Test Report

For

Applicant	:	**MICROTEK INTERNATIONAL INC.**
Equipment Type	:	**Image Scanner**
Model	:	**MRS-2400FU**
FCC ID	:	**EF9MRS-2400FU**

Report No. : 008H001FI

Test Report Certification

QuieTek Corporation

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 : quietek@ms24.hinet.net

Accredited by NIST(NVLAP), VCCI, BSMI, DNV, TUV

Applicant	: MICROTEK INTERNATIONAL INC.
Address	: No.6, Industry East Rd.3, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.
Equipment Type	: Image Scanner
Model	: MRS-2400FU
Measurement Standard	: CISPR 22/1985
Measurement Procedure	: ANSI C63.4 /1992
FCC ID	: EF9MRS-2400FU
Operation Voltage	: 120VAC/60Hz
Classification	: Class B
Test Result	: Complied
Test Date	: August 2, 2000
Report No.	: 008H001FI

Documented by: Zoe Lee	Test Engineer: Jimmy Huang	Approved: Kevin Wang

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1. General Information

1.1 EUT Description

Applicant	:	MICROTEK INTERNATIONAL INC.
Address	:	No.6, Industry East Rd.3, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.
Equipment Type	:	Image Scanner
Model	:	MRS-2400FU
FCC ID	:	EF9MRS-2400FU
Maximum Resolution	:	1200dpi*2400dpi
Data Cable	:	(1) 1394 Cable, Shielded, 1.5m, 1pc (2) USB Cable, Shielded, 1.5m, 1pc, a ferrite core bonded
1394 Card	:	PROCOMP, I394P
Power Adapter	:	(1) FAIRWAY, M/N: VE50-150A, S/N: 10002900099-00 Cable In: Non-Shielded, 1.8m Cable Out: Non-Shielded, 1.5m, a ferrite core bonded (2) L.S.E., M/N: LSE9802B1540, S/N: 000000002 Cable In: Non-Shielded, 1.8m Cable Out: Non-Shielded, 1.5m, a ferrite core bonded

Remark: 1. The EUT is a 1200dpi*2400dpi Image Scanner with two cable, 1394 and USB.

2.Two kind of adaptor was used to perform the test individually.

3. QuieTek had verified the construction and function in typical operation, then shown in this test report.

1.2 Tested System Details

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

1.2.1 Image Scanner (EUT)

Model Number	: MRS-2400FU
Serial Number	: N/A
FCC ID	: EF9MRS-2400FU
Manufacturer	: MICROTEK
Data Cable	: (1)1394 Cable, Shielded, 1.5m, 1pc (2) USB Cable, Non-Shielded, 1.5m, 1pc a ferrite core bonded
1394 Card	: PROCOMP, I394P
Power Adapter	: (1) FAIRWAY, M/N: VE50-150A, S/N: 10002900099-00 Cable In: Non-Shielded, 1.8m Cable Out: Non-Shielded, 1.5m, a ferrite core bonded (2) L.S.E., M/N: LSE9802B1540, S/N: 000000002 Cable In: Non-Shielded, 1.8m Cable Out: Non-Shielded, 1.5m, a ferrite core bonded

1.2.2 Host Personal Computer

Model Number	: GA-5AX
Serial Number	: 9942200677
FCC ID	: DoC
Manufacturer	: ASUS
Power Cord	: Non-Shielded, 1.8m

1.2.3 Notebook

Model Number	: A-320T
Manufacturer	: Mitac
Serial Number	: N/A
FCC ID	: MAU008
Power Adapter	: ILAN, F19603H Cable In : Non-Shielded, 1.8m Cable Output : Non-Shielded, 1.0m, a ferrite core bonded

1.2.4 Monitor

Model Number	: CM752ET-311
Serial Number	: T8F006364
FCC ID	: DoC
Manufacturer	: HITACHI
Data Cable	: Shielded, 1.5m
Power Cord	: Shielded, 1.8m

1.2.5 Keyboard

Model Number	: 6311-TW4C
Serial Number	: 916590704C91F24437
FCC ID	: DoC
Manufacturer	: ACER
Data Cable	: Shielded, 1.8m

