

Appendix A

Test Information:

|             |            |              |                       |
|-------------|------------|--------------|-----------------------|
| Serial No.: | 2N1N-3     | Test Date:   | 2024/07/21~2024/07/22 |
| Test Site:  | RF         | Test Mode:   | Transmitting          |
| Tester:     | Karl Liang | Test Result: | Pass                  |

Environmental Conditions:

|                      |         |                           |       |                        |             |
|----------------------|---------|---------------------------|-------|------------------------|-------------|
| Temperature:<br>(℃): | 27.9~28 | Relative Humidity:<br>(%) | 63~64 | ATM Pressure:<br>(kPa) | 100.2~100.8 |
|----------------------|---------|---------------------------|-------|------------------------|-------------|

Test Equipment List and Details:

| Manufacturer  | Description                         | Model        | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|--------------|---------------|------------------|----------------------|
| Micro-Coax    | Coaxial Cable                       | UFB205A      | 323308-024    | 2024/01/02       | 2025/01/01           |
| Mini-Circuits | 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       | Clamp Meter                         | EM305A       | 8348897       | 2023/08/03       | 2024/08/02           |
| R&S           | Spectrum Analyzer                   | FSV40        | 101461        | 2023/11/27       | 2024/11/26           |

\* 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                      | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) | Result |
|---------------------------|----------------------|-----------------------|-------------|--------|
| GSM_Middle_TN/VN          | 5.7                  | 0.007                 | ±2.5        | Pass   |
| GSM_Middle_T1/VN          | 5.2                  | 0.006                 | ±2.5        | Pass   |
| GSM_Middle_T2/VN          | 5.5                  | 0.007                 | ±2.5        | Pass   |
| GSM_Middle_T3/VN          | 5.6                  | 0.007                 | ±2.5        | Pass   |
| GSM_Middle_T4/VN          | 6.4                  | 0.008                 | ±2.5        | Pass   |
| GSM_Middle_T5/VN          | 5.7                  | 0.007                 | ±2.5        | Pass   |
| GSM_Middle_T6/VN          | 7.3                  | 0.009                 | ±2.5        | Pass   |
| GSM_Middle_T7/VN          | 3.4                  | 0.004                 | ±2.5        | Pass   |
| GSM_Middle_T8/VN          | 4.5                  | 0.005                 | ±2.5        | Pass   |
| GSM_Middle_TN/VH          | 6.1                  | 0.007                 | ±2.5        | Pass   |
| GSM_Middle_TN/VL          | 6.0                  | 0.007                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ TN/VN | 4.3                  | 0.005                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T1/VN | 5.1                  | 0.006                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T2/VN | 4.4                  | 0.005                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T3/VN | 6.0                  | 0.007                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T4/VN | 3.9                  | 0.005                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T5/VN | 3.5                  | 0.004                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T6/VN | 7.1                  | 0.008                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T7/VN | 5.2                  | 0.006                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ T8/VN | 3.9                  | 0.005                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ TN/VH | 4.0                  | 0.005                 | ±2.5        | Pass   |
| EDGE_Middle_Solt 1_ TN/VL | 4.8                  | 0.006                 | ±2.5        | Pass   |

Note:

Frequency Error (ppm)=Frequency Error (MHz)/Test Channel(MHz)

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

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        | 1850.075       | 1850           | Pass   |
| GSM_Low_T1/VN        | 1850.079       | 1850           | Pass   |
| GSM_Low_T2/VN        | 1850.080       | 1850           | Pass   |
| GSM_Low_T3/VN        | 1850.078       | 1850           | Pass   |
| GSM_Low_T4/VN        | 1850.079       | 1850           | Pass   |
| GSM_Low_T5/VN        | 1850.079       | 1850           | Pass   |
| GSM_Low_T6/VN        | 1850.079       | 1850           | Pass   |
| GSM_Low_T7/VN        | 1850.079       | 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       | 1909.924       | 1910           | Pass   |
| GSM_High_T1/VN       | 1909.924       | 1910           | Pass   |
| GSM_High_T2/VN       | 1909.923       | 1910           | Pass   |
| GSM_High_T3/VN       | 1909.924       | 1910           | Pass   |
| GSM_High_T4/VN       | 1909.920       | 1910           | Pass   |
| GSM_High_T5/VN       | 1909.924       | 1910           | Pass   |
| GSM_High_T6/VN       | 1909.928       | 1910           | Pass   |
| GSM_High_T7/VN       | 1909.927       | 1910           | Pass   |
| GSM_High_T8/VN       | 1909.924       | 1910           | Pass   |
| GSM_High_TN/VH       | 1909.924       | 1910           | Pass   |
| GSM_High_TN/VL       | 1909.927       | 1910           | Pass   |
| EDGE_Low_Solt1_TN/VN | 1850.068       | 1850           | Pass   |
| EDGE_Low_Solt1_T1/VN | 1850.077       | 1850           | Pass   |
| EDGE_Low_Solt1_T2/VN | 1850.077       | 1850           | Pass   |
| EDGE_Low_Solt1_T3/VN | 1850.078       | 1850           | Pass   |
| EDGE_Low_Solt1_T4/VN | 1850.073       | 1850           | Pass   |
| EDGE_Low_Solt1_T5/VN | 1850.079       | 1850           | Pass   |
| EDGE_Low_Solt1_T6/VN | 1850.073       | 1850           | Pass   |
| EDGE_Low_Solt1_T7/VN | 1850.075       | 1850           | Pass   |
| EDGE_Low_Solt1_T8/VN | 1850.071       | 1850           | Pass   |

| Mode                  | Value<br>(MHz) | Limit<br>(MHz) | Result |
|-----------------------|----------------|----------------|--------|
| EDGE_Low_Solt1_TN/VH  | 1850.077       | 1850           | Pass   |
| EDGE_Low_Solt1_TN/VL  | 1850.073       | 1850           | Pass   |
| EDGE_High_Solt1_TN/VN | 1909.926       | 1910           | Pass   |
| EDGE_High_Solt1_T1/VN | 1909.929       | 1910           | Pass   |
| EDGE_High_Solt1_T2/VN | 1909.926       | 1910           | Pass   |
| EDGE_High_Solt1_T3/VN | 1909.930       | 1910           | Pass   |
| EDGE_High_Solt1_T4/VN | 1909.927       | 1910           | Pass   |
| EDGE_High_Solt1_T5/VN | 1909.923       | 1910           | Pass   |
| EDGE_High_Solt1_T6/VN | 1909.926       | 1910           | Pass   |
| EDGE_High_Solt1_T7/VN | 1909.926       | 1910           | Pass   |
| EDGE_High_Solt1_T8/VN | 1909.924       | 1910           | Pass   |
| EDGE_High_Solt1_TN/VH | 1909.927       | 1910           | Pass   |
| EDGE_High_Solt1_TN/VL | 1909.930       | 1910           | Pass   |

