

EXHIBIT A

EQUIPMENT PURCHASE AGREEMENT
A# 2007-17

This Equipment Purchase Agreement (the "Agreement"), is entered into by **Micro System Engineering, Inc.**, located at 6024 SW Jean Road, OR 97035, ("MSEI") and Unovis Solutions, a division of **Universal Instruments Corporation**, located at 147 Industrial Park Drive, Binghamton, NY 13904, USA ("Seller"). The parties agree as follows:

1. PURCHASE OF EQUIPMENT

- 1.1 Eligible Purchasers. MSEI, its parent company Biotronik (Berlin, Germany) and companies controlling, controlled by, or under common control with MSEI and Biotronik may purchase products ("Equipment") pursuant to the terms of this Agreement. As used hereunder, the term 'MSEI' shall include 'Eligible Purchasers'.
- 1.2 Seller shall sell and MSEI shall purchase all EQUIPMENT as described in Exhibit A and B.
- 1.3 This contract should also apply to the EQUIPMENT, which is referenced in the future purchase orders.

2. PRICE

- 2.1 Prices shall be in accordance with the purchase order(s). MSEI may deduct from Seller's outstanding invoices any money owed to MSEI by Seller as a result of transactions under this Agreement.

3. SHIPMENT AND DELIVERY

- 3.1 Each delivery of EQUIPMENT shall be initiated by a written purchase order ("Purchase Order") issued to Seller by MSEI. Such Purchase Order shall contain a reference to this Agreement.
- 3.2 MSEI shall not be liable for any costs incurred by Seller for either EQUIPMENT not ordered.

4. QUALITY AND WARRANTY

- 4.1 Seller warrants that the EQUIPMENT shall:
 - (a) Conform strictly to design criteria, specifications (including quality provisions), drawings, samples, and other descriptions referred to in this Agreement or provided by Seller;
 - (b) Perform to all specifications developed pursuant to the Agreement. Any failure to meet cycle time, throughput, yield, uptime, machine efficiency as specified in this Agreement, shall be considered the fault of the Seller who must take actions to correct such discrepancies prior to the release of payment(s);
 - (c) Be free from defects in design, material, and workmanship.
- 4.2 All warranties specified in this article 4 shall:
 - (a) Survive any inspection, delivery, acceptance, or payment by MSEI; and
 - (b) Be in effect for one year commencing from the date of final acceptance of the

EQUIPMENT by MSEI, and include all non-wearable parts, labor, and travel expenses.

- 4.3 The uptime of the system will be monitored monthly. Uptime is defined in Exhibit D. For each month that the system fails to meet the specified uptime requirement the EQUIPMENT warranty will be extended one month.

5. INSPECTION, ACCEPTANCE AND NONCONFORMING EQUIPMENT

- 5.1 MSEI shall have the right to inspect, at Seller's plant, EQUIPMENT during design and build, and prior to shipment.

5.2 Acceptance by MSEI of EQUIPMENT pursuant to this Agreement shall be deemed to occur as soon as:

- (a) The EQUIPMENT performs in accordance with all applicable specifications;
- (b) All defective parts or EQUIPMENT have been replaced or repaired;
- (c) The EQUIPMENT Acceptance Form in Exhibit D has been executed by an authorized MSEI representative.

- 5.3 If EQUIPMENT is found to be defective or otherwise not in conformity with the requirements of the Purchase Order and this Agreement, MSEI may at its election, and upon approval by Seller such approval not being unreasonable withheld: (1) return the EQUIPMENT for repair/rework at Seller's expense or replacement with full refund of all costs paid by MSEI; or (2) Repair the Nonconforming EQUIPMENT and recover MSEI's reasonable expenses of repair. All Nonconforming EQUIPMENT returned by MSEI to Seller and all replacement or repaired EQUIPMENT shipped by Seller to MSEI, will be at Seller's risk and expense including transportation charges.

6. SERVICE AND SUPPORT

- 6.1 Seller shall provide MSEI with complete EQUIPMENT documentation as well as a list of recommended spare parts, as specified in Exhibit B. Seller shall provide a preliminary copy of the Bill of Materials and Recommended Spare Parts list per the timeline identified in Exhibit B. Seller shall also provide, upon request from MSEI, sufficient documentation for MSEI to procure or fabricate any custom part, such as test carriers, etc., and such request shall not be unreasonably denied by Seller.

- 6.2 Seller agrees to notify MSEI in writing one (1) year in advance of EQUIPMENT obsolescence, and further agrees to maintain the availability of components/spare parts for a period of five (5) years beyond cancellation of the EQUIPMENT offering.

- 6.3 Seller's service representative will respond to requests within 24 hours. Seller will provide MSEI in writing a method of contacting Seller seven days a week, including holidays, for emergency service.

7. MSEI PROPERTY

- 7.1 All materials and tooling, including without limitation, designs, drawings, specifications, or other property, furnished to Seller by MSEI or paid for by MSEI in connection with this Agreement (collectively "MSEI Property") shall:

- (a) Be clearly marked or tagged as the property of MSEI;

- (d) Be kept free of liens and encumbrances;
 - (e) Be kept separate from other materials, tools, or property of Seller or held by Seller; and
 - (f) Be controlled in accordance with section 8.
- 7.2 Seller shall bear all risk of loss or damage to MSEI Property until it is returned to MSEI. Upon MSEI's request or upon the termination of this Agreement, Seller shall deliver all MSEI Property to MSEI in good condition, normal wear and tear excepted, without cost to MSEI. Seller waives any legal or equitable rights it may have to withhold MSEI Property.

