Appendix B.7

LTE Band 13

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Effective (Isotropic) Radiated Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result (dBm)	ERP (dBm)	Limit(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.77	20.78	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	22.83	20.84	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	22.64	20.65	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.83	19.84	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	22.71	20.72	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	22.82	20.83	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	22.65	20.66	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.71	19.72	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	22.67	20.68	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	22.78	20.79	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.62	20.63	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.71	19.72	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.69	19.70	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.83	19.84	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.64	19.65	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	20.85	18.86	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.69	19.70	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	21.78	19.79	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	21.62	19.63	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.77	18.78	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	21.88	19.89	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	21.92	19.93	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.75	19.76	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.76	18.77	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.77	20.78	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.79	20.80	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.65	20.66	34.77	PASS

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Band13	10MHz	QPSK	23230	50RB#0	21.73	19.74	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.90	19.91	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	21.99	20.00	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.86	19.87	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	20.68	18.69	34.77	PASS

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Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	5.04	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.76	13	PASS

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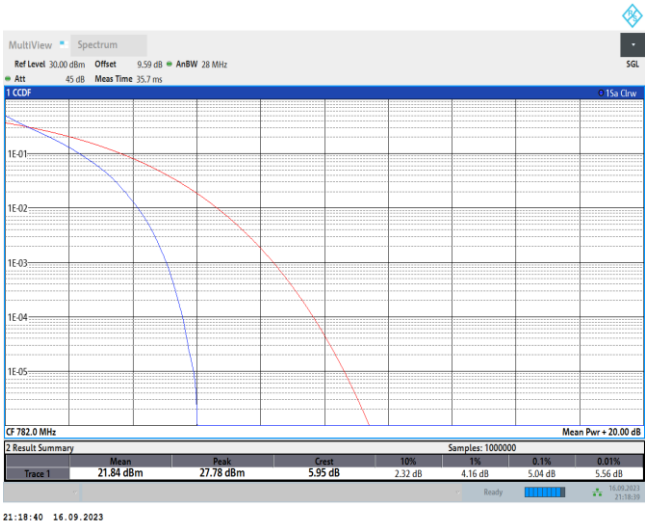
Test Graphs

Band13-10MHz-QPSK-23230-50RB#0



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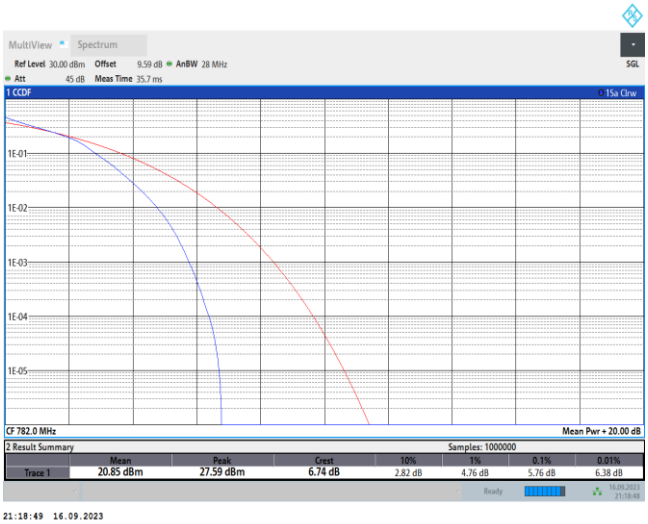

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26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.495	4.87	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.518	4.91	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.482	4.96	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.479	4.96	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.489	5.00	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.482	4.98	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.976	9.48	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.919	9.62	PASS

