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Appendix for LTE Band 18

**Applicant: HONGKONG U-CLOUDLINK NETWORK TECHNOLOGY
LIMITED**

**Address: Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung
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Product Name: LTE Module

Model: GLMM20A01

FCC ID: 2AC88-GLMM20A01

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1 Summary of Test Results Data and Graph

1.1. Appendix A: Conducted Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band18	5MHz	QPSK	23875	1RB#0	24.84	PASS
Band18	5MHz	QPSK	23875	1RB#12	24.84	PASS
Band18	5MHz	QPSK	23875	1RB#24	24.61	PASS
Band18	5MHz	QPSK	23875	12RB#0	23.83	PASS
Band18	5MHz	QPSK	23875	12RB#6	23.81	PASS
Band18	5MHz	QPSK	23875	12RB#13	23.70	PASS
Band18	5MHz	QPSK	23875	25RB#0	23.74	PASS
Band18	5MHz	QPSK	23975	1RB#0	24.66	PASS
Band18	5MHz	QPSK	23975	1RB#12	24.77	PASS
Band18	5MHz	QPSK	23975	1RB#24	24.95	PASS
Band18	5MHz	QPSK	23975	12RB#0	23.71	PASS
Band18	5MHz	QPSK	23975	12RB#6	23.67	PASS
Band18	5MHz	QPSK	23975	12RB#13	23.79	PASS
Band18	5MHz	QPSK	23975	25RB#0	23.67	PASS
Band18	5MHz	16QAM	23875	1RB#0	23.67	PASS
Band18	5MHz	16QAM	23875	1RB#12	23.80	PASS
Band18	5MHz	16QAM	23875	1RB#24	23.57	PASS
Band18	5MHz	16QAM	23875	12RB#0	23.81	PASS
Band18	5MHz	16QAM	23875	12RB#6	23.81	PASS
Band18	5MHz	16QAM	23875	12RB#13	23.72	PASS
Band18	5MHz	16QAM	23875	25RB#0	22.70	PASS
Band18	5MHz	16QAM	23975	1RB#0	23.42	PASS
Band18	5MHz	16QAM	23975	1RB#12	23.72	PASS
Band18	5MHz	16QAM	23975	1RB#24	23.38	PASS
Band18	5MHz	16QAM	23975	12RB#0	23.69	PASS
Band18	5MHz	16QAM	23975	12RB#6	23.76	PASS
Band18	5MHz	16QAM	23975	12RB#13	23.78	PASS
Band18	5MHz	16QAM	23975	25RB#0	22.91	PASS

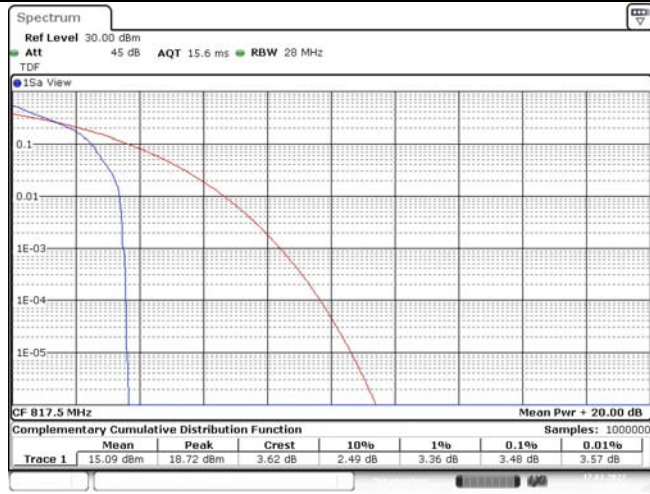
1.2. Appendix B: Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band18	5MHz	QPSK	23875	1RB#0	3.48	13	PASS
Band18	5MHz	QPSK	23875	25RB#0	3.71	13	PASS
Band18	5MHz	QPSK	23975	1RB#0	5.01	13	PASS
Band18	5MHz	QPSK	23975	25RB#0	5.48	13	PASS
Band18	5MHz	16QAM	23875	1RB#0	4.52	13	PASS
Band18	5MHz	16QAM	23875	25RB#0	4.67	13	PASS
Band18	5MHz	16QAM	23975	1RB#0	6.00	13	PASS
Band18	5MHz	16QAM	23975	25RB#0	6.35	13	PASS

