


APPLICATION		REVISIONS			
NEXT ASSY	USED ON	REV	DESCRIPTION	DATE	APPROVED
		M	SEE EO # 09-2233	08/20/09	

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CONTRACT NO. ALL			 TELEDYNE CONTROLS 501 CONTINENTAL BLVD EL SEGUNDO, CALIFORNIA 90245						
PREPARER	L. Winchester	DATE							
		11/3/94							
REVIEWER									
ENG2							TITLE QUALITY PROVISION RIDERS		
ENG3									
MFG ENG	E. McBride	11/4/94							
QA	K. Price	11/3/94	SIZE	CAGE CODE	DRAWING NUMBER	REV			
SQA			A	98571	2232391	M			
TELEDYNE	K. Price	11/3/94							
CM/SCM			RELEASE DATE: 11/9/94		RELEASE EO #24800	SHEET 1			

100 QUALITY PROGRAM REQUIREMENTS MIL-Q-9858A OBOSOLETE

The seller shall provide and maintain a system that complies with MIL-Q-9858A. "Quality Program Requirements" compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The sellers system shall be subject to audit by Teledyne Controls. The Quality Program requirements include:

a) Supplier Quality Assurance Program Requirements

The seller shall prepare and maintain a system that complies with MIL-STD-1535, "Supplier Quality Assurance Program Requirements". Compliance with provisions of this clause in no way relieves the seller of final responsibility to furnish acceptable supplies or services. The seller's system shall be subject to audit by Teledyne Controls.

b) Corrective Action and Disposition System for Nonconforming Material.

The seller shall provide and maintain a system that complies with MIL-STD-1520. Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The seller's system shall be subject to audit by Teledyne Controls. The seller is required to provide immediate notification, in writing, of suspected problems with previously delivered product. This notification shall be sent to Teledyne Controls Procurement and Quality and Compliance departments.

102 INSPECTION AND TEST PLAN

The seller shall prepare an inspection and test plan including a flow chart of inspection and test points. Type of inspection or test at each point must be identified for the items to be fabricated on this purchase order. One (1) copy of the test plan shall be submitted to Teledyne Controls Buyer, for approval by the Teledyne Quality Department prior to start of fabrication.

103 SUBCONTRACTOR DEVIATION/WAIVER FORM (TC1158)

All departures from drawings, specifications, or other purchase order requirements must be recorded and reported on a Subcontractor Deviation/Waiver Form. Disposition of these departures must be approved by Teledyne Quality Assurance and Engineering prior to shipment.

104 ACCEPTANCE OF PRODUCTION TOOLING

Acceptance of production tooling on this purchase order shall be contingent on inspection and acceptance by Teledyne. Representative dimensions of each sample produced from this tooling must conform to the dimension and tolerance as specified on the engineering drawing and specifications on this purchase order. This inspection shall be performed under the cognizance of the Teledyne Quality Representative at the seller's facility or as directed by the buyer. Samples must be identified with Teledyne's tooling number and name.

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105 FIRST ARTICLE

A unit, representative in every way of the product to follow, shall be identified and designated 'First Article'. The First Article shall be approved by Teledyne's Quality Assurance prior to any shipment of the purchased product. Any shipment of the purchased product prior to the acceptance of the First Article shall be at the supplier's risk. Submittal of a "First Article" shall be required unless the following conditions are satisfied:

- 1) The supplier includes with the product submitted, a copy of Teledyne "First Article" approval for the product.
- 2) The supplier identifies a Teledyne purchase order number on which delivery of the product was made within the past twenty-four (24) months. The "First Article" shall be 100% inspected and the data recorded by the supplier prior to its submittal to Teledyne.

One (1) legible and reproducible copy of the supplier's inspection report shall accompany the "First Article" submitted. This report shall contain, as a minimum, the following:

- 1) The Teledyne purchase order number.
- 2) The specification or drawing number, including the revision level.
- 3) The technique(s) used in the production as reflected in the "First Article" for example,
 - a) Production tooling, identification number.
 - b) Numerical control, identification number
 - c) Jigs and fixtures for alignment, gang drilling, etc.
 - d) Individual set-up and fabrication.
- 4) A list of actual measurement data taken from the "First Article" on a form and in a format which can be used to verify the results. If the report is not 100% complete, please explain the omissions.

The selection of the "First Article" shall be made in a manner approved by Teledyne.

If the product on which the "First Article" report was made changes in any way, a new report is required. However, with Teledyne's concurrence the new "First Article" report may cover only the changed items and those items affected by the change. Specific details on those items proposed for inspection shall be submitted with the request for abbreviated "First Article" and cannot be used in lieu of one without written concurrence of Teledyne.

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NOTE: If the "First Article" is to be considered as proof test for reproduction or numerical control tooling, please advise Teledyne at the time of submittal.

106 SELLER'S CONTROLLED PRODUCTS

The initial shipment on this purchase order shall be accompanied by one (1) legible and reproducible copy of applicable specifications, drawings, and/or catalogs.

107 TELEDYNE SOURCE INSPECTION

All items covered by this purchase order are subject to source inspection by a Teledyne Quality Representative. This will include surveillance of the products and seller's system procedures and facilities. The seller shall furnish the necessary facilities and equipment, supply data, and perform tests as required by applicable drawings, specifications and inspection instructions under surveillance of the Teledyne Quality Representative. Final acceptance of source inspected material shall be at Teledyne Controls. Evidence of Teledyne inspection shall accompany each shipment.

NOTE: When requesting source inspection, call the buyer whose name appear on this purchase order at least **five (5) working days** in advance.

Seller must obtain stamp and signature of the Teledyne Quality Representative on the shipping document prior to shipment of material. Failure to do this may result in rejection of the material by Teledyne Receiving Inspection.

108 TELEDYNE IN-PROCESS INSPECTION

In addition to the requirements of Teledyne Source Inspection (107), all items covered by this purchase order are subject to in-process inspection by a Teledyne Quality Representative. Prior to the application of epoxy materials, hermetic sealing, and permanent closure, or as required by specification, the supplier will notify the cognizant buyer within adequate time for in-process inspection coverage. Evidence of in-process inspection will accompany each shipment.

109 CONTROL OF QUALITY MIL-I-45208A OBOSOLETE

The seller shall provide a system that complies with MIL-I-45208A, Inspection System Requirements. Notwithstanding the provision of this clause, the seller is in no way relieved of the final responsibility to furnish the supplies or service specified herein. The seller is required to provide immediate notification, in writing, of suspected problems with previously delivered product. This notification shall be sent to Teledyne Controls Quality Engineering and Procurement Organizations.

