

# Appendix L: Test Results of Band 8\_39d for eMTC operation

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## APPENDIX L.1: POWER OUTPUT DATA FOR M1

### Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Result (dBm)	Verdict
Band8	1.4MHz	21632	QPSK	1	0	Low	23.75	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	22.50	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	23.77	PASS
Band8	1.4MHz	21640	QPSK	6	0	Low	22.52	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	23.39	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	22.47	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	22.50	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	22.50	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	22.65	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	22.51	PASS
Band8	1.4MHz	21648	16QAM	1	5	Low	22.51	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	22.47	PASS
Band8	3MHz	21640	QPSK	1	0	Low	23.72	PASS
Band8	3MHz	21640	QPSK	1	5	High	23.34	PASS
Band8	3MHz	21640	QPSK	6	0	Low	22.48	PASS
Band8	3MHz	21640	16QAM	1	0	Low	22.47	PASS
Band8	3MHz	21640	16QAM	1	5	High	22.10	PASS
Band8	3MHz	21640	16QAM	6	0	Low	22.49	PASS

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

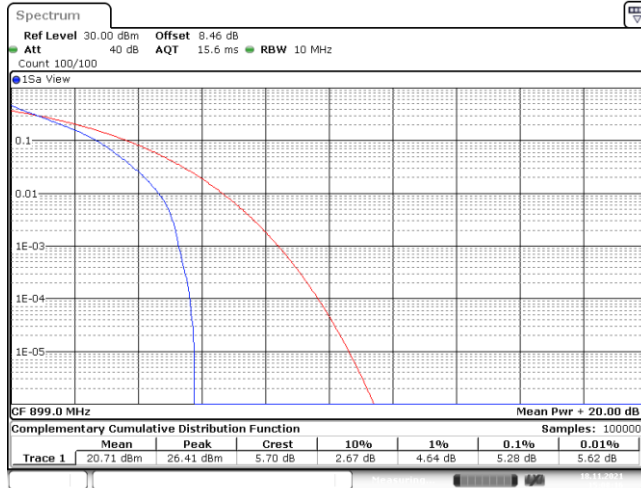
## APPENDIX L.2: PEAK-TO-AVERAGE RATIO (CCDF) FOR M1

### Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Result (dB)	Limit (dB)	Verdict
Band8	1.4MHz	21640	QPSK	6	0	Low	5.28	<=13	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	12.09	<=13	PASS
Band8	3MHz	21640	QPSK	6	0	Low	9.19	<=13	PASS
Band8	3MHz	21640	16QAM	6	0	Low	9.19	<=13	PASS

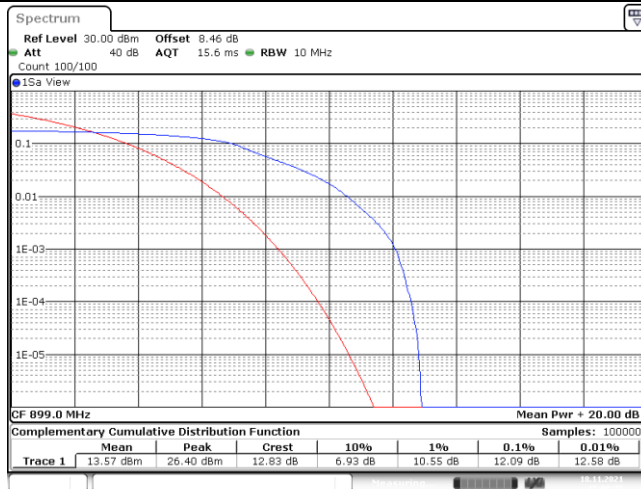
### Test Graphs

#### Band8-1.4MHz-QPSK-21640-6-0-Low-5.28-<=13-PASS



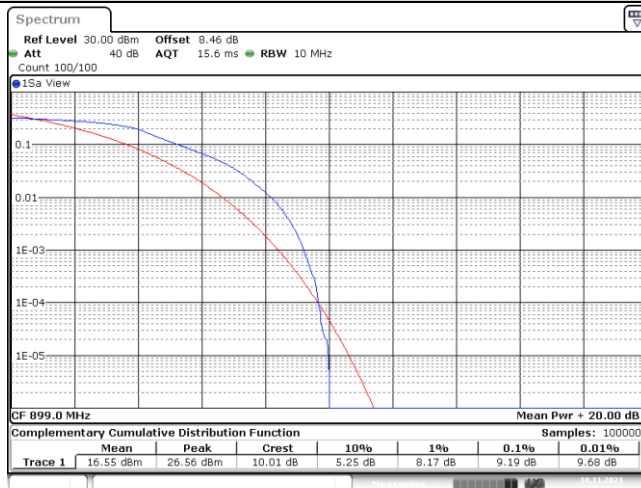
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#### Band8-1.4MHz-16QAM-21640-6-0-Low-12.09-<=13-PASS



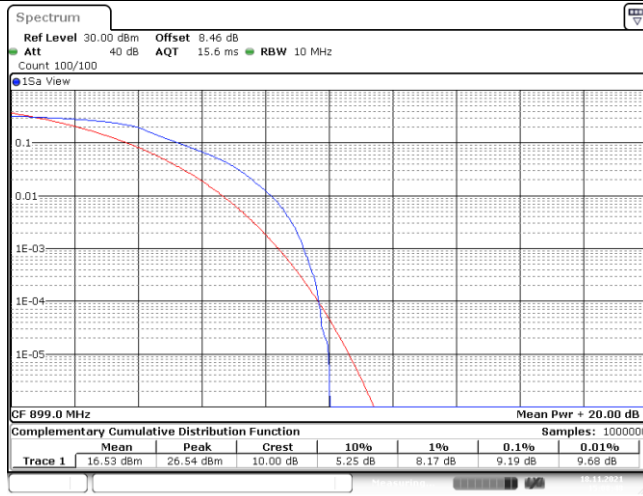
Date: 18.NOV.2021 15:08:26

#### Band8-3MHz-QPSK-21640-6-0-Low-9.19-<=13-PASS



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Band8-3MHz-16QAM-21640-6-0-Low-9.19-<=13-PASS



Date: 18.NOV.2021 15:08:48

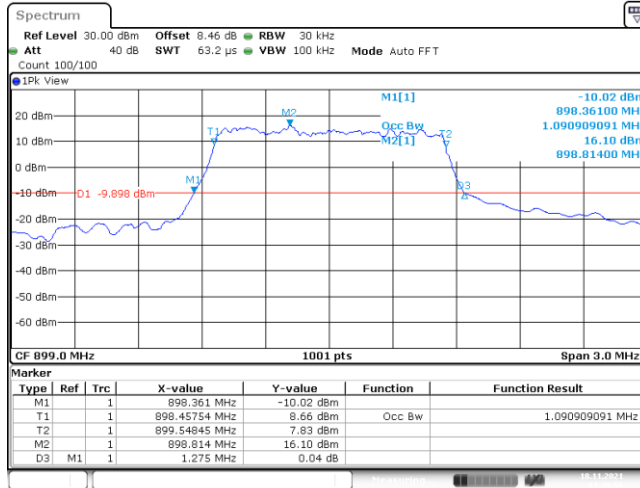
### APPENDIX L.3: 26dB BANDWIDTH AND OCCUPIED BANDWIDTH FOR M1

#### Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band8	1.4MHz	21640	QPSK	6	0	Low	1.091	1.275	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	1.091	1.275	PASS
Band8	3MHz	21640	QPSK	6	0	Low	1.103	1.296	PASS
Band8	3MHz	21640	16QAM	6	0	Low	1.097	1.284	PASS

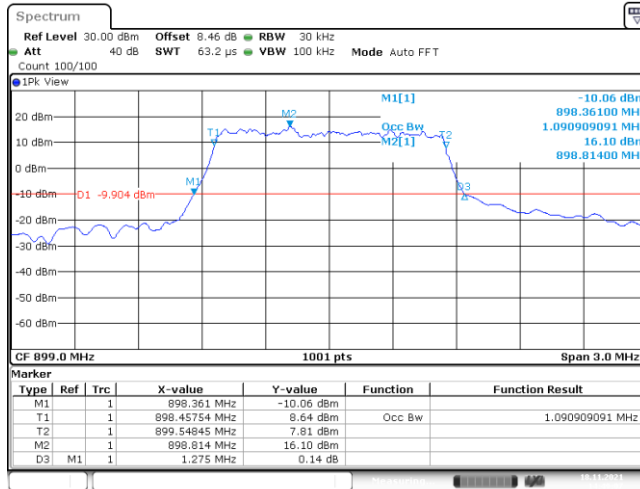
### Test Graphs

#### Band8-1.4MHz-QPSK-21640-6-0-Low-1.091-1.275-PASS



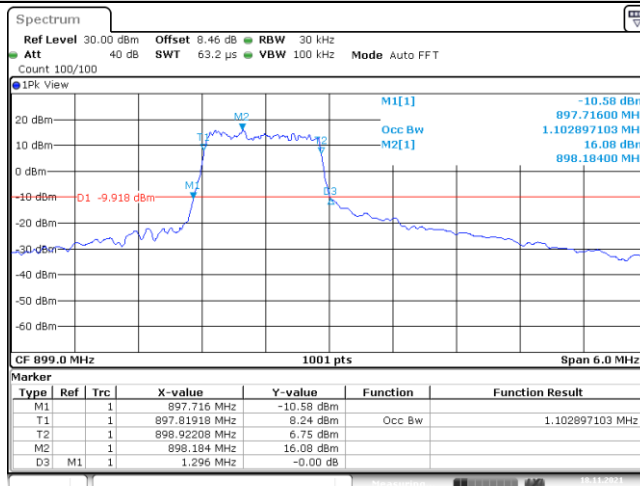
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#### Band8-1.4MHz-16QAM-21640-6-0-Low-1.091-1.275-PASS



