

Edition 1.0 2016-11

INTERNATIONAL STANDARD



Touch and interactive displays – Part 13-10: Reliability test methods of touch displays – Environmental durability test methods

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 31.120 ISBN 978-2-8322-3795-3

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FC	REWO	RD	4		
IN	INTRODUCTION6				
1	Scop	e	7		
2	Norm	ative references	7		
3	Term	s, definitions and abbreviated terms	8		
	3.1 Terms and definitions				
	3.2	Abbreviated terms			
4	_	e under test (DUT)			
	4.1 General				
	4.2	Preparation of the DUT			
	4.3	Setup of touch display modules			
	4.4	Setup of touch sensor modules			
	4.5	Setup of test pattern cells			
	4.5.1	General			
	4.5.2				
	4.6	Number of duplicates and reference touch display module			
5	Stand	dard ambient conditions			
6		onmental test conditions			
Ū	6.1	General			
	6.1.1	Standard environmental conditions			
	6.1.2				
	6.1.3	·			
	6.1.4	Operational fluctuations of temperature and humidity			
	6.2 Stressed environmental conditions during operation (performed after				
		completion of the environmental durability test in the operational state)			
	6.2.1	Purpose			
	6.2.2		10		
	6.3	Stressed storage/transport conditions (performed after completion of the environmental durability test in the non-operational state)			
	6.3.1	Purpose			
	6.3.2				
7	Envir	onmental test methods	13		
	7.1	General	13		
	7.2	Test procedure	14		
	7.3	Electrical test	14		
	7.3.1	Touch display module	14		
	7.3.2				
	7.3.3	•			
	7.4	Touch function test			
	7.5	Optical performance test			
	•	normative) Structure of touch display module			
Bil	oliograp	hy	16		
Fig	gure 1 -	- Example setup of test pattern cell	9		
	Figure 2 – Example of applied pulse wave for the test				
		L – Touch panel module structure	15		

Table 1 – Examples of the stressed environmental durability test conditions for use	
during the operational state	12
Table 2 – Examples of the environmental durability test conditions for use in the non-	
operational state	13

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TOUCH AND INTERACTIVE DISPLAYS -

Part 13-10: Reliability test methods of touch displays – Environmental durability test methods

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62908–13–10 has been prepared by IEC technical committee TC 110: Electronic display devices.

The text of this International Standard is based on the following documents:

CDV	Report on voting
110/748/CDV	110/790A/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62908 series, published under the general title *Touch and interactive displays*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- · reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 62908 was developed in response to the demand for standardization of the test methods for the endurance of touch displays.

The touch display is one of the most important interfaces between a user and a display. Various technologies for touch displays have been developed, and it is expected that touch display technology will make rapid progress in the future. This document is especially effective for capacitive and resistive touch displays.

Durability is one of the most important aspects of touch display modules. Touch displays connected to display modules are used under a variety of environmental conditions, including indoor/outdoor, hot/cold, dry/humid, for long periods of time and may be subjected to severe environmental stress.

This document describes standardized test methods to evaluate the durability of touch displays subjected to environmental stresses. It is valid for research and development, quality assurance, and comparison of devices when making purchasing decisions.

TOUCH AND INTERACTIVE DISPLAYS -

Part 13-10: Reliability test methods of touch displays – Environmental durability test methods

1 Scope

This part of IEC 62908 specifies the methods for testing the environmental durability of touch display modules, touch sensor modules and test pattern cells, and can be used for devices at the production level, the prototype level or the trial model level when they are exposed to environmental stress.

This document is applicable for touch displays that use capacitive or resistive detection sensors. It may also be applicable to other types of sensors as well as to touch display modules with both flat and flexible displays.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1:2013, Environmental testing – Part 1: General and guidance

IEC 60068-2-1, Environmental testing – Part 2-1: Tests – Test A: Cold

IEC 60068-2-2, Environmental testing – Part 2-2: Tests – Test B: Dry heat

IEC 60068-2-14, Environmental testing -Part 2-14: Tests - Test N: Change of temperature

IEC 60068-2-30, Environmental testing – Part2: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)

IEC 60068-2-78, Environmental testing – Part 7-38: Tests – Test Cab: Damp heat, steady state

IEC 61747-30-1:2012, Liquid crystal display devices – Part 30-1: Measuring methods for liquid crystal display modules – Transmissive type

IEC 62908-1-2¹, Touch and interactive displays – Part 1-2: Generic – Terminology and letter symbols

IEC 62908-12-10², Touch and interactive displays – Part 12-10: Measurement methods of touch displays – Touch and electrical performance

¹ Under preparation. Stage at the time of publication: IEC CDV 62908-1-2:2016.

² Under preparation. Stage at the time of publication: IEC CDV 62908-12-10:2016.