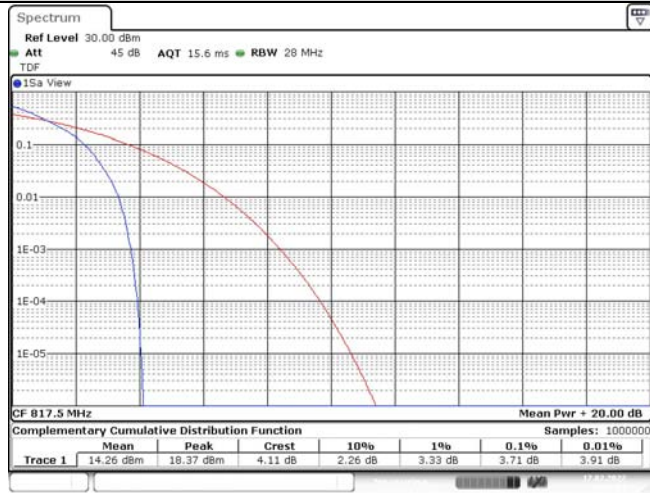
Test Graphs

Band18-5MHz-QPSK-23875-1RB#0



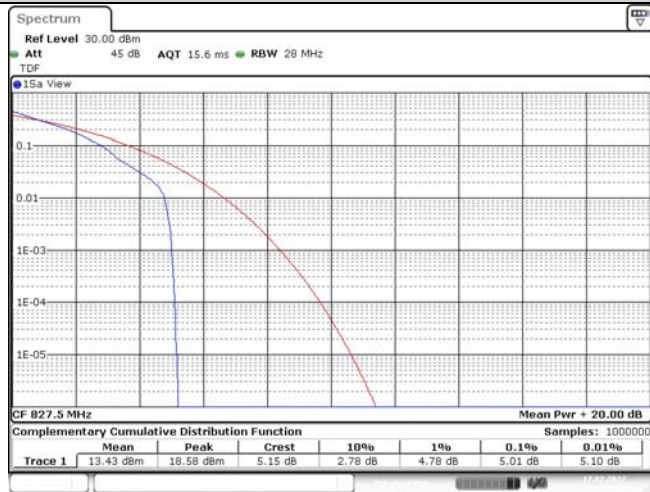
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Band18-5MHz-QPSK-23875-25RB#0



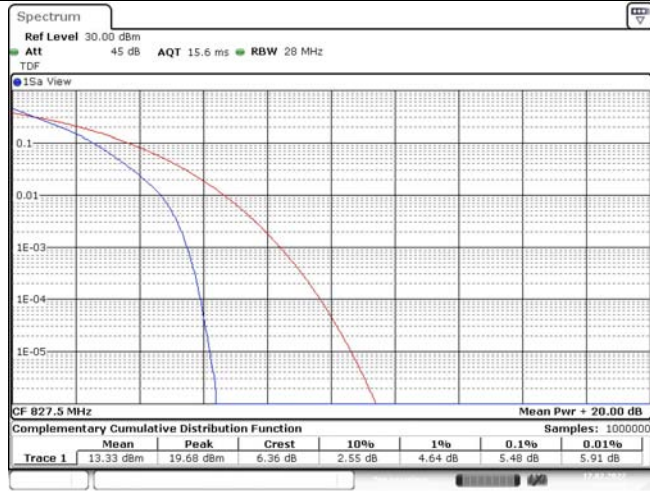
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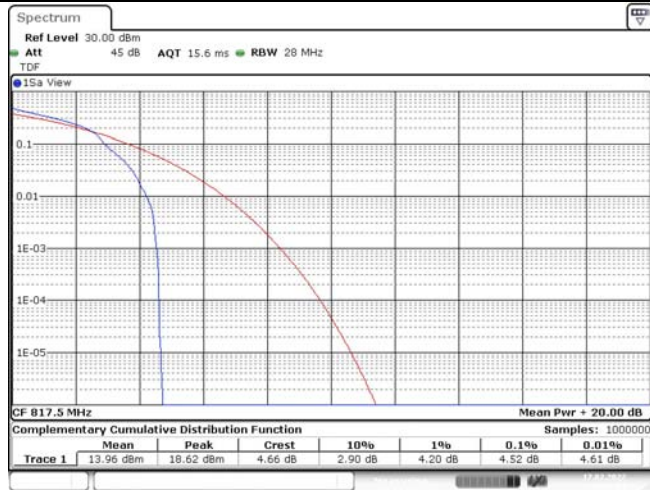
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Band18-5MHz-QPSK-23975-25RB#0



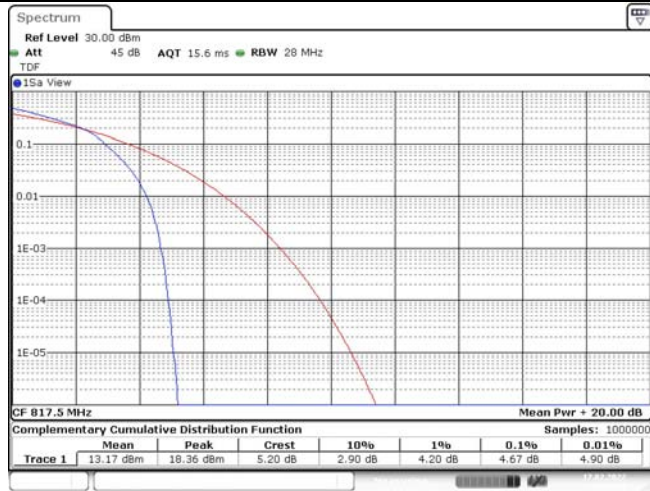
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Band18-5MHz-16QAM-23875-1RB#0



