



## Test Report

Product Name : HSUPA PCI Express mini card module  
Model No : H20  
FCC ID : VRSH20

Applicant : Qisda Corporation  
Address : 157, Shan-Ying Road, Gueishan,  
Taoyuan 333, Taiwan, R.O.C.

Date of Receipt : 2008/12/08  
Issued Date : 2009/02/19  
Report No. : 08C126R-HPUSP07V01  
Reference No. : BW-9930  
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 : 2009/02/19

Report No.: 08C126R-HPUSP07V01



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

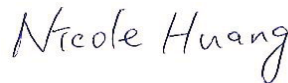
Product Name : HSUPA PCI Express mini card module  
Applicant : Qisda Corporation  
Address : 157, Shan-Ying Road, Gueishan, Taoyuan 333, Taiwan,  
: R.O.C.  
Manufacturer : Qisda Corporation  
Trade Name : Qisda  
Model No. : H20  
Rated Voltage : DC 3.3V  
Measurement Standard : FCC CFR Title 47 Part 2 22 24  
Measurement Reference : TIA/EIA 603-C  
Test Result : Complied

Test results relate only to the samples tested.

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

Documented By :



(Engineering Adm. Assistant /  
Nicole Huang)

Tested By :



(Engineer / Vorana Chen)

Approved By :



(Manager / Vincent Lin)

## TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION .....	4
1.1. EUT Description .....	4
1.2. Antenna List.....	5
1.3. Operational Description.....	6
1.4. Configuration of tested System .....	7
1.5. EUT Setup Procedures .....	7
1.6. Test Facility .....	8
1.7. Type of Emission .....	9
2. Peak Power Output .....	10
2.1. Test Equipment.....	10
2.2. Test Setup .....	10
2.3. Limits .....	11
2.4. Test Procedure.....	11
2.5. Test Specification .....	11
2.6. Test Result of Peak Power Output.....	12
3. Occupied Bandwidth.....	16
3.1. Test Equipment.....	16
3.2. Test Setup .....	16
3.3. Test Procedure.....	16
3.4. Test Specification .....	17
3.5. Test Result of Occupied Bandwidth .....	18
4. Spurious Emission At Antenna Terminals (+/-1MHz) .....	38
4.1. Test Equipment.....	38
4.2. Setup .....	38
4.3. Limits .....	39
4.4. Test Procedure.....	39
4.5. Test Specification .....	39
4.6. Test Result of Spurious Emission At Antenna Terminals (+/-1MHz).....	40
5. Spurious Emission .....	50
5.1. Test Equipment.....	50
5.2. Test Setup .....	51
5.3. Limits .....	51
5.4. Test Procedure.....	52
5.5. Test Specification .....	52
5.6. Test Result of Spurious Emission .....	53
6. Frequency Stability Under Temperature & Voltage Variations .....	93
6.1. Test Equipment .....	93
6.2. Test Setup .....	93
6.3. Limits.....	93
6.4. Test Procedure .....	94
6.5. Test Specification.....	94
6.6. Test Result of Frequency Stability Under Temperature Variations .....	95
7. EMI Reduction Method During Compliance Testing .....	105
<b>Attachment 1: EUT Test Photographs</b>	
<b>Attachment 2: EUT Detailed Photographs</b>	

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	HSUPA PCI Express mini card module
Model No.	H20
Trade Name	Qisda
IMEI No.	353030020000741
FCC ID.	VRSH20
Antenna Type	PIFA
TX Frequency	824MHz~849MHz(GSM 850/WCDMA Band V) 1850MHz ~ 1910MHz(PCS 1900/WCDMA Band II)
Rx Frequency	869MHz~894MHz(GSM 850/WCDMA Band V) 1930MHz ~ 1990MHz(PCS 1900/WCDMA Band II)
Function	GPRS/EGPRS/WCDMA/HSDPA/HSUPA
Hardware version	4H.0JA01.S05
Software version	1.0

## 1.2. Antenna List

No.	Antenna Type	Model No.	Peak Gain
1	PIFA	TN12R	-3.11 dBi
2	PIFA	M860TU	0.82 dBi
3	PIFA	M770SU	2.79 dBi
4	PIFA	M760S	1.70 dBi
5	PIFA	M760J	1.70 dBi
6	PIFA	M740S	2.83 dBi
7	PIFA	M740J	2.83 dBi
8	PIFA	M735T	2.02 dBi
9	PIFA	M730T	1.22 dBi
10	PIFA	M720T	1.11 dBi
11	PIFA	M810L-1-2	2.49 dBi
12	PIFA	M810L-1-2	2.12 dBi
13	PIFA	W760S	1.7 dBi
14	PIFA	T120R/T	-3.33 dBi
15	PIFA	R130T	2.12 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 6 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.

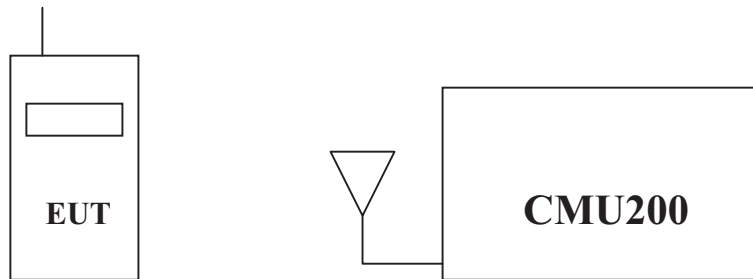
The EUT provide all functions described as above. The EUT is tested with maximum rated TX power via the Base Station simulator.

Quietek 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:

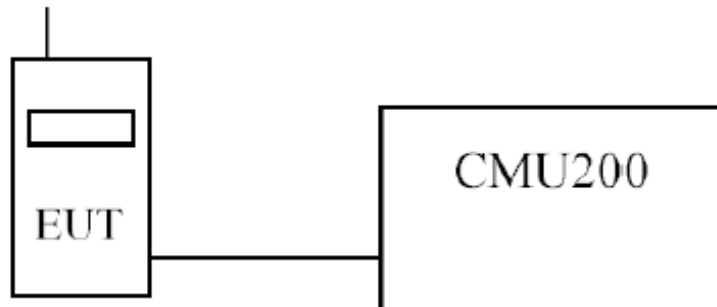
Test Mode:	GSM 850 GPRS
	GSM 850 EGPRS
	PCS 1900 GPRS
	PCS 1900 EGPRS
	WCDMA BAND V
	WCDMA BAND V HSDPA
	WCDMA BAND V HSUPA
	WCDMA BAND II
	WCDMA BAND II HSDPA
	WCDMA BAND II HSUPA

## 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 1.4
- (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	21
Humidity (%RH)	25-75	53
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: Quietek Corporation

LinKou Testing Laboratory:  
 No. 5, Ruei-Shu Valley, Ruei-Ping Tsuen,  
 Lin-Kou Shiang, Taipei,  
 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