1.2.6 Modem

Model Number	: 1414
Serial Number	: 980033032
FCC ID	: IFAXDM1414
Manufacturer	: ACEEX
Data Cable	: Shielded, 1.5m
Power Adapter	: ACCEX, SCP41-91000A Cable Output : Shielded, 1.5m

1.2.7 Modem

Model Number	: 1414
Serial Number	: 980033039
FCC ID	: IFAXDM1414
Manufacturer	: ACEEX
Data Cable	: Shielded, 1.5m
Power Adapter	: ACCEX, SCP41-91000A Cable Output : Shielded, 1.5m

1.2.8 Printer

Model Number	: C2642A
Serial Number	: MY75N1D2Y1
FCC ID	: B94C2642X
Manufacturer	: HP
Data Cable	: Shielded, 1.2m
Power Adapter	: NMB, C2175A Cable for AC IN: Non-Shielded, 0.7m Cable for AC Out: Non-Shielded, 1.5m

1.2.9 Mouse

Model Number	: M-S34
Serial Number	: LZA71178588
FCC ID	: DZL211029
Manufacturer	: HP
Data Cable	: Shielded, 1.8m

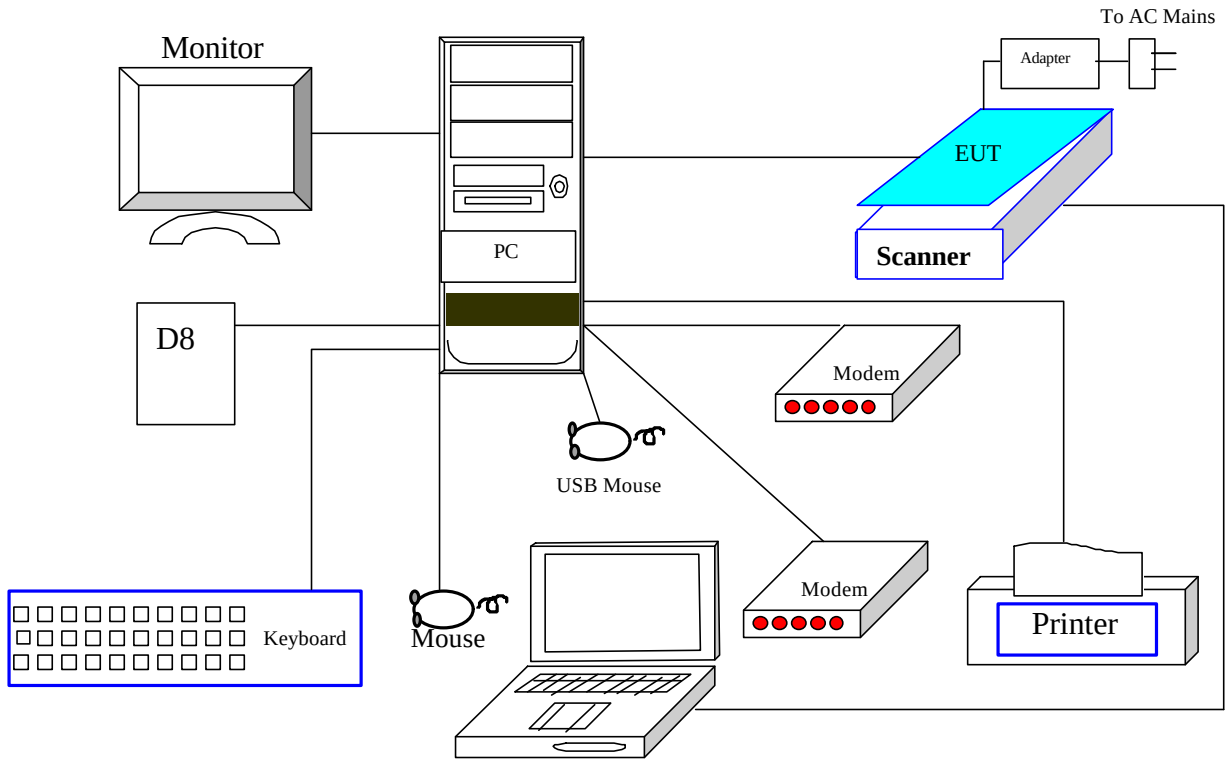
1.2.10 Mouse

Model Number	: MUS2U
Serial Number	: N/A
FCC ID	: DoC
Manufacturer	: TREMON
Data Cable	: Shielded, 1.8m

