

## MEASUREMENT AND TECHNICAL REPORT

EFFICIENT NETWORKS INCORPORATED  
4849 Alpha Road  
Dallas, TX 75244

DATE: 10 October 2002

<b>This Report Concerns:</b>	Original Grant:	Class II Change: <input checked="" type="checkbox"/>
<b>Equipment Type:</b>	SpeedStream 1024 Wireless PCI Adapter, Model SS1024	
<b>Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?</b>	Yes: <input type="checkbox"/>	Defer until: <input type="text"/> N/A
<b>Company Name agrees to notify the Commission by:</b> <b>of the intended date of announcement of the product so that the grant can be issued on that date.</b>	<input type="text"/> N/A	
<b>Transition Rules Request per 15.37?</b>	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>
(*) FCC Part 15, Paragraph(s) <b>15.209(a)</b>		
<b>Report Prepared by:</b>	TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 546 3999 Fax: 858 546 0364	

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## 1.0 GENERAL INFORMATION

### 1.1 Product Description

#### General Equipment Description -- *NOTE: This information will be input into your test report as shown below.*

EUT Description      802.11b Wireless PCI Adapter  
 EUT Name      SpeedStream 1024 Wireless PCI Adapter  
 Model No.:      SS1024      Serial No.: --  
 Product Options:      SS1024 can be used with the SS2206 dBi antenna  
 Configurations to be tested:      SS1024 is to be tested with the SS2206 dBi antenna

#### EUT Specifications and Requirements

Length: --      Width: --      Height: --      Weight: --

#### Power Requirements

*Regulations require testing to be performed at typical power ratings in the countries of intended use.  
(i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)*

Voltage: --      (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: --

Current (Amps/phase(max)): --      Current (Amps/phase(nominal)): --

Other      Power acquired from PCI bus interface

#### Other Special Requirements

--

#### Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Home or small business

#### EUT Power Cable

Permanent      OR       Removable  
 Shielded      OR       Unshielded  
 Not Applicable      Length (in meters): --

**EUT Interface Ports and Cables**

Type	Interface	Shielding				Connector Type	Port Termination	Length (in meters)	Removable	Permanent
	Analog	Digital	Qty	Yes	No					
<b>EXAMPLE:</b>										
RS232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6
SMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	--	Coaxial	SMA Connector	--	--

**EUT Software.**

Revision Level: --

Description: --

**EUT Operating Modes to be Tested** -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. --

**EUT System Components** -- List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (i.e. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

Description	Model #	Serial #	FCC ID #
--			

**Support Equipment** -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

Description	Model #	Serial #	FCC ID #
--			

**Oscillator Frequencies**

Frequency	Derived Frequency	Component #/ Location	Description of Use
--			

**Power Supply**

Manufacturer	Model #	Serial #	Type
--			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

**Power Line Filters**

Manufacturer	Model #	Location in EUT
--		

**Critical EMI Components (Capacitors, ferrites, etc.)**

Description	Manufacturer	Part # or Value	Qty	Component # / Location
--				

**EMC Critical Detail** -- Describe other EMC Design details used to reduce high frequency noise.

--

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### 1.2 Related Submittal Grant

None

### 1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

### 1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

TEST	FCC CFR 47#	PASS/FAIL
Radiated Emissions	15.209(a)	Pass

Both Conducted and Radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

### 1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC  
10040 Mesa Rim Road  
San Diego, CA 92121-2912  
Phone: 858 546 3999  
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

## **2.0 SYSTEM TEST CONFIGURATION**

### **2.1 Justification**

The EUT was initially tested for FCC emissions in the following configuration:

See Block Diagram

### **2.2 EUT Exercise Software**

None

### **2.3 Special Accessories**

None

### **2.4 Equipment Modifications**

None

### **2.5 Configuration of Test System**

See Block Diagram

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**3.0 RADIATED EMISSIONS EQUIPMENT/DATA**

See following page(s).

