

Appendix A

Test Information:

|             |           |              |                       |
|-------------|-----------|--------------|-----------------------|
| Serial No.: | 2QMM-4    | Test Date:   | 2024/09/02~2024/09/03 |
| Test Site:  | RF        | Test Mode:   | Transmitting          |
| Tester:     | Loge Long | Test Result: | Pass                  |

Environmental Conditions:

|                       |           |                           |       |                        |             |
|-----------------------|-----------|---------------------------|-------|------------------------|-------------|
| Temperature:<br>(°C): | 27.3~27.9 | Relative Humidity:<br>(%) | 54~64 | ATM Pressure:<br>(kPa) | 100.2~100.8 |
|-----------------------|-----------|---------------------------|-------|------------------------|-------------|

Test Equipment List and Details:

| Manufacturer  | Description                         | Model        | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|--------------|---------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | FSV40        | 101461        | 2023/11/27       | 2024/11/26           |
| Micro-Coax    | Coaxial Cable                       | UFB205A      | 323308-012    | 2024/01/02       | 2025/01/01           |
| Minl-Clruiats | Coaxial Power Splitters & Combiner  | ZFRSC-183-S+ | SF448201614   | 2024/02/25       | 2025/02/24           |
| R&S           | Wideband Radio Communication Tester | CMW500       | 144976        | 2023/10/18       | 2024/10/17           |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150-40   | 30173         | 2023/10/18       | 2024/10/17           |
| TDK-Lambda    | DC Power Supply                     | Z+60-14      | F-08-EM038-1  | N/A              | N/A                  |
| All-sun       | Multimeter                          | EM305A       | 8348897       | 2024/08/03       | 2025/08/02           |

\* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Frequency stability vs. temperature &Frequency stability vs. voltage Compliance

FCC Part 22H

GSM 850

| Mode             | Test Channel<br>(MHz) | Frequency Error |       | Limit<br>(ppm) | Result |
|------------------|-----------------------|-----------------|-------|----------------|--------|
|                  |                       | (Hz)            | (ppm) |                |        |
| GSM_Middle_TN/VN | 836.6                 | 16.3            | 0.020 | ±2.5           | Pass   |
| GSM_Middle_T1/VN | 836.6                 | 13.2            | 0.016 | ±2.5           | Pass   |
| GSM_Middle_T2/VN | 836.6                 | 12.4            | 0.015 | ±2.5           | Pass   |
| GSM_Middle_T3/VN | 836.6                 | 11.0            | 0.013 | ±2.5           | Pass   |
| GSM_Middle_T4/VN | 836.6                 | 8.7             | 0.010 | ±2.5           | Pass   |
| GSM_Middle_T5/VN | 836.6                 | 10.3            | 0.012 | ±2.5           | Pass   |
| GSM_Middle_T6/VN | 836.6                 | 13.5            | 0.016 | ±2.5           | Pass   |
| GSM_Middle_T7/VN | 836.6                 | 5.5             | 0.007 | ±2.5           | Pass   |
| GSM_Middle_T8/VN | 836.6                 | 9.1             | 0.011 | ±2.5           | Pass   |
| GSM_Middle_TN/VH | 836.6                 | 11.9            | 0.014 | ±2.5           | Pass   |
| GSM_Middle_TN/VL | 836.6                 | 11.4            | 0.014 | ±2.5           | Pass   |

