



## Test Report

Product Name : Notebook  
Model No : MS-1242, U200  
FCC ID : I4L-12-EM730512H

Applicant : MICRO-STAR INT'L Co., LTD.  
Address : No. 69, Li-De St., Jung-He City, Taipei  
Hsien, Taiwan, R.O.C.

Date of Receipt : 2009/05/26  
Issued Date : 2009/06/24  
Report No. : 096001R-HPUSP07V01-A  
Report Version : V1.0

The test results relate only to the samples tested.  
The test report shall not be reproduced except in full without the written approval of Quie Tek Corporation.  
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

# Test Report Certification

Issued Date : 2009/06/24

Report No.: 096001R-HPUSP07V01-A

**Accredited by NIST (NVLAP)**

NVLAP Lab Code: 200533-0

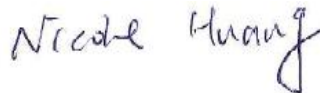
Product Name : Notebook  
Applicant : MICRO-STAR INT'L Co., LTD.  
Address : No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.  
Manufacturer : MICRO-STAR INT'L Co., LTD.  
Trade Name : MSI  
Model No. : MS-1242, U200  
Rated Voltage : AC 120V/60Hz  
EUT Voltage : AC 120V/60Hz  
Measurement Standard : FCC CFR Title 47 Part 2 22 24  
Measurement Reference : TIA/EIA 603-C  
Test Result : Complied

Test results relate only to the samples tested.

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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By :



(Engineering Adm. Assistant /  
Nicole Huang)

Tested By :



(Engineer / Vorana Chen)

Approved By :



(Manager / Vincent Lin)

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## 1. GENERAL INFORMATION

### 1.1. EUT Description

|              |                                                                                  |
|--------------|----------------------------------------------------------------------------------|
| Product Name | Notebook                                                                         |
| Model No.    | MS-1242, U200                                                                    |
| Trade Name   | MSI                                                                              |
| FCC ID.      | I4L-12-EM730512H                                                                 |
| Antenna Type | PIFA                                                                             |
| TX Frequency | 824MHz~849MHz(GSM 850/WCDMA Band V)<br>1850MHz ~ 1910MHz(PCS 1900/WCDMA Band II) |
| Rx Frequency | 869MHz~894MHz(GSM 850/WCDMA Band V)<br>1930MHz ~ 1990MHz(PCS 1900/WCDMA Band II) |
| Function     | GPRS/EGPRS/WCDMA/HSDPA                                                           |

Note: The EUT is including two models for different marketing requirement.

| Component     |                                                                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Adapter | MFR: DELTA,M/N: ADP-40PH BB<br>Input: AC 100-240V,50-60Hz,1.2A<br>Output: DC 20V,2A<br>Cable Out: Shielded,1.7m, with one ferrite core bonded. |

## 1.2. Antenna List

| No. | Antenna Type | Part No.        | Peak Gain |
|-----|--------------|-----------------|-----------|
| 1   | PIFA         | S79-1800L00J51  | 2.45 dBi  |
| 2   | PIFA         | S79-1800L10-J36 | 1.58 dBi  |

Note: 1. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.

2. Only the higher gain antenna Ant 1 was tested and recorded in this report.

## 1.3. Operational Description

The information contained within this report is intended to show verification of compliance of the 850/1900MHz Notebook to the requirements of 47CFR2, 22 and 24.

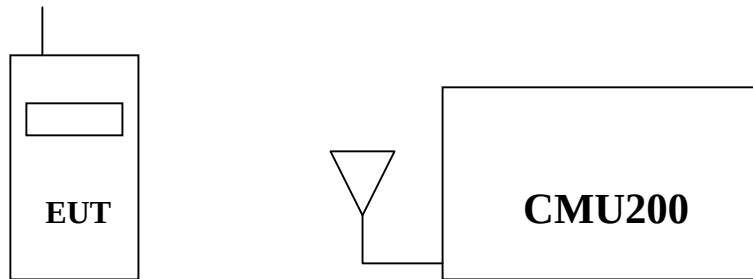
The EUT provide all functions described as above. The EUT is tested with maximum rated TX power via the Base Station simulator.

Quie Tek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

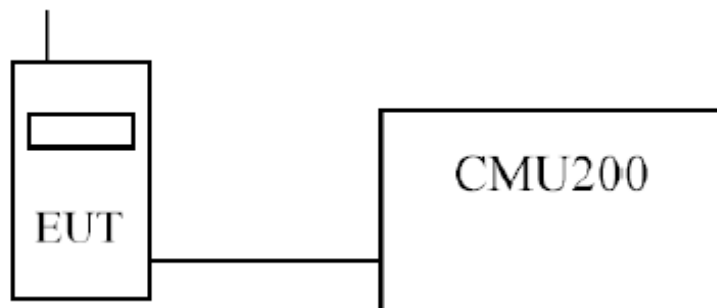
|           |                     |
|-----------|---------------------|
| Test Mode | GSM 850 GPRS        |
|           | GSM 850 EGPRS       |
|           | PCS 1900 GPRS       |
|           | PCS 1900 EGPRS      |
|           | WCDMA BAND V        |
|           | WCDMA BAND V HSDPA  |
|           | WCDMA BAND II       |
|           | WCDMA BAND II HSDPA |

## 1.4. Configuration of tested System

### (a) Configuration of Radiated measurement



### (b) Configuration of Conducted measurement



## 1.5. EUT Setup Procedures

- (1) Setup the EUT and simulators as shown on 1.3
- (2) Turn on the power of all equipments.
- (3) The EUT was set to communicate with CMU200.
- (4) Repeat the above procedure (3).

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items                      | Required (IEC 68-1) | Actual |
|----------------------------|---------------------|--------|
| Temperature (°C)           | 15-35               | 23     |
| Humidity (%RH)             | 25-75               | 52     |
| Barometric pressure (mbar) | 860-1060            | 982    |

Site Description: File on

Federal Communications Commission  
FCC Engineering Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046  
FCC Registration Number :92195



July 03, 2001 Accreditation on NVLAP  
NVLAP Lab Code: 200533-0



Site Name: Quie Tek Corporation

LinKou Testing Laboratory:

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Taiwan, R.O.C.  
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E-Mail : [service@quietek.com](mailto:service@quietek.com)

FCC Accreditation Number: TW1014



### 1.7. Type of Emission

GSM/GPRS: 300KGXW

EGPRS: 300KG7W

WCDMA/HSDPA: 4M20F9W

### 1.8. Applied DC Voltages and Currents

According to FCC 2.1033 (c) (8).

The voltages and currents in the final RF stage is:

|         |                                       |
|---------|---------------------------------------|
| Voltage | 2.85V                                 |
| Current | 150mA according to FCC 2.1033 (c) (8) |

## 2. Peak Power Output

### 2.1. Test Equipment

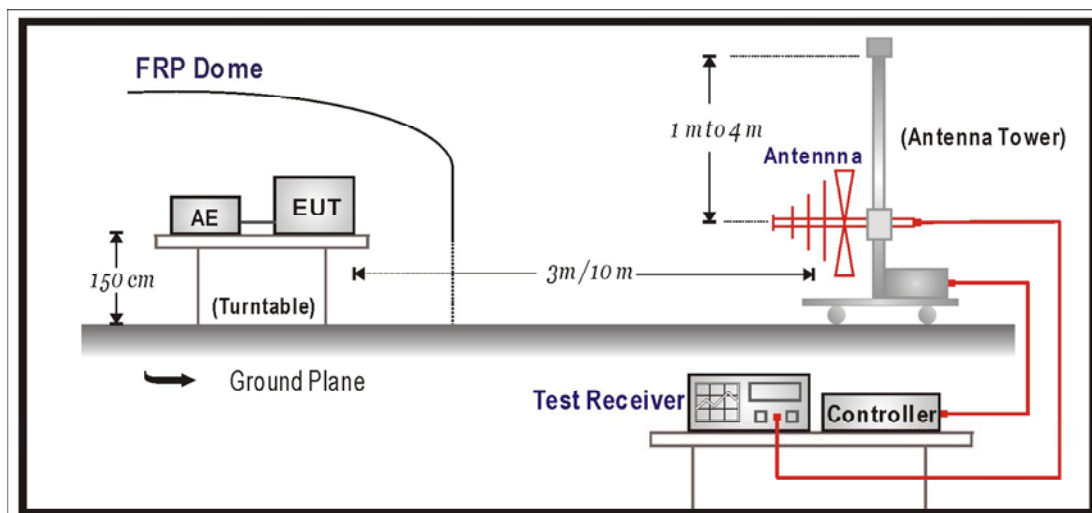
The following test equipments are used during the radiated emission test:

| Test Site | Equipment                            | Manufacturer | Model No./Serial No. | Last Cal.  |
|-----------|--------------------------------------|--------------|----------------------|------------|
| ☒OATS 3   | Test Receiver                        | R & S        | ESCS 30 / 100122     | Feb., 2009 |
|           | Universal Radio Communication Tester | R & S        | CMU200 / 104846      | May., 2009 |
|           | Spectrum Analyzer                    | Agilent      | N9020A/ MY48010570   | Apr., 2009 |
|           | Pre-Amplifier                        | QTK          | QTK-AMP-03 / 0003    | N/A        |
|           | Bilog Antenna                        | SCHAFFNER    | CBL6112B / 2697      | May., 2009 |
|           | Horn Antenna                         | ETS          | 3115 / 0005-6160     | Jul., 2008 |
|           | Pre-Amplifier                        | QTK          | QTK-AMP-01 / 0001    | Jul., 2008 |

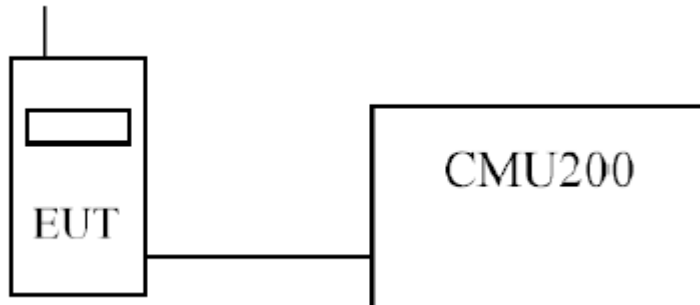
Note: All equipments that need to be calibrated are with calibration period of 1 year.

### 2.2. Test Setup

#### Radiated Power Measurement



## Conducted Power Measurement



### 2.3. Limits

|                   |     |
|-------------------|-----|
| Cellular Band 850 | <7W |
|-------------------|-----|

|               |               |
|---------------|---------------|
| PCS Band 1900 | <2W or +33dBm |
|---------------|---------------|

### 2.4. Test Procedure

#### ➤RF Out Power (Radiated)

The Spectrum Analyzer was tuned to the test frequency. The device was put into Transmit mode then rotated through 360 degrees until the highest power level was observed in both horizontal and vertical polarization. The device was then replaced with a substitution antenna, which input signal was adjusted until the received level matched that of the previously detected emission.

The EUT is tested with maximum rated TX power via the Base Station simulator.

#### ➤RF Out Power (Conducted)

The EUT is tested with maximum rated TX power via the Base Station simulator, and the output power was measured at the antenna terminals of the EUT.

### 2.5. Test Specification

According to Part 2.1046, 22.913,24.232.

