

FCC TEST REPORT

according to

FCC Rules and Regulations

Part 15 Subpart C & E

Applicant	TROY Group, Inc.
Address	2331 South Pullman Street, Santa Ana, California, USA 92705-5571
Equipment	Wireless Print Server
Model No.	TROY 200
FCC ID	PTY-TROY200
Trade Name	TROY

Laboratory accreditation



1332

ILAC MRA

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **Exclusive Certification Corp.** the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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CERTIFICATE OF COMPLIANCE

according to

FCC Rules and Regulations

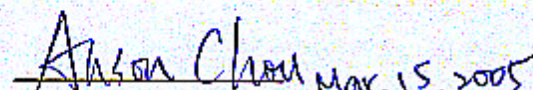
Part 15 Subpart C & E

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FCC ID	PTY-TROY200

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 The equipment was *passed* the test performed according to FCC Rules and Regulations Part 15 Subpart C & E (2003). The test was carried out on Mar. 01, 2005 at *Exclusive Certification Corp.*

Signature


Anson Chou / Manager Mar. 15, 2005

1. Report of Measurements and Examinations

1.1. List of Measurements and Examinations

For Frequency 5.15GHz ~ 5.35GHZ

Applied Standard : FCC Part 15, Subpart E (Section 15.407)		
FCC Rule	Description of Test	Result
15.407(b)(5)	. Conducted Emission	Pass
15.407(b)(1/2/3)(b)(5)	. Radiated Emission	Pass
15.407(a)(1/2/3)	. Peak Transmit Power	Pass
15.407(a)(6)	. Peak Power Excursion	Pass
15.407(a)(1/2/3)	. Peak Power Spectral Density	Pass
15.407(g)	. Frequency Stability	Pass

For Frequency 5.725GHz ~ 5.85GHZ

Applied Standard : FCC Part 15, Subpart C (Section 15.247)		
FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. Conducted Emission	Pass
15.209	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(c)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass

Test by:

Jerry Mar. 1. 2005

2. Test Configuration of Equipment under Test

2.1. Test Mode and Test Software

The following test mode and test software was performed for conduction and radiation test:

- 802.11 a (CH 36: Test Define CH1: 5180MHz)
- 802.11 a (CH 48: Test Define CH4: 5240MHz)
- 802.11 a (CH 52: Test Define CH5: 5260MHz)
- 802.11 a (CH 64: Test Define CH8: 5320MHz)
- 802.11 a (CH 149: Test Define CH9: 5745MHz)
- 802.11 a (CH 157: Test Define CH11: 5785MHz)
- 802.11 a (CH 165: Test Define CH13: 5825MHz)
- An executive programs, "Hyper Terminal" Application under WIN XP

The EUT including three kind of antenna type as below:

- Antenna type1 Dipole antenna
Gain: 2dBi
- Antenna type2 Dipole antenna
Gain: 5dBi
- Antenna type3 Dipole antenna with stand
Gain: 5dBi

The antenna type2 was worst case for radiated test

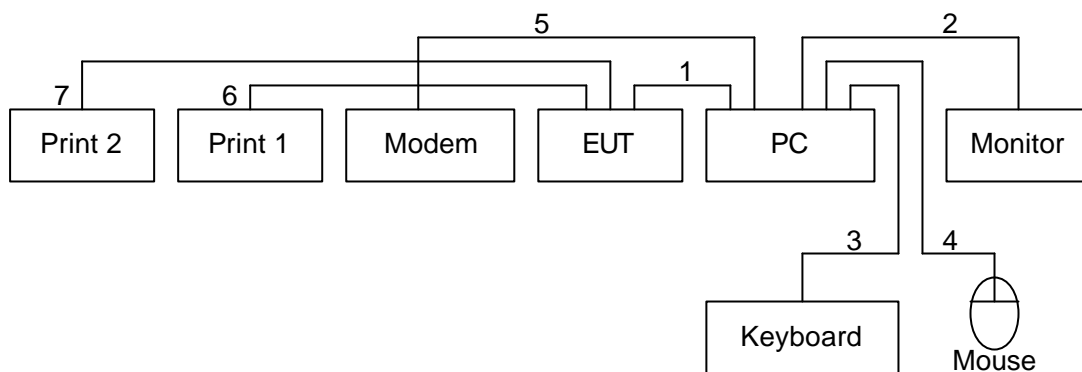
2.2. Description of Test System

Device	Manufacturer	Model No.	Description
PC	IBM	IGV	Power Cable, Unshielding 1.8 m
Monitor	SlimAGE	510A	Power Cable, Adapter Unshielding 1.8 m Data Cable, VGA shielding 1.35 m
Keyboard	IBM	KB-0225	Data Cable, PS2, shielding 1.85 m
Mouse	IBM	MO28VO	Data Cable, USB shielding 1.85 m
Modem	ACEXX	DM-1414	Power Cable, Adapter Unshielding 1.8 m Data Cable, Unshielding 1.35 m
Printer	HP	HP948C	Power Cable, Unshielding 1.8 m Data Cable, USB Shielding 1.6 m
Printer	HP	Desk Jet400	Power Cable, Adapter Unshielding 1.8 m Data Cable, PRINT Shielding 1.6 m
Notebook (Remote site)	IBM	R40(2723-BV1)	Power Cable, Adapter Unshielding 1.8 m
Router (Remote site)	Abocom	ARM914	Power Cable, Adapter Unshielding 1.8 m

Use Cable:

