

# 1. Effective (Isotropic) Radiated Power Output Data

## 1.1 GSM850\_ERP

### 1.1.1 Test Result

Band: GSM850									
ENV	Mode		Frequency (MHz)	Conducted Power (dBm)	Gain (dBi)	ERP (dBm)		Verdict	
	Network	Subset				Result	Limit		
NTNV	GSM	GSM	824.2	30.80	0.42	29.07	<=38.45	Pass	
			836.6	30.98	0.42	29.25	<=38.45	Pass	
			848.8	30.97	0.42	29.24	<=38.45	Pass	
	GPRS	1 TX Slot	824.2	30.87	0.42	29.14	<=38.45	Pass	
			2 TX Slots	824.2	30.09	0.42	28.36	<=38.45	Pass
			3 TX Slots	824.2	28.05	0.42	26.32	<=38.45	Pass
			4 TX Slots	824.2	26.80	0.42	25.07	<=38.45	Pass
		2 TX Slots	836.6	30.92	0.42	29.19	<=38.45	Pass	
			836.6	30.14	0.42	28.41	<=38.45	Pass	
			836.6	28.09	0.42	26.36	<=38.45	Pass	
			836.6	26.84	0.42	25.11	<=38.45	Pass	
		4 TX Slots	848.8	30.87	0.42	29.14	<=38.45	Pass	
			848.8	30.08	0.42	28.35	<=38.45	Pass	
			848.8	27.99	0.42	26.26	<=38.45	Pass	
			848.8	26.72	0.42	24.99	<=38.45	Pass	
	EGPRS	1 TX Slot	824.2	30.66	0.42	28.93	<=38.45	Pass	
			2 TX Slots	824.2	30.73	0.42	29.00	<=38.45	Pass
			3 TX Slots	824.2	24.27	0.42	22.54	<=38.45	Pass
			4 TX Slots	824.2	18.62	0.42	16.89	<=38.45	Pass
		2 TX Slots	836.6	25.69	0.42	23.96	<=38.45	Pass	
			836.6	23.17	0.42	21.44	<=38.45	Pass	
			836.6	20.97	0.42	19.24	<=38.45	Pass	
			836.6	18.63	0.42	16.90	<=38.45	Pass	
		4 TX Slots	848.8	23.92	0.42	22.19	<=38.45	Pass	
			848.8	23.03	0.42	21.30	<=38.45	Pass	
			848.8	20.55	0.42	18.82	<=38.45	Pass	
			848.8	18.62	0.42	16.89	<=38.45	Pass	

Note1: ERP=Conducted Power+Antenna Gain-2.15

# 2. Frequency Stability

## 2.1 GSM850

### 2.1.1 Test Result

Band: GSM850							
Network	Frequency (MHz)	Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
					Result	Limit	
GSM	824.2	20	3.27	-8.620	-0.0105	-2.5 to 2.5	Pass
			3.85	-8.104	-0.0098	-2.5 to 2.5	Pass
			4.43	-7.361	-0.0089	-2.5 to 2.5	Pass
		-30	3.85	-8.039	-0.0098	-2.5 to 2.5	Pass
		-20	3.85	-11.139	-0.0135	-2.5 to 2.5	Pass

	836.6	-10	3.85	-8.297	-0.0101	-2.5 to 2.5	Pass	
		0	3.85	-7.167	-0.0087	-2.5 to 2.5	Pass	
		10	3.85	-9.298	-0.0113	-2.5 to 2.5	Pass	
		30	3.85	-13.689	-0.0166	-2.5 to 2.5	Pass	
		40	3.85	-9.718	-0.0118	-2.5 to 2.5	Pass	
		50	3.85	4.359	0.0053	-2.5 to 2.5	Pass	
		848.8	20	3.27	-5.682	-0.0068	-2.5 to 2.5	Pass
				3.85	-9.266	-0.0111	-2.5 to 2.5	Pass
				4.43	-13.431	-0.0161	-2.5 to 2.5	Pass
			-30	3.85	-15.852	-0.0189	-2.5 to 2.5	Pass
	-20		3.85	-13.334	-0.0159	-2.5 to 2.5	Pass	
	-10		3.85	-6.586	-0.0079	-2.5 to 2.5	Pass	
	0		3.85	-8.007	-0.0096	-2.5 to 2.5	Pass	
	10		3.85	-14.690	-0.0176	-2.5 to 2.5	Pass	
	30		3.85	-12.462	-0.0149	-2.5 to 2.5	Pass	
	40		3.85	-7.071	-0.0085	-2.5 to 2.5	Pass	
	GPRS	824.2	20	3.27	-11.268	-0.0133	-2.5 to 2.5	Pass
				3.85	-7.264	-0.0086	-2.5 to 2.5	Pass
				4.43	1.873	0.0022	-2.5 to 2.5	Pass
			-30	3.85	-6.393	-0.0075	-2.5 to 2.5	Pass
			-20	3.85	-3.777	-0.0044	-2.5 to 2.5	Pass
			-10	3.85	-6.360	-0.0075	-2.5 to 2.5	Pass
			0	3.85	-4.423	-0.0052	-2.5 to 2.5	Pass
			10	3.85	-7.200	-0.0085	-2.5 to 2.5	Pass
			30	3.85	-6.683	-0.0079	-2.5 to 2.5	Pass
			40	3.85	-7.038	-0.0083	-2.5 to 2.5	Pass
		836.6	20	3.27	-5.424	-0.0066	-2.5 to 2.5	Pass
				3.85	-0.355	-0.0004	-2.5 to 2.5	Pass
				4.43	2.195	0.0027	-2.5 to 2.5	Pass
			-30	3.85	-4.907	-0.0060	-2.5 to 2.5	Pass
-20			3.85	-0.258	-0.0003	-2.5 to 2.5	Pass	
-10			3.85	-1.356	-0.0016	-2.5 to 2.5	Pass	
0			3.85	-1.098	-0.0013	-2.5 to 2.5	Pass	
10			3.85	-5.166	-0.0063	-2.5 to 2.5	Pass	
30			3.85	-2.647	-0.0032	-2.5 to 2.5	Pass	
40			3.85	-4.326	-0.0052	-2.5 to 2.5	Pass	
848.8		20	3.27	-16.789	-0.0201	-2.5 to 2.5	Pass	
			3.85	-9.621	-0.0115	-2.5 to 2.5	Pass	
			4.43	-8.685	-0.0104	-2.5 to 2.5	Pass	
		-30	3.85	-8.039	-0.0096	-2.5 to 2.5	Pass	
		-20	3.85	-8.491	-0.0101	-2.5 to 2.5	Pass	
		-10	3.85	-13.915	-0.0166	-2.5 to 2.5	Pass	
		0	3.85	-12.172	-0.0145	-2.5 to 2.5	Pass	
		10	3.85	-10.461	-0.0125	-2.5 to 2.5	Pass	
		30	3.85	-12.333	-0.0147	-2.5 to 2.5	Pass	
		40	3.85	-14.270	-0.0171	-2.5 to 2.5	Pass	
836.6	20	3.27	-0.226	-0.0003	-2.5 to 2.5	Pass		
		3.85	0.161	0.0002	-2.5 to 2.5	Pass		
		4.43	2.195	0.0026	-2.5 to 2.5	Pass		
	-30	3.85	-4.488	-0.0053	-2.5 to 2.5	Pass		
	-20	3.85	1.776	0.0021	-2.5 to 2.5	Pass		
	-10	3.85	2.292	0.0027	-2.5 to 2.5	Pass		
	0	3.85	3.293	0.0039	-2.5 to 2.5	Pass		

		10	3.85	0.484	0.0006	-2.5 to 2.5	Pass
		30	3.85	-3.390	-0.0040	-2.5 to 2.5	Pass
		40	3.85	-3.745	-0.0044	-2.5 to 2.5	Pass
		50	3.85	-7.652	-0.0090	-2.5 to 2.5	Pass
EGPRS	824.2	20	3.27	3.842	0.0047	-2.5 to 2.5	Pass
			3.85	0.194	0.0002	-2.5 to 2.5	Pass
			4.43	3.810	0.0046	-2.5 to 2.5	Pass
		-30	3.85	2.712	0.0033	-2.5 to 2.5	Pass
		-20	3.85	7.845	0.0095	-2.5 to 2.5	Pass
		-10	3.85	8.879	0.0108	-2.5 to 2.5	Pass
		0	3.85	8.814	0.0107	-2.5 to 2.5	Pass
		10	3.85	-0.291	-0.0004	-2.5 to 2.5	Pass
		30	3.85	2.325	0.0028	-2.5 to 2.5	Pass
		40	3.85	11.009	0.0134	-2.5 to 2.5	Pass
		50	3.85	3.745	0.0045	-2.5 to 2.5	Pass
		836.6	20	3.27	-7.103	-0.0085	-2.5 to 2.5
	3.85			-6.070	-0.0073	-2.5 to 2.5	Pass
	4.43			-0.291	-0.0003	-2.5 to 2.5	Pass
	-30		3.85	-1.873	-0.0022	-2.5 to 2.5	Pass
	-20		3.85	-0.161	-0.0002	-2.5 to 2.5	Pass
	-10		3.85	-6.522	-0.0078	-2.5 to 2.5	Pass
	0		3.85	-5.327	-0.0064	-2.5 to 2.5	Pass
	10		3.85	-4.714	-0.0056	-2.5 to 2.5	Pass
	30		3.85	-8.685	-0.0104	-2.5 to 2.5	Pass
	40		3.85	-7.232	-0.0086	-2.5 to 2.5	Pass
	50		3.85	-1.098	-0.0013	-2.5 to 2.5	Pass
	848.8		20	3.27	8.297	0.0098	-2.5 to 2.5
		3.85		6.554	0.0077	-2.5 to 2.5	Pass
		4.43		4.843	0.0057	-2.5 to 2.5	Pass
		-30	3.85	6.231	0.0073	-2.5 to 2.5	Pass
		-20	3.85	6.296	0.0074	-2.5 to 2.5	Pass
		-10	3.85	7.200	0.0085	-2.5 to 2.5	Pass
		0	3.85	10.009	0.0118	-2.5 to 2.5	Pass
		10	3.85	6.941	0.0082	-2.5 to 2.5	Pass
		30	3.85	5.747	0.0068	-2.5 to 2.5	Pass
		40	3.85	8.071	0.0095	-2.5 to 2.5	Pass
		50	3.85	8.459	0.0100	-2.5 to 2.5	Pass

### 3. Modulation Characteristics

#### 3.1 GSM850

##### 3.1.1 Test Result

Band: GSM850						
ENV	Mode		Frequency (MHz)	Modulation Characteristics		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	836.6	Refer To Test Graph		Pass
	GPRS	1 TX Slot	836.6	Refer To Test Graph		Pass
	EGPRS	1 TX Slot	836.6	Refer To Test Graph		Pass

### 3.1.2 Test Graph

GSM850\_GSM\_MCH\_836.6MHz\_GSM\_NTNV

**GSM Measurement 1 - V3.7.18 - Base V 3.7.22 - TX Measurement**

Band/Ch: GSM850 / 190 Freq.: 836.60000 MHz Ref. Level: 39.00 dBm Meas Slots: [●●●●●●●●] Tim. Advance.: 0

**Power vs. Time**

Slot Nr.	0	1	2	3	4	5	6	7
Avg. Burst Pwr.								
Current [dBm]	-48.06	-48.05	-47.99	32.97	-47.64	-47.88	-47.26	-47.92
Average [dBm]	-47.88	-47.89	-47.82	32.96	-47.79	-47.81	-47.80	-47.93
TSC	OFF	OFF	OFF	NB 0	OFF	OFF	OFF	OFF
Burst Type	OFF	OFF	OFF	GMSK	OFF	OFF	OFF	OFF
Ref. Slot Timing [Sym]	NCAP	NCAP	NCAP	0.00	NCAP	NCAP	NCAP	NCAP

Statistic Count    Bursts out of Tol. Mod. View Throughput

[Progress Bar] 10 / 10    0.00 %    100.0 %

CS: [Icon] Call Established    PS: [Icon] Attached    DL: [Progress Bar] MCS-1    UL: [Progress Bar] MCS-1

**Go To Local**    **Show Remote Screen**

GSM

Multi Evaluation

RDY

RF Settings

Trigger

Display

Marker

Signaling Parameter

GSM Signaling

Run

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GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV

**GSM Measurement 1 - V3.7.18 - Base V 3.7.22 - TX Measurement**

Band/Ch: GSM850 / 190 Freq.: 836.60000 MHz Ref. Level: 39.00 dBm Meas Slots: [●●●●●●●●] Tim. Advance.: 0

**IQ**

Statistic Count    Bursts out of Tolerance    Mod. View Throughput    Burst Type

[Progress Bar] 10 / 10    0.00 %    100.0 %    GMSK

CS: [Icon] Synchronized    PS: [Icon] TBF Established    DL: [Progress Bar] CS-1    UL: [Progress Bar] CS-1

**Go To Local**    **Show Remote Screen**

GSM

Multi Evaluation

RDY

RF Settings

Trigger

Display

Signaling Parameter

GSM Signaling

Run

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# GSM850 EGPRS MCH\_836.6MHz 1 TX Slot\_NTNV

**GSM Measurement 1 - V3.7.18 - Base V 3.7.22 - TX Measurement**

Band/Ch: GSM850 / 190 Freq.: 836.60000 MHz Ref. Level: 42.23 dBm Meas Slots: [●●●●●●●●] Tim. Advance: 0