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

Occupied Bandwidth

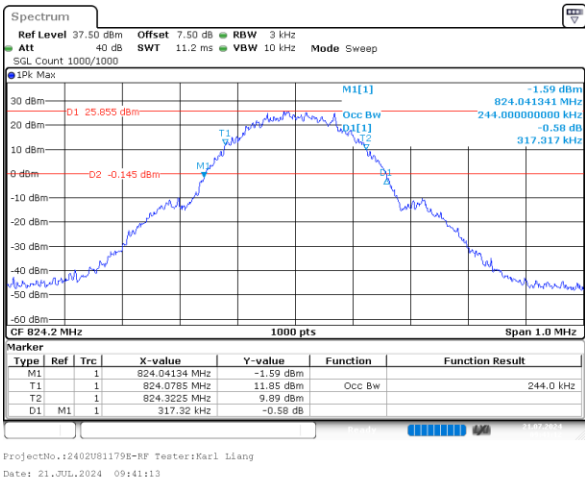
FCC Part 22H

GSM 850 , Normal

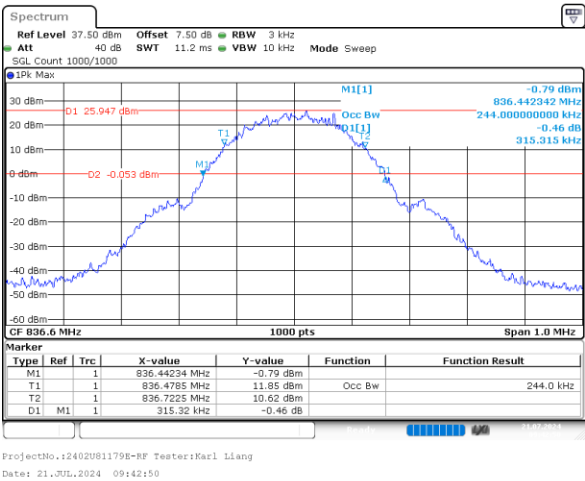
| Mode              | 99% OBW<br>(MHz) | EBW<br>(MHz) |
|-------------------|------------------|--------------|
| GSM_Low           | 0.244            | 0.317        |
| GSM_Middle        | 0.244            | 0.315        |
| GSM_High          | 0.243            | 0.313        |
| EDGE_Low_Solt1    | 0.250            | 0.315        |
| EDGE_Middle_Solt1 | 0.252            | 0.320        |
| EDGE_High_Solt1   | 0.250            | 0.317        |

