

Appendix-FCC-GSM-1900

1.1 Appendix A: Effective (Isotropic) Radiated Power Output Data

1.1.1 Test Result

Band	Channel	Conducted Power(dBm)	Max Ant Gain(dBi)	EIRP(dBm)	Limit(dBm)	Verdict
GSM1900	512	29.84	2.45	32.29	33	PASS
GSM1900	661	29.88	2.45	32.33	33	PASS
GSM1900	810	30.28	2.45	32.73	33	PASS

Band	Channel	Up Slot Num	Conducted Power(dBm)	Max Ant Gain(dBi)	EIRP (dBm)	Limit(dBm)	Verdict
GPRS1900	512	1	30.25	2.45	32.70	33	PASS
GPRS1900	512	2	29.82	2.45	32.27	33	PASS
GPRS1900	512	3	27.73	2.45	30.18	33	PASS
GPRS1900	512	4	25.87	2.45	28.32	33	PASS
GPRS1900	661	1	30.66	2.45	33.11	33	PASS
GPRS1900	661	2	29.98	2.45	32.43	33	PASS
GPRS1900	661	3	27.67	2.45	30.12	33	PASS
GPRS1900	661	4	26.84	2.45	29.29	33	PASS
GPRS1900	810	1	30.91	2.45	33.36	33	PASS
GPRS1900	810	2	29.61	2.45	32.06	33	PASS
GPRS1900	810	3	27.02	2.45	29.47	33	PASS
GPRS1900	810	4	26.55	2.45	29.00	33	PASS

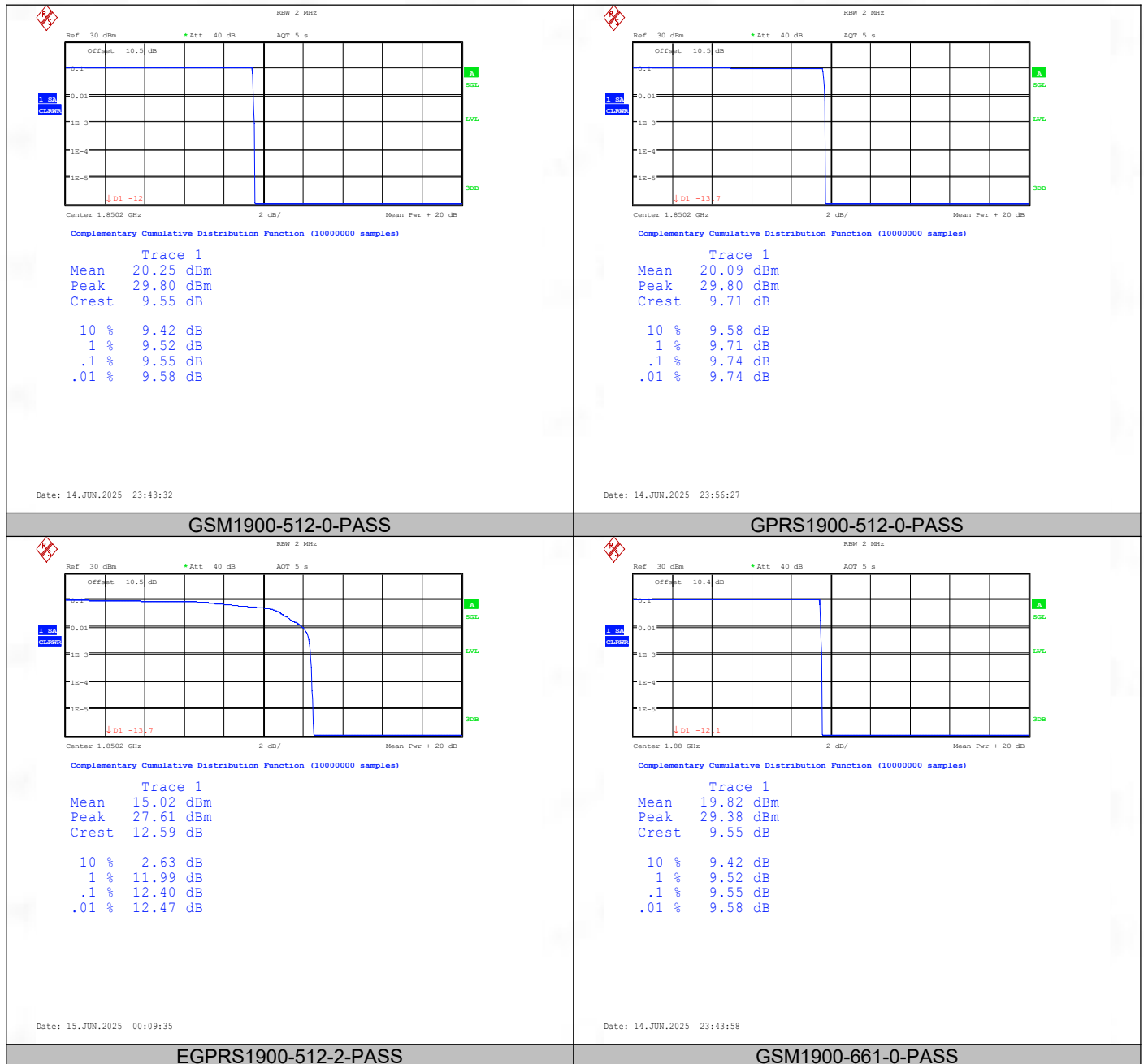
Band	Channel	Up Slot Num	Conducted Power(dBm)	Max Ant Gain(dBi)	EIRP (dBm)	Limit(dBm)	Verdict
EGPRS1900	512	1	25.29	2.45	27.74	33	PASS
EGPRS1900	512	2	24.82	2.45	27.27	33	PASS
EGPRS1900	512	3	22.86	2.45	25.31	33	PASS
EGPRS1900	512	4	21.42	2.45	23.87	33	PASS
EGPRS1900	661	1	26.31	2.45	28.76	33	PASS
EGPRS1900	661	2	24.91	2.45	27.36	33	PASS
EGPRS1900	661	3	23.33	2.45	25.78	33	PASS
EGPRS1900	661	4	22.20	2.45	24.65	33	PASS
EGPRS1900	810	1	25.17	2.45	27.62	33	PASS
EGPRS1900	810	2	24.48	2.45	26.93	33	PASS
EGPRS1900	810	3	23.04	2.45	25.49	33	PASS
EGPRS1900	810	4	21.38	2.45	23.83	33	PASS

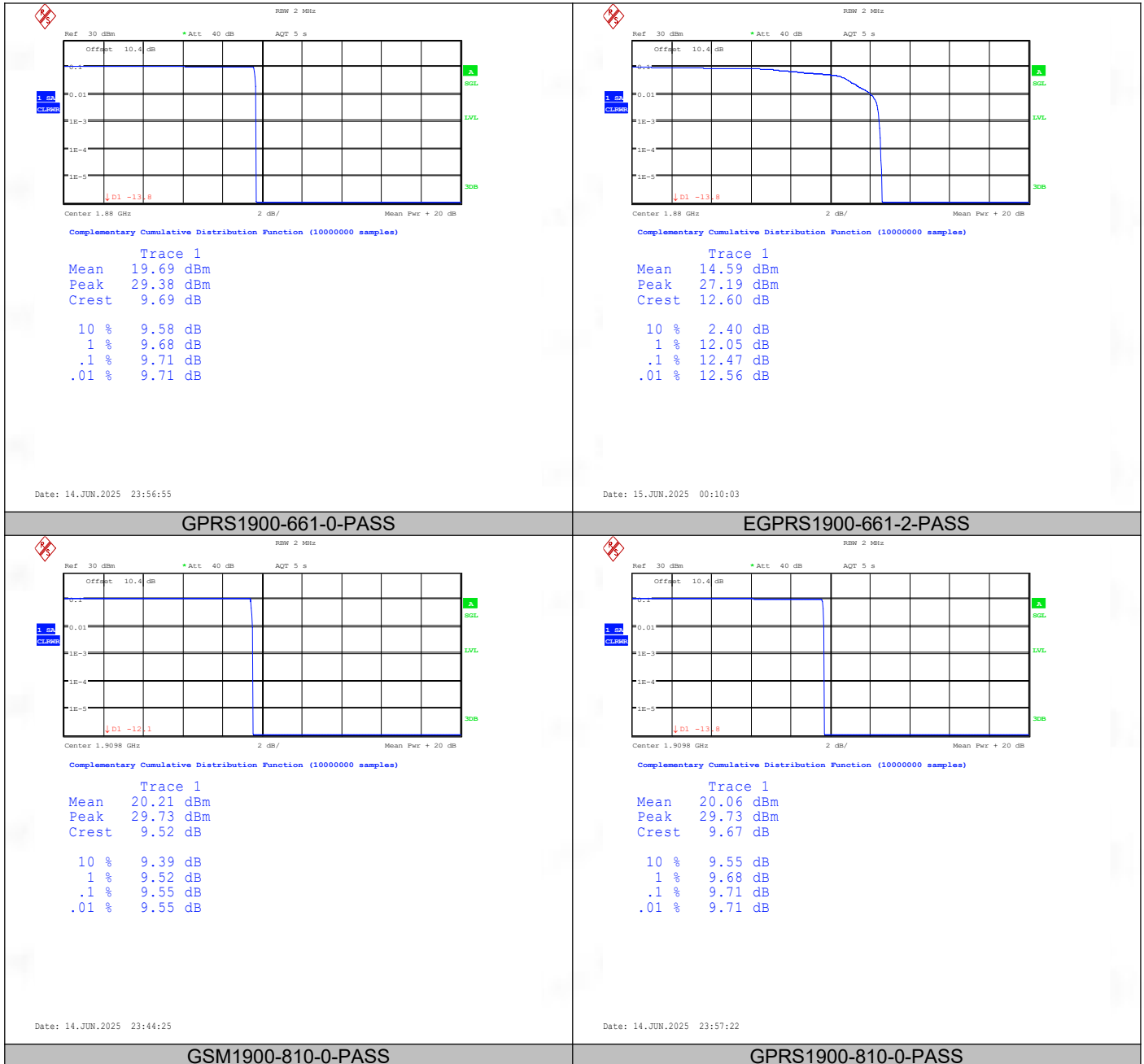
1.2 Appendix B: Peak-to-Average Ratio(CCDF)

