

# TEST REPORT

**Reference No.**..... : WTX22X12260158W001  
**FCC ID**..... : 2BAQOFG80  
**Applicant**..... : Beijing Speedata Technology Co.,Ltd  
**Address**..... : Office 01-2 08, Block D, 8 / F, Building 1-4, Yard A, 18 Zhongguancun South Street, Haidian District, Beijing.  
**Manufacturer**..... : The same as Applicant  
**Address**..... : The same as Applicant  
**Product Name**..... : Wireless mobile tablet data terminal  
**Model No.**..... : FG80  
**Standards**..... : FCC Part 22H, FCC Part 24E  
**Date of Receipt sample**..... : 2022-12-26  
**Date of Test**..... : 2022-12-26 to 2023-03-28  
**Date of Issue**..... : 2023-03-28  
**Test Report Form No.**..... : WTX\_Part 22\_ Part 24W  
**Test Result**..... : **Pass**

**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

**Prepared By:**

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Silin Chen

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Report version

| Version No. | Date of issue | Description |
|-------------|---------------|-------------|
| Rev.00      | 2023-03-28    | Original    |
| /           | /             | /           |

## 1. GENERAL INFORMATION

---

### 1.1 Product Description for Equipment Under Test (EUT)

| General Description of EUT:                                                                                                                                                                                                                                                                                                                                                                       |                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Product Name:                                                                                                                                                                                                                                                                                                                                                                                     | Wireless mobile tablet data terminal                                                     |
| Trade Name:                                                                                                                                                                                                                                                                                                                                                                                       | 思必拓speedata, Haitech                                                                     |
| Model No.:                                                                                                                                                                                                                                                                                                                                                                                        | FG80                                                                                     |
| Adding Model(s):                                                                                                                                                                                                                                                                                                                                                                                  | FN80, FD80, FP80, FC80, FT80, GT80, SC80, SD100, SD80, SD100Plus, T80, T100, HPAD-FG80   |
| Rated Voltage:                                                                                                                                                                                                                                                                                                                                                                                    | DC3.85V                                                                                  |
| Battery:                                                                                                                                                                                                                                                                                                                                                                                          | /                                                                                        |
| Adapter Model:                                                                                                                                                                                                                                                                                                                                                                                    | HYX024-U012125XYE<br>Input:AC100-240V 50/60Hz 0.5A<br>Output:DC5V/7V/9V1.67A; DC12V1.25A |
| <p><i>Note: The Antenna Gain is provided by the customer and can affect the validity of results.</i></p> <p><i>The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model FG80, but the circuit and the electronic construction do not change, declared by the manufacturer.</i></p> |                                                                                          |

| <b>Technical Characteristics of EUT:</b> |                                                                              |
|------------------------------------------|------------------------------------------------------------------------------|
| <b>2G</b>                                |                                                                              |
| Support Networks:                        | GSM, GPRS, EDGE                                                              |
| Support Band:                            | GSM850/PCS1900                                                               |
| Uplink Frequency:                        | GSM/GPRS/EDGE 850: 824~849MHz<br>GSM/GPRS/EDGE 1900: 1850~1910MHz            |
| Downlink Frequency:                      | GSM/GPRS/EDGE 850: 869~894MHz<br>GSM/GPRS/EDGE 1900: 1930~1990MHz            |
| Max RF Output Power:                     | GSM850: 34.09dBm, GSM1900: 30.17dBm<br>EDGE850: 28.31dBm, EDGE1900: 27.65dBm |
| Type of Emission:                        | GSM850: 248KGXW, GSM1900: 246GXW<br>EDGE850: 248KG7W, EDGE1900: 249KG7W      |
| Type of Modulation:                      | GMSK, 8PSK                                                                   |
| Type of Antenna:                         | FPC Antenna                                                                  |
| Antenna Gain:                            | GSM850: -2.5dBi; GSM1900: 0.5dBi                                             |
| GPRS/EDGE Class:                         | Class 12                                                                     |
| <b>3G</b>                                |                                                                              |
| Support Networks:                        | WCDMA, HSDPA, HSUPA                                                          |
| Support Band:                            | WCDMA Band 2, WCDMA Band 5                                                   |
| Uplink Frequency:                        | WCDMA Band 2: 1850~1910MHz<br>WCDMA Band 5: 824~849MHz                       |
| Downlink Frequency:                      | WCDMA Band 2: 1930~1990MHz<br>WCDMA Band 5: 869~894MHz                       |
| RF Output Power:                         | WCDMA Band 2: 23.39dBm,<br>WCDMA Band 5: 23.74dBm                            |
| Type of Emission:                        | WCDMA Band 2: 4M20F9W<br>WCDMA Band 5: 4M22F9W                               |
| Type of Modulation:                      | BPSK, QPSK, 16QAM                                                            |
| Antenna Type:                            | FPC Antenna                                                                  |
| Antenna Gain:                            | WCDMA Band 2: 0.5dBi, WCDMA Band 5: -2.5dBi                                  |

## 1.2 Test Standards

The tests were performed according to following standards:

**FCC Rules Part 2:** Frequency Allocations and Radio Treaty Matters; General Rules and Regulations.

**FCC Rules Part 22:** Private Land Mobile Radio Services.

**FCC Rules Part 24:** Public Mobile Services.

**TIA/EIA 603 E March 2016:** Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

**ANSI C63.26-2015:** American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services.

**KDB 971168 D01 Power Measurement License Digital Systems v03r01:** Measurement Guidance for Certification of Licensed Digital Transmitters.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with TIA/EIA 603 E/ KDB 971168/ ANSI C63.26. The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.4 Test Facility

### Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

### FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A and the CAB identifier is CN0057.

## 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

| Test Mode List |              |                            |
|----------------|--------------|----------------------------|
| Test Mode      | Description  | Remark                     |
| TM1            | GSM 850      | Low, Middle, High Channels |
| TM2            | GPRS 850     | Low, Middle, High Channels |
| TM3            | EDGE 850     | Low, Middle, High Channels |
| TM4            | GSM 1900     | Low, Middle, High Channels |
| TM5            | GPRS 1900    | Low, Middle, High Channels |
| TM6            | EDGE 1900    | Low, Middle, High Channels |
| TM7            | WCDMA Band 5 | Low, Middle, High Channels |
| TM8            | HSDPA Band 5 | Low, Middle, High Channels |
| TM9            | HSUPA Band 5 | Low, Middle, High Channels |
| TM10           | WCDMA Band 2 | Low, Middle, High Channels |
| TM11           | HSDPA Band 2 | Low, Middle, High Channels |
| TM12           | HSUPA Band 2 | Low, Middle, High Channels |

| Testing Configure                                                                                                                                   |                   |                        |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|----------------|
| Support Band                                                                                                                                        | Support Standard  | Channel Frequency(MHz) | Channel Number |
| GSM 850                                                                                                                                             | GSM/GPRS/EDGE     | 824.2                  | 128            |
|                                                                                                                                                     |                   | 836.6                  | 190            |
|                                                                                                                                                     |                   | 848.8                  | 251            |
| PCS 1900                                                                                                                                            | GSM/GPRS/EDGE     | 1850.2                 | 512            |
|                                                                                                                                                     |                   | 1880.0                 | 661            |
|                                                                                                                                                     |                   | 1909.8                 | 810            |
| WCDMA Band 5                                                                                                                                        | WCDMA/HSDPA/HSUPA | 826.4                  | 4132           |
|                                                                                                                                                     |                   | 836.6                  | 4183           |
|                                                                                                                                                     |                   | 846.6                  | 4233           |
| WCDMA Band 2                                                                                                                                        | WCDMA/HSDPA/HSUPA | 1852.4                 | 9262           |
|                                                                                                                                                     |                   | 1880.0                 | 9400           |
|                                                                                                                                                     |                   | 1907.6                 | 9538           |
| Note: the transmitter has been tested on the communications mode of GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA compliance test and record the worst case. |                   |                        |                |

| Test Conditions    |           |
|--------------------|-----------|
| Temperature:       | 22~25 °C  |
| Relative Humidity: | 50~55 %.  |
| ATM Pressure:      | 1019 mbar |

| EUT Cable List and Details |            |                     |                        |
|----------------------------|------------|---------------------|------------------------|
| Cable Description          | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| USB Cable                  | 1.0        | Shielded            | Without Ferrite        |

| Special Cable List and Details |            |                     |                        |
|--------------------------------|------------|---------------------|------------------------|
| Cable Description              | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| /                              | /          | /                   | /                      |

| Auxiliary Equipment List and Details |              |                           |               |
|--------------------------------------|--------------|---------------------------|---------------|
| Description                          | Manufacturer | Model                     | Serial Number |
| Notebook                             | Lenovo       | XiaoXin Pro 14IHU<br>2021 | /             |



## 1.6 Measurement Uncertainty

| Measurement uncertainty        |            |                               |
|--------------------------------|------------|-------------------------------|
| Parameter                      | Conditions | Uncertainty                   |
| RF Output Power                | Conducted  | $\pm 0.42\text{dB}$           |
| Occupied Bandwidth             | Conducted  | $\pm 1.5\%$                   |
| Frequency Stability            | Conducted  | $2.3\%$                       |
| Transmitter Spurious Emissions | Conducted  | $\pm 0.42\text{dB}$           |
| Transmitter Spurious Emissions | Radiated   | 30-200MHz $\pm 4.52\text{dB}$ |
|                                |            | 0.2-1GHz $\pm 5.56\text{dB}$  |
|                                |            | 1-6GHz $\pm 3.84\text{dB}$    |
|                                |            | 6-18GHz $\pm 3.92\text{dB}$   |

**1.7 Test Equipment List and Details**

| No.                     | Description              | Manufacturer    | Model     | Serial No. | Cal Date   | Due. Date  |
|-------------------------|--------------------------|-----------------|-----------|------------|------------|------------|
| SEMT-1075               | Communication Tester     | Rohde & Schwarz | CMW500    | 148650     | 2022-03-22 | 2023-03-21 |
| SEMT-1063               | GSM Tester               | Rohde & Schwarz | CMU200    | 114403     | 2022-03-22 | 2023-03-21 |
| SEMT-1072               | Spectrum Analyzer        | Agilent         | E4407B    | MY41440400 | 2022-03-25 | 2023-03-24 |
| SEMT-1079               | Spectrum Analyzer        | Agilent         | N9020A    | US47140102 | 2022-03-22 | 2023-03-21 |
| SMET-1313               | Spectrum Analyzer        | Agilent         | N9020A    | MY54320548 | 2022-03-22 | 2023-03-21 |
| SEMT-1080               | Signal Generator         | Agilent         | 83752A    | 3610A01453 | 2022-03-22 | 2023-03-21 |
| SEMT-1081               | Vector Signal Generator  | Agilent         | N5182A    | MY47070202 | 2022-03-22 | 2023-03-21 |
| SEMT-1028               | Power Divider            | Weinschel       | 1506A     | PM204      | 2022-03-22 | 2023-03-21 |
| SEMT-1132               | Attenuator               | HP              | 8491A     | MY39264419 | 2022-03-22 | 2023-03-21 |
| SEMT-1320               | EXA Signal Analyzer      | KEYSIGHT        | N9010B    | MY59070494 | 2022-01-07 | 2023-01-06 |
| SEMT-1320               | EXA Signal Analyzer      | KEYSIGHT        | N9010B    | MY59070494 | 2022-12-30 | 2023-12-29 |
| SEMT-1325               | Band Reject Filter Group | Tonscend        | JS0806-F  | 2018060319 | 2022-03-22 | 2023-03-21 |
| ☒ Chamber A: Below 1GHz |                          |                 |           |            |            |            |
| SEMT-1031               | Spectrum Analyzer        | Rohde & Schwarz | FSP30     | 836079/035 | 2022-03-22 | 2023-03-21 |
| SEMT-1007               | EMI Test Receiver        | Rohde & Schwarz | ESVB      | 825471/005 | 2022-03-22 | 2023-03-21 |
| SEMT-1008               | Amplifier                | HP              | 8447F     | 2805A03475 | 2022-01-07 | 2023-01-06 |
| SEMT-1008               | Amplifier                | HP              | 8447F     | 2805A03475 | 2022-12-30 | 2023-12-29 |
| SEMT-1069               | Loop Antenna             | Schwarz beck    | FMZB 1516 | 9773       | 2021-03-20 | 2023-03-19 |
| SEMT-1068               | Broadband Antenna        | Schwarz beck    | VULB9163  | 9163-333   | 2021-03-20 | 2023-03-19 |
| ☒ Chamber A: Above 1GHz |                          |                 |           |            |            |            |
| SEMT-1031               | Spectrum Analyzer        | Rohde & Schwarz | FSP30     | 836079/035 | 2022-03-22 | 2023-03-21 |
| SEMT-1007               | EMI Test Receiver        | Rohde & Schwarz | ESVB      | 825471/005 | 2022-03-22 | 2023-03-21 |
| SEMT-1043               | Amplifier                | C&D             | PAP-1G18  | 2002       | 2022-03-22 | 2023-03-21 |
| SEMT-1042               | Horn Antenna             | ETS             | 3117      | 00086197   | 2021-03-19 | 2023-03-18 |

|                                               |                          |                 |             |                 |            |            |
|-----------------------------------------------|--------------------------|-----------------|-------------|-----------------|------------|------------|
| SEMT-1121                                     | Horn Antenna             | Schwarzbeck     | BBHA 9170   | BBHA917058<br>2 | 2021-04-27 | 2023-04-26 |
| SEMT-1216                                     | Pre-amplifier            | Schwarzbeck     | BBV 9721    | 9721-031        | 2022-03-25 | 2023-03-24 |
| SEMT-1163                                     | Spectrum Analyzer        | Rohde & Schwarz | FSP40       | 100612          | 2022-03-22 | 2023-03-21 |
| <input type="checkbox"/> Chamber B:Below 1GHz |                          |                 |             |                 |            |            |
| SEMT-1068                                     | Trilog Broadband Antenna | Schwarz beck    | VULB9163(B) | 9163-635        | 2021-04-09 | 2023-04-08 |
| SEMT-1067                                     | Amplifier                | Agilent         | 8447D       | 2944A10179      | 2022-03-22 | 2023-03-21 |
| SEMT-1066                                     | EMI Test Receiver        | Rohde & Schwarz | ESPI        | 101391          | 2022-03-22 | 2023-03-21 |
| <input type="checkbox"/> Chamber C:Below 1GHz |                          |                 |             |                 |            |            |
| SEMT-1319                                     | EMI Test Receiver        | Rohde & Schwarz | ESIB 26     | 100401          | 2022-01-07 | 2023-01-06 |
| SEMT-1319                                     | EMI Test Receiver        | Rohde & Schwarz | ESIB 26     | 100401          | 2022-12-30 | 2023-12-29 |
| SEMT-1343                                     | Trilog Broadband Antenna | Schwarz beck    | VULB 9168   | 1194            | 2021-05-28 | 2023-05-27 |
| SEMT-1333                                     | Amplifier                | HP              | 8447F       | 2944A03869      | 2022-03-22 | 2023-03-21 |

| Fixed asset Number                                        | Description                 | Manufacturer    | Model    | Serial No.      | Cal Date   | Due. Date  |
|-----------------------------------------------------------|-----------------------------|-----------------|----------|-----------------|------------|------------|
| WTXE1041A<br>1001                                         | Communication Tester        | Rohde & Schwarz | CMW500   | 148650          | 2023-02-25 | 2024-02-24 |
| WTXE1022A<br>1002                                         | GSM Tester                  | Rohde & Schwarz | CMU200   | 114403          | 2023-02-25 | 2024-02-24 |
| WTXE1104A<br>1001                                         | MXG Vector Signal Generator | Agilent         | N5182A   | MY474201<br>08  | 2023-02-25 | 2024-02-24 |
| WTXE1104A<br>1002                                         | DC Power Supply             | Agilent         | E3634A   | MY400092<br>94  | 2023-02-25 | 2024-02-24 |
| WTXE1104A<br>1003                                         | EXG Analog Signal Generator | KEYSIGHT        | N5173B   | MY612528<br>92  | 2023-02-25 | 2024-02-24 |
| WTXE1104A<br>1004                                         | Spectrum Analyzer           | Rohde&Schwarz   | FSV40-N  | 101559          | 2023-03-27 | 2024-03-26 |
| WTXE1104A<br>1005-2                                       | Band Reject Filter Group    | Tonscend        | JS0806-F | 23A806F0<br>658 | 2023-02-25 | 2024-02-24 |
| <input checked="" type="checkbox"/> Chamber A: Below 1GHz |                             |                 |          |                 |            |            |
| WTXE1005A<br>1003                                         | Spectrum Analyzer           | Rohde & Schwarz | FSP30    | 836079/03<br>5  | 2023-02-25 | 2024-02-24 |

|                                                           |                                |                    |             |                |            |            |
|-----------------------------------------------------------|--------------------------------|--------------------|-------------|----------------|------------|------------|
| WTXE1007A<br>1001                                         | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESVB        | 825471/00<br>5 | 2023-02-25 | 2024-02-24 |
| WTXE1007A<br>1001                                         | Amplifier                      | HP                 | 8447F       | 2805A034<br>75 | 2023-02-25 | 2024-02-24 |
| WTXE1010A<br>1007                                         | Loop Antenna                   | Schwarz beck       | FMZB 1516   | 9773           | 2021-03-20 | 2024-03-19 |
| WTXE1010A<br>1006                                         | Broadband<br>Antenna           | Schwarz beck       | VULB9163    | 9163-333       | 2023-03-20 | 2026-03-19 |
| <input checked="" type="checkbox"/> Chamber A: Above 1GHz |                                |                    |             |                |            |            |
| WTXE1005A<br>1003                                         | Spectrum<br>Analyzer           | Rohde &<br>Schwarz | FSP30       | 836079/03<br>5 | 2023-02-25 | 2024-02-24 |
| WTXE1007A<br>1001                                         | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESVB        | 825471/00<br>5 | 2023-02-25 | 2024-02-24 |
| WTXE1065A<br>1001                                         | Amplifier                      | C&D                | PAP-1G18    | 14918          | 2023-02-25 | 2024-02-24 |
| WTXE1010A<br>1005                                         | Horn Antenna                   | ETS                | 3117        | 00086197       | 2021-03-19 | 2024-03-18 |
| WTXE1010A<br>1010                                         | DRG Horn<br>Antenna            | A.H. SYSTEMS       | SAS-574     | 571            | 2021-03-19 | 2024-03-18 |
| WTXE1003A<br>1001                                         | Pre-amplifier                  | Schwarzbeck        | BBV 9721    | 9721-031       | 2023-02-25 | 2024-02-24 |
| WTXE1004A<br>1-001                                        | Spectrum<br>Analyzer           | Rohde &<br>Schwarz | FSP40       | 100612         | 2023-02-25 | 2024-02-24 |
| <input type="checkbox"/> Chamber B: Below 1GHz            |                                |                    |             |                |            |            |
| WTXE1010A<br>1006                                         | Trilog<br>Broadband<br>Antenna | Schwarz beck       | VULB9163(B) | 9163-635       | 2021-04-09 | 2024-04-08 |
| WTXE1038A<br>1001                                         | Amplifier                      | Agilent            | 8447D       | 2944A101<br>79 | 2023-02-25 | 2024-02-24 |
| WTXE1001A<br>1002                                         | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESPI        | 101391         | 2023-02-25 | 2024-02-24 |
| <input type="checkbox"/> Chamber C: Below 1GHz            |                                |                    |             |                |            |            |
| WTXE1093A<br>1001                                         | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESIB 26     | 100401         | 2023-02-25 | 2024-02-24 |
| WTXE1010A<br>1013-1                                       | Trilog<br>Broadband<br>Antenna | Schwarz beck       | VULB 9168   | 1194           | 2021-05-28 | 2024-05-27 |
| WTXE1007A<br>1002                                         | Amplifier                      | HP                 | 8447F       | 2944A038<br>69 | 2023-02-25 | 2024-02-24 |
| <input type="checkbox"/> Chamber C: Above 1GHz            |                                |                    |             |                |            |            |
| WTXE1093A<br>1001                                         | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESIB 26     | 100401         | 2023-02-25 | 2024-02-24 |

Reference No.: WTX22X12260158W001

|                   |              |          |             |                 |            |            |
|-------------------|--------------|----------|-------------|-----------------|------------|------------|
| WTXE1103A<br>1005 | Horn Antenna | POAM     | RTF-11A     | LP228060<br>221 | 2023-03-10 | 2026-03-09 |
| WTXE1103A<br>1006 | Amplifier    | Tonscend | TAP01018050 | AP22E806<br>235 | 2023-02-25 | 2024-02-24 |

| Software List                             |              |        |         |
|-------------------------------------------|--------------|--------|---------|
| Description                               | Manufacturer | Model  | Version |
| EMI Test Software<br>(Radiated Emission)* | Farad        | EZ-EMC | RA-03A1 |

\*Remark: indicates software version used in the compliance certification testing.

## 2. SUMMARY OF TEST RESULTS

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| FCC Rules              | Description of Test Item                   | Result    |
|------------------------|--------------------------------------------|-----------|
| §22.913(a), §24.232(c) | RF Output Power                            | Compliant |
| §24.51                 | Peak-to-average Ratio (PAR) of Transmitter | Compliant |
| §22.917(b), §24.238(b) | Emission Bandwidth                         | Compliant |
| §22.917(a), §24.238(a) | Spurious Emissions at Antenna Terminal     | Compliant |
| §22.917(a), §24.238(a) | Spurious Radiation Emissions               | Compliant |
| §22.917(a), §24.238(a) | Out of Band Emissions                      | Compliant |
| §22.355, §24.235       | Frequency Stability                        | Compliant |
| §2.1047                | Modulation characteristics                 | Compliant |

N/A: Not applicable.

### 3. RF Output Power

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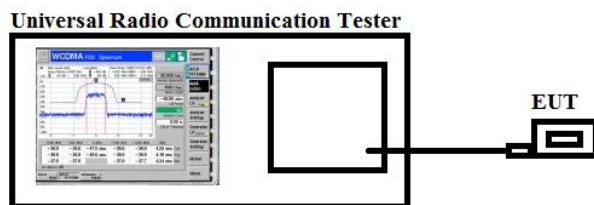
#### 3.1 Standard Applicable

According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

#### 3.2 Test Procedure

- Conducted output power test method:



- Radiated power test method:

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

#### 3.3 Summary of Test Results/Plots

➤ **Max. Radiated Power**

| Mode     | Channel | Antenna Polar | ERP (dBm) | Limit (dBm) | Result |
|----------|---------|---------------|-----------|-------------|--------|
| GSM850   | 128     | V             | 28.25     | <38.45      | Pass   |
|          |         | H             | 20.69     |             |        |
|          | 190     | V             | 28.27     |             |        |
|          |         | H             | 20.55     |             |        |
|          | 251     | V             | 28.85     |             |        |
|          |         | H             | 21.62     |             |        |
| GPRS850  | 128     | V             | 27.76     | <38.45      | Pass   |
|          |         | H             | 20.65     |             |        |
|          | 190     | V             | 27.91     |             |        |
|          |         | H             | 21.41     |             |        |
|          | 251     | V             | 27.33     |             |        |
|          |         | H             | 20.34     |             |        |
| EGPRS850 | 128     | V             | 24.65     | <38.45      | Pass   |
|          |         | H             | 19.45     |             |        |
|          | 190     | V             | 24.94     |             |        |
|          |         | H             | 19.47     |             |        |
|          | 251     | V             | 24.62     |             |        |
|          |         | H             | 19.29     |             |        |



| Mode      | Channel | Antenna Polar | EIRP (dBm) | Limit (dBm) | Result |
|-----------|---------|---------------|------------|-------------|--------|
| PCS1900   | 512     | V             | 28.22      | <33.00      | Pass   |
|           |         | H             | 23.17      |             |        |
|           | 661     | V             | 28.41      |             |        |
|           |         | H             | 23.61      |             |        |
|           | 810     | V             | 28.14      |             |        |
|           |         | H             | 23.45      |             |        |
| GPRS1900  | 512     | V             | 28.67      | <33.00      | Pass   |
|           |         | H             | 23.35      |             |        |
|           | 661     | V             | 27.51      |             |        |
|           |         | H             | 22.69      |             |        |
|           | 810     | V             | 27.92      |             |        |
|           |         | H             | 22.86      |             |        |
| EGPRS1900 | 512     | V             | 22.61      | <33.00      | Pass   |
|           |         | H             | 17.95      |             |        |
|           | 661     | V             | 22.86      |             |        |
|           |         | H             | 17.11      |             |        |
|           | 810     | V             | 22.27      |             |        |
|           |         | H             | 17.31      |             |        |

| Mode         | Channel | Antenna Polar | ERP   | Limit (dBm) | Result |
|--------------|---------|---------------|-------|-------------|--------|
| WCDMA Band V | 4132    | V             | 20.12 | <38.45      | Pass   |
|              |         | H             | 15.21 |             |        |
|              | 4183    | V             | 19.27 |             |        |
|              |         | H             | 14.52 |             |        |
|              | 4233    | V             | 19.47 |             |        |
|              |         | H             | 14.32 |             |        |

| Mode          | Channel | Antenna Polar | EIRP  | Limit (dBm) | Result |
|---------------|---------|---------------|-------|-------------|--------|
| WCDMA Band II | 9262    | V             | 20.65 | <33.00      | Pass   |
|               |         | H             | 15.14 |             |        |
|               | 9400    | V             | 20.71 |             |        |
|               |         | H             | 15.03 |             |        |
|               | 9538    | V             | 20.06 |             |        |
|               |         | H             | 14.67 |             |        |

Note: Pre-scan mode WCDMA/HSDPA/HSUPA find the worst case at WCDMA mode and recorded in the test report.

➤ **Max. Conducted Power (Average power)**

**Please refer to Appendix A**

## 4. Peak-to-average Ratio (PAR) of Transmitter

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### 4.1 Standard Applicable

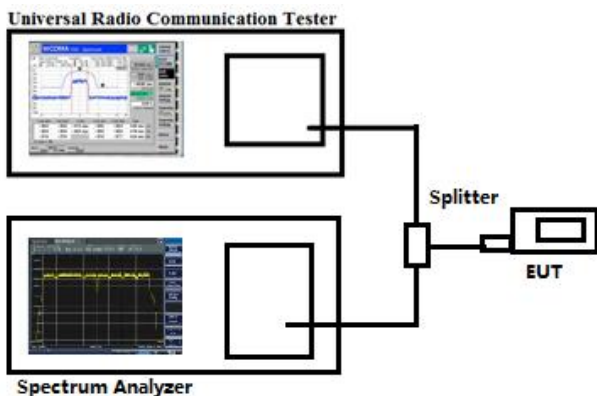
According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51, in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 4.2 Test Procedure

According with KDB 971168

1. The signal analyzer's CCDF measurement profile is enabled.
2. Frequency = carrier center frequency.
3. Measurement BW > Emission bandwidth of signal.
4. The signal analyzer was set to collect one million samples to generate the CCDF curve.
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power.

Test Configuration for the emission bandwidth testing:



### 4.3 Summary of Test Results

Please refer to Appendix B.

## 5. Emission Bandwidth

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### 5.1 Standard Applicable

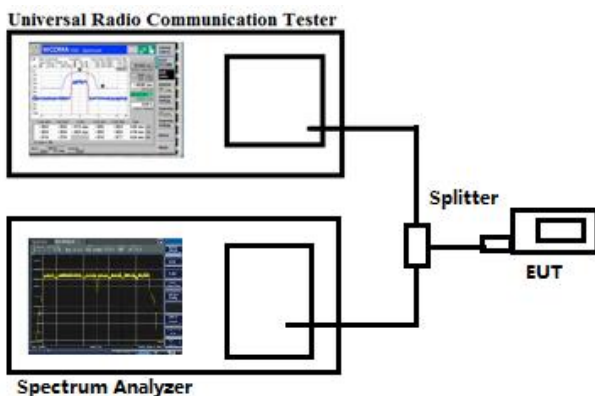
According to §22.917(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

### 5.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 10kHz for GSM mode and 100kHz for WCDMA mode, VBW shall be at least 3 times the RBW, and the 26dB bandwidth was recorded.

Test Configuration for the emission bandwidth testing:



### 5.3 Summary of Test Results/Plots

Please refer to Appendix C

## 6. Out of Band Emissions at Antenna Terminal

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### 6.1 Standard Applicable

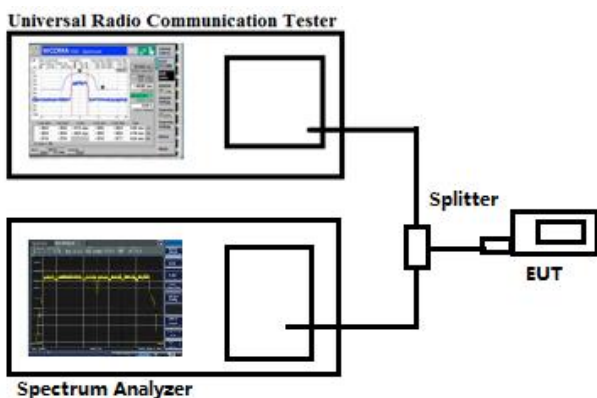
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

### 6.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10<sup>th</sup> harmonic.

Test Configuration for the out of band emissions testing:



### 6.3 Summary of Test Results/Plots

Note: Pre-scan mode WCDMA/HSDPA/HSUPA find the worst case at WCDMA mode and recorded in the test report.