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120 GOVERNMENT SOURCE INSPECTION (DOD)

- 1) Government inspection is required prior to the shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant, so that appropriate planning for Government Inspection can be accomplished.
- 2) On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant, or if none, to the nearest Defense Supply Agency Inspection office. In the event the representative or office cannot be located, our buyer should be notified immediately.

121 NASA PROCUREMENT OTHER THAN THOSE REQUIRING GSI

The Government reserves the right to inspect any or all of the work included in this order at the supplier's plant.

122 FACILITY ACCESS

Teledyne reserves the right to inspect any or all of the work included in this order at the supplier's plant and at any sub-tier supplier's plant. Access rights shall be extended to accompanying Teledyne customer and Government representatives.

123 QUALITY CONTROL SYSTEM REQUIREMENTS UNDER NASA CONTRACTS

The seller shall provide and maintain a system that complies with NASA specification NHB 5300.4 (IC) "Inspection System Provision for Aeronautical and Space System materials, Parts, Components, and Services, incorporated herein and made a part hereof by reference.

124 GOVERNMENT SOURCE INSPECTION UNDER NASA CONTRACTS

All work on this order is subject to inspection and test by the Government at any time and place. The Government Quality Representative who has been delegated NASA Quality Assurance functions on this procurement shall be notified immediately upon receipt of this order. The Government representative shall be notified immediately upon receipt of this order Government shall also be notified forty-eight (48) hours in advance of the time articles or materials are ready for inspection or test.

125 TRACEABILITY TO RAW MATERIAL

All items fabricated under this purchase order shall be traceable to raw materials used. All traceability and inspection records must be identifiable upon request or audit by Teledyne or Teledyne's customer representatives.

- 1) Raw materials used shall be identified by lot number as well as material type, specification, heat number, etc., and shall be identifiable with lot of raw material used.
- 2) All material fabricated by the seller in one lot shall be identifiable to that lot when supplied to Teledyne. When the seller is combining material fabricated in two or

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more different lots to fulfill purchase order requirements, these materials shall be segregated and identifiable to the lot in which it was fabricated.

126 TRACEABILITY OF MATERIALS - GENERAL

The supplier shall maintain traceability information on file of all materials, parts and assemblies used in fabricating the product. The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.

Note: Titanium parts shall be clearly and permanently marked.

144 TEST REPORTS

Each shipment must be accompanied by one (1), legible and reproducible copies of actual test reports, as indicated below, identifiable with the material submitted. The reports shall contain the chemical and/or physical properties of the purchased material. These reports must contain the signature and title of an authorized representative of the agency performing the tests and must assure conformance to specification requirements.

145 NON-DESTRUCTIVE TEST REPORTS

Each shipment shall be accompanied by one (1) legible and reproducible copy of non-destructive test reports identifiable with acceptable requirements of the material submitted. These reports must contain the signature and title of the authorized representative of the agency performing the test and must assure conformance to specification requirements.

146 FUNCTIONAL TEST REPORTS

Each shipment shall be accompanied by one (1) legible and reproducible copy of actual test results identifiable with test parameters defined as operational, mechanical, electrical, hydraulic inspection, etc., of material submitted. These reports must contain the signature and title of a representative of the agency performing the test and must assure conformance to specification requirements.

147 PRESSURE OR LEAK TESTS

Each shipment shall be accompanied by one (1) legible and reproducible copy of actual test results identifiable with test parameters and product submitted. These reports must contain the signature and title of a representative of the agency performing the tests and must assure conformance to specification requirements.

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148 X-RAY REPORTS

All items included in this purchase order requiring radiographic inspection will be submitted to Teledyne Controls and processed in accordance with applicable specifications and standards. All findings will be reported. This form shall contain the name of the individual reading the film and the signature and title of an authorized laboratory representative. The x-ray film and one (1) reproducible copy of the report must accompany the material. A control number must be assigned to each part, appear on each film, and be referenced on each report for a method of cross referencing each file exposure and report.

149 TEST BARS (CASTING)

The seller shall furnish with each shipment of castings the following:

- 1) One (1) test-bars representative of each heat treated lot made from the same melt as casting supplies. Specimens shall conform to Federal Test Method QQ-M-151.
- 2) One (1) spectrographic disc representative of the entire heat or melt.
- 3) Test bars and discs shall be permanently identified with the seller's name or trademark.

160 CERTIFICATE OF MATERIAL CONFORMANCE

Each shipment shall be accompanied by a legible and reproducible certificate of material conformance (commonly known as a C of C) which shall include as a minimum:

- 1) A statement that the items being procured were produced from material which the supplier has available for examination, AND/OR,
- 2) The supplier has available specific data or other objective evidence that the material conforms to the applicable specification(s) and that this data is available for Teledyne Controls to review.
- 3) If Teledyne supplied material is to be used in the manufacture of the items, the certificate shall include a statement that the material supplied was used in the manufacture of the items in the manner required by the applicable specification(s).
- 4) The signature and title of a representative of the supplier, electronic signatures are acceptable. .

5)The Certificate of Material Conformance shall also include:

- a) The Part Number as called out on Teledyne's Purchase Order.
- b) The quantity and where applicable the serial numbers of the items being

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delivered.

c) Teledyne's Purchase Order Number.

Note: If the packing list contains the information listed in a, b, and c above, it is acceptable to reference the packing list on the Certificate of Material Conformance instead of recording the information on the Certificate of Material Conformance.

161 CERTIFICATE OF PROCESS CONFORMANCE

Each shipment shall be accompanied by a legible and reproducible certificate of process conformance which defines the process(es); e.g., soldering, surface preparation and treatment, heat treatment, welding, non-destructive testing processes, etc., the applicable specification(s) to which the item(s) are procured or processed, and the identity of the processor(s) used.

Each process used shall be listed on the certificate in sufficient detail to permit buyer verification. Processed items that are serialized shall have the serial numbers listed on the certificate. Teledyne approval of any process source shall not relieve seller of any obligation and liability under this order.

163 INSPECTION AND TEST PLAN CERTIFICATION

The seller shall prepare and maintain objective evidence of inspection and test. The type of inspection or test at each point of inspection must be identifiable to the item being fabricated on this purchase order. Each shipment must be accompanied by one (1) legible and reproducible copy of the seller's certification, identifiable with material submitted, that the inspection and test plan are on file and available upon request. The certification shall contain the signature and title of a representative of the supplier and assure conformance to specification requirements.

164 FUNCTIONAL TEST CERTIFICATION

Each shipment shall be accompanied by one (1) reproducible copy of the Seller's Functional Test Certification. The certification shall be identifiable to the delivered material (for which test reports are on file and available for examination). This certification must contain the signature and title of a representative of the supplier.