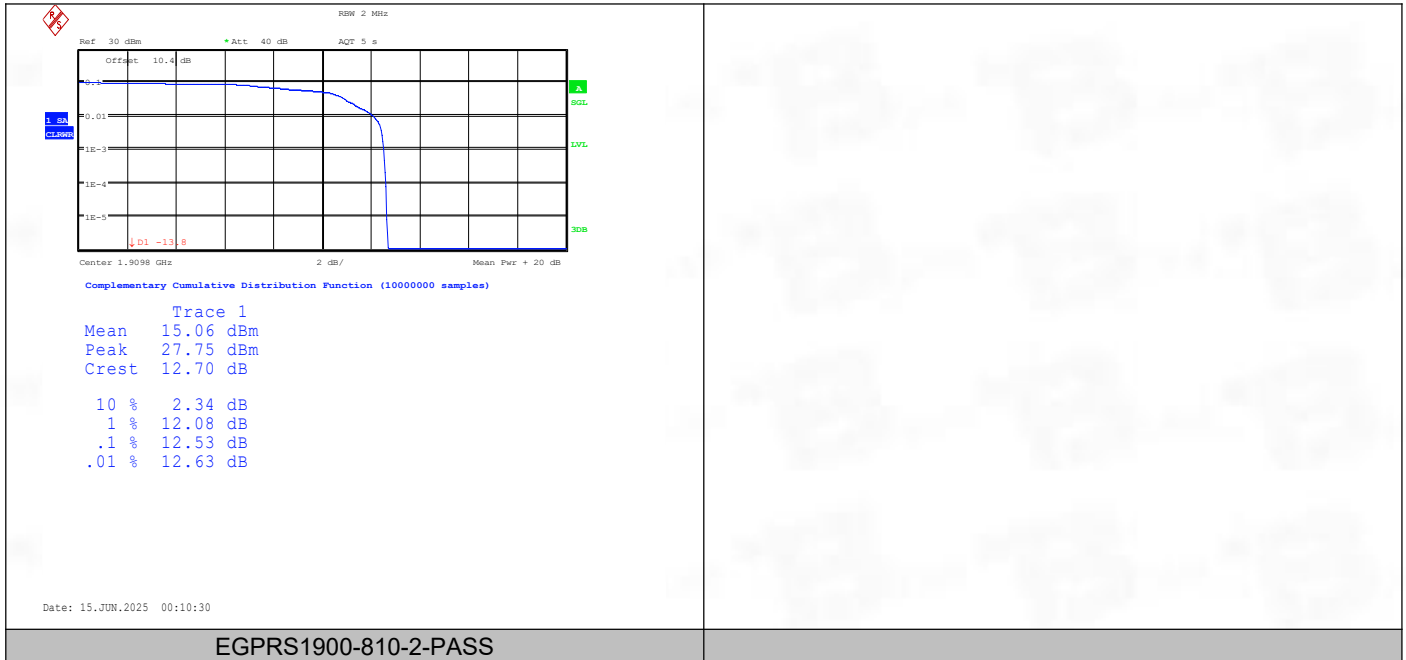
1.2.1 Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM1900	512	9.55	13	PASS
GPRS1900	512	9.74	13	PASS
EGPRS1900	512	12.40	13	PASS
GSM1900	661	9.55	13	PASS
GPRS1900	661	9.71	13	PASS
EGPRS1900	661	12.47	13	PASS
GSM1900	810	9.55	13	PASS
GPRS1900	810	9.71	13	PASS
EGPRS1900	810	12.53	13	PASS

1.2.2 Test Graphs





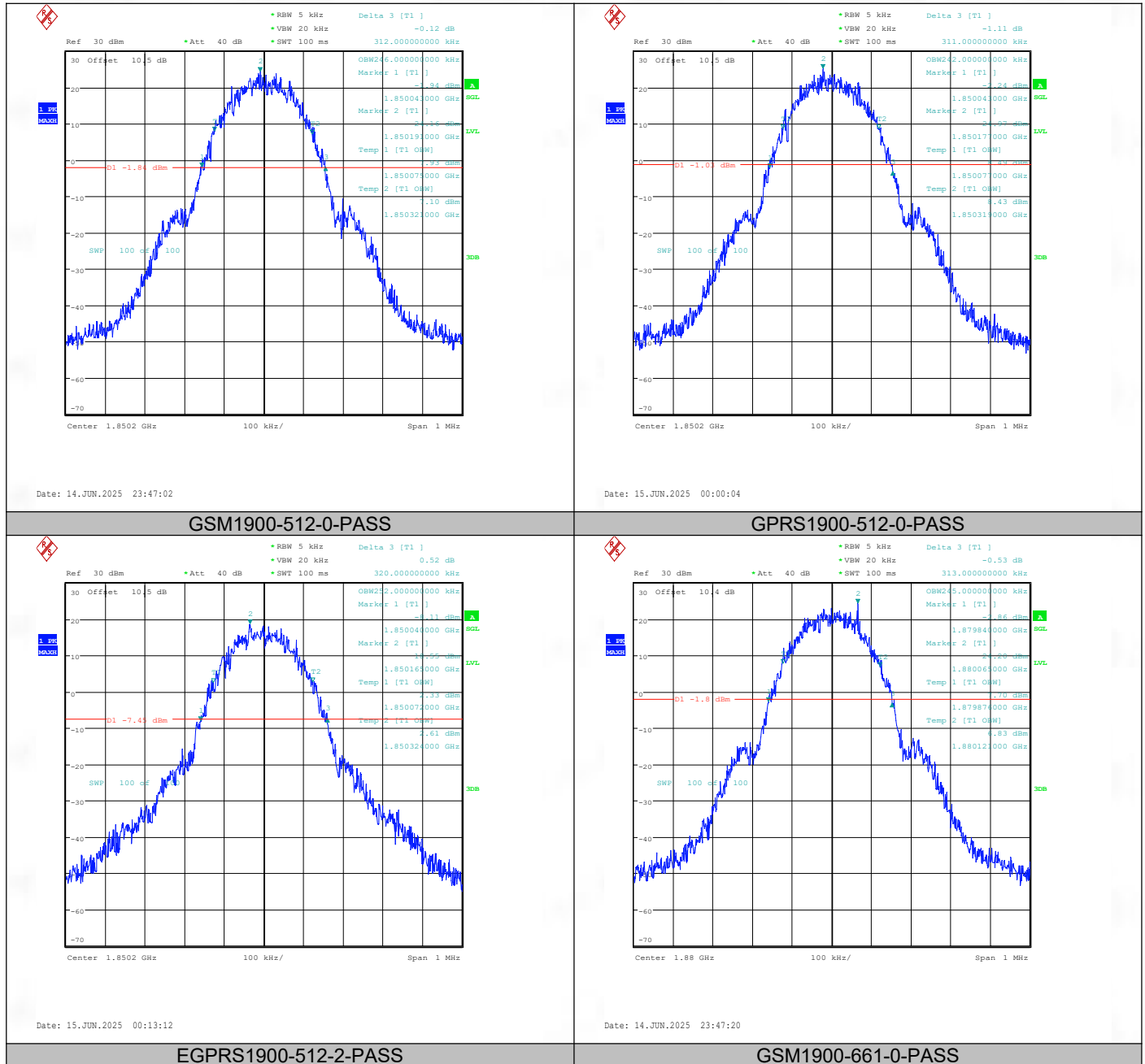


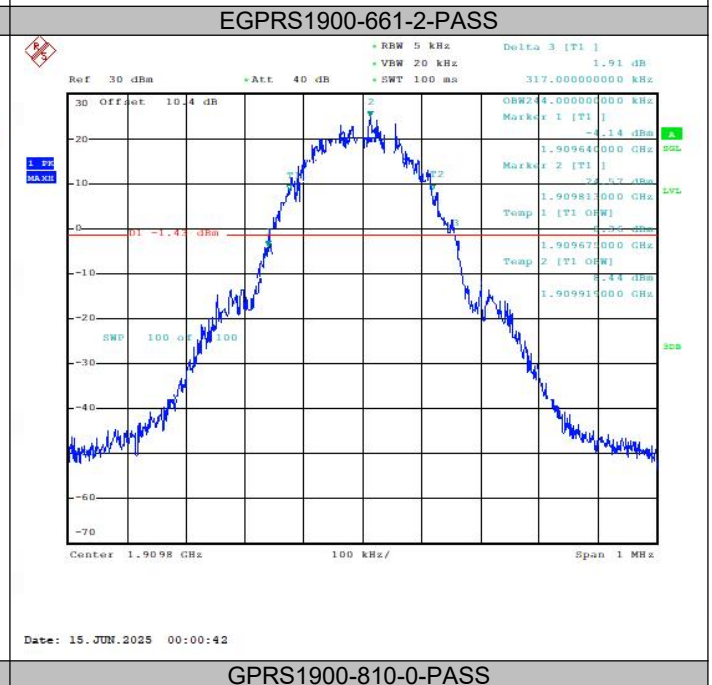
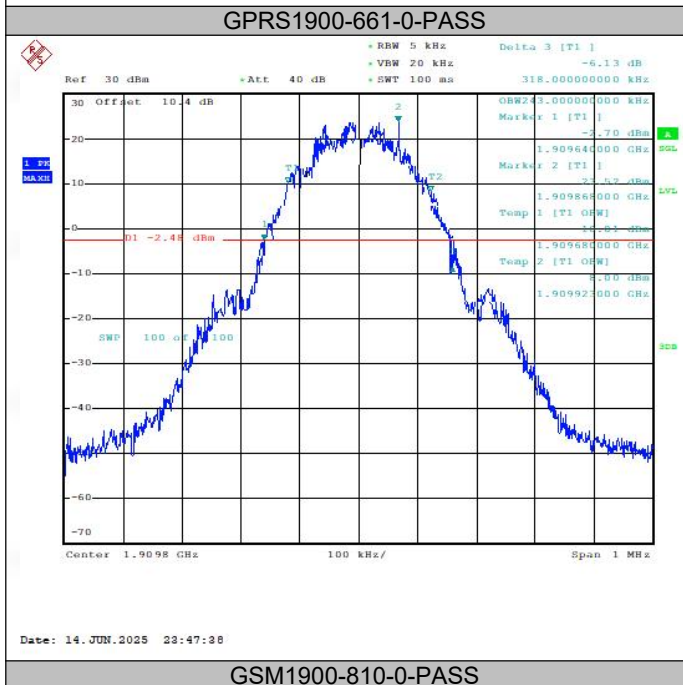
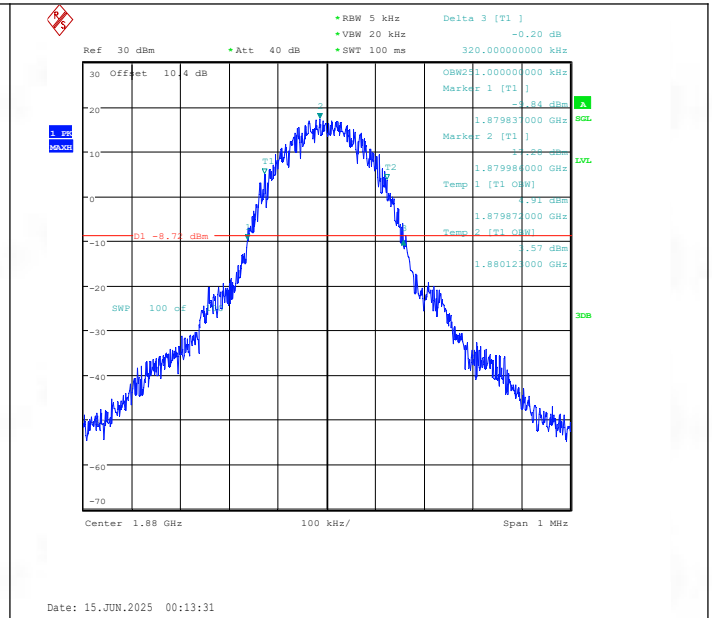
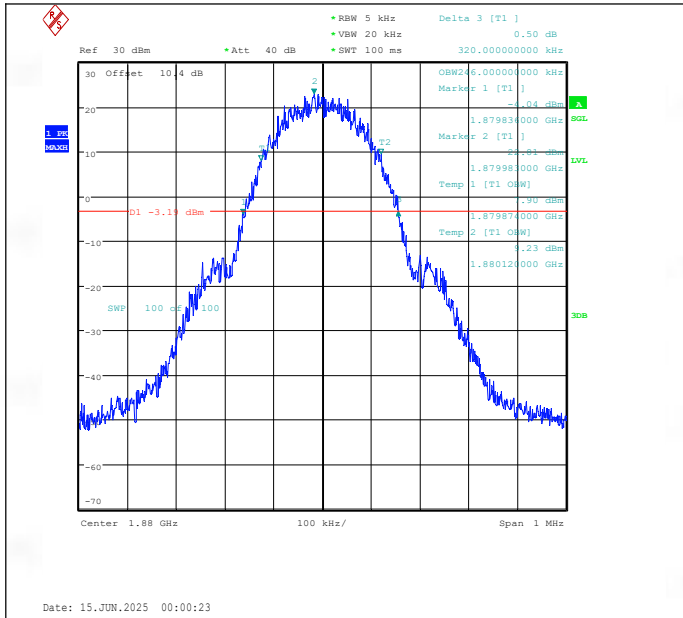
1.3 Appendix C: 26dB Bandwidth and Occupied Bandwidth

