



# Appendix B

## GSM 850 & 1900



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## CONTENT

	Page
1. EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA.....	4
1.1. Test Result.....	4
2. PEAK-TO-AVERAGE RATIO .....	6
2.1. Test Result.....	6
2.2. Part II - Test Plots .....	6
3. MODULATION CHARACTERISTICS .....	13
3.1. For GSM.....	13
3.1.1. Test Band = GSM 850.....	13
3.1.1.1. Test Mode = GSM/TM1.....	13
3.1.1.1.1. Test Channel = MCH.....	13
3.1.1.2. Test Mode = GSM/TM2.....	14
3.1.1.2.1. Test Channel = MCH.....	14
3.1.2. Test Band = GSM 1900 .....	15
3.1.2.1. Test Mode = GSM/TM1.....	15
3.1.2.1.1. Test Channel = MCH.....	15
3.1.2.2. Test Mode = GSM/TM2.....	16
3.1.2.2.1. Test Channel = MCH.....	16
4. 26dB BANDWIDTH AND OCCUPIED BANDWIDTH .....	17
4.1. Test Result.....	17
4.2. Test Plots.....	17
5. BAND EDGE COMPLIANCE.....	24
5.1. Test Plots.....	24
6. SPURIOUS EMISSION AT ANTENNA TERMINAL .....	28
6.1. Test Plots.....	28
7. FIELD STRENGTH OF SPURIOUS RADIATION.....	58
7.1. Test Band = GSM 1900 (Main Ant).....	58
7.1.1. Test Channel = LCH.....	58
7.1.2. Test Channel = MCH.....	58
7.1.3. Test Channel = HCH .....	59
7.2. Test Band = GSM 850 (Main Ant) .....	59
7.2.1. Test Channel = LCH.....	59
7.2.2. Test Channel = MCH.....	60



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7.2.3.	Test Channel = HCH .....	60
7.3.	Test Band = GSM 850 (Second Ant).....	61
7.3.1.	Test Channel = LCH.....	61
7.3.2.	Test Channel = MCH.....	61
7.3.3.	Test Channel = HCH .....	62
7.4.	Test Band = GSM 1900 (Second Ant) .....	62
7.4.1.	Test Channel = LCH.....	62
7.4.2.	Test Channel = MCH.....	63
7.4.3.	Test Channel = HCH .....	63
8.	FREQUENCY STABILITY.....	64
8.1.	Frequency Error Vs Voltage .....	64
8.2.	Frequency Error Vs Temperature.....	65



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## 1. Effective (Isotropic) Radiated Power Output Data

### 1.1. Test Result

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.67	31.02	38.45	PASS
GSM850	190	---	32.77	31.12	38.45	PASS
GSM850	251	---	32.81	31.16	38.45	PASS
EGPRS850 (GMSK)	128	1	32.66	31.01	38.45	PASS
EGPRS850 (GMSK)	128	2	31.65	30.00	38.45	PASS
EGPRS850 (GMSK)	128	3	29.47	27.82	38.45	PASS
EGPRS850 (GMSK)	128	4	28.27	26.62	38.45	PASS
EGPRS850 (GMSK)	190	1	32.76	31.11	38.45	PASS
EGPRS850 (GMSK)	190	2	31.76	30.11	38.45	PASS
EGPRS850 (GMSK)	190	3	29.61	27.96	38.45	PASS
EGPRS850 (GMSK)	190	4	28.37	26.72	38.45	PASS
EGPRS850 (GMSK)	251	1	32.80	31.15	38.45	PASS
EGPRS850 (GMSK)	251	2	31.86	30.21	38.45	PASS
EGPRS850 (GMSK)	251	3	29.72	28.07	38.45	PASS
EGPRS850 (GMSK)	251	4	28.51	26.86	38.45	PASS
EGPRS850 (8PSK)	128	1	26.87	25.22	38.45	PASS
EGPRS850 (8PSK)	128	2	25.74	24.09	38.45	PASS
EGPRS850 (8PSK)	128	3	23.52	21.87	38.45	PASS
EGPRS850 (8PSK)	128	4	22.28	20.63	38.45	PASS
EGPRS850 (8PSK)	190	1	26.99	25.34	38.45	PASS
EGPRS850 (8PSK)	190	2	25.84	24.19	38.45	PASS
EGPRS850 (8PSK)	190	3	23.64	21.99	38.45	PASS
EGPRS850 (8PSK)	190	4	22.48	20.83	38.45	PASS
EGPRS850 (8PSK)	251	1	27.04	25.39	38.45	PASS
EGPRS850 (8PSK)	251	2	25.90	24.25	38.45	PASS
EGPRS850 (8PSK)	251	3	23.52	21.87	38.45	PASS
EGPRS850 (8PSK)	251	4	22.55	20.90	38.45	PASS



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Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	29.91	30.41	33.00	PASS
GSM1900	661	---	29.89	30.39	33.00	PASS
GSM1900	810	---	29.91	30.41	33.00	PASS
EGPRS1900 (GMSK)	512	1	29.95	30.45	33.00	PASS
EGPRS1900 (GMSK)	512	2	29.02	29.52	33.00	PASS
EGPRS1900 (GMSK)	512	3	26.94	27.44	33.00	PASS
EGPRS1900 (GMSK)	512	4	25.88	26.38	33.00	PASS
EGPRS1900 (GMSK)	661	1	29.93	30.43	33.00	PASS
EGPRS1900 (GMSK)	661	2	28.95	29.45	33.00	PASS
EGPRS1900 (GMSK)	661	3	26.93	27.43	33.00	PASS
EGPRS1900 (GMSK)	661	4	25.83	26.33	33.00	PASS
EGPRS1900 (GMSK)	810	1	29.92	30.42	33.00	PASS
EGPRS1900 (GMSK)	810	2	28.97	29.47	33.00	PASS
EGPRS1900 (GMSK)	810	3	26.95	27.45	33.00	PASS
EGPRS1900 (GMSK)	810	4	25.86	26.36	33.00	PASS
EGPRS1900 (8PSK)	512	1	28.85	29.35	33.00	PASS
EGPRS1900 (8PSK)	512	2	28.05	28.55	33.00	PASS
EGPRS1900 (8PSK)	512	3	26.50	27.00	33.00	PASS
EGPRS1900 (8PSK)	512	4	25.62	26.12	33.00	PASS
EGPRS1900 (8PSK)	661	1	26.28	26.78	33.00	PASS
EGPRS1900 (8PSK)	661	2	25.34	25.84	33.00	PASS
EGPRS1900 (8PSK)	661	3	23.49	23.99	33.00	PASS
EGPRS1900 (8PSK)	661	4	22.41	22.91	33.00	PASS
EGPRS1900 (8PSK)	810	1	28.93	29.43	33.00	PASS
EGPRS1900 (8PSK)	810	2	28.15	28.65	33.00	PASS
EGPRS1900 (8PSK)	810	3	26.61	27.11	33.00	PASS
EGPRS1900 (8PSK)	810	4	25.67	26.17	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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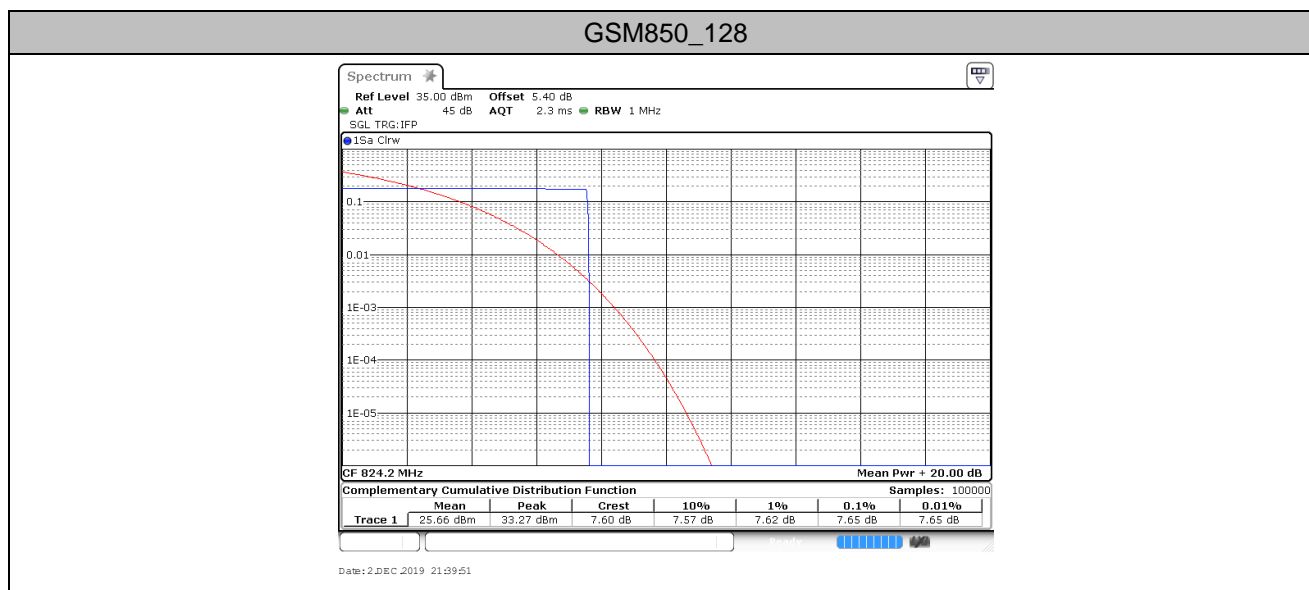


## 2. Peak-to-Average Ratio

### 2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
GSM850	128	7.65	13	PASS
GSM850	190	7.68	13	PASS
GSM850	251	7.62	13	PASS
EGPRS850	128	10.70	13	PASS
EGPRS850	190	10.41	13	PASS
EGPRS850	251	10.99	13	PASS
GSM1900	512	7.71	13	PASS
GSM1900	661	7.71	13	PASS
GSM1900	810	7.71	13	PASS
EGPRS1900	512	9.97	13	PASS
EGPRS1900	661	9.94	13	PASS
EGPRS1900	810	9.71	13	PASS

### 2.2. Part II - Test Plots



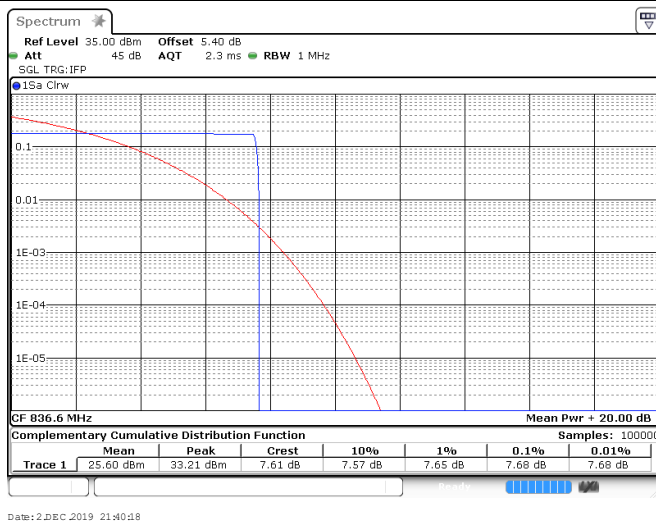
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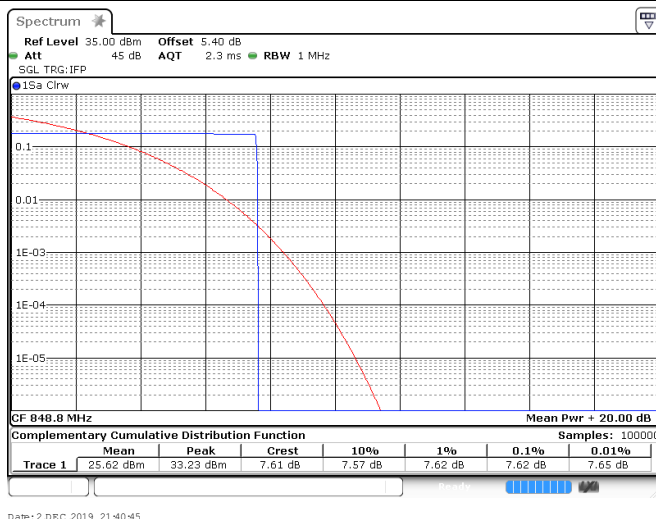
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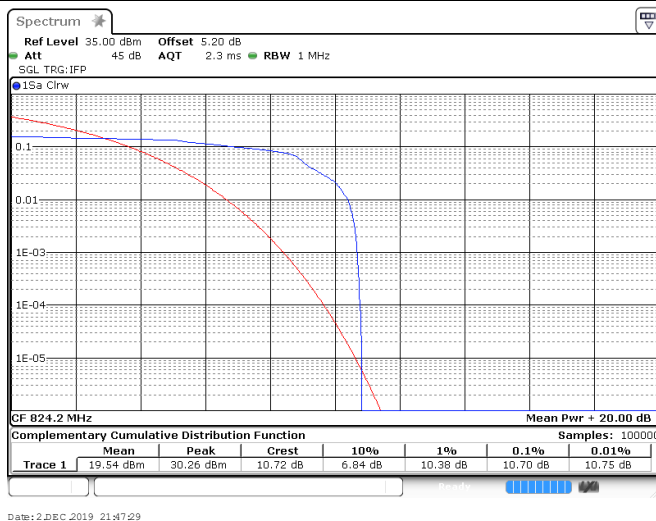
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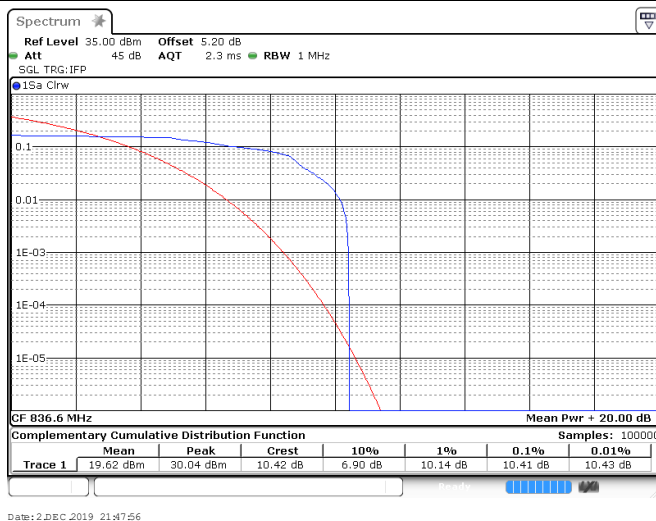
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## EGPRS850\_128

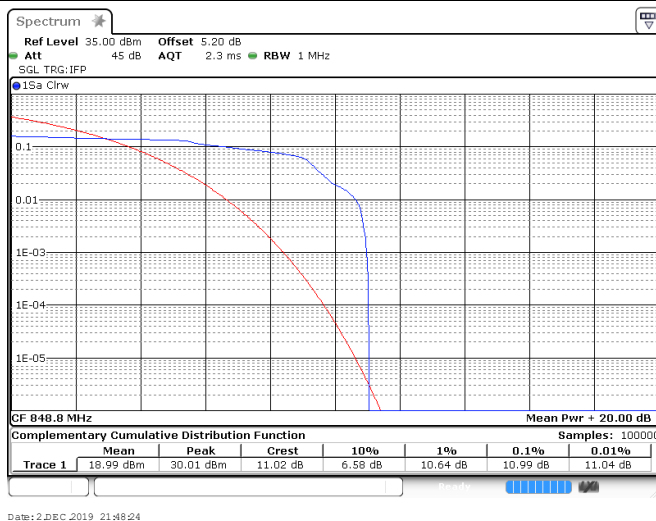


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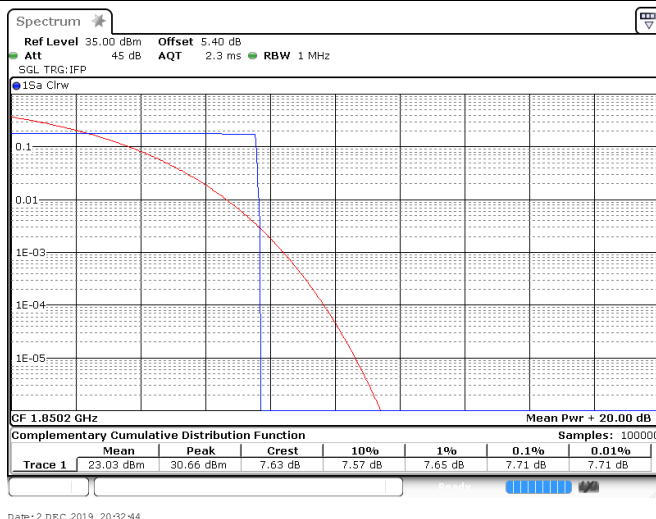




