



Appendix B

GSM 850 & 1900



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1. Effective (Isotropic) Radiated Power Output Data

1.1. Test Result for Ant0

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.18	23.03	38.45	PASS
GSM850	190	---	32.55	23.40	38.45	PASS
GSM850	251	---	32.19	23.04	38.45	PASS
EGRPS850 (GMSK)	128	1	32.34	23.19	38.45	PASS
EGRPS850 (GMSK)	128	2	30.61	21.46	38.45	PASS
EGRPS850 (GMSK)	128	3	29.45	20.30	38.45	PASS
EGRPS850 (GMSK)	128	4	27.48	18.33	38.45	PASS
EGRPS850 (GMSK)	190	1	32.43	23.28	38.45	PASS
EGRPS850 (GMSK)	190	2	30.38	21.23	38.45	PASS
EGRPS850 (GMSK)	190	3	28.77	19.62	38.45	PASS
EGRPS850 (GMSK)	190	4	27.69	18.54	38.45	PASS
EGRPS850 (GMSK)	251	1	32.31	23.16	38.45	PASS
EGRPS850 (GMSK)	251	2	30.65	21.50	38.45	PASS
EGRPS850 (GMSK)	251	3	28.49	19.34	38.45	PASS
EGRPS850 (GMSK)	251	4	27.53	18.38	38.45	PASS
EGPRS850 (8PSK)	128	1	26.89	17.74	38.45	PASS
EGPRS850 (8PSK)	128	2	25.28	16.13	38.45	PASS
EGPRS850 (8PSK)	128	3	22.98	13.83	38.45	PASS
EGPRS850 (8PSK)	128	4	22.07	12.92	38.45	PASS
EGPRS850 (8PSK)	190	1	27.01	17.86	38.45	PASS
EGPRS850 (8PSK)	190	2	25.19	16.04	38.45	PASS
EGPRS850 (8PSK)	190	3	23.35	14.20	38.45	PASS
EGPRS850 (8PSK)	190	4	22.11	12.96	38.45	PASS
EGPRS850 (8PSK)	251	1	26.78	17.63	38.45	PASS
EGPRS850 (8PSK)	251	2	25.16	16.01	38.45	PASS
EGPRS850 (8PSK)	251	3	23.18	14.03	38.45	PASS
EGPRS850 (8PSK)	251	4	21.69	12.54	38.45	PASS



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1.2. Test Result for Ant1

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.66	27.11	38.45	PASS
GSM850	190	---	32.71	27.16	38.45	PASS
GSM850	251	---	32.67	27.12	38.45	PASS
EGRPS850 (GMSK)	128	1	32.64	27.09	38.45	PASS
EGRPS850 (GMSK)	128	2	30.84	25.29	38.45	PASS
EGRPS850 (GMSK)	128	3	29.24	23.69	38.45	PASS
EGRPS850 (GMSK)	128	4	27.66	22.11	38.45	PASS
EGRPS850 (GMSK)	190	1	32.63	27.08	38.45	PASS
EGRPS850 (GMSK)	190	2	30.69	25.14	38.45	PASS
EGRPS850 (GMSK)	190	3	29.24	23.69	38.45	PASS
EGRPS850 (GMSK)	190	4	27.89	22.34	38.45	PASS
EGRPS850 (GMSK)	251	1	32.68	27.13	38.45	PASS
EGRPS850 (GMSK)	251	2	30.82	25.27	38.45	PASS
EGRPS850 (GMSK)	251	3	29.20	23.65	38.45	PASS
EGRPS850 (GMSK)	251	4	27.74	22.19	38.45	PASS
EGPRS850 (8PSK)	128	1	27.06	21.51	38.45	PASS
EGPRS850 (8PSK)	128	2	25.38	19.83	38.45	PASS
EGPRS850 (8PSK)	128	3	23.38	17.83	38.45	PASS
EGPRS850 (8PSK)	128	4	22.46	16.91	38.45	PASS
EGPRS850 (8PSK)	190	1	27.13	21.58	38.45	PASS
EGPRS850 (8PSK)	190	2	25.59	20.04	38.45	PASS
EGPRS850 (8PSK)	190	3	23.13	17.58	38.45	PASS
EGPRS850 (8PSK)	190	4	22.42	16.87	38.45	PASS
EGPRS850 (8PSK)	251	1	27.07	21.52	38.45	PASS
EGPRS850 (8PSK)	251	2	25.44	19.89	38.45	PASS
EGPRS850 (8PSK)	251	3	23.48	17.93	38.45	PASS
EGPRS850 (8PSK)	251	4	22.29	16.74	38.45	PASS



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1.3. Test Result for Ant2

Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	30.16	28.56	33.00	PASS
GSM1900	661	---	30.15	28.55	33.00	PASS
GSM1900	810	---	30.11	28.51	33.00	PASS
EGRPS1900 (GMSK)	512	1	30.14	28.54	33.00	PASS
EGRPS1900 (GMSK)	512	2	28.56	26.96	33.00	PASS
EGRPS1900 (GMSK)	512	3	26.95	25.35	33.00	PASS
EGRPS1900 (GMSK)	512	4	25.49	23.89	33.00	PASS
EGRPS1900 (GMSK)	661	1	30.10	28.50	33.00	PASS
EGRPS1900 (GMSK)	661	2	28.53	26.93	33.00	PASS
EGRPS1900 (GMSK)	661	3	26.91	25.31	33.00	PASS
EGRPS1900 (GMSK)	661	4	25.61	24.01	33.00	PASS
EGRPS1900 (GMSK)	810	1	30.13	28.53	33.00	PASS
EGRPS1900 (GMSK)	810	2	28.50	26.90	33.00	PASS
EGRPS1900 (GMSK)	810	3	27.00	25.40	33.00	PASS
EGRPS1900 (GMSK)	810	4	25.50	23.90	33.00	PASS
EGPRS1900 (8PSK)	512	1	26.48	24.88	33.00	PASS
EGPRS1900 (8PSK)	512	2	24.75	23.15	33.00	PASS
EGPRS1900 (8PSK)	512	3	22.78	21.18	33.00	PASS
EGPRS1900 (8PSK)	512	4	22.27	20.67	33.00	PASS
EGPRS1900 (8PSK)	661	1	26.44	24.84	33.00	PASS
EGPRS1900 (8PSK)	661	2	24.88	23.28	33.00	PASS
EGPRS1900 (8PSK)	661	3	22.81	21.21	33.00	PASS
EGPRS1900 (8PSK)	661	4	22.24	20.64	33.00	PASS
EGPRS1900 (8PSK)	810	1	26.47	24.87	33.00	PASS
EGPRS1900 (8PSK)	810	2	24.84	23.24	33.00	PASS
EGPRS1900 (8PSK)	810	3	22.88	21.28	33.00	PASS
EGPRS1900 (8PSK)	810	4	22.31	20.71	33.00	PASS



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1.4. Test Result for Ant3

Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	28.81	26.81	33.00	PASS
GSM1900	661	---	28.79	26.79	33.00	PASS
GSM1900	810	---	28.68	26.68	33.00	PASS
EGRPS1900 (GMSK)	512	1	28.78	26.78	33.00	PASS
EGRPS1900 (GMSK)	512	2	26.78	24.78	33.00	PASS
EGRPS1900 (GMSK)	512	3	24.68	22.68	33.00	PASS
EGRPS1900 (GMSK)	512	4	23.62	21.62	33.00	PASS
EGRPS1900 (GMSK)	661	1	28.78	26.78	33.00	PASS
EGRPS1900 (GMSK)	661	2	27.03	25.03	33.00	PASS
EGRPS1900 (GMSK)	661	3	24.98	22.98	33.00	PASS
EGRPS1900 (GMSK)	661	4	23.82	21.82	33.00	PASS
EGRPS1900 (GMSK)	810	1	28.75	26.75	33.00	PASS
EGRPS1900 (GMSK)	810	2	26.88	24.88	33.00	PASS
EGRPS1900 (GMSK)	810	3	24.68	22.68	33.00	PASS
EGRPS1900 (GMSK)	810	4	23.75	21.75	33.00	PASS
EGPRS1900 (8PSK)	512	1	24.73	22.73	33.00	PASS
EGPRS1900 (8PSK)	512	2	22.85	20.85	33.00	PASS
EGPRS1900 (8PSK)	512	3	20.74	18.74	33.00	PASS
EGPRS1900 (8PSK)	512	4	19.82	17.82	33.00	PASS
EGPRS1900 (8PSK)	661	1	24.84	22.84	33.00	PASS
EGPRS1900 (8PSK)	661	2	22.88	20.88	33.00	PASS
EGPRS1900 (8PSK)	661	3	20.73	18.73	33.00	PASS
EGPRS1900 (8PSK)	661	4	19.92	17.92	33.00	PASS
EGPRS1900 (8PSK)	810	1	24.92	22.92	33.00	PASS
EGPRS1900 (8PSK)	810	2	22.81	20.81	33.00	PASS
EGPRS1900 (8PSK)	810	3	20.84	18.84	33.00	PASS
EGPRS1900 (8PSK)	810	4	19.72	17.72	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 [dBi]

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



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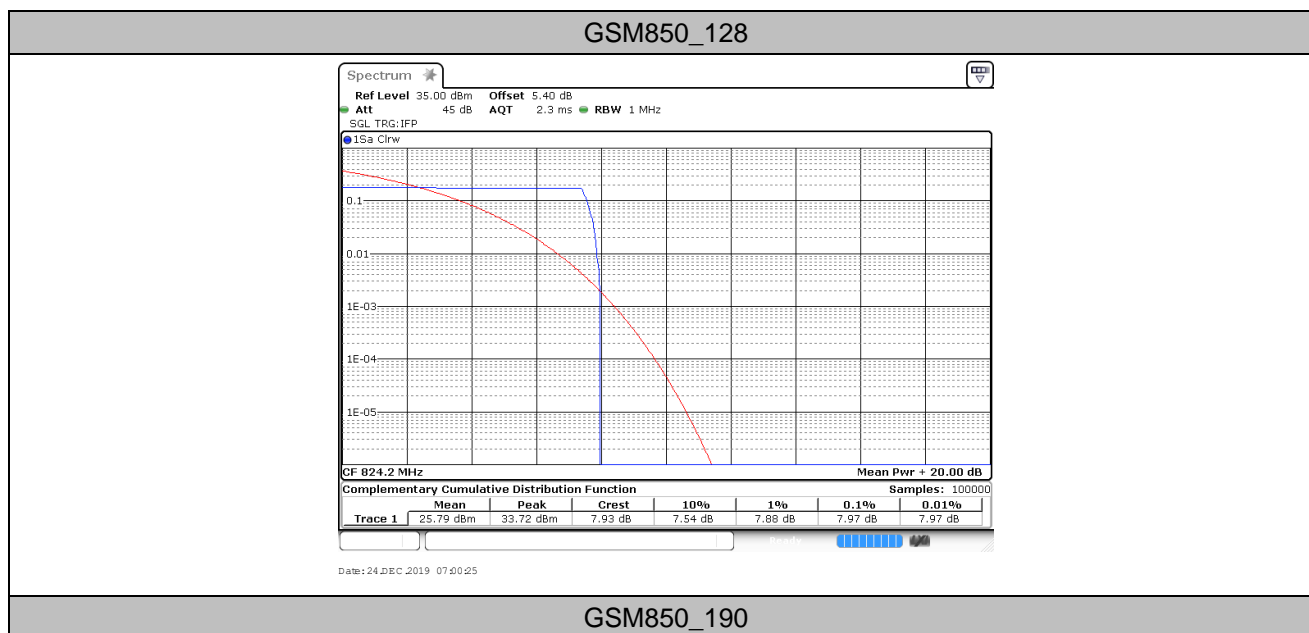


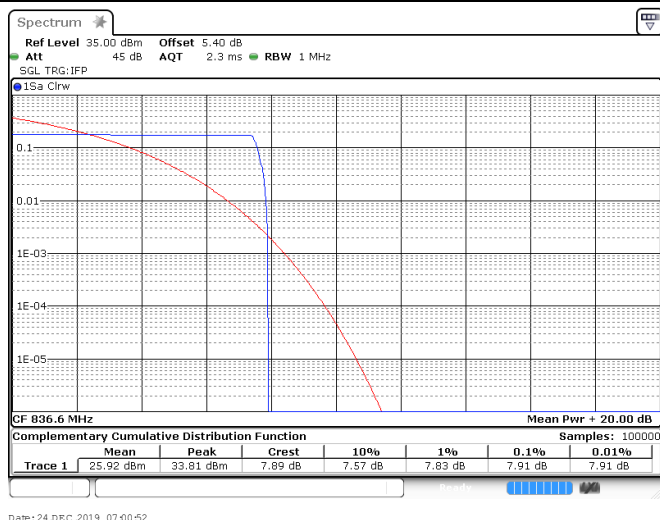
2. Peak-to-Average Ratio

2.1. Test Result

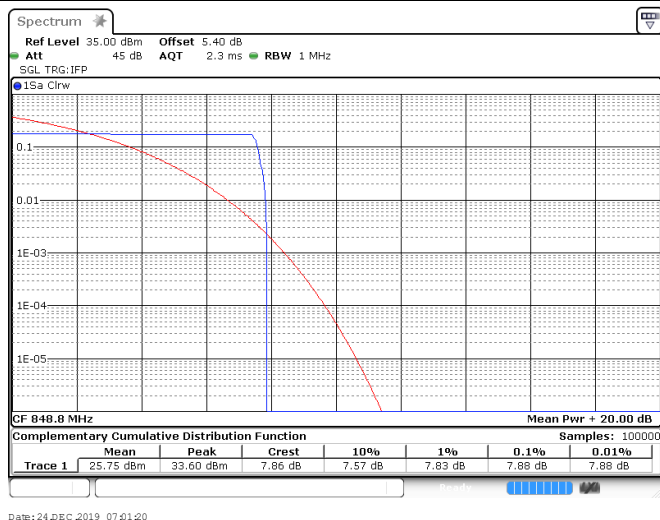
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
GSM850	128	7.97	13.00	PASS
GSM850	190	7.91	13.00	PASS
GSM850	251	7.88	13.00	PASS
EGPRS850	128	10.99	13.00	PASS
EGPRS850	190	7.94	13.00	PASS
EGPRS850	251	11.22	13.00	PASS
GSM1900	512	7.94	13.00	PASS
GSM1900	661	7.94	13.00	PASS
GSM1900	810	7.94	13.00	PASS
EGPRS1900	512	10.99	13.00	PASS
EGPRS1900	661	11.13	13.00	PASS
EGPRS1900	810	11.39	13.00	PASS