**Note:**

**Frequency Error (ppm)=Frequency Error (MHz)/Test Channel(MHz)\*10<sup>6</sup>**

**TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.**

**VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.**

FCC Part 24E

GSM 1900

| Mode           | Value<br>(MHz) | Limit<br>(MHz) | Result |
|----------------|----------------|----------------|--------|
| GSM_Low_TN/VN  | 1850.080       | 1850           | Pass   |
| GSM_Low_T1/VN  | 1850.077       | 1850           | Pass   |
| GSM_Low_T2/VN  | 1850.077       | 1850           | Pass   |
| GSM_Low_T3/VN  | 1850.081       | 1850           | Pass   |
| GSM_Low_T4/VN  | 1850.080       | 1850           | Pass   |
| GSM_Low_T5/VN  | 1850.081       | 1850           | Pass   |
| GSM_Low_T6/VN  | 1850.080       | 1850           | Pass   |
| GSM_Low_T7/VN  | 1850.080       | 1850           | Pass   |
| GSM_Low_T8/VN  | 1850.080       | 1850           | Pass   |
| GSM_Low_TN/VH  | 1850.081       | 1850           | Pass   |
| GSM_Low_TN/VL  | 1850.080       | 1850           | Pass   |
| GSM_High_TN/VN | 1909.923       | 1910           | Pass   |
| GSM_High_T1/VN | 1909.924       | 1910           | Pass   |
| GSM_High_T2/VN | 1909.927       | 1910           | Pass   |
| GSM_High_T3/VN | 1909.923       | 1910           | Pass   |
| GSM_High_T4/VN | 1909.923       | 1910           | Pass   |
| GSM_High_T5/VN | 1909.926       | 1910           | Pass   |
| GSM_High_T6/VN | 1909.924       | 1910           | Pass   |
| GSM_High_T7/VN | 1909.925       | 1910           | Pass   |
| GSM_High_T8/VN | 1909.926       | 1910           | Pass   |
| GSM_High_TN/VH | 1909.926       | 1910           | Pass   |
| GSM_High_TN/VL | 1909.925       | 1910           | Pass   |

**Note:**  
TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.  
VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.

Occupied Bandwidth

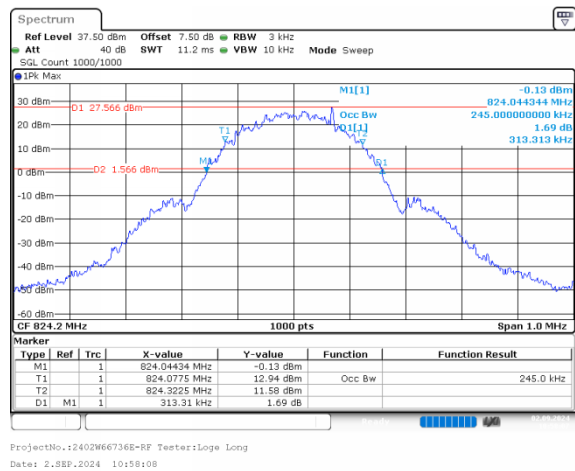
FCC Part 22H

GSM 850 , Normal

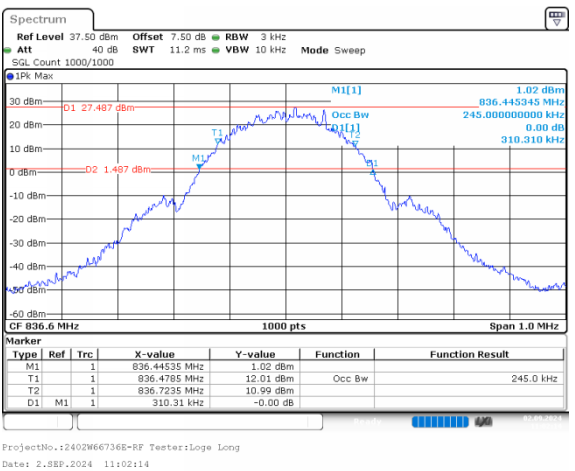
| Mode       | 99% OBW<br>(MHz) | EBW<br>(MHz) |
|------------|------------------|--------------|
| GSM_Low    | 0.245            | 0.313        |
| GSM_Middle | 0.245            | 0.310        |
| GSM_High   | 0.246            | 0.311        |