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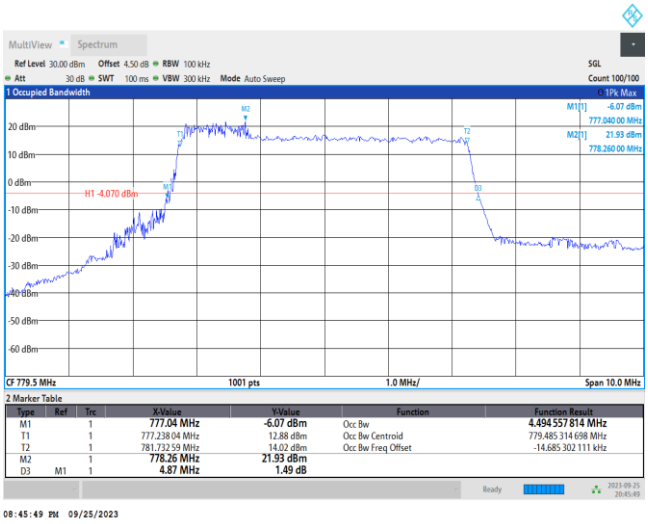
Test Graphs

Band13-5MHz-QPSK-23205-25RB#0



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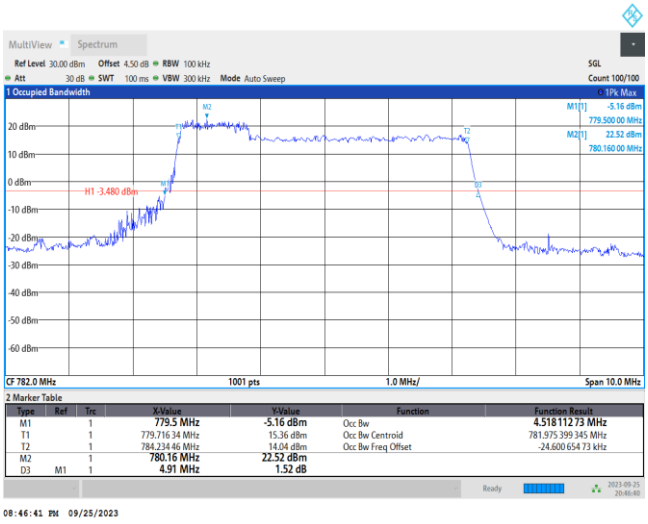

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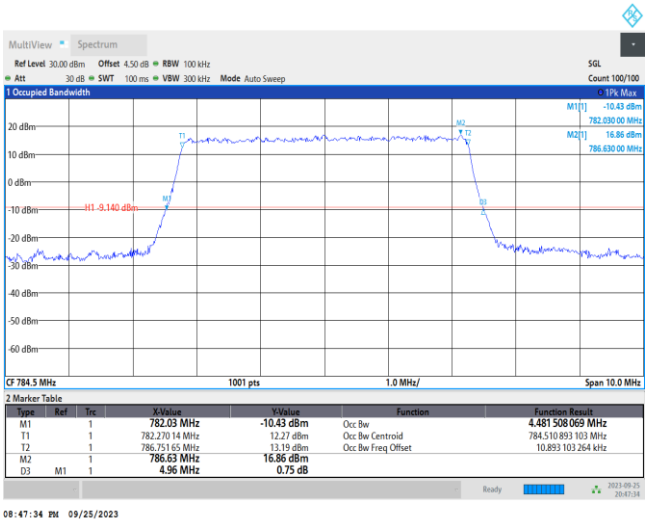
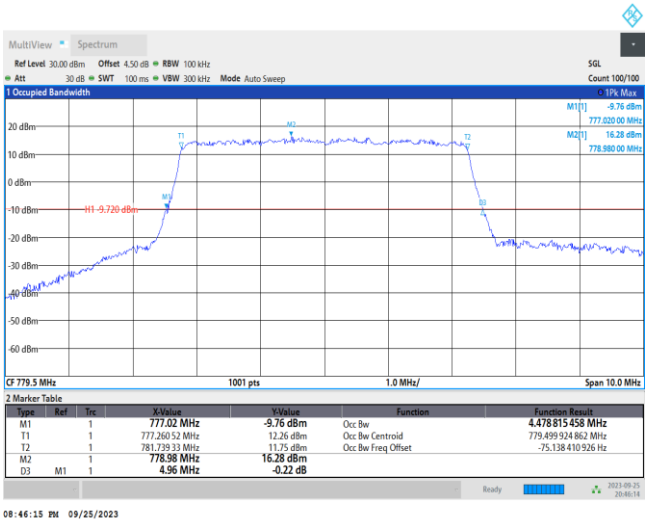
Band13-5MHz-QPSK-23255-25RB#0