165 GOVERNMENT APPROVED QPL SOURCE

Supplies furnished under this purchase order must be produced by an approved Q.P.L. manufacturer who is listed in the current Quality Products List. A certification stating this must accompany the material shipment. If a copy of the certification is not available, verify that the part and manufacturer are listed in the current Quality Products List.

180 IDENTIFICATION OF LIMITED -CALENDAR-LIFE MATERIAL

The seller shall identify each item, package or container of limited-calendar-life material with the cure or manufacture date, storage temperature and special handling conditions, in addition to the normal identification requirement of name, part or code number, specification number, type, size, quality and manufacturing recommended shelf life.

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This identification, including special handling conditions, shall be recorded on certifications and shipping documents for the material.

181 IDENTIFICATION OF LIMITED-CALENDAR-LIFE MATERIAL INSTALLED IN AN ASSEMBLY

- 1) The seller shall furnish cure date, assembly date, part name and number, and manufacturer s identification (if different from part number) for rubber parts (synthetic or natural) installed in assemblies delivered under this purchase order. This information shall be identifiable with the assembly, and when applicable, component parts within the assembly on an attached tag.
- 2) The seller shall furnish with each shipment of an assembly incorporating a limited-calendar life material that does not require age control after installation (e.g., adhesives, resins, plastic, base paints, etc.) one (1) legible and reproducible copies of a certification stating that the limited-calendar-life material as properly controlled prior to use and within the shelf-life period when incorporated. The certification shall be identifiable with the assemblies to which it applies and this purchase order. This certification shall contain the signature and title of a representative of the seller.

182 WELDER'S STAMP

Certified welder s stamp must appear on all items welded in accordance with Government Specifications MIL-W-8604 and/or MIL-W8611. Also show certified welder's stamp on shipping documents.

183 WIRE

Each spool of wire on this order must be legibly and permanently identified with (1) purchase order, (2) gauge, (3) cure date (if applicable), (4) military specification number (if applicable) and (5) Teledyne part number (if applicable).

184 PACKAGING

Minimum packaging per MIL-P-116 III. Packaging shall not contain masking tape or Styrofoam packing materials.

186 DOMESTIC BEARING CERTIFICATION

Compliance with DFAR Clause 52.208-7000 which requires that all bearings and/or components of the bearings must be manufactured in the US or Canada is required. Certification stating that domestic bearings were used is required with each shipment of parts.

187 IDENTIFICATION MARKING

Physical item marking per MIL-STD-130 is required.

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188 REQUIRED SOURCE FOR ALUMINUM INGOT

The clause set forth in ASPR 1-327.2 is hereby incorporated herein by reference, except that the term "Contractor" shall mean Seller, and "this contract" shall mean this order.

189 PREFERENCE FOR DOMESTIC SPECIALTY METALS (JUN 2005)

Defense Federal Acquisition Regulation Supplement

Part 252—Solicitation Provisions and Contract Clauses

252.225-7014 Preference for Domestic Specialty Metals.

As prescribed in 225.7002-3(b)(1), use the following clause:

PREFERENCE FOR DOMESTIC SPECIALTY METALS (JUN 2005)

(a) *Definitions.* As used in this clause—

(1) "Qualifying country" means any country listed in subsection 225.872-1 of the Defense Federal Acquisition Regulation Supplement.

(2) "Specialty metals" means—

(i) Steel—

(A) With a maximum alloy content exceeding one or more of the following limits: manganese, 1.65 percent; silicon, 0.60 percent; or copper, 0.60 percent; or

(B) Containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, or vanadium;

(ii) Metal alloys consisting of nickel, iron-nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10 percent;

(iii) Titanium and titanium alloys; or

(iv) Zirconium and zirconium base alloys.

(b) Any specialty metals incorporated in articles delivered under this contract shall be melted in the United States or its outlying areas.

(c) This clause does not apply to specialty metals—

(1) Melted in a qualifying country or incorporated in an article manufactured in a qualifying country; or

(2) Purchased by a subcontractor at any tier.

(End of clause)

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252.225-17

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190 PROCUREMENT TRACEABILITY OF MIL-S-19500 JAN BRANDED SEMICONDUCTORS

1) Government Source Inspection at Manufacturers:

Government source inspection shall be required as a condition for the use of a JAN brand on all semiconductor devices procured to and meeting the requirements of this specification and the applicable military specification. The government representative shall inform the manufacturer the extent of inspection and the date on which the inspection will begin.

2) Government Source Inspection at Facilities other than the manufacturer's

Government source inspection for Jan brand devices, which are procured from distributors shall be required. The distributor shall have traceability documentation and related lot records available. The distributor shall have an inventory control system for JAN branded devices which are acceptable to the government representative.

191 ELECTROSTATIC DISCHARGE (ESD) CONTROL

All items shall be packaged in static-shielding material in accordance with DOD-STD-1686 and DOD-HDBK-263. Unit packs shall contain a caution label conforming to MIL-STD-129, paragraph 5.4.37.

192 PRINTED WIRING BOARD TEST REQUIREMENTS - COMMERCIAL AIRCRAFT PRODUCTS

Unloaded (Bare) Printed Wiring Boards procured under this purchase order shall be tested in accordance with the requirements of IPC-6012 Section 3.9. Each lot shipped shall be accompanied by a Test Certification, which shall include the name and address of any third party tester if used,

193 PRINTED WIRING BOARD COUPONS

Printed Wiring Boards manufactured under this purchase order shall have quality conformance circuitry (coupons), conforming to the requirements of MIL-STD-275, paragraph 5.9, as part of every panel. These coupons shall be utilized to perform Group "A" and Group "B" inspection, as specified in MIL-P-55110. Coupons will be maintained at the supplier's facility for a period of two years.

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196 STANDARD INSPECTION SYSTEM

General:

The seller shall provide and maintain an inspection system acceptable to Teledyne Controls. The seller's system shall be subject to audit by Teledyne Controls. The procedures shall be clear, concise and adequate to fulfill the requirements of this purchase order. The system shall provide sufficient controls, records and inspections to assure compliance to contract or purchase order requirements. The system shall have a method obtaining and providing written corrective action.

Non-Conforming Material:

Material Review Board authority is not granted for items designed by Teledyne Controls. The system shall provide for identification and control of non-conforming hardware or materials and for a method of obtaining corrective action. . The seller is to provide immediate notification, in writing, of suspected problems with previously delivered product. This notification shall be sent to Teledyne Controls Quality & Compliance Department and Purchasing Department.

Notification of Changes

The seller shall notify Teledyne Controls buyer whenever there has been a change in ownership, top management, head of the quality department, facility location, major supplier or process used on the end item being delivered on this purchase order.

