

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

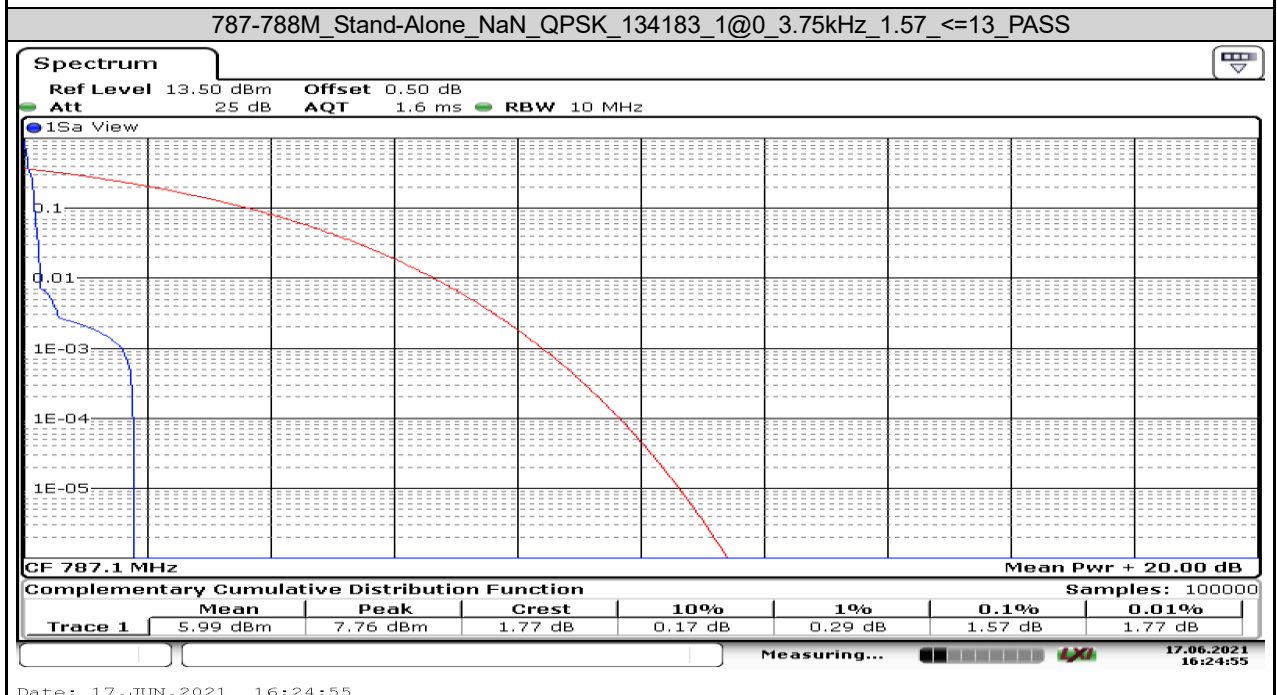
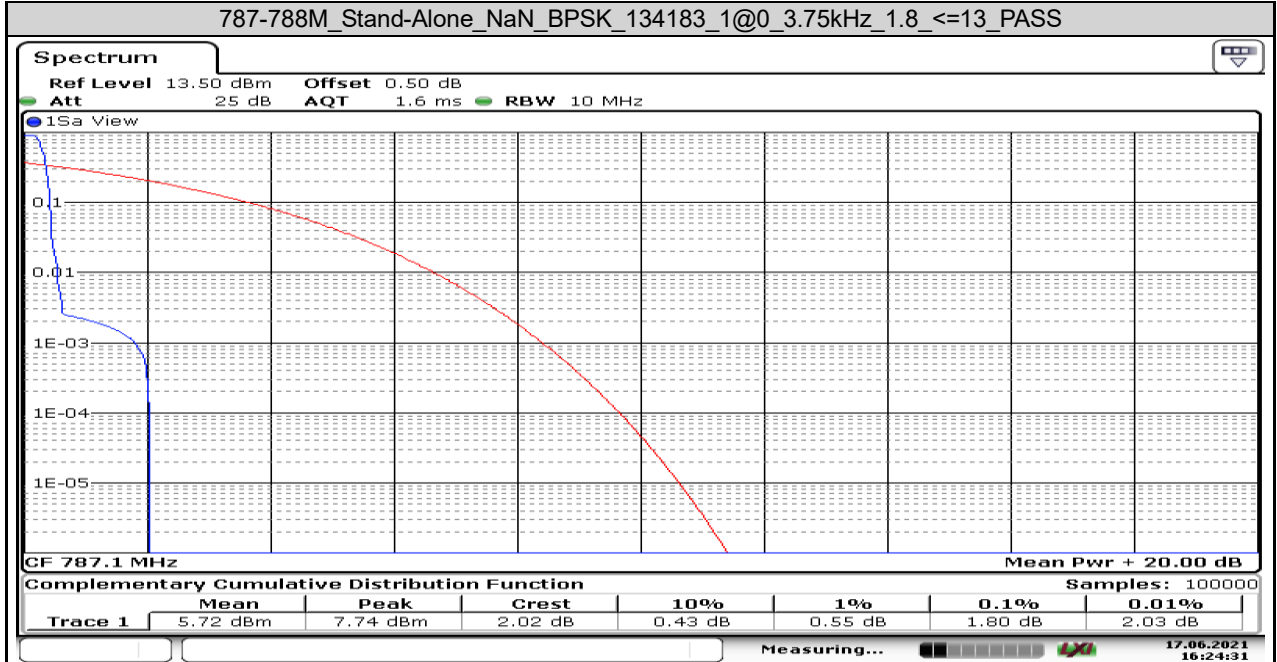
Test Configuration		EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)	EARFCN	Frequency (MHz)
		134183	787.1	134184	787.2	134190	787.8	134191	787.9
Modulation: BPSK		Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)	Conducted Power (dBm)	E.R.P (dBm)
3.75kHz	1RB0	6.41	6.4	22.49	22.48	22.34	22.33	6.10	6.09
	1RB47	6.30	6.29	22.41	22.4	22.35	22.34	6.00	5.99
15kHz	1RB0	6.44	6.43	22.79	22.78	22.68	22.67	6.20	6.19
	1RB11	6.29	6.28	22.78	22.77	22.64	22.63	6.13	6.12
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	6.45	6.44	22.50	22.49	22.54	22.53	6.20	6.19
	1RB47	6.39	6.38	22.42	22.41	22.48	22.47	6.14	6.13
15kHz	1RB0	6.47	6.46	22.99	22.98	22.84	22.83	6.23	6.22
	1RB11	6.38	6.37	22.90	22.89	22.78	22.77	6.15	6.14
	3RB3	6.44	6.43	22.98	22.97	22.85	22.84	6.19	6.18

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

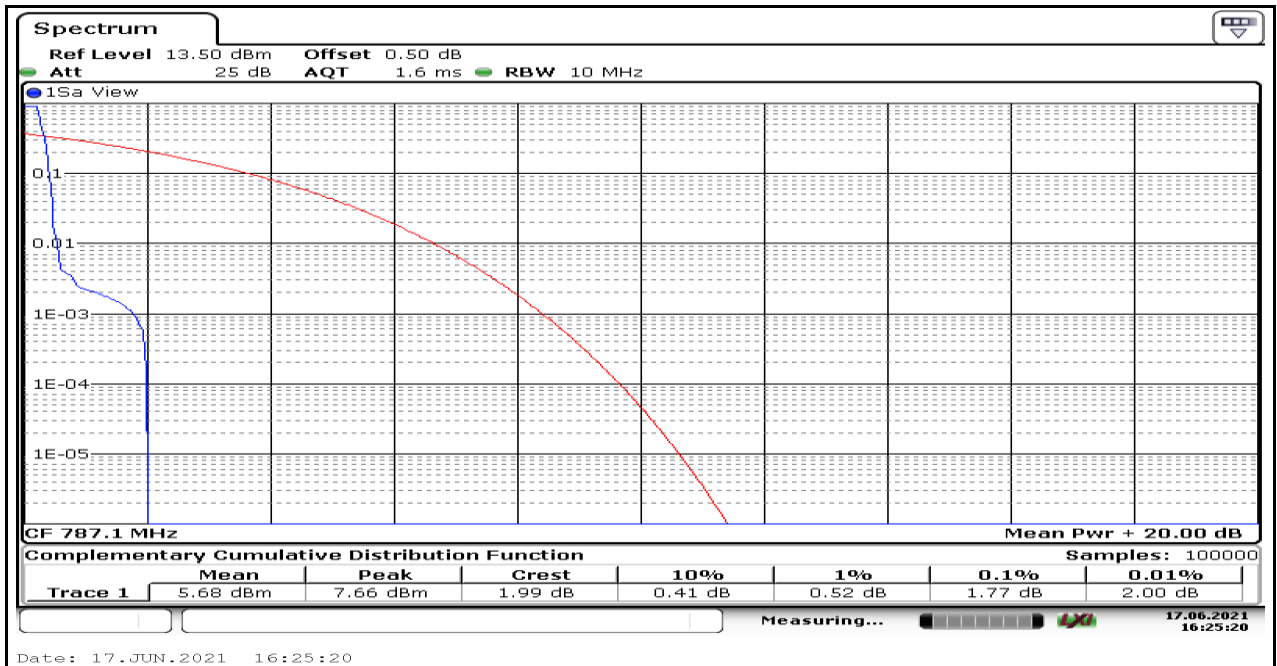
Test Result

Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Result (dB)	Limit (dB)	Verdict
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	3.75kHz	1.8	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	1.57	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@47	3.75kHz	1.77	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@47	3.75kHz	1.8	<=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	1.51	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@11	15kHz	1.54	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@11	15kHz	1.59	<=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	1.86	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	3.75kHz	1.36	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@47	3.75kHz	1.91	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@47	3.75kHz	1.62	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	15kHz	1.39	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	15kHz	1.45	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@11	15kHz	1.42	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@11	15kHz	1.48	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	3@3	15kHz	3.54	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	1.74	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	1.74	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@47	3.75kHz	1.59	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@47	3.75kHz	1.88	<=13	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	1.48	<=13	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	1.54	<=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	3.94	<=13	PASS