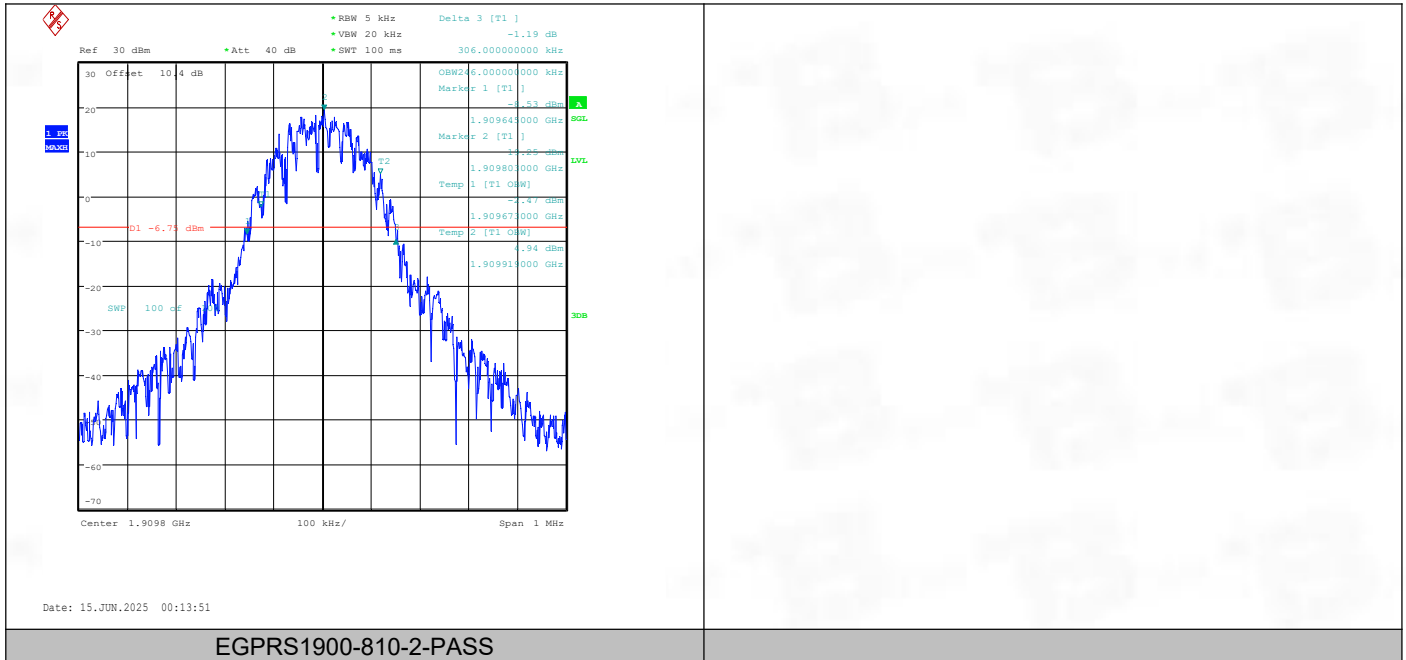
1.3.1 Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM1900	512	0.246	0.31	---	PASS
GPRS1900	512	0.242	0.31	---	PASS
EGPRS1900	512	0.252	0.32	---	PASS
GSM1900	661	0.245	0.31	---	PASS
GPRS1900	661	0.246	0.32	---	PASS
EGPRS1900	661	0.251	0.32	---	PASS
GSM1900	810	0.243	0.32	---	PASS
GPRS1900	810	0.244	0.32	---	PASS
EGPRS1900	810	0.246	0.31	---	PASS

1.3.2 Test Graphs





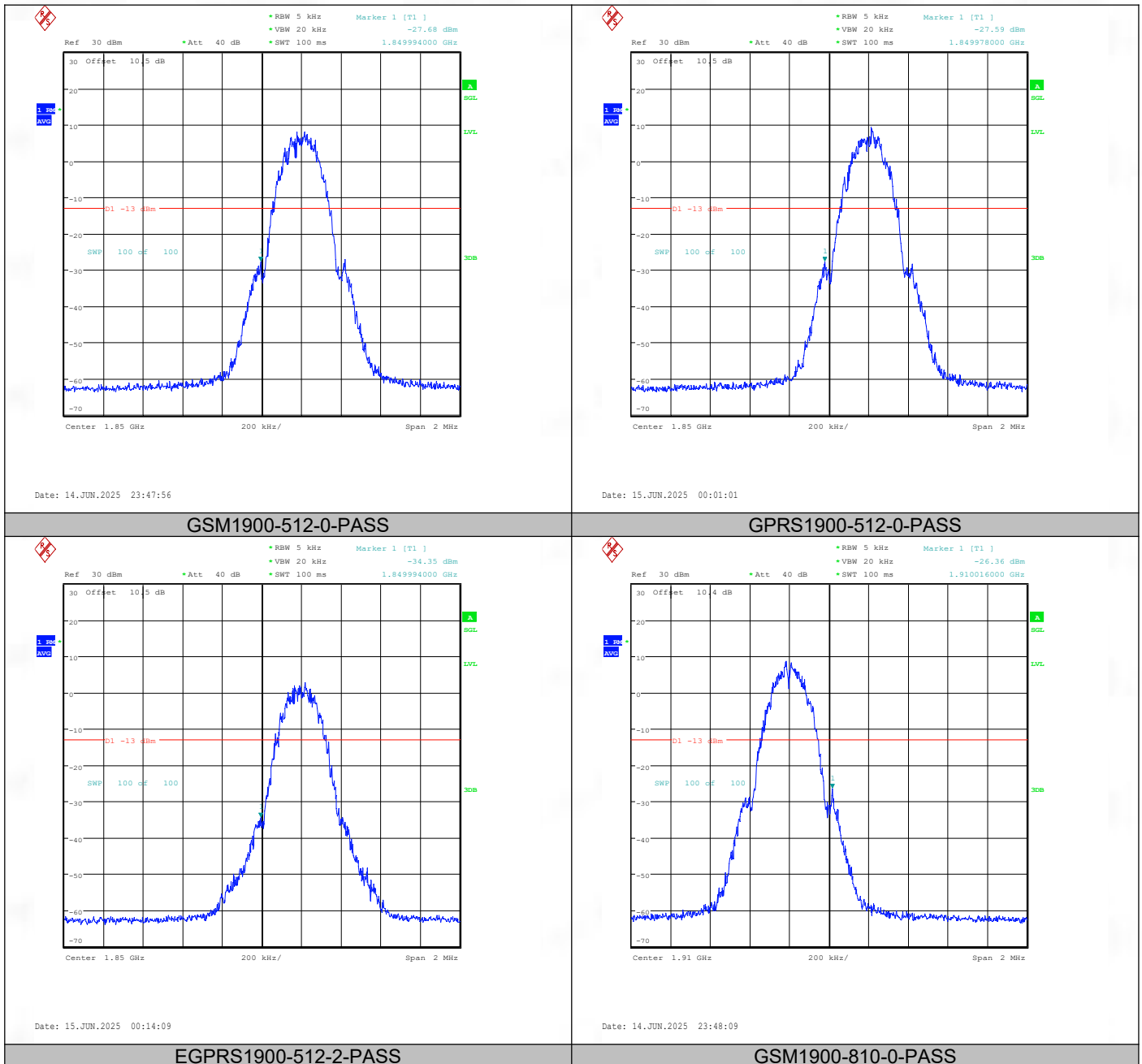


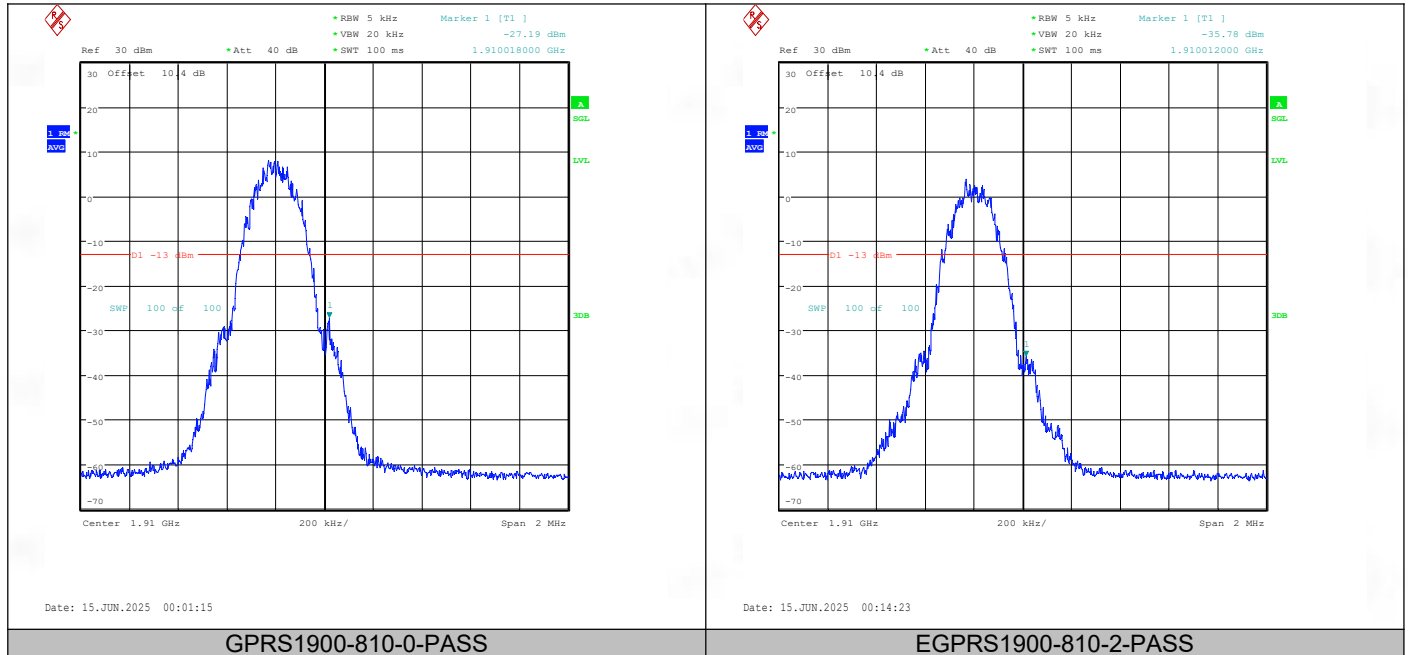
1.4 Appendix D: Band Edge

1.4.1 Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM1900	512	1849.99	-27.68	-13	PASS
GPRS1900	512	1849.98	-27.59	-13	PASS
EGPRS1900	512	1849.99	-34.35	-13	PASS
GSM1900	810	1910.02	-26.36	-13	PASS
GPRS1900	810	1910.02	-27.19	-13	PASS
EGPRS1900	810	1910.01	-35.78	-13	PASS

