

Digital PC 3010

Certifications

FCC Certification



FCC Declaration of Conformity EKAA023RD

The Digital PC 3010 Models 5166, 5200, 5166K, 5200K, 5166M, 5200M, 6166K, and 6200K complies with the requirements of FCC part 15, class B as defined under paragraph 2.909 of these rules.

This declaration covers products identified with CLPX1P on the product label.

This Declaration is issued to permit marketing only when a ferrite loaded video cable or split ferrite cores equivalent in number and type to those used during certification testing are marketed with each unit. CPU chip designations: P54C, P55C, AMD K5, AMD K6

A copy of the test report substantiating compliance is available on request from:

Corporate EMC Manager
Digital Equipment Corporation
P.O.Box 629, Marlborough, MA 01752

A handwritten signature in black ink, appearing to read "J. Allen", enclosed within a rectangular box.

25-Jun-97

Corporate EMC manager, Digital Equipment Corporation



This equipment has been tested and found to comply with the limits for a Class B digital device, and is intended for home or office use pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any modifications to this device - unless expressly approved by the manufacturer - can void the user's authority to operate this equipment under part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference and
- (2) This device must accept any interference that may cause undesirable operation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna
- * Increase the separation between the equipment and receiver
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- * Consult the dealer or an experienced radio/TV technician for help

TUV Certification

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D E S C R I P T I O N

PRODUCT COVERED:

USL Information Technology Equipment, Including Electrical Business Equipment, Personal Computer, Models A7XWW, B7XWW, A9XWW, AEXWW, BOXWW, BAXWW, ADXWW, G2EXL, F3GXL, F3HXL, F3EXL, D011X, F3DXL, where X is any digit 0 through 9; Models D070X and D010X, where X may be any digit 0 through 5; Models D040X, where X may be 1, 3, 5; Models D050X, where X may be 1, 2, 3; Models PC3100ABCDEL, PC5100ABCDEL, PC3010ABCDEL, PC5400ABCDEL, where ABCD can be 0 through 9; E can be *M, K, or blank. Models PC 3010 ABCDE L, PC 3100 ABCDE L, PC 3510 ABCDE L, PC 5100 ABCDE L, PC 5400 ABCDE L, PC 5510 ABCDE L, where A, B, C, D may be any digit 0 thru 9, E may be M, K or blank.

ELECTRICAL RATING:

<u>V</u>	<u>A</u>	<u>Hz</u>	<u>W</u>
100 - 120	2.0	60/50	120
220 - 240	1.1	50/60	120

MODEL DIFFERENCES:

All models are identical except for changes in logic boards, CPU, and SELV.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

These models are Class I, desk-top equipment. Each consists of a metal encased Recognized Component power supply (with SELV outputs), four bays for memory storage devices, and four slots for optional cards.

USL indicates investigation to the U.S. Standard for Safety of Information Technology Equipment, UL 1950, Second Edition, dated February 26, 1993.

Special Considerations - The following items are considerations that were used when evaluating this product.

The equipment is considered: movable, Class I (earthed), pluggable Type A or B, used detachable power cord, intended for use on a TN power system.

Disconnect device - The following component is considered the equipment disconnect device: appliance coupler of detachable power supply cord.

WW/JYL:lds
NKDLS

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DESCRIPTION

PRODUCT COVERED:

USL Information Technology Equipment, Including Electrical Business Equipment, Personal Computer, Models A8XWW, B8XWW, AAXWW, ACXWW, G2BXS, and B1XWW where X is any digit 0 through 9; Model D040X, where X may be 0, 2, 4, 6, or 8; Models D010X, where X may be 6, 7, 8, 9; Models D050X, where X may be 4, 5, 6. Models PC3100ABCDEs, PC5100ABCDEs, PC5400ABCDEs, where ABCD can be 0 through 9; E can be M, K, or blank. *Models PC 3010 ABCDE S, PC 3100 ABCDE S, PC 3510 ABCDE S, PC 5100 ABCDE S, PC 5400 ABCDE S, PC 5510 ABCDE S, where A, B, C, D may be any digit 0 thru 9, E may be M, K or blank.