Band13-5MHz-16QAM-23205-25RB#0



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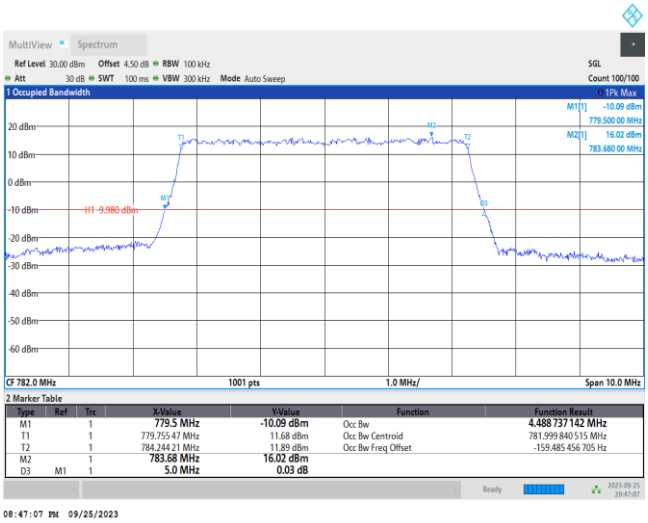
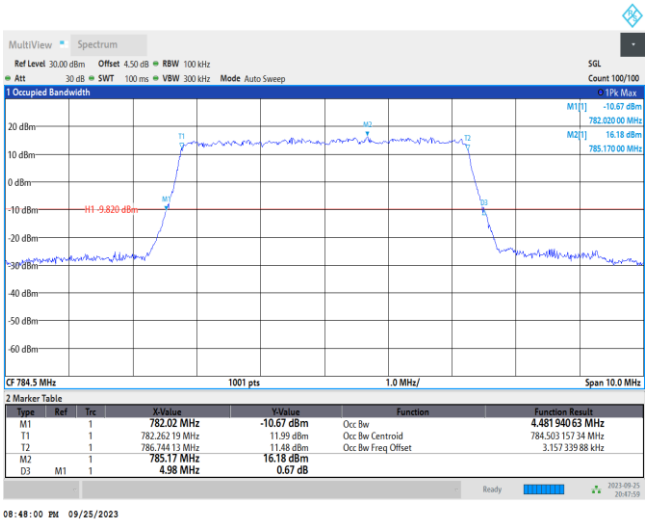
Band13-5MHz-16QAM-23230-25RB#0



Band13-5MHz-16QAM-23255-25RB#0



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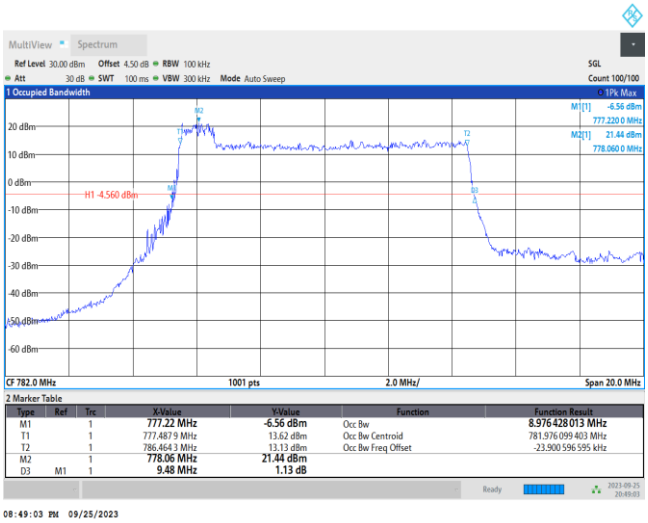
Band13-10MHz-QPSK-23230-50RB#0