2.2. Part II - Test Plots



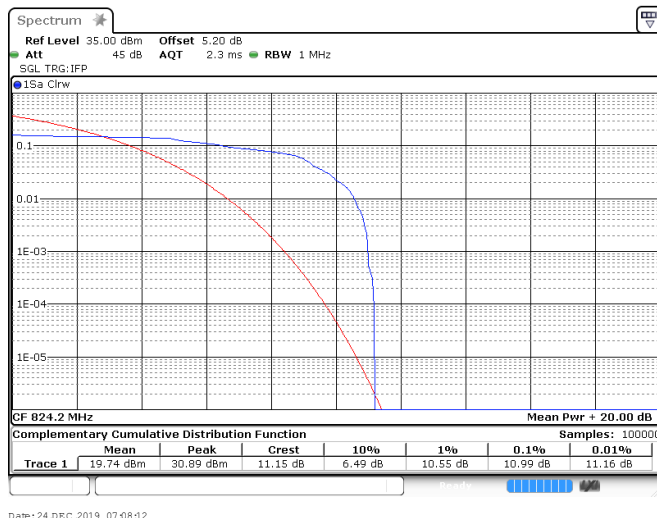


GSM850_251



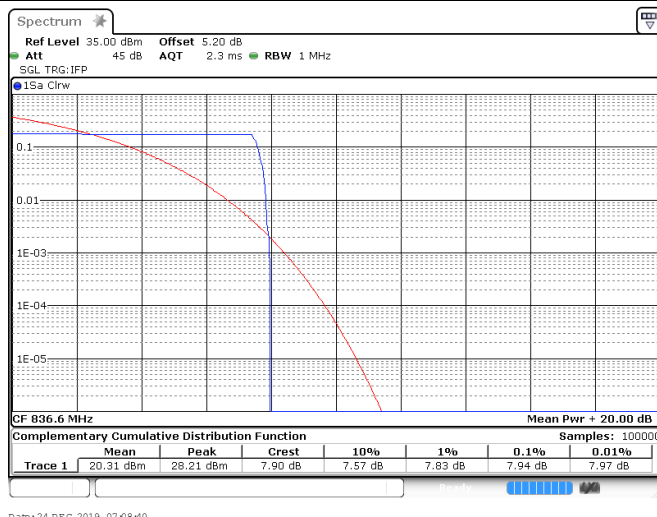
EGPRS850_128





Date: 24 DEC 2019 07:08:12

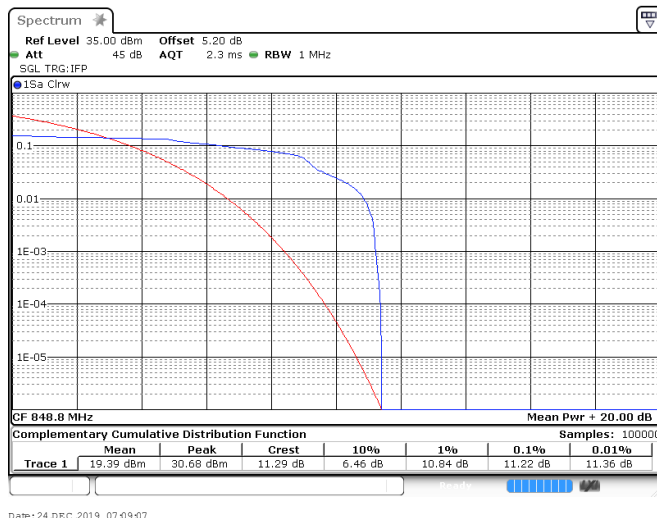
EGPRS850_190



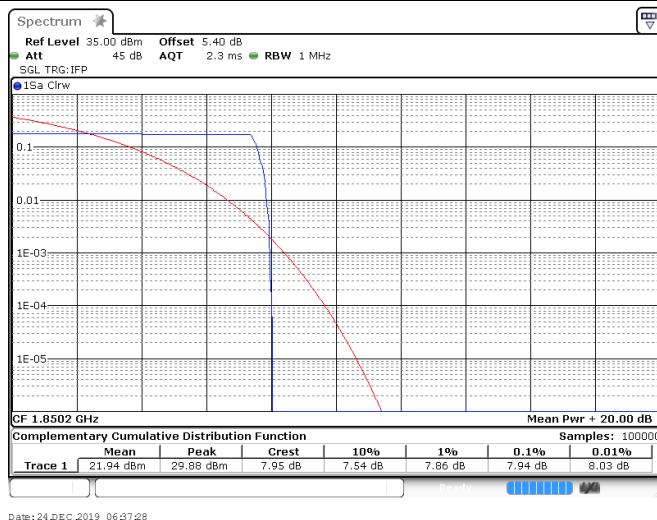
Date: 24 DEC 2019 07:08:40

EGPRS850_251



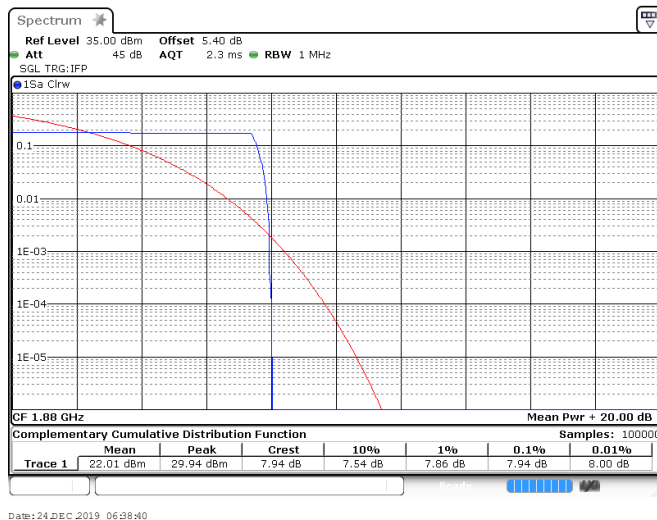


GSM1900_512



GSM1900_661



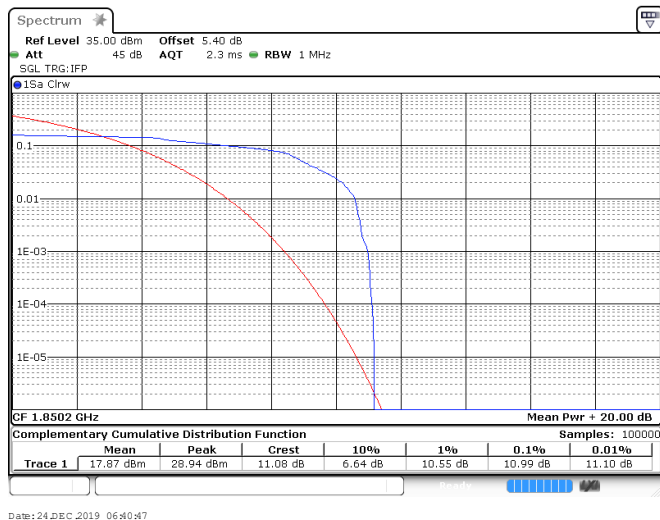


GSM1900_810



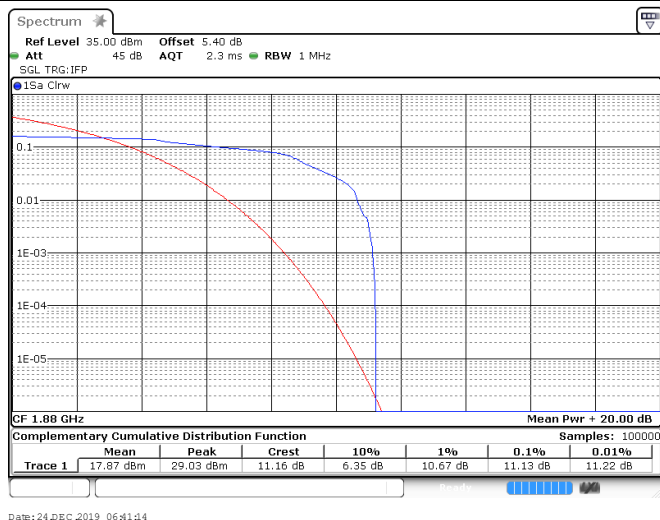
EGPRS1900_512





Date: 24 DEC 2019 06:40:47

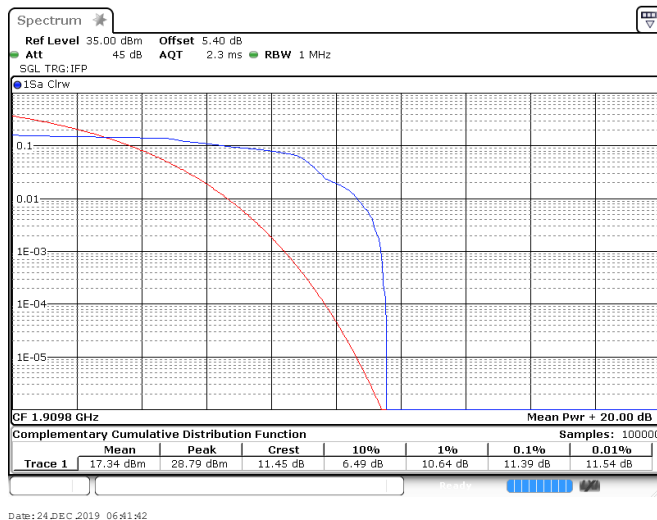
EGPRS1900_661



Date: 24 DEC 2019 06:41:14

EGPRS1900_810





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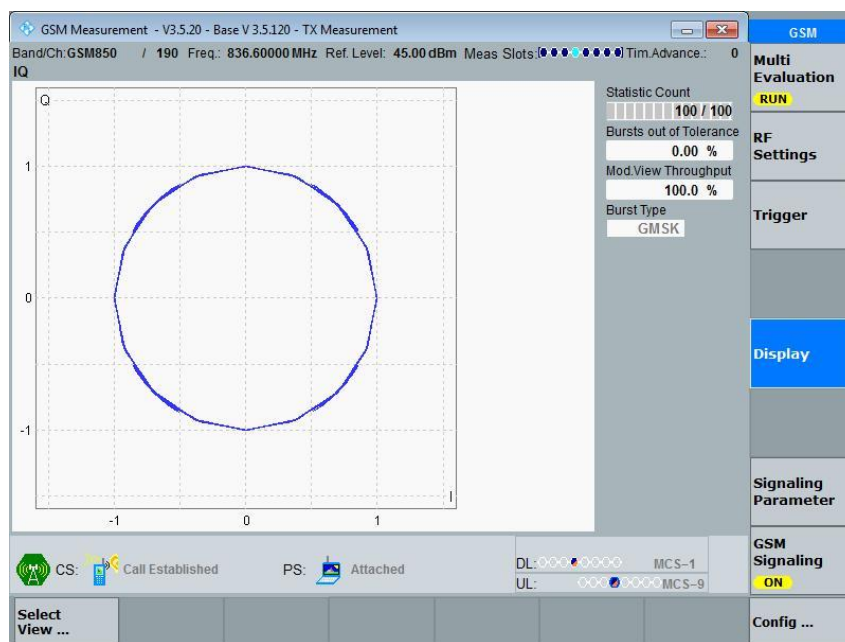
3. Modulation Characteristics

3.1. For GSM

3.1.1. Test Band = GSM 850

3.1.1.1. Test Mode = GSM/TM1

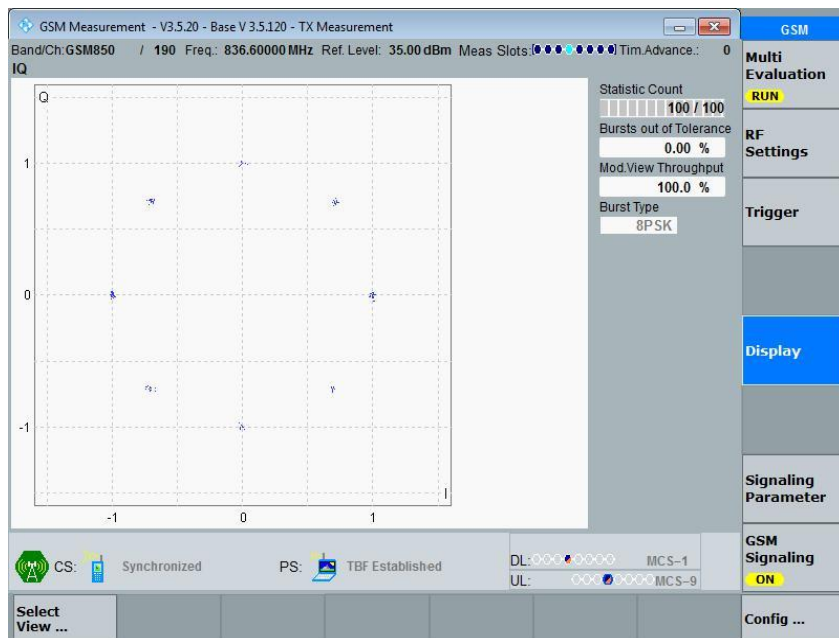
3.1.1.1.1. Test Channel = MCH





3.1.1.2. Test Mode = GSM/TM2

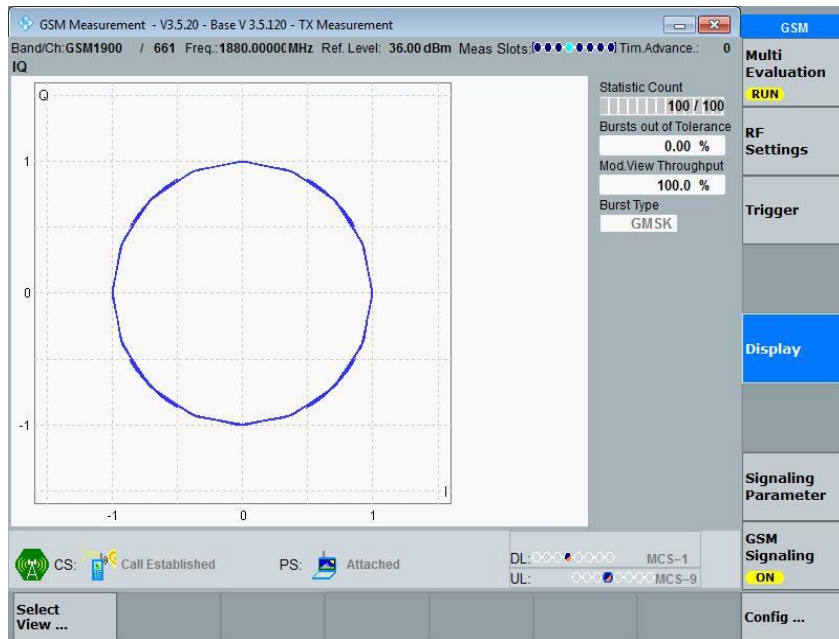
3.1.1.2.1. Test Channel = MCH



3.1.2. Test Band = GSM 1900

3.1.2.1. Test Mode = GSM/TM1

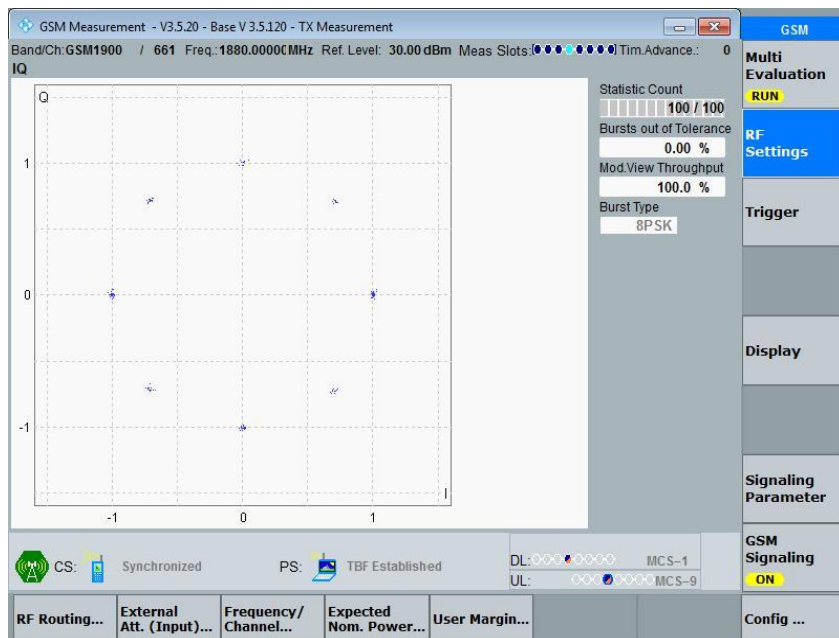
3.1.2.1.1. Test Channel = MCH





3.1.2.2. Test Mode = GSM/TM2

3.1.2.2.1. Test Channel = MCH



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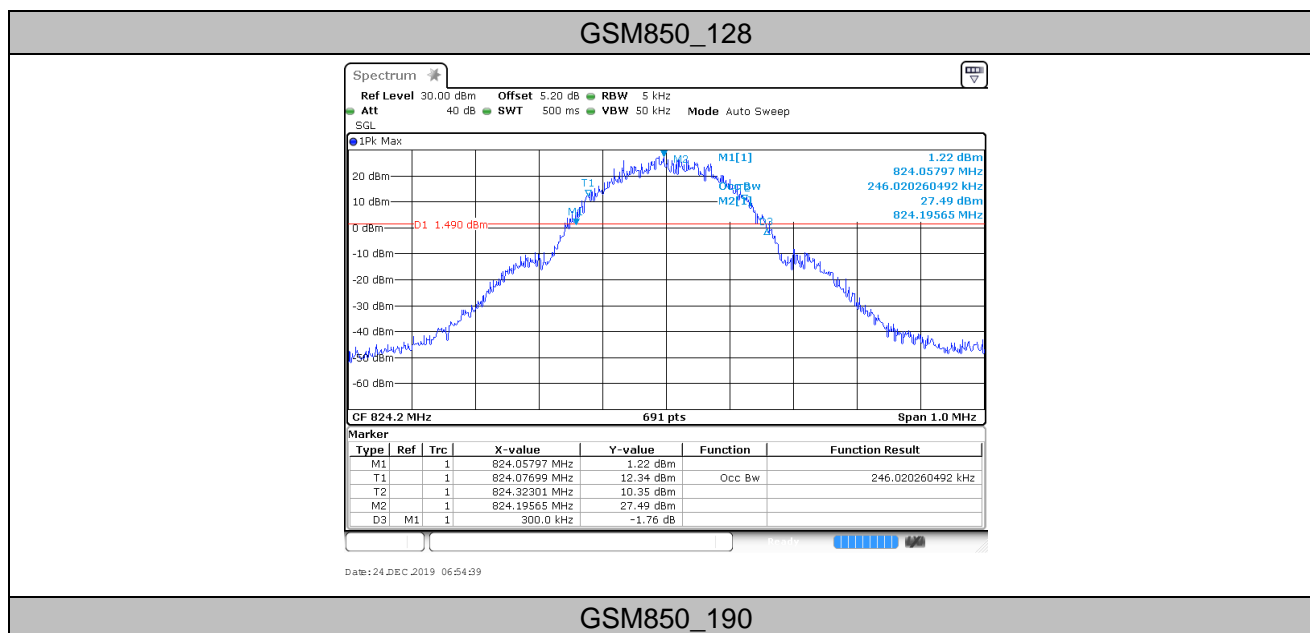


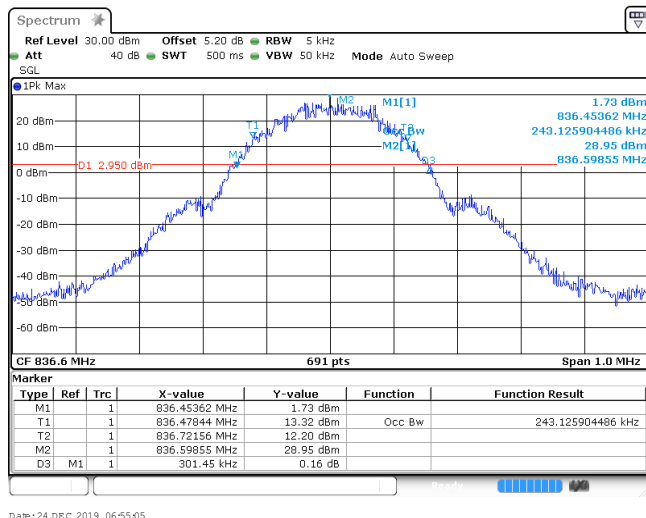
4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

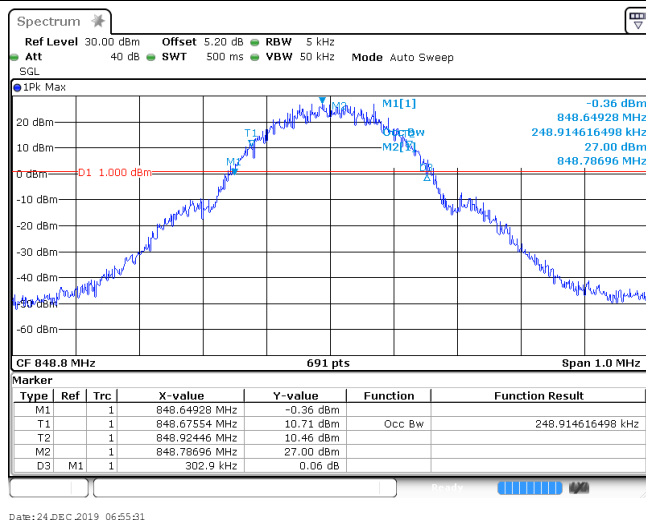
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
GSM850	128	246.02	300.00	---	PASS
GSM850	190	243.13	301.45	---	PASS
GSM850	251	248.91	302.90	---	PASS
EGPRS850	128	246.02	297.10	---	PASS
EGPRS850	190	243.13	292.75	---	PASS
EGPRS850	251	240.23	301.45	---	PASS
GSM1900	512	241.68	294.20	---	PASS
GSM1900	661	240.23	289.86	---	PASS
GSM1900	810	240.23	294.20	---	PASS
EGPRS1900	512	243.13	294.20	---	PASS
EGPRS1900	661	237.34	279.71	---	PASS
EGPRS1900	810	241.68	291.30	---	PASS

