REAL-TIME NAVIGATION PERFORMANCE TEST RESULTS 2023

REAL-TIME NAVIGATION PERFORMANCE

NaviFloor Robotics, Inc.

Test Period: January 1, 2023 - December 31, 2023

Document Reference: NPT-2023-001

1. EXECUTIVE SUMMARY

This document presents the comprehensive performance test results for Navi
Robotics' Autonomous Mobile Robot (AMR) navigation systems conducted
2023. These tests were performed in accordance with ISO/TS 15066:2016 an

ANSI/RIA R15.08-1-2020 standards for industrial mobile robots.

2. TEST METHODOLOGY

2.1 Testing Environment

Tests were conducted across three controlled environments:

- Laboratory Testing Facility (NaviFloor HQ, Delaware)
- Simulated Warehouse Environment (Test Facility B, Nevada)
- Live Customer Implementation Site (Under NDA - Site C)

2.2 Test Parameters

- Navigation Accuracy: ±5mm tolerance
- Real-time Response Latency: <50ms threshold
- Obstacle Detection Range: 0.1m to 25m
- Surface Type Variations: 12 distinct surface materials
- Multi-level Transition Performance: 3 levels with 15° maximum incline

3. PERFORMANCE METRICS

3.1 Navigation Accuracy Results

-

Straight-line Deviation: 3.2mm average (within specification)

-

Rotational Accuracy: 0.8° average deviation

-

Path Planning Efficiency: 98.7% optimal route selection

-

Surface Recognition Rate: 99.3% accurate classification

3.2 Real-time Processing Performance

-

Average System Latency: 32ms

-

Peak Processing Load: 78% of available capacity

-

Emergency Stop Response: 12ms average

Mapping Update Frequency: 120Hz

4. SAFETY COMPLIANCE

4.1 Collision Avoidance

- Dynamic Object Detection Rate: 99.99%
- False Positive Rate: 0.02%
- Emergency Stop Distance: 0.8m at maximum speed
- Human Detection Accuracy: 99.997%

4.2 System Redundancy

- Sensor Failover Time: <5ms
- Backup System Activation: 100% success rate
- Error Recovery Time: Average 1.2 seconds

5. ENVIRONMENTAL PERFORMANCE

5.1 Operating Conditions

- Temperature Range: -10°C to 45°C
-

Humidity Range: 10% to 95% non-condensing

-

Dust Particle Resistance: IP65 rating maintained

-

EMI/EMC Compliance: Verified per IEC 61000-6-2

5.2 Surface Adaptation

-

Transition Time Between Surfaces: 0.3 seconds average

-

Surface Type Recognition Accuracy: 98.5%

-

Grip Compensation Accuracy: 96.7%

6. CERTIFICATION AND VALIDATION

6.1 Test Certification

All tests were conducted under the supervision of:

- TÜV SÜD America Inc. (Certification #NAV2023-456)
- Internal Quality Assurance Team
- Third-party validation consultant (Bureau Veritas)

6.2 Compliance Verification

- ANSI/RIA R15.08-1-2020: Full Compliance
- ISO/TS 15066:2016: Full Compliance

CE Marking Requirements: Verified

-

UL 3100: Certified

7. LIMITATIONS AND DISCLAIMERS

The test results contained herein are valid only for NaviFloor Robotics' curre
production models (Series X-2023) and should not be applied to other versio
products. These results represent performance under controlled conditions ar
actual performance may vary based on specific implementation environment

8. CONFIDENTIALITY NOTICE

This document contains proprietary and confidential information belonging t

9. AUTHENTICATION

Prepared and Verified by:

Dr. Elena Kovacs

Chief Research Officer

NaviFloor Robotics, Inc.

Date: December 31, 2023

Marcus Depth

Chief Technology Officer

NaviFloor Robotics, Inc.

Date: December 31, 2023

Richard Torres

Chief Operating Officer

NaviFloor Robotics, Inc.

Date: December 31, 2023

[DOCUMENT END]