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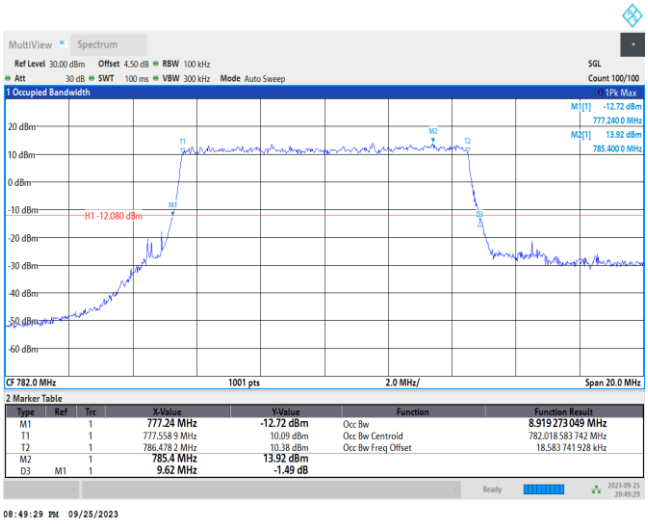

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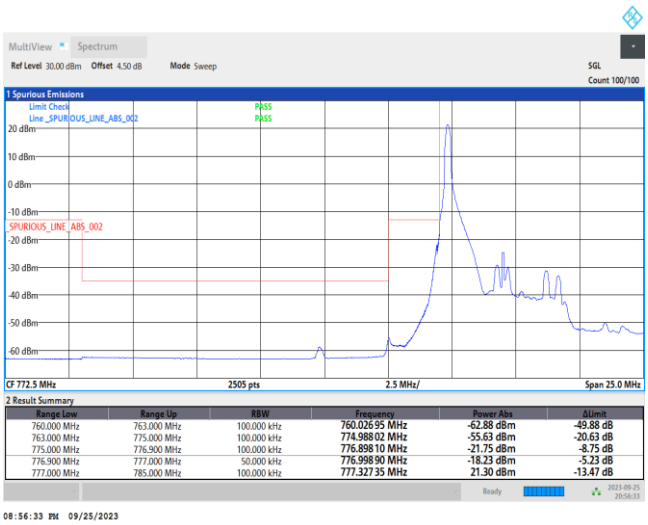
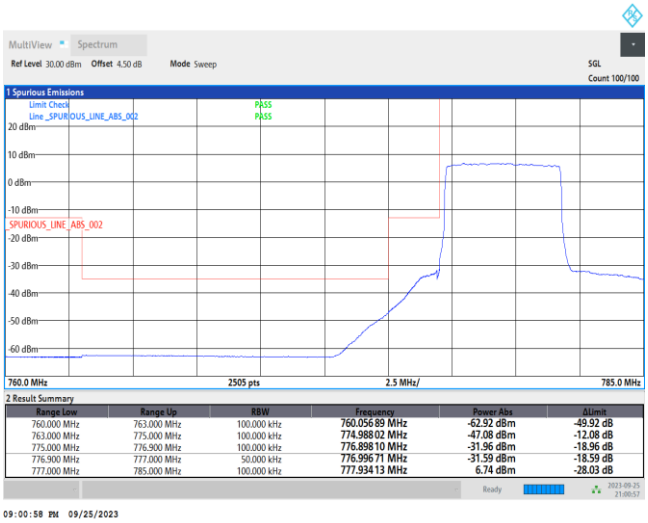
Band Edge

