Test Report

Product Name	：	ICPCON CPU with Converter
Model No.	：	I-7058, I-7058D, I-7050A, I-7050AD, I7067D, I-7066D, I-7510AR, I-7017RC, I-7080D, NS-205
FCC ID.	：	DoC

Applicant	：	ICP DAS CO., LTD.
Address	：	No. 111, Kuang-Fu N. Rd., Hsin-Chu Industrial Park, Hukou Shiang, HSINCHU 303, Taiwan

Date of Receipt	：	2004/06/07
Date of Test	：	2004/06/18
Report No.	：	046H040F

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

The following equipment:

Product Name	:	ICPCON CPU with Converter
Trade Name	:	ICP DAS
Model Number	:	I-7058, I-7058D, I-7050A, I-7050AD, I7067D, I-7066D, I-7510AR, I-7017RC, I-7080D, NS-205
Company Name	:	ICP DAS CO., LTD.

It's herewith confirmed to comply with the requirements of FCC Part 15 Rules. (Class B)
Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

The result of electromagnetic emission has been evaluated by QuieTek EMClaboratory (NVLAP Lab. Code : 200347-0) and showed in the test report.
(Report No. : QTK-046H040F)

It is understood that each unit marketed is identical to the device as tested, and
Any changes to the device that could adversely affect the emission
Characteristics will require retest.
The following importer / manufacturer is responsible for this declaration:

Company Name _____

Company Address _____

Telephone _____ Facsimile : _____

Person is responsible for marking this declaration:

_____ _____

Name (Full name) Position / Title

_____ _____

Date Legal Signature

Test Report Certification

Test Date : 2004/06/18
Report No. : 046H040F

QuieTek

Product Name	:	ICPCON CPU with Converter
Applicant	:	ICP DAS CO., LTD.
Address	:	No. 111, Kuang-Fu N. Rd., Hsin-Chu Industrial Park, Hukou Shiang, HSINCHU 303, Taiwan
Manufacturer	:	ICP DAS CO., LTD.
Model No.	:	I-7058, I-7058D, I-7050A, I-7050AD, I7067D, I-7066D, I-7510AR, I-7017RC, I-7080D, NS-205
FCC ID.	:	DoC
Rated Voltage	:	AC 120 V / 60 Hz
Trade Name	:	ICP DAS
Measurement Standard	:	FCC CFR Title 47 Part 15 Subpart B: 2003, CISPR 22: 1997
Measurement Procedure	:	ANSI C63.4:2001
Classification	:	B
Test Result	:	Complied

NVLAP Lab Code : 200347-0

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

Documented By : Sandy chuang
(Sandy Chuang)

Tested By : Winson Wen
(Winson Wen)

Approved By :
(Kevin Wang)

TABLE OF CONTENTS

Reference : Laboratory of License

1. General Information

1.1. EUT Description

Product Name	ICPCON CPU with Converter
Trade Name	ICP DAS
Model No.	I-7058, I-7058D, I-7050A, I-7050AD, I7067D, I-7066D, I-7510AR, I-7017RC, I-7080D, NS-205
EUT Voltage	AC 120 V / 60 Hz

Component	
Power Cable	Non-Shielded, 1.8m, a ferrite core bonded.
LAN Cable	Non-Shielded, 5.0m, two ferrite cores bonded.
Ground Cable	Non-Shielded, 1.8m

Note:

1. This EUT is a ICPCON CPU with Converter.
2. The different of the each model is shown as below:

Model No.	Description
I-7058	8-channel isolated AC Voltage Digital Input Module
I-7058D	8-channel isolated AC Voltage Digital Input Module with display
I-7050A	8-channel Non-isolated Digital Output and 7-channel Non-isolated Digital Input Module (Sink)
I-7050AD	8-channel Non-isolated Digital Output and 7-channel Non-isolated Digital Input Module (Sink) with LED display
I-7067D	7-channel Relay Output Module
I-7066D	7-channel Photo-Mos Relay Output Module with LED display
I-7510AR	Three-way Isolated RS-422/485 repeater
I-7017RC	8-channel Analog Input Module
I-7080D	2-channel Counter/Frequency Input Module with LED display
NS-205	5-Port Industrial Ethernet Switch

1.2. Test Mode

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:

Pre-Test Mode	
EMI	Mode 1: Normal Operation
Final Test Mode	
EMI	Mode 1: Normal Operation