IQ

Statistic Count: 10 / 10  
Bursts out of Tolerance: 0.00 %  
Mod. View Throughput: 100.0 %  
Burst Type: 8PSK

CS: Synchronized PS: TBF Established DL: MCS-5 UL: MCS-5

Go To Local Show Remote Screen

**GSM**  
Multi Evaluation **RDY**  
RF Settings  
Trigger  
Display  
Signaling Parameter  
GSM Signaling **Run**

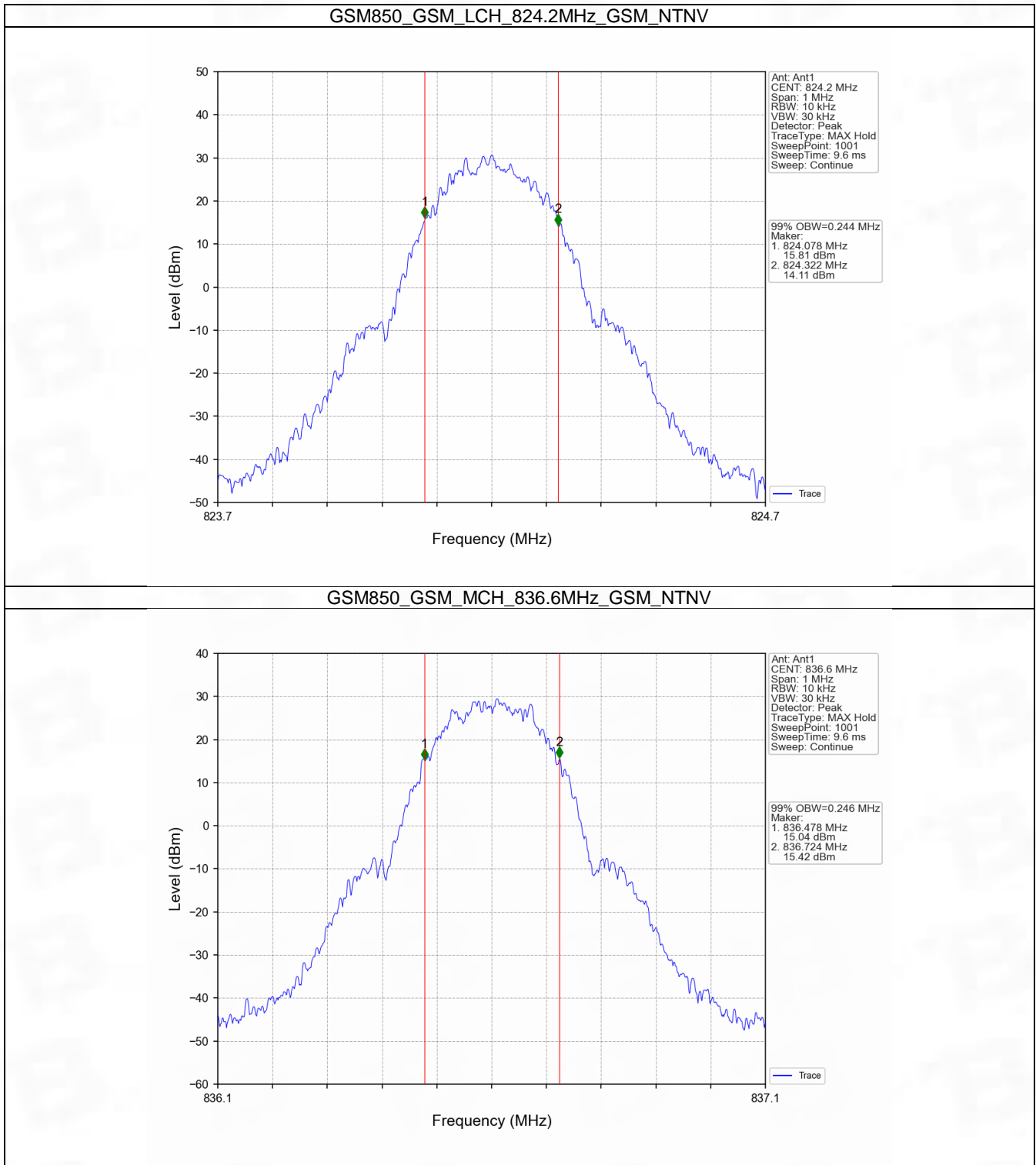
## 4. 99% & 26dB Bandwidth

### 4.1 GSM850\_OBW

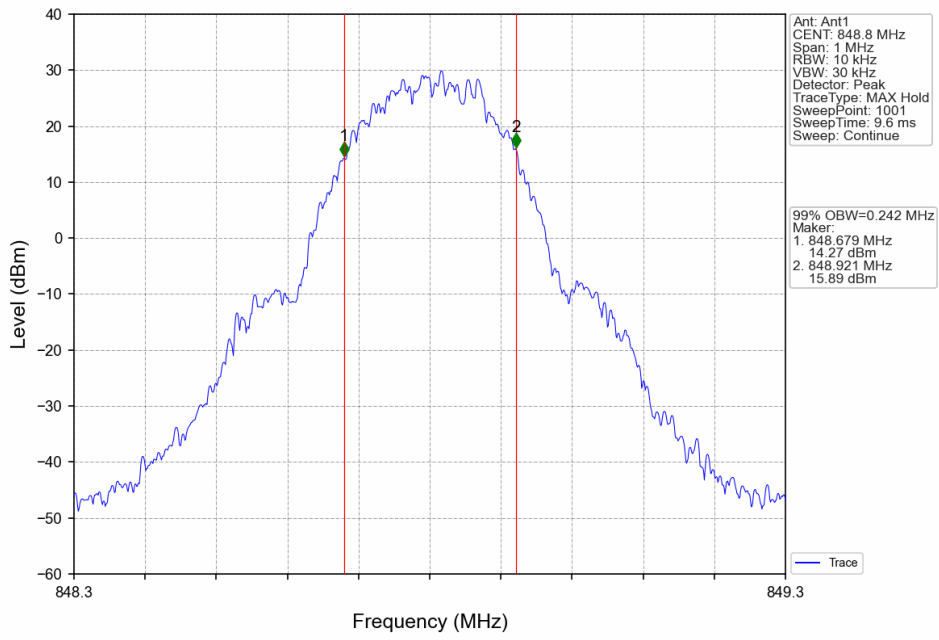
#### 4.1.1 Test Result

Band: GSM850						
ENV	Mode		Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	0.244	/	Pass
			836.6	0.246	/	Pass
			848.8	0.242	/	Pass
	GPRS	1 TX Slot	824.2	0.242	/	Pass
			836.6	0.247	/	Pass
			848.8	0.241	/	Pass
	EGPRS	1 TX Slot	824.2	0.251	/	Pass
			836.6	0.221	/	Pass
			848.8	0.250	/	Pass

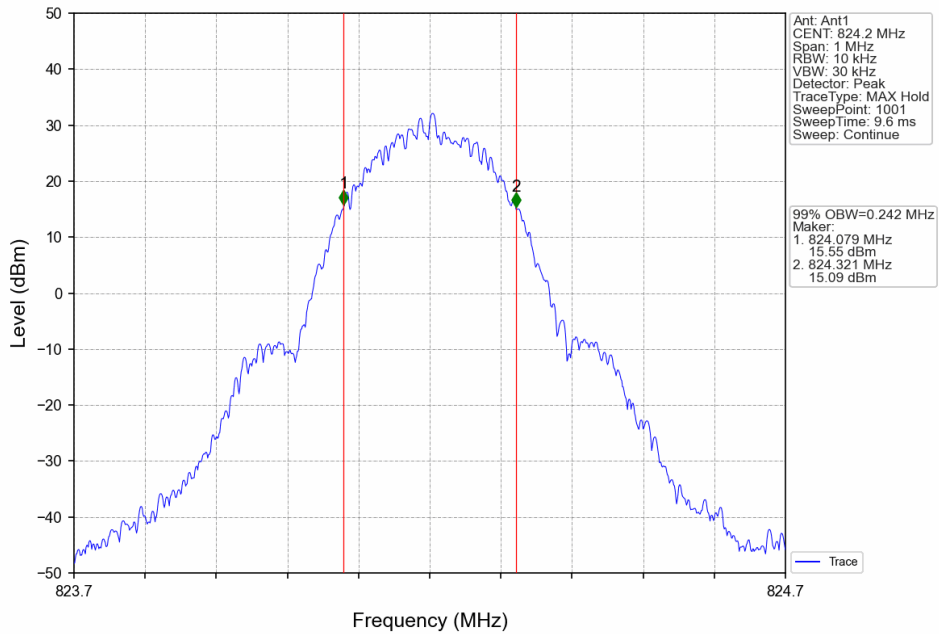
### 4.1.2 Test Graph



GSM850\_GSM\_HCH\_848.8MHz\_GSM\_NTNV

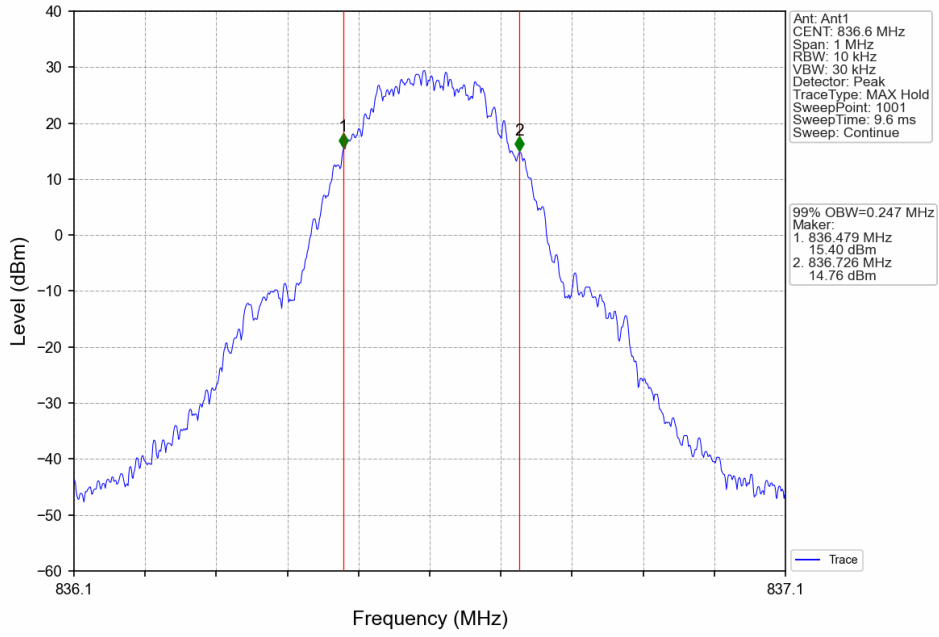


GSM850\_GPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV

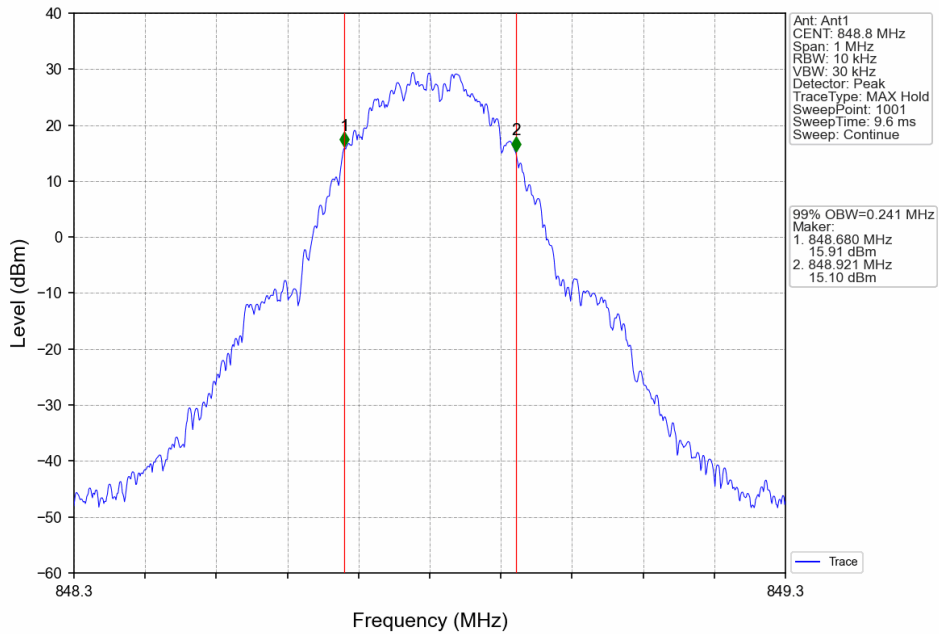




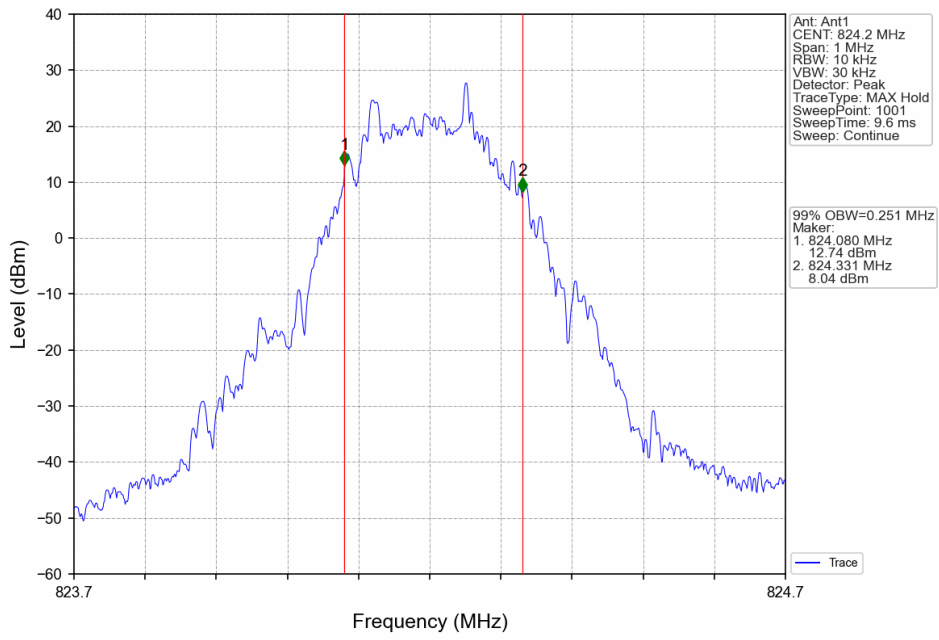
GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