GSM 850 , Normal

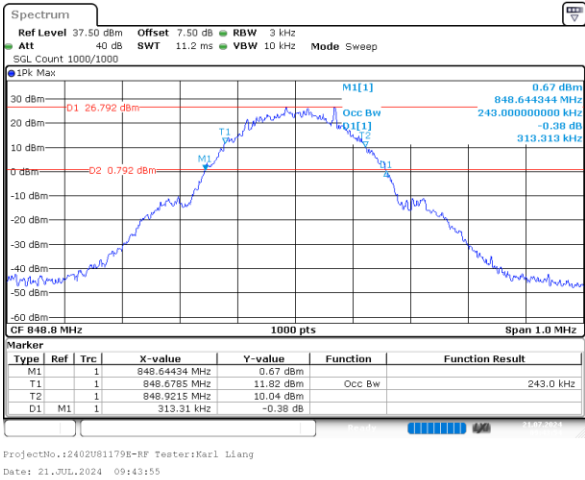
GSM\_Low 0.244MHz



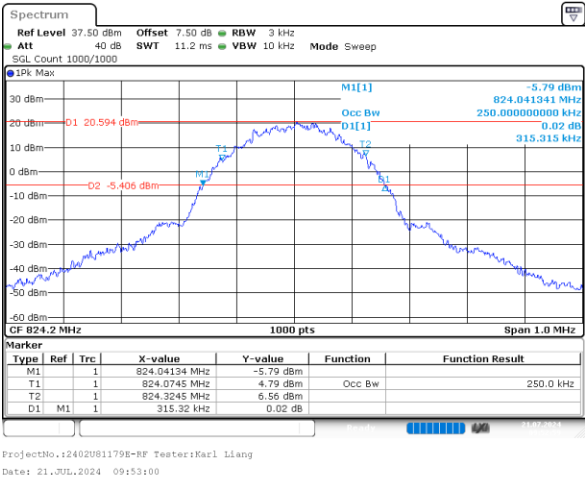
GSM\_Middle 0.244MHz



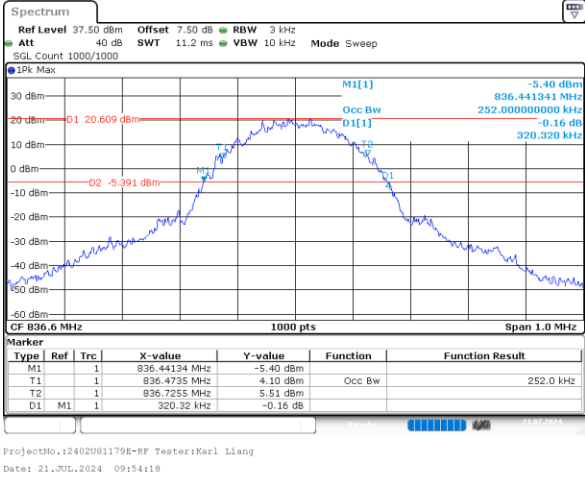
GSM\_High 0.243MHz



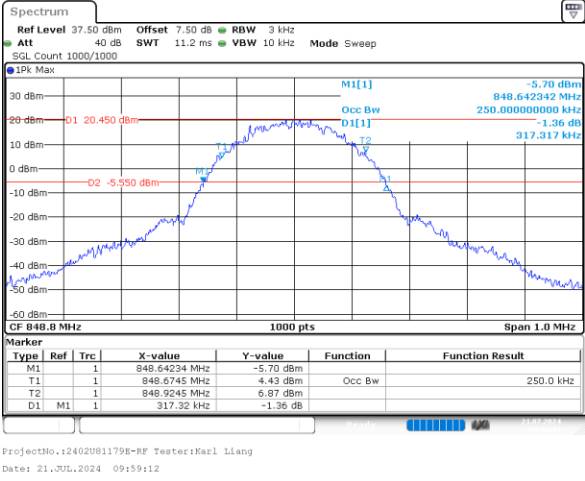
EDGE\_Low\_Solt1 0.250MHz



EDGE\_Middle\_Solt1 0.252MHz



EDGE\_High\_Solt1 0.250MHz



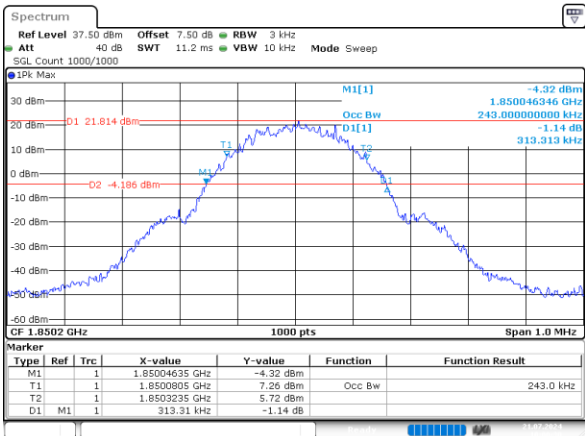
FCC Part 24E

GSM 1900 , Normal

| Mode              | 99% OBW<br>(MHz) | EBW<br>(MHz) |
|-------------------|------------------|--------------|
| GSM_Low           | 0.243            | 0.313        |
| GSM_Middle        | 0.245            | 0.315        |
| GSM_High          | 0.244            | 0.314        |
| EDGE_Low_Solt1    | 0.255            | 0.321        |
| EDGE_Middle_Solt1 | 0.254            | 0.331        |
| EDGE_High_Solt1   | 0.251            | 0.322        |

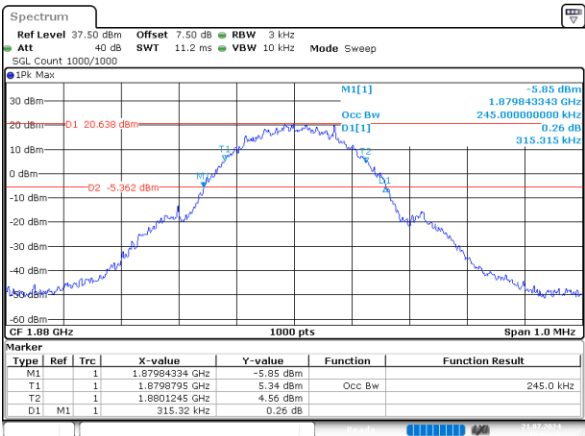
GSM 1900 , Normal

GSM\_Low 0.243MHz



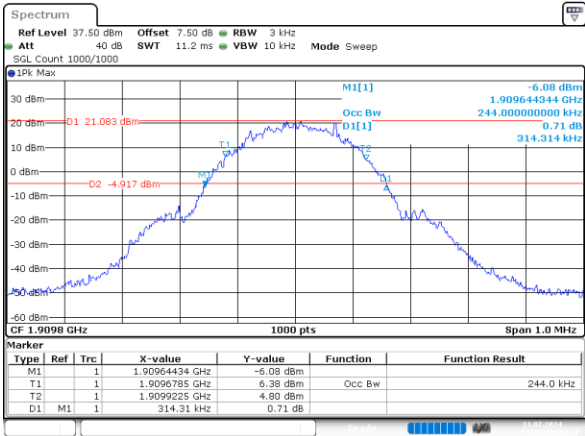
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:00:31

GSM\_Middle 0.245MHz



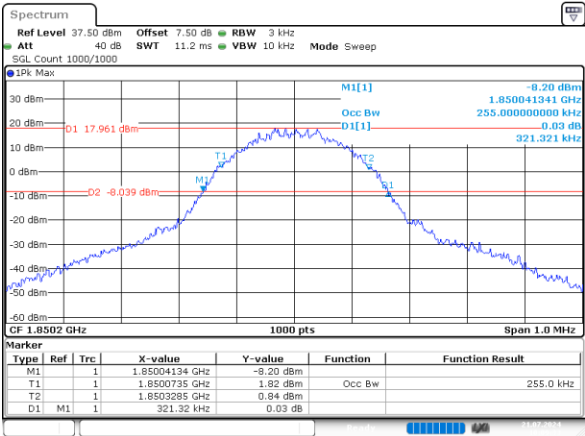
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:03:37

GSM\_High 0.244MHz



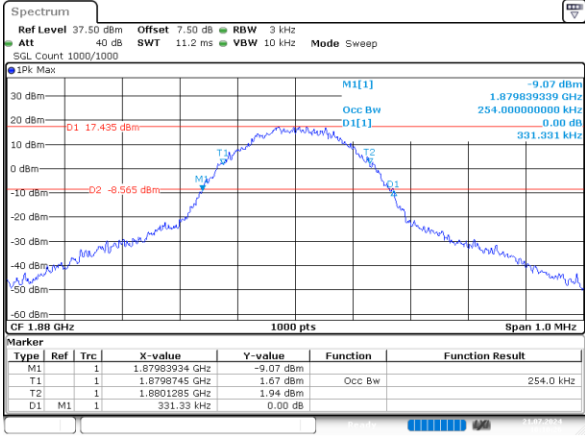
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:05:09

EDGE\_Low\_Solt1 0.255MHz



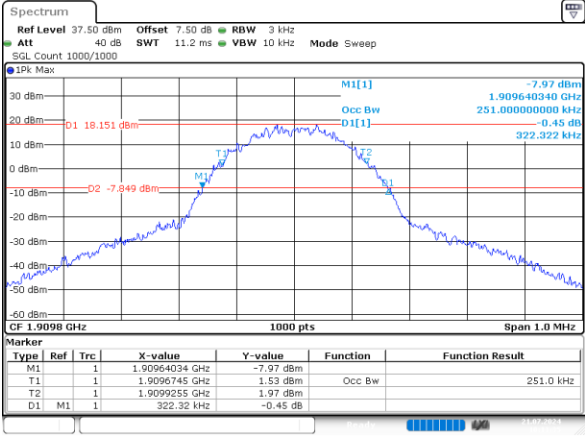
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:09:34

