

APPENDIX L 5G NR N12 RF TEST DATA

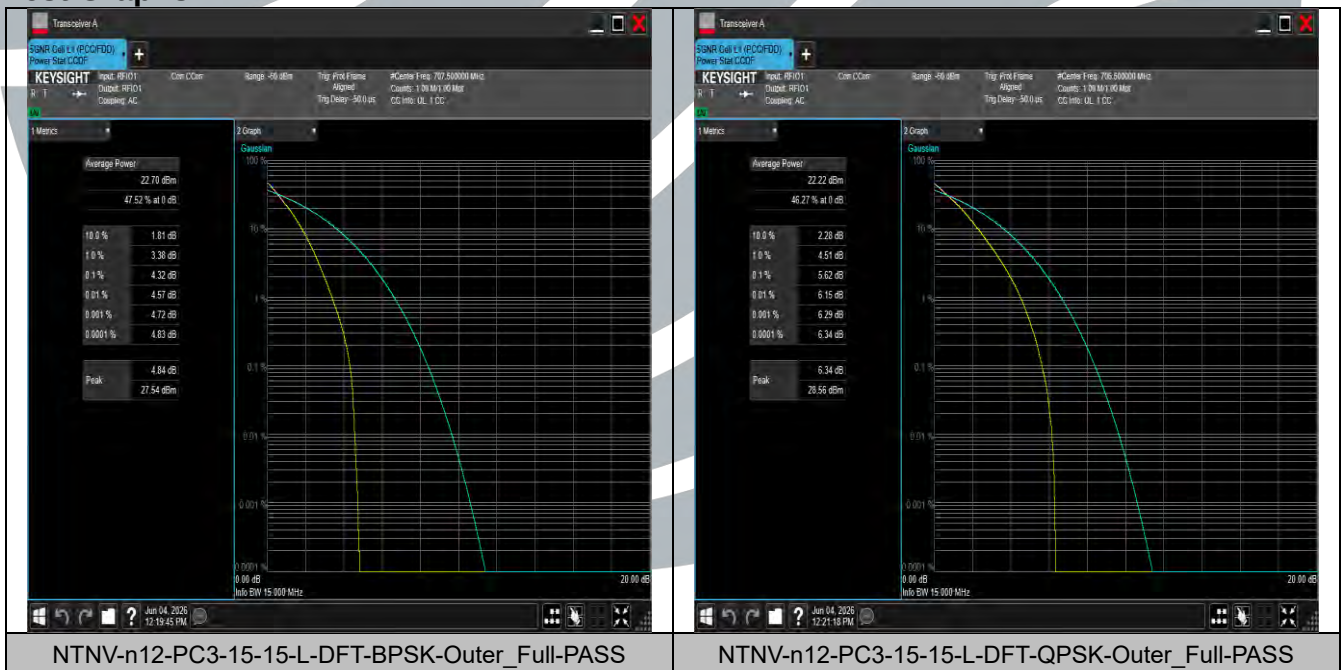
L.1 PEAK-TO-AVERAGE RATIO FOR SA

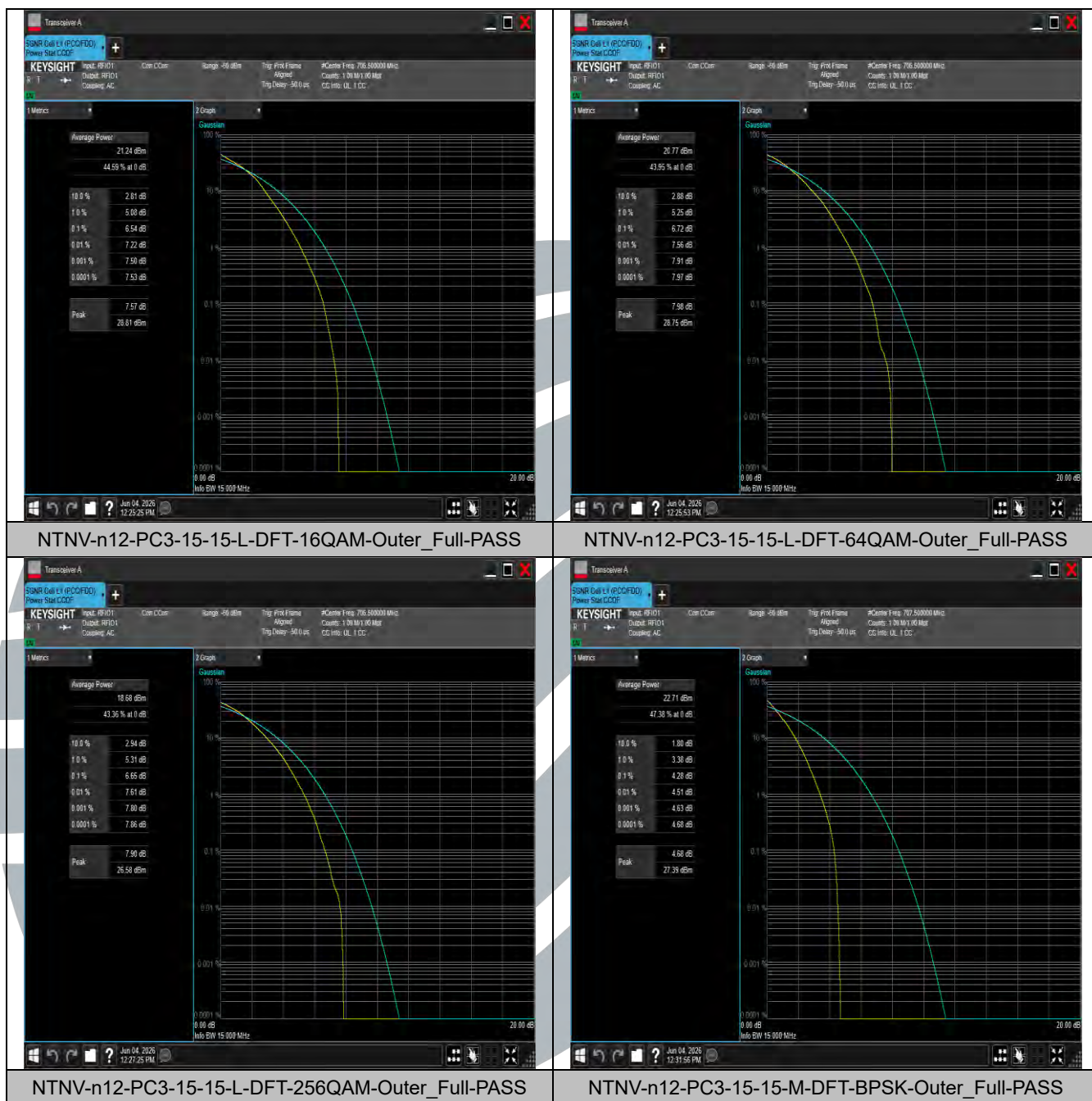
➤ Peak-to-Average Ratio(CCDF)