Test Graphs

Band13-5MHz-QPSK-23205-1RB#0



Band13-5MHz-QPSK-23205-25RB#0



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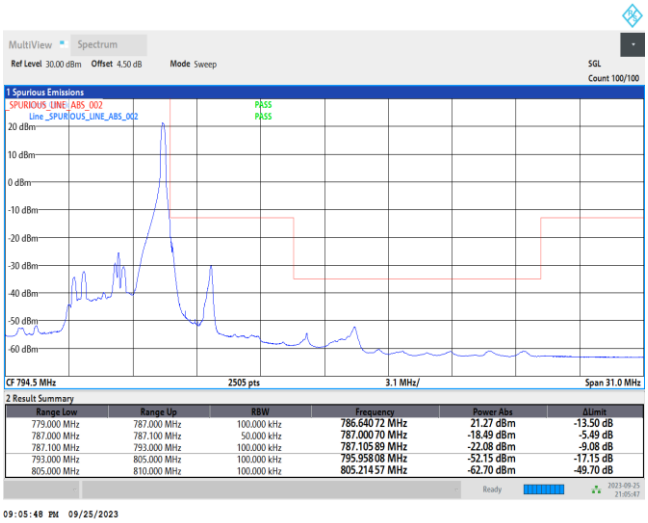
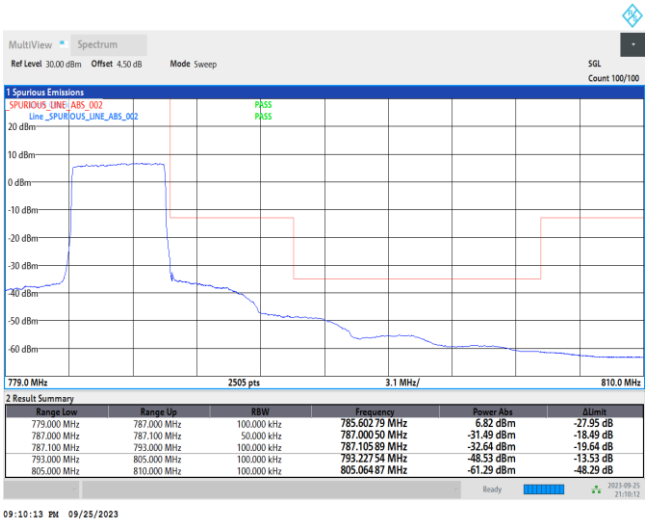
Band13-5MHz-QPSK-23255-1RB#24



Band13-5MHz-QPSK-23255-25RB#0



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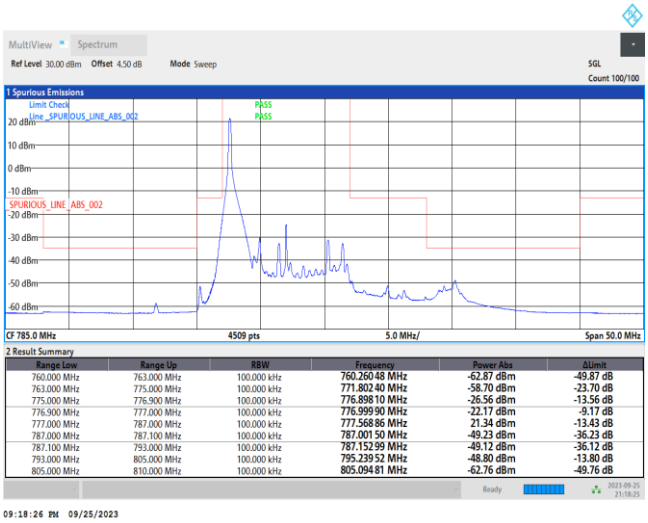
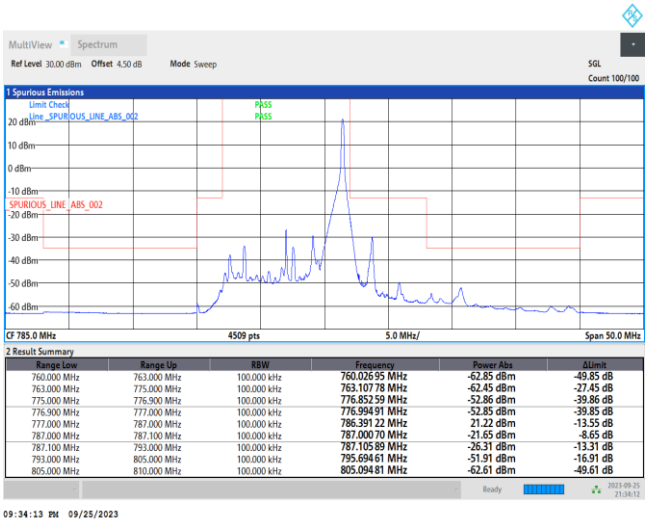
Band13-10MHz-QPSK-23230-1RB#0