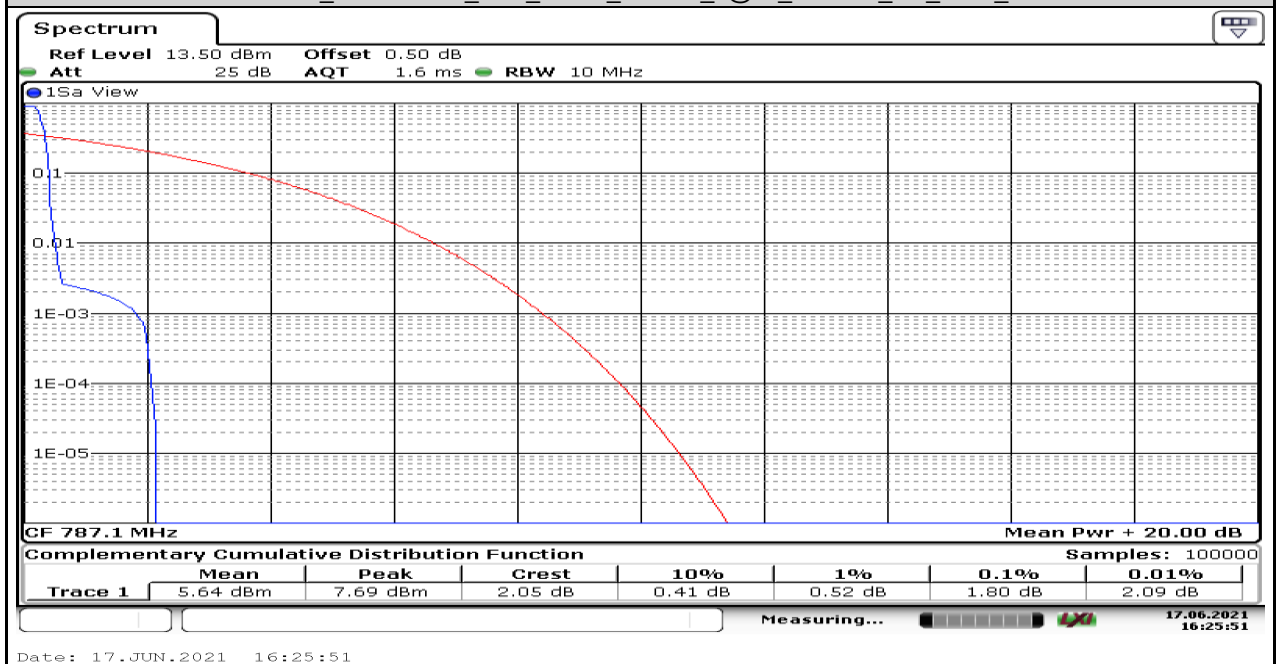
Test Graphs



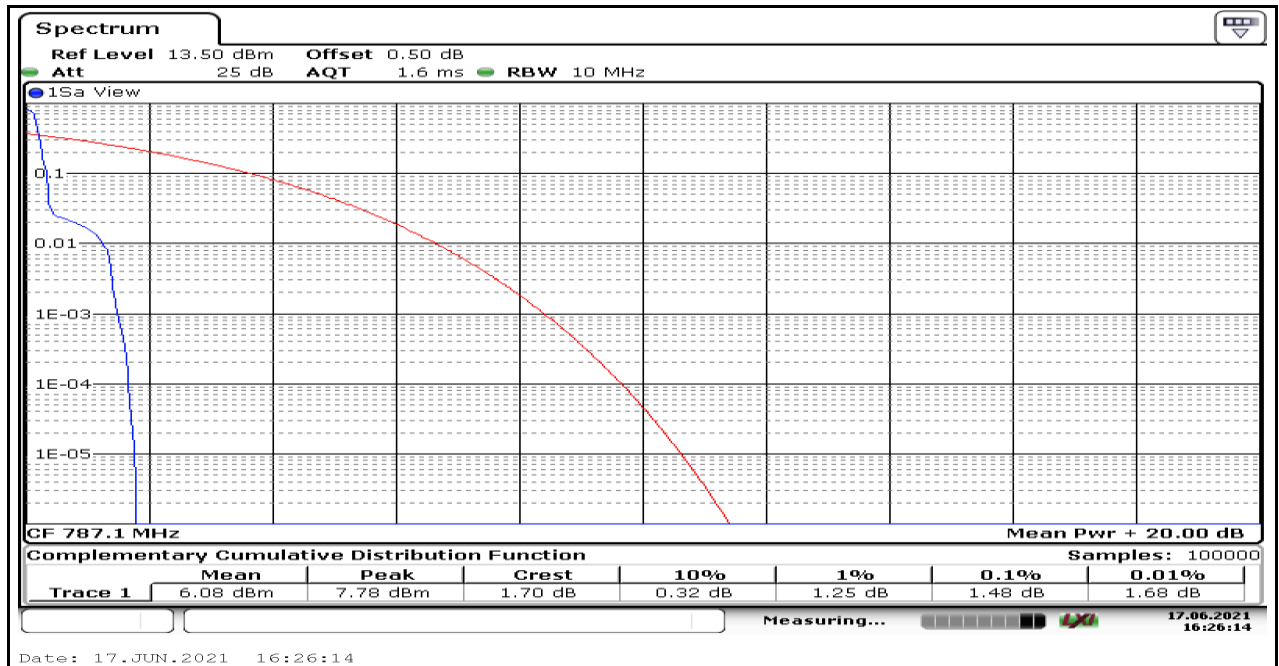
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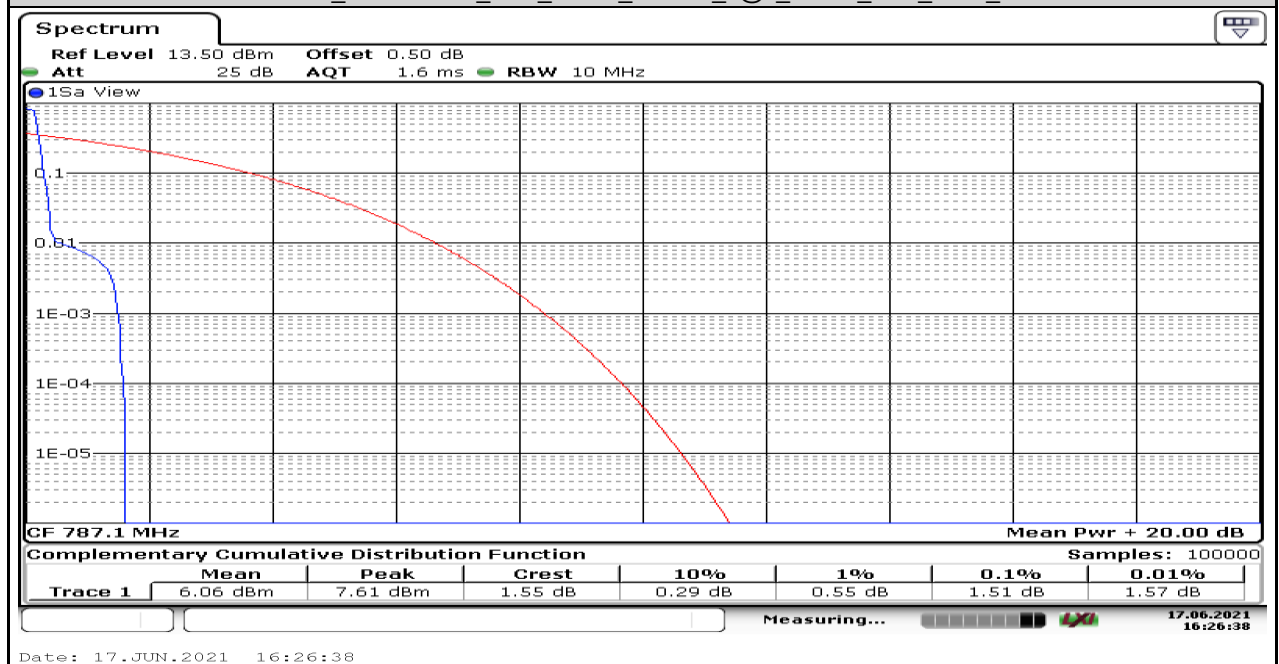
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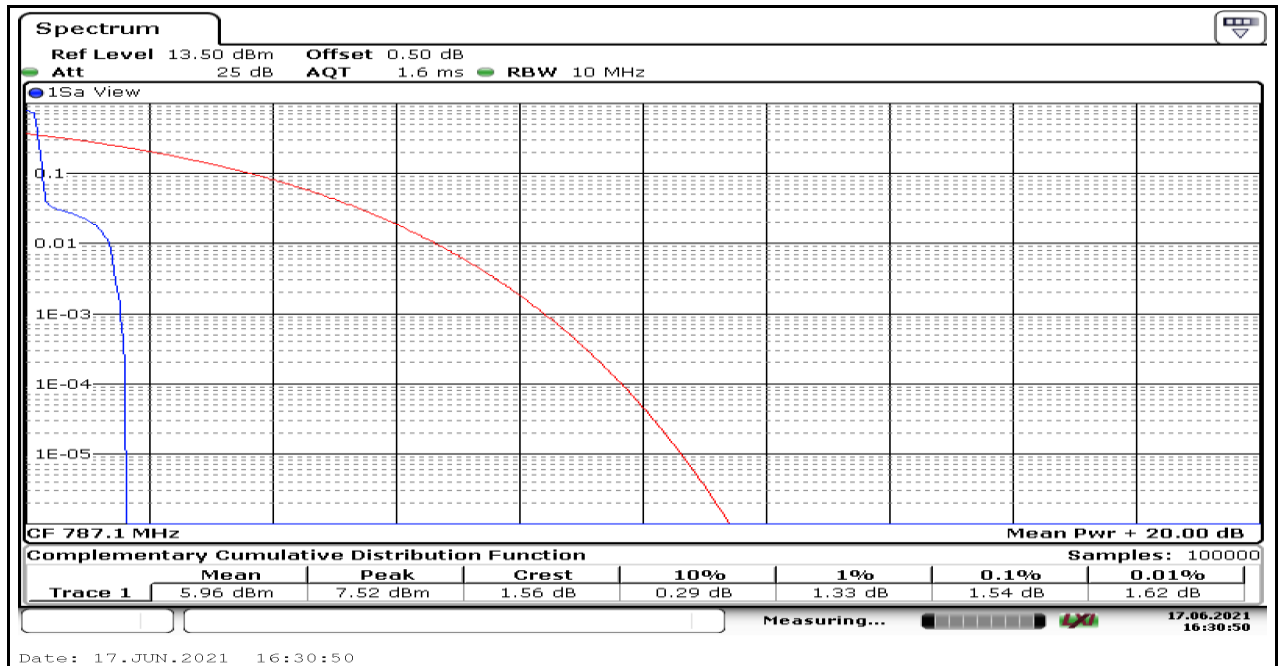
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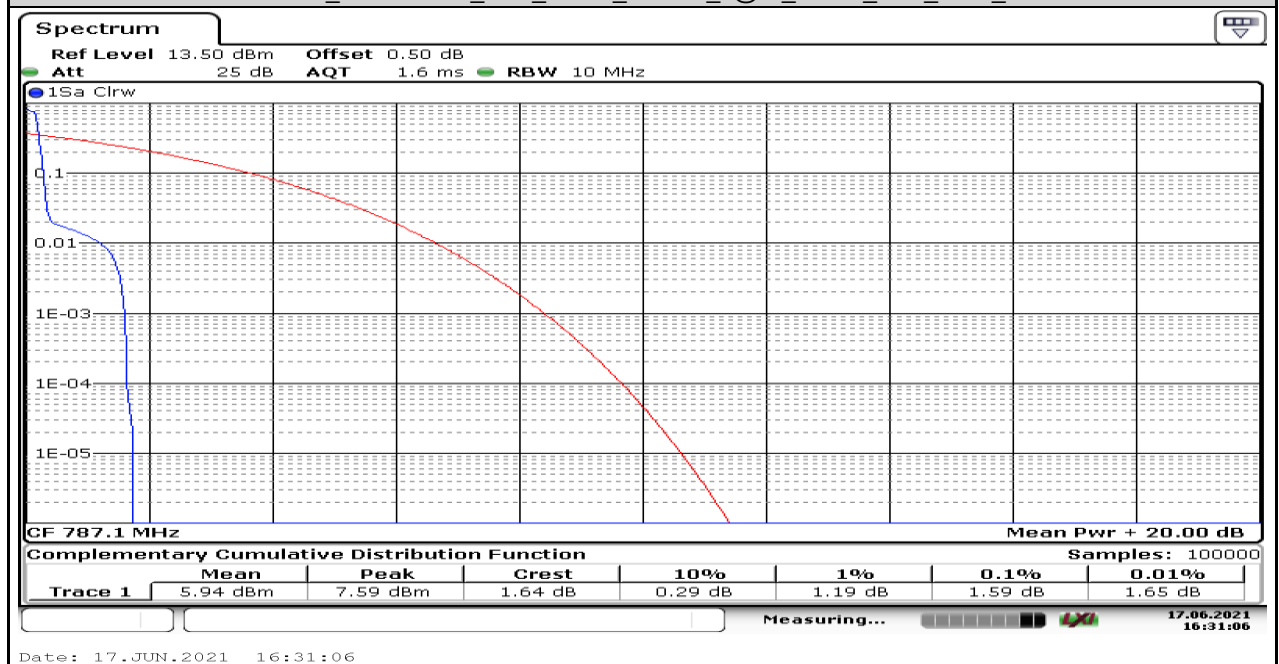
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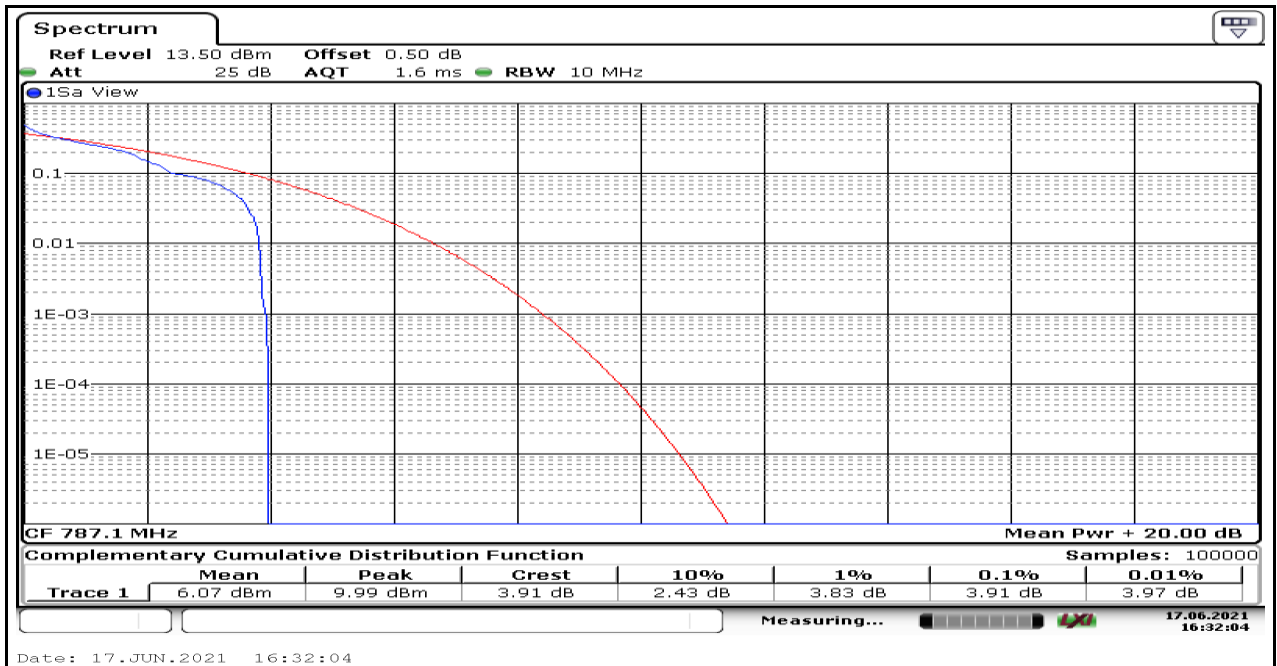
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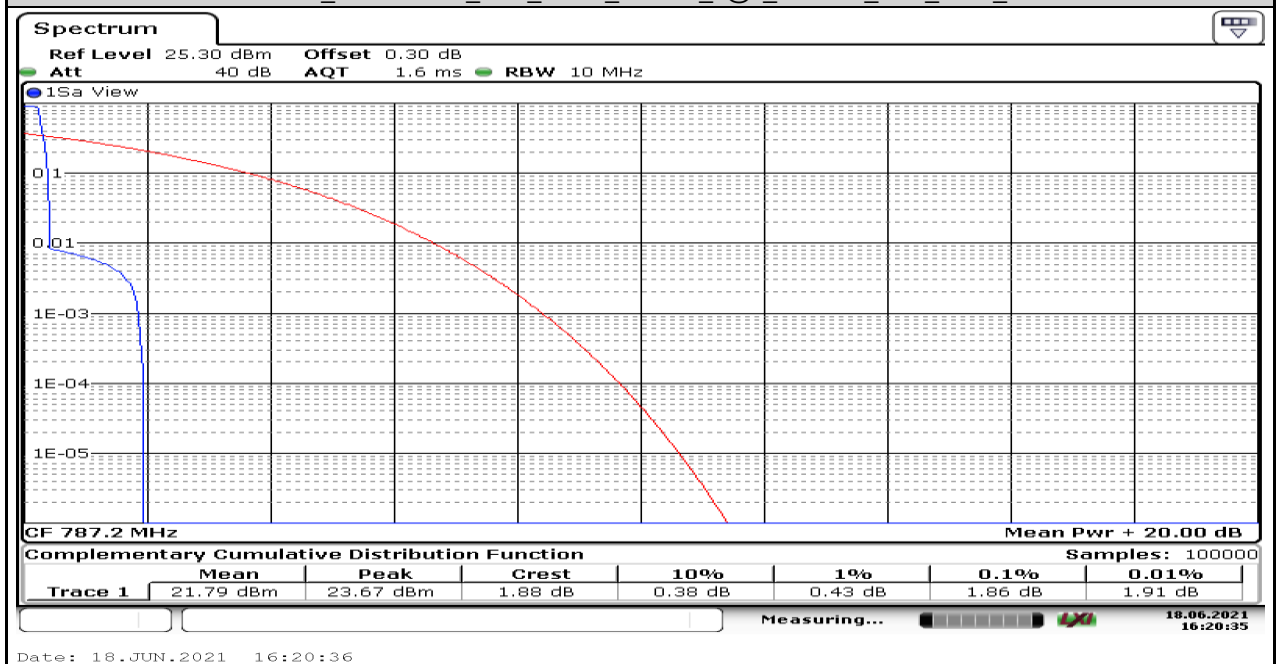
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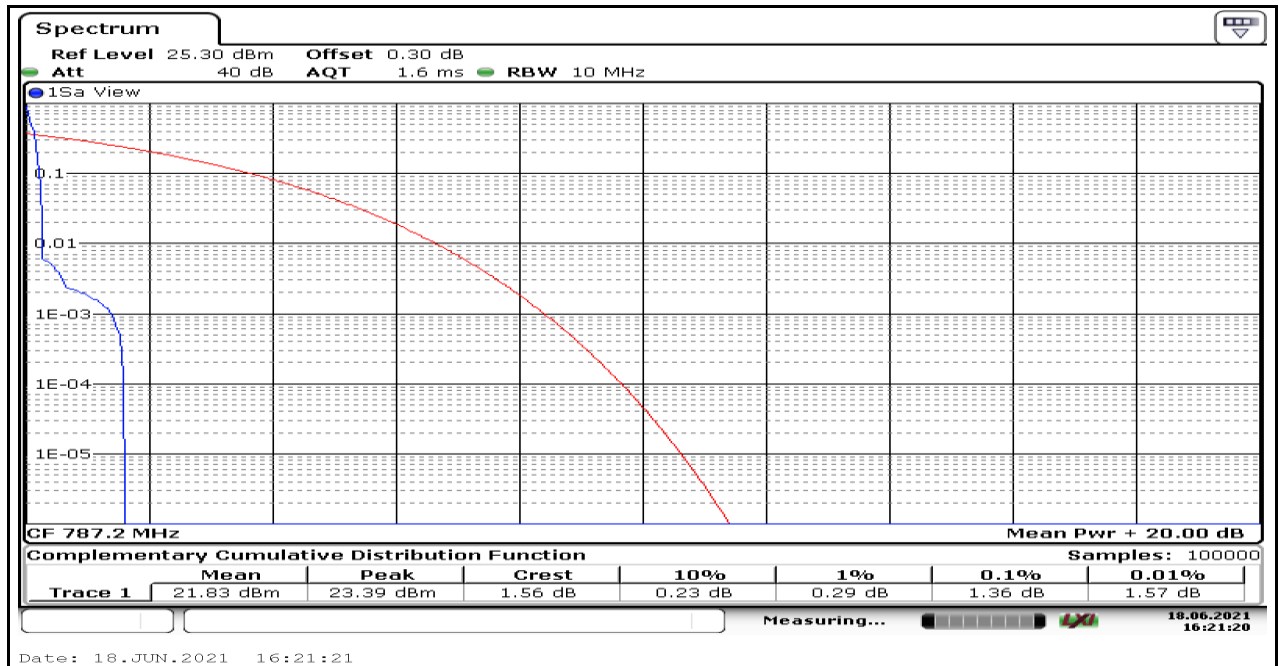
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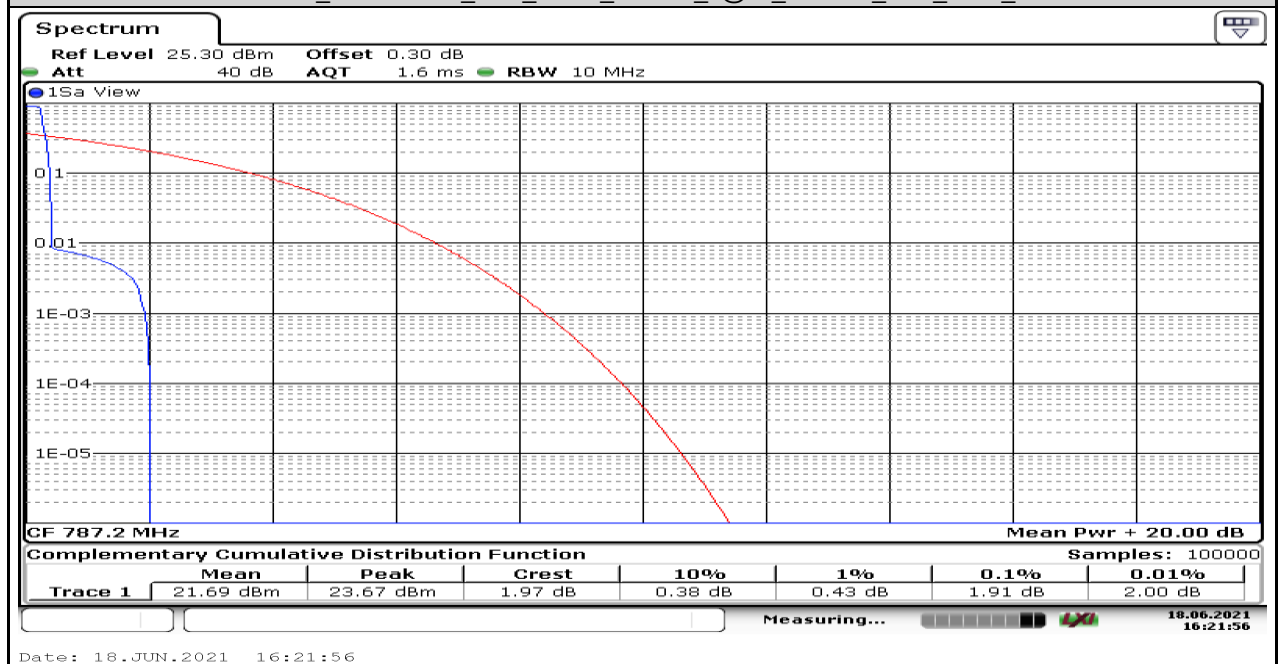
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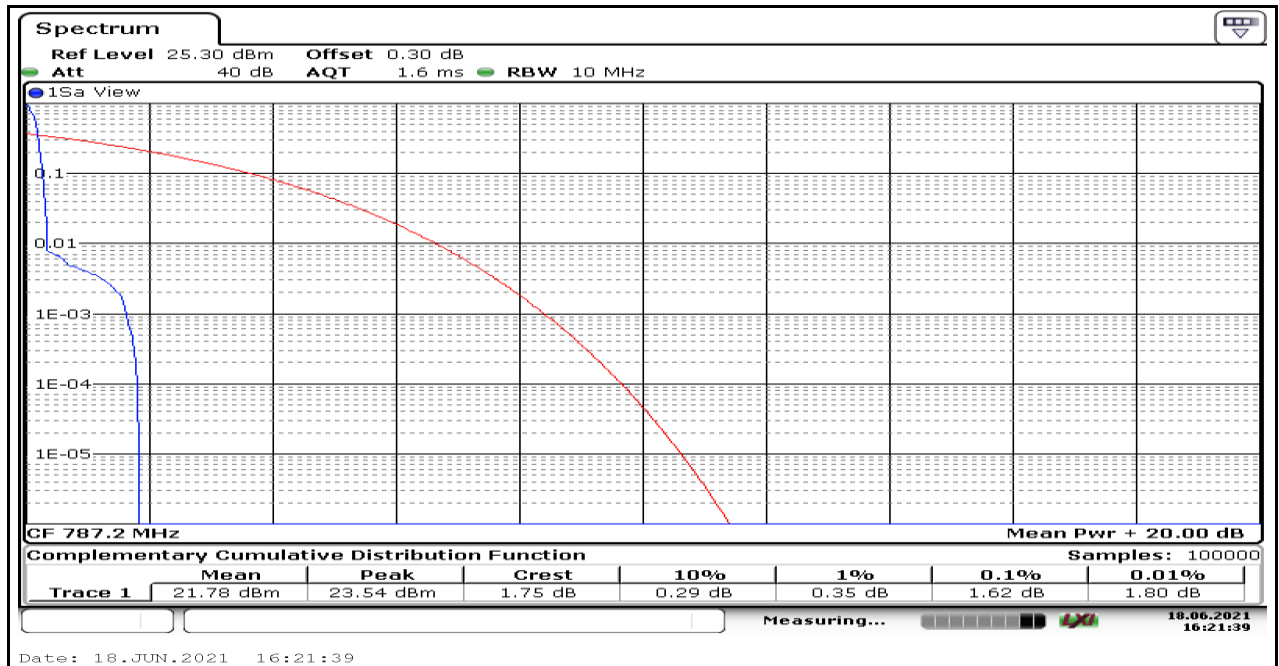
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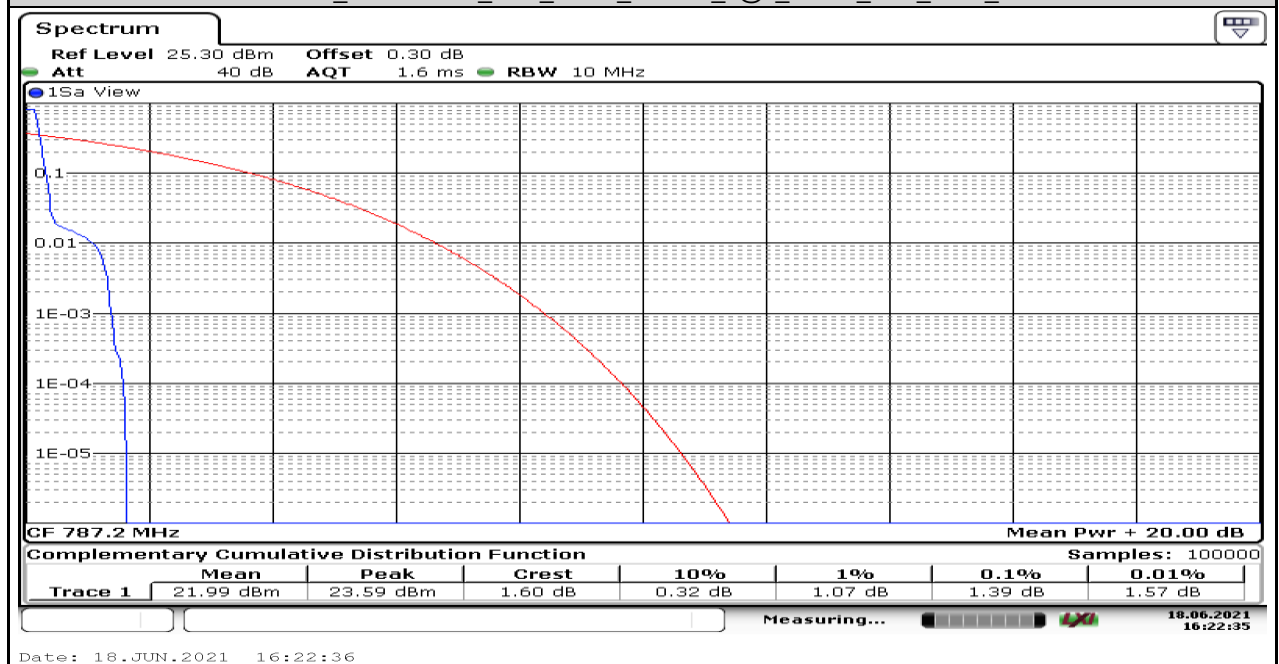
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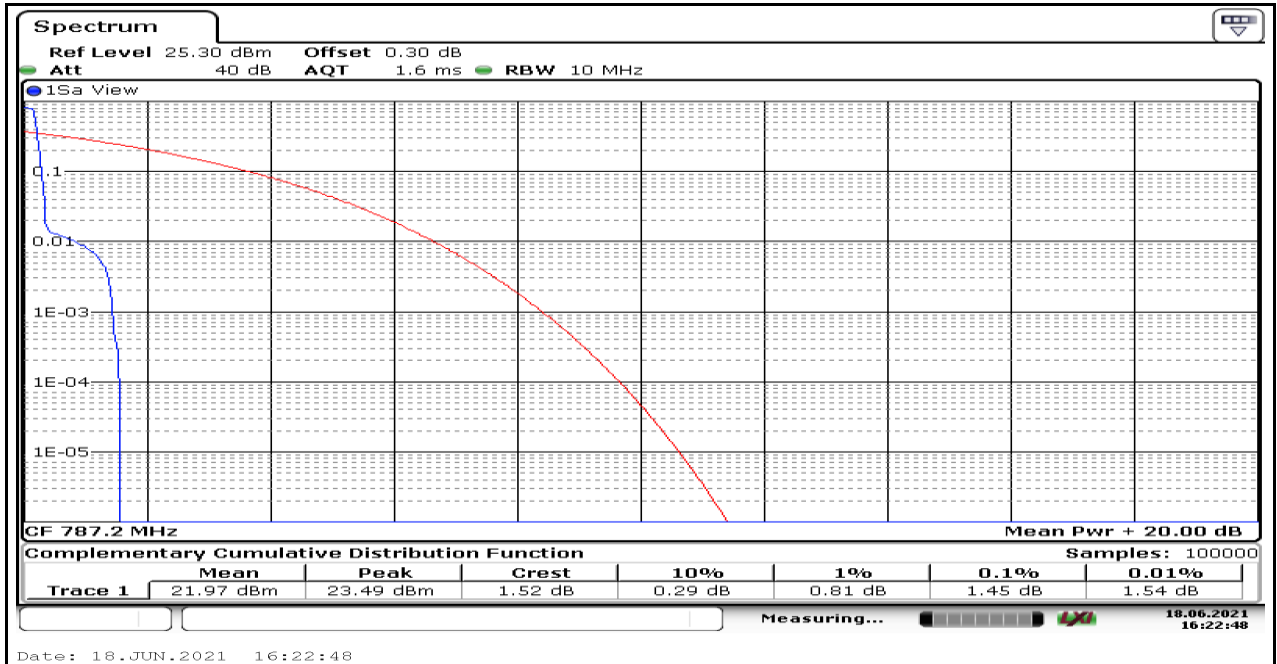
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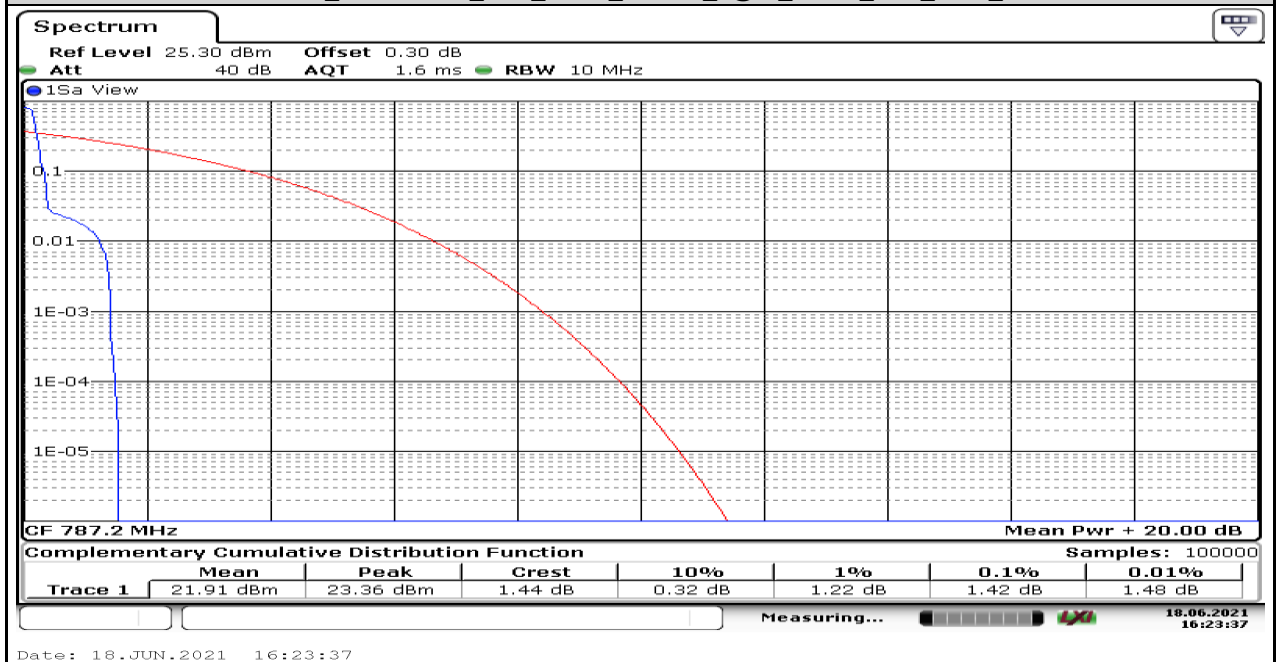
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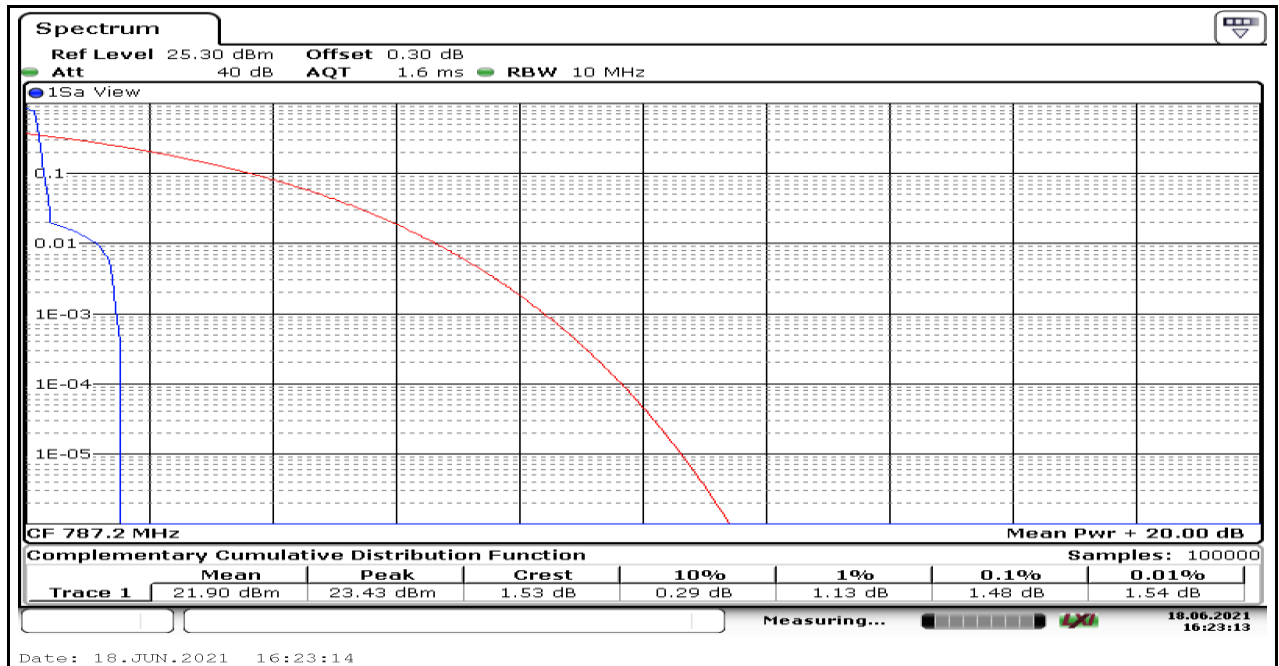
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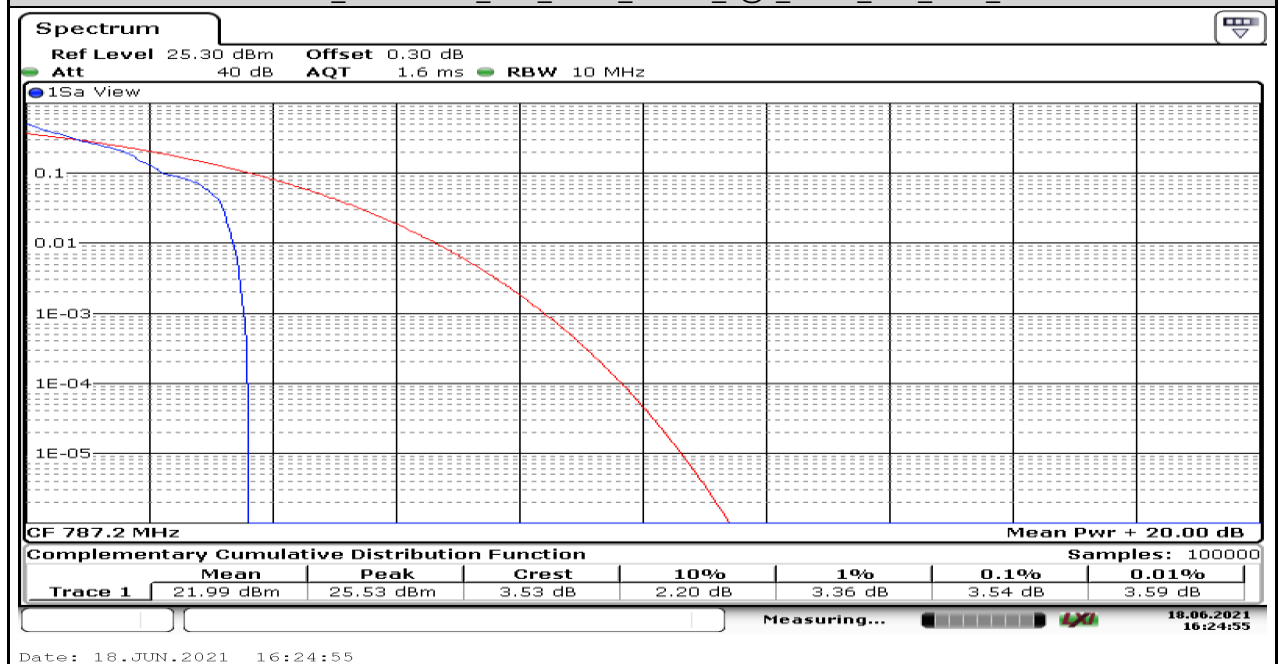
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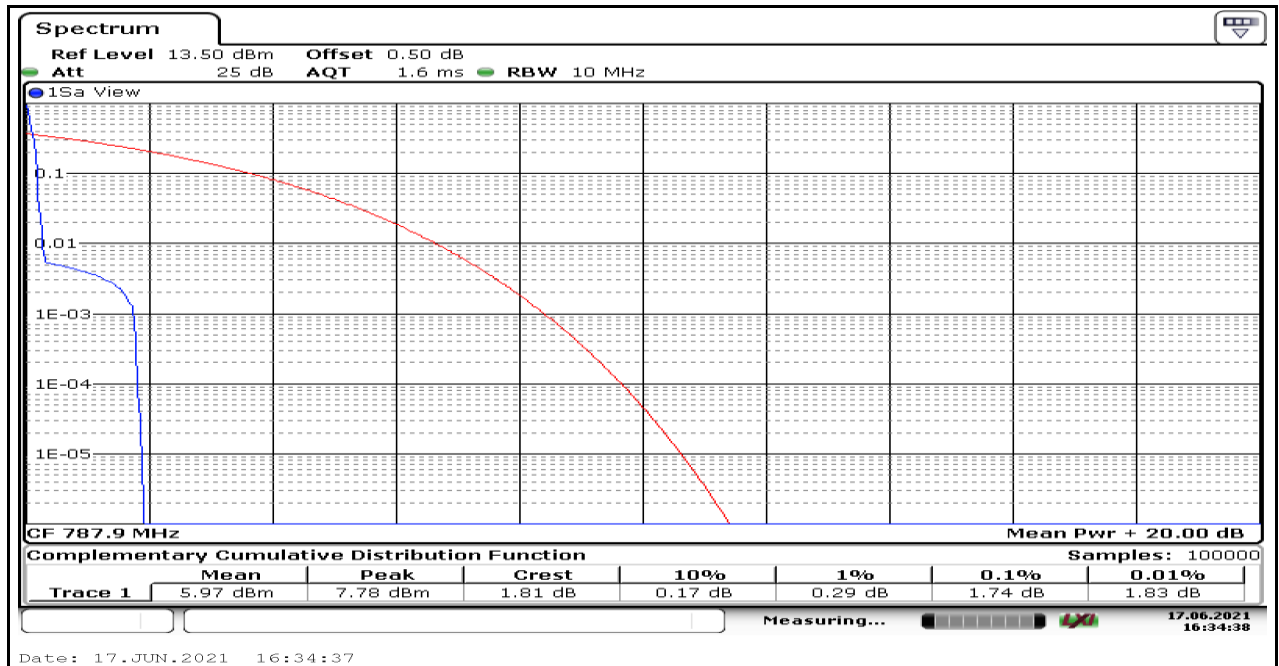
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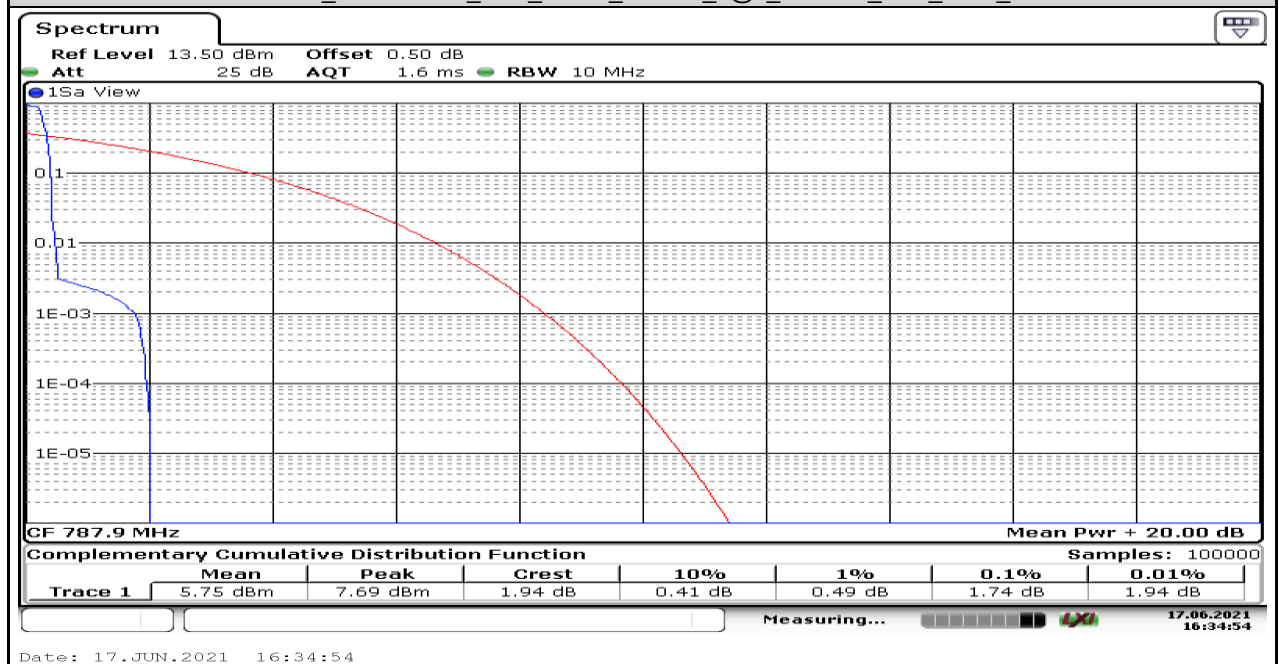
787-788M_Stand-Alone_NaN_QPSK_134184_3@3_15kHz_3.54_<=13_PASS