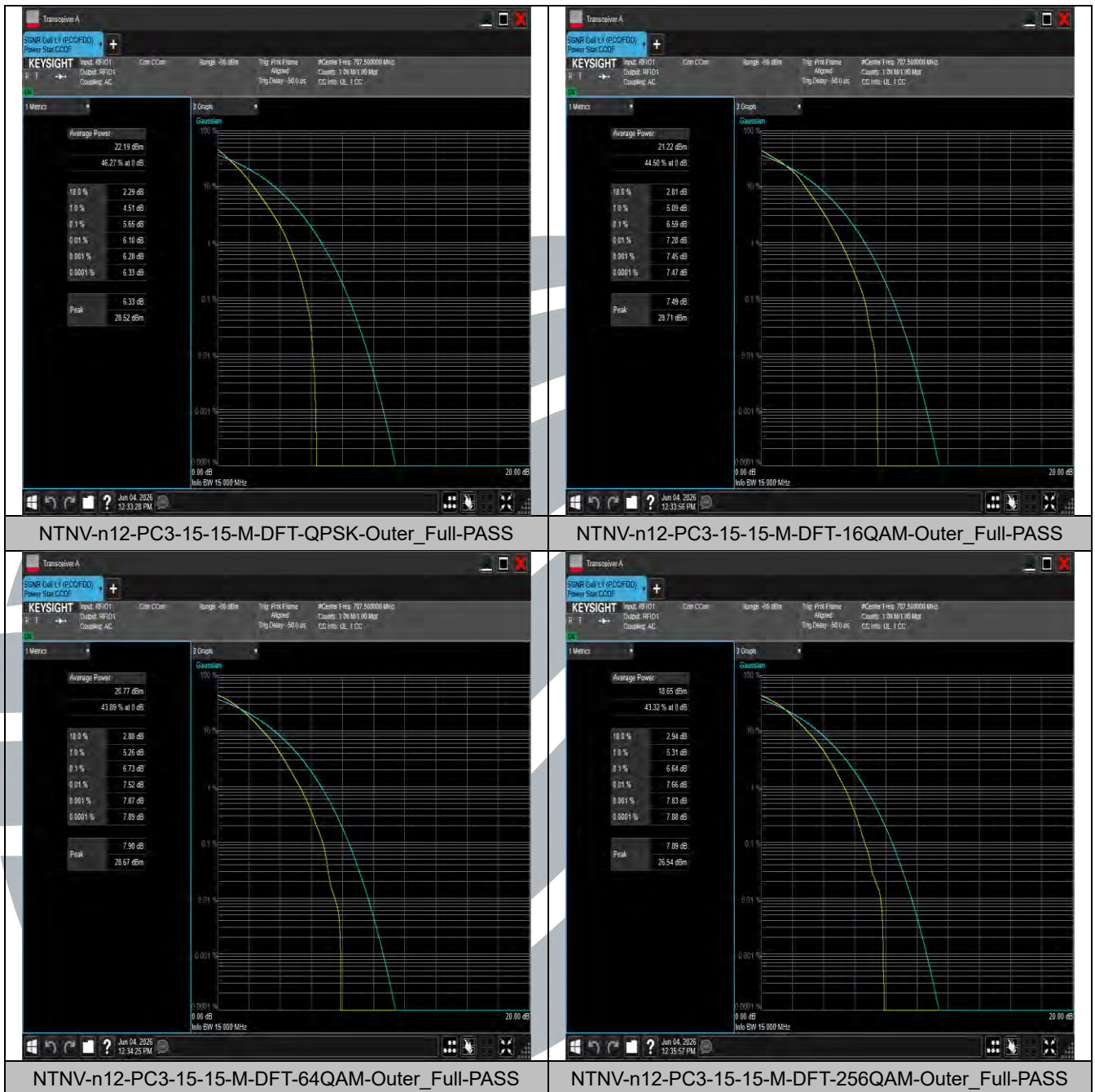
Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Channel	RB Config	Result (dB)	Limit	Verdict
n12	15	15	DFT-BPSK	L	Outer_Full	4.32	≤13dB	PASS
n12	15	15	DFT-QPSK	L	Outer_Full	5.62	≤13dB	PASS
n12	15	15	DFT-16QAM	L	Outer_Full	6.54	≤13dB	PASS
n12	15	15	DFT-64QAM	L	Outer_Full	6.72	≤13dB	PASS
n12	15	15	DFT-256QAM	L	Outer_Full	6.65	≤13dB	PASS
n12	15	15	DFT-BPSK	M	Outer_Full	4.28	≤13dB	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	5.65	≤13dB	PASS
n12	15	15	DFT-16QAM	M	Outer_Full	6.59	≤13dB	PASS
n12	15	15	DFT-64QAM	M	Outer_Full	6.73	≤13dB	PASS
n12	15	15	DFT-256QAM	M	Outer_Full	6.64	≤13dB	PASS
n12	15	15	DFT-BPSK	H	Outer_Full	4.26	≤13dB	PASS
n12	15	15	DFT-QPSK	H	Outer_Full	5.66	≤13dB	PASS
n12	15	15	DFT-16QAM	H	Outer_Full	6.52	≤13dB	PASS
n12	15	15	DFT-64QAM	H	Outer_Full	6.69	≤13dB	PASS
n12	15	15	DFT-256QAM	H	Outer_Full	6.68	≤13dB	PASS

