

# FCC CLASS B EMI TEST REPORT

of

EUT : FAST ETHERNET NIC

MODEL NO. : SiS7016

FCC ID. : K4N70167014DAQ

for

APPLICANT : Silicon Integrated Systems Corp.

ADDRESS : No. 16, Creation Rd. I, Science-Based Industrial Park,  
Hsin Chu, Taiwan, R.O.C.

Test Performed by

**ELECTRONICS TESTING CENTER, TAIWAN**

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Report Number : ET87R-03-066  
Issued Date : APR. 27, 1998

## TEST REPORT CERTIFICATION

Applicant : Silicon Integrated Systems Corp.  
No. 16, Creation Rd. I, Science-Based Industrial Park,  
Hsin Chu, Taiwan, R.O.C.

Manufacturer : Silicon Integrated Systems Corp.  
No. 16, Creation Rd. I, Science-Based Industrial Park,  
Hsin Chu, Taiwan, R.O.C.

Description of EUT : FAST ETHERNET NIC

a) Brand Name : SiS

b) Model No. : SiS7016

c) FCC ID. : K4N70167014DAQ

d) Power Supply : 110VAC, 60Hz

Regulation Applied : FCC Rules and Regulations Part 15 Subpart B (1993)

I HEREBY CERTIFY THAT: The data shown in this report was in accordance with the procedures given in ANSI-63.4 and the energy emitted by the device was found to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note : 1. The results of the testing report relate only to the items tested.  
2. The testing report shall not be reproduced except in full, without the written approval of ETC.

Test Dated : APR. 24, 1998

Test Engineer : Tai Cheng Huang  
( T. C. Huang )

Approve & Authorized : Will Yauo  
Will Yauo, Supervisor  
EMI Test Site of ELECTRONICS  
TESTING CENTER, TAIWAN

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## **1. GENERAL INFORMATION**

### **1.1 Product Description**

- a) Description of EUT : FAST ETHERNET NIC
- b) Brand Name : SiS
- c) Model No. : SiS7016
- d) FCC ID : K4N70167014DAQ
- e) Power Supply : 110VAC, 60Hz

## 1.2 Tested System Details

The Tested System Detail equipment, plus description of all cables used in the tested system are :

<b>Description</b>	<b>Model No.</b>	<b>FCC ID.</b>	<b>Manufacturer</b>	<b>Cable</b>
FAST ETHERNET NIC *1	SiS7016	K4N70167014DAQ	Silicon Integrated Systems Corp.	8.0m RJ-45 Unshielded Cable
Monitor	JC1743UMA	A3DJC-1743UMA	NEC Co.	1.6m Shielded Cable with two cores 1.2m Unshielded Power Cord
Modem	I200AT	EF56A51200AT	Smar TEAM Co..	2.0m Shielded Cable
P.C.	VL Series 4 5/100MT	B94VECTRA500T	Hewlett-Packard	1.2m Unshielded AC Power Cord
Keyboard	E03786USDSP	CIGE03786	Microsoft	1.5m Unshielded Cable with one core
Printer	2225C+	DSI6XU2225	Hewlett-Packard	1.2m Shielded Cable
Mouse	M-S34	LZA71661735	Hewlett-Packard	1.8m Unshielded Cable

\*1 EUT submitted for test.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4, Radiated testing was performed at an antenna to EUT distance of 3 meters.

## 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, 5 Lirn, Din Fu Tsun, Lin Kou, Taipei, Taiwan, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Feb., 10,1997.

## **2. PRODUCT LABELING AND USER INFORMATION**

### **2.1 Class Definition**

**Class A Digital Device:** A digital device which is marketed for use in commercial or business environment; exclusive of a device which is marketed for use by the general public, or which is intended to be used in the home.

**Class B Digital Device :** A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business or industrial environment. Example of such devices that are marketed for the general public.

**Note :** A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

## 2.2 Class Limitations

### Class A Line Conducted Emission Limits :

Frequency MHZ	Emissions uV	Emissions dBuV
0.45 - 1.705	1000	60.0
1.705 - 30.0	3000	69.5

### Class A Radiated Emission Limits :

Frequency MHZ	Distance Meters	Radiated dBuV/m	Radiated uV/m
30 - 88	10	39.0	90
88 - 216	10	43.5	150
216 - 960	10	46.4	210
above 960	10	49.5	300

### Class B Line Conducted Emission Limits :

Frequency MHZ	Emissions uV	Emissions dBuV
0.45 - 30.0	250	48.0

### Class B Radiated Emission Limits :

Frequency MHZ	Distance Meters	Radiated dBuV/m	Radiated uV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
above 960	3	54.0	500

### 2.3 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) this device must accept any interference received, including interference that may cause undesired operation.



