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Appendix B

GSM850&1900



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1. Effective (Isotropic) Radiated Power Output Data

1.1. Test Result

BAND	Slot Config	Channel	Conducted Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
GSM850	/	128	32.79	28.32	38.45	PASS
GSM850	/	190	32.93	28.46	38.45	PASS
GSM850	/	251	32.87	28.40	38.45	PASS
EGPRS850	1 Slot	128	26.12	21.65	38.45	PASS
EGPRS850	2 Slot	128	25.17	20.70	38.45	PASS
EGPRS850	3 Slot	128	23.71	19.24	38.45	PASS
EGPRS850	4 Slot	128	21.65	17.18	38.45	PASS
EGPRS850	1 Slot	190	25.94	21.47	38.45	PASS
EGPRS850	2 Slot	190	25.24	20.77	38.45	PASS
EGPRS850	3 Slot	190	24.20	19.73	38.45	PASS
EGPRS850	4 Slot	190	22.11	17.64	38.45	PASS
EGPRS850	1 Slot	251	26.42	21.95	38.45	PASS
EGPRS850	2 Slot	251	24.97	20.50	38.45	PASS
EGPRS850	3 Slot	251	24.11	19.64	38.45	PASS
EGPRS850	4 Slot	251	22.58	18.11	38.45	PASS

BAND	Slot Config	Channel	Conducted Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
GSM1900	/	512	29.93	30.49	33.00	PASS
GSM1900	/	661	29.70	30.26	33.00	PASS
GSM1900	/	810	30.36	30.92	33.00	PASS
EGPRS1900	1 Slot	512	25.76	26.32	33.00	PASS
EGPRS1900	2 Slot	512	24.30	24.86	33.00	PASS
EGPRS1900	3 Slot	512	23.33	23.89	33.00	PASS
EGPRS1900	4 Slot	512	21.56	22.12	33.00	PASS
EGPRS1900	1 Slot	661	25.71	26.27	33.00	PASS
EGPRS1900	2 Slot	661	24.62	25.18	33.00	PASS
EGPRS1900	0 3 Slot 661	661	23.16	23.72	33.00	PASS
EGPRS1900	4 Slot	661	20.89	21.45	33.00	PASS
EGPRS1900	1 Slot	810	26.23	26.79	33.00	PASS
EGPRS1900	2 Slot	810	24.60	25.16	33.00	PASS
EGPRS1900	3 Slot	810	22.80	23.36	33.00	PASS
EGPRS1900	SPRS1900 4 Slot 810 21.53		22.09	33.00	PASS	



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Remark:

a: For getting the ERP (Efficient Radiated Power), the following formula should be taken to calculate it, ERP [dBm] = Conducted power [dBm] + Gain [dBd]

EIRP [dBm] = Conducted power [dBm] + Gain [dBi]



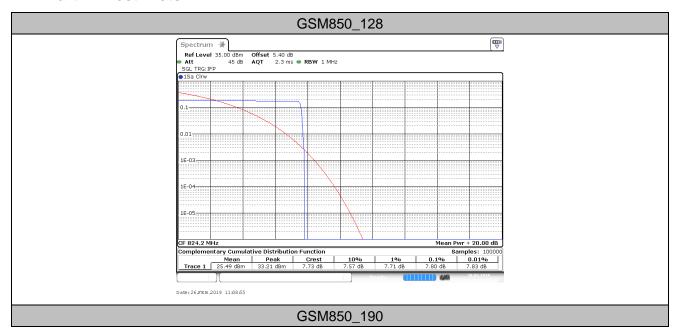
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2. Peak-to-Average Ratio

2.1. Test Result

BAND	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
GSM850	128	7.80	13	PASS
GSM850	190	7.80	13	PASS
GSM850	251	7.71	13	PASS
EGPRS850	128	10.75	13	PASS
EGPRS850	190	10.64	13	PASS
EGPRS850	251	10.90	13	PASS
GSM1900	512	7.71	13	PASS
GSM1900	661	7.65	13	PASS
GSM1900	810	7.71	13	PASS
EGPRS1900	512	10.52	13	PASS
EGPRS1900	661	10.49	13	PASS
EGPRS1900	810	10.84	13	PASS

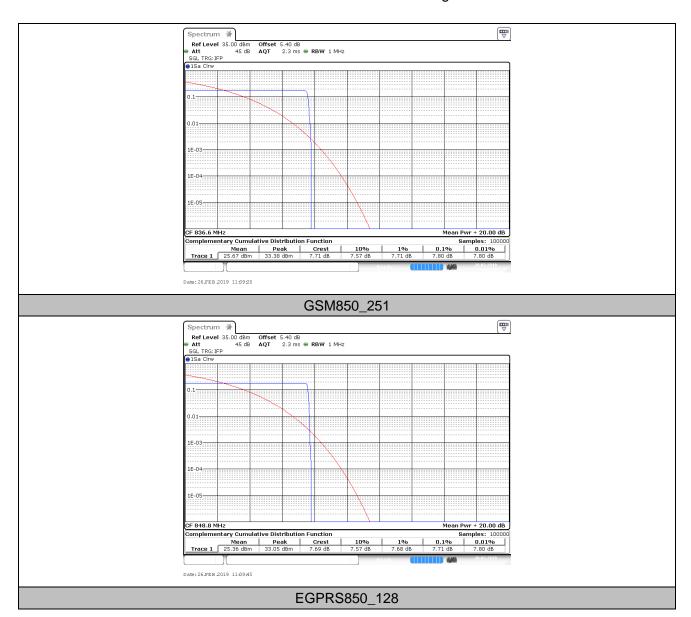
2.2. Part II - Test Plots





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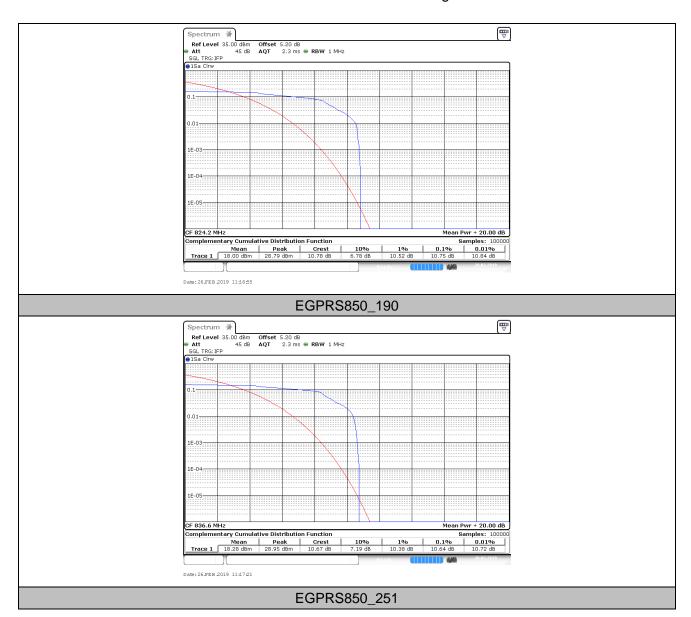
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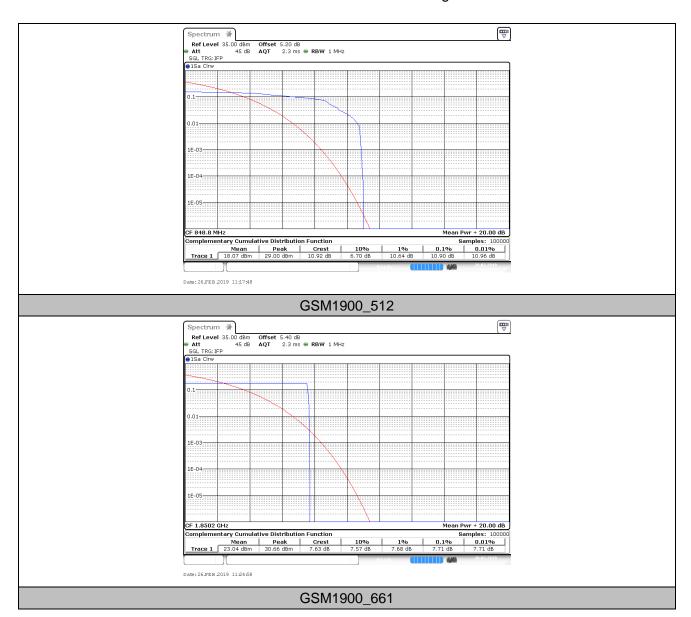
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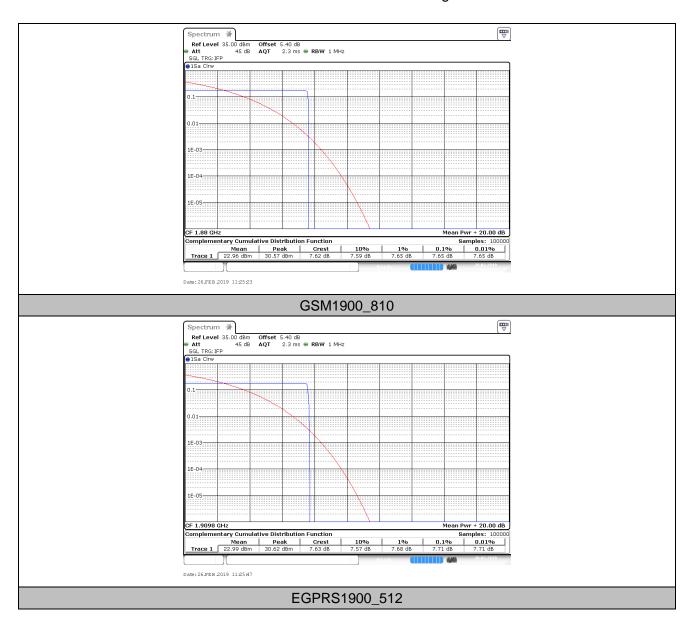
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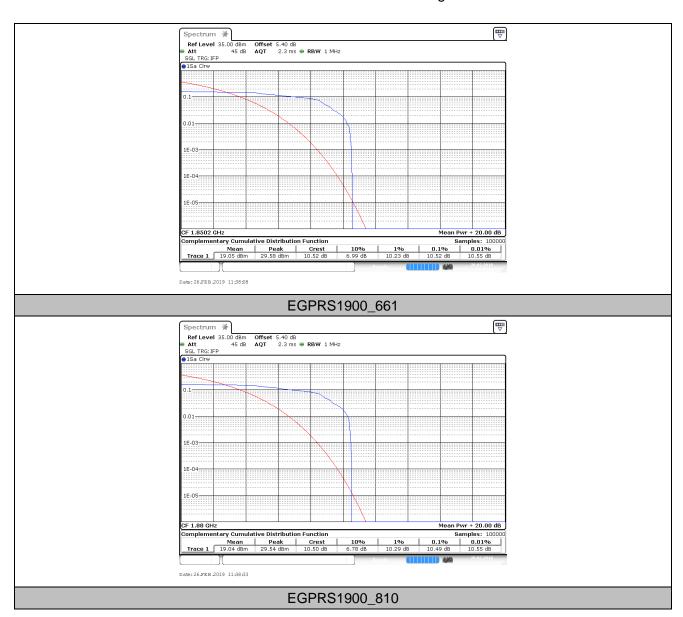
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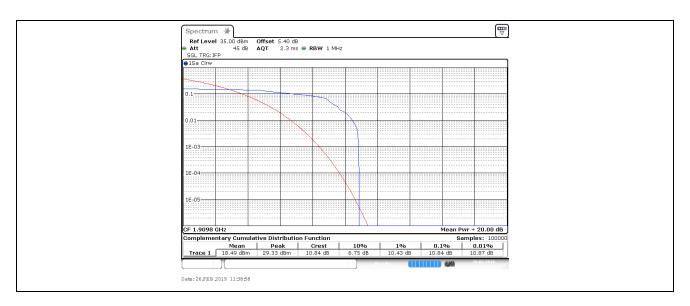
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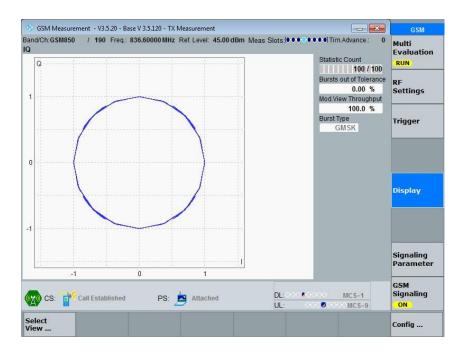
3. Modulation Characteristics

