

# 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           | 33.28                 | -4.82      | 26.31     | <=38.45 | Pass    |
|              |         |            | 836.6           | 33.37                 | -4.82      | 26.40     | <=38.45 | Pass    |
|              |         |            | 848.8           | 33.34                 | -4.82      | 26.37     | <=38.45 | Pass    |
|              | GPRS    | 1 TX Slot  | 824.2           | 33.35                 | -4.82      | 26.38     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 824.2           | 32.44                 | -4.82      | 25.47     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 824.2           | 30.31                 | -4.82      | 23.34     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 824.2           | 29.06                 | -4.82      | 22.09     | <=38.45 | Pass    |
|              |         | 1 TX Slot  | 836.6           | 33.35                 | -4.82      | 26.38     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 836.6           | 32.44                 | -4.82      | 25.47     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 836.6           | 30.27                 | -4.82      | 23.30     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 836.6           | 29.01                 | -4.82      | 22.04     | <=38.45 | Pass    |
|              |         | 1 TX Slot  | 848.8           | 33.32                 | -4.82      | 26.35     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 848.8           | 32.38                 | -4.82      | 25.41     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 848.8           | 30.15                 | -4.82      | 23.18     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 848.8           | 28.86                 | -4.82      | 21.89     | <=38.45 | Pass    |
|              | EGPRS   | 1 TX Slot  | 824.2           | 27.69                 | -4.82      | 20.72     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 824.2           | 26.62                 | -4.82      | 19.65     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 824.2           | 24.69                 | -4.82      | 17.72     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 824.2           | 23.71                 | -4.82      | 16.74     | <=38.45 | Pass    |
|              |         | 1 TX Slot  | 836.6           | 27.31                 | -4.82      | 20.34     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 836.6           | 26.48                 | -4.82      | 19.51     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 836.6           | 24.57                 | -4.82      | 17.60     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 836.6           | 23.57                 | -4.82      | 16.60     | <=38.45 | Pass    |
|              |         | 1 TX Slot  | 848.8           | 27.48                 | -4.82      | 20.51     | <=38.45 | Pass    |
|              |         | 2 TX Slots | 848.8           | 26.51                 | -4.82      | 19.54     | <=38.45 | Pass    |
|              |         | 3 TX Slots | 848.8           | 24.46                 | -4.82      | 17.49     | <=38.45 | Pass    |
|              |         | 4 TX Slots | 848.8           | 23.37                 | -4.82      | 16.40     | <=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 | Freq. Error (Hz) | Freq. vs. Rated (ppm) |             | Verdict |
|              |                 |            |         |                  | Result                | Limit       |         |
| GSM          | 824.2           | 20         | LV      | -0.484           | -0.0006               | -2.5 to 2.5 | Pass    |
|              |                 |            | NV      | 1.614            | 0.0020                | -2.5 to 2.5 | Pass    |
|              |                 |            | HV      | 1.195            | 0.0014                | -2.5 to 2.5 | Pass    |
|              |                 | -30        | NV      | -1.033           | -0.0013               | -2.5 to 2.5 | Pass    |
|              |                 | -20        | NV      | -1.130           | -0.0014               | -2.5 to 2.5 | Pass    |
|              |                 | -10        | NV      | 0.452            | 0.0005                | -2.5 to 2.5 | Pass    |
|              |                 | 0          | NV      | -1.065           | -0.0013               | -2.5 to 2.5 | Pass    |
|              |                 | 10         | NV      | -4.811           | -0.0058               | -2.5 to 2.5 | Pass    |
|              |                 | 30         | NV      | -1.776           | -0.0022               | -2.5 to 2.5 | Pass    |
|              |                 | 40         | NV      | -3.067           | -0.0037               | -2.5 to 2.5 | Pass    |
|              |                 | 50         | NV      | -5.069           | -0.0062               | -2.5 to 2.5 | Pass    |
|              | 836.6           | 20         | LV      | 2.099            | 0.0025                | -2.5 to 2.5 | Pass    |
|              |                 |            | NV      | 3.777            | 0.0045                | -2.5 to 2.5 | Pass    |
|              |                 |            | HV      | -1.033           | -0.0012               | -2.5 to 2.5 | Pass    |
|              |                 | -30        | NV      | 0.936            | 0.0011                | -2.5 to 2.5 | Pass    |
|              |                 | -20        | NV      | 3.422            | 0.0041                | -2.5 to 2.5 | Pass    |
|              |                 | -10        | NV      | 3.099            | 0.0037                | -2.5 to 2.5 | Pass    |
|              |                 | 0          | NV      | 0.065            | 0.0001                | -2.5 to 2.5 | Pass    |
|              |                 | 10         | NV      | -0.581           | -0.0007               | -2.5 to 2.5 | Pass    |
|              |                 | 30         | NV      | 0.646            | 0.0008                | -2.5 to 2.5 | Pass    |
|              |                 | 40         | NV      | 0.807            | 0.0010                | -2.5 to 2.5 | Pass    |
|              |                 | 50         | NV      | -2.906           | -0.0035               | -2.5 to 2.5 | Pass    |
|              | 848.8           | 20         | LV      | 3.745            | 0.0044                | -2.5 to 2.5 | Pass    |
|              |                 |            | NV      | 4.197            | 0.0049                | -2.5 to 2.5 | Pass    |
|              |                 |            | HV      | 4.940            | 0.0058                | -2.5 to 2.5 | Pass    |
|              |                 | -30        | NV      | 0.387            | 0.0005                | -2.5 to 2.5 | Pass    |
|              |                 | -20        | NV      | 3.261            | 0.0038                | -2.5 to 2.5 | Pass    |
|              |                 | -10        | NV      | 5.230            | 0.0062                | -2.5 to 2.5 | Pass    |
|              |                 | 0          | NV      | 4.100            | 0.0048                | -2.5 to 2.5 | Pass    |
|              |                 | 10         | NV      | 4.068            | 0.0048                | -2.5 to 2.5 | Pass    |
|              |                 | 30         | NV      | 7.781            | 0.0092                | -2.5 to 2.5 | Pass    |
|              |                 | 40         | NV      | 3.713            | 0.0044                | -2.5 to 2.5 | Pass    |
|              |                 | 50         | NV      | 0.258            | 0.0003                | -2.5 to 2.5 | Pass    |
| GPRS         | 824.2           | 20         | LV      | -1.743           | -0.0021               | -2.5 to 2.5 | Pass    |
|              |                 |            | NV      | 2.002            | 0.0024                | -2.5 to 2.5 | Pass    |
|              |                 |            | HV      | 1.743            | 0.0021                | -2.5 to 2.5 | Pass    |
|              |                 | -30        | NV      | -2.066           | -0.0025               | -2.5 to 2.5 | Pass    |
|              |                 | -20        | NV      | 1.195            | 0.0014                | -2.5 to 2.5 | Pass    |
|              |                 | -10        | NV      | 0.904            | 0.0011                | -2.5 to 2.5 | Pass    |
|              |                 | 0          | NV      | -1.550           | -0.0019               | -2.5 to 2.5 | Pass    |
|              |                 | 10         | NV      | -0.872           | -0.0011               | -2.5 to 2.5 | Pass    |
|              |                 | 30         | NV      | 3.907            | 0.0047                | -2.5 to 2.5 | Pass    |
|              |                 | 40         | NV      | 1.905            | 0.0023                | -2.5 to 2.5 | Pass    |
|              |                 | 50         | NV      | 1.227            | 0.0015                | -2.5 to 2.5 | Pass    |
|              | 836.6           | 20         | LV      | -0.710           | -0.0008               | -2.5 to 2.5 | Pass    |
|              |                 |            | NV      | -0.452           | -0.0005               | -2.5 to 2.5 | Pass    |
|              |                 |            | HV      | 1.776            | 0.0021                | -2.5 to 2.5 | Pass    |

|       |       |     |    |        |         |             |      |
|-------|-------|-----|----|--------|---------|-------------|------|
|       |       | -30 | NV | 2.389  | 0.0029  | -2.5 to 2.5 | Pass |
|       |       | -20 | NV | -0.743 | -0.0009 | -2.5 to 2.5 | Pass |
|       |       | -10 | NV | -0.258 | -0.0003 | -2.5 to 2.5 | Pass |
|       |       | 0   | NV | -0.775 | -0.0009 | -2.5 to 2.5 | Pass |
|       |       | 10  | NV | 0.032  | 0.0000  | -2.5 to 2.5 | Pass |
|       |       | 30  | NV | 3.132  | 0.0037  | -2.5 to 2.5 | Pass |
|       |       | 40  | NV | 5.004  | 0.0060  | -2.5 to 2.5 | Pass |
|       |       | 50  | NV | 2.389  | 0.0029  | -2.5 to 2.5 | Pass |
|       | 848.8 | 20  | LV | 0.775  | 0.0009  | -2.5 to 2.5 | Pass |
|       |       |     | NV | -1.743 | -0.0021 | -2.5 to 2.5 | Pass |
|       |       |     | HV | 1.356  | 0.0016  | -2.5 to 2.5 | Pass |
|       |       | -30 | NV | 3.390  | 0.0040  | -2.5 to 2.5 | Pass |
|       |       | -20 | NV | 1.388  | 0.0016  | -2.5 to 2.5 | Pass |
|       |       | -10 | NV | 0.581  | 0.0007  | -2.5 to 2.5 | Pass |
|       |       | 0   | NV | 3.035  | 0.0036  | -2.5 to 2.5 | Pass |
|       |       | 10  | NV | 2.938  | 0.0035  | -2.5 to 2.5 | Pass |
|       |       | 30  | NV | 1.743  | 0.0021  | -2.5 to 2.5 | Pass |
|       |       | 40  | NV | 5.133  | 0.0060  | -2.5 to 2.5 | Pass |
|       |       | 50  | NV | 2.615  | 0.0031  | -2.5 to 2.5 | Pass |
| EGPRS | 824.2 | 20  | LV | 5.101  | 0.0062  | -2.5 to 2.5 | Pass |
|       |       |     | NV | 2.325  | 0.0028  | -2.5 to 2.5 | Pass |
|       |       |     | HV | -1.356 | -0.0016 | -2.5 to 2.5 | Pass |
|       |       | -30 | NV | 2.647  | 0.0032  | -2.5 to 2.5 | Pass |
|       |       | -20 | NV | 2.454  | 0.0030  | -2.5 to 2.5 | Pass |
|       |       | -10 | NV | -1.582 | -0.0019 | -2.5 to 2.5 | Pass |
|       |       | 0   | NV | -1.776 | -0.0022 | -2.5 to 2.5 | Pass |
|       |       | 10  | NV | -0.613 | -0.0007 | -2.5 to 2.5 | Pass |
|       |       | 30  | NV | 3.229  | 0.0039  | -2.5 to 2.5 | Pass |
|       |       | 40  | NV | 5.359  | 0.0065  | -2.5 to 2.5 | Pass |
|       |       | 50  | NV | 5.133  | 0.0062  | -2.5 to 2.5 | Pass |
|       | 836.6 | 20  | LV | 1.582  | 0.0019  | -2.5 to 2.5 | Pass |
|       |       |     | NV | -2.421 | -0.0029 | -2.5 to 2.5 | Pass |
|       |       |     | HV | 0.323  | 0.0004  | -2.5 to 2.5 | Pass |
|       |       | -30 | NV | 0.452  | 0.0005  | -2.5 to 2.5 | Pass |
|       |       | -20 | NV | -0.807 | -0.0010 | -2.5 to 2.5 | Pass |
|       |       | -10 | NV | -1.776 | -0.0021 | -2.5 to 2.5 | Pass |
|       |       | 0   | NV | 0.904  | 0.0011  | -2.5 to 2.5 | Pass |
|       |       | 10  | NV | 3.035  | 0.0036  | -2.5 to 2.5 | Pass |
|       |       | 30  | NV | 3.681  | 0.0044  | -2.5 to 2.5 | Pass |
|       |       | 40  | NV | 1.098  | 0.0013  | -2.5 to 2.5 | Pass |
|       |       | 50  | NV | 0.678  | 0.0008  | -2.5 to 2.5 | Pass |
|       | 848.8 | 20  | LV | 1.259  | 0.0015  | -2.5 to 2.5 | Pass |
|       |       |     | NV | 0.678  | 0.0008  | -2.5 to 2.5 | Pass |
|       |       |     | HV | -1.711 | -0.0020 | -2.5 to 2.5 | Pass |
|       |       | -30 | NV | 1.033  | 0.0012  | -2.5 to 2.5 | Pass |
|       |       | -20 | NV | 1.743  | 0.0021  | -2.5 to 2.5 | Pass |
|       |       | -10 | NV | 1.647  | 0.0019  | -2.5 to 2.5 | Pass |
|       |       | 0   | NV | 0.387  | 0.0005  | -2.5 to 2.5 | Pass |
|       |       | 10  | NV | 1.324  | 0.0016  | -2.5 to 2.5 | Pass |
|       |       | 30  | NV | 4.229  | 0.0050  | -2.5 to 2.5 | Pass |
|       |       | 40  | NV | 1.517  | 0.0018  | -2.5 to 2.5 | Pass |
|       |       | 50  | NV | -4.229 | -0.0050 | -2.5 to 2.5 | Pass |

