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SCO Test: Hipot – Oracle Directed Instrument Setting for Routine Electrical Safety Testing in Production

Document Number and Revision: 923-7024076 Rev 05

Overview

This document defines the mandatory parameters to be used for electrical safety testing of Oracle hardware products in production sites. The safety agencies provide guidelines which led to inconsistent settings in the supply chains delivering the products for Oracle.

Audience

This document is intended for use by Operations Product Engineers, Test Engineers, Supplier Engineers and their counterparts in the manufacturing supply partners, and for Compliance Engineering.

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Introduction

The Oracle Product Safety Engineering Team provides guidelines for the safety test (Hipot) parameters for use by all supply partners rather than simply adhering to agency guidelines. The agency guidelines do not specify certain trip current levels and rise times which led to incidents of erroneous failures being observed.

This document determines a correct level of electric strength (Hipot) and earthing (grounding) for the manufacturing partners to use for both alternating current (AC) and direct current (DC) input styles.

Functionality of test equipment shall be verified at the beginning and end of each production shift.

Production Line Electric Strength (Hipot) Test

The goal of the electric strength (Hipot) test is to assure personal safety while identifying defective insulation, typically in the primary side, and any potential shock hazard. Dielectric strength (Hipot) tests must be determined between the primary pins of the attachment plug cap (AC- inlet) or the DC input pins (in the case of DC-input equipment), and accessible dead-metal parts (chassis) of the product.

In the case where Hipot testing is required on FRUs (Field Replaceable Units) or components without known ratings, consult with Oracle Product Safety Engineering department by way of the Oracle Operations Program Manager for test specifications and parameters.

Appliance Voltage Rating	*Test Potential (Vrms)*	*Test Potential (Vdc)*	*Time Durations/Dwell (Seconds)*	*Trip Current Level (mA)*
Rated less than or equal to 130Vrms (184Vdc)	1000	1400	1 minimum 60 maximum	< 5 10 maximum (Rack Level)
Rated more than 130Vrms (184Vdc) and less than or equal to 600Vrms (849Vdc)	1590	2250	1 minimum 60 maximum	< 5 10 maximum (Rack Level)

Production Line Earthing (Grounding) Test

A 25A test current device must be used to determine compliance with the Earthing Test requirements. Commercial earth testers which pass current through the earthing path can be used to determine compliance with this requirement.

Earthing tests must be determined between the earthing conductor of the attachment plug cap (AC-inlet) and/or the designated main protective earthing point (DC ground stud) of the product, using the test equipment described above. For test parameters, refer to the table below.

Test Points	*Test Current (A)*	*Time Duration/Dwell (Seconds)*	*Conformance Limit (mOhm)*
AC-inlet to chassis	25	1 minimum 5 maximum	<100
DC ground stud to chassis	25	1 minimum 5 maximum	<100

Scope of the Document

This direction should be applied to all products and all sites unless superseded by a stand-alone requirement released and approved by the Product Team AND Oracle Product Safety Engineering. For any deviations to the guidelines provided in this document, consult with Oracle Product Safety Engineering Manager by way of the Oracle Operations Program Manager

Reference Information

Reference Documents and Records

Document Title [1]	*Number*	*ESO Controlled*	
		Yes	*No*
WWOPS Product Lifecycle and Technology: Supplier Requirements Advanced Quality Planning (AQP) Matrix	913-3592-xx	X	
Information Technology Equipment - Routine Electrical Safety Testing in Production, EN50116	N/A		X

Document History and Approvals

REV	DATE	DESCRIPTION OF CHANGE	ORGINATOR
02	05 Sep 2014	Update from Sun to Oracle and removed Webdocs references and links.	N/A
03	24 Sep 2015	Allow tolerances for different factory test setups. Eliminate non-critical test parameters. Added verification of test equipment to Introduction. In the Production Line Electric Strength (Hipot) Test table - defined minimum and maximum amounts for Time/Durations/Dwell and Trip	N/A

		Current Level. Removed Rise Time and Ramp Down Time columns. In the Production Line Earthing (Grounding) Test – defined minimum and maximum for Time Duration/Dwell amounts. Added process for deviations to guidelines in Scope of the Document section.	
04	11 Feb 2019	In the Production Line Electric Strength (Hipot) Test table – Added Trip Current Level for Rack Level configurations.	N/A
05	20 Dec 2024	Change both rows in the "Trip Current Level" column from "3 minimum/5 maximum" to " < 5mA " In the last row, change the values in the "Test Potential" columns from "1500" and "2121" to "1590" and "2250"	N/A

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