Quality Provision Riders (QPR) Incorporated by Reference

In addition to this Quality Provision Rider, QPR103, 219, 220, 221 and 235 are incorporated in to this purchase order.

Calibration:

The system shall provide for calibration and control of gauges and test equipment to the National Institute of Standards Technology (NIST), and procedures that are clear, concise and adequate for purchase order requirements.

Failure Review and Corrective Action:

When requested by Teledyne via the issuance of a Corrective Action Request (CAR), the Supplier shall conduct investigations to determine Root Cause associated with the non-compliant condition or Failure Trend identified in Corrective Action Request. Positive Corrective Actions shall be implemented to ensure that the Root Cause conditions are eliminated. The Supplier shall provide written response to Teledyne issued Corrective Action Requests within 30 days and, when requested, provide status reports every 7 days until the root cause has been identified and associated corrective actions have been implemented to Teledyne's satisfaction.

Investigation and get well visits: If significant failure or defect trends occur, Teledyne reserves the right to conduct on-site visits to review manufacturing, inspection, and test processing associated with the failure or defect trend. This right also extends to accompanying Teledyne customer and US Government representatives.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Records

The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The use of records in the supplier's format is preferred. However, the records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.

Flow Down of Requirements:

The seller shall flow down to sub-tier suppliers the applicable requirements of the purchasing documents, including key characteristics (when identified) and these quality provisions.

Notes:

1. For all purchase orders, (unless otherwise specified) the seller must use the latest revision level of all applicable specifications or drawings that are in effect at the time that the purchase order is issued.

197 PRINTED WIRING BOARDS

Fabricate printed wiring boards in accordance with Teledyne

<u>Drawing #</u>	<u>Title</u>
2243191	Printed Wiring Board Fabrication Notes For Single-Sided Boards
2243192	Printed Wiring Board Fabrication Notes For Double-Sided Boards
2243193	Printed Wiring Board Fabrication Notes For Multi-layer Boards

Noted: The above requirements supersede the engineering drawing requirement for printed wiring board fabrication notes. The reason being is that the Military Specifications and the IPC Specifications for printed wiring board fabrication on the engineering drawings are obsolete. This Quality Provision Riders supersedes the engineering drawing requirements.

198 STATISTICAL PROCESS CONTROL

The subcontractor equipment required to validate the quality using Statistical Process Control (SPC) techniques as defined in the American National Standards Institute (ANSI) 21.1, 21.2, and 21.3.

A plan for the implementation of SPC shall be submitted by the sub-contractor for review and approval by Teledyne Controls prior to the initiation of production. Where a First Article is contractually required, availability of the SPC plan will be required prior to First Article inspection by Teledyne Controls.

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Notification of acceptance or rejection shall be furnished to the subcontractor through the buyer/subcontractor administrator.

All SPC inspection records, failure reports, capability studies, corrective action reports, and control charts shall be maintained and available for Teledyne and the FAA review for a period of two (2) years. Scrap and rework records must also be readily available for Teledyne and FAA review. Copies of SPC inspection records shall be presented with each shipment for review by Teledyne Controls Quality Engineering and Manufacturing Engineering.

199 CERTIFIED SUPPLIER

The subcontractor is approved as a Teledyne Controls Certified Supplier and as such is authorized to ship the items listed on this purchase order using the Teledyne acceptance stamp provided. Certifications of Conformance and packing lists and/or shippers shall be stamped by the subcontractor's quality representative for each shipment.

200 MATERIAL SAFETY STANDARD

Seller will include manufacturer's product safety information with each shipment. This information shall contain applicable product handling precautions and procedures, disposal information, and emergency procedures for contact or contamination. Reference: OSHA Title 8, CCR5194 (g), (e).

201 TAPE AND REEL

Parts shall be shipped on reels; leads tape shall be 6 inches. Pitch shall be $.200 + 0.015$ inch for parts with body diameter up to $.200$ inch. Pitch shall be $.375 + 0.015$ inch for parts with body diameter from $.200$ to $.375$ inch. Leads must be straight within $1/32$ of an inch between the body and the tape. Component bodies must be in line within $1/32$ inch. Polarized components shall be oriented all in one direction. No more than three (3) consecutive components may be missing from the tape and such a gap must have three (3) consecutive components, both preceding and following. The center to center distance between tapes shall be two (2) inches minimum for parts with a body length of $.600$ or less.

202 STANDARD PACKAGE REQUIREMENTS

Orders must be received in multiples of standard package requirements.

203 ISO 9001- QUALITY MANAGEMENT SYSTEMS REQUIREMENTS

The seller shall provide and maintain a system that complies with latest issue of ISO 9001 Quality management systems Requirements - Requirements for quality management systems in design/development, production, installation and servicing. Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The system shall be subject to audit by Teledyne Controls.

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204 ISO 9002- QUALITY SYSTEMS - MODEL FOR QUALITY ASSURANCE IN PRODUCTION AND INSTALLATION OBSOLETE

The seller shall provide and maintain a system that complies with ISO 9002 "Quality system - Models for quality assurance in production and installation". Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The system shall be subject to audit by Teledyne Controls.

205 ISO 9003 - QUALITY SYSTEMS - MODEL FOR QUALITY ASSURANCE IN FINAL INSPECTION AND TEST OBSOLETE

The seller shall provide and maintain a system that complies with ISO 9003 "Quality systems Model for quality assurance in final inspection and test." Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The system shall be subject to audit by Teledyne Controls.

Compliance with the provisions of this clause in no way relieves the supplier of the final responsibility to furnish acceptable supplies or services. The system shall be subject to audit by Teledyne Controls.

206 ISO 9000-3 QUALITY MANAGEMENT QUALITY ASSURANCE STANDARDS PART 3; GUIDELINES FOR THE APPLICATION OF ISO 9001 TO THE DEVELOPMENT, SUPPLY AND THE MAINTENANCE OF SOFTWARE OBSOLETE

The seller shall provide and maintain a system that complies with ISO 9003-3, "Quality management and quality assurance standards Part 3: Guidelines for the development, supply and maintenance of software".

Compliance with the provisions of this clause in no way relieves the supplier of the final responsibility to furnish acceptable supplies of services. The seller's system shall be subject to audit by Teledyne Controls.

