Test Report

Class II Change

For

Applicant	**:**	**Mitac Technology Corp.**
Equipment Type	**:**	**Notebook P.C.**
Model	**:**	**A-320T**
FCC ID	**:**	**MAU008**

Report No. : 006H026FI

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	: Mitac Technology Corp.
Address	: No.19-1, Innovation Rd. 1, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.
Equipment Type	: Notebook P.C.
Model	: A-320T
FCC ID.	: MAU008
Measurement Standard	: CISPR 22/1994
Measurement Procedure	: ANSI C63.4 /1992
Operation Voltage	: 120VAC/60Hz
Classification	: Class B
Test Result	: Complied
Test Date	: June 21, 2000
Report No.	: 006H026FI

NVLAP®

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Documented by: Zoe Lee	Test Engineer: Ken Chy	Approved: Gene Chang
Zoe Lee	Ken Chy	Gene Chang

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1. General Information

1.1 EUT Description

Applicant	: Mitac Technology Corp.
Address	: No.19-1, Innovation Rd. 1, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.
Equipment Type	: Notebook P.C.
Model	: A-320T
FCC ID	: MAU008
Operation Voltage	: 120VAC/60Hz
Mother Board	: Mitac, A-SERIES, 411112000094
CPU	: INTEL, PML50002001AA, W248004444, Speed: 500MHz
FDD	: TEAC, FD-05HG-5661
HDD	: Fujitsu, MHE2064AT,01021869
CD-ROM	: TEAC, CD-224E, 19770339-04
LCD-PANEL	: D291301
LCD-INVERTER	: Mitac, A7601320, 412112000007
SDRAM	: UNIFOSA, U17064IHMV66220, 64M
TRACK PAD	: Mitac, I-SERIES, 793901111011
PC CONVERTOR	: LIEN CHANG, BSD-A760
Battery	: GLW, A14SL, 99GEA14SG600
Power Adapter	: ILAN, F17003D, Cable In: Non-Shielded, 1.8m, a ferrite core bonded.

Remark:

1.The EUT is a Notebook P.C. with ID MAU008.

2.The class II change is issued in changing of speed of CPU from 333MHz to 500MHz, and the model of LCD panel.

2.QuieTek has verified the construction and function in typical operation, them 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 Notebook P.C.(EUT)

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

1.2.2 Monitor

Model Number	: CM752ET-311
Serial Number	: T8E004443
FCC ID	: DoC
Manufacturer	: HITACHI
Data Cable	: Shielded, 1.5m
Power Cord	: Shielded, 1.8m

1.2.3 Keyboard

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

1.2.4 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

1.2.5 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

1.2.6 Mouse

Model Number	: M-S34
Serial Number	: 6ZC84204346
FCC ID	: DZL211029
Manufacturer	: Logitech
Data Cable	: Shielded, 1.8m

1.2.7 Microphone

Model Number	: CD-8000
Serial Number	: N/A
FCC ID	: DoC
Manufacturer	: AIWA
Data Cable	: Non-Shielded, 1m

1.2.8 Earphone

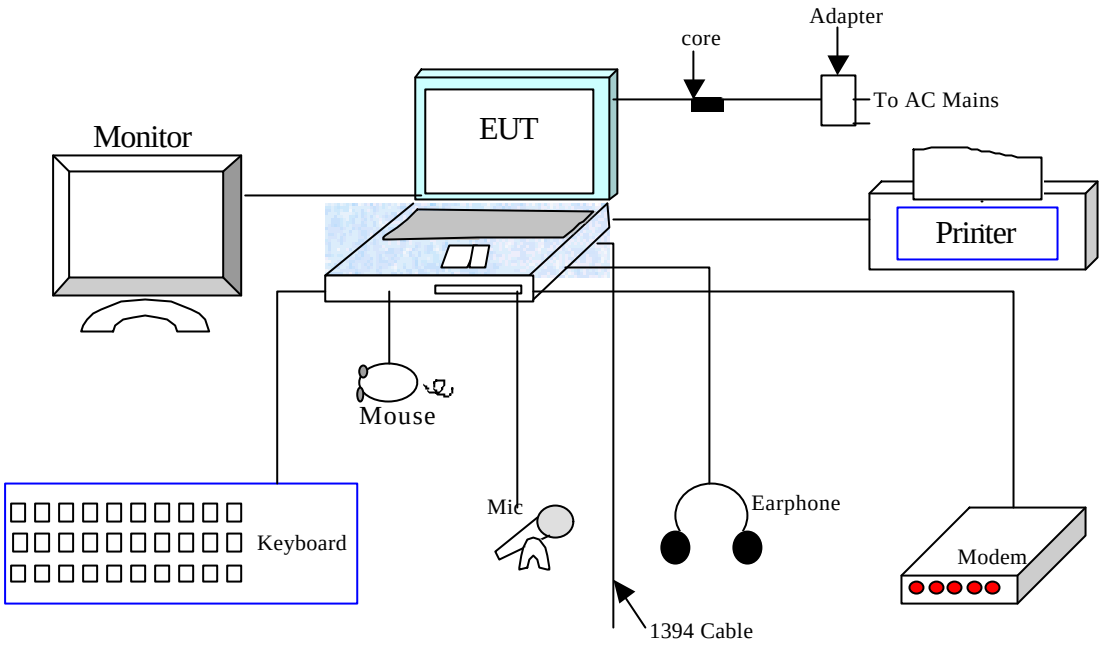
Model Number	: PH136
Serial Number	: N/A
Manufacturer	: BSD
Data Cable	: Shielded, 1.2m