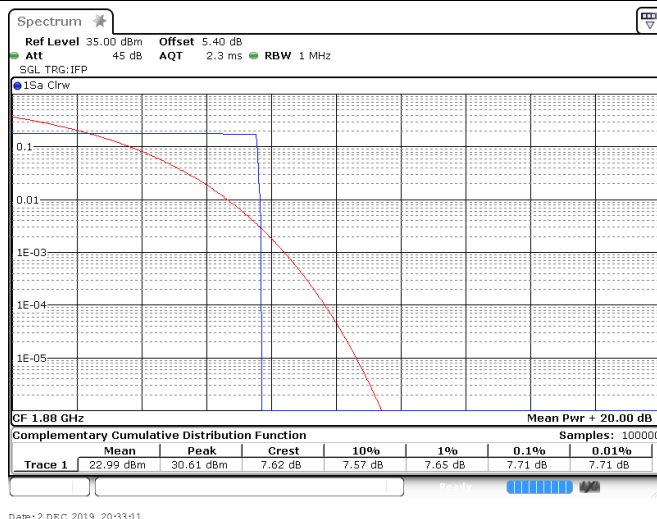
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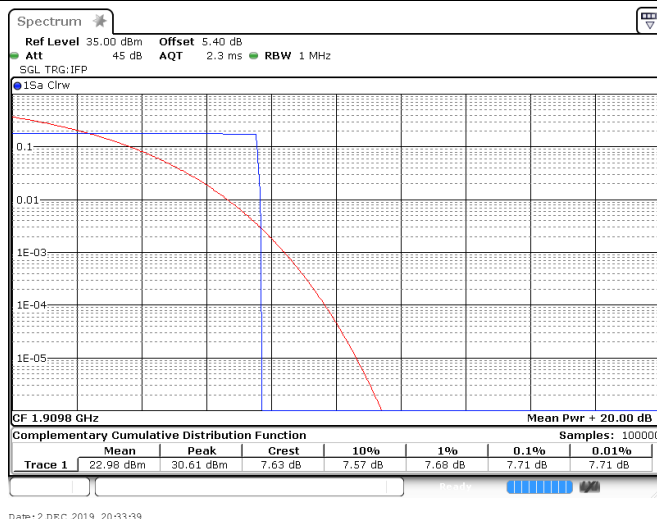
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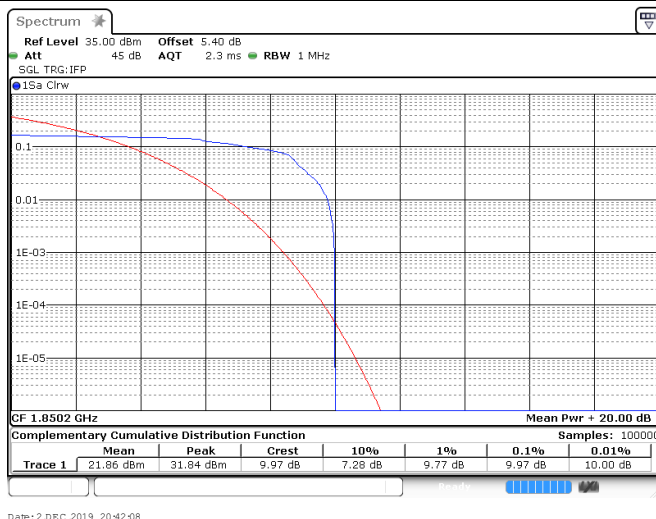
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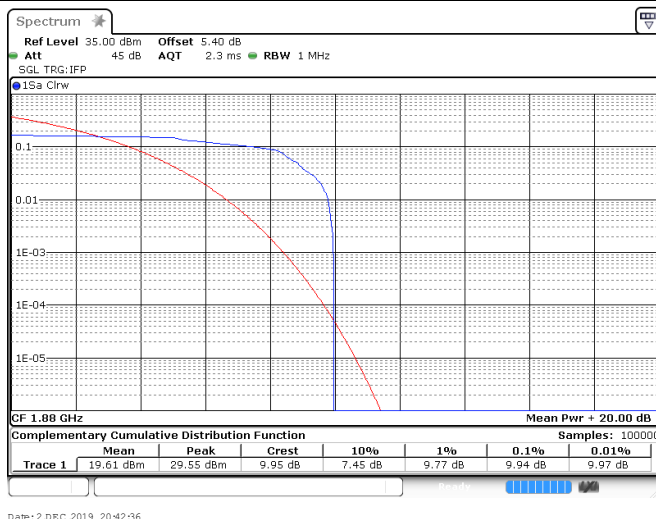
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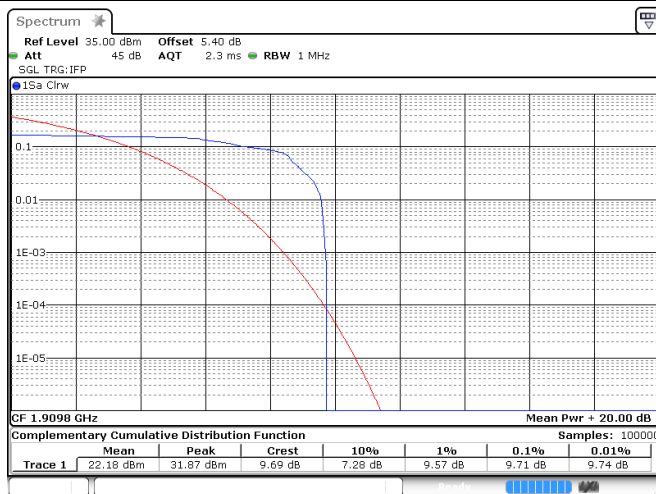
## EGPRS1900\_512



## EGPRS1900\_661



## EGPRS1900\_810



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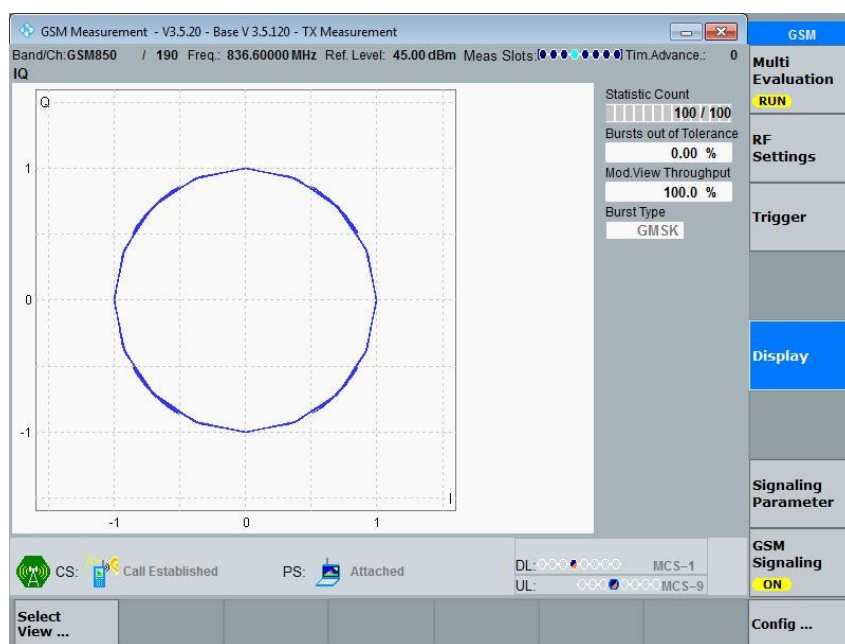
### 3. Modulation Characteristics

#### 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

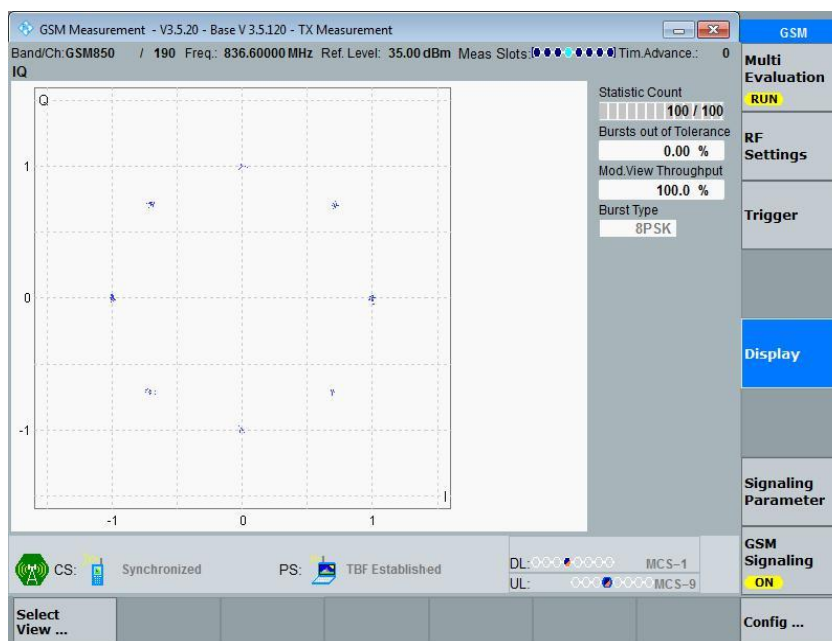






### 3.1.1.2. Test Mode = GSM/TM2

#### 3.1.1.2.1. Test Channel = MCH

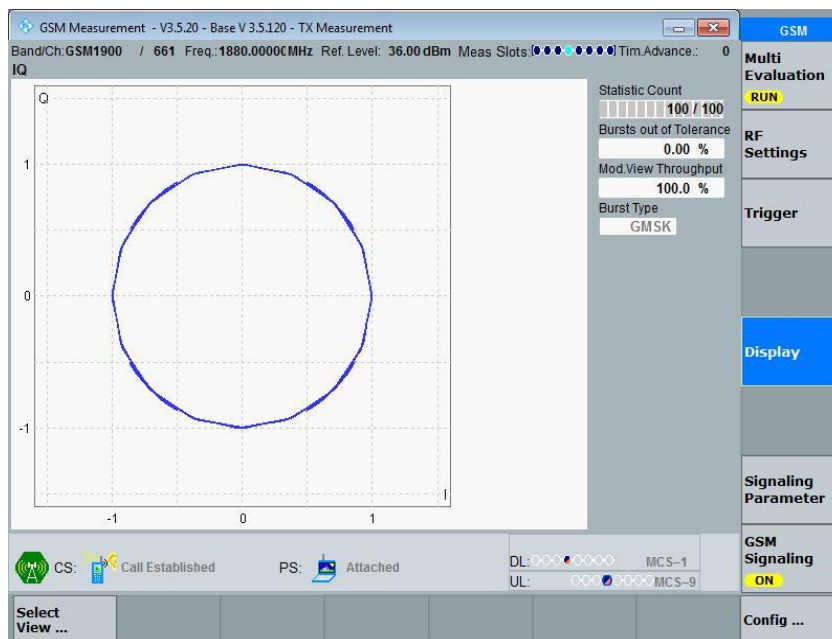




### 3.1.2. Test Band = GSM 1900

#### 3.1.2.1. Test Mode = GSM/TM1

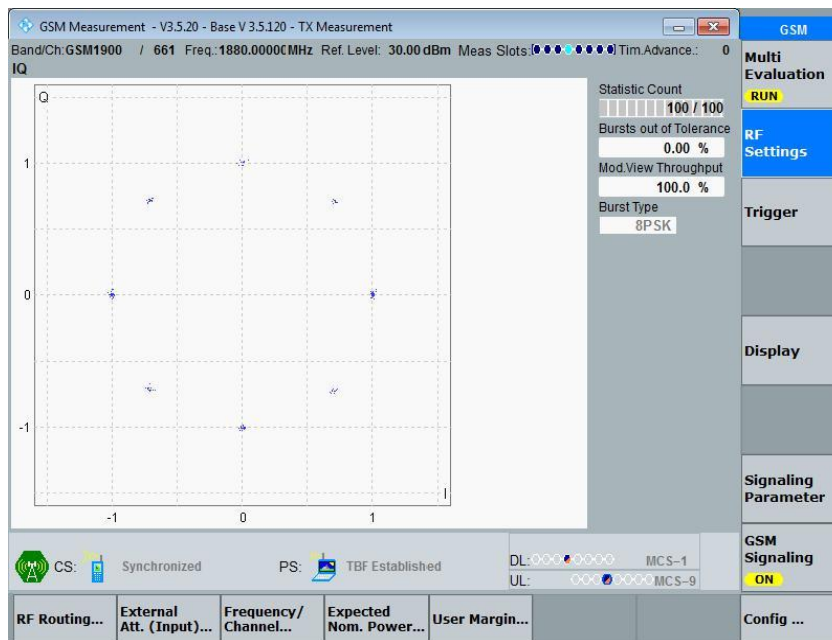
##### 3.1.2.1.1. Test Channel = MCH





### 3.1.2.2. Test Mode = GSM/TM2

#### 3.1.2.2.1. Test Channel = MCH

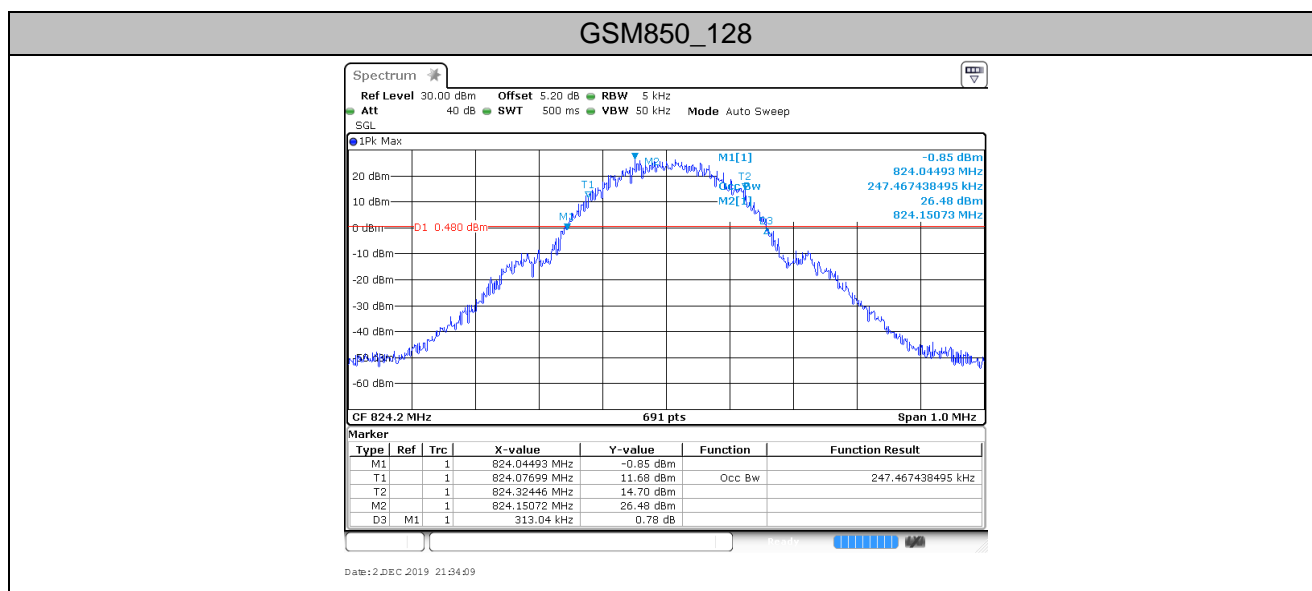


## 4. 26dB Bandwidth and Occupied Bandwidth

### 4.1.Test Result

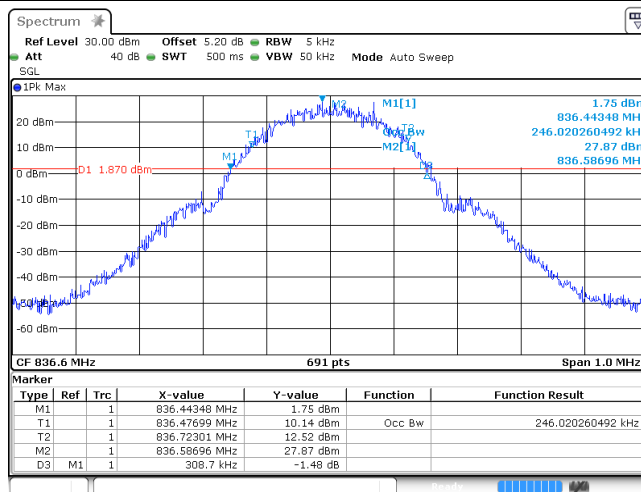
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
GSM850	128	247.47	313.04	---	PASS
GSM850	190	246.02	308.70	---	PASS
GSM850	251	244.57	298.55	---	PASS
EGPRS850	128	247.47	297.10	---	PASS
EGPRS850	190	251.81	295.65	---	PASS
EGPRS850	251	251.81	307.25	---	PASS
GSM1900	512	247.47	298.55	---	PASS
GSM1900	661	244.57	310.14	---	PASS
GSM1900	810	244.57	314.49	---	PASS
EGPRS1900	512	260.49	320.29	---	PASS
EGPRS1900	661	254.70	308.70	---	PASS
EGPRS1900	810	259.04	314.49	---	PASS

### 4.2. Test Plots

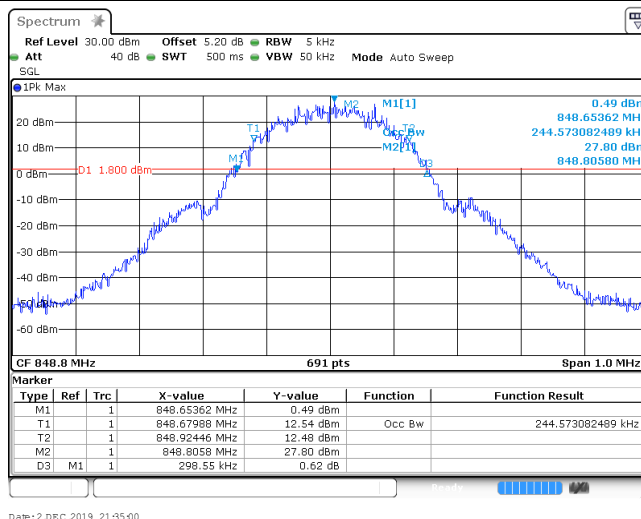




## GSM850\_190



## GSM850\_251

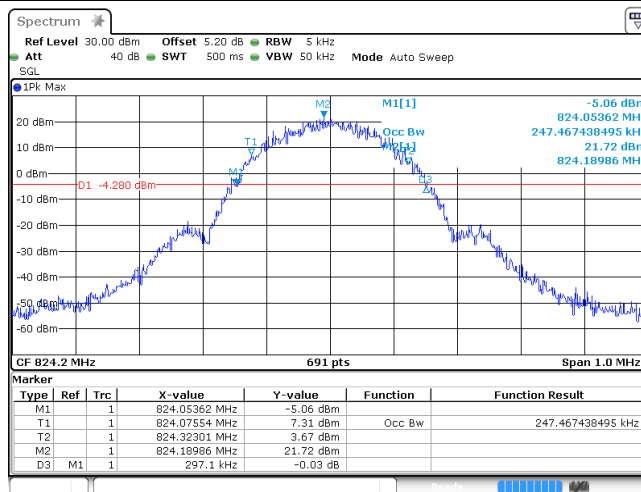


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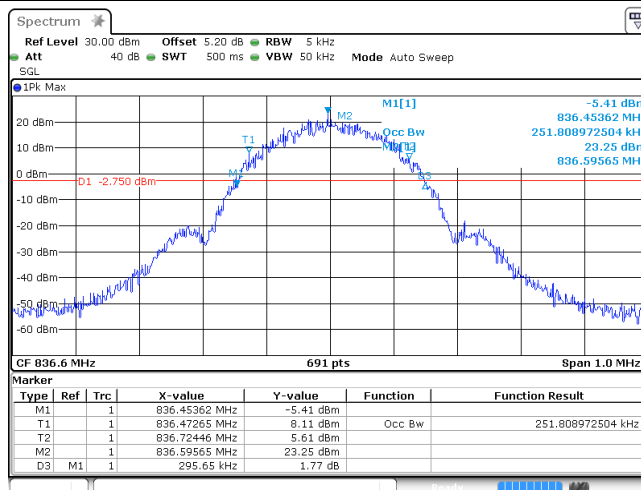
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## EGPRS850\_128



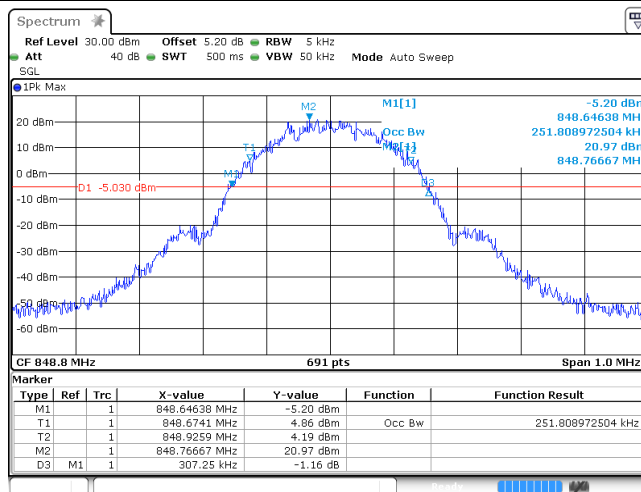
## EGPRS850\_190



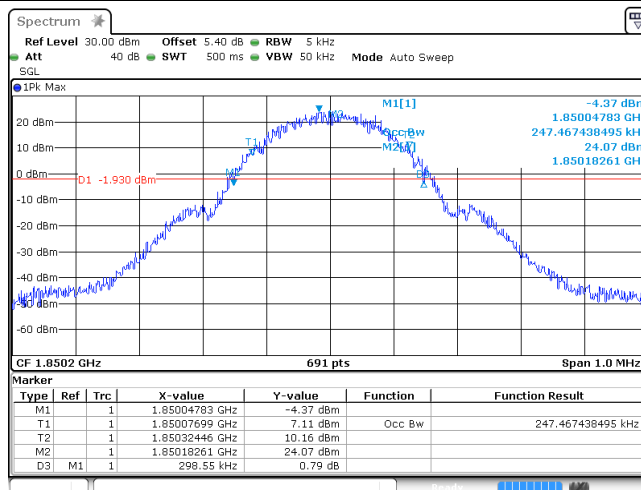
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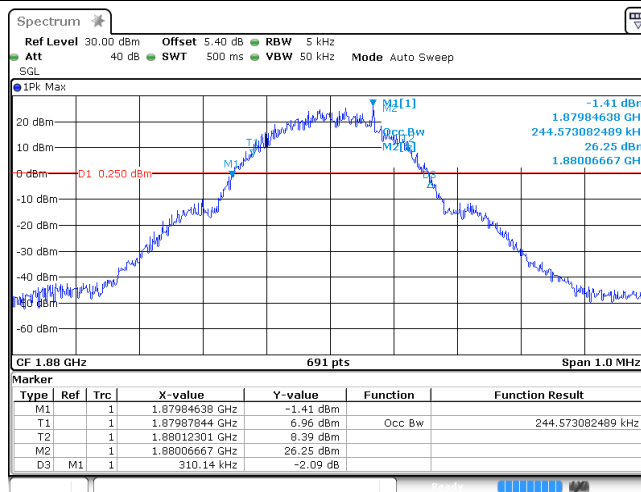
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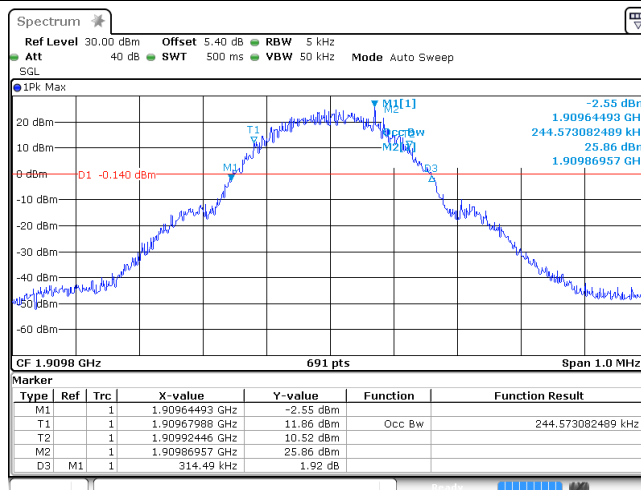
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## GSM1900\_661



Date: 2 DEC 2019 20:26:43

## GSM1900\_810



Date: 2 DEC 2019 20:26:39

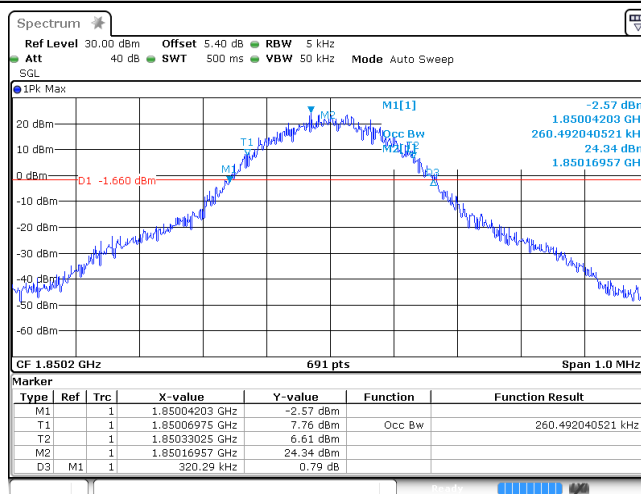


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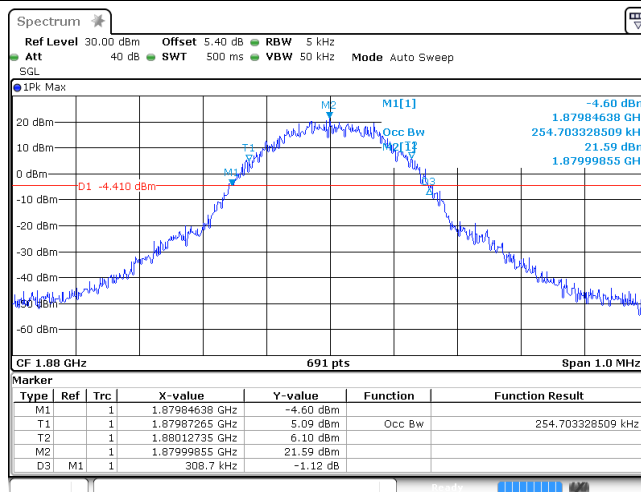
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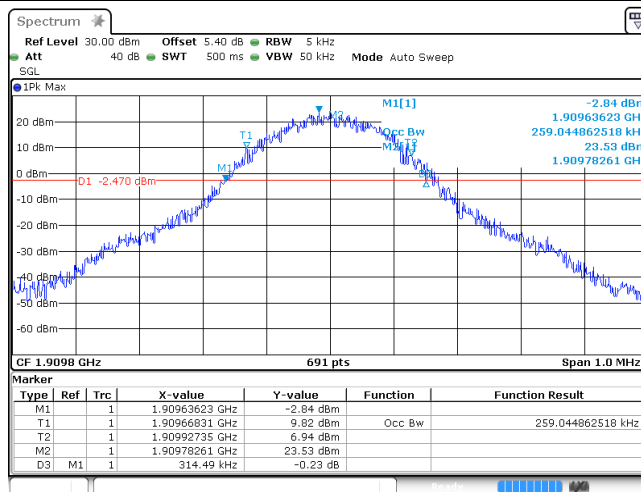
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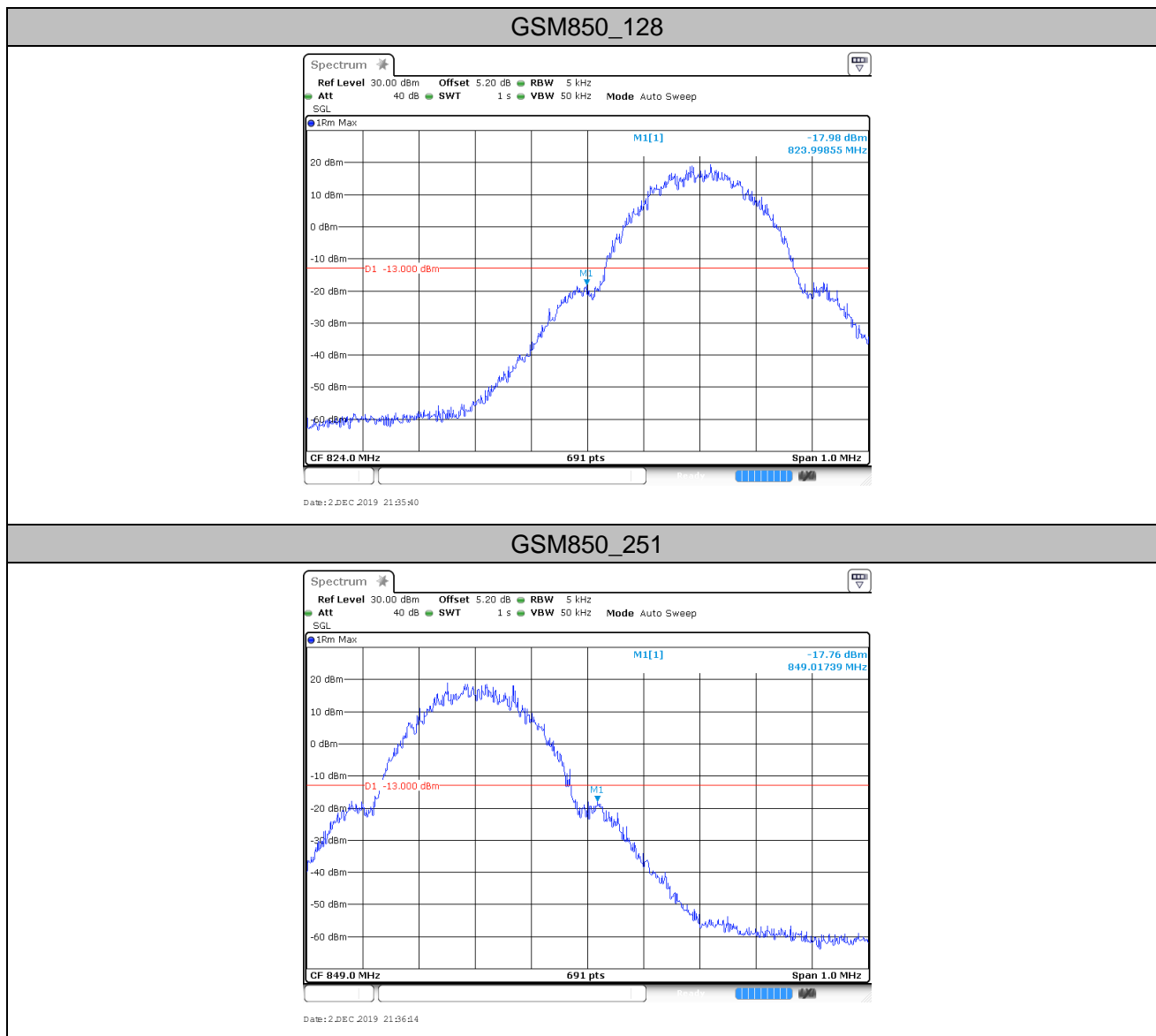




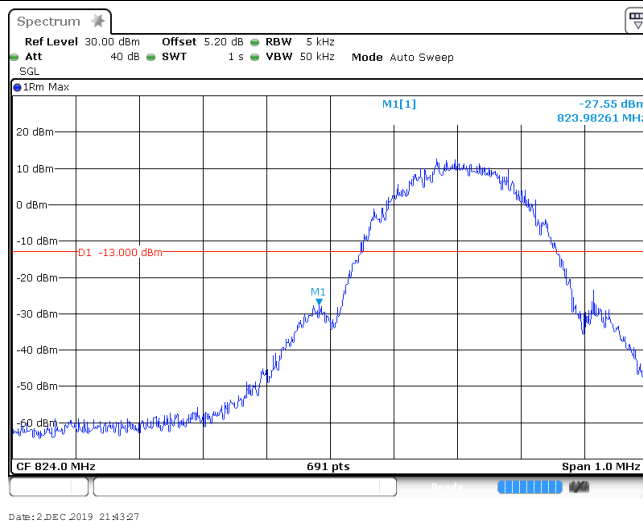


## 5. Band Edge Compliance

### 5.1. Test Plots

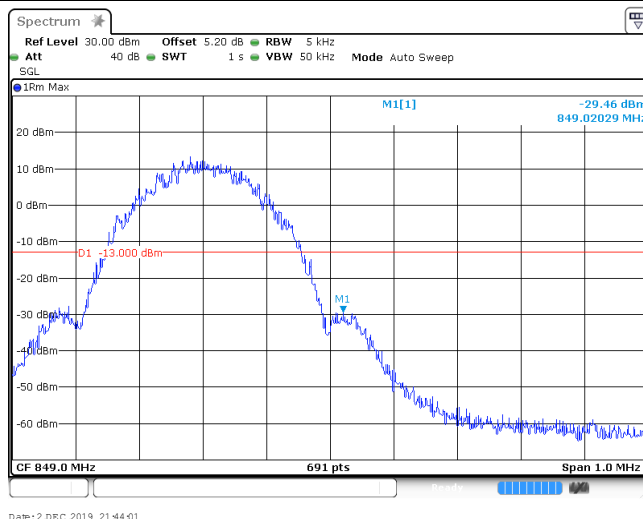


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### EGPRS850\_251



Date: 2 DEC 2019 21:44:01

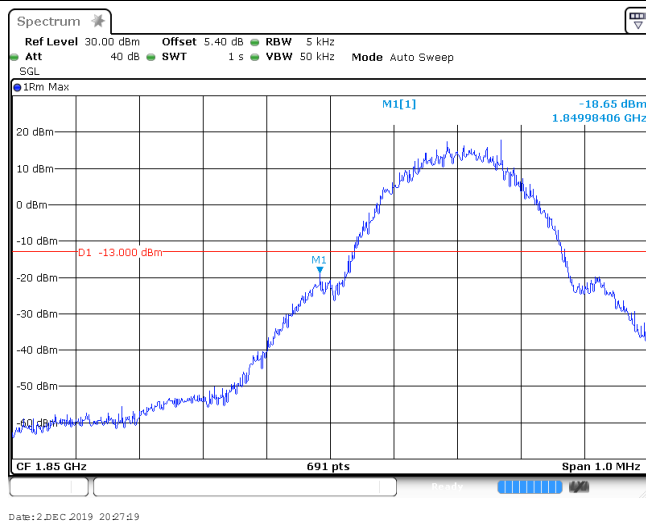


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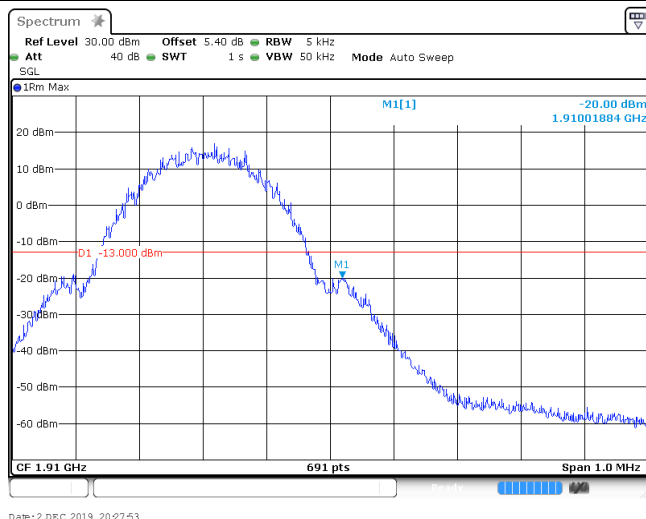
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### GSM1900\_810

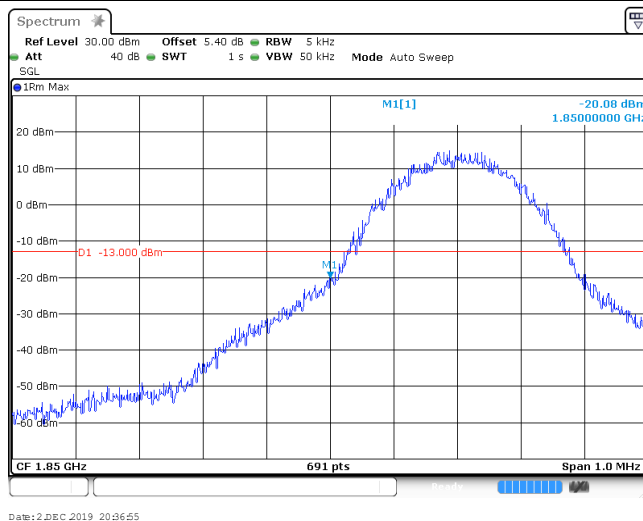


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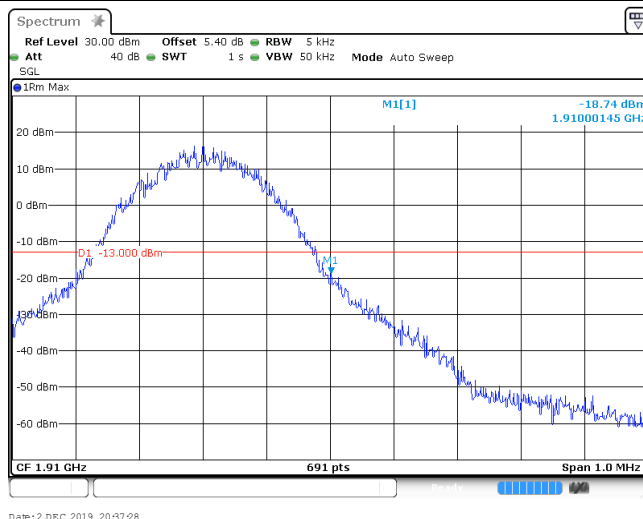
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### EGPRS1900\_810



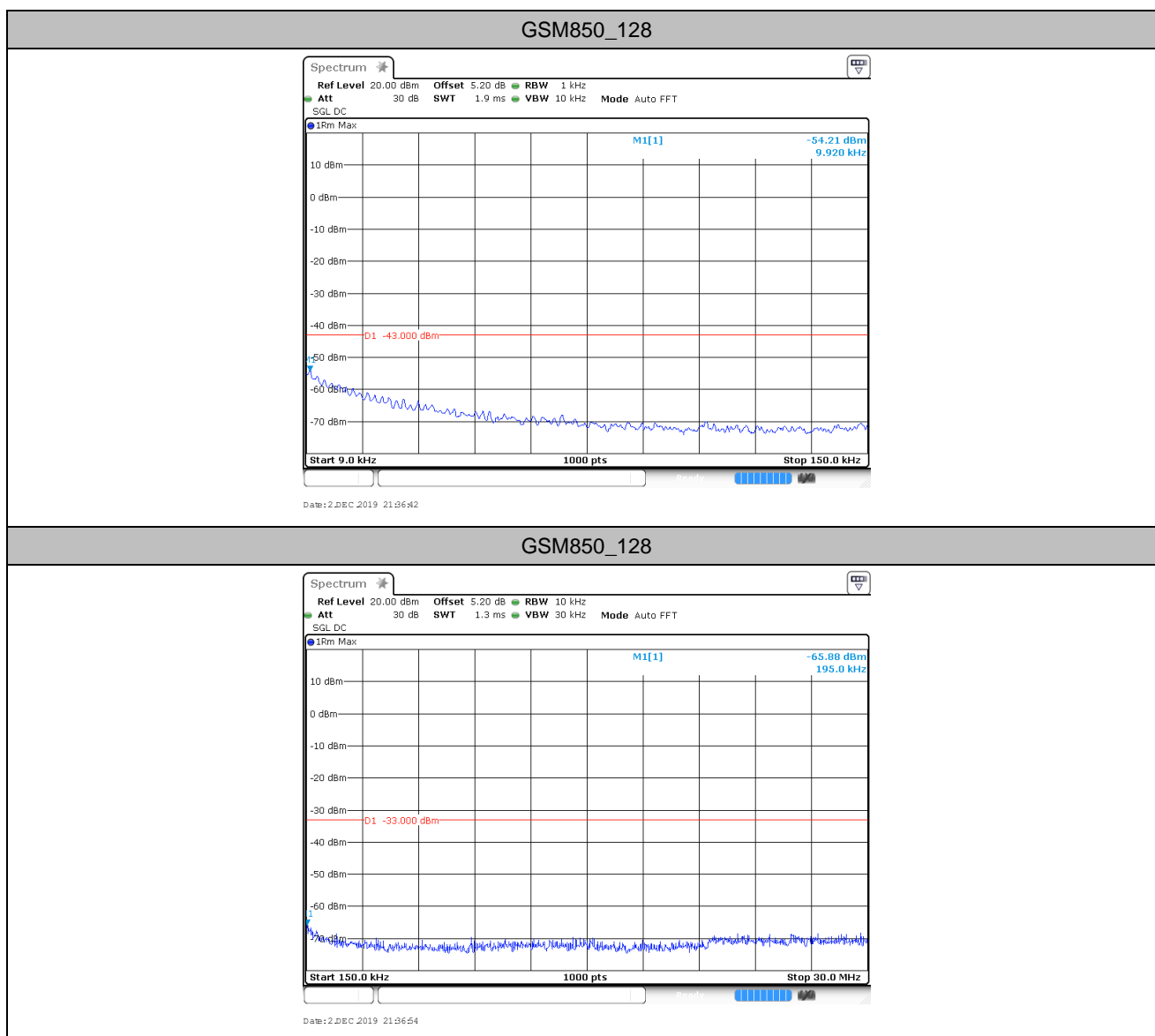


## 6. Spurious Emission at Antenna Terminal

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.

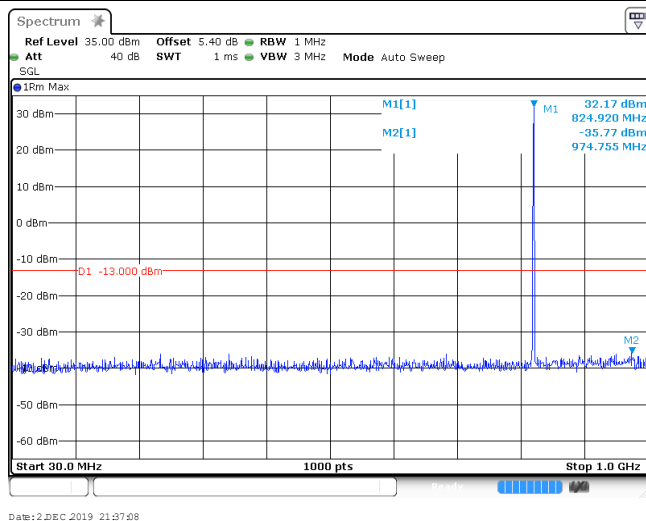
Remark2: only the worst case data displayed in this report.

### 6.1. Test Plots



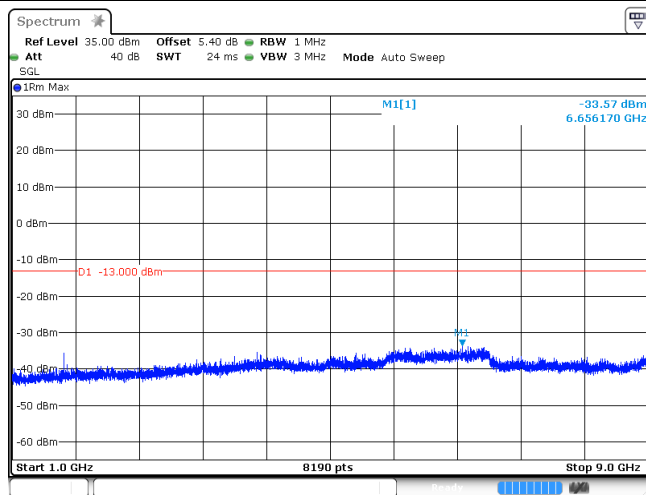


**GSM850\_128**



Date: 2 DEC 2019 21:37:08

**GSM850\_128**



Date: 2 DEC 2019 21:37:20

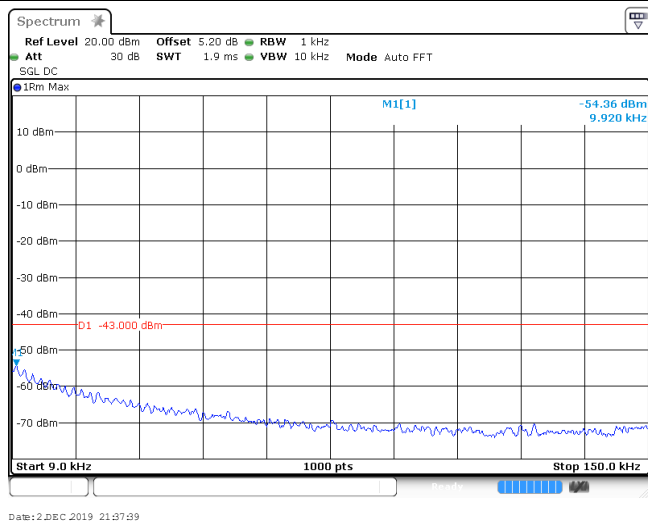


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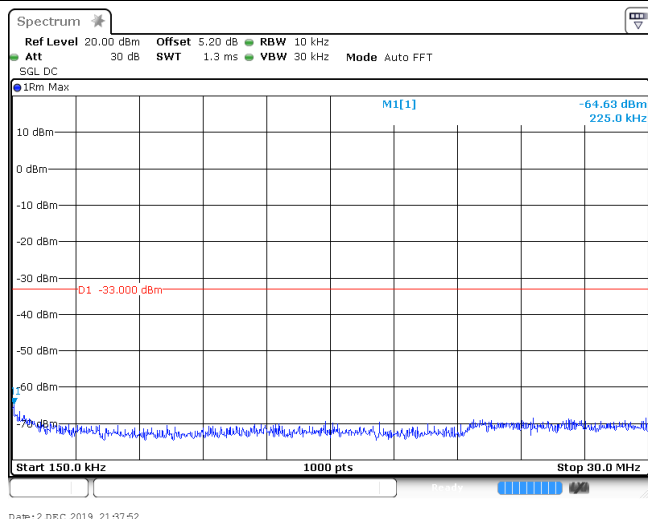
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## GSM850\_190



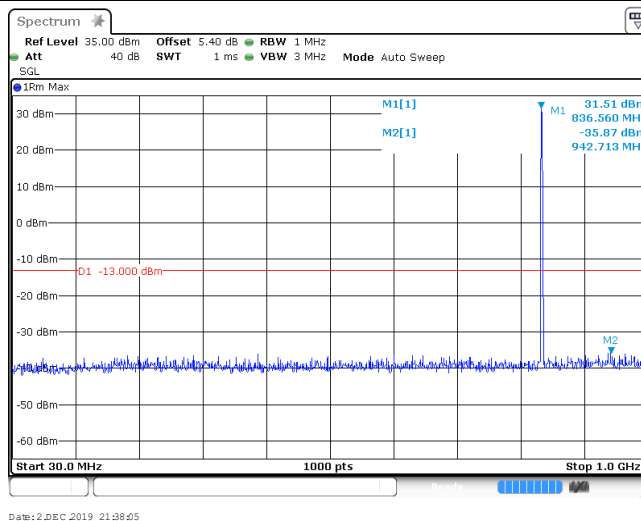
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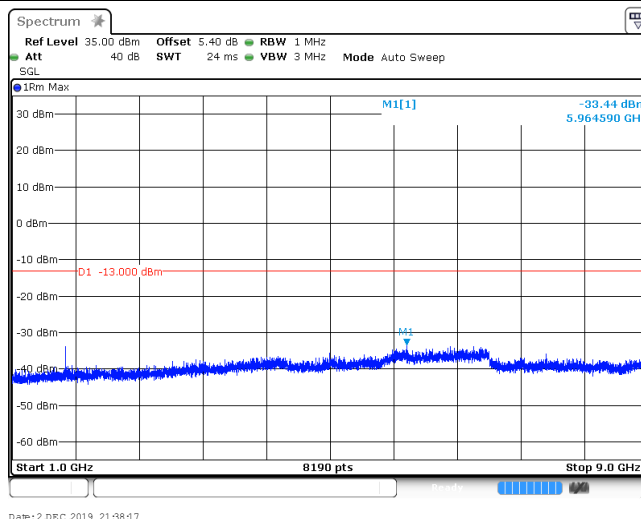
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## GSM850\_190



Date: 2 DEC 2019 21:38:17



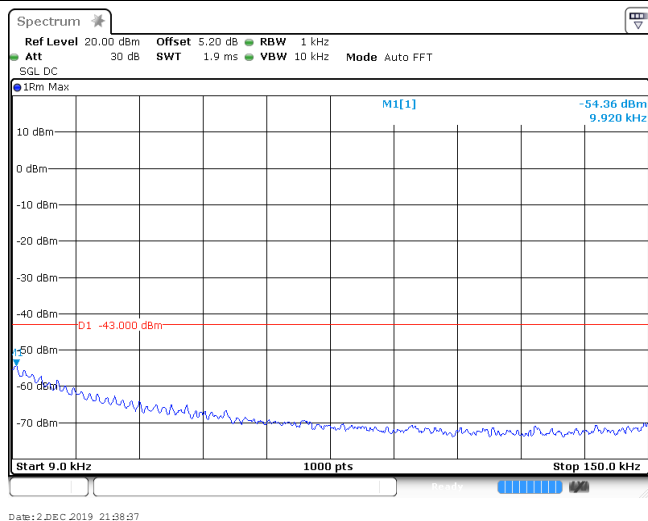
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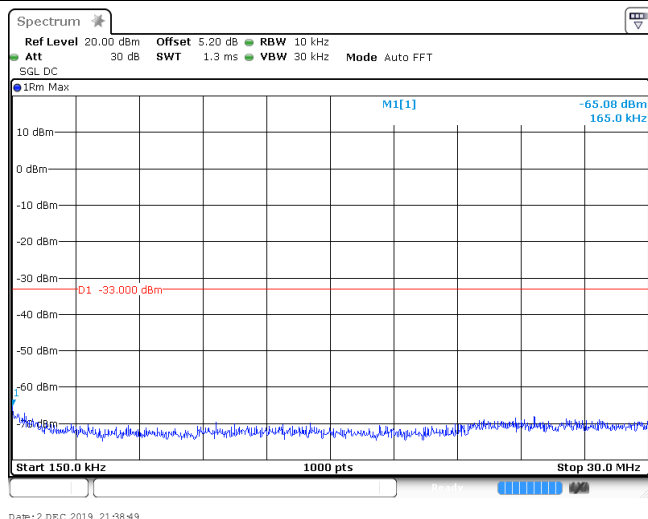
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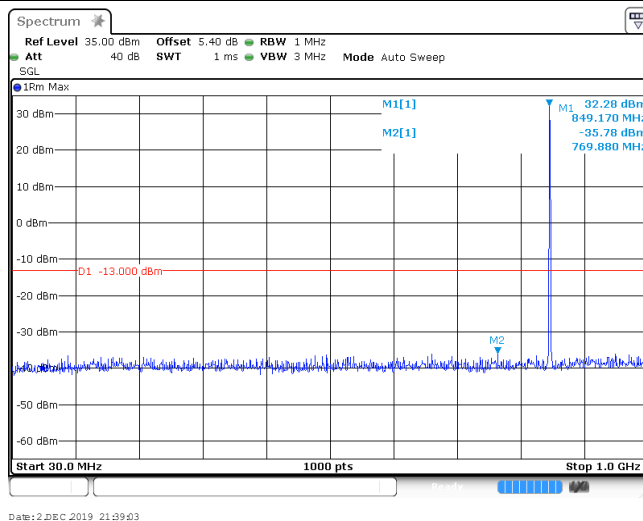
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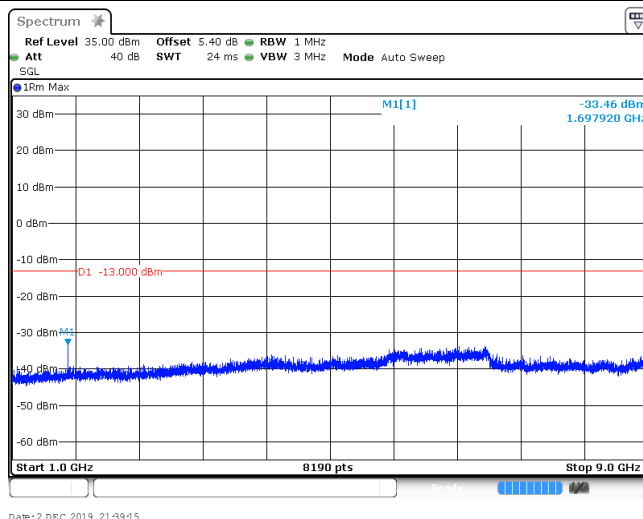
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### GSM850\_251



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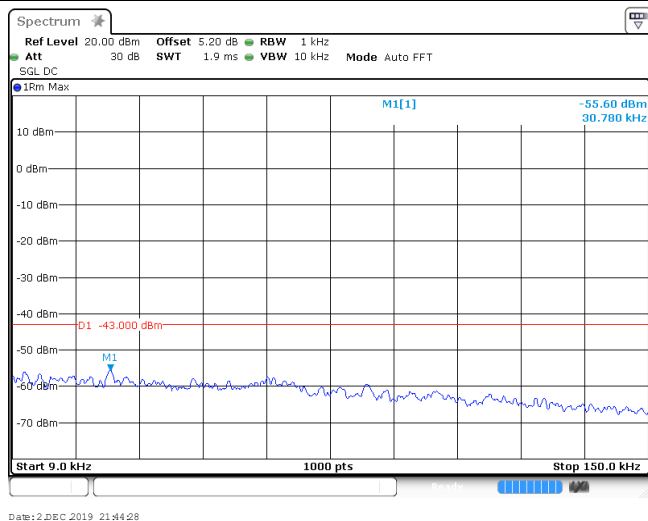


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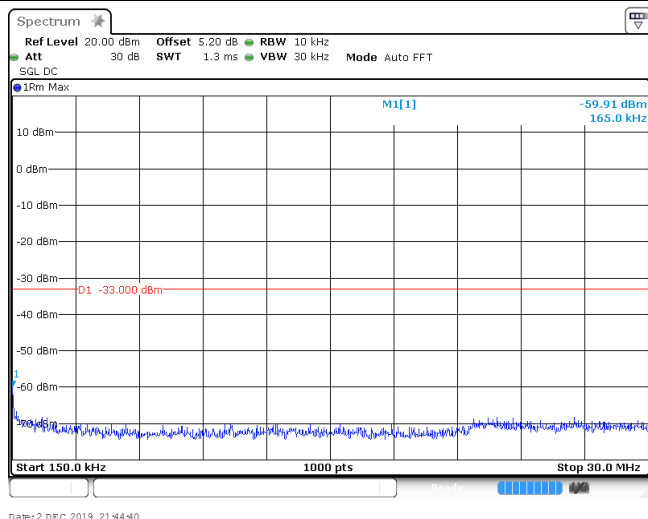
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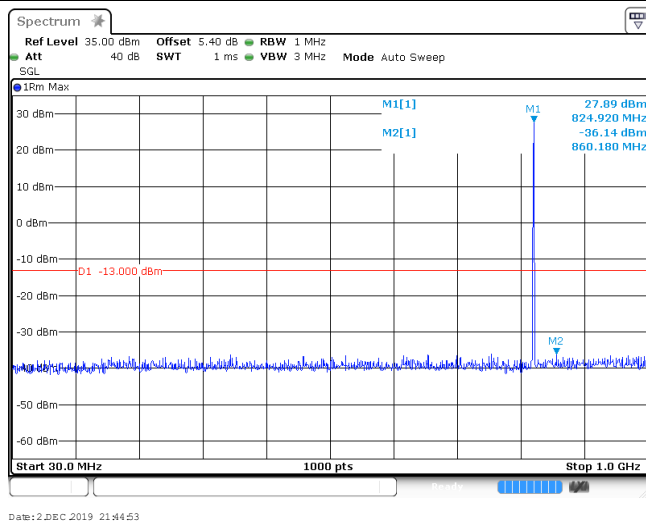
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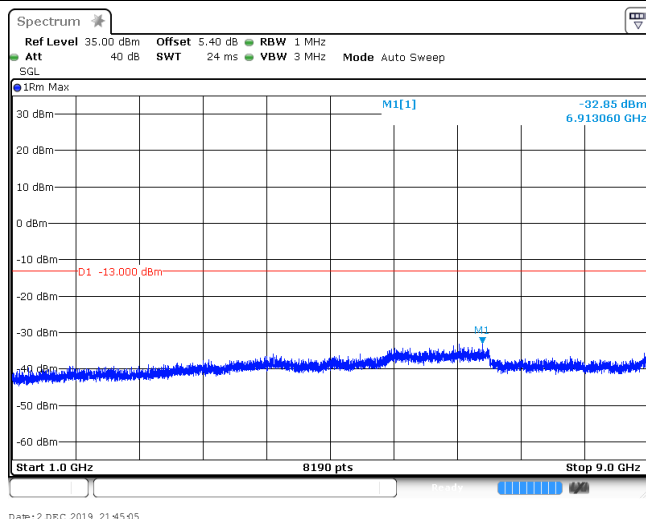
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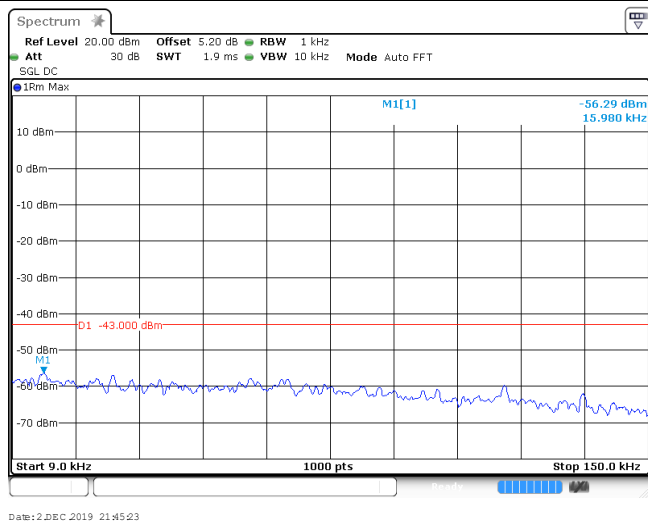
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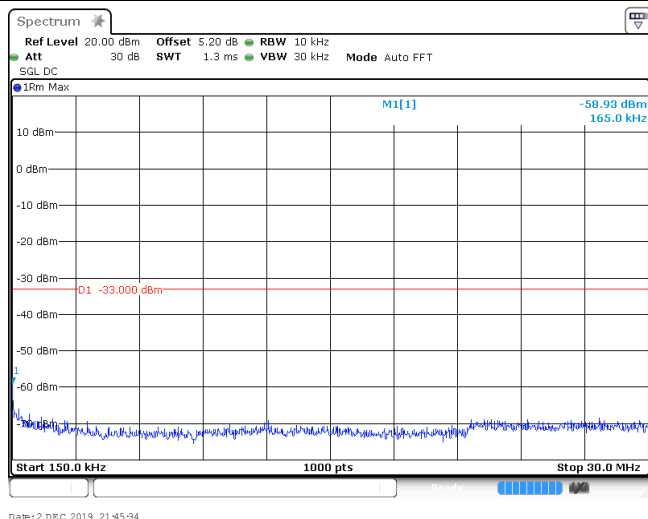
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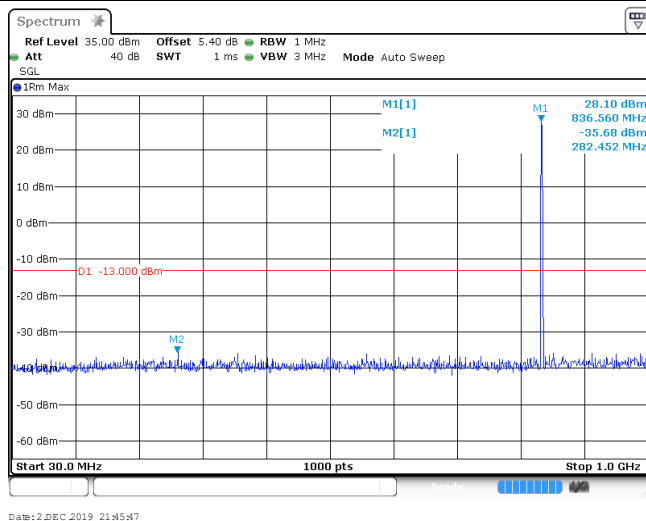
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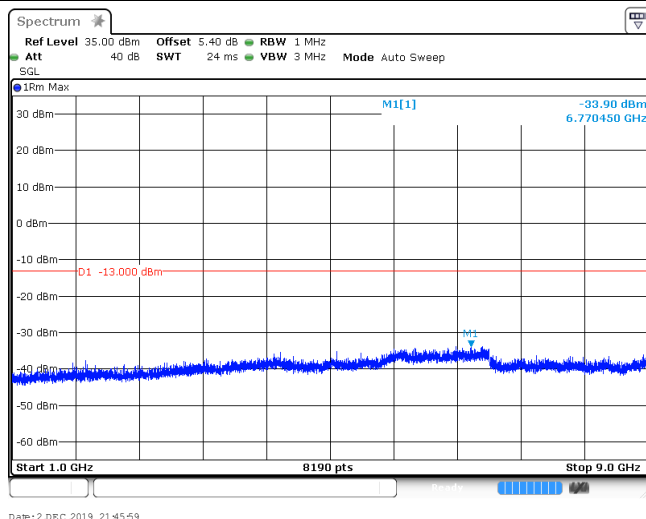
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EGPRS850\_190



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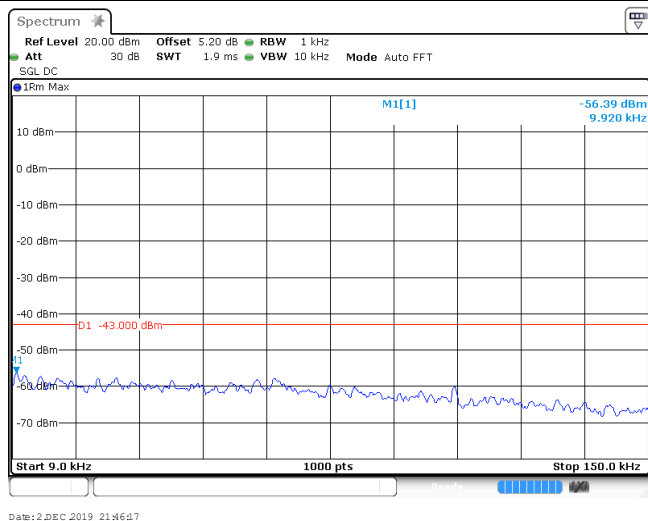


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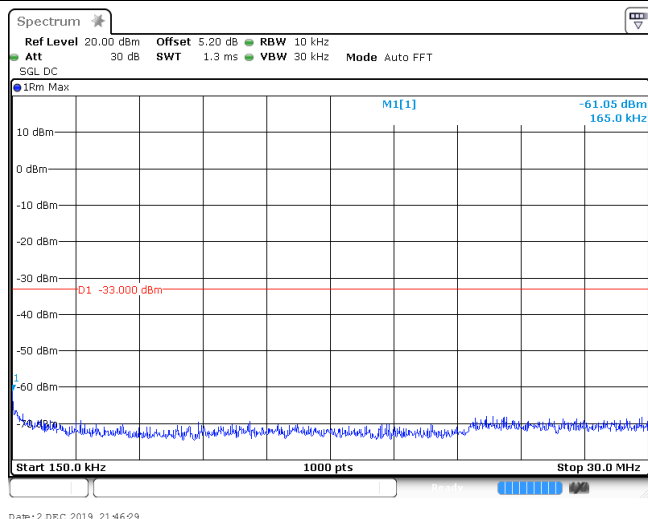
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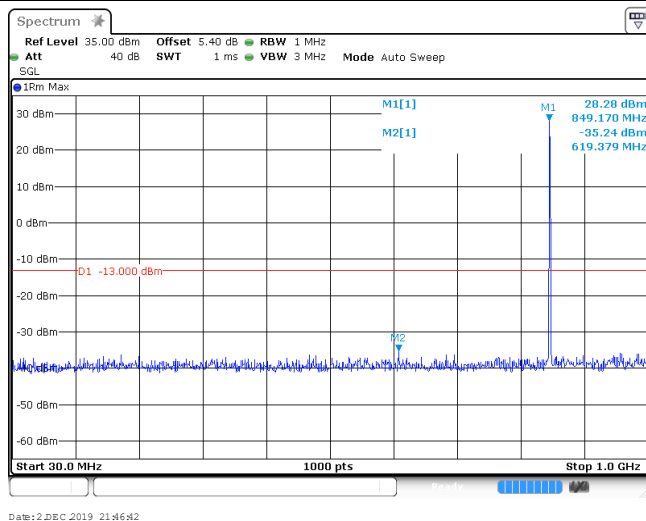


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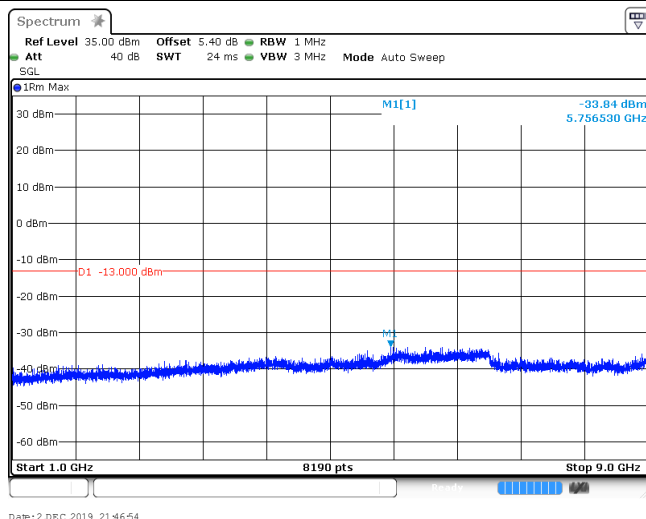


EGPRS850\_251



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EGPRS850\_251



Date: 2 DEC 2019 21:46:54



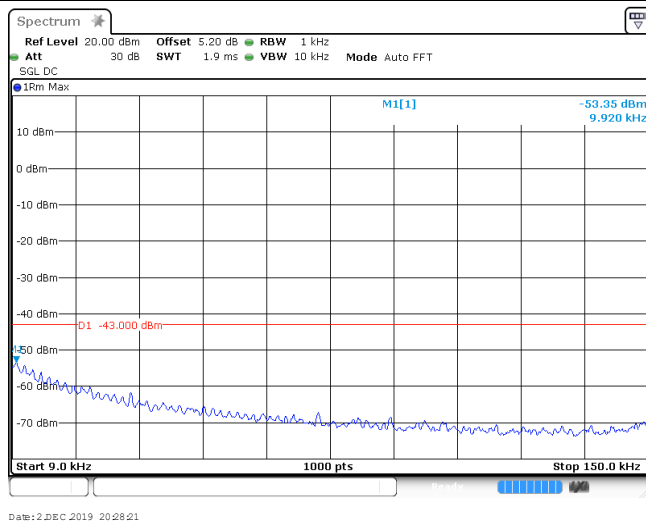
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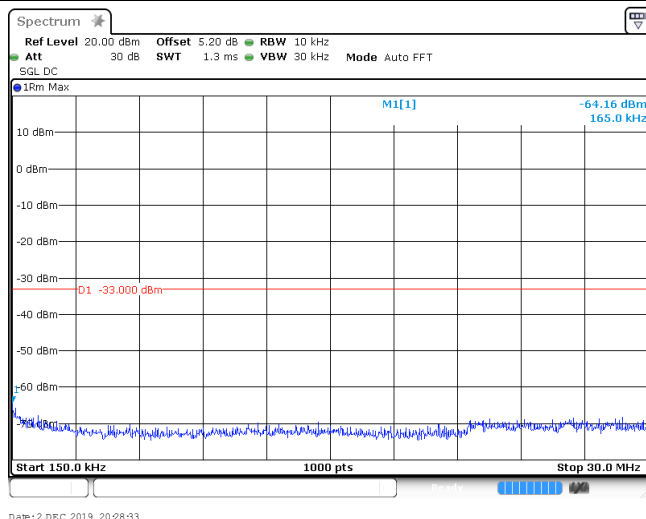
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**GSM1900\_512**



**GSM1900\_512**

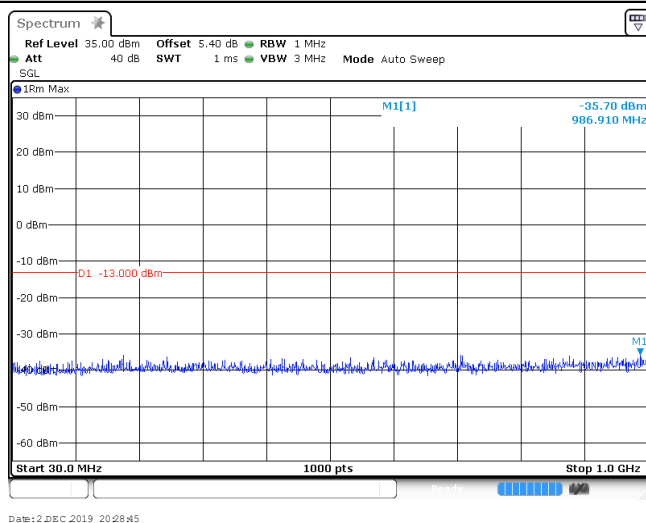


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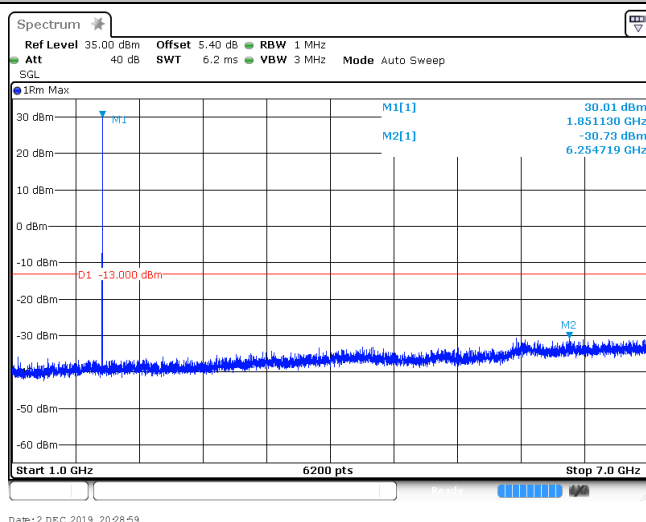
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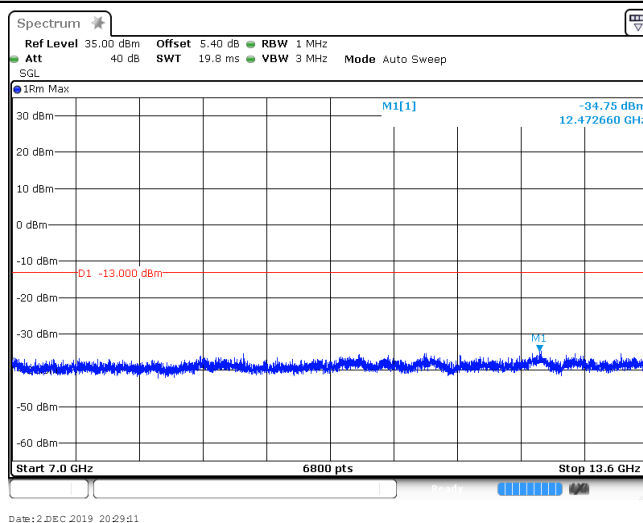


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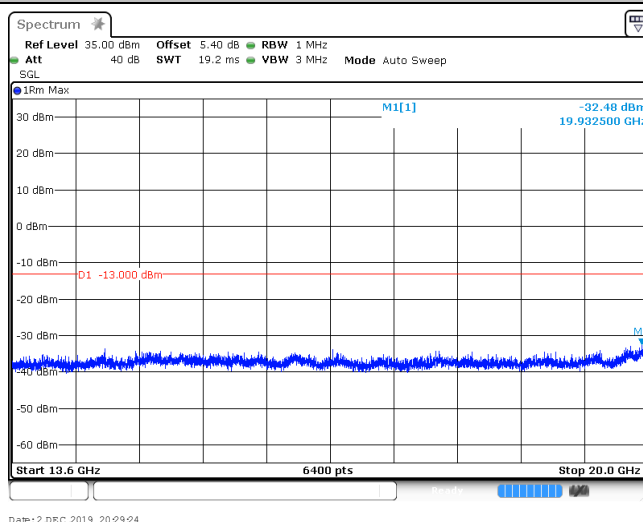




