1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

1.1.1 GSM850_ERP

Band: GSM850								
ENV	Mode		Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict
	Network	Subset				Result	Limit	
NTNV	GSM	GSM	824.2	32.53	2.72	33.10	<=38.45	Pass
			836.6	32.56	2.72	33.13	<=38.45	Pass
			848.8	32.63	2.72	33.20	<=38.45	Pass
	EGPRS	1 TX Slot	824.2	27.92	2.72	28.49	<=38.45	Pass
		2 TX Slots	824.2	27.56	2.72	28.13	<=38.45	Pass
		3 TX Slots	824.2	25.71	2.72	26.28	<=38.45	Pass
		4 TX Slots	824.2	24.80	2.72	25.37	<=38.45	Pass
		1 TX Slot	836.6	27.93	2.72	28.50	<=38.45	Pass
		2 TX Slots	836.6	28.95	2.72	29.52	<=38.45	Pass
		3 TX Slots	836.6	25.70	2.72	26.27	<=38.45	Pass
		4 TX Slots	836.6	24.77	2.72	25.34	<=38.45	Pass
		1 TX Slot	848.8	27.88	2.72	28.45	<=38.45	Pass
		2 TX Slots	848.8	27.47	2.72	28.04	<=38.45	Pass
		3 TX Slots	848.8	25.56	2.72	26.13	<=38.45	Pass
		4 TX Slots	848.8	24.51	2.72	25.08	<=38.45	Pass
Note1: ERP=Conducted Power+Antenna Gain-2.15								

2. Frequency Stability

2.1 Test Result

2.1.1 GSM850

Band: GSM850							
Network	Frequency (MHz)	Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
					Result	Limit	
GSM	824.2	20	3.4	18.706	0.0227	-2.5 to 2.5	Pass
			3.8	16.134	0.0196	-2.5 to 2.5	Pass
			4.2	22.221	0.0270	-2.5 to 2.5	Pass
		-30	3.8	22.656	0.0275	-2.5 to 2.5	Pass
		-20	3.8	20.000	0.0243	-2.5 to 2.5	Pass
		-10	3.8	18.935	0.0230	-2.5 to 2.5	Pass
		0	3.8	21.377	0.0259	-2.5 to 2.5	Pass
		10	3.8	21.539	0.0261	-2.5 to 2.5	Pass
		30	3.8	23.959	0.0291	-2.5 to 2.5	Pass
		40	3.8	25.249	0.0306	-2.5 to 2.5	Pass
		50	3.8	22.697	0.0275	-2.5 to 2.5	Pass
	836.6	20	3.4	21.829	0.0261	-2.5 to 2.5	Pass
			3.8	20.861	0.0249	-2.5 to 2.5	Pass
			4.2	20.905	0.0250	-2.5 to 2.5	Pass
		-30	3.8	18.740	0.0224	-2.5 to 2.5	Pass
		-20	3.8	22.683	0.0271	-2.5 to 2.5	Pass
		-10	3.8	18.369	0.0220	-2.5 to 2.5	Pass
		0	3.8	19.925	0.0238	-2.5 to 2.5	Pass
		10	3.8	22.436	0.0268	-2.5 to 2.5	Pass
		30	3.8	22.330	0.0267	-2.5 to 2.5	Pass
		40	3.8	21.540	0.0257	-2.5 to 2.5	Pass
		50	3.8	19.158	0.0229	-2.5 to 2.5	Pass
	848.8	20	3.4	18.523	0.0218	-2.5 to 2.5	Pass
			3.8	17.928	0.0211	-2.5 to 2.5	Pass
			4.2	19.207	0.0226	-2.5 to 2.5	Pass
		-30	3.8	20.391	0.0240	-2.5 to 2.5	Pass
		-20	3.8	19.692	0.0232	-2.5 to 2.5	Pass
		-10	3.8	19.136	0.0225	-2.5 to 2.5	Pass
		0	3.8	20.888	0.0246	-2.5 to 2.5	Pass
		10	3.8	18.753	0.0221	-2.5 to 2.5	Pass
		30	3.8	20.542	0.0242	-2.5 to 2.5	Pass
		40	3.8	18.602	0.0219	-2.5 to 2.5	Pass
		50	3.8	16.412	0.0193	-2.5 to 2.5	Pass
EGPRS	824.2	20	3.4	38.857	0.0471	-2.5 to 2.5	Pass
			3.8	35.805	0.0434	-2.5 to 2.5	Pass
			4.2	36.273	0.0440	-2.5 to 2.5	Pass
		-30	3.8	35.643	0.0432	-2.5 to 2.5	Pass
		-20	3.8	36.767	0.0446	-2.5 to 2.5	Pass
		-10	3.8	35.560	0.0431	-2.5 to 2.5	Pass
		0	3.8	35.007	0.0425	-2.5 to 2.5	Pass
		10	3.8	36.798	0.0446	-2.5 to 2.5	Pass
		30	3.8	34.993	0.0425	-2.5 to 2.5	Pass
		40	3.8	34.762	0.0422	-2.5 to 2.5	Pass
		50	3.8	32.085	0.0389	-2.5 to 2.5	Pass
	836.6	20	3.4	36.434	0.0436	-2.5 to 2.5	Pass
			3.8	32.508	0.0389	-2.5 to 2.5	Pass
			4.2	33.017	0.0395	-2.5 to 2.5	Pass
		-30	3.8	35.671	0.0426	-2.5 to 2.5	Pass

		-20	3.8	33.666	0.0402	-2.5 to 2.5	Pass
		-10	3.8	32.991	0.0394	-2.5 to 2.5	Pass
		0	3.8	35.445	0.0424	-2.5 to 2.5	Pass
		10	3.8	33.709	0.0403	-2.5 to 2.5	Pass
		30	3.8	34.274	0.0410	-2.5 to 2.5	Pass
		40	3.8	33.905	0.0405	-2.5 to 2.5	Pass
		50	3.8	33.313	0.0398	-2.5 to 2.5	Pass
	848.8	20	3.4	31.692	0.0373	-2.5 to 2.5	Pass
			3.8	33.988	0.0400	-2.5 to 2.5	Pass
			4.2	30.221	0.0356	-2.5 to 2.5	Pass
		-30	3.8	31.707	0.0374	-2.5 to 2.5	Pass
		-20	3.8	32.414	0.0382	-2.5 to 2.5	Pass
		-10	3.8	31.961	0.0377	-2.5 to 2.5	Pass
		0	3.8	33.738	0.0397	-2.5 to 2.5	Pass
		10	3.8	31.045	0.0366	-2.5 to 2.5	Pass
		30	3.8	32.600	0.0384	-2.5 to 2.5	Pass
		40	3.8	31.529	0.0371	-2.5 to 2.5	Pass
		50	3.8	32.547	0.0383	-2.5 to 2.5	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 GSM850_OBW

Band: GSM850						
ENV	Mode		Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	0.249	/	Pass
			836.6	0.243	/	Pass
			848.8	0.244	/	Pass
	EGPRS	1 TX Slot	824.2	0.241	/	Pass
			836.6	0.246	/	Pass
			848.8	0.243	/	Pass

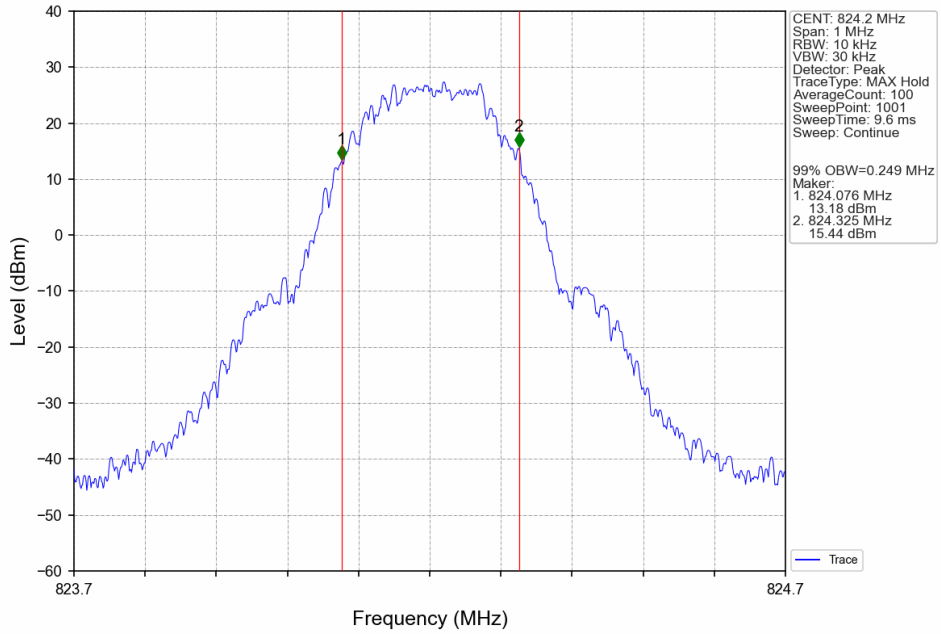
3.1.2 GSM850_XDB

Band: GSM850						
ENV	Mode		Frequency (MHz)	26dB Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	0.322	/	Pass
			836.6	0.311	/	Pass
			848.8	0.318	/	Pass
	EGPRS	1 TX Slot	824.2	0.314	/	Pass
			836.6	0.319	/	Pass
			848.8	0.292	/	Pass