1.2.9 Tel Line:Non-Shielded, 2.5m

1.2.10 UTP Cable: Non-Shielded, 3m

1.2.11 1394 Cable: Shielded, 4m, 1pc

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 (Notebook P.C.) and simulators as shown on 1.3.

1.4.2 Turn on the power of all equipment.

1.4.3 EUT reads data from disk.

1.4.4 EUT sends "H" pattern to printer, the printer will print "H" pattern on paper.

1.4.5 EUT reads and writes data into and from modem.

1.4.6 EUT will read data from floppy disk and then writes the data into floppy disk, same operation for hard disk.

1.4.7 Repeat the above procedure 1.4.4 to 1.4.6.

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

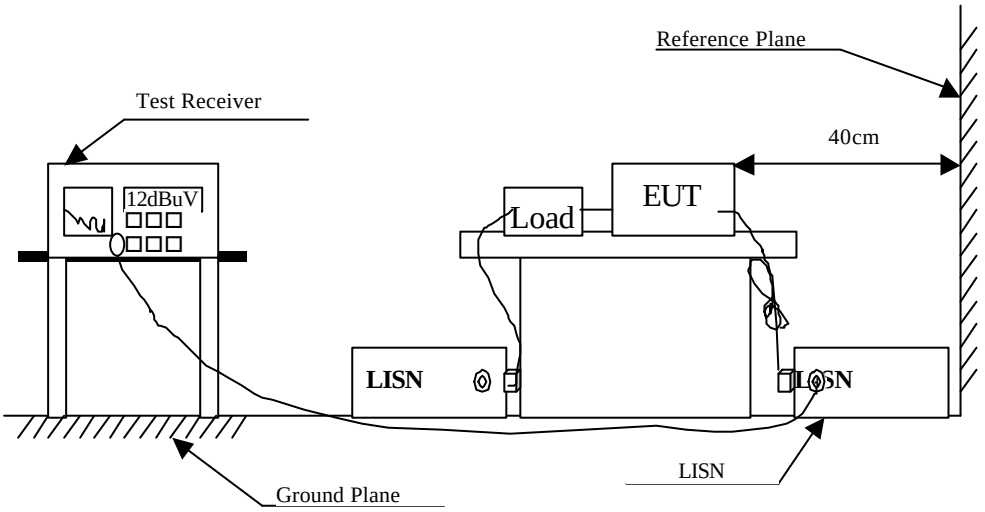
2.1 Test Equipment List

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	Class A		Class B		Frequency	Class A		Class B	
MHz	QP	AV	QP	AV	MHz	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

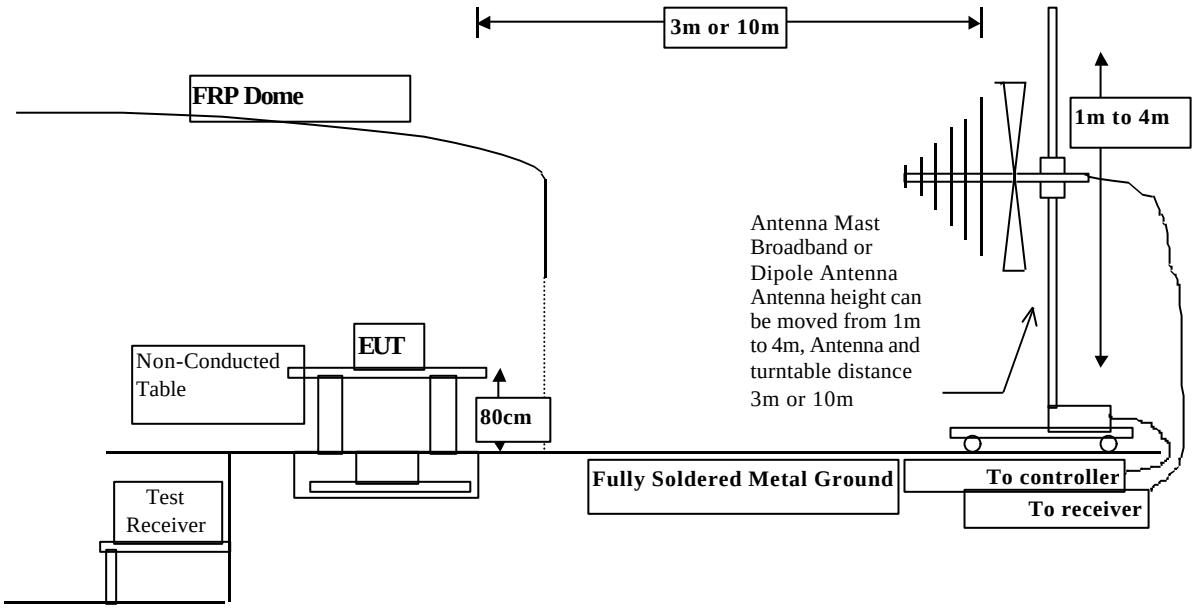
The following test equipment are used during the radiated emission test:

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: 5
Attachment 2: EUT Test Photographs	Number of Pages: 2
Attachment 3: EUT Detailed Photographs	Number of Pages: 3

Attachment 1 : Summary of Test Results

The test results in the emission was 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 is listed as the attached data.