EDGE\_Middle\_Solt1 0.254MHz



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:10:26

EDGE\_High\_Solt1 0.251MHz



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:11:36



RF Output Power

FCC Part 22H

GSM 850 , Normal

| Mode               | Conducted Power<br>(dBm) | ERP<br>(dBm) | Limit(dBm) | Result |
|--------------------|--------------------------|--------------|------------|--------|
| GSM_Low            | 32.67                    | 27.330       | 38.45      | Pass   |
| GSM_Middle         | 32.67                    | 27.330       | 38.45      | Pass   |
| GSM_High           | 32.57                    | 27.230       | 38.45      | Pass   |
| GPRS_Low_Solt1     | 32.68                    | 27.340       | 38.45      | Pass   |
| GPRS_Low_Solt2     | 31.83                    | 26.490       | 38.45      | Pass   |
| GPRS_Low_Solt3     | 29.89                    | 24.550       | 38.45      | Pass   |
| GPRS_Low_Solt4     | 28.86                    | 23.520       | 38.45      | Pass   |
| GPRS_Middle_Solt1  | 32.66                    | 27.320       | 38.45      | Pass   |
| GPRS_Middle_Solt2  | 31.84                    | 26.500       | 38.45      | Pass   |
| GPRS_Middle_Solt3  | 30.03                    | 24.690       | 38.45      | Pass   |
| GPRS_Middle_Solt4  | 29.00                    | 23.660       | 38.45      | Pass   |
| GPRS_High_Solt1    | 32.57                    | 27.230       | 38.45      | Pass   |
| GPRS_High_Solt2    | 31.78                    | 26.440       | 38.45      | Pass   |
| GPRS_High_Solt3    | 30.00                    | 24.660       | 38.45      | Pass   |
| GPRS_High_Solt4    | 29.00                    | 23.660       | 38.45      | Pass   |
| EDGE_Low_Solt 1    | 27.73                    | 22.390       | 38.45      | Pass   |
| EDGE_Low_Solt 2    | 26.75                    | 21.410       | 38.45      | Pass   |
| EDGE_Low_Solt 3    | 24.87                    | 19.530       | 38.45      | Pass   |
| EDGE_Low_Solt 4    | 24.61                    | 19.270       | 38.45      | Pass   |
| EDGE_Middle_Solt 1 | 28.80                    | 23.460       | 38.45      | Pass   |
| EDGE_Middle_Solt 2 | 27.76                    | 22.420       | 38.45      | Pass   |
| EDGE_Middle_Solt 3 | 25.80                    | 20.460       | 38.45      | Pass   |
| EDGE_Middle_Solt 4 | 24.64                    | 19.300       | 38.45      | Pass   |
| EDGE_High_Solt1    | 28.82                    | 23.480       | 38.45      | Pass   |
| EDGE_High_Solt2    | 27.77                    | 22.430       | 38.45      | Pass   |
| EDGE_High_Solt3    | 25.84                    | 20.500       | 38.45      | Pass   |
| EDGE_High_Solt4    | 24.66                    | 19.320       | 38.45      | Pass   |

Note:

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

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

$$1.\text{Ant Gain} = -3.19\text{dBi};$$

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

FCC Part 24E

GSM 1900 , Normal

| Mode               | Conducted Power<br>(dBm) | EIRP<br>(dBm) | Limit(dBm) | Result |
|--------------------|--------------------------|---------------|------------|--------|
| GSM_Low            | 30.24                    | 32.150        | 33         | Pass   |
| GSM_Middle         | 30.15                    | 32.060        | 33         | Pass   |
| GSM_High           | 30.13                    | 32.040        | 33         | Pass   |
| GPRS_Low_Solt1     | 30.24                    | 32.150        | 33         | Pass   |
| GPRS_Low_Solt2     | 29.68                    | 31.590        | 33         | Pass   |
| GPRS_Low_Solt3     | 28.01                    | 29.920        | 33         | Pass   |
| GPRS_Low_Solt4     | 26.81                    | 28.720        | 33         | Pass   |
| GPRS_Middle_Solt1  | 30.16                    | 32.070        | 33         | Pass   |
| GPRS_Middle_Solt2  | 29.58                    | 31.490        | 33         | Pass   |
| GPRS_Middle_Solt3  | 27.87                    | 29.780        | 33         | Pass   |
| GPRS_Middle_Solt4  | 26.66                    | 28.570        | 33         | Pass   |
| GPRS_High_Solt1    | 30.14                    | 32.050        | 33         | Pass   |
| GPRS_High_Solt2    | 29.58                    | 31.490        | 33         | Pass   |
| GPRS_High_Solt3    | 27.89                    | 29.800        | 33         | Pass   |
| GPRS_High_Solt4    | 26.64                    | 28.550        | 33         | Pass   |
| EDGE_Low_Solt 1    | 27.91                    | 29.820        | 33         | Pass   |
| EDGE_Low_Solt 2    | 26.89                    | 28.800        | 33         | Pass   |
| EDGE_Low_Solt 3    | 25.02                    | 26.930        | 33         | Pass   |
| EDGE_Low_Solt 4    | 23.75                    | 25.660        | 33         | Pass   |
| EDGE_Middle_Solt 1 | 27.81                    | 29.720        | 33         | Pass   |
| EDGE_Middle_Solt 2 | 26.83                    | 28.740        | 33         | Pass   |
| EDGE_Middle_Solt 3 | 24.82                    | 26.730        | 33         | Pass   |
| EDGE_Middle_Solt 4 | 23.64                    | 25.550        | 33         | Pass   |
| EDGE_High_Solt1    | 27.81                    | 29.720        | 33         | Pass   |
| EDGE_High_Solt2    | 26.81                    | 28.720        | 33         | Pass   |
| EDGE_High_Solt3    | 24.79                    | 26.700        | 33         | Pass   |
| EDGE_High_Solt4    | 23.58                    | 25.490        | 33         | Pass   |

Note:

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

1.Ant Gain = 1.91dBi;

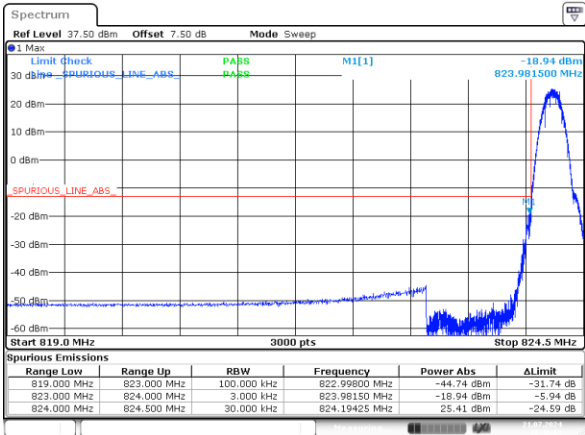
2.C<sub>L</sub> = signal attenuation in the connecting cable between the transmitter and antenna in 0dB

