

**EXHIBIT 4**

**RFI/EMI TEST REPORT**



# EMC

## TEST REPORT

REPORT NO. : F88070961

MODEL NO. : HyperPen 8000

DATE OF TEST : July 13, 1999

MULTIPLE LISTING FOR:

MODEL: StartWriter BRAND: AIPTEK

PREPARED FOR : AIPTEK INTERNATIONAL INC.

ADDRESS : 3F, NO. 5-1, INNOVATION RD. 1, SCIENCE-BASED  
INDUSTRIAL PARK, HSIN-CHU, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



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## **TABLE OF CONTENTS**

1. CERTIFICATION.....	3
2. GENERAL INFORMATION .....	4
2.1    GENERAL DESCRIPTION OF EUT .....	4
2.2    DESCRIPTION OF SUPPORT UNITS .....	5
2.3    TEST METHODOLOGY AND CONFIGURATION.....	5
3. TEST INSTRUMENTS .....	6
3.1    TEST INSTRUMENTS (EMISSION).....	6
3.2    LIMITS OF CONDUCTED AND RADIATED EMISSION.....	7
4. TEST RESULTS (EMISSION) .....	8
4.1    RADIO DISTURBANCE.....	8
4.1.1    EUT OPERATION CONDITION .....	8
4.2    TEST DATA OF CONDUCTED EMISSION .....	9
4.3    TEST DATA OF RADIATED EMISSION.....	11
5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN....	13
6. ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT .....	15



## 1.

**CERTIFICATION**

Issue Date: Aug. 26, 1999

Product : TABLET  
Trade Name : AIPTEK  
Model No. : HyperPen 8000, StartWriter  
Applicant : AIPTEK INTERNATIONAL INC.  
Standard : FCC Part 15, Subpart B, Class B  
ANSI C63.4-1992  
CISPR 22:1993 + A1:1995 + A2:1996

We hereby certify that one sample of the designation has been tested in our facility on July 13, 1999. 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

TESTED BY: Cody Chang, DATE: 8/26/99  
( Cody Chang )

CHECKED BY: Rita Yi, DATE: 8/26/99  
( Rita Yi )

APPROVED BY: Stephen W.F. Chen, DATE: 8/26/99  
( Stephen W.F. Chen )

**ADVANCE DATA TECHNOLOGY CORPORATION**

**NVLAP**  
Accredited Laboratory



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Product : TABLET  
Model No. : HyperPen 8000  
Power Supply : DC 5V  
Data Cable : Shielded (1.8m)

Note: The EUT is a digitizing TABLET input device with RS232 connector. It has two model names which are identical to each other in all aspects except for their model names:

Model Name	Brand
HyperPen 8000	AIPTEK
StartWriter	AIPTEK

For more detailed features, please refer to User's Manual.



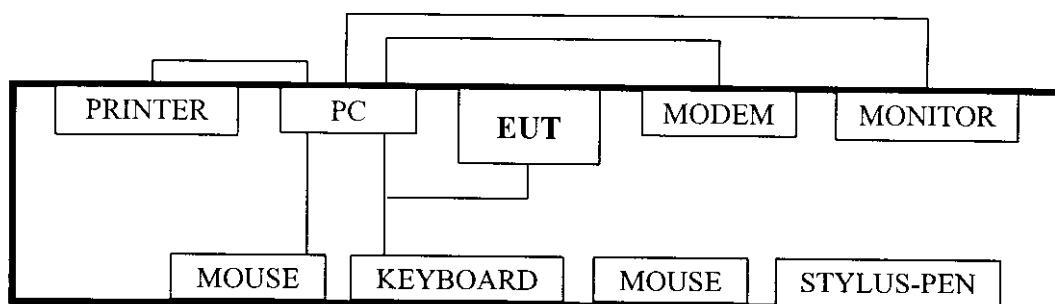
## 2.2 DESCRIPTION OF SUPPORT UNITS

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	NTi	PII-233T	FCC DoC	Nonshielded Power (1.8m)
2	MONITOR	ADI	937G	BR8937G	Shielded Signal (1.2m) Nonshielded Power (1.8m)
3	PRINTER	HP	C2642A	B94C2642X	Shielded Signal (1.2m) Nonshielded Power (1.8m)
4	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.1m) Nonshielded Power (2.1m)
5	MOUSE	LOGITECH	M-S35	DZL211029	Shielded Signal (1.8m)
6	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104	Shielded Signal (1.4m)
7	MOUSE	AIPTEK	Internet Mouse	NRQMOUSEA	NA
8	STYLUS-PEN	AIPTEK	Hyper Pen	NRQAHPPEN	NA

Note: Support unit 7-8 are necessary accessories to enable the function of EUT and have been verified to comply with relative test standard individually.