4.2. Test Plots



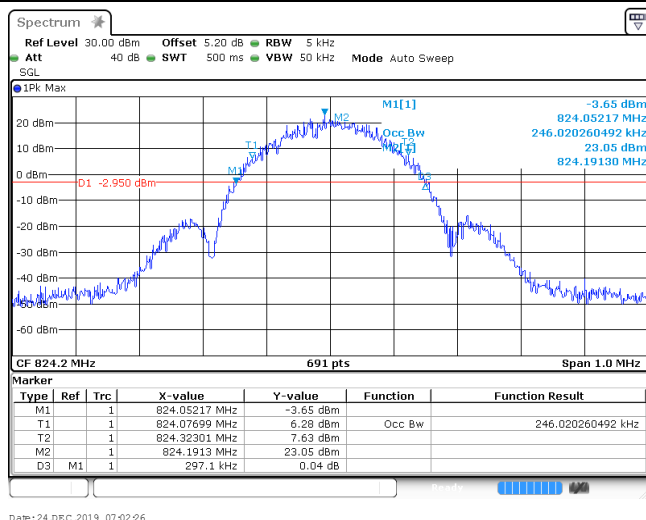


GSM850_251

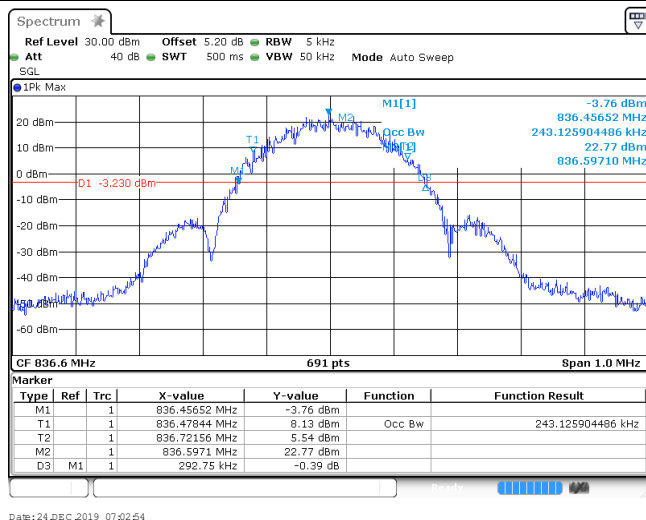


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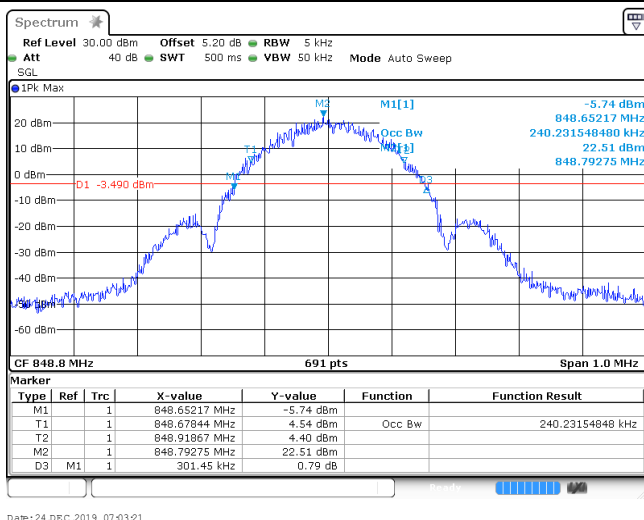


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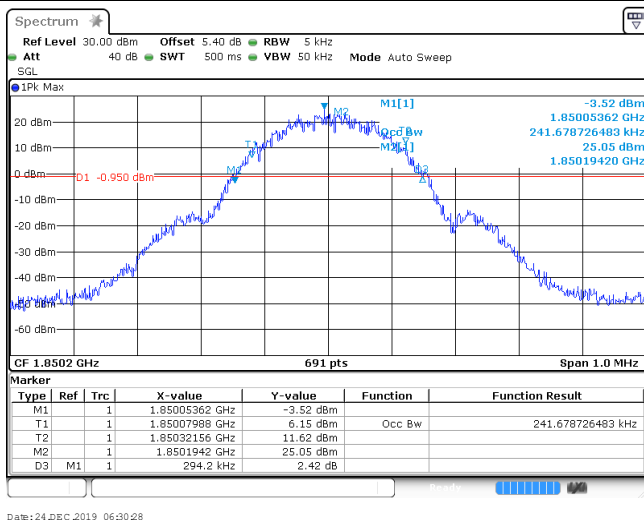


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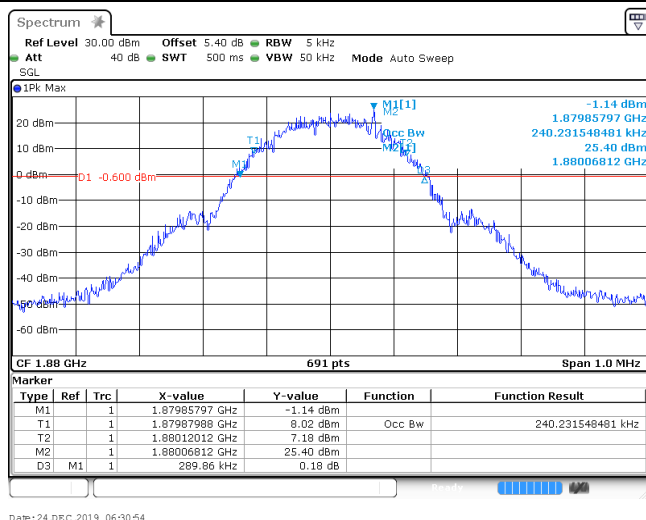


GSM1900_512

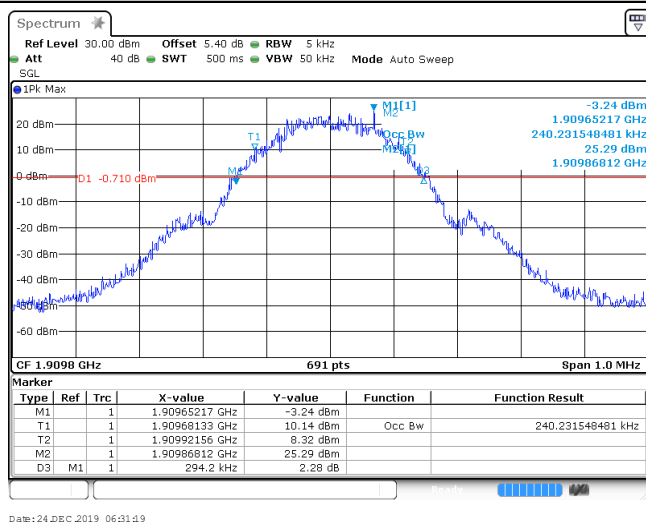


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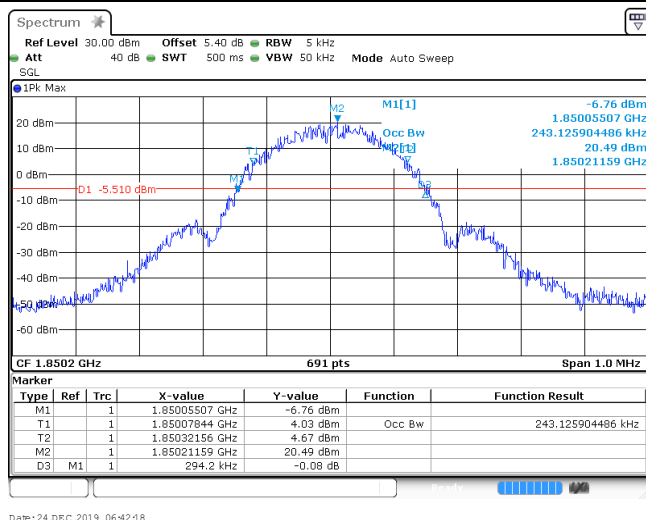


GSM1900_810

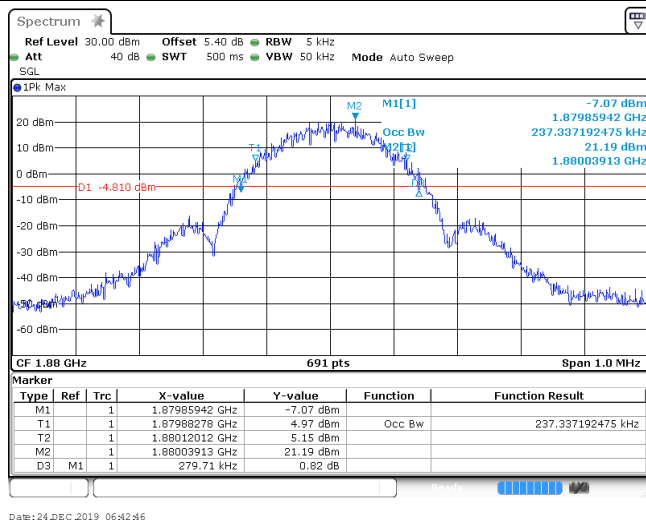


EGPRS1900_512



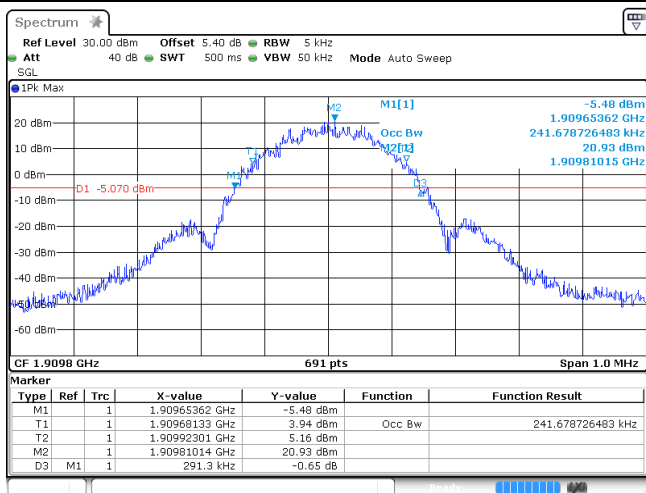


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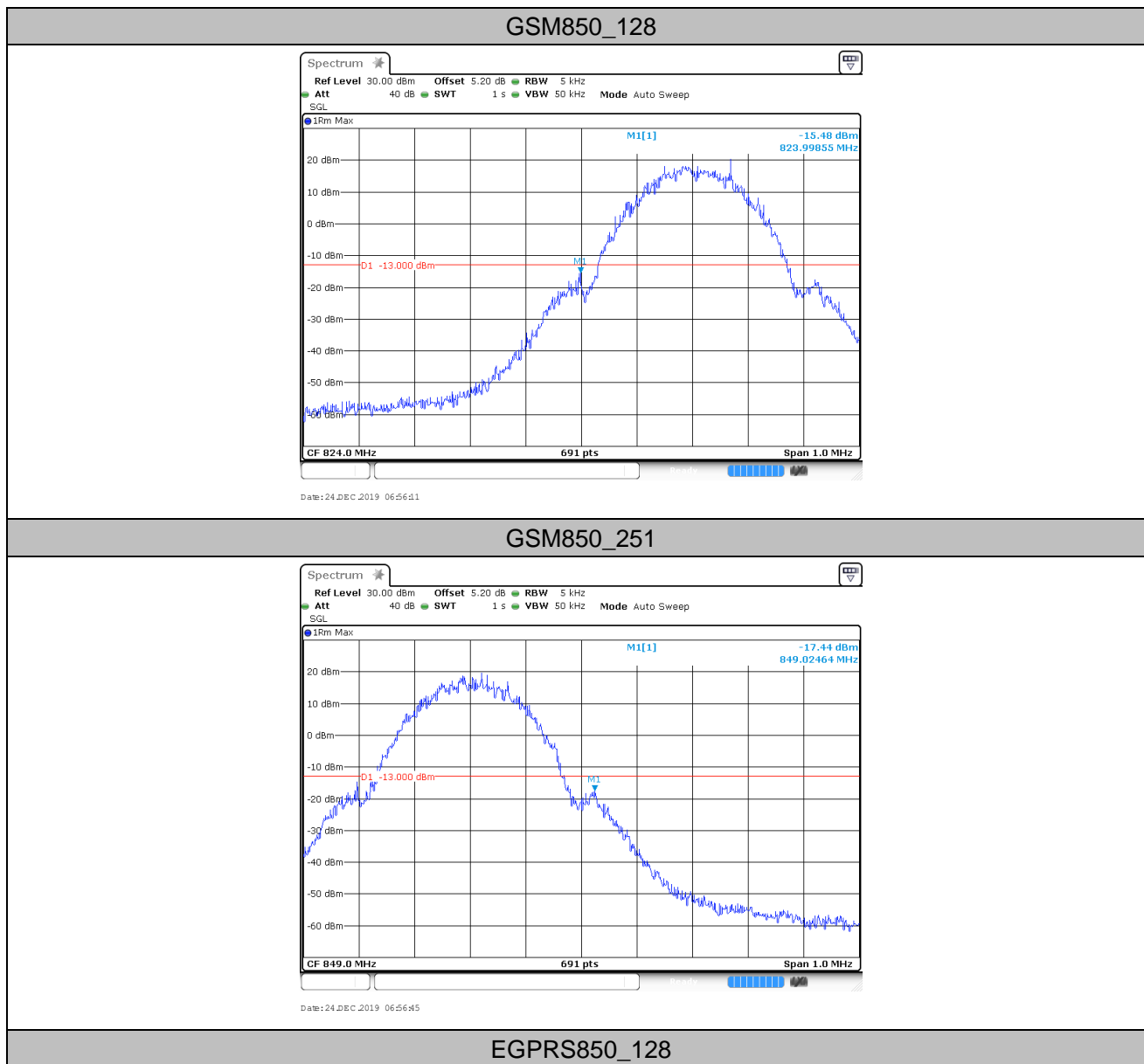
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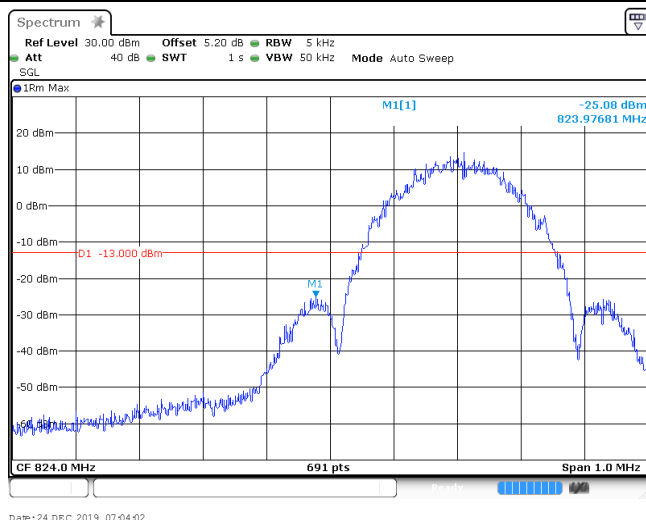




5. Band Edge Compliance

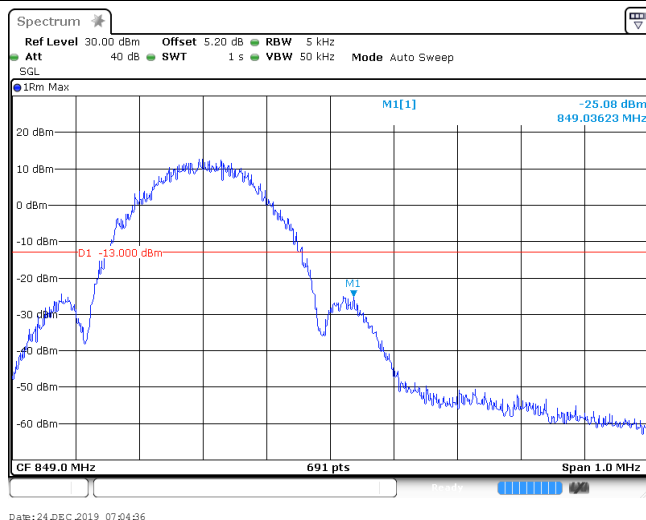
5.1. Test Plots





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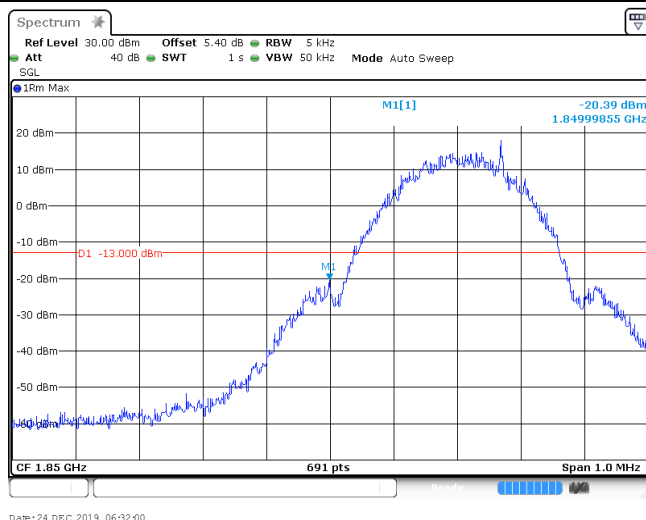
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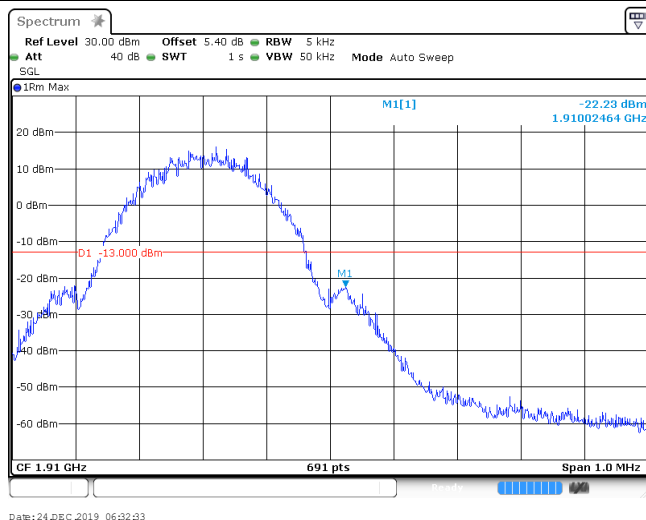
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GSM1900_512





