



EMC

TEST REPORT

REPORT NO. : F87081861
MODEL NO. : 3C19250
DATE OF TEST : Aug. 20, 1998

PREPARED FOR : ACCTON TECHNOLOGY CORPORATION

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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1.

CERTIFICATION

Issue Date: Oct. 7, 1998

Product : USB ETHERNET ADAPTER
Trade Name : 3COM
Model No. : 3C19250
Applicant : ACCTON TECHNOLOGY CORPORATION
Standard : FCC Part 15, Subpart B, Class B
ANSI C63.4-1992
CISPR 22: 1993 +A1+A2

We hereby certify that one sample of the designation has been tested in our facility on Aug. 20, 1998. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards

PREPARED BY: Rita Yi , DATE: 10/7/98
(Rita Yi)

TESTED BY: James Chen , DATE: 10/7/98
(James Chen)

APPROVED BY: Stephen W.F. Chen DATE: 10/7/98
(Stephen W.F. Chen)

ADVANCE DATA TECHNOLOGY CORPORATION**NVLAP[®]**

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	USB ETHERNET ADAPTER
Model No.	:	3C19250
Power Supply	:	DC 4.25-5.25V/ 0.525W MAX
Power Cord	:	N/A
Data Cable	:	USB Shielded cable (0.6m)

Note: The EUT is a USB to Ethernet adapter which allows a client system on a Ethernet 10Base-T network to attach and communicate using the standard USB port found in PC systems, and it also allows connectivity to a 10Bbase-T Ethernet LAN with peak performance of 8Mbps with typical sustained performance of 6Mbps in an unshared USB topology.

The form-factor is a small external box that has one upstream USB type "B" connector and one standard RJ-45 Ethernet connector.

For more detailed features description, please refer to ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT and user's manual.



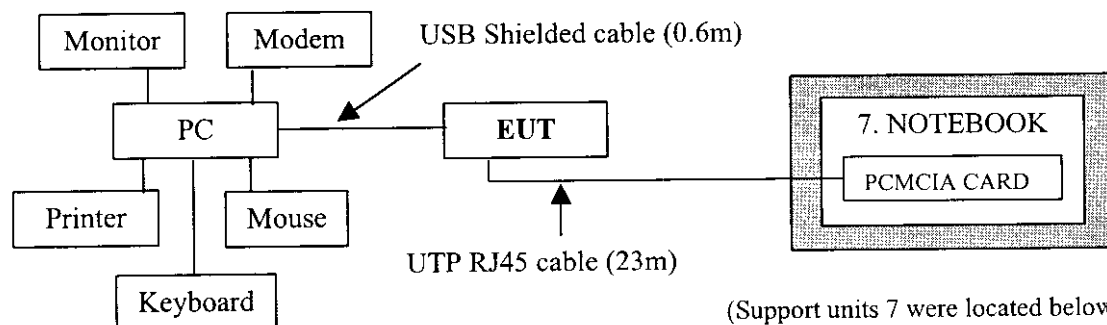
2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No	Product	Brand	Model No.	FCC ID.	I/O Cable
1.	PERSONAL COMPUTER	HP	Vectra VL 5/166 MMX Series 5MT	B94VECTRA500T	Nonshielded Power (1.8m)
2.	COLOR MONITOR	COMPAQ	V410	BJMC4A	Shielded Signal (1.5m) Nonshielded Power (1.8m)
3.	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4m)
4.	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
5.	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (2.4m)
6.	PRINTER	HP	C2642A	B94C2642X	Shielded Signal (1.1m) Nonshielded Power (2.4m)
7.	NOTEBOOK	DELL	TS30H	LLRTS30HT	Nonshielded Power (1.8m)
8.	PCMCIA CARD	ACCTON	ACCTON	N/A	N/A

Note: 1. Support unit 1 acted as SERVER PC and communicated with support unit 7-8, which acted as HOST PC and systems of communication partner. They communicated with each other via EUT at 8Mbps speed with an USB shielded cable (0.6M) and a UTP RJ45 cable (23m). The HOST PC was kept in the control room.

2.3 TEST METHODOLOGY AND CONFIGURATION



(Support units 7 were located below ground plane during the test.)

