

# APPENDIX REPORT

Project No.	SHT2111009101EW	Radio Specification	GSM
Test sample No.	YPHT21110091003	Model No.	R4
Start test date	2021/11/9	Finish date	2021/11/9
Temperature	23.9°C	Humidity	20%
Test Engineer	Jiongsheng.Feng	Auditor	Xiaodong Zhu

Appendix clause	Test item	Result
A	Conducted Output Power	PASS
B	Peak-to-Average Ratio	PASS
C	26 dB Bandwidth and Occupied Bandwidth	PASS
D	Band edge	PASS
E	Conducted Spurious Emission	PASS
F	Frequency Stability	PASS
G	ERP and EIRP	PASS

## 8.1 Appendix A: Conducted Output Power

### Test Result

Band	Channel	PCL	Power(dBm)	Limit(dBm)	Verdict
GSM850	128	5	32.68	38.5	PASS
GSM850	190	5	32.59	38.5	PASS
GSM850	251	5	32.07	38.5	PASS
GSM1900	512	0	28.26	33	PASS
GSM1900	661	0	28.37	33	PASS
GSM1900	810	0	28.47	33	PASS

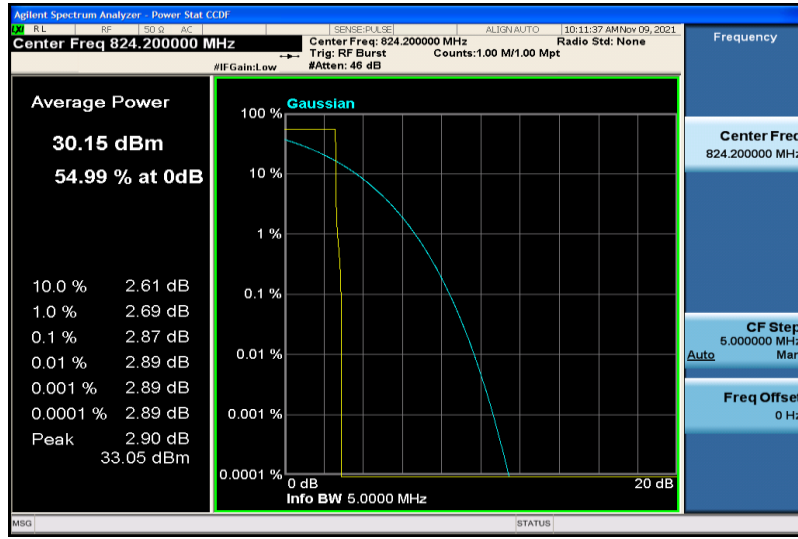
Band	Channel	PCL	Slot	Power(dBm)	Limit(dBm)	Verdict
GPRS850	128	5	1	32.79	38.5	PASS
GPRS850	128	5	2	32.23	38.5	PASS
GPRS850	128	5	3	31.06	38.5	PASS
GPRS850	128	5	4	29.96	38.5	PASS
GPRS850	190	5	1	32.29	38.5	PASS
GPRS850	190	5	2	32.16	38.5	PASS
GPRS850	190	5	3	30.62	38.5	PASS
GPRS850	190	5	4	29.81	38.5	PASS
GPRS850	251	5	1	32.15	38.5	PASS
GPRS850	251	5	2	31.59	38.5	PASS
GPRS850	251	5	3	30.01	38.5	PASS
GPRS850	251	5	4	29.08	38.5	PASS
GPRS1900	512	0	1	28.29	33	PASS
GPRS1900	512	0	2	27.82	33	PASS
GPRS1900	512	0	3	26.78	33	PASS
GPRS1900	512	0	4	25.77	33	PASS
GPRS1900	661	0	1	28.33	33	PASS
GPRS1900	661	0	2	27.97	33	PASS
GPRS1900	661	0	3	26.81	33	PASS
GPRS1900	661	0	4	25.82	33	PASS
GPRS1900	810	0	1	28.43	33	PASS
GPRS1900	810	0	2	28.04	33	PASS
GPRS1900	810	0	3	26.94	33	PASS
GPRS1900	810	0	4	25.89	33	PASS

## 8.2 Appendix B: Peak-to-Average Ratio

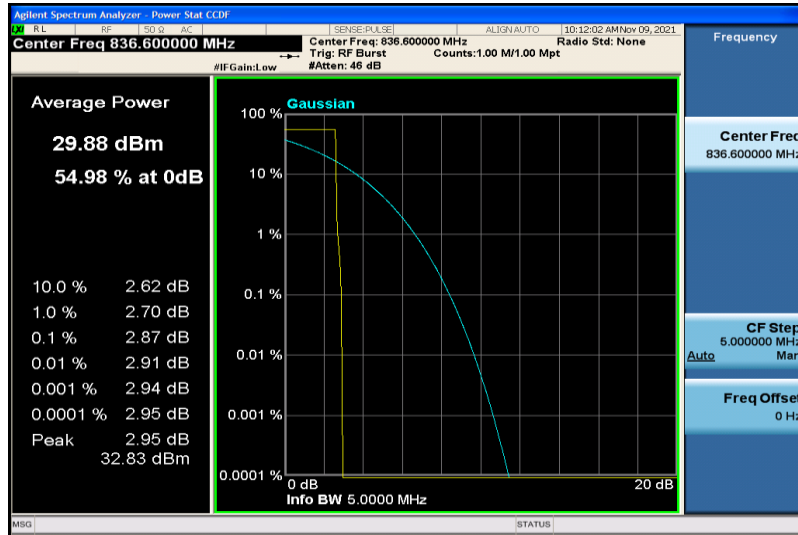
### Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GSM850	128	2.87	13	PASS
GSM850	190	2.87	13	PASS
GSM850	251	2.89	13	PASS
GPRS850	128	2.87	13	PASS
GPRS850	190	2.88	13	PASS
GPRS850	251	2.89	13	PASS
GSM1900	512	2.70	13	PASS
GSM1900	661	2.70	13	PASS
GSM1900	810	2.70	13	PASS
GPRS1900	512	2.72	13	PASS
GPRS1900	661	2.70	13	PASS
GPRS1900	810	2.71	13	PASS

