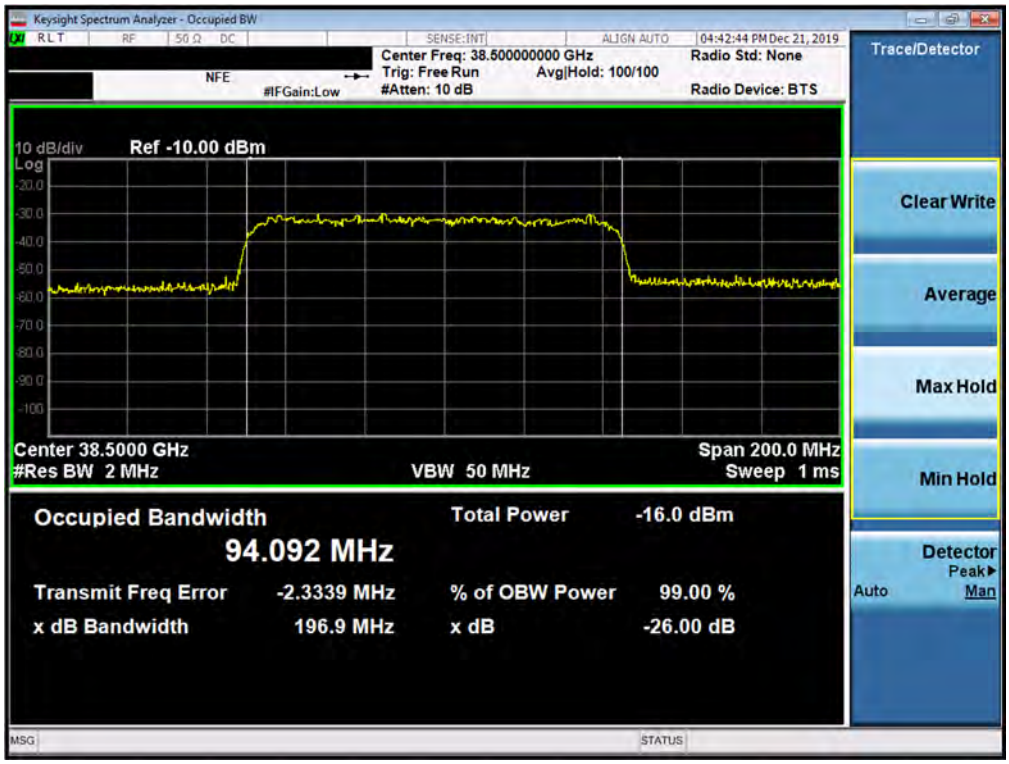
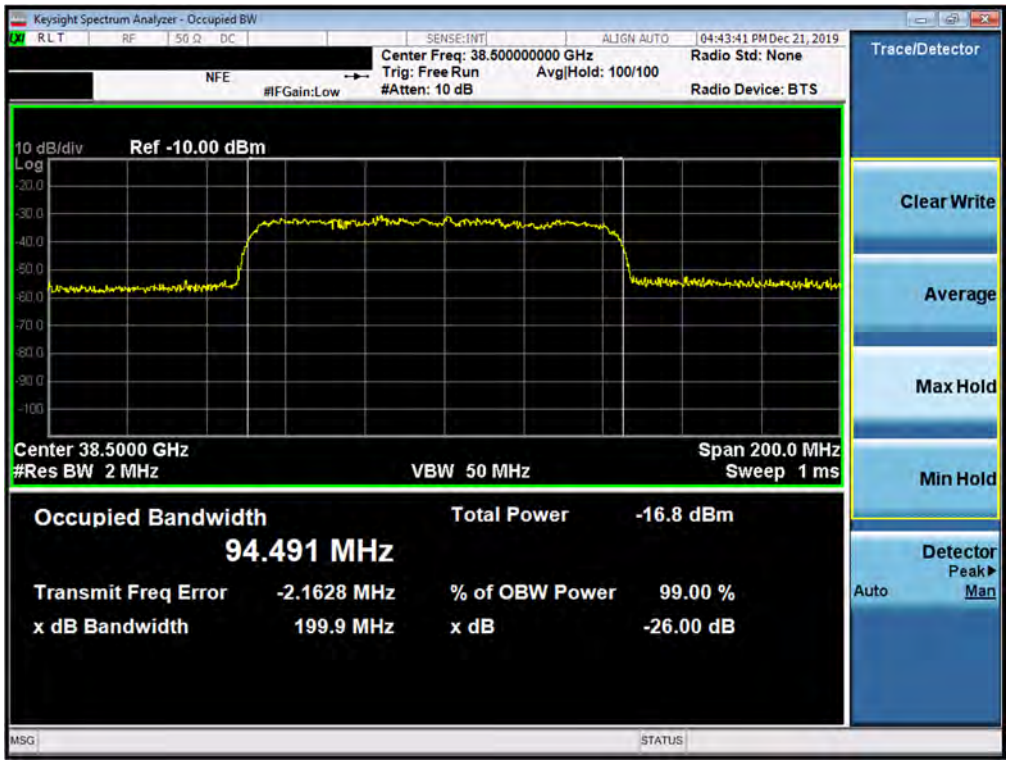


Plot 7-56. Ant1 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-57. Ant1 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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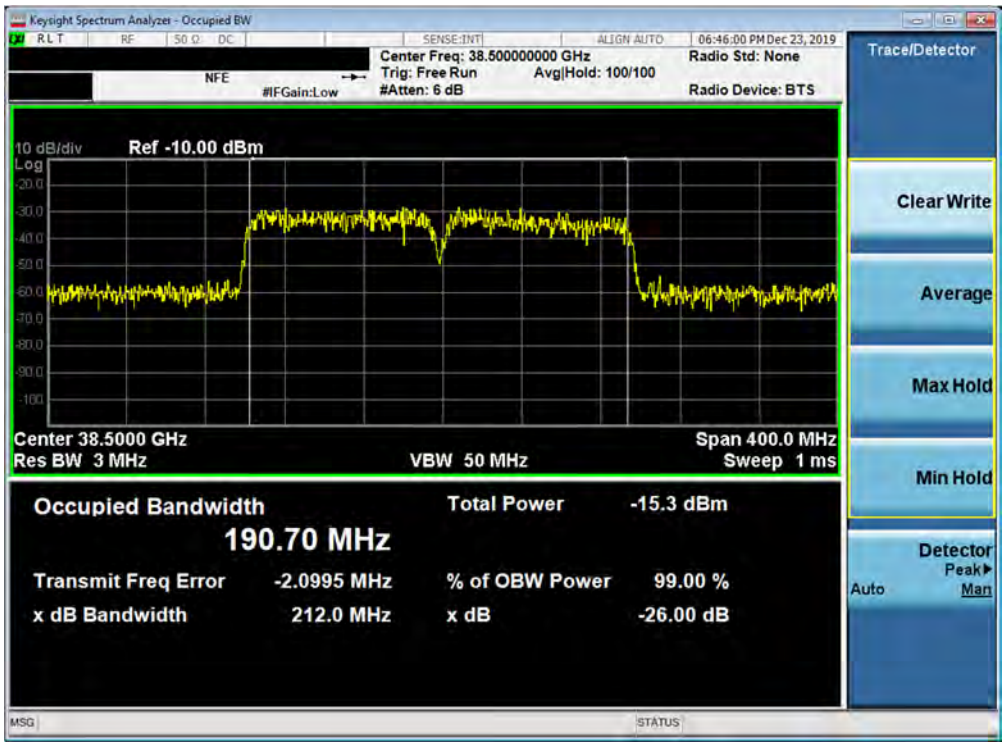
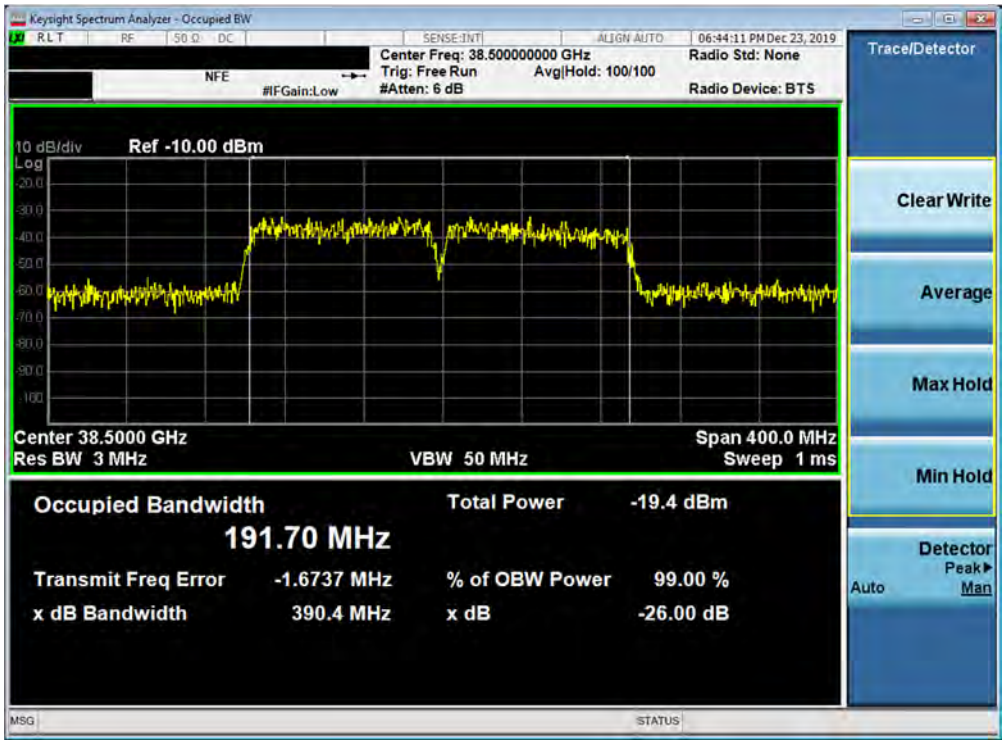


Plot 7-58. Ant1 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-59. Ant1 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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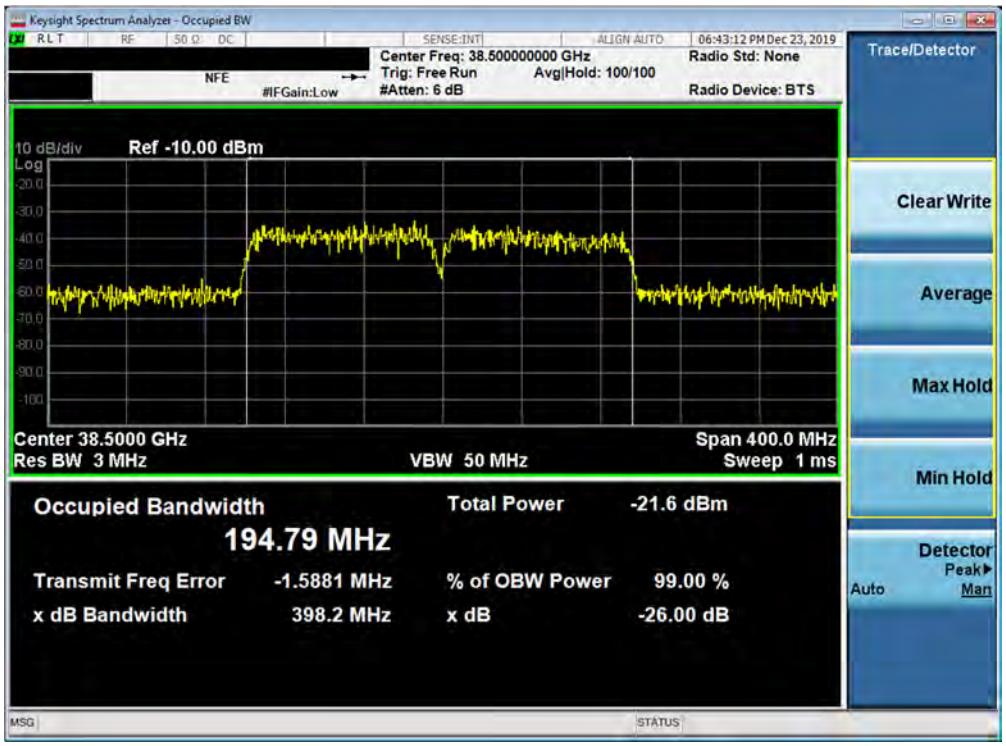

Plot 7-60. Ant1 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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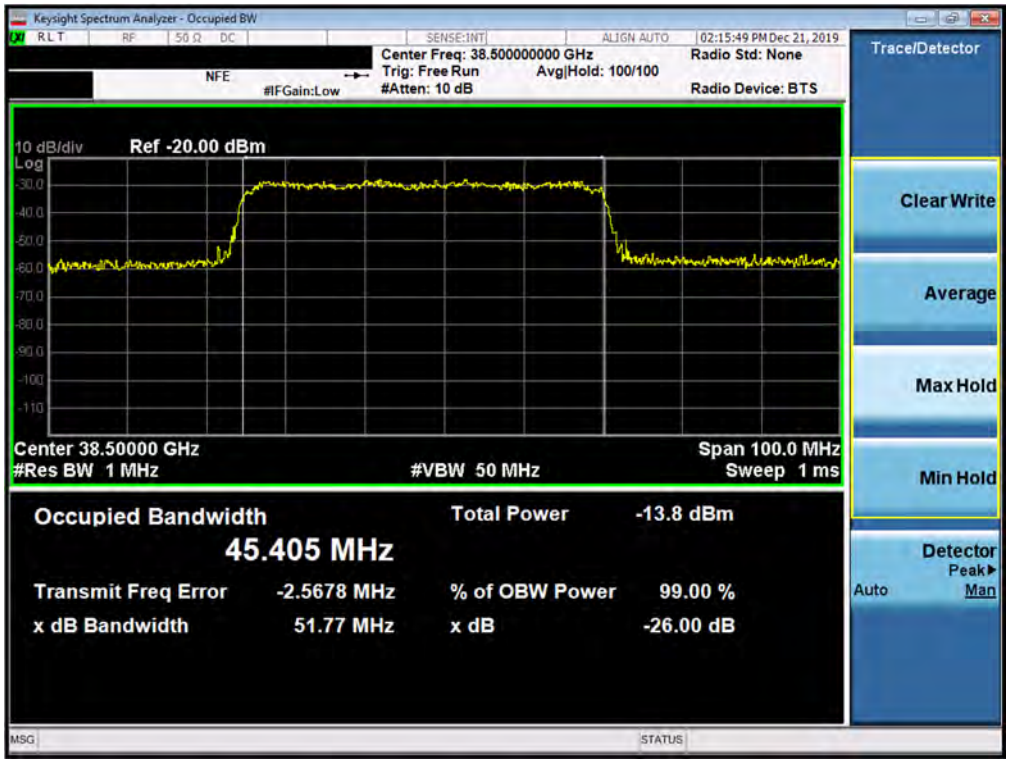
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.41
			16QAM	45.43
			64QAM	45.52
		2	QPSK	94.49
			16QAM	94.72
			64QAM	94.60
	100	1	QPSK	92.96
			16QAM	92.90
			64QAM	93.04
		2	QPSK	190.97
			16QAM	191.81
			64QAM	191.93

Table 7-7. Summary of Ant2 Occupied Bandwidths (n260)



Plot 7-61. Ant2 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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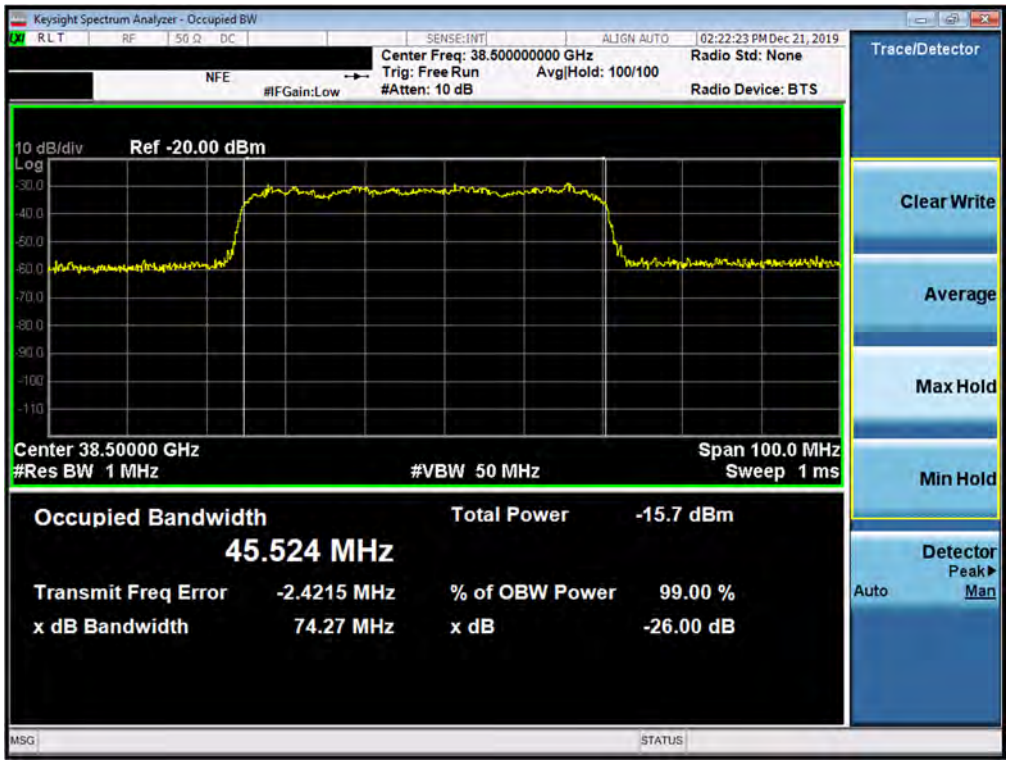
Plot 7-62. Ant2 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-63. Ant2 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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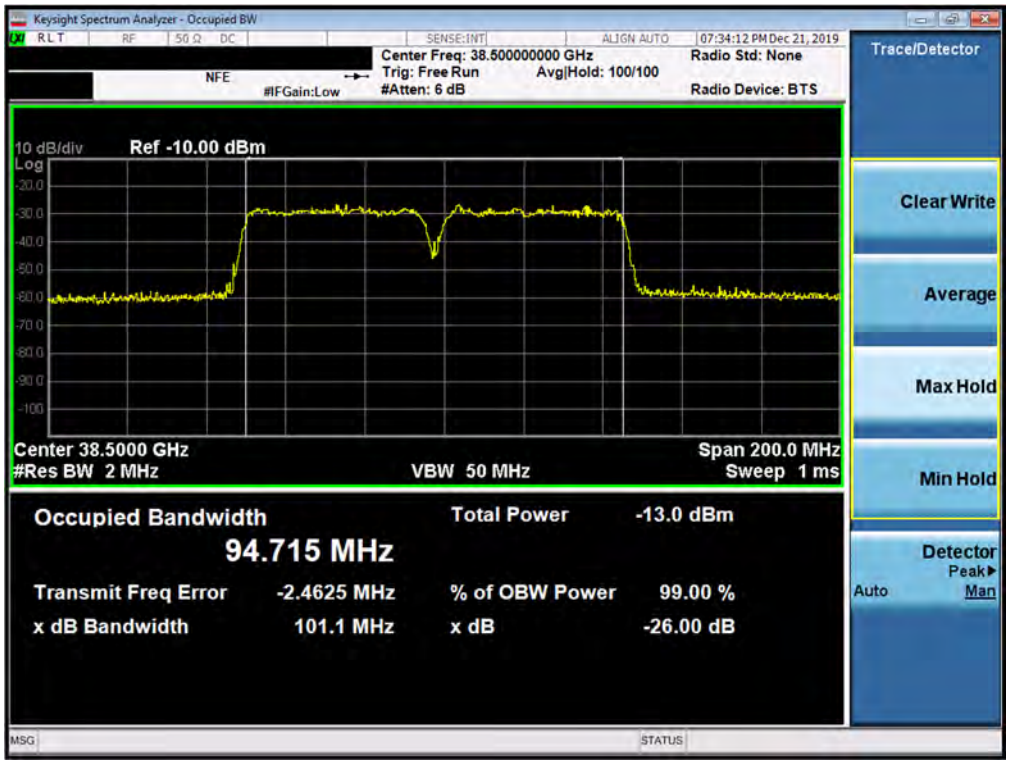
Plot 7-64. Ant2 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-65. Ant2 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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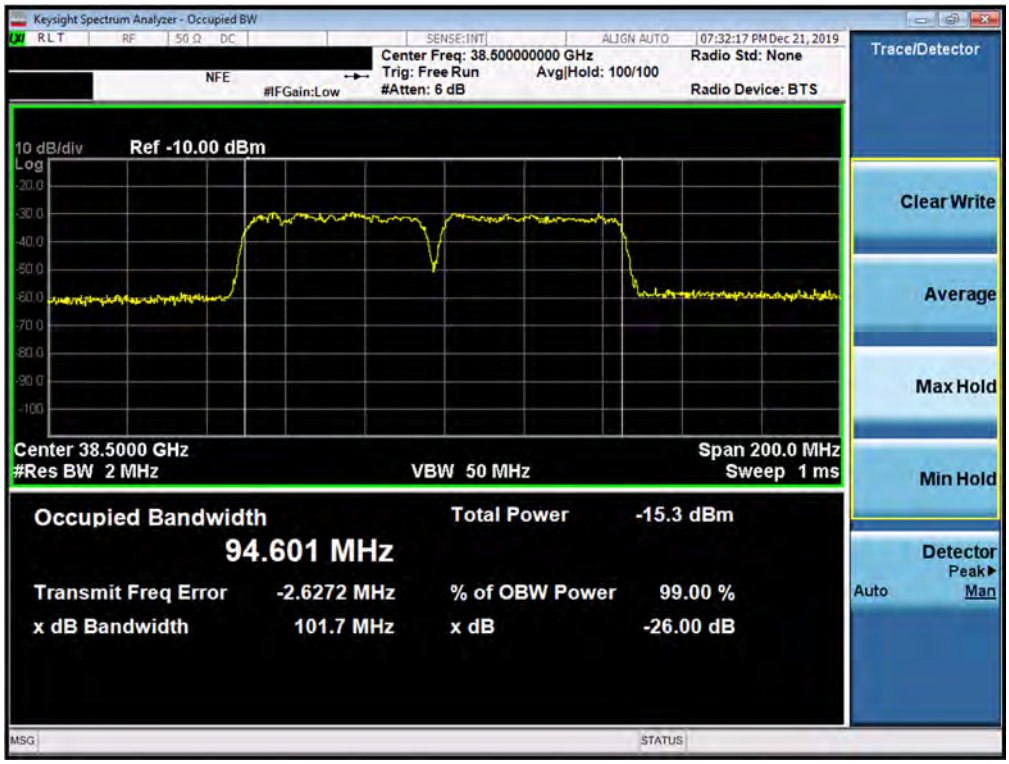
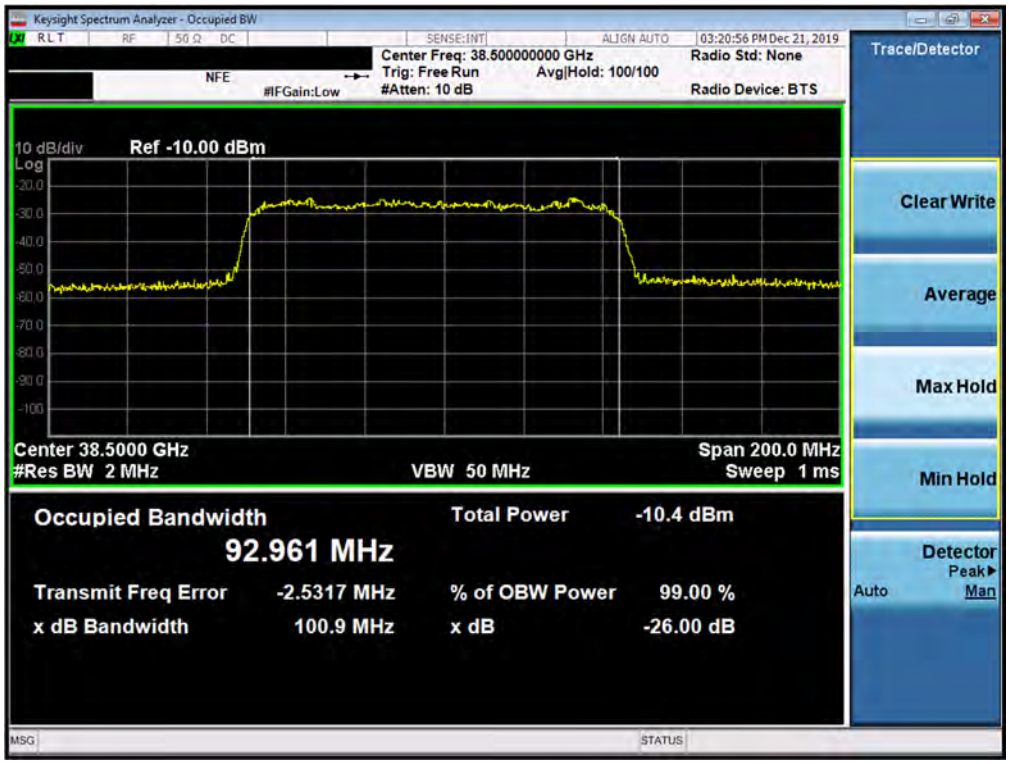


Plot 7-66. Ant2 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-67. Ant2 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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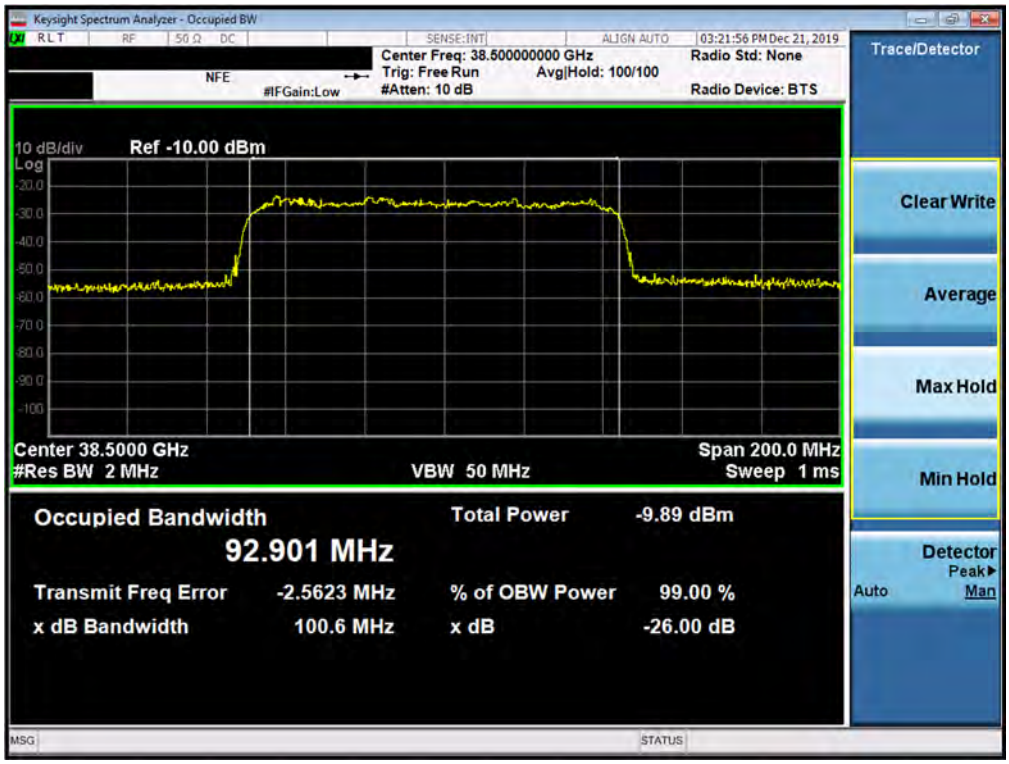
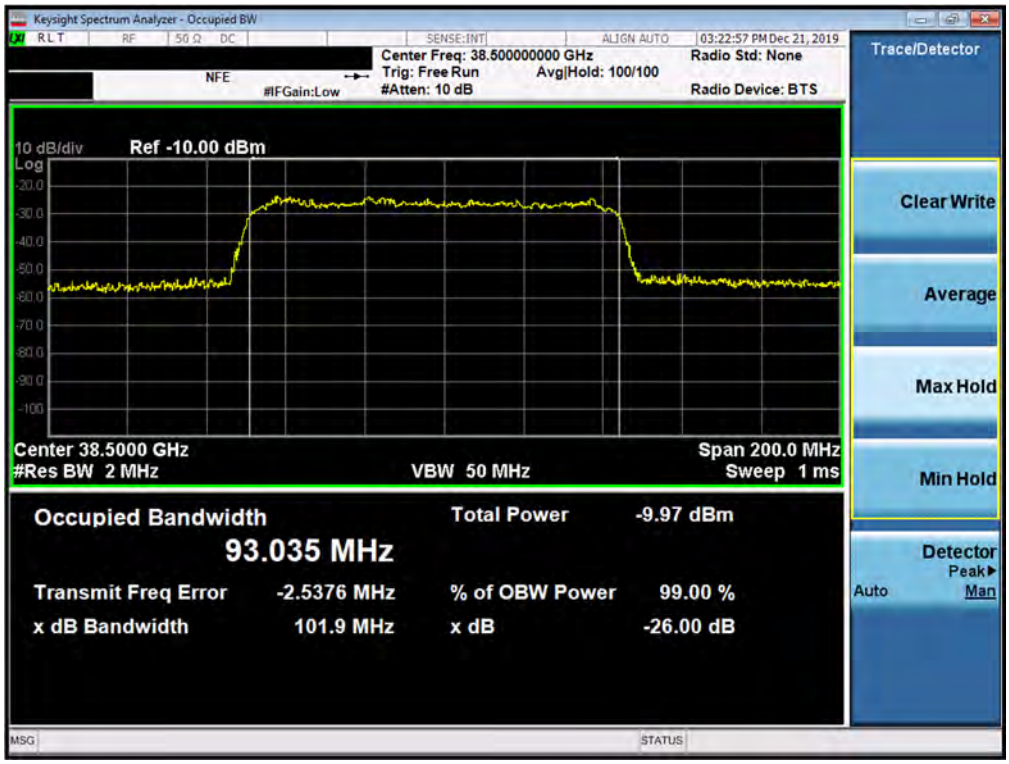


Plot 7-68. Ant2 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-69. Ant2 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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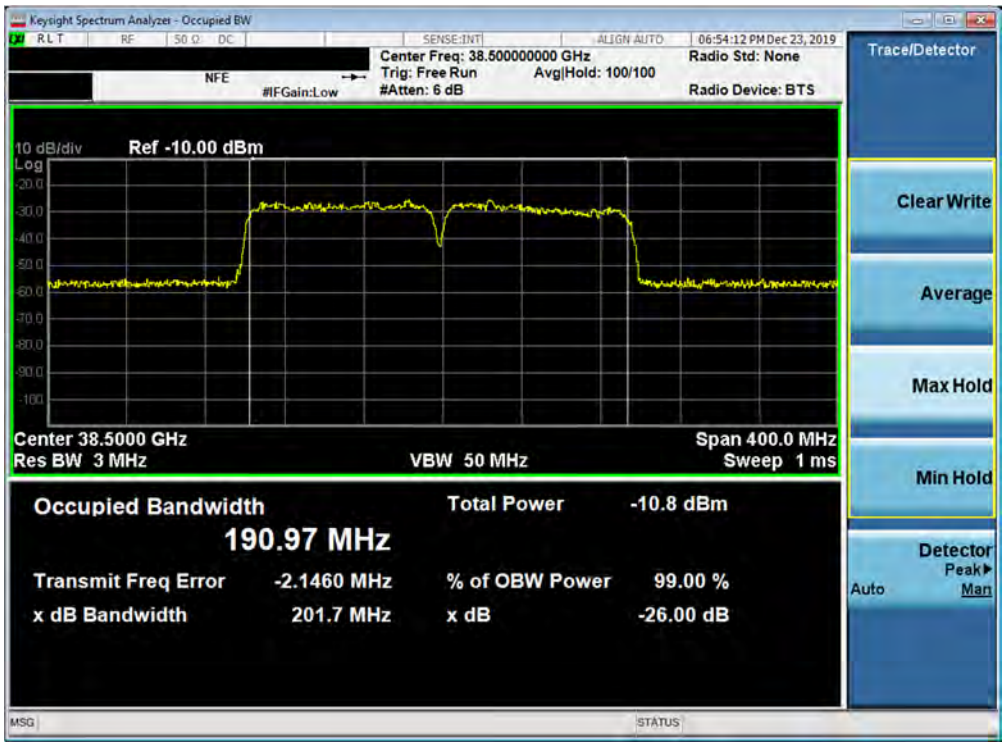
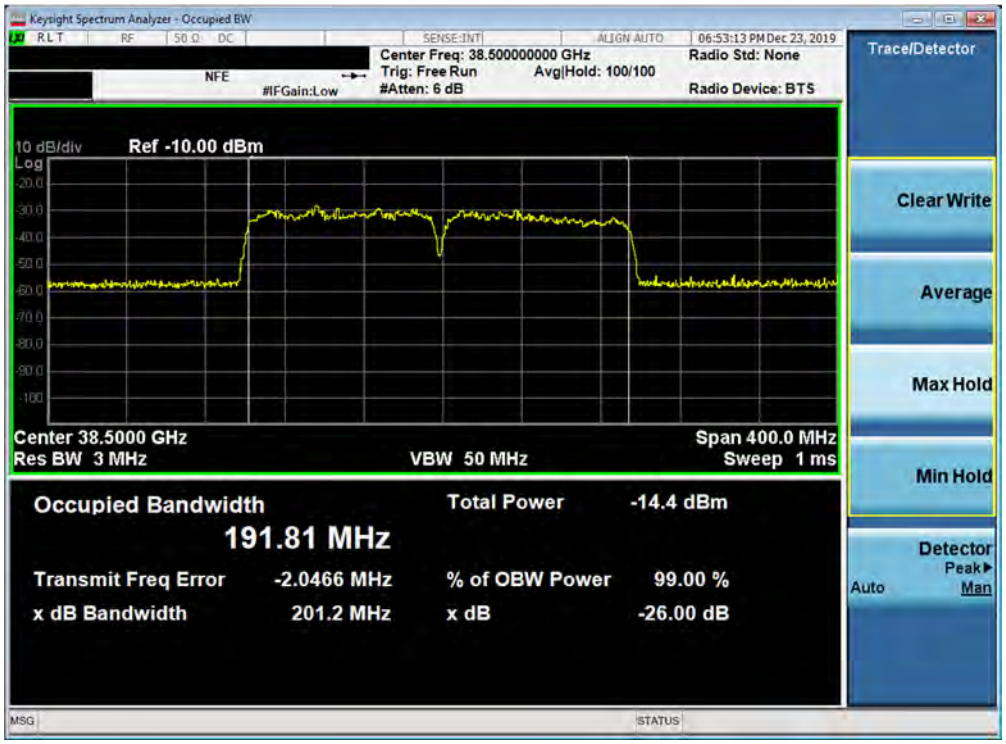


Plot 7-70. Ant2 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-71. Ant2 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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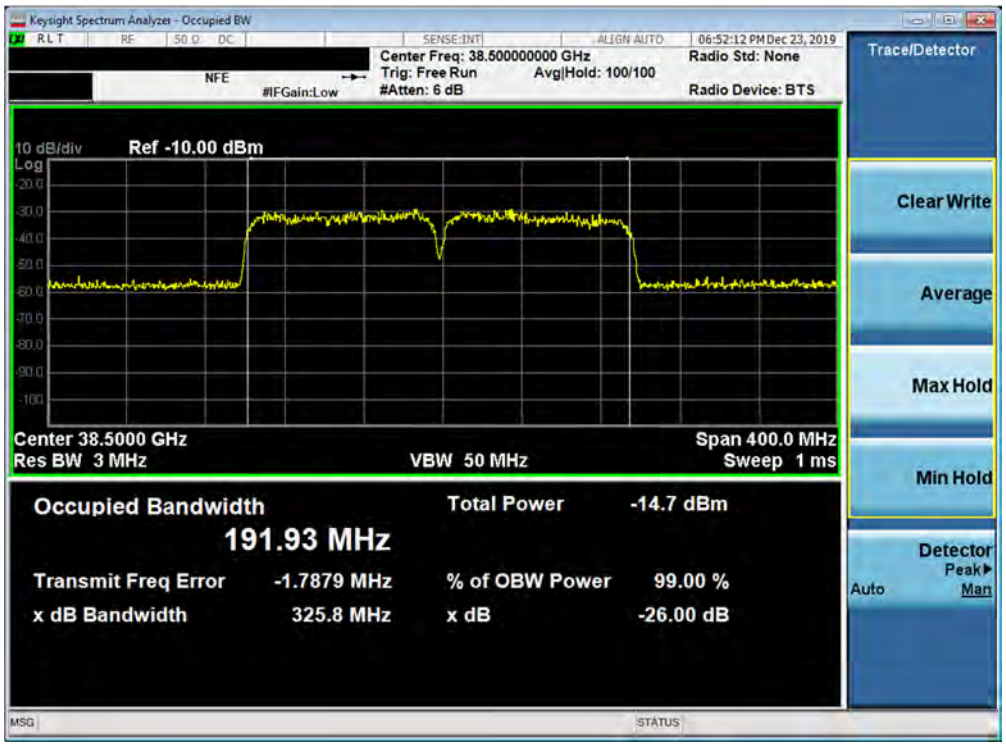

Plot 7-72. Ant2 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.80
			16QAM	45.57
			64QAM	45.96
		2	QPSK	94.55
			16QAM	95.29
			64QAM	95.54
	100	1	QPSK	93.78
			16QAM	93.18
			64QAM	93.97
		2	QPSK	191.95
			16QAM	192.39
			64QAM	193.21

Table 7-8. Summary of Ant3 Occupied Bandwidths (n260)