1.4.2 Test Graphs



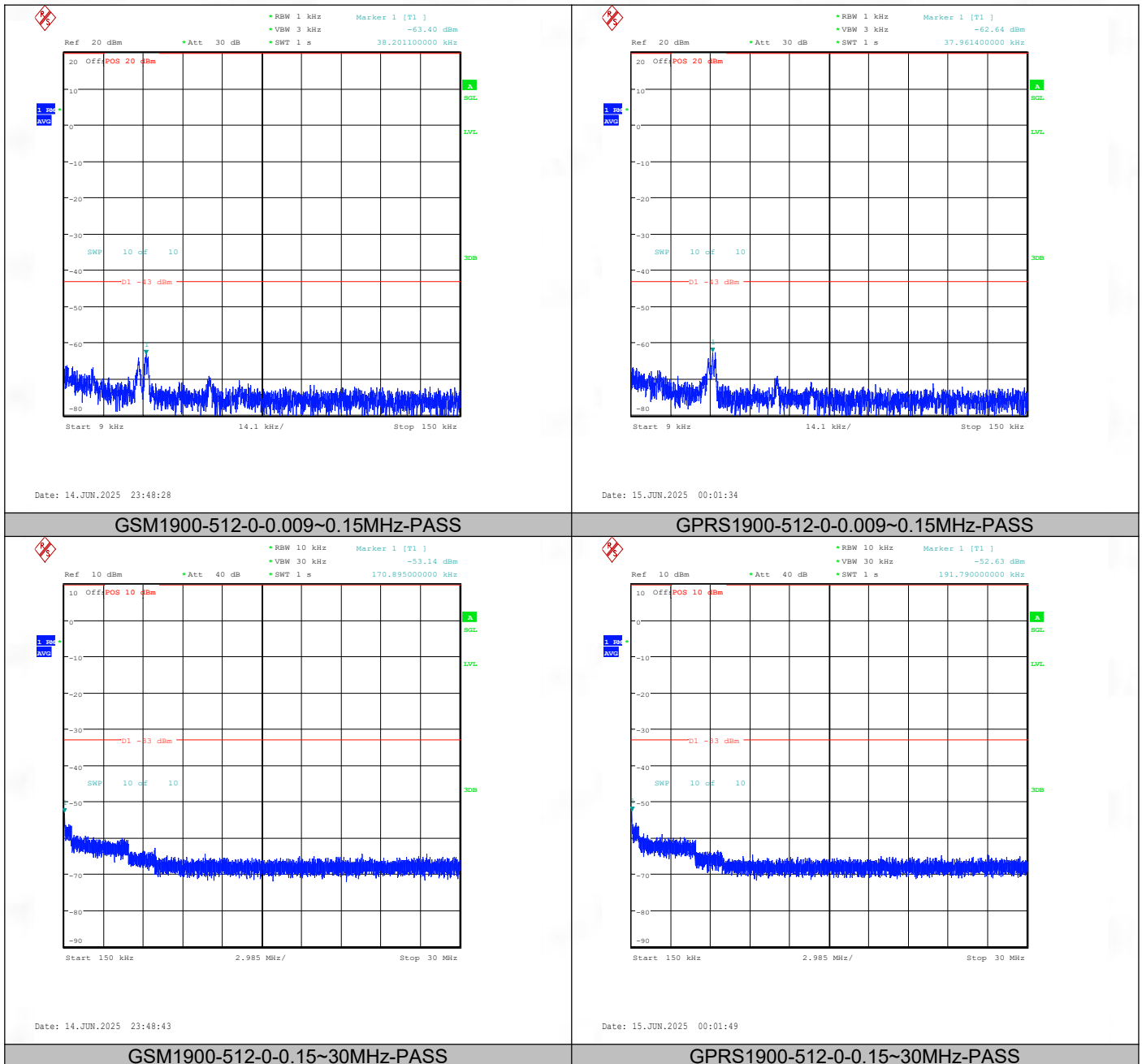


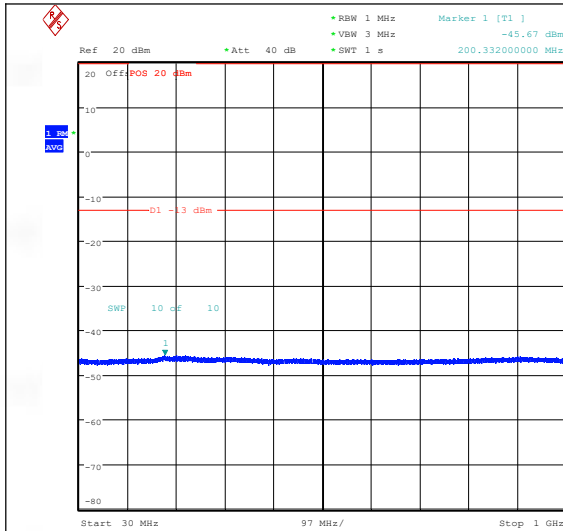
1.5 Appendix E: Conducted Spurious Emission

1.5.1 Test Result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM1900	512	0.009~0.15MHz	0.04	-63.4	-43	PASS
GPRS1900	512	0.009~0.15MHz	0.04	-62.64	-43	PASS
GSM1900	512	0.15~30MHz	0.17	-53.14	-33	PASS
GPRS1900	512	0.15~30MHz	0.19	-52.63	-33	PASS
GSM1900	512	30~1000MHz	200.33	-45.67	-13	PASS
GPRS1900	512	30~1000MHz	201.43	-45.85	-13	PASS
GSM1900	512	1000~3000MHz	2507	-36.26	-13	PASS
GPRS1900	512	1000~3000MHz	2445.67	-35.73	-13	PASS
GSM1900	512	3000~18000MHz	3187	-45.39	-13	PASS
GPRS1900	512	3000~18000MHz	3186.5	-46.25	-13	PASS
EGPRS1900	512	0.009~0.15MHz	0.04	-60.15	-43	PASS
EGPRS1900	512	0.15~30MHz	0.19	-53.53	-33	PASS
EGPRS1900	512	30~1000MHz	233.22	-45.72	-13	PASS
EGPRS1900	512	1000~3000MHz	2488.4	-36.15	-13	PASS
EGPRS1900	512	3000~18000MHz	3190.5	-46.26	-13	PASS
GSM1900	661	0.009~0.15MHz	0.04	-61.91	-43	PASS
GPRS1900	661	0.009~0.15MHz	0.04	-62.6	-43	PASS
GSM1900	661	0.15~30MHz	0.16	-53.23	-33	PASS
GPRS1900	661	0.15~30MHz	0.17	-53.31	-33	PASS
GSM1900	661	30~1000MHz	231.02	-45.72	-13	PASS
GPRS1900	661	30~1000MHz	203.37	-45.77	-13	PASS
GSM1900	661	1000~3000MHz	2498.8	-36.27	-13	PASS
GPRS1900	661	1000~3000MHz	2546.47	-36.3	-13	PASS
GSM1900	661	3000~18000MHz	3177.5	-46.63	-13	PASS
GPRS1900	661	3000~18000MHz	3176	-46.22	-13	PASS
EGPRS1900	661	0.009~0.15MHz	0.04	-62.76	-43	PASS
EGPRS1900	661	0.15~30MHz	0.17	-53.32	-33	PASS
EGPRS1900	661	30~1000MHz	249.51	-45.73	-13	PASS
EGPRS1900	661	1000~3000MHz	2506.07	-36.31	-13	PASS
EGPRS1900	661	3000~18000MHz	3186.5	-46.16	-13	PASS
GSM1900	810	0.009~0.15MHz	0.04	-62.75	-43	PASS
GPRS1900	810	0.009~0.15MHz	0.04	-62.54	-43	PASS
GSM1900	810	0.15~30MHz	0.17	-52.91	-33	PASS
GPRS1900	810	0.15~30MHz	0.2	-52.83	-33	PASS
GSM1900	810	30~1000MHz	236.32	-45.68	-13	PASS
GPRS1900	810	30~1000MHz	245.99	-45.72	-13	PASS
GSM1900	810	1000~3000MHz	2523.33	-36.11	-13	PASS
GPRS1900	810	1000~3000MHz	2516.73	-36.22	-13	PASS
GSM1900	810	3000~18000MHz	3819.5	-44.52	-13	PASS
GPRS1900	810	3000~18000MHz	3177	-46.26	-13	PASS
EGPRS1900	810	0.009~0.15MHz	0.04	-62.67	-43	PASS
EGPRS1900	810	0.15~30MHz	0.17	-53.45	-33	PASS
EGPRS1900	810	30~1000MHz	237.81	-45.66	-13	PASS
EGPRS1900	810	1000~3000MHz	2522.67	-36.12	-13	PASS
EGPRS1900	810	3000~18000MHz	3819.5	-43.45	-13	PASS

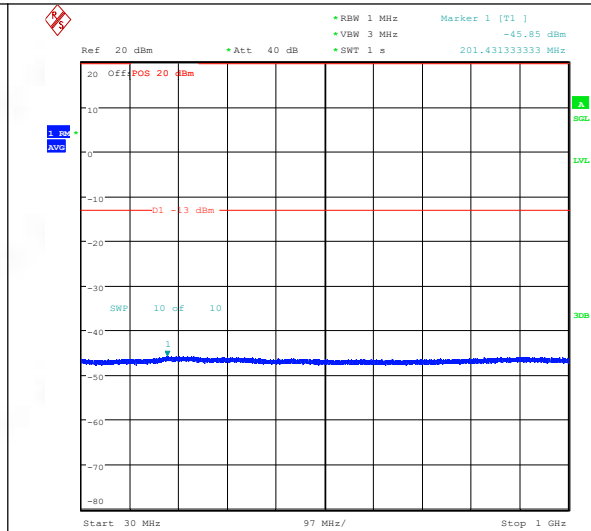
1.5.2 Test Graphs





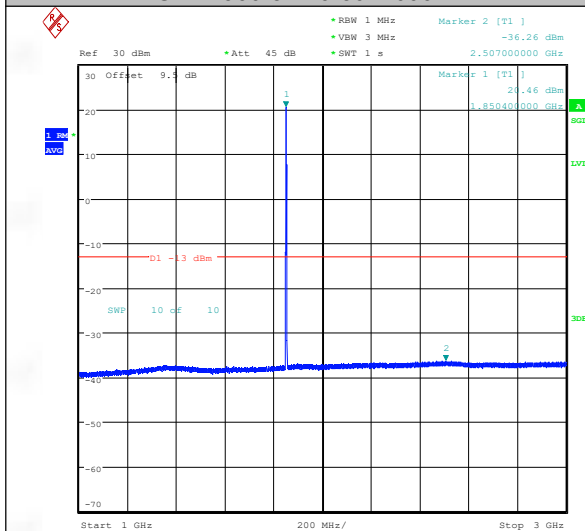
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GSM1900-512-0-30~1000MHz-PASS



