JAPAN QUALITY ASSURANCE ORGANIZATION
2096, Ohata, Tsuru-shi, Yamanashi 402-0045 JAPAN
PHONE +81-554-43-5517, FAX +81-554-43-6316

EMI TEST REPORT

JQA Application No. : **441-20259**

Model No. : NC-400D

Type of Equipment : Digital Color Printer

Regulations Applied : CFR 47 FCC Rules and Regulations Part 15 Subpart B

FCC ID : F5GNC-400D

Applicant : FUJI PHOTO FILM CO., LTD.

Address : ASAKA TECHNOLOGY DEVELOPMENT CENTER
11-46, Senzui 3-Chome, Asaka-shi
Saitama-ken, 351-8585 JAPAN

Manufacturer : FUJI PHOTO FILM CO., LTD.

Address : ASAKA TECHNOLOGY DEVELOPMENT CENTER
11-46, Senzui 3-Chome, Asaka-shi
Saitama-ken, 351-8585 JAPAN

Received date of EUT : July 2, 2002

Final Judgment : **Passed**

TEST RESULTS IN THIS REPORT are obtained in use of equipment that is traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and Communication Research Laboratory (CRL) of Japan.

The test results only responds to the tested sample.
THIS REPORT should not be reproduced, except in full, without the approval of the JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH.

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1. DOCUMENTATION

1.1 TEST REGULATION

FCC Rules and Regulations Part 15 Subpart A and B (June 23, 1989) Class B Digital Device.

Test procedure :

AC powerline conducted emissions and radiated emissions tests were performed according to the procedures in ANSI C63.4-1992.

1.2 GENERAL INFORMATION

1.2.1 Test facility :

1) Test Facility located at JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH:
Open Site No.1, No.2, An Anechoic Chamber (3 m and 10 m, on common plane)and a Shielded Room
FCC Registration Number: 90728 (Date of Listing : April 2, 2002)

2) JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance established in title 15, Part 285 Code of Federal Regulations.
NVLAP Lab Code : 200192-0 (Effective through : June 30, 2003)

1.2.2 Description of the Equipment Under Test (EUT) :

1) Type of Equipment	: Digital Color Printer
2) Product Type	: Pre-production
3) Category	: Class B Digital Device
4) EUT Authorization	: Certification
5) FCC ID	: F5GNC-400D
6) Trade Name	: FUJI FILM
7) Model No.	: NC-400D
8) Serial No.	: P20031
9) Fundamental Frequency /Operated Frequency	: 24.725 MHz(100MHz), 37.496MHz(150MHz)
10) Highest Frequency Used in the EUT	: 37.496 MHz(150MHz)
11) Date of Manufacture	: June 15, 2002
12) Power Rating	: 120VAC 60Hz
13) EUT Grounding	: Grounded at the plug end of the powerline cord

1.2.3 Definitions for symbols used in this test report :

X - indicates that the listed condition, standard or equipment is applicable for this report.

___ - indicates that the listed condition, standard or equipment is not applicable for this report.

1.3 TEST CONDITION

1.3.1 The measurement of the AC Powerline Conducted Emissions

_X_ - was performed in the following test site.
___ - was not applicable.

Test location :

JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH
2096 Ohhata, Tanbozawa, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

_X_ - Shielded Room No.1
___ - Shielded Room No.2
___ - Anechoic Chamber
___ - Open Site No.1
___ - Open Site No.2

Used test instruments :

	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
___ -	Test Receiver	ESI7	Rohde & Schwarz	100059	2001/10	1 Year
_X_ -	Test Receiver	ESHS30	Rohde & Schwarz	842053/001	2001/10	1 Year
___ -	Test Receiver	ESH3	Rohde & Schwarz	881460/016	2002/5	1 Year
_X_ -	LISN(for peripheral)	KNW-407	Kyoritsu Electrical	8-833-5	2001/8	1 Year
_X_ -	LISN(for EUT)	KNW-407	Kyoritsu Electrical	8-680-14	2001/8	1 Year
___ -	LISN	KNW-407	Kyoritsu Electrical	8-757-1	2002/6	1 Year
___ -	LISN	KNW-242	Kyoritsu Electrical	8-755-1	2002/6	1 Year
___ -	LISN	KNW-242C	Kyoritsu Electrical	8-837-14	2002/6	1 Year
___ -	LISN	KNW-243C	Kyoritsu Electrical	8-831-2	2002/6	1 Year
___ -	LISN	KNW-243C	Kyoritsu Electrical	8-831-3	2002/6	1 Year
___ -	LISN	KNW-243C	Kyoritsu Electrical	8-831-4	2002/6	1 Year
___ -	LISN	KNW-243C	Kyoritsu Electrical	8-692-5	2001/8	1 Year
_X_ -	RF Cable	3D-2W	Fujikura	No.1	2002/5	1 Year
___ -	RF Cable	3D-2W	Fujikura	No.2	2002/5	1 Year
___ -	RF Cable	3D-2W	Fujikura	No.3	2002/5	1 Year
_X_ -	50ohm Termination	-	TDC	15406501E1	2002/2	1 Year
___ -	50ohm Termination	-	-	15406502E1	2002/2	1 Year

