

# APPENDIX REPORT

Project No.	SHT2206102301EW	Radio Specification	GSM
Test sample No.	YPHT22061023001	Model No.	Star10 3G
Start test date	2022/7/14	Finish date	2022/7/14
Temperature	25.2°C	Humidity	35%
Test Engineer	Tiancheng.Huang	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	33.55	38.5	PASS
GSM850	190	5	33.39	38.5	PASS
GSM850	251	5	33.23	38.5	PASS
GSM1900	512	0	28.34	33	PASS
GSM1900	661	0	28.51	33	PASS
GSM1900	810	0	28.97	33	PASS

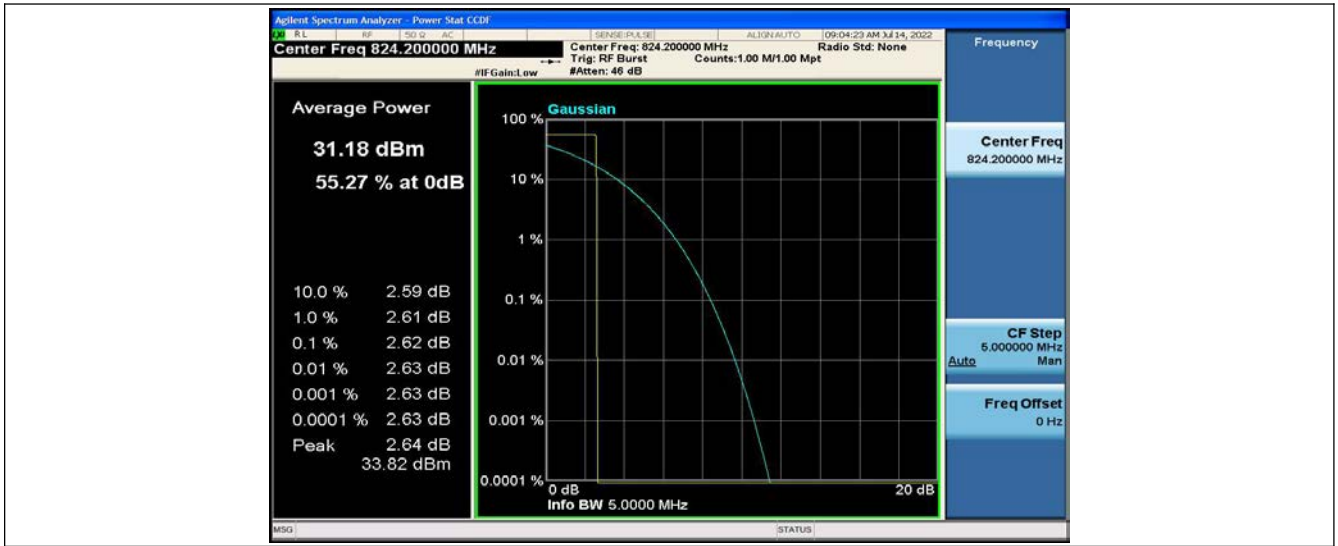
Band	Channel	PCL	Slot	Power(dBm)	Limit(dBm)	Verdict
GPRS850	128	5	1	33.42	38.5	PASS
GPRS850	128	5	2	31.61	38.5	PASS
GPRS850	128	5	3	30.06	38.5	PASS
GPRS850	128	5	4	27.88	38.5	PASS
GPRS850	190	5	1	33.22	38.5	PASS
GPRS850	190	5	2	31.49	38.5	PASS
GPRS850	190	5	3	29.70	38.5	PASS
GPRS850	190	5	4	27.76	38.5	PASS
GPRS850	251	5	1	33.07	38.5	PASS
GPRS850	251	5	2	31.13	38.5	PASS
GPRS850	251	5	3	29.31	38.5	PASS
GPRS850	251	5	4	27.40	38.5	PASS
GPRS1900	512	0	1	28.36	33	PASS
GPRS1900	512	0	2	26.13	33	PASS
GPRS1900	512	0	3	24.75	33	PASS
GPRS1900	512	0	4	22.44	33	PASS
GPRS1900	661	0	1	26.01	33	PASS
GPRS1900	661	0	2	26.01	33	PASS
GPRS1900	661	0	3	24.77	33	PASS
GPRS1900	661	0	4	22.62	33	PASS
GPRS1900	810	0	1	29.03	33	PASS
GPRS1900	810	0	2	26.64	33	PASS
GPRS1900	810	0	3	25.22	33	PASS
GPRS1900	810	0	4	22.83	33	PASS

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

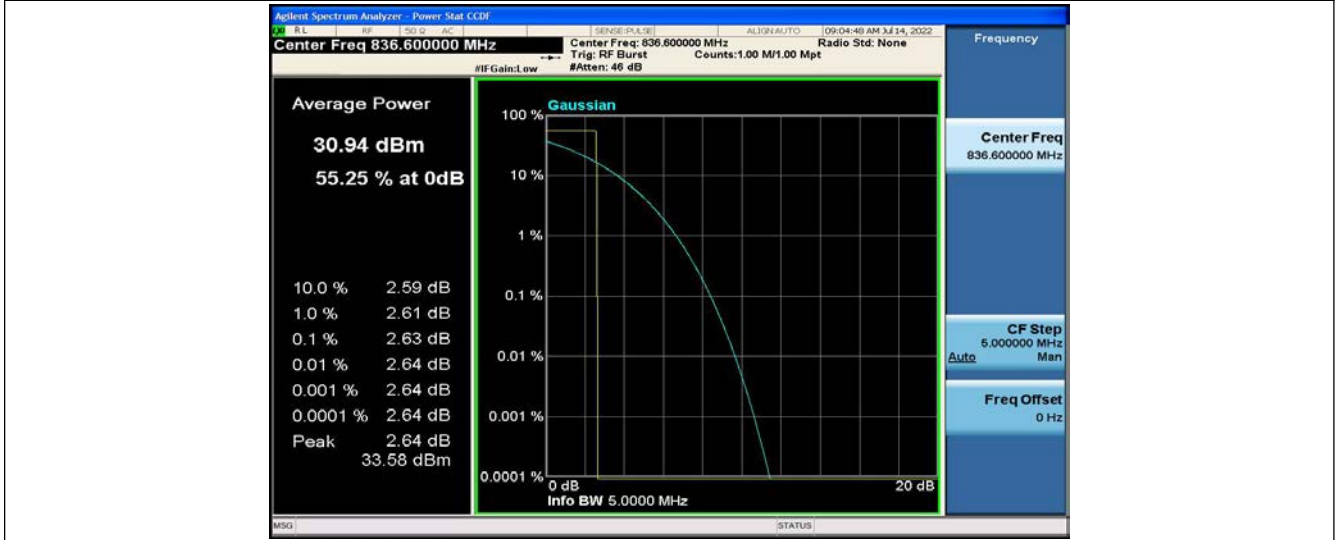
### Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GSM850	128	2.62	13	PASS
GSM850	190	2.63	13	PASS
GSM850	251	2.63	13	PASS
GPRS850	128	2.62	13	PASS
GPRS850	190	2.62	13	PASS
GPRS850	251	2.63	13	PASS
GSM1900	512	2.65	13	PASS
GSM1900	661	2.65	13	PASS
GSM1900	810	2.65	13	PASS
GPRS1900	512	2.65	13	PASS
GPRS1900	661	2.65	13	PASS
GPRS1900	810	2.65	13	PASS