GSM 850 , Normal

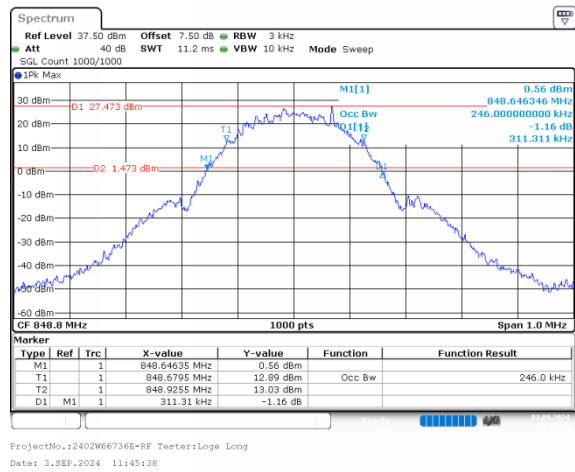
GSM\_Low 0.245MHz



GSM\_Middle 0.245MHz



GSM\_High 0.246MHz



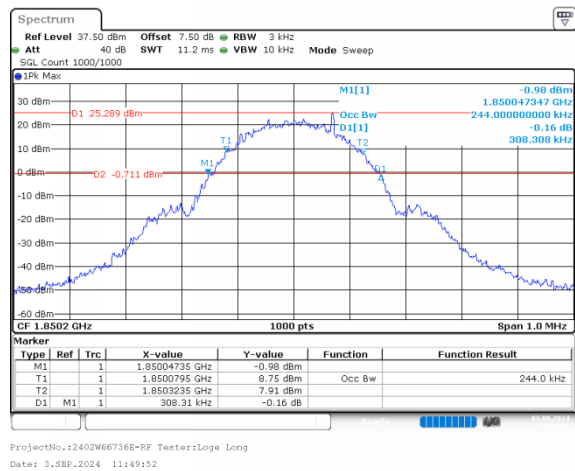
FCC Part 24E

GSM 1900 , Normal

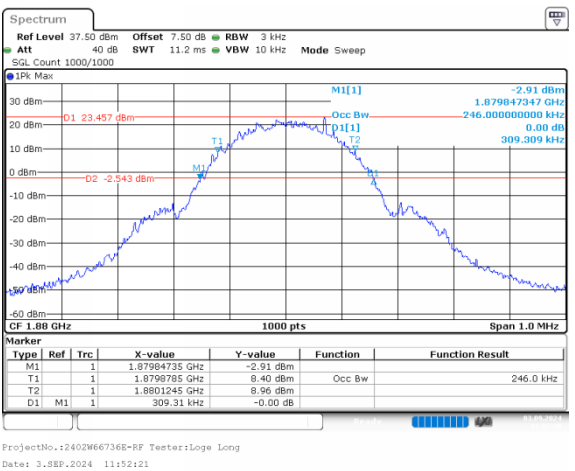
| Mode       | 99% OBW<br>(MHz) | EBW<br>(MHz) |
|------------|------------------|--------------|
| GSM_Low    | 0.244            | 0.308        |
| GSM_Middle | 0.246            | 0.309        |
| GSM_High   | 0.244            | 0.310        |

GSM 1900 , Normal

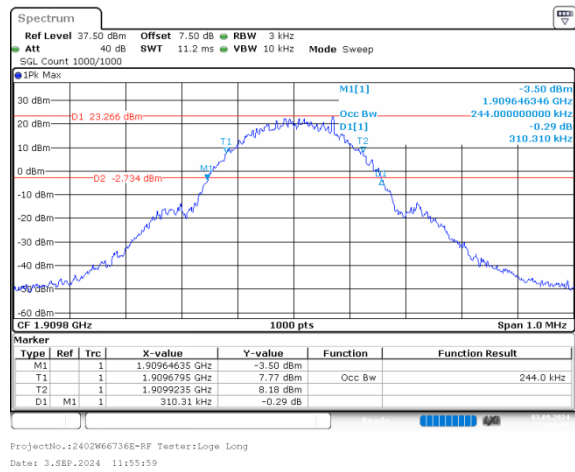
GSM\_Low 0.244MHz



GSM\_Middle 0.246MHz



GSM\_High 0.244MHz



RF Output Power

FCC Part 22H

GSM 850 , Normal

| Mode              | Peak Conducted Power(dBm) | ERP (dBm) | Limit(dBm) | Result |
|-------------------|---------------------------|-----------|------------|--------|
| GSM_Low           | 33.52                     | 29.61     | 38.45      | Pass   |
| GSM_Middle        | 33.44                     | 29.53     | 38.45      | Pass   |
| GSM_High          | 33.41                     | 29.50     | 38.45      | Pass   |
| GPRS_Low_Solt1    | 33.23                     | 29.32     | 38.45      | Pass   |
| GPRS_Low_Solt2    | 31.27                     | 27.36     | 38.45      | Pass   |
| GPRS_Low_Solt3    | 29.41                     | 25.50     | 38.45      | Pass   |
| GPRS_Low_Solt4    | 27.45                     | 23.54     | 38.45      | Pass   |
| GPRS_Middle_Solt1 | 33.04                     | 29.13     | 38.45      | Pass   |
| GPRS_Middle_Solt2 | 31.31                     | 27.40     | 38.45      | Pass   |
| GPRS_Middle_Solt3 | 29.47                     | 25.56     | 38.45      | Pass   |
| GPRS_Middle_Solt4 | 27.50                     | 23.59     | 38.45      | Pass   |
| GPRS_High_Solt1   | 33.01                     | 29.10     | 38.45      | Pass   |
| GPRS_High_Solt2   | 31.39                     | 27.48     | 38.45      | Pass   |
| GPRS_High_Solt3   | 29.57                     | 25.66     | 38.45      | Pass   |
| GPRS_High_Solt4   | 27.61                     | 23.70     | 38.45      | Pass   |