Plot 7-73. Ant3 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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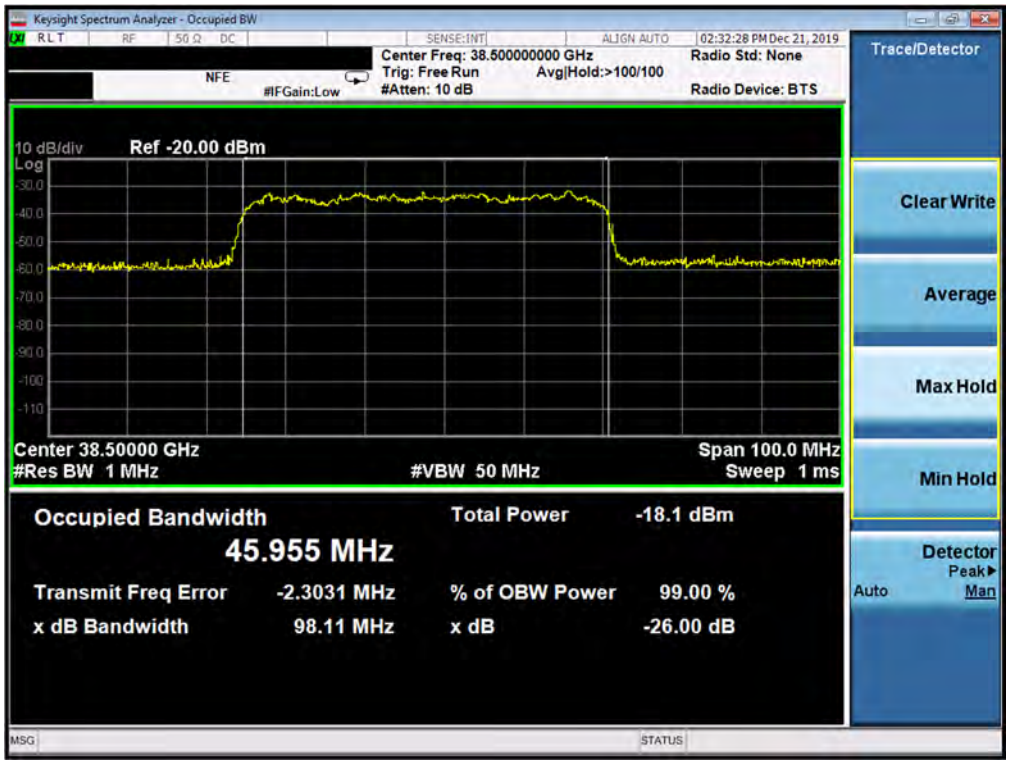
Plot 7-74. Ant3 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-75. Ant3 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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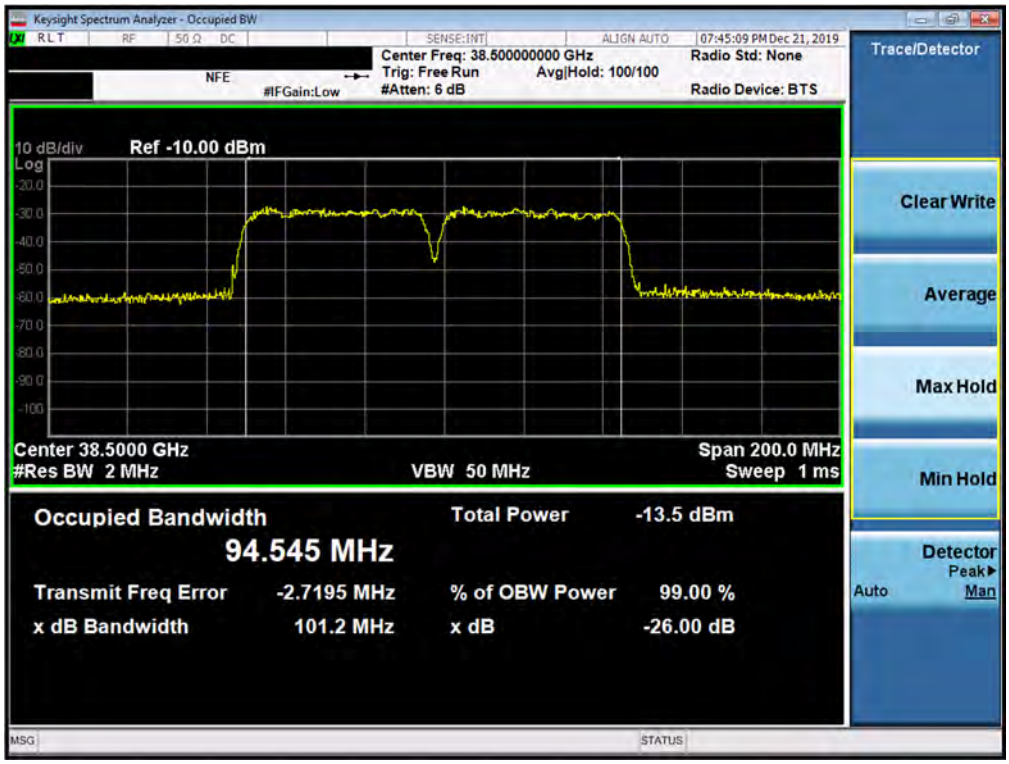
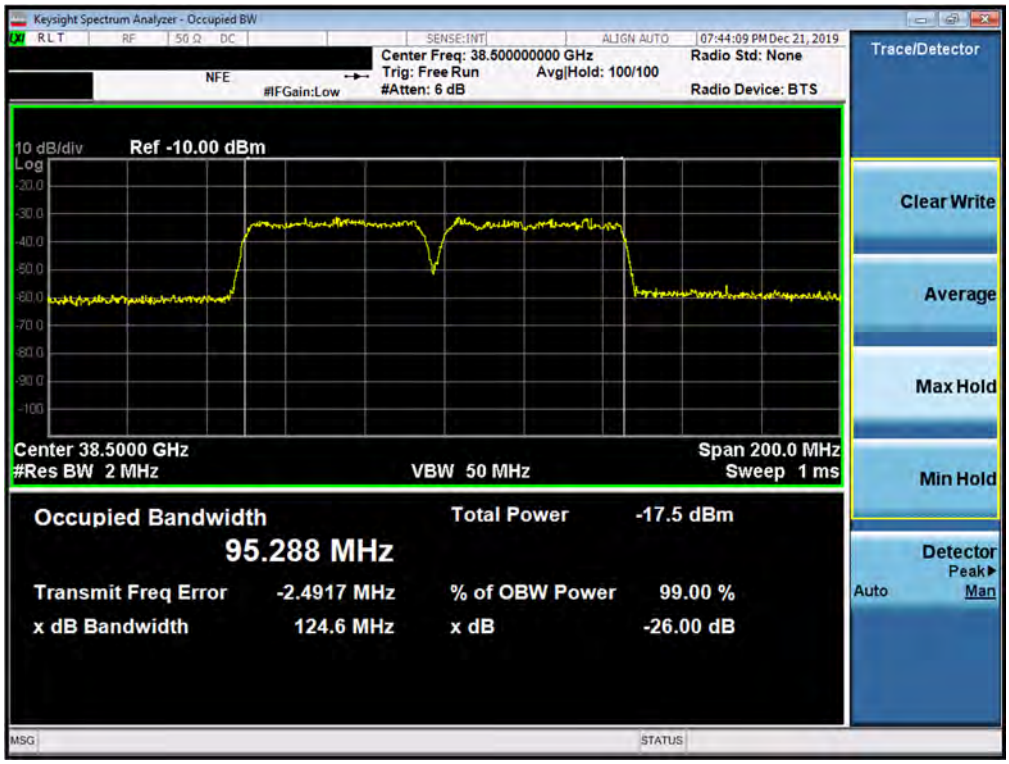


Plot 7-76. Ant3 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-77. Ant3 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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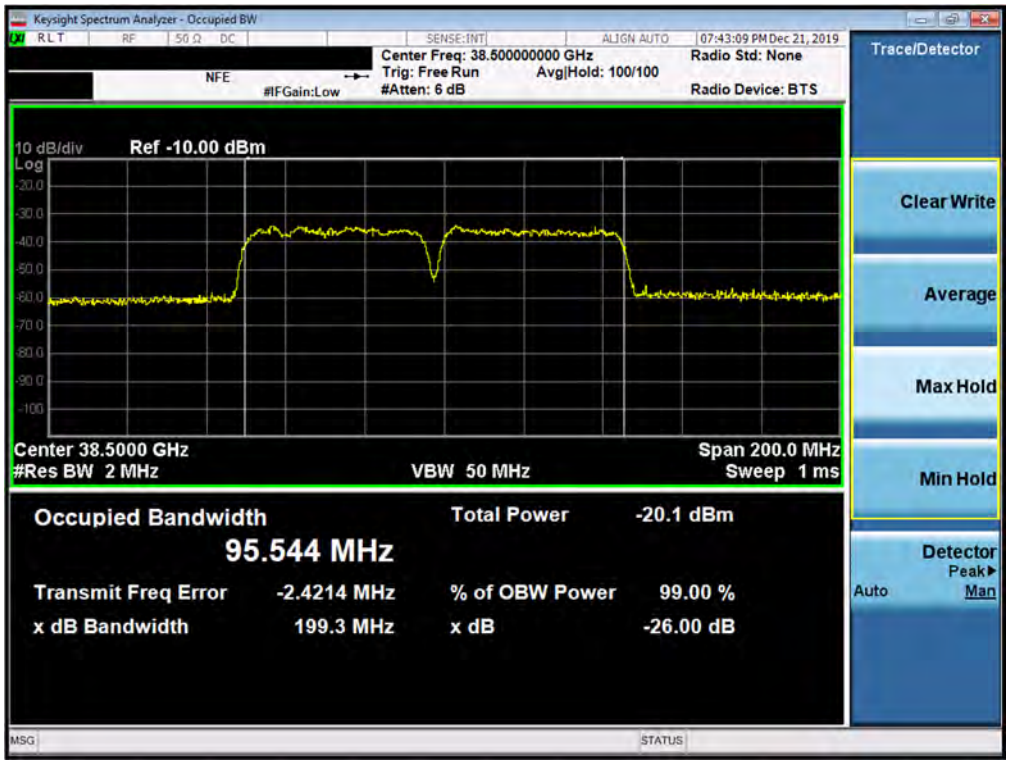
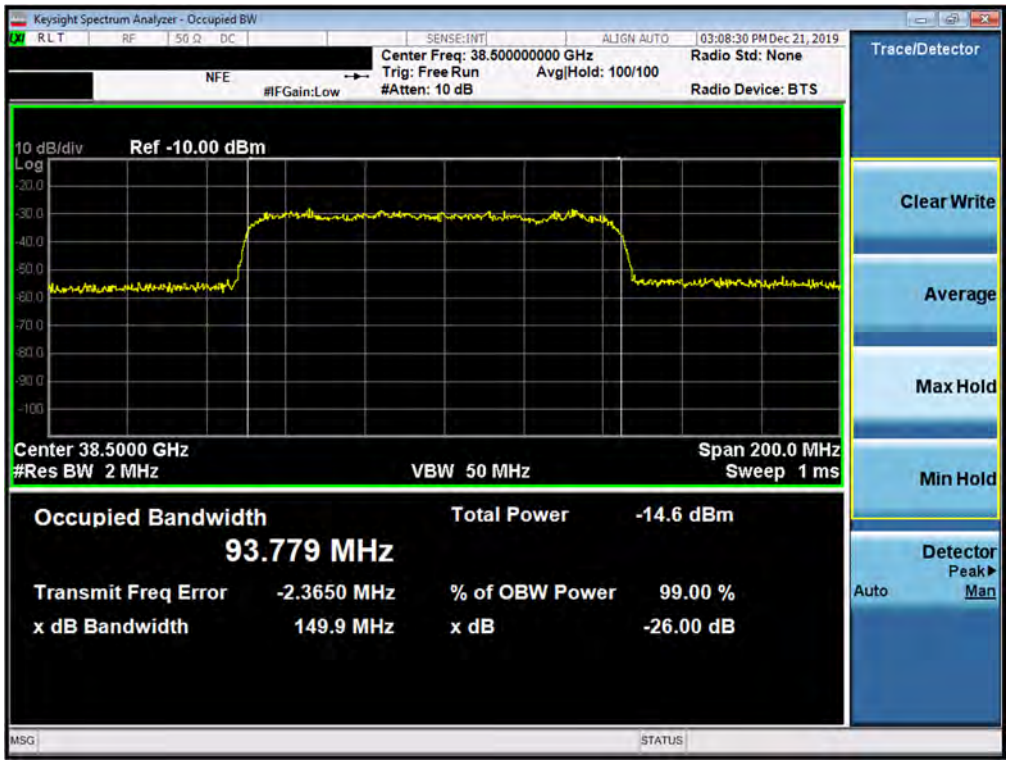


Plot 7-78. Ant3 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)



Plot 7-79. Ant3 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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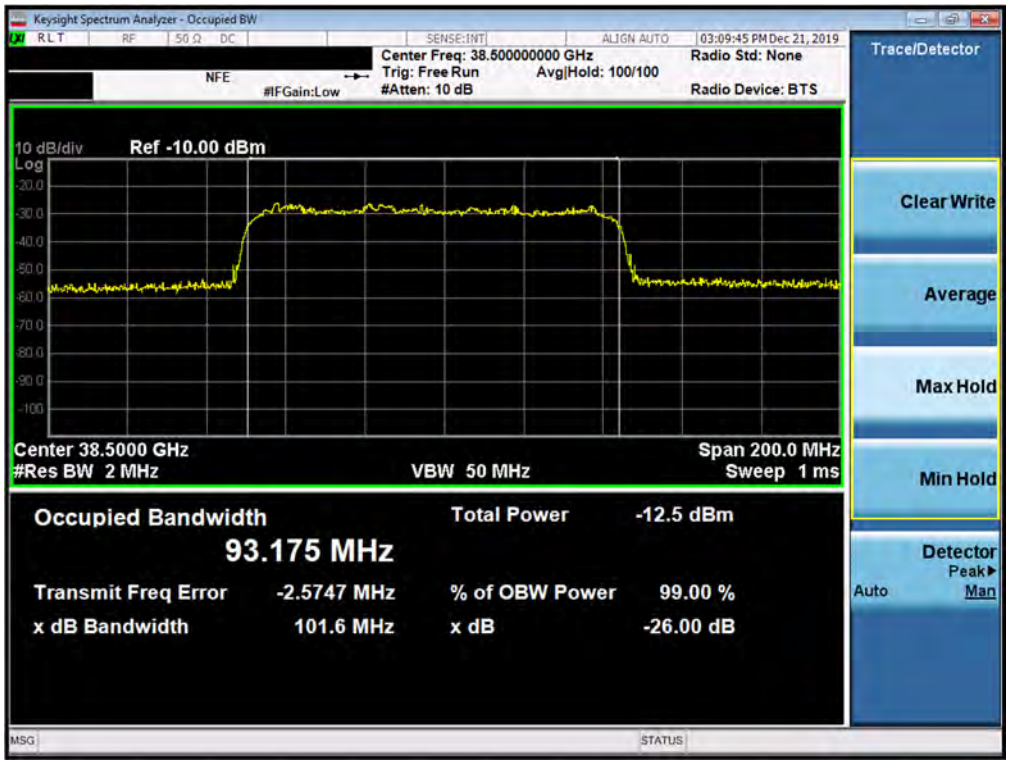
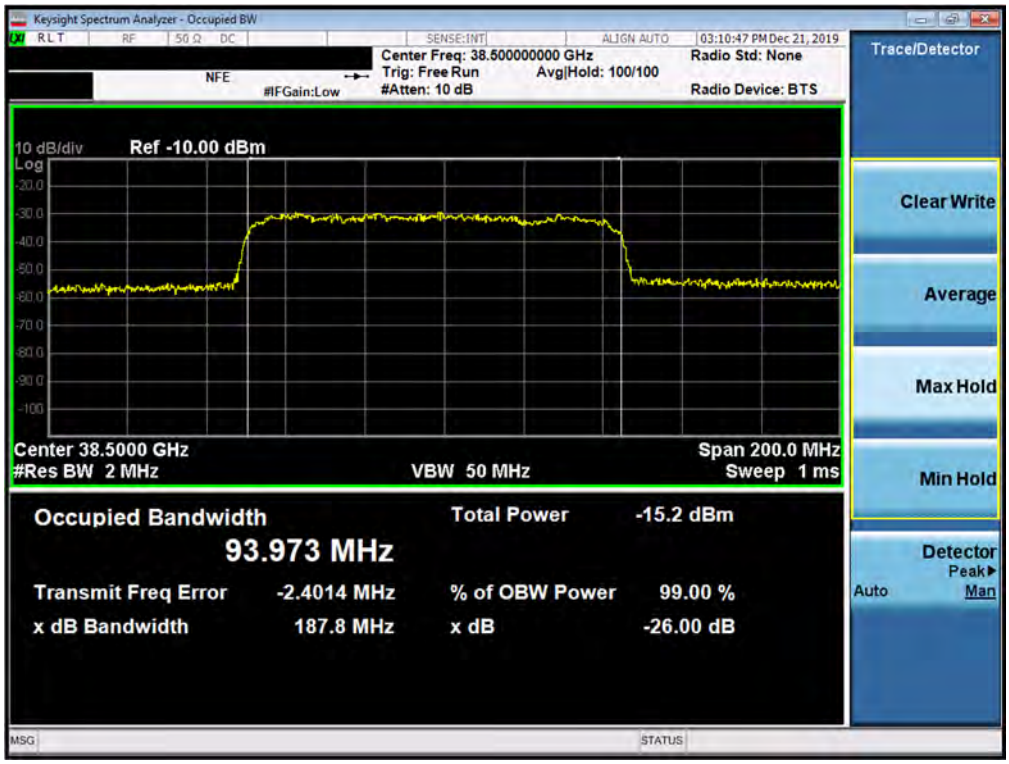


Plot 7-80. Ant3 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-81. Ant3 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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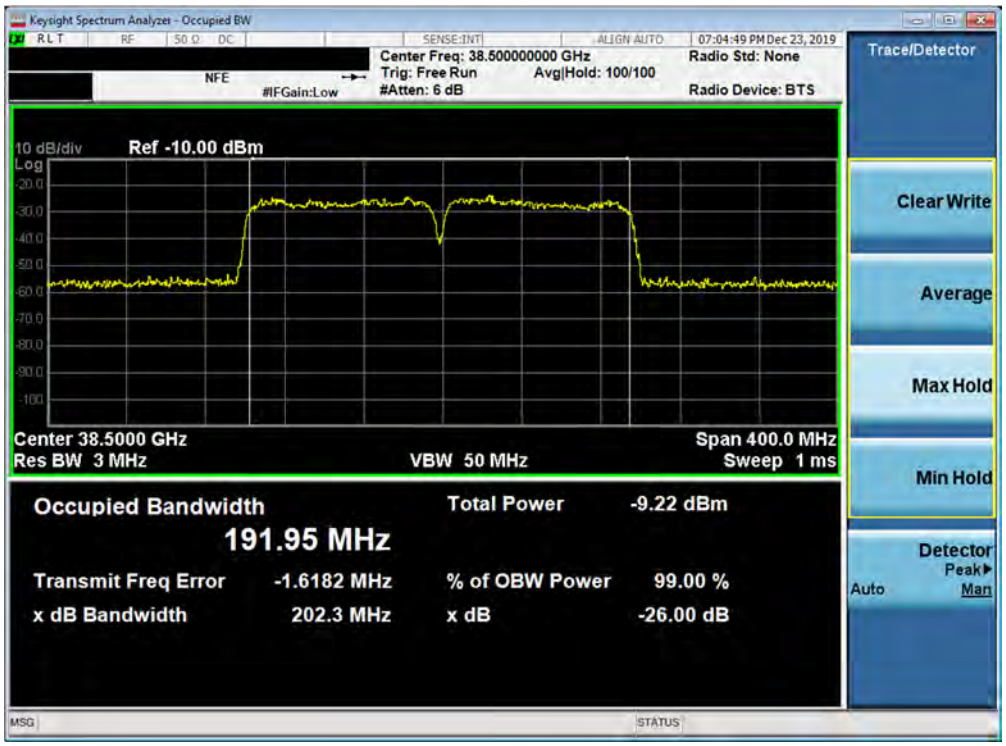
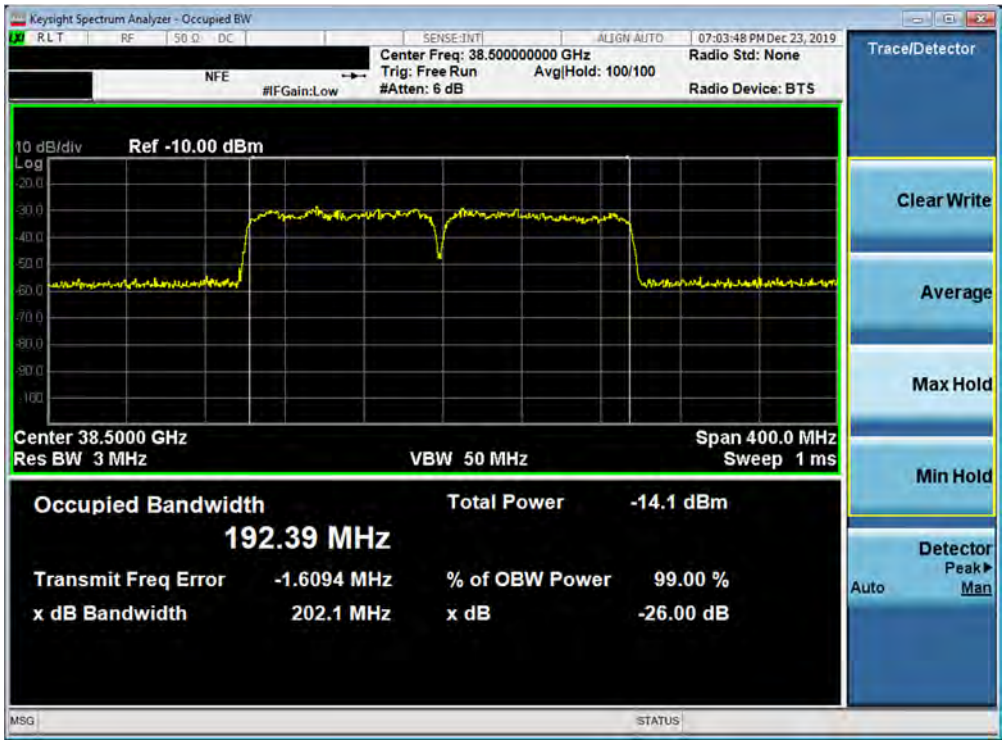


Plot 7-82. Ant3 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-83. Ant3 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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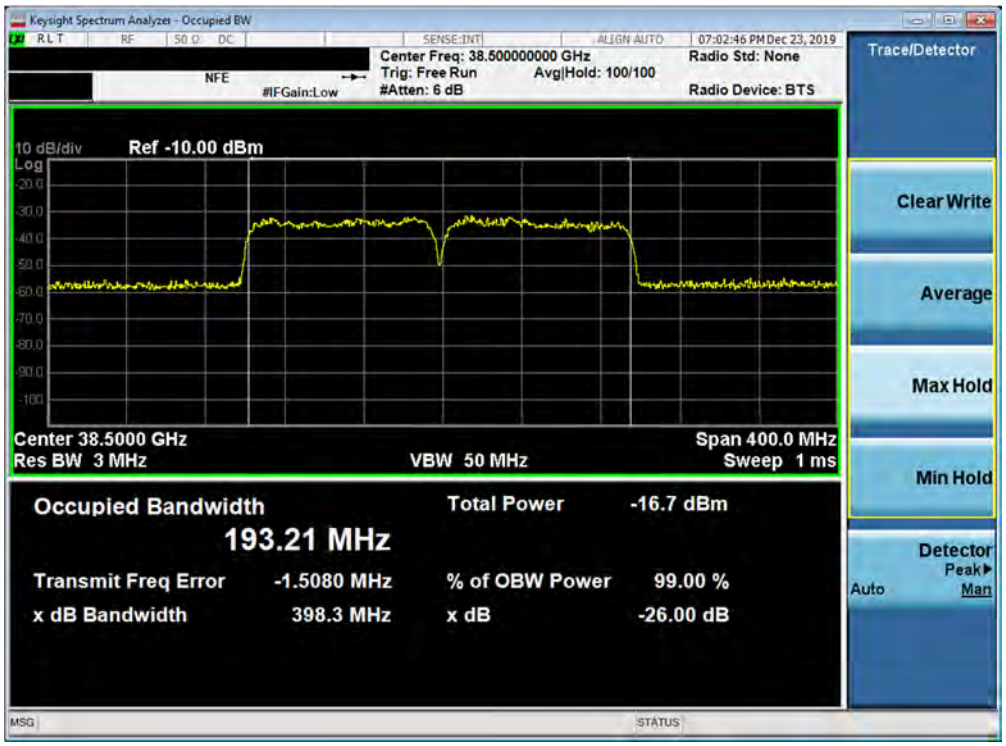

Plot 7-84. Ant3 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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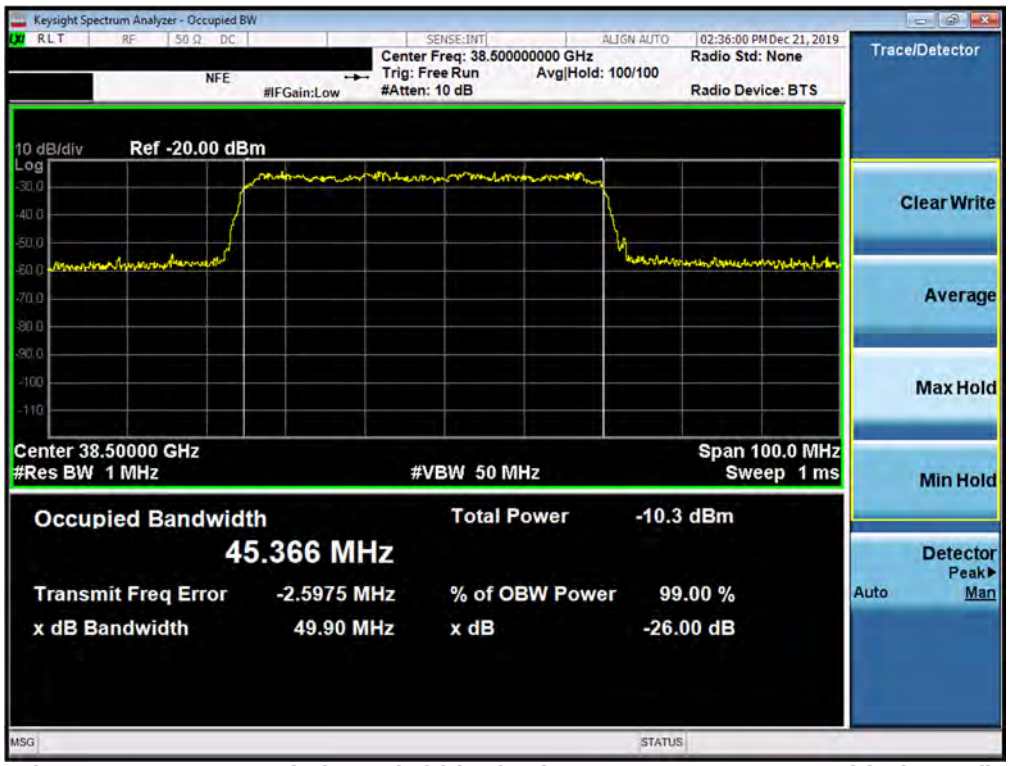
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	45.37
			16QAM	45.32
			64QAM	45.35
		2	QPSK	94.81
			16QAM	95.70
			64QAM	100.46
	100	1	QPSK	92.82
			16QAM	93.50
			64QAM	93.45
		2	QPSK	191.39
			16QAM	191.99
			64QAM	191.65

Table 7-9. Summary of Ant4 Occupied Bandwidths (n260)



Plot 7-85. Ant4 Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

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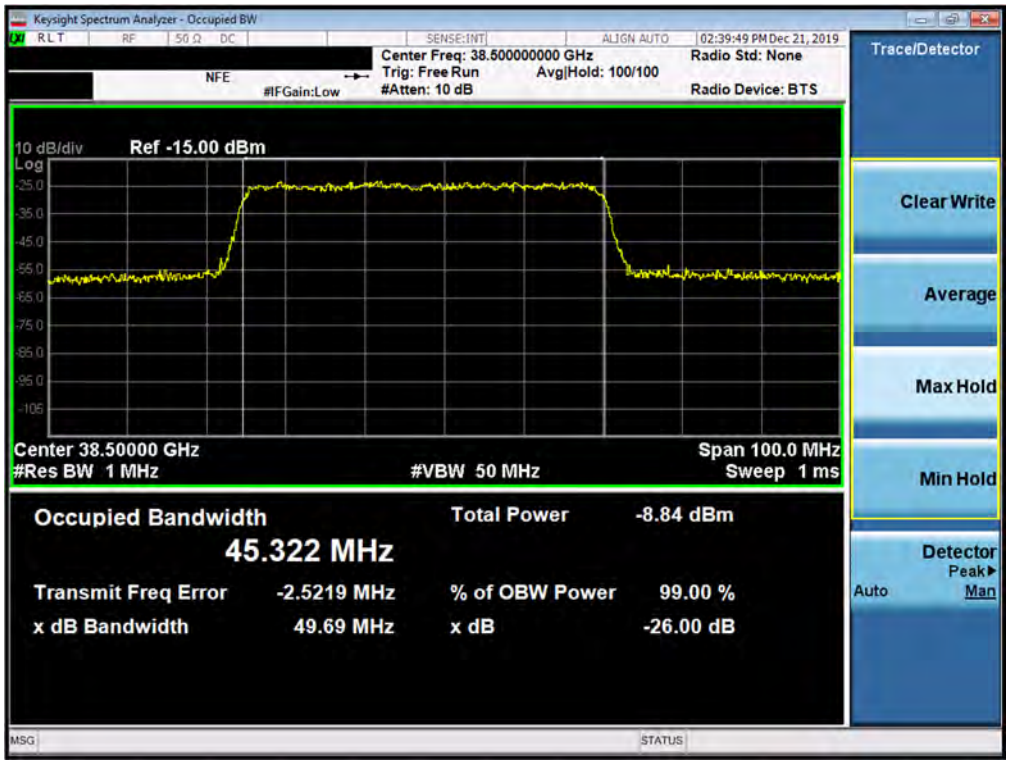
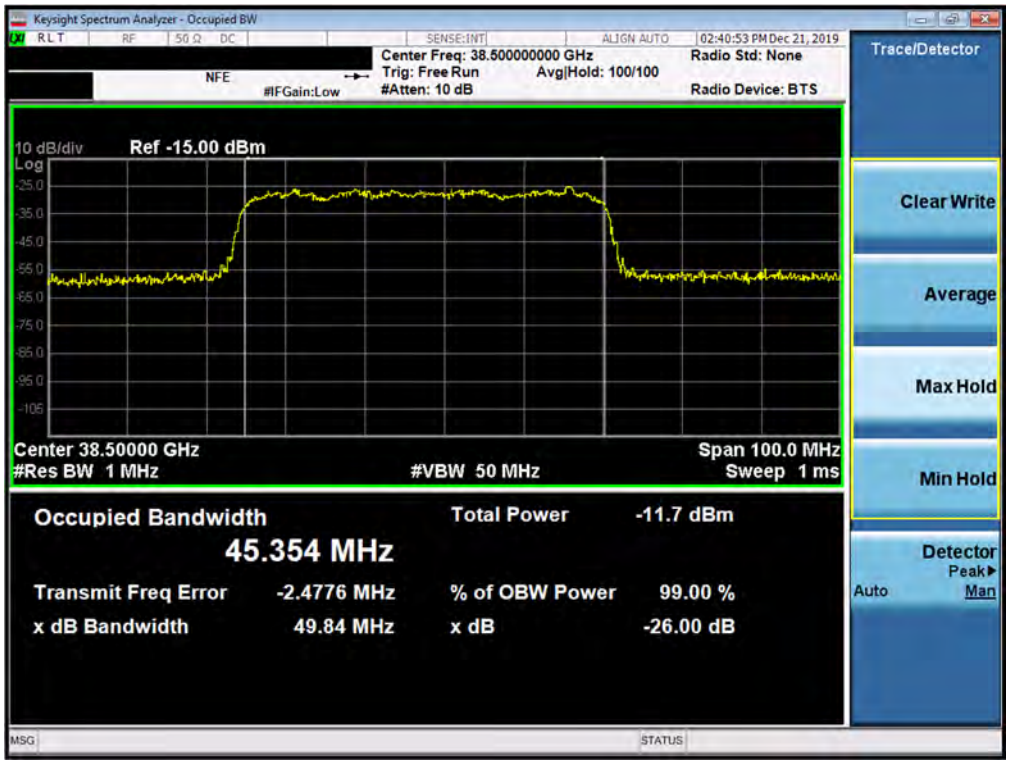


Plot 7-86. Ant4 Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-87. Ant4 Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

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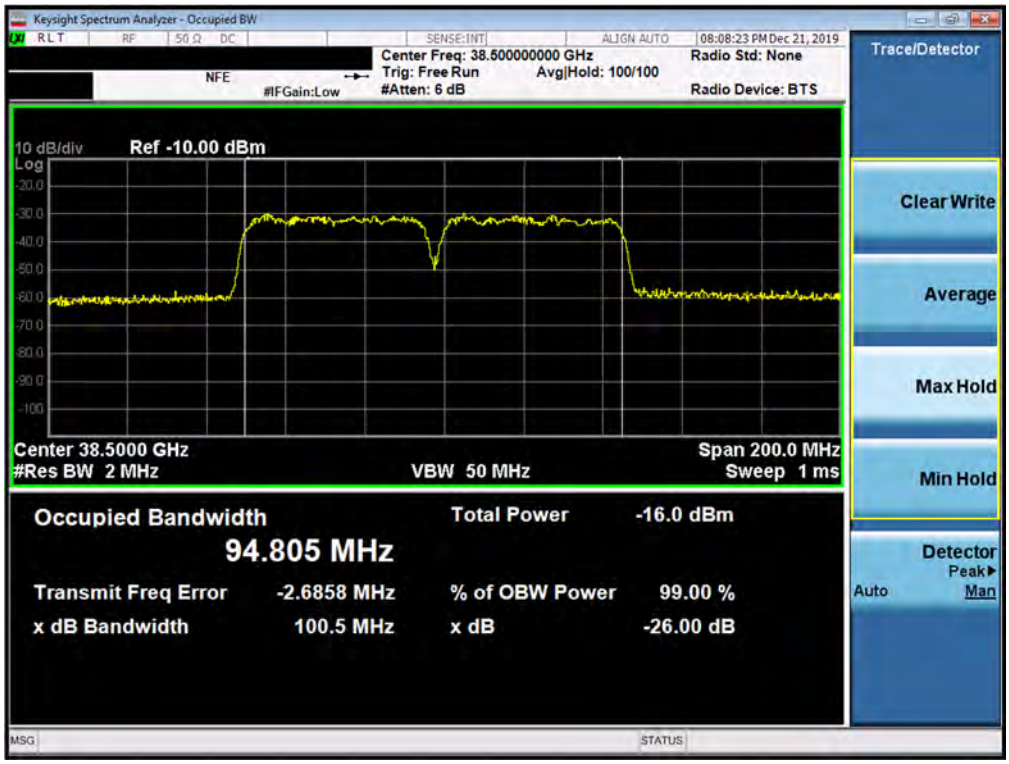
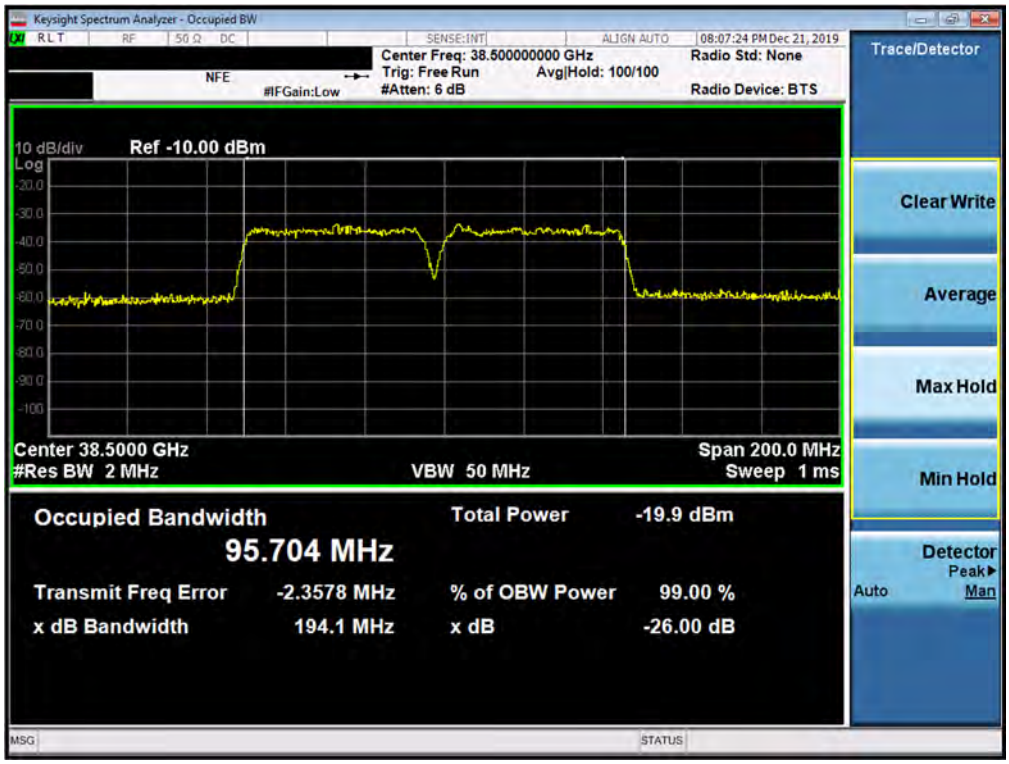


Plot 7-88. Ant4 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-89. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

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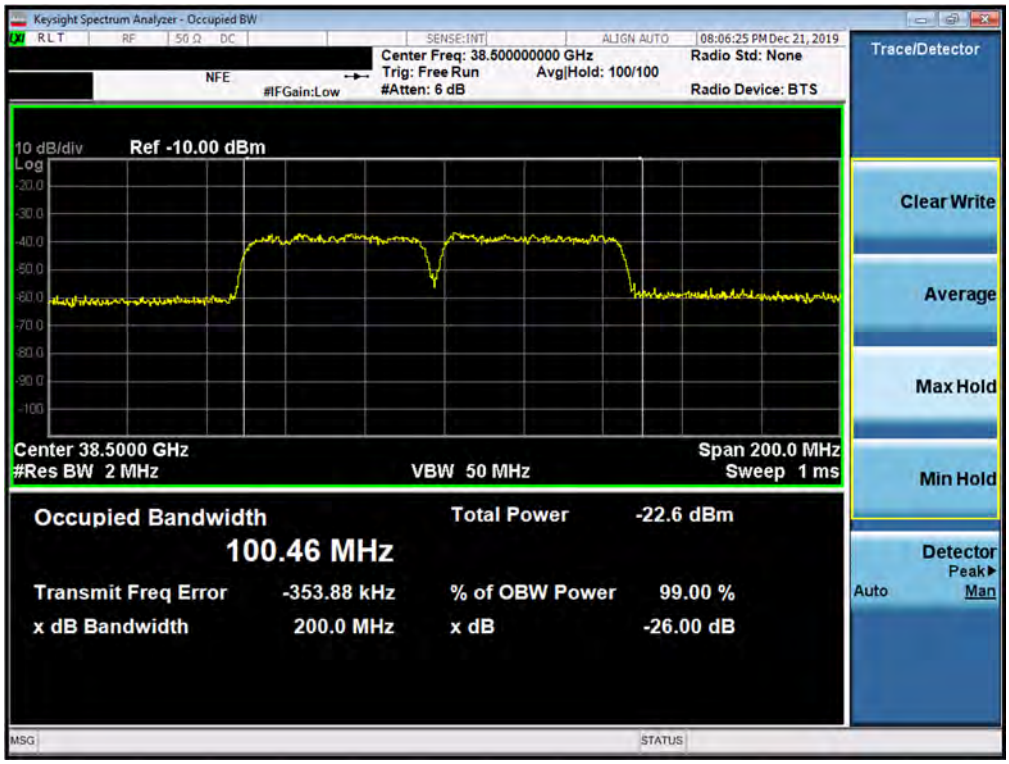

Plot 7-90. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)

Plot 7-91. Ant4 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

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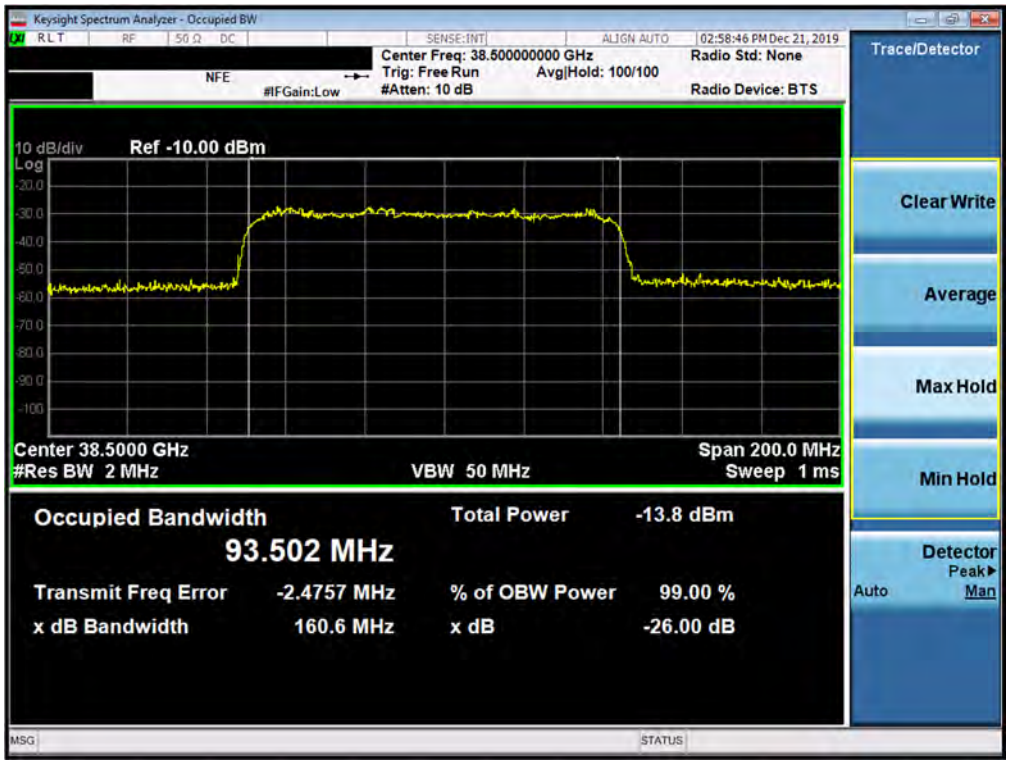