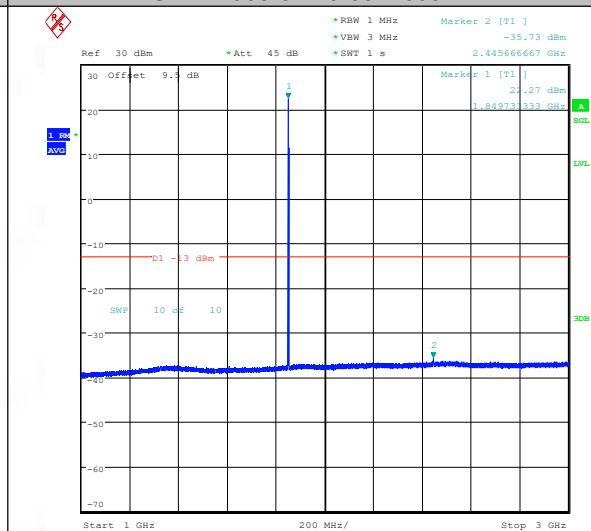
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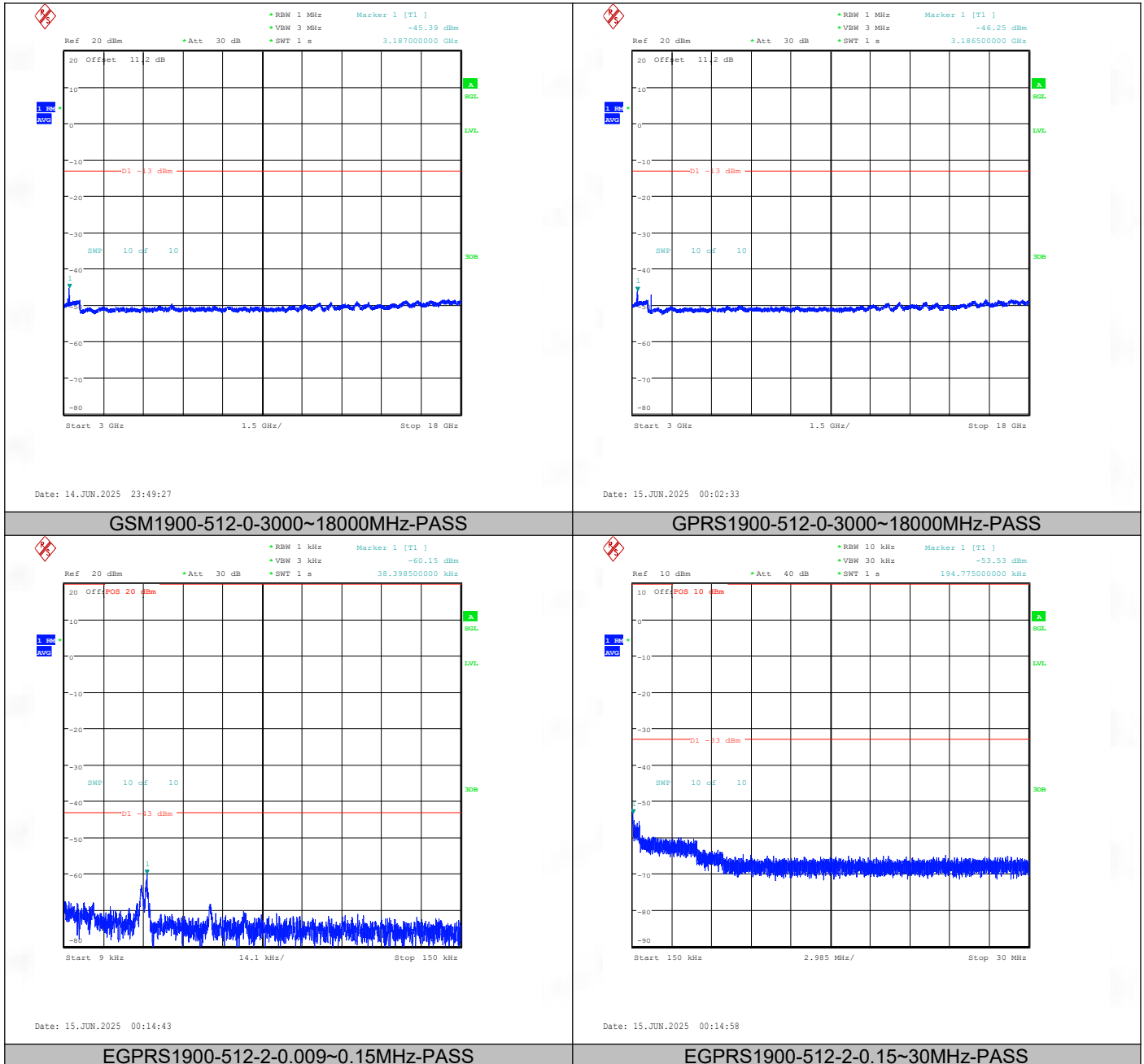
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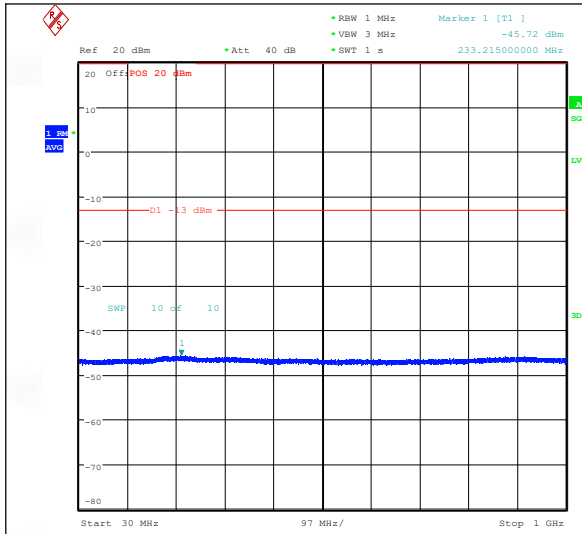
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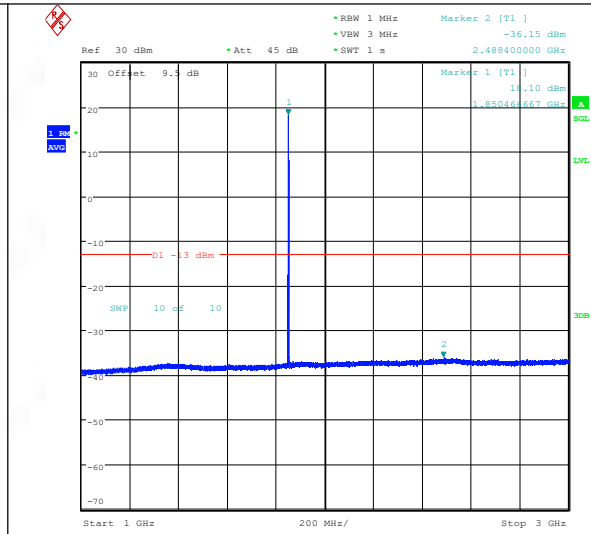
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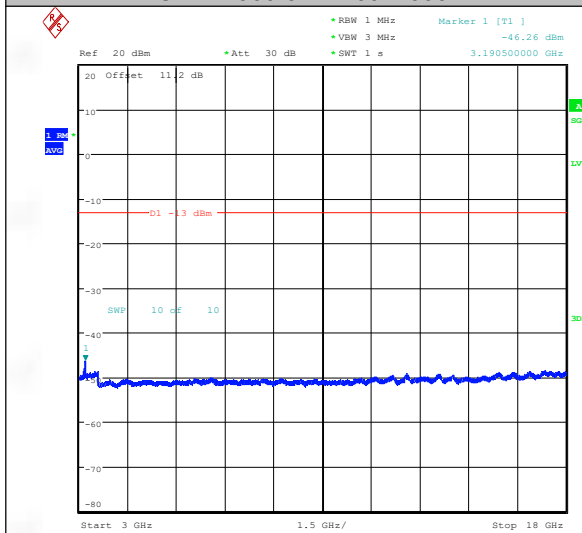
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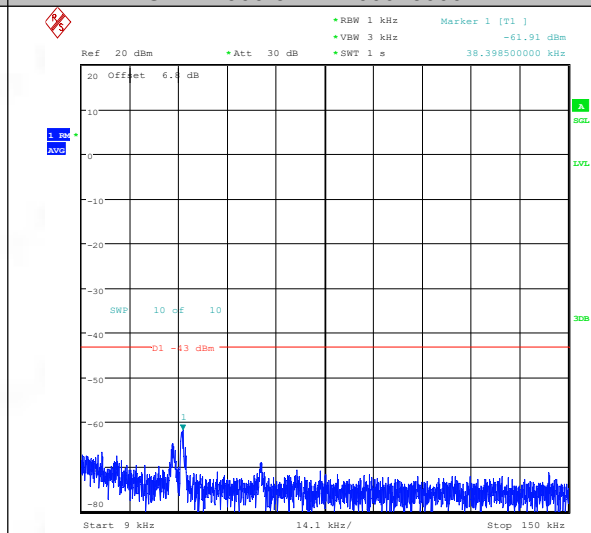
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EGPRS1900-512-2-1000~3000MHz-PASS



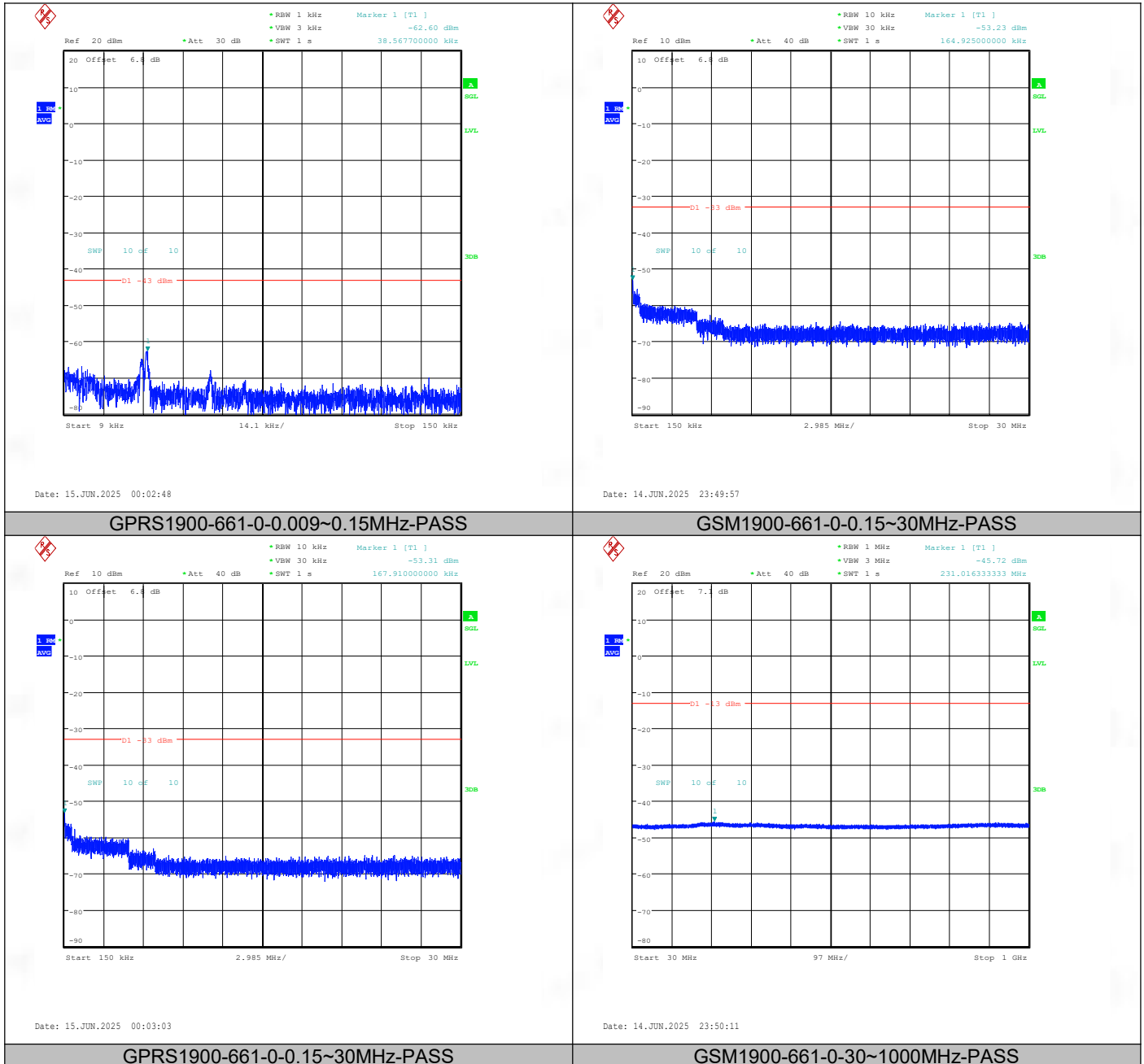
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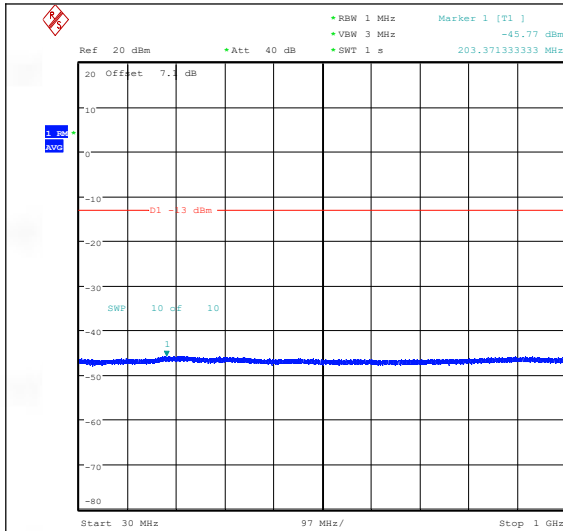
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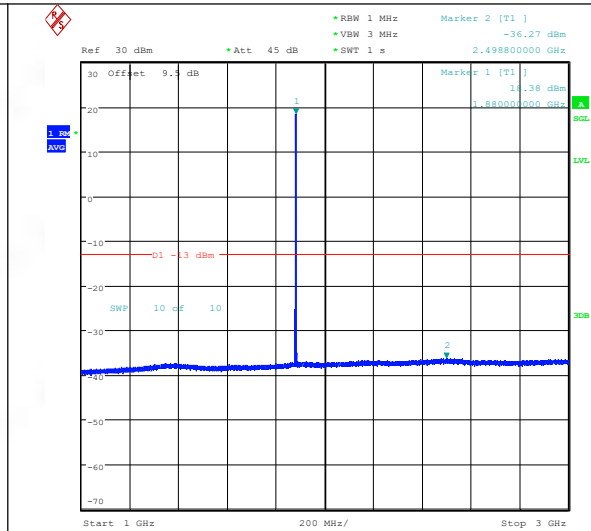
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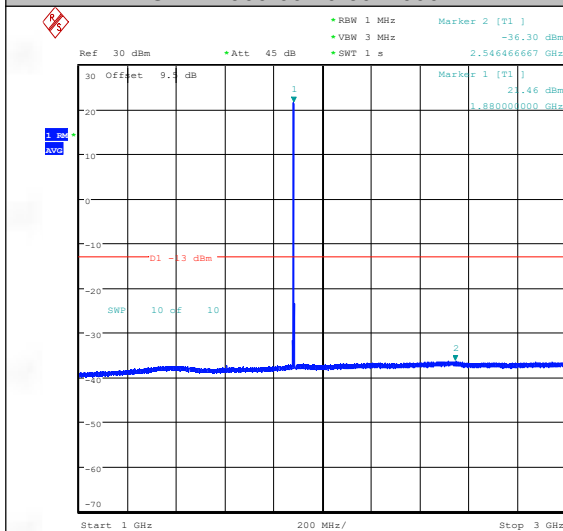
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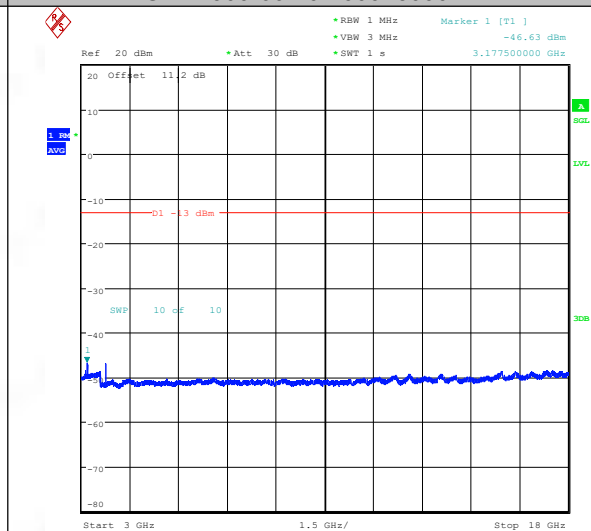
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GSM1900-661-0-1000~3000MHz-PASS