ELECTRICAL RATING:

<u>Models</u>	<u>V</u>	<u>A</u>	<u>Hz</u>	<u>W</u>
All	100 - 120	2.5	60/50	150
	220 - 240	1.3	50/60	150

MODEL DIFFERENCES:

All models are identical except for changes in logic boards and CPU.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

These models are Class I, floor-standing equipment. Each consists of a metal encased Recognized Component power supply (with SELV outputs), six bays for memory storage devices, and six slots for optional cards.

USL indicates investigation to the U.S. Standard for Safety of Information Technology Equipment, UL 1950, Second Edition, dated February 26, 1993.

Special Considerations - The following items are considerations that were used when evaluating this product.

The equipment is considered: movable, Class I (earthed), pluggable Type A or B, used detachable power cord, intended for use on a TN power system.

Disconnect device - The following component is considered the equipment disconnect device: appliance coupler of detachable power supply cord.

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Certificate



No: AL 97 10 18253 090

Digital Equipment Int. Ltd.
Taiwan Branch
255, Jen-Ho Rd. Sec. 2
Tachi, Taoyuan
Taiwan, R.O.C.

with production facilities
18253 16566 22338 26910 28646 28703

is authorized to label the following products with the
certification mark A,B or L
as shown in the certification mark list. See also notes overleaf.

Product: Personal Computer
(ohne Monitor)

Model: PC3100ABCDE, PC5100ABCDE
PC3010ABCDE, PC5400ABCDE
(ABCD can be 0-9, E can be M,K or blank)

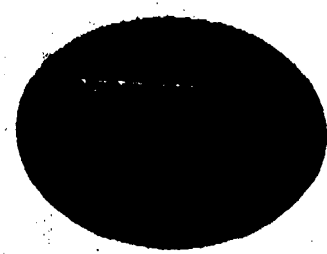
Parameters: Rated input voltage: 100-120/220-240 VAC
Rated frequency: 60/50 Hz
Rated input current: 2.0/1.1 A
Protection class: I
Degree of Protection
against ingress of liquids: ordinary

The product meets the requirements of the Equipment Safety Law and
was tested according to:

EN 60950/A3:1994
ZH1/618:1980

Report No: 61210734101, HA - (AL 96 03 18253 066)

Released with the above certificate number by the
certification body of TUV PRODUCT SERVICE GMBH.



Department:

TRIBUTE / BIL

D. H. H.

ZERTIFIKAT / CERTIFICATE / CERTIFICADO / CERTIFICAZIONE

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Certificate

No: AL 97 10 18253 093



Digital Equipment Int. Ltd.
Taiwan Branch
255, Jen-Ho Rd. Sec. 2
Tachi, Taoyuan
Taiwan, R.O.C.

with production facilities
18253 16566 22336 26910 28646 28703

is authorized to label the following products with the
certification mark A,B or L
as shown in the certification mark list. See also notes overleaf.

Product: Personal Computer
(ohne Monitor)

Model: PC 5510 ABCDE L, PC 3510 ABCDE L
(ABCD can be 0-9, E can be M,K or blank)

Parameters: Rated input voltage: 100-120/220-240 VAC
 Rated frequency: 60/50 Hz
 Rated input current: 2.0/1.1 A
 Protection class: I
 Degree of Protection
 against ingress of liquids: ordinary

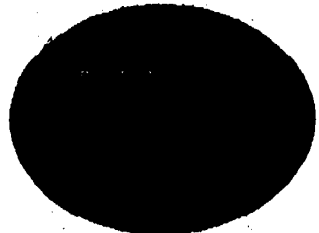
The product meets the requirements of the Equipment Safety Law and
was tested according to:

EN 60950/A3:1994
ZH1/618:1980

Report No: 61210738801, HA - (AL 96 03 18253 066)

Released with the above certificate number by the
certification body of TÜV PRODUCT SERVICE GMBH.

