

FCC ID: ONYET1032C

CERTIFICATION

We hereby certify that:

The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (1992)/CISPR 22(1996) and the energy emitted by the sample EUT tested as described in this report is in compliance with CLASS B conducted and radiated emission limits of FCC Rules Part 15, Subpart B/CISPR 22(1996).

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Issued Date : Dec. 06, 1999

Report No. : NEI-FCCB-99196



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1. GENERAL INFORMATION

1-1. Product Description

The ET&T Technology Co., Ltd. Model : ET1032C (referred to as the EUT in the report) is a USB touch screen controller. The summarized feature of EUT are described as following:

- Resolution: 10 bit ADC
- Touch Panel Type: 4-wire
- Interface: COM Port
- LED: Touch/ Untouch indication
- Power: derived from USB Port
- Power consumption: Idle: 14mA Active: 15mA
- Dimension: 79x38x21mm
3.11"x1.50"x0.83"
- Operation Temperature: 0~70 °C
- Storage Temperature: -55~125 °C

1-2. Related Submittal(s) / Grant (s)

1-2-1. Models Covered

Only the EUT model **ET1032C** is submitted for FCC ID filing.

1-2-2. Models Difference

N/A

1-3. Tested System Details

The FCC IDs for all equipments, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

Model No.	FCC ID	Equipment	Cable
ET1032C	ONYET1032C	Touch Screen Controller	Shielded Data Cable(1)
NE64	KFBNE64	Monitor	Shielded Data Cable ⁽²⁾ Un-Shielded Power Cord
444	N/A (3)	PC	Shielded Power Cord
DPU-414	N/A (3)	Printer	Shielded Parallel Data Cable Un-Shielded Power Cord
DM-1414V	N/A(3)	Modem	Shielded Serial Data Cable Un-Shielded Power Cord
FDA-104GA	F42FDA-104G	Keyboard	Shielded Data Cable
M-S34	DZL211029	Mouse	Shielded Data Cable
N/A	N/A	Touch Screen	Un-Shielded Data Cable

Notes:

(1) EUT submitted for grant.

(2) Monitor's attached video cable without ferrite core.

(3) The support equipment was passed by Declaration of Conformity.

1-4. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (1992)/CISPR 22 (1996). Radiated testing was performed at an antenna to EUT distance **10 meters**.

1-5. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of **No. 132-1, Lane 329, Sec. 2, Palain Road, Shijr 221, Taipei, Taiwan, R.O.C.** of NEUTRON ENGINEERING INC. This site has been fully described in report dated **Jun. 25, 1999** Submitted to your office, and accepted in a letter dated **Sep. 02, 1999 (Reg. No. 95335)**.

3. System Test Configuration

3-1. Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). The EUT was connected to support equipment-personal computer and touch screen. Peripherals of PC, such as monitor, keyboard, modem and printer were contained in this system in order to comply with the ANSI C63.4/CISPR22(1996)Rules requirement. The PC operated in the default 640x480/31.5KHz VGA Graphic mode. This operating condition was tested and used to collect the included data.

3-2. EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software, contained on a 3-1/2 inch disk, was inserted into driver A and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read (write) from (to) mass storage device (Disk).
2. Send "H" pattern to video port device (Monitor).
3. Send " H " pattern to parallel port device (Printer).
4. Send " H " pattern to COM port device (Modem).
5. Repeated from 1 to 4 continuously.

As the EUT, Keyboard and mouse are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.

3-3. Special Accessories

Not available for this EUT intended for grant.

3-4. Equipment Modifications

Not available for this EUT intended for grant.

Applicant Signature:**Date:**

Nov. 22, 1999

Type/Printed Name:

Robert Cherng

Position :

President

3.5 Configuration of Tested System

The configuration of tested system is described as the block diagram shown in next page Figure 3.1 and details information of I/O cable and power cord connection are tabalized as Table A and B. The monitor is powered from a floor mounted receptacle (referred to as the wall outlet in the previous described)was tested.

TABLE A - Test Equipment

Item	Equipment	Mfr.	Model/Type No.	I/O Port	FCC ID	Remark
E-1	Touch Screen Controller	ET&T	ET1032C	COM Port	ONYET1032C	EUT
E-2	Monitor	Chern-Yih	NE64	VGA Port	KFBNE64	
E-3	PC	IBM	444	N/A	N/A (3)	
E-4	Printer	SII	DPU-414	Centronic Port	N/A (3)	
E-5	Modem	ACCEX	DM-1414V	Com 2 Port	N/A (3)	
E-6	Keyboard	Forward	FDA-104GA	KB Port	F42FDA-104G	
E-7	Mouse	HP	M-S34	PS/2 Port	DZL211029	
E-8	Touch Screen	KEYTEC	N/A	RJ11 Port	N/A (3)	EUT