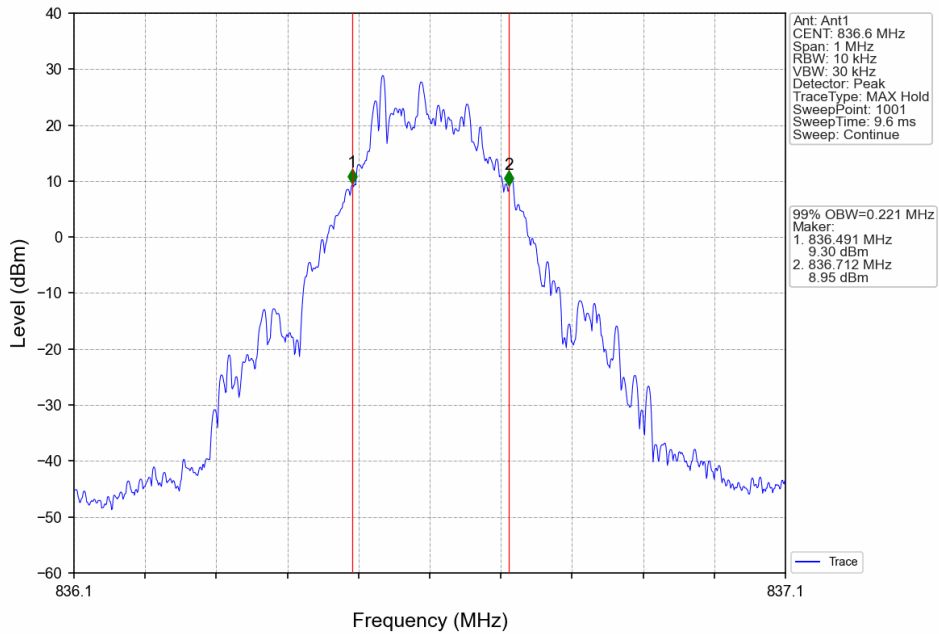
GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



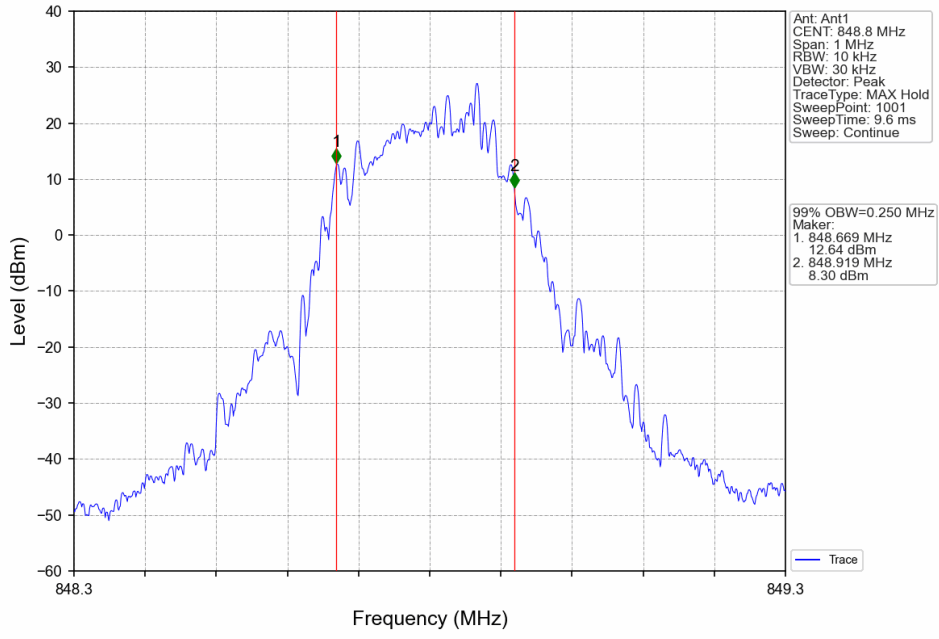
GSM850\_EGPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



GSM850\_EGPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



GSM850\_EGPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV

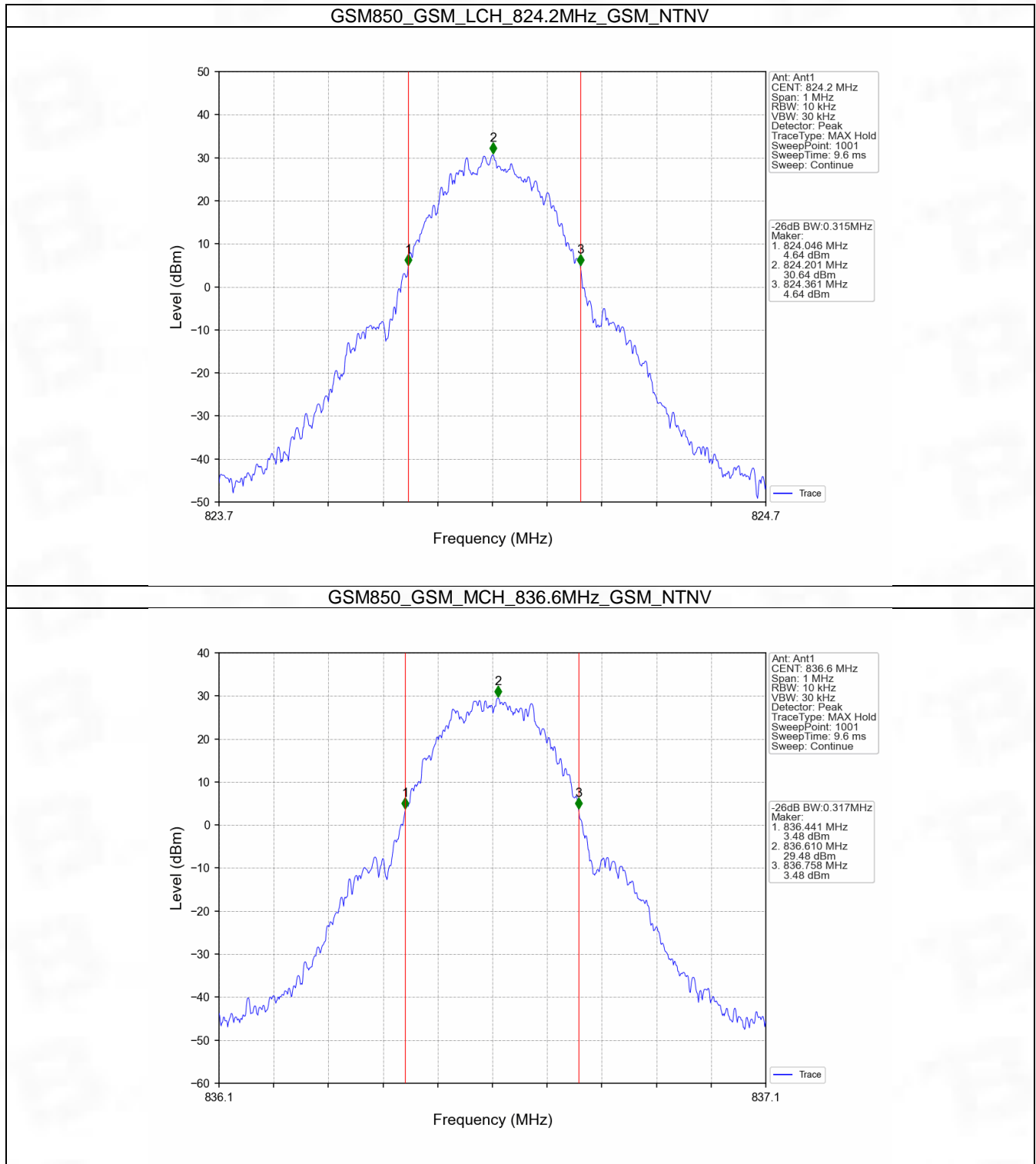


## 4.2 GSM850\_XDB

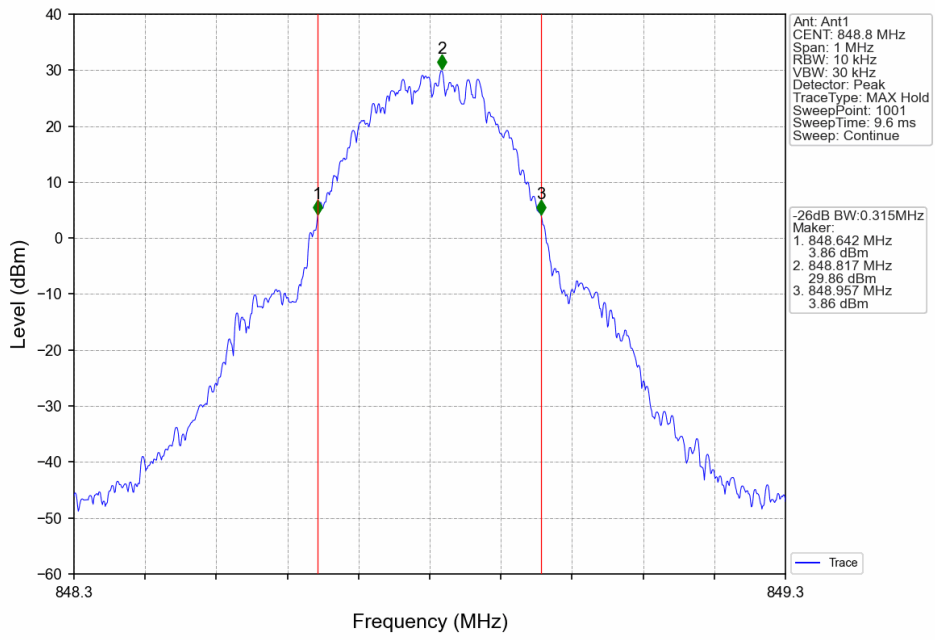
### 4.2.1 Test Result

Band: GSM850						
ENV	Mode		Frequency (MHz)	26dB Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	0.315	/	Pass
			836.6	0.317	/	Pass
			848.8	0.315	/	Pass
	GPRS	1 TX Slot	824.2	0.295	/	Pass
			836.6	0.316	/	Pass
			848.8	0.315	/	Pass
	EGPRS	1 TX Slot	824.2	0.306	/	Pass
			836.6	0.270	/	Pass
			848.8	0.296	/	Pass

