

APPENDIX B 5G NR N48 RF TEST DATA

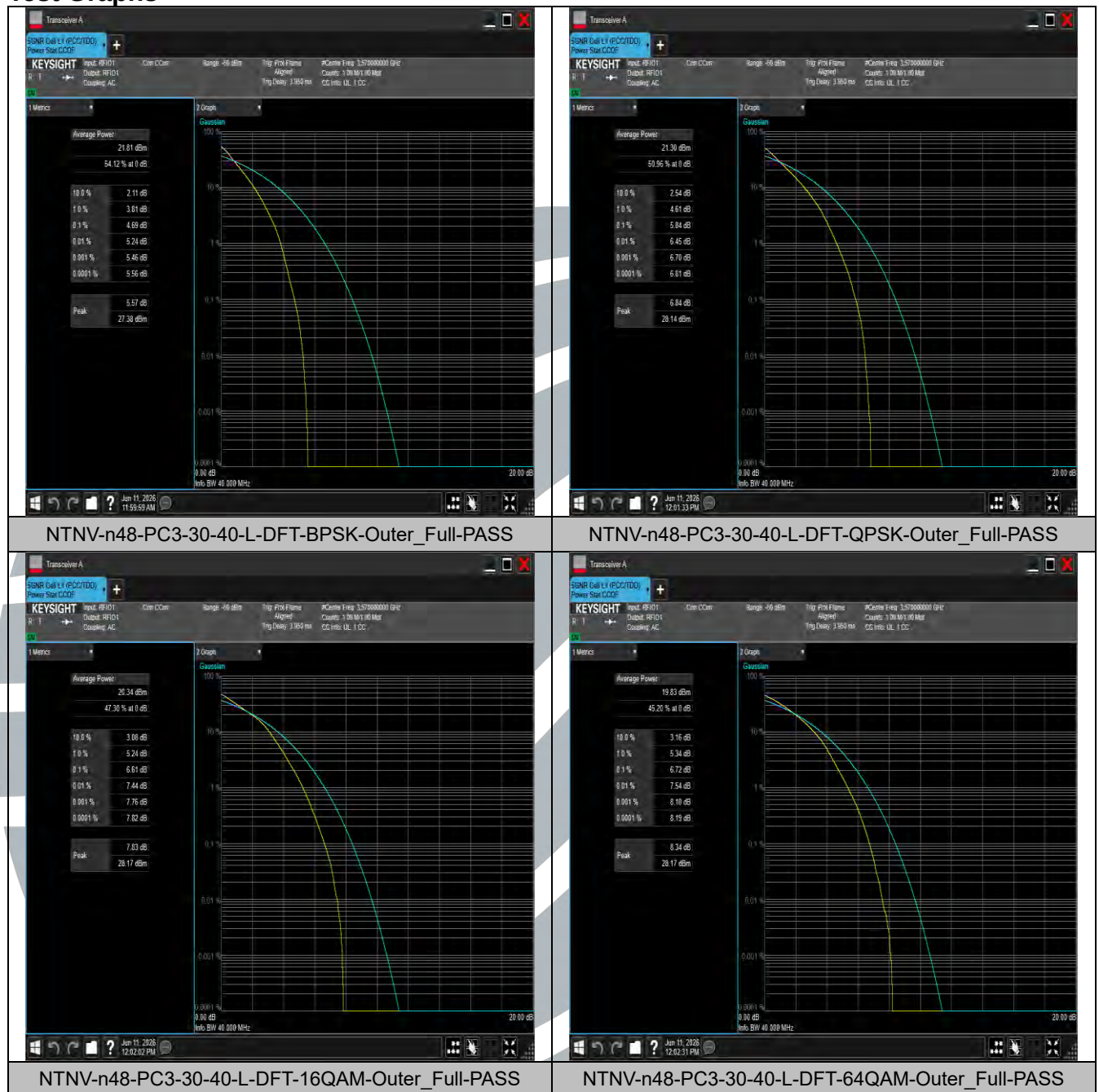
B.1 PEAK-TO-AVERAGE RATIO FOR SA

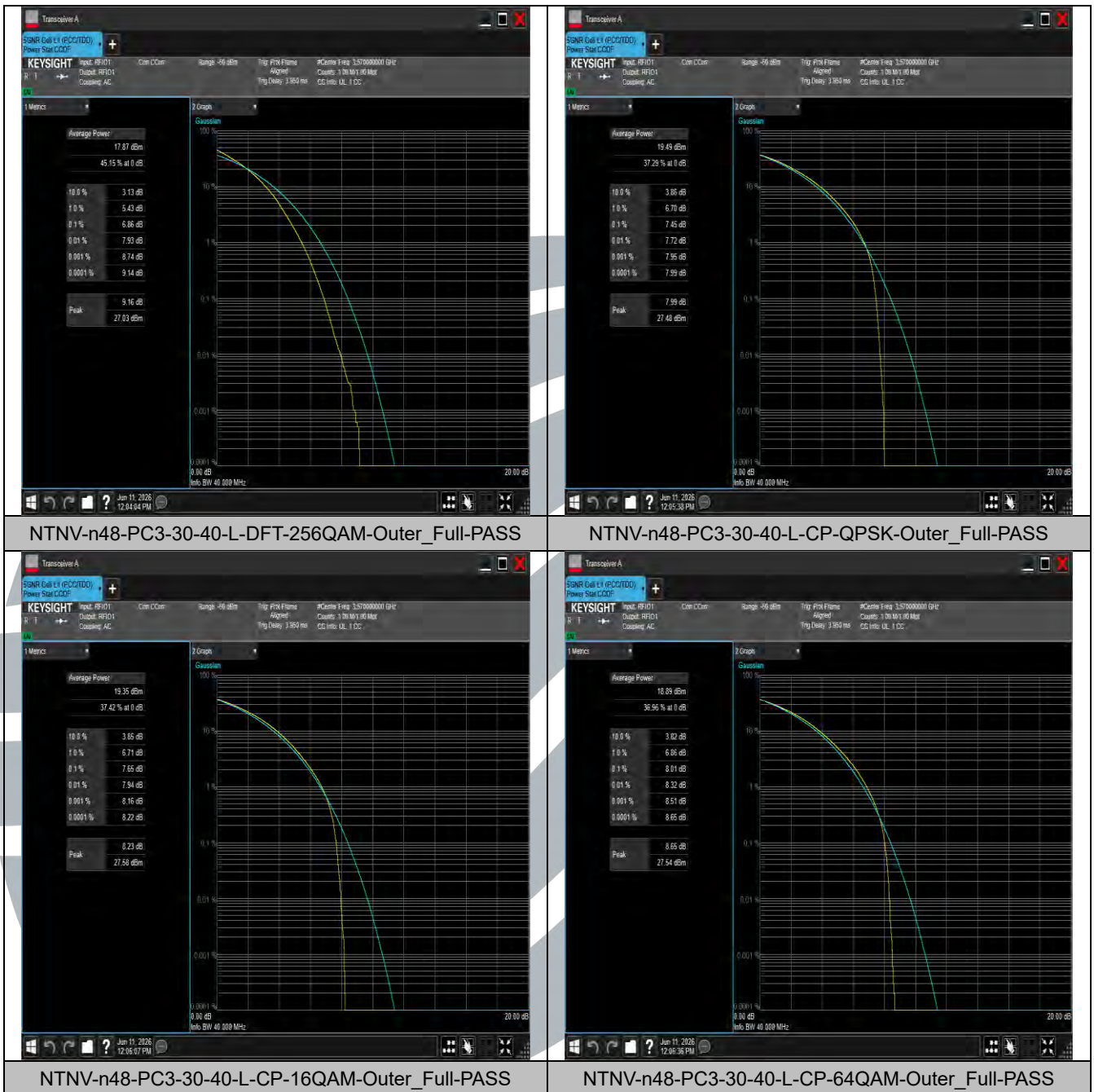
➤ Peak-to-Average Ratio(CCDF)