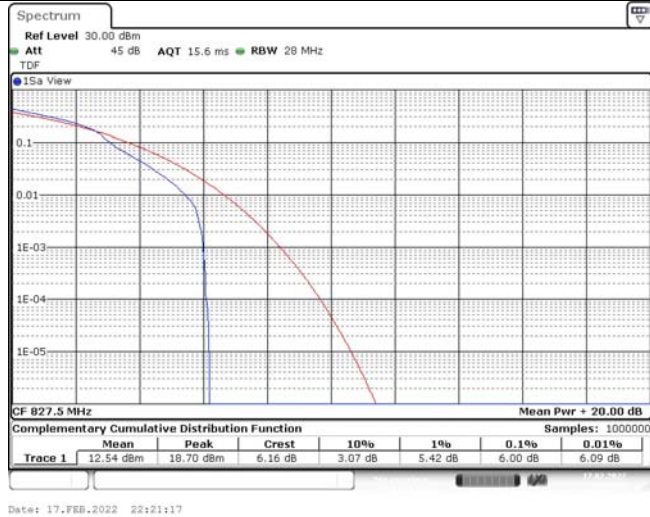
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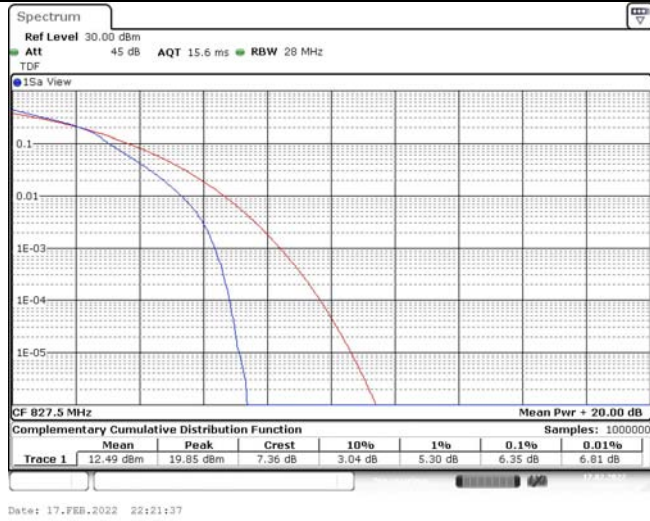


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Band18-5MHz-16QAM-23975-1RB#0



Band18-5MHz-16QAM-23975-25RB#0



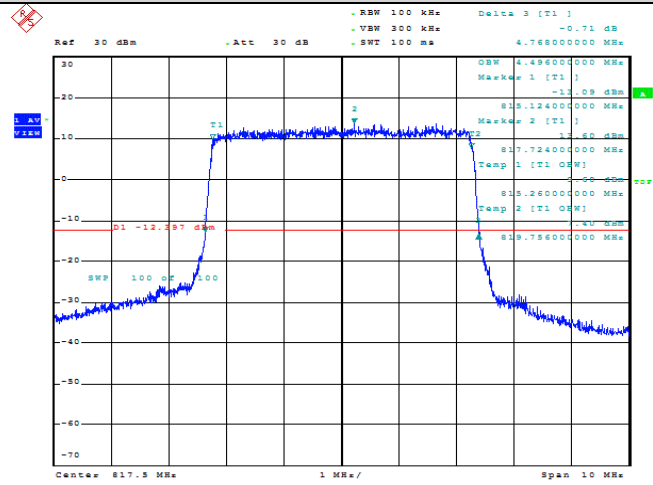
1.3. Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band18	5MHz	QPSK	23875	25RB#0	4.496	4.768	PASS
Band18	5MHz	QPSK	23975	25RB#0	4.496	4.800	PASS
Band18	5MHz	16QAM	23875	25RB#0	4.496	4.768	PASS
Band18	5MHz	16QAM	23975	25RB#0	4.512	4.784	PASS