Cable	Description
RJ-45	Unshielding, 1.5m

2.3. Connection Diagram of Test System



1. The RJ45 cable is connected from PC to the EUT.
2. The I/O cable is connected from PC to the Monitor.
3. The I/O cable is connected from PC to the Keyboard.
4. The I/O cable is connected from PC to the Mouse.
5. The I/O cable is connected from PC to the MODEM
6. The I/O cable is connected from EUT to the Printer.1
7. The I/O cable is connected from EUT to the Printer.2

2.4. Feature of Equipment under Test

- Wireless LAN Support. Wireless stations supporting the IEEE 802.11b or IEEE 802.11g standard can interoperate with the TROY 200 LevelOne Wireless Printer Server. Both LAN and WLAN users can print to the attached printer or printers.
- Versatility. The TROY 200 LevelOne Wireless Printer Server supports up to four protocols: TCP/IP, SMB (Service Message Block), AppleTalk (EtherTalk), and NetBEUI. It features an Ethernet interface port and operating system support includes Unix, NetWare (NDPS LPR printing), and Microsoft Windows.
- Easy Installation. The TROY 200 LevelOne Wireless Printer Server makes adding printers or plotters to your network simple.
- Easy Setup. A number of utility programs are supplied to simplify setup. For Windows 98SE/Me/NT/2000/XP/2003 Server users, the BiAdmin program makes it easy to configure the TROY 200 LevelOne Wireless Printer Server for a variety of network and server configurations.
- Web-based Interface. The Web-based interface provides an easy method of configuration in TCP/IP networks, regardless of your client platform.
- Compact Size. This allows the TROY 200 LevelOne Wireless Printer Server to be used even where space is limited.
- Remote Management Tools. A variety of software tools are provided. In most environments, both the TROY 200 LevelOne Wireless Printer Server and attached bi-directional printers can be configured remotely.
- Internet Printing Protocol (IPP) Support. The TROY 200 LevelOne Wireless Printer Server can act as an IPP (Internet Printing Protocol) Server, allowing clients, suppliers, colleagues and others to print to your printer from anywhere on the Internet. Windows IPP Client software is also supplied.

2.5. History of this test report

ORIGINAL.

3. General Information of Test

Test Site:	Exclusive Certification Corp. 4F-2, No. 28, Lane 78, Xing-Ai Rd. Nei-hu, Taipei City 114 Taiwan R.O.C.
Test Site Location (OATS1-SD):	No.68-1, Shihbachongsi, shihding Township, Taipei County 223, Taiwan, R.O.C.
Test Voltage:	AC 110V/ 60Hz
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart C & E
Frequency Range Investigated:	AC Power Conducted Emission : from 150kHz to 30 MHz Radiated and conducted Emission: from 30 MHz to 40 GHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

4. Antenna Requirements

4.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2. Antenna Construction and Directional Gain

Antenna type 1: Reverse SMA connector, dipole antenna.

Antenna Gain: 2 dBi.

Antenna type 2: Reverse SMA connector, dipole antenna.

Antenna Gain: 5 dBi.

Antenna type 3: Reverse SMA connector, dipole antenna with stand

Antenna Gain: 5 dBi.

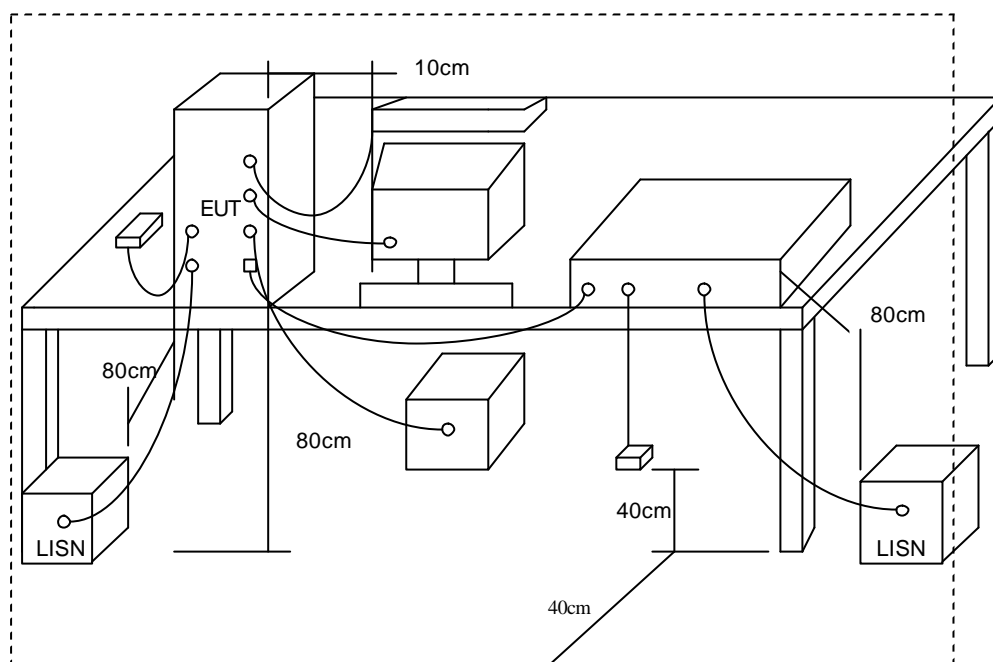
5. Test of Conducted Emission

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 115 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 1.3.1. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.1. Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.2. Typical Test Setup Layout of Conducted Emission



5.3. Conducted Emission Requirement

Except for A digital devices, for equipment that is designed to be connected to the public utility (AC) power line on any frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150KHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the Radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50