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4:1992. Radiated testing was performed at an antenna to EUT distance of 10 m on an open area test site. Please refer to the photos of test configuration in Item 5.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8594E	3710A04861	Sept. 14, 1999
CHASE RF Pre Amplifier	CPA92320	1001	June 01, 1999
ROHDE & SCHWARZ Test Receiver	ESVS 10	846285/012	Dec. 12, 1998
CHASE Broadband Antenna	CBL6112A	2343	June 24, 1999
ROHDE & SCHWARZ Precision Dipole	HZ-12 (30~300MHz)	846932/0003	June 06, 2000
ROHDE & SCHWARZ Precision Dipole	HZ-13 (300~1000MHz)	846556/0007	June 17, 2000
HP Signal Generator	8657A	3225A05037	Sep. 17, 1999
EMCO Antenna Tower	2075-2	9712-2124	N/A
EMCO Turn Table	2081-1.53	9712-2030	N/A
EMCO Controller	2090	9712-1283	N/A
CORCOM AC Filter	MRI2030	107/108	N/A
ANRITSU RF Switch	MP59B	M50867	N/A
BELDEN RF Signal Cable	9913 RG-8/U	N/A	N/A
Open Field Test Site	Site A	ADT-RA	July 08, 1999

Note: 1. The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA.

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Dec. 18, 1998
ROHDE & SCHWARZ LISN	ESHS-Z5	848773/004	Nov. 25, 1998
KYORITSU LISN	KNW-407	8/1395/12	July 15, 1999
Shielded Room	Con A	ADT-CA	N/A

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA.



3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	54.0

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range : 0.15 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Input Voltage : 120 Vac, 60 Hz
Temperature : 24 °C
Humidity : 47 %
Atmospheric Pressure : 984 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -16.8 dB at 0.150 MHz Minimum passing margin of radiated emission: -5.0 dB at 456.33 MHz

4.1.1 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
2. SERVER PC and HOST PC run a test program to enable all functions of EUT.
3. SERVER PC transmitted messages to and received messages from the HOST PC via EUT.
4. Repeat steps 3-4.



4.2 TEST DATA OF CONDUCTED EMISSION

EUT: **USB ETHERNET ADAPTER**MODEL: **3C19250**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL:

Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.150	47.20	-	49.20	-	66.00	50.00	-18.8	-	-16.8	-
0.239	37.70	-	38.70	-	62.13	52.13	-24.4	-	-23.4	-
1.578	29.00	-	26.10	-	56.00	46.00	-27.0	-	-29.9	-
2.062	31.00	-	27.90	-	56.00	46.00	-25.0	-	-28.1	-
7.156	36.40	-	36.60	-	60.00	50.00	-23.6	-	-23.4	-
24.570	35.50	-	36.50	-	60.00	50.00	-24.5	-	-23.5	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 4. The emission level of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value

ADT CORP. SHIELDED ROOM A CISPR 22 CLASS B

EUT: 3C19250 (USB ETHERNET ADAPTER)
Operator: JAMES CHEN
Test Spec: LISN :L
Comment: 120V AC / 60Hz
UTP 75 FEETS:USB CABLE 2 FEETS
File name: EN_22CB.SPC
Date: 19. Aug 98 10:58

