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PEP Testing Laboratory

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TEL: 886-2-26922097 FAX: 886-2-26956236

Dear Joe Dichoso,
I have sent the measurement data, which is missing in the prior
applicant, of this report, FCCID: OMH6812H-303, at Nov.1, 1999.
It was reply your query in the prior e-mail at Oct.28, 1999.
The document was mailed simultaneous with the e-mail.
I hope it will smooth my path.
Best Regards,
S. L. Shih
PEP/Manager

95461

NOV 1 1999
FCC LABORATORY



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peplab

寄件者: OET <oetech@fccsun07w.fcc.gov>
收件者: <peplab@top2.ficnet.net.tw>
傳送日期: 1999年10月28日 PM 11:38
主旨: tx

To: M. Tsui, PEP Testing Laboratory
From: Joe Dichoso
jdichoso@fcc.gov
FCC Application Processing Branch

Re: FCC ID OMH6812H-303
Applicant: An Thai Wire Harness Industrial Co. Ltd.
Correspondence Reference Number: 10445
731 Confirmation Number: EA95461
Date of Original E-Mail: 10/28/1999

1) The test report is incomplete. All of the measurement data were missing. Please resubmit them.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 60 days of the original e-mail date may result in application dismissal pursuant to Section 2.917 (c) and forfeiture of the filing fee pursuant to section 1.1108.

DO NOT reply to this e-mail by using the Reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet at www.fcc.gov, Electronic Filing, OET Equipment Authorization Electronic Filing. If the response is submitted through Add Attachments, in order to expedite processing, a message which informs the processing staff that a new exhibit has been submitted must also be submitted via Submit Correspondence. Also, please note that partial responses increase processing time and should not be submitted.

Any questions about the content of this correspondence should be directed to the e-mail address listed below the name of the sender.

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EMI TEST REPORT

According to

FCC Part 15 Class B Subpart C

EQUIPMENT : Transmitters

FCC ID. : OMH6812H-303

APPLICANT : AN THAI WIRE HARNESS IND CO., LTD.

ADDRESS 30 LAI CHUNG KEN SHENGKEN HSIANG TAIPEI
HSIEN TAIWAN, R. O. C.

TEST ENGINEER : Jimmy Tang

CHECK BY : John Tong

ISSUE DATE : AUG. 30, 1999

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

PEP TESTING LABORATORY

12-3Fl, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih.
Taipei Hsien, Taiwan, R. O. C.

TEL : 886-02-2692-2097

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1. GENERAL INFORMATION

1.1 Verification of Compliance

EUT: Transmitters
FCC ID: OMH6812H-303
Applicant: AN THAI WIRE HARNESS IND CO., LTD.
Address: 30 LAI CHUNG KEN SHENGKEN HSIANG TAIPEI HSIEN
TAIWAN, R. O. C.
Test Type: CERTIFICATION
Result: PASS
Tested Lab.: PEP Testing Laboratory
Test Date: AUG. 23, 1999
Report Number: 990359

The above equipment was tested by PEP Testing Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows, the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in PEP Testing lab. Doc. No. PEPD-15 .

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)
		Radiation	Conduction
Combined Std. Uncertainty u_c	norm.	± 2.08	± 1.77

M. Y. Tsui

M.Y. Tsui
EMC Manager

Date:

PEP Testing Laboratory

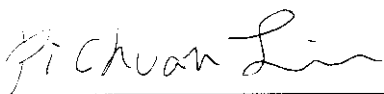
1.2 Equipment Modifications

To achieve compliance to Class B levels, the following change(s) were made in EUT :

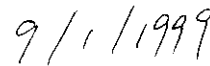
N/A

This modified product was used as EUT for final EMC test and report. The above modifications will be implemented in each production unit sold under the FCC ID : OMH6812H-303

Approved by:



Pi Chuan Lin / Vice President



DATE

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1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	Transmitters	OMH6812H-303	
Housing	ABS		
Power Supply	9-16V		
Clock/OSC Freq.	12MHz		
Device Type	Periodic Operation		

