



Test Report

Class II Change

For

Applicant : Pretec Corporation

Equipment Type : Digital Camera

Model : DC-800

FCC ID : NJB98801118

Report No. : 993023F1



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 : Pretec Corporation
Address : 6F No. 10, Li-Shin Rd., Science-Based Industrial Park,
Hsinchu, Taiwan, R.O.C.
Equipment Type : Digital Camera
Model : DC-800
FCC ID. : NJB98801118
Measurement Standard : CISPR 22/1994
Measurement Procedure : ANSI C63.4 /1992
Operation Voltage : 120Vac/60Hz
Classification : Class B
Test Result : Complied
Test Date : March 23, 1999
Report No. : 993023FI

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: Shelly Fun

Test Engineer: Jack Wu

Approved: Gene Chang



TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	4
1.1 EUT DESCRIPTION	4
1.2 TESTED SYSTEM DETAILS.....	5
1.3 EUT CONFIGURATION	7
1.4 EUT EXERCISE SOFTWARE.....	7
1.5 TEST PERFORMED	7
1.6 TEST FACILITY	8
2. CONDUCTED EMISSION	9
2.1 TEST EQUIPMENT LIST	9
2.2 TEST SETUP	9
2.3 LIMITS	9
2.4 TEST PROCEDURE.....	10
2.5 TEST RESULTS	10
3. RADIATED EMISSION.....	11
3.1 TEST EQUIPMENT	11
3.2 TEST SETUP	11
3.3 LIMITS	12
3.4 TEST PROCEDURE.....	12
3.5 TEST RESULTS	12
4. SUMMARY OF TEST RESULTS	13
5. EMI REDUCTION METHOD DURING COMPLIANCE TESTING	18
6. TEST PHOTOGRAPHS.....	19
7. EUT DETAIL PHOTOGRAPHS.....	21
ATTACHMENT	
LABORATORY OF LICENSE	

QTK 99-F006

1. General Information

1.1 EUT Description

Applicant	: Pretec Corporation
Address	: 6F No. 10, Li-Shin Rd., Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.
Equipment Type	: Digital Camera
Model	: DC-800
FCC ID	: NJB98801118
Operation Voltage	: 120Vac/60Hz
Power Adaptor	: Potrans M/N:Up01811070 I/P:100-250V 0.5A O/P:7V 2.5A Cable Output: Non-shielded, 1.5m Bonded a Ferrite Core
Power Cord	: Non-Shielded, 1.8m
Video Cable	: Non-Shielded Bonded a Ferrite Core
RS232 Cable	: Non-Shielded Bonded a Ferrite Core
USB Cable	: Non-Shielded Bonded a Ferrite Core

- Remark: 1. The EUT is a upgrade version of original model DC-800 (FCC ID.: NJB98801118). The difference is to add a power adaptor which is Potrans M/N:Up01811070.
2. The data shown in this report reflects the worst-case data for each operation

1.2 Tested System Details

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

☒ Digital Camera (EUT)

Model Number : DC-800
Serial Number : N/A
FCC ID : NJB98801118
Manufacturer : Pretec Corporation
Power Adaptor : Potrans M/N:Up01811070
I/P:100-250V 0.5A, O/P:7V 2.5A
Cable Output: Non-shielded, 1.5m
Bonded a Ferrite Core
Power Cord : Non-Shielded, 1.8m

☒ Host Personal Computer

Model Number : PIIL97
Manufacturer : ASUS
Serial Number : AS10228
FCC ID : DoC
Power Cord : Non-Shielded, 1.8m

☒ Monitor

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

☒ Keyboard

Model Number : 6311-TW2C
Serial Number : N/A
FCC ID : DoC
Manufacturer : ACER
Data Cable : Shielded, 1.8m

☒ Mouse

Model Number : M-S34
Serial Number : LZB75078463
FCC ID : DZL211029
Manufacturer : HP
Data Cable : Shielded,, 1.8m

