



ENVIRONMENTAL TEST REPORT

Company : IC Heat Spreader CPU Cooler.
Address : No.5, Ming Lung Road, Yang Mei Chen, Tao Yuan Hsien,
Taiwan , R.O.C.
Sample Name : Heat sink / clip
Model : BGA
Date of Received : Jul. 15, 1999
Date of Tested : Jul. 26, 1999

TESTING LABORATORY ARE ACCREDITED BY :

Lloyd's Register Quality Assurance : BS EN ISO 9002/Certificate No : 952357

WE HEREBY CERTIFY THAT!

The test shown in the attachment were made in accordance with the procedures indicated. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all persons taking them.

	Name	Signature	Date
Testing Engineer	James Lin	James Lin	Aug-04-99
Approving Manager	I - Chin Chan	I. Chin Chan	Aug-04-99

Notes :

1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid as separately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the date issued, if not taken back by the applicant.



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I. GENERAL INFORMATION

1.1 DESCRIPTION OF EUT

MANUFACTURER : IC Heat Spreader CPU Cooler.

SAMPLE NAME : Heat sink / clip

MODEL NAME : BGA

SAMPLE QUANTITY : 32 pcs (20×20, 25×25, 27×27, 30×30, 32×32,
35×35, 37.5×37.5, 40×40 each 4 pcs)

1.2 EUT & PERIPHERALS SETUP DIAGRAM : None

1.3 EUT OPERATING CONDITION : None



2. MECHANICAL SHOCK TEST

2.1 TEST APPARATUS

L.A.B.886.3636 mechanical shock system

Table size : 91 × 91 cm

Nominal specimen weight : 136 kg

Maximum specimen weight : 590 kg

Minimum pulse width : 2ms

Maximum acceleration : 600G

The Maximum velocity (free fall) : 7m/s

2.2 LABORATORY AMBIENCE CONDITION

Temperature : 24°C ~ 25°C

Relative humidity : 54% ~ 55%

2.3 REFERENCE DOCUMENT

The test is following customer specification.

2.4 TEST CONDITION

2.4.1 Non-operating

- . Pulse shape : Half-sine wave
- . Peak acceleration : 100G
- . Pulse duration : 6 ms
- . Number of shock : 3 shocks for each side

2.5 SUMMARY OF TEST

The test report contains no judgment.



3. VIBRATION TEST

3.1 TEST APPARATUS

. Ling Electronics 2016 vibrator.

Description of performance:

- . Max. force(sine) : 20000 lbs
- . Max. force(random) : 16000 lbs
- . Max. velocity : 70 in/s
- . Max. displacement : 1.5"(cont.)/2"(shock)
- . Max. acceleration : 150 g(bare table)
- . Frequency range : 5 Hz to 3000 Hz

. Ling Electronics DMA-48B/X Solid state power amplifier

. Ling Electronics 474 shaker cooling unit.

. Ling Electronics AGM-4000 Four channel charge amplified

. Spectrum dynamic 1500-1 system control

. Auxiliary equipment

- . Kimball 40478 P/N 6G00-30" X 30" Slip table
- . Kimball 40478 P/N 5399-24" X 24D" Head expander
- . A&D 3525 FFT Analyze

3.2 AMBIENCE CONDITION

Temperature : 24 °C ~ 25 °C

Relative humidity : 54 % ~ 55 %

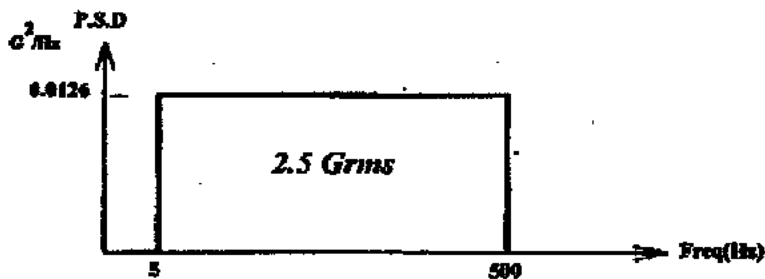
3.3 REFERENCE DOCUMENT

Follow customer environmental test specification.



3.4 TEST CONDITION

3.4.1 Sine vibration test



Axis of vibration : X,Y,Z axis.
Duration of test : 1 hour for each axis.

3.5. SUMMARY OF TEST

After test no Heat sink fall Down .