8. INTELLECTUAL PROPERTY

- 8.1 Confidential information provided by one party to the other in performance of this Agreement shall be covered under a separate Confidential Disclosure Agreement #2006-02, which should be expired on December 30, 2012
- 8.2 Pre-Existing Intellectual Property:
- (a) "Pre-Existing Intellectual Property" means any trade secret, invention, work of authorship, mask work or protectable design that has already been conceived or developed by anyone other than MSEI before Seller renders any services under this Agreement.
 - (b) The Seller does not by rendering services under this Agreement agree to assign, transfer, or exclusively license the Seller's Pre-existing Intellectual Property to MSEI.
 - (c) The Seller will not use any Pre-Existing Intellectual Property in connection with this Agreement unless the Seller has the right to use it for MSEI's benefit. If the Seller is not the owner of such Pre-Existing Intellectual Property, the Seller will obtain from the owner any rights necessary to enable the Seller to comply with this Agreement.
 - (d) If the Seller uses any Pre-Existing Intellectual Property in connection with this Agreement, the Seller hereby grants MSEI, MSEI's subcontractors, or suppliers, a non-exclusive, royalty-free, worldwide, perpetual license to, use, reproduce, display, of the Pre-Existing Intellectual Property for MSEI's internal use only.
- 8.3 In the event Seller discontinues EQUIPMENT, MSEI may request and Seller shall grant non-exclusive licenses for the detail drawings of parts and software source codes, including but not limited to the rights to modify the source code and hardware drawings, and have a third party make spare parts. Such request shall not be unreasonably denied by Seller.
- 8.4 The parties agree that the EQUIPMENT is not customized by Seller for MSEI, and is product that is readily available to third parties through Seller's current published specifications. However, the parties further agree that if, during the course of this Agreement, the EQUIPMENT is customized for MSEI, and the Seller is given access to MSEI owned intellectual property in order to complete the customization, any such intellectual property created as a result of such customization ("Customized Intellectual Property") will be and remain the property of MSEI, and will be subject to the confidentiality provisions of this Agreement. In no case will Seller use any such MSEI owned intellectual property for the benefit of any third party, or to the detriment of MSEI.
- 8.5 Seller agrees that, during the term of this Agreement and for three (3) years after its termination for any reason, it will not provide any product to a third party that utilizes or derives from the Customized Intellectual Property without the prior written approval of

MSEI, which shall not be unreasonable withheld, except for MSEI competitors.

8.6 MSEI Competitors: By its performance under this Agreement, Seller will be exposed to key MSEI Confidential Information. Therefore, if Seller were to participate with a third party in the design or manufacture of EQUIPMENT similar to the EQUIPMENT in this Agreement, Seller would need to take particular care not to (i) disclose MSEI Confidential Information to the third party, or, (ii) allow MSEI Confidential Information to be used in any manner in the design or manufacture of the similar EQUIPMENT. In order to avoid improper use or disclosure of MSEI Confidential Information, the Seller shall take all reasonable and necessary steps to properly protect MSEI Confidential Information, including:

- (a) Keeping EQUIPMENT being designed and manufactured under this Agreement segregated from other EQUIPMENT being designed and manufactured in the Seller's facility;
- (b) Maintaining written or physical items that contain MSEI Confidential Information in a secured physical location;
- (c) Informing all employees of Seller including agents and contractors who have access to MSEI Confidential Information of Seller's duties to protect MSEI Confidential Information.

8.7 Indemnification:

- (a) If notified in writing within 30 days of any claims made or action brought against MSEI, Seller will settle or defend, at Seller's expense, all proceedings or claims against MSEI, its subsidiaries and affiliates for alleged infringement of U.S. patents and copyrights granted as of the date of this quotation where such patents or copyrights cover goods or parts contained in the EQUIPMENT that is furnished hereunder by Seller.
Seller shall have sole control of the defense of any such action and all negotiations for its settlement.
- (b) Seller shall not have any liability hereunder based upon compliance required of Seller with engineering drawings or manufacturing instructions originating with or furnished by Buyer, its subsidiaries or affiliates, if such compliance gives rise to such proceedings or claims.
- (c) If the use by MSEI of any EQUIPMENT is enjoined, Seller shall, at its expense, use its best efforts to procure the right to continue using the EQUIPMENT. If Seller is unable to do so, Seller shall, at its expense:
 - (1) Replace the EQUIPMENT with noninfringing EQUIPMENT;
 - (2) Modify the EQUIPMENT to be noninfringing; or
 - (3) If unable to replace or modify the EQUIPMENT, refund in full all costs paid by MSEI for the EQUIPMENT (without any deductions by Seller).
- (d) Seller shall remove from all EQUIPMENT rejected or not purchased by MSEI, MSEI's name or any of MSEI's trademarks, tradenames, insignias, part numbers, symbols, or decorative designs, prior to any other sale, use, or disposition of such EQUIPMENT by the Seller.

8.8 Continuing Obligations: The obligations under these "Intellectual Property" clauses continue perpetually and do not terminate upon completion of the services.

9. GOVERNMENT COMPLIANCE

Seller will comply with all federal, state, local and foreign laws, rules and regulations applicable to its obligations under this Agreement and its manufacture of this EQUIPMENT. Seller shall furnish to MSEI any information required to enable MSEI to comply with such laws, rules, and regulations in its use of the EQUIPMENT.

10. LIMITED LIABILITY

IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER FOR LOST REVENUES, LOST PROFITS OR ANY OTHER INDIRECT, CONSEQUENTIAL, SPECIAL OR PUNITIVE LOSSES OR DAMAGES, HOWEVER CAUSED, WHETHER IN ACTION FOR BREACH OF CONTRACT, STRICT LIABILITY, TORT, OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH LOSSES OR DAMAGES. IN NO EVENT WILL SELLER'S LIABILITY BE GREATER THAN TWO TIMES THE TOTAL VALUE OF THE EQUIPMENT(S) GIVING RISE TO SUCH CLAIM.

11. NOTIFICATION

Any notices under this Agreement shall be in writing and shall be sent by United States Postal Service, Certified Mail, Return Receipt Requested, postage prepaid or other receipt verifiable delivery, and addressed as the signature page of this agreement.

12. TERMINATION FOR SELLER'S DEFAULT

12.1 If Seller breaches any provision of this Agreement, MSEI may, by notice to Seller, and except as otherwise prohibited by the United States bankruptcy laws, terminate the whole or any part of this Agreement or any Purchase Order, unless Seller:

- (a) Gives MSEI notice, within five days after receipt of MSEI's notice, of its intent to cure the breach; and
- (b) Cures the breach within thirty days after receipt of MSEI's notice.

12.2 For purposes of section 12.1 above, the term "breach" shall include, without limitation, any:

- (a) Proceeding, whether voluntary or involuntary, in bankruptcy or insolvency by or against Seller;
- (b) Appointment, with or without Seller's consent, of a receiver or an assignee for the benefit of creditors;
- (c) Act by Seller that endangers performance of this Agreement in accordance with its terms;
- (d) Failure by Seller to make a delivery of EQUIPMENT in accordance with the requirements of this Agreement or any Purchase Order; or
- (e) Failure to provide MSEI, upon request, with reasonable assurances of future performance.

12.3 In the event MSEI terminates this Agreement in whole or in part as provided in section

12.1 above, MSEI may make or procure, upon such terms and in such manner as MSEI reasonably deems appropriate, EQUIPMENT similar to the EQUIPMENT as to which this Agreement is terminated. Seller shall continue the performance of this Agreement to the extent not terminated under the provisions of this article 12.