Band13-10MHz-QPSK-23230-1RB#49



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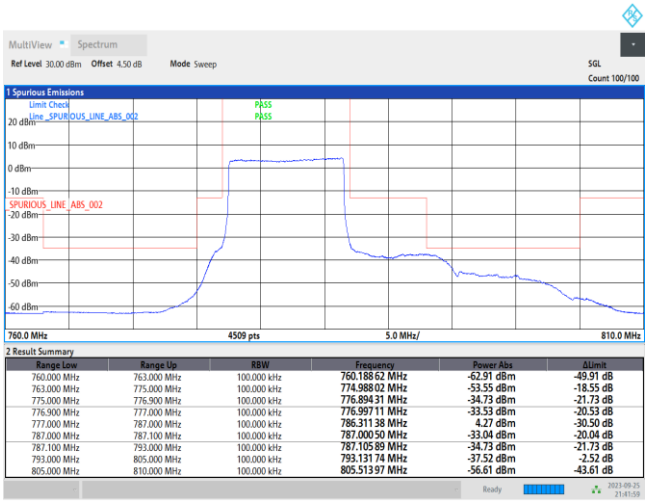
Band13-10MHz-QPSK-23230-50RB#0



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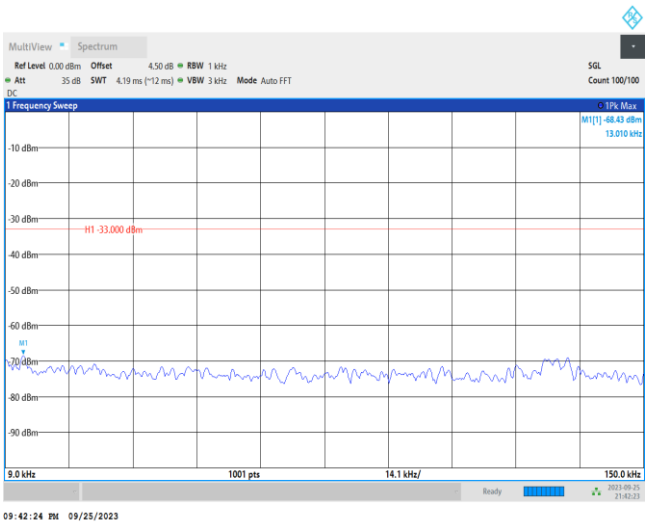
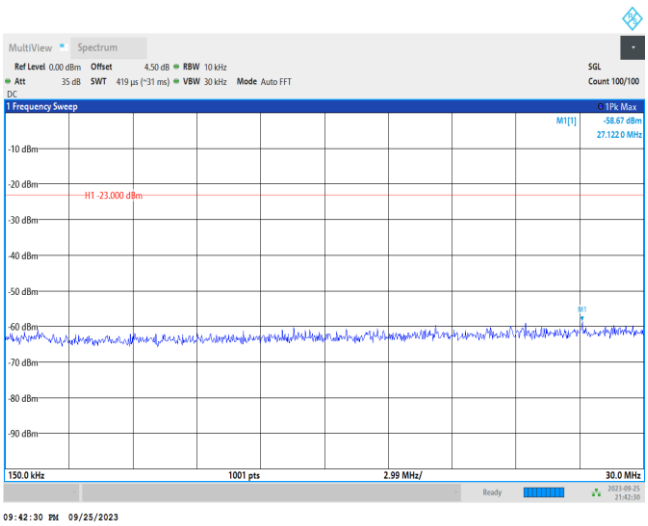
Conducted Spurious Emission

