

APPENDIX A: TEST RESULTS OF BAND 787-788 FOR NB-IOT OPERATION

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APPENDIX A.1: EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA FOR NB-IOT

Test Result

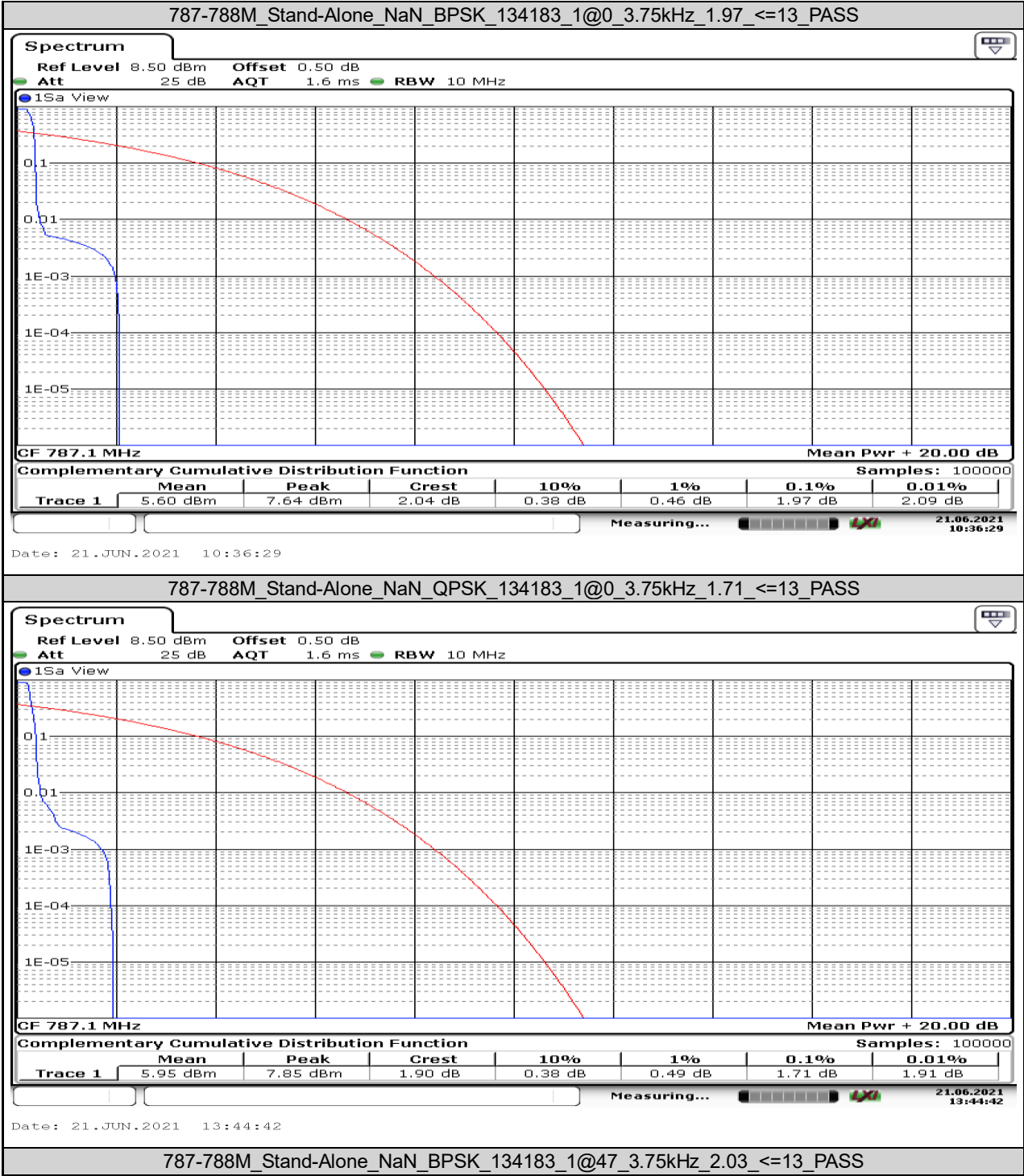
Test Configuration		EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)
		134183	787.1	134184	787.2	134190	787.8	134191	787.9
Modulation: BPSK		Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)
3.75kHz	1RB0	6.54	6.53	22.61	22.60	22.53	22.52	6.26	6.25
	1RB47	6.41	6.40	22.49	22.48	22.44	22.43	6.32	6.31
15kHz	1RB0	6.51	6.50	22.90	22.89	23.08	23.07	6.43	6.42
	1RB11	6.43	6.42	22.87	22.86	22.97	22.96	6.33	6.32
Modulation: QPSK		Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)
3.75kHz	1RB0	6.57	6.56	22.83	22.82	22.68	22.67	6.45	6.44
	1RB47	6.46	6.45	22.72	22.71	22.61	22.60	6.37	6.36
15kHz	1RB0	6.63	6.62	23.17	23.16	22.84	22.83	6.52	6.51
	1RB11	6.56	6.55	22.96	22.95	22.70	22.69	6.43	6.42
	3RB3	6.64	6.63	23.00	22.99	23.03	23.02	6.51	6.50

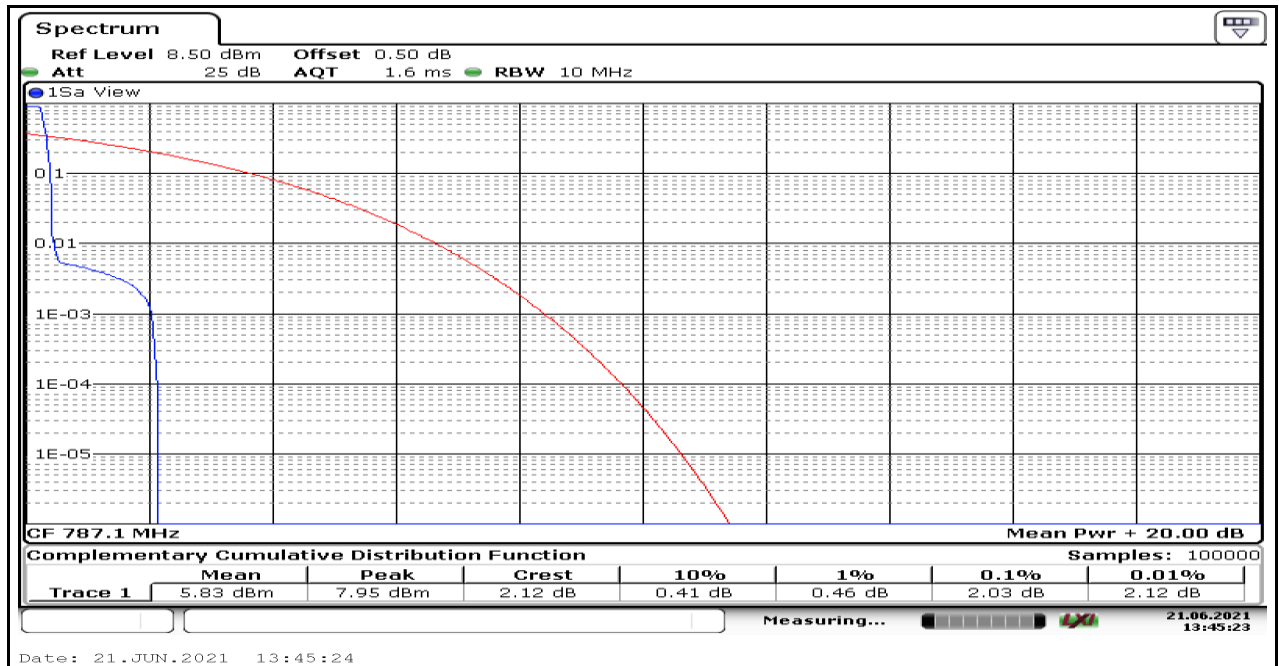
APPENDIX A.2: PEAK-TO-AVERAGE RATIO (CCDF) FOR NB-IOT

Test Result

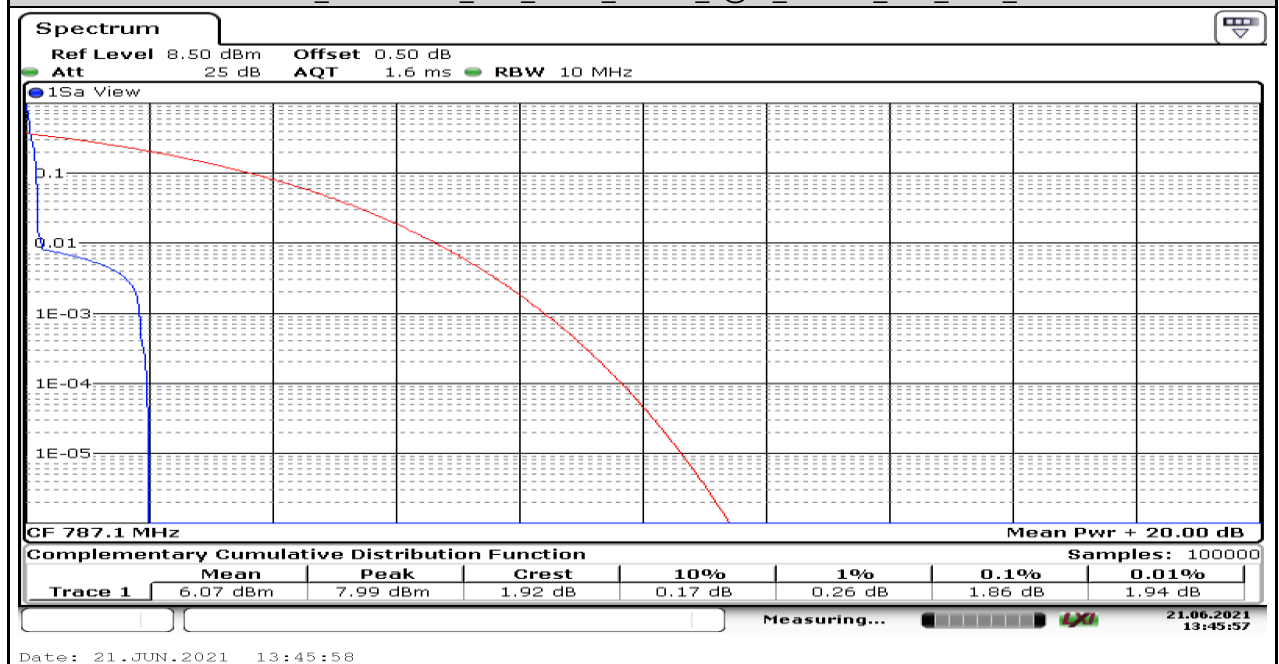
Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Result (dB)	Limit (dB)	Verdict
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	3.75kHz	1.97	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	1.71	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@47	3.75kHz	2.03	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@47	3.75kHz	1.86	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	15kHz	1.48	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	15kHz	1.54	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@11	15kHz	1.59	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@11	15kHz	1.57	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	3@3	15kHz	3.91	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	3.75kHz	1.80	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	3.75kHz	1.68	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@47	3.75kHz	2.03	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@47	3.75kHz	1.68	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	15kHz	1.45	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	15kHz	1.57	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@11	15kHz	1.51	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@11	15kHz	1.57	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	3@3	15kHz	3.88	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	2.00	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	1.77	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@47	3.75kHz	1.91	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@47	3.75kHz	1.68	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	1.51	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	1.59	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@11	15kHz	1.57	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@11	15kHz	1.59	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	3@3	15kHz	3.86	<=13	PASS

Test Graphs

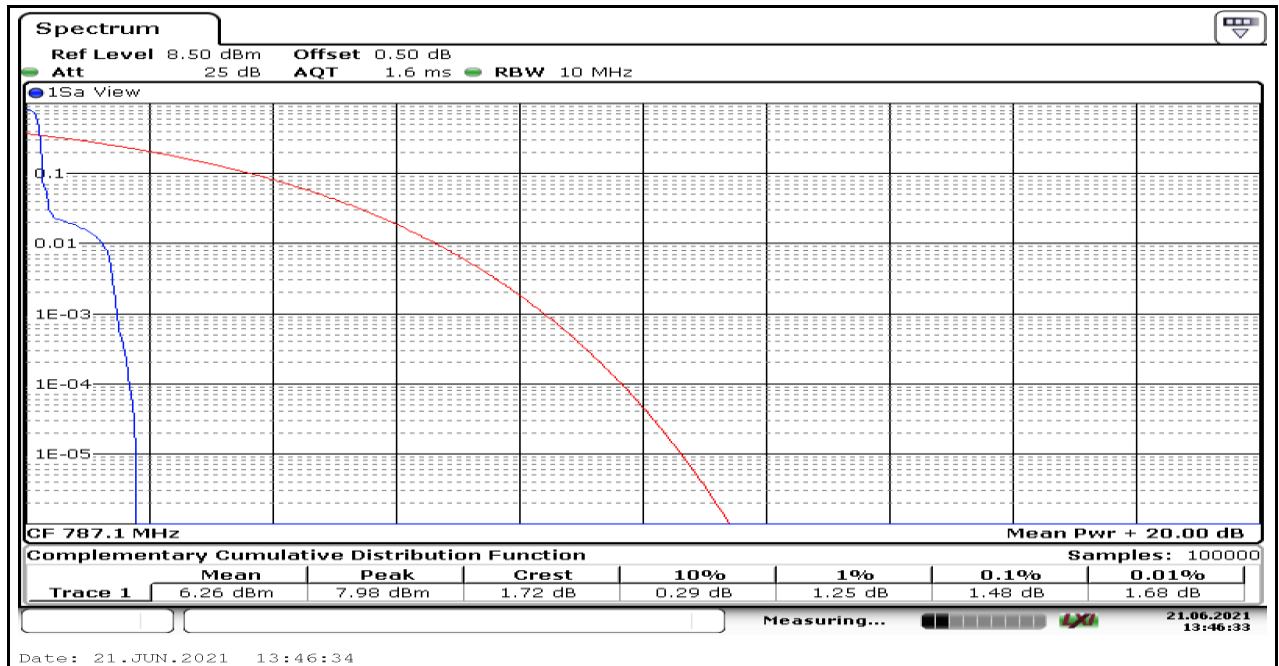




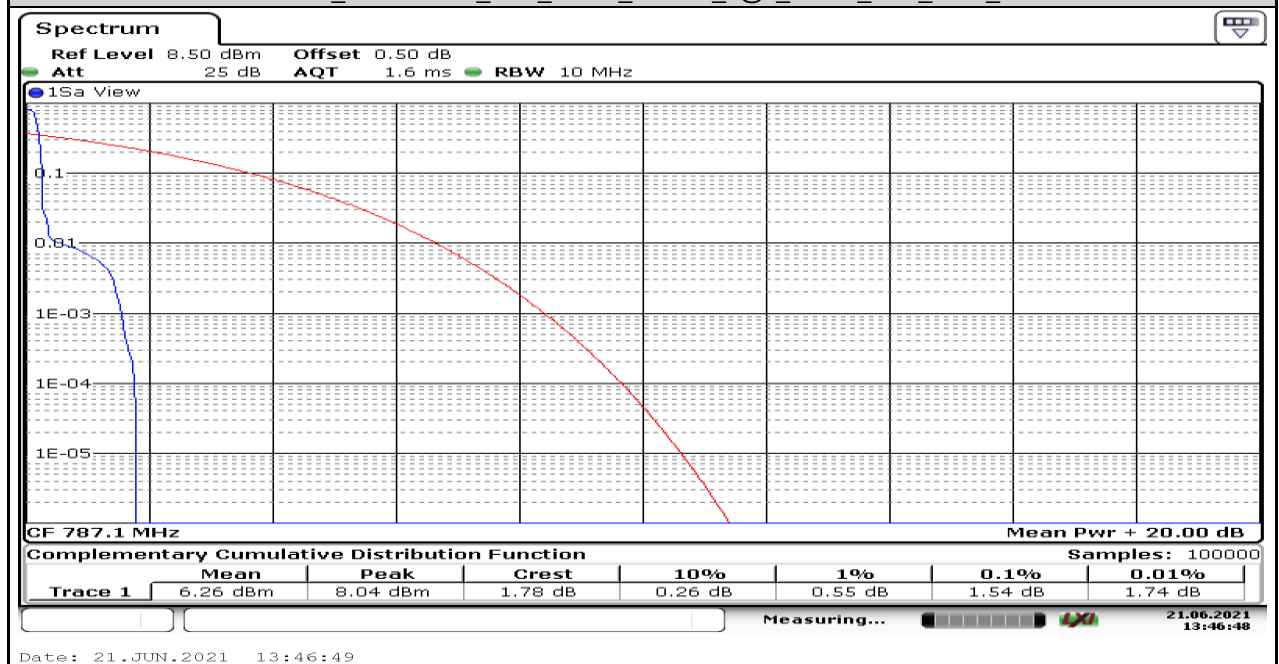
787-788M_Stand-Alone_NaN_QPSK_134183_1@47_3.75kHz_1.86_<=13_PASS



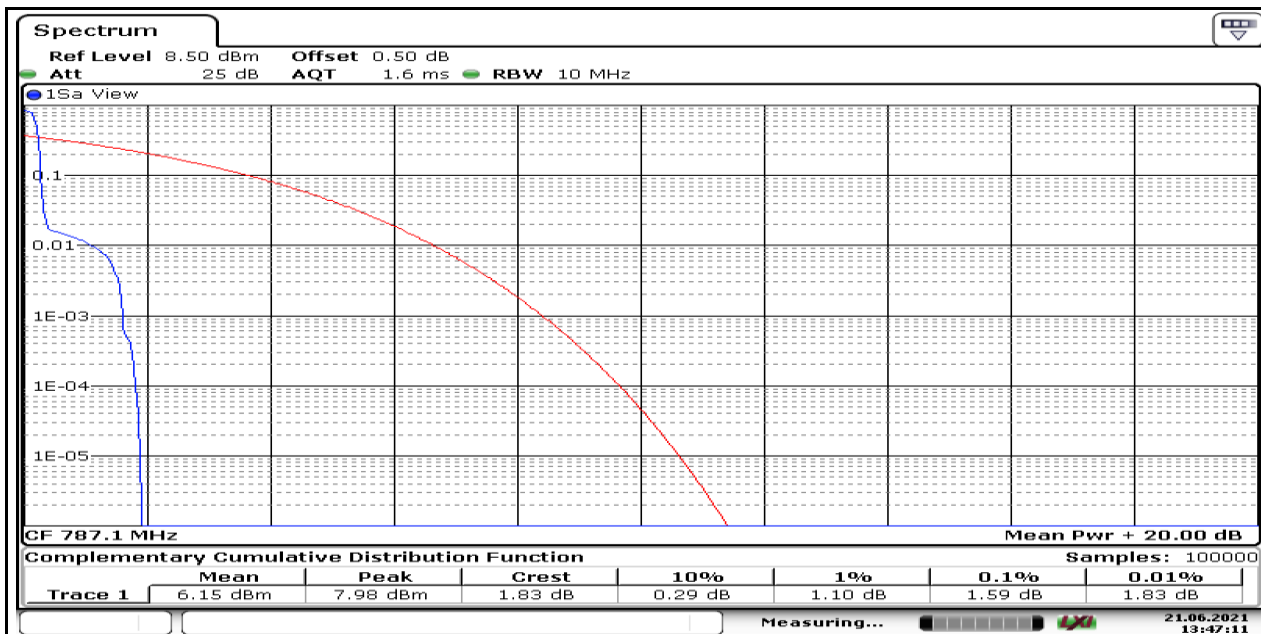
787-788M_Stand-Alone_NaN_BPSK_134183_1@0_15kHz_1.48_<=13_PASS