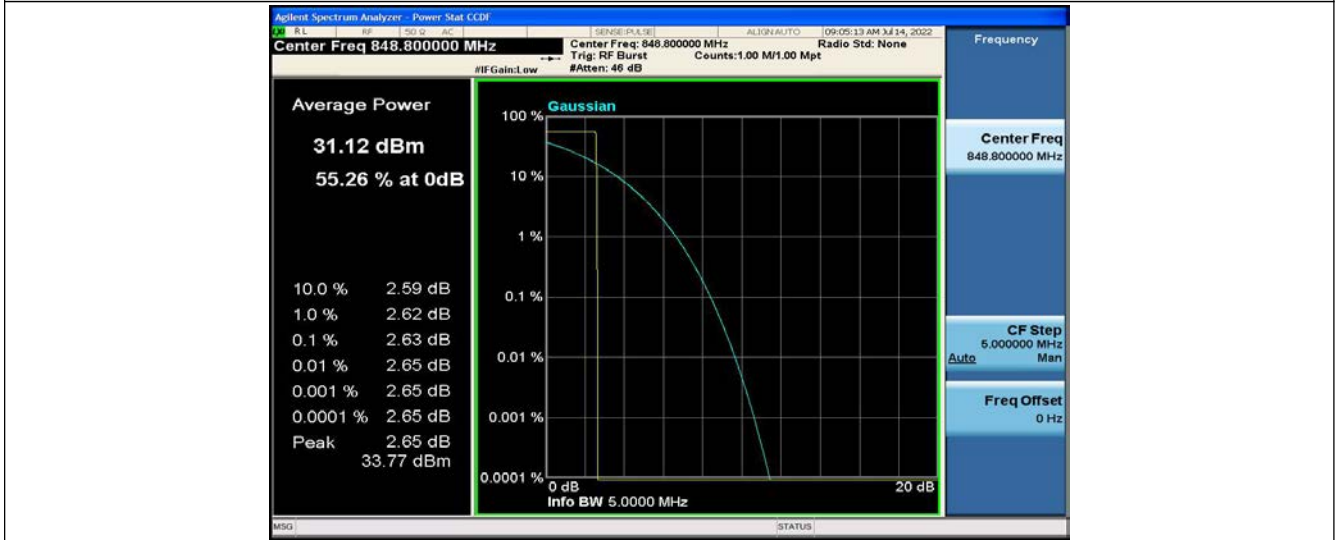
Test Graphs



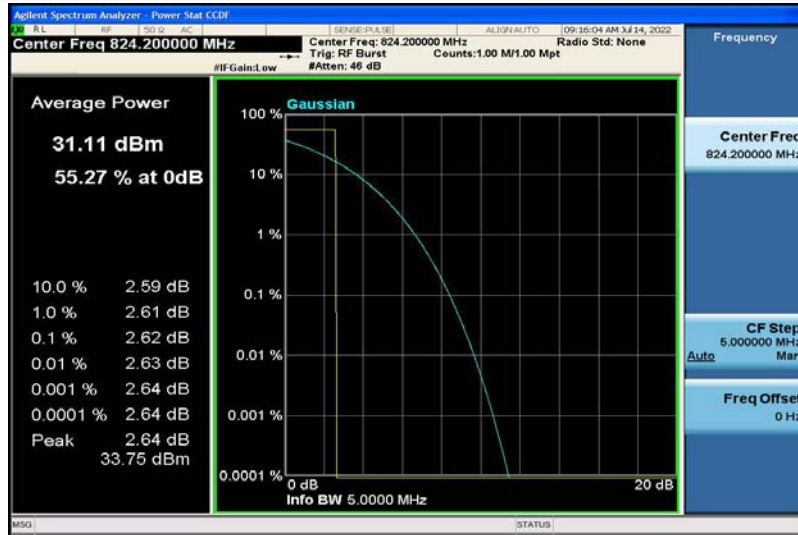
GSM850-128



GSM850-190



GSM850-251



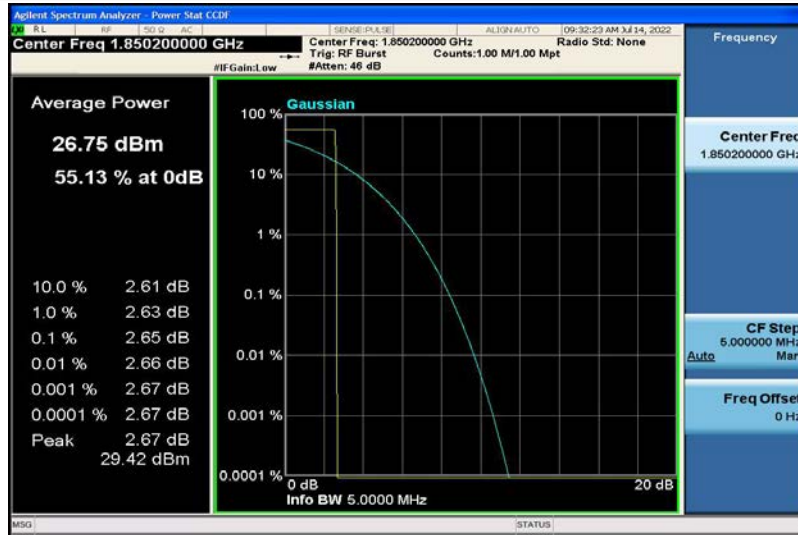
GPRS850-128



GPRS850-190



GPRS850-251



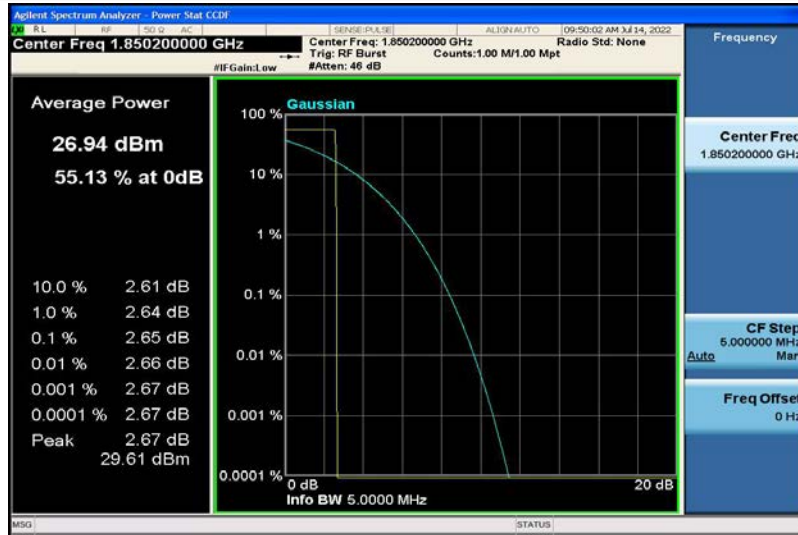
GSM1900-512



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	243.99	313.3	---	PASS
GSM850	190	242.93	312.8	---	PASS
GSM850	251	243.27	311.8	---	PASS
GPRS850	128	242.80	312.4	---	PASS
GPRS850	190	243.71	317.1	---	PASS
GPRS850	251	244.44	315.1	---	PASS
GSM1900	512	244.71	308.4	---	PASS
GSM1900	661	245.27	312.8	---	PASS
GSM1900	810	247.00	312.2	---	PASS
GPRS1900	512	245.23	315.3	---	PASS
GPRS1900	661	246.17	317.0	---	PASS
GPRS1900	810	247.94	320.8	---	PASS