1.3. Tested System Details

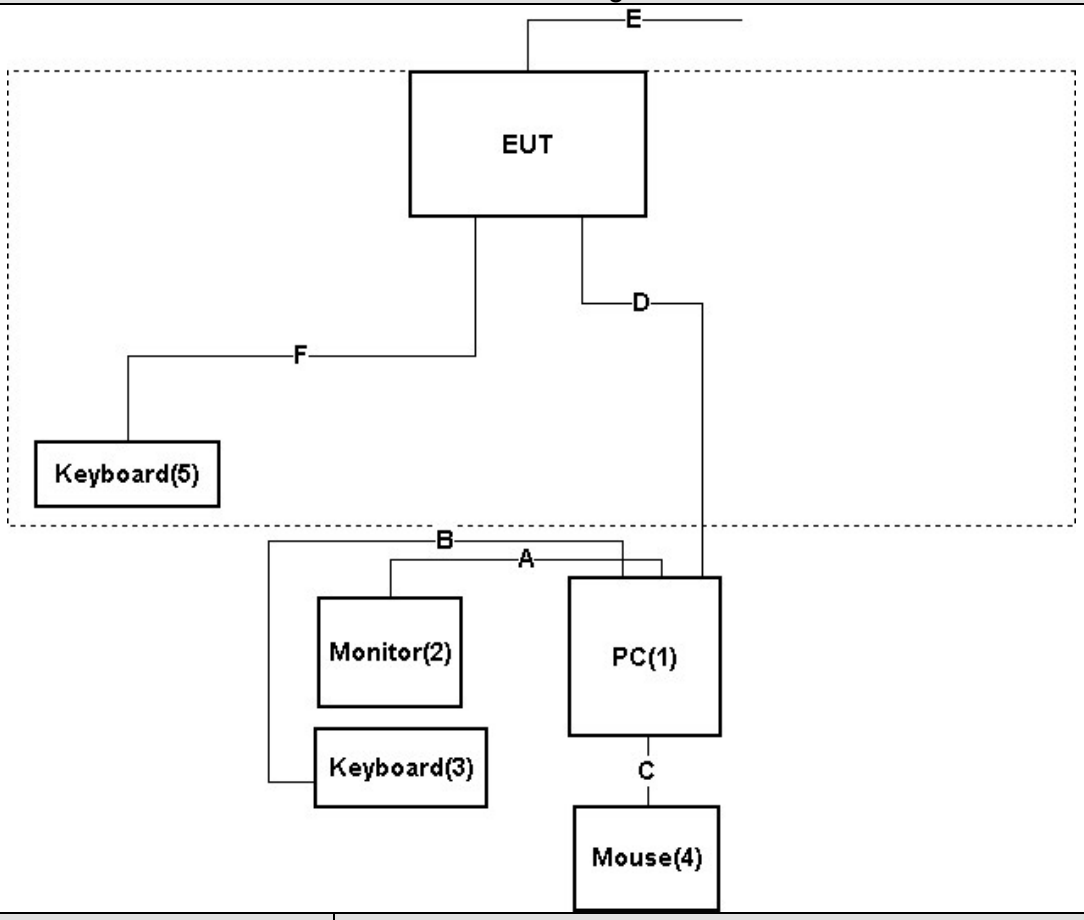
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode		Mode 1: Normal Operation				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	PC	HP	DL109A#AB0	SGH324022Z	DoC	Non-shielded, 1.8m
2	Monitor	SYNCO	15CP	N/A	DoC	Non-Shielded, 1.8m
3	Keyboard	HP	SK-1688	C0305045231	DoC	--
4	Mouse	HP	M-S69	FbAB70S5B0S2SUG	JNZ211443	--
5	Keyboard	ACER	6311-TW2C	N/A	DoC	--

1.4. Configuration of tested System

Test Mode	Mode 1: Normal Operation

Connection Diagram



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.6m
B	Keyboard Cable	Shielded, 1.8m
C	Mouse Cable	Shielded, 1.8m
D	LAN Cable	Non-Shielded, 3.0m, two ferrite cores bonded
E	Ground Cable	Non-Shielded, 1.8m
F	Keyboard Cable	Shielded, 1.8m

1.5. EUT Exercise Software

Test Mode	Mode 1: Normal Operation
1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	Boot the PC from Hard Disk.
4	Data will be communicated between computer and EUT.
5	The personal computer’s monitor will show the transmitting and receiving characteristics when the communication is success.
6	Repeat the above procedure (4) to (5).