3.1. For GSM

3.1.1. Test BAND = GSM 850

3.1.1.1. Test Mode = GSM/TM1

3.1.1.1.1. Test Channel = MCH

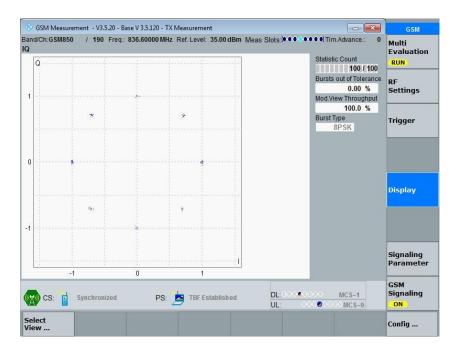




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3.1.1.2. Test Mode = GSM/TM2

3.1.1.2.1. Test Channel = MCH



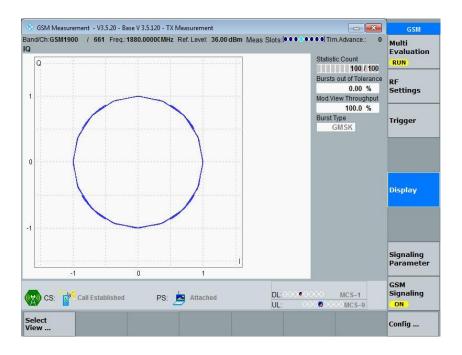


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3.1.2. Test BAND = GSM 1900

3.1.2.1. Test Mode = GSM/TM1

3.1.2.1.1. Test Channel = MCH

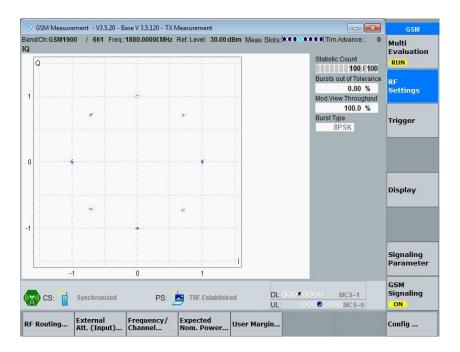




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3.1.2.2. Test Mode = GSM/TM2

3.1.2.2.1. Test Channel = MCH





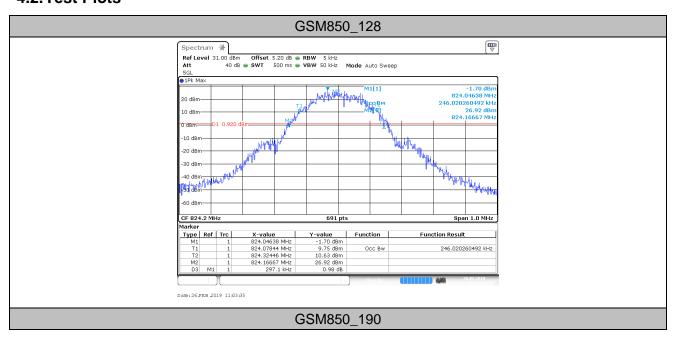
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4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

BAND	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
GSM850	128	246.02	297.10		PASS
GSM850	190	244.57	305.80		PASS
GSM850	251	243.13	295.65		PASS
EGPRS850	128	244.57	292.75		PASS
EGPRS850	190	246.02	294.20		PASS
EGPRS850	251	244.57	294.20		PASS
GSM1900	512	244.57	307.25		PASS
GSM1900	661	247.47	302.90		PASS
GSM1900	810	247.47	300.00		PASS
EGPRS1900	512	246.02	307.25		PASS
EGPRS1900	661	251.81	291.30		PASS
EGPRS1900	810	247.47	305.80		PASS

4.2. Test Plots



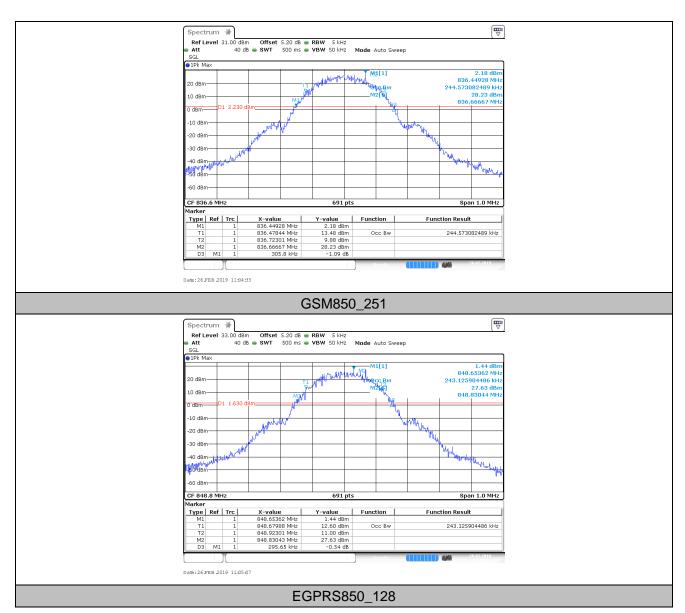


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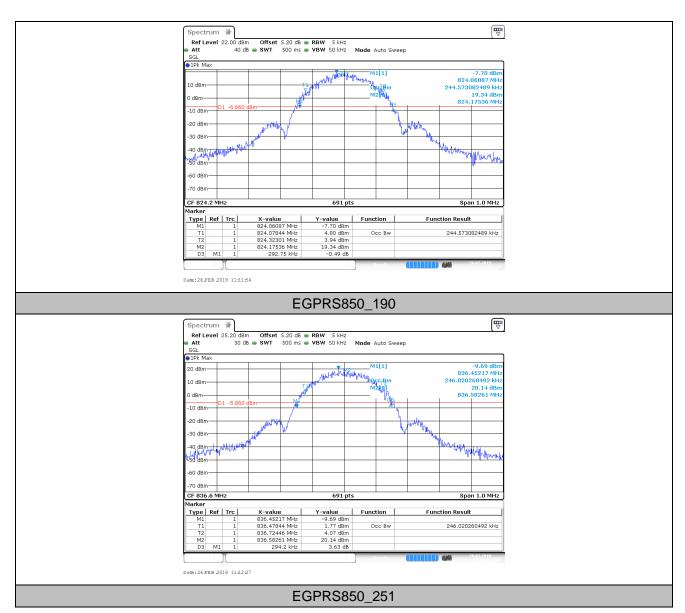
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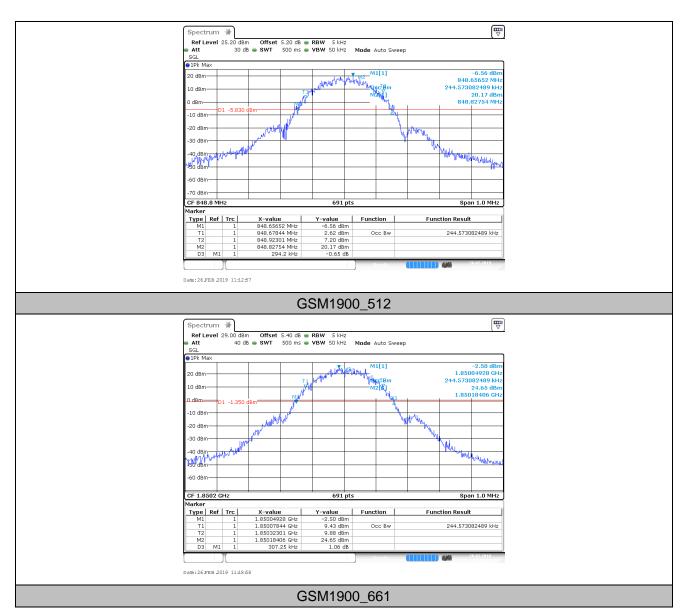
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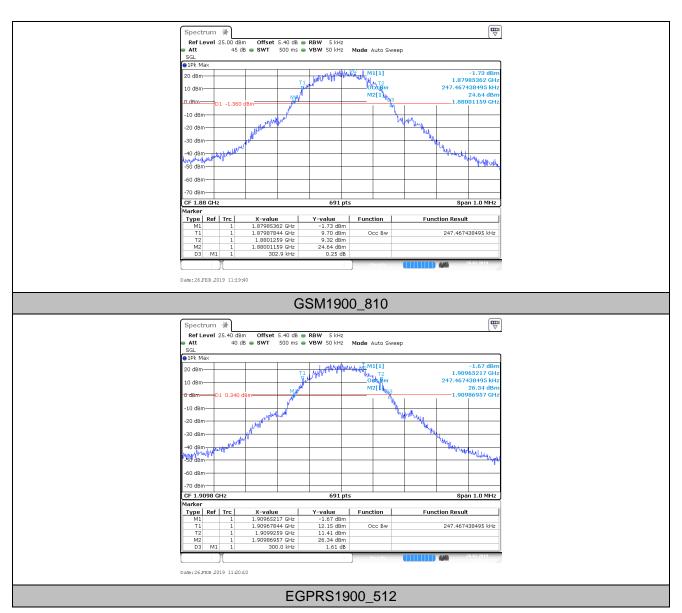
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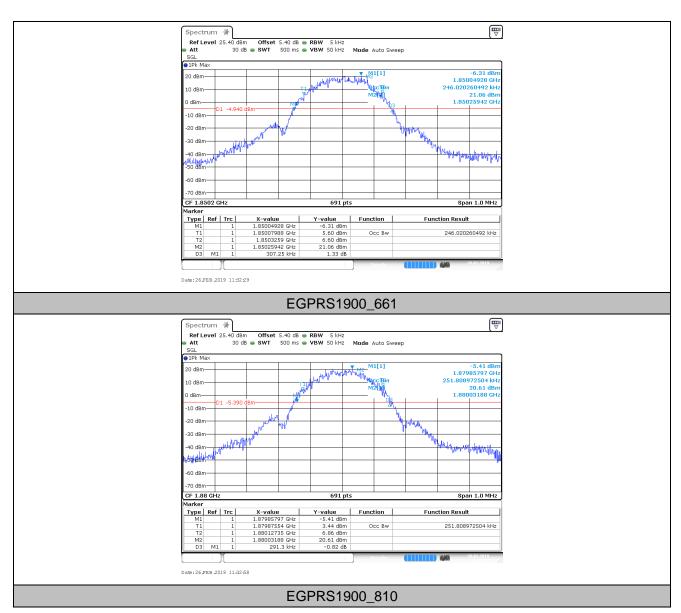
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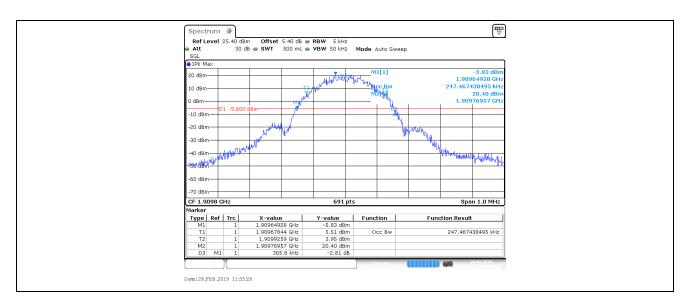
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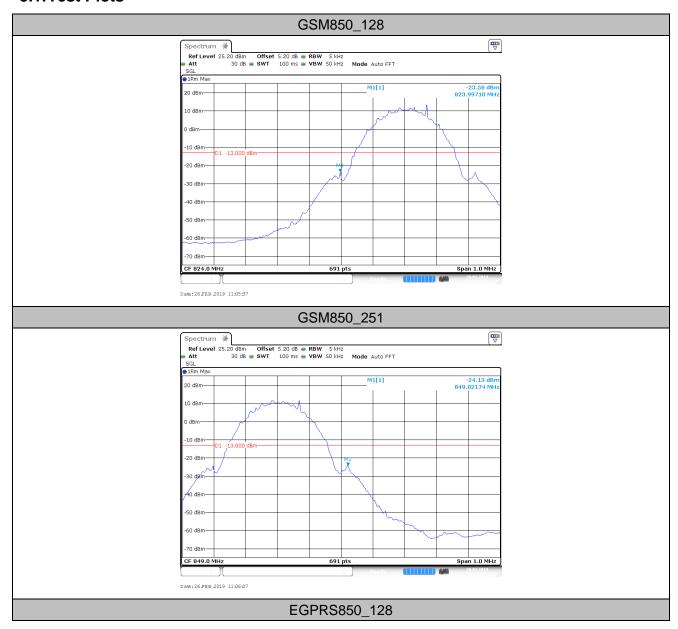