## 2.6. Test Result of Peak Power Output

|              |                             |           |     |
|--------------|-----------------------------|-----------|-----|
| Product      | Notebook                    |           |     |
| Test Mode    | RF Output Power (Conducted) |           |     |
| Date of Test | 2009/06/04                  | Test Site | CTR |

| GPRS 850           |                       |                   |                 |               |
|--------------------|-----------------------|-------------------|-----------------|---------------|
| Frequency<br>(MHz) | Output Power<br>(dBm) | Path Loss<br>(dB) | Result<br>(dBm) | Result<br>(W) |
| 824.2              | 31.63                 | 0.4               | 32.03           | 1.60          |
| 836.4              | 31.57                 | 0.4               | 31.97           | 1.57          |
| 848.8              | 31.44                 | 0.4               | 31.84           | 1.53          |
| EGPRS 850          |                       |                   |                 |               |
| Frequency<br>(MHz) | Output Power<br>(dBm) | Path Loss<br>(dB) | Result<br>(dBm) | Result<br>(W) |
| 824.2              | 25.03                 | 0.4               | 25.43           | 0.35          |
| 836.4              | 24.99                 | 0.4               | 25.39           | 0.35          |
| 848.8              | 24.96                 | 0.4               | 25.36           | 0.34          |

| GPRS 1900          |                       |                   |                 |               |
|--------------------|-----------------------|-------------------|-----------------|---------------|
| Frequency<br>(MHz) | Output Power<br>(dBm) | Path Loss<br>(dB) | Result<br>(dBm) | Result<br>(W) |
| 1850.2             | 27.81                 | 0.6               | 28.41           | 0.69          |
| 1880               | 28.08                 | 0.6               | 28.68           | 0.74          |
| 1909.8             | 28.11                 | 0.6               | 28.71           | 0.74          |
| EGPRS 1900         |                       |                   |                 |               |
| Frequency<br>(MHz) | Output Power<br>(dBm) | Path Loss<br>(dB) | Result<br>(dBm) | Result<br>(W) |
| 1850.2             | 23.28                 | 0.6               | 23.88           | 0.24          |
| 1880               | 23.58                 | 0.6               | 24.18           | 0.26          |
| 1909.8             | 23.60                 | 0.6               | 24.20           | 0.26          |

| WCDMA V         |                    |                |              |            |
|-----------------|--------------------|----------------|--------------|------------|
| Frequency (MHz) | Output Power (dBm) | Path Loss (dB) | Result (dBm) | Result (W) |
| 826.4           | 20.56              | 0.4            | 21.06        | 0.13       |
| 836.6           | 20.78              | 0.4            | 21.18        | 0.13       |
| 846.6           | 20.76              | 0.4            | 21.16        | 0.13       |

| WCDMA V HSDPA                                    |             |               |             |               |             |               |             |               |
|--------------------------------------------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|
| Frequency (MHz)                                  | Set 1       |               | Set 2       |               | Set 3       |               | Set 4       |               |
|                                                  | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) |
| 826.4                                            | 20.96       | 0.12          | 20.67       | 0.12          | 20.61       | 0.12          | 20.73       | 0.12          |
| 836.6                                            | 21.23       | 0.13          | 20.99       | 0.13          | 20.59       | 0.11          | 20.58       | 0.11          |
| 846.6                                            | 20.89       | 0.12          | 20.80       | 0.12          | 20.62       | 0.12          | 20.96       | 0.12          |
| $\beta_c$                                        | 2           |               | 12          |               | 15          |               | 15          |               |
| $\beta_d$                                        | 15          |               | 15          |               | 8           |               | 4           |               |
| $\Delta_{ACK}, \Delta_{NACK} \Delta_{CQI}$       | 8           |               | 8           |               | 8           |               | 8           |               |
| Cable loss: 0.4dB for 850MHz ; 0.6dB for 1900MHz |             |               |             |               |             |               |             |               |

All HSDPA testing was done in Set1 configuration.

| WCDMA II        |                    |                |              |            |
|-----------------|--------------------|----------------|--------------|------------|
| Frequency (MHz) | Output Power (dBm) | Path Loss (dB) | Result (dBm) | Result (W) |
| 1852.4          | 20.58              | 0.6            | 21.18        | 0.13       |
| 1880            | 20.52              | 0.6            | 21.12        | 0.13       |
| 1907.6          | 20.47              | 0.6            | 21.07        | 0.13       |

| WCDMA II HSDPA                                   |             |               |             |               |             |               |             |               |
|--------------------------------------------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|
| Frequency (MHz)                                  | Set 1       |               | Set 2       |               | Set 3       |               | Set 4       |               |
|                                                  | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) | Power (dBm) | Power (Watts) |
| 1852.4                                           | 21.45       | 0.14          | 21.09       | 0.13          | 21.36       | 0.14          | 21.34       | 0.14          |
| 1880                                             | 21.24       | 0.13          | 20.73       | 0.12          | 20.81       | 0.12          | 20.98       | 0.13          |
| 1907.6                                           | 21.27       | 0.13          | 20.81       | 0.12          | 21.02       | 0.13          | 21.07       | 0.13          |
| $\beta_c$                                        | 2           |               | 12          |               | 15          |               | 15          |               |
| $\beta_d$                                        | 15          |               | 15          |               | 8           |               | 4           |               |
| $\Delta_{ACK}, \Delta_{NACK} \Delta_{CQI}$       | 8           |               | 8           |               | 8           |               | 8           |               |
| Cable loss: 0.4dB for 850MHz ; 0.6dB for 1900MHz |             |               |             |               |             |               |             |               |

All HSDPA testing was done in Set1 configuration.

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | GSM 850 GPRS               |           |        |

#### Maximum Power-GSM 850 GPRS

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBd) | Cable<br>Loss<br>(dB) | Result<br>ERP<br>(dBm) | Result<br>ERP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|------------------------|----------------------|
| 824.2              | 16.971                    | 19.82                          | 4.45                                  | 0.51                  | 23.76                  | 0.24                 |
| 836.4              | 16.103                    | 18.95                          | 4.45                                  | 0.51                  | 22.89                  | 0.19                 |
| 848.8              | 16.158                    | 19.00                          | 4.45                                  | 0.51                  | 22.94                  | 0.20                 |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | GSM 850 EGPRS              |           |        |

#### Maximum Power-GSM 850 EGPRS

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBd) | Cable<br>Loss<br>(dB) | Result<br>ERP<br>(dBm) | Result<br>ERP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|------------------------|----------------------|
| 824.2              | 13.861                    | 16.70                          | 4.45                                  | 0.51                  | 20.64                  | 0.12                 |
| 836.4              | 12.868                    | 15.70                          | 4.45                                  | 0.51                  | 19.64                  | 0.09                 |
| 848.8              | 12.608                    | 15.44                          | 4.45                                  | 0.51                  | 19.38                  | 0.09                 |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | PCS 1900 GPRS              |           |        |

#### Maximum Power-PCS 1900 GPRS

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBi) | Cable<br>Loss<br>(dB) | Result<br>EIRP<br>(dBm) | Result<br>EIRP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|-------------------------|-----------------------|
| 1850.2             | -12.747                   | 17.131                         | 10.4                                  | 1.02                  | 17.131                  | 0.05                  |
| 1880.0             | -11.979                   | 18.271                         | 10.4                                  | 1.02                  | 18.271                  | 0.07                  |
| 1909.8             | -11.572                   | 18.920                         | 10.4                                  | 1.02                  | 18.920                  | 0.08                  |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | PCS 1900 EGPRS             |           |        |

#### Maximum Power-PCS 1900 EGPRS

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBi) | Cable<br>Loss<br>(dB) | Result<br>EIRP<br>(dBm) | Result<br>EIRP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|-------------------------|-----------------------|
| 1850.2             | -14.051                   | 15.827                         | 10.4                                  | 1.02                  | 25.207                  | 0.33                  |
| 1880.0             | -13.190                   | 17.060                         | 10.4                                  | 1.02                  | 26.440                  | 0.44                  |
| 1909.8             | -12.833                   | 17.659                         | 10.4                                  | 1.02                  | 27.039                  | 0.51                  |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | WCDMA BAND V               |           |        |

#### Maximum Power- WCDMA BAND V

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBd) | Cable<br>Loss<br>(dB) | Result<br>ERP<br>(dBm) | Result<br>ERP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|------------------------|----------------------|
| 826.4              | 9.409                     | 12.27                          | 4.45                                  | 0.51                  | 16.21                  | 0.04                 |
| 836.6              | 7.537                     | 10.42                          | 4.45                                  | 0.51                  | 14.36                  | 0.03                 |
| 846.6              | 6.711                     | 9.60                           | 4.45                                  | 0.51                  | 13.54                  | 0.02                 |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:5MHz; VBW:5MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | WCDMA BAND V HSDPA         |           |        |

#### Maximum Power- WCDMA BAND V HSDPA

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBd) | Cable<br>Loss<br>(dB) | Result<br>ERP<br>(dBm) | Result<br>ERP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|------------------------|----------------------|
| 826.4              | 9.039                     | 11.91                          | 4.45                                  | 0.51                  | 15.85                  | 0.04                 |
| 836.6              | 7.365                     | 10.25                          | 4.45                                  | 0.51                  | 14.19                  | 0.03                 |
| 846.6              | 6.435                     | 9.32                           | 4.45                                  | 0.51                  | 13.26                  | 0.02                 |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:5MHz; VBW:5MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | WCDMA BAND II              |           |        |

#### Maximum Power- WCDMA BAND II

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBi) | Cable<br>Loss<br>(dB) | Result<br>EIRP<br>(dBm) | Result<br>EIRP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|-------------------------|-----------------------|
| 1852.4             | -15.946                   | 13.959                         | 10.4                                  | 1.02                  | 23.339                  | 0.22                  |
| 1880               | -16.670                   | 13.580                         | 10.4                                  | 1.02                  | 22.960                  | 0.20                  |
| 1907.6             | -17.530                   | 12.964                         | 10.4                                  | 1.02                  | 22.344                  | 0.17                  |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:5MHz; VBW:5MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

|                |                            |           |        |
|----------------|----------------------------|-----------|--------|
| Product        | Notebook                   |           |        |
| Test Mode      | RF Output Power (Radiated) |           |        |
| Date of Test   | 2009/06/04                 | Test Site | OATS 3 |
| Test Condition | WCDMA BAND II HSDPA        |           |        |

#### Maximum Power- WCDMA BAND II HSDPA

| Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Level<br>(dBm) | Substitution<br>Antenna<br>Gain (dBi) | Cable<br>Loss<br>(dB) | Result<br>EIRP<br>(dBm) | Result<br>EIRP<br>(W) |
|--------------------|---------------------------|--------------------------------|---------------------------------------|-----------------------|-------------------------|-----------------------|
| 1852.4             | -15.821                   | 14.084                         | 10.4                                  | 1.02                  | 23.464                  | 0.22                  |
| 1880               | -16.700                   | 13.550                         | 10.4                                  | 1.02                  | 22.930                  | 0.20                  |
| 1907.6             | -17.799                   | 12.695                         | 10.4                                  | 1.02                  | 22.075                  | 0.16                  |

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:5MHz; VBW:5MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

### 3. Occupied Bandwidth

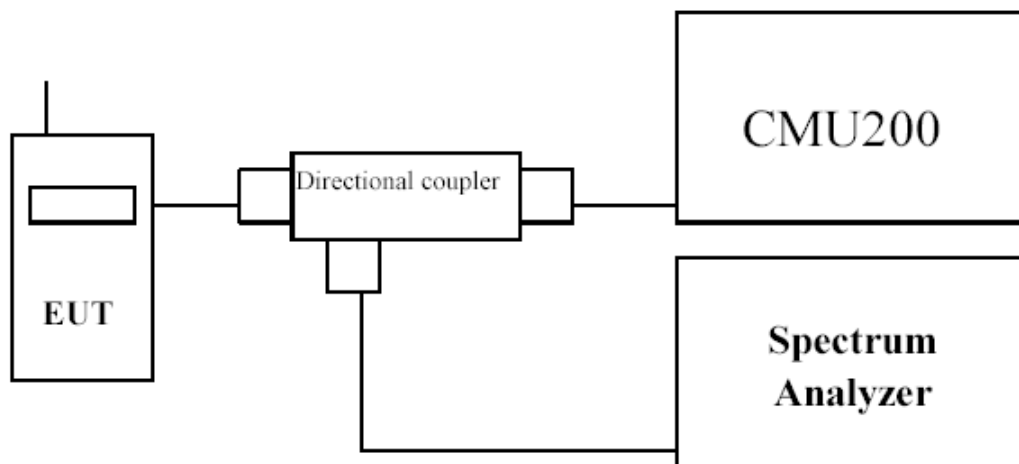
#### 3.1. Test Equipment

The following test equipments are used during the occupied bandwidth tests:

| Equipment                               | Manufacturer | Model No./Serial No. | Last Cal.  |
|-----------------------------------------|--------------|----------------------|------------|
| Spectrum Analyzer<br>(9K-26.5GHz)       | Agilent      | N9020A/MY48010570    | Apr., 2009 |
| Universal Radio<br>Communication Tester | R & S        | CMU200 / 104846      | May., 2009 |
| Directional coupler                     | Agilent      | 87300C / MY44300353  | Aug., 2008 |
| Directional coupler                     | Agilent      | 778D-012/ 50550      | Aug., 2008 |

Note: All equipments upon which need to be calibrated are with calibration period of 1 year.