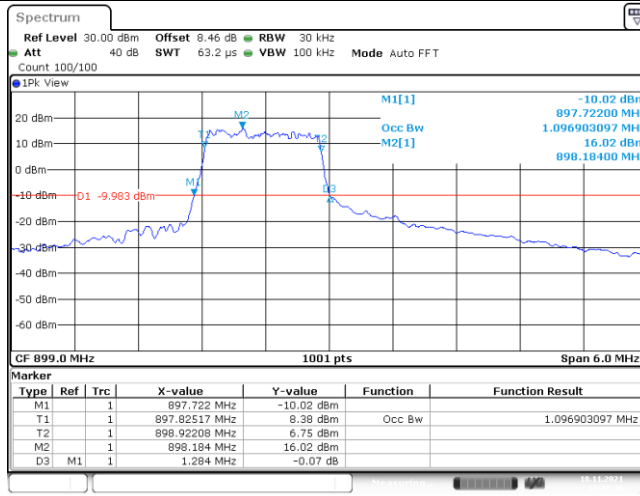
Date: 18.NOV.2021 14:49:07

#### Band8-3MHz-QPSK-21640-6-0-Low-1.103-1.296-PASS



Date: 18.NOV.2021 14:49:20

Band8-3MHz-16QAM-21640-6-0-Low-1.097-1.284-PASS



Date: 18.NOV.2021 14:49:31

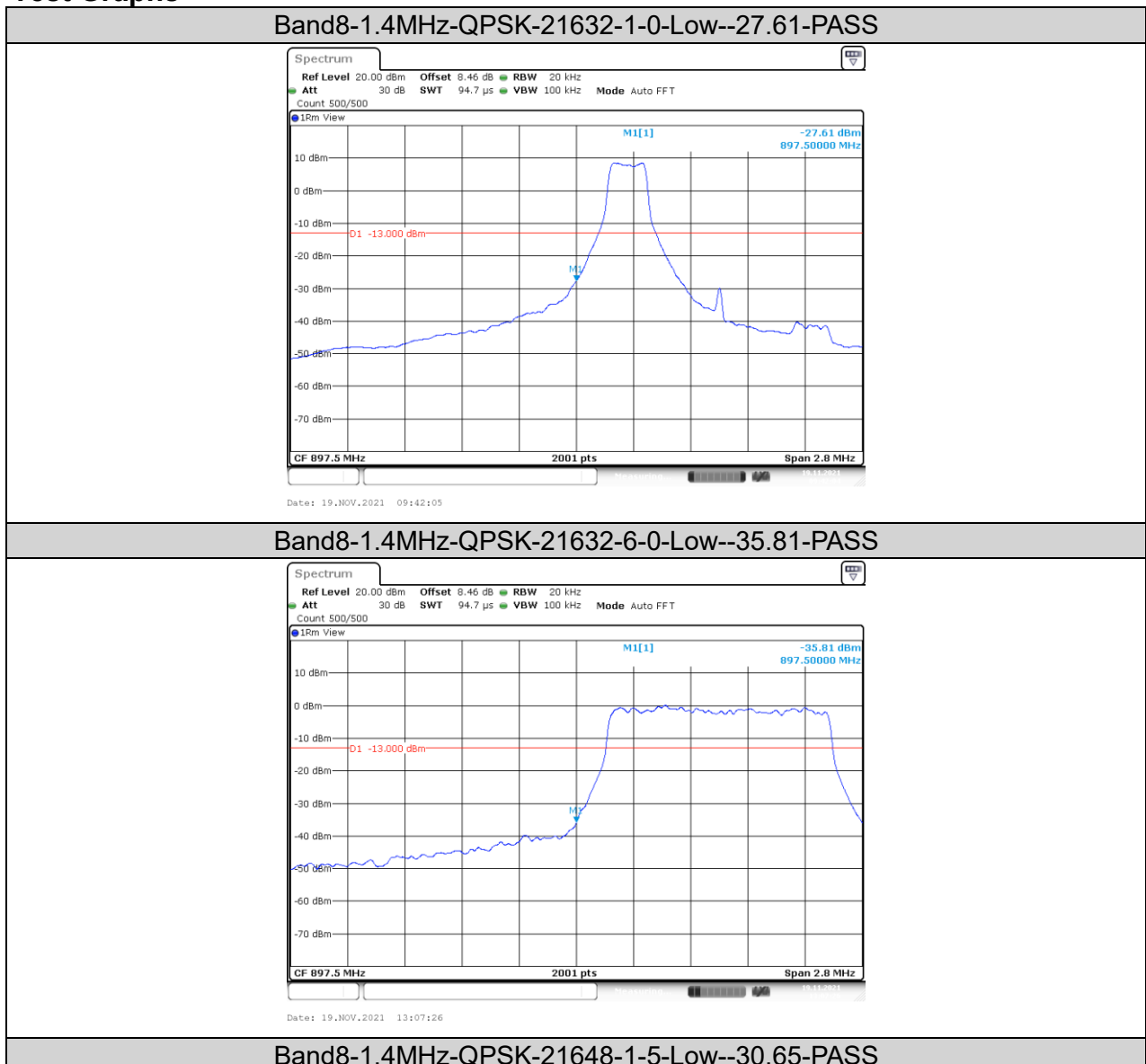


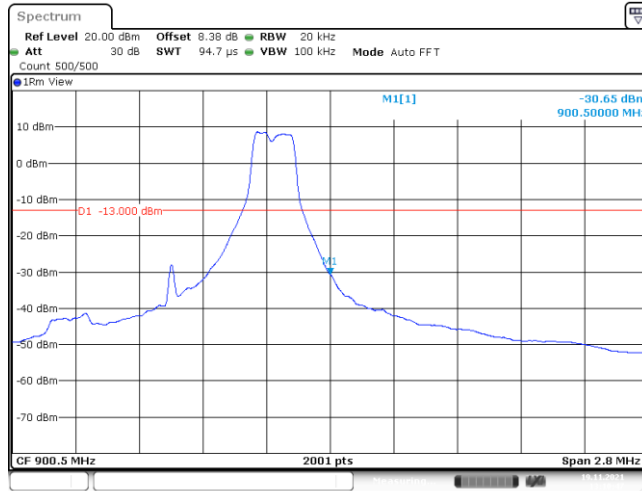
## APPENDIX L.4: BAND EDGE FOR M1

### Test Result

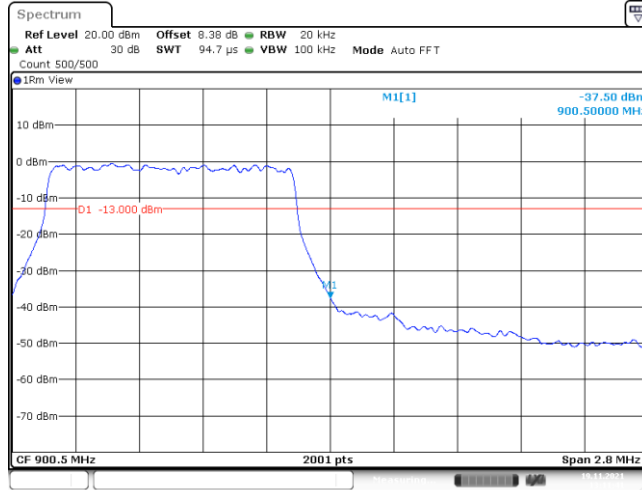
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Result(dBm)	Verdict
Band8	1.4MHz	21632	QPSK	1	0	Low	-27.61	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	-35.81	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	-30.65	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	-37.50	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	-29.61	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	-36.21	PASS
Band8	1.4MHz	21648	16QAM	1	5	Low	-31.83	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	-36.65	PASS

### Test Graphs

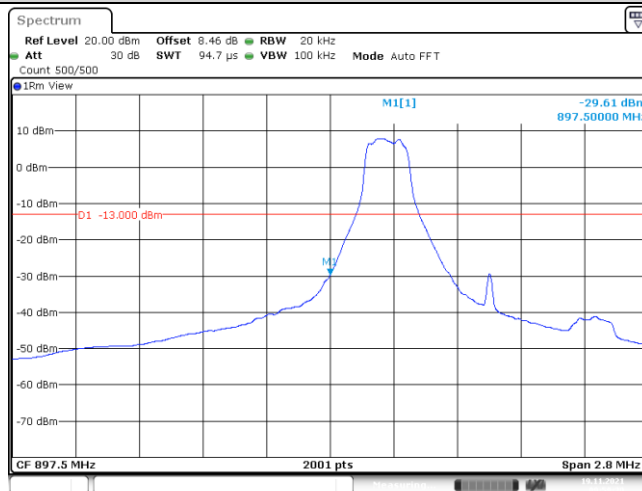




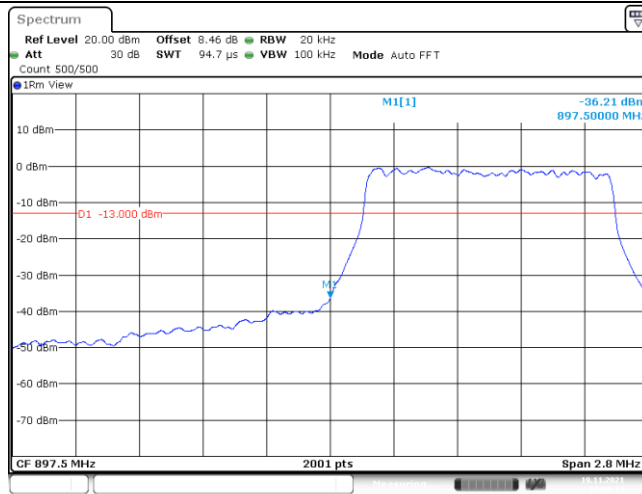
Band8-1.4MHz-QPSK-21648-6-0-Low--37.50-PASS



Band8-1.4MHz-16QAM-21632-1-0-Low--29.61-PASS

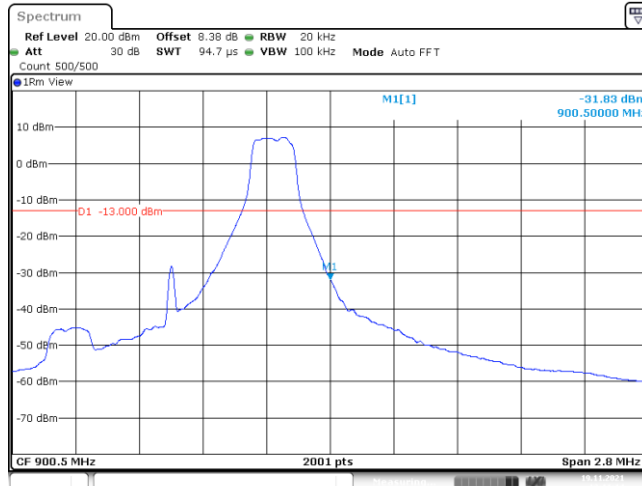


Band8-1.4MHz-16QAM-21632-6-0-Low--36.21-PASS



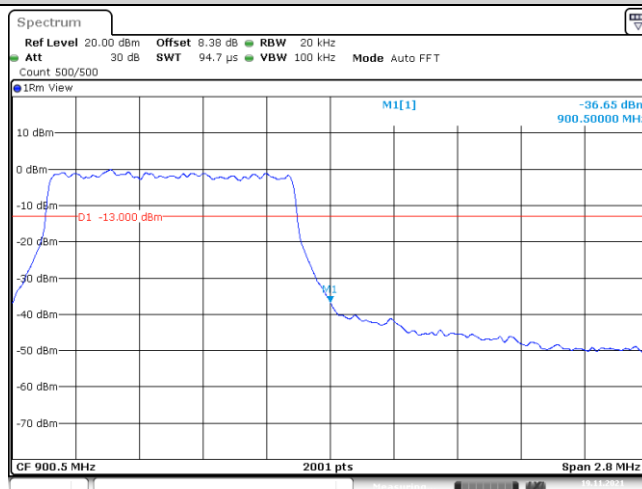
Date: 19.NOV.2021 13:08:14

Band8-1.4MHz-16QAM-21648-1-5-Low--31.83-PASS



Date: 19.NOV.2021 13:11:14

Band8-1.4MHz-16QAM-21648-6-0-Low--36.65-PASS



Date: 19.NOV.2021 13:12:08

## APPENDIX L.5: CONDUCTED SPURIOUS EMISSION FOR M1

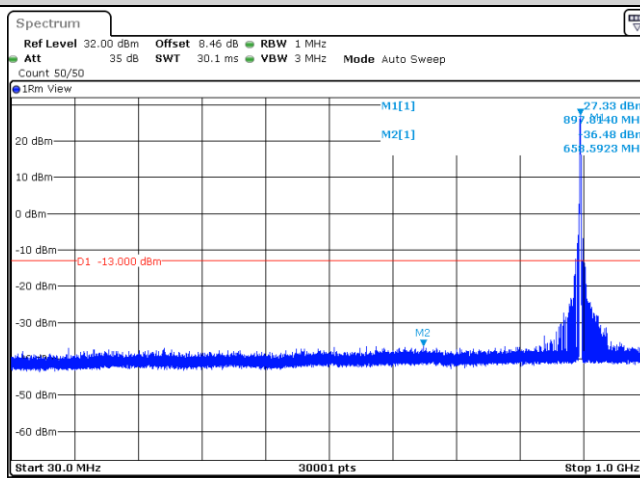
### Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Start Freq	Stop Freq	Result (dBm)	Verdict
Band8	1.4MHz	21632	QPSK	1	0	Low	30	1000	-36.48	PASS
Band8	1.4MHz	21632	QPSK	1	0	Low	1000	5000	-41.23	PASS
Band8	1.4MHz	21632	QPSK	1	0	Low	5000	12000	-51.77	PASS
Band8	1.4MHz	21632	QPSK	1	0	Low	12000	26500	-50.55	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	30	1000	-36.25	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	1000	5000	-41.19	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	5000	12000	-54.33	PASS
Band8	1.4MHz	21632	QPSK	6	0	Low	12000	26500	-50.68	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	30	1000	-36.77	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	1000	5000	-41.42	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	5000	12000	-52.38	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	12000	26500	-50.57	PASS
Band8	1.4MHz	21640	QPSK	6	0	Low	30	1000	-36.02	PASS
Band8	1.4MHz	21640	QPSK	6	0	Low	1000	5000	-41.45	PASS
Band8	1.4MHz	21640	QPSK	6	0	Low	5000	12000	-54.43	PASS
Band8	1.4MHz	21640	QPSK	6	0	Low	12000	26500	-50.68	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	30	1000	-35.96	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	1000	5000	-41.33	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	5000	12000	-52.65	PASS
Band8	1.4MHz	21648	QPSK	1	5	Low	12000	26500	-50.66	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	30	1000	-37.1	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	1000	5000	-41.43	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	5000	12000	-54.46	PASS
Band8	1.4MHz	21648	QPSK	6	0	Low	12000	26500	-50.74	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	30	1000	-35.95	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	1000	5000	-41.26	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	5000	12000	-53.11	PASS
Band8	1.4MHz	21632	16QAM	1	0	Low	12000	26500	-50.61	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	30	1000	-35.78	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	1000	5000	-41.34	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	5000	12000	-54.42	PASS
Band8	1.4MHz	21632	16QAM	6	0	Low	12000	26500	-50.65	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	30	1000	-36.68	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	1000	5000	-41.34	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	5000	12000	-52.84	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	12000	26500	-50.67	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	30	1000	-36.47	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	1000	5000	-41.41	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	5000	12000	-54.46	PASS
Band8	1.4MHz	21640	16QAM	6	0	Low	12000	26500	-50.57	PASS
Band8	1.4MHz	21648	16QAM	1	5	Low	30	1000	-36.55	PASS