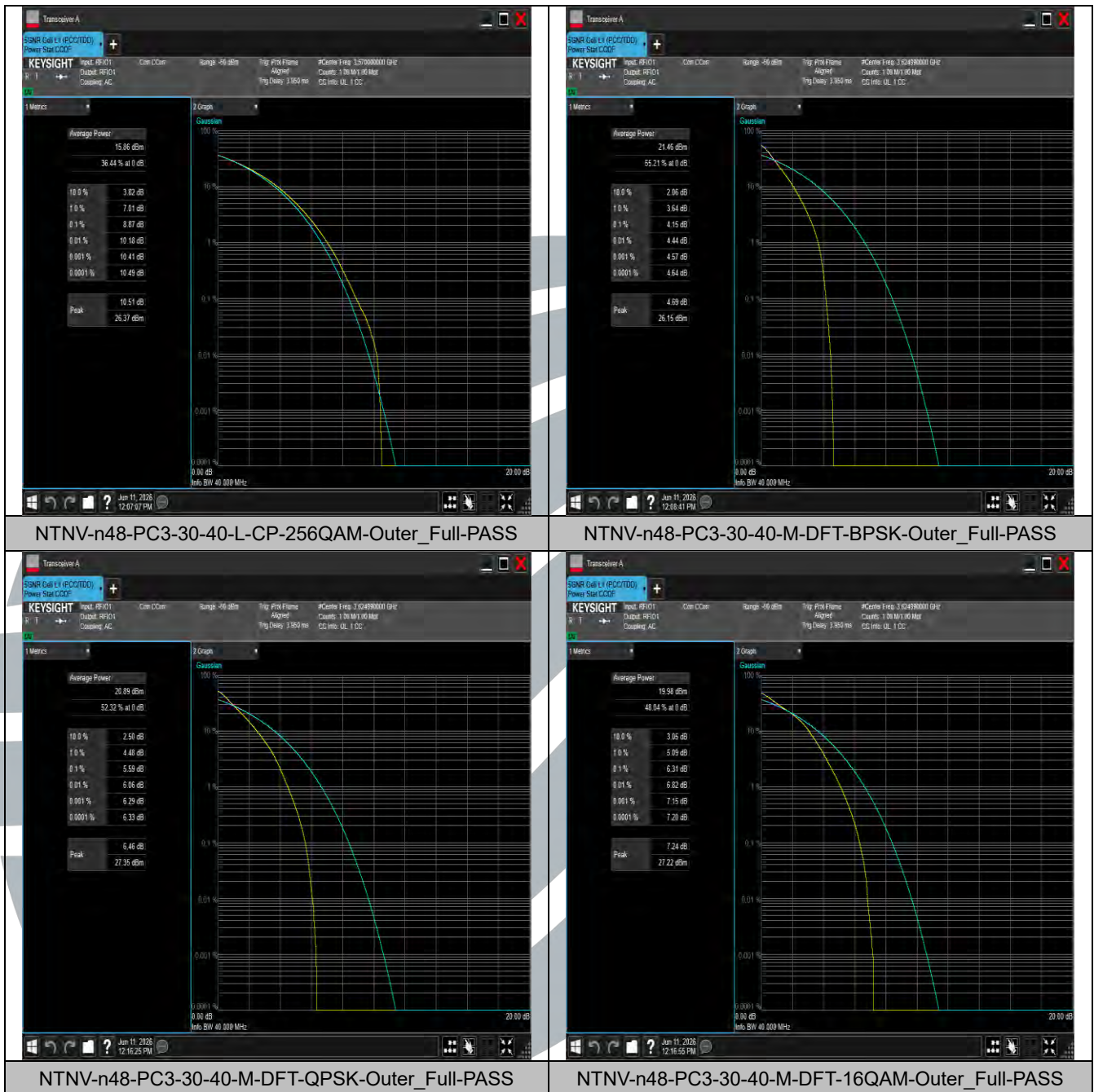
Test Result

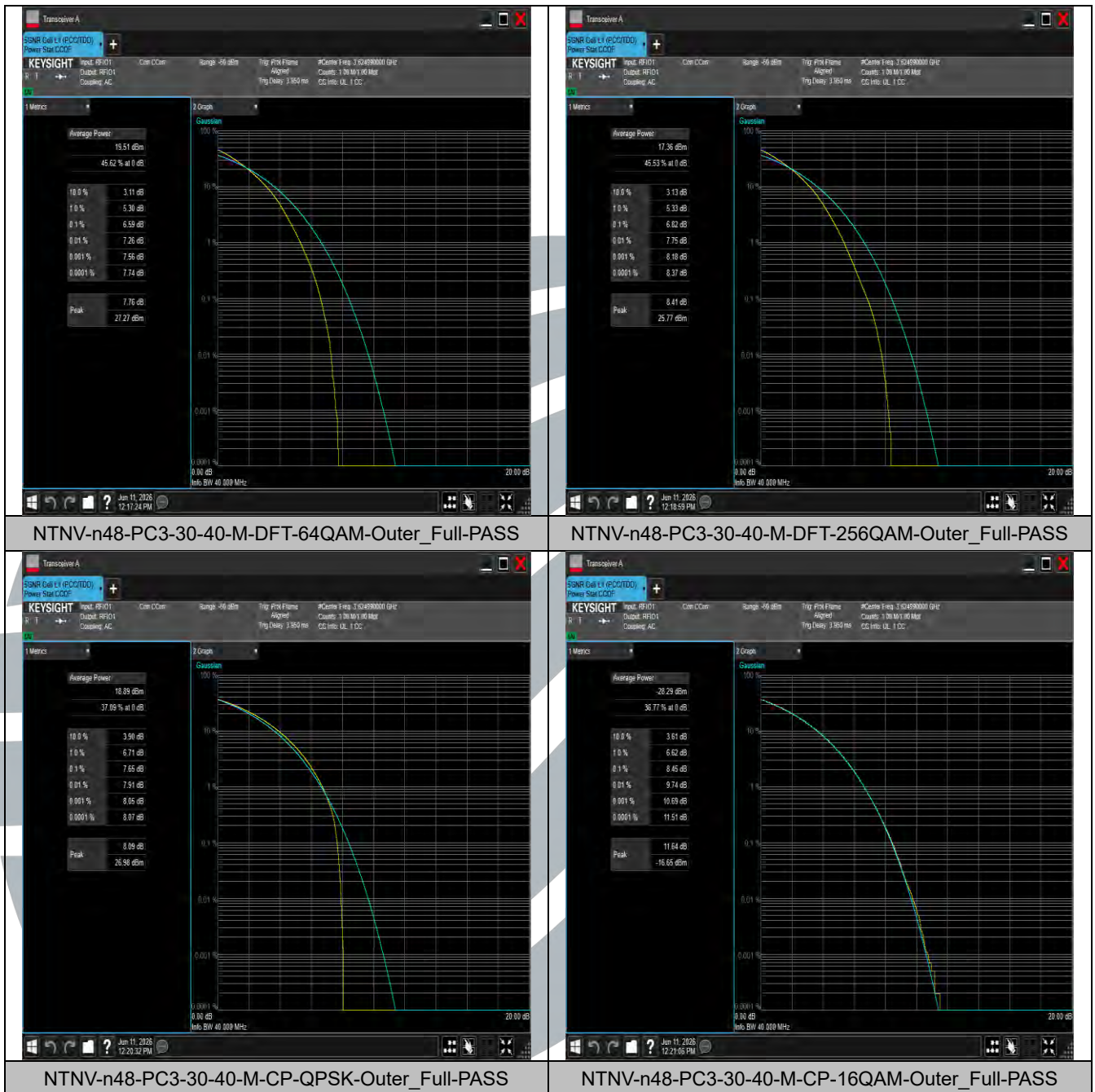
Band	SCS	Bandwidth	Modulation	Channel	RB Config	Result	Limit	Verdict
n48	30	40	DFT-BPSK	L	Outer_Full	4.69	≤13dB	PASS
n48	30	40	DFT-QPSK	L	Outer_Full	5.84	≤13dB	PASS
n48	30	40	DFT-16QAM	L	Outer_Full	6.61	≤13dB	PASS
n48	30	40	DFT-64QAM	L	Outer_Full	6.72	≤13dB	PASS
n48	30	40	DFT-256QAM	L	Outer_Full	6.86	≤13dB	PASS
n48	30	40	CP-QPSK	L	Outer_Full	7.45	≤13dB	PASS
n48	30	40	CP-16QAM	L	Outer_Full	7.65	≤13dB	PASS
n48	30	40	CP-64QAM	L	Outer_Full	8.01	≤13dB	PASS
n48	30	40	CP-256QAM	L	Outer_Full	8.87	≤13dB	PASS
n48	30	40	DFT-BPSK	M	Outer_Full	4.15	≤13dB	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	5.59	≤13dB	PASS
n48	30	40	DFT-16QAM	M	Outer_Full	6.31	≤13dB	PASS
n48	30	40	DFT-64QAM	M	Outer_Full	6.59	≤13dB	PASS
n48	30	40	DFT-256QAM	M	Outer_Full	6.82	≤13dB	PASS
n48	30	40	CP-QPSK	M	Outer_Full	7.65	≤13dB	PASS
n48	30	40	CP-16QAM	M	Outer_Full	8.45	≤13dB	PASS
n48	30	40	CP-64QAM	M	Outer_Full	7.31	≤13dB	PASS
n48	30	40	CP-256QAM	M	Outer_Full	8.55	≤13dB	PASS
n48	30	40	DFT-BPSK	H	Outer_Full	4.38	≤13dB	PASS
n48	30	40	DFT-QPSK	H	Outer_Full	5.45	≤13dB	PASS
n48	30	40	DFT-16QAM	H	Outer_Full	6.29	≤13dB	PASS
n48	30	40	DFT-64QAM	H	Outer_Full	6.57	≤13dB	PASS
n48	30	40	DFT-256QAM	H	Outer_Full	6.78	≤13dB	PASS
n48	30	40	CP-QPSK	H	Outer_Full	7.5	≤13dB	PASS
n48	30	40	CP-16QAM	H	Outer_Full	7.61	≤13dB	PASS
n48	30	40	CP-64QAM	H	Outer_Full	7.44	≤13dB	PASS
n48	30	40	CP-256QAM	H	Outer_Full	8.51	≤13dB	PASS

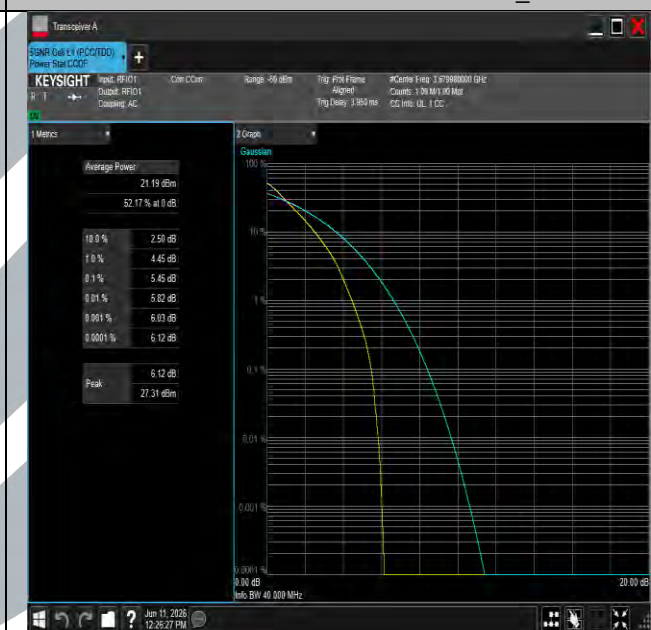
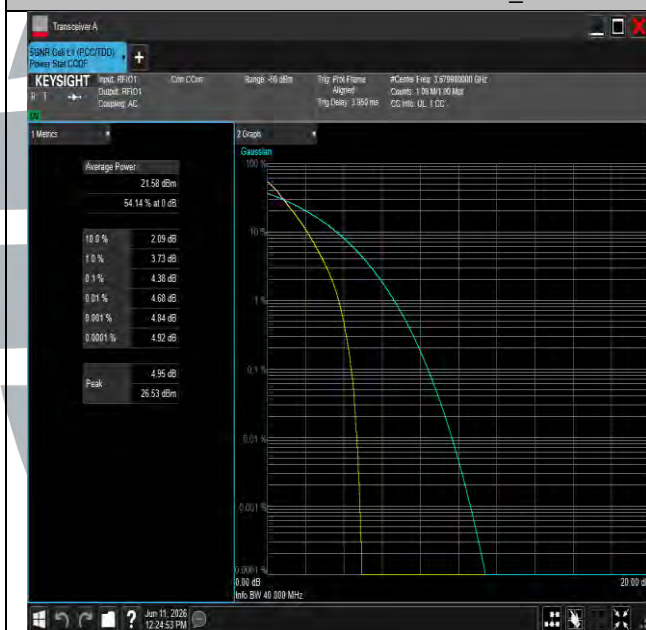
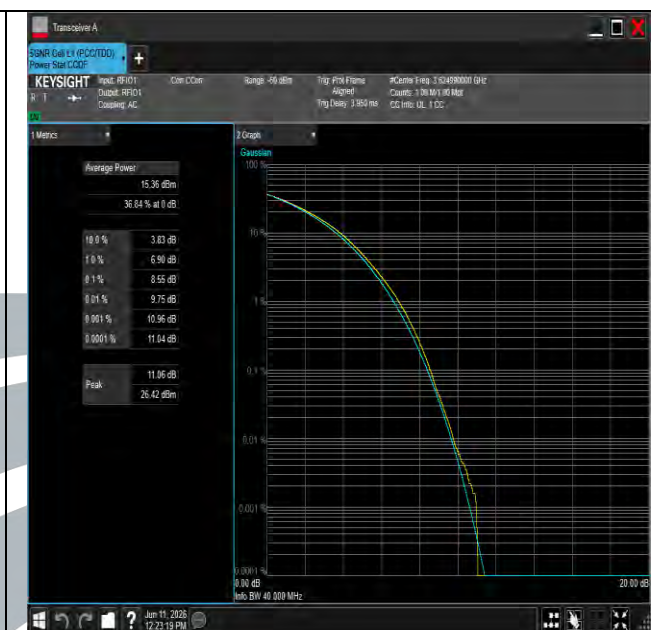
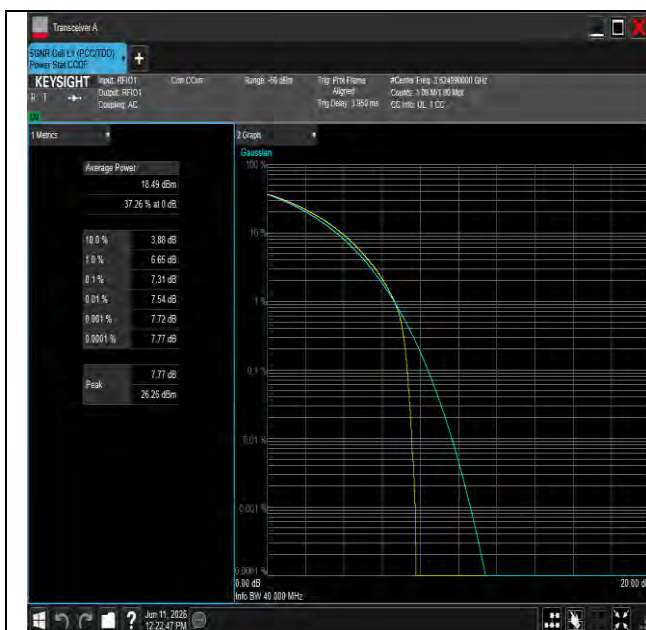
Test Graphs

