Test Report

Product Name : USB 1M HomePNA Adapter

Model No. : UHL1000D

FCC ID.: MQ4UHL1KD

Applicant : AboCom Systems, Inc.

Address : 1F, No. 21, R & D Road II, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.

Date of Receipt : Sep.13, 2001

Date of Test : Sep.28, 2001

Report No. : 019H042FI

Test Report Certification

Test Date : Sep.28, 2001
Report No. : 019H042FI

QuieTek Corporation
Accredited by NIST (NVLAP)
NVLAP Lab Code: 200347-0

Product Name	:	USB 1M HomePNA Adapter
Applicant	:	AboCom Systems, Inc.
Address	:	1F, No. 21, R & D Road II, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C.
Manufacturer	:	AboCom Systems, Inc.
Model No.	:	UHL1000D
FCC ID.	:	MQ4UHL1KD
Rated Voltage	:	Power by PC
Trade Name	:	AboCom
Measurement Standard	:	FCC Part 15: 2001
Measurement Procedure	:	ANSI C63.4:1992
Classification	:	Class B
Test Result	:	Complied

NVLAP Lab Code : 200347-0

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 : (Lisa Chen)

Tested By : (Peter Wu)

Approved By : (Gene Chang)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	:	USB 1M HomePNA Adapter
Trade Name	:	AboCom
FCC ID.	:	MQ4UHL1KD
Model No.	:	UHL1000D
Transfer Speed	:	1Mbps
USB Cable	:	Shielded, 1.5m
RJ11 Cable	:	Non-shielded, 1.8m

Note:

1. This EUT is an USB 1M HomePNA Adapter.
2. QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Conducted Test	Mode 1: Data Transmit
Radiated Test	Mode 1: Data Transmit

1.2. Tested System Details

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

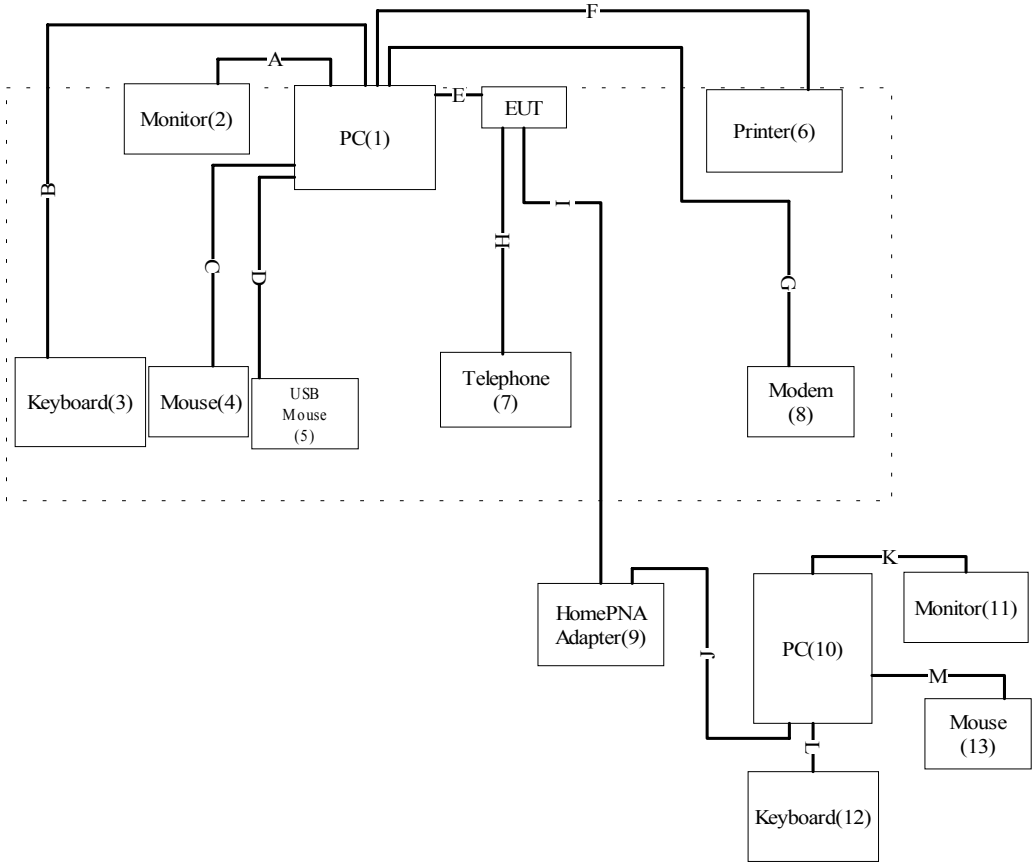
Product		Manufacturer	Model No.	Serial No.	FCC ID
(1)	PC	Compaq	DESK PRO	N/A	DoC
(2)	Monitor	VIEWSONIC	VCDTS21490-1P	ERO1502850	DoC
(3)	Keyboard	IBM	KB-9930	0073463	DoC
(4)	Mouse	Logitech	M-S35	LZA75102600	DZL211029
(5)	USB Mouse	Logitech	M-UE55	DVT-325	DoC
(6)	Printer	HP	P1371A	CN02600150	DoC
(7)	Telephone	KINGTEL	KT-916	435829	DoC
(8)	Modem	ACEEX	1414	980033035	IFAXDM1414
(9)	HomePNA and Fast Ethernet Adapter	AboCom	UHF1000B	N/A	MQ4UHF1KB
(10)	PC	ASUS	P2L97	92M1Y03979	DoC
(11)	Monitor	NEC	15CP	AWI980502810	HSUTRLDH-1570
(12)	Keyboard	ACER	6311-TW4C	916590704C91F24438	DoC
(13)	Mouse	Logitech	M-M35	LZA74956375	DZL210365

