DECISION SHEET

Standard(s): IEC 60950:1999	Sub clause(s): 1.5.2, 4.5.1	Dec. NO. DSH-548
Subject: **Application of IEC 60320-1 type appliance inlets**	**Key words:** - - -	**Decision taken at the 41st CTL meeting.**

Question:

Background:
An increasing number of Notebook PCs require AC Adaptors to provide output power of up to 150 W at an ambient of up to 40 °C (due Pentium-4 devices). Although designed with a very good efficiency, the losses still result in high operating temperatures.

Problem:
IEC 60950:99 refers in several subclauses and in Annex P to IEC 60320 series as relevant IEC component standard for appliance inlets.

However, there aren't any specific temperature limits for appliance inlets specified in table 4A parts 1 and 2.
This results in a non-uniform interpretation whether:

(a) the temperature limit of external surfaces of equipment which can be touched (95 °C for the plastic housing of the appliance inlet)

OR

(b) the temperature limit of IEC 60320-1 (70 °C for the pins of the appliance inlet for cold conditions)

shall be chosen for the assessment of the maximum temperature of the appliance inlet.

A clarification for following would be helpful:

(i) Is (only) the maximum temperature of the appliance inlet housing to be measured?

OR

(ii) Is it necessary to measure besides the temperature of accessible surfaces as well the maximum temperature of the pins of an appliance inlet (test location as required according to IEC 60320-1)?

Decision:

For testing of a product incorporating IEC 60320-1 type appliance inlets, the temperature limits and locations for temperature measurements as described in IEC 60320-1 shall apply:

- 70 °C maximum pin temperature for appliance inlet for cold conditions
- Test location: Base of the pin (part of the pin where it protrudes from the engagement face)

The temperature rise shall be determined at the maximum room ambient temperature as declared by the AC Adaptor's manufacturer.

Explanatory Notes:

1. Commonly discussed adapters are designed for a 40 °C ambient temperature (maximum). IEC 60320-1:2001 states that appliance inlets for cold conditions are suitable for use at ambient temperatures not exceeding 25 °C (occasionally reaching 35 °C). This requires (sub-clause 1.5.2 of IEC 60950:99) a re-evaluation of the appliance inlet under conditions occurring in the equipment.
2. In other IEC publications such as IEC 60601-1 (Safety of medical electrical equipment) 65 °C [remark: old temperature limit of a previous edition of IEC 60320-1] is listed as maximum temperature for the pins of appliance inlets. This approach suggests that above mentioned option (b) respectively (ii) is correct.