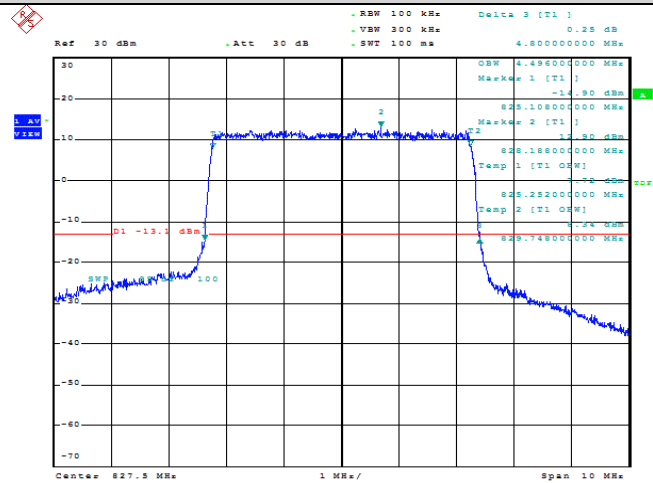
Test Graphs

Band18-5MHz-QPSK-23875-25RB#0-4.496



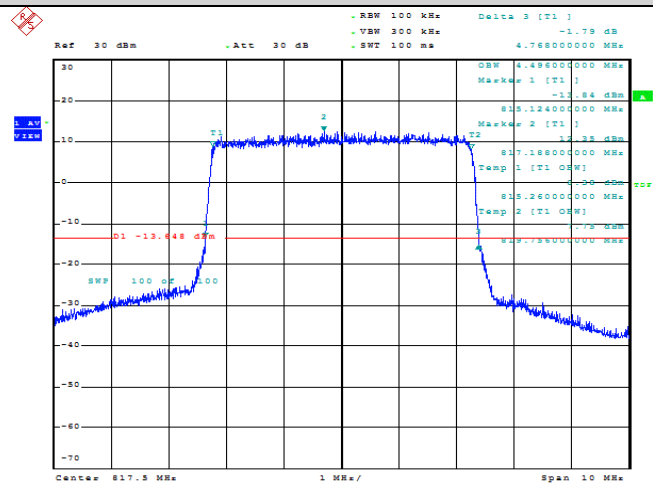
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Band18-5MHz-QPSK-23975-25RB#0-4.496



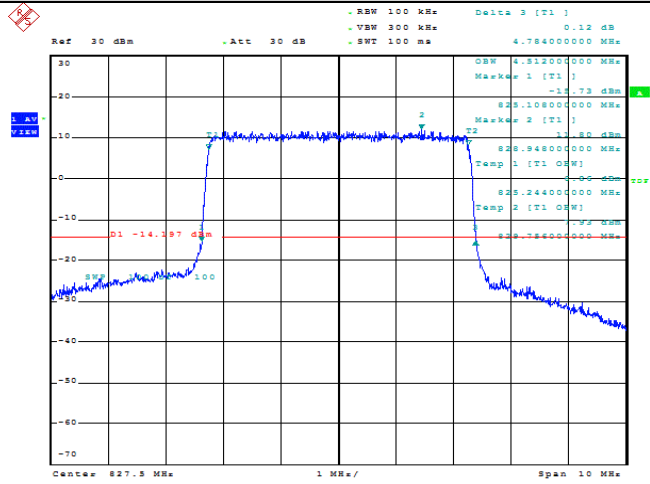
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Band18-5MHz-16QAM-23875-25RB#0-4.496



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Band18-5MHz-16QAM-23975-25RB#0-4.512



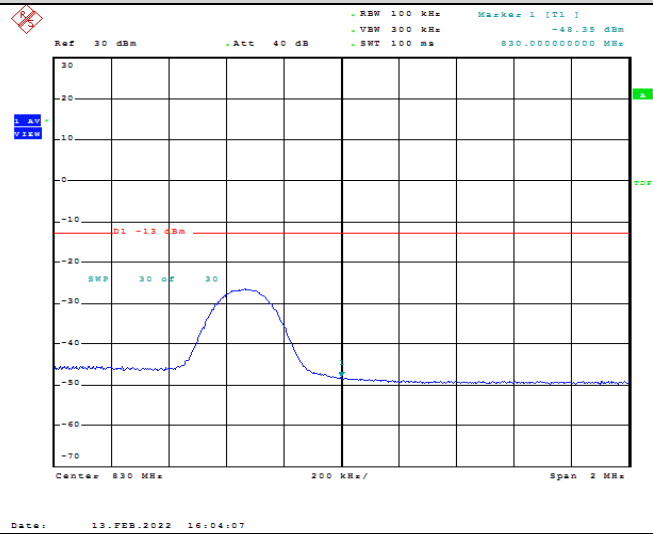
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1.4. Appendix D: Band Edge

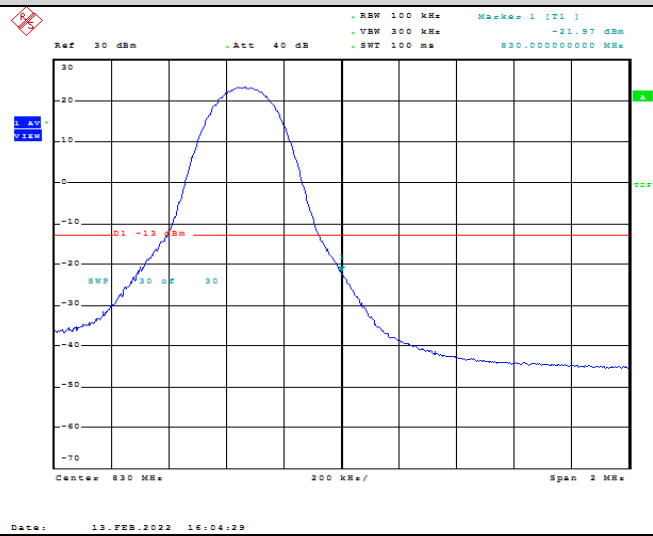
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band18	5MHz	QPSK	23875	1RB#0	-20.65	PASS
Band18	5MHz	QPSK	23875	1RB#24	-48.36	PASS
Band18	5MHz	QPSK	23875	25RB#0	-26.33	PASS
Band18	5MHz	QPSK	23975	1RB#0	-48.35	PASS
Band18	5MHz	QPSK	23975	1RB#24	-21.97	PASS
Band18	5MHz	QPSK	23975	25RB#0	-25.80	PASS
Band18	5MHz	16QAM	23875	1RB#0	-22.96	PASS
Band18	5MHz	16QAM	23875	1RB#24	-48.52	PASS
Band18	5MHz	16QAM	23875	25RB#0	-26.86	PASS
Band18	5MHz	16QAM	23975	1RB#0	-48.53	PASS
Band18	5MHz	16QAM	23975	1RB#24	-22.42	PASS
Band18	5MHz	16QAM	23975	25RB#0	-26.46	PASS