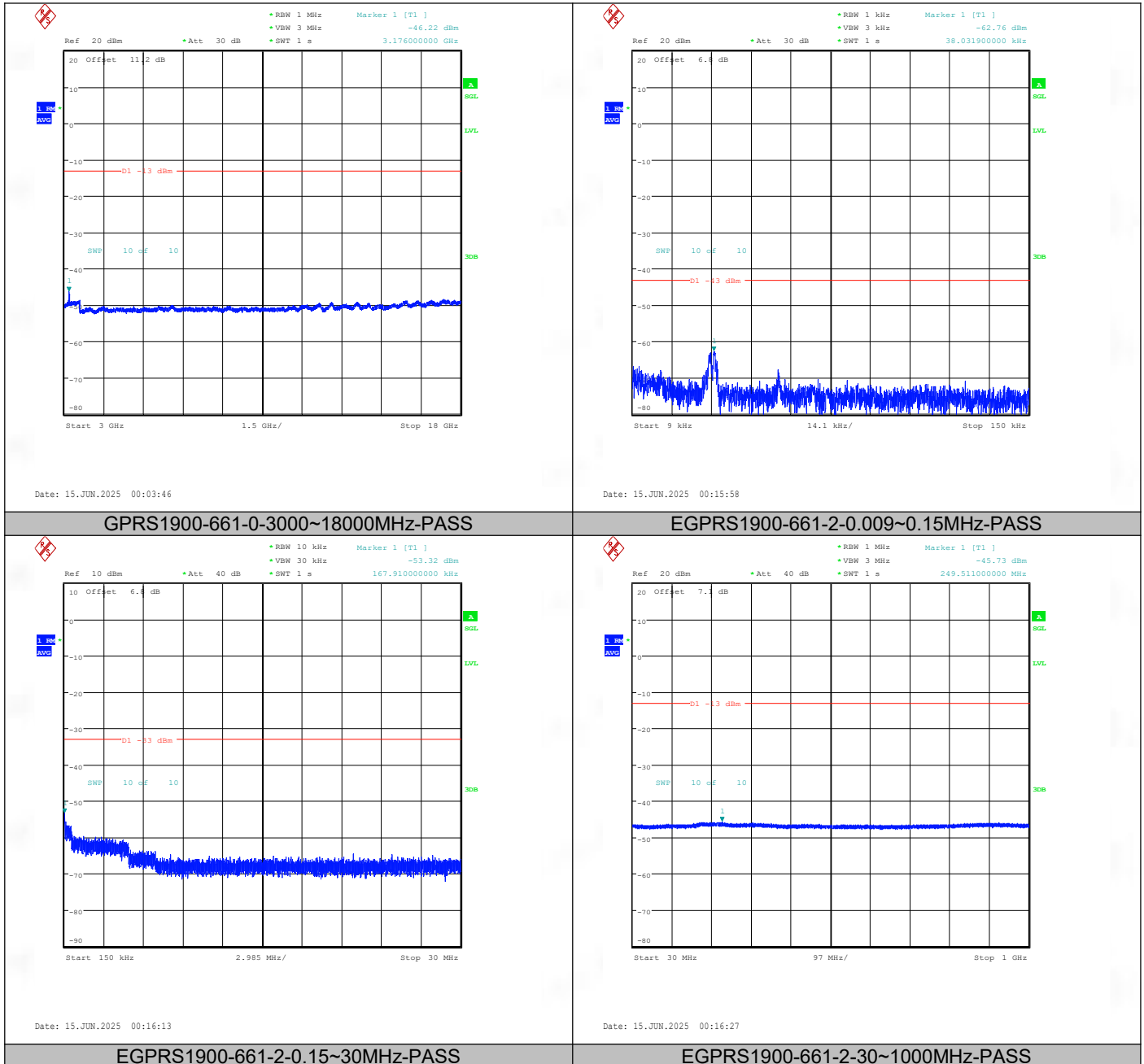
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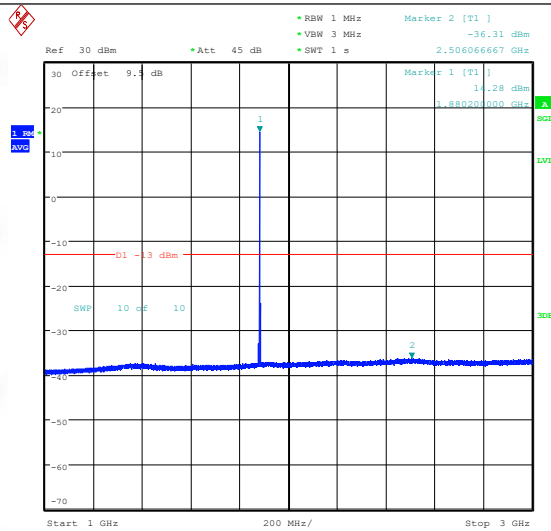
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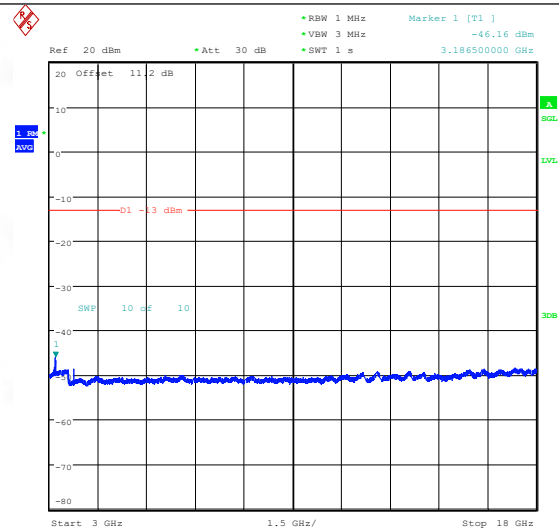
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GSM1900-661-0-3000~18000MHz-PASS



