

APPENDIX K 5G NR N7 RF TEST DATA

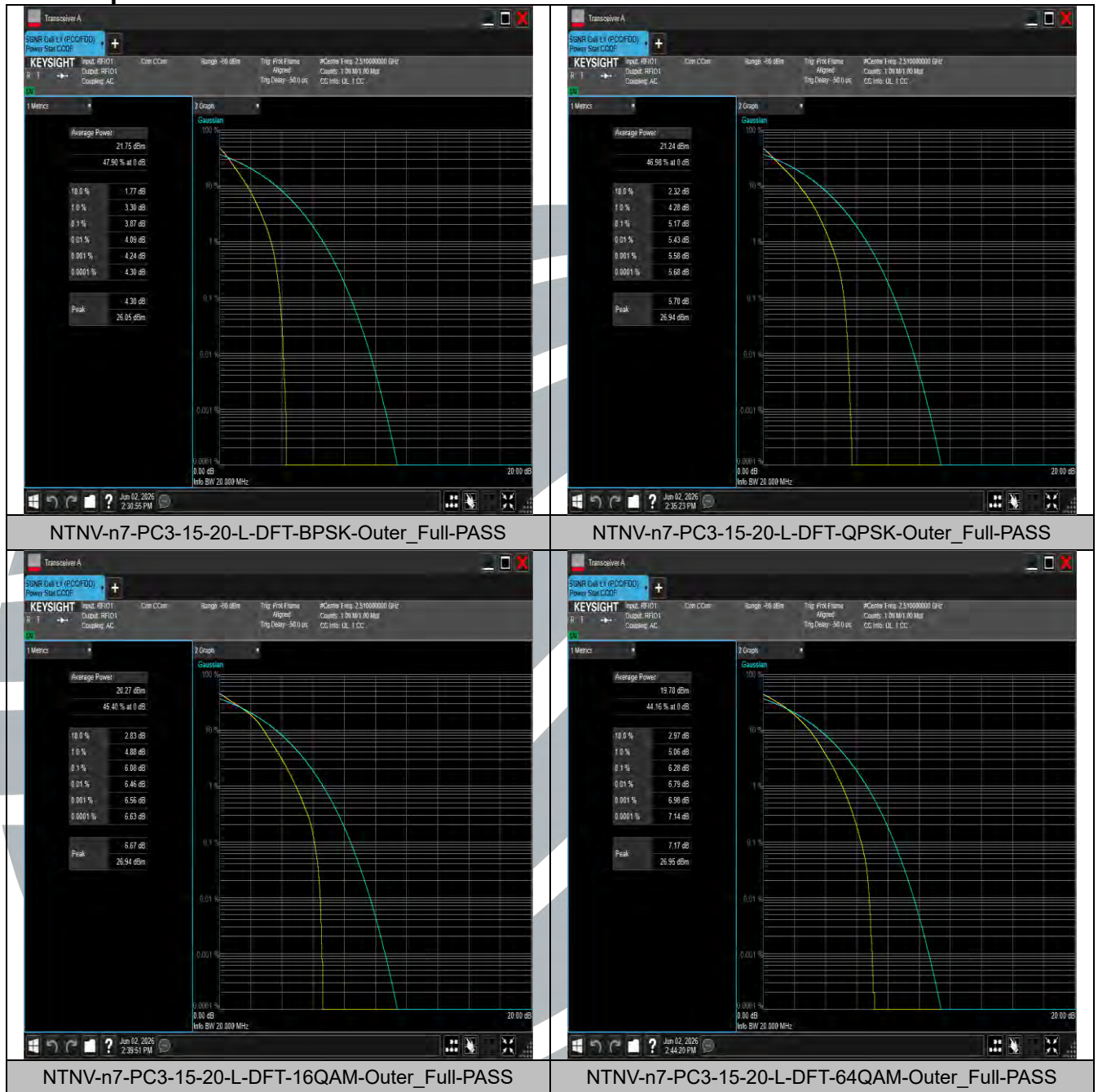
K.1 PEAK-TO-AVERAGE RATIO FOR SA

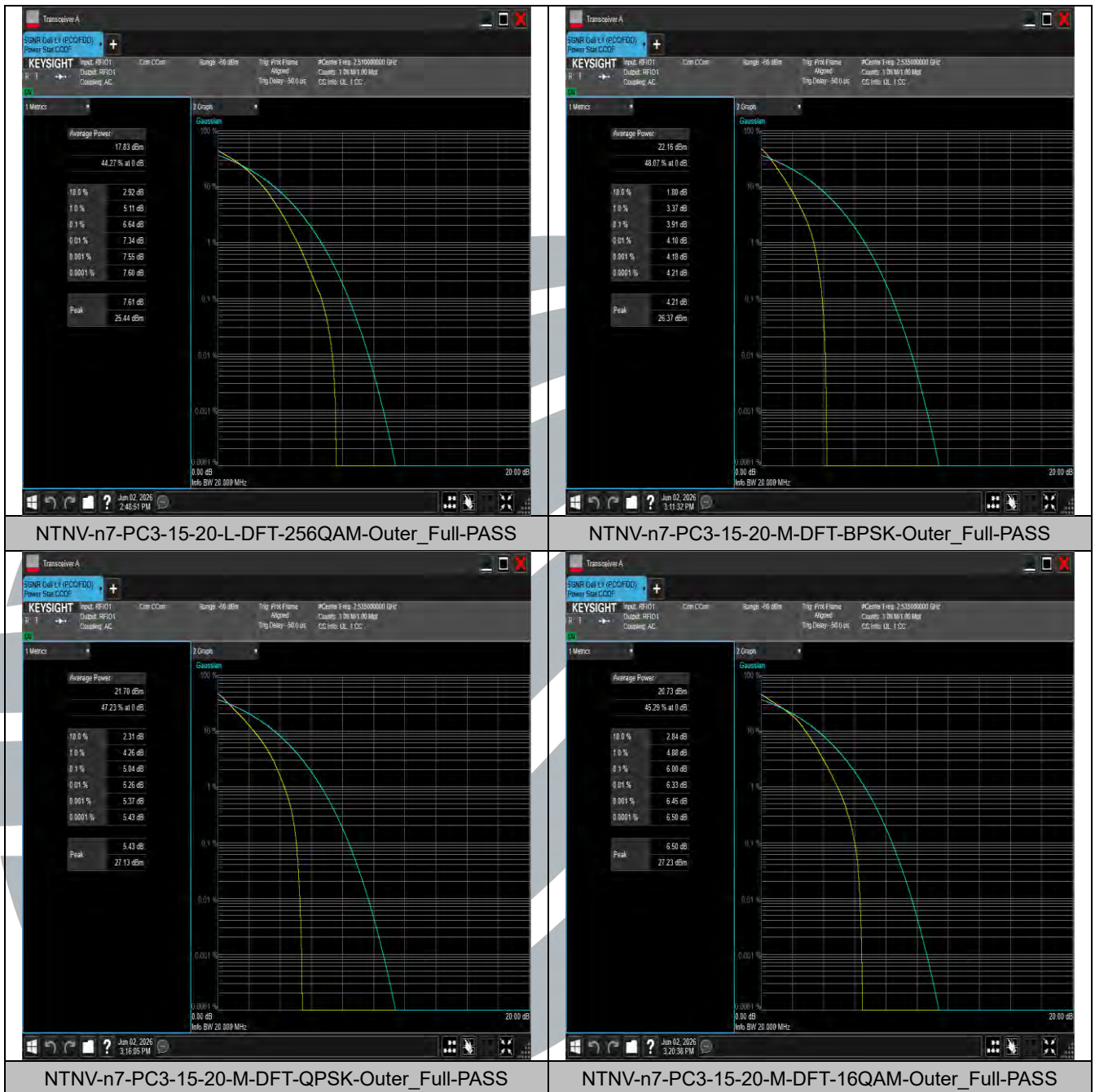
➤ Peak-to-Average Ratio(CCDF)