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

1.5 Supporting Test Devices

N/A

1.6 Test Equipment

Manufacture	Model	Serial No.	Description	Last Cal Dd/mm/yy	Cal Due Dd/mm/yy
R & S	ESBI	845658 / 003	EMI Receiver	12/02/99	11/02/00
Rolf Heine	NNB-4/63TL	98008	Line Impedance Stabilization Networks	02/12/98	01/12/99
COM-Power	AH-118	10056	Double Ridge Guide Horn Antenna	10/08/99	09/08/00
Schwarzbeck	VULB	3074	30-1500MHz LOGBICON TRI-LOG Antenna	05/03/99	04/03/00
Rohde & Schwarz	ESMI-Z7	1045-5020	Preamplifier 20MHz-7GHz	05/08/99	05/08/00

All Test Equipment Used are Calibrated Traceable to NIST Standards.

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1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory.
And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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2. PRODUCT LABELING

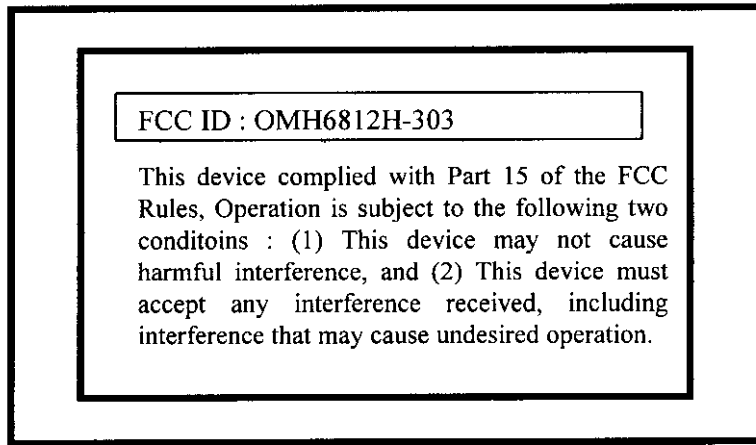


Figure 2.1 FCC ID Label

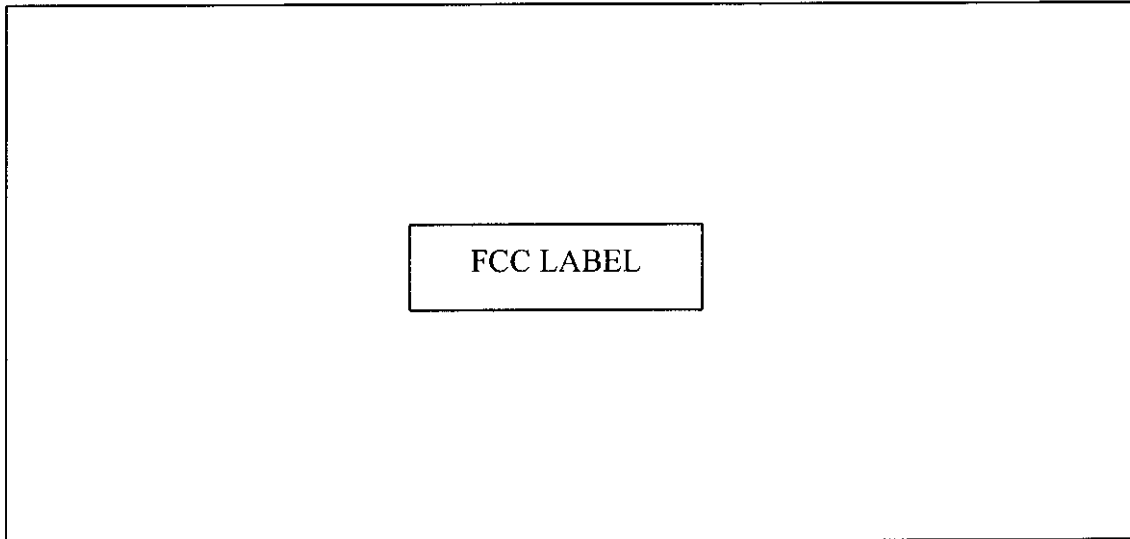


Figure 2.2 Location of Label on Back of the EUT

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3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it).

And its antenna was permanently attached to the EUT (Made on the PCB).

