



Appendix B

GSM 850 & 1900



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1. Effective (Isotropic) Radiated Power Output Data

1.1. Test Result

Down Antenna:

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.12	29.37	38.45	PASS
GSM850	190	---	32.21	29.46	38.45	PASS
GSM850	251	---	32.43	29.68	38.45	PASS
EGPRS850	128	1	27.27	24.52	38.45	PASS
EGPRS850	128	2	24.42	21.67	38.45	PASS
EGPRS850	128	3	22.46	19.71	38.45	PASS
EGPRS850	128	4	20.84	18.09	38.45	PASS
EGPRS850	190	1	27.47	24.72	38.45	PASS
EGPRS850	190	2	24.58	21.83	38.45	PASS
EGPRS850	190	3	22.62	19.87	38.45	PASS
EGPRS850	190	4	21.10	18.35	38.45	PASS
EGPRS850	251	1	27.57	24.82	38.45	PASS
EGPRS850	251	2	24.68	21.93	38.45	PASS
EGPRS850	251	3	22.56	19.81	38.45	PASS
EGPRS850	251	4	21.17	18.42	38.45	PASS

Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	29.89	24.49	33.00	PASS
GSM1900	661	---	29.83	24.43	33.00	PASS
GSM1900	810	---	29.75	24.35	33.00	PASS
EGPRS1900	512	1	26.09	20.69	33.00	PASS
EGPRS1900	512	2	24.03	18.63	33.00	PASS
EGPRS1900	512	3	21.72	16.32	33.00	PASS
EGPRS1900	512	4	20.74	15.34	33.00	PASS
EGPRS1900	661	1	25.82	20.42	33.00	PASS
EGPRS1900	661	2	23.65	18.25	33.00	PASS
EGPRS1900	661	3	21.42	16.02	33.00	PASS
EGPRS1900	661	4	20.51	15.11	33.00	PASS
EGPRS1900	810	1	25.64	20.24	33.00	PASS
EGPRS1900	810	2	23.25	17.85	33.00	PASS
EGPRS1900	810	3	21.15	15.75	33.00	PASS
EGPRS1900	810	4	20.12	14.72	33.00	PASS



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Up Antenna:

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.18	24.73	38.45	PASS
GSM850	190	---	32.30	24.85	38.45	PASS
GSM850	251	---	32.52	25.07	38.45	PASS
EGPRS850	128	1	27.05	19.6	38.45	PASS
EGPRS850	128	2	24.05	16.6	38.45	PASS
EGPRS850	128	3	22.07	14.62	38.45	PASS
EGPRS850	128	4	20.42	12.97	38.45	PASS
EGPRS850	190	1	27.28	19.83	38.45	PASS
EGPRS850	190	2	24.32	16.87	38.45	PASS
EGPRS850	190	3	22.21	14.76	38.45	PASS
EGPRS850	190	4	20.61	13.16	38.45	PASS
EGPRS850	251	1	27.34	19.89	38.45	PASS
EGPRS850	251	2	24.48	17.03	38.45	PASS
EGPRS850	251	3	22.27	14.82	38.45	PASS
EGPRS850	251	4	20.82	13.37	38.45	PASS

Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	29.40	26.3	33.00	PASS
GSM1900	661	---	29.36	26.26	33.00	PASS
GSM1900	810	---	29.26	26.16	33.00	PASS
EGPRS1900	512	1	25.60	22.5	33.00	PASS
EGPRS1900	512	2	23.38	20.28	33.00	PASS
EGPRS1900	512	3	20.95	17.85	33.00	PASS
EGPRS1900	512	4	19.41	16.31	33.00	PASS
EGPRS1900	661	1	25.10	22	33.00	PASS
EGPRS1900	661	2	22.94	19.84	33.00	PASS
EGPRS1900	661	3	20.62	17.52	33.00	PASS
EGPRS1900	661	4	19.33	16.23	33.00	PASS
EGPRS1900	810	1	25.11	22.01	33.00	PASS
EGPRS1900	810	2	22.74	19.64	33.00	PASS
EGPRS1900	810	3	20.42	17.32	33.00	PASS
EGPRS1900	810	4	19.34	16.24	33.00	PASS

Remark:

a: For getting the EIRP (Efficient Isotropic 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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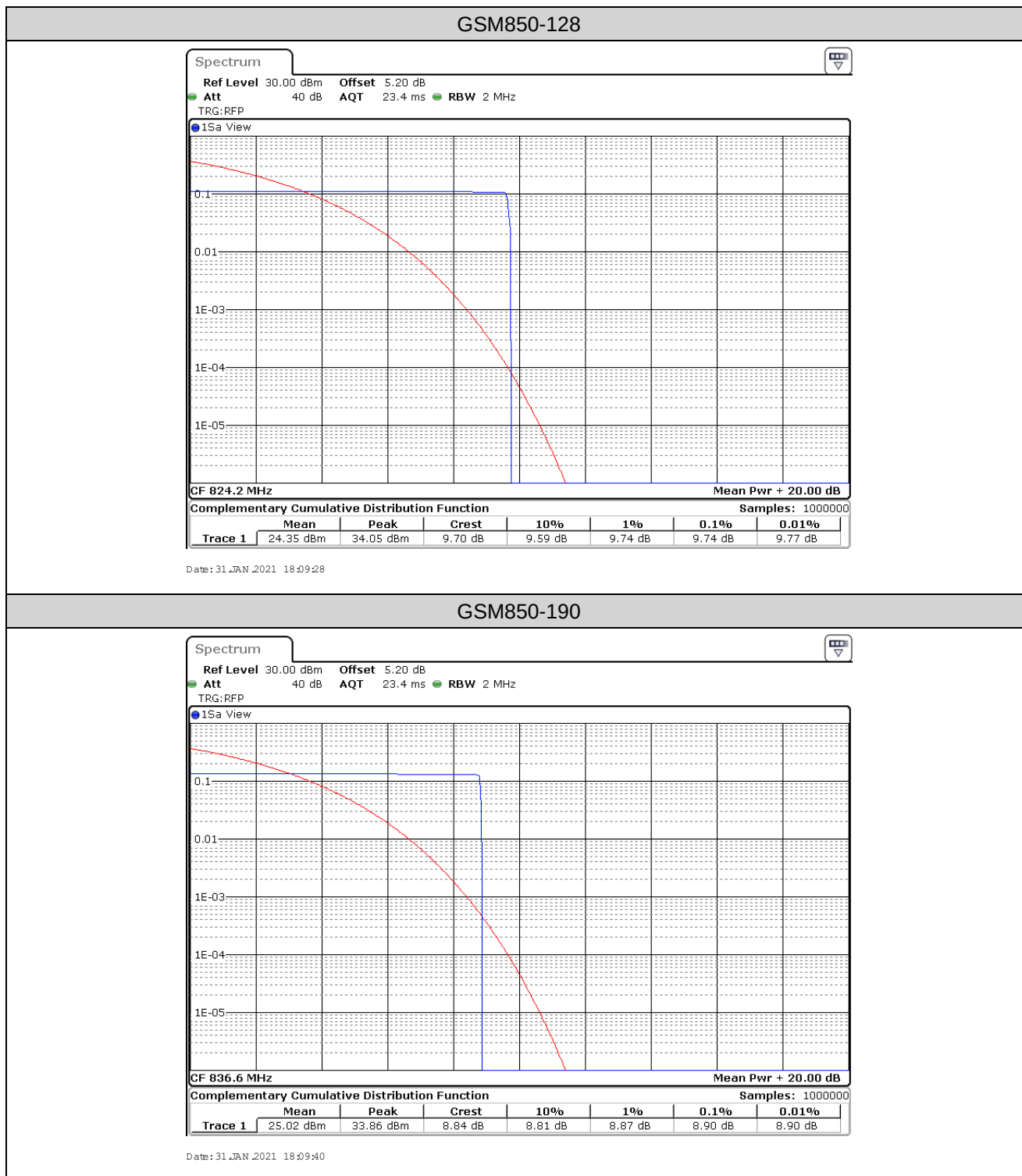
2. Peak-to-Average Ratio

2.1. Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM850	128	9.74	13	PASS
GSM850	190	8.9	13	PASS
GSM850	251	9.74	13	PASS
EGPRS850	128	12.12	13	PASS
EGPRS850	190	11.97	13	PASS
EGPRS850	251	12	13	PASS
GSM1900	512	8.96	13	PASS
GSM1900	661	9.8	13	PASS
GSM1900	810	8.93	13	PASS
EGPRS1900	512	11.97	13	PASS
EGPRS1900	661	12.06	13	PASS
EGPRS1900	810	11.77	13	PASS



2.2.Part II - Test Plots

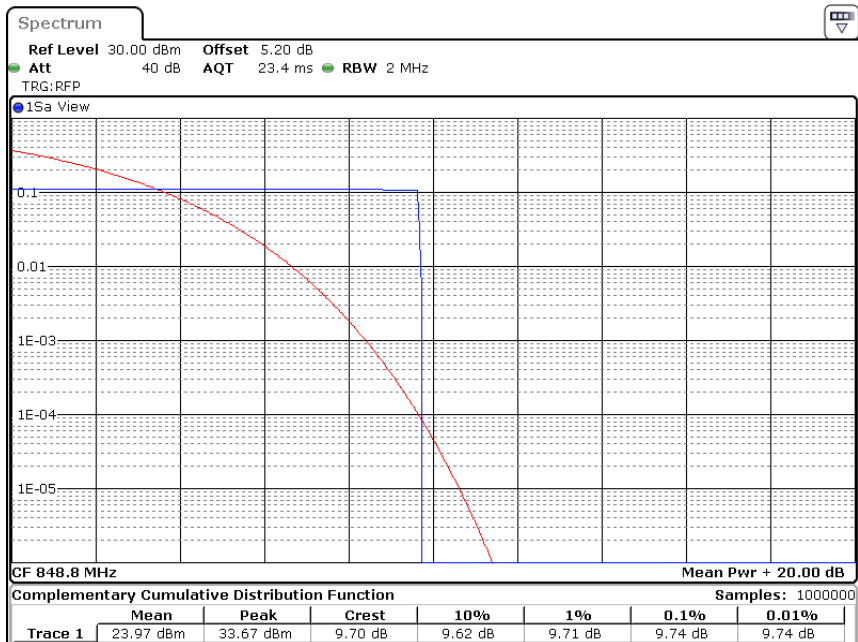


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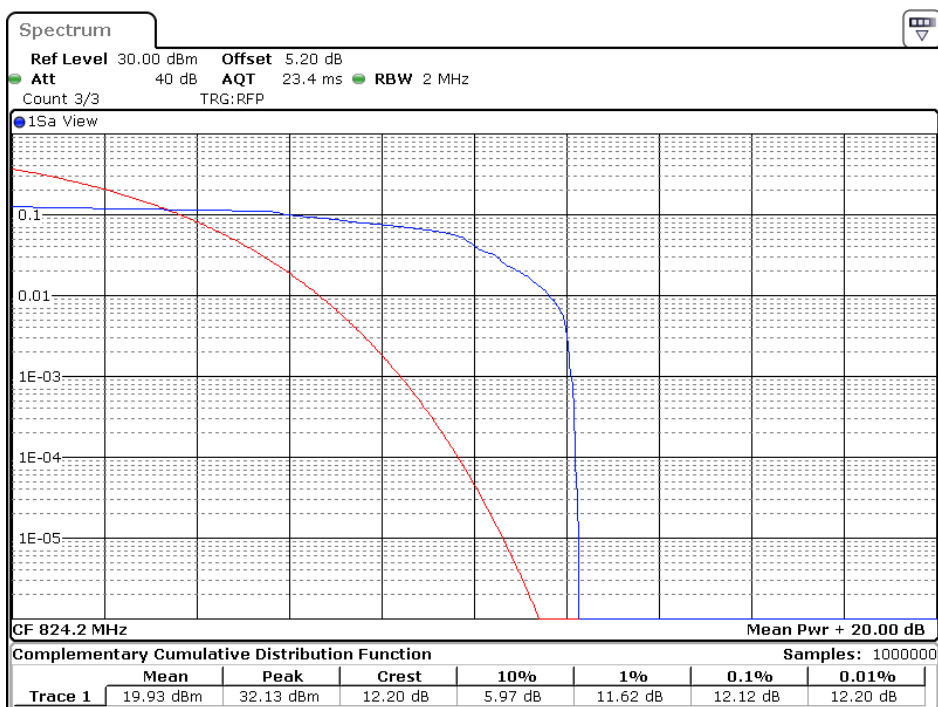
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GSM850-251



Date: 31 JAN 2021 18:09:52

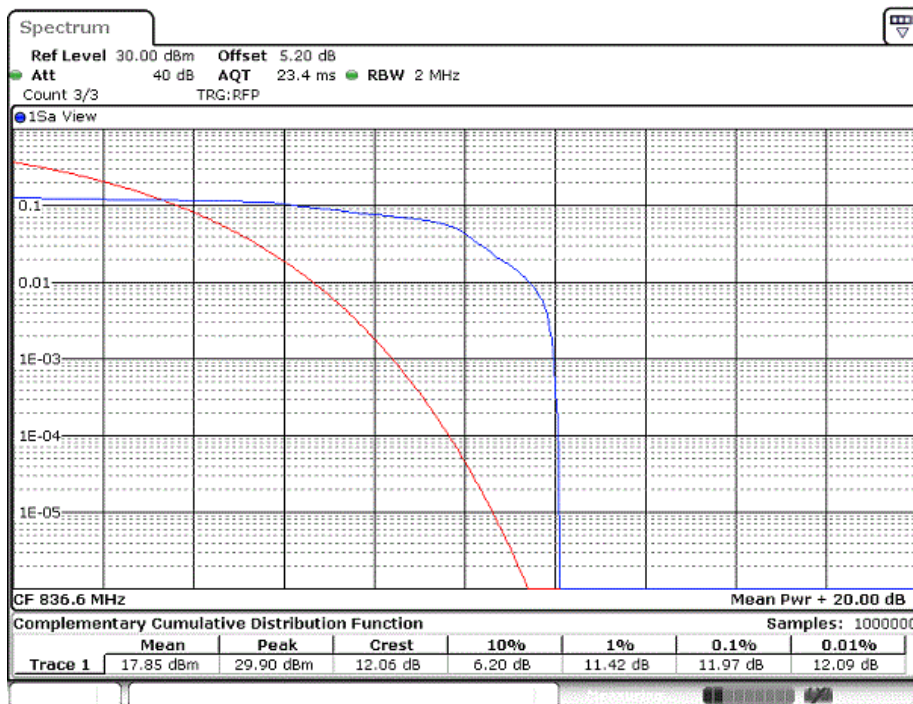
EGPRS850-128



Date: 31 JAN 2021 18:20:05

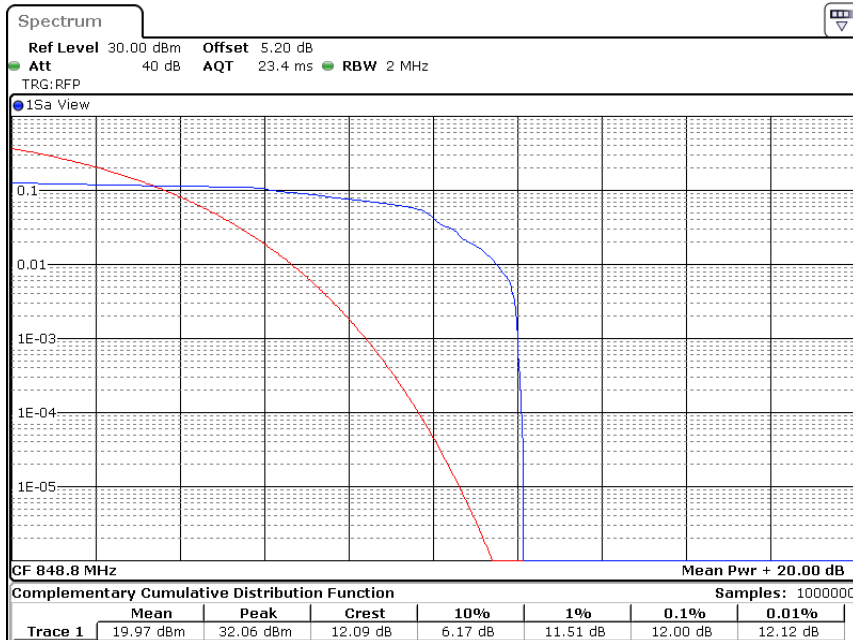


EGPRS850-190



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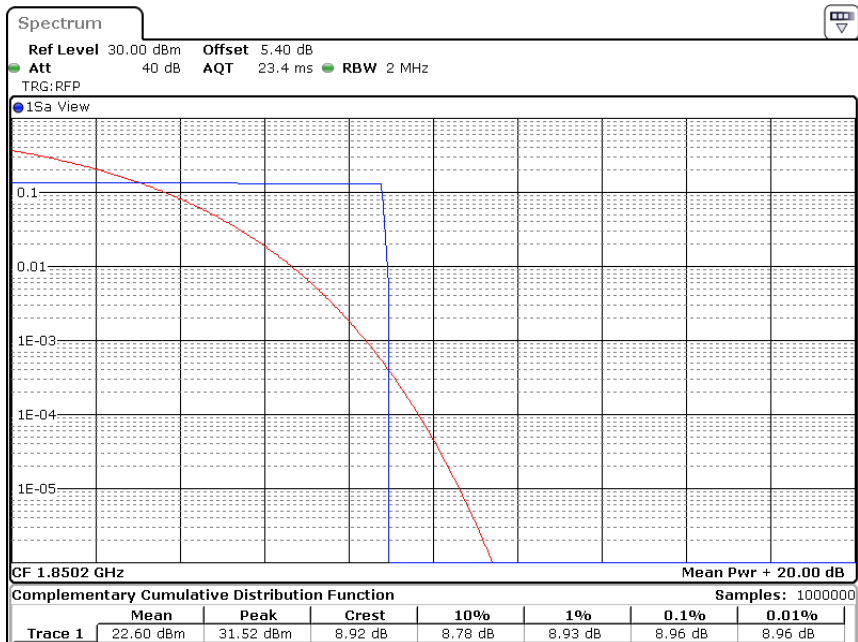
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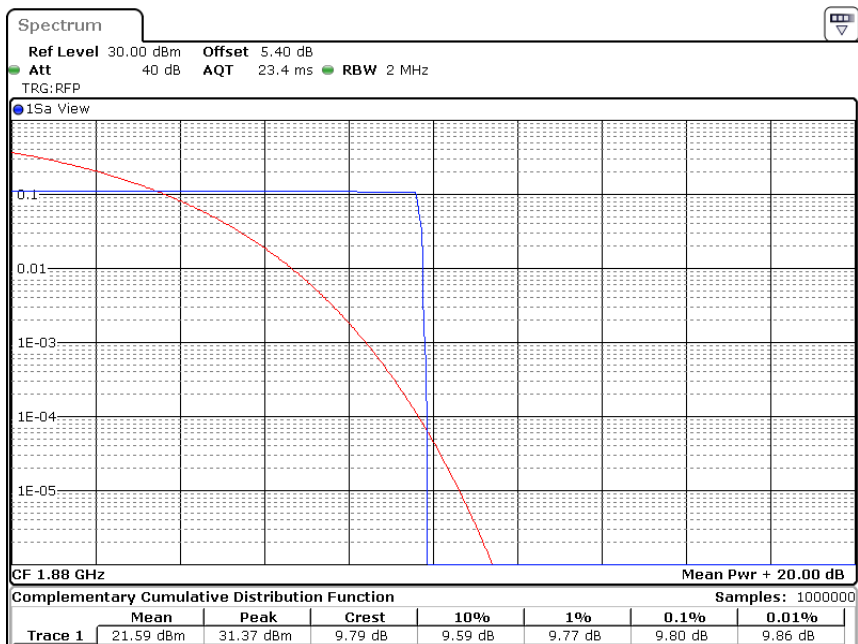


GSM1900-512



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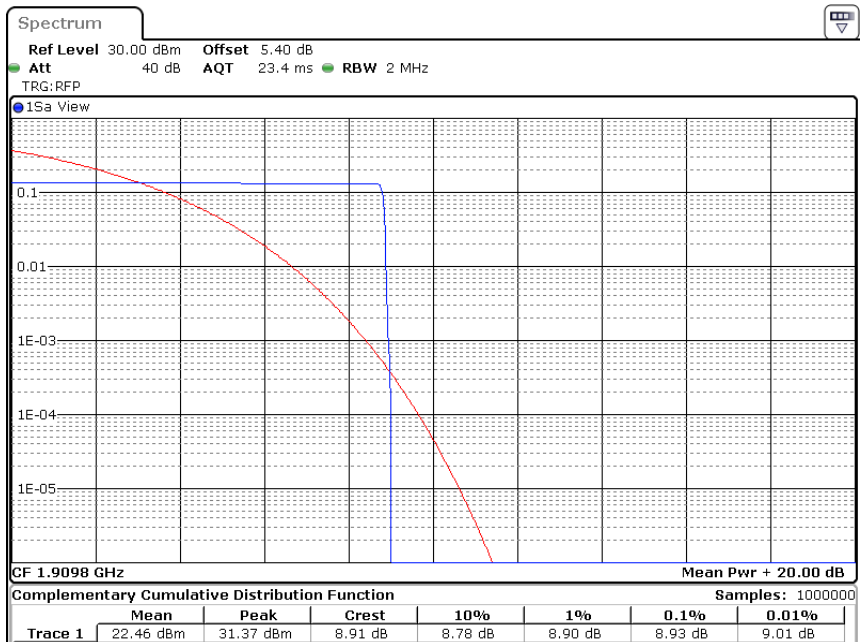
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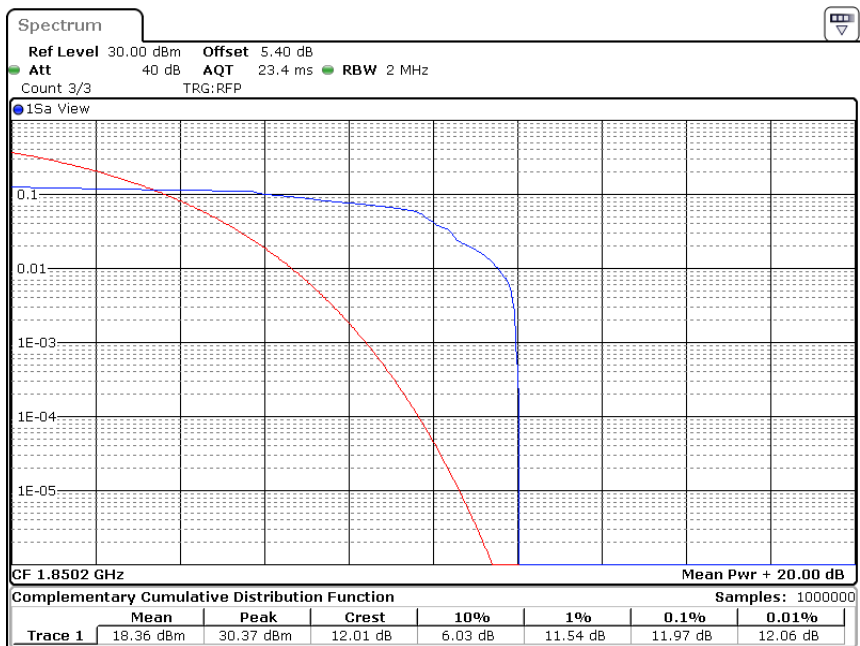