#### 3.2. Test Setup



#### 3.3. Test Procedure

The EUT is tested with maximum rated TX power via the Base Station simulator, and the occupied bandwidth was measured at the antenna terminals of the EUT.

The Resolution BW of the analyzer is set to 1 % of the emission bandwidth. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The plots below show the resultant display from the Spectrum Analyzer.

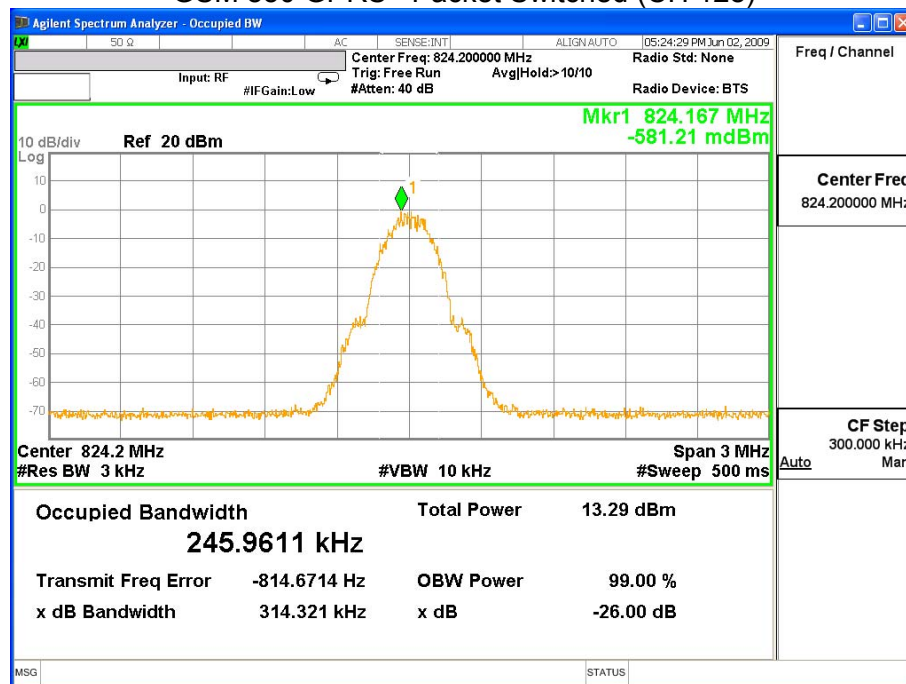
### **3.4. Test Specification**

According to Part 2.1049, 22.917(b), 24.238(b).

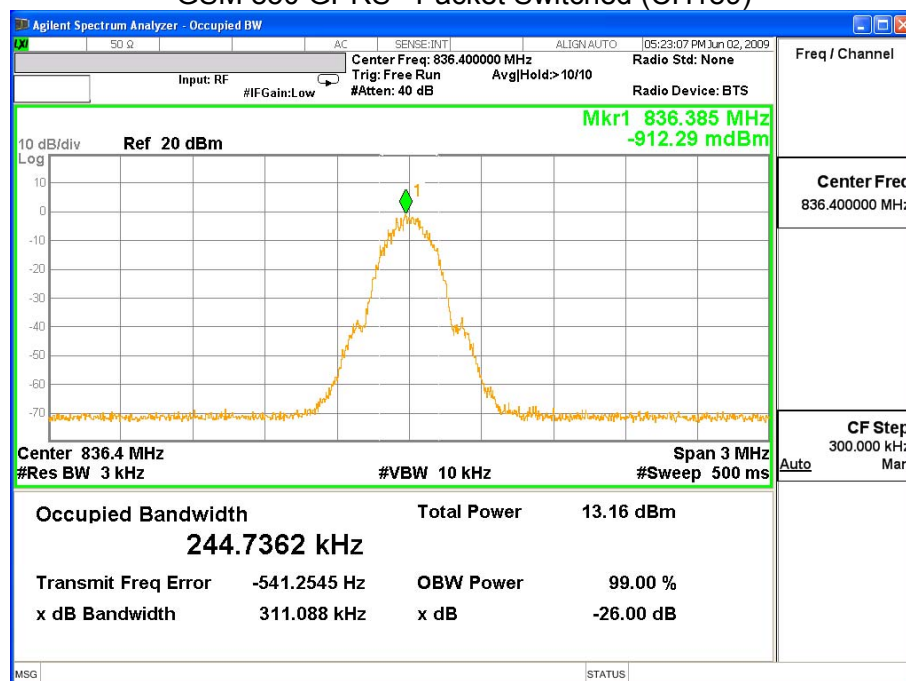
### 3.5. Test Result of Occupied Bandwidth

|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | GSM 850 GPRS       |           |     |

GSM 850 GPRS - Packet Switched (CH 128)

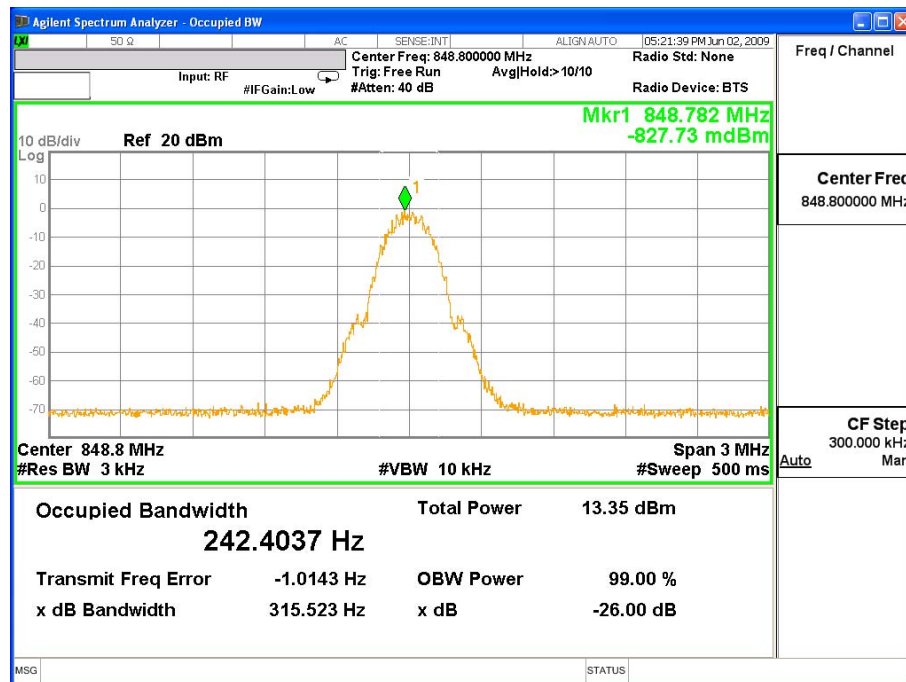


GSM 850 GPRS - Packet Switched (CH189)



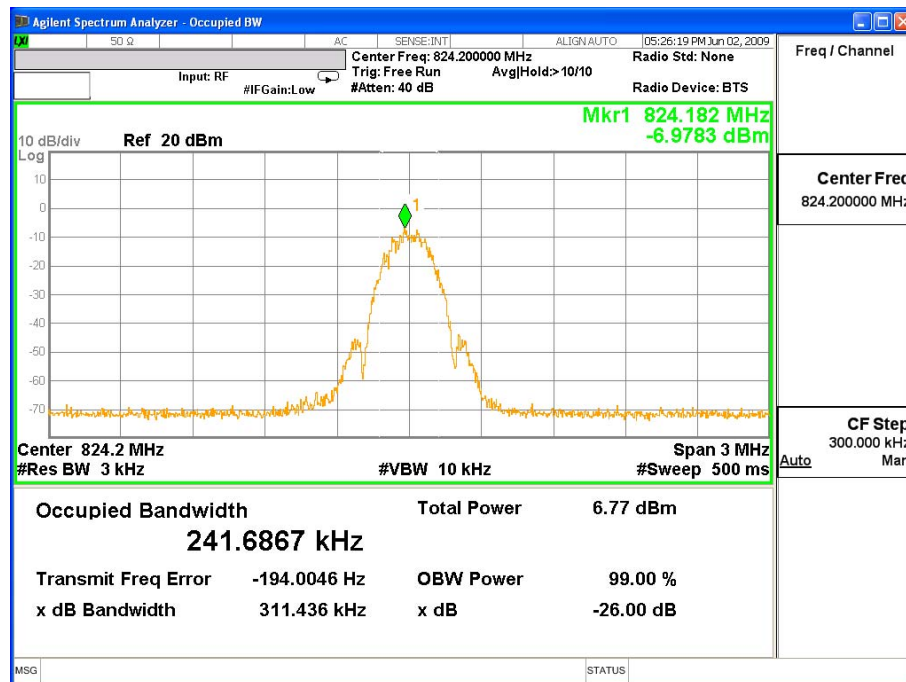
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | GSM 850 GPRS       |           |     |