Remark:

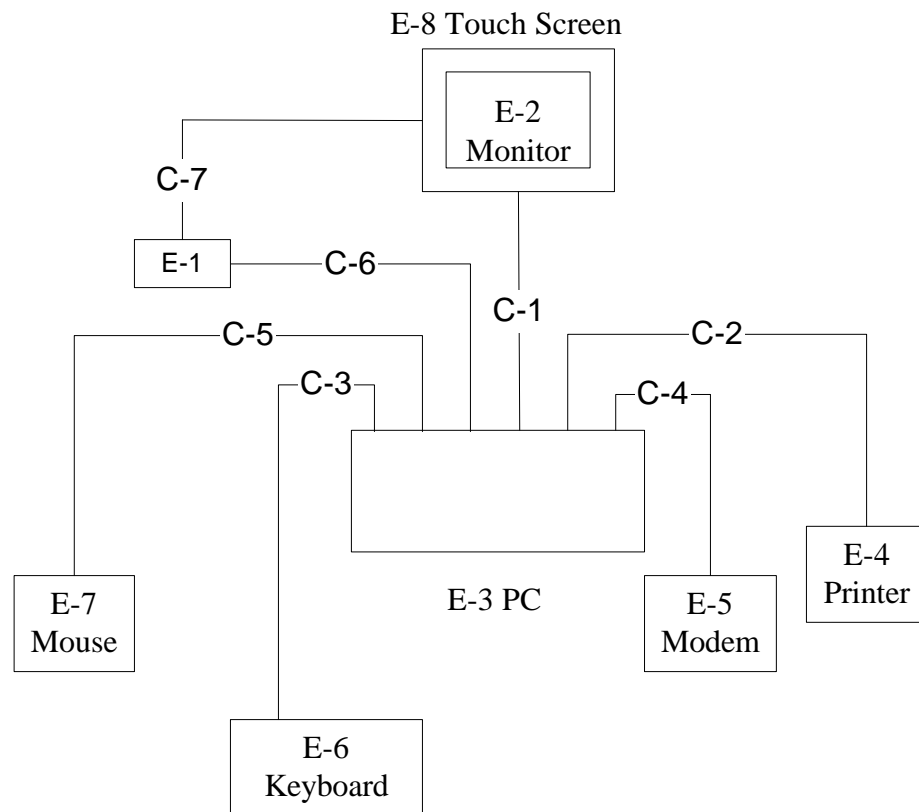
- (1) Unless otherwise denoted as EUT in (Remark) column, device(s) used in tested system is a support equipment.
- (2) Unless otherwise marked as * in (Remark) column, Neutron consigns the supporting equipment(s) to the tested system.
- (3) The Support equipment was passed by Declaration of Conformity.

Table B. - Informations Cable Information

Item	I/O Cable	Device Connected	Shielded	Ferrite Core	Detachable/Permanently	Length	Note
C-1	Video Cable	PC-Monitor	Yes	No	Permanently attached	150cm	
C-2	Centronics Cable	PC-Printer	Yes	No	Detachable type	200cm	
C-3	Keyboard Cable	PC-Keyboard	Yes	No	Permanently attached	200cm	
C-4	RS-232 Cable	PC-Modem	Yes	No	Detachable type	120cm	
C-5	Mouse Cable	PC-Mouse	Yes	No	Permanently attached	280cm	
C-6	COM Cable	EUT-PC	Yes	No	Permanently attached	100cm	*
C-7	RJ11 Cable	EUT-Touch Screen	No	No	Permanently attached	150cm	*

Note:

(1) Unless otherwise marked as * in (Remark) column, Neutron consigns the supporting equipment(s) to the tested system.

Figure 3.1 Configuration of Tested System

4. Block Diagram(s)

Figure 4.1 Block diagram of system, Page 13.A

5. Conducted and Radiated Measurement Photos

5-1. Conducted Measurement Photos



5-2. Radiated Measurement Photos



6. Conducted Emission Datas

6.1 The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Judgement : Passed by **-3.30 dB** in mode of **Line** terminal **11.87 MHz**

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins	
		QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.31	Line	38.70	*	60.02	50.02	-21.32	(QP)
0.72	Line	37.00	*	56.00	46.00	-19.00	(QP)
11.87	Line	52.71	46.70	60.00	50.00	-3.30	(AV)
13.92	Line	40.03	*	60.00	50.00	-19.97	(QP)
19.12	Line	37.16	*	60.00	50.00	-22.84	(QP)
0.26	Neutral	38.50	*	61.46	51.46	-22.96	(QP)
0.72	Neutral	36.70	*	56.00	46.00	-19.30	(QP)
2.21	Neutral	39.60	*	56.00	46.00	-16.40	(QP)
11.87	Neutral	54.31	46.30	60.00	50.00	-3.70	(AV)
13.84	Neutral	40.53	*	60.00	50.00	-19.47	(QP)

Remark :

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz; SCA setting in RBW=100KHz, VBW =100KHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz, VBW=10Hz, Swp. Time =0.3 sec./MHz.
- (2) All readings are QP Mode value unless otherwise stated AVG in column of(Note). If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.