GSM1900-810



Date: 31 JAN 2021 17:44:42

EGPRS1900-512



Date: 31 JAN 2021 17:50:00



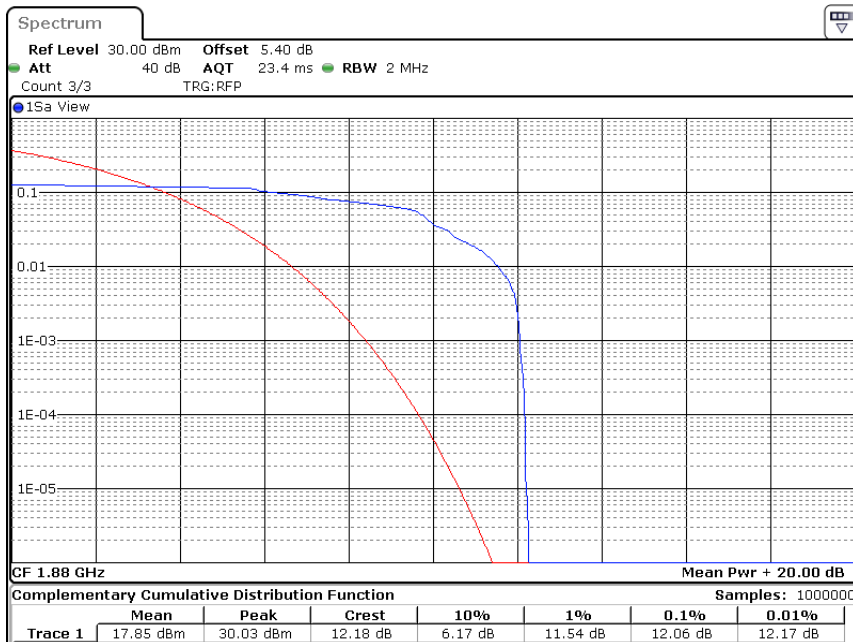
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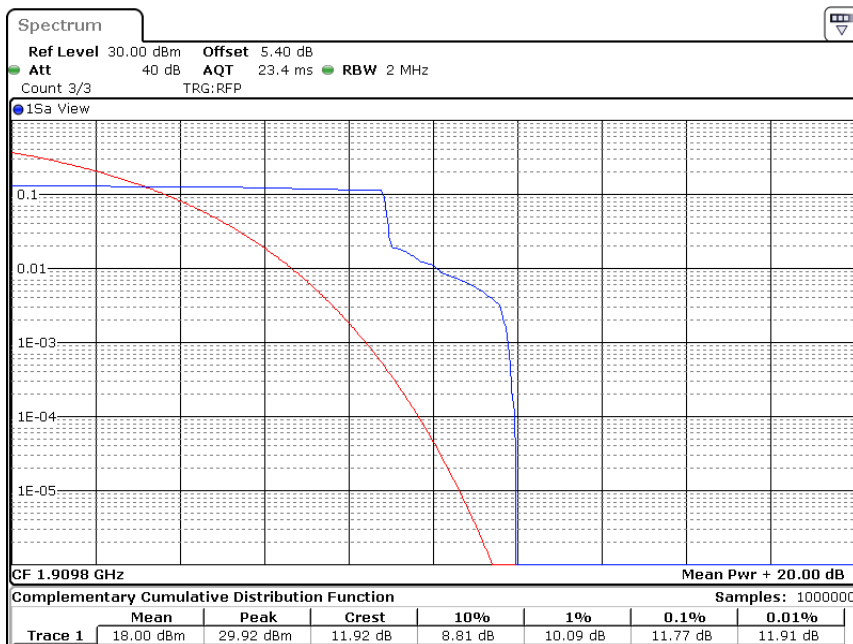
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EGPRS1900-661



Date: 31 JAN 2021 17:50:13

EGPRS1900-810



Date: 31 JAN 2021 17:50:25



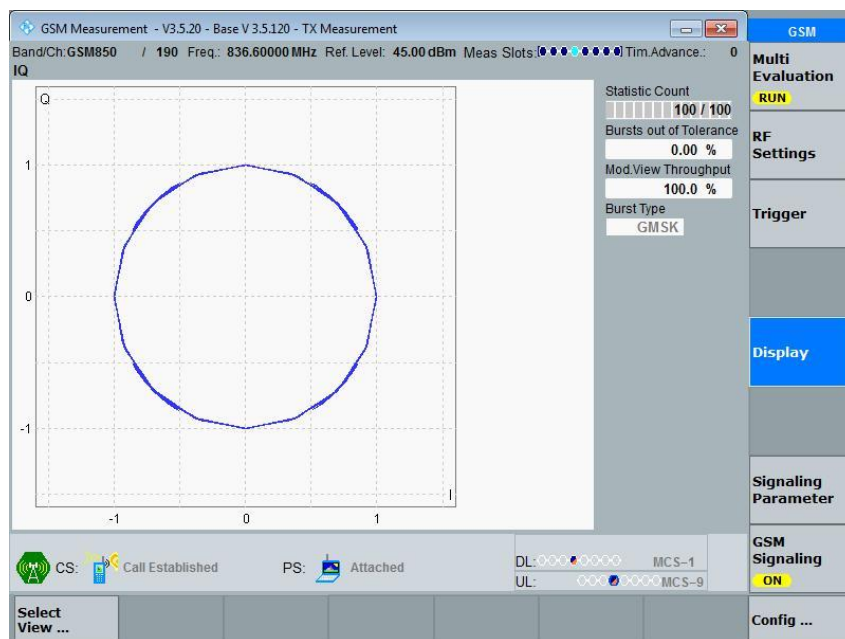
3. Modulation Characteristics

3.1. For GSM

3.1.1. Test Band = GSM 850

3.1.1.1. Test Mode = GSM/TM1

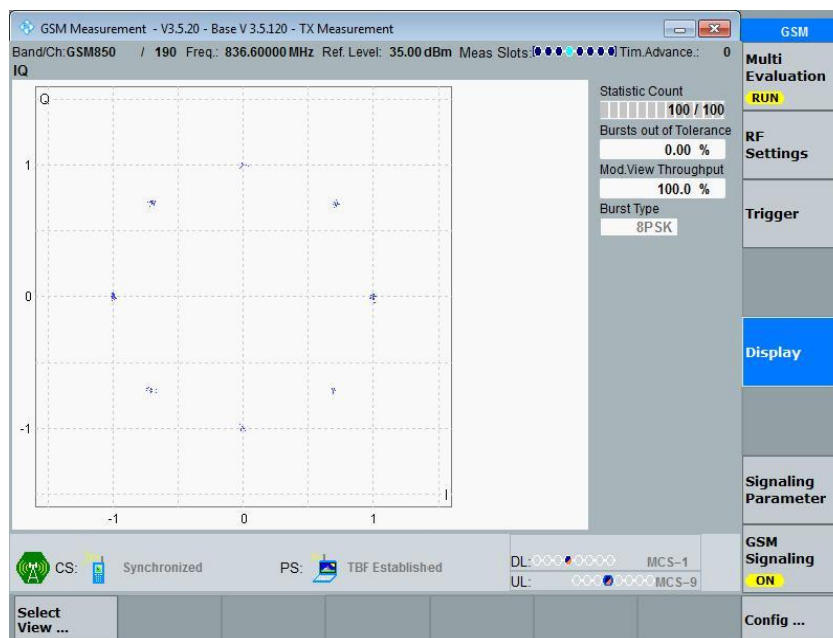
3.1.1.1.1. Test Channel = MCH





3.1.1.2. Test Mode = GSM/TM2

3.1.1.2.1. Test Channel = MCH



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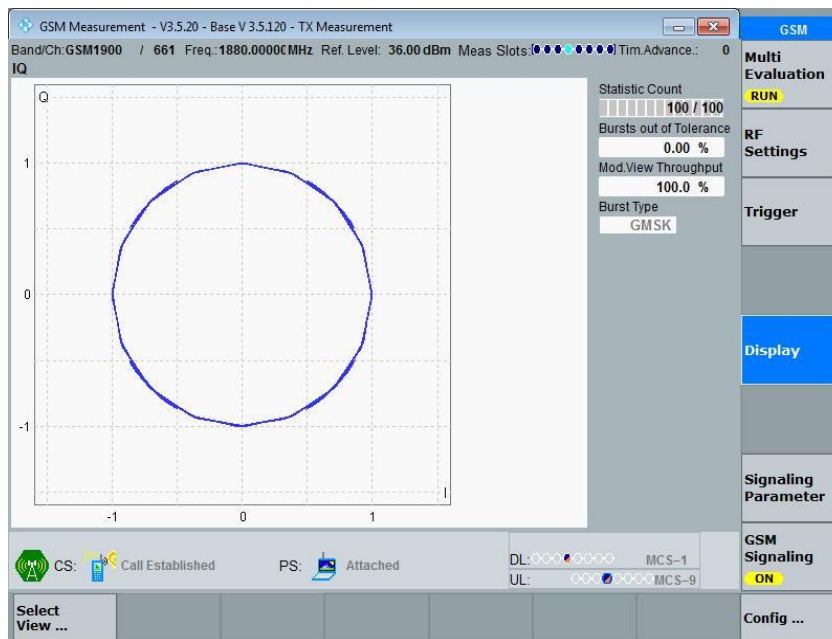
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3.1.2. Test Band = GSM 1900

3.1.2.1. Test Mode = GSM/TM1

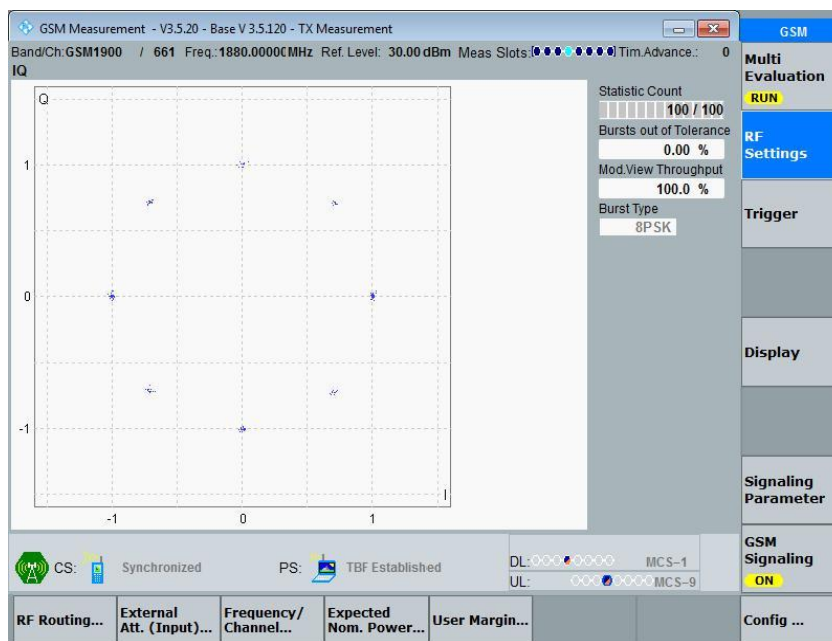
3.1.2.1.1. Test Channel = MCH





3.1.2.2. Test Mode = GSM/TM2

3.1.2.2.1. Test Channel = MCH



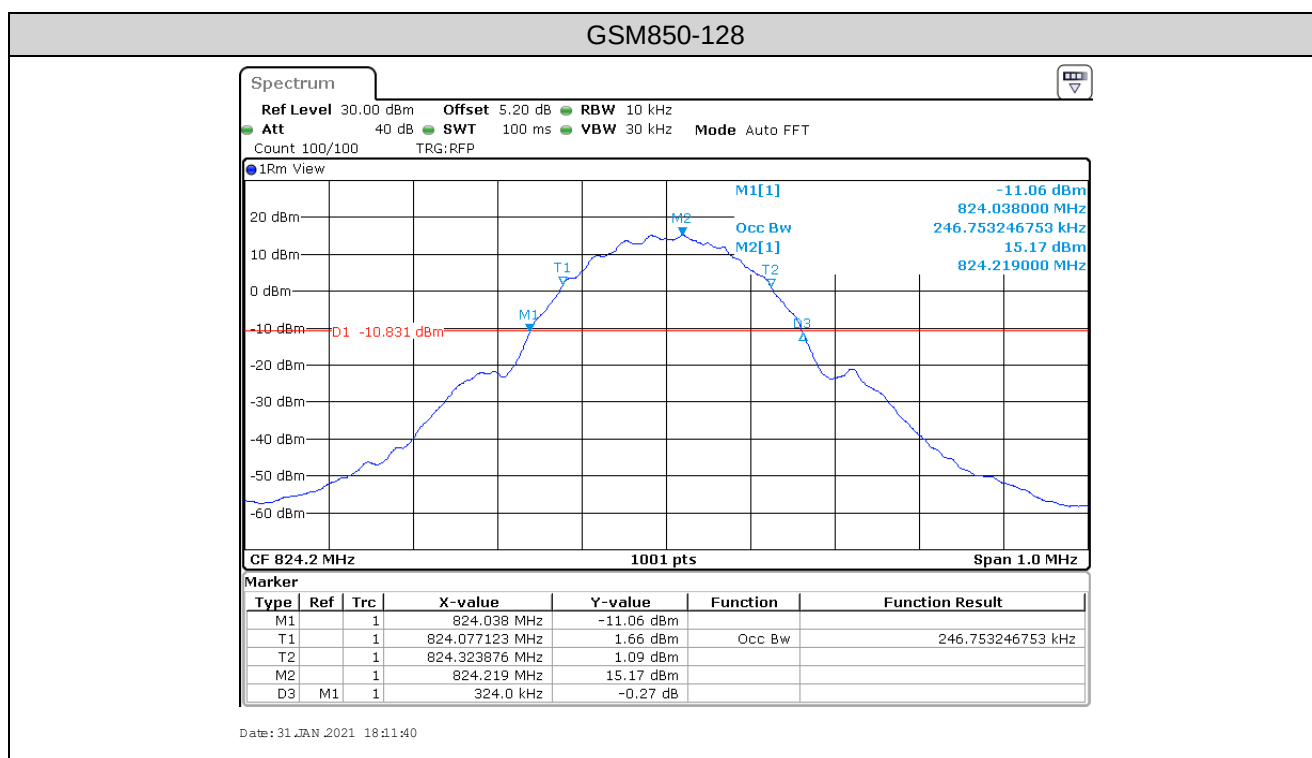


4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GSM850	128	0.247	0.324	---	PASS
GSM850	190	0.247	0.323	---	PASS
GSM850	251	0.247	0.323	---	PASS
EGPRS850	128	0.243	0.314	---	PASS
EGPRS850	190	0.245	0.318	---	PASS
EGPRS850	251	0.247	0.319	---	PASS
GSM1900	512	0.247	0.323	---	PASS
GSM1900	661	0.247	0.323	---	PASS
GSM1900	810	0.247	0.323	---	PASS
EGPRS1900	512	0.244	0.316	---	PASS
EGPRS1900	661	0.243	0.316	---	PASS
EGPRS1900	810	0.243	0.316	---	PASS

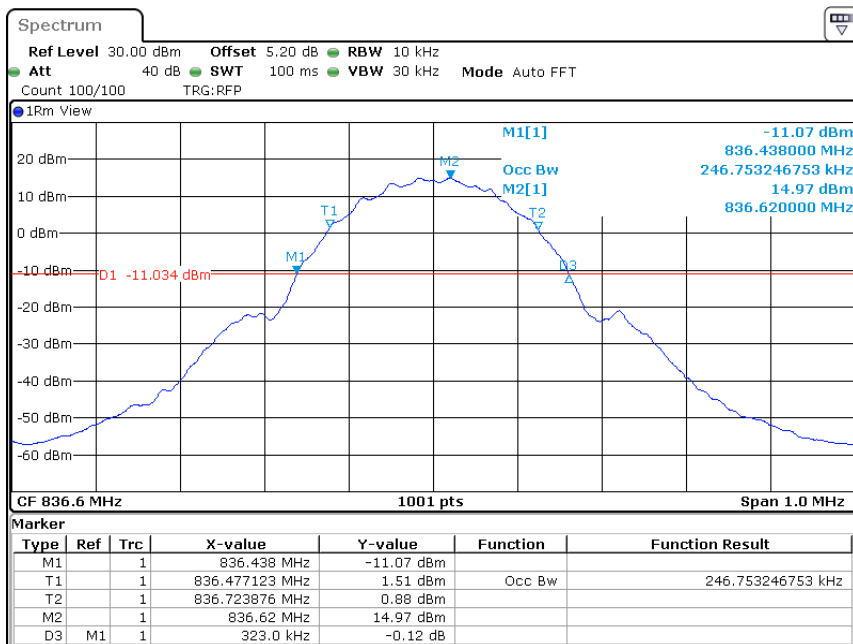
4.2. Test Plots



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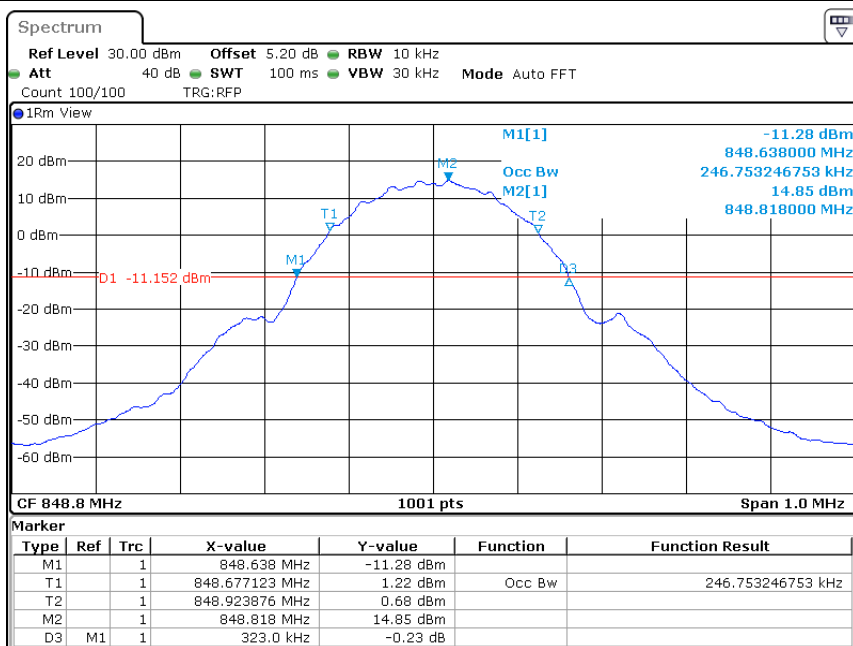
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GSM850-190