GPRS/EGPRS: 300KG7W

WCDMA/HSDPA/HSUPA: 5M00F9W

## 2. Peak Power Output

### 2.1. Test Equipment

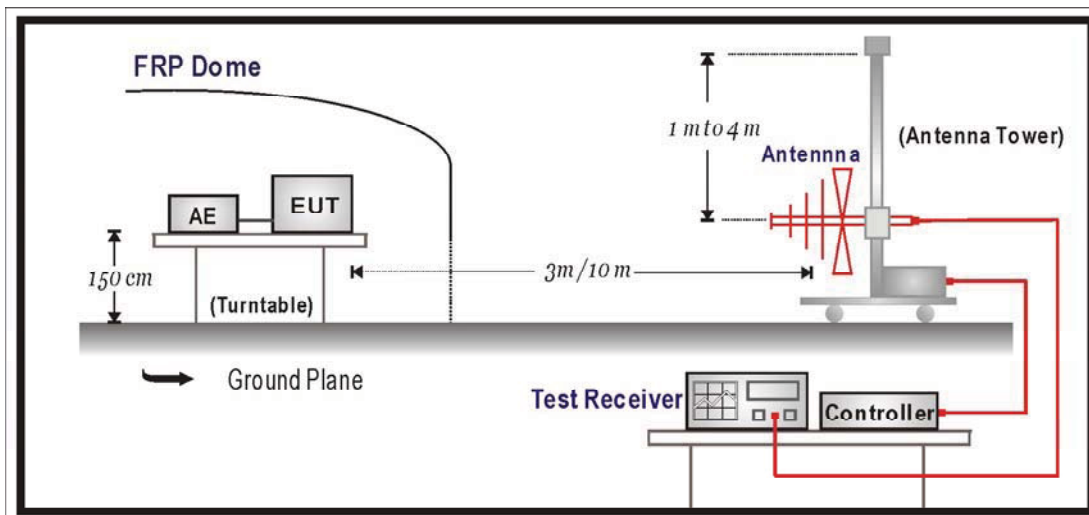
The following test equipments are used during the radiated emission test:

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	Apr., 2008
	Spectrum Analyzer	Agilent	N9020A/ MY48010570	Apr., 2008
	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May., 2008
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May., 2008
	Horn Antenna	ETS	3115 / 0005-6160	Jul., 2008
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	Jul., 2008

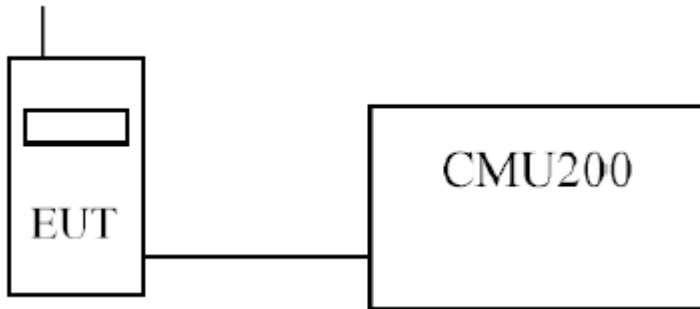
- Note: 1. All equipments that need to be calibrated are with calibration period of 1 year.  
 2. Mark "X" test instruments are used to measure the final test results.

### 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 (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	HSUPA PCI Express mini card module		
Test Mode	RF Output Power (Conducted)		
Date of Test	2009/02/18	Test Site	CTR

GPRS 850				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	32.23	0.4	32.63	1.83
836.4	32.03	0.4	32.43	1.75
848.8	31.81	0.4	32.21	1.66
GPRS 1900				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
1850.2	28.45	0.6	29.05	0.80
1880	28.3	0.6	28.90	0.78
1909.8	28.36	0.6	28.96	0.79
EGPRS 850				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	26.62	0.4	27.02	0.50
836.4	26.47	0.4	26.87	0.49
848.8	26.41	0.4	26.81	0.48
EGPRS 1900				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
1850.2	24.93	0.6	25.53	0.36
1880	24.82	0.6	25.42	0.35
1909.8	24.79	0.6	25.39	0.35

WCDMA V(Power Control: All Up)				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	22.67	0.4	23.07	0.20
836.4	22.44	0.4	22.84	0.19
848.8	22.78	0.4	23.18	0.21
WCDMA II(Power Control: All Up)				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
1850.2	22.54	0.6	23.14	0.21
1880	22.06	0.6	22.66	0.18
1909.8	22.55	0.6	23.15	0.21

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)
824.2	23.21	0.21	22.39	0.17	22.28	0.17	21.73	0.15
836.4	22.83	0.19	22.15	0.16	22.09	0.16	21.56	0.14
848.8	22.92	0.20	22.40	0.17	22.27	0.17	21.86	0.15
$\beta_c$	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 Set5 configuration.

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)
1850.2	23.79	0.24	22.91	0.20	23.80	0.24	23.35	0.22
1880	22.21	0.17	21.68	0.15	22.27	0.17	21.53	0.14
1909.8	23.59	0.23	22.81	0.19	23.49	0.22	23.37	0.22
$\beta_c$	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 V HSUPA										
Frequency (MHz)	Set 1		Set 2		Set 3		Set 4		Set 5	
	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)
824.2	22.39	0.17	22.86	0.19	22.08	0.16	22.88	0.19	23.08	0.20
836.4	22.14	0.16	22.68	0.19	22.12	0.16	22.69	0.19	22.58	0.18
848.8	22.42	0.17	23.00	0.20	22.35	0.17	22.82	0.19	22.83	0.19
$\beta_c$	11		6		15		2		15	
$\beta_d$	15		15		9		15		15	
$\Delta_{ACK}, \Delta_{NACK} \Delta_{CQI}$	8		8		8		8		8	
AGV	20		12		15		17		21	
Cable loss: 0.4dB for 850MHz ; 0.6dB for 1900MHz										

All HSUPA testing was done in Set5 configuration.

WCDMA II HSUPA										
Frequency (MHz)	Set 1		Set 2		Set 3		Set 4		Set 5	
	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)	Power (dBm)	Power (Watts)
1850.2	23.64	0.23	23.87	0.24	23.74	0.24	23.23	0.21	23.74	0.24
1880	22.12	0.16	22.63	0.18	22.41	0.17	22.41	0.17	22.77	0.19
1909.8	23.66	0.23	23.51	0.22	23.52	0.22	23.52	0.22	23.58	0.23
$\beta_c$	11		6		15		2		15	
$\beta_d$	15		15		9		15		15	
$\Delta_{ACK}, \Delta_{NACK} \Delta_{CQI}$	8		8		8		8		8	
AGV	20		12		15		17		21	
Cable loss: 0.4dB for 850MHz ; 0.6dB for 1900MHz										

Note: All HSUPA testing was done in Set5 configuration.

### 3. Occupied Bandwidth

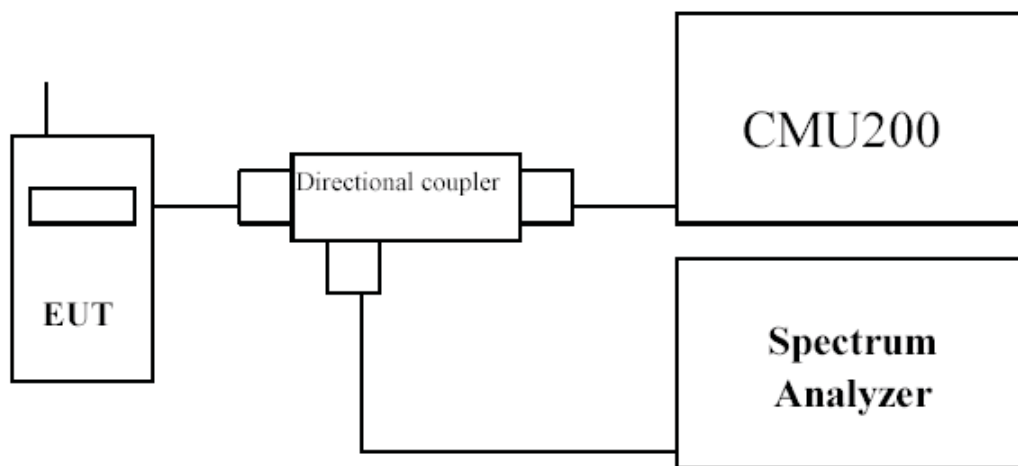
#### 3.1. Test Equipment

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

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	Agilent	N9020A/ MY48010570	Apr., 2008
Universal Radio Communication Tester	R & S	CMU200 / 104846	Apr., 2008
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.