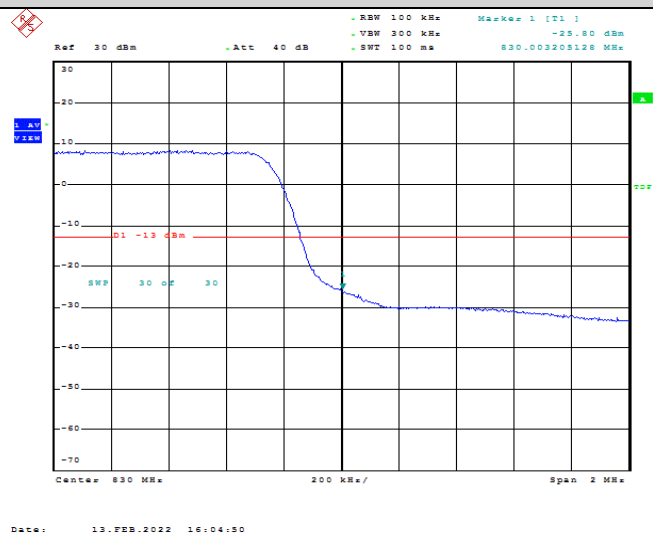
Band18-5MHz-QPSK-23975-1RB#0



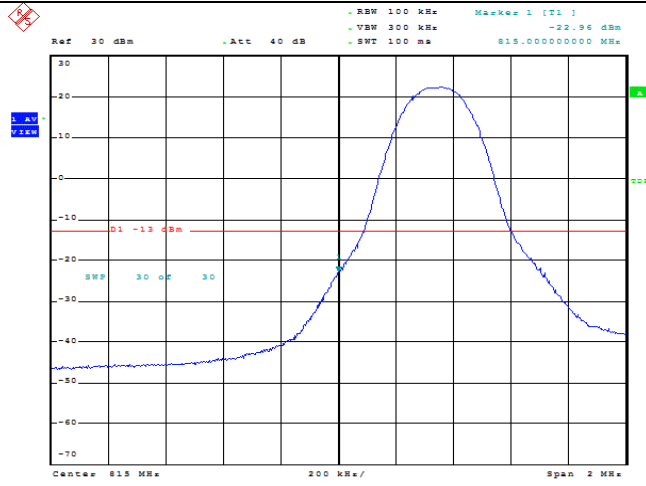
Band18-5MHz-QPSK-23975-1RB#24



Band18-5MHz-QPSK-23975-25RB#0

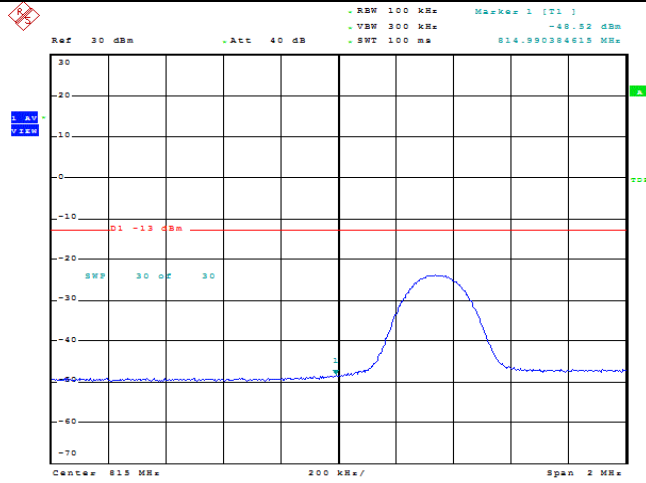


Band18-5MHz-16QAM-23875-1RB#0



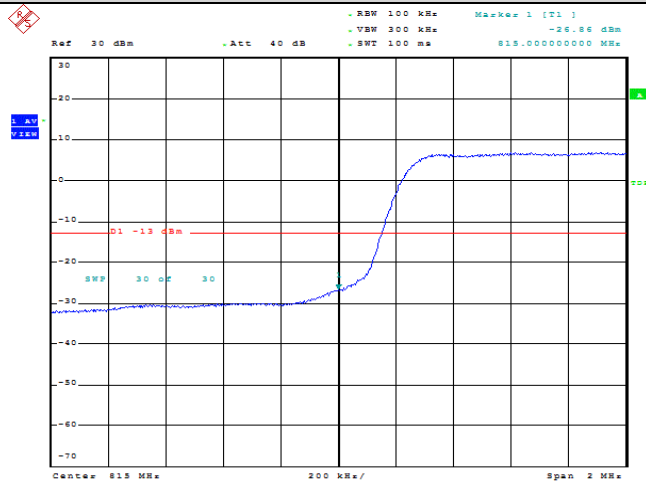
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Band18-5MHz-16QAM-23875-1RB#24