Please refer to Appendix D

## 7. Spurious Radiated Emissions

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### 7.1 Standard Applicable

According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

### 7.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

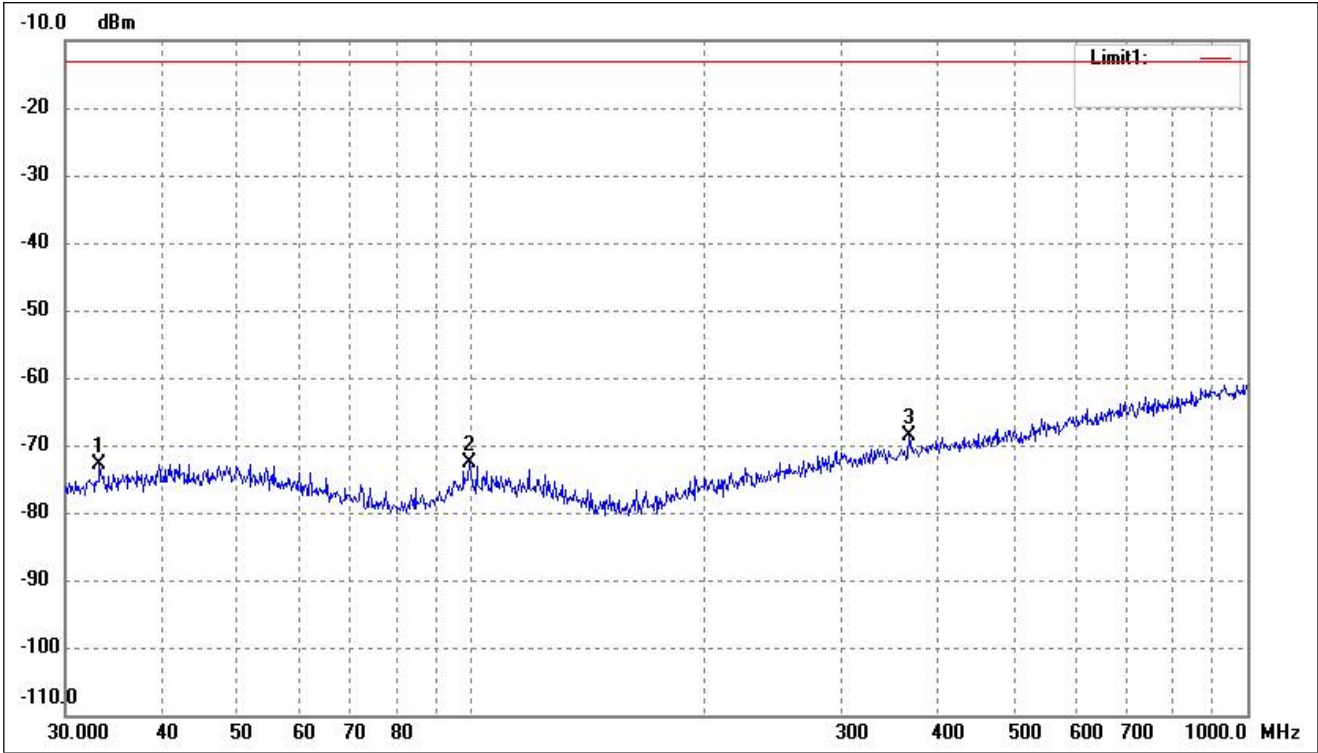
Spurious attenuation limit in dB  $= 43 + 10 \log_{10}(\text{power out in Watts})$

### 7.3 Summary of Test Results/Plots

*Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

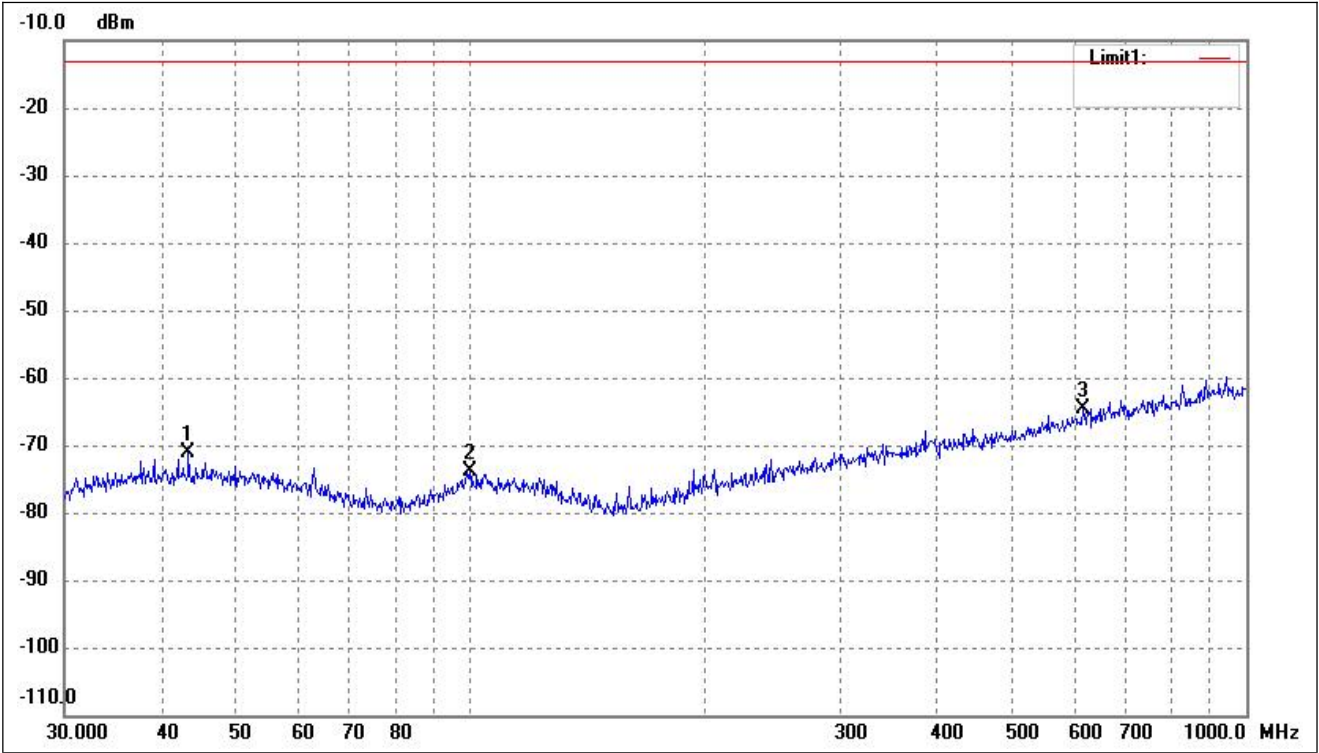
➤ Spurious Emissions Below 1GHz

|                   |        |           |            |
|-------------------|--------|-----------|------------|
| For Cellular Band |        |           |            |
| Test Channel      | GSM850 | Polarity: | Horizontal |



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 33.2112            | -76.08           | 3.18          | -72.90          | -13.00         | -59.90         | -             | -              | peak   |
| 2   | 99.5281            | -76.26           | 3.62          | -72.64          | -13.00         | -59.64         | -             | -              | peak   |
| 3   | 366.8231           | -76.49           | 7.94          | -68.55          | -13.00         | -55.55         | -             | -              | peak   |

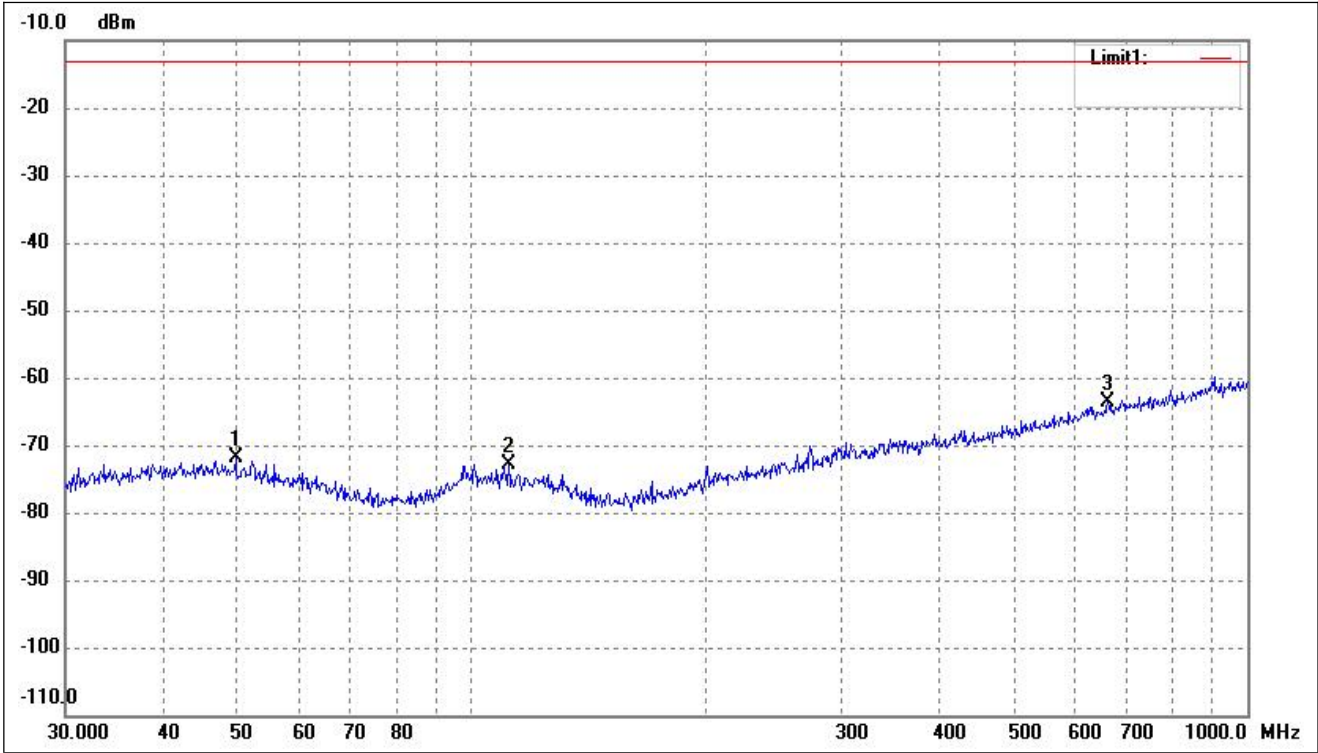
|                   |        |           |          |
|-------------------|--------|-----------|----------|
| For Cellular Band |        |           |          |
| Test Channel      | GSM850 | Polarity: | Vertical |



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 43.3534            | -75.84           | 4.62          | -71.22          | -13.00         | -58.22         | -             | -              | peak   |
| 2   | 99.8777            | -77.47           | 3.71          | -73.76          | -13.00         | -60.76         | -             | -              | peak   |
| 3   | 616.3718           | -76.48           | 11.89         | -64.59          | -13.00         | -51.59         | -             | -              | peak   |

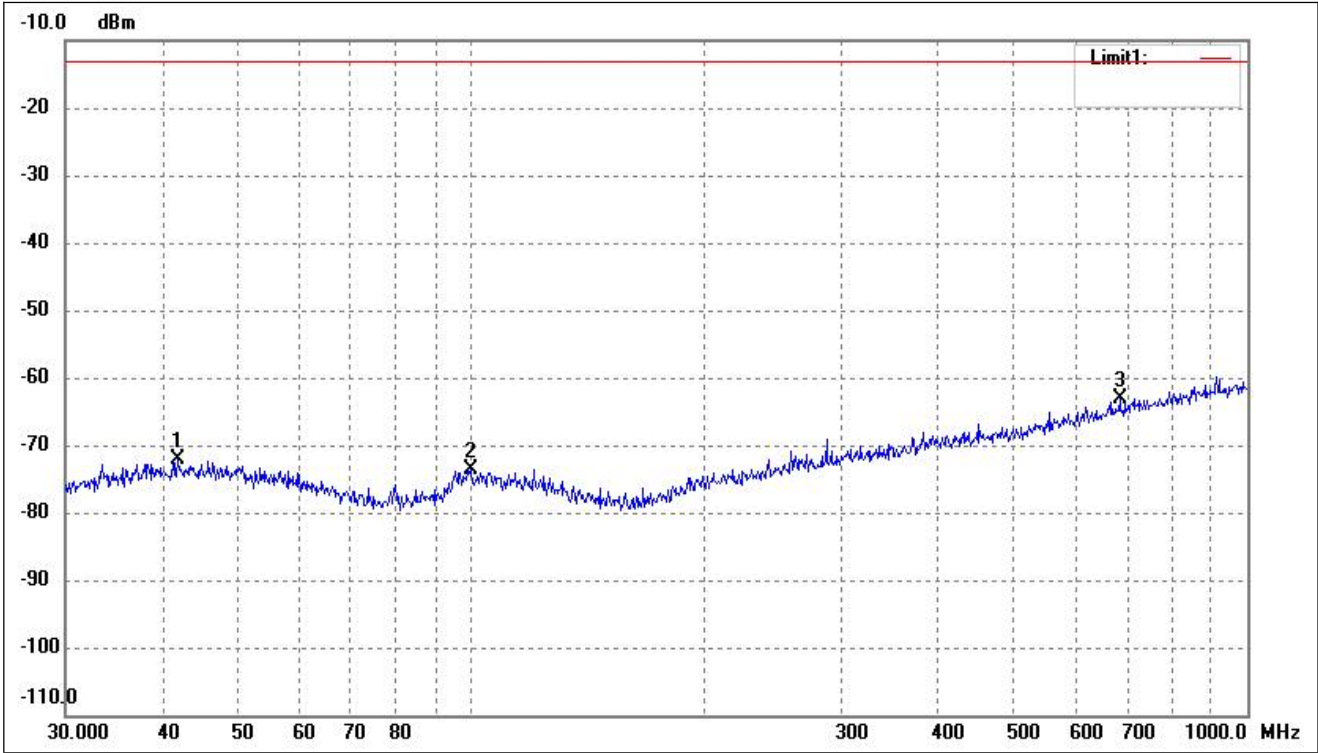


|                   |         |           |            |
|-------------------|---------|-----------|------------|
| For Cellular Band |         |           |            |
| Test Channel      | GSM1900 | Polarity: | Horizontal |



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 49.7068            | -76.45           | 4.49          | -71.96          | -13.00         | -58.96         | -             | -              | peak   |
| 2   | 111.7380           | -76.36           | 3.54          | -72.82          | -13.00         | -59.82         | -             | -              | peak   |
| 3   | 661.1505           | -76.29           | 12.55         | -63.74          | -13.00         | -50.74         | -             | -              | peak   |

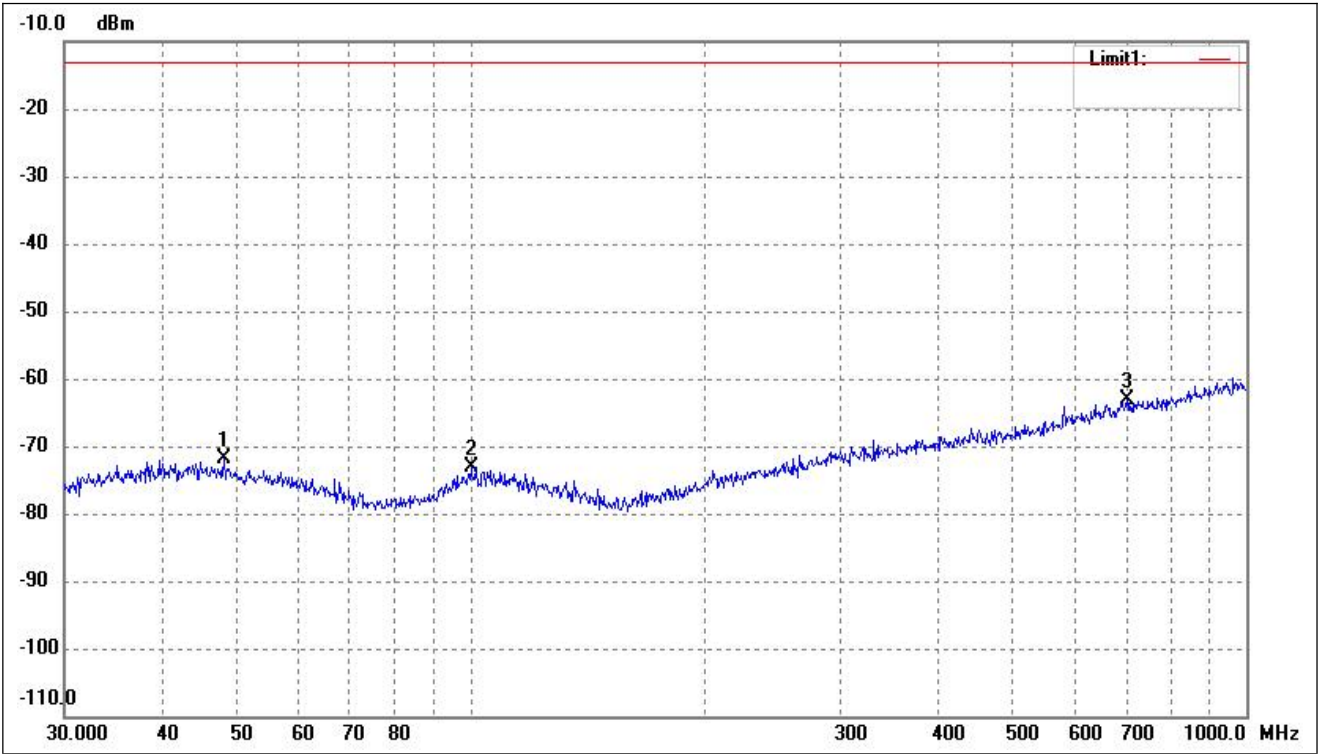
|                   |         |           |          |
|-------------------|---------|-----------|----------|
| For Cellular Band |         |           |          |
| Test Channel      | GSM1900 | Polarity: | Vertical |



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 41.8596            | -76.87           | 4.64          | -72.23          | -13.00         | -59.23         | -             | -              | peak   |
| 2   | 99.8777            | -77.22           | 3.71          | -73.51          | -13.00         | -60.51         | -             | -              | peak   |
| 3   | 684.7454           | -76.01           | 12.92         | -63.09          | -13.00         | -50.09         | -             | -              | peak   |

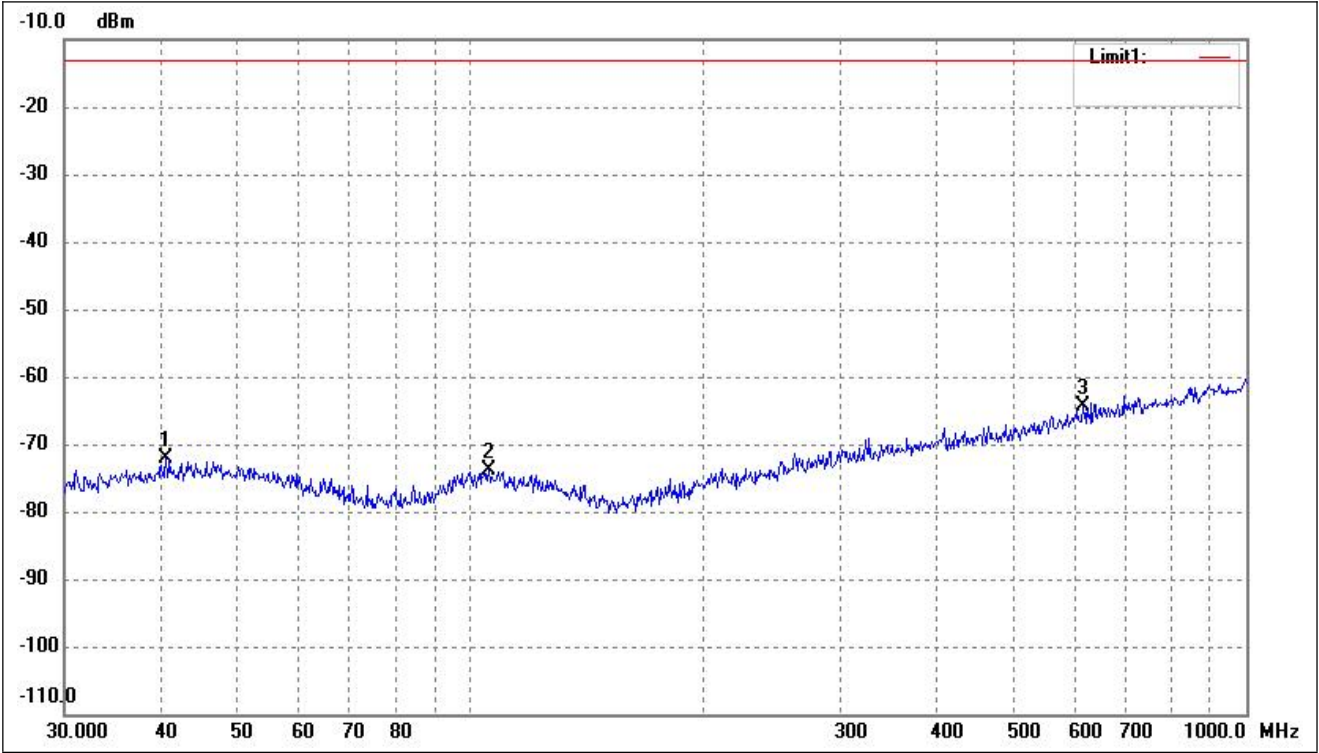
Note:  $\text{Margin} = (\text{Reading} + \text{Correct}) - \text{Limit}$

|              |        |           |            |
|--------------|--------|-----------|------------|
| Test Channel | band 5 | Polarity: | Horizontal |
|--------------|--------|-----------|------------|



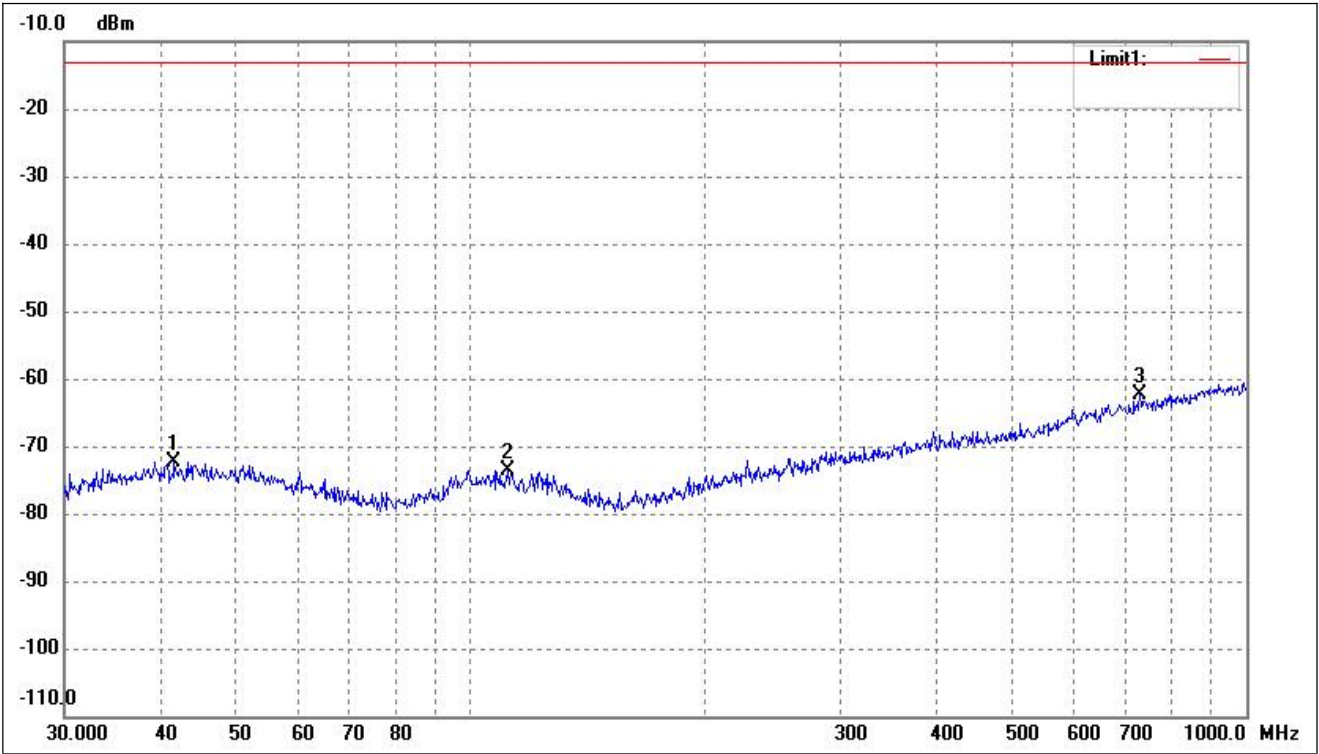
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 48.1626            | -76.49           | 4.52          | -71.97          | -13.00         | -58.97         | -             | -              | peak   |
| 2   | 100.2286           | -76.95           | 3.74          | -73.21          | -13.00         | -60.21         | -             | -              | peak   |
| 3   | 701.7610           | -76.38           | 13.18         | -63.20          | -13.00         | -50.20         | -             | -              | peak   |

|              |        |           |          |
|--------------|--------|-----------|----------|
| Test Channel | band 5 | Polarity: | Vertical |
|--------------|--------|-----------|----------|



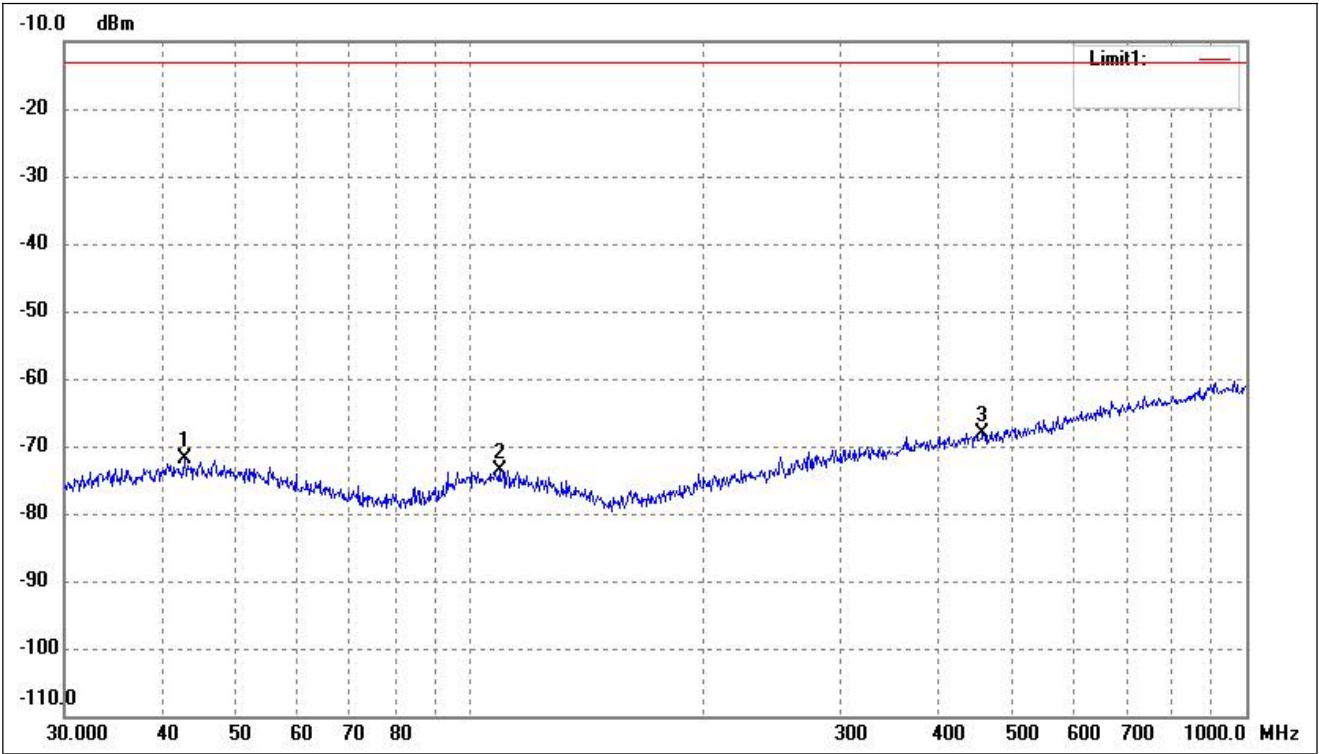
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 40.5591            | -76.69           | 4.67          | -72.02          | -13.00         | -59.02         | -             | -              | peak   |
| 2   | 105.6415           | -77.51           | 3.70          | -73.81          | -13.00         | -60.81         | -             | -              | peak   |
| 3   | 616.3718           | -76.37           | 11.89         | -64.48          | -13.00         | -51.48         | -             | -              | peak   |

|              |        |           |            |
|--------------|--------|-----------|------------|
| Test Channel | band 2 | Polarity: | Horizontal |
|--------------|--------|-----------|------------|



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 41.5670            | -76.95           | 4.65          | -72.30          | -13.00         | -59.30         | -             | -              | peak   |
| 2   | 111.7380           | -77.26           | 3.54          | -73.72          | -13.00         | -60.72         | -             | -              | peak   |
| 3   | 729.3583           | -75.70           | 13.43         | -62.27          | -13.00         | -49.27         | -             | -              | peak   |

|              |        |           |          |
|--------------|--------|-----------|----------|
| Test Channel | band 2 | Polarity: | Vertical |
|--------------|--------|-----------|----------|



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 42.8998            | -76.56           | 4.62          | -71.94          | -13.00         | -58.94         | -             | -              | peak   |
| 2   | 109.0286           | -77.31           | 3.67          | -73.64          | -13.00         | -60.64         | -             | -              | peak   |
| 3   | 457.5073           | -77.28           | 9.11          | -68.17          | -13.00         | -55.17         | -             | -              | peak   |

Note:  $Margin = (Reading + Correct) - Limit$

Remark: '-' Means the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

- Spurious Emissions Above 1GHz
- For Cellular Band\_GSM850 Mode

| Frequency<br>(MHz)        | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polar<br>H/V |
|---------------------------|------------------|---------------|-----------------|----------------|----------------|--------------|
| Low Channel (824.2MHz)    |                  |               |                 |                |                |              |
| 1648.4                    | -36.32           | 4.94          | -31.38          | -13            | -18.38         | H            |
| 2472.6                    | -42.12           | 8.46          | -33.66          | -13            | -20.66         | H            |
| 1648.4                    | -36.78           | 4.94          | -31.84          | -13            | -18.84         | V            |
| 2472.6                    | -44.31           | 8.46          | -35.85          | -13            | -22.85         | V            |
| Middle Channel (836.6MHz) |                  |               |                 |                |                |              |
| 1673.2                    | -35.81           | 5.11          | -30.7           | -13            | -17.7          | H            |
| 2509.8                    | -43.73           | 8.54          | -35.19          | -13            | -22.19         | H            |
| 1673.2                    | -36.79           | 5.11          | -31.68          | -13            | -18.68         | V            |
| 2509.8                    | -41.27           | 8.54          | -32.73          | -13            | -19.73         | V            |
| High Channel (848.8MHz)   |                  |               |                 |                |                |              |
| 1697.6                    | -34.67           | 5.25          | -29.42          | -13            | -16.42         | H            |
| 2546.4                    | -44.31           | 8.57          | -35.74          | -13            | -22.74         | H            |
| 1697.6                    | -37.53           | 5.25          | -32.28          | -13            | -19.28         | V            |
| 2546.4                    | -44.41           | 8.57          | -35.84          | -13            | -22.84         | V            |

- For PCS Band\_GSM1900 Mode

| Frequency<br>(MHz)       | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polar<br>H/V |
|--------------------------|------------------|---------------|-----------------|----------------|----------------|--------------|
| Low Channel (1850.2MHz)  |                  |               |                 |                |                |              |
| 3700.4                   | -40.63           | 10.54         | -30.09          | -13            | -17.09         | H            |
| 5550.6                   | -48.31           | 13.37         | -34.94          | -13            | -21.94         | H            |
| 3700.4                   | -42.35           | 10.54         | -31.81          | -13            | -18.81         | V            |
| 5550.6                   | -47.8            | 13.37         | -34.43          | -13            | -21.43         | V            |
| Middle Channel (1880MHz) |                  |               |                 |                |                |              |
| 3760.0                   | -39.6            | 10.64         | -28.96          | -13            | -15.96         | H            |
| 5640.0                   | -48.14           | 13.54         | -34.6           | -13            | -21.6          | H            |
| 3760.0                   | -41              | 10.64         | -30.36          | -13            | -17.36         | V            |
| 5640.0                   | -46.12           | 13.54         | -32.58          | -13            | -19.58         | V            |
| High Channel (1909.8MHz) |                  |               |                 |                |                |              |
| 3819.6                   | -42.89           | 10.74         | -32.15          | -13            | -19.15         | H            |
| 5729.4                   | -48.47           | 13.71         | -34.76          | -13            | -21.76         | H            |
| 3819.6                   | -40.86           | 10.74         | -30.12          | -13            | -17.12         | V            |
| 5729.4                   | -48.83           | 13.71         | -35.12          | -13            | -22.12         | V            |

## ➤ For WCDMA Band V Mode

| Frequency                 | Reading | Correct | Result | Limit | Margin | Polar |
|---------------------------|---------|---------|--------|-------|--------|-------|
| (MHz)                     | (dBm)   | dB      | (dBm)  | (dBm) | (dB)   | H/V   |
| Low Channel (826.4MHz)    |         |         |        |       |        |       |
| 1652.8                    | -32.21  | 9.87    | -22.34 | -13   | -9.34  | H     |
| 2479.2                    | -39.67  | 13.02   | -26.65 | -13   | -13.65 | H     |
| 1652.8                    | -34.15  | 9.87    | -24.28 | -13   | -11.28 | V     |
| 2479.2                    | -40.17  | 13.02   | -27.15 | -13   | -14.15 | V     |
| Middle Channel (836.6MHz) |         |         |        |       |        |       |
| 1672.8                    | -35.31  | 9.97    | -25.34 | -13   | -12.34 | H     |
| 2509.2                    | -39.19  | 12.54   | -26.65 | -13   | -13.65 | H     |
| 1672.8                    | -34.88  | 9.97    | -24.91 | -13   | -11.91 | V     |
| 2509.2                    | -41.53  | 12.54   | -28.99 | -13   | -15.99 | V     |
| High Channel (846.6MHz)   |         |         |        |       |        |       |
| 1693.2                    | -33.85  | 10.03   | -23.82 | -13   | -10.82 | H     |
| 2539.8                    | -41.01  | 14.03   | -26.98 | -13   | -13.98 | H     |
| 1693.2                    | -34.32  | 10.03   | -24.29 | -13   | -11.29 | V     |
| 2539.8                    | -41.01  | 14.03   | -26.98 | -13   | -13.98 | V     |

## ➤ For WCDMA Band II Mode

| Frequency                | Reading | Correct | Result | Limit | Margin | Polar |
|--------------------------|---------|---------|--------|-------|--------|-------|
| (MHz)                    | (dBm)   | dB      | (dBm)  | (dBm) | (dB)   | H/V   |
| Low Channel (1852.4MHz)  |         |         |        |       |        |       |
| 3704.8                   | -37.45  | 10.17   | -27.28 | -13   | -14.28 | H     |
| 5557.2                   | -41.05  | 14.69   | -26.36 | -13   | -13.36 | H     |
| 3704.8                   | -36.6   | 10.17   | -26.43 | -13   | -13.43 | V     |
| 5557.2                   | -41.24  | 14.69   | -26.55 | -13   | -13.55 | V     |
| Middle Channel (1880MHz) |         |         |        |       |        |       |
| 3760.8                   | -35.26  | 10.26   | -25    | -13   | -12    | H     |
| 5640.0                   | -44.2   | 14.78   | -29.42 | -13   | -16.42 | H     |
| 3760.8                   | -35.43  | 10.26   | -25.17 | -13   | -12.17 | V     |
| 5640.0                   | -42.89  | 14.78   | -28.11 | -13   | -15.11 | V     |
| High Channel (1907.6MHz) |         |         |        |       |        |       |
| 3815.2                   | -37.68  | 10.59   | -27.09 | -13   | -14.09 | H     |
| 5722.8                   | -44.13  | 15.03   | -29.1  | -13   | -16.1  | H     |
| 3815.2                   | -35.36  | 10.59   | -24.77 | -13   | -11.77 | V     |
| 5722.8                   | -42.83  | 15.03   | -27.8  | -13   | -14.8  | H     |

Note: Result=Reading+ Correct, Margin= Result- Limit

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



## **8. Frequency Stability**

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### **8.1 Standard Applicable**

According to §22.355, §24.235 the limit is 2.5ppm.