### GSM 850 GPRS - Packet Switched (CH 251)

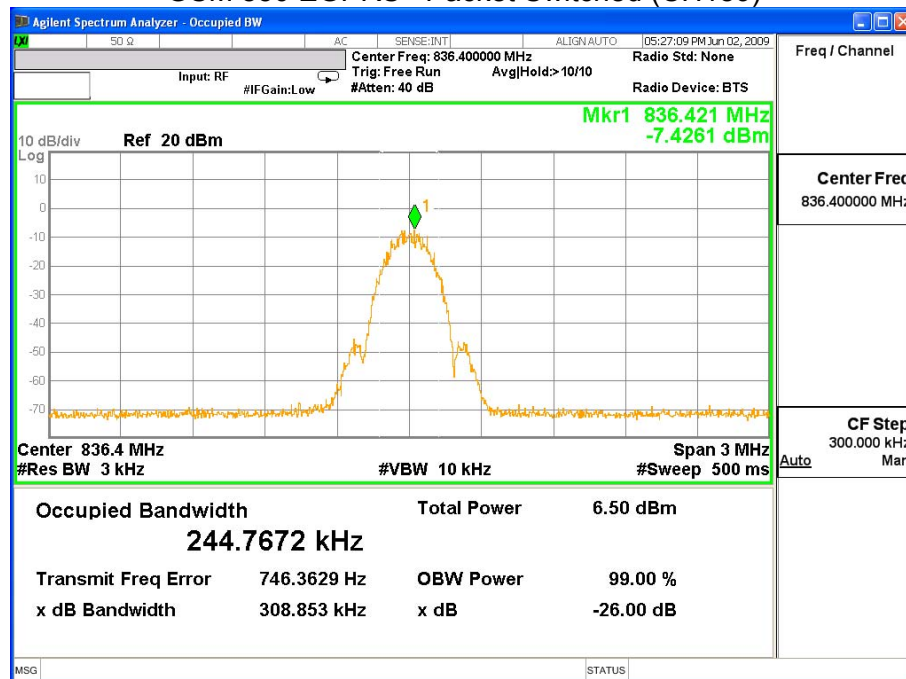


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | GSM 850 EGPRS      |           |     |

### GSM 850 EGPRS - Packet Switched (CH 128)

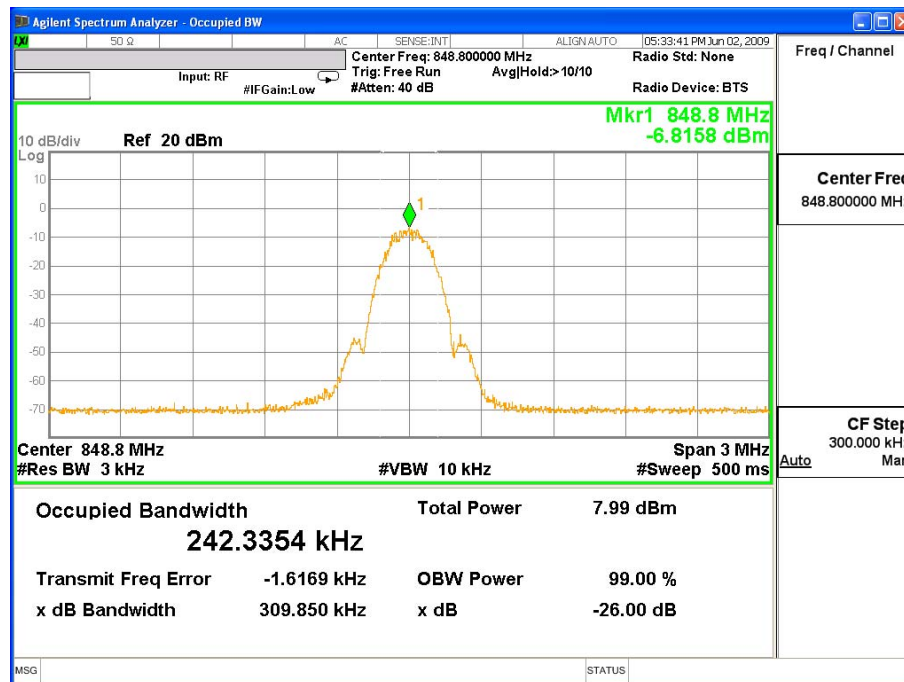


### GSM 850 EGPRS - Packet Switched (CH189)



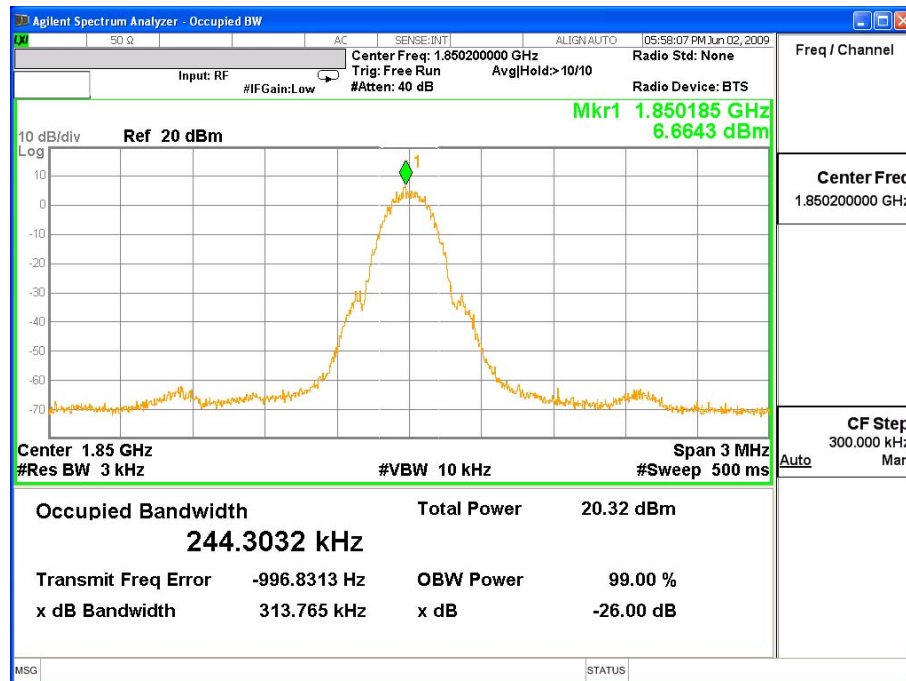
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | GSM 850 EGPRS      |           |     |

### GSM 850 EGPRS - Packet Switched (CH 251)

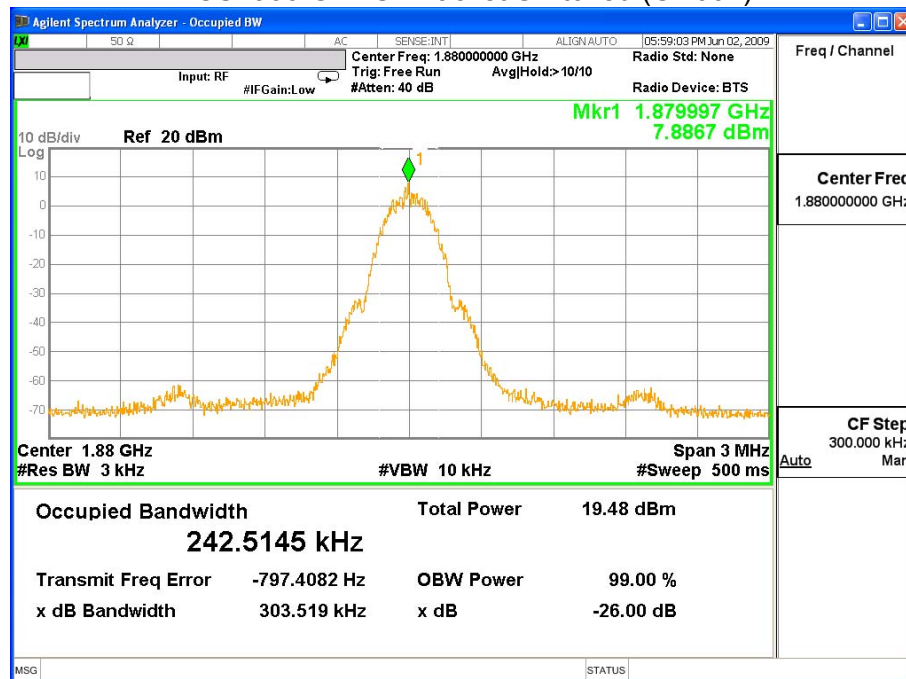


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | PCS1900 GPRS       |           |     |

### PCS1900 GPRS - Packet Switched (CH 512)

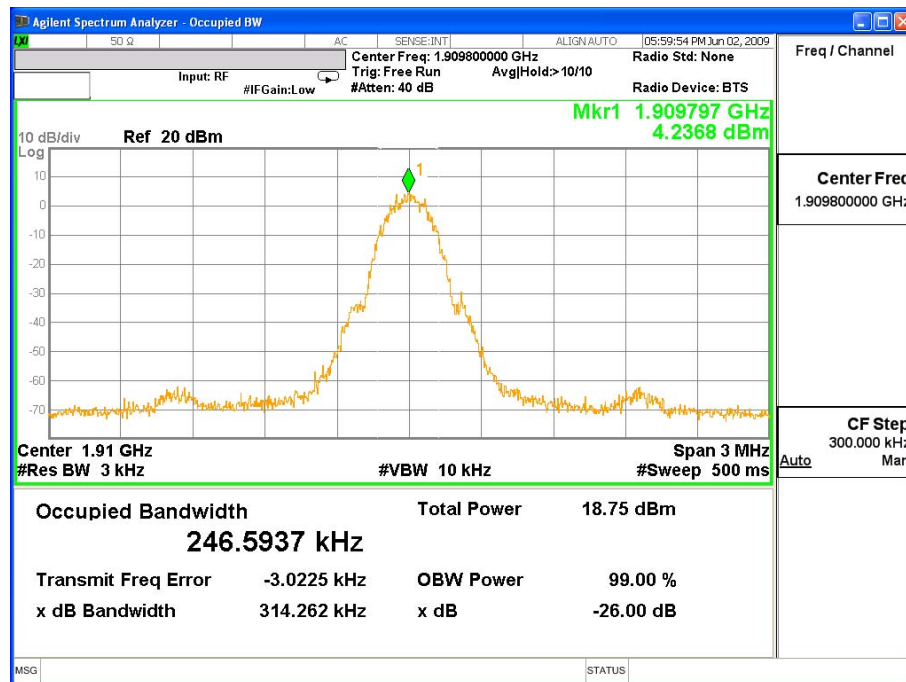


### PCS1900 GPRS - Packet Switched (CH661)



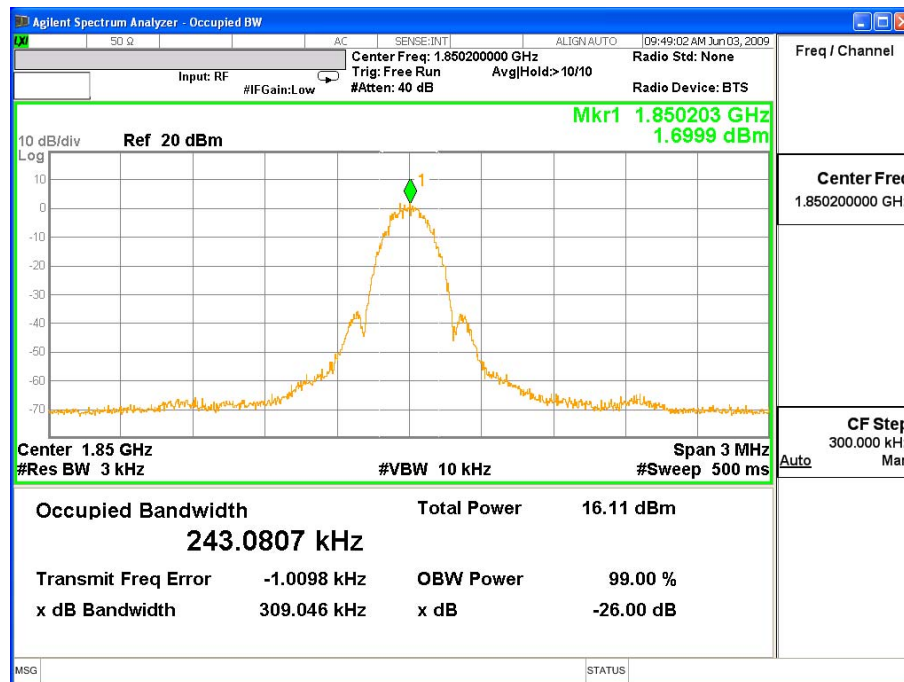
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | PCS1900 GPRS       |           |     |