Date: 31 JAN 2021 18:12:01

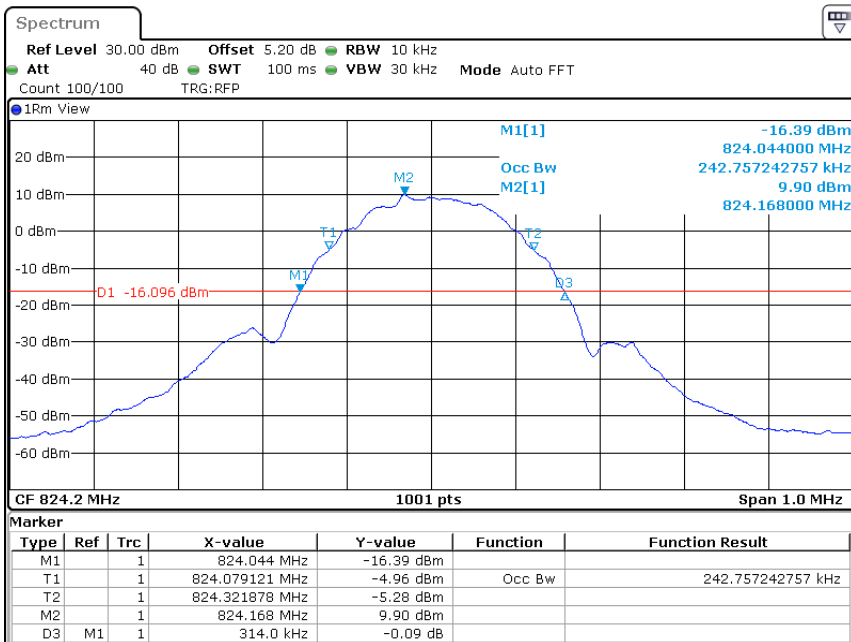
GSM850-251



Date: 31 JAN 2021 18:12:22

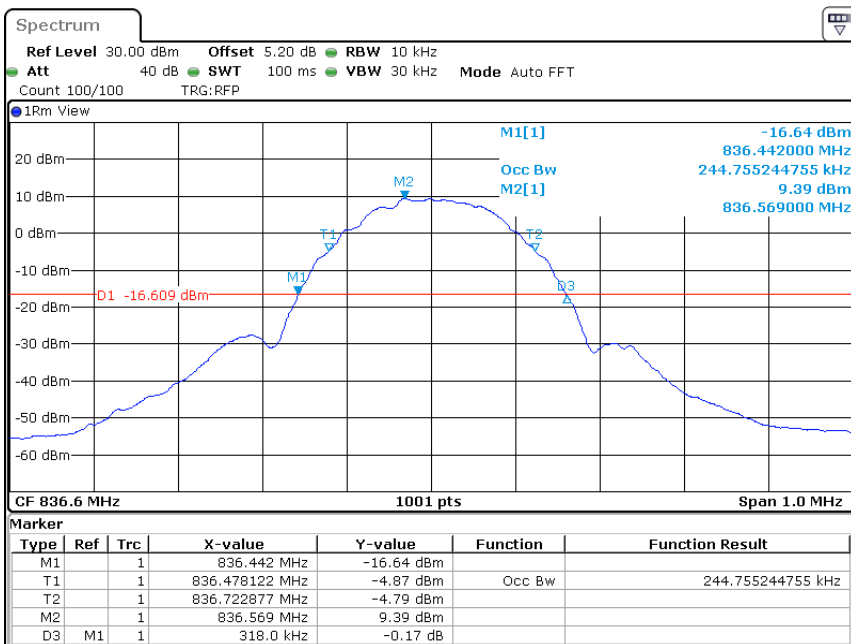


EGPRS850-128



Date: 31 JAN 2021 18:24:44

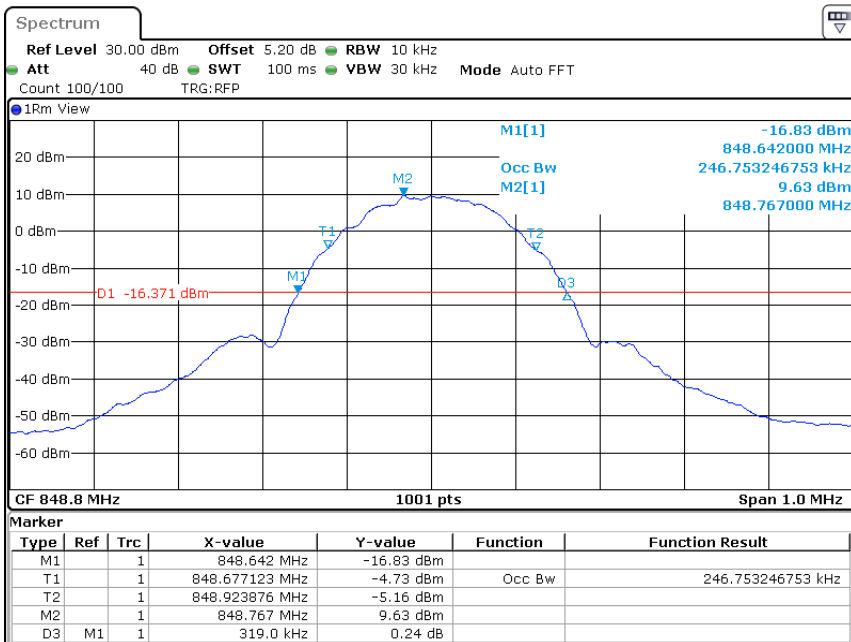
EGPRS850-190



Date: 31 JAN 2021 18:25:05

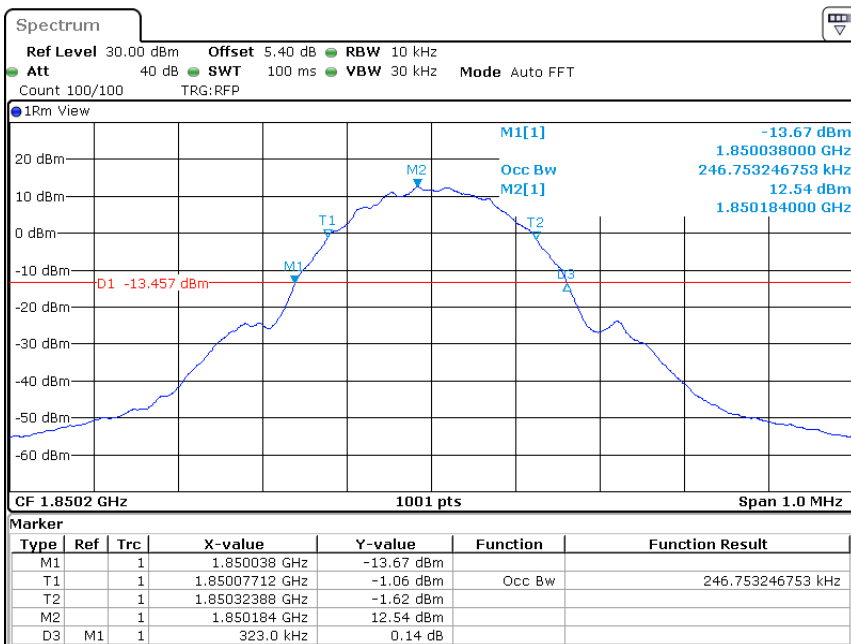


EGPRS850-251



Date: 31 JAN 2021 18:25:27

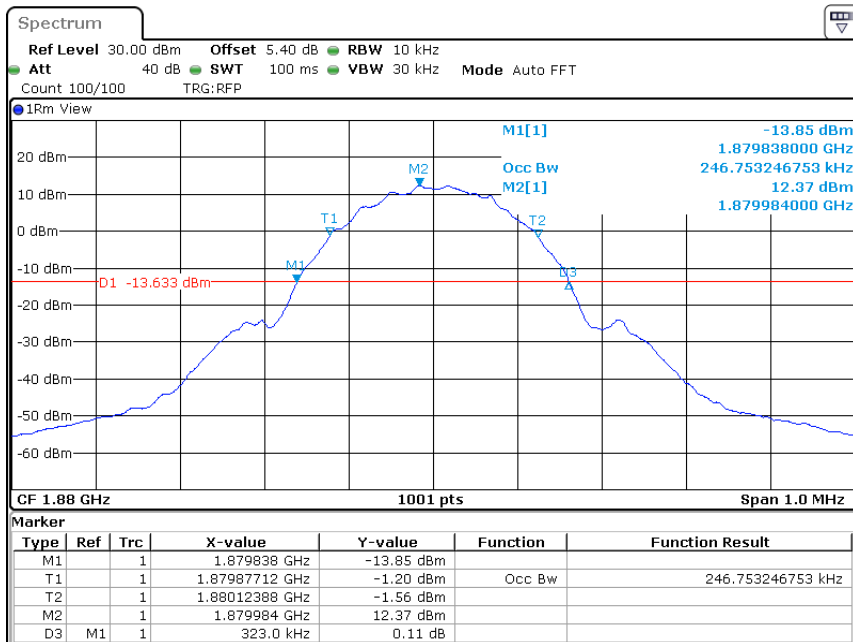
GSM1900-512



Date: 31 JAN 2021 17:46:31

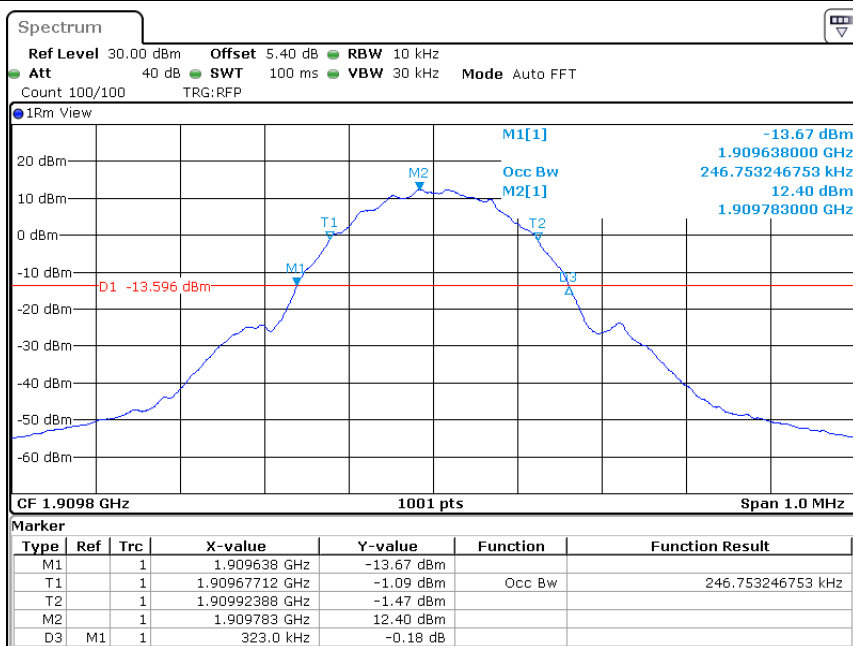


GSM1900-661



Date: 31 JAN 2021 17:46:52

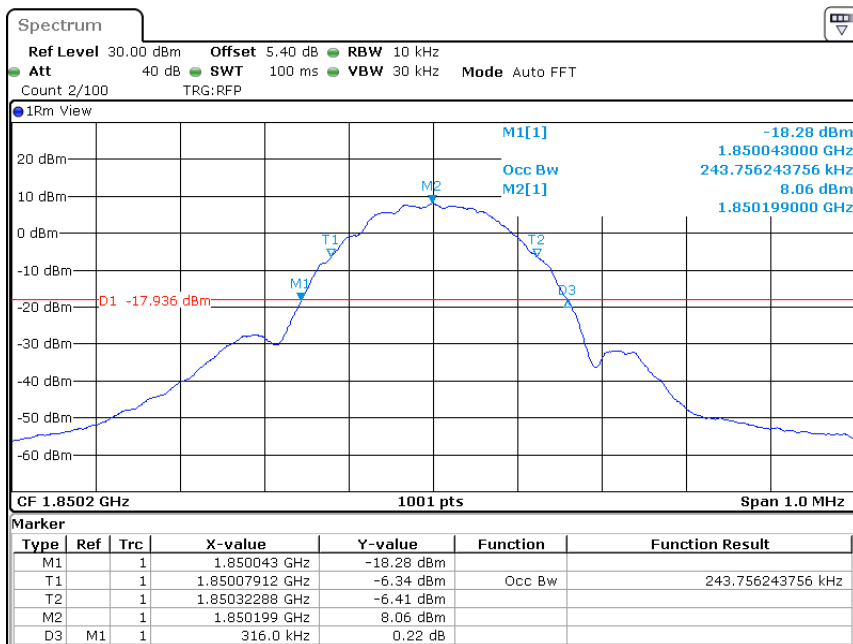
GSM1900-810



Date: 31 JAN 2021 17:47:13

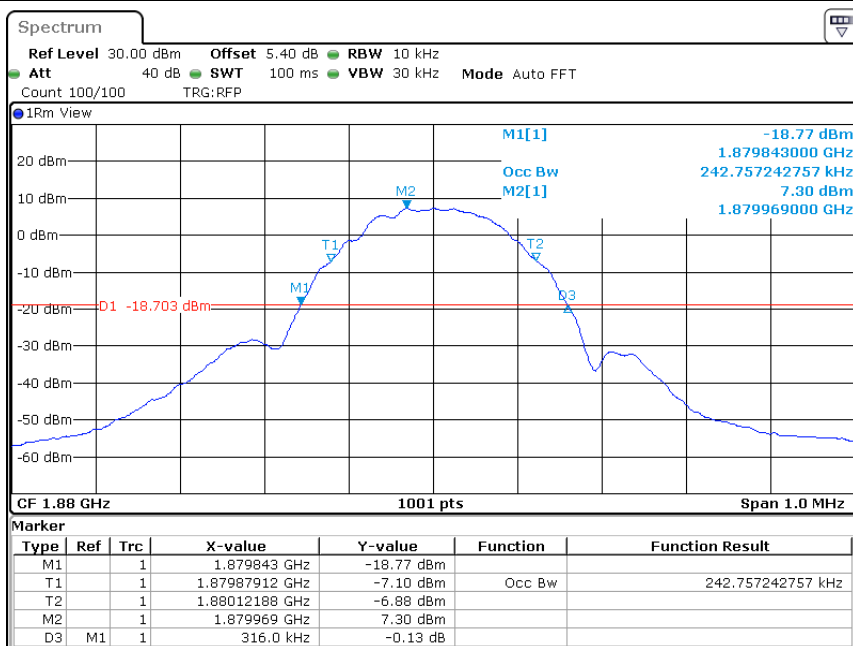


EGPRS1900-512



Date: 31 JAN 2021 17:52:15

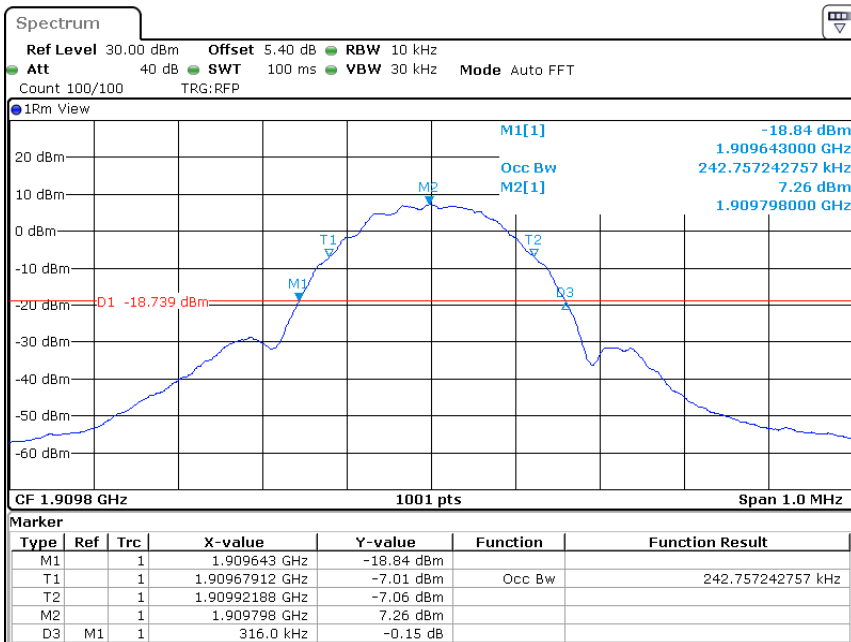
EGPRS1900-661



Date: 31 JAN 2021 17:52:36



EGPRS1900-810



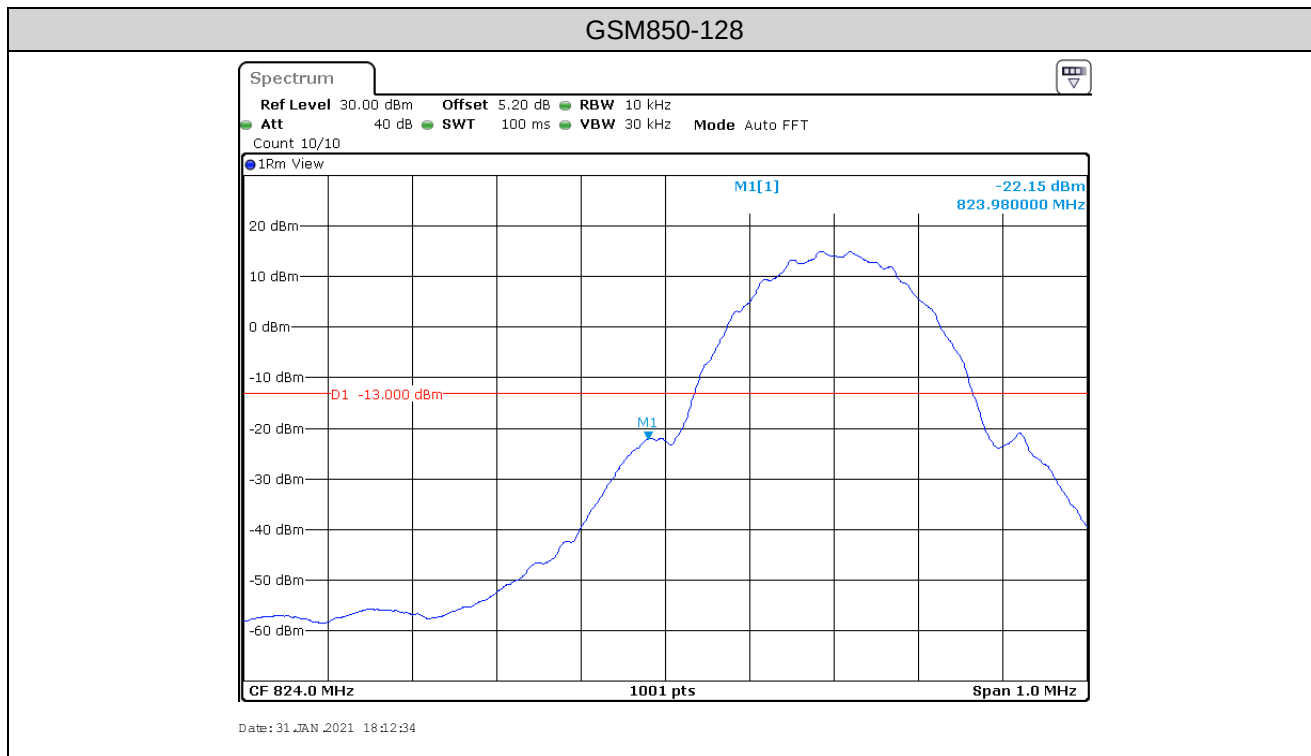
Date: 31 JAN 2021 17:52:58



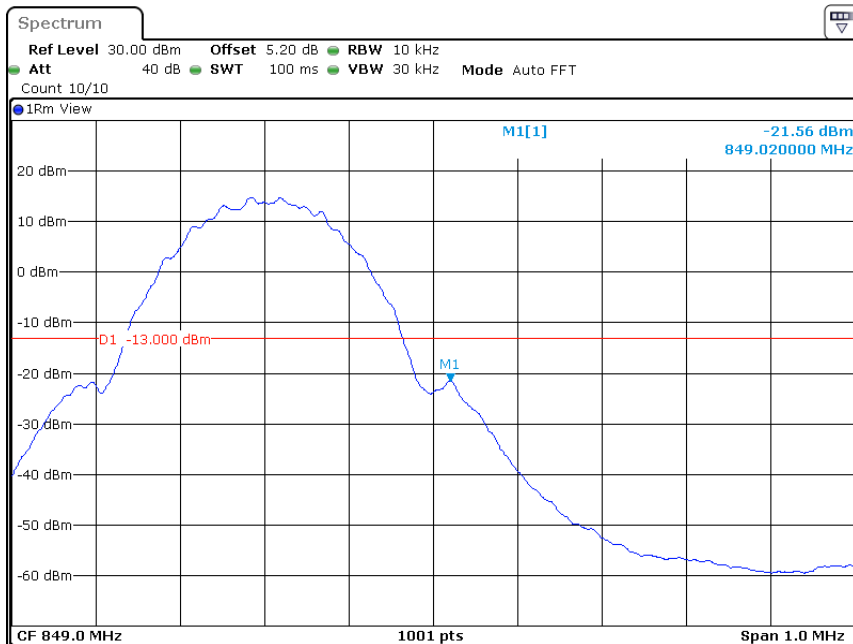


5. Band Edge Compliance

5.1. Test Plots

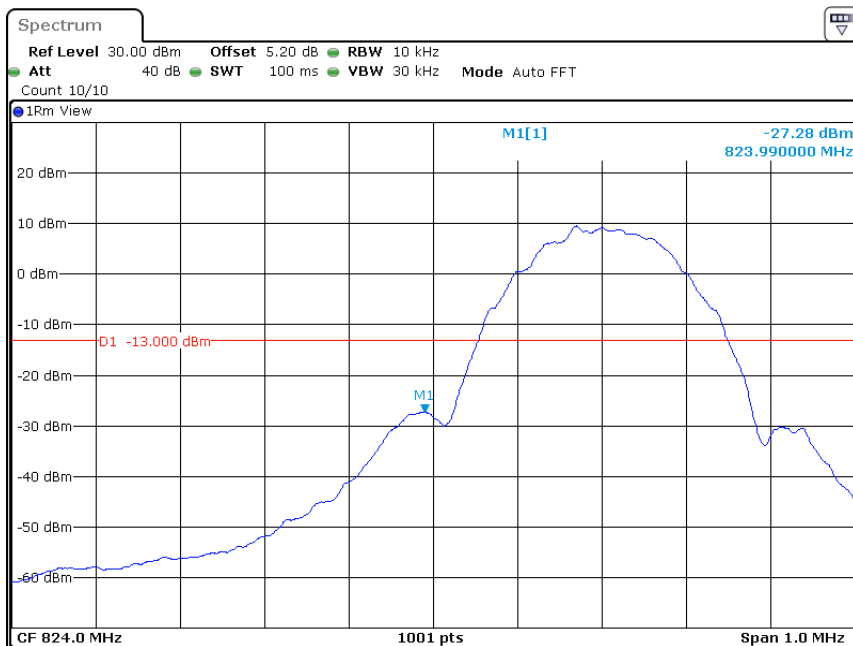


GSM850-251



Date: 31 JAN 2021 18:12:46

EGPRS850-128



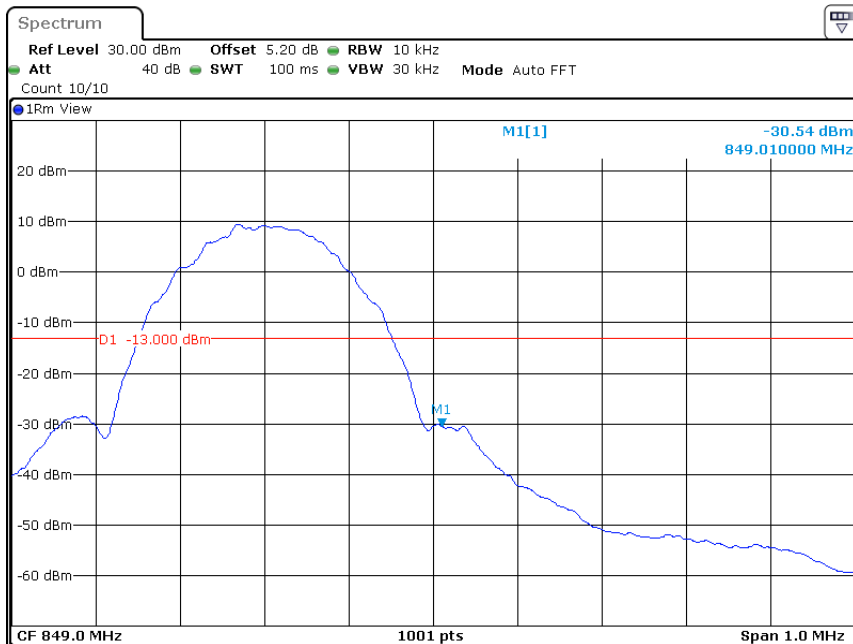
Date: 31 JAN 2021 18:25:40



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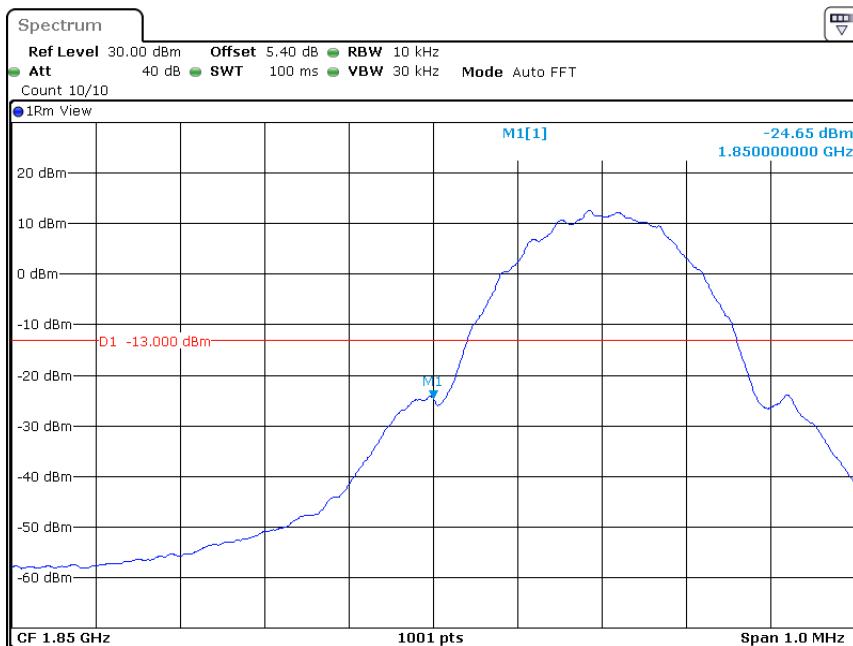
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EGPRS850-251