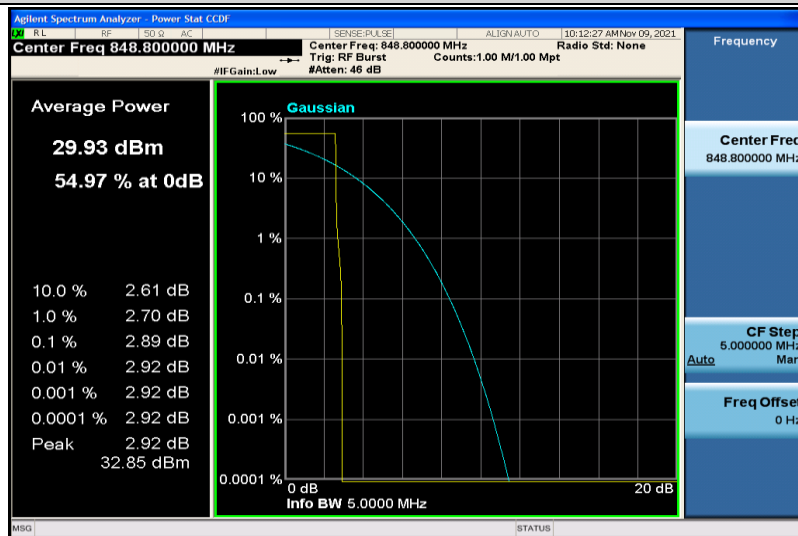
Test Graphs



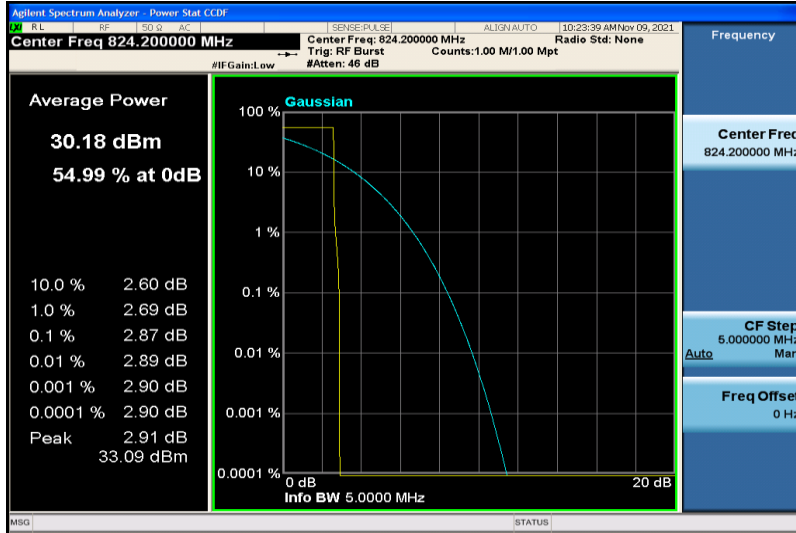
GSM850-128



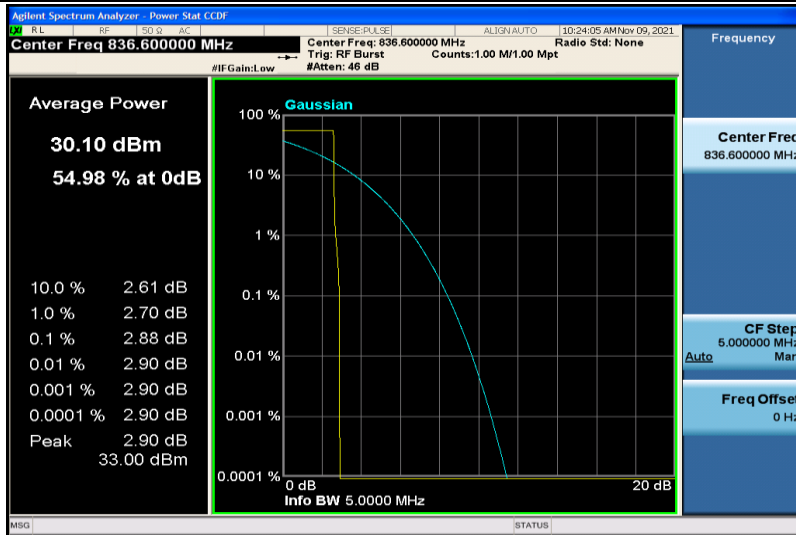
GSM850-190



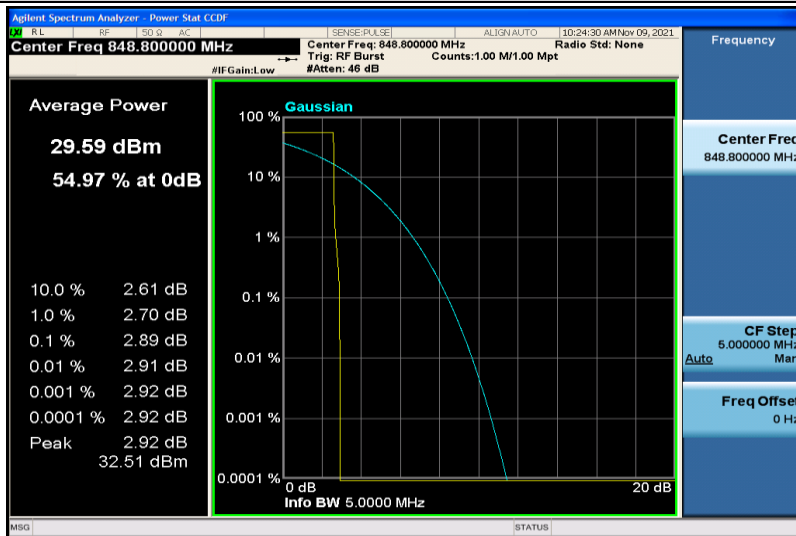
GSM850-251



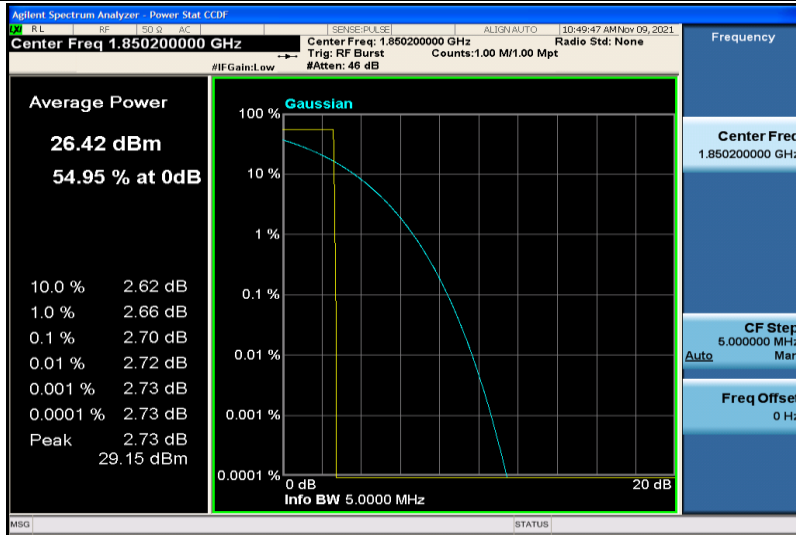
GPRS850-128



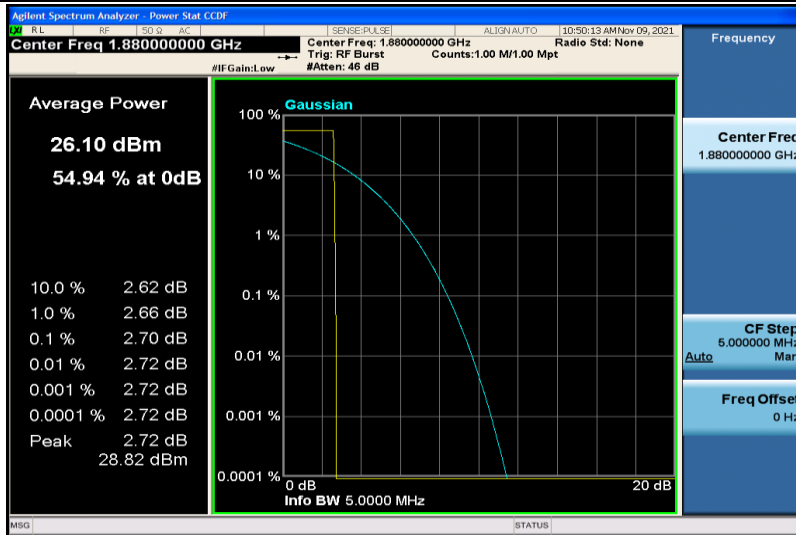
GPRS850-190



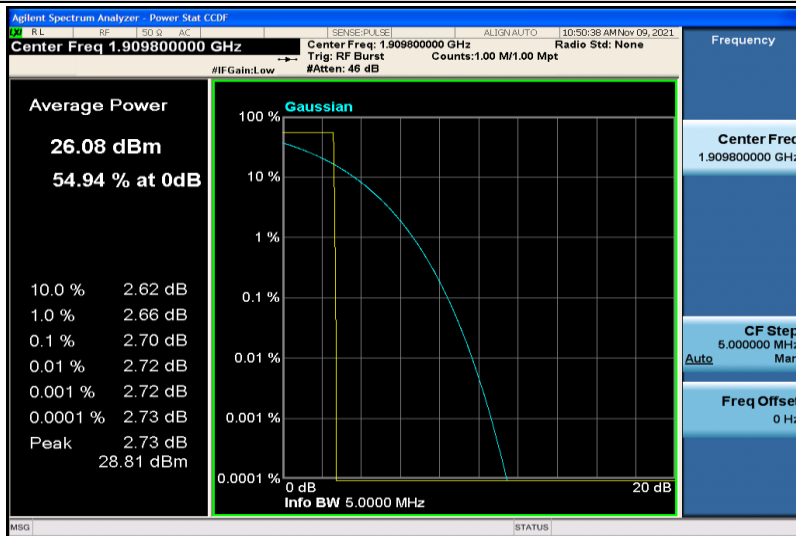
GPRS850-251



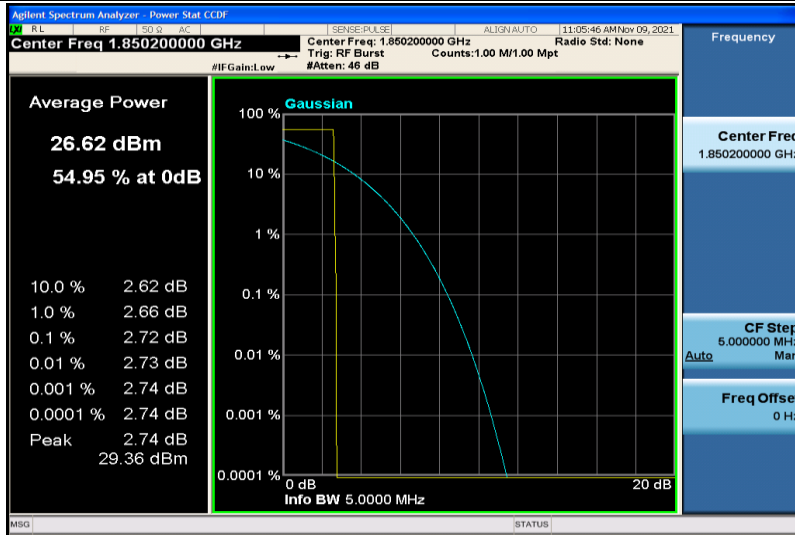
GSM1900-512



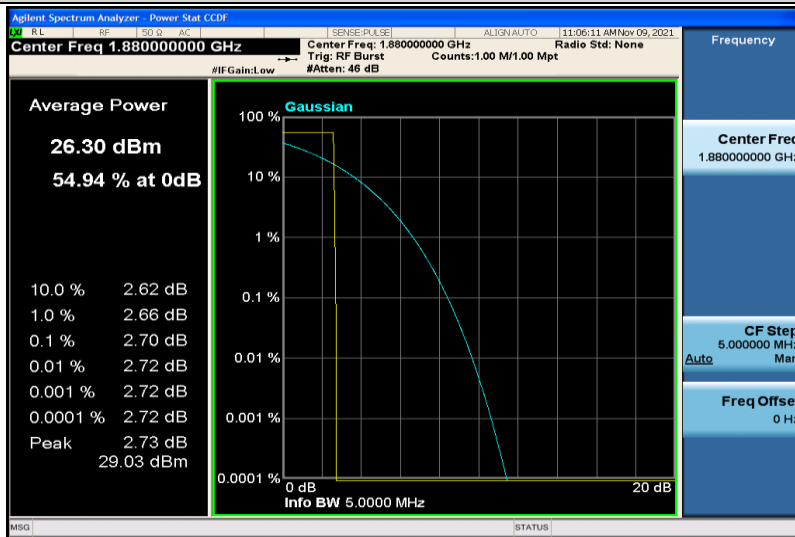
GSM1900-661



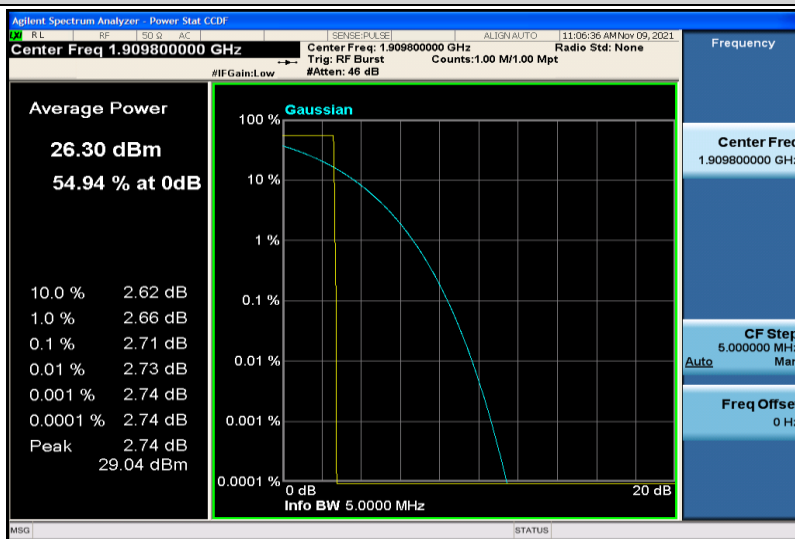
GSM1900-810



GPRS1900-512



GPRS1900-661



GPRS1900-810