This manually operated transmitter will deactivate immediately after releasing the “OFF” or “ON” switch button.

Testing was performed in “ON” mode. It is worst case.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 and Figure 3.3 illustrate this system, which is tested standing along.

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5. RADIATED EMISSION DATA

5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

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

Where FS: Corrected Field Strength in dB μ V/m

RA: Amplitude of EMI Receiver before correction in dB μ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

The pulse train timing plots are showed in figure 5.1, 5.2 and 5.3. The total time for each pulse train is **96.8 ms**, the long pulse is **750 μ s**, and short pulse is **370 μ s**. The maximum setting for high voltage is **26** long pulses and **33** short pulses.

$$[(0.75\text{ms} \times 26) + (0.37\text{ms} \times 33)] / 96.8 \text{ ms} = 0.328 = -20 \log 0.328 = -9.69 \text{ dB}$$

The maximum average field strength should be **0.328** of the peak field strength measured. So we use peak value minus **9.69dB** as calculated maximum average field strength.

5.2 Test Methods and Conditions

The EUT exercise program was loaded during the radiated emission test. The initial step in collecting radiated data is a EMC Receiver scan of the measurement range 30MHz – 5GHz using peak detector. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, calculated average reading, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

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Radiated Test Data (測試數據)

Frequency (MHz)	Polarity [H or V] Position (X,Y,Z)	Antenna Height (m)	Azimuth (Degree)	Peak Reading (dB μ V/m) (a)	Calculated Average Reading (dB μ V/m) (b)	Antenna Factor (dB) (c)	Cable Loss (dB) (d)	Limit (dB μ V / m) (e)	Margin (dB) (f)
303.989 ⁽³⁾	H.X	2.7	180	62.25	52.56	12.77	2.1	73.7	- 6.82
607.978 ⁽⁴⁾	H.X	1.9	136	38.23	28.54	18.37	3.2	53.7	- 3.59
911.967 ⁽⁴⁾	H.X	1.4	211	25.96	17.27	21.85	4.4	53.7	-10.18
1215.956 ⁽²⁾	H.X	1.0	42	20.81	11.12	24.90	9.5	54.0	- 8.48
303.989 ⁽³⁾	H.Y	2.9	58	59.89	50.20	12.77	2.1	73.7	- 8.63
607.978 ⁽⁴⁾	H.Y	1.6	114	22.43	12.74	18.37	3.2	53.7	-19.39
911.967 ⁽⁴⁾	H.Y	1.3	167	22.78	13.09	21.85	4.4	53.7	-14.36
303.989 ⁽³⁾	H.Z	3.1	174	52.60	42.91	12.77	2.1	73.7	-15.92
607.978 ⁽⁴⁾	H.Z	1.8	301	28.02	18.33	18.37	3.2	53.7	-13.80
1215.956 ⁽²⁾	H.Z	1.1	124	23.07	13.38	24.90	9.5	54.0	- 6.22
303.989 ⁽³⁾	V. X	1.0	27	48.05	38.36	12.77	2.1	73.7	-20.47
607.978 ⁽⁴⁾	V. X	1.0	68	23.34	13.65	18.37	3.2	53.7	-18.48
911.967 ⁽⁴⁾	V. X	1.0	152	29.84	20.15	21.85	4.4	53.7	- 7.30
303.989 ⁽³⁾	V. Y	1.0	51	61.11	51.42	12.77	2.1	73.7	- 7.41
607.978 ⁽⁴⁾	V. Y	1.0	204	35.61	25.92	18.37	3.2	53.7	- 6.21
911.967 ⁽⁴⁾	V. Y	1.0	316	29.24	19.55	21.85	4.4	53.7	- 7.90
303.989 ⁽³⁾	V. Z	1.0	272	61.26	51.57	12.77	2.1	73.7	- 7.26
607.978 ⁽⁴⁾	V. Z	1.0	341	31.50	21.81	18.37	3.2	53.7	-10.32
911.967 ⁽⁴⁾	V. Z	1.0	122	29.09	19.40	21.85	4.4	53.7	- 8.05

(1) See Figure 3.1, 3.2 and 3.3 for definition of position X, Y, Z .