Date: 31 JAN 2021 18:25:52

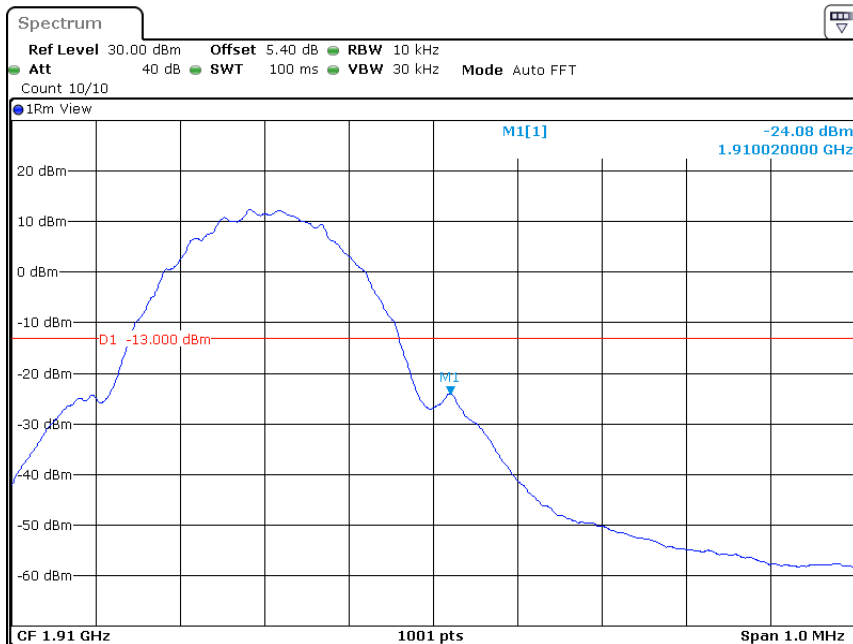
GSM1900-512



Date: 31 JAN 2021 17:47:25

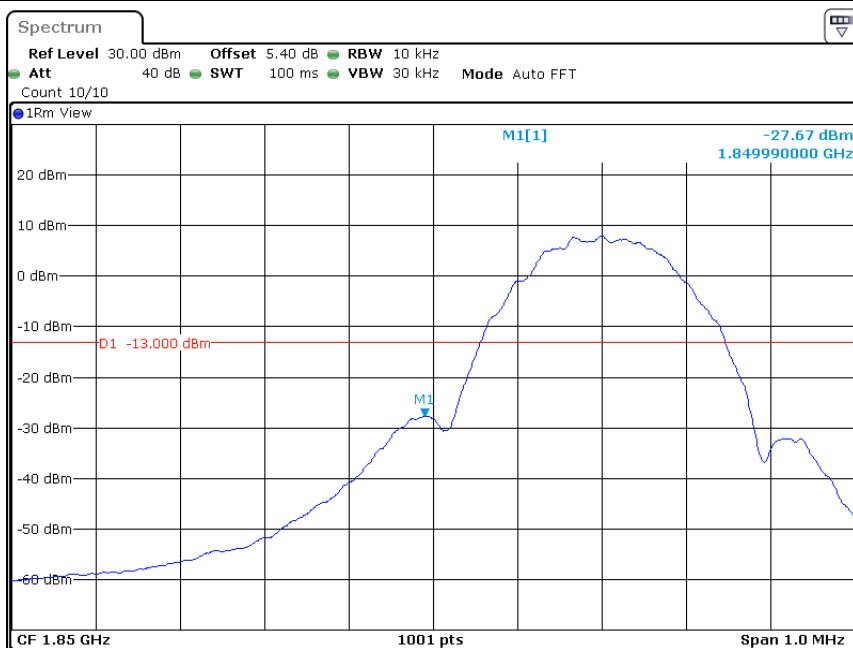


GSM1900-810



Date: 31 JAN 2021 17:47:37

EGPRS1900-512



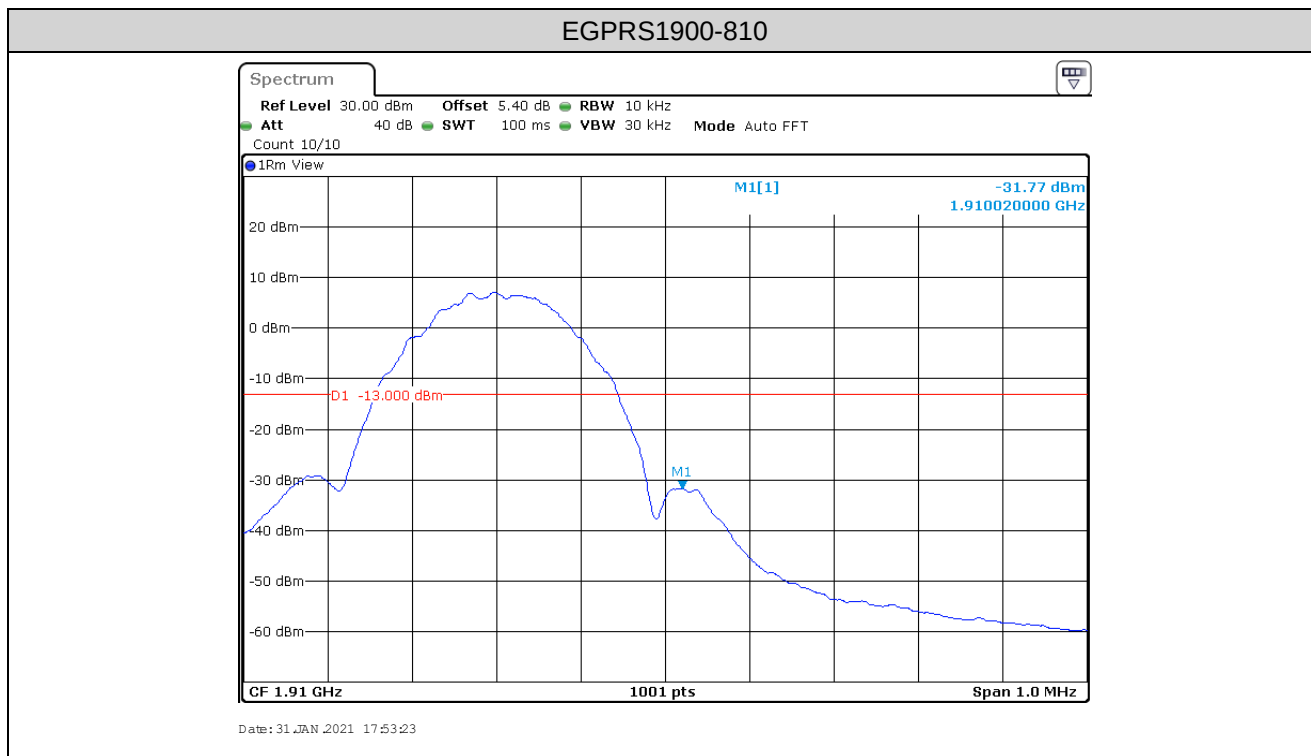
Date: 31 JAN 2021 17:53:10



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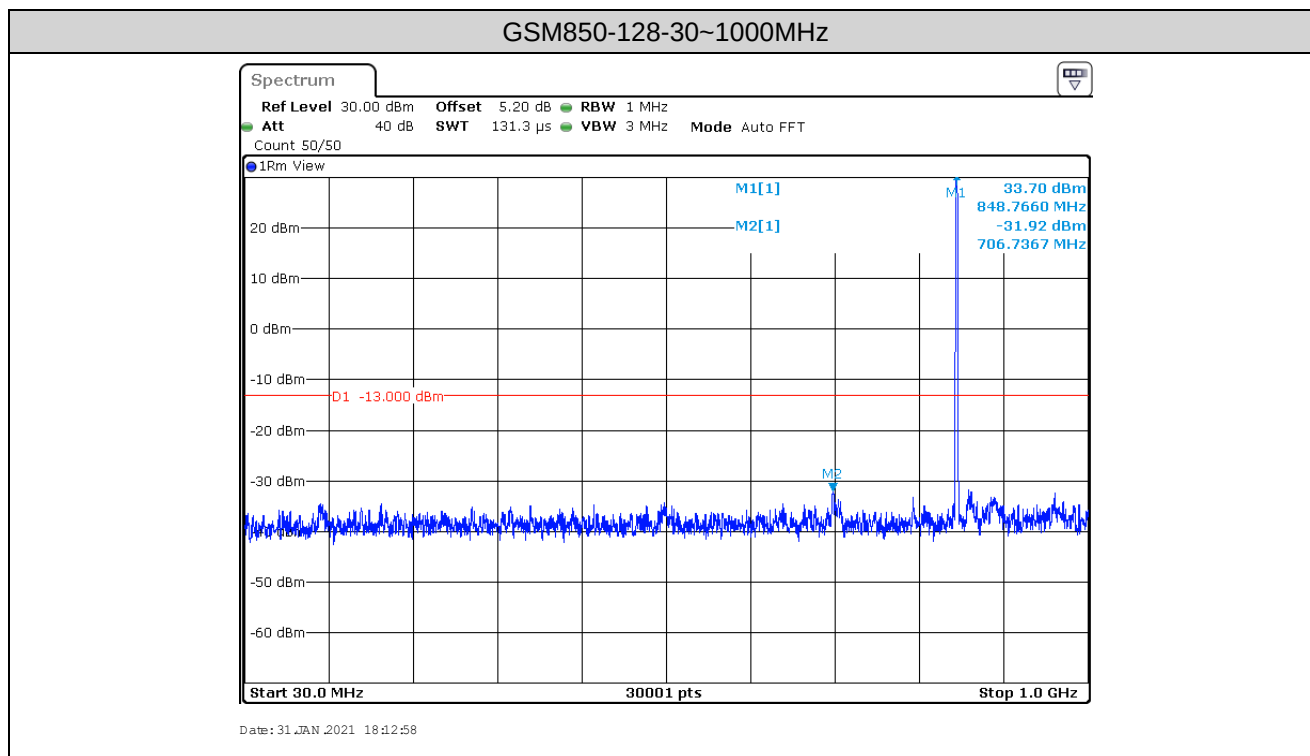
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6. Spurious Emission at Antenna Terminal

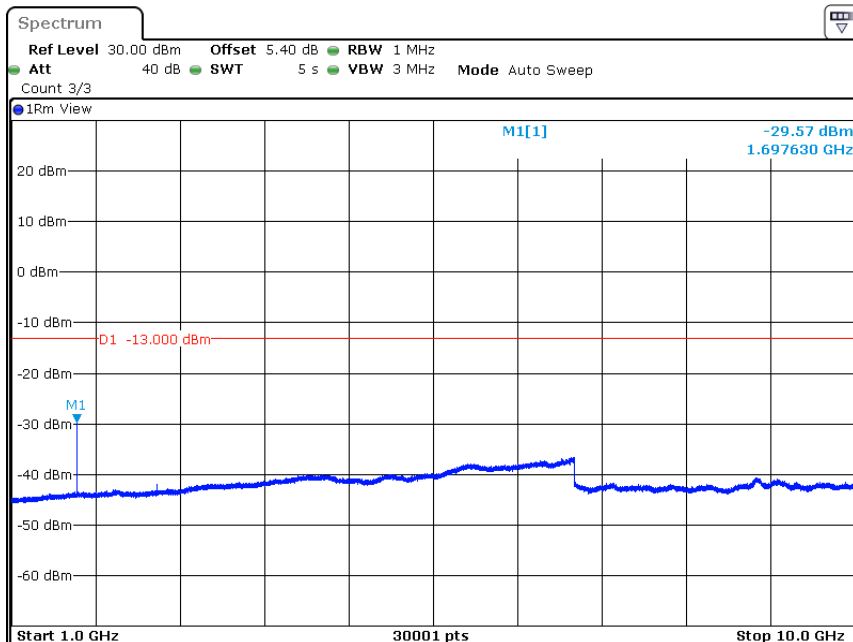
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / RBW)$ " with k between 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

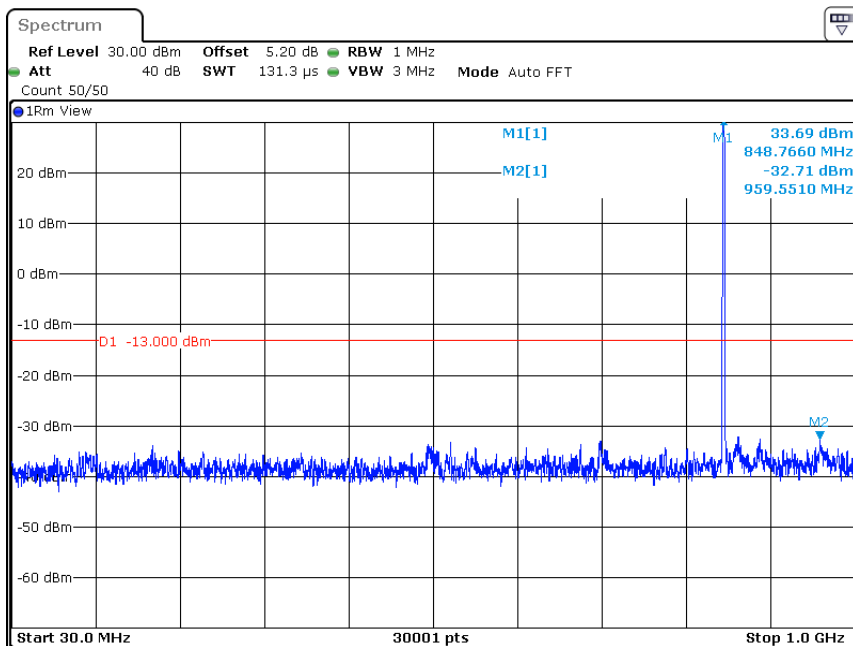


GSM850-128-1000~10000MHz



Date: 31 JAN 2021 18:13:22

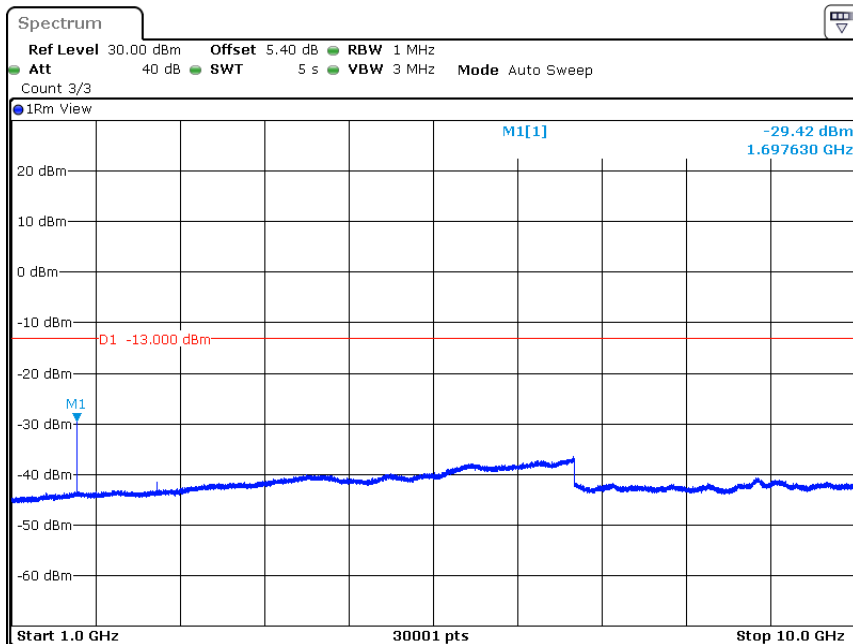
GSM850-190-30~1000MHz



Date: 31 JAN 2021 18:13:33

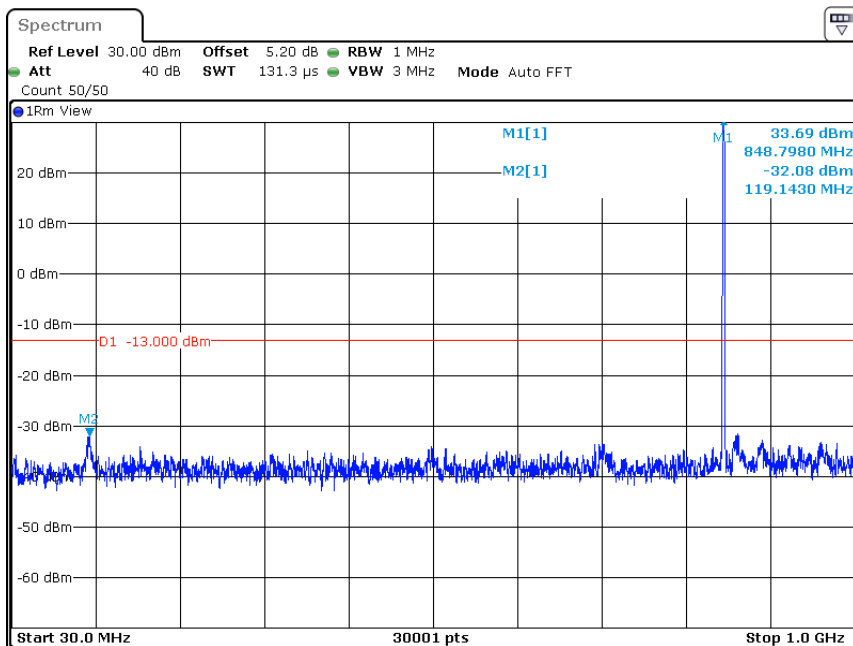


GSM850-190-1000~10000MHz



Date: 31 JAN 2021 18:13:58

GSM850-251-30~1000MHz



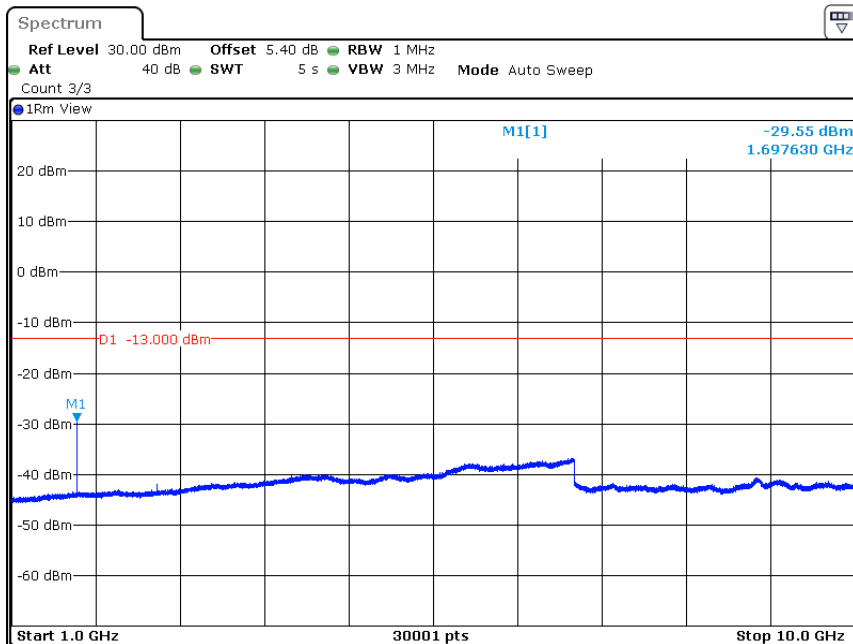
Date: 31 JAN 2021 18:14:09



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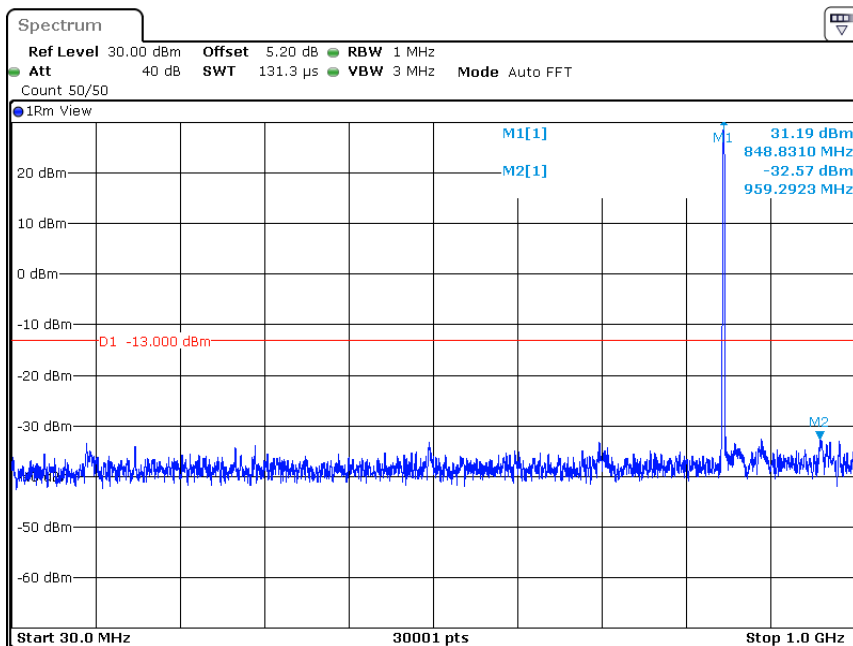
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GSM850-251-1000~10000MHz