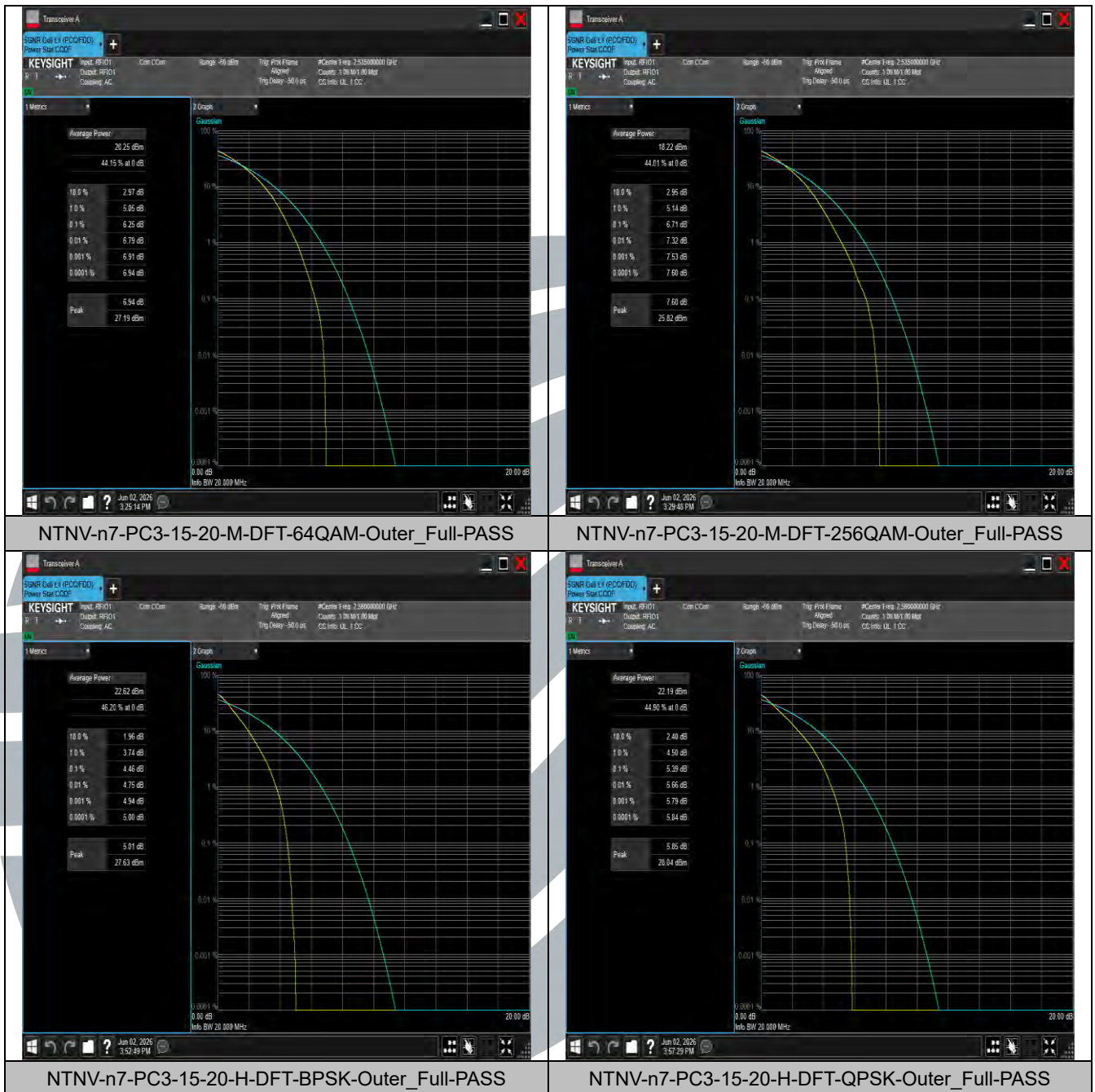
Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Channel	RB Config	Result (dB)	Limit	Verdict
n7	15	20	DFT-BPSK	L	Outer_Full	3.87	≤13dB	PASS
n7	15	20	DFT-QPSK	L	Outer_Full	5.17	≤13dB	PASS
n7	15	20	DFT-16QAM	L	Outer_Full	6.08	≤13dB	PASS
n7	15	20	DFT-64QAM	L	Outer_Full	6.28	≤13dB	PASS
n7	15	20	DFT-256QAM	L	Outer_Full	6.64	≤13dB	PASS
n7	15	20	DFT-BPSK	M	Outer_Full	3.91	≤13dB	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	5.04	≤13dB	PASS
n7	15	20	DFT-16QAM	M	Outer_Full	6	≤13dB	PASS
n7	15	20	DFT-64QAM	M	Outer_Full	6.25	≤13dB	PASS
n7	15	20	DFT-256QAM	M	Outer_Full	6.71	≤13dB	PASS
n7	15	20	DFT-BPSK	H	Outer_Full	4.46	≤13dB	PASS
n7	15	20	DFT-QPSK	H	Outer_Full	5.39	≤13dB	PASS
n7	15	20	DFT-16QAM	H	Outer_Full	6.35	≤13dB	PASS
n7	15	20	DFT-64QAM	H	Outer_Full	6.49	≤13dB	PASS
n7	15	20	DFT-256QAM	H	Outer_Full	6.89	≤13dB	PASS