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**Test Conditions: RADIATED EMISSIONS: FCC Part 15.209(a)**

**The RADIATED EMISSIONS measurements were performed at the San Diego Testing Facility:**

- **Test not applicable**

- - Roof (Small Open Area Test Site) (Calibration Due Date: 16 July 2002)
- - Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego (Calibration Due Date: 12 July 2002)

**Testing was performed at a test distance of:**

- - 3 meters

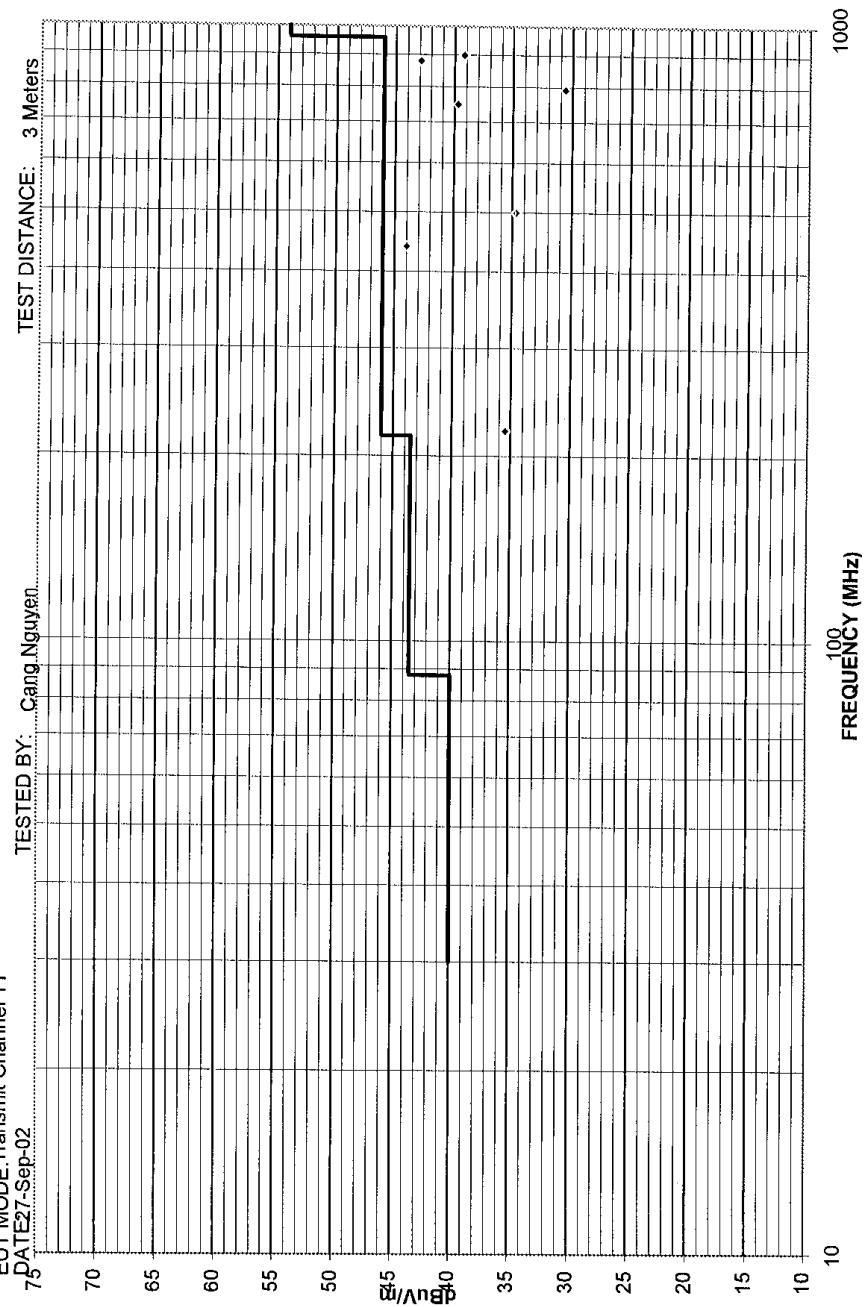
**Test Equipment Used:**

<b>Model No.</b>	<b>Prop. No.</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Serial No.</b>	<b>Cal Due Date</b>
LPB 2520/A	739	Antenna, Bilog	Antenna Research	1170	05/03
ESVS 30	466	EMI Test Receiver	Rohde & Schwarz	833825/003	03/03
3115	251	Double Ridge Guide Antenna	EMCO	2495	12/03
HP8566	6676	Spectrum Analyzer	Hewlett Packard	2332A02751	05/03

