

Appendix RF Test Data of GSM

Transmitter Conducted Output Power And ERP/EIRP

Test Result

Band	Channel	Freq (MHz)	Conducted Power(dBm)	ERP/EIRP (dBm)	ERP/EIRP(limit) (dBm)	Verdict
GSM 850	128	824.2	32.91	30.20	38.45	PASS
GSM 850	190	836.6	32.13	29.42	38.45	PASS
GSM 850	251	848.8	32.17	29.46	38.45	PASS
PCS 1900	512	1850.2	29.96	29.48	33.00	PASS
PCS 1900	661	1880.0	29.78	29.30	33.00	PASS
PCS 1900	810	1909.8	29.49	29.01	33.00	PASS

Frequency Stability

Test Result

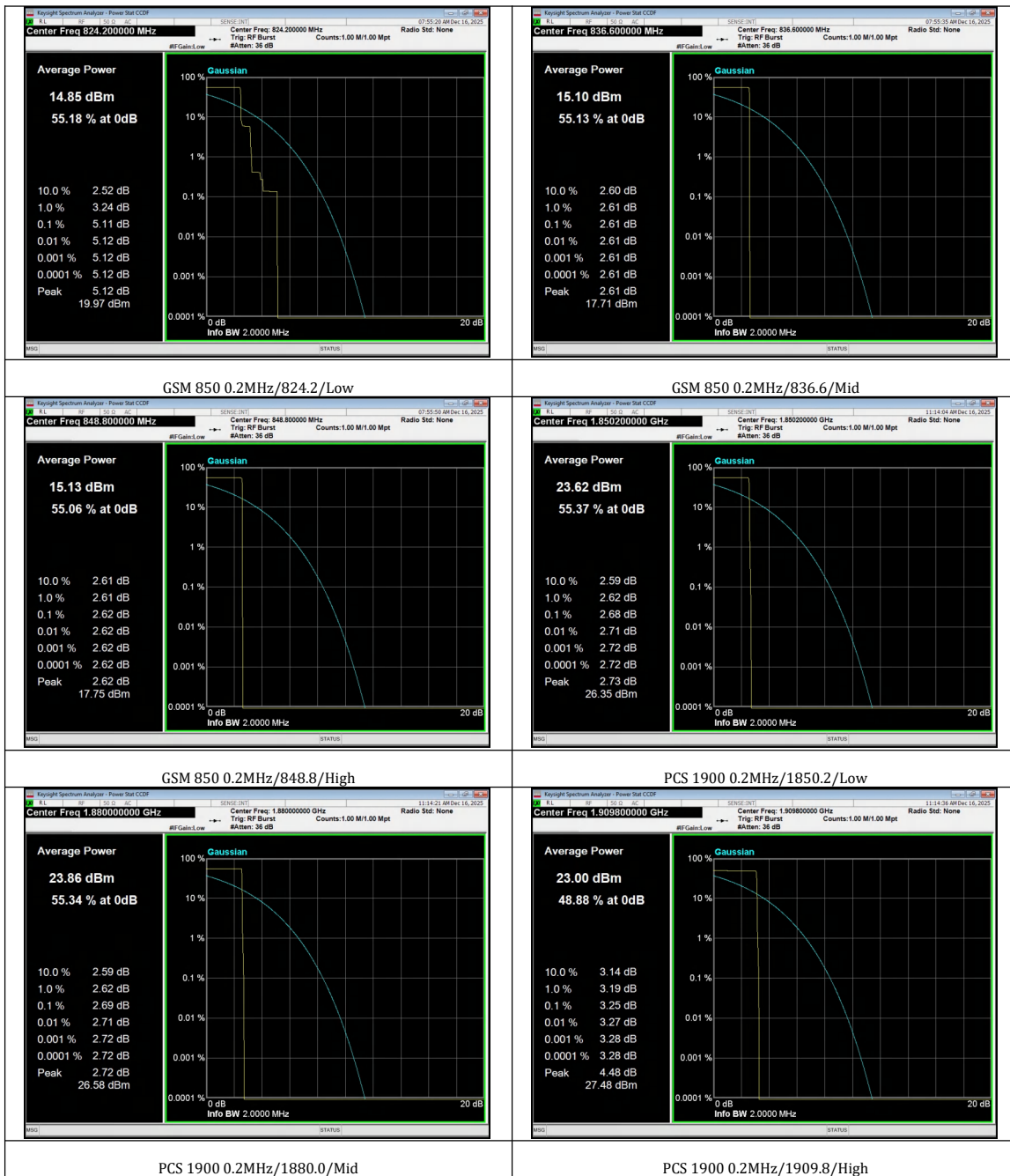
Band	Channel	Freq (MHz)	Deviation (Hz)	Deviation (ppm)	Limit(ppm)	Verdict	Environment
GSM 850	128	824.2	3.16	0.00384	±2.5	PASS	VL
GSM 850	128	824.2	-0.48	-0.00059	±2.5	PASS	VN
GSM 850	128	824.2	1.81	0.00219	±2.5	PASS	VH
GSM 850	128	824.2	0.32	0.00039	±2.5	PASS	-30°C
GSM 850	128	824.2	2.16	0.00262	±2.5	PASS	-20°C
GSM 850	128	824.2	3.49	0.00423	±2.5	PASS	-10°C
GSM 850	128	824.2	3.26	0.00396	±2.5	PASS	0°C
GSM 850	128	824.2	4.0	0.00486	±2.5	PASS	10°C
GSM 850	128	824.2	-4.46	-0.00541	±2.5	PASS	20°C
GSM 850	128	824.2	3.45	0.00419	±2.5	PASS	30°C
GSM 850	128	824.2	11.36	0.01379	±2.5	PASS	40°C
GSM 850	128	824.2	11.66	0.01414	±2.5	PASS	50°C
GSM 850	190	836.6	3.75	0.00448	±2.5	PASS	VL
GSM 850	190	836.6	6.55	0.00783	±2.5	PASS	VN
GSM 850	190	836.6	2.78	0.00332	±2.5	PASS	VH
GSM 850	190	836.6	3.62	0.00432	±2.5	PASS	-30°C
GSM 850	190	836.6	3.29	0.00394	±2.5	PASS	-20°C
GSM 850	190	836.6	0.32	0.00038	±2.5	PASS	-10°C
GSM 850	190	836.6	2.23	0.00266	±2.5	PASS	0°C
GSM 850	190	836.6	2.87	0.00343	±2.5	PASS	10°C
GSM 850	190	836.6	5.88	0.00702	±2.5	PASS	20°C
GSM 850	190	836.6	3.29	0.00394	±2.5	PASS	30°C
GSM 850	190	836.6	5.07	0.00606	±2.5	PASS	40°C
GSM 850	190	836.6	2.68	0.0032	±2.5	PASS	50°C
GSM 850	251	848.8	3.0	0.00354	±2.5	PASS	VL
GSM 850	251	848.8	2.29	0.0027	±2.5	PASS	VN
GSM 850	251	848.8	3.97	0.00468	±2.5	PASS	VH
GSM 850	251	848.8	2.45	0.00289	±2.5	PASS	-30°C
GSM 850	251	848.8	-0.32	-0.00038	±2.5	PASS	-20°C
GSM 850	251	848.8	-1.0	-0.00118	±2.5	PASS	-10°C
GSM 850	251	848.8	1.61	0.0019	±2.5	PASS	0°C