## 2.4 User Information

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in EUT is working.

The EUT was rotated to obtain the maximum level of radiated emissions .The antenna was varied in height above ground to obtain the maximum signal strength. The antenna height was varied from 1 to 4 meters.

All test results are listing on chapter 5 and 6.

The EUT has two intentional functions, one is Transmit and the other is Receive. During our preliminary measurement, the maximum emissions produced from EUT is determined to be Transmitting and Receiving. And as this reason, the final measurement is performed with the Transmitting and Receiving.

#### **3.2 Configuration of Tested System**

Please Refer to Page 08 & Page 09

# **Exhibit C**

# **Measurement Report**

**SILICON INTEGRATED SYSTEMS CORP.**

**FCC ID.: K4N70167014DAQ**

**FAST ETHERNET NIC**

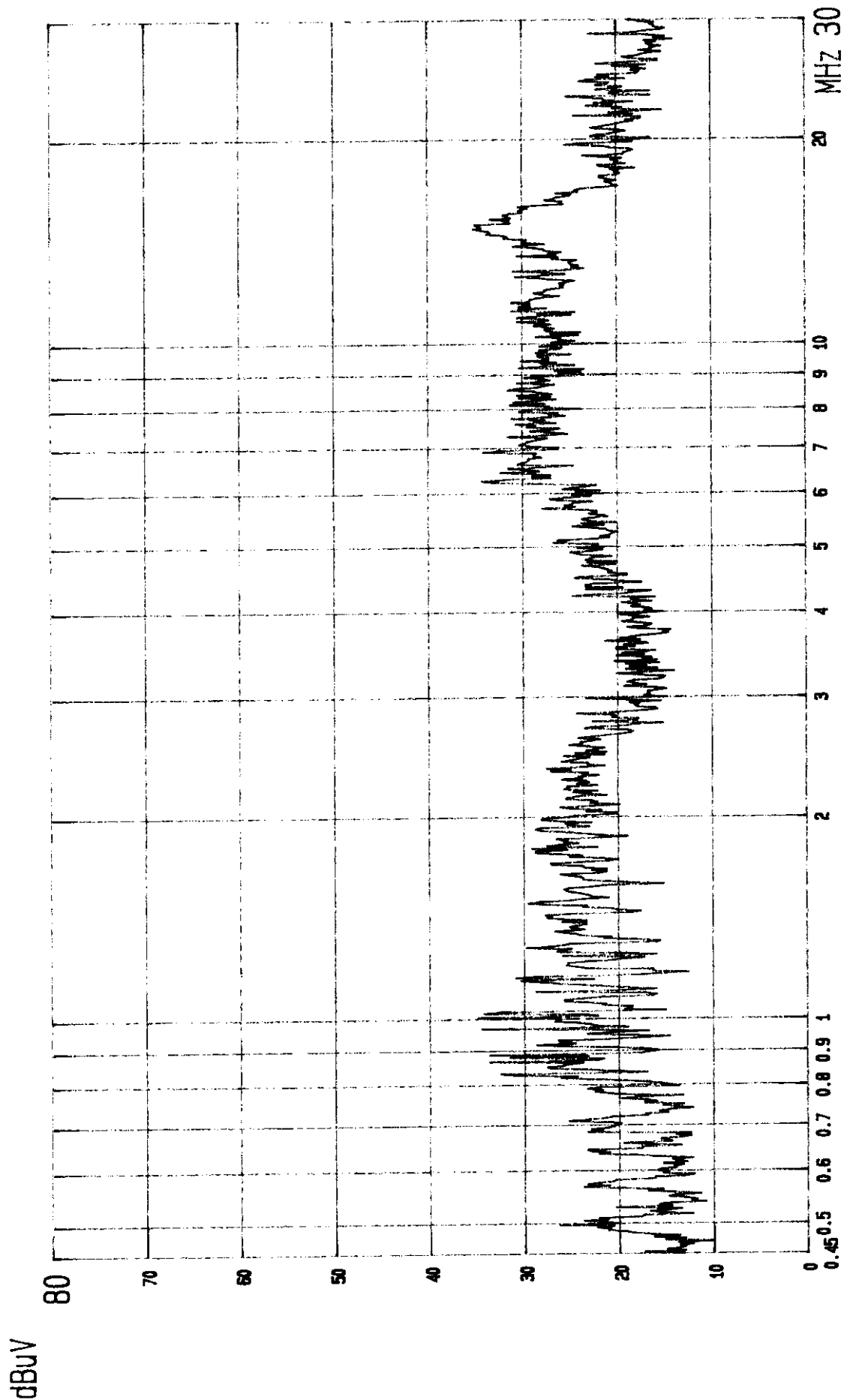