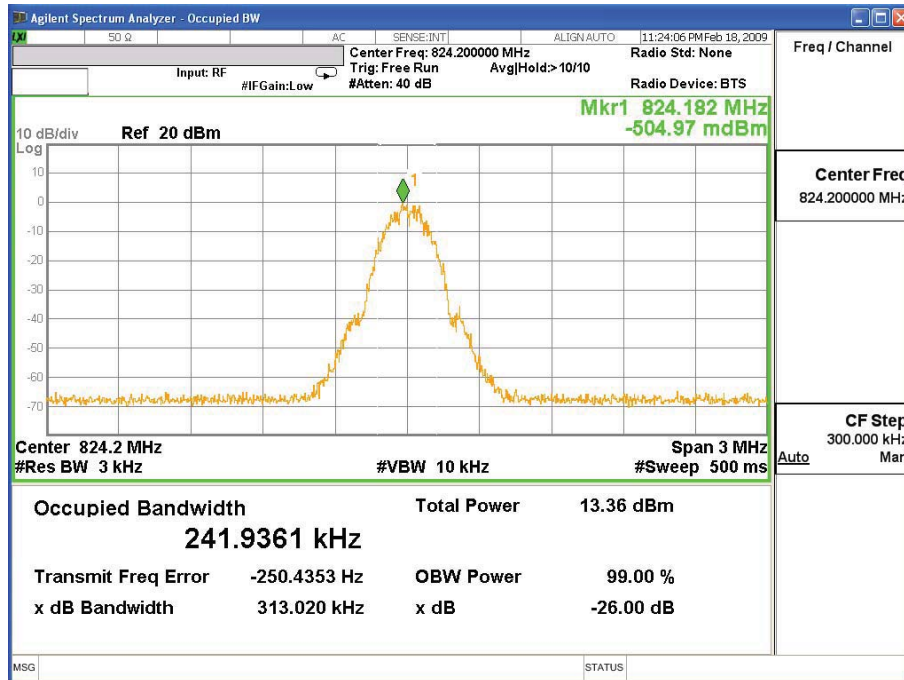
### **3.4. Test Specification**

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

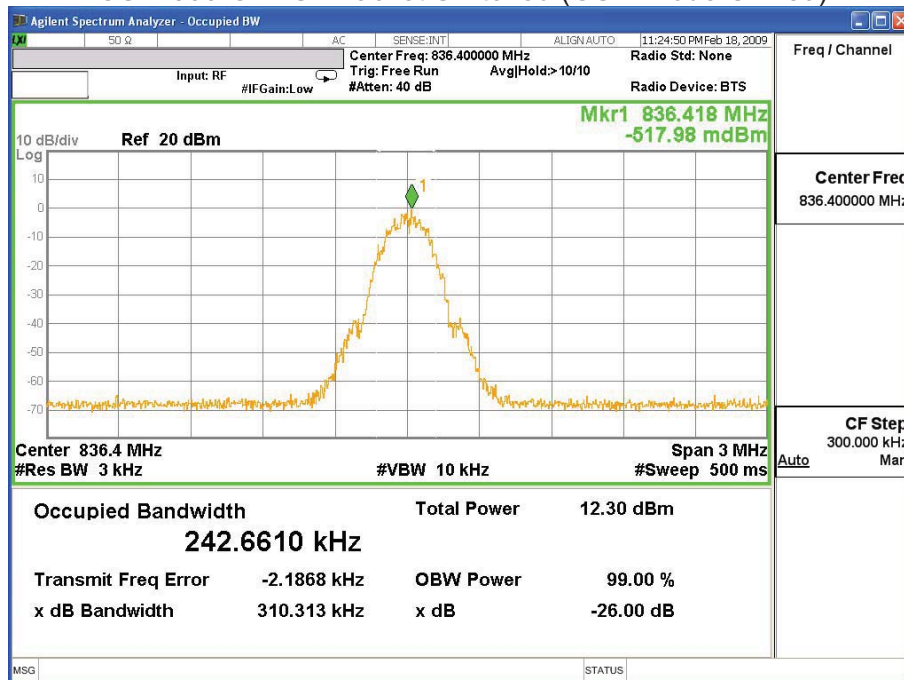
### 3.5. Test Result of Occupied Bandwidth

Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	GSM 850 GPRS		

GSM 850 GPRS - Packet Switched (GSM Mode CH 128)

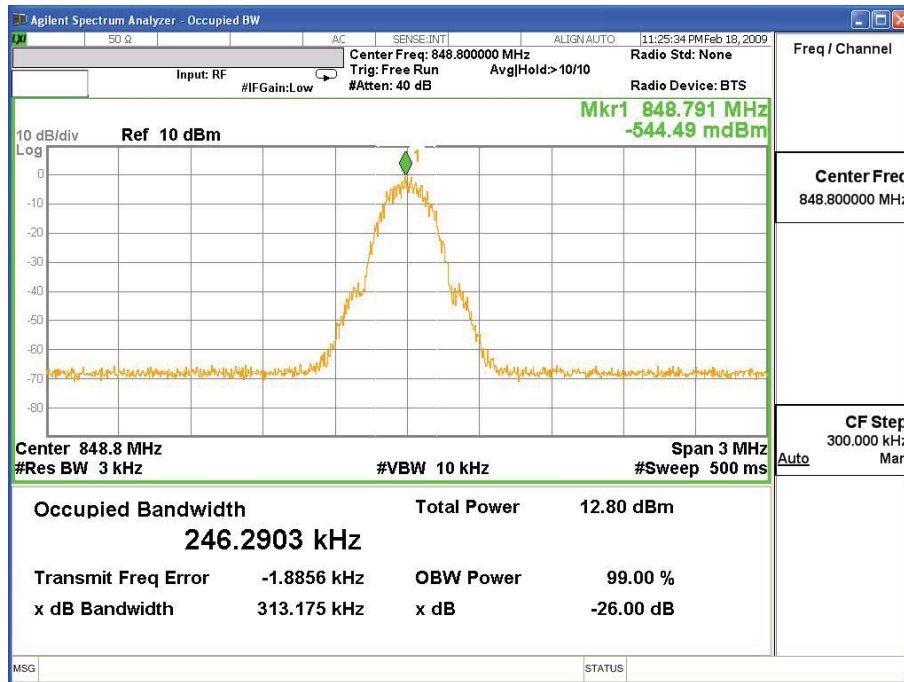


GSM 850 GPRS - Packet Switched (GSM Mode CH189)



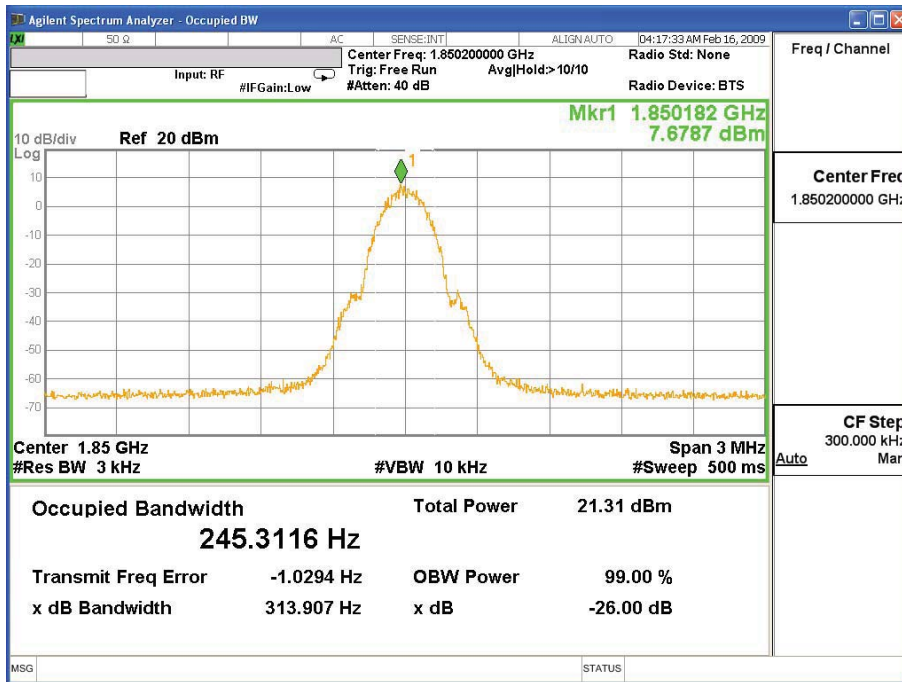
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	GSM 850 GPRS		