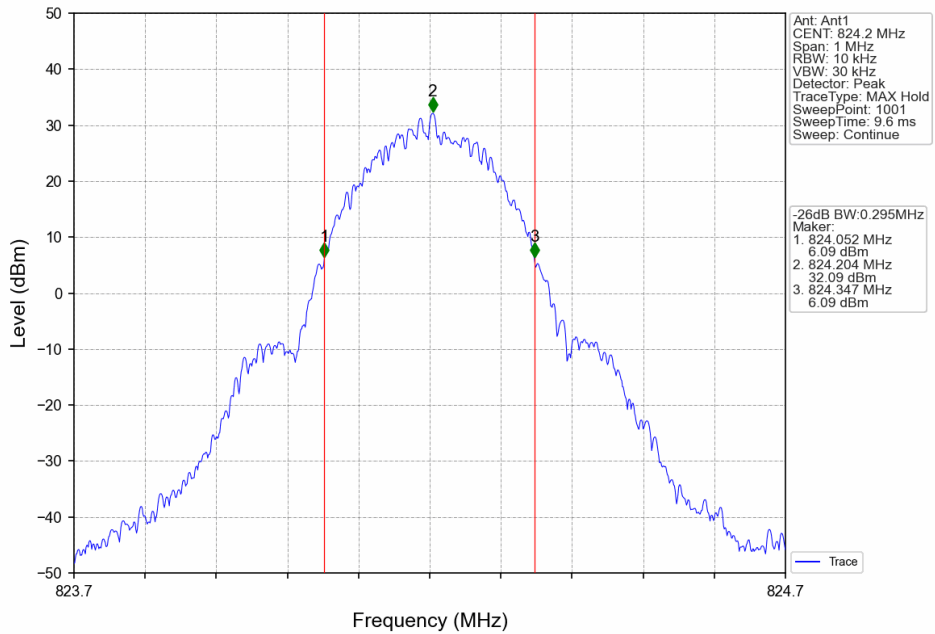
## 4.2.2 Test Graph



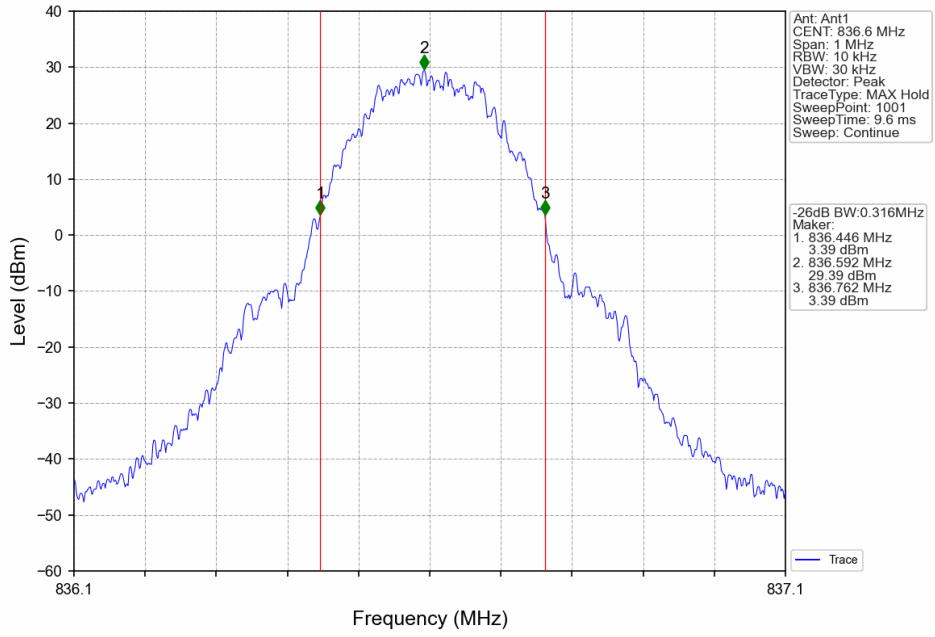
GSM850\_GSM\_HCH\_848.8MHz\_GSM\_NTNV



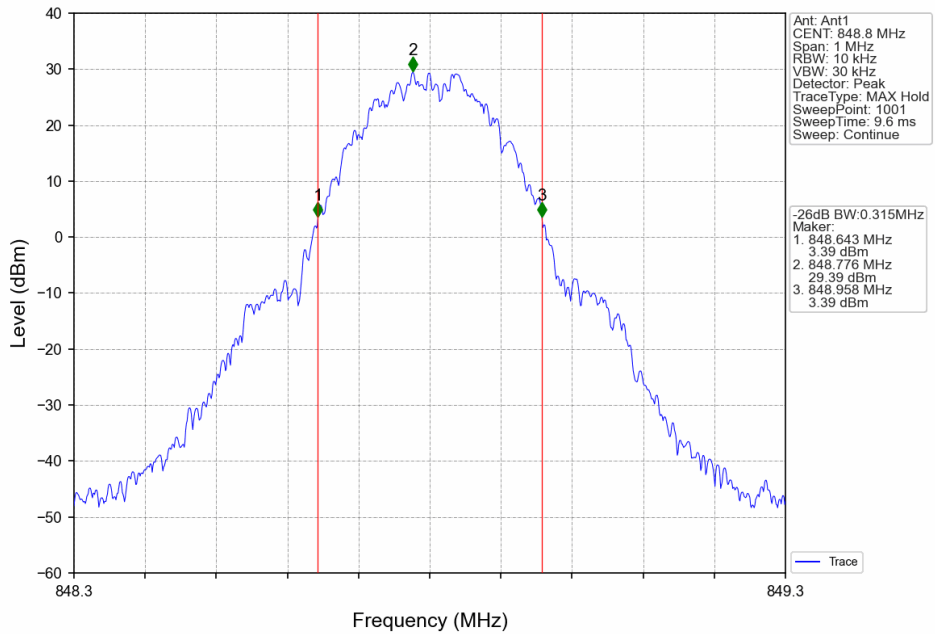
GSM850\_GPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



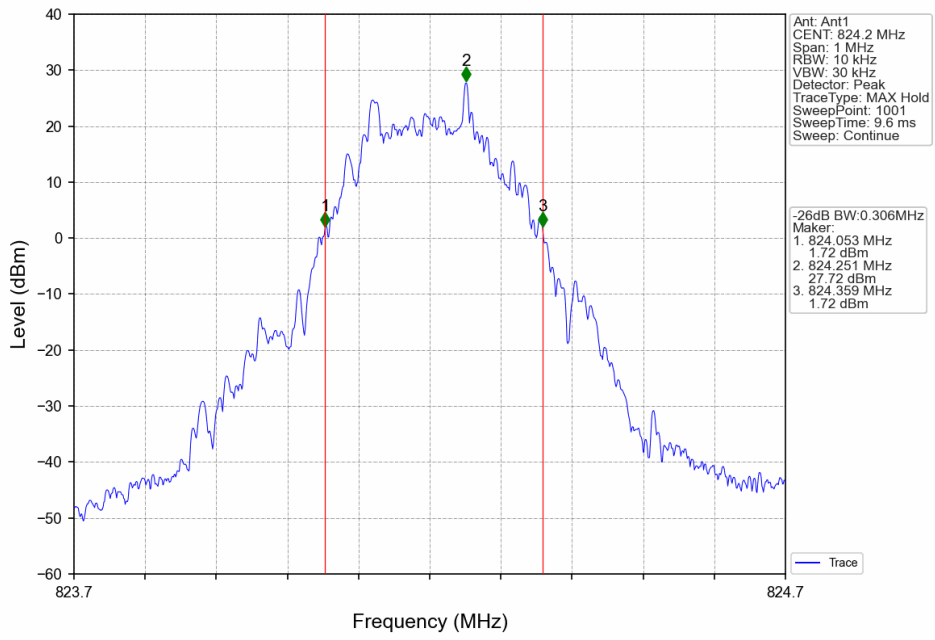
GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



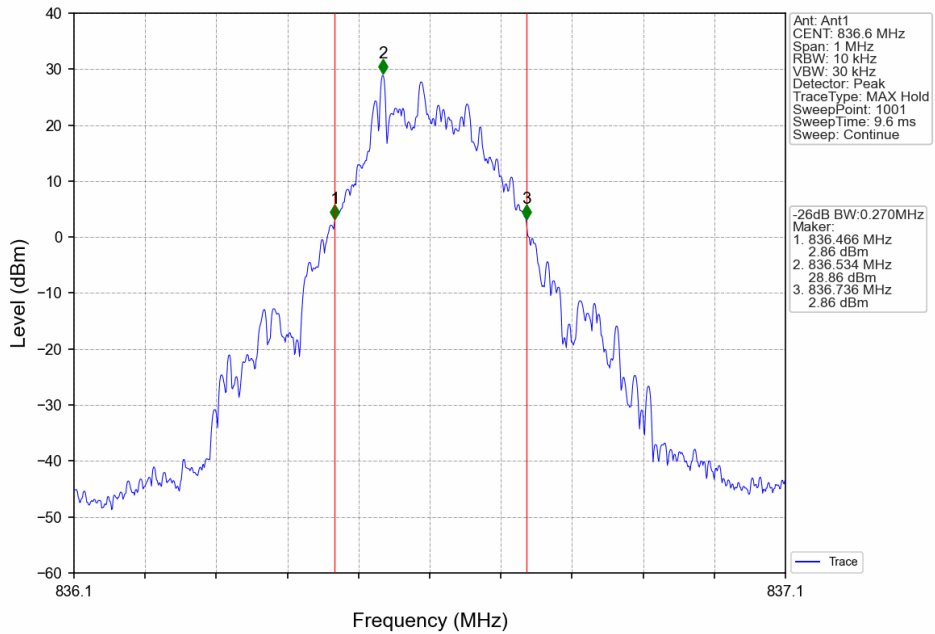
GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