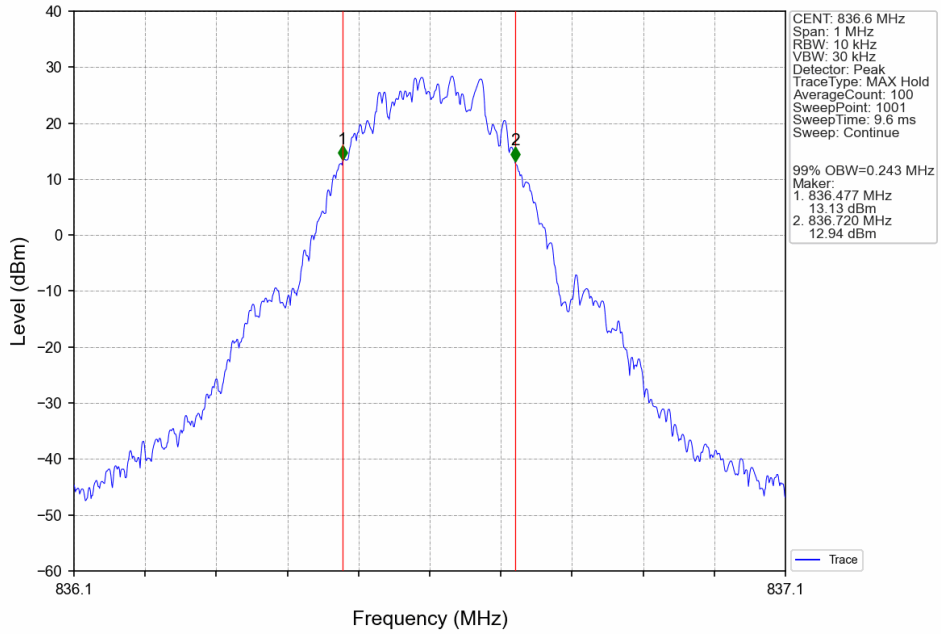
3.2 Test Graph

3.2.1 GSM850_OBW

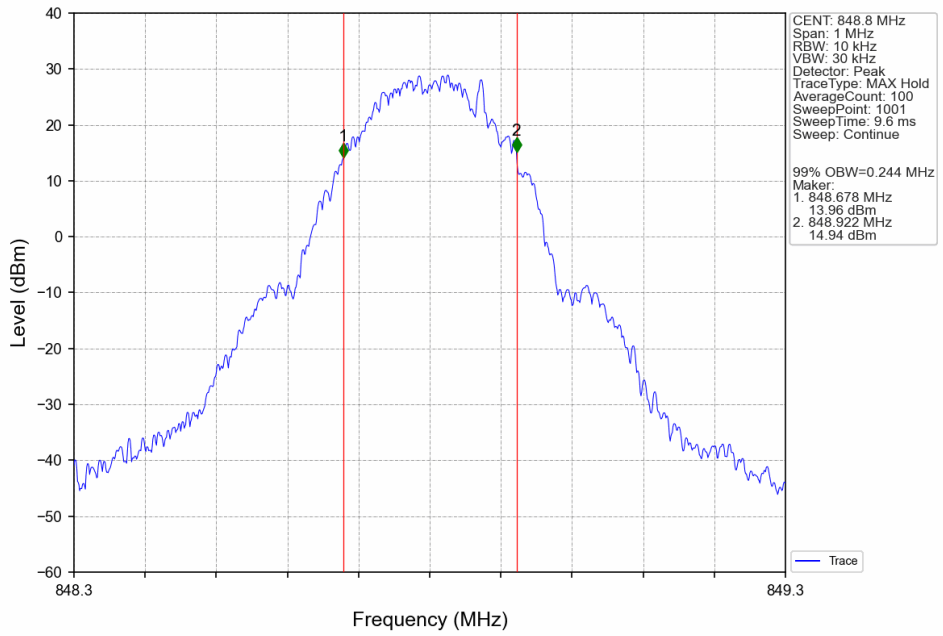
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



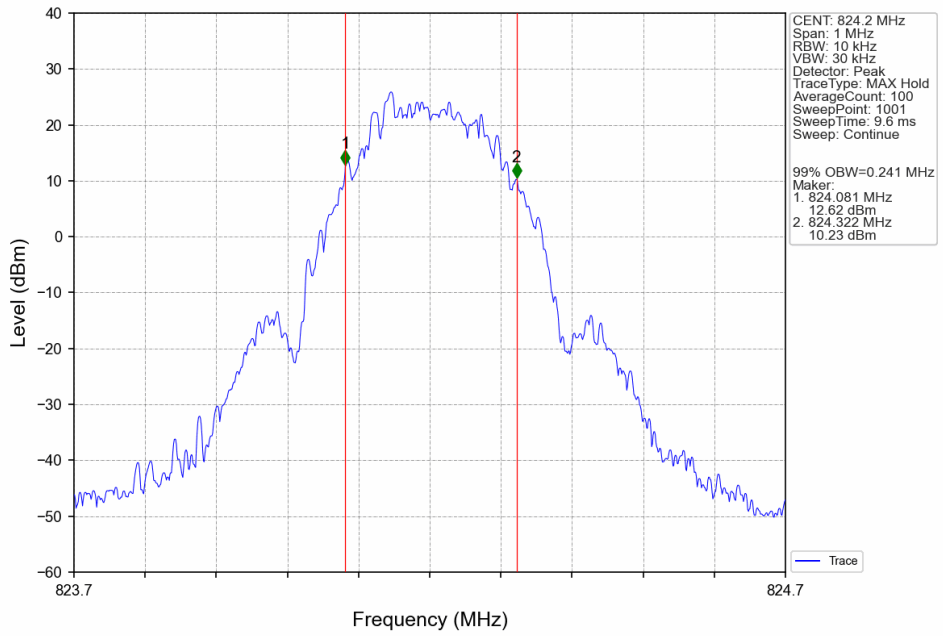
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



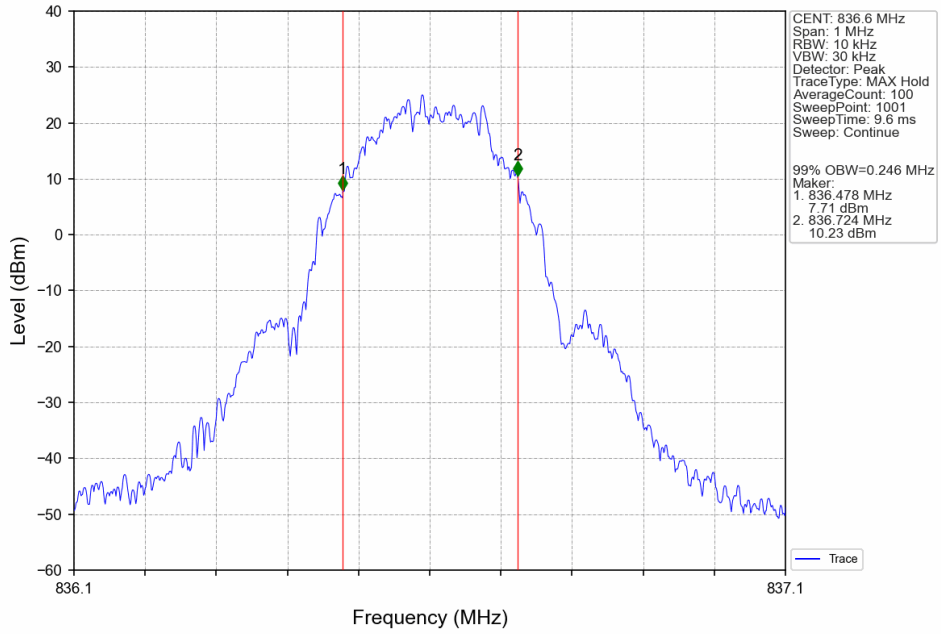
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