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

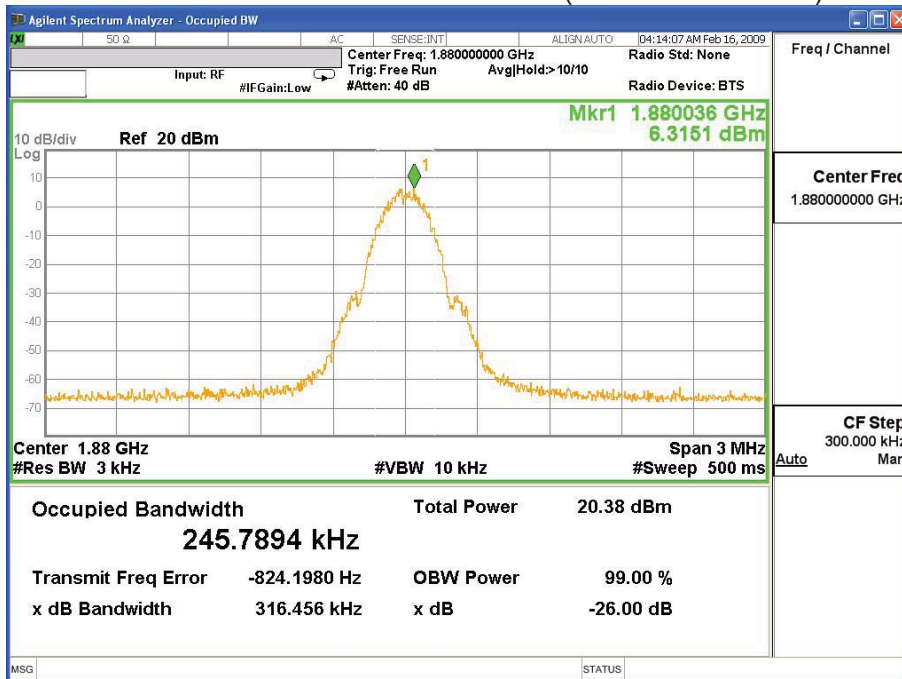


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	PCS1900 GPRS		

PCS1900 GPRS - Packet Switched (PCS Mode CH 512)

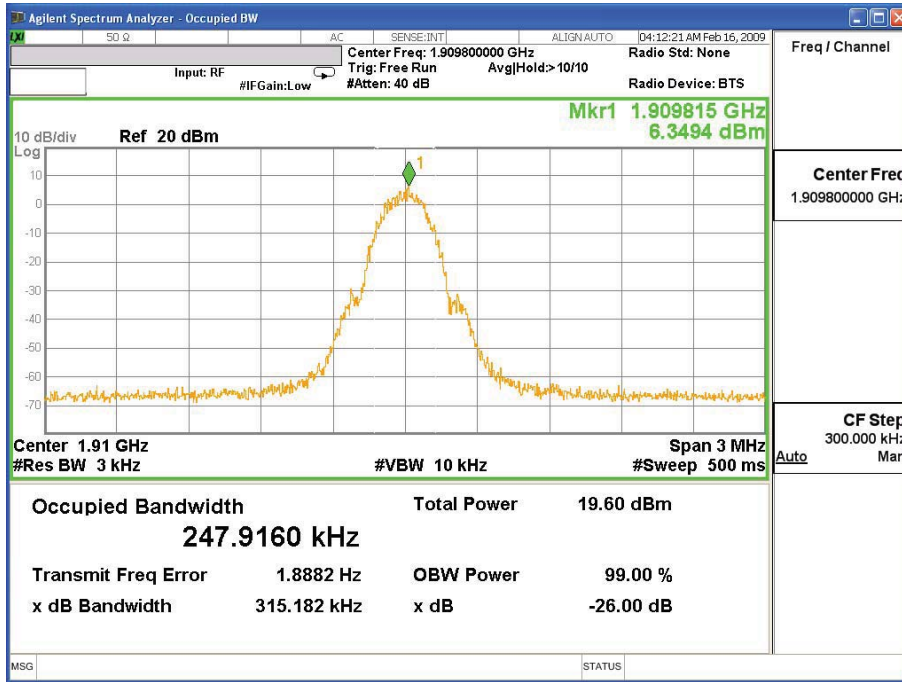


PCS1900 GPRS - Packet Switched (PCS Mode CH661)



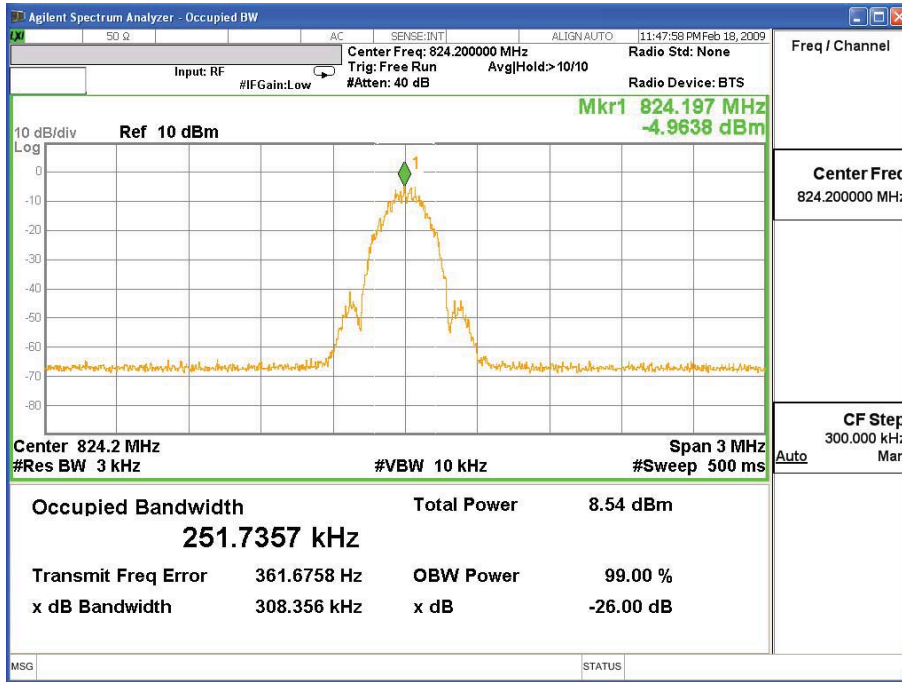
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	PCS1900 GPRS		

PCS1900 GPRS - Packet Switched (PCS Mode CH 810)