☒ Modem

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

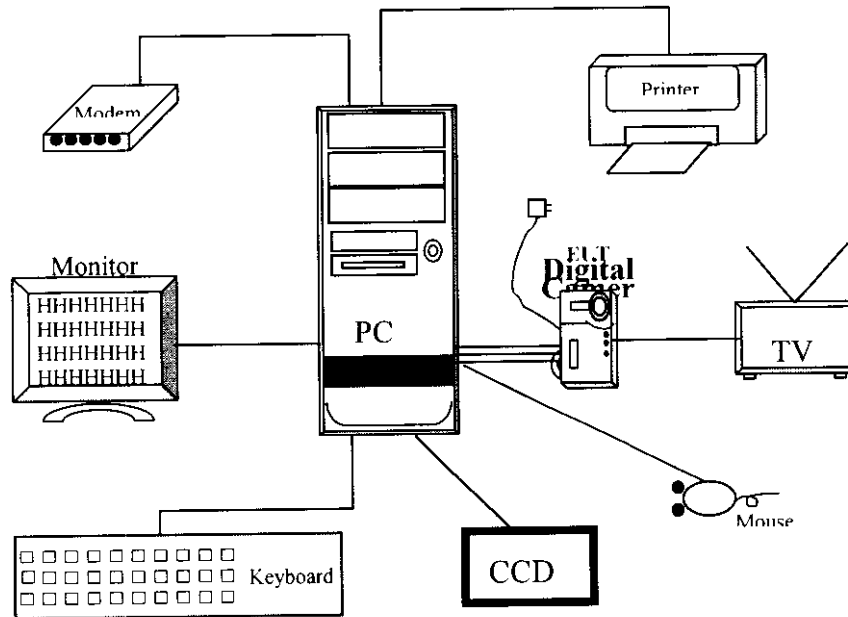
☒ Printer

Model Number : C2642A
Serial Number : MY75N1D2XN
FCC ID : B94C2642X
Manufacturer : HP
Data Cable : Shielded,, 1.2m
Power Adapter : NMB, M/N: C2175A
Cable for AC IN: Non-shielded,, 0.7m
Cable for AC Out: Non-shielded,, 1.5m

☒ TV

Model Number : KV-14NX1/C
Serial Number : 103125
FCC ID : N/A
Manufacturer : Sony
Power Cable : Non-Shielded, 1.8m

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:

- 3.5.1 Setup the EUT and simulators as shown on 3.2
- 3.5.2 Turn on the power of all equipment.
- 3.5.3 Boot the PC from Hard Disk .
- 3.5.4 PC reads test software from disk.
- 3.5.5 The Digital Camera(EUT) will start to operate and capture the video figure into PC.
- 3.5.6 PC will display "video figure" on monitor.
- 3.5.7 Printer and modem will keep at standby mode during Scanner operation.
- 3.5.8 Repeat the above procedure 3.5.4 to 3.5.7

1.5 Test performed

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

Radiated emissions were investigated 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 TÜV 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