### 3. 99% & 26dB Bandwidth

#### 3.1 Test Result

##### 3.1.1 GSM850\_OBW

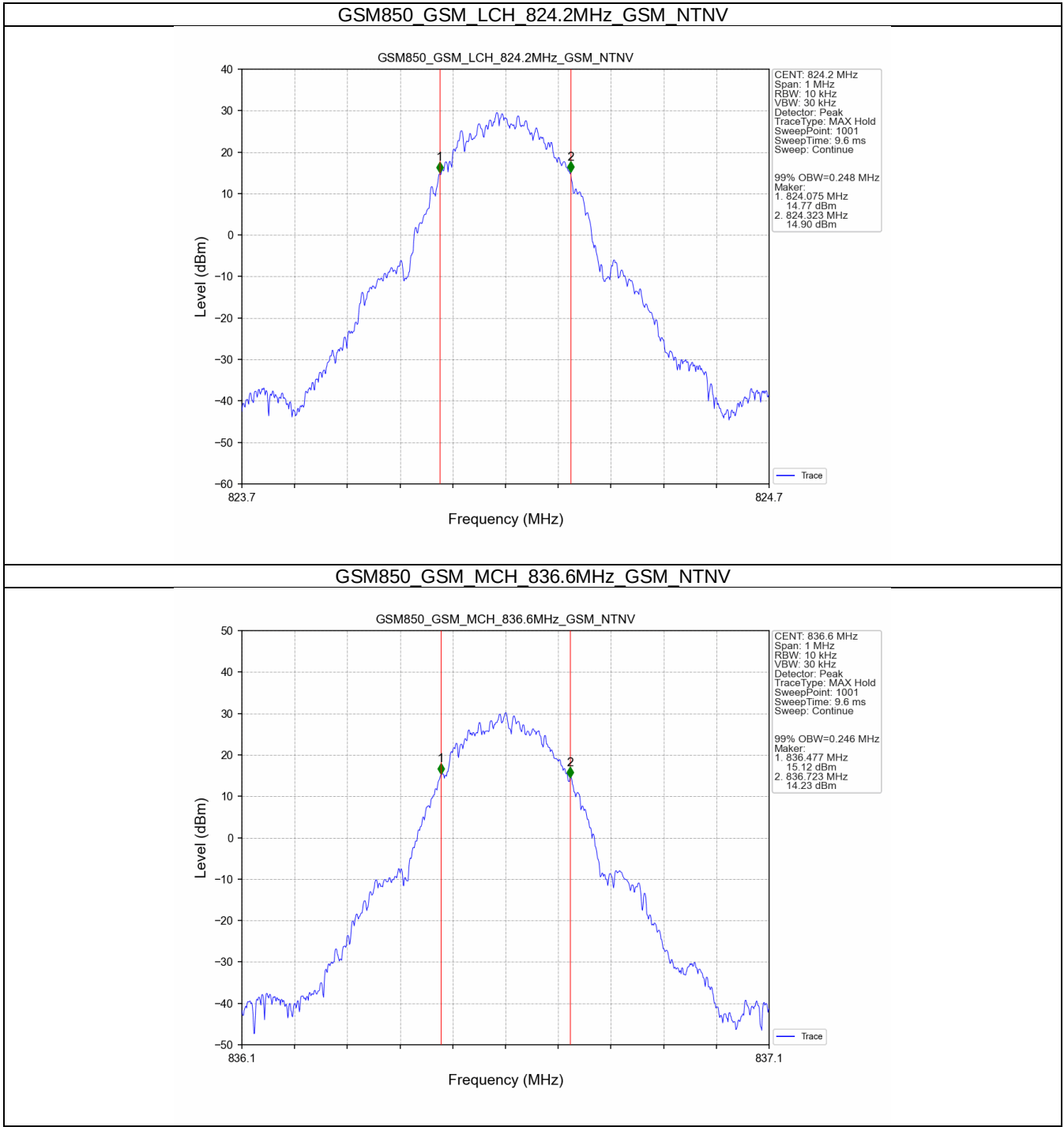
| Band: GSM850 |         |           |                 |                              |       |         |
|--------------|---------|-----------|-----------------|------------------------------|-------|---------|
| ENV          | Mode    |           | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |       | Verdict |
|              | Network | Subset    |                 | Result                       | Limit |         |
| NTNV         | GSM     | GSM       | 824.2           | 0.248                        | /     | Pass    |
|              |         |           | 836.6           | 0.246                        | /     | Pass    |
|              |         |           | 848.8           | 0.246                        | /     | Pass    |
|              | GPRS    | 1 TX Slot | 824.2           | 0.245                        | /     | Pass    |
|              |         |           | 836.6           | 0.244                        | /     | Pass    |
|              |         |           | 848.8           | 0.247                        | /     | Pass    |
|              | EGPRS   | 1 TX Slot | 824.2           | 0.238                        | /     | Pass    |
|              |         |           | 836.6           | 0.253                        | /     | Pass    |
|              |         |           | 848.8           | 0.248                        | /     | Pass    |

##### 3.1.2 GSM850\_XDB

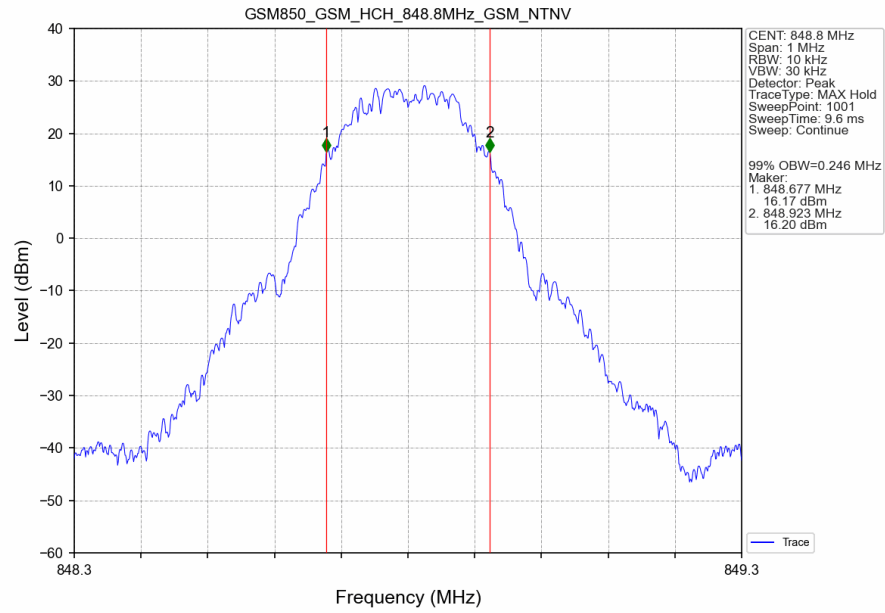
| Band: GSM850 |         |           |                 |                      |       |         |
|--------------|---------|-----------|-----------------|----------------------|-------|---------|
| ENV          | Mode    |           | Frequency (MHz) | 26dB Bandwidth (MHz) |       | Verdict |
|              | Network | Subset    |                 | Result               | Limit |         |
| NTNV         | GSM     | GSM       | 824.2           | 0.317                | /     | Pass    |
|              |         |           | 836.6           | 0.315                | /     | Pass    |
|              |         |           | 848.8           | 0.324                | /     | Pass    |
|              | GPRS    | 1 TX Slot | 824.2           | 0.314                | /     | Pass    |
|              |         |           | 836.6           | 0.314                | /     | Pass    |
|              |         |           | 848.8           | 0.322                | /     | Pass    |
|              | EGPRS   | 1 TX Slot | 824.2           | 0.306                | /     | Pass    |
|              |         |           | 836.6           | 0.321                | /     | Pass    |
|              |         |           | 848.8           | 0.316                | /     | Pass    |

3.2 Test Graph

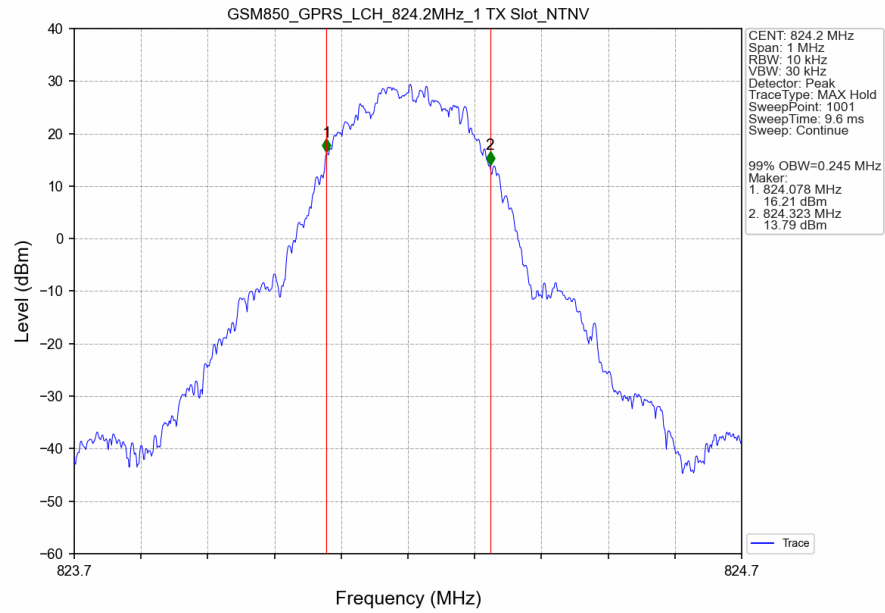
3.2.1 GSM850\_OBW



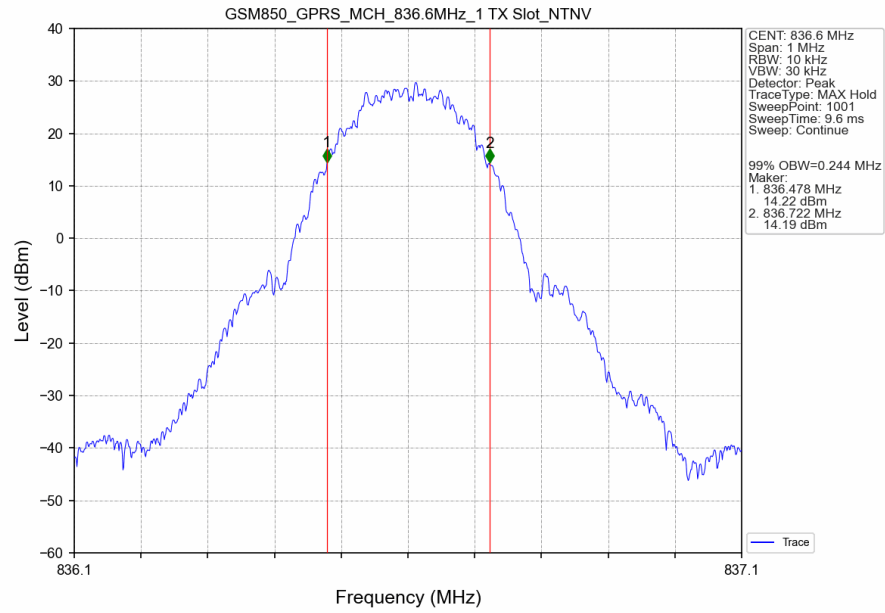
# GSM850 GSM HCH 848.8MHz GSM NTN



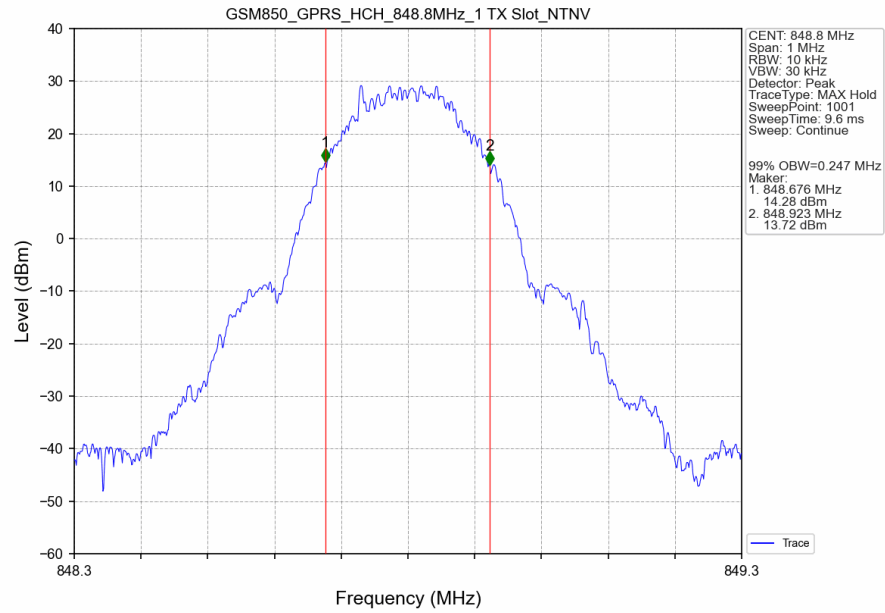
# GSM850 GPRS LCH 824.2MHz\_1 TX Slot NTN



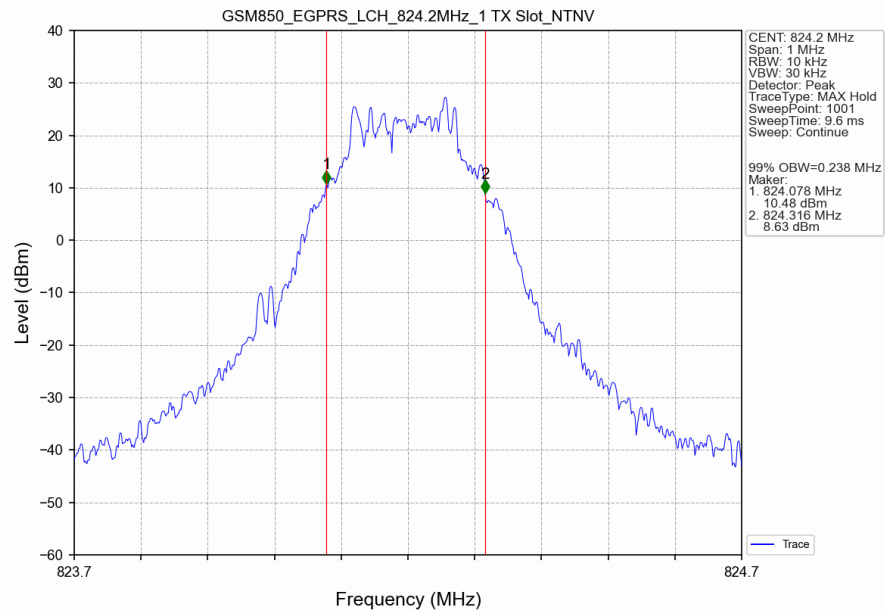
# GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



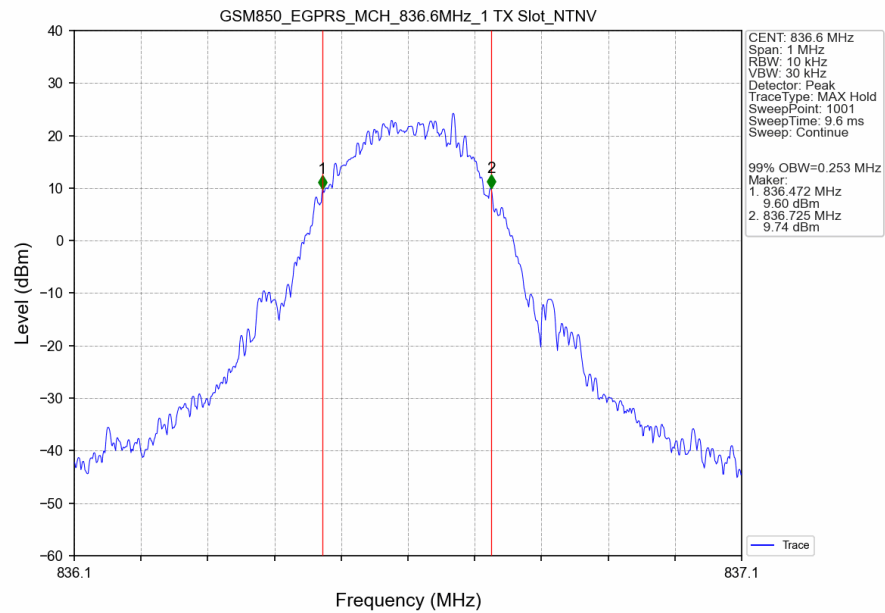
# GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



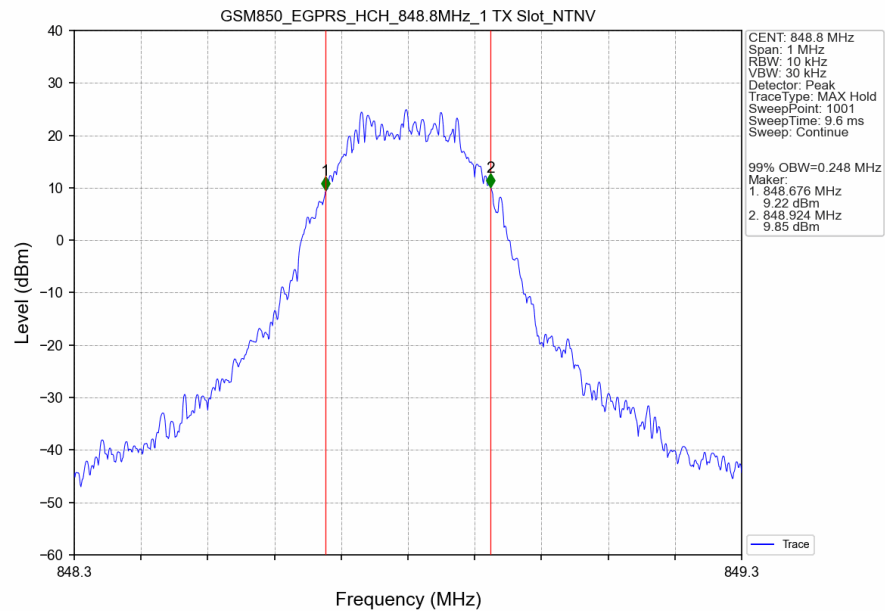
# GSM850\_EGPRS\_LCH\_824.2MHz\_1 TX Slot\_NTNV



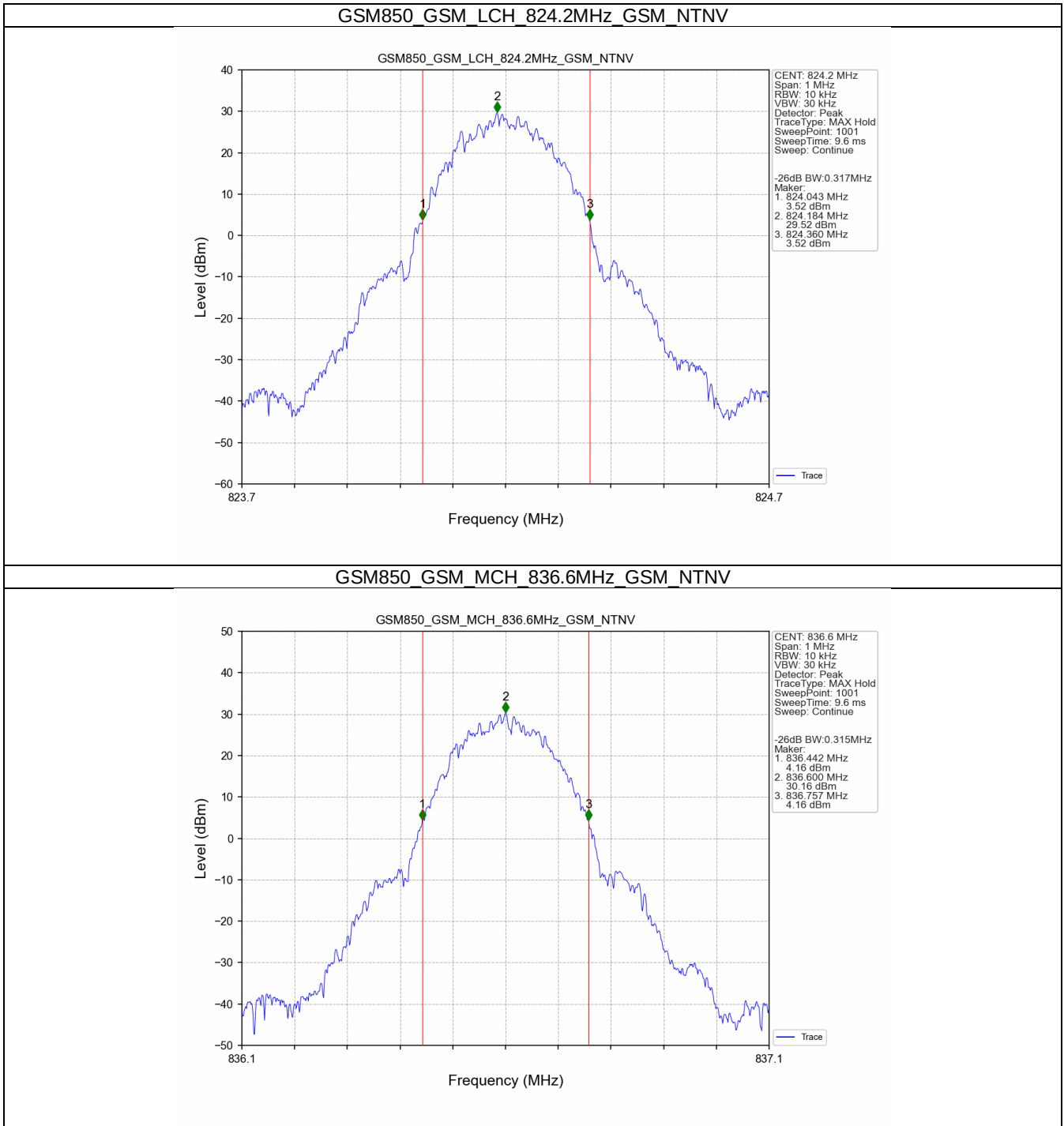
# GSM850\_EGPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