Test Graphs

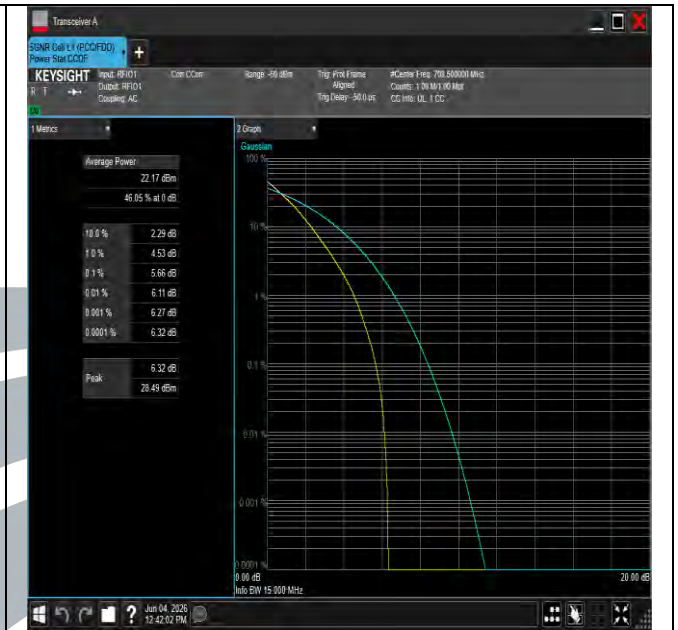








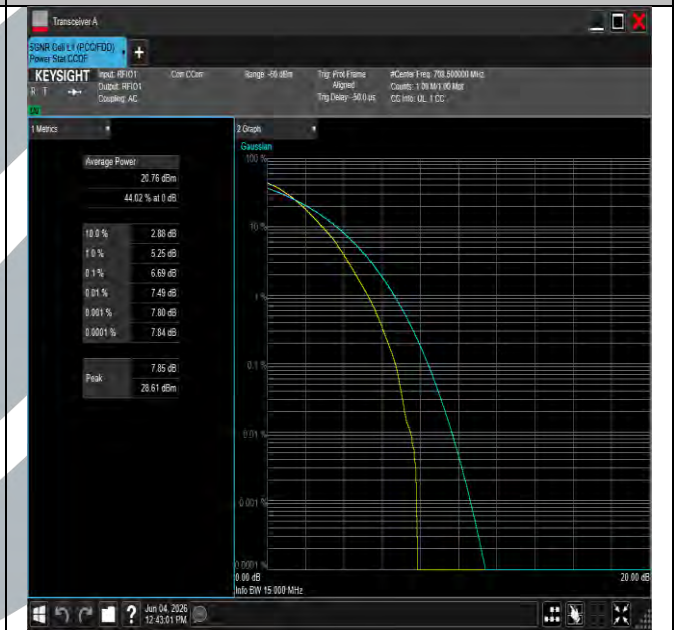
NTNV-n12-PC3-15-15-H-DFT-BPSK-Outer_Full-PASS



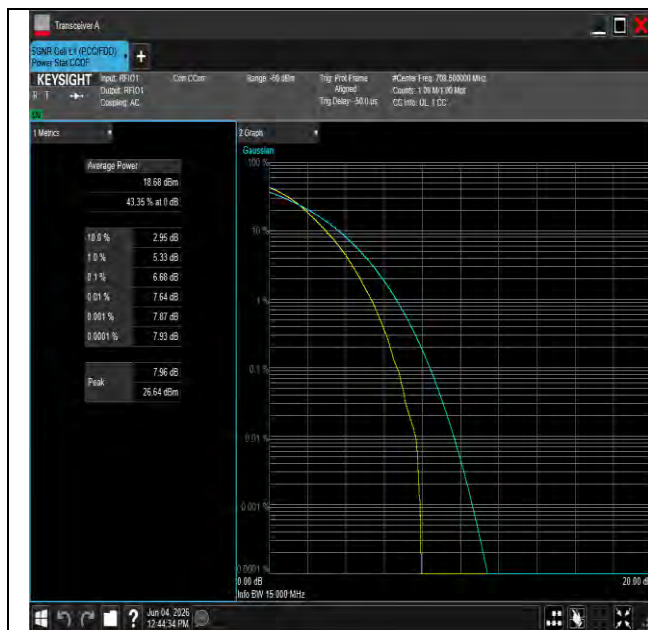
NTNV-n12-PC3-15-15-H-DFT-QPSK-Outer_Full-PASS