Department: TP/ITE / Rih *D. D. N. B.*



ZERTIFIKAT / CERTIFICATE / CERTIFICADO / CERTIFICAZIONE

Thermal Testing

FAX COVER SHEET

To: Bill Murphy

Company : *Digital Equipment Corp.*

Fax Number : 1-978-264-7557

Date : 1/12/98

From : Eric Shek

Company : Micronics Computer Inc

Fax Number : 1-510-661-3395

Pages including cover page : 2

Subject : Cyclone Thermal Test Report

Message:

TECHNICAL REPORT

August 15, 1997

From: Jim Yin.

Subject: Thermal test and analysis for the Cyclone system.

OBJECTIVE:

1. To measure the power dissipation of the Cyclone system.
2. To measure the processor's case temperature T_c , using Pentium/233 MHz MMX, AMD K6/200MHz and K5/200MHz micro processors.
3. To make sure that the system and important components are working well when ambient temperature T_A reaches 45° C.

COMPUTER CONFIGURATION: (as shown in figure 1)

1. Chassis:
 - * Desktop chassis which is 15.4 Inch wide, 17.5 Inch deep, 4.2 Inch high.
 - * System cooling fan parked on the back of the front panel to cool the micro processor directly.
 - * API6098 100 W power supply.
2. 1.44 MB floppy disk drive installed in the 3.5" drive bay.
3. 1.2 MB floppy disk drive installed in the first 5.25" drive bay on the top.
4. CD Rom Tech CD524D installed in the second 5.25" drive bay on the bottom.
5. Quantum 1280 MB AT hard disk drive installed on the HDD drive bay located on top of power supply.
6. Cyclone 09-00312-00 3A motherboard and riser card 09-00314-00 3A both by Micronics Computers, Inc. with
 - * The SIS5597 chip set and
 - * 64 MB memory installed in DIMM socket.

TEST EQUIPMENTS:

1. Thermo-couple-meter HHM-25 by Newport with 3 input thermocouple adapter. The thermocouple is type K.
2. 2101 digital power analyzer (Valhalla Scientific)