GSM850\_EGPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV

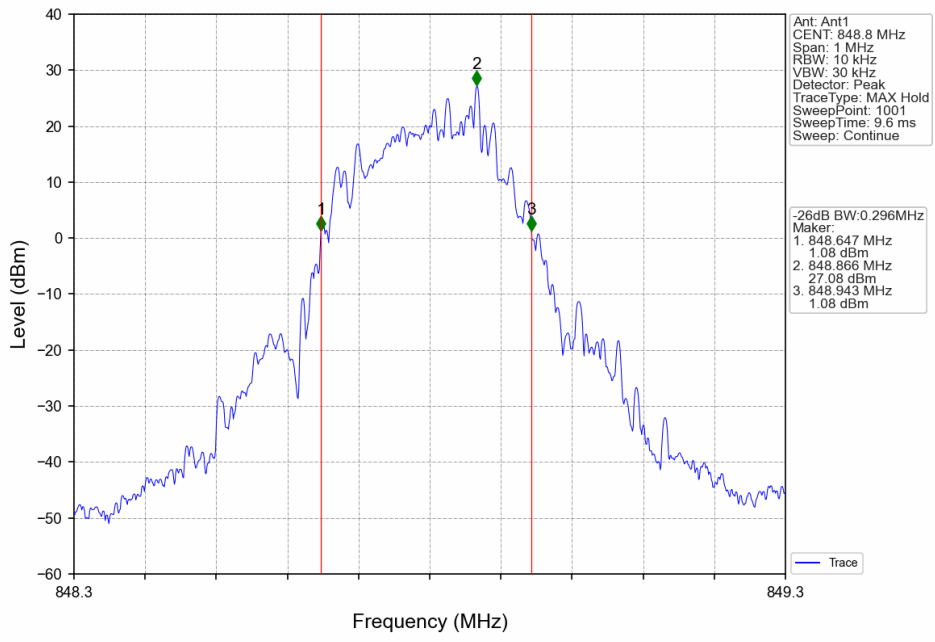


GSM850\_EGPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV





GSM850\_EGPRS\_HCH\_848.8MHz\_1\_TX\_Slot\_NTNV



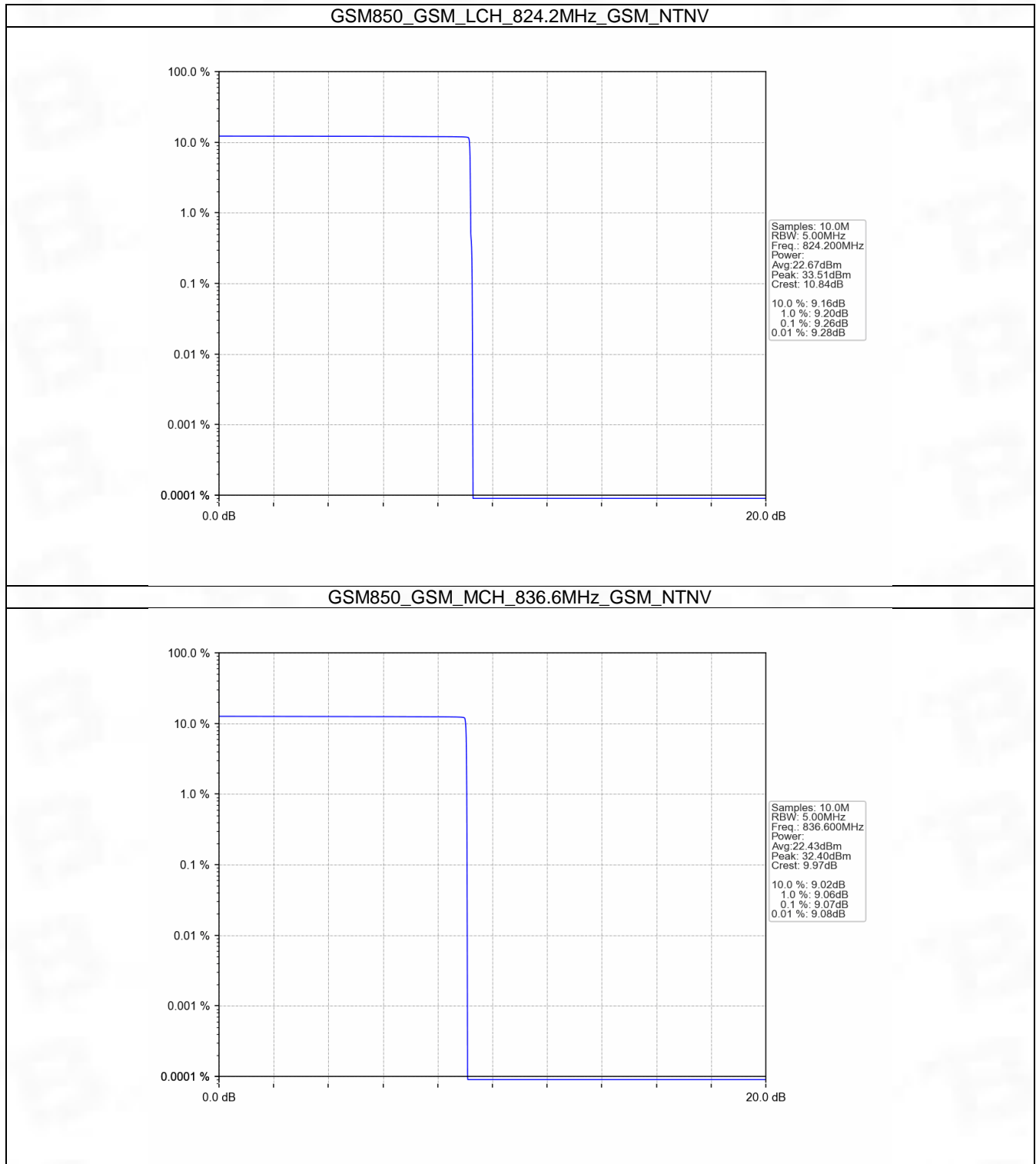
## 5. Peak-Average Ratio

### 5.1 GSM850

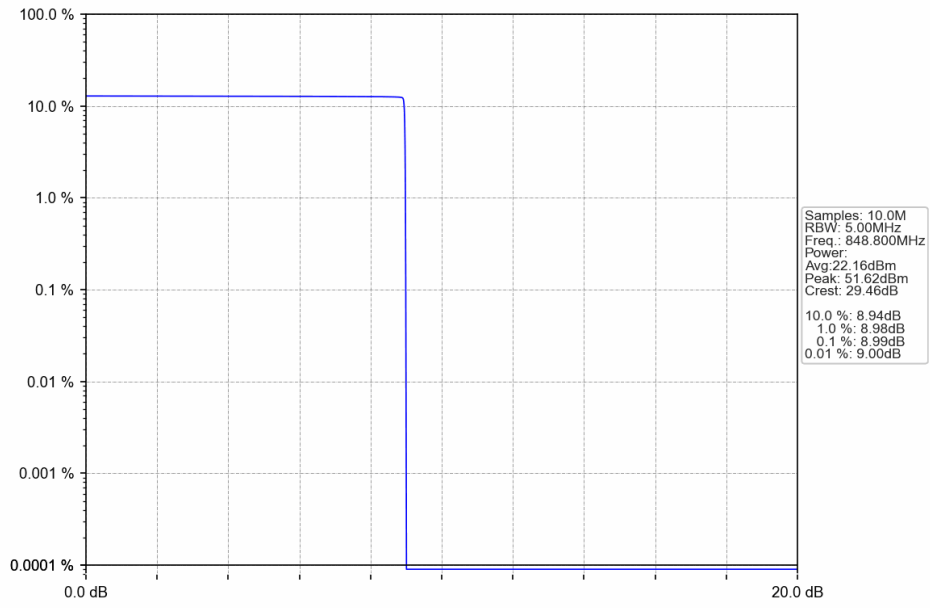
#### 5.1.1 Test Result

Band: GSM850						
ENV	Mode		Frequency (MHz)	Peak-Average Ratio (dB)		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	9.26	<=13	Pass
			836.6	9.07	<=13	Pass
			848.8	8.99	<=13	Pass
	GPRS	4 TX Slots	824.2	3.49	<=13	Pass
			836.6	3.76	<=13	Pass
			848.8	3.46	<=13	Pass
	EGPRS	4 TX Slots	824.2	12.24	<=13	Pass
			836.6	12.75	<=13	Pass
			848.8	12.36	<=13	Pass

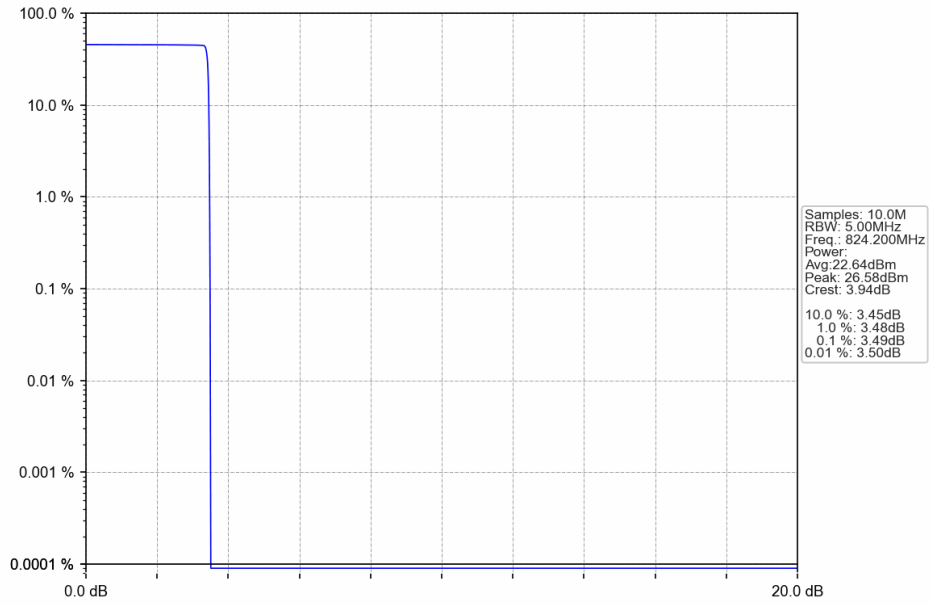
### 5.1.2 Test Graph



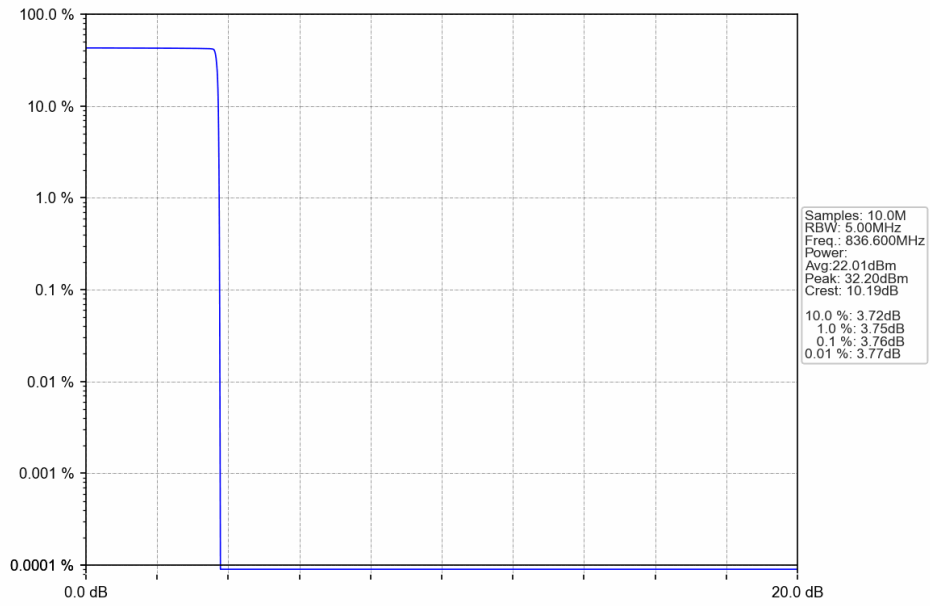
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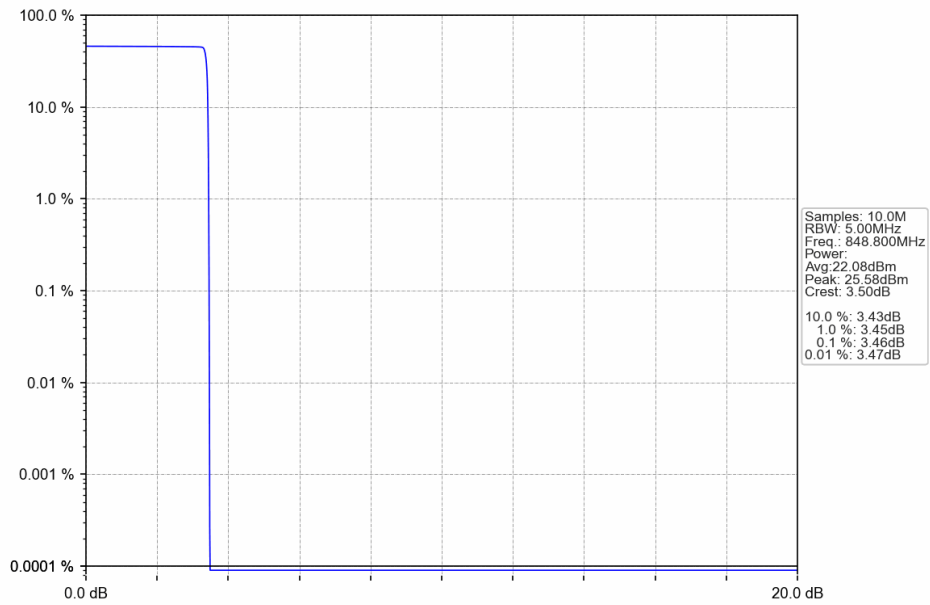
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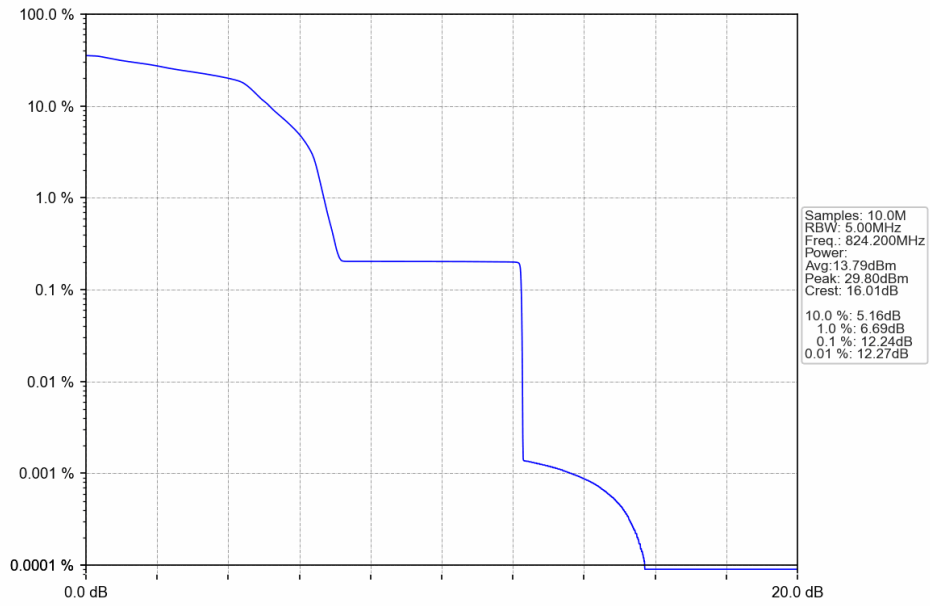
GSM850\_GPRS\_MCH\_836.6MHz\_4 TX Slots\_NTNV



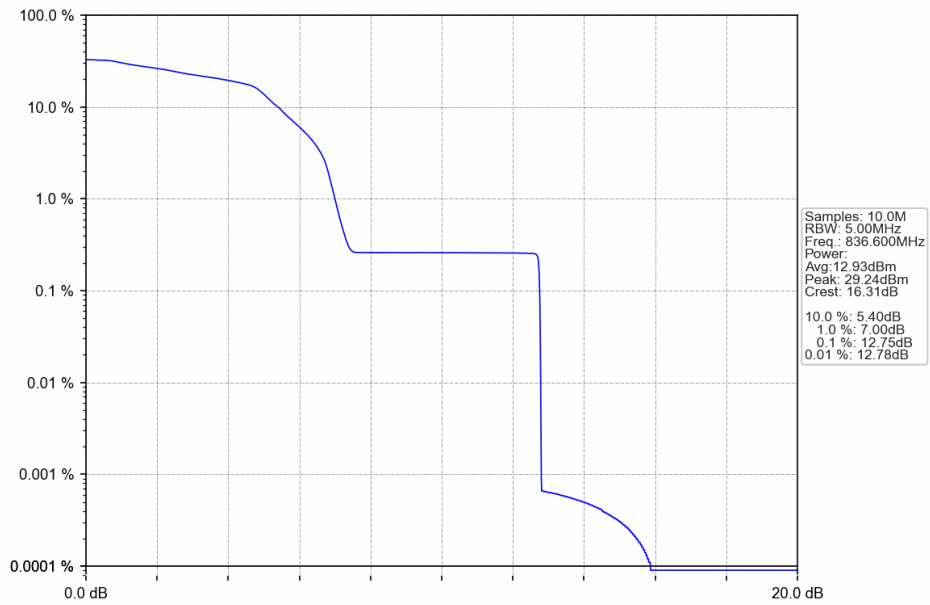
GSM850\_GPRS\_HCH\_848.8MHz\_4 TX Slots\_NTNV



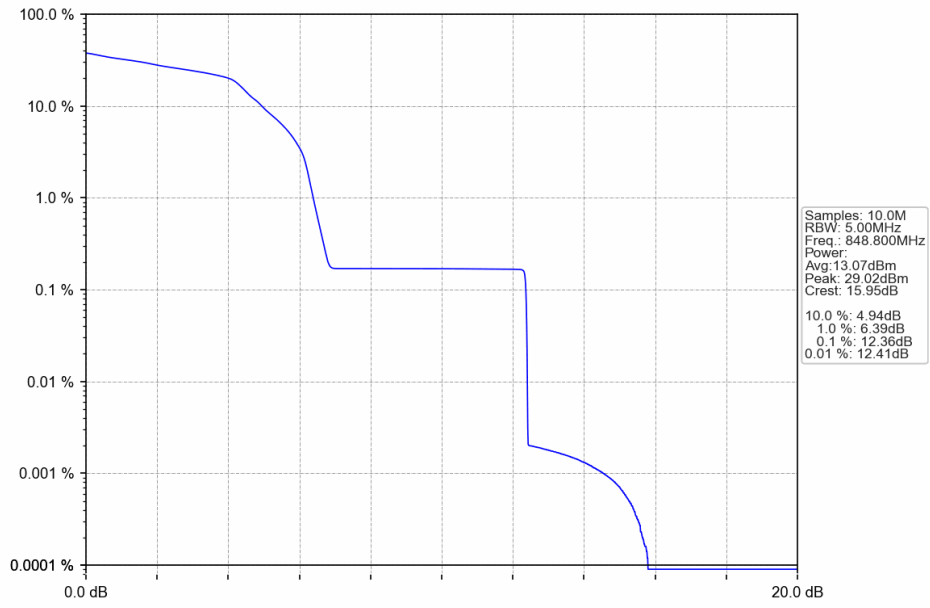
GSM850\_EGPRS\_LCH\_824.2MHz\_4 TX Slots\_NTNV



GSM850\_EGPRS\_MCH\_836.6MHz\_4 TX Slots\_NTNV



GSM850\_EGPRS\_HCH\_848.8MHz\_4 TX Slots\_NTNV



## 6. Spurious Emission

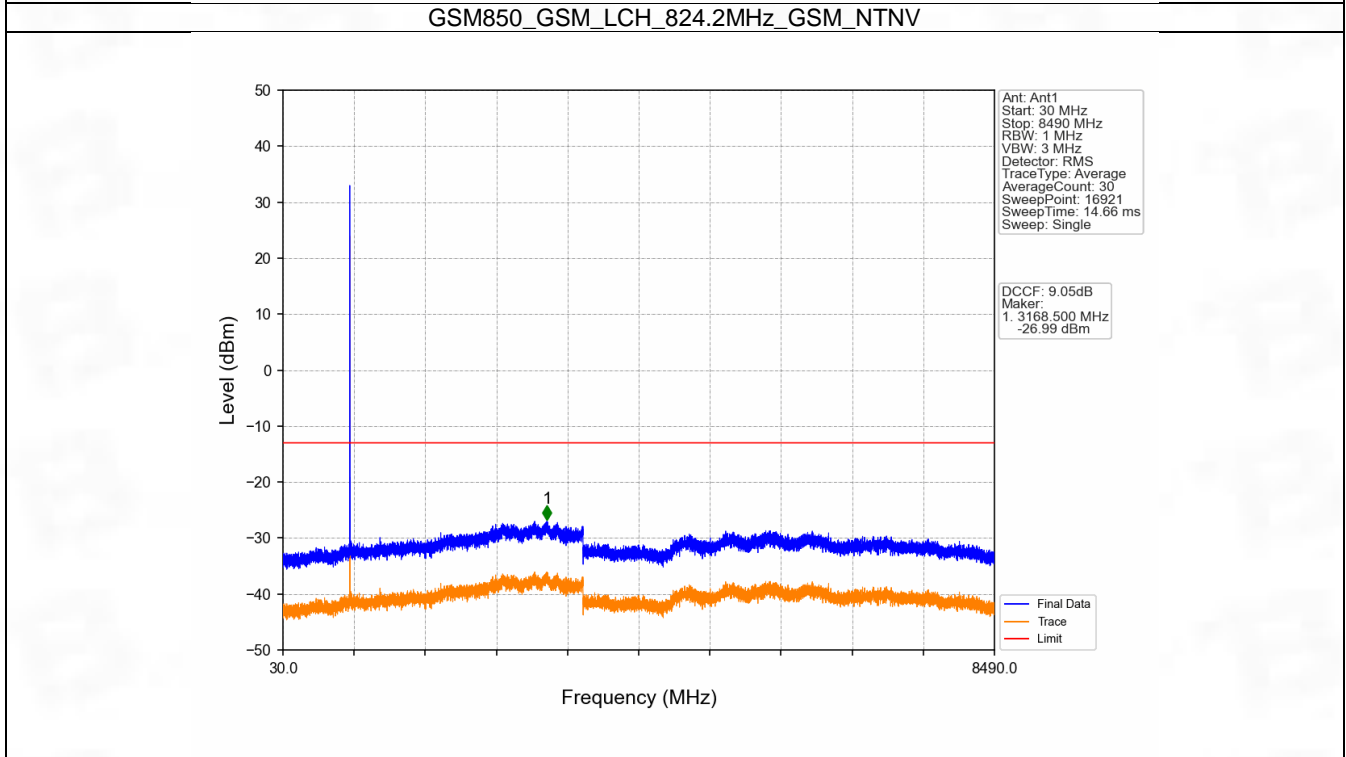
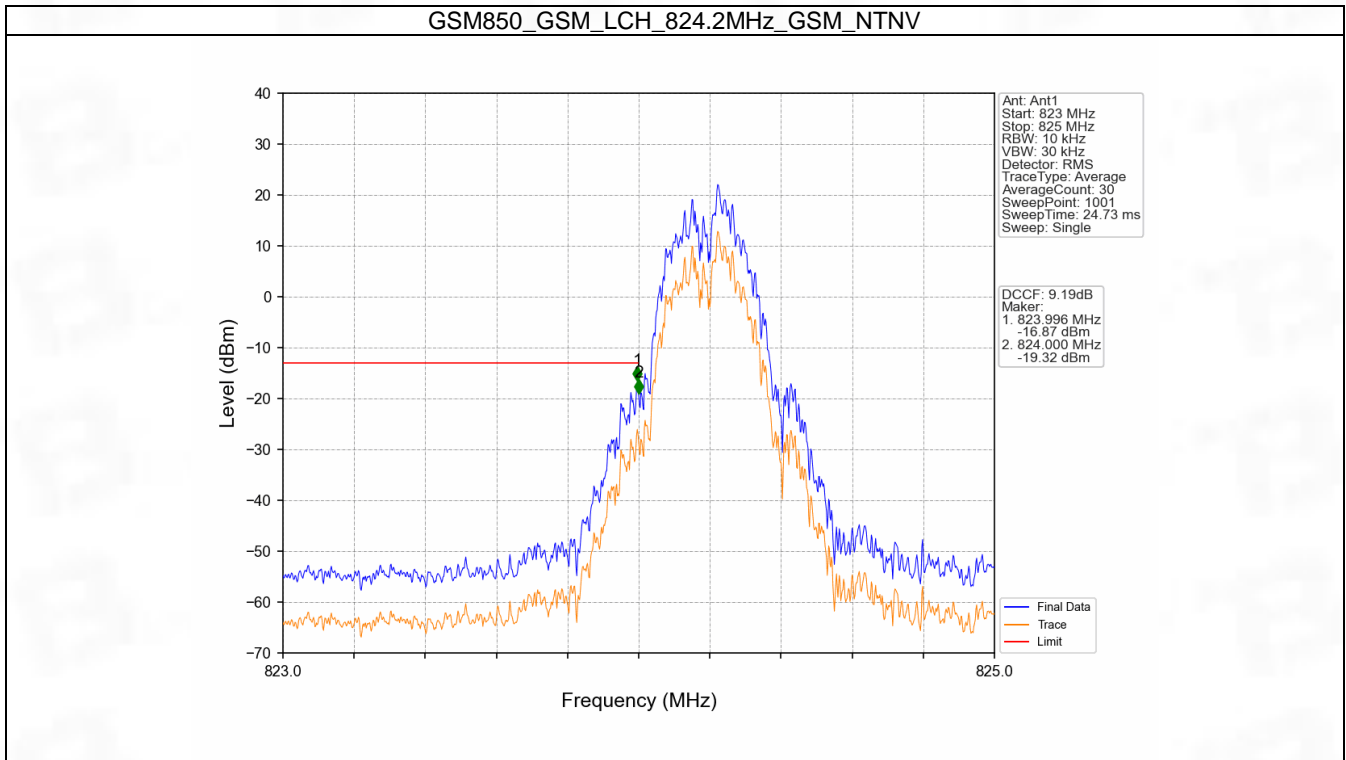
### 6.1 GSM850

#### 6.1.1 Test Result

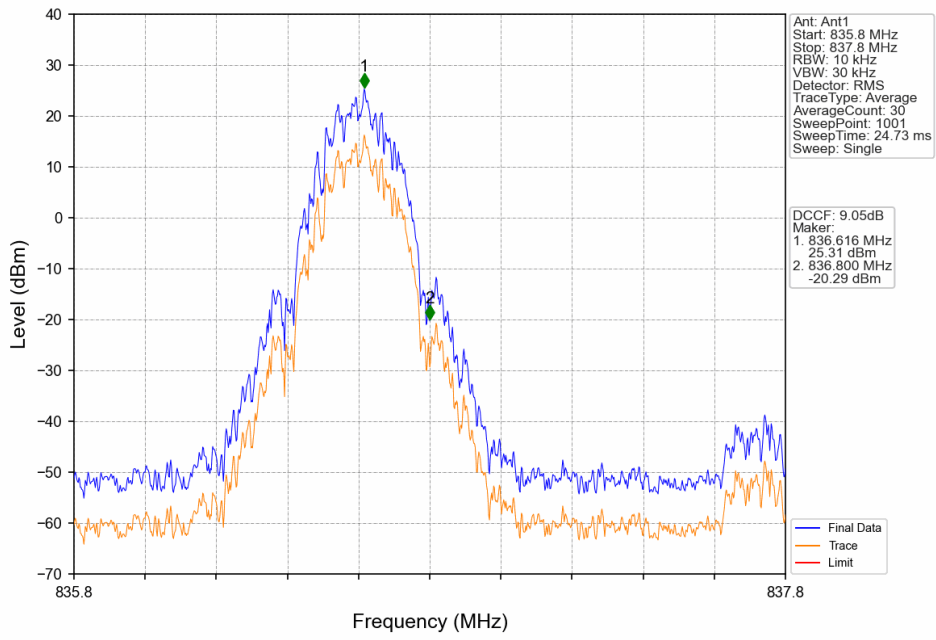
Band: GSM850						
ENV	Mode		Frequency (MHz)	Spurious Emission		Verdict
	Network	Subset		Result	Limit	
NTNV	GSM	GSM	824.2	Refer To Test Graph		Pass
			836.6	Refer To Test Graph		Pass
			848.8	Refer To Test Graph		Pass
	GPRS	1 TX Slot	824.2	Refer To Test Graph		Pass
			836.6	Refer To Test Graph		Pass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