Note:

$ERP = \text{Peak Conducted Power(dBm)} - L_C(\text{dB}) + G_T(\text{dBd})$

$G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$

$1.Ant\ Gain = -1.76\text{dBi};$

$2.C_L = \text{signal attenuation in the connecting cable between the transmitter and antenna in 0dB}$

FCC Part 24E

GSM 1900 , Normal

| Mode              | Peak Conducted Power(dBm) | EIRP (dBm) | Limit(dBm) | Result |
|-------------------|---------------------------|------------|------------|--------|
| GSM_Low           | 30.74                     | 29.05      | 33         | Pass   |
| GSM_Middle        | 30.30                     | 28.61      | 33         | Pass   |
| GSM_High          | 30.38                     | 28.69      | 33         | Pass   |
| GPRS_Low_Solt1    | 30.62                     | 28.93      | 33         | Pass   |
| GPRS_Low_Solt2    | 28.60                     | 26.91      | 33         | Pass   |
| GPRS_Low_Solt3    | 26.98                     | 25.29      | 33         | Pass   |
| GPRS_Low_Solt4    | 24.88                     | 23.19      | 33         | Pass   |
| GPRS_Middle_Solt1 | 30.29                     | 28.60      | 33         | Pass   |
| GPRS_Middle_Solt2 | 28.20                     | 26.51      | 33         | Pass   |
| GPRS_Middle_Solt3 | 26.54                     | 24.85      | 33         | Pass   |
| GPRS_Middle_Solt4 | 24.33                     | 22.64      | 33         | Pass   |
| GPRS_High_Solt1   | 30.36                     | 28.67      | 33         | Pass   |
| GPRS_High_Solt2   | 27.77                     | 26.08      | 33         | Pass   |
| GPRS_High_Solt3   | 26.15                     | 24.46      | 33         | Pass   |
| GPRS_High_Solt4   | 23.85                     | 22.16      | 33         | Pass   |

Note:

$EIRP = \text{Peak Conducted Power(dBm)} - L_C(\text{dB}) + G_T(\text{dBi})$

1.Ant Gain = -1.69dBi;

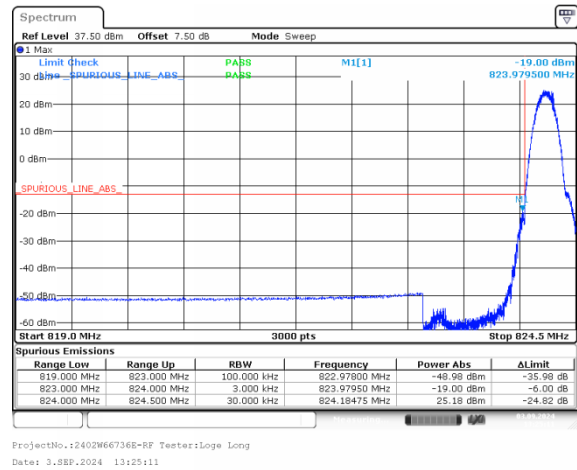
2.C<sub>L</sub> = signal attenuation in the connecting cable between the transmitter and antenna in 0dB