12.4 The rights and remedies granted to MSEI pursuant to this article 12 are in addition to, and shall not be deemed to limit or affect, any other rights or remedies available at law or in equity.

13. TERMINATION

MSEI reserves the right to terminate all or part of this Agreement or any Purchase Order for its sole convenience. In the event of such termination, Seller shall immediately stop all related work and cause its suppliers or subcontractors to stop work. Charges for cancellation by MSEI of a Purchase Order shall be limited to the lesser of actual costs incurred plus the mutually agreed upon margin, or the proportionate amount of the purchase price based on the percentage of completion at the time of termination. Seller shall not be paid for any work done after receipt of the notice of termination, nor for any costs incurred by Seller's suppliers or subcontractors which Seller could have avoided.

14. PRECEDENCE

This Agreement, inclusive of all Exhibits attached hereto and made a part hereof, constitutes the entire agreement between the Parties with respect to the subject matter hereof, and supersedes all prior understandings, communications and agreements whether written or oral. Terms and conditions of this Agreement take precedence over the terms and conditions of any other agreement between MSEI and Seller covering the Products, including but not limited to, MSEI's Orders.

15. CHANGES/MISCELLANEOUS

MSEI may change EQUIPMENT specifications. If any such change reasonable and directly affects the prices or delivery schedules of EQUIPMENT, an equitable adjustment shall be made provided Seller makes a written claim and MSEI agrees in writing to the adjustment. Furthermore, no amendment or modification of this Agreement shall be valid or binding unless in writing and executed by an authorized representative or both MSEI and Seller.

16. EXHIBITS

16.1 The following exhibit(s) are hereby made a part of this Agreement:

- (a) Exhibit A, entitled: EQUIPMENT to be Purchased, Payment Terms, Delivery Schedule & Pricing
- (b) Exhibit B, entitled: EQUIPMENT Specifications
- (c) Exhibit C, entitled: EQUIPMENT Acceptance Criteria
- (d) Exhibit D, entitled: EQUIPMENT Uptime Definitions
- (e) Exhibit E, entitled: EQUIPMENT Acceptance Form

16.2 All exhibits attached to this Agreement shall be deemed to be a part of this Agreement and

incorporated herein by reference. The term "Agreement" includes the exhibits listed in this article 16.

16.3 Terms which are defined in this Agreement and used in any exhibit shall have the same meaning in the exhibit as in this Agreement. In the event of any conflict between any exhibit and this Agreement, this Agreement shall control.

17. TERM

17.1 This Agreement shall be effective commencing on **June 12, 2007** date of agreement and continuing until **December 31, 2012** (the "Term"), at which time it shall automatically expire unless terminated earlier as provided herein.

17.2 Upon the expiration or termination of this Agreement, the terms and conditions contained herein shall apply to all Purchase Orders previously transmitted by MSEI to Seller except as otherwise directed by MSEI.

MSEI and Seller have caused this Agreement to be executed by their duly authorized officers or representatives, effective as of the date below.

APPROVED AND AGREED TO

SELLER: Unovis Solutions,

A division of Universal Instruments Corp

By: 

Typed/Printed Name: Jeroen L. Schmits

Title: President of Universal Instruments Corp.

Date: 6/20/07

Address for Seller:

147 Industrial Park Drive
Binghamton, NY 13904 USA

BUYER:

Micro System Engineering, Inc.

By: 

Typed/Printed Name: Juergen Lindner

Title: General Manager of MSEI

Date: 14 June 2007

Address for MSEI:

6024 SW Jean Road
Lake Oswego, OR 97035 USA

EXHIBIT A**EQUIPMENT TO BE PURCHASED, PAYMENT TERMS,
DELIVERY SCHEDULE & PRICING**

Phase 1	Description	Qty	Package Price
1	Automated Test Handling System	1	Delivery Feb. 09, 2008
2	Including NRE	1	
3	3 Adapts, 1 Shaker & 1 RF	1	
4	Crating	1	
5	Installation & Final Acceptance	3-wk	
PO# 646339		Total Price	\$1,050,000.00

1. Project Cost of the First Phase

- The first system includes a 500 buffer, 3 Adapts, one RF and one Shaker, which are integrated into 4 stations with a conveyer per Seller latest layout, dated May 16, 2007.
- \$1,050,000.00 for all the NRE (hardware, software and detailed test methodology development), fully functional system build, documentation, pre-acceptance and training, crating, installation and final acceptance test run.
- The total contractual price should remain if the specifications and scope of work have not been changed, regardless of the required resources used to complete the System.
- The program is to be managed and evaluated by objectives, agreed specifications and deliverables. SELLER has the total ownership of the project.
- The Factory Acceptance Testing and Training are scheduled for 5 working days. The cost is included in the price.
- The installation, additional training and Final Acceptance Testing at MSEI is scheduled for three weeks. The cost is included in the price.

2. Payment Terms

- Down payment \$270,000.00, to be paid as a PO issued
- \$270,000.00 when the design phase is completed
- \$180,000.00 when the equipment is shipped from Seller
- \$180,000.00 when the equipment has passed the final acceptance and when the equipment meets **the equipment performance criteria**
- Final Payment \$150,000.00 should be paid by March 31, 2009
- All payments should be paid on Net 30.

3. Labor Rate for change orders and future business

- All engineering labor rates: \$90/hr

- Drafting, documentation and technician labor rates: \$65/hr
- Fabrication and Assembly labor rate: \$45/hr

4. Cost of the 2nd Phase

- The cost shall be \$350,000.00, including replication, crating and installation. The extension of the conveyor and integration with Phase 1 system is included in the price. This includes necessary software, hardware and documentation modifications. This price is valid through March 31, 2010 if there is no change in the specification.
- The cost of Polaris MP Redundancy Kit is \$20,000, which is not included in the \$350,000.00. MSEI has an option to purchase it with the 2nd phase.

EXHIBIT B**EQUIPMENT SPECIFICATIONS**

The following documents, which constitute the specifications, are hereby incorporated into this Agreement.

1. MSEI Specifications for Test Handling System

Document #	Title	Dated
3146668a	Functional Requirements Specification	29-Mar-07
3146304d	Test Handling System Requirements	6-Apr-07
3146433a	MSEI General Equipment Specification	30-Aug-06
8200346h	Product Handling Guidelines	4-Oct-05
8990112a	Manufacturing Test Equipment Requirements: THS to Tester Interface	6-Dec-06

2. Interface with MES

For the eventual deployment of the MES, SELLER will provide additional data interface hooks. For the sake of this proposal SELLER has assumed that the communications link will be over Ethernet connection using a sockets interface. SELLER assumes that the THS will transmit the serial number to the MES upon receipt of devices by the THS. The MES will verify the serial number and transmit the device type and current operation, or any errors when appropriate, to the THS for the device. The THS will not receive, store or transmit any test parametric data.

