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A l'attention de Benoît MACE

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BORDEREAU D'ENVOI

Documents	Nombre d'exemplaires	Observations
Test report No 24376 020 (traduction) (Dossier n° 29011 010)	1 original	

Le Directeur du Pôle "Produits équipements"
Marc LESCURE



P.J.

TEST REPORT

No. 24376 020

English version – Original in French established on October 19th, 2000

ISSUED FOR: DALLAS SEMI-CONDUCTOR
4401 S. BELT WOOD PARKWAY
DALLAS, TEXAS, 75244
USA

SUBJECT: TYPE THERMOCHRON DALLAS TEMPERATURE RECORDER

Tests in compliance with NF EN 12-830 standard of 09/1999

- Mechanical vibrations
- Protection degree IP68
- Radiated disturbances
- Resistance to shocks

Date of tests: July through October 2000

This document is composed of 5 pages.

Fontenay-aux-Roses, February 27th, 2001

Original in french signed on October 19th, 2000 by Jean Colmant

Testing Manager : Patrice LELAY

Technical Manager,

Jean COLMANT



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1 – INTRODUCTION

The present test report concerns the testing of a DALLAS temperature recorder upon request of the PROGES-PLUS company.

The tests described herein were performed in compliance with the specifications set forth in NF EN 12-830 standard of September 1999.

2 – DESCRIPTION OF THE TESTED ITEM

• Inscriptions on the tested recorder

Type: Thermochron DS1921L-F52.
Identification number: 254 00000 1EC8
Brand: DALLAS
Manufacturer: DALLAS

• Inscriptions on the additional recorder

Type: Thermochron DS1921L-F53.
Identification number: 15 C 00000 28D3
Brand: DALLAS
Manufacturer: DALLAS

• Read-out software: Thermo-Track PC PRO 2.
Read-out function PROGES PLUS Version 2.0 copyright 2000

• Data extraction: Serial link via a reader (DS 9097U-9) i Button with DB9 connector.

The tested item is a self-constrained temperature recorder with an internal sensor.

3 – TESTS PERFORMED

The following tests were performed during the months of July through October 2000.

- Radiated electromagnetic field:	NF EN 12-830 § 4.8.5
- Mechanical vibrations:	NF EN 12-830 § 4.9.3.2 and 5.6.6
- Protection degree conferred by the enclosure:	NF EN 12-830 § 4.6 and 5.6.7
- Resistance to shocks:	NF EN 12-830 § 4.9.3.3. and 5.6.5

4 – REFERENCE CONDITIONS

Configuration

Resolution: 0.5°C
Measuring interval: 1 min
Ambient temperature: + 15°C through + 35°C

5 – TEST CONDITIONS

5.1 – General

The tests were performed according to the conditions described in the current standard: NF EN 12-830 (September 1999).

Only the temperature recorder was submitted to the tests.

5.2 – Radiated electromagnetic field

This test was performed in a semi-anechoic chamber.

Frequency range:	80 MHz to 1 GHz
Magnetic field intensity:	3 V/m
	from 80 MHz to 1 GHz: controlled field in homogenous area
Amplitude modulation ratio:	80 %; 1 kHz
Antenna used:	logperiodical antenna (80 MHz to 1 GHz)
Polarization:	Test performed with antenna in horizontal and vertical position
Positioning of the recorder:	<ul style="list-style-type: none"> - top facing the antenna - side facing the antenna - bottom facing the antenna

Ambient temperature around 19°C (during the test, the temperature was measured with a platinum probe).

5.3 – Mechanical vibrations

Conditions

Reference standard:	NF C 20-706
Frequency range:	5 Hz to 150 Hz
Displacement amplitude:	10 mm (peak value) from 5 Hz to 8.6 Hz
Acceleration amplitude:	29.4 m/s ² (3 g) from 8.6 Hz to 150 Hz
Mounting:	The recorder holder was mounted on the vibrating table (the recorder was in the vertical plane)
Direction of vibrations:	<ul style="list-style-type: none"> 1 – Horizontal direction, perpendicular to the top of the recorder: OX. 2 – Vertical direction, in parallel with the top of the recorder: OZ 3 – Horizontal direction in parallel with the top of the recorder; OY
Tests performed:	20 sweep cycles at a speed of one octave/minute in each direction.