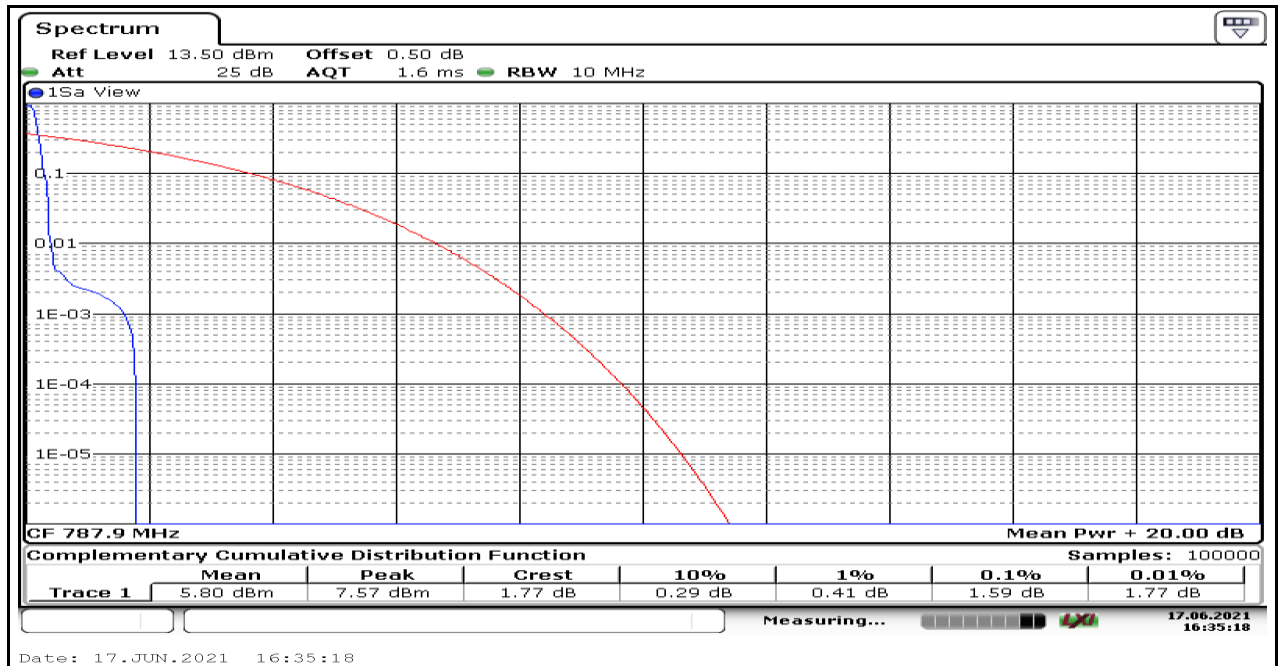
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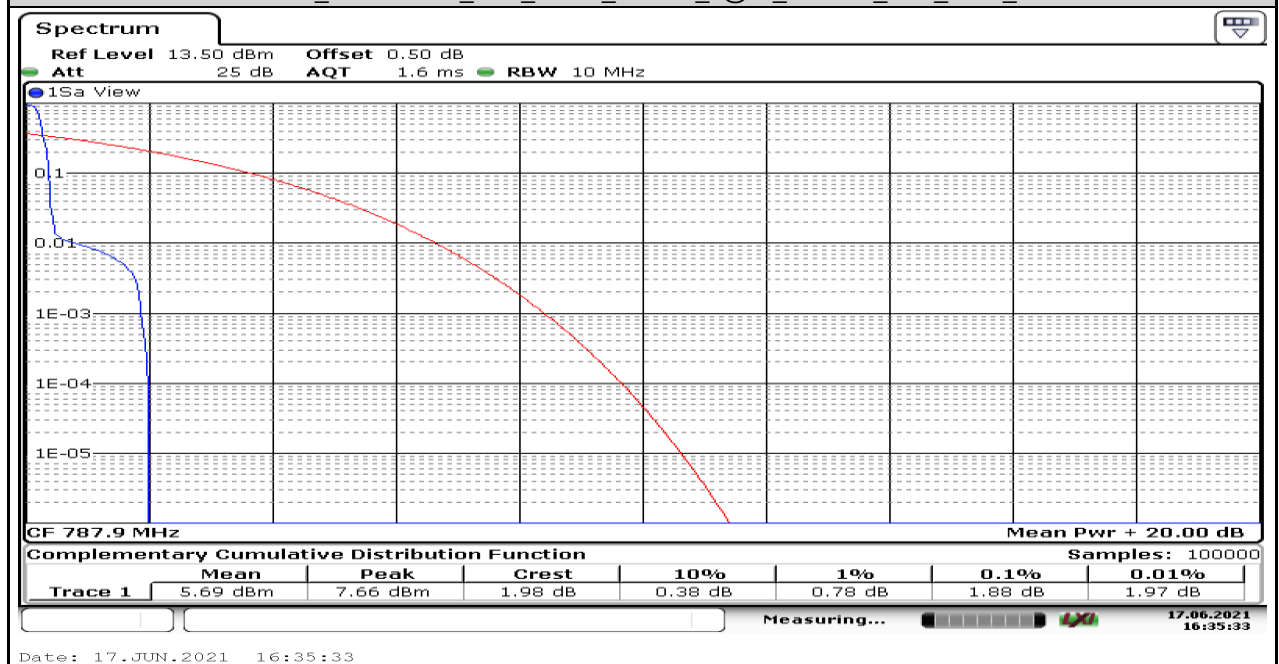
787-788M_Stand-Alone_NaN_QPSK_134191_1@0_3.75kHz_1.74_<=13_PASS