1.2.11 Digital 8 (D8)

Model Number	: DCR-TRV310
Serial Number	: 1252344
FCC ID	: DoC
Manufacturer	: SONY

1.3 EUT Configuration



1.4 EUT Exercise Software

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

1.4.1 Setup the EUT and simulators as shown on 1.3

1.4.2 Turn on the power of all equipment.

1.4.3 Boot the PC from Hard Disk.

1.4.4 PC reads test software from the control BIOS of scanner and then sent to scanner.

1.4.5 The Scanner (EUT) will start to operate and scan the digitize image data into PC.

1.4.6 PC will display “digitize image data” on monitor.

1.4.7 Printer and modem will keep at standby mode during Scanner operation.

1.4.8 Repeat the above procedure 1.4.4 to 1.4.7

1.5 Test performed

Conducted emissions were invested over the frequency range from **0.15MHz to 30MHz** using a receiver bandwidth of 9kHz.

Radiated emissions were invested over the frequency range from **30MHz to 1000MHz** using a receiver bandwidth of 120kHz. Radiated testing was performed at an antenna to EUT distance of 10 meters.

1.6 Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
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, 1998 Accreditation on NVLAP
NVLAP Lab Code: 200347-0

February 23, 1999 Accreditation on DNV
Statement No. : 413-99-LAB11

December 8, 1998 Registration on VCCI
Registration No. for No.2 Shielded Room C-858
Registration No. for No.1 Open Area Test Site R-823
Registration No. for No.2 Open Area Test Site R-835

January 04, 1999 Accreditation on TUV Rheinland
Certificate No.: I9865712-9901

Name of firm : QuieTek Corporation

Site location : No.75-1, Wang-Yeh Valley, Yung-Hsing Tsuen,
Chiung-Lin, Hsin-Chu County, Taiwan, R.O.C.

2. Conducted Emission

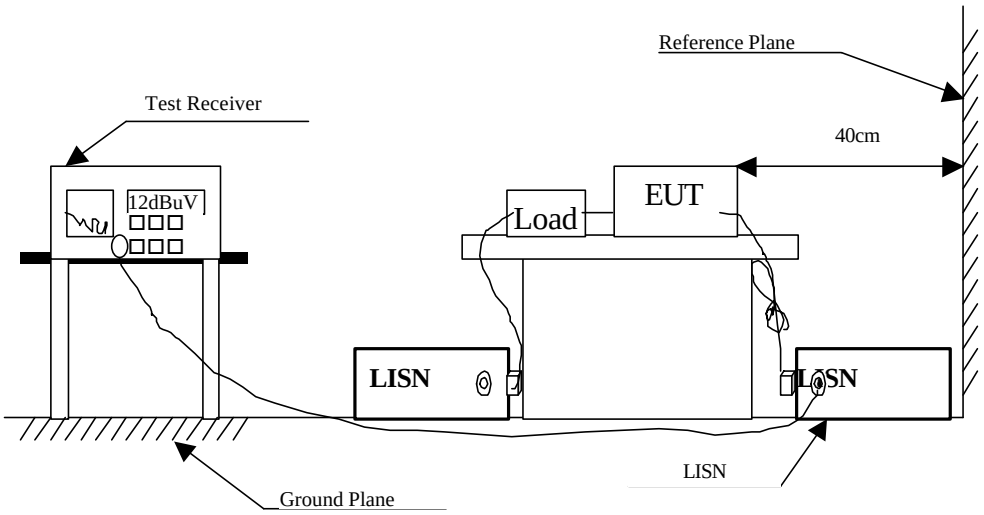
2.1 Test Equipment List

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2000	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2000	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2000	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	N/A	
5	N0.2 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

CISPR 22 Limits (dBuV)					FCC Part 15 Subpart B (dBuV)				
Frequency MHz	Class A		Class B		Frequency MHz	Class A		Class B	
	QP	AV	QP	AV		uV	dBuV	uV	dBuV
0.15 - 0.50	79	66	66-56	56-46	0.45-1.705	1000	60.0	250	48.0
0.50-5.0	73	60	56	46	1.705-30	3000	69.5	250	48.0
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 /1992 on conducted measurement.
The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9kHz.