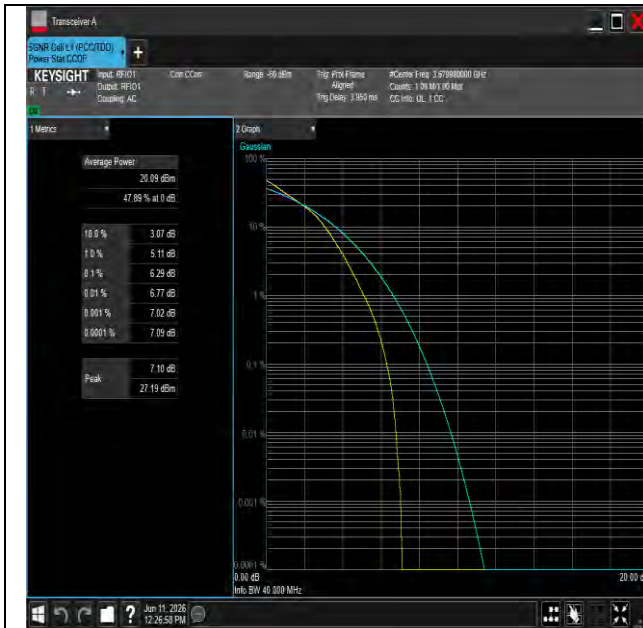




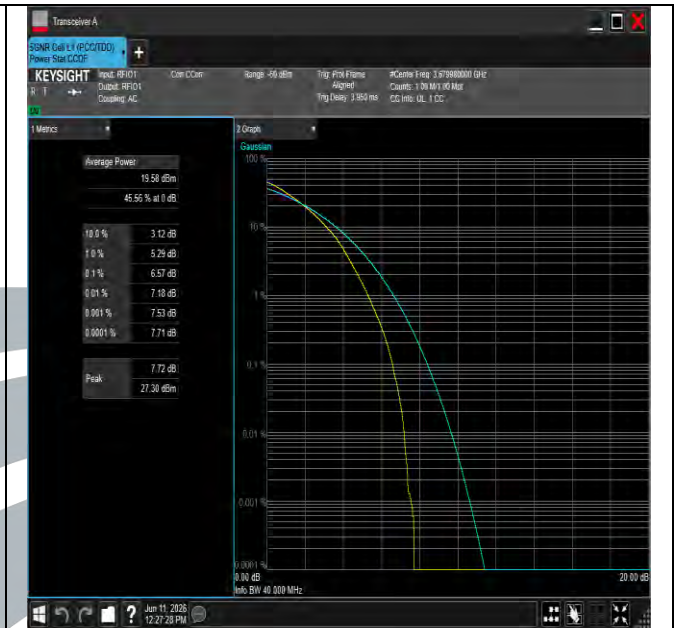




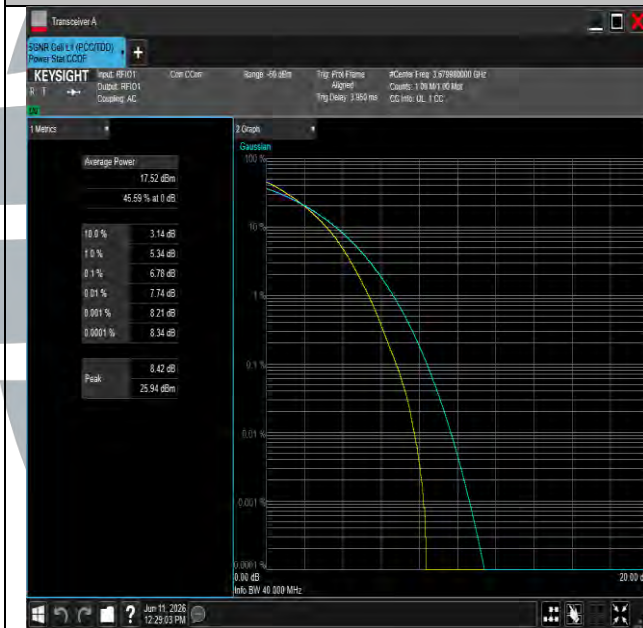




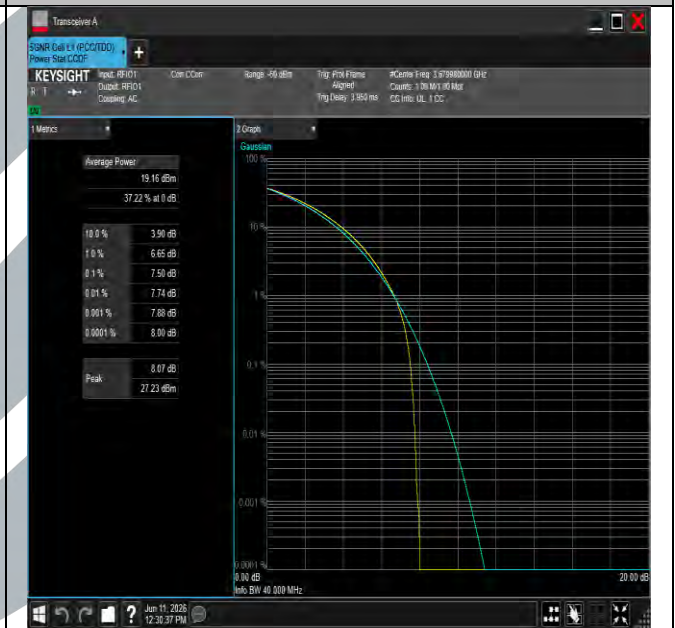
NTNV-n48-PC3-30-40-H-DFT-16QAM-Outter_Full-PASS



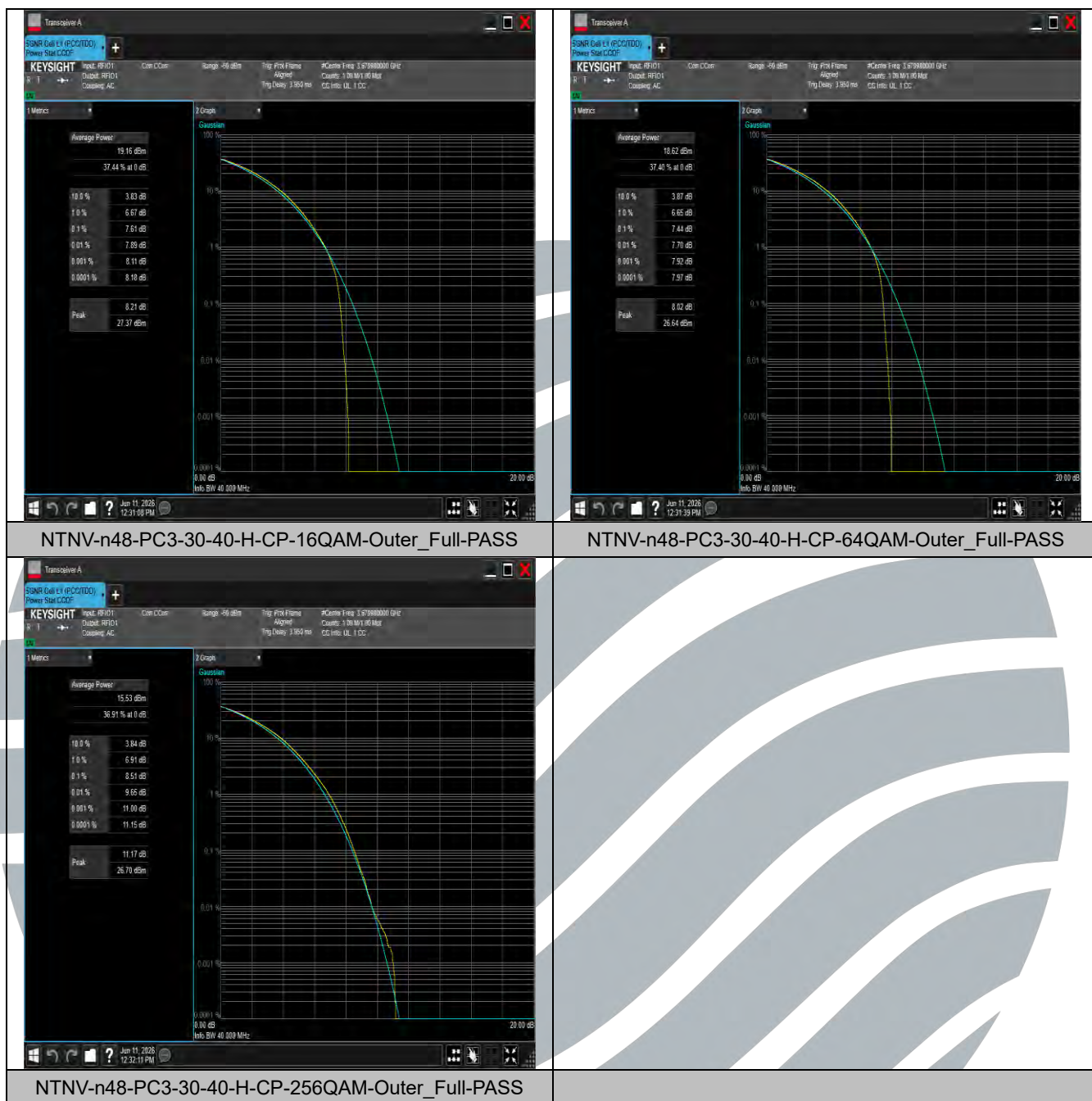
NTNV-n48-PC3-30-40-H-DFT-64QAM-Outter_Full-PASS