Note:

1. The power cord of The device. (1)、(2) 、(10)、(11) are Non-shielded power cord.
2. The power cord of The device. (6) is Shielded power cord.

Signal Cable Type		Signal cable Description
A.	VGA Cable	Shielded, 1.8m, two ferrite cores bonded
B.	Keyboard Cable	Shielded, 1.8m
C.	Mouse Cable	Shielded, 1.8m
D.	USB Mouse Cable	Shielded, 0.8m
E.	USB Cable	Shielded, 1.5m
F.	Printer Cable	Shielded, 1.2m
G.	Modem Cable	Shielded, 1.2m
H.	RJ11 Cable	Non-shielded, 1.8m
I.	RJ11 Cable	Non-shielded, 5.0m
J.	USB Cable	Shielded, 0.8m
K.	VGA Cable	Shielded, 1.6m, two ferrite cores bonded
L.	Keyboard Cable	Shielded, 1.8m
M.	Mouse Cable	Shielded, 1.8m

1.3. Configuration of tested System



1.4. EUT Exercise Software

(1) Setup the EUT and simulators as shown on 1.3

(2) Turn on the power of all equipment.

(3) Boot the PC from Hard Disk.

(4) Data will communicate between partner personal computer and partner personal computer through EUT.

(5) The partner personal computer and partner personal computer monitors' will show the transmitting and receiving characteristics when the communication is success.

(6) Repeat the above procedure 1.4.4 to 1.4.5

1.5. 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

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation

Site Address: N0.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwa, R.O.C.
TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment List

