Rev	CO	Date	Author	Description
0	133766	03/25/2011	Gregory Badders	Initial Release
A	137046	10/25/2011	Gregory Badders	Added 'EUROPEAN' to document title Section 2.1 – Changed description of P2 and P3 Section 3 – Updated applicable documents to include EN 60721-3-5:1997 and EN 1363-1 Section 4.2.1 – Revised upper temperature range for windows to 70 C Section 4.4.1.3 – Added impact requirements for rear facing windows Section 4.4.2 – Corrected reference to EN 4.2.9 Section 4.4.5 – fire resistance requirements for rear facing windows Section 9 – Revised to include reference to EN 60721-3-5
B	140841	02/29/2012	Jatin Arrvapalli	2.1 – Revised outline drawings for parts 2 and 3
C	145690	08/30/2012	Praveen Varamatla	Revise outline drawings with Edge Treatment, Retainer Ring details, Windshield Frames color. Updated Purchase Specification in Section 6.4 & 10.3.
D	150717	04/01/2013	Jason Mattinson	Updated P2 to be Engineer's Side Window Added P4 to be Helper's Side Window

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1 SCOPE

This specification defines the quality standards for optical defects in locomotive window glazing materials, for all configurations and applications. Applications include end facing and side facing windows. Configurations include: framed and unframed, sliding, fixed, and vent, impact resistant, heated, tinted, laminated and single piece. Components include glazing materials, lamination materials including anti-laceratives, window frames and seals where applicable. Additional standards include the marking, labeling and packaging for shipping. Acceptance criteria are derived from industry standards including supplier quality standards EN 15152:2007 and FRA 49 CFR. When standards vary between sources, this specification requires the minimal acceptance level of those sources provided the standard meets the minimum requirements of the locomotive application.

This document is intended to define the characteristics applicable to all locomotive window-glazing components. It contains a part number table with outline drawing references. The outline drawings then contain requirements unique to the individual component, such as dimensions, delineations, weights, and other special requirements.

The repair classification of this product is replaceable unit (RU).

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1.1 Symbols

GET	General Electric Transportation
RMSH	Reliability, Maintainability, Safety, and Human Factors
CTQ	Critical-to-Quality Characteristic (see section 13.2)
EN	European Standard (Normative)
FRA	Federal Railroad Administration

1.2 Definitions

Locomotive Year = 8760 Hours

OPTICAL DEFECT TERMINOLOGY

These definitions are typical for North American manufacturers and may vary somewhat from other manufacturers.

Adhesion chips – Small transparent glass or plastic chips which adhere to the surface of the glazing.

Bubbles (Boil or voids) – Gaseous inclusions. The inclusions may be spherical or elliptical. The bubble can be an inclusion of the substrate or interlaminar. A surface bubble or open bubble will be indicated by a cavity on the surface.

Bulls-eye or shiner – Low or high spots on the surface usually visible only at acute angles. (Usually the result of a polishing process.)

Burn area – Speckled appearance of the surface.

Cord – A thread of glass, or foreign material - may be surface or interlaminar defect.

Crayon marks – Indication of crayon markings remaining after cleaning.

Crush – A lightly pitted area indicated by a dull gray appearance.

Digs – Deep, short scratches.

Dirt – Small inclusion of foreign material.

Drop – An inclusion of partially melted foreign material, usually associated with a string.

Excessive plastic – An edge condition in which a plastic interlayer protrudes beyond the edge of the glass laminations.

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Haze – A cloudy appearance usually caused by inclusion of fine particles.

Interior Chips – Small transparent glass chips which adhere to the interior surfaces.

Iridescence – A discoloration apparent under reflected light conditions

Lensing – Band distortion or line distortion along the edge of a laminate.

Mark-off – Transparent imperfections which occur in plastic and anti-lacerative laminations; may be interlaminar or surface. May appear as dimples, or craters.

Mismatch – The misalignment of edges.

Pits – Small indentations on the finished surface.

Plastic Streaks – Irregularities on a plastic interlamination causing a discoloration.

Ream – A layer of non-homogeneous material in the glass. Visible primarily at oblique viewing angles.

Ripple – An apparent wave-like effect caused by distortions of interlaminate materials.

Rub – A milky or grayish appearance on the surface caused by contact with other materials.

Scratch – A defect made by drawing a sharp pointed object over the surface. Severity is indicated as hairline, light, medium, medium-heavy and heavy.

Seeds – Bubbles less than .03 inches diameter.