Band8	1.4MHz	21648	16QAM	1	5	Low	1000	5000	-41.34	PASS
Band8	1.4MHz	21648	16QAM	1	5	Low	5000	12000	-53.16	PASS
Band8	1.4MHz	21648	16QAM	1	5	Low	12000	26500	-50.72	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	30	1000	-36.79	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	1000	5000	-41.52	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	5000	12000	-54.48	PASS
Band8	1.4MHz	21648	16QAM	6	0	Low	12000	26500	-50.66	PASS

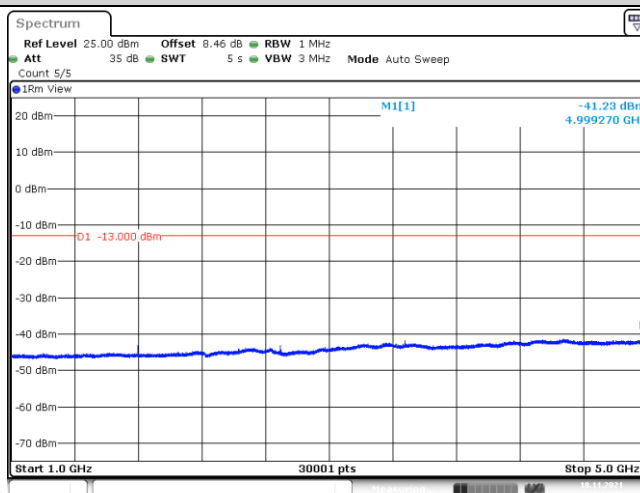
### Test Graphs

Band8-1.4MHz-QPSK-21632-1-0-Low-30-1000--36.48-PASS



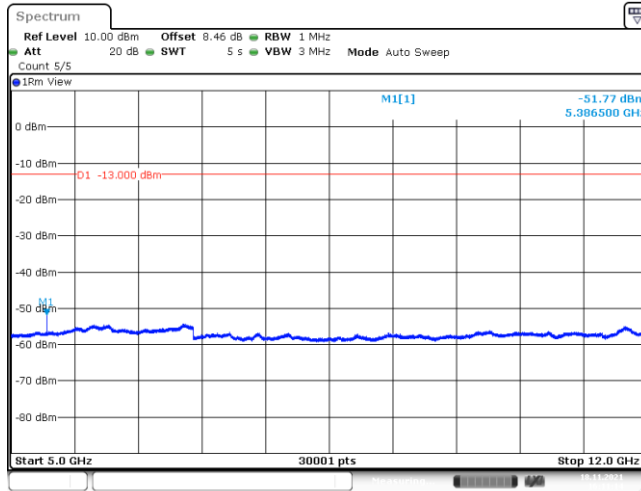
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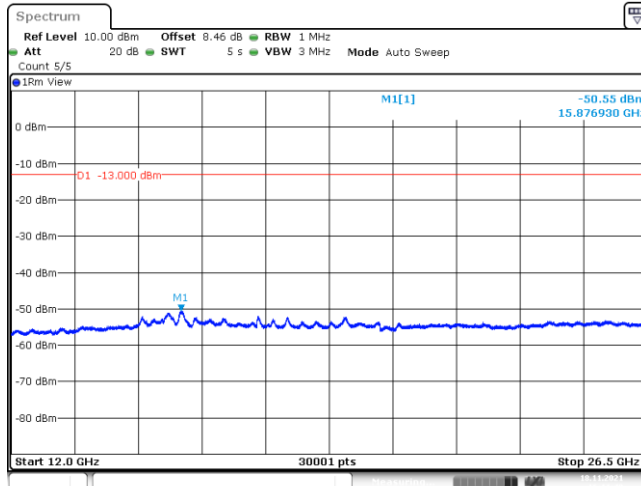
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Band8-1.4MHz-QPSK-21632-1-0-Low-5000-12000--51.77-PASS



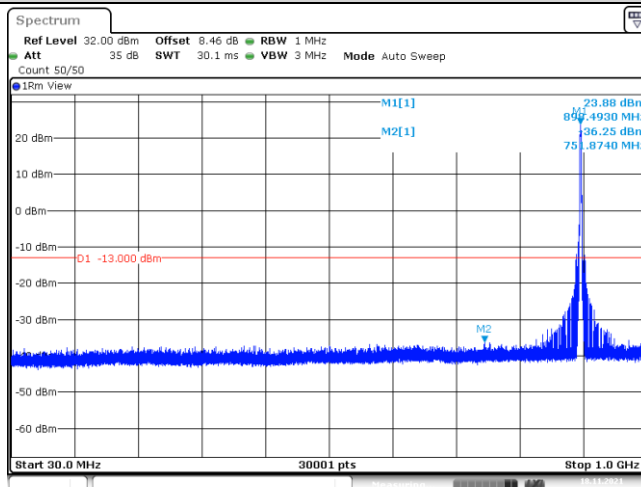
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Band8-1.4MHz-QPSK-21632-1-0-Low-12000-26500--50.55-PASS



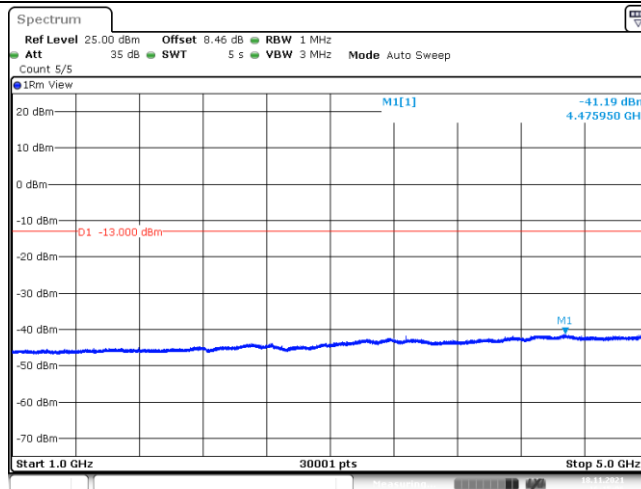
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Band8-1.4MHz-QPSK-21632-6-0-Low-30-1000--36.25-PASS



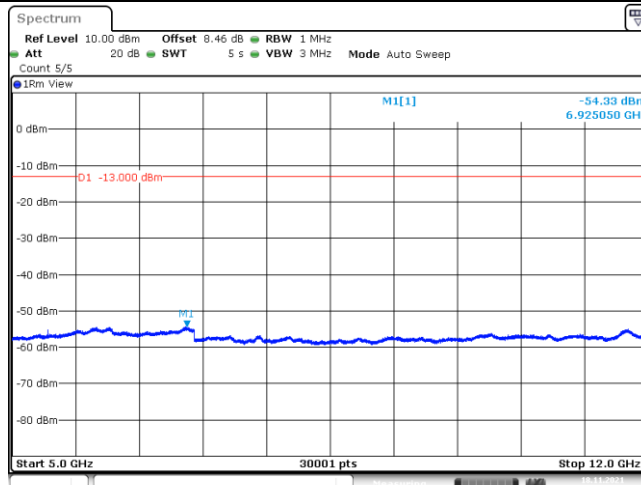
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Band8-1.4MHz-QPSK-21632-6-0-Low-1000-5000--41.19-PASS



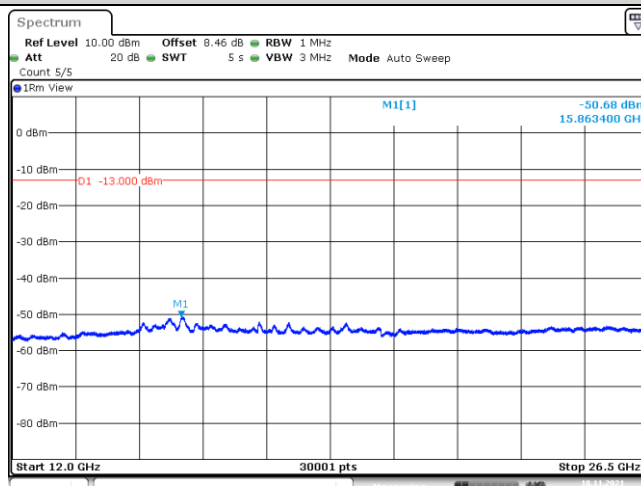
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Band8-1.4MHz-QPSK-21632-6-0-Low-5000-12000--54.33-PASS



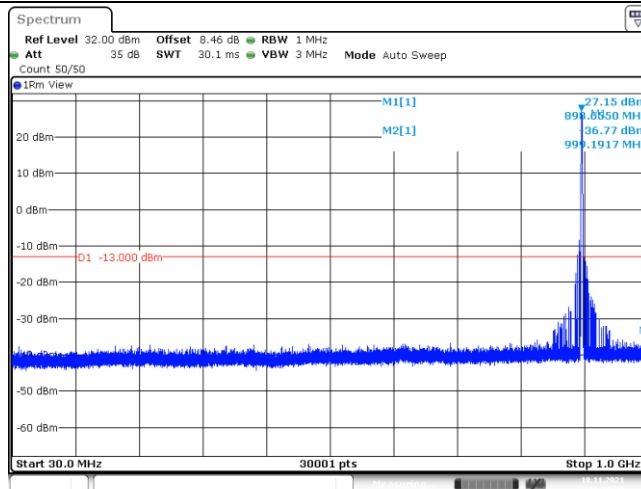
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Band8-1.4MHz-QPSK-21632-6-0-Low-12000-26500--50.68-PASS



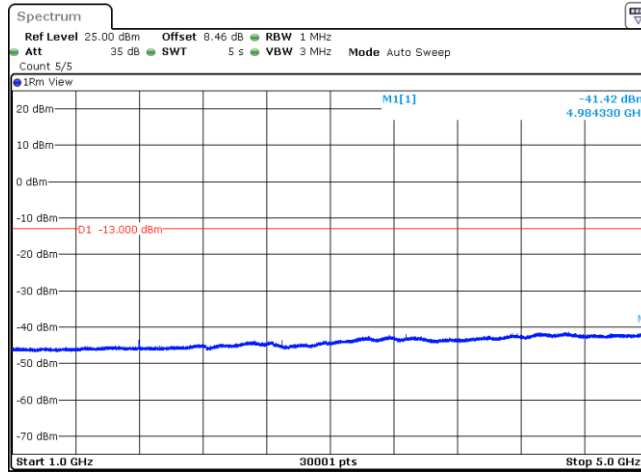
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Band8-1.4MHz-QPSK-21640-1-0-Low-30-1000--36.77-PASS



