

R-OPS-006: COLD WEATHER STORAGE REQUIREMENTS FOR CIRCUIT BOARD

PDR-OPS-006: COLD WEATHER STORAGE R

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1. PURPOSE AND SCOPE

1. This document establishes mandatory requirements and procedure

2. These requirements apply to all PDR facilities, authorized contractors

2. DEFINITIONS

1. "Circuit Boards" refers to all printed circuit boards (PCBs), integrated
2. "Storage Facility" means any controlled environment where Circuit
3. "BlueCore(TM) Components" refers specifically to proprietary elect

3. ENVIRONMENTAL CONTROL REQUIREMENTS

1. Temperature Requirements

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Primary Storage: 20 C ± 2 C (68 F ± 3.6 F)

- - 2 -

Temporary Storage: 15 C to 25 C (59 F to 77 F)

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Maximum exposure time to temperatures outside specified range: 4 h

2. Humidity Requirements

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Relative Humidity: 30% to 50%

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Maximum allowable rate of change: 10% per hour

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Humidity monitoring frequency: Continuous, logged at 15-minute intervals

3. Environmental Monitoring

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Temperature and humidity monitoring systems must maintain calibration

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Backup monitoring systems required

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Alert systems mandatory for out-of-specification conditions

4. STORAGE FACILITY SPECIFICATIONS

1. Physical Requirements

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ESD-protected zones with conductive flooring

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Positive air pressure maintenance

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HEPA filtration systems rated at minimum 99.97% efficiency

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Separate airlock entry system

2. Security Requirements

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Biometric access control

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24/7 video surveillance

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Environmental control system access restricted to authorized personnel

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Mandatory visitor logs and escort requirements

5. HANDLING PROCEDURES

1. Personnel Requirements

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Mandatory ESD protection equipment

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Current certification in ESD handling procedures

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Documented training in cold-weather component handling

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Annual competency assessment

2. Transportation Requirements

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ESD-protective packaging meeting ANSI/ESD S541 standards

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Temperature-monitored transport containers

- - 6 -

Maximum transit time without environmental control: 2 hours

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Shock monitoring during transport

6. QUALITY CONTROL AND TESTING

1. Incoming Inspection

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Visual inspection under 10x magnification

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Moisture content verification

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Temperature shock indicator verification

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Documentation review and validation

2. Storage Monitoring

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Daily facility inspection requirements

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Weekly calibration verification

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Monthly compliance audits

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Quarterly third-party facility assessment

7. DOCUMENTATION AND RECORDS

1. Required Records

- - 8 -

Environmental monitoring logs

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Access logs

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Maintenance records

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Calibration certificates

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Training records

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Incident reports

2. Retention Requirements

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Electronic records: 7 years minimum

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Physical records: 3 years minimum

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Incident reports: 10 years minimum

8. NON-COMPLIANCE AND CORRECTIVE ACTIONS

1. Any deviation from these requirements must be:

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Documented within 24 hours

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Reported to Quality Control

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Assessed for impact on component integrity

- - 10 -

Subject to corrective action planning

2. Components exposed to non-compliant conditions must be:

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Immediately quarantined

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Evaluated by qualified personnel

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Subject to enhanced testing protocols

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Formally released before use

9. AMENDMENTS AND UPDATES

1. This document shall be reviewed annually and updated as necessary

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Changes in industry standards

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Technological advances

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Regulatory requirements

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Operational needs

10. AUTHORITY AND APPROVAL

This document is issued under the authority of the Chief Technology Officer

Chief Quality Officer of Polar Dynamics Robotics, Inc.

Approved by:

Marcus Chen

Chief Technology Officer

Date: January 15, 2024

Dr. Sarah Thompson

Chief Quality Officer

Date: January 15, 2024

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