

Appendix E: Test Results of Band 13 for eMTC operation

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APPENDIX E.1: RF POWER OUTPUT AND EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA FOR M1

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Result (dBm)	Verdict
Band13	5MHz	23205	QPSK	1	0	Low	24.21	PASS
Band13	5MHz	23205	QPSK	6	0	Low	23.07	PASS
Band13	5MHz	23230	QPSK	1	0	Low	24.19	PASS
Band13	5MHz	23230	QPSK	6	0	Low	22.98	PASS
Band13	5MHz	23255	QPSK	1	5	High	23.64	PASS
Band13	5MHz	23255	QPSK	3	3	High	22.67	PASS
Band13	5MHz	23205	16QAM	1	0	Low	24.25	PASS
Band13	5MHz	23205	16QAM	6	0	Low	23.07	PASS
Band13	5MHz	23230	16QAM	1	0	Low	24.21	PASS
Band13	5MHz	23230	16QAM	6	0	Low	22.98	PASS
Band13	5MHz	23255	16QAM	1	5	High	23.77	PASS
Band13	5MHz	23255	16QAM	3	3	High	22.76	PASS
Band13	10MHz	23230	QPSK	1	0	Low	24.22	PASS
Band13	10MHz	23230	QPSK	1	5	High	23.58	PASS
Band13	10MHz	23230	QPSK	5	0	Low	23.11	PASS
Band13	10MHz	23230	QPSK	5	1	High	22.82	PASS
Band13	10MHz	23230	16QAM	1	0	Low	24.25	PASS
Band13	10MHz	23230	16QAM	1	5	High	23.72	PASS
Band13	10MHz	23230	16QAM	5	0	Low	23.11	PASS
Band13	10MHz	23230	16QAM	5	1	High	22.88	PASS

Note: The highest antenna gain permitted including cable loss, must satisfy both EIRP (ERP) limit and RF exposure requirements.

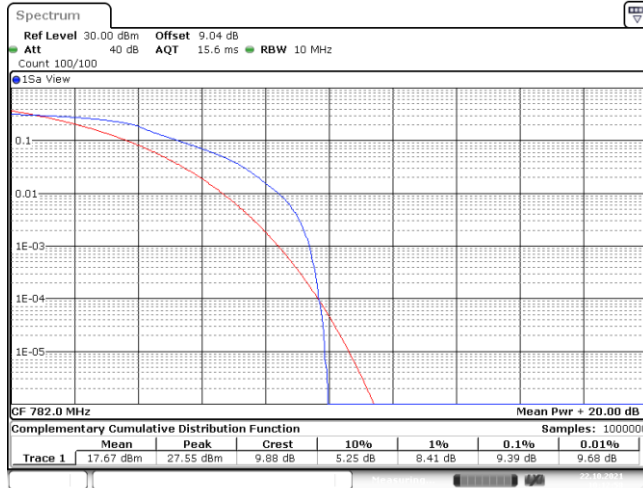
APPENDIX E.2: PEAK-TO-AVERAGE RATIO (CCDF) FOR M1

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Result (dB)	Limit (dB)	Verdict
Band13	5MHz	23230	QPSK	6	0	Low	9.39	<=13	PASS
Band13	5MHz	23230	16QAM	6	0	Low	10.87	<=13	PASS
Band13	10MHz	23230	QPSK	6	0	Low	12.12	<=13	PASS
Band13	10MHz	23230	16QAM	6	0	Low	11.48	<=13	PASS

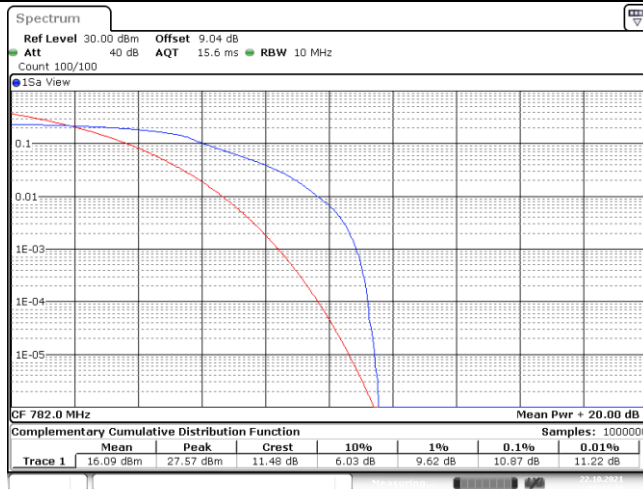
Test Graphs

Band13-5MHz-QPSK-23230-6-0-Low-9.39-<=13-PASS



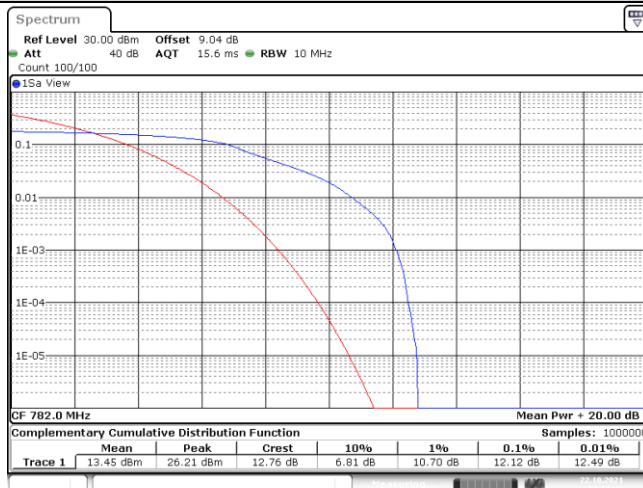
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Band13-5MHz-16QAM-23230-6-0-Low-10.87-<=13-PASS



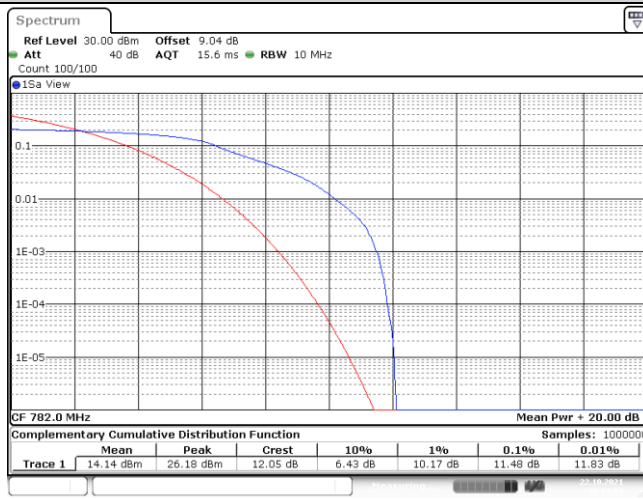
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Band13-10MHz-QPSK-23230-6-0-Low-12.12-<=13-PASS



Date: 22.OCT.2021 10:13:42

Band13-10MHz-16QAM-23230-6-0-Low-11.48-<=13-PASS



Date: 22.OCT.2021 10:13:51

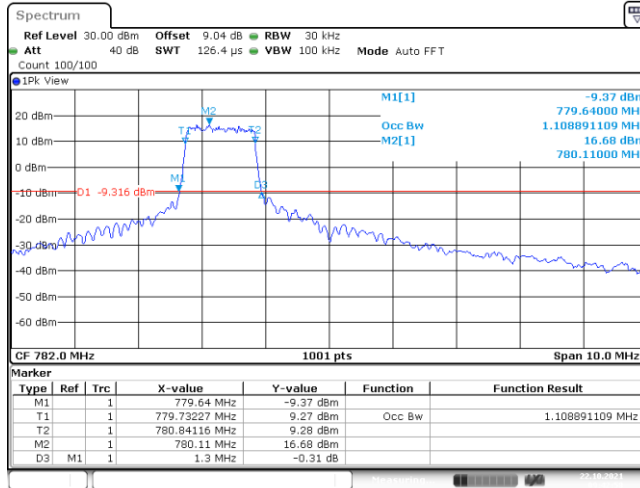
APPENDIX E.3: 26dB BANDWIDTH AND OCCUPIED BANDWIDTH FOR M1

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	23230	QPSK	6	0	Low	1.109	1.300	PASS
Band13	5MHz	23230	16QAM	6	0	Low	1.109	1.300	PASS
Band13	10MHz	23230	QPSK	6	0	Low	1.099	1.320	PASS
Band13	10MHz	23230	16QAM	6	0	Low	1.099	1.320	PASS

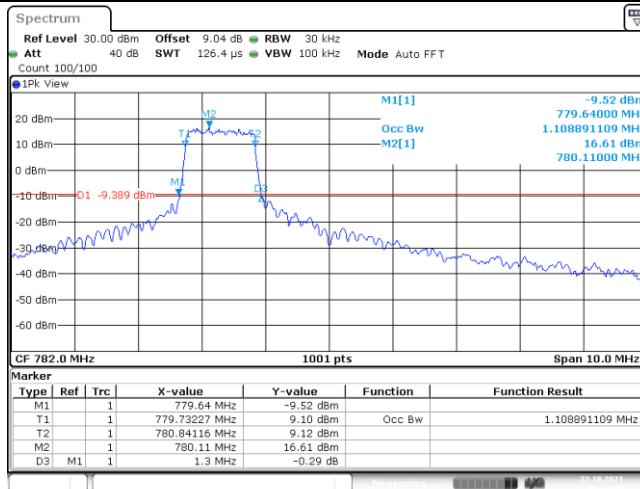
Test Graphs

Band13-5MHz-QPSK-23230-6-0-Low-1.109-1.300-PASS



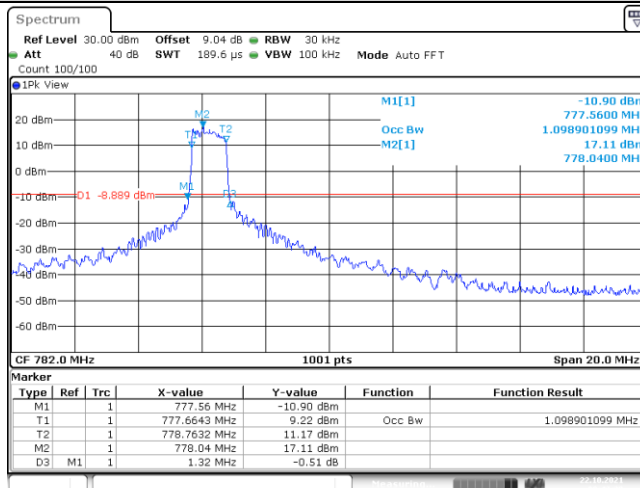
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Band13-5MHz-16QAM-23230-6-0-Low-1.109-1.300-PASS