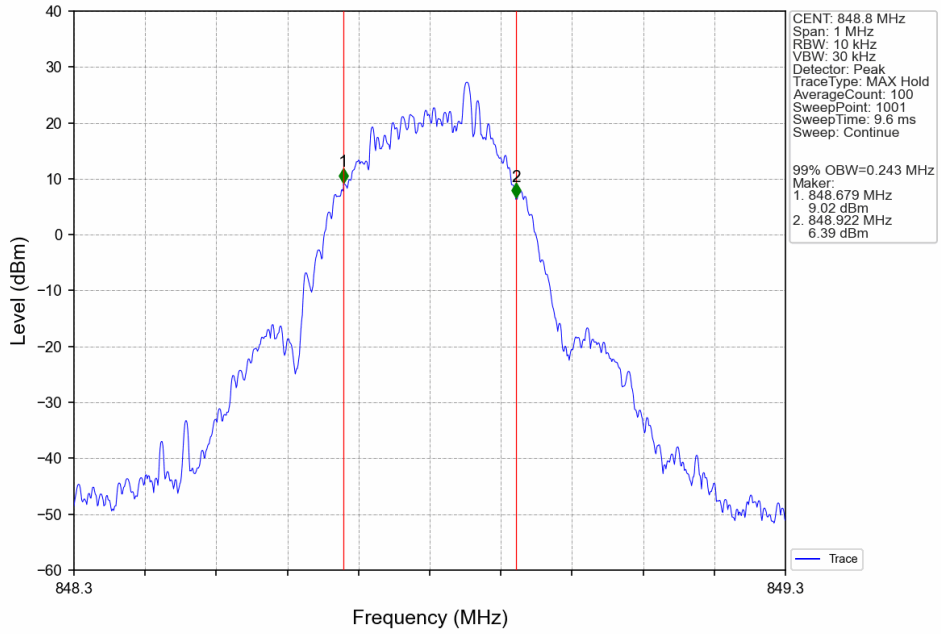
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV

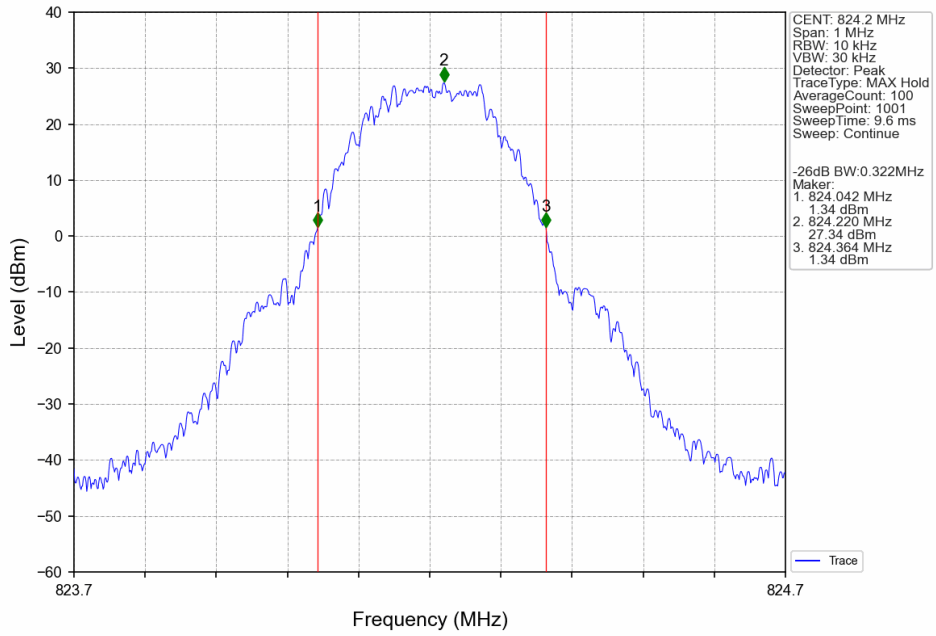


GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV

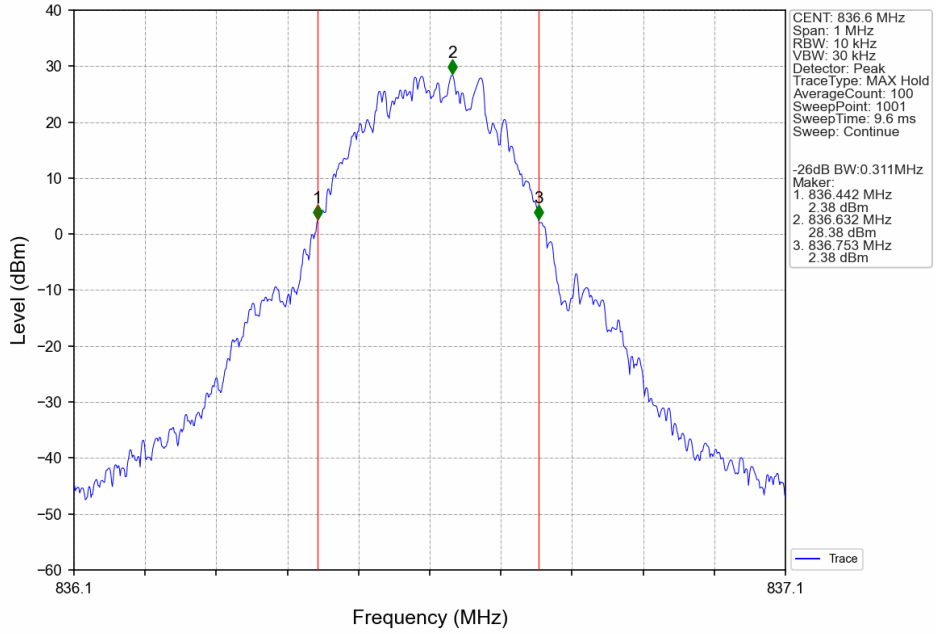


3.2.2 GSM850_XDB

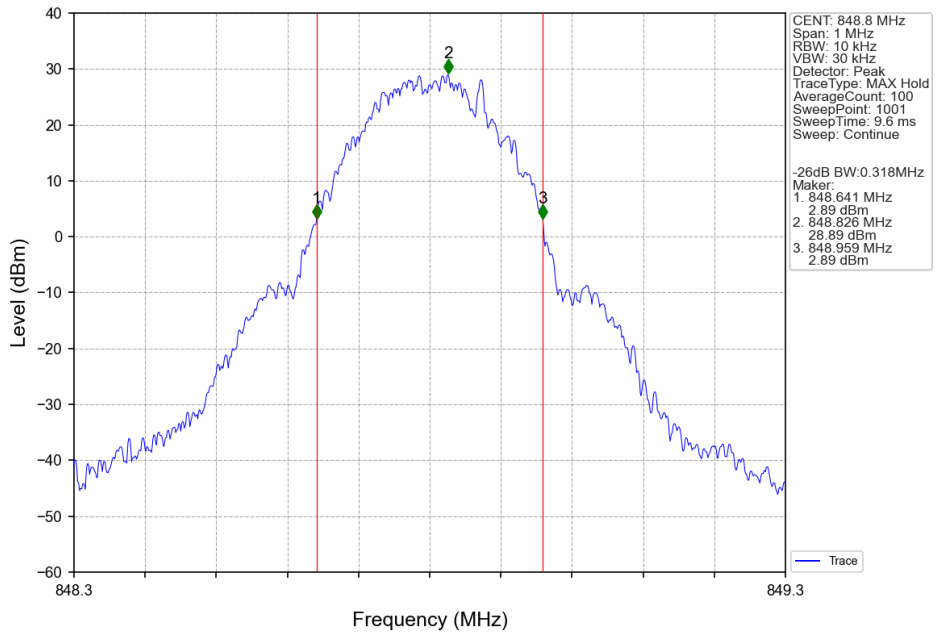
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



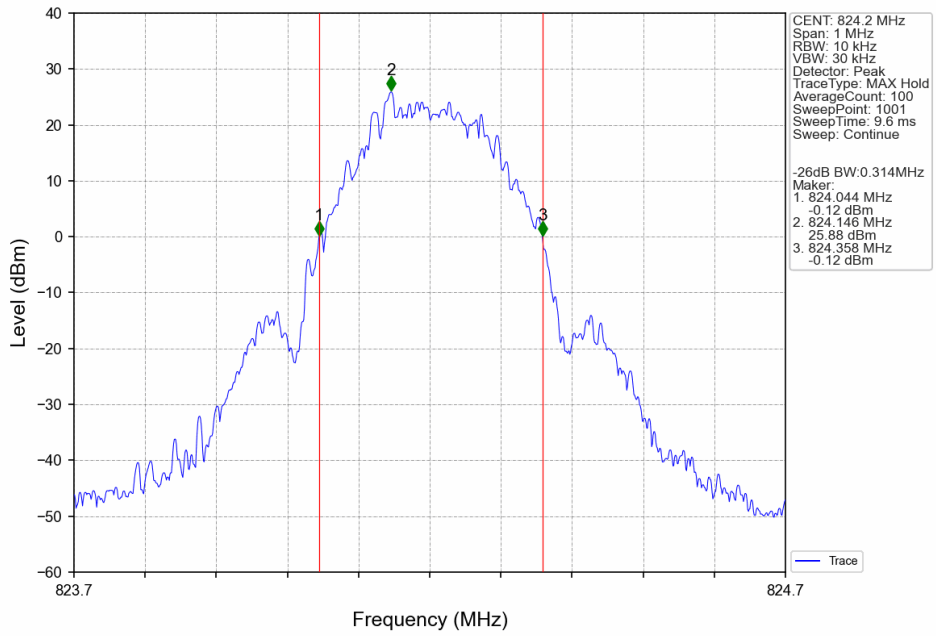
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



