PDR-OPS-023 ASSEMBLY LINE TEMPERATURE MONITORING PROTOCOL

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Classification: Confidential - Internal Use Only

1. PURPOSE AND SCOPE

1. This Temperature Monitoring Protocol ("Protocol") establishes man

2. This Protocol applies to all Company assembly lines, testing areas,

2. DEFINITIONS

1. "Critical Assembly Areas" means designated zones where tempera

2. "Temperature Excursion" refers to any deviation from prescribed te

3. "TMAS" means the Temperature Monitoring and Alert System, the

3. TEMPERATURE MONITORING REQUIREMENTS

1. Monitoring Equipment

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Digital temperature sensors must be installed at intervals not exceedi

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Minimum of two redundant sensors per Critical Assembly Area

Calibration of all sensors required quarterly per SOP-CAL-892

- Real-time data logging to TMAS required with 30 second intervals

2. Temperature Ranges

- Primary Assembly Areas: 68 F to 72 F (20 C to 22 C)
- Critical Assembly Areas: 65 F to 70 F (18.3 C to 21.1 C)
- Testing Chambers: Variable per Test Protocol PDR-TEST-118
- Component Storage: 60 F to 75 F (15.6 C to 23.9 C)

4. MONITORING PROCEDURES

1. Daily Operations

- Shift supervisors shall verify TMAS functionality at shift start
- Temperature logs must be reviewed minimum twice per shift
- Any Temperature Excursion must be documented in TMAS
- Quality Control must verify temperature compliance before batch relea

2. Temperature Excursion Response

- Minor Excursion (3 F): Issue alert, monitor for correction

Moderate Excursion (5 F): Pause affected assembly operations

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Major Excursion (7 F): Halt all operations in affected area

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Critical Excursion (10 F): Facility-wide assessment required

5. DOCUMENTATION REQUIREMENTS

1. Required Records

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Continuous TMAS data logs

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Temperature Excursion reports

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Corrective action documentation

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Calibration certificates

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Monthly compliance summaries

2. Record Retention

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Electronic records: Minimum 5 years

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Calibration certificates: Life of equipment plus 2 years

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Excursion reports: 7 years

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Quality Control verification records: 10 years

6. QUALITY CONTROL INTEGRATION

1. Temperature data must be included in all product quality document

2. Quality Control shall conduct monthly audits of temperature monito

3. Temperature-related quality incidents require root cause analysis p

7. TRAINING REQUIREMENTS

1. All assembly line personnel must complete temperature monitoring

2. Shift supervisors require additional certification in TMAS operation

8. PROTOCOL REVIEW AND UPDATES

1. This Protocol shall be reviewed annually by Operations and Quality

2. Updates require approval from:

- Chief Operations Officer
- Quality Control Director
- Chief Robotics Officer

9. COMPLIANCE AND ENFORCEMENT

1. Compliance with this Protocol is mandatory for all assembly operati

2. Violations may result in disciplinary action up to and including termi

3. Quality Control has authority to halt operations for Protocol violation

10. LEGAL DISCLAIMER

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APPROVAL AND AUTHORIZATION

APPROVED AND ADOPTED this 15th day of January, 2024.

POLAR DYNAMICS ROBOTICS, INC.

By:

Sarah Nordstrom

Chief Operations Officer

By:

Dr. James Barrett

Chief Robotics Officer