1.3.2 The measurement of the Radiated Emissions(30 MHz - 1000 MHz)

_X_ - was performed in the following test site.
___ - was not applicable.

Test location :

JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH
2096 Ohhata, Tanbozawa, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

___ - Anechoic Chamber
_X_ - Open Site No.1
___ - Open Site No.2

_X_ - 3 meters
___ - 10 meters
___ - 30 meters

Validation of Site Attenuation :

1) Last Confirmed Date : 2002/5
2) Interval : 1 year

Used test instruments :

	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
___ -	Test Receiver	ESI7	Rohde & Schwarz	100059	2001/10	1 Year
___ -	Test Receiver	ESV	Rohde & Schwarz	863796/015	2002/5	1 Year
_X_ -	Test Receiver	ESVS10	Rohde & Schwarz	84231/004	2002/3	1 Year
___ -	Test Receiver	ESVS10	Rohde & Schwarz	843744/018	2002/3	1 Year
_X_ -	Biconical Antenna	BBA9106	Schwarzbeck	11905065-2	2002/5	1 Year
___ -	Biconical Antenna	BBA9106	Schwarzbeck	91031516	2002/5	1 Year
___ -	Biconical Antenna	BBA9106	Schwarzbeck	G4397001	2002/5	1 Year
_X_ -	Log-Periodic Antenna	UHALP9107	Schwarzbeck	91031436	2002/5	1 Year
___ -	Log-Periodic Antenna	UHALP9107	Schwarzbeck	9107915	2002/5	1 Year
___ -	Log-Periodic Antenna	UHALP9107	Schwarzbeck	G43597003	2002/5	1 Year
___ -	Log-Periodic Antenna	UHALP9108	Rohde & Schwarz	G43599003	2002/5	1 Year
___ -	Dipole Antenna	KBA-511A	Kyoritsu Electrical	0-195-5	2002/5	1 Year
___ -	Dipole Antenna	KBA-611	Kyoritsu Electrical	0-228-13	2002/5	1 Year
___ -	Dipole Antenna	KBA-511A	Kyoritsu Electrical	0-196-8	2002/5	1 Year
___ -	Dipole Antenna	KBA-611	Kyoritsu Electrical	0-230-6	2002/5	1 Year
_X_ -	RF Cable	20D/5D-2W	Fujikura	No.1	2002/5	1 Year
___ -	RF Cable	20D/5D-2W	Fujikura	No.2	2002/5	1 Year
___ -	RF Cable	20D/5D-2W	Fujikura	No.3	2002/5	1 Year

1.3.3 The measurement of the Radiated Emissions(Above 1000 MHz)

_X_ - was performed in the following test site.
___ - was not applicable.

Test location :

JQA SAFETY & EMC CENTER EMC ENGINEERING DEPT. TSURU EMC BRANCH
2096 Ohhata, Tanbozawa, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

___ - Anechoic Chamber
_X_ - Open Site No.1
___ - Open Site No.2

_X_ - 3 meters
___ - 10 meters
___ - 30 meters

Validation of Site Attenuation :

1) Last Confirmed Date : N/A
2) Interval : N/A

Used test instruments :