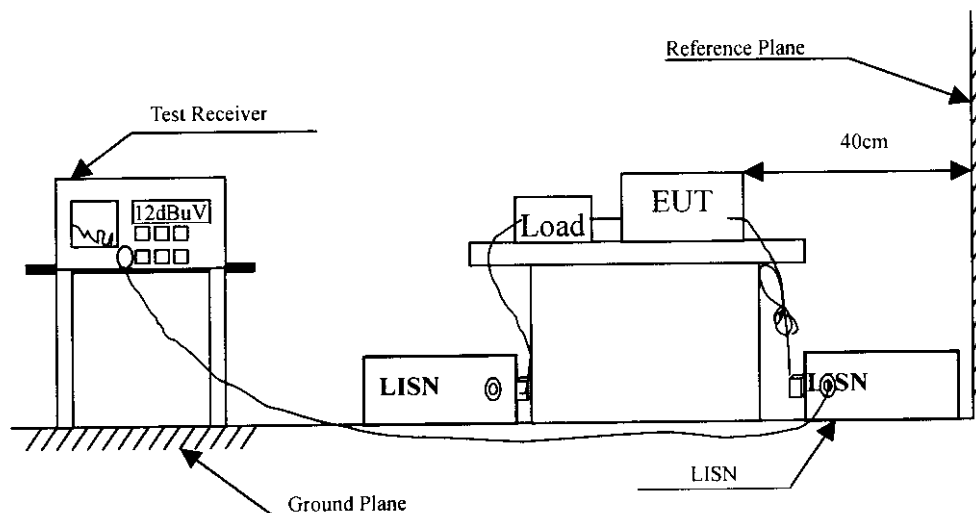
2.1 Test Equipment List

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, 1998	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 1998	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 1998	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	MHz	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 emission from the EUT was below the specified limits. The worst case emissions are shown in Chapter 4. The acceptance criterion was met and the EUT passed the test.

3. Radiated Emission

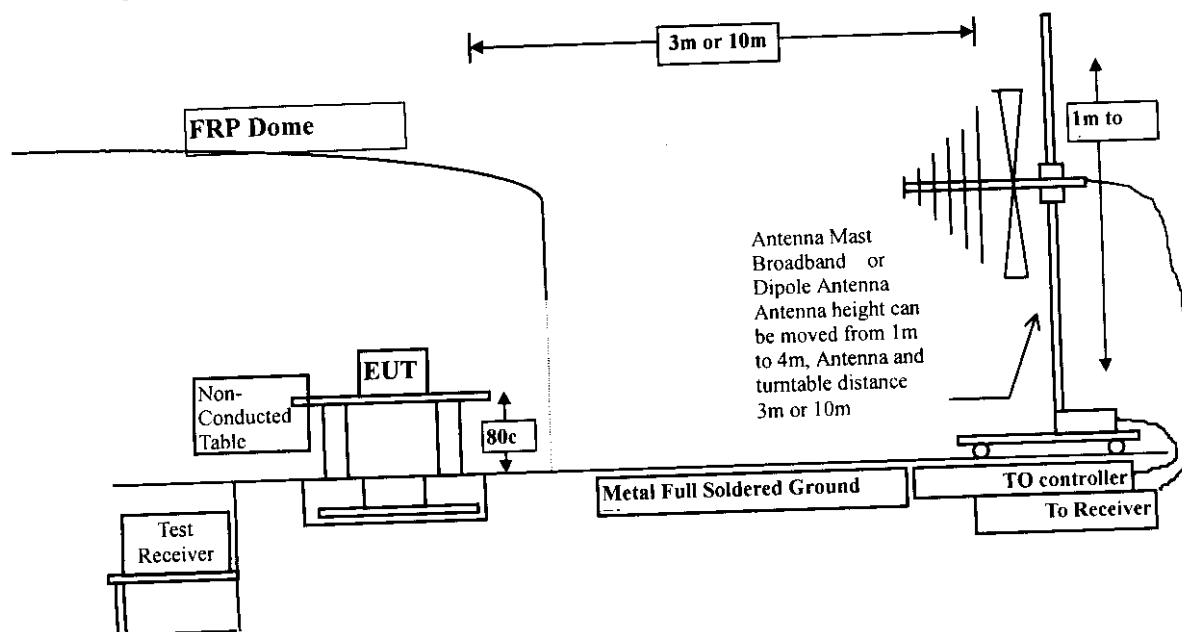
3.1 Test Equipment

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, 1998
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 1998
		Pre-Amplifier	HP	8447D/3307A01812	May, 1998
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 1998
	X	Horn Antenna	EM	EM6917 / 103325	May, 1998
SITE # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 1998
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 1998
		Pre-Amplifier	HP	8447D/3307A01814	May, 1998
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 1998
	X	Horn Antenna	EM	EM6917 / 103325	May, 1998

- 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 (dBuV)					FCC Part 15 Subpart B (dBuV)				
Frequency	Class A		Class B		Frequency	Class A		Class B	
MHz	Distance (m)	dBuV/m	Distance (m)	dBuV/m		uV	dBuV	uV	dBuV
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) = 20 log RF Line Voltage (uV)

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 emission from the EUT was below the specified limits. The worst case emissions are shown in Chapter 4. The acceptance criterion was met and the EUT passed the test.