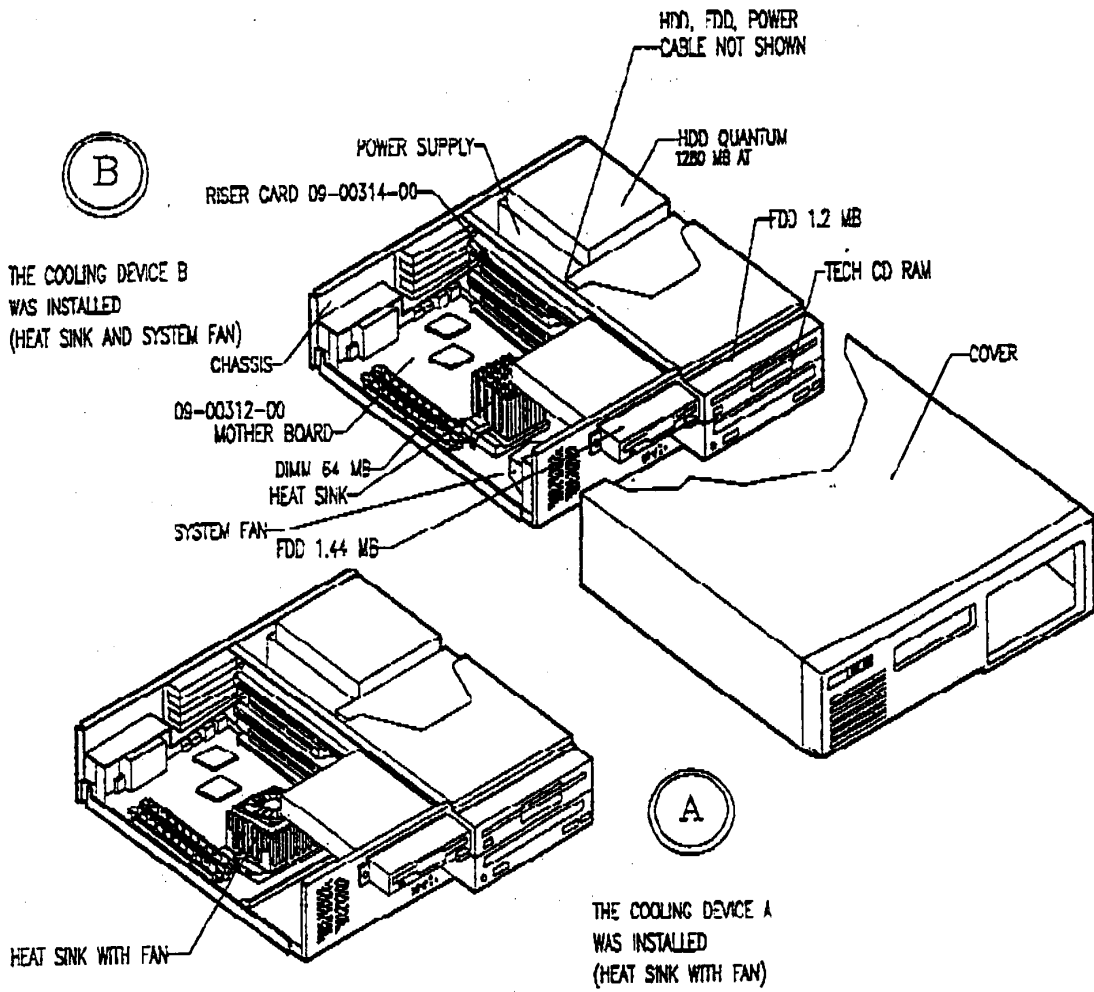


FIGURE 1

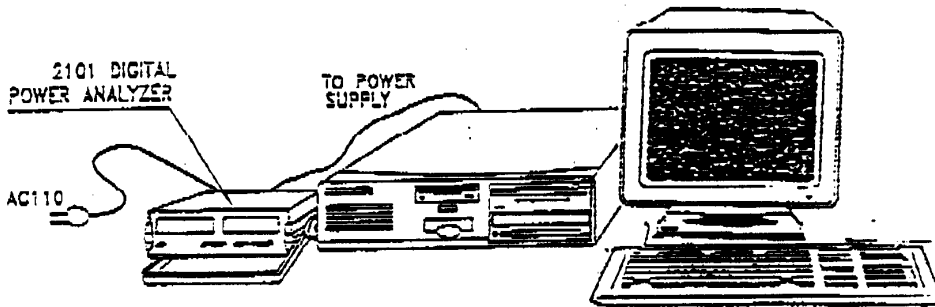


FIGURE 2

POWER DISSIPATION.

1. To monitor the power dissipation:
Power, power analyzer and completed computer were connected as shown in figure 2, to run Window95, WinBench 97 and Winstone 97.
2. The system power dissipation (excluding the monitor) is shown in table 1.

Table 1 power dissipation

	K5/200 MHz	K6/200 MHz	Pentium/233 MHz
Power dissipation On sleep more	22 W.	27.8 W.	22.9 W.
Power dissipation (Max.)	57 W.	67 W.	54 W.

MONITOR THE TEMPERATURE.

1. Procedure of monitoring the temperature:
 - * A 0.156" diameter hole was drilled on the center of the heat sink.
 - * A thermocouple was contacted on point T_c , which is the center of micro processor through the drilled hole as shown in figure 4 and figure 5 to measure CPU case temperature T_c .
 - * A thermocouple was fixed on point T_A located 1 inch above the heat sink as shown in figures 4 and 5 to measure ambient temperature T_A .
 - * Heat sink compound was added between the heat sink and micro processor.
 - * The computer was put in the glass box as shown in figure 3.
 - * Heat air was blown into the box by a heat gun and the ambient temperature T_A was adjusted
 - * Two cooling devices were used:
 - Cooling device A : The heat sink with the cooling fan by AVVID as shown in figure 4 and figure 1 A (No system cooling fan)
 - Cooling device B : The heat sink and system cooling fan located in the back of the front panel of the chassis as shown in figures 1 B and figure 5.
The system cooling fan supplies around 100 FPM air flow to heat sink. (Monitored by wind speed indicator)