Plot 7-92. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)

Plot 7-93. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

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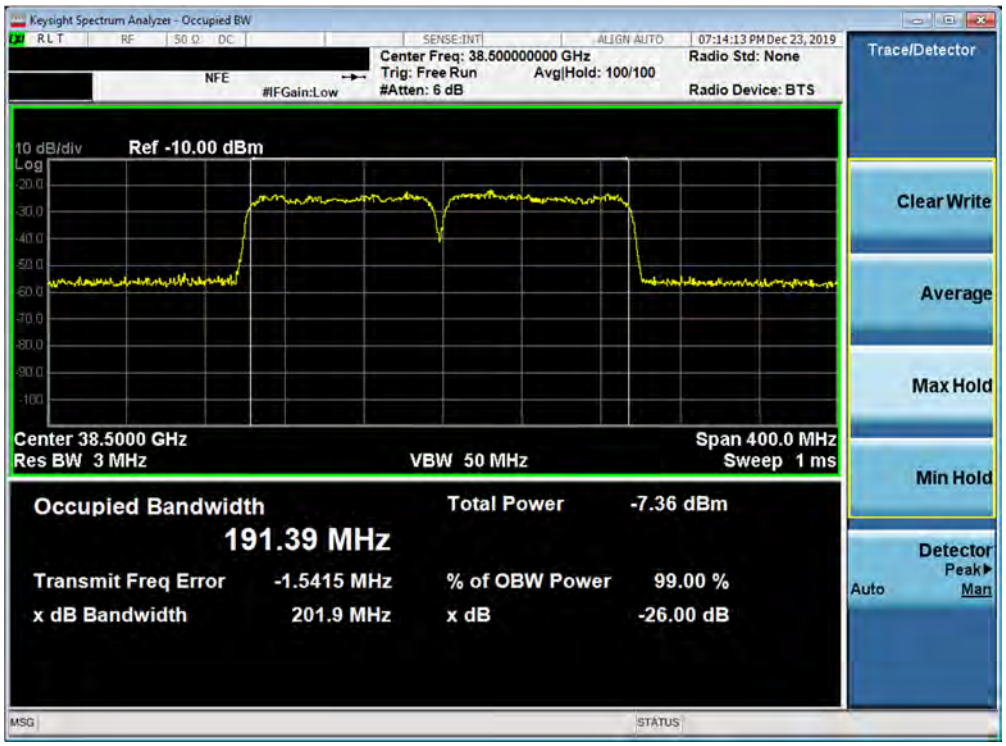
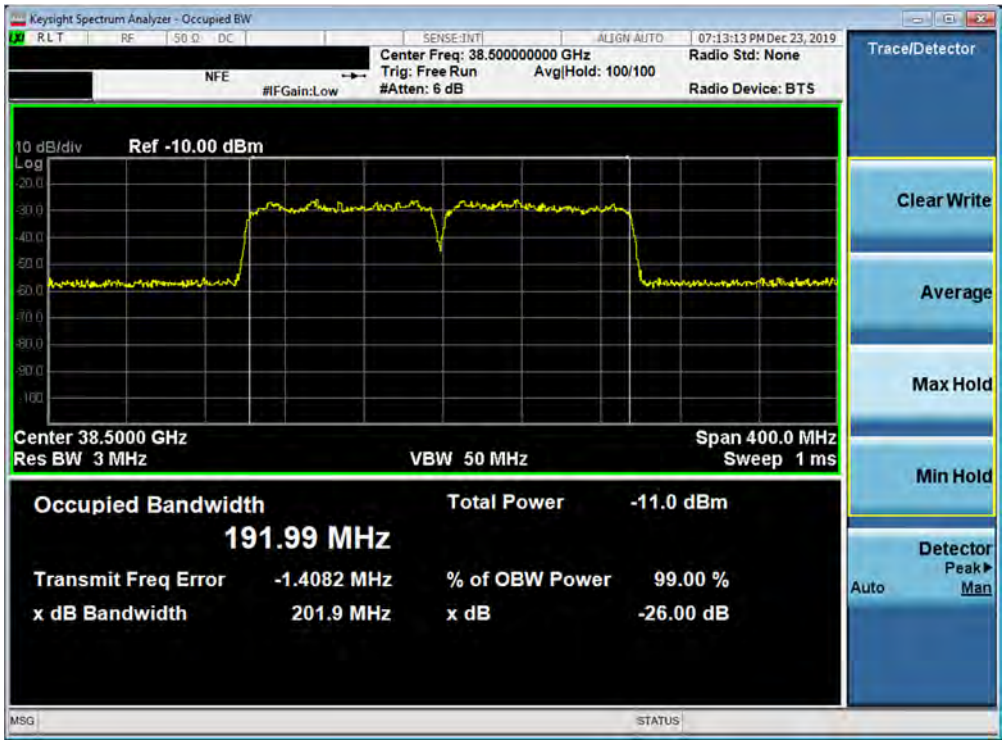


Plot 7-94. Ant4 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-95. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

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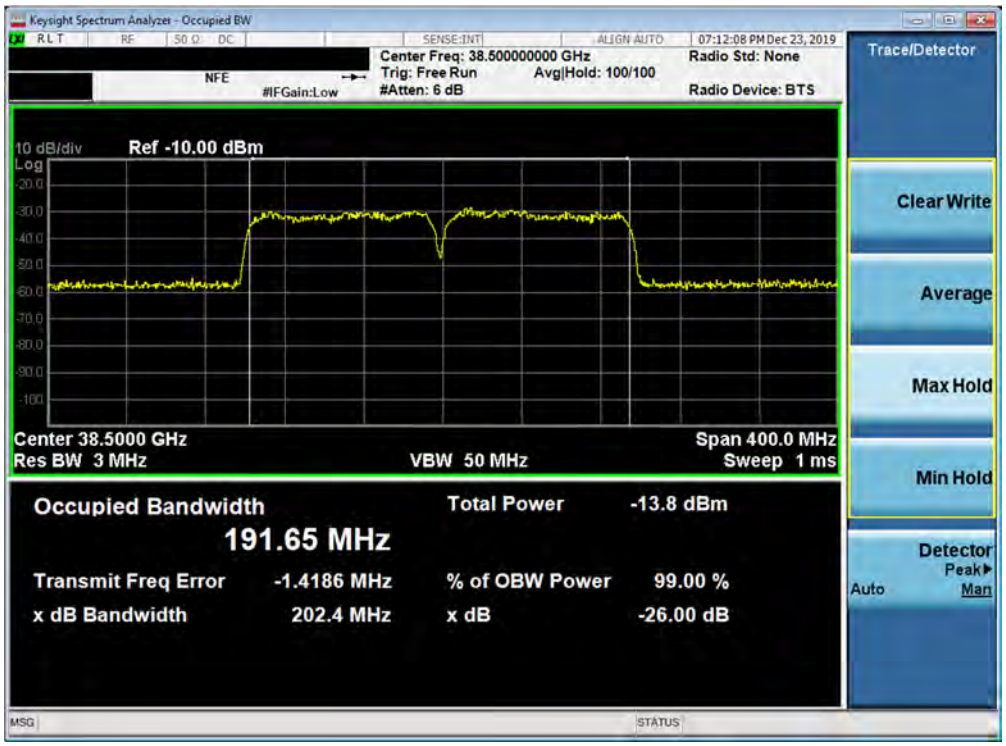

Plot 7-96. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

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7.3 Equivalent Isotropic Radiated Power

§2.1046, §30.202

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using 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.

The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1
KDB 842590 D01 v01 Section 4.2

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 = 2x to 3x the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
8. Trace mode = trace averaging (RMS) over 100 sweeps
9. The trace was allowed to stabilize

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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) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

3) EIRP measurements were taken at 1m test distance.

4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBµV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBµV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.

5) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

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Band n261 Beam ID Configurations

Mode	Beam Polarization	Beam ID
SISO	H	137
	V	8
MIMO	H	136
	V	7

Table 7-10. Ant1 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	168
	V	42
MIMO	H	167
	V	41

Table 7-11. Ant2 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	176
	V	36
MIMO	H	177
	V	47

Table 7-12. Ant3 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	159
	V	32
MIMO	H	173
	V	45

Table 7-13. Ant4 Worst Case Beam ID

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Band n261

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27534.84	Low	H	QPSK	H	252	316	1/16	19.48
		27534.84	Low	V	QPSK	V	311	300	1/16	19.03
		27922.08	Mid	H	QPSK	H	72	38	1/16	17.93
		27922.08	Mid	V	QPSK	V	309	303	1/16	17.07
		28319.52	High	H	QPSK	H	158	62	1/16	16.66
		28319.52	High	V	QPSK	V	310	303	1/16	19.09
		27534.84	Low	H	16QAM	H	252	316	1/16	17.65
		28319.52	High	V	64QAM	V	310	303	1/16	14.32
	MIMO	27922.08	Mid	H	QPSK	H	96	52	1/16	18.10
		27922.08	Mid	V	QPSK	H	307	310		
		27922.08	Mid	H	16QAM	H	96	52	1/16	16.77
		27922.08	Mid	V	16QAM	H	307	310		
		27922.08	Mid	H	64QAM	H	96	52	1/16	12.90
		27922.08	Mid	V	64QAM	H	307	310		

Table 7-14. Ant1 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27922.08	Mid	H	QPSK	H	79	46	1/31	17.35
		27922.08	Mid	V	QPSK	V	293	300	32/0	14.63
		27922.08	Mid	H	16QAM	H	79	46	1/31	15.73
		27922.08	Mid	H	64QAM	H	79	46	1/31	12.59
	MIMO	28319.52	Mid	H	QPSK	H	196	32	1/16	18.42
		28319.52	Mid	V	QPSK	H	298	296		
		28319.52	Mid	H	16QAM	H	196	32	1/16	15.07
		28319.52	Mid	V	16QAM	H	298	296		
		28319.52	Mid	H	64QAM	H	196	32	1/16	11.90
		28319.52	Mid	V	64QAM	H	298	296		

Table 7-15. Ant1 EIRP Data (Band n261 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	H	251	315	1/32	19.15
		27559.32	Low	V	QPSK	V	312	302	1/32	19.00
		27923.52	Mid	H	QPSK	H	82	222	1/32	17.78
		27923.52	Mid	V	QPSK	V	311	303	1/32	17.25
		28292.16	High	H	QPSK	H	162	110	1/32	16.52
		28292.16	High	V	QPSK	V	310	304	1/32	19.29
		27559.32	Low	V	16QAM	V	312	302	1/32	17.03
		27559.32	Low	V	64QAM	V	312	302	1/32	14.41
	MIMO	27923.52	Mid	H	QPSK	H	78	125	1/32	20.73
		27923.52	Mid	V	QPSK	V	299	295		
		27923.52	Mid	H	16QAM	H	78	125	1/32	18.25
		27923.52	Mid	V	16QAM	V	299	295		
		27923.52	Mid	H	64QAM	H	78	125	1/32	16.78
		27923.52	Mid	V	64QAM	V	299	295		

Table 7-16. Ant1 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	H	79	49	1/63	18.07
		27923.52	Mid	V	QPSK	V	301	293	1/32	15.96
		27923.52	Mid	H	16QAM	H	79	49	1/63	15.96
		27923.52	Mid	V	16QAM	V	301	293	1/32	13.76
		27923.52	Mid	H	64QAM	H	79	49	1/63	13.94
	MIMO	28292.16	Mid	H	QPSK	H	93	54	1/32	18.74
		28292.16	Mid	V	QPSK	V	301	298		
		28292.16	Mid	H	16QAM	H	93	54	64/0	16.54
		28292.16	Mid	V	16QAM	V	301	298		
		28292.16	Mid	H	64QAM	H	93	54	64/0	15.45
		28292.16	Mid	V	64QAM	V	301	298		

Table 7-17. Ant1 EIRP Data (Band n261 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	V	287	69	1/16	22.32
		27559.32	Low	V	QPSK	V	102	244	1/16	23.14
		27923.52	Mid	H	QPSK	V	112	287	1/16	22.60
		27923.52	Mid	V	QPSK	V	99	238	1/16	22.91
		28292.16	High	H	QPSK	V	284	73	1/16	21.37
		28292.16	High	V	QPSK	V	77	245	1/16	22.02
		27559.32	Low	V	16QAM	V	102	244	1/16	21.11
		27559.32	Low	V	64QAM	V	102	244	1/16	18.84
	MIMO	27923.52	Mid	H	QPSK	V	105	286	1/16	23.63
		27923.52	Mid	V	QPSK	H	85	95		
		27923.52	Mid	H	16QAM	V	105	286	1/16	20.68
		27923.52	Mid	V	16QAM	H	85	95		
		27923.52	Mid	H	64QAM	V	105	286	1/16	17.71
		27923.52	Mid	V	64QAM	H	85	95		

Table 7-18. Ant2 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	V	69	292	32/0	19.75
		27923.52	Mid	V	QPSK	V	98	240	32/0	20.02
		27923.52	Mid	V	16QAM	V	98	240	32/0	18.60
		27923.52	Mid	V	64QAM	V	98	240	32/0	16.30
	MIMO	28292.16	Mid	H	QPSK	V	124	296	1/16	21.43
		28292.16	Mid	V	QPSK	H	180	319		
		28292.16	Mid	H	16QAM	V	124	296	1/16	18.08
		28292.16	Mid	V	16QAM	H	180	319		
		28292.16	Mid	H	64QAM	V	124	296	32/0	15.83
		28292.16	Mid	V	64QAM	H	180	319		

Table 7-19. Ant2 EIRP Data (Band n261 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	V	289	69	1/32	22.42
		27559.32	Low	V	QPSK	V	103	238	1/32	22.72
		27923.52	Mid	H	QPSK	V	282	69	1/32	22.37
		27923.52	Mid	V	QPSK	V	101	237	1/32	22.26
		28292.16	High	H	QPSK	V	285	73	1/32	22.12
		28292.16	High	V	QPSK	V	101	235	1/32	21.62
		27923.52	Mid	H	16QAM	V	282	69	1/32	20.24
		27559.32	Low	V	64QAM	V	103	238	1/32	18.34
	MIMO	27923.52	Mid	H	QPSK	V	106	286	1/32	23.41
		27923.52	Mid	V	QPSK	H	179	308		
		27923.52	Mid	H	16QAM	V	106	286	1/32	21.70
		27923.52	Mid	V	16QAM	H	179	308		
		27923.52	Mid	H	64QAM	V	106	286	1/32	18.55
		27923.52	Mid	V	64QAM	H	179	308		

Table 7-20. Ant2 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	V	283	72	1/0	19.50
		27923.52	Mid	V	QPSK	V	102	237	64/0	19.41
		27923.52	Mid	H	16QAM	V	283	72	1/0	17.98
		27923.52	Mid	H	64QAM	V	283	72	64/0	15.82
	MIMO	28292.16	Mid	H	QPSK	V	286	105	1/32	22.43
		28292.16	Mid	V	QPSK	H	178	314		
		28292.16	Mid	H	16QAM	V	286	105	1/32	19.72
		28292.16	Mid	V	16QAM	H	178	314		
		28292.16	Mid	H	64QAM	V	286	105	1/32	17.66
		28292.16	Mid	V	64QAM	H	178	314		

Table 7-21. Ant2 EIRP Data (Band n261 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	H	82	42	1/16	21.97
		27559.32	Low	V	QPSK	H	331	38	1/16	20.83
		27923.52	Mid	H	QPSK	H	85	49	1/16	20.17
		27923.52	Mid	V	QPSK	H	320	37	1/16	19.79
		28292.16	High	H	QPSK	H	86	36	1/16	21.45
		28292.16	High	V	QPSK	H	339	48	1/16	22.23
		28292.16	High	V	16QAM	H	339	48	1/16	20.89
		27559.32	Low	H	64QAM	H	82	42	1/16	18.18
	MIMO	27923.52	Mid	H	QPSK	H	206	45	1/16	22.47
		27923.52	Mid	V	QPSK	V	149	0		
		27923.52	Mid	H	16QAM	H	206	45	1/16	20.41
		27923.52	Mid	V	16QAM	V	149	0		
		27923.52	Mid	H	64QAM	H	206	45	1/16	17.76
		27923.52	Mid	V	64QAM	V	149	0		

Table 7-22. Ant3 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	H	94	42	1/0	18.17
		27923.52	Mid	V	QPSK	H	168	309	32/0	19.58
		27923.52	Mid	V	16QAM	H	168	309	1/16	17.96
		27923.52	Mid	V	64QAM	H	168	309	32/0	15.88
	MIMO	28292.16	Mid	H	QPSK	H	207	40	1/16	21.35
		28292.16	Mid	V	QPSK	V	147	352		
		28292.16	Mid	H	16QAM	H	207	40	1/16	17.38
		28292.16	Mid	V	16QAM	V	147	352		
		28292.16	Mid	H	64QAM	H	207	40	32/0	15.78
		28292.16	Mid	V	64QAM	V	147	352		

Table 7-23. Ant3 EIRP Data (Band n261 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	H	85	41	1/32	22.45
		27559.32	Low	V	QPSK	H	43	323	1/32	20.88
		27923.52	Mid	H	QPSK	H	89	48	1/32	21.18
		27923.52	Mid	V	QPSK	H	38	317	1/32	20.54
		28292.16	High	H	QPSK	H	89	33	1/32	21.98
		28292.16	High	V	QPSK	H	43	339	1/32	22.64
		28292.16	High	V	16QAM	H	43	339	1/32	21.26
		27559.32	Low	H	64QAM	H	85	41	1/32	19.00
	MIMO	27923.52	Mid	H	QPSK	H	207	46	1/32	23.77
		27923.52	Mid	V	QPSK	V	148	358		
		27923.52	Mid	H	16QAM	H	207	46	1/32	21.52
		27923.52	Mid	V	16QAM	V	148	358		
		27923.52	Mid	H	64QAM	H	207	46	1/32	18.73
		27923.52	Mid	V	64QAM	V	148	358		

Table 7-24. Ant3 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	H	94	46	1/32	18.63
		27923.52	Mid	V	QPSK	H	169	313	64/0	20.01
		27923.52	Mid	V	16QAM	H	169	313	64/0	18.37
		27923.52	Mid	V	64QAM	H	169	313	64/0	16.29
	MIMO	28292.16	Mid	H	QPSK	H	209	49	1/32	23.19
		28292.16	Mid	V	QPSK	V	147	356		
		28292.16	Mid	H	16QAM	H	209	49	1/32	19.31
		28292.16	Mid	V	16QAM	V	147	356		
		28292.16	Mid	H	64QAM	H	209	49	1/32	16.89
		28292.16	Mid	V	64QAM	V	147	356		

Table 7-25. Ant3 EIRP Data (Band n261 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	H	28	299	1/16	22.70
		27559.32	Low	V	QPSK	V	26	261	1/16	20.58
		27923.52	Mid	H	QPSK	H	27	301	1/16	20.96
		27923.52	Mid	V	QPSK	V	24	309	1/16	16.93
		28292.16	High	H	QPSK	H	28	297	1/16	22.48
		28292.16	High	V	QPSK	V	39	261	1/16	20.63
		27559.32	Low	H	16QAM	H	28	299	1/16	20.60
		28292.16	High	H	64QAM	H	28	297	1/16	18.70
	MIMO	27923.52	Mid	H	QPSK	H	221	46	1/16	23.44
		27923.52	Mid	V	QPSK	V	155	307		
		27923.52	Mid	H	16QAM	H	221	46	1/16	20.85
		27923.52	Mid	V	16QAM	V	155	307		
		27923.52	Mid	H	64QAM	H	221	46	1/16	18.63
		27923.52	Mid	V	64QAM	V	155	307		

Table 7-26. Ant4 EIRP Data (Band n261 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	H	164	55	1/31	19.65
		27923.52	Mid	V	QPSK	V	142	321	32/0	19.55
		27923.52	Mid	V	16QAM	V	142	321	1/16	18.15
		27923.52	Mid	H	64QAM	H	164	55	1/31	15.92
	MIMO	28292.16	Mid	H	QPSK	H	223	40	1/16	22.59
		28292.16	Mid	V	QPSK	V	168	325		
		28292.16	Mid	H	16QAM	H	223	40	1/16	18.38
		28292.16	Mid	V	16QAM	V	168	325		
		28292.16	Mid	H	64QAM	H	223	40	1/16	15.70
		28292.16	Mid	V	64QAM	V	168	325		

Table 7-27. Ant4 EIRP Data (Band n261 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	27559.32	Low	H	QPSK	H	24	322	1/32	21.72
		27559.32	Low	V	QPSK	V	344	283	1/32	21.45
		27923.52	Mid	H	QPSK	H	22	322	1/32	19.31
		27923.52	Mid	V	QPSK	V	344	284	1/32	21.31
		28292.16	High	H	QPSK	H	22	303	1/32	21.37
		28292.16	High	V	QPSK	V	332	284	1/32	18.47
		27559.32	Low	H	16QAM	H	24	322	1/32	19.50
		27559.32	Low	V	64QAM	V	344	283	1/32	17.48
	MIMO	27923.52	Mid	H	QPSK	H	223	46	1/32	23.12
		27923.52	Mid	V	QPSK	V	162	306		
		27923.52	Mid	H	16QAM	H	223	46	1/63	20.56
		27923.52	Mid	V	16QAM	V	162	306		
		27923.52	Mid	H	64QAM	H	223	46	64/0	17.36
		27923.52	Mid	V	64QAM	V	162	306		

Table 7-28. Ant4 EIRP Data (Band n261 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	27923.52	Mid	H	QPSK	H	164	55	1/0	19.02
		27923.52	Mid	V	QPSK	V	142	323	64/0	18.59
		27923.52	Mid	V	16QAM	V	142	323	1/63	17.24
		27923.52	Mid	V	64QAM	V	142	323	64/0	14.92
	MIMO	28292.16	Mid	H	QPSK	H	223	48	1/32	22.42
		28292.16	Mid	V	QPSK	V	161	311		
		28292.16	Mid	H	16QAM	H	223	48	64/0	18.40
		28292.16	Mid	V	16QAM	V	161	311		
		28292.16	Mid	H	64QAM	H	223	48	1/32	17.50
		28292.16	Mid	V	64QAM	V	161	311		

Table 7-29. Ant4 EIRP Data (Band n261 - 100MHz-2CC)

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Band n260 Beam ID Configurations

Mode	Beam Polarization	Beam ID
SISO	H	137
	V	18
MIMO	H	146
	V	18

Table 7-30. Ant1 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	155
	V	40
MIMO	H	169
	V	41

Table 7-31. Ant2 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	164
	V	48
MIMO	H	176
	V	47

Table 7-32. Ant3 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	172
	V	43
MIMO	H	172
	V	43

Table 7-33. Ant4 Worst Case Beam ID

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Band n260

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	V	96	325	1/16	16.71
		37027.32	Low	V	QPSK	H	49	75	1/16	17.30
		38497.44	Mid	H	QPSK	V	102	319	1/16	17.01
		38497.44	Mid	V	QPSK	H	70	28	1/16	16.20
		39966.24	High	H	QPSK	V	105	319	1/16	14.46
		39966.24	High	V	QPSK	H	106	77	1/16	17.45
		39966.24	High	V	16QAM	H	106	77	1/16	15.52
		39966.24	High	V	64QAM	H	106	77	1/16	13.50
	MIMO	38497.44	Mid	H	QPSK	V	343	274	1/16	19.99
		38497.44	Mid	V	QPSK	H	68	31		
		38497.44	Mid	H	16QAM	V	343	274	1/16	18.59
		38497.44	Mid	V	16QAM	H	68	31		
		38497.44	Mid	H	64QAM	V	343	274	1/16	16.53
		38497.44	Mid	V	64QAM	H	68	31		

Table 7-34. Ant1 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	V	129	232	1/0	16.67
		38497.44	Mid	V	QPSK	H	70	26	1/0	16.52
		38497.44	Mid	H	16QAM	V	129	232	1/0	15.54
		38497.44	Mid	V	64QAM	H	70	26	1/0	14.22
	MIMO	39966.24	Mid	H	QPSK	V	342	275	1/16	19.01
		39966.24	Mid	V	QPSK	H	70	33		
		39966.24	Mid	H	16QAM	V	342	275	32/0	17.49
		39966.24	Mid	V	16QAM	H	70	33		
		39966.24	Mid	H	64QAM	V	342	275	32/0	15.13
		39966.24	Mid	V	64QAM	H	70	33		

Table 7-35. Ant1 EIRP Data (Band n260 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	V	124	232	1/31	17.12
		37027.32	Low	V	QPSK	H	48	73	1/31	18.72
		38497.44	Mid	H	QPSK	V	127	230	1/31	17.62
		38497.44	Mid	V	QPSK	H	70	31	1/31	16.23
		39966.24	High	H	QPSK	V	226	53	1/31	16.71
		39966.24	High	V	QPSK	H	78	106	1/31	18.38
		37027.32	Low	V	16QAM	H	48	73	1/31	16.46
		37027.32	Low	V	64QAM	H	48	73	1/31	13.97
	MIMO	38497.44	Mid	H	QPSK	V	342	275	1/31	19.81
		38497.44	Mid	V	QPSK	H	69	33		
		38497.44	Mid	H	16QAM	V	342	275	1/31	19.29
		38497.44	Mid	V	16QAM	H	69	33		
		38497.44	Mid	H	64QAM	V	342	275	1/31	17.34
		38497.44	Mid	V	64QAM	H	69	33		

Table 7-36. Ant1 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	H	68	30	1/0	14.48
		38497.44	Mid	V	QPSK	V	124	228	1/0	15.39
		38497.44	Mid	V	16QAM	V	124	228	1/0	14.29
		38497.44	Mid	V	64QAM	V	124	228	1/0	13.26
	MIMO	39966.24	Mid	H	QPSK	V	342	275	64/0	18.94
		39966.24	Mid	V	QPSK	H	70	30		
		39966.24	Mid	H	16QAM	V	342	275	1/0	18.05
		39966.24	Mid	V	16QAM	H	70	30		
		39966.24	Mid	H	64QAM	V	342	275	1/0	15.82
		39966.24	Mid	V	64QAM	H	70	30		

Table 7-37. Ant1 EIRP Data (Band n260 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	H	259	234	1/16	19.41
		37027.32	Low	V	QPSK	V	80	300	1/16	20.73
		38497.44	Mid	H	QPSK	H	299	239	1/16	21.75
		38497.44	Mid	V	QPSK	V	80	325	1/16	22.34
		39966.24	High	H	QPSK	H	268	230	1/16	20.25
		39966.24	High	V	QPSK	V	82	317	1/16	23.27
		39966.24	High	V	16QAM	V	82	317	1/16	20.88
		39966.24	High	V	64QAM	V	82	317	1/16	19.10
	MIMO	38497.44	Mid	H	QPSK	H	138	110	1/16	21.42
		38497.44	Mid	V	QPSK	V	89	245		
		38497.44	Mid	H	16QAM	H	138	110	1/16	20.53
		38497.44	Mid	V	16QAM	V	89	245		
		38497.44	Mid	H	64QAM	H	138	110	1/16	17.92
		38497.44	Mid	V	64QAM	V	89	245		

Table 7-38. Ant2 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	H	303	234	1/31	20.24
		38497.44	Mid	V	QPSK	V	78	315	1/31	20.01
		38497.44	Mid	H	16QAM	H	303	234	1/31	18.78
		38497.44	Mid	H	64QAM	H	303	234	1/31	16.24
	MIMO	39966.24	Mid	H	QPSK	H	138	109	1/0	19.60
		39966.24	Mid	V	QPSK	V	90	245		
		39966.24	Mid	H	16QAM	H	138	109	1/0	18.21
		39966.24	Mid	V	16QAM	V	90	245		
		39966.24	Mid	H	64QAM	H	138	109	32/0	15.48
		39966.24	Mid	V	64QAM	V	90	245		

Table 7-39. Ant2 EIRP Data (Band n260 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	H	237	241	1/31	19.79
		37027.32	Low	V	QPSK	V	77	270	1/31	22.98
		38497.44	Mid	H	QPSK	H	300	235	1/31	19.71
		38497.44	Mid	V	QPSK	V	77	266	1/31	21.71
		39966.24	High	H	QPSK	H	86	64	1/31	20.89
		39966.24	High	V	QPSK	V	75	232	1/31	24.76
		39966.24	High	V	16QAM	V	75	232	1/31	23.02
		39966.24	High	V	64QAM	V	75	232	1/31	20.35
	MIMO	38497.44	Mid	H	QPSK	H	138	111	1/31	21.73
		38497.44	Mid	V	QPSK	V	90	245		
		38497.44	Mid	H	16QAM	H	138	111	1/31	20.38
		38497.44	Mid	V	16QAM	V	90	245		
		38497.44	Mid	H	64QAM	H	138	111	1/31	18.75
		38497.44	Mid	V	64QAM	V	90	245		

Table 7-40. Ant2 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	H	299	237	1/31	17.14
		38497.44	Mid	V	QPSK	V	70	270	64/0	18.72
		38497.44	Mid	V	16QAM	V	70	270	1/63	17.12
		38497.44	Mid	V	64QAM	V	70	270	64/0	14.90
	MIMO	39966.24	Mid	H	QPSK	H	138	112	64/0	19.73
		39966.24	Mid	V	QPSK	V	90	244		
		39966.24	Mid	H	16QAM	H	138	112	1/0	18.39
		39966.24	Mid	V	16QAM	V	90	244		
		39966.24	Mid	H	64QAM	H	138	112	1/0	15.76
		39966.24	Mid	V	64QAM	V	90	244		

Table 7-41. Ant2 EIRP Data (Band n260 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	H	210	335	1/16	21.43
		37027.32	Low	V	QPSK	V	342	53	1/16	23.20
		38497.44	Mid	H	QPSK	H	206	336	1/16	21.08
		38497.44	Mid	V	QPSK	V	340	44	1/16	20.21
		39966.24	High	H	QPSK	H	208	348	1/16	19.49
		39966.24	High	V	QPSK	V	332	43	1/16	19.67
		38497.44	Mid	V	16QAM	V	340	44	1/16	19.94
		38497.44	Mid	V	64QAM	V	340	44	1/16	18.04
	MIMO	38497.44	Mid	H	QPSK	H	121	27	1/16	23.09
		38497.44	Mid	V	QPSK	H	174	319		
		38497.44	Mid	H	16QAM	H	121	27	1/16	21.60
		38497.44	Mid	V	16QAM	H	174	319		
		38497.44	Mid	H	64QAM	H	121	27	1/16	19.57
		38497.44	Mid	V	64QAM	H	174	319		

Table 7-42. Ant3 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	H	209	333	1/16	22.30
		38497.44	Mid	V	QPSK	V	331	44	1/31	21.65
		38497.44	Mid	H	16QAM	H	209	333	1/31	21.25
		38497.44	Mid	H	64QAM	H	209	333	1/31	18.50
	MIMO	39966.24	Mid	H	QPSK	H	119	25	1/0	20.92
		39966.24	Mid	V	QPSK	H	176	320		
		39966.24	Mid	H	16QAM	H	119	25	32/0	19.18
		39966.24	Mid	V	16QAM	H	176	320		
		39966.24	Mid	H	64QAM	H	119	25	1/0	16.65
		39966.24	Mid	V	64QAM	H	176	320		

Table 7-43. Ant3 EIRP Data (Band n260 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	H	212	338	1/31	21.88
		37027.32	Low	V	QPSK	V	344	53	1/31	23.40
		38497.44	Mid	H	QPSK	H	213	337	1/31	21.07
		38497.44	Mid	V	QPSK	V	343	50	1/31	20.31
		39966.24	High	H	QPSK	H	208	348	1/31	20.01
		39966.24	High	V	QPSK	V	334	43	1/31	20.01
		37027.32	Low	V	16QAM	V	344	53	1/31	21.80
		37027.32	Low	V	64QAM	V	344	53	1/31	19.75
	MIMO	38497.44	Mid	H	QPSK	H	120	29	1/31	23.12
		38497.44	Mid	V	QPSK	H	176	322		
		38497.44	Mid	H	16QAM	H	120	29	1/31	21.76
		38497.44	Mid	V	16QAM	H	176	322		
		38497.44	Mid	H	64QAM	H	120	29	1/31	19.69
		38497.44	Mid	V	64QAM	H	176	322		

Table 7-44. Ant3 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	H	210	342	1/31	22.66
		38497.44	Mid	V	QPSK	V	338	48	1/31	22.18
		38497.44	Mid	H	16QAM	H	210	342	1/31	21.30
		38497.44	Mid	H	64QAM	H	210	342	1/31	19.61
	MIMO	39966.24	Mid	H	QPSK	H	121	27	64/0	20.96
		39966.24	Mid	V	QPSK	H	174	317		
		39966.24	Mid	H	16QAM	H	121	27	1/0	19.46
		39966.24	Mid	V	16QAM	H	174	317		
		39966.24	Mid	H	64QAM	H	121	27	1/0	16.92
		39966.24	Mid	V	64QAM	H	174	317		

Table 7-45. Ant3 EIRP Data (Band n260 - 100MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	V	346	299	1/16	23.64
		37027.32	Low	V	QPSK	H	338	317	1/16	22.46
		38497.44	Mid	H	QPSK	V	337	307	1/16	22.64
		38497.44	Mid	V	QPSK	H	331	317	1/16	20.16
		39966.24	High	H	QPSK	V	349	302	1/16	19.72
		39966.24	High	V	QPSK	H	327	339	1/16	17.99
		38497.44	Mid	H	16QAM	V	337	307	1/16	21.57
		37027.32	Low	H	64QAM	V	346	299	1/16	19.26
	MIMO	38497.44	Mid	H	QPSK	V	173	315	1/16	22.74
		38497.44	Mid	V	QPSK	H	168	320		
		38497.44	Mid	H	16QAM	V	173	315	1/16	21.40
		38497.44	Mid	V	16QAM	H	168	320		
		38497.44	Mid	H	64QAM	V	173	315	1/16	19.92
		38497.44	Mid	V	64QAM	H	168	320		

Table 7-46. Ant4 EIRP Data (Band n260 - 50MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	V	335	322	1/31	22.31
		38497.44	Mid	V	QPSK	H	333	313	1/31	21.15
		38497.44	Mid	H	16QAM	V	335	322	1/31	21.17
		38497.44	Mid	H	64QAM	V	335	322	1/31	18.44
	MIMO	39966.24	Mid	H	QPSK	V	175	312	1/0	20.66
		39966.24	Mid	V	QPSK	H	166	320		
		39966.24	Mid	H	16QAM	V	175	312	32/0	18.98
		39966.24	Mid	V	16QAM	H	166	320		
		39966.24	Mid	H	64QAM	V	175	312	1/0	16.28
		39966.24	Mid	V	64QAM	H	166	320		

Table 7-47. Ant4 EIRP Data (Band n260 - 50MHz-2CC)

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CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
1	SISO	37027.32	Low	H	QPSK	V	337	301	1/31	22.02
		37027.32	Low	V	QPSK	H	337	314	1/31	22.19
		38497.44	Mid	H	QPSK	V	337	301	1/31	22.04
		38497.44	Mid	V	QPSK	H	330	308	1/31	20.71
		39966.24	High	H	QPSK	V	326	332	1/31	17.96
		39966.24	High	V	QPSK	H	324	652	1/31	18.24
		38497.44	Mid	H	16QAM	V	337	301	1/31	20.58
		37027.32	Low	H	64QAM	V	337	301	1/31	17.92
	MIMO	38497.44	Mid	H	QPSK	V	170	315	1/31	22.49
		38497.44	Mid	V	QPSK	H	166	317		
		38497.44	Mid	H	16QAM	V	170	315	1/31	21.26
		38497.44	Mid	V	16QAM	H	166	317		
		38497.44	Mid	H	64QAM	V	170	315	1/31	19.61
		38497.44	Mid	V	64QAM	H	166	317		

Table 7-48. Ant4 EIRP Data (Band n260 - 100MHz-1CC)

CCs active	Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
2	SISO	38497.44	Mid	H	QPSK	V	331	317	1/31	22.28
		38497.44	Mid	V	QPSK	H	328	315	64/0	21.50
		38497.44	Mid	H	16QAM	V	331	317	1/31	21.39
		38497.44	Mid	H	64QAM	V	331	317	1/31	19.02
	MIMO	39966.24	Mid	H	QPSK	V	170	315	1/0	21.14
		39966.24	Mid	V	QPSK	H	165	316		
		39966.24	Mid	H	16QAM	V	170	315	1/0	19.37
		39966.24	Mid	V	16QAM	H	165	316		
		39966.24	Mid	H	64QAM	V	170	315	1/0	16.82
		39966.24	Mid	V	64QAM	H	165	316		

Table 7-49. Ant4 EIRP Data (Band n260 - 100MHz-2CC)

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7.4 Radiated Spurious and Harmonic Emissions
§2.1051, §30.203

Test Overview

The spectrum is scanned from 30MHz to 100GHz for n261 and from 30MHz to 200GHz for n260. All out of band emissions are measured in a radiated test setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations 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.

The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

Test Procedure Used

ANSI C63.26-2015 Section 5.7.4
KDB 842590 D01 v01 Section 4.4.2 and Section 4.4.3

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
2. Detector = RMS
3. Trace mode = trace average
4. Sweep time = auto couple
5. Number of sweep points ≥ 2 x Span/RBW
6. The trace was allowed to stabilize
7. RBW = 1MHz, VBW = 3MHz

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) All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits.

3) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

4) The plots from 1-200GHz show corrected average EIRP levels. Plots below 1GHz are corrected field strength levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBμV/m) = Spectrum Analyzer Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + Harmonic Mixer Conversion Loss (dB) + 107. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements > 40GHz, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.

5) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: R > 2D^2/wavelength, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

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Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 7-50. Far-Field Distance & Measurement Distance per Frequency Range

6) All emissions from 30MHz - 40GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >40GHz were measured using a harmonic mixer with the spectrum analyzer.

7) All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.

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

9) All RSE's were investigated in EN-DC mode and with 802.11 chipset active. It was determined that there is no new emission introduced by EN-DC mode, or the 802.11 chipset. For EN-DC mode, n261 uses LTE B13, B5, B4, B66 and B2, and n260 uses LTE B12, B13, B5, B4, B66, B2 and B30.

10) There was no discernible difference in the spurious emission levels when using different LTE anchor bands. Thus, LTE Band 2 was used as a representative anchor band for EN-DC investigations.

11) For the n261 band spurious emission measurements, the spectrum directly below the fundamental frequency is investigated from 18 - 27.375GHz and the spectrum directly above the fundamental frequency is investigated from 28.475 - 40GHz. The portion of spectrum from 27.375 – 27.5GHz and 28.35 - 28.475GHz is shown Section 7.5 which covers band edge emissions.

12) For the n260 band spurious emission measurements, the spectrum directly below the fundamental frequency is investigated from 18 - 36.85GHz and the spectrum directly above the fundamental frequency is investigated from 40.15 - 60GHz. The portion of spectrum from 36.85 - 40GHz and 40 - 40.15GHz is shown Section 7.5 which covers band edge emissions.