2.5 Test Results

The conducted emission from the EUT is measured and shown in Attachment 1 of test report. The acceptance criterion was met and the EUT passed the test.

3. Radiated Emission

3.1 Test Equipment

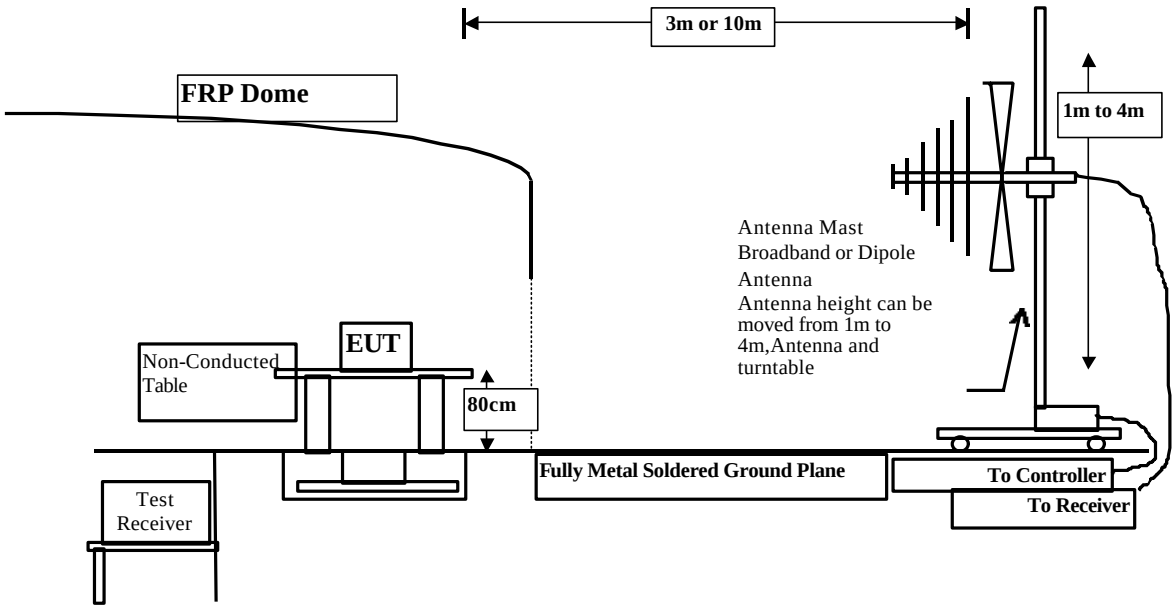
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2000
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2000
		Pre-Amplifier	HP	8447D/3307A01812	May, 2000
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 1999
	X	Horn Antenna	EM	EM6917 / 103325	May, 2000
Site # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2000
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2000
		Pre-Amplifier	HP	8447D/3307A01814	May, 2000
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 1999
	X	Horn Antenna	EM	EM6917 / 103325	May, 2000

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

2. Mark "X" test instruments are used to measure the final test results.

3.2 Test Setup



3.3 Limits

CISPR 22 Limits					FCC Part 15 Subpart B				
Frequency MHz	Class A		Class B		Frequency	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m		Uv/m	DBuV/m	UV/m	DbuV/m
30 – 230	10	40	10	30	30 – 88	90	39	100	40.0
230 – 1000	10	47	10	37	88 – 216	150	43.5	150	43.5
					216 –960	210	46.5	200	46.0
					960 - 2000	300	49.5	500	54.0

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 Line Voltage (dBuV/m) = 20 log RF Line Voltage (uV/m)

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 EUT was positioned such that the distance from antenna to the EUT was 10 meters.
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 /1992 on radiated measurement.
The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz.