## **5. CONDUCTED EMISSION DATA**

### **5.1 Conducted Test Results**

The initial setup in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on following data pages, and these signals are the quasi-peaked.

CONDUCTED EMISSION DATAModel No. : SiS7016Operation Mode : TX/RXJudgment : Passed by 13.8 dBTest Date : APR. 24, 1998Temperature : 22 °CHumidity : 80 %

Emission Frequency ( MHz )	Meter Reading ( dB $\mu$ V )		LISN Factor ( dB )	Results ( dB $\mu$ V )		Limit (dB $\mu$ V)	Margins ( dB )
	VA	VB		VA	VB		
0.8568	26.7	26.4	0.3	27.0	26.7	48.0	-21.0
0.9628	27.3	27.6	0.3	27.6	27.9	48.0	-20.1
1.0582	26.5	27.2	0.3	26.8	27.5	48.0	-20.5
6.2636	33.7	33.8	0.4	34.1	34.2	48.0	-13.8
8.5504	25.7	26.4	0.5	26.2	26.9	48.0	-21.1
14.8519	30.9	30.9	0.8	31.7	31.7	48.0	-16.3



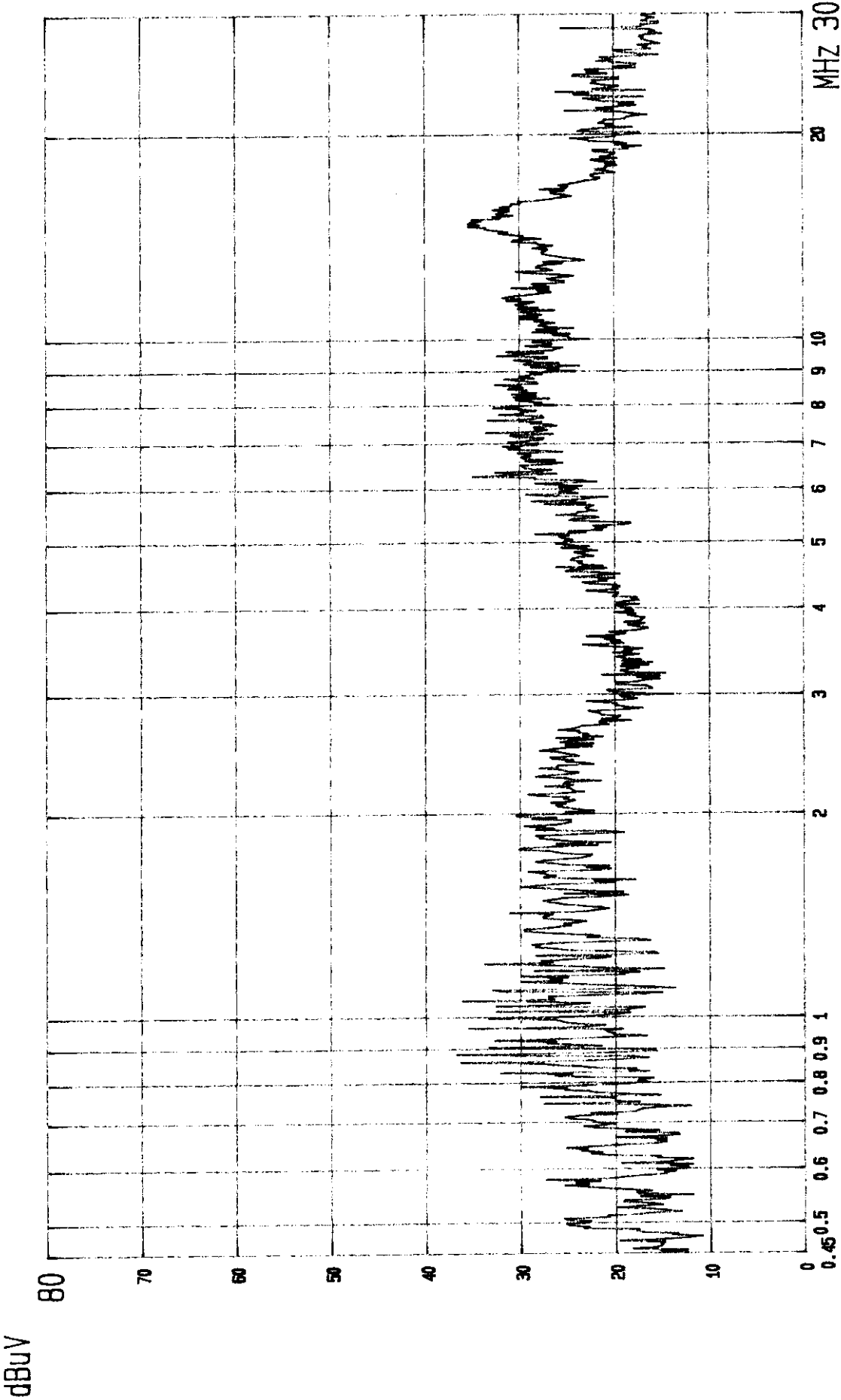
CLASS B LIMIT  
ETC EMI LAB.