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	ANSI.C63.4 CE	15 - 35	22
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	ANSI.C63.4 RE	15 -35	22
Humidity (%RH)		25 - 75	51
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description: November 3, 1998 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2
September 30, 2003 Accreditation on NVLAP
NVLAP Lab Code: 200347-0

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail: service@quietek.com

2. Conducted Emission

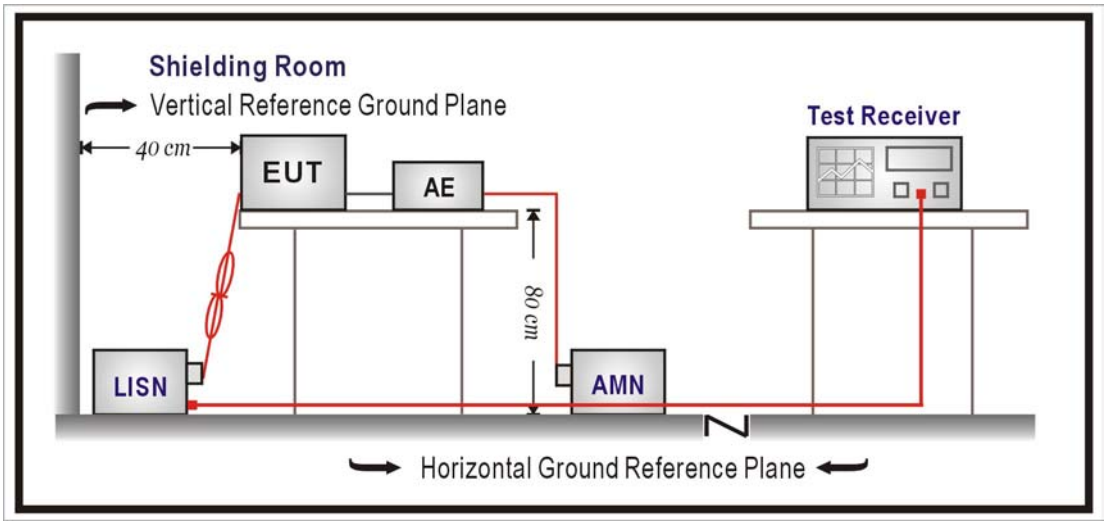
2.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/018	Sep., 2003	
2	Artificial Mains Network	R & S	ENV4200/848411/10	Feb., 2004	Peripheral
3	LISN	R & S	ESH3-Z5/825562/002	Feb., 2004	EUT
4	Pulse Limiter	R & S	ESH3-Z2/357.8810.52	Feb., 2004	
5	No.2 Shielded Room			N/A	

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

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart B Paragraph 15.107 Limits (dBuV)				
Frequency MHz	Class A		Class B	
	QP	AV	QP	AV
0.15 - 0.50	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2001 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC CFR Title 47 Part 15 Subpart B: 2003, CISPR 22: 1997

2.6. Test Result

Product	ICPCON CPU with Converter		
Test Mode	Mode 1: Normal Operation		
Date of Test	2004/06/18	Test Site	SR2
Test Condition	Line1	Test Range	0.15~30MHz

	Frequency	Cable Loss	Probe Factor	Reading Level	Emission Level	Limits
	MHz	dB	dB	dBuV	dBuV	dBuV
	Quasi-Peak					
	0.244	0.21	0.15	36.00	36.36	61.96
	0.443	0.25	0.20	33.10	33.55	57.01
	0.928	0.29	0.27	23.10	23.66	56.00
*	3.052	0.36	0.38	41.80	42.55	56.00
	6.470	0.41	0.46	31.40	32.26	60.00
	17.693	0.47	0.55	41.30	42.32	60.00
	Average					
	0.244	0.21	0.15	31.60	31.96	51.96
	0.443	0.25	0.20	22.00	22.45	47.01
	0.928	0.29	0.27	11.80	12.36	46.00
*	3.052	0.36	0.38	41.50	42.25	46.00
	6.470	0.41	0.46	30.80	31.66	50.00
	17.693	0.47	0.55	37.70	38.72	50.00

Note:

1. All Reading Levels are Quasi-Peak and Average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

Product	ICPCON CPU with Converter		
Test Mode	Mode 1: Normal Operation		
Date of Test	2004/06/18	Test Site	SR2
Test Condition	Line2	Test Range	0.15~30MHz

	Frequency	Cable Loss	Probe Factor	Reading Level	Emission Level	Limits
	MHz	dB	dB	dBuV	dBuV	dBuV
	Quasi-Peak					
	0.240	0.21	0.14	36.00	36.35	62.10
	0.447	0.25	0.20	37.30	37.75	56.93
	0.730	0.28	0.25	16.60	17.13	56.00
*	3.045	0.36	0.38	39.60	40.35	56.00
	6.450	0.41	0.46	25.80	26.66	60.00
	17.693	0.47	0.55	39.00	40.02	60.00
	Average					
	0.240	0.21	0.14	33.60	33.95	52.10
	0.447	0.25	0.20	25.30	25.75	46.93
	0.730	0.28	0.25	14.70	15.23	46.00
*	3.045	0.36	0.38	39.20	39.95	46.00
	6.450	0.41	0.46	24.60	25.46	50.00
	17.693	0.47	0.55	35.70	36.72	50.00

Note:

1. All Reading Levels are Quasi-Peak and Average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

2.7. Test Photo

Test Mode ： Mode 1: Normal Operation
Description： Front View of Conducted Test

Test Mode ： Mode 1: Normal Operation
Description： Back View of Conducted Test

3. Radiated Emission

3.1. Test Equipment

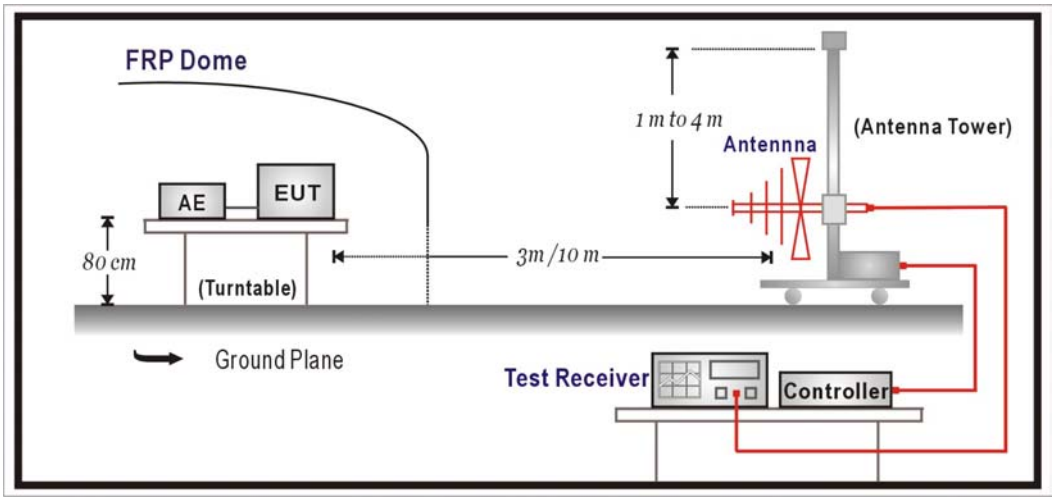
The following test equipment are used during the test:

Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Test Receiver	R & S	ESCS 30 / 836858/023	Jan., 2004
2	X	Spectrum Analyzer	Advantest	R3261C / 81720471	N/A
3	X	Pre-Amplifier	QuieTek	QTK-AMP / AMP1	N/A
4	X	Bilog Antenna	Chase	CBL6112B / 2708	Sep., 2003
5	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2003
6	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2004
7	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Jul., 2003
8	No.2 OATS				Sep., 2003