NTNV-n12-PC3-15-15-H-DFT-16QAM-Outer_Full-PASS



NTNV-n12-PC3-15-15-H-DFT-64QAM-Outer_Full-PASS



N/A

NTNV-n12-PC3-15-15-H-DFT-256QAM-Outer_Full-PASS

L.226DB 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
n12	15	5	DFT-QPSK	L	Outer_Full	4.4826	4.936	PASS
n12	15	5	DFT-16QAM	L	Outer_Full	4.4840	4.947	PASS
n12	15	5	DFT-QPSK	M	Outer_Full	4.4791	4.890	PASS
n12	15	5	DFT-16QAM	M	Outer_Full	4.4835	4.918	PASS
n12	15	5	DFT-QPSK	H	Outer_Full	4.4851	4.653	PASS
n12	15	5	DFT-16QAM	H	Outer_Full	4.4881	4.881	PASS
n12	15	10	DFT-QPSK	L	Outer_Full	8.9156	9.473	PASS
n12	15	10	DFT-16QAM	L	Outer_Full	8.9523	9.509	PASS
n12	15	10	DFT-QPSK	M	Outer_Full	8.8975	9.465	PASS
n12	15	10	DFT-16QAM	M	Outer_Full	8.9222	9.511	PASS
n12	15	10	DFT-QPSK	H	Outer_Full	8.9222	9.522	PASS
n12	15	10	DFT-16QAM	H	Outer_Full	8.9378	9.507	PASS
n12	15	15	DFT-QPSK	L	Outer_Full	13.403	14.11	PASS
n12	15	15	DFT-16QAM	L	Outer_Full	13.411	14.14	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	13.407	14.25	PASS
n12	15	15	DFT-16QAM	M	Outer_Full	13.418	14.14	PASS
n12	15	15	DFT-QPSK	H	Outer_Full	13.411	14.18	PASS
n12	15	15	DFT-16QAM	H	Outer_Full	13.410	19.01	PASS

Test Graphs





NTNV-n12-PC3-15-5-M-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n12-PC3-15-5-M-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n12-PC3-15-5-H-DFT-QPSK-Outer_Full-Ant1-PASS



NTNV-n12-PC3-15-5-H-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n12-PC3-15-10-L-DFT-QPSK-Outer_Full-Ant1-PASS



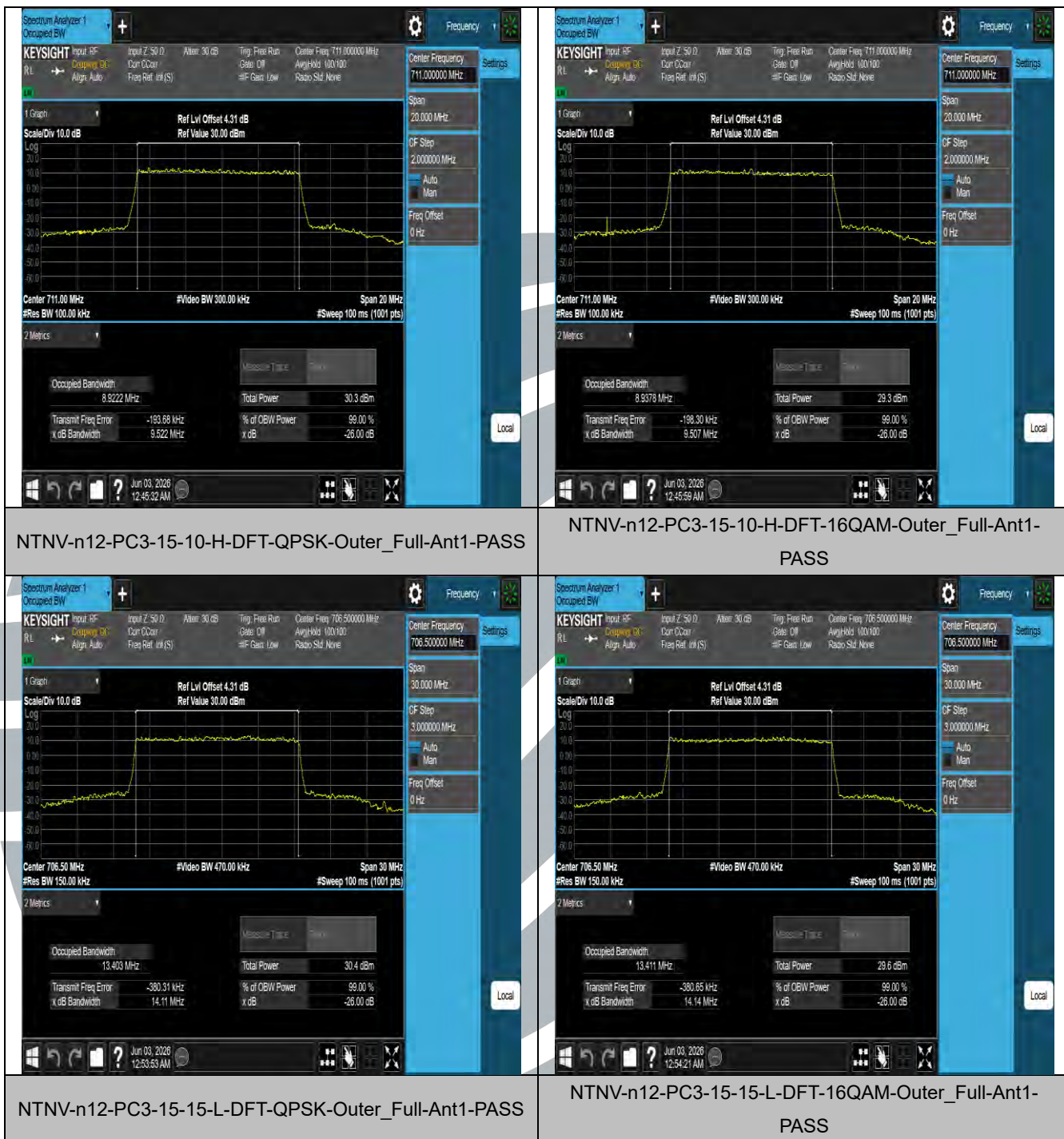
NTNV-n12-PC3-15-10-L-DFT-16QAM-Outer_Full-Ant1-PASS