GSM 850	251	848.8	3.26	0.00384	±2.5	PASS	10°C
GSM 850	251	848.8	4.71	0.00555	±2.5	PASS	20°C
GSM 850	251	848.8	3.07	0.00361	±2.5	PASS	30°C
GSM 850	251	848.8	2.39	0.00281	±2.5	PASS	40°C
GSM 850	251	848.8	2.39	0.00281	±2.5	PASS	50°C
PCS 1900	512	1850.2	-8.59	-0.00464	±2.5	PASS	VL
PCS 1900	512	1850.2	0.87	0.00047	±2.5	PASS	VN
PCS 1900	512	1850.2	-13.69	-0.0074	±2.5	PASS	VH
PCS 1900	512	1850.2	-3.03	-0.00164	±2.5	PASS	-30°C
PCS 1900	512	1850.2	-3.58	-0.00194	±2.5	PASS	-20°C
PCS 1900	512	1850.2	2.81	0.00152	±2.5	PASS	-10°C
PCS 1900	512	1850.2	-7.97	-0.00431	±2.5	PASS	0°C
PCS 1900	512	1850.2	2.07	0.00112	±2.5	PASS	10°C
PCS 1900	512	1850.2	-9.3	-0.00503	±2.5	PASS	20°C
PCS 1900	512	1850.2	7.39	0.004	±2.5	PASS	30°C
PCS 1900	512	1850.2	-3.62	-0.00195	±2.5	PASS	40°C
PCS 1900	512	1850.2	-8.49	-0.00459	±2.5	PASS	50°C
PCS 1900	661	1880.0	3.87	0.00206	±2.5	PASS	VL
PCS 1900	661	1880.0	6.84	0.00364	±2.5	PASS	VN
PCS 1900	661	1880.0	-5.0	-0.00266	±2.5	PASS	VH
PCS 1900	661	1880.0	-15.79	-0.0084	±2.5	PASS	-30°C
PCS 1900	661	1880.0	-3.13	-0.00167	±2.5	PASS	-20°C
PCS 1900	661	1880.0	-4.65	-0.00247	±2.5	PASS	-10°C
PCS 1900	661	1880.0	-6.01	-0.00319	±2.5	PASS	0°C
PCS 1900	661	1880.0	1.29	0.00069	±2.5	PASS	10°C
PCS 1900	661	1880.0	-12.79	-0.0068	±2.5	PASS	20°C
PCS 1900	661	1880.0	-8.43	-0.00448	±2.5	PASS	30°C
PCS 1900	661	1880.0	-6.04	-0.00321	±2.5	PASS	40°C
PCS 1900	661	1880.0	-1.71	-0.00091	±2.5	PASS	50°C
PCS 1900	810	1909.8	-11.36	-0.00595	±2.5	PASS	VL
PCS 1900	810	1909.8	-4.0	-0.0021	±2.5	PASS	VN
PCS 1900	810	1909.8	8.33	0.00436	±2.5	PASS	VH
PCS 1900	810	1909.8	0.32	0.00017	±2.5	PASS	-30°C
PCS 1900	810	1909.8	-0.45	-0.00024	±2.5	PASS	-20°C
PCS 1900	810	1909.8	-19.02	-0.00996	±2.5	PASS	-10°C
PCS 1900	810	1909.8	-16.82	-0.00881	±2.5	PASS	0°C
PCS 1900	810	1909.8	-24.89	-0.01303	±2.5	PASS	10°C
PCS 1900	810	1909.8	-16.63	-0.00871	±2.5	PASS	20°C
PCS 1900	810	1909.8	1.81	0.00095	±2.5	PASS	30°C
PCS 1900	810	1909.8	-11.56	-0.00605	±2.5	PASS	40°C
PCS 1900	810	1909.8	-5.1	-0.00267	±2.5	PASS	50°C