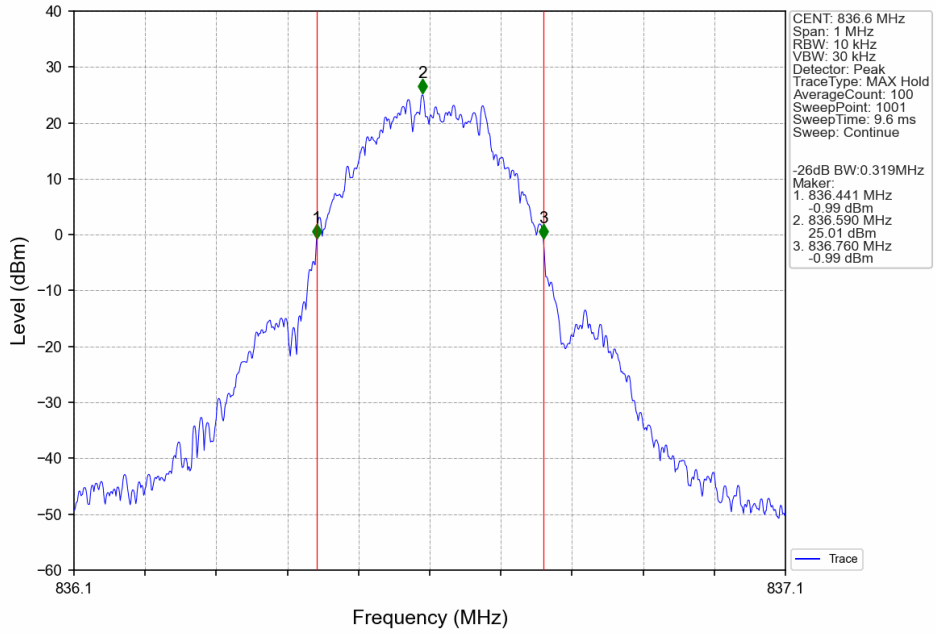
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



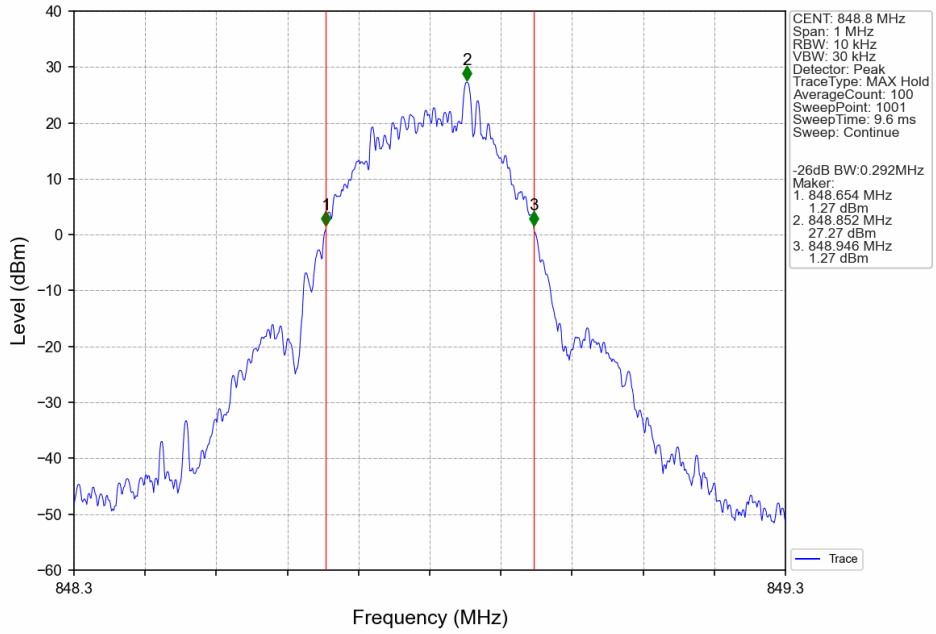
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV



4. Peak-Average Ratio

4.1 Test Result

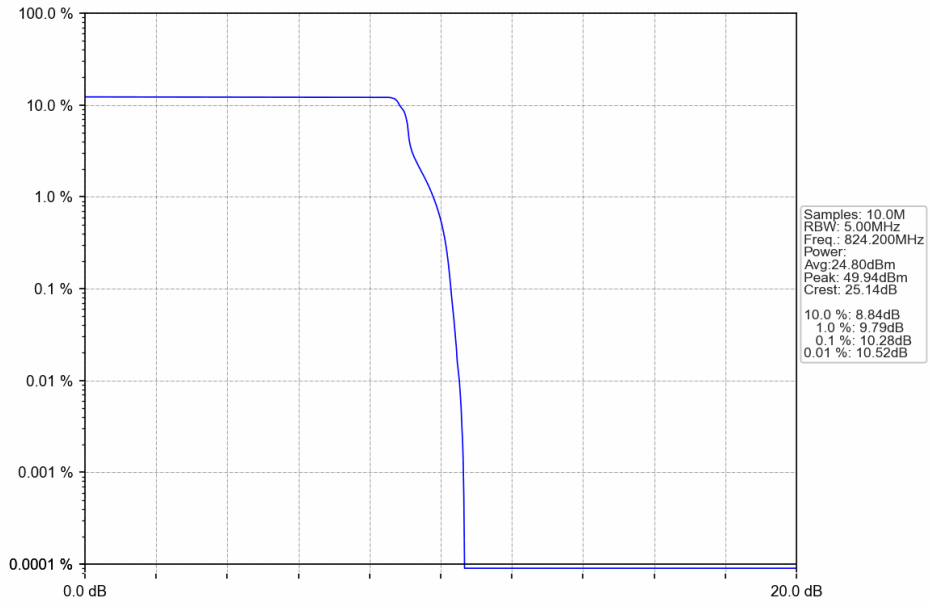
4.1.1 GSM850

Band: GSM850						
ENV	Mode		Frequency (MHz)	Peak-Average Ratio (dB)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	10.28	<=13	Pass
			836.6	10.63	<=13	Pass
			848.8	10.75	<=13	Pass
	EGPRS	4 TX Slots	824.2	8.58	<=13	Pass
			836.6	8.62	<=13	Pass
			848.8	8.76	<=13	Pass

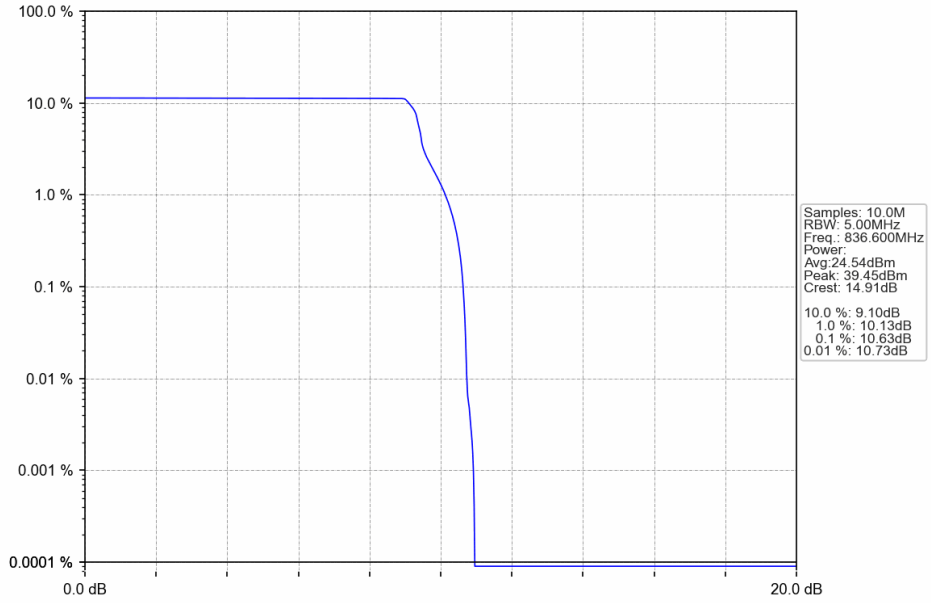
4.2 Test Graph

4.2.1 GSM850

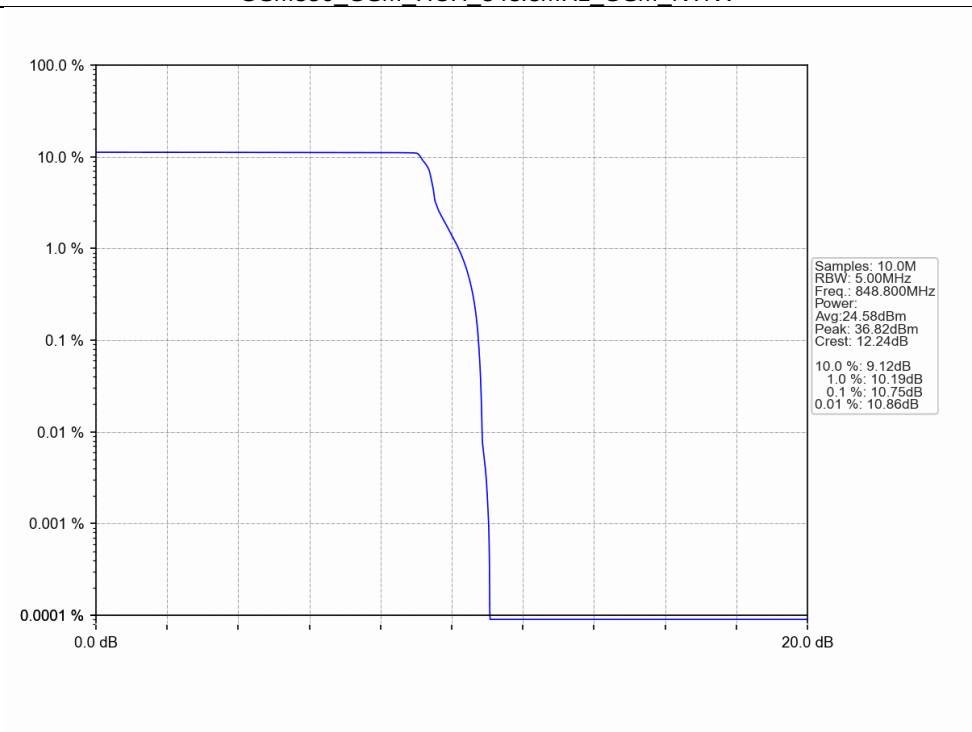
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