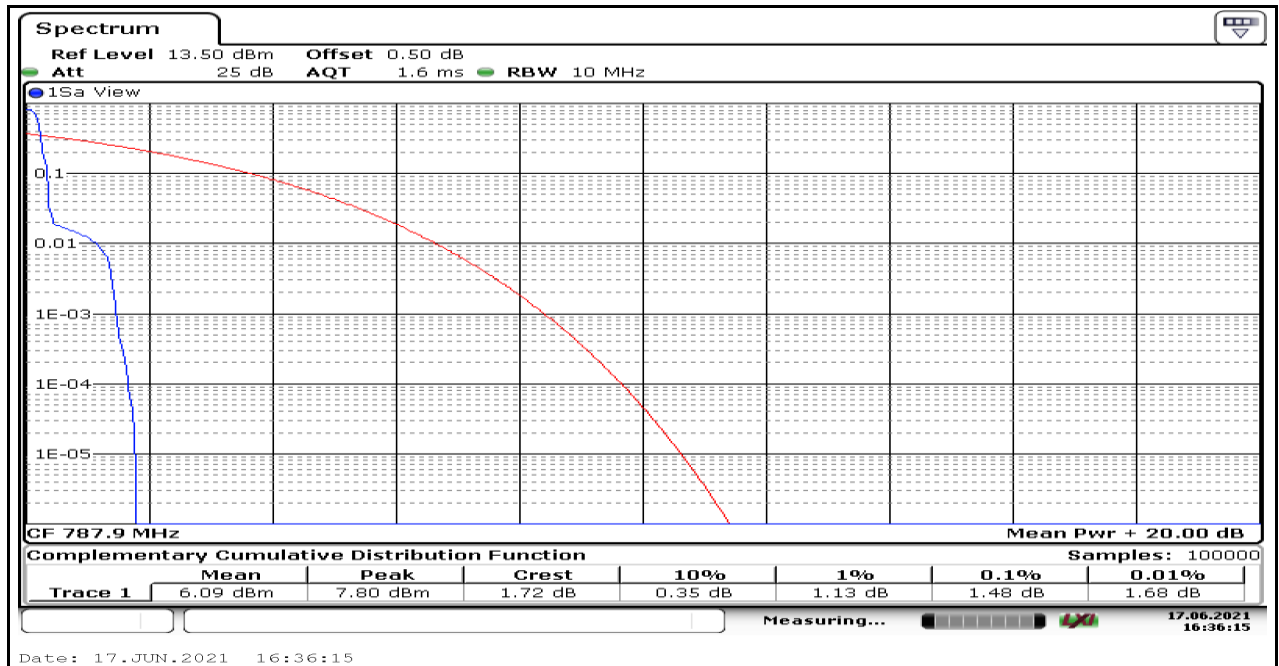
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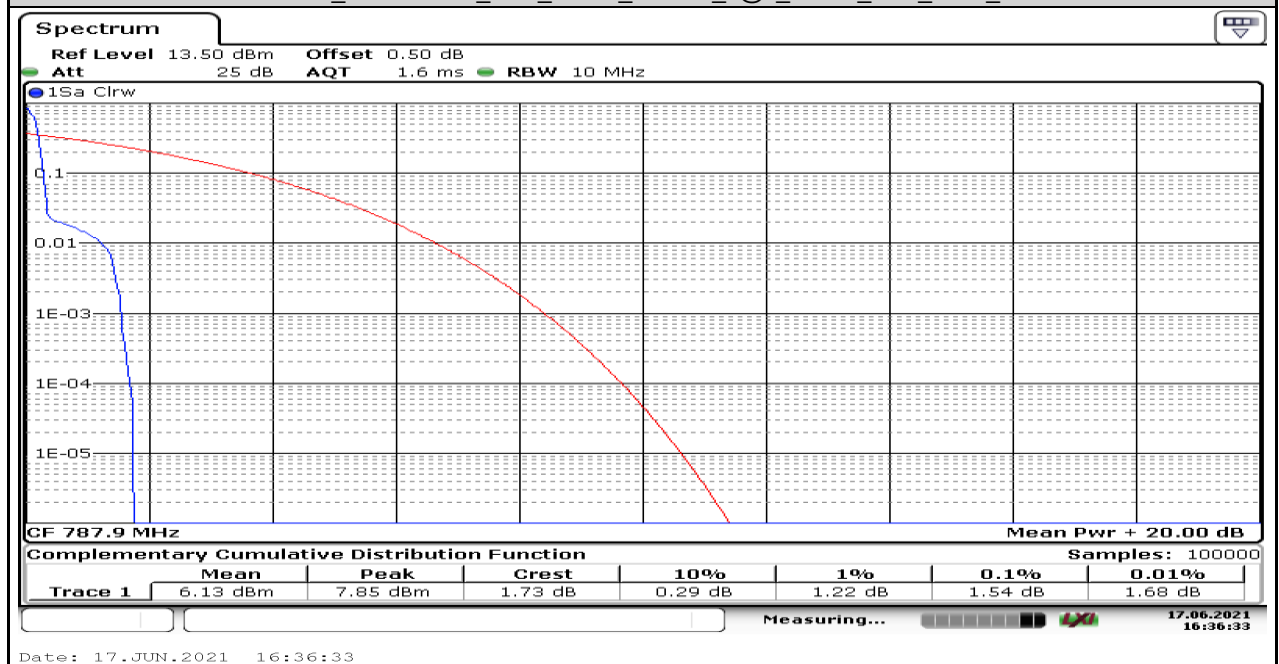
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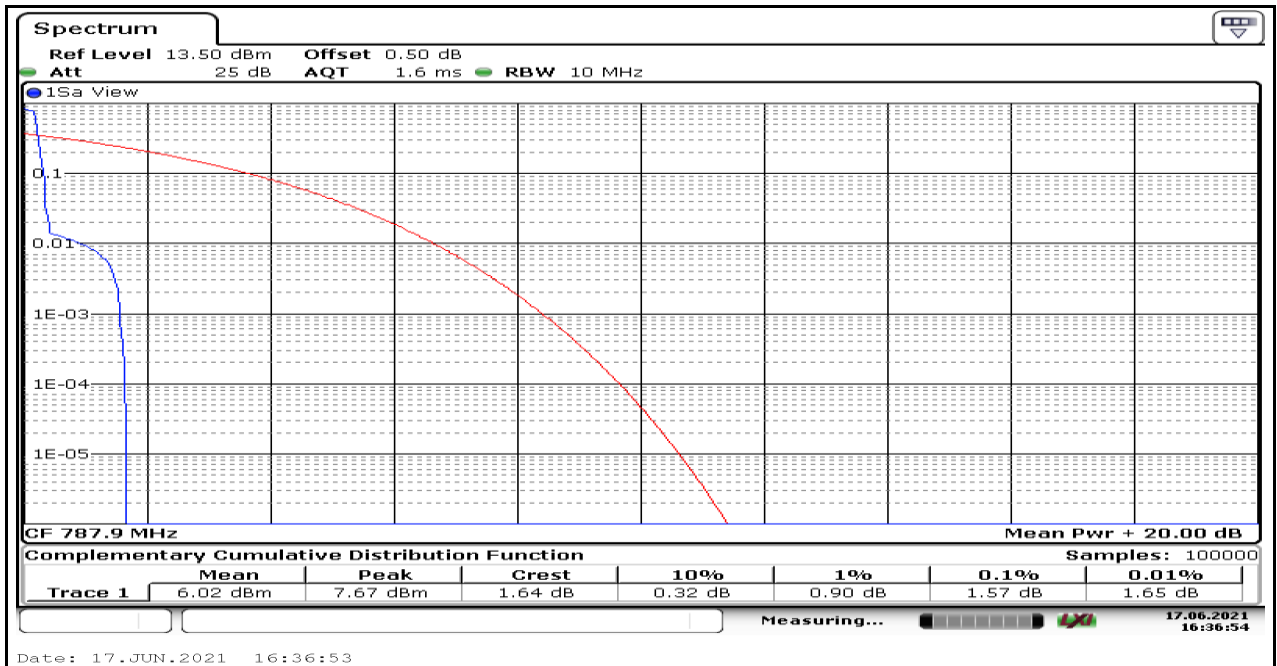
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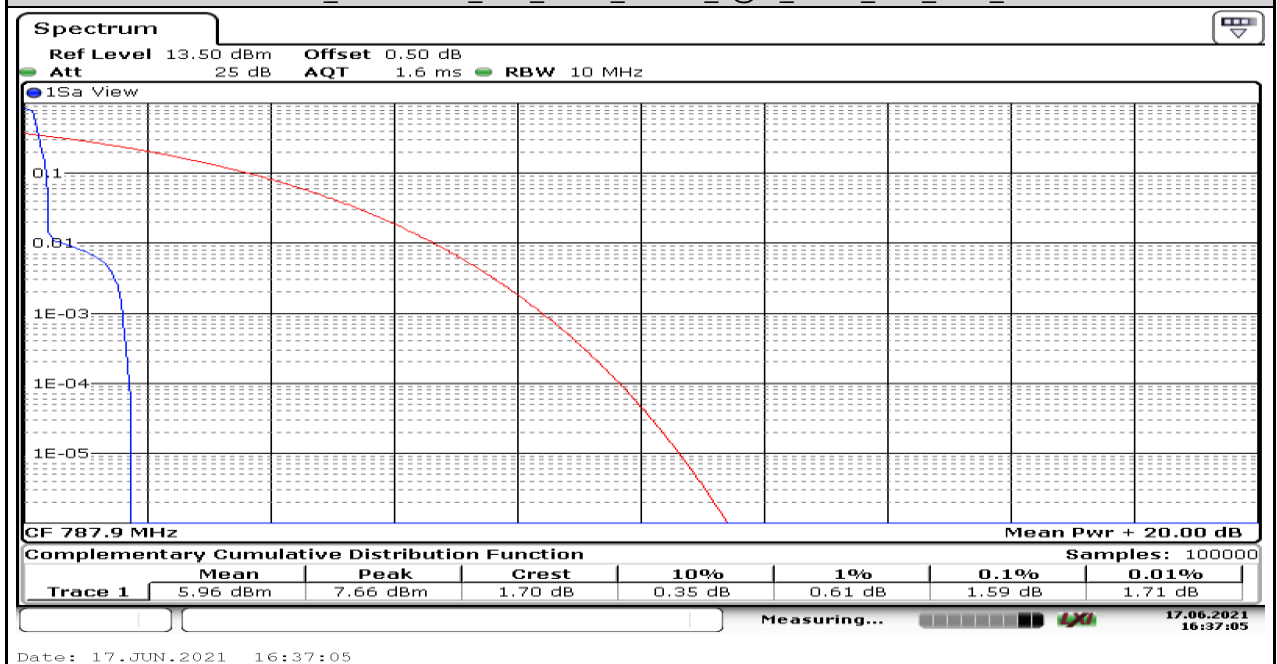
787-788M_Stand-Alone_NaN_QPSK_134191_1@0_15kHz_1.54_<=13_PASS



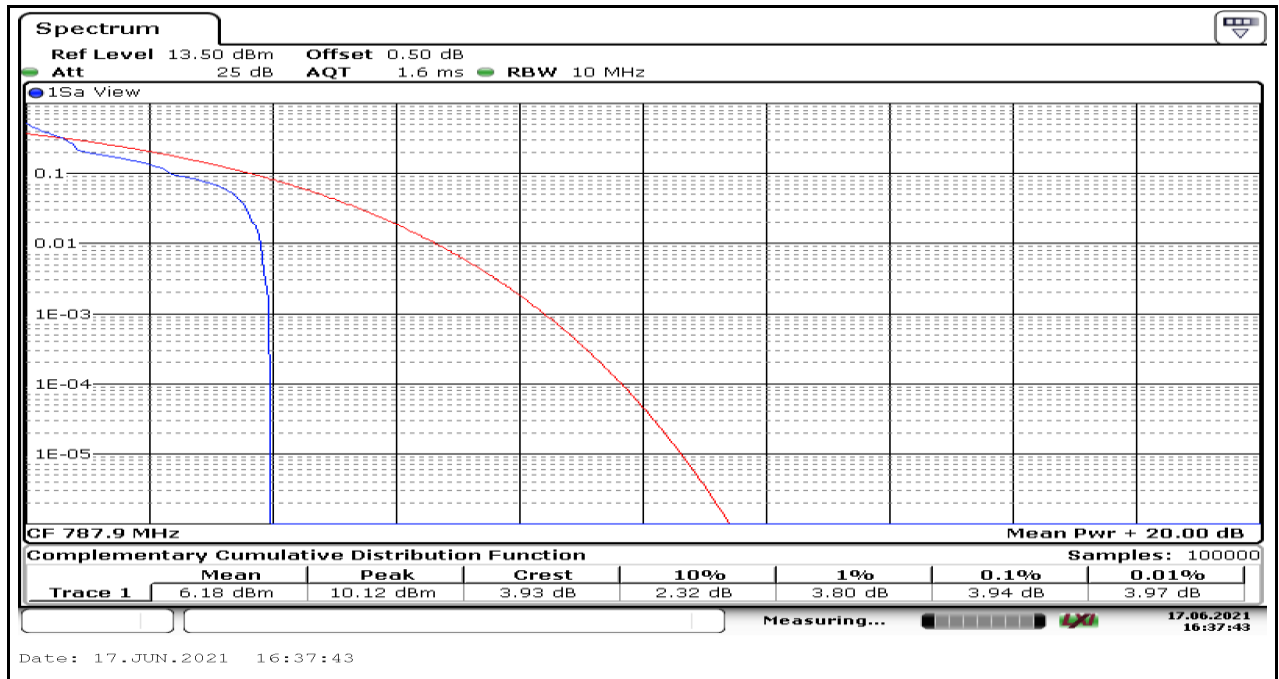
787-788M_Stand-Alone_NaN_BPSK_134191_1@11_15kHz_1.57_<=13_PASS



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



787-788M_Stand-Alone_NaN_QPSK_134191_3@3_15kHz_3.94_<=13_PASS

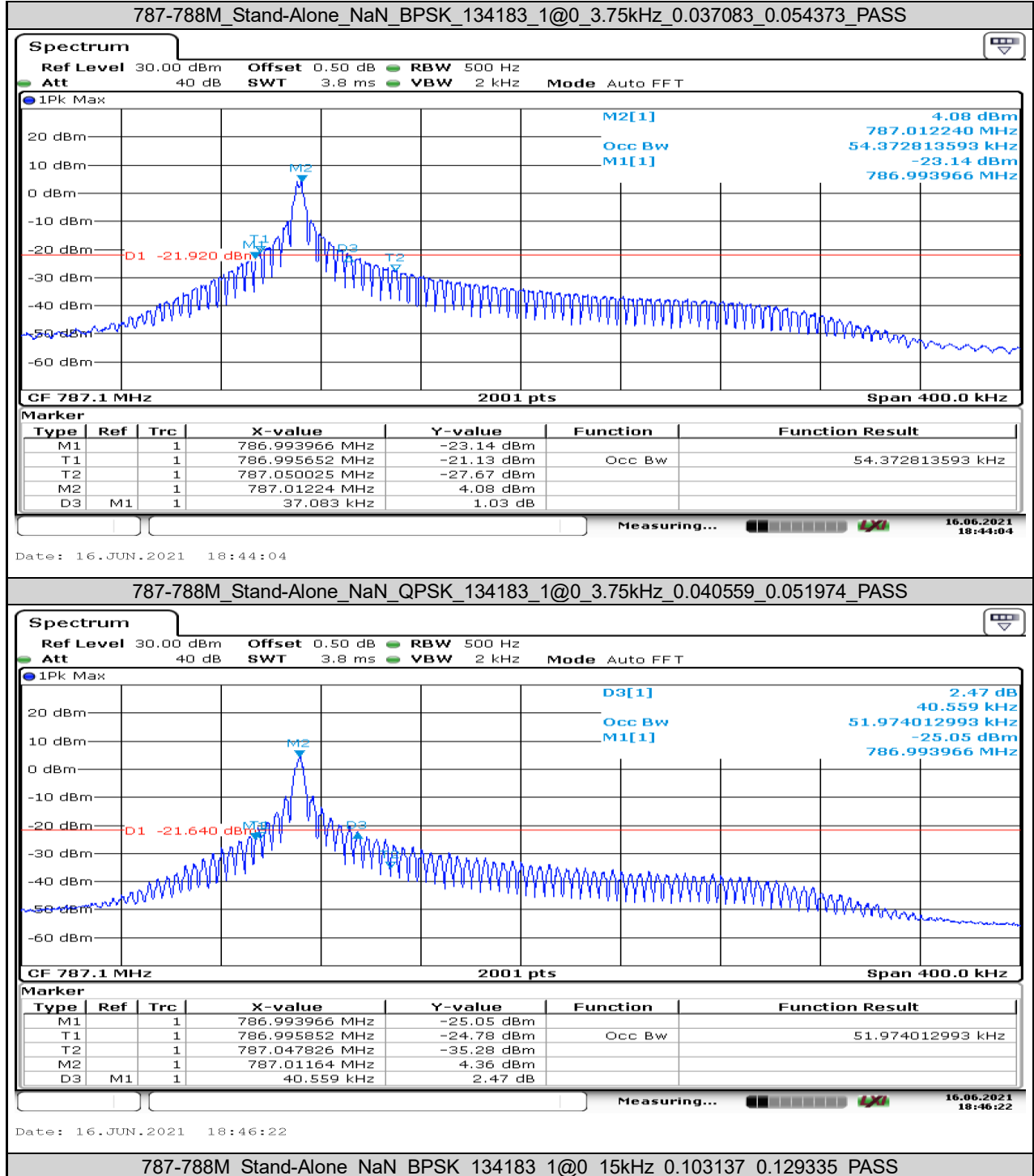


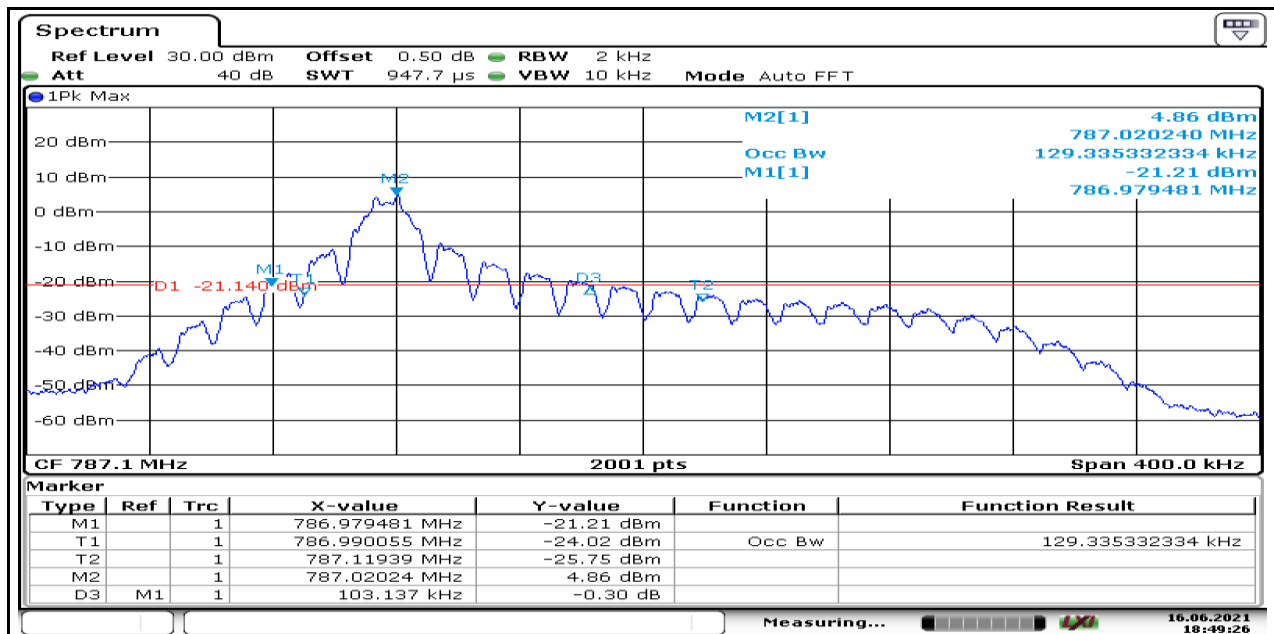
APPENDIX A.3: EMISSION BANDWIDTH FOR NB-IOT