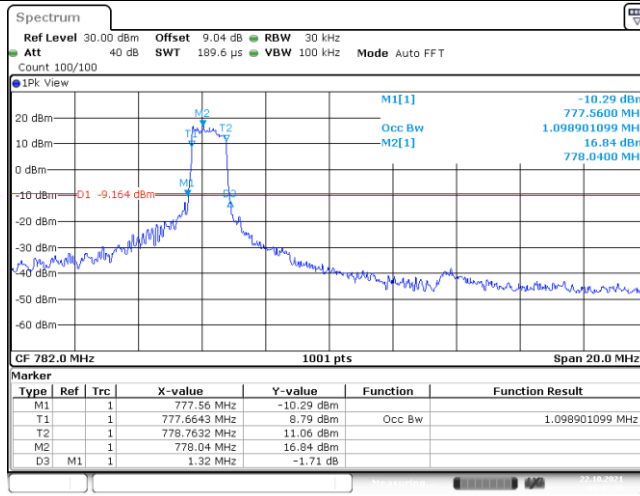
Date: 22.OCT.2021 09:43:08

Band13-10MHz-QPSK-23230-6-0-Low-1.099-1.320-PASS



Date: 22.OCT.2021 09:43:20

Band13-10MHz-16QAM-23230-6-0-Low-1.099-1.320-PASS



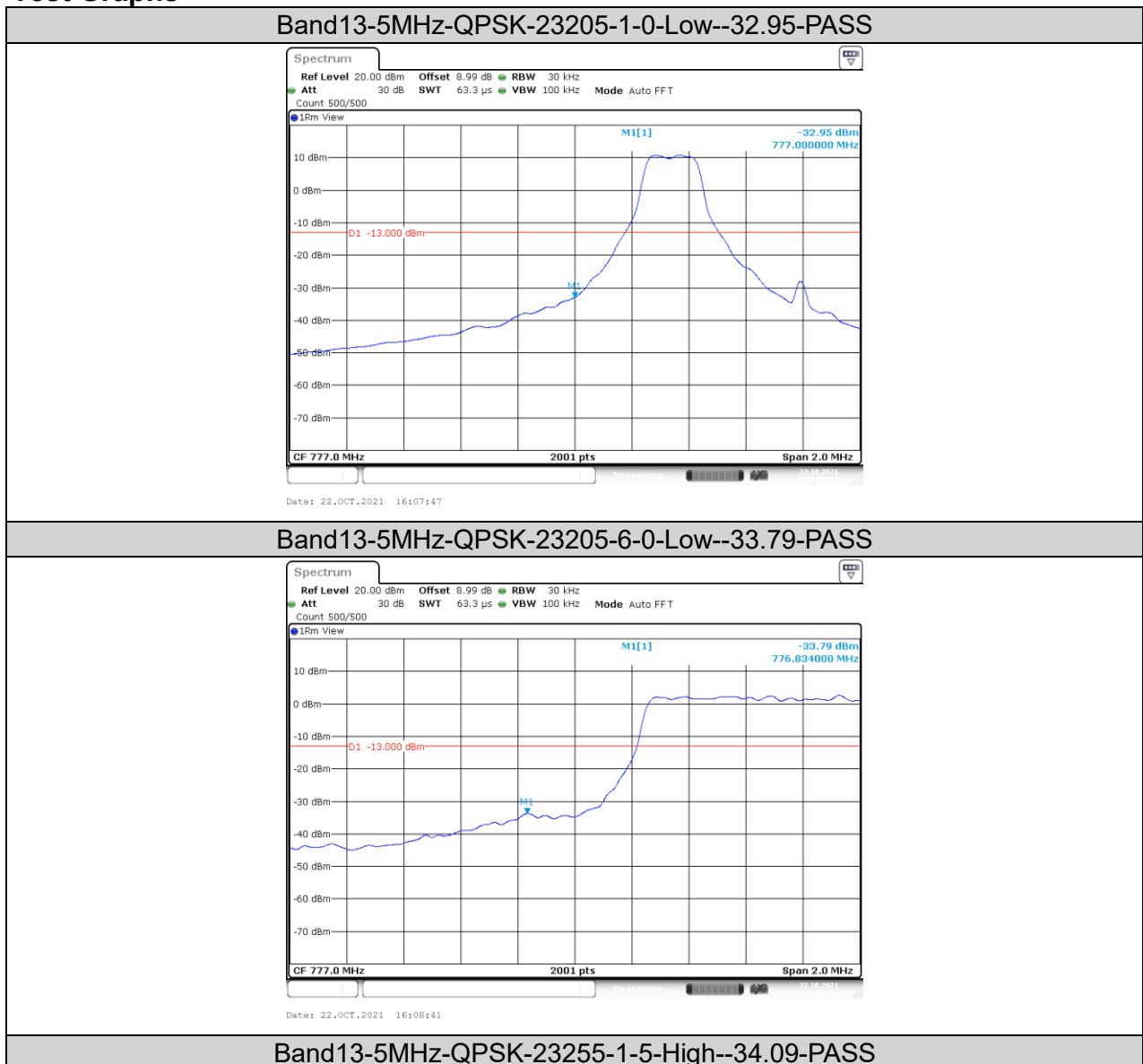
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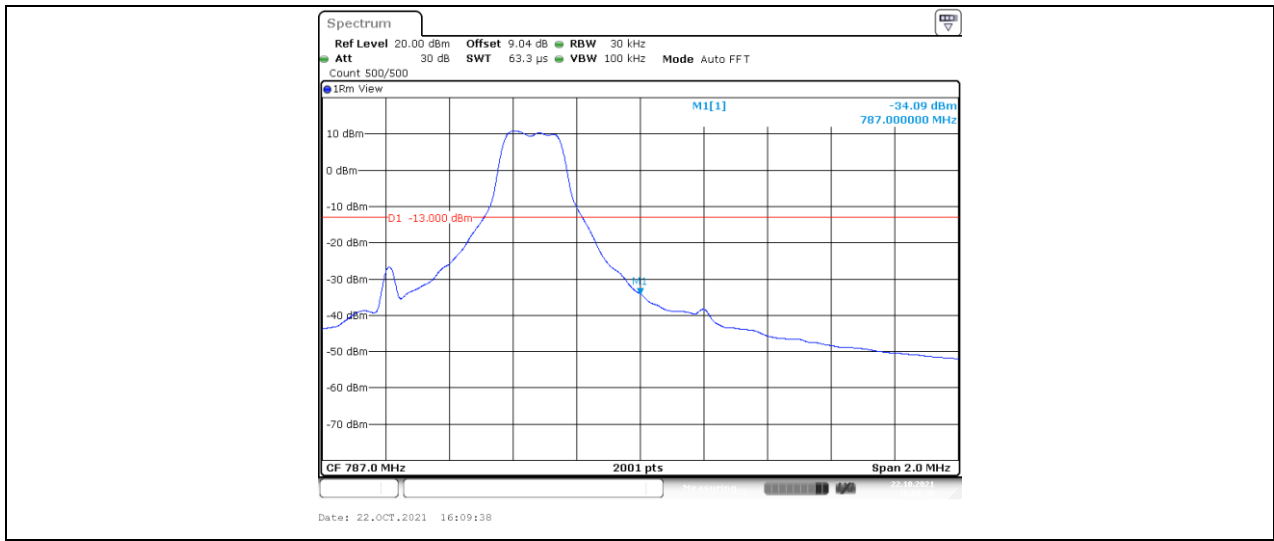
APPENDIX E.4: BAND EDGE FOR M1

Test Result

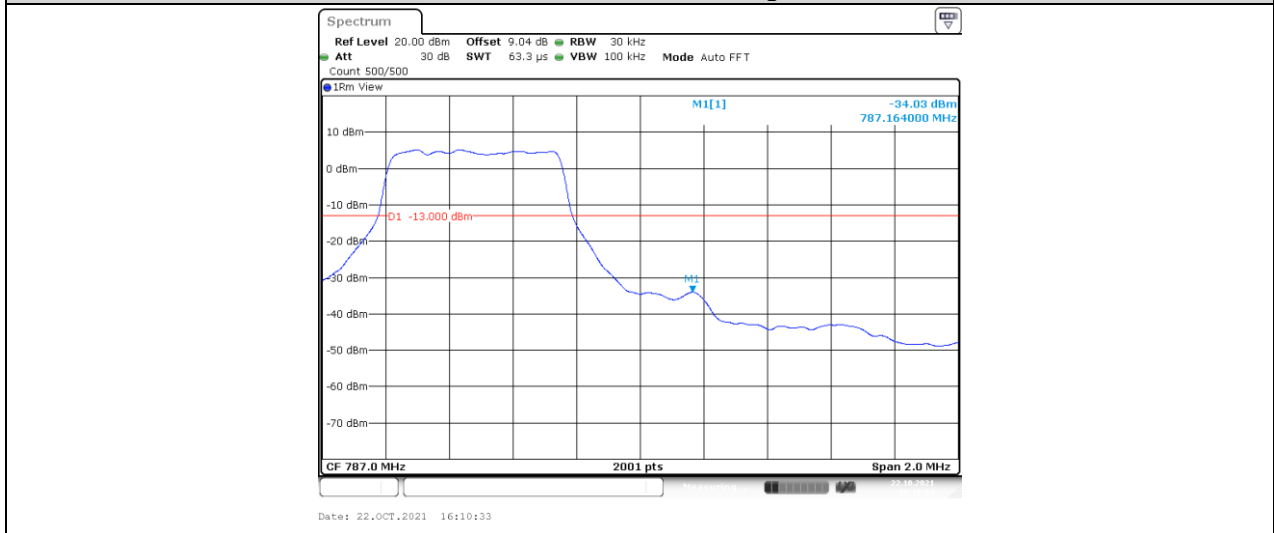
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Result(dBm)	Verdict
Band13	5MHz	23205	QPSK	1	0	Low	-32.95	PASS
Band13	5MHz	23205	QPSK	6	0	Low	-33.79	PASS
Band13	5MHz	23255	QPSK	1	5	High	-34.09	PASS
Band13	5MHz	23255	QPSK	3	3	High	-34.03	PASS
Band13	5MHz	23205	16QAM	1	0	Low	-33.01	PASS
Band13	5MHz	23205	16QAM	6	0	Low	-33.40	PASS
Band13	5MHz	23255	16QAM	1	5	High	-34.23	PASS
Band13	5MHz	23255	16QAM	3	3	High	-34.15	PASS

Test Graphs

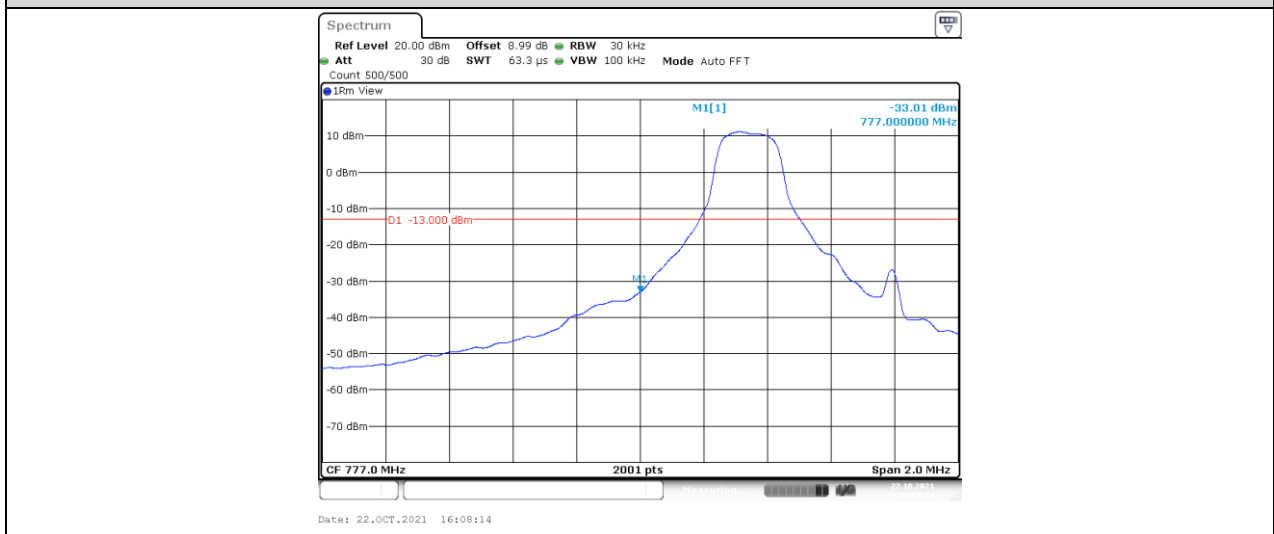




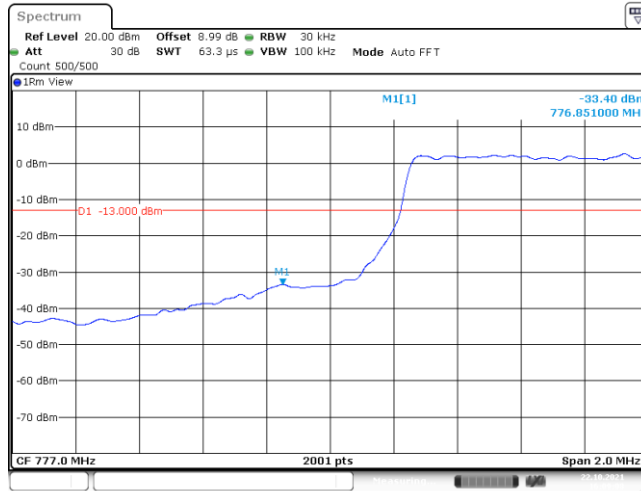
Band13-5MHz-QPSK-23255-3-3-High--34.03-PASS