### **8.2 Test Procedure**

According to §2.1055, the following test procedure was performed.

The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode.

### **8.3 Summary of Test Results/Plots**

**Please refer to Appendix E**

## 9. Modulation characteristics

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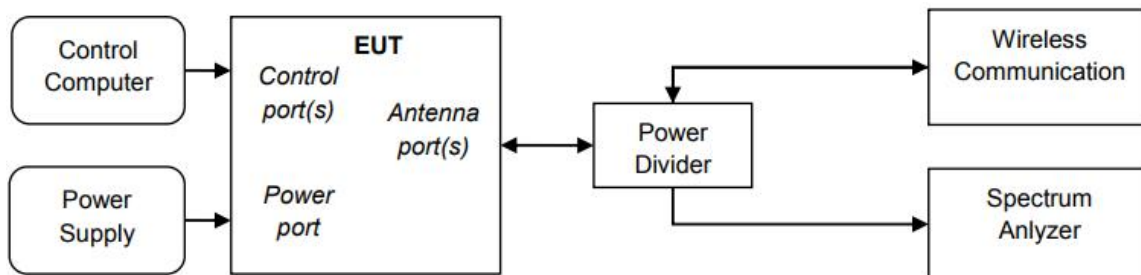
### 9.1 Standard Applicable

According to §2.1047, measurements required: Modulation characteristics is given below:

- (a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.
- (b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.
- (c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of §2.1049 for the occupied bandwidth tests.
- (d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

### 9.2 Test Procedure

According to ANSI C63.26-2015 section 5.3.2, the following test setup was performed.



### 9.3 Summary of Test Results/Plots

Only the worst case was selected to record.

**Please refer to Appendix F**

## APPENDIX SUMMARY

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|                   |                 |               |            |
|-------------------|-----------------|---------------|------------|
| Project No.       | WTX22X12260158W | Test Engineer | Gala Wang  |
| Start date        | 2022/03/02      | Finish date   | 2022/03/06 |
| Temperature       | 23℃             | Humidity      | 45%        |
| RF specifications | GSM/WCDMA       |               |            |

| APPENDIX | Description of Test Item                   | Result    |
|----------|--------------------------------------------|-----------|
| A        | RF Output Power                            | Compliant |
| B        | Peak-to-average Ratio (PAR) of Transmitter | Compliant |
| C        | Emission Bandwidth                         | Compliant |
| D        | Out of Band Emissions at Antenna Terminal  | Compliant |
| E        | Frequency Stability                        | Compliant |
| F        | Modulation characteristics                 | Compliant |

## APPENDIX A

### Conducted Average power

| Conducted Average power (dBm) |        |        |        |         |         |         |
|-------------------------------|--------|--------|--------|---------|---------|---------|
| Band                          | GSM850 |        |        | PCS1900 |         |         |
| Channel                       | 128    | 190    | 251    | 512     | 661     | 810     |
| Frequency(MHz)                | 824.20 | 836.60 | 848.80 | 1850.20 | 1880.00 | 1909.80 |
| GSM                           | 34.09  | 32.89  | 33.67  | 30.07   | 29.8    | 29.71   |
| GPRS(1Slot)                   | 34.00  | 33.63  | 33.58  | 30.17   | 29.87   | 29.76   |
| EGPRS(1Slot)                  | 28.31  | 28.26  | 28.04  | 26.26   | 27.03   | 27.65   |

| Conducted Average power (dBm) |               |        |        |              |       |       |
|-------------------------------|---------------|--------|--------|--------------|-------|-------|
| Band                          | WCDMA Band II |        |        | WCDMA Band V |       |       |
| Channel                       | 9262          | 9400   | 9538   | 4132         | 4183  | 4233  |
| Frequency(MHz)                | 1852.4        | 1880.0 | 1907.6 | 826.4        | 836.6 | 846.6 |
| RMC 12.2k                     | 23.39         | 23.27  | 23.10  | 23.74        | 23.65 | 23.67 |
| HSDPA Subtest-1               | 22.36         | 22.3   | 22.10  | 22.70        | 22.68 | 22.66 |
| HSDPA Subtest-2               | 22.34         | 22.24  | 22.06  | 22.68        | 22.64 | 22.54 |
| HSDPA Subtest-3               | 22.35         | 22.20  | 22.04  | 22.64        | 22.60 | 22.50 |
| HSDPA Subtest-4               | 22.31         | 22.14  | 22.01  | 22.60        | 22.54 | 22.48 |
| HSUPA Subtest-1               | 22.33         | 22.23  | 22.03  | 22.63        | 22.70 | 22.62 |
| HSUPA Subtest-2               | 22.22         | 22.2   | 22.01  | 22.6         | 22.65 | 22.59 |
| HSUPA Subtest-3               | 22.14         | 22.15  | 21.99  | 22.57        | 22.6  | 22.54 |
| HSUPA Subtest-4               | 22.07         | 22.09  | 21.96  | 22.49        | 22.54 | 22.50 |
| HSUPA Subtest-5               | 22.06         | 22.04  | 21.92  | 22.40        | 22.5  | 22.47 |

## APPENDIX B

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### Peak-to-average Ratio (PAR) of Transmitter

| PCS1900      |         |                 |          |            |
|--------------|---------|-----------------|----------|------------|
| Test Mode    | Channel | Frequency (MHz) | PAR (dB) | Limit (dB) |
| GSM          | 661     | 1850.2          | 4.36     | 13         |
| GPRS(1 Slot) | 661     | 1850.2          | 5.12     | 13         |
| EDGE(1 Slot) | 661     | 1850.2          | 4.57     | 13         |

| WCDMA Band II |         |                 |          |            |
|---------------|---------|-----------------|----------|------------|
| Test Mode     | Channel | Frequency (MHz) | PAR (dB) | Limit (dB) |
| WCDMA         | 9262    | 1852.4          | 4.02     | 13         |
|               | 9400    | 1880.0          | 4.21     | 13         |
|               | 9538    | 1907.6          | 3.64     | 13         |

Note: Only the worst case was selected to record.

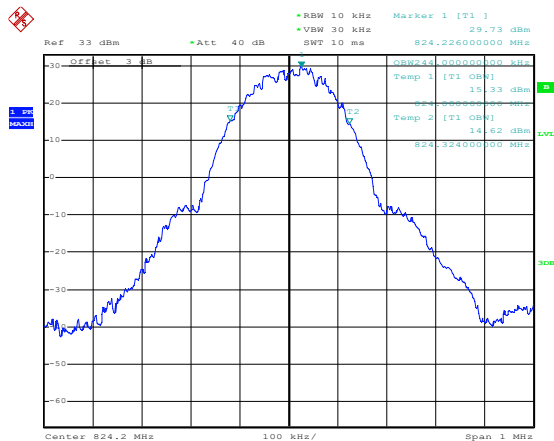
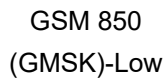
## APPENDIX C

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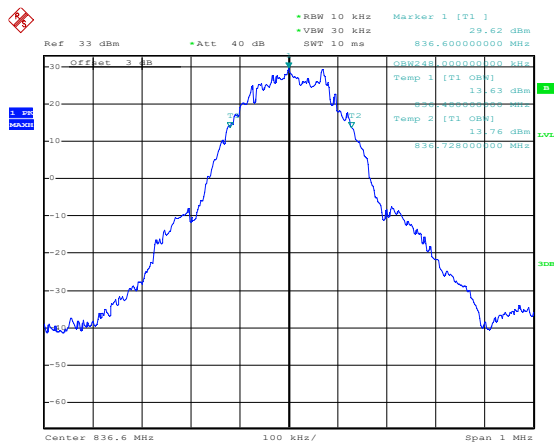
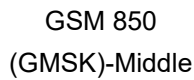
| EUT Mode                  | Channel | Frequency (MHz) | 99% Occupy bandwidth (kHz) | -26dB bandwidth (kHz) |
|---------------------------|---------|-----------------|----------------------------|-----------------------|
| GSM 850<br>(GMSK)         | 128     | 824.20          | 244.00                     | 326.00                |
|                           | 190     | 836.60          | 248.00                     | 320.00                |
|                           | 251     | 848.80          | 248.00                     | 316.00                |
| GPRS850<br>(GMSK,1Slot)   | 128     | 824.20          | 244.00                     | 326.00                |
|                           | 190     | 836.60          | 248.00                     | 324.00                |
|                           | 251     | 848.80          | 242.00                     | 322.00                |
| EGPRS850<br>(8PSK,1Slot)  | 128     | 824.20          | 242.00                     | 322.00                |
|                           | 190     | 836.60          | 248.00                     | 326.00                |
|                           | 251     | 848.80          | 244.00                     | 316.00                |
| PCS1900<br>(GMSK)         | 512     | 1850.20         | 244.00                     | 320.00                |
|                           | 661     | 1880.00         | 244.00                     | 324.00                |
|                           | 810     | 1909.80         | 244.00                     | 320.00                |
| GPRS1900<br>(GMSK,1Slot)  | 512     | 1850.20         | 244.00                     | 322.00                |
|                           | 661     | 1880.00         | 242.00                     | 318.00                |
|                           | 810     | 1909.80         | 246.00                     | 322.00                |
| EGPRS1900<br>(8PSK,1Slot) | 512     | 1850.20         | 246.00                     | 316.00                |
|                           | 661     | 1880.00         | 249.00                     | 320.00                |
|                           | 810     | 1909.80         | 244.00                     | 315.00                |

| EUT Mode      | Channel | Frequency (MHz) | 99% Occupy bandwidth (kHz) | 26dB bandwidth (kHz) |
|---------------|---------|-----------------|----------------------------|----------------------|
| WCDMA Band V  | 4132    | 826.40          | 4180                       | 4720                 |
|               | 4183    | 836.60          | 4200                       | 4740                 |
|               | 4233    | 846.60          | 4200                       | 4740                 |
| HSDPA         | 4132    | 826.40          | 4220                       | 4760                 |
|               | 4183    | 836.60          | 4220                       | 4820                 |
|               | 4233    | 846.60          | 4200                       | 4720                 |
| HSUPA         | 4132    | 826.40          | 4200                       | 4800                 |
|               | 4183    | 836.60          | 4180                       | 4740                 |
|               | 4233    | 846.60          | 4180                       | 4760                 |
| WCDMA Band II | 9262    | 1852.40         | 4200                       | 4720                 |
|               | 9400    | 1880.00         | 4160                       | 4740                 |
|               | 9538    | 1907.60         | 4160                       | 4740                 |
| HSDPA         | 9262    | 1852.40         | 4200                       | 4740                 |
|               | 9400    | 1880.00         | 4200                       | 4720                 |
|               | 9538    | 1907.60         | 4200                       | 4760                 |
| HSUPA         | 9262    | 1852.40         | 4200                       | 4720                 |
|               | 9400    | 1880.00         | 4200                       | 4760                 |
|               | 9538    | 1907.60         | 4200                       | 4740                 |

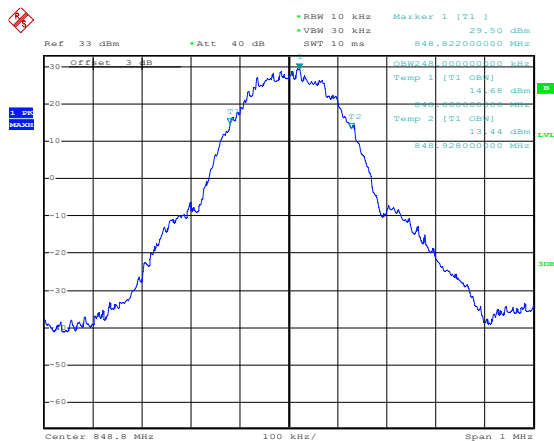
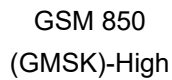
## 99% Occupy bandwidth



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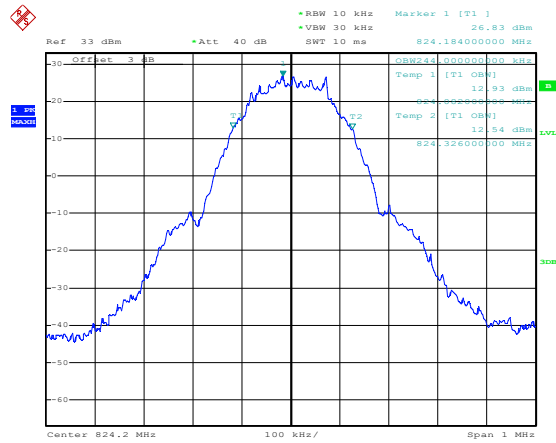
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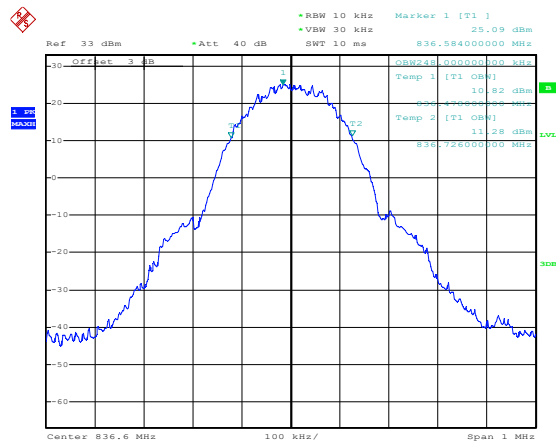


GPRS850  
(GMSK,1Slot)-Low



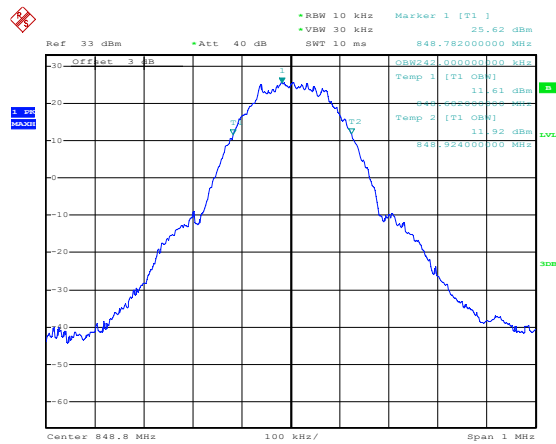
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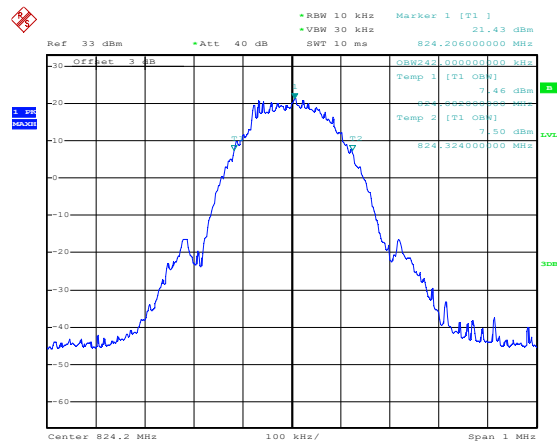
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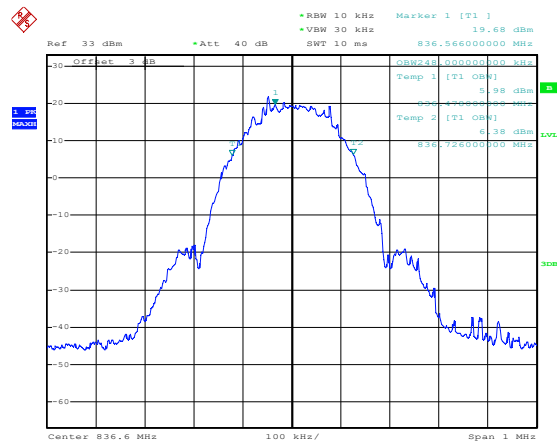
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EGPRS850  
(8PSK,1Slot)-Low



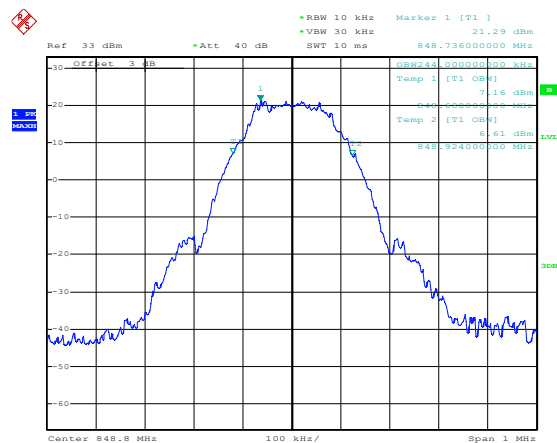
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EGPRS850  
(8PSK,1Slot)-Middle

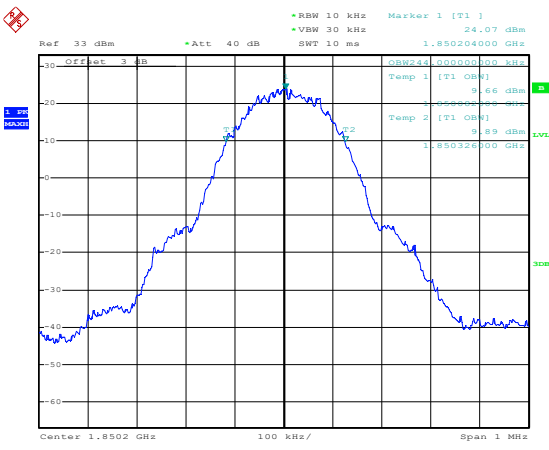
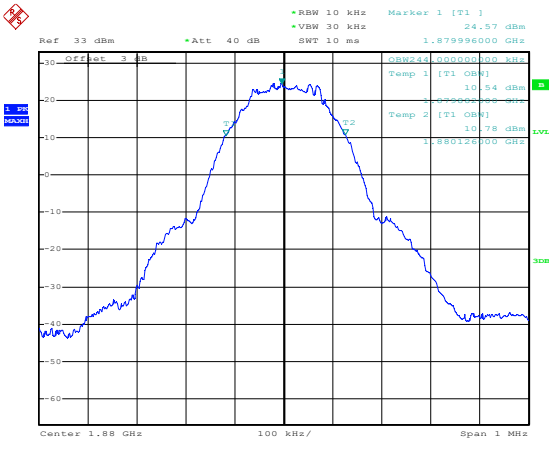
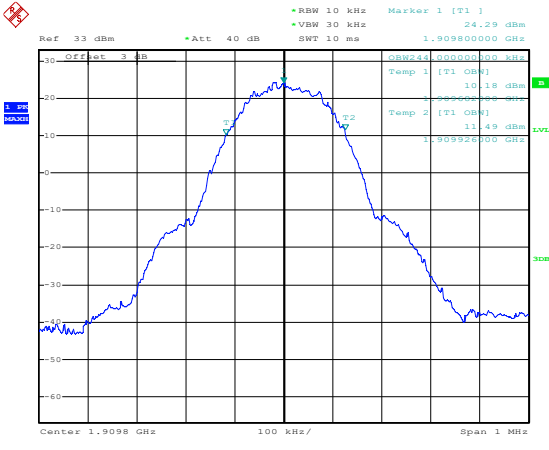


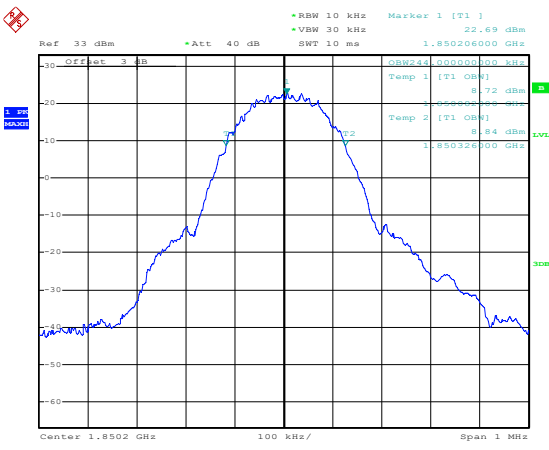
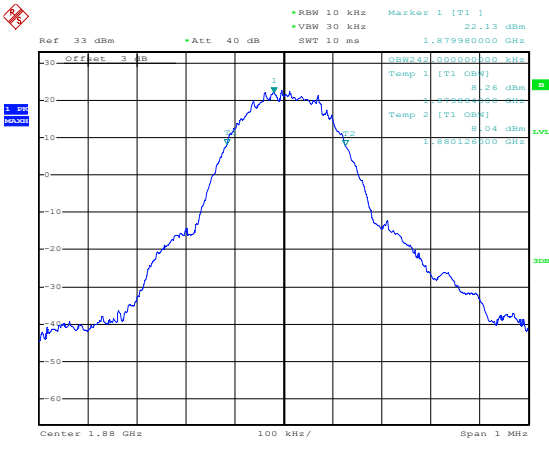
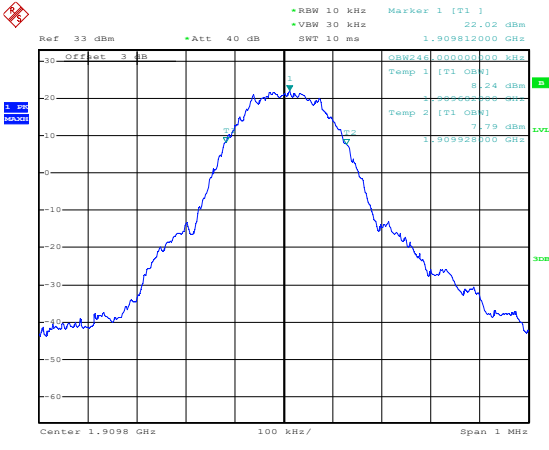
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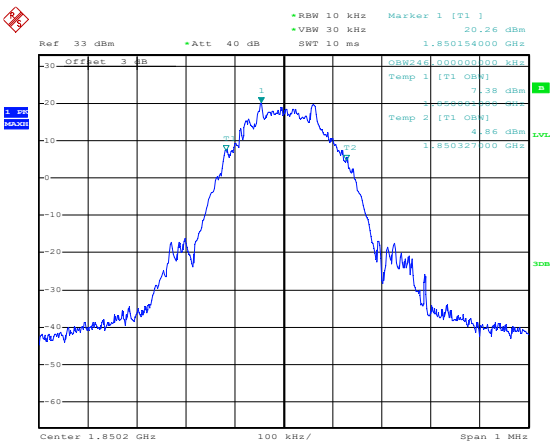
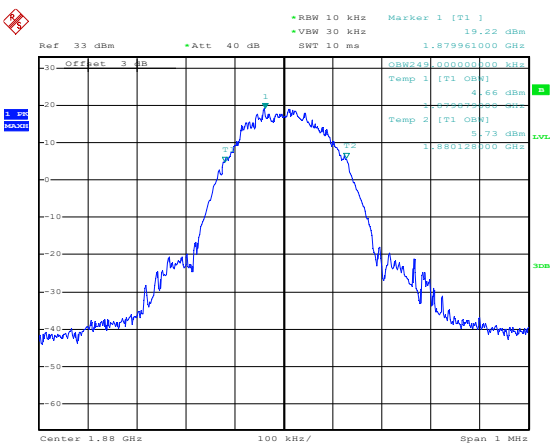
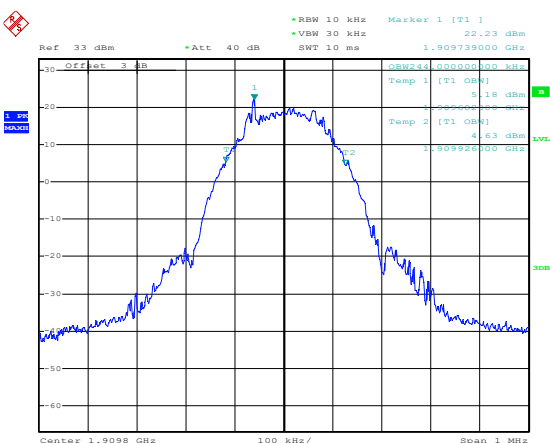
EGPRS850  
(8PSK,1Slot)-High

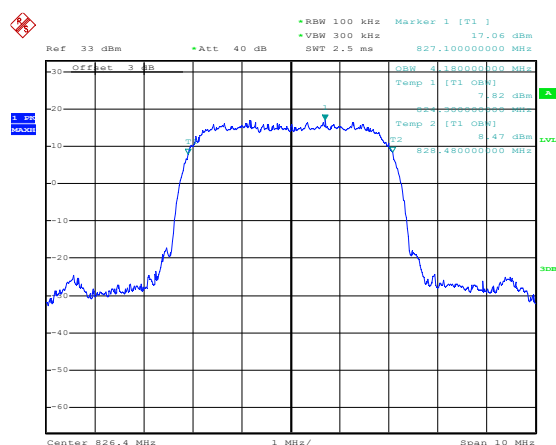


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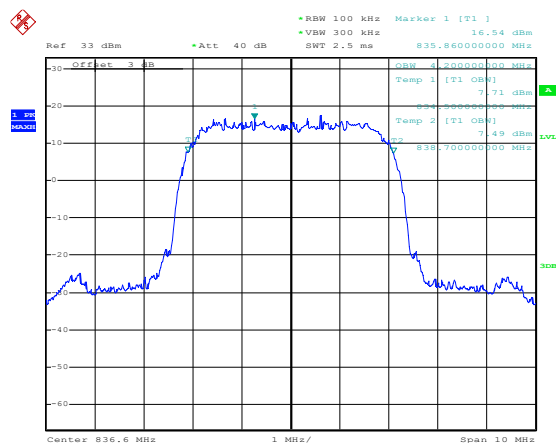
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| PCS1900<br>(GMSK)-Low    | <div><p>Date: 3.MAR.2023 14:24:59</p></div>   |
| PCS1900<br>(GMSK)-Middle | <div><p>Date: 3.MAR.2023 14:27:25</p></div>  |
| PCS1900<br>(GMSK)-High   | <div><p>Date: 3.MAR.2023 14:29:57</p></div> |

|                                             |                                                                                                                                                                                                                                                                                         |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>GPRS1900<br/>(GMSK,1Slot)-Low</div>    | <div><p>Ref 33 dBm *Att 40 dB RBW 10 kHz Marker 1 [T1] 22.69 dBm<br/>VBW 30 kHz 1.850206000 GHz<br/>SWT 10 ms</p><p>Center 1.8502 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 15:22:52</p></div>   |
| <div>GPRS1900<br/>(GMSK,1Slot)-Middle</div> | <div><p>Ref 33 dBm *Att 40 dB RBW 10 kHz Marker 1 [T1] 22.13 dBm<br/>VBW 30 kHz 1.879980500 GHz<br/>SWT 10 ms</p><p>Center 1.88 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 15:24:59</p></div>    |
| <div>GPRS1900<br/>(GMSK,1Slot)-High</div>   | <div><p>Ref 33 dBm *Att 40 dB RBW 10 kHz Marker 1 [T1] 22.02 dBm<br/>VBW 30 kHz 1.909812000 GHz<br/>SWT 10 ms</p><p>Center 1.9098 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 15:23:49</p></div> |

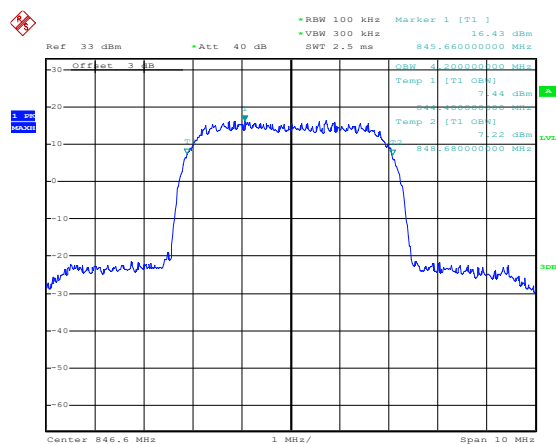
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| <p>EGPRS1900<br/>(8PSK,1Slot)-Low</p>    | <div data-bbox="646 235 1198 676"><p>Ref 33 dBm    *Att 40 dB    RBW 10 kHz    Marker 1 [T1]    20.26 dBm<br/>VBW 30 kHz    1.850154000 GHz</p><p>Center 1.8502 GHz    100 kHz/    Span 1 MHz</p></div> <p>Date: 3.MAR.2023 16:23:25</p>     |
| <p>EGPRS1900<br/>(8PSK,1Slot)-Middle</p> | <div data-bbox="646 790 1198 1232"><p>Ref 33 dBm    *Att 40 dB    RBW 10 kHz    Marker 1 [T1]    19.22 dBm<br/>VBW 30 kHz    1.879961000 GHz</p><p>Center 1.88 GHz    100 kHz/    Span 1 MHz</p></div> <p>Date: 3.MAR.2023 16:25:03</p>     |
| <p>EGPRS1900<br/>(8PSK,1Slot)-High</p>   | <div data-bbox="646 1346 1198 1787"><p>Ref 33 dBm    *Att 40 dB    RBW 10 kHz    Marker 1 [T1]    22.23 dBm<br/>VBW 30 kHz    1.909799000 GHz</p><p>Center 1.9098 GHz    100 kHz/    Span 1 MHz</p></div> <p>Date: 3.MAR.2023 16:27:09</p> |