NTNV-n48-PC3-30-40-H-DFT-256QAM-Outter_Full-PASS



NTNV-n48-PC3-30-40-H-CP-QPSK-Outter_Full-PASS

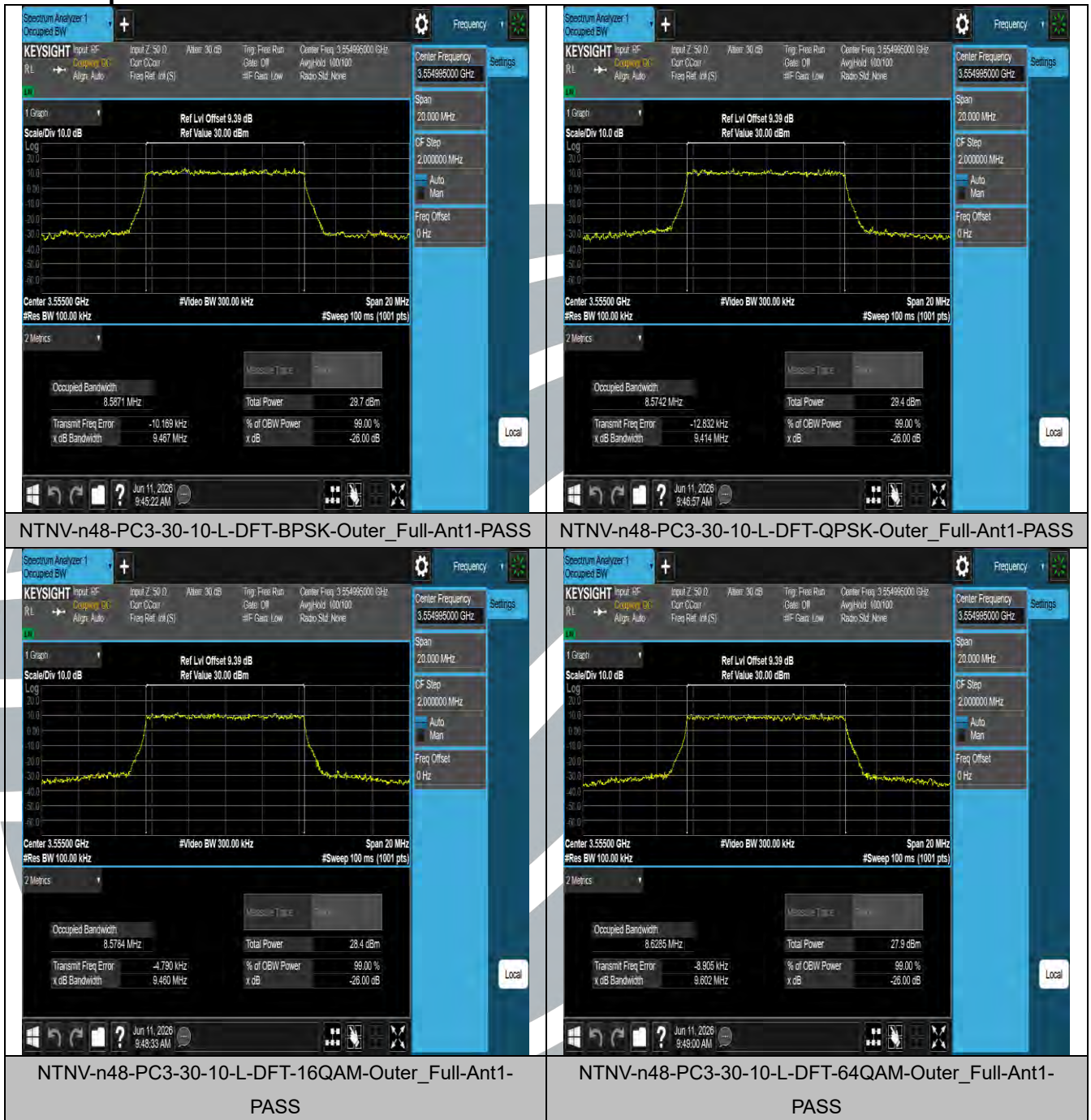


B.2 26DB BANDWIDTH AND OCCUPIED BANDWIDTH FOR SA

Test Result

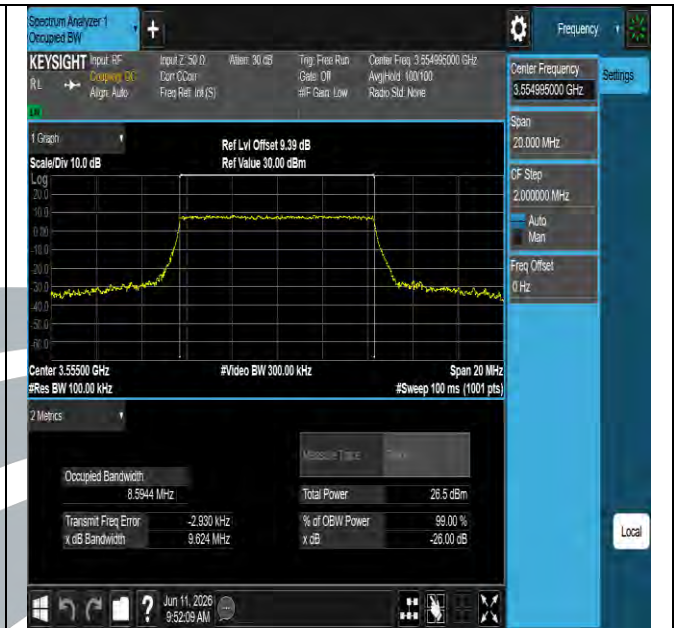
Band	SCS (kHz)	Bandwidth h (MHz)	Modulation	Channel	RB Config	Result (99%)	Result (26dB)	Verdict
n48	30	10	DFT-QPSK	L	Outer Full	8.5742	9.414	PASS
n48	30	10	DFT-16QAM	L	Outer Full	8.5784	9.460	PASS
n48	30	10	DFT-QPSK	M	Outer Full	8.5820	9.500	PASS
n48	30	10	DFT-16QAM	M	Outer Full	8.5839	9.485	PASS
n48	30	10	DFT-QPSK	H	Outer Full	8.6034	9.474	PASS
n48	30	10	DFT-16QAM	H	Outer Full	8.5870	9.463	PASS
n48	30	20	DFT-QPSK	L	Outer Full	17.836	18.88	PASS
n48	30	20	DFT-16QAM	L	Outer Full	17.860	18.87	PASS
n48	30	20	DFT-QPSK	M	Outer Full	17.850	19.06	PASS
n48	30	20	DFT-16QAM	M	Outer Full	17.848	18.92	PASS
n48	30	20	DFT-QPSK	H	Outer Full	17.855	19.01	PASS
n48	30	20	DFT-16QAM	H	Outer Full	17.862	18.93	PASS
n48	30	40	DFT-QPSK	L	Outer Full	35.661	37.45	PASS
n48	30	40	DFT-16QAM	L	Outer Full	35.628	37.43	PASS
n48	30	40	DFT-QPSK	M	Outer Full	35.679	37.45	PASS
n48	30	40	DFT-16QAM	M	Outer Full	35.652	37.46	PASS
n48	30	40	DFT-QPSK	H	Outer Full	35.651	37.42	PASS
n48	30	40	DFT-16QAM	H	Outer Full	35.687	37.39	PASS

Test Graphs





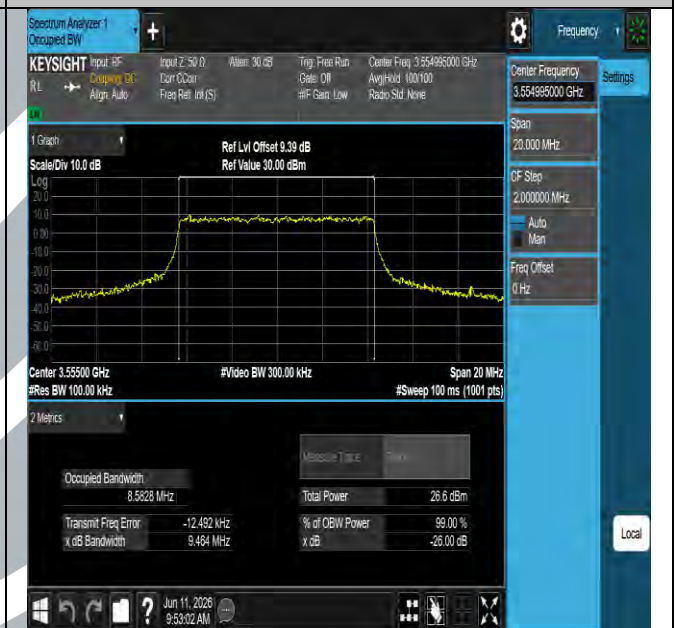
NTNV-n48-PC3-30-10-L-DFT-256QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-L-CP-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-L-CP-16QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-L-CP-64QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-L-CP-256QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-M-DFT-BPSK-Outer_Full-Ant1-PASS



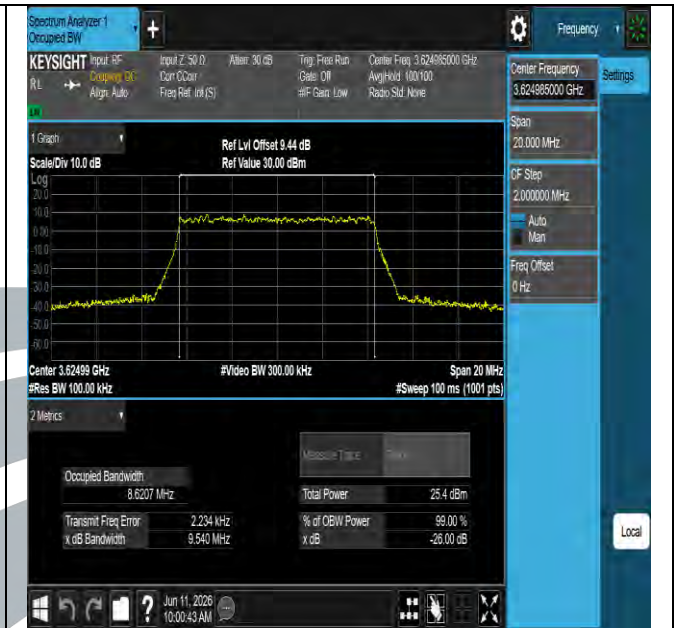
NTNV-n48-PC3-30-10-M-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-M-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-M-DFT-64QAM-Outet_Full-Ant1-PASS



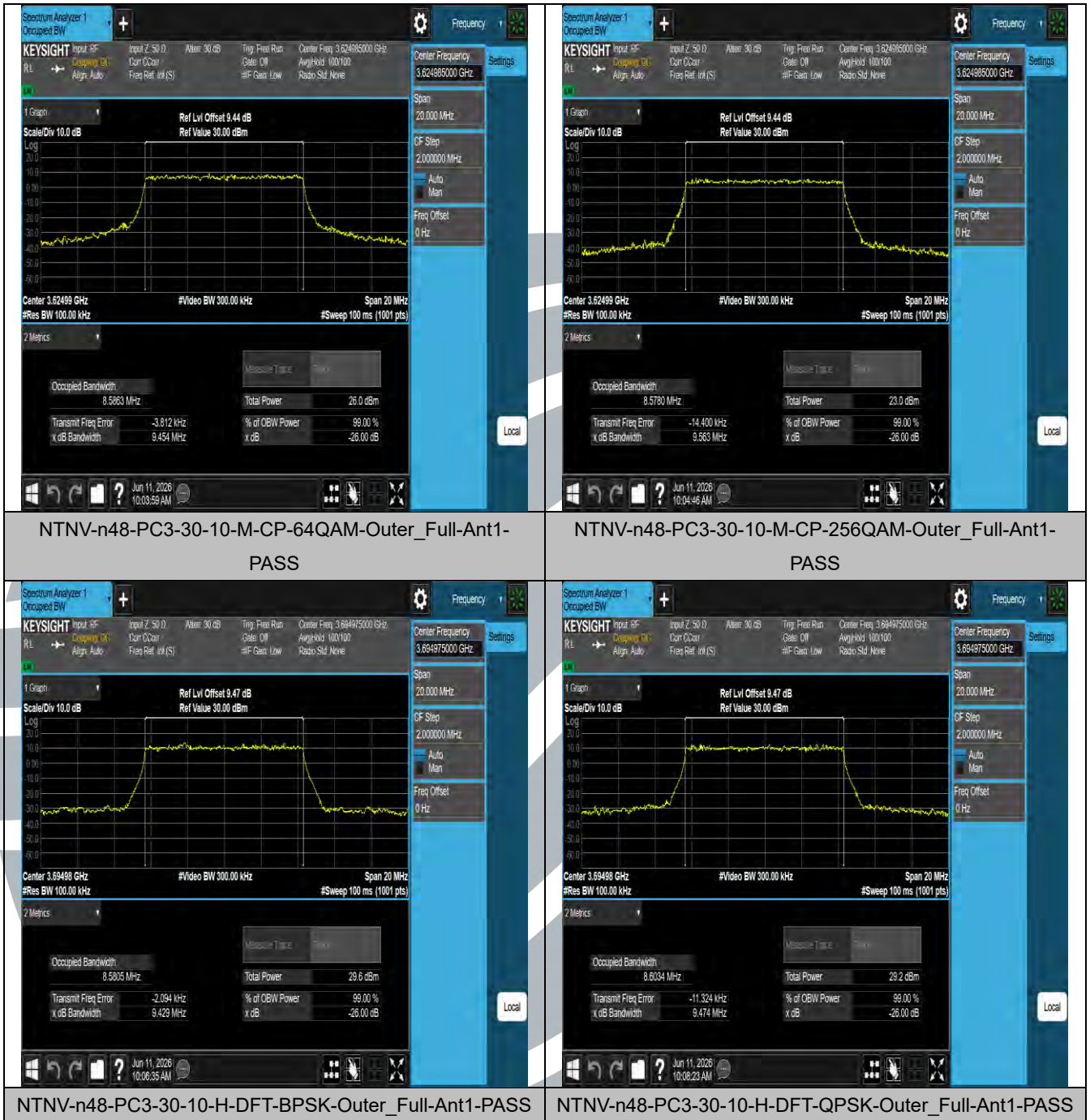
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NTNV-n48-PC3-30-10-M-CP-QPSK-Outet_Full-Ant1-PASS