Test Graphs



GSM850-128



GSM850-190



GSM850-251



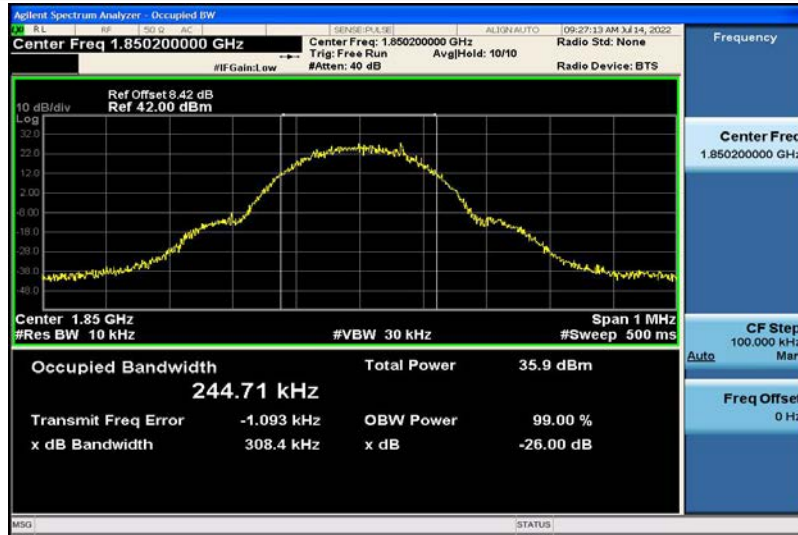
GPRS850-128



GPRS850-190



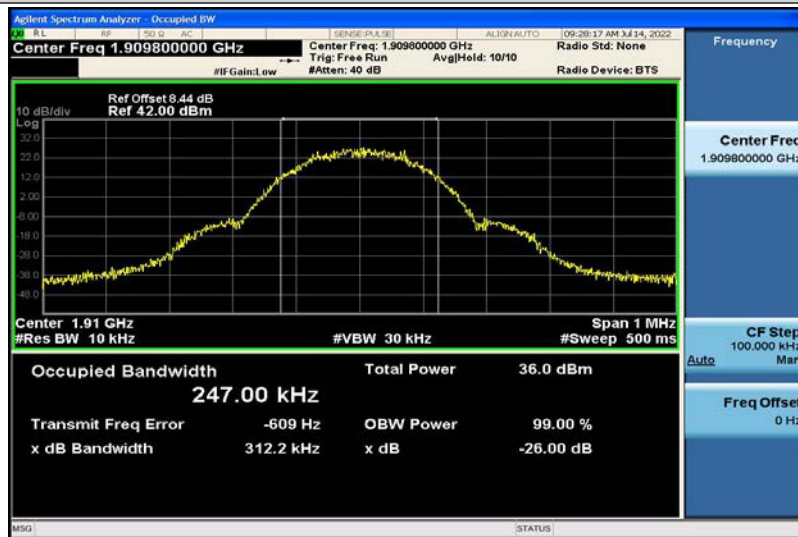
GPRS850-251



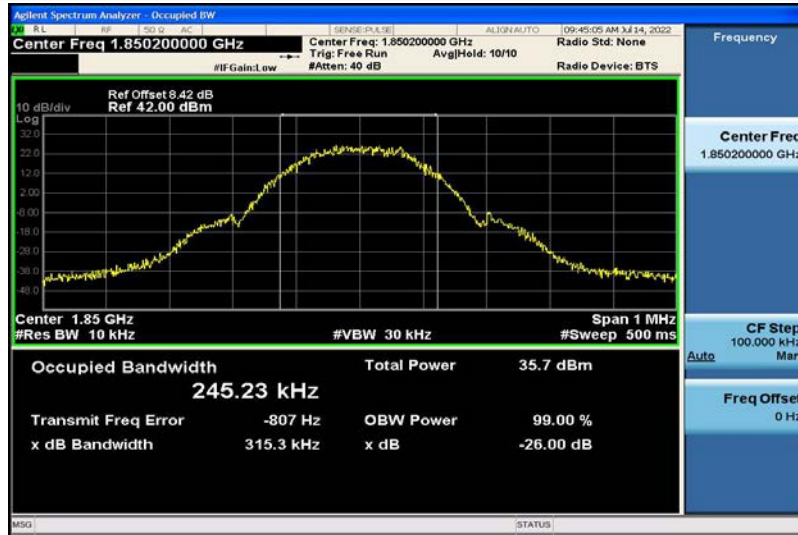
GSM1900-512



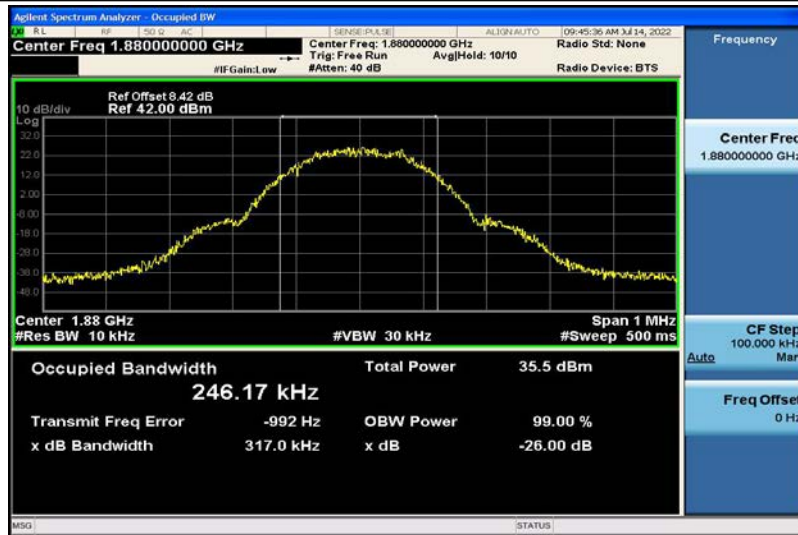
GSM1900-661



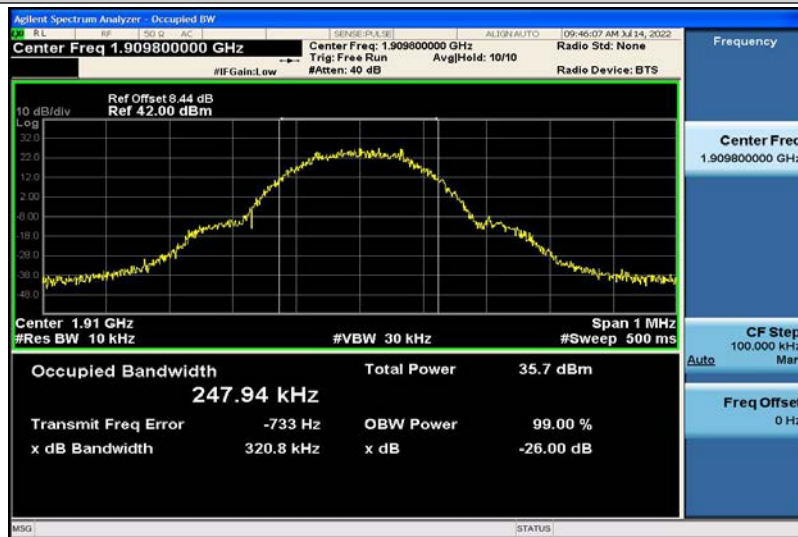
GSM1900-810



GPRS1900-512



GPRS1900-661



GPRS1900-810

## 8.4 Appendix D: Band Edge

### Test Result

Band	Channel	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	-26.03	-13	PASS
GSM850	251	-26.55	-13	PASS
GPRS850	128	-26.10	-13	PASS
GPRS850	251	-27.28	-13	PASS
GSM1900	512	-31.02	-13	PASS
GSM1900	810	-29.36	-13	PASS
GPRS1900	512	-31.34	-13	PASS
GPRS1900	810	-29.28	-13	PASS



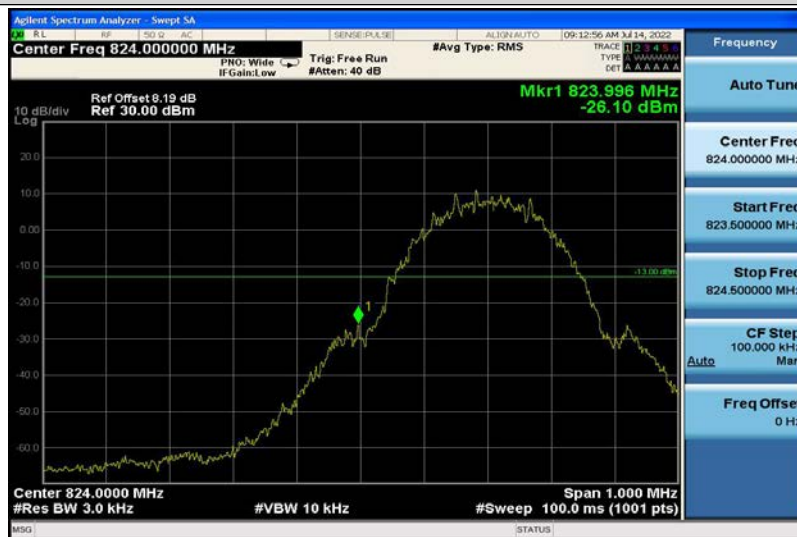
Test Graphs



GSM850-128



GSM850-251



GPRS850-128



GPRS850-251



GSM1900-512



GSM1900-810





GPRS1900-512



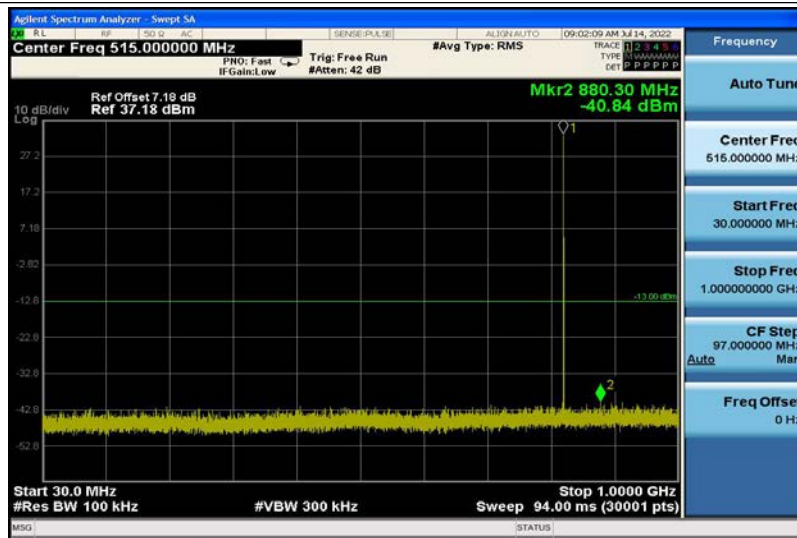
GPRS1900-810