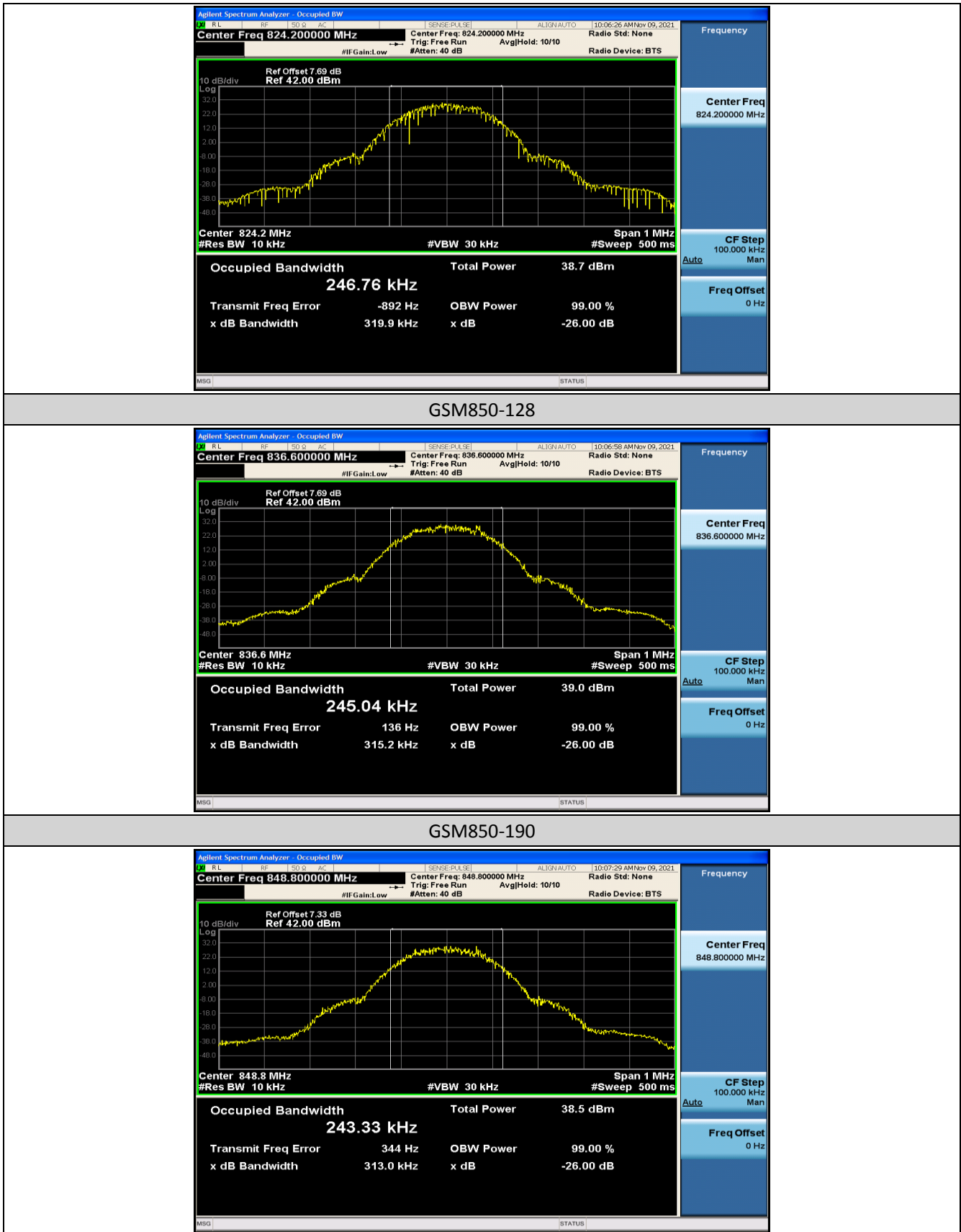


### 8.3 Appendix C: 26dB Bandwidth and Occupied Bandwidth

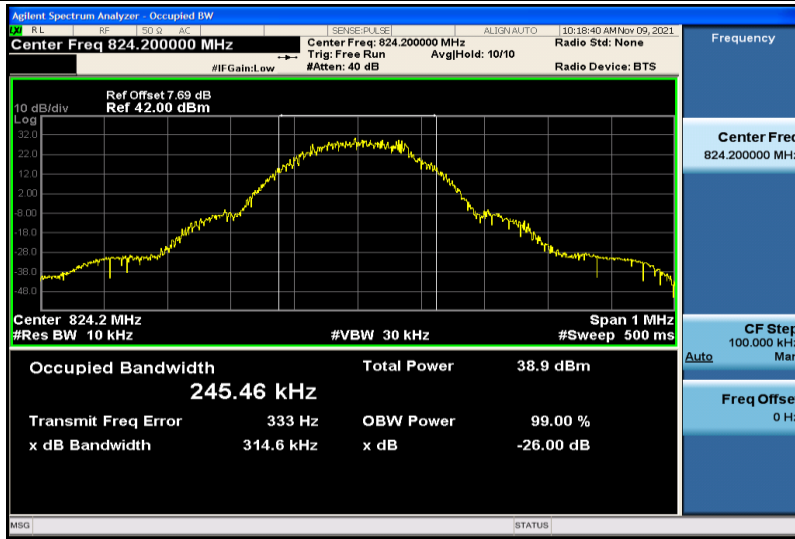
#### Test Result

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
GSM850	128	246.76	319.9	---	PASS
GSM850	190	245.04	315.2	---	PASS
GSM850	251	243.33	313.0	---	PASS
GPRS850	128	245.46	314.6	---	PASS
GPRS850	190	243.96	318.0	---	PASS
GPRS850	251	245.32	319.0	---	PASS
GSM1900	512	245.73	315.8	---	PASS
GSM1900	661	246.31	314.1	---	PASS
GSM1900	810	246.46	316.2	---	PASS
GPRS1900	512	246.67	322.1	---	PASS
GPRS1900	661	246.14	315.8	---	PASS
GPRS1900	810	246.79	319.2	---	PASS