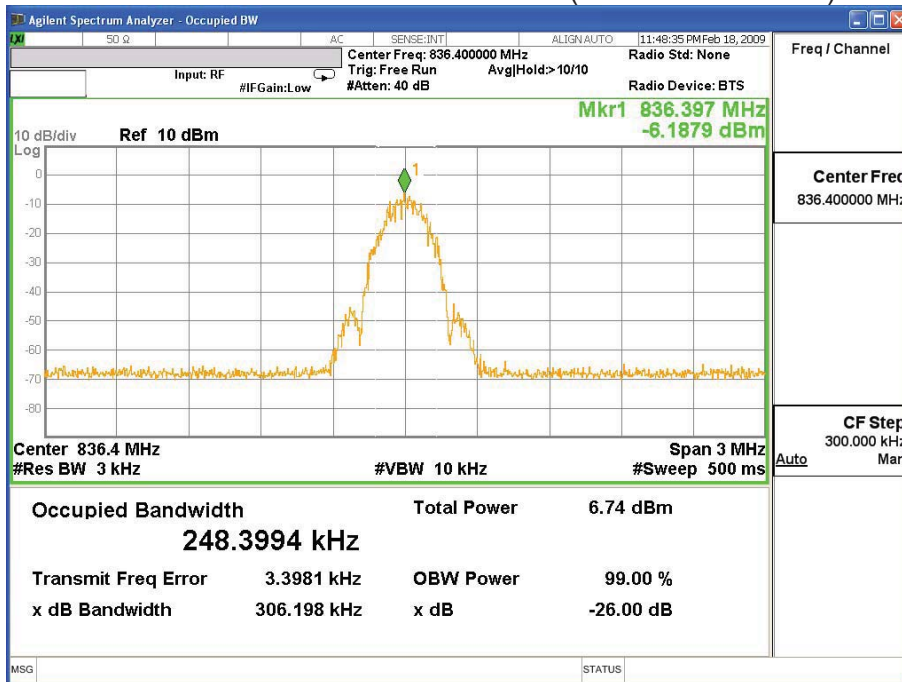


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	GSM 850 EGPRS		

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

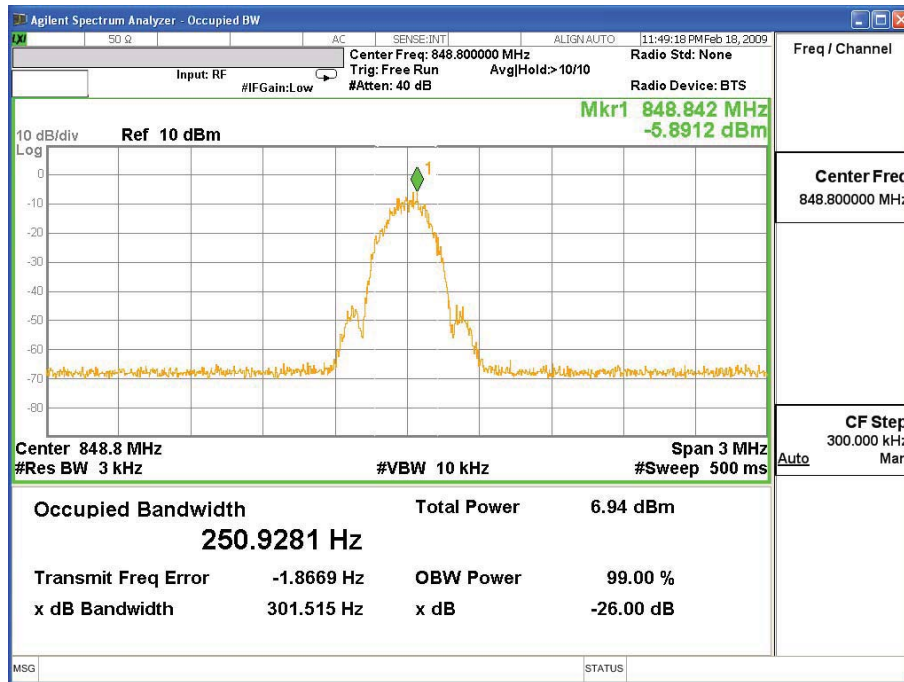


GSM 850 EGPRS - Packet Switched (GSM Mode CH189)



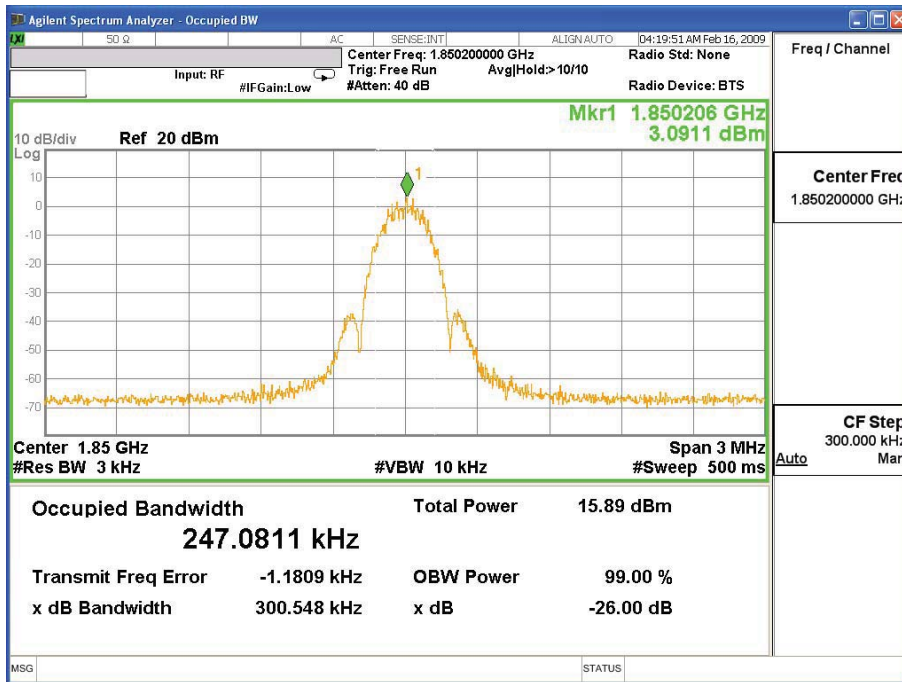
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	GSM 850 EGPRS		

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

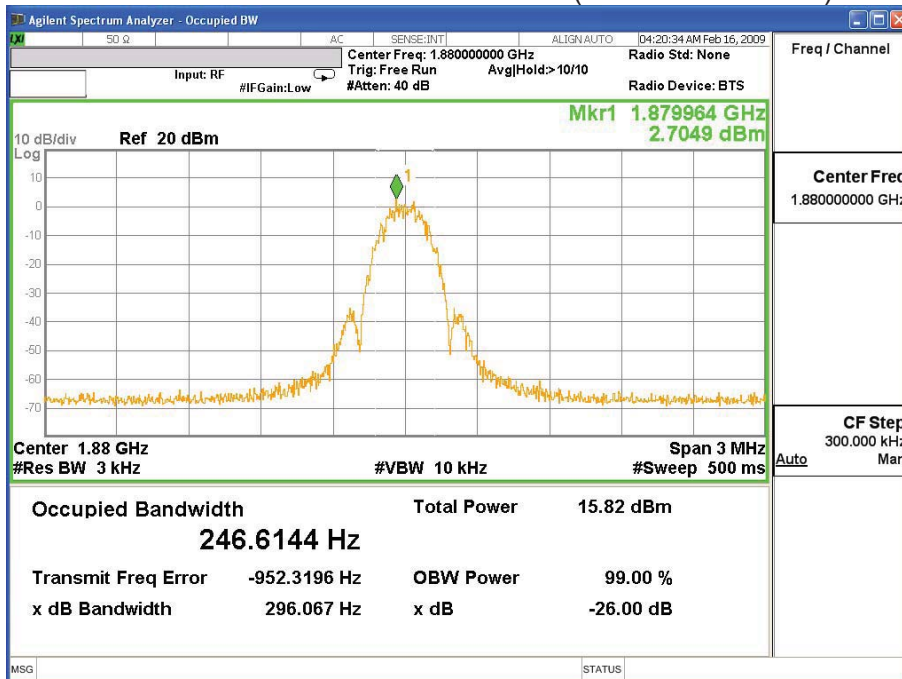


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	PCS1900 EGPRS		

PCS1900 EGPRS - Packet Switched (PCS Mode CH 512)