Test Graphs

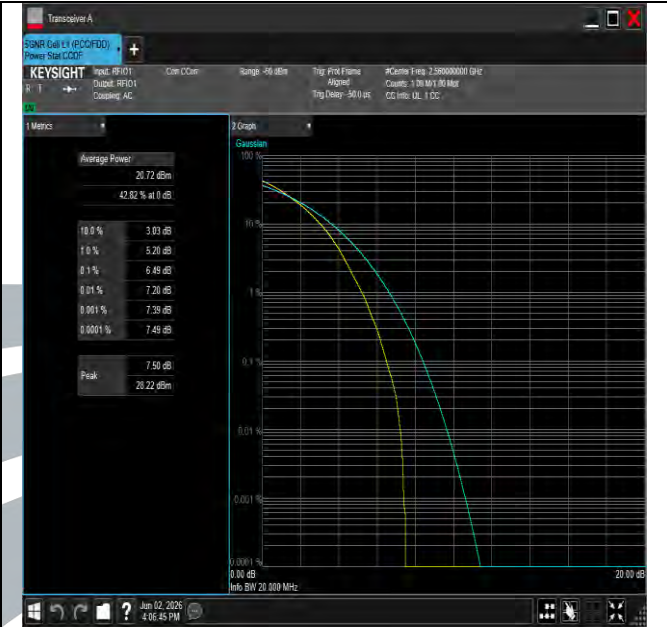








NTNV-n7-PC3-15-20-H-DFT-16QAM-Outer_Full-PASS



NTNV-n7-PC3-15-20-H-DFT-64QAM-Outer_Full-PASS



NTNV-n7-PC3-15-20-H-DFT-256QAM-Outer_Full-PASS

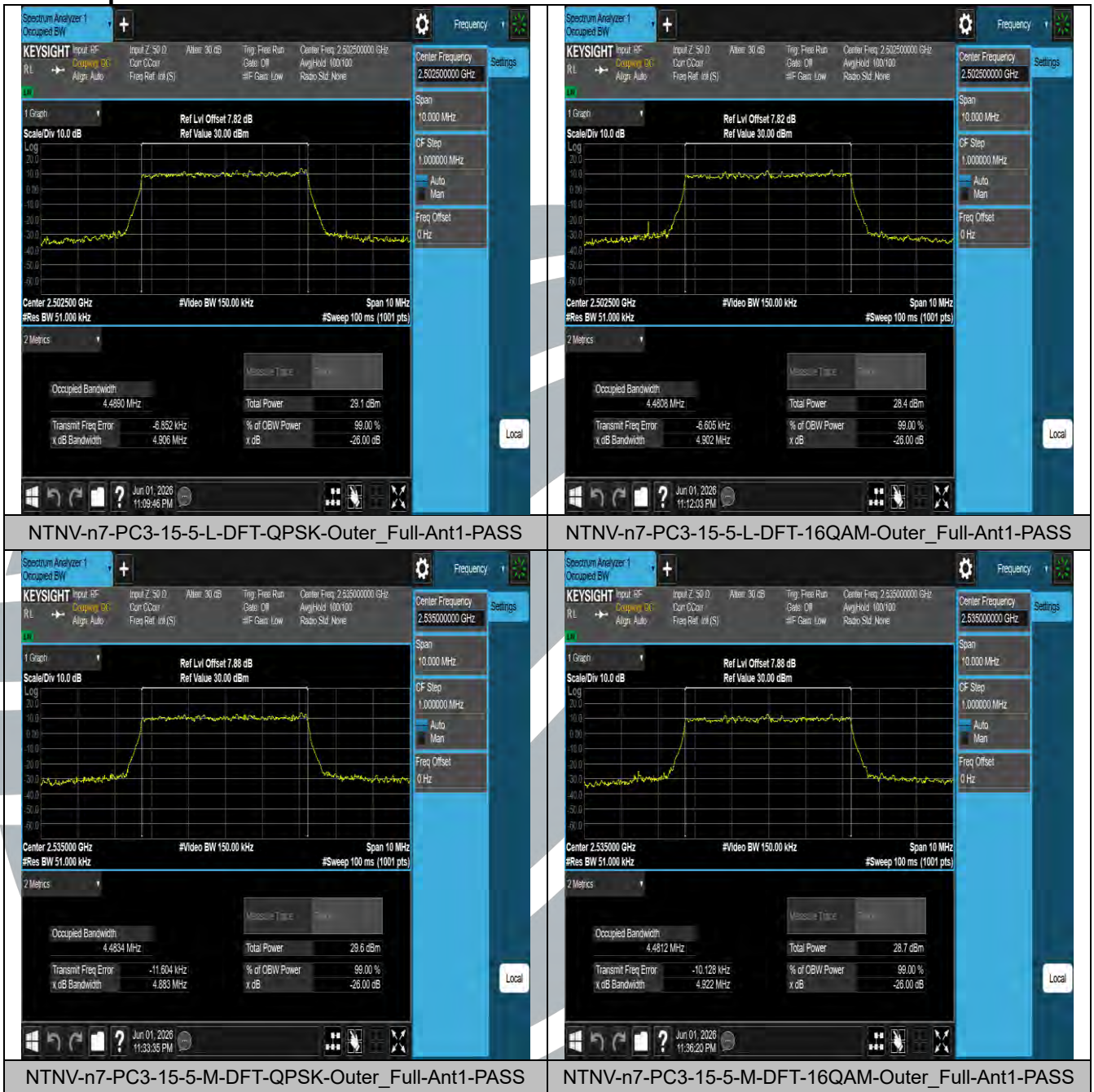


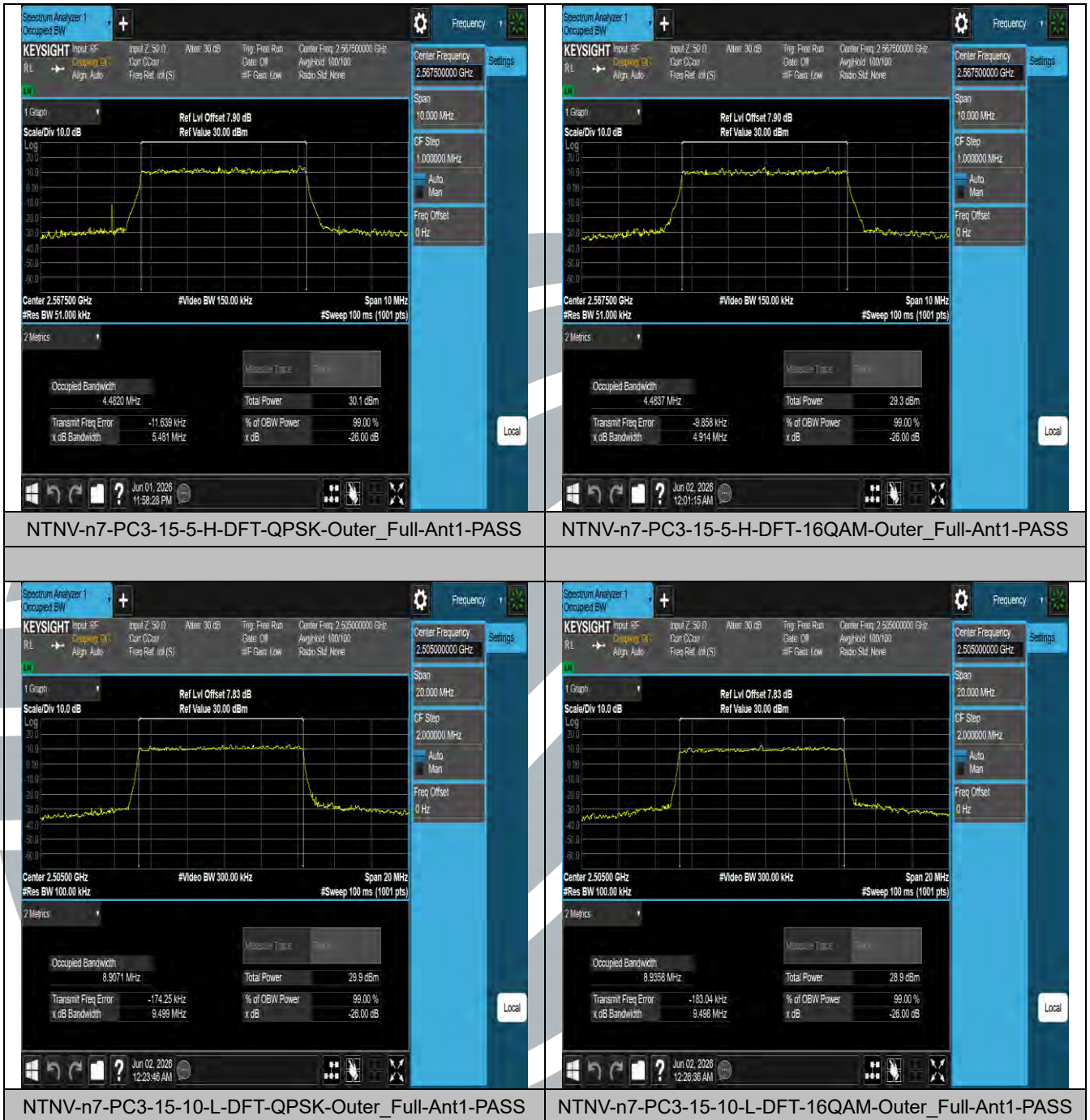
K.2 26DB BANDWIDTH AND OCCUPIED BANDWIDTH FOR SA