Date: 4.MAR.2023 09:55:04

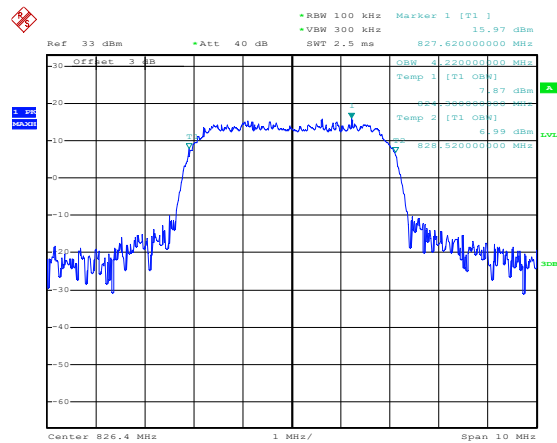


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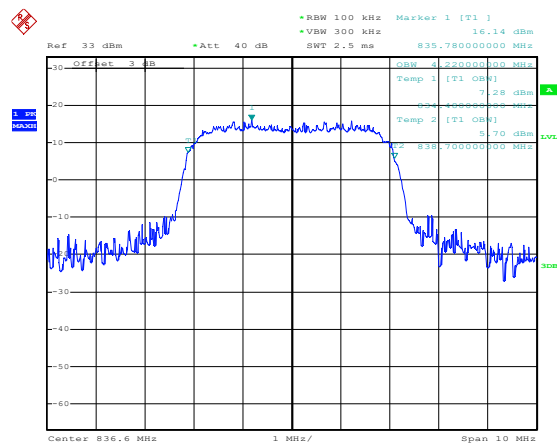
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HSDPA-Low



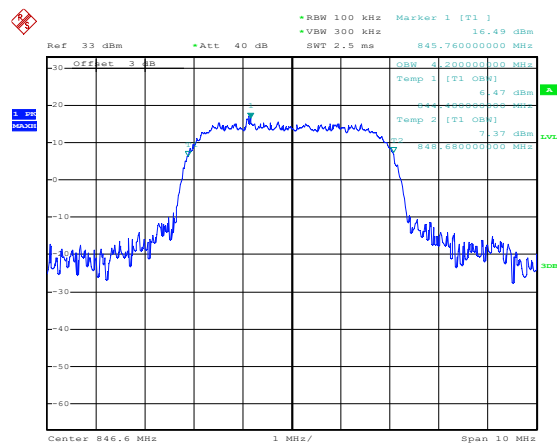
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HSDPA-Middle

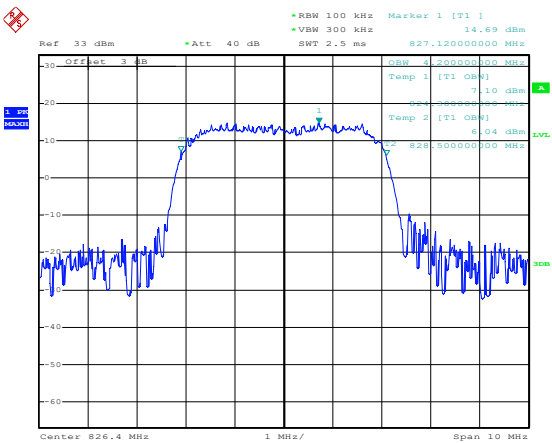
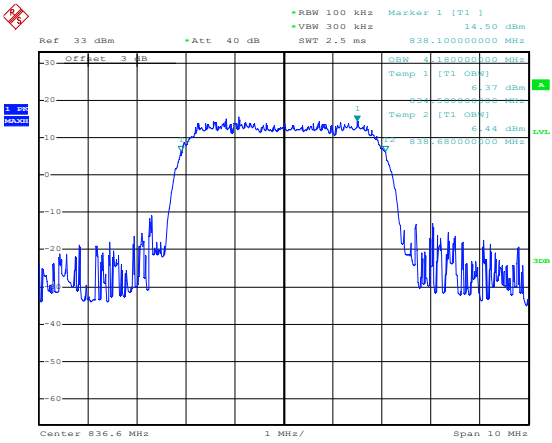
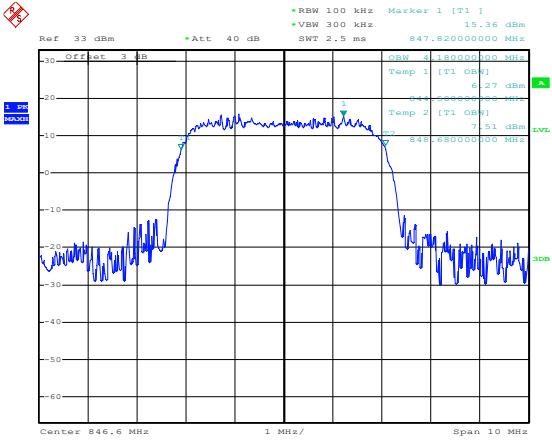


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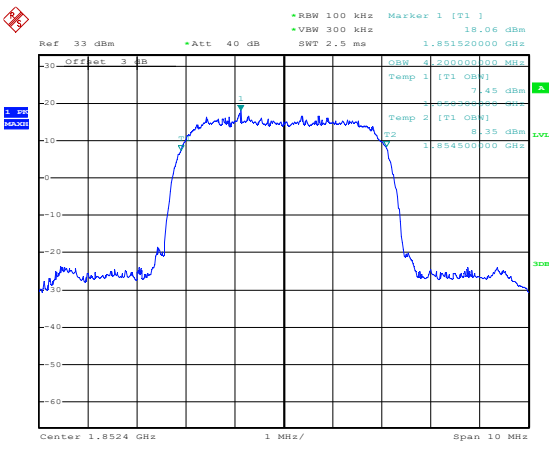
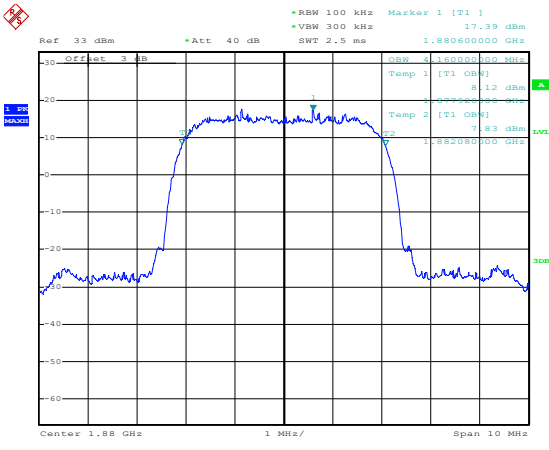
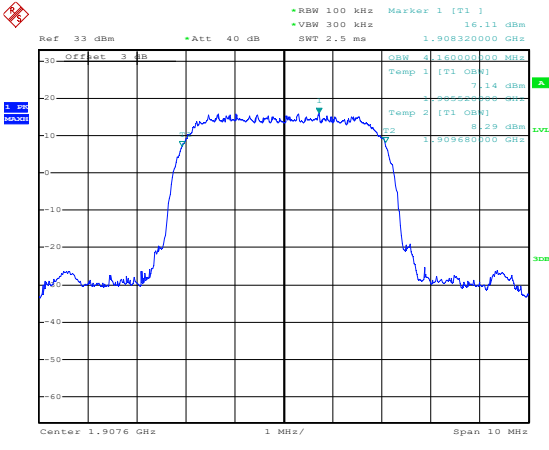
HSDPA-High



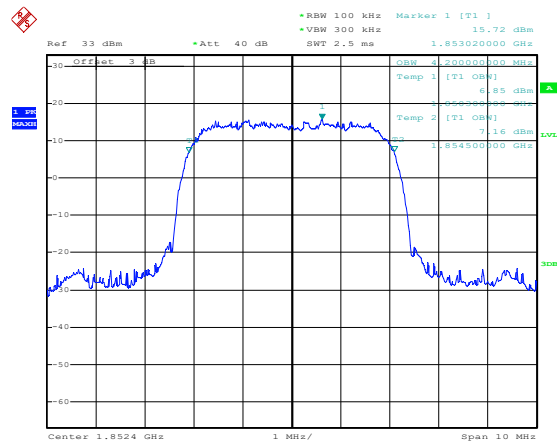
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|              |                                                                                                                                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------|
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| HSUPA-Middle | <div><p>Date: 4.MAR.2023 10:20:18</p></div>  |
| HSUPA-High   | <div><p>Date: 4.MAR.2023 10:20:42</p></div> |



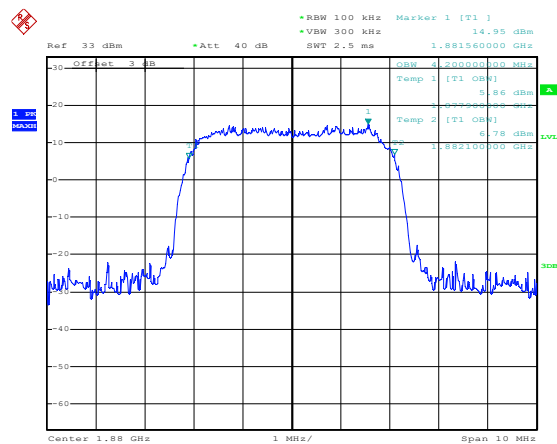
|                      |                                                                                                                                                                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WCDMA Band II-Low    | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 18.06 dBm<br/>VSW 300 kHz 1.851520000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB</p><p>Center 1.8524 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 08:27:00</p></div>   |
| WCDMA Band II-Middle | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 17.39 dBm<br/>VSW 300 kHz 1.880600000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB</p><p>Center 1.88 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 08:28:04</p></div>    |
| WCDMA Band II-High   | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 16.11 dBm<br/>VSW 300 kHz 1.908320000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB</p><p>Center 1.9076 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 08:28:53</p></div> |

HSDPA-Low



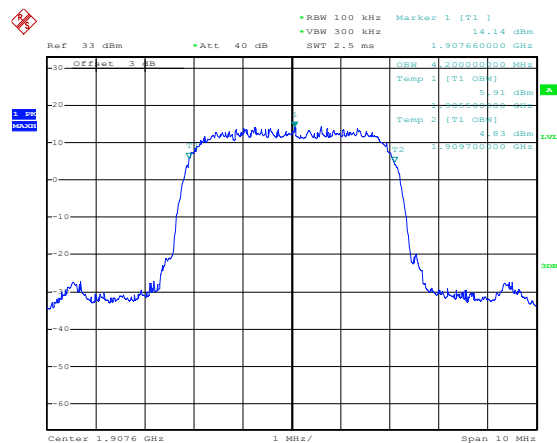
Date: 4.MAR.2023 09:00:03

HSDPA-Middle

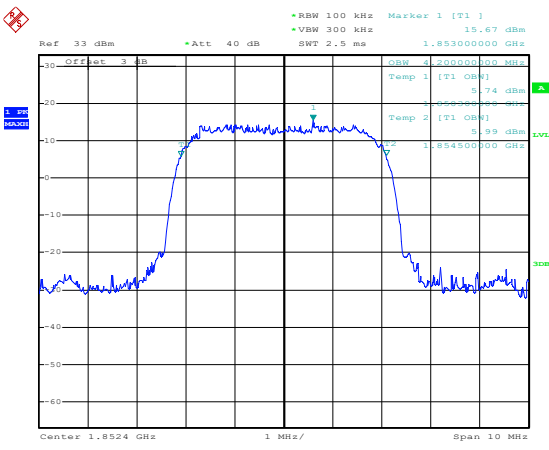
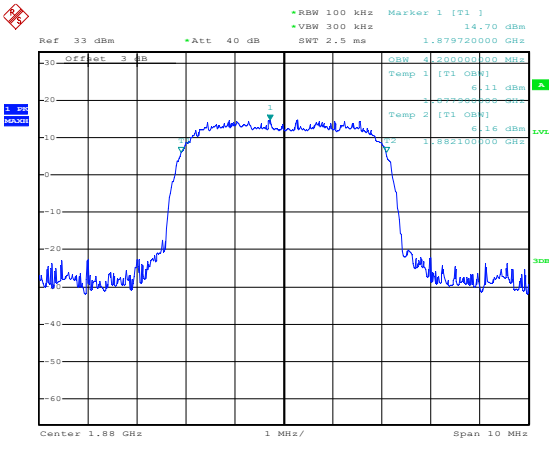
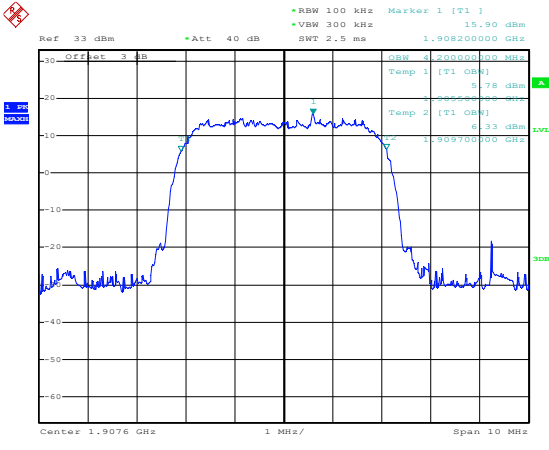


Date: 4.MAR.2023 09:00:34

HSDPA-High



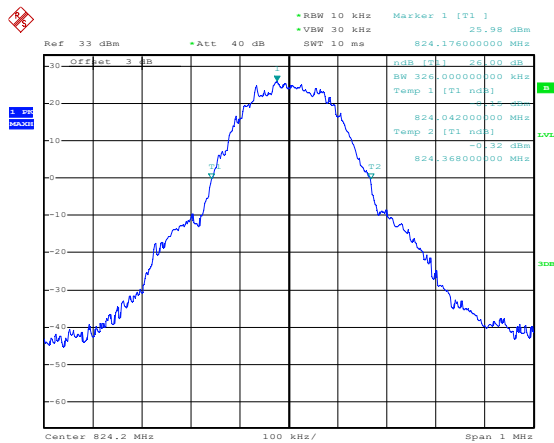
Date: 4.MAR.2023 09:00:53

|              |                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HSUPA-Low    | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 15.67 dBm<br/>VSW 300 kHz 1.853000000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB<br/>Temp 1 [T1 OBW] 5.74 dBm<br/>Temp 2 [T2 OBW] 5.99 dBm<br/>1.854500000 GHz</p><p>Center 1.8524 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 09:28:32</p></div>   |
| HSUPA-Middle | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 14.70 dBm<br/>VSW 300 kHz 1.879720000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB<br/>Temp 1 [T1 OBW] 6.11 dBm<br/>Temp 2 [T2 OBW] 6.16 dBm<br/>1.882100000 GHz</p><p>Center 1.88 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 09:29:52</p></div>    |
| HSUPA-High   | <div><p>Ref 33 dBm *Att 40 dB RBW 100 kHz Marker 1 [T1 ] 15.90 dBm<br/>VSW 300 kHz 1.907200000 GHz<br/>SWT 2.5 ms</p><p>Offset 3 dB<br/>Temp 1 [T1 OBW] 5.78 dBm<br/>Temp 2 [T2 OBW] 6.33 dBm<br/>1.909700000 GHz</p><p>Center 1.9076 GHz 1 MHz/ Span 10 MHz</p><p>Date: 4.MAR.2023 09:31:26</p></div> |

26dB bandwidth

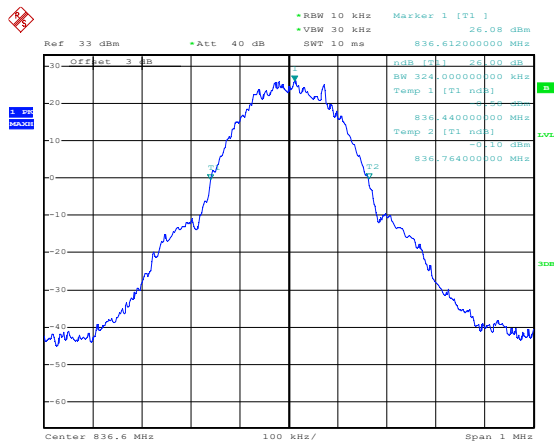
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|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div data-bbox="221 510 379 584" data-label="Text"><p>GSM 850<br/>(GMSK)-Low</p></div>      | <div data-bbox="646 280 1198 795" data-label="Figure"><p>Ref 33 dBm    Att 40 dB    RBW 10 kHz    VSW 30 kHz    SWT 10 ms    Marker 1 [T1]    28.38 dBm    824.270000000 MHz</p><p>Offset 3 dB    30 dB    20 dB    10 dB    0 dB    -10 dB    -20 dB    -30 dB    -40 dB    -50 dB    -60 dB</p><p>Center 824.2 MHz    100 kHz/    Span 1 MHz</p><p>Date: 2.MAR.2023 18:38:13</p></div>   |
| <div data-bbox="207 1068 394 1142" data-label="Text"><p>GSM 850<br/>(GMSK)-Middle</p></div> | <div data-bbox="646 837 1198 1352" data-label="Figure"><p>Ref 33 dBm    Att 40 dB    RBW 10 kHz    VSW 30 kHz    SWT 10 ms    Marker 1 [T1]    29.58 dBm    836.586000000 MHz</p><p>Offset 3 dB    30 dB    20 dB    10 dB    0 dB    -10 dB    -20 dB    -30 dB    -40 dB    -50 dB    -60 dB</p><p>Center 836.6 MHz    100 kHz/    Span 1 MHz</p><p>Date: 2.MAR.2023 18:39:09</p></div>  |
| <div data-bbox="218 1624 383 1697" data-label="Text"><p>GSM 850<br/>(GMSK)-High</p></div>   | <div data-bbox="646 1395 1198 1910" data-label="Figure"><p>Ref 33 dBm    Att 40 dB    RBW 10 kHz    VSW 30 kHz    SWT 10 ms    Marker 1 [T1]    29.50 dBm    848.768000000 MHz</p><p>Offset 3 dB    30 dB    20 dB    10 dB    0 dB    -10 dB    -20 dB    -30 dB    -40 dB    -50 dB    -60 dB</p><p>Center 848.8 MHz    100 kHz/    Span 1 MHz</p><p>Date: 2.MAR.2023 18:39:45</p></div> |

GPRS850  
(GMSK,1Slot)-Low



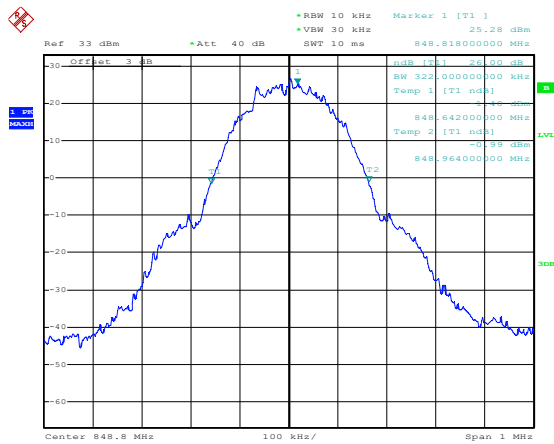
Date: 2.MAR.2023 18:47:26

GPRS850  
(GMSK,1Slot)-Middle



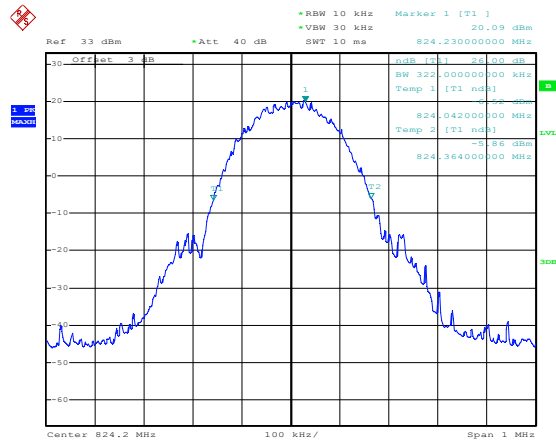
Date: 2.MAR.2023 18:47:48

GPRS850  
(GMSK,1Slot)-High



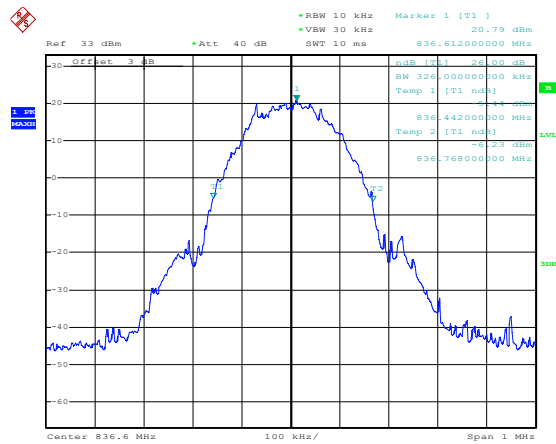
Date: 2.MAR.2023 18:48:09

EGPRS850  
(8PSK,1Slot)-Low



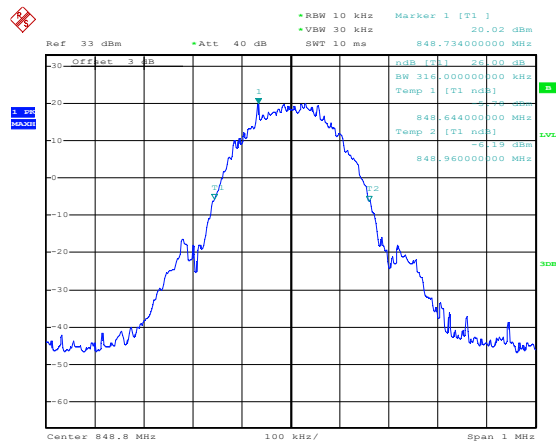
Date: 2.MAR.2023 19:07:46

EGPRS850  
(8PSK,1Slot)-Middle

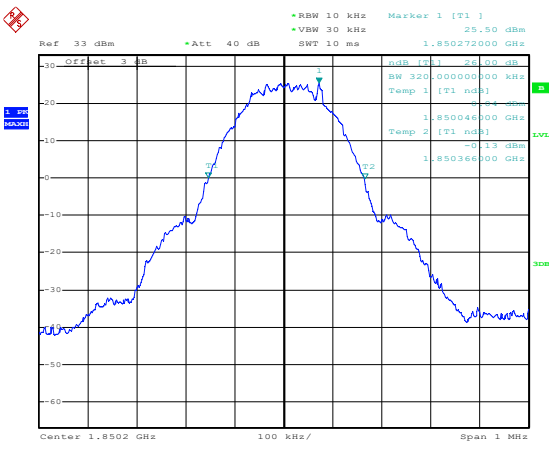
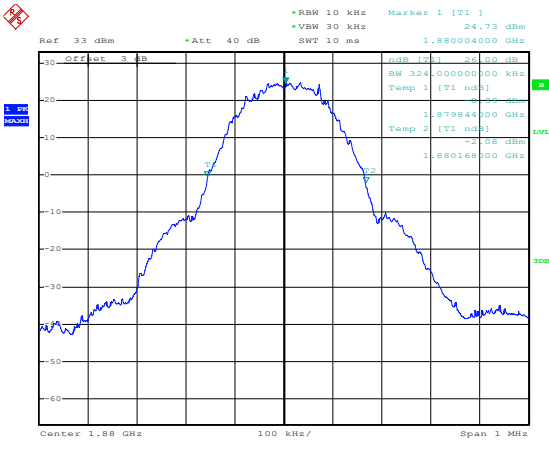
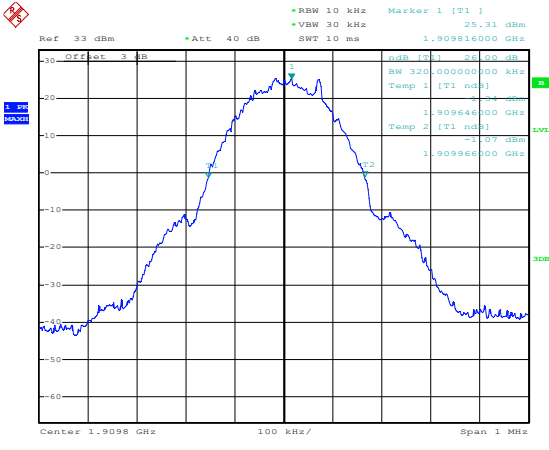


Date: 2.MAR.2023 19:08:41

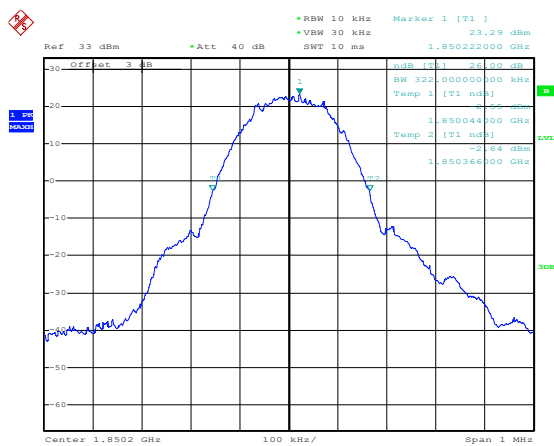
EGPRS850  
(8PSK,1Slot)-High



Date: 2.MAR.2023 19:09:40

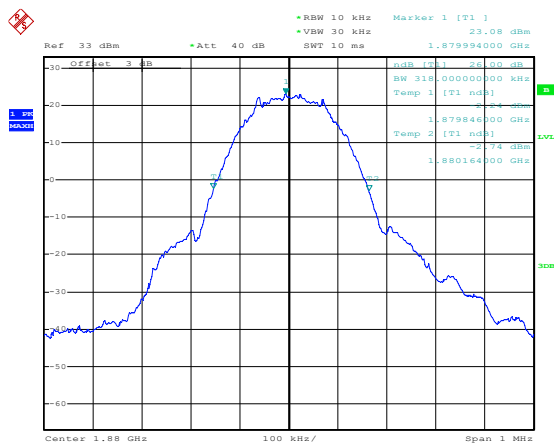
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PCS1900<br>(GMSK)-Low    | <div><p>Ref: 33 dBm *Att: 40 dB RBW 10 kHz Marker 1 [T1] 25.50 dBm<br/>VBW 30 kHz 1.850272000 GHz<br/>SWT 10 ms</p><p>Offset 3 dB</p><p>dB [T1] -25.50 dB<br/>BW 320.000000000 kHz<br/>Temp 1 [T1 n dB] -101.13 dBm<br/>Temp 2 [T1 n dB] -101.13 dBm</p><p>Center 1.8502 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 14:46:49</p></div>   |
| PCS1900<br>(GMSK)-Middle | <div><p>Ref: 33 dBm *Att: 40 dB RBW 10 kHz Marker 1 [T1] 24.73 dBm<br/>VBW 30 kHz 1.880094500 GHz<br/>SWT 10 ms</p><p>Offset 3 dB</p><p>dB [T1] -24.73 dB<br/>BW 320.000000000 kHz<br/>Temp 1 [T1 n dB] -102.08 dBm<br/>Temp 2 [T1 n dB] -102.08 dBm</p><p>Center 1.88 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 14:47:58</p></div>    |
| PCS1900<br>(GMSK)-High   | <div><p>Ref: 33 dBm *Att: 40 dB RBW 10 kHz Marker 1 [T1] 25.31 dBm<br/>VBW 30 kHz 1.909816000 GHz<br/>SWT 10 ms</p><p>Offset 3 dB</p><p>dB [T1] -25.31 dB<br/>BW 320.000000000 kHz<br/>Temp 1 [T1 n dB] -110.07 dBm<br/>Temp 2 [T1 n dB] -110.07 dBm</p><p>Center 1.9098 GHz 100 kHz/ Span 1 MHz</p><p>Date: 3.MAR.2023 14:48:50</p></div> |

GPRS1900  
(GMSK,1Slot)-Low



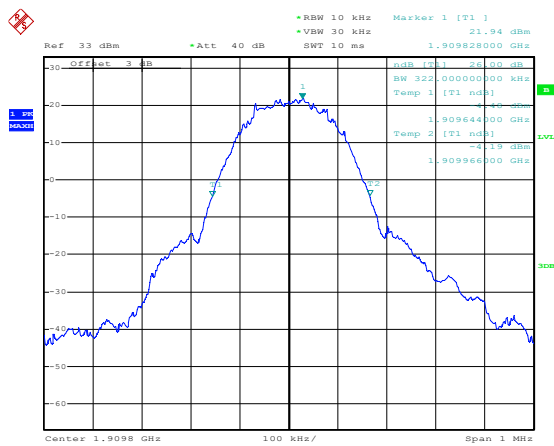
Date: 3.MAR.2023 15:27:24

GPRS1900  
(GMSK,1Slot)-Middle



Date: 3.MAR.2023 15:30:44

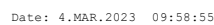
GPRS1900  
(GMSK,1Slot)-High

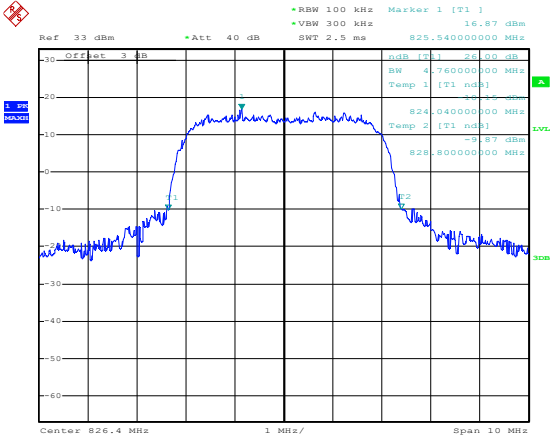
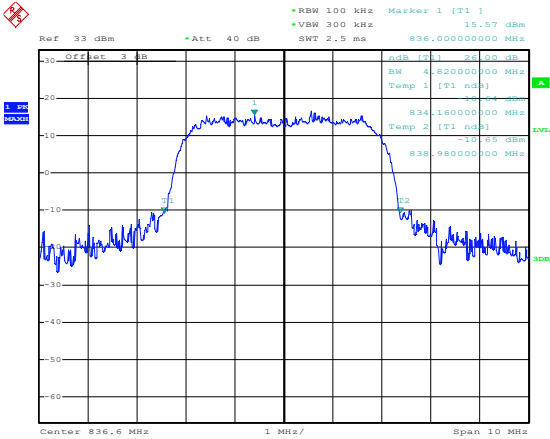
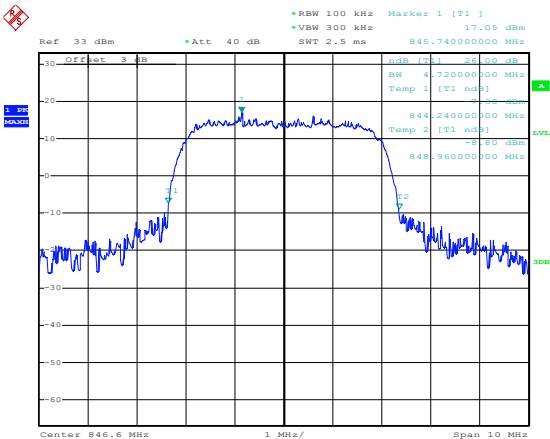