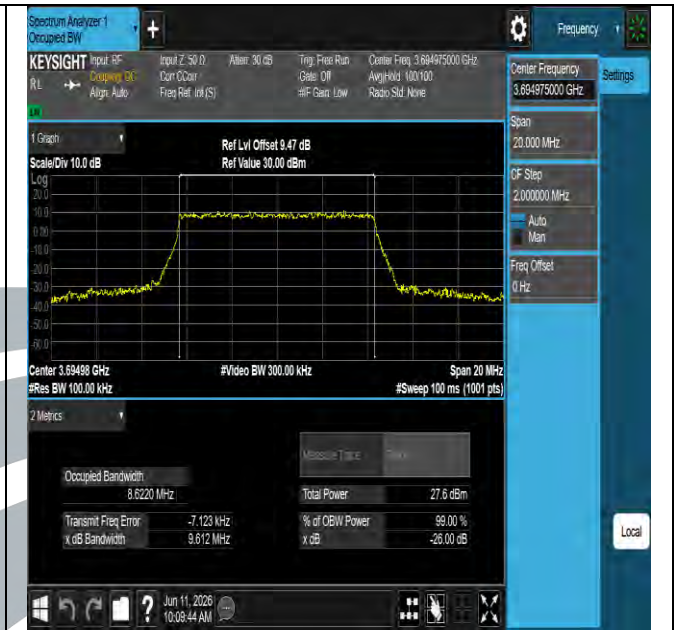


NTNV-n48-PC3-30-10-M-CP-16QAM-Outet_Full-Ant1-PASS





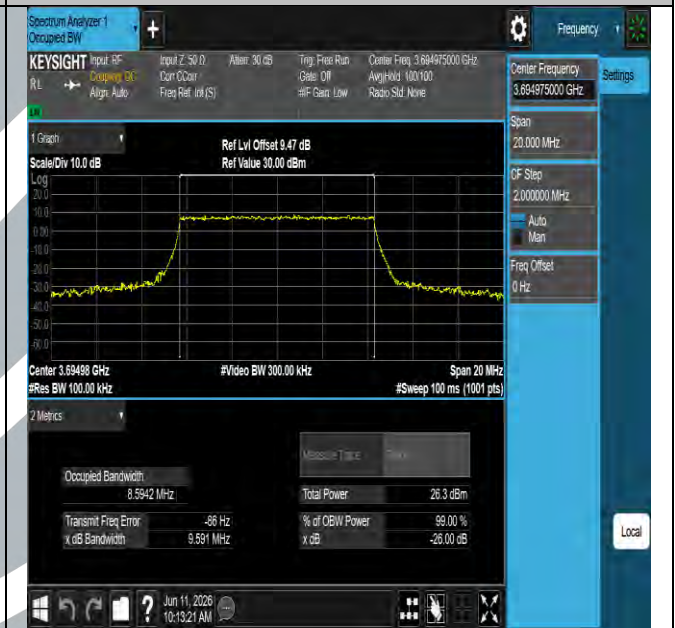
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PASS



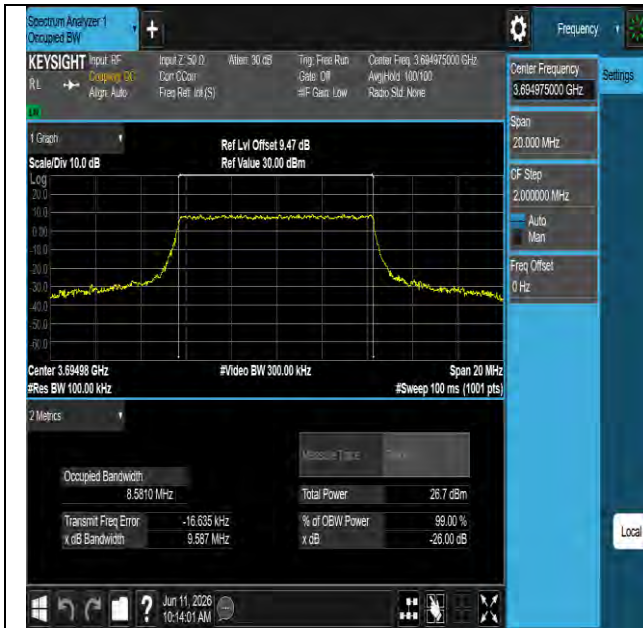
NTNV-n48-PC3-30-10-H-DFT-64QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-10-H-DFT-256QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-10-H-CP-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-10-H-CP-16QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-10-H-CP-64QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-10-H-CP-256QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-20-L-DFT-BPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-L-DFT-QPSK-Outer_Full-Ant1-PASS



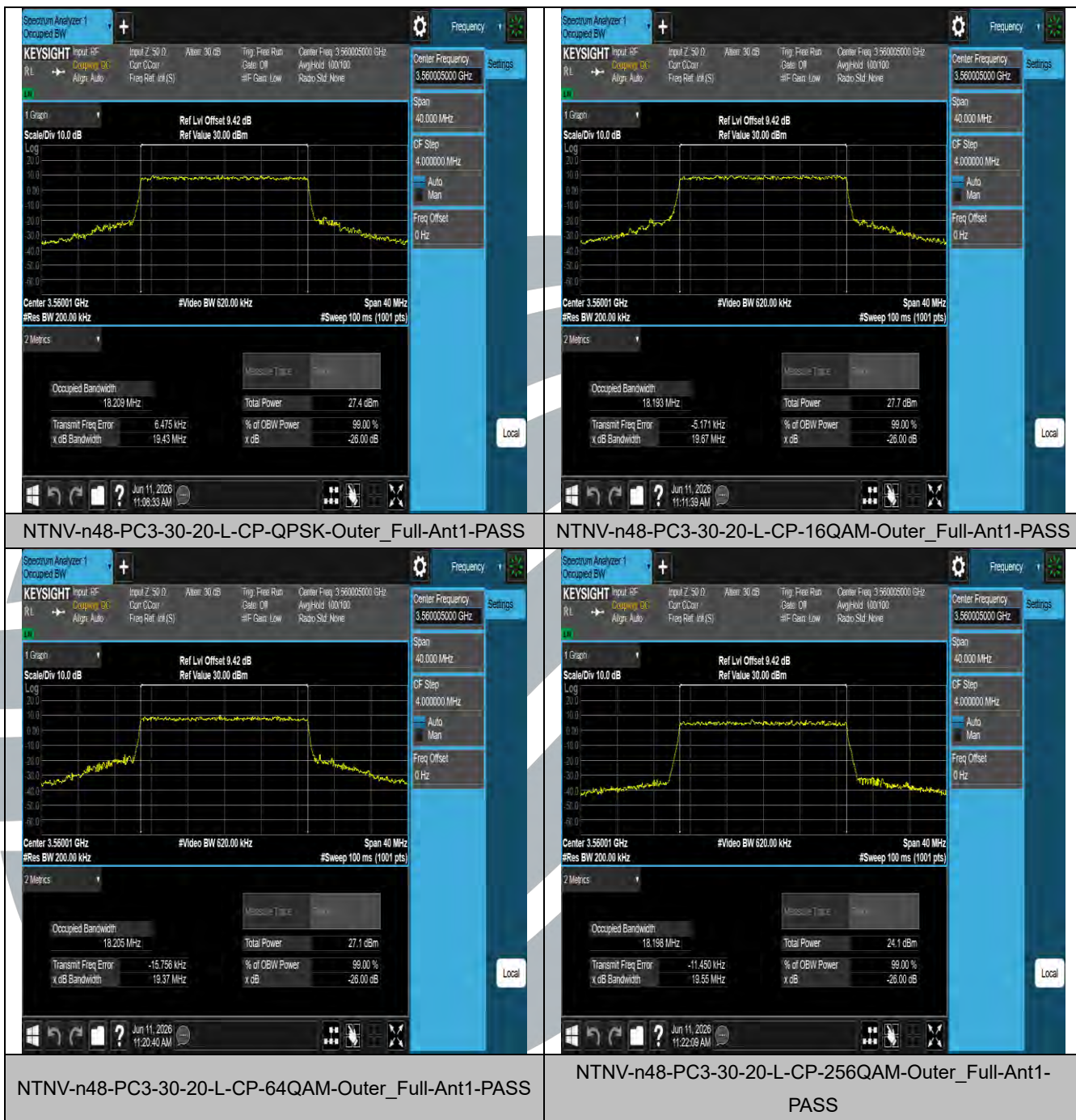
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NTNV-n48-PC3-30-20-L-DFT-64QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-L-DFT-256QAM-Outer_Full-Ant1-PASS





NTNV-n48-PC3-30-20-M-DFT-BPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-DFT-64QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-DFT-256QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-CP-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-CP-16QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-CP-64QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-M-CP-256QAM-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-20-H-DFT-BPSK-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-20-H-DFT-QPSK-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-20-H-DFT-16QAM-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-20-H-DFT-64QAM-Outer_Full-Ant1-
PASS