Short Finish – Appearance of a grayish finish on the surface.

Short Plastic – An edge condition in which a plastic interlamination does not extend to the edge of the glass.

Skin Blister – Surface irregularity associated with anti-spall layer.

Smear / Streak / Scuff – A smudge on an inside lamination.

Smoke – Streaks appearing as a slight discoloration.

Stain – Apparent cloudiness on the surface having a slight color.

Stones – Inclusion of rock, clay or other batch ingredient in the glass.

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Strings – Transparent lines which appear like a thread of glass in the glass.

V-Chips – A chip that forms a sharp "V" notch in the edge of the glass.

Vents – Cracks in the glass plate that start at the edges. Internal cracks, not extending to the edge, are called Fire Cracks.

Wave – Surface or interlayer irregularities causing objects viewed at angles appear to be wavy or bent.

VISUAL DEFECT FREQUENCY AND VIEWING ZONES

These definitions are typical for North American manufacturers and may vary somewhat from other manufacturers.

Grouping – A cluster of defects contained within a 4 inch diameter.

Scattered – Defects separated by more than 4 inches but less than 12 inches.

Widely Separated – Defects that are separated by more than 12 inches.

Zones – Defined areas of the glazing component, framed or unframed, used to qualify the product against defects.

Please note that the outer zones may overlap by definition.

Zone "A" or Primary Viewing Area – Per EN 15152:2007 The area of the windscreen through which track and signals shall be visible from the driving position

Zone "B" or Secondary Viewing Area – Per EN 15152:2007 The area of the windscreen outside the primary vision area through which the driver may also be required to look

Zone "C" or Non Viewing Area – Per EN 15152:2007 The area of the windscreen outside the secondary vision area.

Edge Zone – The outermost area within 3/8 inch from the edge of the glass for those windows without frames.

OTHER RELATED DEFINITIONS

Glass/plastic Glazing – On outline drawings, refers to antilacerative lamination.

Anti-Spall Lamination or Anti-lacerative – A lamination (commonly a surface layer) used to reduce flying spall in the event of an impact oriented toward vehicle interior.

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FRA Type II Glazing – Glazing material, which is designed to satisfy the test requirements specified in FRA 49 CFR Part 223 Appendix A Item 11. This material is intended for use in side facing locations.

OTHER DEFINITIONS REFER TO EN 15152:2007 section 3

1.3 Change Instructions and Authorization

Cost and delivery requirements related to the contract shall be administered by GET Sourcing (purchasing).

2 PART NUMBER AND ITEM DESCRIPTION

2.1 Part Number & Description

This specification number plus the given part number shall be the GET part (drawing) number for this product.

REV	PN	Description	Comments	GE Outline Dwg.
C	1	Framed Front Windshield	Single Windshield, Heated, Anti-Spall Lamination, Pre-Framed	84C633330
D	2	Double Sliding Side Window Engineer Side	Double Pane Window, tinted, A-Side, Emergency Exit (Engineer Side)	84C633330AB
C	3	Framed Rear Window	Rear Window, Framed, Fire Resistant	84C633330AC
D	4	Double Sliding Side Window Helper Side	Double Pane Window, tinted, B-Side, Emergency Exit (Helper Side)	84C633330AB

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3 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. The revision in effect when the Purchase Order is issued to the Supplier shall apply. Documents are listed in the order of precedence. Referenced documents are available from GET or are available as an industry standard.

Title of referenced document	Document Number	Location
Purchase Order		Sourcing
This specification	84D204567AD	DRS
GETS Environmental Requirements Spec	84A214732	DRS
GETS Quality Standards Specification	41A296300AC	DRS
GETS Reliability Standards Specification	41A296300AD	DRS
Other GETS Specifications		DRS
Industry standards & specifications		Industry
EN 15152:2007 Railway applications – Front windscreens for train cabs		Industry
EN 45545-2 Railway applications – Fire Protection on railway vehicles		Industry
EN 50125-1:1999 Railway applications – Environmental conditions for equipment		Industry
EN 60721-3-5:1997 Classification of Environmental conditions		Industry
EN 1363-1:1999 Fire Resistance Tests		Industry
FRA 49 CFR Part 223 Appendix A Item 11		Industry

Locations:		
	Sourcing	GET Sourcing organization
	DRS	GET Drawing Retrieval System
	Industry	Available as an Industry Standard

4 FUNCTIONAL, PERFORMANCE & SYSTEM REQUIREMENTS

4.1 System Description

Not Applicable

4.2 Performance

4.2.1 System Ambient Environment

All window glazing parts listed in this document shall operate within a normal temperature range of -40F to 167F (-40C to 75C). Storage of units will range from –40F to 185F (-40C to 85C).