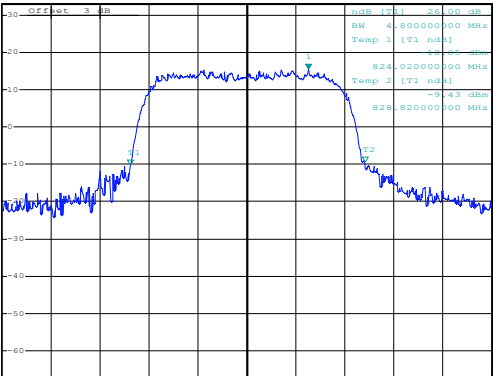
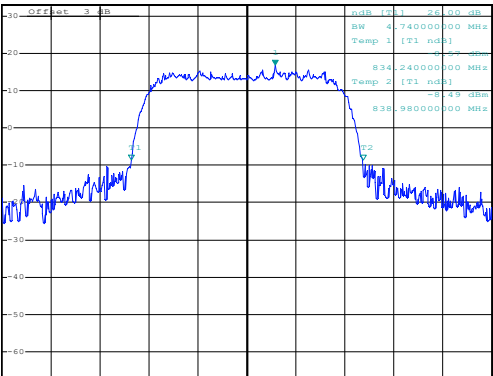
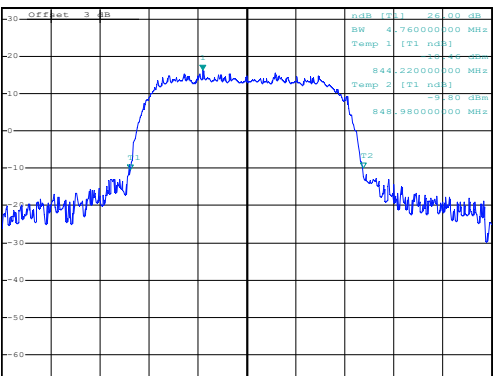
Date: 3.MAR.2023 15:31:27

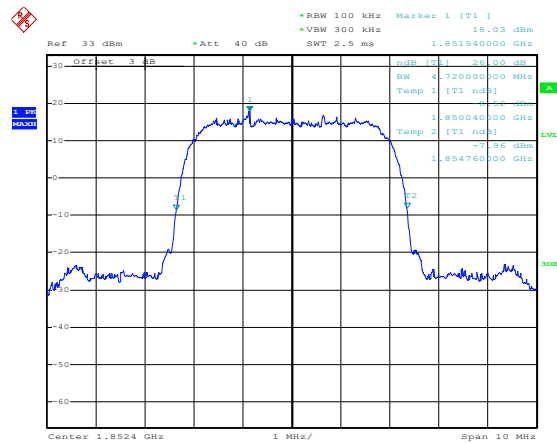


|                                          |                                                                             |
|------------------------------------------|-----------------------------------------------------------------------------|
| <p>EGPRS1900<br/>(8PSK,1Slot)-Low</p>    | <div data-bbox="646 235 1200 676"></div> <p>Date: 3.MAR.2023 16:24:03</p>   |
| <p>EGPRS1900<br/>(8PSK,1Slot)-Middle</p> | <div data-bbox="646 790 1200 1232"></div> <p>Date: 3.MAR.2023 16:25:38</p>  |
| <p>EGPRS1900<br/>(8PSK,1Slot)-High</p>   | <div data-bbox="646 1346 1200 1787"></div> <p>Date: 3.MAR.2023 16:27:19</p> |

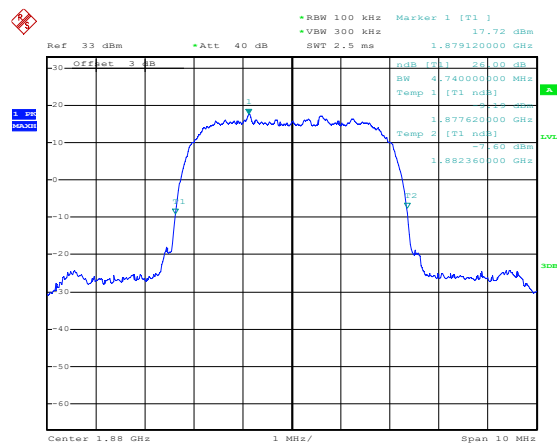


|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HSDPA-Low    | <div><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    16.87 dBm<br/>*VSW 300 kHz    825.540000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    26.00 dB<br/>BW 4.760000000 MHz<br/>Temp 1 [T1 n dB]    14.80 dBm<br/>824.040000000 MHz<br/>Temp 2 [T1 n dB]    -19.87 dBm<br/>826.800000000 MHz</p><p>Center 826.4 MHz    1 MHz/    Span 10 MHz</p><p>Date: 4.MAR.2023    10:12:56</p></div>  |
| HSDPA-Middle | <div><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    15.57 dBm<br/>*VSW 300 kHz    836.000000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    26.00 dB<br/>BW 4.820000000 MHz<br/>Temp 1 [T1 n dB]    14.84 dBm<br/>834.160000000 MHz<br/>Temp 2 [T1 n dB]    -10.85 dBm<br/>838.980000000 MHz</p><p>Center 836.6 MHz    1 MHz/    Span 10 MHz</p><p>Date: 4.MAR.2023    10:13:44</p></div> |
| HSDPA-High   | <div><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    17.05 dBm<br/>*VSW 300 kHz    845.740000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    26.00 dB<br/>BW 4.720000000 MHz<br/>Temp 1 [T1 n dB]    14.88 dBm<br/>844.240000000 MHz<br/>Temp 2 [T1 n dB]    -9.80 dBm<br/>848.960000000 MHz</p><p>Center 846.6 MHz    1 MHz/    Span 10 MHz</p><p>Date: 4.MAR.2023    10:14:33</p></div> |

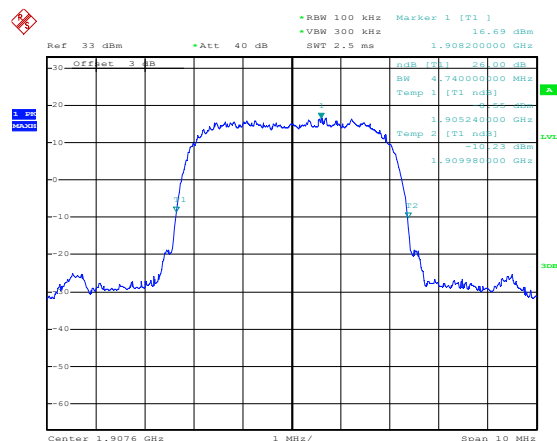
|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>HSUPA-Low</p>    | <div data-bbox="646 235 1200 676"><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    15.59 dBm<br/>*VBW 300 kHz    827.66000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    28.00 dB<br/>BW 4.800000000 MHz<br/>Temp 1 [T1 n dB]    15.59 dBm<br/>824.220000000 MHz<br/>Temp 2 [T1 n dB]    -9.43 dBm<br/>828.820000000 MHz</p><p>Center 826.4 MHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 10:22:03</p>     |
| <p>HSUPA-Middle</p> | <div data-bbox="646 790 1200 1232"><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    16.85 dBm<br/>*VBW 300 kHz    837.18000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    28.00 dB<br/>BW 4.740000000 MHz<br/>Temp 1 [T1 n dB]    16.85 dBm<br/>834.240000000 MHz<br/>Temp 2 [T1 n dB]    -9.49 dBm<br/>838.980000000 MHz</p><p>Center 836.6 MHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 10:22:54</p>   |
| <p>HSUPA-High</p>   | <div data-bbox="646 1346 1200 1787"><p>Ref 33 dBm    *Att 40 dB    *RBW 100 kHz    Marker 1 [T1]    16.32 dBm<br/>*VBW 300 kHz    845.70000000 MHz<br/>SWT 2.5 ms</p><p>Offset 3 dB    n dB [T1]    28.00 dB<br/>BW 4.760000000 MHz<br/>Temp 1 [T1 n dB]    16.32 dBm<br/>844.220000000 MHz<br/>Temp 2 [T1 n dB]    -9.80 dBm<br/>848.980000000 MHz</p><p>Center 846.6 MHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 10:23:28</p> |



Date: 4.MAR.2023 08:30:03

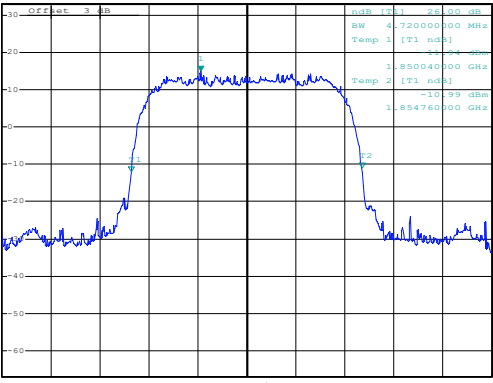
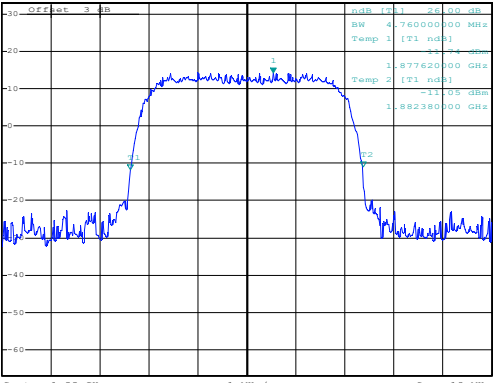
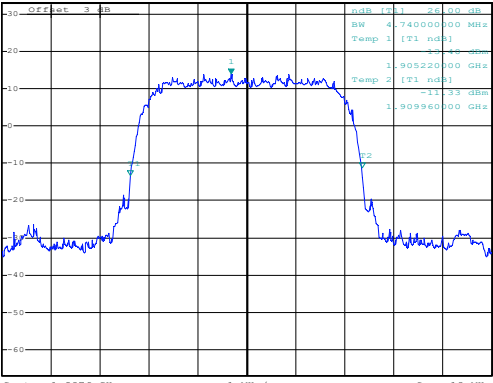


Date: 4.MAR.2023 08:34:27



Date: 4.MAR.2023 08:35:36

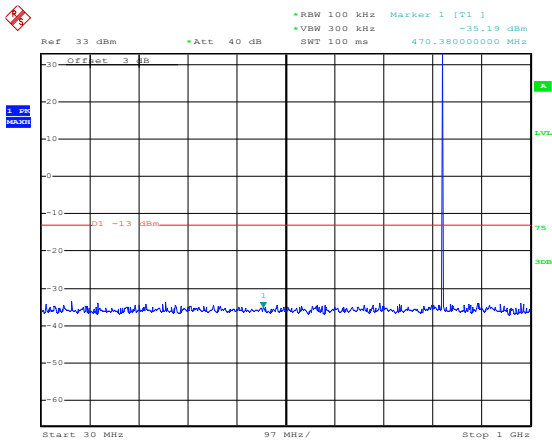
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| HSDPA-Low | <div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><d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|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>HSUPA-Low</p>    | <div data-bbox="646 235 1198 676"><p>Ref 33 dBm    *Att 40 dB    RBW 100 kHz    Marker 1 [T1] 15.11 dBm<br/>VSW 300 kHz    SWT 2.5 ms    1.851460000 GHz</p><p>Offset 3 dB    n dB [T1] 26.00 dB<br/>BW 4.720000000 MHz<br/>Temp 1 [T1 n dB] 1.850040000 GHz<br/>Temp 2 [T1 n dB] 1.854760000 GHz<br/>-15.11 dBm</p><p>Center 1.8524 GHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 09:32:16</p>     |
| <p>HSUPA-Middle</p> | <div data-bbox="646 792 1198 1234"><p>Ref 33 dBm    *Att 40 dB    RBW 100 kHz    Marker 1 [T1] 14.35 dBm<br/>VSW 300 kHz    SWT 2.5 ms    1.880340000 GHz</p><p>Offset 3 dB    n dB [T1] 26.00 dB<br/>BW 4.760000000 MHz<br/>Temp 1 [T1 n dB] 1.877620000 GHz<br/>Temp 2 [T1 n dB] 1.882380000 GHz<br/>-14.35 dBm</p><p>Center 1.88 GHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 09:32:47</p>     |
| <p>HSUPA-High</p>   | <div data-bbox="646 1350 1198 1792"><p>Ref 33 dBm    *Att 40 dB    RBW 100 kHz    Marker 1 [T1] 13.88 dBm<br/>VSW 300 kHz    SWT 2.5 ms    1.907280000 GHz</p><p>Offset 3 dB    n dB [T1] 26.00 dB<br/>BW 4.740000000 MHz<br/>Temp 1 [T1 n dB] 1.905220000 GHz<br/>Temp 2 [T1 n dB] 1.909960000 GHz<br/>-13.88 dBm</p><p>Center 1.9076 GHz    1 MHz/    Span 10 MHz</p></div> <p>Date: 4.MAR.2023 09:33:08</p> |

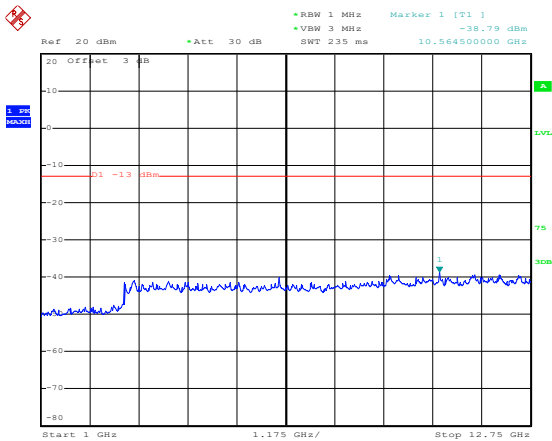
APPENDIX D

Out of Band Emissions at Antenna Terminal

GSM 850  
(GMSK)-Low



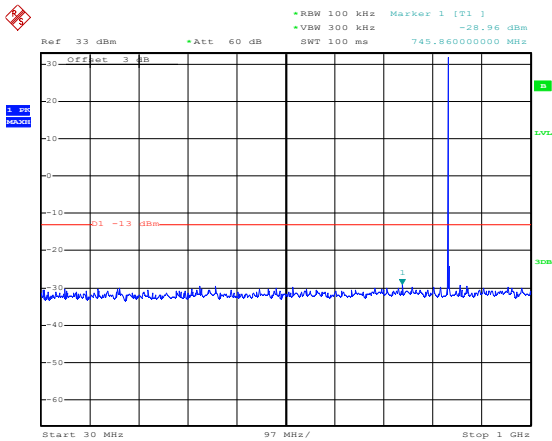
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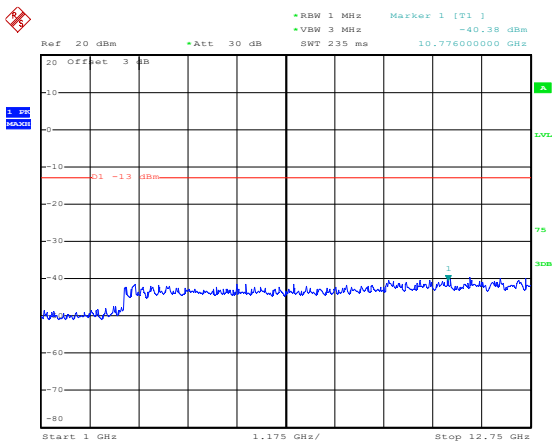
Date: 6.MAR.2023 16:05:14



GSM 850  
(GMSK)-Middle

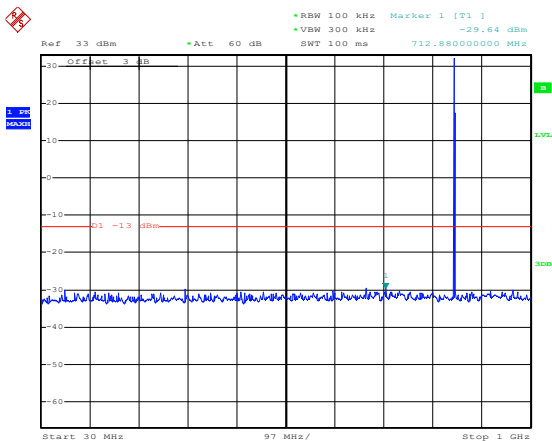


Date: 2.MAR.2023 18:30:58



Date: 6.MAR.2023 16:05:56

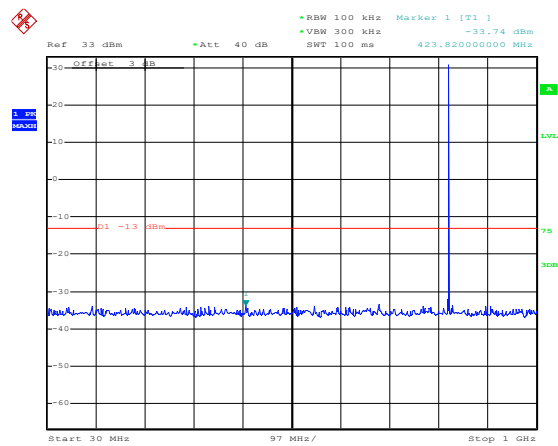
GSM 850  
(GMSK)-High



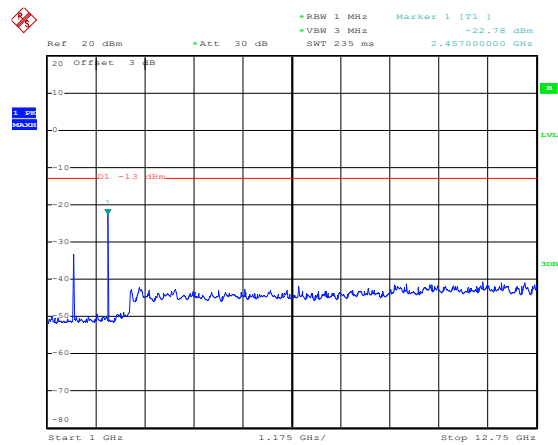
Date: 2.MAR.2023 18:32:46

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|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|                                                   | <div data-bbox="644 237 1198 676"></div> <div data-bbox="644 734 852 752">Date: 6.MAR.2023 16:07:23</div>     |
| <div data-bbox="240 1326 360 1357">Bandedge</div> | <div data-bbox="644 792 1198 1232"></div> <div data-bbox="644 1292 852 1310">Date: 2.MAR.2023 18:40:58</div>  |
|                                                   | <div data-bbox="644 1348 1198 1787"></div> <div data-bbox="644 1848 852 1865">Date: 2.MAR.2023 18:41:21</div> |

GPRS850  
(GMSK,1Slot)-Low

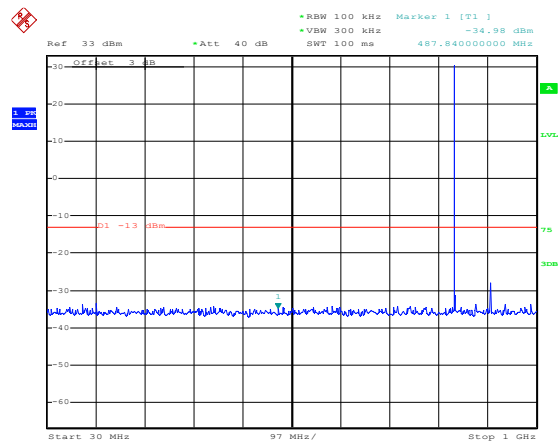


Date: 6.MAR.2023 16:39:00

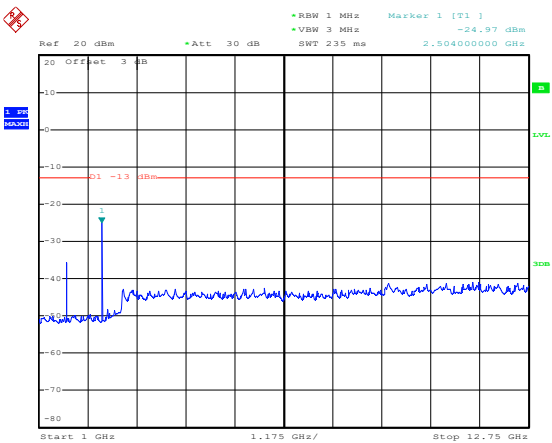
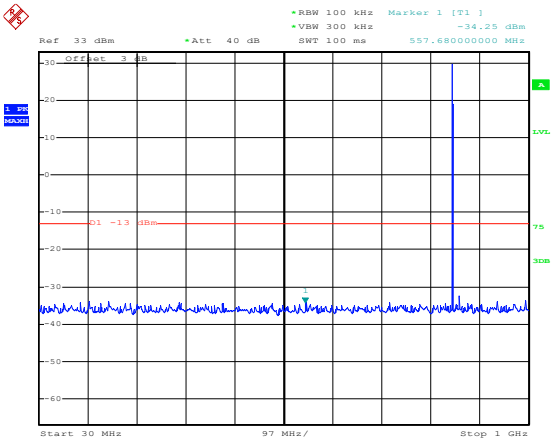
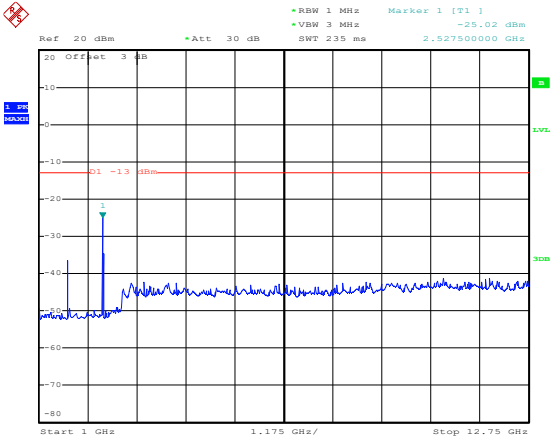


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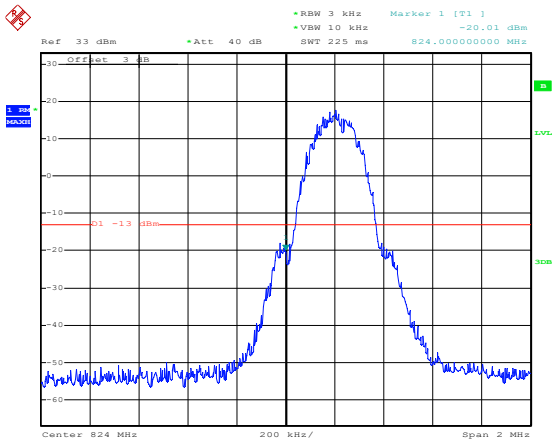
GPRS850  
(GMSK,1Slot)-Middle



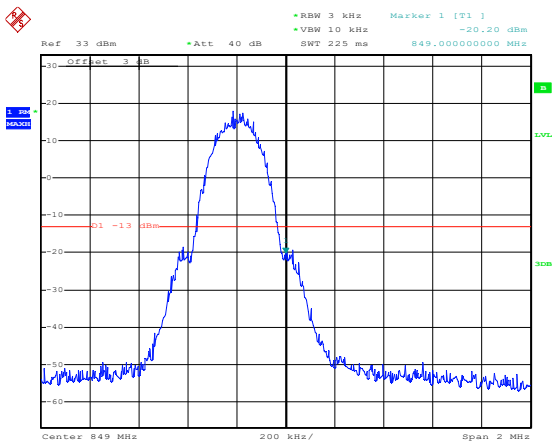
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|                        |                                                                                                                                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                        | <div><p>Date: 2.MAR.2023 18:51:51</p></div>   |
| GPRS850<br>(GMSK)-High | <div><p>Date: 6.MAR.2023 16:40:01</p></div>  |
|                        | <div><p>Date: 2.MAR.2023 18:52:05</p></div> |

Bandedge

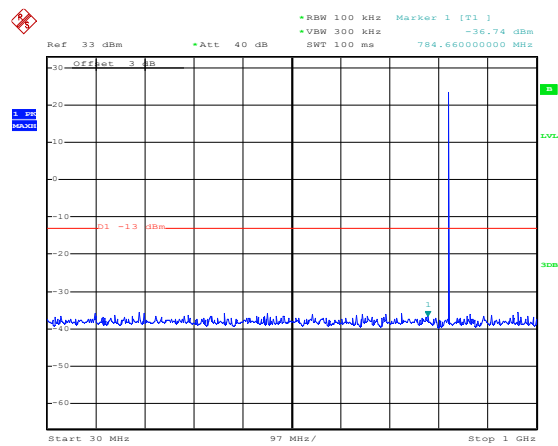


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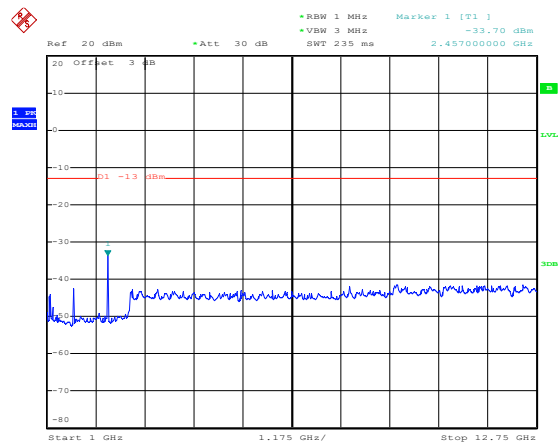


Date: 2.MAR.2023 18:43:30

EGPRS850  
(8PSK,1Slot)-Low

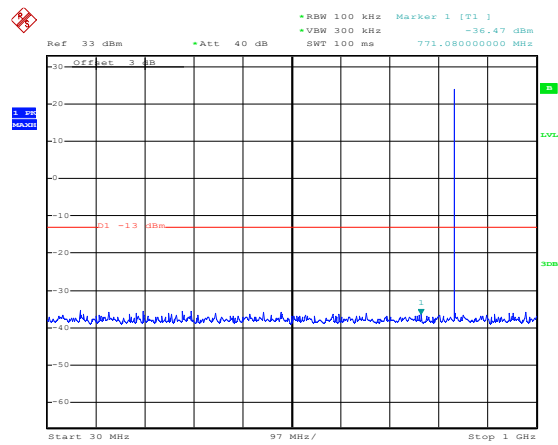


Date: 2.MAR.2023 18:54:58

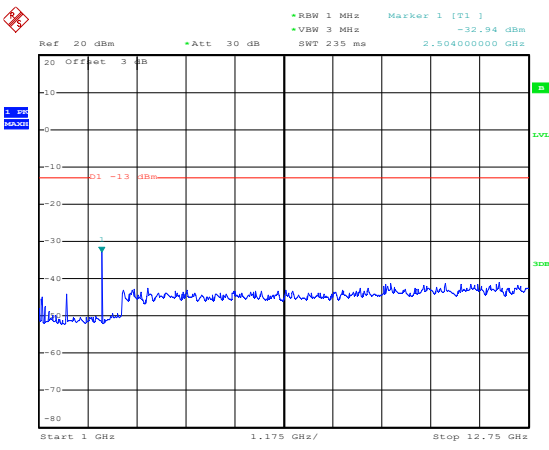
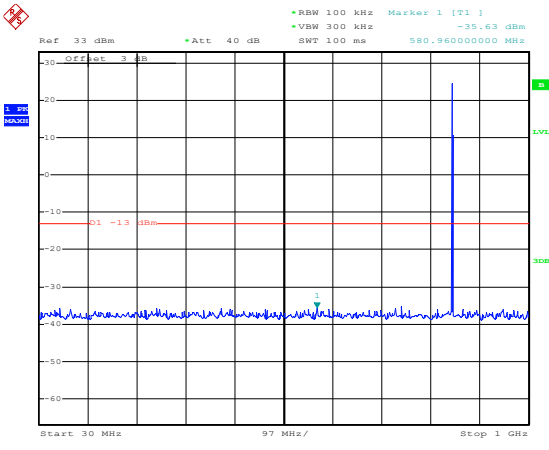
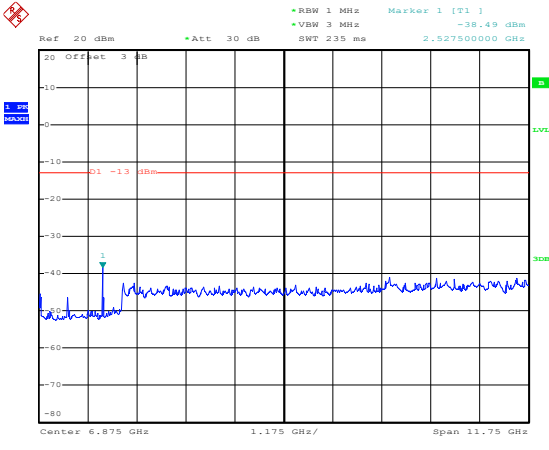


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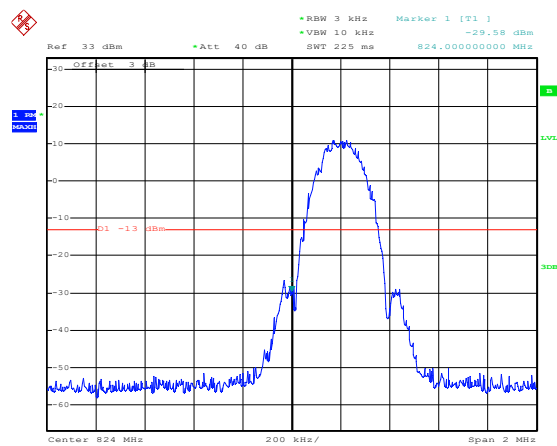
EGPRS850  
(8PSK,1Slot)-Middle



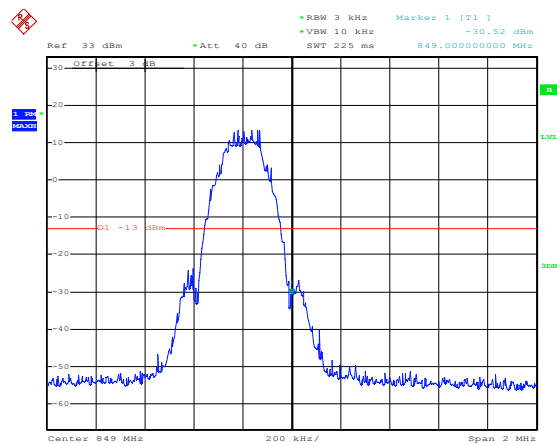
Date: 2.MAR.2023 18:55:14

|                               |                                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                               | <div><p>Date: 2.MAR.2023 18:56:50</p></div>   |
| EGPRS850<br>(8PSK,1Slot)-High | <div><p>Date: 2.MAR.2023 18:55:39</p></div>  |
|                               | <div><p>Date: 2.MAR.2023 18:57:01</p></div> |

Bandedge



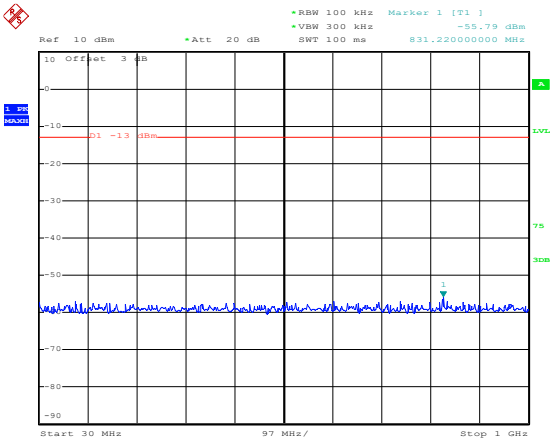
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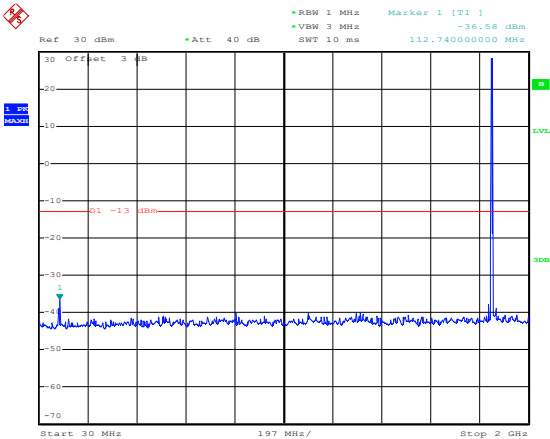
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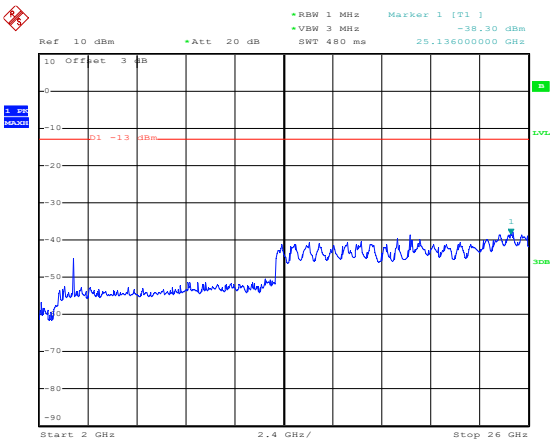
PCS1900  
(GMSK)-Low