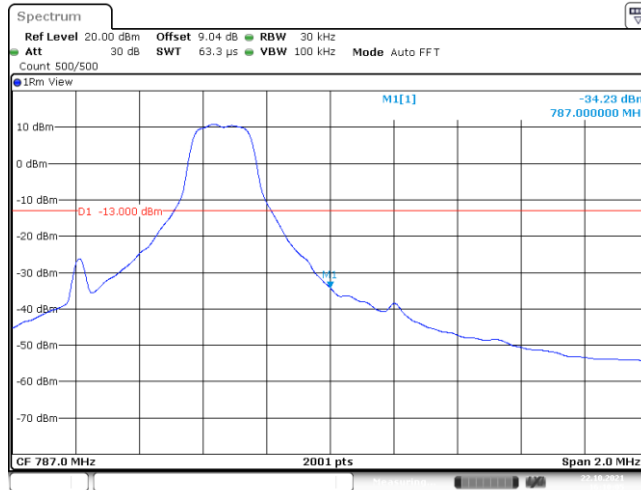
Band13-5MHz-16QAM-23205-1-0-Low--33.01-PASS



Band13-5MHz-16QAM-23205-6-0-Low--33.40-PASS



Band13-5MHz-16QAM-23255-1-5-High--34.23-PASS



Band13-5MHz-16QAM-23255-3-3-High--34.15-PASS



APPENDIX E.5: CONDUCTED SPURIOUS EMISSION FOR M1

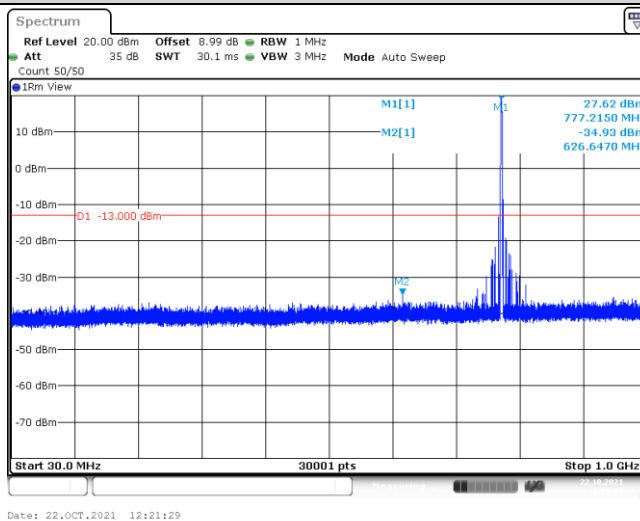
Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Start Freq	Stop Freq	Result (dBm)	Verdict
Band13	5MHz	23205	QPSK	1	0	Low	30	1000	-34.93	PASS
Band13	5MHz	23205	QPSK	1	0	Low	1000	5000	-40.81	PASS
Band13	5MHz	23205	QPSK	1	0	Low	5000	12000	-53.86	PASS
Band13	5MHz	23205	QPSK	1	0	Low	12000	26500	-50.03	PASS
Band13	5MHz	23205	QPSK	6	0	Low	30	1000	-35.9	PASS
Band13	5MHz	23205	QPSK	6	0	Low	1000	5000	-40.87	PASS
Band13	5MHz	23205	QPSK	6	0	Low	5000	12000	-53.81	PASS
Band13	5MHz	23205	QPSK	6	0	Low	12000	26500	-49.95	PASS
Band13	5MHz	23230	QPSK	1	0	Low	30	1000	-35.48	PASS
Band13	5MHz	23230	QPSK	1	0	Low	1000	5000	-40.7	PASS
Band13	5MHz	23230	QPSK	1	0	Low	5000	12000	-53.86	PASS
Band13	5MHz	23230	QPSK	1	0	Low	12000	26500	-50.03	PASS
Band13	5MHz	23230	QPSK	6	0	Low	30	1000	-35.82	PASS
Band13	5MHz	23230	QPSK	6	0	Low	1000	5000	-40.66	PASS
Band13	5MHz	23230	QPSK	6	0	Low	5000	12000	-53.73	PASS
Band13	5MHz	23230	QPSK	6	0	Low	12000	26500	-49.98	PASS
Band13	5MHz	23255	QPSK	1	5	High	30	1000	-35.78	PASS
Band13	5MHz	23255	QPSK	1	5	High	1000	5000	-40.58	PASS
Band13	5MHz	23255	QPSK	1	5	High	5000	12000	-53.51	PASS
Band13	5MHz	23255	QPSK	1	5	High	12000	26500	-50.04	PASS
Band13	5MHz	23255	QPSK	3	3	High	30	1000	-35.18	PASS
Band13	5MHz	23255	QPSK	3	3	High	1000	5000	-40.73	PASS
Band13	5MHz	23255	QPSK	3	3	High	5000	12000	-53.86	PASS
Band13	5MHz	23255	QPSK	3	3	High	12000	26500	-49.82	PASS
Band13	5MHz	23205	16QAM	1	0	Low	30	1000	-35.77	PASS
Band13	5MHz	23205	16QAM	1	0	Low	1000	5000	-40.82	PASS
Band13	5MHz	23205	16QAM	1	0	Low	5000	12000	-53.98	PASS
Band13	5MHz	23205	16QAM	1	0	Low	12000	26500	-50	PASS
Band13	5MHz	23205	16QAM	6	0	Low	30	1000	-35.2	PASS
Band13	5MHz	23205	16QAM	6	0	Low	1000	5000	-40.67	PASS
Band13	5MHz	23205	16QAM	6	0	Low	5000	12000	-53.92	PASS
Band13	5MHz	23205	16QAM	6	0	Low	12000	26500	-50.11	PASS
Band13	5MHz	23230	16QAM	1	0	Low	30	1000	-35.99	PASS
Band13	5MHz	23230	16QAM	1	0	Low	1000	5000	-40.74	PASS
Band13	5MHz	23230	16QAM	1	0	Low	5000	12000	-53.8	PASS
Band13	5MHz	23230	16QAM	1	0	Low	12000	26500	-49.93	PASS
Band13	5MHz	23230	16QAM	6	0	Low	30	1000	-35.01	PASS
Band13	5MHz	23230	16QAM	6	0	Low	1000	5000	-40.83	PASS
Band13	5MHz	23230	16QAM	6	0	Low	5000	12000	-53.91	PASS
Band13	5MHz	23230	16QAM	6	0	Low	12000	26500	-50.05	PASS
Band13	5MHz	23255	16QAM	1	5	High	30	1000	-35.22	PASS

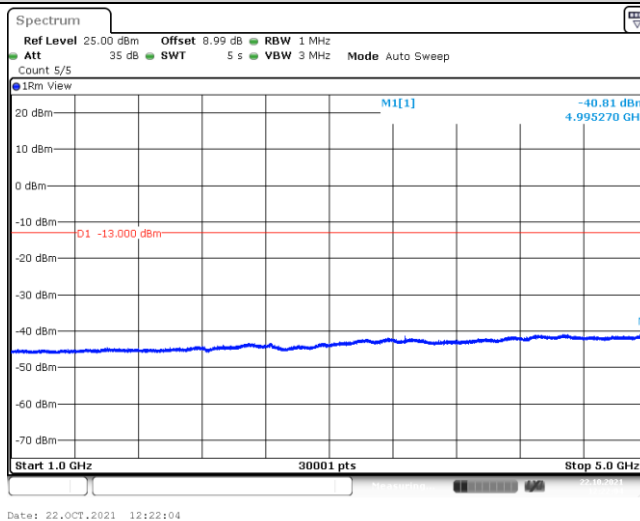
Band13	5MHz	23255	16QAM	1	5	High	1000	5000	-40.64	PASS
Band13	5MHz	23255	16QAM	1	5	High	5000	12000	-53.76	PASS
Band13	5MHz	23255	16QAM	1	5	High	12000	26500	-50.02	PASS
Band13	5MHz	23255	16QAM	3	3	High	30	1000	-35.34	PASS
Band13	5MHz	23255	16QAM	3	3	High	1000	5000	-40.79	PASS
Band13	5MHz	23255	16QAM	3	3	High	5000	12000	-53.86	PASS
Band13	5MHz	23255	16QAM	3	3	High	12000	26500	-49.84	PASS

Test Graphs

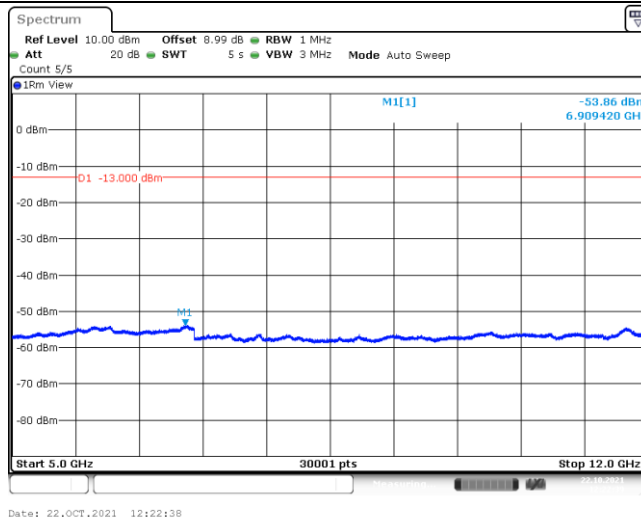
Band13-5MHz-QPSK-23205-1-0-Low-30-1000--34.93-PASS



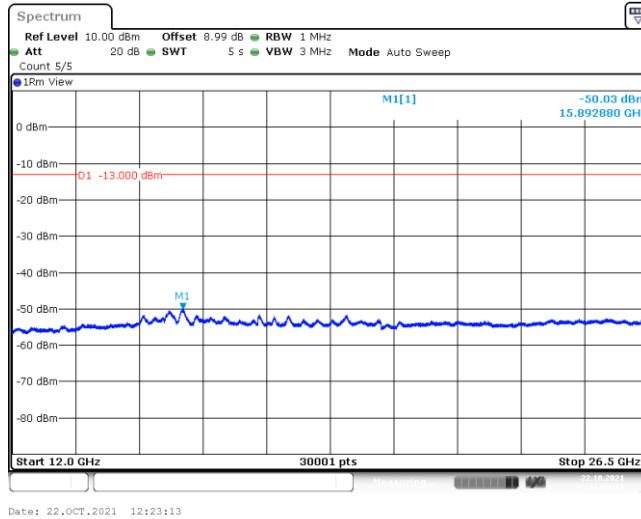
Band13-5MHz-QPSK-23205-1-0-Low-1000-5000--40.81-PASS



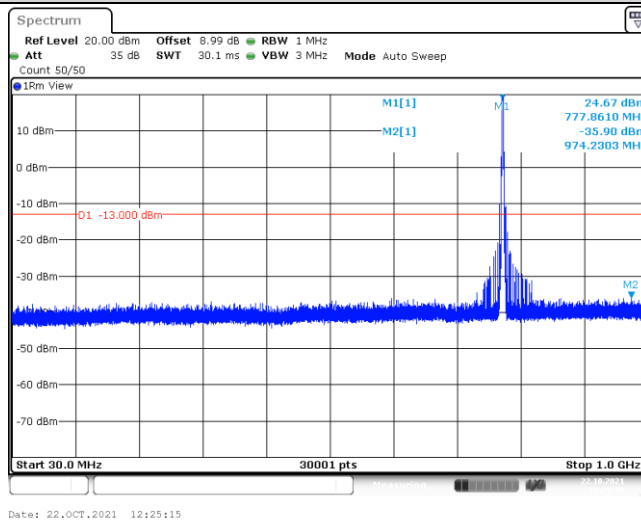
Band13-5MHz-QPSK-23205-1-0-Low-5000-12000--53.86-PASS