Out of band emission,Band Edge

FCC Part 22H

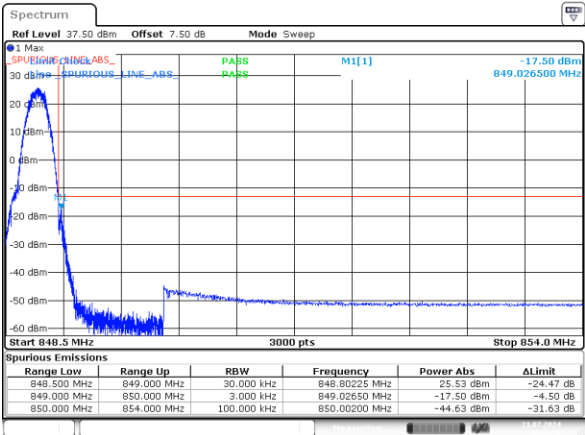
GSM 850 , Normal

GSM\_Low -18.94dBm



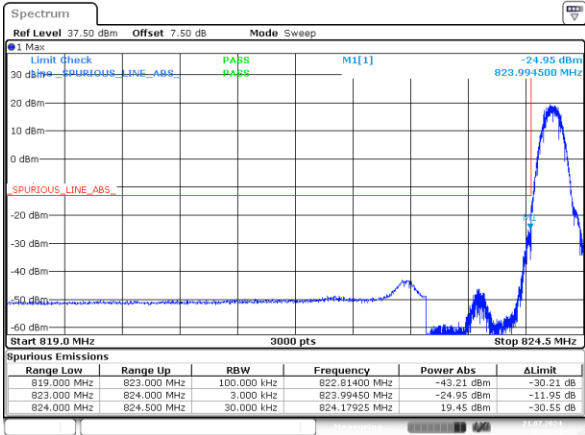
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:40:09

GSM\_High -17.50dBm



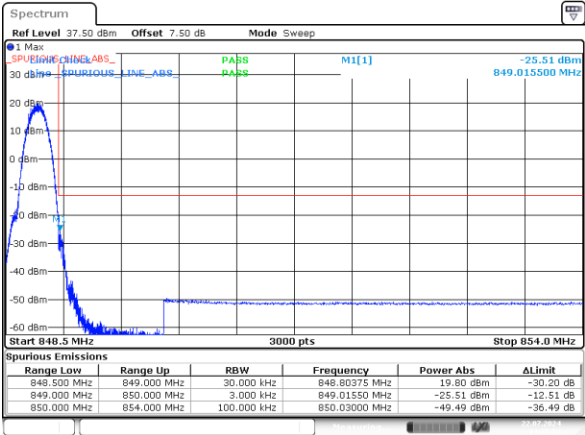
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:41:47