PCS1900 GPRS - Packet Switched (CH 810)

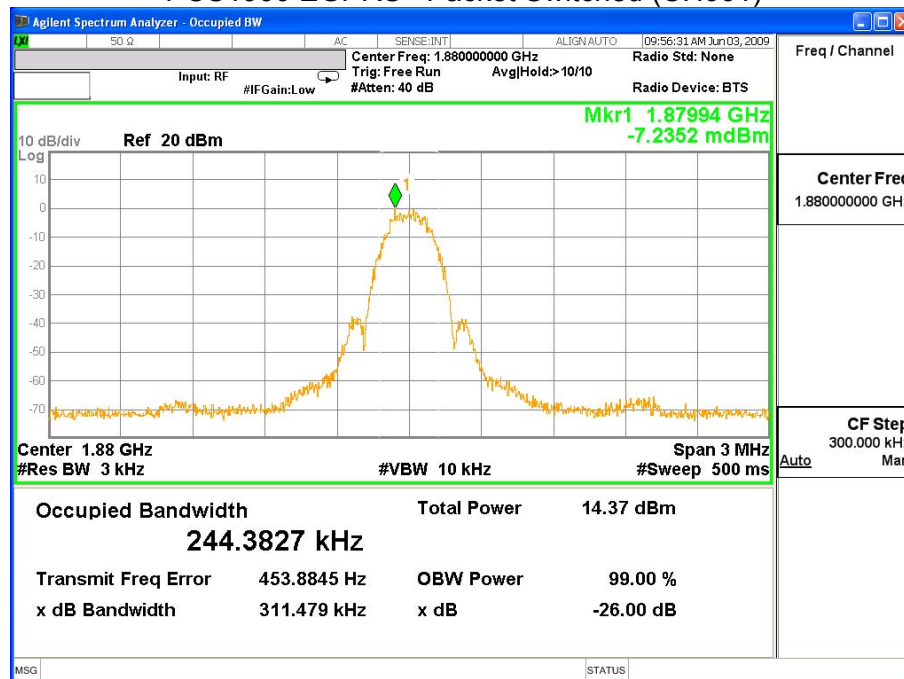


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | PCS1900 EGPRS      |           |     |

### PCS1900 EGPRS - Packet Switched (CH 512)

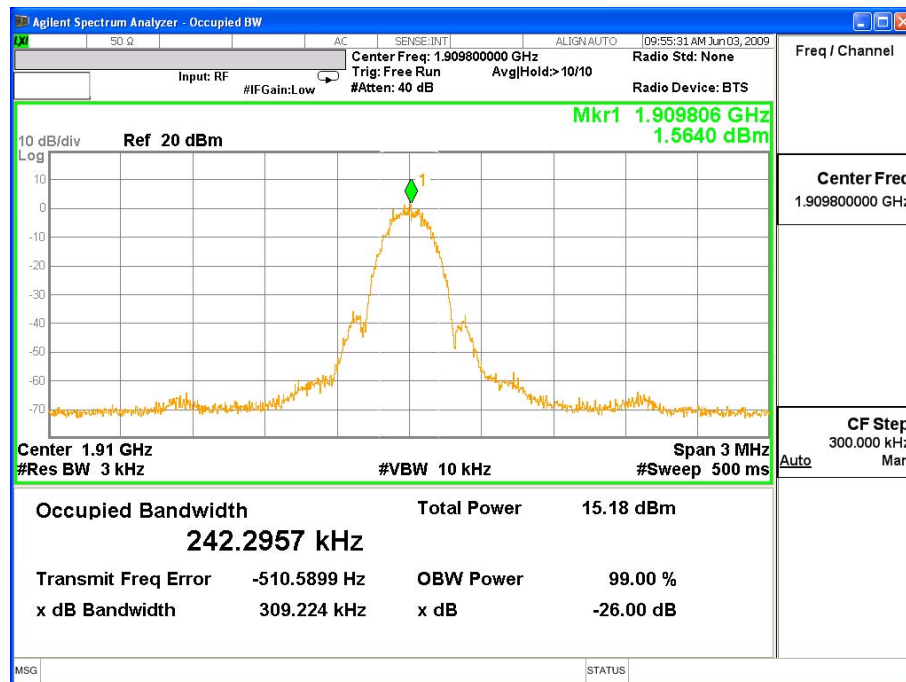


### PCS1900 EGPRS - Packet Switched (CH661)



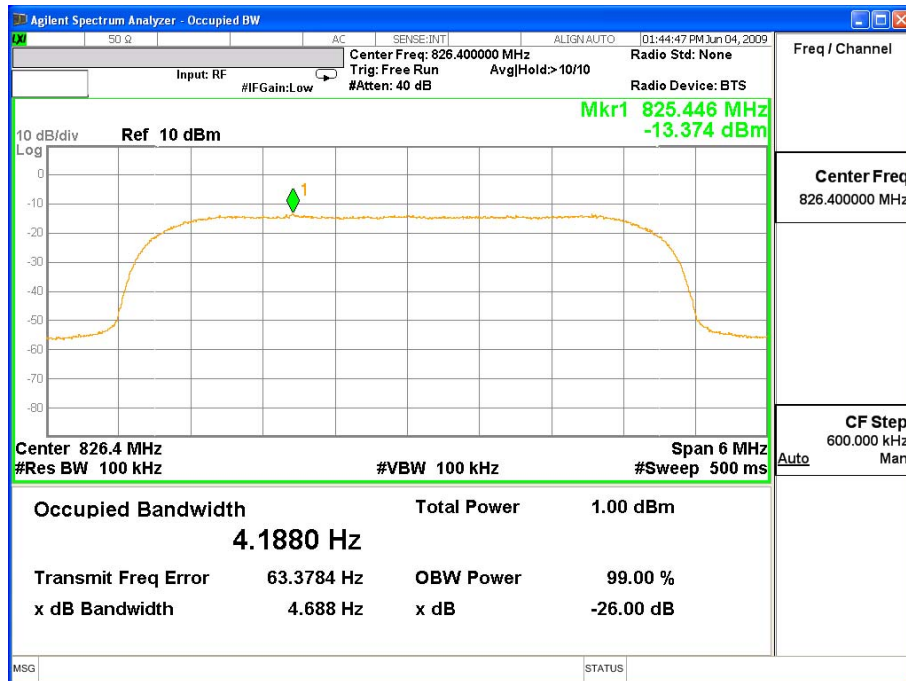
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | PCS1900 EGPRS      |           |     |

PCS1900 EGPRS - Packet Switched (CH 810)

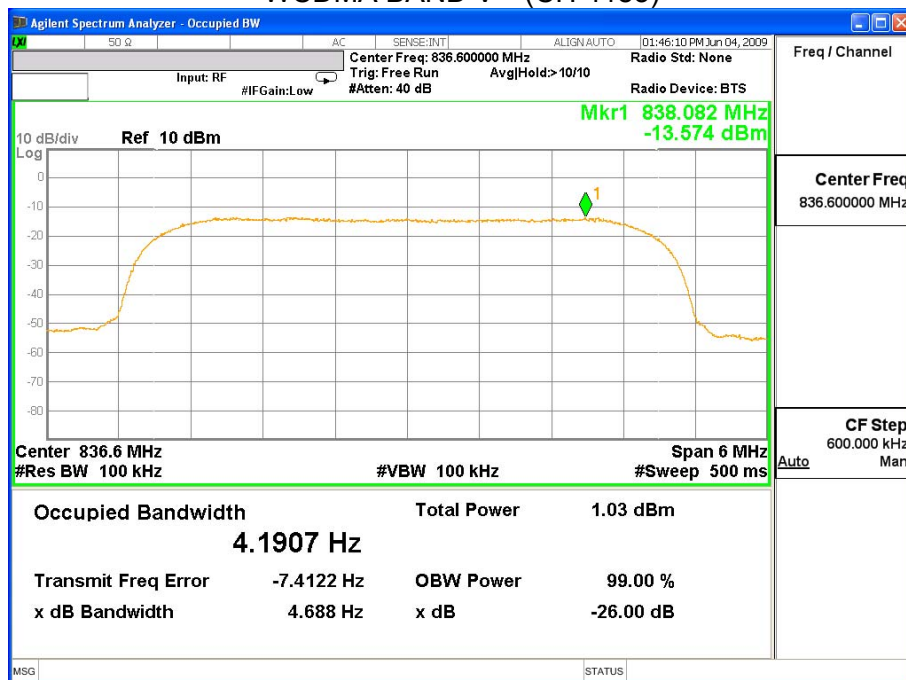


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND V       |           |     |

### WCDMA BAND V (CH 4132)

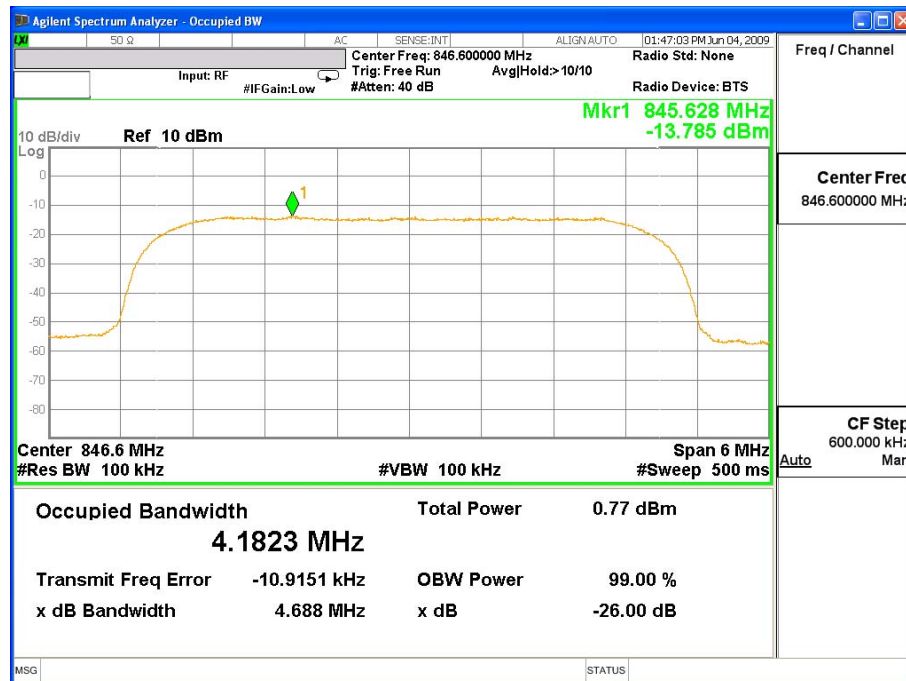


### WCDMA BAND V (CH 4183)



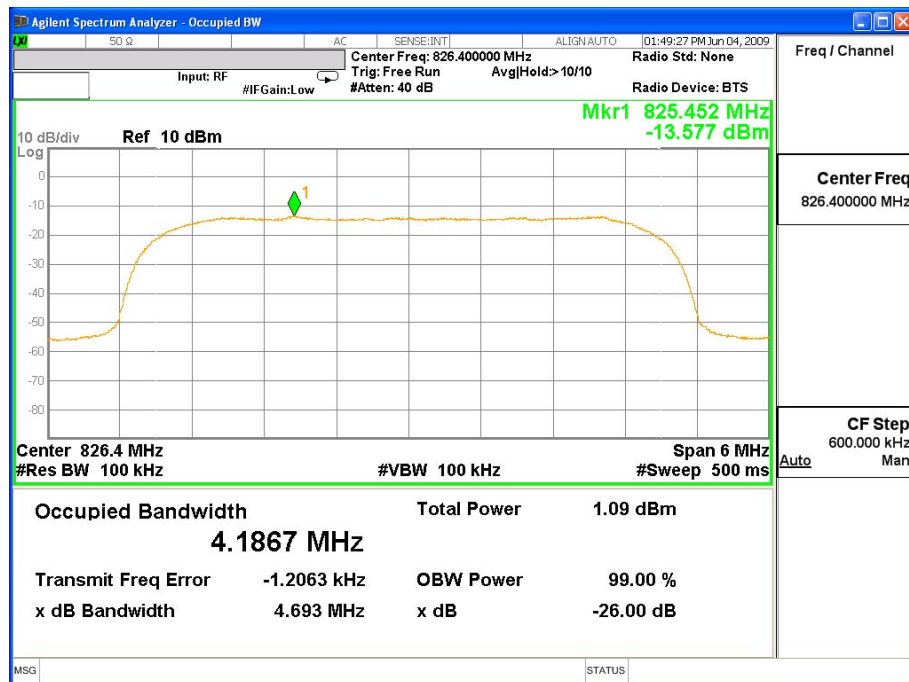
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND V       |           |     |

