# 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 | 33.84 | 2.35 | 34.04 | <=38.45 | Pass |
| | | | 836.6 | 33.96 | 2.35 | 34.16 | <=38.45 | Pass |
| | | | 848.8 | 34.03 | 2.35 | 34.23 | <=38.45 | Pass |
| | GPRS | 1 TX Slot | 824.2 | 33.83 | 2.35 | 34.03 | <=38.45 | Pass |
| | | 2 TX Slots | 824.2 | 33.14 | 2.35 | 33.34 | <=38.45 | Pass |
| | | 3 TX Slots | 824.2 | 31.94 | 2.35 | 32.14 | <=38.45 | Pass |
| | | 4 TX Slots | 824.2 | 31.37 | 2.35 | 31.57 | <=38.45 | Pass |
| | | 1 TX Slot | 836.6 | 33.89 | 2.35 | 34.09 | <=38.45 | Pass |
| | | 2 TX Slots | 836.6 | 33.22 | 2.35 | 33.42 | <=38.45 | Pass |
| | | 3 TX Slots | 836.6 | 32.02 | 2.35 | 32.22 | <=38.45 | Pass |
| | | 4 TX Slots | 836.6 | 31.43 | 2.35 | 31.63 | <=38.45 | Pass |
| | | 1 TX Slot | 848.8 | 33.92 | 2.35 | 34.12 | <=38.45 | Pass |
| | | 2 TX Slots | 848.8 | 33.25 | 2.35 | 33.45 | <=38.45 | Pass |
| | | 3 TX Slots | 848.8 | 32.03 | 2.35 | 32.23 | <=38.45 | Pass |
| | | 4 TX Slots | 848.8 | 31.43 | 2.35 | 31.63 | <=38.45 | Pass |
| | EGPRS | 1 TX Slot | 824.2 | 30.10 | 2.35 | 30.30 | <=38.45 | Pass |
| | | 2 TX Slots | 824.2 | 29.10 | 2.35 | 29.30 | <=38.45 | Pass |
| | | 3 TX Slots | 824.2 | 27.17 | 2.35 | 27.37 | <=38.45 | Pass |
| | | 4 TX Slots | 824.2 | 25.79 | 2.35 | 25.99 | <=38.45 | Pass |
| | | 1 TX Slot | 836.6 | 30.28 | 2.35 | 30.48 | <=38.45 | Pass |
| | | 2 TX Slots | 836.6 | 29.32 | 2.35 | 29.52 | <=38.45 | Pass |
| | | 3 TX Slots | 836.6 | 27.34 | 2.35 | 27.54 | <=38.45 | Pass |
| | | 4 TX Slots | 836.6 | 26.17 | 2.35 | 26.37 | <=38.45 | Pass |
| | | 1 TX Slot | 848.8 | 30.36 | 2.35 | 30.56 | <=38.45 | Pass |
| | | 2 TX Slots | 848.8 | 29.44 | 2.35 | 29.64 | <=38.45 | Pass |
| | | 3 TX Slots | 848.8 | 27.53 | 2.35 | 27.73 | <=38.45 | Pass |
| | | 4 TX Slots | 848.8 | 26.25 | 2.35 | 26.45 | <=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 | -4.681 | -0.0057 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -6.812 | -0.0083 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -1.324 | -0.0016 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -3.648 | -0.0044 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -4.746 | -0.0058 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -2.615 | -0.0032 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -3.939 | -0.0048 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -0.969 | -0.0012 | -2.5 to 2.5 | Pass |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 30 | 3.85 | -3.067 | -0.0037 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -10.235 | -0.0124 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -8.975 | -0.0109 | -2.5 to 2.5 | Pass |
| | 836.6 | 20 | 3.27 | -2.938 | -0.0035 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -1.614 | -0.0019 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -2.292 | -0.0027 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -1.227 | -0.0015 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | 0.517 | 0.0006 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -2.163 | -0.0026 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -2.163 | -0.0026 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -3.971 | -0.0047 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -0.517 | -0.0006 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -4.843 | -0.0058 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -7.716 | -0.0092 | -2.5 to 2.5 | Pass |
| | 848.8 | 20 | 3.27 | -3.713 | -0.0044 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -1.937 | -0.0023 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -2.389 | -0.0028 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -0.129 | -0.0002 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -3.551 | -0.0042 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -2.292 | -0.0027 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -2.777 | -0.0033 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | 0.420 | 0.0005 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -2.228 | -0.0026 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -4.746 | -0.0056 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -5.101 | -0.0060 | -2.5 to 2.5 | Pass |
| GPRS | 824.2 | 20 | 3.27 | -2.938 | -0.0036 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -4.326 | -0.0052 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -3.390 | -0.0041 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -2.712 | -0.0033 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -6.586 | -0.0080 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -3.455 | -0.0042 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -1.356 | -0.0016 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -1.840 | -0.0022 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -3.229 | -0.0039 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -3.164 | -0.0038 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -1.808 | -0.0022 | -2.5 to 2.5 | Pass |
| | 836.6 | 20 | 3.27 | -1.614 | -0.0019 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -1.421 | -0.0017 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -3.455 | -0.0041 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -3.164 | -0.0038 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -1.840 | -0.0022 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -4.391 | -0.0052 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -1.421 | -0.0017 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | 0.420 | 0.0005 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -2.389 | -0.0029 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -4.326 | -0.0052 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -5.166 | -0.0062 | -2.5 to 2.5 | Pass |
| | 848.8 | 20 | 3.27 | -2.486 | -0.0029 | -2.5 to 2.5 | Pass |
| | | | 3.85 | 0.258 | 0.0003 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -6.005 | -0.0071 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -3.584 | -0.0042 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -4.391 | -0.0052 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -4.262 | -0.0050 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -2.906 | -0.0034 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -1.679 | -0.0020 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -4.133 | -0.0049 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -6.005 | -0.0071 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -5.747 | -0.0068 | -2.5 to 2.5 | Pass |
| EGPRS | 824.2 | 20 | 3.27 | -12.462 | -0.0151 | -2.5 to 2.5 | Pass |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | 3.85 | -12.591 | -0.0153 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -15.917 | -0.0193 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -11.752 | -0.0143 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -16.240 | -0.0197 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -13.980 | -0.0170 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -12.107 | -0.0147 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -15.239 | -0.0185 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -13.689 | -0.0166 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -13.528 | -0.0164 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -15.433 | -0.0187 | -2.5 to 2.5 | Pass |
| | 836.6 | 20 | 3.27 | -14.851 | -0.0178 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -16.563 | -0.0198 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -13.915 | -0.0166 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -16.724 | -0.0200 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -12.753 | -0.0152 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -12.204 | -0.0146 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -14.335 | -0.0171 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -15.982 | -0.0191 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -12.333 | -0.0147 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -15.174 | -0.0181 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -20.243 | -0.0242 | -2.5 to 2.5 | Pass |
| | 848.8 | 20 | 3.27 | -13.463 | -0.0159 | -2.5 to 2.5 | Pass |
| | | | 3.85 | -15.626 | -0.0184 | -2.5 to 2.5 | Pass |
| | | | 4.43 | -12.882 | -0.0152 | -2.5 to 2.5 | Pass |
| | | -30 | 3.85 | -16.982 | -0.0200 | -2.5 to 2.5 | Pass |
| | | -20 | 3.85 | -11.009 | -0.0130 | -2.5 to 2.5 | Pass |
| | | -10 | 3.85 | -17.176 | -0.0202 | -2.5 to 2.5 | Pass |
| | | 0 | 3.85 | -17.951 | -0.0211 | -2.5 to 2.5 | Pass |
| | | 10 | 3.85 | -13.205 | -0.0156 | -2.5 to 2.5 | Pass |
| | | 30 | 3.85 | -13.043 | -0.0154 | -2.5 to 2.5 | Pass |
| | | 40 | 3.85 | -19.694 | -0.0232 | -2.5 to 2.5 | Pass |
| | | 50 | 3.85 | -21.470 | -0.0253 | -2.5 to 2.5 | Pass |

# 3. Modulation Characteristics

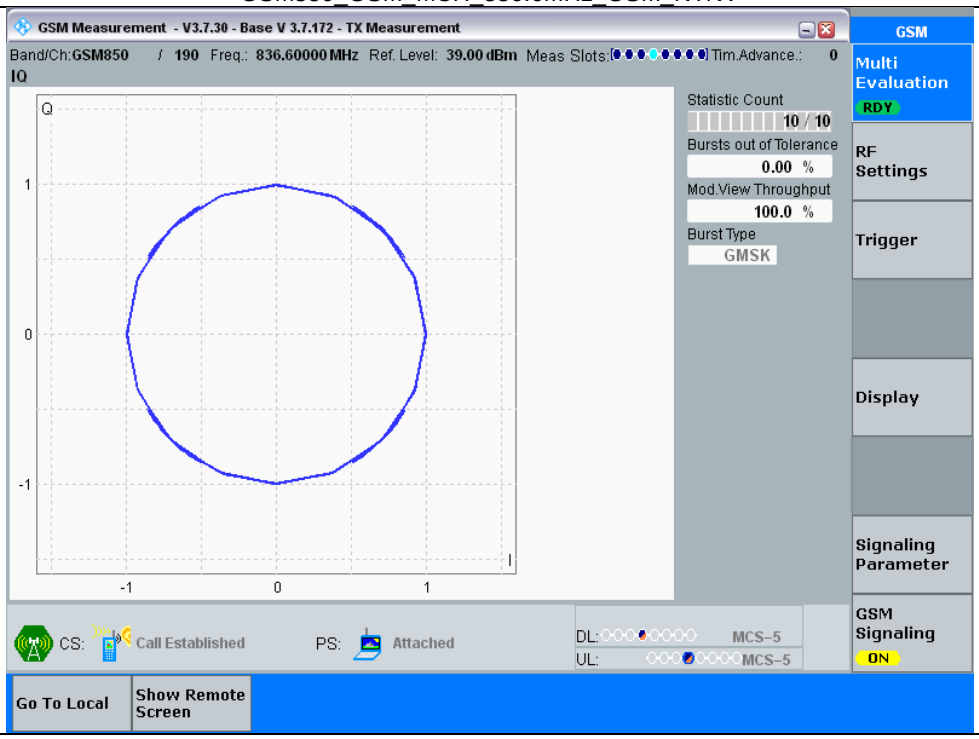
## 3.1 GSM850

### 3.1.1 Test Result

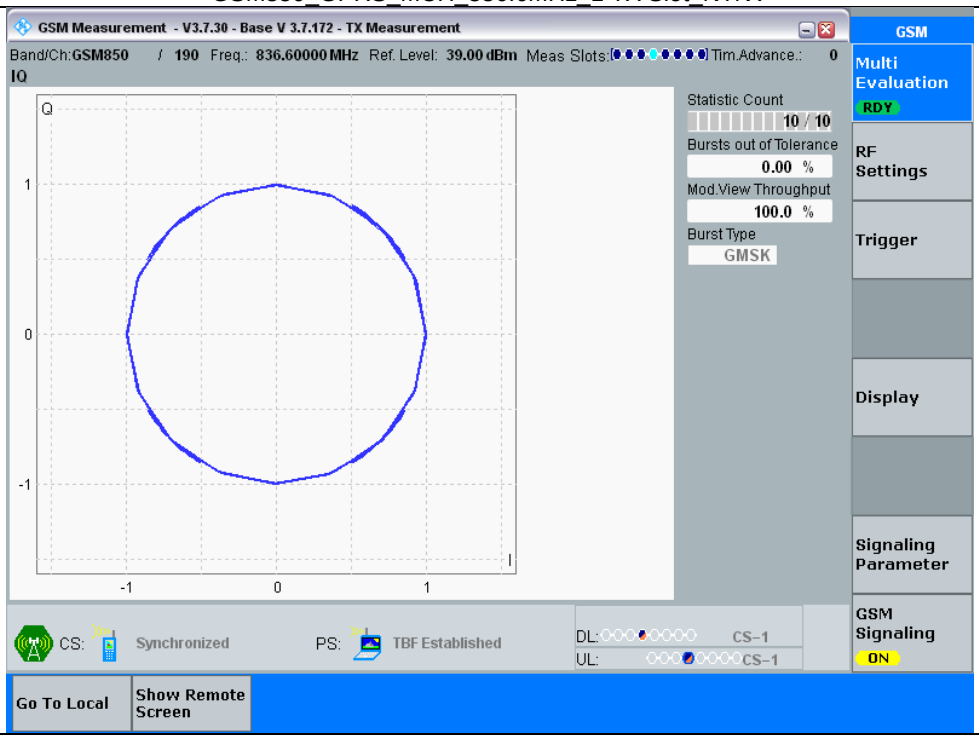
| Band: GSM850 | | | | | | |
|---|---|---|---|---|---|---|
| ENV | Mode | | Frequency (MHz) | Modulation Characteristics | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 836.6 | Refer To Test Graph | | Pass |
| | GPRS | 1 TX Slot | 836.6 | Refer To Test Graph | | Pass |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