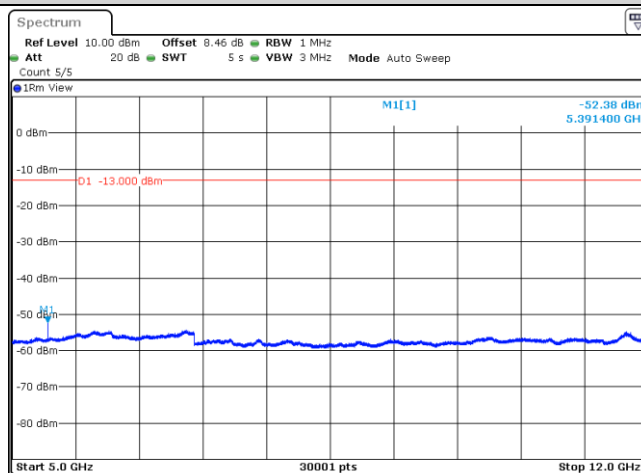
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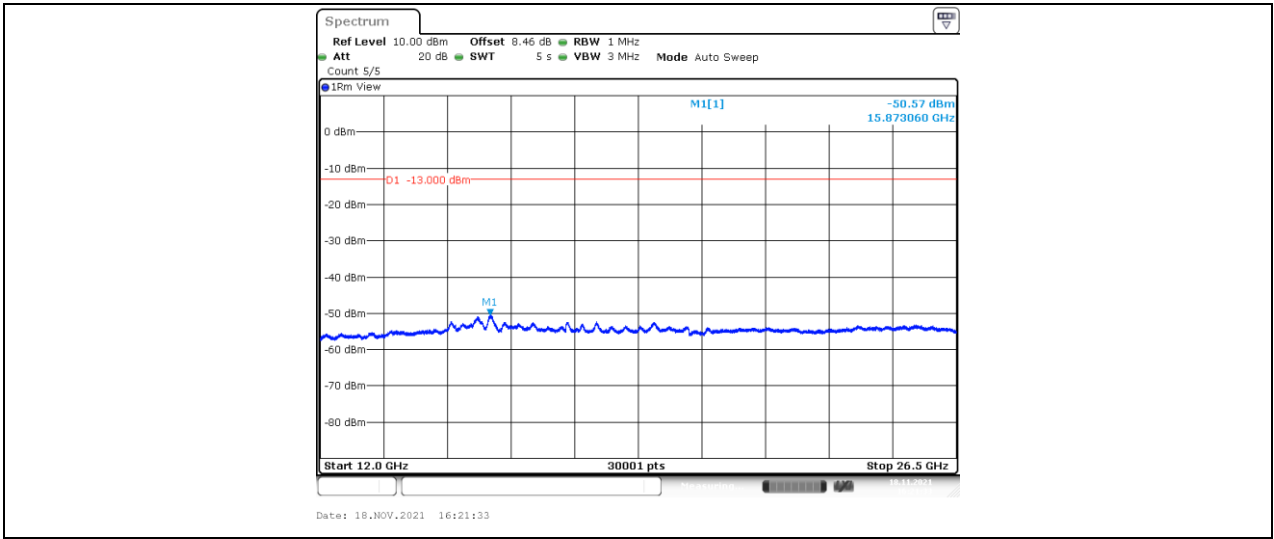
Band8-1.4MHz-QPSK-21640-1-0-Low-5000-12000--52.38-PASS



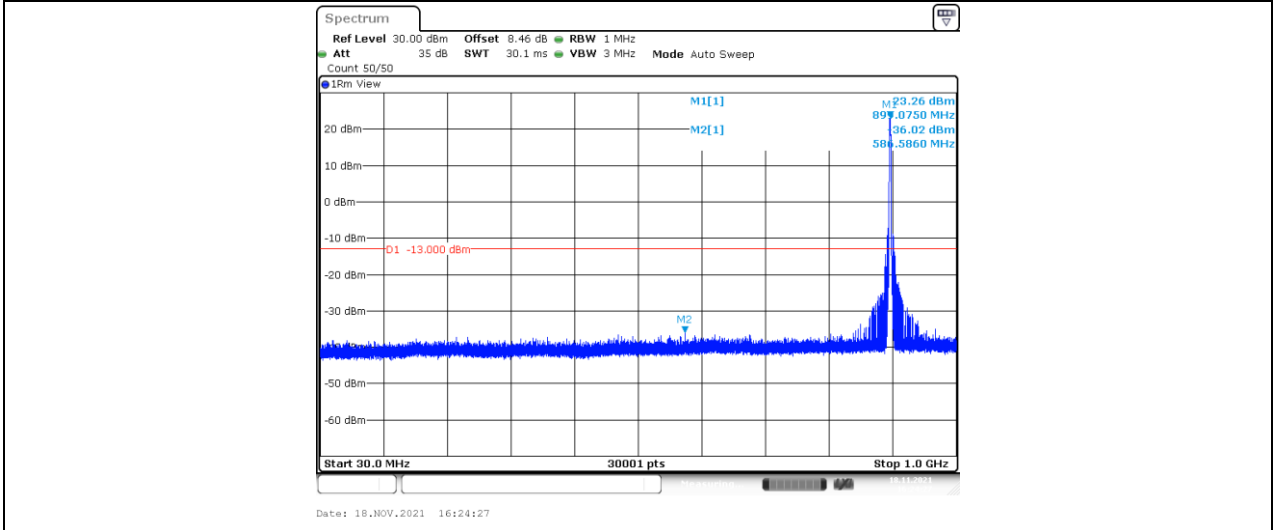
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Band8-1.4MHz-QPSK-21640-1-0-Low-12000-26500--50.57-PASS

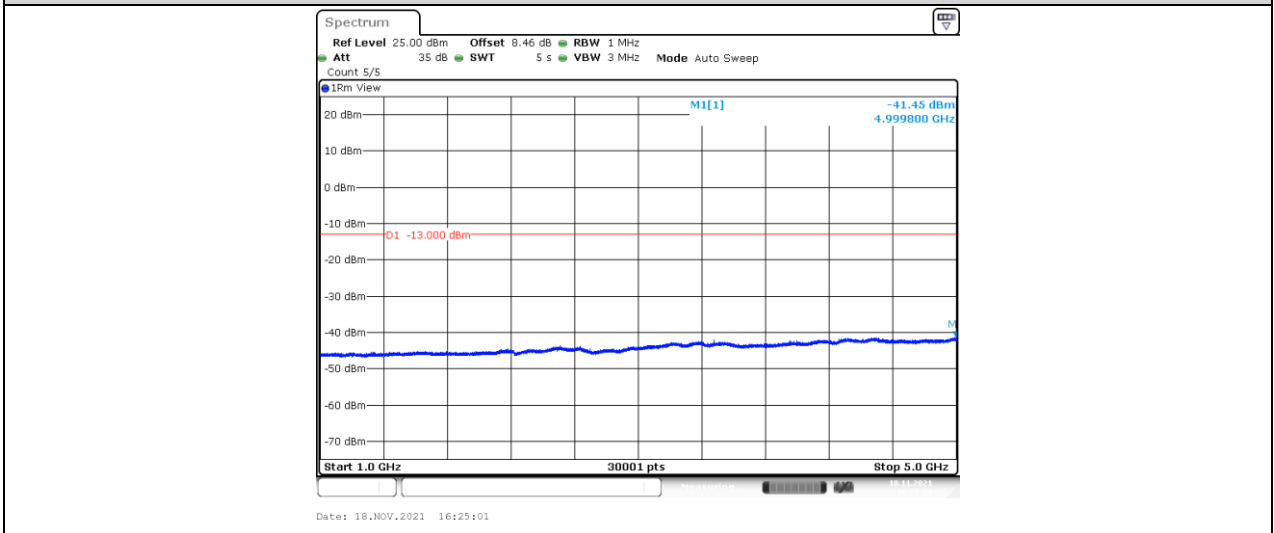




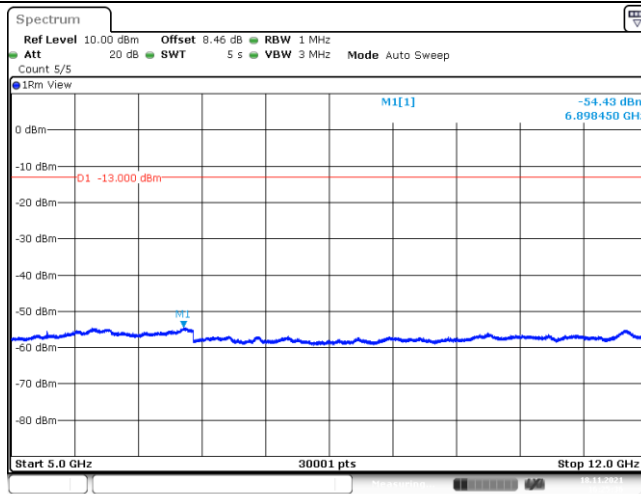
Band8-1.4MHz-QPSK-21640-6-0-Low-30-1000--36.02-PASS



Band8-1.4MHz-QPSK-21640-6-0-Low-1000-5000--41.45-PASS

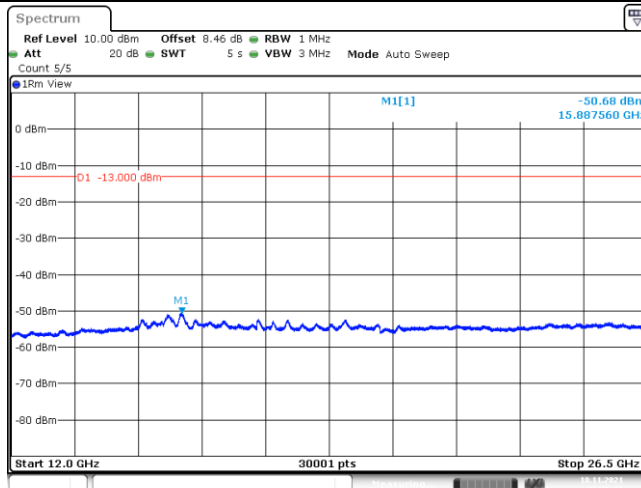


Band8-1.4MHz-QPSK-21640-6-0-Low-5000-12000--54.43-PASS



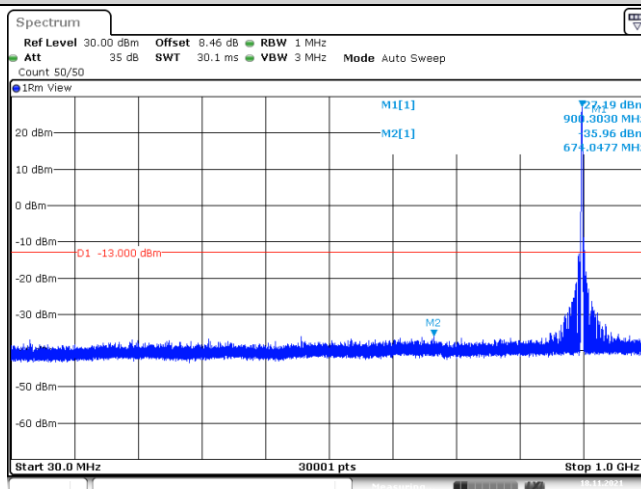
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Band8-1.4MHz-QPSK-21640-6-0-Low-12000-26500--50.68-PASS