207 DELIVERABLE DOCUMENTATION FOR IN-CIRCUIT TESTING OF CIRCUIT CARD ASSEMBLIES

Test reports and certifications shall be submitted to Teledyne Controls with each lot of circuit card assemblies (CCA's). The test reports shall specify:

1. CCA part number, serial number and revision.
2. Indication of test results (pass or fail).
3. For items that fail initial test:
 - a.) Indication of failure mode.
 - b.) Listing of failed components.
 - c.) Indication that rework was performed.
 - d.) Indication that CCA passed retest.
4. Indication of the Test document number and the revision used to test the CCA's.
5. Certificate of Conformance as required by Quality Provision Rider 160 of this document.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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208 MANAGEMENT OF GOVERNMENT PROPERTY IN THE POSSESSION OF CONTRACTORS

When Government Property is provided to the supplier as part of this purchase order, the supplier will put into place processes and procedures as necessary to comply with the requirements of FAR 45.500 and its subsections.

209 CERTIFICATE OF CALIBRATION

When deliverable Inspection and/or Test Equipment is part of this purchase order, then the supplier shall furnish a Certificate of Calibration (traceable to NIST) for each piece of Inspection and/or Test Equipment. When the Inspection and/or Test Equipment is part of a system, then the supplier may furnish one Certificate of Calibration covering the total system, including indication of compliance to applicable requirements as defined in ISO 10012-1, Quality Assurance requirements for measuring equipment.

210 APPROVED ELECTROSTATIC DISCHARGE MATERIALS AND EQUIPMENT

The seller shall provide equipment and materials as described in ANSI/ESD S20-20-1999, which meet requirements as specified in ANSI/ESD S20.20-1999 as applicable, including identification with ESD Caution Labels on each item

211 PRINTED WIRING BOARD COUPONS

Printed Wiring Boards (PWBs) manufactured under this purchase order shall have quality conformance circuitry (coupons), as designed by the supplier. Coupons shall be micro-sectioned and inspected to establish circuit board integrity (plating thickness, registration, hole wall quality, laminate condition, etc.). A minimum of one micro-sectioned coupon will be shipped with each lot of PWBs delivered.

212 PRINTED WIRING BOARD ASSEMBLY COMPONENT VERIFICATION INSPECTION

Printed Wiring Board Assembly Component Verification Inspection shall be conducted on one Printed Wiring Board Assembly (PWBA) of each lot. The component verification inspection shall consist of verifying that the parts are in accordance with drawing, and parts list. When a Component Control Number (CCN) is used instead of the primary part number call out on the parts list, the supplier shall verify that the CCN Part meets the requirements of Drawing Number 2250000. Results of this inspection shall be recorded in on a copy of the parts list.

The supplier shall clearly indicate parts that were verified and that were not verified using a legend of the supplier's choice. The purpose of this inspection is to assure that the correct components have been installed on the printed wiring board assembly.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Note: Teledyne Controls does not perform component verification inspection on kits supplied to the supplier.

213 SOLDERING

Electrical Soldering shall be in accordance with ANSI/IPC J-STD-001 and Printed Wiring Board Assembly Inspection shall be in accordance IPC-A-610 Class 2.

Noted: The above requirements supersede the engineering drawing requirement for soldering. The reason being is that the Military Specifications for Soldering on the engineering drawings are obsolete. This Quality Provision Rider supersedes the engineering drawing requirements.

214 FORM 8130-3 AIRWORTHINESS APPROVAL TAG

The supplier shall furnish an Airworthiness Approval Tag FAA Form 8130-3 for each item produced on this purchase order. If the supplier can not furnish an Airworthiness Approval Tag on one or more items produced under this purchase order, the supplier shall contact buyer for further instructions.

215 ASSEMBLIES PACKAGE LABEL

The supplier shall individually label each bag with the following information: Purchase Order, Purchase Change Number (if applicable), Shipping Date (month & year), Part Number, Serial Number (can be a range), drawing revision letter, parts list revision, list all authorized build short parts, (using reference designation or item number) for the assembly, and Subcontractor Deviation/Waiver Number(if applicable).

216 Configuration Data List

The supplier shall furnish subassembly Configuration Data List (CDL) for each top end item assembly delivered. The CDL shall list the installed serialized subassemblies by Part Number, Serial Number, and drawing Revision Level. The CDL may list multiple top end items (i.e. spreadsheet).

217 MATERIAL REVIEW BOARD AUTHORITY

The seller is not authorized material review board authority. The seller is to furnish the buyer with a copy of the seller's standard repair procedure, upon request.

218 SUPPORT OF FAA CONFORMITY INSPECTION:

The supplier may be required to support FAA conformity Inspection at the Suppliers' Manufacturing Facility. This inspection would be conducted by a representative of the FAA and would be accompanied by a Teledyne Representative. The Conformity

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Inspection may include any examination or test, or material verification that would be requested by the FAA Representative to verify that the product under examination conforms to the design documentation and functionally passes the Acceptance Test Procedure. Teledyne will provide a minimum of two weeks advance notification prior to scheduling the conformity inspection.

219 FAILURE REVIEW AND CORRECTIVE ACTION:

When requested by Teledyne via the issuance of a Corrective Action Request (CAR), the Supplier shall conduct investigations to determine Root Cause associated with the non-compliant condition or Failure Trend identified in Corrective Action Request. Positive Corrective Actions shall be implemented to ensure that the Root Cause conditions are eliminated. The Supplier shall provide written response to Teledyne issued Corrective Action Requests within 30 days and, when requested, provide status reports every 7 days until the root cause has been identified and associated corrective actions have been implemented to Teledyne’s satisfaction.

Investigation and get well visits: If significant failure or defect trends occur, Teledyne reserves the right to conduct on-site visits to review manufacturing, inspection, and test processing associated with the failure or defect trend. This right also extends to accompanying Teledyne customer and US Government representatives.

220 NOTIFICATION OF NON-COMPLAINT PRODUCT:

The supplier shall notify Teledyne Purchasing within 10 days, when nonconformity is discovered in the supplier’s processes or products that may affect product already delivered. Notification shall include a clear description of the discrepancy, parts affected including customer part number (serial numbers, lot numbers or manufacturing date) quantity delivered and corrective action for the discrepancy.

221 CONFIGURATION MANAGEMENT – DESIGN CHANGE AUTHORIZATION:

After Teledyne has approved the Product Design, changes to the design shall be made in accordance with the following requirements:

Definitions:

Minor Change: – a “minor change” is defined as one that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. Operational characteristics are considered to be those hardware and software functional characteristics associated with the product’s performance Specification requirements. Note: “no appreciable effect” is interpreted as meaning no significant degradation in any of the listed characteristics.

Major Change – all changes that are not “Minor Changes” are considered to be “Major Changes”.

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Requirements:

Change Evaluation: The supplier shall evaluate proposed design changes to determine if the design change requires approval by Teledyne prior to implementation.