## 3.1.2 Test Graph

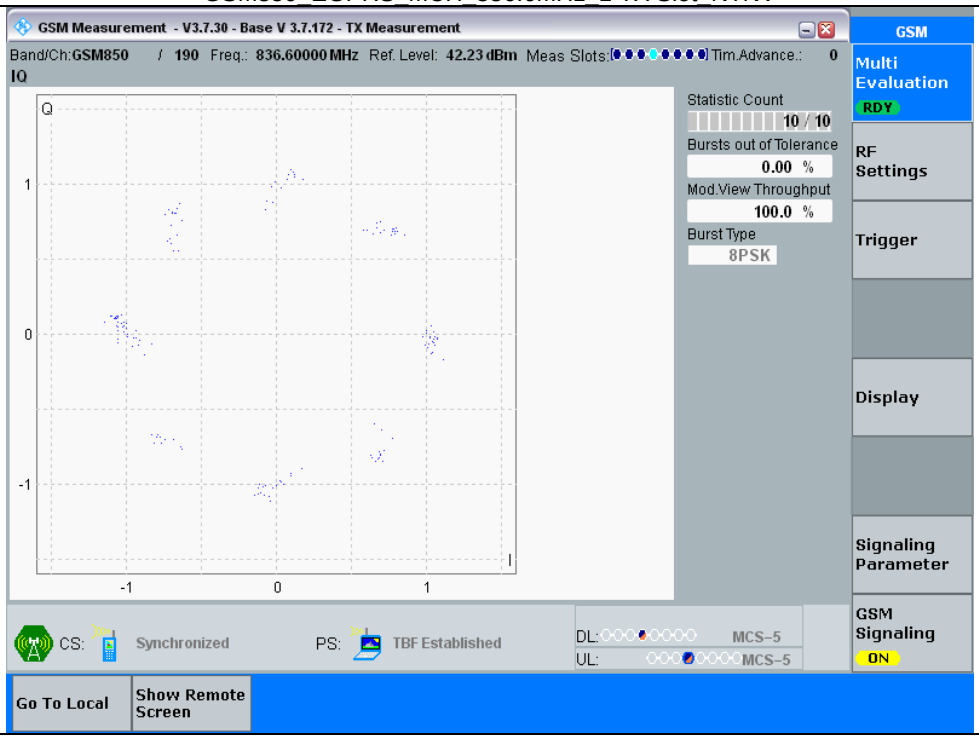
GSM850_GSM_MCH_836.6MHz_GSM_NTNV




GSM850_GPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



# 4. 99% & 26dB Bandwidth

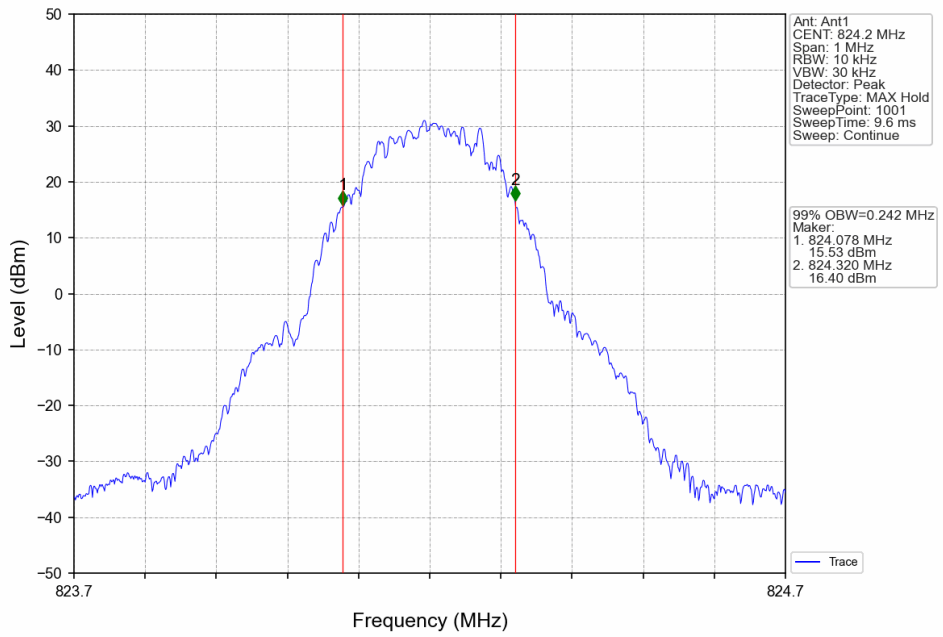
## 4.1 GSM850_OBW

### 4.1.1 Test Result

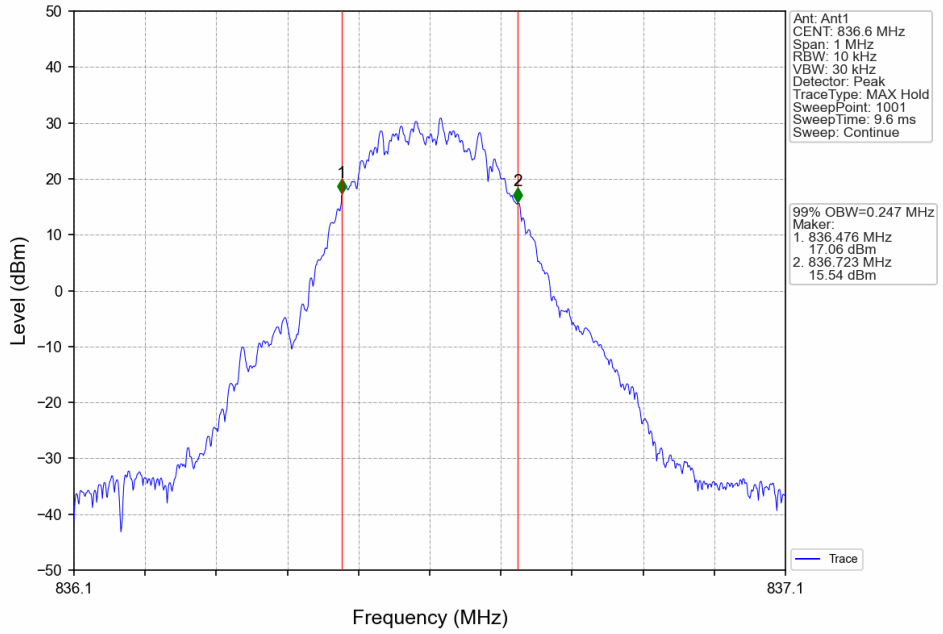
| Band: GSM850 | | | | | | |
|---|---|---|---|---|---|---|
| ENV | Mode | | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 824.2 | 0.242 | / | Pass |
| | | | 836.6 | 0.247 | / | Pass |
| | | | 848.8 | 0.247 | / | Pass |
| | GPRS | 1 TX Slot | 824.2 | 0.247 | / | Pass |
| | | | 836.6 | 0.244 | / | Pass |
| | | | 848.8 | 0.242 | / | Pass |
| | EGPRS | 1 TX Slot | 824.2 | 0.258 | / | Pass |
| | | | 836.6 | 0.252 | / | Pass |
| | | | 848.8 | 0.255 | / | Pass |

## 4.1.2 Test Graph

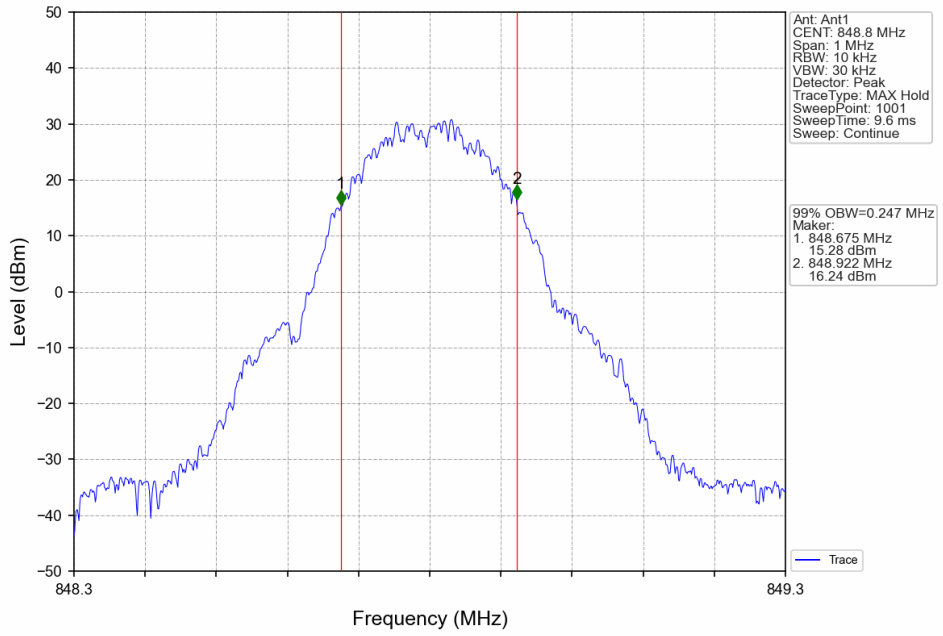
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



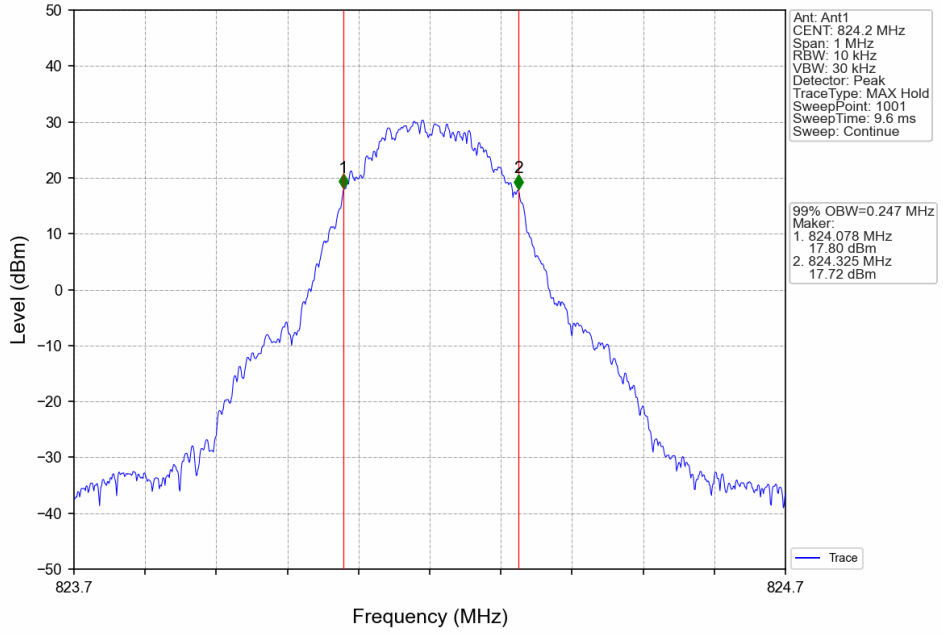

GSM850_GSM_MCH_836.6MHz_GSM_NTNV



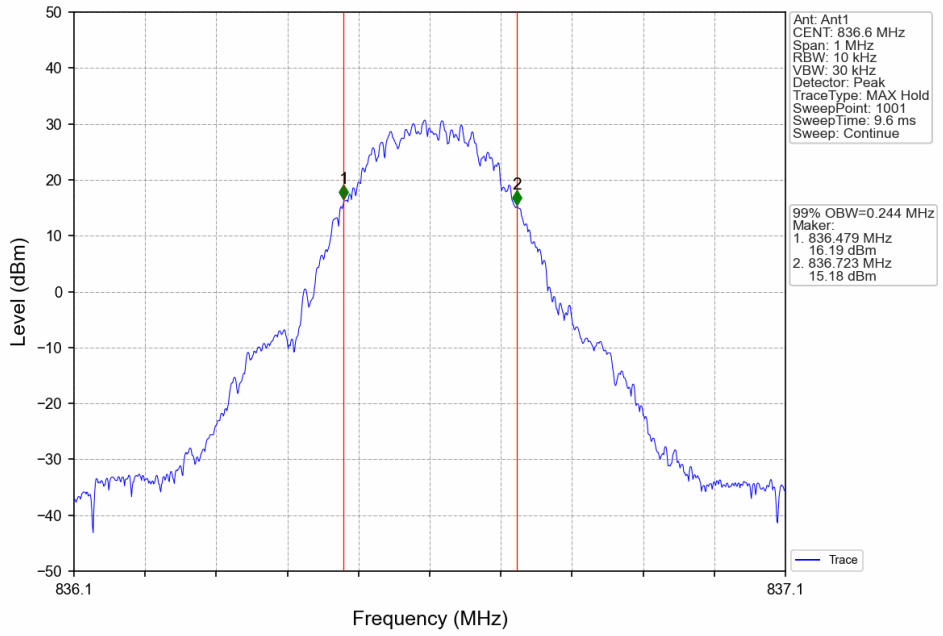
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



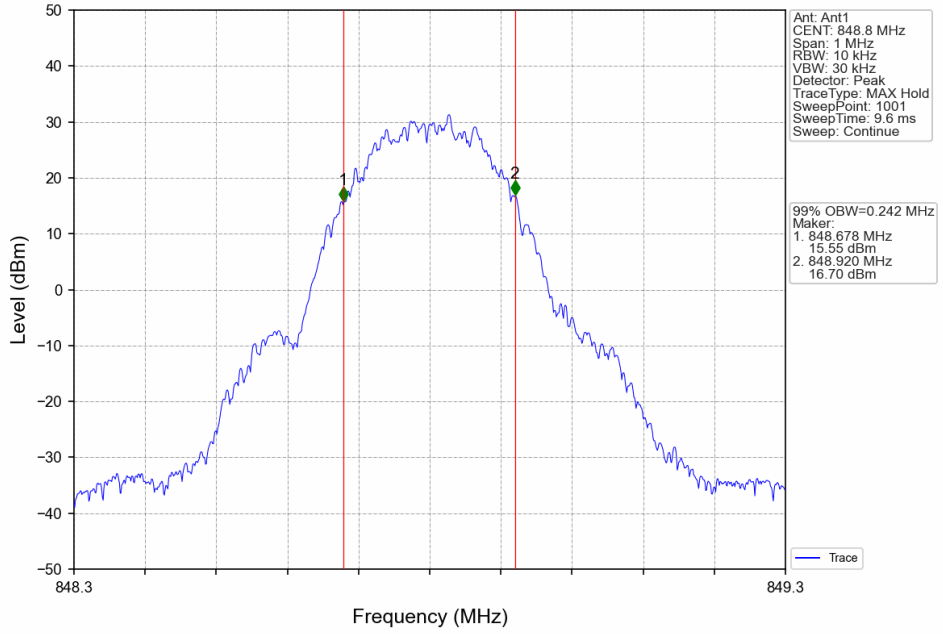

GSM850_GPRS_LCH_824.2MHz_1 TX Slot_NTNV



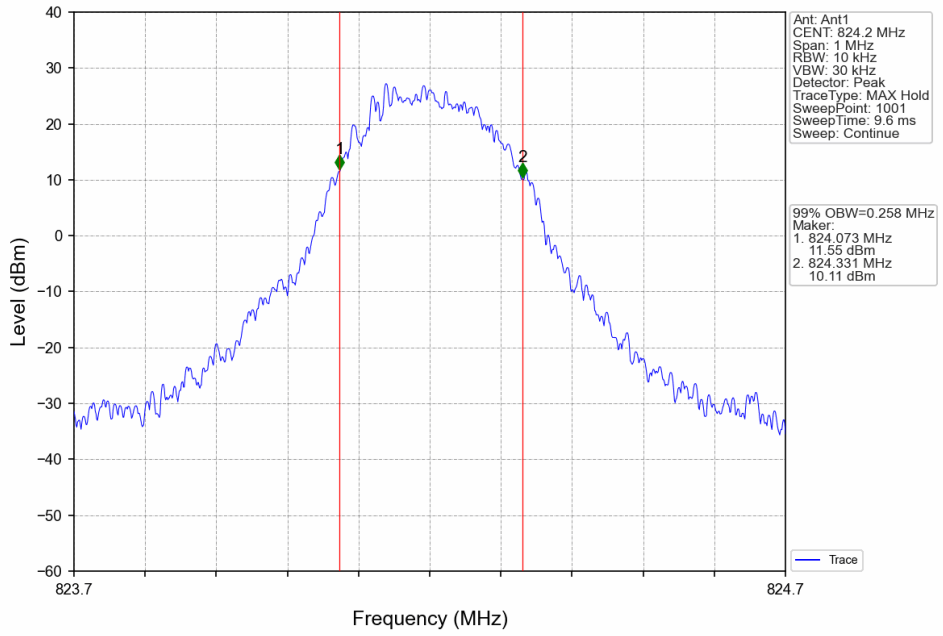
GSM850_GPRS_MCH_836.6MHz_1 TX Slot_NTNV



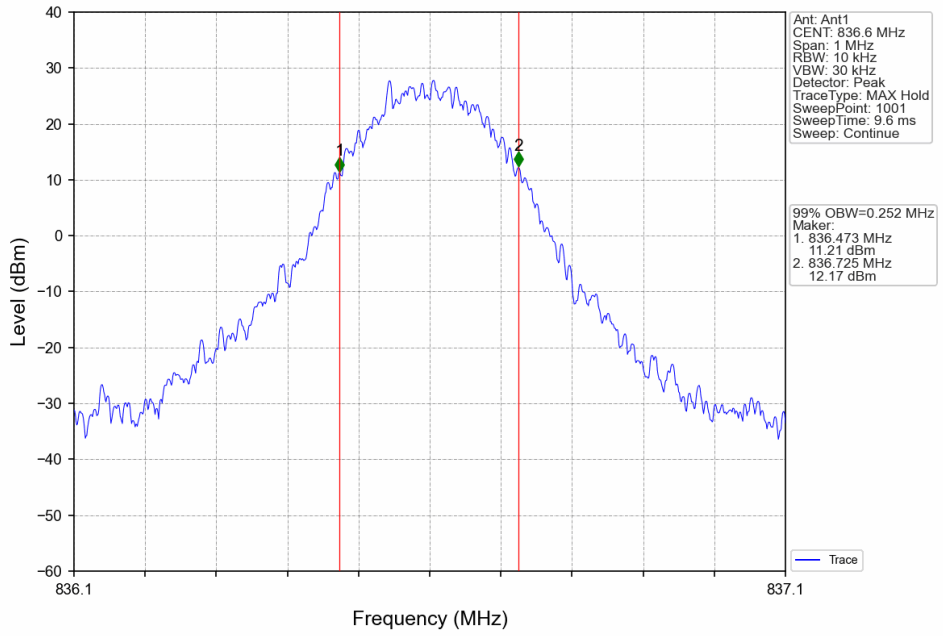

GSM850_GPRS_HCH_848.8MHz_1 TX Slot_NTNV



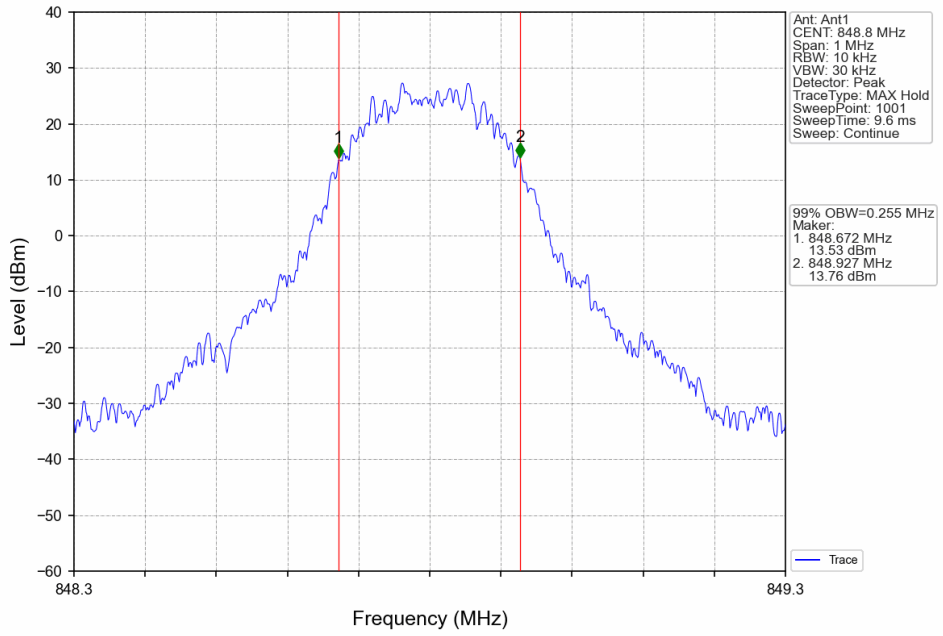
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV




GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV



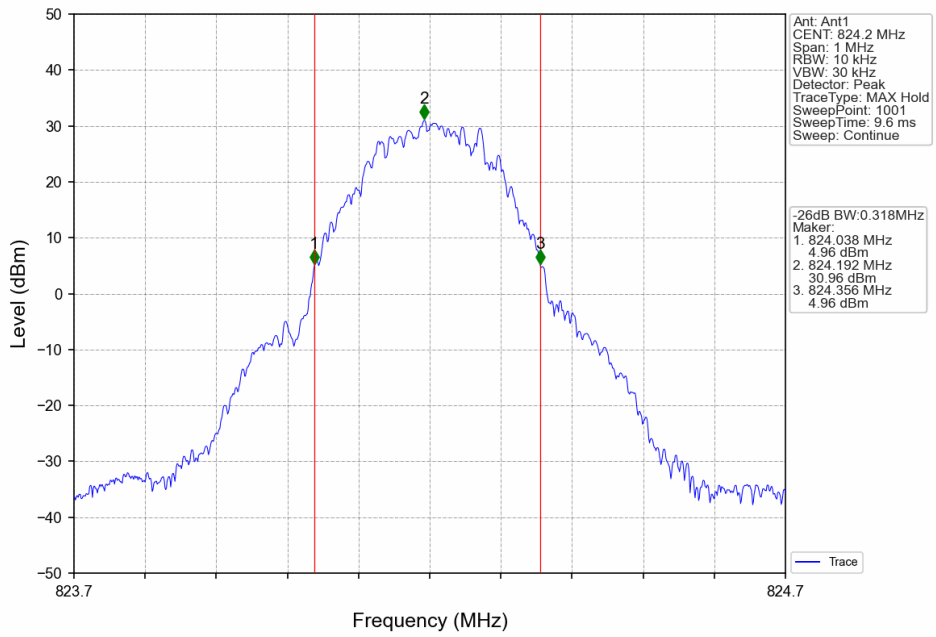
## 4.2 GSM850_XDB

### 4.2.1 Test Result

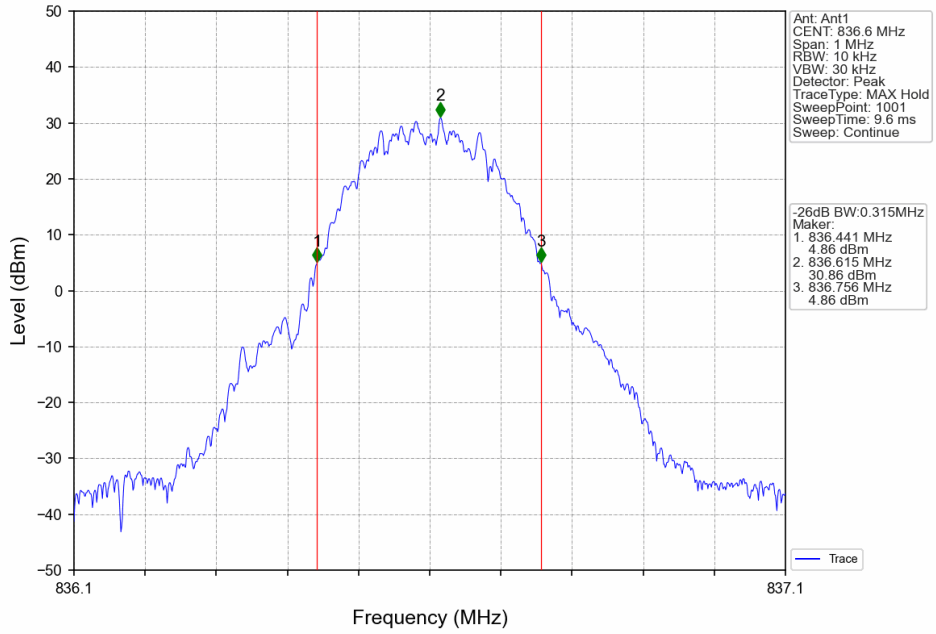
| Band: GSM850 | | | | | | |
|---|---|---|---|---|---|---|
| ENV | Mode | | Frequency (MHz) | 26dB Bandwidth (MHz) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 824.2 | 0.318 | / | Pass |
| | | | 836.6 | 0.315 | / | Pass |
| | | | 848.8 | 0.316 | / | Pass |
| | GPRS | 1 TX Slot | 824.2 | 0.320 | / | Pass |
| | | | 836.6 | 0.318 | / | Pass |
| | | | 848.8 | 0.312 | / | Pass |
| | EGPRS | 1 TX Slot | 824.2 | 0.322 | / | Pass |
| | | | 836.6 | 0.317 | / | Pass |
| | | | 848.8 | 0.327 | / | Pass |

## 4.2.2 Test Graph

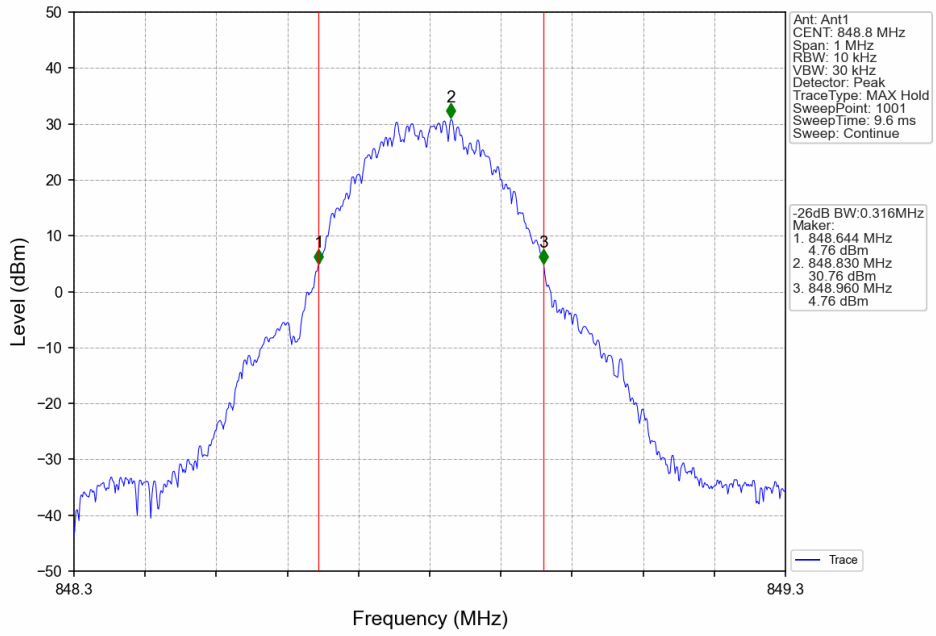
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



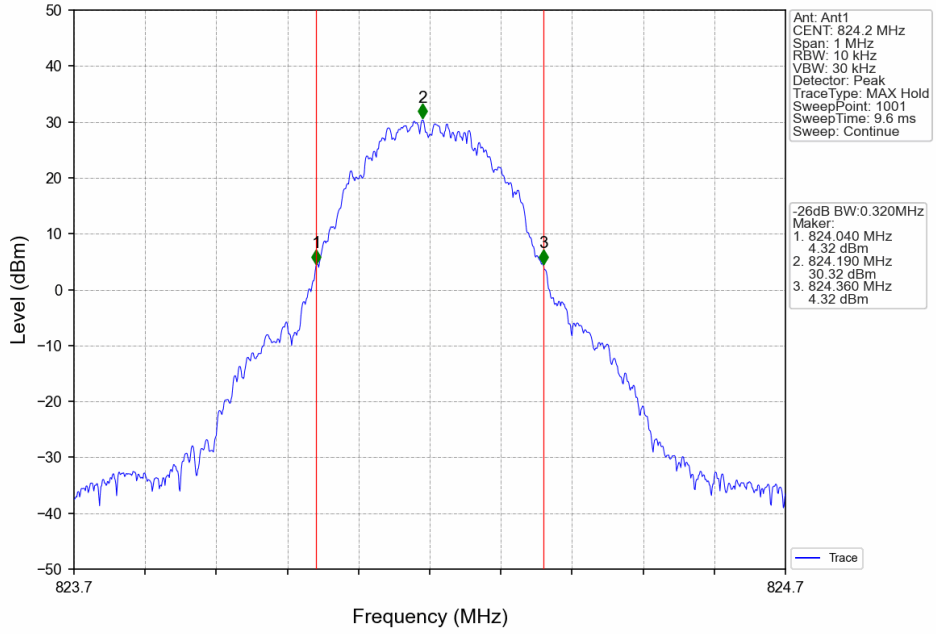

GSM850_GSM_MCH_836.6MHz_GSM_NTNV



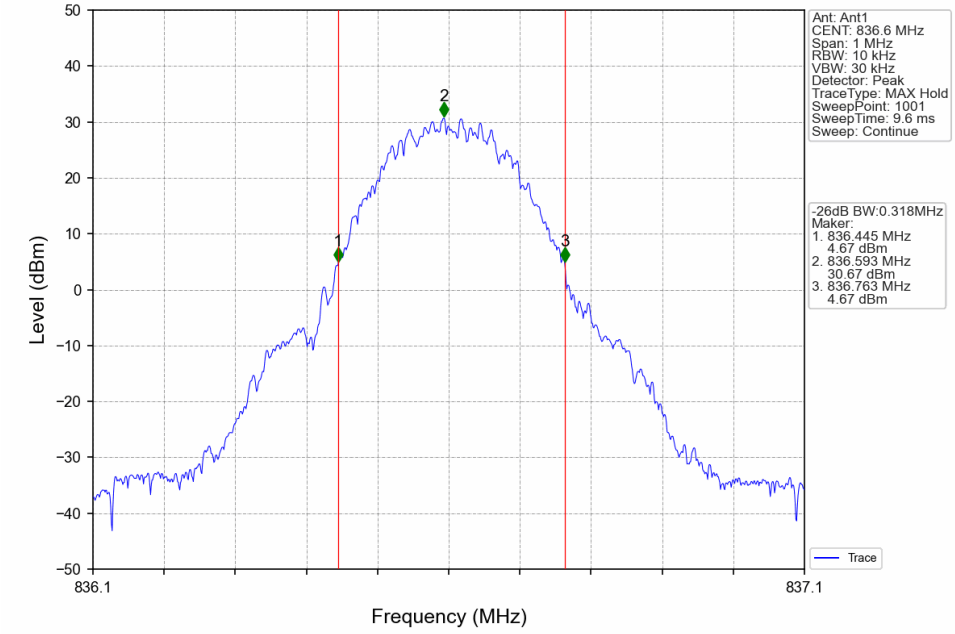
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



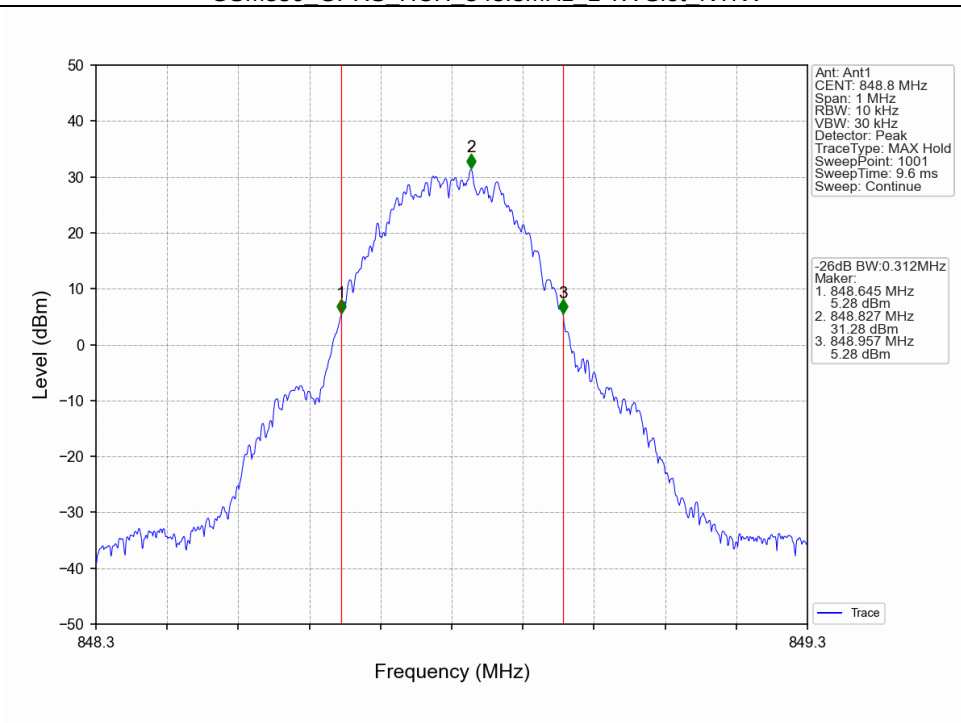

GSM850_GPRS_LCH_824.2MHz_1 TX Slot_NTNV



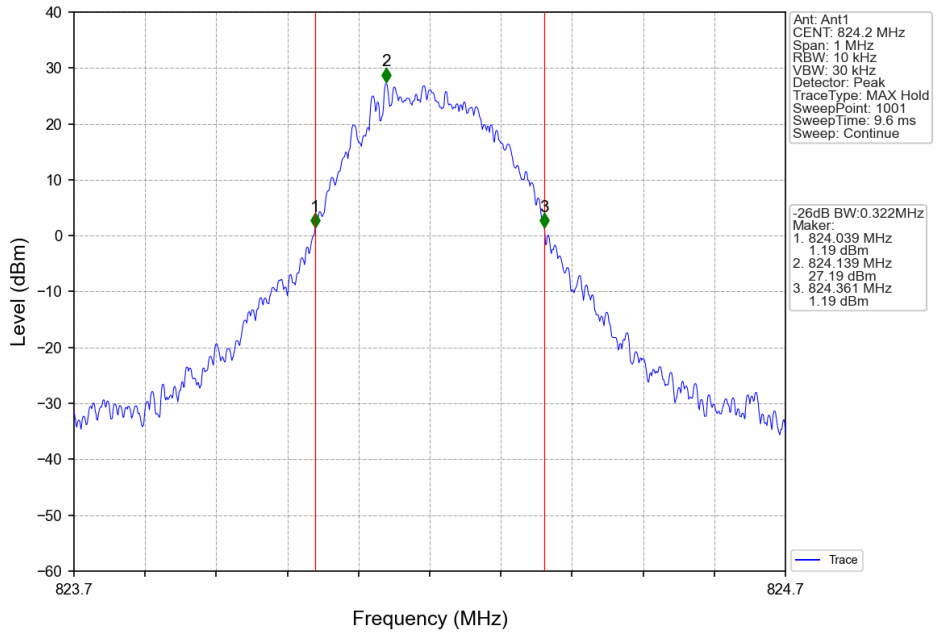
GSM850_GPRS_MCH_836.6MHz_1 TX Slot_NTNV



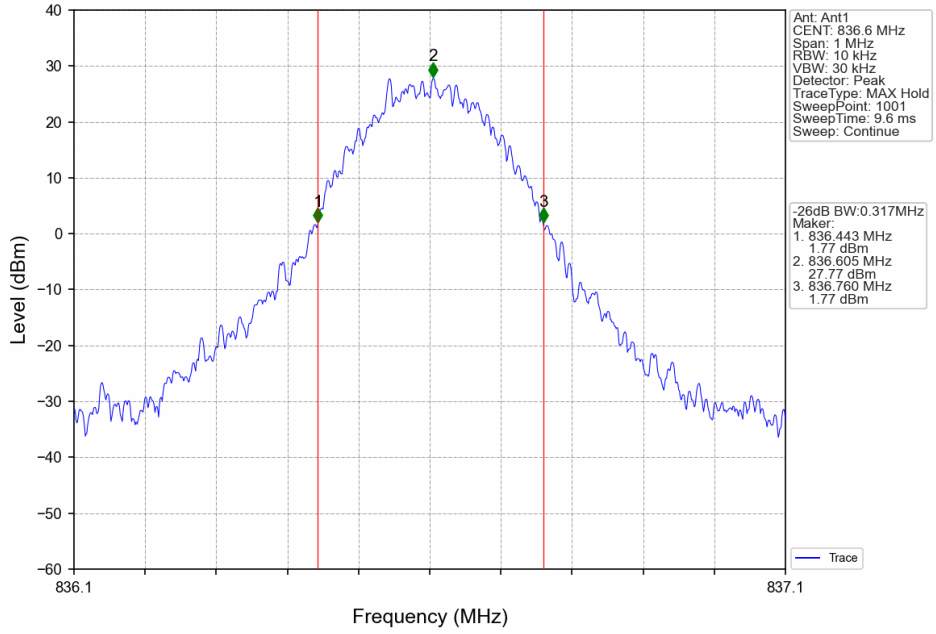

GSM850_GPRS_HCH_848.8MHz_1 TX Slot_NTNV



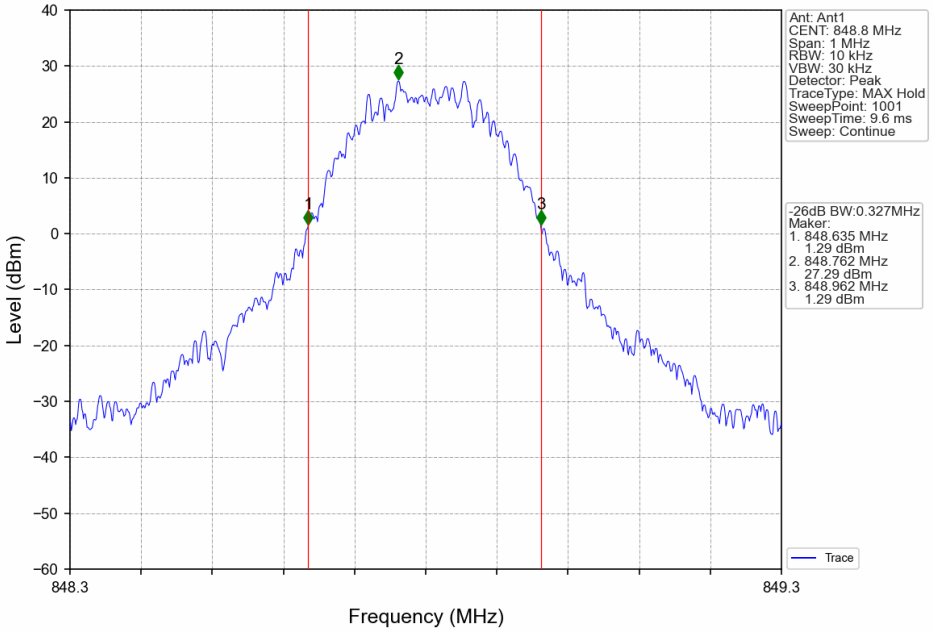
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV




GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV



# 5. Peak-Average Ratio

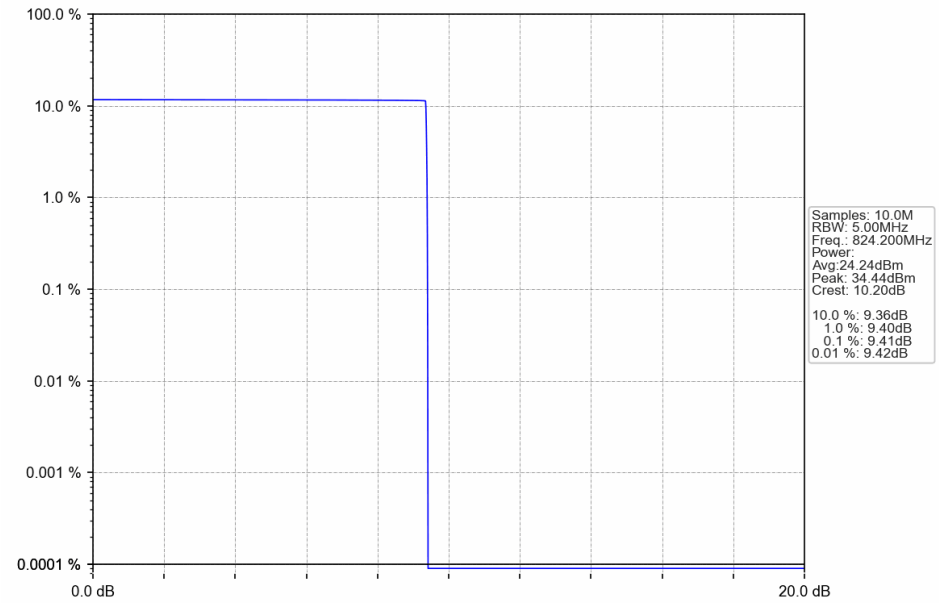
## 5.1 GSM850

### 5.1.1 Test Result

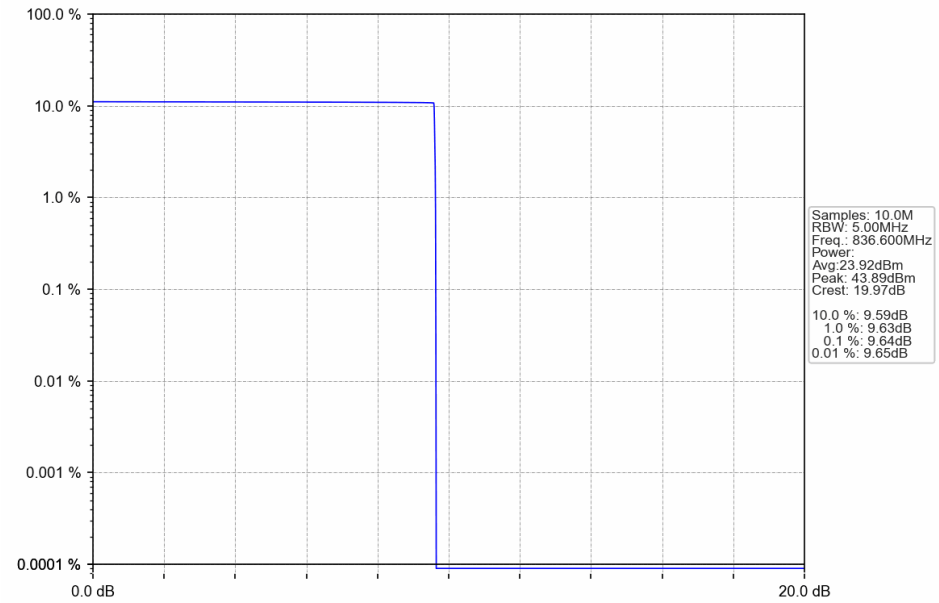
| Band: GSM850 | | | | | | |
|---|---|---|---|---|---|---|
| ENV | Mode | | Frequency (MHz) | Peak-Average Ratio (dB) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 824.2 | 9.41 | <=13 | Pass |
| | | | 836.6 | 9.64 | <=13 | Pass |
| | | | 848.8 | 9.57 | <=13 | Pass |
| | GPRS | 4 TX Slots | 824.2 | 3.58 | <=13 | Pass |
| | | | 836.6 | 3.57 | <=13 | Pass |
| | | | 848.8 | 3.63 | <=13 | Pass |
| | EGPRS | 4 TX Slots | 824.2 | 9.34 | <=13 | Pass |
| | | | 836.6 | 9.11 | <=13 | Pass |
| | | | 848.8 | 9.09 | <=13 | Pass |

## 5.1.2 Test Graph

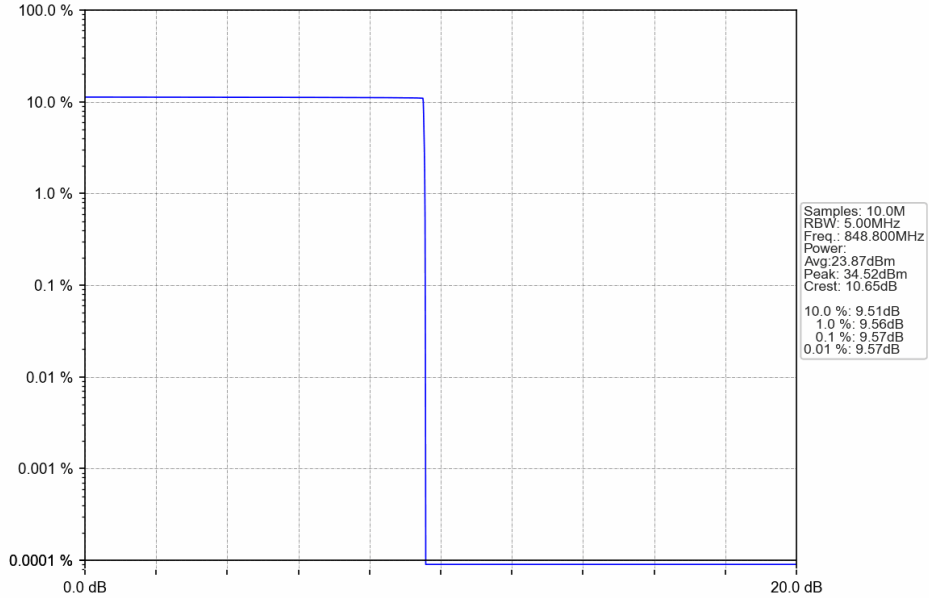
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



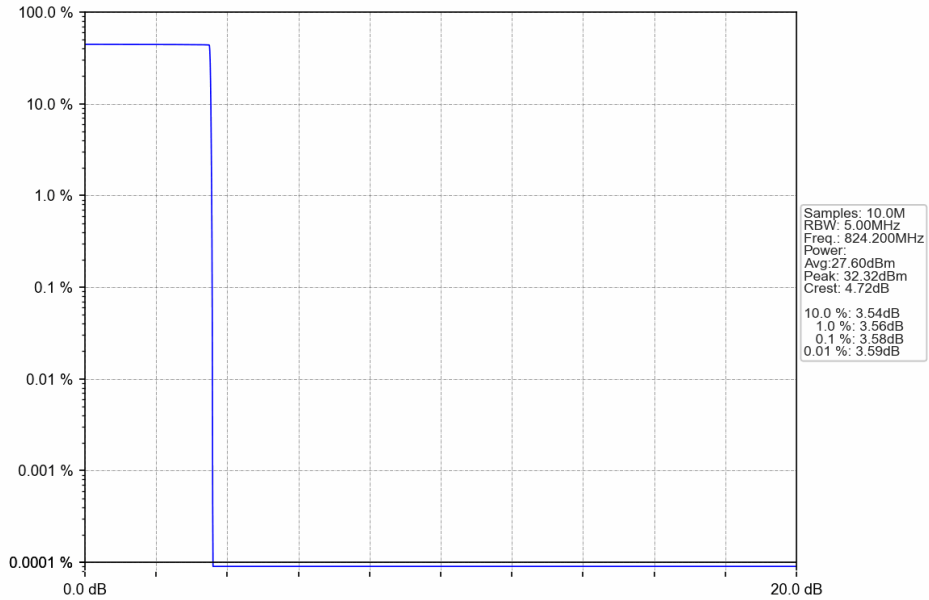

GSM850_GSM_MCH_836.6MHz_GSM_NTNV



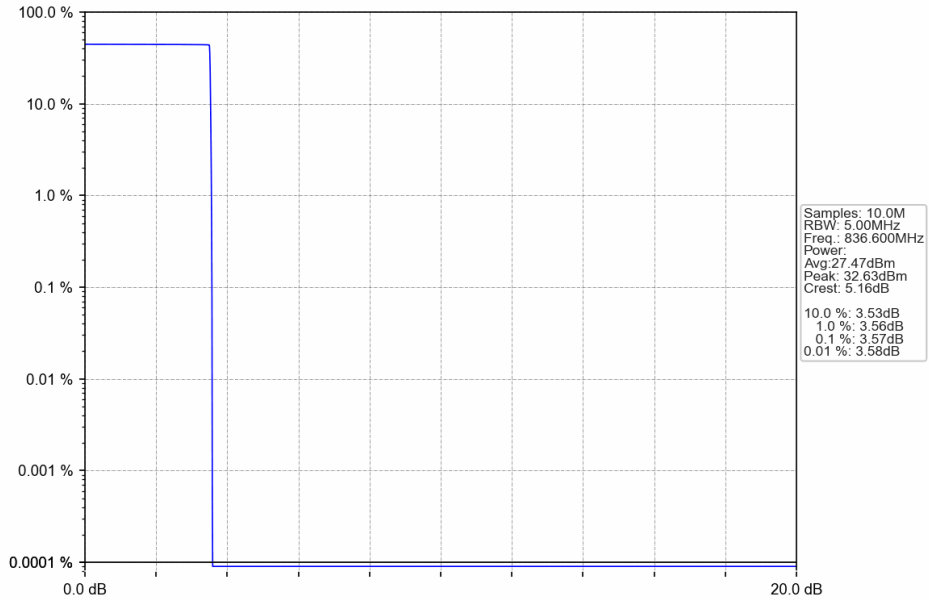
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



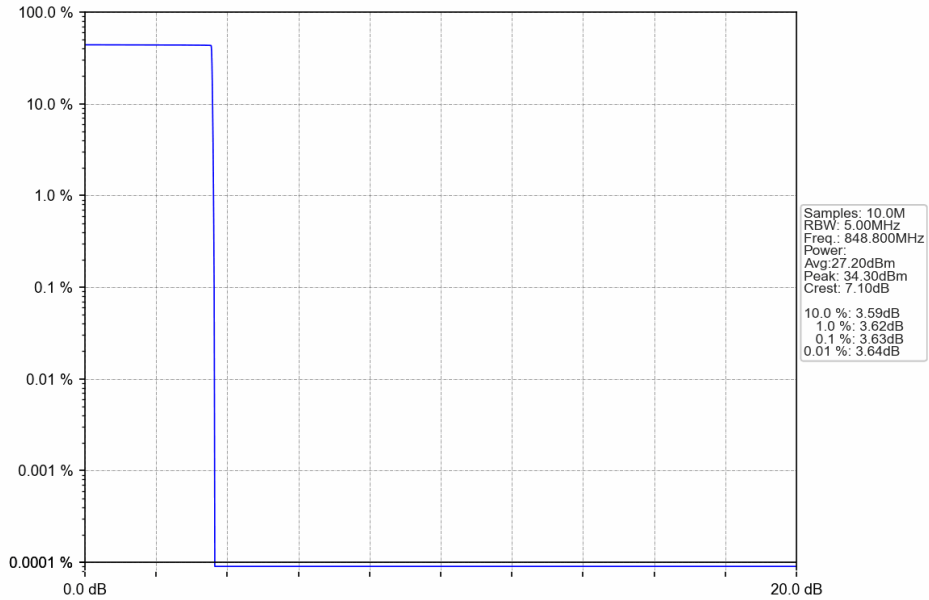

GSM850_GPRS_LCH_824.2MHz_4 TX Slots_NTNV



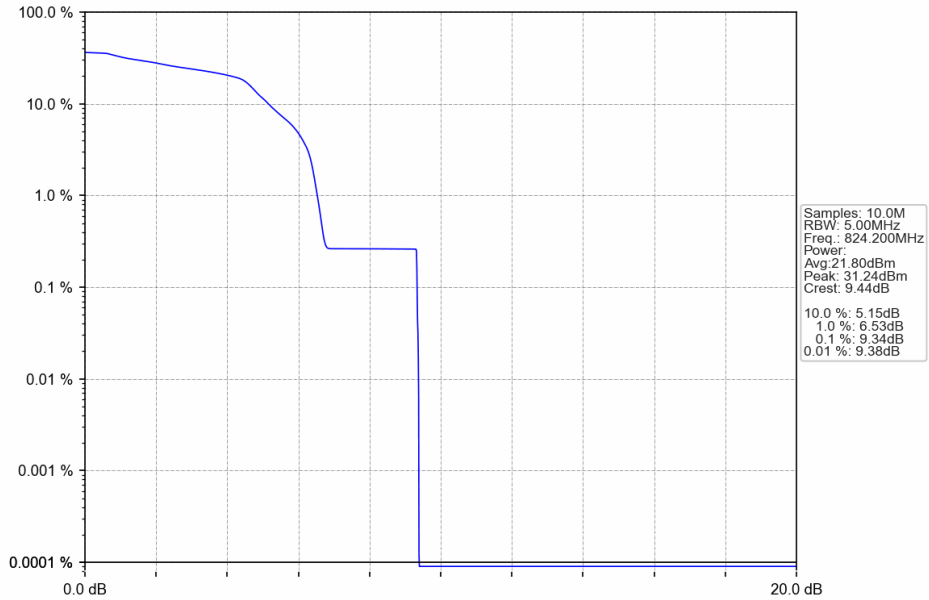
GSM850_GPRS_MCH_836.6MHz_4 TX Slots_NTNV



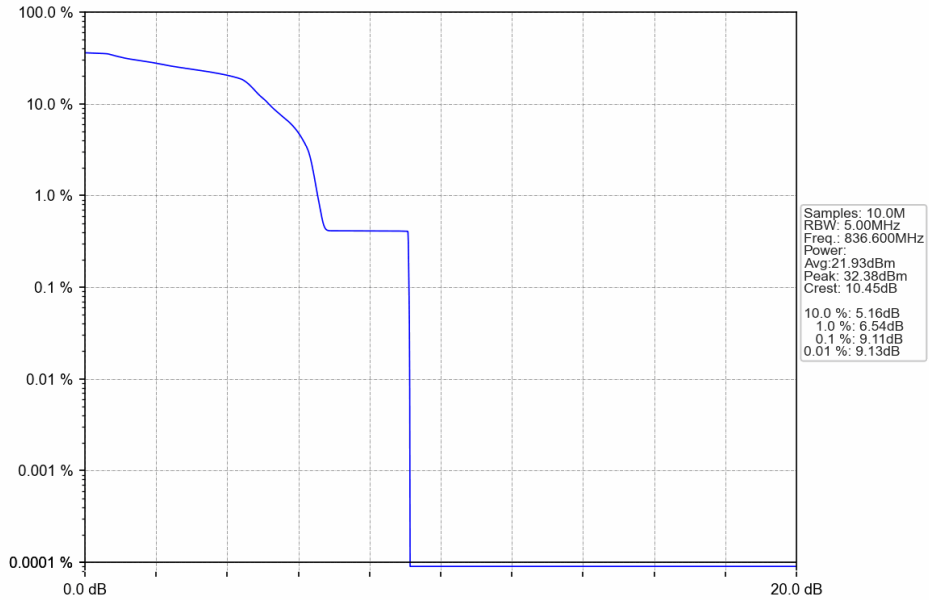

GSM850_GPRS_HCH_848.8MHz_4 TX Slots_NTNV



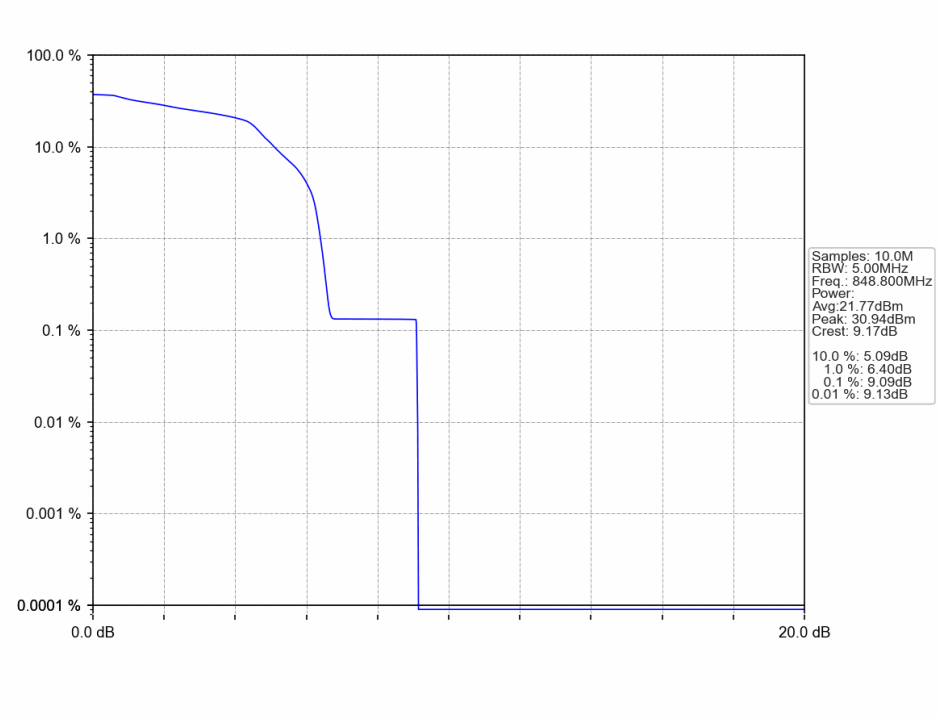
GSM850_EGPRS_LCH_824.2MHz_4 TX Slots_NTNV




GSM850_EGPRS_MCH_836.6MHz_4 TX Slots_NTNV



GSM850_EGPRS_HCH_848.8MHz_4 TX Slots_NTNV



# 6. Spurious Emission

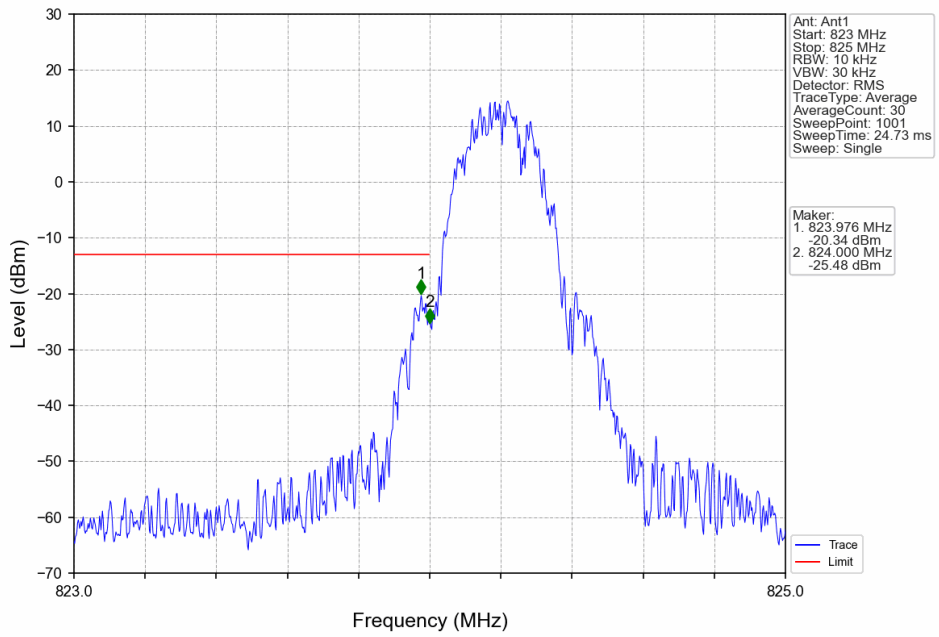
## 6.1 GSM850

### 6.1.1 Test Result

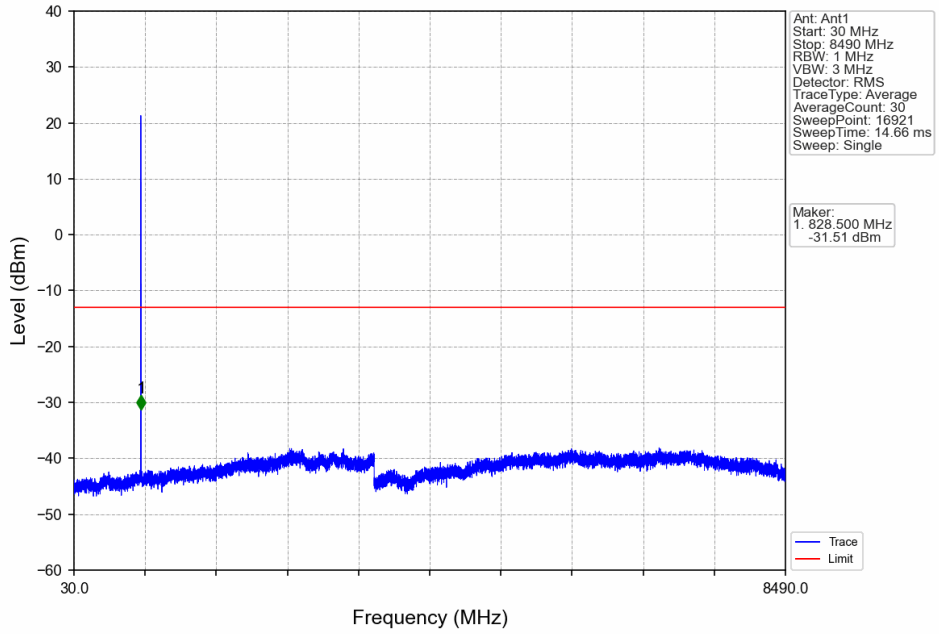
| Band: GSM850 | | | | | | |
|---|---|---|---|---|---|---|
| ENV | Mode | | Frequency (MHz) | Spurious Emission | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 824.2 | Refer To Test Graph | | Pass |
| | | | 836.6 | Refer To Test Graph | | Pass |
| | | | 848.8 | Refer To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

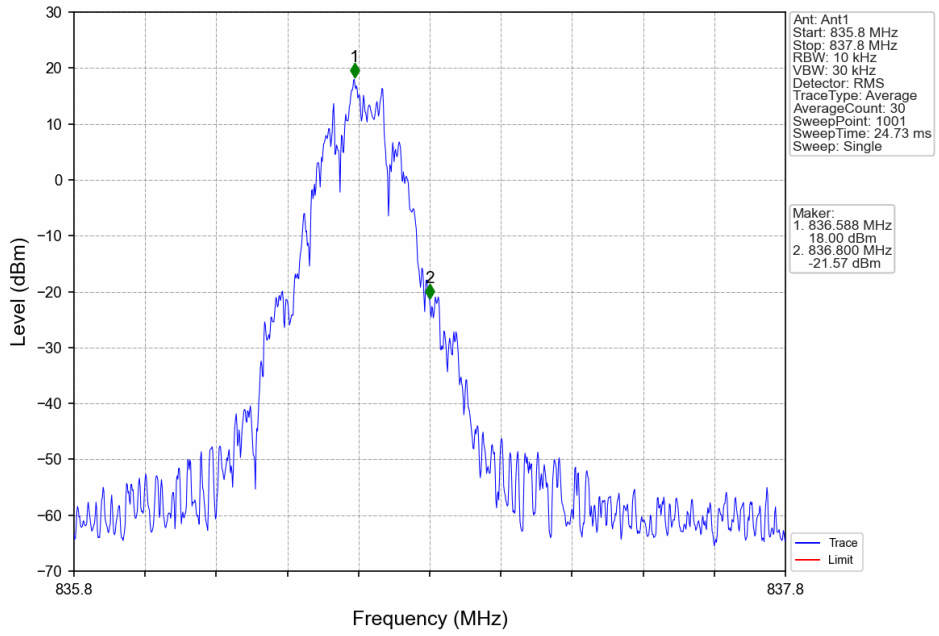
GSM850_GSM_LCH_824.2MHz_GSM_NTNV



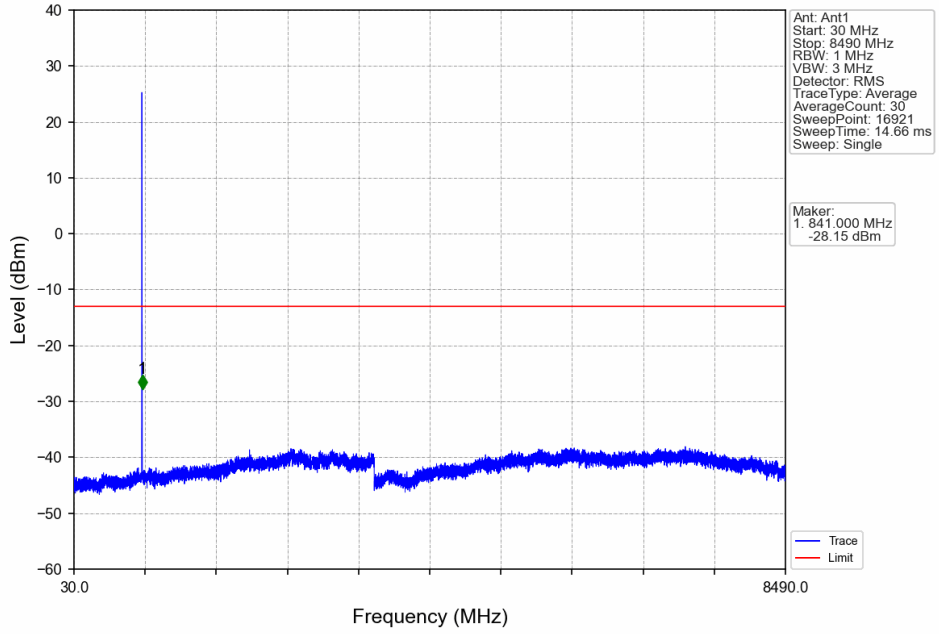

GSM850_GSM_LCH_824.2MHz_GSM_NTNV



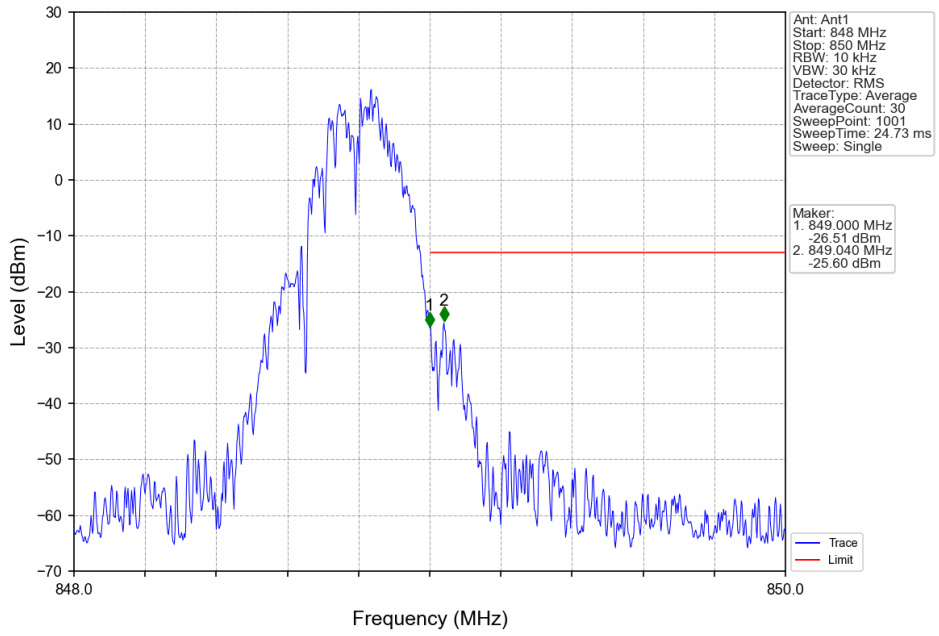
GSM850_GSM_MCH_836.6MHz_GSM_NTNV



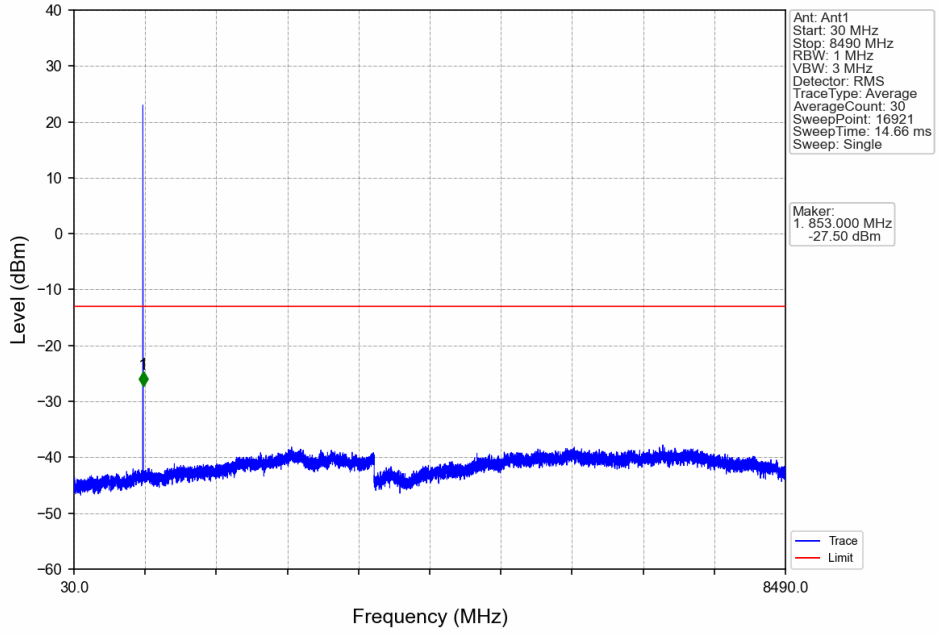

GSM850_GSM_MCH_836.6MHz_GSM_NTNV



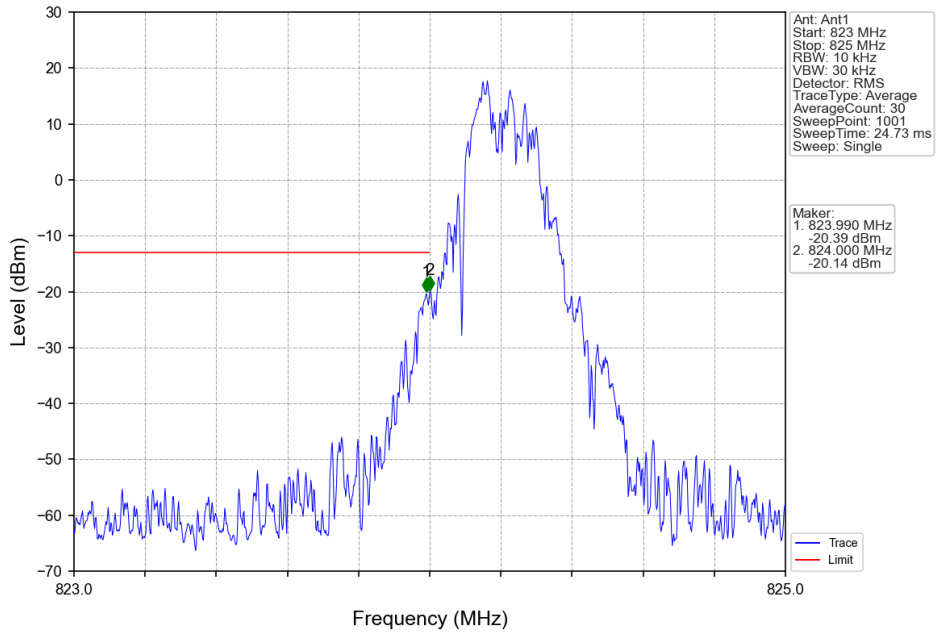
GSM850_GSM_HCH_848.8MHz_GSM_NTNV



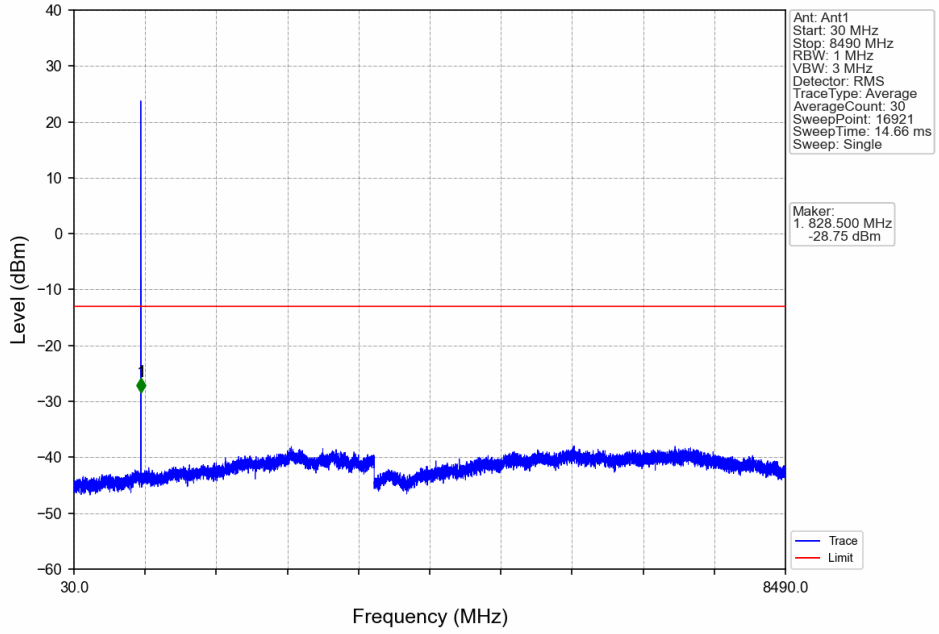

GSM850_GSM_HCH_848.8MHz_GSM_NTNV



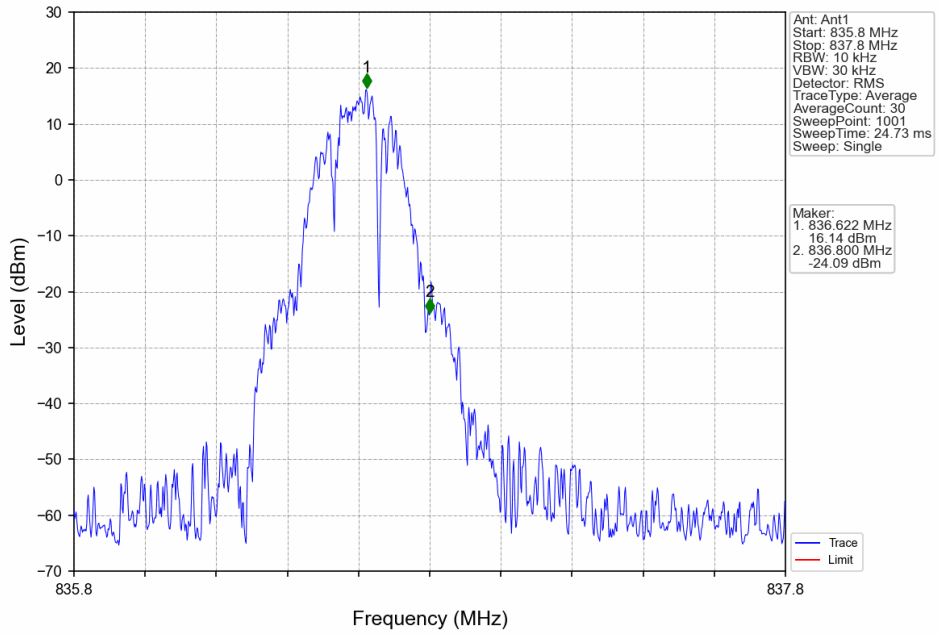
GSM850_GPRS_LCH_824.2MHz_1 TX Slot_NTNV



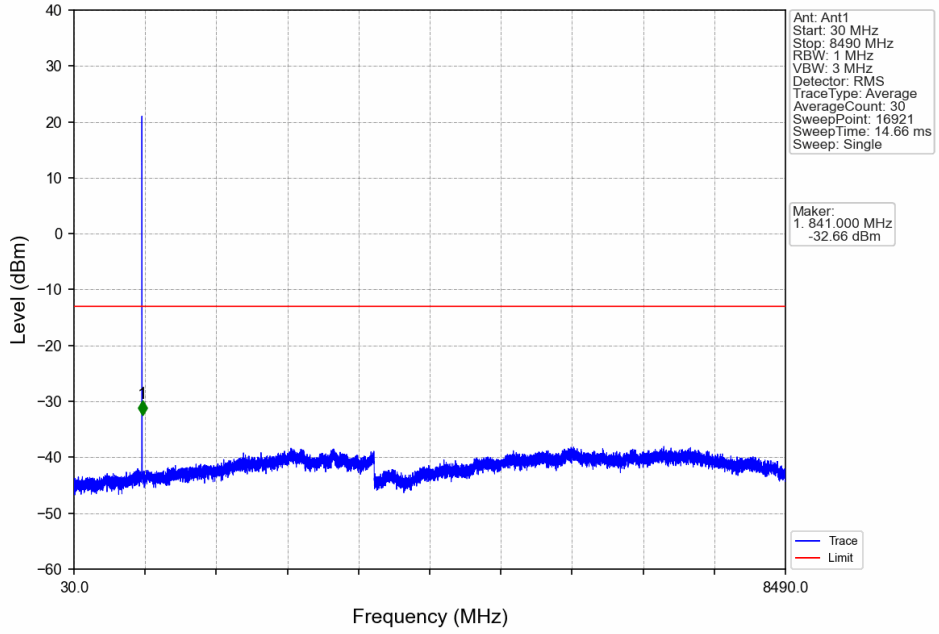

GSM850_GPRS_LCH_824.2MHz_1 TX Slot_NTNV



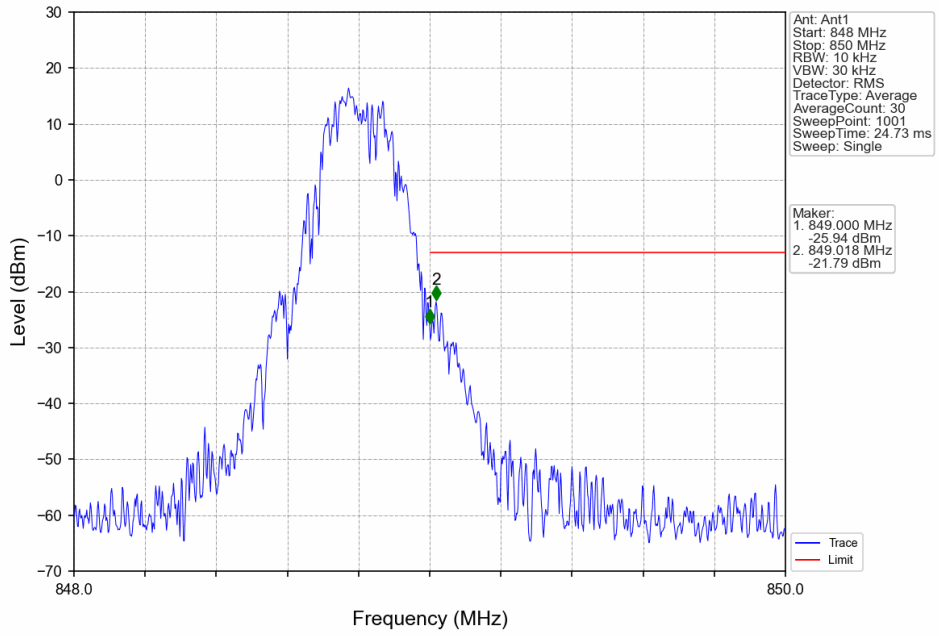
GSM850_GPRS_MCH_836.6MHz_1 TX Slot_NTNV