## 2.3 TEST METHODOLOGY AND CONFIGURATION



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)

##### CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Nov. 13, 1999
ROHDE & SCHWARZ LISN	ESHS-Z5	848773/004	Nov. 11, 1999
KYORITSU LISN	KNW-407	8/1395/12	Aug. 02, 2000
Shielded Room	Con A	ADT-CA	N/A

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS 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.

##### RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8594E	3710A04861	Sep. 14, 1999
CHASE RF Pre Amplifier	CPA9232	1001	Jan. 31, 2000
ROHDE & SCHWARZ Test Receiver	ESVS 10	846285/019	Aug. 18, 1999
CHASE Broadband Antenna	CBL6112A	2502	July 24, 2000
ROHDE & SCHWARZ Precision Dipole (30~300MHz)	HZ-12	846932/0003	June 06, 2000
ROHDE & SCHWARZ Precision Dipole (300~1000MHz)	HZ-13	846556/0007	June 17, 2000
EMCO Antenna Tower	2075-2	9712-2124	N/A
EMCO Turn Table	2081-1.53	9712-2030	N/A
CORCOM AC Filter	MRI2030	107/108	N/A
Open Field Test Site	Site A	ADT-RA	Oct. 03, 2000

Note: 1. The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMAS 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 : DC 5V  
Temperature : 22 °C  
Humidity : 60 %  
Atmospheric Pressure : 990 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -2.1 dB at 0.658 MHz Minimum passing margin of radiated emission: -4.8 dB at 624.11 MHz

### 4.1.1 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. PC runs a test program to enable all functions.
3. PC sends "H" messages to modem.
4. PC sends "H" messages to printer, and the printer prints them on paper.
5. Repeat steps 3-5.



## 4.2 TEST DATA OF CONDUCTED EMISSION

EUT: TABLET

MODEL: HyperPen 8000

6 dB Bandwidth: 9 kHz

PHASE: LINE (L)

Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.189	0.1	44.9	-	45.0	-	64.1	54.1	-19.1	-
0.314	0.2	42.5	-	42.7	-	59.9	49.9	-17.2	-
0.408	0.3	37.6	-	37.9	-	57.7	47.7	-19.8	-
0.529	0.3	42.1	-	42.4	-	56.0	46.0	-13.6	-
0.650	0.3	39.1	-	39.4	-	56.0	46.0	-16.6	-
0.658	0.3	44.4	-	44.7	-	56.0	46.0	-11.3	-

Remarks:

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

**ADT CORP. SHIELDED ROOM A**  
**CISPR 22 CLASS B**

EUT: HyperPen 8000  
 Operator: CODY  
 Test Spec: LISN :L  
 Comment: 120V AC / 60Hz  
 Date: 13. Jul 99 09:20