WCDMA BAND V (CH 4233)

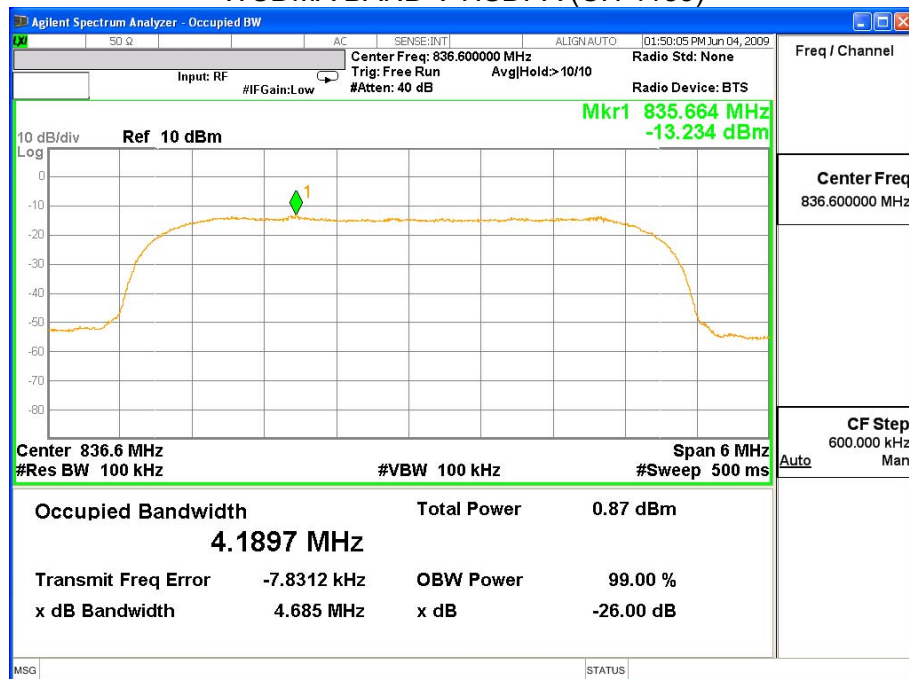


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND V HSDPA |           |     |

### WCDMA BAND V HSDPA (CH 4132)

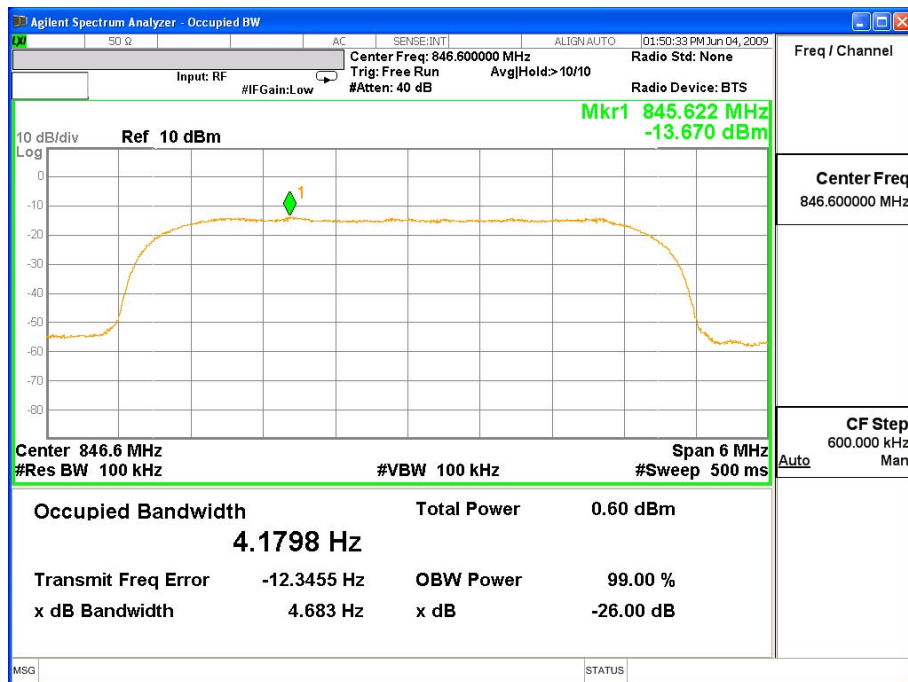


### WCDMA BAND V HSDPA (CH 4183)



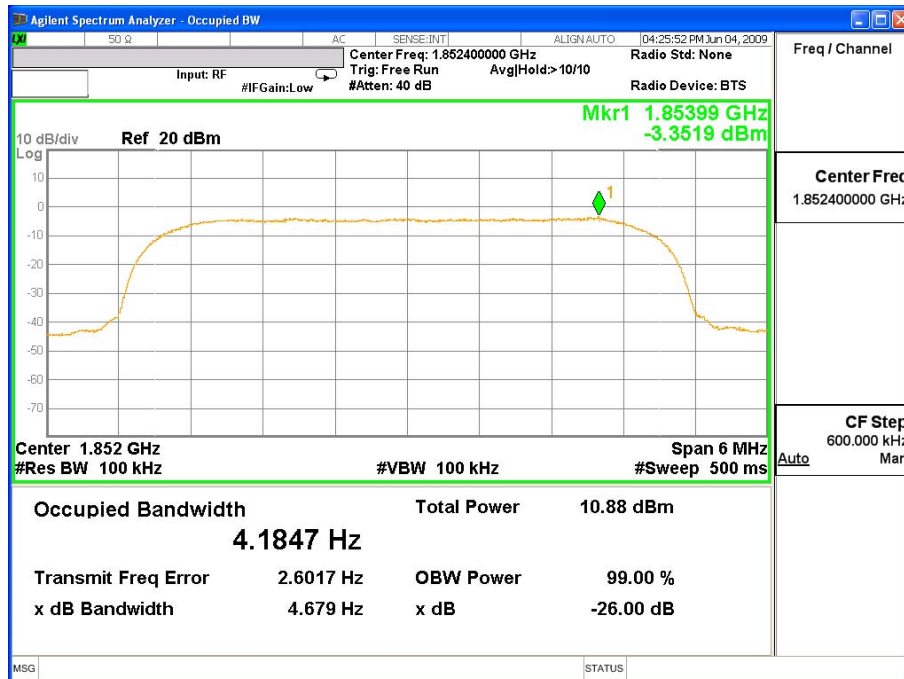
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND V HSDPA |           |     |

WCDMA BAND V HSDPA (CH 4233)

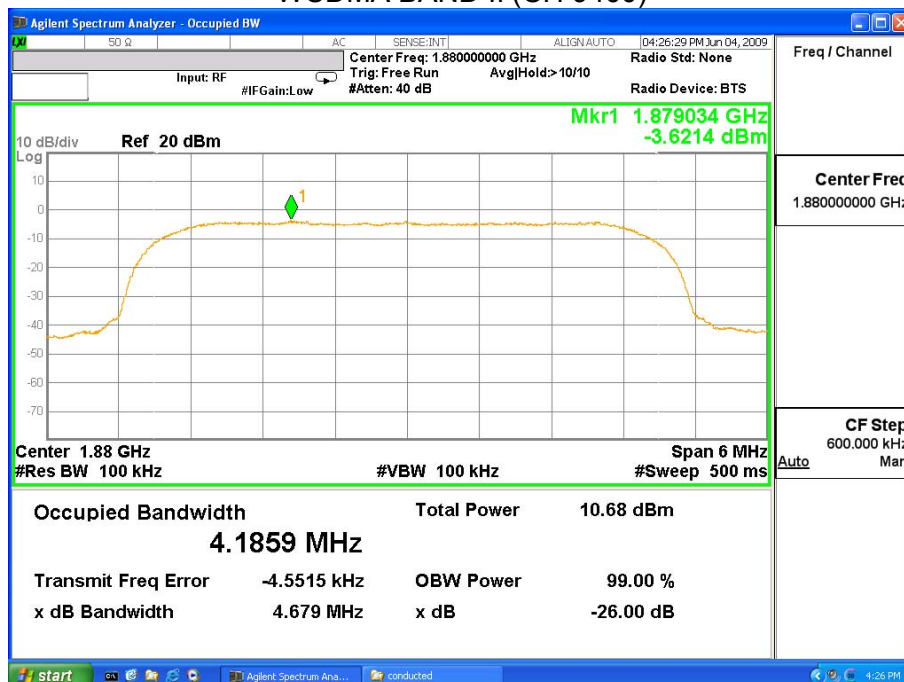


|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND II      |           |     |