NTNV-n12-PC3-15-10-M-DFT-QPSK-Outer_Full-Ant1-PASS

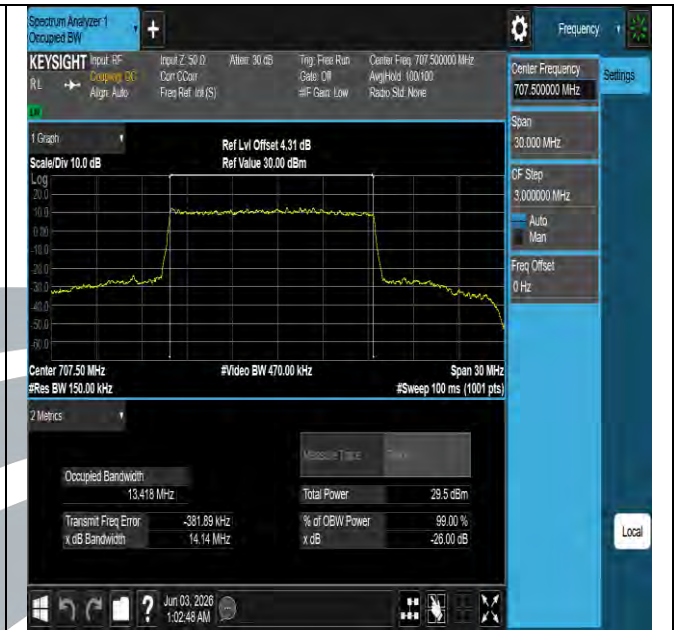


NTNV-n12-PC3-15-10-M-DFT-16QAM-Outer_Full-Ant1-PASS





NTNV-n12-PC3-15-15-M-DFT-QPSK-Outter_Full-Ant1-PASS



NTNV-n12-PC3-15-15-M-DFT-16QAM-Outter_Full-Ant1-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Outter_Full-Ant1-PASS



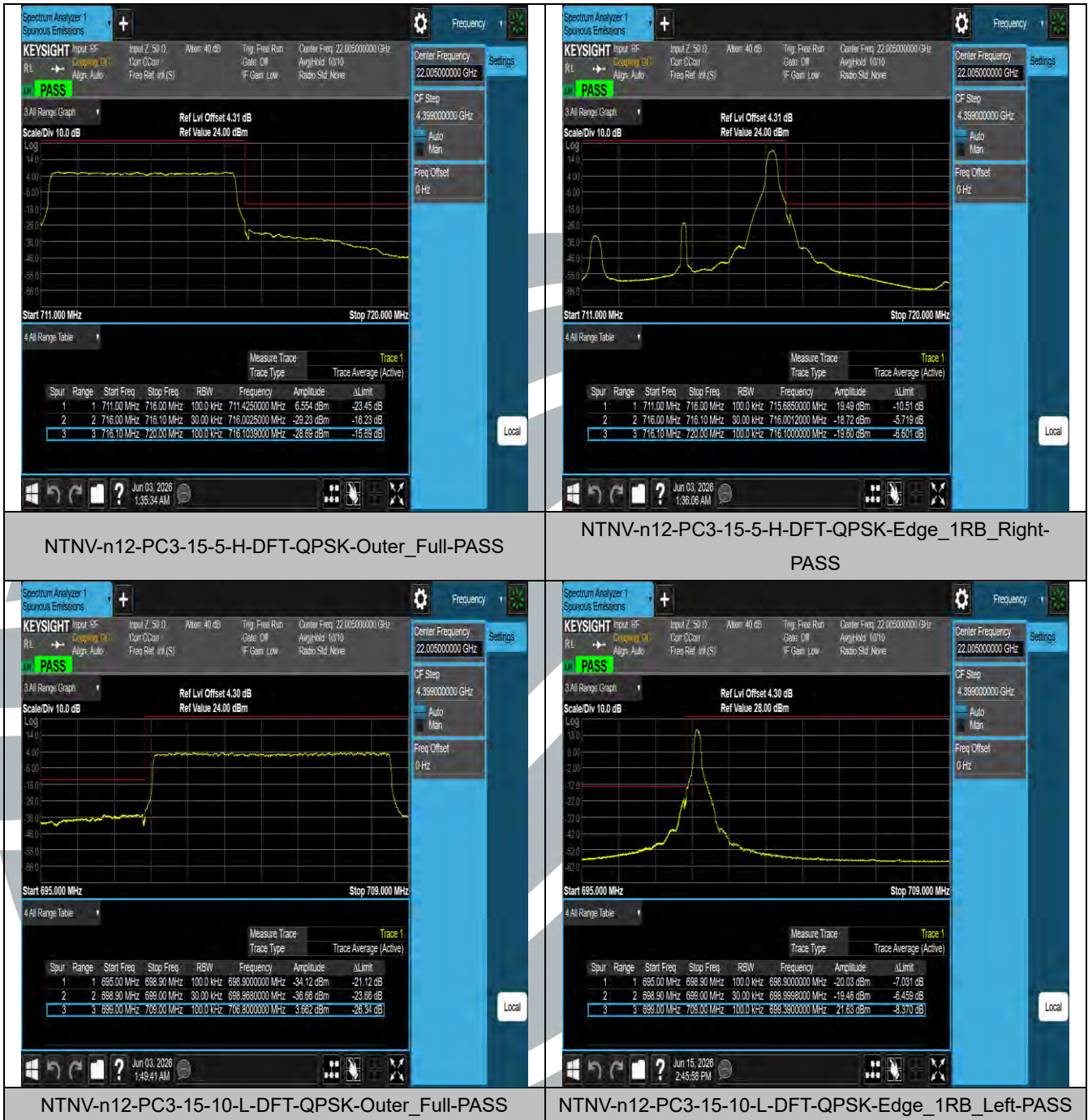
NTNV-n12-PC3-15-15-H-DFT-16QAM-Outter_Full-Ant1-PASS