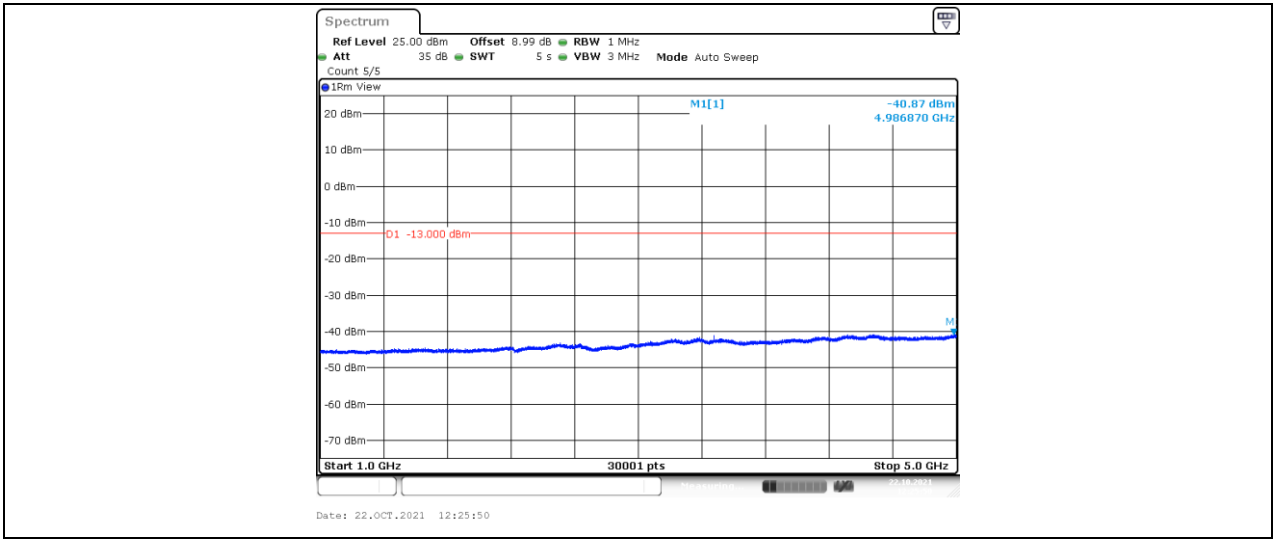
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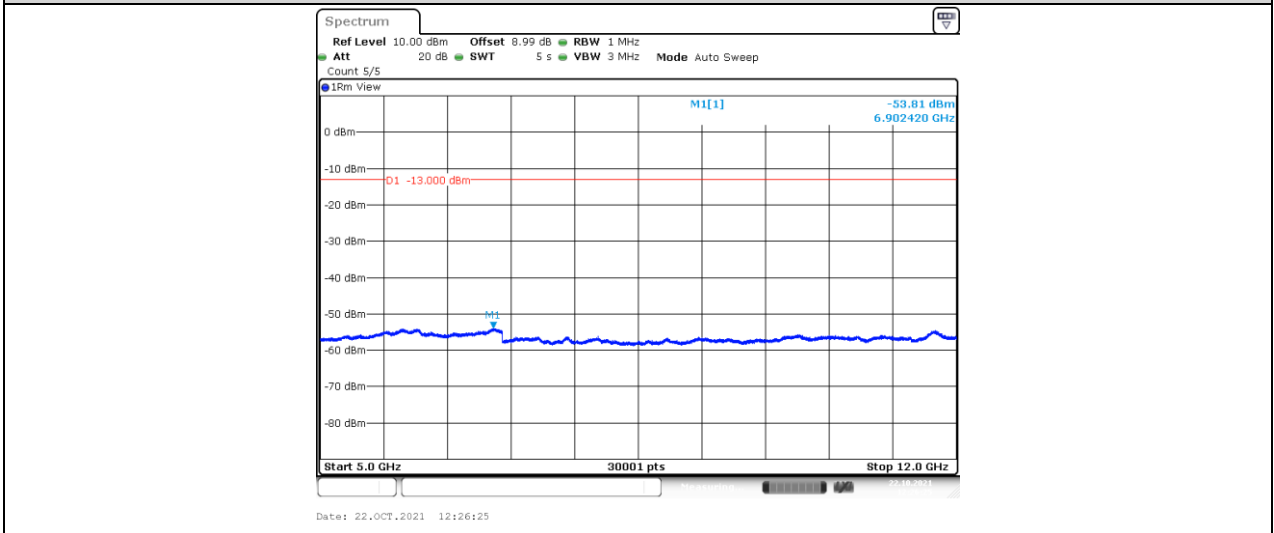
Band13-5MHz-QPSK-23205-6-0-Low-30-1000--35.9-PASS



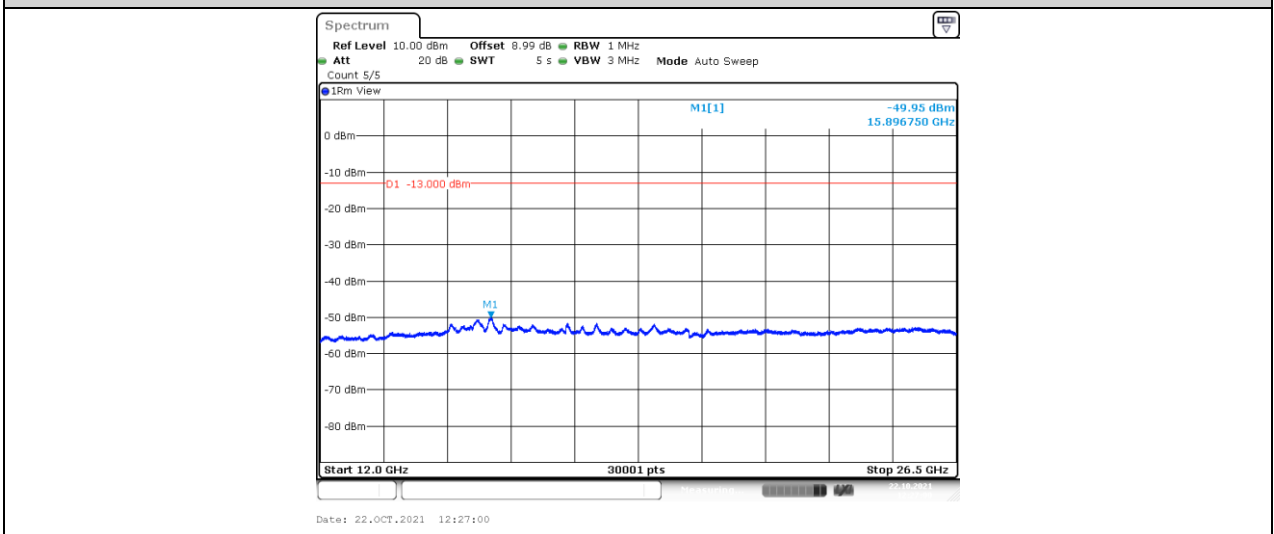
Band13-5MHz-QPSK-23205-6-0-Low-1000-5000--40.87-PASS



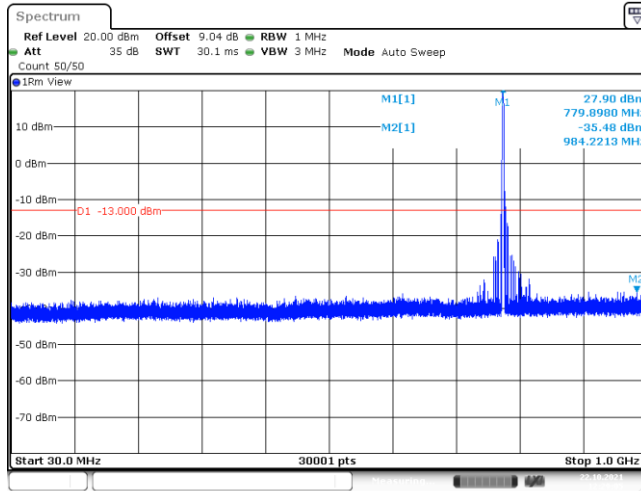
Band13-5MHz-QPSK-23205-6-0-Low-5000-12000--53.81-PASS



Band13-5MHz-QPSK-23205-6-0-Low-12000-26500--49.95-PASS

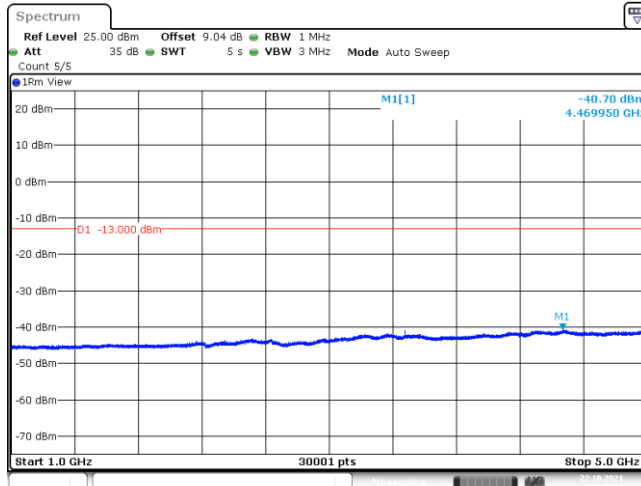


Band13-5MHz-QPSK-23230-1-0-Low-30-1000--35.48-PASS



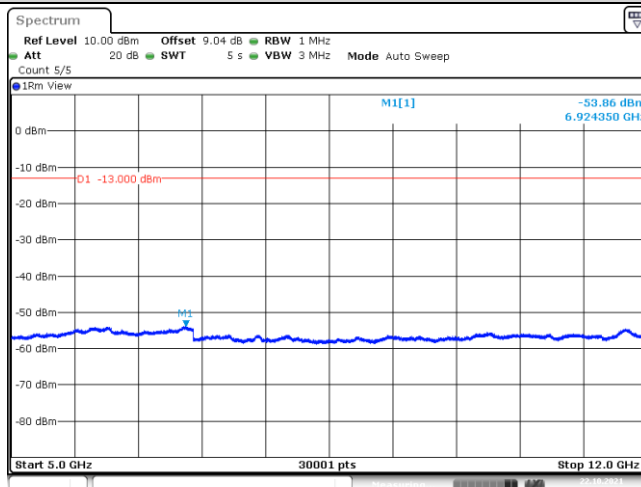
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Band13-5MHz-QPSK-23230-1-0-Low-1000-5000--40.7-PASS



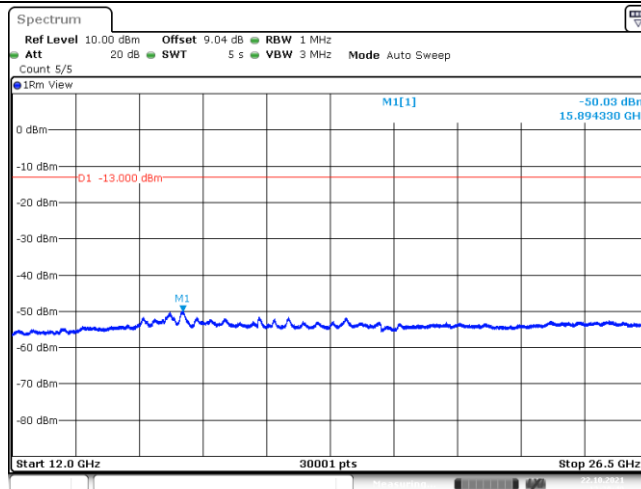
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Band13-5MHz-QPSK-23230-1-0-Low-5000-12000--53.86-PASS