### WCDMA BAND II (CH 9262)

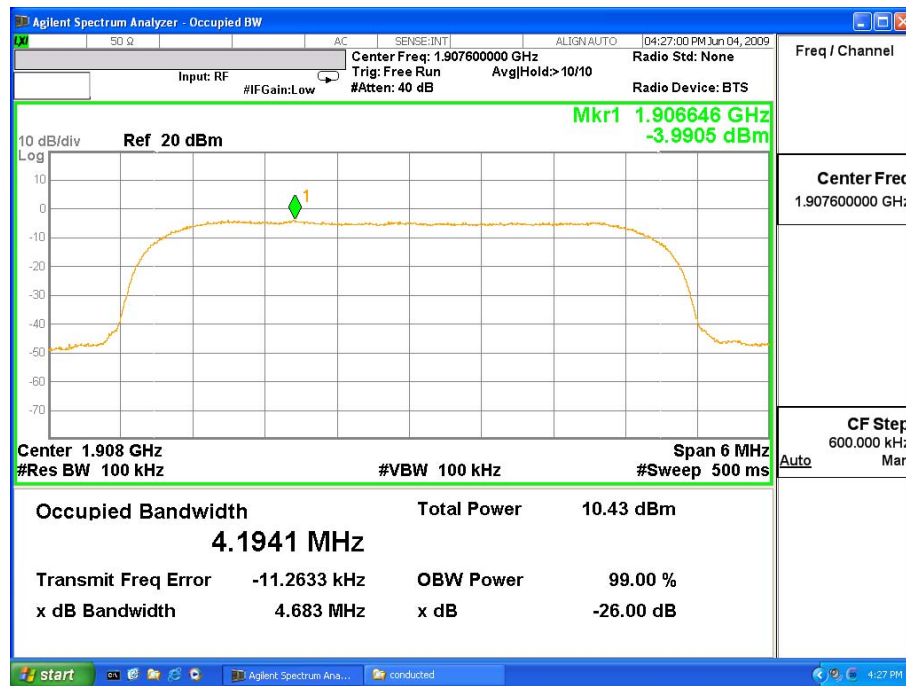


### WCDMA BAND II (CH 9400)



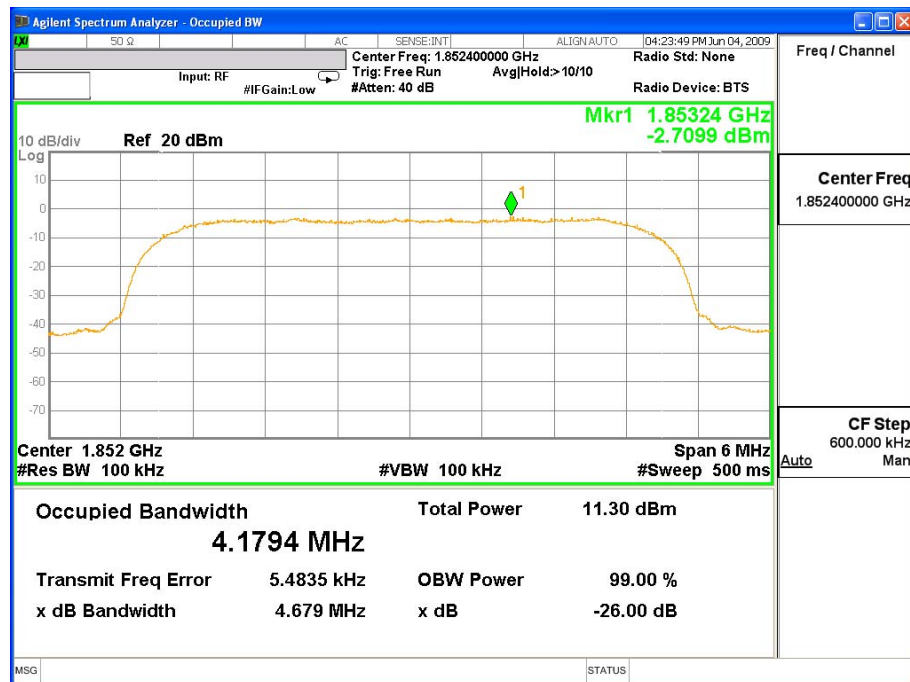
|                |                    |           |     |
|----------------|--------------------|-----------|-----|
| Product        | Notebook           |           |     |
| Test Mode      | Occupied Bandwidth |           |     |
| Date of Test   | 2009/06/01         | Test Site | CTR |
| Test Condition | WCDMA BAND II      |           |     |

WCDMA BAND II (CH 9538)

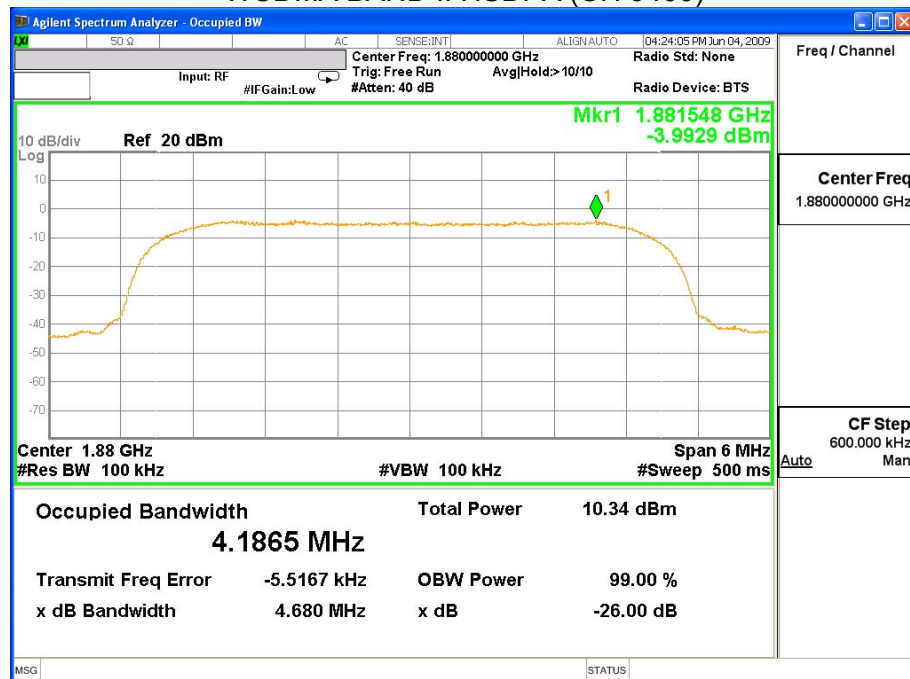


|                |                     |           |     |
|----------------|---------------------|-----------|-----|
| Product        | Notebook            |           |     |
| Test Mode      | Occupied Bandwidth  |           |     |
| Date of Test   | 2009/06/01          | Test Site | CTR |
| Test Condition | WCDMA BAND II HSDPA |           |     |

### WCDMA BAND II HSDPA (CH 9262)

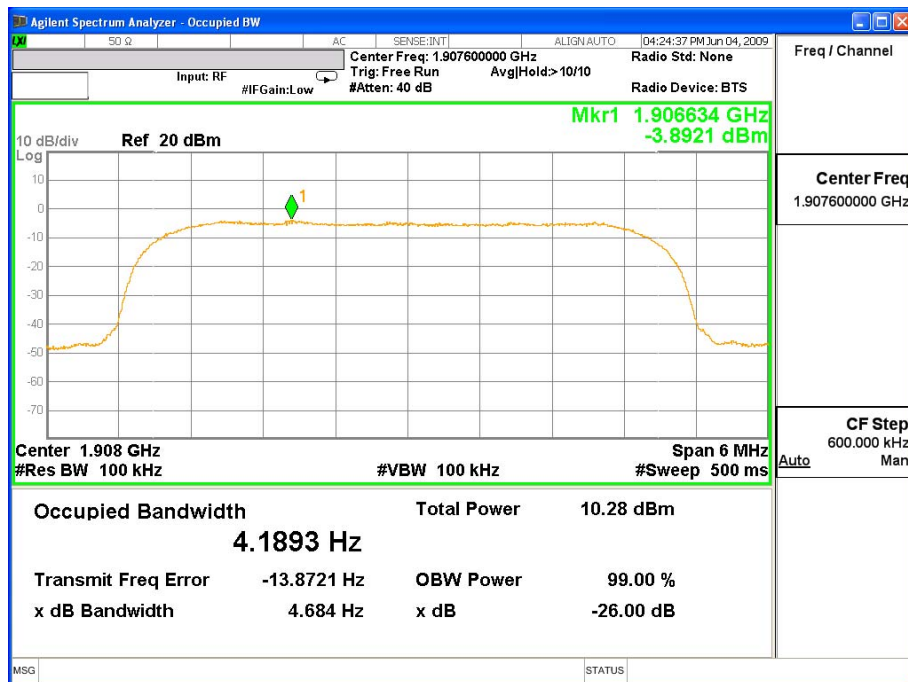


### WCDMA BAND II HSDPA (CH 9400)



|                |                     |           |     |
|----------------|---------------------|-----------|-----|
| Product        | Notebook            |           |     |
| Test Mode      | Occupied Bandwidth  |           |     |
| Date of Test   | 2009/06/01          | Test Site | CTR |
| Test Condition | WCDMA BAND II HSDPA |           |     |

WCDMA BAND II HSDPA (CH 9538)



#### 4. Spurious Emission At Antenna Terminals (+/-1MHz)

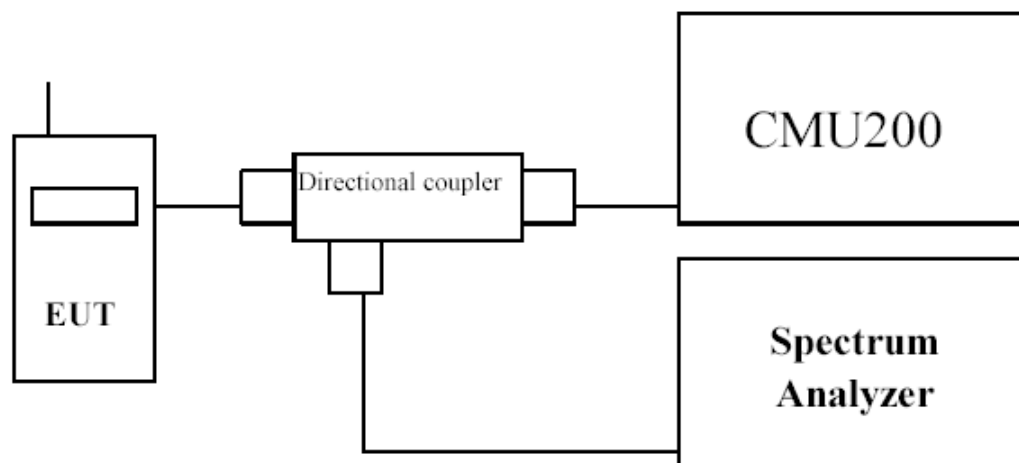
##### 4.1. Test Equipment

The following test equipments are used during the spurious emission test

| Equipment                               | Manufacturer | Model No./Serial No. | Last Cal.  |
|-----------------------------------------|--------------|----------------------|------------|
| Spectrum Analyzer<br>(9K-26.5GHz)       | Agilent      | N9020A/MY48010570    | Apr., 2009 |
| Universal Radio<br>Communication Tester | R & S        | CMU200 / 104846      | May., 2009 |
| Directional coupler                     | Agilent      | 87300C / MY44300353  | Aug., 2008 |
| Directional coupler                     | Agilent      | 778D-012/ 50550      | Aug., 2008 |

Note: All equipments upon which need to be calibrated are with calibration period of 1 year.

##### 4.2. Setup



### 4.3. Limits

Cellular Band Transmitter limits for narrowband spurious emission

| <b>Lower Block Edge Test<br/>Frequencies</b>      | <b>Upper Block Edge Test<br/>Frequencies</b>      |
|---------------------------------------------------|---------------------------------------------------|
| Block A<br>Channel : 128<br>Frequency : 824.2 MHz | Block B<br>Channel : 251<br>Frequency : 848.8 MHz |

PCS Band Transmitter limits for narrowband spurious emission

| <b>Lower Block Edge Test<br/>Channels/Frequencies</b> | <b>Upper Block Edge Test<br/>Channels/Frequencies</b> |
|-------------------------------------------------------|-------------------------------------------------------|
| Block A<br>Channel : 512<br>Frequency : 1850.2 MHz    | Block C<br>Channel : 810<br>Frequency : 1909.8 MHz    |

### 4.4. Test Procedure

In accordance with Part 22.917 and 24.238, at least 1% of the emission bandwidth was used for the resolution and video bandwidths up to 1MHz away from the Block Edge. At greater than 1MHz, the resolution and video bandwidth were increased to 1MHz.

The reference power and path losses of all channels used for testing in each frequency block were measured.