3. Exception to the Specifications**(a) Functional Requirements Specification for the Test Handling System, #3146668, Rev. A**

2.1.6 – Filtering System not included.

2.4.19, 20, 21 - A reject belt will be used to handle rejected parts. The reject buffer capacity is minimum 20 DUTs.

3.1.1 - Seller will use Polaris MP and Jrs which have their own control systems based on Adept CX controllers and OMRON PLCs respectively. The THS control server will be a Visual C# application running on Windows XP.

4.1 Seller will use the standard HMIs provided on our Polaris MPs and Jrs. Additions and modifications as required by MSEI will be implemented on these HMIs.

5.4.5 – A belt conveyor is used for rejected DUTs.

5.4.7 – Failed DUTs will be place on the reject belt. THS will send a text message to a mail server at a user-selected set point, for example, when the reject belt is close to being full. Unattended operation will halt when the set point is reached or the reject belt is full.

5.4.13 - A reject belt will be used to handle rejected parts. The reject buffer capacity is

minimum 20 DUTs.

5.5.1 – THS will allow operators to directly load stacks of trays at the load station, and unload stacks of trays at unload stack locations 1 through 5, and at the High Priority stack location. No lock out will be required. Unlocked covers will prevent unintentional movement of the trays.

5.5.2 - Product will be loaded and unloaded from station 1.

5.5.6 – Sorting WIP shall be manual. The THS server will keep track of DUTs in WIP.

5.5.9 , 5.5.10- A reject belt will be used to handle rejected DUTs. The reject buffer capacity is minimum 20 DUTs. An unlocked cover is present to prevent rejected DUTs from unintentional movement and ESD damage.

5.5.11 –THS will send a text message to a mail server

5.5.12 - - A reject belt will be used to handle rejected DUTs. The reject buffer capacity is minimum 20 DUTs.

5.6.12 - Machines will be CE compliant

5.6.13 - Machines will be CE compliant

5.6.15 – Machines will be CE compliant

5.7.5 - Estimated line size is 39' x 11'

5.7.8 –Source code will not be provided. Standard application programs that enable process modifications for new products will be provided.

5.7.14 - Standard Seller white color has been quoted.

6.3.5 - Acceptance testing beyond five (5) days is subject to additional cost to MSEI.

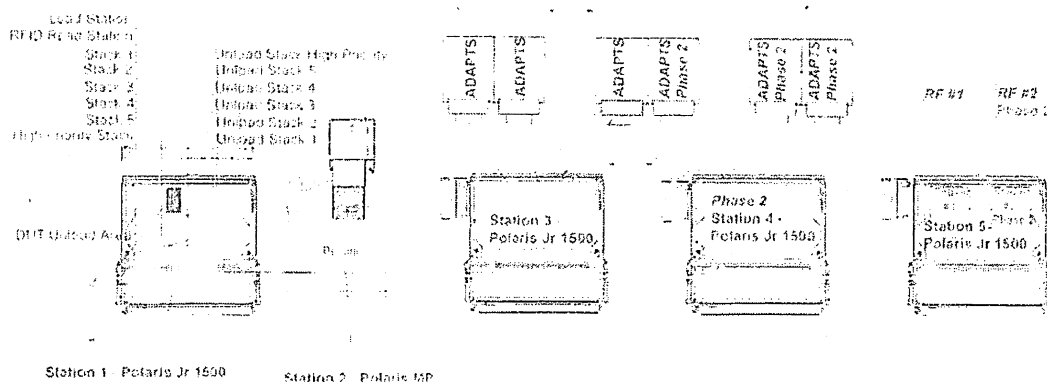
(b) THS System Requirements Document, #3146304, Rev. D

5.13 – THS is designed to be FIFO. Trays can be sorted manually in the load stacks, or by designating the high priority stack. 5.15 - THS is designed to be FIFO. Trays can be sorted manually in the load stacks, or by designating the high priority stack.

(c) Manufacturing Test Equipment Requirements, #ES 8990112, Rev. A

4.2 – Standard Seller machines, stackers, and conveyors are used. Emissions will be reviewed during the design phase.

4. Total System Layout (Phase 1 & 2)



5. Spare Parts

- SELLER should provide a recommended spare parts list with quote 8 weeks before shipment.

6. Project Management

A. Responsibility of the Automation Supplier

- SELLER will assume full responsibility for the design and build, ensure that the delivered system meets all the deliverables and performance criteria per the Specifications (section 1).
- SELLER assumes the final responsibility for the machine performance, schedule and cost within agreed contractual price. SELLER will also assume project management and technical responsibilities for the design concepts, design approval, hardware and software deployment, quality assurance with equipment physical auditing.
- Project Management and Risk Mitigation
 - a. Provide a high level MS project schedule with all the major milestones, check points, internal review, approve and qualification within one week after the PO is issued.
 - b. Provide a detailed team organization chart with names, roles, and responsibilities for the project.
 - c. Provide a modified Machine Specification within one month if necessary. MSEI should review and approve it before the actual design phase is started.
 - d. SELLER should have a sound internal design and review process to ensure the design is robust enough to meet the MSEI requirements.
 - e. Provide a detailed test plan for pre-acceptance and final-acceptance at the end of the design phases. MSEI should review and approve it before the final design phase is completed.
 - f. Report project progress with possible technical and schedule risk at least monthly
 - g. Present risk mitigation plan and ensure the equipment performance criteria met.