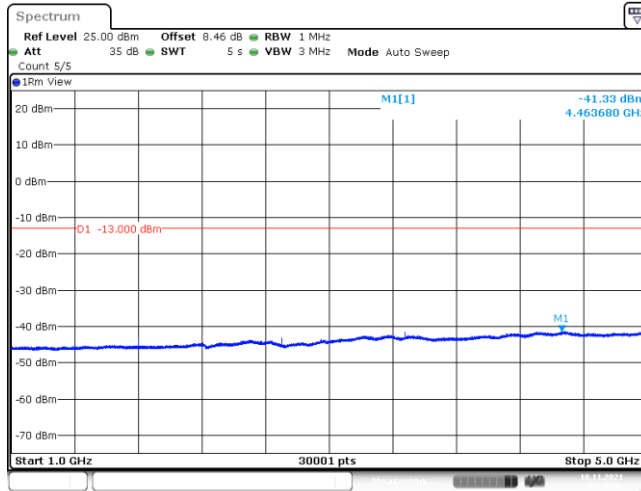
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Band8-1.4MHz-QPSK-21648-1-5-Low-30-1000--35.96-PASS



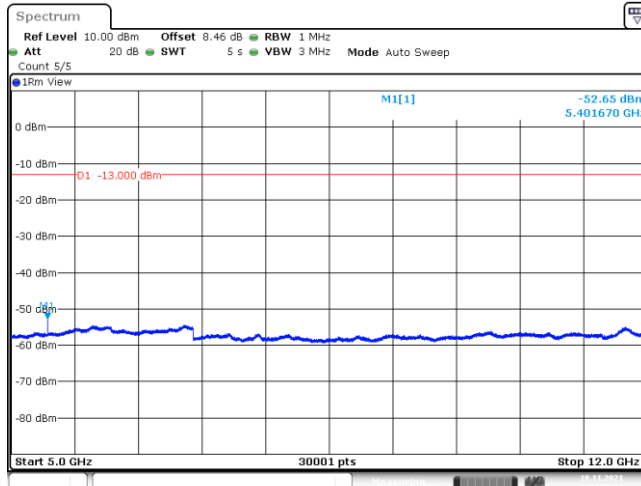
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Band8-1.4MHz-QPSK-21648-1-5-Low-1000-5000--41.33-PASS



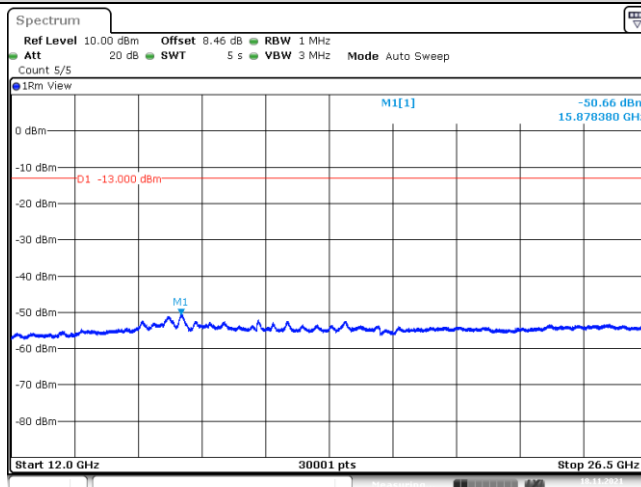
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Band8-1.4MHz-QPSK-21648-1-5-Low-5000-12000--52.65-PASS



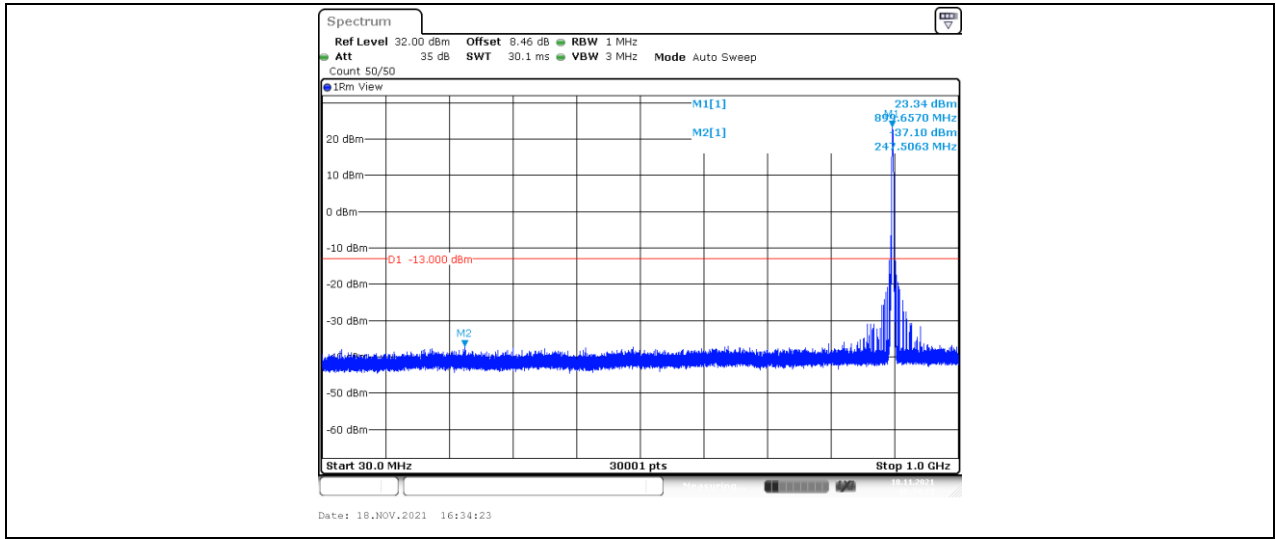
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Band8-1.4MHz-QPSK-21648-1-5-Low-12000-26500--50.66-PASS

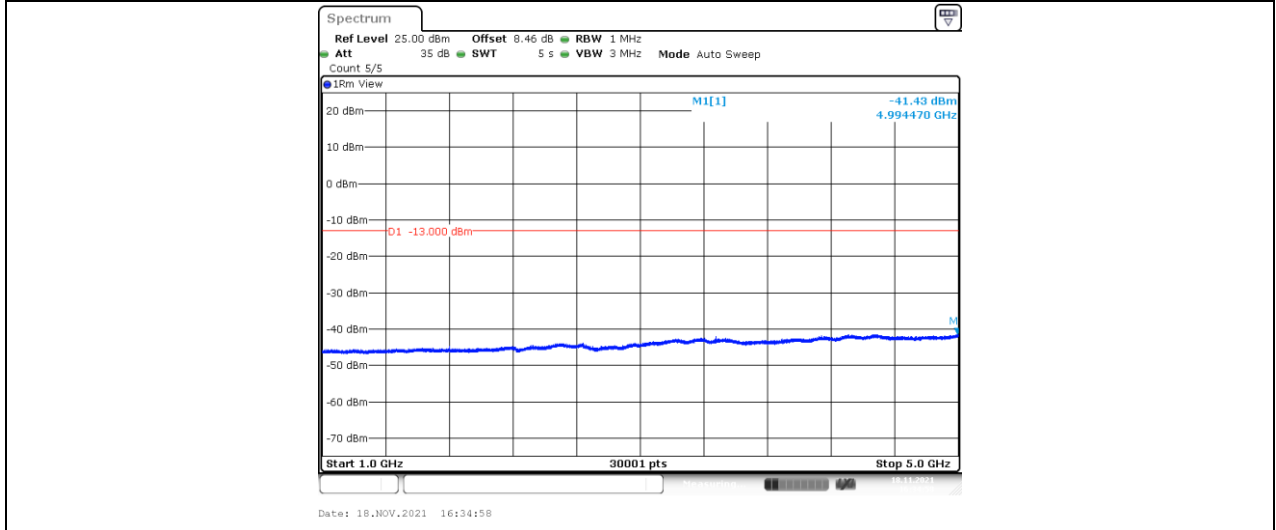


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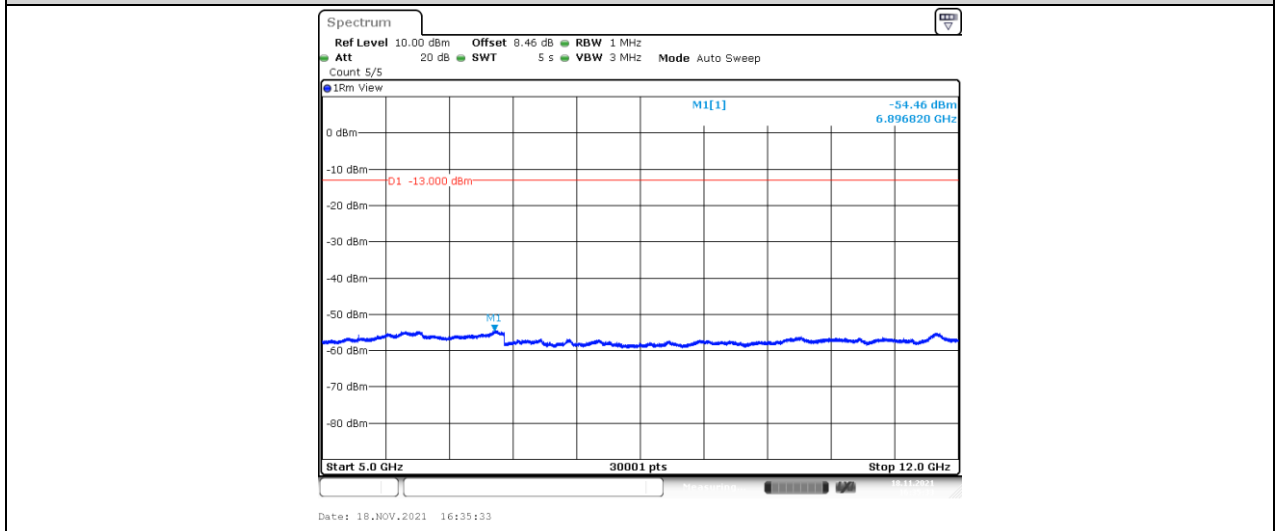
Band8-1.4MHz-QPSK-21648-6-0-Low-30-1000--37.1-PASS



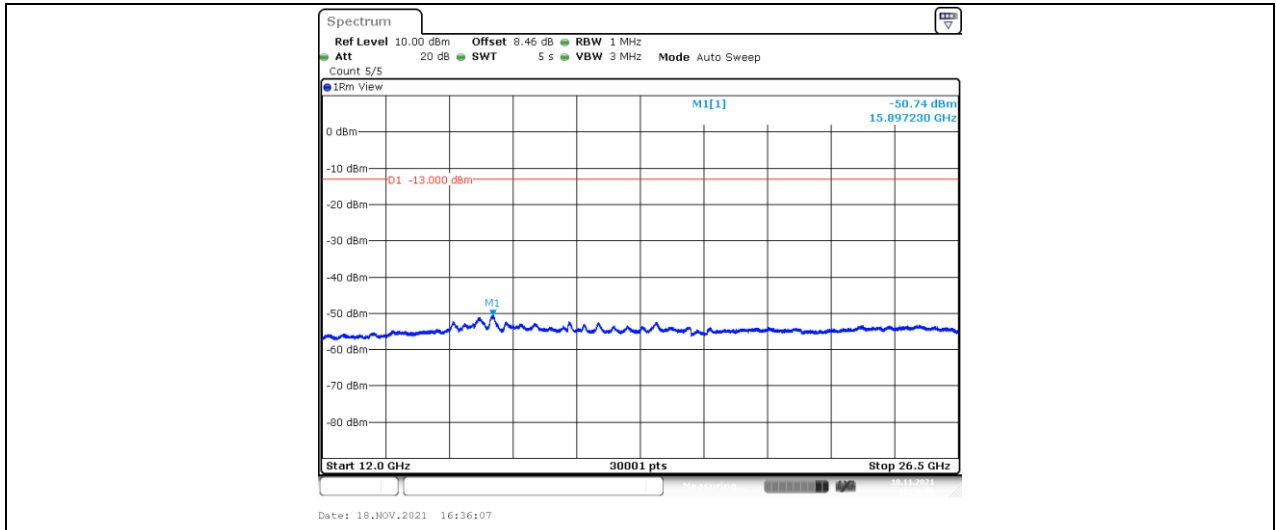
Band8-1.4MHz-QPSK-21648-6-0-Low-1000-5000--41.43-PASS