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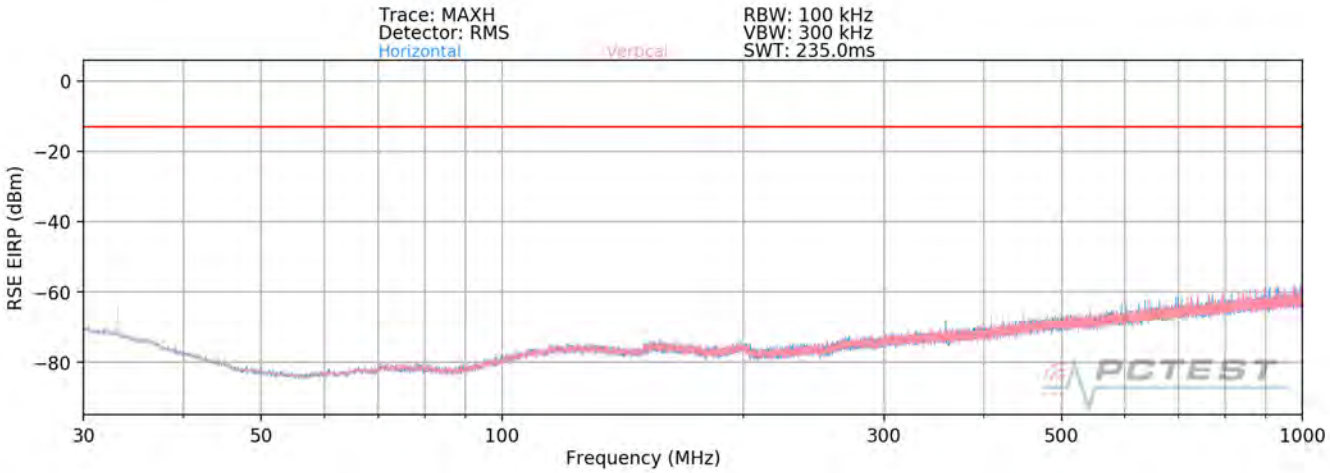
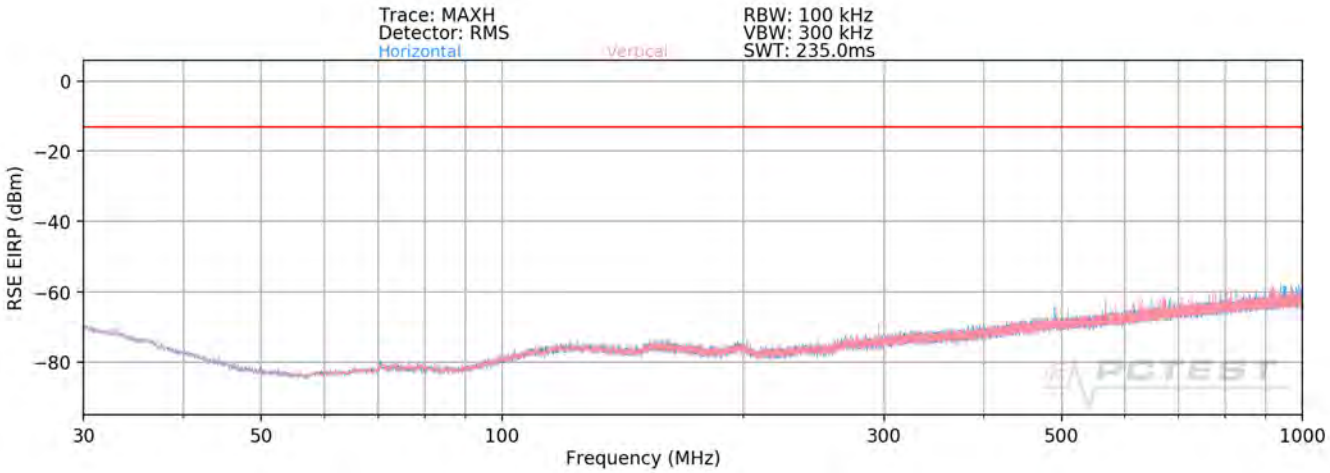
Band n261 – Ant1
30MHz - 1GHz



Plot 7-97. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-98. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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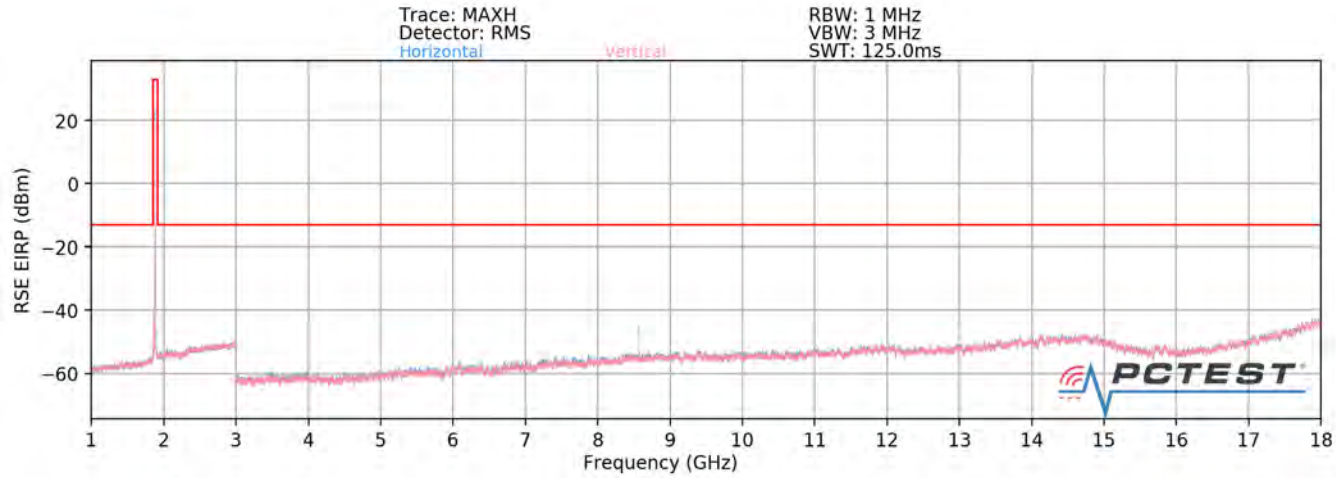
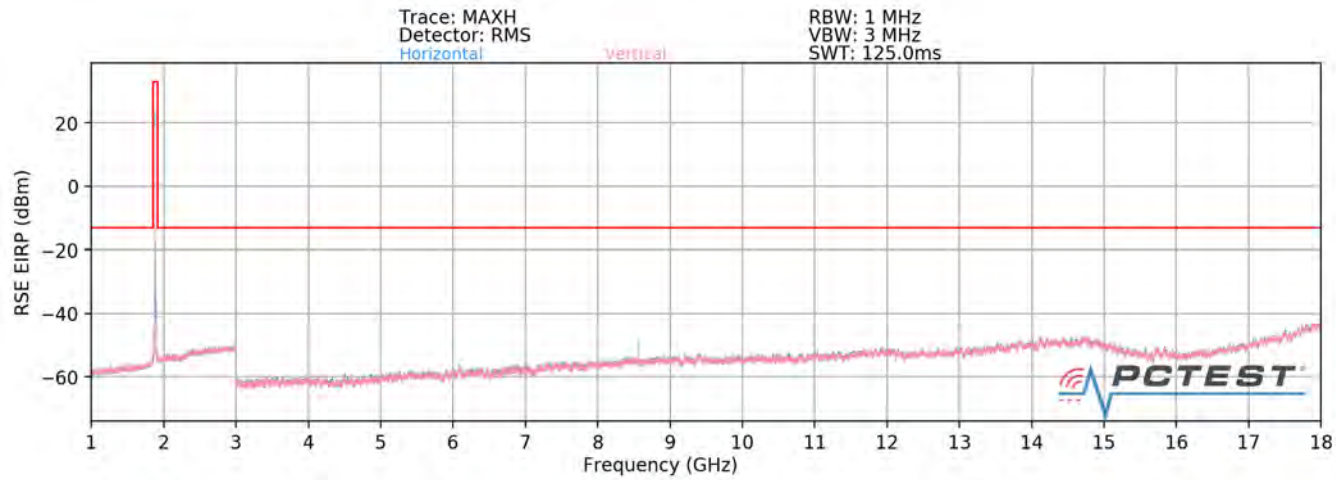
1GHz - 18GHz



Plot 7-99. Ant1-n261 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-100. Ant1-n261 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	H	136	63	-45.42	-13.00	-32.42
8821.85	Low	50	V	QPSK	H	133	27	-51.15	-13.00	-38.15
8569.16	Mid	50	H	QPSK	H	111	28	-44.32	-13.00	-31.32
8569.16	Mid	50	V	QPSK	H	253	37	-50.66	-13.00	-37.66
8966.56	High	50	H	QPSK	H	115	72	-44.51	-13.00	-31.51
8966.56	High	50	V	QPSK	H	192	69	-51.49	-13.00	-38.49

Table 7-51. Ant1 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-44.39	-13.00	-31.39
Mid	50	QPSK	-43.41	-13.00	-30.41
High	50	QPSK	-43.72	-13.00	-30.72

Table 7-52. Ant1 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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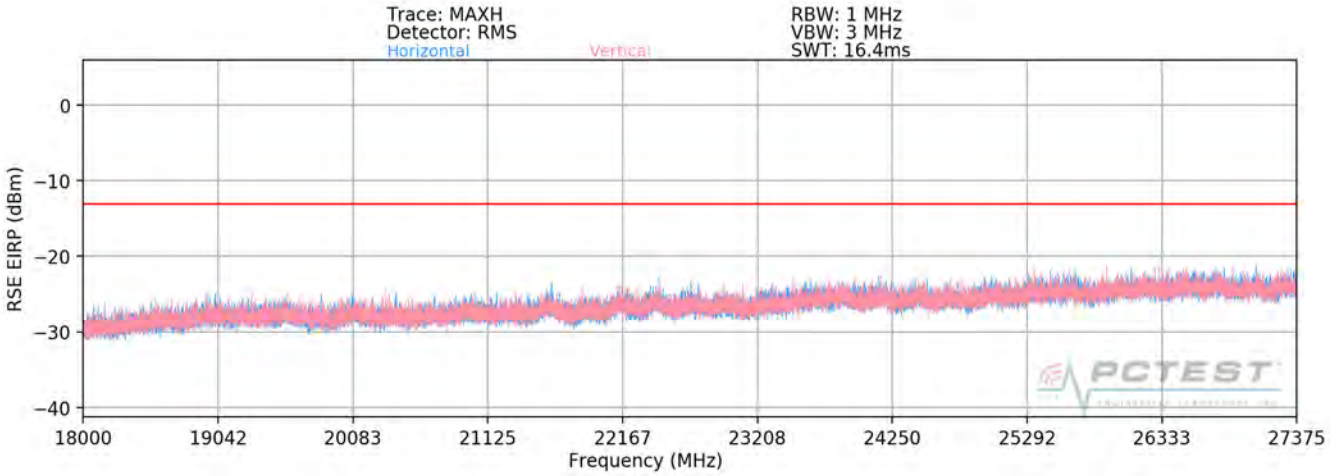
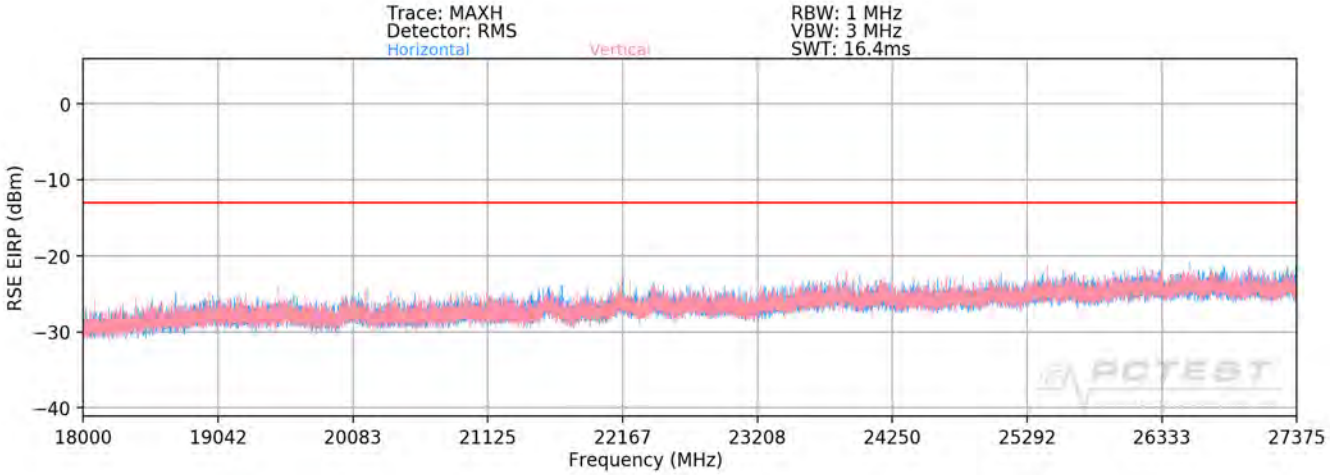
18GHz - 27.375GHz



Plot 7-101. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-102. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27228.30	Low	50	H	QPSK	H	228	206	-29.75	-13.00	-16.75
27381.27	Low	50	V	QPSK	V	330	232	-30.41	-13.00	-17.41
26481.75	Mid	50	H	QPSK	H	-	-	-36.19	-13.00	-23.19
27385.04	Mid	50	V	QPSK	V	326	237	-33.56	-13.00	-20.56
26460.63	High	50	H	QPSK	H	233	169	-35.76	-13.00	-22.76
26468.08	High	50	V	QPSK	V	310	234	-35.60	-13.00	-22.60

Table 7-53. Ant1 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-27.06	-13.00	-14.06
Mid	50	QPSK	-31.67	-13.00	-18.67
High	50	QPSK	-32.67	-13.00	-19.67

Table 7-54. Ant1 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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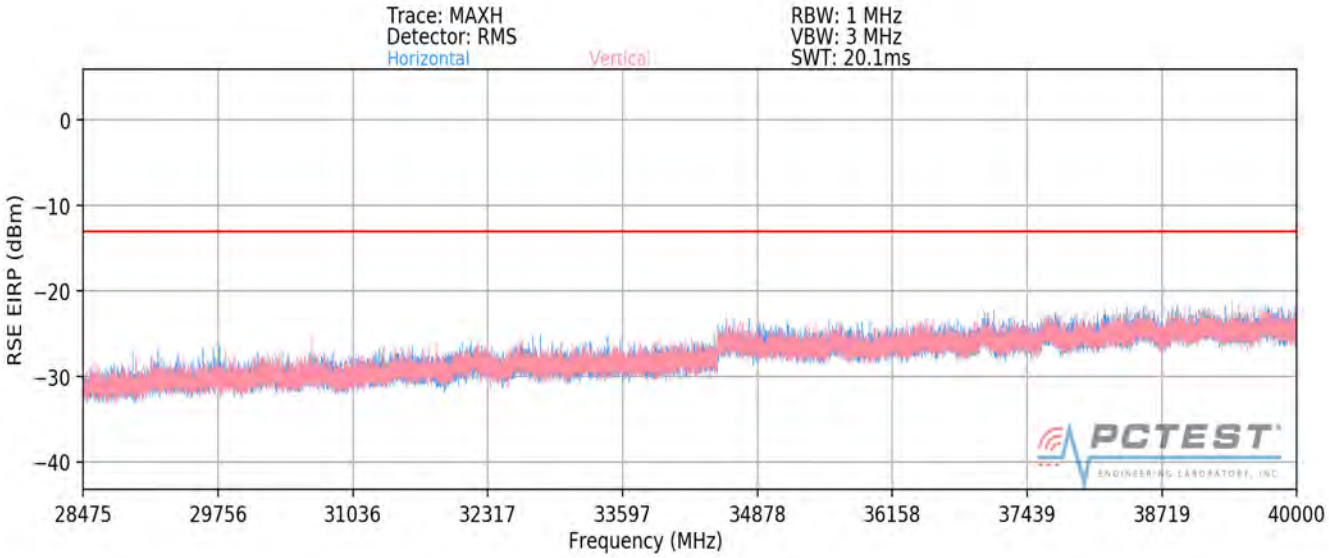
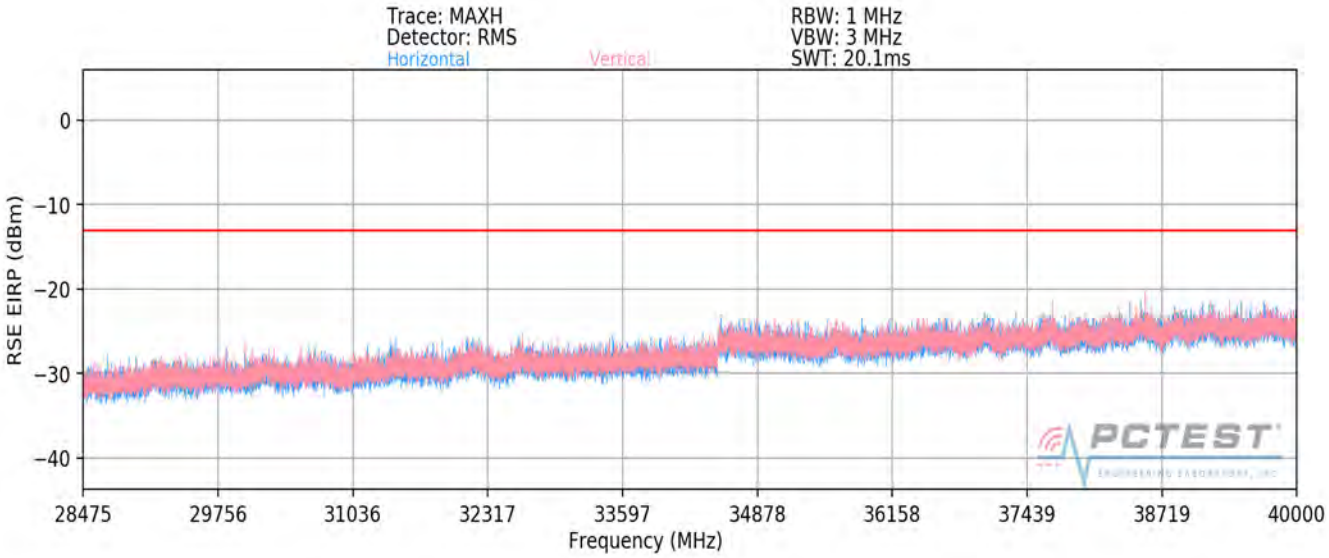
28.475GHz - 40GHz



Plot 7-103. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-104. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28604.99	Low	50	H	QPSK	H	253	223	-35.42	-13.00	-22.42
28604.53	Low	50	V	QPSK	V	319	276	-35.02	-13.00	-22.02
28536.58	Mid	50	H	QPSK	H	237	200	-33.95	-13.00	-20.95
28459.96	Mid	50	V	QPSK	V	341	278	-32.42	-13.00	-19.42
28473.27	High	50	H	QPSK	H	233	206	-29.74	-13.00	-16.74
28473.27	High	50	V	QPSK	V	337	247	-31.46	-13.00	-18.46

Table 7-55. Ant1 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-32.21	-13.00	-19.21
Mid	50	QPSK	-30.11	-13.00	-17.11
High	50	QPSK	-27.50	-13.00	-14.50

Table 7-56. Ant1 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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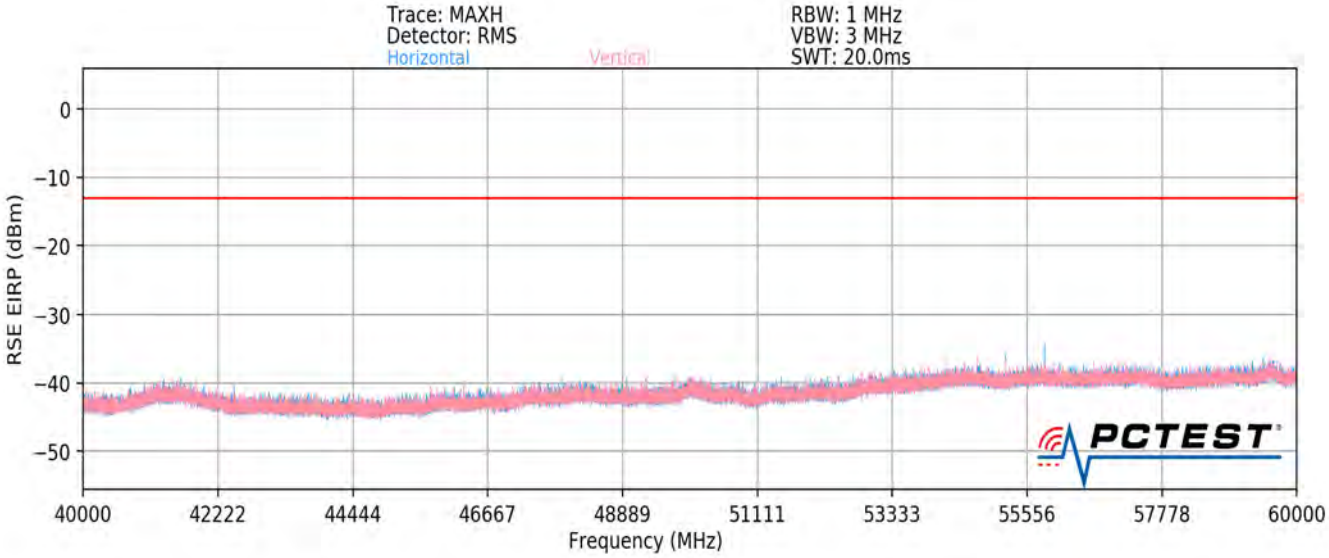
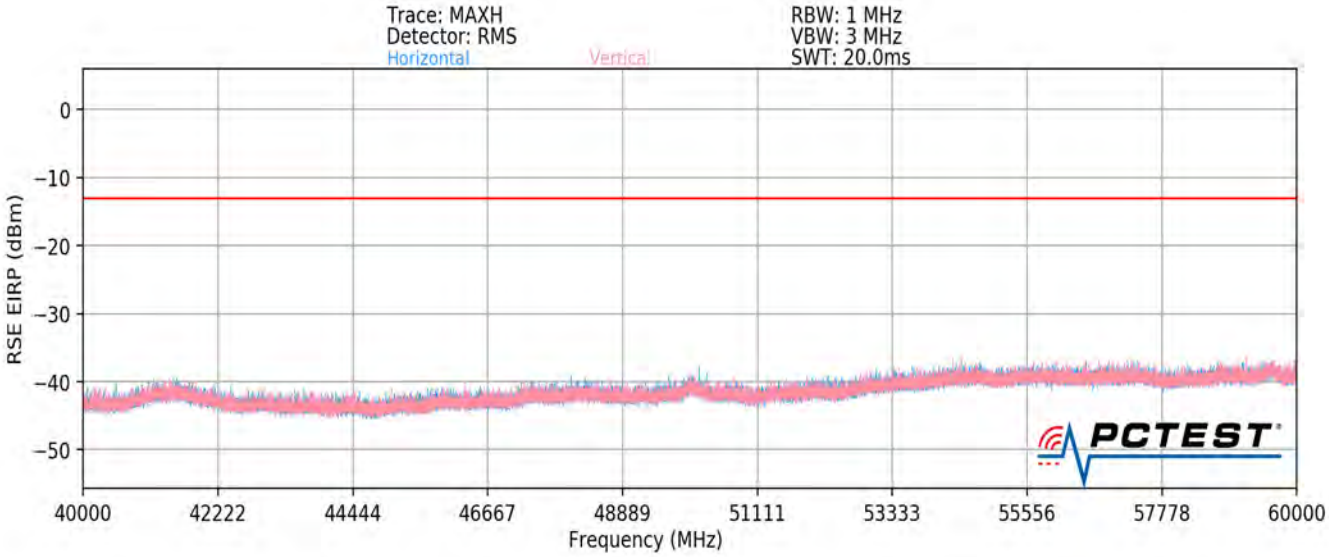
40GHz - 60GHz



Plot 7-105. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-106. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55070.64	Low	50	H	QPSK	V	303	90	-39.66	-13.00	-26.66
55070.49	Low	50	V	QPSK	H	87	246	-41.39	-13.00	-28.39
55844.82	Mid	50	H	QPSK	V	320	83	-43.09	-13.00	-30.09
55844.67	Mid	50	V	QPSK	H	25	349	-43.03	-13.00	-30.03
56639.79	High	50	H	QPSK	V	320	79	-43.48	-13.00	-30.48
56640.06	High	50	V	QPSK	H	348	356	-43.84	-13.00	-30.84

Table 7-57. Ant1 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-37.42	-13.00	-24.42
Mid	50	QPSK	-40.05	-13.00	-27.05
High	50	QPSK	-40.65	-13.00	-27.65

Table 7-58. Ant1 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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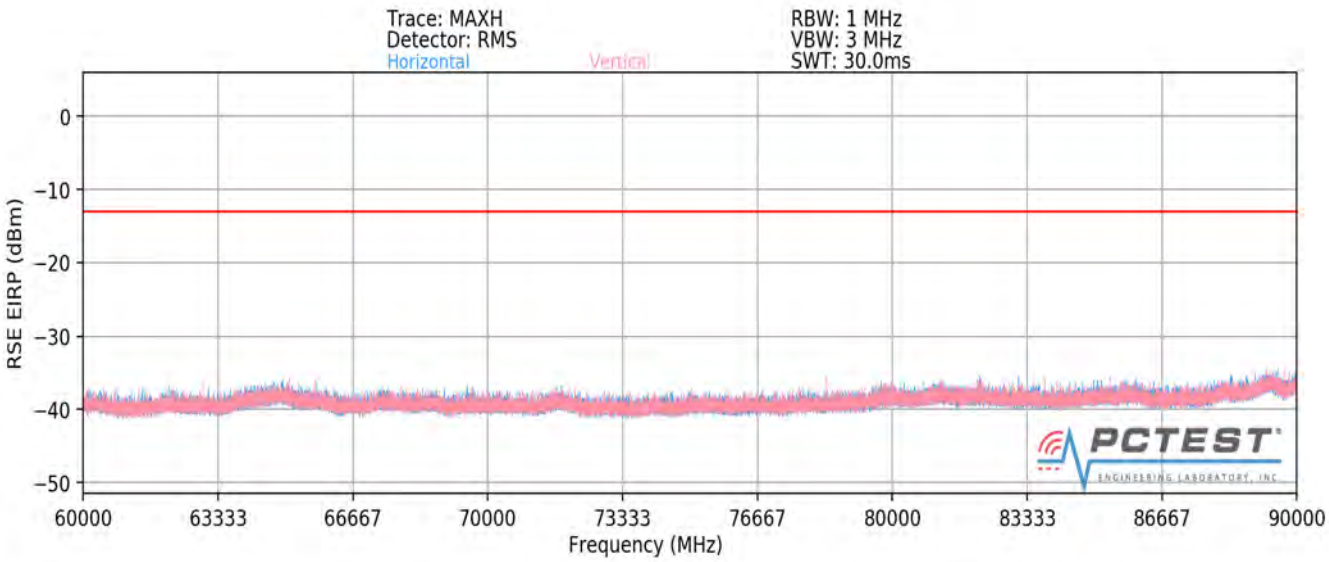
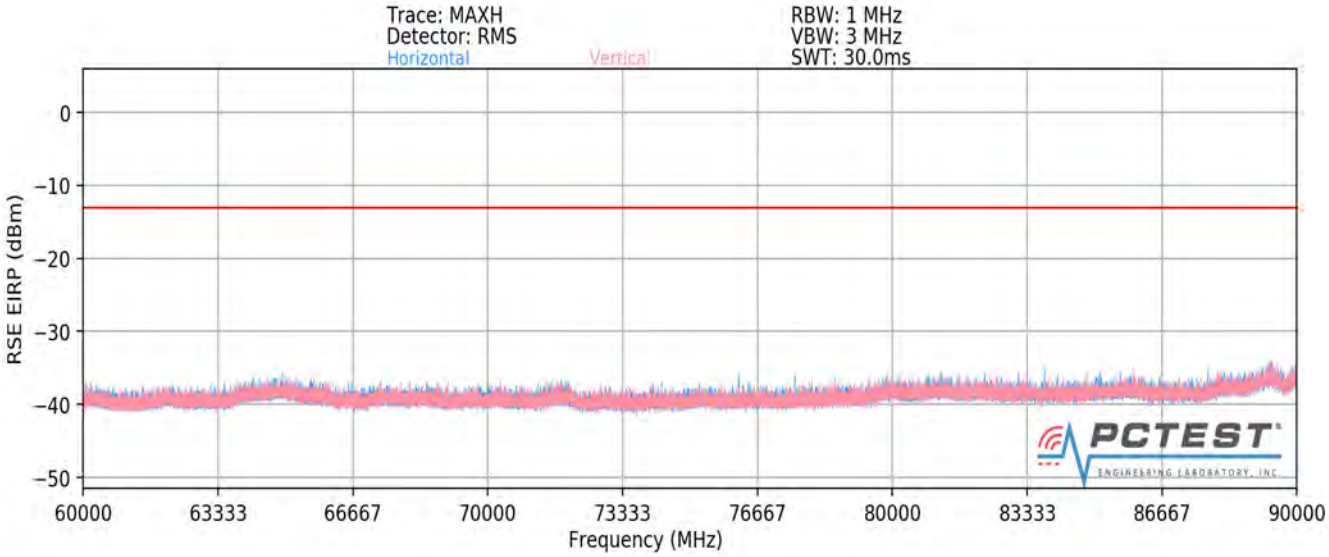
60GHz - 90GHz



Plot 7-107. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-108. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82606.12	Low	50	H	QPSK	H	44	283	-41.56	-13.00	-28.56
82607.12	Low	50	V	QPSK	V	128	261	-40.87	-13.00	-27.87
83767.34	Mid	50	H	QPSK	H	32	208	-46.30	-13.00	-33.30
83766.84	Mid	50	V	QPSK	V	59	260	-44.37	-13.00	-31.37
84960.34	High	50	H	QPSK	H	83	213	-42.27	-13.00	-29.27
84961.15	High	50	V	QPSK	V	309	73	-49.69	-13.00	-36.69

Table 7-59. Ant1 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-38.19	-13.00	-25.19
Mid	50	QPSK	-42.22	-13.00	-29.22
High	50	QPSK	-41.55	-13.00	-28.55

Table 7-60. Ant1 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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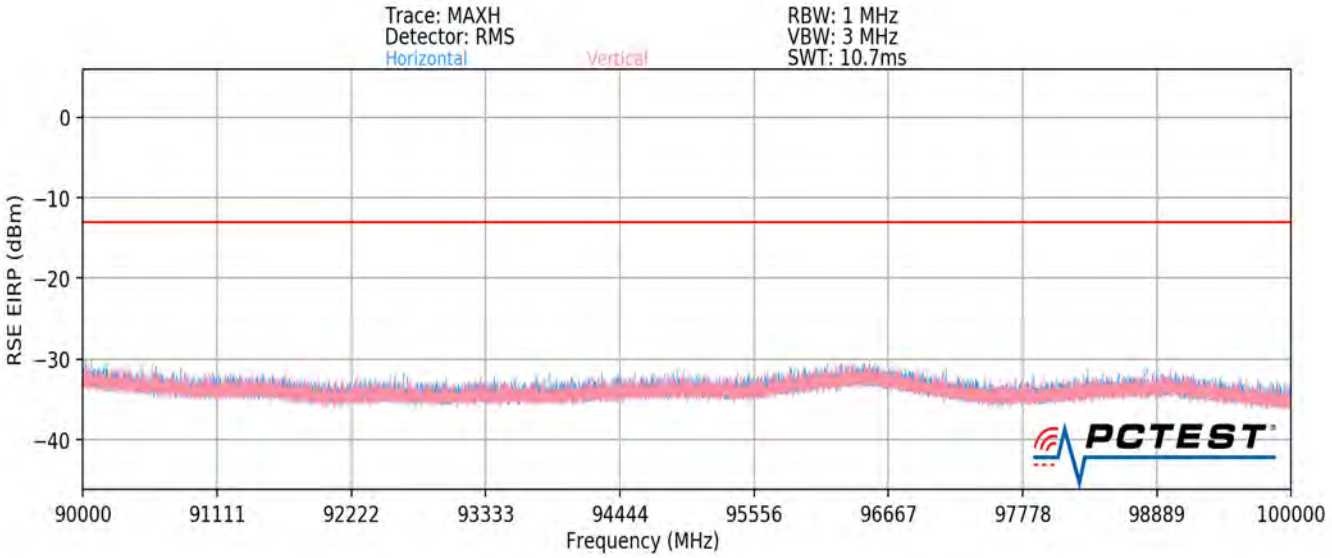
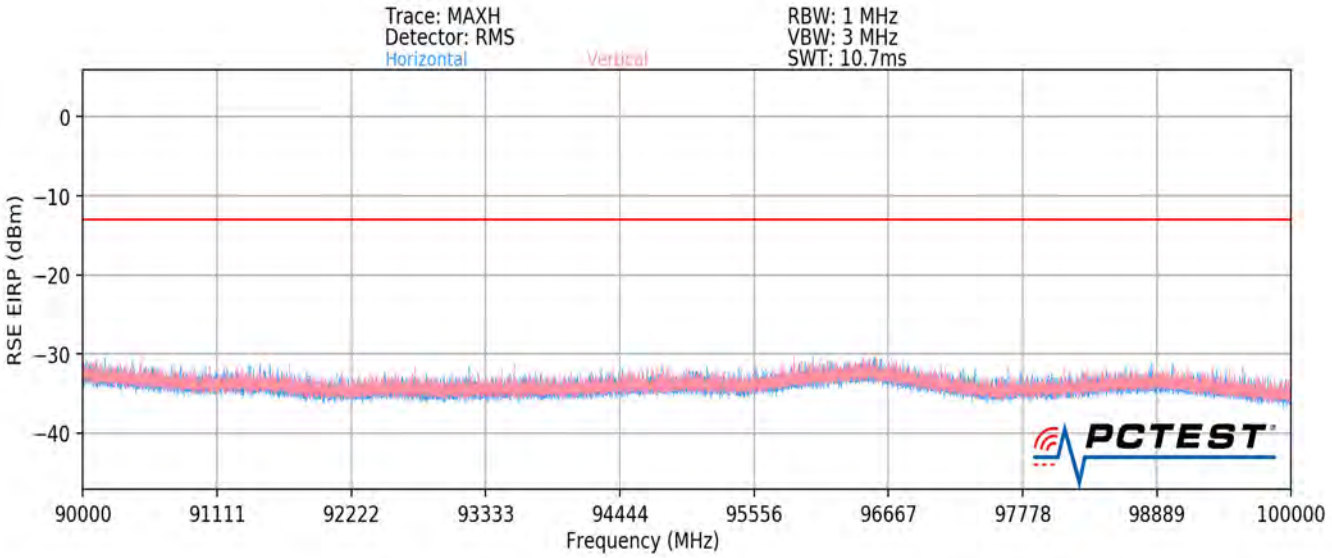
90GHz - 100GHz



Plot 7-109. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-110. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96494.00	Low	50	H	QPSK	H	-	-	-39.94	-13.00	-26.94
96516.50	Low	50	V	QPSK	V	-	-	-40.12	-13.00	-27.12
96454.50	Mid	50	H	QPSK	H	-	-	-39.89	-13.00	-26.89
96453.00	Mid	50	V	QPSK	V	-	-	-39.82	-13.00	-26.82
96451.50	High	50	H	QPSK	H	-	-	-40.16	-13.00	-27.16
96373.50	High	50	V	QPSK	V	-	-	-40.09	-13.00	-27.09

Table 7-61. Ant1 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-37.02	-13.00	-24.02
Mid	50	QPSK	-36.84	-13.00	-23.84
High	50	QPSK	-37.11	-13.00	-24.11

Table 7-62. Ant1 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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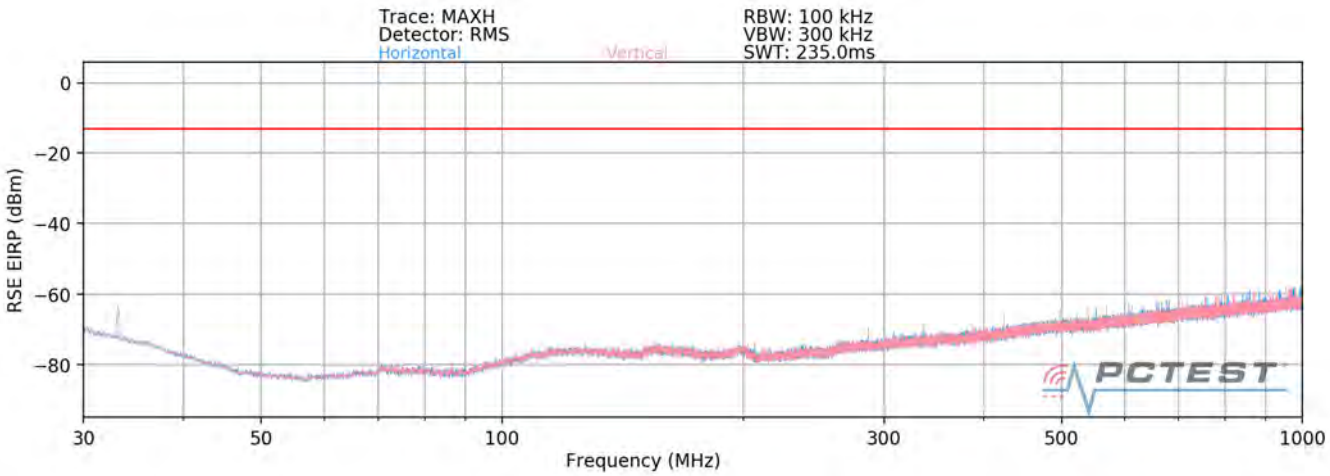
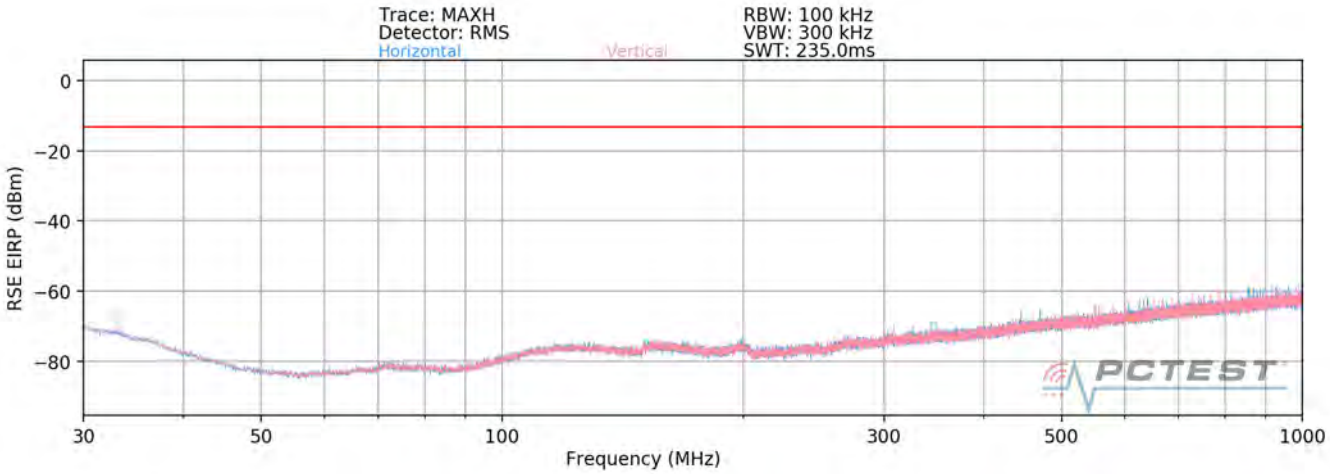
Band n261 – Ant2
30MHz - 1GHz