Peak to Average Ratio

Test Result

Band	Channel	Freq (MHz)	Result (dB)	Limit (dB)	Verdict
GSM 850	128	824.2	5.11	13	PASS
GSM 850	190	836.6	2.61	13	PASS
GSM 850	251	848.8	2.62	13	PASS
PCS 1900	512	1850.2	2.68	13	PASS
PCS 1900	661	1880.0	2.69	13	PASS
PCS 1900	810	1909.8	3.25	13	PASS

Test Graphs

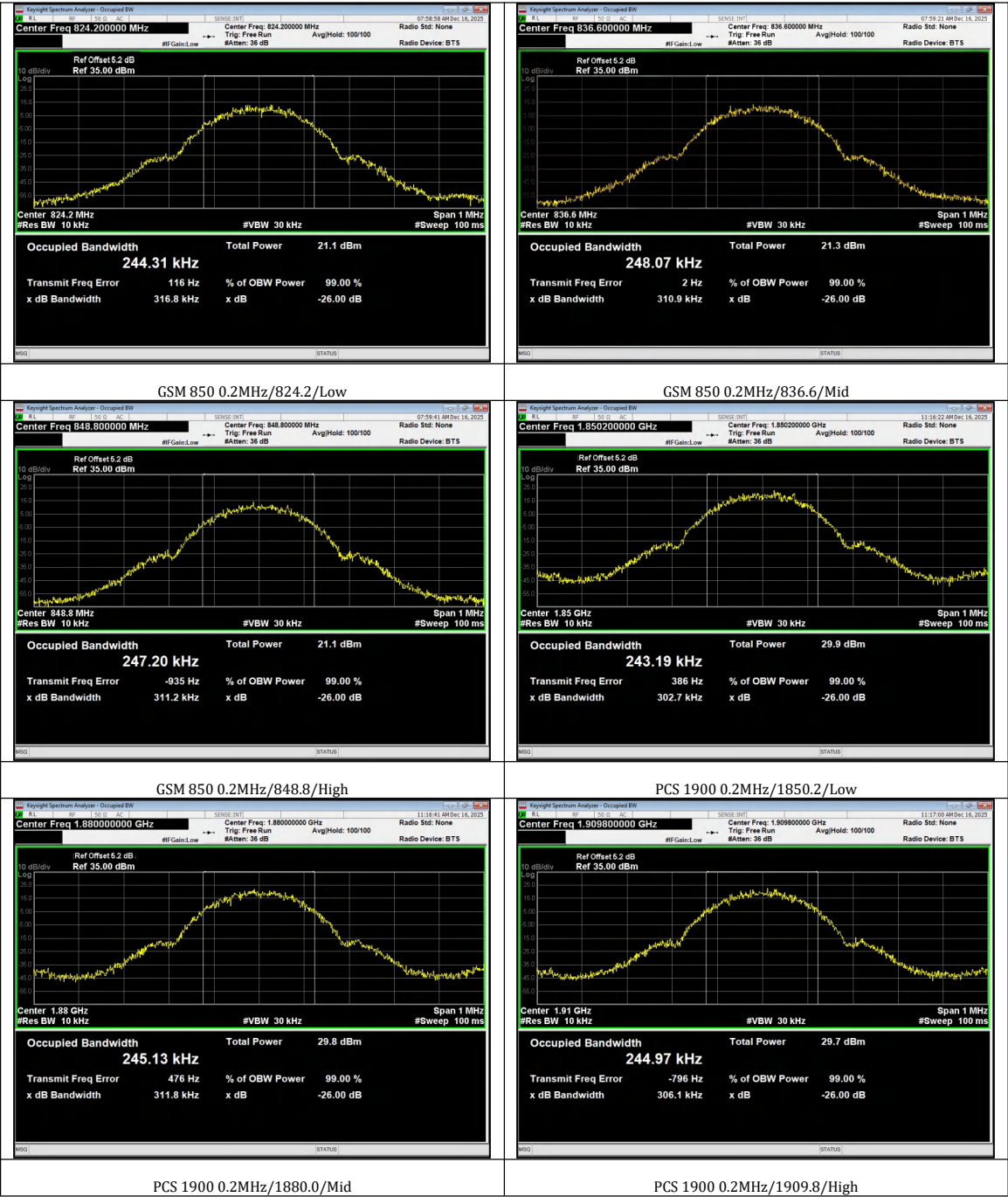


Occupied Bandwidth

Test Result

Band	Channel	Freq (MHz)	OBW (MHz)	26dB BW (MHz)	Verdict
GSM 850	128	824.2	0.24431	0.3168	PASS
GSM 850	190	836.6	0.24807	0.3109	PASS
GSM 850	251	848.8	0.2472	0.3112	PASS
PCS 1900	512	1850.2	0.24319	0.3027	PASS
PCS 1900	661	1880.0	0.24513	0.3118	PASS
PCS 1900	810	1909.8	0.24497	0.3061	PASS

