



Product Service

## FCC & IC - TEST REPORT

Report Number : **68.950.12.009.01** Date of Issue: 24 February 2012

Model : **NPCC-1**

Product Type : Notebook Computer

Applicant : Novero Canada Inc

Address : 19 allstate parkway, suite 300, L3R 5A4 Markham

Ontario Canada

Production Facility : Wanlida Group Co., Ltd.

Address : Wanlida Industry Zone, Nanjing, Fujian, China 363601

Test Result :  **Positive**  **Negative**

Total pages including  
Appendices : 16

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

#### Test site1:

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch  
6th Floor, H Hall,  
Century Craftwork Culture Square,  
No. 4001, Fuqiang Road,  
Futian District 518048,  
Shenzhen,P.R.C.

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

#### Test site2:

Company name: Audix Technology (shenzhen) Co.,Ltd  
Block Shenzhen, Science & Industry Park,  
Nantou, Shenzhen,  
Guangdong,  
China

Telephone: 86 755 2663 9496

Fax: 86 755 2663 2877



### 3 Description of the Equipment Under Test

#### Description of the Equipment Under Test

Product: Notebook Computer

Model no.: NPCC-1

Brand Name NOVERO

Options and accessories: NIL

Rating: DC 7.4V  
 Charged by external adapter MPA-631:  
 Adaptor Input: 100-240VAC, 50/60Hz, 1A Max  
 Adpator Ouput: 12VDC, 2.5A

Antenna: PCB printing antenna, NOT accessible by end user  
 Gain: 1dBi

RF Transmission  
 Frequency: 2402-2480MHz

Description of the EUT: A certified wireless module was installed in this NPCC-1 Notebook Computer

The information of wireless module:  
 FCC ID: QDS-BRCM1043  
 IC ID: 4324A-BRCM1043  
 Applicant: Broadcom Corporation  
 Address: 190 Mathilda Place Sunnyvale, CA 94086, United States.

#### Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
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#### 4 Summary of Test Standards

<b>Test Standards</b>	
FCC Part 15 Subpart C, Intentional Radiators	PART 15 – RADIO FREQUENCY DEVICES Subpart C – Intentional Radiators
RSS-210 Issue 8	RSS-210 — Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment



## 5 Summary of Test Results

Technical Requirements					
FCC Part 15 Subpart C, RSS-210					
Test Condition	Pages	Test Result			Test Location
		Pass	Fail	N/A	
15.247 (b) (1) Conducted peak output power RSS-210 A8.4	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(d) 15.209 Spurious radiated emissions RSS-210 A8.5	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2



## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for the Class 2 permissive change of FCC ID: QDS-BRCM1043 and IC ID: 4324A-BRCM1043 to comply with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules and RSS-210. Therefore, only 2 tests items (Conducted Peak Power and Radiated Spurious Emission) were repeated to verify the compliance of change, and the test results are listed in the report.

### SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements.


- **Does not** fulfill the general approval requirements.

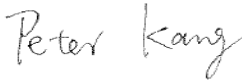
Sample Received Date: 15 December 2011


Testing Start Date: 17 December 2011

Testing End Date: 29 December 2011

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch -

<b>Tested By</b>	<b>2012-01-24</b>	<b>Sunny Lu</b>	
<b>Test Lab Engineer</b>	<b>Date</b>	<b>Name</b>	<b>Signature</b>

<b>Prepared By</b>	<b>2012-01-24</b>	<b>Peter Kang</b>	
<b>EMC Project Engineer</b>	<b>Date</b>	<b>Name</b>	<b>Signature</b>

<b>Reviewed By</b>	<b>2012-01-24</b>	<b>Ken Li</b>	
<b>EMC Project Manager</b>	<b>Date</b>	<b>Name</b>	<b>Signature</b>

## 7 Technical Requirement

### 7.1 Conducted peak output power

#### Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

#### Limits for conducted peak output power measurements

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

### Conducted peak output power

#### Bluetooth Mode GFSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH3 2402MHz	-1.73	Pass
CH6 2441MHz	-2.11	Pass
CH9 2480MHz	-2.89	Pass

#### Bluetooth Mode 8DPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH3 2402MHz	0.13	Pass
CH6 2441MHz	-0.20	Pass
CH9 2480MHz	-0.10	Pass

#### Bluetooth Mode $\pi/4$ -DQPSK: modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH3 2402MHz	0.48	Pass
CH6 2441MHz	0.15	Pass
CH9 2480MHz	-0.08	Pass





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## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum Analyzer	Agilent	E4446A	US44300459	2012-05-08

## 7.5 Spurious radiated emissions

### Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

### Limit

Frequency MHz	Field Strength uV/m	Field Strength dB $\mu$ V/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

## Transmitter Spurious radiated emissions

### Bluetooth Mode GFSK Modulation 2402MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
30.000	20.00	0.61	-	36.07	28.68	Vertical	40	QP	Pass
57.160	6.66	0.83	-	14.29	21.78	Horizontal	40	QP	Pass
4804.000	34.30	10.62	35.10	52.16	61.98	Horizontal	74	PK	Pass
4804.000	34.30	10.62	35.10	43.16	52.98	Horizontal	54	AV	Pass
4804.000	34.30	10.62	35.10	51.56	61.38	Vertical	74	PK	Pass
4804.000	34.30	10.62	35.10	42.56	52.38	Vertical	54	AV	Pass
7206.000	-	-	-	-	-	-	-	-	-
7206.000	-	-	-	-	-	-	-	-	-

### Bluetooth Mode GFSK Modulation 2441MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
4882.000	34.41	10.71	35.03	49.77	59.86	Horizontal	74	PK	Pass
4882.000	34.41	10.71	35.03	40.77	50.86	Horizontal	54	AV	Pass
4882.000	34.41	10.71	35.03	49.02	59.11	Vertical	74	PK	Pass
4882.000	34.41	10.71	35.03	40.02	50.11	Vertical	54	AV	Pass
7323.000	-	-	-	-	-	-	-	-	-
7323.000	-	-	-	-	-	-	-	-	-

### Bluetooth Mode GFSK Modulation 2480MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
4960.000	34.54	10.80	34.95	46.15	56.54	Horizontal	74	PK	Pass
4960.000	34.54	10.80	34.95	37.15	47.54	Horizontal	54	AV	Pass
4960.000	34.54	10.80	34.95	45.57	55.96	Vertical	74	PK	Pass
4960.000	34.54	10.80	34.95	36.57	46.96	Vertical	54	AV	Pass
7440.000	-	-	-	-	-	-	-	-	-
7440.000	-	-	-	-	-	-	-	-	-

Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

**Transmitter Spurious radiated emissions**

## Bluetooth Mode 8DPSK Modulation 2402MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
306.510	16.00	2.85	-	15.08	33.93	Vertical	43.5	QP	Pass
307.253	16.25	2.95	-	20.13	39.33	Horizontal	43.5	QP	Pass
4804.000	32.86	9.55	34.60	50.04	57.85	Horizontal	74	PK	Pass
4804.000	32.86	9.55	34.60	35.51	43.32	Horizontal	54	AV	Pass
4804.000	32.86	9.55	34.60	49.64	57.45	Vertical	74	PK	Pass
4804.000	32.86	9.55	34.60	35.16	42.97	Vertical	54	AV	Pass
7206.000	-	-	-	-	-	-	-	-	-
7206.000	-	-	-	-	-	-	-	-	-

## Bluetooth Mode 8DPSK Modulation 2441MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4882.000	32.98	9.62	34.60	46.83	54.83	Horizontal	74	PK	Pass
4882.000	32.98	9.62	34.60	33.06	41.06	Horizontal	54	AV	Pass
4882.000	32.98	9.62	34.60	45.65	53.65	Vertical	74	PK	Pass
4882.000	32.98	9.62	34.60	33.48	41.48	Vertical	54	AV	Pass
7323.000	-	-	-	-	-	-	-	-	-
7323.000	-	-	-	-	-	-	-	-	-