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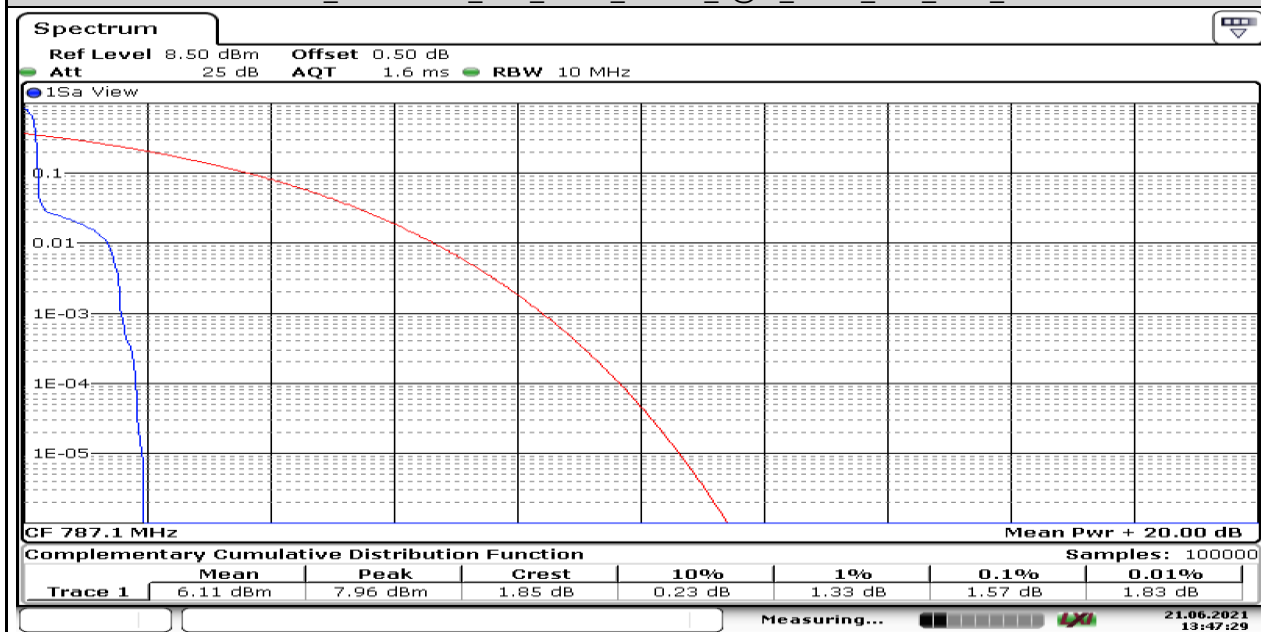


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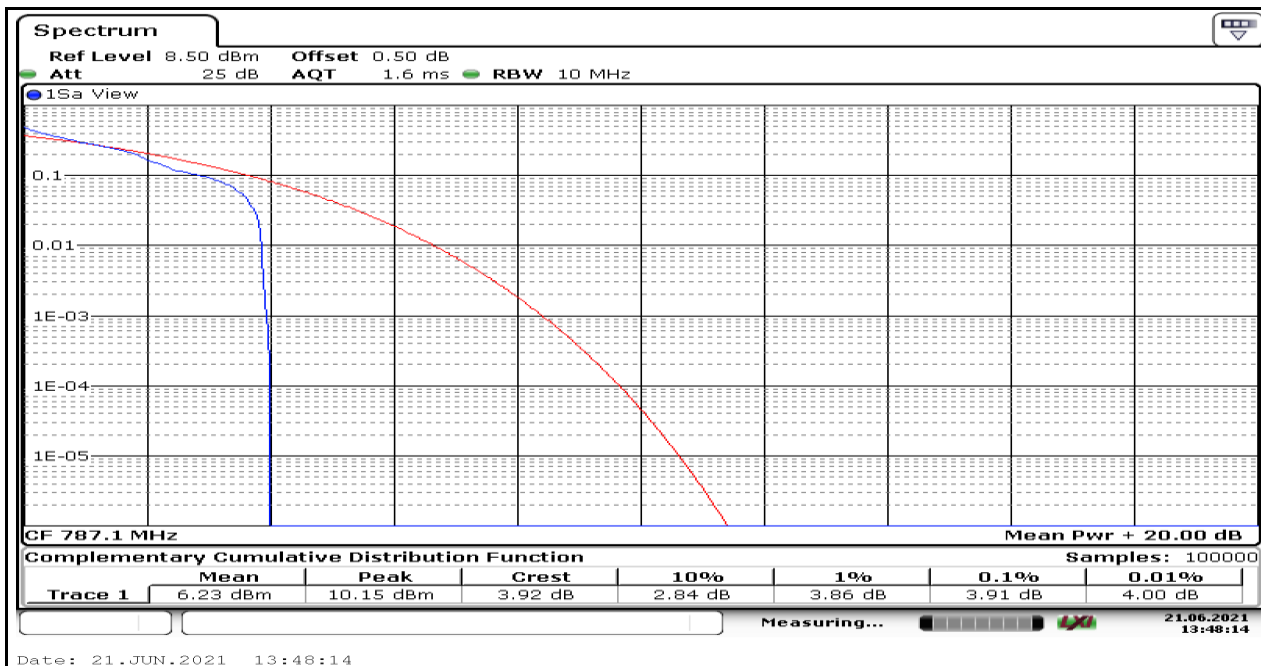
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787-788M_Stand-Alone_NaN_QPSK_134183_1@11_15kHz_1.57_<=13_PASS

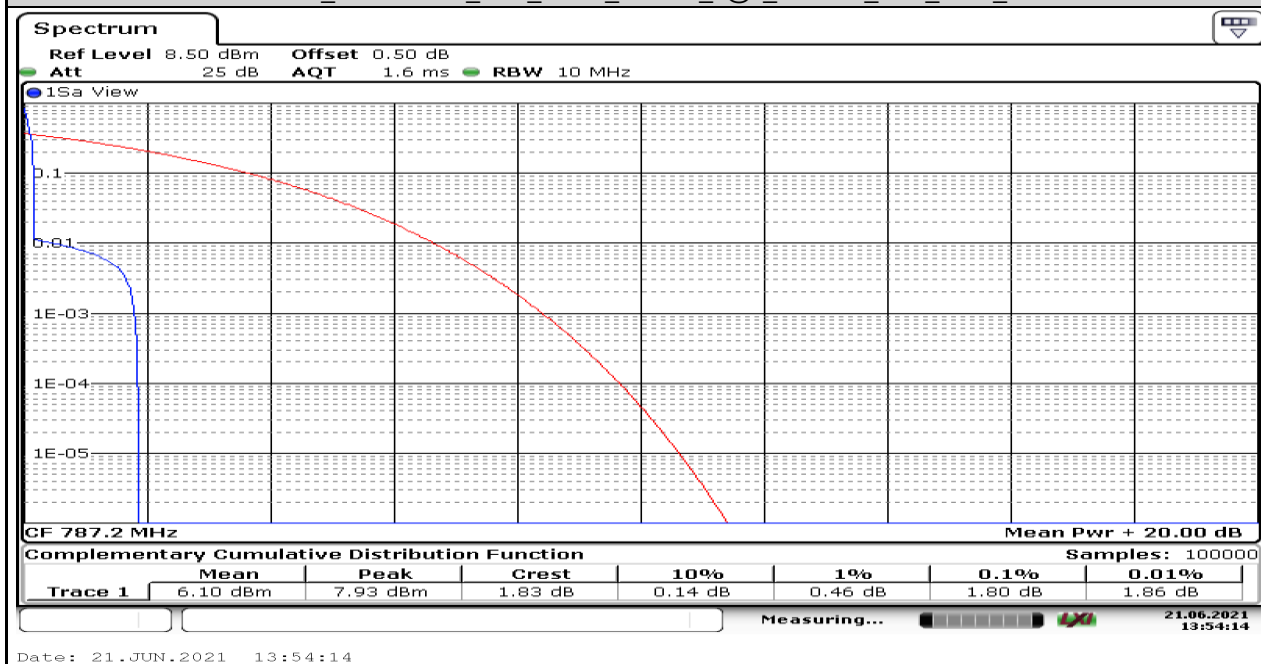


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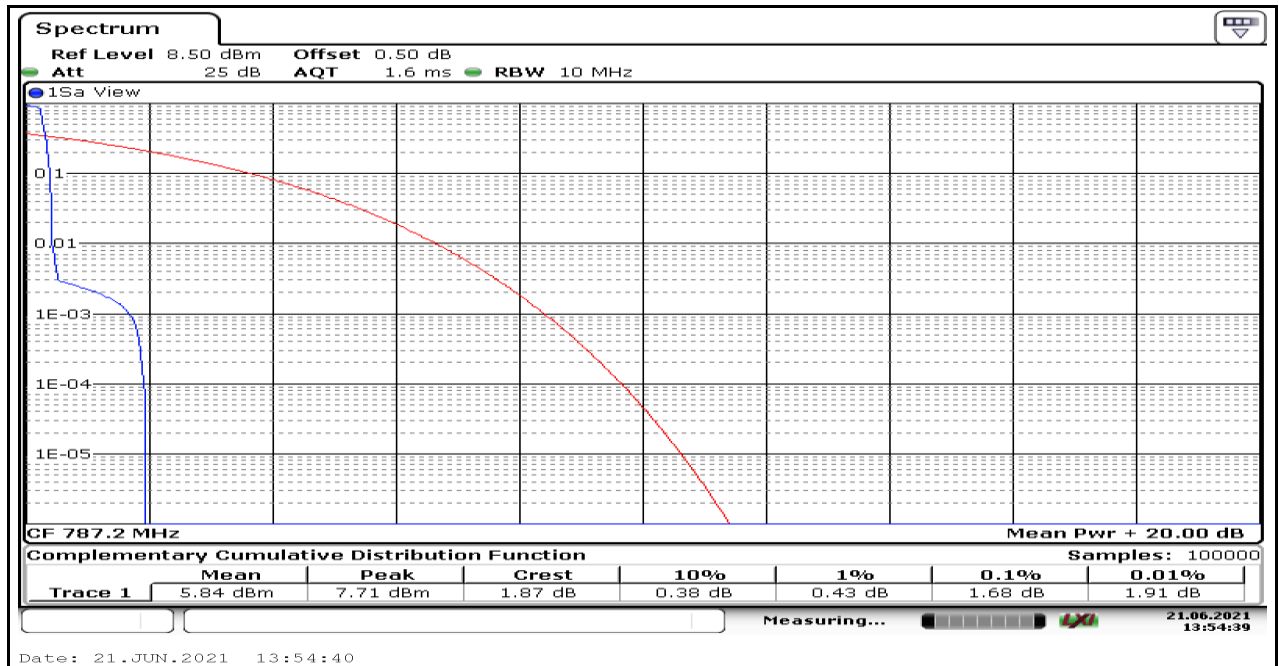
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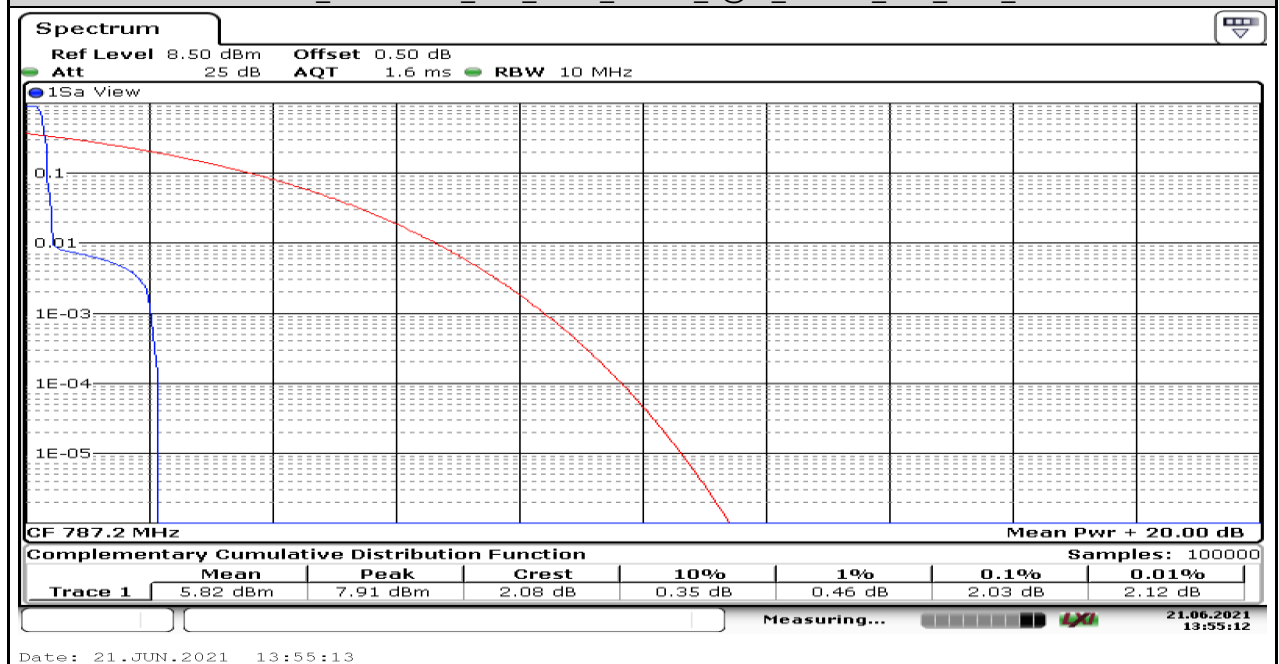
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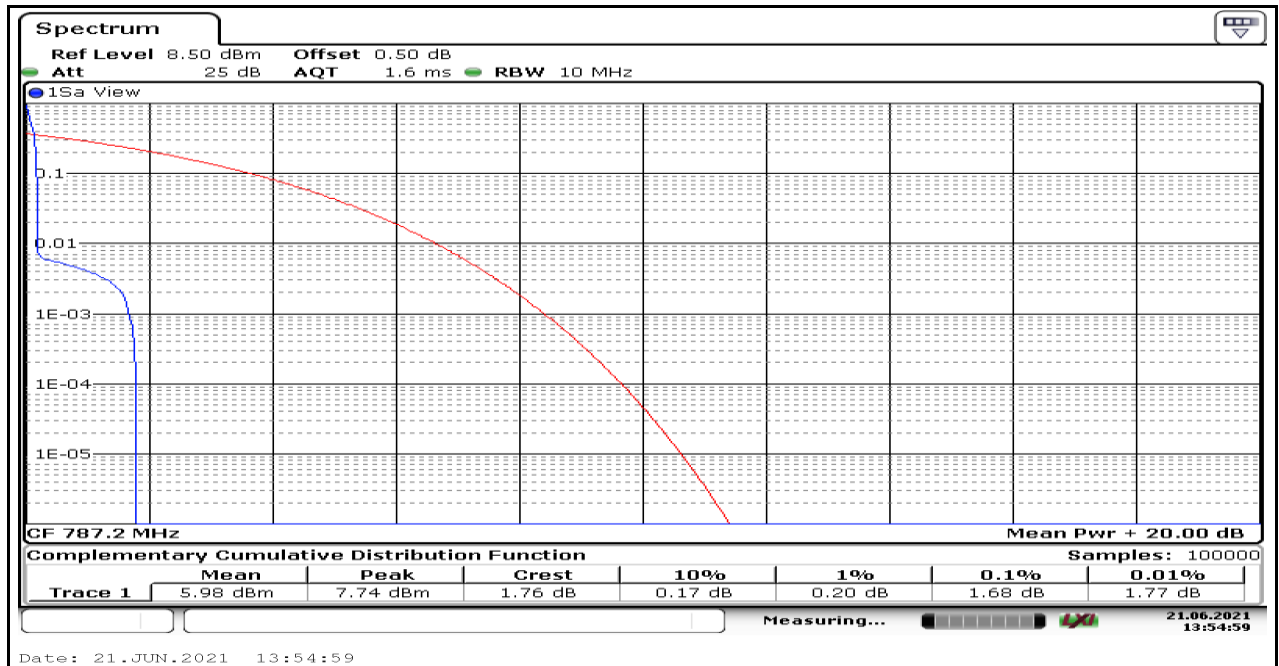
787-788M_Stand-Alone_NaN_QPSK_134184_1@0_3.75kHz_1.68_<=13_PASS