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Reference section 9 for additional environmental conditions.

4.2.2 Input Power

Input power to the any heated windows shall be 74VDC nominal. The unit shall operate without damage through a voltage input range of 55 to 87VDC with +/- 10% ripple.

4.2.3 Heat Density of Heated Windscreen

Heating system shall comply with EN 15152:2007 section 4.3.2.

See outline drawings for specific part numbers.

4.2.4 Other

Reference outline drawings for specified part numbers for additional unique requirements.

4.3 System Functions / Features / Controls

4.3.1 Optical Characteristics

All glazing being applied as windscreens (P1) shall meet the following standards: EN 15152:2007 Railway applications – Front Windscreens for Train Cabs sections 4.2.2 through 4.2.6

4.4 Mechanical Components

4.4.1 Impact

4.4.1.1 Windscreens

All glazing being applied as windscreens (P1) shall meet the following standards: EN 15152:2007 Railway applications – Front Windscreens for Train Cabs sections 4.2.7

4.4.1.2 Side Facing Windows

All glazing being applied as side facing windows (P2) shall meet FRA 49 CFR Part 223 Appendix A Item 11

4.4.1.3 Rear Facing Windows

All glazing being applied as rear facing windows (P3) shall be constructed of toughened glass or other similar structural methods.

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All glazing being applied as rear facing windows (P3) shall withstand without failure the application of a concentrated perpendicular load of 2.5 kN applied over an area of 0.1 m x 0.1 m anywhere on its surface. This load shall be applied to both sides of the window independently. The glazing shall remain intact and in position throughout the application and removal of the load.

4.4.2 Spalling

All glazing being applied as windscreens (P1) shall meet EN 15152:2007 Railway applications – Front Windscreens for Train Cabs sections 4.2.9

4.4.3 Mechanical Characteristics

Sharp edges and corners and pinch points are not acceptable. Protective treatments shall be applied where injury may result during installation, in service or repair and replacement.

4.4.4 Tint Requirements

Reference specific outline drawings for tint requirements.

4.4.5 Fire Resistance

All glazing being applied as rear facing windows (P3) shall satisfy requirements for integrity and insulation for a minimum of 15 minutes. The fire performance shall be in accordance with the requirements of EN 1363-1 partition test.

4.4.6 Emergency Egress

All glazing being applied as side facing windows (P2) shall be able to be utilized as an emergency exit. Emergency exit open area shall be at a minimum 400mm by 500mm. Free area shall be accessed by means of pull tab or lever from the cab interior. Individual panes and/or frames that are removed during emergency egress shall fall into the locomotive cab rather than out.

5 SOFTWARE REQUIREMENTS

Not Applicable

6 MECHANICAL REQUIREMENTS

The product shall comply with all stated requirements in section 4

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6.1 Interface

Refer to part specific outline drawing for overall dimensions and interface characteristics.

6.2 Human performance

As specified on part specific outline drawings.

6.3 Flame and Smoke Generation Properties

Non-metallic materials used shall be certified to meet the applicable performance criteria for flammability and smoke emission characteristics per EN 45545-2 with the locomotive application considered a hazard level HL2.

6.4 Check below points for all Sliding Windows

a) 35lbf max Opening Force

b) 15lbf max Sliding Force

c) 100lbf min secure latching

d) No Sharp edges, Pinch Points

e) Thermal pane design

7 ELECTRICAL REQUIREMENTS

For heated windows, the product shall comply with all stated requirements

8 MATERIALS & WORKMANSHIP

The product shall comply with all stated requirements.

The product shall comply with good and consistent quality and workmanship and be of high quality in every respect.

8.1 Allowable Optical and Glass Defect Limits

Optical defects in the various vision areas shall be limited to the details outlined in section 4.3.1 of EN 15152:2007.

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In any area: Any defect which may affect the structural integrity, safety or functioning of the glazing material will not be acceptable.

9 ENVIRONMENTAL REQUIREMENTS

The product shall be designed to meet or exceed the environmental design requirements specified in EN 50125-1 and EN 60721-3-5. Reference Environmental Requirements Specification, GET document 84A214732 for any environmental condition not covered by the EN specifications. The following table outlines applicable sections of EN 50125-1 and EN 60721-3-5, refer to Environmental Requirements Specification for remaining environmental conditions. For referencing the requirements, the component shall be considered as being located in the Air Brake Rack.