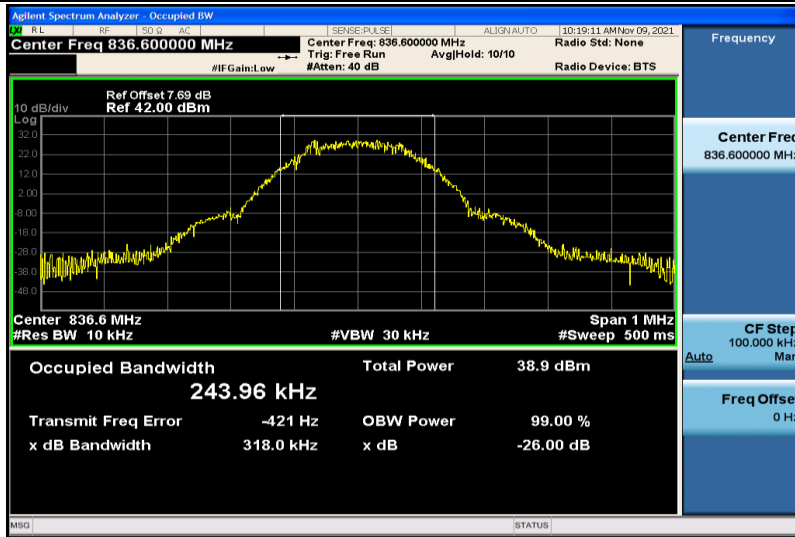
### Test Graphs



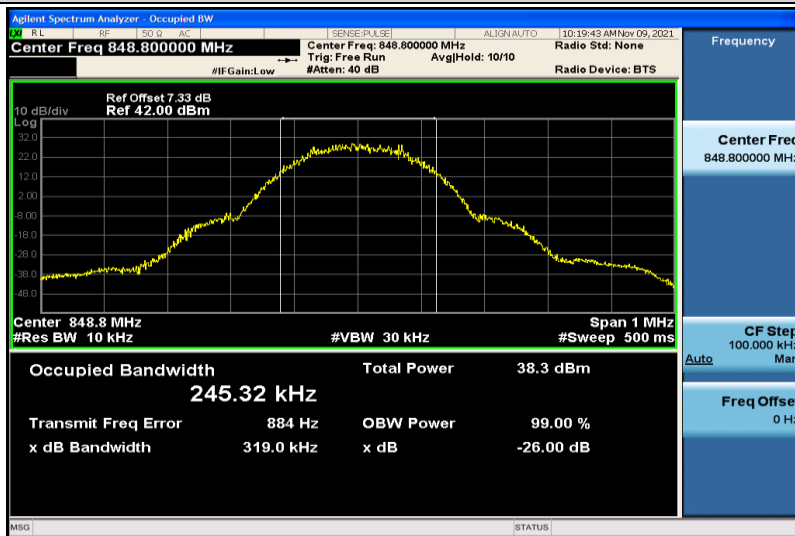
GSM850-251



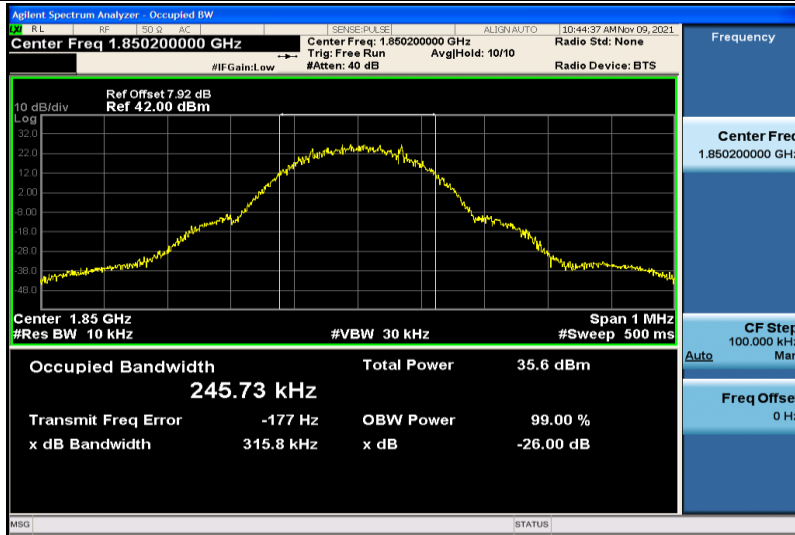
GPRS850-128



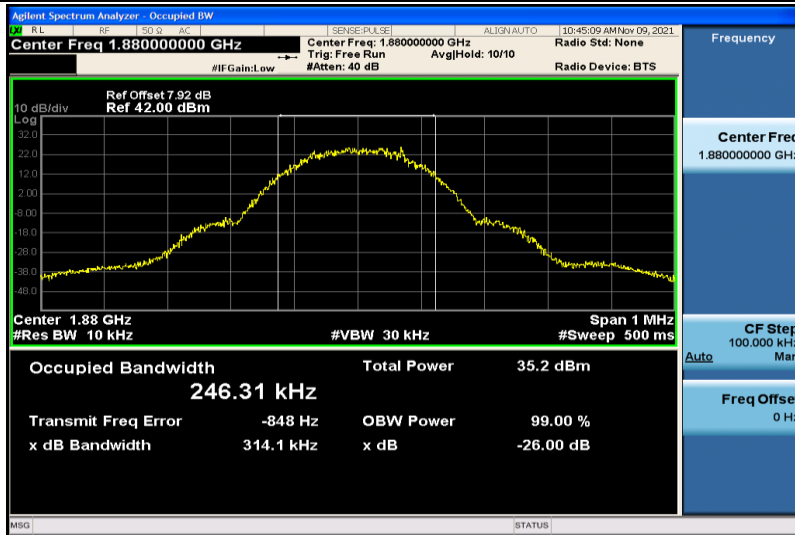
GPRS850-190



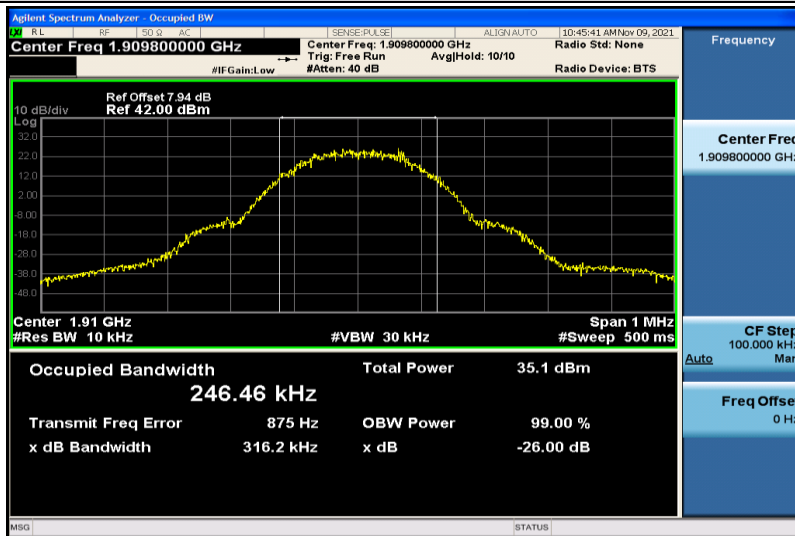
GPRS850-251



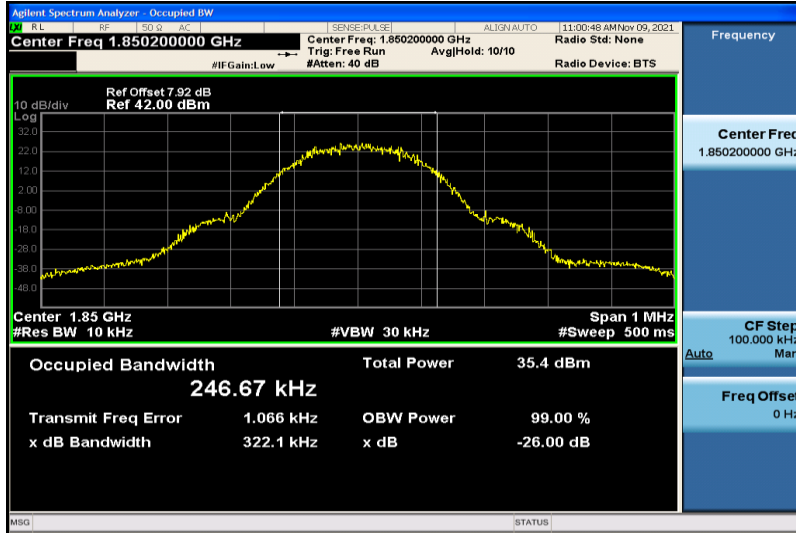
GSM1900-512



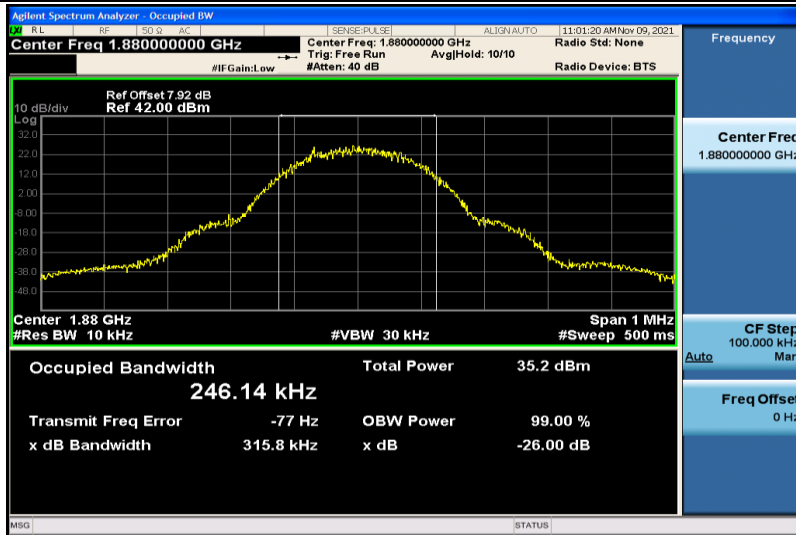
GSM1900-661



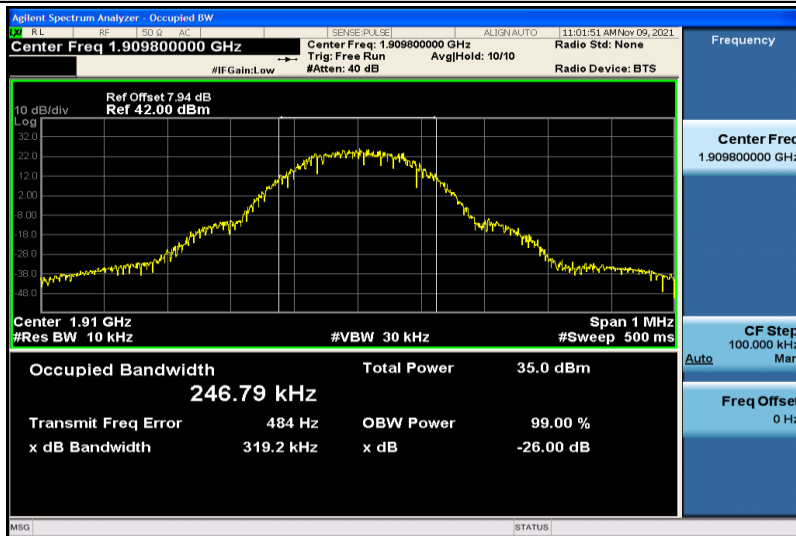
GSM1900-810



GPRS1900-512



GPRS1900-661



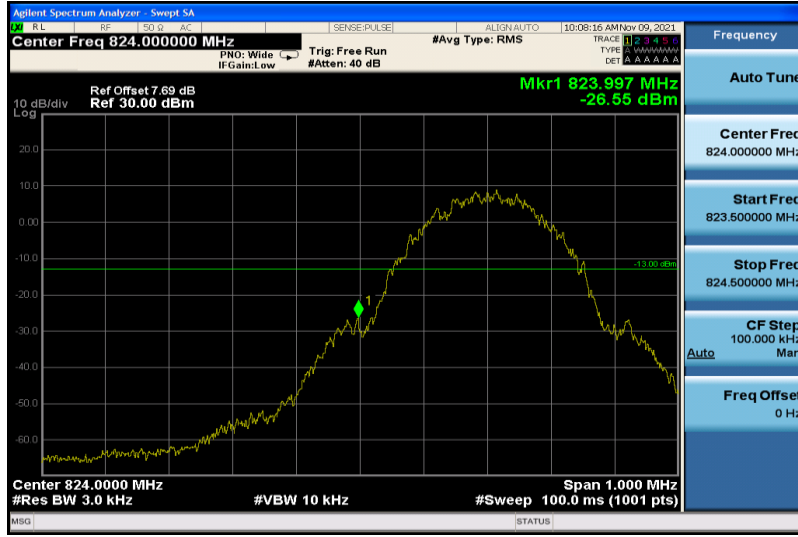
GPRS1900-810

## 8.4 Appendix D: Band Edge

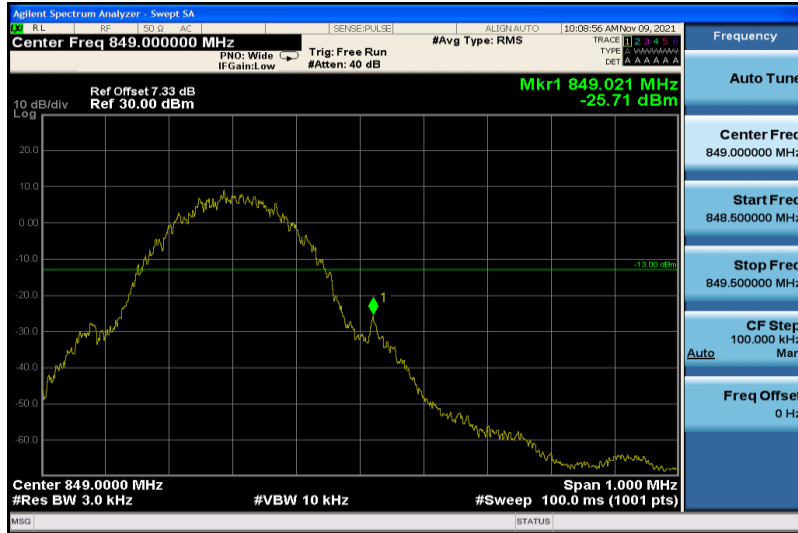
### Test Result

Band	Channel	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	-26.55	-13	PASS
GSM850	251	-25.71	-13	PASS
GPRS850	128	-26.70	-13	PASS
GPRS850	251	-28.92	-13	PASS
GSM1900	512	-30.34	-13	PASS
GSM1900	810	-30.23	-13	PASS
GPRS1900	512	-30.47	-13	PASS
GPRS1900	810	-31.16	-13	PASS