Report No.: F87081861

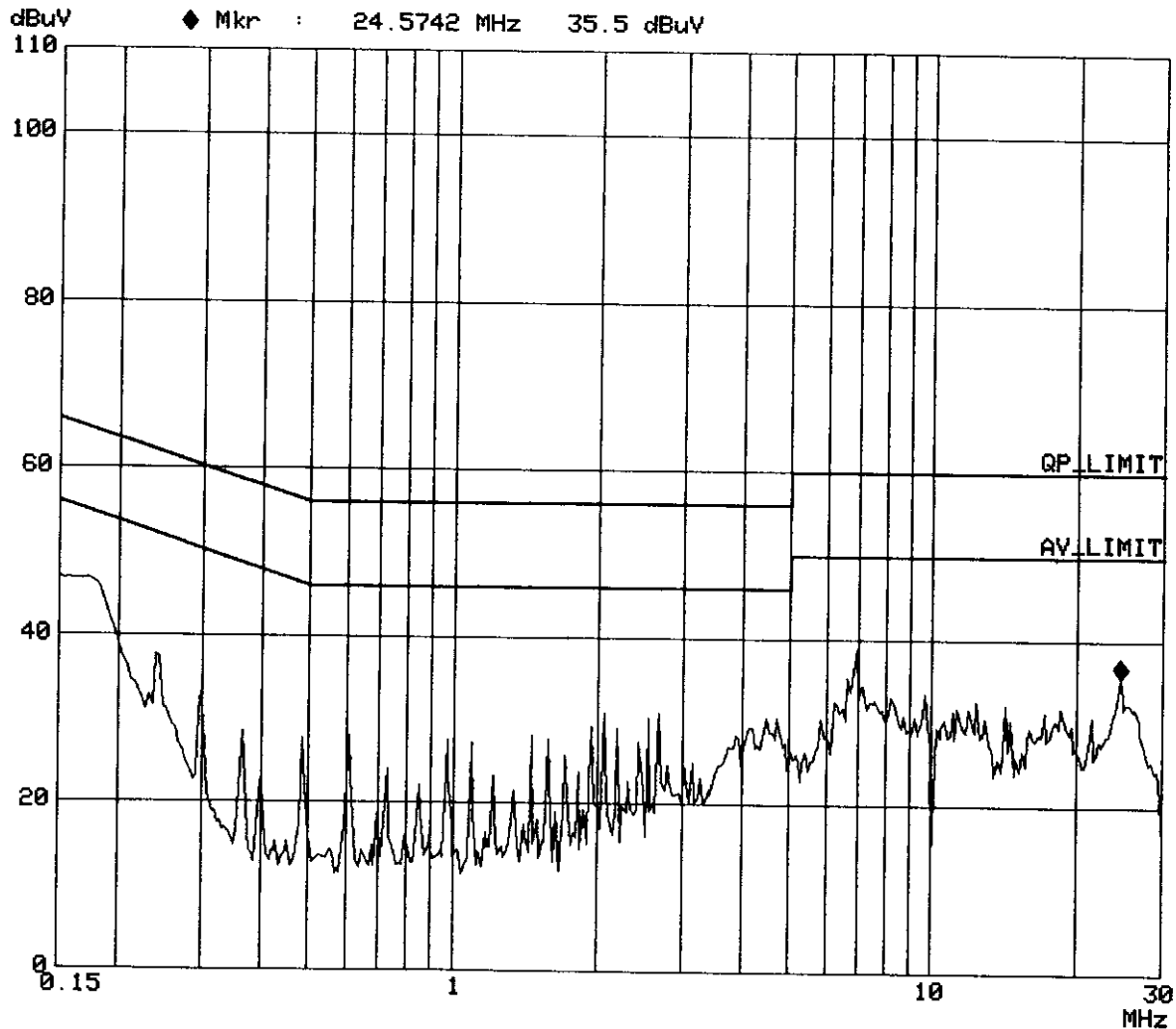
Page: 9-1

Test By: *James Chen*

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.90625k	9k	PK	10ms	10dBLN	OFF
1M	10M	3.90625k	9k	PK	0.05ms	10dBLN	OFF
10M	30M	3.90625k	9k	PK	0.05ms	10dBLN	OFF

Transducer No.	Start	Stop	Name
1	150k	30M	C_CA_01A



ADT CORP. SHIELDED ROOM A CISPR 22 CLASS B

EUT: 3C19250 (USB ETHERNET ADAPTER)
Operator: JAMES CHEN
Test Spec: LISN :N
Comment: 120V AC / 60Hz
UTP 75 FEETS:USB CABLE 2 FEETS
File name: EN_22CB.SPC
Date: 19. Aug 98 11:05