Plot 7-111. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-112. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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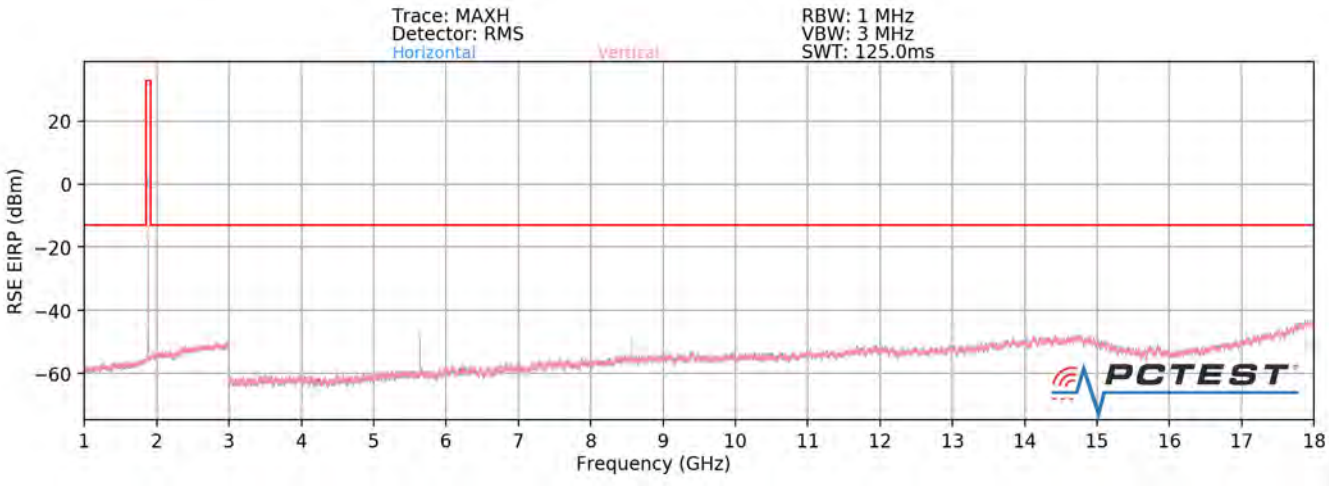
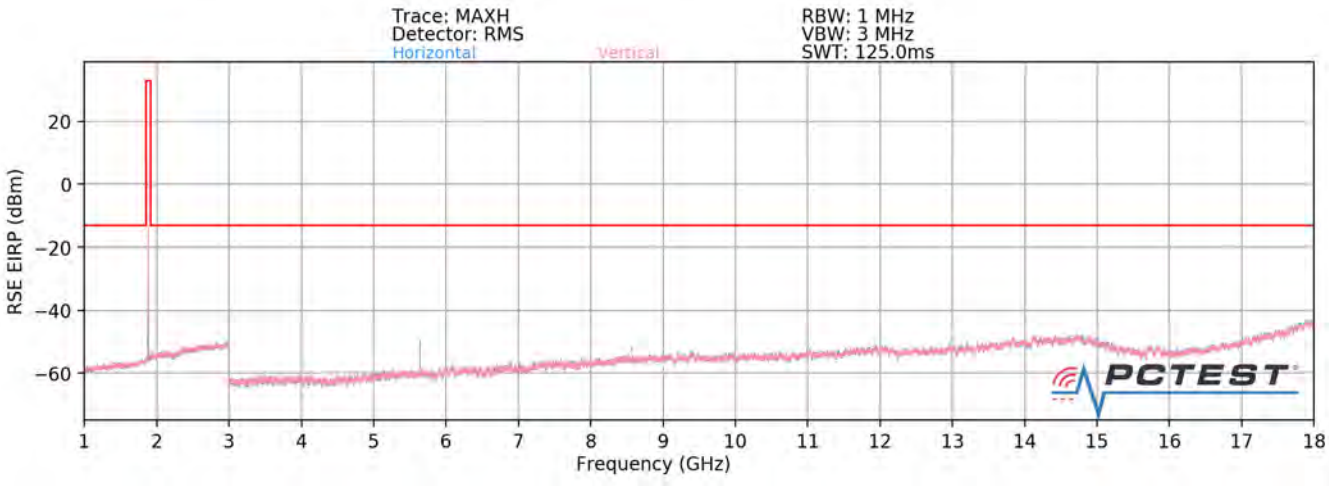
1GHz - 18GHz



Plot 7-113. Ant2-n261 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-114. Ant2-n261 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	H	139	67	-45.45	-13.00	-32.45
8821.85	Low	50	V	QPSK	H	132	26	-50.88	-13.00	-37.88
8569.16	Mid	50	H	QPSK	H	112	28	-43.76	-13.00	-30.76
8569.16	Mid	50	V	QPSK	H	140	36	-50.58	-13.00	-37.58
8966.56	High	50	H	QPSK	H	129	64	-44.34	-13.00	-31.34
8966.56	High	50	V	QPSK	H	121	69	-52.15	-13.00	-39.15

Table 7-63. Ant2 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-44.36	-13.00	-31.36
Mid	50	QPSK	-42.94	-13.00	-29.94
High	50	QPSK	-43.67	-13.00	-30.67

Table 7-64. Ant2 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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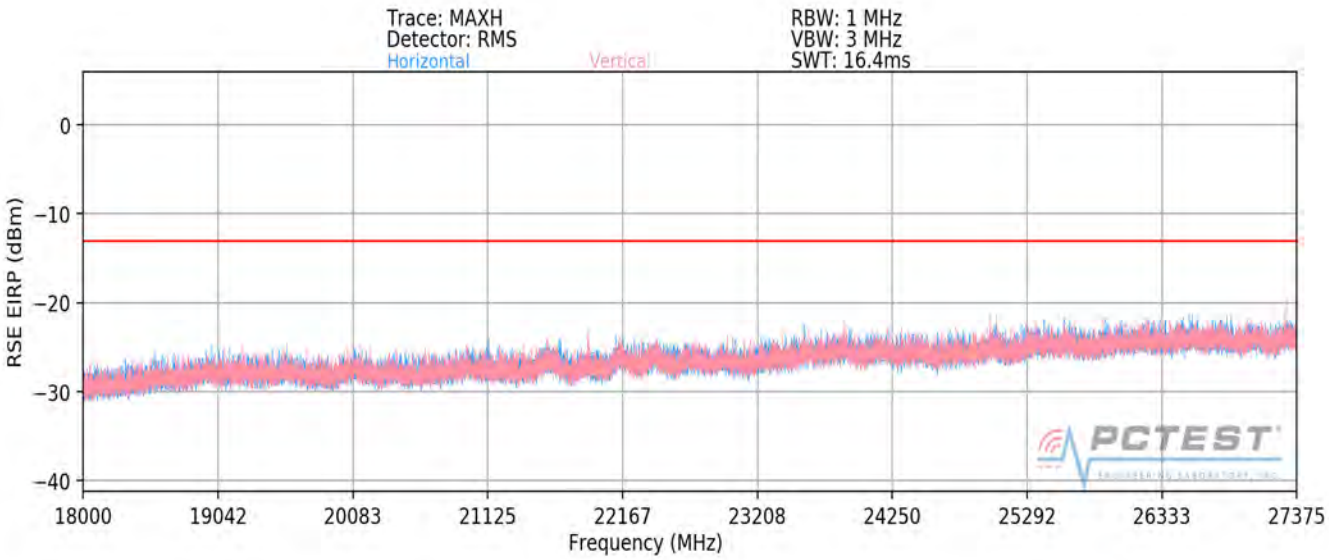
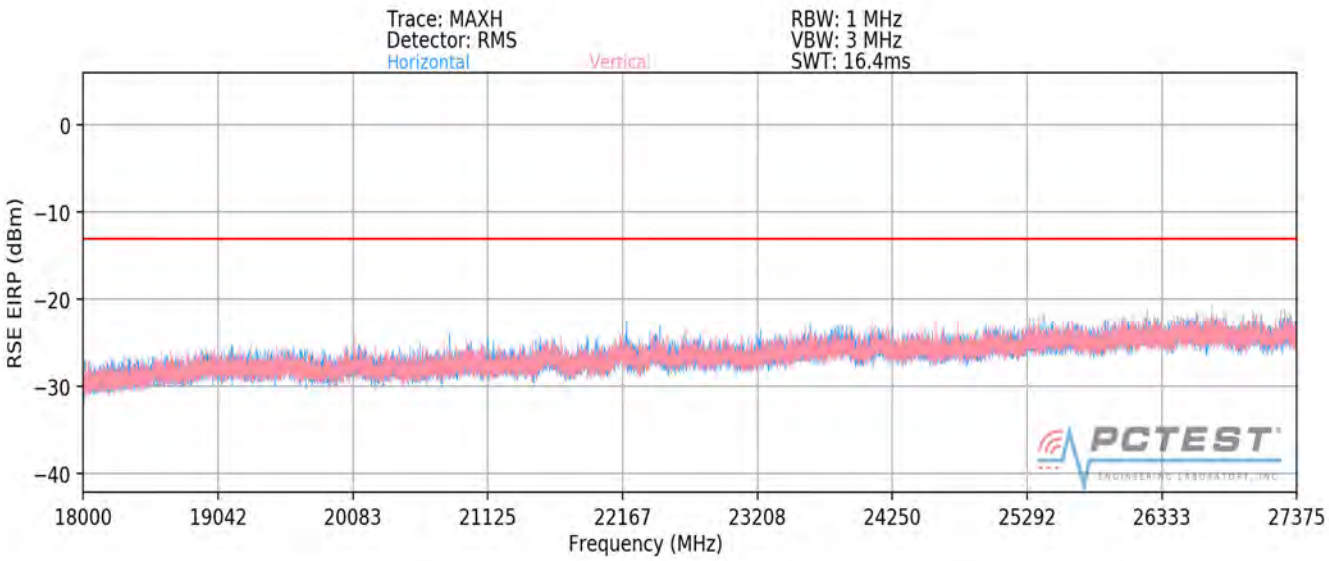
18GHz - 27.375GHz



Plot 7-115. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-116. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27228.68	Low	50	H	QPSK	V	100	258	-27.57	-13.00	-14.57
27381.83	Low	50	V	QPSK	V	96	317	-28.80	-13.00	-15.80
27384.66	Mid	50	H	QPSK	V	100	264	-34.39	-13.00	-21.39
27384.94	Mid	50	V	QPSK	V	96	315	-32.57	-13.00	-19.57
27245.17	High	50	H	QPSK	V	99	257	-35.66	-13.00	-22.66
27321.51	High	50	V	QPSK	V	99	312	-35.38	-13.00	-22.38

Table 7-65. Ant2 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-25.13	-13.00	-12.13
Mid	50	QPSK	-30.37	-13.00	-17.37
High	50	QPSK	-32.51	-13.00	-19.51

Table 7-66. Ant2 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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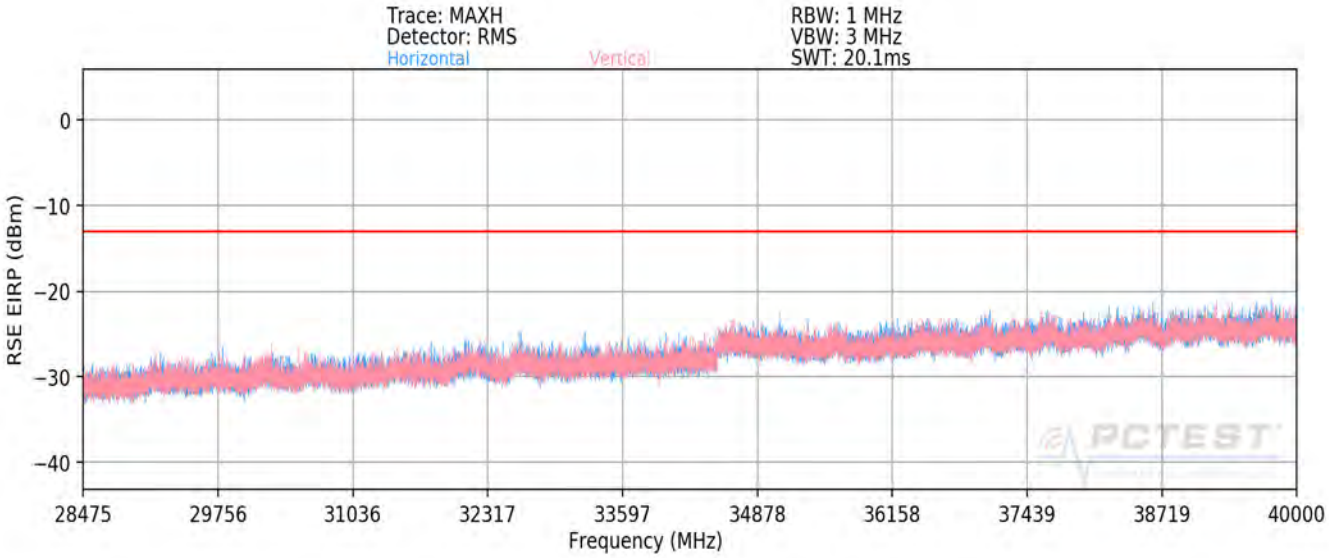
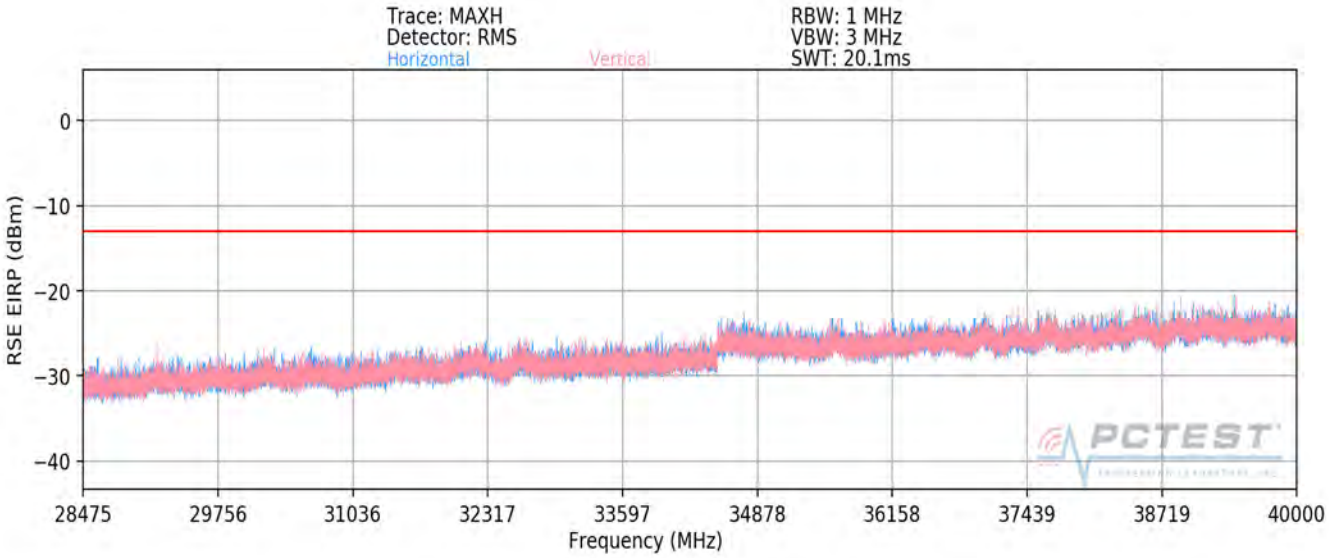
28.475GHz - 40GHz



Plot 7-117. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-118. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28604.64	Low	50	H	QPSK	V	93	258	-23.15	-13.00	-10.15
28605.34	Low	50	V	QPSK	V	106	287	-23.76	-13.00	-10.76
30138.22	Mid	50	H	QPSK	V	94	256	-28.43	-13.00	-15.43
30137.75	Mid	50	V	QPSK	V	91	276	-29.99	-13.00	-16.99
29740.50	High	50	H	QPSK	V	93	257	-23.76	-13.00	-10.76
29740.50	High	50	V	QPSK	V	93	289	-28.21	-13.00	-15.21

Table 7-67. Ant2 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-20.43	-13.00	-7.43
Mid	50	QPSK	-26.13	-13.00	-13.13
High	50	QPSK	-22.43	-13.00	-9.43

Table 7-68. Ant2 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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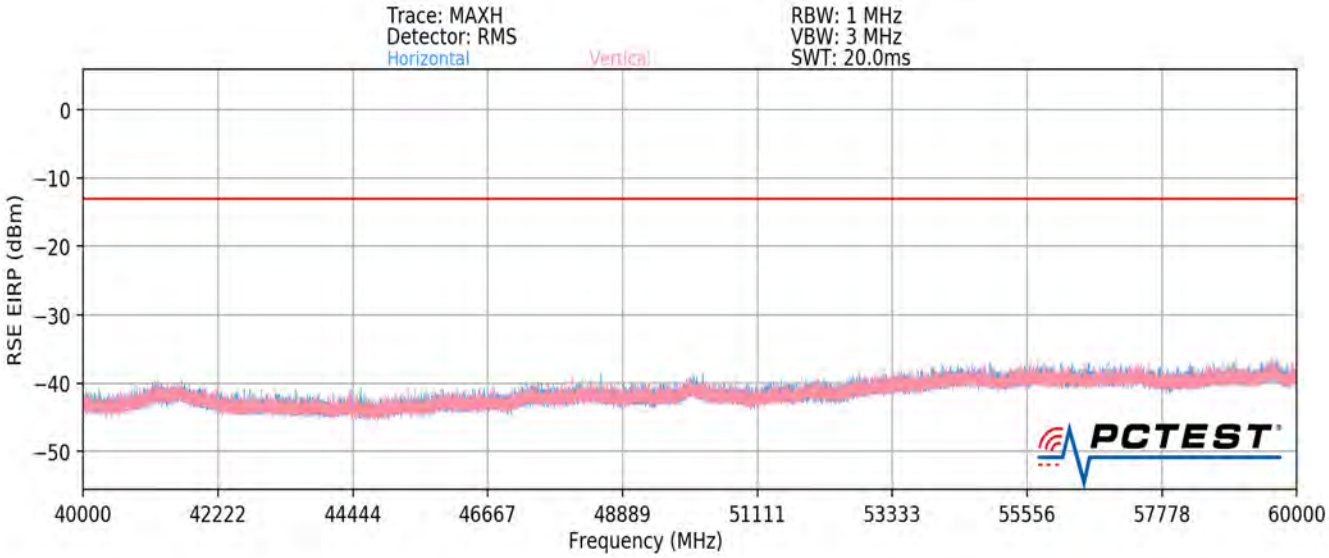
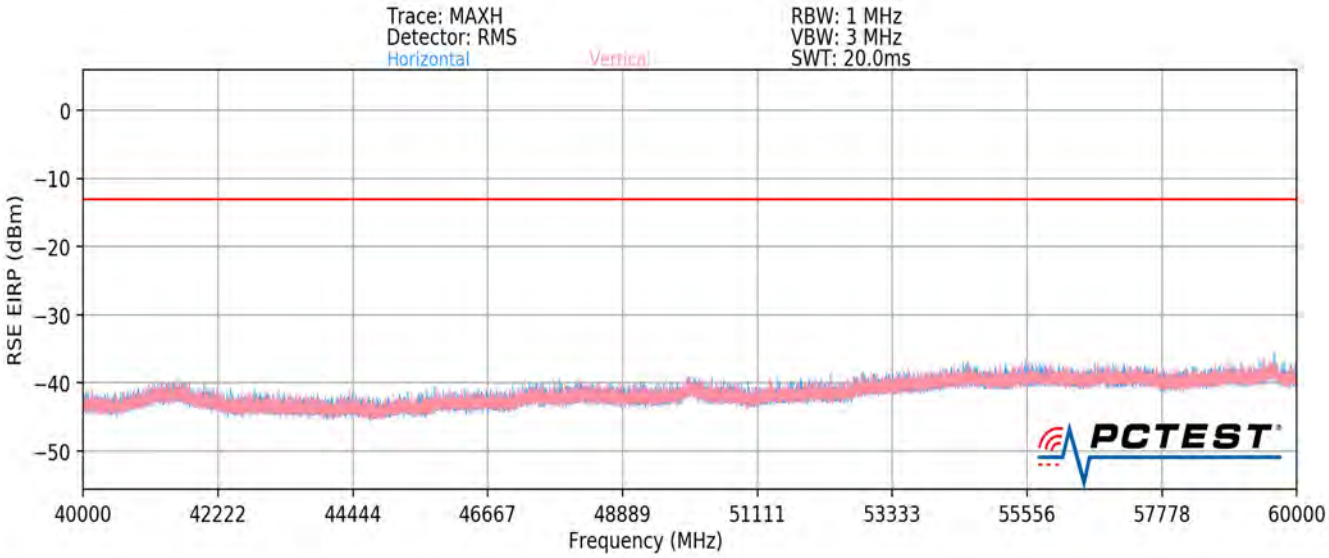
40GHz - 60GHz



Plot 7-119. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-120. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55070.73	Low	50	H	QPSK	H	75	348	-40.15	-13.00	-27.15
55067.46	Low	50	V	QPSK	V	-	-	-46.47	-13.00	-33.47
55845.00	Mid	50	H	QPSK	H	68	340	-39.41	-13.00	-26.41
55845.06	Mid	50	V	QPSK	V	302	99	-42.94	-13.00	-29.94
56640.12	High	50	H	QPSK	H	71	341	-39.22	-13.00	-26.22
56650.95	High	50	V	QPSK	V	225	76	-45.06	-13.00	-32.06

Table 7-69. Ant2 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-39.24	-13.00	-26.24
Mid	50	QPSK	-37.82	-13.00	-24.82
High	50	QPSK	-38.21	-13.00	-25.21

Table 7-70. Ant2 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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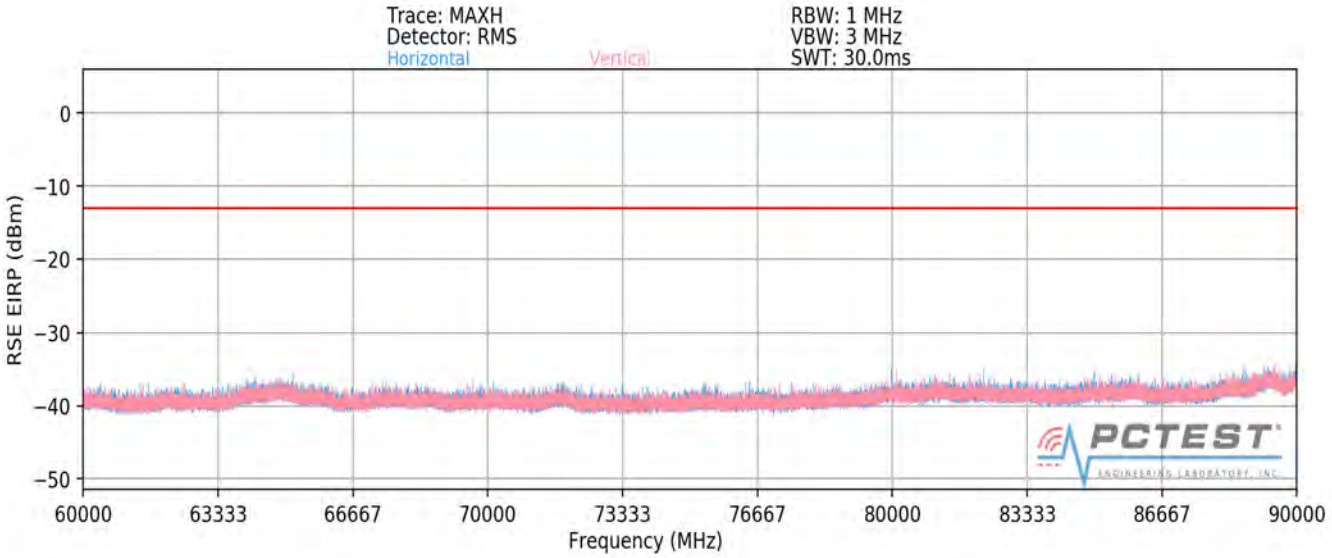
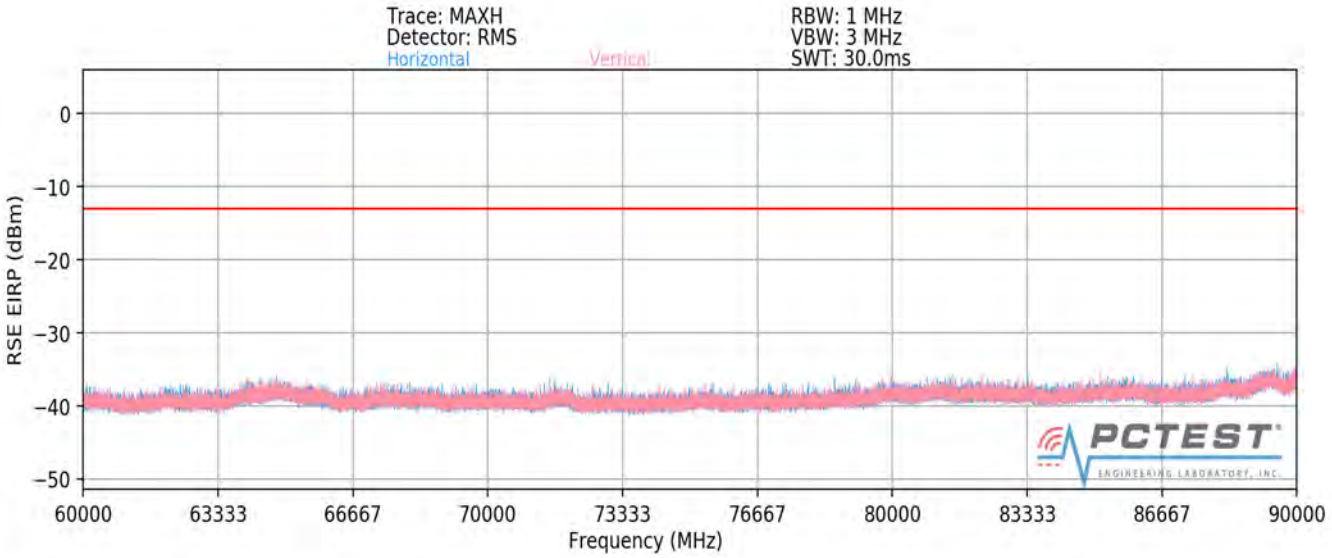
60GHz - 90GHz



Plot 7-121. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-122. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82607.11	Low	50	H	QPSK	V	335	212	-44.42	-13.00	-31.42
82606.45	Low	50	V	QPSK	H	282	110	-44.39	-13.00	-31.39
83767.55	Mid	50	H	QPSK	V	78	281	-42.66	-13.00	-29.66
83766.15	Mid	50	V	QPSK	H	23	14	-43.55	-13.00	-30.55
84961.07	High	50	H	QPSK	V	187	111	-44.03	-13.00	-31.03
84961.54	High	50	V	QPSK	H	35	260	-43.53	-13.00	-30.53

Table 7-71. Ant2 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-41.40	-13.00	-28.40
Mid	50	QPSK	-40.07	-13.00	-27.07
High	50	QPSK	-40.76	-13.00	-27.76

Table 7-72. Ant2 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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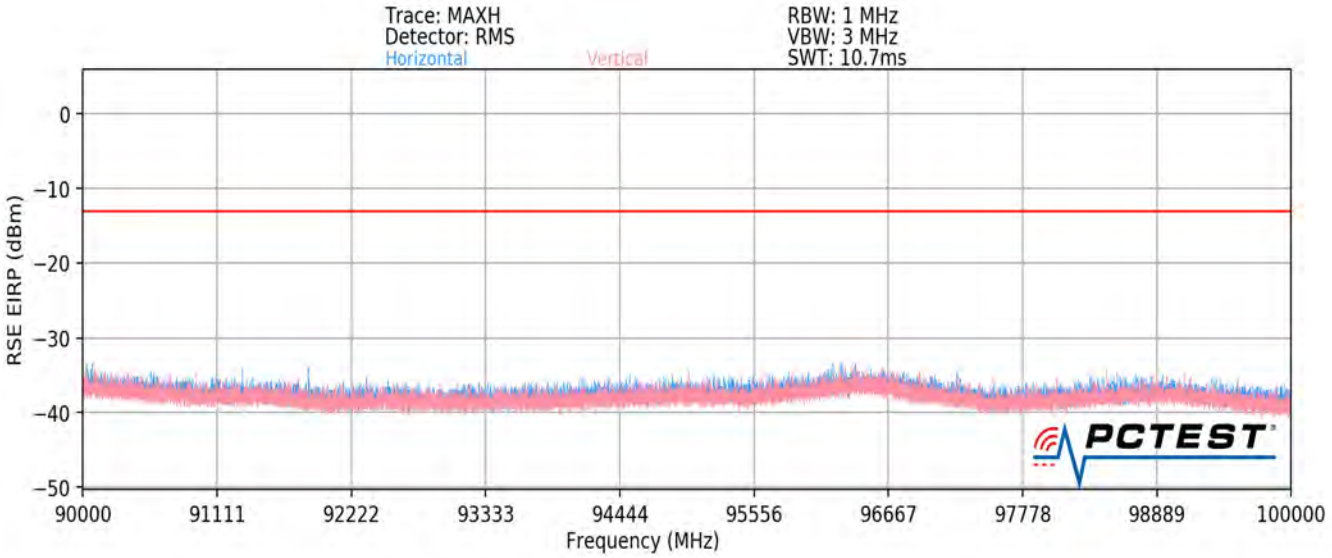
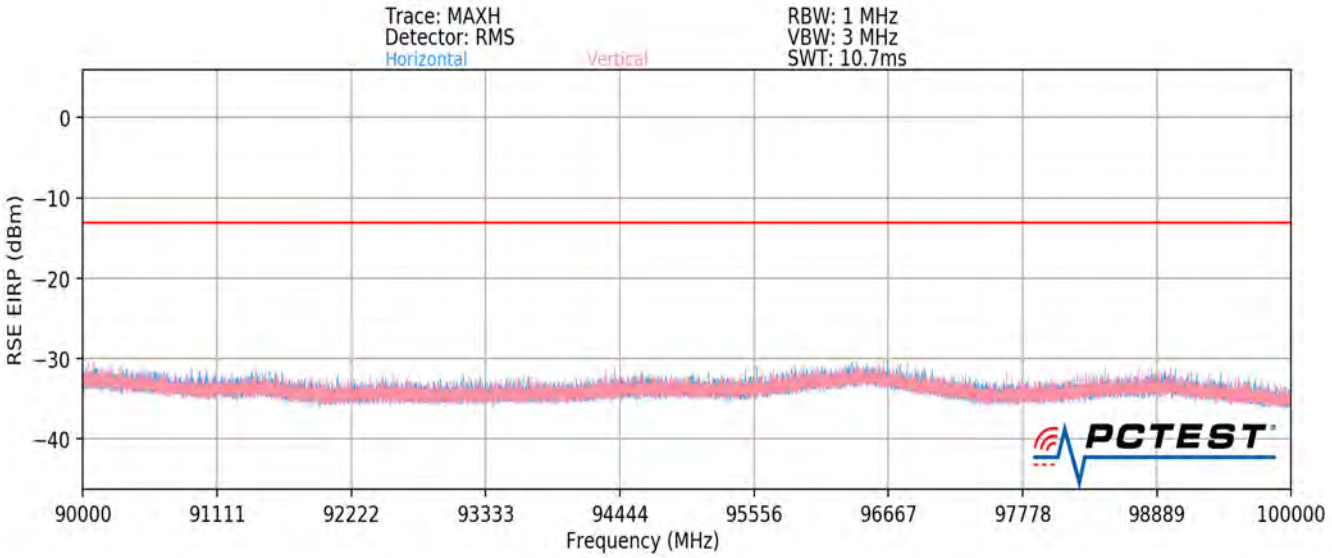
90GHz - 100GHz



Plot 7-123. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-124. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96499.00	Low	50	H	QPSK	V	-	-	-40.15	-13.00	-27.15
96472.00	Low	50	V	QPSK	V	-	-	-40.04	-13.00	-27.04
96405.00	Mid	50	H	QPSK	V	-	-	-39.98	-13.00	-26.98
96499.50	Mid	50	V	QPSK	V	-	-	-40.06	-13.00	-27.06
96477.50	High	50	H	QPSK	V	-	-	-40.18	-13.00	-27.18
96423.50	High	50	V	QPSK	V	-	-	-40.00	-13.00	-27.00

Table 7-73. Ant2 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-37.08	-13.00	-24.08
Mid	50	QPSK	-37.01	-13.00	-24.01
High	50	QPSK	-37.08	-13.00	-24.08

Table 7-74. Ant2 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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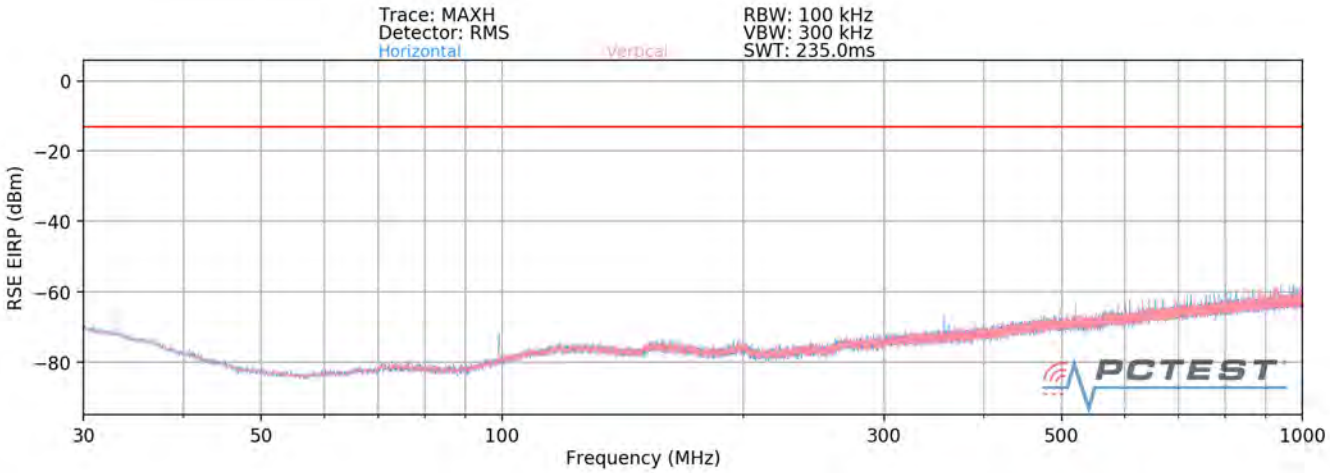
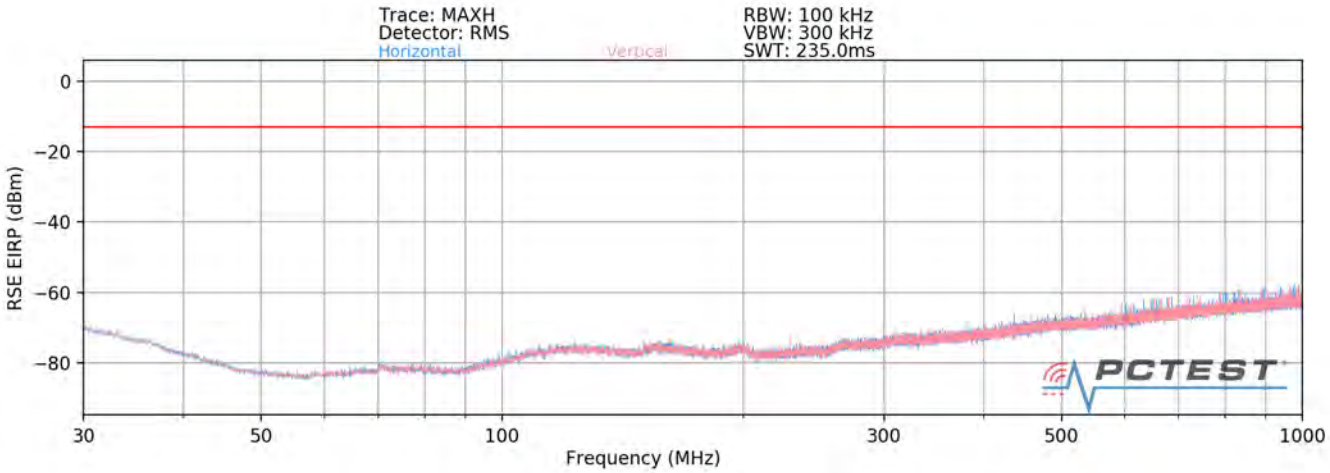
Band n261 – Ant3
30MHz - 1GHz



Plot 7-125. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-126. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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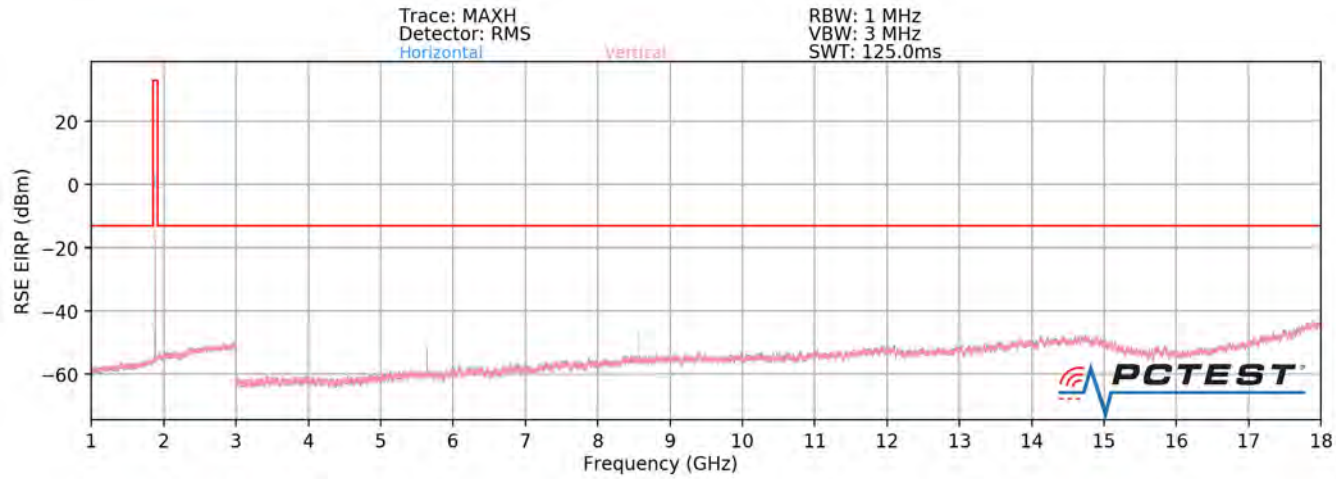
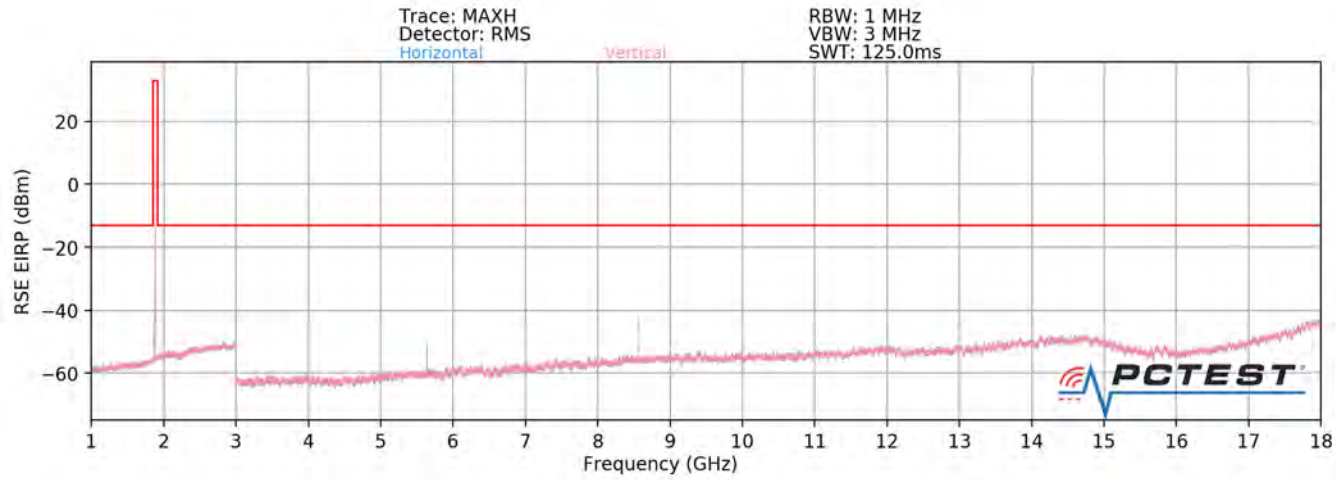
1GHz - 18GHz



Plot 7-127. Ant3-n261 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-128. Ant3-n261 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	H	135	24	-44.78	-13.00	-31.78
8821.85	Low	50	V	QPSK	H	246	60	-40.65	-13.00	-27.65
8569.16	Mid	50	H	QPSK	H	179	19	-46.11	-13.00	-33.11
8569.16	Mid	50	V	QPSK	H	187	64	-42.40	-13.00	-29.40
8966.56	High	50	H	QPSK	H	148	24	-46.14	-13.00	-33.14
8966.56	High	50	V	QPSK	H	241	65	-40.98	-13.00	-27.98