5.4 – Protection degrees conferred by the enclosure

5.4.1 – Protection against ingress of dust and particles – Checking of protection degree IP6X.

Conditions

The tested item was installed for 8 hours in a talc chamber, in conformity with the requirements set forth in NF EN 60 529 standard (October 1992).

5.4.2 - Protection against water ingress – Checking of protection degree IP X8.

Conditions

This test was performed in conformity with the specifications set forth in NF EN 60 529 standard (October 1992).

The recorder was submerged in water at a depth of 1 m for a period totalling 60 minutes.

5.5 – Resistance to shocks

Conditions

Reference standard:	EN 60068-2-27
Acceleration:	10 g
Duration:	10 ms
Number of shocks:	1 per operating position
Direction of shocks:	1 – In parallel with the axis of the recorder's top 2 – Perpendicular to the axis of the recorder's top.

The shock was applied vertically upwards.

The measurements were performed 2 hours after the test.

6. – TEST RESULTS

6.1 – Radiated electromagnetic field

For all positions, the maximum variation of the recorded value was below or equal to 0.5 °C.

6.2 – Mechanical vibrations

For all three directions, no variation above 0.5 °C was observed on the temperature recording.

6.3 – Protection degrees conferred by the enclosure

6.3.1 – Protection against ingress of dust and particles – Checking of protection degree IP 6X

At the issue of this test, the recorder operated normally.

The protection against ingress of dust and particles, conferred by the enclosure, complies with the requirements of IP 6X protection degree.

6.3.2 – Protection against water ingress – Checking of protection degree IP X8

During and at the issue of this test, the recorder operated normally.

No presence of water was detected inside the apparatus.

The protection against water ingress, conferred by the enclosure, complies with the requirements of IP X8 protection degree.

6.4 – Resistance to shocks

During and at the issue of this test, the recorder operated normally.

Two hours later, no variation above 0.5 °C was observed for the temperature recording.

7 – CONCLUSIONS

As far as the test related to the influence of radiating magnetic fields are concerned, the recorder complies with the requirements of NF EN 50081-1 and NF EN 50082-1 standards, therefore, the apparatus complies with the requirements of NF EN 12-830 standard.

As far as the mechanical vibration and mechanical shock tests are concerned, the recorder complies with the requirements of NF EN 12-830 standard.

The protection against ingress of dust and particles, or water, conferred by the enclosure, complies with degree IP68 of NF EN 60-529 standard and above degree IP 55 of NF EN 12-830 standard.

Antony, July 21, 2000

PROGES PLUS

2 rue de la république

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Certificate

Subject: Compliance with the NF EN 12830 standard

Recorder trademark:

DALLAS SEMI-CONDUCTER

Type:

THERMOBUTTON / DS192IL-F52

I the undersigned, J. GAHARTIAN, Director of Temperature Recording Test Labs, certify that the above-indicated recorder has undergone the following tests per the NF EN 12830 standard regarding "Temperature recorders for transportation, storage and distribution of refrigerated, frozen and ice cream food items."

- Determining temperature measurement error
- Influence of ambient temperature
- Determining response times
- Determining error relative to time recordings
- Testing the recorder's temperature under conditions of storage and transport.

For this entire test, the indicated recorder conforms to the provisions of the NF EN 12830 standard.



Lab director


J. GAHARTIAN

ACCREDITATION
N°1-06-99
PORTÉE
COMMUNIQUÉE
SUR DEMANDE

RE: 508

Received on August 4, 2000

Antony, July 21, 2000

PROGES PLUS
2 rue de la république
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Subject: TEST REPORT NO. E42

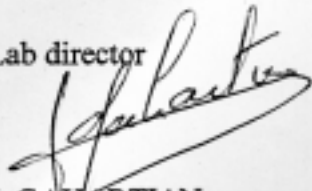
Sir,

It is our pleasure to deliver to you the test results regarding your DALLAS
THERMOBUTTON recorder.

At a later time we will send you the joint reports of Cemagref and LCIE.

We ask, Sir, that you accept our best regards.

Lab director


J. GAHARTIAN