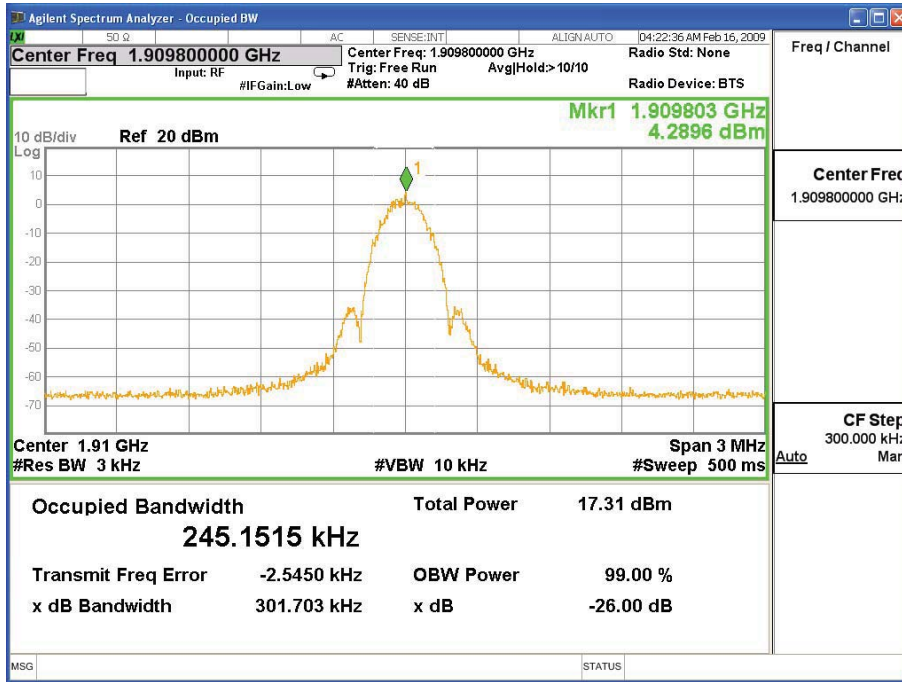
PCS1900 EGPRS - Packet Switched (PCS Mode CH661)





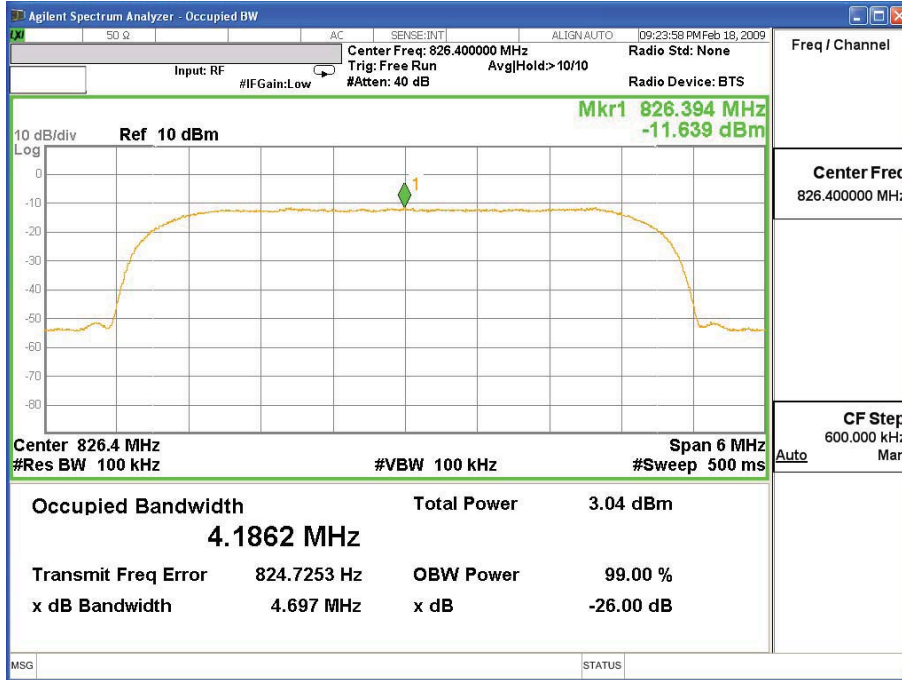
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	PCS1900 EGPRS		

PCS1900 EGPRS - Packet Switched (PCS Mode CH 810)

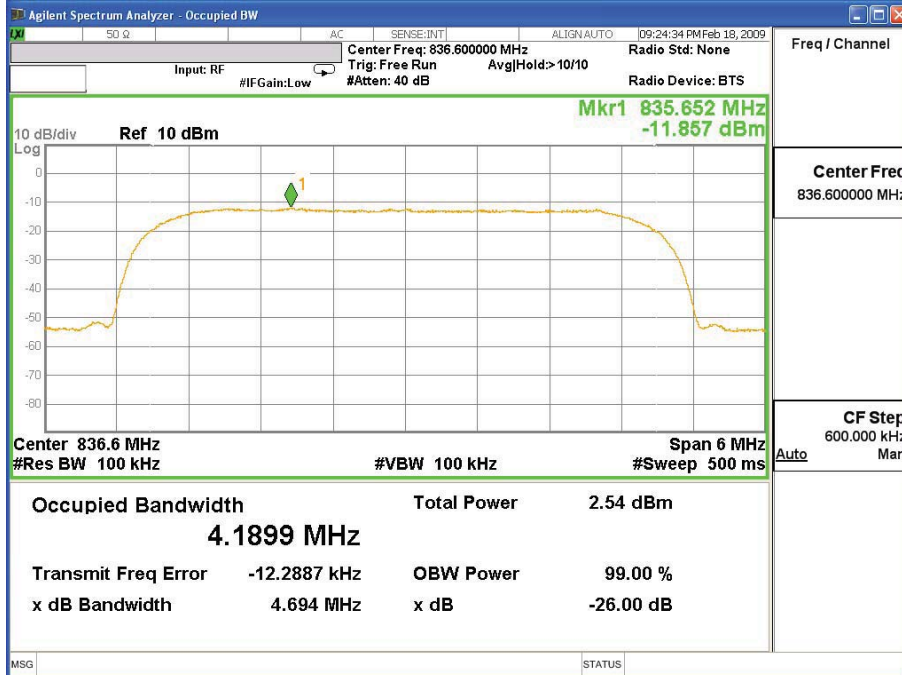


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V		

WCDMA BAND V - Packet Switched (WCDMA Mode CH 4132)

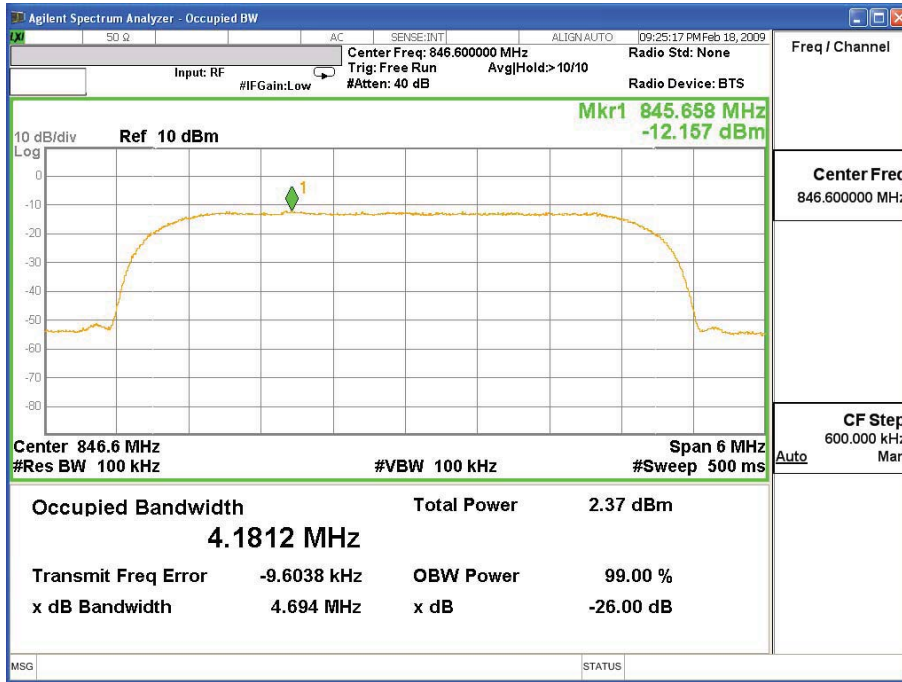


WCDMA BAND V - Packet Switched (WCDMA Mode CH 4183)