	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
_X_ -	Spectrum Analyzer	8563E	Hewlett Packard	3438A00756	2002/4	1 Year
___ -	Spectrum Analyzer	R4131C	Advantest	717201249	2002/5	1 Year
___ -	Log-Periodic Antenna	UHALP9108	Rohde & Schwarz	G43599003	2002/5	1 Year
_X_ -	Log-Periodic Antenna	USLP9103	Rohde & Schwarz	-	2002/5	1 Year
___ -	Log-Periodic Antenna	94612-1	NAC CO.	97062301	2002/5	1 Year
_X_ -	Pre-Amplifier	WJ-6611-513	Watkins Johnson	0288	2002/5	1 Year
_X_ -	Pre-Amplifier	WJ-6682-834	Watkins Johnson	0052	2002/5	1 Year
___ -	Pre-Amplifier	WJ-6870-506	Watkins Johnson	0018	2002/5	1 Year
_X_ -	RF Cable(7m)	SUCOFLEX 104	Suhner	52146/4	2002/5	1 Year
___ -	RF Cable(3m)	SUCOFLEX 104	Suhner	52053/4	2002/5	1 Year
___ -	RF Cable(2m)	SUCOFLEX 104	Suhner	39934/4	2002/5	1 Year
_X_ -	RF Cable(1m)	SUCOFLEX 104	Suhner	35687/4	2002/5	1 Year

1.4 EUT MODIFICATION / Deviation from Standard

1.4.1 EUT Modification

_X_ - No modifications were conducted by JQA to achieve compliance to the limitations.
___ - To achieve compliance to the limitations, the following changes were made by JQA during the compliance test.

The modifications will be implemented in all production models of this equipment.

Applicant : Date :

Typed Name : Position :

1.4.2 Deviation from Standard:

_X_ - No deviations from the standard described in clause 1.1.
___ - The following deviations were employed from the standard described in clause 1.1:

1.5 TEST RESULTS / UNCERTAINTY

AC Powerline Conducted Emissions:

_X_ - Applicable **___ - NOT Applicable** **___ - NOT Tested**

The requirements are **_X_ - PASSED** **___ - NOT PASSED**

Min. Limit Margin 1.5 dB at 3.39 MHz

Max. Limit Exceeding ___ dB at ___ MHz

Uncertainty of Measurement Results ± 2.4 dB(2σ)

Remarks : Printing Mode

The measurement results is below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95 % level of confidence. However, the result indicates that compliance is more probable than non-compliance with the specification limit.

Radiated Emission:

_X_ - Applicable **___ - NOT Applicable** **___ - NOT Tested**

The requirements are **_X_ - PASSED** **___ - NOT PASSED**

Min. Limit Margin 3.7 dB at 487.5 MHz
Antenna height Position 1.0 m
EUT Position (CW) 0 degree
Max. Limit Exceeding ___ dB at ___ MHz

Uncertainty of Measurement Results

___ - Anechoic Chamber		
___ - 3 meters	30-300 MHz	± 3.8 dB(2σ)
	300 - 1000 MHz	± 4.7 dB(2σ)
___ - 10 meters	30-300 MHz	± 3.7 dB(2σ)
	300 - 1000 MHz	± 3.6 dB(2σ)
_X_ - Open Site		
_X_ - 3 meters	30-300 MHz	± 4.0 dB(2σ)
	300 - 1000 MHz	± 4.8 dB(2σ)
___ - 10 meters	30-300 MHz	± 4.0 dB(2σ)
	300 - 1000 MHz	± 3.7 dB(2σ)

Remarks : Printing Mode

The measurement results is below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95 % level of confidence. However, the result indicates that compliance is more probable than non-compliance with the specification limit.

1.6 SUMMARY

General Remarks :

The EUT was tested according to the requirements of FCC Rules and Regulations Part 15 Subpart A and B (June 23, 1989) under the test configuration, as shown in clause 1.7 to 1.10.
The conclusion for the test items of which are required by the applied regulation is indicated under the final judgment.

Final Judgment :

The "as received" sample;

_X_ - fulfill the test requirements of the regulation mentioned on clause 1.1.

___ - fulfill the test requirements of the regulation mentioned on clause 1.1, but with certain qualifications.

___ - doesn't fulfill the test regulation mentioned on clause 1.1.

Begin of testing: July 2, 2002

End of testing : July 2, 2002

- JAPAN QUALITY ASSURANCE ORGANIZATION -

Approved by:

Takaharu Hada
Director
Tsuru EMC Branch
JQA EMC Engineering Dept.

Issued by:

Y. Fukumoto

Yuichi Fukumoto
Manager
Tsuru EMC Branch
JQA EMC Engineering Dept.