Test Graphs

Band13-10MHz-QPSK-23230-1RB#0-Range1:0.009~0.15MHz



Band13-10MHz-QPSK-23230-1RB#0-Range2:0.15~30MHz



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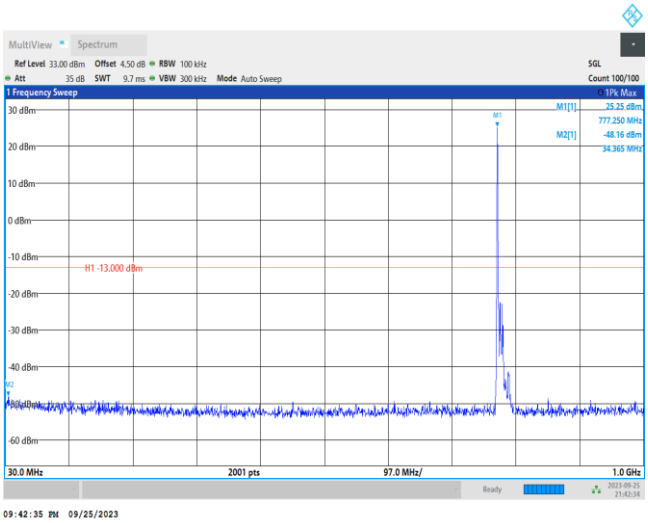
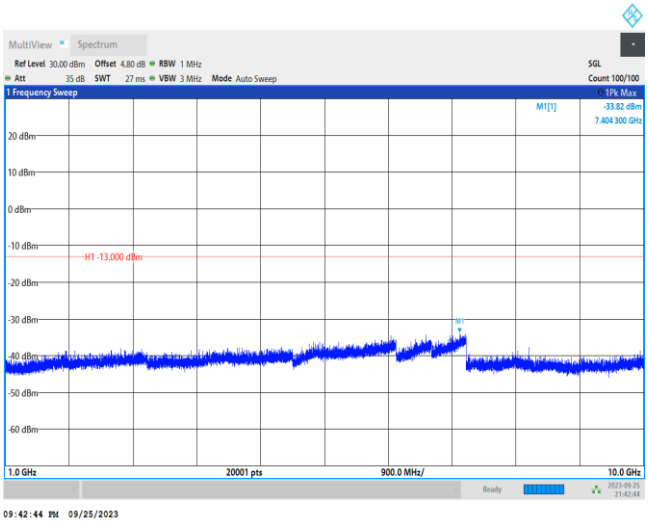
Band13-10MHz-QPSK-23230-1RB#0-Range3:30~1000MHz



Band13-10MHz-QPSK-23230-1RB#0-Range4:1000~10000MHz



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Field Strength of Spurious Radiation

Test Band = LTE_13-5MHz
Test Channel = LCH

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	55.02	-47.24	24.13	-63.35	-13.00	50.35	Horizontal
2	1554.5	53.85	-47.61	24.28	-64.74	-13.00	51.74	Horizontal
3	1597	47.15	-47.61	25.05	-70.67	-40.00	30.67	Horizontal
4	2399.5	54.67	-46.61	27.40	-59.80	-13.00	46.80	Horizontal
5	5524.5	50.24	-41.87	32.30	-54.59	-13.00	41.59	Horizontal
6	9924	41.79	-35.38	38.62	-50.23	-13.00	37.23	Horizontal

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	53.10	-47.24	24.13	-65.27	-13.00	52.27	Vertical
2	1554.5	58.21	-47.61	24.28	-60.38	-13.00	47.38	Vertical
3	1598.5	47.66	-47.61	25.07	-70.14	-40.00	30.14	Vertical
4	2540.5	55.06	-46.48	27.80	-58.88	-13.00	45.88	Vertical
5	5524.5	48.87	-41.87	32.30	-55.96	-13.00	42.96	Vertical
6	9915	41.81	-35.35	38.62	-50.18	-13.00	37.18	Vertical

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Test Band = LTE_13-5MHz
Test Channel = MCH

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	55.19	-47.24	24.13	-63.18	-13.00	50.18	Horizontal
2	1559.5	55.92	-47.61	24.37	-62.58	-40.00	22.58	Horizontal
3	2046.5	53.19	-46.90	26.31	-62.66	-13.00	49.66	Horizontal
4	2399.5	54.79	-46.61	27.40	-59.68	-13.00	46.68	Horizontal
5	5524.5	50.21	-41.87	32.30	-54.62	-13.00	41.62	Horizontal
6	9772.5	42.68	-35.71	38.39	-49.90	-13.00	36.90	Horizontal