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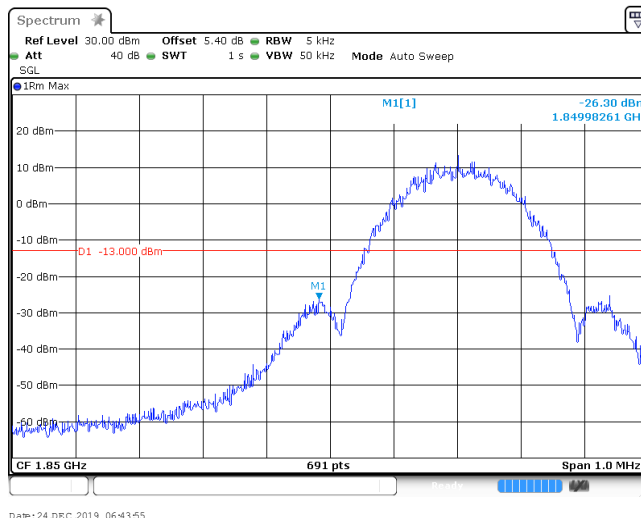


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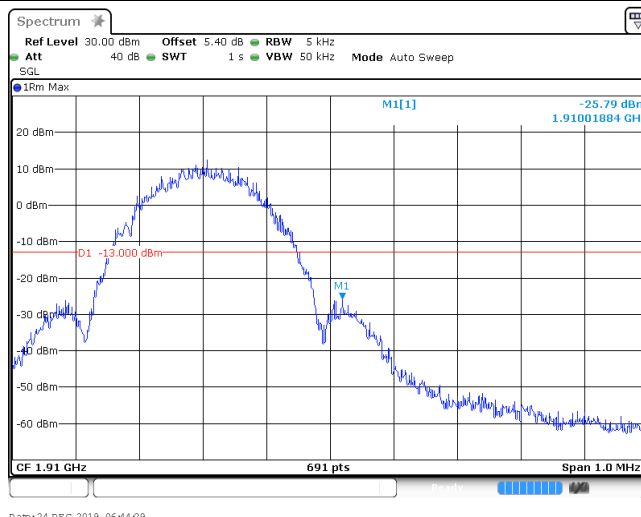
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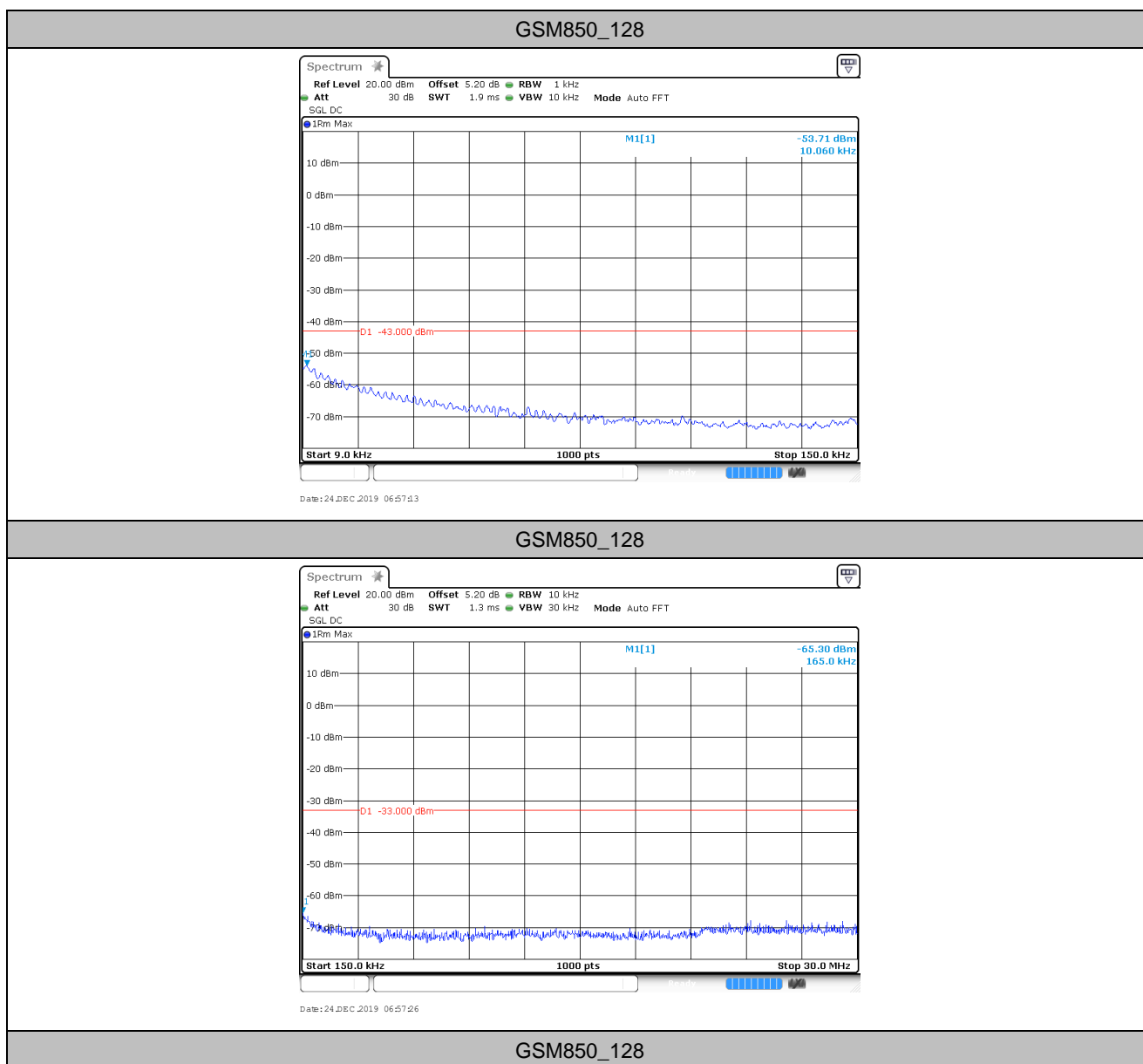


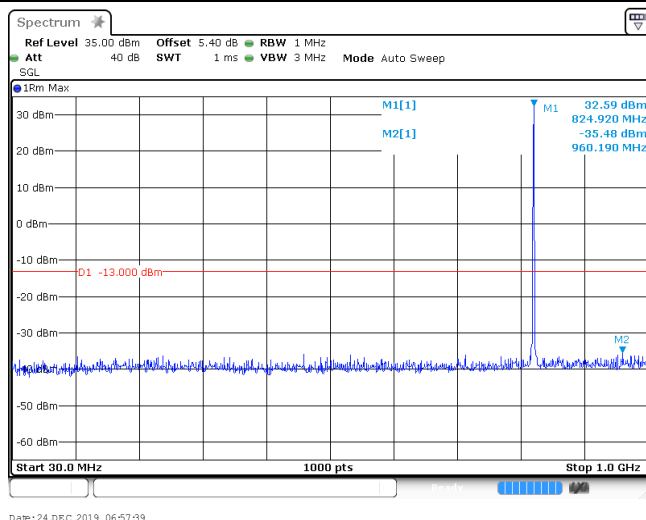
6. Spurious Emission at Antenna Terminal

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

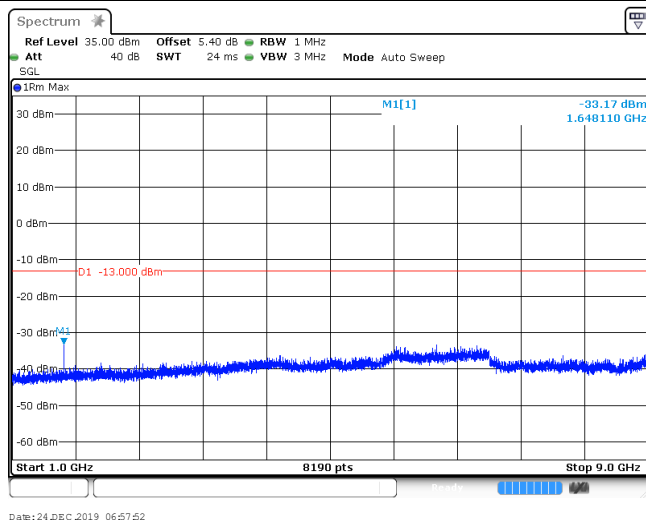
Remark2: only the worst case data displayed in this report.

6.1. Test Plots



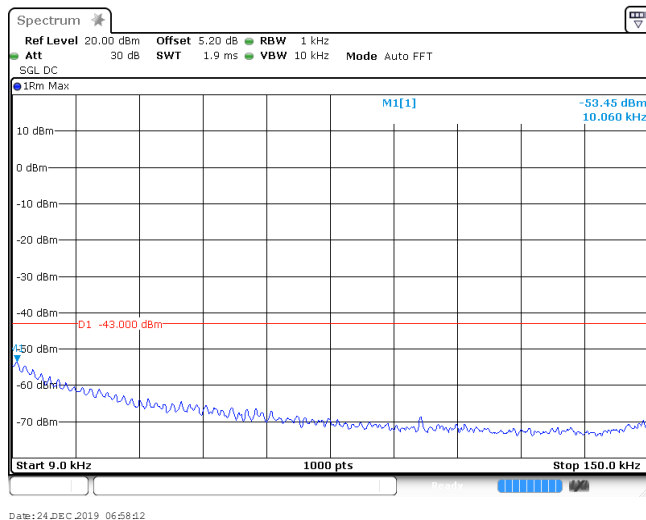


GSM850_128

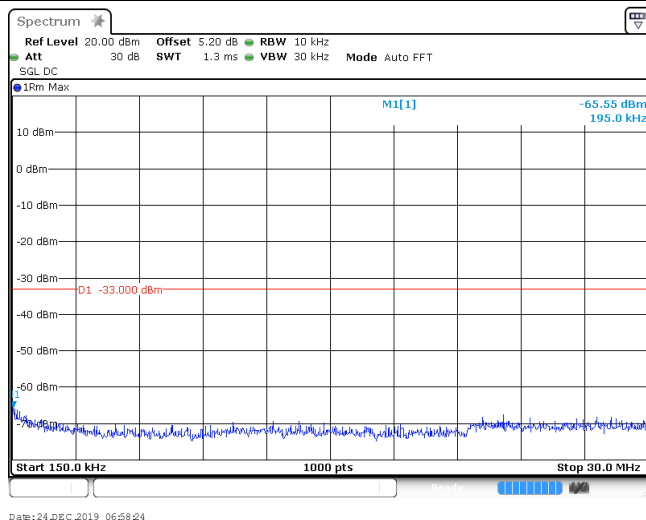


GSM850_190





GSM850_190

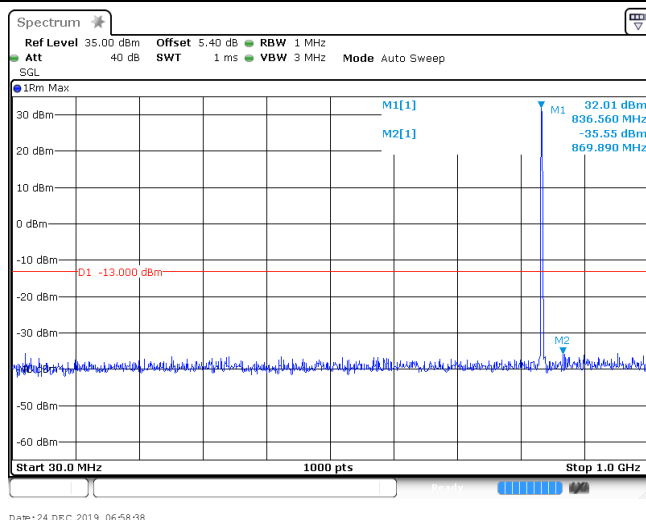


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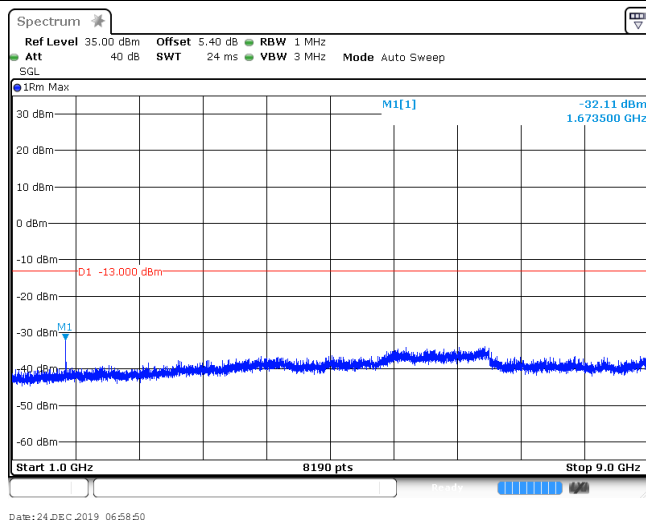


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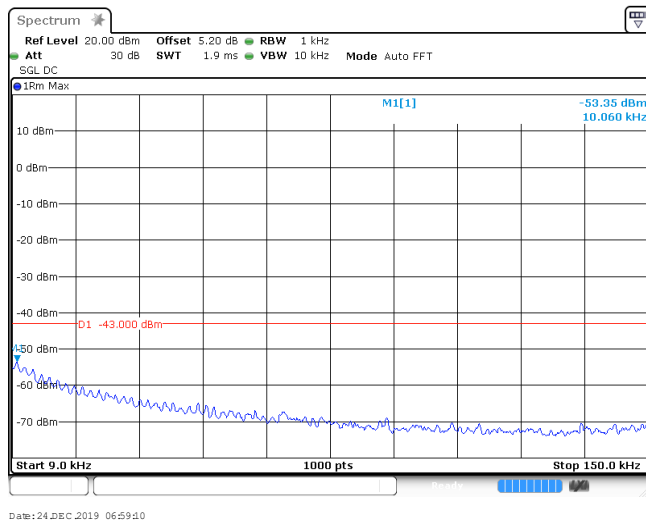
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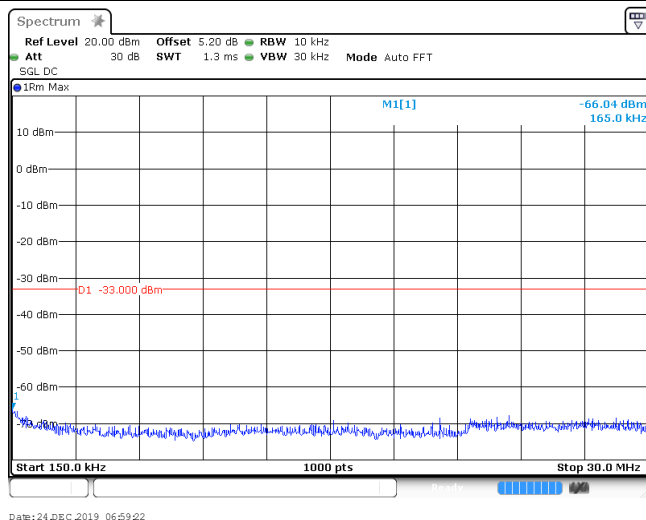
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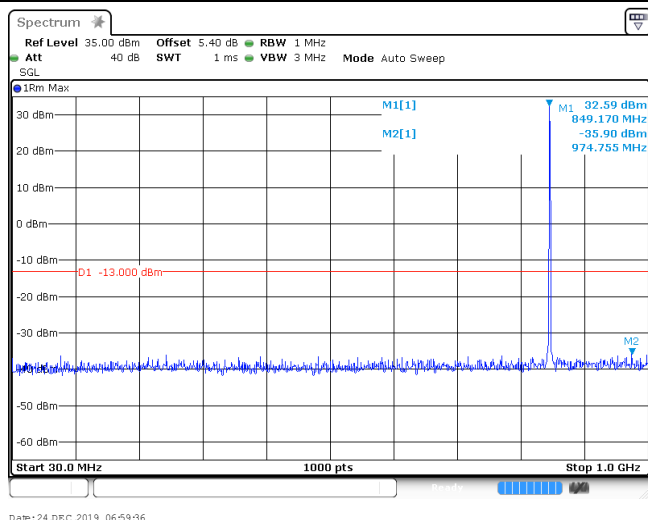


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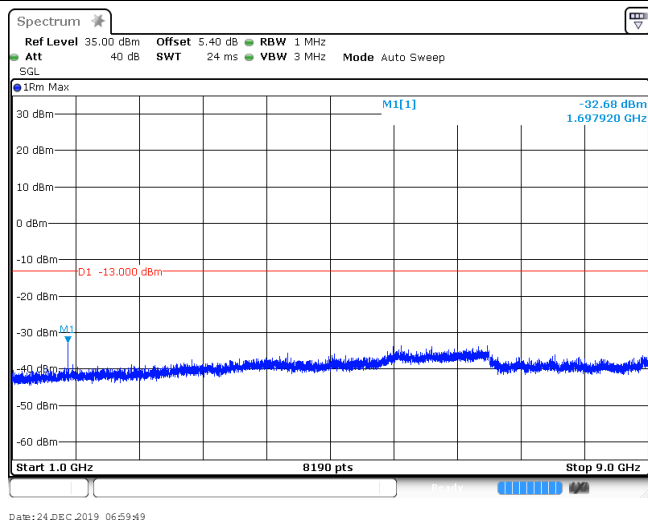


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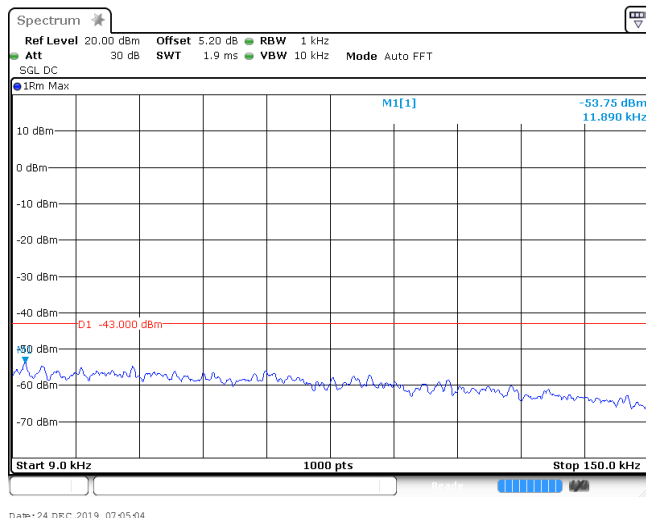