Report No.: F87081861

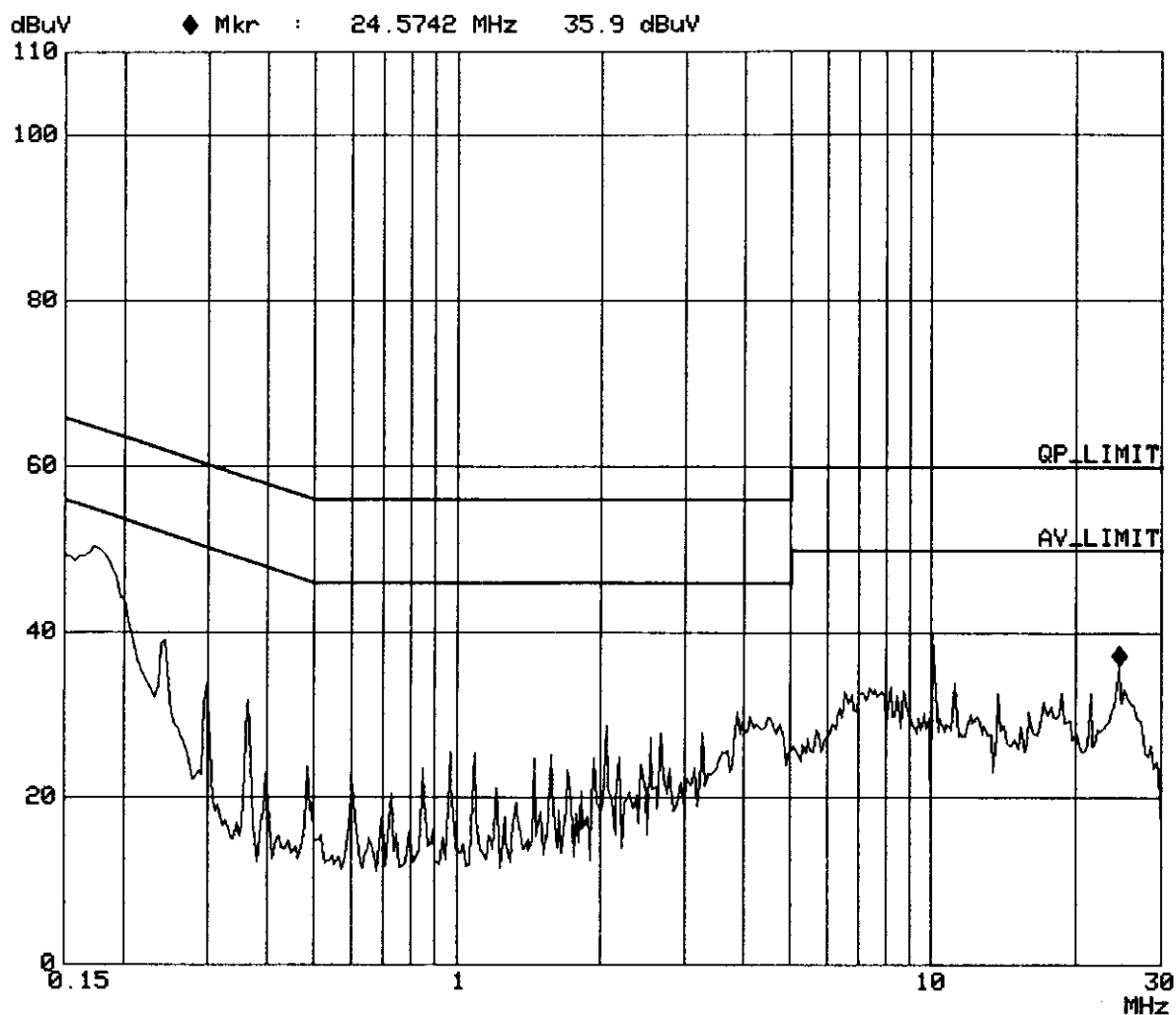
Page: 9-2

Test By: *James Chen*

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.90625k	9k	PK	10ms	10dBLN	OFF
1M	10M	3.90625k	9k	PK	0.05ms	10dBLN	OFF
10M	30M	3.90625k	9k	PK	0.05ms	10dBLN	OFF

Transducer No.	Start	Stop	Name
1	150k	30M	C_CA_01A





4.3 TEST DATA OF RADIATED EMISSION

EUT: **USB ETHERNET ADAPTER**MODEL: **3C19250**

ANTENNA: CHASE BILOG CBL6112A

POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL:

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
59.99	6.2	11.7	17.9	30.0	-12.1
130.02	12.5	7.8	20.3	30.0	-9.7
144.01	11.8	9.4	21.2	30.0	-8.8
192.03	11.0	9.8	20.8	30.0	-9.2
216.05	10.0	8.0	18.0	30.0	-12.0
240.03	11.7	15.3	27.0	37.0	-10.0
299.13	15.7	12.8	28.5	37.0	-8.5
432.04	18.6	12.1	30.7	37.0	-6.3
465.33	19.2	10.7	29.9	37.0	-7.1

- REMARKS :
1. Emission level (dBuV/m) = Correction Factor(dB/m) + Meter Reading (dBuV).
 2. Correction Factor(dB/m) = Ant. Factor(dB/m)+Cable loss(dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION

EUT: **USB ETHERNET ADAPTER**MODEL: **3C19250**ANTENNA: **CHASE BILOG CBL6112A**

POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL:

Frequency (MHz)	Correction Factor (dB/m)	Reading Data dBuV	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
60.00	6.5	15.0	21.5	30.0	-8.5
144.02	13.5	7.8	21.3	30.0	-8.7
160.01	12.8	5.6	18.4	30.0	-11.6
199.43	11.5	11.8	23.3	30.0	-6.7
216.05	11.2	7.3	18.5	30.0	-11.5
220.24	11.1	8.7	19.8	30.0	-10.2
240.02	12.5	19.3	31.8	37.0	-5.2
299.16	15.9	11.2	27.1	37.0	-9.9
456.33	19.1	12.9	32.0	37.0	-5.0

- REMARKS :
1. Emission level (dBuV/m) = Correction Factor(dB/m) + Meter Reading (dBuV).
 2. Correction Factor(dB/m) = Ant. Factor(dB/m)+Cable loss(dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value