## 8.5 Appendix E: Conducted Spurious Emission

### Test Result

Band	Channel	Frequency Range(Mhz)	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	30~1000	-40.84	-13	PASS
GSM850	128	1000~10000	-25.69	-13	PASS
GSM850	190	30~1000	-40.11	-13	PASS
GSM850	190	1000~10000	-26.35	-13	PASS
GSM850	251	30~1000	-40.91	-13	PASS
GSM850	251	1000~10000	-26.19	-13	PASS
GPRS850	128	30~1000	-40.58	-13	PASS
GPRS850	128	1000~10000	-25.95	-13	PASS
GPRS850	190	30~1000	-40.13	-13	PASS
GPRS850	190	1000~10000	-25.76	-13	PASS
GPRS850	251	30~1000	-40.69	-13	PASS
GPRS850	251	1000~10000	-25.82	-13	PASS
GSM1900	512	30~1000	-40.55	-13	PASS
GSM1900	512	1000~20000	-19.10	-13	PASS
GSM1900	661	30~1000	-40.32	-13	PASS
GSM1900	661	1000~20000	-19.60	-13	PASS
GSM1900	810	30~1000	-40.43	-13	PASS
GSM1900	810	1000~20000	-19.72	-13	PASS
GPRS1900	512	30~1000	-40.67	-13	PASS
GPRS1900	512	1000~20000	-19.18	-13	PASS
GPRS1900	661	30~1000	-40.48	-13	PASS
GPRS1900	661	1000~20000	-20.21	-13	PASS
GPRS1900	810	30~1000	-40.51	-13	PASS
GPRS1900	810	1000~20000	-20.09	-13	PASS