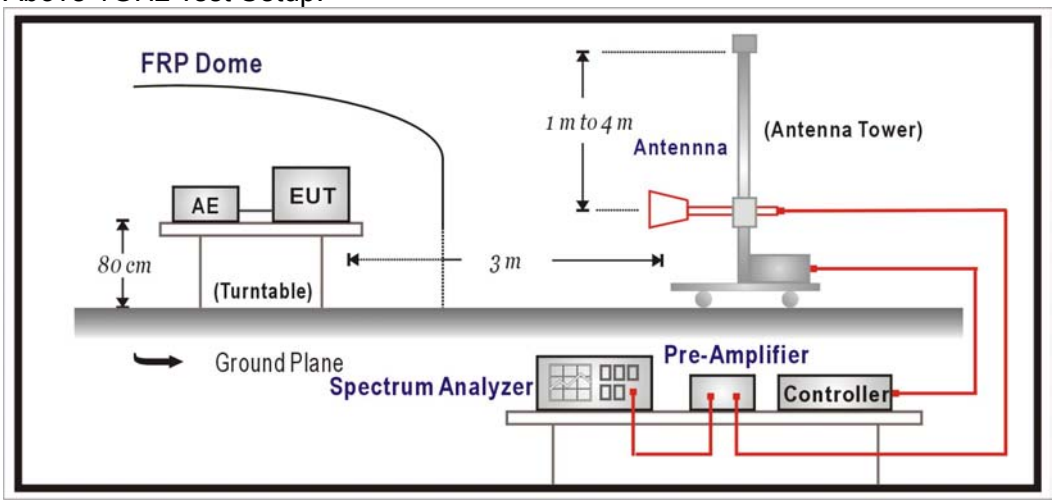
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark “X” test instruments are used to measure the final test results.

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limits

Under 1GHz test shall not exceed the following value:

CISPR 22 Limits (dBuV/m)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 – 230	10	40	10	30
230 – 1000	10	47	10	37

Remark: 1. The tighter limit shall apply at the edge between two frequency bands.

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30-88	10	39	3	40
88-216	10	43.5	3	43.5
216-960	10	46.4	3	46
Above 960	10	49.5	3	54

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2001 on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the folowing table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

For class A, the EUT was positioned such that the distance from antenna to the EUT was 10 meters for under 1GHz and above 1GHz.

For class B, the EUT was positioned such that the distance from antenna to the EUT was 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

3.5. Test Specification

According to FCC CFR Title 47 Part 15 Subpart B: 2003, CISPR 22: 1997

3.6. Test Result

Product	ICPCON CPU with Converter		
Test Mode	Mode 1: Normal Operation		
Date of Test	2004/06/18	Test Site	Site2
Test Condition	Horizontal	Test Range	30~1000MHz

	Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal:								
	66.000	1.50	6.16	0.00	4.56	12.22	17.78	30.00
	211.250	2.90	9.29	0.00	0.10	12.29	17.71	30.00
	265.275	3.42	13.81	0.00	2.77	20.00	17.00	37.00
	409.250	4.32	16.21	0.00	0.55	21.08	15.92	37.00
	627.250	5.46	19.41	0.00	1.43	26.30	10.70	37.00
*	703.750	5.86	19.33	0.00	1.20	26.39	10.61	37.00

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

Product	ICPCON CPU with Converter		
Test Mode	Mode 1: Normal Operation		
Date of Test	2004/06/18	Test Site	Site2
Test Condition	Vertical	Test Range	30~1000MHz

	Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical:								
	40.950	1.25	12.98	0.00	9.38	23.61	6.39	30.00
*	66.350	1.50	5.83	0.00	19.21	26.54	3.46	30.00
	108.775	1.91	11.15	0.00	2.30	15.35	14.65	30.00
	135.650	2.17	11.45	0.00	1.91	15.53	14.47	30.00
	265.450	3.42	13.94	0.00	1.54	18.90	18.10	37.00
	375.000	4.14	15.40	0.00	1.64	21.18	15.82	37.00
	530.350	4.95	17.45	0.00	0.12	22.52	14.48	37.00

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

3.7. Test Photo

Test Mode ： Mode 1: Normal Operation
Description： Front View of Radiated Test

Test Mode ： Mode 1: Normal Operation
Description： Back View of Radiated Test

Attachement

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo

Reference : Laboratory of License

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200347-0

QUIETEK CORPORATION
No. 75-2 Wang-Yeh Velley, Yung-Hsing
Chiung-Lin
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Phone: 886-3-5928858 Fax: 886-3-5928859
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NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/CIS22	IEC/CISPR 22 (1997) and EN 55022 (1998): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/FCC15b	ANSI C63.4 (2001) with FCC Method - 47 CFR Part 15, Subpart B: Unintentional Radiators

September 30, 2004

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200347-0

QUIETEK CORPORATION

NVLAP Code	*Designation / Description*
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment

September 30, 2004

Effective through

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

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ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

September 30, 2004

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NVLAP-01C (06-01)