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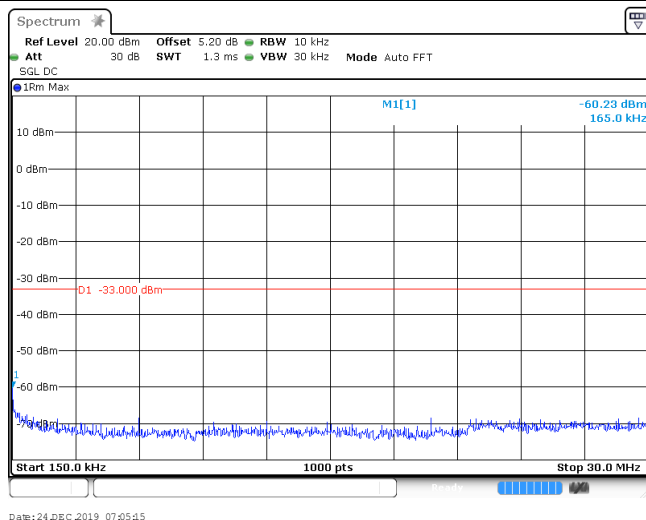


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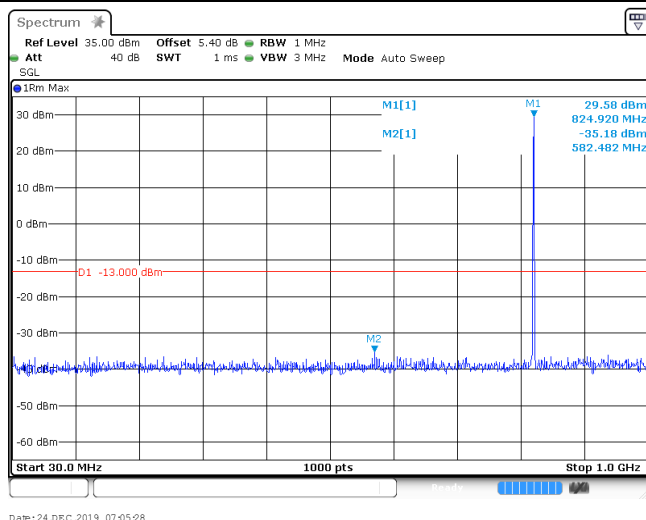


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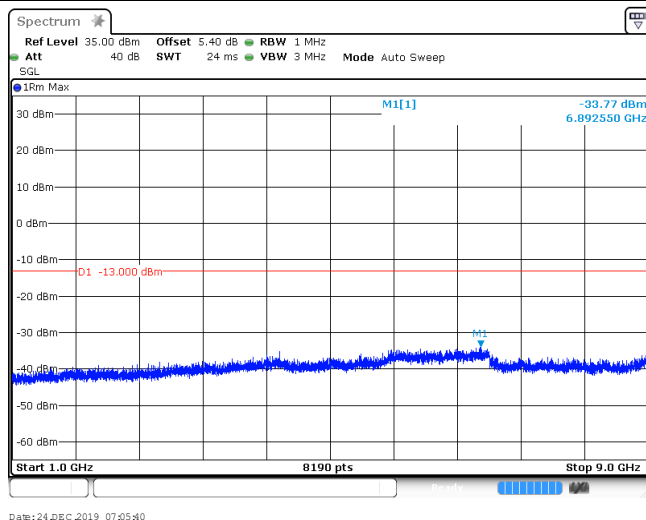


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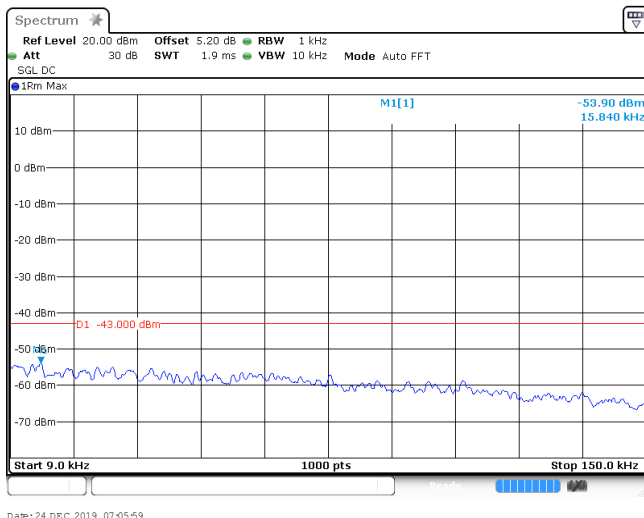


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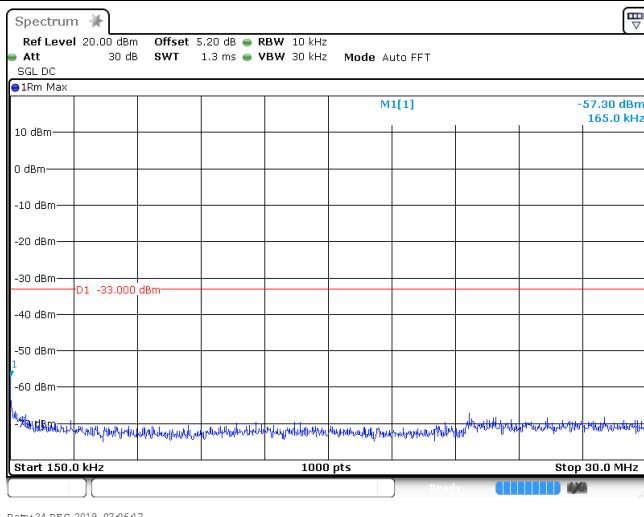
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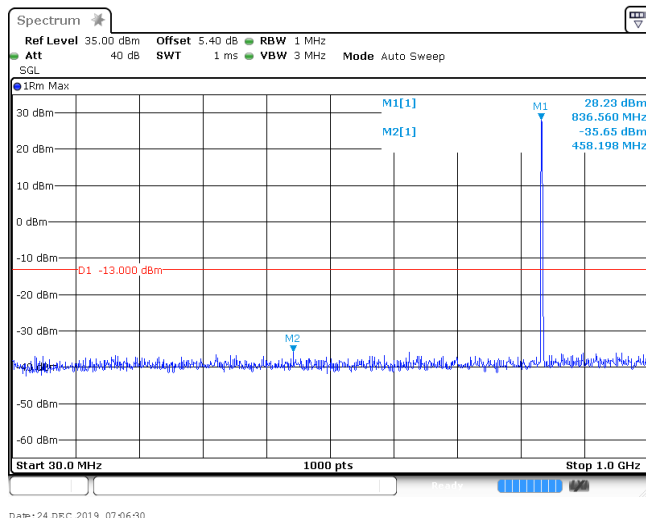
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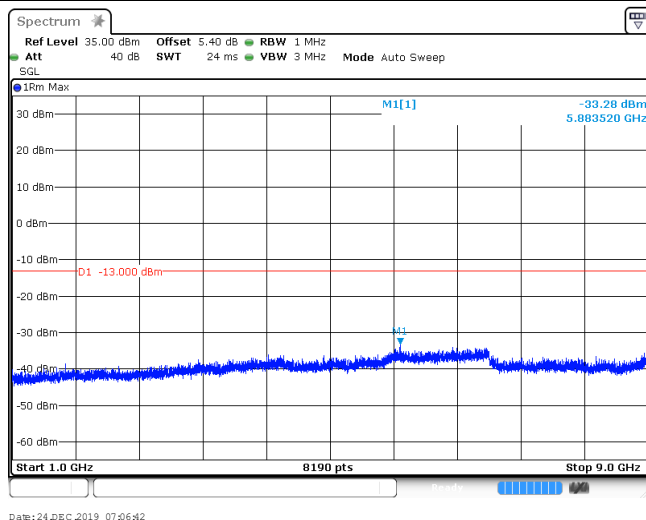
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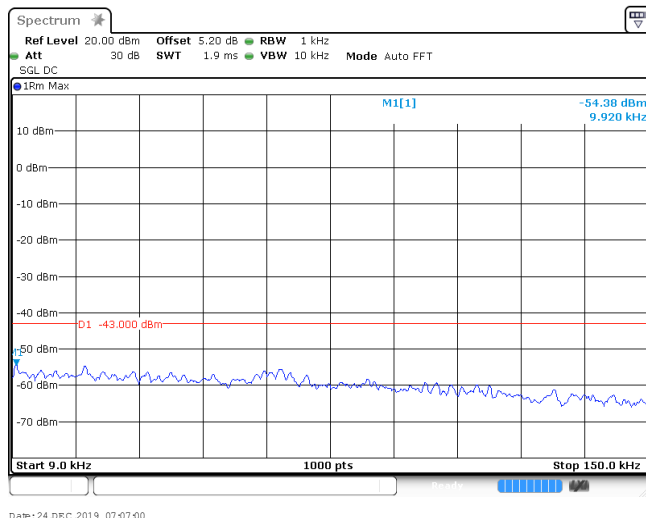
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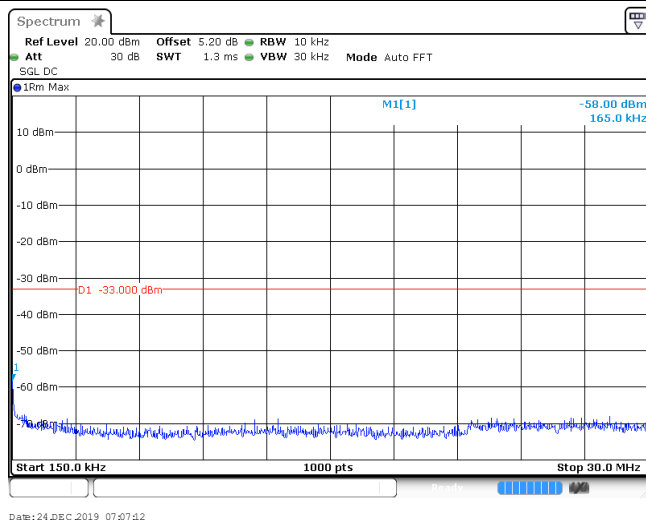


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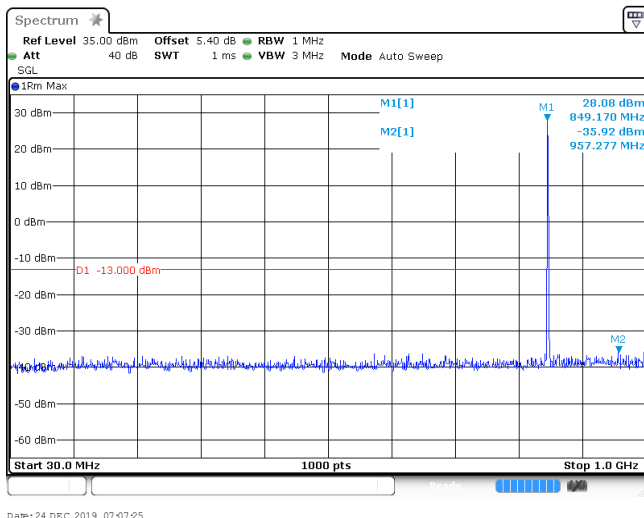


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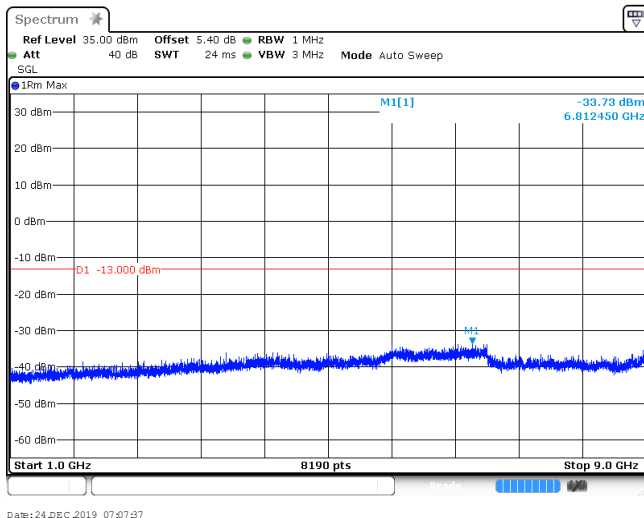


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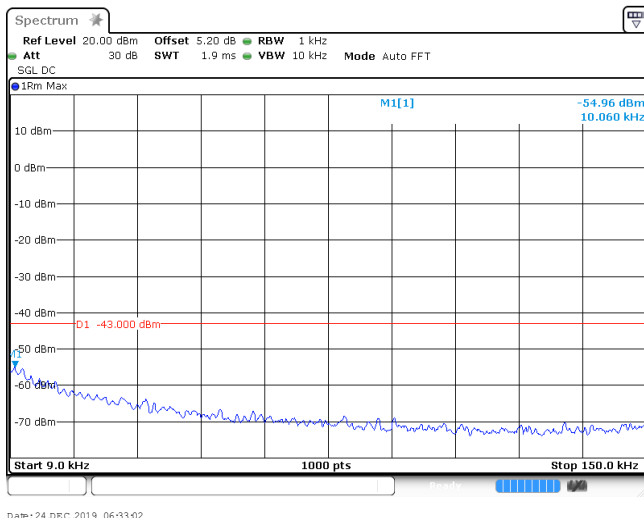


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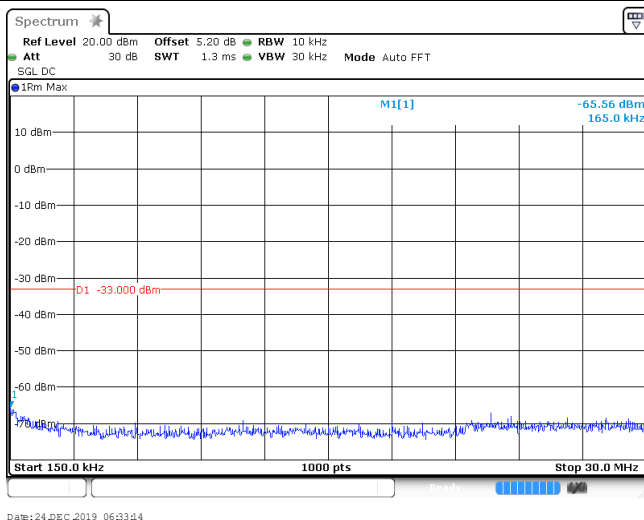


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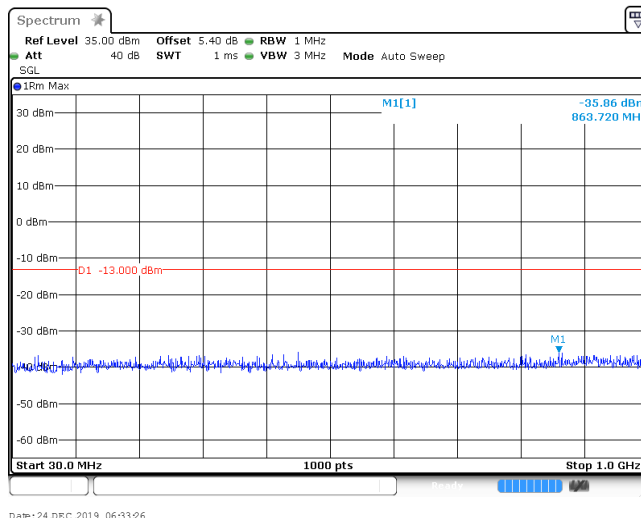


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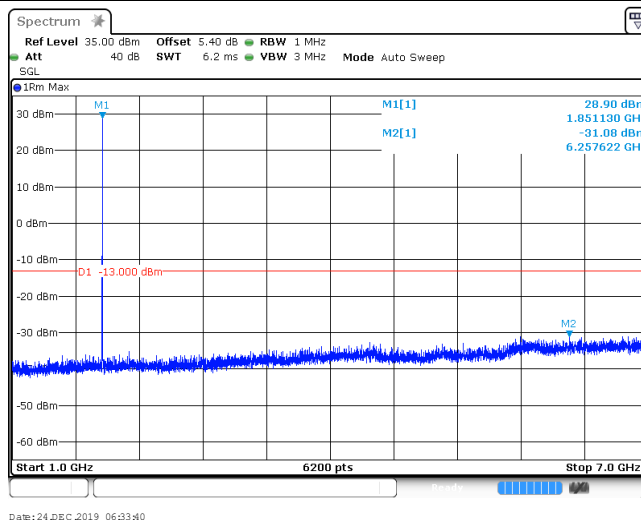


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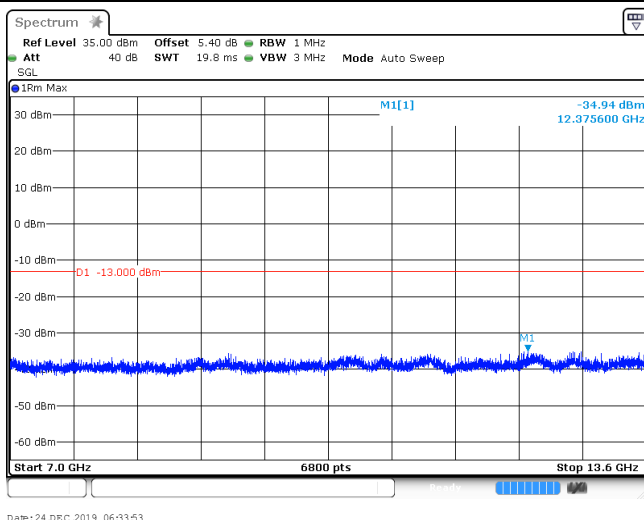


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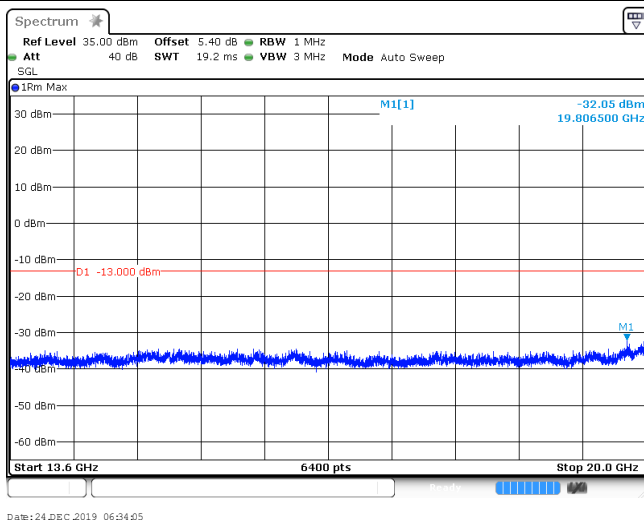


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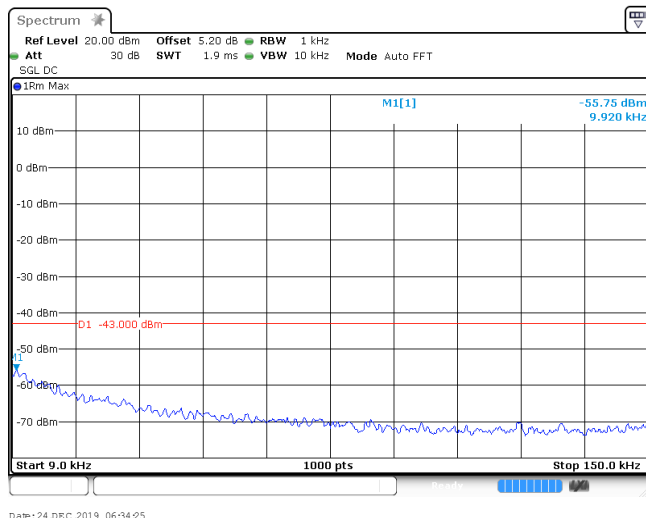
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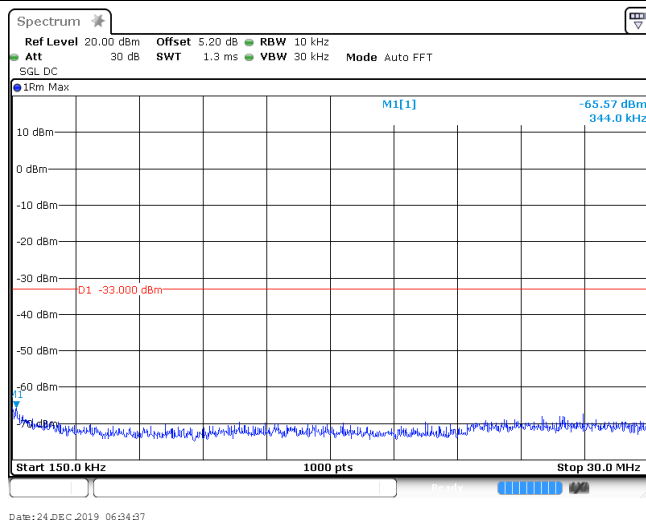
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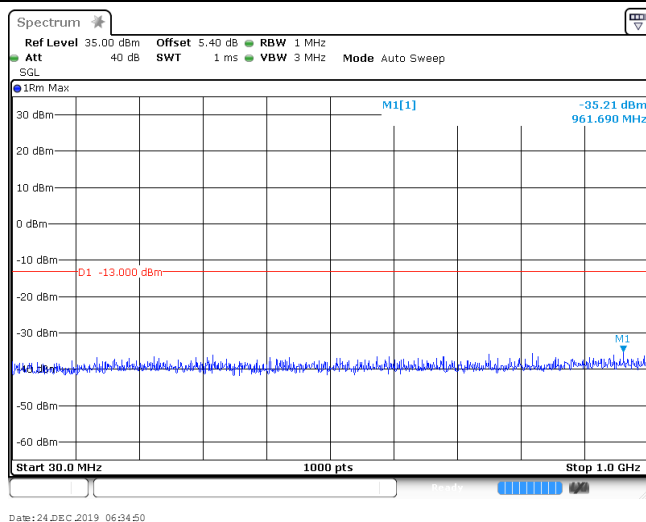


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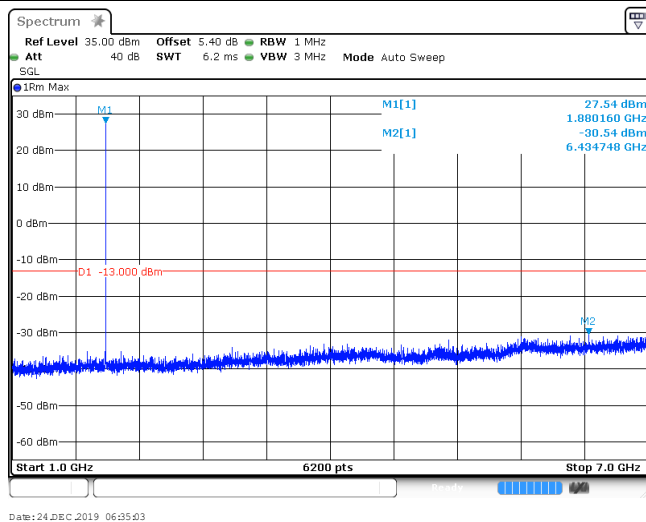


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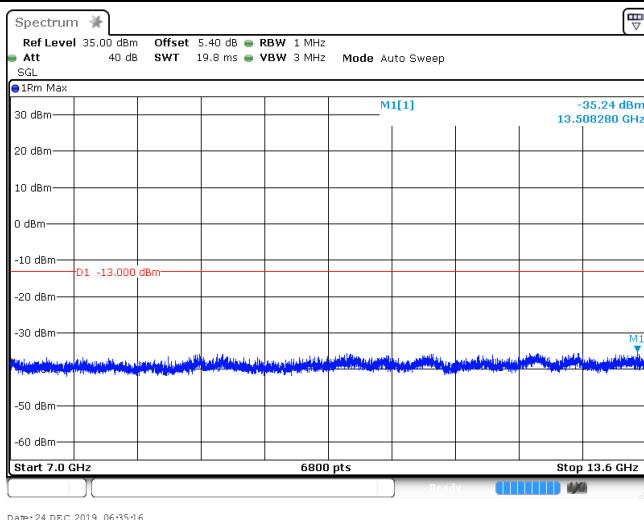


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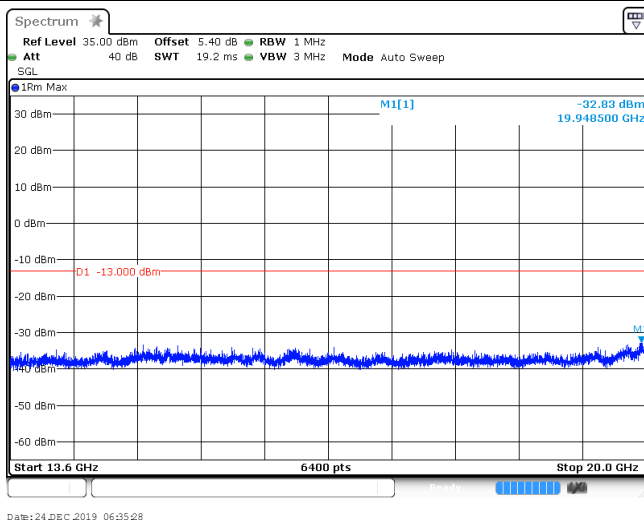


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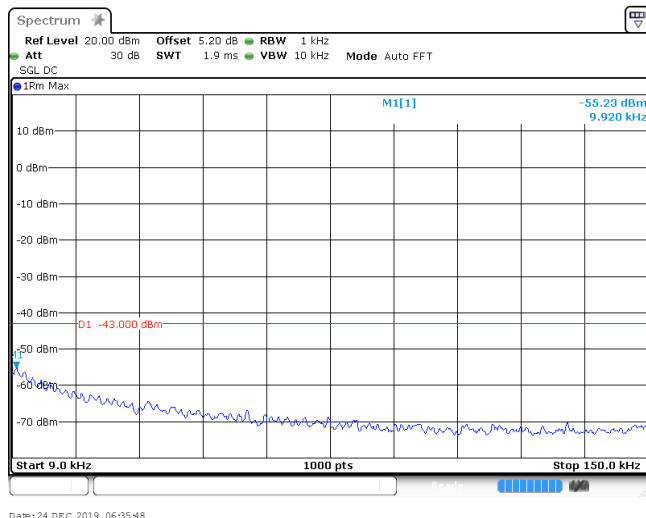


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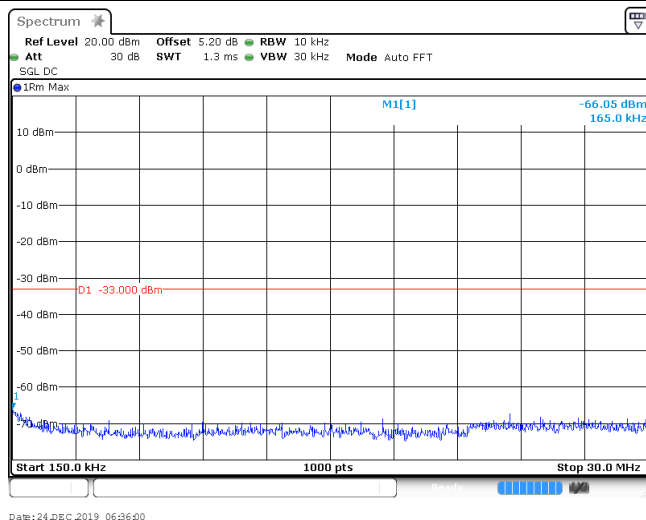


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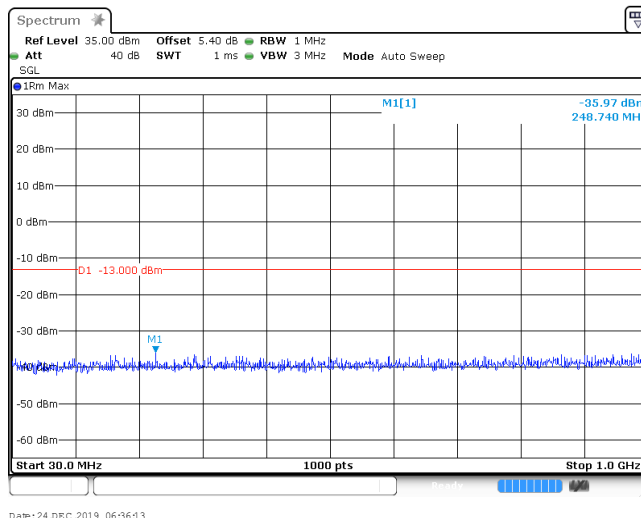


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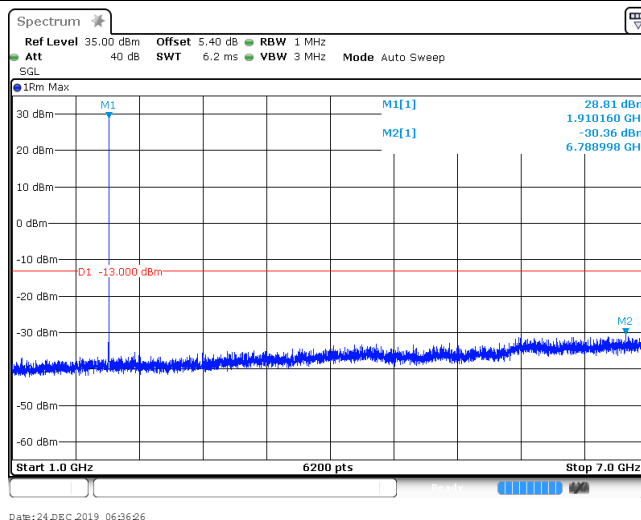


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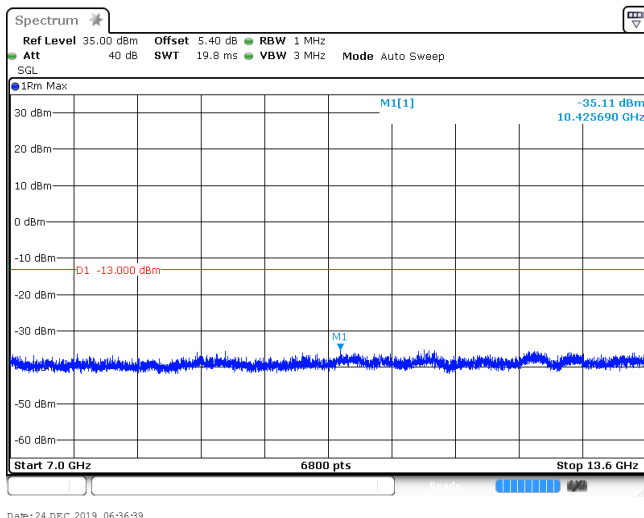


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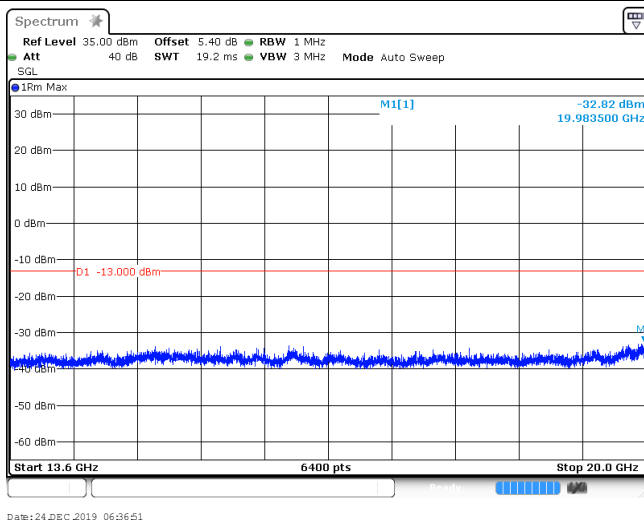


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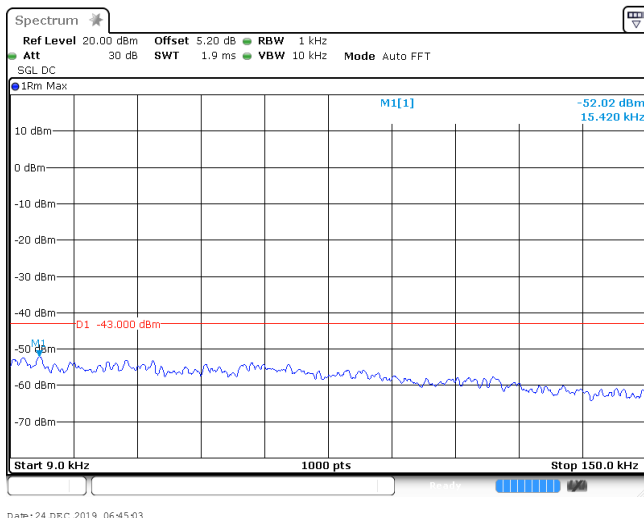


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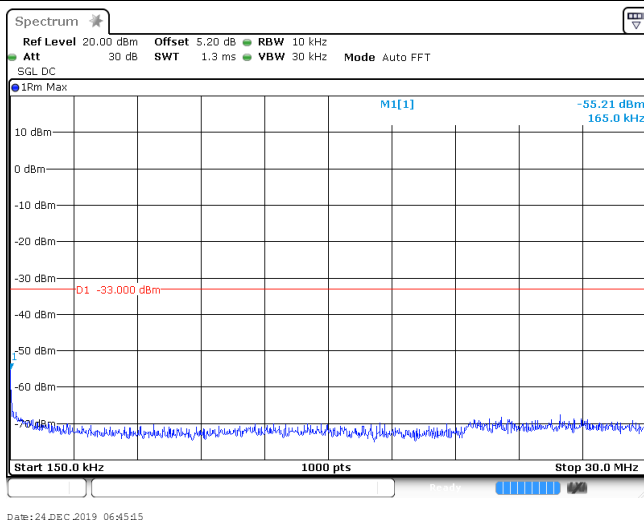
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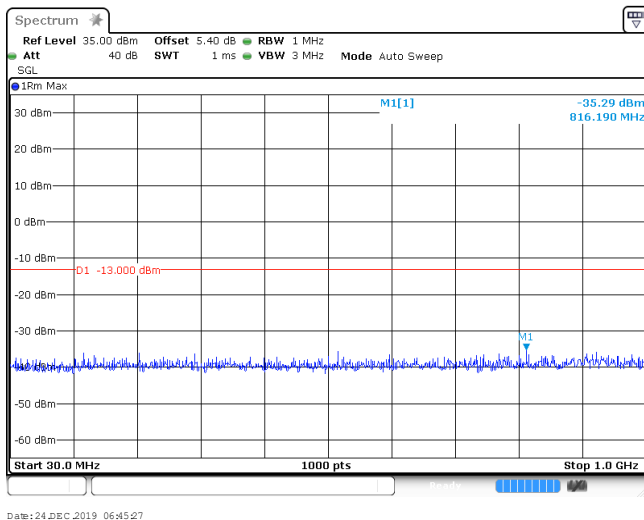


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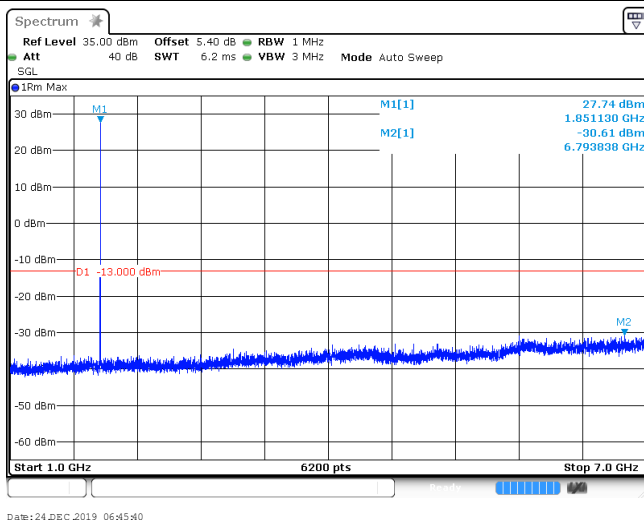