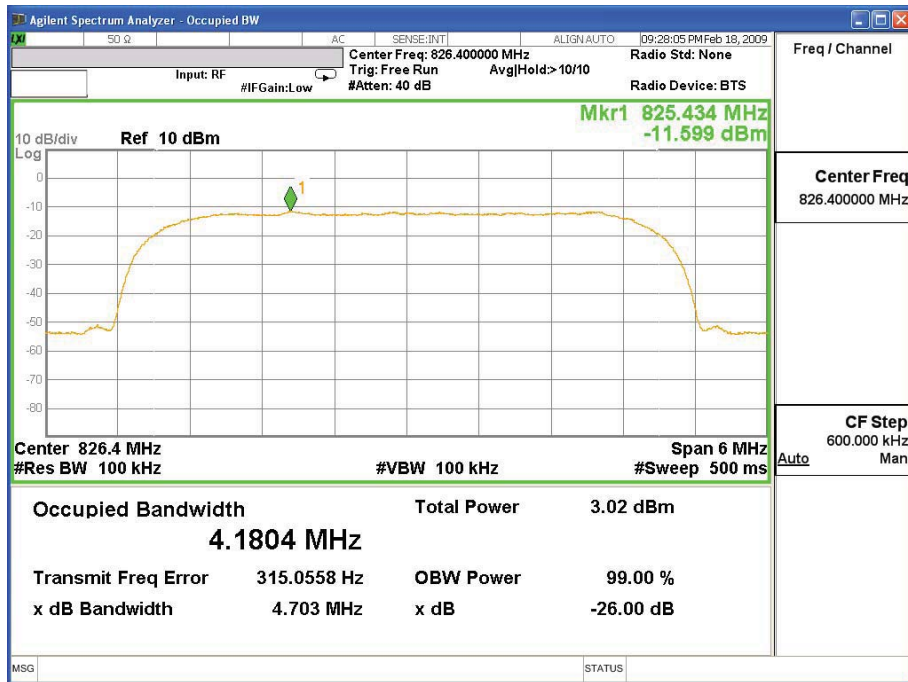
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V		

WCDMA BAND V - Packet Switched (WCDMA Mode CH 4233)

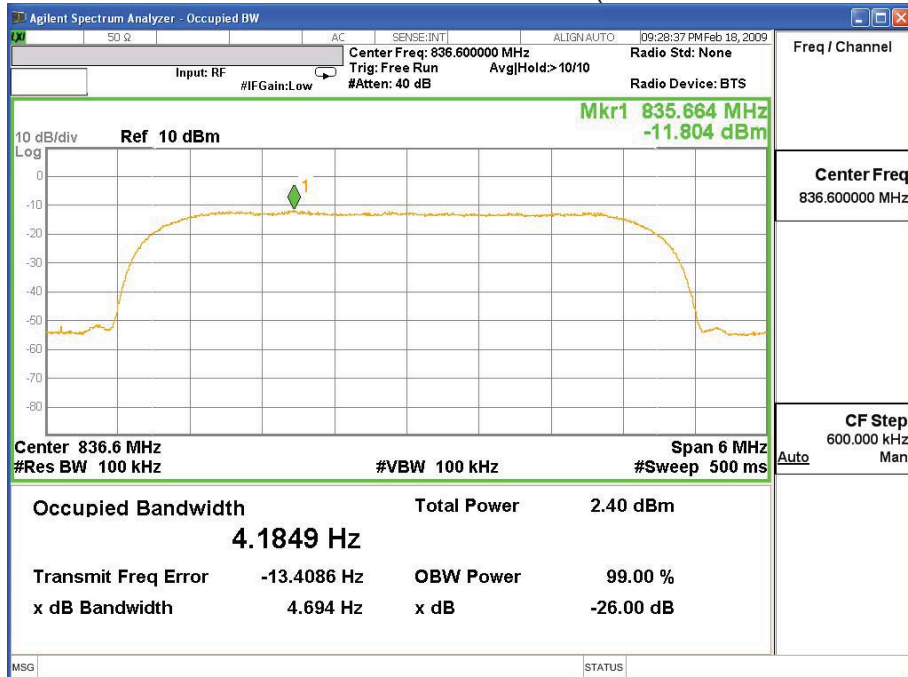


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V HSDPA		

WCDMA BAND V HSDPA - Packet Switched (HSDPA Mode CH 4132)

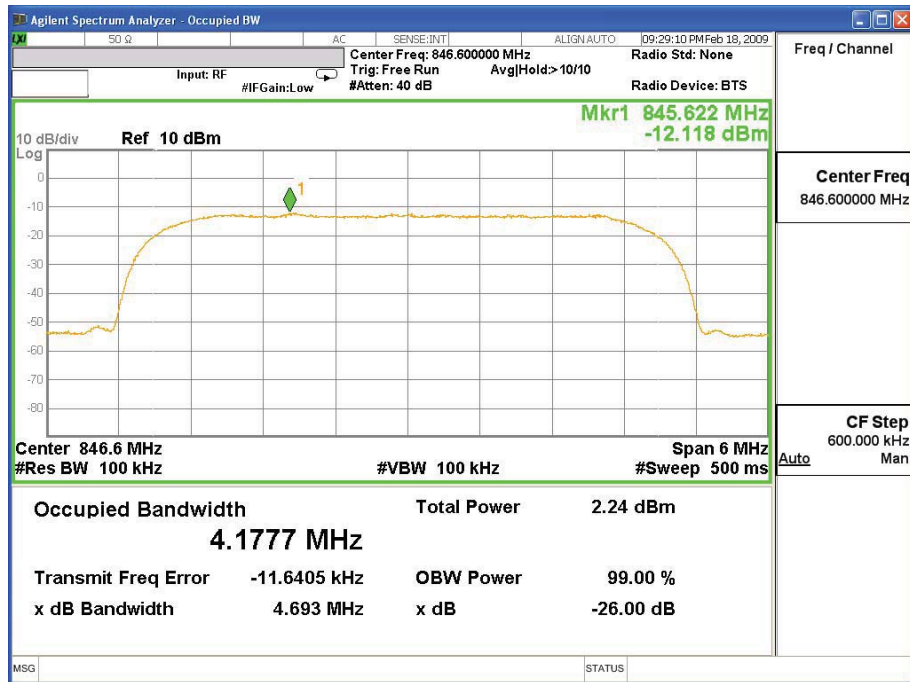


WCDMA BAND V HSDPA - Packet Switched (HSDPA Mode CH 4183)



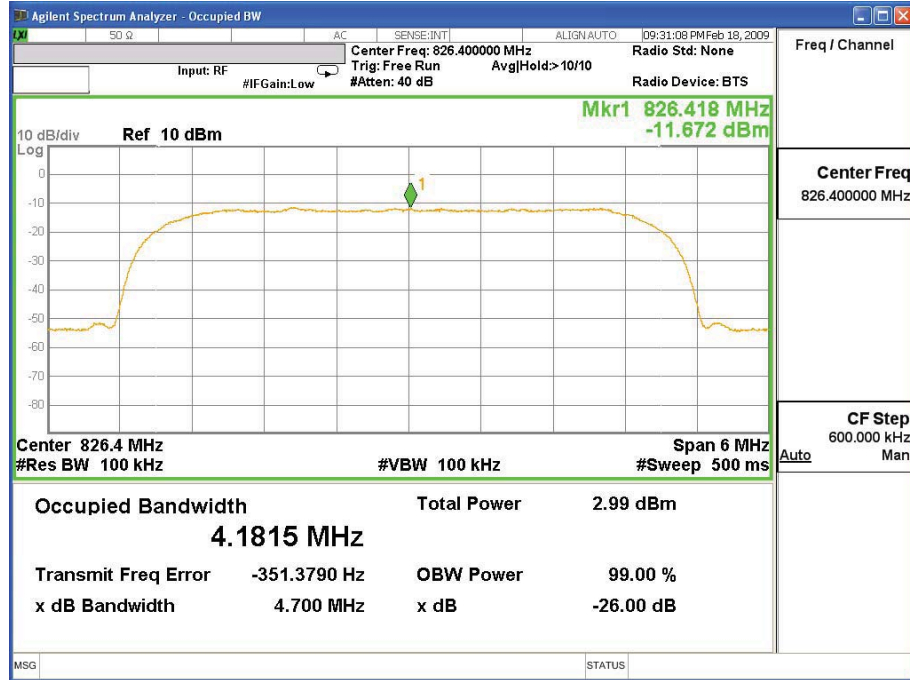
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V HSDPA		