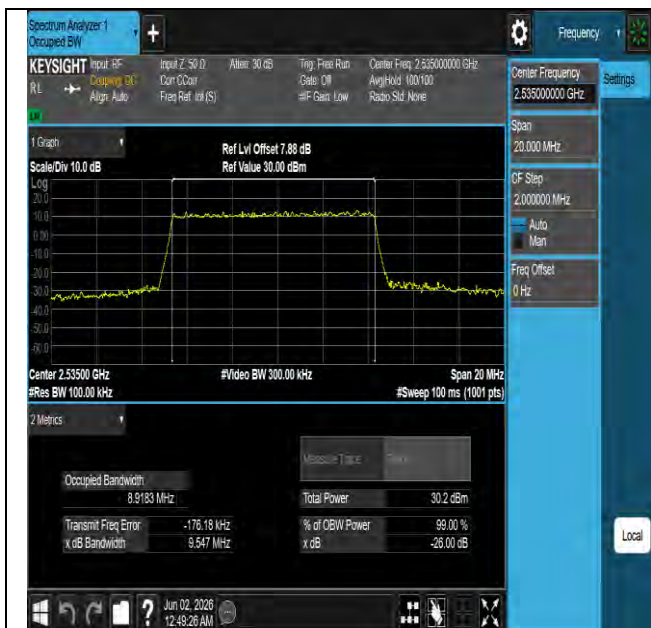
Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Channel	RB Config	99% BW Result (MHz)	26dB BW Result (MHz)	Verdict
n7	15	5	DFT-QPSK	L	Outer_Full	4.489	4.906	PASS
n7	15	5	DFT-16QAM	L	Outer_Full	4.481	4.902	PASS
n7	15	5	DFT-QPSK	M	Outer_Full	4.483	4.883	PASS
n7	15	5	DFT-16QAM	M	Outer_Full	4.481	4.922	PASS
n7	15	5	DFT-QPSK	H	Outer_Full	4.482	5.481	PASS
n7	15	5	DFT-16QAM	H	Outer_Full	4.484	4.914	PASS
n7	15	10	DFT-QPSK	L	Outer_Full	8.907	9.499	PASS
n7	15	10	DFT-16QAM	L	Outer_Full	8.936	9.498	PASS
n7	15	10	DFT-QPSK	M	Outer_Full	8.918	9.547	PASS
n7	15	10	DFT-16QAM	M	Outer_Full	8.940	10.540	PASS
n7	15	10	DFT-QPSK	H	Outer_Full	8.924	9.500	PASS
n7	15	10	DFT-16QAM	H	Outer_Full	8.946	9.522	PASS
n7	15	15	DFT-QPSK	L	Outer_Full	13.387	14.160	PASS
n7	15	15	DFT-16QAM	L	Outer_Full	13.401	14.580	PASS
n7	15	15	DFT-QPSK	M	Outer_Full	13.403	14.140	PASS
n7	15	15	DFT-16QAM	M	Outer_Full	13.420	14.160	PASS
n7	15	15	DFT-QPSK	H	Outer_Full	13.428	14.200	PASS
n7	15	15	DFT-16QAM	H	Outer_Full	13.436	14.170	PASS
n7	15	20	DFT-QPSK	L	Outer_Full	17.796	18.700	PASS
n7	15	20	DFT-16QAM	L	Outer_Full	17.837	18.730	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	17.817	18.780	PASS
n7	15	20	DFT-16QAM	M	Outer_Full	17.839	18.730	PASS
n7	15	20	DFT-QPSK	H	Outer_Full	17.869	18.720	PASS
n7	15	20	DFT-16QAM	H	Outer_Full	17.882	18.690	PASS