4. 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 :Potrans UP01811070

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: $< \pm 2.0 \text{ dB}$
- Uncertainty in the field strength measured: $< \pm 4.0 \text{ dB}$

Conducted mission Data

Date of Test	: Mar. 23, 1999	EUT	: Digital Camera
Test Mode	: Mode 1	Detect Mode	: Quasi-Peak & Average

Frequency	Cable	LISN	Reading Level	Measurement Level	Limits
MHz	Loss	Factor	Line1	Line1	
	dB	dB	dBuV	dBuV	dBuV
* 0.152	0.00	0.10	56.50	56.60	65.89
0.304	0.04	0.10	40.90	41.04	60.12
1.054	0.10	0.10	34.18	34.39	56.00
3.580	0.18	0.16	39.46	39.79	56.00
20.966	0.36	0.47	46.09	46.92	60.00
28.123	0.39	0.58	42.85	43.82	60.00

Average:

0.152	0.00	0.10	44.40	44.50	55.89
0.304	0.04	0.10	29.80	29.94	50.12
1.054	0.10	0.10	23.20	23.41	46.00
3.580	0.18	0.16	37.20	37.53	46.00
* 20.965	0.36	0.47	44.00	44.83	50.00
28.122	0.39	0.58	41.70	42.67	50.00

Remarks :

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



Conducted mission Data

Date of Test	Mar. 23, 1999	EUT	Digital Camera
Test Mode	Mode 1	Detect Mode	Quasi-Peak & Average

Frequency	Cable	LISN	Reading Level	Measurement Level	Limits
	Loss	Factor	Line2	Line2	
MHz	dB	dB	dBuV	dBuV	dBuV
* 0.150	0.00	0.10	55.96	56.06	66.00
0.302	0.04	0.10	39.62	39.76	60.18
1.062	0.10	0.10	33.52	33.73	56.00
3.580	0.18	0.16	39.52	39.85	56.00
20.966	0.36	0.47	45.86	46.69	60.00
28.123	0.39	0.58	43.00	43.97	60.00

Average:

0.150	0.00	0.10	44.10	44.20	56.00
0.302	0.04	0.10	26.10	26.24	50.18
1.062	0.10	0.10	22.20	22.41	46.00
3.579	0.18	0.16	37.40	37.73	46.00
* 20.966	0.36	0.47	43.70	44.53	50.00
28.122	0.39	0.58	41.90	42.87	50.00

Remarks :

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

Radiated Emission Data

Date of Test : Mar. 23, 1999 EUT : Digital Camera
 Test Mode : Mode 1

Frequency	Cable	Ant	Reading Level	Emission Level	Limits	Ant	Table
	Loss	Factor	Horizontal	Horizontal		Pos	Pos
MHz	dB	dB/m	dBuV/m	dBuV/m	dBuV/m	cm	deg
73.630	1.57	7.10	9.38	18.05	32	401	41
147.269	2.28	10.94	12.10	25.32	32	401	5
336.009	3.94	13.76	7.70	25.40	71	274	173
384.013	4.19	15.11	3.72	23.02	71	220	164
* 662.711	5.65	19.13	7.99	32.77	71	127	106
711.800	5.90	19.58	3.00	28.48	71	127	166

Remarks:

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



Radiated Emission Data

Date of Test : Mar. 23, 1999 EUT : Digital Camera
 Test Mode : Mode 1

Frequency	Cable	Ant	Reading Level	Emission Level	Limits	Ant	Table
	Loss	Factor	Vertical	Vertical		Pos	Pos
MHz	dB	dB/m	dBuV/m	dBuV/m	dBuV/m	cm	deg
75.175	1.59	7.23	3.69	12.51	32	100	94
208.632	2.87	9.52	11.08	23.47	32	100	115
269.994	3.47	13.00	16.63	33.09	71	100	13
336.010	3.94	14.63	5.58	24.15	71	100	157
* 662.710	5.65	18.51	9.52	33.68	71	244	177
711.802	5.90	18.88	7.09	31.87	71	203	186

Remarks:

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



5. EMI Reduction Method During Compliance Testing

Added a ferrite core on the cable out of power adapter.