(2) Restricted band.

(3) Fundamental limit is 3750-12500 microvolts/meter linear interpolations.

(4) Spurious limit is 375-1250 microvolts/meter linear interpolations.

(5) (b) = (a) – 9.69dB; (f) = (b) + (c) + (d) – (e)

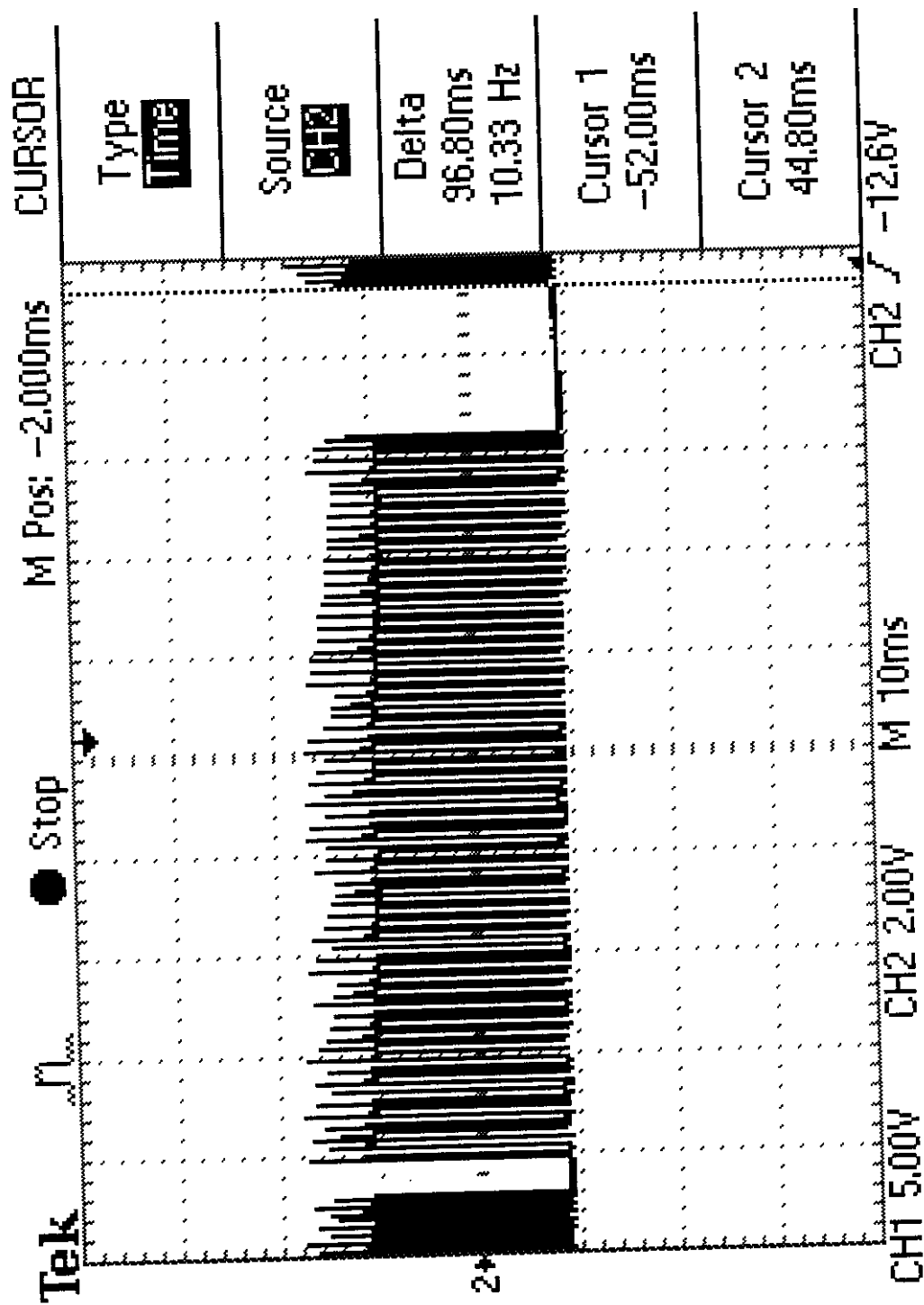
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5.4 Occupied Bandwidth

The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, **0.76 MHz** . Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.4 shows the occupied bandwidth plot [It's about **0.214 MHz**] .