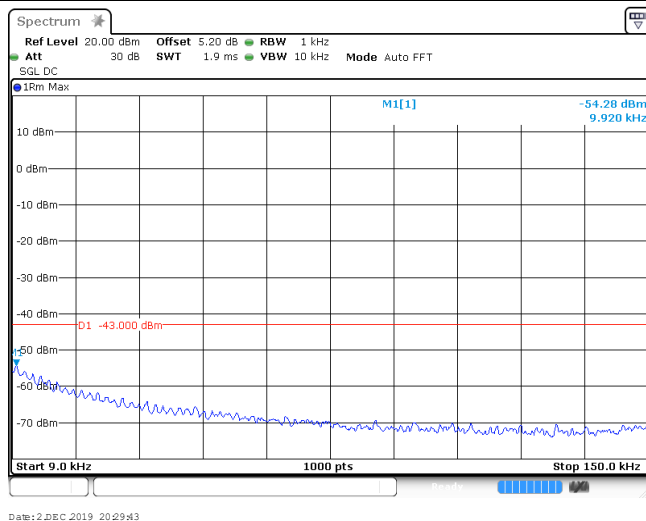
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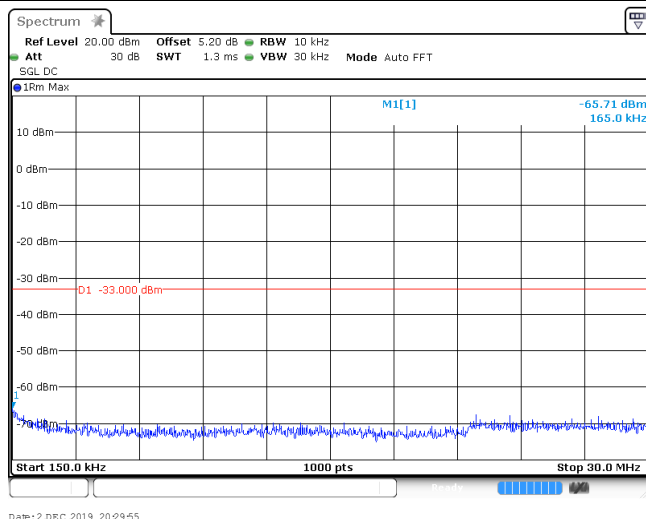
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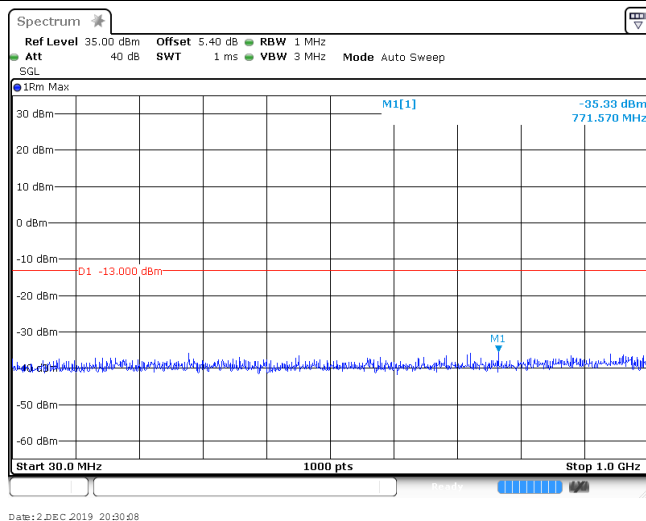


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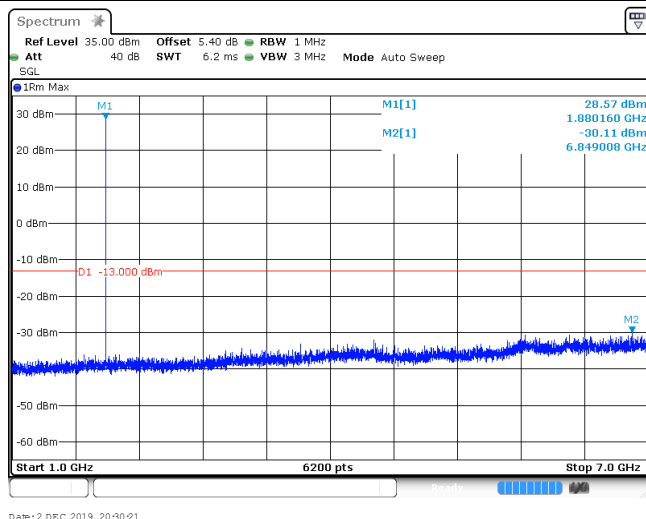




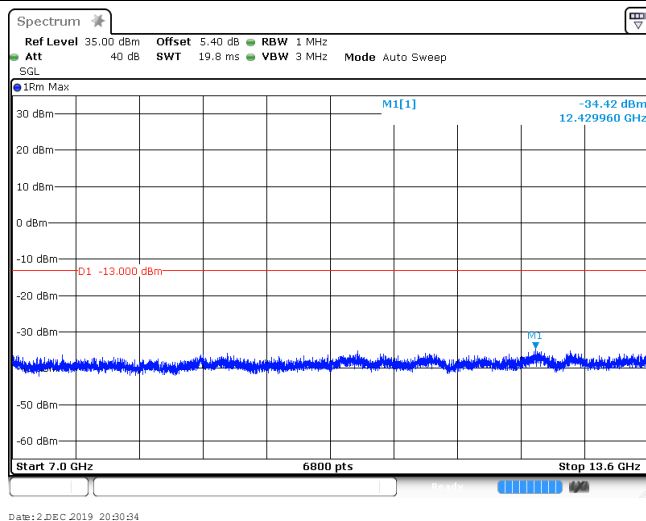
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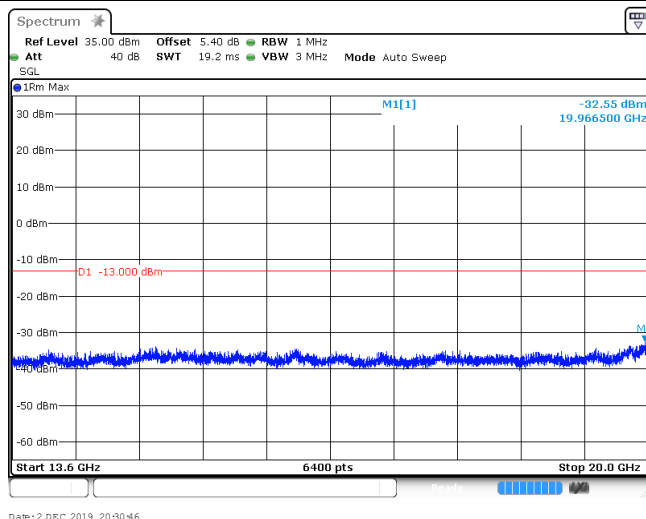


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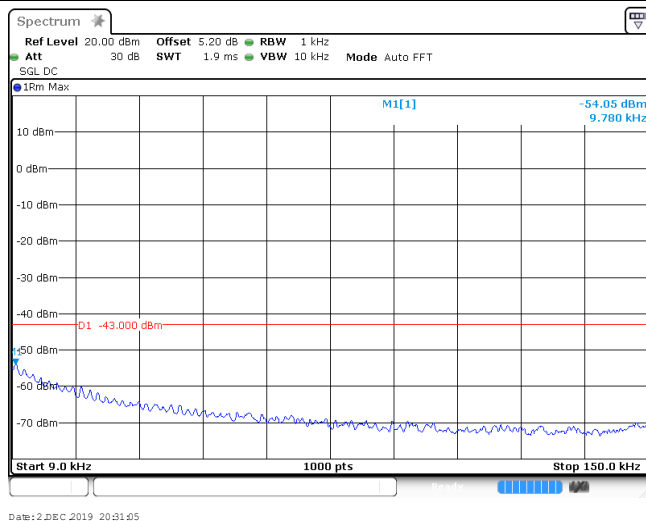
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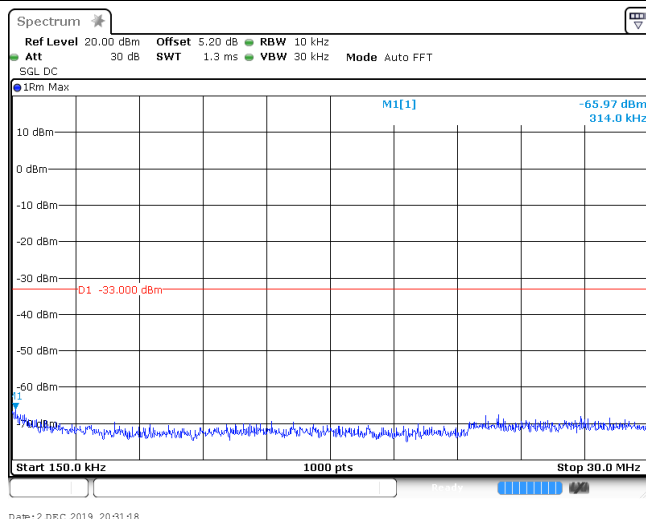
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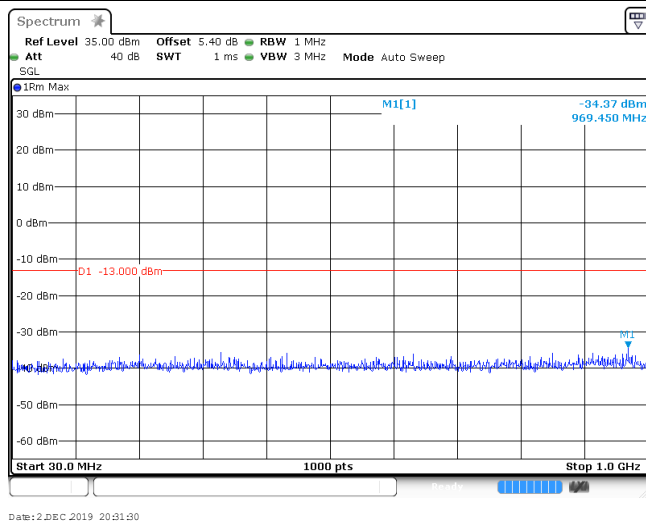
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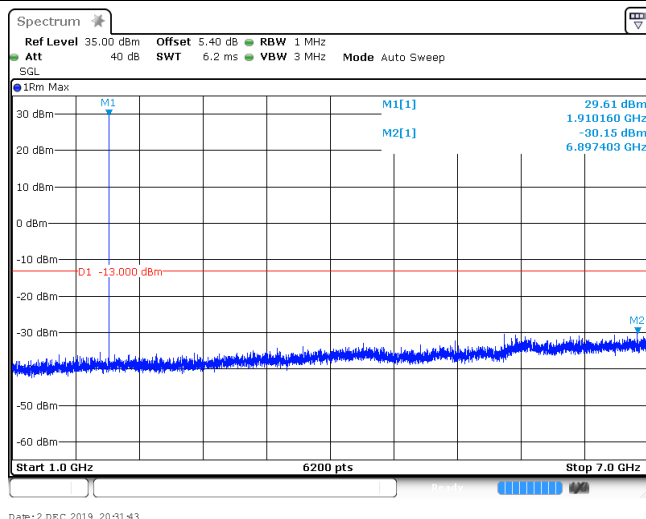


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**GSM1900\_810**



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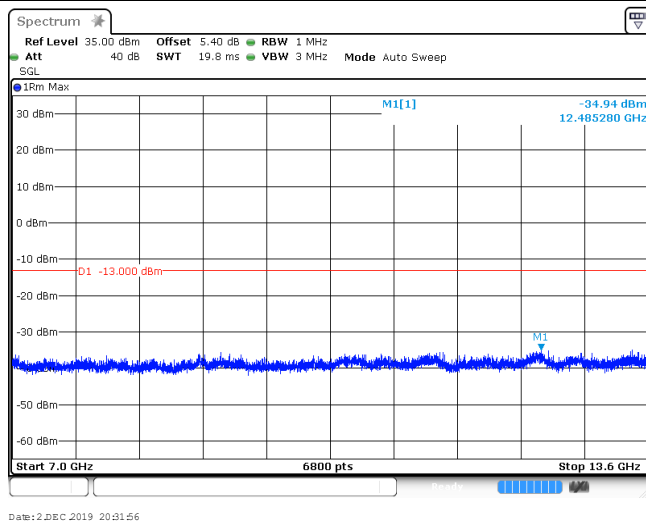


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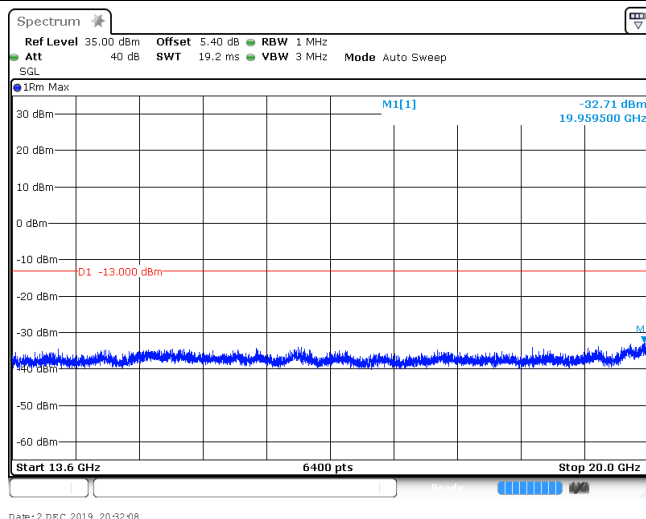
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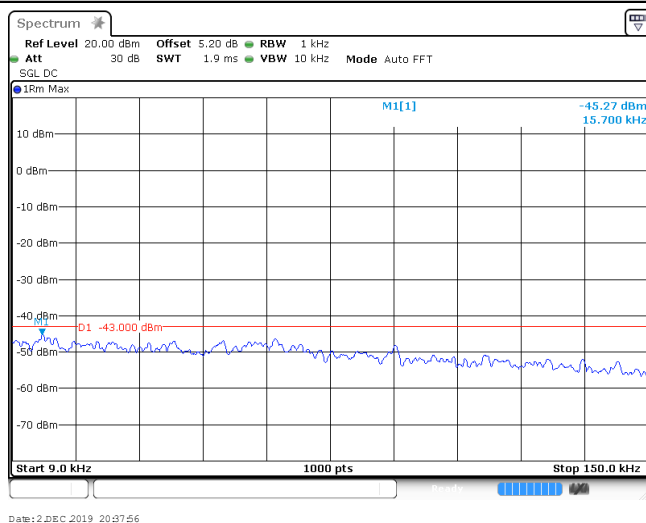