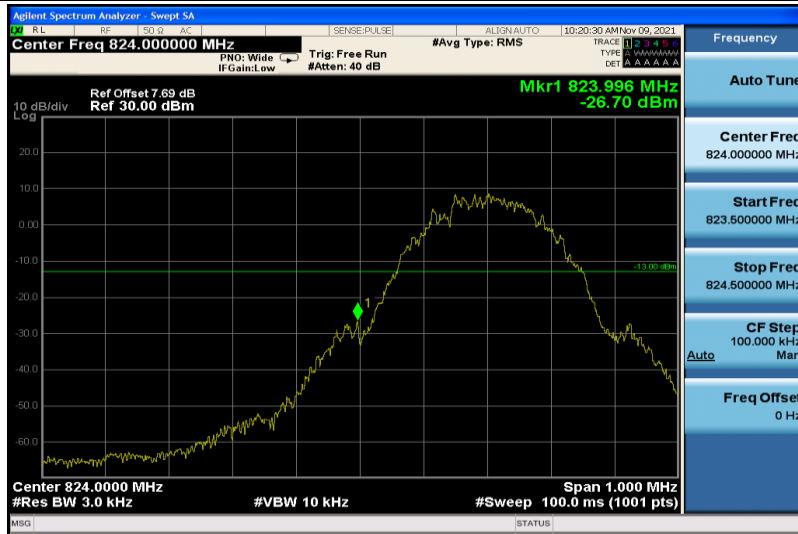
### Test Graphs



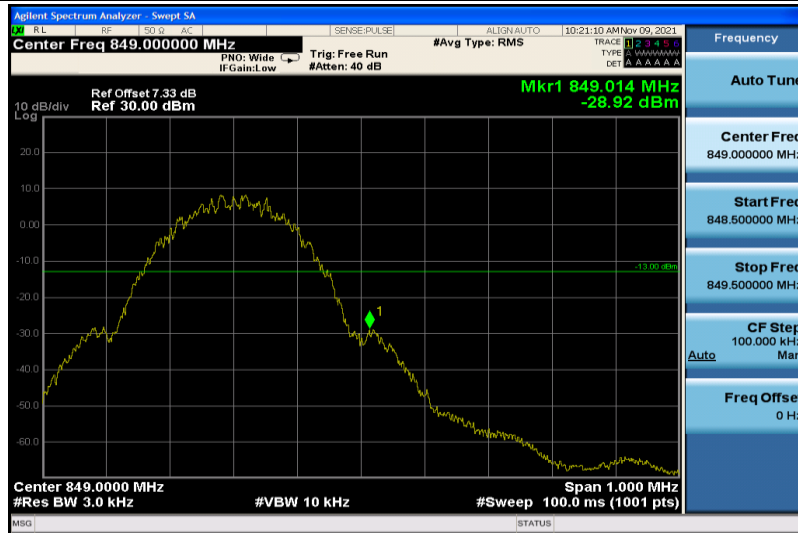
GSM850-128



GSM850-251



GPRS850-128



GPRS850-251



GSM1900-512



GSM1900-810





GPRS1900-512



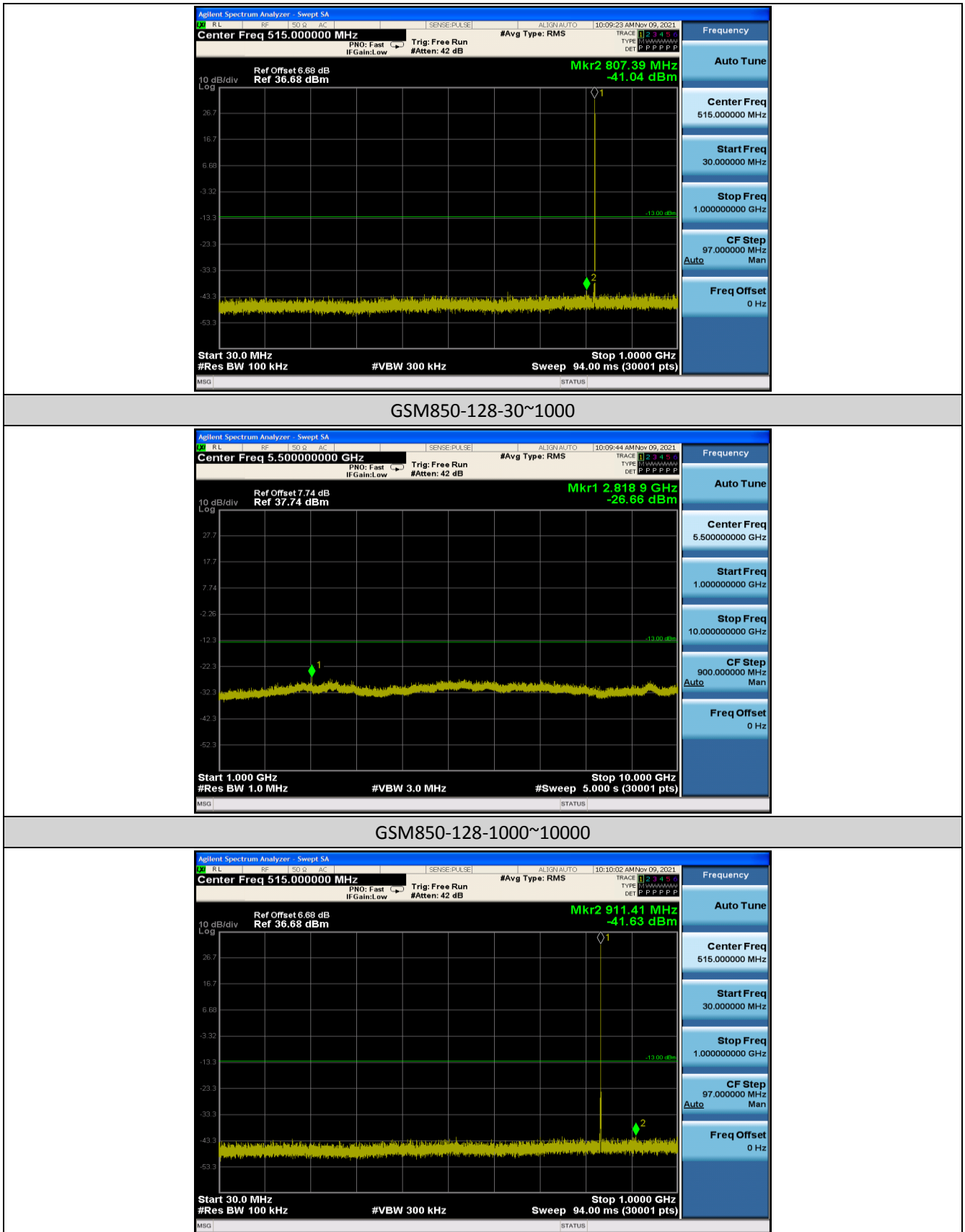
GPRS1900-810

## 8.5 Appendix E: Conducted Spurious Emission

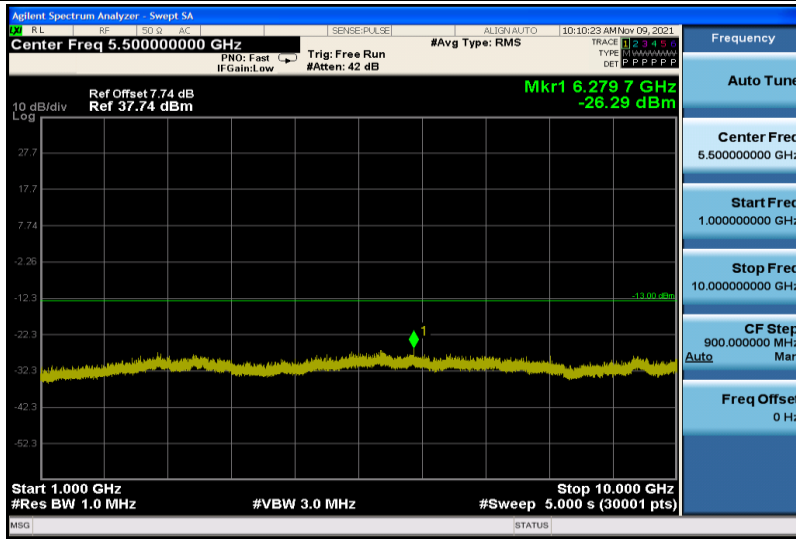
### Test Result

Band	Channel	Frequency Range(Mhz)	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	30~1000	-41.04	-13	PASS
GSM850	128	1000~10000	-26.66	-13	PASS
GSM850	190	30~1000	-41.63	-13	PASS
GSM850	190	1000~10000	-26.29	-13	PASS
GSM850	251	30~1000	-41.56	-13	PASS
GSM850	251	1000~10000	-26.66	-13	PASS
GPRS850	128	30~1000	-40.28	-13	PASS
GPRS850	128	1000~10000	-26.84	-13	PASS
GPRS850	190	30~1000	-41.35	-13	PASS
GPRS850	190	1000~10000	-26.80	-13	PASS
GPRS850	251	30~1000	-41.46	-13	PASS
GPRS850	251	1000~10000	-26.43	-13	PASS
GSM1900	512	30~1000	-41.64	-13	PASS
GSM1900	512	1000~20000	-20.22	-13	PASS
GSM1900	661	30~1000	-41.29	-13	PASS
GSM1900	661	1000~20000	-20.67	-13	PASS
GSM1900	810	30~1000	-41.06	-13	PASS
GSM1900	810	1000~20000	-19.92	-13	PASS
GPRS1900	512	30~1000	-40.72	-13	PASS
GPRS1900	512	1000~20000	-20.37	-13	PASS
GPRS1900	661	30~1000	-41.03	-13	PASS
GPRS1900	661	1000~20000	-20.21	-13	PASS
GPRS1900	810	30~1000	-41.53	-13	PASS
GPRS1900	810	1000~20000	-20.62	-13	PASS