Table 7-75. Ant3 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-39.23	-13.00	-26.23
Mid	50	QPSK	-40.86	-13.00	-27.86
High	50	QPSK	-39.82	-13.00	-26.82

Table 7-76. Ant3 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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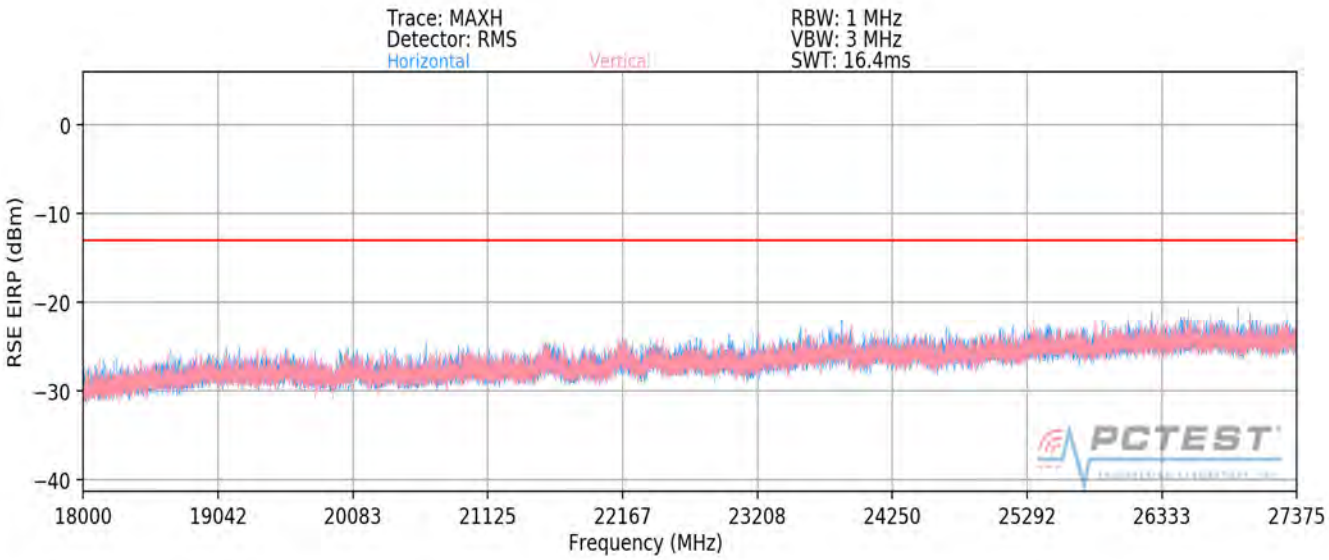
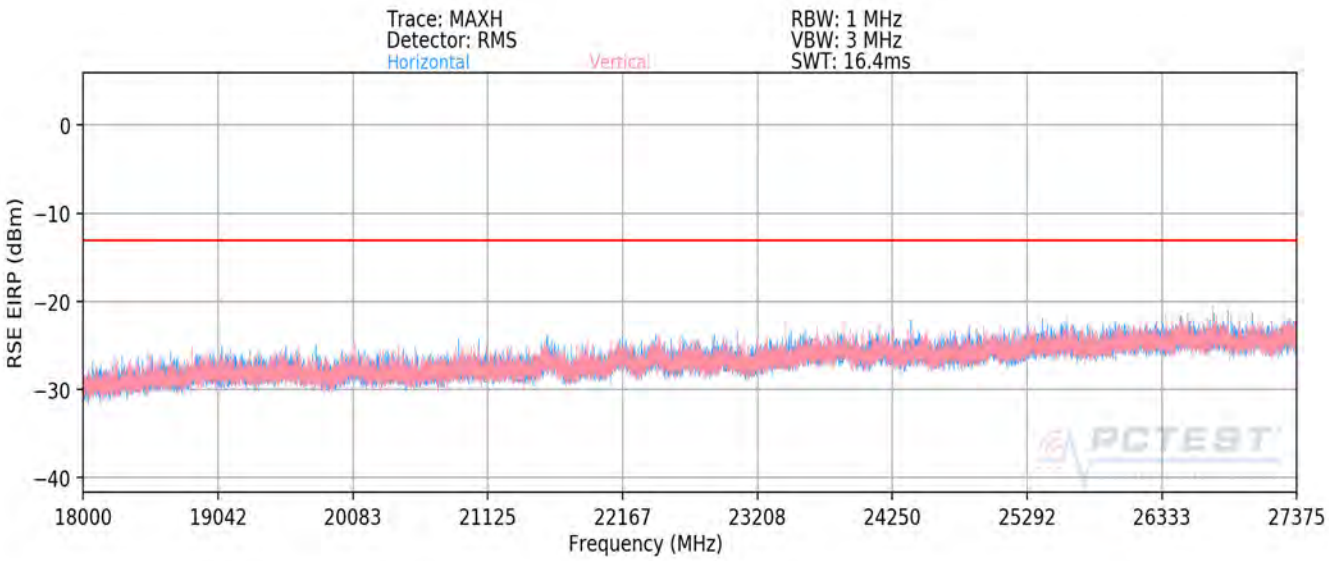
18GHz - 27.375GHz



Plot 7-129. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-130. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27227.73	Low	50	H	QPSK	H	327	265	-24.78	-13.00	-11.78
26985.04	Low	50	V	QPSK	H	57	49	-31.34	-13.00	-18.34
27308.04	Mid	50	H	QPSK	H	326	265	-33.28	-13.00	-20.28
27384.66	Mid	50	V	QPSK	H	60	50	-32.78	-13.00	-19.78
27398.33	High	50	H	QPSK	H	326	267	-34.07	-13.00	-21.07
26879.58	High	50	V	QPSK	H	62	51	-34.69	-13.00	-21.69

Table 7-77. Ant3 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-23.92	-13.00	-10.92
Mid	50	QPSK	-30.01	-13.00	-17.01
High	50	QPSK	-31.36	-13.00	-18.36

Table 7-78. Ant3 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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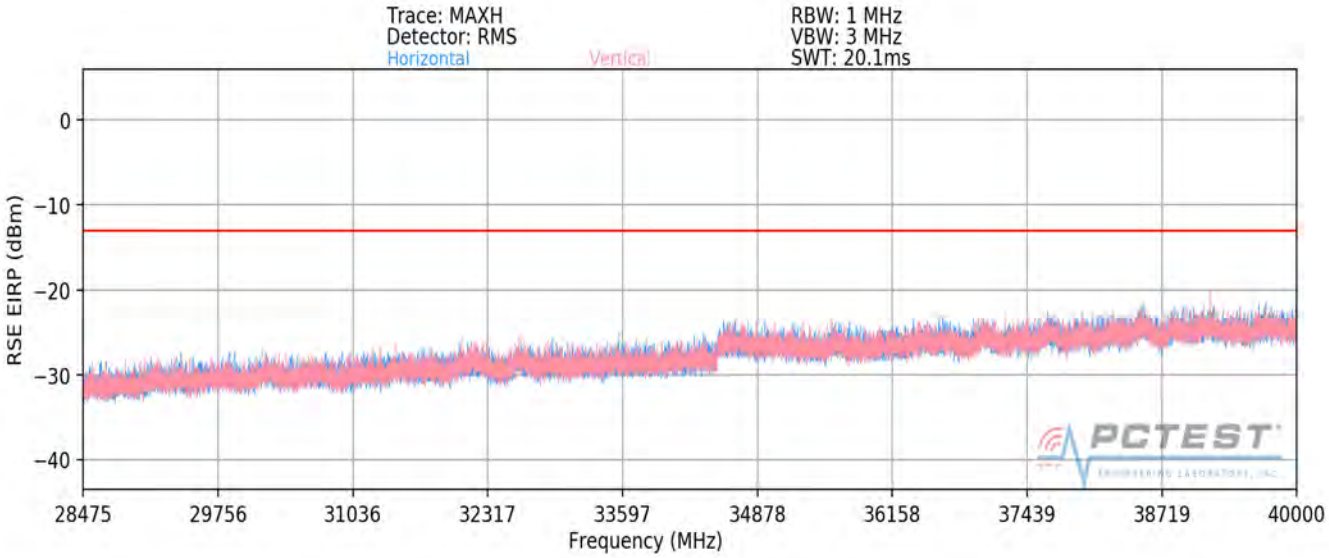
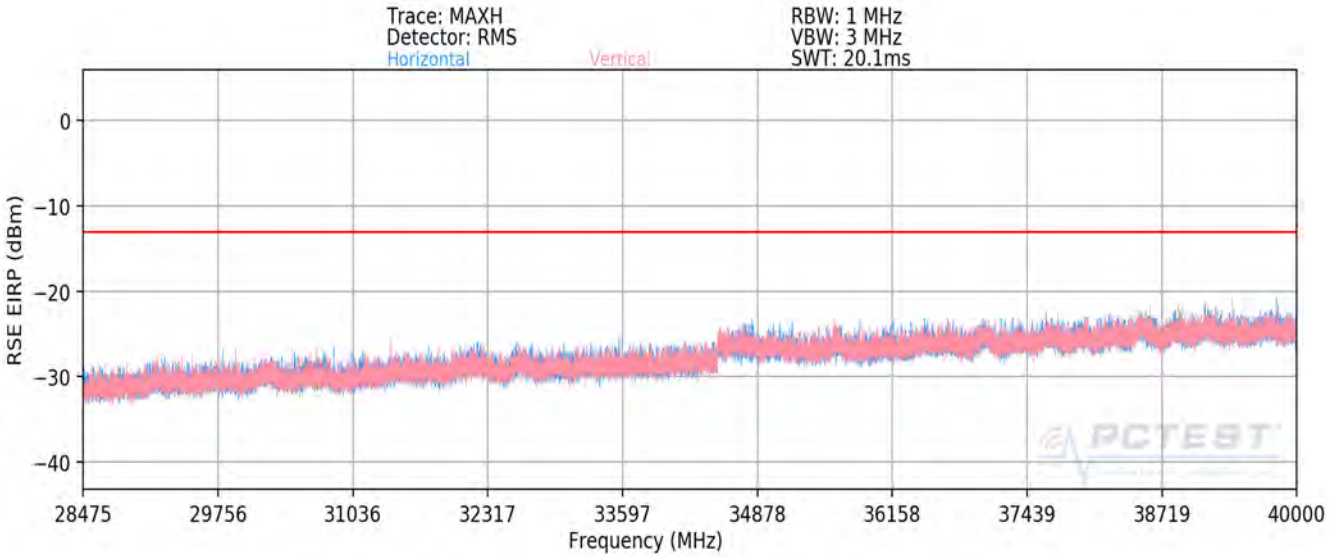
28.475GHz - 40GHz



Plot 7-131. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-132. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28605.11	Low	50	H	QPSK	H	328	262	-25.75	-13.00	-12.75
28605.11	Low	50	V	QPSK	H	65	47	-20.76	-13.00	-7.76
30137.98	Mid	50	H	QPSK	H	331	262	-28.89	-13.00	-15.89
30137.64	Mid	50	V	QPSK	H	54	48	-28.07	-13.00	-15.07
29740.38	High	50	H	QPSK	H	328	265	-24.65	-13.00	-11.65
29740.38	High	50	V	QPSK	H	61	49	-25.42	-13.00	-12.42

Table 7-79. Ant3 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-19.56	-13.00	-6.56
Mid	50	QPSK	-25.45	-13.00	-12.45
High	50	QPSK	-22.01	-13.00	-9.01

Table 7-80. Ant3 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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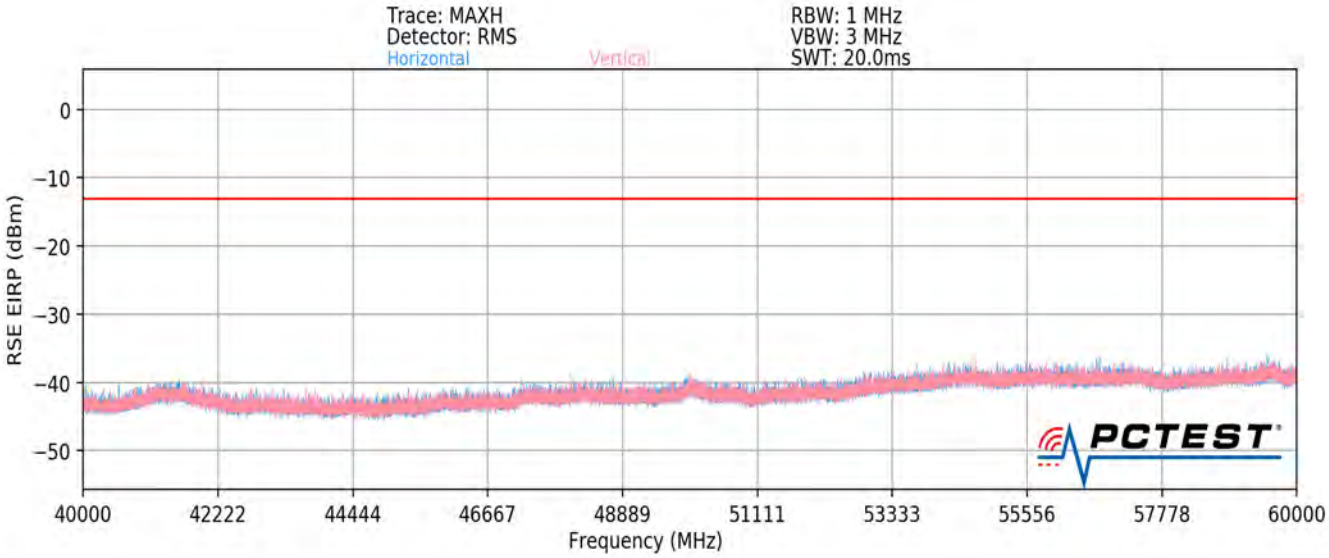
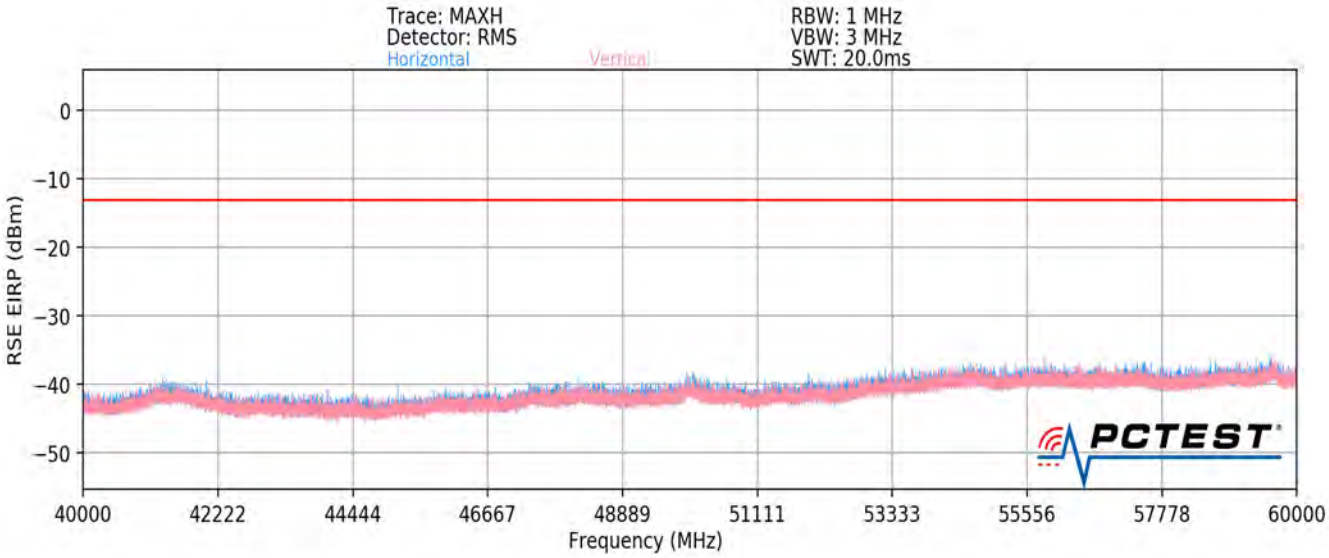
40GHz - 60GHz



Plot 7-133. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-134. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55055.67	Low	50	H	QPSK	H	359	260	-46.43	-13.00	-33.43
55070.40	Low	50	V	QPSK	V	311	341	-46.54	-13.00	-33.54
55838.91	Mid	50	H	QPSK	H	290	177	-46.02	-13.00	-33.02
55074.51	Mid	50	V	QPSK	V	312	342	-46.57	-13.00	-33.57
56653.35	High	50	H	QPSK	H	222	1	-46.29	-13.00	-33.29
56654.83	High	50	V	QPSK	V	310	113	-46.34	-13.00	-33.34

Table 7-81. Ant3 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-43.47	-13.00	-30.47
Mid	50	QPSK	-43.27	-13.00	-30.27
High	50	QPSK	-43.30	-13.00	-30.30

Table 7-82. Ant3 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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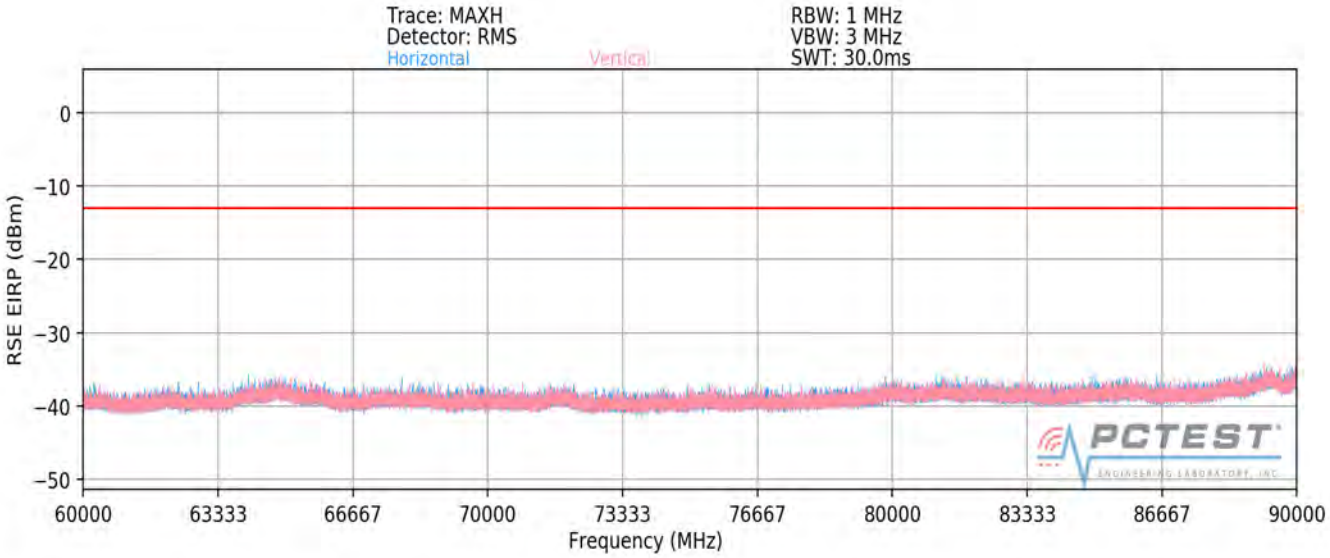
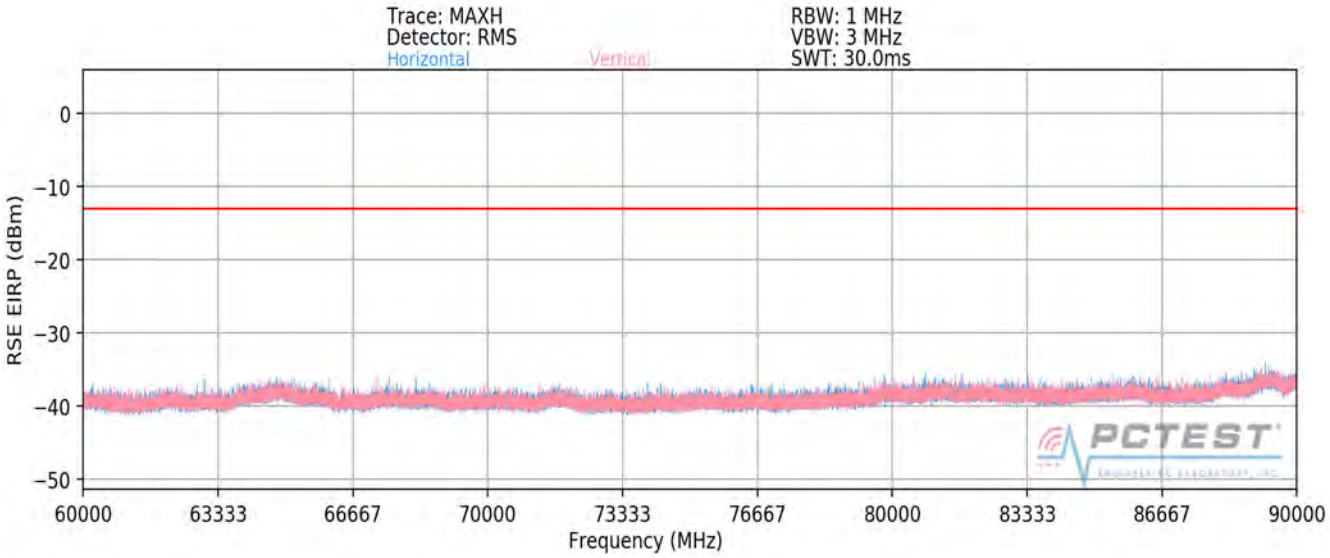
60GHz - 90GHz



Plot 7-135. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-136. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82589.85	Low	50	H	QPSK	H	-	-	-44.42	-13.00	-31.42
82609.74	Low	50	V	QPSK	V	-	-	-44.20	-13.00	-31.20
83762.22	Mid	50	H	QPSK	H	-	-	-44.39	-13.00	-31.39
83764.38	Mid	50	V	QPSK	V	-	-	-44.31	-13.00	-31.31
84971.76	High	50	H	QPSK	H	-	-	-44.16	-13.00	-31.16
84971.49	High	50	V	QPSK	V	-	-	-44.34	-13.00	-31.34

Table 7-83. Ant3 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-41.30	-13.00	-28.30
Mid	50	QPSK	-41.34	-13.00	-28.34
High	50	QPSK	-41.24	-13.00	-28.24

Table 7-84. Ant3 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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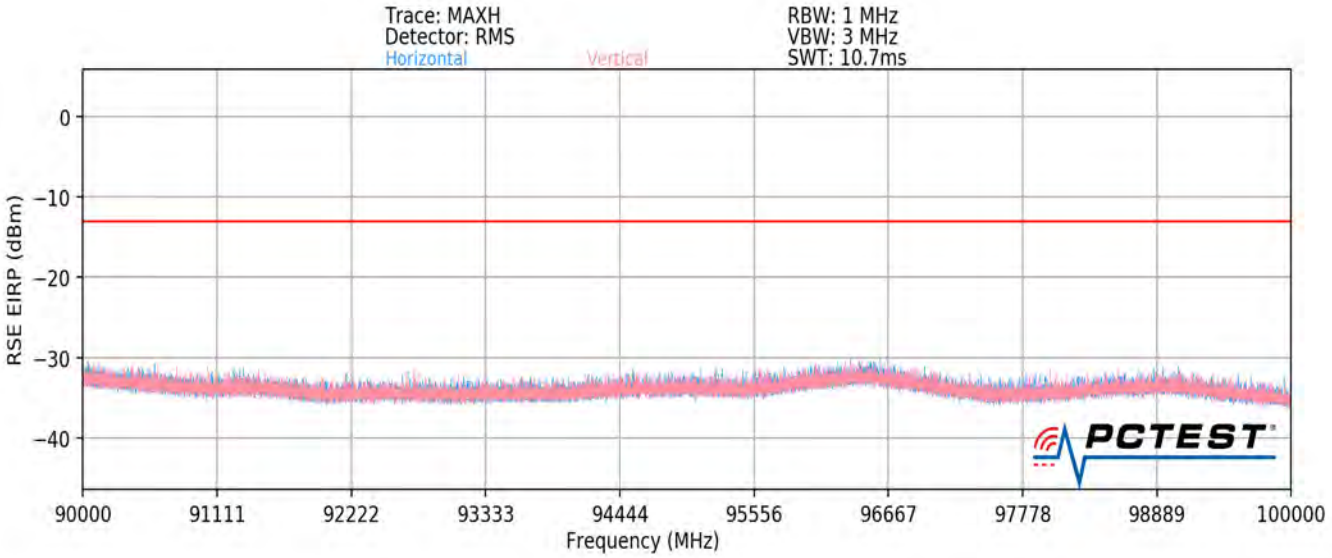
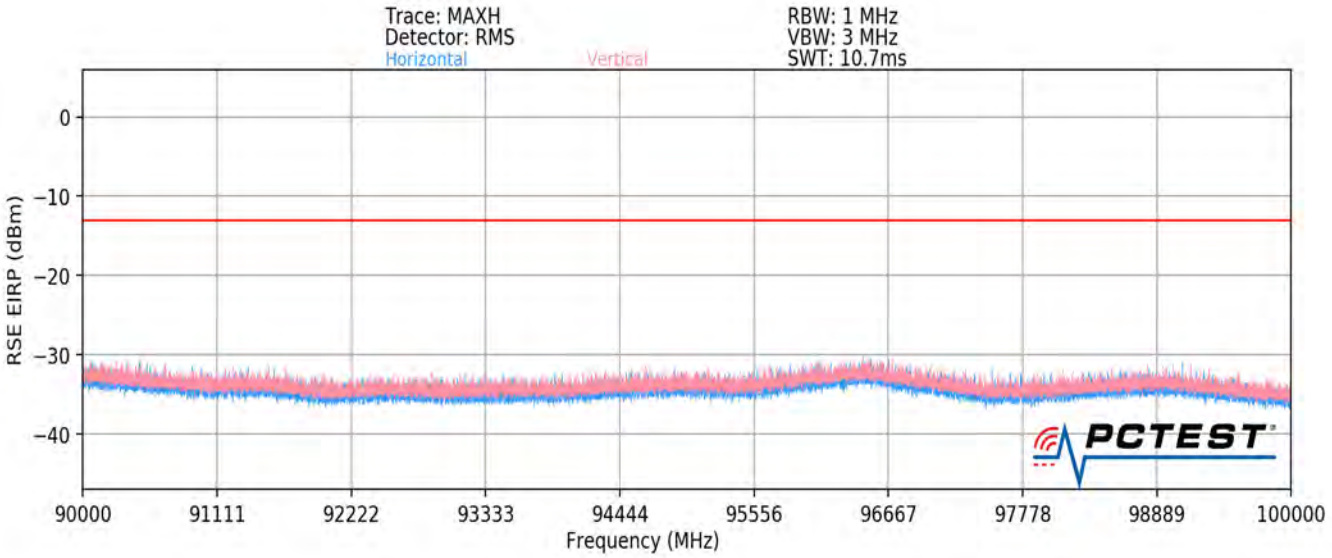
90GHz - 100GHz



Plot 7-137. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-138. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96575.00	Low	50	H	QPSK	H	-	-	-40.08	-13.00	-27.08
96481.50	Low	50	V	QPSK	H	-	-	-39.99	-13.00	-26.99
96514.50	Mid	50	H	QPSK	H	-	-	-40.06	-13.00	-27.06
96463.00	Mid	50	V	QPSK	H	-	-	-39.75	-13.00	-26.75
96465.00	High	50	H	QPSK	H	-	-	-39.71	-13.00	-26.71
96504.00	High	50	V	QPSK	H	-	-	-39.82	-13.00	-26.82

Table 7-85. Ant3 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-37.02	-13.00	-24.02
Mid	50	QPSK	-36.89	-13.00	-23.89
High	50	QPSK	-36.75	-13.00	-23.75

Table 7-86. Ant3 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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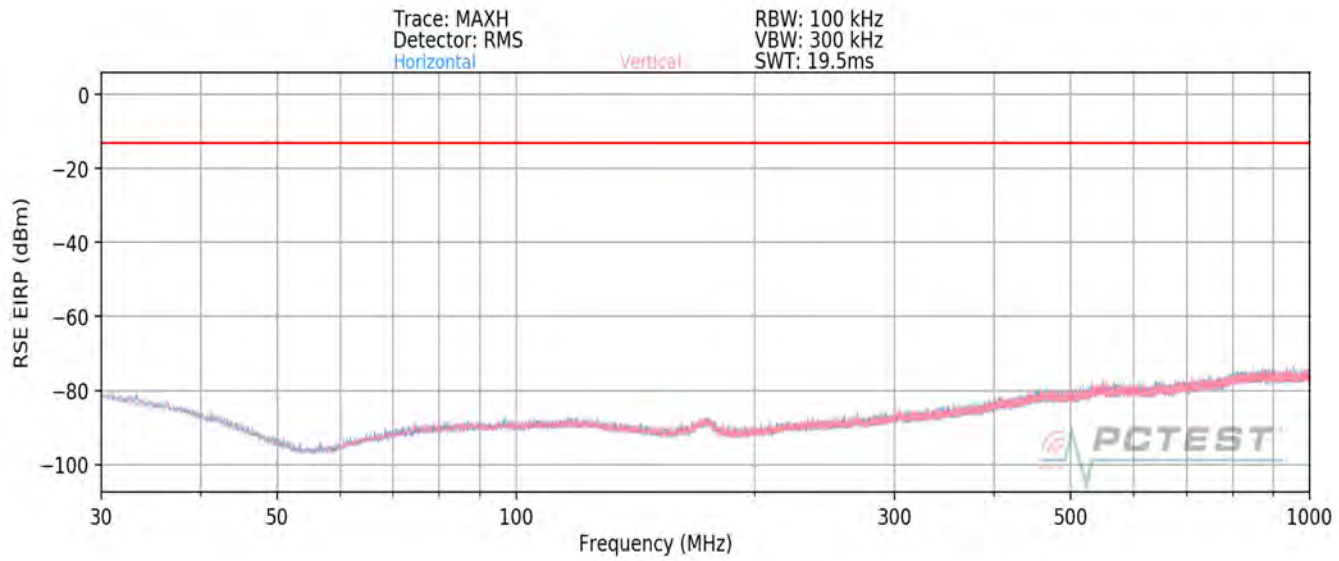
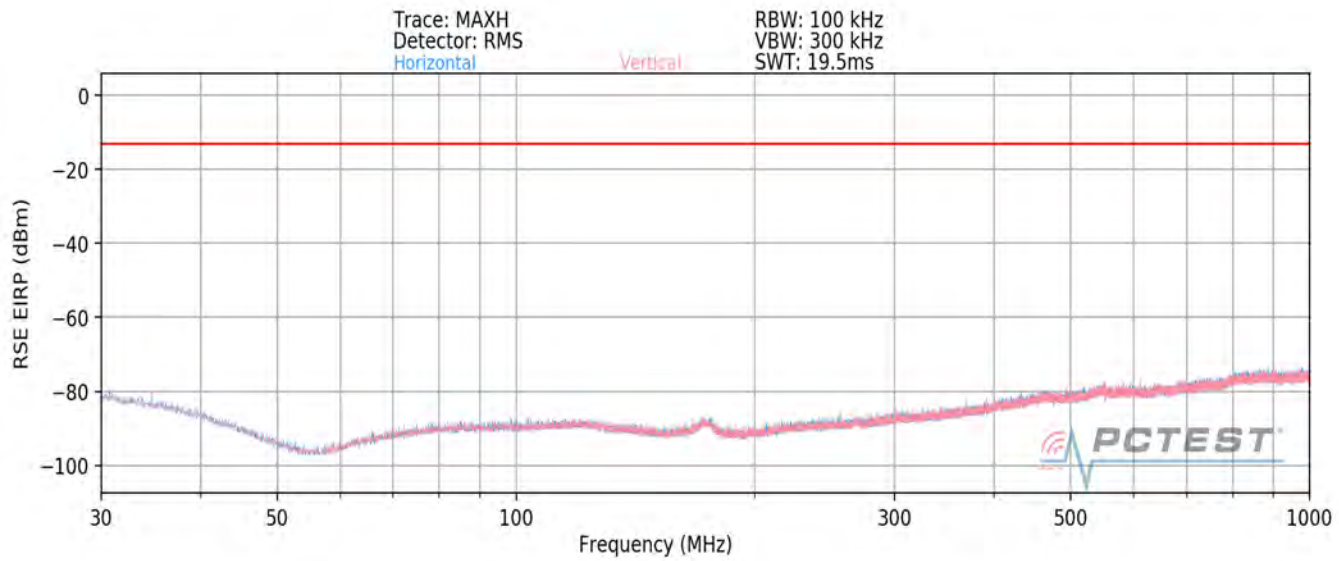
Band n261 – Ant4
30MHz - 1GHz



Plot 7-139. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-140. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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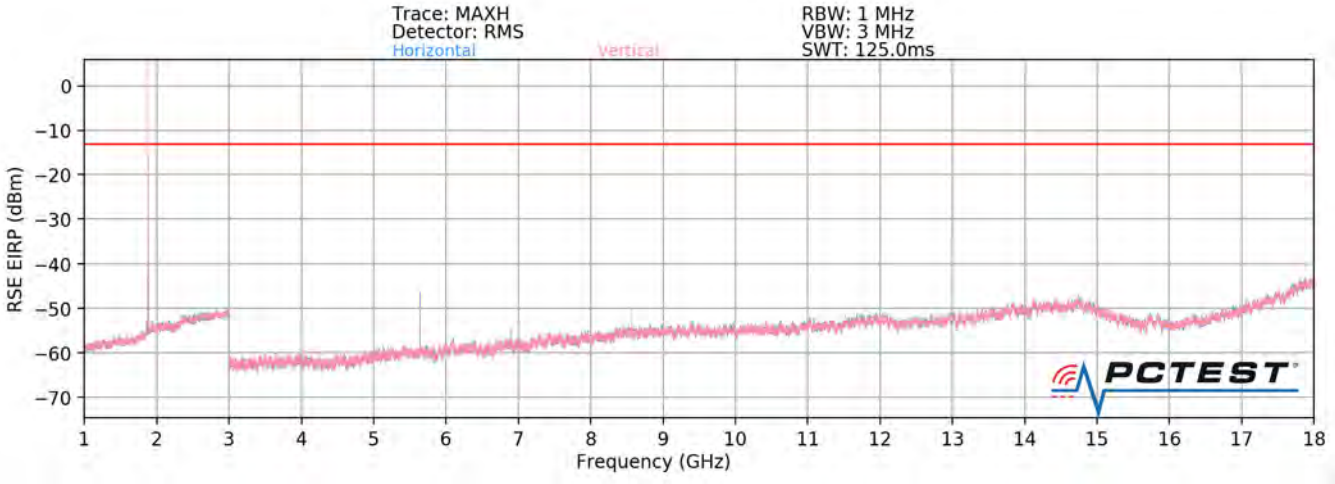
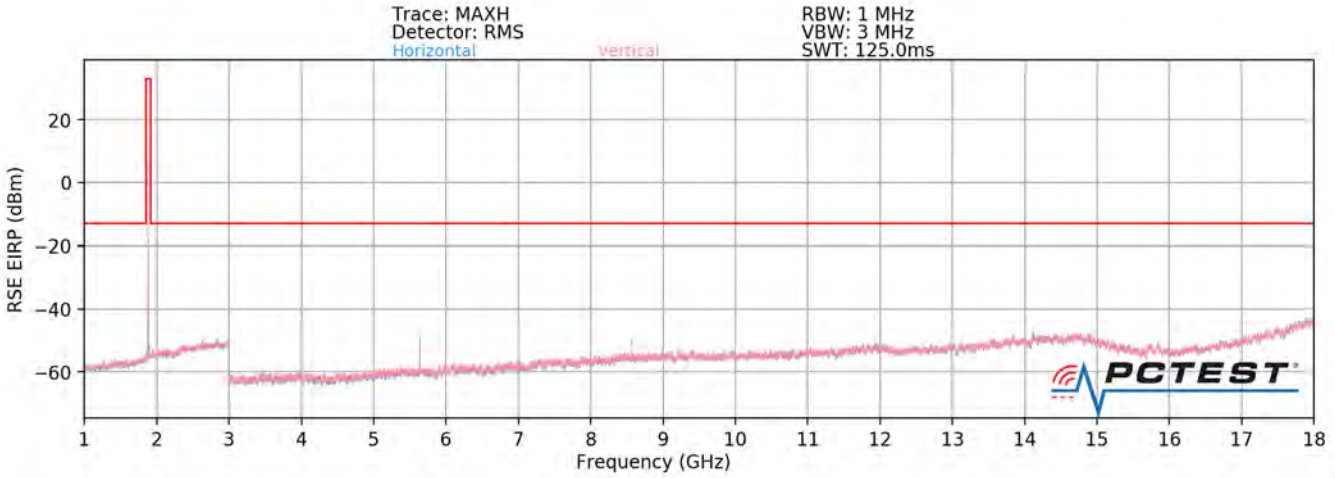
1GHz - 18GHz



Plot 7-141. Ant4-n261 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-142. Ant4-n261 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	V	334	4	-48.40	-13.00	-35.40
8821.85	Low	50	V	QPSK	H	172	326	-48.30	-13.00	-35.30
8569.16	Mid	50	H	QPSK	V	332	10	-47.71	-13.00	-34.71
8569.16	Mid	50	V	QPSK	H	145	107	-49.53	-13.00	-36.53
8966.56	High	50	H	QPSK	V	335	23	-48.33	-13.00	-35.33
8966.56	High	50	V	QPSK	H	284	330	-48.67	-13.00	-35.67

Table 7-87. Ant4 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-45.34	-13.00	-32.34
Mid	50	QPSK	-45.52	-13.00	-32.52
High	50	QPSK	-45.49	-13.00	-32.49

Table 7-88. Ant4 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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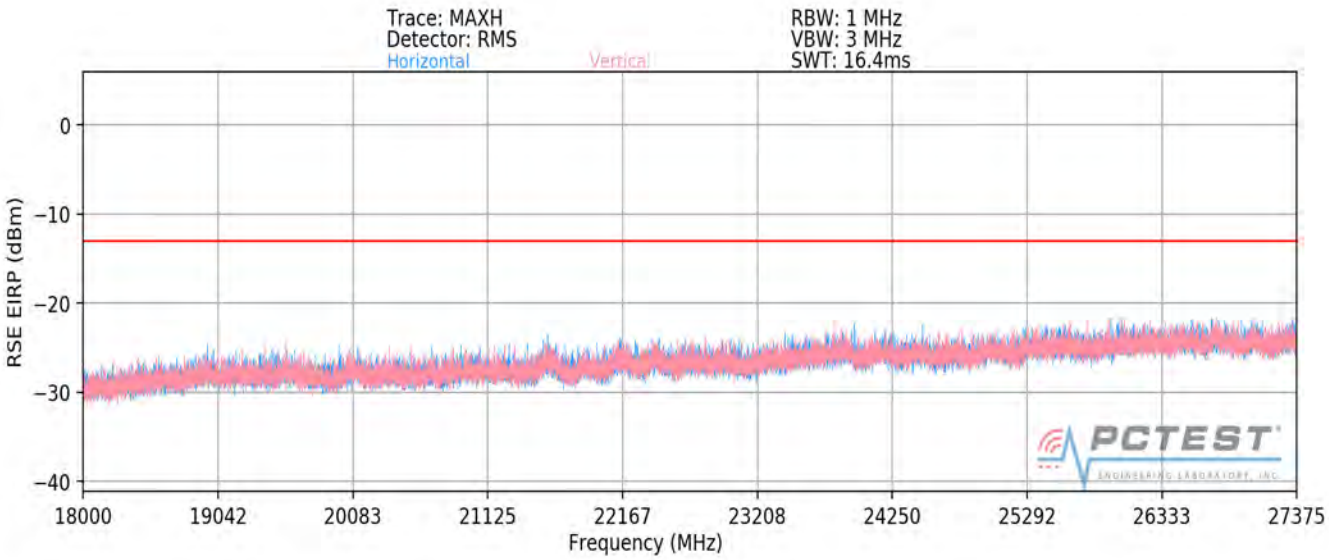
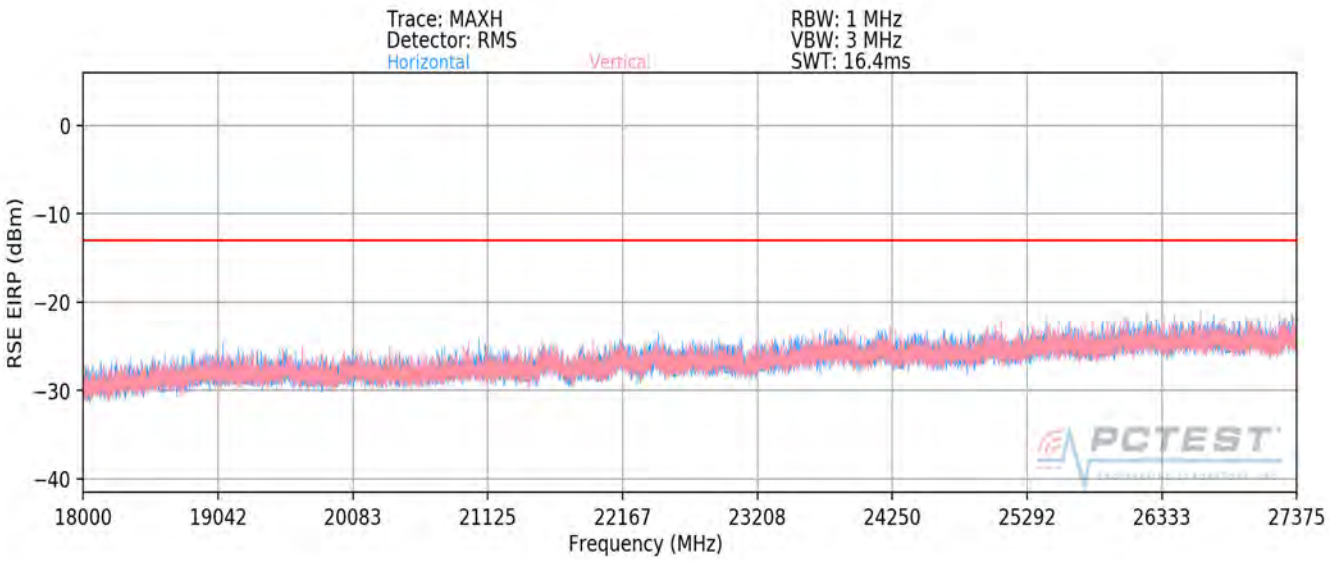
18GHz - 27.375GHz