Test Graphs







NTNV-n7-PC3-15-10-M-DFT-QPSK-Outer_Full-Ant1-PASS



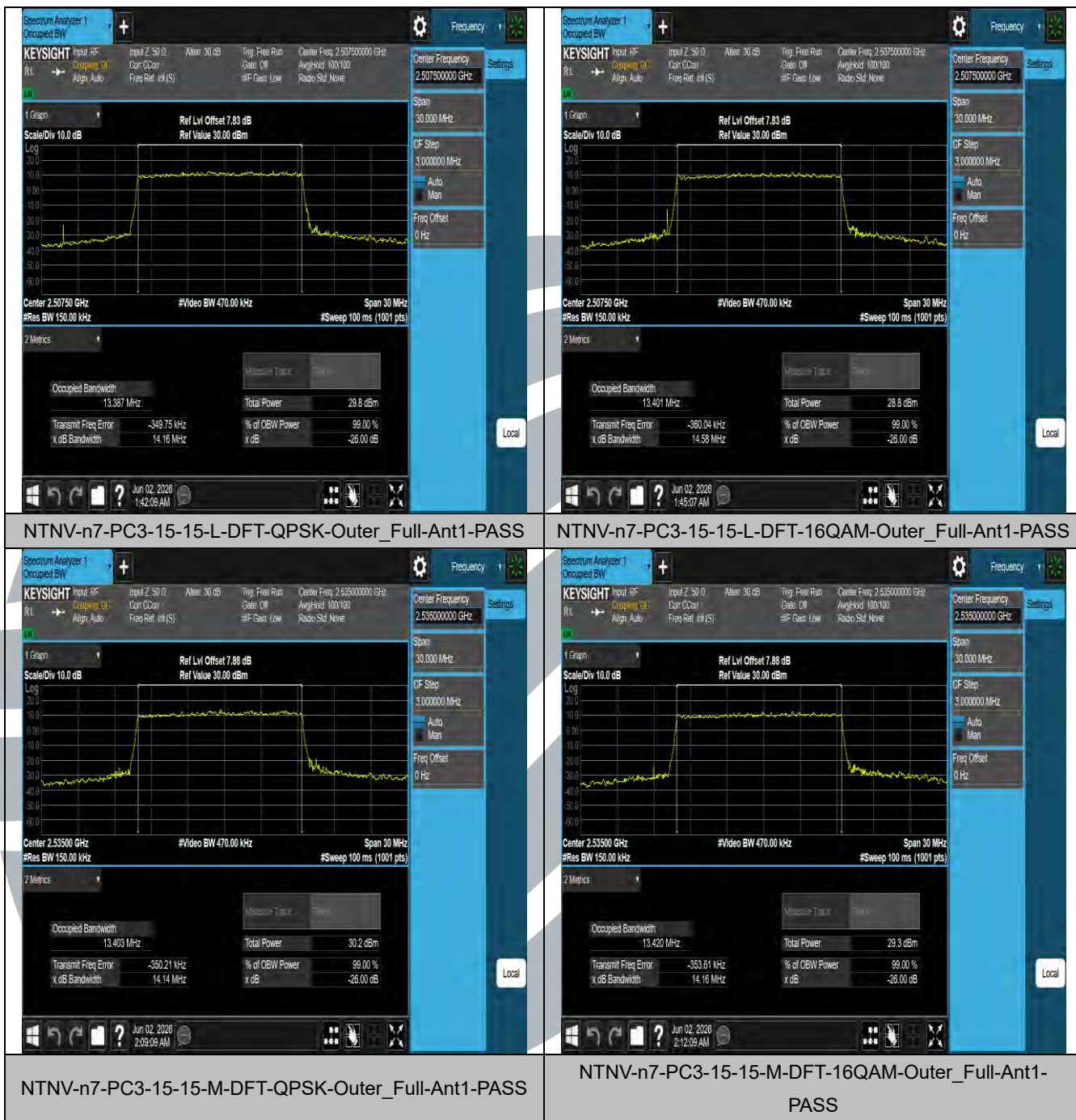
NTNV-n7-PC3-15-10-M-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-10-H-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-10-H-DFT-16QAM-Outer_Full-Ant1-PASS





NTNV-n7-PC3-15-15-H-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-15-H-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-L-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-L-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-M-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-M-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-H-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n7-PC3-15-20-H-DFT-16QAM-Outer_Full-Ant1-PASS

