



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E021R-004

Applicant : TANDEM TIME, INC.

Address : 3470 Wilshire Blvd. Suite 905 Los Angeles, CA 90010

Manufacturer : PASSMOS Co., Ltd.

Address : 5F, DeaSan B/D, 901-44, Deachi4-Dong, Kangnam-Ku, Seoul, Korea

Type of Equipment : Portable Personal Security Storage Device (Class B Computing Device Peripheral)

FCC ID : PXRPMU01

Model / Type No. : PMU-128

Multiple Model/ Type No. : PMU-32, PMU-64

Serial number : N/A

Total page of Report : 12 pages (including this page)

Date of Incoming : October 16, 2001

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SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, Class B.**

This test report contains only the results of a single test of the sample supplied for the examination.

It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: G. W. Lee
G. W. Lee/ Assist. Chief Engineer

Reviewed by: Y. K. Kwon
Y. K. Kwon/ Chief Engineer

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FCC-003 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
(TEL: 82-31-746-8500 FAX: 82-31-746-8700)

EMC Testing Dept : 426-1 Daeangyong-Ri Chowol-Myun Kwangju-City, Kyunggi-Do 464-860 Korea (TEL: 82-31-765-8289 FAX: 82-31-766-2904)



ONETECH

Testing & Evaluation Lab.

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1. VERIFICATION OF COMPLIANCE

-. APPLICANT : TANDEM TIME, INC.
 -. ADDRESS : 3470 Wilshire Blvd. Suite 905 Los Angeles, CA 90010
 -. CONTACT PERSON : Mr. Joshua S. Ho / President
 -. TELEPHONE NO : 213 383 5980
 -. FCC ID : PXRPMU-128
 -. MODEL NO/NAME : PMU-128
 -. SERIAL NUMBER : N/A
 -. DATE : December 18, 2001

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	Portable Personal Security Storage Device
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15, SECTION 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. GENERAL INFORMATION

2.1 Product Description

The TANDEM TIME, INC., Model PMU-128 (referred to as the EUT in this report) is a Portable Personal Security Storage Device that is connected the USB hub standard of personal computer. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	6MHz, 8 MHz, 12 MHz
NUMBER OF LAYERS	4 Layers
EXTERNAL TERMINALS	USB Standard Port

Model Differences:

The difference(s) compared to the EUT is as follows:

		Model Differences
Basic Model	PMU-128	-
Added Model	PMU-32	Only type designation for memory size (32MB).
	PMU-64	Only type designation for memory size (64MB).

2.2 Related Submittal(s) / Grant(s)

Original submittal only

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2.3 Test System Details

The model numbers for all the equipments that were used in the tested system is:

Model	Manufacturer	FCC ID.	Description	Connected to
PMU-128	PASSMOS Co., Ltd.	PXRPMU01	Portable Personal Security Storage Device(EUT)	PC
Deskpro EXM	Compaq	DoC	PC	-
GPD-G220	SONY	DoC	MONITOR	PC
M-S48a	Logitech	JNZ201213	MOUSE	PC
KB-9963	Compaq	DoC	KEYBOARD	PC
SMS-015N	Sungil Precision	N/A	SPEAKER	PC
2225C	HP	DSI6XU2225	PRINTER	PC
020-0470	CARDINAL	GDE0196	MODEM	PC

2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 12, 1999. (Registration Number: 92819)

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3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN B'D	PASSMOS Co., Ltd.	PASSMOS	N/A
MEMORY B'D	PASSMOS Co., Ltd.	N/A	N/A

3.2 EUT exercise Software

After connecting the EUT to a personal computer, data were continuously read and written from the HDD of the personal computer to the EUT.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Portable Personal Security Storage Device (EUT)	N/A	N	1.2(D)
PC	N	-	1.5(P)
MONITOR	N	Y	1.5(P), 1.2(D)
KEYBOARD	N/A	N	1.2(D)
MOUSE	N/A	N	1.2(D)
SPEAKER	N/A	N	1.0(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	N	Y	1.5(P), 1.5(D)

* The marked "(P)" means the Power Cable.

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Portable Personal Security Storage Device (EUT)	Y	EUT END	Y	BOTH END
PC	-	-	-	-
MONITOR	N	N/A	Y	PC END
KEYBOARD	N	N/A	Y	PC END
MOUSE	N	N/A	Y	PC END
SPEAKER	N	N/A	Y	BOTH END
MODEM	N	N/A	Y	BOTH END



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PRINTER	N	N/A	Y	BOTH END
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3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There was no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test : The EUT was connected to PC and the power line of PC was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and write.	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and write.	X

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5. FINAL RESULT OF MEASUREMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

 Humidity Level : 48 %

 Temperature : 19 °C

 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107

 Type of Test : CLASS B

 Result : PASSED BY -6.26 dB at 12.46 MHz

EUT : Portable Personal Security Storage Device

Date: October 16, 2001

Operating Condition : Data were continuously read and write.