B. Responsibility of MSEI

- Project Support. MSEI will provide feedback on SELLER requests as required within 1 business day by telephone or email.
- MSEI Provided Items

<i>Assembly: ⇨</i>	<i>Critical Parameters</i>	<i>Value</i>
<i>Components: ⇩</i>		
4110 Flat DUT	MSEI Drawing	2714110 rev B
	Probe Orientation	56 pogos from top (Device) side

Assembly: ⇨	Critical Parameters	Value
Components: ⇩		
	Location of barcode	8200251aj.doc
	Weight	8.8 grams
4110 Probe Card	MSEI Drawing	2864110
	Total Pogo Pin Force	177.4 oz.
4120 Flat DUT	MSEI Drawing	2714120 rev A
	Probe Orientation	78 pogos from top (Device side)
	Location of barcode	8200251aj.doc
	Weight	8.72 grams
4120 Probe Card	MSEI Drawing	2864120
	Total Pogo Pin Force	180.8 oz
4110 Folded DUT	MSEI Drawing	2714110 rev B 3d model; 4110.step
	Probe Orientation	32 pogos from top (device side) and (4) from left side (pads 601, 601A, 602A, 602)
	Weight	8.8 grams
4110 Folded Probe Card	MSEI Drawing	2890296
	Total Top Pogo Pin Force	136.8 oz.
	Total Side Pogo Pin Force	15.2 oz.
4120 Folded DUT	MSEI Drawing	2714120 rev A 3D MODEL: 4120_LUMAX_REVB.STEP
	Probe Orientation	(17) from top (device side) and (6) from left side (pads 601-606)
	Weight	9.24 grams
4120 Folded Probe Card	MSEI Drawing	2890318
	Total Top Pogo Pin Force	87.4 oz.
	Total Side Pogo Pin Force	22.8 oz.
Primus Flat DUT	MSEI Drawing	TBD
	Probe Orientation	TBD pogos from top (Device) side
	Location of barcode	MSEI dwg:
	Weight	est. 0.25 grams
Primus Probe Card	MSEI Drawing	TBD

<i>Assembly:</i> ⇨	<i>Critical Parameters</i>	<i>Value</i>
<i>Components:</i> ⇩		
	Total Pogo Pin Force	TBD

7. Documentation to be provided by Seller

- (a) Calibration Manual
 - (b) Control Parameter Summary
 - (c) Lockout/Tagout Placard
 - (d) Maintenance Manual
 - (e) Operating Manual
 - (f) Troubleshooting Guide
 - (g) Bill of Materials: include purchased components mfg number
 - (h) Drawings
 - (i) Control System Software
- SELLER should provide all designs in CDs one week before the design phase is completed. MSEI should review and provide some feedback. SELLER makes final decision to complete the design phase.
 - SELLER should provide preliminary documentation package (CDs) to MSEI 2 weeks before the Factory Acceptance Test.
 - SELLER should provide Quality Assurance Documentation with test results, physical auditing and check lists before invite customer for a Factory Acceptance Test.
 - Quality Documentation Review
 - Acceptance Test Procedure (ATP)
 - Measurement Systems (What we measure and when we measure it)
 - Functional Testing
 - Reliability Testing
 - Guaranteed Product ID & Traceability
 - The Final Documentation Package should be provided in two weeks after the equipment is shipped. All documents in soft copies should be in their native (original) forms Seller which were created so that it can be edited in the future. The package includes:
 - Mechanical BOM
 - Electrical BOM
 - List of spares or field replaceable units (FRUs)
 - Drawing index
 - I/O List (if applicable)
 - Mechanical drawings (assembly and detailed drawings: 11 × 17 in)
 - Pneumatic and electrical schematics (11 × 17 in)
 - Maintenance, Operation, and Software manuals (2 hard copies)
 - Supplemental manuals for SELLER standard products in hard copy and PDF files (if applicable)
 - OEM documentation (packaged in 3 ring binders and separately if large format)
 - CD containing all of the items listed above that exist in electronic form
 - Technical Documentation Receipt

8. Ownership of the Intellectual Property of the Full System

MSEI owns the IP of the design, software, and documentation for anything customized. MSEI logo and IP statement should be included in the drawing template and documentation.

PROPRIETARY AND CONFIDENTIAL

THIS DOCUMENT IS THE PROPERTY OF MICRO SYSTEMS ENGINEERING, INC (MSEI). UNAUTHORIZED POSSESSION, USE, DISSEMINATION OR COPYING ANY PART WITHOUT THE WRITTEN PERMISSION OF MSEI IS PROHIBITED.

9. Supplementary Information

- Cycle Time

Table 1: Single part production test times in minutes. Use simulation to create targets

Prod	Config	ADAPTS (3)	Motion (1)	RF (1)	Total Test Time	Best Possible Cycle Time	Estimated Cycle Time *	Estimated Daily Production **
4110	Flat	15	1					
4110	Folded	6.6						
4120	Flat	15	1	2				
4120	Folded	6.2						
2200	flat	4	1	2				

* Estimated Cycle Time = (Best Cycle Time)(1.05)/(95%), parts/minute: Assumes no vision inspect & single-product steady state production.

** Estimated Daily Production = (24)(60)/(Estimated Cycle Time), parts/day

- Acceptance Testing (detailed in Exhibit C)

All requirements shall be verified. For example, the Test Carriers will be measured to verify the pogo deflection requirement, and a tolerance analysis would show that subsequent Test Carriers built to print with-in worst case tolerance would also meet the pogo deflection requirement.

- Factory Acceptance Testing (FAT):

Dry cycle testing - (no product, just trays (provided by MSEI)). 8-hr duration.

Wet cycle testing - Production-like run of (300) production-representative parts. This shall include (60) parts of each part type run in batches sequentially to allow steady state behaviour to be monitored.

One ADAPT tester, one Motion tester, and one RF tester will be on site for testing with system.

Prioritization and Conditional routing testing – Engineering-like run of (300) production representative parts. This shall include (60) parts of each part type run in prioritized DUT or batches and script based test sequences to allow confirmation of engineering set-up and customizable prioritization and routing.

– **Site Acceptance Testing (SAT)**

Wet cycle testing - Production-like run of (300) production-representative parts. This shall include (60) parts of each part type run in batches sequentially to allow steady state behaviour to be monitored.

Exception testing - Random Access, Conditional Routing, System Down, Correlation failure, DUT failure, Retrieving parts, etc.

– **Process Critical Requirements**

Process critical requirements, as outlined below in the Critical Performance Metrics Table (Table 2), shall be tested by operation of the system over an agreed-upon period of time and under varying conditions. An exhaustive test of the system is not, however, within project scope. See section 6.3.4 “Tool Validation” below.