WCDMA BAND V HSDPA - Packet Switched (HSDPA Mode CH 4233)

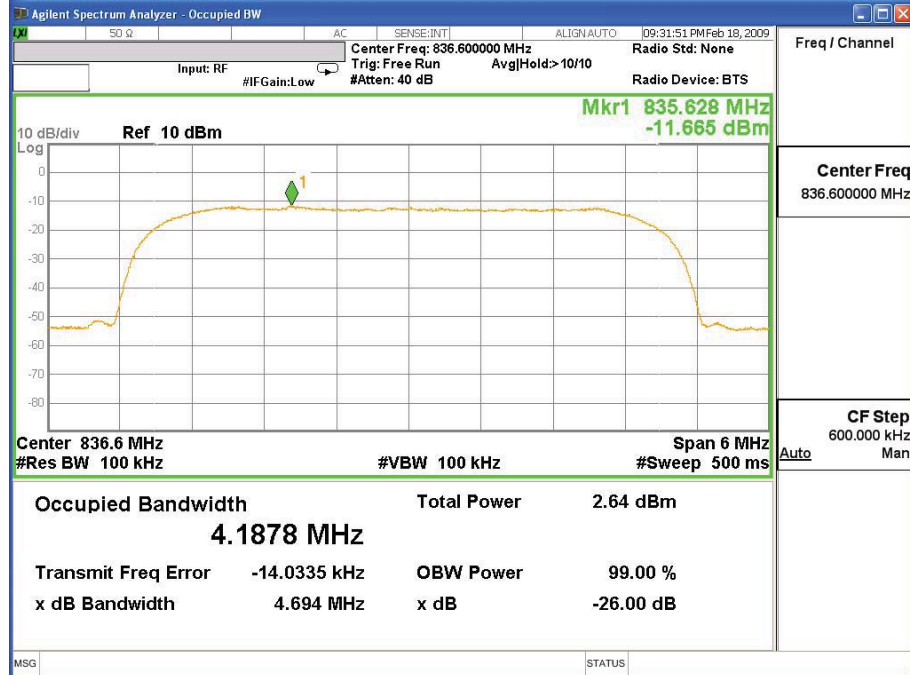


Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V HSUPA		

WCDMA BAND V HSUPA - Packet Switched (HSUPA Mode CH 4132)

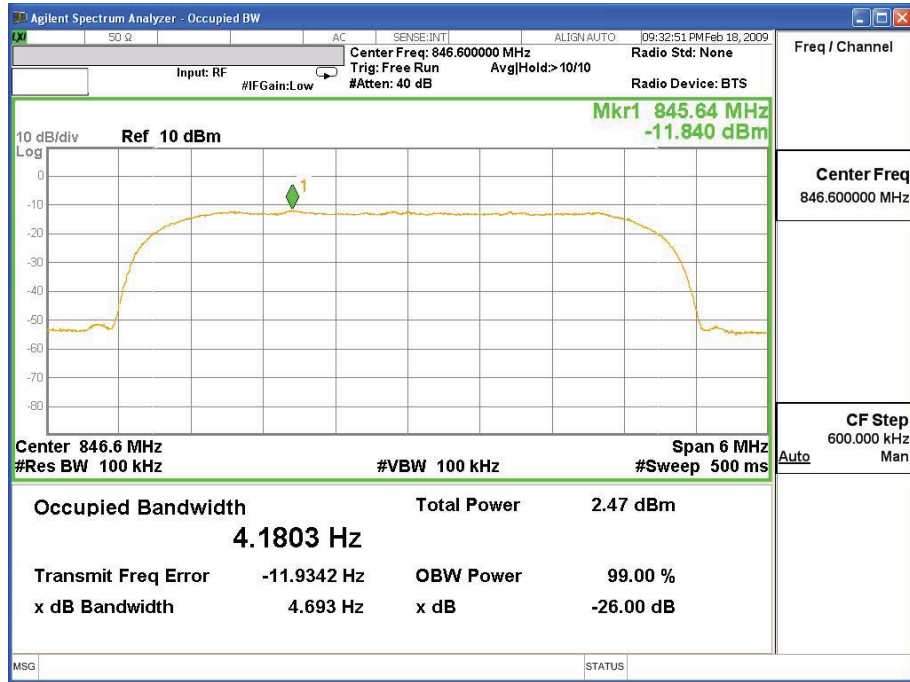


WCDMA BAND V HSUPA - Packet Switched (HSUPA Mode CH 4183)



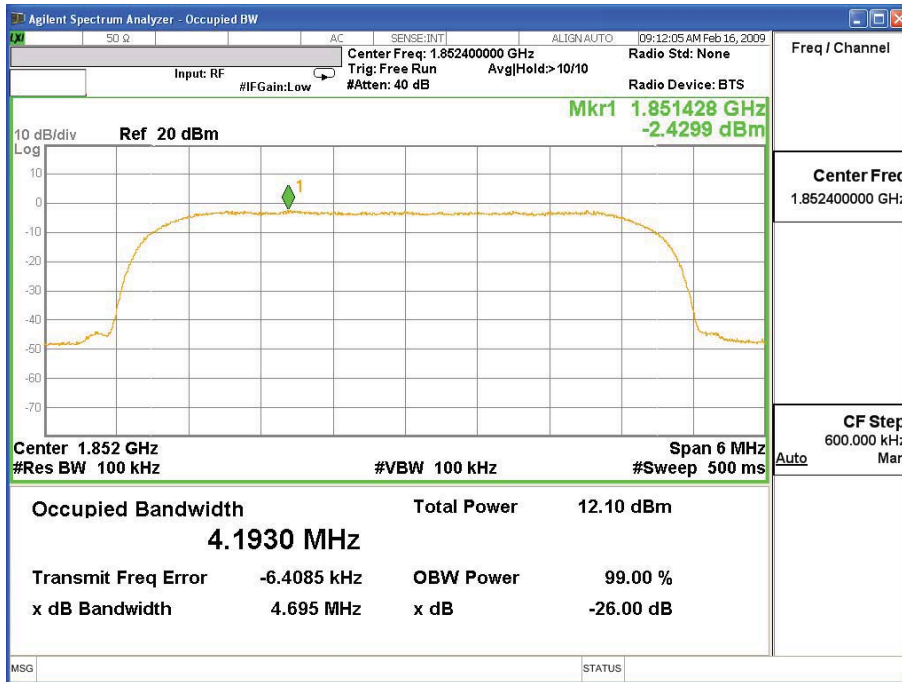
Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND V HSUPA		

WCDMA BAND V HSUPA - Packet Switched (HSUPA Mode CH 4233)



Product	HSUPA PCI Express mini card module		
Test Mode	Occupied Bandwidth		
Date of Test	2009/02/18	Test Site	CTR
Test Condition	WCDMA BAND II		

WCDMA BAND II - Packet Switched (WCDMA Mode CH 9262)



WCDMA BAND II - Packet Switched (WCDMA Mode CH 9400)