Test Graphs

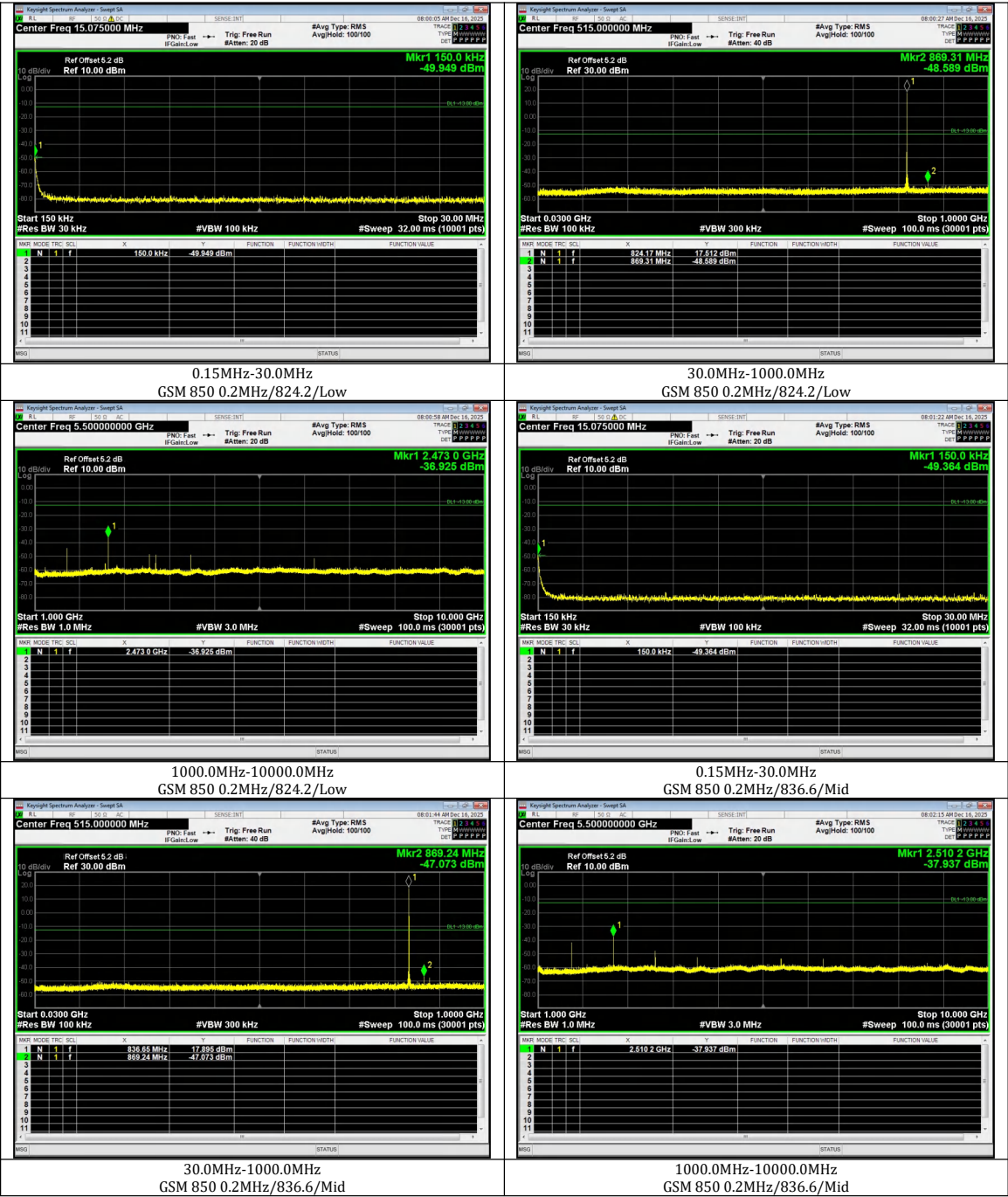


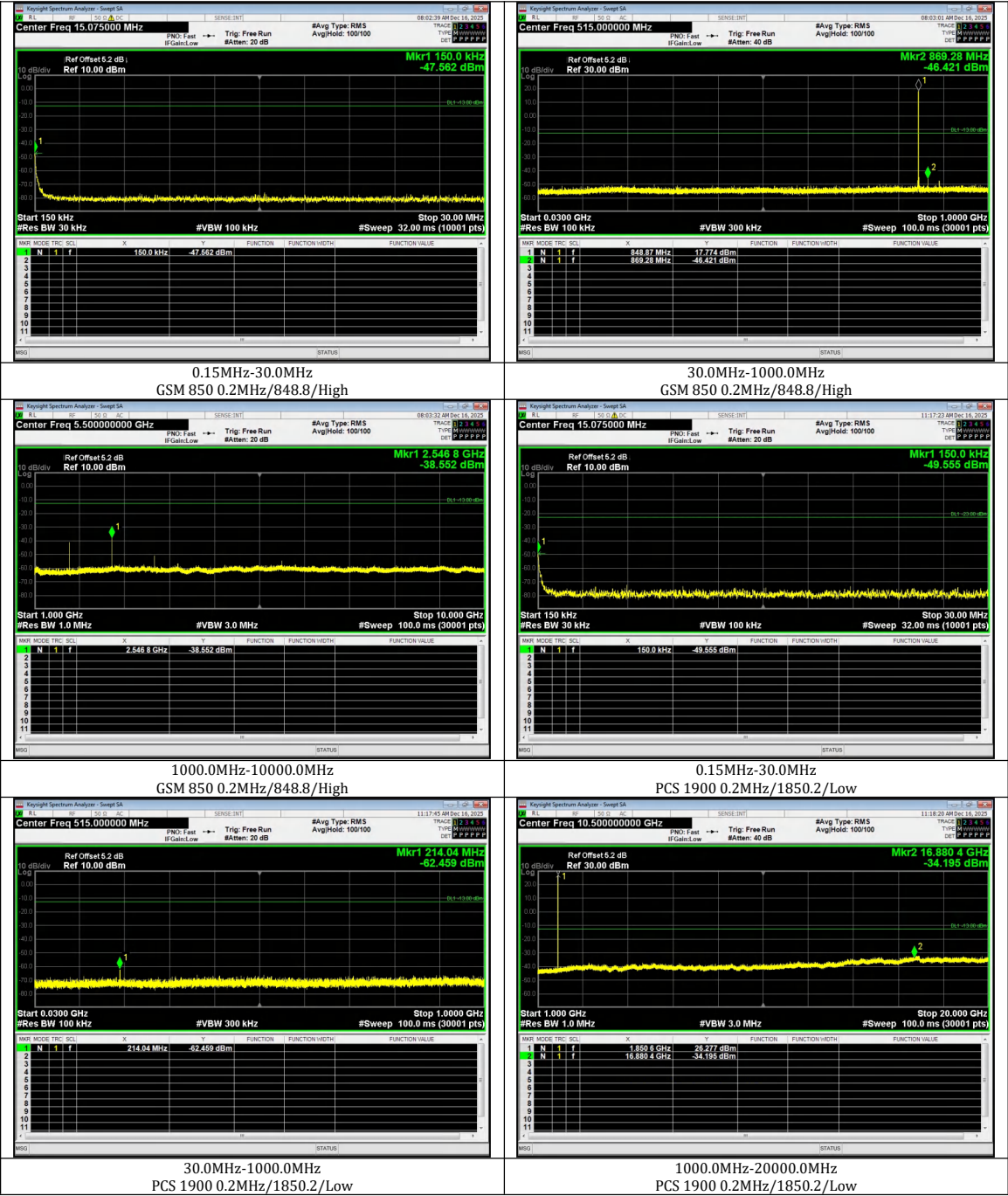
Conducted Spurious Emissions

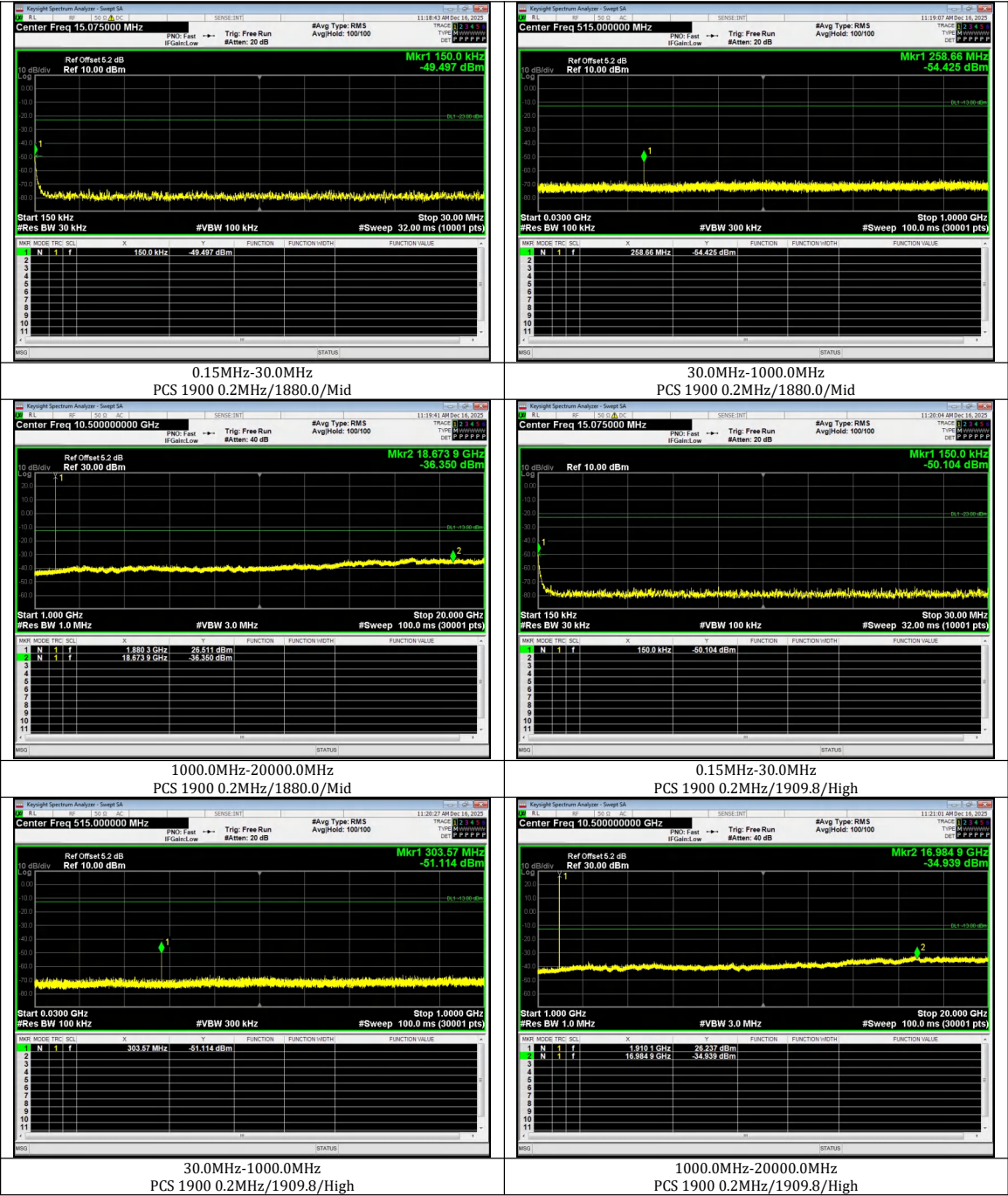
Test Result

Band	Channel	Freq (MHz)	StartFreq (MHz)	StopFreq (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM 850	128	824.2	0.15	30.0	-49.95	-13	PASS
GSM 850	128	824.2	30.0	1000.0	-46.85	-13	PASS
GSM 850	128	824.2	1000.0	10000.0	-36.92	-13	PASS
GSM 850	190	836.6	0.15	30.0	-49.36	-13	PASS
GSM 850	190	836.6	30.0	1000.0	-46.8	-13	PASS
GSM 850	190	836.6	1000.0	10000.0	-37.94	-13	PASS
GSM 850	251	848.8	0.15	30.0	-47.56	-13	PASS
GSM 850	251	848.8	30.0	1000.0	-46.25	-13	PASS
GSM 850	251	848.8	1000.0	10000.0	-38.55	-13	PASS
PCS 1900	512	1850.2	0.15	30.0	-49.55	-23	PASS
PCS 1900	512	1850.2	30.0	1000.0	-62.46	-13	PASS
PCS 1900	512	1850.2	1000.0	20000.0	-31.73	-13	PASS
PCS 1900	661	1880.0	0.15	30.0	-49.5	-23	PASS
PCS 1900	661	1880.0	30.0	1000.0	-54.42	-13	PASS
PCS 1900	661	1880.0	1000.0	20000.0	-32.32	-13	PASS
PCS 1900	810	1909.8	0.15	30.0	-50.1	-23	PASS
PCS 1900	810	1909.8	30.0	1000.0	-51.11	-13	PASS
PCS 1900	810	1909.8	1000.0	20000.0	-31.56	-13	PASS

Test Graphs







Conducted Band Edge

Test Result

Band	Channel	Freq (MHz)	Result	Verdict
GSM 850	128	824.2	see graph	PASS
GSM 850	251	848.8	see graph	PASS
PCS 1900	512	1850.2	see graph	PASS
PCS 1900	810	1909.8	see graph	PASS