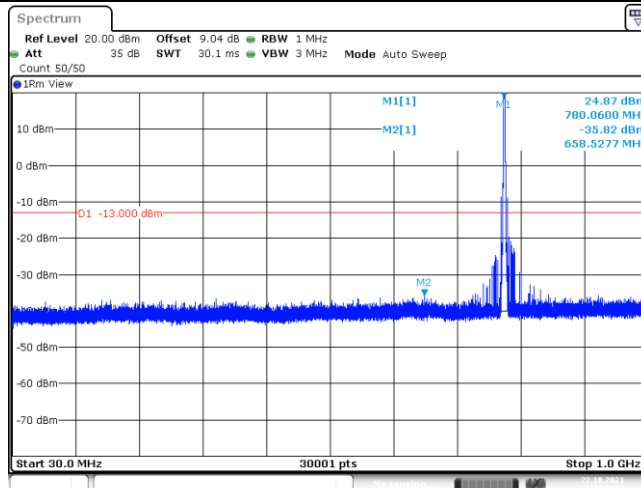
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Band13-5MHz-QPSK-23230-1-0-Low-12000-26500--50.03-PASS



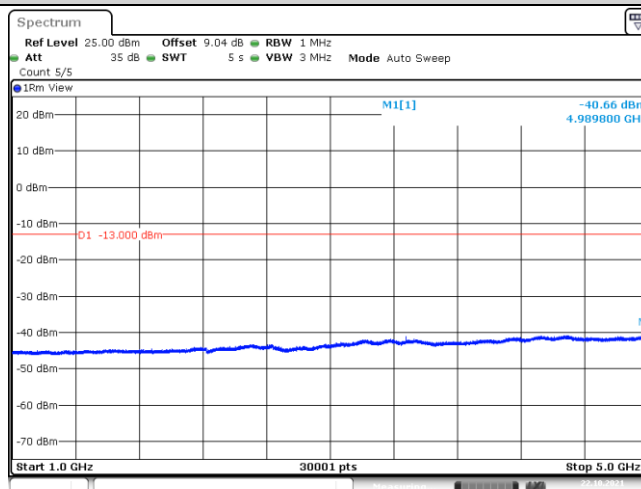
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Band13-5MHz-QPSK-23230-6-0-Low-30-1000--35.82-PASS



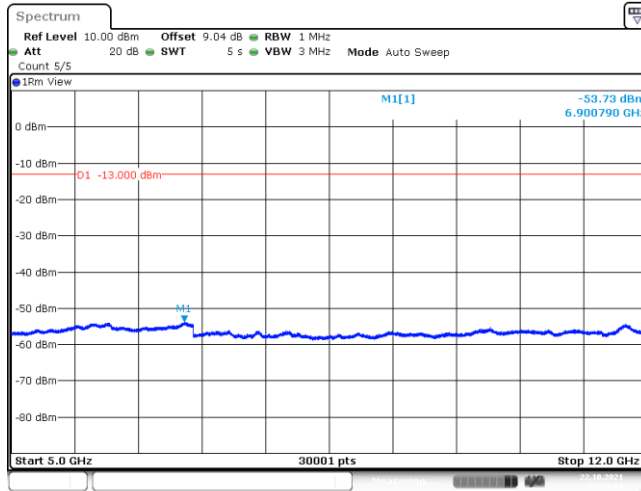
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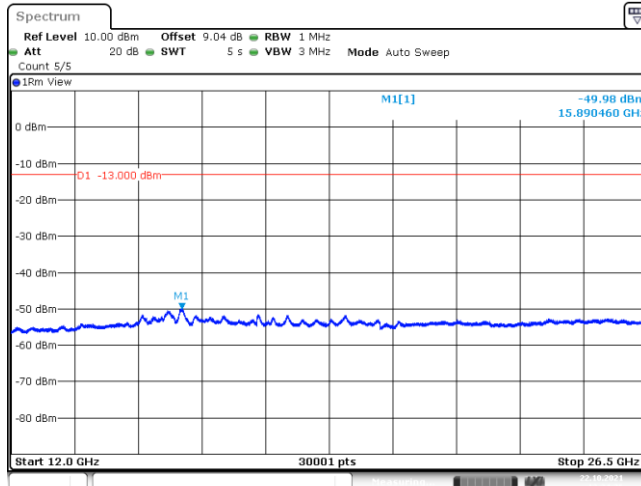
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Band13-5MHz-QPSK-23230-6-0-Low-5000-12000--53.73-PASS



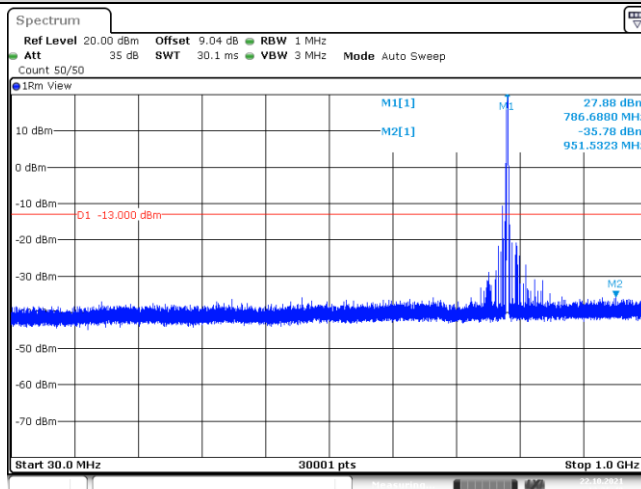
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Band13-5MHz-QPSK-23230-6-0-Low-12000-26500--49.98-PASS



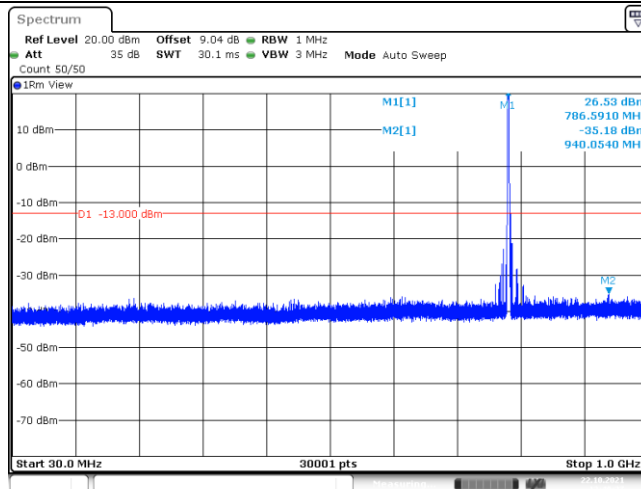
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Band13-5MHz-QPSK-23255-1-5-High-30-1000--35.78-PASS



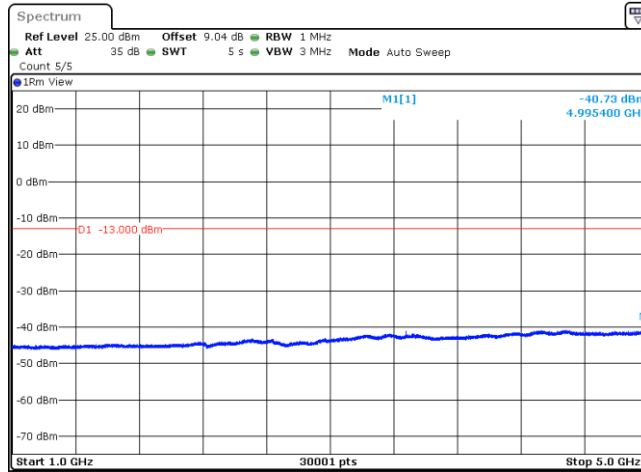
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Band13-5MHz-QPSK-23255-1-5-High-1000-5000--40.58-PASS



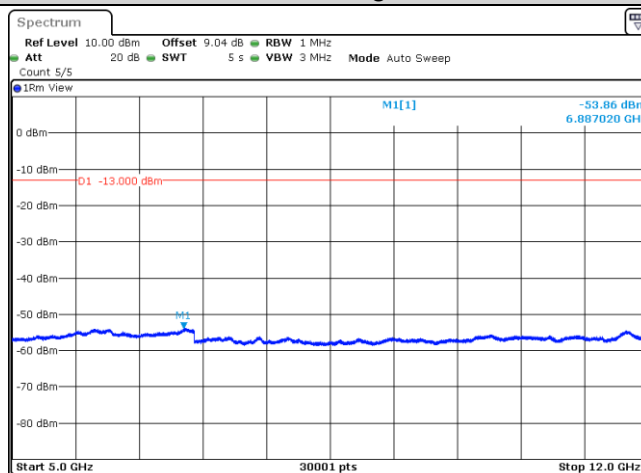
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Band13-5MHz-QPSK-23255-3-3-High-1000-5000--40.73-PASS



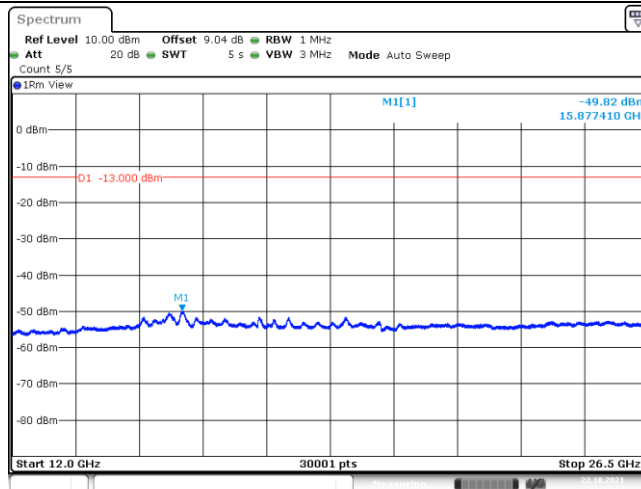
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Band13-5MHz-QPSK-23255-3-3-High-5000-12000--53.86-PASS



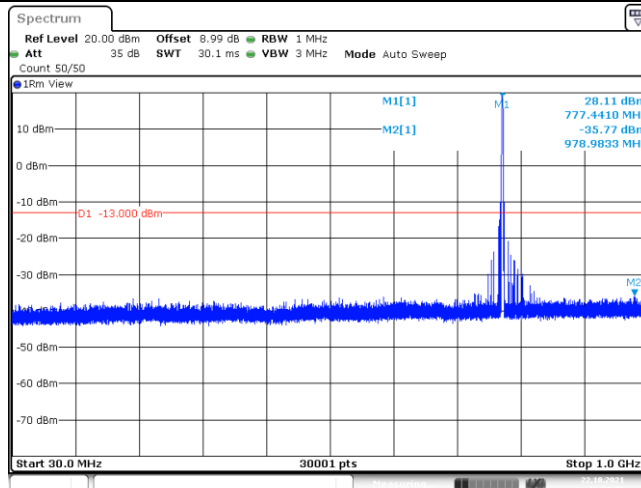
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Band13-5MHz-QPSK-23255-3-3-High-12000-26500--49.82-PASS



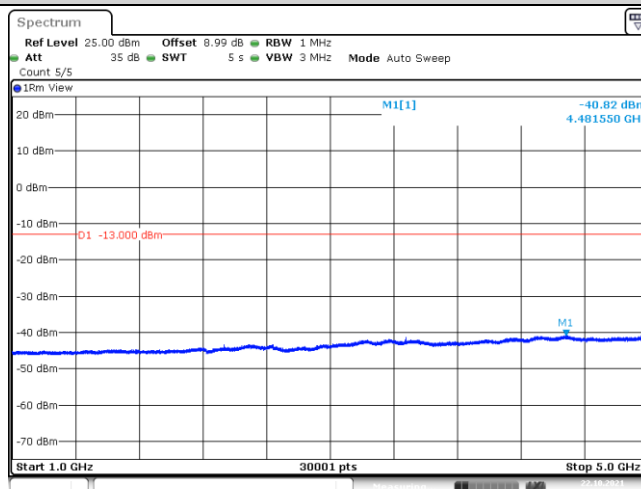
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Band13-5MHz-16QAM-23205-1-0-Low-30-1000--35.77-PASS