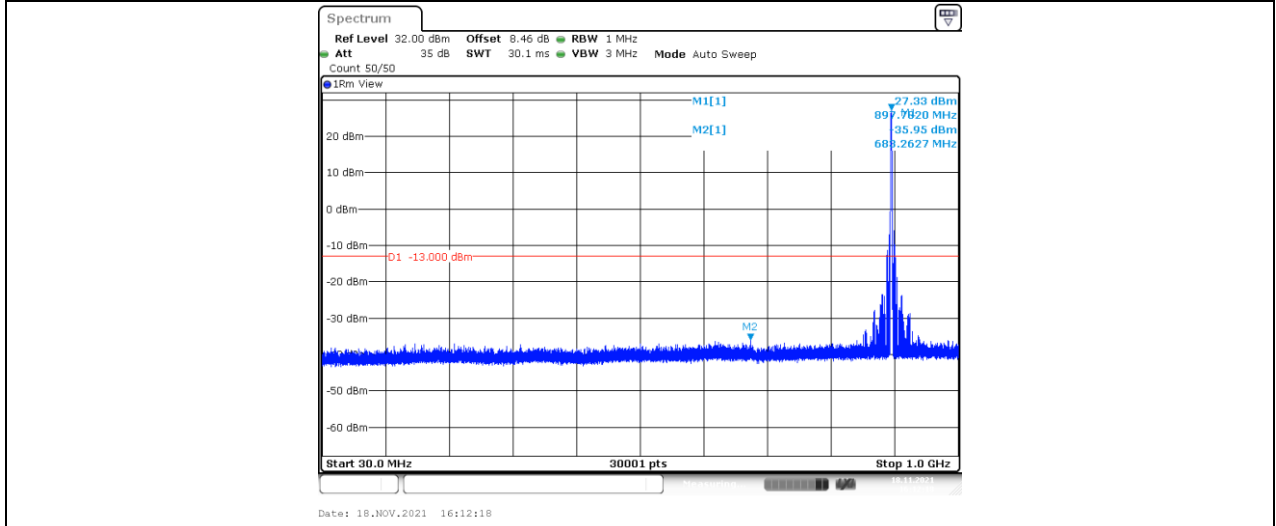
Band8-1.4MHz-QPSK-21648-6-0-Low-5000-12000--54.46-PASS



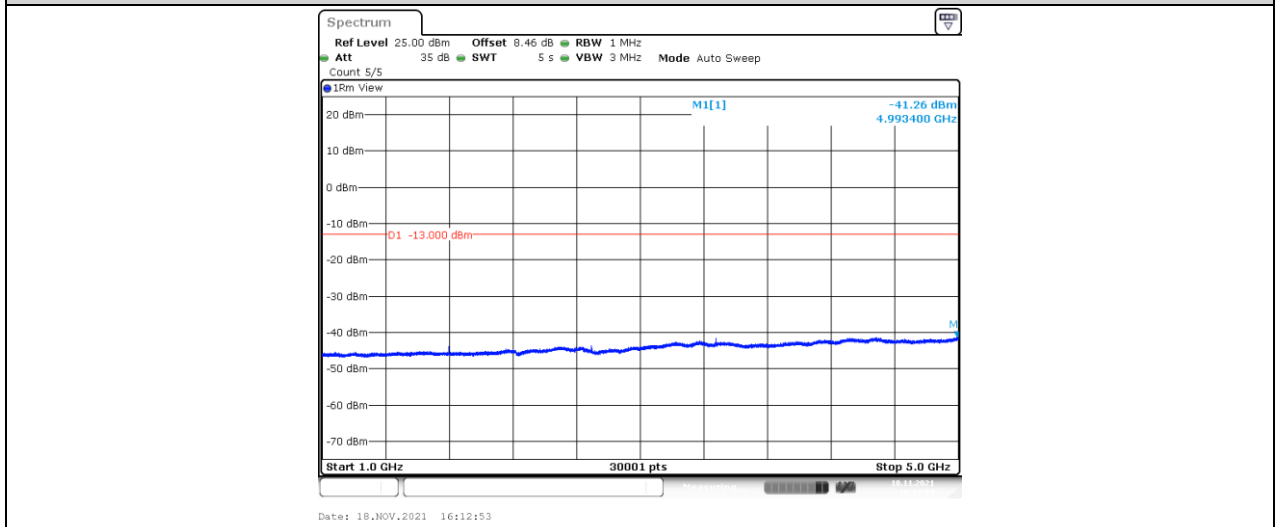
Band8-1.4MHz-QPSK-21648-6-0-Low-12000-26500--50.74-PASS



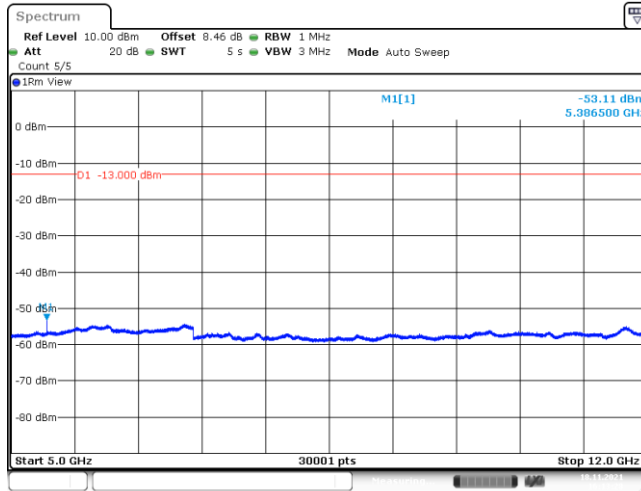
Band8-1.4MHz-16QAM-21632-1-0-Low-30-1000--35.95-PASS