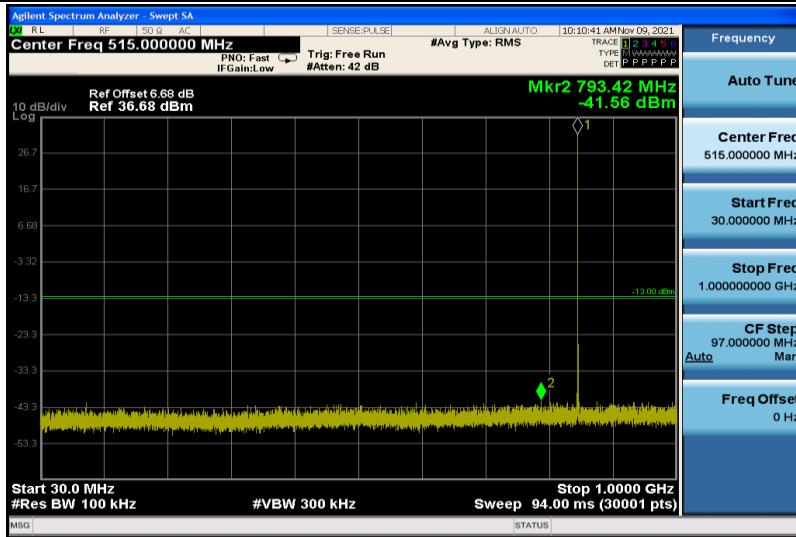
Test Graphs



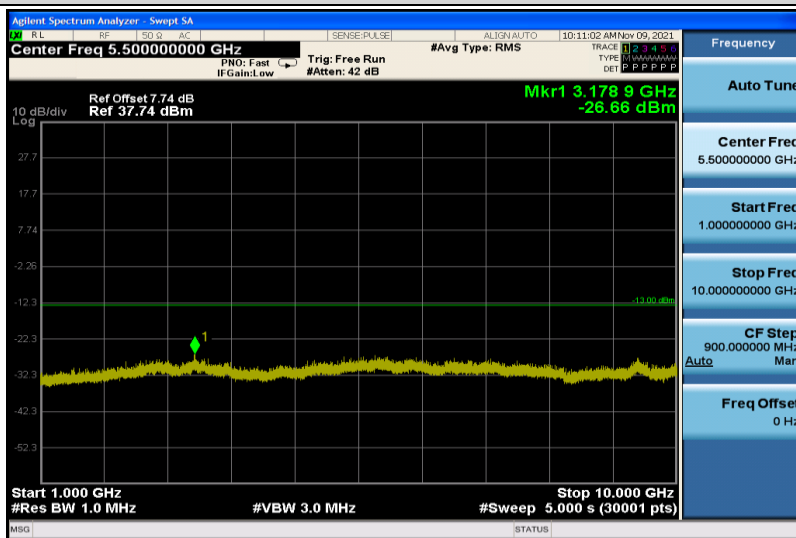
GSM850-190-30~1000



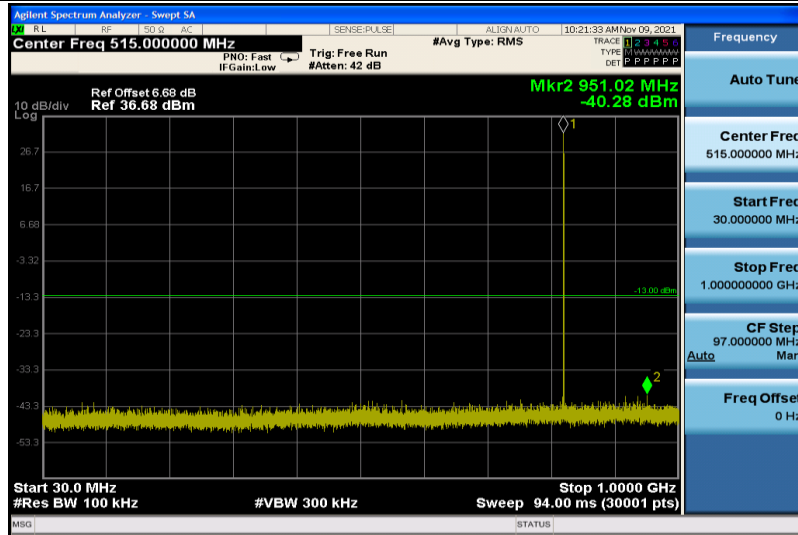
GSM850-190-1000~10000



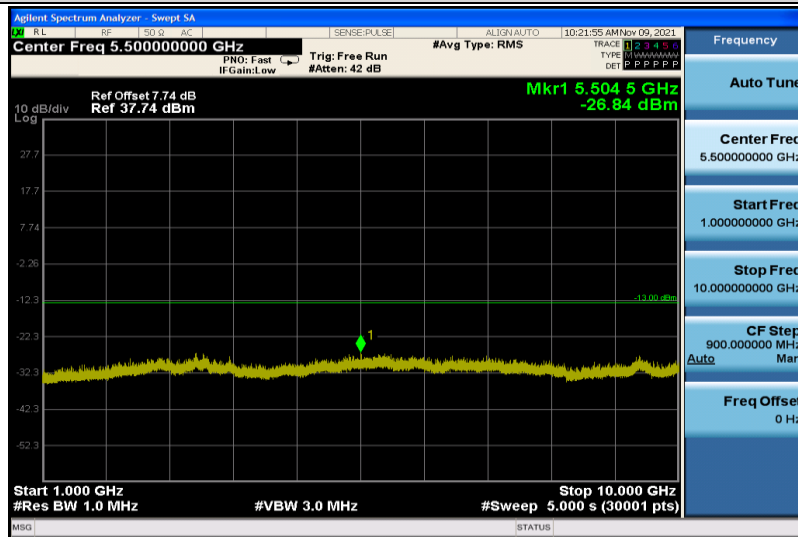
GSM850-251-30~1000



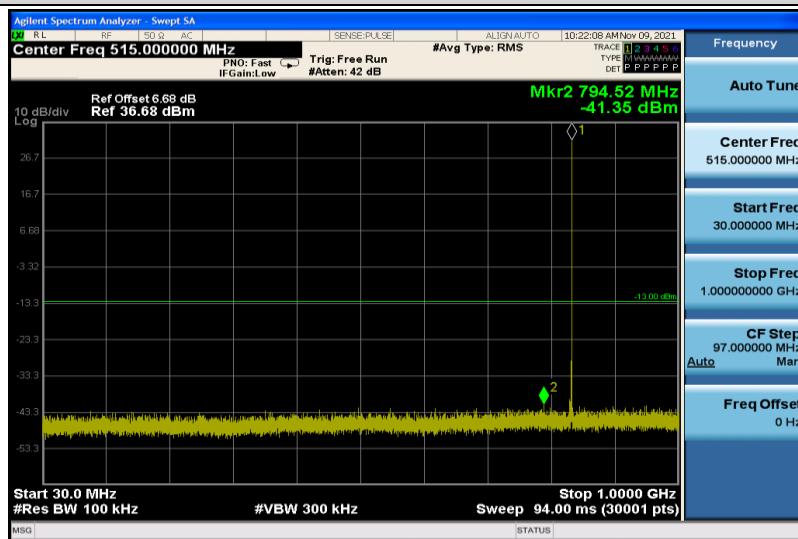
GSM850-251-1000~10000



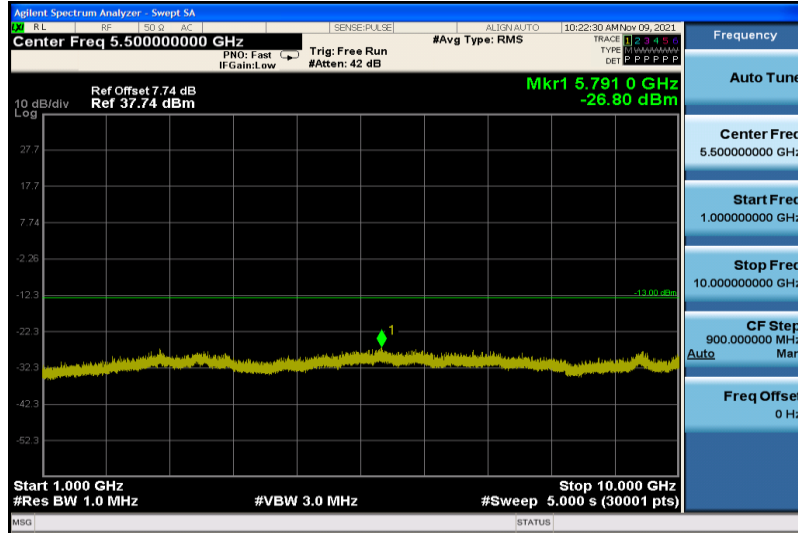
GPRS850-128-30~1000



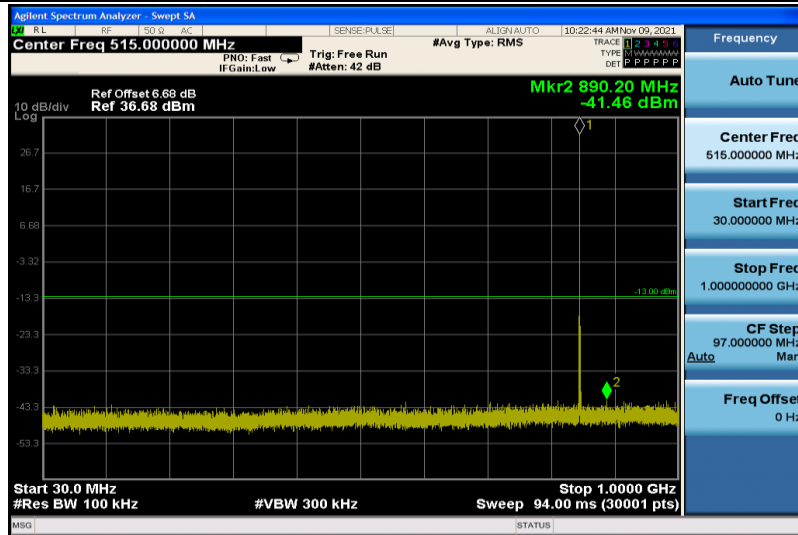
GPRS850-128-1000~10000



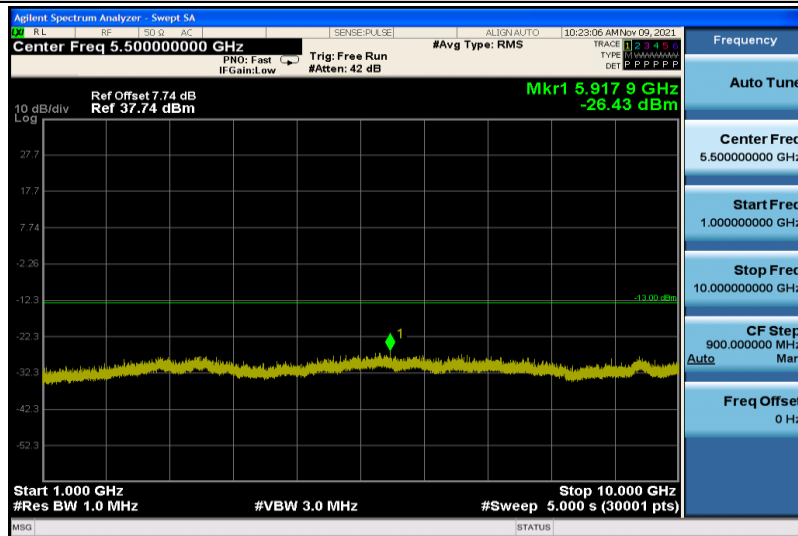
GPRS850-190-30~1000



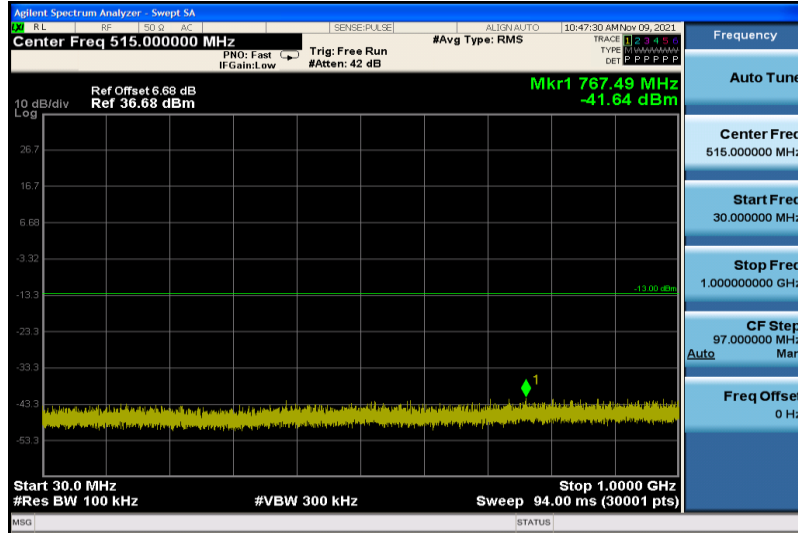
GPRS850-190-1000~1000



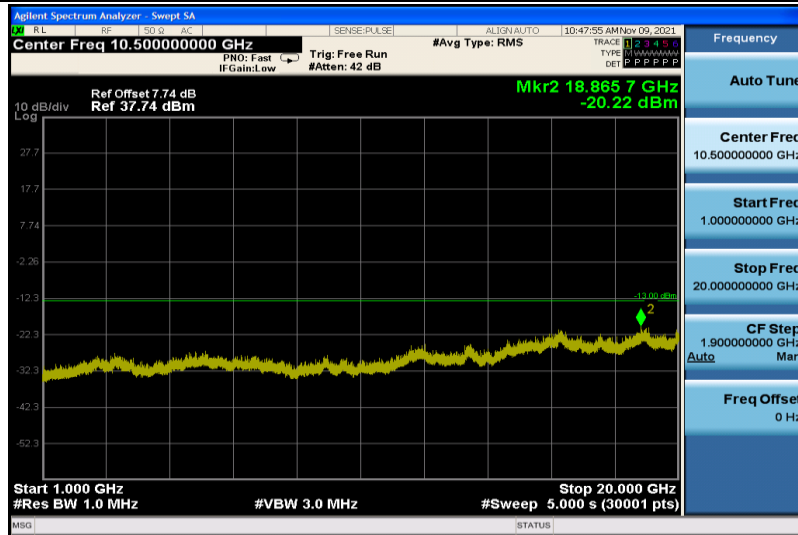
GPRS850-251-30~1000



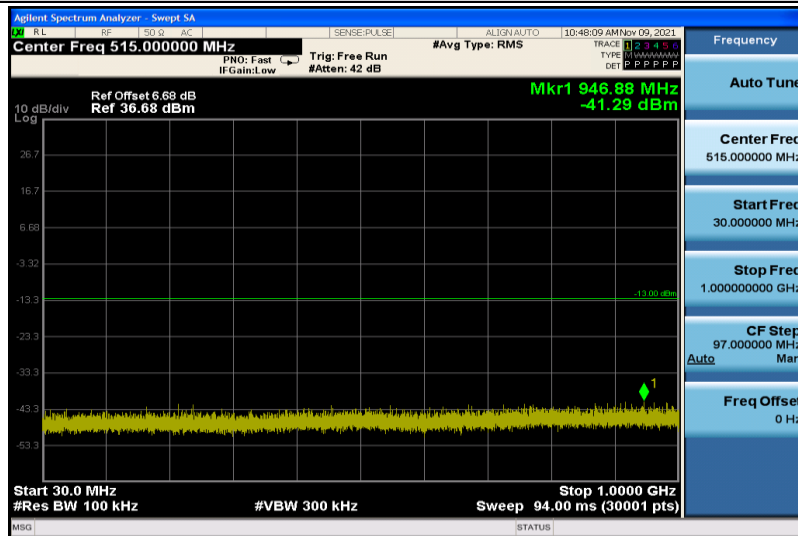
GPRS850-251-1000~1000



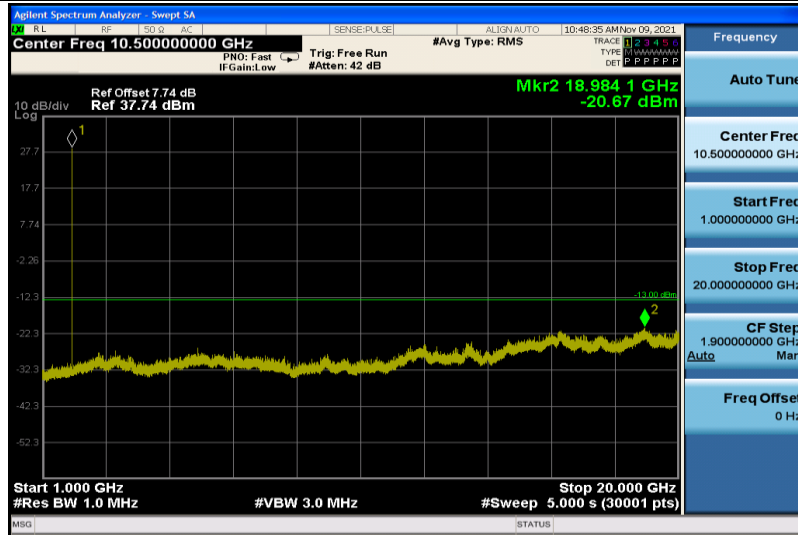
GSM1900-512-30~1000



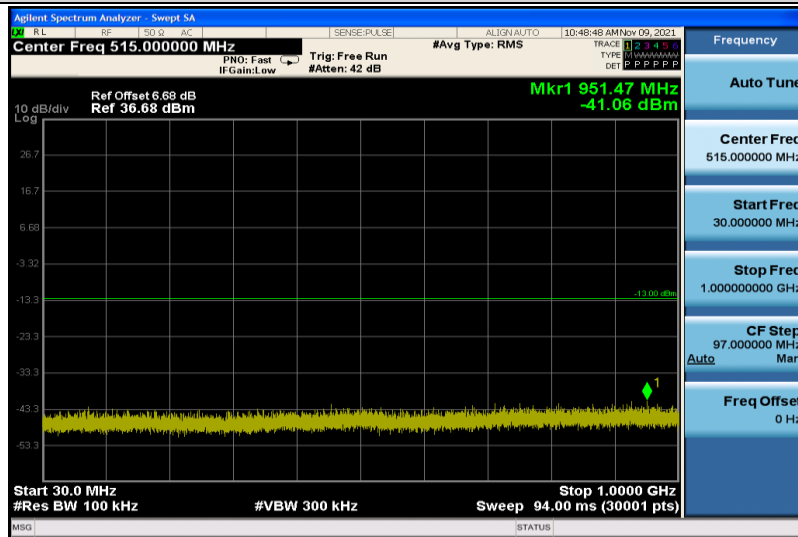
GSM1900-512-1000~20000



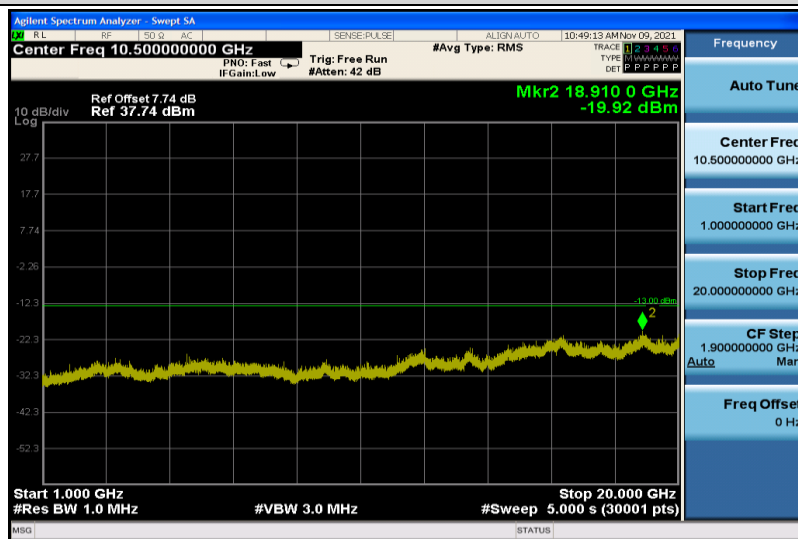
GSM1900-661-30~1000



GSM1900-661-1000~20000

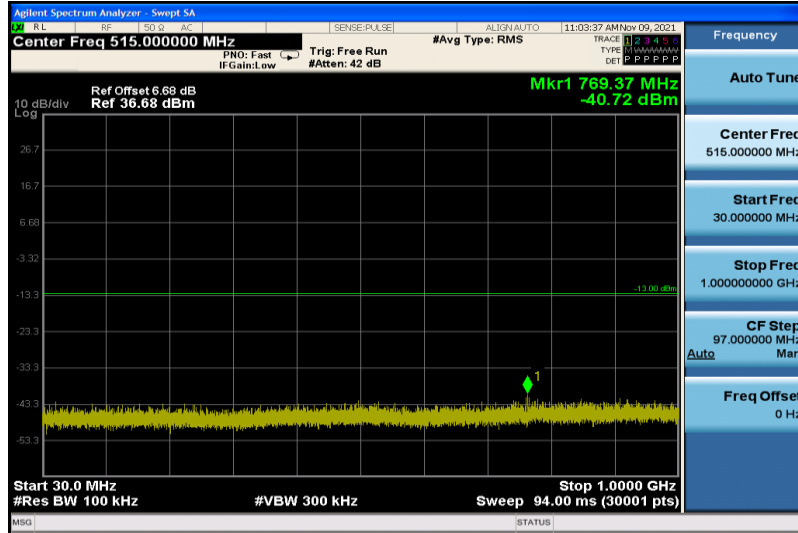


GSM1900-810-30~1000

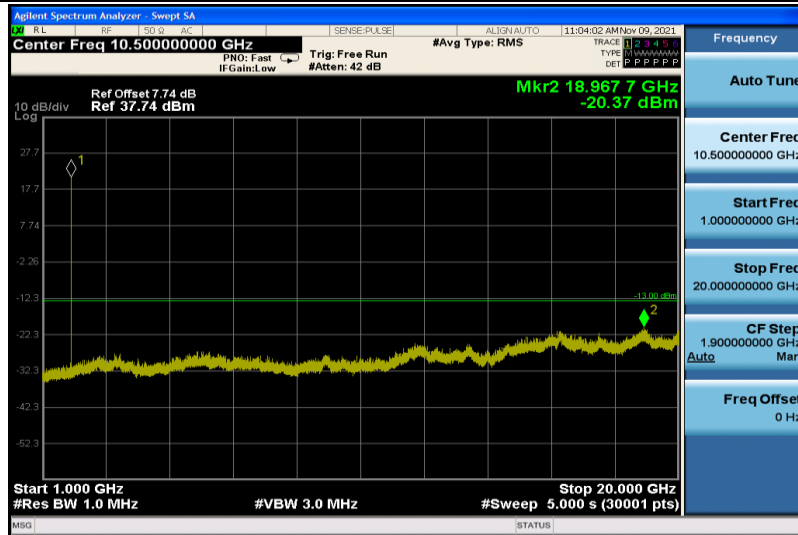


GSM1900-810-1000~20000

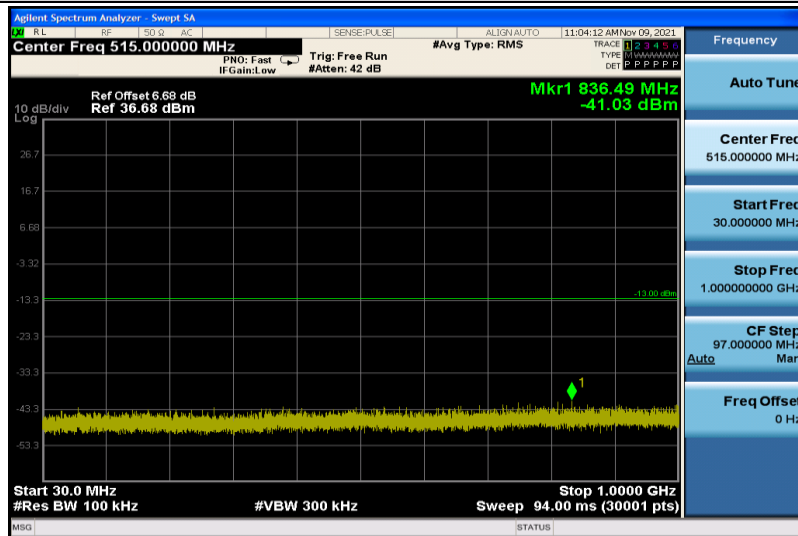




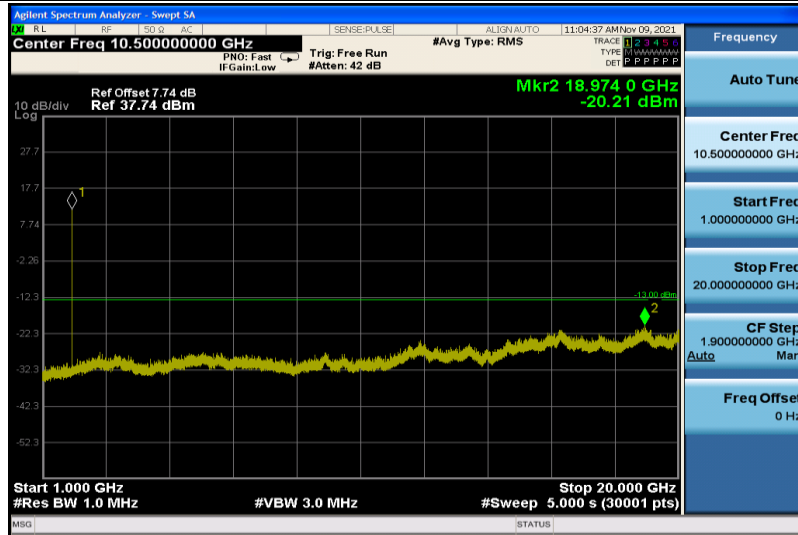
GPRS1900-512-30~1000



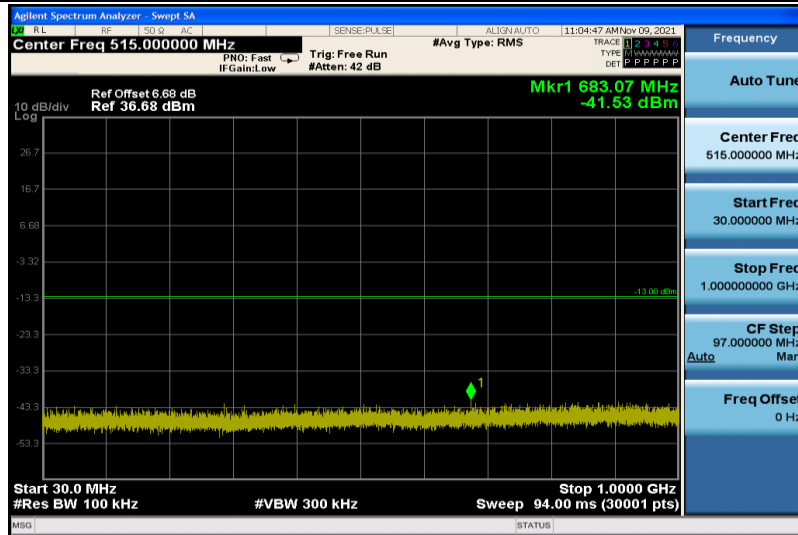
GPRS1900-512-1000~20000



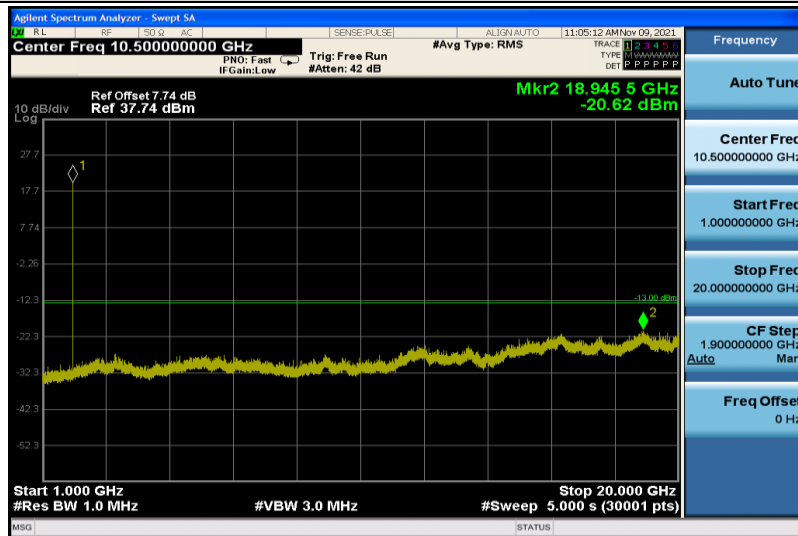
GPRS1900-661-30~1000



GPRS1900-661-1000~20000



GPRS1900-810-30~1000



GPRS1900-810-1000~20000

## 8.6 Appendix F: Frequency Stability

### Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	TN	5.33	0.006467	2.5	PASS
GSM850	128	VN	TN	4.58	0.005557	2.5	PASS
GSM850	128	VH	TN	5.36	0.006503	2.5	PASS
GSM850	190	VL	TN	9.52	0.011379	2.5	PASS
GSM850	190	VN	TN	2.16	0.002582	2.5	PASS
GSM850	190	VH	TN	4.91	0.005869	2.5	PASS
GSM850	251	VL	TN	6.75	0.007952	2.5	PASS
GSM850	251	VN	TN	10.30	0.012135	2.5	PASS
GSM850	251	VH	TN	6.65	0.007835	2.5	PASS
GPRS850	128	VL	TN	1.10	0.001335	2.5	PASS
GPRS850	128	VN	TN	0.77	0.000934	2.5	PASS
GPRS850	128	VH	TN	1.13	0.001371	2.5	PASS
GPRS850	190	VL	TN	9.40	0.011236	2.5	PASS
GPRS850	190	VN	TN	3.58	0.004279	2.5	PASS
GPRS850	190	VH	TN	4.36	0.005212	2.5	PASS
GPRS850	251	VL	TN	5.39	0.006350	2.5	PASS
GPRS850	251	VN	TN	0.71	0.000836	2.5	PASS
GPRS850	251	VH	TN	6.75	0.007952	2.5	PASS
GSM1900	512	VL	TN	-17.79	-0.009615	2.5	PASS
GSM1900	512	VN	TN	-13.92	-0.007524	2.5	PASS
GSM1900	512	VH	TN	-15.21	-0.008221	2.5	PASS
GSM1900	661	VL	TN	-16.40	-0.008723	2.5	PASS
GSM1900	661	VN	TN	-15.50	-0.008245	2.5	PASS
GSM1900	661	VH	TN	-12.66	-0.006734	2.5	PASS
GSM1900	810	VL	TN	-17.11	-0.008959	2.5	PASS
GSM1900	810	VN	TN	-12.04	-0.006304	2.5	PASS
GSM1900	810	VH	TN	-10.75	-0.005629	2.5	PASS
GPRS1900	512	VL	TN	-15.92	-0.008604	2.5	PASS
GPRS1900	512	VN	TN	-21.44	-0.011588	2.5	PASS
GPRS1900	512	VH	TN	-30.06	-0.016247	2.5	PASS