## Bluetooth Mode 8DPSK Modulation 2480MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4960.000	33.14	9.69	34.60	44.55	52.78	Horizontal	74	PK	Pass
4960.000	33.14	9.69	34.60	32.89	41.12	Horizontal	54	AV	Pass
4960.000	33.14	9.69	34.60	44.38	52.79	Vertical	74	PK	Pass
4960.000	33.14	9.69	34.60	32.56	40.79	Vertical	54	AV	Pass
1654.000	25.93	5.45	34.58	53.81	50.61	Horizontal	74	PK	Pass
1654.000	25.93	5.45	34.58	50.83	47.63	Horizontal	54	AV	Pass
1654.000	25.93	5.45	34.58	55.64	52.44	Vertical	74	PK	Pass
1654.000	25.93	5.45	34.58	53.15	49.95	Vertical	54	AV	Pass
7440.000	-	-	-	-	-	-	-	-	-
7440.000	-	-	-	-	-	-	-	-	-

## Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

## Transmitter Spurious radiated emissions

### Bluetooth Mode $\pi/4$ -DQPSK Modulation 2402MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
306.450	16.00	2.85	-	14.77	33.62	Vertical	43.5	QP	Pass
307.240	16.25	2.95	-	21.03	40.23	Horizontal	43.5	QP	Pass
4804.000	32.86	9.55	34.60	53.01	60.82	Horizontal	74	PK	Pass
4804.000	32.86	9.55	34.60	37.49	45.30	Horizontal	54	AV	Pass
4804.000	32.86	9.55	34.60	53.88	61.69	Vertical	74	PK	Pass
4804.000	32.86	9.55	34.60	37.68	45.49	Vertical	54	AV	Pass
7206.000	-	-	-	-	-	-	-	-	-
7206.000	-	-	-	-	-	-	-	-	-

### Bluetooth Mode $\pi/4$ -DQPSK Modulation 2441MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4882.000	32.98	9.62	34.60	52.98	60.98	Horizontal	74	PK	Pass
4882.000	32.98	9.62	34.60	37.53	45.53	Horizontal	54	AV	Pass
4882.000	32.98	9.62	34.60	53.53	61.53	Vertical	74	PK	Pass
4882.000	32.98	9.62	34.60	37.60	45.60	Vertical	54	AV	Pass
7323.000	-	-	-	-	-	-	-	-	-
7323.000	-	-	-	-	-	-	-	-	-

### Bluetooth Mode $\pi/4$ -DQPSK Modulation 2480MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4960.000	34.54	10.80	34.95	44.05	54.44	Horizontal	74	PK	Pass
4960.000	34.54	10.80	34.95	35.15	45.54	Horizontal	54	AV	Pass
4960.000	34.54	10.80	34.95	45.17	55.56	Vertical	74	PK	Pass
4960.000	34.54	10.80	34.95	36.27	46.66	Vertical	54	AV	Pass
7440.000	-	-	-	-	-	-	-	-	-
7440.000	-	-	-	-	-	-	-	-	-

#### Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.



## Receiver Spurious radiated emissions

Bluetooth Receiver Mode GFSK/8DPSK/ $\pi$ /4-DQPSK modulation Test Result (Worst case)

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dB $\mu$ V	Emission Level dB $\mu$ V/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
297.360	14.69	2.58	26.38	34.34	25.23	Horizontal	43.50	QP	Pass
504.220	18.71	3.27	28.03	34.11	28.06	Horizontal	46.00	QP	Pass
Above 1GHz	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.



## Test Equipment List

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	2012-05-08
Amp	HP	8449B	3008A02495	2012-05-08
Antenna	EMCO	3115	9607-4877	2012-05-17
Bilog Antenna	Schaffner	CBL6111C	2598	2012-12-14
HF Cable	Hubersuhne	Sucoflex104	---	2012-05-08



## 8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

**System Measurement Uncertainty**

Items		Extended Uncertainty
RE	Field strength (dB $\mu$ V/m)	U=4.32dB (30MHz-25GHz)