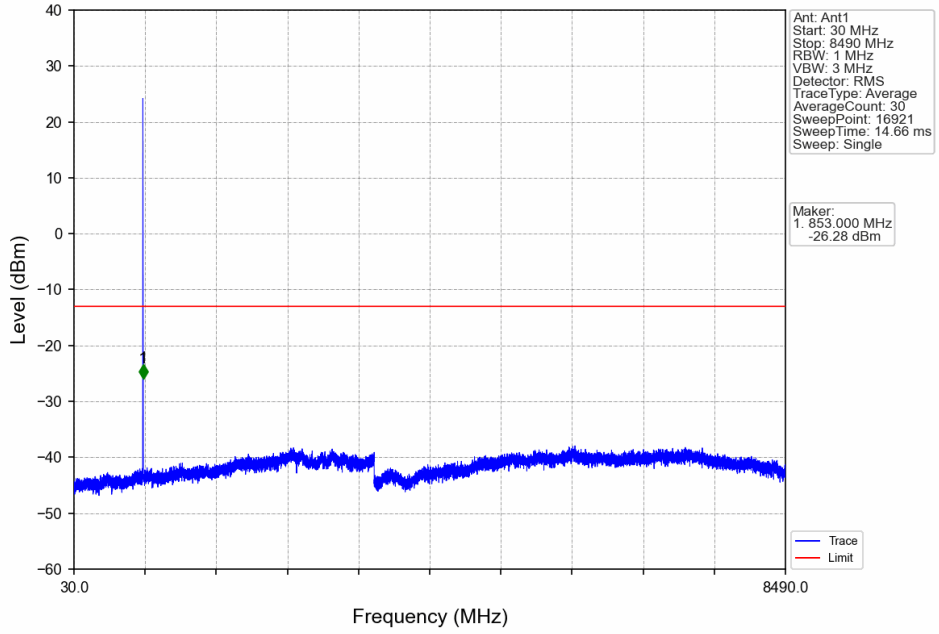

GSM850_GPRS_MCH_836.6MHz_1 TX Slot_NTNV



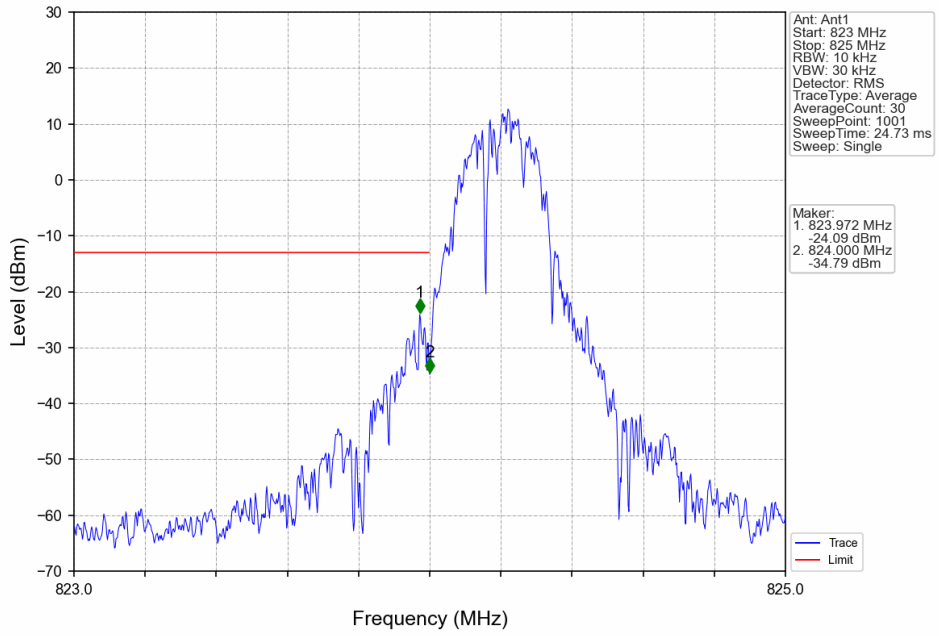
GSM850_GPRS_HCH_848.8MHz_1 TX Slot_NTNV



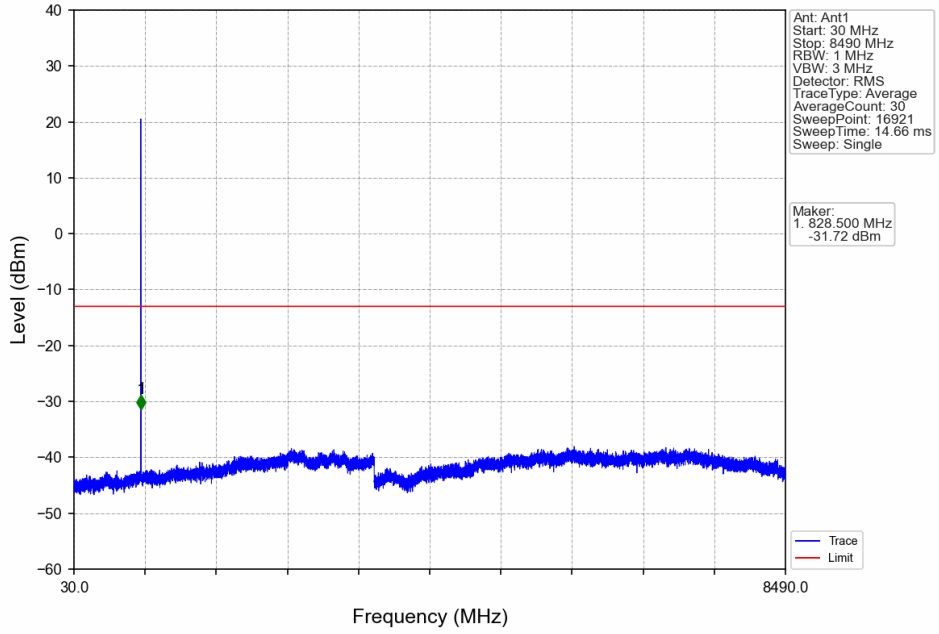

GSM850_GPRS_HCH_848.8MHz_1 TX Slot_NTNV



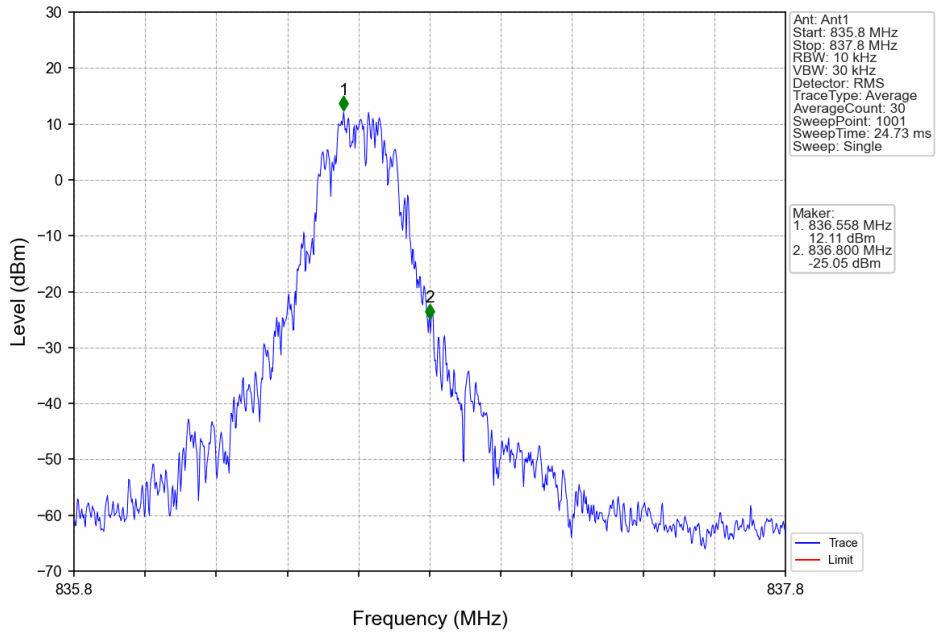
GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



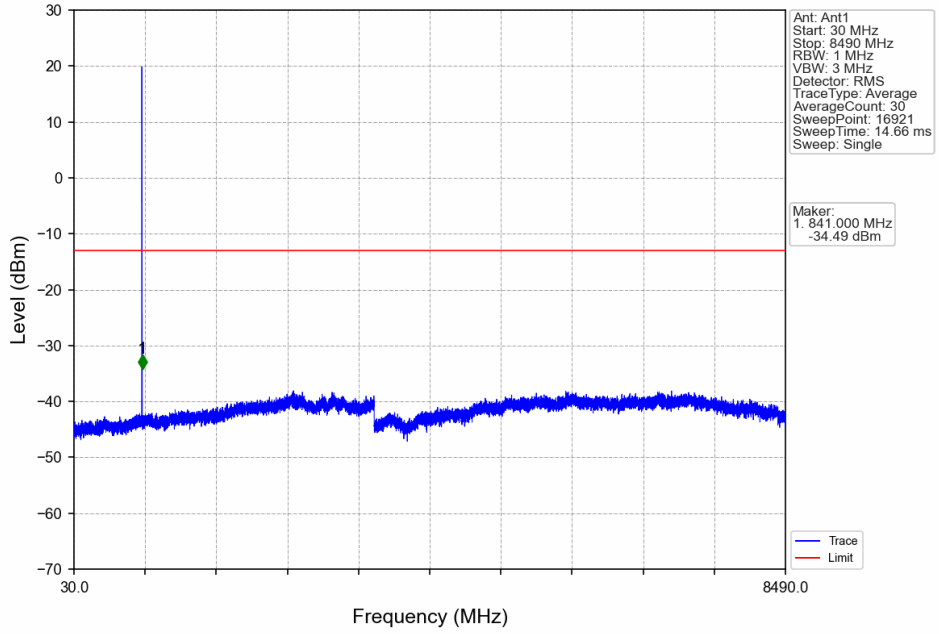

GSM850_EGPRS_LCH_824.2MHz_1 TX Slot_NTNV



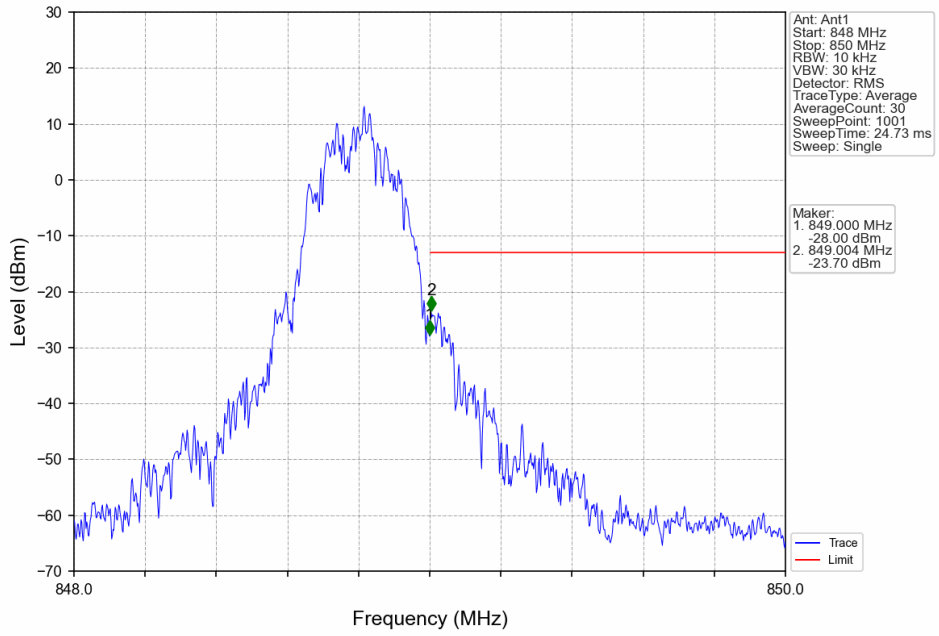
GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV

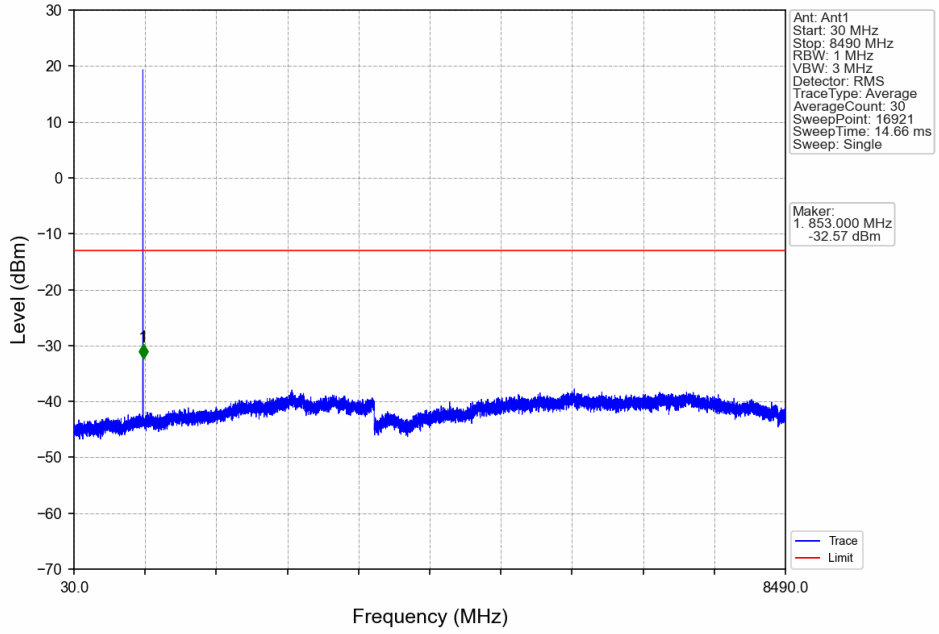



GSM850_EGPRS_MCH_836.6MHz_1 TX Slot_NTNV



GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV




GSM850_EGPRS_HCH_848.8MHz_1 TX Slot_NTNV