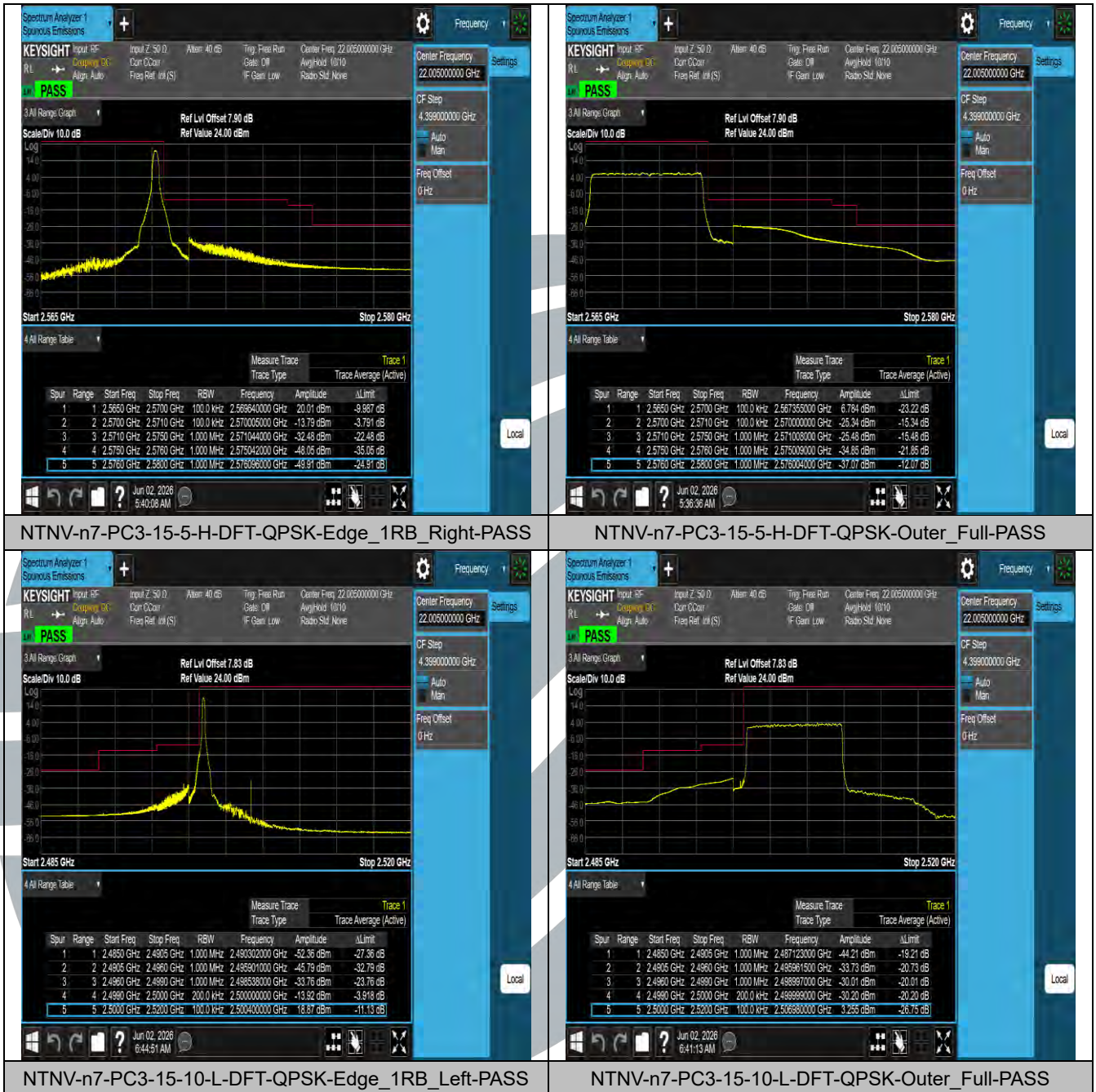
K.3 BAND EDGE FOR SA

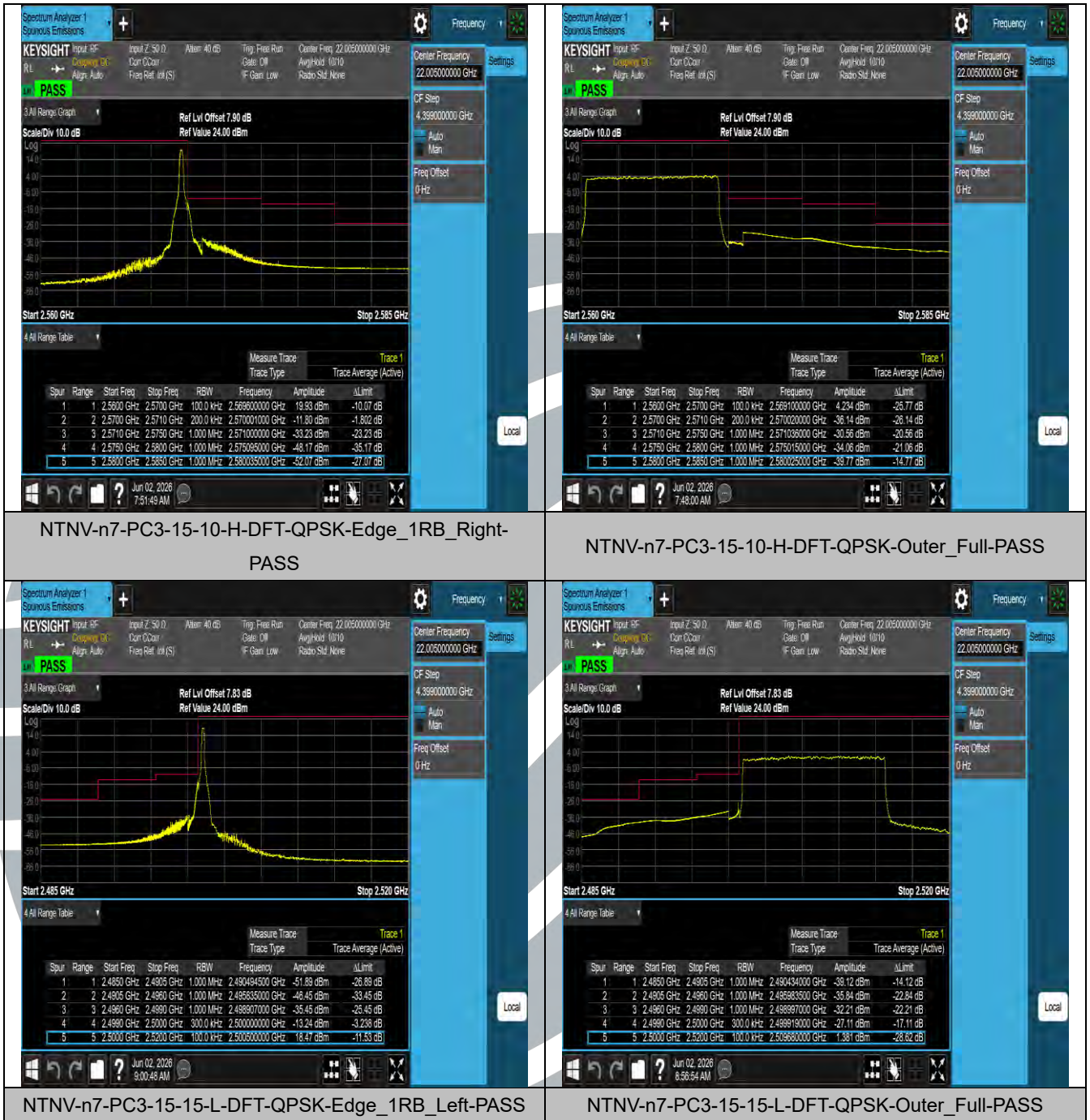
Test Result

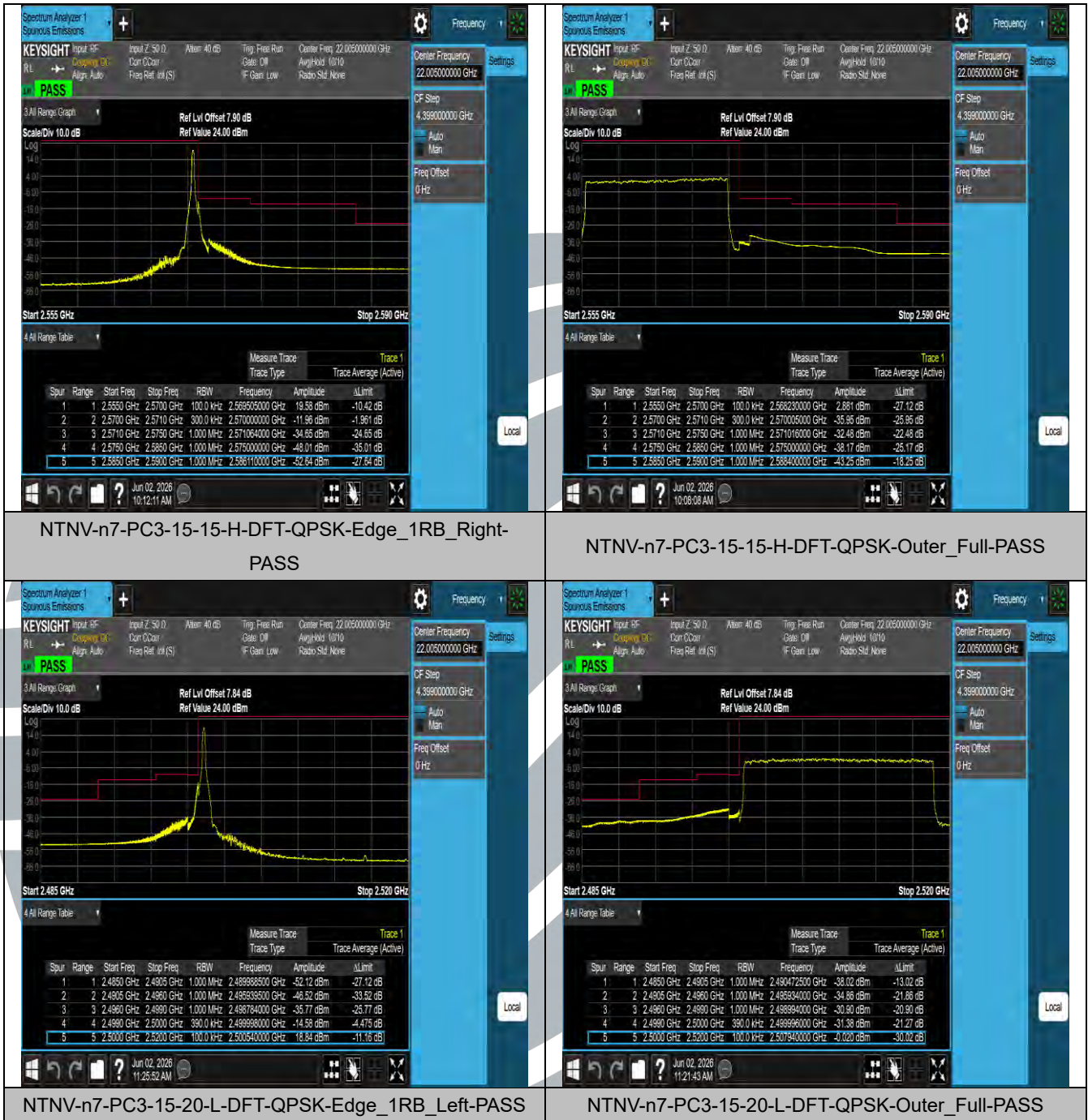
Band	SCS (kHz)	BW (MHz)	Modulation	Channel	RB Config	Result	Verdict
n7	15	5	DFT-QPSK	L	Edge_1RB_Left	-15.63	PASS
n7	15	5	DFT-QPSK	L	Outer_Full	-26.91	PASS
n7	15	5	DFT-QPSK	H	Edge_1RB_Right	-13.79	PASS
n7	15	5	DFT-QPSK	H	Outer_Full	-37.07	PASS
n7	15	10	DFT-QPSK	L	Edge_1RB_Left	-13.92	PASS
n7	15	10	DFT-QPSK	L	Outer_Full	-44.21	PASS
n7	15	10	DFT-QPSK	H	Edge_1RB_Right	-11.80	PASS
n7	15	10	DFT-QPSK	H	Outer_Full	-39.77	PASS
n7	15	15	DFT-QPSK	L	Edge_1RB_Left	-13.24	PASS
n7	15	15	DFT-QPSK	L	Outer_Full	-39.12	PASS
n7	15	15	DFT-QPSK	H	Edge_1RB_Right	-11.96	PASS
n7	15	15	DFT-QPSK	H	Outer_Full	-43.25	PASS
n7	15	20	DFT-QPSK	L	Edge_1RB_Left	-14.58	PASS
n7	15	20	DFT-QPSK	L	Outer_Full	-38.02	PASS
n7	15	20	DFT-QPSK	H	Edge_1RB_Right	-13.65	PASS
n7	15	20	DFT-QPSK	H	Outer_Full	-44.29	PASS