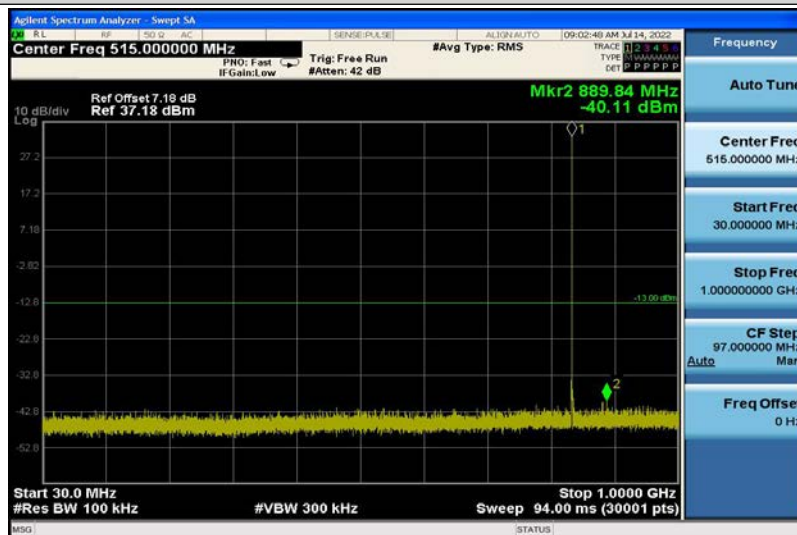
### Test Graphs



GSM850-128-30~1000



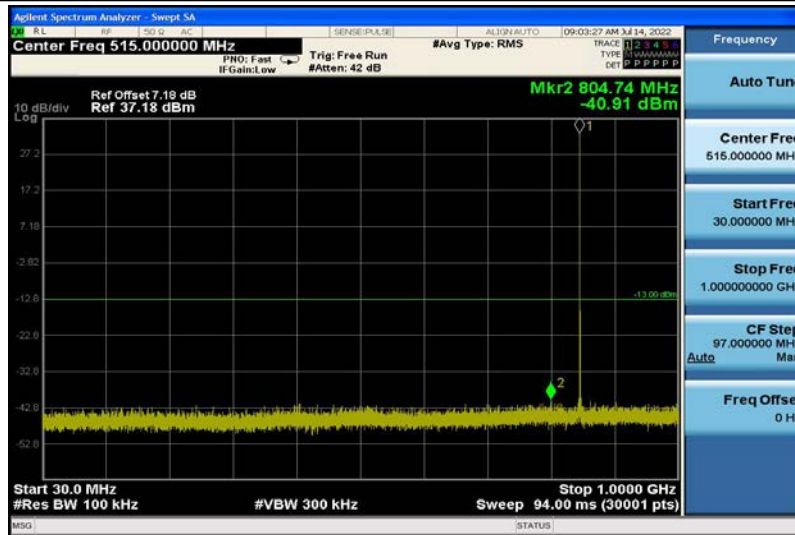
GSM850-128-1000~10000



GSM850-190-30~1000



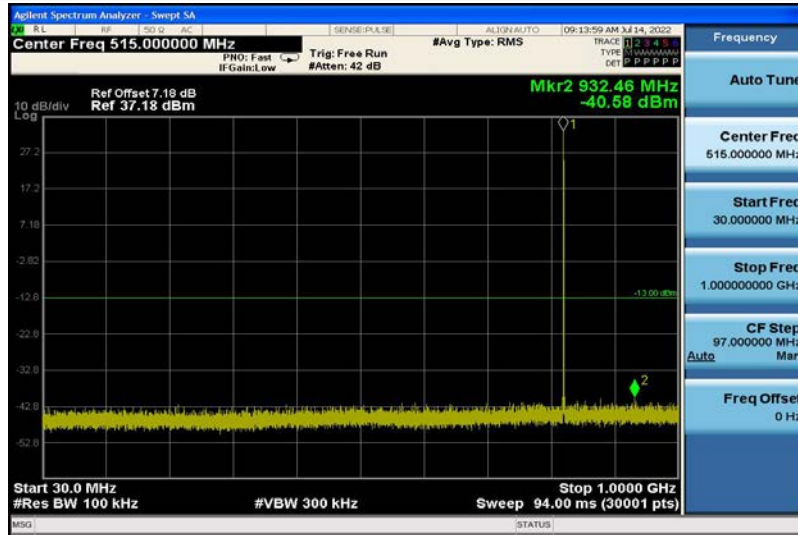
GSM850-190-1000~10000



GSM850-251-30~1000



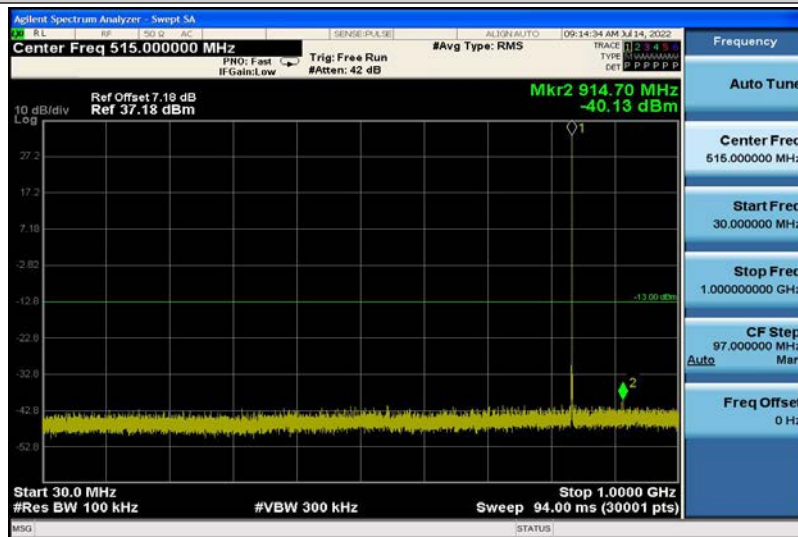
GSM850-251-1000~10000



GPRS850-128-30~1000



GPRS850-128-1000~10000

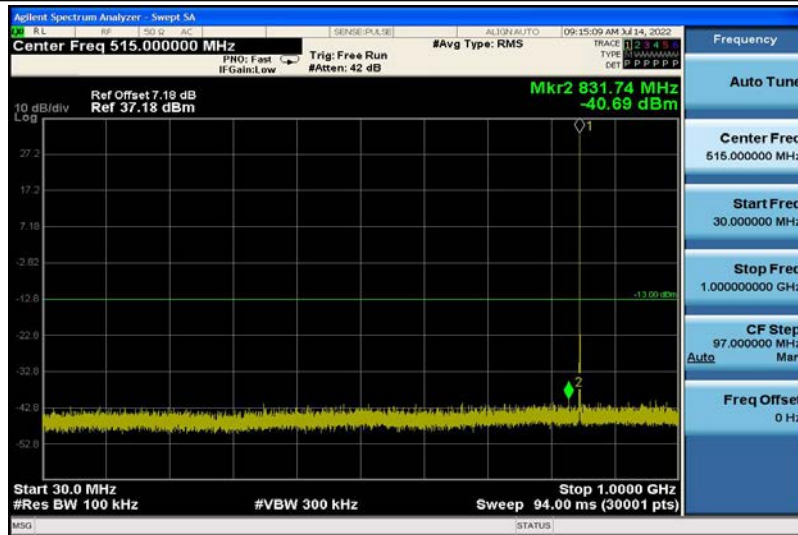


GPRS850-190-30~1000

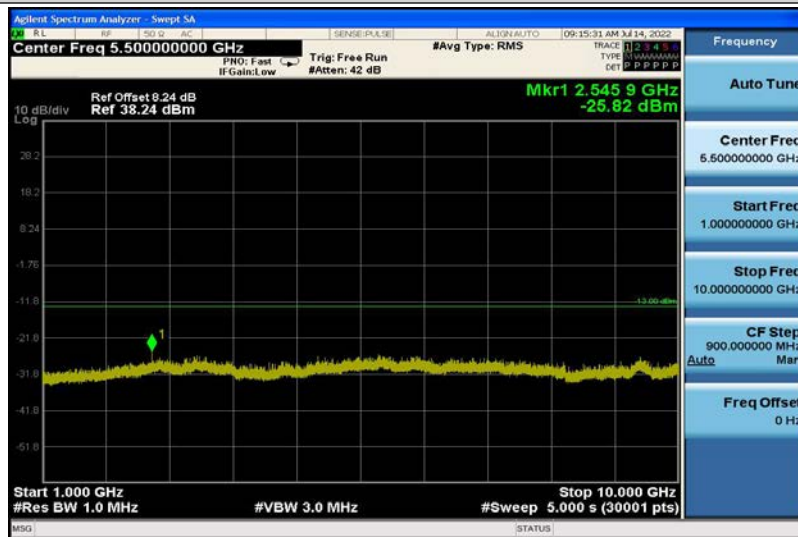




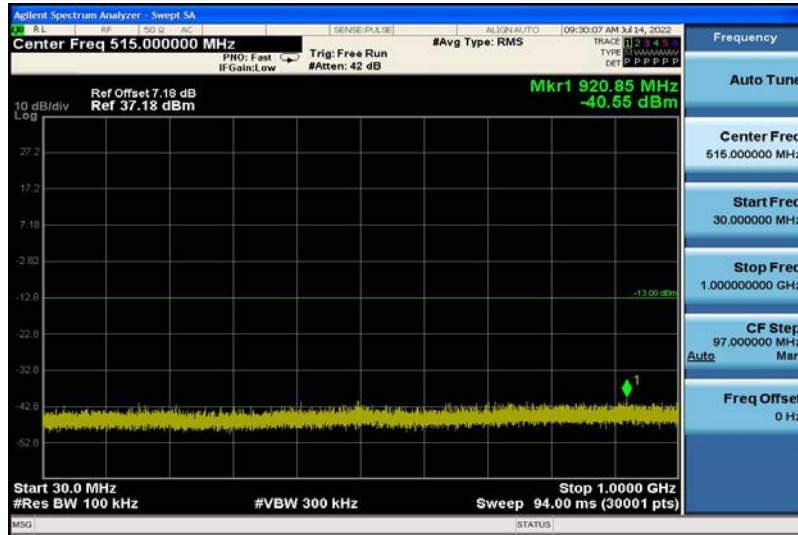
GPRS850-190-1000~10000



GPRS850-251-30~1000



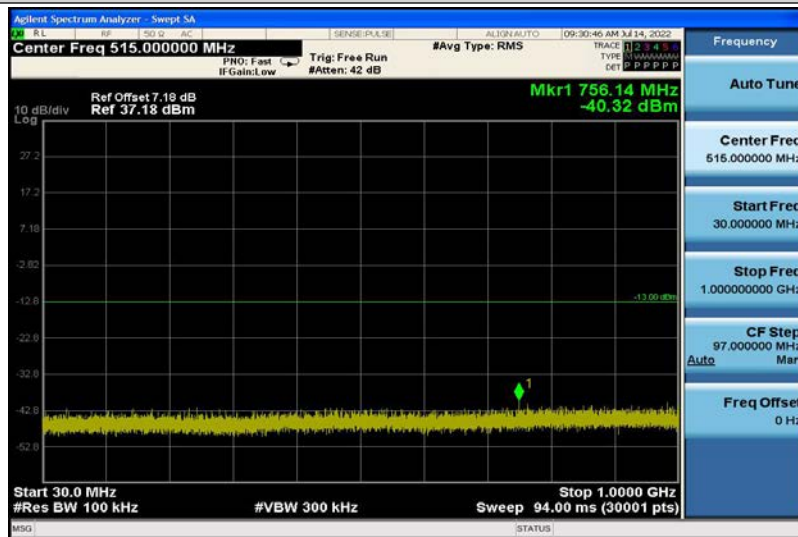
GPRS850-251-1000~10000



GSM1900-512-30~1000



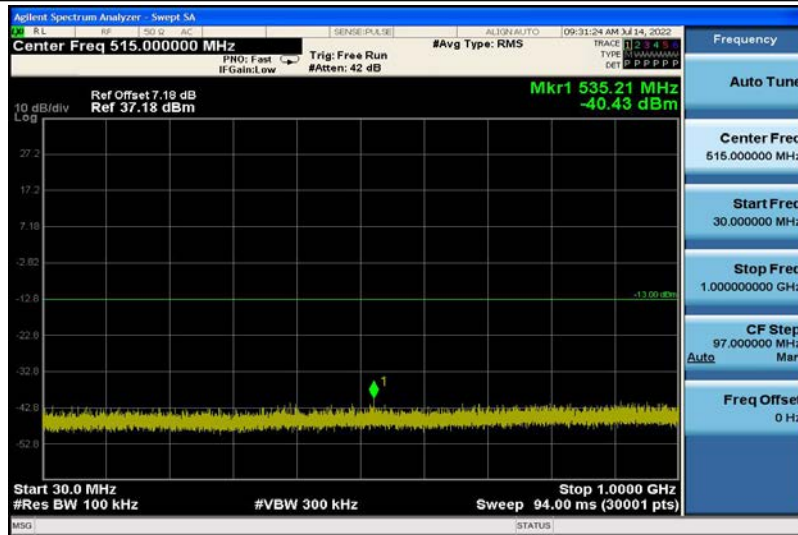
GSM1900-512-1000~20000



GSM1900-661-30~1000



GSM1900-661-1000~20000

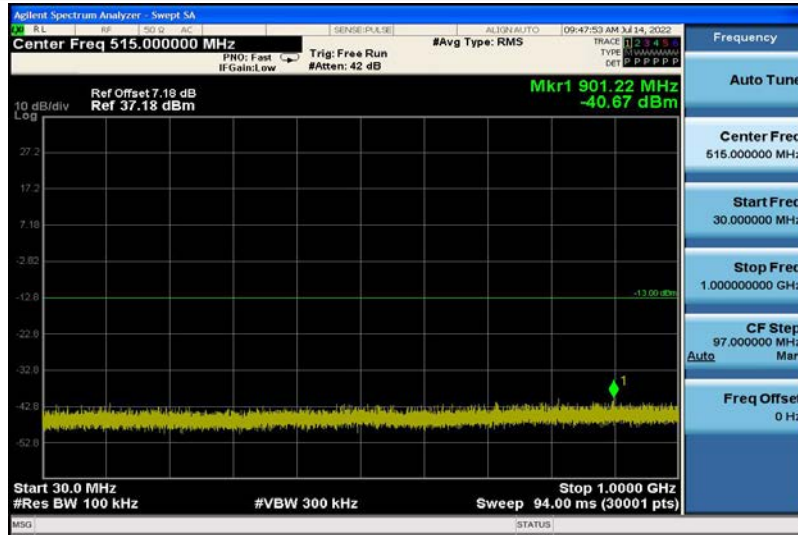


GSM1900-810-30~1000



GSM1900-810-1000~20000

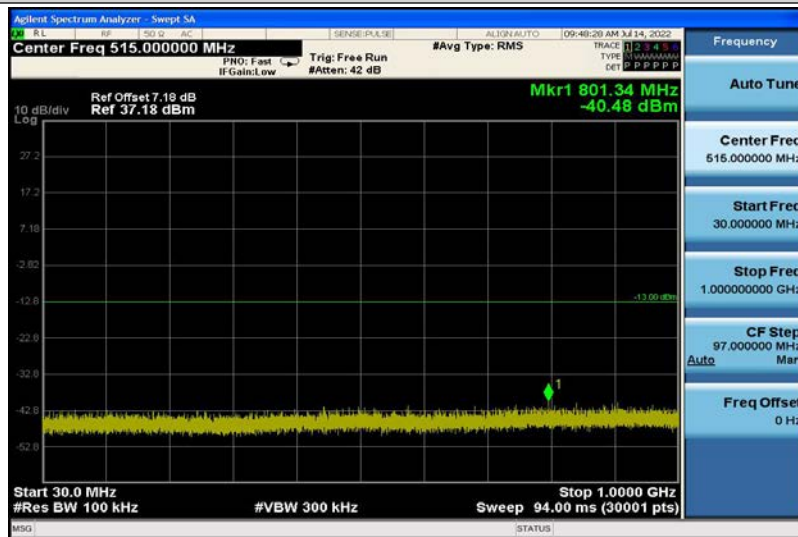




GPRS1900-512-30~1000



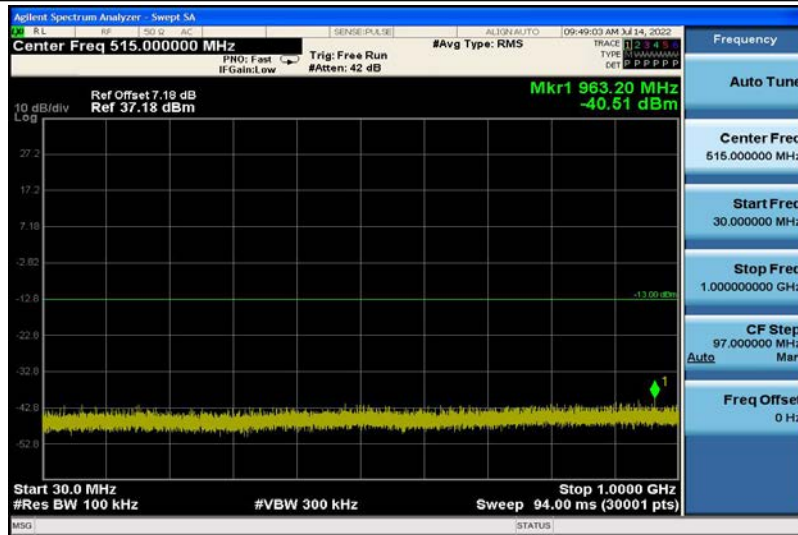
GPRS1900-512-1000~20000



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	15.72	0.019073	2.5	PASS
GSM850	128	VN	TN	18.02	0.021864	2.5	PASS
GSM850	128	VH	TN	17.05	0.020687	2.5	PASS
GSM850	190	VL	TN	12.98	0.015515	2.5	PASS
GSM850	190	VN	TN	15.40	0.018408	2.5	PASS
GSM850	190	VH	TN	17.98	0.021492	2.5	PASS
GSM850	251	VL	TN	14.69	0.017307	2.5	PASS
GSM850	251	VN	TN	16.95	0.019969	2.5	PASS