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

Mode 1 : A-320T

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	:	June 21, 2000	EUT	:	Notebook P.C.
Test Mode	:	Mode 1	Detect Mode	:	Quasi-Peak & Average

	Frequency	Cable Loss	LISN Factor	Reading Level Line1	Measurement Level Line1	Limits
	MHz	dB	dB	dBuV	dBuV	dBuV
*	0.185	0.01	0.10	48.35	48.46	64.26
	0.247	0.03	0.10	40.21	40.34	61.86
	0.306	0.04	0.10	39.79	39.93	60.08
	0.368	0.05	0.10	42.09	42.24	58.55
	0.491	0.06	0.10	39.66	39.82	56.15
	1.960	0.14	0.13	33.98	34.25	56.00
	5.390	0.21	0.17	41.88	42.26	60.00
Average:						
	0.185	0.01	0.10	45.60	45.71	54.26
	0.247	0.03	0.10	37.90	38.03	51.86
	0.306	0.04	0.10	39.10	39.24	50.08
	0.368	0.05	0.10	41.50	41.65	48.55
	0.491	0.06	0.10	39.10	39.26	46.15
	1.960	0.14	0.13	33.60	33.87	46.00
	5.389	0.21	0.17	39.70	40.08	50.00

Remarks :

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

CONDUCTED EMISSION DATA

Date of Test	:	June 21, 2000	EUT	:	Notebook P.C.
Test Mode	:	Mode 1	Detect Mode	:	Quasi-Peak & Average

	Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2	Limits
	MHz	dB	dB	dBuV	dBuV	dBuV
*	0.183	0.01	0.10	49.56	49.67	64.35
	0.307	0.04	0.10	42.63	42.77	60.05
	0.369	0.05	0.10	34.63	34.78	58.52
	0.428	0.06	0.10	35.70	35.86	57.29
	1.040	0.10	0.10	35.52	35.72	56.00
	5.261	0.21	0.17	41.81	42.19	60.00
Average:						
	0.183	0.01	0.10	45.10	45.21	54.35
	0.307	0.04	0.10	42.20	42.34	50.05
	0.369	0.05	0.10	42.20	42.35	48.52
	0.428	0.06	0.10	34.40	34.56	47.29
	1.039	0.10	0.10	35.10	35.30	46.00
	5.261	0.21	0.17	41.00	41.38	50.00

Remarks :

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

RADIATED EMISSION DATA

Date of Test	:	June 21, 2000	EUT	:	Notebook P.C.
Test Mode	:	Mode 1	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
72.065	1.55	6.94	0.00	5.68	14.18	15.82	30.00	193	195
199.150	2.78	9.30	0.00	11.61	23.69	6.31	30.00	193	183
232.390	3.10	10.57	0.00	10.93	24.60	12.40	37.00	193	145
248.910	3.25	12.36	0.00	11.65	27.26	9.74	37.00	193	94
298.720	3.74	13.33	0.00	13.00	30.07	6.93	37.00	193	25
325.725	3.89	13.56	0.00	6.61	24.06	12.94	37.00	193	72
431.790	4.44	16.31	0.00	3.05	23.80	13.20	37.00	193	89
*497.815	4.78	17.31	0.00	12.10	34.19	2.81	37.00	193	33
597.495	5.30	18.93	0.00	5.28	29.51	7.49	37.00	193	46

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	:	June 21, 2000	EUT	:	Notebook P.C.
Test Mode	:	Mode 1	Test Site	:	No.1 Open Test Site

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement Vertical	Margin	Limit	Ant	Turn
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	cm	deg
79.300	1.63	6.62	0.00	17.25	25.50	4.50	30.00	193	167
*199.247	2.78	9.07	0.00	14.60	26.46	3.54	30.00	193	16
232.390	3.10	10.41	0.00	9.60	23.11	13.89	37.00	193	89
248.902	3.25	12.13	0.00	10.10	25.49	11.51	37.00	193	108
260.585	3.36	13.90	0.00	15.71	32.97	4.03	37.00	193	119
298.878	3.75	13.54	0.00	13.10	30.39	6.61	37.00	193	102
497.811	4.78	17.11	0.00	10.80	32.69	4.31	37.00	193	115
597.120	5.30	18.51	0.00	2.41	26.22	10.78	37.00	193	90

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.