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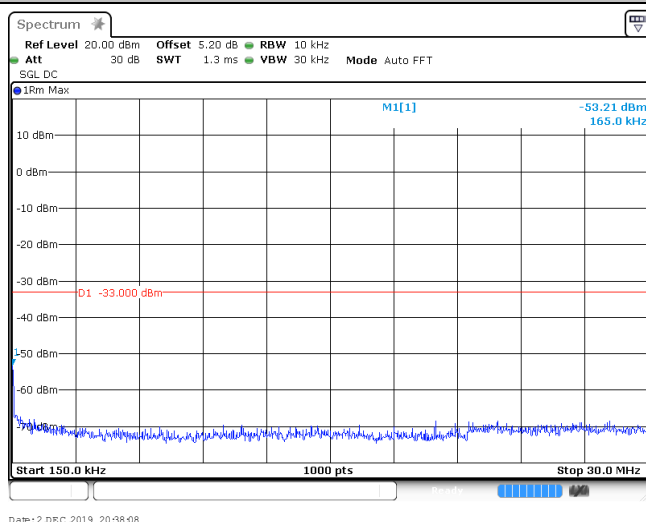
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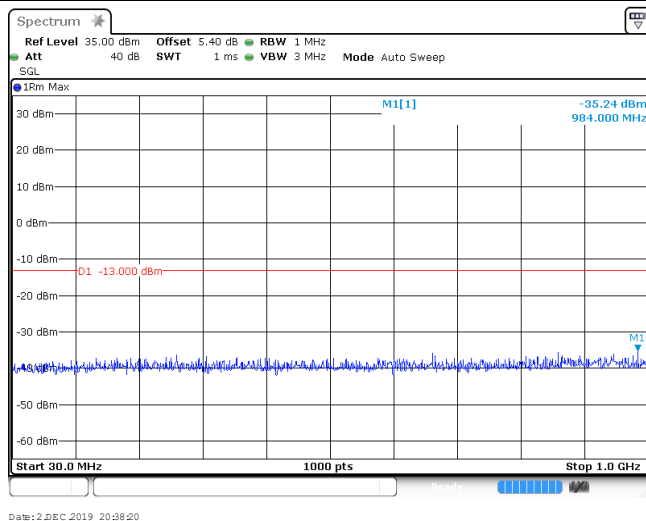
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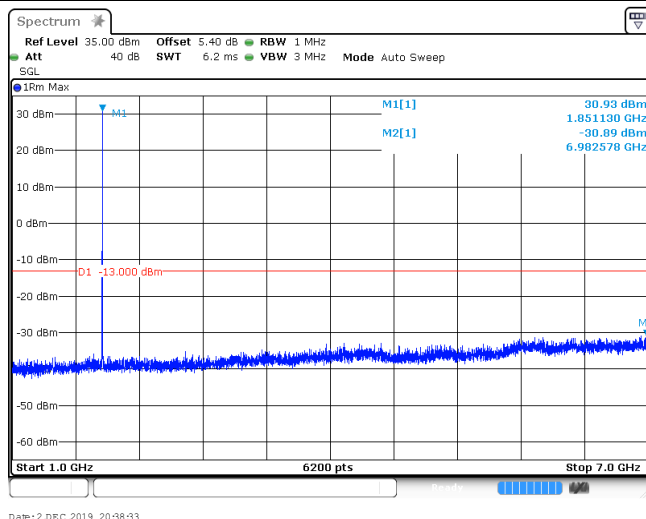
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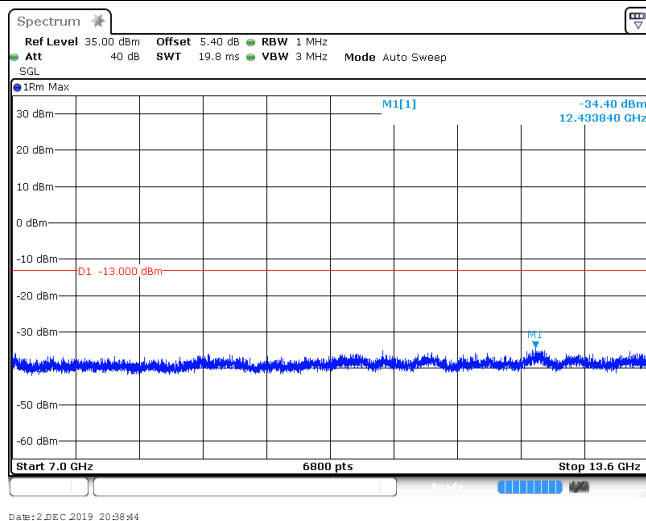
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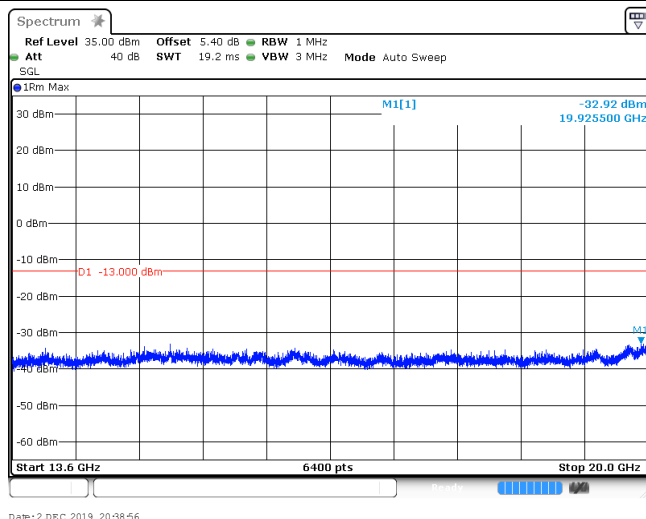
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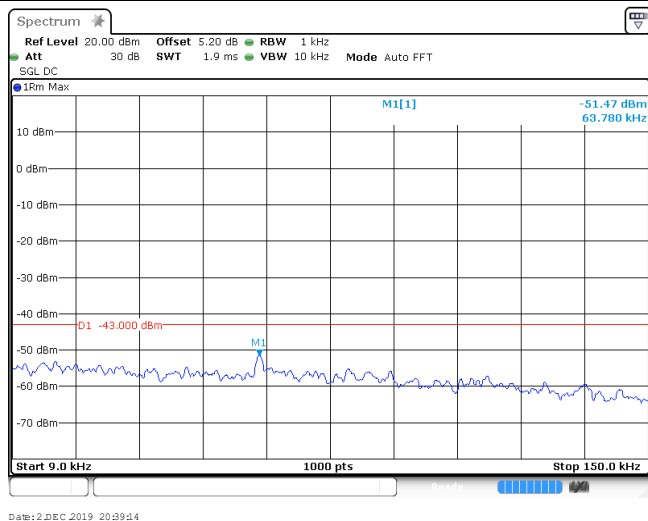
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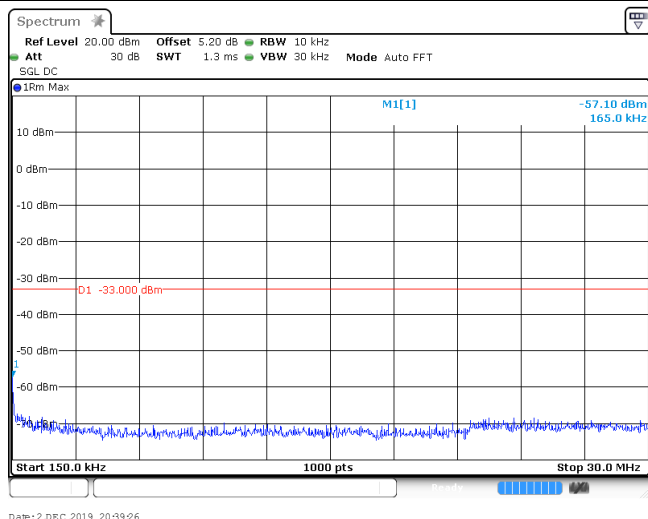
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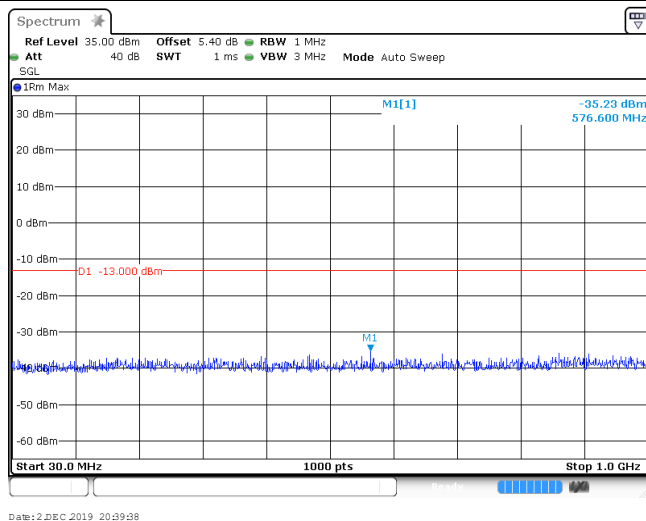
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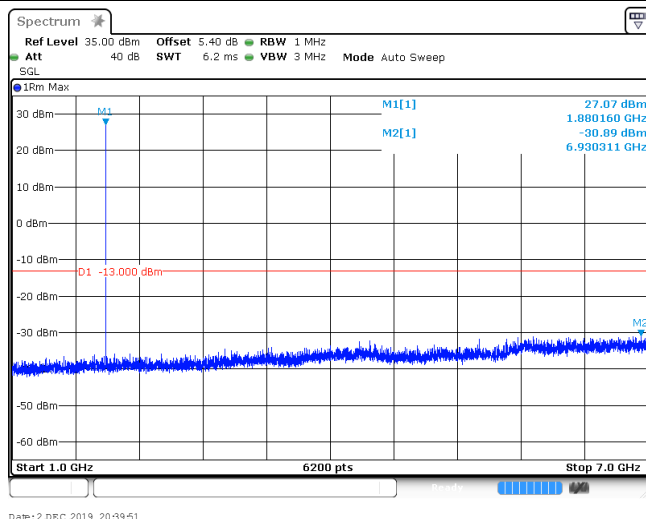
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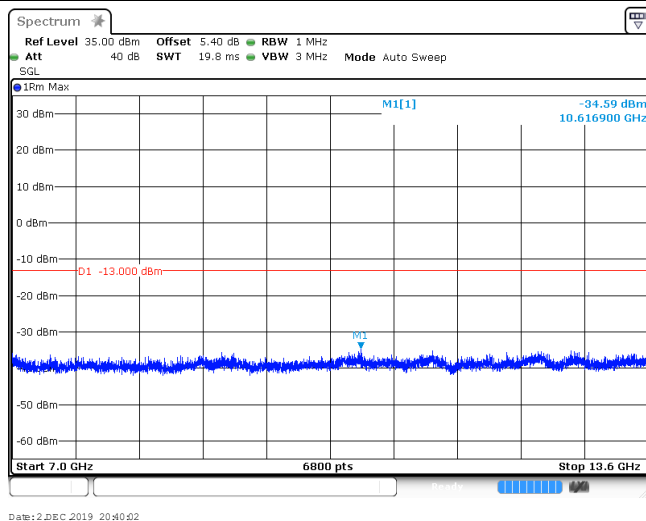
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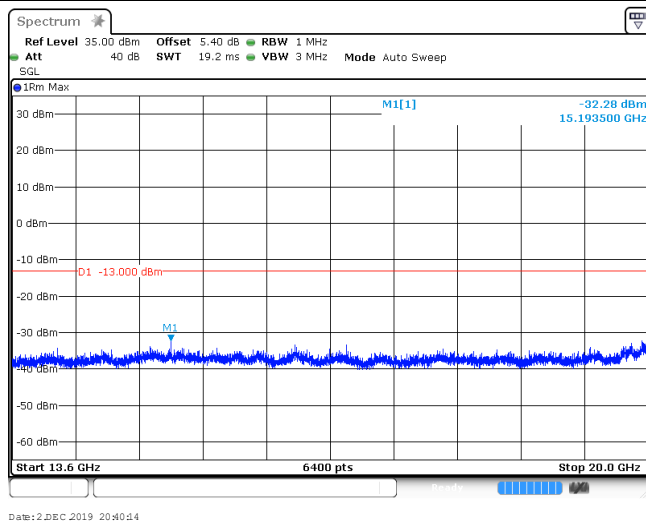
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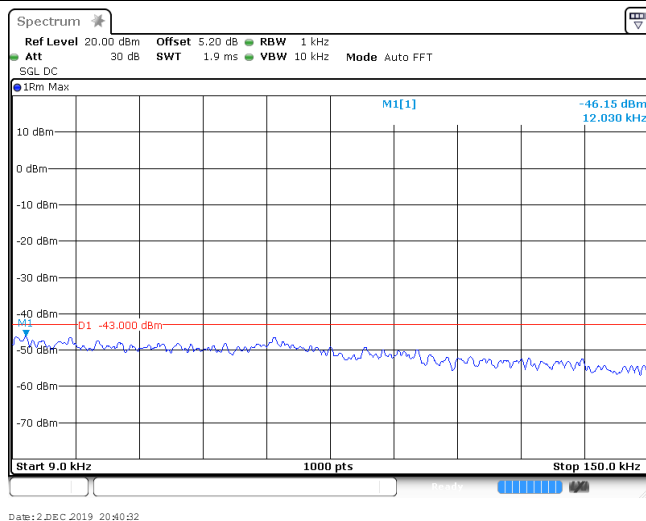
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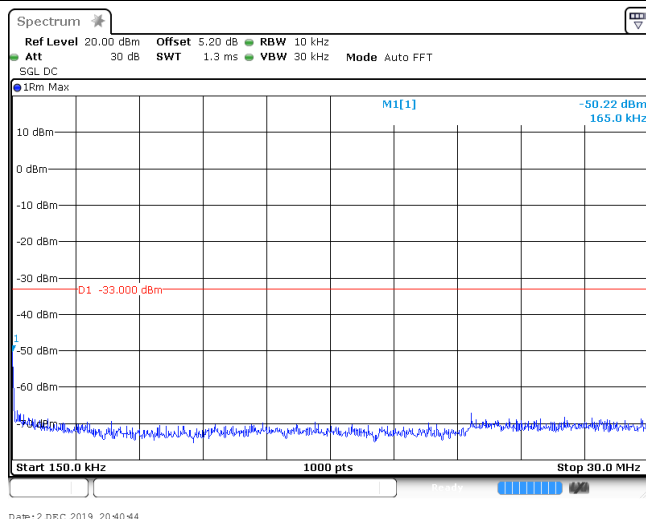


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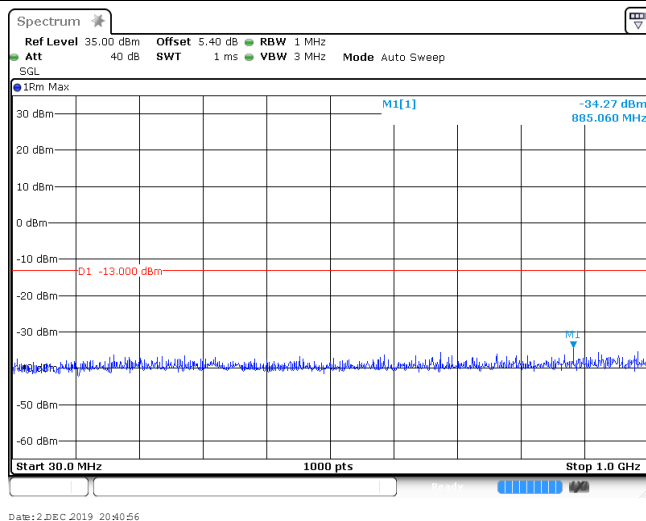
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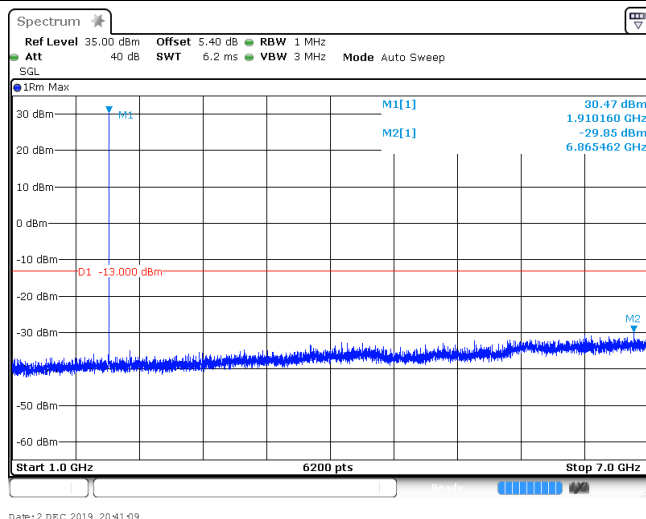
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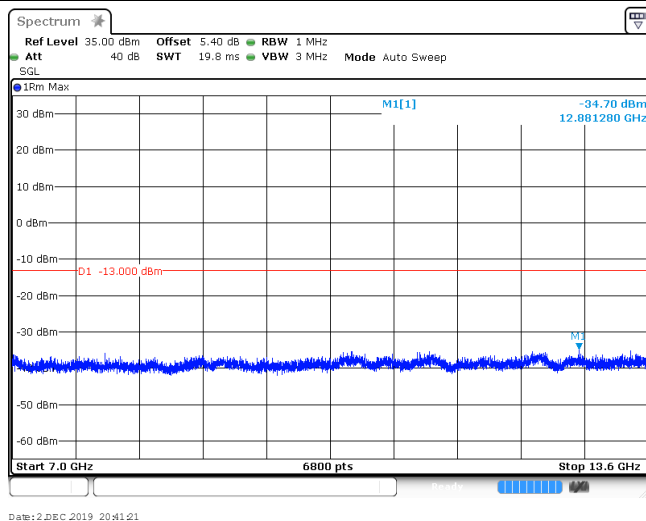
EGPRS1900\_810



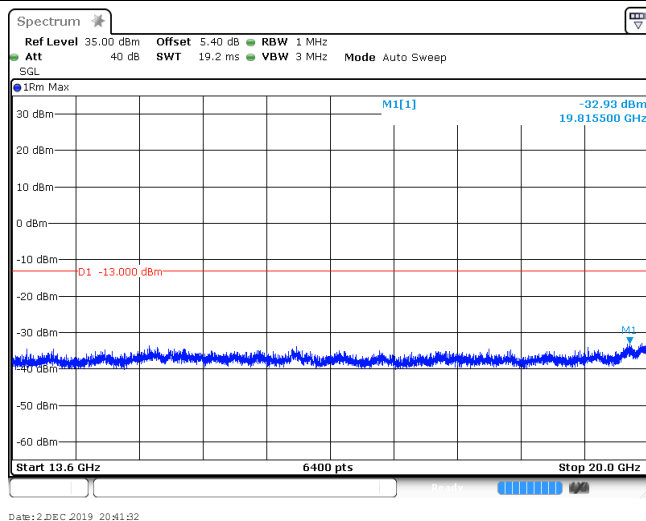
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## 7. Field Strength of Spurious Radiation

### 7.1. Test Band = GSM 1900 (Main Ant)

#### 7.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
109.7380	-64.71	-13.00	51.71	174	135	Vertical
2713.5427	-37.64	-13.00	24.64	185	329	Vertical
3700.0233	-49.89	-13.00	36.89	196	135	Vertical
5550.5850	-55.84	-13.00	42.84	321	166	Vertical
7400.6467	-49.70	-13.00	36.70	252	166	Vertical
17997.9999	-35.00	-13.00	22.00	261	229	Vertical
41.2041	-63.19	-13.00	50.19	258	35	Horizontal
2701.5403	-36.26	-13.00	23.26	296	7	Horizontal
3700.5234	-55.01	-13.00	42.01	174	100	Horizontal
5550.5850	-56.50	-13.00	43.50	185	66	Horizontal
7400.6467	-52.67	-13.00	39.67	321	164	Horizontal
16390.4463	-39.07	-13.00	26.07	262	195	Horizontal

#### 7.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
108.0404	-64.73	-13.00	51.73	185	192	Vertical
2693.5387	-37.61	-13.00	24.61	196	84	Vertical
3760.0253	-48.91	-13.00	35.91	321	161	Vertical
5640.0880	-54.60	-13.00	41.60	252	161	Vertical
11280.2760	-44.35	-13.00	31.35	161	350	Vertical
17998.5000	-35.54	-13.00	22.54	184	192	Vertical
39.8945	-63.87	-13.00	50.87	288	356	Horizontal
2702.7405	-36.40	-13.00	23.40	174	67	Horizontal
3760.0253	-54.49	-13.00	41.49	196	356	Horizontal
5640.0880	-55.60	-13.00	42.60	231	68	Horizontal
11280.2760	-44.42	-13.00	31.42	262	100	Horizontal
16399.9467	-39.17	-13.00	26.17	214	100	Horizontal



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### 7.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
106.7793	-64.61	-13.00	51.61	258	4	Vertical
2700.7401	-37.43	-13.00	24.43	196	24	Vertical
3819.5273	-52.77	-13.00	39.77	321	161	Vertical
5729.0910	-55.11	-13.00	42.11	262	350	Vertical
14474.3825	-43.48	-13.00	30.48	258	98	Vertical
17978.4993	-36.18	-13.00	23.18	174	350	Vertical
41.2526	-62.21	-13.00	49.21	185	350	Horizontal
2695.1390	-36.41	-13.00	23.41	196	307	Horizontal
3819.5273	-55.12	-13.00	42.12	213	161	Horizontal
5729.0910	-51.35	-13.00	38.35	262	4	Horizontal
9297.2099	-48.92	-13.00	35.92	274	350	Horizontal
16380.9460	-39.40	-13.00	26.40	184	35	Horizontal

### 7.2. Test Band = GSM 850 (Main Ant)

#### 7.2.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
113.5697	-64.25	-13.00	51.25	185	105	Vertical
1648.1296	-61.86	-13.00	48.86	196	236	Vertical
2472.6945	-40.99	-13.00	27.99	312	125	Vertical
3296.5099	-58.78	-13.00	45.78	252	356	Vertical
14461.3820	-43.65	-13.00	30.65	261	105	Vertical
17992.9998	-35.93	-13.00	22.93	248	136	Vertical
41.2041	-63.32	-13.00	50.32	185	325	Horizontal
236.8628	-66.44	-13.00	53.44	196	356	Horizontal
1648.1296	-62.00	-13.00	49.00	321	23	Horizontal
2472.6945	-43.98	-13.00	30.98	252	357	Horizontal
3297.0099	-57.93	-13.00	44.93	284	199	Horizontal
16389.9463	-39.69	-13.00	26.69	184	294	Horizontal