Plot 7-143. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-144. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27382.44	Low	50	H	QPSK	H	89	42	-25.21	-13.00	-12.21
27382.02	Low	50	V	QPSK	H	178	300	-28.49	-13.00	-15.49
37308.60	Mid	50	H	QPSK	H	90	60	-34.83	-13.00	-21.83
27385.42	Mid	50	V	QPSK	H	181	309	-32.50	-13.00	-19.50
27398.99	High	50	H	QPSK	H	92	42	-34.97	-13.00	-21.97
27321.80	High	50	V	QPSK	H	166	284	-35.87	-13.00	-22.87

Table 7-89. Ant4 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-23.54	-13.00	-10.54
Mid	50	QPSK	-30.50	-13.00	-17.50
High	50	QPSK	-32.38	-13.00	-19.38

Table 7-90. Ant4 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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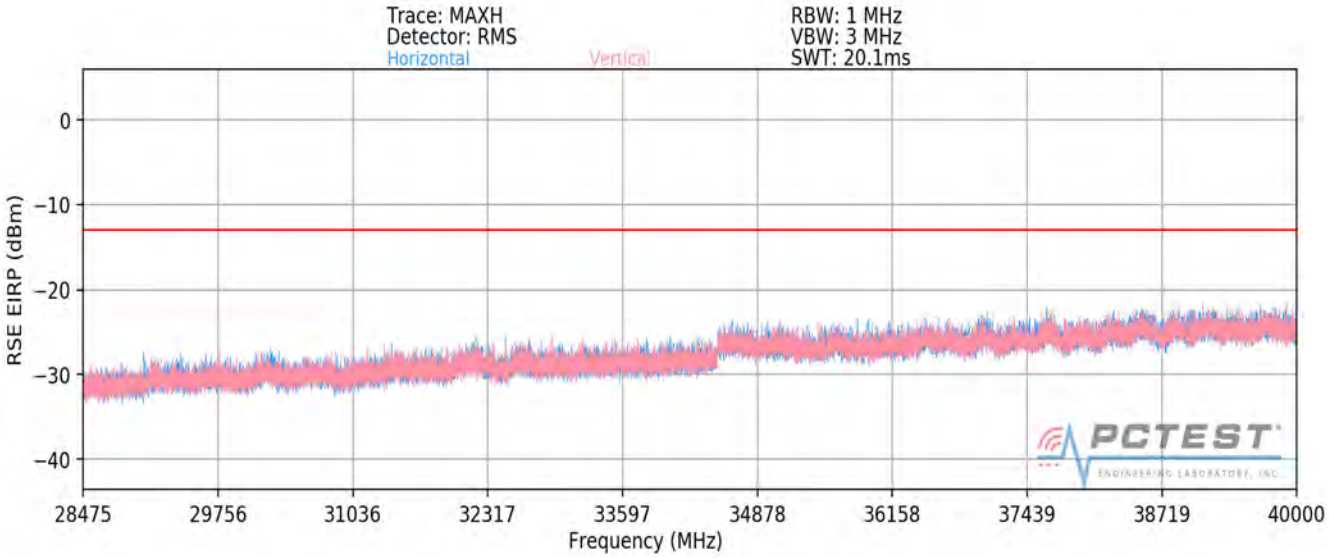
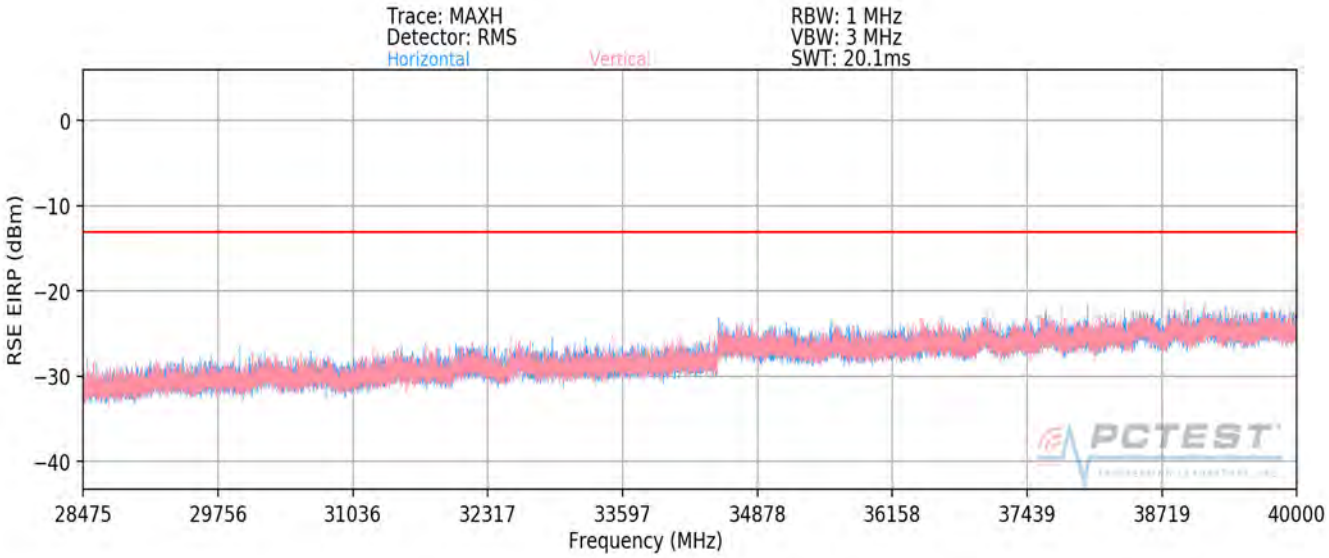
28.475GHz - 40GHz



Plot 7-145. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-146. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28605.13	Low	50	H	QPSK	H	102	76	-25.29	-13.00	-12.29
28605.11	Low	50	V	QPSK	H	135	254	-24.84	-13.00	-11.84
28460.63	Mid	50	H	QPSK	H	91	27	-33.89	-13.00	-20.89
28460.50	Mid	50	V	QPSK	H	160	293	-29.96	-13.00	-16.96
28605.02	High	50	H	QPSK	H	105	41	-26.14	-13.00	-13.14
28473.78	High	50	V	QPSK	H	159	293	-28.37	-13.00	-15.37

Table 7-91. Ant4 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-22.05	-13.00	-9.05
Mid	50	QPSK	-28.48	-13.00	-15.48
High	50	QPSK	-24.11	-13.00	-11.11

Table 7-92. Ant4 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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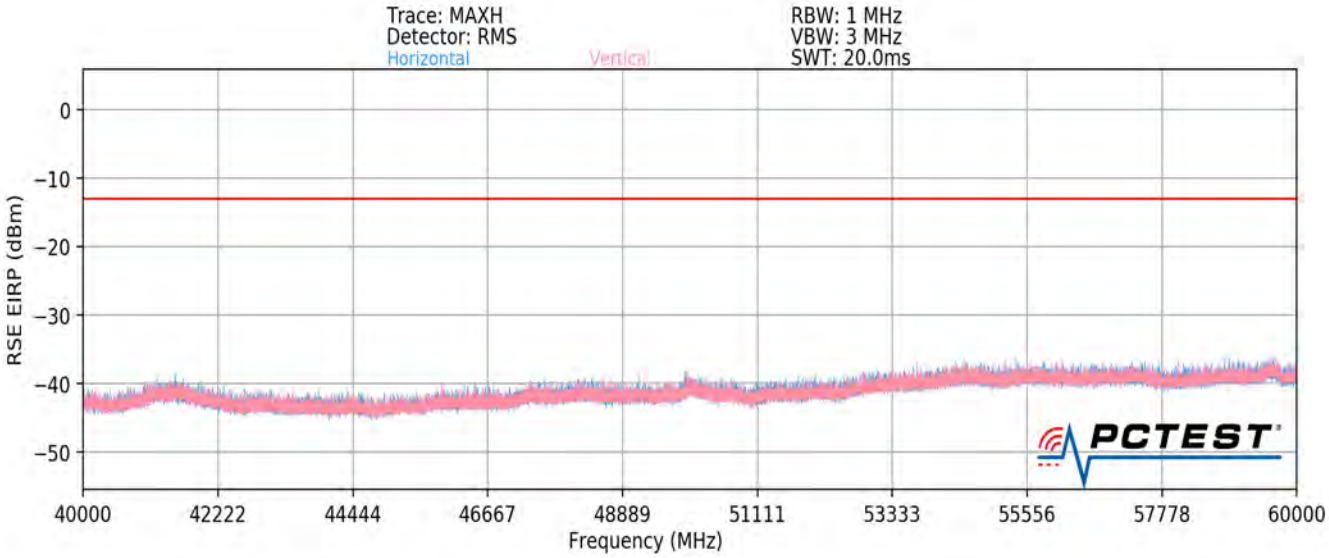
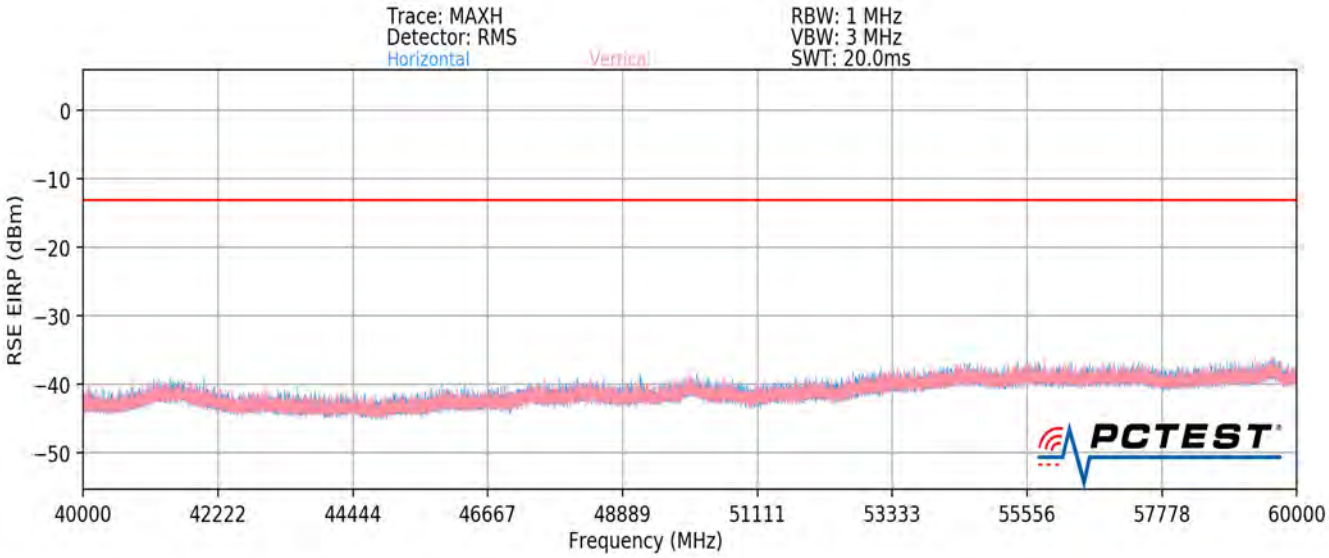
40GHz - 60GHz



Plot 7-147. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-148. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55064.91	Low	50	H	QPSK	H	221	50	-46.25	-13.00	-33.25
55055.01	Low	50	V	QPSK	H	217	45	-47.07	-13.00	-34.07
55850.22	Mid	50	H	QPSK	H	300	204	-46.02	-13.00	-33.02
55858.74	Mid	50	V	QPSK	H	85	300	-45.96	-13.00	-32.96
56644.02	High	50	H	QPSK	H	220	201	-46.35	-13.00	-33.35
56630.76	High	50	V	QPSK	H	78	323	-46.13	-13.00	-33.13

Table 7-93. Ant4 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-43.63	-13.00	-30.63
Mid	50	QPSK	-42.98	-13.00	-29.98
High	50	QPSK	-43.23	-13.00	-30.23

Table 7-94. Ant4 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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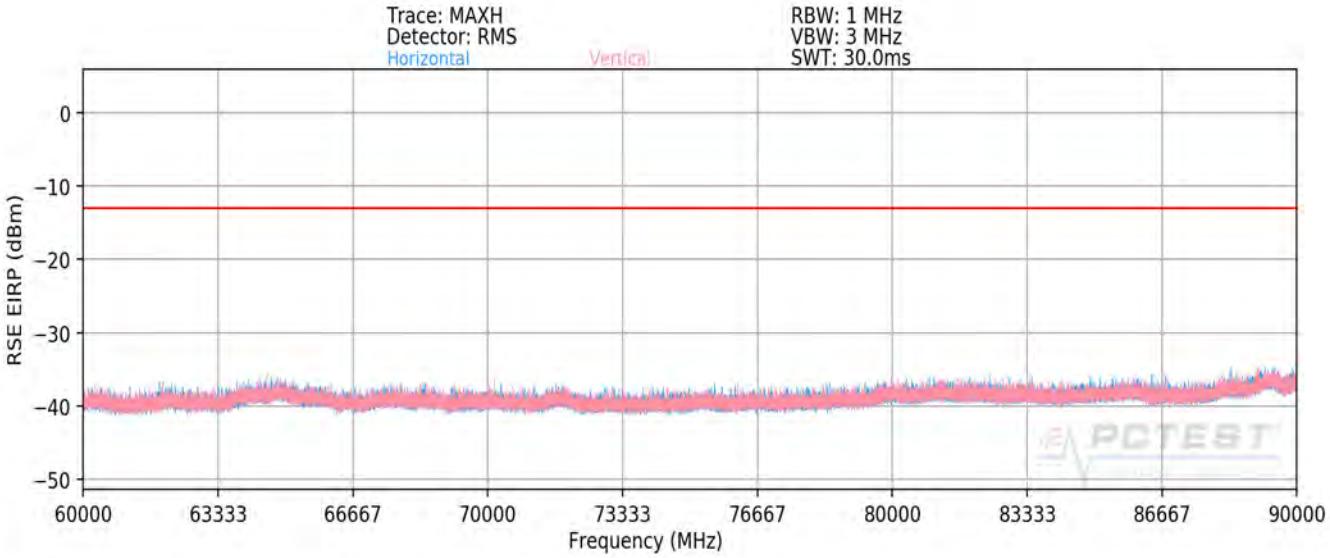
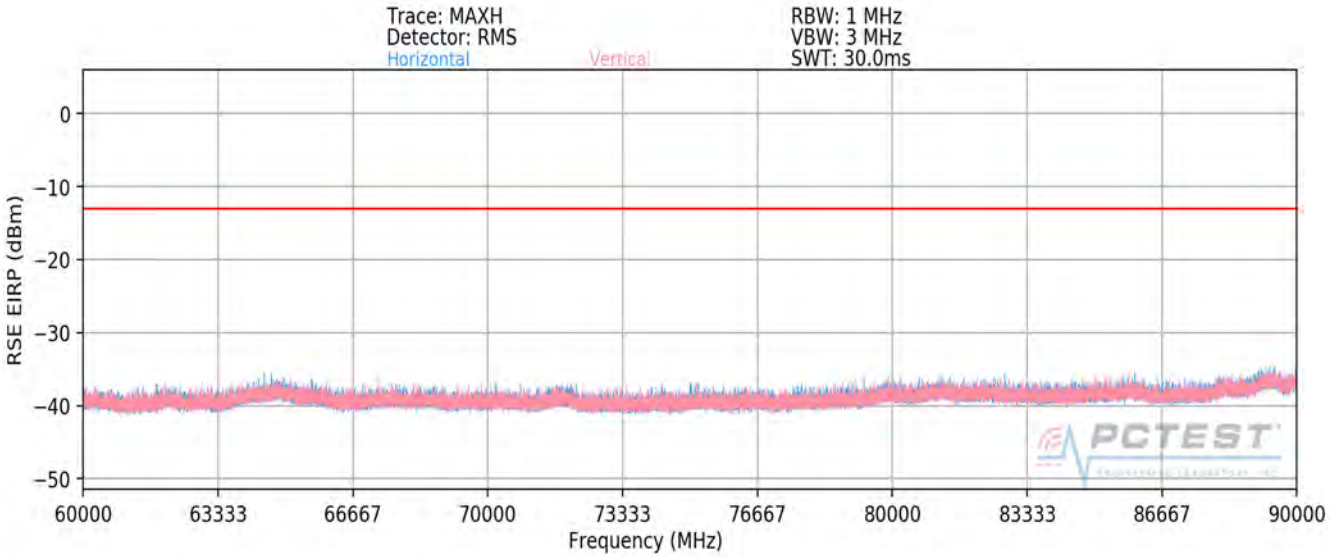
60GHz - 90GHz



Plot 7-149. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-150. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82608.12	Low	50	H	QPSK	H	-	-	-44.02	-13.00	-31.02
82605.03	Low	50	V	QPSK	H	-	-	-44.22	-13.00	-31.22
83769.93	Mid	50	H	QPSK	H	-	-	-44.10	-13.00	-31.10
83751.24	Mid	50	V	QPSK	H	-	-	-44.21	-13.00	-31.21
84959.73	High	50	H	QPSK	H	-	-	-44.17	-13.00	-31.17
84962.40	High	50	V	QPSK	H	-	-	-44.14	-13.00	-31.14

Table 7-95. Ant4 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-41.11	-13.00	-28.11
Mid	50	QPSK	-41.14	-13.00	-28.14
High	50	QPSK	-41.14	-13.00	-28.14

Table 7-96. Ant4 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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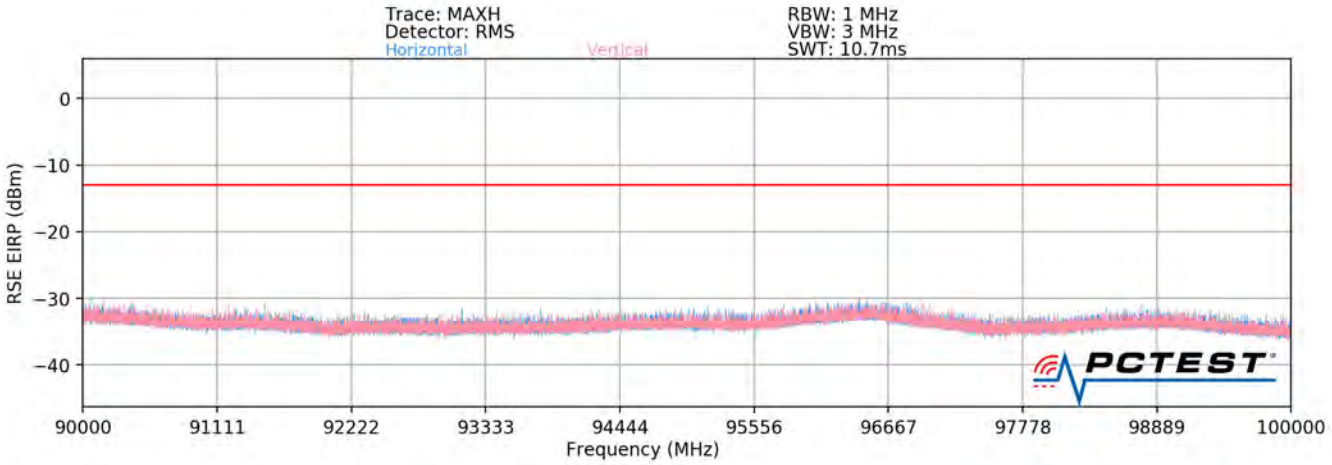
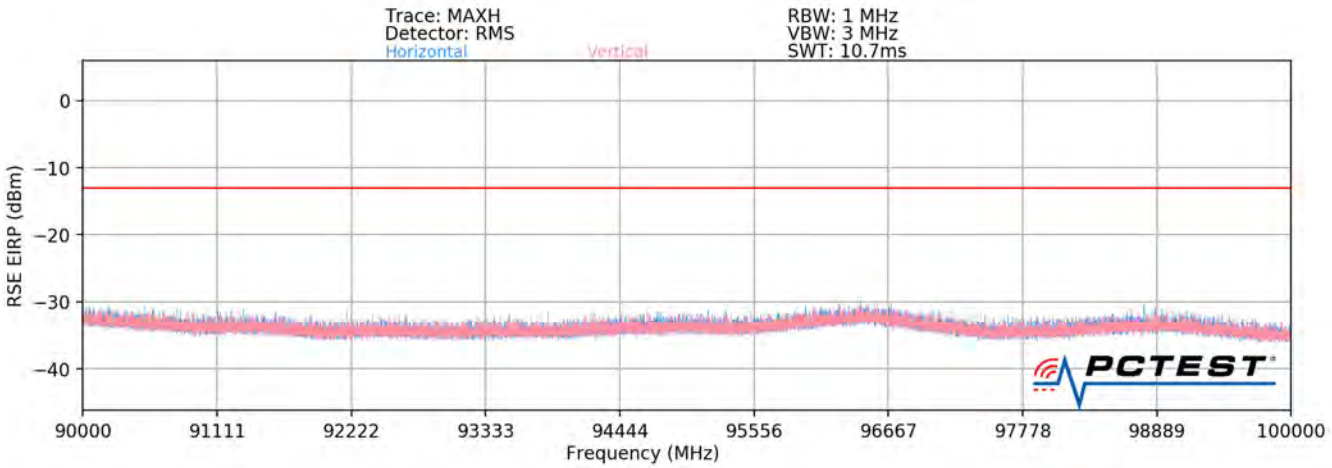
90GHz - 100GHz



Plot 7-151. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-152. Ant4-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96479.00	Low	50	H	QPSK	H	-	-	-39.83	-13.00	-26.83
96475.50	Low	50	V	QPSK	H	-	-	-39.92	-13.00	-26.92
96510.00	Mid	50	H	QPSK	H	-	-	-39.80	-13.00	-26.80
96573.50	Mid	50	V	QPSK	H	-	-	-39.82	-13.00	-26.82
96548.50	High	50	H	QPSK	H	-	-	-39.93	-13.00	-26.93
96558.00	High	50	V	QPSK	H	-	-	-39.94	-13.00	-26.94

Table 7-97. Ant4 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-36.87	-13.00	-23.87
Mid	50	QPSK	-36.80	-13.00	-23.80
High	50	QPSK	-36.93	-13.00	-23.93

Table 7-98. Ant4 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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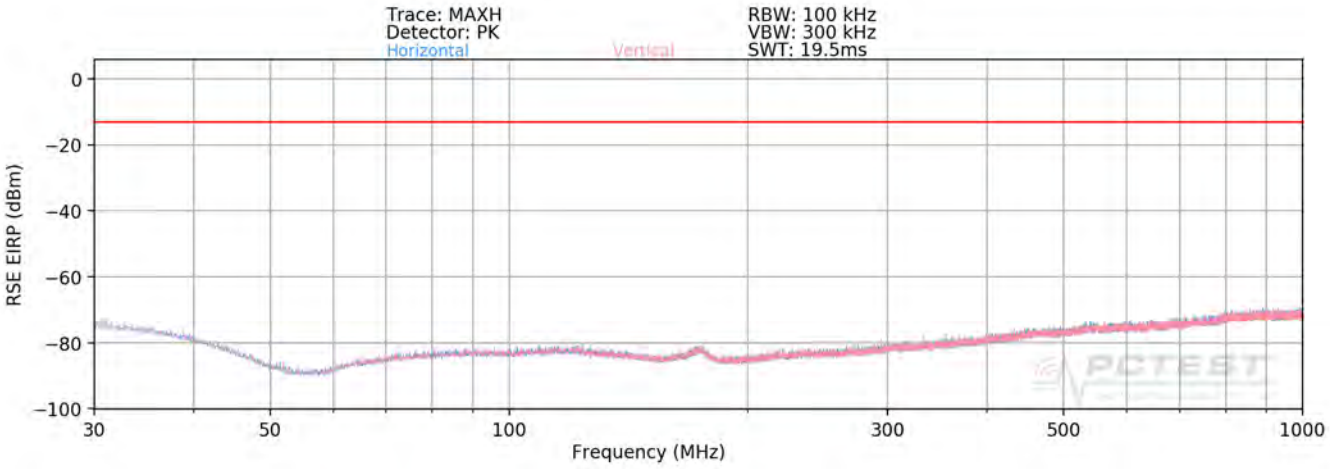
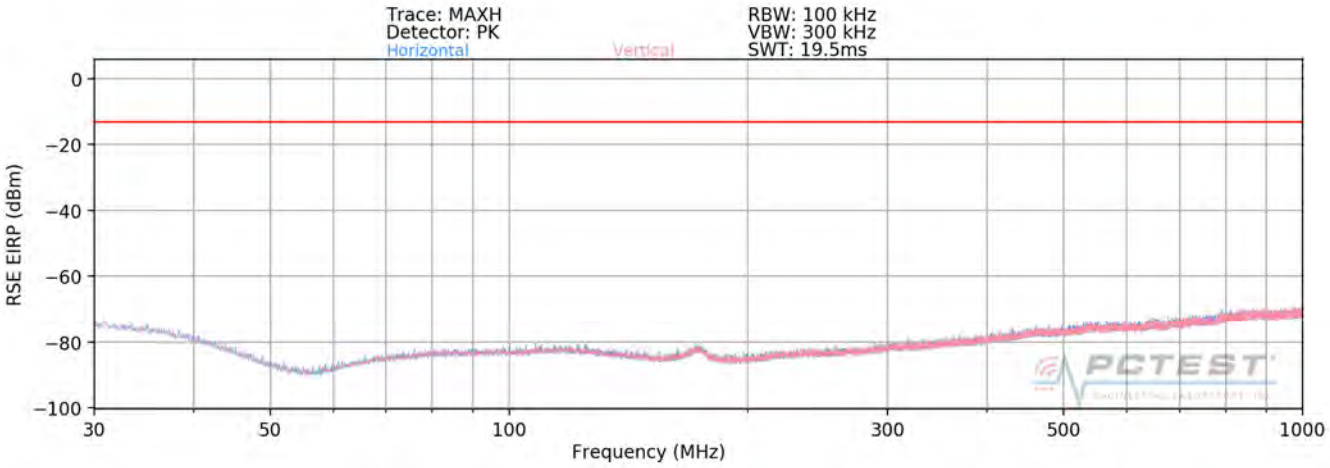
Band n260- Ant1
30MHz - 1GHz



Plot 7-153. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-154. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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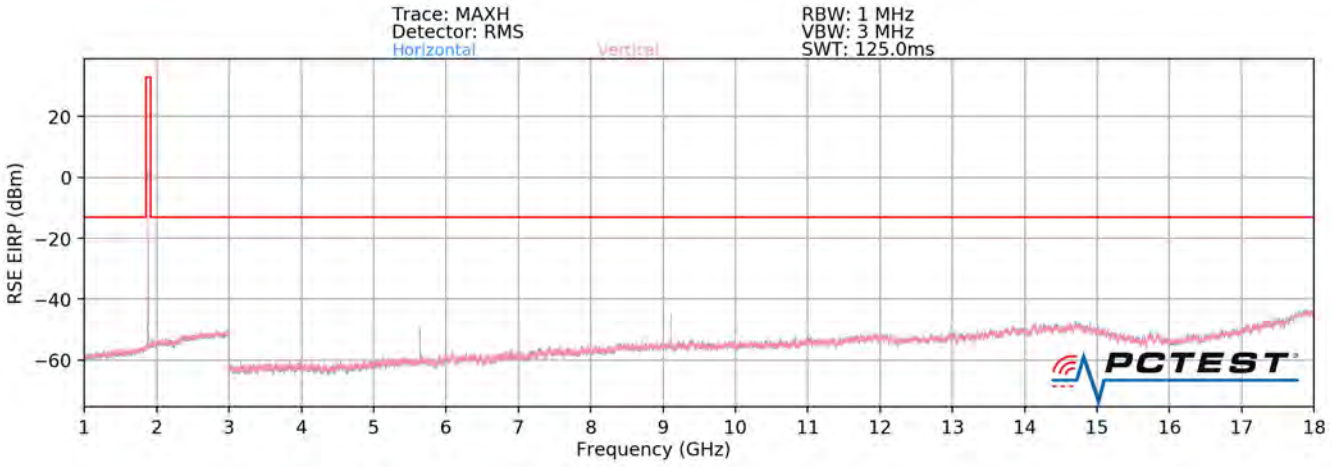
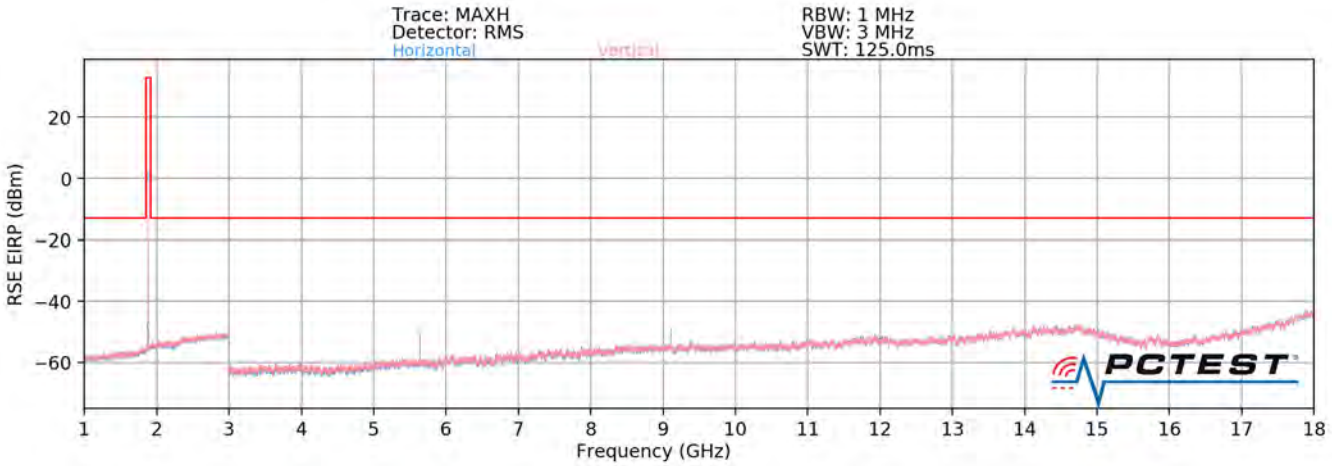
1GHz - 18GHz



Plot 7-155. Ant1-n260 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-156. Ant1-n260 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8407.15	Low	50	H	QPSK	H	131	25	-43.76	-13.00	-30.76
8407.15	Low	50	V	QPSK	H	126	300	-49.82	-13.00	-36.82
9109.17	Mid	50	H	QPSK	H	147	23	-42.40	-13.00	-29.40
9109.17	Mid	50	V	QPSK	H	147	60	-48.92	-13.00	-35.92
9144.46	High	50	H	QPSK	H	160	24	-45.38	-13.00	-32.38
9144.46	High	50	V	QPSK	H	149	66	-50.88	-13.00	-37.88

Table 7-99. Ant1 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-42.80	-13.00	-29.80
Mid	50	QPSK	-41.53	-13.00	-28.53
High	50	QPSK	-44.30	-13.00	-31.30

Table 7-100. Ant1 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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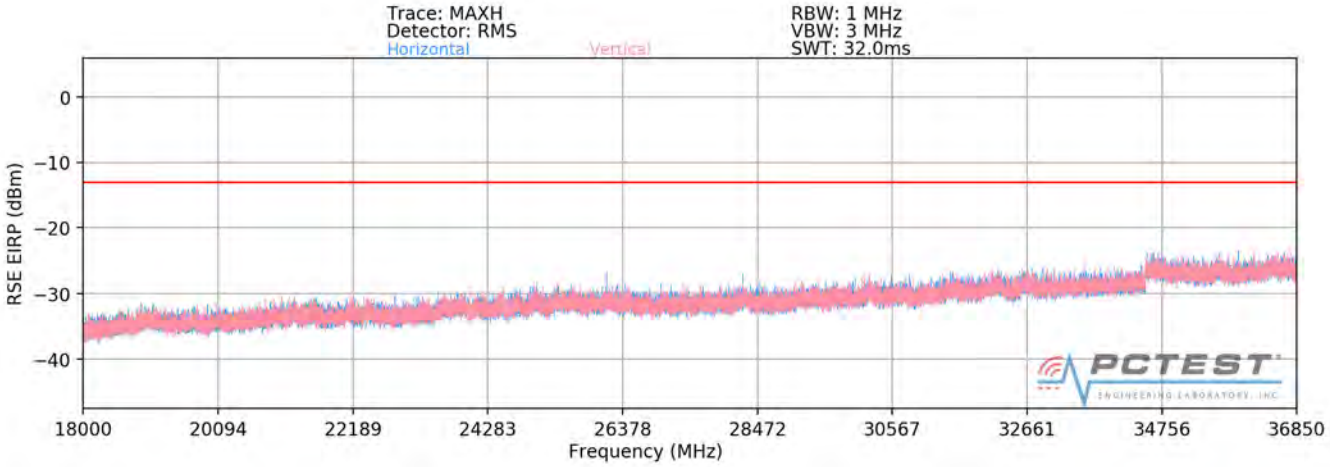
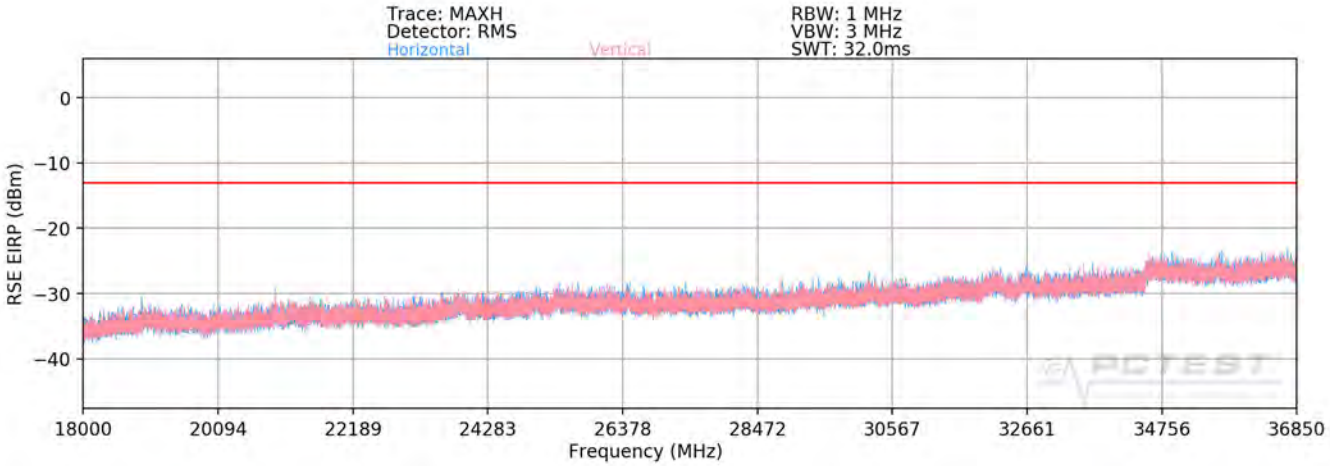
18GHz – 36.85GHz



Plot 7-157. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-158. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
36720.29	Low	50	H	QPSK	V	80	303	-29.88	-13.00	-16.88
36874.25	Low	50	V	QPSK	H	51	92	-29.96	-13.00	-16.96
36455.16	Mid	50	H	QPSK	V	-	-	-31.63	-13.00	-18.63
36583.75	Mid	50	V	QPSK	H	-	-	-31.57	-13.00	-18.57
36465.15	High	50	H	QPSK	V	49	301	-31.21	-13.00	-18.21
36465.96	High	50	V	QPSK	H	38	117	-31.15	-13.00	-18.15

Table 7-101. Ant1 - SISO -Spurious Emissions Table (18GHz – 36.85GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-26.91	-13.00	-13.91
Mid	50	QPSK	-28.59	-13.00	-15.59
High	50	QPSK	-28.17	-13.00	-15.17

Table 7-102. Ant1 - MIMO -Spurious Emissions Table (18GHz – 36.85GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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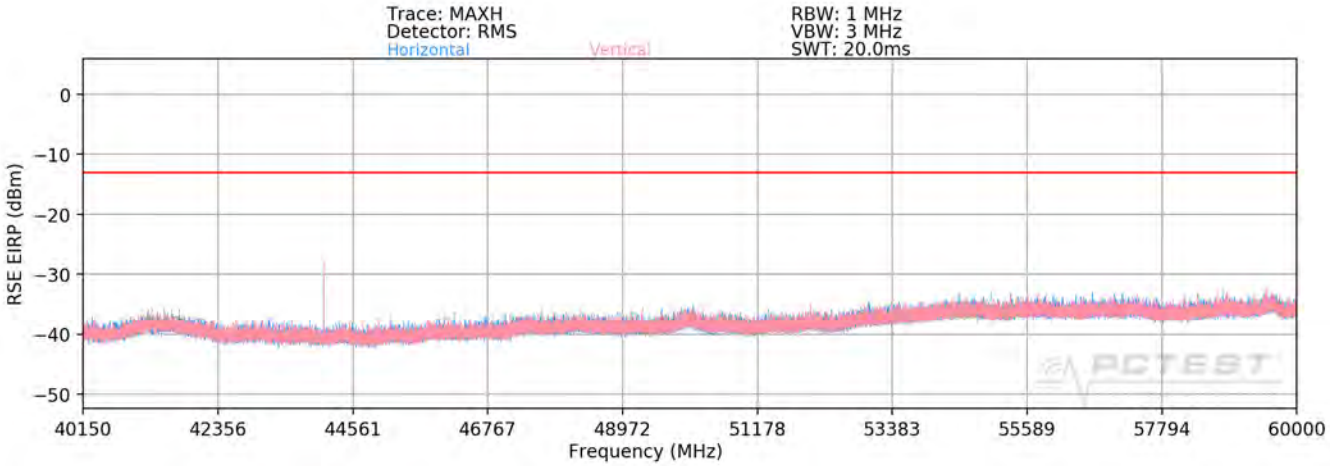
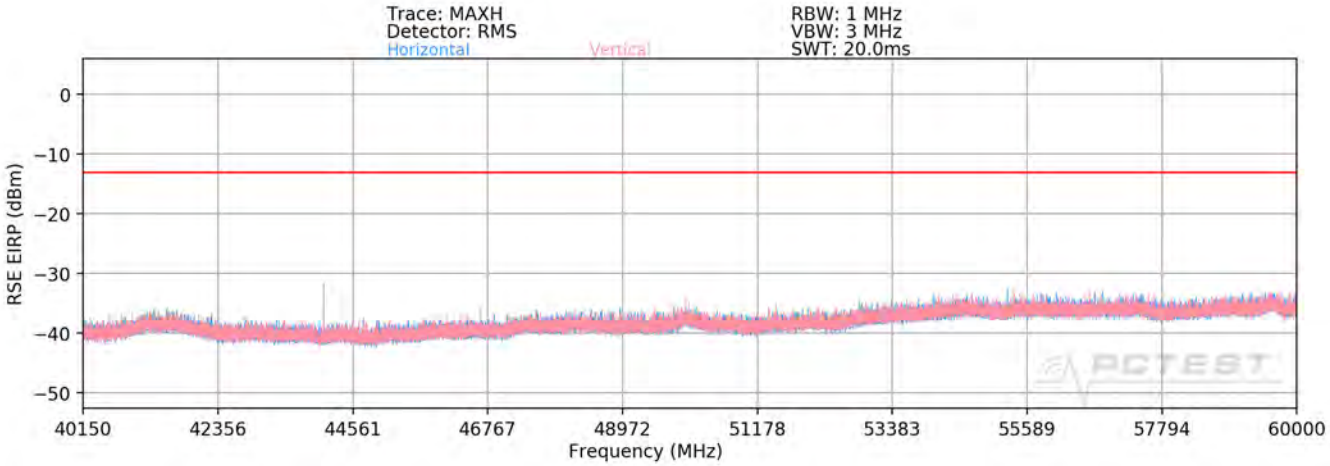
40.15GHz - 60GHz