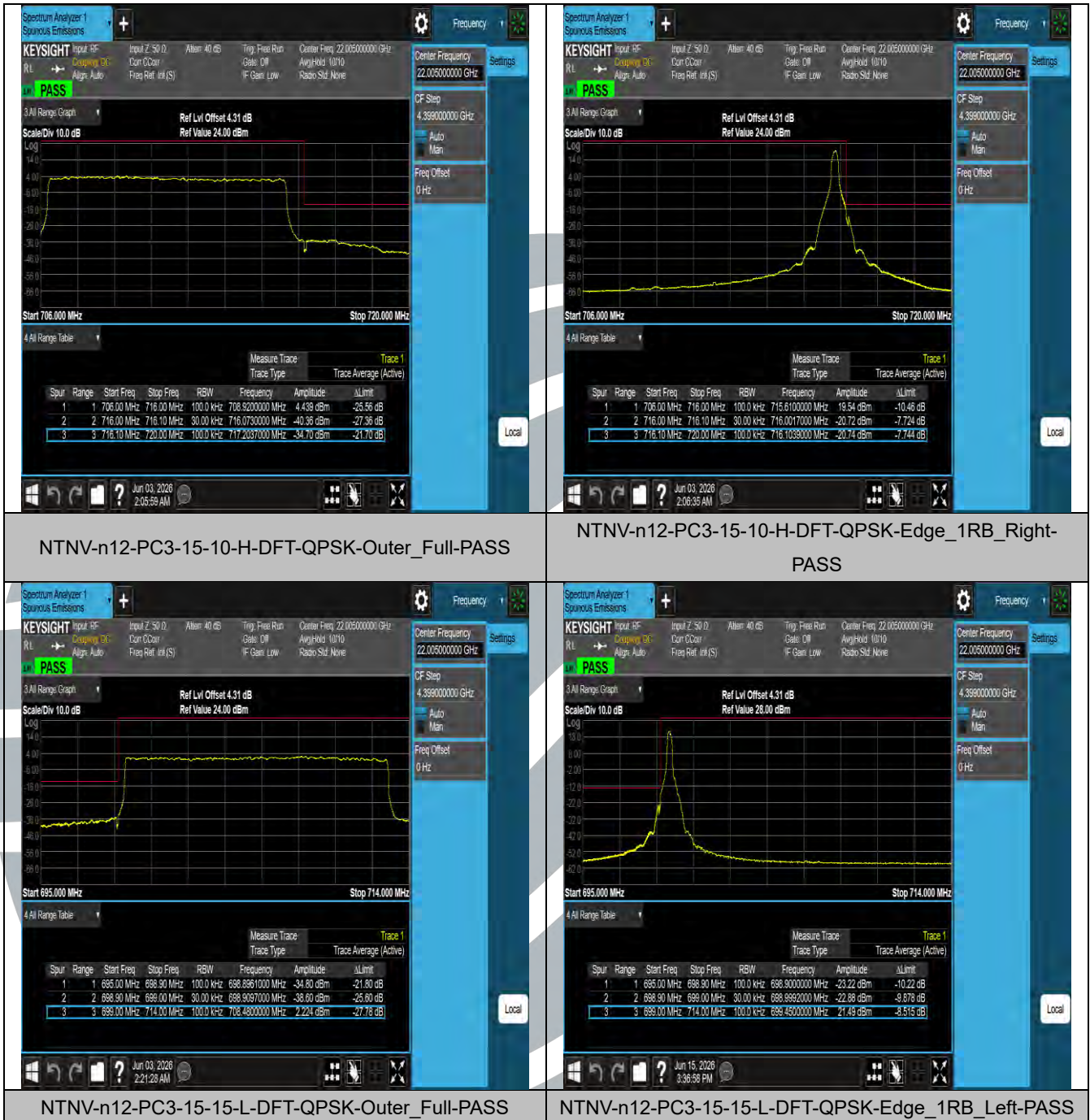
L3BAND EDGE FOR SA Test Result

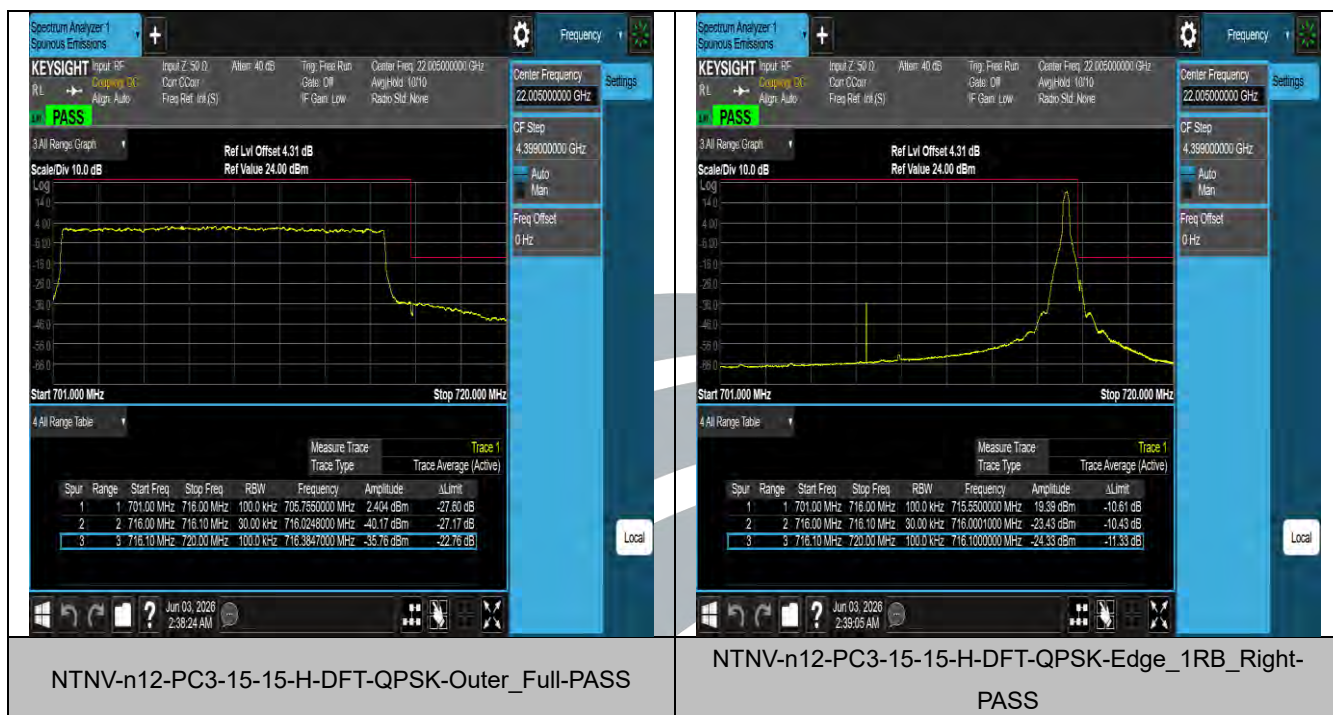
Band	SCS (kHz)	BW (MHz)	Modulation	Channel	RB Config	Result (dBm)	Verdict
n12	15	5	DFT-QPSK	L	Outer_Full	-28.91	PASS
n12	15	5	DFT-QPSK	L	Edge_1RB_Left	-17.72	PASS
n12	15	5	DFT-QPSK	H	Outer_Full	-28.69	PASS
n12	15	5	DFT-QPSK	H	Edge_1RB_Right	-18.72	PASS
n12	15	10	DFT-QPSK	L	Outer_Full	-34.12	PASS
n12	15	10	DFT-QPSK	L	Edge_1RB_Left	-19.46	PASS
n12	15	10	DFT-QPSK	H	Outer_Full	-34.70	PASS
n12	15	10	DFT-QPSK	H	Edge_1RB_Right	-20.72	PASS
n12	15	15	DFT-QPSK	L	Outer_Full	-34.80	PASS
n12	15	15	DFT-QPSK	L	Edge_1RB_Left	-22.88	PASS
n12	15	15	DFT-QPSK	H	Outer_Full	-35.76	PASS
n12	15	15	DFT-QPSK	H	Edge_1RB_Right	-23.43	PASS

Test Graphs







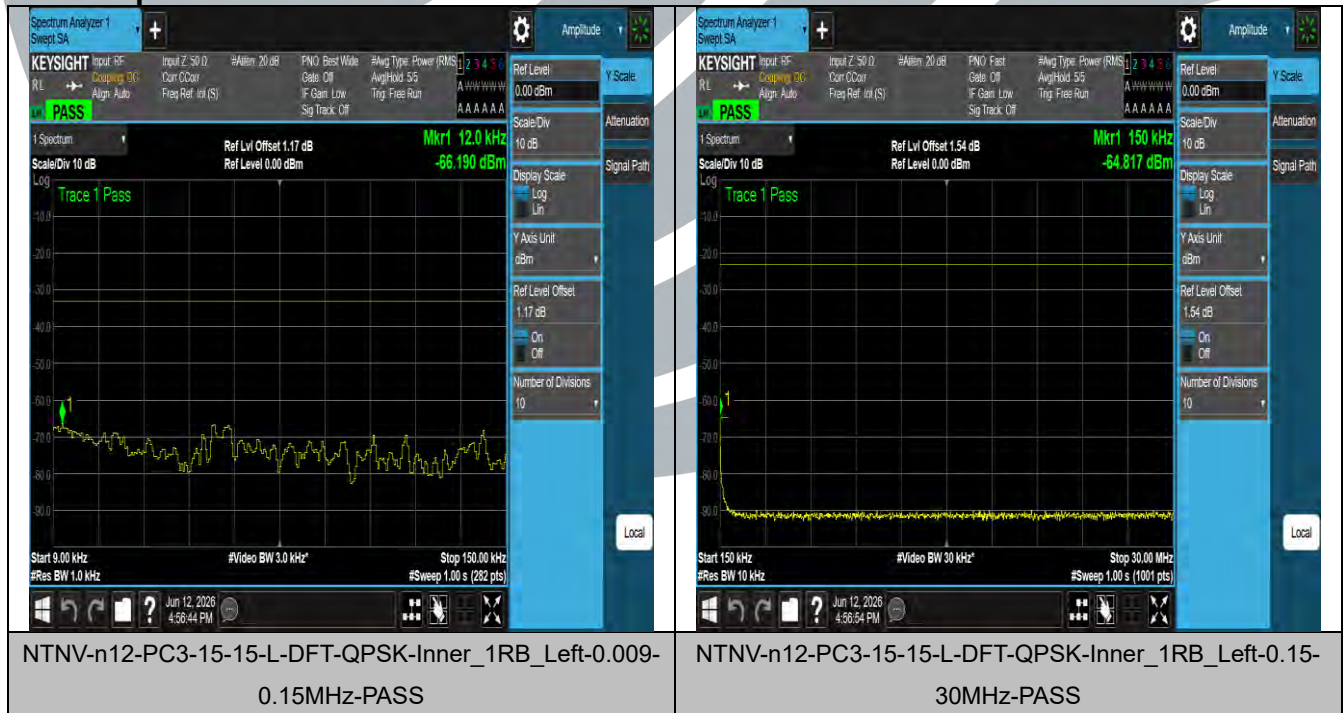


L.4 CONDUCTED SPURIOUS EMISSION FOR SA

Test Result

Band	SCS (kHz)	BW (MHz)	Modulation	Ch.	RB Config	Start Freq (MHz)	Stop Freq (MHz)	Result (dBm)	Limit	Verdict
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	0.009	0.15	-66.19	≤-33dBm	PASS
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	0.15	30	-64.82	≤-23dBm	PASS
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	30	1000	-49.49	≤-13dBm	PASS
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	1000	3000	-39.04	≤-13dBm	PASS
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	3000	12000	-45.46	≤-13dBm	PASS
n12	15	15	DFT-QPSK	L	Inner_1RB_Left	12000	20000	-55.04	≤-13dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	0.009	0.15	-66.62	≤-33dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	0.15	30	-65.63	≤-23dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	30	1000	-49.36	≤-13dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	1000	3000	-39.07	≤-13dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	3000	12000	-45.43	≤-13dBm	PASS
n12	15	15	DFT-QPSK	M	Inner_1RB_Left	12000	20000	-55.33	≤-13dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	0.009	0.15	-65.95	≤-33dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	0.15	30	-65.25	≤-23dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	30	1000	-49.23	≤-13dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	1000	3000	-39.14	≤-13dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	3000	12000	-45.42	≤-13dBm	PASS
n12	15	15	DFT-QPSK	H	Inner_1RB_Left	12000	20000	-55.17	≤-13dBm	PASS

Test Graphs





NTNV-n12-PC3-15-15-L-DFT-QPSK-Inner_1RB_Left-30-1000MHz-PASS



NTNV-n12-PC3-15-15-L-DFT-QPSK-Inner_1RB_Left-1000-3000MHz-PASS



NTNV-n12-PC3-15-15-L-DFT-QPSK-Inner_1RB_Left-3000-12000MHz-PASS



NTNV-n12-PC3-15-15-L-DFT-QPSK-Inner_1RB_Left-12000-20000MHz-PASS

NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-
0.009-0.15MHz-PASS

NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-0.15-30MHz-PASS

NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-30-
1000MHz-PASS

NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-1000-3000MHz-PASS



NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-3000-12000MHz-PASS

NTNV-n12-PC3-15-15-M-DFT-QPSK-Inner_1RB_Left-
12000-20000MHz-PASS

NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-
0.009-0.15MHz-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-0.15-30MHz-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-30-1000MHz-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-1000-3000MHz-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-3000-12000MHz-PASS



NTNV-n12-PC3-15-15-H-DFT-QPSK-Inner_1RB_Left-12000-20000MHz-PASS

L.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
n12	15	15	DFT-QPSK	M	Outer_Full	VL	NT	4.6E-05	-2.5~2.5	699	716	---	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	VN	NT	0.039853	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	VH	NT	0.069741	-2.5~2.5	699	716	699-716	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
n12	15	15	DFT-QPSK	M	Outer_Full	NV	-30	0.000987	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	-20	0.102742	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	-10	0.09829	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	0	-0.063436	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	10	-0.028192	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	20	0.00138	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	30	0.063276	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	40	-0.000175	-2.5~2.5	699	716	699-716	PASS
n12	15	15	DFT-QPSK	M	Outer_Full	NV	50	0.000962	-2.5~2.5	699	716	699-716	PASS