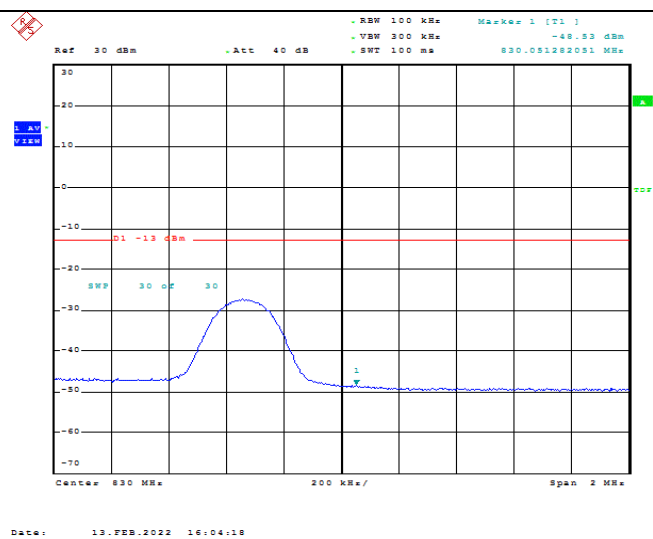
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Band18-5MHz-16QAM-23875-25RB#0

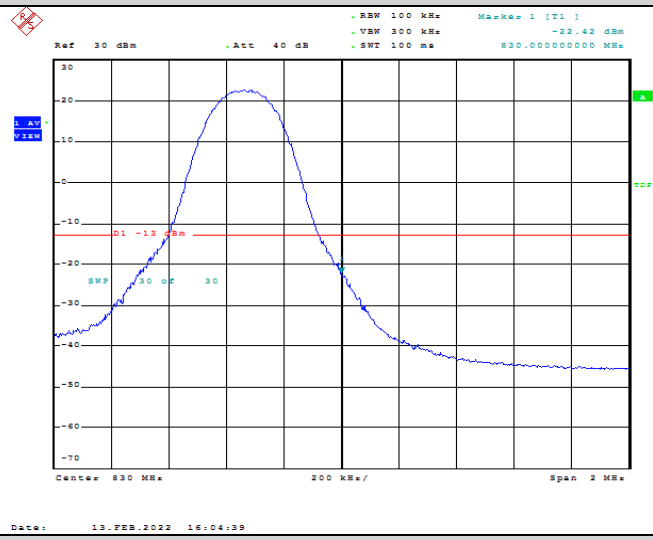


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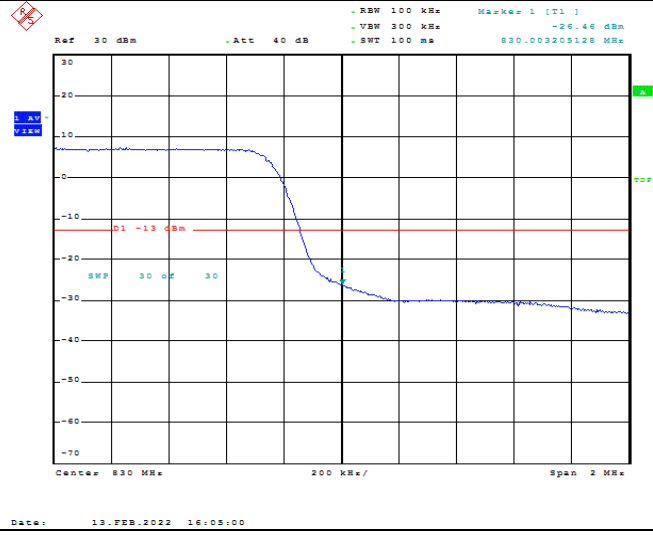
Band18-5MHz-16QAM-23975-1RB#0



Band18-5MHz-16QAM-23975-1RB#24



Band18-5MHz-16QAM-23975-25RB#0



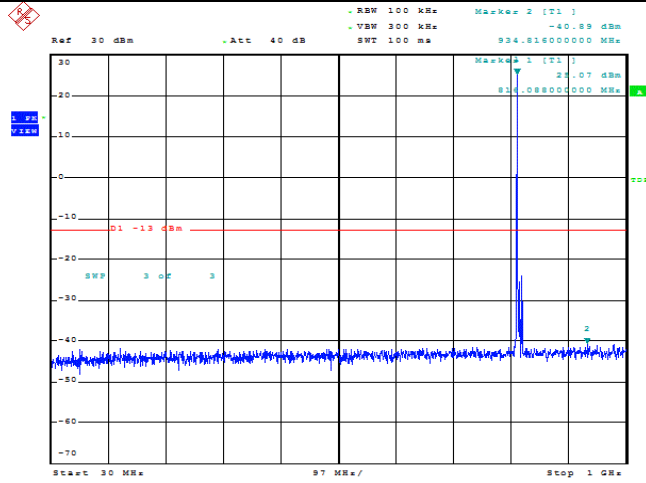
1.5. Appendix E: Conducted Spurious Emission