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5. Band Edge Compliance

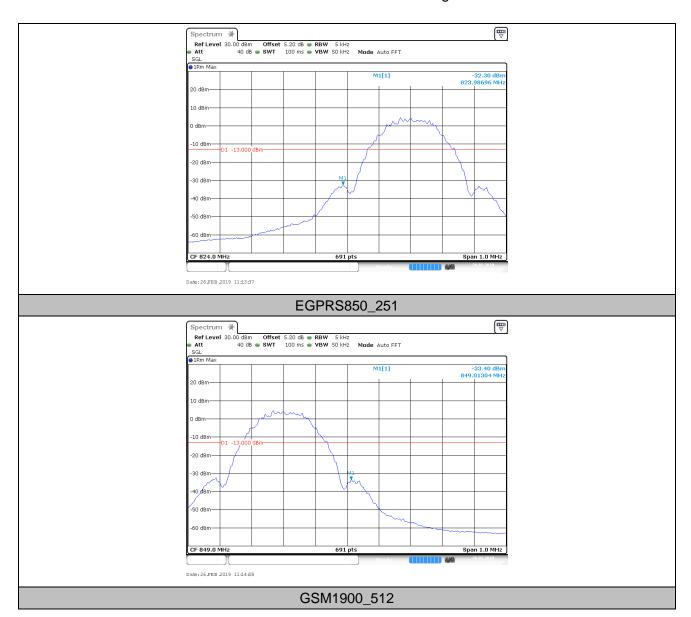
5.1. Test Plots





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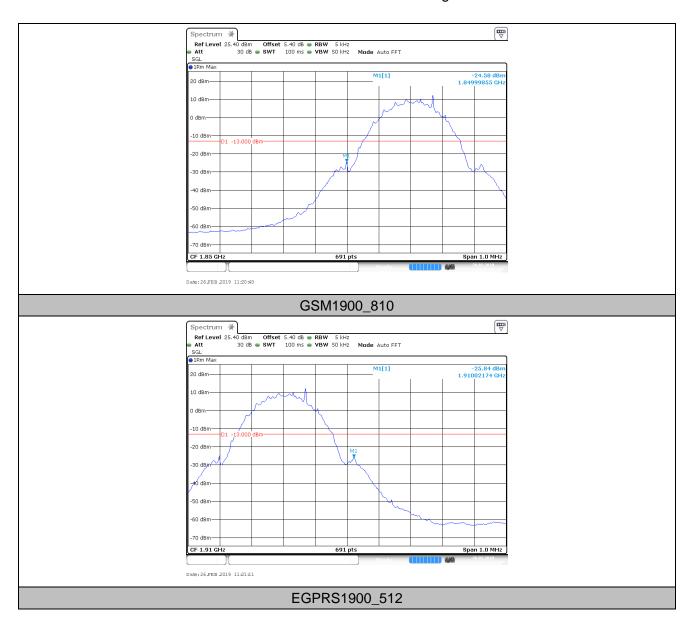
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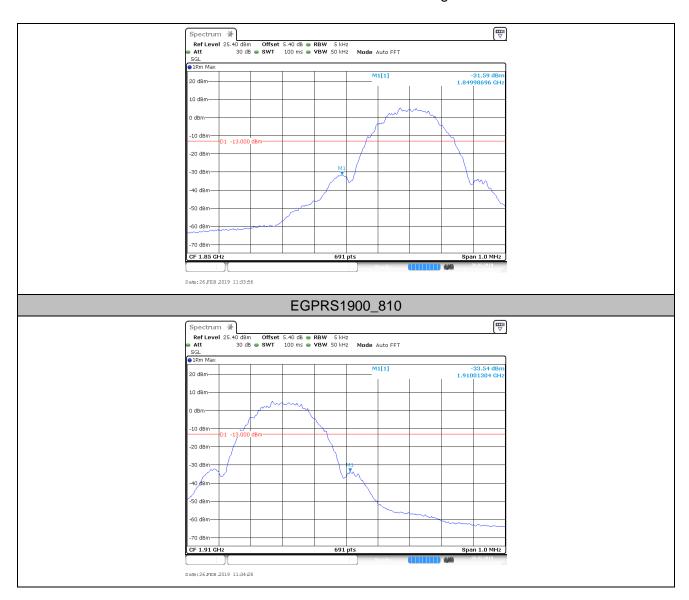
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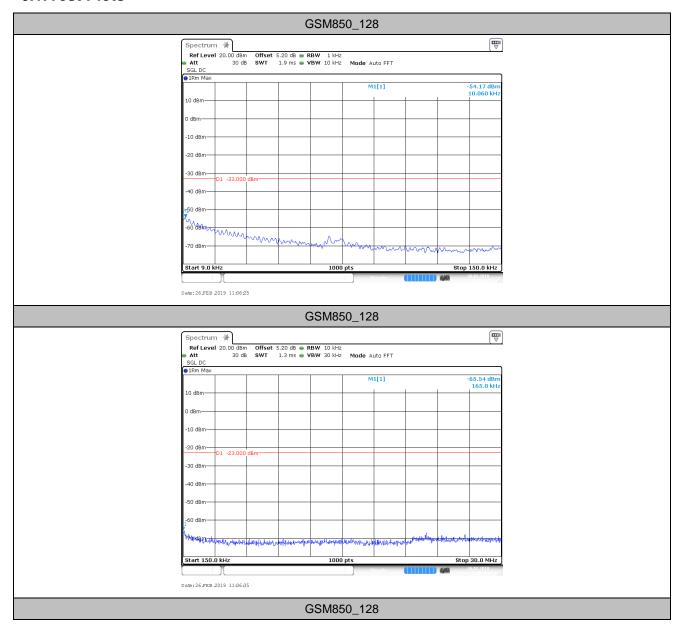
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6. Spurious Emission at Antenna Terminal

Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k = 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Remark2: only the worst case data displayed in this report.