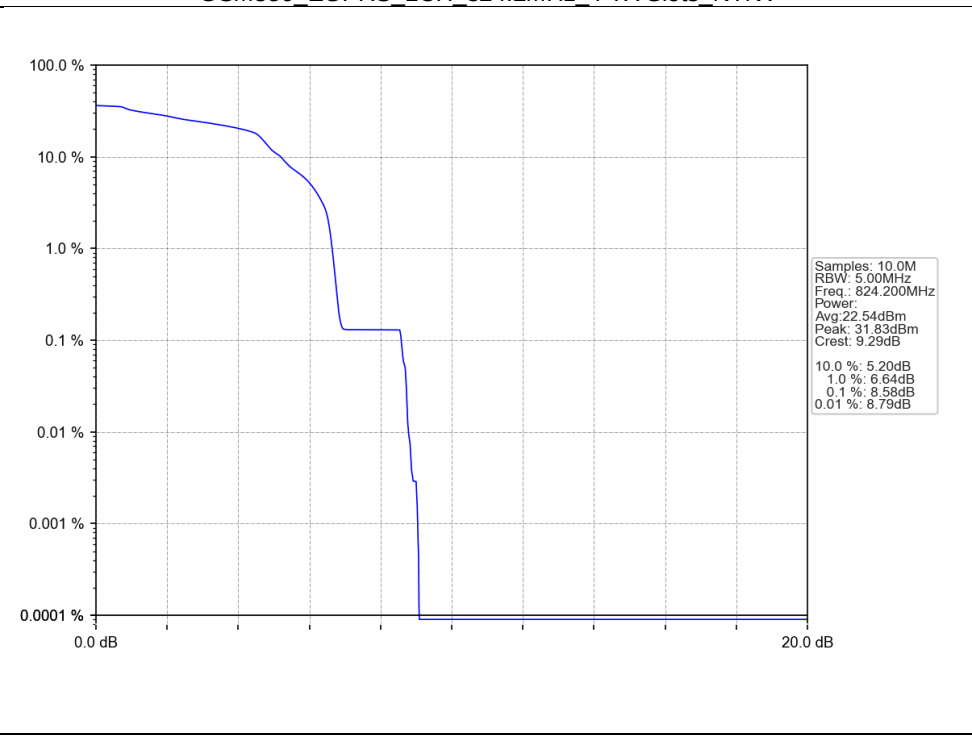
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



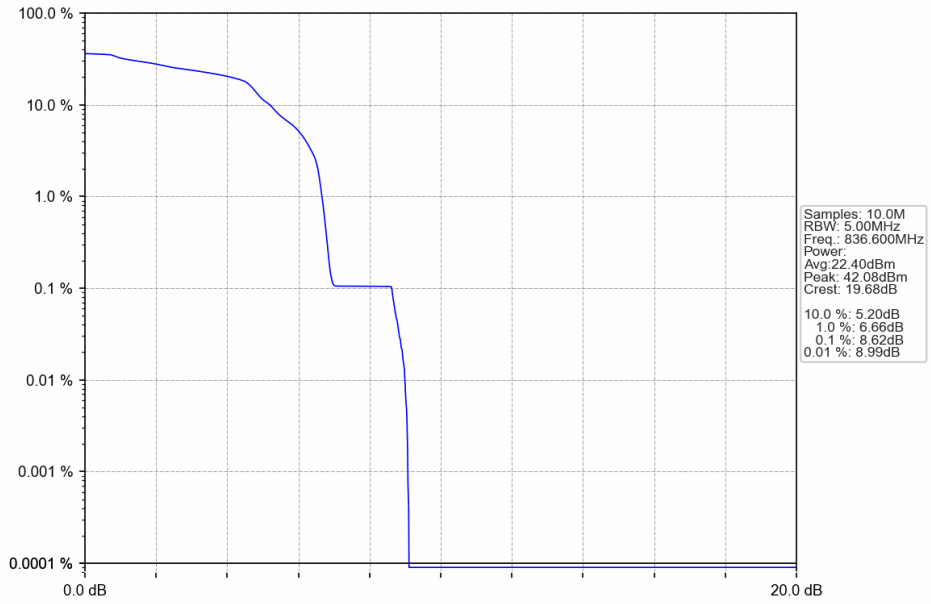
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



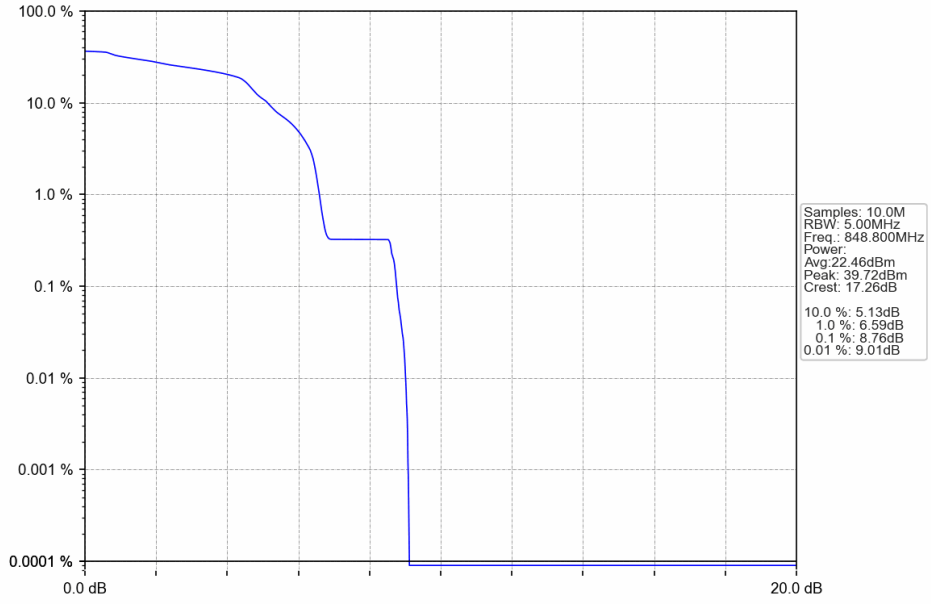
GSM850_EGPRS_LCH_824.2MHz_4 TX Slots_NTNV



GSM850_EGPRS_MCH_836.6MHz_4 TX Slots_NTNV



GSM850_EGPRS_HCH_848.8MHz_4 TX Slots_NTNV



5. Spurious Emission & Band Edges

5.1 Test Result

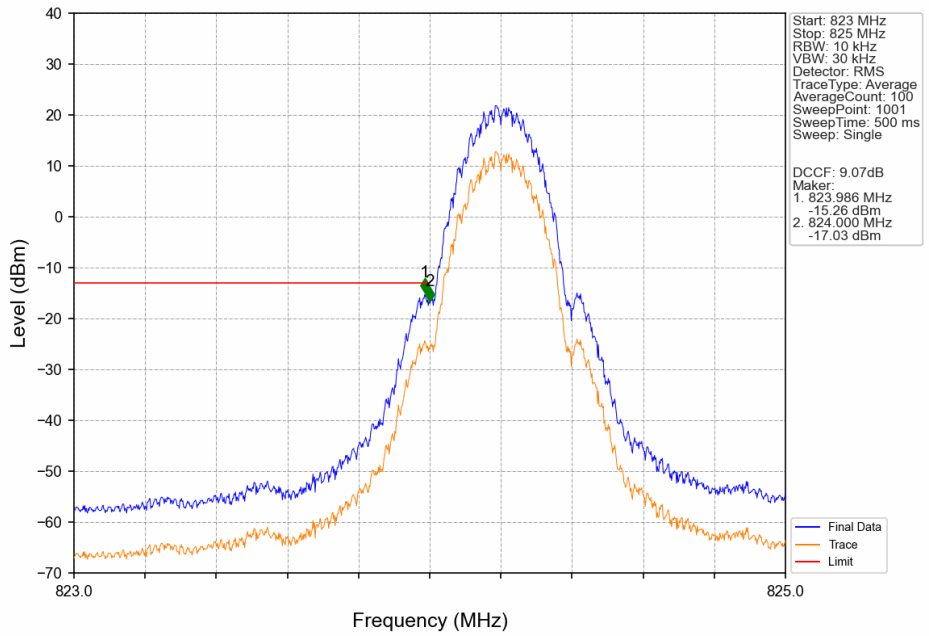
5.1.1 GSM850

Band: GSM850						
ENV	Mode		Frequency (MHz)	Spurious Emission		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	Refer To Test Graph		Pass
			836.6	Refer To Test Graph		Pass
			848.8	Refer To Test Graph		Pass
	EGPRS	1 TX Slot	824.2	Refer To Test Graph		Pass
			836.6	Refer To Test Graph		Pass
			848.8	Refer To Test Graph		Pass