GPRS1900	661	VL	TN	-21.60	-0.011489	2.5	PASS
GPRS1900	661	VN	TN	-10.69	-0.005686	2.5	PASS
GPRS1900	661	VH	TN	-17.40	-0.009255	2.5	PASS
GPRS1900	810	VL	TN	-13.11	-0.006865	2.5	PASS
GPRS1900	810	VN	TN	-9.23	-0.004833	2.5	PASS

GPRS1900	810	VH	TN	-12.40	-0.006493	2.5	PASS
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Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VN	-30	6.30	0.007644	2.5	PASS
GSM850	128	VN	-20	6.68	0.008105	2.5	PASS
GSM850	128	VN	-10	6.33	0.007680	2.5	PASS
GSM850	128	VN	0	10.98	0.013322	2.5	PASS
GSM850	128	VN	10	4.84	0.005872	2.5	PASS
GSM850	128	VN	20	7.23	0.008772	2.5	PASS
GSM850	128	VN	30	10.27	0.012461	2.5	PASS
GSM850	128	VN	40	11.88	0.014414	2.5	PASS
GSM850	128	VN	50	11.30	0.013710	2.5	PASS
GSM850	190	VN	-30	5.04	0.006024	2.5	PASS
GSM850	190	VN	-20	6.23	0.007447	2.5	PASS
GSM850	190	VN	-10	5.59	0.006682	2.5	PASS
GSM850	190	VN	0	2.58	0.003084	2.5	PASS
GSM850	190	VN	10	5.39	0.006443	2.5	PASS
GSM850	190	VN	20	0.74	0.000885	2.5	PASS
GSM850	190	VN	30	7.72	0.009228	2.5	PASS
GSM850	190	VN	40	10.11	0.012085	2.5	PASS
GSM850	190	VN	50	2.03	0.002426	2.5	PASS
GSM850	251	VN	-30	3.81	0.004489	2.5	PASS
GSM850	251	VN	-20	6.01	0.007081	2.5	PASS
GSM850	251	VN	-10	3.26	0.003841	2.5	PASS
GSM850	251	VN	0	-0.32	-0.000377	2.5	PASS
GSM850	251	VN	10	6.52	0.007681	2.5	PASS
GSM850	251	VN	20	7.20	0.008483	2.5	PASS
GSM850	251	VN	30	6.26	0.007375	2.5	PASS
GSM850	251	VN	40	2.52	0.002969	2.5	PASS
GSM850	251	VN	50	1.68	0.001979	2.5	PASS
GPRS850	128	VN	-30	0.52	0.000631	2.5	PASS
GPRS850	128	VN	-20	5.00	0.006066	2.5	PASS
GPRS850	128	VN	-10	-0.90	-0.001092	2.5	PASS
GPRS850	128	VN	0	0.26	0.000315	2.5	PASS
GPRS850	128	VN	10	15.63	0.018964	2.5	PASS
GPRS850	128	VN	20	9.94	0.012060	2.5	PASS
GPRS850	128	VN	30	10.43	0.012655	2.5	PASS
GPRS850	128	VN	40	15.46	0.018758	2.5	PASS
GPRS850	128	VN	50	11.75	0.014256	2.5	PASS
GPRS850	190	VN	-30	3.42	0.004088	2.5	PASS
GPRS850	190	VN	-20	-0.61	-0.000729	2.5	PASS

GPRS850	190	VN	-10	4.04	0.004829	2.5	PASS
GPRS850	190	VN	0	6.78	0.008104	2.5	PASS
GPRS850	190	VN	10	10.59	0.012658	2.5	PASS
GPRS850	190	VN	20	13.04	0.015587	2.5	PASS
GPRS850	190	VN	30	15.21	0.018181	2.5	PASS
GPRS850	190	VN	40	15.63	0.018683	2.5	PASS
GPRS850	190	VN	50	16.76	0.020033	2.5	PASS
GPRS850	251	VN	-30	3.33	0.003923	2.5	PASS
GPRS850	251	VN	-20	3.71	0.004371	2.5	PASS
GPRS850	251	VN	-10	3.58	0.004218	2.5	PASS
GPRS850	251	VN	0	4.52	0.005325	2.5	PASS
GPRS850	251	VN	10	13.43	0.015822	2.5	PASS
GPRS850	251	VN	20	12.01	0.014149	2.5	PASS
GPRS850	251	VN	30	17.05	0.020087	2.5	PASS
GPRS850	251	VN	40	14.37	0.016930	2.5	PASS
GPRS850	251	VN	50	11.20	0.013195	2.5	PASS
GSM1900	512	VN	-30	-14.24	-0.007696	2.5	PASS
GSM1900	512	VN	-20	-16.76	-0.009058	2.5	PASS
GSM1900	512	VN	-10	-6.33	-0.003421	2.5	PASS