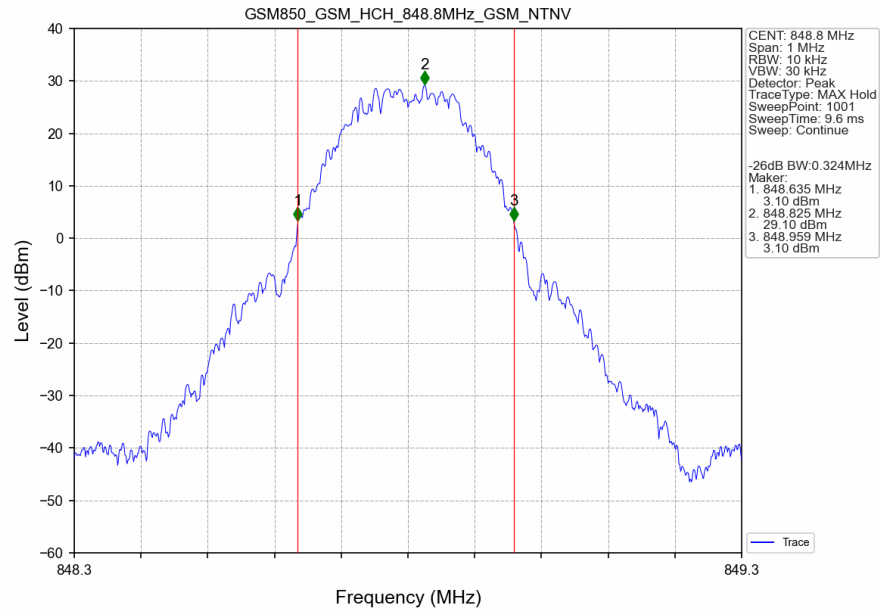
GSM850 EGPRS HCH 848.8MHz 1 TX Slot NTNV



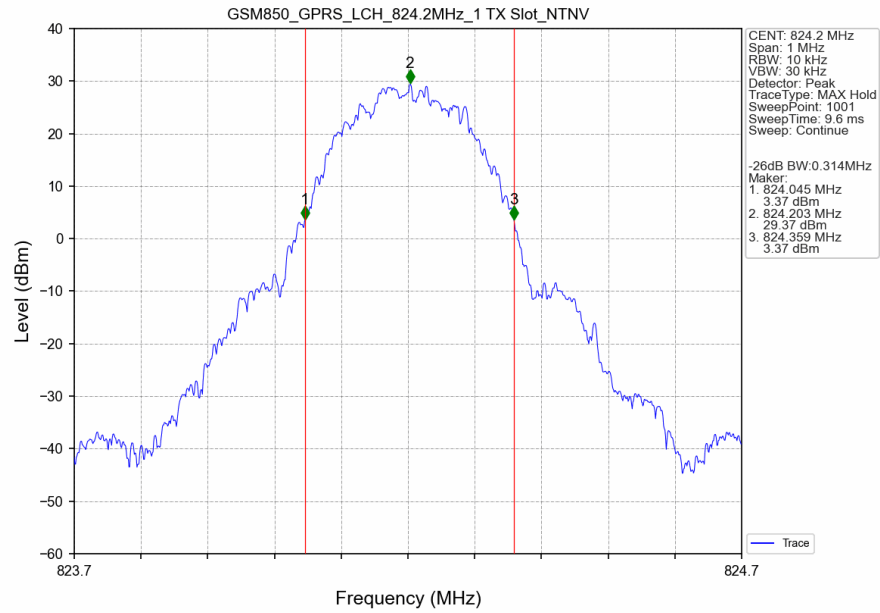
3.2.2 GSM850\_XDB



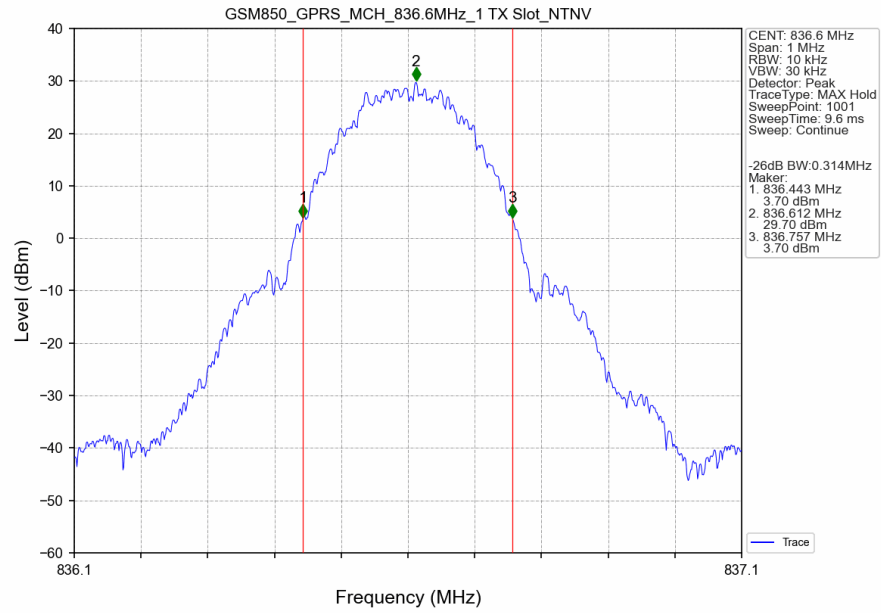
# GSM850 GSM HCH 848.8MHz GSM NTN



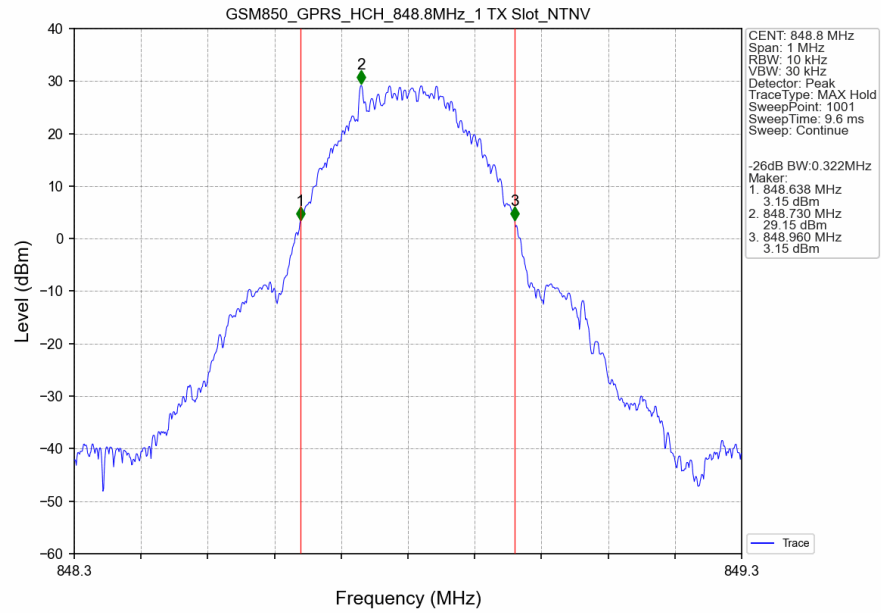
# GSM850 GPRS LCH 824.2MHz\_1 TX Slot NTN



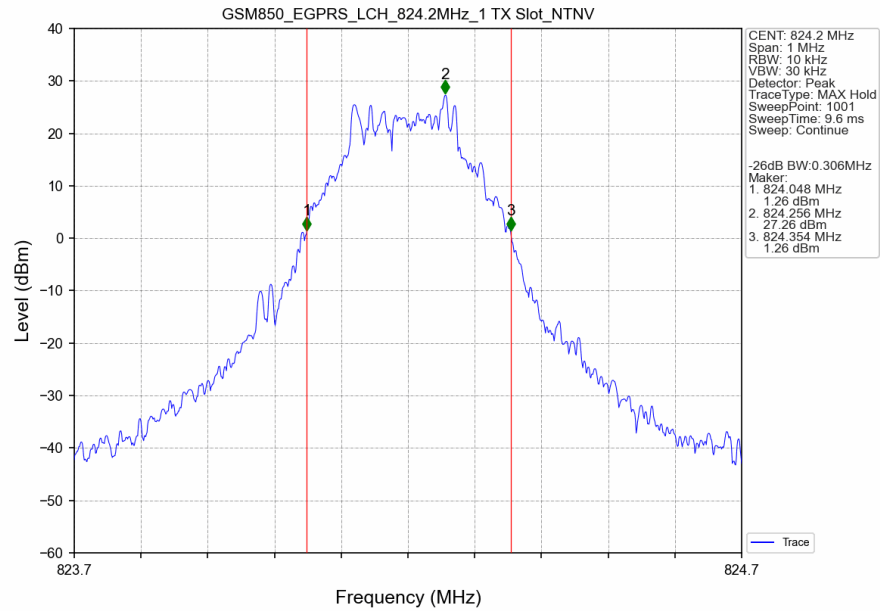
# GSM850\_GPRS\_MCH\_836.6MHz\_1 TX Slot\_NTNV



