

SERVICE LEVEL METRICS - COLD STORAGE PERFORMANCE

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Polar Dynamics Robotics, Inc.

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Reference: PDR-SLM-2024-001

1. PURPOSE AND SCOPE

1. This Service Level Metrics document ("SLM") establishes the performance

2. These metrics apply to all BlueCore(TM)-enabled robots deployed in the facility.

2. DEFINITIONS

1. "Operating Environment" means any controlled temperature facility.

2. "Performance Period" means any consecutive 30-day measurement period.

3. "System Availability" means the percentage of scheduled operating time.

4. "Navigation Accuracy" means the precision of robot movement relative to the target location.

5. "Critical Failure" means any malfunction requiring emergency maintenance.

3. PERFORMANCE METRICS

3.1. System Availability

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Minimum Required Availability: 98.5% during scheduled operating hours

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Measurement Method: $(\text{Total Operating Time} - \text{Downtime}) / \text{Total Operating Time}$

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Exclusions: Scheduled maintenance windows, facility power outages

3.2. Navigation Precision

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Path Deviation Tolerance: 15mm at -30 C

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Turning Accuracy: 2.0 degrees at intersections

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Position Recognition: 99.9% accuracy in mapped zones

3.3. Power Systems

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Minimum Runtime: 12 hours continuous operation at -30 C

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Charging Cycle: Maximum 45 minutes per full charge

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Battery Performance Degradation: <5% capacity loss per 1000 cycles

3.4. Payload Handling

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Maximum Load Variance: 0.5kg from rated capacity

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Load Distribution Error: <1% across support points

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Pick/Place Accuracy: 8mm in all axes at full extension

4. MEASUREMENT AND REPORTING

1. Performance Monitoring

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Continuous telemetry collection via BlueCore(TM) platform

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Real-time performance logging at 1-second intervals

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Automated alert generation for metric violations

2. Reporting Requirements

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Daily performance summaries

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Weekly trend analysis

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Monthly compliance reports

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Quarterly system health assessments

5. COMPLIANCE THRESHOLDS

1. Critical Performance Levels

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Red Alert: <95% system availability

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Yellow Alert: 95-97% system availability

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Green Status: >97% system availability

2. Remediation Requirements

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Response Time: 2 hours for Red Alert conditions

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Resolution Time: 4 hours for system availability restoration

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Root Cause Analysis: Required for all Red Alert events

6. ENVIRONMENTAL SPECIFICATIONS

1. Operating Conditions

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Temperature Range: 0 C to -30 C

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Humidity: 15% to 90% non-condensing

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Floor Surface: Sealed concrete or equivalent

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Lighting: Minimum 50 lux at floor level

2. Facility Requirements

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Clear Navigation Paths: Minimum 1.8m width

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Floor Flatness: FF35/FL25 or better

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Network Coverage: 100% in operating zones

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Emergency Stop Stations: Maximum 15m intervals

7. MAINTENANCE AND CALIBRATION

1. Scheduled Maintenance

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Weekly visual inspections

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Monthly sensor calibration

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Quarterly comprehensive service

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Annual certification renewal

2. Calibration Standards

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Sensor alignment: 0.1mm

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Load cell accuracy: 0.1%

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Navigation system: 5mm absolute position

8. COMPLIANCE AND VERIFICATION

1. PDR shall maintain detailed records of all performance metrics for a
2. Customer may audit performance data with five (5) business days'
3. Third-party verification available upon written request.

9. AMENDMENTS AND UPDATES

1. This SLM may be updated by PDR with 30 days' written notice to c

2. Emergency updates may be implemented immediately for safety-critical

AUTHORIZATION

APPROVED AND ADOPTED by Polar Dynamics Robotics, Inc.

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Date: January 1, 2024

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