Out of band emission,Band Edge

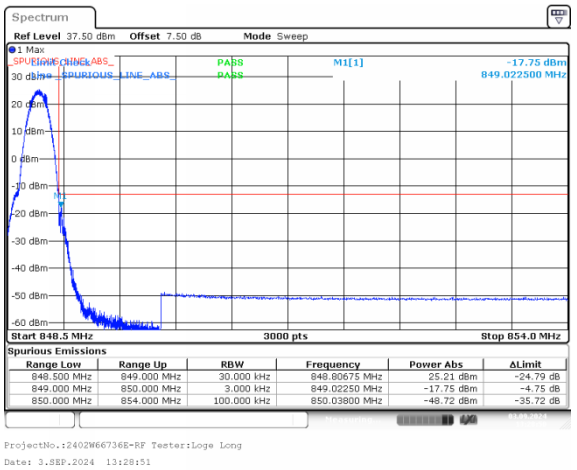
FCC Part 22H

GSM 850 , Normal

GSM\_Low -19.00dBm



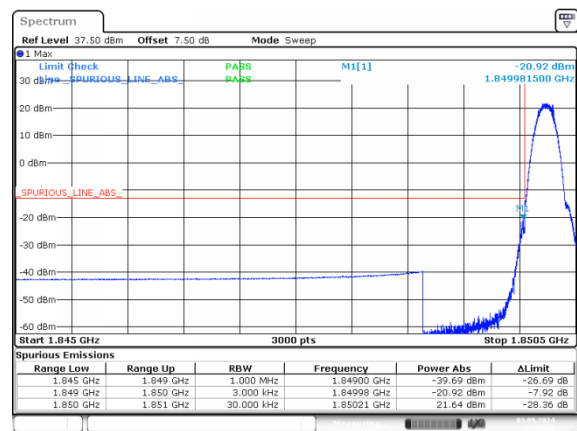
GSM\_High -17.75dBm



FCC Part 24E

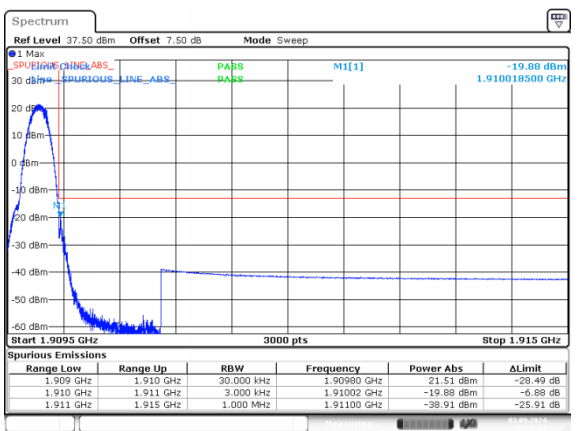
GSM 1900 , Normal

GSM\_Low -20.92dBm



ProjectNo.:2402W66736E-RF Tester:Loge Long  
Date: 3.SEP.2024 13:34:23

GSM\_High -19.88dBm



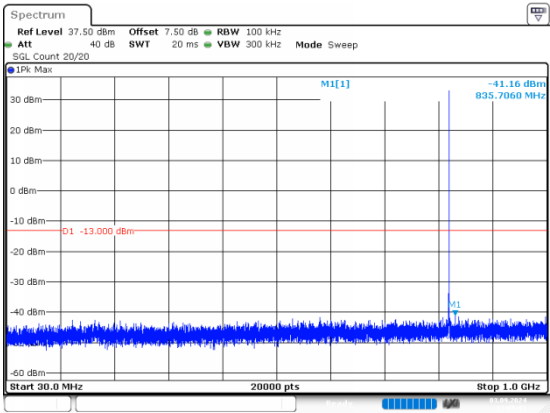
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Spurious Emissions at Antenna Terminal

