

ICS 31.120
CCS L 53



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43860.1210-2024

**Touch and interactive displays - Part 12-10: Measurement
methods of touch displays - Touch and electrical performance**

触摸和交互显示 第12-10部分：触摸显示测试方法 触摸和电性能

(English Translation)

Issued on: April 25, 2024

Implemented on: April 25, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Preface

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

4 Test conditions

4.1 Test standard atmospheric conditions

4.2 Test and experimental reference atmospheric conditions

4.3 Standard positioning equipment and devices

4.4 Manual operation as an alternative to standard positioning equipment

4.5 Test rod and contact pen

5 Touch performance test method

5.1 General Principles

5.2 Accuracy Test

5.2.1 Purpose

5.2.2 Test Step

5.2.3 Report

5.3 Repeatability/jitter test

5.3.1 Purpose

5.3.2 Test Step

5.3.3 Report

5.4 Linearity Test

5.4.1 Purpose

5.4.2 Test Step

5.4.3 Report

5.5 Reproducibility test

5.5.1 Purpose

5.5.2 Test Step

5.5.3 Report

5.6 Signal-to-Noise Ratio (SNR) Test

5.6.1 Purpose

5.6.2 Test Step

- 5.6.3 Report
- 5.7 Reporting rate test
 - 5.7.1 Purpose
 - 5.7.2 Test Step
 - 5.7.3 Report
- 5.8 Delay Test
 - 5.8.1 Purpose
 - 5.8.2 Test Step
 - 5.8.3 Report
- 5.9 Electrical noise durability test
 - 5.9.1 Purpose
 - 5.9.2 Test Step
 - 5.9.3 Report
- 5.10 Water drop resistance test
 - 5.10.1 Purpose
 - 5.10.2 Test Step
 - 5.10.3 Report
- 5.11 Optical noise durability test
 - 5.11.1 Purpose
 - 5.11.2 Test Step
 - 5.11.3 Report
- 5.12 Power consumption test
 - 5.12.1 Purpose
 - 5.12.2 Test Step
 - 5.12.3 Report
- 5.13 Vertical hovering distance test
 - 5.13.1 Purpose
 - 5.13.2 Test Step
 - 5.13.3 Report
- 6 Horizontal hovering performance test method
 - 6.1 General Principles 24
 - 6.2 Accuracy Test
 - 6.2.1 Purpose
 - 6.2.2 Test Step
 - 6.2.3 Report

6.3 Repeatability or jitter test

6.3.1 Purpose

6.3.2 Test Step

6.3.3 Report

6.4 Reporting rate test

6.4.1 Purpose

6.4.2 Test Step

6.4.3 Report

Appendix A (Informative) Touch sensor module electrical performance test method

A:1 Resistor

A:2 Mutual capacitance

Reference

Figure 1 Composition of test equipment

Figure 2 Performance test block diagram

Figure 3 Manual operation example

Figure 4 Test rod example

Figure 5 The location of the edge area and the central area

Figure 6 Grid point

Figure 7 Accuracy Definition

Figure 8 Accuracy test results and calculation example

Figure 9 Touch sensor module repeatability

Figure 10 Example of repeatability test results

Figure 11 Linearity test drag line

Figure 12 Linearity definition

Figure 13 Linearity test and calculation example

Figure 14 Example of reproducibility test results

Figure 15 Reproducibility test step

Figure 16 Reproducibility test example - angular velocity

Figure 17 Definition of signal-to-noise ratio

Figure 18: Swiping direction during reporting time test

Figure 19 Test of reporting time interval

Figure 20 Delay test

Figure 21 Example of external noise influence

Figure 22 External noise injection

Figure 23 External noise durability report

Figure 24 Example of water droplet impact

Figure 25 Water drop test step

Figure 26 Vertical touch/hover distance test

Figure 27 Grid point

Figure 28 Definition of accuracy in the XY coordinate plane on the effective area target projection plane (I)

Figure 29 Definition of the accuracy of the Z coordinate on the projection plane (I) of the effective area target

Figure 30 Repeatability in the XY coordinate plane on the effective area target projection plane (I)

Figure 31 Repeatability of the Z coordinate on the target projection plane (I) of the effective area

Figure 32 In-plane drag direction for reporting time measurements

Figure 33 Reporting time test 30 for the Z-axis drag direction

Figure 34 Report time interrupt test

Figure A:1 Schematic diagram of resistance test

Figure A:2 Capacitance test diagram

Table 1 Benchmark test and test conditions

Table A:1 Specifications of LCR impedance tester

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting:

This document is part 12-10 of GB/T 43860 Touch and interactive displays: GB/T 43860 has published the following parts:

--- Part 1-2: Terms and text symbols;

--- Part 12-10: Touch display test methods touch and electrical performance;

--- Part 12-20: Touch display test method multi-touch performance:

This document is equivalent to IEC 62908-12-10:2023 "Touch and interactive displays Part 12-10: Test methods for touch displays" Touch and Electrical Properties:

Introduction

In order to meet the production, manufacturing, inspection and import and export needs of touch and interactive display products in my country, we have developed a series of touch