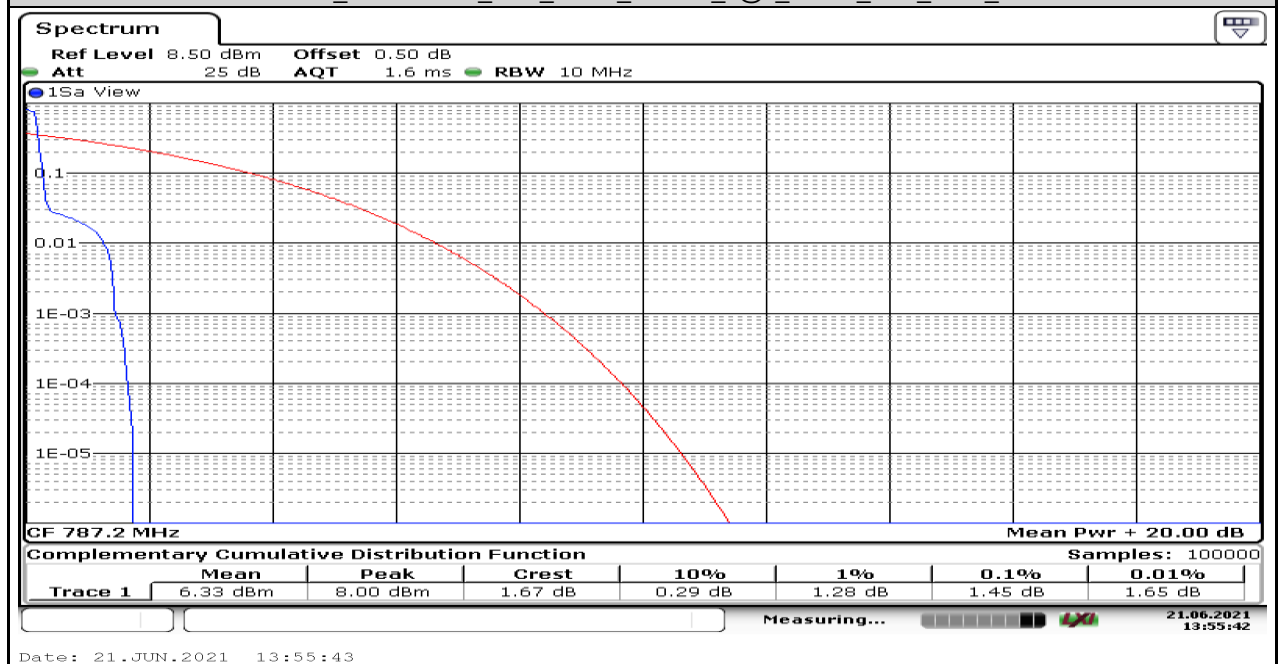
787-788M_Stand-Alone_NaN_BPSK_134184_1@47_3.75kHz_2.03_<=13_PASS



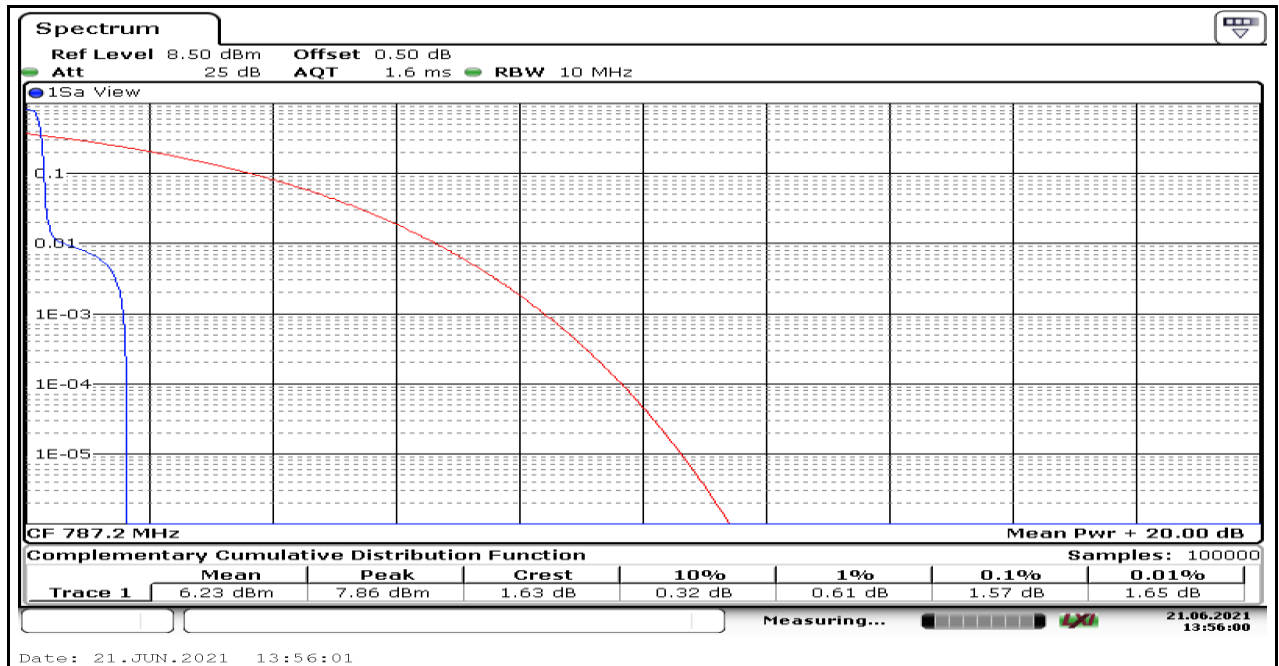
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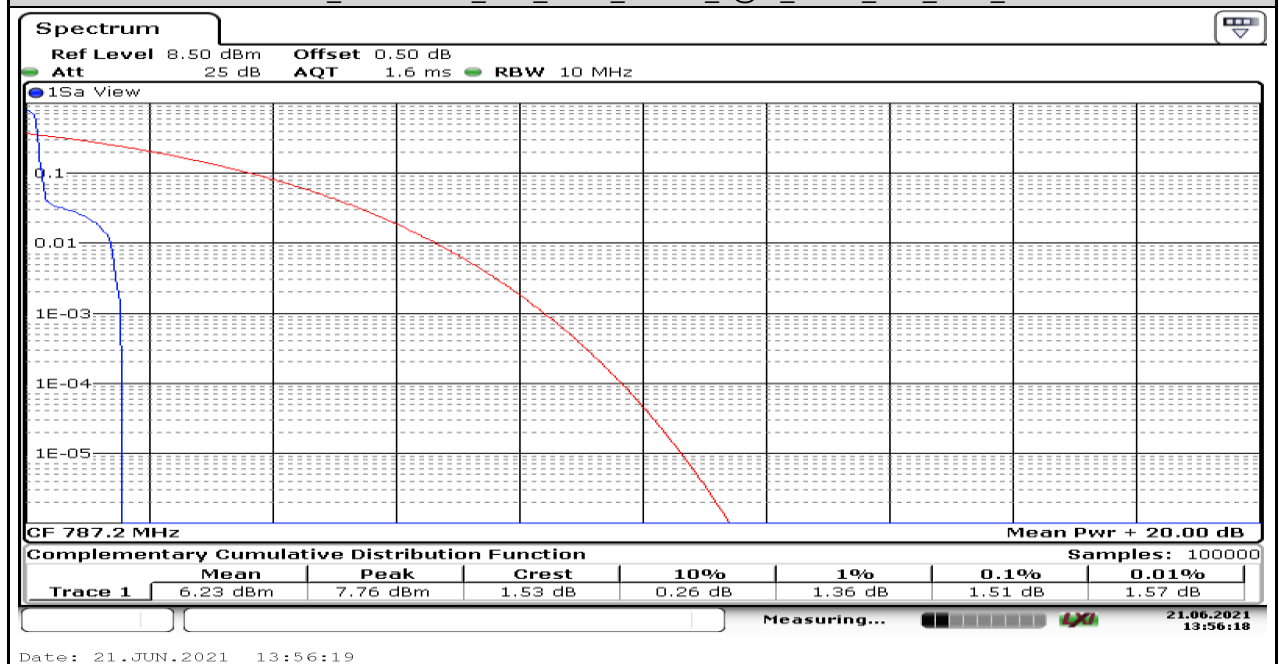
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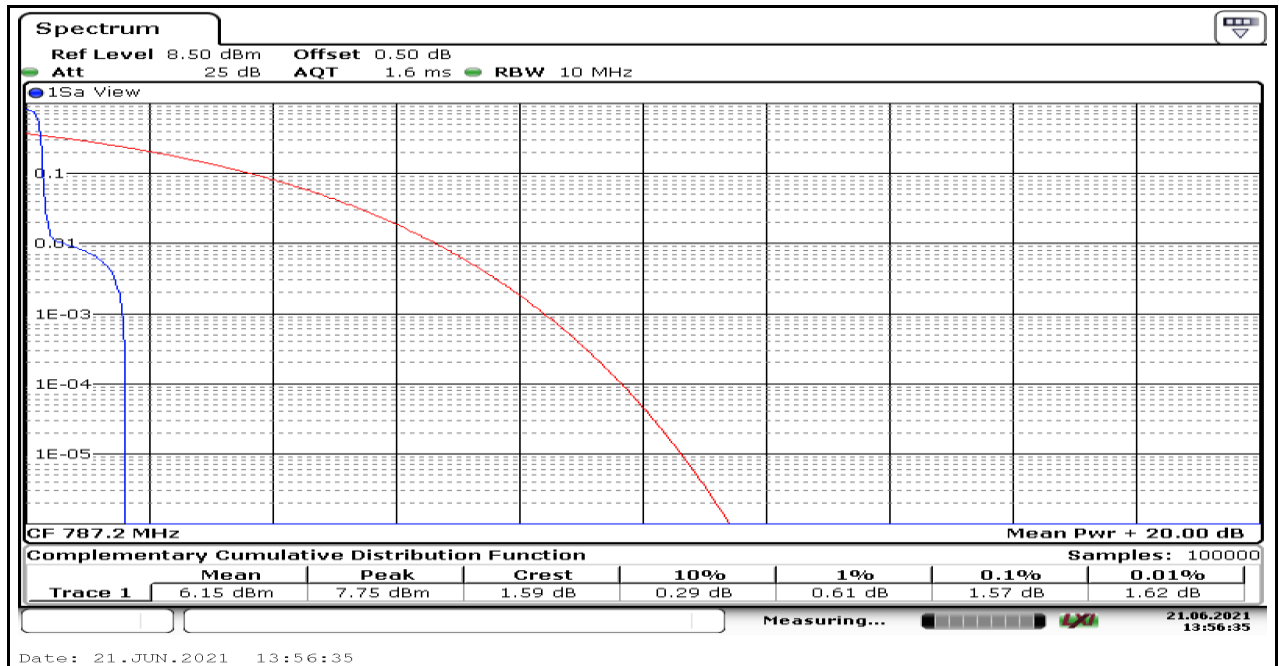
787-788M_Stand-Alone_NaN_QPSK_134184_1@0_15kHz_1.57_<=13_PASS



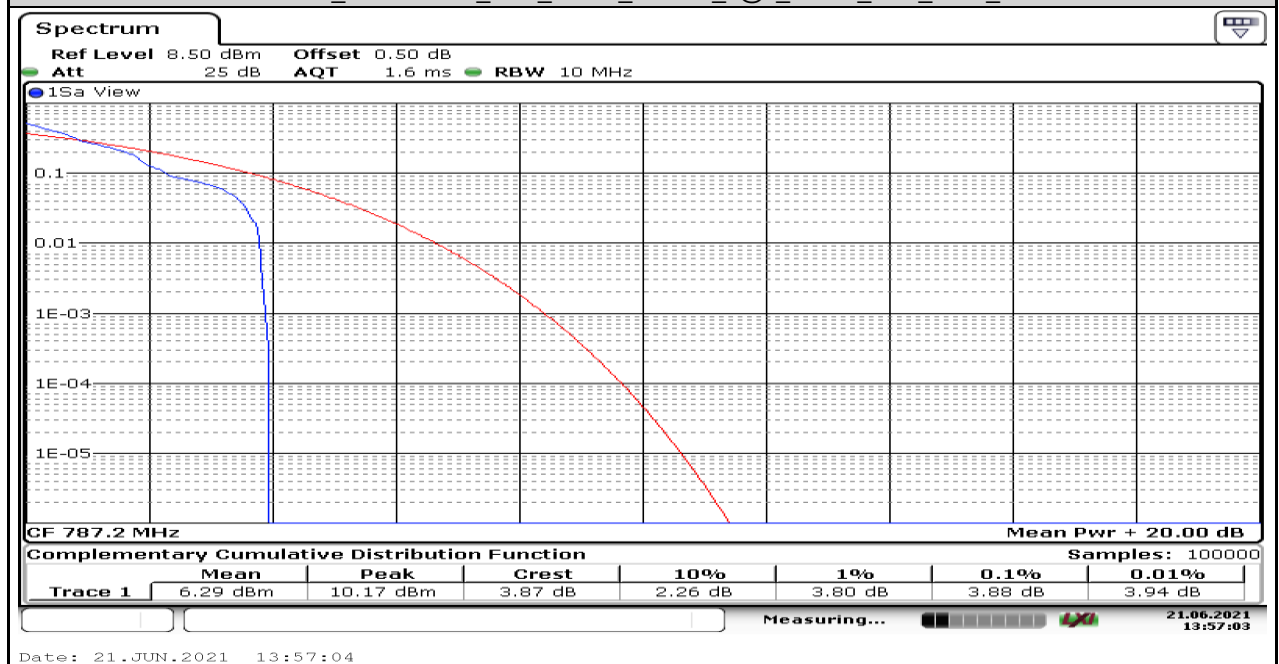
787-788M_Stand-Alone_NaN_BPSK_134184_1@11_15kHz_1.51_<=13_PASS



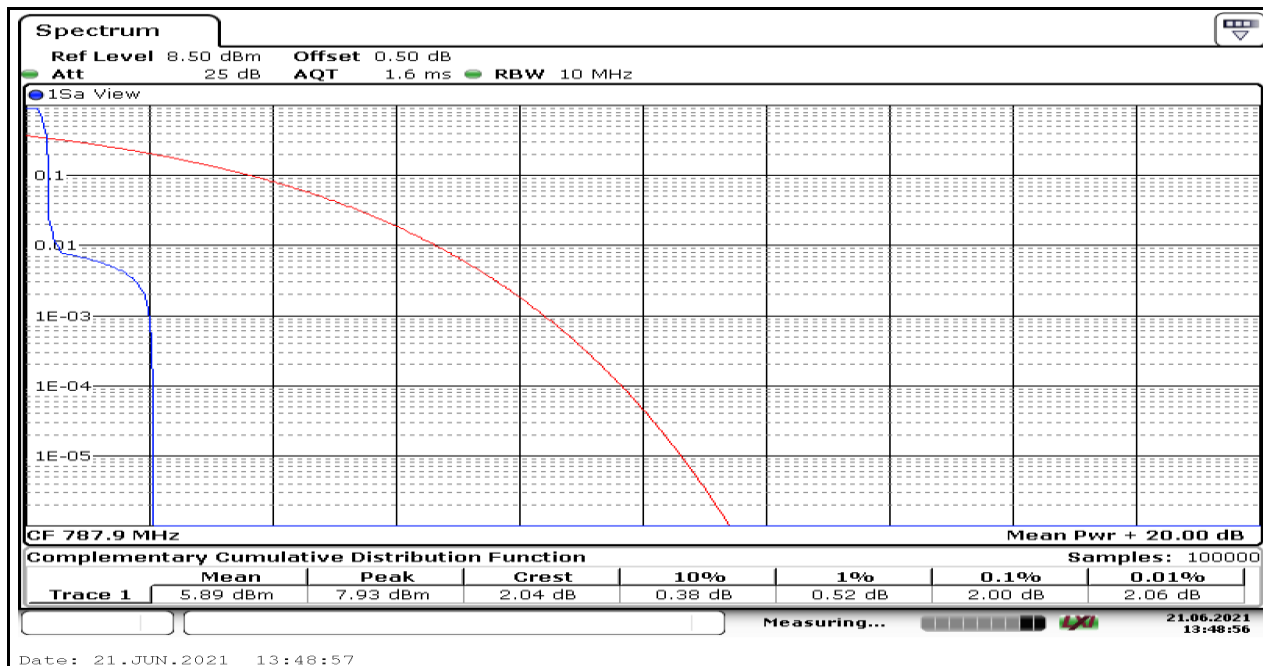
787-788M_Stand-Alone_NaN_QPSK_134184_1@11_15kHz_1.57_<=13_PASS



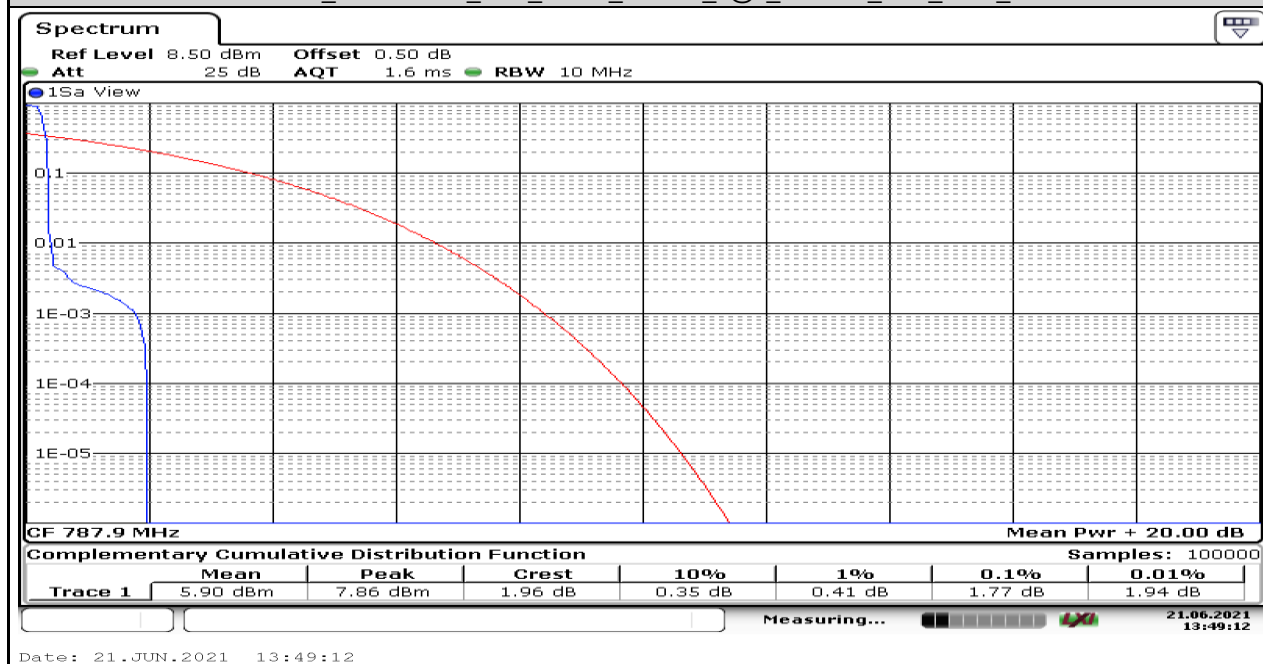
787-788M_Stand-Alone_NaN_QPSK_134184_3@3_15kHz_3.88_<=13_PASS



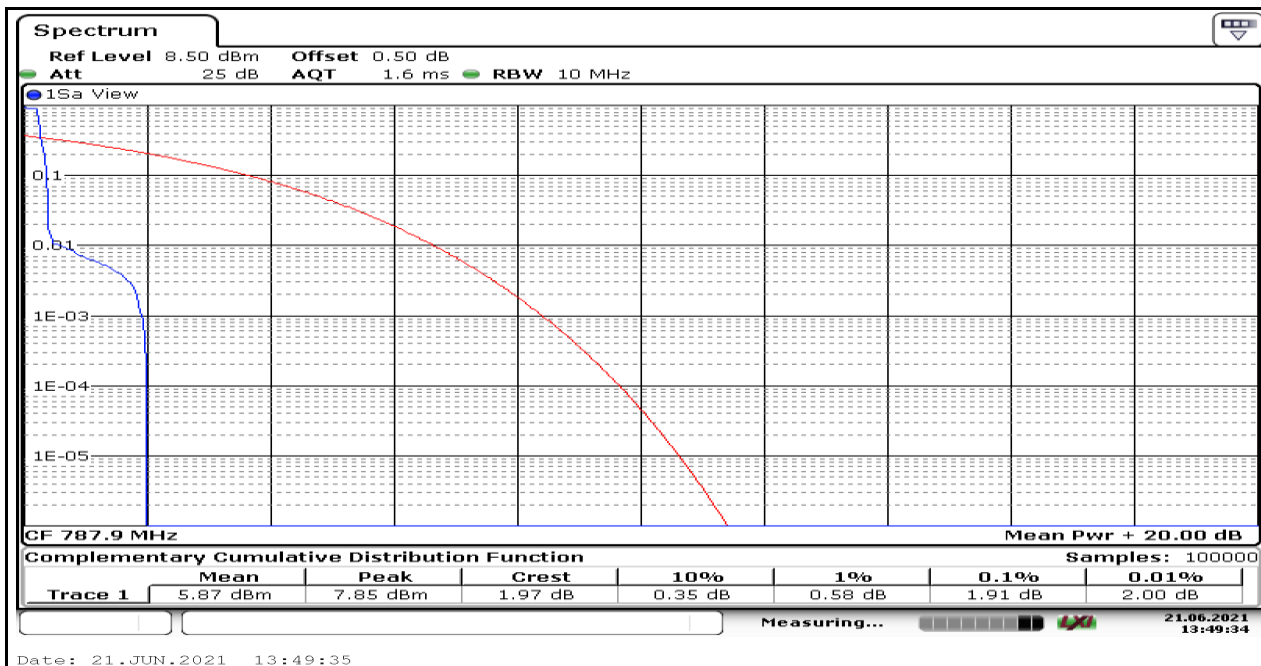
787-788M_Stand-Alone_NaN_BPSK_134191_1@0_3.75kHz_2.00_<=13_PASS



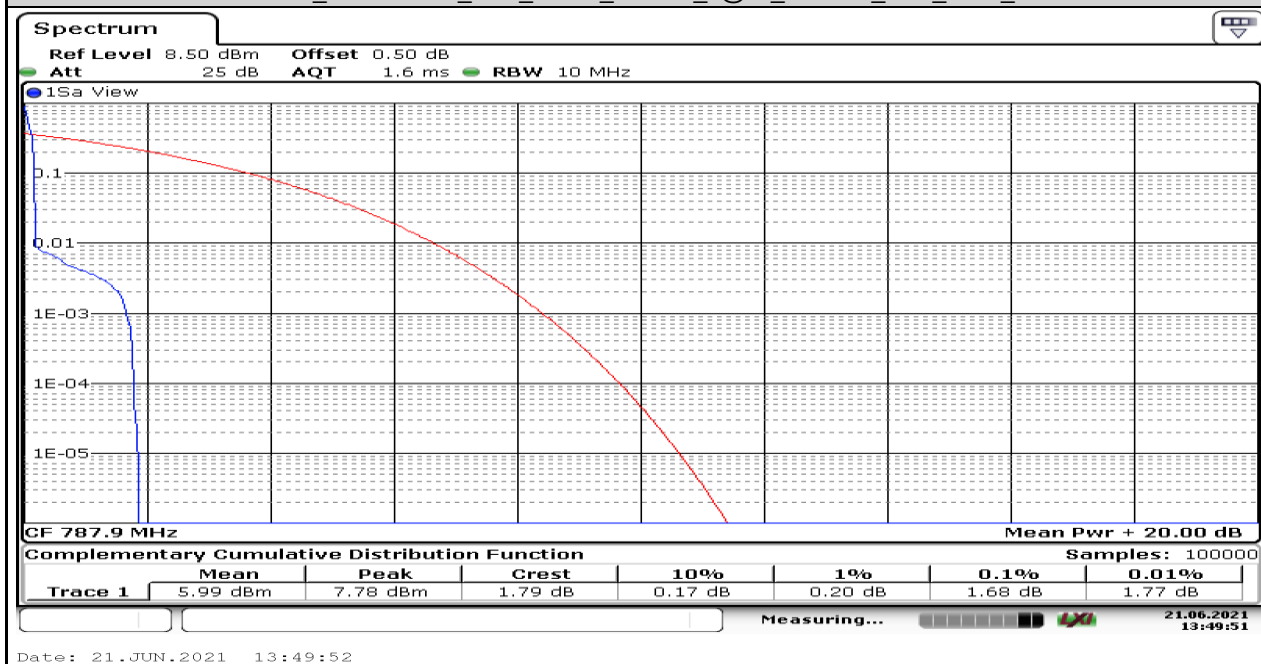
787-788M_Stand-Alone_NaN_QPSK_134191_1@0_3.75kHz_1.77_<=13_PASS



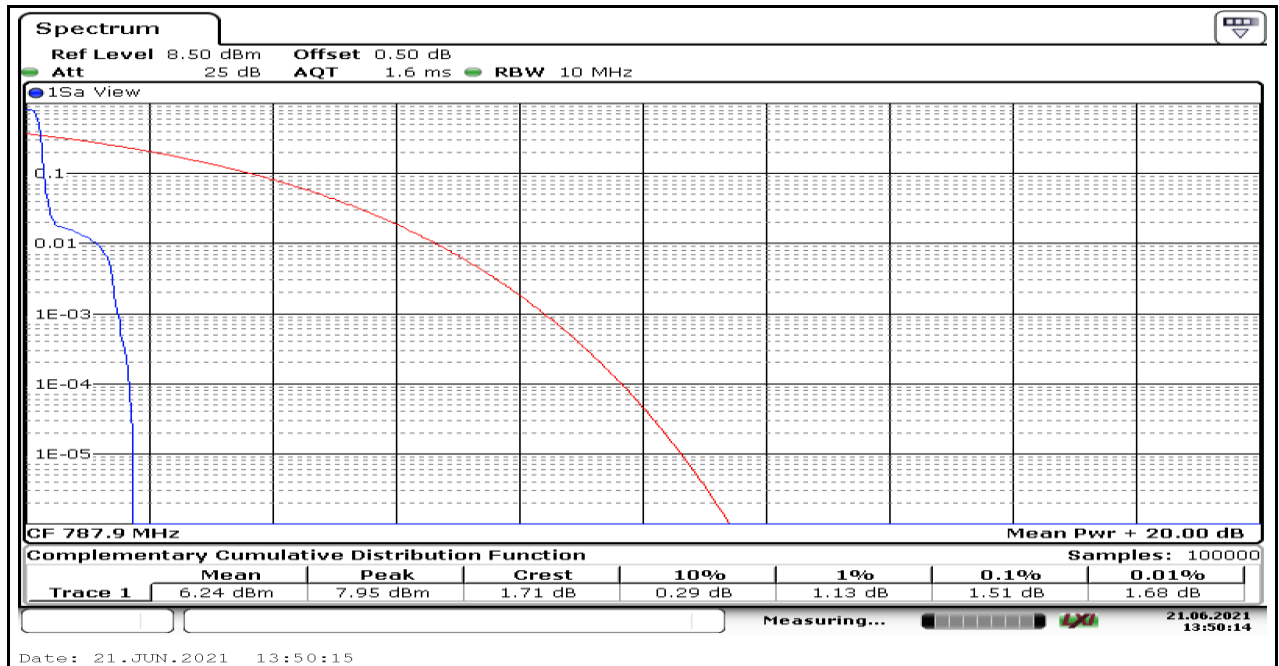
787-788M_Stand-Alone_NaN_BPSK_134191_1@47_3.75kHz_1.91_<=13_PASS



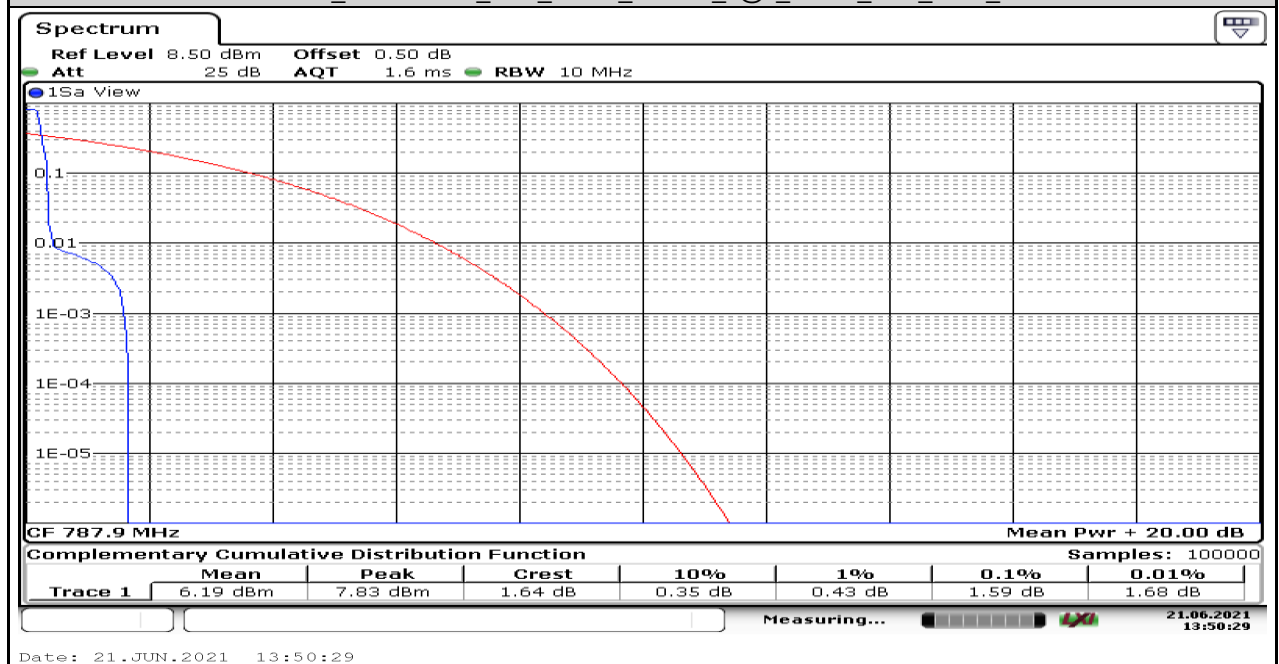
787-788M_Stand-Alone_NaN_QPSK_134191_1@47_3.75kHz_1.68_<=13_PASS



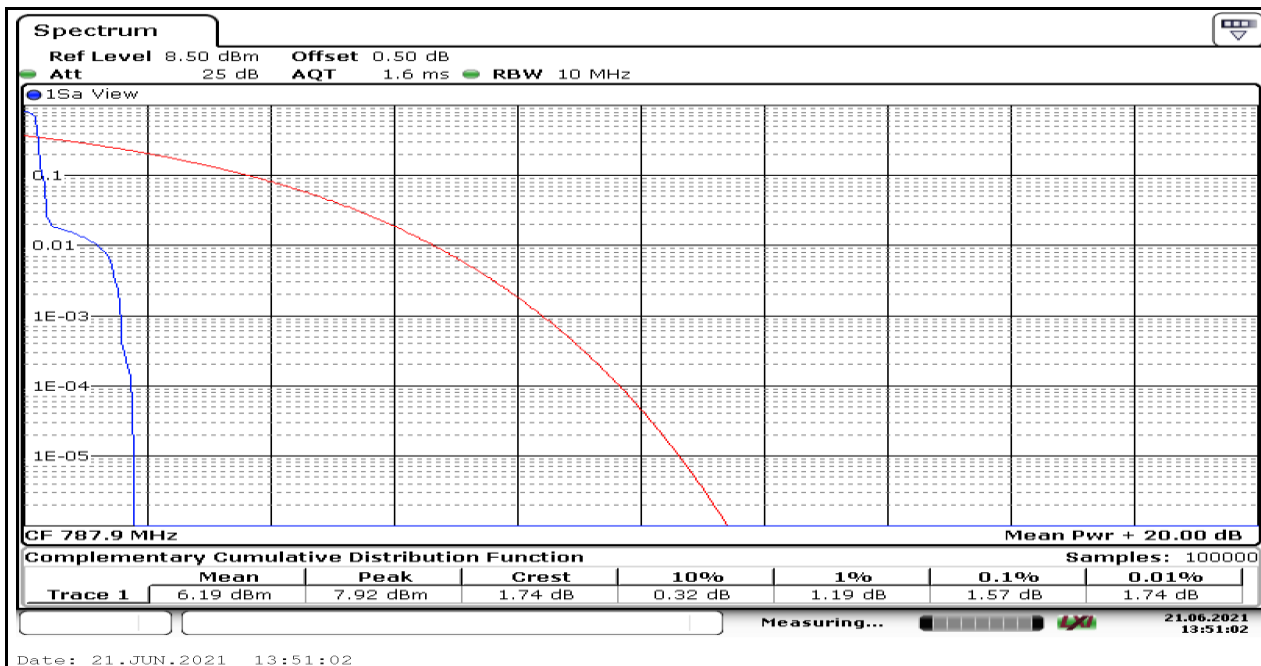
787-788M_Stand-Alone_NaN_BPSK_134191_1@0_15kHz_1.51_<=13_PASS



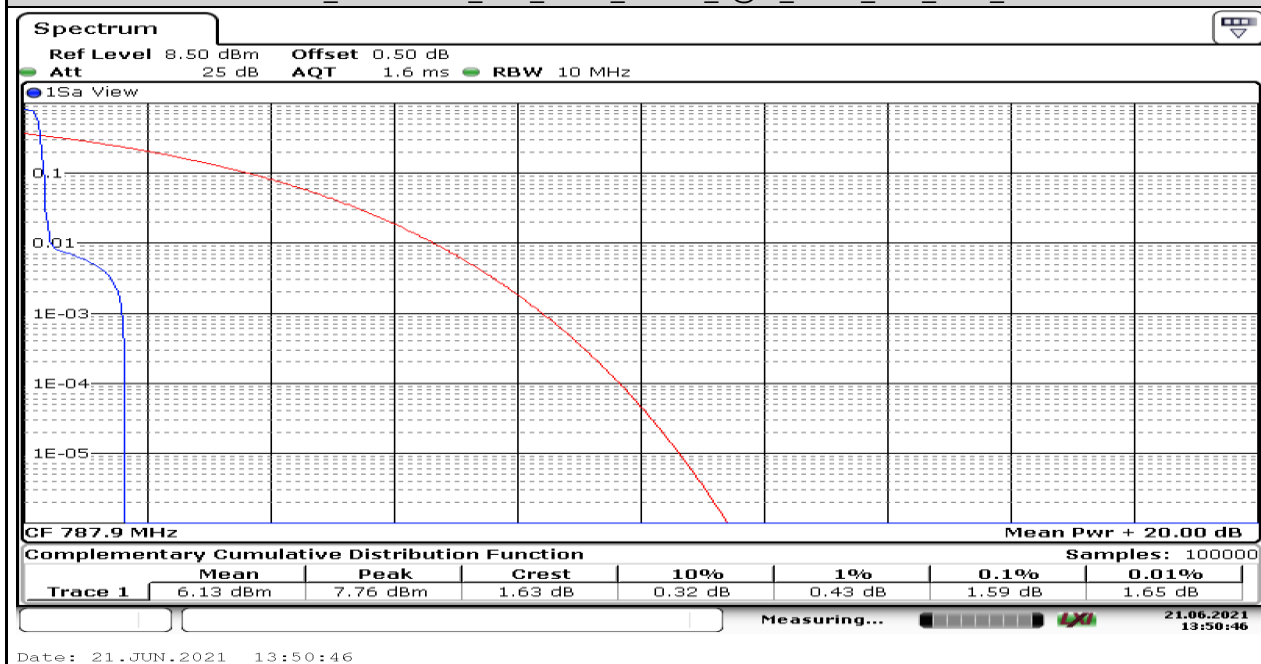
787-788M_Stand-Alone_Na_N_QPSK_134191_1@0_15kHz_1.59_<=13_PASS



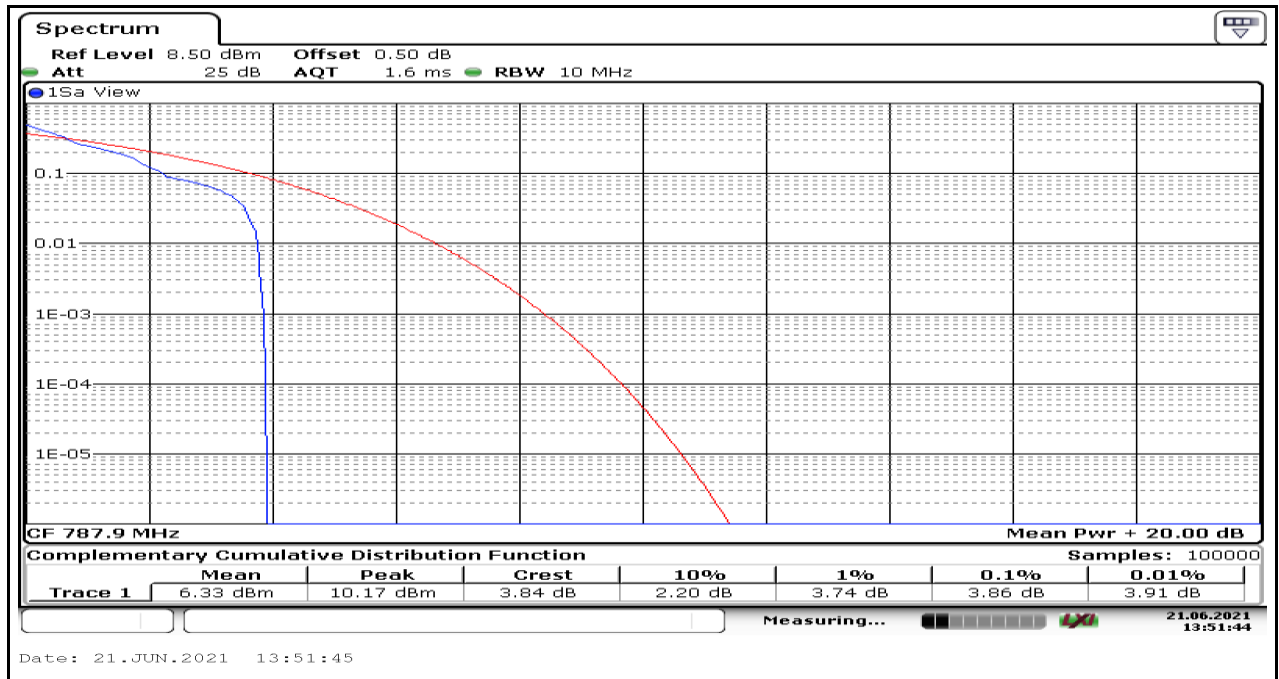
787-788M_Stand-Alone_Na_N_BPSK_134191_1@11_15kHz_1.57_<=13_PASS



787-788M_Stand-Alone_NaN_QPSK_134191_1@11_15kHz_1.59_<=13_PASS



787-788M_Stand-Alone_NaN_QPSK_134191_3@3_15kHz_3.86_<=13_PASS

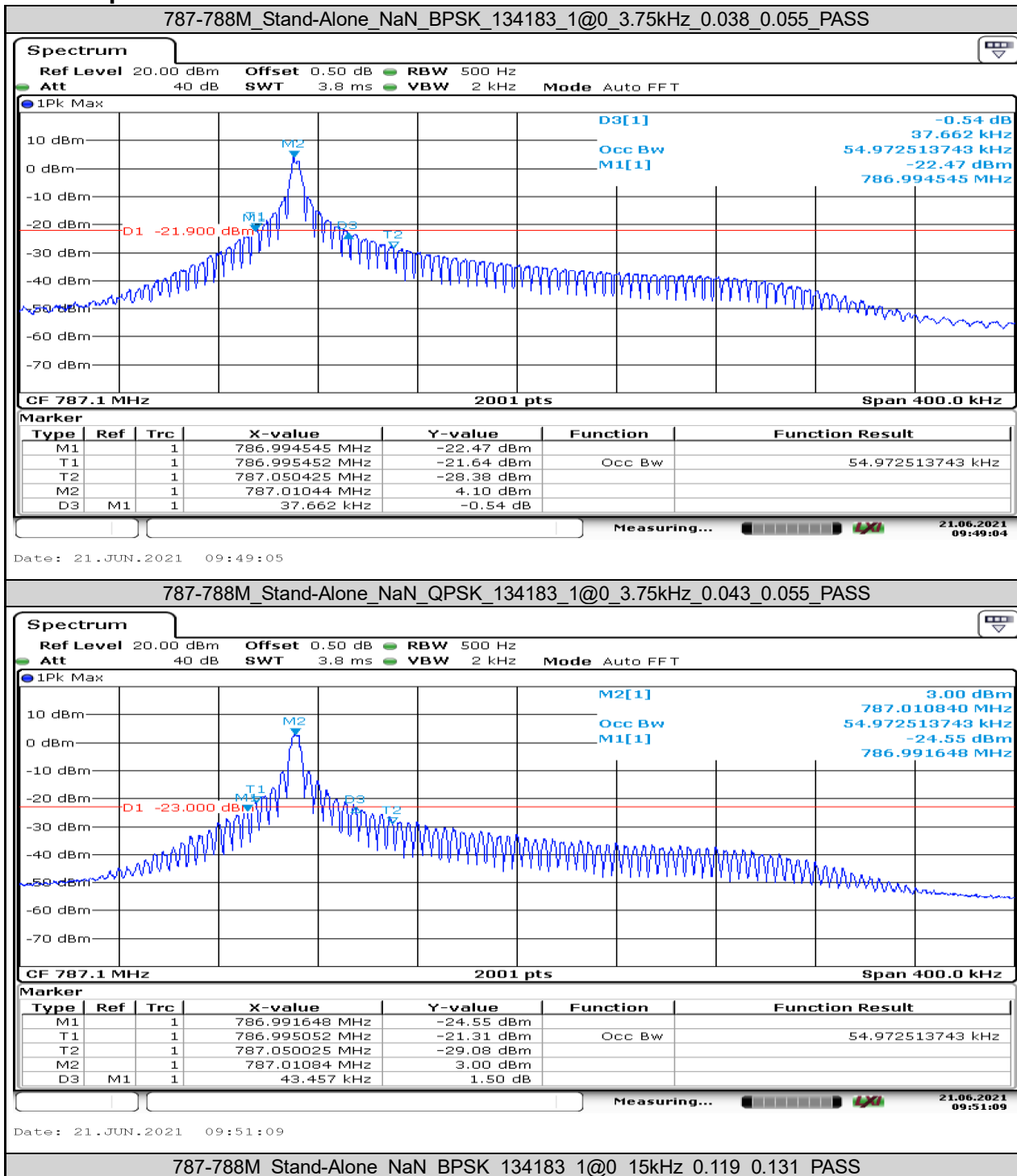


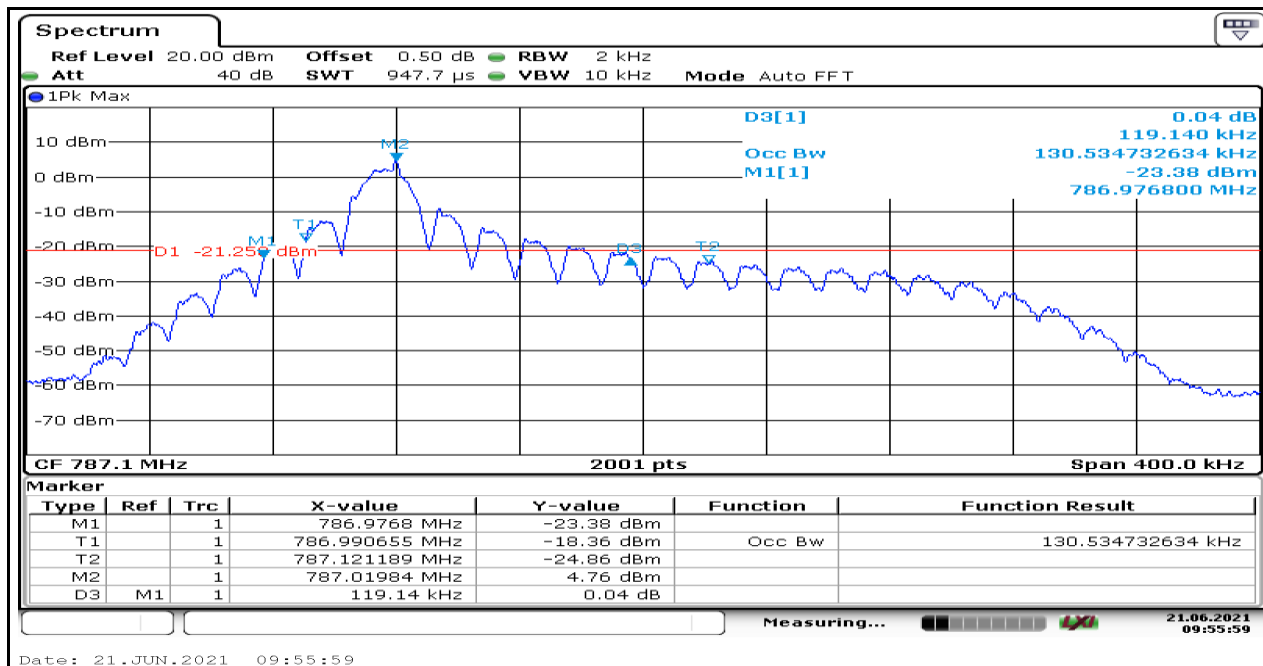
APPENDIX A.3: EMISSION BANDWIDTH FOR NB-IOT

Test Result

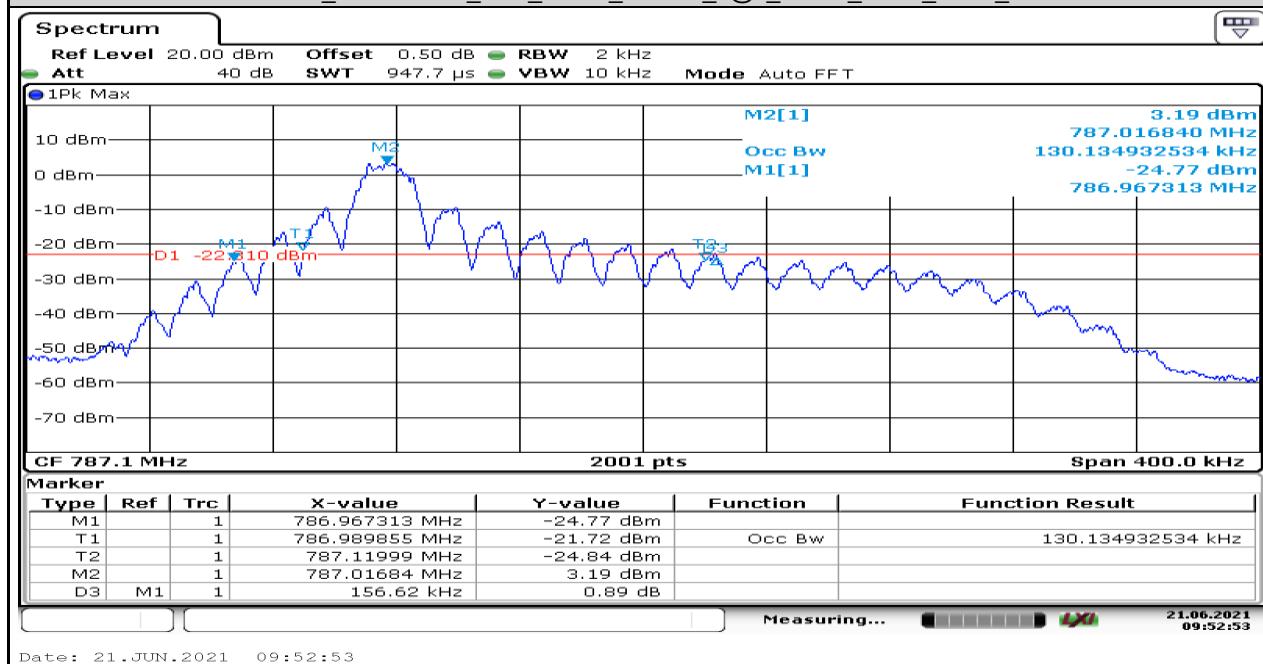
Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	26dB Bandwidth (MHz)	Occupied Bandwidth (MHz)	Verdict
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	3.75kHz	0.038	0.055	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	0.043	0.055	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	15kHz	0.119	0.131	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	15kHz	0.157	0.130	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	12@0	15kHz	0.260	0.186	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	0.041	0.053	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	0.045	0.055	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	0.120	0.126	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	0.116	0.115	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	12@0	15kHz	0.239	0.183	PASS

Test Graphs

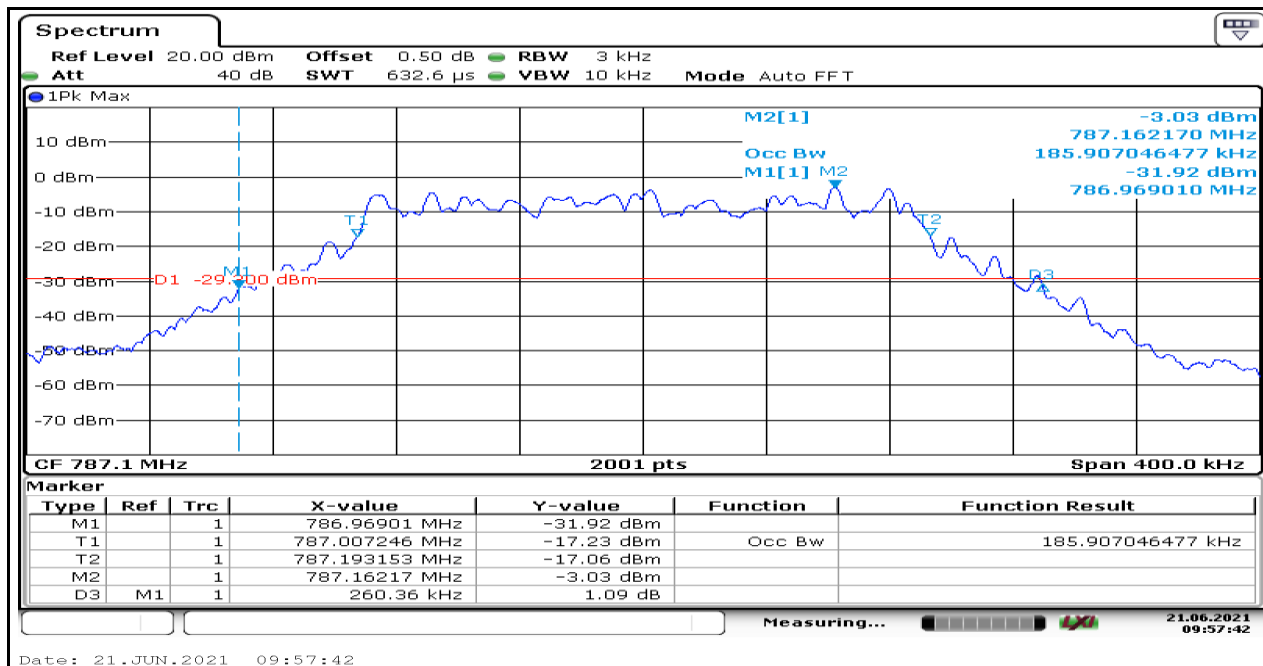




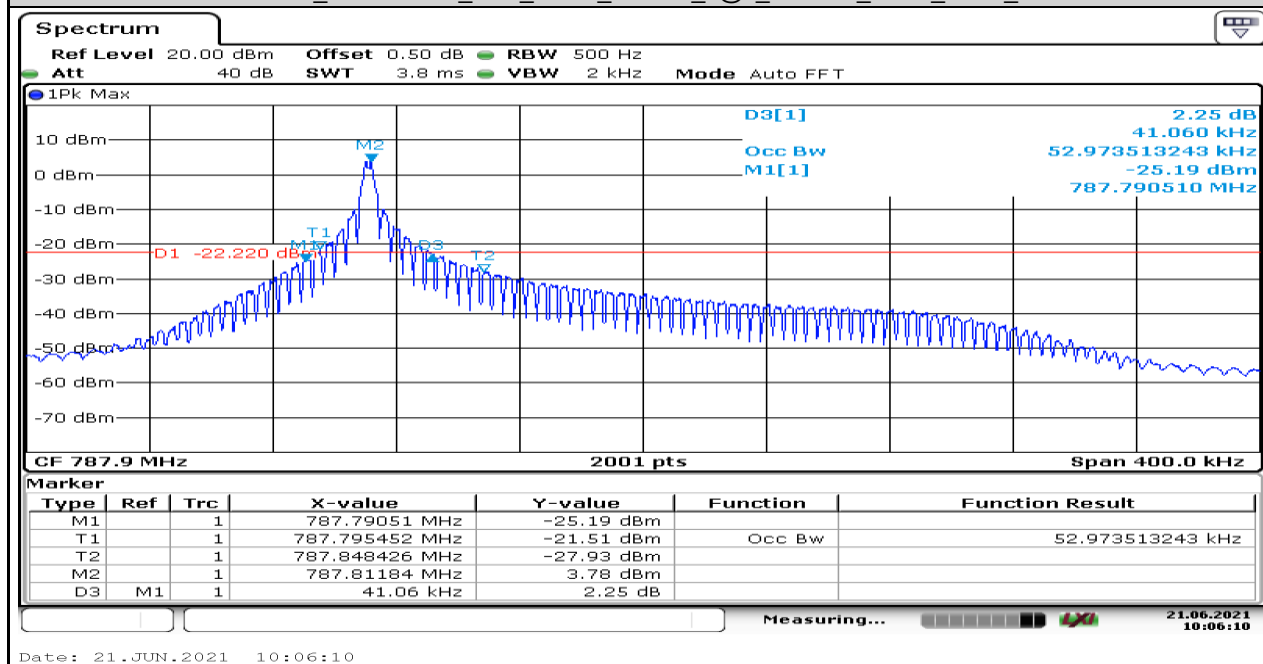
787-788M_Stand-Alone_NaN_QPSK_134183_1@0_15kHz_0.157_0.130_PASS



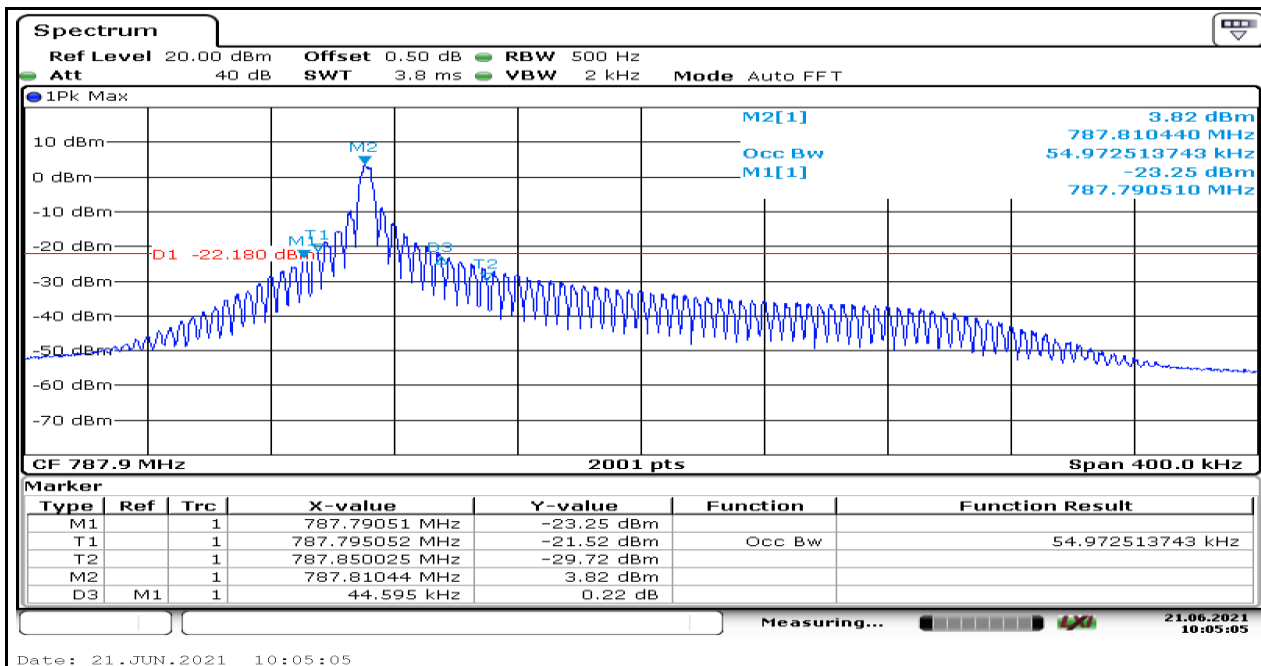
787-788M_Stand-Alone_NaN_QPSK_134183_12@0_15kHz_0.260_0.186_PASS



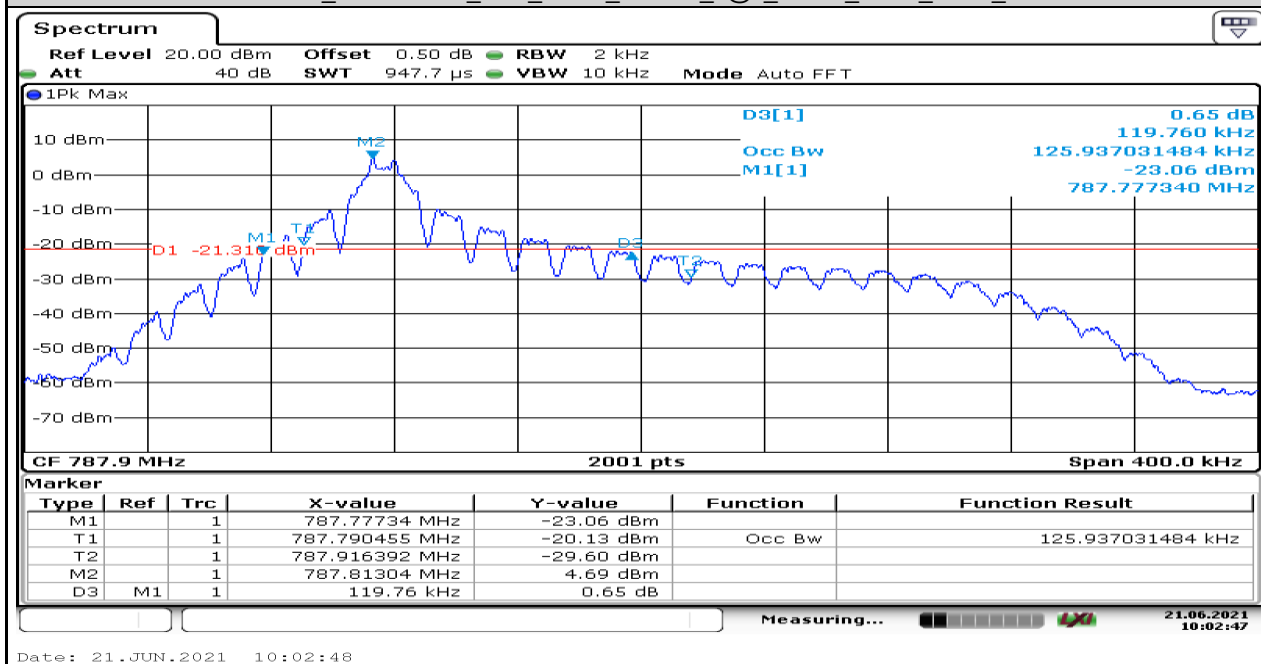
787-788M_Stand-Alone_NaN_BPSK_134191_1@0_3.75kHz_0.041_0.053_PASS



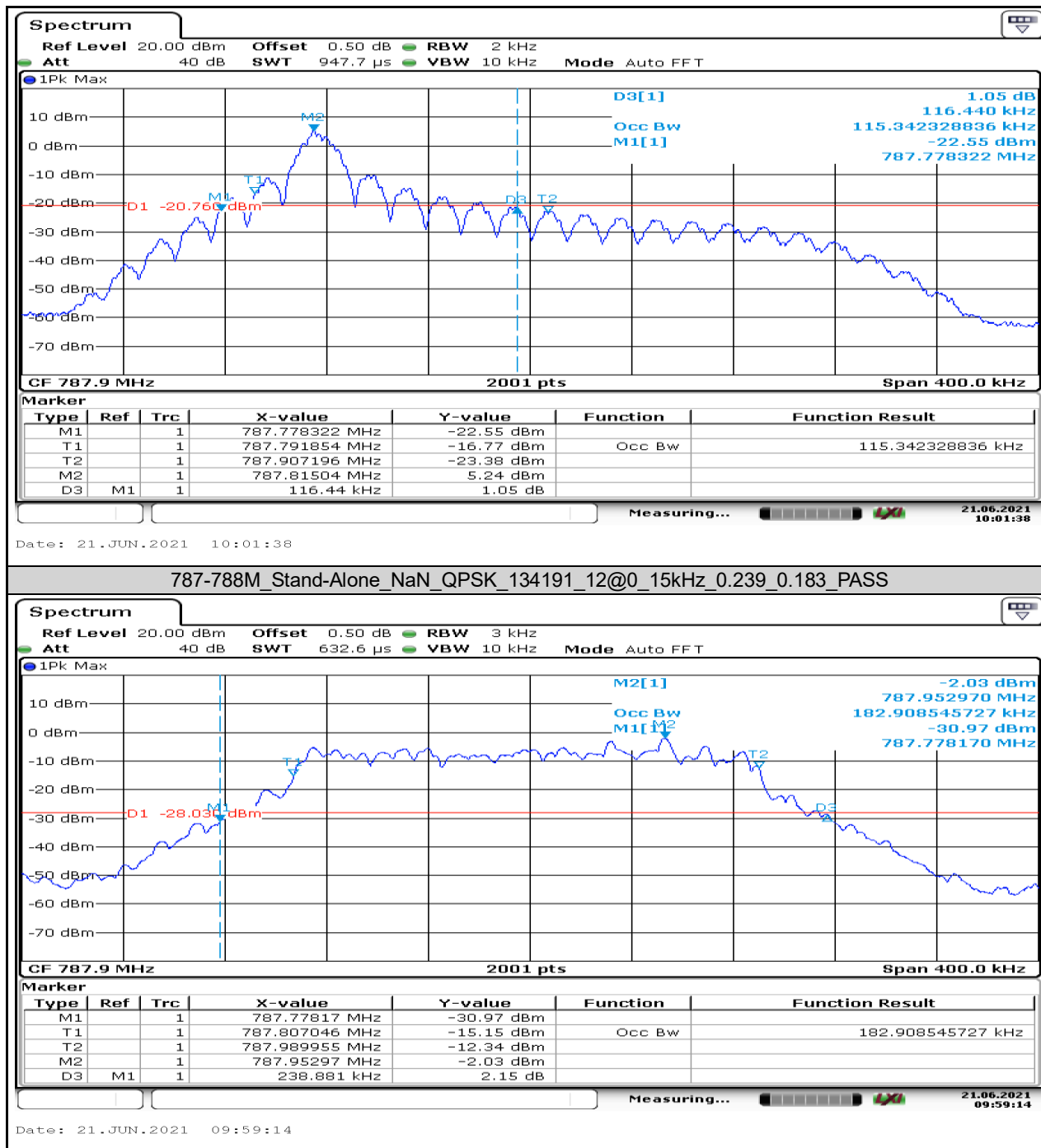
787-788M_Stand-Alone_NaN_QPSK_134191_1@0_3.75kHz_0.045_0.055_PASS



787-788M_Stand-Alone_NaN_BPSK_134191_1@0_15kHz_0.120_0.126_PASS



787-788M_Stand-Alone_NaN_QPSK_134191_1@0_15kHz_0.116_0.115_PASS

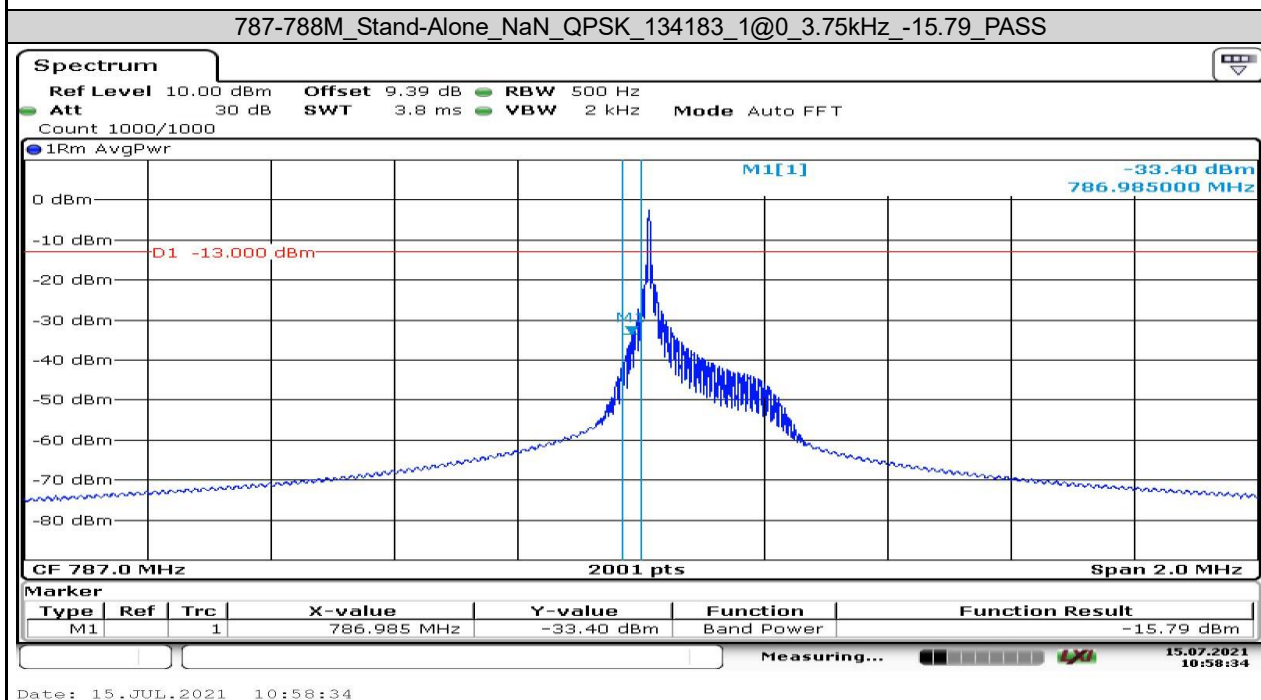
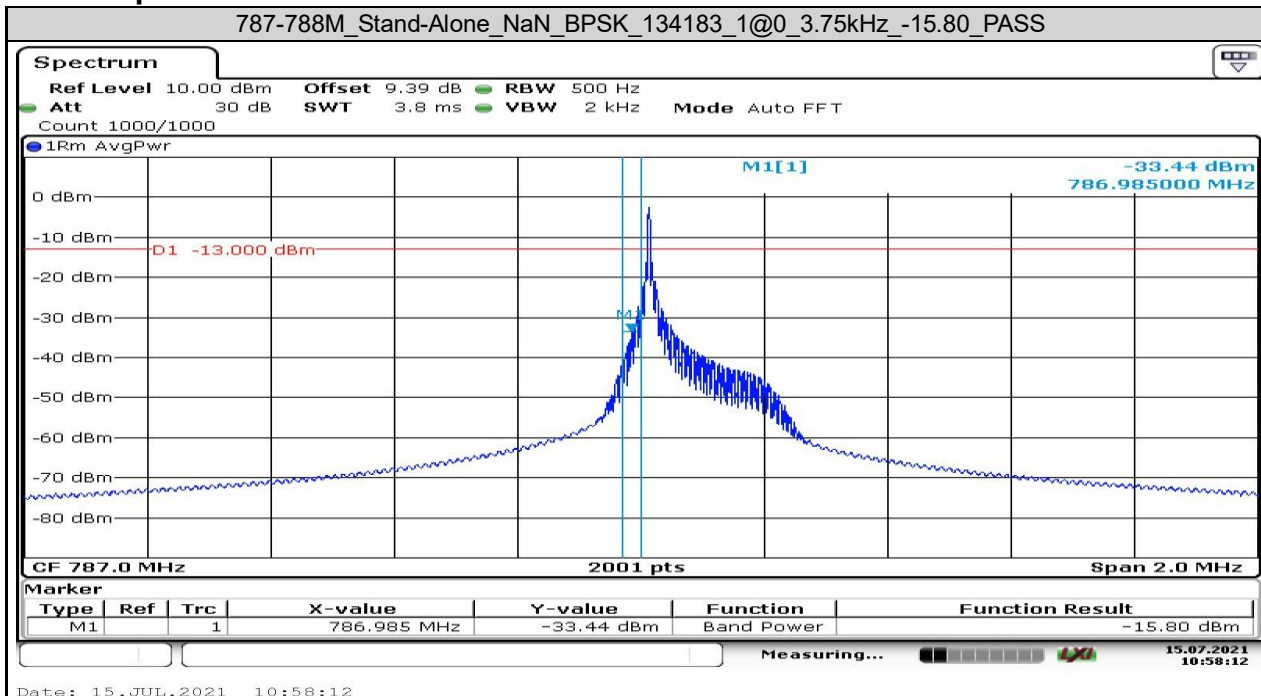


APPENDIX A.4: BAND EDGE FOR NB-IOT

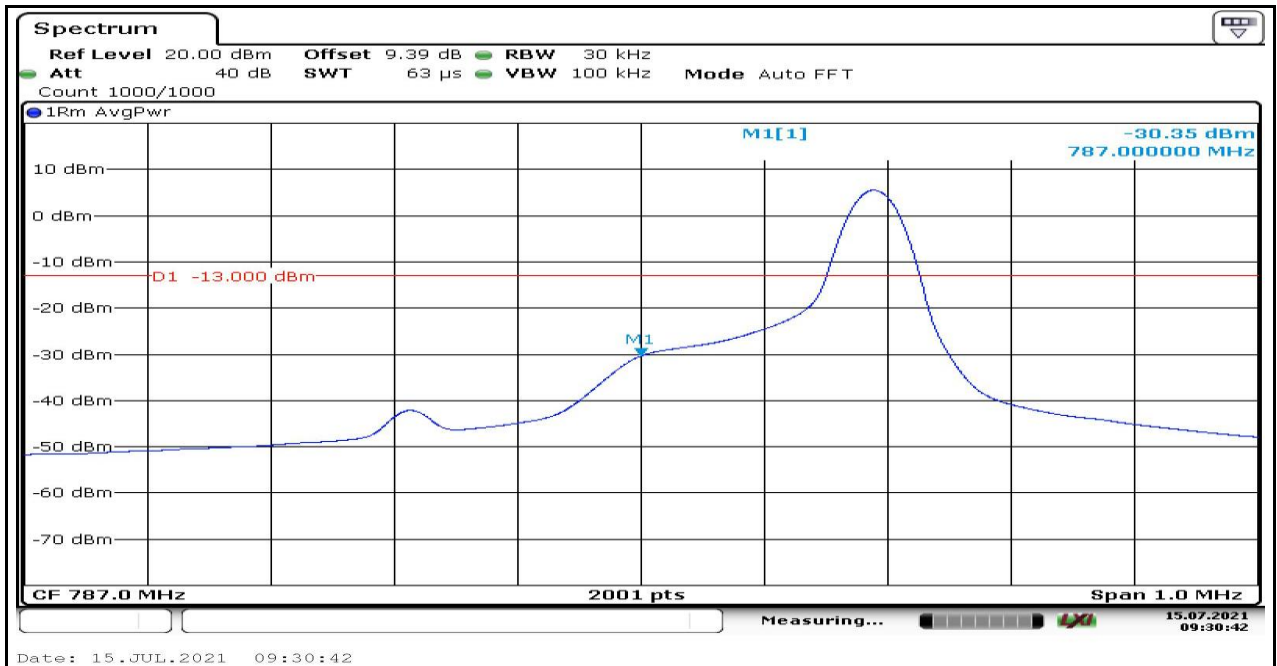
Test Result

Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Result (dBm)	Verdict
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	3.75kHz	-15.80	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	-15.79	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@47	3.75kHz	-30.35	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@47	3.75kHz	-29.81	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	15kHz	-13.84	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	15kHz	-15.73	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@11	15kHz	-27.12	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@11	15kHz	-28.53	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	12@0	15kHz	-21.07	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	3.75kHz	-24.08	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	3.75kHz	-25.35	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@47	3.75kHz	-26.95	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@47	3.75kHz	-27.36	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	15kHz	-30.99	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	15kHz	-30.15	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@11	15kHz	-30.06	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@11	15kHz	-31.37	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	12@0	15kHz	-37.45	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@0	3.75kHz	-30.24	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@0	3.75kHz	-30.27	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@47	3.75kHz	-24.60	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@47	3.75kHz	-24.43	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@0	15kHz	-36.15	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@0	15kHz	-37.76	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@11	15kHz	-34.00	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@11	15kHz	-30.87	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	12@0	15kHz	-35.52	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	-30.56	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	-31.85	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@47	3.75kHz	-15.36	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@47	3.75kHz	-15.44	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	-27.10	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	-28.98	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@11	15kHz	-13.64	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@11	15kHz	-13.68	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	12@0	15kHz	-20.07	PASS

Test Graphs



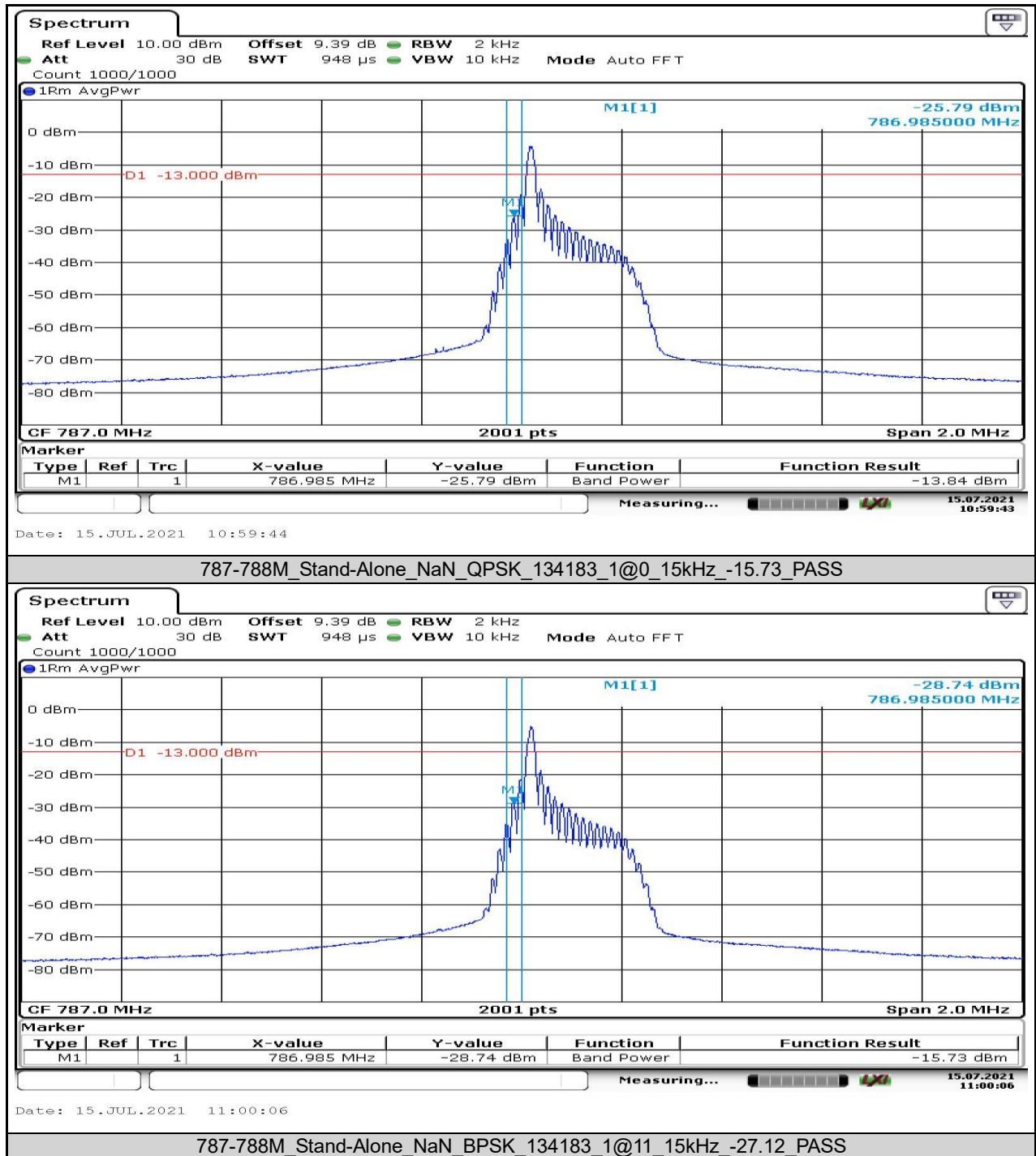
787-788M_Stand-Alone_NaN_BPSK_134183_1@47_3.75kHz_-30.35_PASS

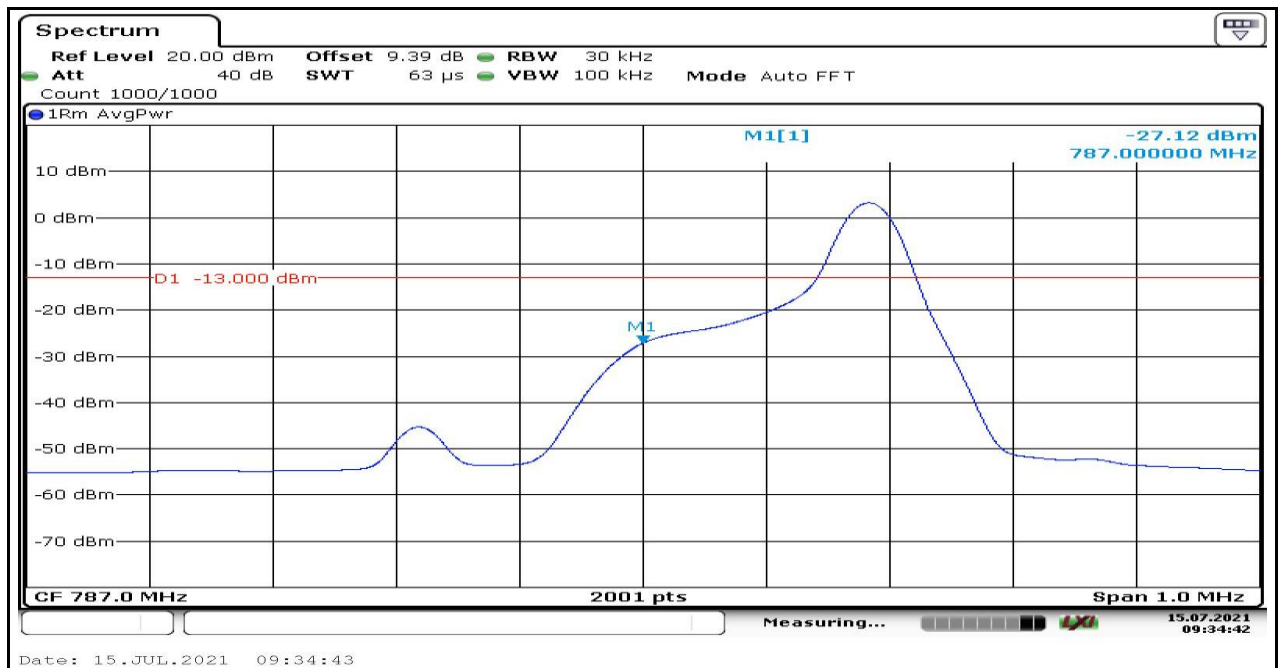


787-788M_Stand-Alone_NaN_QPSK_134183_1@47_3.75kHz_-29.81_PASS



787-788M_Stand-Alone_NaN_BPSK_134183_1@0_15kHz_-13.84_PASS

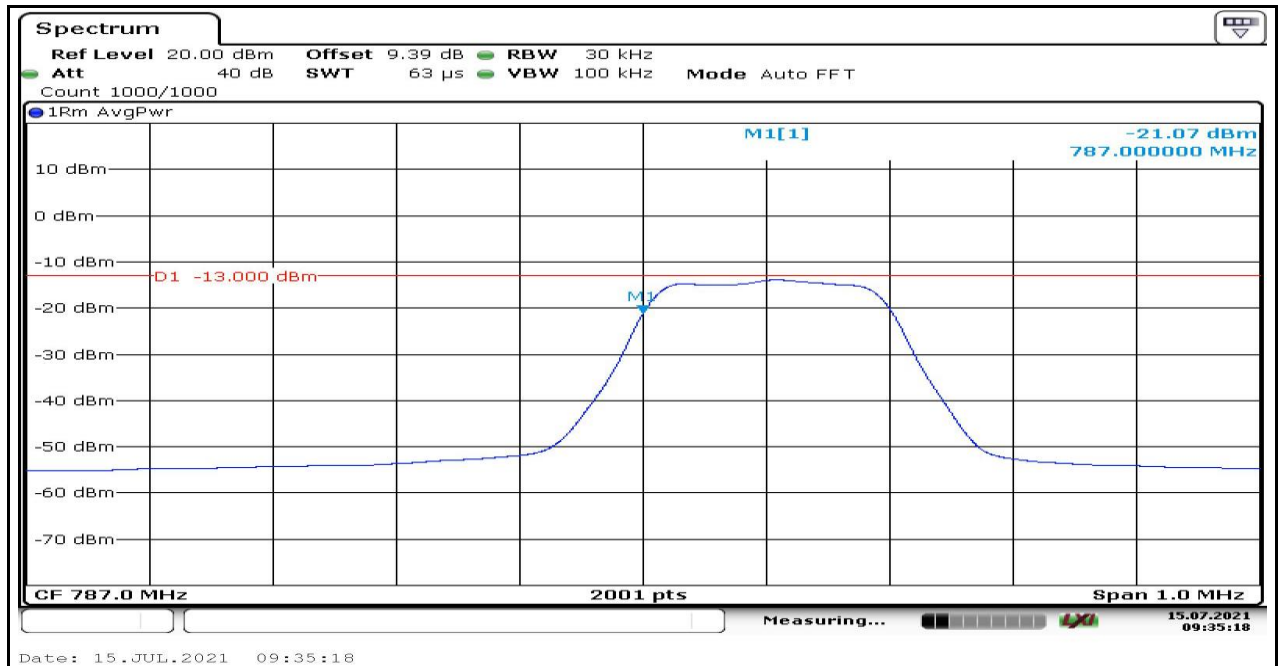




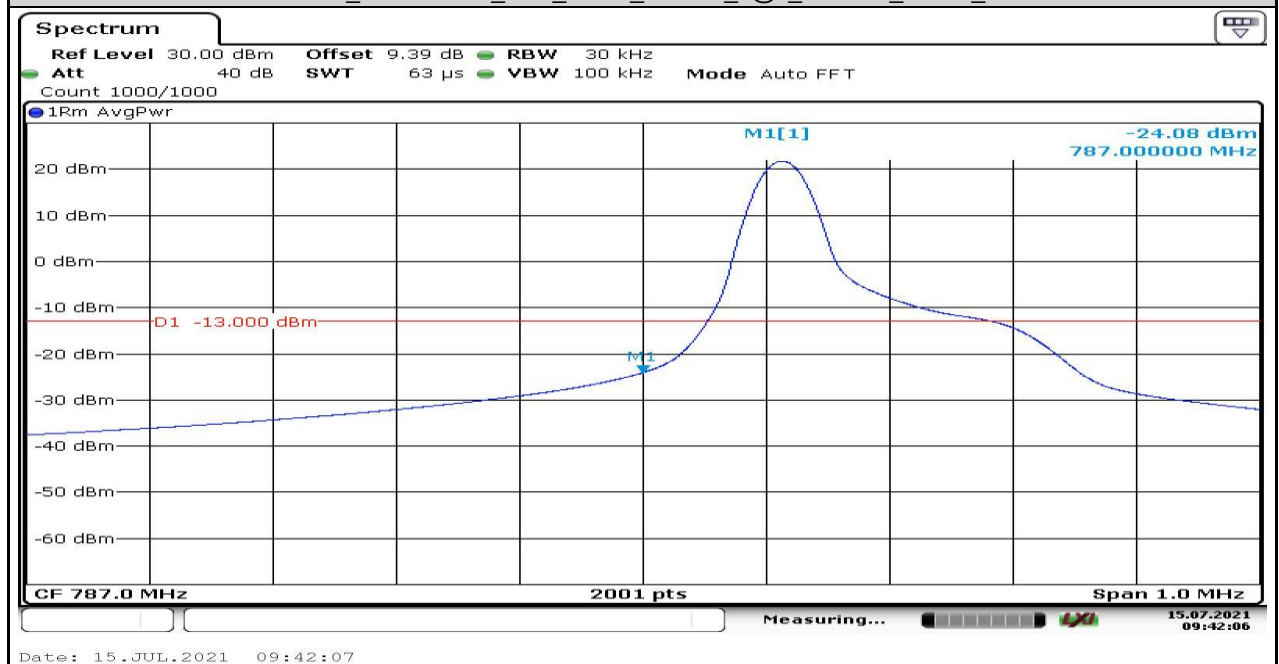
787-788M_Stand-Alone_NaN_QPSK_134183_1@11_15kHz_-28.53_PASS



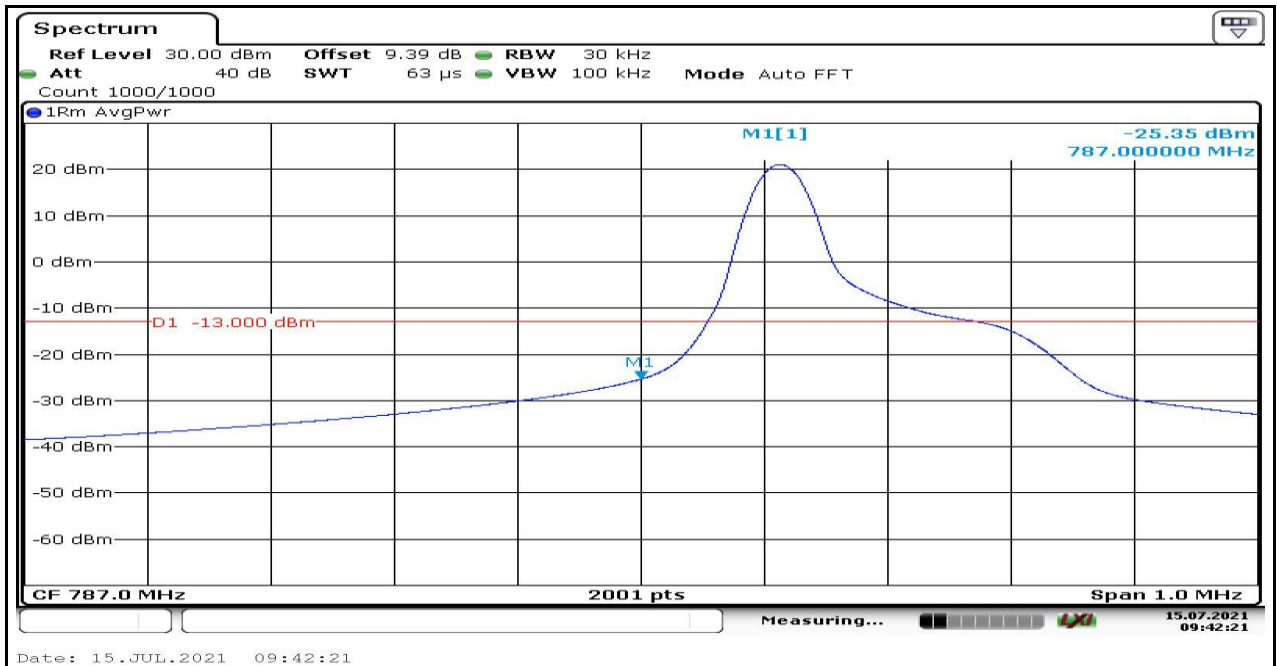
787-788M_Stand-Alone_NaN_QPSK_134183_12@0_15kHz_-21.07_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@0_3.75kHz_-24.08_PASS



787-788M_Stand-Alone_NaN_QPSK_134184_1@0_3.75kHz_-25.35_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@47_3.75kHz_-26.95_PASS



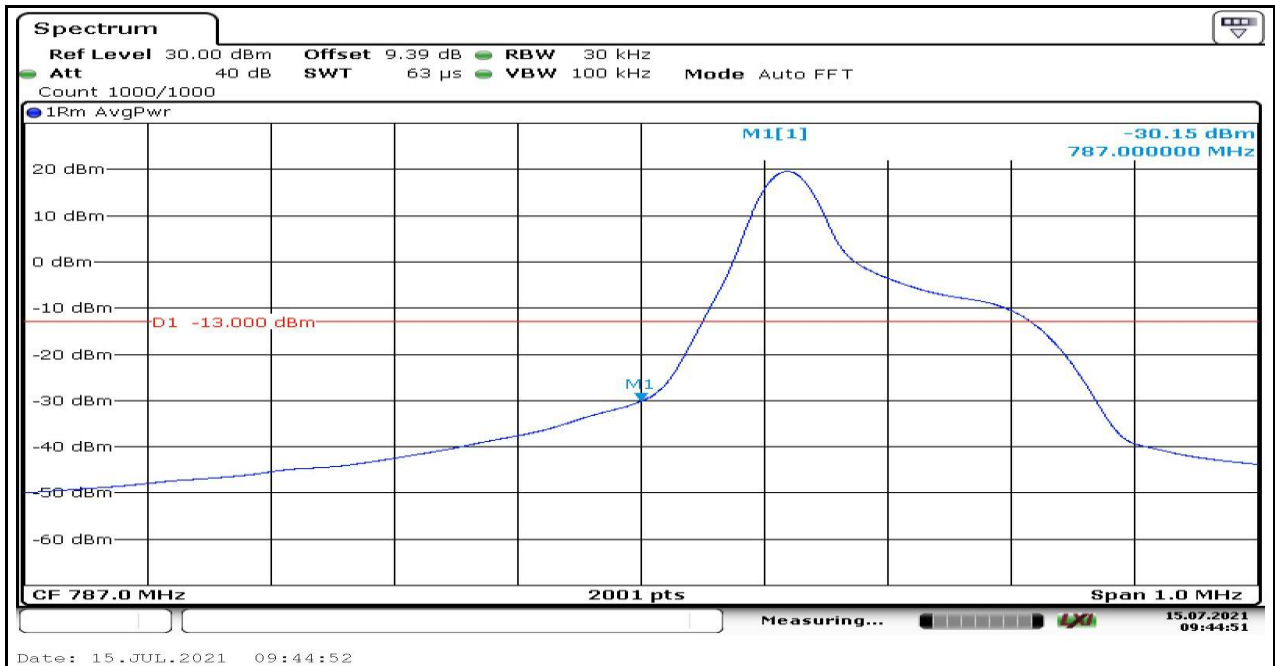
787-788M_Stand-Alone_NaN_QPSK_134184_1@47_3.75kHz_-27.36_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@0_15kHz_-30.99_PASS



787-788M_Stand-Alone_NaN_QPSK_134184_1@0_15kHz_-30.15_PASS

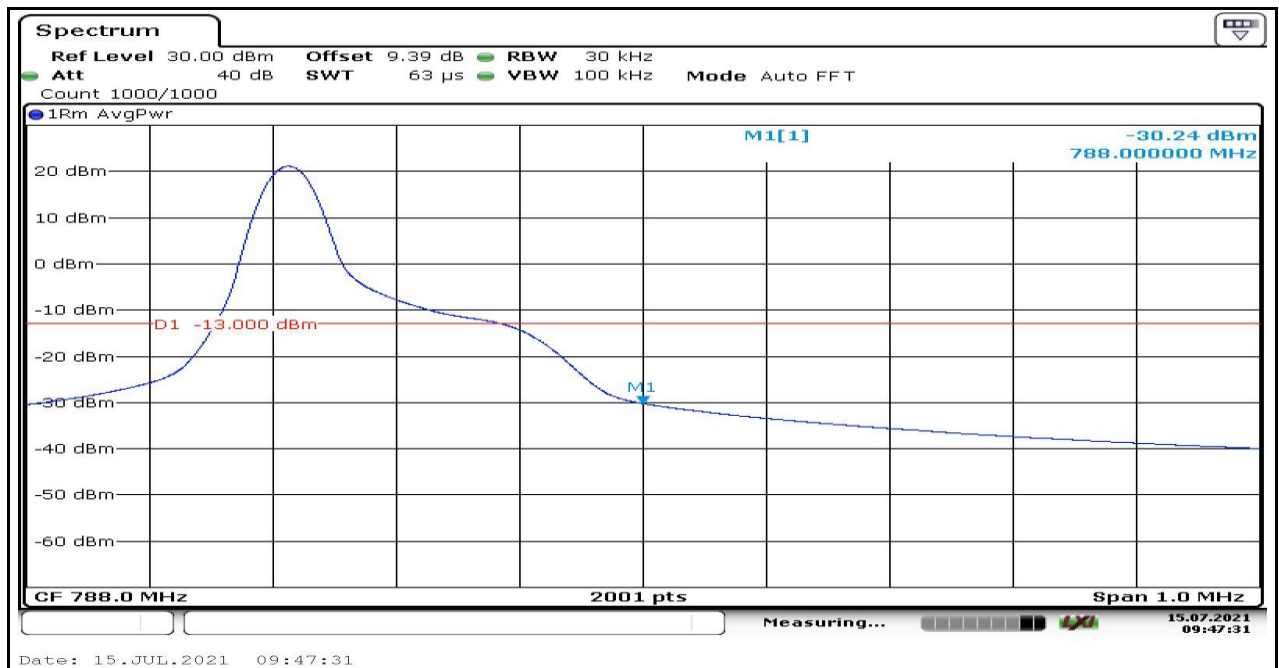


787-788M_Stand-Alone_NaN_BPSK_134184_1@11_15kHz_-30.06_PASS



787-788M_Stand-Alone_NaN_QPSK_134184_1@11_15kHz_-31.37_PASS

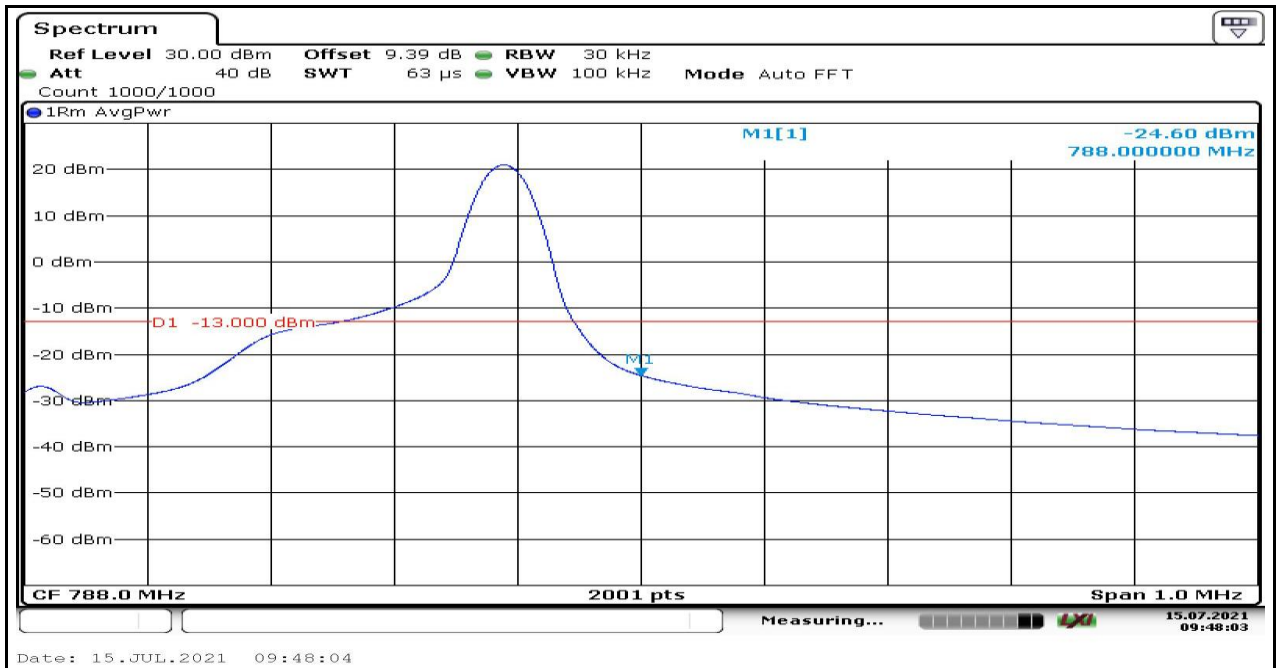




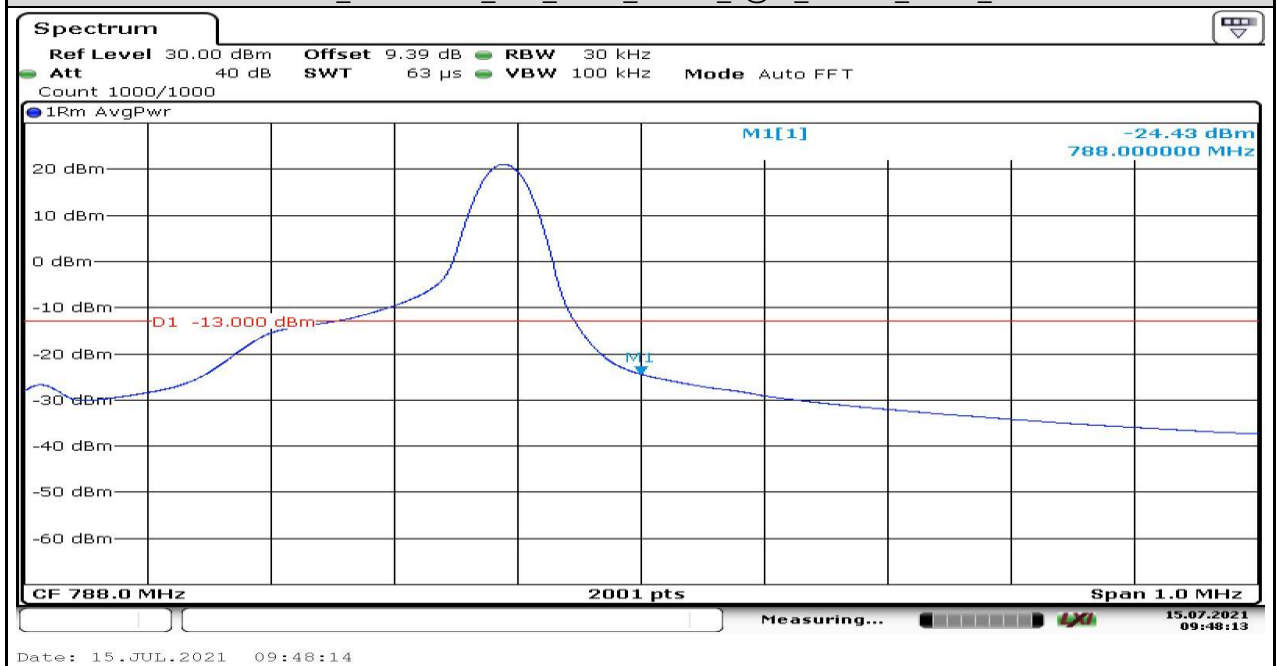
787-788M_Stand-Alone_NaN_QPSK_134190_1@0_3.75kHz_-30.27_PASS



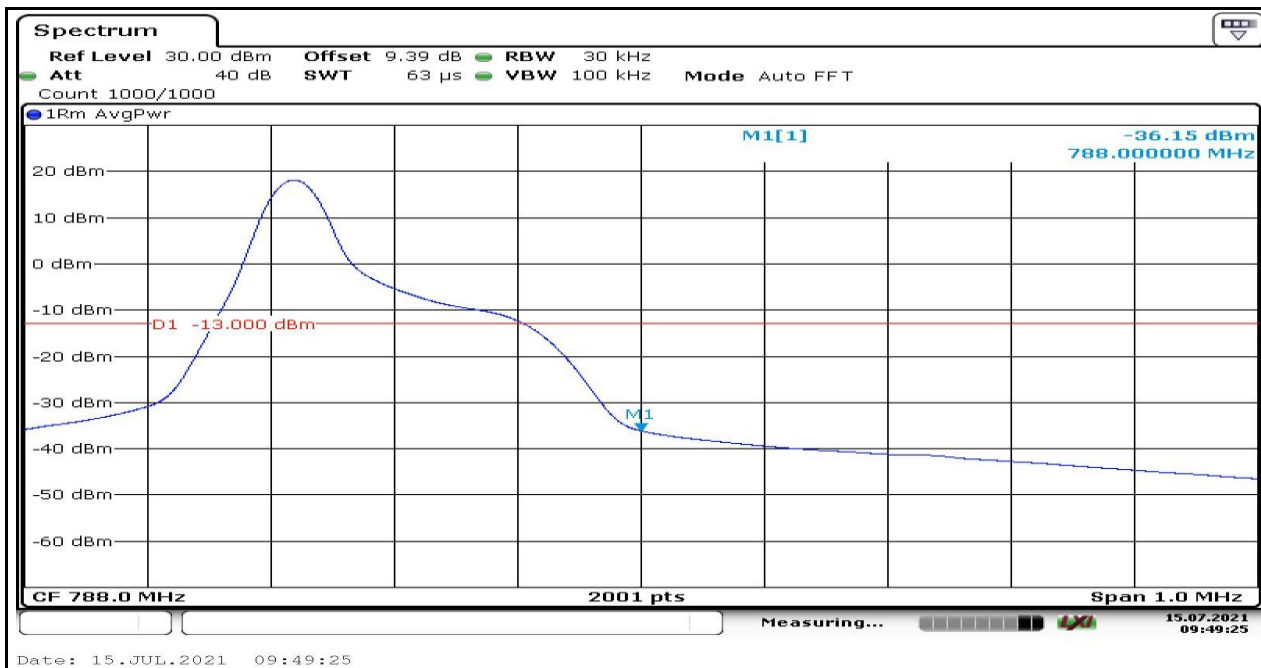
787-788M_Stand-Alone_NaN_BPSK_134190_1@47_3.75kHz_-24.60_PASS



787-788M_Stand-Alone_NaN_QPSK_134190_1@47_3.75kHz_-24.43_PASS



787-788M_Stand-Alone_NaN_BPSK_134190_1@0_15kHz_-36.15_PASS



787-788M_Stand-Alone_NaN_QPSK_134190_1@0_15kHz_-37.76_PASS



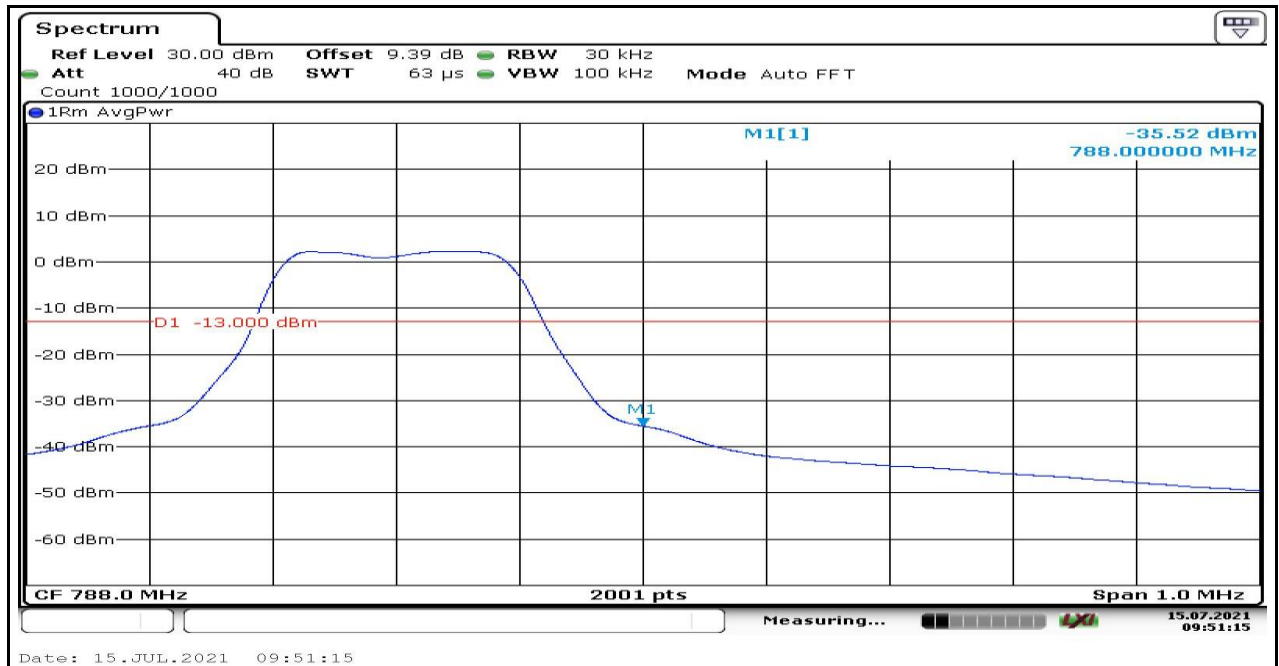
787-788M_Stand-Alone_NaN_BPSK_134190_1@11_15kHz_-34.00_PASS



787-788M_Stand-Alone_NaN_QPSK_134190_1@11_15kHz_-30.87_PASS



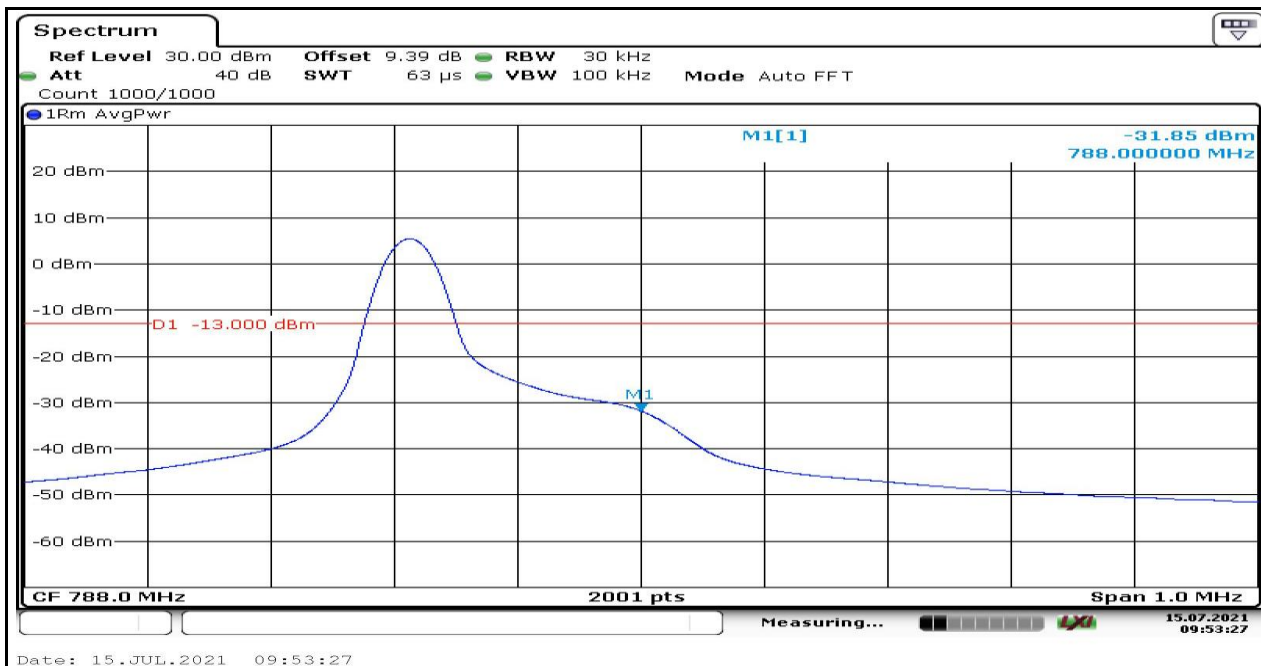
787-788M_Stand-Alone_NaN_QPSK_134190_12@0_15kHz_-35.52_PASS



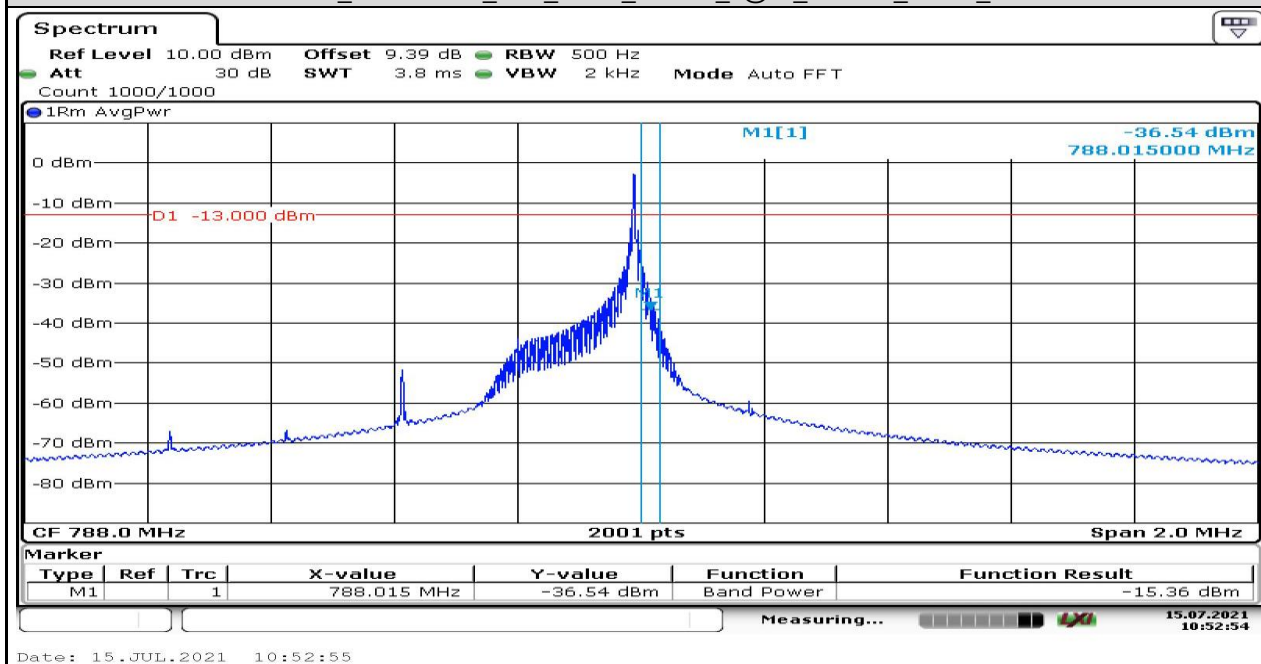
787-788M_Stand-Alone_NaN_BPSK_134191_1@0_3.75kHz_-30.56_PASS



787-788M_Stand-Alone_NaN_QPSK_134191_1@0_3.75kHz_-31.85_PASS



787-788M_Stand-Alone_NaN_BPSK_134191_1@47_3.75kHz_-15.36_PASS



787-788M_Stand-Alone_NaN_QPSK_134191_1@47_3.75kHz_-15.44_PASS