FCC Part 22H  
GSM 850 , Normal

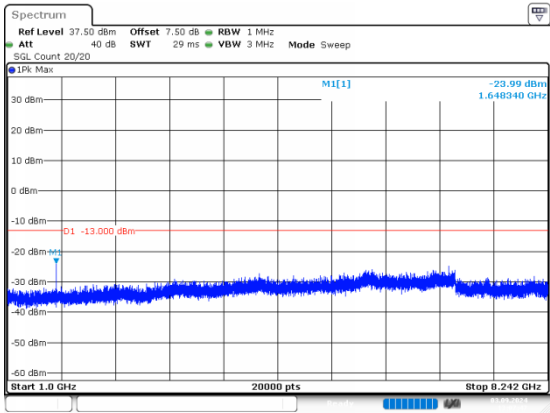
GSM\_Low

Below 1G



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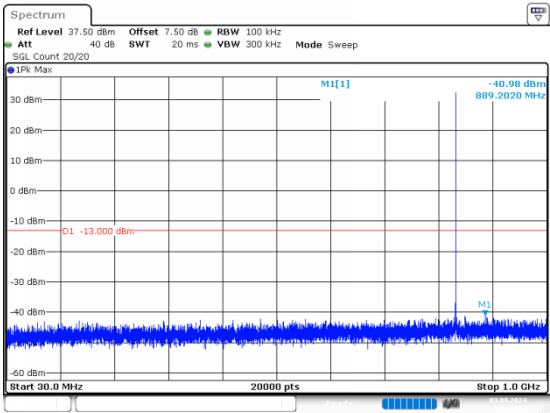
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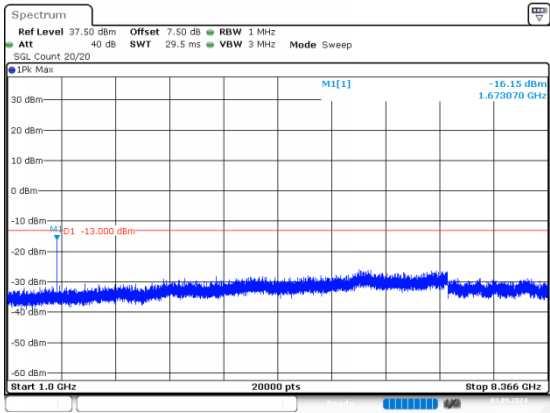
GSM\_Middle

Below 1G



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Above 1G

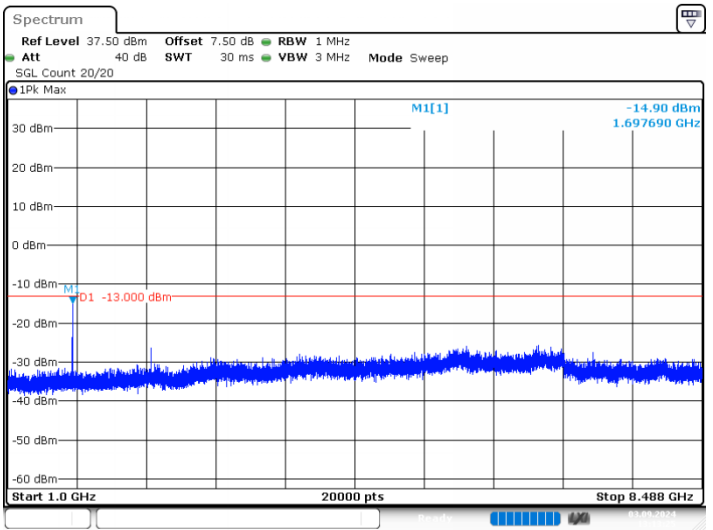
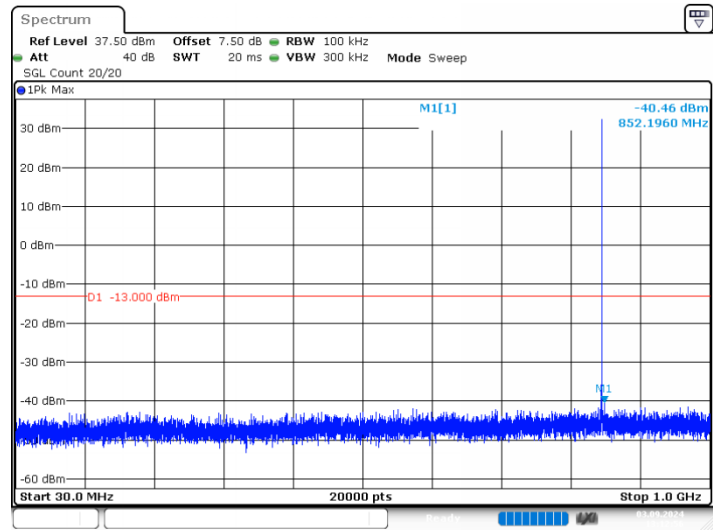