The criteria to identify design changes that requires Teledyne Approval is as follows:

All Major Design Changes

Specific Types of Minor Design Changes as listed below:

DESIGN CHANGE APPROVAL BY TELEDYNE IS REQUIRED FOR THE FOLLOWING TYPES OF CHANGES:	TELEDYNE APPROVAL IS NOT REQUIRED FOR THE FOLLOWING TYPES OF CHANGES:
Addition, deletion, changes in value and characteristics due to electrical circuit changes.	Drawing corrections due to typos and general drawing updates (except outline drawings).
Overall lesser reliability due to electrical circuit changes.	Non-complex component replacements with equal or better reliability.
Component changes with lesser reliability.	Changes to board level testing.
LRU modification-levels (hardware and software).	Nut, bolt, screw, washer, etc. changes that do not affect form, fit, or function.
All revisions to the supplier's governing document(s) (i.e., LRU ATP and/or CMM) that affect Teledyne test requirements.	
All revisions to the effected Outline Drawing.	
Any change or addition of a new source of any complex or significant component involved in a significant functional part of the equipment.	

Submitting Design Change for approval:

All proposed design changes shall be submitted to the Teledyne Purchasing Department along with the following information:

- Identification number of change
- Reason for change
- Description of Change
- What conditions/problems is being fixed by the change?
- Under what circumstances was the condition/problem discovered?
- What caused the condition / problem to occur?
- Are delivered units affected?
- If so how will they be corrected?
- If not why are they OK as is?
- What is the expected frequency of the condition / problem occurrence?
- What conditions are necessary for the recovery of normal operations when the condition / problem occurs?
- What testing has been done to verify that the proposed change will correct the condition / problem?

Change Approval / Disapproval:Teledyne will provide written response that will either approve or disapprove the change.

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222 SOFTWARE PROGRAM REQUIREMENTS RTCA/DO-178 B

The seller shall provide and maintain a system that complies with the specified Software Level of DO-178 B “Software Considerations in Airborne Systems and Equipment Certification”. The Software Level must be specified in the SOW, Contract or Purchase Order. Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services. The sellers system shall be subject to audit by Teledyne Controls.

223 SOFTWARE SERVICES PROGRAM REQUIREMENTS

The seller shall perform all software development and documentation in accordance with current Teledyne Controls Policies and Procedures. All software lifecycle data must be submitted to Teledyne Controls Software Quality Assurance for review and approval. All required data and documentation shall be released through the Teledyne Controls Software Configuration Management and Data Control departments. The sellers system shall be subject to audit by Teledyne Controls. Compliance with the provisions of this clause in no way relieves the seller of the final responsibility to furnish acceptable supplies or services.

224 REPAIR HISTORY

The supplier shall provide a written record of repair activity (i.e. a description of the work performed, parts replaced) on all items associated with this order.

225 Original Manufacturer’s Certificate of Conformance

The seller shall furnish a copy of the original manufacturer’s Certificate of Conformance with each shipment on this order

226 Final Inspection

The seller shall not use a sample inspection plan when performing final inspection on items designed by Teledyne Controls. If seller plans to use sample inspection during the Final Inspection Process, the seller shall obtain written authorization from buyer prior to delivery of product.

227 National Fastener Act

Fasteners procured on subject purchase order shall comply with the requirements of National Fastener Act.

228 AIS Printed Wiring Board

For Printed Wiring Boards purchased under the subject purchase order, the following Quality Provision Riders of this document shall apply: 122, 126, 160, 192, and 196.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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If the supplier can not comply with these requirements, contact the Buyer immediately for instructions.

229 Cable Assembly Continuity and Shorts Test.

Cable Assembly will be 100% tested for electrical continuity. Continuity test can be a manual test or an automatic test. Only cable assemblies that pass electrical continuity test shall be delivered to Teledyne Controls. Continuity testing shall be performed from point to point.

Shorts testing shall be performed from each point to all other points that do not share a common circuit.

230 Handle Items as Commodity A (Teledyne internal processing)

Teledyne Controls Receiving Inspection shall process item(s) procured on the subject purchase order as a Commodity A item. The person performing the Receiving Inspection Function will go to the Receiving Inspection Files and perform the inspections called out on the Receiving Inspection Historical Record Card.

231 Repair under CFAR Title 14 Part 121 Appendix I and J

1) Persons performing maintenance or preventive maintenance on subject purchase order item shall be included in a FAA Antidrug and Alcohol Misuse and Prevention Program in accordance with Federal Regulations Title 14: Aeronautics and Space part 121, subpart Z, Appendix I and J.

2) The supplier shall provide a National Air Agency Return to Service Tag (such as FAA Form 8130-3) with each item repaired.

If the supplier can not comply with either 1 or 2 above, notify the buyer immediately for instructions.

232 Battery Minimum Shelf Life at Time of Delivery

Batteries delivered under the subject purchase order shall comply with the minimum shelf life at the time of delivery in Table 1 of drawing 2245574. If battery part number is not listed in drawing 2245574, then the minimum remaining shelf life shall be 60% of the initial shelf life at the time of manufacture.

233 Prohibited Substances

Use of materials containing magnesium or magnesium alloys with high content of magnesium, rilsan, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) is prohibited. If item(s) delivered under the subject purchase order contain one or more of the prohibited materials, contact the Buyer immediately for directions and disposition.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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234 Minimum Shelf Life at Time of Delivery

The item being delivered under subject purchase order shall have a minimum remaining shelf life of 60% of the initial shelf life at the time of manufacture or a minimum of two years.

235 Declaration of an ITAR item controlled item

If the product provided against the Order is subject to U.S. export control under the International Traffic in Arms Regulations (ITAR) then the Teledyne Controls Purchasing Agent must be immediately notified. Specific written approval must be provided by Teledyne prior to delivering an ITAR item to Teledyne Controls.

If after authority to deliver an ITAR item granted, the following statement must accompany the product on delivery to Teledyne.

“This product is subject to U.S. export control under the International Traffic in Arms Regulations (ITAR). The export, re-export, transfer or other disposition of this product outside the United States, either in its original form or after incorporation into an end-item, requires an export license or approval from the U.S. Department of State “

236 WEEE and RoHS Prohibited Substances

The products provided on this order must be in compliance with the requirements of the below listed European Directives. These Directives prohibit, restrict, and or limit the use of specific materials including such materials as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

2002/95/EC	European Directive RoHS
2002/96/EC	European Directive WEEE
2003/11/EC	Brominated Fire Retardant

If item(s) delivered under the subject purchase order contains one or more of the prohibited materials, contact the Buyer immediately for directions and disposition.