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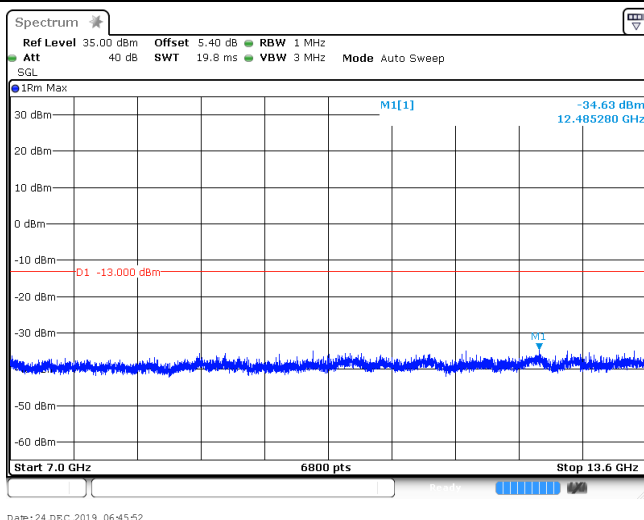
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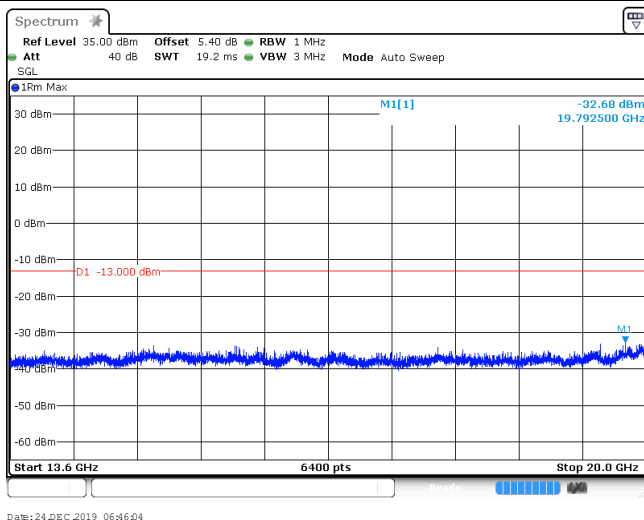
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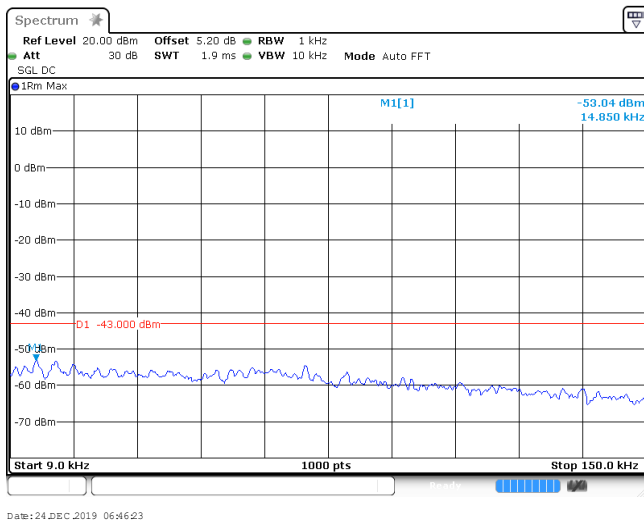


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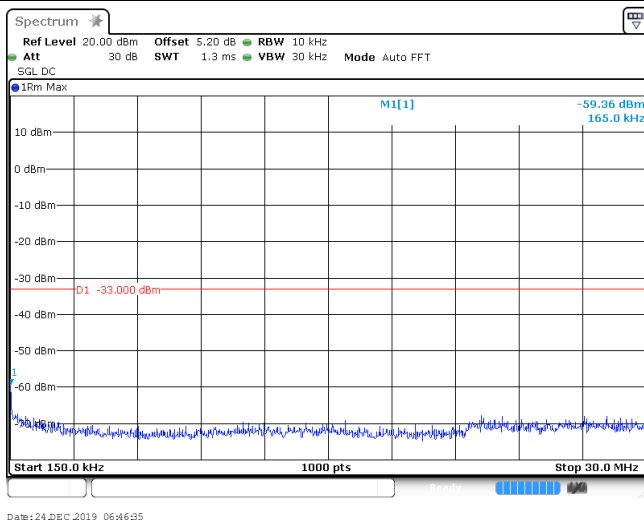


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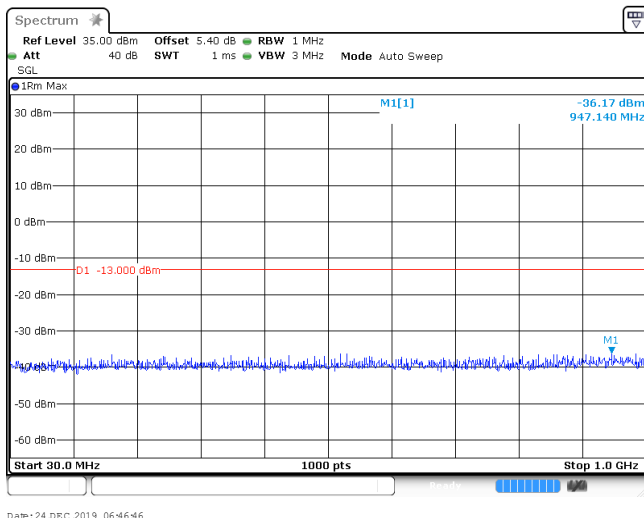


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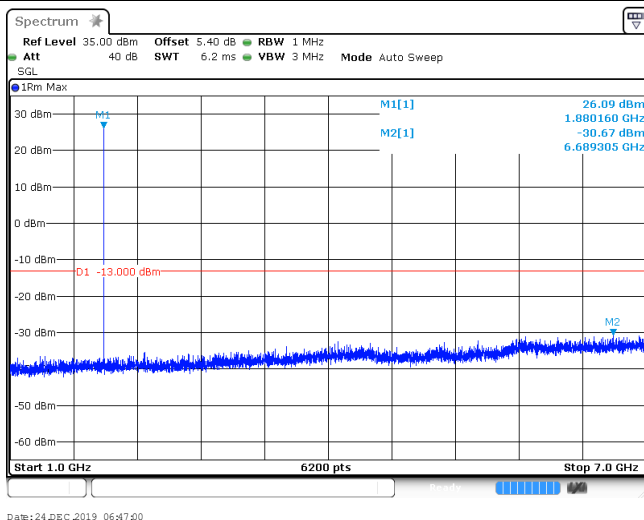


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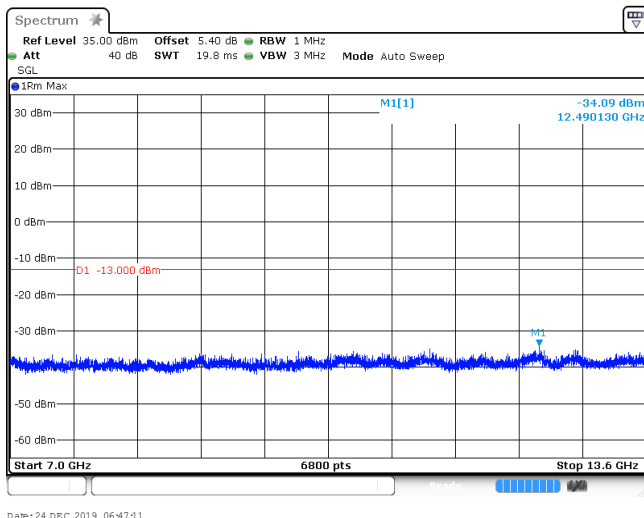
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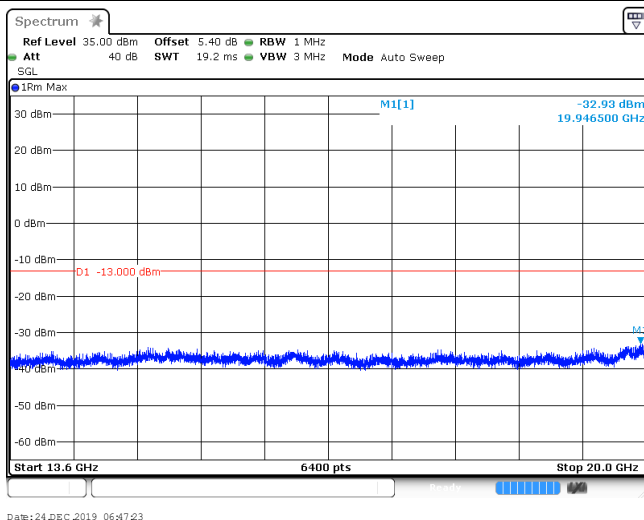
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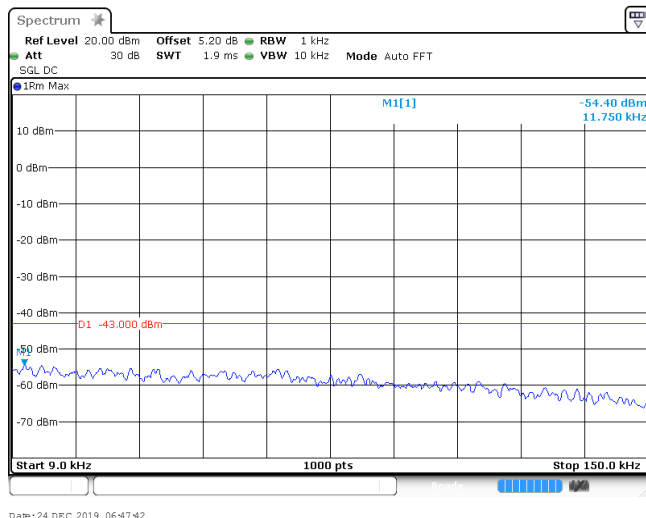


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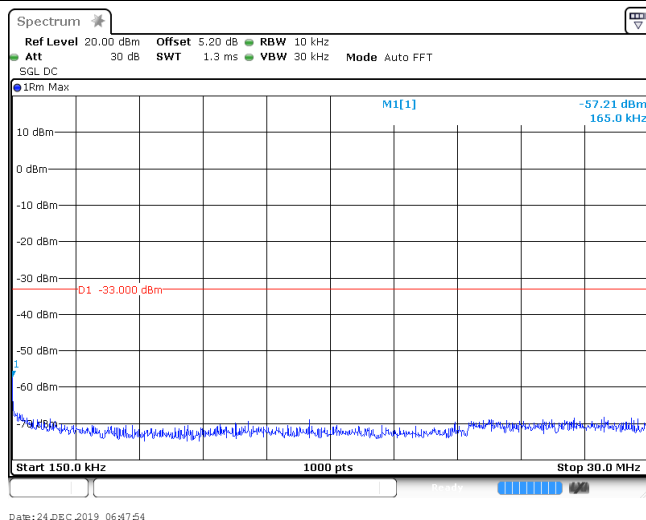
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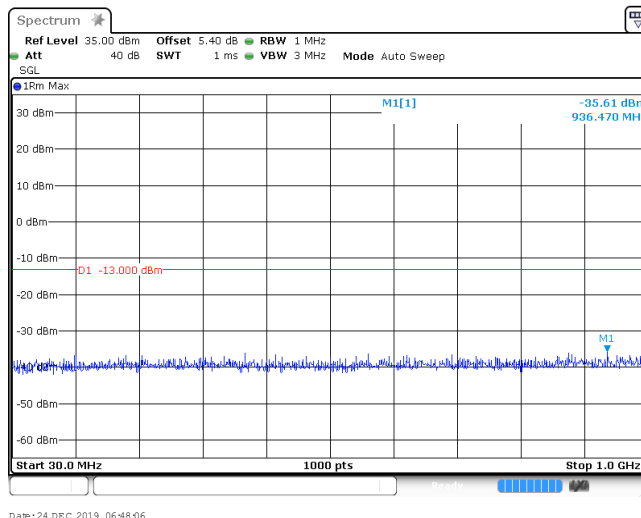


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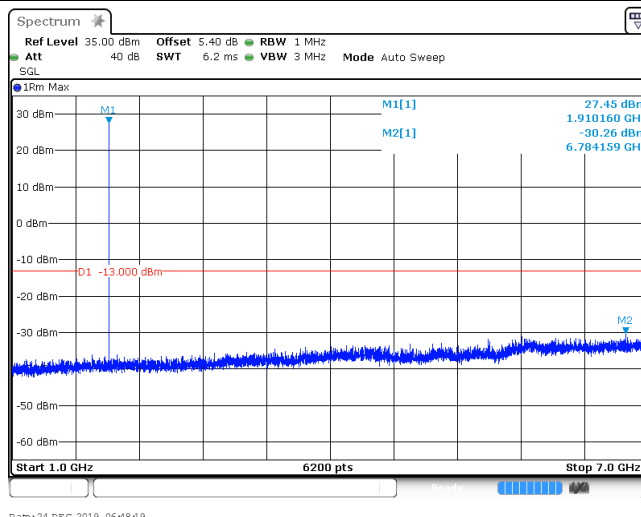
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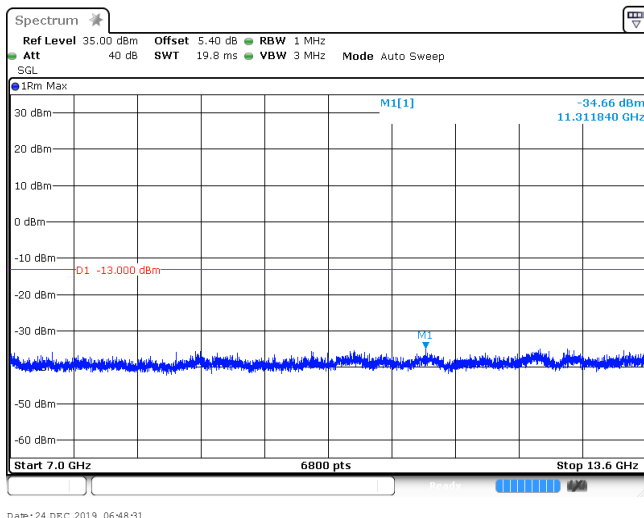
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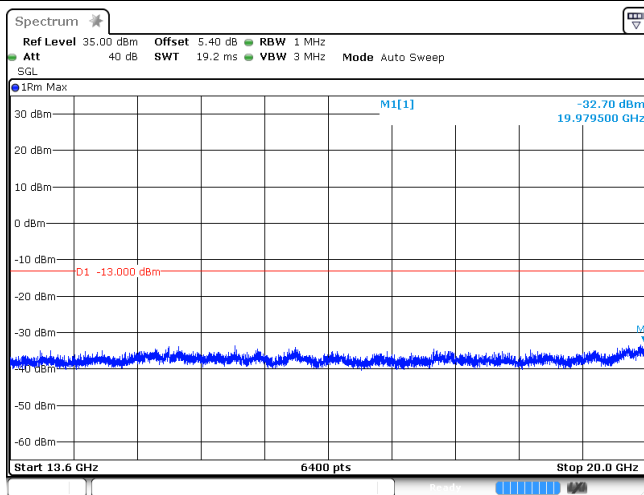
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7. Field Strength of Spurious Radiation

7.1. Test Band = GSM 1900 (Ant2)

7.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
117.5954	-64.69	-13.00	51.69	174	262	Vertical
614.4057	-63.97	-13.00	50.97	185	9	Vertical
2688.3377	-37.67	-13.00	24.67	196	12	Vertical
7356.6452	-55.43	-13.00	42.43	148	198	Vertical
14443.8815	-47.13	-13.00	34.13	258	325	Vertical
17990.4997	-39.15	-13.00	26.15	261	72	Vertical
42.9016	-64.64	-13.00	51.64	285	293	Horizontal
234.8257	-67.95	-13.00	54.95	174	10	Horizontal
841.1546	-61.64	-13.00	48.64	196	199	Horizontal
2702.3405	-36.41	-13.00	23.41	321	208	Horizontal
7452.1484	-55.78	-13.00	42.78	262	41	Horizontal
16397.9466	-42.73	-13.00	29.73	291	293	Horizontal

7.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
110.2230	-65.14	-13.00	52.14	258	9	Vertical
813.3142	-61.97	-13.00	48.97	274	198	Vertical
2695.1390	-37.36	-13.00	24.36	196	109	Vertical
7345.1448	-54.60	-13.00	41.60	231	325	Vertical
14460.8820	-46.68	-13.00	33.68	261	40	Vertical
17999.0000	-38.92	-13.00	25.92	226	72	Vertical
42.1256	-64.19	-13.00	51.19	213	322	Horizontal
229.2965	-67.85	-13.00	54.85	254	58	Horizontal
723.0512	-62.50	-13.00	49.50	184	95	Horizontal
2699.5399	-36.32	-13.00	23.32	196	359	Horizontal
7335.1445	-56.15	-13.00	43.15	216	191	Horizontal
16392.4464	-43.11	-13.00	30.11	184	95	Horizontal



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7.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
109.5925	-64.41	-13.00	51.41	258	73	Vertical
610.1860	-63.63	-13.00	50.63	274	136	Vertical
2695.1390	-37.41	-13.00	24.41	159	25	Vertical
7376.6459	-54.96	-13.00	41.96	196	325	Vertical
14484.3828	-46.95	-13.00	33.95	231	325	Vertical
17909.9970	-40.63	-13.00	27.63	258	73	Vertical
44.4537	-62.75	-13.00	49.75	174	198	Horizontal
237.9784	-67.64	-13.00	54.64	185	41	Horizontal
870.2075	-59.67	-13.00	46.67	196	230	Horizontal
2699.5399	-35.78	-13.00	22.78	213	176	Horizontal
7440.1480	-55.53	-13.00	42.53	262	9	Horizontal
16395.9465	-42.81	-13.00	29.81	291	72	Horizontal

7.2. Test Band = GSM 1900 (Ant3)

7.2.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
116.9648	-65.01	-13.00	52.01	111	29	Vertical
601.6496	-63.73	-13.00	50.73	187	29	Vertical
2691.1382	-37.55	-13.00	24.55	198	112	Vertical
7448.6483	-55.38	-13.00	42.38	174	223	Vertical
14460.8820	-47.35	-13.00	34.35	133	29	Vertical
17999.0000	-39.23	-13.00	26.23	171	320	Vertical
41.3011	-64.09	-13.00	51.09	198	3	Horizontal
233.1282	-68.09	-13.00	55.09	272	324	Horizontal
849.5940	-59.89	-13.00	46.89	141	3	Horizontal
2696.7393	-36.51	-13.00	23.51	166	46	Horizontal
7336.1445	-55.85	-13.00	42.85	138	167	Horizontal
16380.9460	-43.14	-13.00	30.14	154	262	Horizontal