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	0.037083	0.054373	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	0.040559	0.051974	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	15kHz	0.103137	0.129335	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	15kHz	0.147173	0.132334	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	12@0	15kHz	0.267113	0.190305	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	0.039401	0.055172	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	0.037083	0.050375	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	0.118781	0.129335	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	0.146593	0.131934	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	12@0	15kHz	0.252048	0.185507	PASS

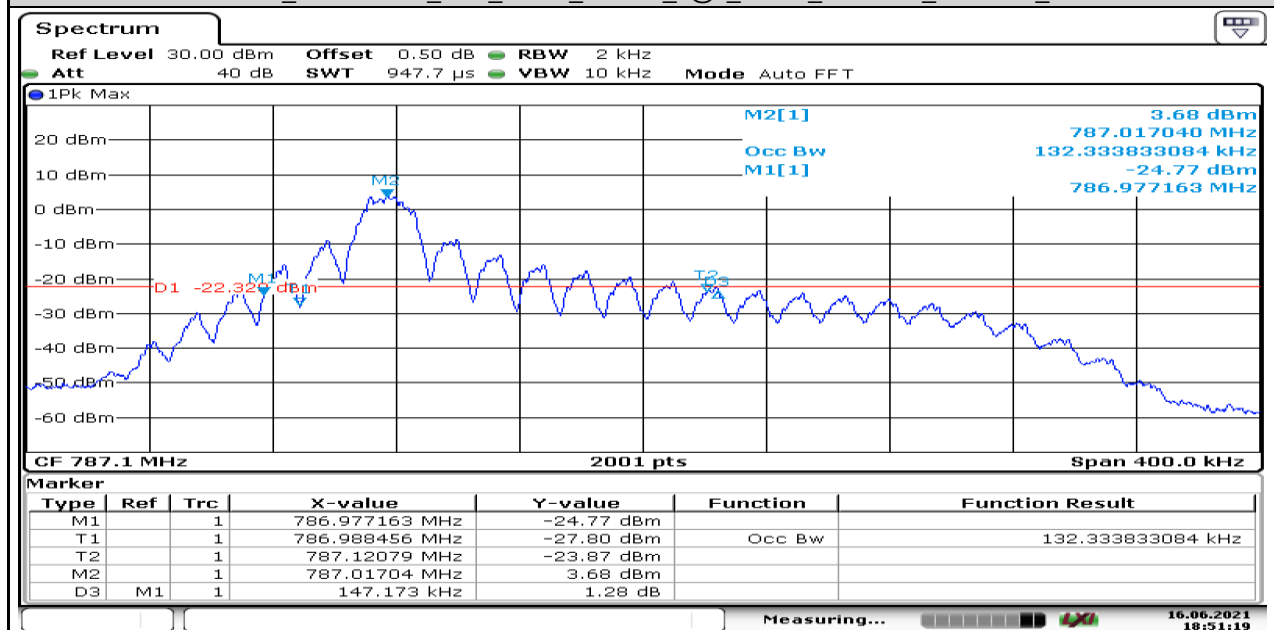
Test Graphs





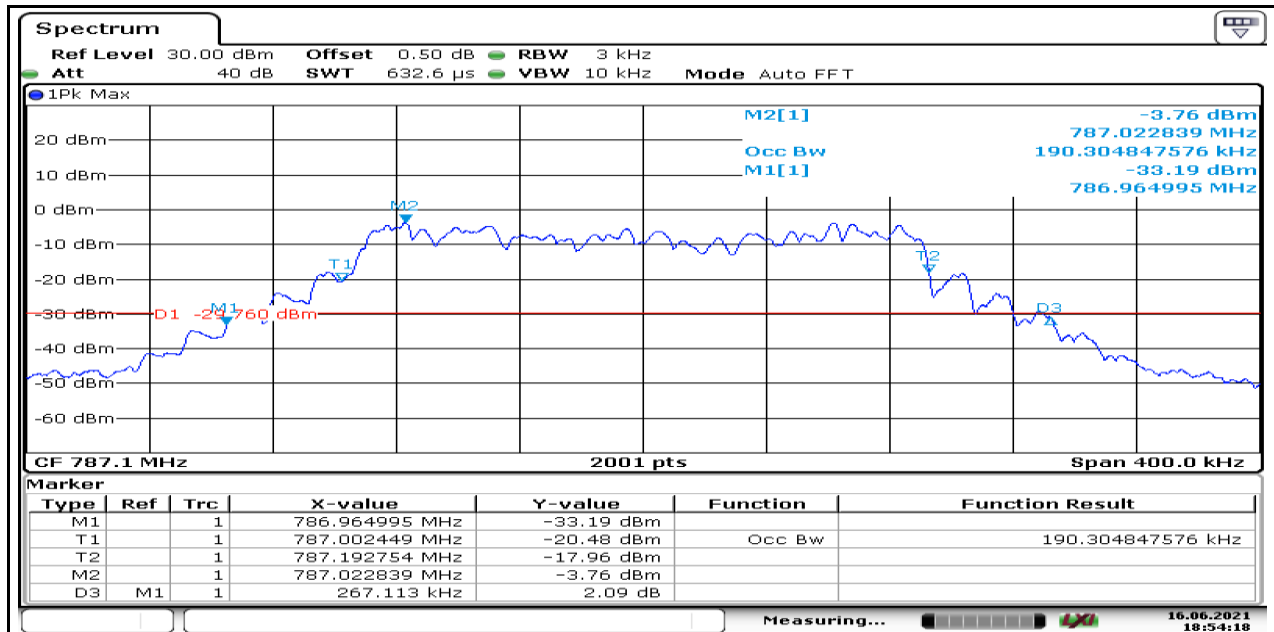
Date: 16.JUN.2021 18:49:27

787-788M_Stand-Alone_NaN_QPSK_134183_1@0_15kHz_0.147173_0.132334_PASS



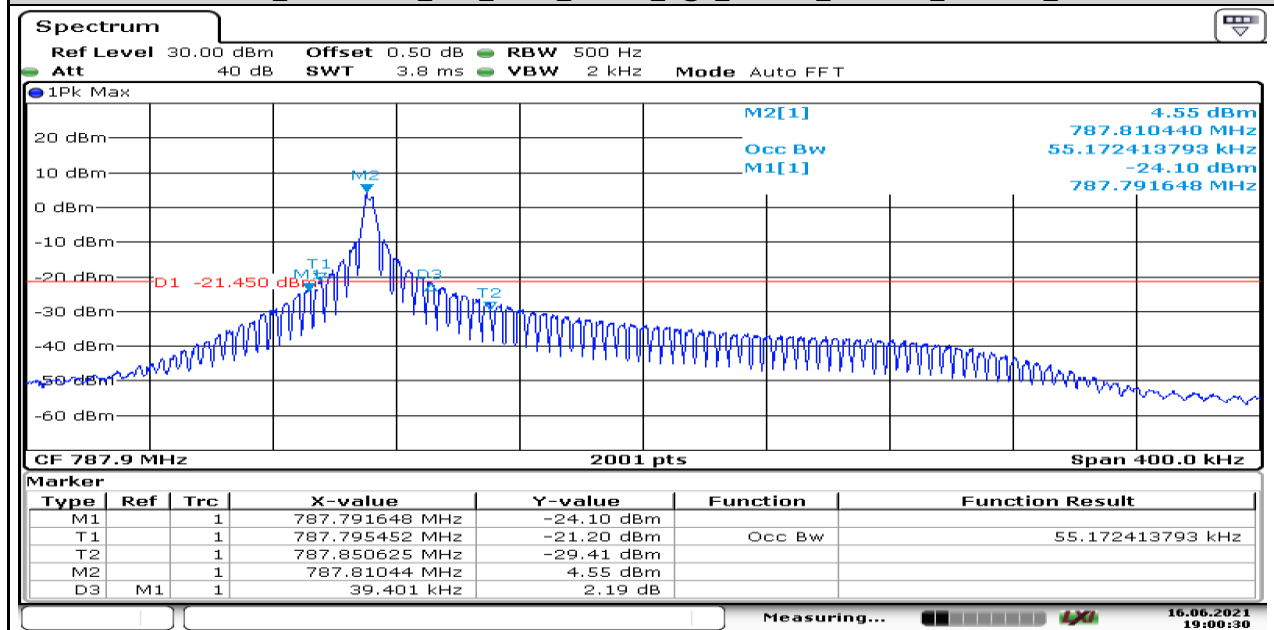
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787-788M_Stand-Alone_NaN_QPSK_134183_12@0_15kHz_0.267113_0.190305_PASS



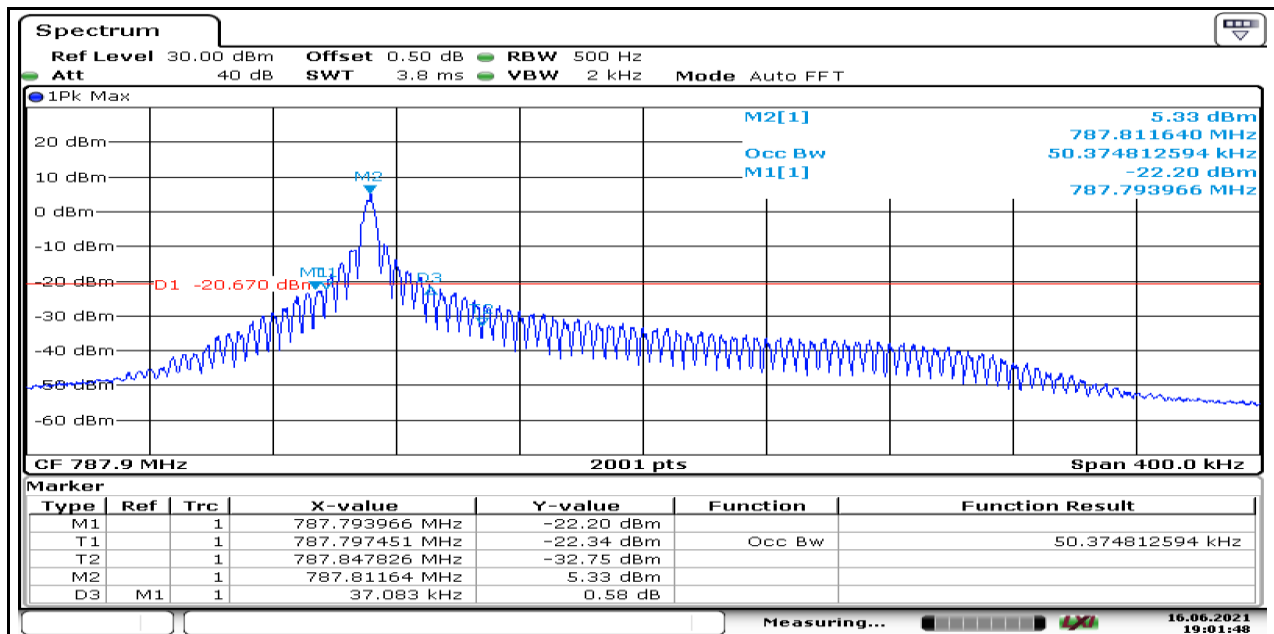
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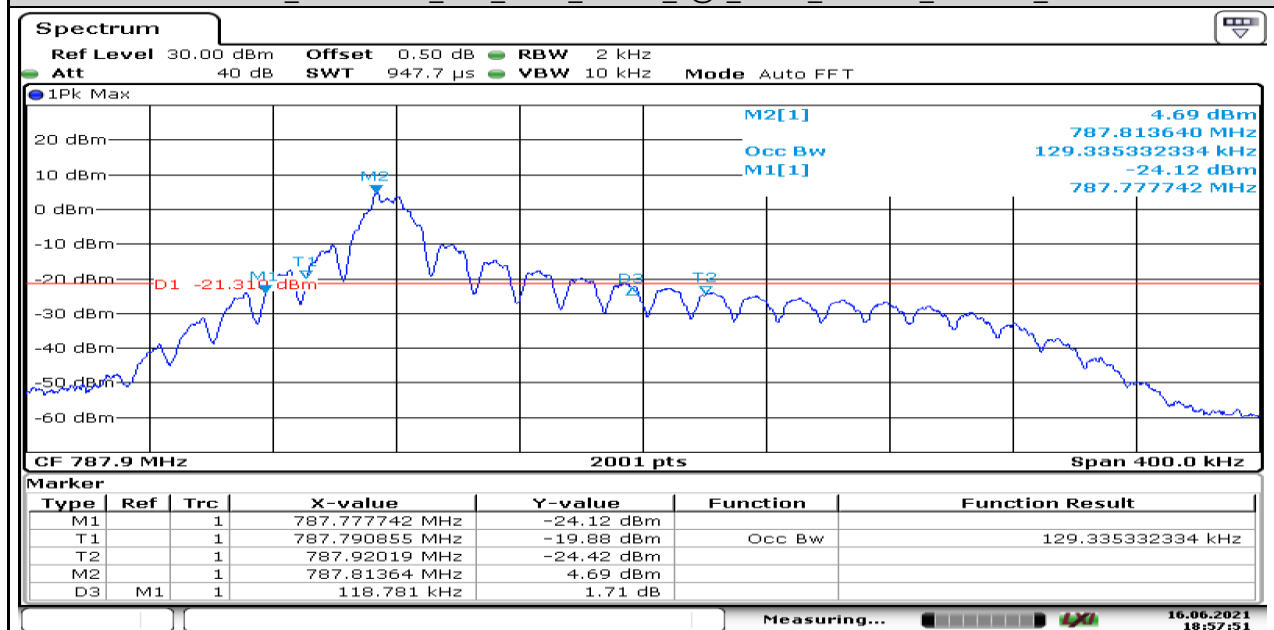
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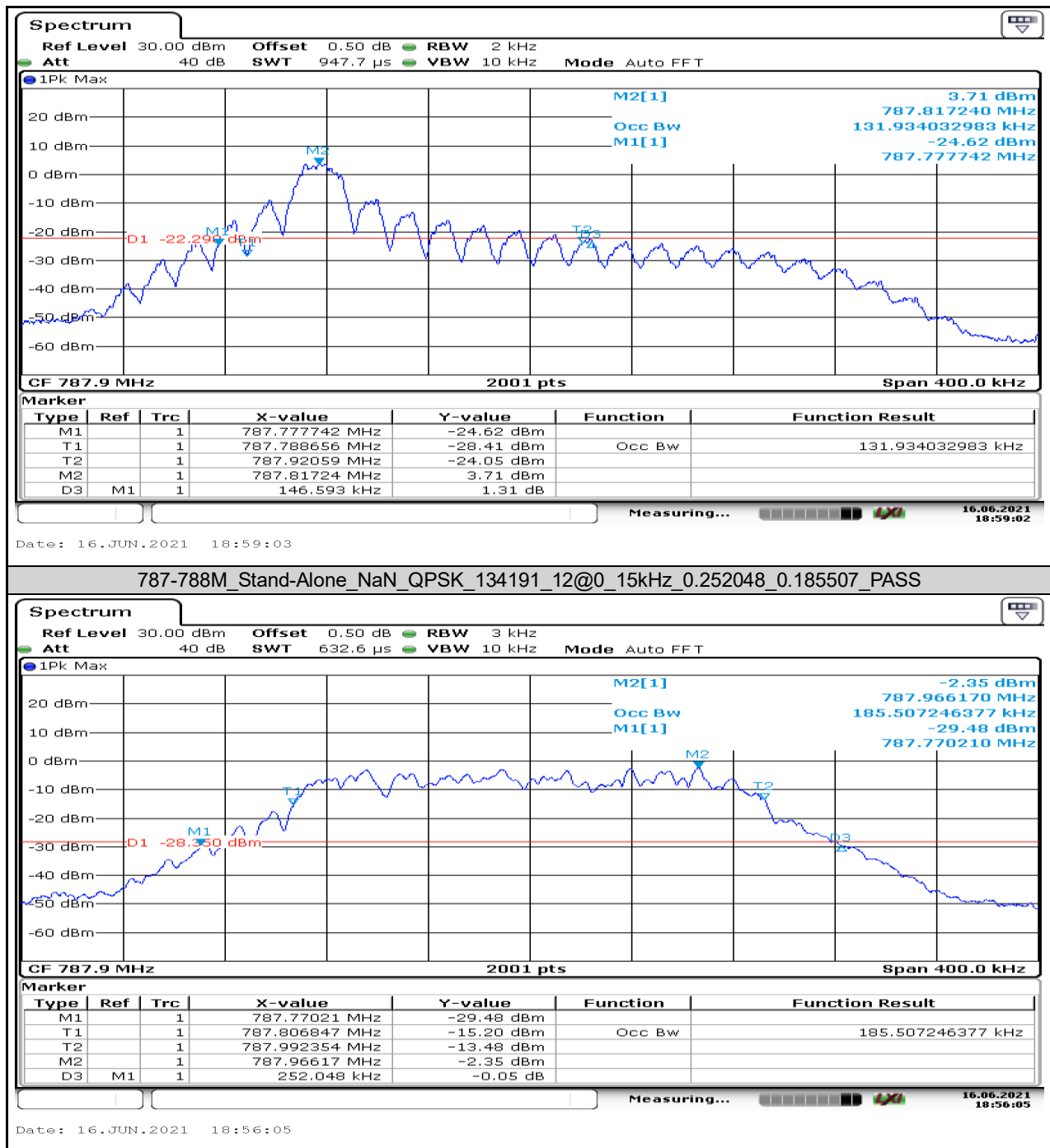
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787-788M_Stand-Alone_NaN_BPSK_134191_1@0_15kHz_0.118781_0.129335_PASS