Band8-1.4MHz-16QAM-21632-1-0-Low-1000-5000--41.26-PASS

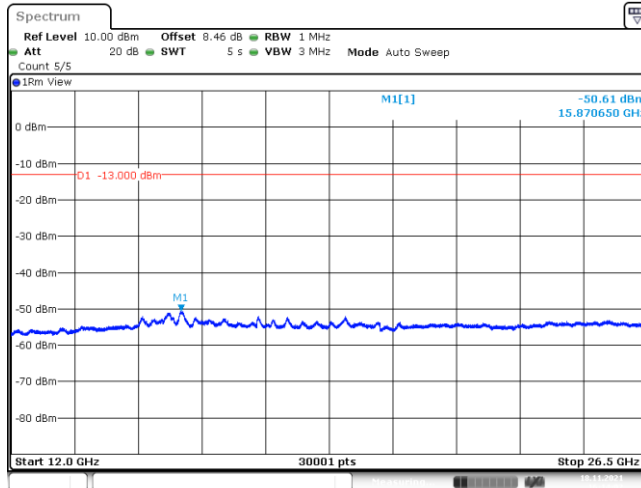


Band8-1.4MHz-16QAM-21632-1-0-Low-5000-12000--53.11-PASS



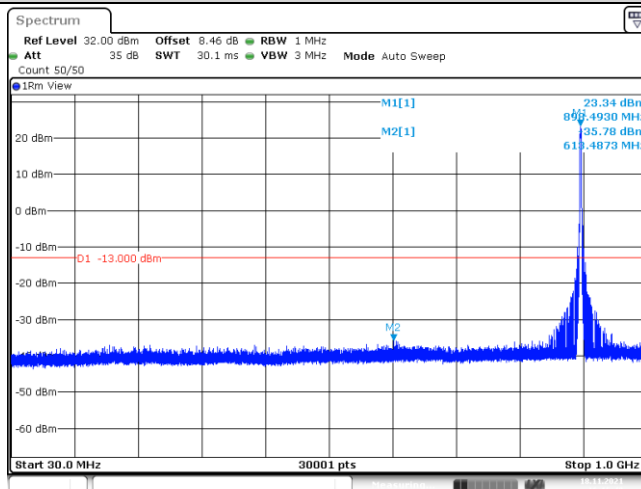
Date: 18.NOV.2021 16:13:27

Band8-1.4MHz-16QAM-21632-1-0-Low-12000-26500--50.61-PASS



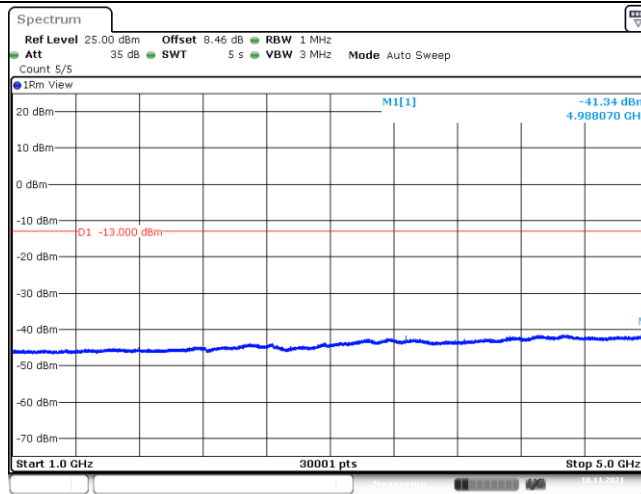
Date: 18.NOV.2021 16:14:02

Band8-1.4MHz-16QAM-21632-6-0-Low-30-1000--35.78-PASS



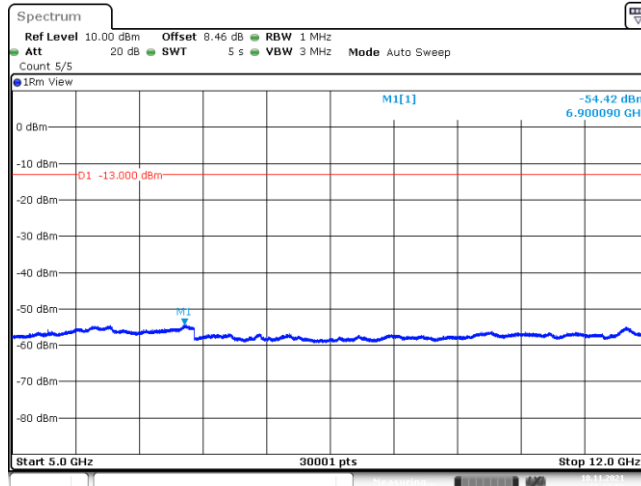
Date: 18.NOV.2021 16:16:49

Band8-1.4MHz-16QAM-21632-6-0-Low-1000-5000--41.34-PASS



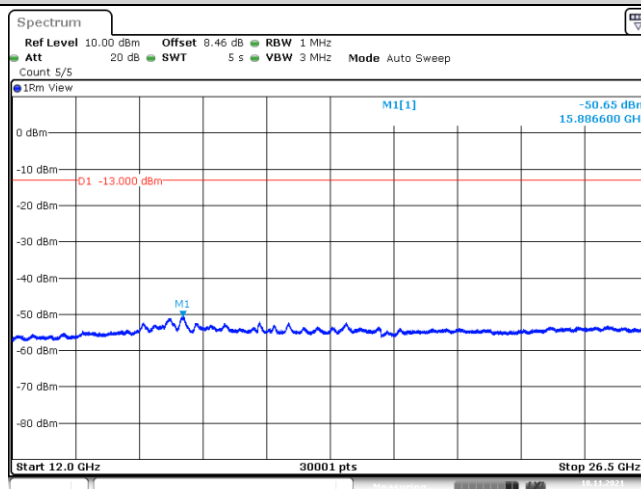
Date: 18.NOV.2021 16:17:23

Band8-1.4MHz-16QAM-21632-6-0-Low-5000-12000--54.42-PASS



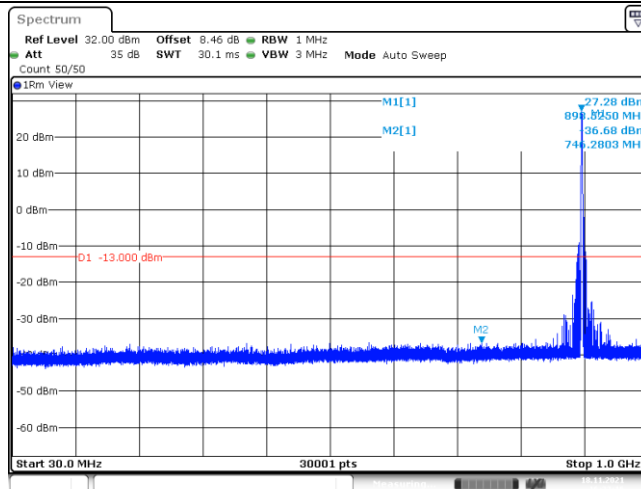
Date: 18.NOV.2021 16:17:58

Band8-1.4MHz-16QAM-21632-6-0-Low-12000-26500--50.65-PASS



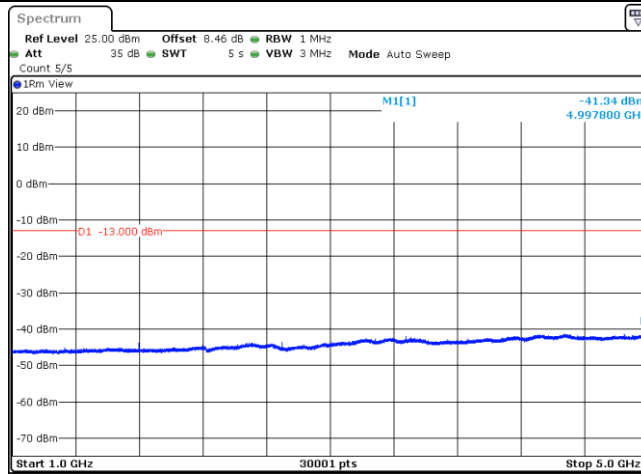
Date: 18.NOV.2021 16:18:33

Band8-1.4MHz-16QAM-21640-1-0-Low-30-1000--36.68-PASS



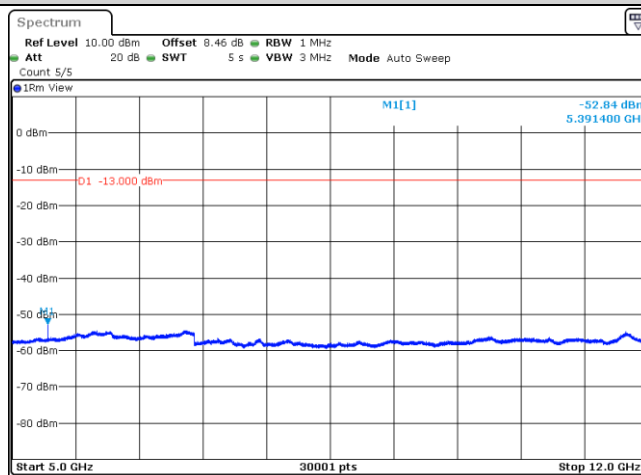
Date: 18.NOV.2021 16:22:16

Band8-1.4MHz-16QAM-21640-1-0-Low-1000-5000--41.34-PASS



Date: 18.NOV.2021 16:22:51

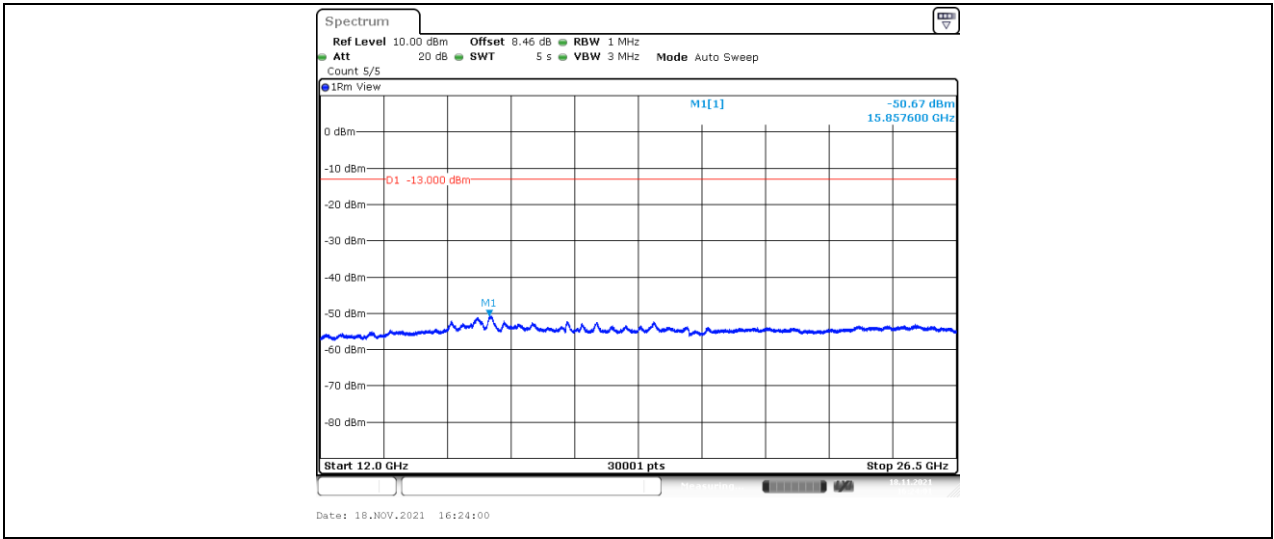
Band8-1.4MHz-16QAM-21640-1-0-Low-5000-12000--52.84-PASS



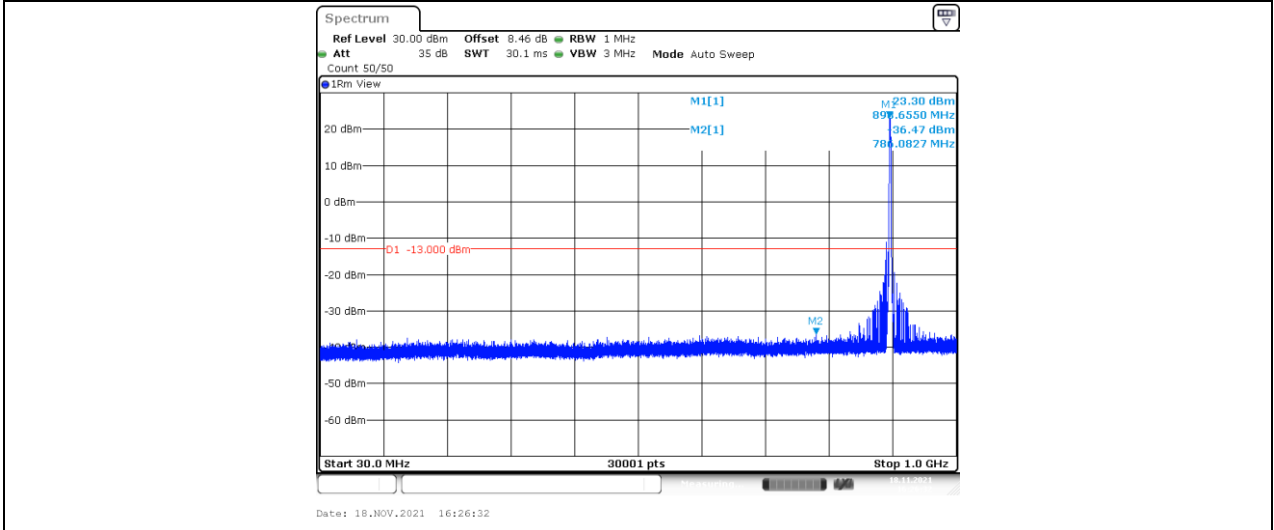
Date: 18.NOV.2021 16:23:26

Band8-1.4MHz-16QAM-21640-1-0-Low-12000-26500--50.67-PASS

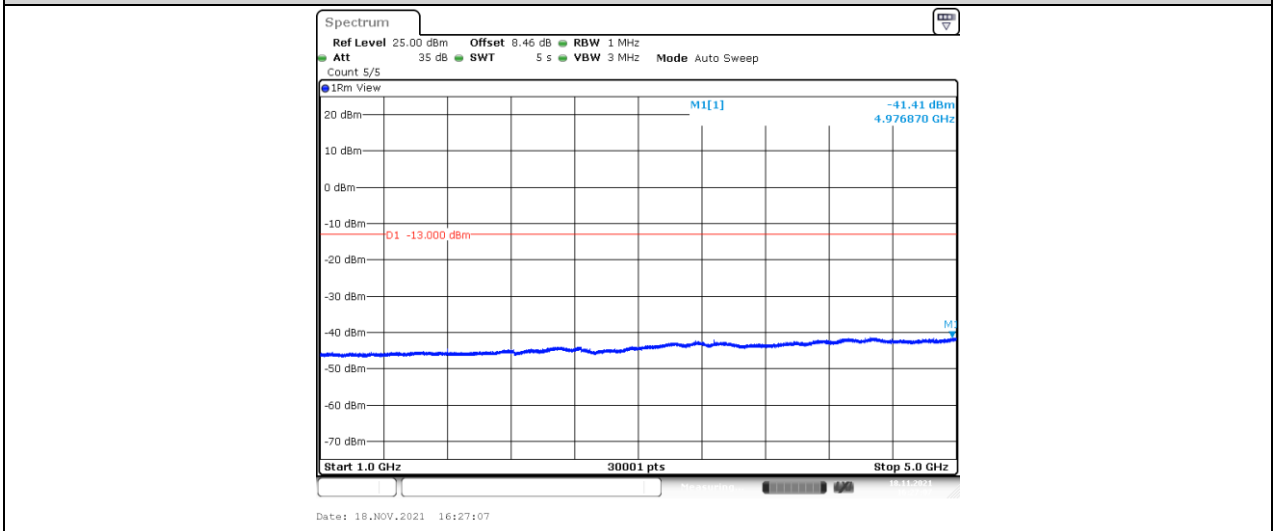




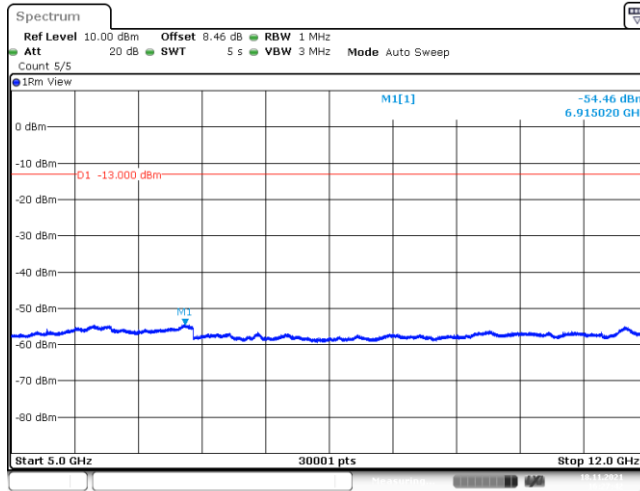
Band8-1.4MHz-16QAM-21640-6-0-Low-30-1000--36.47-PASS