Date: 6.MAR.2023 16:09:53

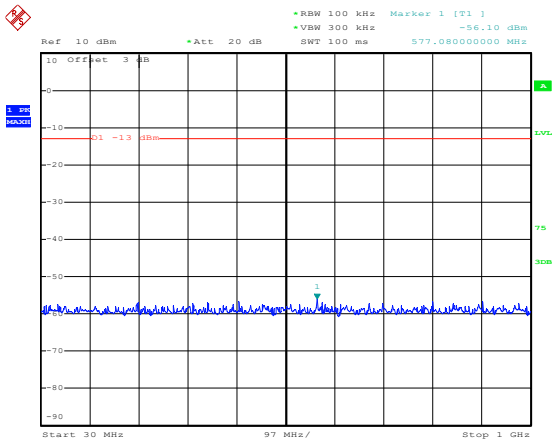


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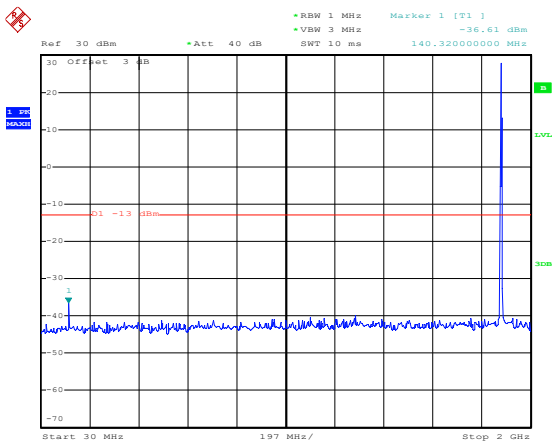


Date: 2.MAR.2023 19:30:31

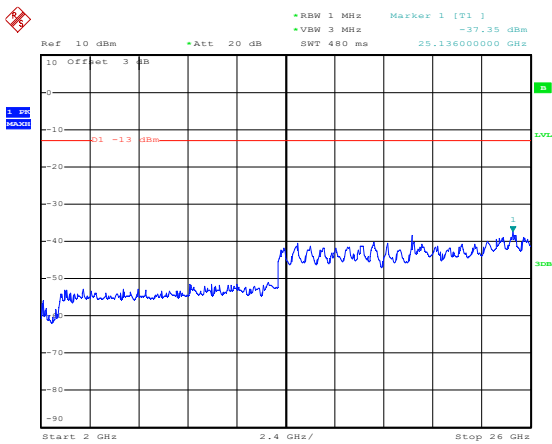
PCS1900  
(GMSK)-Middle



Date: 6.MAR.2023 16:10:30

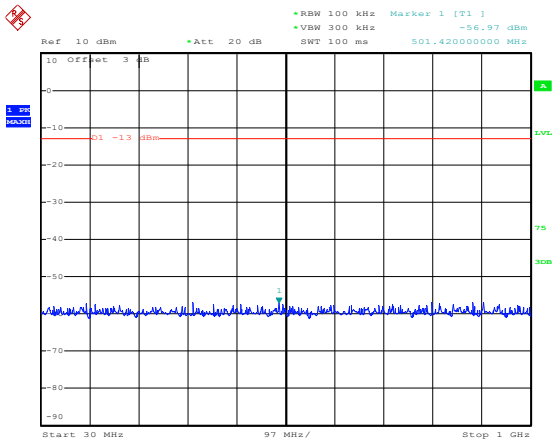


Date: 2.MAR.2023 19:29:26

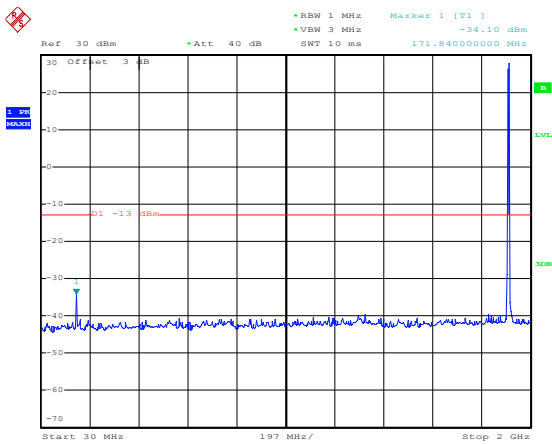


Date: 2.MAR.2023 19:30:40

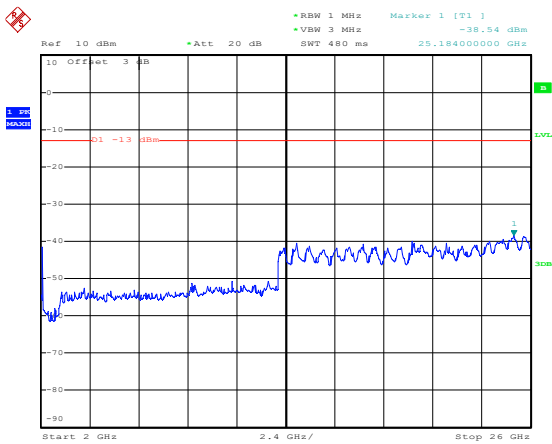
PCS1900  
(GMSK)-High



Date: 6.MAR.2023 16:10:38

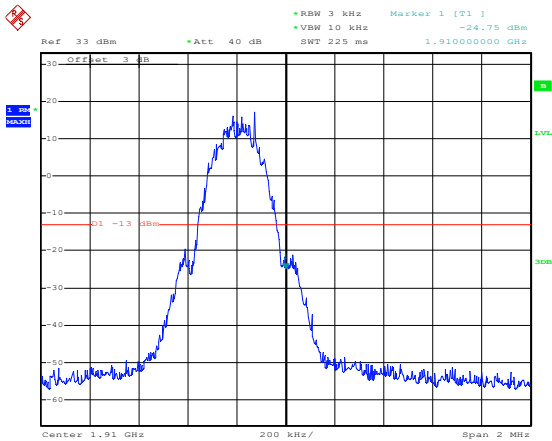


Date: 2.MAR.2023 19:29:47

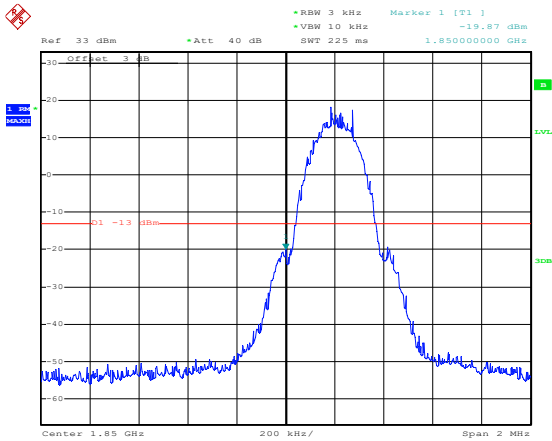


Date: 2.MAR.2023 19:31:00

Bandedge

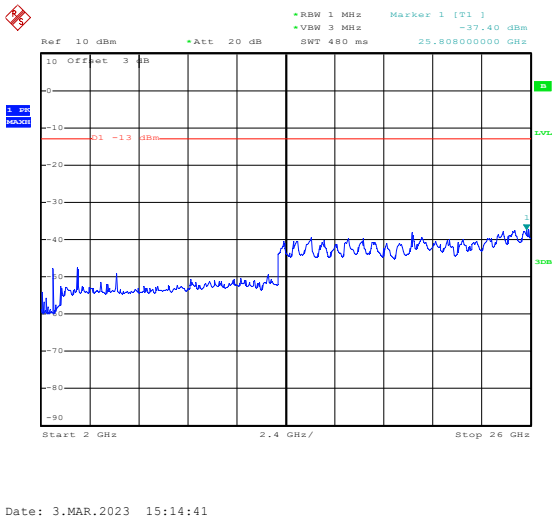
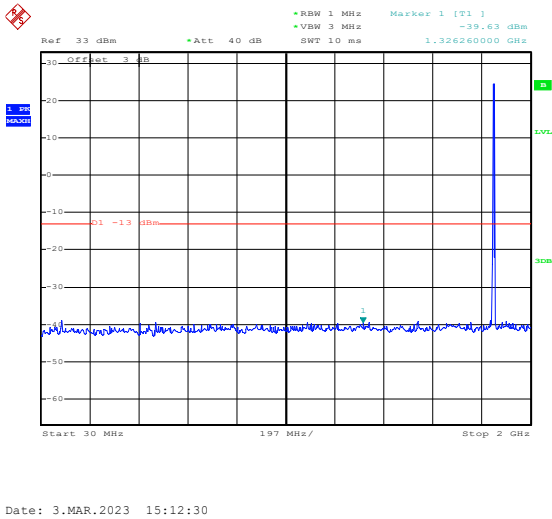
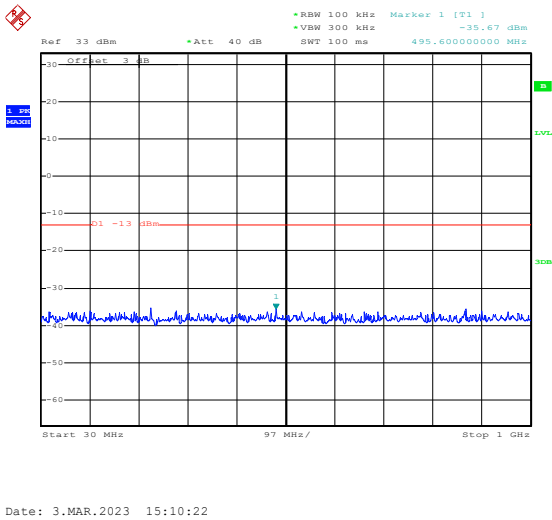


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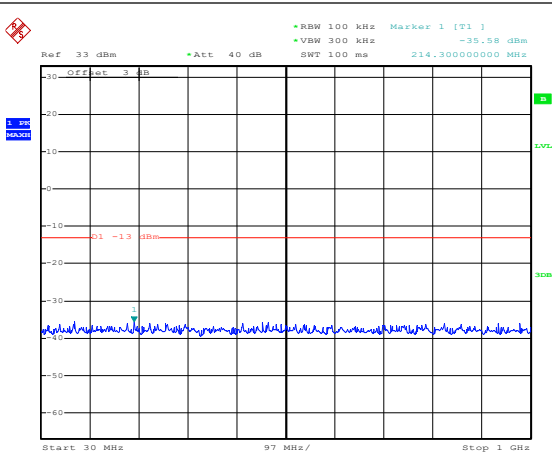


Date: 3.MAR.2023 14:21:56

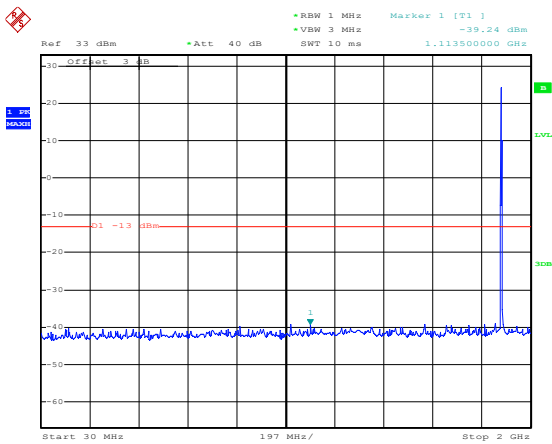
GPRS1900  
(GMSK,1Slot)-Low



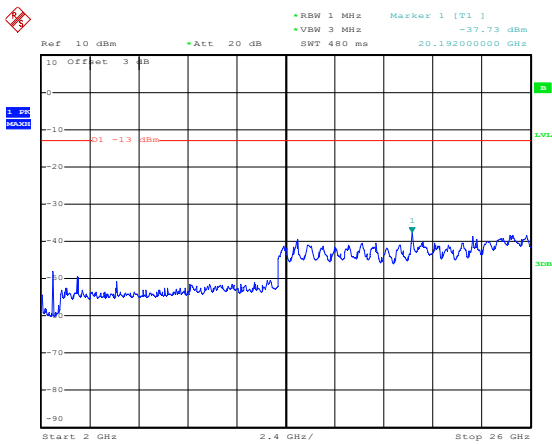
GPRS1900  
(GMSK,1Slot)-Middle



Date: 3.MAR.2023 15:10:39

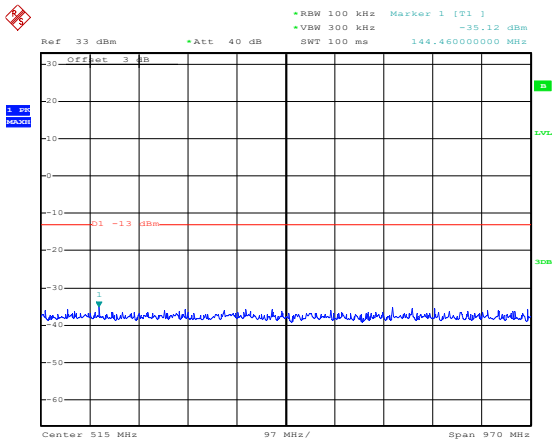


Date: 3.MAR.2023 15:12:42

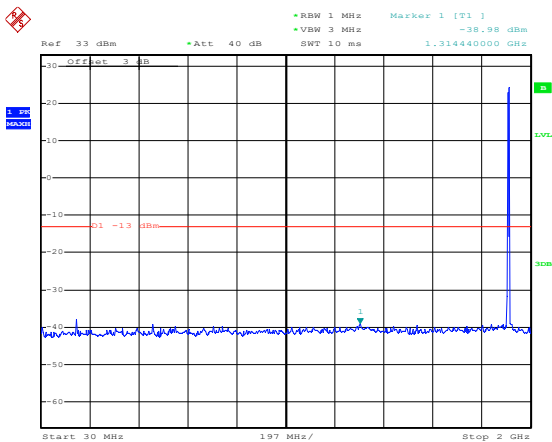


Date: 3.MAR.2023 15:14:56

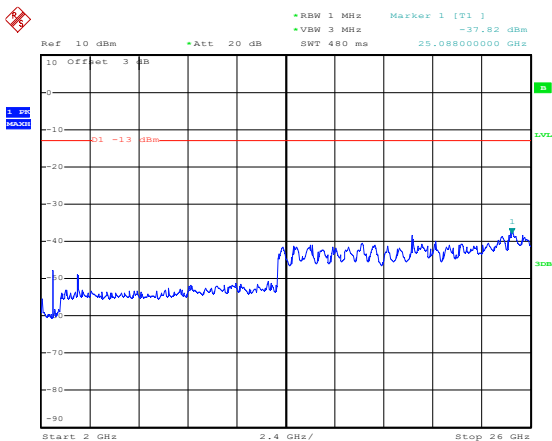
GPRS1900  
(GMSK,1Slot)-High



Date: 3.MAR.2023 15:11:04

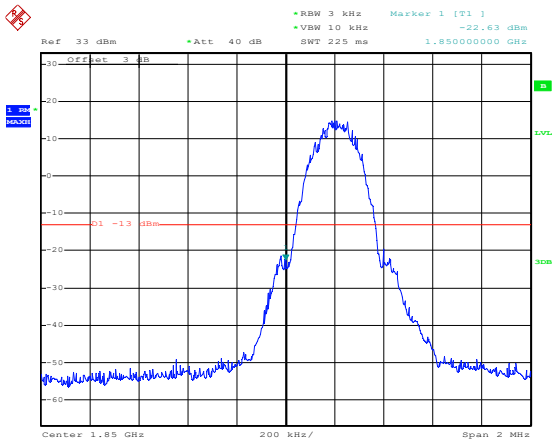


Date: 3.MAR.2023 15:13:15

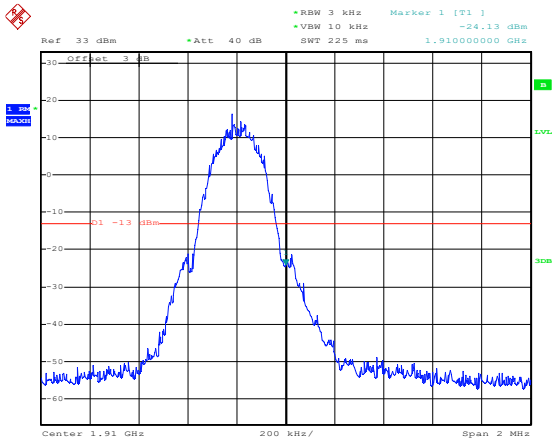


Date: 3.MAR.2023 15:15:04

Bandedge



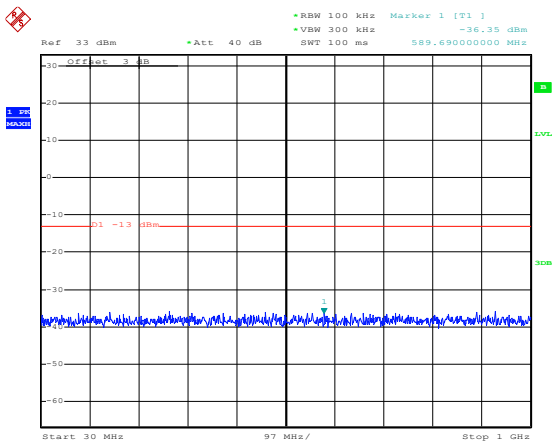
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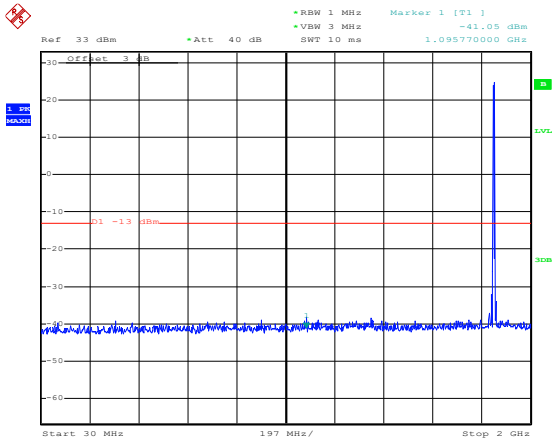
Date: 3.MAR.2023 15:18:10