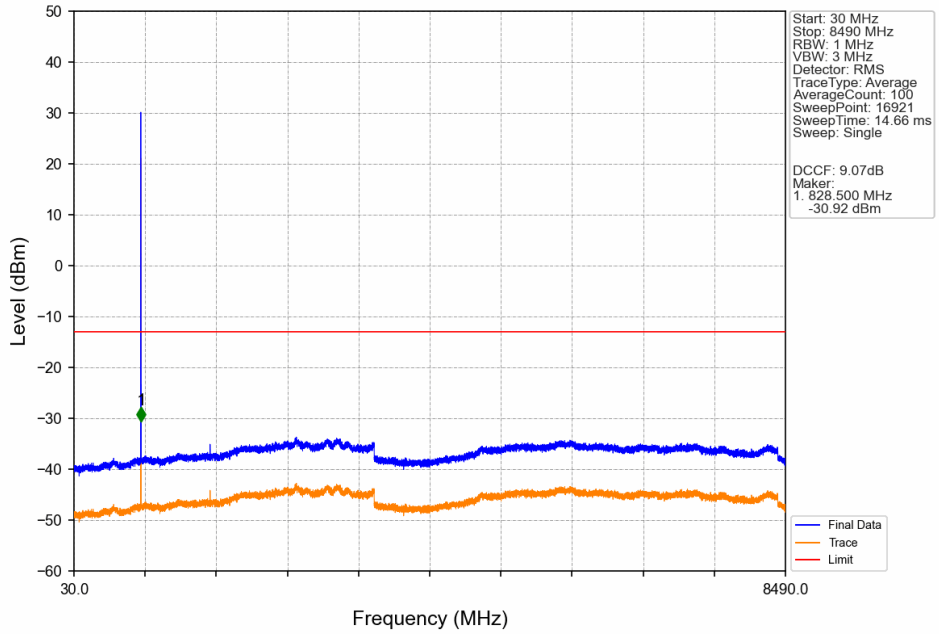
5.2 Test Graph

5.2.1 GSM850

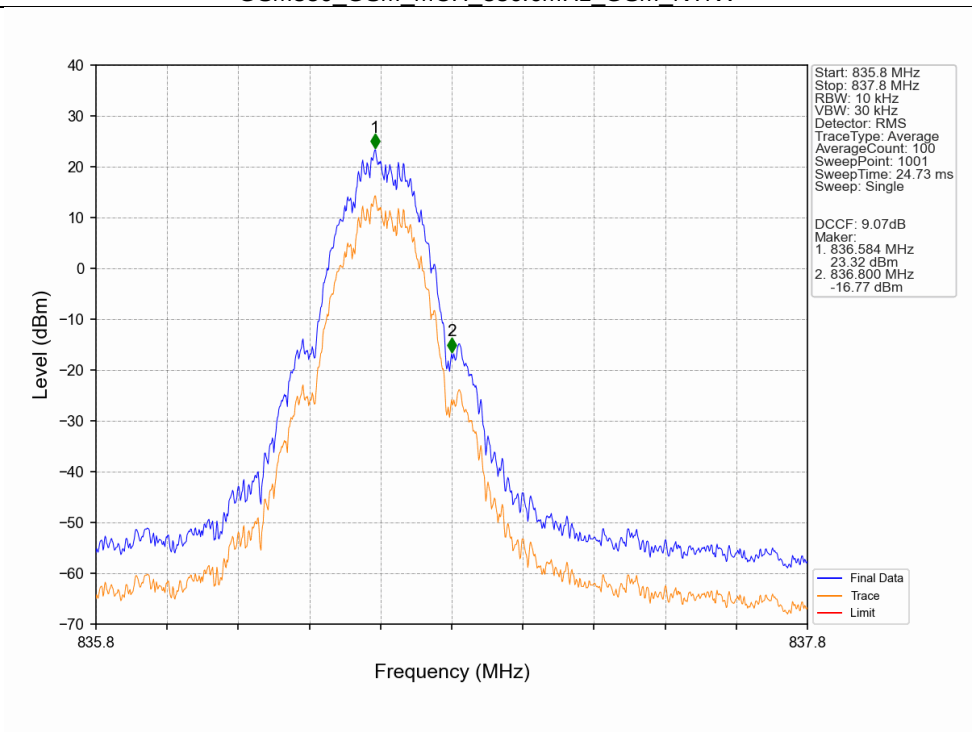
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



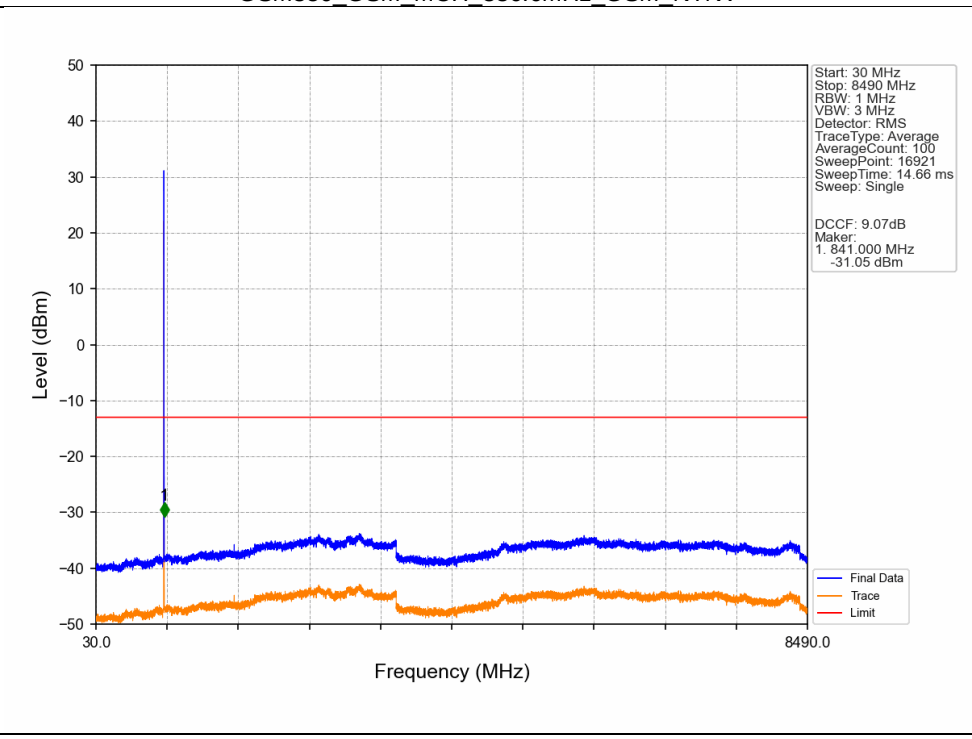
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



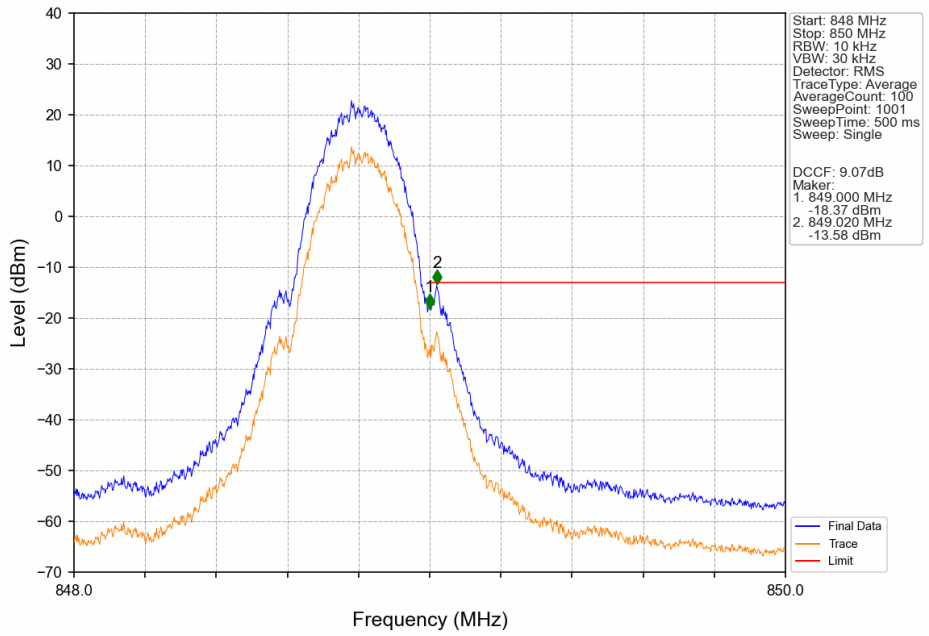
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