Environmental Condition per EN 50125-1	Section
Altitude	4.2
Ambient Temperature	4.3
Humidity	4.4
Rain	4.6
Snow, Ice & Hail	4.7
Solar Radiation	4.9

Environmental Classification per EN 60721-3-5	Class
Chemically Active Substances	5C2
Contaminating Fluids	5F2
Biologically Active Substances	5B2
Dust	5S2
Sand	5S3
Sea Spray	5C2

Compliance with these requirements shall be demonstrated during qualification testing.

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10 RELIABILITY REQUIREMENTS

The product shall meet all applicable reliability requirements listed in the Reliability Specification for the Procurement of Electronic Equipment, GET document 41A296300AD.

10.1 Reliability Plan

A Reliability Plan and a corresponding Implementation Schedule shall be defined by the Supplier and approved by the Purchaser. These materials shall accompany the Supplier's proposal in response to this purchase specification and related solicitation.

10.2 Failure Rate

Maximum failure rate of the product shall be zero over the design life of the product.

10.3 Useful Life

The useful life of the product shall be 20 years under any combination of storage or service life.

Elastomers: 10 year life, service replaceable, 18000 cycles

Latches: 20 year life, 36000 cycles

11 MAINTAINABILITY REQUIREMENTS

11.1 General

Time and cost of inspection, maintenance, test, and repair shall be minimized by the design, materials selection, and quality processes.

Components requiring periodic maintenance, inspection, or removal from the vehicle shall be careful consideration for easy access, removal, and replacement.

Assemblies and sub-assemblies shall be classified as Replaceable Unit (RU) (or Ready Track Replaceable Units (RTRU) in locomotive operator terms).

Removal and replacement of components shall be facilitated by the design and shall not require removal of other components for access. A properly trained maintainer should be able to replace the component in less than thirty minutes using common hand tools.

Products shall be interchangeable between rail vehicles without adjustment or alteration.

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Component adjustments shall be avoided. Any adjustments required to the product shall be designed with user customer and the user customer's field environment in mind.

Requirements for special tools shall be avoided.

The Mean Time to Repair (MTTR) goal, not including removal and installation shall be 2 hours with necessary parts available. A demonstration of MTTR may be requested by the Purchaser.

11.2 Scheduled Inspections

Scheduled inspections and maintenance operations requiring removal of the locomotive or components from service shall be consistent with federal, state, and local regulations and accepted user customer maintenance intervals. Generally, periodic inspections of railroad vehicles is at 90-92 day intervals.

11.3 Life Cycle

The Supplier shall support GET in maintaining the product though out its Useful Life. Documentation for initial supplier products and for product upgrades is required.

The capability to add or upgrade hardware and software is very common throughout the Useful Life of the product. As the function of vehicle product changes, additional or new functions shall be compatible with existing executable software. Software and hardware documentation shall be coordinated and maintained concurrently.

Thorough initial documentation is required to assist GET in fully integrating the product into the GET design. Documentation revisions shall be made available to GET throughout the Useful Life of the product.

12 PACKAGING AND MARKING REQUIREMENTS

12.1 Permanent Marking

Each product shall be permanently and legibly marked in accordance with Quality Standards for the Procurement of Electronic Equipment, GET document 41A296300AC. Unless otherwize defined by the outline drawing or prior agreement between the Purchaser and Supplier is reached, markings shall include the following information:

GETS part number
Supplier's name or symbol
Supplier's catalog number (or part number)
Manufacturing date code per 41A296300AC, section 3.1.6
Manufacturing test stamp per 41A296300AC, section 3.1.7

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Electrical characteristics (if applicable)

Where the product is considered an industry standard and is identified by a commonly accepted name or identification, the above marking requirements may be waived by agreement between GET and the Supplier.

When specified by the outline drawing, permanent markings for products shall be located in the top left hand corner so that they may be seen and identified by maintenance or operational personnel from the normal access position, inside the locomotive, when the product is fully installed.

12.2 Packaging

Products shall be packaged for shipment to GET in such a manner that leads, terminals, cases, etc. are protected from mechanical damage such as breaking and bending or electro-magnetic damage. Mechanical damage of any nature shall be sufficient cause for rejection. The shipping carton shall be marked with the GET part number, the supplier part number, the quantity of items included, and other pertinent information.