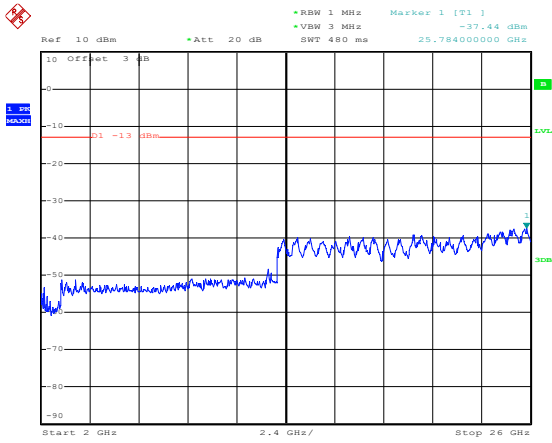
EGPRS1900  
(8PSK,1Slot)-Low



Date: 3.MAR.2023 16:13:13

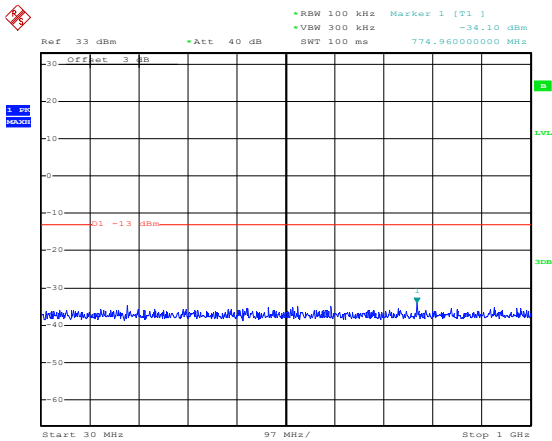


Date: 3.MAR.2023 16:14:08

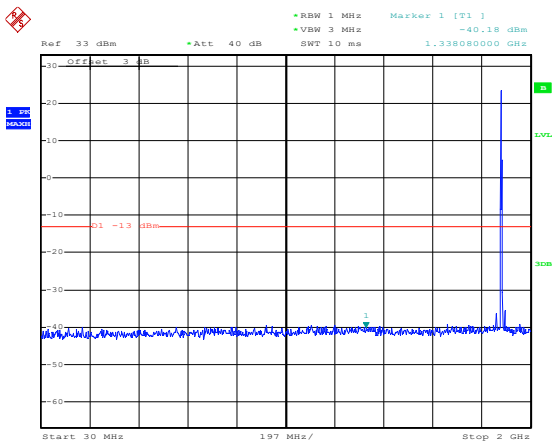


Date: 3.MAR.2023 16:15:26

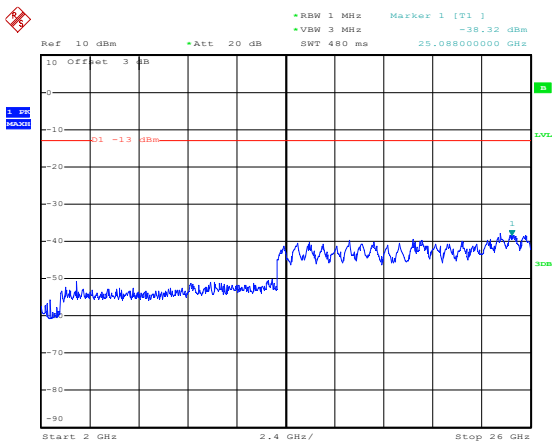
EGPRS1900  
(8PSK,1Slot)-Middle



Date: 3.MAR.2023 16:16:49

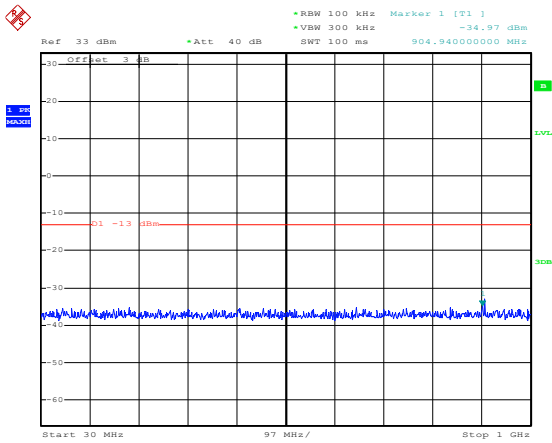


Date: 3.MAR.2023 16:17:38

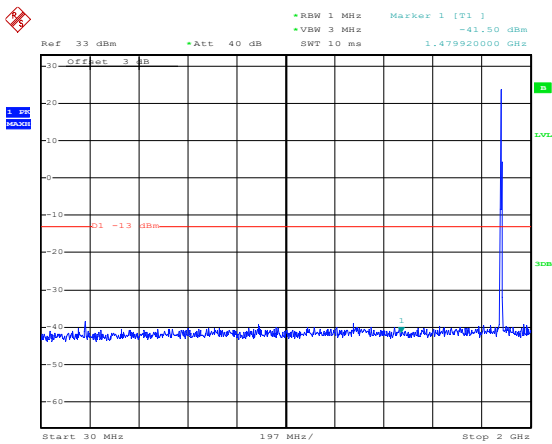


Date: 3.MAR.2023 16:18:10

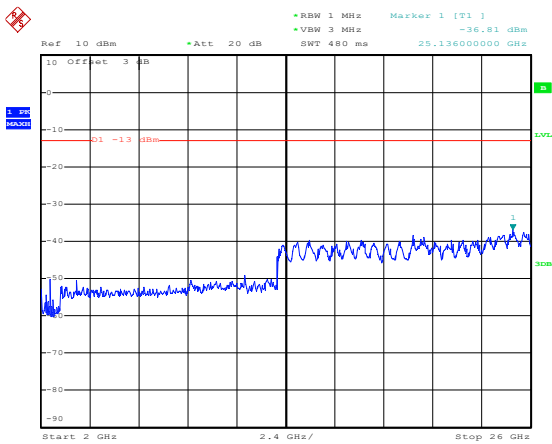
EGPRS1900  
(8PSK,1Slot)-High



Date: 3.MAR.2023 16:19:16

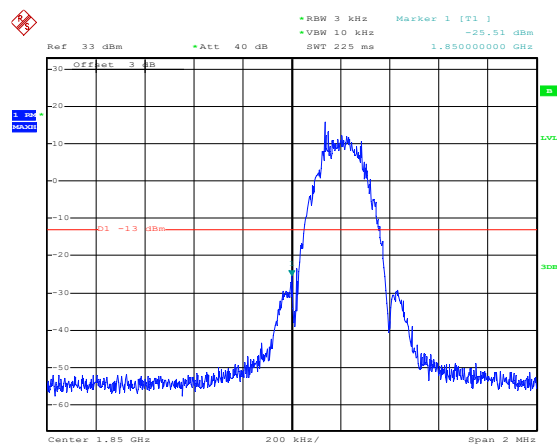


Date: 3.MAR.2023 16:19:43

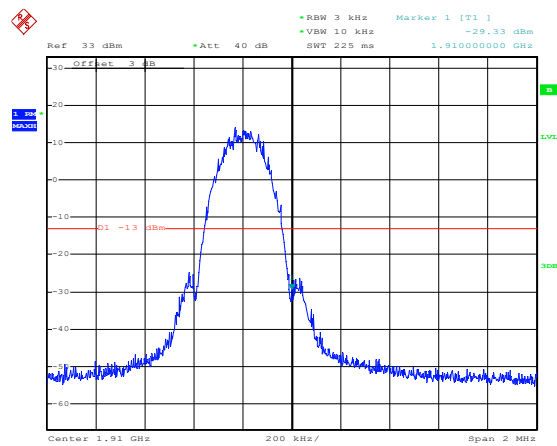


Date: 3.MAR.2023 16:21:04

Bandedge

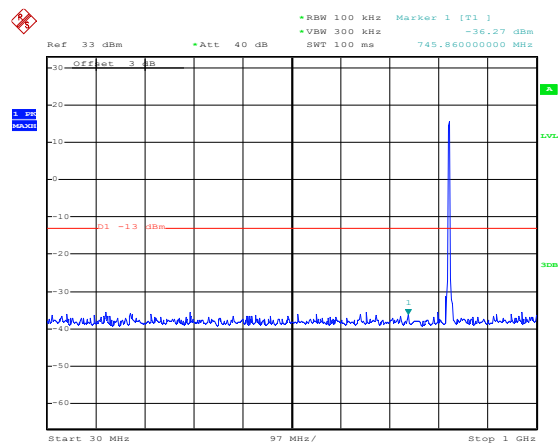


Date: 3.MAR.2023 16:29:29

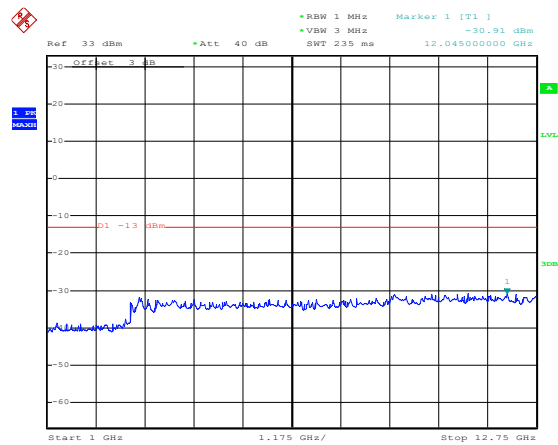


Date: 3.MAR.2023 16:32:02

WCDMA Band V-Low

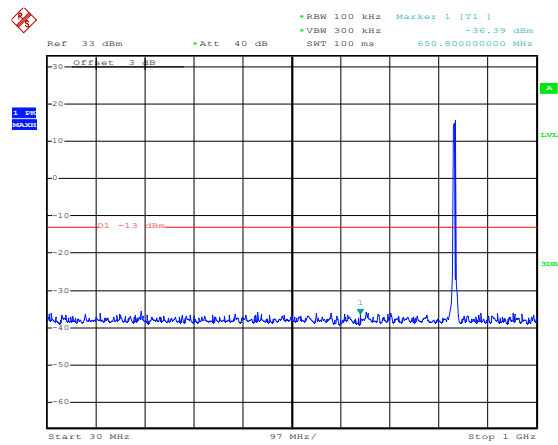


Date: 4.MAR.2023 10:01:09

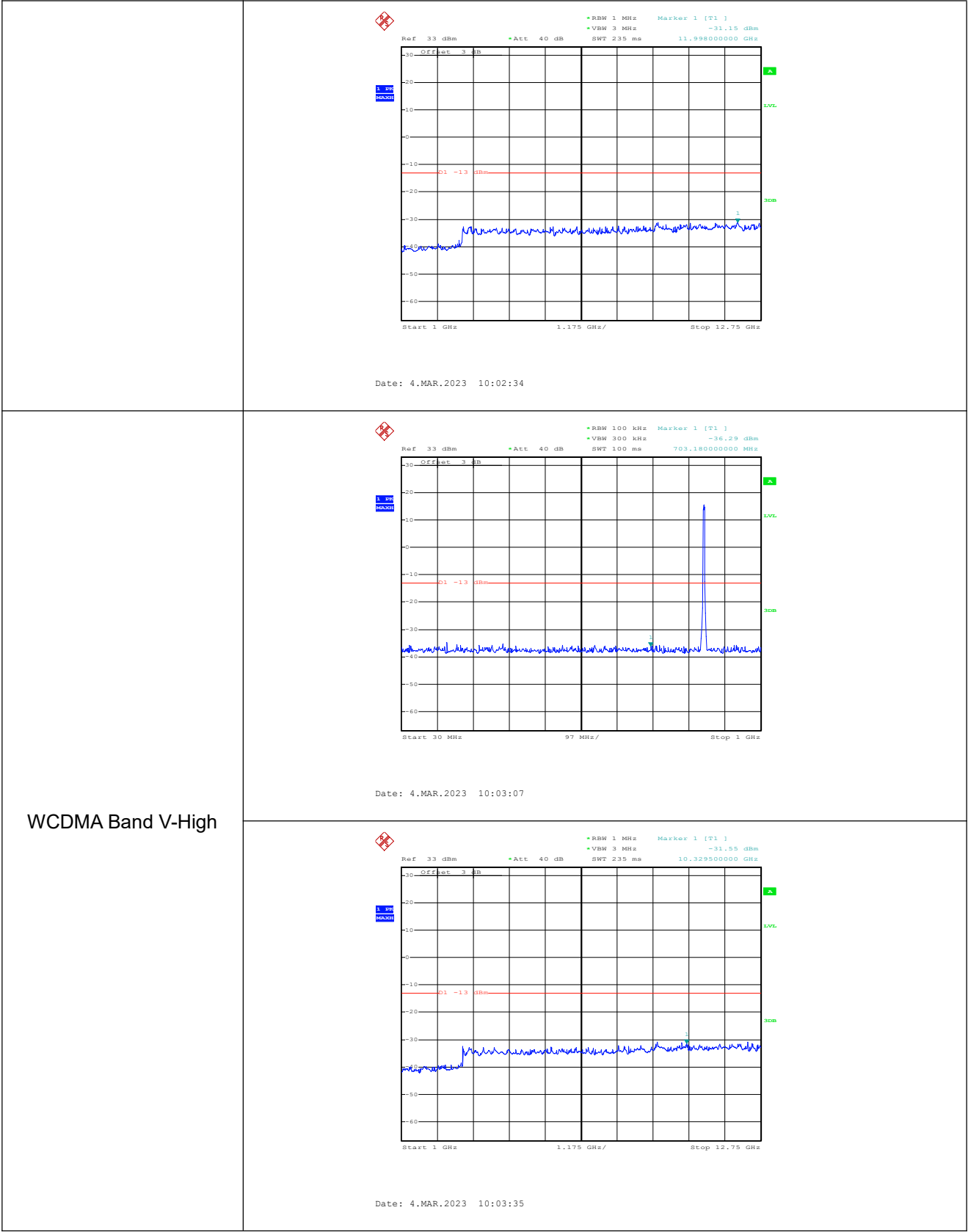


Date: 4.MAR.2023 10:01:39

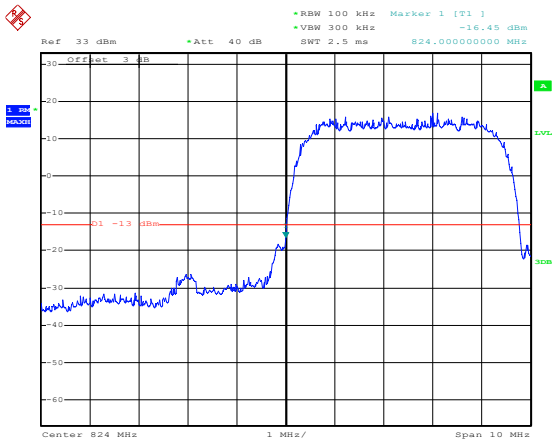
WCDMA Band V-Middle



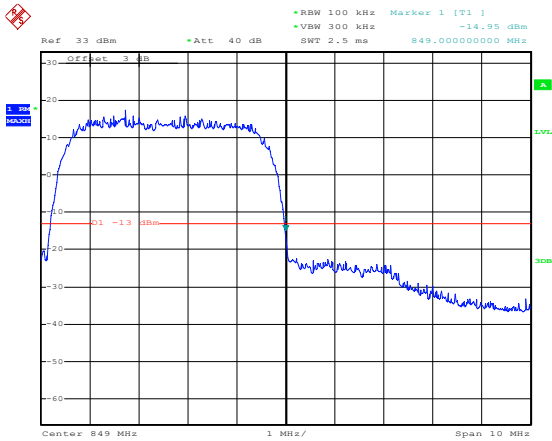
Date: 4.MAR.2023 10:02:14



Bandedge

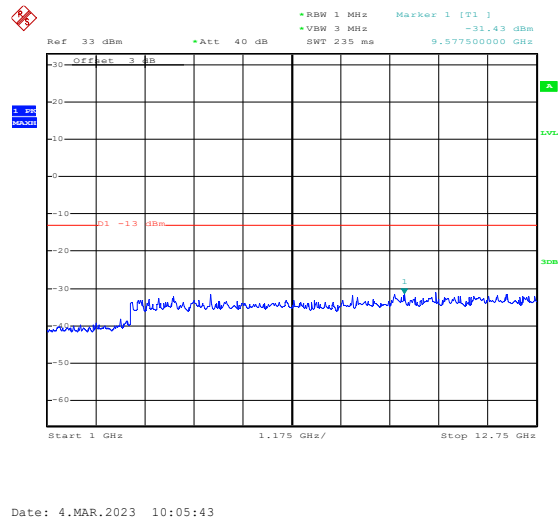
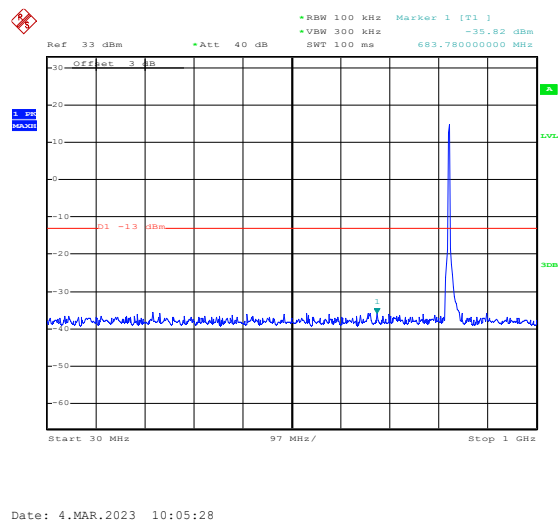


Date: 4.MAR.2023 09:52:34

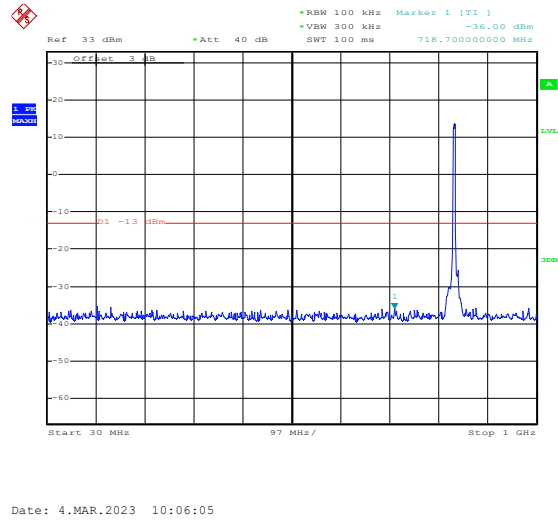


Date: 4.MAR.2023 09:53:24

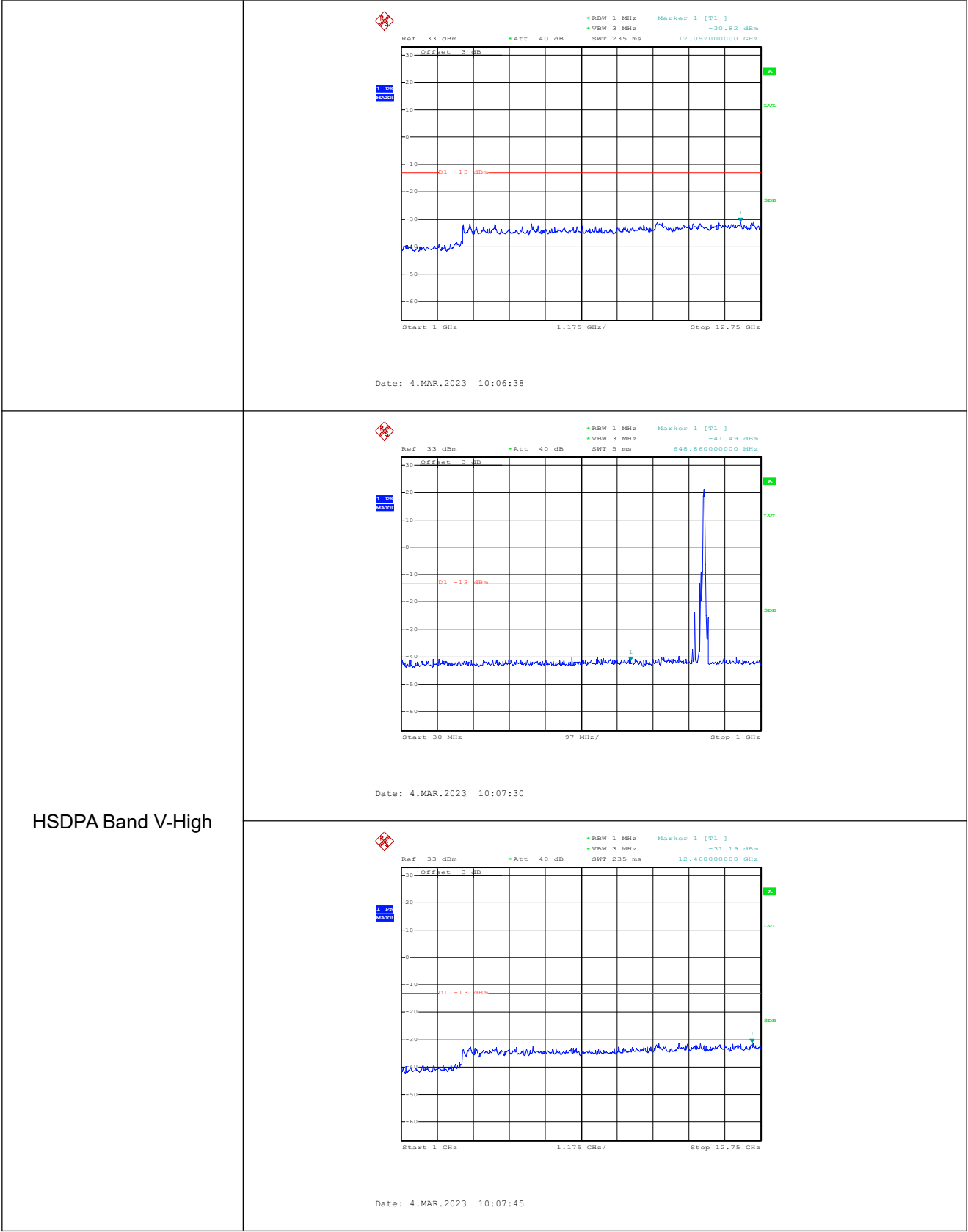
HSDPA Band V-Low



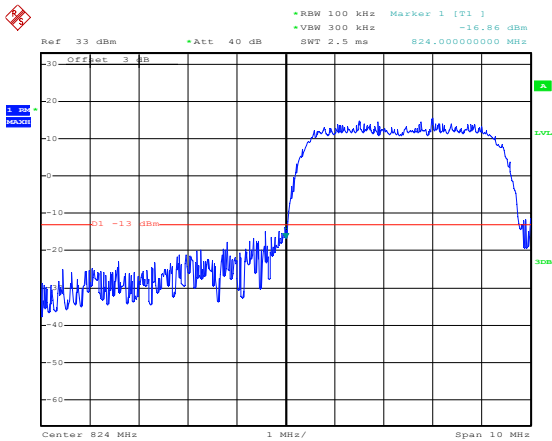
HSDPA Band V-Middle



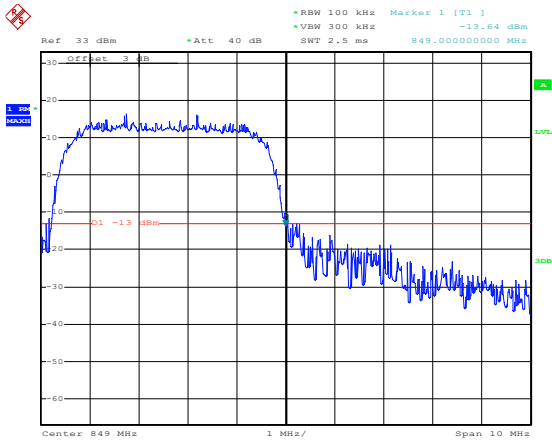




Bandedge

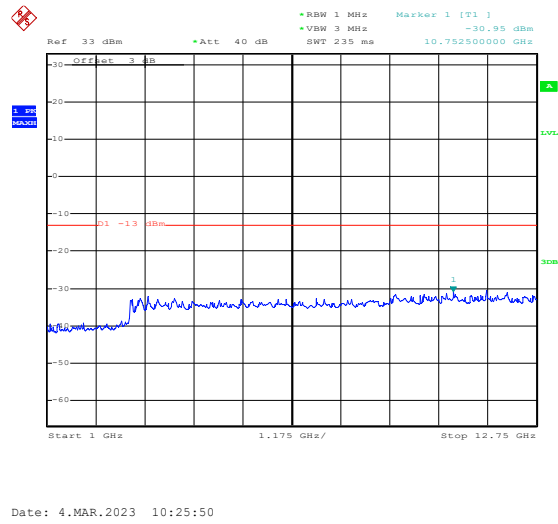
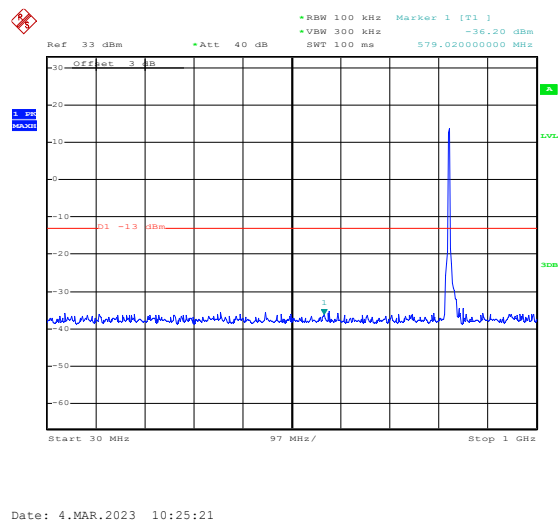


Date: 4.MAR.2023 10:15:42

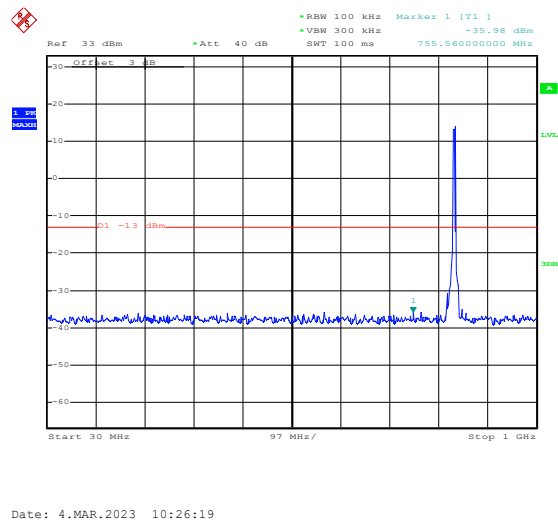


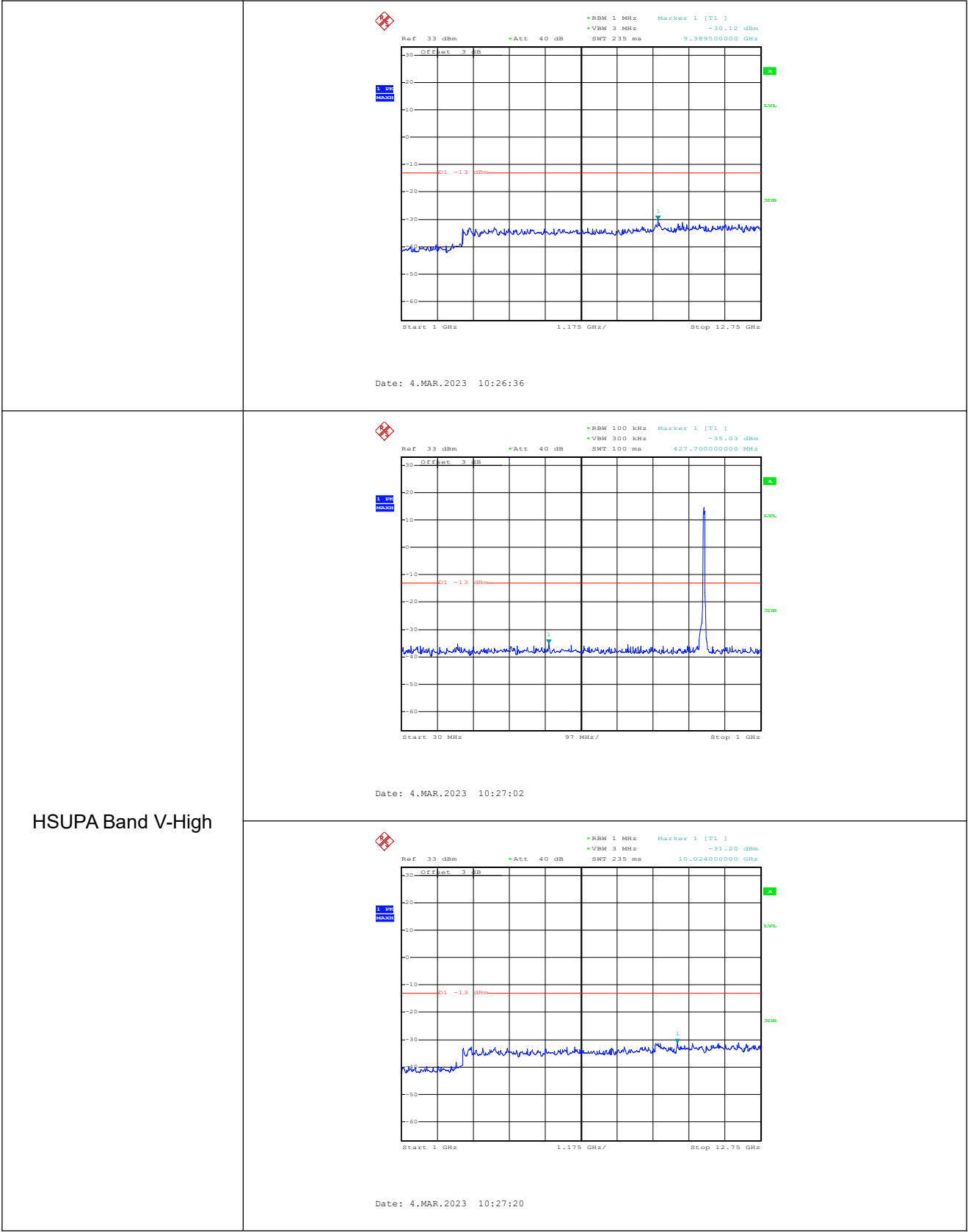
Date: 4.MAR.2023 10:16:10

HSUPA Band V-Low

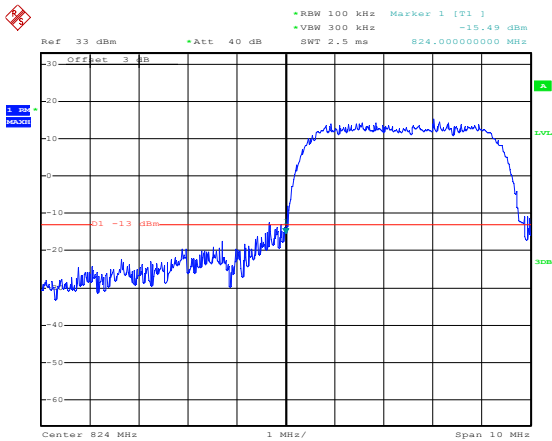


HSUPA Band V-Middle

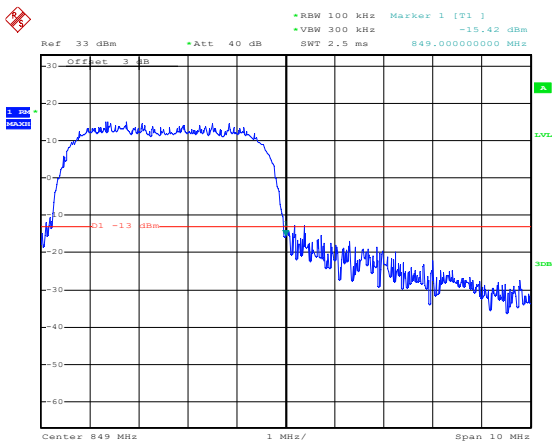




Bandedge

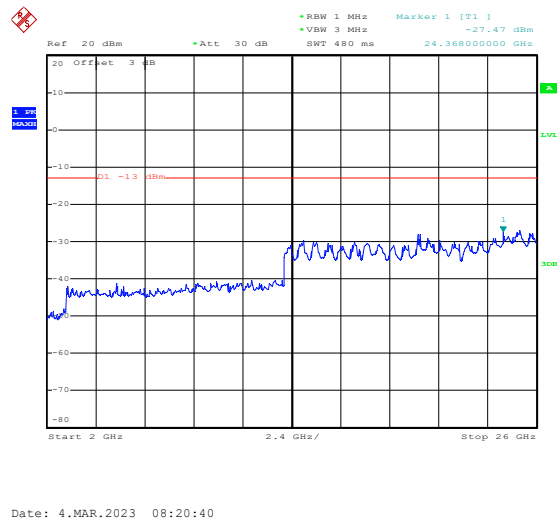
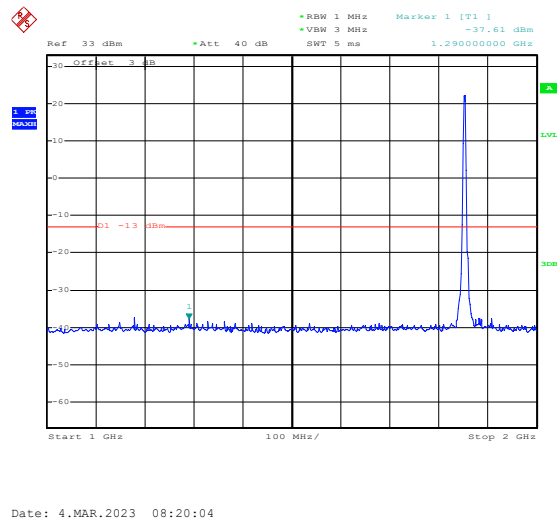
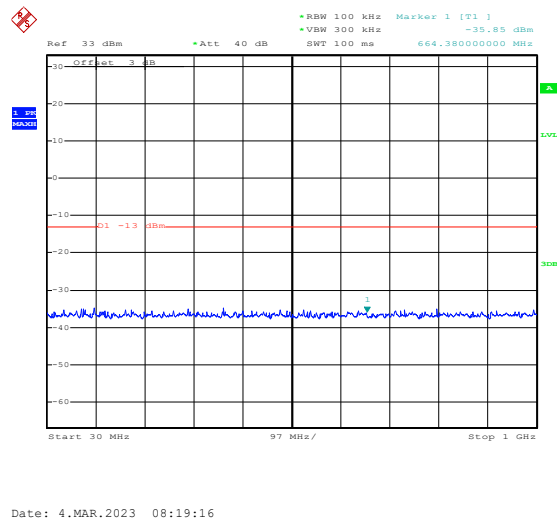


Date: 4.MAR.2023 10:17:56

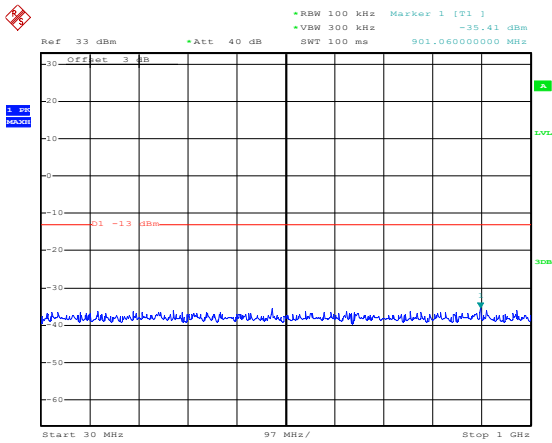


Date: 4.MAR.2023 10:18:37

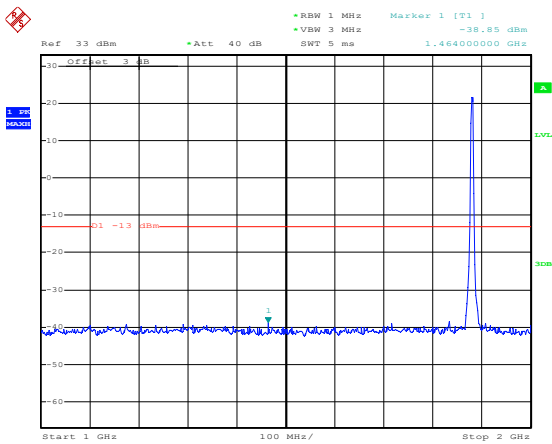
WCDMA Band II-Low



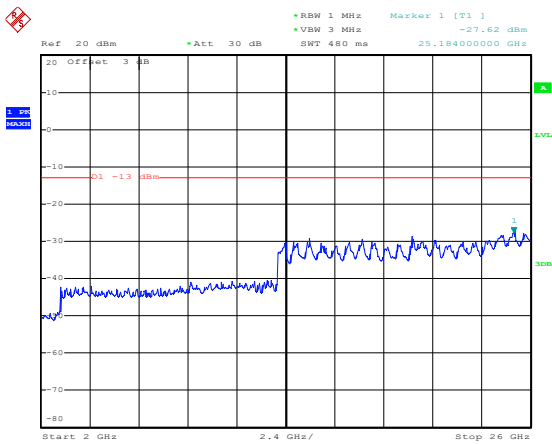
WCDMA Band II-Low



Date: 4.MAR.2023 08:21:19

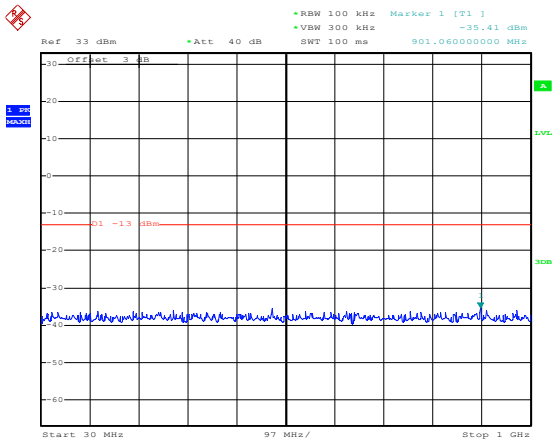


Date: 4.MAR.2023 08:21:38

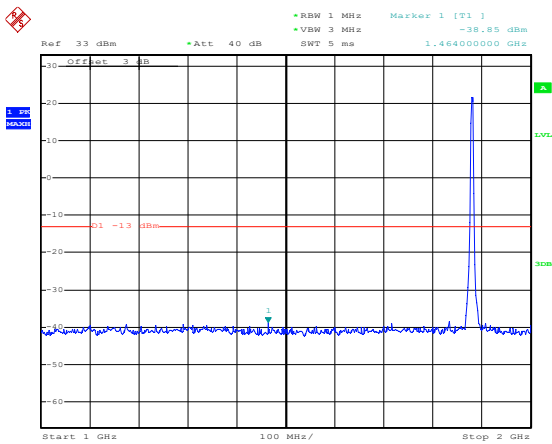


Date: 4.MAR.2023 08:22:39

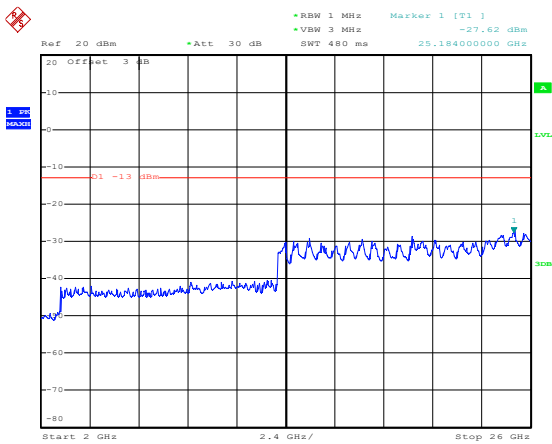
WCDMA Band II-Low



Date: 4.MAR.2023 08:21:19



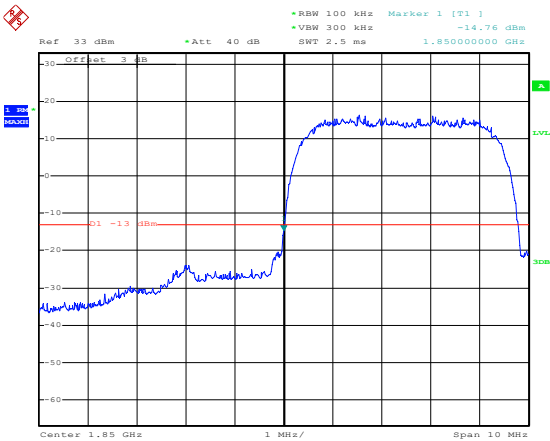
Date: 4.MAR.2023 08:21:38



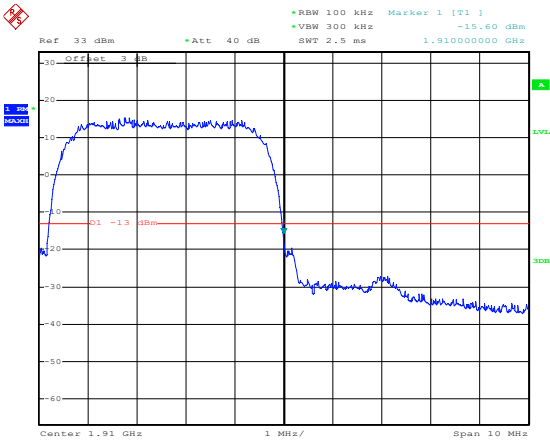
Date: 4.MAR.2023 08:22:39



Bandedge

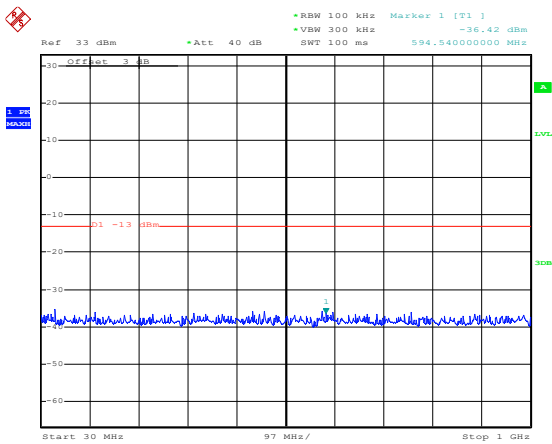


Date: 4.MAR.2023 08:37:42

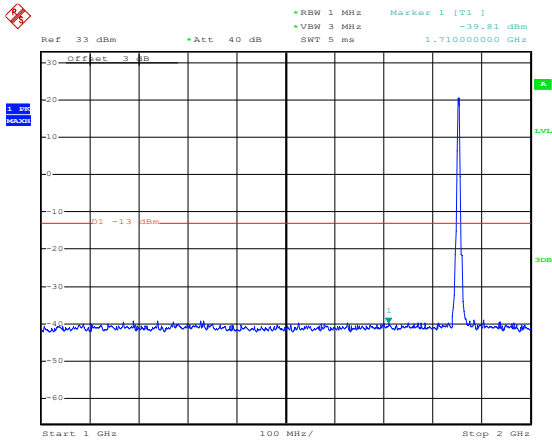


Date: 4.MAR.2023 08:38:23

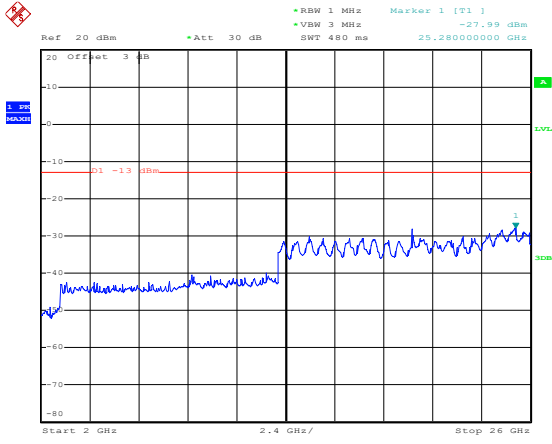
HSDPA Band II-Low



Date: 4.MAR.2023 09:14:29

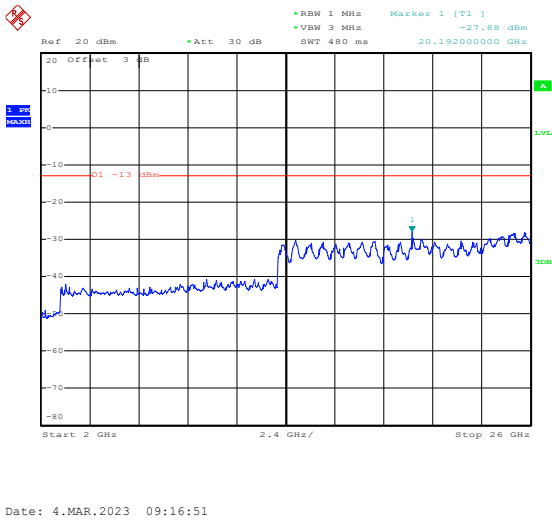
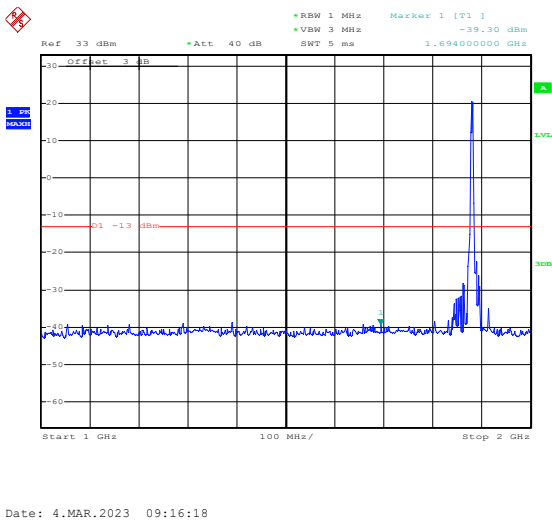
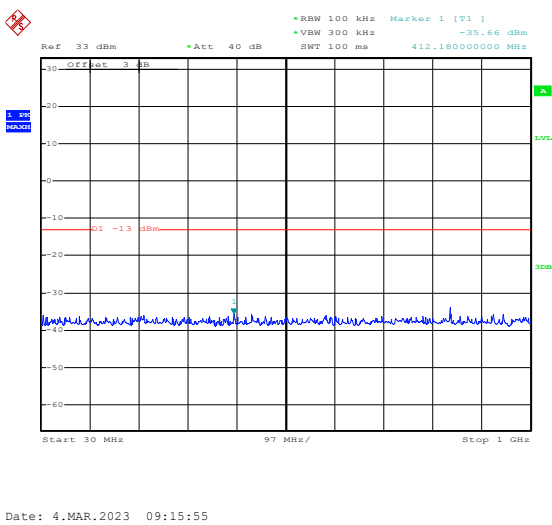