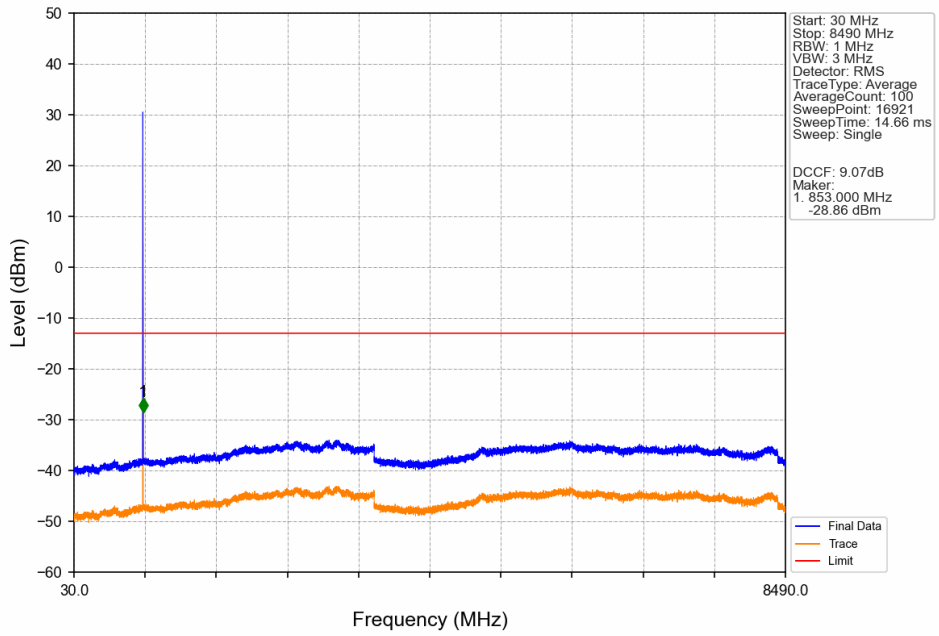
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



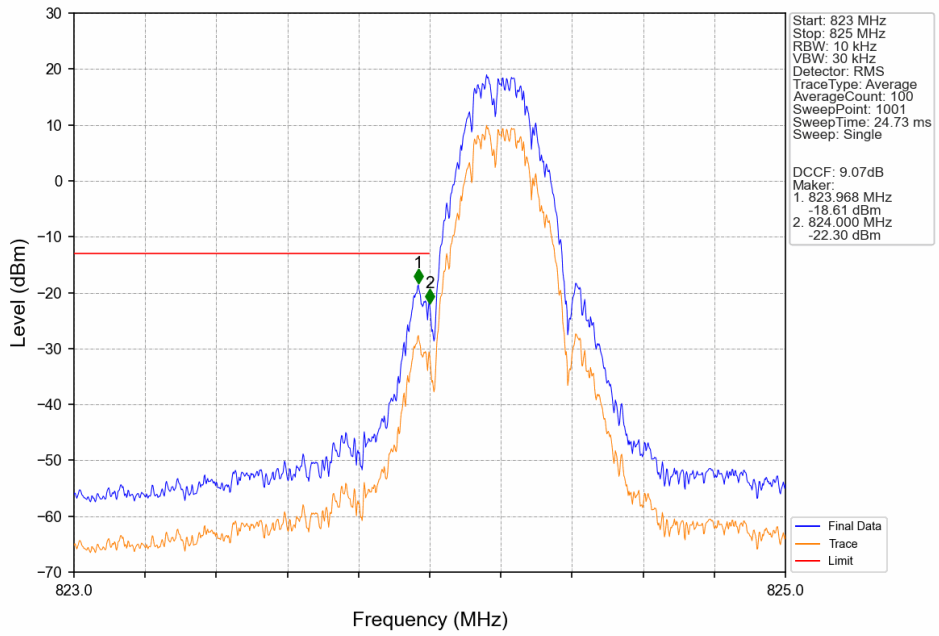
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



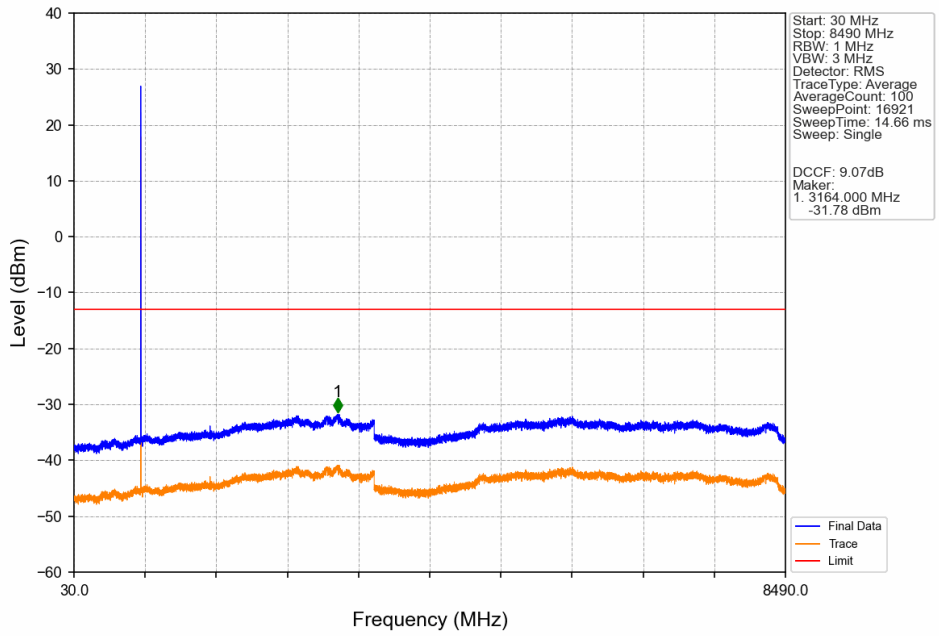
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



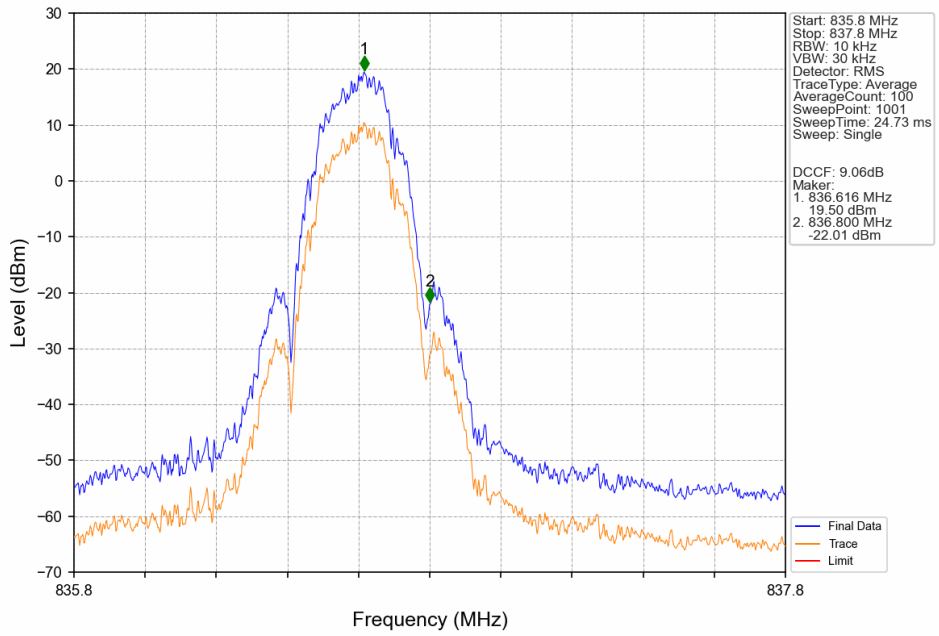
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