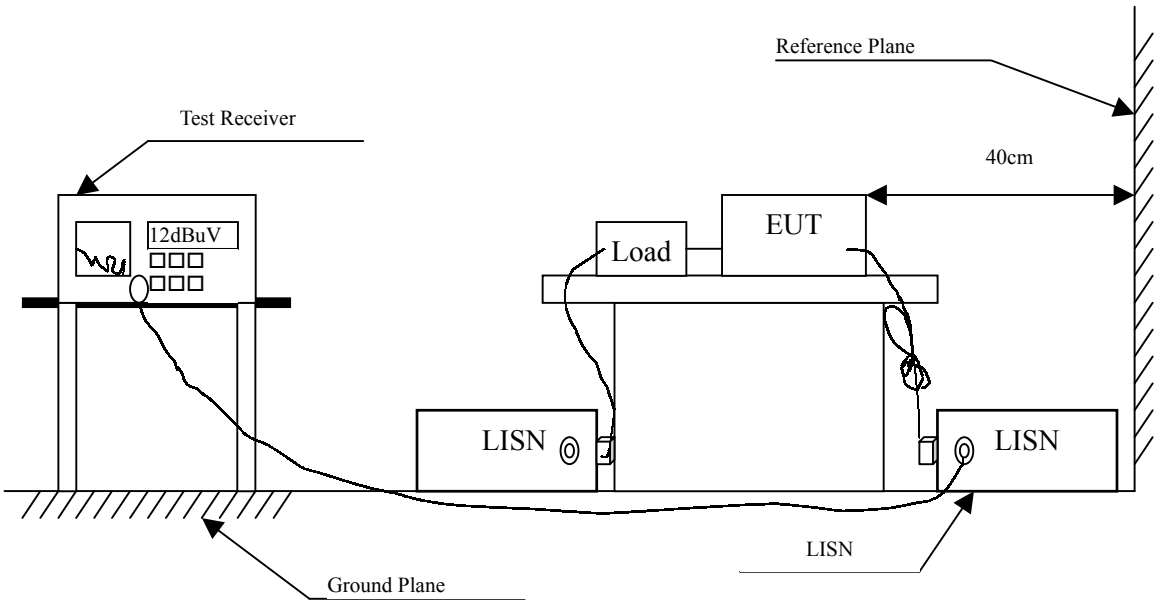
The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal..	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2001	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2001	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2001	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

s



2.3. Limits

FCC Part 15 Limits (dBuV)		
Frequency MHz	Limits	
	uV	dBuV
0.45 - 30	250	48.0

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.

Conducted emissions were invested over the frequency range from 0.45MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 5. The acceptance criterion was met and the EUT passed the test.