8: QP.  
LISN: Va

EUT: FAST ETHERNET NIC  
POWER: 110V/60Hz

MODE: Tx/Rx

FCC CONDUCTED TEST  
MODEL: SiS7016



CLASS B LIMIT  
ETC EMI LAB.

8: GP.  
LISN: Vb

EUT: FAST ETHERNET NIC  
POWER: 110V/60Hz  
MODE: Tx/Rx

FCC CONDUCTED TEST  
MODEL: SiS7016

## **6. RADIATED EMISSION DATA**

### **6.1 Open Site Radiated Test Results**

The following data lists the significant emission frequencies, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, and the limit. The result value is quasi-peaked by R & S Test Receiver. Explanation of the Correction Factor is given in paragraph 6.2.



**RADIATED EMISSION DATA**Model No. : SiS7016Operation Mode : TX/RXJudgment : Passed by 2.1 dBTest Date : APR. 24, 1998Temperature : 23 °CHumidity : 80 %

Emission Frequency ( MHz )	Meter Reading ( dB $\mu$ V )		CORR'd Factor ( dB )	Results ( dB $\mu$ V/m )		Limit (dB $\mu$ V/m)	Margins ( dB )
	HOR.	VERT.		HOR.	VERT.		
49.956	49.2	50.3	-13.9	35.3	36.4	40.0	-3.6
124.997	47.2	44.7	-11.8	35.4	32.9	43.5	-8.1
149.997	42.2	40.5	-10.4	31.8	30.1	43.5	-11.7
199.429	42.0	45.5	-8.8	33.2	36.7	43.5	-6.8
249.997	42.0	39.6	-4.5	37.5	35.1	46.0	-8.5
319.749	38.4	51.0	-7.1	31.3	43.9	46.0	-2.1

## 6.2 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor. The basic equation with a sample calculation is as follows:

$$\text{Results} = \text{Meter Reading} + \text{CORR'd Factor}$$

$$\text{CORR'd Factor} = \text{AF} + \text{CF} - \text{AG}$$

$$\text{AF} = \text{Antenna Factor}$$

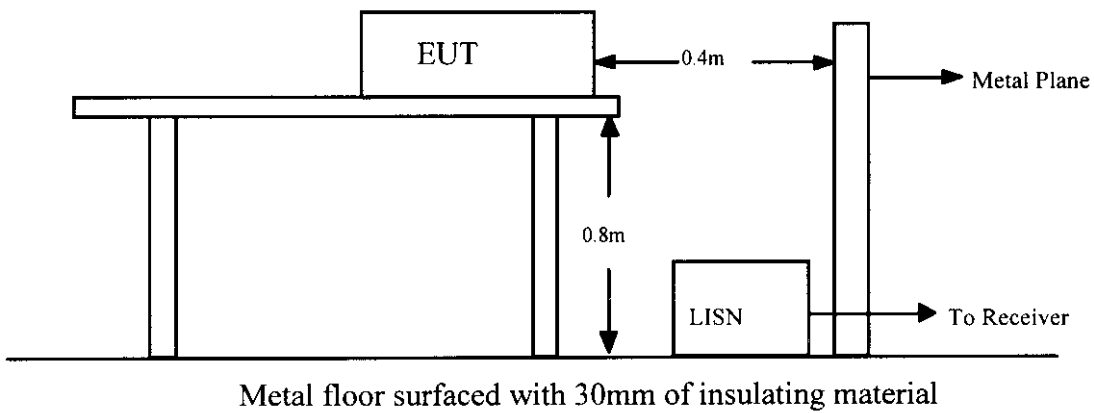
$$\text{CF} = \text{Cable Attenuation Factor}$$