GSM850	251	VH	TN	15.05	0.017731	2.5	PASS
GPRS850	128	VL	TN	16.47	0.019983	2.5	PASS
GPRS850	128	VN	TN	16.53	0.020056	2.5	PASS
GPRS850	128	VH	TN	15.14	0.018369	2.5	PASS
GPRS850	190	VL	TN	17.34	0.020727	2.5	PASS
GPRS850	190	VN	TN	14.88	0.017786	2.5	PASS
GPRS850	190	VH	TN	15.66	0.018719	2.5	PASS
GPRS850	251	VL	TN	15.34	0.018073	2.5	PASS
GPRS850	251	VN	TN	15.37	0.018108	2.5	PASS
GPRS850	251	VH	TN	14.43	0.017000	2.5	PASS
GSM1900	512	VL	TN	5.88	0.003178	2.5	PASS
GSM1900	512	VN	TN	7.62	0.004118	2.5	PASS
GSM1900	512	VH	TN	8.78	0.004745	2.5	PASS
GSM1900	661	VL	TN	1.45	0.000771	2.5	PASS
GSM1900	661	VN	TN	12.20	0.006489	2.5	PASS
GSM1900	661	VH	TN	12.56	0.006681	2.5	PASS
GSM1900	810	VL	TN	8.88	0.004650	2.5	PASS
GSM1900	810	VN	TN	6.68	0.003498	2.5	PASS
GSM1900	810	VH	TN	8.01	0.004194	2.5	PASS
GPRS1900	512	VL	TN	8.43	0.004556	2.5	PASS
GPRS1900	512	VN	TN	9.36	0.005059	2.5	PASS
GPRS1900	512	VH	TN	5.75	0.003108	2.5	PASS
GPRS1900	661	VL	TN	8.17	0.004346	2.5	PASS
GPRS1900	661	VN	TN	6.75	0.003590	2.5	PASS
GPRS1900	661	VH	TN	6.62	0.003521	2.5	PASS
GPRS1900	810	VL	TN	7.49	0.003922	2.5	PASS
GPRS1900	810	VN	TN	4.16	0.002178	2.5	PASS

GPRS1900	810	VH	TN	6.23	0.003262	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	16.43	0.019934	2.5	PASS
GSM850	128	VN	-20	14.82	0.017981	2.5	PASS
GSM850	128	VN	-10	16.53	0.020056	2.5	PASS
GSM850	128	VN	0	15.43	0.018721	2.5	PASS
GSM850	128	VN	10	16.66	0.020214	2.5	PASS