Test Graphs



Transmitter Conducted Output Power And ERP/EIRP GPRS

Test Result

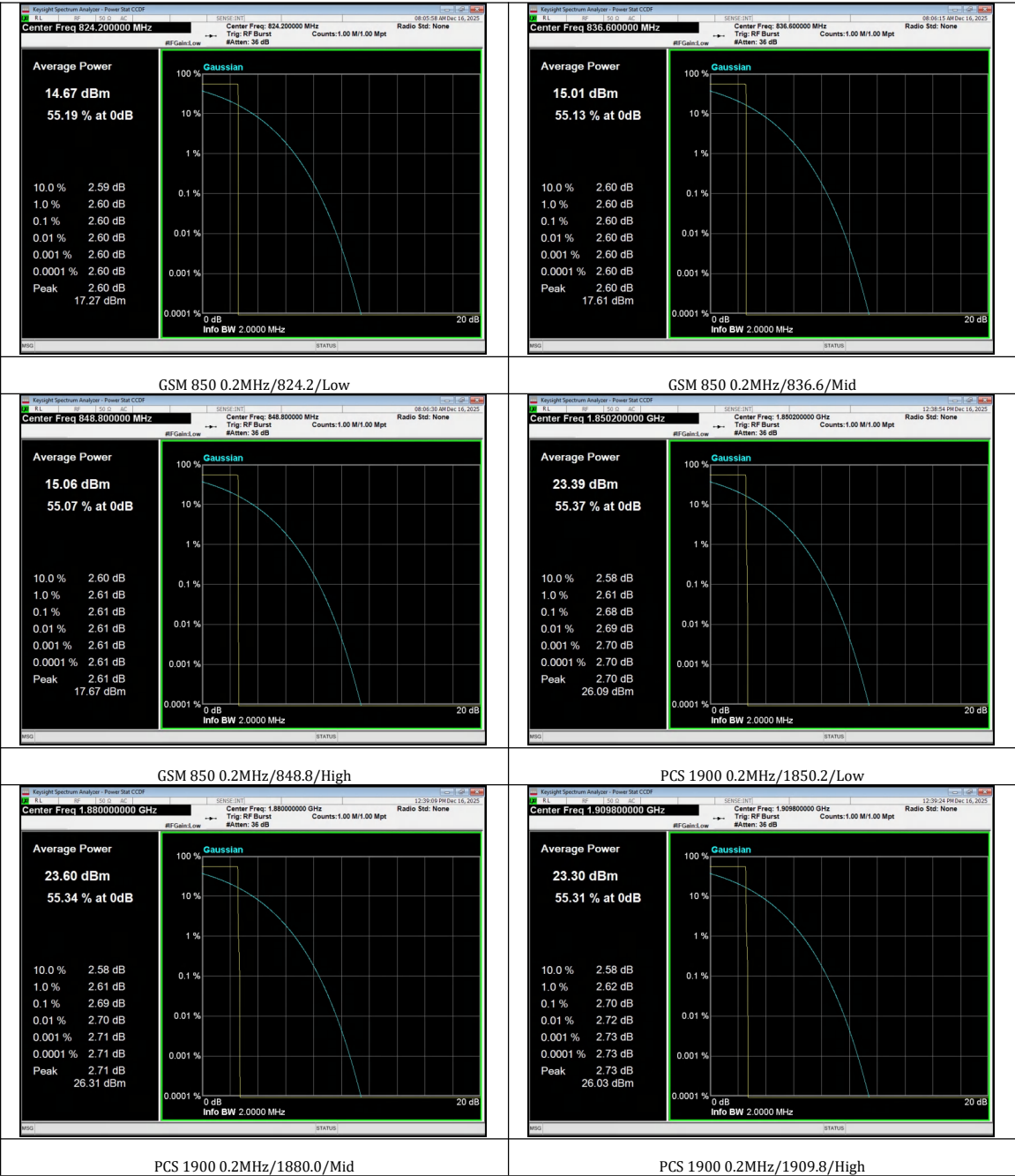
Band	Channel	Freq (MHz)	Modulation	Slots	Conducted Power(dBm)	ERP/EIRP (dBm)	ERP/EIRP(limit) (dBm)	Verdict
GSM 850	128	824.2	GMSK	1 Tx	32.33	29.62	38.45	PASS
GSM 850	128	824.2	GMSK	2 Tx	31.05	28.34	38.45	PASS
GSM 850	128	824.2	GMSK	3 Tx	28.52	25.81	38.45	PASS
GSM 850	128	824.2	GMSK	4 Tx	27.59	24.88	38.45	PASS
GSM 850	190	836.6	GMSK	1 Tx	32.25	29.54	38.45	PASS
GSM 850	190	836.6	GMSK	2 Tx	31.02	28.31	38.45	PASS
GSM 850	190	836.6	GMSK	3 Tx	28.75	26.04	38.45	PASS
GSM 850	190	836.6	GMSK	4 Tx	27.65	24.94	38.45	PASS
GSM 850	251	848.8	GMSK	1 Tx	32.32	29.61	38.45	PASS
GSM 850	251	848.8	GMSK	2 Tx	31.04	28.33	38.45	PASS
GSM 850	251	848.8	GMSK	3 Tx	29.02	26.31	38.45	PASS
GSM 850	251	848.8	GMSK	4 Tx	28.02	25.31	38.45	PASS
PCS 1900	512	1850.2	GMSK	1 Tx	29.12	28.64	33	PASS
PCS 1900	512	1850.2	GMSK	2 Tx	28.91	28.43	33	PASS
PCS 1900	512	1850.2	GMSK	3 Tx	26.47	25.99	33	PASS
PCS 1900	512	1850.2	GMSK	4 Tx	25.41	24.93	33	PASS
PCS 1900	661	1880.0	GMSK	1 Tx	29.32	28.84	33	PASS
PCS 1900	661	1880.0	GMSK	2 Tx	28.15	27.67	33	PASS
PCS 1900	661	1880.0	GMSK	3 Tx	26.04	25.56	33	PASS
PCS 1900	661	1880.0	GMSK	4 Tx	25.04	24.56	33	PASS
PCS 1900	810	1909.8	GMSK	1 Tx	29.06	28.58	33	PASS
PCS 1900	810	1909.8	GMSK	2 Tx	28.53	28.05	33	PASS
PCS 1900	810	1909.8	GMSK	3 Tx	26.11	25.63	33	PASS
PCS 1900	810	1909.8	GMSK	4 Tx	25.08	24.60	33	PASS

Peak to Average Ratio GPRS

Test Result

Band	Channel	Freq (MHz)	Slots	Result (dB)	Limit (dB)	Verdict
GSM 850	128	824.2	1 Tx	2.60	13	PASS
GSM 850	190	836.6	1 Tx	2.60	13	PASS
GSM 850	251	848.8	1 Tx	2.61	13	PASS
PCS 1900	512	1850.2	1 Tx	2.68	13	PASS
PCS 1900	661	1880.0	1 Tx	2.69	13	PASS
PCS 1900	810	1909.8	1 Tx	2.70	13	PASS