6.1. Test Plots

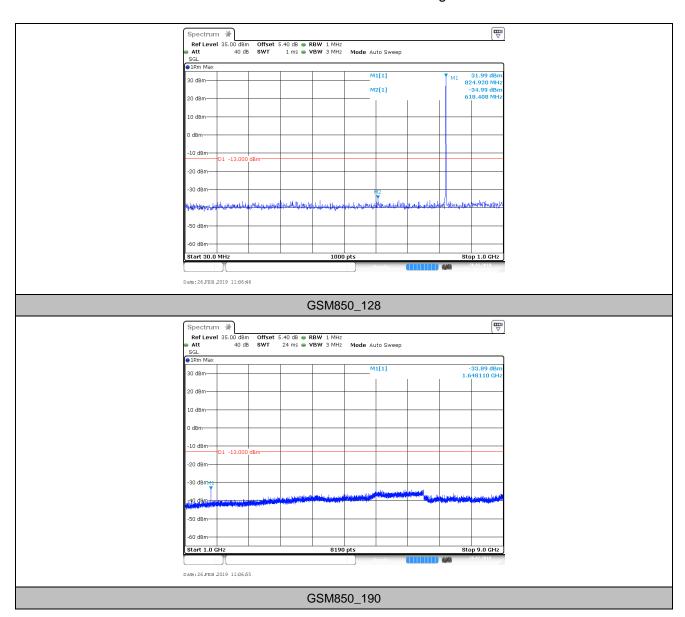






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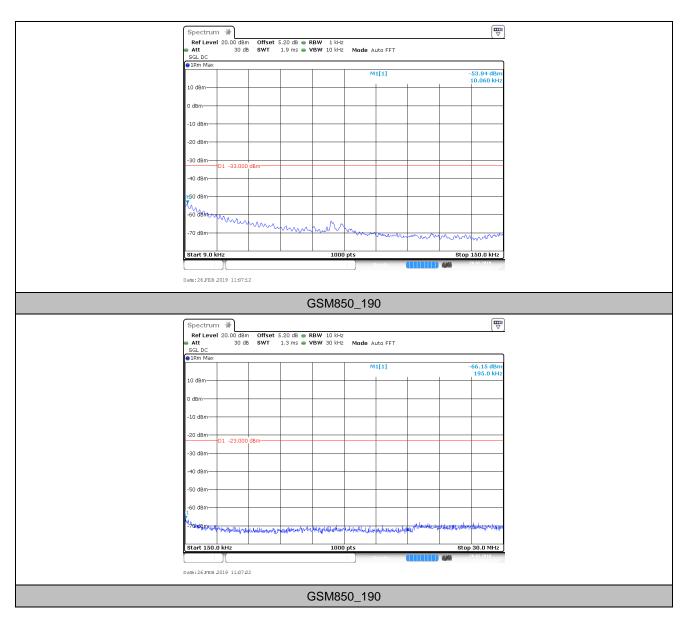
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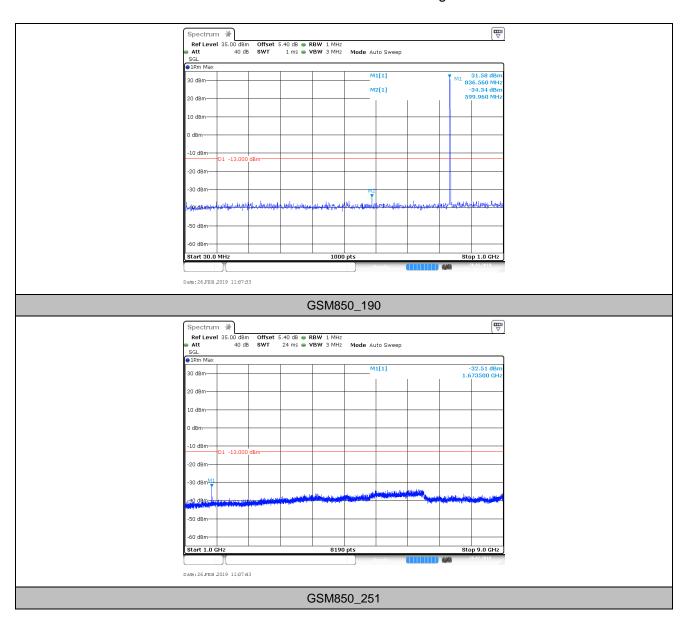






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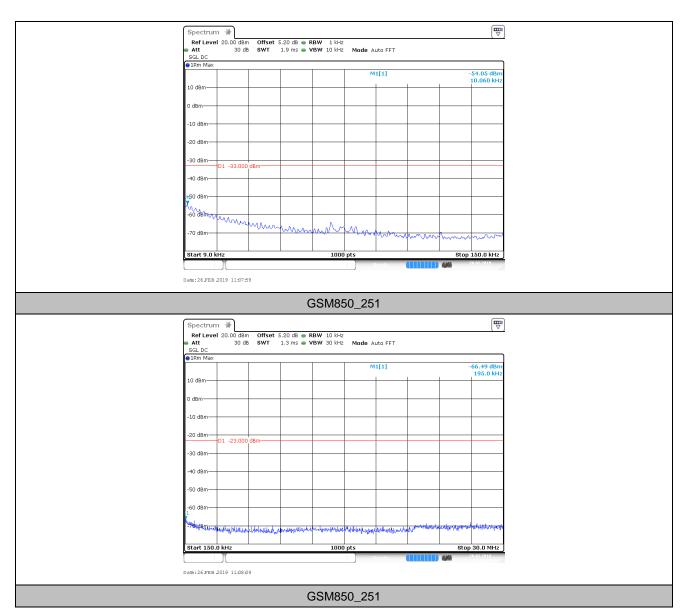






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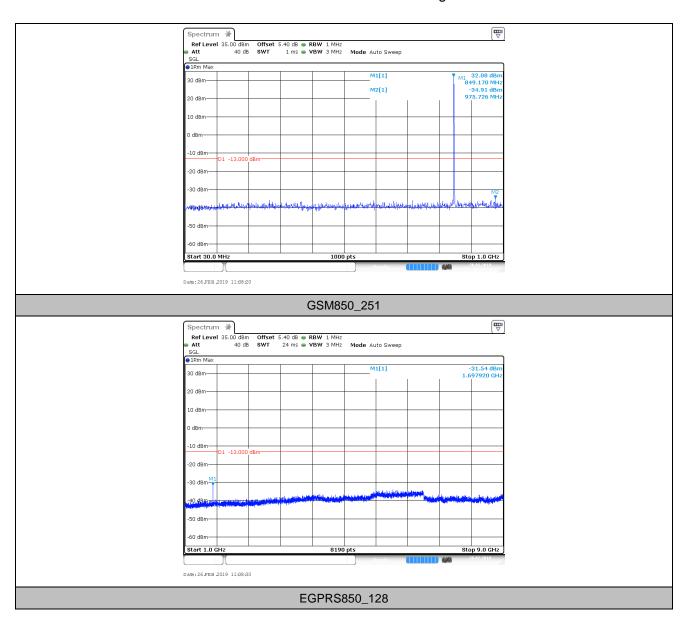
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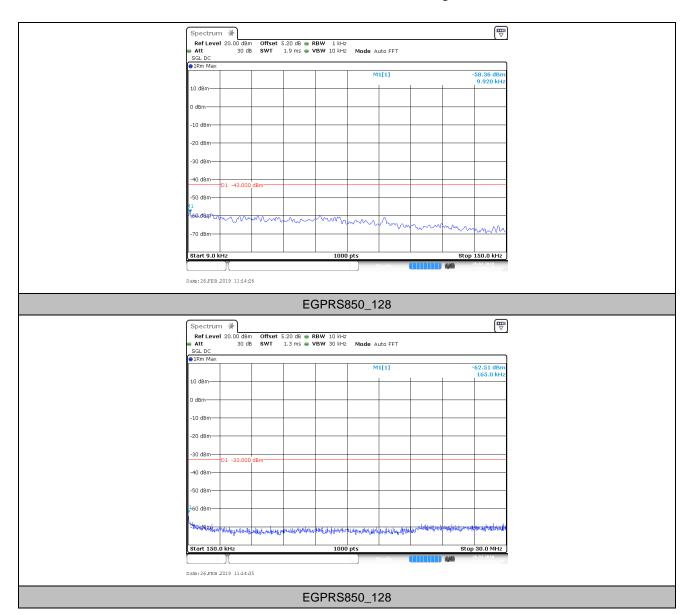
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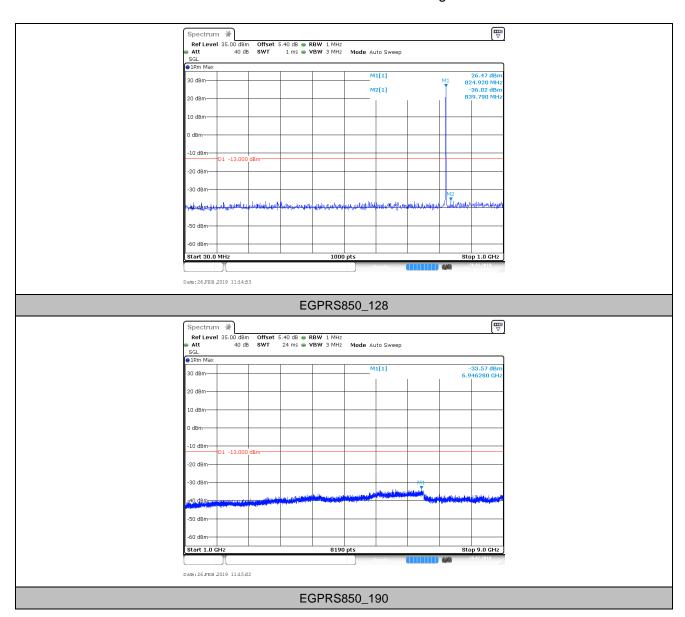






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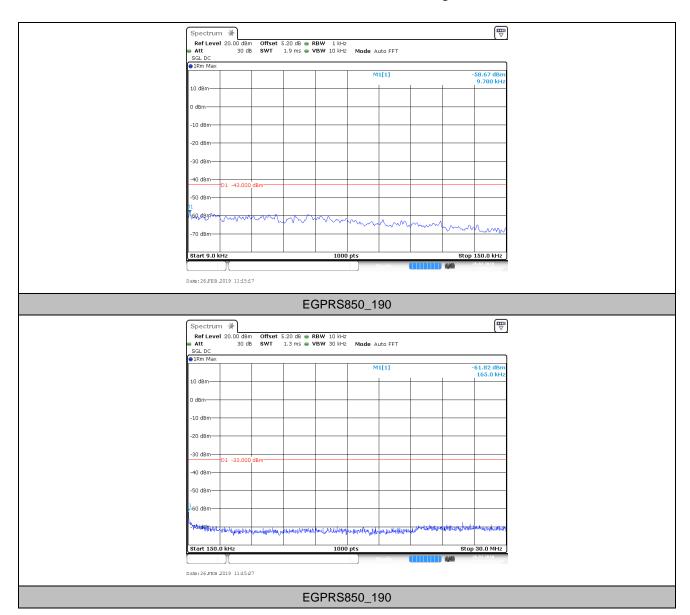