Date: 4.MAR.2023 09:14:57

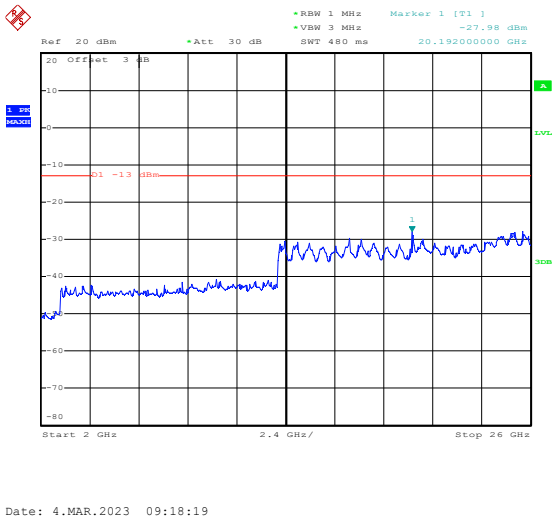
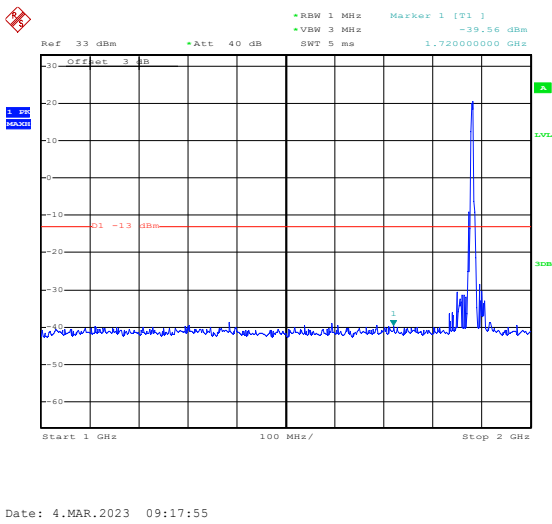
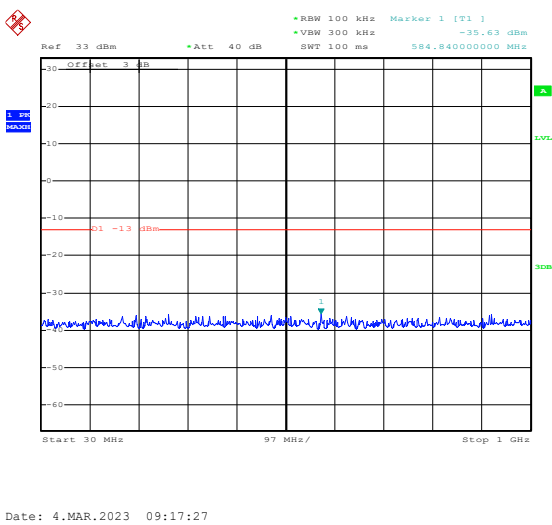


Date: 4.MAR.2023 09:15:20

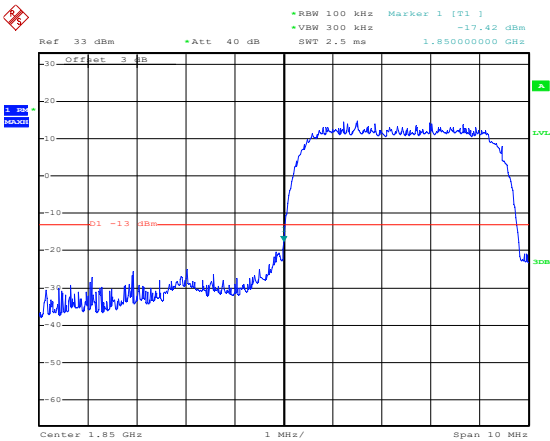
HSDPA Band II-Low



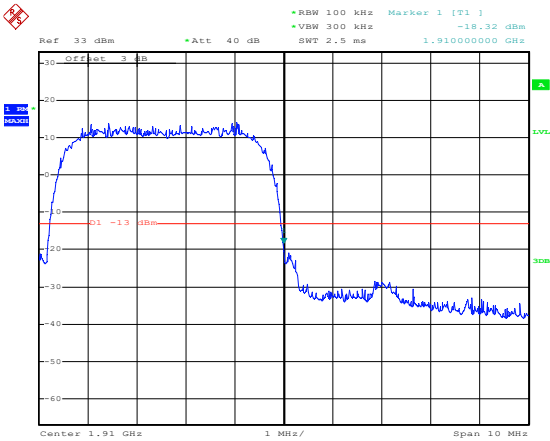
HSDPA Band II-Low



Bandedge

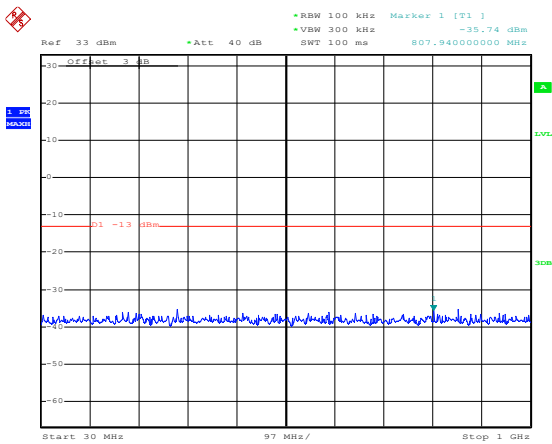


Date: 4.MAR.2023 08:55:56

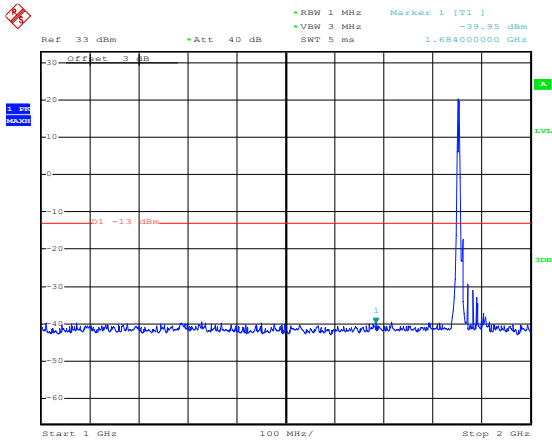


Date: 4.MAR.2023 08:56:45

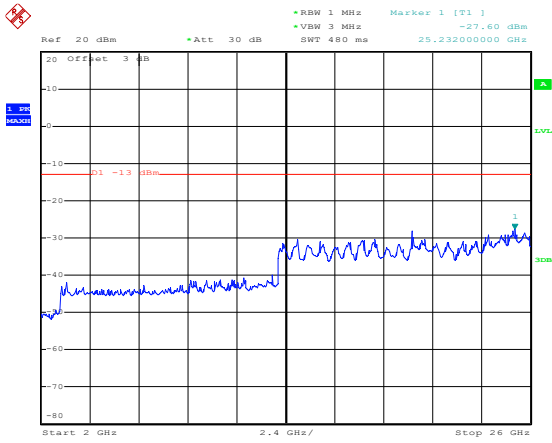
HSUPA Band II-Low



Date: 4.MAR.2023 09:20:02

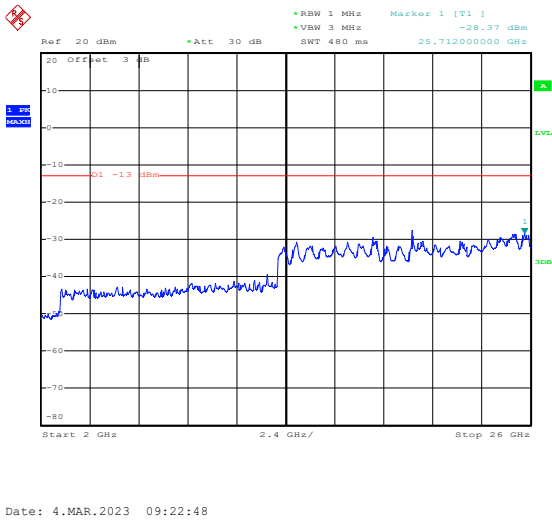
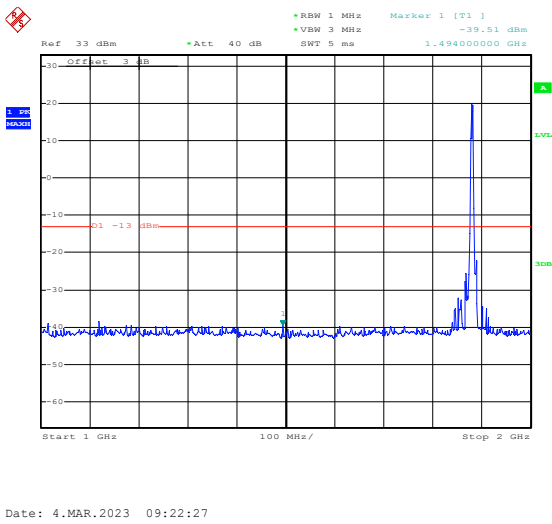
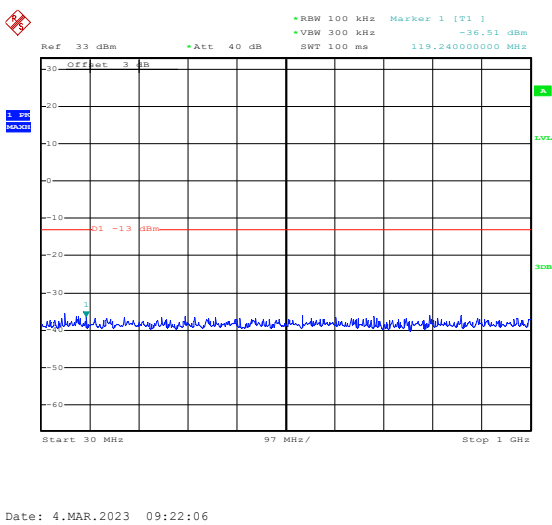


Date: 4.MAR.2023 09:20:24

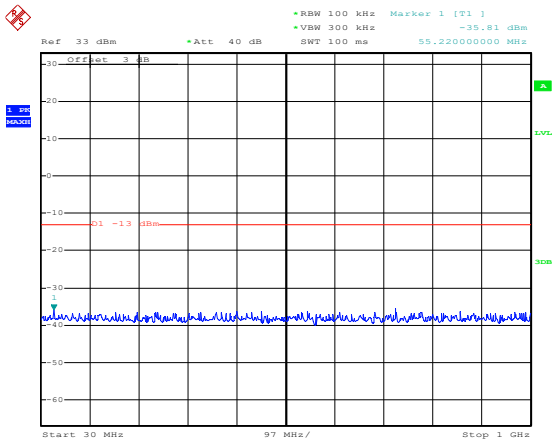


Date: 4.MAR.2023 09:21:24

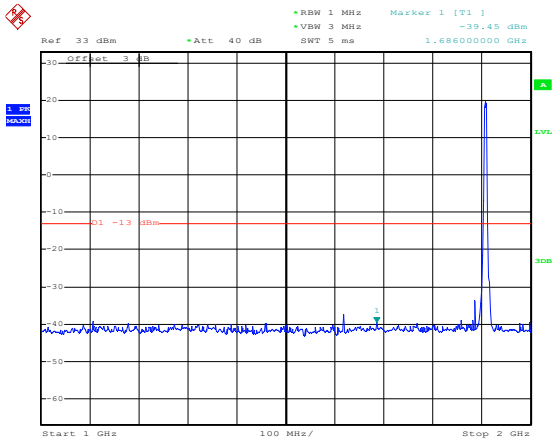
HSUPA Band II-Low



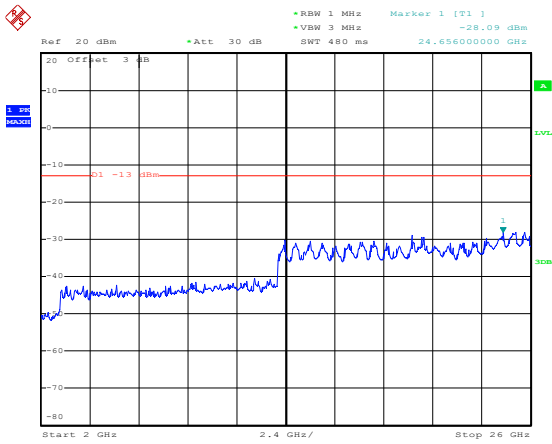
HSUPA Band II-Low



Date: 4.MAR.2023 09:23:24



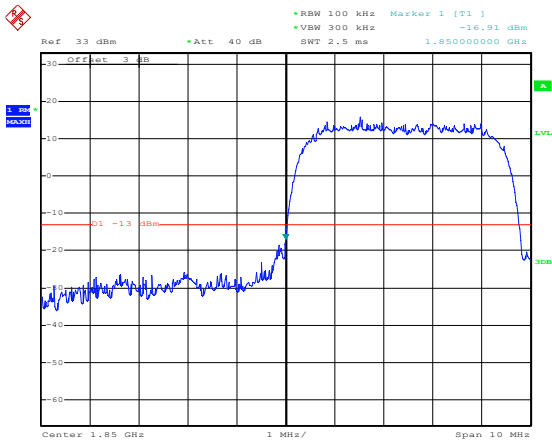
Date: 4.MAR.2023 09:23:50



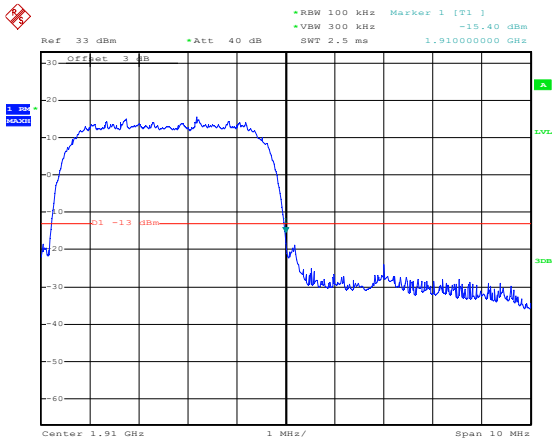
Date: 4.MAR.2023 09:24:13



Bandedge



Date: 4.MAR.2023 09:35:46



Date: 4.MAR.2023 09:50:00

## APPENDIX E

### Frequency Stability

Note: 1. Worst case at GSM850/PCS1900/WCDMA B2/B5 middle channel

2. Normal Voltage NV=DC3.85V; Low Voltage LV=DC3.5V; High Voltage HV=DC4.4V

➤ Frequency stability V.S. Temperature measurement

| Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz |                  |                 |        |             |        |
|-----------------------------------------------------------------|------------------|-----------------|--------|-------------|--------|
| Power supplied<br>(VDC)                                         | Temperature (°C) | Frequency error |        | Limit (ppm) | Result |
|                                                                 |                  | Hz              | ppm    |             |        |
| NV                                                              | -30              | 63              | 0.0754 | 2.50        | Pass   |
|                                                                 | -20              | 48              | 0.0570 |             |        |
|                                                                 | -10              | 42              | 0.0506 |             |        |
|                                                                 | 0                | 38              | 0.0451 |             |        |
|                                                                 | 10               | 32              | 0.0377 |             |        |
|                                                                 | 20               | 25              | 0.0294 |             |        |
|                                                                 | 30               | 29              | 0.0349 |             |        |
|                                                                 | 40               | 36              | 0.0432 |             |        |
|                                                                 | 50               | 41              | 0.0487 |             |        |
| Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz |                  |                 |        |             |        |
| Power supplied<br>(Vdc)                                         | Temperature (°C) | Frequency error |        | Limit (ppm) | Result |
|                                                                 |                  | Hz              | ppm    |             |        |
| NV                                                              | -30              | 76              | 0.0405 | 2.50        | Pass   |
|                                                                 | -20              | 66              | 0.0352 |             |        |
|                                                                 | -10              | 55              | 0.0295 |             |        |
|                                                                 | 0                | 51              | 0.0270 |             |        |
|                                                                 | 10               | 46              | 0.0245 |             |        |
|                                                                 | 20               | 38              | 0.0205 |             |        |
|                                                                 | 30               | 46              | 0.0245 |             |        |
|                                                                 | 40               | 50              | 0.0266 |             |        |
|                                                                 | 50               | 55              | 0.0295 |             |        |

| Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz |                  |                 |        |             |        |
|------------------------------------------------------------------------|------------------|-----------------|--------|-------------|--------|
| Power supplied<br>(Vdc)                                                | Temperature (°C) | Frequency error |        | Limit (ppm) | Result |
|                                                                        |                  | Hz              | ppm    |             |        |
| NV                                                                     | -30              | 66              | 0.0791 | 2.50        | Pass   |
|                                                                        | -20              | 57              | 0.0680 |             |        |
|                                                                        | -10              | 51              | 0.0607 |             |        |
|                                                                        | 0                | 47              | 0.0561 |             |        |
|                                                                        | 10               | 41              | 0.0487 |             |        |
|                                                                        | 20               | 33              | 0.0395 |             |        |
|                                                                        | 30               | 38              | 0.0460 |             |        |
|                                                                        | 40               | 46              | 0.0552 |             |        |
|                                                                        | 50               | 50              | 0.0598 |             |        |

| Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz |                  |                 |        |             |        |
|------------------------------------------------------------------------|------------------|-----------------|--------|-------------|--------|
| Power supplied<br>(Vdc)                                                | Temperature (°C) | Frequency error |        | Limit (ppm) | Result |
|                                                                        |                  | Hz              | ppm    |             |        |
| NV                                                                     | -30              | 52              | 0.0278 | 2.50        | Pass   |
|                                                                        | -20              | 39              | 0.0209 |             |        |
|                                                                        | -10              | 35              | 0.0184 |             |        |
|                                                                        | 0                | 30              | 0.0160 |             |        |
|                                                                        | 10               | 24              | 0.0127 |             |        |
|                                                                        | 20               | 18              | 0.0098 |             |        |
|                                                                        | 30               | 26              | 0.0139 |             |        |
|                                                                        | 40               | 30              | 0.0160 |             |        |
|                                                                        | 50               | 34              | 0.0180 |             |        |

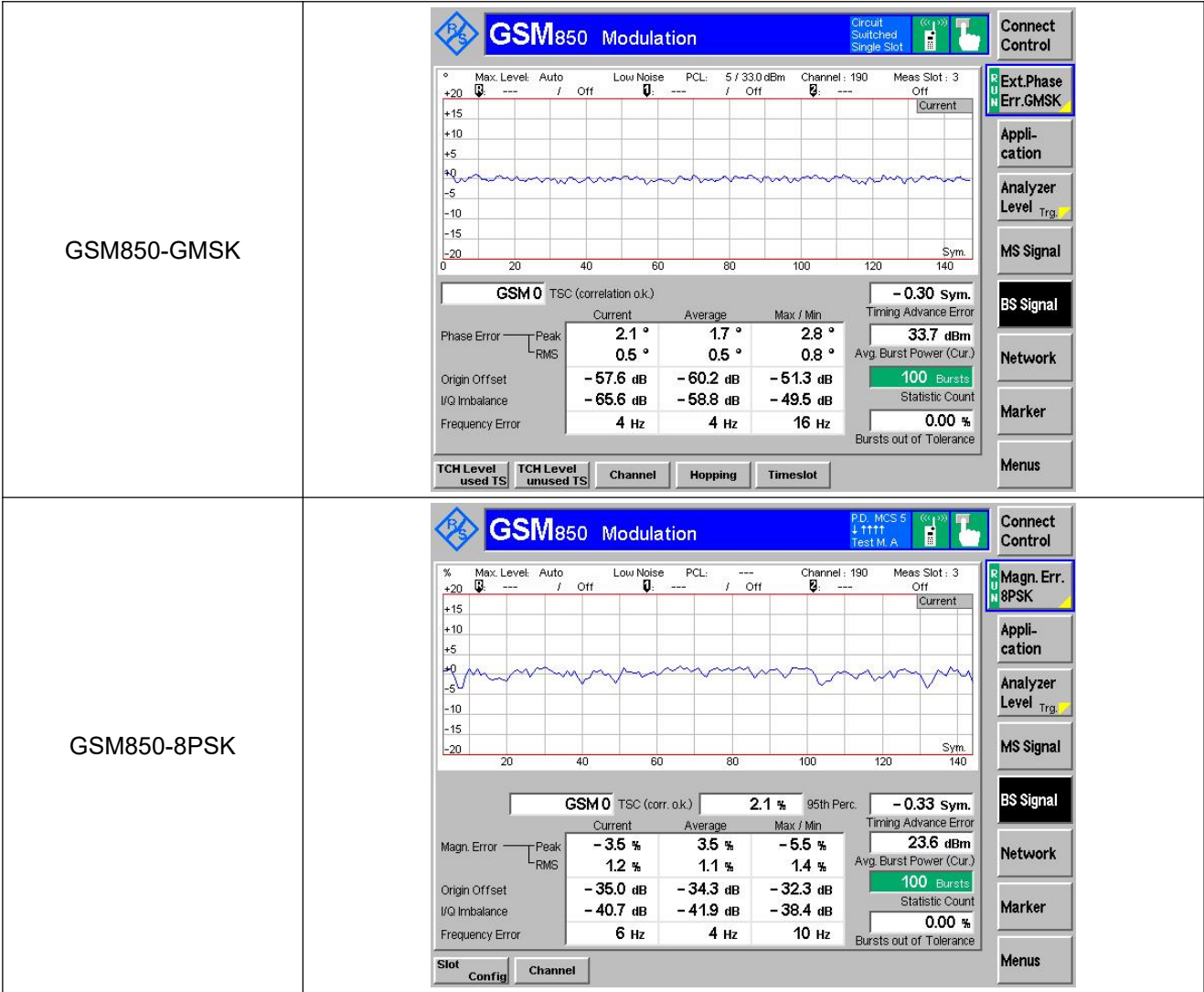
## ➤ Frequency stability V.S. Voltage measurement

| Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz |                      |                 |        |             |        |
|----------------------------------------------------------------------------|----------------------|-----------------|--------|-------------|--------|
| Temperature (°C)                                                           | Power supplied (Vdc) | Frequency error |        | Limit (ppm) | Result |
|                                                                            |                      | Hz              | ppm    |             |        |
| 25                                                                         | HV                   | 28              | 0.0340 | 2.50        | Pass   |
|                                                                            | NV                   | 22              | 0.0267 |             |        |
|                                                                            | LV                   | 26              | 0.0313 |             |        |
| Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz |                      |                 |        |             |        |
| Temperature (°C)                                                           | Power supplied (Vdc) | Frequency error |        | Limit (ppm) | Result |
|                                                                            |                      | Hz              | ppm    |             |        |
| 25                                                                         | HV                   | 43              | 0.0229 | 2.50        | Pass   |
|                                                                            | NV                   | 31              | 0.0164 |             |        |
|                                                                            | LV                   | 37              | 0.0196 |             |        |

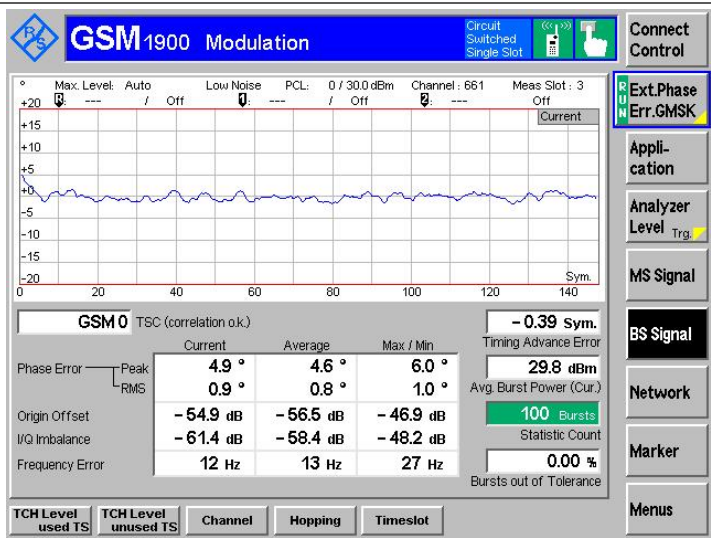
| Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz |                      |                 |        |             |        |
|------------------------------------------------------------------------|----------------------|-----------------|--------|-------------|--------|
| Temperature (°C)                                                       | Power supplied (Vdc) | Frequency error |        | Limit (ppm) |        |
|                                                                        |                      | Hz              | ppm    | Result      |        |
| 25                                                                     | HV                   | 43              | 0.0515 | 2.50        | Pass   |
|                                                                        | NV                   | 37              | 0.0441 |             |        |
|                                                                        | LV                   | 48              | 0.0570 |             |        |
| Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz |                      |                 |        |             |        |
| Temperature (°C)                                                       | Power supplied (Vdc) | Frequency error |        | Limit (ppm) | Result |
|                                                                        |                      | Hz              | ppm    |             |        |
| 25                                                                     | HV                   | 50              | 0.0266 | 2.50        | Pass   |
|                                                                        | NV                   | 38              | 0.0200 |             |        |
|                                                                        | LV                   | 42              | 0.0221 |             |        |

APPENDIX F

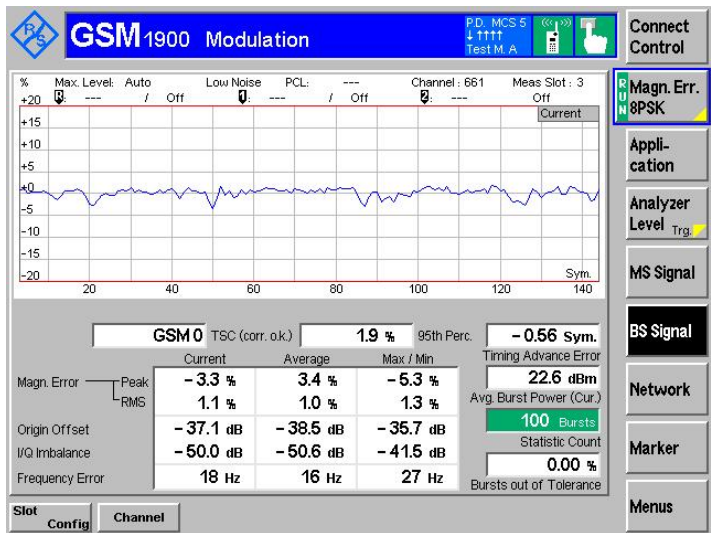
Modulation characteristics

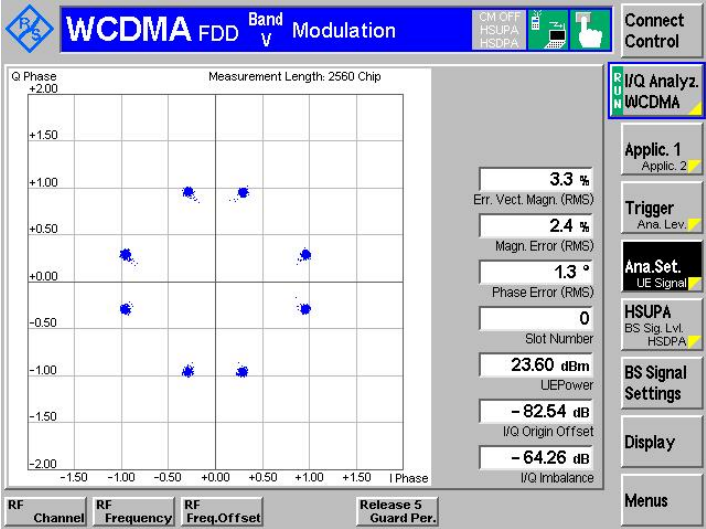
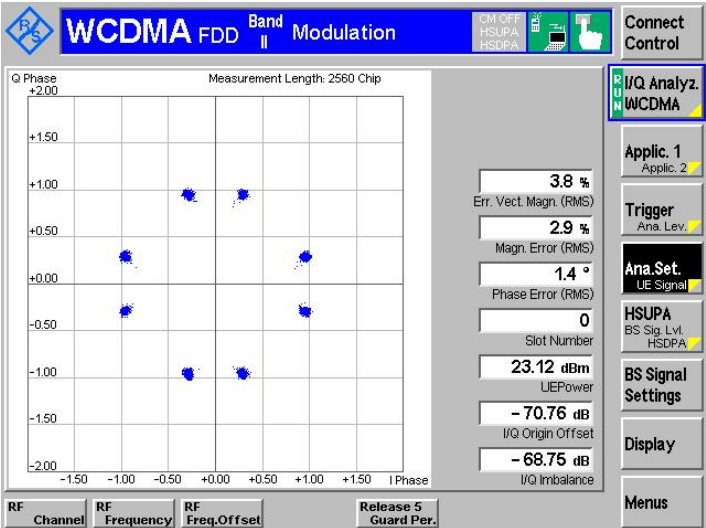


GSM1900-GMSK



GSM1900-8PSK



|          |                                                                                     |
|----------|-------------------------------------------------------------------------------------|
| WCDMA B5 |   |
| WCDMA B2 |  |

## APPENDIX PHOTOGRAPHS

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Please refer to “ANNEX”

\*\*\*\*\* END OF REPORT \*\*\*\*\*