Test Graphs

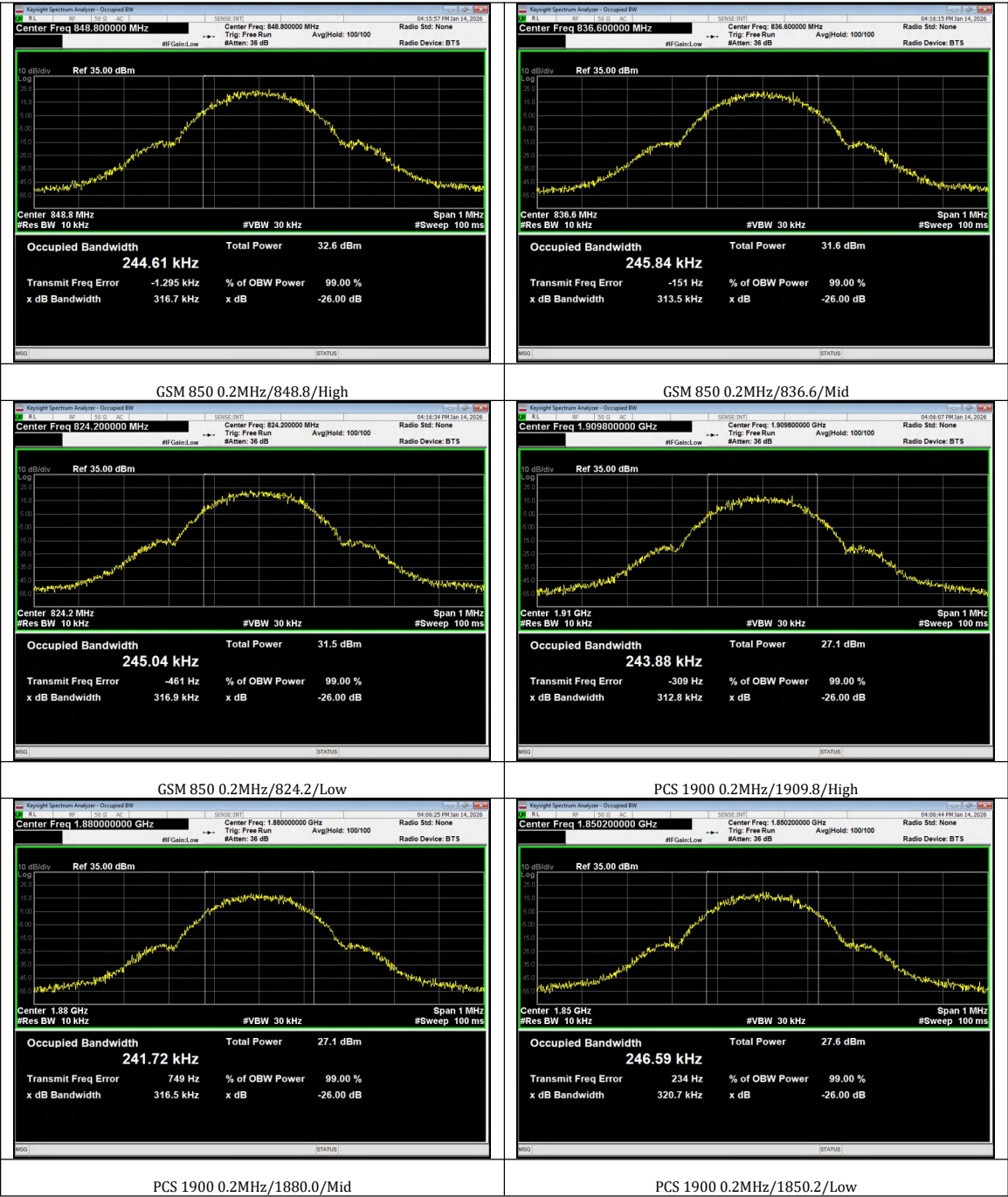


Occupied Bandwidth GPRS

Test Result

Band	Channel	Freq (MHz)	Slots	OBW (MHz)	26dB BW (MHz)	Verdict
GSM 850	251	848.8	1 Tx	0.24461	0.3167	PASS
GSM 850	190	836.6	1 Tx	0.24584	0.3135	PASS
GSM 850	128	824.2	1 Tx	0.24504	0.3169	PASS
PCS 1900	810	1909.8	1 Tx	0.24388	0.3128	PASS
PCS 1900	661	1880.0	1 Tx	0.24172	0.3165	PASS
PCS 1900	512	1850.2	1 Tx	0.24659	0.3207	PASS