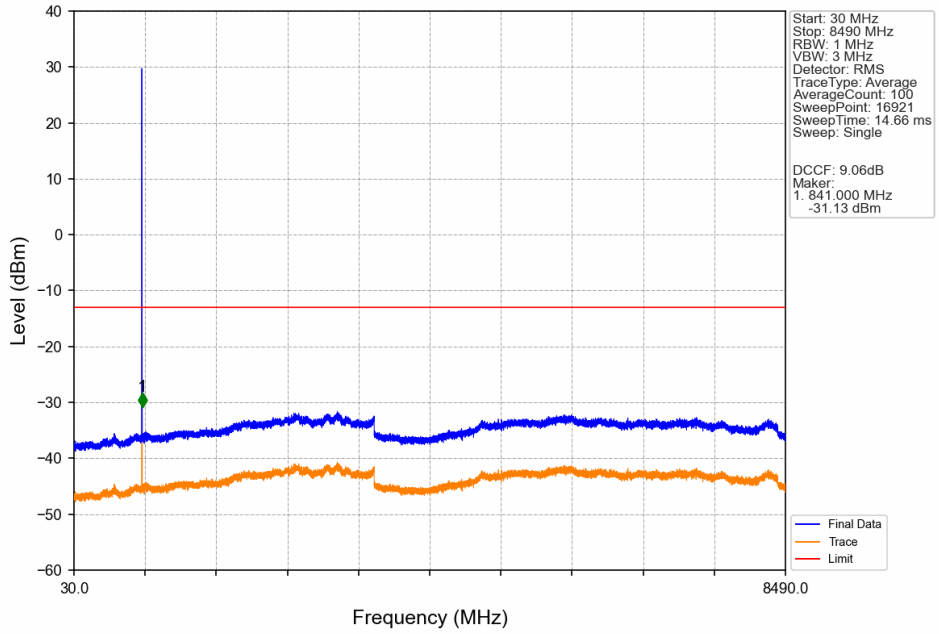
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



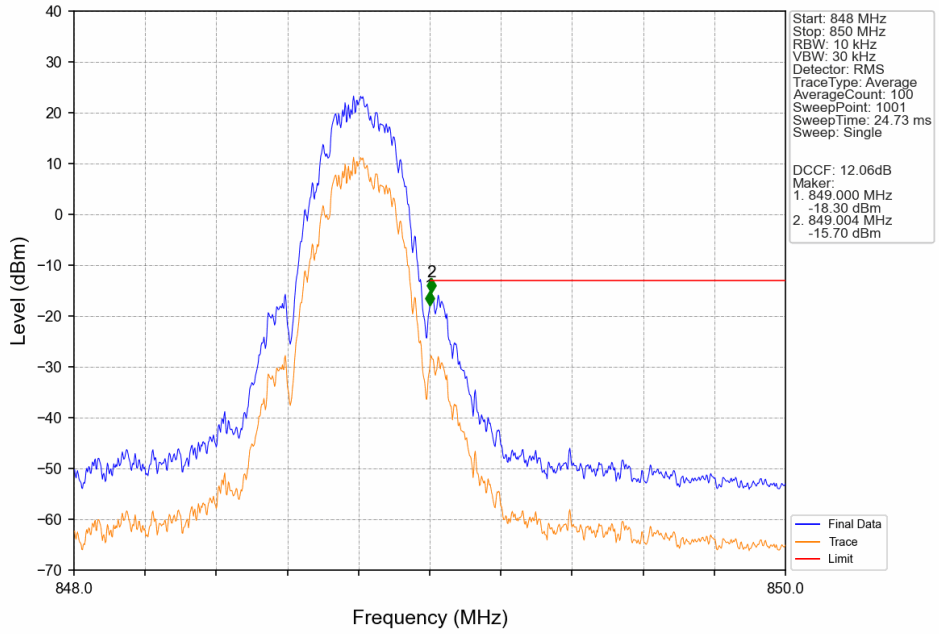
GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



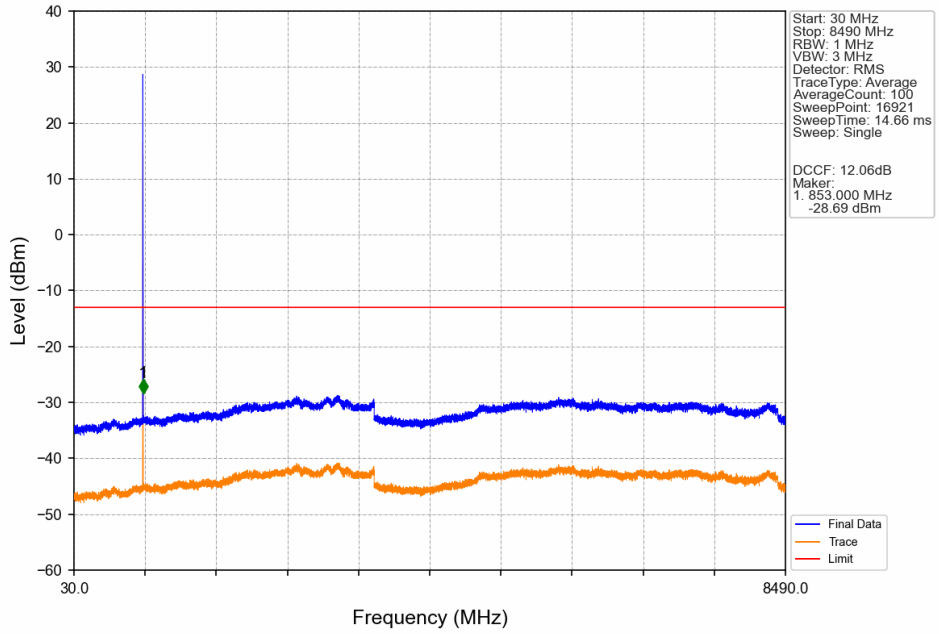
GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV



6. Field Strength of Spurious Radiation

Test Band = GSM 850_ TM1
Test Channel = Low

Final Data List								
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1040	90.64	-47.58	25.34	-26.86	-13.00	13.86	Horizontal
2	1648.5714	84.69	-48.22	25.45	-33.34	-13.00	20.34	Horizontal
3	2472.5714	81.76	-47.32	27.15	-33.67	-13.00	20.67	Horizontal
4	3297.1429	64.80	-46.67	28.40	-48.73	-13.00	35.73	Horizontal
5	4121.7143	50.54	-45.91	29.69	-60.94	-13.00	47.94	Horizontal
6	4945.1429	49.17	-45.68	31.31	-60.46	-13.00	47.46	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1039.4286	84.33	-47.57	25.34	-33.16	-13.00	20.16	Vertical
2	1648.5714	87.33	-48.22	25.45	-30.70	-13.00	17.70	Vertical
3	2472.5714	75.16	-47.32	27.15	-40.27	-13.00	27.27	Vertical
4	3296.5714	62.13	-46.67	28.40	-51.40	-13.00	38.40	Vertical
5	4121.1429	54.75	-45.91	29.69	-56.73	-13.00	43.73	Vertical
6	4945.1429	54.10	-45.68	31.31	-55.53	-13.00	42.53	Vertical

Test Band = GSM 850_ TM1
Test Channel = Mid

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1053.7143	89.28	-47.74	25.32	-28.40	-13.00	15.40	Horizontal
2	1672.5714	86.58	-48.19	25.47	-31.40	-13.00	18.40	Horizontal
3	2509.1429	79.00	-47.24	27.22	-36.28	-13.00	23.28	Horizontal
4	3345.7143	55.66	-46.62	28.45	-57.77	-13.00	44.77	Horizontal
5	4182.2857	47.45	-45.95	29.84	-63.92	-13.00	50.92	Horizontal
6	5854.8571	44.19	-44.83	32.37	-63.53	-13.00	50.53	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1053.7143	84.60	-47.74	25.32	-33.08	-13.00	20.08	Vertical
2	1672.5714	83.66	-48.19	25.47	-34.32	-13.00	21.32	Vertical
3	2509.1429	75.87	-47.24	27.22	-39.41	-13.00	26.41	Vertical
4	3345.7143	56.32	-46.62	28.45	-57.11	-13.00	44.11	Vertical
5	4181.7143	50.87	-45.95	29.84	-60.50	-13.00	47.50	Vertical
6	5018.2857	45.01	-45.73	31.43	-64.55	-13.00	51.55	Vertical

Test Band = GSM 850_ TM1
Test Channel = High

Final Data List								
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1066.2857	90.65	-47.89	25.30	-27.20	-13.00	14.20	Horizontal
2	1697.7143	93.38	-48.16	25.50	-24.55	-13.00	11.55	Horizontal
3	2546.2857	77.25	-47.11	27.28	-37.84	-13.00	24.84	Horizontal
4	3395.4286	51.14	-46.55	28.50	-62.17	-13.00	49.17	Horizontal
5	4244	47.15	-45.88	29.99	-64.01	-13.00	51.01	Horizontal
6	5092.5714	43.79	-45.41	31.57	-65.32	-13.00	52.32	Horizontal

Final Data List								
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	1066.2857	87.04	-47.89	25.30	-30.81	-13.00	17.81	Vertical
2	1697.7143	85.97	-48.16	25.50	-31.96	-13.00	18.96	Vertical
3	2546.2857	74.42	-47.11	27.28	-40.67	-13.00	27.67	Vertical
4	3395.4286	55.38	-46.55	28.50	-57.93	-13.00	44.93	Vertical
5	4244	50.25	-45.88	29.99	-60.91	-13.00	47.91	Vertical
6	5092.5714	45.42	-45.41	31.57	-63.69	-13.00	50.69	Vertical

Remark:
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:
AF = Antenna Factor(dB/m)
Factor = Cable Factor(dB) - Preamplifier (dB)
Level = Reading Level + AF + Factor -95.26
Margin = Limit – Level

---End of Attachment---