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band18	5MHz	QPSK	23875	1RB#0	Range1:30~1000MHz	-40.89	PASS
Band18	5MHz	QPSK	23875	1RB#0	Range2:1000~10000MHz	-30.13	PASS
Band18	5MHz	QPSK	23975	1RB#0	Range1:30~1000MHz	-40.8	PASS
Band18	5MHz	QPSK	23975	1RB#0	Range2:1000~10000MHz	-31.47	PASS
Band18	5MHz	16QAM	23875	1RB#0	Range1:30~1000MHz	-41.07	PASS
Band18	5MHz	16QAM	23875	1RB#0	Range2:1000~10000MHz	-32.18	PASS
Band18	5MHz	16QAM	23975	1RB#0	Range1:30~1000MHz	-41.06	PASS
Band18	5MHz	16QAM	23975	1RB#0	Range2:1000~10000MHz	-28.27	PASS

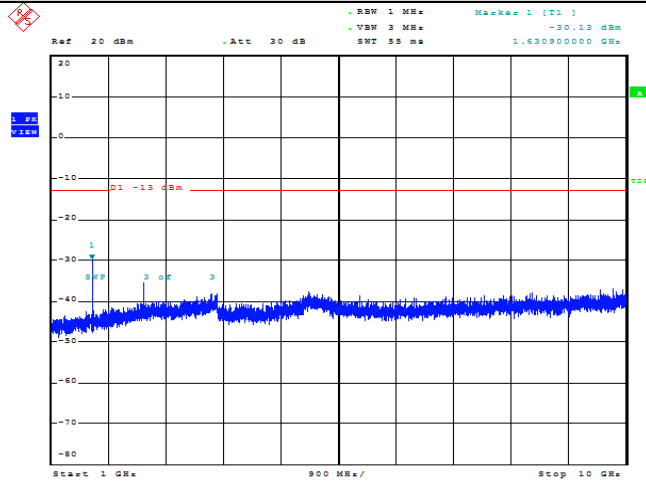
Test Graphs

Band18-5MHz-QPSK-23875-1RB#0-Range1:30~1000MHz



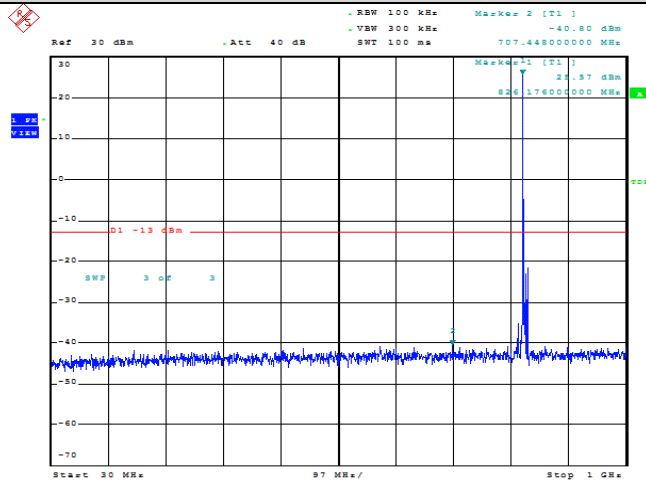
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Band18-5MHz-QPSK-23875-1RB#0-Range2:1000~10000MHz



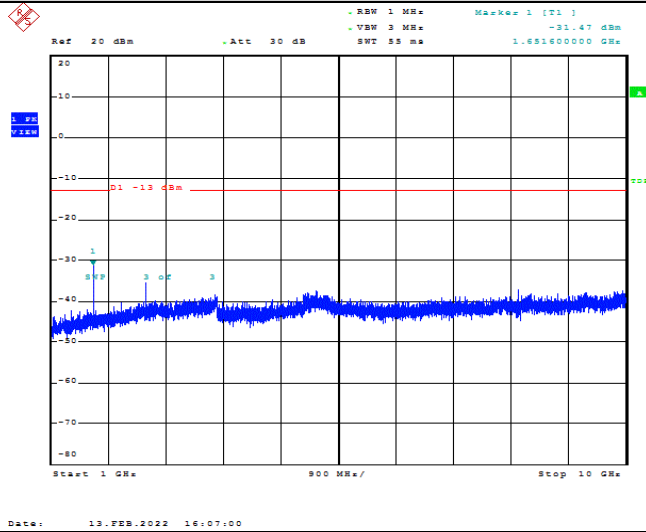
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Band18-5MHz-QPSK-23975-1RB#0-Range1:30~1000MHz