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

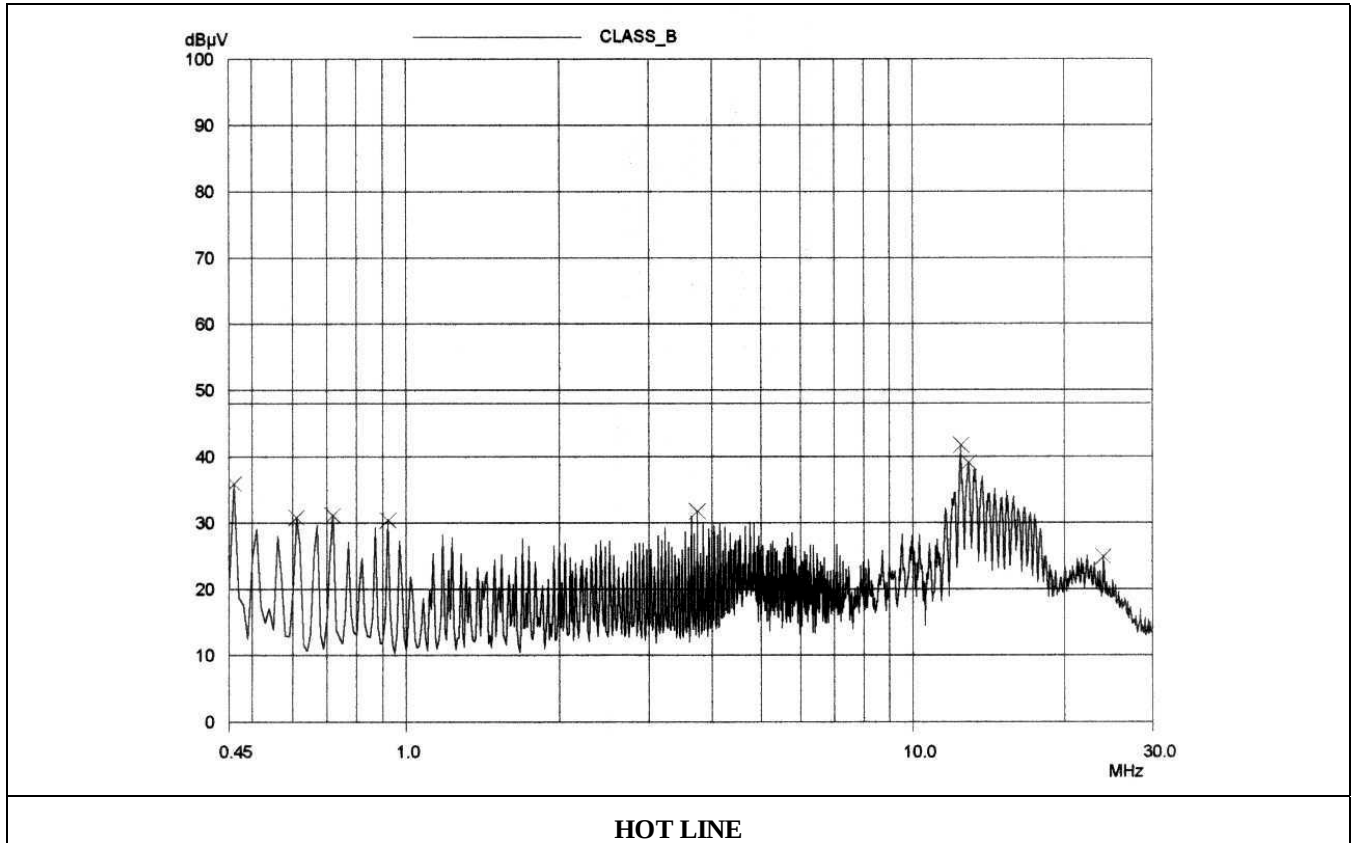
Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
0.46	36.70	NEUTRAL	48.00	-11.30
12.46	41.74	HOT	48.00	-6.26
12.90	39.07	HOT	48.00	-8.93
13.79	37.44	NEUTRAL	48.00	-10.56
15.38	36.10	NEUTRAL	48.00	-11.90
16.71	34.73	NEUTRAL	48.00	-13.27