Test Graphs



Frequency Stability GPRS

Test Result

Band	Channel	Freq (MHz)	Slots	Deviation (Hz)	Deviation (ppm)	Limit(ppm)	Verdict	Environment
GSM 850	128	824.2	1 Tx	3.58	0.00435	±2.5	PASS	VL
GSM 850	128	824.2	1 Tx	4.68	0.00568	±2.5	PASS	VN
GSM 850	128	824.2	1 Tx	3.78	0.00458	±2.5	PASS	VH
GSM 850	128	824.2	1 Tx	1.81	0.00219	±2.5	PASS	-30°C
GSM 850	128	824.2	1 Tx	1.9	0.00231	±2.5	PASS	-20°C
GSM 850	128	824.2	1 Tx	4.58	0.00556	±2.5	PASS	-10°C
GSM 850	128	824.2	1 Tx	0.84	0.00102	±2.5	PASS	0°C
GSM 850	128	824.2	1 Tx	0.39	0.00047	±2.5	PASS	10°C
GSM 850	128	824.2	1 Tx	1.19	0.00145	±2.5	PASS	20°C
GSM 850	128	824.2	1 Tx	2.78	0.00337	±2.5	PASS	30°C
GSM 850	128	824.2	1 Tx	3.23	0.00392	±2.5	PASS	40°C
GSM 850	128	824.2	1 Tx	0.32	0.00039	±2.5	PASS	50°C
GSM 850	190	836.6	1 Tx	-0.26	-0.00031	±2.5	PASS	VL
GSM 850	190	836.6	1 Tx	1.32	0.00158	±2.5	PASS	VN
GSM 850	190	836.6	1 Tx	1.61	0.00193	±2.5	PASS	VH
GSM 850	190	836.6	1 Tx	0.97	0.00116	±2.5	PASS	-30°C
GSM 850	190	836.6	1 Tx	-1.45	-0.00174	±2.5	PASS	-20°C
GSM 850	190	836.6	1 Tx	0.32	0.00038	±2.5	PASS	-10°C
GSM 850	190	836.6	1 Tx	0.52	0.00062	±2.5	PASS	0°C
GSM 850	190	836.6	1 Tx	1.03	0.00123	±2.5	PASS	10°C
GSM 850	190	836.6	1 Tx	3.16	0.00378	±2.5	PASS	20°C
GSM 850	190	836.6	1 Tx	2.91	0.00347	±2.5	PASS	30°C
GSM 850	190	836.6	1 Tx	1.19	0.00143	±2.5	PASS	40°C
GSM 850	190	836.6	1 Tx	-1.81	-0.00216	±2.5	PASS	50°C
GSM 850	251	848.8	1 Tx	0.32	0.00038	±2.5	PASS	VL
GSM 850	251	848.8	1 Tx	0.32	0.00038	±2.5	PASS	VN
GSM 850	251	848.8	1 Tx	-1.87	-0.00221	±2.5	PASS	VH
GSM 850	251	848.8	1 Tx	-0.36	-0.00042	±2.5	PASS	-30°C
GSM 850	251	848.8	1 Tx	1.03	0.00122	±2.5	PASS	-20°C
GSM 850	251	848.8	1 Tx	-2.1	-0.00247	±2.5	PASS	-10°C
GSM 850	251	848.8	1 Tx	0.61	0.00072	±2.5	PASS	0°C
GSM 850	251	848.8	1 Tx	1.94	0.00228	±2.5	PASS	10°C
GSM 850	251	848.8	1 Tx	0.32	0.00038	±2.5	PASS	20°C
GSM 850	251	848.8	1 Tx	-1.29	-0.00152	±2.5	PASS	30°C
GSM 850	251	848.8	1 Tx	0.84	0.00099	±2.5	PASS	40°C
GSM 850	251	848.8	1 Tx	1.71	0.00202	±2.5	PASS	50°C
PCS 1900	512	1850.2	1 Tx	6.23	0.00337	±2.5	PASS	VL
PCS 1900	512	1850.2	1 Tx	13.27	0.00717	±2.5	PASS	VN
PCS 1900	512	1850.2	1 Tx	2.58	0.0014	±2.5	PASS	VH
PCS 1900	512	1850.2	1 Tx	-2.52	-0.00136	±2.5	PASS	-30°C
PCS 1900	512	1850.2	1 Tx	-2.39	-0.00129	±2.5	PASS	-20°C
PCS 1900	512	1850.2	1 Tx	-1.52	-0.00082	±2.5	PASS	-10°C
PCS 1900	512	1850.2	1 Tx	11.24	0.00607	±2.5	PASS	0°C
PCS 1900	512	1850.2	1 Tx	-3.2	-0.00173	±2.5	PASS	10°C
PCS 1900	512	1850.2	1 Tx	4.1	0.00222	±2.5	PASS	20°C
PCS 1900	512	1850.2	1 Tx	3.87	0.00209	±2.5	PASS	30°C
PCS 1900	512	1850.2	1 Tx	10.98	0.00593	±2.5	PASS	40°C
PCS 1900	512	1850.2	1 Tx	5.88	0.00318	±2.5	PASS	50°C
PCS 1900	661	1880.0	1 Tx	15.14	0.00805	±2.5	PASS	VL
PCS 1900	661	1880.0	1 Tx	17.89	0.00951	±2.5	PASS	VN
PCS 1900	661	1880.0	1 Tx	12.79	0.0068	±2.5	PASS	VH
PCS 1900	661	1880.0	1 Tx	-3.78	-0.00201	±2.5	PASS	-30°C
PCS 1900	661	1880.0	1 Tx	5.29	0.00282	±2.5	PASS	-20°C
PCS 1900	661	1880.0	1 Tx	-2.62	-0.00139	±2.5	PASS	-10°C
PCS 1900	661	1880.0	1 Tx	3.58	0.00191	±2.5	PASS	0°C
PCS 1900	661	1880.0	1 Tx	8.85	0.00471	±2.5	PASS	10°C
PCS 1900	661	1880.0	1 Tx	1.26	0.00067	±2.5	PASS	20°C
PCS 1900	661	1880.0	1 Tx	4.62	0.00246	±2.5	PASS	30°C
PCS 1900	661	1880.0	1 Tx	11.36	0.00605	±2.5	PASS	40°C
PCS 1900	661	1880.0	1 Tx	11.53	0.00613	±2.5	PASS	50°C
PCS 1900	810	1909.8	1 Tx	24.73	0.01295	±2.5	PASS	VL
PCS 1900	810	1909.8	1 Tx	-11.43	-0.00598	±2.5	PASS	VN
PCS 1900	810	1909.8	1 Tx	-3.2	-0.00167	±2.5	PASS	VH
PCS 1900	810	1909.8	1 Tx	-1.9	-0.001	±2.5	PASS	-30°C
PCS 1900	810	1909.8	1 Tx	-8.3	-0.00434	±2.5	PASS	-20°C
PCS 1900	810	1909.8	1 Tx	-7.62	-0.00399	±2.5	PASS	-10°C
PCS 1900	810	1909.8	1 Tx	-1.32	-0.00069	±2.5	PASS	0°C
PCS 1900	810	1909.8	1 Tx	-3.29	-0.00172	±2.5	PASS	10°C
PCS 1900	810	1909.8	1 Tx	-12.4	-0.00649	±2.5	PASS	20°C
PCS 1900	810	1909.8	1 Tx	-11.17	-0.00585	±2.5	PASS	30°C

PCS 1900	810	1909.8	1 Tx	-11.27	-0.0059	±2.5	PASS	40°C
PCS 1900	810	1909.8	1 Tx	-7.33	-0.00384	±2.5	PASS	50°C

Occupied Bandwidth GPRS

Test Result

Band	Channel	Freq (MHz)	Slots	OBW (MHz)	26dB BW (MHz)	Verdict
GSM 850	128	824.2	1 Tx	0.24477	0.3159	PASS
GSM 850	190	836.6	1 Tx	0.2447	0.319	PASS
GSM 850	251	848.8	1 Tx	0.24609	0.3196	PASS
PCS 1900	512	1850.2	1 Tx	0.24293	0.3168	PASS
PCS 1900	661	1880.0	1 Tx	0.24485	0.3146	PASS
PCS 1900	810	1909.8	1 Tx	0.24614	0.3079	PASS

Test Graphs