Review :

Andy Chiu

Test Personnel. :

David

Date:

Nov. 22, 1999

7. Radiated Emission Datas

7.1 The following data lists the significant emission frequency, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, as well as the limit. Explanation of the Correction Factor is given in paragraph 7.2.

Judgement: Passed by **-4.86 dB** in polarity of **Vertical** **202.40 MHz**

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Safe Margins (dBuV/m)	Note
114.66	V	39.40	- 14.84	24.56	30.00	- 5.44	
118.74	H	36.10	- 13.84	22.26	30.00	- 7.74	
150.87	H	36.38	- 12.78	23.60	30.00	- 6.40	
175.01	V	40.00	- 15.48	24.52	30.00	- 5.48	
178.92	H	37.00	- 13.48	23.52	30.00	- 6.48	
192.01	V	38.20	- 16.17	22.03	30.00	- 7.97	
202.40	V	39.84	- 14.70	25.14	30.00	- 4.86	
206.40	H	38.03	- 14.49	23.54	30.00	- 6.46	
228.80	H	37.80	- 13.67	24.13	30.00	- 5.87	
228.80	V	38.80	- 13.67	25.13	30.00	- 4.87	
264.80	H	40.02	- 12.44	27.58	37.00	- 9.42	
268.00	V	42.80	- 12.41	30.39	37.00	- 6.61	

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SCA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz.
- (2) All readings are Peak unless otherwise stated QP in column of (Note). Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz.
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

Review : Andy Chiu Test Personnel. : David Date: Nov. 22, 1999

7-2. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor (1)

CF = Cable Attenuation Factor (1)

AG = Amplifier Gain (1) (2)

Remark :

(1) The Correction Factor = AF + CF - AG, as shown in the data tables' Correction Factor column.

(2) AG is not available for Neutron's Open Site Facility

Example of Calculation:

Assume a Receiver Reading of 23.7 dBuV is obtained with an Antenna Factor of 7.2 dBuV and a Cable Factor of 1.1 dBuV. Then:

1. The Correction Factor will be calculated by

$$\text{Correction Factor} = AF + CF - AG = 7.2 + 1.1 - 0 = 8.3 \text{ (dBuV)}$$

as shown in the data tables' Correction Factor column.

2. The Field Strength will be calculated by

$$FS = RA + \text{Correction Factor} = 23.7 + 8.3 = 32 \text{ (dBuV)}.$$

FS is the value shown in the data tables' Corrected Reading column and RA is the value shown in

the data tables' Receiver Reading column. The 32 dBuV/m value was mathematically converted

to its corresponding level in uV/m as:

$$\text{Log}^{-1} [(32.0 \text{ dBuV/m})/20] \times 39.8 \text{ (uV/m)}$$

7-3. Correction Factor VS Frequency

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30.00	11.10	0.90
35.00	10.80	0.50
40.00	11.20	1.00
45.00	11.50	0.80
50.00	11.30	1.00
55.00	10.50	1.30
60.00	9.90	1.00
65.00	8.70	1.50
70.00	7.60	1.20
75.00	6.40	1.40
80.00	6.10	1.30
85.00	7.00	1.40
90.00	8.00	1.70
95.00	10.00	1.50
100.00	11.20	1.90
110.00	12.60	2.00
120.00	13.00	1.80
130.00	12.50	1.80
140.00	12.00	2.00
150.00	12.00	2.20
160.00	13.20	2.40
170.00	14.80	2.50
180.00	16.30	2.50
190.00	17.00	2.50
200.00	17.30	2.40
225.00	10.50	2.70
250.00	11.70	3.10
275.00	12.80	3.70
300.00	14.50	4.00
325.00	14.00	4.50
350.00	14.20	4.50
375.00	14.60	4.60
400.00	15.10	4.80
450.00	16.20	5.40
500.00	17.60	6.50
550.00	17.80	7.00
600.00	18.40	7.10
650.00	19.50	7.10
700.00	20.80	7.20
750.00	20.50	7.50
800.00	21.10	8.00
850.00	22.40	8.60
900.00	23.50	8.90
950.00	24.00	9.70
1000.00	24.80	10.30

8. Photos of Tested EUT:

1. Photo # 1. Front View / Rear View
2. Photo # 2. Side View
3. Photo # 3. Unit Partially Disassembled
4. Photo # 4. Unit Partially Disassembled
5. Photo # 5. Unit Partially Disassembled

Attachment

User's Manual