237 WEE and RoHS Prohibited Substances – Certificate of Conformance

The products provided on this order must be in compliance with the requirements of the below listed European Directives. These Directives prohibit, restrict, and or limit the use of specific materials including such materials as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

2002/95/EC	European Directive RoHS
2002/96/EC	European Directive WEEE
2003/11/EC	Brominated Fire Retardant

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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The products provided on this order must be accompanied by a Statement of conformity. It is preferred that the statement contain the following elements:

Title: **Certificate of Conformance - Prohibited Substances**

Supplier's Name:
Purchase Order:
Product Part Number:
Product Name:

Statement of Conformance:

The material contained in the products provided against this order is compliant with the following European Directives:

2002/95/EC	European Directive RoHS
2002/96/EC	European Directive WEEE
2003/11/EC	Brominated Fire Retardant

Company Representative:

Name:
Signature:
Date:
Title:

If supplier can not comply with above, notify the Buyer immediately.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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238 Supplier Performance Requirements:

On-Time Delivery (D1):

It is expected that products will be provided no later than the dock date established on the Purchase Order. Your company's performance for On-Time Delivery will be evaluated and deliveries earlier than 5 days and later than one day of the established Purchase Order date could adversely affect your supplier rating and status as an approved supplier. All Shipments earlier than 5 days may be returned at the supplier's expense.

Product Quality (R1):

It is expected that the products and or services provided will be 100% free of defects and be compliant with all applicable material and performance requirements. Your company's quality acceptance performance will be evaluated (number of lots of rejected / total number of lots received) and acceptance rates of less than 98.5% could adversely affect your supplier rating and status as an approved supplier.

		R1 Performance (3 month rolling)	D1 Performance (3 month rolling)
	Green	<.3%	>99%
	Light Green	.3% - .9%	96% - 99%
	Amber	.9 - 1.4%	92% - 96%
	Red	>1.5%	<92%

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.

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250 Antidrug and Alcohol Misuse and Prevention Program Requirement

Work performed on this purchase order is regulated under United States Code of Federal Regulations Title 14 Part 121, Appendix I and J (here after called 14CFR 121 App. I & J).

A electronic copy of the regulation can be found at:
http://www.faa.gov/regulations_policies/faa_regulations/

Affected Work Personnel

Persons performing specified work at all tiers (here after called safety-sensitive work) on the hardware called out in the purchase order, must participate in and be tested in accordance with a FAA/DOT Antidrug and Alcohol Misuse and Prevention Program as specified in 14 CFR 121, App. I & J.

The specified work is

- Hardware disassembly.
- Hardware assembly.
- Hardware cleaning.
- Hardware testing
- Hardware inspecting
- Replacement of part (s), component (s), subassembly (s) or assembly (s) on hardware
- Repairing of part (s), component (s), subassembly (s) or assembly (s) on hardware
- Removing and/or installing of software contained in the hardware

Type of Testing

- Pre-Employment Testing
- Random Testing
- Post-accident Testing
- Testing Based on Reasonable Cause
- Return to Duty Testing
- Follow-up Testing

For the purposes of this purchase order, Pre-Employment testing is defined as initial testing prior to the start of performing safety-sensitive work and becoming part of a random test pool of workers performing safety-sensitive work.

If you have any questions or can not comply with the above requirement, please contact your Teledyne Controls Buyer.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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260 COTS Item: Certificate of Conformance Not Required

COTS Item is defined as any item (including Services, Software and Hardware), customarily used for nongovernmental purposes, that has been sold, leased, or licensed to the general public or that has been offered for sale, lease, or license to the general public. For example, items sold in the commercial market, which includes wholesales and retail distribution centers, catalogs, personal sales and items offered for sale commercially, but not yet sold, are also included. General examples of commercial items DoD buys range from food, clothing, and computers to trucks and airplanes

Many suppliers of COTS Items do not have a business practice of providing a Certificate of Conformance. Being such a supplier, a Certificate of Conformance is not required for items being purchased on the purchase order.

Records

The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The use of records in the supplier’s format is preferred. However, the records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.

Note: The issuance of a Certificate of Conformance is highly encouraged, and should be provided, if possible.

261 Industrialization Process (GRESS)

Note: This rider is not applicable to CCA Assembly suppliers

The supplier shall implement the following industrialization processes in accordance with Airbus GRESS AP1013 issue A Chapters 3 and 4.

a) During the initial First Article Review the supplier shall support Teledyne in conducting an Industrial Process Control Assessment (IPCA). This review will include the elements of this Article and compliance with the supplier's ISO 9001 approved Quality System.

b) The supplier shall establish the processes as required to support the major topics of GRESS Chapter 3 and 4 listed below:

The major areas include the following elements:

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Risk Assessments: Supplier shall perform risk assessments to identify the risks and associated risk mitigation efforts in the following areas:

- Product risks
- Industrial process risks (Risk assessments of the Manufacturing operations)
- Special process risks
- Procurement and supplier risks

Note: The Risk Assessments shall be documented and made available to Teledyne.

Concurrent Engineering:

Concurrent Engineering design industrialization shall be performed to ensure:
Early detection of manufacturing and supply chain constraints in development.
Early adaptation of production means to the product:

- New means. purchasing or qualification
- New processes qualification
- Operators training or qualification
- Robustness tests definition
- Early considerations of maintainability

Note: Concurrent Engineering Assessments shall be documented and made available to Teledyne.

Manufacturing process flow charts:

The supplier shall establish the manufacturing flow charts for the top assembly and all subassemblies manufacturing assembly processes.

The Manufacturing flow charts shall include the inspection and test control points for gathering metric data.

Quality Metrics

Supplier shall establish performance metrics to identify:

- Pre-test First Pass Yield
- Environmental Stress Screening First Pass Yield
- Final Test (ATP) First Pass Yield.
- Supplier rejection rates.

Metric Data: If requested, Pascall shall provide Teledyne with periodic (frequency not greater than Quarterly) Metric performance reports that includes summary data of the above metrics, defect trends, and corrective actions taken.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Root Cause and Corrective Action Analysis:

The supplier shall identify non-conformities associated with product, process, supplier, and delivery schedule and implement root cause and corrective actions associated with significant non-conformity trends.

Test Strategy and Control:

The supplier shall evaluate the equipment, sub-assembly and component tests coverage rates and analyze how each component, manufacturing phase are validated and verified all along the Production Process. The supplier shall justify what is not covered by the amount of tests applied.

262 Industrialization processes – Circuit Card Assembly Suppliers

The supplier shall implement the following industrialization processes.

During the initial product manufacturing First Article Review the supplier shall support Teledyne in conducting an Industrial Process Control Assessment (IPCA) activities. This review will include the elements of this Article and compliance with the supplier’s approved Quality System.