Table 2: CRITICAL PERFORMANCE METRICS

TEST DESCRIPTION	LIMITS	SAMPLING	COMMENTS
PROBE MARK INSPECTION	CpK = 2.0	100%, during wet cycle	CPK = 2.0. Confidence interval defined by (300) part test.
DUT TEMPERATURE	37C ± 1C	100%, during wet cycle	THS shall monitor data. Reference 2.3.3.
OPERATING MODE CHANGES (LIFO, FIFO, Conditional Routing, RANDOM ACCESS, High Priority from floor)	LATENCY: see appendix A.	DEMONSTRATE EACH MODE OF OPERATION DURING DRY CYCLE (TEST TIMES SIMULATED)	REQUEST (2) TRAYS FROM BUFFER WHEN SYSTEM IS AT STEADY STATE WITH ALL (5) PART TYPES in test stations.
PRODUCT CYCLE TIME	Reference Estimated Cycle Time, Table 1	During wet cycle	Check rate over steady state operation portion of each product batch.
Unattended Operation	8 hrs.	During wet cycle	No downtime that the system can't recover from (at reduced rate). Conditions of test carefully controlled so as to eliminate factors out of THS control.
Technical Availability	95%	During wet cycle	

EXHIBIT C

EQUIPMENT ACCEPTANCE CRITERIA

1. OBJECTIVES:

- 1.1 The objective of this document is to outline the performance tests and acceptance criteria that will be performed for the SELLER proposed Test Handling System, detailed in Exhibit B. These tests will be performed at the Machine Pre-Acceptance and Machine Acceptance run-off checkpoints. The performance tests and acceptance criteria included in this document are not all-inclusive.

2. GENERAL CONDITIONS FOR ALL TEST RUNS:

- 2.1 One Adapt will be provided by MSEI for buy-off testing. The additional two Adapts will be integrated into the Test Handling System during the Final Testing at MSEI.
- 2.2 Guarding and safety interlocks must be present and active for all phases of dry cycle and performance testing.
- 2.3 All potential faults in unguarded areas must be allowed to progress along their natural course without intervention, with the exception of adding trays to buffer at specified intervals. Clearing of jams, correcting incorrectly placed parts, making mechanical adjustments, electrical adjustments or software adjustments before the system is aware of the problem and has faulted is not allowed.
- 2.4 All downtime incidents and faults caused by out-of-spec parts or materials, undeveloped processes, or gross operator errors will not be counted in the dry cycle or reliability testing results described in this specification.
- 2.5 Test runs, acceptance criteria, performance specifications, and other requirements listed here may be waived, combined, postponed or otherwise reduced at the discretion of MSEI.

3. DEFINITION OF TERMS:

- 3.1 Station: Tooling that is designed to perform a specific process step such as aligning DUT to fixture or making electrical contact at a test nest.
- 3.2 Dry Cycle: Cycling the THS with trays, DUTs and fixtures, but without performing any electrical testing.
- 3.3 Wet Cycle: Cycling the THS with trays, DUTs and fixtures, performing full test operations.
- 3.4 Specified Cycle Rate: The minimum sustained run rate of the THS in production as specified in the FRS.
- 3.5 Total Time: The duration of the test of the THS.

- 3.6 Idle Time: Time when the THS is capable of cycling, but does not run due to some external cause.
- 3.7 Good Parts Started: Good parts entering the THS.
- 3.8 Good Part Out: Good parts leaving the THS.
- 3.9 Good parts: Good parts must not have any visible damage or markings caused by the THS tooling when viewed by both the aided and unaided eye. This includes damage to solder joints or components on the DUT. Also, no ESD damage should be caused by the THS. All visible defects caused by the THS must be eliminated unless a reprieve is provided in writing by MSEI. Because of the potential incurred risk assumed, the decision to provide this reprieve is entirely up to the MSEI team. Factory Acceptance Test runs will not be considered successful if assembled parts exist with visible markings, or ESD damage and a reprieve has not been provided. SELLER will not be held accountable for damaged assemblies or parts not caused by the THS.
- 3.10 Reject Parts: DUTs that enter the THS as good, but do not exit as a good part. The counting point is as the DUT leaves the THS. Electrical failures that are not caused by the THS are not counted as reject parts.
- 3.11 Runtime: Time during which the equipment is cycling while the equipment is in Run Mode.
- 3.12 Starved: An Idle time event caused when the equipment is capable of cycling, but does not run due to a lack of a DUT available.
- 3.13 Blocked: An Idle-time event caused when the test station is capable of cycling, but does not run due to the downstream test stations or the alignment station being unable to accept the output of the equipment.
- 3.14 Machine Fault: Stoppage of part processing due to a detected malfunction of the equipment or a potential safety condition (e.g. safety door open).
- 3.15 Downtime: All time during the test when the equipment is stopped for machine faults, cycle stop, process stop, and all other non-run mode states.
- 3.16 Uptime: Time when the equipment is cycling (Runtime) or able to run except for some external cause (Idle) while in Run Mode.
- 3.17 % Downtime = $100 * (\text{Downtime} / \text{Total Time})$
- 3.18 % Uptime = $100 * (\text{Uptime} / \text{Total Time})$
- 3.19 Cycle: 1 cycle is the appropriate steps required to test one DUT through all assigned tests when operating in dry or wet cycle mode.
- 3.20 Cycle Rate: (Cycles / Runtime)
- 3.21 Cycles per Fault: Cycles / machine faults

- 3.22 Efficiency (%) = $100 * (\text{Good Parts Out} / (\text{Specified Cycle Rate} * \text{Total Time}))$
- 3.23 Parts per Fault: Good Parts Started / machine faults
- 3.24 Yield (%) = $100 * (\text{Good Parts Out} / (\text{Good Parts Out} + \text{Reject Parts}))$
- 3.25 Preliminary Potential Capability (Ppk): The ratio of half the distribution compared to the minimum: $\text{mean} - \text{LSL}$ or $\text{USL} - \text{mean}$. The formula is the minimum value of $(\text{mean} - \text{LSL} \text{ or } \text{USL} - \text{mean}) / 3s$. USL is the upper specification limit, LSL is the lower specification limit, and s is the estimated standard deviation of the population.
- 3.26 Stage = mix of product for a given period of time during a test.

4. PREPARATION FOR PRE-ACCEPTANCE TESTING

- 4.1 A Pre-Acceptance Check List will be developed by MSEI and/or SELLER for each station in the THS. The purpose of this document is to provide a single location where a majority of the mechanical requirements for the module may be found and to serve as a discussion aid between MSEI and SELLER prior to and during pre-acceptance testing.
 - 4.1.1 In preparation for Pre-Acceptance testing, the specific items in the Pre-Acceptance Check List will be verified as met by SELLER before MSEI arrives, with MSEI verifying that the specific items are met before and/or during Pre-Acceptance testing.
 - 4.1.2 The list is not expected to be exhaustive. It is the responsibility of SELLER to make sure that the equipment will meet all of the specifications in the FRS. Specifications not specifically addresses in the list may be tested as needed to verify compliance.
- 4.2 A total Burn-In period of no less than 24 hours shall be run on the THS prior to MSEI arrival. The time period need not be contiguous, however continuous operation should be of sufficient length to capture problems that may only surface during extended periods of operation.
 - 4.2.1 The time shall be counted while the machine is actually cycling and does not include any Idle Time, fault or repair time, or other downtime events.
 - 4.2.2 Time may be counted with or without parts, however dry cycle should be used when circulating parts to minimize part consumption.
- 4.3 In addition to the check list and burn-in period, it is anticipated that SELLER will use appropriate statistically driven test runs to verify the equipment is ready for all Pre-Acceptance testing and to minimize material usage.
- 4.4 Execution of the test plan as described in control system specifications shall be performed by SELLER. This test plan is for the functionality defined in the Functional Requirements Specification. Documented results of the test plan shall be provided to MSEI.