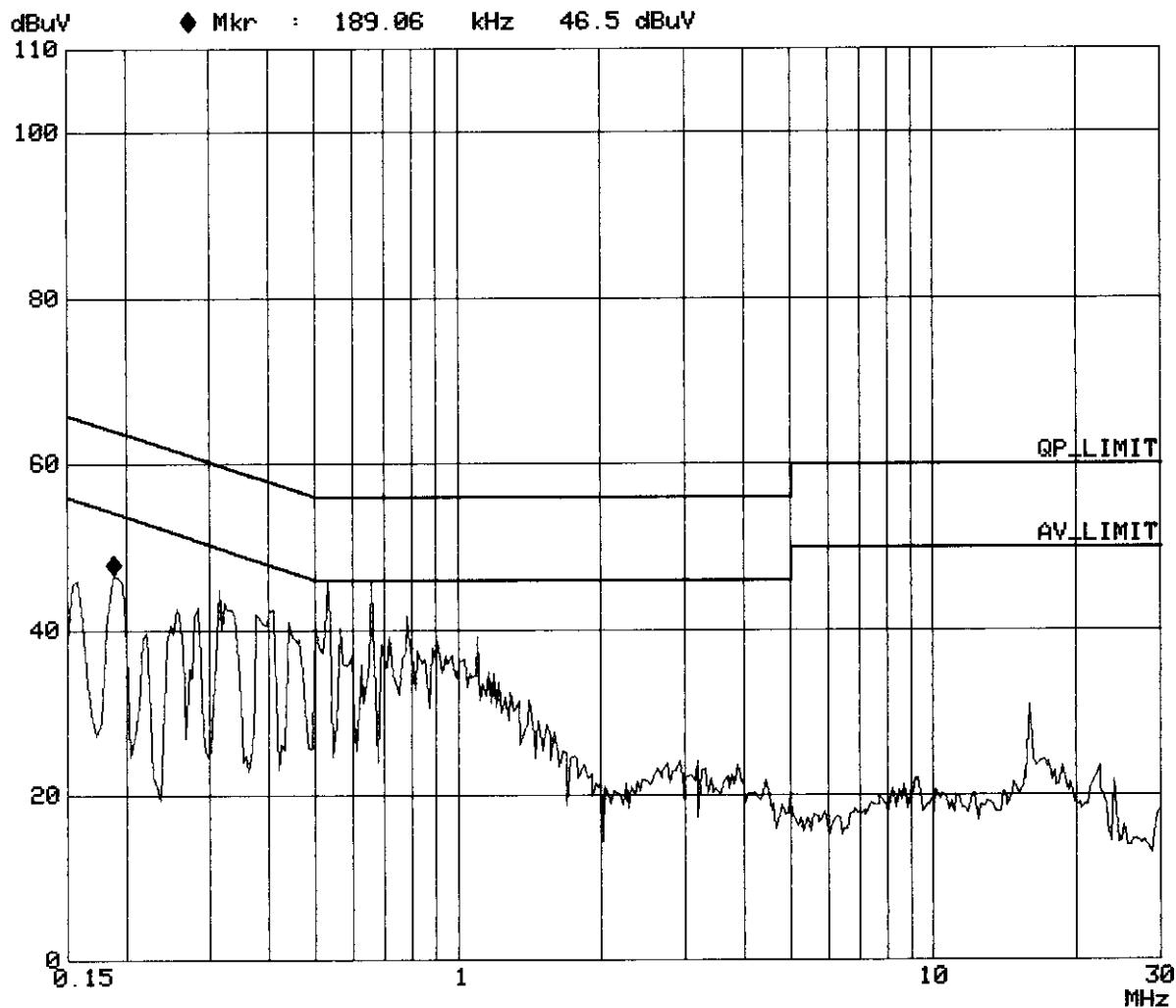
Report No.: F88070961

Page: 9-1

Test By: *Cody Chang*

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	
150k	3M	3.90625k	9k	PK	10ms	10dBBLN	OFF	
3M	10M	3.90625k	9k	PK	0.05ms	10dBBLN	OFF	
10M	30M	3.90625k	9k	PK	0.05ms	10dBBLN	OFF	





## 4.2 TEST DATA OF CONDUCTED EMISSION

EUT: TABLET

MODEL: HyperPen 8000

6 dB Bandwidth: 9 kHz

PHASE: NEUTRAL (N)

Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
		[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.189	0.1	51.7	-	51.8	-	64.1	54.1	-12.3	-
0.314	0.2	46.3	-	46.5	-	59.9	49.9	-13.4	-
0.408	0.3	46.1	-	46.4	-	57.7	47.7	-11.3	-
0.529	0.3	45.9	42.6	46.2	42.9	56.0	46.0	-9.8	-3.1
0.650	0.3	43.9	-	44.2	-	56.0	46.0	-11.8	-
0.658	0.3	46.6	43.6	46.9	43.9	56.0	46.0	-9.1	-2.1

Remarks:

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

**ADT CORP. SHIELDED ROOM A**  
**CISPR 22 CLASS B**

EUT: HyperPen 8000  
 Operator: CODY  
 Test Spec: LISN :N  
 Comment: 120V AC / 60Hz  
 Date: 13. Jul 99 09:24