- a) The supplier shall establish the processes as required to support the major topics listed below:

The major areas include the following elements:

- o Risk Assessments: Supplier shall perform risk assessments to identify the risks and associated risk mitigation efforts in the following areas:
 - Industrial process risks (Risk assessments of the Manufacturing operations)
 - Special process risks

Note: As agreed between the supplier and Teledyne, the Risk Assessments may be facilitated and supported with personnel from Teledyne Controls along with the relevant process and management personnel from the supplier.

- o Manufacturing process flow charts:
 - The supplier shall establish the manufacturing flow charts for the top assembly and all sub-assemblies manufacturing assembly processes.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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- The Manufacturing flow charts shall include the inspection and test control points for gathering metric data.
- Quality Metrics
 - Supplier shall establish performance metrics to identify:
 - Inspection Defect Parts per Million Opportunities (DPMO)
 - Process yield data such as solder paste yields, AOI yields, etc.
 - Test yield data (based on the tests established for the products, Flying probe, Entry Level ICT, ICT, JTAG / Boundary Scan, etc.)

Notes:

1. The specific set of metrics shall be as agreed between the supplier and Teledyne.
2. Metric Data: If requested, supplier shall provide Teledyne with periodic (frequency not greater than Quarterly) Metric performance reports that includes summary data of the above metrics, defect trends, and corrective actions taken.

- Root Cause and Corrective Action Analysis:
The supplier shall identify non-conformities associated with product, process, supplier, and delivery schedule and implement root cause and corrective actions associated with significant non-conformity trends.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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CCA AOI and BGA X-ray Inspection Requirements.

This Quality Rider imposes two requirements:

1) Automated Optical Inspection (AOI):

If the supplier has AOI capabilities, then all Circuit Card Assemblies (CCA) shall be AOI inspected during the fabrication processing. Unless otherwise agreed between Teledyne and the Supplier, the AOI inspection process shall be conducted within the supplier's normal manufacturing process flow.

Delivery Documentation: On delivery of the CCAs the supplier shall provide a statement that they have been AOI inspected.

Note: If the supplier does not have AOI capabilities, they shall provide a one time notification to the Teledyne Purchasing department and wait to receive written instructions before proceeding. If the supplier acquires AOI capabilities then this requirement immediately becomes applicable.

2) Ball Grid Array (BGA) X-Ray Inspection:

As an element of the inspection process 100% of all BGAs shall be x-ray inspected after attachment onto the Circuit Card Assembly to verify that the solder ball joints are acceptable. The x-ray inspection process shall verify that the solder ball joints are in compliance with the applicable design data and or the applicable elements of IPC-610 class II requirements.

Delivery Documentation: On delivery of the CCAs the supplier shall provide a statement that the BGAs have been x-ray inspected.

Note: If the supplier does not have BGA x-ray capabilities, the supplier shall immediately notify the Teledyne Purchasing department and wait to receive written instructions before proceeding.

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.	SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
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Product - Various

No. 09-2233

<input type="checkbox"/> OUTSTANDING	DCR NO.	DATE
<input checked="" type="checkbox"/> INCORPORATED	TSO ITEM <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	08/20/2009
ECP NUMBER	CHANGE CLASS	PMA AFFECTED <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	<input type="checkbox"/> MAJ <input checked="" type="checkbox"/> MIN	IF YES, CHECK BELOW:
EFFECTIVITY		<input type="checkbox"/> NOC NO. _____
(1) <input type="checkbox"/> MANDATORY	SER NO. / DATE	MINOR SUBMIT <input type="checkbox"/> Y <input type="checkbox"/> N
(2) <input type="checkbox"/> FUTURE	12/3/2008	
(3) <input checked="" type="checkbox"/> DWG CHANGE ONLY		

ENGINEERING ORDER



501 CONTINENTAL BLVD.
EL SEGUNDO, CALIFORNIA
90245
CAGE CODE 98571

DOCUMENT NUMBER	2232391	REV	M
DOCUMENT TITLE	QUALITY PROVISION RIDERS		SHEET
			1 of 1

PARTS DISPOSITION				REASON FOR CHANGE	APPROVALS				RELEASED DATE		
	STOCK	PROD	FIELD	RTNS	<input type="checkbox"/> VENDOR REQ	<input type="checkbox"/> EO INCORPORATION	PREPARED BY	ENGINEERING	MFG ENG	QA	CM/SCM
USE AS IS	(1) X	(2) X	(3) X	(4) X	<input type="checkbox"/> CUSTOMER REQ	<input type="checkbox"/> DOCUMENT ERROR	Melvin Young				
REWORK	(5)	(6)	(7)	(8)	OTHER						
CONFORM	(9)	(10)	(11)	(12)	Added Records requirement per ISO Audit finding						
SCRAP	(13)	(14)	(15)	(16)	and obsolete Quality Specs that no longer are in Effect.						
							AFFECTED DOCUMENTS: <input type="checkbox"/> TEST <input type="checkbox"/> SOFTWARE <input type="checkbox"/> CID <input type="checkbox"/> S/B, S/L <input type="checkbox"/> TECH MAN. <input type="checkbox"/> _____				

EFFECTIVITY | PARTS DISP | 1, 2, 3, & 4

SEE DOCUMENT MANAGEMENT SYSTEM FOR APPROVALS

- 1) Added: Obsolete to QP Riders 100, 109, 204, 205, 206
- 2) Added to QP Rider 126: The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.
- 3) Added QP Rider 196: Records: The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The use of records in the supplier's format is preferred. However, the records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.
- 4) Added QP Rider 260: Records: The supplier shall maintain records that provide evidence that the delivered product or service meets the requirements of the purchase order or contract. The use of records in the supplier's format is preferred. However, the records must be legible, readily identifiable and retrievable within 5 business days. The records shall be retained for a minimum of two years (unless otherwise specified in the purchase order), after the final delivery of the product or service contracted under the purchase order or contract. Records can include, but are not limited to: Test Data, Purchase Orders, Certificate of Conformances, Travelers and Inspection Data.
- 5) Changed QP Rider 263:
In Section 1) Removed "100%" from first sentence.

Added the following new sentences:

In section 1) "Delivery Documentation: On delivery of the CCAs the supplier shall provide a statement that they have been AOI inspected."

In section 2) "Delivery Documentation: On delivery of the CCAs the supplier shall provide a statement that the BGAs have been x-ray inspected."

Use and disclosure shall be in accordance with the proprietary legend and destination control statement located on sheet 1 of this document.

SIZE	CAGE CODE	DRAWING NUMBER	REV	SHEET
A	98571		-	1