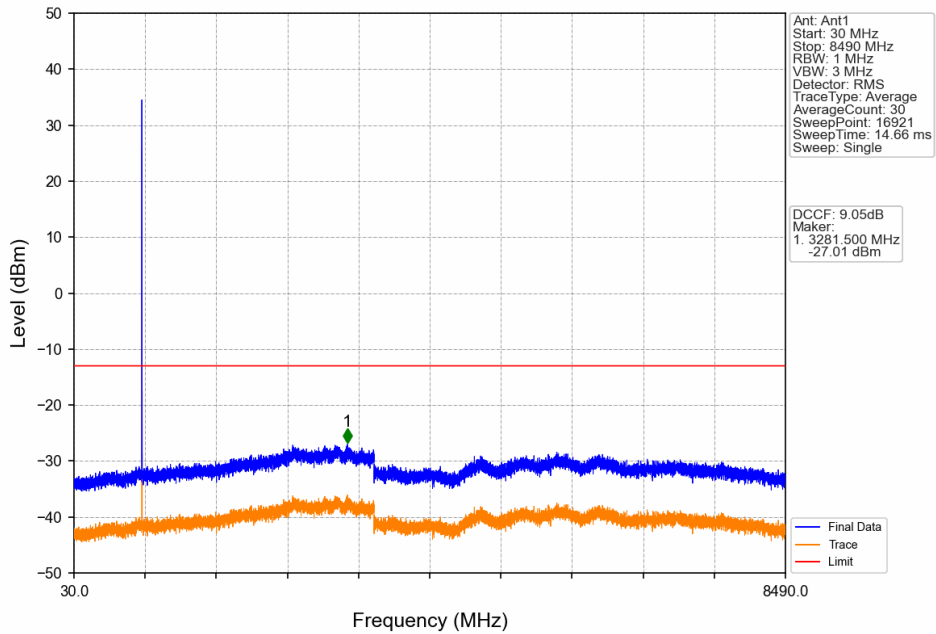
### 6.1.2 Test Graph



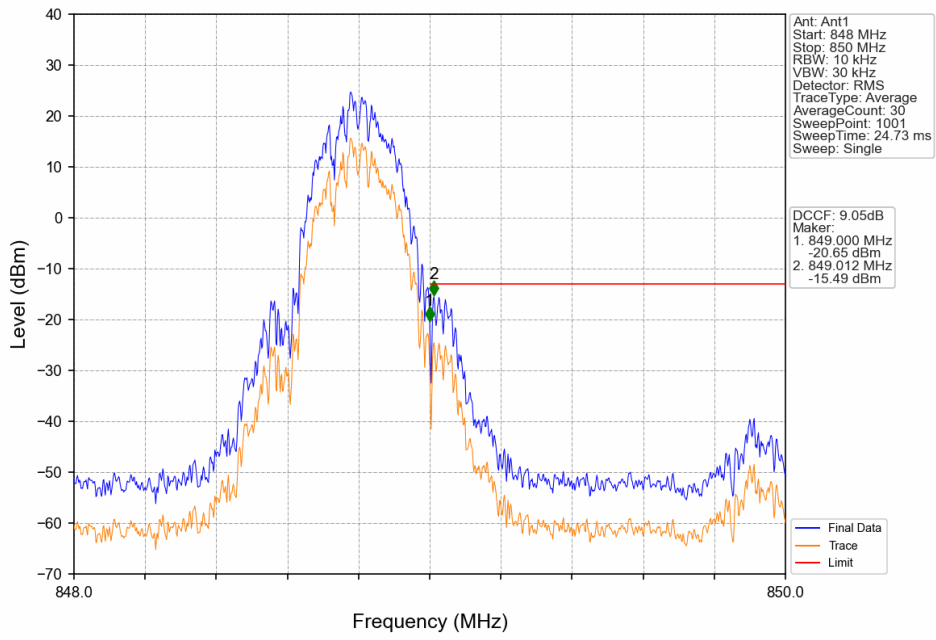
GSM850\_GSM\_MCH\_836.6MHz\_GSM\_NTNV



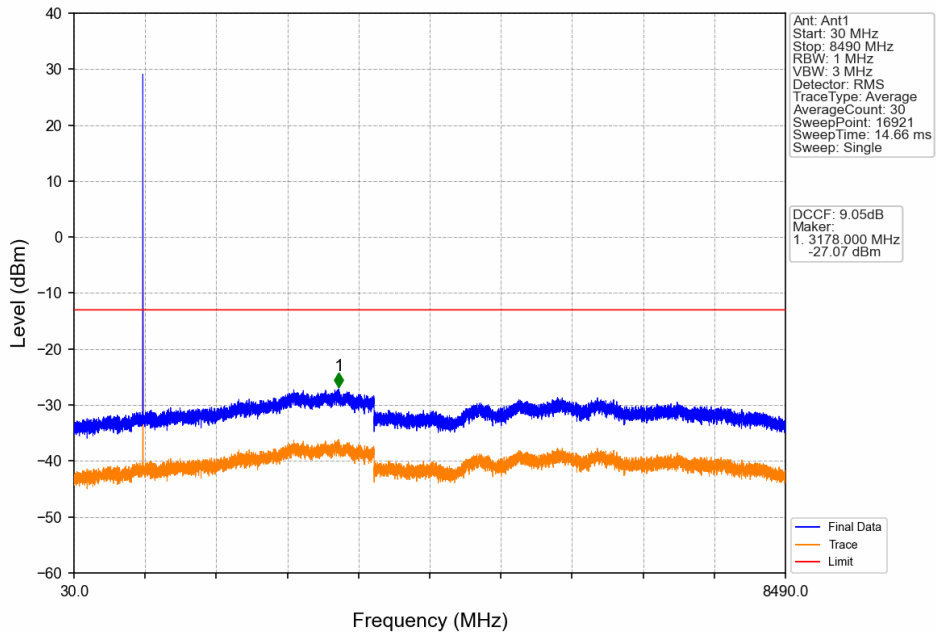
GSM850\_GSM\_MCH\_836.6MHz\_GSM\_NTNV



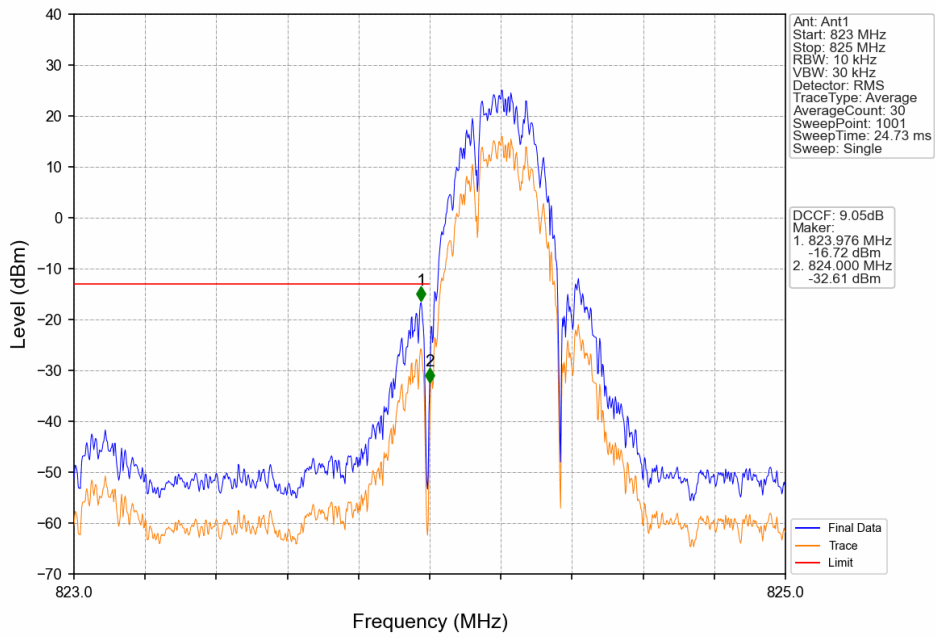
GSM850\_GSM\_HCH\_848.8MHz\_GSM\_NTNV



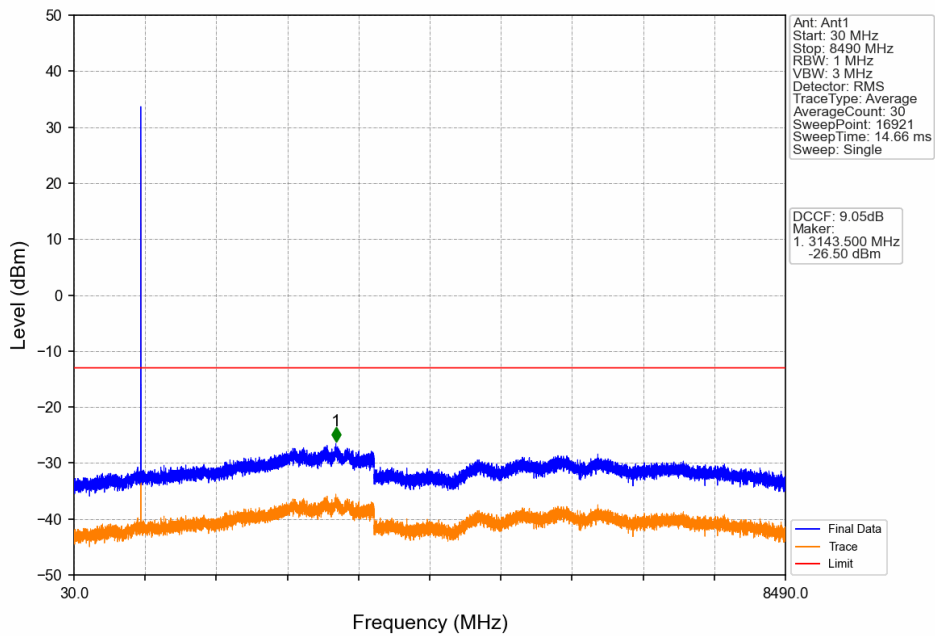
GSM850\_GSM\_HCH\_848.8MHz\_GSM\_NTNV



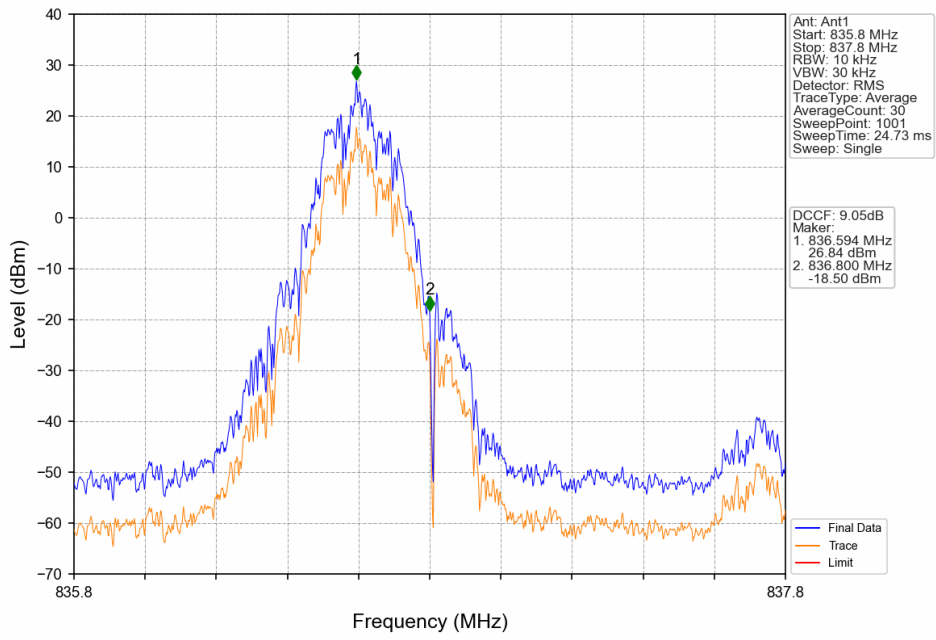
GSM850\_GPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



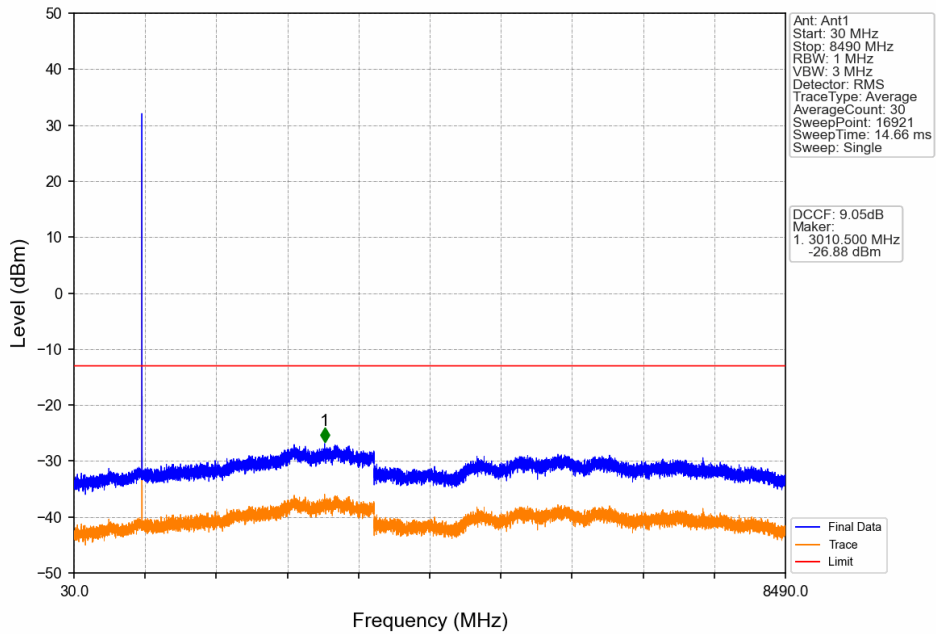
GSM850\_GPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



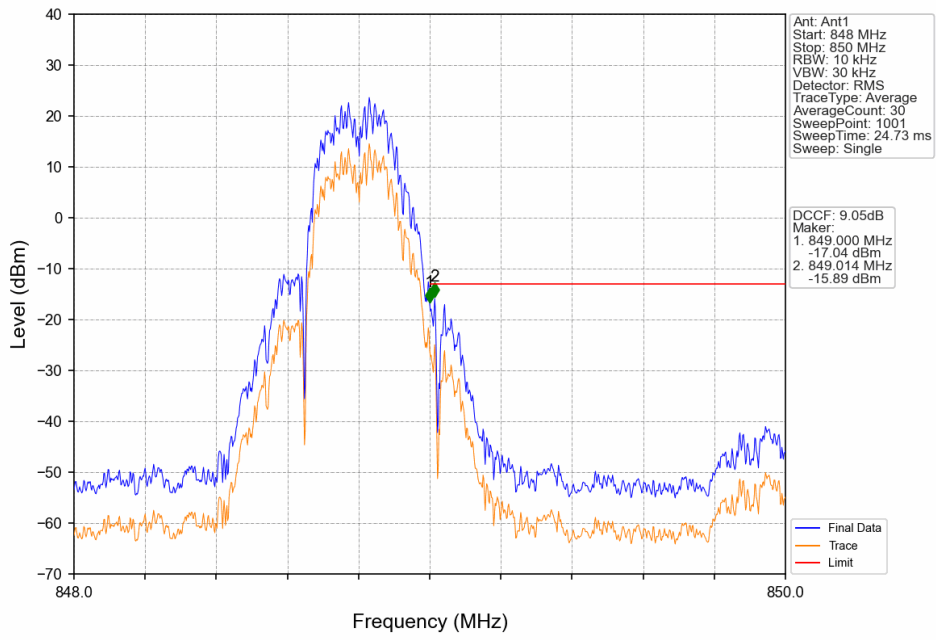
GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



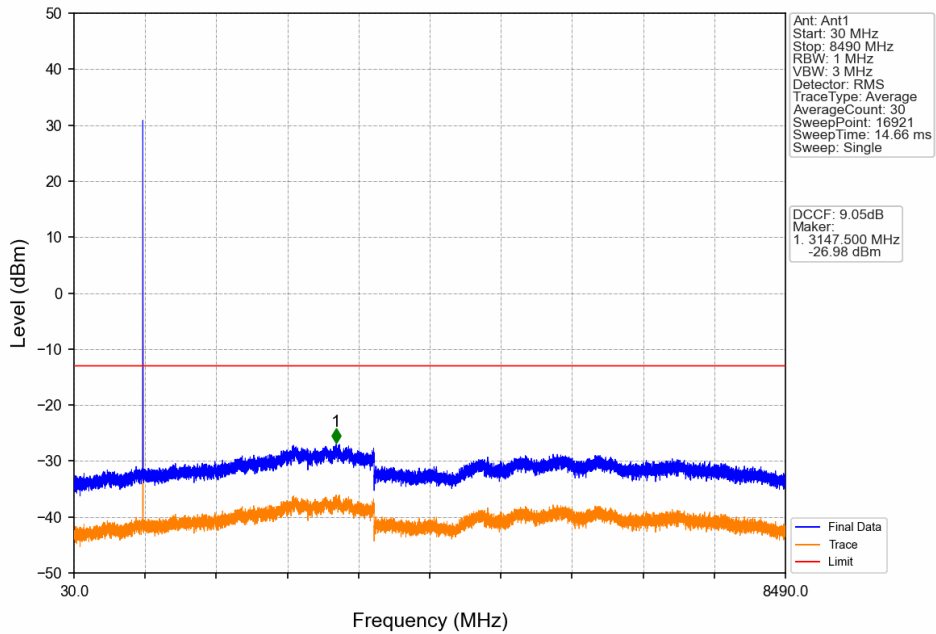
GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