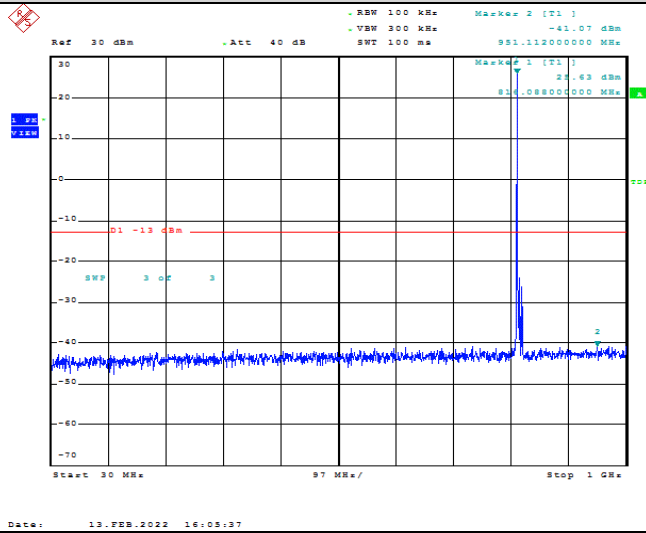


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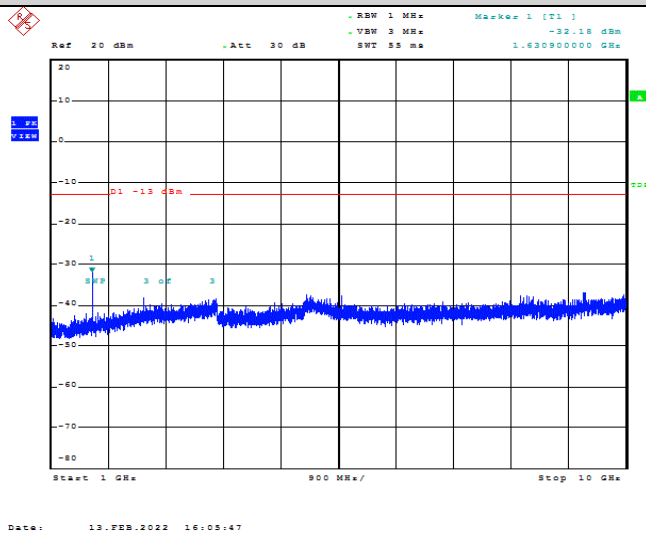
Band18-5MHz-QPSK-23975-1RB#0-Range2:1000~10000MHz



Band18-5MHz-16QAM-23875-1RB#0-Range1:30~1000MHz



Band18-5MHz-16QAM-23875-1RB#0-Range2:1000~10000MHz



Band18-5MHz-16QAM-23975-1RB#0-Range1:30~1000MHz

1.6. Appendix F: Frequency Stability

Test Result

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band18	5MHz	QPSK	23875	25RB#0	VL	NT	-2.60	-0.003180	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	VN	NT	-2.49	-0.003046	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	VH	NT	-3.20	-0.003914	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	VL	NT	-2.92	-0.003529	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	VN	NT	-2.53	-0.003057	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	VH	NT	-2.75	-0.003323	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	VL	NT	-3.83	-0.004685	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	VN	NT	-2.76	-0.003376	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	VH	NT	-3.71	-0.004538	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	VL	NT	-2.29	-0.002767	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	VN	NT	2.63	0.003178	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	VH	NT	1.72	0.002079	±2.5	PASS

Temperature										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band18	5MHz	QPSK	23875	25RB#0	NV	-20	-3.50	-0.004281	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	-10	-3.56	-0.004355	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	0	-4.61	-0.005639	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	10	1.69	0.002067	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	20	-1.77	-0.002165	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	30	-2.83	-0.003462	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	40	-2.60	-0.003180	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	50	-3.45	-0.004220	±2.5	PASS
Band18	5MHz	QPSK	23875	25RB#0	NV	65	-4.12	-0.005040	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	-20	-1.90	-0.002296	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	-10	-1.06	-0.001281	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	0	1.65	0.001994	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	10	-2.26	-0.002731	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	20	2.10	0.002538	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	30	-2.35	-0.002840	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	40	-2.35	-0.002840	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	50	-2.69	-0.003251	±2.5	PASS
Band18	5MHz	QPSK	23975	25RB#0	NV	65	-3.22	-0.003891	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	-20	-2.42	-0.002960	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	-10	-2.62	-0.003205	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	0	-4.12	-0.005040	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	10	-2.46	-0.003009	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	20	-3.36	-0.004110	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	30	-3.46	-0.004232	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	40	-2.22	-0.002716	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	50	-2.90	-0.003547	±2.5	PASS
Band18	5MHz	16QAM	23875	25RB#0	NV	65	-2.19	-0.002679	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	-20	-1.17	-0.001414	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	-10	-3.00	-0.003625	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	0	-2.95	-0.003565	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	10	2.10	0.002538	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	20	-1.54	-0.001861	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	30	-2.37	-0.002864	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	40	-1.07	-0.001293	±2.5	PASS
Band18	5MHz	16QAM	23975	25RB#0	NV	50	-2.12	-0.002562	±2.5	PASS

Band18	5MHz	16QAM	23975	25RB#0	NV	65	-2.16	-0.002610	±2.5	PASS
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