5. PRE-ACCEPTANCE TEST RUNS

- 5.1 Dry Cycle Test Run: Focus will be on part handling through all Test Stations.
 - 5.1.1 Goal of test: The goal of this test is to determine that the tooling is assembled correctly and to eliminate any design related issues affecting reliability before materials are consumed. The dry cycle test run should demonstrate adequacy of construction and robustness of both hardware and software. Metrics will be focused on the ability to cycle parts at sustained rates without material jams, errors, misfeeds, etc.
 - 5.1.2 Conditions of test: The THS and with all Test Stations must be operating at the specified cycle rates listed in section of this specification. Parts are circulated but electrical testing is performed. Stations where the process includes interface to MSEI testers will have a method to have sensors defeated/bypassed, and/or software temporarily modified so that the tooling may cycled.
 - 5.1.3 All process Station tooling should be operated during dry cycling, for example: tray movement in/out of buffer, DUT alignment to fixture, pick and places, other actuators should be cycled. The length of the test is listed in the Performance Criteria Summary Table.
 - 5.1.4 Measurements taken during test: total time, cycle rate, downtime, and machine faults.
 - 5.1.5 Metrics calculated to evaluate test: % downtime, cycles per fault, and cycle rate.
 - 5.1.6 Factory Acceptance Test Report will be generated by SELLER.
- 5.2 Wet Cycle Test Run: Metrics will be focused on the ability of the station tooling to consistently perform the required process steps to test good parts at a sustained rate. This test will be evaluated on a Station by Station level through the THS. Successful passage of this test will assure that the station tooling is able to meet the required specifications and that it is properly setup for the module level Production Capability Test Run to follow.
 - 5.2.1 Conditions of test: The Stations must be operating at the specified cycle rates listed in the station specification for the station under test. All process steps will be enabled for that station
 - 5.2.2 All process Station tooling should be operated, with all sensors, gauges, process monitors, etc. in place and functioning properly. The length of the test is listed in the Performance Criteria Summary
 - 5.2.3 It is expected that upstream stations within the THS will provide appropriately processed parts to subsequent stations. In the event that a station is not working correctly, other stations in that module may still pass the Wet Cycle Test Run if a means of providing parts to them is found.

- 5.2.4 Measurements taken during test: total time, cycle rate, downtime, and machine faults.
- 5.2.5 Metrics calculated to evaluate test: % downtime, cycles per fault, and cycle rate.
- 5.2.6 Factory Acceptance Test Report will be generated by SELLER
- 5.2.7 See individual station specifications for any additional process specific measurements and metrics that may be required.
- 5.3 Data Integrity Test (SELLER should write the plan during the design phase):
 - 5.3.1 The test plan derived from the SELLER control systems specifications that shall include a data integrity test run defined by SELLER and agreed to by MSEI.
- 5.4 DUT Prioritization and Conditional Routing Test Run: This test focuses on the flexibility of the test handler in a simulated engineering and production environment. This test will be performed by a technician with proper credentials.
 - 5.4.1 Measurements: SW configuration time, HW configuration time, machine faults, downtime, cycle rate, total time
 - 5.4.2 Metrics: % set-up time, % down time, test cycle time for prioritized units, % ADAPTS idle time
 - 5.4.3 Reporting: A buy-off report will be generated by SELLER
- 5.5 Production Capability Test Run: In this test the Module will be run as an integrated system in a simulated production environment. It is expected that all previous tests have been passed and the equipment has been set up sufficiently to meet the process requirements. The goal of this test is to focus on the overall ability of the THS to meet production requirements with production representative staffing. Staffing of the run will be close-to what is expected to be the nominal staffing level for production at MSEI. Any additional technical support required to pass the test runs must be identified and approved prior to the test run (e.g. buffer loading, unloading)
 - 5.5.1 Goal of test: The goal of this test is to determine downtime issues, efficiency, reliability, capability, data integrity, and process interdependencies.
 - 5.5.2 Conditions of test: Any safety systems available must be enabled throughout the entire test run, the Data Integrity Test must be passed, and all material handling systems must be in place. Run length and process specific requirements can be found in the specific station specifications.
 - 5.5.3 Measurements taken during test: total time, cycle rate, downtime, machine faults, good parts started, good parts out, reject parts scrapped, and all the parameters required to calculate the process capability measures listed in individual station specifications.
 - 5.5.4 Metrics calculated to evaluate test: efficiency, uptime, parts per fault, yield, Ppk, and cycle rate.

5.5.5 The Factory Acceptance Test Report will be written by SELLER.

6. FINAL ACCEPTANCE TEST AT MSEI.

6.1 The final Acceptance test run is designed to measure the performance of the equipment relative to the performance once it is installed at MSEI. This criterion is detailed in the Performance Criteria Summary Table. The criteria selected are designed to reflect a proper re-assembly of the system and performance comparable or better than what was achieved during the Pre-Acceptance checkpoint. The performance of the line needs to match the expectations of MSEI's long-term business needs for efficiency, yield, and overall capacity. It is expected that MSEI's personnel would run the equipment on these tests. MSEI personnel will provide expertise on product quality, process, and DUT handling issues.

6.1.1 Dry Cycle Test: The length of the test and criteria are listed in the Performance Criteria Summary Table.

6.1.2 Wet Cycle Test: The length of the test and criteria are listed in the Performance Criteria Summary Table.

6.1.3 Data Integrity Test (SELLER to write the test plan during the design phase):

6.1.4 Production Capability Test: The length of the test and criteria are listed in the individual station and THS specifications in the performance criteria summary tables below.

6.1.5 Prioritization and Conditional Routing test: The length of the test, number of units and criteria are listed in the Performance Criteria Summary Table.