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7.2.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
115.5583	-64.83	-13.00	51.83	138	192	Vertical
598.1089	-63.88	-13.00	50.88	172	325	Vertical
2698.7397	-37.61	-13.00	24.61	252	298	Vertical
7372.1457	-55.33	-13.00	42.33	111	66	Vertical
14483.8828	-46.94	-13.00	33.94	169	3	Vertical
17999.0000	-39.11	-13.00	26.11	173	34	Vertical
43.5807	-64.36	-13.00	51.36	166	38	Horizontal
244.8172	-67.96	-13.00	54.96	121	102	Horizontal
714.5632	-61.67	-13.00	48.67	172	38	Horizontal
2699.1398	-36.44	-13.00	23.44	255	48	Horizontal
7473.6491	-56.00	-13.00	43.00	294	7	Horizontal
16393.4464	-42.88	-13.00	29.88	217	7	Horizontal

7.2.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
110.2230	-64.53	-13.00	51.53	252	5	Vertical
614.8422	-63.89	-13.00	50.89	236	135	Vertical
2703.9408	-37.76	-13.00	24.76	217	47	Vertical
7390.1463	-55.46	-13.00	42.46	222	262	Vertical
14492.8831	-46.96	-13.00	33.96	196	356	Vertical
17997.9999	-39.57	-13.00	26.57	174	324	Vertical
44.6962	-64.21	-13.00	51.21	182	324	Horizontal
228.1809	-68.41	-13.00	55.41	225	72	Horizontal
777.4224	-61.37	-13.00	48.37	263	103	Horizontal
2705.1410	-36.50	-13.00	23.50	217	202	Horizontal
7366.6456	-55.71	-13.00	42.71	118	8	Horizontal
16367.4456	-43.58	-13.00	30.58	153	166	Horizontal



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7.3. Test Band = GSM 850 (Ant0)

7.3.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
112.6966	-63.86	-13.00	50.86	174	131	Vertical
610.7680	-62.31	-13.00	49.31	185	195	Vertical
1648.5297	-59.80	-13.00	46.80	196	4	Vertical
2472.6945	-54.75	-13.00	41.75	226	112	Vertical
13342.3447	-49.86	-13.00	36.86	291	325	Vertical
17993.9998	-39.00	-13.00	26.00	154	259	Vertical
39.0700	-63.20	-13.00	50.20	213	262	Horizontal
228.7144	-67.11	-13.00	54.11	196	229	Horizontal
1648.1296	-59.94	-13.00	46.94	185	213	Horizontal
2473.0946	-51.12	-13.00	38.12	147	159	Horizontal
7446.1482	-54.76	-13.00	41.76	258	356	Horizontal
16369.4456	-43.02	-13.00	30.02	216	133	Horizontal

7.3.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
116.1403	-63.98	-13.00	50.98	174	102	Vertical
613.3872	-63.25	-13.00	50.25	185	230	Vertical
1673.3347	-61.77	-13.00	48.77	196	195	Vertical
2509.9020	-57.49	-13.00	44.49	231	141	Vertical
14477.8826	-47.06	-13.00	34.06	222	293	Vertical
17989.9997	-39.38	-13.00	26.38	161	166	Vertical
41.7861	-62.84	-13.00	49.84	158	69	Horizontal
233.5647	-67.73	-13.00	54.73	196	5	Horizontal
1673.3347	-62.09	-13.00	49.09	215	166	Horizontal
2509.5019	-51.21	-13.00	38.21	232	106	Horizontal
7486.6496	-55.76	-13.00	42.76	261	133	Horizontal
16397.4466	-43.00	-13.00	30.00	184	325	Horizontal



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7.3.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
104.6937	-64.21	-13.00	51.21	258	39	Vertical
575.7978	-63.74	-13.00	50.74	174	7	Vertical
2546.7093	-55.08	-13.00	42.08	185	115	Vertical
7237.6413	-56.61	-13.00	43.61	196	39	Vertical
14513.3838	-47.07	-13.00	34.07	231	262	Vertical
17820.9940	-42.67	-13.00	29.67	262	72	Vertical
44.5022	-63.29	-13.00	50.29	258	100	Horizontal
235.1653	-67.59	-13.00	54.59	274	100	Horizontal
616.6368	-62.89	-13.00	49.89	196	292	Horizontal
2546.3093	-50.63	-13.00	37.63	231	117	Horizontal
7453.6485	-55.70	-13.00	42.70	262	100	Horizontal
16356.9452	-44.21	-13.00	31.21	229	133	Horizontal

7.4. Test Band = GSM 850 (Ant1)

7.4.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
112.4056	-63.88	-13.00	50.88	196	103	Vertical
616.6853	-62.86	-13.00	49.86	252	135	Vertical
1648.1296	-60.32	-13.00	47.32	211	141	Vertical
2472.6945	-46.55	-13.00	33.55	278	113	Vertical
14684.3895	-46.50	-13.00	33.50	168	72	Vertical
17991.9997	-38.03	-13.00	25.03	242	135	Vertical
43.7747	-63.71	-13.00	50.71	169	166	Horizontal
237.2509	-67.24	-13.00	54.24	132	198	Horizontal
1648.1296	-52.40	-13.00	39.40	172	218	Horizontal
2472.6945	-45.26	-13.00	32.26	122	299	Horizontal
9318.7106	-51.27	-13.00	38.27	187	198	Horizontal
16398.4466	-42.49	-13.00	29.49	261	8	Horizontal



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7.4.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
109.3015	-63.87	-13.00	50.87	136	40	Vertical
603.4442	-62.40	-13.00	49.40	287	230	Vertical
1672.9346	-58.06	-13.00	45.06	217	4	Vertical
2509.5019	-56.39	-13.00	43.39	179	117	Vertical
14686.8896	-46.76	-13.00	33.76	284	230	Vertical
17994.9998	-38.49	-13.00	25.49	121	230	Vertical
42.8531	-64.29	-13.00	51.29	166	10	Horizontal
241.5676	-66.77	-13.00	53.77	173	262	Horizontal
1672.9346	-54.89	-13.00	41.89	287	167	Horizontal
2509.5019	-53.70	-13.00	40.70	188	116	Horizontal
7348.1449	-55.47	-13.00	42.47	211	293	Horizontal
16393.4464	-42.76	-13.00	29.76	184	325	Horizontal

7.4.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
113.3757	-63.59	-13.00	50.59	287	126	Vertical
610.9135	-62.45	-13.00	49.45	111	221	Vertical
1697.3395	-60.78	-13.00	47.78	232	119	Vertical
2546.3093	-48.33	-13.00	35.33	271	122	Vertical
14476.8826	-46.47	-13.00	33.47	115	93	Vertical
17996.4999	-38.89	-13.00	25.89	178	323	Vertical
41.9316	-64.32	-13.00	51.32	173	261	Horizontal
239.3365	-66.67	-13.00	53.67	132	230	Horizontal
1697.3395	-56.64	-13.00	43.64	282	115	Horizontal
2546.3093	-49.24	-13.00	36.24	118	117	Horizontal
7445.1482	-55.32	-13.00	42.32	125	163	Horizontal
16393.9465	-42.32	-13.00	29.32	289	132	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.





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	-1.39	-0.001684	±2.5	PASS
GSM850	128	VN	TN	1.29	0.001567	±2.5	PASS
GSM850	128	VH	TN	-5.20	-0.006307	±2.5	PASS
GSM850	190	VL	TN	4.81	0.005750	±2.5	PASS
GSM850	190	VN	TN	6.97	0.008336	±2.5	PASS
GSM850	190	VH	TN	-4.58	-0.005480	±2.5	PASS
GSM850	251	VL	TN	1.65	0.001940	±2.5	PASS
GSM850	251	VN	TN	1.74	0.002054	±2.5	PASS
GSM850	251	VH	TN	0.00	0.000000	±2.5	PASS
EGPRS850	128	VL	TN	12.14	0.014729	±2.5	PASS
EGPRS850	128	VN	TN	15.98	0.019390	±2.5	PASS
EGPRS850	128	VH	TN	18.50	0.022446	±2.5	PASS
EGPRS850	190	VL	TN	16.98	0.020299	±2.5	PASS
EGPRS850	190	VN	TN	13.88	0.016594	±2.5	PASS
EGPRS850	190	VH	TN	8.78	0.010497	±2.5	PASS
EGPRS850	251	VL	TN	12.46	0.014682	±2.5	PASS
EGPRS850	251	VN	TN	9.43	0.011107	±2.5	PASS
EGPRS850	251	VH	TN	14.17	0.016698	±2.5	PASS
GSM1900	512	VL	TN	-3.75	-0.002024	±2.5	PASS
GSM1900	512	VN	TN	15.11	0.008167	±2.5	PASS
GSM1900	512	VH	TN	13.37	0.007224	±2.5	PASS
GSM1900	661	VL	TN	13.88	0.007385	±2.5	PASS
GSM1900	661	VN	TN	12.53	0.006663	±2.5	PASS
GSM1900	661	VH	TN	4.26	0.002267	±2.5	PASS
GSM1900	810	VL	TN	-10.94	-0.005731	±2.5	PASS
GSM1900	810	VN	TN	-2.36	-0.001234	±2.5	PASS
GSM1900	810	VH	TN	-10.56	-0.005528	±2.5	PASS
EGPRS1900	512	VL	TN	1.19	0.000646	±2.5	PASS
EGPRS1900	512	VN	TN	10.30	0.005567	±2.5	PASS
EGPRS1900	512	VH	TN	24.89	0.013454	±2.5	PASS
EGPRS1900	661	VL	TN	22.28	0.011850	±2.5	PASS
EGPRS1900	661	VN	TN	21.50	0.011437	±2.5	PASS
EGPRS1900	661	VH	TN	21.18	0.011266	±2.5	PASS
EGPRS1900	810	VL	TN	21.18	0.011090	±2.5	PASS
EGPRS1900	810	VN	TN	17.72	0.009281	±2.5	PASS
EGPRS1900	810	VH	TN	18.14	0.009501	±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	-3.23	-0.003917	±2.5	PASS
GSM850	128	VN	-20	0.16	0.000196	±2.5	PASS
GSM850	128	VN	-10	3.87	0.004701	±2.5	PASS
GSM850	128	VN	0	-1.68	-0.002037	±2.5	PASS
GSM850	128	VN	10	2.42	0.002938	±2.5	PASS
GSM850	128	VN	20	-2.42	-0.002938	±2.5	PASS
GSM850	128	VN	30	0.06	0.000078	±2.5	PASS
GSM850	128	VN	40	-7.49	-0.009088	±2.5	PASS
GSM850	128	VN	50	4.26	0.005171	±2.5	PASS
GSM850	190	VN	-30	-5.00	-0.005982	±2.5	PASS
GSM850	190	VN	-20	-5.55	-0.006638	±2.5	PASS
GSM850	190	VN	-10	-5.20	-0.006213	±2.5	PASS
GSM850	190	VN	0	3.33	0.003975	±2.5	PASS
GSM850	190	VN	10	0.97	0.001158	±2.5	PASS
GSM850	190	VN	20	-0.10	-0.000116	±2.5	PASS
GSM850	190	VN	30	-2.84	-0.003396	±2.5	PASS
GSM850	190	VN	40	-3.29	-0.003936	±2.5	PASS
GSM850	190	VN	50	-4.00	-0.004785	±2.5	PASS
GSM850	251	VN	-30	-0.23	-0.000266	±2.5	PASS
GSM850	251	VN	-20	-1.81	-0.002130	±2.5	PASS
GSM850	251	VN	-10	-4.78	-0.005629	±2.5	PASS
GSM850	251	VN	0	-5.81	-0.006847	±2.5	PASS
GSM850	251	VN	10	2.10	0.002472	±2.5	PASS
GSM850	251	VN	20	0.16	0.000190	±2.5	PASS
GSM850	251	VN	30	-1.26	-0.001483	±2.5	PASS
GSM850	251	VN	40	-4.16	-0.004907	±2.5	PASS
GSM850	251	VN	50	-5.84	-0.006885	±2.5	PASS
EGPRS850	128	VN	-30	19.05	0.023112	±2.5	PASS
EGPRS850	128	VN	-20	15.69	0.019038	±2.5	PASS
EGPRS850	128	VN	-10	16.79	0.020370	±2.5	PASS
EGPRS850	128	VN	0	15.79	0.019155	±2.5	PASS
EGPRS850	128	VN	10	15.34	0.018607	±2.5	PASS
EGPRS850	128	VN	20	14.01	0.017001	±2.5	PASS
EGPRS850	128	VN	30	18.27	0.022172	±2.5	PASS
EGPRS850	128	VN	40	17.50	0.021231	±2.5	PASS
EGPRS850	128	VN	50	15.08	0.018293	±2.5	PASS
EGPRS850	190	VN	-30	17.43	0.020840	±2.5	PASS
EGPRS850	190	VN	-20	11.98	0.014318	±2.5	PASS
EGPRS850	190	VN	-10	9.69	0.011578	±2.5	PASS
EGPRS850	190	VN	0	13.82	0.016517	±2.5	PASS
EGPRS850	190	VN	10	14.63	0.017482	±2.5	PASS
EGPRS850	190	VN	20	10.62	0.012697	±2.5	PASS
EGPRS850	190	VN	30	7.78	0.009301	±2.5	PASS



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EGPRS850	190	VN	40	12.49	0.014935	±2.5	PASS
EGPRS850	190	VN	50	12.88	0.015398	±2.5	PASS
EGPRS850	251	VN	-30	10.46	0.012324	±2.5	PASS
EGPRS850	251	VN	-20	8.72	0.010270	±2.5	PASS
EGPRS850	251	VN	-10	7.36	0.008672	±2.5	PASS
EGPRS850	251	VN	0	14.79	0.017421	±2.5	PASS
EGPRS850	251	VN	10	11.53	0.013579	±2.5	PASS
EGPRS850	251	VN	20	10.17	0.011982	±2.5	PASS
EGPRS850	251	VN	30	9.07	0.010688	±2.5	PASS
EGPRS850	251	VN	40	6.49	0.007645	±2.5	PASS
EGPRS850	251	VN	50	15.37	0.018106	±2.5	PASS
GSM1900	512	VN	-30	1.00	0.000541	±2.5	PASS
GSM1900	512	VN	-20	2.32	0.001256	±2.5	PASS
GSM1900	512	VN	-10	4.62	0.002495	±2.5	PASS
GSM1900	512	VN	0	5.59	0.003019	±2.5	PASS
GSM1900	512	VN	10	8.52	0.004607	±2.5	PASS
GSM1900	512	VN	20	12.95	0.006997	±2.5	PASS
GSM1900	512	VN	30	-4.36	-0.002356	±2.5	PASS
GSM1900	512	VN	40	-6.65	-0.003595	±2.5	PASS
GSM1900	512	VN	50	7.88	0.004258	±2.5	PASS
GSM1900	661	VN	-30	16.11	0.008569	±2.5	PASS
GSM1900	661	VN	-20	1.94	0.001030	±2.5	PASS
GSM1900	661	VN	-10	8.23	0.004379	±2.5	PASS
GSM1900	661	VN	0	12.95	0.006887	±2.5	PASS
GSM1900	661	VN	10	2.91	0.001546	±2.5	PASS
GSM1900	661	VN	20	-4.29	-0.002284	±2.5	PASS
GSM1900	661	VN	30	1.32	0.000704	±2.5	PASS
GSM1900	661	VN	40	5.46	0.002902	±2.5	PASS
GSM1900	661	VN	50	13.08	0.006955	±2.5	PASS
GSM1900	810	VN	-30	-11.85	-0.006204	±2.5	PASS
GSM1900	810	VN	-20	-7.81	-0.004091	±2.5	PASS
GSM1900	810	VN	-10	-3.58	-0.001876	±2.5	PASS
GSM1900	810	VN	0	0.10	0.000051	±2.5	PASS
GSM1900	810	VN	10	1.71	0.000896	±2.5	PASS
GSM1900	810	VN	20	9.10	0.004767	±2.5	PASS
GSM1900	810	VN	30	-4.75	-0.002485	±2.5	PASS
GSM1900	810	VN	40	-0.74	-0.000389	±2.5	PASS
GSM1900	810	VN	50	3.65	0.001910	±2.5	PASS
EGPRS1900	512	VN	-30	17.50	0.009458	±2.5	PASS
EGPRS1900	512	VN	-20	13.14	0.007102	±2.5	PASS
EGPRS1900	512	VN	-10	24.99	0.013506	±2.5	PASS
EGPRS1900	512	VN	0	25.31	0.013681	±2.5	PASS
EGPRS1900	512	VN	10	14.85	0.008027	±2.5	PASS
EGPRS1900	512	VN	20	24.99	0.013506	±2.5	PASS
EGPRS1900	512	VN	30	23.67	0.012791	±2.5	PASS
EGPRS1900	512	VN	40	19.79	0.010697	±2.5	PASS
EGPRS1900	512	VN	50	26.47	0.014309	±2.5	PASS



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EGPRS1900	661	VN	-30	25.15	0.013378	±2.5	PASS
EGPRS1900	661	VN	-20	9.75	0.005186	±2.5	PASS
EGPRS1900	661	VN	-10	10.88	0.005787	±2.5	PASS
EGPRS1900	661	VN	0	15.14	0.008054	±2.5	PASS
EGPRS1900	661	VN	10	13.53	0.007196	±2.5	PASS
EGPRS1900	661	VN	20	14.14	0.007522	±2.5	PASS
EGPRS1900	661	VN	30	13.75	0.007316	±2.5	PASS
EGPRS1900	661	VN	40	17.24	0.009171	±2.5	PASS
EGPRS1900	661	VN	50	18.34	0.009754	±2.5	PASS
EGPRS1900	810	VN	-30	15.17	0.007946	±2.5	PASS
EGPRS1900	810	VN	-20	17.92	0.009382	±2.5	PASS
EGPRS1900	810	VN	-10	18.79	0.009839	±2.5	PASS
EGPRS1900	810	VN	0	15.50	0.008115	±2.5	PASS
EGPRS1900	810	VN	10	18.31	0.009585	±2.5	PASS
EGPRS1900	810	VN	20	15.95	0.008351	±2.5	PASS
EGPRS1900	810	VN	30	15.14	0.007929	±2.5	PASS
EGPRS1900	810	VN	40	16.27	0.008520	±2.5	PASS
EGPRS1900	810	VN	50	16.40	0.008588	±2.5	PASS

The End



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