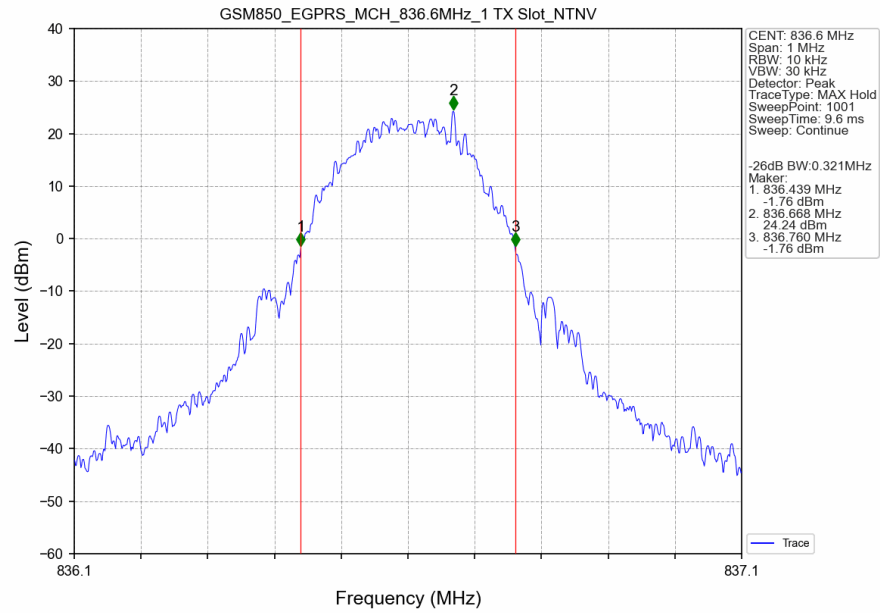
# GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



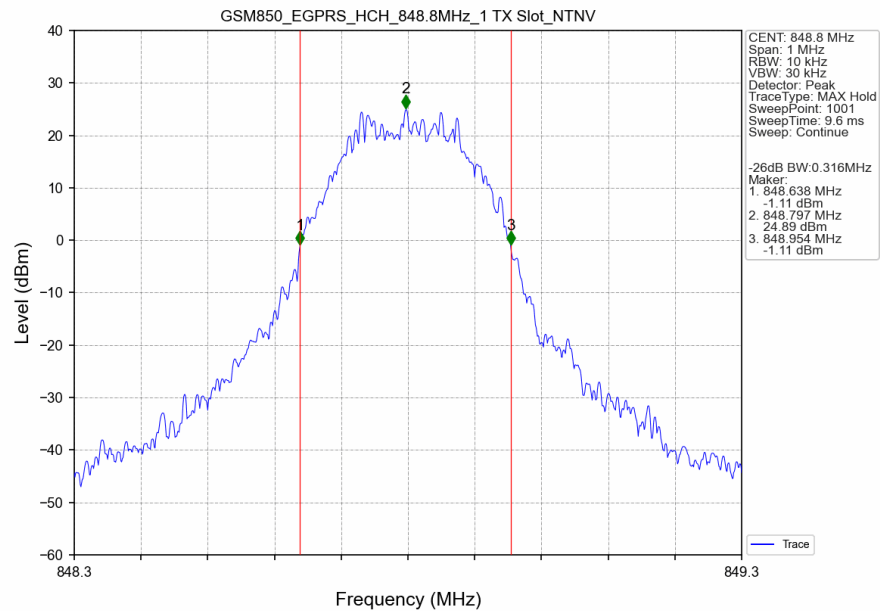
# GSM850 EGPRS LCH 824.2MHz 1 TX Slot\_NTNV



# GSM850 EGPRS MCH 836.6MHz 1 TX Slot\_NTNV



GSM850 EGPRS HCH 848.8MHz 1 TX Slot NTNV



## 4. Peak-Average Ratio

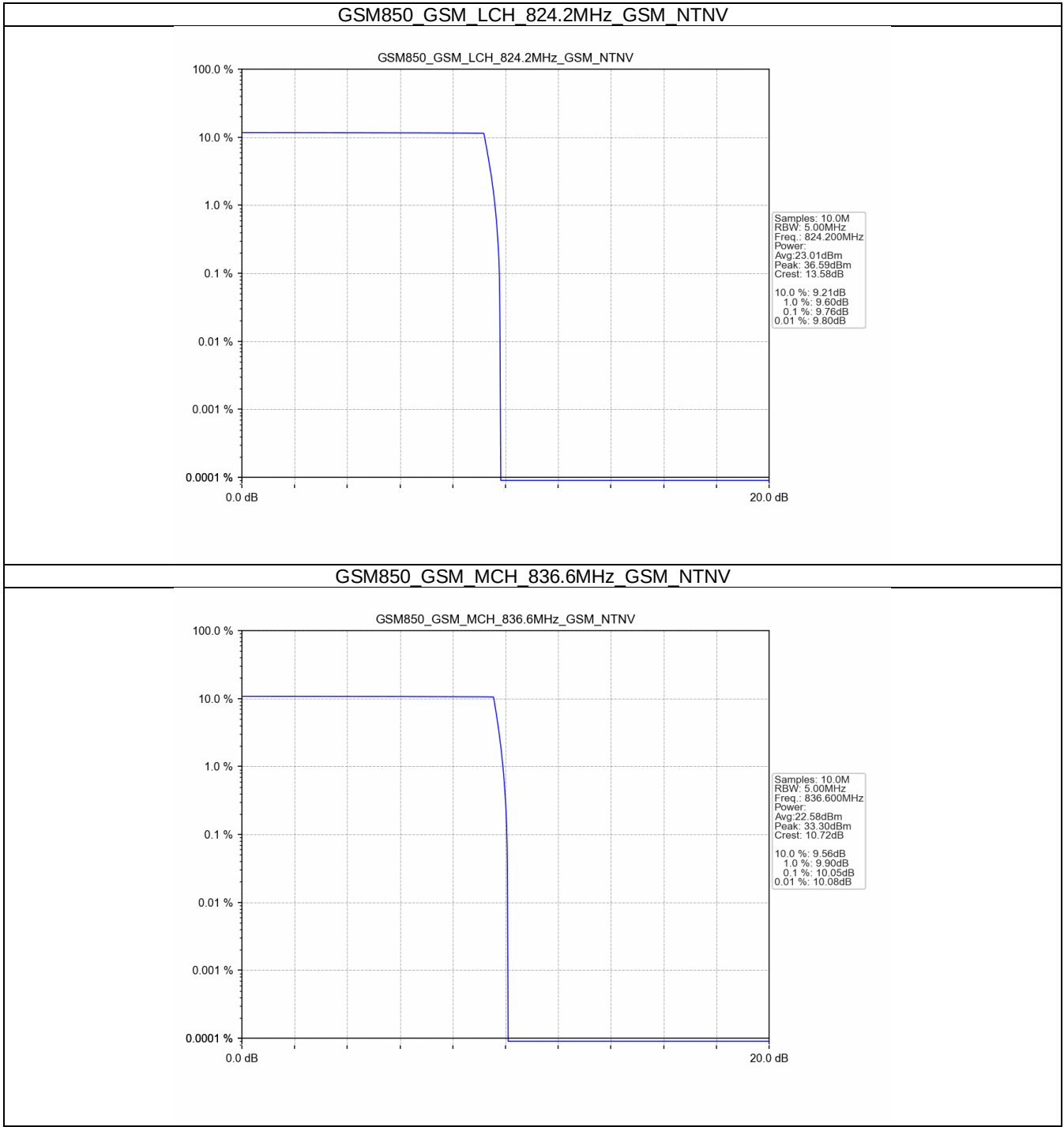
### 4.1 Test Result

#### 4.1.1 GSM850

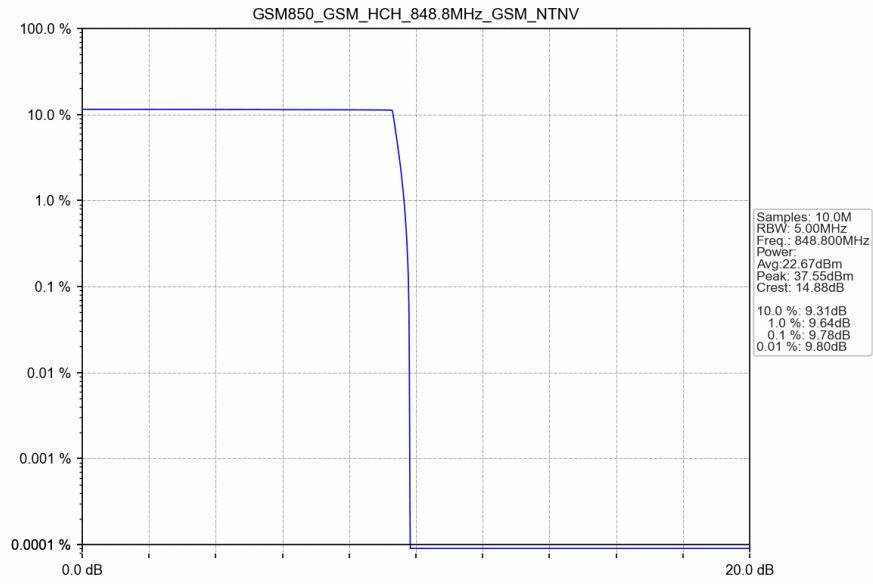
| Band: GSM850 |         |            |                    |                         |       |         |
|--------------|---------|------------|--------------------|-------------------------|-------|---------|
| ENV          | Mode    |            | Frequency<br>(MHz) | Peak-Average Ratio (dB) |       | Verdict |
|              | Network | Subset     |                    | Result                  | Limit |         |
| NTNV         | GSM     | GSM        | 824.2              | 9.76                    | <=13  | Pass    |
|              |         |            | 836.6              | 10.05                   | <=13  | Pass    |
|              |         |            | 848.8              | 9.78                    | <=13  | Pass    |
|              | GPRS    | 4 TX Slots | 824.2              | 4.18                    | <=13  | Pass    |
|              |         |            | 836.6              | 4.10                    | <=13  | Pass    |
|              |         |            | 848.8              | 4.16                    | <=13  | Pass    |
|              | EGPRS   | 4 TX Slots | 824.2              | 9.13                    | <=13  | Pass    |
|              |         |            | 836.6              | 9.30                    | <=13  | Pass    |
|              |         |            | 848.8              | 9.11                    | <=13  | Pass    |

4.2 Test Graph

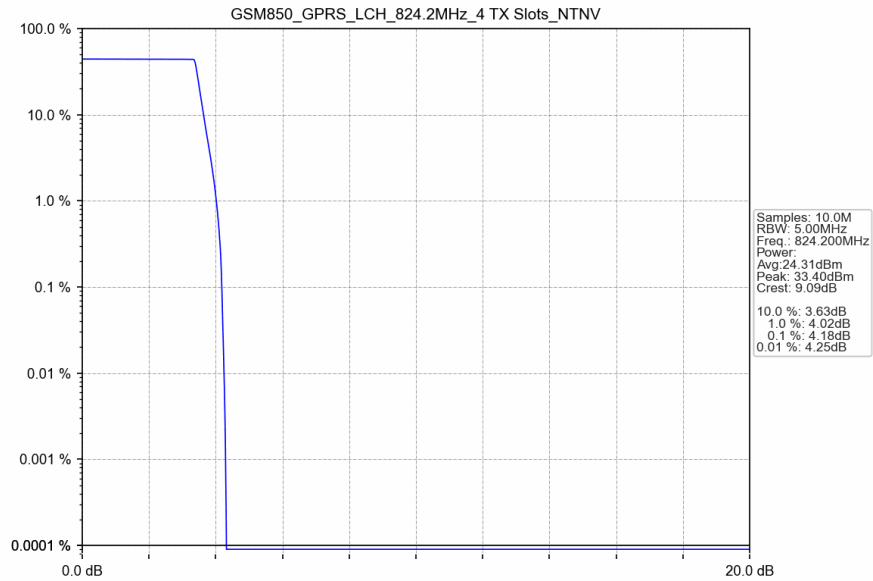
4.2.1 GSM850



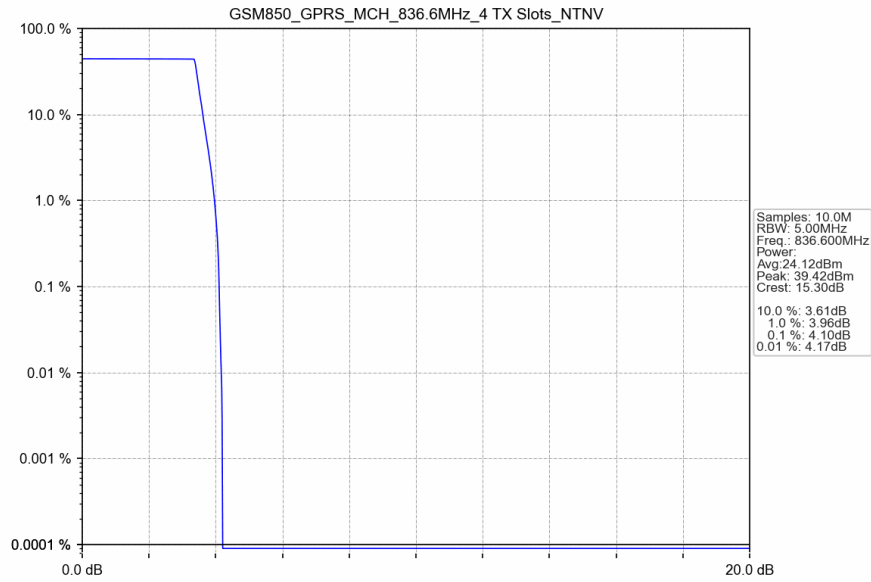
# GSM850 GSM HCH 848.8MHz GSM NTNV



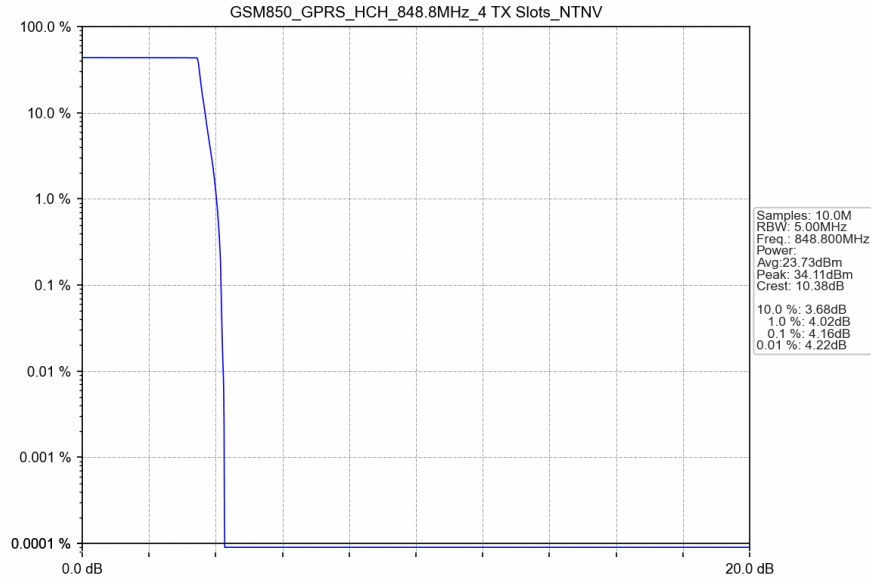
# GSM850 GPRS LCH 824.2MHz 4 TX Slots NTNV



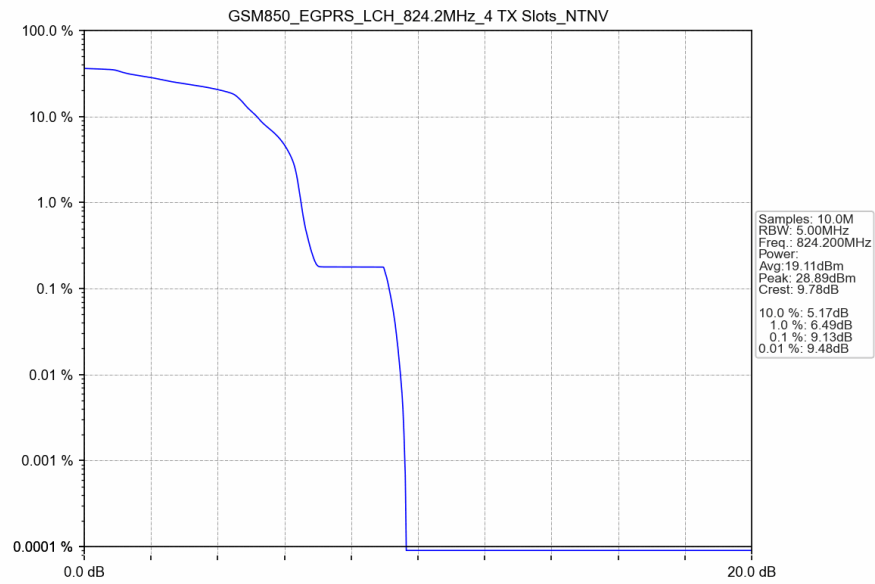
GSM850 GPRS MCH 836.6MHz 4 TX Slots NTNV



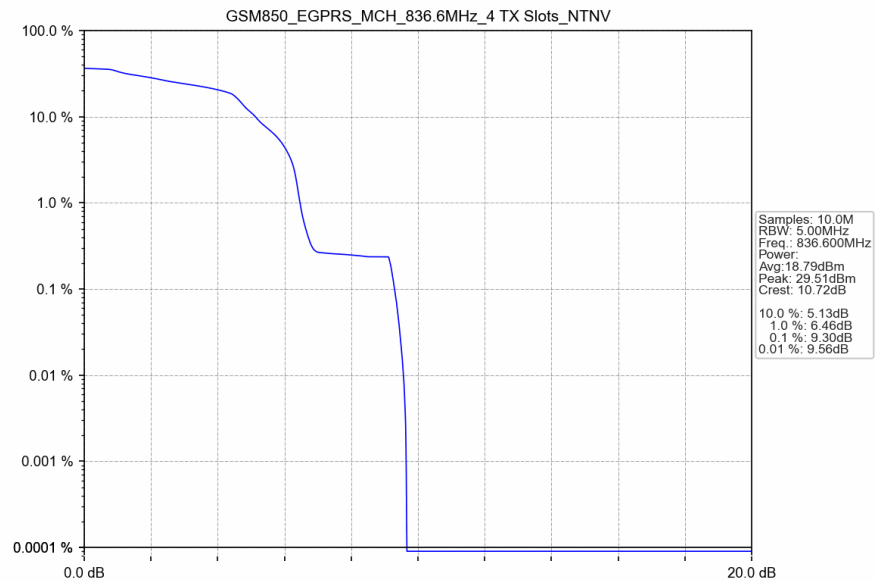
GSM850 GPRS HCH 848.8MHz 4 TX Slots NTNV



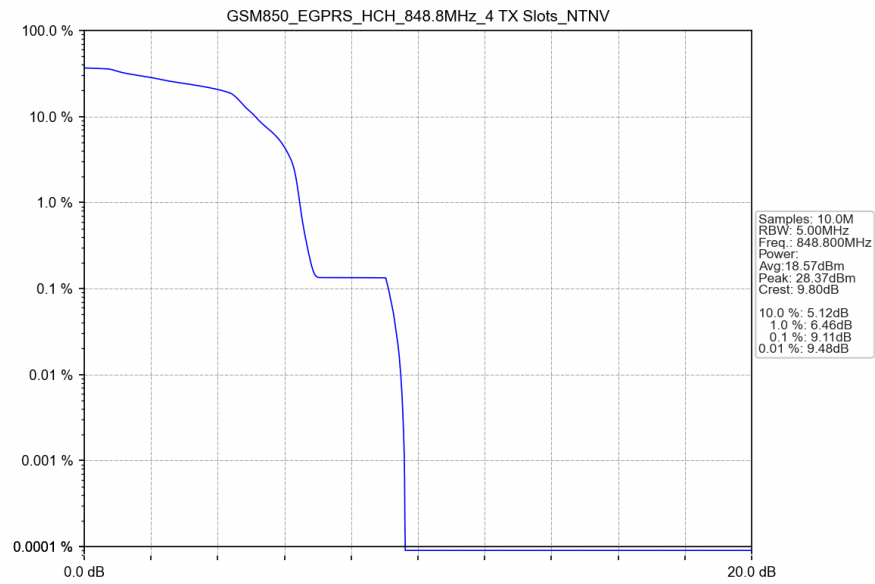
# GSM850\_EGPRS\_LCH\_824.2MHz\_4 TX Slots\_NTNV



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



# GSM850 EGPRS HCH 848.8MHz 4 TX Slots NTNV



## 5. Spurious Emission

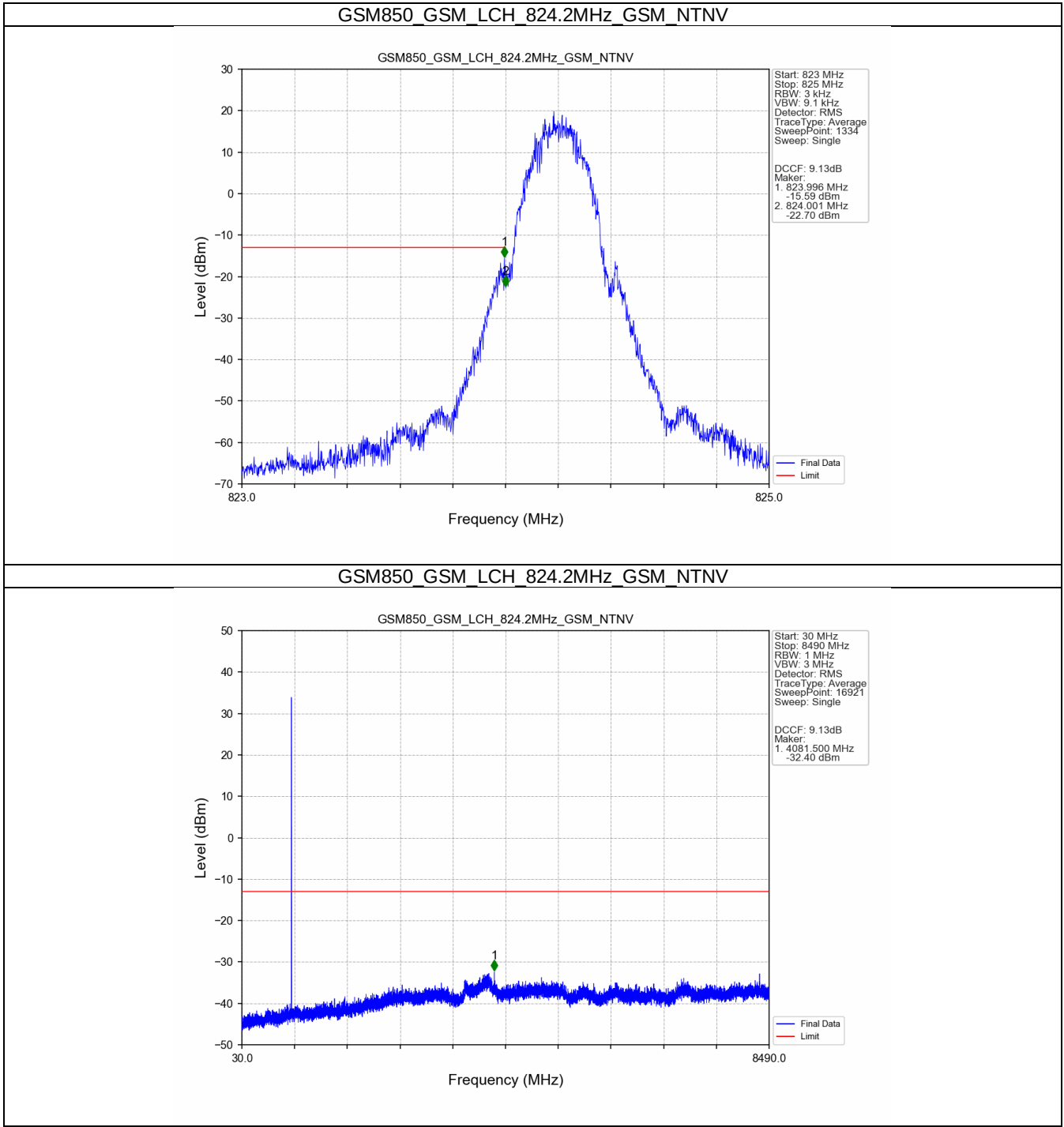
### 5.1 Test Result

#### 5.1.1 GSM850

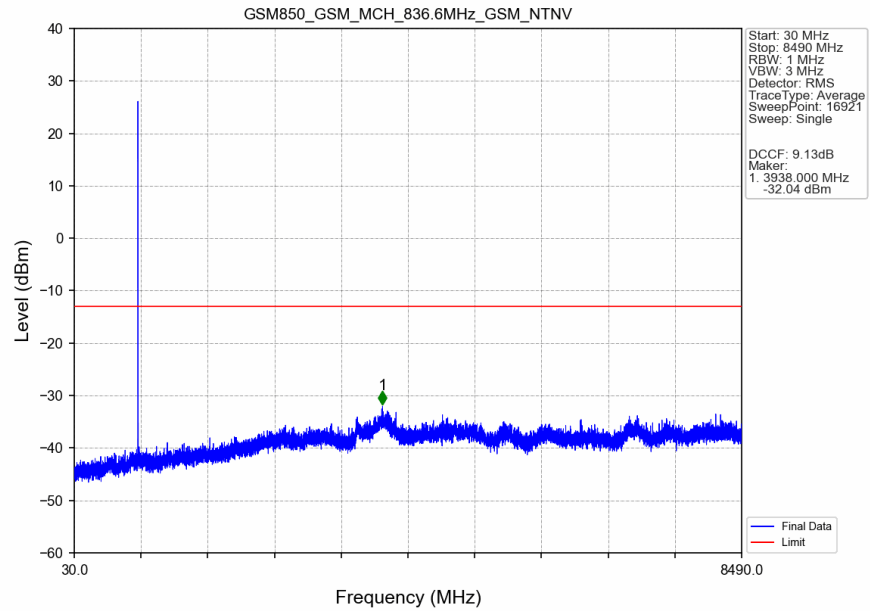
| Band: GSM850 |         |           |                    |                     |       |         |
|--------------|---------|-----------|--------------------|---------------------|-------|---------|
| ENV          | Mode    |           | Frequency<br>(MHz) | Spurious Emission   |       | Verdict |
|              | 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  |         |

5.2 Test Graph

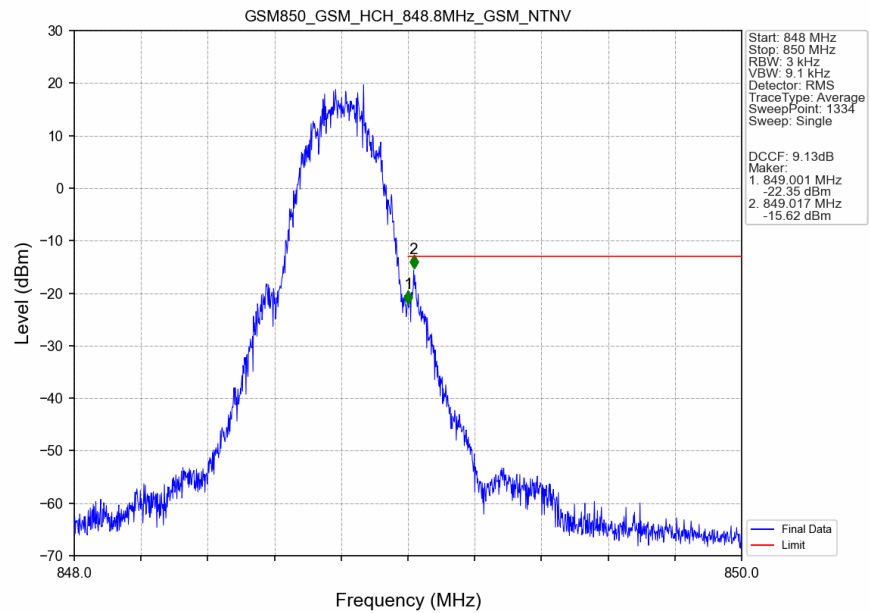
5.2.1 GSM850



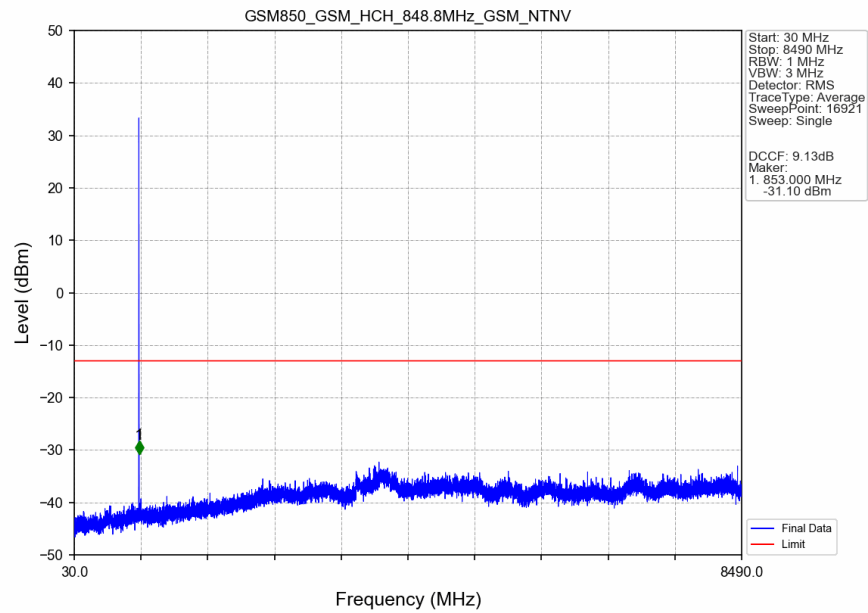
# GSM850 GSM MCH 836.6MHz GSM NTN



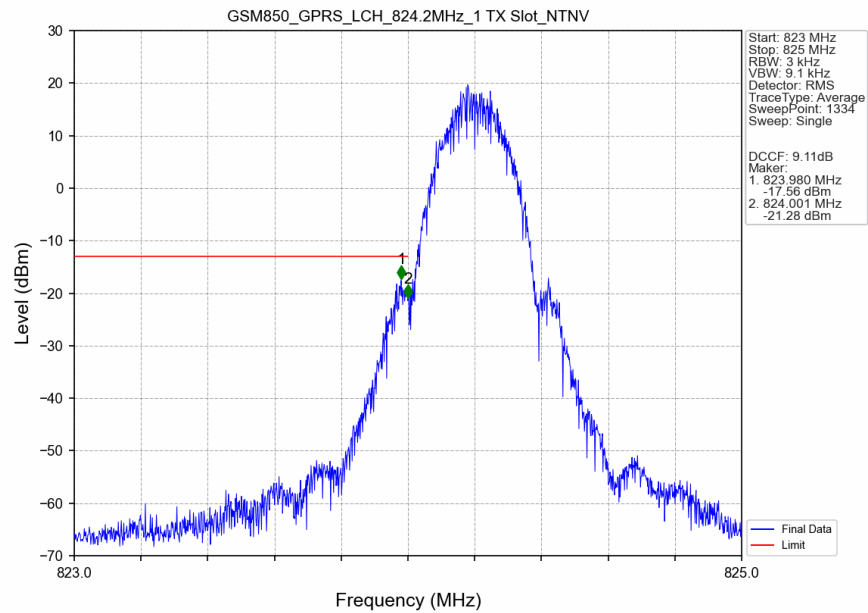
# GSM850 GSM HCH 848.8MHz GSM NTN



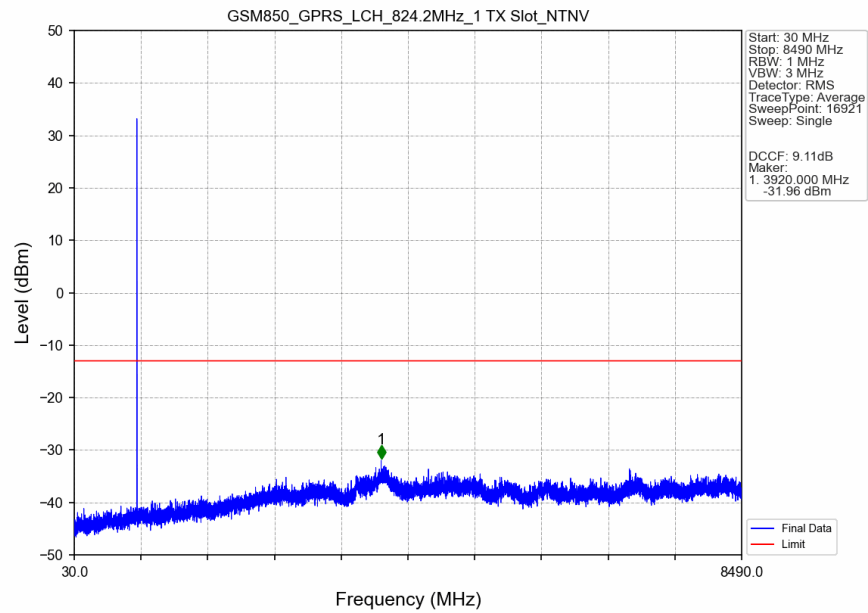
# GSM850 GSM HCH 848.8MHz GSM NTN



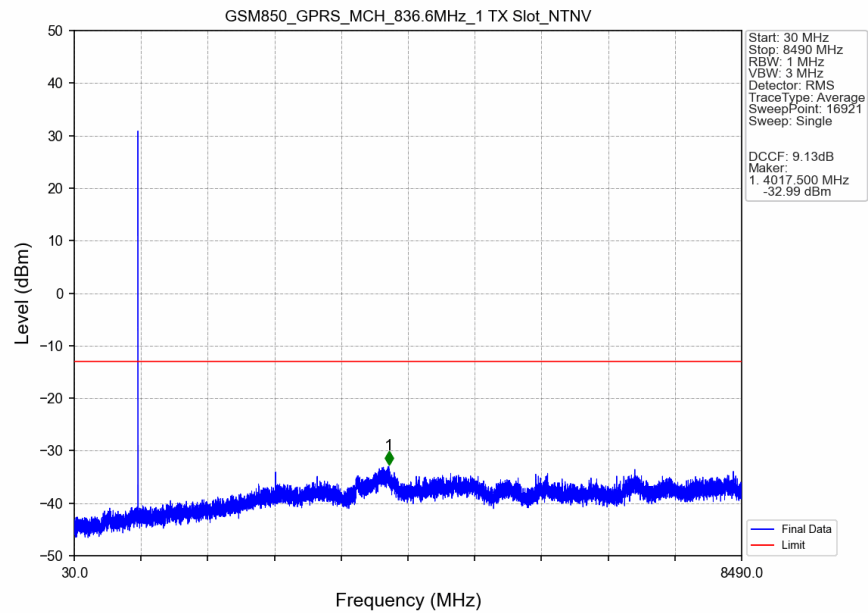
# GSM850 GPRS LCH 824.2MHz\_1 TX Slot NTN



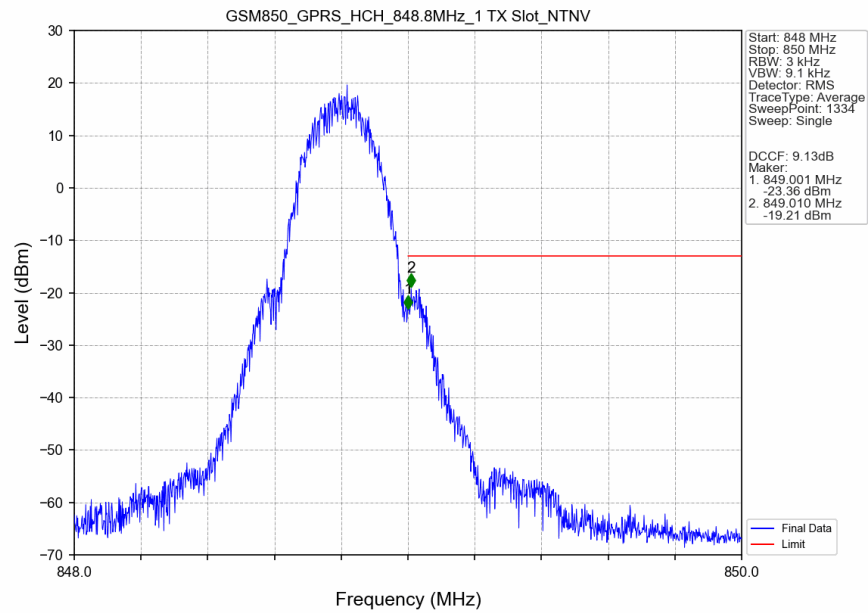
# GSM850 GPRS LCH 824.2MHz 1 TX Slot\_NTNV



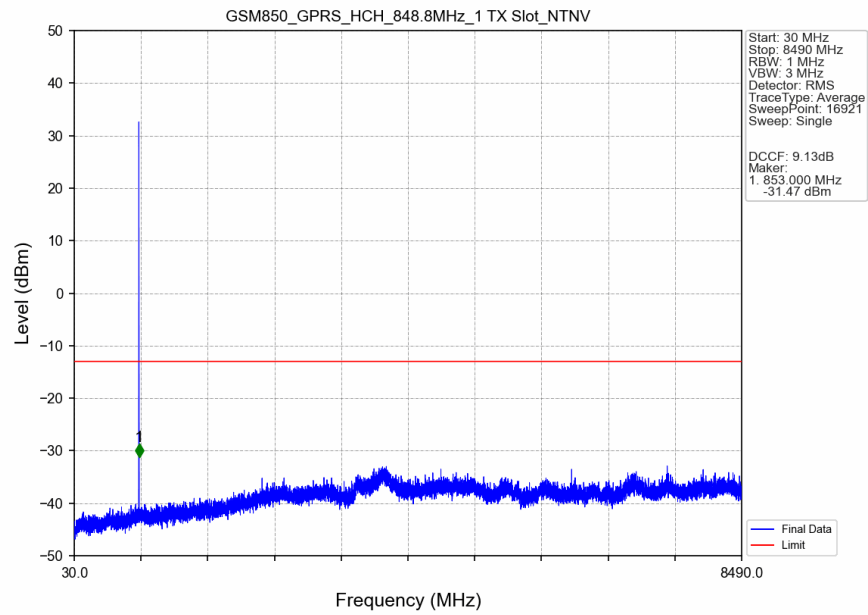
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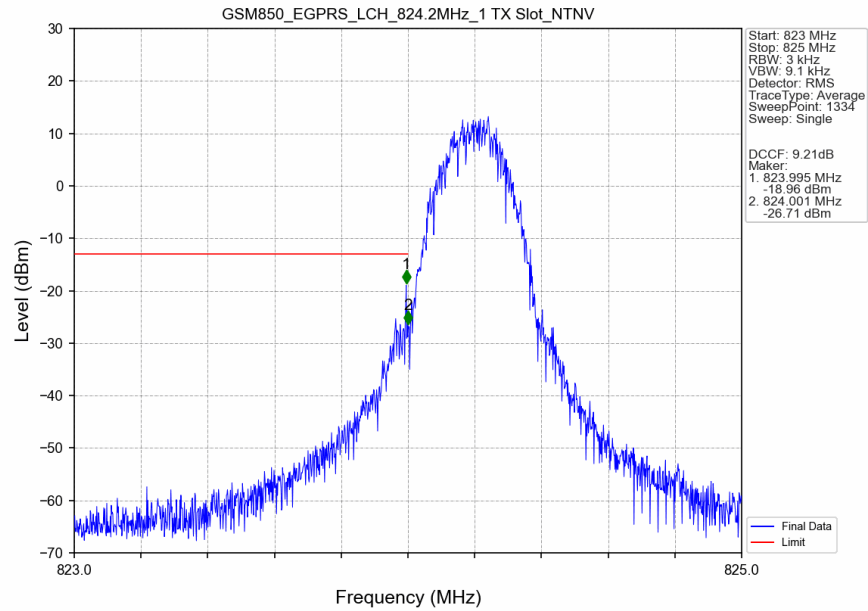
# GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



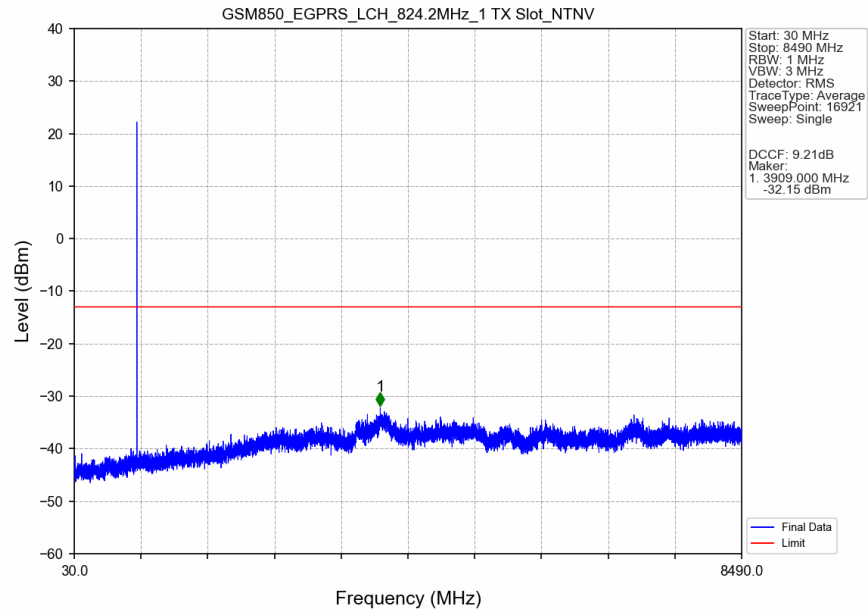
# GSM850\_GPRS\_HCH\_848.8MHz\_1 TX Slot\_NTNV



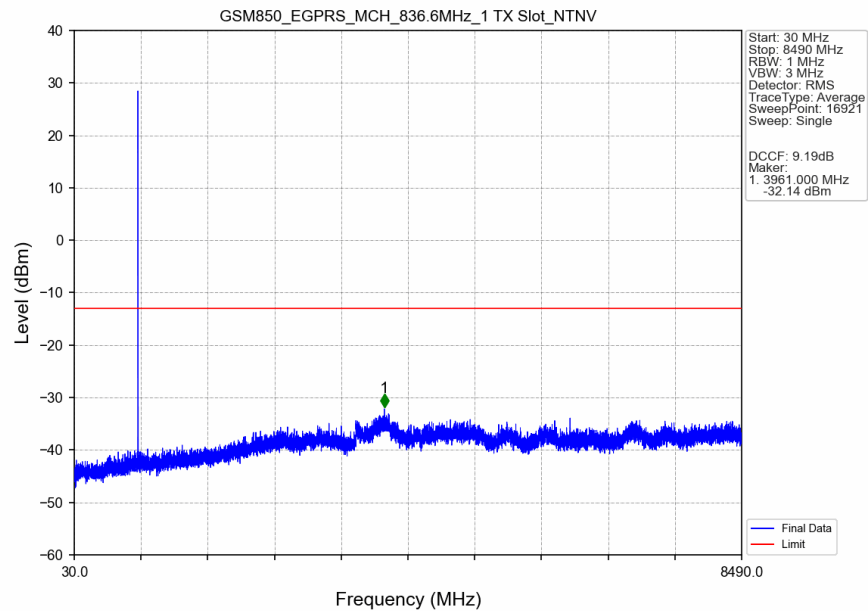
# GSM850 EGPRS LCH 824.2MHz 1 TX Slot\_NTNV



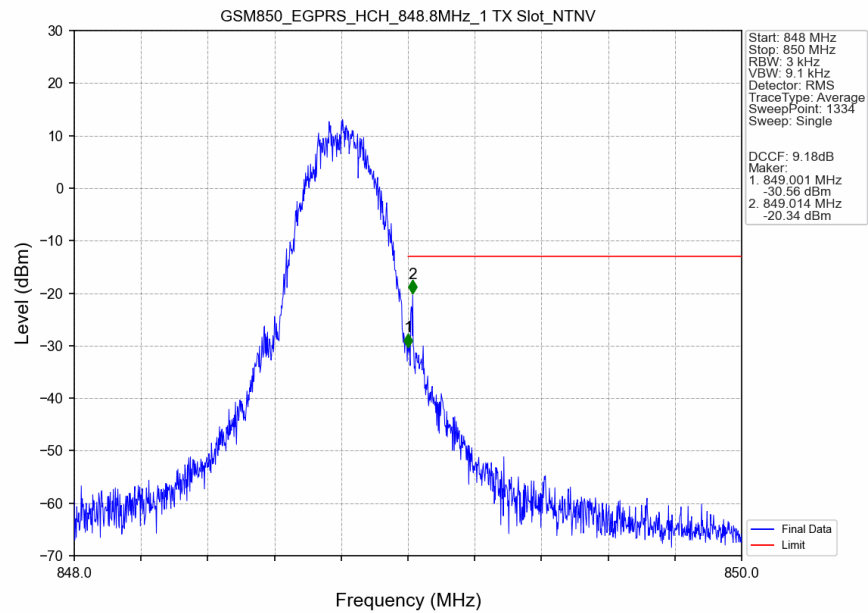
# GSM850 EGPRS LCH 824.2MHz 1 TX Slot\_NTNV



GSM850 EGPRS MCH 836.6MHz 1 TX Slot\_NTNV



GSM850 EGPRS HCH 848.8MHz 1 TX Slot\_NTNV



GSM850 EGPRS HCH 848.8MHz 1 TX Slot NTNV