Glass should be stored and shipped in the vertical position and packaged in such a way to be easily removed from packaging without damage.

13 QUALITY ASSURANCE REQUIREMENTS

The product shall be capable of meeting the quality assurance requirements listed in Quality Standards for the Procurement of Electronic Equipment, GET document 41A296300AC.

13.1 Quality Assurance Plan

A Quality Assurance Plan and a corresponding Implementation Schedule shall be defined by the Supplier and approved by the Purchaser. These materials shall accompany the Supplier's proposal in response to this purchase specification and related solicitation.

13.2 Critical-to-Quality (CTQ) Characteristics

A Critical-to-Quality (CTQ) characteristic is a product characteristic for which variation outside the engineering or in-process tolerance could significantly (adversely) affect customer satisfaction with the product such as fit, function, performance, durability, reliability, or the ability to manufacture the product.

In this specification, CTQ characteristics are identified by "(CTQ)" following the specific requirement.

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13.3 Configuration Control

13.3.1 Hardware Configuration

Change approval will be granted by GET Engineering in written form prior to implementation after final approval of the product design and configuration has been established. Components within each assembly shall not be substituted without GET Engineering approval.

Revision level identification shall control hardware configuration and shall be indicated by suffix, revision letter, or other appropriate modification to the model number on those units containing approved changes.

Multiple sourced components shall be permissible so long as these items are specified as interchangeable items prior to the Design Review approval and verified.

Manufacturing processes shall not be altered without written approval of GET Supplier Quality Assurance.

13.3.2 Software Configuration

Revision level identification shall control software configuration. Revision level shall be identifiable at the unit level through either software accessibility or unit marking.

Change approval will be granted by GET Engineering in written form approval prior to implementation after final approval of the product software design and configuration has been established.

13.4 Lot Acceptance / Rejection

A lot is defined as a single shipment or an agreed upon quantity of product.

Lot testing may be performed at the discretion by the Purchaser. The Purchaser reserves the right to test the complete lot in accordance with any requirement of this specification and to return for full credit any non-conforming material.

Sample testing may be performed at the discretion of the Purchaser. The Purchaser reserves the right to extract samples from the lot and to test them to any requirements of this specification. In the event that sample testing indicates a lot failure, the Purchaser reserves the option to return the entire lot.

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13.5 Product Qualification Tests

Product Qualification Tests shall be performed by the Purchaser on an agreed upon product unit (prototype, pre-production unit, or other) to validate the design. Purchaser representative(s) shall participate in the testing.

Product Qualification Tests shall include an agreed upon set of tests including:

- Functional Qualification Tests - performance evaluation.
- Environmental Qualification Tests - shock, vibration, temperature, humidity, etc.
- Reliability Growth Tests - accelerated life, endurance, extended service, etc.

13.5.1 Functional Qualification Tests

13.5.1.1 Optical Characteristics

Optical characteristics for P1 shall be tested per EN 15152:2007 sections 6.2.1 through 6.2.5

13.5.1.2 Mechanical Characteristics

Mechanical characteristics for P1 shall be tested per EN 15152:2007 sections 6.2.6 and 6.2.7.

Mechanical characteristics for P2 shall be tested per FRA 49 CFR Part 223 Appendix A Item 11.

Mechanical characteristics for P3 shall be tested per section 4.4.1.3.

13.5.1.3 Optical and Glass Defect Limits

Optical and glass defect specification shall be tested per EN 15152:2007 sections 6.3.1

13.5.1.4 Heating System

Heating System shall be tested per EN 15152:2007 sections 6.3.2

13.6 First Article Inspection (FAI)

FAI shall be performed by the Purchaser on a unit that is representative of production in quality and configuration prior to delivery of production units at an agreed upon location.

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The Purchasers representative(s) shall participate in the FAI. FAI procedures shall verify production conformance to the design documentation.

FAI shall include an agreed upon set of inspection(s) and tests including complete production test, inspection to the approved design, other qualification tests, and measurements to verify outline dimensions. Any final assembly work on production units performed prior to FAI approval shall be at the Supplier's risk.

The FAI unit may be retained for a period of time by the Supplier as a sample of workmanship and quality, upon agreement with the Purchaser.

FAI report (data, evaluations, reports, etc.) shall be promptly generated by the Supplier and forwarded to the Purchaser for review and acceptance.