1.7 TEST CONFIGURATION / OPERATION OF EUT

1.7.1 Test Configuration:

The equipment under test (EUT) consists of :

Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
A	Digital Color Printer	FUJI FILM CO., LTD.	NC-400D	F5GNC-400D	P20031

The measurement was carried out with the following support equipment connected :

Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
B	Personal Computer	DEC Corp.	PC 743	A09-PC74XWW	TB42634595
C	Keyboard	DEC Corp.	PCXAJ-BA	-	TB41403360
D	Mouse	DEC Corp.	PC7XS-AA	DZL210513	LT40510969
E	CRT Display	SONY Corp.	GDM17SEIT	AK8GDM17SE1	2003751
F	Printer	Canon Cpop	BJ-200	AZDK10110A	SXS19225
G	Label Writer	Costar Corp.	XL PLUS	I73LWXL	C944110071E
H	AC Adaptor	Costar Corp.	6100-031	-	-
I	PC Card Reader	FUJI FILM CO., LTD.	CR-500	L5NPCD001	5200384

Type of Cable :

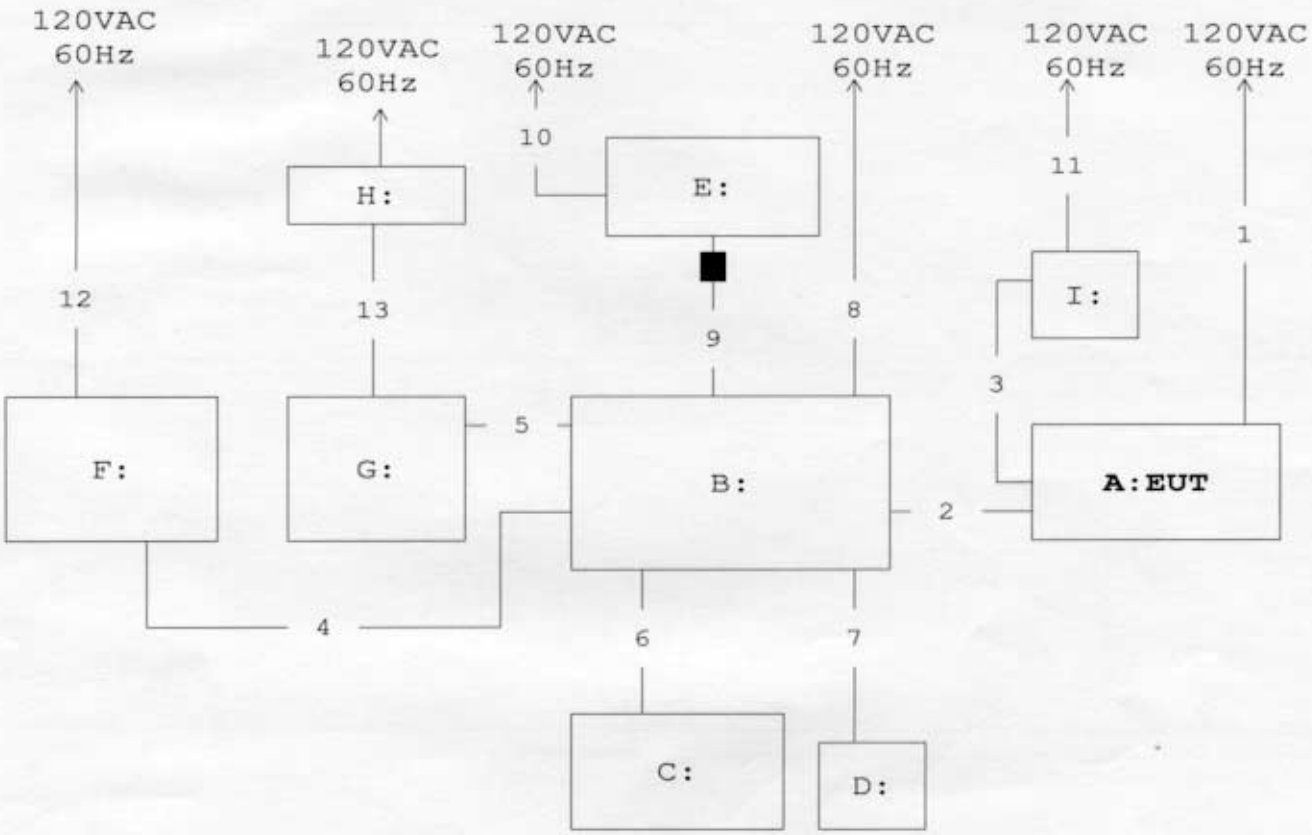
Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core YES / NO	Connector type Shielded YES / NO	Length (m)
1	AC Power Cable	-	NO	NO	NO	1.8
2	SCSI Cable	-	YES	NO	YES	1.0
3	SCSI Cable	-	YES	NO	YES	1.0
4	Printer Cable	-	YES	NO	YES	1.0
5	Serial Cable	-	NO	NO	NO	1.8
6	Keyboard Cable	-	YES	NO	YES	1.3
7	Mouse Cable	-	YES	NO	YES	1.85
8	AC Power Cable	-	NO	NO	NO	1.8
9	CRT Cable	-	YES	YES	YES	1.8
10	AC Power Cable	-	NO	NO	NO	1.8
11	AC Power Cable	-	NO	NO	NO	1.8
12	AC Power Cable	-	NO	NO	NO	1.9
13	AC Adaptor Cable	-	YES	NO	YES	1.9