3.5 Test Results

The radiated emission from the EUT is measured and shown in attachment 1 of test report.
The acceptance criterion was met and the EUT passed the test.

4. EMI Reduction Method During Compliance Testing

No modification was made during testing.

5. Attachment

Attachment 1: Summary of Test Results	Number of Pages: 17
Attachment 2: EUT Test Photographs	Number of Pages: 8
Attachment 3: EUT Detailed Photographs	Number of Pages: 16

Attachment 1 : Summary of Test Results

The test results in the emission and immunity were performed according to the requirements of measurement standard and process. QuieTek Corporation is assumed full responsibility for the accuracy and completeness of these measurements. The test data of the emission and immunity are listed as the attached data.

All the tests were carried out with the EUT in normal operation, which was defined as:

Mode 1: Link PC, W/TMA, W/USB Cable (1.5m) + FAIRWAY VE50-150A (Adapter)
Mode 2: Link PC, W/TMA, W/1394 Cable (1.5m) + LI-SHIN LSE9802B1540 (Adapter)
Mode 3: Link PC, W/TMA, W/USB Cable (1.5m) + LI-SHIN LSE9802B1540 (Adapter)
Mode 4: Link PC, W/TMA, W/1394 Cable (1.5m) + FAIRWAY VE50-150A (Adapter)

The EUT passed all the tests.

The uncertainty is calculated in accordance with NAMAS NIS 81, The total uncertainty for this test is as follows:

➢ **Emission Test**

- Uncertainty in the Conducted Emission Test: < ± 2.0 dB
- Uncertainty in the field strength measured: < ± 4.0 dB

CONDUCTED EMISSION DATA

Date of Test: July 31, 2000 EUT : Image Scanner

Test Mode : Mode 1 (USB Cable & FAIRWAY Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line1	Measurement Level Line1	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
0.150	0.00	0.10	35.72	35.82	66.00
*0.195	0.01	0.10	55.90	56.01	63.80
0.259	0.03	0.10	45.83	45.96	61.45
0.392	0.05	0.10	39.21	39.36	58.02
0.459	0.06	0.10	36.03	36.19	56.72
0.912	0.10	0.10	36.68	36.88	56.00
Average:					
0.150	0.00	0.10	16.10	16.20	56.00
0.195	0.01	0.10	45.30	45.41	53.82
0.259	0.03	0.10	37.20	37.33	51.46
0.329	0.04	0.10	33.50	33.64	49.48
0.459	0.06	0.10	29.10	29.26	46.71
0.912	0.10	0.10	32.80	33.00	46.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test: July 31, 2000 EUT : Image Scanner

Test Mode : Mode 1 (USB Cable & FAIRWAY Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.196	0.01	0.10	56.08	56.19	63.80
0.259	0.03	0.10	46.78	46.91	61.45
0.326	0.04	0.10	42.18	42.32	59.56
0.391	0.05	0.10	36.12	36.27	58.04
0.456	0.06	0.10	34.72	34.88	56.77
0.521	0.07	0.10	32.54	32.71	56.00

Average:

0.196	0.01	0.10	46.10	46.21	53.78
0.259	0.03	0.10	36.80	36.93	51.46
0.326	0.04	0.10	32.00	32.14	49.55
0.391	0.05	0.10	26.90	27.05	48.04
0.456	0.06	0.10	33.80	33.96	46.77
0.521	0.07	0.10	26.50	26.67	46.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 2 (1394 Cable & L.S.E. Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line1	Measurement Level Line1	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.177	0.01	0.10	50.26	50.37	64.61
0.236	0.02	0.10	40.47	40.59	62.24
0.471	0.06	0.10	36.72	36.88	56.50
0.529	0.07	0.10	35.75	35.92	56.00
4.060	0.19	0.16	36.48	36.83	56.00
6.584	0.23	0.18	35.75	36.16	60.00
20.627	0.36	0.46	38.09	38.91	60.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 2 (1394 Cable & L.S.E. Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.176	0.01	0.10	50.18	50.29	64.68
0.233	0.02	0.10	39.89	40.01	62.33
0.351	0.04	0.10	35.16	35.30	58.94
0.471	0.06	0.10	35.84	36.00	56.50
4.111	0.19	0.16	37.84	38.19	56.00
20.627	0.36	0.46	37.63	38.45	60.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test	:	July 31, 2000	EUT	:	Image Scanner
Test Mode	:	Mode 3 (USB Cable & L.S.E. Adapter)	Detect Mode	:	Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line1	Measurement Level Line1	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.173	0.01	0.10	48.82	48.93	64.79
0.291	0.03	0.10	35.84	35.97	60.50
0.351	0.04	0.10	36.49	36.63	58.94
0.468	0.06	0.10	35.57	35.73	56.54
4.154	0.19	0.16	37.20	37.55	56.00
6.787	0.23	0.18	35.13	35.55	60.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 3 (USB Cable & L.S.E. Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.176	0.01	0.10	49.77	49.88	64.67
0.234	0.02	0.10	39.97	40.09	62.32
0.351	0.04	0.10	36.09	36.23	58.94
0.466	0.06	0.10	34.02	34.18	56.58
3.689	0.18	0.16	35.26	35.60	56.00
6.845	0.23	0.18	34.31	34.73	60.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 4 (1394 Cable & FAIRWAY Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line1	Measurement Level Line1	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.195	0.01	0.10	52.45	52.56	63.84
0.258	0.03	0.10	42.64	42.77	61.49
0.325	0.04	0.10	39.25	39.39	59.59
0.521	0.07	0.10	34.87	35.04	56.00
1.041	0.10	0.10	35.65	35.85	56.00
11.252	0.29	0.24	43.04	43.57	60.00

Average:

0.195	0.01	0.10	43.20	43.31	53.82
0.258	0.03	0.10	34.60	34.73	51.50
0.325	0.04	0.10	32.00	32.14	49.58
0.521	0.07	0.10	32.00	32.17	46.00
1.041	0.10	0.10	31.10	31.30	46.00
11.252	0.29	0.24	42.40	42.93	50.00

Remarks :

1. " * " means that this data is the worst emission level.

CONDUCTED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 4 (1394 Cable & FAIRWAY Adapter) Detect Mode : Quasi-Peak & Average

Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2	Limits
MHz	dB	dB	dBuV	dBuV	dBuV
*0.193	0.01	0.10	52.57	52.68	63.89
0.258	0.03	0.10	43.79	43.92	61.49
0.324	0.04	0.10	39.55	39.69	59.60
0.517	0.07	0.10	35.88	36.05	56.00
1.041	0.10	0.10	36.13	36.33	56.00
11.250	0.29	0.24	44.42	44.95	60.00
26.249	0.39	0.55	43.88	44.82	60.00

Average:

0.193	0.01	0.10	42.90	43.01	53.91
0.258	0.03	0.10	34.30	34.43	51.50
0.324	0.04	0.10	29.30	29.44	49.60
0.517	0.07	0.10	29.30	29.47	46.00
1.041	0.10	0.10	32.60	32.80	46.00
11.250	0.29	0.24	43.80	44.33	50.00
26.249	0.39	0.55	41.30	42.24	50.00

Remarks :

1. " * " means that this data is the worst emission level.

RADIATED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 1 (USB Cable & FAIRWAY Adapter) Test Site : No.1 Open Test Site

Freq.	Cable Loss	Factor	Probe	PreAMP	Reading Level	Measurement	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB		dBuV	dBuV/m	dB	dBuV/m	cm	deg
31.970	1.17	15.89	0.00		7.78	24.84	5.16	30.00	398	116
78.750	1.62	7.71	0.00		8.60	17.92	12.08	30.00	398	77
150.298	2.31	10.72	0.00		12.70	25.73	4.27	30.00	398	80
163.000	2.43	9.69	0.00		10.44	22.56	7.44	30.00	398	90
193.100	2.72	9.10	0.00		12.24	24.06	5.94	30.00	398	90
210.700	2.89	9.49	0.00		11.50	23.88	6.12	30.00	398	92
*222.700	3.01	9.78	0.00		15.34	28.13	1.87	30.00	398	86
229.000	3.06	10.22	0.00		12.36	25.65	4.35	30.00	398	84