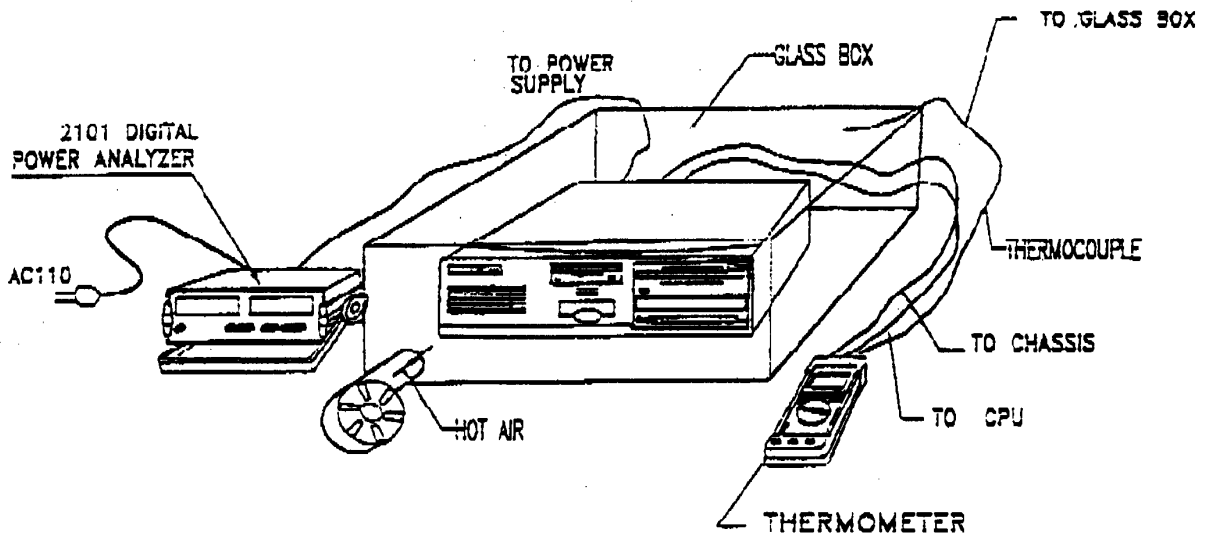


FIGURE 3

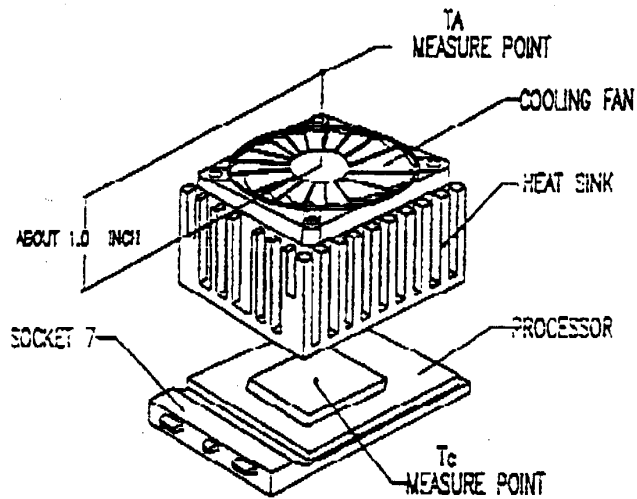


FIGURE 4

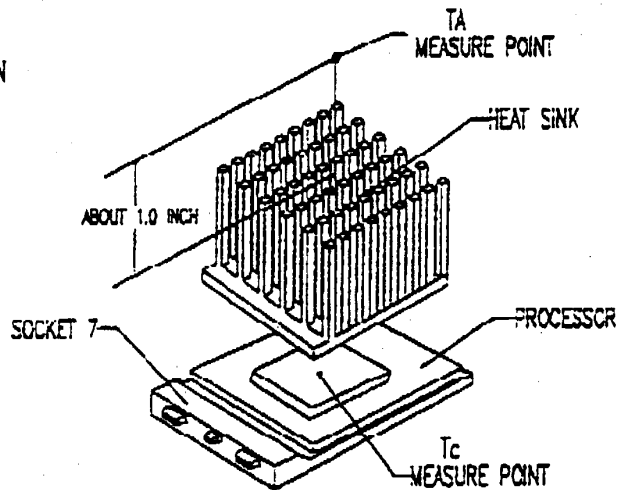


FIGURE 5

2. Monitor the temperature:

* When Pentium / 233 MHz MMX micro processor and cooling device A (heat sink with cooling fan) were used, the monitored temperatures are shown in Table 2.

Table 2

	Temperature °C						
CPU case temperature T _c	44.2	49.8	51	52	56.4	57.3	58
Ambient temperature T _A	31.2	36.2	40	42	45	45.8	46
Permitted CPU case temperature T _c Max.	70						
The conclusion	OK	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

* When Pentium / 233 MHz MMX micro processor and cooling device B (heat sink and system cooling fan) were used the monitored temperatures are shown in Table 3.

Table 3

	Temperature °C					
CPU case temperature T _c	46	49.7	54.9	56.2	61.8	63
Ambient temperature T _A	27	31	36	40	43	45
Permitted CPU case temperature T _c Max.	70					
The conclusion	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

* When AMD K6/200 MHz micro processor and cooling device A (heat sink with cooling fan) were used, the monitored temperatures are shown in Table 4.

Table 4

	Temperature °C					
CPU case temperature T _c	44.2	47	49.7	51.7	52.8	58
Ambient temperature T _A	29.2	35	38	40	41	46.9
Permitted CPU case temperature T _c Max.	70					
The conclusion	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

* When AMD K6/200 MHz micro processor and cooling device B (heat sink and system cooling fan) were used, the monitored temperatures are shown in Table 5.

Table 5

	Temperature °C					
CPU case temperature T _c	46	49.7	54.9	56.2	61.8	63
Ambient temperature T _A	27	31	36	40	43	45
Permitted CPU case temperature T _c Max.	70					
The conclusion	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

* When AMD K5/200 MHz micro processor and cooling device A (heat sink with cooling fan) were used, the monitored temperatures are shown in Table 6.

Table 6

	Temperature °C					
CPU case temperature T _c	47.8	49	50.9	52.7	53.2	56.5
Ambient temperature T _A	33.5	35	39	40.7	42.3	45
Permitted CPU case temperature T _c Max.	70					
The conclusion	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

* When AMD K5/200 MHz micro processor and cooling device B (heat sink and system cooling fan) were used, the monitored temperatures are shown in Table 7.

Table 7

	Temperature °C					
CPU case temperature T _c	49.5	53	56	57	59.2	63.7
Ambient temperature T _A	31	32.4	35.4	40	42	45
Permitted CPU case temperature T _c Max.	70					
The conclusion	OK	OK	OK	OK	OK	OK

The box temperatures were 5 –8 °C lower than the ambient temperature T_A.

- When Pentium / 233 MHz MMX micro processor and cooling device A (heat sink with cooling fan) were used, the monitored VRM regulator and SIS 5597 chip set temperatures are shown in Table 8.

Table 8

	Temperature °C						Permitted temperature °C	conclusion
Ambient temperature T_A	36.5	37.5	40	42	44	45	45	OK
VRM regulator temperature T_{RC}	41	41.8	44.1	45.8	47.8	49.3	100	OK
SIS 5597 chip set temperature	53.8	54.7	56.7	58.4	60	61.8	82.8	OK

The box temperatures were 5–8 °C lower than the ambient temperature T_A .

The measuring point located on the center of top surface of sis chip set when measured T_{sc} .

The measuring point located on the center of top surface of the regulator when measured T_{RC} .