**Remarks:** \_\_\_\_\_

REPORT NO. SC205280-03  
 COMPANY: Efficient Networks  
 EUTPC1 Wireless Network Card 1m/m MW125  
 EUT MODE: Transmit Channel 1  
 DATE: 27-Sep-02

SPEC: FCC Part 15 para 15.209(a)





REPORT No: SC-205222	TESTER: Jim Owen	SPEC: FCC Part 15 para 15.209(a)
CUSTOMER: Efficient Networks		TEST DIST: 3 Meters
E U T: MW-251	EUT MODE: Transmit	TEST SITE: Roof
DATE: September 25, 2002		BICONICAL: N/A
		LOG: N/A

above 1GHz: RBW & VBW 1 MHz for PK; RBW 1 MHz and VBW 10 Hz for AVG  
 below 1GHz: RBW & VBW 100 kHz for PK; RBW 100 kHz and VBW 10 Hz for AVG  
 CCF = Antenna Factor + Cable Loss + Preamplifier Gain + Preselector Loss

FREQ (MHz)	VERTICAL pk av	HORIZONTAL (dBuv) pk av	CF (dBm)	MAX LEVEL (dBuV/m) pk av	SPEC LIMIT (dBuV/m) pk av	MARGIN pk av (dB)	EUT Rotation	Antenna Height	Notes	
									w/o EVM Antenna	w/EFFICIENT Antenna
2412	83.3	75.4	81.8	74.2	36.96	120.3	112	54	-24.6	-48.2
4824	43.6				5.7848	49.38	5.78	74	54	Ambient - Restricted Band
12060	40.5				21.98	62.48	22	74	54	Ambient - Restricted Band
14472	41.8				25.5992	67.4	25.6	74	54	Ambient - Restricted Band
2412	82.3	74.7	69	61.5	36.96	119.3	112	54	-24.6	-48.2
4824	43.6				5.7848	49.38	5.78	74	54	Ambient - Restricted Band
12060	40.1				21.98	62.08	22	74	54	Ambient - Restricted Band
14472	41.8				25.5992	67.4	25.6	74	54	Ambient - Restricted Band
2437	77.6	70	71.3	64.1	37.085	114.7	107	54	-25.3	-48
4874	42.7				6.0448	48.74	6.04	74	54	Ambient - Restricted Band
7311	39.1				15.4952	54.6	15.5	74	54	Ambient - Restricted Band
12185	39.2				22.335	61.56	22.4	74	54	Ambient - Restricted Band
2462	77.7	70.1	74	65.7	37.21	114.9	107	54	-25.2	-47.7
4894	41.5				6.3048	47.8	6.3	74	54	Ambient - Restricted Band
7386	39.4				15.7352	55.14	15.7	74	54	Ambient - Restricted Band
12310	39.6				22.73	62.33	22.7	74	54	Ambient - Restricted Band
2483.5	31.8	10.5	28.4	7.4	37.3175	69.12	47.8	74	54	Band Edge -2483.5 to 2500 MHz
										Ambient - Restricted Band

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#### 4.0 ATTESTATION STATEMENT

##### GENERAL REMARKS:

##### SUMMARY:

All tests were performed per CFR 47, Part 15.209(a)

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of CFR 47, Part 15.209(a)

- TÜV AMERICA, INC. -

Responsible Engineer:



Jim Owen  
(EMC Chief Engineer)

Responsible Technician:



Cang Nguyen  
(EMC Technician)