GSM850	128	VN	20	16.43	0.019934	2.5	PASS
GSM850	128	VN	30	16.95	0.020565	2.5	PASS
GSM850	128	VN	40	16.63	0.020177	2.5	PASS
GSM850	128	VN	50	17.43	0.021148	2.5	PASS
GSM850	190	VN	-30	20.99	0.025090	2.5	PASS
GSM850	190	VN	-20	19.18	0.022926	2.5	PASS
GSM850	190	VN	-10	16.98	0.020296	2.5	PASS
GSM850	190	VN	0	22.05	0.026357	2.5	PASS
GSM850	190	VN	10	20.70	0.024743	2.5	PASS
GSM850	190	VN	20	19.50	0.023309	2.5	PASS
GSM850	190	VN	30	17.82	0.021301	2.5	PASS
GSM850	190	VN	40	21.63	0.025855	2.5	PASS
GSM850	190	VN	50	19.37	0.023153	2.5	PASS
GSM850	251	VN	-30	16.66	0.019628	2.5	PASS
GSM850	251	VN	-20	16.18	0.019062	2.5	PASS
GSM850	251	VN	-10	16.24	0.019133	2.5	PASS
GSM850	251	VN	0	15.79	0.018603	2.5	PASS
GSM850	251	VN	10	16.08	0.018944	2.5	PASS
GSM850	251	VN	20	16.24	0.019133	2.5	PASS
GSM850	251	VN	30	15.34	0.018073	2.5	PASS
GSM850	251	VN	40	14.85	0.017495	2.5	PASS
GSM850	251	VN	50	17.60	0.020735	2.5	PASS
GPRS850	128	VN	-30	17.66	0.021427	2.5	PASS
GPRS850	128	VN	-20	15.40	0.018685	2.5	PASS
GPRS850	128	VN	-10	17.47	0.021196	2.5	PASS
GPRS850	128	VN	0	16.18	0.019631	2.5	PASS
GPRS850	128	VN	10	15.56	0.018879	2.5	PASS
GPRS850	128	VN	20	15.95	0.019352	2.5	PASS
GPRS850	128	VN	30	16.14	0.019583	2.5	PASS
GPRS850	128	VN	40	16.98	0.020602	2.5	PASS
GPRS850	128	VN	50	16.43	0.019934	2.5	PASS
GPRS850	190	VN	-30	16.69	0.019950	2.5	PASS
GPRS850	190	VN	-20	15.21	0.018181	2.5	PASS