Date: 16.JUN.2021 18:57:51

787-788M_Stand-Alone_NaN_QPSK_134191_1@0_15kHz_0.146593_0.131934_PASS

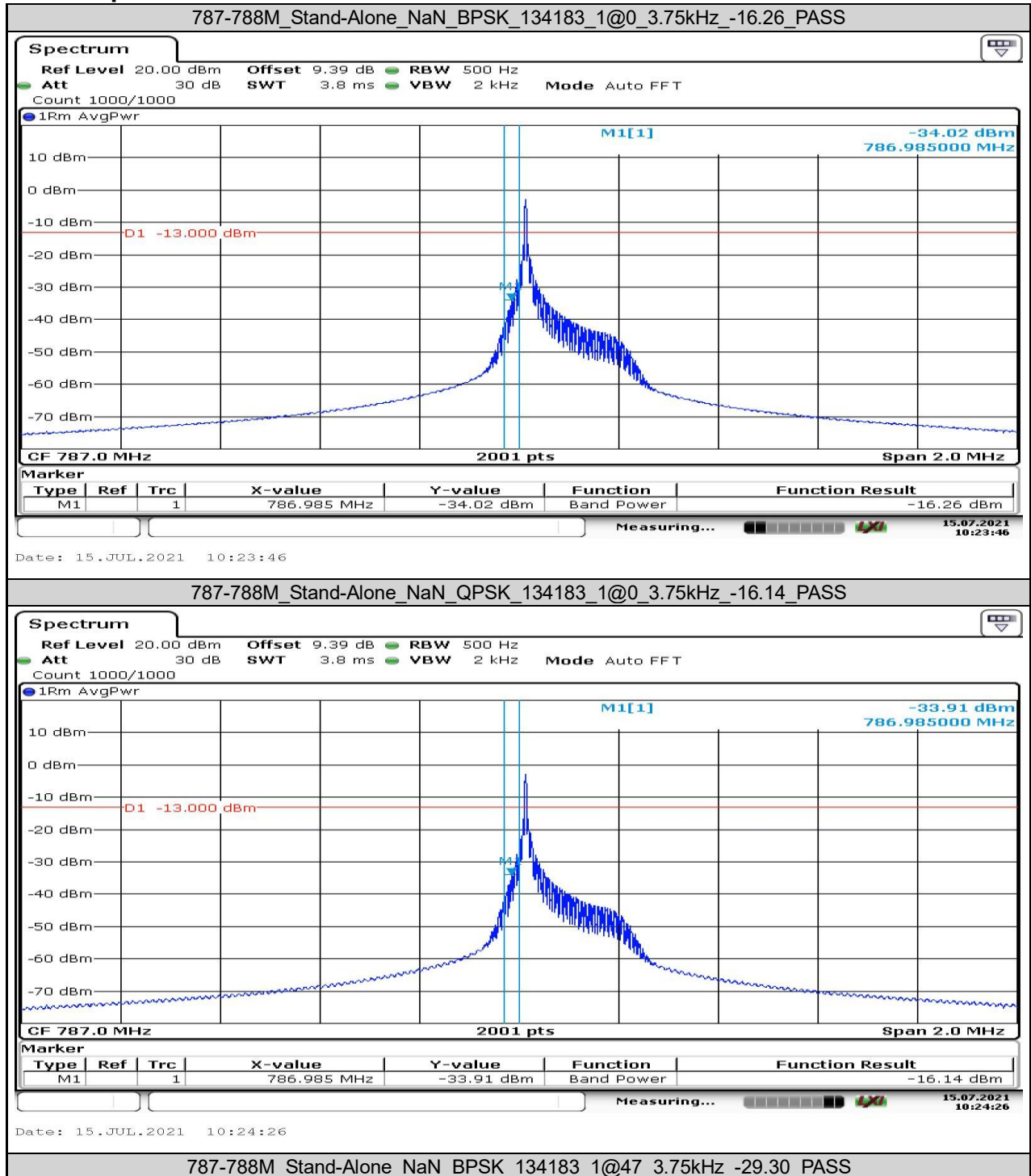


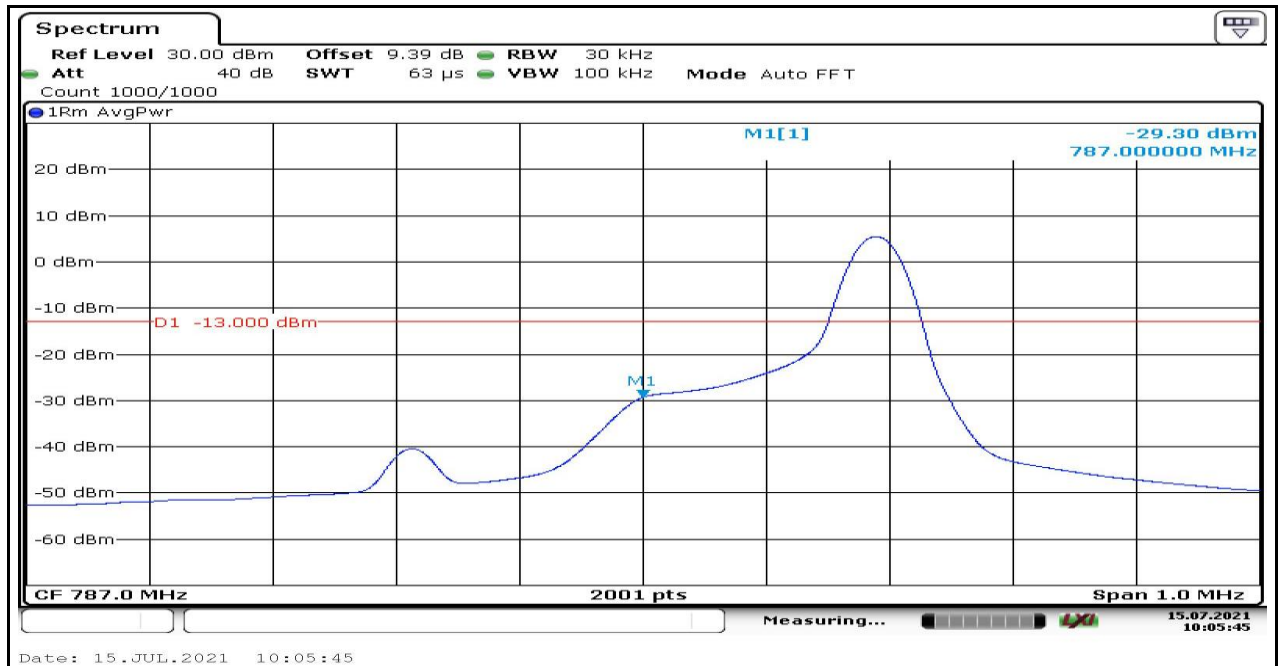
APPENDIX A.4: BAND EDGE FOR NB-IOT

Test Result

Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Result (dBm)	Verdict
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	3.75kHz	-16.26	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	3.75kHz	-16.14	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@47	3.75kHz	-29.30	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@47	3.75kHz	-30.98	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@0	15kHz	-14.37	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@0	15kHz	-14.28	PASS
787-788M	Stand-Alone	NaN	BPSK	134183	1@11	15kHz	-28.48	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	1@11	15kHz	-28.43	PASS
787-788M	Stand-Alone	NaN	QPSK	134183	12@0	15kHz	-21.31	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	3.75kHz	-24.64	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	3.75kHz	-25.17	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@47	3.75kHz	-24.50	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@47	3.75kHz	-24.46	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@0	15kHz	-35.19	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@0	15kHz	-37.31	PASS
787-788M	Stand-Alone	NaN	BPSK	134184	1@11	15kHz	-27.09	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	1@11	15kHz	-27.33	PASS
787-788M	Stand-Alone	NaN	QPSK	134184	12@0	15kHz	-35.77	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@0	3.75kHz	-29.09	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@0	3.75kHz	-28.92	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@47	3.75kHz	-25.15	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@47	3.75kHz	-24.20	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@0	15kHz	-40.62	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@0	15kHz	-39.70	PASS
787-788M	Stand-Alone	NaN	BPSK	134190	1@11	15kHz	-36.84	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	1@11	15kHz	-35.52	PASS
787-788M	Stand-Alone	NaN	QPSK	134190	12@0	15kHz	-38.87	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	3.75kHz	-31.14	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	3.75kHz	-30.82	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@47	3.75kHz	-15.90	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@47	3.75kHz	-15.92	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@0	15kHz	-27.33	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@0	15kHz	-27.64	PASS
787-788M	Stand-Alone	NaN	BPSK	134191	1@11	15kHz	-13.93	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	1@11	15kHz	-13.87	PASS
787-788M	Stand-Alone	NaN	QPSK	134191	12@0	15kHz	-20.45	PASS

Test Graphs

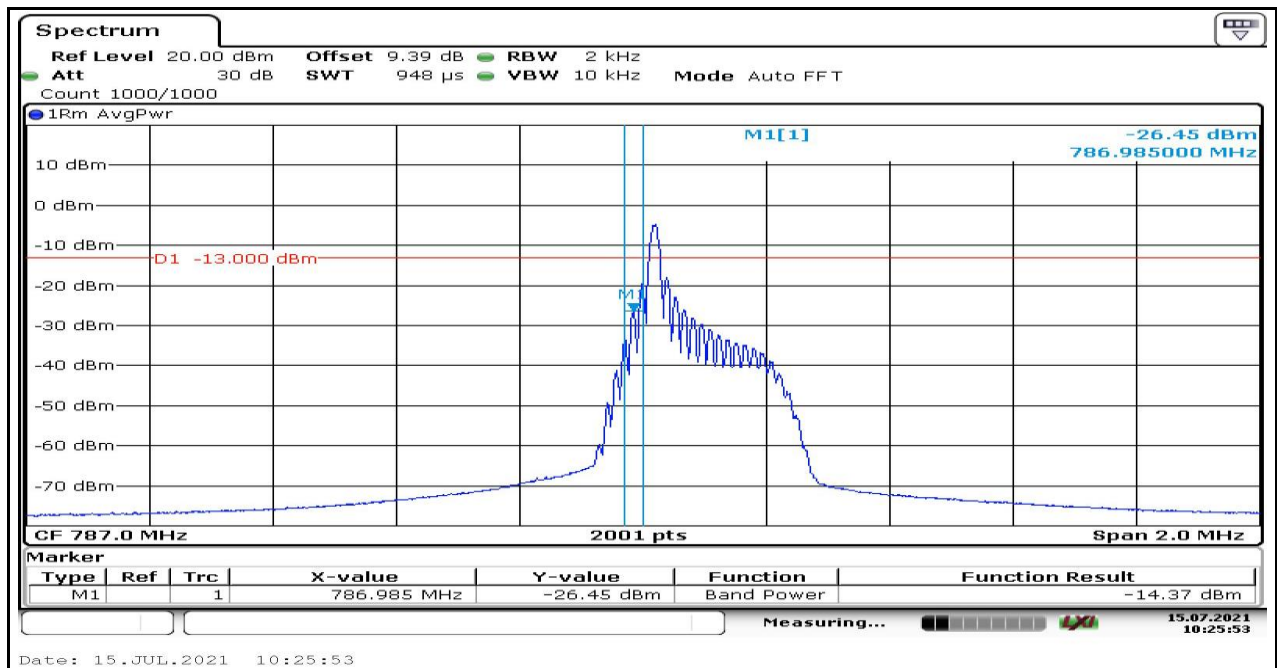




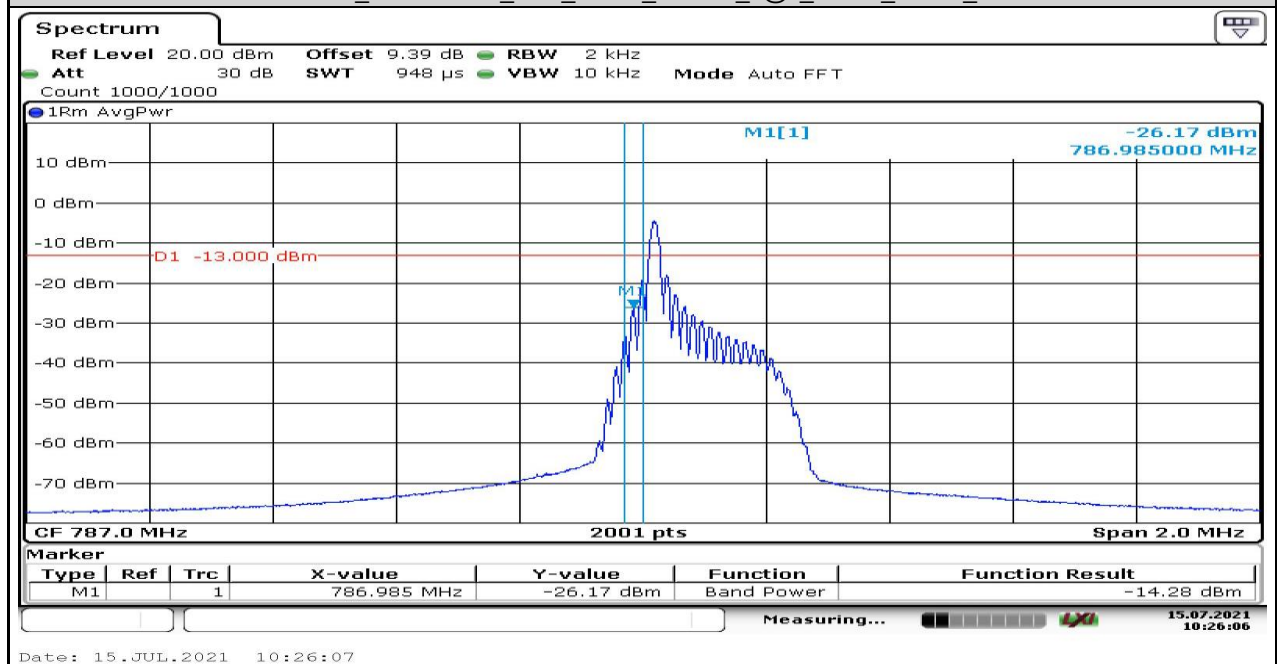
787-788M_Stand-Alone_NaN_QPSK_134183_1@47_3.75kHz_-30.98_PASS



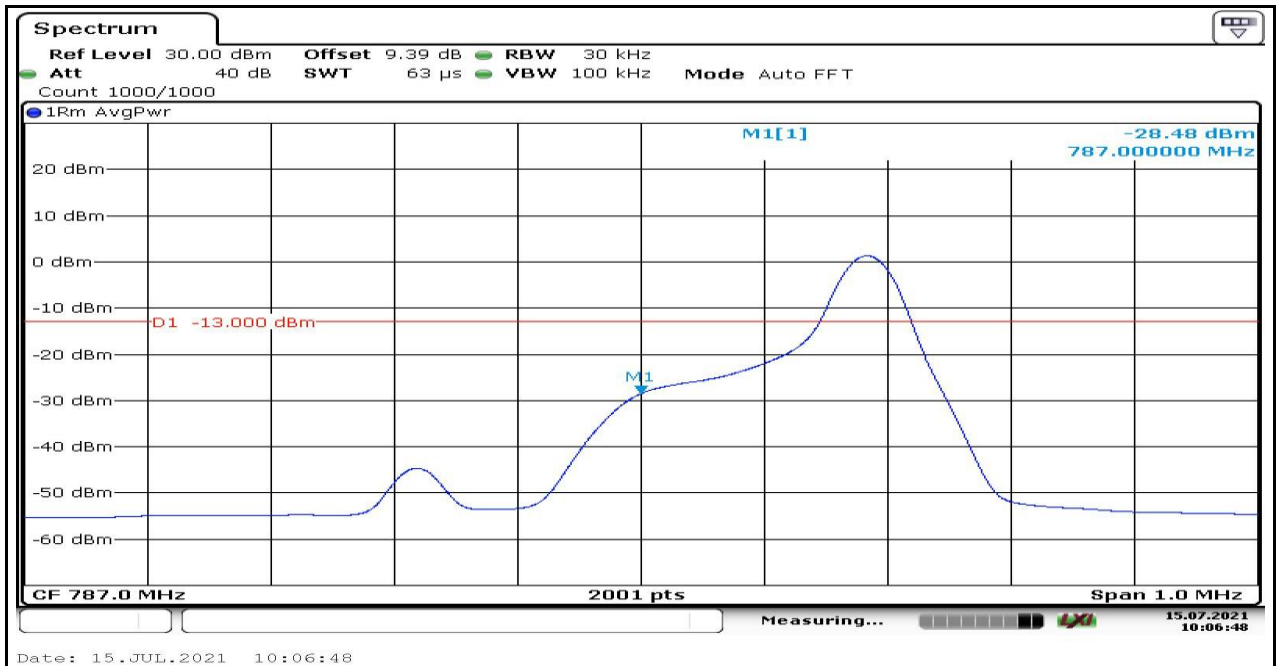
787-788M_Stand-Alone_NaN_BPSK_134183_1@0_15kHz_-14.37_PASS



787-788M_Stand-Alone_NaN_QPSK_134183_1@0_15kHz_-14.28_PASS



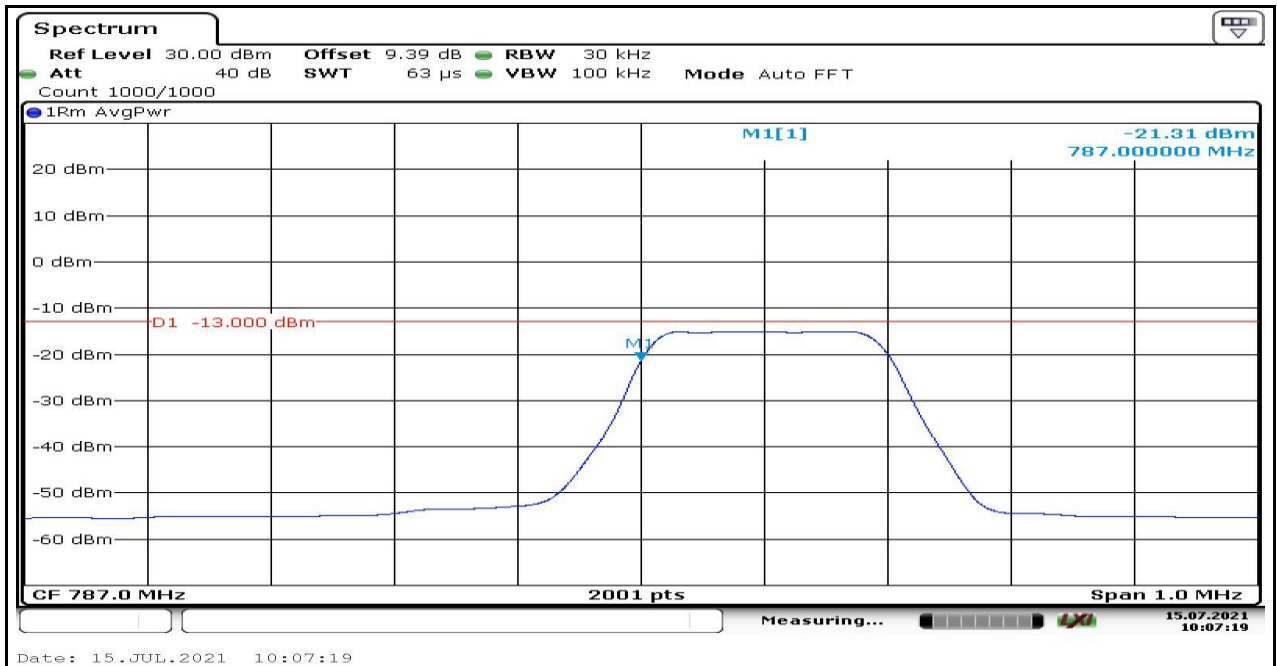
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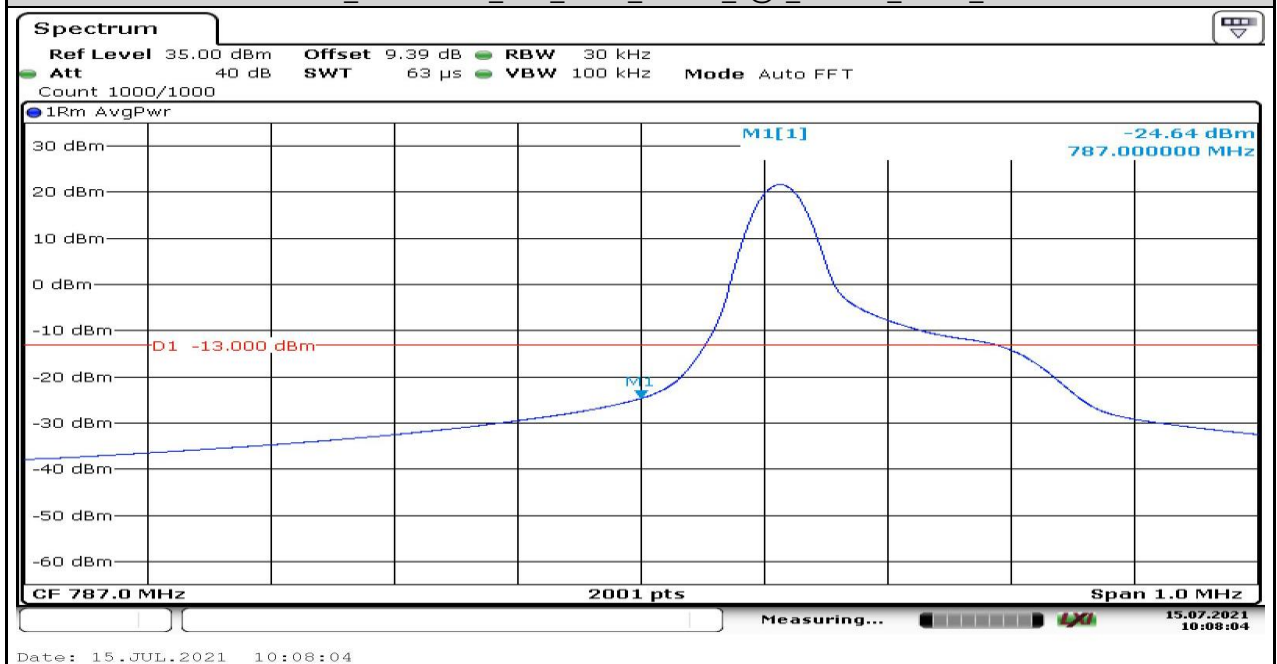
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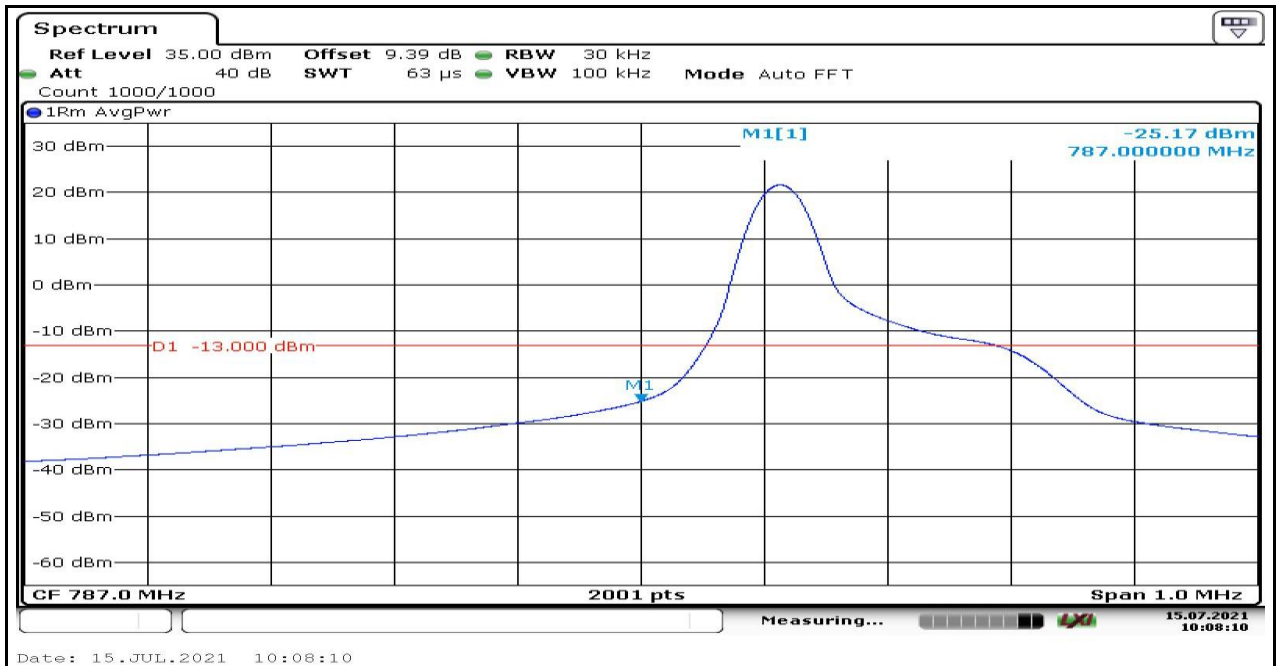
787-788M_Stand-Alone_NaN_QPSK_134183_12@0_15kHz_-21.31_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@0_3.75kHz_-24.64_PASS