3. Radiated Emission

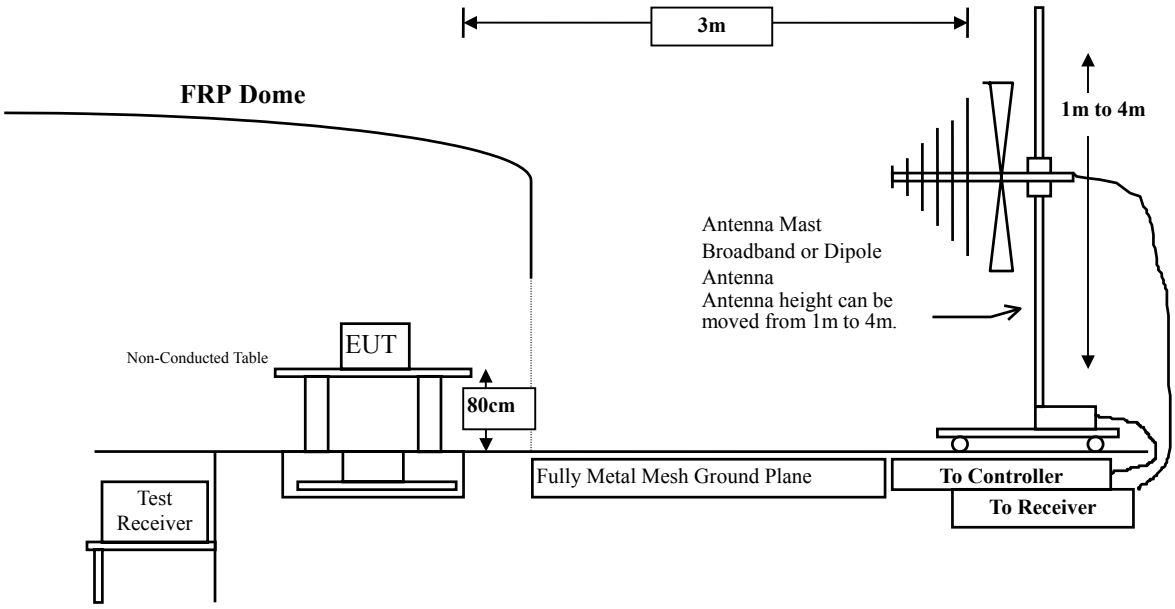
3.1. Test Equipment

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, 2001
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2001
		Pre-Amplifier	HP	8447D/3307A01812	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2001
	X	Horn Antenna	EM	EM6917 / 103325	May, 2001
Site # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2001
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2001
		Pre-Amplifier	HP	8447D/3307A01814	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2001
	X	Horn Antenna	EM	EM6917 / 103325	May, 2001

Note: 1. All equipments that need to calibrate 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
					Above 960	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 Log Voltage (dBuV/m) = 20 log RF Linear 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 3 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.

Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.

3.5. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 5. 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. Summary of Test Datas

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 below.

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

Test Mode:

Conducted Test	Mode 1: Data Transmit
Radiated Test	Mode 1: Data Transmit

5.1. Test Data of Conducted Emission

Product : USB 1M HomePNA Adapter
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Data Transmit

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Measurement Level dBuV	Limits dBuV
Quasi-Peak					
0.503	0.06	0.21	16.92	17.20	48.00
1.269	0.11	0.30	19.65	20.07	48.00
2.157	0.15	0.35	11.21	11.71	48.00
4.540	0.19	0.42	13.41	14.03	48.00
10.700	0.29	0.50	21.35	22.14	48.00
* 15.486	0.33	0.54	24.25	25.11	48.00

Note:

1. All Reading Levels are Quasi-Peak.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable loss.

Product : USB 1M HomePNA Adapter
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Data Transmit

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Measurement Level dBuV	Limits dBuV
Quasi-Peak					
0.501	0.06	0.21	16.32	16.60	48.00
1.236	0.11	0.30	18.99	19.40	48.00
2.156	0.15	0.35	16.32	16.82	48.00
4.324	0.19	0.42	12.21	12.82	48.00
10.707	0.29	0.50	21.43	22.22	48.00
* 15.459	0.33	0.54	25.85	26.71	48.00

Note:

1. All Reading Levels are Quasi-Peak .
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable loss.

5.2. Test Data of Radiated Emission

Product : USB 1M HomePNA Adapter
Test Item : Radiated Emission
Test Site : No.1 OATS
Test Mode : Mode 1: Data Transmit

Freq. MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal							
48.000	1.33	8.14	0.00	13.13	22.60	17.40	40.00
144.000	2.24	12.06	0.00	14.83	29.14	14.36	43.50
240.000	3.17	12.30	0.00	11.47	26.94	19.06	46.00
440.015	4.48	17.01	0.00	3.91	25.40	20.60	46.00
540.020	5.00	18.90	0.00	11.20	35.10	10.90	46.00
600.025	5.31	18.96	0.00	15.18	39.45	6.55	46.00
* 660.025	5.64	19.05	0.00	18.68	43.37	2.63	46.00
720.025	5.94	19.80	0.00	11.64	37.38	8.62	46.00
900.035	6.88	20.84	0.00	12.52	40.24	5.76	46.00
Vertical							
* 48.000	1.33	8.17	0.00	24.37	33.87	6.13	40.00
144.000	2.24	10.80	0.00	14.21	27.25	16.25	43.50
160.000	2.40	9.82	0.00	13.52	25.74	17.76	43.50
240.005	3.17	12.79	0.00	11.27	27.23	18.77	46.00
600.018	5.31	19.06	0.00	12.16	36.53	9.47	46.00
660.020	5.64	19.47	0.00	11.72	36.83	9.17	46.00
720.025	5.94	20.25	0.00	9.26	35.45	10.55	46.00
900.032	6.88	21.26	0.00	8.86	37.00	9.00	46.00

Note:

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

Attachment 1 : EUT Test Photographs

Attachment 2 : EUT Detailed Photographs