1.7.2 Operating condition

Power Supply Voltage : 120VAC, 60Hz

Operation Mode : Stand-by and Printing Mode

1.8 EUT ARRANGEMENT (DRAWINGS)



■ :Ferrite core

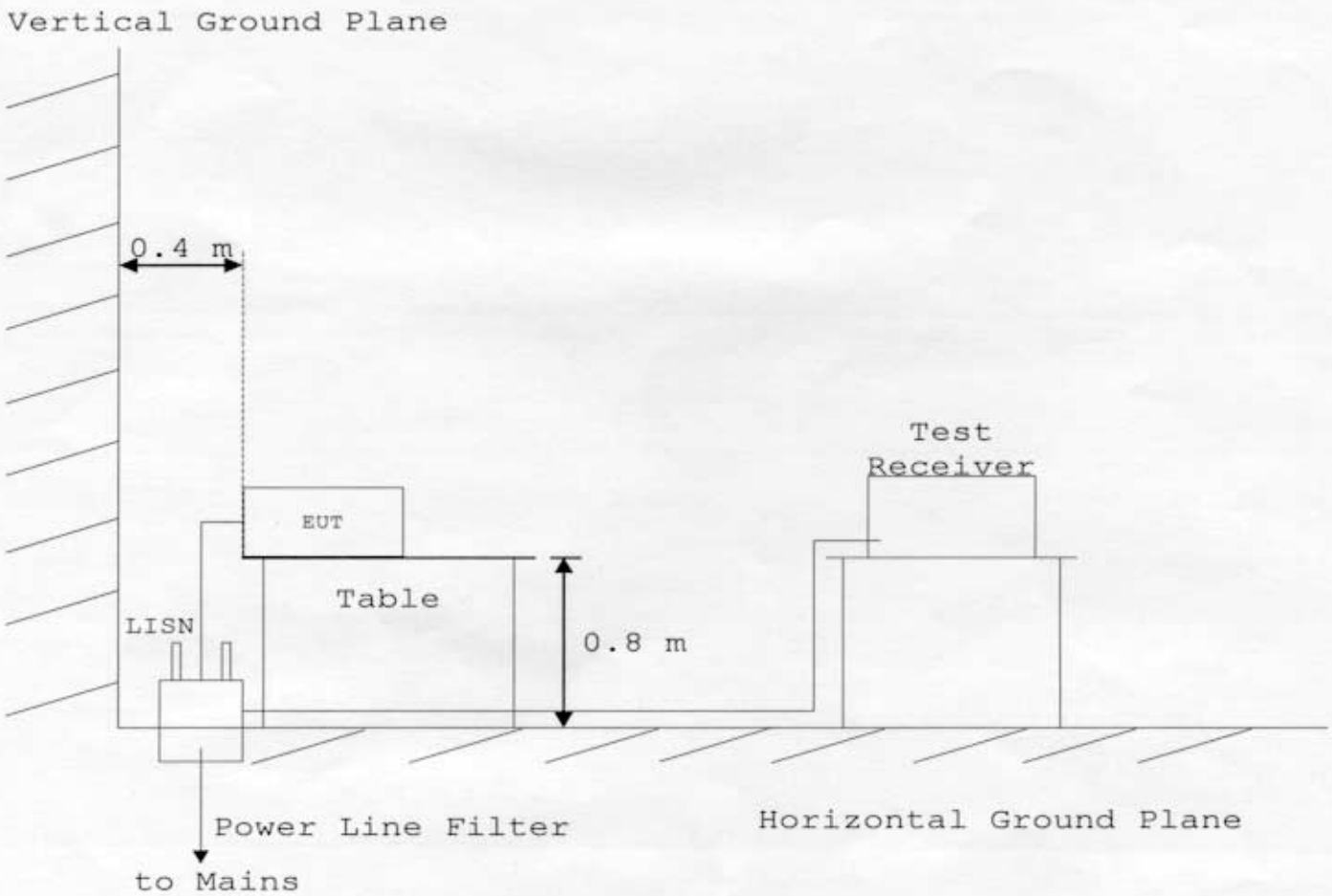
1.9 PRELIMINARY TEST AND TEST-SETUP (DRAWINGS)