Band8-1.4MHz-16QAM-21640-6-0-Low-1000-5000--41.41-PASS

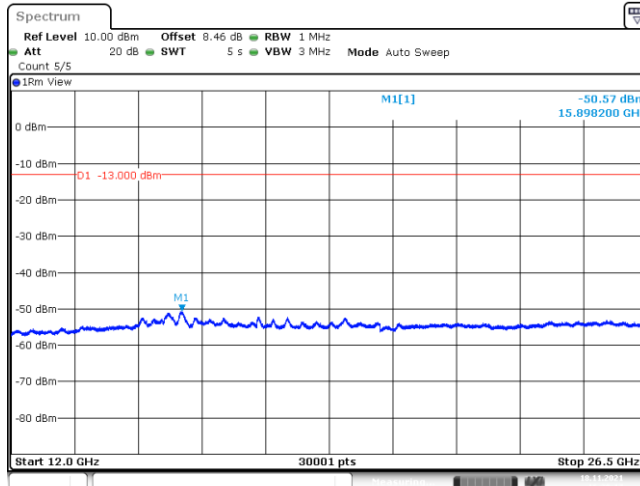


Band8-1.4MHz-16QAM-21640-6-0-Low-5000-12000--54.46-PASS



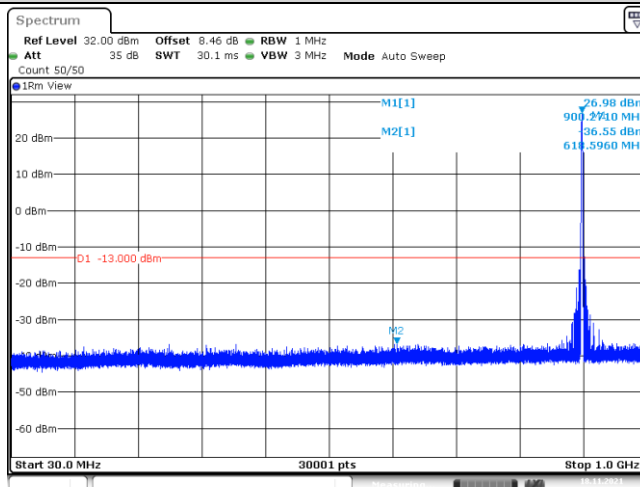
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Band8-1.4MHz-16QAM-21640-6-0-Low-12000-26500--50.57-PASS



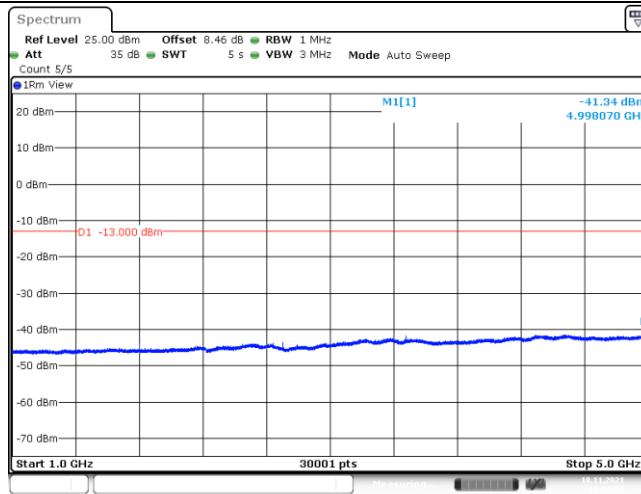
Date: 18.NOV.2021 16:28:17

Band8-1.4MHz-16QAM-21648-1-5-Low-30-1000--36.55-PASS

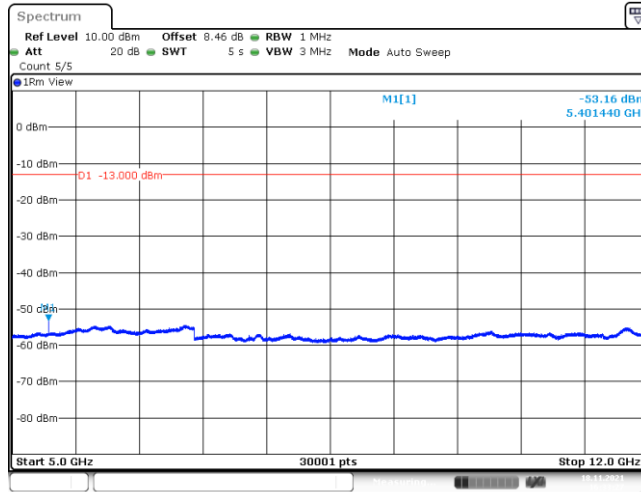


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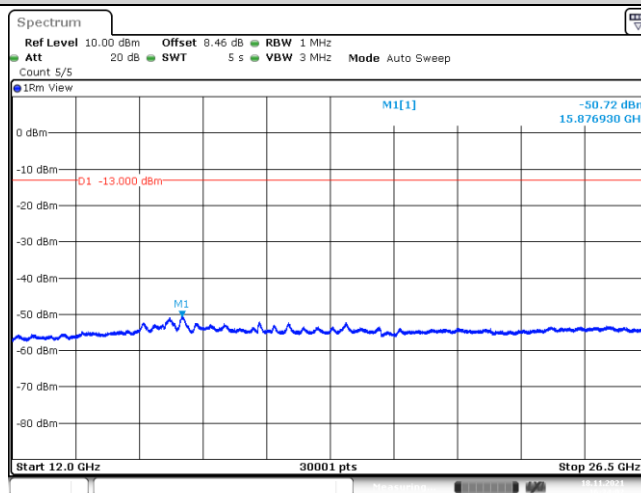
Band8-1.4MHz-16QAM-21648-1-5-Low-1000-5000--41.34-PASS



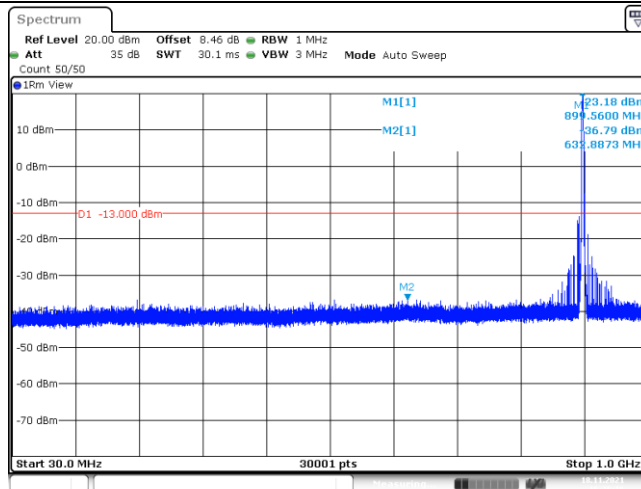
Band8-1.4MHz-16QAM-21648-1-5-Low-5000-12000--53.16-PASS



Band8-1.4MHz-16QAM-21648-1-5-Low-12000-26500--50.72-PASS

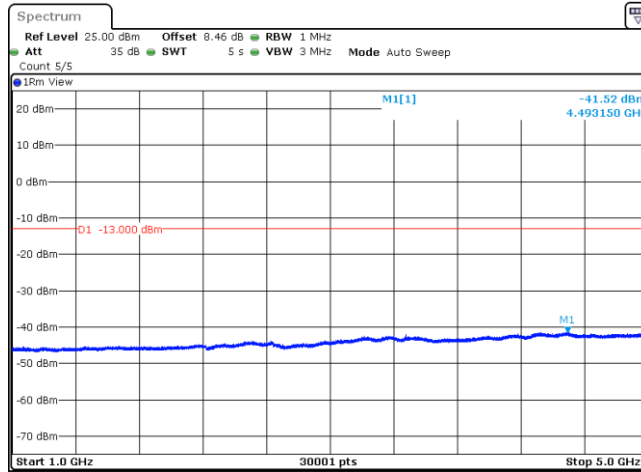


Band8-1.4MHz-16QAM-21648-6-0-Low-30-1000--36.79-PASS



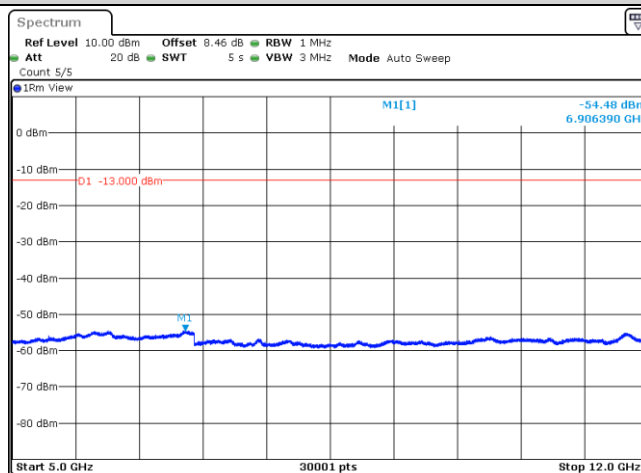
Date: 18.NOV.2021 16:36:16

Band8-1.4MHz-16QAM-21648-6-0-Low-1000-5000--41.52-PASS



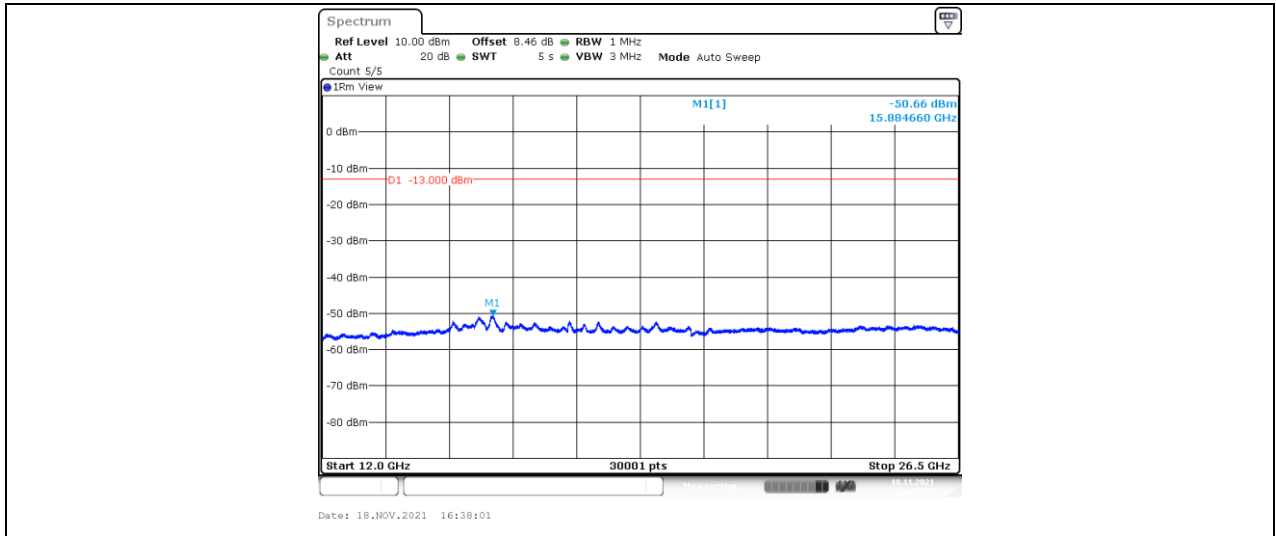
Date: 18.NOV.2021 16:36:51

Band8-1.4MHz-16QAM-21648-6-0-Low-5000-12000--54.48-PASS



Date: 18.NOV.2021 16:37:26

Band8-1.4MHz-16QAM-21648-6-0-Low-12000-26500--50.66-PASS



## APPENDIX L.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
Band8	1.4MHz	21640	QPSK	1	0	Low	HV	NT	3.30	0.003671	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	LV	NT	5.78	0.006429	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	NT	4.81	0.005350	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	HV	NT	5.42	0.006029	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	LV	NT	6.90	0.007675	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	NT	4.21	0.004683	±2.5	PASS

Temperature												
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Index	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	85	3.50	0.003893	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	-30	4.79	0.005328	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	-20	4.08	0.004538	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	-10	6.32	0.007030	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	0	3.28	0.003648	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	10	4.73	0.005261	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	20	4.81	0.005350	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	30	2.93	0.003259	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	40	4.65	0.005172	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	50	3.66	0.004071	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	60	3.60	0.004004	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	70	5.21	0.005795	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	-40	5.24	0.005829	±2.5	PASS
Band8	1.4MHz	21640	QPSK	1	0	Low	NV	80	4.84	0.005384	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	85	7.45	0.008287	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	-30	5.46	0.006073	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	-20	7.22	0.008031	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	-10	6.49	0.007219	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	0	5.36	0.005962	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	10	5.09	0.005662	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	20	6.27	0.006974	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	30	5.28	0.005873	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	40	4.68	0.005206	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	50	5.19	0.005773	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	60	5.85	0.006507	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	70	5.35	0.005951	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	80	7.84	0.008721	±2.5	PASS
Band8	1.4MHz	21640	16QAM	1	0	Low	NV	-40	5.21	0.005795	±2.5	PASS