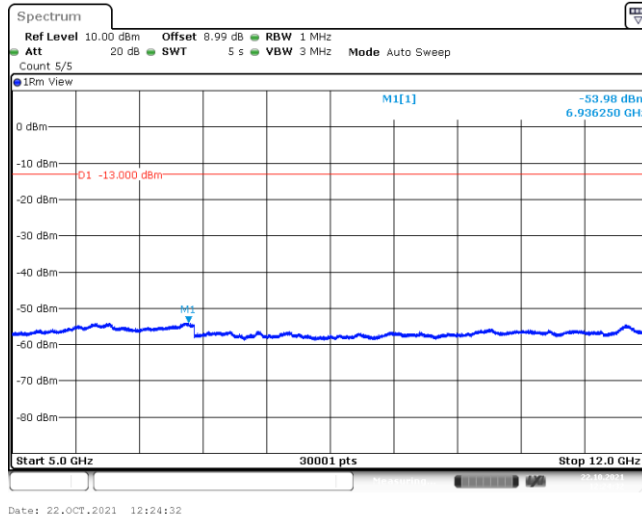
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Band13-5MHz-16QAM-23205-1-0-Low-1000-5000--40.82-PASS

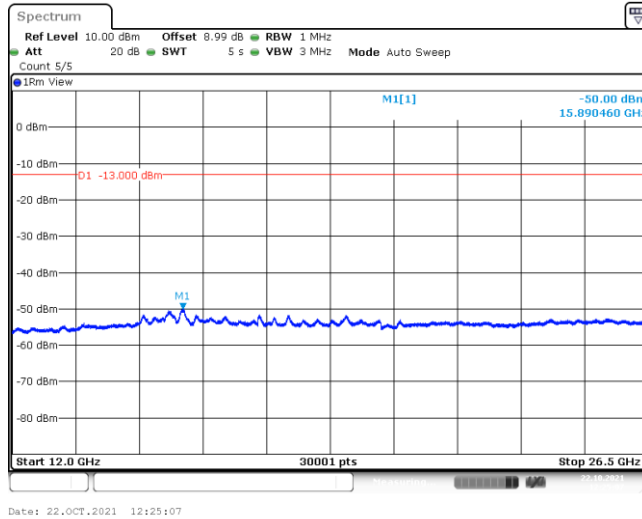


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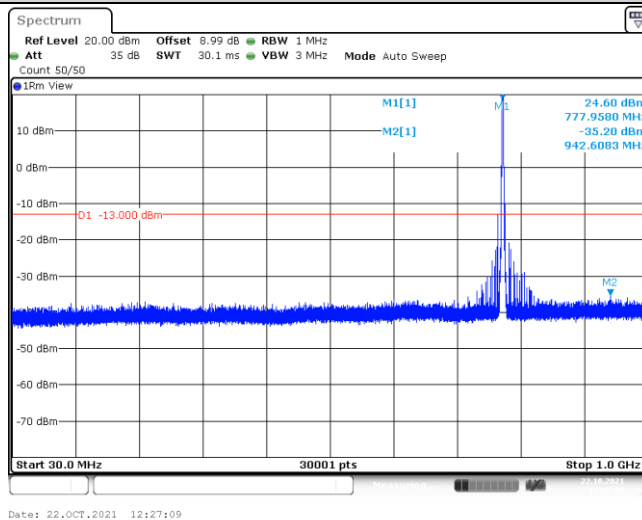
Band13-5MHz-16QAM-23205-1-0-Low-5000-12000--53.98-PASS



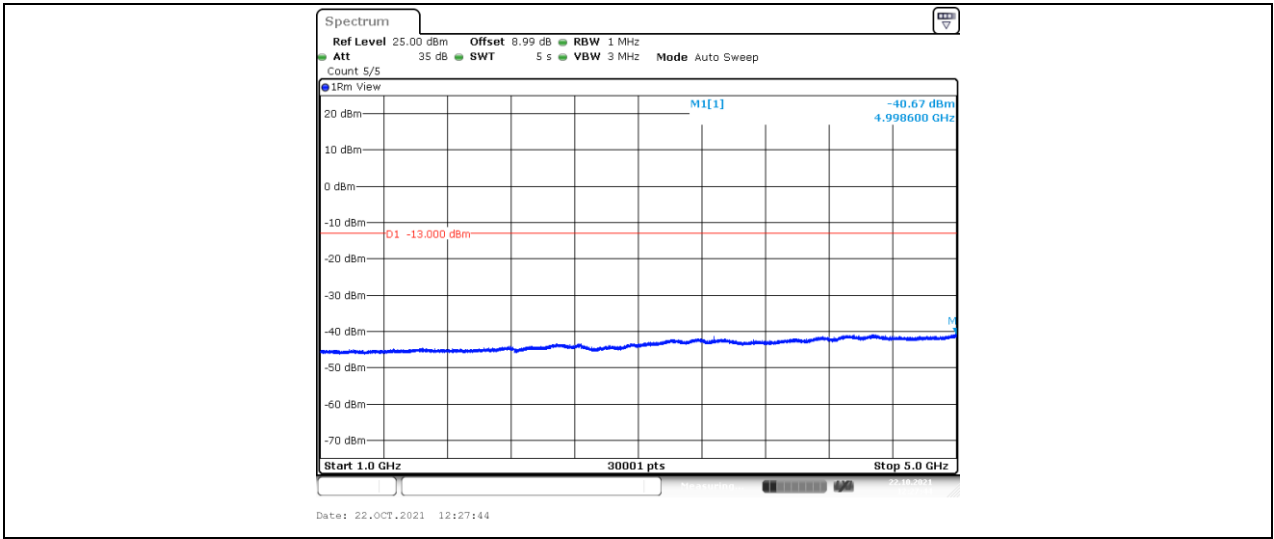
Band13-5MHz-16QAM-23205-1-0-Low-12000-26500--50-PASS



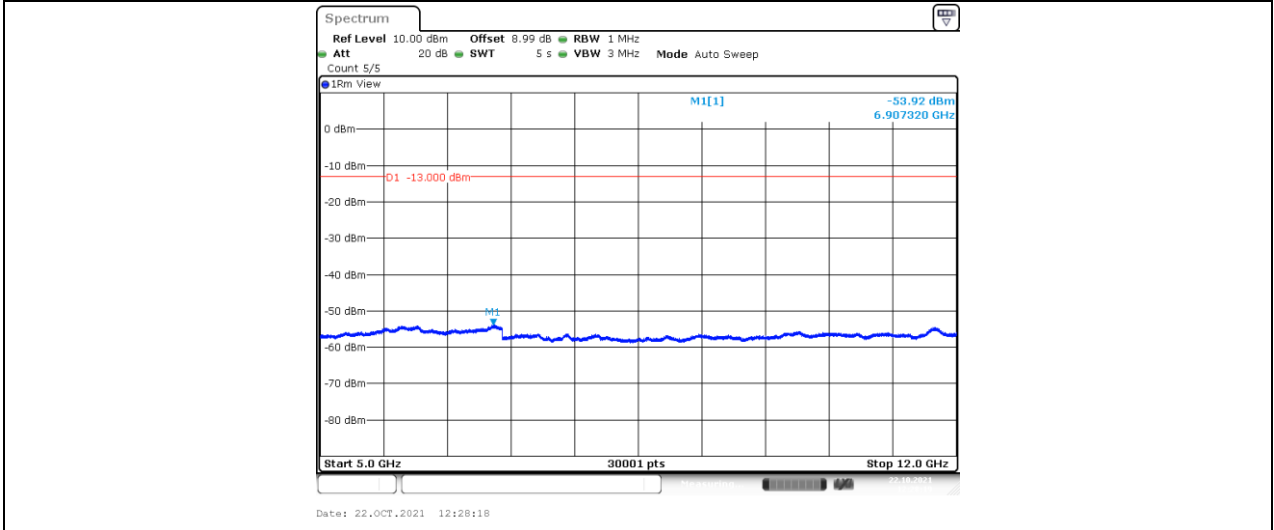
Band13-5MHz-16QAM-23205-6-0-Low-30-1000--35.2-PASS



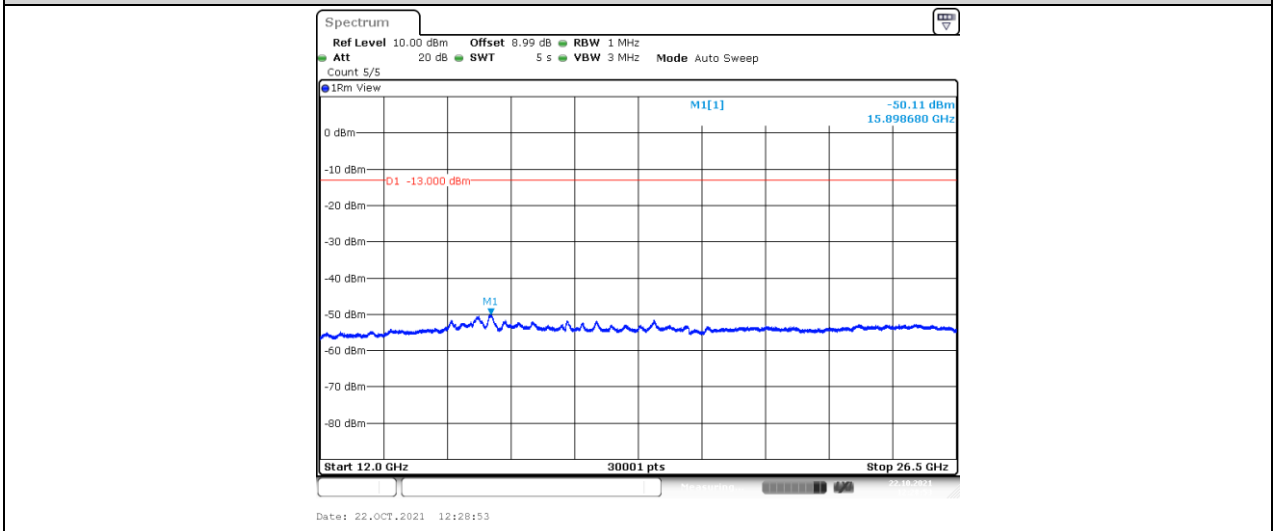
Band13-5MHz-16QAM-23205-6-0-Low-1000-5000--40.67-PASS



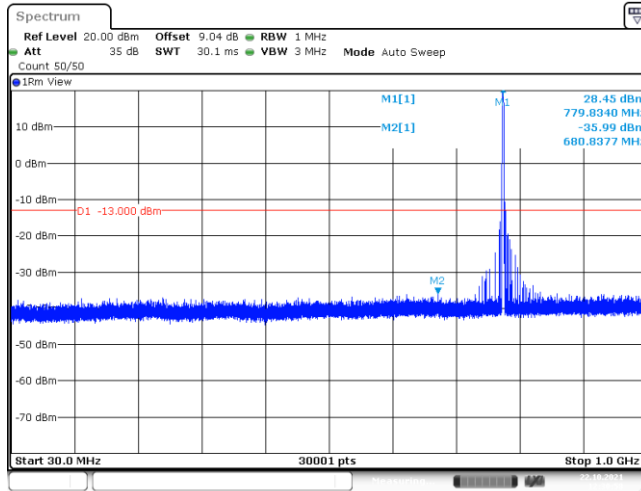
Band13-5MHz-16QAM-23205-6-0-Low-5000-12000--53.92-PASS