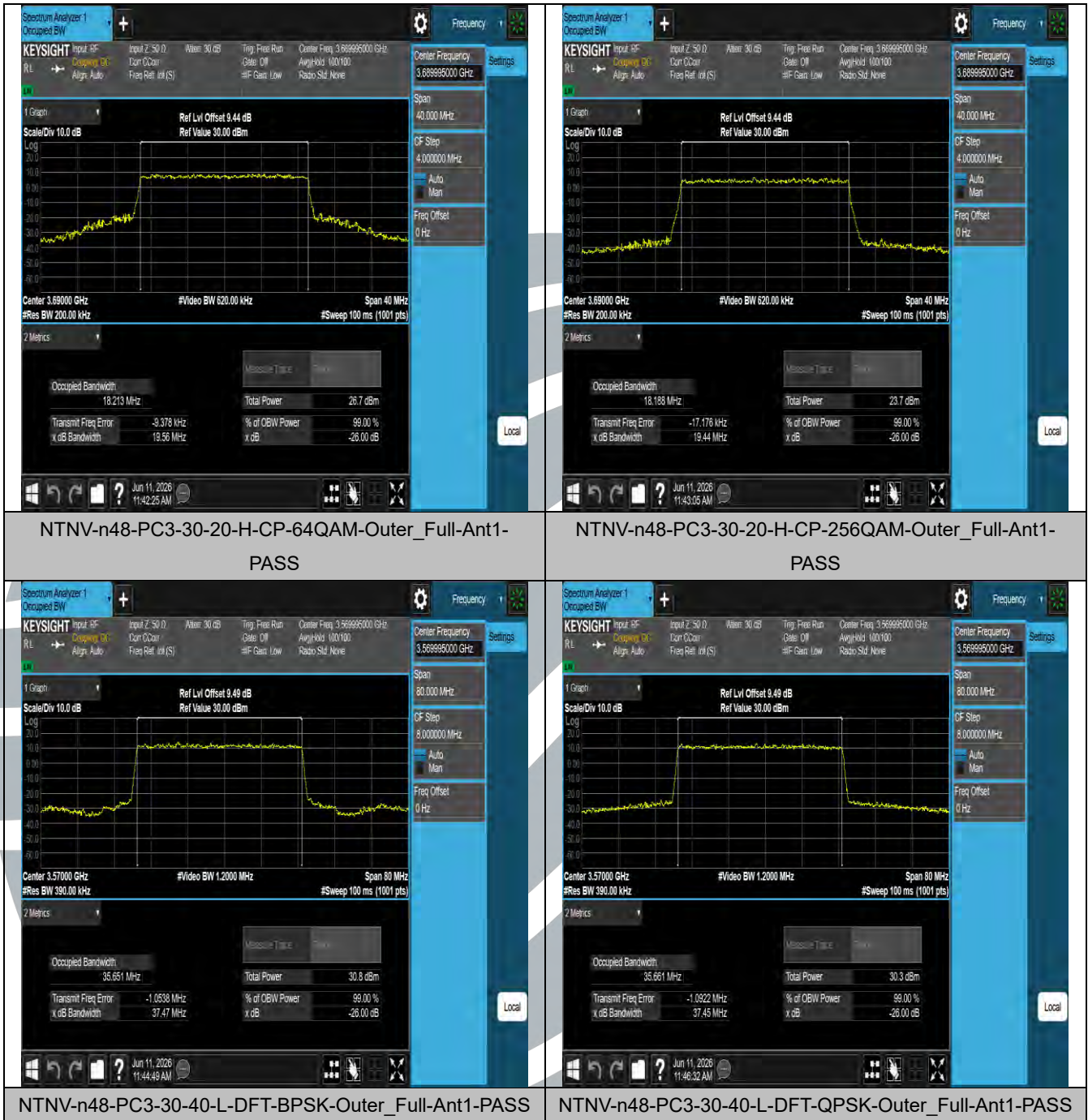
NTNV-n48-PC3-30-20-H-DFT-256QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-20-H-CP-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-20-H-CP-16QAM-Outer_Full-Ant1-
PASS





NTNV-n48-PC3-30-40-L-DFT-16QAM-Outer_Full-Ant1-
PASS



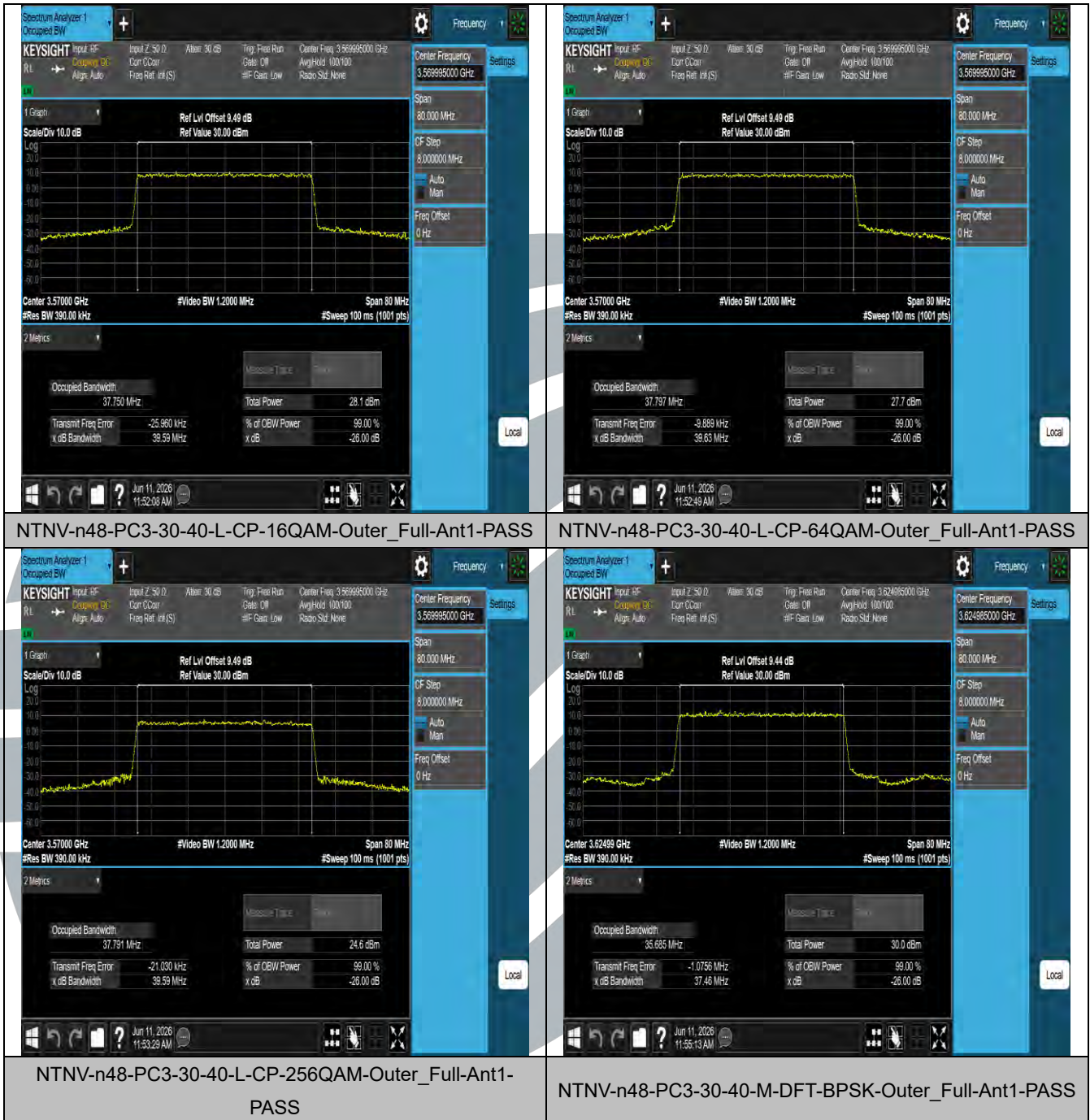
NTNV-n48-PC3-30-40-L-DFT-64QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-L-DFT-256QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-L-CP-QPSK-Outer_Full-Ant1-PASS





NTNV-n48-PC3-30-40-M-DFT-QPSK-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-M-DFT-16QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-M-DFT-64QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-M-DFT-256QAM-Outer_Full-Ant1-
PASS



NTNV-n48-PC3-30-40-M-CP-QPSK-Outet_Full-Ant1-PASS



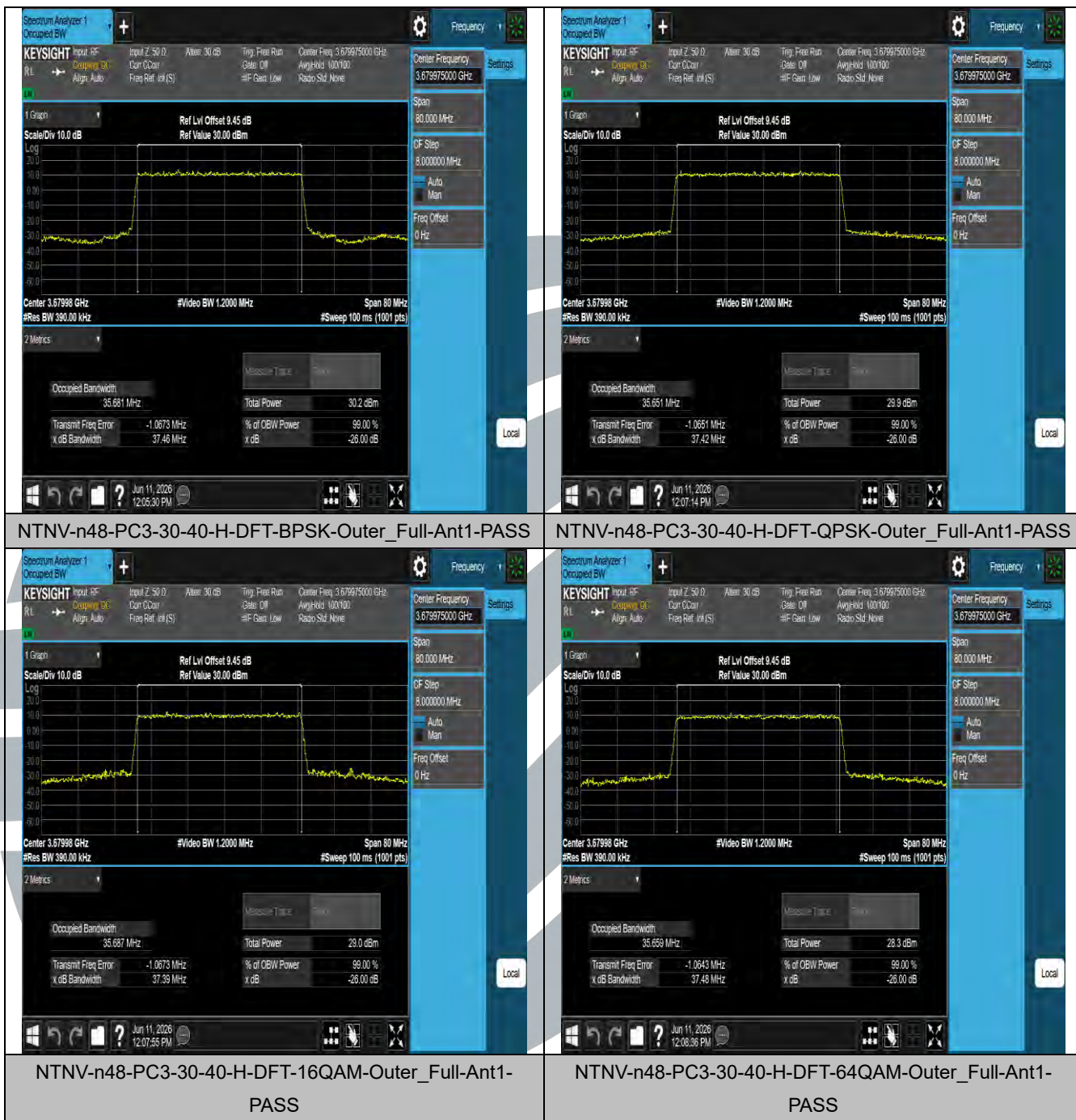
NTNV-n48-PC3-30-40-M-CP-16QAM-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-40-M-CP-64QAM-Outet_Full-Ant1-PASS



NTNV-n48-PC3-30-40-M-CP-256QAM-Outet_Full-Ant1-PASS





NTNV-n48-PC3-30-40-H-DFT-256QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-40-H-CP-QPSK-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-40-H-CP-16QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-40-H-CP-64QAM-Outer_Full-Ant1-PASS