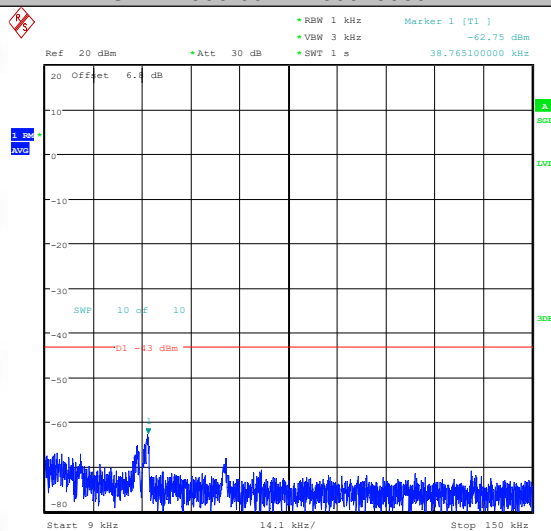


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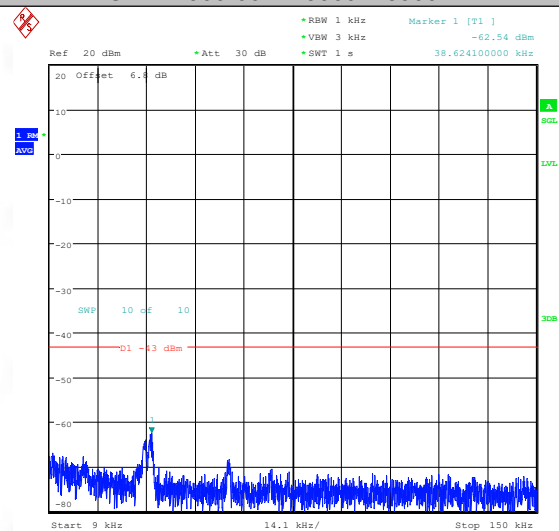
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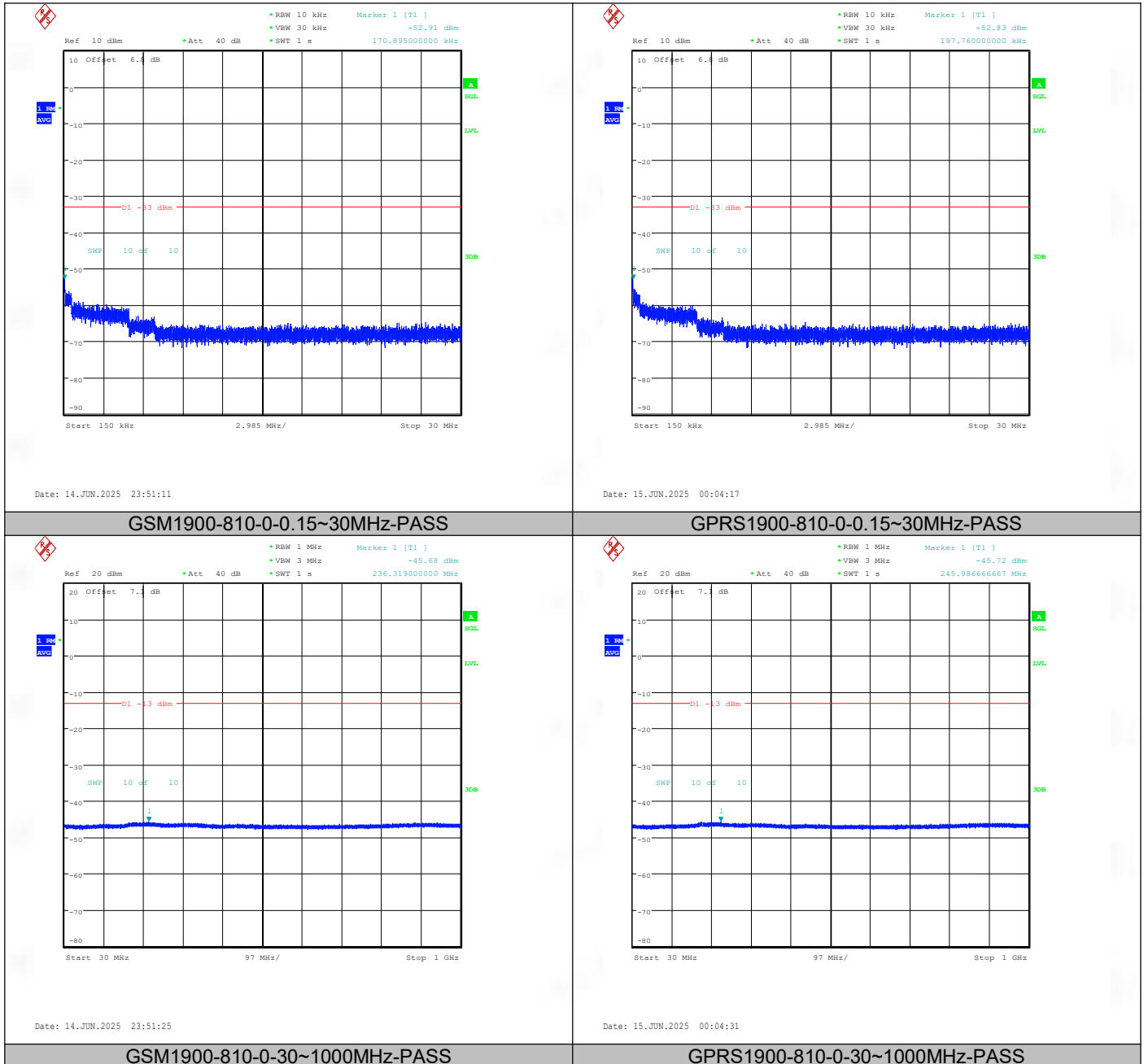
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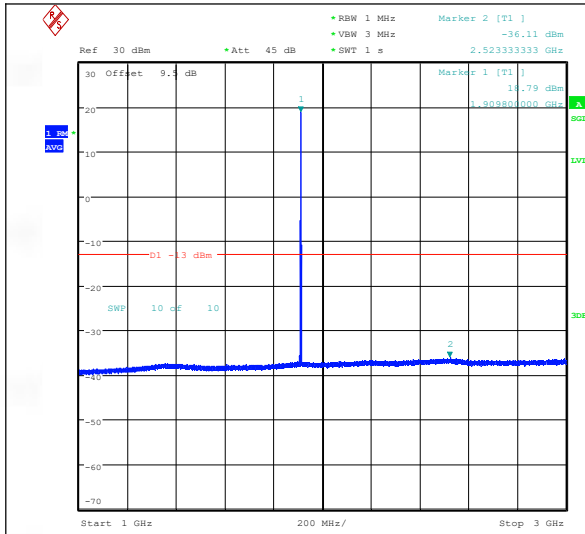


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GSM1900-810-0-0.009~0.15MHz-PASS

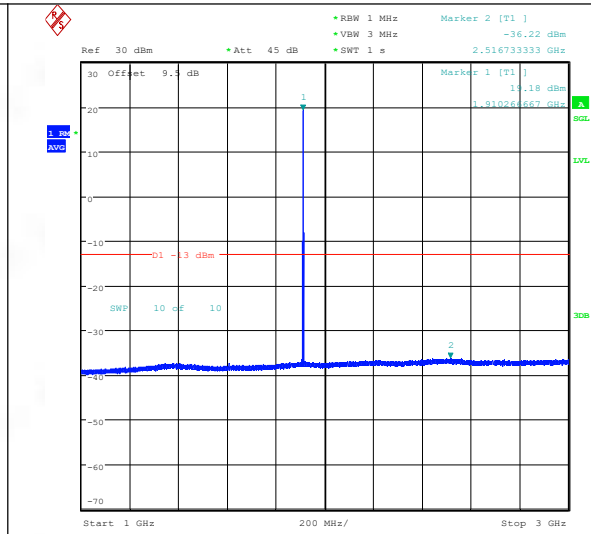
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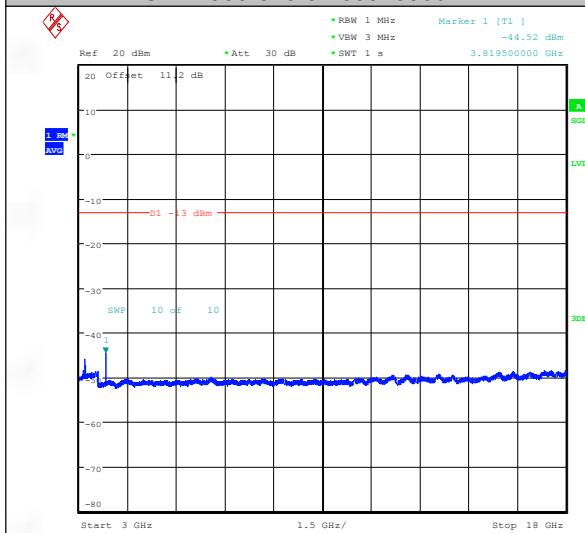
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GSM1900-810-0-1000~3000MHz-PASS



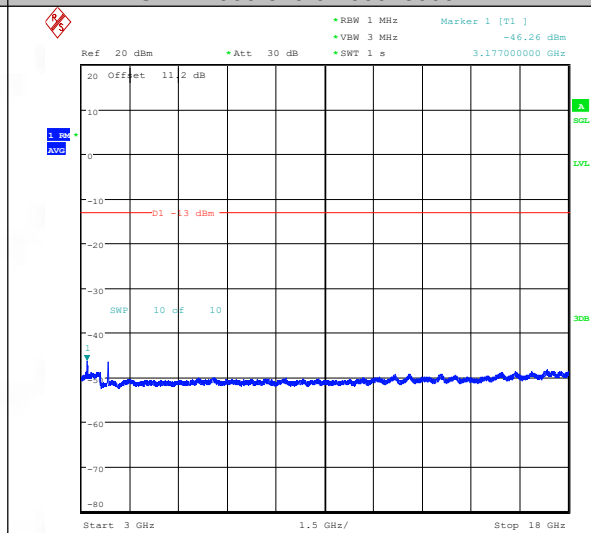
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GPRS1900-810-0-1000~3000MHz-PASS



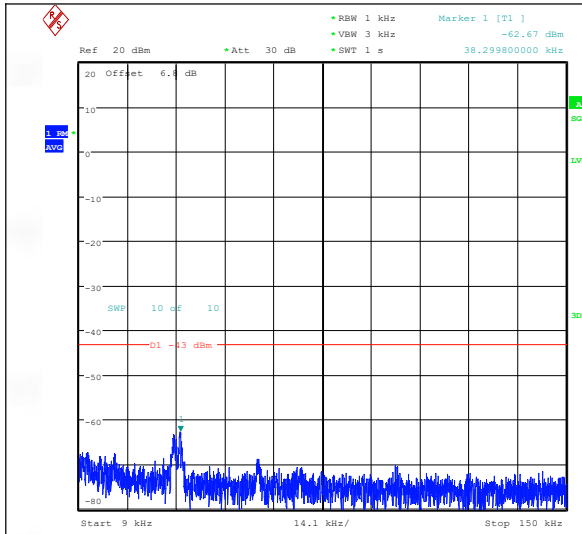
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GSM1900-810-0-3000~18000MHz-PASS



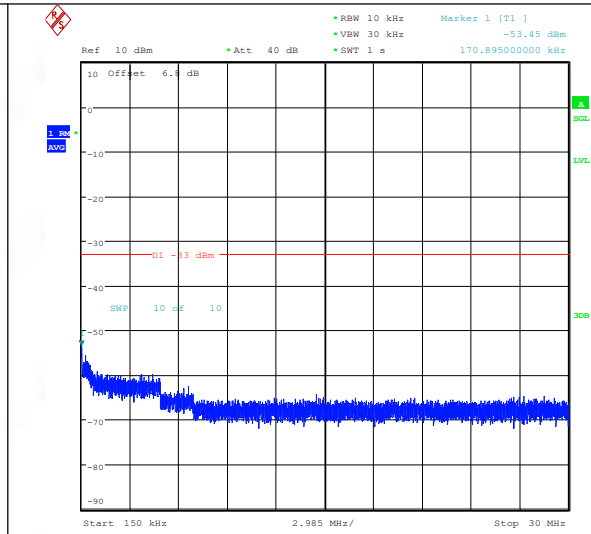
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GPRS1900-810-0-3000~18000MHz-PASS



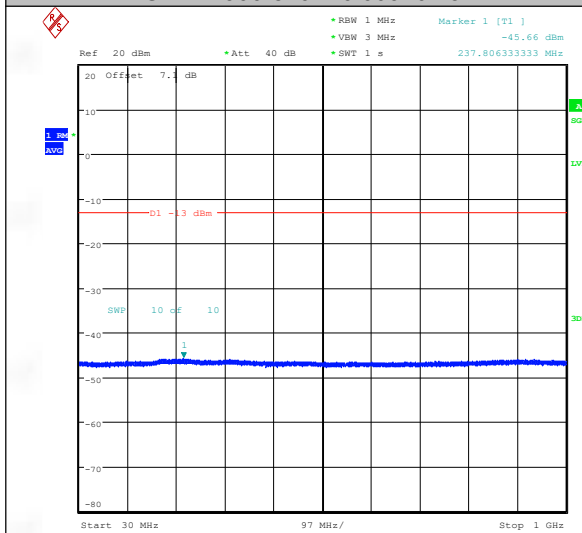
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EGPRS1900-810-2-0.009~0.15MHz-PASS



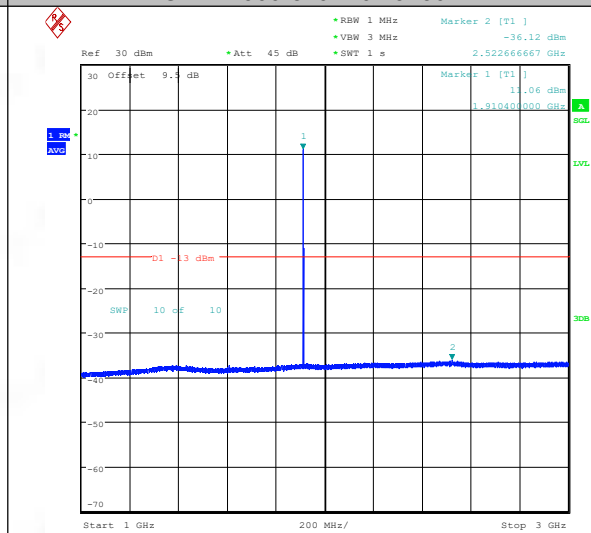
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EGPRS1900-810-2-0.15~30MHz-PASS