$$\text{AG} = \text{Amplifier Gain}$$

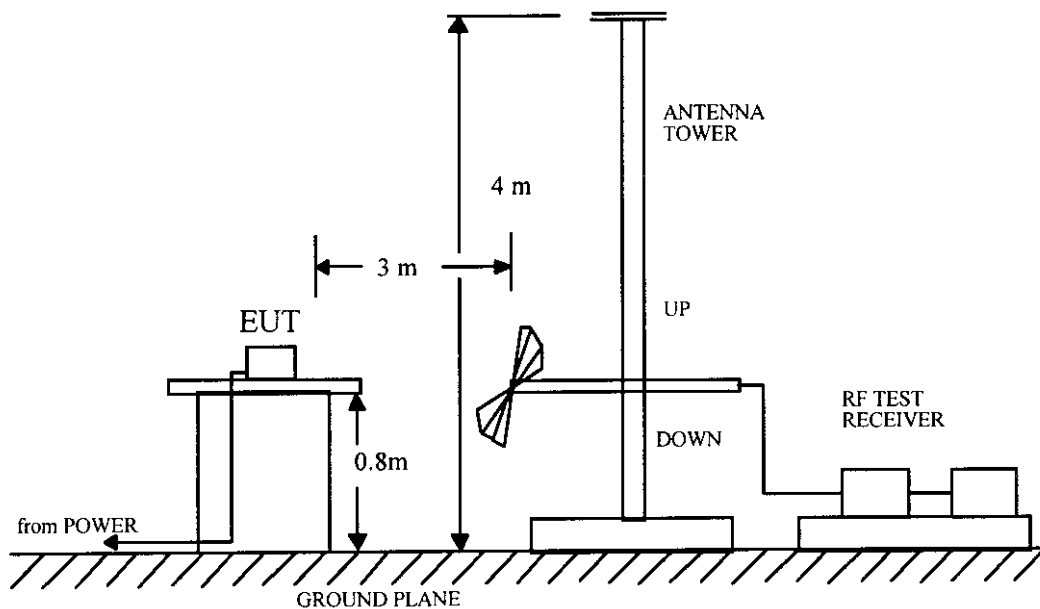
## 7. TEST EQUIPMENT

### 7.1 Test Setup

#### I. Conducted Test Setup Diagram



#### II. Open Field Test Site Setup Diagram



## 7.2 Conducted Test Equipments

The following test equipments are used during the conducted test .

Equipments	Manufacturer	Model No.	Next Cal. Date
Test Receiver	Rohde and Schwarz	ESH3	JAN. 04, 1999
Spectrum Monitor	Rohde and Schwarz	EZM	N.C.R.
Line Impedance Stabilization Network	Kyoritsu	KNW-407	DEC. 18, 1998
Line Impedance Stabilization Network	Shiba Soku	563	AUG. 18, 1998
Printer	Rohde and Schwarz	PUD-3	N/A
Plotter	Hewlett-Packard	7440A	N/A
Shielded Room	Riken	----	N.C.R.

## 7.3 Radiated Test Equipments

The following test equipments are used during the radiated test .

Equipments	Manufacturer	Model No.	Next Cal. Date
EMI Receiver	Hewlett-Packard	8546A	DEC. 01, 1999
Test Receiver	Rohde and Schwarz	ESVS 30	DEC. 19, 1998
Biconical Antenna	EMCO	3108	AUG. 05, 1998
Log Periodic Antenna	EMCO	3146	AUG. 05, 1998

## **Exhibit D**

## **Equipment ID. Label**

**SILICON INTERGRATED SYSTEMS CORP.**

**FCC ID.: K4N70167014DAQ**

**FAST ETHRNET NIC**

1. A label in the next page will be affixed to the front of the device.  
According to § 15.19(c) the following statement be placed in User's Manual page 9.

THIS DEVICE COMPLIES WITH PART 15 OF FCC RULES.  
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.