EDGE\_Low\_Solt1 -24.95dBm



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 21.JUL.2024 10:56:11

EDGE\_High\_Solt1 -25.51dBm

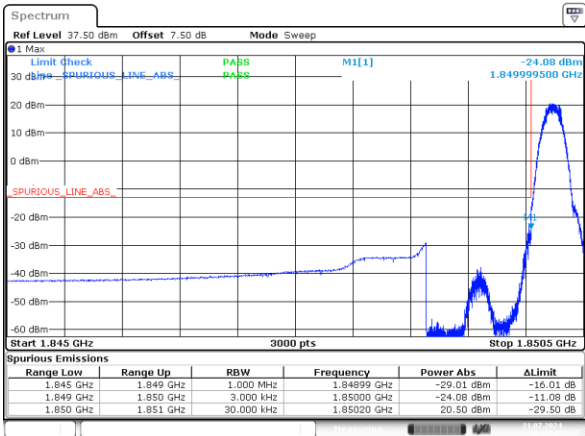


ProjectNo.:2402U81179E-RF Tester:Karl Liang  
 Date: 22.JUL.2024 14:25:52

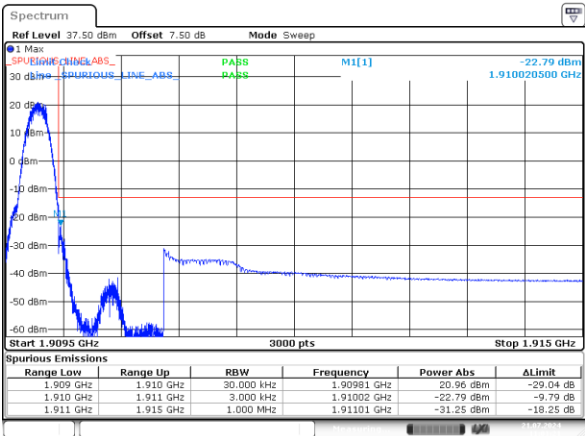
FCC Part 24E

GSM 1900 , Normal

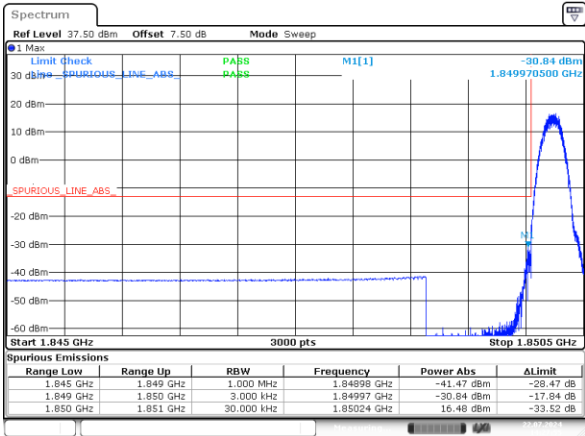
GSM\_Low -24.08dBm



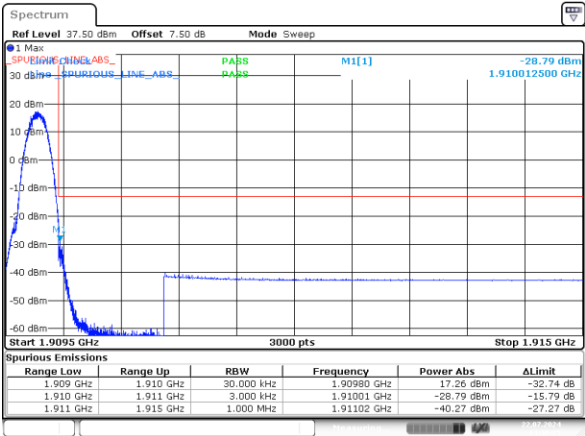
GSM\_High -22.79dBm



EDGE\_Low\_Solt1 -30.84dBm



EDGE\_High\_Solt1 -28.79dBm



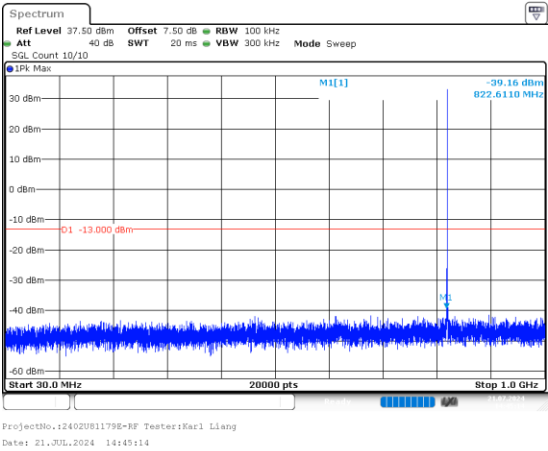
Spurious Emissions at Antenna Terminal

FCC Part 22H

GSM 850 , Normal

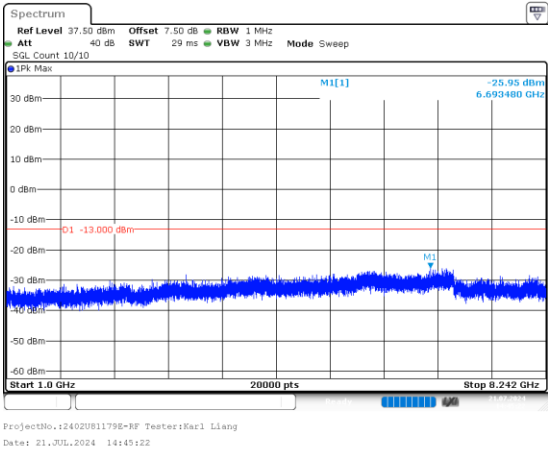
GSM\_Low

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 14:45:14

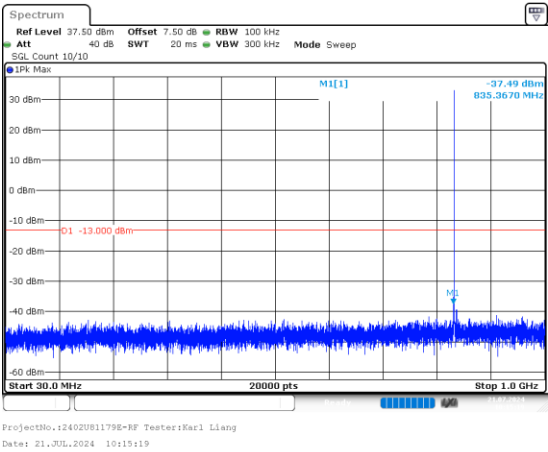
Above 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 14:45:22

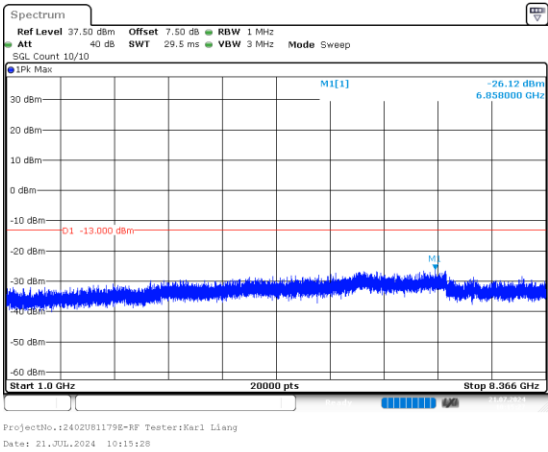
GSM\_Middle

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:15:19

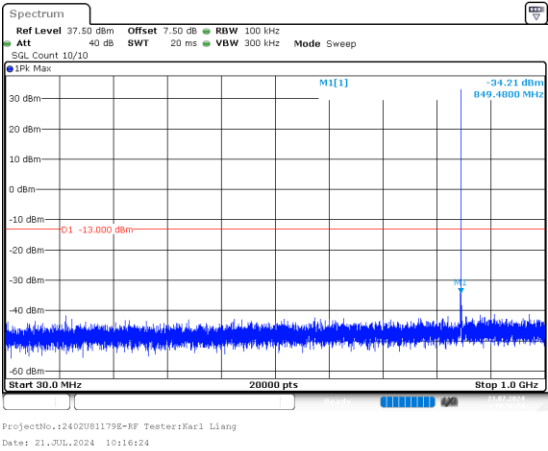
Above 1G



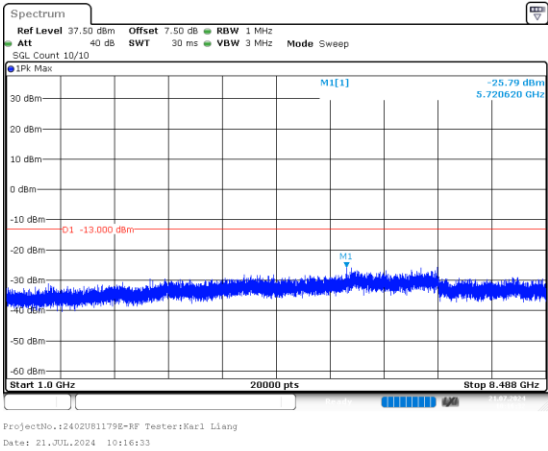
ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:15:28