NTNV-n48-PC3-30-40-H-CP-256QAM-Outer_Full-Ant1-
PASS

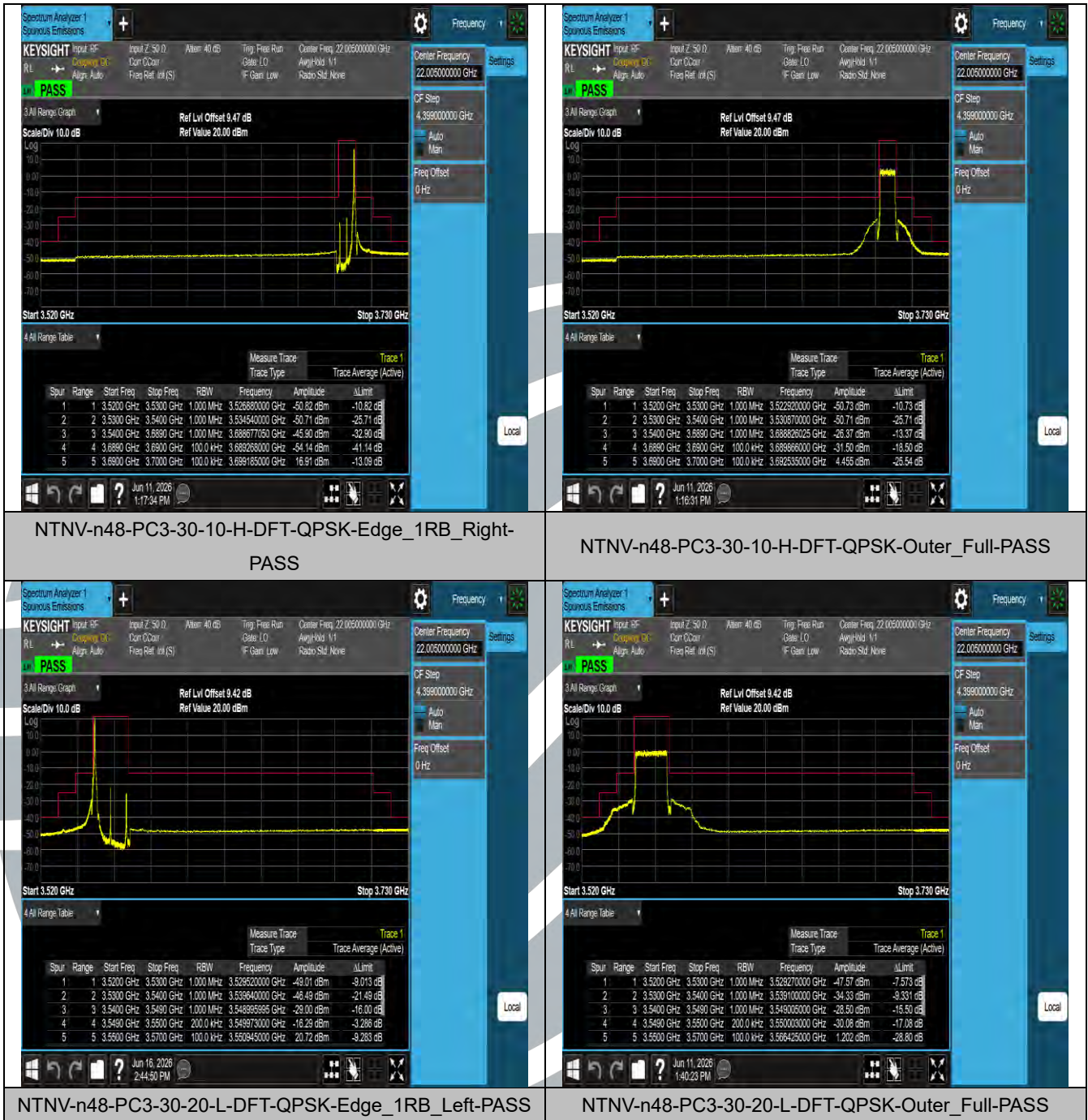
B.3 BAND EDGE FOR SA

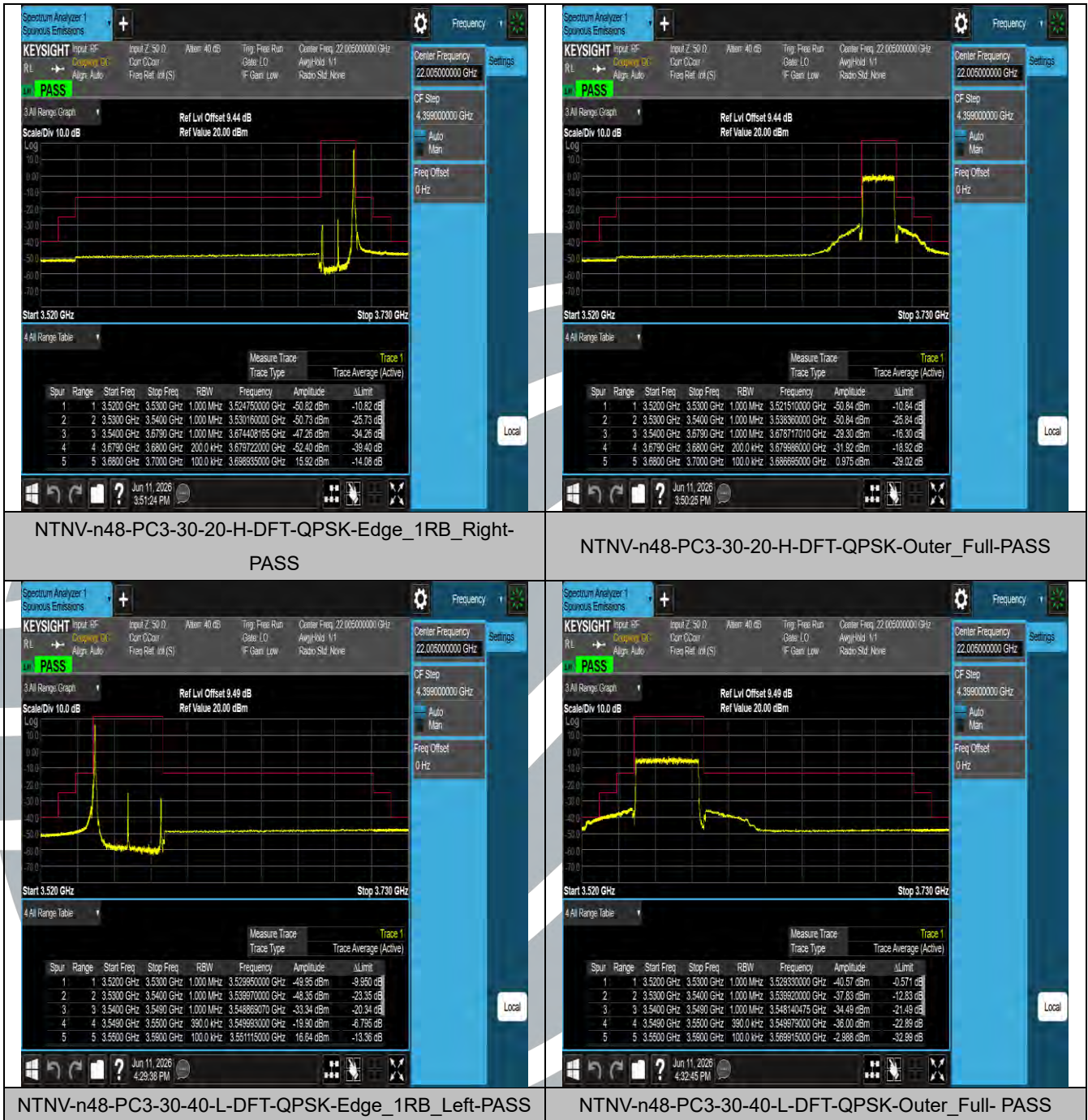
Test Result

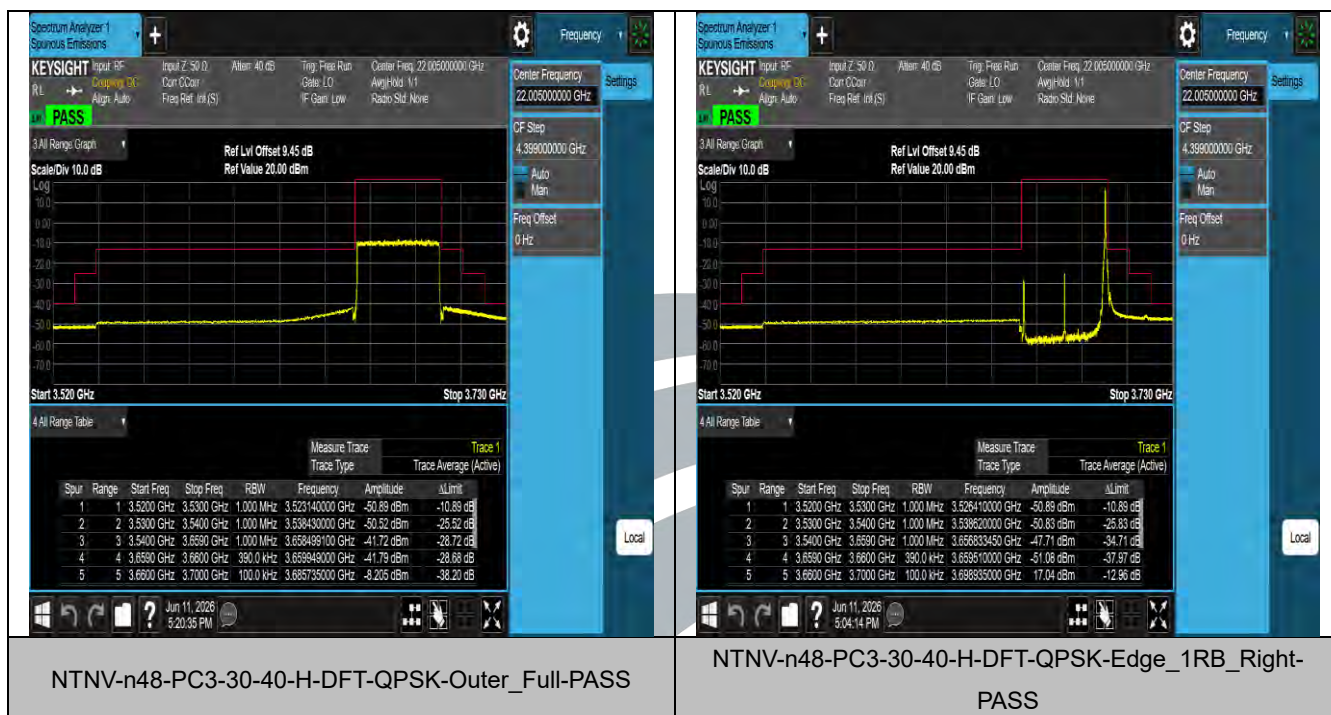
Band	SCS	Bandwidth	Modulation	Channel	RB Config	Result	Verdict
n48	30	10	DFT-QPSK	L	Edge 1RB Left	-47.28	PASS
n48	30	10	DFT-QPSK	L	Outer Full	-47.09	PASS
n48	30	10	DFT-QPSK	H	Edge 1RB Right	-46.82	PASS
n48	30	10	DFT-QPSK	H	Outer Full	-46.76	PASS
n48	30	20	DFT-QPSK	L	Edge 1RB Left	-16.29	PASS
n48	30	20	DFT-QPSK	L	Outer Full	-46.94	PASS
n48	30	20	DFT-QPSK	H	Edge 1RB Right	-46.63	PASS
n48	30	20	DFT-QPSK	H	Outer Full	-44.61	PASS
n48	30	40	DFT-QPSK	L	Edge 1RB Left	-19.90	PASS
n48	30	40	DFT-QPSK	L	Outer Full	-40.57	PASS
n48	30	40	DFT-QPSK	H	Edge 1RB Right	-18.44	PASS
n48	30	40	DFT-QPSK	H	Outer Full	-45.30	PASS