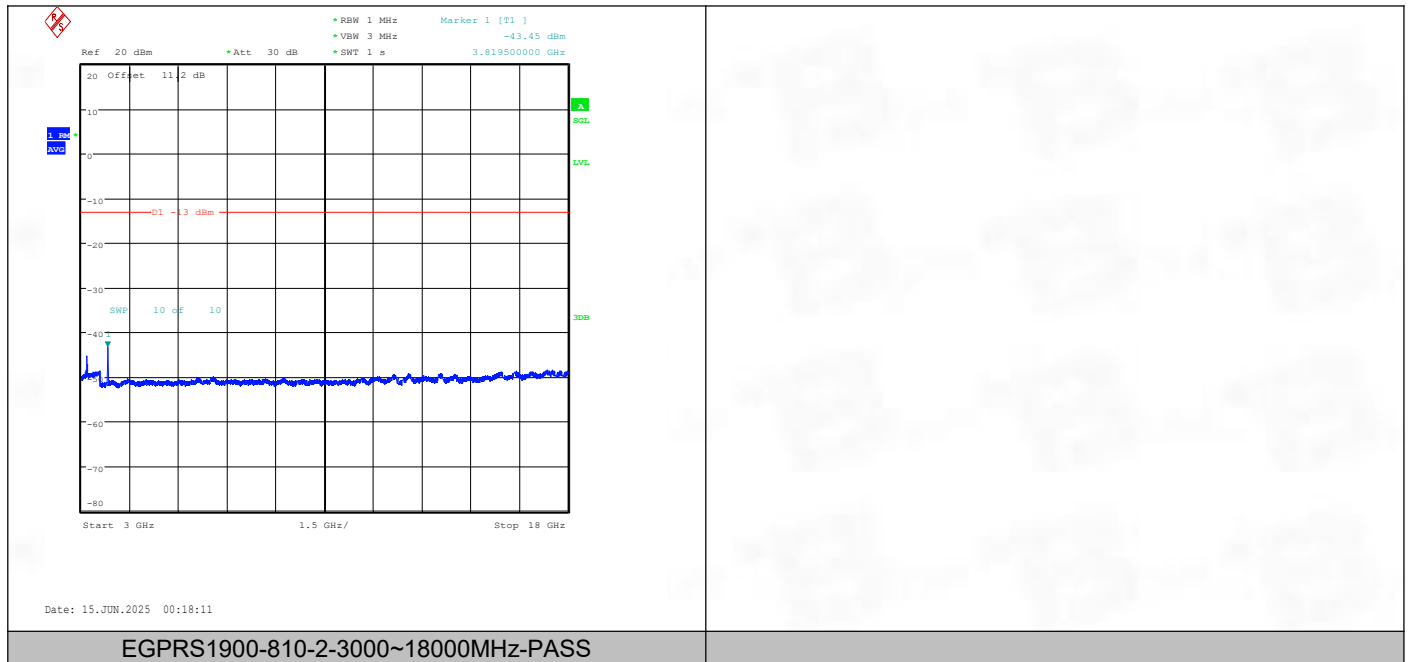
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EGPRS1900-810-2-30~1000MHz-PASS



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EGPRS1900-810-2-1000~3000MHz-PASS



1.6 Appendix F: Frequency Stability

1.6.1 Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	VN	NT	-21.15	-0.011431	±2.5	PASS
GSM1900	512	VL	NT	-20.95	-0.011323	±2.5	PASS
GSM1900	512	VH	NT	-21.76	-0.011761	±2.5	PASS
GPRS1900	512	VN	NT	-21.79	-0.011777	±2.5	PASS
GPRS1900	512	VL	NT	-27.73	-0.014988	±2.5	PASS
GPRS1900	512	VH	NT	-27.35	-0.014782	±2.5	PASS
EGPRS1900	512	VN	NT	-16.47	-0.008902	±2.5	PASS
EGPRS1900	512	VL	NT	-11.95	-0.006459	±2.5	PASS
EGPRS1900	512	VH	NT	-13.30	-0.007188	±2.5	PASS
GSM1900	661	VN	NT	-14.40	-0.007660	±2.5	PASS
GSM1900	661	VL	NT	-18.24	-0.009702	±2.5	PASS
GSM1900	661	VH	NT	-18.76	-0.009979	±2.5	PASS
GPRS1900	661	VN	NT	-21.66	-0.011521	±2.5	PASS
GPRS1900	661	VL	NT	-27.41	-0.014580	±2.5	PASS
GPRS1900	661	VH	NT	-19.40	-0.010319	±2.5	PASS
EGPRS1900	661	VN	NT	-6.46	-0.003436	±2.5	PASS
EGPRS1900	661	VL	NT	-14.82	-0.007883	±2.5	PASS
EGPRS1900	661	VH	NT	-10.36	-0.005511	±2.5	PASS
GSM1900	810	VN	NT	-16.66	-0.008723	±2.5	PASS
GSM1900	810	VL	NT	-18.18	-0.009519	±2.5	PASS
GSM1900	810	VH	NT	-18.82	-0.009854	±2.5	PASS
GPRS1900	810	VN	NT	-16.82	-0.008807	±2.5	PASS
GPRS1900	810	VL	NT	-13.72	-0.007184	±2.5	PASS
GPRS1900	810	VH	NT	-19.11	-0.010006	±2.5	PASS
EGPRS1900	810	VN	NT	-9.01	-0.004718	±2.5	PASS
EGPRS1900	810	VL	NT	-10.17	-0.005325	±2.5	PASS
EGPRS1900	810	VH	NT	-13.01	-0.006812	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	512	NV	-30	-17.14	-0.009264	±2.5	PASS
GSM1900	512	NV	-20	-18.92	-0.010226	±2.5	PASS
GSM1900	512	NV	-10	-22.05	-0.011918	±2.5	PASS
GSM1900	512	NV	0	-19.92	-0.010766	±2.5	PASS
GSM1900	512	NV	10	-15.79	-0.008534	±2.5	PASS
GSM1900	512	NV	20	-22.15	-0.011972	±2.5	PASS
GSM1900	512	NV	30	-26.51	-0.014328	±2.5	PASS
GSM1900	512	NV	40	-21.63	-0.011691	±2.5	PASS
GSM1900	512	NV	50	-26.31	-0.014220	±2.5	PASS
GPRS1900	512	NV	-30	-22.92	-0.012388	±2.5	PASS
GPRS1900	512	NV	-20	-20.70	-0.011188	±2.5	PASS
GPRS1900	512	NV	-10	-21.95	-0.011864	±2.5	PASS
GPRS1900	512	NV	0	-19.18	-0.010366	±2.5	PASS
GPRS1900	512	NV	10	-19.05	-0.010296	±2.5	PASS
GPRS1900	512	NV	20	-20.66	-0.011166	±2.5	PASS
GPRS1900	512	NV	30	-16.18	-0.008745	±2.5	PASS
GPRS1900	512	NV	40	-18.50	-0.009999	±2.5	PASS

GPRS1900	512	NV	50	-16.05	-0.008675	±2.5	PASS
EGPRS1900	512	NV	-30	-10.85	-0.005864	±2.5	PASS
EGPRS1900	512	NV	-20	-10.94	-0.005913	±2.5	PASS
EGPRS1900	512	NV	-10	-8.75	-0.004729	±2.5	PASS
EGPRS1900	512	NV	0	-8.07	-0.004362	±2.5	PASS
EGPRS1900	512	NV	10	-8.07	-0.004362	±2.5	PASS
EGPRS1900	512	NV	20	-11.66	-0.006302	±2.5	PASS
EGPRS1900	512	NV	30	-14.21	-0.007680	±2.5	PASS
EGPRS1900	512	NV	40	-12.11	-0.006545	±2.5	PASS
EGPRS1900	512	NV	50	-7.94	-0.004291	±2.5	PASS
GSM1900	661	NV	-30	-14.37	-0.007644	±2.5	PASS
GSM1900	661	NV	-20	-14.82	-0.007883	±2.5	PASS
GSM1900	661	NV	-10	-14.17	-0.007537	±2.5	PASS
GSM1900	661	NV	0	-19.63	-0.010441	±2.5	PASS
GSM1900	661	NV	10	-13.79	-0.007335	±2.5	PASS
GSM1900	661	NV	20	-18.44	-0.009809	±2.5	PASS
GSM1900	661	NV	30	-17.66	-0.009394	±2.5	PASS
GSM1900	661	NV	40	-24.31	-0.012931	±2.5	PASS
GSM1900	661	NV	50	-28.77	-0.015303	±2.5	PASS
GPRS1900	661	NV	-30	-19.11	-0.010165	±2.5	PASS
GPRS1900	661	NV	-20	-18.69	-0.009941	±2.5	PASS
GPRS1900	661	NV	-10	-17.66	-0.009394	±2.5	PASS
GPRS1900	661	NV	0	-21.24	-0.011298	±2.5	PASS
GPRS1900	661	NV	10	-21.79	-0.011590	±2.5	PASS
GPRS1900	661	NV	20	-18.79	-0.009995	±2.5	PASS
GPRS1900	661	NV	30	-18.21	-0.009686	±2.5	PASS
GPRS1900	661	NV	40	-12.91	-0.006867	±2.5	PASS
GPRS1900	661	NV	50	-10.23	-0.005441	±2.5	PASS
EGPRS1900	661	NV	-30	-10.46	-0.005564	±2.5	PASS
EGPRS1900	661	NV	-20	-15.72	-0.008362	±2.5	PASS
EGPRS1900	661	NV	-10	-14.14	-0.007521	±2.5	PASS
EGPRS1900	661	NV	0	-10.94	-0.005819	±2.5	PASS
EGPRS1900	661	NV	10	-9.46	-0.005032	±2.5	PASS
EGPRS1900	661	NV	20	-7.81	-0.004154	±2.5	PASS
EGPRS1900	661	NV	30	-11.33	-0.006027	±2.5	PASS
EGPRS1900	661	NV	40	-12.82	-0.006819	±2.5	PASS
EGPRS1900	661	NV	50	-12.27	-0.006527	±2.5	PASS
GSM1900	810	NV	-30	-15.14	-0.007928	±2.5	PASS
GSM1900	810	NV	-20	-14.33	-0.007503	±2.5	PASS
GSM1900	810	NV	-10	-15.95	-0.008352	±2.5	PASS
GSM1900	810	NV	0	-14.43	-0.007556	±2.5	PASS
GSM1900	810	NV	10	-13.92	-0.007289	±2.5	PASS
GSM1900	810	NV	20	-16.27	-0.008519	±2.5	PASS
GSM1900	810	NV	30	-27.38	-0.014337	±2.5	PASS
GSM1900	810	NV	40	-24.41	-0.012781	±2.5	PASS
GSM1900	810	NV	50	-22.41	-0.011734	±2.5	PASS
GPRS1900	810	NV	-30	-17.66	-0.009247	±2.5	PASS
GPRS1900	810	NV	-20	-15.56	-0.008147	±2.5	PASS
GPRS1900	810	NV	-10	-15.40	-0.008064	±2.5	PASS
GPRS1900	810	NV	0	-13.53	-0.007085	±2.5	PASS
GPRS1900	810	NV	10	-13.75	-0.007200	±2.5	PASS
GPRS1900	810	NV	20	-18.37	-0.009619	±2.5	PASS
GPRS1900	810	NV	30	-7.62	-0.003990	±2.5	PASS
GPRS1900	810	NV	40	-7.23	-0.003786	±2.5	PASS
GPRS1900	810	NV	50	-15.43	-0.008079	±2.5	PASS
EGPRS1900	810	NV	-30	-10.88	-0.005697	±2.5	PASS
EGPRS1900	810	NV	-20	-8.36	-0.004377	±2.5	PASS

EGPRS1900	810	NV	-10	-8.17	-0.004278	±2.5	PASS
EGPRS1900	810	NV	0	-9.30	-0.004870	±2.5	PASS
EGPRS1900	810	NV	10	-4.20	-0.002199	±2.5	PASS
EGPRS1900	810	NV	20	-9.40	-0.004922	±2.5	PASS
EGPRS1900	810	NV	30	-12.46	-0.006524	±2.5	PASS
EGPRS1900	810	NV	40	-16.43	-0.008603	±2.5	PASS
EGPRS1900	810	NV	50	-23.50	-0.012305	±2.5	PASS

1.7 Appendix G: Modulation Characteristics

1.7.1 Test Result

Band	Channel	Result	Verdict
GSM1900	512	PASS	PASS
GPRS1900	512	PASS	PASS
EGPRS1900	512	PASS	PASS
GSM1900	661	PASS	PASS
GPRS1900	661	PASS	PASS
EGPRS1900	661	PASS	PASS
GSM1900	810	PASS	PASS
GPRS1900	810	PASS	PASS
EGPRS1900	810	PASS	PASS

1.7.2 Test Graphs