Band13-5MHz-16QAM-23205-6-0-Low-12000-26500--50.11-PASS

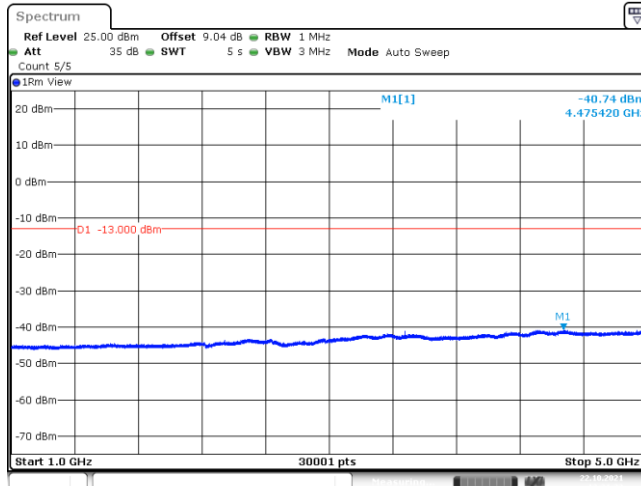


Band13-5MHz-16QAM-23230-1-0-Low-30-1000--35.99-PASS



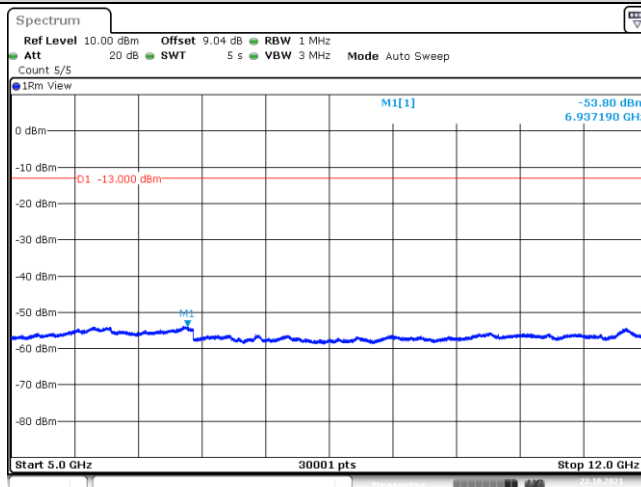
Date: 22.OCT.2021 12:30:58

Band13-5MHz-16QAM-23230-1-0-Low-1000-5000--40.74-PASS



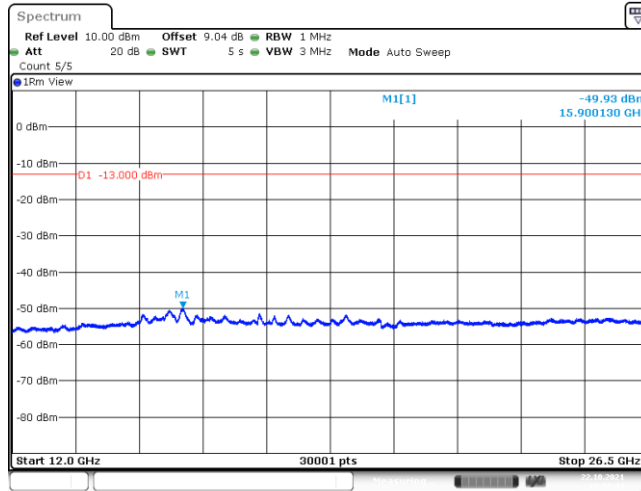
Date: 22.OCT.2021 12:31:33

Band13-5MHz-16QAM-23230-1-0-Low-5000-12000--53.8-PASS



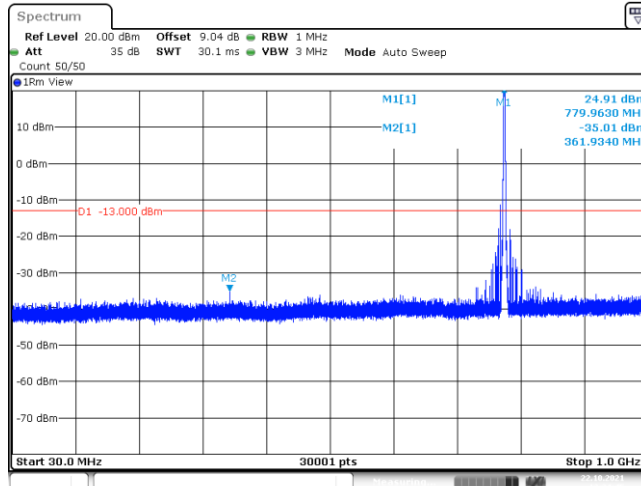
Date: 22.OCT.2021 12:32:08

Band13-5MHz-16QAM-23230-1-0-Low-12000-26500--49.93-PASS



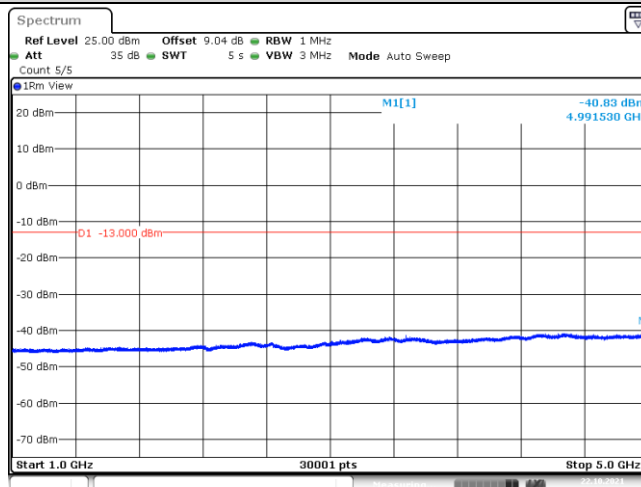
Date: 22.OCT.2021 12:32:43

Band13-5MHz-16QAM-23230-6-0-Low-30-1000--35.01-PASS



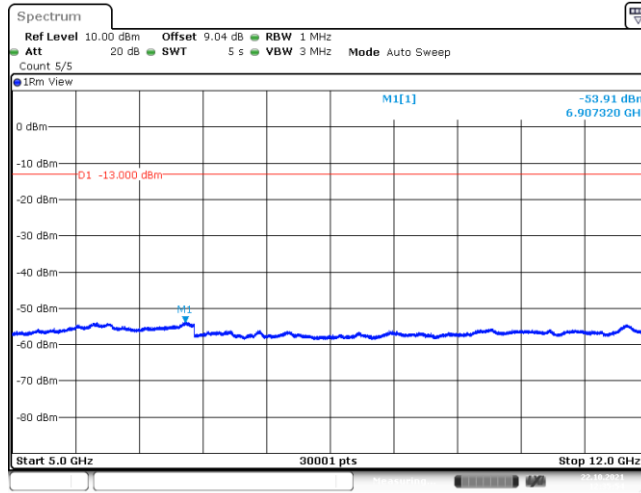
Date: 22.OCT.2021 12:34:44

Band13-5MHz-16QAM-23230-6-0-Low-1000-5000--40.83-PASS



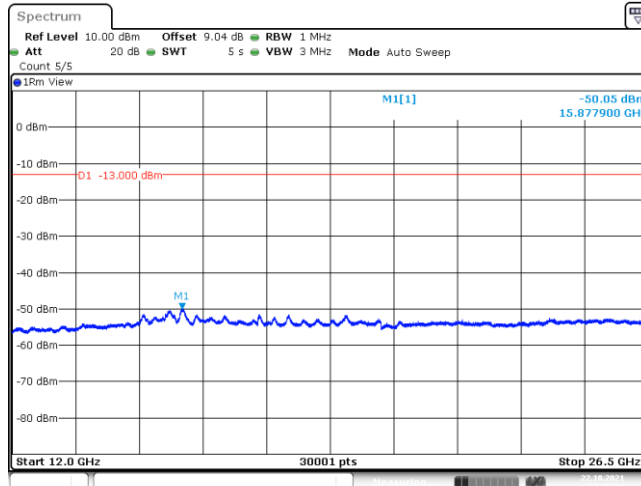
Date: 22.OCT.2021 12:35:19

Band13-5MHz-16QAM-23230-6-0-Low-5000-12000--53.91-PASS



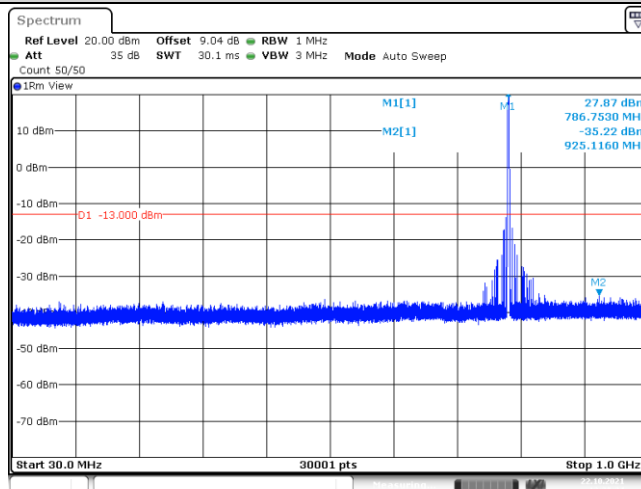
Date: 22.OCT.2021 12:35:54

Band13-5MHz-16QAM-23230-6-0-Low-12000-26500--50.05-PASS



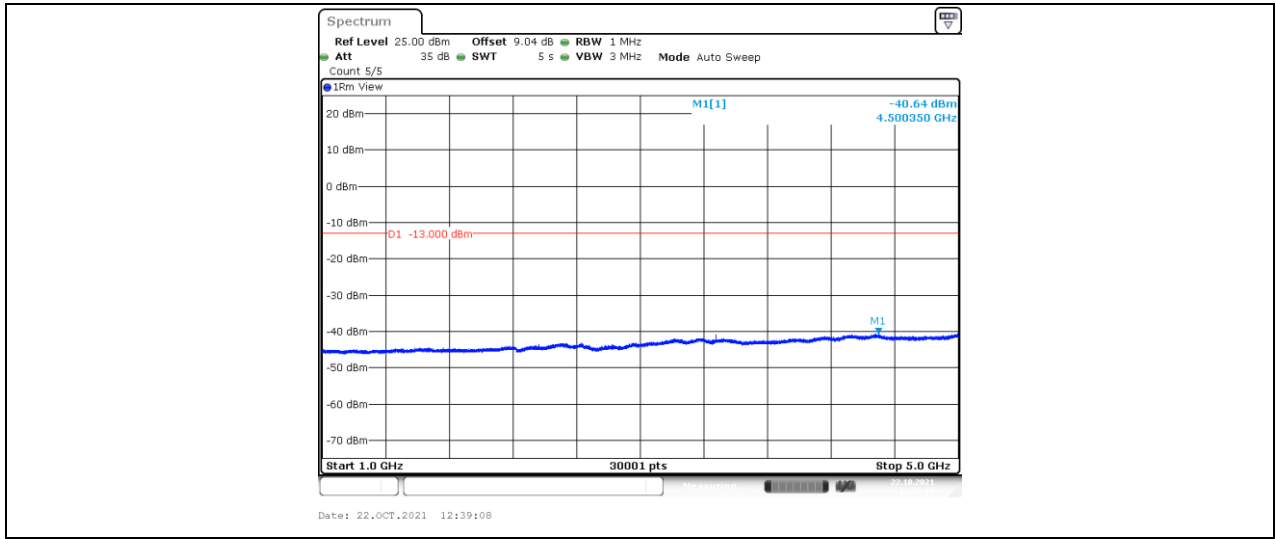
Date: 22.OCT.2021 12:36:29

Band13-5MHz-16QAM-23255-1-5-High-30-1000--35.22-PASS

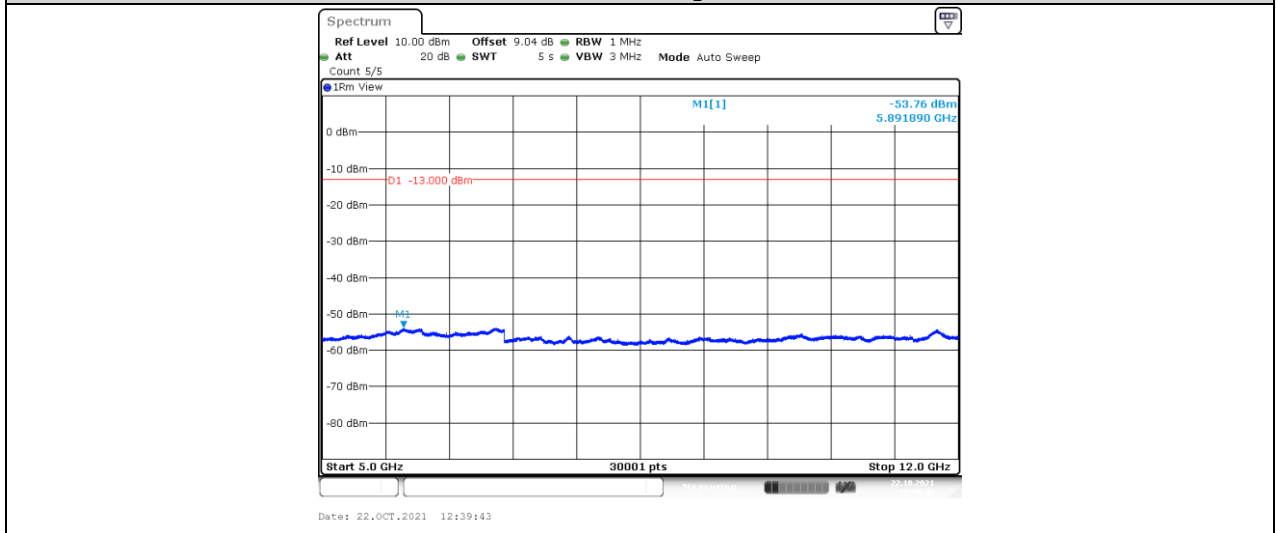


Date: 22.OCT.2021 12:38:34

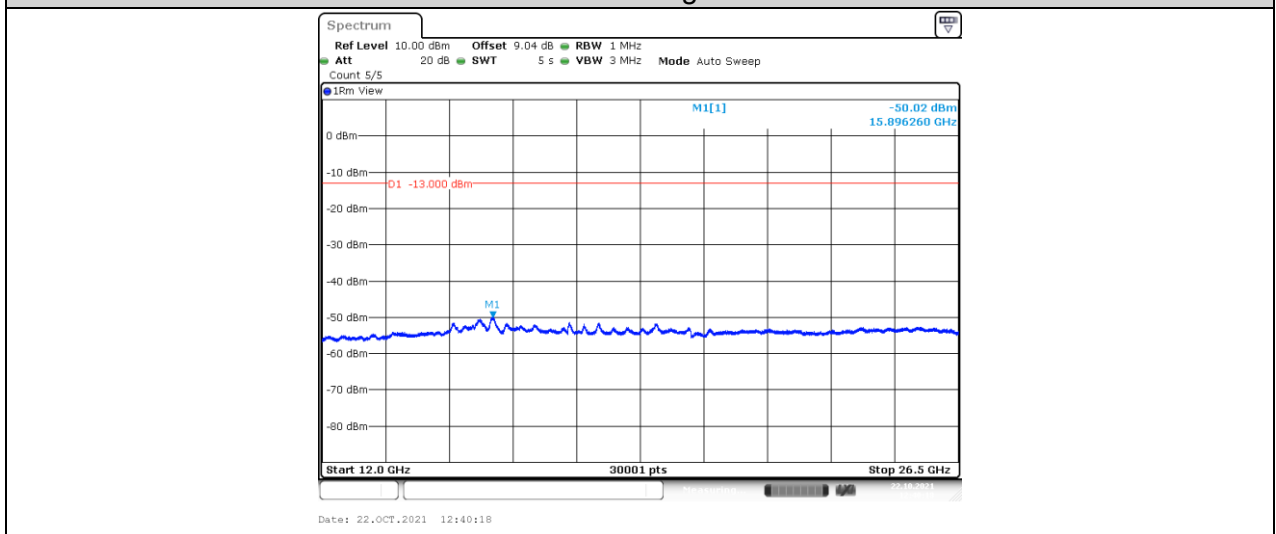
Band13-5MHz-16QAM-23255-1-5-High-1000-5000--40.64-PASS



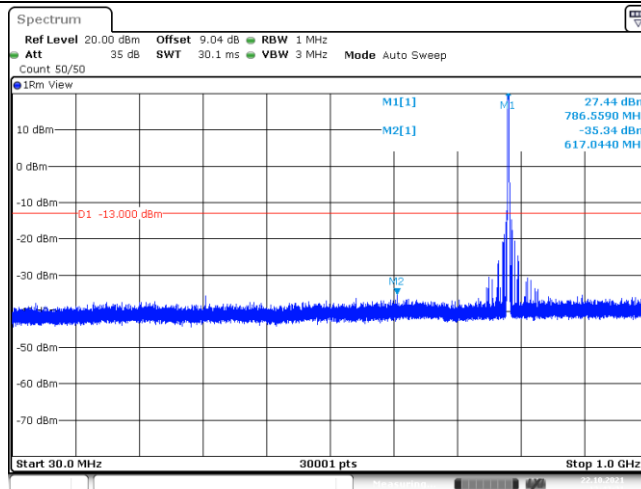
Band13-5MHz-16QAM-23255-1-5-High-5000-12000--53.76-PASS



Band13-5MHz-16QAM-23255-1-5-High-12000-26500--50.02-PASS

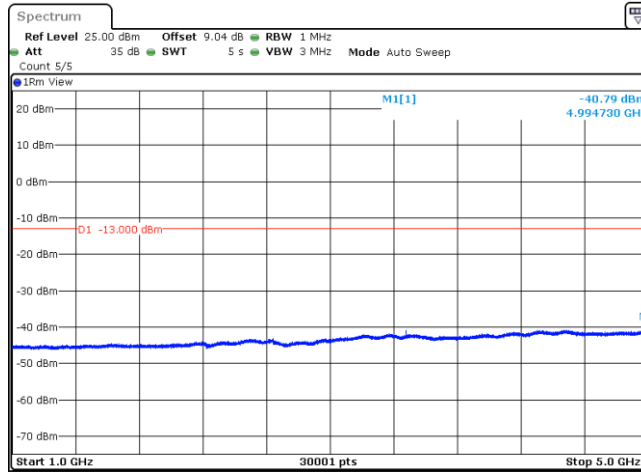


Band13-5MHz-16QAM-23255-3-3-High-30-1000--35.34-PASS



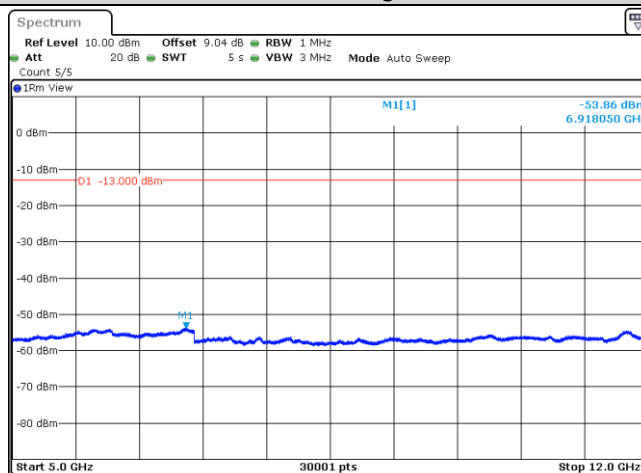
Date: 22.OCT.2021 12:42:21

Band13-5MHz-16QAM-23255-3-3-High-1000-5000--40.79-PASS



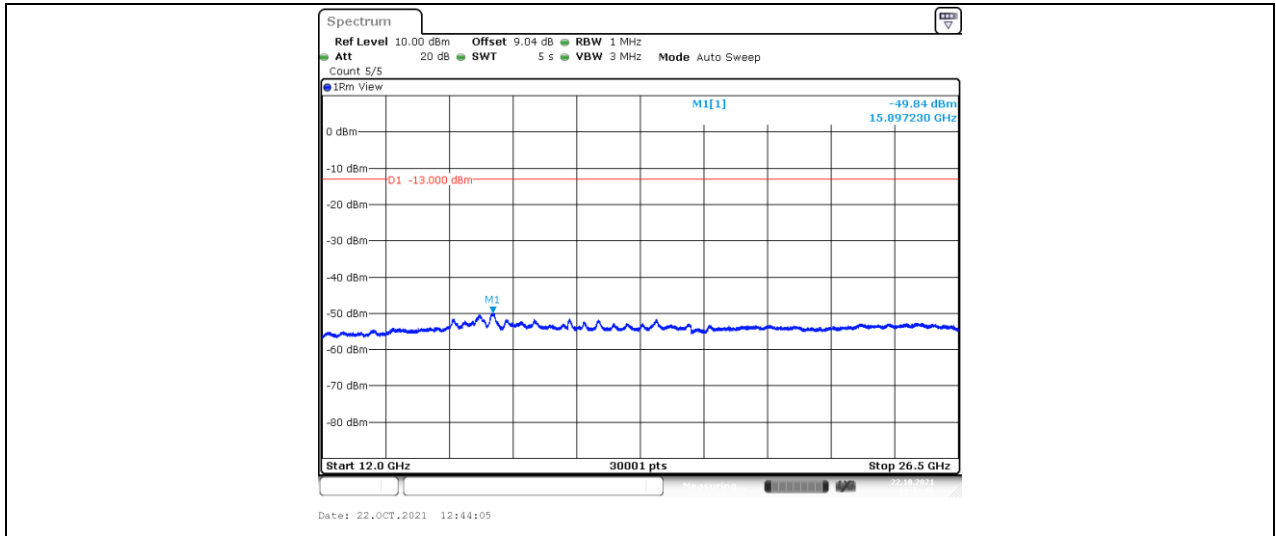
Date: 22.OCT.2021 12:42:56

Band13-5MHz-16QAM-23255-3-3-High-5000-12000--53.86-PASS



Date: 22.OCT.2021 12:43:31

Band13-5MHz-16QAM-23255-3-3-High-12000-26500--49.84-PASS



APPENDIX E.6: FREQUENCY STABILITY FOR M1

Test Result

Voltage												
Band	Bandwidth	Channel	Modulation	RB Size	RB Start	Index	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	23230	QPSK	1	0	Low	HV	NT	-6.19	-0.007916	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	LV	NT	-5.32	-0.006803	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	NT	-5.76	-0.007366	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	HV	NT	-24.59	-0.031445	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	LV	NT	-24.82	-0.031739	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	NT	-24.32	-0.031100	±2.5	PASS