Date: 31 JAN 2021 18:14:33

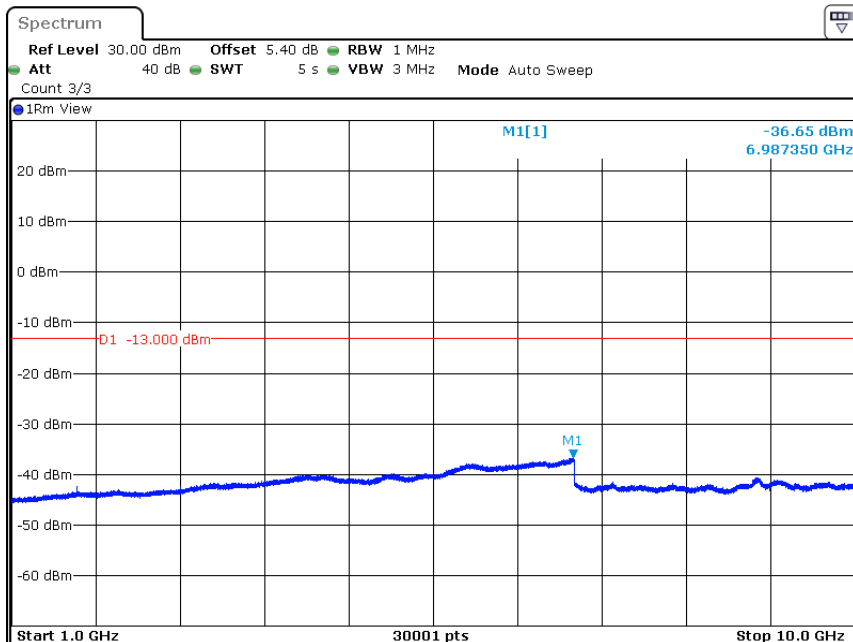
EGPRS850-128-30~1000MHz



Date: 31 JAN 2021 18:26:04

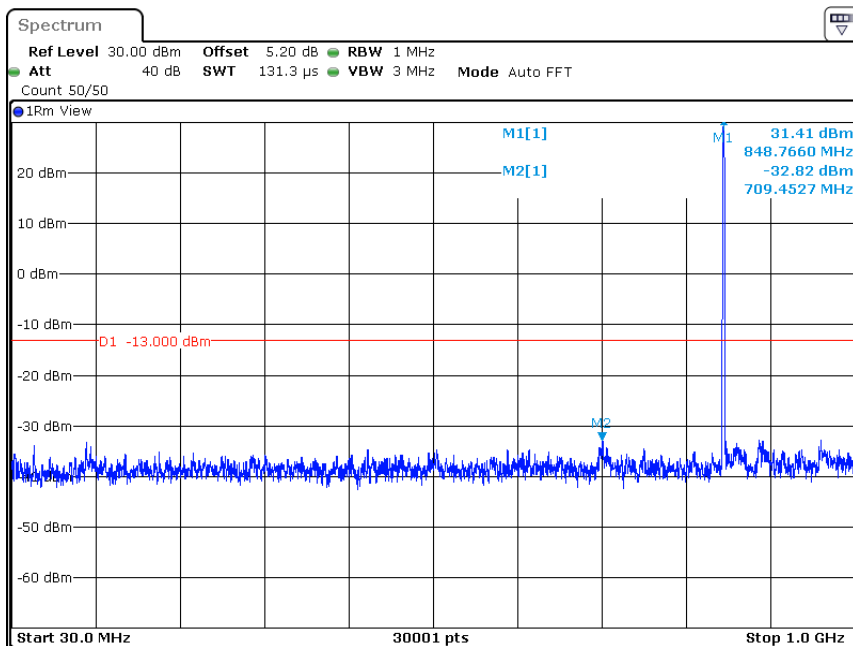


EGPRS850-128-1000~10000MHz



Date: 31 JAN 2021 18:26:28

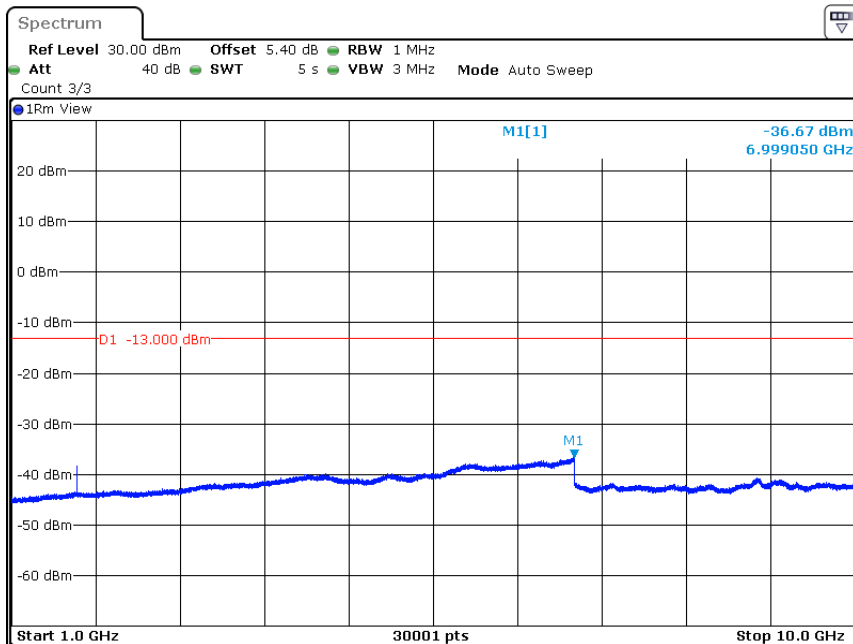
EGPRS850-190-30~1000MHz



Date: 31 JAN 2021 18:26:41

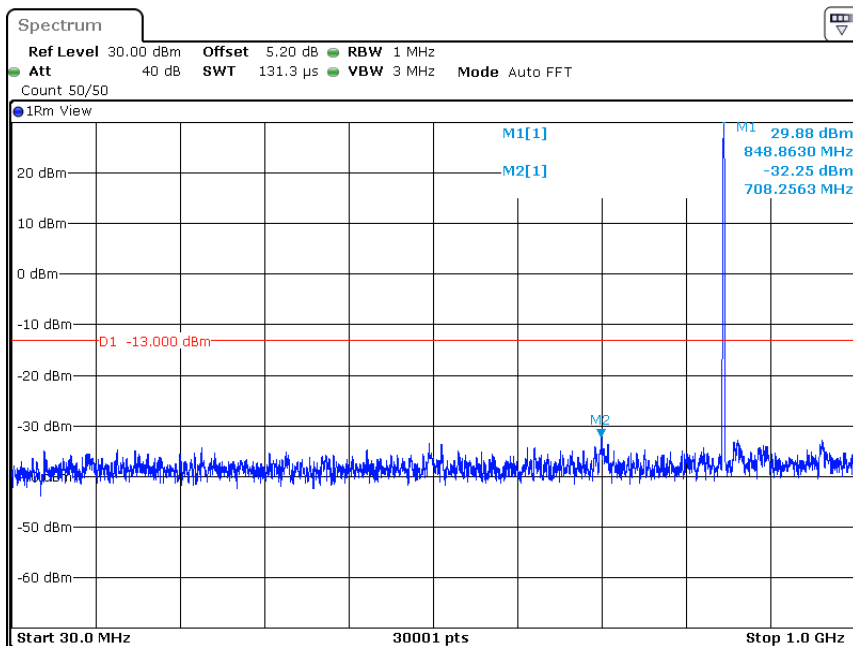


EGPRS850-190-1000~10000MHz



Date: 31 JAN 2021 18:27:08

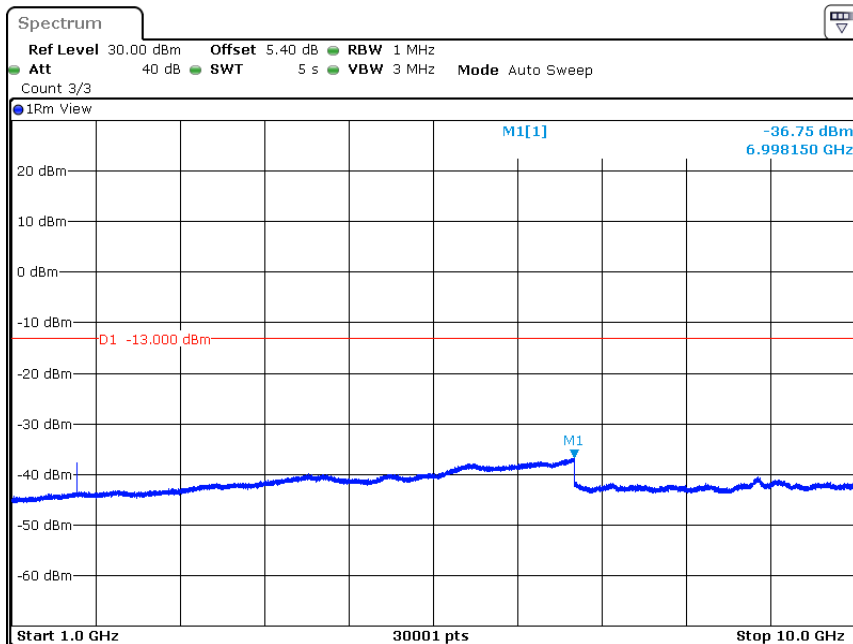
EGPRS850-251-30~1000MHz



Date: 31 JAN 2021 18:27:20

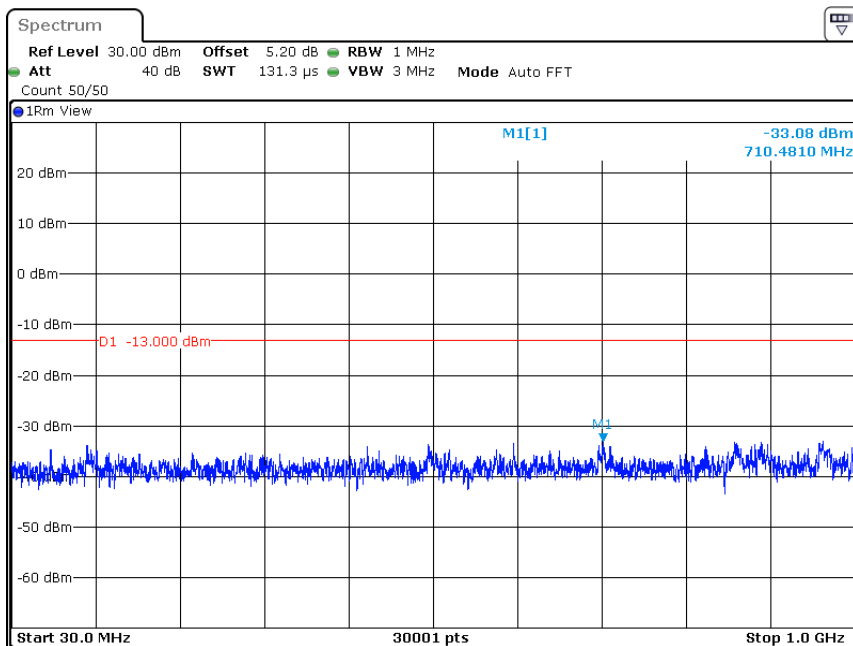


EGPRS850-251-1000~10000MHz



Date: 31 JAN 2021 18:27:44

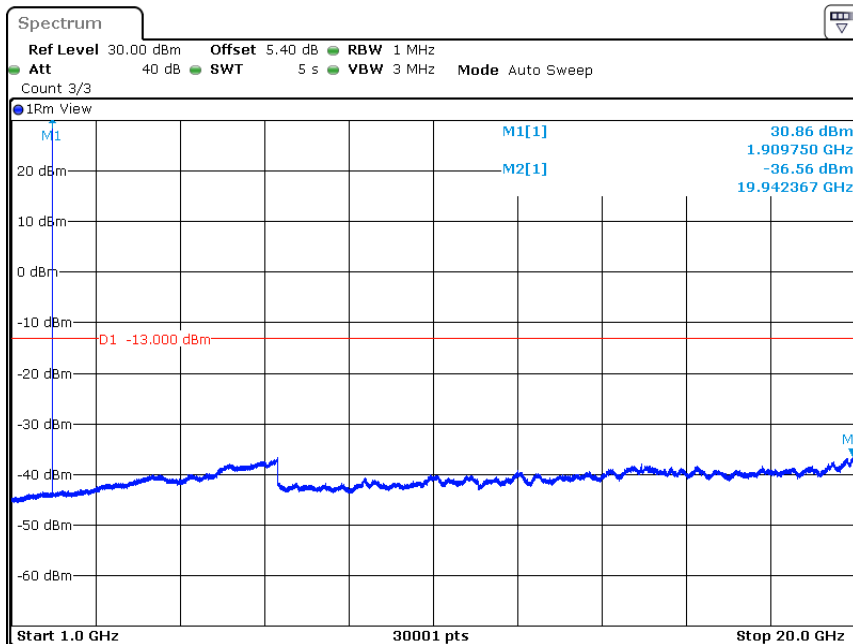
GSM1900-512-30~1000MHz



Date: 31 JAN 2021 17:47:48

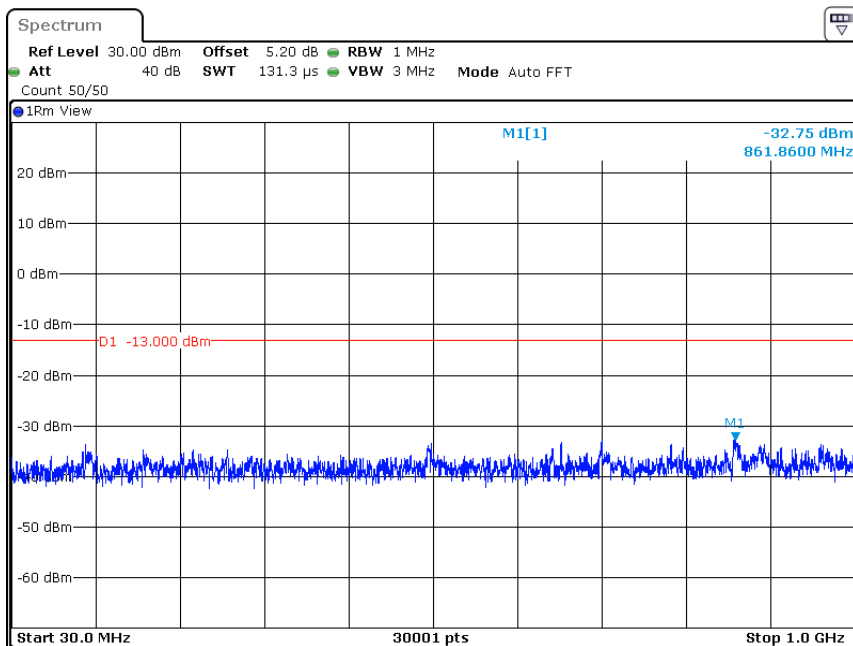


GSM1900-512-1000~20000MHz



Date: 31 JAN 2021 17:48:14

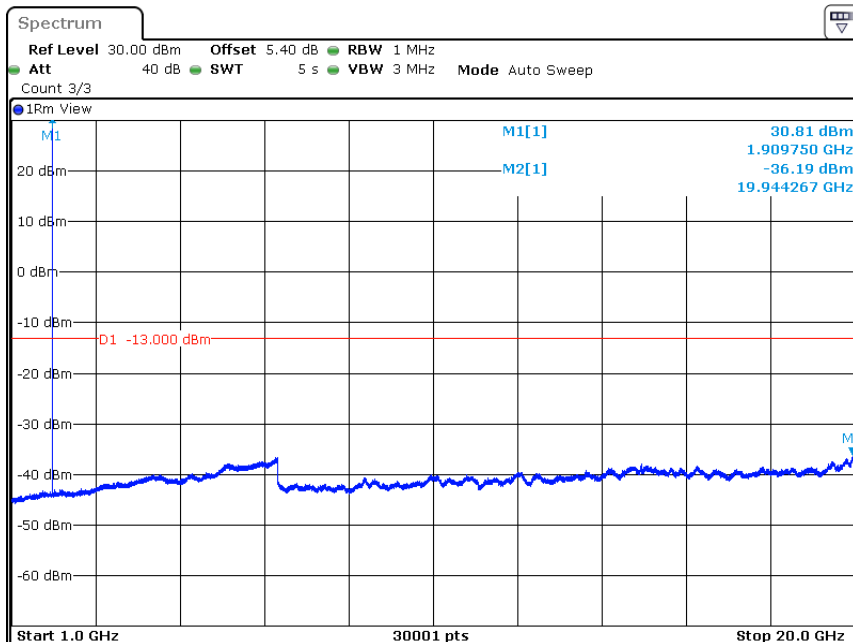
GSM1900-661-30~1000MHz



Date: 31 JAN 2021 17:48:24

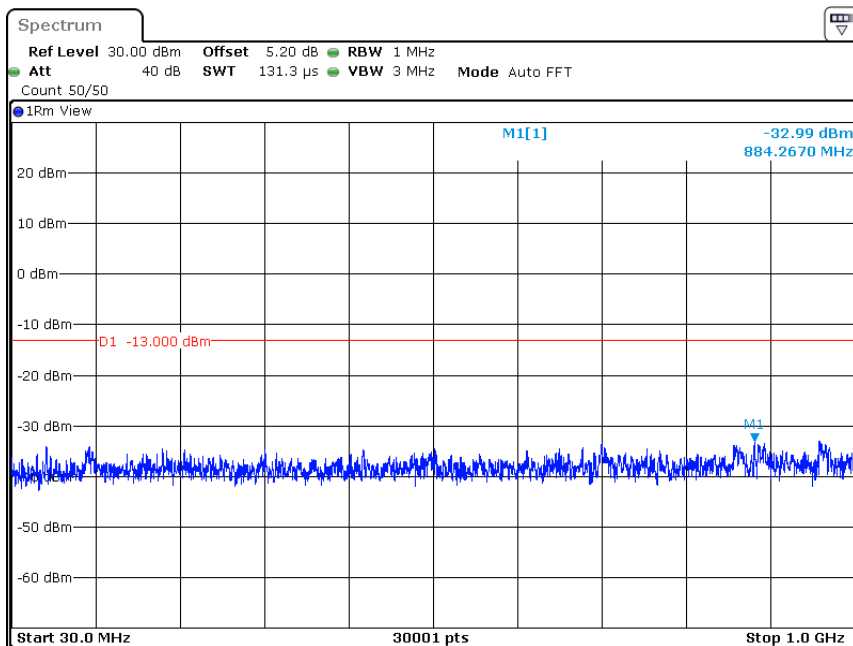


GSM1900-661-1000~20000MHz



Date: 31 JAN 2021 17:48:49

GSM1900-810-30~1000MHz

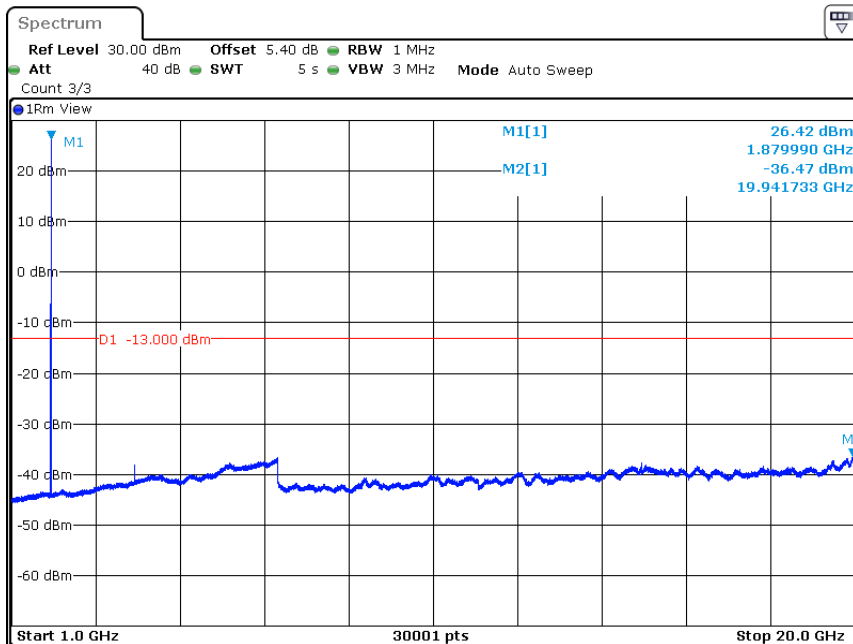


Date: 31 JAN 2021 17:56:42



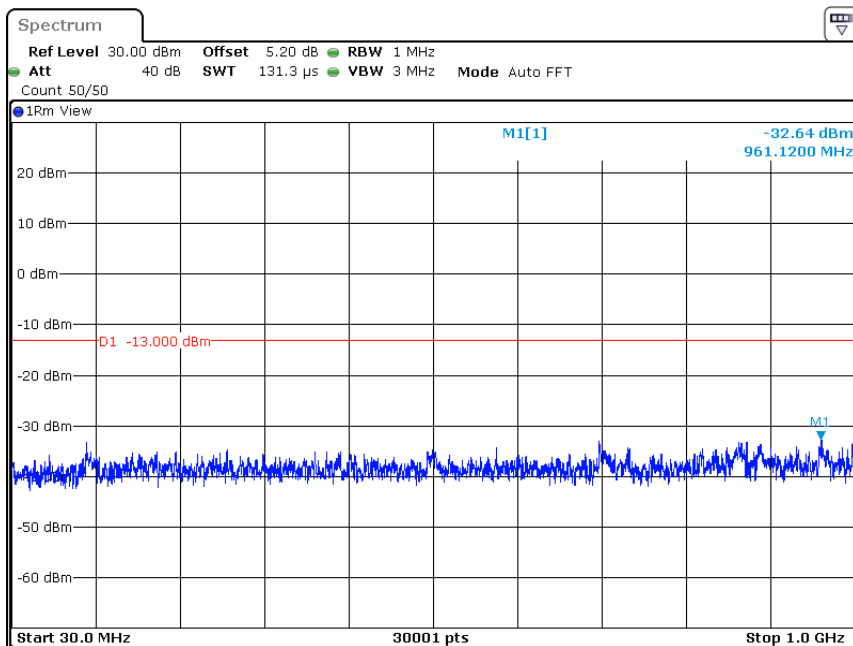


GSM1900-810-1000~20000MHz



Date: 31 JAN 2021 17:57:07

EGPRS1900-512-30~1000MHz



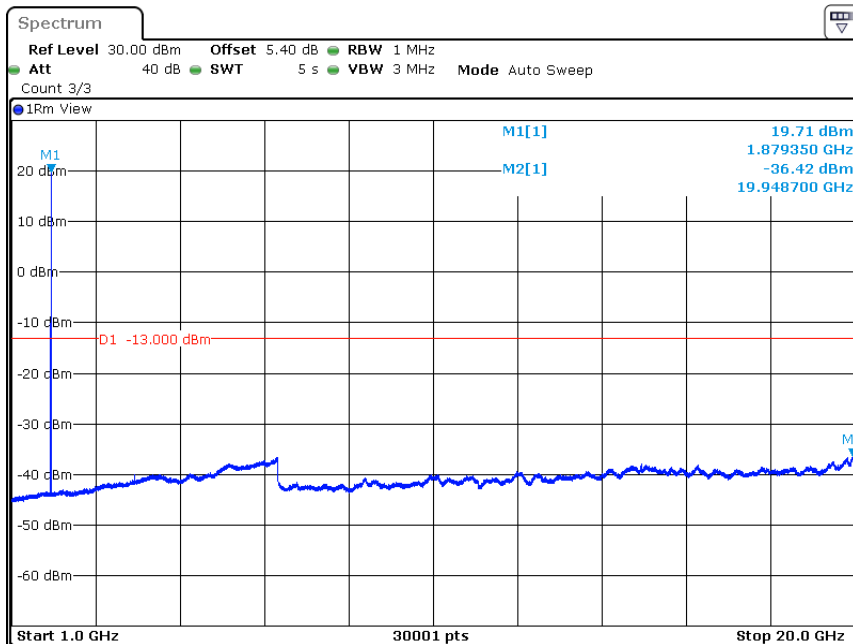
Date: 31 JAN 2021 17:58:32



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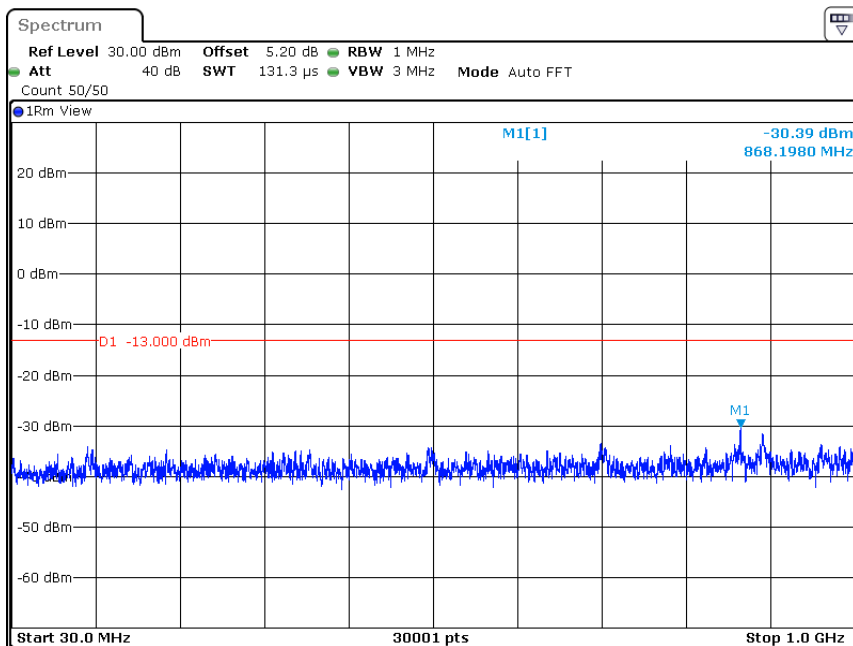
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EGPRS1900-512-1000~20000MHz