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	52.84	-47.24	24.13	-65.53	-13.00	52.53	Vertical
2	1559.5	58.53	-47.61	24.37	-59.97	-40.00	19.97	Vertical
3	2046.5	54.76	-46.90	26.31	-61.09	-13.00	48.09	Vertical
4	2540.5	55.23	-46.48	27.80	-58.71	-13.00	45.71	Vertical
5	5524.5	48.42	-41.87	32.30	-56.41	-13.00	43.41	Vertical
6	9946	41.91	-35.47	38.65	-50.17	-13.00	37.17	Vertical

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Test Band = LTE_13-5MHz
Test Channel = HCH

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	55.29	-47.24	24.13	-63.08	-13.00	50.08	Horizontal
2	1564.5	54.05	-47.61	24.46	-64.36	-40.00	24.36	Horizontal
3	2399.5	54.85	-46.61	27.40	-59.62	-13.00	46.62	Horizontal
4	5524.5	49.88	-41.87	32.30	-54.95	-13.00	41.95	Horizontal
5	7895.5	42.80	-37.49	36.53	-53.42	-13.00	40.42	Horizontal
6	9925.5	41.67	-35.39	38.63	-50.35	-13.00	37.35	Horizontal

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1058.5	52.83	-47.24	24.13	-65.54	-13.00	52.54	Vertical
2	1564.5	55.28	-47.61	24.46	-63.13	-40.00	23.13	Vertical
3	2046.5	54.65	-46.90	26.31	-61.20	-13.00	48.20	Vertical
4	2540.5	55.12	-46.48	27.80	-58.82	-13.00	45.82	Vertical
5	5524.5	48.79	-41.87	32.30	-56.04	-13.00	43.04	Vertical
6	9938	41.92	-35.44	38.64	-50.14	-13.00	37.14	Vertical

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Test Band = LTE_13-10MHz
Test Channel = MCH

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1555	54.42	-47.61	24.29	-64.16	-13.00	51.16	Horizontal
2	1599.5	47.00	-47.61	25.09	-70.78	-40.00	30.78	Horizontal
3	2329	54.50	-46.63	27.39	-60.00	-13.00	47.00	Horizontal
4	2681.5	55.15	-46.18	27.96	-58.33	-13.00	45.33	Horizontal
5	5524.5	50.03	-41.87	32.30	-54.80	-13.00	41.80	Horizontal
6	9942.5	41.77	-35.46	38.64	-50.31	-13.00	37.31	Horizontal

Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1555	58.90	-47.61	24.29	-59.68	-13.00	46.68	Vertical
2	1598	46.84	-47.61	25.06	-70.97	-40.00	30.97	Vertical
3	2046.5	54.85	-46.90	26.31	-61.00	-13.00	48.00	Vertical
4	2540.5	55.00	-46.48	27.80	-58.94	-13.00	45.94	Vertical
5	5524.5	48.96	-41.87	32.30	-55.87	-13.00	42.87	Vertical
6	9908	41.90	-35.32	38.61	-50.07	-13.00	37.07	Vertical

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

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SGS-CSTC Standards Technical Services (Xi'an) Co., Ltd. Wireless Laboratory
1/F, Unit D, Building 1, Kanghong Orange Science Park, No.137, Keyuan 3rd Road, Fengdong New Town, Xi'an, Shaanxi, China 710086 t (86–29) 6282 7885 www.sgsgroup.com.cn
中国 • 西安 • 沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086 t (86–29) 6282 7885 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Frequency Stability

Test Result

Voltage									
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	-8.70	-0.011125	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	-6.61	-0.008453	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-5.65	-0.007225	PASS

Temperature									
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	NV	-30	-9.36	-0.011969	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-8.78	-0.011228	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-4.45	-0.005691	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-3.28	-0.004194	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-9.13	-0.011675	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-10.40	-0.013299	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-7.20	-0.009207	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-8.65	-0.011061	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-5.95	-0.007609	PASS

---End of Attachment---

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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086 t (86-29) 6282 7885 sgs.china@sgs.com