13.7 Production Conformance Tests and Inspection

Production Conformance Inspection shall be performed by the Supplier on each product unit. The level of inspection shall be agreed between the Supplier and Purchaser.

Production Conformance Tests shall be performed by the Supplier on each product unit to verify performance and functionality.

Production Conformance Tests shall include an agreed upon set of dielectric tests (megger and hipot), operating tests, burn-in / run-in tests, and other tests.

Production Conformance Test and Inspection results shall be recorded and retained by the Supplier and shall be available to the Purchaser, upon request.

13.8 Systems Integration Tests

Systems Integration Tests shall be performed by the Purchaser on the rail vehicle with assistance from the Supplier to validate the design of the product.

Systems Integration Tests shall include vehicle dielectric tests, operational tests, interface tests with other systems, extended service tests, etc.

14 DOCUMENTATION REQUIREMENTS

14.1 Deliverable Documents

The Supplier shall submit design and product documentation and all documents explicitly listed throughout this specification (e.g. QA plan) to GET for review and approval.

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The level and scope of documentation to meet the requirements of this specification shall be agreed between the Supplier and Purchaser.

14.2 Design Documentation

Design documentation shall be submitted by the Supplier to GET Engineering for review and approval. Some design documentation may be reviewed and approved at design review(s).

Design documentation shall include, as applicable:

- system block diagrams
- system functional flow diagrams with descriptions
- system diagrams and/or descriptions - diagnostics, monitoring, self-test
- outline drawings
- schematic diagrams with functional annotations, cross-referenced...
- wiring lists (internal wiring) and interface wiring diagrams
- physical layouts with component locations identified
- component details (such as pin out information and electrical characteristics)
- interface definitions - electrical, mechanical, pneumatic
- input/output - signal descriptions and levels, load characteristics
- FMEA's (Failure Modes and Effects Analyses) and RMSH data
- other pertinent technical information

14.3 Product Hardware Documentation

Technical information for each replaceable system component shall be provided by the Supplier, such as:

- symbol and description
- identifying part number
- general data, characteristic values

Product hardware documentation shall be included for:

- replaceable parts, devices, components, electronic cards, modules
- PC board options, jumpers, jumper settings, provisional components
- plugs, connectors, wiring devices
- modifications

14.4 Product Software Documentation

Not Applicable

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14.5 Hardware / Software Interface Documentation

Not Applicable

14.6 Operating and Maintenance Manuals

Complete maintenance manual information including operation, repair, overhaul, test, etc. shall be provided by the Supplier.

14.7 Hardware Catalog Information

Complete information on replacement parts for the product to the lowest replaceable component level shall be provided by the Supplier in catalog form. Each part shall be identified by a Supplier part number and generic part number / description (for common industry parts). Parts information for supply purposes shall include: wearing items, replacement components, replacement PC boards, and other parts.

15 RESPONSIBILITIES

15.1 Supplier Responsibilities

The Supplier is responsible for the design of the entire product and for meeting all requirements of this specification and other referenced specifications and standards. The Supplier shall submit a list of exceptions with the proposal offer. All exceptions must be approved in writing by the Purchaser prior to final acceptance and shipment of the product.

15.2 Communication

The sole channel of communication between the Purchaser and the Supplier in all matters related to the establishment or alteration of contractual requirements to be fulfilled by the Supplier shall be through the GET Sourcing Agent.

A formal documentation system shall be used to track the exchange of technical data and information between the Purchaser and the Supplier.

The exchange of technical data and information not affecting change control, cost, or delivery may be communicated directly between Supplier and Purchaser engineering organizations and followed up by memos through the Sourcing Agent of the Purchaser.

15.3 Design Reviews

The Supplier shall conduct design reviews for major development phases of the product, as applicable. The Purchaser and Supplier shall agree to the quantity, scope, and

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schedule of the planned design reviews. The Purchaser shall be notified at least one month in advance of the review and will participate in all reviews.

15.4 Technical Support Availability

Technical support shall be agreed upon between the Purchaser and Supplier. As part of the response to this specification, the Supplier shall provide a description of the type of technical support available to GET.

Technical support considerations shall include on-site training, on-site product integration, maintenance manual documentation, phone support, and post delivery field services.

Maintenance manual documentation shall be provided by the Supplier, with periodic updates, covering the design and implementation of the product modifications.

16 WARRANTY

The warranty shall be defined in the purchase contract and administered by GET Sourcing.

17 OTHER

Not Applicable

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