Date: 31 JAN 2021 17:59:18

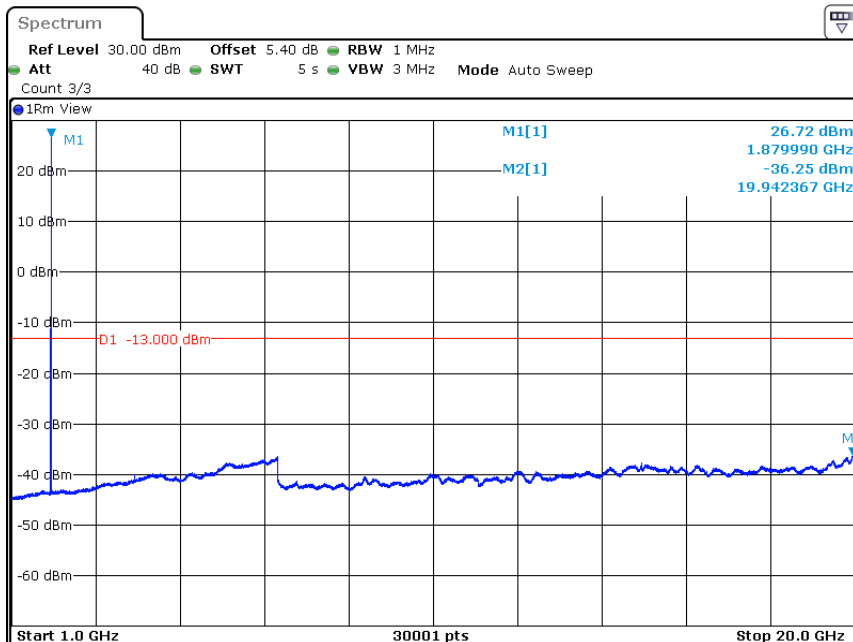
EGPRS1900-661-30~1000MHz



Date: 31 JAN 2021 17:59:29

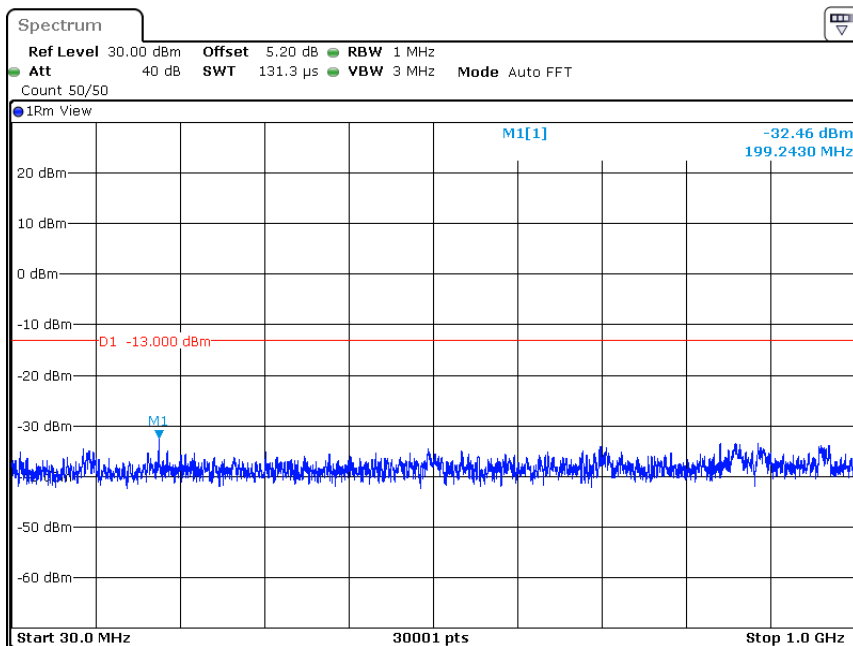


EGPRS1900-661-1000~20000MHz



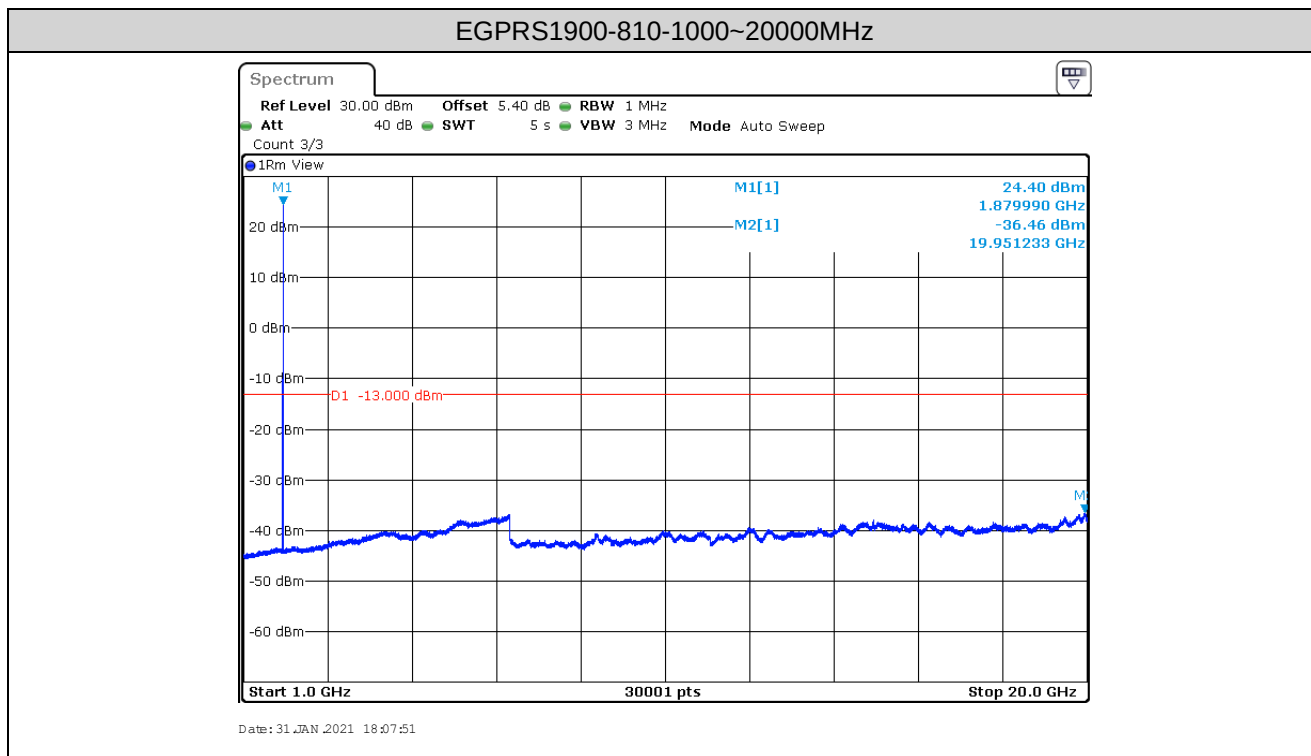
Date: 31 JAN 2021 18:07:12

EGPRS1900-810-30~1000MHz



Date: 31 JAN 2021 18:07:26





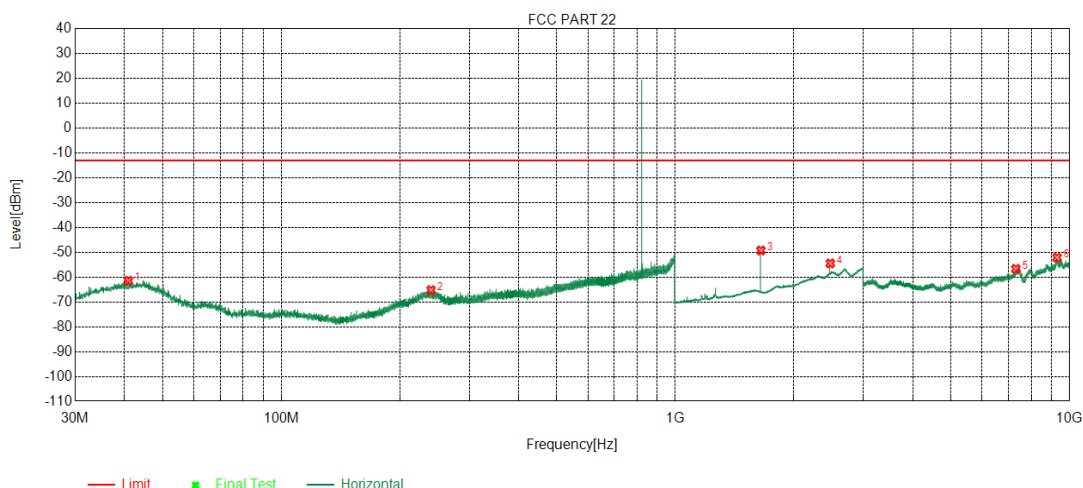


7. Field Strength of Spurious Radiation

7.1. Test Band = GSM_850 DOWN ANT

7.1.1. Test Channel = Low Channel

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.9615	-68.25	-61.44	-13.00	48.44	176	79	Horizontal
2	239.9670	-68.01	-65.22	-13.00	52.22	133	79	Horizontal
3	1648.5297	-53.30	-49.25	-13.00	36.25	182	181	Horizontal
4	2472.6945	-65.27	-54.46	-13.00	41.46	171	168	Horizontal
5	7311.9104	-56.40	-56.68	-13.00	43.68	166	353	Horizontal
6	9300.2100	-58.08	-52.14	-13.00	39.14	272	103	Horizontal



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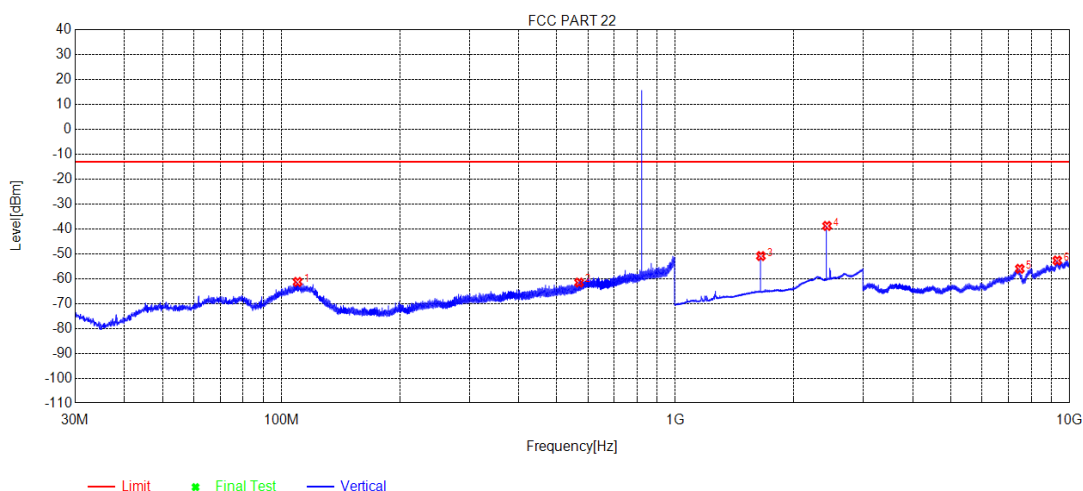
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7.2. Test Band = GSM_850 DOWN ANT

7.2.1. Test Channel = Low Channel

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	110.0775	-67.70	-61.30	-13.00	48.30	261	6	Vertical
2	570.0745	-67.71	-61.55	-13.00	48.55	274	31	Vertical
3	1648.5297	-55.58	-50.90	-13.00	37.90	188	136	Vertical
4	2426.2853	-47.91	-38.77	-13.00	25.77	154	242	Vertical
5	7480.3827	-56.19	-56.02	-13.00	43.02	234	302	Vertical
6	9310.2437	-58.68	-52.67	-13.00	39.67	269	253	Vertical



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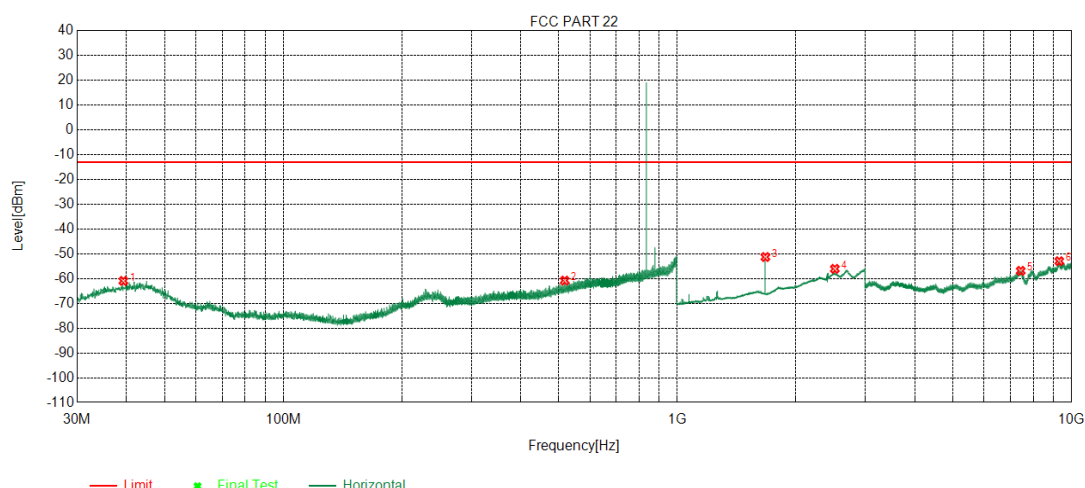
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7.3. Test Band = GSM_850 DOWN ANT

7.3.1. Test Channel = Mid Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.3125	-67.47	-60.94	-13.00	47.94	238	228	Horizontal
2	517.9344	-66.47	-60.80	-13.00	47.80	152	252	Horizontal
3	1672.9346	-55.11	-51.29	-13.00	38.29	133	174	Horizontal
4	2509.9020	-67.32	-56.06	-13.00	43.06	261	165	Horizontal
5	7434.4145	-56.82	-56.86	-13.00	43.86	274	228	Horizontal
6	9311.1770	-58.79	-52.96	-13.00	39.96	299	103	Horizontal



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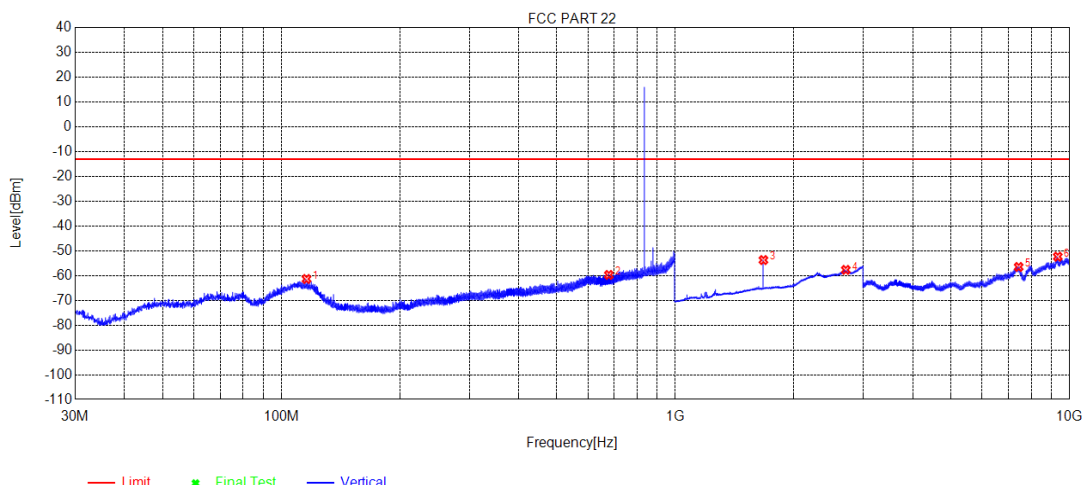
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7.4. Test Band = GSM_850 DOWN ANT

7.4.1. Test Channel = Mid Channel

Test Graph



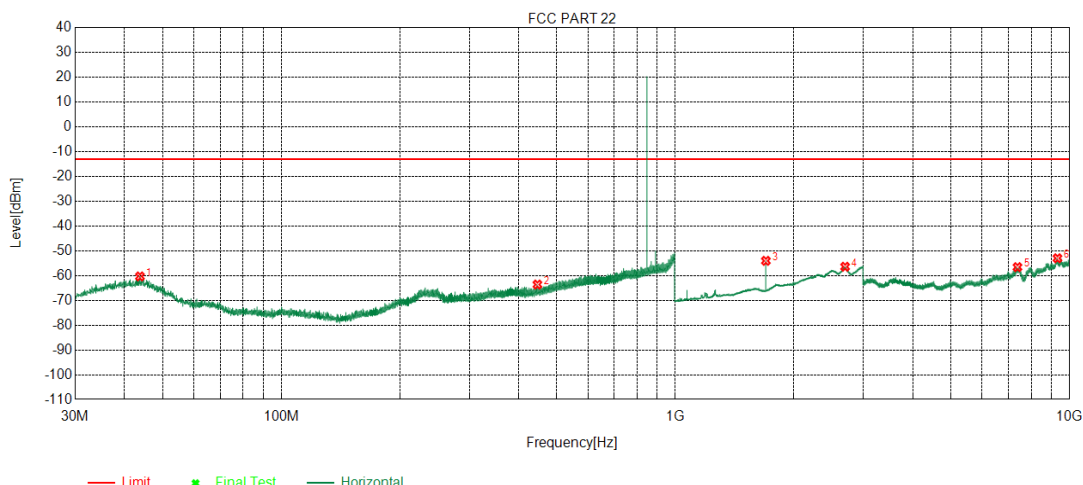
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	115.9463	-67.24	-61.35	-13.00	48.35	294	104	Vertical
2	678.1379	-67.63	-59.72	-13.00	46.72	222	353	Vertical
3	1672.9346	-58.48	-53.72	-13.00	40.72	132	137	Vertical
4	2706.7413	-69.29	-57.68	-13.00	44.68	187	2	Vertical
5	7430.6810	-56.91	-56.50	-13.00	43.50	162	130	Vertical
6	9338.2446	-58.08	-52.35	-13.00	39.35	234	30	Vertical



7.5. Test Band = GSM_850 DOWN ANT

7.5.1. Test Channel = High Channel

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.8232	-67.28	-60.32	-13.00	47.32	177	228	Horizontal
2	446.7813	-66.95	-63.60	-13.00	50.60	169	128	Horizontal
3	1697.3395	-57.61	-54.03	-13.00	41.03	252	199	Horizontal
4	2696.3393	-69.24	-56.41	-13.00	43.41	234	229	Horizontal
5	7379.3460	-56.47	-56.58	-13.00	43.58	245	153	Horizontal
6	9320.9774	-58.73	-52.99	-13.00	39.99	174	351	Horizontal



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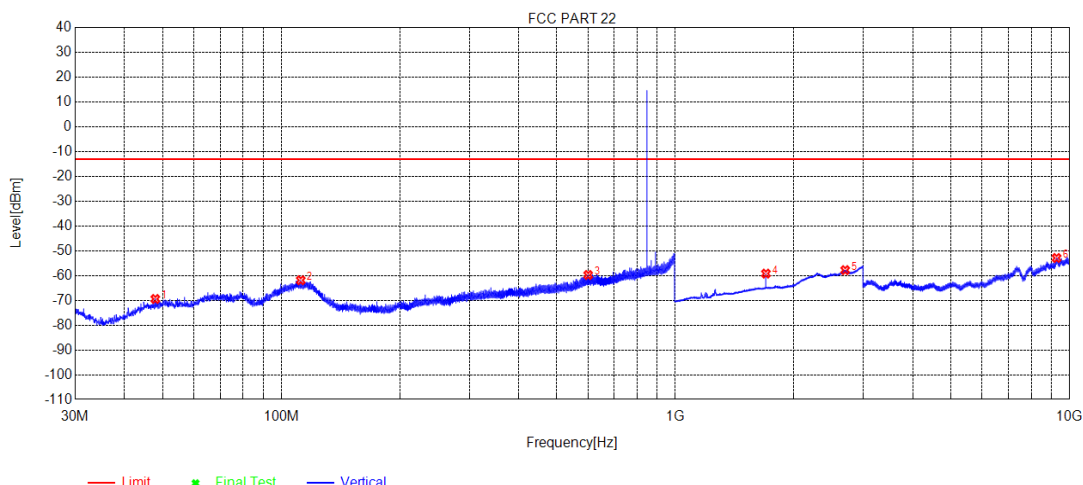
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7.6. Test Band = GSM_850 DOWN ANT

7.6.1. Test Channel = High Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	47.9459	-67.79	-69.43	-13.00	56.43	169	326	Vertical
2	112.1146	-68.09	-61.87	-13.00	48.87	325	53	Vertical
3	600.9705	-67.38	-59.74	-13.00	46.74	255	177	Vertical
4	1697.7395	-64.02	-59.18	-13.00	46.18	212	138	Vertical
5	2697.1394	-69.41	-57.79	-13.00	44.79	177	177	Vertical
6	9274.3091	-58.54	-52.88	-13.00	39.88	245	78	Vertical



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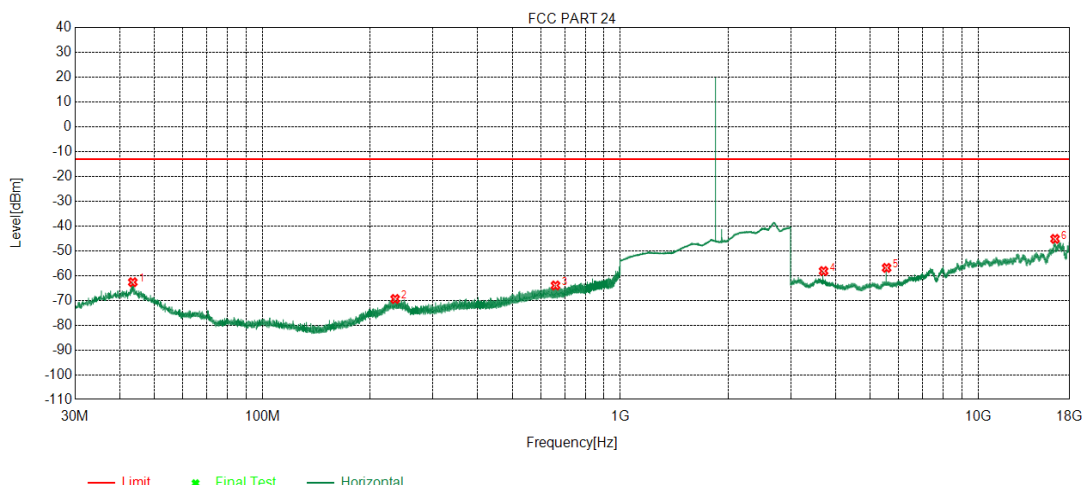
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7.7. Test Band = GSM_1900 DOWN ANT

7.7.1. Test Channel = Low Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.4837	-69.61	-62.67	-13.00	49.67	261	354	Horizontal
2	235.1168	-72.24	-69.43	-13.00	56.43	252	291	Horizontal
3	659.7555	-71.93	-63.97	-13.00	50.97	211	323	Horizontal
4	3700.5234	-49.59	-58.16	-13.00	45.16	168	354	Horizontal
5	5550.5850	-50.74	-56.88	-13.00	43.88	175	354	Horizontal
6	16401.446	-59.59	-45.18	-13.00	32.18	127	354	Horizontal



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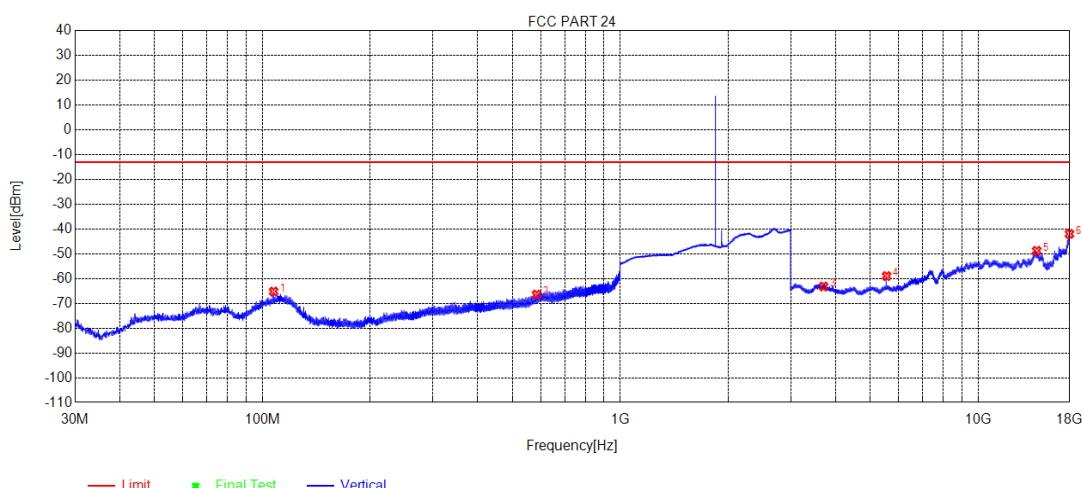
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7.8. Test Band = GSM_1900 DOWN ANT

7.8.1. Test Channel = Low Channel

Test Graph



Suspected Data List

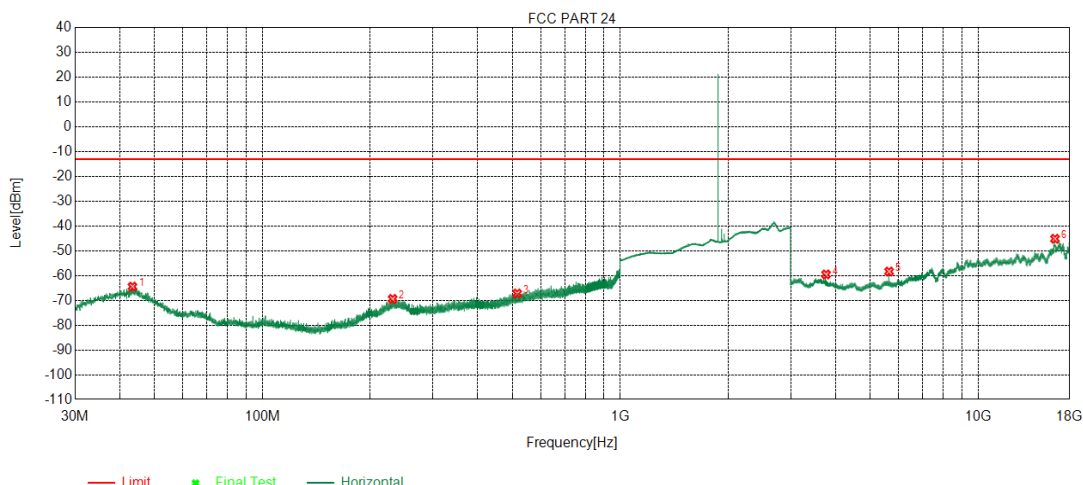
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	107.6039	-71.07	-65.22	-13.00	52.22	176	227	Vertical
2	584.0917	-73.29	-66.44	-13.00	53.44	124	163	Vertical
3	3700.0233	-53.82	-63.19	-13.00	50.19	112	4	Vertical
4	5550.5850	-52.40	-58.97	-13.00	45.97	186	355	Vertical
5	14580.386	-60.54	-48.77	-13.00	35.77	252	67	Vertical
6	17995.499	-59.72	-41.95	-13.00	28.95	284	36	Vertical