7. PERFORMANCE CRITERIA SUMMARY TABLES:

7.1 Dry Cycle Test Run Metrics:

7.1.1 Test Length: A *single continuous* run (about 8-hours). Test Parameters: use the following test cycle time matrix combined with the schedule table. This test will be run with or without DUT's per MSEI discretion.

7.1.2 Test cycle time matrix for dry run

Prod	Config.	ADAPT (3)	Motion (1)	RF (1)
4110	Flat	minimal	minimal	minimal
4110	Folded	minimal	minimal	minimal
4120	Flat	minimal	minimal	minimal
4120	Folded	minimal	minimal	minimal
2200	Flat	minimal	minimal	minimal

7.1.3 Test schedule table (number of DUTs, FIFO) When the first hour DUT's of product 1 are run (stage 1), then simultaneously test product 1 & 2 (stage 2). and so on.

Product	Stages							
	1	2	3	4	5	6	7	8
1 (4110-flat)	x	x				x	x	x
2 (4110-folded)		x	x				x	x
3 (4120-flat)				x	x	x	x	x
4 (4120-folded)					x		x	x
5 (2200-primus)			x	x	x			x

7.1.4 The minimum criteria to pass the test is:

Dry Cycle (% Downtime)	Dry Cycle (cycles/ fault)
0	No faults

7.2 Wet Cycle Test Run:

7.2.1 Test Run # 1: A continuous run of 30 parts of each product type at the specified cycle rate, which must include all material handling. The system will be manned by SUPPLIER staff members during this run.

7.2.2 Buffer can be loaded and unloaded during the test run. minimum of 1 time per each stage.

7.2.3 DUT's can be re-used for subsequent tests at the discretion of MSEI.

7.2.4 Test cycle time matrix for wet run (approximate times)

Prod	Config	ADAPT (3)	Motion (1)	RF (1)
4110	Flat	960 (sec)	120 (sec)	
4110	Folded	396 (sec)		
4120	Flat	1470 (sec)	120 (sec)	120 (sec)
4120	Folded	370 (sec)		
2200	Flat	300 (sec)	120 (sec)	120 (sec)

7.3 Test schedule table (number of DUTs, FIFO)

Product	Stages							
	1	2	3	4	5	6	7	8
1 (4110-flat)	12					12		6
2 (4110-folded)		12				12		6
3 (4120-flat)			12				12	6
4 (4120-folded)				12			12	6
5 (2200-primus)					12			12
Elapsed time (min)	72	103	213	242	266	369	507	652

7.3.1 Test Run # 2: A repeat of wet Test Run#1: The system will be manned by MSEI engineering staff members during this run.

7.3.2 The minimum criteria to pass the wet cycle test runs #1 and #2 is: Throughput is met measured by elapsed and no faults.

Wet Cycle (% Downtime)	Wet Cycle (cycles/ fault)
0	No faults

- 7.4 Data Integrity Test: details to be defined at final design approval.
- 7.5 Prioritization and conditional routing test: details to be defined at final design approval.
- 7.6 Production Capability Run Metrics: Measured during wet cycle runs

7.6.1 Load/unload buffer

Wet Cycle (% Downtime)	Wet Cycle (cycles/ fault)
0	No faults

7.6.2 Align & load DUT in fixture, unload DUT from fixture

Wet Cycle (% Downtime)	Wet Cycle (cycles/ fault)
0	No faults

7.6.3 Load/unload Test Nests (x5)

Wet Cycle (% Downtime)	Wet Cycle (cycles/ fault)
0	No faults

7.6.4 Reject parts into FI drawer

Wet Cycle (% Downtime)	Wet Cycle (cycles/ fault)
0	No faults

EXHIBIT D

EQUIPMENT UPTIME DEFINITIONS

I. All systems shall exhibit an uptime of *{insert negotiated uptime}* % or better as defined below for a period of one year from the date of post shipment acceptance.

II. Uptime will be calculated using the following formula:

$$\text{UPTIME} = 1 - \frac{\text{DOWNTIME HOURS}}{\text{AVAILABLE HOURS}} \times 100$$

Where: Available hours = 24 hours/day 7 days/week (168hrs/week, 720 hrs/mo.)

Downtime hours = Scheduled downtime + Unscheduled downtime

1. Scheduled downtime (Noted as "PM" below)

- a. Periodic maintenance, checks, and adjustments as required or recommended by the Seller or MSEI.
- b. Standstill necessary for the change of consumables.
- c. Cleaning
- d. Special start-up or shutdown procedures, if required for proper operation of EQUIPMENT.
- e. EQUIPMENT operation verification runs using non-production material. (Does not include process qualification time).

2. Unscheduled downtime (Noted as "MA" below)

- a. EQUIPMENT repair time starting from the moment the "production" group indicates that the EQUIPMENT is not available for production operations.
- b. Includes time spent waiting for Seller support delays or procurement delays.
- c. EQUIPMENT operation verification runs using non-production material. (Does not include process qualification time).
- d. Does not include engineering time (defined below as EN).
- e. Does not include "other" time defined below as OT.

III. EQUIPMENT Downtime Categories

EQUIPMENT time will be tracked by computer and downtime data will be divided into the following categories:

UP - EQUIPMENT is available for production.

MA - "Maintenance", EQUIPMENT is down for unscheduled maintenance.

PM - "Preventative Maintenance", EQUIPMENT is down for scheduled maintenance.

EN - "Engineering", EQUIPMENT is down for engineering modifications, experiments, investigations, etc.

QU - "Qualification", EQUIPMENT is down for process qualification.

OT - "Other", EQUIPMENT is usable by production but has been flagged as needing maintenance or engineering attention.

("DOWNTIME" as noted in the formula above would only include MA and PM.)

EXHIBIT E
EQUIPMENT ACCEPTANCE FORM

Date: _____

Project Description: _____

EQUIPMENT Part #: _____

Purchase Order: _____

It is hereby understood and agreed that Micro System Engineering, Inc. does herewith accept the EQUIPMENT covered under the above purchase order, identified in Exhibit B of Capital EQUIPMENT Purchase Agreement #2007-17.

According to the terms of payment, it is also agreed that the final balance of the total purchase price is due and payable. Thirty (30) days net of this acceptance.

ACCEPTED BY:

Authorized Signature _____

Printed Name _____

COMPANY:
MICRO SYSTEM ENGINEERING, INC.
6024 SW Jean Road
Lake Oswego, OR 97035

The warranty for the EQUIPMENT, excludes MSEI provided items, begins as of this date and is valid for:

12 Months for materials

12 Months for labor

12 Months for travel expenses