GPRS850	190	VN	-10	13.79	0.016483	2.5	PASS
GPRS850	190	VN	0	15.05	0.017989	2.5	PASS
GPRS850	190	VN	10	15.63	0.018683	2.5	PASS
GPRS850	190	VN	20	14.50	0.017332	2.5	PASS
GPRS850	190	VN	30	18.05	0.021575	2.5	PASS
GPRS850	190	VN	40	14.82	0.017715	2.5	PASS
GPRS850	190	VN	50	15.30	0.018288	2.5	PASS
GPRS850	251	VN	-30	16.11	0.018980	2.5	PASS
GPRS850	251	VN	-20	15.27	0.017990	2.5	PASS
GPRS850	251	VN	-10	16.59	0.019545	2.5	PASS
GPRS850	251	VN	0	16.14	0.019015	2.5	PASS
GPRS850	251	VN	10	15.85	0.018673	2.5	PASS
GPRS850	251	VN	20	14.82	0.017460	2.5	PASS
GPRS850	251	VN	30	15.53	0.018296	2.5	PASS
GPRS850	251	VN	40	15.85	0.018673	2.5	PASS
GPRS850	251	VN	50	17.05	0.020087	2.5	PASS
GSM1900	512	VN	-30	7.78	0.004205	2.5	PASS
GSM1900	512	VN	-20	11.40	0.006161	2.5	PASS
GSM1900	512	VN	-10	11.27	0.006091	2.5	PASS
GSM1900	512	VN	0	8.81	0.004762	2.5	PASS
GSM1900	512	VN	10	9.72	0.005253	2.5	PASS
GSM1900	512	VN	20	9.04	0.004886	2.5	PASS
GSM1900	512	VN	30	8.91	0.004816	2.5	PASS
GSM1900	512	VN	40	10.75	0.005810	2.5	PASS
GSM1900	512	VN	50	9.91	0.005356	2.5	PASS
GSM1900	661	VN	-30	4.91	0.002612	2.5	PASS
GSM1900	661	VN	-20	3.45	0.001835	2.5	PASS
GSM1900	661	VN	-10	12.11	0.006441	2.5	PASS
GSM1900	661	VN	0	12.40	0.006596	2.5	PASS
GSM1900	661	VN	10	6.68	0.003553	2.5	PASS
GSM1900	661	VN	20	2.84	0.001511	2.5	PASS
GSM1900	661	VN	30	7.75	0.004122	2.5	PASS
GSM1900	661	VN	40	6.33	0.003367	2.5	PASS
GSM1900	661	VN	50	0.32	0.000170	2.5	PASS
GSM1900	810	VN	-30	10.46	0.005477	2.5	PASS
GSM1900	810	VN	-20	9.40	0.004922	2.5	PASS
GSM1900	810	VN	-10	8.72	0.004566	2.5	PASS
GSM1900	810	VN	0	7.49	0.003922	2.5	PASS
GSM1900	810	VN	10	7.36	0.003854	2.5	PASS
GSM1900	810	VN	20	6.30	0.003299	2.5	PASS
GSM1900	810	VN	30	9.14	0.004786	2.5	PASS
GSM1900	810	VN	40	7.30	0.003822	2.5	PASS
GSM1900	810	VN	50	10.40	0.005446	2.5	PASS

GPRS1900	512	VN	-30	9.20	0.004972	2.5	PASS
GPRS1900	512	VN	-20	10.17	0.005497	2.5	PASS
GPRS1900	512	VN	-10	7.52	0.004064	2.5	PASS
GPRS1900	512	VN	0	8.33	0.004502	2.5	PASS
GPRS1900	512	VN	10	8.98	0.004854	2.5	PASS
GPRS1900	512	VN	20	7.94	0.004291	2.5	PASS
GPRS1900	512	VN	30	8.07	0.004362	2.5	PASS
GPRS1900	512	VN	40	8.78	0.004745	2.5	PASS
GPRS1900	512	VN	50	7.33	0.003962	2.5	PASS
GPRS1900	661	VN	-30	5.59	0.002973	2.5	PASS
GPRS1900	661	VN	-20	5.91	0.003144	2.5	PASS
GPRS1900	661	VN	-10	5.71	0.003037	2.5	PASS
GPRS1900	661	VN	0	6.78	0.003606	2.5	PASS
GPRS1900	661	VN	10	8.88	0.004723	2.5	PASS
GPRS1900	661	VN	20	6.13	0.003261	2.5	PASS
GPRS1900	661	VN	30	4.10	0.002181	2.5	PASS
GPRS1900	661	VN	40	8.72	0.004638	2.5	PASS
GPRS1900	661	VN	50	4.10	0.002181	2.5	PASS
GPRS1900	810	VN	-30	4.36	0.002283	2.5	PASS
GPRS1900	810	VN	-20	9.78	0.005121	2.5	PASS
GPRS1900	810	VN	-10	7.75	0.004058	2.5	PASS
GPRS1900	810	VN	0	4.13	0.002163	2.5	PASS
GPRS1900	810	VN	10	5.78	0.003026	2.5	PASS
GPRS1900	810	VN	20	5.91	0.003095	2.5	PASS
GPRS1900	810	VN	30	5.68	0.002974	2.5	PASS
GPRS1900	810	VN	40	7.36	0.003854	2.5	PASS
GPRS1900	810	VN	50	7.91	0.004142	2.5	PASS

## 8.7 Appendix G: ERP and EIRP

### Test Result

Band	Mode	Conducted Power (dBm)	Antenna Gain (dBi)	ERP		Limit (W)	Verdict
				(dBm)	(W)		
GSM850	GSM	33.55	0.13	31.53	1.4223	7	PASS
	GPRS	33.42	0.13	31.40	1.3804	7	PASS

Band	Mode	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP		Limit (W)	Verdict
				(dBm)	(W)		
GSM1900	GSM	28.97	0.31	29.28	0.8472	2	PASS
	GPRS	29.03	0.31	29.34	0.8590	2	PASS

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