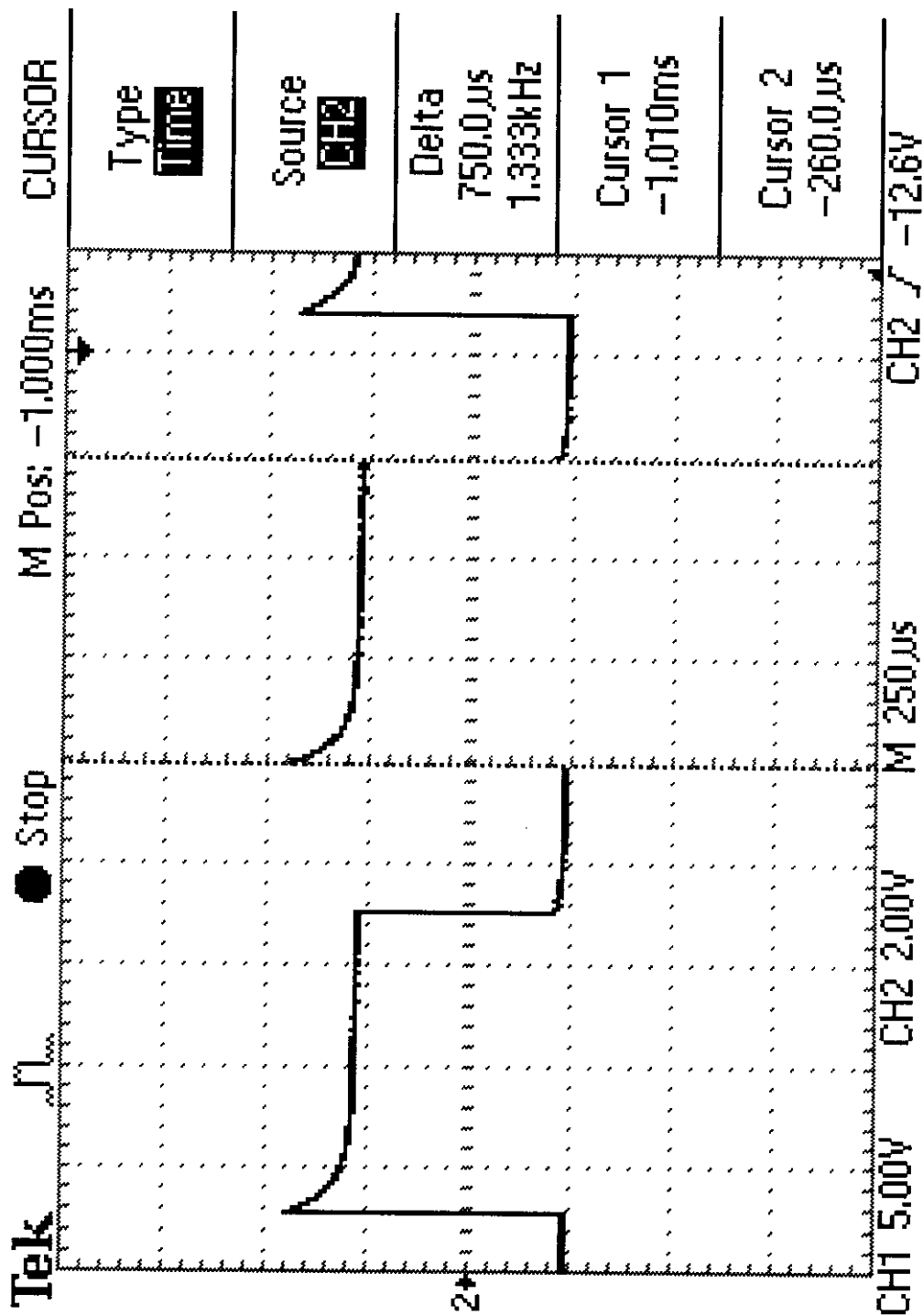
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Figure 5.1 Pulse Train Timing