7.9. Test Band = GSM_1900 DOWN ANT

7.9.1. Test Channel = Mid Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.3867	-71.38	-64.44	-13.00	51.44	266	358	Horizontal
2	231.3336	-72.24	-69.42	-13.00	56.42	234	358	Horizontal
3	515.6548	-72.84	-67.23	-13.00	54.23	178	295	Horizontal
4	3760.0253	-51.13	-59.53	-13.00	46.53	296	327	Horizontal
5	5640.0880	-52.31	-58.35	-13.00	45.35	114	67	Horizontal
6	16395.446	-59.50	-45.13	-13.00	32.13	285	295	Horizontal

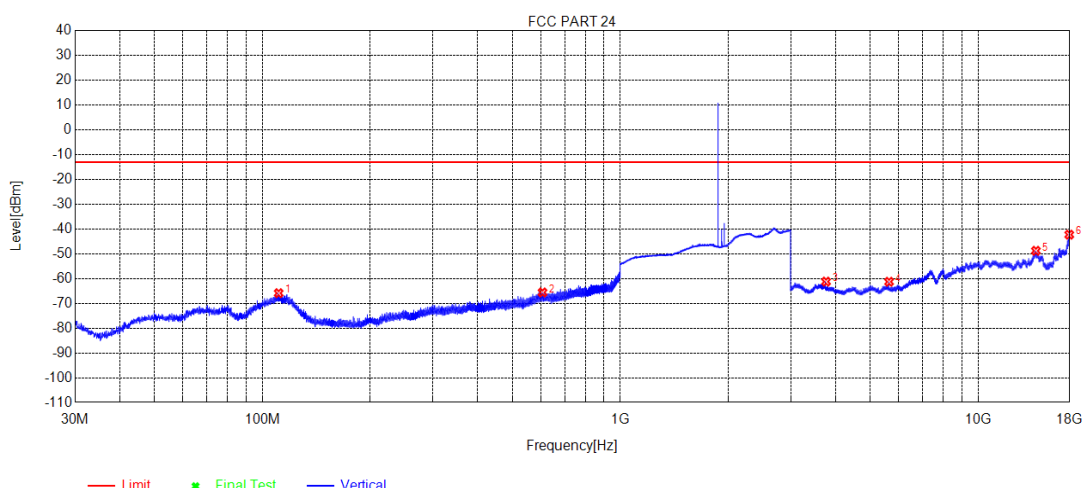




7.10. Test Band = GSM_1900 DOWN ANT

7.10.1. Test Channel = Mid Channel

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	111.1446	-72.18	-65.87	-13.00	52.87	163	163	Vertical
2	606.9848	-73.20	-65.58	-13.00	52.58	274	323	Vertical
3	3760.0253	-52.15	-61.21	-13.00	48.21	245	36	Vertical
4	5639.5880	-54.76	-61.27	-13.00	48.27	177	4	Vertical
5	14503.383	-61.25	-48.77	-13.00	35.77	169	323	Vertical
6	17975.999	-59.54	-42.26	-13.00	29.26	243	227	Vertical



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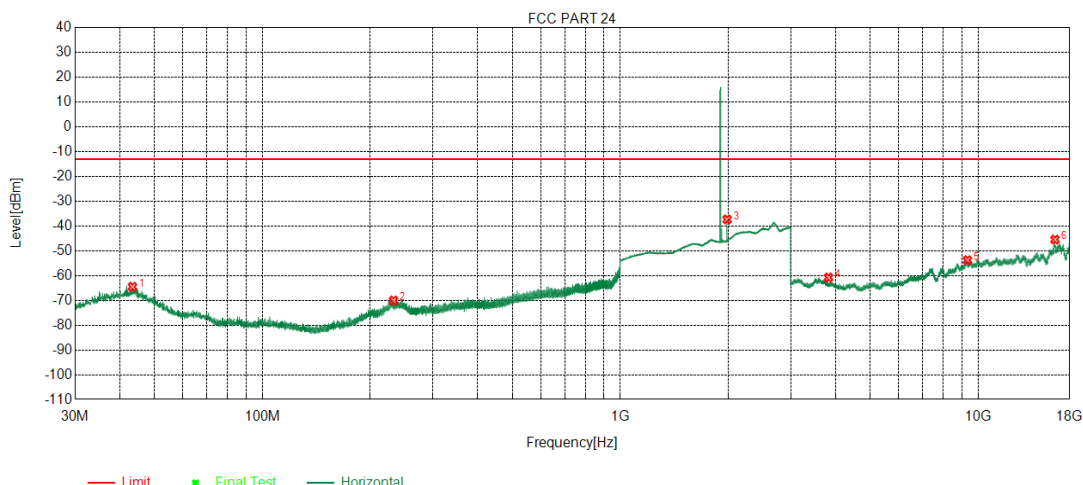
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7.11. Test Band = GSM_1900 DOWN ANT

7.11.1. Test Channel = High Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.3867	-71.44	-64.50	-13.00	51.50	184	290	Horizontal
2	232.7401	-72.88	-70.06	-13.00	57.06	142	321	Horizontal
3	1989.7980	-62.89	-37.32	-13.00	24.32	233	159	Horizontal
4	3819.5273	-52.53	-60.76	-13.00	47.76	294	35	Horizontal
5	9333.2111	-59.39	-53.77	-13.00	40.77	268	67	Horizontal
6	16401.446	-59.86	-45.45	-13.00	32.45	141	67	Horizontal

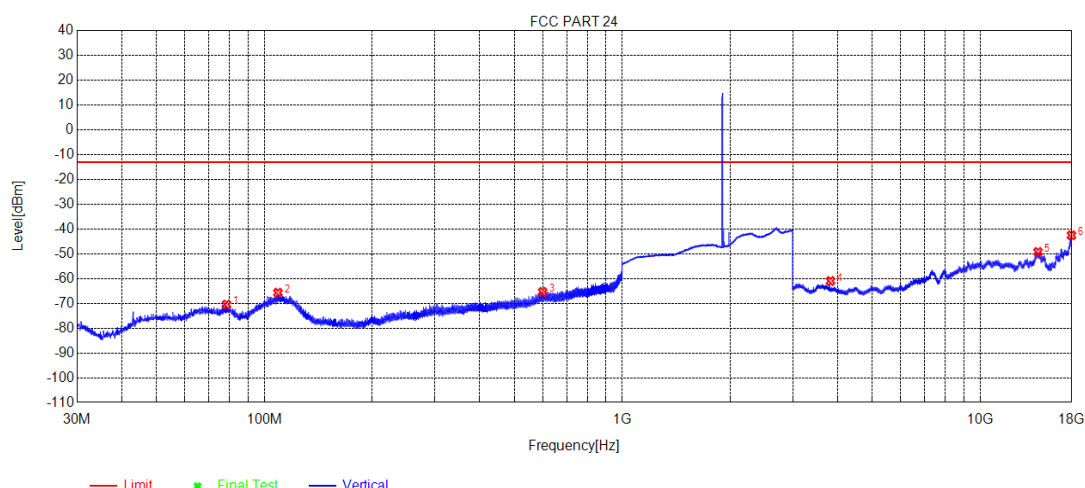




7.12. Test Band = GSM_1900 DOWN ANT

7.12.1. Test Channel = High Channel

Test Graph



Suspected Data List

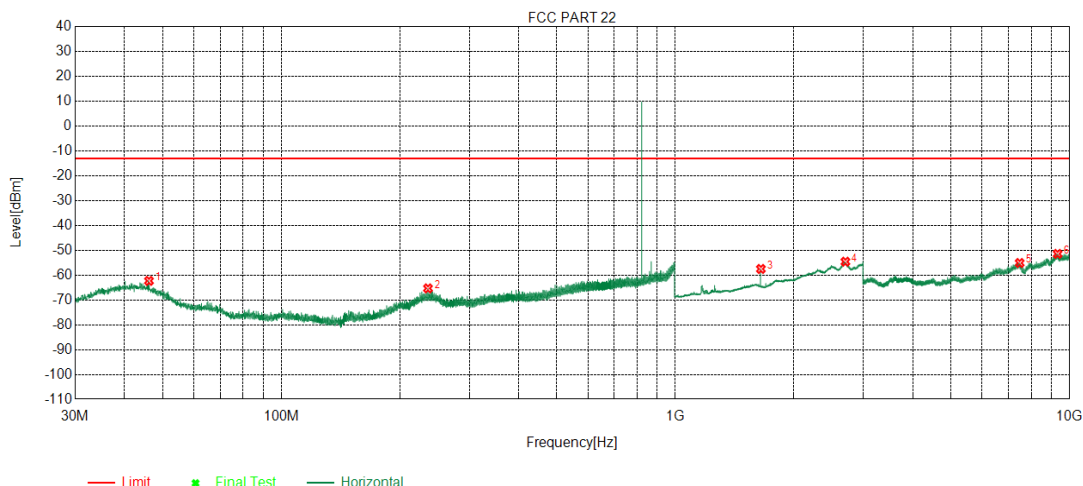
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	78.4539	-72.15	-70.46	-13.00	57.46	116	193	Vertical
2	109.2045	-71.90	-65.68	-13.00	52.68	252	162	Vertical
3	599.4670	-72.97	-65.36	-13.00	52.36	231	35	Vertical
4	3819.5273	-52.14	-60.96	-13.00	47.96	245	320	Vertical
5	14512.383	-61.64	-49.24	-13.00	36.24	168	35	Vertical
6	17996.499	-60.32	-42.53	-13.00	29.53	176	320	Vertical



7.13. Test Band = GSM_850 UP ANT

7.13.1. Test Channel = Low Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	46.1998	-68.63	-62.30	-13.00	49.30	166	103	Horizontal
2	235.7473	-68.13	-65.32	-13.00	52.32	125	51	Horizontal
3	1648.5297	-61.54	-57.49	-13.00	44.49	263	157	Horizontal
4	2700.7401	-67.49	-54.58	-13.00	41.58	284	192	Horizontal
5	7475.7159	-55.09	-55.10	-13.00	42.10	222	129	Horizontal
6	9329.3776	-57.08	-51.42	-13.00	38.42	269	291	Horizontal



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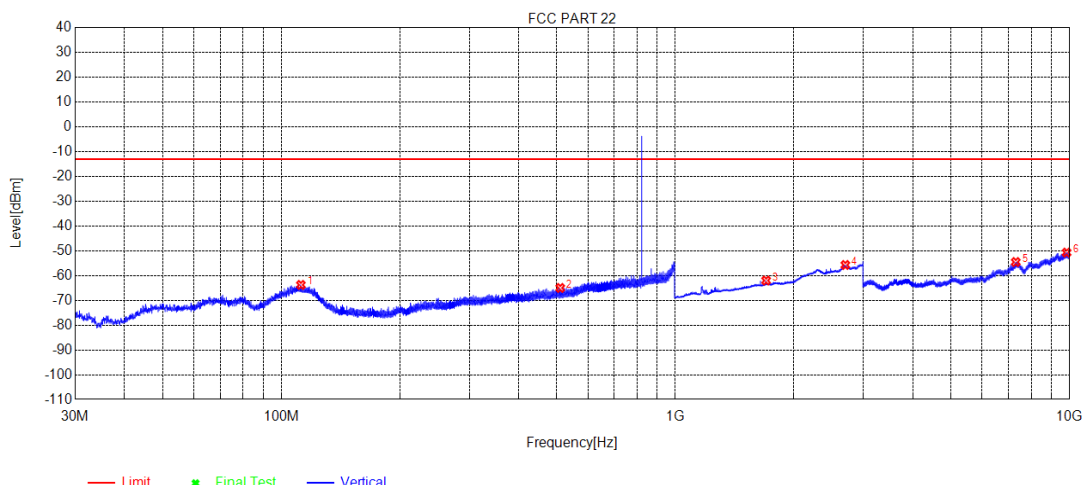
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7.14. Test Band = GSM_850 UP ANT

7.14.1. Test Channel = Low Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	112.2116	-69.96	-63.74	-13.00	50.74	166	328	Vertical
2	510.5135	-69.72	-64.98	-13.00	51.98	284	0	Vertical
3	1699.7399	-66.83	-61.98	-13.00	48.98	216	230	Vertical
4	2699.9400	-67.37	-55.70	-13.00	42.70	294	295	Vertical
5	7307.4769	-55.00	-54.52	-13.00	41.52	151	303	Vertical
6	9833.3944	-57.19	-50.70	-13.00	37.70	128	0	Vertical



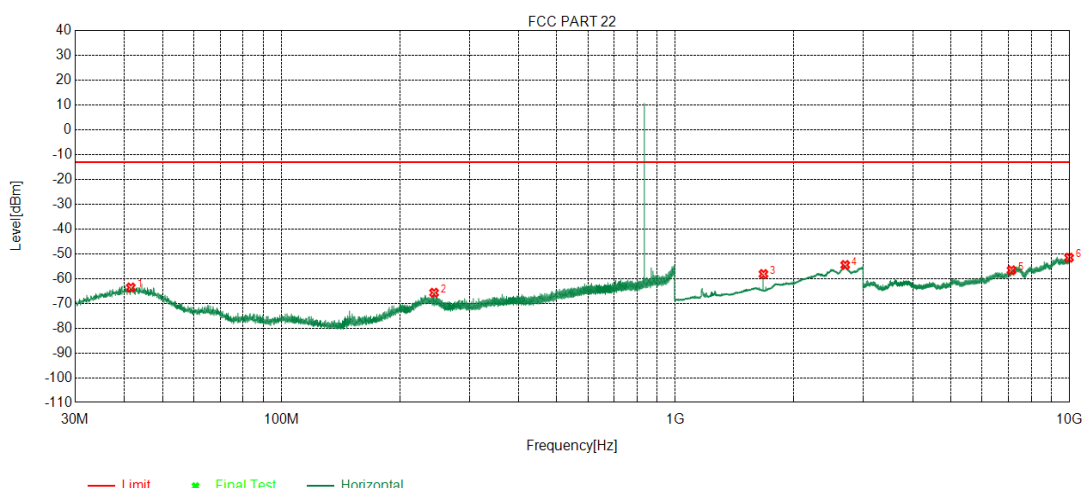
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7.15. Test Band = GSM_850 UP ANT

7.15.1. Test Channel = Mid Channel

Test Graph



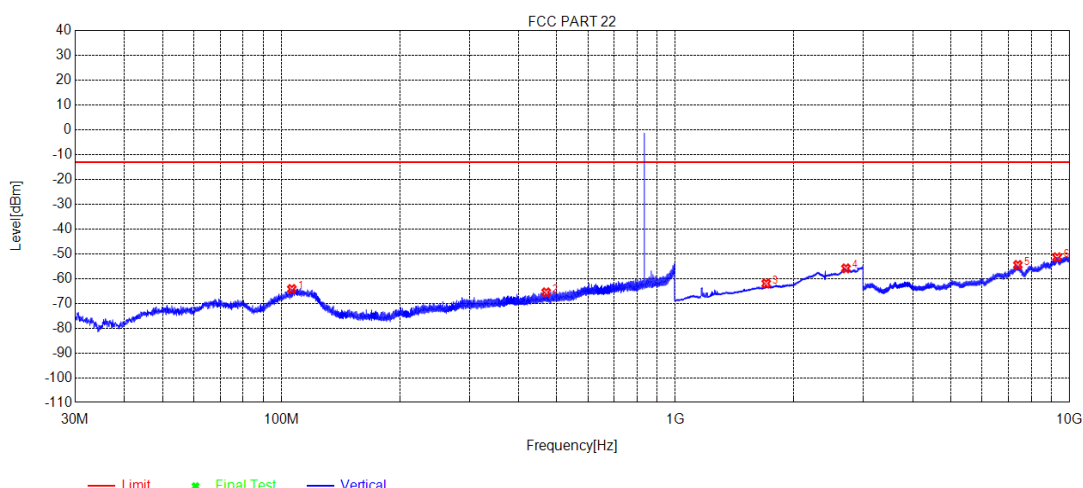
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	41.5436	-70.42	-63.58	-13.00	50.58	175	242	Horizontal
2	244.2837	-68.40	-65.70	-13.00	52.70	121	173	Horizontal
3	1673.3347	-61.95	-58.14	-13.00	45.14	158	168	Horizontal
4	2697.9396	-67.37	-54.50	-13.00	41.50	196	324	Horizontal
5	7127.3376	-55.26	-56.63	-13.00	43.63	234	5	Horizontal
6	9975.9659	-56.98	-51.55	-13.00	38.55	284	173	Horizontal





7.16. Test Band = GSM_850 UP ANT
7.16.1. Test Channel = Mid Channel

Test Graph



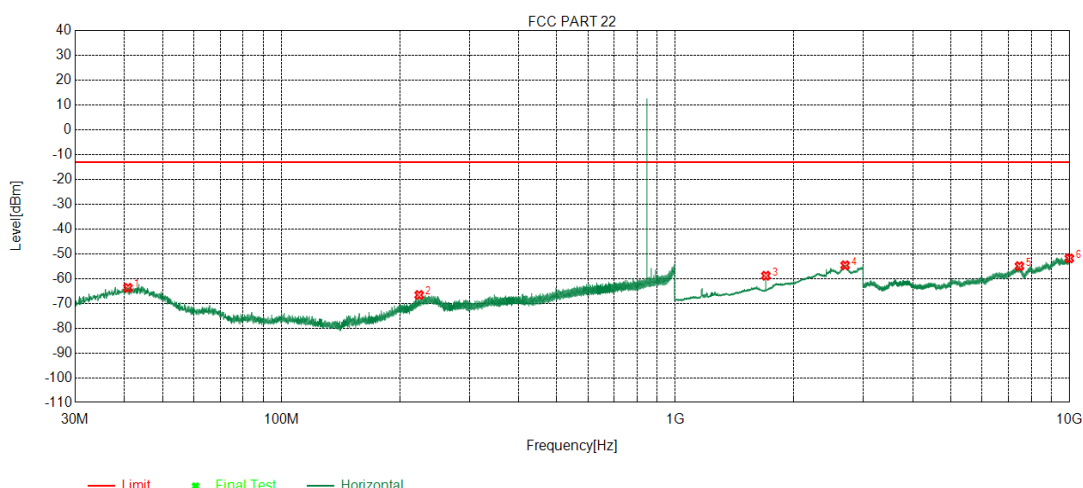
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	106.4398	-69.77	-64.19	-13.00	51.19	166	40	Vertical
2	470.2080	-69.76	-65.54	-13.00	52.54	192	171	Vertical
3	1700.1400	-66.83	-61.98	-13.00	48.98	243	94	Vertical
4	2709.1418	-67.45	-55.86	-13.00	42.86	255	248	Vertical
5	7396.6132	-55.05	-54.49	-13.00	41.49	284	288	Vertical
6	9301.1434	-57.49	-51.39	-13.00	38.39	266	91	Vertical





7.17. Test Band = GSM_850 UP ANT
7.17.1. Test Channel = High Channel

Test Graph



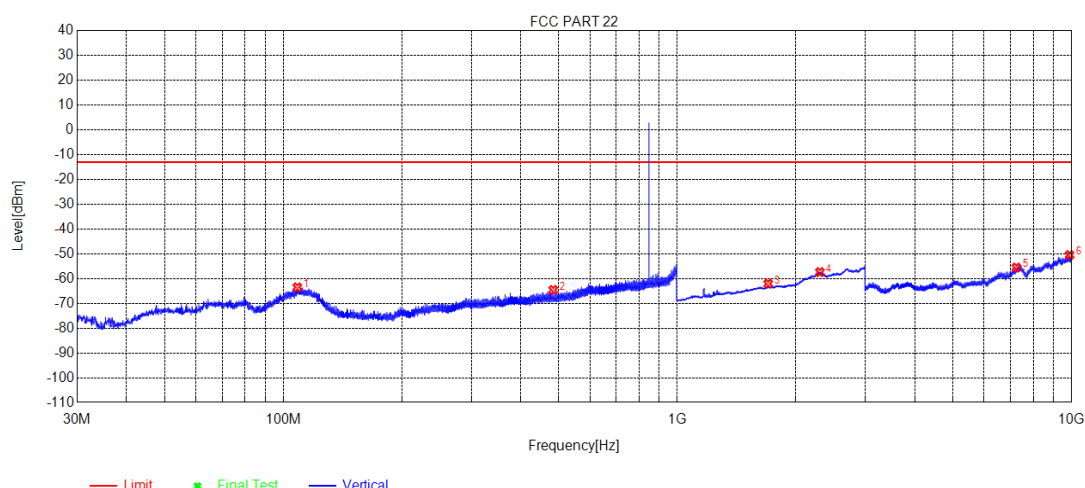
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.8645	-70.52	-63.72	-13.00	50.72	121	161	Horizontal
2	223.9612	-68.33	-66.59	-13.00	53.59	135	108	Horizontal
3	1697.3395	-62.40	-58.82	-13.00	45.82	286	106	Horizontal
4	2696.7393	-67.46	-54.62	-13.00	41.62	295	22	Horizontal
5	7464.7488	-54.95	-54.97	-13.00	41.97	255	275	Horizontal
6	9992.7664	-57.37	-51.83	-13.00	38.83	178	354	Horizontal





7.18. Test Band = GSM_850 UP ANT
7.18.1. Test Channel = High Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	108.6224	-69.60	-63.51	-13.00	50.51	263	206	Vertical
2	484.1282	-68.78	-64.56	-13.00	51.56	255	104	Vertical
3	1700.1400	-66.88	-62.03	-13.00	49.03	284	76	Vertical
4	2300.2601	-67.62	-57.36	-13.00	44.36	116	276	Vertical
5	7248.4416	-55.61	-55.51	-13.00	42.51	294	320	Vertical
6	9891.9631	-56.85	-50.47	-13.00	37.47	174	291	Vertical



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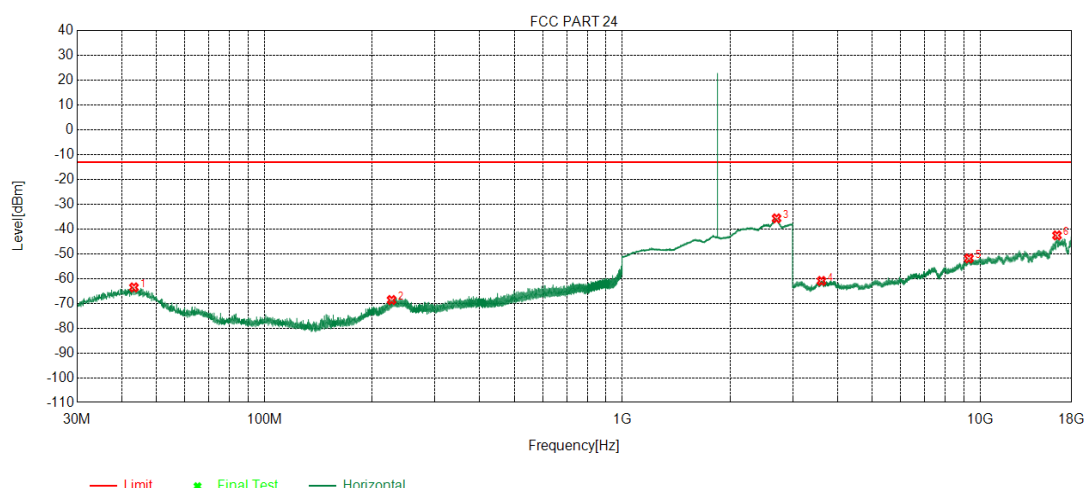
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7.19. Test Band = GSM_1900 UP ANT
7.19.1. Test Channel = Low Channel