Test Graphs











K.4 CONDUCTED SPURIOUS EMISSION FOR SA

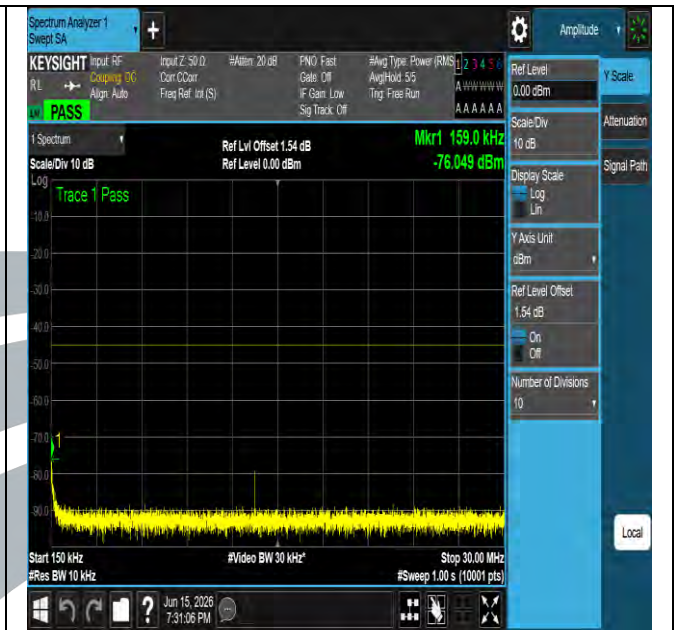
Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Ch.	RB Config	Start Freq. (MHz)	Stop Freq. (MHz)	Result (dBm)	Limit	Verdict
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	0.009	0.15	-65.48	≤-55dBm	PASS
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	0.15	30	-76.05	≤-45dBm	PASS
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	30	1000	-54.82	≤-35dBm	PASS
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	1000	3000	-37.96	≤-25dBm	PASS
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	3000	12000	-45.76	≤-25dBm	PASS
n7	15	20	DFT-QPSK	L	Inner_1RB_Left	12000	26500	-49.37	≤-25dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	0.009	0.15	-64.72	≤-55dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	0.15	30	-77.80	≤-45dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	30	1000	-54.90	≤-35dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	1000	3000	-38.49	≤-25dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	3000	12000	-45.71	≤-25dBm	PASS
n7	15	20	DFT-QPSK	M	Inner_1RB_Left	12000	26500	-49.31	≤-25dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	0.009	0.15	-65.88	≤-55dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	0.15	30	-75.39	≤-45dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	30	1000	-54.87	≤-35dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	1000	3000	-39.14	≤-25dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	3000	12000	-45.42	≤-25dBm	PASS
n7	15	20	DFT-QPSK	H	Inner_1RB_Left	12000	26500	-49.35	≤-25dBm	PASS

Test Graphs



NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-0.009-0.15MHz-PASS



NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-0.15-30MHz-PASS



NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-30-1000MHz-PASS



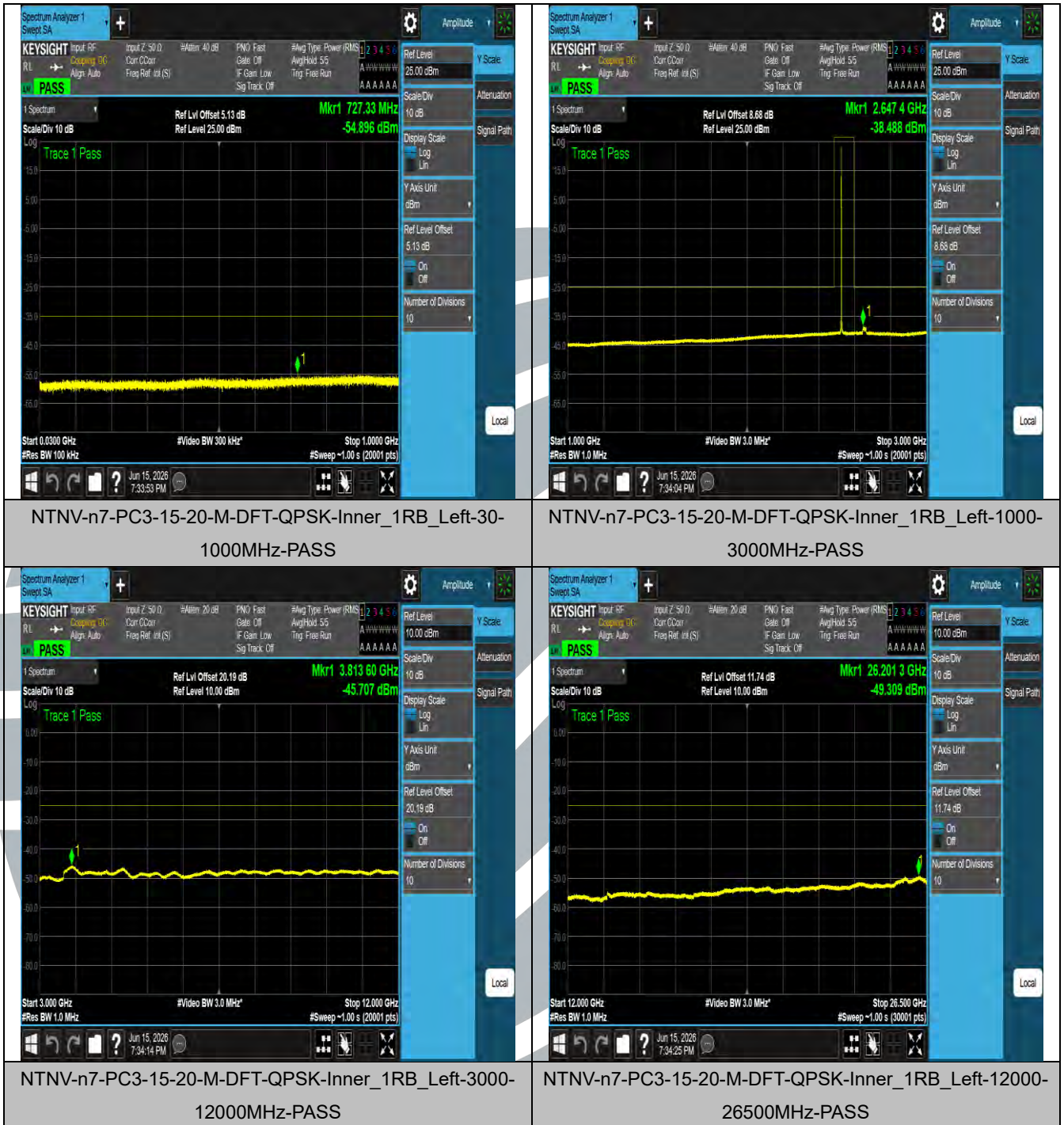
NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-1000-3000MHz-PASS

NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-3000-12000MHz-PASS

NTNV-n7-PC3-15-20-L-DFT-QPSK-Inner_1RB_Left-12000-26500MHz-PASS

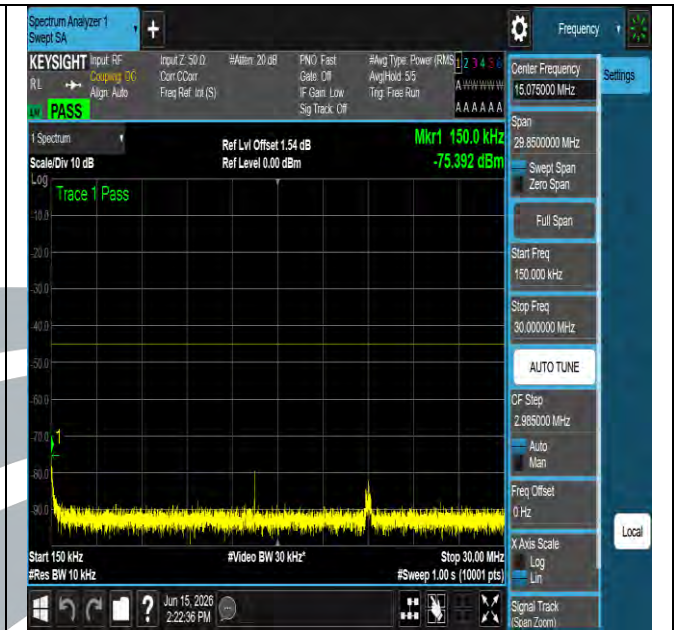
NTNV-n7-PC3-15-20-M-DFT-QPSK-Inner_1RB_Left-0.009-0.15MHz-PASS

NTNV-n7-PC3-15-20-M-DFT-QPSK-Inner_1RB_Left-0.15-30MHz-PASS





NTNV-n7-PC3-15-20-H-DFT-QPSK-Inner_1RB_Left-0.009-0.15MHz-PASS



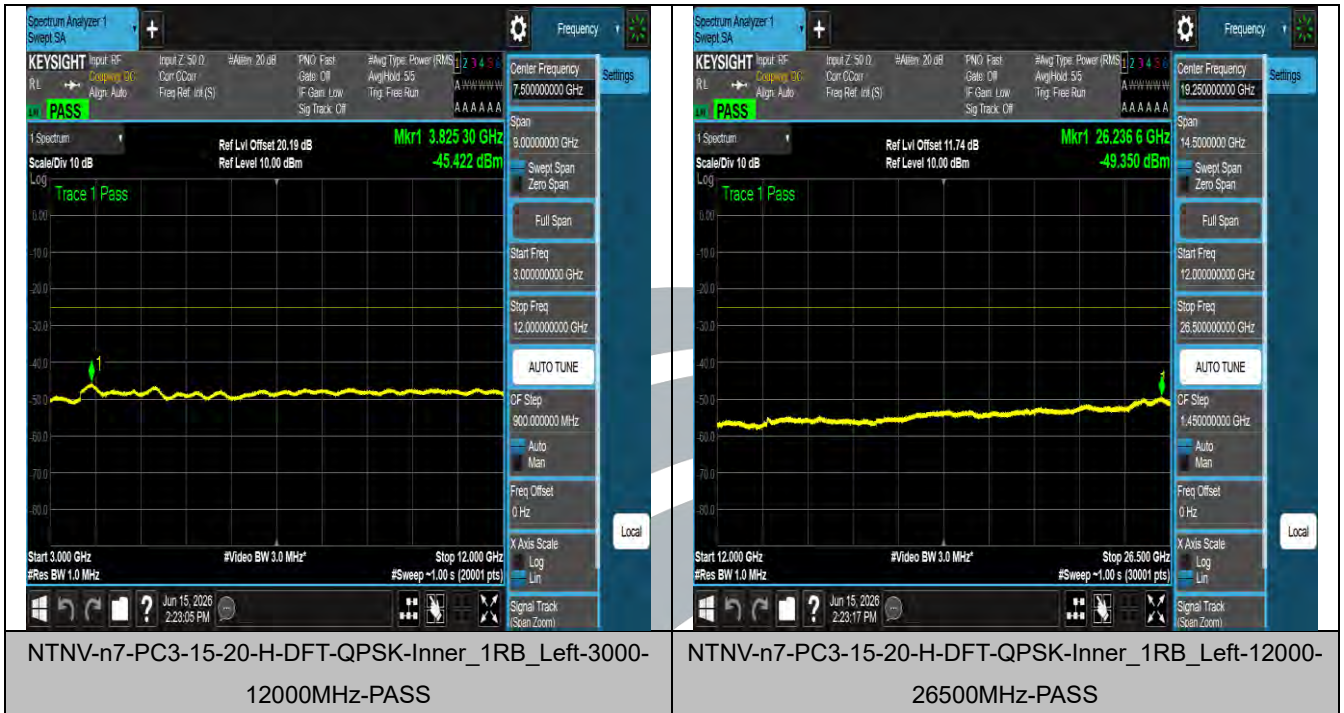
NTNV-n7-PC3-15-20-H-DFT-QPSK-Inner_1RB_Left-0.15-30MHz-PASS



NTNV-n7-PC3-15-20-H-DFT-QPSK-Inner_1RB_Left-30-1000MHz-PASS



NTNV-n7-PC3-15-20-H-DFT-QPSK-Inner_1RB_Left-1000-3000MHz-PASS



K.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
n7	15	20	DFT-QPSK	M	Outer_Full	VL	NT	-0.048024	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	VN	NT	-0.001829	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	VH	NT	-0.020762	-2.5~2.5	2500	2570	---	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
n7	15	20	DFT-QPSK	M	Outer_Full	NV	-30	0.028572	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	-20	0.003469	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	-10	-0.00153	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	0	0.023071	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	10	0.015594	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	20	-0.031218	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	30	-0.002114	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	40	-0.0136	-2.5~2.5	2500	2570	---	PASS
n7	15	20	DFT-QPSK	M	Outer_Full	NV	50	-0.001146	-2.5~2.5	2500	2570	---	PASS