Temperature												
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	23230	QPSK	1	0	Low	NV	85	-6.04	-0.007724	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	-30	-4.78	-0.006113	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	-20	-4.33	-0.005537	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	-10	-5.85	-0.007481	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	0	-8.25	-0.010550	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	10	-6.31	-0.008069	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	20	-6.54	-0.008363	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	30	-6.05	-0.007737	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	40	-6.90	-0.008824	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	50	-6.31	-0.008069	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	60	-6.49	-0.008299	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	70	-6.29	-0.008043	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	-40	-4.85	-0.006202	±2.5	PASS
Band13	5MHz	23230	QPSK	1	0	Low	NV	80	-6.42	-0.008210	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	85	-24.79	-0.031701	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	-30	-24.23	-0.030985	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	-20	-25.18	-0.032199	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	-10	-25.73	-0.032903	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	0	-23.13	-0.029578	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	10	-23.82	-0.030460	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	20	-23.72	-0.030332	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	30	-23.66	-0.030256	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	40	-24.83	-0.031752	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	50	-24.03	-0.030729	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	60	-24.35	-0.031138	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	70	-25.82	-0.033018	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	80	-25.11	-0.032110	±2.5	PASS
Band13	5MHz	23230	16QAM	1	0	Low	NV	-40	-26.58	-0.033990	±2.5	PASS