GSM1900	512	VN	0	-5.29	-0.002859	2.5	PASS
GSM1900	512	VN	10	12.53	0.006772	2.5	PASS
GSM1900	512	VN	20	-9.40	-0.005081	2.5	PASS
GSM1900	512	VN	30	4.71	0.002546	2.5	PASS
GSM1900	512	VN	40	-6.42	-0.003470	2.5	PASS
GSM1900	512	VN	50	-8.30	-0.004486	2.5	PASS
GSM1900	661	VN	-30	-14.14	-0.007521	2.5	PASS
GSM1900	661	VN	-20	-16.56	-0.008809	2.5	PASS
GSM1900	661	VN	-10	-15.40	-0.008191	2.5	PASS
GSM1900	661	VN	0	-8.23	-0.004378	2.5	PASS
GSM1900	661	VN	10	-6.72	-0.003574	2.5	PASS
GSM1900	661	VN	20	-11.56	-0.006149	2.5	PASS
GSM1900	661	VN	30	-17.82	-0.009479	2.5	PASS
GSM1900	661	VN	40	-10.33	-0.005495	2.5	PASS
GSM1900	661	VN	50	-20.53	-0.010920	2.5	PASS
GSM1900	810	VN	-30	-12.85	-0.006728	2.5	PASS
GSM1900	810	VN	-20	-18.47	-0.009671	2.5	PASS
GSM1900	810	VN	-10	-11.98	-0.006273	2.5	PASS
GSM1900	810	VN	0	-16.79	-0.008791	2.5	PASS
GSM1900	810	VN	10	-28.86	-0.015112	2.5	PASS
GSM1900	810	VN	20	-7.43	-0.003890	2.5	PASS
GSM1900	810	VN	30	-20.02	-0.010483	2.5	PASS
GSM1900	810	VN	40	-18.98	-0.009938	2.5	PASS

GSM1900	810	VN	50	-17.01	-0.008907	2.5	PASS
GPRS1900	512	VN	-30	-16.37	-0.008848	2.5	PASS
GPRS1900	512	VN	-20	-12.53	-0.006772	2.5	PASS
GPRS1900	512	VN	-10	-19.73	-0.010664	2.5	PASS
GPRS1900	512	VN	0	-12.72	-0.006875	2.5	PASS
GPRS1900	512	VN	10	-6.46	-0.003492	2.5	PASS
GPRS1900	512	VN	20	12.75	0.006891	2.5	PASS
GPRS1900	512	VN	30	10.88	0.005880	2.5	PASS
GPRS1900	512	VN	40	12.01	0.006491	2.5	PASS
GPRS1900	512	VN	50	11.59	0.006264	2.5	PASS
GPRS1900	661	VN	-30	-23.05	-0.012261	2.5	PASS
GPRS1900	661	VN	-20	-15.98	-0.008500	2.5	PASS
GPRS1900	661	VN	-10	-24.05	-0.012793	2.5	PASS
GPRS1900	661	VN	0	-21.60	-0.011489	2.5	PASS
GPRS1900	661	VN	10	-18.08	-0.009617	2.5	PASS
GPRS1900	661	VN	20	-15.63	-0.008314	2.5	PASS
GPRS1900	661	VN	30	-15.76	-0.008383	2.5	PASS
GPRS1900	661	VN	40	-15.72	-0.008362	2.5	PASS
GPRS1900	661	VN	50	-14.27	-0.007590	2.5	PASS
GPRS1900	810	VN	-30	-10.91	-0.005713	2.5	PASS
GPRS1900	810	VN	-20	-13.37	-0.007001	2.5	PASS
GPRS1900	810	VN	-10	-15.17	-0.007943	2.5	PASS
GPRS1900	810	VN	0	-7.39	-0.003870	2.5	PASS
GPRS1900	810	VN	10	-7.65	-0.004006	2.5	PASS
GPRS1900	810	VN	20	-12.75	-0.006676	2.5	PASS
GPRS1900	810	VN	30	-0.36	-0.000189	2.5	PASS
GPRS1900	810	VN	40	-6.13	-0.003210	2.5	PASS
GPRS1900	810	VN	50	-13.66	-0.007153	2.5	PASS

## 8.7 Appendix G: ERP and EIRP

### Test Result

#### FCC

Band	Mode	Conducted Power (dBm)	Antenna Gain (dBi)	ERP		Limit (W)	Verdict
				(dBm)	(W)		
GSM850	GSM	32.68	-0.7	29.83	0.9616	7	PASS
	GPRS	32.79	-0.7	29.94	0.9863	7	PASS

Band	Mode	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP		Limit (W)	Verdict
				(dBm)	(W)		
GSM1900	GSM	28.47	0.5	28.97	0.7889	2	PASS
	GPRS	28.43	0.5	28.93	0.7816	2	PASS

-----End of the Report -----