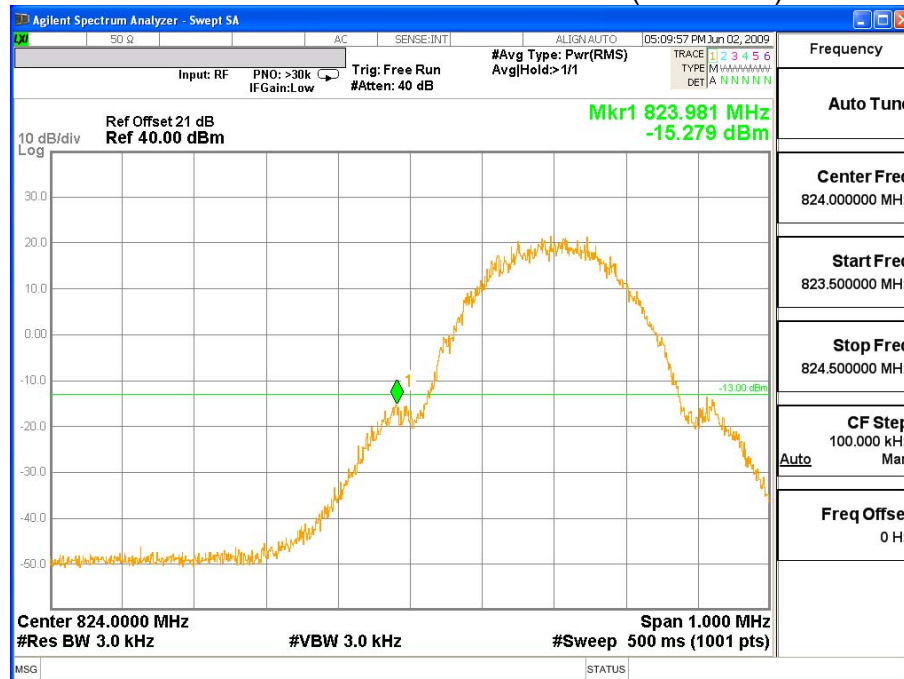
### 4.5. Test Specification

According to Part 2.1049, 22.917,24.238.

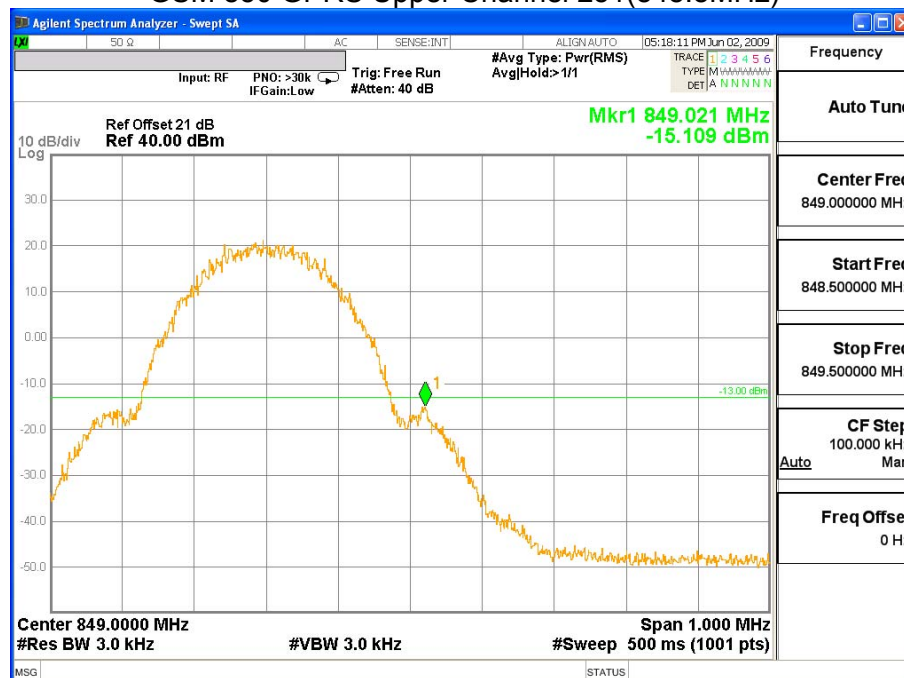
#### 4.6. Test Result of Spurious Emission At Antenna Terminals (+/-1MHz)

|                |                                                  |           |     |
|----------------|--------------------------------------------------|-----------|-----|
| Product        | Notebook                                         |           |     |
| Test Mode      | Spurious Emission At Antenna Terminals (+/-1MHz) |           |     |
| Date of Test   | 2009/06/01                                       | Test Site | CTR |
| Test Condition | Block Edge Test (GSM 850 GPRS)                   |           |     |

GSM 850 GPRS Lower Channel 128 (824.2MHz)

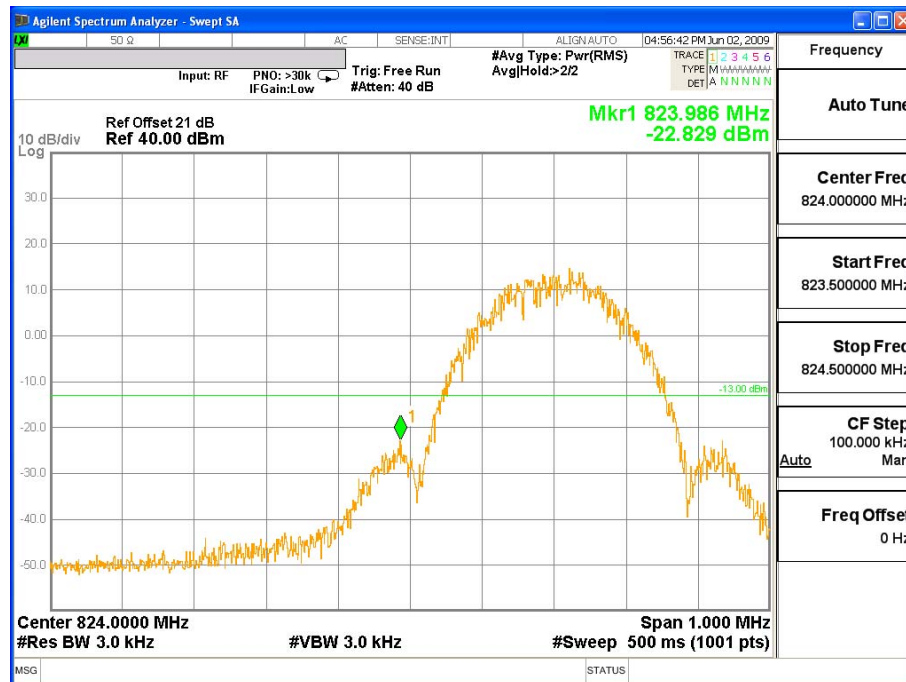


GSM 850 GPRS Upper Channel 251 (848.8MHz)

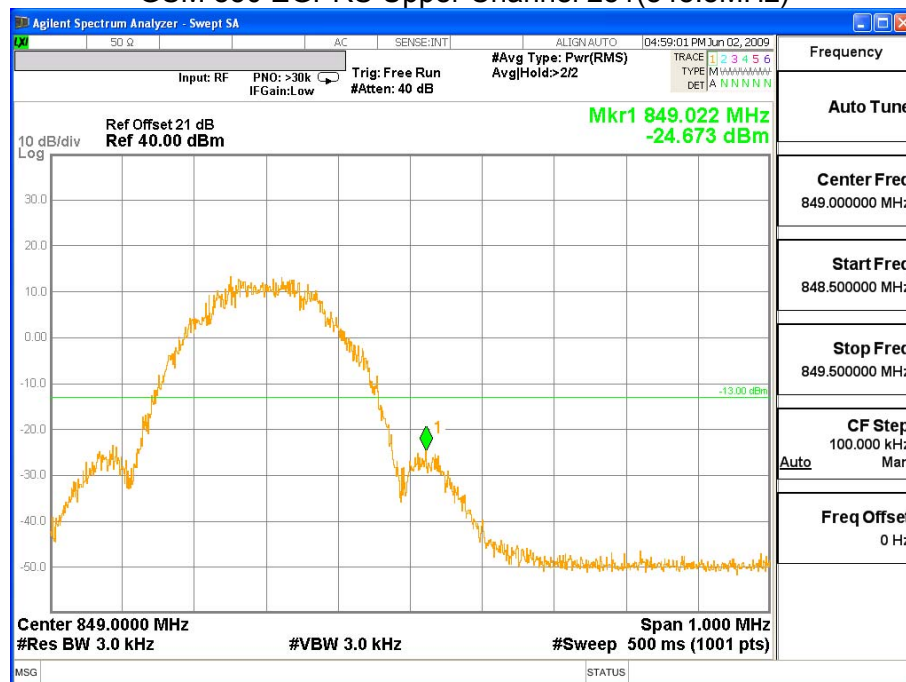


|                |                                                  |           |     |
|----------------|--------------------------------------------------|-----------|-----|
| Product        | Notebook                                         |           |     |
| Test Mode      | Spurious Emission At Antenna Terminals (+/-1MHz) |           |     |
| Date of Test   | 2009/06/01                                       | Test Site | CTR |
| Test Condition | Block Edge Test (GSM 850 EGPRS)                  |           |     |

### GSM 850 EGPRS Lower Channel 128 (824.2MHz)

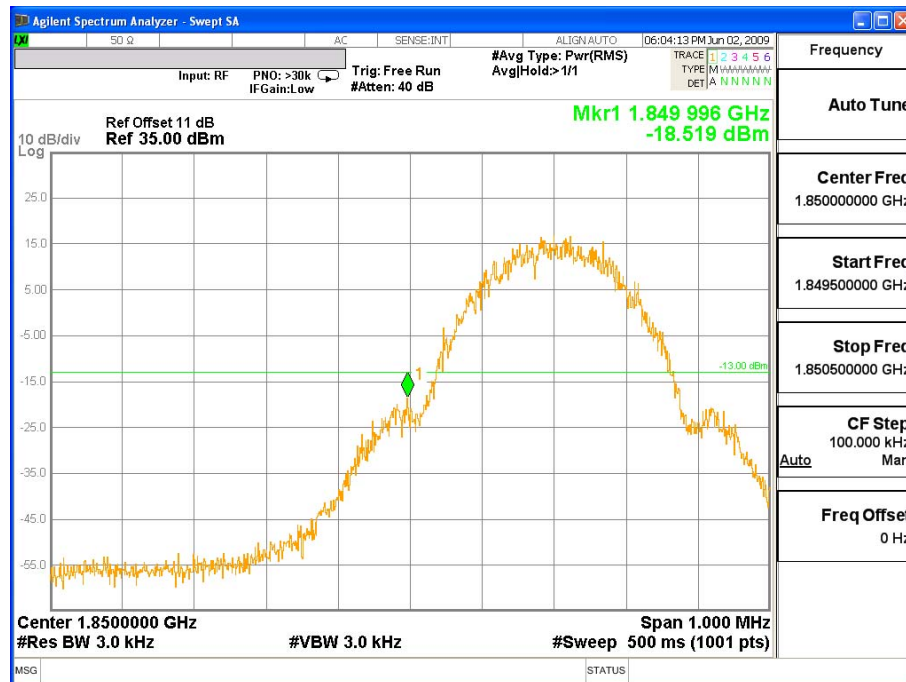


### GSM 850 EGPRS Upper Channel 251(848.8MHz)



|                |                                                  |           |     |
|----------------|--------------------------------------------------|-----------|-----|
| Product        | Notebook                                         |           |     |
| Test Mode      | Spurious Emission At Antenna Terminals (+/-1MHz) |           |     |
| Date of Test   | 2009/06/01                                       | Test Site | CTR |
| Test Condition | Block Edge Test (PCS 1900 GPRS)                  |           |     |

### PCS 1900 GPRS Lower Channel 512 (1850.2MHz)



### PCS 1900 GPRS Upper Channel 810(1910.0MHz)