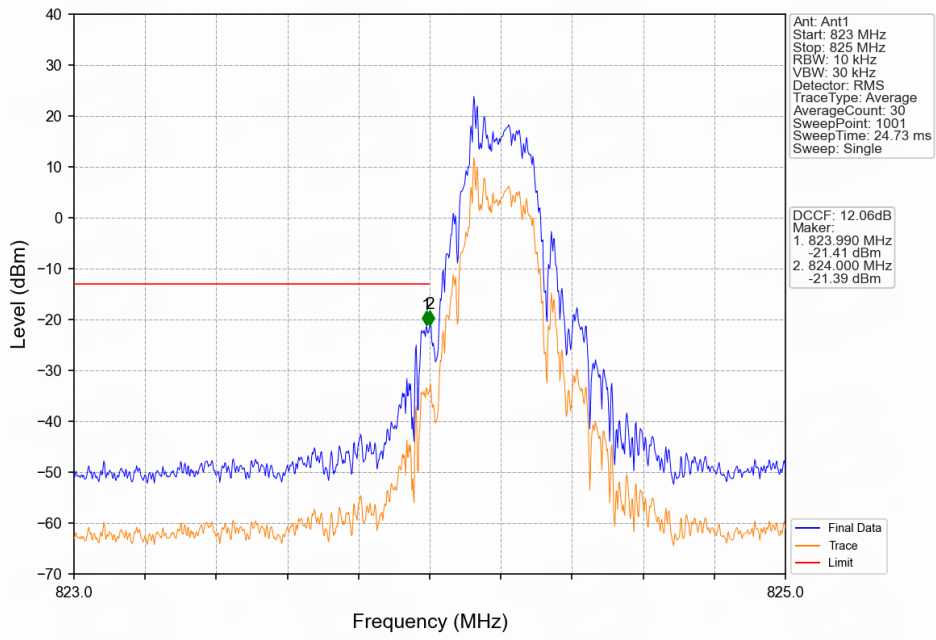
GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



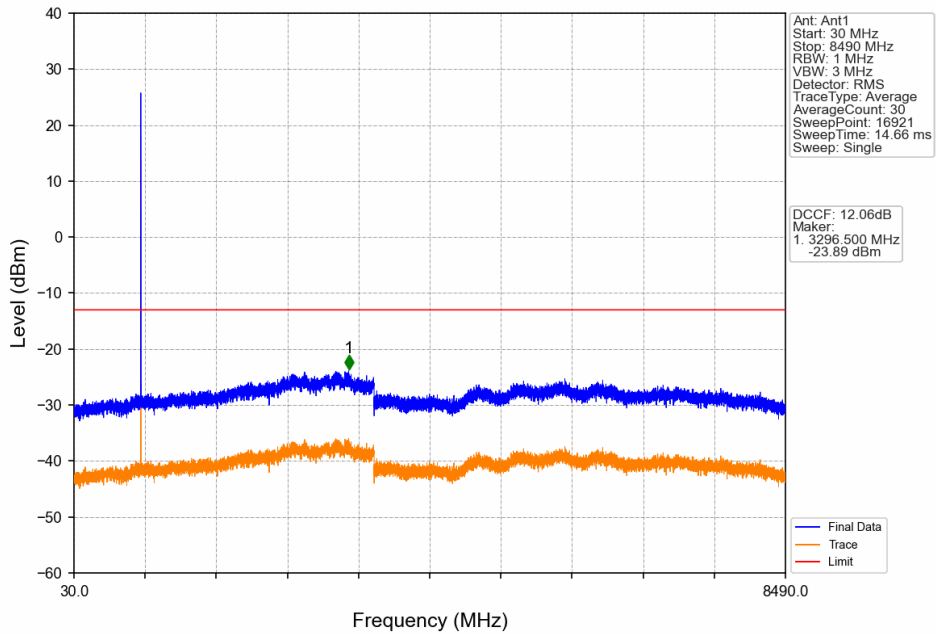
GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



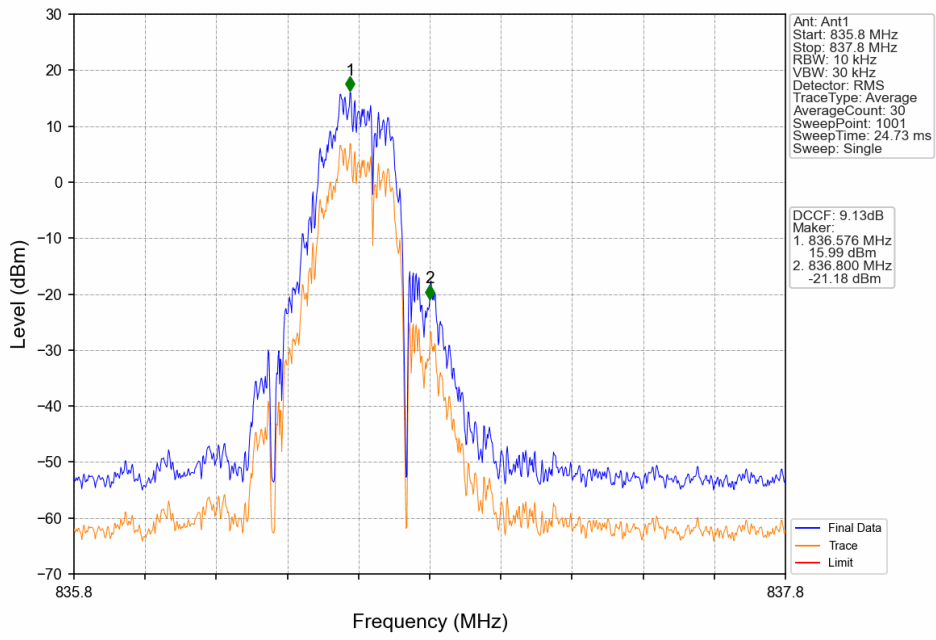
GSM850\_EGPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



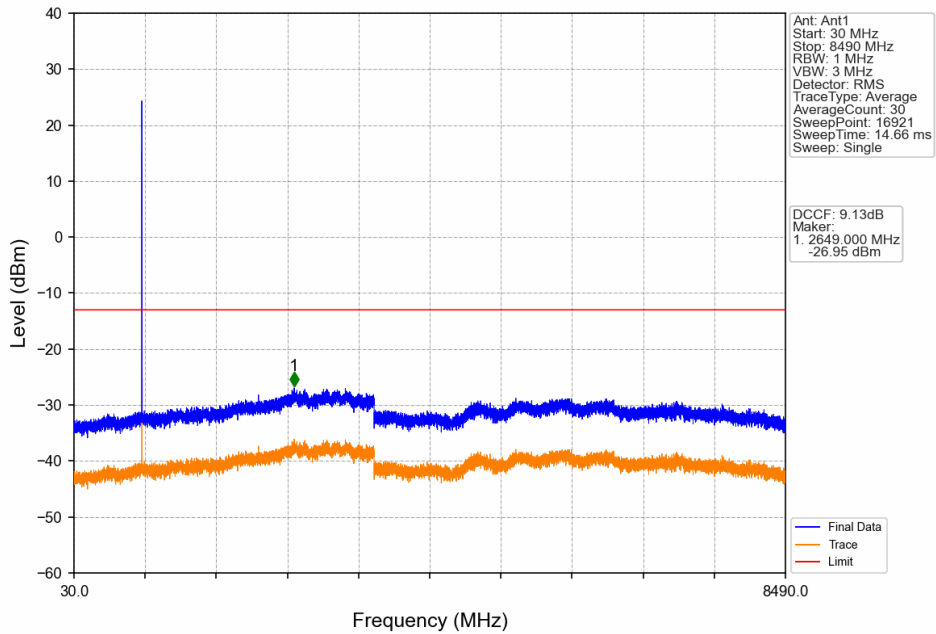
GSM850\_EGPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



GSM850\_EGPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV

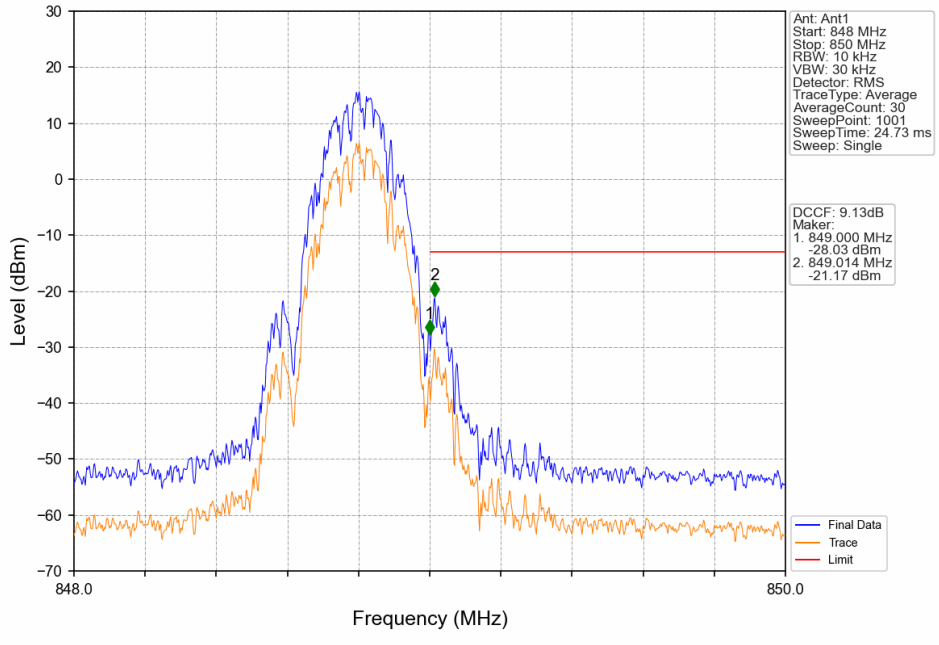


GSM850\_EGPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV

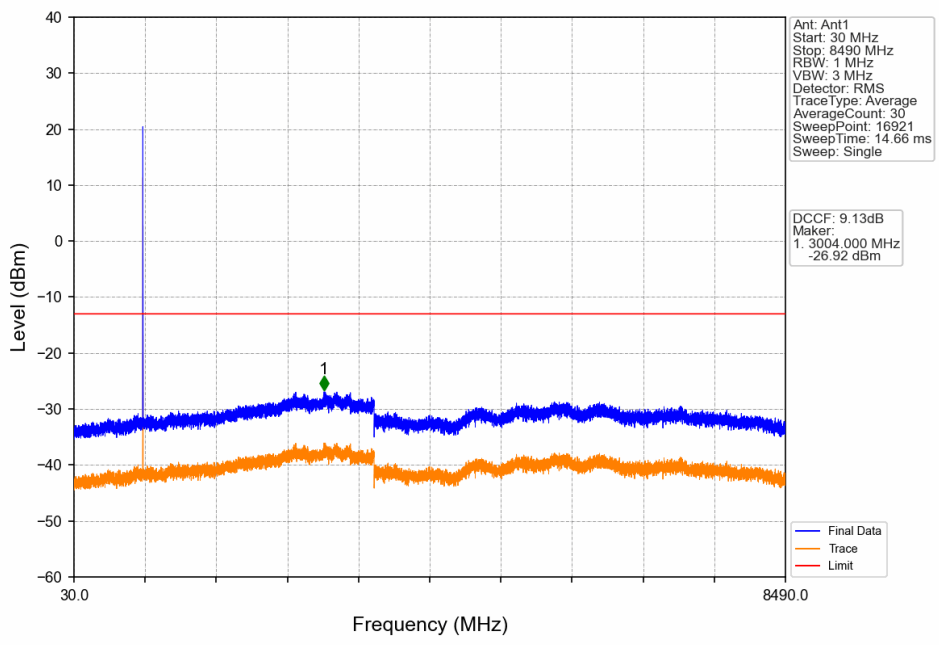




GSM850\_EGPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



GSM850\_EGPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



## 7. Form731

### 7.1 Form731\_Power

#### 7.1.1 Test Result

Band	BW	Lower Freq	High Freq	MAX Power (W)	Value	Hz/ppm	Emission Designator	Rule Parts	MAX Power (dBm)
GSM850	0.2	824.2	848.8	1.2531	0.0201	ppm	247KGXW	22H	30.98
GSM850	0.2	824.2	848.8	1.1830	0.0134	ppm	251KG7W	22H	30.73

### 7.2 Form731\_ERP

#### 7.2.1 Test Result

Band	BW	Lower Freq	High Freq	MAX Power (W)	Value	Hz/ppm	Emission Designator	Rule Parts	MAX Power (dBm)
GSM850	0.2	824.2	848.8	0.8414	0.0201	ppm	247KGXW	22H	29.25
GSM850	0.2	824.2	848.8	0.7943	0.0134	ppm	251KG7W	22H	29.00