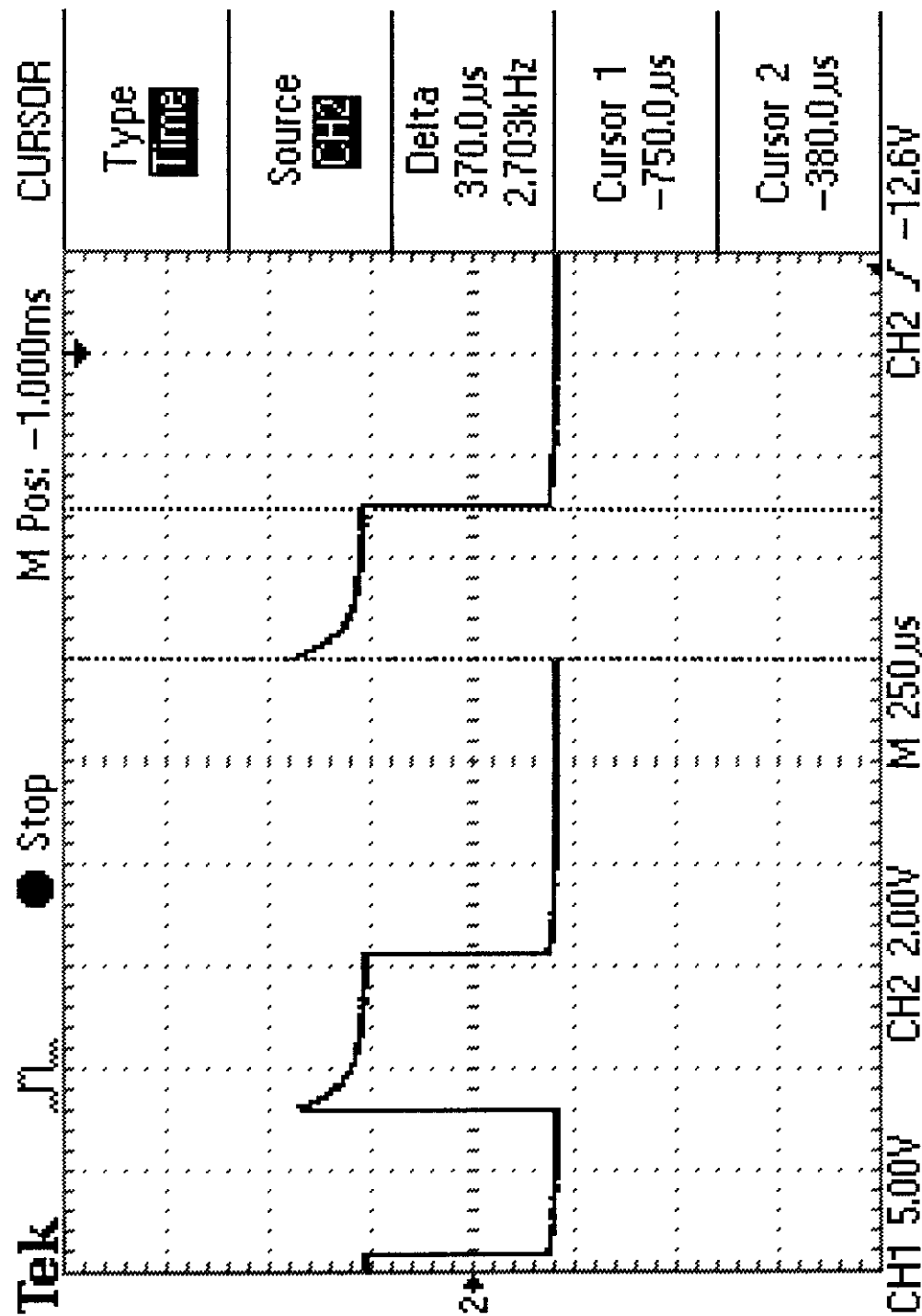
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Figure 5.2 Short Pulse Timing



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Figure 5.3 Long Pulse Timing



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Figure 5.4 Occupied Bandwidth