Test Graphs









B.4 CONDUCTED SPURIOUS EMISSION FOR SA

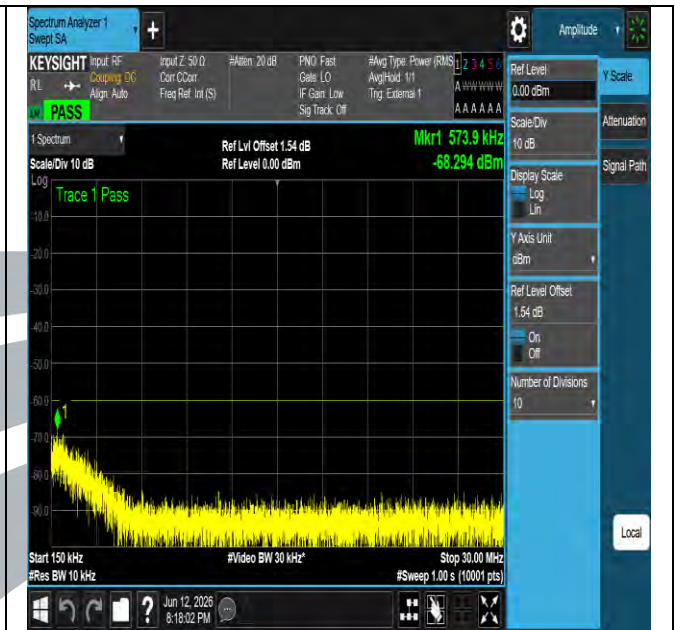
Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Ch.	RB Config	Start Freq (MHz)	Stop Freq (MHz)	Result (dBm)	Limit	Verdict
n48	30	40	DFT-QPSK	L	Inner 1RB Left	0.009	0.15	-85.73	≤-70dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	0.15	30	-68.29	≤-60dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	30	1000	-52.42	≤-50dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	1000	3000	-59.58	≤-40dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	3000	6000	-42.77	≤-40dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	6000	26000	-47.10	≤-40dBm	PASS
n48	30	40	DFT-QPSK	L	Inner 1RB Left	26000	40000	-43.89	≤-40dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	0.009	0.15	-85.23	≤-70dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	0.15	30	-68.65	≤-60dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	30	1000	-52.58	≤-50dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	1000	3000	-57.78	≤-40dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	3000	6000	-42.42	≤-40dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	6000	26000	-47.26	≤-40dBm	PASS
n48	30	40	DFT-QPSK	M	Inner 1RB Left	26000	40000	-43.82	≤-40dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	0.009	0.15	-85.62	≤-70dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	0.15	30	-67.51	≤-60dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	30	1000	-52.78	≤-50dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	1000	3000	-58.45	≤-40dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	3000	6000	-42.47	≤-40dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	6000	26000	-46.67	≤-40dBm	PASS
n48	30	40	DFT-QPSK	H	Inner 1RB Left	26000	40000	-43.46	≤-40dBm	PASS

Test Graphs



NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-0.009-0.15-PASS



NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-0.15-30-PASS



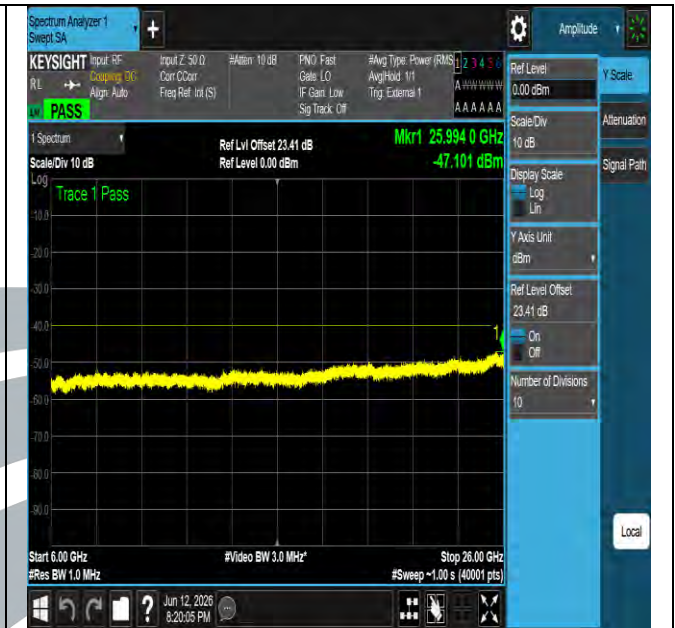
NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-30-1000-PASS



NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-1000-3000-PASS



NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-3000-6000-PASS



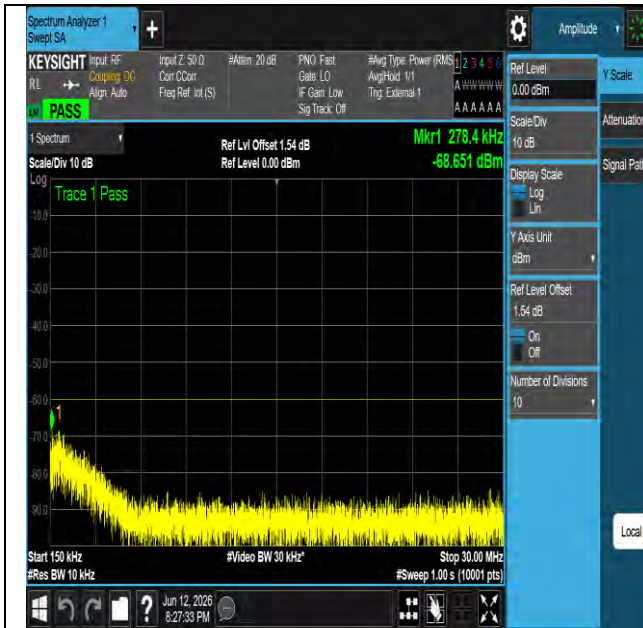
NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-6000-26000-PASS



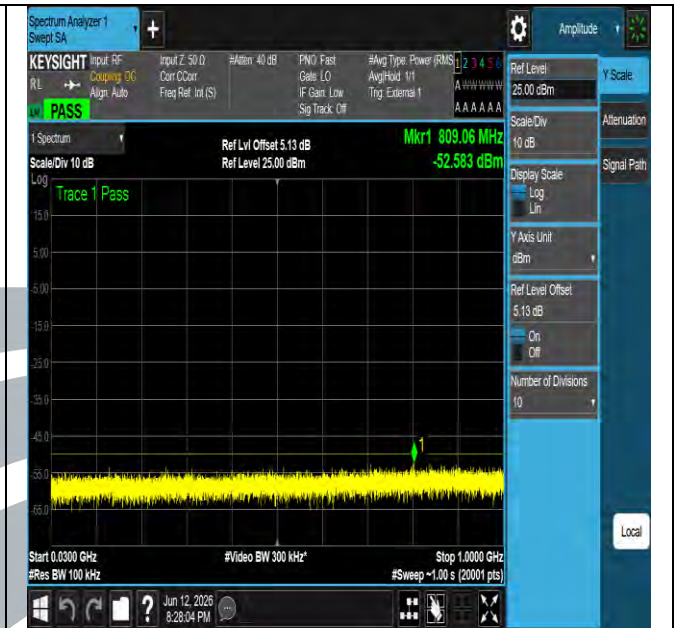
NTNV-n48-PC3-30-40-L-DFT-QPSK-Inner_1RB_Left-26000-40000-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-0.009-0.15-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-0.15-30-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-30-1000-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-1000-3000-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-3000-6000-PASS



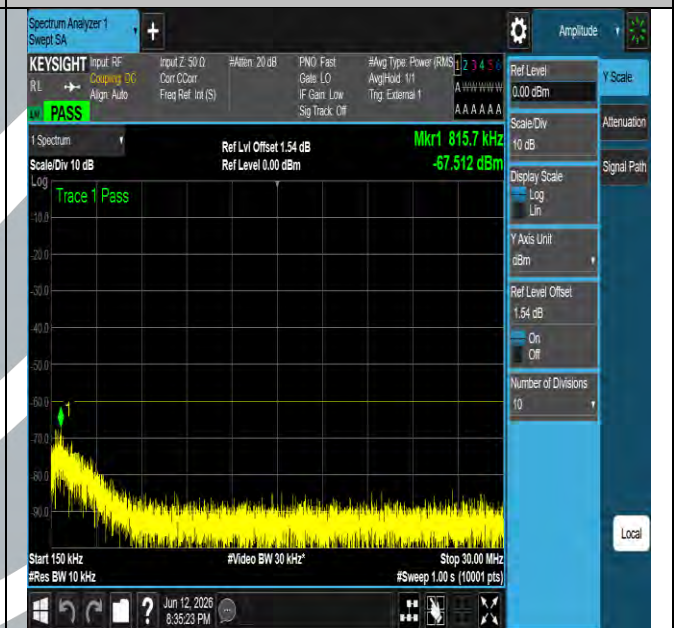
NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-6000-26000-PASS



NTNV-n48-PC3-30-40-M-DFT-QPSK-Inner_1RB_Left-26000-40000-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-0.009-0.15-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-0.15-30-PASS



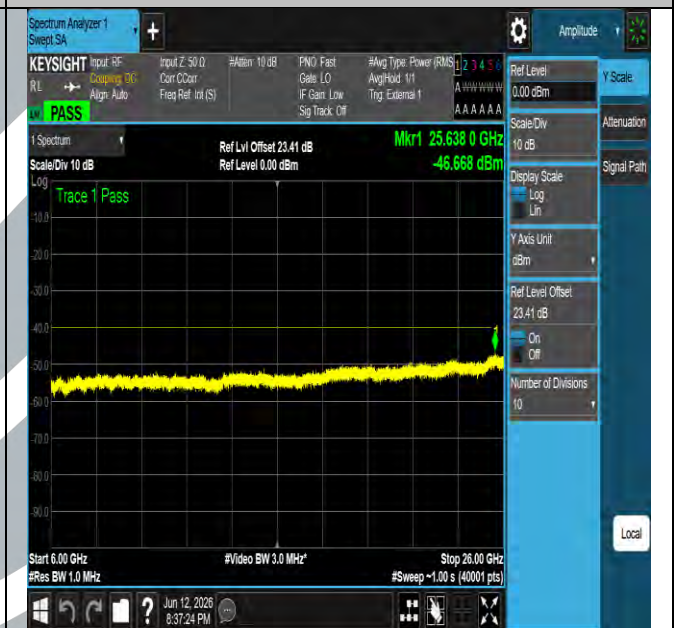
NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-30-1000-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-1000-3000-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-3000-6000-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-6000-26000-PASS



NTNV-n48-PC3-30-40-H-DFT-QPSK-Inner_1RB_Left-
26000-40000-PASS

B.5 FREQUENCY STABILITY FOR SA

Test Result

Frequency Error VS. Voltage

Voltage													
Band	SCS (kHz)	BW (MHz)	Modulation	Ch.	RB Config	Voltage	Temp.	Result (ppm)	Limit (ppm)	FL (MHz)	FH (MHz)	Limit (MHz)	Verdict
n48	30	40	DFT-QPSK	M	Outer_Full	VL	NT	0.002589	3550-3700	3550	3700	3550-3700	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	VN	NT	0.001237	3550-3700	3550	3700	3550-3700	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	VH	NT	-0.001287	3550-3700	3550	3700	3550-3700	PASS

Frequency Error VS. Temperature

Temperature													
Band	SCS (kHz)	BW (MHz)	Modulation	Ch.	RB Config	Voltage	Temp.	Result (ppm)	Limit (ppm)	FL (MHz)	FH (MHz)	Limit (MHz)	Verdict
n48	30	40	DFT-QPSK	M	Outer_Full	NV	-30	-0.00063	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	-20	-0.0022	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	-10	-0.002278	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	0	-0.00142	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	10	-0.00048	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	20	0.000676	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	30	0.001509	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	40	-0.001128	-2.5~2.5	3550	3700	---	PASS
n48	30	40	DFT-QPSK	M	Outer_Full	NV	50	0.001223	-2.5~2.5	3550	3700	---	PASS