Line Conducted Emission Tabulated Data


 Tested by: Young-Min Choi / Project Engineer

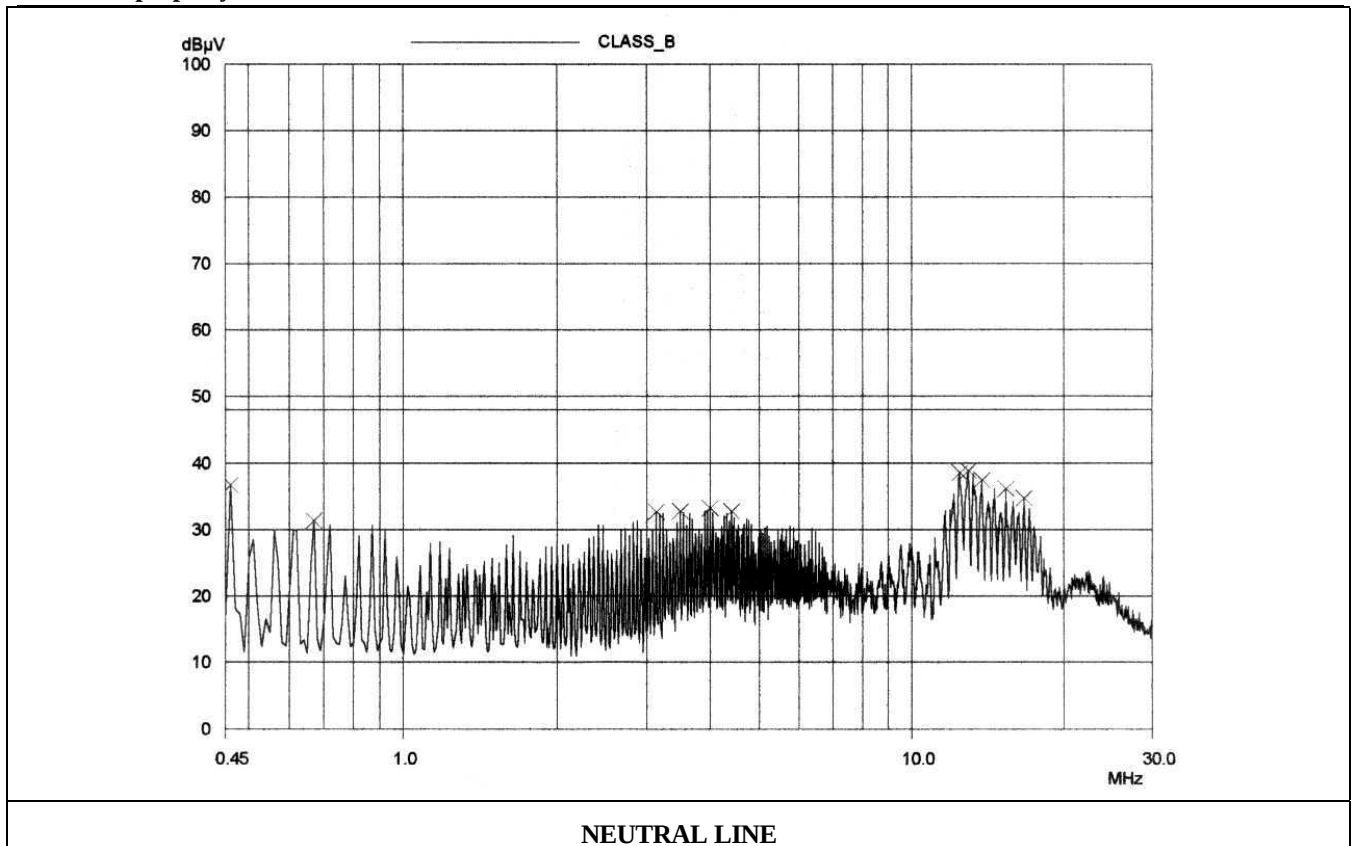


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5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 50 % Temperature : 18 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -4.90dB at 72.00 MHz

EUT : Portable Personal Security Storage Device Date: October 16, 2001
 Operating Condition : Data were continuously read and write.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
36.00	16.10	V	10.91	0.80	27.81	40.00	-12.19
48.00	21.50	V	10.85	0.91	33.26	40.00	-6.74
60.00	16.10	H	9.95	0.98	27.03	40.00	-12.97
72.00	26.70	H	7.40	1.00	35.10	40.00	-4.90
84.00	21.10	V	7.14	1.08	29.32	40.00	-10.68
108.00	22.30	H	13.53	1.19	37.02	43.50	-6.48
120.00	18.10	H	13.19	1.23	32.52	43.50	-10.98
132.00	14.90	H	13.13	1.27	29.30	43.50	-14.20
144.00	9.80	H	13.28	1.33	24.41	43.50	-19.09
156.00	10.40	H	14.59	1.37	26.36	43.50	-17.14
168.00	11.10	H	15.54	1.42	28.06	43.50	-15.44
180.00	10.30	V	16.33	1.45	28.08	43.50	-15.42
204.20	12.10	V	11.20	1.59	24.89	43.50	-18.61
216.00	11.40	H	10.90	1.65	23.95	43.50	-19.55
228.20	14.00	V	10.83	1.72	26.55	46.00	-19.45
240.20	10.40	H	11.37	1.78	23.55	46.00	-22.45
265.80	11.40	H	12.57	1.87	25.84	46.00	-20.16
336.40	16.50	H	14.40	2.21	33.11	46.00	-12.89

Radiated Emissions Tabulated Data



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Tested by: Young-Min Choi / Project Engineer

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6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)

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7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	OCT/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/01	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/01	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/01	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/01	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/01	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/01	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUL/01	12MONTH	■
9.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
10.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■