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

RADIATED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 1 (USB Cable & FAIRWAY Adapter) Test Site : No.1 Open Test Site

Freq.	Cable Loss Factor	Probe	PreAMP	Reading Level	Measurement Vertical	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
*32.000	1.17	17.49	0.00	9.76	28.42	1.58	30.00	100	70
33.420	1.19	15.14	0.00	8.88	25.20	4.80	30.00	100	202
41.360	1.26	11.88	0.00	8.14	21.28	8.72	30.00	100	77
68.000	1.51	5.47	0.00	10.86	17.84	12.16	30.00	100	203
78.640	1.62	6.53	0.00	11.74	19.89	10.11	30.00	100	202
114.700	1.96	11.35	0.00	8.44	21.75	8.25	30.00	100	118
186.000	2.65	8.96	0.00	9.52	21.13	8.87	30.00	100	105
196.600	2.76	8.94	0.00	13.62	25.32	4.68	30.00	100	89
210.400	2.89	9.35	0.00	12.26	24.49	5.51	30.00	100	183
222.000	3.00	9.42	0.00	11.26	23.68	6.32	30.00	100	179
245.900	3.23	12.01	0.00	8.08	23.33	13.67	37.00	100	83

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss.

RADIATED EMISSION DATA

Date of Test : July 31, 2000 EUT : Image Scanner

Test Mode : Mode 2 (1394 Cable & L.S.E. Adapter) Test Site : No.1 Open Test Site

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement Horizontal	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
149.700	2.30	10.64	0.00	9.96	22.90	7.10	30.00	397	61
180.000	2.60	9.47	0.00	10.52	22.58	7.42	30.00	401	83
195.000	2.74	9.05	0.00	13.76	25.55	4.45	30.00	401	89
*210.000	2.89	9.49	0.00	16.04	28.42	1.58	30.00	397	82
215.875	2.94	9.11	0.00	13.30	25.35	4.65	30.00	397	82
228.290	3.06	10.22	0.00	14.95	28.24	1.76	30.00	397	136
234.863	3.12	10.85	0.00	12.56	26.53	10.47	37.00	397	203
251.570	3.28	12.71	0.00	7.84	23.83	13.17	37.00	300	202
275.500	3.51	12.91	0.00	8.95	25.38	11.62	37.00	300	57
392.400	4.23	15.44	0.00	6.27	25.94	11.06	37.00	300	16

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

RADIATED EMISSION DATA

Date of Test	:	July 31, 2000	EUT	:	Image Scanner
Test Mode	:	Mode 2 (1394 Cable & L.S.E. Adapter)	Test Site	:	No.1 Open Test Site

Freq.	Cable Loss Factor	Probe	PreAMP	Reading Level	Measurement Vertical	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
59.870	1.44	6.00	0.00	14.32	21.76	8.24	30.00	99	183
84.372	1.67	8.26	0.00	8.34	18.27	11.73	30.00	99	135
139.290	2.21	11.15	0.00	8.63	21.98	8.02	30.00	99	123
*149.872	2.31	10.43	0.00	16.03	28.77	1.23	30.00	99	202
159.495	2.39	10.38	0.00	12.45	25.22	4.78	30.00	99	177
170.872	2.50	9.42	0.00	8.98	20.91	9.09	30.00	99	177
203.883	2.83	9.46	0.00	12.75	25.04	4.96	30.00	99	18
215.870	2.94	9.13	0.00	9.42	21.49	8.51	30.00	99	159
228.710	3.06	10.13	0.00	12.01	25.21	4.79	30.00	99	76
251.700	3.29	12.79	0.00	4.68	20.76	16.24	37.00	99	203

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss.