787-788M_Stand-Alone_NaN_QPSK_134184_1@0_3.75kHz_-25.17_PASS



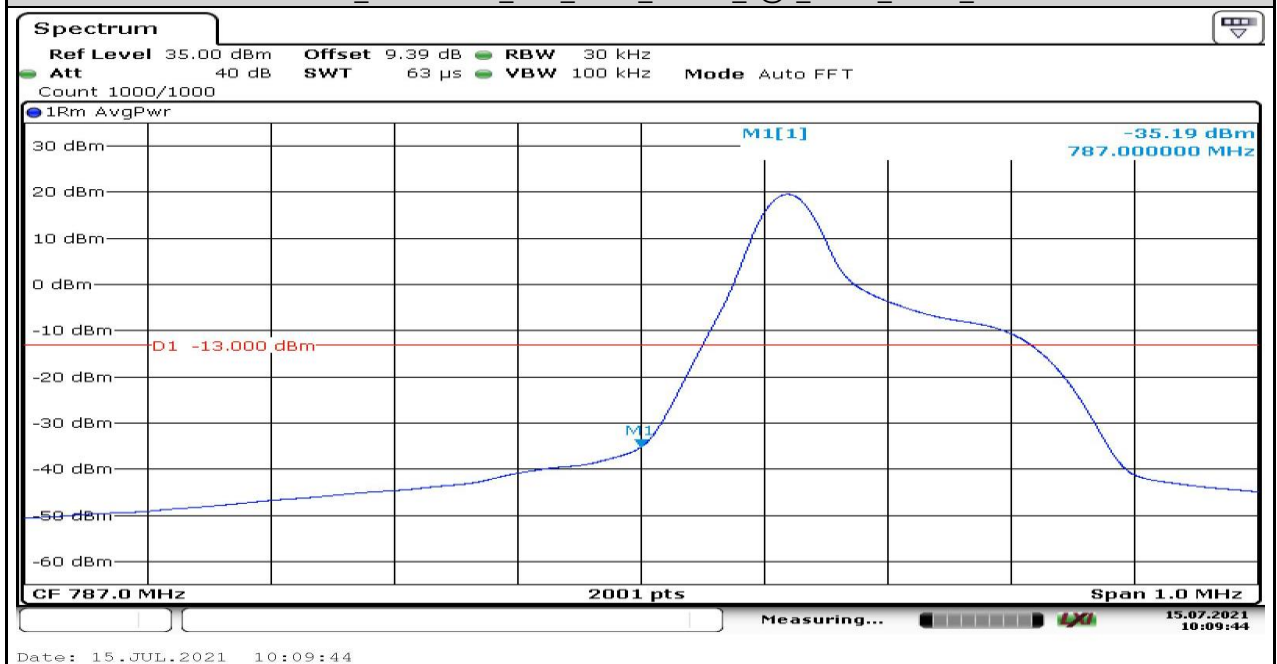
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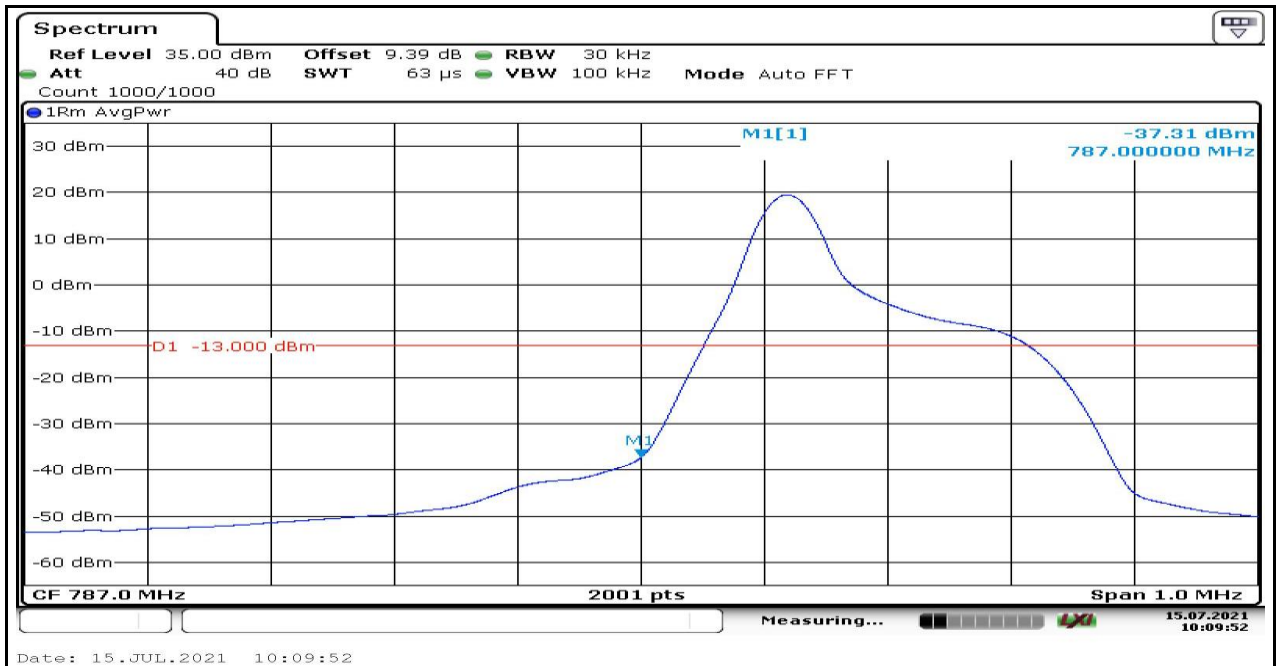
787-788M_Stand-Alone_NaN_QPSK_134184_1@47_3.75kHz_-24.46_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@0_15kHz_-35.19_PASS



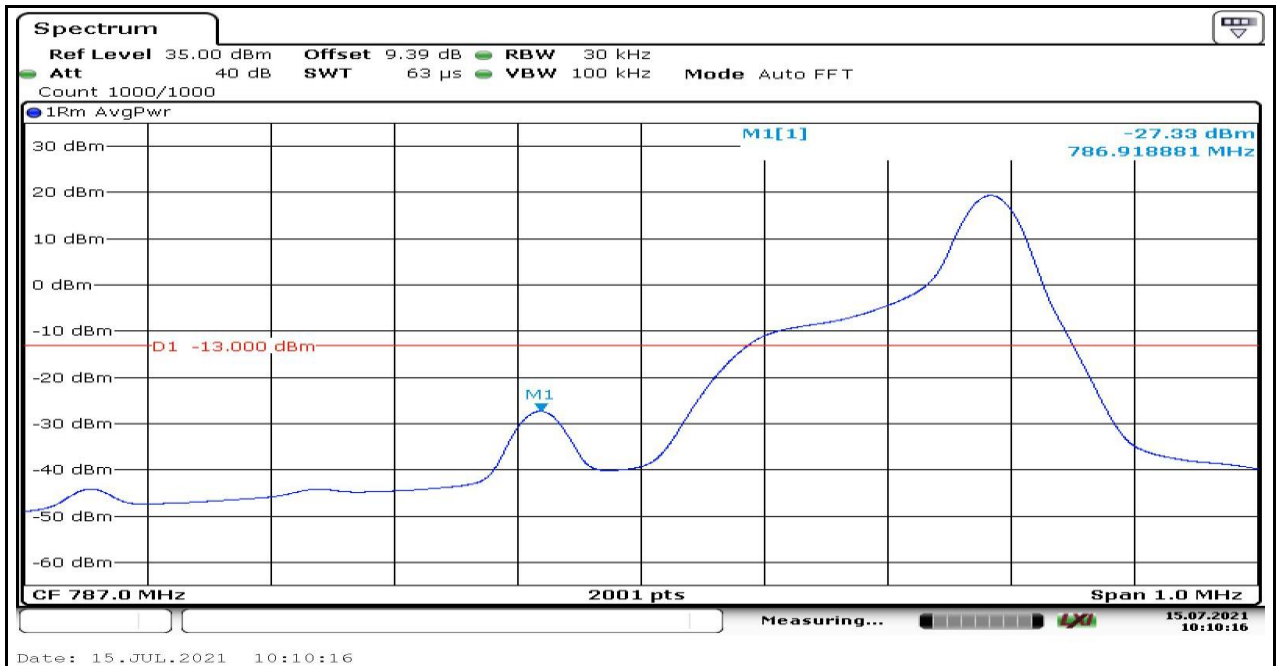
787-788M_Stand-Alone_NaN_QPSK_134184_1@0_15kHz_-37.31_PASS



787-788M_Stand-Alone_NaN_BPSK_134184_1@11_15kHz_-27.09_PASS



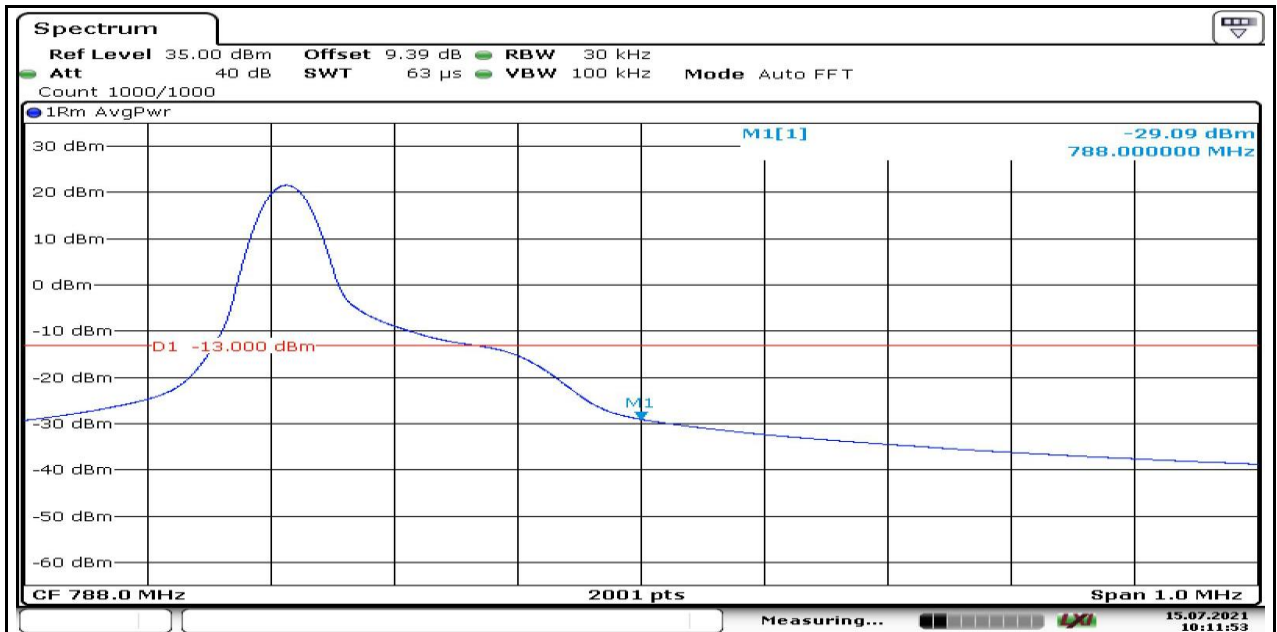
787-788M_Stand-Alone_NaN_QPSK_134184_1@11_15kHz_-27.33_PASS



787-788M_Stand-Alone_NaN_QPSK_134184_12@0_15kHz_-35.77_PASS

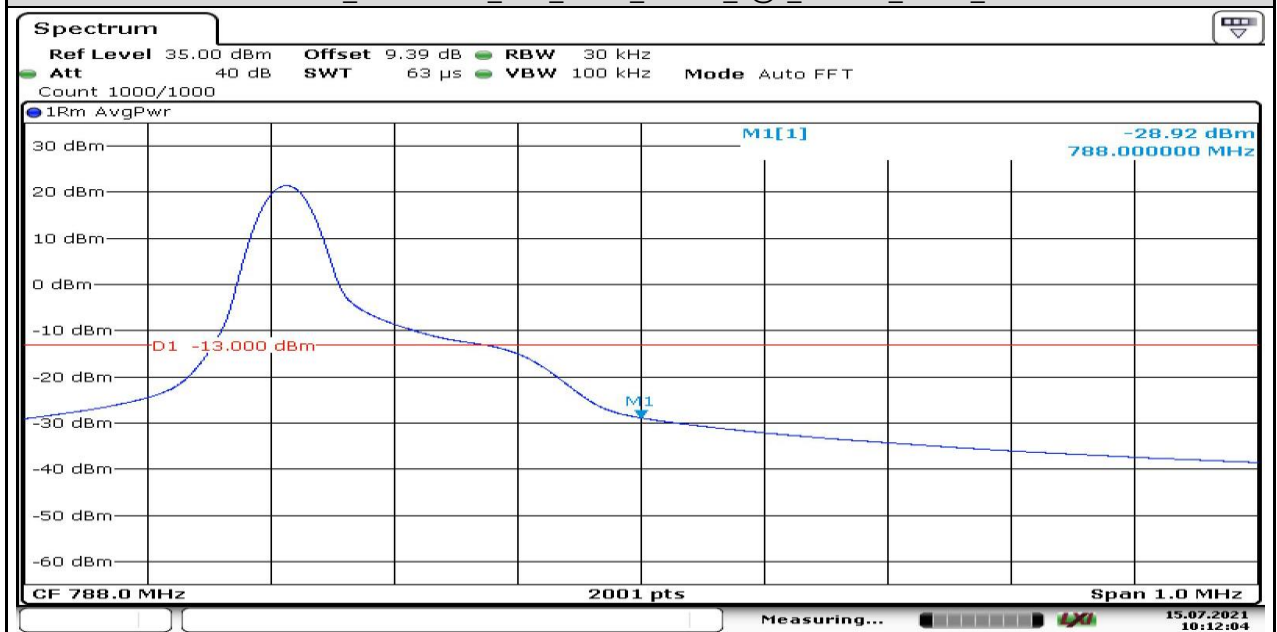


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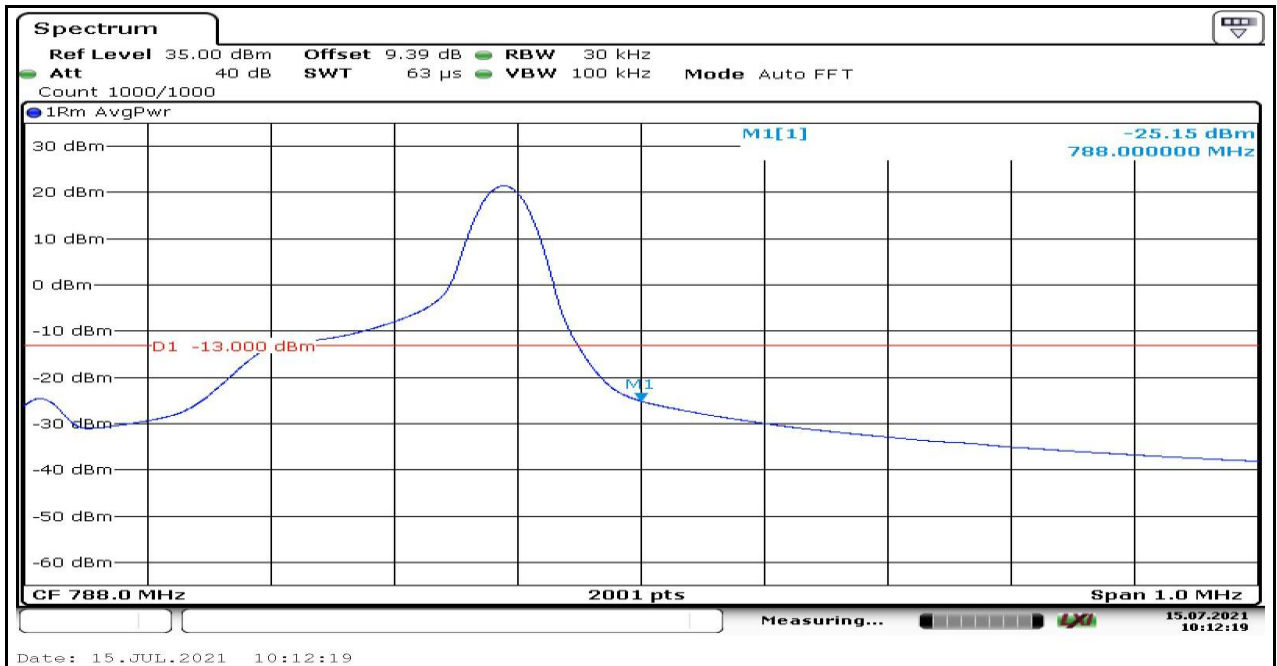
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787-788M_Stand-Alone_NaN_QPSK_134190_1@0_3.75kHz_-28.92_PASS