1.9.1 AC Powerline Conducted Emissions (450 kHz - 30 MHz) :

According to description of ANSI C63.4-1992 sec.7.2.3, the preliminary AC powerline conducted emissions measurements were carried out.
The preliminary conducted measurements were performed using the spectrum analyzer to observe the emissions characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configuration were used for final AC powerline conducted emissions measurements.

Shielded Enclosure

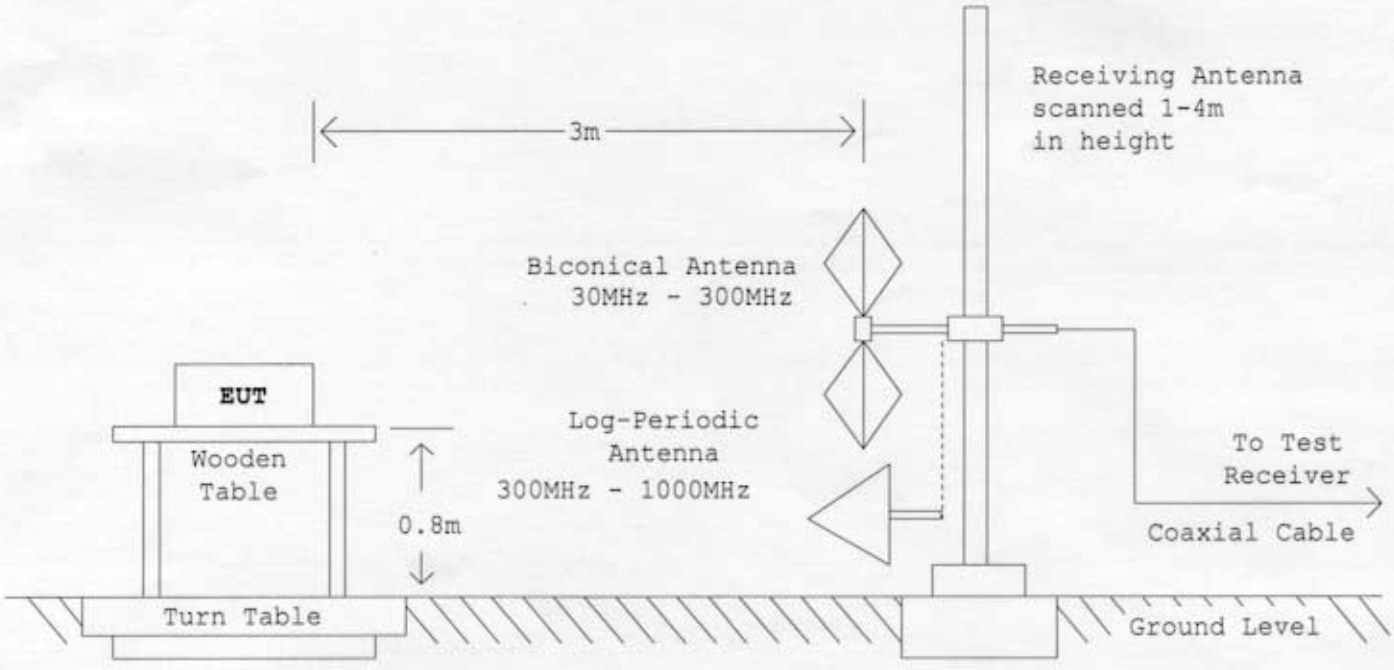
- Side View -



1.9.2 Radiated Emissions (30 MHz - 1000 MHz) :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurements were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emissions characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configuration was used for the final radiated emissions measurements.

- Side View -



1.9.3 Radiated Emissions (Above 1 GHz) :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurements were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emissions characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final radiated emissions measurements.

- Side View -