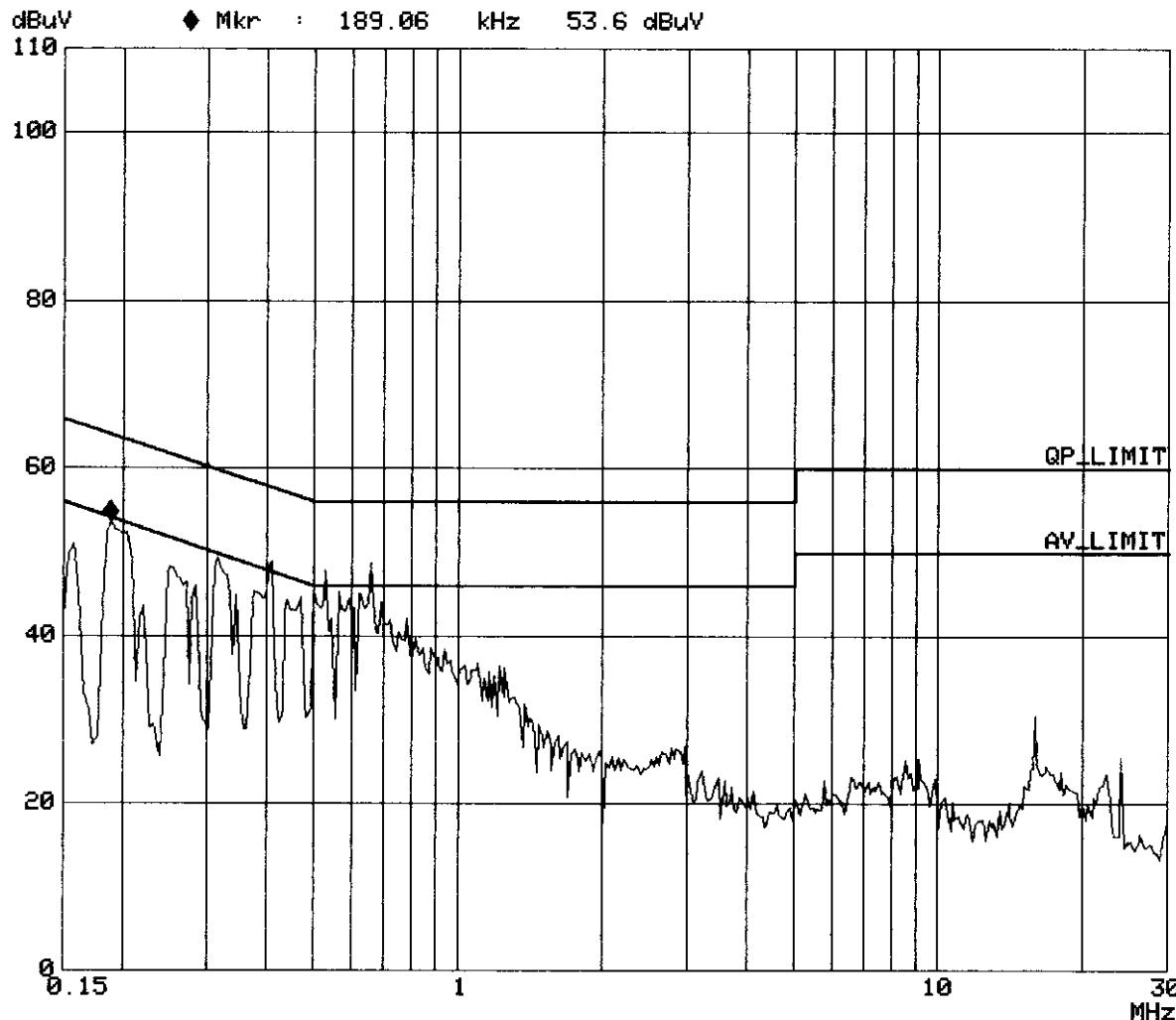
Report No.: F88070961

Page: 10-1

Test By: *Cody Chang*

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	
150k	3M	3.90625k	9k	PK	10ms	10dBLN	OFF	
3M	10M	3.90625k	9k	PK	0.05ms	10dBLN	OFF	
10M	30M	3.90625k	9k	PK	0.05ms	10dBLN	OFF	





### 4.3 TEST DATA OF RADIATED EMISSION

EUT: TABLET

MODEL: HyperPen 8000

ANT. POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height	Table Angle
45.00	12.8	2.2	15.0	30.0	-15.0	400	0
334.78	18.4	4.6	23.0	37.0	-14.0	400	335
624.11	24.3	7.9	32.2	37.0	-4.8	163	317
700.50	24.2	3.5	27.7	37.0	-9.3	155	258
720.14	24.6	5.2	29.8	37.0	-7.2	400	306
939.42	27.0	4.1	31.1	37.0	-5.9	100	279

REMARKS: 1. Emission level (dBuV/m) = Correction Factor (dB)

+ Reading Value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value



### 4.3 TEST DATA OF RADIATED EMISSION

EUT: TABLET

MODEL: HyperPen 8000

ANT. POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height	Table Angle
44.80	12.7	3.5	16.2	30.0	-13.8	140	40
126.03	14.2	7.8	22.0	30.0	-8.0	100	20
137.72	14.5	6.8	21.3	30.0	-8.7	145	9
334.83	18.2	6.6	24.8	37.0	-12.2	115	0
700.59	24.4	-4.4	20.0	37.0	-17.0	135	21
720.14	24.7	-.8	23.9	37.0	-13.1	196	67

REMARKS:

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



## 6. ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT

### Specifications:

- ◆ Active area (D x W): 4" x 3.5" (101.6mm x 76.2mm)
- ◆ Marco cells: 8 marco function keys
- ◆ Physical size: 188 x 200 x 6.9mm
- ◆ Weight: 320g
- ◆ Max. resolution: 3048lpi / 120lpmm
- ◆ Accuracy (overall with pen): 0.42mm, maximum
- ◆ Pressure levels: 512
- ◆ Maximum reading height: 10mm (0.4")
- ◆ Communication interface: RS-232 serial port
- ◆ Connector: 9-pin / 9-25pen D-sub, feamle
- ◆ Certification: FCC Class B, VCCI Class 2, CE(EMC), BSMI, C-Tick