GSM\_High

Below 1G

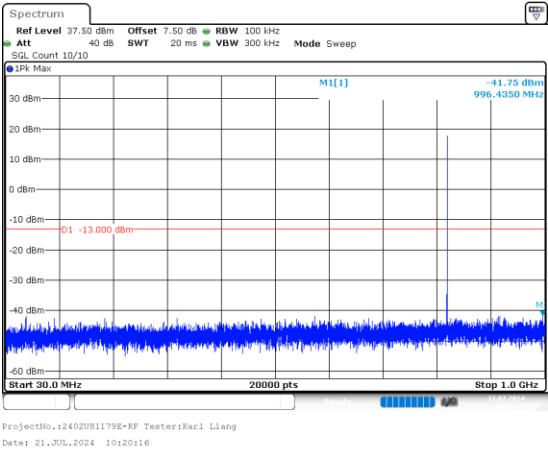


Above 1G

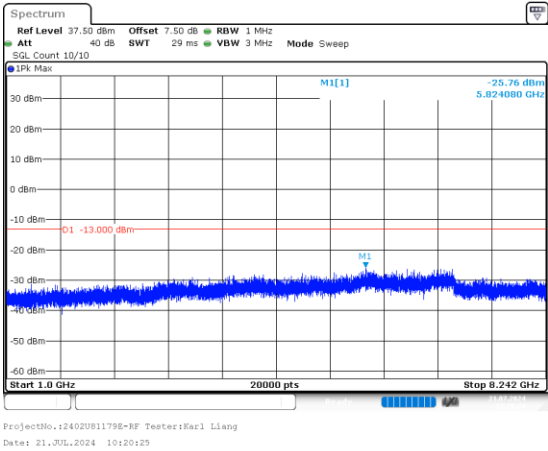


EDGE\_Low\_Solt1

Below 1G

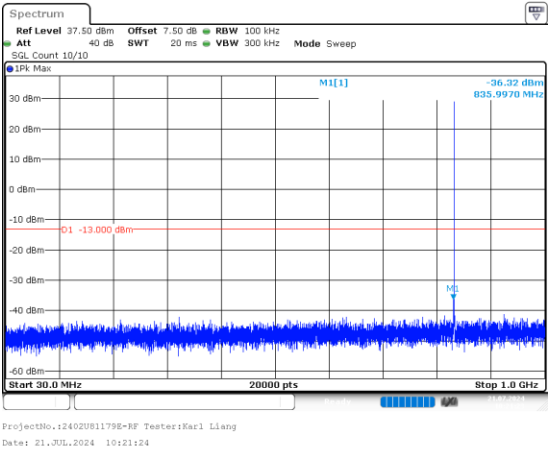


Above 1G

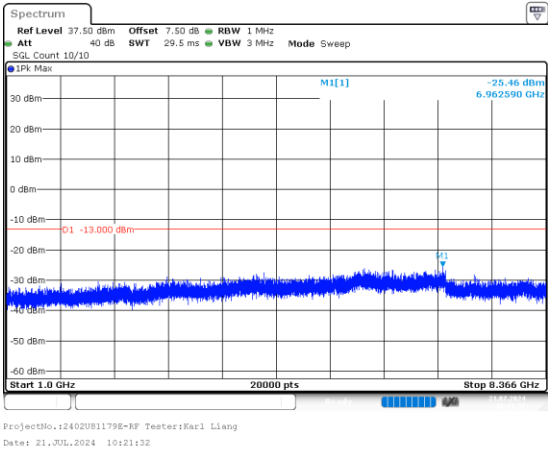


EDGE\_Middle\_Solt1

Below 1G

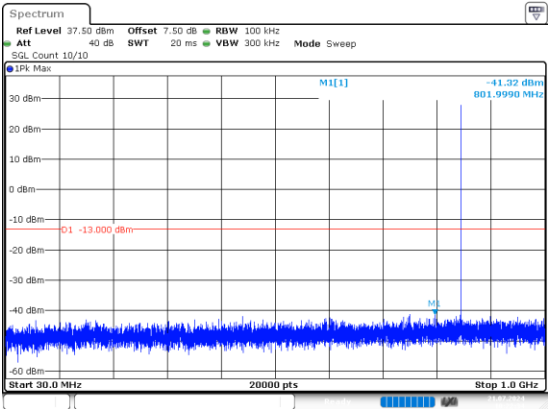


Above 1G



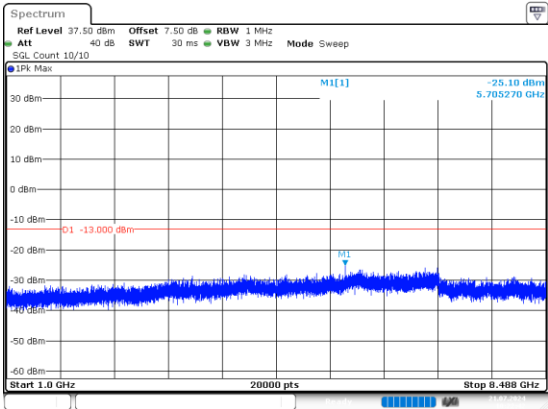
EDGE\_High\_Solt1

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:22:35

Above 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:22:43

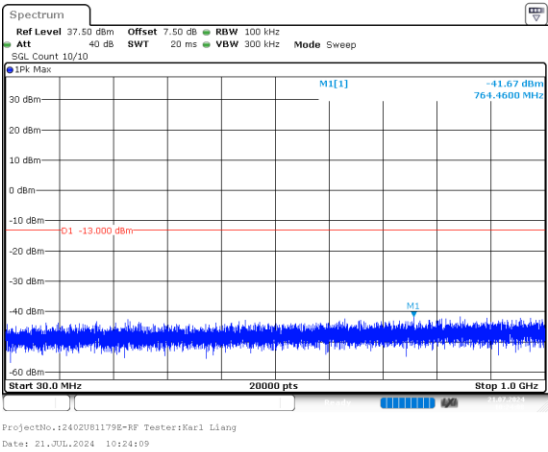


FCC Part 24E

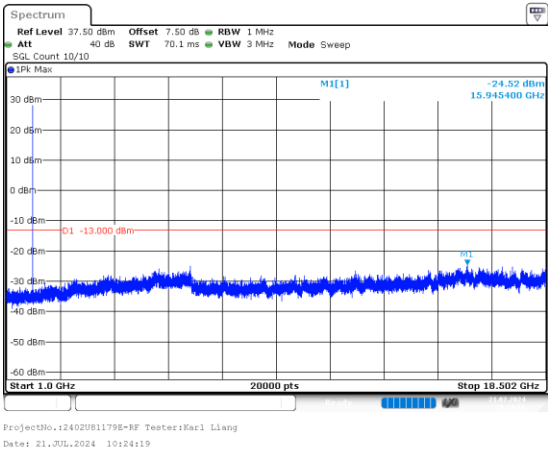
GSM 1900 , Normal

GSM\_Low

Below 1G

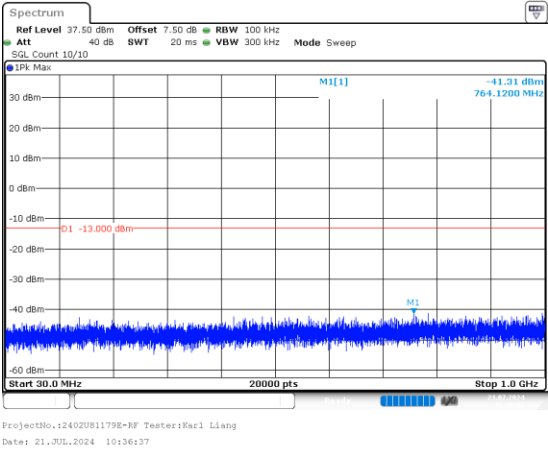


Above 1G

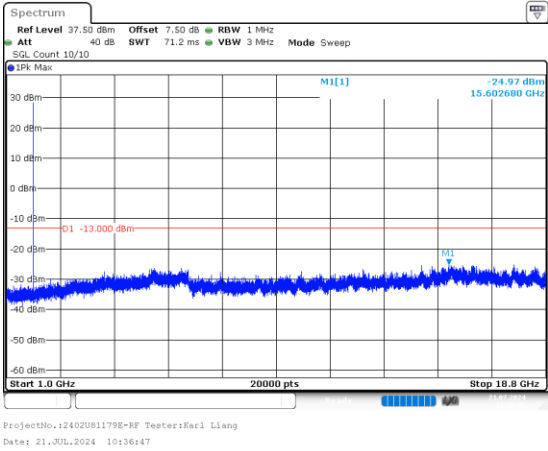


GSM\_Middle

Below 1G

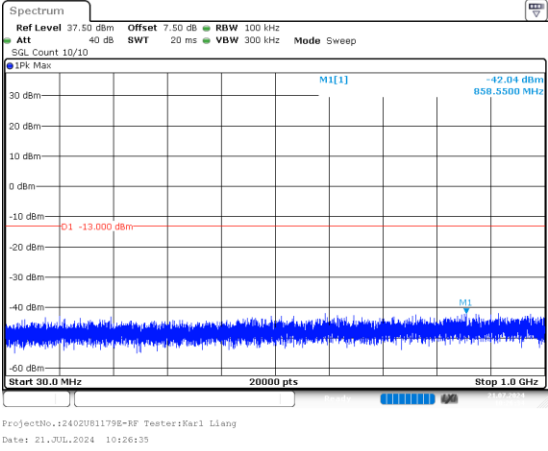