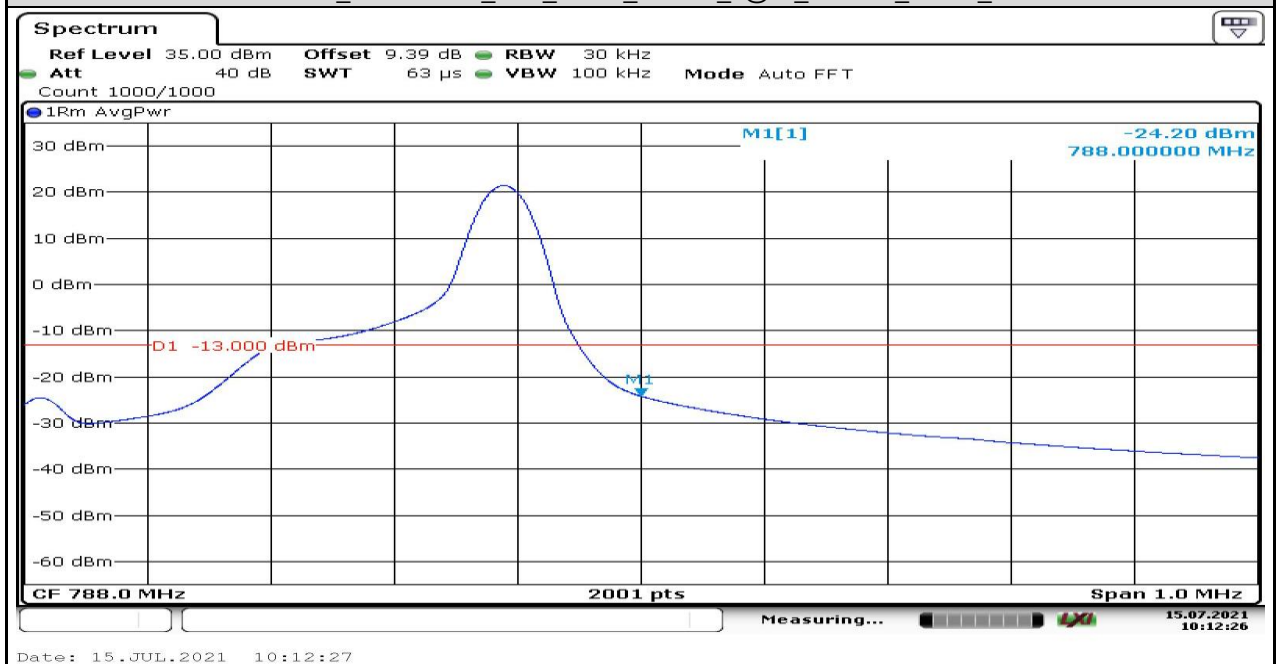


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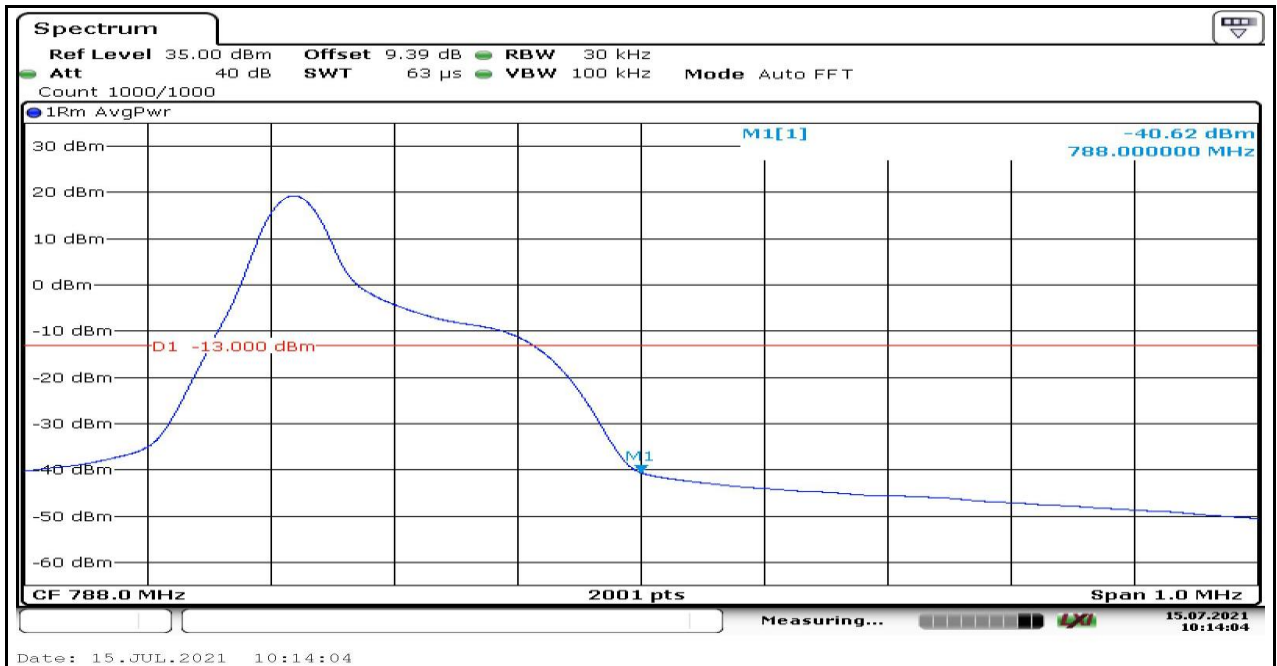
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787-788M_Stand-Alone_NaN_QPSK_134190_1@47_3.75kHz_-24.20_PASS



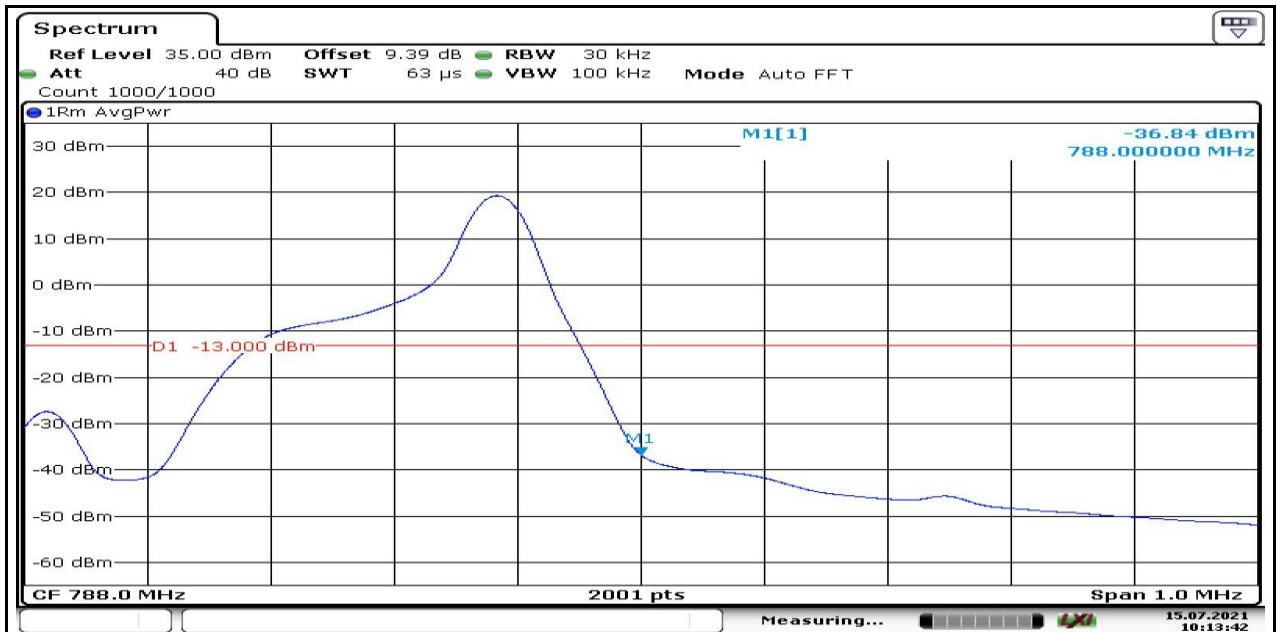
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787-788M_Stand-Alone_NaN_QPSK_134190_1@0_15kHz_-39.70_PASS

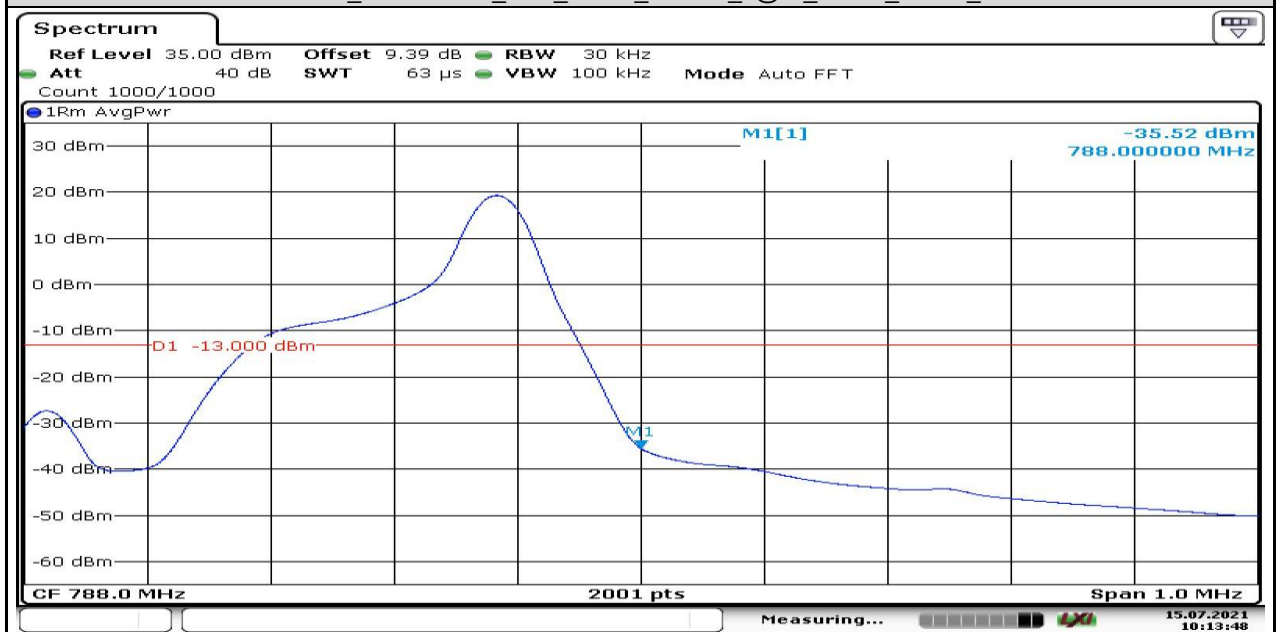


787-788M_Stand-Alone_NaN_BPSK_134190_1@11_15kHz_-36.84_PASS



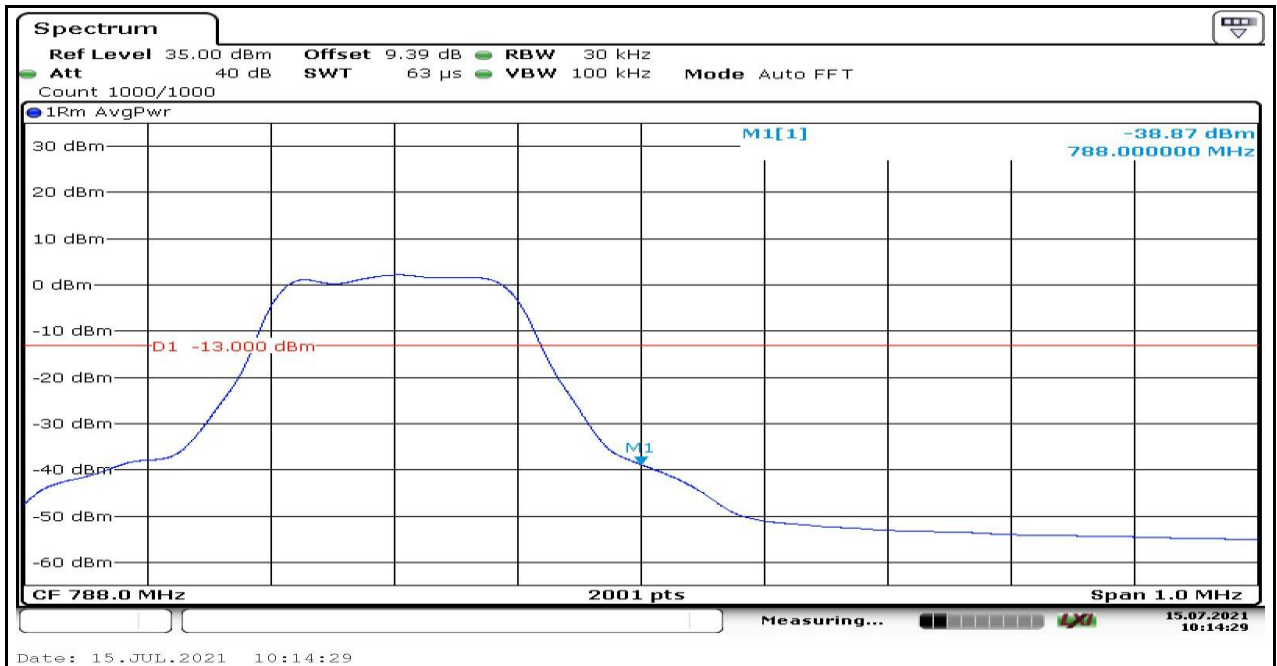
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787-788M_Stand-Alone_NaN_QPSK_134190_1@11_15kHz_-35.52_PASS

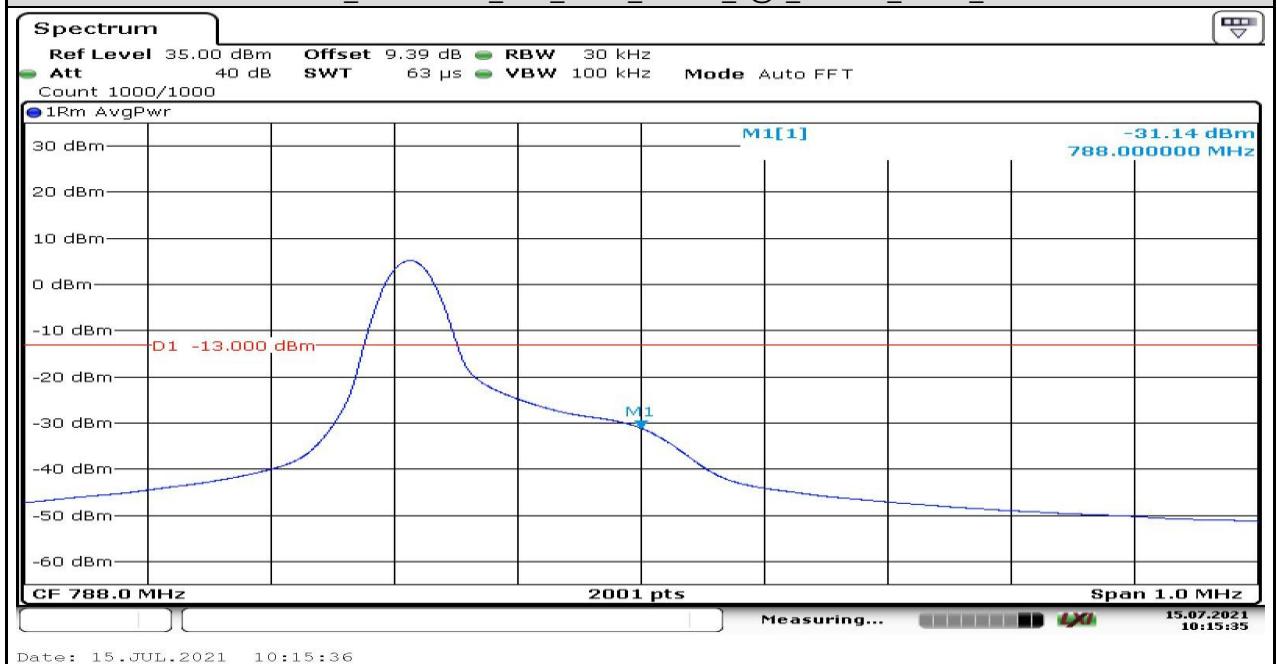


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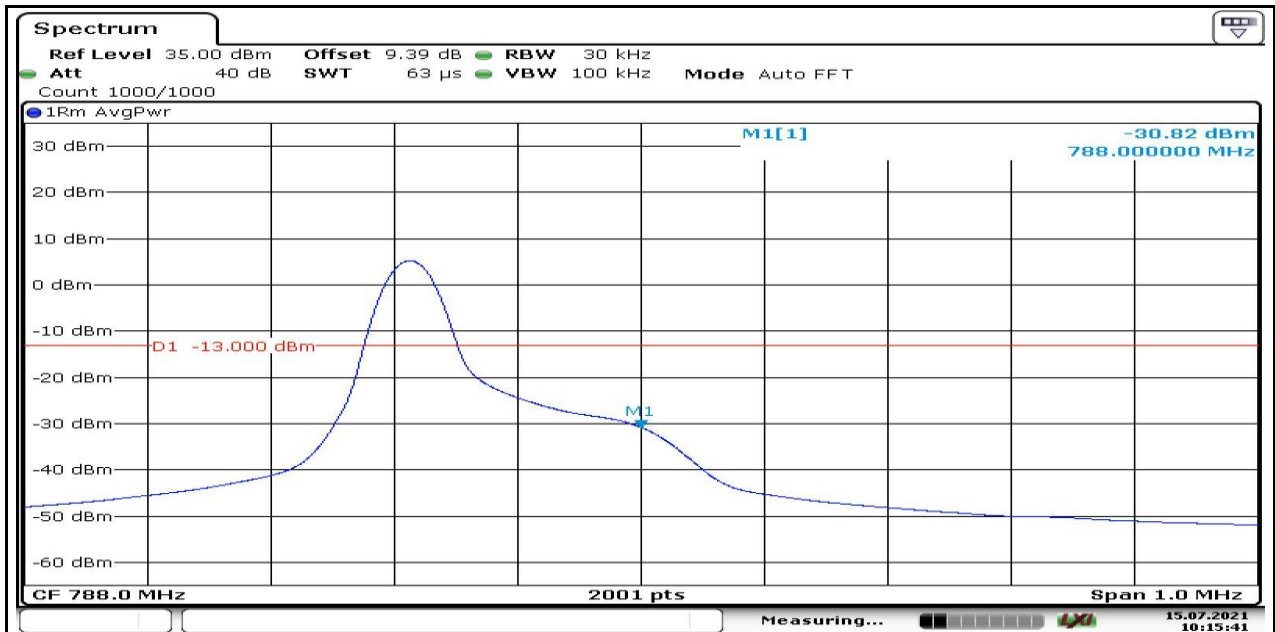
787-788M_Stand-Alone_NaN_QPSK_134190_12@0_15kHz_-38.87_PASS



787-788M_Stand-Alone_NaN_BPSK_134191_1@0_3.75kHz_-31.14_PASS

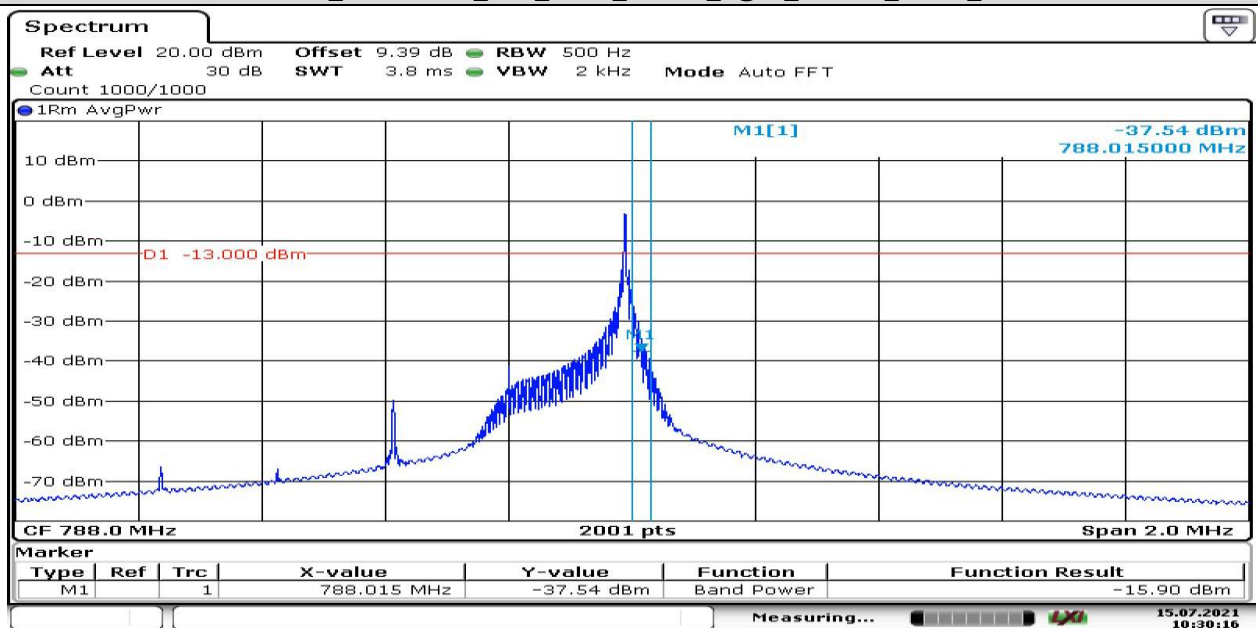


787-788M_Stand-Alone_NaN_QPSK_134191_1@0_3.75kHz_-30.82_PASS



Date: 15.JUL.2021 10:15:41

787-788M_Stand-Alone_NaN_BPSK_134191_1@47_3.75kHz_-15.90_PASS



Date: 15.JUL.2021 10:30:16

787-788M_Stand-Alone_NaN_QPSK_134191_1@47_3.75kHz_-15.92_PASS