Plot 7-159. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-160. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
42931.00	Low	50	H	QPSK	V	31	82	-26.05	-13.00	-13.05
42391.00	Low	50	V	QPSK	V	350	299	-35.66	-13.00	-22.66
44083.00	Mid	50	H	QPSK	V	333	261	-31.91	-13.00	-18.91
44083.00	Mid	50	V	QPSK	V	342	294	-34.93	-13.00	-21.93
46233.50	High	50	H	QPSK	V	338	289	-35.33	-13.00	-22.33
46233.50	High	50	V	QPSK	V	29	87	-34.41	-13.00	-21.41

Table 7-103. Ant1 - SISO -Spurious Emissions Table (40.15GHz - 60GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-25.59	-13.00	-12.59
Mid	50	QPSK	-30.16	-13.00	-17.16
High	50	QPSK	-31.83	-13.00	-18.83

Table 7-104. Ant1 - MIMO -Spurious Emissions Table (40.15GHz - 60GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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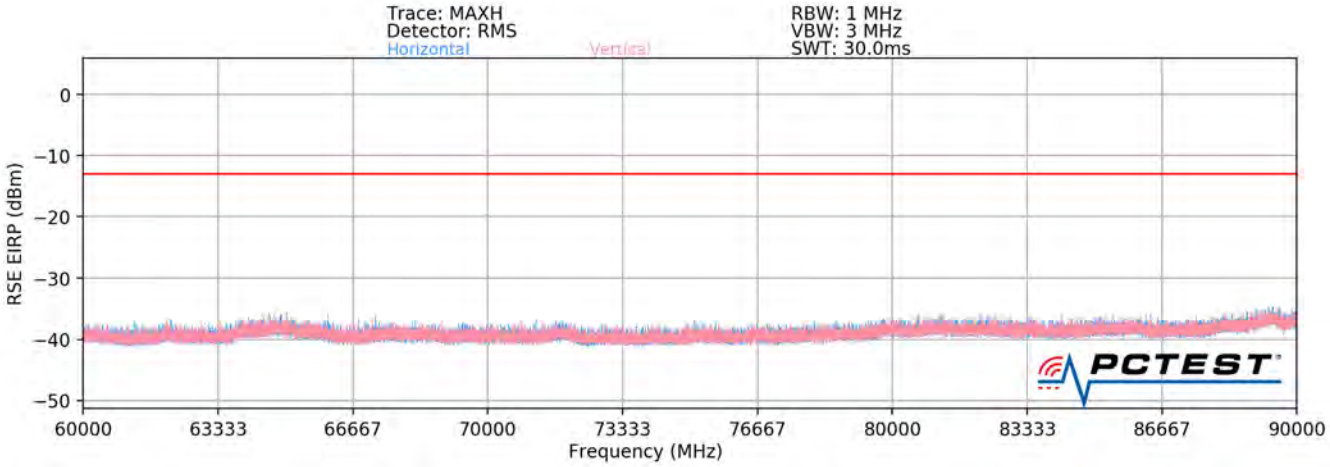
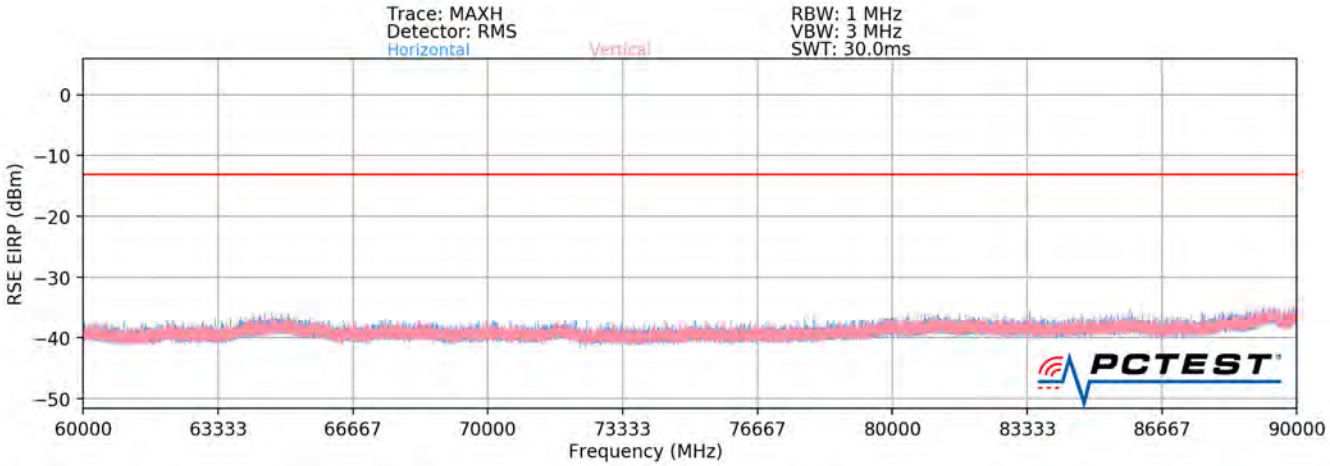
60GHz - 90GHz



Plot 7-161. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-162. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
74055.75	Low	50	H	QPSK	H	11	14	-42.99	-13.00	-29.99
74056.05	Low	50	V	QPSK	H	25	21	-42.86	-13.00	-29.86
76996.02	Mid	50	H	QPSK	H	266	94	-41.90	-13.00	-28.90
76995.75	Mid	50	V	QPSK	H	345	4	-43.58	-13.00	-30.58
79933.47	High	50	H	QPSK	H	354	5	-43.32	-13.00	-30.32
79933.02	High	50	V	QPSK	H	328	2	-40.88	-13.00	-27.88

Table 7-105. Ant1 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-39.91	-13.00	-26.91
Mid	50	QPSK	-39.65	-13.00	-26.65
High	50	QPSK	-38.92	-13.00	-25.92

Table 7-106. Ant1 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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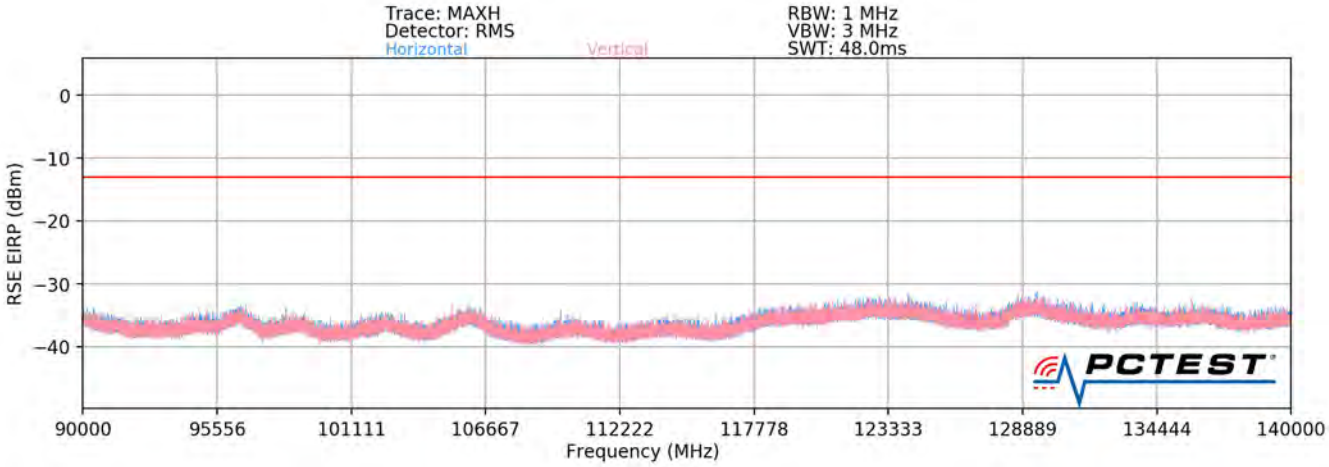
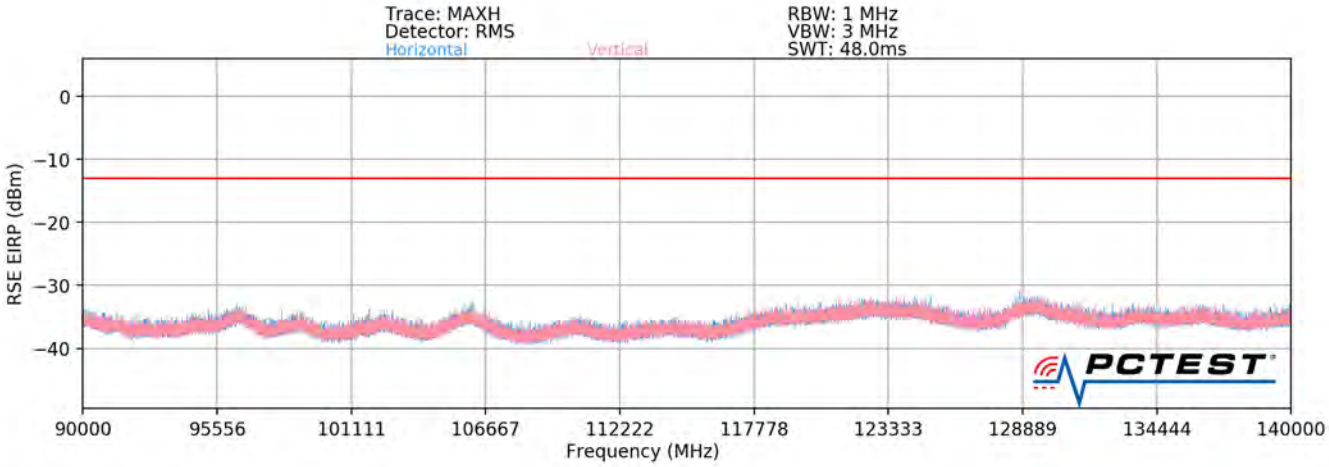
90GHz - 140GHz



Plot 7-163. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-164. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
111086.07	Low	50	H	QPSK	V	-	-	-41.45	-13.00	-28.45
111080.34	Low	50	V	QPSK	H	-	-	-41.31	-13.00	-28.31
115494.51	Mid	50	H	QPSK	V	-	-	-41.38	-13.00	-28.38
115488.09	Mid	50	V	QPSK	H	-	-	-41.29	-13.00	-28.29
119905.14	High	50	H	QPSK	V	228	39	-38.16	-13.00	-25.16
119904.57	High	50	V	QPSK	H	140	221	-40.57	-13.00	-27.57

Table 7-107. Ant1 - SISO -Spurious Emissions Table (90GHz - 140GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-38.37	-13.00	-25.37
Mid	50	QPSK	-38.32	-13.00	-25.32
High	50	QPSK	-36.19	-13.00	-23.19

Table 7-108. Ant1 - MIMO -Spurious Emissions Table (90GHz - 140GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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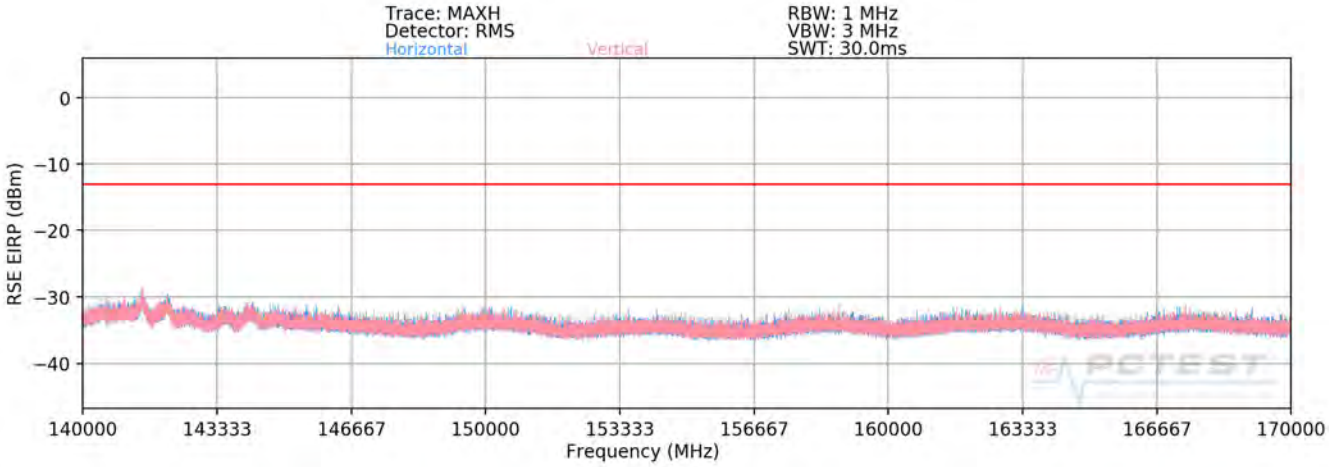
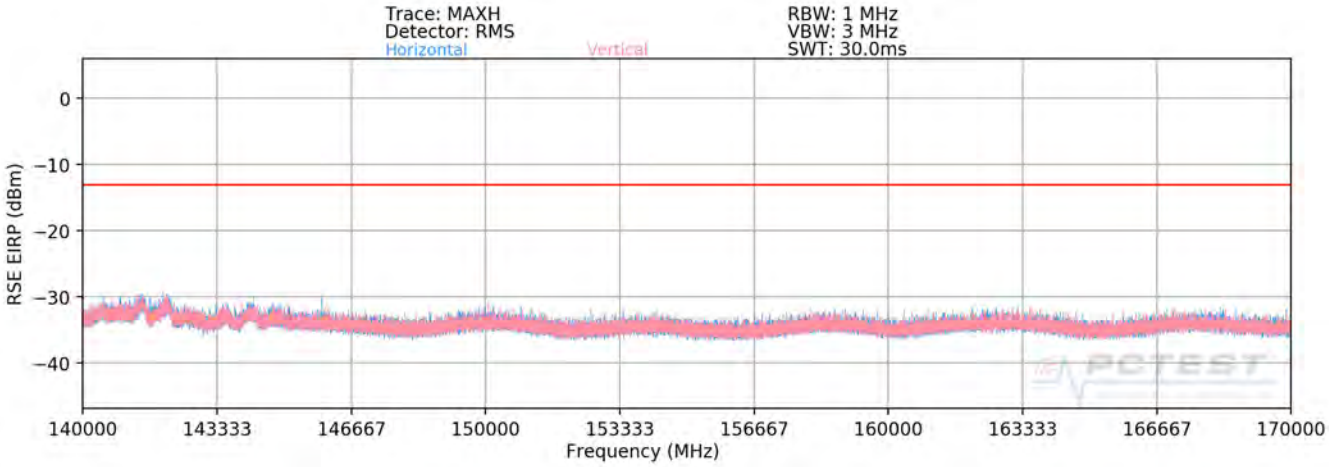
140GHz - 170GHz



Plot 7-165. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-166. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
141464.50	Low	50	H	QPSK	V	-	-	-36.35	-13.00	-23.35
141438.50	Low	50	V	QPSK	H	-	-	-36.53	-13.00	-23.53
141496.00	Mid	50	H	QPSK	V	-	-	-36.44	-13.00	-23.44
141493.50	Mid	50	V	QPSK	H	-	-	-36.57	-13.00	-23.57
141446.00	High	50	H	QPSK	V	-	-	-36.55	-13.00	-23.55
141478.50	High	50	V	QPSK	H	-	-	-36.39	-13.00	-23.39

Table 7-109. Ant1 - SISO -Spurious Emissions Table (140GHz - 170GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-33.43	-13.00	-20.43
Mid	50	QPSK	-33.50	-13.00	-20.50
High	50	QPSK	-33.46	-13.00	-20.46

Table 7-110. Ant1 - MIMO -Spurious Emissions Table (140GHz - 170GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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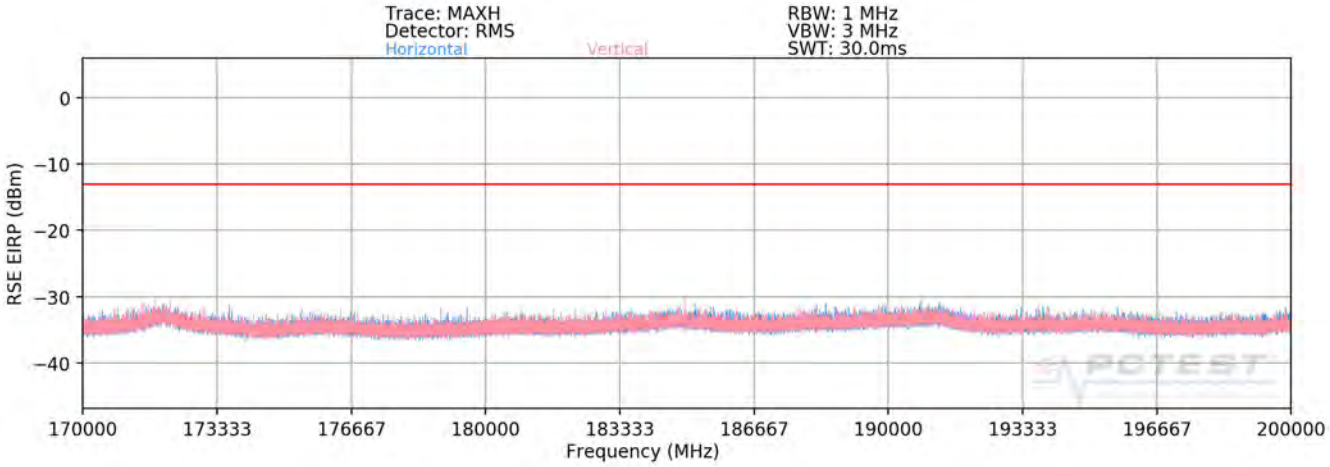
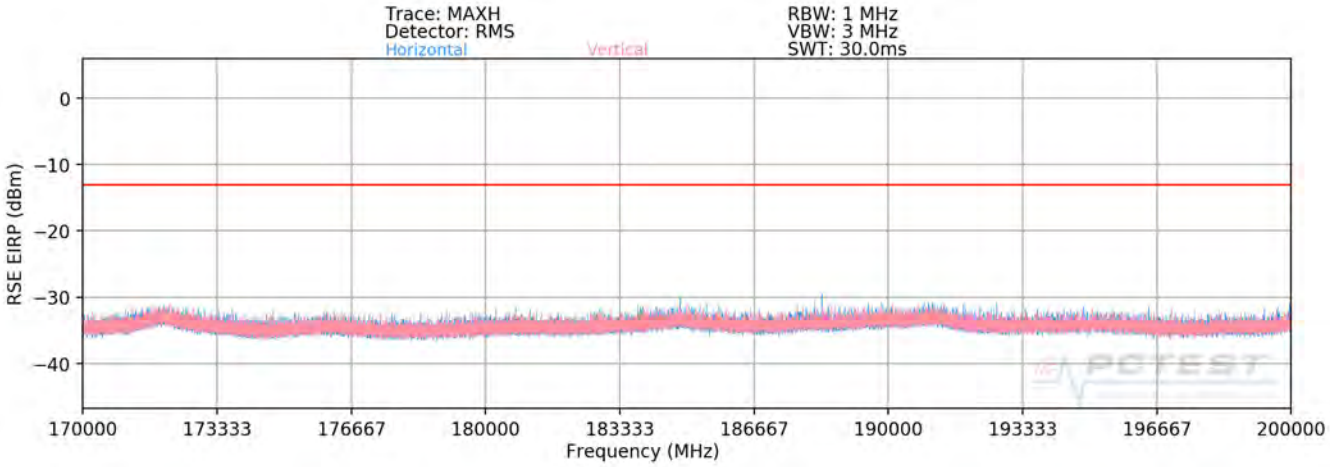
170GHz - 200GHz



Plot 7-167. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-168. Ant1-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
172180.00	Low	50	H	QPSK	V	-	-	-38.28	-13.00	-25.28
171961.50	Low	50	V	QPSK	H	-	-	-38.46	-13.00	-25.46
171983.00	Mid	50	H	QPSK	V	-	-	-38.62	-13.00	-25.62
172029.50	Mid	50	V	QPSK	H	-	-	-38.41	-13.00	-25.41
192226.50	High	50	H	QPSK	V	-	-	-38.34	-13.00	-25.34
171957.00	High	50	V	QPSK	H	-	-	-38.36	-13.00	-25.36

Table 7-111. Ant1 - SISO -Spurious Emissions Table (170GHz - 200GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-35.36	-13.00	-22.36
Mid	50	QPSK	-35.50	-13.00	-22.50
High	50	QPSK	-35.34	-13.00	-22.34

Table 7-112. Ant1 - MIMO -Spurious Emissions Table (170GHz - 200GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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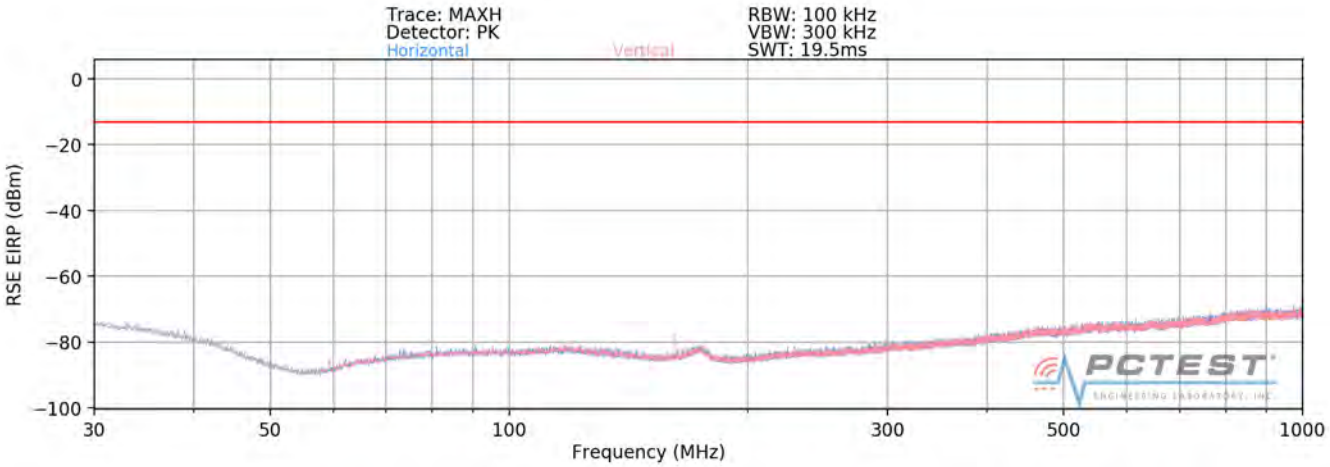
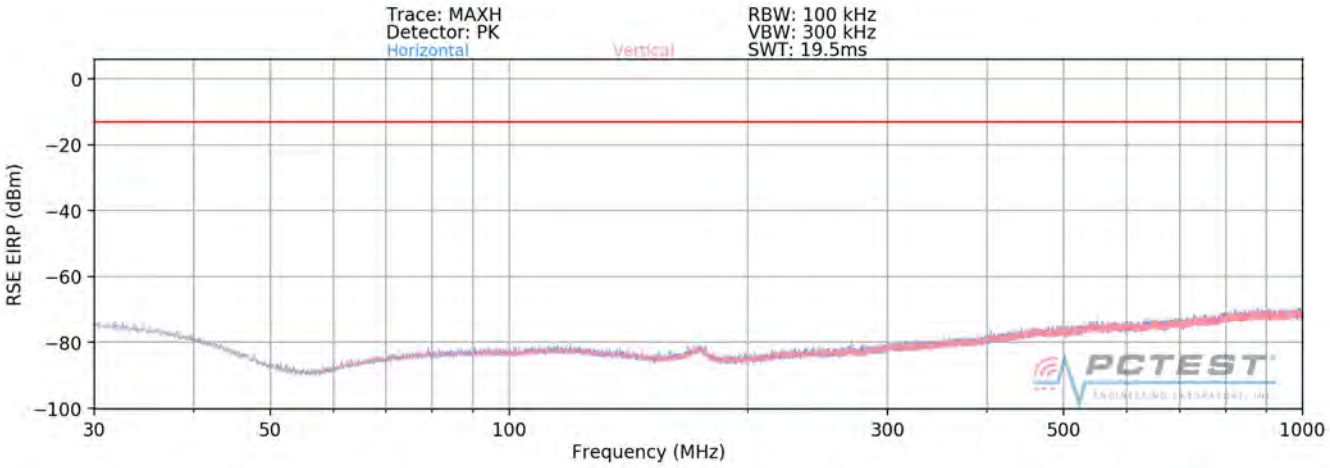
Band n260- Ant2
30MHz - 1GHz



Plot 7-169. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-170. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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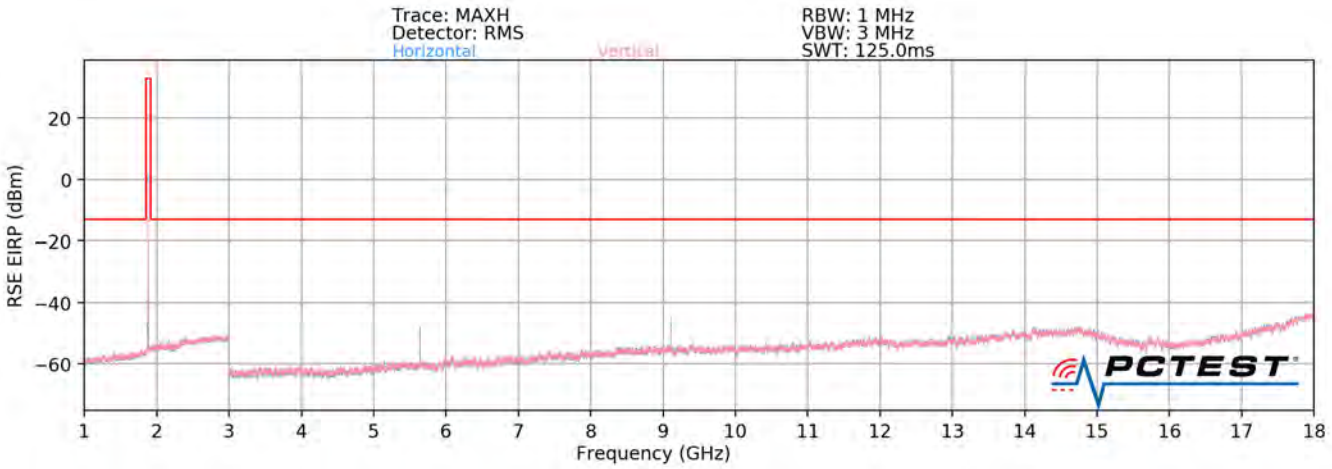
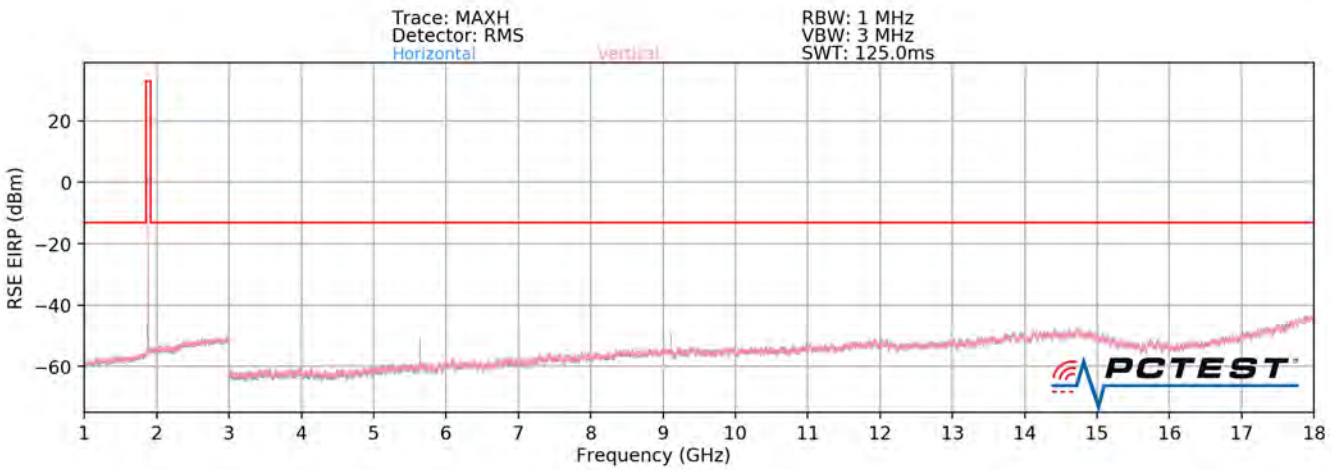
1GHz - 18GHz



Plot 7-171. Ant2-n260 Radiated Spurious Plot(1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-172. Ant2-n260 Radiated Spurious Plot(1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8407.15	Low	50	H	QPSK	H	124	27	-43.39	-13.00	-30.39
8407.15	Low	50	V	QPSK	H	127	294	-49.40	-13.00	-36.40
9109.17	Mid	50	H	QPSK	H	162	24	-42.57	-13.00	-29.57
9109.17	Mid	50	V	QPSK	H	148	58	-49.45	-13.00	-36.45
9144.46	High	50	H	QPSK	H	131	21	-45.45	-13.00	-32.45
9144.46	High	50	V	QPSK	H	148	58	-50.96	-13.00	-37.96

Table 7-113. Ant2 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-42.42	-13.00	-29.42
Mid	50	QPSK	-41.76	-13.00	-28.76
High	50	QPSK	-44.37	-13.00	-31.37

Table 7-114. Ant2 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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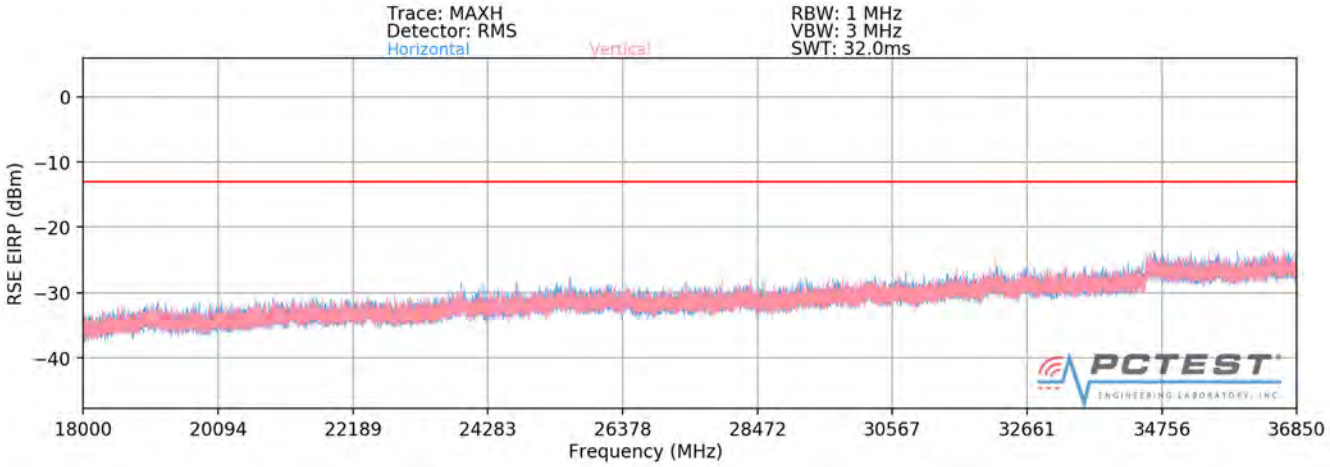
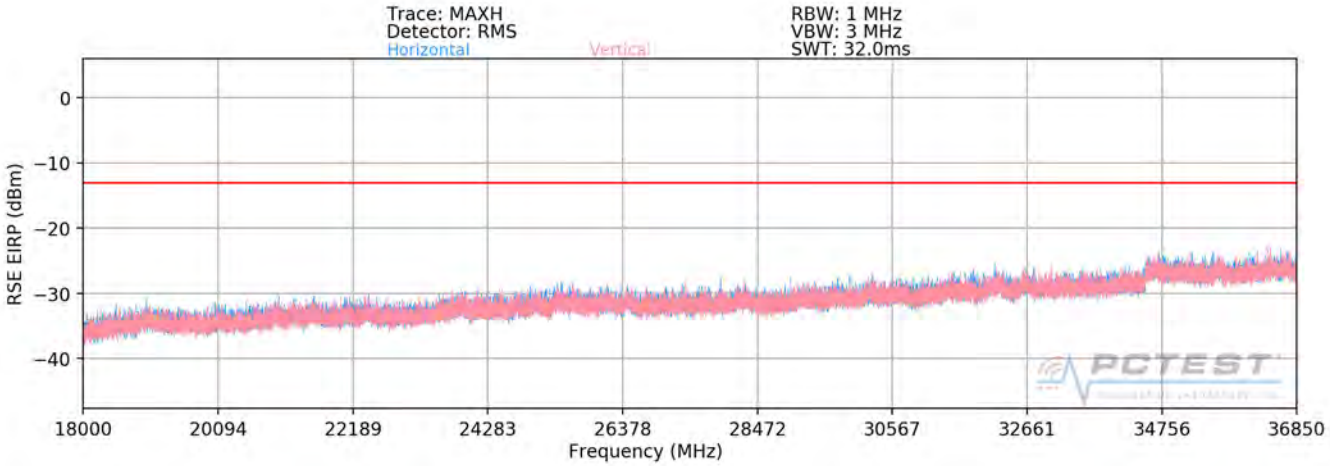
18GHz – 36.85GHz



Plot 7-173. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-174. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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Spurious Emissions EIRP Sample Calculation (n260)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
36720.68	Low	50	H	QPSK	H	85	233	-29.98	-13.00	-16.98
36477.70	Low	50	V	QPSK	V	103	268	-30.03	-13.00	-17.03
36427.32	Mid	50	H	QPSK	H	34	235	-31.09	-13.00	-18.09
36459.52	Mid	50	V	QPSK	V	78	340	-31.11	-13.00	-18.11
36462.17	High	50	H	QPSK	H	-	-	-31.69	-13.00	-18.69
36504.97	High	50	V	QPSK	V	-	-	-31.74	-13.00	-18.74

Table 7-115. Ant2 - SISO -Spurious Emissions Table (18GHz – 36.85GHz)

Channnel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-26.99	-13.00	-13.99
Mid	50	QPSK	-28.09	-13.00	-15.09
High	50	QPSK	-28.71	-13.00	-15.71

Table 7-116. Ant2 - MIMO -Spurious Emissions Table (18GHz – 36.85GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

EIRP(H Beam) + EIRP(V Beam) = EIRP(MIMO)

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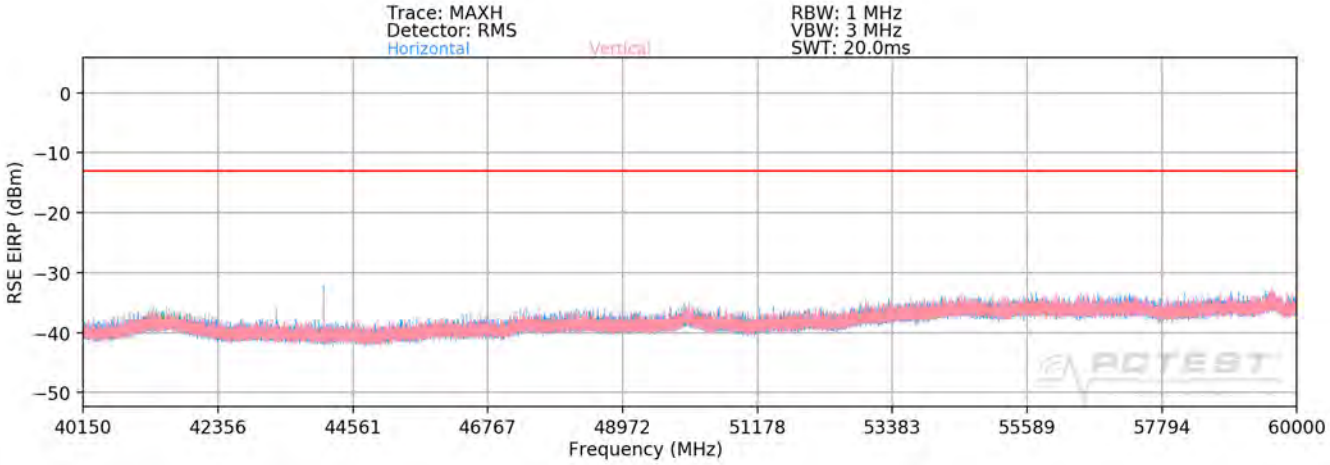
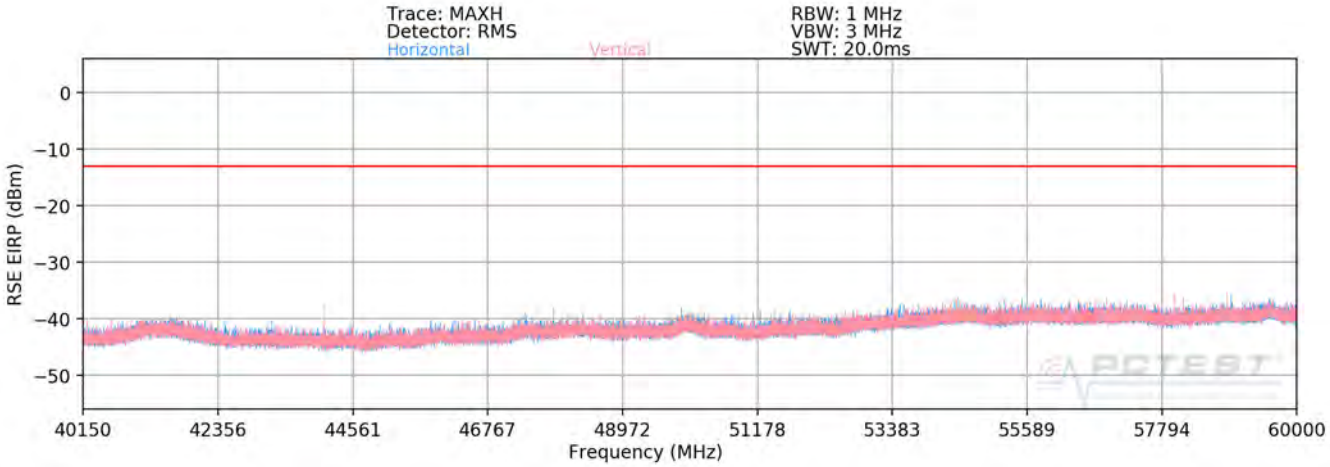
40.15GHz - 60GHz



Plot 7-175. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-176. Ant2-n260 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

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