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Date: 3.SEP.2024 13:10:32

GSM\_High

Below 1G

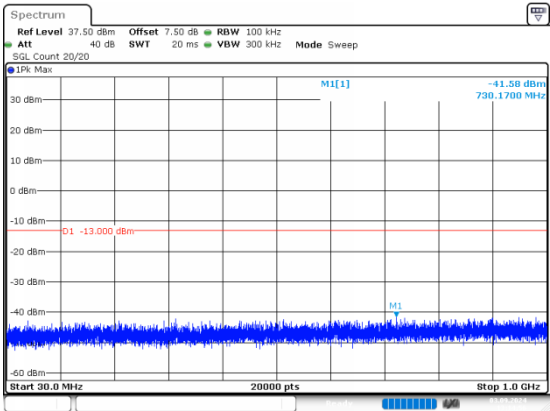
Above 1G



FCC Part 24E  
GSM 1900 , Normal

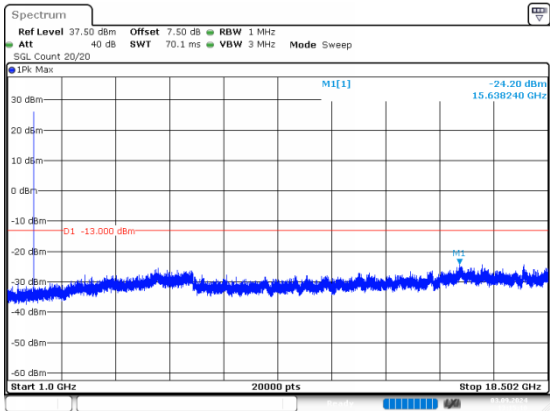
GSM\_Low

Below 1G



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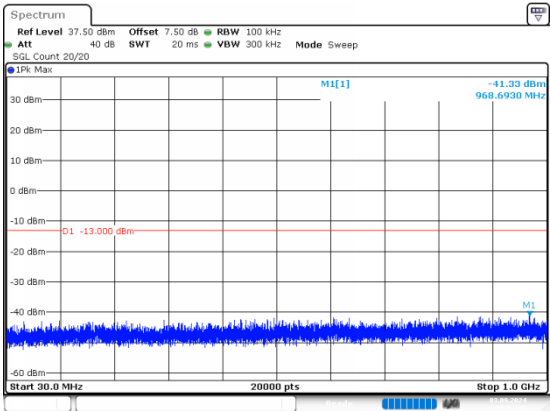
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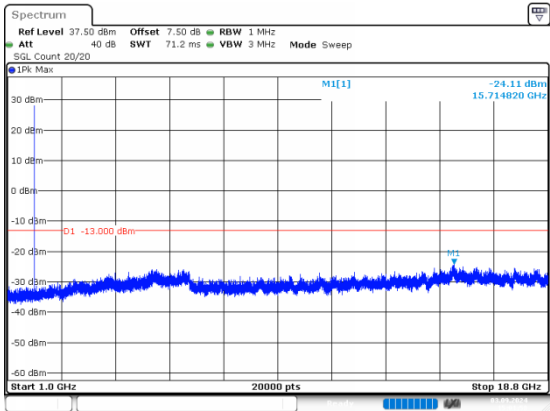
GSM\_Middle

Below 1G



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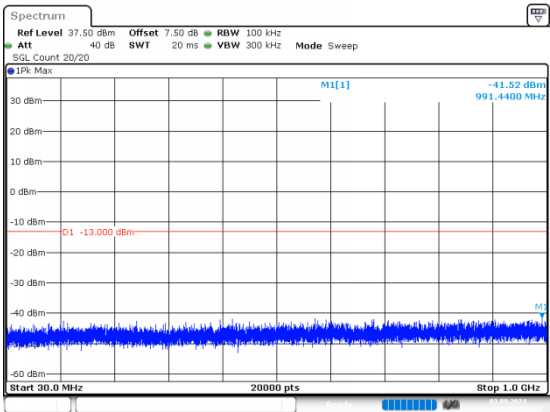
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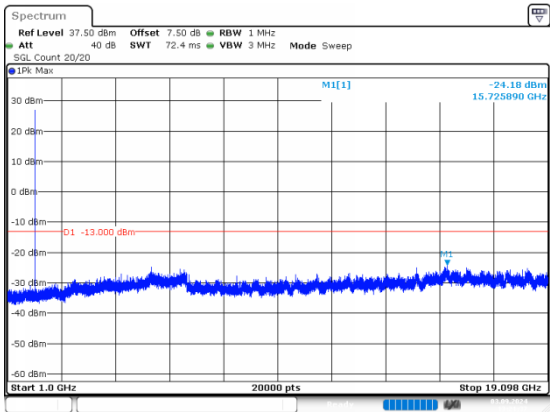
GSM\_High

Below 1G



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Above 1G



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