Above 1G

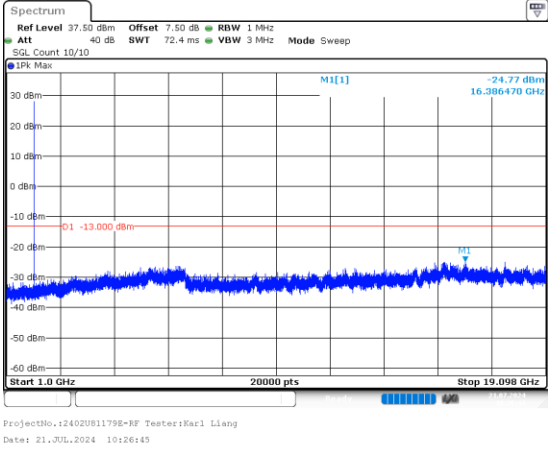


GSM\_High

Below 1G

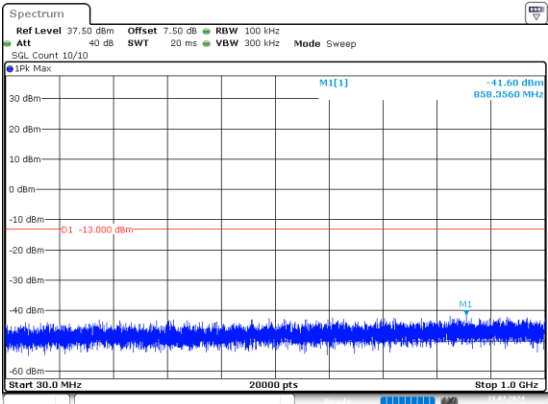


Above 1G



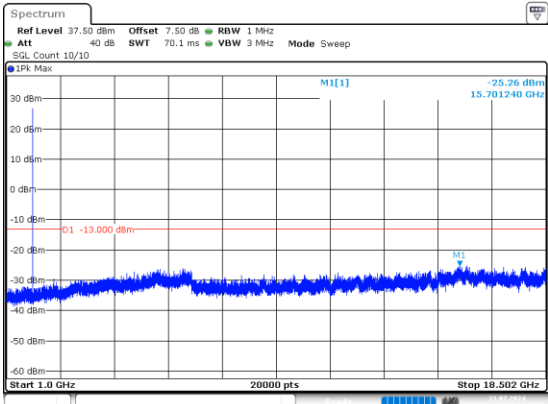
EDGE\_Low\_Solt1

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:31:20

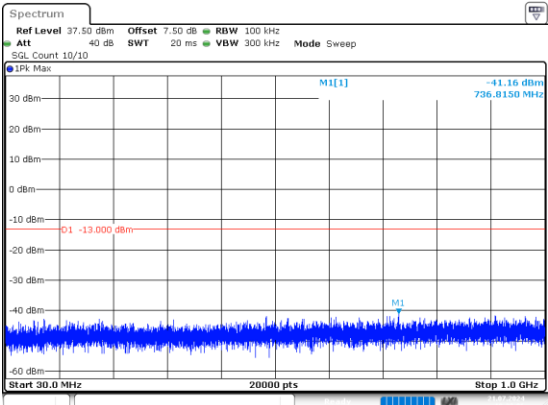
Above 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:31:30

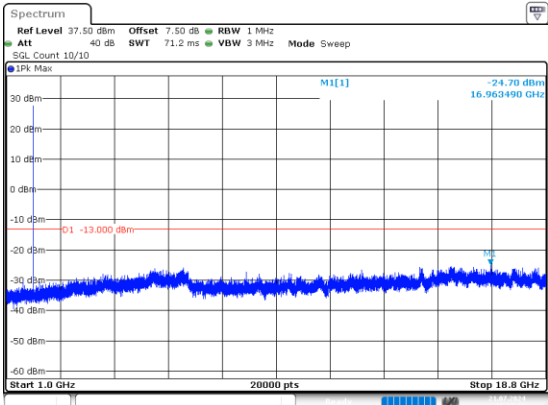
EDGE\_Middle\_Solt1

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:32:06

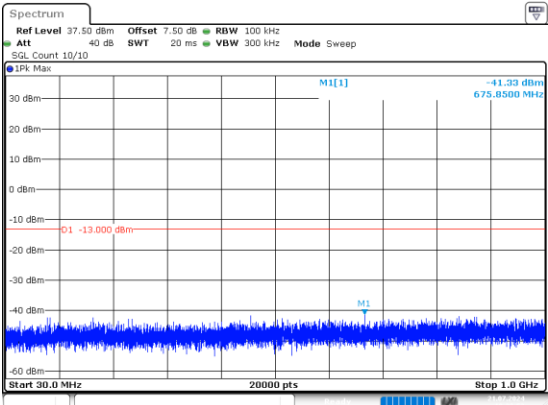
Above 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:32:17

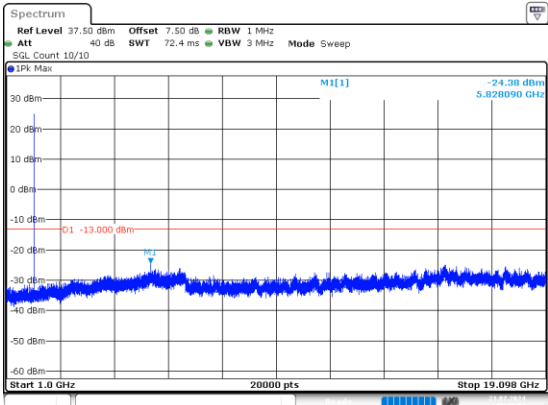
EDGE\_High\_Solt1

Below 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:32:54

Above 1G



ProjectNo.:2402U81179E-RF Tester:Karl Liang  
Date: 21.JUL.2024 10:33:04