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### 7.2.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
110.4170	-63.68	-13.00	50.68	174	98	Vertical
1673.3347	-62.27	-13.00	49.27	185	290	Vertical
2509.9020	-43.66	-13.00	30.66	196	233	Vertical
3346.5116	-57.30	-13.00	44.30	213	4	Vertical
14506.8836	-43.82	-13.00	30.82	252	4	Vertical
17995.9999	-37.00	-13.00	24.00	284	161	Vertical
40.7675	-62.78	-13.00	49.78	185	44	Horizontal
1672.9346	-61.24	-13.00	48.24	196	282	Horizontal
2510.3021	-44.49	-13.00	31.49	231	249	Horizontal
3346.5116	-54.58	-13.00	41.58	252	13	Horizontal
16386.4462	-39.85	-13.00	26.85	274	75	Horizontal
17985.9995	-40.89	-13.00	27.89	185	138	Horizontal

### 7.2.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
112.9391	-64.66	-13.00	51.66	188	262	Vertical
1697.3395	-61.48	-13.00	48.48	196	114	Vertical
2546.7093	-49.95	-13.00	36.95	231	233	Vertical
7349.6450	-53.36	-13.00	40.36	265	262	Vertical
14475.8825	-44.32	-13.00	31.32	248	167	Vertical
17989.9997	-37.66	-13.00	24.66	177	72	Vertical
42.5136	-64.59	-13.00	51.59	258	6	Horizontal
1697.3395	-61.06	-13.00	48.06	174	51	Horizontal
2546.7093	-47.99	-13.00	34.99	186	148	Horizontal
3395.5132	-55.33	-13.00	42.33	213	38	Horizontal
16397.9466	-40.61	-13.00	27.61	251	200	Horizontal
17998.5000	-42.29	-13.00	29.29	154	38	Horizontal



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### 7.3. Test Band = GSM 850 (Second Ant)

#### 7.3.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
113.7152	-63.70	-13.00	50.70	258	354	Vertical
1648.1296	-55.34	-13.00	42.34	174	353	Vertical
2472.6945	-47.72	-13.00	34.72	196	106	Vertical
3296.5099	-59.18	-13.00	46.18	312	134	Vertical
14513.3838	-44.17	-13.00	31.17	261	102	Vertical
17999.0000	-37.39	-13.00	24.39	225	35	Vertical
41.1556	-64.18	-13.00	51.18	185	4	Horizontal
1648.1296	-62.12	-13.00	49.12	196	268	Horizontal
2472.6945	-38.39	-13.00	25.39	213	329	Horizontal
7347.6449	-54.16	-13.00	41.16	252	161	Horizontal
16380.9460	-40.43	-13.00	27.43	271	4	Horizontal
17991.4997	-41.45	-13.00	28.45	156	35	Horizontal

#### 7.3.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
114.2002	-63.96	-13.00	50.96	174	349	Vertical
1673.3347	-59.53	-13.00	46.53	185	326	Vertical
2509.9020	-49.20	-13.00	36.20	196	146	Vertical
3346.5116	-60.61	-13.00	47.61	213	129	Vertical
14479.8827	-44.99	-13.00	31.99	252	286	Vertical
17999.5000	-39.44	-13.00	26.44	214	35	Vertical
41.1556	-63.69	-13.00	50.69	174	201	Horizontal
1672.9346	-63.06	-13.00	50.06	185	61	Horizontal
2509.9020	-39.99	-13.00	26.99	196	356	Horizontal
7369.1456	-53.74	-13.00	40.74	213	265	Horizontal
16399.9467	-41.60	-13.00	28.60	252	265	Horizontal
17991.9997	-43.34	-13.00	30.34	214	297	Horizontal



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### 7.3.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
108.2829	-63.89	-13.00	50.89	258	99	Vertical
1697.3395	-61.11	-13.00	48.11	274	115	Vertical
2546.7093	-44.93	-13.00	31.93	159	296	Vertical
3395.0132	-57.23	-13.00	44.23	196	225	Vertical
14488.8830	-45.23	-13.00	32.23	321	68	Vertical
17983.4995	-39.02	-13.00	26.02	251	131	Vertical
41.3011	-63.42	-13.00	50.42	252	71	Horizontal
1700.1400	-63.04	-13.00	50.04	261	210	Horizontal
2546.7093	-42.16	-13.00	29.16	134	343	Horizontal
3395.0132	-57.94	-13.00	44.94	184	134	Horizontal
16398.9466	-42.61	-13.00	29.61	149	71	Horizontal
17991.4997	-43.97	-13.00	30.97	213	355	Horizontal

### 7.4. Test Band = GSM 1900 (Second Ant)

#### 7.4.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
112.3086	-64.54	-13.00	51.54	185	161	Vertical
2699.9400	-37.54	-13.00	24.54	196	15	Vertical
3700.5234	-52.70	-13.00	39.70	231	161	Vertical
5550.5850	-57.65	-13.00	44.65	252	318	Vertical
7400.6467	-49.89	-13.00	36.89	284	161	Vertical
17997.9999	-35.09	-13.00	22.09	164	161	Vertical
41.2526	-63.26	-13.00	50.26	258	359	Horizontal
2702.7405	-36.45	-13.00	23.45	216	241	Horizontal
3700.5234	-54.05	-13.00	41.05	194	166	Horizontal
5550.5850	-55.50	-13.00	42.50	165	5	Horizontal
7401.1467	-51.76	-13.00	38.76	312	134	Horizontal
16400.9467	-39.09	-13.00	26.09	251	103	Horizontal



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#### 7.4.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
113.5212	-64.59	-13.00	51.59	188	284	Vertical
2728.3457	-38.36	-13.00	25.36	184	121	Vertical
3760.0253	-49.58	-13.00	36.58	154	253	Vertical
5639.5880	-56.00	-13.00	43.00	321	253	Vertical
14461.8821	-43.90	-13.00	30.90	251	35	Vertical
17999.5000	-37.09	-13.00	24.09	291	97	Vertical
44.5507	-63.60	-13.00	50.60	158	196	Horizontal
2700.3401	-36.49	-13.00	23.49	174	17	Horizontal
3760.0253	-50.62	-13.00	37.62	196	196	Horizontal
5640.0880	-56.31	-13.00	43.31	284	98	Horizontal
16378.9460	-40.41	-13.00	27.41	252	129	Horizontal
17997.9999	-40.87	-13.00	27.87	224	67	Horizontal

#### 7.4.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height (cm)	Angle (°)	Polarization
116.0433	-65.68	-13.00	52.68	188	76	Vertical
2694.3389	-37.77	-13.00	24.77	185	87	Vertical
3819.5273	-50.33	-13.00	37.33	123	234	Vertical
5729.5910	-53.37	-13.00	40.37	252	358	Vertical
11458.2819	-45.98	-13.00	32.98	194	4	Vertical
17919.9973	-38.23	-13.00	25.23	314	4	Vertical
41.2041	-64.71	-13.00	51.71	174	129	Horizontal
2728.7457	-37.57	-13.00	24.57	185	26	Horizontal
3819.5273	-51.98	-13.00	38.98	196	98	Horizontal
5729.5910	-51.56	-13.00	38.56	231	350	Horizontal
16398.9466	-41.65	-13.00	28.65	251	160	Horizontal
17996.4999	-42.79	-13.00	29.79	226	129	Horizontal

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 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.



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## 8. Frequency Stability

### 8.1. Frequency Error Vs Voltage

Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	TN	0.81	0.000979	±2.5	PASS
GSM850	128	VN	TN	-1.74	-0.002115	±2.5	PASS
GSM850	128	VH	TN	-2.55	-0.003095	±2.5	PASS
GSM850	190	VL	TN	0.90	0.001081	±2.5	PASS
GSM850	190	VN	TN	0.58	0.000695	±2.5	PASS
GSM850	190	VH	TN	1.97	0.002354	±2.5	PASS
GSM850	251	VL	TN	-1.26	-0.001483	±2.5	PASS
GSM850	251	VN	TN	-1.45	-0.001712	±2.5	PASS
GSM850	251	VH	TN	1.65	0.001940	±2.5	PASS
EGPRS850	128	VL	TN	-1.42	-0.001724	±2.5	PASS
EGPRS850	128	VN	TN	5.13	0.006228	±2.5	PASS
EGPRS850	128	VH	TN	2.91	0.003526	±2.5	PASS
EGPRS850	190	VL	TN	1.74	0.002084	±2.5	PASS
EGPRS850	190	VN	TN	5.13	0.006136	±2.5	PASS
EGPRS850	190	VH	TN	-1.00	-0.001196	±2.5	PASS
EGPRS850	251	VL	TN	5.81	0.006847	±2.5	PASS
EGPRS850	251	VN	TN	0.94	0.001103	±2.5	PASS
EGPRS850	251	VH	TN	0.19	0.000228	±2.5	PASS
GSM1900	512	VL	TN	8.17	0.004415	±2.5	PASS
GSM1900	512	VN	TN	7.26	0.003926	±2.5	PASS
GSM1900	512	VH	TN	13.79	0.007451	±2.5	PASS
GSM1900	661	VL	TN	8.56	0.004551	±2.5	PASS
GSM1900	661	VN	TN	13.04	0.006938	±2.5	PASS
GSM1900	661	VH	TN	8.81	0.004688	±2.5	PASS
GSM1900	810	VL	TN	7.30	0.003821	±2.5	PASS
GSM1900	810	VN	TN	7.04	0.003685	±2.5	PASS
GSM1900	810	VH	TN	5.46	0.002857	±2.5	PASS
EGPRS1900	512	VL	TN	0.58	0.000314	±2.5	PASS
EGPRS1900	512	VN	TN	1.55	0.000838	±2.5	PASS
EGPRS1900	512	VH	TN	13.33	0.007207	±2.5	PASS
EGPRS1900	661	VL	TN	8.62	0.004585	±2.5	PASS
EGPRS1900	661	VN	TN	10.98	0.005839	±2.5	PASS
EGPRS1900	661	VH	TN	6.52	0.003469	±2.5	PASS
EGPRS1900	810	VL	TN	11.59	0.006069	±2.5	PASS
EGPRS1900	810	VN	TN	8.56	0.004480	±2.5	PASS
EGPRS1900	810	VH	TN	7.75	0.004057	±2.5	PASS



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## 8.2.Frequency Error Vs Temperature

Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VN	-30	4.39	0.005327	±2.5	PASS
GSM850	128	VN	-20	2.78	0.003369	±2.5	PASS
GSM850	128	VN	-10	-0.68	-0.000823	±2.5	PASS
GSM850	128	VN	0	-1.61	-0.001959	±2.5	PASS
GSM850	128	VN	10	-5.17	-0.006268	±2.5	PASS
GSM850	128	VN	20	-2.68	-0.003251	±2.5	PASS
GSM850	128	VN	30	-5.20	-0.006307	±2.5	PASS
GSM850	128	VN	40	-2.29	-0.002781	±2.5	PASS
GSM850	128	VN	50	-3.16	-0.003839	±2.5	PASS
GSM850	190	VN	-30	0.87	0.001042	±2.5	PASS
GSM850	190	VN	-20	2.20	0.002624	±2.5	PASS
GSM850	190	VN	-10	5.23	0.006252	±2.5	PASS
GSM850	190	VN	0	1.07	0.001274	±2.5	PASS
GSM850	190	VN	10	-1.68	-0.002007	±2.5	PASS
GSM850	190	VN	20	-2.39	-0.002856	±2.5	PASS
GSM850	190	VN	30	-1.23	-0.001466	±2.5	PASS
GSM850	190	VN	40	0.26	0.000309	±2.5	PASS
GSM850	190	VN	50	-2.39	-0.002856	±2.5	PASS
GSM850	251	VN	-30	0.58	0.000685	±2.5	PASS
GSM850	251	VN	-20	4.94	0.005820	±2.5	PASS
GSM850	251	VN	-10	1.87	0.002206	±2.5	PASS
GSM850	251	VN	0	-3.10	-0.003652	±2.5	PASS
GSM850	251	VN	10	-1.68	-0.001978	±2.5	PASS
GSM850	251	VN	20	2.29	0.002701	±2.5	PASS
GSM850	251	VN	30	-0.16	-0.000190	±2.5	PASS
GSM850	251	VN	40	-0.03	-0.000038	±2.5	PASS
GSM850	251	VN	50	-0.87	-0.001027	±2.5	PASS
EGPRS850	128	VN	-30	1.00	0.001214	±2.5	PASS
EGPRS850	128	VN	-20	3.39	0.004113	±2.5	PASS
EGPRS850	128	VN	-10	-0.71	-0.000862	±2.5	PASS
EGPRS850	128	VN	0	3.75	0.004544	±2.5	PASS
EGPRS850	128	VN	10	-1.32	-0.001606	±2.5	PASS
EGPRS850	128	VN	20	3.94	0.004779	±2.5	PASS
EGPRS850	128	VN	30	1.78	0.002154	±2.5	PASS
EGPRS850	128	VN	40	3.81	0.004622	±2.5	PASS
EGPRS850	128	VN	50	0.42	0.000509	±2.5	PASS
EGPRS850	190	VN	-30	1.16	0.001389	±2.5	PASS
EGPRS850	190	VN	-20	-1.61	-0.001930	±2.5	PASS
EGPRS850	190	VN	-10	1.58	0.001891	±2.5	PASS
EGPRS850	190	VN	0	-0.26	-0.000309	±2.5	PASS
EGPRS850	190	VN	10	3.10	0.003705	±2.5	PASS
EGPRS850	190	VN	20	0.58	0.000695	±2.5	PASS
EGPRS850	190	VN	30	3.07	0.003666	±2.5	PASS



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EGPRS850	190	VN	40	0.03	0.000039	±2.5	PASS
EGPRS850	190	VN	50	1.61	0.001930	±2.5	PASS
EGPRS850	251	VN	-30	0.68	0.000799	±2.5	PASS
EGPRS850	251	VN	-20	1.87	0.002206	±2.5	PASS
EGPRS850	251	VN	-10	1.26	0.001483	±2.5	PASS
EGPRS850	251	VN	0	0.16	0.000190	±2.5	PASS
EGPRS850	251	VN	10	-0.42	-0.000494	±2.5	PASS
EGPRS850	251	VN	20	-0.65	-0.000761	±2.5	PASS
EGPRS850	251	VN	30	0.65	0.000761	±2.5	PASS
EGPRS850	251	VN	40	-1.68	-0.001978	±2.5	PASS
EGPRS850	251	VN	50	3.13	0.003690	±2.5	PASS
GSM1900	512	VN	-30	8.59	0.004642	±2.5	PASS
GSM1900	512	VN	-20	9.91	0.005357	±2.5	PASS
GSM1900	512	VN	-10	12.82	0.006928	±2.5	PASS
GSM1900	512	VN	0	1.84	0.000995	±2.5	PASS
GSM1900	512	VN	10	0.19	0.000105	±2.5	PASS
GSM1900	512	VN	20	-1.36	-0.000733	±2.5	PASS
GSM1900	512	VN	30	-2.49	-0.001344	±2.5	PASS
GSM1900	512	VN	40	0.65	0.000349	±2.5	PASS
GSM1900	512	VN	50	1.45	0.000785	±2.5	PASS
GSM1900	661	VN	-30	11.36	0.006045	±2.5	PASS
GSM1900	661	VN	-20	11.24	0.005976	±2.5	PASS
GSM1900	661	VN	-10	6.97	0.003709	±2.5	PASS
GSM1900	661	VN	0	3.55	0.001889	±2.5	PASS
GSM1900	661	VN	10	3.58	0.001906	±2.5	PASS
GSM1900	661	VN	20	2.74	0.001460	±2.5	PASS
GSM1900	661	VN	30	0.45	0.000240	±2.5	PASS
GSM1900	661	VN	40	-1.81	-0.000962	±2.5	PASS
GSM1900	661	VN	50	1.78	0.000945	±2.5	PASS
GSM1900	810	VN	-30	7.04	0.003685	±2.5	PASS
GSM1900	810	VN	-20	7.59	0.003973	±2.5	PASS
GSM1900	810	VN	-10	4.94	0.002587	±2.5	PASS
GSM1900	810	VN	0	9.10	0.004767	±2.5	PASS
GSM1900	810	VN	10	0.06	0.000034	±2.5	PASS
GSM1900	810	VN	20	-0.39	-0.000203	±2.5	PASS
GSM1900	810	VN	30	-4.07	-0.002130	±2.5	PASS
GSM1900	810	VN	40	1.90	0.000997	±2.5	PASS
GSM1900	810	VN	50	1.45	0.000761	±2.5	PASS
EGPRS1900	512	VN	-30	2.26	0.001221	±2.5	PASS
EGPRS1900	512	VN	-20	4.46	0.002408	±2.5	PASS
EGPRS1900	512	VN	-10	12.88	0.006963	±2.5	PASS
EGPRS1900	512	VN	0	8.39	0.004537	±2.5	PASS
EGPRS1900	512	VN	10	4.04	0.002181	±2.5	PASS
EGPRS1900	512	VN	20	8.59	0.004642	±2.5	PASS
EGPRS1900	512	VN	30	2.55	0.001379	±2.5	PASS
EGPRS1900	512	VN	40	1.65	0.000890	±2.5	PASS
EGPRS1900	512	VN	50	-3.97	-0.002146	±2.5	PASS



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EGPRS1900	661	VN	-30	3.94	0.002095	±2.5	PASS
EGPRS1900	661	VN	-20	8.04	0.004276	±2.5	PASS
EGPRS1900	661	VN	-10	4.46	0.002370	±2.5	PASS
EGPRS1900	661	VN	0	10.91	0.005805	±2.5	PASS
EGPRS1900	661	VN	10	9.46	0.005032	±2.5	PASS
EGPRS1900	661	VN	20	4.71	0.002507	±2.5	PASS
EGPRS1900	661	VN	30	-2.16	-0.001151	±2.5	PASS
EGPRS1900	661	VN	40	-0.81	-0.000429	±2.5	PASS
EGPRS1900	661	VN	50	5.00	0.002662	±2.5	PASS
EGPRS1900	810	VN	-30	5.36	0.002806	±2.5	PASS
EGPRS1900	810	VN	-20	5.07	0.002654	±2.5	PASS
EGPRS1900	810	VN	-10	5.26	0.002756	±2.5	PASS
EGPRS1900	810	VN	0	8.65	0.004531	±2.5	PASS
EGPRS1900	810	VN	10	4.62	0.002417	±2.5	PASS
EGPRS1900	810	VN	20	4.84	0.002536	±2.5	PASS
EGPRS1900	810	VN	30	2.10	0.001099	±2.5	PASS
EGPRS1900	810	VN	40	3.20	0.001674	±2.5	PASS
EGPRS1900	810	VN	50	4.88	0.002553	±2.5	PASS

The End