Test Graph



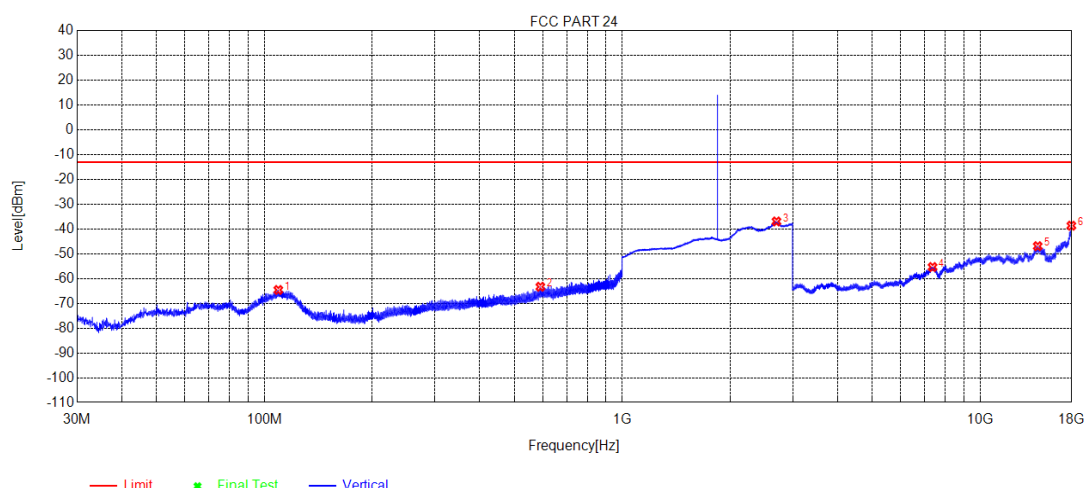
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.2412	-70.47	-63.54	-13.00	50.54	176	47	Horizontal
2	226.8713	-70.90	-68.63	-13.00	55.63	253	116	Horizontal
3	2699.9400	-68.60	-35.67	-13.00	22.67	299	154	Horizontal
4	3604.0201	-52.84	-60.94	-13.00	47.94	264	116	Horizontal
5	9306.2102	-57.71	-51.83	-13.00	38.83	281	15	Horizontal
6	16399.446	-56.99	-42.55	-13.00	29.55	222	301	Horizontal





7.20. Test Band = GSM_1900 UP ANT
7.20.1. Test Channel = Low Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	109.4955	-70.86	-64.57	-13.00	51.57	125	109	Vertical
2	590.8335	-70.48	-63.29	-13.00	50.29	199	319	Vertical
3	2697.9396	-68.55	-36.92	-13.00	23.92	176	279	Vertical
4	7364.6455	-55.85	-55.32	-13.00	42.32	132	141	Vertical
5	14485.382	-59.29	-46.90	-13.00	33.90	268	252	Vertical
6	17988.999	-56.24	-38.64	-13.00	25.64	211	13	Vertical

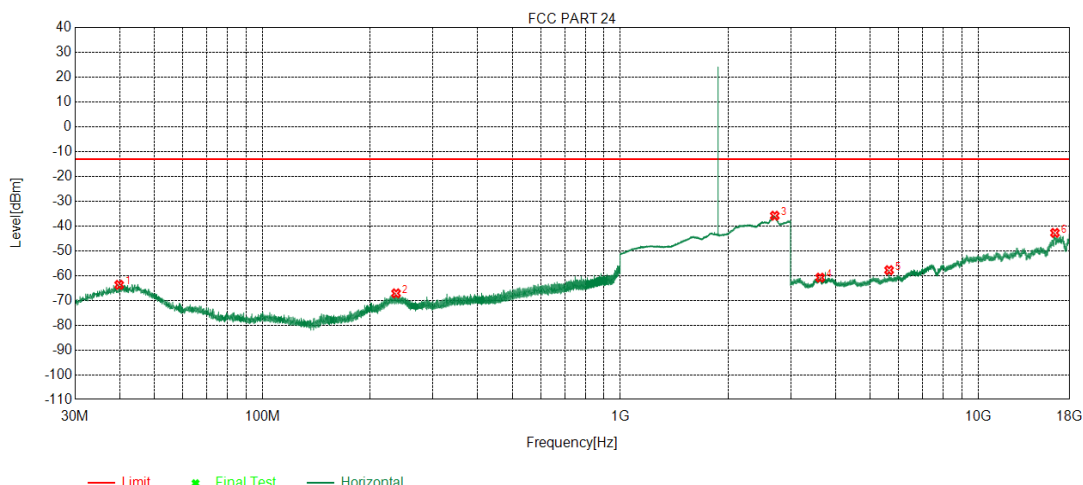


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7.21. Test Band = GSM_1900 UP ANT

7.21.1. Test Channel = Mid Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.8460	-70.43	-63.72	-13.00	50.72	296	3	Horizontal
2	236.5233	-69.96	-67.16	-13.00	54.16	246	135	Horizontal
3	2703.1406	-68.65	-35.82	-13.00	22.82	233	150	Horizontal
4	3620.5207	-52.64	-60.82	-13.00	47.82	185	135	Horizontal
5	5640.0880	-51.77	-57.81	-13.00	44.81	162	3	Horizontal
6	16394.946	-57.10	-42.74	-13.00	29.74	172	39	Horizontal



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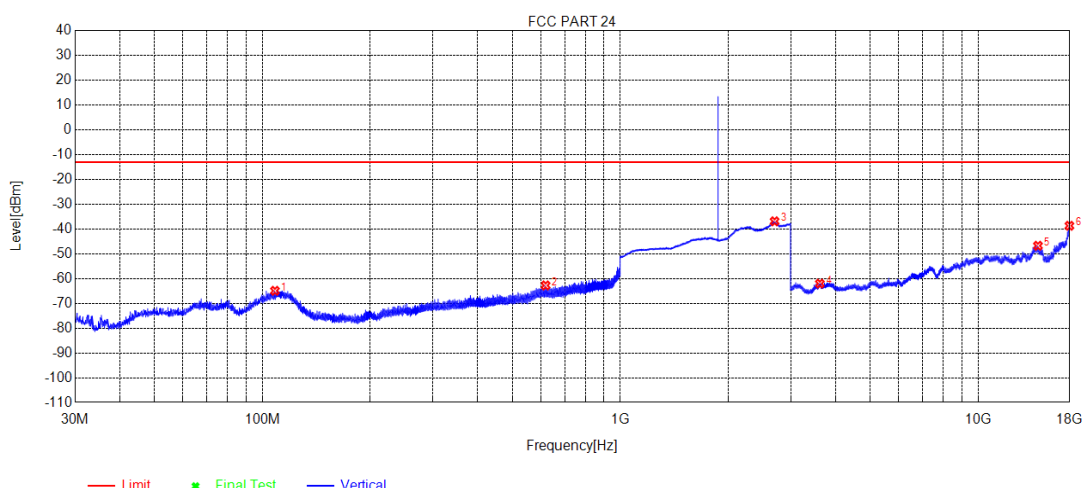
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7.22. Test Band = GSM_1900 UP ANT

7.22.1. Test Channel = Mid Channel

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	108.5254	-70.98	-64.91	-13.00	51.91	166	217	Vertical
2	619.1105	-70.33	-62.75	-13.00	49.75	192	13	Vertical
3	2700.3401	-68.54	-36.87	-13.00	23.87	138	69	Vertical
4	3613.0204	-52.90	-62.02	-13.00	49.02	269	186	Vertical
5	14695.889	-58.87	-46.73	-13.00	33.73	255	52	Vertical
6	17992.999	-56.37	-38.67	-13.00	25.67	268	13	Vertical



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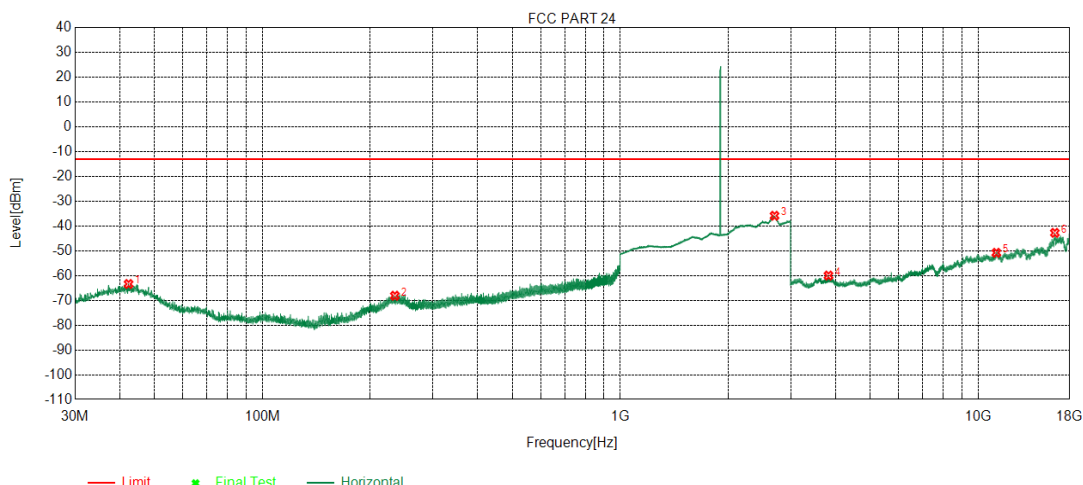
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7.23. Test Band = GSM_1900 UP ANT

7.23.1. Test Channel = High Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.3196	-70.26	-63.38	-13.00	50.38	166	292	Horizontal
2	234.6802	-70.92	-68.11	-13.00	55.11	193	6	Horizontal
3	2699.1398	-68.74	-35.83	-13.00	22.83	128	241	Horizontal
4	3819.5273	-51.75	-59.98	-13.00	46.98	246	6	Horizontal
5	11245.7749	-56.87	-50.78	-13.00	37.78	255	133	Horizontal
6	16381.946	-56.86	-42.73	-13.00	29.73	284	260	Horizontal



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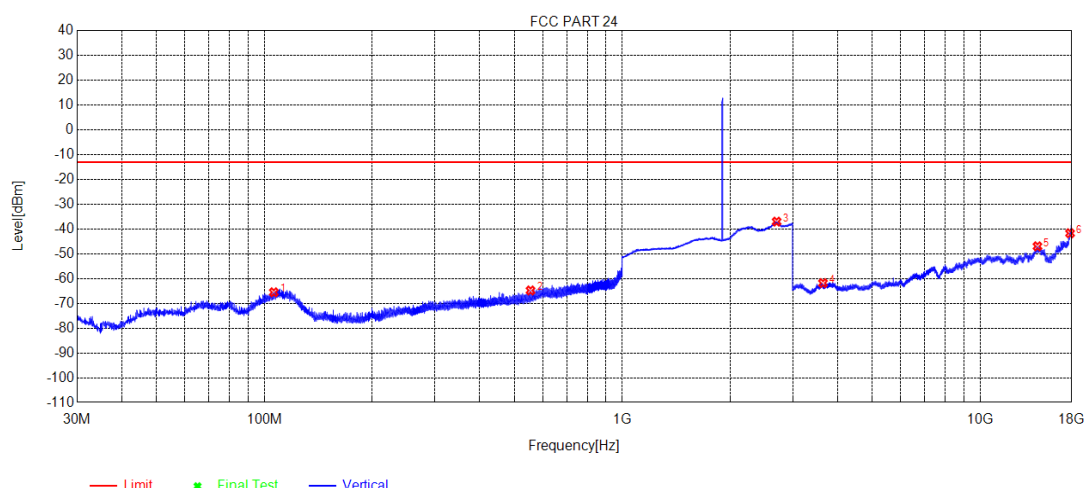
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7.24. Test Band = GSM_1900 UP ANT
7.24.1. Test Channel = High Channel

Test Graph



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	106.3428	-71.07	-65.51	-13.00	52.51	188	56	Vertical
2	554.5537	-70.17	-64.78	-13.00	51.78	196	124	Vertical
3	2700.7401	-68.65	-36.99	-13.00	23.99	252	62	Vertical
4	3638.5213	-52.63	-61.82	-13.00	48.82	233	294	Vertical
5	14461.382	-59.16	-46.96	-13.00	33.96	218	163	Vertical
6	17834.994	-56.33	-41.70	-13.00	28.70	284	325	Vertical

Remark:

- 1) According to 971168 D01 Power Meas License Digital Systems, The amplitudes of unwanted emissions that are attenuated more than 20 dB below the applicable limit are not required to be reported.
- 2) The disturbance above 18GHz 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.





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	NT	4.10	0.004975	±2.5	PASS
GSM850	128	VN	NT	6.68	0.008105	±2.5	PASS
GSM850	128	VH	NT	6.65	0.008068	±2.5	PASS
GSM850	190	VL	NT	14.92	0.017834	±2.5	PASS
GSM850	190	VN	NT	11.46	0.013698	±2.5	PASS
GSM850	190	VH	NT	13.37	0.015981	±2.5	PASS
GSM850	251	VL	NT	9.78	0.011522	±2.5	PASS
GSM850	251	VN	NT	7.75	0.009131	±2.5	PASS
GSM850	251	VH	NT	5.13	0.006044	±2.5	PASS
EGPRS850	128	VL	NT	24.70	0.029968	±2.5	PASS
EGPRS850	128	VN	NT	26.67	0.032359	±2.5	PASS
EGPRS850	128	VH	NT	22.15	0.026875	±2.5	PASS
EGPRS850	190	VL	NT	32.64	0.039015	±2.5	PASS
EGPRS850	190	VN	NT	29.57	0.035345	±2.5	PASS
EGPRS850	190	VH	NT	31.28	0.037389	±2.5	PASS
EGPRS850	251	VL	NT	27.51	0.032410	±2.5	PASS
EGPRS850	251	VN	NT	22.79	0.026850	±2.5	PASS
EGPRS850	251	VH	NT	25.93	0.030549	±2.5	PASS
GSM1900	512	VL	NT	19.05	0.010296	±2.5	PASS
GSM1900	512	VN	NT	18.05	0.009756	±2.5	PASS
GSM1900	512	VH	NT	19.37	0.010469	±2.5	PASS
GSM1900	661	VL	NT	19.15	0.010186	±2.5	PASS
GSM1900	661	VN	NT	19.79	0.010527	±2.5	PASS
GSM1900	661	VH	NT	21.57	0.011473	±2.5	PASS
GSM1900	810	VL	NT	0.10	0.000052	±2.5	PASS
GSM1900	810	VN	NT	6.88	0.003602	±2.5	PASS
GSM1900	810	VH	NT	1.45	0.000759	±2.5	PASS
EGPRS1900	512	VL	NT	32.61	0.017625	±2.5	PASS
EGPRS1900	512	VN	NT	32.22	0.017414	±2.5	PASS
EGPRS1900	512	VH	NT	35.00	0.018917	±2.5	PASS



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EGPRS1900	661	VL	NT	31.51	0.016761	±2.5	PASS
EGPRS1900	661	VN	NT	33.45	0.017793	±2.5	PASS
EGPRS1900	661	VH	NT	34.77	0.018495	±2.5	PASS
EGPRS1900	810	VL	NT	27.41	0.014352	±2.5	PASS
EGPRS1900	810	VN	NT	26.60	0.013928	±2.5	PASS
EGPRS1900	810	VH	NT	31.28	0.016379	±2.5	PASS

8.2.Frequency Error Vs Temperature

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	NV	-30	7.17	0.008699	±2.5	PASS
GSM850	128	NV	-20	6.97	0.008457	±2.5	PASS
GSM850	128	NV	-10	3.23	0.003919	±2.5	PASS
GSM850	128	NV	0	6.01	0.007292	±2.5	PASS
GSM850	128	NV	10	6.13	0.007438	±2.5	PASS
GSM850	128	NV	20	9.78	0.011866	±2.5	PASS
GSM850	128	NV	30	11.04	0.013395	±2.5	PASS
GSM850	128	NV	40	6.23	0.007559	±2.5	PASS
GSM850	128	NV	50	8.91	0.010810	±2.5	PASS
GSM850	190	NV	-30	8.81	0.010531	±2.5	PASS
GSM850	190	NV	-20	11.17	0.013352	±2.5	PASS
GSM850	190	NV	-10	13.20	0.015778	±2.5	PASS
GSM850	190	NV	0	7.72	0.009228	±2.5	PASS
GSM850	190	NV	10	13.88	0.016591	±2.5	PASS
GSM850	190	NV	20	10.56	0.012623	±2.5	PASS
GSM850	190	NV	30	11.88	0.014200	±2.5	PASS
GSM850	190	NV	40	10.94	0.013077	±2.5	PASS
GSM850	190	NV	50	8.39	0.010029	±2.5	PASS
GSM850	251	NV	-30	3.10	0.003652	±2.5	PASS
GSM850	251	NV	-20	3.39	0.003994	±2.5	PASS
GSM850	251	NV	-10	8.07	0.009508	±2.5	PASS
GSM850	251	NV	0	6.07	0.007151	±2.5	PASS
GSM850	251	NV	10	8.23	0.009696	±2.5	PASS
GSM850	251	NV	20	1.68	0.001979	±2.5	PASS
GSM850	251	NV	30	6.20	0.007304	±2.5	PASS
GSM850	251	NV	40	12.17	0.014338	±2.5	PASS



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GSM850	251	NV	50	6.01	0.007081	±2.5	PASS
EGPRS850	128	NV	-30	27.44	0.033293	±2.5	PASS
EGPRS850	128	NV	-20	25.76	0.031255	±2.5	PASS
EGPRS850	128	NV	-10	25.12	0.030478	±2.5	PASS
EGPRS850	128	NV	0	24.86	0.030163	±2.5	PASS
EGPRS850	128	NV	10	25.15	0.030514	±2.5	PASS
EGPRS850	128	NV	20	27.93	0.033887	±2.5	PASS
EGPRS850	128	NV	30	30.41	0.036896	±2.5	PASS
EGPRS850	128	NV	40	27.83	0.033766	±2.5	PASS
EGPRS850	128	NV	50	25.41	0.030830	±2.5	PASS
EGPRS850	190	NV	-30	30.32	0.036242	±2.5	PASS
EGPRS850	190	NV	-20	29.22	0.034927	±2.5	PASS
EGPRS850	190	NV	-10	33.96	0.040593	±2.5	PASS
EGPRS850	190	NV	0	32.64	0.039015	±2.5	PASS
EGPRS850	190	NV	10	31.06	0.037126	±2.5	PASS
EGPRS850	190	NV	20	30.87	0.036899	±2.5	PASS
EGPRS850	190	NV	30	33.03	0.039481	±2.5	PASS
EGPRS850	190	NV	40	31.41	0.037545	±2.5	PASS
EGPRS850	190	NV	50	29.86	0.035692	±2.5	PASS
EGPRS850	251	NV	-30	23.96	0.028228	±2.5	PASS
EGPRS850	251	NV	-20	27.83	0.032787	±2.5	PASS
EGPRS850	251	NV	-10	25.83	0.030431	±2.5	PASS
EGPRS850	251	NV	0	26.57	0.031303	±2.5	PASS
EGPRS850	251	NV	10	25.63	0.030196	±2.5	PASS
EGPRS850	251	NV	20	28.73	0.033848	±2.5	PASS
EGPRS850	251	NV	30	27.44	0.032328	±2.5	PASS
EGPRS850	251	NV	40	27.38	0.032257	±2.5	PASS
EGPRS850	251	NV	50	26.22	0.030891	±2.5	PASS
GSM1900	512	NV	-30	19.21	0.010383	±2.5	PASS
GSM1900	512	NV	-20	19.53	0.010556	±2.5	PASS
GSM1900	512	NV	-10	25.31	0.013680	±2.5	PASS
GSM1900	512	NV	0	24.89	0.013453	±2.5	PASS
GSM1900	512	NV	10	19.53	0.010556	±2.5	PASS
GSM1900	512	NV	20	19.66	0.010626	±2.5	PASS
GSM1900	512	NV	30	21.44	0.011588	±2.5	PASS
GSM1900	512	NV	40	23.34	0.012615	±2.5	PASS
GSM1900	512	NV	50	23.60	0.012755	±2.5	PASS



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GSM1900	661	NV	-30	20.21	0.010750	±2.5	PASS
GSM1900	661	NV	-20	17.79	0.009463	±2.5	PASS
GSM1900	661	NV	-10	19.63	0.010441	±2.5	PASS
GSM1900	661	NV	0	13.53	0.007197	±2.5	PASS
GSM1900	661	NV	10	19.76	0.010511	±2.5	PASS
GSM1900	661	NV	20	16.40	0.008723	±2.5	PASS
GSM1900	661	NV	30	19.44	0.010340	±2.5	PASS
GSM1900	661	NV	40	21.63	0.011505	±2.5	PASS
GSM1900	661	NV	50	17.85	0.009495	±2.5	PASS
GSM1900	810	NV	-30	0.58	0.000304	±2.5	PASS
GSM1900	810	NV	-20	-1.52	-0.000796	±2.5	PASS
GSM1900	810	NV	-10	-2.74	-0.001435	±2.5	PASS
GSM1900	810	NV	0	0.29	0.000152	±2.5	PASS
GSM1900	810	NV	10	2.84	0.001487	±2.5	PASS
GSM1900	810	NV	20	-0.48	-0.000251	±2.5	PASS
GSM1900	810	NV	30	-1.61	-0.000843	±2.5	PASS
GSM1900	810	NV	40	-0.97	-0.000508	±2.5	PASS
GSM1900	810	NV	50	-0.81	-0.000424	±2.5	PASS
EGPRS1900	512	NV	-30	33.61	0.018166	±2.5	PASS
EGPRS1900	512	NV	-20	33.58	0.018149	±2.5	PASS
EGPRS1900	512	NV	-10	29.93	0.016177	±2.5	PASS
EGPRS1900	512	NV	0	33.84	0.018290	±2.5	PASS
EGPRS1900	512	NV	10	34.22	0.018495	±2.5	PASS
EGPRS1900	512	NV	20	34.71	0.018760	±2.5	PASS
EGPRS1900	512	NV	30	33.71	0.018220	±2.5	PASS
EGPRS1900	512	NV	40	31.70	0.017133	±2.5	PASS
EGPRS1900	512	NV	50	31.87	0.017225	±2.5	PASS
EGPRS1900	661	NV	-30	35.32	0.018787	±2.5	PASS
EGPRS1900	661	NV	-20	30.96	0.016468	±2.5	PASS
EGPRS1900	661	NV	-10	33.67	0.017910	±2.5	PASS
EGPRS1900	661	NV	0	33.13	0.017622	±2.5	PASS
EGPRS1900	661	NV	10	32.12	0.017085	±2.5	PASS
EGPRS1900	661	NV	20	31.54	0.016777	±2.5	PASS
EGPRS1900	661	NV	30	30.32	0.016128	±2.5	PASS
EGPRS1900	661	NV	40	25.60	0.013617	±2.5	PASS
EGPRS1900	661	NV	50	32.58	0.017330	±2.5	PASS
EGPRS1900	810	NV	-30	31.51	0.016499	±2.5	PASS



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EGPRS1900	810	NV	-20	34.93	0.018290	±2.5	PASS
EGPRS1900	810	NV	-10	26.60	0.013928	±2.5	PASS
EGPRS1900	810	NV	0	31.83	0.016667	±2.5	PASS
EGPRS1900	810	NV	10	30.83	0.016143	±2.5	PASS
EGPRS1900	810	NV	20	28.51	0.014928	±2.5	PASS
EGPRS1900	810	NV	30	33.48	0.017531	±2.5	PASS
EGPRS1900	810	NV	40	26.70	0.013981	±2.5	PASS
EGPRS1900	810	NV	50	26.05	0.013640	±2.5	PASS

The End