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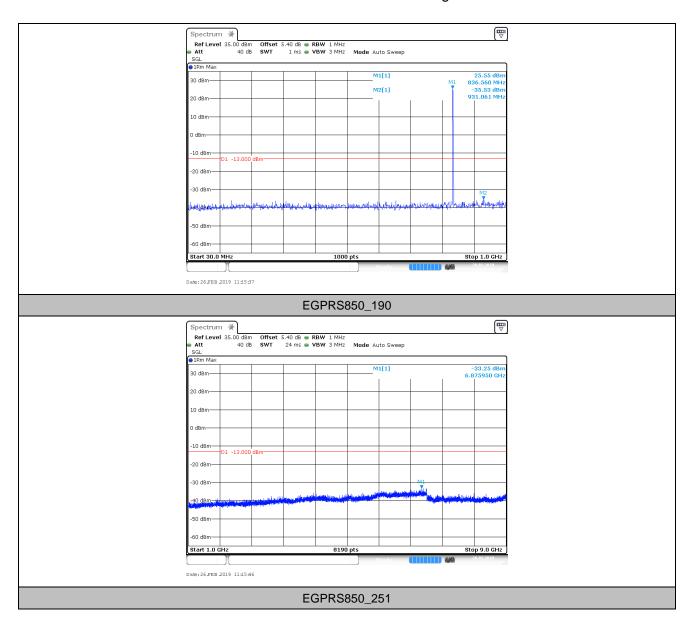
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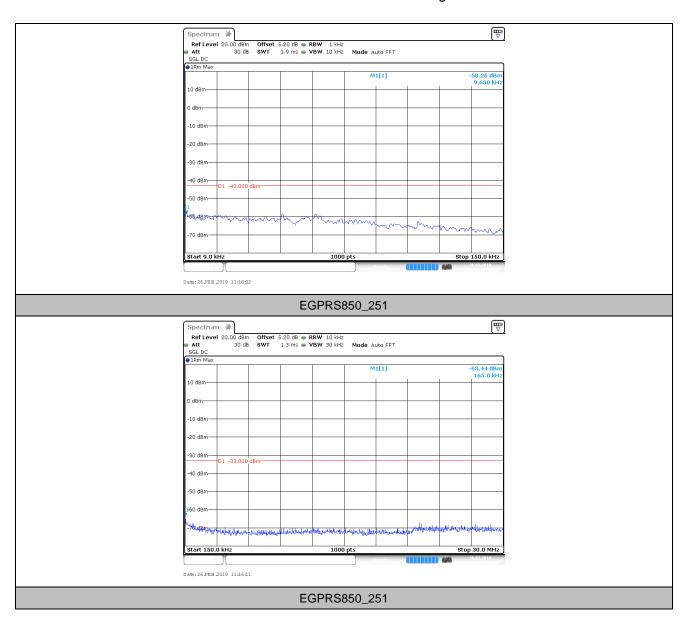


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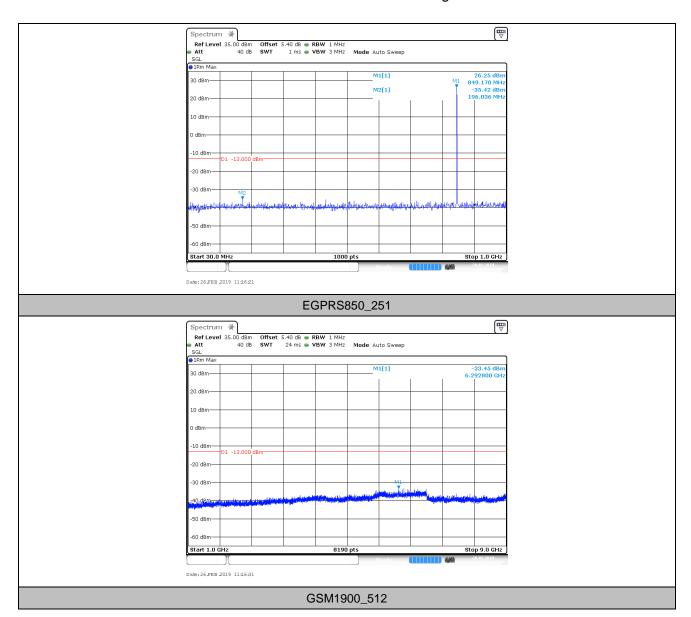






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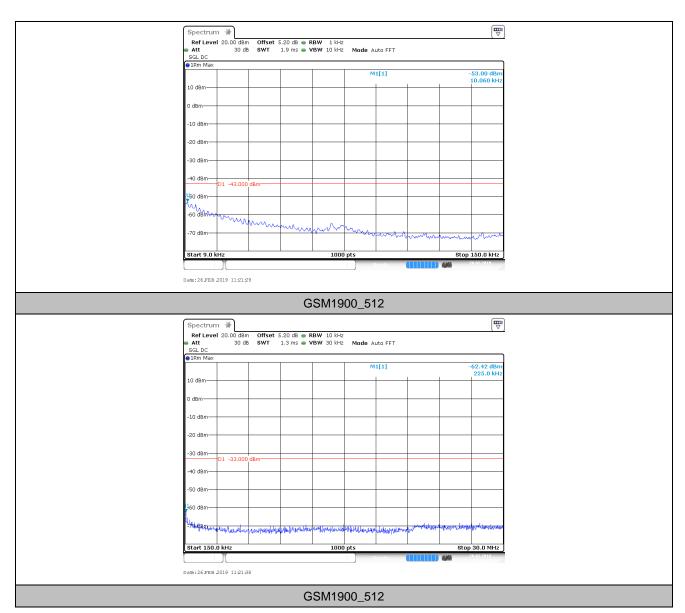






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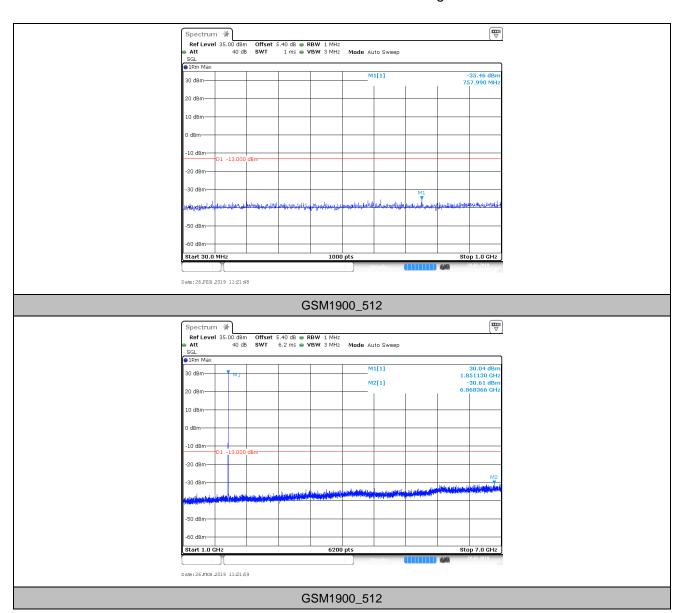






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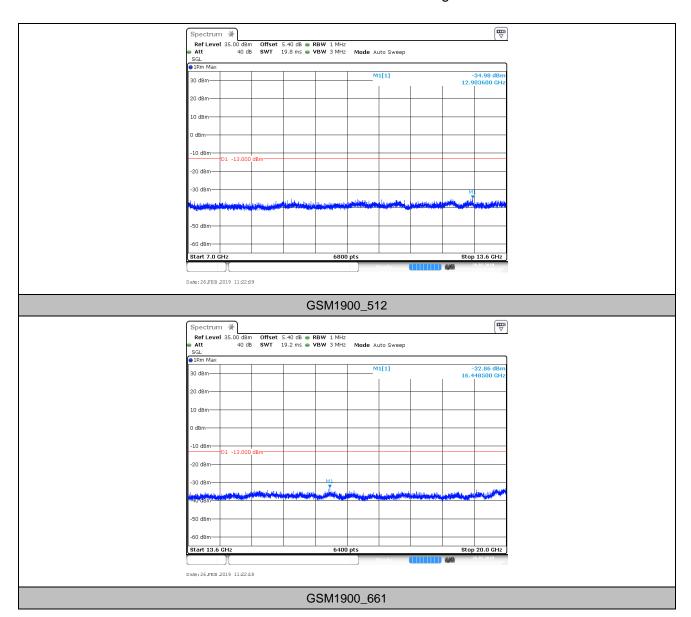






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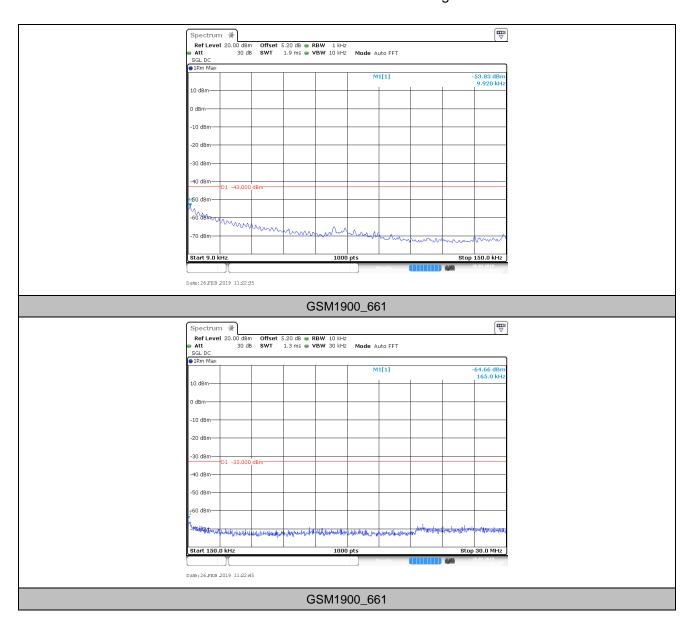
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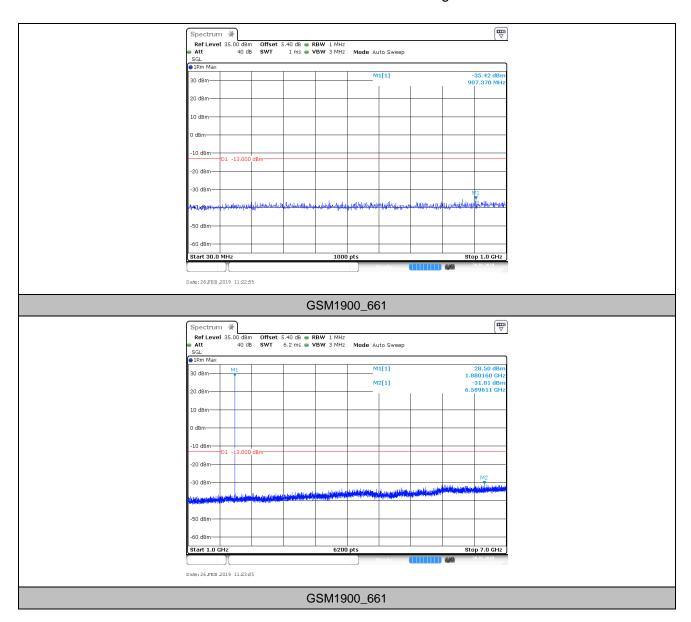






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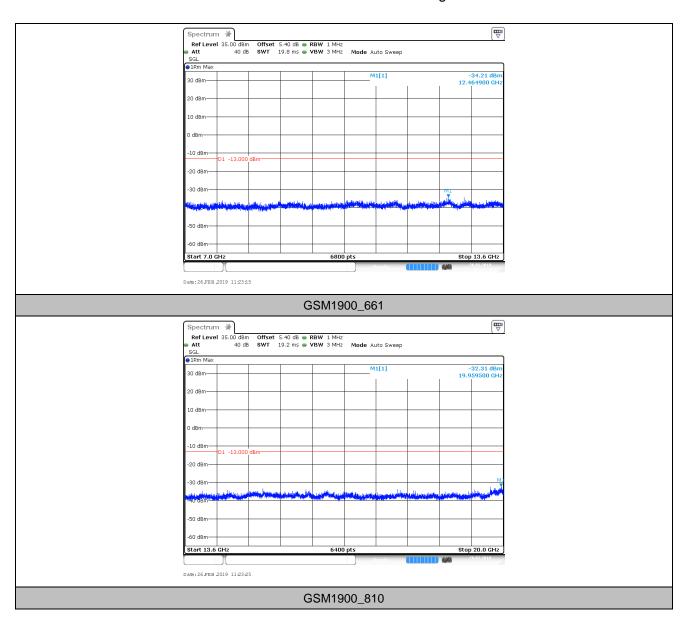






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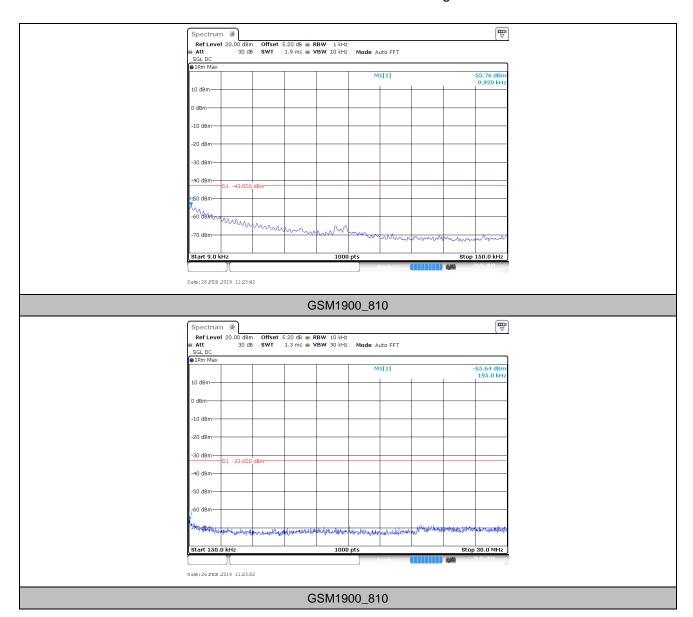
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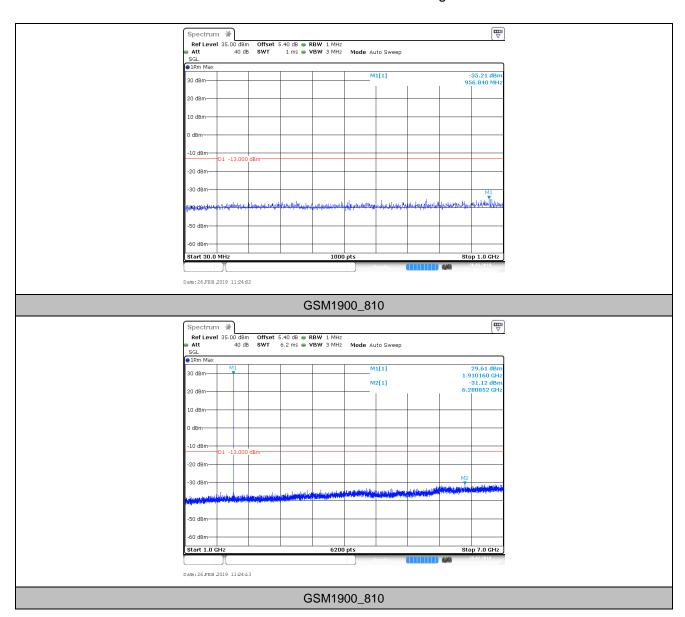






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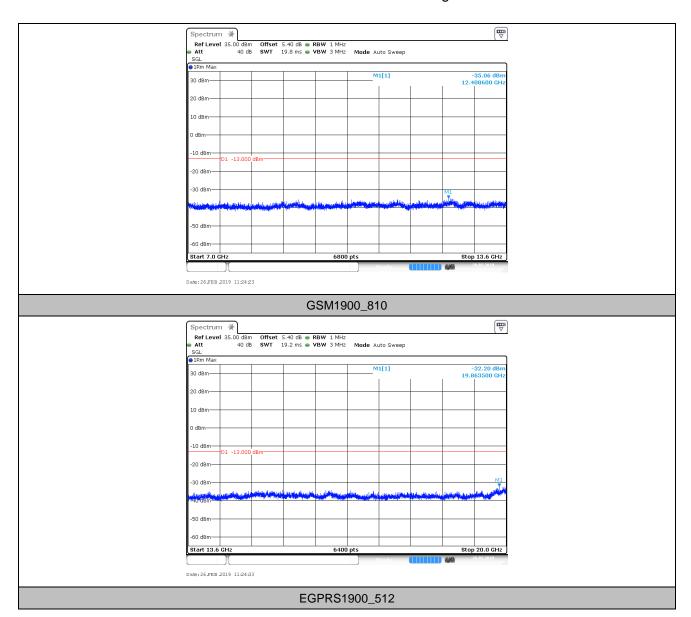






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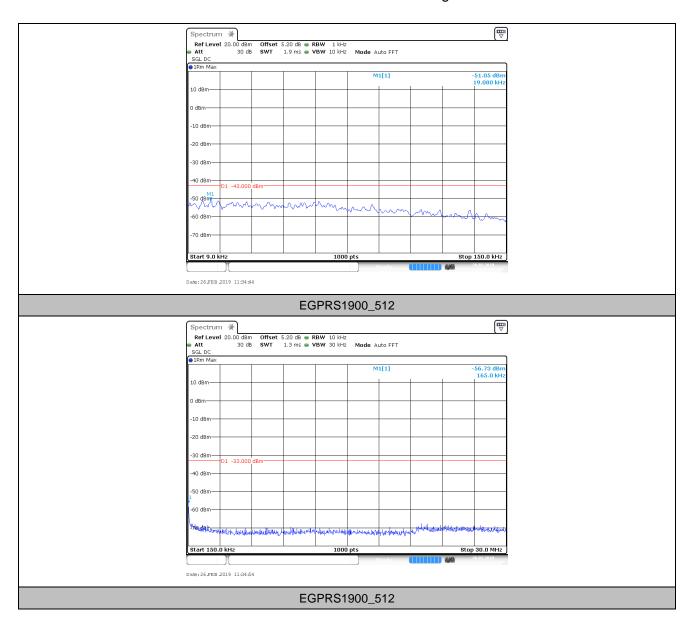


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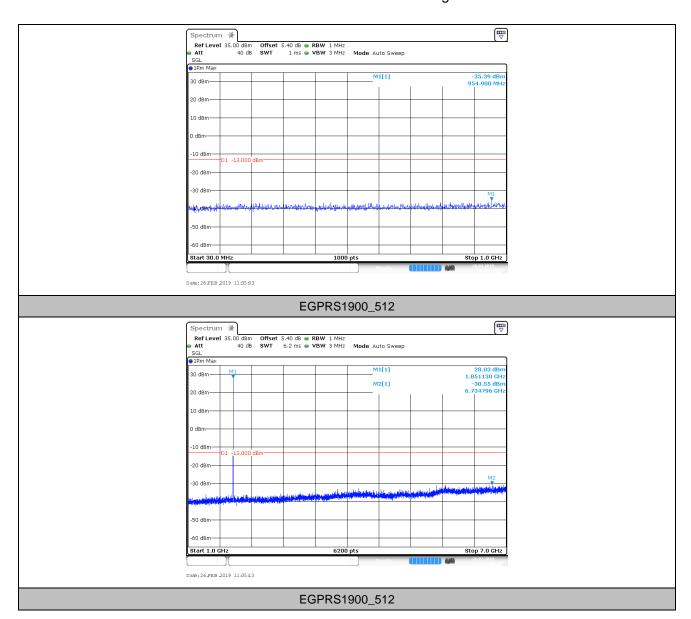
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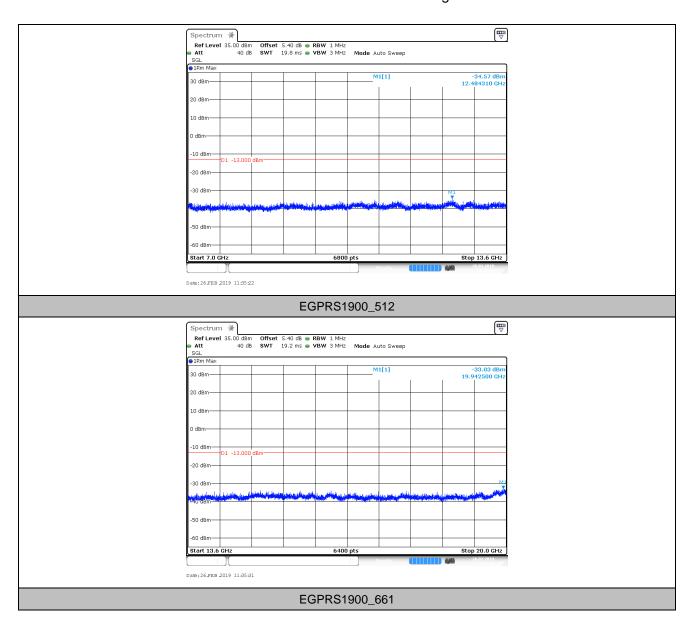
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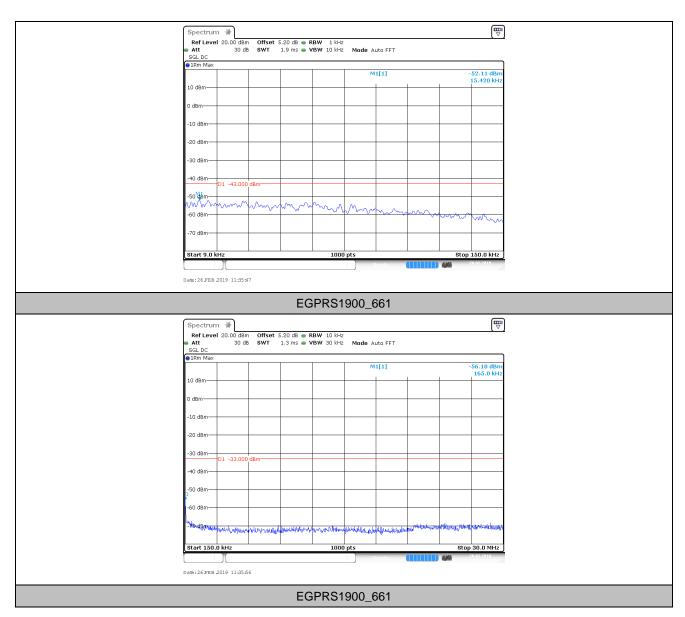
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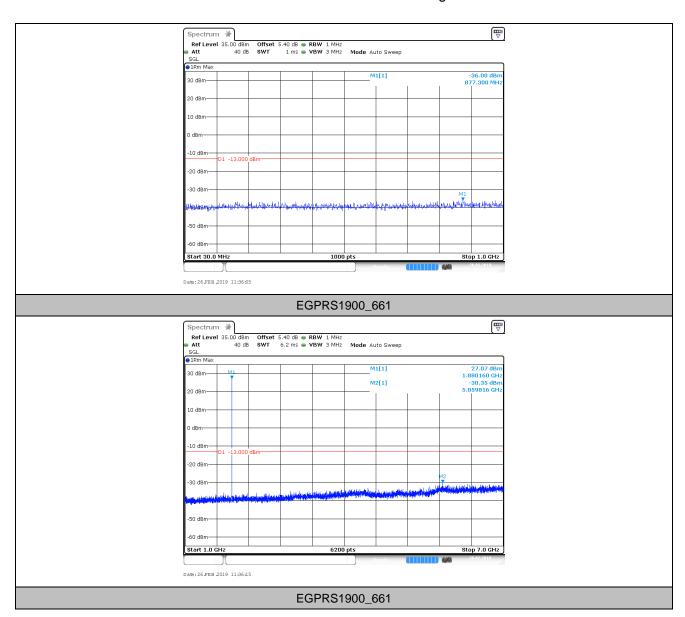






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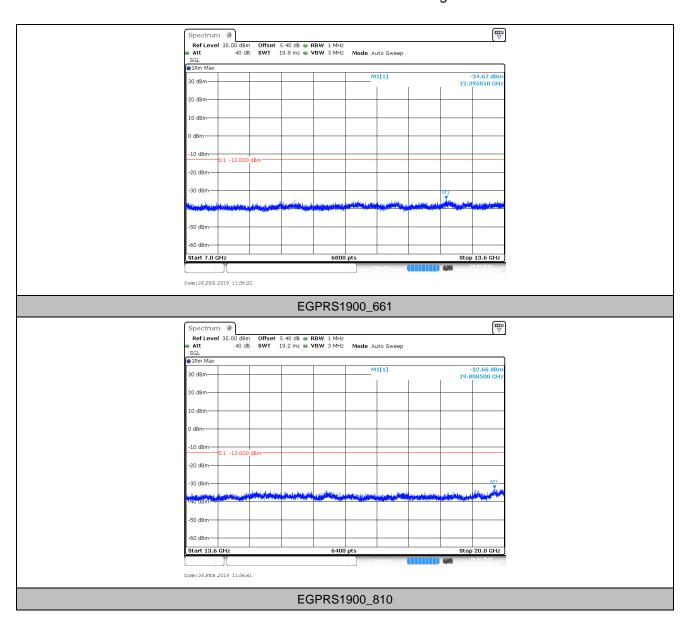






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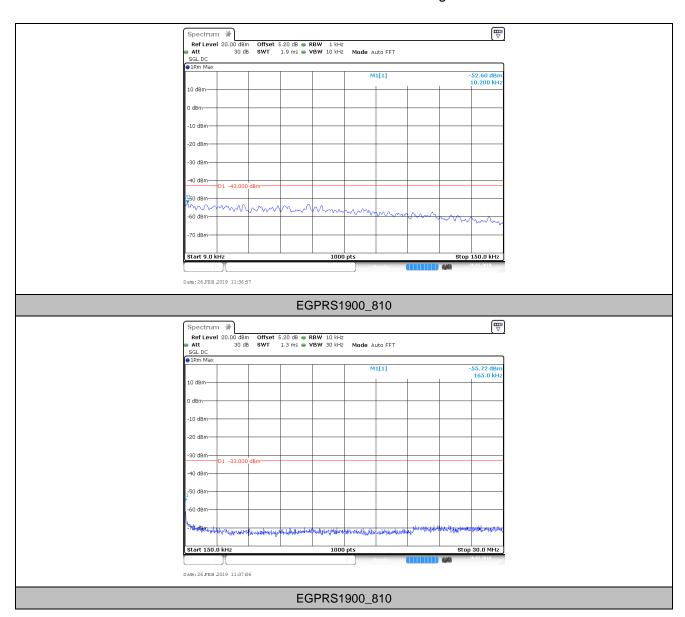


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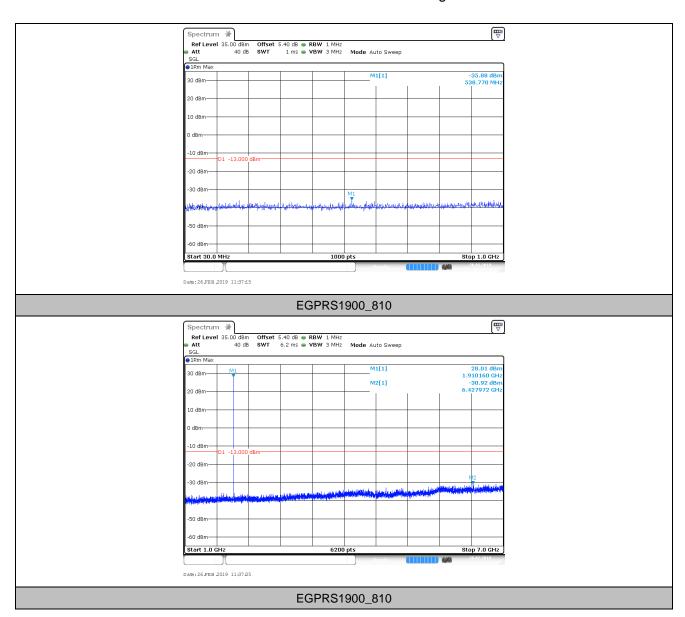
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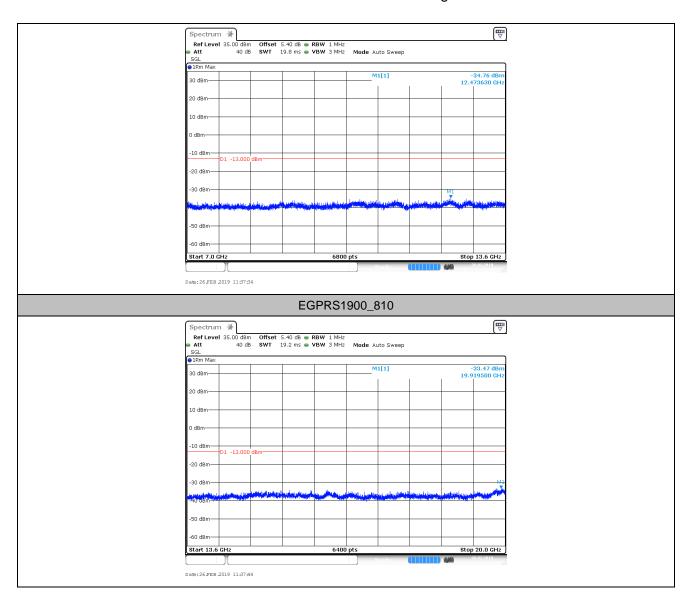
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7. Field Strength of Spurious Radiation

7.1. Test Band = GSM 1900

7.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
48.7704	-70.05	-13.00	57.05	Vertical
111.7751	-64.83	-13.00	51.83	Vertical
1289.6579	-48.42	-13.00	35.42	Vertical
3760.0253	-54.82	-13.00	41.82	Vertical
5640.0880	-40.87	-13.00	27.87	Vertical
17972.4991	-33.06	-13.00	20.06	Vertical
44.8417	-62.49	-13.00	49.49	Horizontal
239.5305	-68.80	-13.00	55.80	Horizontal
1166.0332	-49.22	-13.00	36.22	Horizontal
3760.0253	-46.54	-13.00	33.54	Horizontal
5640.0880	-43.29	-13.00	30.29	Horizontal
17967.9989	-37.78	-13.00	24.78	Horizontal
44.8417	-62.49	-13.00	49.49	Horizontal



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7.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
44.1627	-70.41	-13.00	57.41	Vertical
110.5140	-65.18	-13.00	52.18	Vertical
1122.4245	-49.13	-13.00	36.13	Vertical
3760.0253	-55.62	-13.00	42.62	Vertical
5639.5880	-41.48	-13.00	28.48	Vertical
17990.4997	-32.73	-13.00	19.73	Vertical
45.1813	-65.16	-13.00	52.16	Horizontal
250.0070	-68.56	-13.00	55.56	Horizontal
1205.2410	-48.81	-13.00	35.81	Horizontal
2699.1398	-36.60	-13.00	23.60	Horizontal
5640.0880	-43.39	-13.00	30.39	Horizontal
16395.9465	-38.58	-13.00	25.58	Horizontal

7.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
48.7704	-69.36	-13.00	56.36	Vertical
113.1817	-64.47	-13.00	51.47	Vertical
1233.2466	-48.57	-13.00	35.57	Vertical
3760.0253	-52.56	-13.00	39.56	Vertical
5640.0880	-40.90	-13.00	27.90	Vertical
17990.9997	-32.69	-13.00	19.69	Vertical
44.2112	-64.32	-13.00	51.32	Horizontal
250.1040	-68.05	-13.00	55.05	Horizontal
1224.0448	-48.58	-13.00	35.58	Horizontal
3760.0253	-52.40	-13.00	39.40	Horizontal
5640.0880	-43.63	-13.00	30.63	Horizontal
17997.9999	-37.86	-13.00	24.86	Horizontal



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7.2. Test Band = GSM 850

7.2.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
35.5293	-72.19	-13.00	59.19	Vertical
109.4955	-64.22	-13.00	51.22	Vertical
1648.1296	-29.92	-13.00	16.92	Vertical
2473.0946	-48.29	-13.00	35.29	Vertical
3297.0099	-54.27	-13.00	41.27	Vertical
17990.4997	-31.72	-13.00	18.72	Vertical
42.5136	-64.00	-13.00	51.00	Horizontal
235.0683	-67.82	-13.00	54.82	Horizontal
1648.1296	-36.81	-13.00	23.81	Horizontal
2472.6945	-38.38	-13.00	25.38	Horizontal
3297.0099	-55.65	-13.00	42.65	Horizontal
16388.4463	-37.18	-13.00	24.18	Horizontal

7.2.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
113.4727	-63.52	-13.00	50.52	Vertical
418.8439	-63.40	-13.00	50.40	Vertical
1673.3347	-29.42	-13.00	16.42	Vertical
2509.9020	-47.97	-13.00	34.97	Vertical
3346.5116	-52.52	-13.00	39.52	Vertical
17993.9998	-32.00	-13.00	19.00	Vertical
44.2112	-64.23	-13.00	51.23	Horizontal
551.2556	-63.85	-13.00	50.85	Horizontal
1673.3347	-35.53	-13.00	22.53	Horizontal
2510.7021	-41.80	-13.00	28.80	Horizontal
3346.5116	-53.02	-13.00	40.02	Horizontal
17994.4998	-36.58	-13.00	23.58	Horizontal



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7.2.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
47.7519	-72.27	-13.00	59.27	Vertical
120.3600	-63.63	-13.00	50.63	Vertical
631.0421	-62.42	-13.00	49.42	Vertical
1697.7395	-31.01	-13.00	18.01	Vertical
2546.3093	-48.91	-13.00	35.91	Vertical
17995.4999	-31.54	-13.00	18.54	Vertical
43.5322	-64.02	-13.00	51.02	Horizontal
232.5461	-66.59	-13.00	53.59	Horizontal
1697.7395	-36.24	-13.00	23.24	Horizontal
2546.7093	-45.39	-13.00	32.39	Horizontal
3395.0132	-52.17	-13.00	39.17	Horizontal
17033.9678	-37.69	-13.00	24.69	Horizontal

Remark:

- 1) The disturbance above 12.75GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the worst case data had been displayed.
- 2) We have tested all modulation and all Bandwidth , but only the worst case data presented in this report.



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8. Frequency Stability

8.1. Frequency Error Vs Voltage

				Voltage			
BAND	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	TN	9.43	0.011438	±2.5	PASS
GSM850	128	VN	TN	3.20	0.003878	±2.5	PASS
GSM850	128	VH	TN	6.81	0.008265	±2.5	PASS
GSM850	190	VL	TN	5.20	0.006213	±2.5	PASS
GSM850	190	VN	TN	2.97	0.003550	±2.5	PASS
GSM850	190	VH	TN	5.68	0.006792	±2.5	PASS
GSM850	251	VL	TN	8.23	0.009699	±2.5	PASS
GSM850	251	VN	TN	8.10	0.009547	±2.5	PASS
GSM850	251	VH	TN	2.87	0.003385	±2.5	PASS
EGPRS850	128	VL	TN	19.21	0.023308	±2.5	PASS
EGPRS850	128	VN	TN	19.86	0.024091	±2.5	PASS
EGPRS850	128	VH	TN	20.76	0.025188	±2.5	PASS
EGPRS850	190	VL	TN	20.89	0.024969	±2.5	PASS
EGPRS850	190	VN	TN	20.21	0.024158	±2.5	PASS
EGPRS850	190	VH	TN	22.63	0.027053	±2.5	PASS
EGPRS850	251	VL	TN	20.95	0.024686	±2.5	PASS
EGPRS850	251	VN	TN	21.18	0.024952	±2.5	PASS
EGPRS850	251	VH	TN	20.08	0.023659	±2.5	PASS
GSM1900	512	VL	TN	0.87	0.000471	±2.5	PASS
GSM1900	512	VN	TN	-0.10	-0.000052	±2.5	PASS
GSM1900	512	VH	TN	-2.94	-0.001588	±2.5	PASS
GSM1900	661	VL	TN	-4.29	-0.002284	±2.5	PASS
GSM1900	661	VN	TN	-7.68	-0.004087	±2.5	PASS
GSM1900	661	VH	TN	0.36	0.000189	±2.5	PASS
GSM1900	810	VL	TN	-3.97	-0.002079	±2.5	PASS
GSM1900	810	VN	TN	-2.55	-0.001336	±2.5	PASS
GSM1900	810	VH	TN	0.32	0.000169	±2.5	PASS

8.2. Frequency Error Vs Temperature

	Temperature								
BAND	Chann el	Voltage (Vdc)	Temperature (°ℂ)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict		
GSM850	128	VN	-30	0.71	0.000862	±2.5	PASS		
GSM850	128	VN	-20	3.49	0.004231	±2.5	PASS		
GSM850	128	VN	-10	5.46	0.006620	±2.5	PASS		
GSM850	128	VN	0	9.01	0.010929	±2.5	PASS		
GSM850	128	VN	10	4.33	0.005249	±2.5	PASS		
GSM850	128	VN	20	10.14	0.012300	±2.5	PASS		
GSM850	128	VN	30	9.14	0.011086	±2.5	PASS		



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GSM850	128	VN	40	2.13	0.002585	±2.5	PASS
GSM850	128	VN	50	4.55	0.005523	±2.5	PASS
GSM850	190	VN	-30	0.26	0.000309	±2.5	PASS
GSM850	190	VN	-20	3.68	0.004399	±2.5	PASS
GSM850	190	VN	-10	3.13	0.003743	±2.5	PASS
GSM850	190	VN	0	2.87	0.003435	±2.5	PASS
GSM850	190	VN	10	6.30	0.007525	±2.5	PASS
GSM850	190	VN	20	3.97	0.004747	±2.5	PASS
GSM850	190	VN	30	3.16	0.003782	±2.5	PASS
GSM850	190	VN	40	2.16	0.002586	±2.5	PASS
GSM850	190	VN	50	3.03	0.003628	±2.5	PASS
GSM850	251	VN	-30	6.26	0.007379	±2.5	PASS
GSM850	251	VN	-20	1.78	0.002092	±2.5	PASS
GSM850	251	VN	-10	2.84	0.003347	±2.5	PASS
GSM850	251	VN	0	6.59	0.007760	±2.5	PASS
GSM850	251	VN	10	6.13	0.007227	±2.5	PASS
GSM850	251	VN	20	2.52	0.002967	±2.5	PASS
GSM850	251	VN	30	2.00	0.002358	±2.5	PASS
GSM850	251	VN	40	2.71	0.003195	±2.5	PASS
GSM850	251	VN	50	4.75	0.005591	±2.5	PASS
EGPRS850	128	VN	-30	21.73	0.026363	±2.5	PASS
EGPRS850	128	VN	-20	22.86	0.027734	±2.5	PASS
EGPRS850	128	VN	-10	21.44	0.026010	±2.5	PASS
EGPRS850	128	VN	0	20.37	0.024718	±2.5	PASS
EGPRS850	128	VN	10	21.50	0.026089	±2.5	PASS
EGPRS850	128	VN	20	20.99	0.025462	±2.5	PASS
EGPRS850	128	VN	30	22.05	0.026755	±2.5	PASS
EGPRS850	128	VN	40	19.79	0.024013	±2.5	PASS
EGPRS850	128	VN	50	20.66	0.025070	±2.5	PASS
EGPRS850	190	VN	-30	20.50	0.024506	±2.5	PASS
EGPRS850	190	VN	-20	19.89	0.023773	±2.5	PASS
EGPRS850	190	VN	-10	19.60	0.023425	±2.5	PASS
EGPRS850	190	VN	0	22.86	0.027323	±2.5	PASS
EGPRS850	190	VN	10	19.08	0.022808	±2.5	PASS
EGPRS850	190	VN	20	20.24	0.024197	±2.5	PASS
EGPRS850	190	VN	30	20.24	0.024197	±2.5	PASS
EGPRS850	190	VN	40	19.82	0.023695	±2.5	PASS
EGPRS850	190	VN	50	18.79	0.022460	±2.5	PASS
EGPRS850	251	VN	-30	18.47	0.021757	±2.5	PASS
EGPRS850	251	VN	-20	19.63	0.023127	±2.5	PASS
EGPRS850	251	VN	-10	22.44	0.026436	±2.5	PASS
EGPRS850	251	VN	0	19.60	0.023088	±2.5	PASS
EGPRS850	251	VN	10	18.92	0.022290	±2.5	PASS
EGPRS850	251	VN	20	19.60	0.023088	±2.5	PASS
EGPRS850	251	VN	30	20.24	0.023849	±2.5	PASS
EGPRS850	251	VN	40	19.63	0.023127	±2.5	PASS
EGPRS850	251	VN	50	18.27	0.021529	±2.5	PASS
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	1		T	1		1	
GSM1900	512	VN	-30	-0.26	-0.000140	±2.5	PASS
GSM1900	512	VN	-20	-5.94	-0.003211	±2.5	PASS
GSM1900	512	VN	-10	4.71	0.002548	±2.5	PASS
GSM1900	512	VN	0	3.55	0.001919	±2.5	PASS
GSM1900	512	VN	10	-2.58	-0.001396	±2.5	PASS
GSM1900	512	VN	20	-1.71	-0.000925	±2.5	PASS
GSM1900	512	VN	30	-2.68	-0.001448	±2.5	PASS
GSM1900	512	VN	40	-3.03	-0.001640	±2.5	PASS
GSM1900	512	VN	50	-1.81	-0.000977	±2.5	PASS
GSM1900	661	VN	-30	3.16	0.001683	±2.5	PASS
GSM1900	661	VN	-20	0.42	0.000223	±2.5	PASS
GSM1900	661	VN	-10	-0.52	-0.000275	±2.5	PASS
GSM1900	661	VN	0	-1.61	-0.000859	±2.5	PASS
GSM1900	661	VN	10	-0.48	-0.000258	±2.5	PASS
GSM1900	661	VN	20	-0.58	-0.000309	±2.5	PASS
GSM1900	661	VN	30	-2.29	-0.001219	±2.5	PASS
GSM1900	661	VN	40	-4.49	-0.002387	±2.5	PASS
GSM1900	661	VN	50	-1.97	-0.001048	±2.5	PASS
GSM1900	810	VN	-30	-0.23	-0.000118	±2.5	PASS
GSM1900	810	VN	-20	-3.84	-0.002012	±2.5	PASS
GSM1900	810	VN	-10	-1.78	-0.000930	±2.5	PASS
GSM1900	810	VN	0	-6.30	-0.003297	±2.5	PASS
GSM1900	810	VN	10	-1.23	-0.000642	±2.5	PASS
GSM1900	810	VN	20	-5.55	-0.002908	±2.5	PASS
GSM1900	810	VN	30	-3.10	-0.001623	±2.5	PASS
GSM1900	810	VN	40	-3.91	-0.002046	±2.5	PASS
GSM1900	810	VN	50	-7.17	-0.003753	±2.5	PASS

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