RADIATED EMISSION DATA

Date of Test	:	July 31, 2000	EUT	:	Image Scanner
Test Mode	:	Mode 3 (USB Cable & L.S.E. Adapter)	Test Site	:	No.1 Open Test Site

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
*150.000	2.31	10.72	0.00	15.38	28.41	1.59	30.00	398	106
159.620	2.40	10.32	0.00	10.15	22.87	7.13	30.00	398	203
192.930	2.72	9.10	0.00	9.12	20.94	9.06	30.00	398	203
195.385	2.74	9.05	0.00	10.56	22.35	7.65	30.00	398	142
210.417	2.89	9.49	0.00	8.86	21.24	8.76	30.00	398	203
216.000	2.94	9.11	0.00	11.22	23.27	6.73	30.00	398	203
228.360	3.06	10.22	0.00	14.93	28.21	1.79	30.00	398	85
251.500	3.28	12.71	0.00	12.08	28.07	8.93	37.00	300	126
254.640	3.32	13.16	0.00	10.92	27.40	9.60	37.00	300	66
408.600	4.32	16.21	0.00	4.92	25.45	11.55	37.00	236	203

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

RADIATED EMISSION DATA

Date of Test	:	July 31, 2000	EUT	:	Image Scanner
Test Mode	:	Mode 3 (USB Cable & L.S.E. Adapter)	Test Site	:	No.1 Open Test Site

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
*149.700	2.30	10.38	0.00	16.04	28.72	1.28	30.00	99	202
186.000	2.65	8.96	0.00	7.61	19.22	10.78	30.00	99	16
192.020	2.71	8.88	0.00	7.02	18.61	11.39	30.00	99	114
200.452	2.79	9.20	0.00	11.21	23.20	6.80	30.00	99	78
210.640	2.89	9.35	0.00	10.52	22.75	7.25	30.00	99	32
216.040	2.94	9.13	0.00	10.70	22.77	7.23	30.00	99	203
221.508	2.99	9.32	0.00	11.65	23.96	6.04	30.00	99	167
227.360	3.06	10.01	0.00	10.41	23.47	6.53	30.00	99	167
228.430	3.06	10.13	0.00	10.05	23.25	6.75	30.00	99	129
276.000	3.52	12.66	0.00	7.35	23.53	13.47	37.00	99	27

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss.

RADIATED EMISSION DATA

Date of Test :	July 31, 2000	EUT :	Image Scanner
Test Mode :	Mode 4 (1394 Cable & FAIRWAY Adapter)	Test Site :	No.1 Open Test Site

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement	Margin	Limit	Ant Horizontal	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
*30.010	1.15	16.80	0.00	10.70	28.65	1.35	30.00	398	128
31.960	1.17	15.89	0.00	8.62	25.68	4.32	30.00	398	203
41.430	1.26	11.71	0.00	9.04	22.01	7.99	30.00	398	93
78.500	1.62	7.71	0.00	8.20	17.52	12.48	30.00	398	203
145.000	2.25	11.26	0.00	13.98	27.49	2.51	30.00	398	203
150.000	2.31	10.72	0.00	15.16	28.19	1.81	30.00	398	91
196.600	2.76	9.10	0.00	16.26	28.12	1.88	30.00	398	83
222.900	3.01	9.78	0.00	15.30	28.09	1.91	30.00	398	70
228.900	3.06	10.22	0.00	10.58	23.87	6.13	30.00	398	54

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

RADIATED EMISSION DATA

Date of Test	:	July 31, 2000	EUT	:	Image Scanner
Test Mode	:	Mode 4 (1394 Cable & FAIRWAY Adapter)	Test Site	:	No.1 Open Test Site

Freq.	Cable Loss	Factor	Probe	PreAMP	Reading Level	Measurement Vertical	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m		dB	dBuV/m	cm	deg
*30.010	1.15	17.05	0.00	9.94	28.14		1.86	30.00	109	114
55.020	1.39	6.80	0.00	14.54	22.73		7.27	30.00	109	110
109.000	1.91	11.15	0.00	11.66	24.71		5.29	30.00	109	157
110.900	1.93	11.62	0.00	10.90	24.44		5.56	30.00	109	123
145.000	2.25	10.96	0.00	12.02	25.23		4.77	30.00	109	110
150.100	2.31	10.43	0.00	15.14	27.88		2.12	30.00	109	203
196.600	2.76	8.94	0.00	12.70	24.40		5.60	30.00	109	87
215.900	2.94	9.13	0.00	9.20	21.27		8.73	30.00	109	129
221.400	2.99	9.32	0.00	11.82	24.13		5.87	30.00	109	199

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss.