


Procedure

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TITLE: Procurement Quality Requirements			Document No.: PCD-QA-0021 Revision: I
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Checked By	D. Derouin, V. Welsh	5 Aug 2015	
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Revision History			
Revision	Description of Change	Date	Approved
-	Initial Release	5 Aug 15	DD/VW
A	Updated Para 2.1 to include the web link	10 Sep 15	DD
B	Added previous requirements forms as references. Corrected MPPF, MPCF and CCAOTS.	1 Oct 15	DD
C	Added PQR Clause G13 to General Requirements Table and to all commodity codes within table 1, revised Specific Part Requirement S19 to add MSDS with each delivery and include adherence to Transport of Dangerous Goods legislation. Addition of leaf symbol and environmental message in title block.	17- May-18	DD/MC
D	Logo, header, footer and company references changed from Nautel C-Tech to Nautel Sonar.	18-Jan-29	DD/MC
E	Added vendor type to paras1, 1.1 addition of para 1.4 supplier type, addition of PQR Codes S56, S57 and S58 in para 2.1 table 2.	18-Jun-08	DD/MC
F	Paras 1.4, 2.1 table 1 company interdivisional supplier type and code added.	18-Sep-17	DD/MC
G	Table 2, PQR Code S59 regarding conflict minerals added.	19-Jun-03	DD/MC/TR
H	Table 1, Commodity Code CIMPSPBTP added for interdivisional parts source verified by Nautel.	20-May-27	DD/MC
I	Correct Company Name	24-Mar-11	DD/MC

1. Introduction

This document defines the vendor type and procurement quality requirements imposed on such vendors that supply products to Nautel C-Tech Limited (NCT).

1.1 Scope

This instruction defines the Vendor Type and associated Procurement Quality Assurance Requirements as specified on NCT Purchase Orders by product types, commodities or by program.

This procedure applies to all Purchase Orders issued by NCT for material that is incorporated into customer deliverable products (including prototypes and qualification/ certification units).

NCT manufactures products for commercial and defense markets.

Items that are purchased for NCT for administrative purposes are not covered by this procedure (i.e. items not incorporated into NCT products).

1.2 Responsibilities

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The Materials department is responsible for ensuring that this procedure is followed.

Quality Assurance is responsible for specifying the Supplier Type and PQR requirements that meet NCT and Customer requirements and for auditing to ensure the instruction is being followed.

R&D has the responsibility for defining which items will be delivered to the customer as part of engineering programs.

The vendor is responsible to follow these requirements.

1.3 Definitions/Abbreviations

Abbreviation	Definition
QA	Quality Assurance
RMA	Return Material Authorization
SCD	Source Control Document
Inventory Item	Any item purchased for use in a manufacturing program.
Purchased Product	Components, processed material or other goods including software, equipment, tools, subcontract services including but not limited to subassembly, finishing, test, professional services, etc.
NCT	Nautel C-Tech Limited
Raw Material	Metal stock, plastic or rubber stock used in fabrication of a finished subassembly
Supplier	Vendor or subcontractor from whom NCT purchases product or subcontracts for services.

1.4 Supplier Type

This document applies to the following supplier types as specified on the Purchase Order. There are two main categories of provider – Materials (MP) and Services (SP).

Supplier Type	Code	Definition
Company Interdivisional Service Provider	CID-MECH-SP	Interdivisional Service Provider of mechanical components, mechanical subassemblies and special processes as listed in PCD-QA-0005.
Material Provider-Raw Materials (metals, plastics, wood, compounds)	MP-RM	Provides raw materials such as various steel & aluminum stock, plastics and woods, adhesives, sealants and compounds.
Materials Provider-Bare Board	MP-BB	Provides printed wiring board fabrication services.
Material Provider-Electronic/Electrical Components & Wiring/Cable.	MP-EEWC	Provides electronic & electrical parts, wire and cable.

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Material Provider- Mechanical	MP-MECH	Provides mechanical components, mechanical sub-assemblies.
Service Provider- Facility Services & Maintenance	SP-FSM	Supplies electrical, plumbing, general facility repairs, HVAC systems support, landscaping such as lawn cutting and snow removal services.
Service Provider- Special Processes	SP-SP	Provides welding, sandblasting, chemical coatings, paint and any other special processes as listed in PCD-QA-0005
Service Provider- Special Processes, Printed Wiring Board Assembly	SP-PWBA	Provides PWB thru-hole and SMT assembly services.
Service Provider-Calibration	SP-CAL	Provides professional calibration services
Service Provider-Professional	SP-PRO	Provides hardware & software design, training, auditing and evaluation/verification services.
Service Provider-Waste & Recycling Removal	SP-WR	Provides waste, recycled materials and hazardous waste removal and disposal services.

2. How to Determine Procurement Quality Requirements from the NCT PO.

The PO contains PQR data for each part. There are two ways to specify Quality Requirements.

Method	Wording	Meaning
By Specific PQR Clause	PQR: G1, G4.	Refer to Table 2. The supplier must meet the following requirements for this PO item G1: ISO9001 Registration G4: Provide a Certificate of Conformance with each shipment for this part.
By Commodity Code	PQR Commodity Code: RMMIL	Refer to Table 1, to identify the Commodity Code: RMMIL: Raw Materials- Military Specifies PQRs: G1 G3, S14, S15, S4. Then Table 2. Commodity Codes; G1: ISO 9001 G3: Certificate to MIL Spec

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		S14: Chemical and Physical Analysis S15: Raw Material Traceability S4: Qualified Military Supplier Apply to the procurement of this part.
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2.1 Where to get PCD-QA-0021

The bottom of the PO references a website address to obtain a .pdf version of this document.

“Please review our Vendor Terms and Conditions and Procurement Quality Requirements as per PCD-QA-0021 at the following link: <http://nautelsonar.com/vendor-requirements/> “

Table 1, PQR Commodity Code Matrix

Commodity Code	Commodity	PQR Clauses
CIMPSPBTP	Company interdivisional manufactured parts and special processes. Built To Print (Source Verified by NCT QA- Dwg on File).	G1, G4, G13, G14, S12, S17, S27, S59, N1
CIMPSP	Company interdivisional manufactured parts and special processes finished to Nautel Sonar drawing.	G1, G11, G13, S5, S12, S13,
RMCOM	Raw Metals-General	G2, G4, G13
RMMIL	Raw Metals-Military	G1, G3, G13, S14, S15, S4
SOLDER	Solder and Solder Paste	G1, G13, S17, S18, G4
NMRCOM	Non-Metallic Raw Material-Commercial: <ul style="list-style-type: none"> • Plastics & Laminates • Plastic Resins • Rubber • Substrates 	G2, G4, G13
NMRMIL	Non-Metallic Raw Material-Military: <ul style="list-style-type: none"> • Plastics & Laminates • Plastic Resins • Rubber • Substrates 	G1, G3, G13, S15, S4
CEROTS	Ceramic Parts –Off the shelf	G1, G11, G13, G4, S5, S25, S29, S36, S38, S12
CERMIL	Ceramic Parts – To NCT Dwg	G1, G11, G13, S5, S10, S11, S21, S25, S29, S34, S38, S12
FORG	Forgings	G1, G4, G13
SHLF <i>(Previously C-T603-3)</i>	Shelf Life Requirements: <ul style="list-style-type: none"> • Paint • Flux • Lubricants 	G1, G13, S17, S18, S19, As Applicable: S20 (Non L-3), S21 (L-3 Dwg), S22 (L-3, No L-3 Dwg).

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Commodity Code	Commodity	PQR Clauses
	<ul style="list-style-type: none"> • Glue • Adhesives • Gasket • Oil • SOLVENT • Thinner • Enamel • Epoxy • Urethane • Ink • Seal • Catalyst • Chemical • Battery • Varnish • Solder • Solder Paste 	
SFCOM <i>(Previously C-T603-9)</i>	Standard Fasteners & Hardware Commercial <ul style="list-style-type: none"> • Other • Screws • Bolts • Rivets Inserts • Washers • Nuts • Hinges • Standoffs 	G2, G4, G13, S5, S12, S27
SFMIL <i>(Previously C-T603-9)</i>	Standard Fasteners & Hardware Military: <ul style="list-style-type: none"> • Other • Screws • Bolts • Rivets Inserts • Washers • Nuts • Hinges • Standoffs 	G1, G13, S4, S5, S12, S22, S27
CHCOM	Custom Hardware-Commercial Made to NCT Drawings	G2, G13, S11, S10B, S21
CHMIL	Custom Hardware-Military Made to NCT Drawings	G2, G13, S11, S10B, S21, S4
OTSMP	Off The Shelf Mechanical Products, Devices & Assemblies: <ul style="list-style-type: none"> • Gas Bottles • General • Bearings (Standard) • O-Rings • Holders • Vibration Mounts/Shock Absorbers 	G2, G4, G13

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Commodity Code	Commodity	PQR Clauses
	<ul style="list-style-type: none"> • Terminals/Terminal Boards (Standard) • Sockets • Bushings • Filters • Gaskets • Dials/Edge lit Blowers, Fans • Heat Exchangers • Heat Sinks • Magnets • Brackets • Panels • Chassis • Cabinets • Housings • Labels • Packaging • Mechanisms • Mounting Plate • Panels • Coils, Bobbins • Name Plates 	
MPCU <i>(Previously C-T603-2)</i>	Machined Parts, Commercial, Unfinished to NCT Dwg.	G2, G4, G13, S5, S6, S7, S8, S9, S10B, S11, S12
MPCF <i>(Previously C-T603-9)</i>	Machined Parts, Commercial, finished to NCT Dwg.	G2, G4, G13, S5, S6, S7, S8, S9, S10B, S11, S12, S13
MPMU <i>(Previously C-T603-9)</i>	Machined Parts, Military, Unfinished to NCT Dwg.	G2, G4, G13, S5, S6, S7, S8, S9, S10B, S11, S12, S14
MPMF <i>(Previously C-T603-9)</i>	Machined Parts, Military, Finished to NCT Dwg.	G2, G4, G13, S5, S6, S7, S8, S9, S10B, S11, S12, S13, S14, S16
MRCOM <i>(Previously C-T603-8)</i>	Molded Rubber Products-Commercial	G2, G4, G13, S29, S27, S28, S21,
MRMIL <i>(Previously C-T603-8)</i>	Molded Rubber Products-Military	G2, G3, G13, S29, S27, S28, S21
FABCOM	Other Custom Welded or Fabricated Parts. <ul style="list-style-type: none"> • O-Rings • Holders, Clamps • Bushings • Gaskets • Dials/Edge lit Panels Coils, Bobbins • Name Plates • Heat Sinks 	G2, G4, G13, S10B, S11, S12, S9

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Commodity Code	Commodity	PQR Clauses
	<ul style="list-style-type: none"> Covers, Panels Chokes, Transformers Magnets Labels Packaging 	
EEEOTS <i>(Previously C-T603-7)</i>	Electronic Components/Semiconductors , Including connectors and wire (Off the shelf)	G1, G4, G7, G8, G11, G12, G13, S25, S29, S24, S27, S22, S21
EEEMIL	Electronic Components/Semiconductors Including connectors and wire (Military)	G1, G7, G8, G11, G12, G13, S25, S29, S4, S26, S24, S27
EEEOTSL3 <i>(Previously C-T603-6)</i>	Electronic Components/Semiconductors Including connectors and wire (Off the shelf for L-3 Ocean Systems Orders)	G1, G7, G8, G11, G12, G13, S25, S29, S24, S27, S22
EEEMILL3 <i>(Previously C-T603-5)</i>	Electronic Components/Semiconductors Including connectors and wire (Military for L-3 Ocean Systems Orders)	G1, G7, G8, G11, G12, G13, S25, S29, S4, S26, S24, S27
EEEACTIDL3	Electronic Components (Active)-L3 Independent Distributors	G1, G5, G6, G7, G8, G9, G10, G11, G12, G13, S12, S20, S22, S27
EEEPASIDL3	Electronic Components (Passive & Connectors)-L3 Independent Distributors	G1, G5, G6, G7, G8, G9, G10, G11, G12, S12, S20, S22, S27
BAT	Batteries	G4, G13, S18
PWBCOM <i>(Previously C-T603-1)</i>	Bare Printed Wiring Boards (PWBs), Commercial Single, Double or Multilayer, Flex	G1, G4, G13, S1
PWBMIL <i>(Previously C-T603-1)</i>	Bare Printed Wiring Boards (PWBs) Military Single, Double or Multilayer, Flex	G1, G3, G13, S2, S3, S4
CCAOTS <i>(Previously C-T603-10)</i>	Circuit Card Assemblies (CCA's) (Off the Shelf) <ul style="list-style-type: none"> Computers, Memory, Data Bus, Power Supplies 	G1, G4, G13, S36, S26, S24, S23, S12, S25 (If applicable), S26 (If applicable)
CCACL2 <i>(Previously C-T603-4)</i>	Circuit Card Assemblies (CCA's) (Built to NCT Drawings--Commercial) <ul style="list-style-type: none"> Single Layer Double Multi Layer Flex 	G1, G4, G13, S23, S24, S7, S25 (if applicable), S26, S27, S28, S29, S30, S31, S32, S49, S53, S11, S36, S9, S24
CCACL3 <i>(Previously C-T603-4)</i>	Circuit Card Assemblies (CCA's) (Built to NCT Drawings) <ul style="list-style-type: none"> Single Layer Double Multi Layer Flex 	G1, G4, G13, S23A, S24, S7, S25, S26, S27, S28, S29, S30, S31, S32, S24, S8, S49, S53A, S11, S36, S9
CABCOM	Wire Harnesses & Cable Assemblies/Adapters--Commercial (Crimped or Soldered)	G1, G4, G13, S7, S8, S11, S21, S9, S53

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Commodity Code	Commodity	PQR Clauses
CABMIL	Wire Harnesses & Cable Assemblies/ Adapters-Military (Crimped or Soldered) Including modified antennas	G1, G13, S4, S7, S8, S11, S29, S9, S53A,
VTME	Verification, Test and Measurement Equipment (Calipers, Oscilloscopes, spectrum analyzers, multi meters, etc.)	G13, S50 for new equipment. G7, G13, S51 for calibration.

Table 2, NCT Procurement Quality Requirements

The following table defines the Procurement Quality Requirement (PQR) codes that form part of NCT purchase order requirements. The applicable PQRs will vary by commodity or even part number.

The commodity codes for each specific part number will be listed on the Purchase Order after each line item. Copies of this list are available in electronic or hard copy form. The latest copy of this list or information regarding these requirements may be obtained from the NCT Buyer or website. In case of conflict with drawing requirements, contact the Quality Assurance Dept.

Should the seller fail to meet the PQR requirements defined in the Purchase Order, the seller agrees to correct or replace the item within thirty (30) days of discovery of any non-compliance, at no cost to NCT.

The requirements of these clauses are in addition to, and not in place of, other procurement requirements. Compliance with the requirements of these clauses does not relieve the Supplier of his responsibility for furnishing materials and services which fully comply with applicable drawing and specification requirements – nor does it guarantee acceptance of materials and services by NCT. Drawing requirements always take precedence over these requirements. In the event of conflict with these requirements and any other NCT document, contact your buyer.

All queries with respect to quality, these requirements, or subsequent quality related activities shall be directed to the NCT Quality Assurance Manager via the Purchasing Agent or Buyer. No answers or interpretations, written or verbal, may change a requirement of this Procurement Document unless accompanied by a Purchase Order.

NCT and its customers reserve the right to audit the Supplier’s operations with respect to these Terms and Conditions, prior to and during the fulfillment of this contract, to confirm or determine the extent of compliance with these requirements. On proprietary items, visits of this nature will be subject to mutual agreement.

Additional Quality Requirement Terms and Conditions may be listed on the Purchase Order.

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PQR #	General Requirements
G1	QUALITY SYSTEM REQUIREMENT. The Supplier's Quality System shall be registered with International Standard, ISO9001, or equivalent Standard (AS9100 or ISO13485), and is subject to inspection and approval at all times by NCT Quality Assurance or its customers. The Supplier shall promptly notify NCT of any change in approval status. The Supplier shall perform and record sufficient inspection, test, or other verification operations necessary to ensure that the goods or services being provided comply with the Procurement Document, its attachments and reference documents.
G2	MINIMUM QUALITY SYSTEM REQUIREMENT. The Supplier's Quality System shall have the following elements and is subject to inspection and approval at all times by NCT Quality Assurance or its customers. The Supplier shall perform and record sufficient inspection, test, or other verification operations necessary to ensure that the goods or services being provided comply with the Procurement Document, its attachments and reference documents. The following Clauses apply G3, G4, G5, G6, G7, G8, G9, G10, G11, G12,
G2A	BEST PRACTICES. The Supplier's best commercial quality practices shall be used on all supplies delivered under this order. Clause G2A is applicable to Suppliers whose status has been classified as "Restricted" by NCT.
G3	CERTIFICATION TO APPLICABLE MIL-SPEC. Documentation covering supplies delivered under this order shall include a certification reading substantially as follows: "Material and/or parts furnished on this order have been manufactured and/or processed in accordance with the applicable Military Specification. Objective evidence (qualitative or quantitative) of conformance is on file and is available to NCT on request."
G4	CERTIFICATE OF CONFORMANCE: The Supplier shall send a Certification of Conformance (C of C) with each shipment. It shall include as a minimum, the following: <ul style="list-style-type: none"> • Purchase order number • Specification or drawing number including revision • Quantity A statement that the materials conform to the applicable specifications and signature.
G5	ACCEPTANCE RECORDS. The Supplier shall maintain on file, as part of the Quality Records, the verification data demonstrating compliance with the acceptance criteria for the goods or services being provided. This data shall be available to the Purchaser or his representative, on request.
G6	NON-CONFORMING MATERIAL. The Supplier shall have a documented Non-Conformance Management process that identifies and segregates non-conforming material from acceptable material. The supplier shall not include any non-conforming material in the goods or services being provided unless specific authorization has been given, in writing, by NCT's Quality Assurance Manager. Detection of any non-conformity in a delivery can be cause for rejection of the lot.
G7	CALIBRATION. All instruments, gauges, meters, fixtures, etc. used to determine the compliance of the goods or services shall have known accuracies matching the precision of the requirement in accordance with either ANSI/NCSL Z540-1, or ISO 10012, or ISO 17025. The accuracy shall be demonstrated by periodic calibration and comparison against Standards which, in turn, have calibration traceable to your National Standards organization (e.g. National Research Council in Canada, NIST in U.S.).
G8	MANUFACTURER CONTROL. The Supplier shall invoke all of the Procurement Quality Assurance requirements herein against any subcontractor performing work involving this Purchase Order.
G9	CORRECTIVE ACTION REQUESTS. When material is found to be discrepant, a request for Corrective or Preventive Action may be sent to the Supplier. Response must be completed within the time specified. The action must be effective in removing the cause of the defect. Failure to respond or abnormal delay is cause for refusal to accept further shipments.

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PQR #	General Requirements
G10	RECORD DATA RETENTION. A file shall be maintained for a minimum of three (3) years of all records/data pertaining to inspection, test or processing. Such documents shall be readily traceable to items delivered to NCT.
G11	FINAL ACCEPTANCE. All goods or services are subject to final acceptance by Nautel Sonar Ltd. Inspection may be performed at the Buyer's option on a statistical sampling basis. NCT may reject an entire lot when defective items, within the sample, exceed the allowable quantity. The rejected lot may be returned to the Supplier for replacement, credit or screening, or may be subject to 100% screening by the Buyer, with associated cost of such screening billed to the Supplier.
G12	INSPECTION. NCT reserves the right to monitor material being provided under this Purchase Order at any time during its manufacture. On proprietary items, visits of this nature will be subject to mutual agreement.
G13	Environmental Health and Safety (EHS) Requirements: All items furnished and all work performed by the supplier shall comply with the most current applicable requirements for Environmental, Occupational Safety and Health at the local, municipal, state, provincial and federal EHS regulations and standards in the jurisdiction where the work is being performed. Any failure to comply with the applicable laws, regulations, and standards may be grounds for termination of the Purchase Order.
G14	Items furnished are built to print and source verified by NCT with drawings on file.

PQR #	Specific Part Requirements
S1	PRINTED WIRING BOARDS (PWB), COMMERCIAL: Rigid & Flex Printed Wiring Boards (PWB) shall meet the requirements of; <ul style="list-style-type: none"> • Rigid: IPC-6012, Class 3 • Rigid: IPC-A-600 Class 3 • Flex: IPC-6013 Class 3 All PWB's shall be sealed to prevent deterioration of solderability or damage. PWBs shall be traceable by Date Code to the materials used, process controls used and test data at the time of manufacture to the panel. A micro-section report and sample button shall be provided with each Part number and Date Code for multilayer & Flex boards.
S2	PRINTED WIRING BOARDS (PWB), MILITARY: Rigid & Flex Printed Wiring Boards (PWB) shall meet the requirements of; <ul style="list-style-type: none"> • MIL-PRF-31032 • MIL-PRF-55110 • NADCAP Process Certification All PWB's shall be sealed to prevent deterioration of solderability or damage. PWBs shall be traceable by Date Code to the materials used, the process controls used, and test data at the time of manufacture to the board serial number. A micro-section report and sample button shall be provided with each Part number and Date Code for multilayer & Flex boards.
S3	CERTIFICATION OF SOLDERABILITY. Required with each shipment. Provide date of test.
S4	QUALIFIED PRODUCTS LIST (QPL/QML) ITEM: The manufacturer of the product supplied to this purchase order shall be certified and the product listed in the applicable Qualified Products List (QPL/QML). In the case of microcircuits, be listed in MIL-HDBK-103 at time of manufacture. Suppliers shall certify that the item supplied is a certified, QPL item.
S5	INTERPRETATION OF DRAWINGS. Unless otherwise specified, interpretation of drawings shall be in accordance with the provisions of USA Standard Drafting Practices ANSI Y 14.5 – Latest Rev. of issue on date of this Purchase Order “Dimensioning and Tolerancing for Engineering Drawings.”

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PQR #	Specific Part Requirements
S6	SUPPLIER MATERIAL REVIEW BOARD (MRB) AUTHORITY: The Supplier does not have the authority to determine Use-As-Is or Repair MRB dispositions under this PO.
S7	BILL OF MATERIAL PART/MATERIAL SUBSTITUTIONS: The Supplier shall not substitute different materials or components that are defined as source controlled (i.e. approved manufacturer) in the NCT BOM or on the drawing. The supplier shall request approval from NCT for proposed parts substitutions.
S8	SUBCONTRACT: The vendor may not subcontract any part of the assembly without first notifying NCT and obtaining approval..
S9	<p>REFURBISHED / USED / REPAIRED MATERIALS: Material supplied shall be of new manufacture. Used, repaired or refurbished parts/material shall not be supplied. Repair to out of specification conditions is not authorized without prior NCT approval. Requests for repair are to be submitted to the NCT Buyer for approval. NCT reserves the right to deny requests to repair any out of specification material submitted for approval.</p> <p>Repair: Is defined as the process used to bring the non-conformance into an acceptable condition other than to print or specification. It is the act of restoring the functional capability of a defective part without necessarily restoring appearance, interchangeability, and uniformity.</p> <p>Rework: Is defined as the reprocessing of a non-conformance to make it conform completely to the established drawing, specification or contract requirements. NCT approval is not required for rework.</p>
S10	<p>INSPECTION REPORT: The vendor shall perform an inspection of the part and provide a dimensional inspection report. The report shall include actual read and record data and be sent to NCT with the parts. The report may be tailored to critical dimensions after adequate supplier performance has been achieved. The inspection sample shall be tagged to ensure that it can be measured at NCT as well. The Test / Inspection results may be in the form of a list, computer printout or other means, but must clearly identify the dimensions / characteristics they represent and be clearly related to the item from which they were derived.</p> <p>S10A) One Part per P/N per Purchase Order S10B) The first and last items of each batch supplied. S10C) Each of the first five items manufactured in any individual batch. S10D) Each fifth item of any individual batch. S10E) A random sample selected in accordance with MIL-STD-1916. Verification Level II</p>
S11	<p>FIRST ARTICLE INSPECTION: The supplier shall perform first article inspection on parts and all subassemblies supplied to this purchase order. One part shall be verified 100% for all materials, parts, processes and dimensions using AS9102 as a guide. Dimensions recorded shall be referenced to the drawing zone / locations or by numbering the characteristics and including a copy of the numbered drawing with the shipment. First Article Inspection Data shall be provided with the first shipment. First article inspection is required if:</p> <p>A. The supplier is a new vendor for the parts. B. There has been a drawing revision since the last shipment to CT&L of the same parts. C. The last delivery of the same parts has been over one year (1). D. There has been a major tooling, artwork or process change/modification in the manufacture of the parts</p>
S12	PACKAGING. The packaging and pack shall provide the protection necessary to ensure no quality degradation occurs during handling, storage or in transit.

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PQR #	Specific Part Requirements
S13	<p>COSMETIC SURFACES: This part has cosmetic surfaces that are visible to our customers. Any visual defects such as, colour variation, nicks, dents, scratches, digs or foreign material are cause for rejection. Ensure adequate packaging for transport to prevent damage to cosmetic surfaces. This applies to paint, panels or any other finishing.</p>
S14	<p>CHEMICAL AND PHYSICAL ANALYSIS: Each shipment of metallic or non-metallic raw material must be accompanied by a Chemical and Physical analysis test report containing:</p> <ul style="list-style-type: none"> • Name & Location of the raw material manufacturer or mill. • Material identification by specification number and material condition. • Manufacturer or mill lot identification number of the raw material. • Actual chemical and physical test results as specified in the applicable material specifications.
S15	<p>RAW MATERIAL TRACEABILITY: Each shipment of finished or semi-finished goods manufactured from metallic or non-metallic raw material must be accompanied by a certificate from the Supplier containing:</p> <ul style="list-style-type: none"> • Name & location of the raw material manufacturer. • Material identification by specification number. • Manufacturer or mill lot or batch number of the raw material.
S16	<p>SPECIAL PROCESS. Special Processes (e.g. anodizing, passivation) must be performed by a Supplier on L-3 Ocean Systems Approved Supplier List. This List is available from NCT. The Special Process Supplier must provide a Certificate of Compliance that states that the Special Process was performed in accordance with the requirements of the Buyer Drawing.</p>
S17	<p>HAZARDOUS MATERIALS. Each shipment of materials requiring special precautions to assure personal safety must be clearly marked with applicable warning and safety statement.</p>
S18	<p>SHELF LIFE. Materials or articles having a definite characteristic of quality degradation with age, shall be marked in a manner to indicate the date at which the critical life was originated. A minimum of 75% of the material shelf life shall remain at ship date.</p>
S19	<p>MATERIAL SAFETY DATA SHEETS. The Supplier shall submit "Material Safety Data Sheets" (MSDS) for the each delivery of the particular item under this purchase order and ensure adherence to the Transport Canada Transport of Dangerous Goods Regulations.</p>
S20	<p>EEE PART INSPECTION & TESTING: All inspecting and testing shall be performed to the original manufacturer's specifications and parameters. Recorded evidence of all testing performed shall be included with each shipment.</p> <p>The following inspections and tests are required:</p> <ul style="list-style-type: none"> • Visual Microscopy Inspection of all parts in the order under 10x minimum magnification (100% of the lot) • X-Ray inspection (100% of the lot) • XRF/RoHS (2 parts per lot date code) • Resistance to Solvents testing (2 parts per lot date code) • Heated Solvent testing (Dynasolve Immersion) (2 parts per lot date code) • Scrape testing (2 parts per lot date code) • Solderability testing per IPC/EIA J-STD-002 (2 parts per lot date code) • De-lid, Die Penetrate, Die Verification (2 parts per lot date code) • Scanning Electron Microscopy (1 part per lot date code)
S21	<p>CERTIFICATE OF COMPLIANCE TO BUYER DRAWING. Documentation covering supplies delivered under this order shall include a certification reading substantially as follows: "Material and/or parts furnished on this order have been manufactured and/or processed in accordance with all applicable specifications on the Buyer Drawing. Objective evidence (qualitative or quantitative) of conformance is on file and is available to NCT on request."</p>

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	<p>NOTE: Clause S21 is applicable to items purchased for orders that are for L-3 Ocean Systems and are purchased to an L-3 Drawing.</p>
S22	<p>CERTIFICATE OF COMPLIANCE TO MANUFACTURER SPECIFICATION FROM ORIGINAL MANUFACTURER. Documentation covering supplies delivered under this order shall include a certification reading substantially as follows: “Material and/or parts furnished on this order have been manufactured and/or processed in accordance with all applicable specifications. Objective evidence (qualitative or quantitative) of conformance is on file and is available to NCT on request.” If the Supplier is not the manufacturer, the Supplier must provide the certification from the original manufacturer with each shipment hereunder.</p> <p>NOTE: Clause S22 is applicable to items purchased for orders that are for L-3 Ocean Systems and are not purchased to an L-3 Drawing.</p>
S23	<p>SOLDERING AND ASSEMBLY WORKMANSHIP. Soldering and Assembly of Circuit Card Assemblies shall be performed in accordance with ANSI-J-STD-001, Class 2, including appendices using certified staff. IPC-A-610 Class 2 may be used for inspection. Clause is applicable to items purchased for orders that are not for L-3 Ocean Systems</p>
S23A	<p>SOLDERING AND ASSEMBLY WORKMANSHIP. Soldering and Assembly of Circuit Card Assemblies shall be performed in accordance with ANSI-J-STD-001, Class 3, including appendices using certified staff. IPC-A-610 Class 3 may be used for inspection. Clause is applicable to items purchased for orders that are for L-3 Ocean Systems</p>
S24	<p>ELECTROSTATIC DISCHARGE (ESD) PROTECTION: The vendor shall have an ESD control program that includes handling, packaging, marking, training and soldering iron verification (See Code S31). Electrostatic Sensitive Devices and Assemblies shall be manufactured, packaged, marked and handled in a manner that will prevent mechanical/electrical damage. The packaging shall withstand normal transport and handling requirements. ESD sensitive devices must be packaged in static shielding materials/containers. Chemically treated/dissipative containers are not acceptable.</p>
S25	<p>TEST REPORTS: Test reports shall contain the results of tests which indicate conformance to the requirements detailed in the NCT drawing and / or other applicable specifications. These reports must be identifiable with the materials furnished. Copies of the test reports shall be included with each shipment.</p>
S26	<p>TEST DATA TRACEABILITY: All in process and final test data shall be traceable to the; serial number of the board or assembly being tested or the components being tested.</p>
S27	<p>COUNTERFEIT PARTS: The supplier shall maintain counterfeit parts (Hardware and Electronic Parts) prevention program that prevents ordering from unauthorized suppliers/distributors, inspects, tests and screens parts procured from unauthorized sources. If suspect/counterfeit parts are furnished under this purchase order, the “Seller” shall promptly replace such suspect/counterfeit parts with parts acceptable to NCT. The “Seller” shall be liable for all costs relating to removal and replacement of said parts. All incidences of counterfeit parts shall be immediately reported to NCT.</p>
S28	<p>MOISTURE SENSITIVE DEVICES: All moisture sensitive (MS) designated parts shall be handled, packed, identified, stored in moisture resistant packaging as defined by documents: J-STD-020 ‘Moisture/Reflow Sensitivity Classification for Non-hermetic Solid State Surface Mount Devices’ and J-STD-033B ‘Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices’.</p> <p>Each package shall have a label and moisture sensitivity rating defined by: IPC/JEDEC J-STD-033B and below. Parts shall be baked out if floor life is exceeded.</p>

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PQR #	Specific Part Requirements
S29	BATCH TRACEABILITY. The materials and components used in the construction of the goods being provided against this contract shall be traceable to the point where compliance with the applicable technical data is demonstrated. For circuit card assemblies this shall mean identification of the lot or date codes of the components used in the build of the assemblies. For moulded parts, this means identification of raw materials used in fabrication of the batch.
S30	CCA ASSEMBLY WASHING: All circuit card assemblies shall be washed in distilled water and saponifier and tested for cleanliness as per the applicable manufacturing instruction. NOTE: Some parts are not washable and must be installed by hand and cleaned locally only.
S31	SOLDERING IRON VERIFICATION: The vendor shall have a soldering iron verification program that verifies the tip voltage and resistance.
S32	PART MARKING AND SERIALIZATION. Unless otherwise specified on the Purchase Order, part marking and serialization of Circuit Card Assemblies will be performed by NCT.
S33	TBD
S34	RECORD DATA RETENTION (8). A file shall be maintained for a minimum of eight (8) years of all records/data pertaining to inspection, test or processing. Such documents shall be readily traceable to items delivered to NCT.
S35	CERTIFICATION TO APPLICABLE MIL-SPEC FROM ORIGINAL MANUFACTURER. Documentation covering supplies delivered under this order shall include a certification reading substantially as follows: “Material and/or parts furnished on this order have been manufactured and/or processed in accordance with the applicable Military Specification. Objective evidence (qualitative or quantitative) of conformance is on file and is available to NCT on request.” If Supplier is not the manufacturer, Supplier must provide certification from original manufacturer, and/or a Certificate of Conformance that validates the part authenticity, with each shipment hereunder.
S36	RECORD DATA RETENTION (3). A file shall be maintained for a minimum of three (3) years of all records/data pertaining to inspection, test or processing. Such documents shall be readily traceable to items delivered to NCT.
S37	BATCH INFORMATION. Batch Number, Cure Date or Expiration Date of Rubber is required with each shipment hereunder.
S38	MARKING. All goods provided on this procurement shall be marked in accordance with the technical data forming part of this procurement document.
S39	TEST COUPONS. Required with each shipment.
S40	TBD
S41	Certificate of Conformance for Electronic Components: The supplier shall provide a certificate of conformance from the original equipment manufacturer (OEM) or franchised distributor. If the components are procured from a broker or non-authorized distributor, the supplier must provide a certificate of compliance that warrants the components to be new & original (not refurbished, recovered, or reworked) and traceable to the OEM. Electronic components means; resistors, capacitors, inductors, diodes, transistors, FETs, integrated circuits, hybrids, ASICs, wound components and relays.
S42	GOVERNMENT INSPECTION: The Supplier is required to have government inspection prior to shipment. On receipt of this order, promptly contact the government representative who normally services your plant. If no representative services your plant, contact the Buyer for the nearest National Defence Quality Assurance Representative.
S43	NAUTEL SONAR SOURCE INSPECTION: Inspection of the items at the supplier’s facility is required by NCT. The supplier shall provide all necessary inspection data, facilities, equipment and inspection / test personnel to perform the inspection. NCT shall be notified at least five (5) full working days prior to the inspection point. If the Inspection requirement is waived, a copy of the waiver shall be included with the shipping documents. If the inspection is

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	<p>performed, the supplier shall include a copy of the completed source inspection form with the shipping documents. Final acceptance of the product will be at NCT.</p> <p>A. IN-PROCESS INSPECTION: NCT shall perform an In-Process or Pre-Encapsulation Inspection at the supplier's facility. The Supplier shall establish an appropriate point in the process to accomplish this Inspection.</p> <p>B. FINAL INSPECTION/TEST WITNESS: NCT shall perform a final inspection or witness final tests at the supplier's facility.</p>
S44	<p>SUPPLIER MATERIAL REVIEW BOARD (MRB) AUTHORITY: The Supplier has the authority to determine rework MRB / Nonconforming Material (NCM) dispositions (except repair) under this PO for supplier defects that do NOT affect, fit, form, function, cosmetics, or reliability of the High Level Assembly (HLA). All "use as is" or "repair" supplier NCM's shall be sent to NCT for information. NCM's that affect fit, form, function, cosmetics, or reliability of the HLA shall be sent to NCT for approval.</p>
S45	<p>AS-BUILT MATERIAL IDENTIFICATION AND TRACEABILITY: The supplier shall furnish an As-Built Material Identification and Traceability List (P/N, Lot, Date Code, or Batch #) with the first shipment. Subsequent shipments from the same lot, manufactured from the same lot of materials, may reference that the list was sent with the first shipment and they are on file and available upon request.</p>
S46	<p>DYE PENETRANT TEST: The Supplier must perform a dye penetrant test on 5 samples from the batch ordered. Results of this test must be recorded and the samples identified by tag or other means. The samples and test results must be included with each batch shipment.</p>
S47	<p>RADIOGRAPHIC TEST: The Supplier must perform a radiographic examination of samples selected in accordance with MIL-STD-1916, Verification Level 2 from the batch ordered. Results of this examination must be recorded and the samples identified by tag or other means. The samples, examination results and photographic records must be included with each batch shipment.</p>
S48	<p>MERCURY CONTAMINATION: Material supplied to this purchase order shall not contain mercury. Usage of equipment which might cause mercury contamination in the manufacture, fabrication, assembly or test of this material is prohibited. This requirement must be passed on to all subcontractors. The Supplier shall provide certification stating material is free from mercury contamination with each shipment.</p>
S49	<p>CRIMPING PROCESS CONTROL: The supplier shall perform assembler level training and crimp pull tests on crimp contacts and ferrules to ensure that the crimping process meets the pull strength as stated in the manufacturers data sheets, MI or drawing. Evidence of sample crimp pull tests shall be retained on file as part of quality records.</p>
S50	<p>CALIBRATION CERTIFICATE: The vendor shall provide a valid calibration certificate with the test and measurement equipment being purchased.</p>
S51	<p>CALIBRATION TEST REPORT: The vendor shall provide a calibration test report indicating:</p> <ul style="list-style-type: none"> • Before and after measured values • Certificate of traceability • Standards used in calibration and accuracy • Signed certificate of calibration
S52	<p>SPECIAL PACKAGING REQUIREMENTS: This part is extremely fragile, has cosmetic surfaces, critical O-ring, or sealing surfaces that may be easily damaged. Special packaging precautions or re-useable packaging <u>must</u> be used to transport this part to prevent any damage to these parts during shipment.</p>
S53	<p>CABLE ASSEMBLY AND WIRE HARNESS WORKMANSHIP-IPC-A-620: Cables & wire harnesses shall meet the requirements of IPC-A-620, Class 2, including Appendices. The</p>

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PQR #	Specific Part Requirements
	supplier shall provide evidence of inspection to the appropriate standard with each delivered lot.
S53A	CABLE ASSEMBLY AND WIRE HARNESS WORKMANSHIP-IPC-A-620: Cables & wire harnesses shall meet the requirements of IPC-A-620, Class 3 including Appendices. The supplier shall provide evidence of inspection to the appropriate standard with each delivered lot.
S54	FAILURE ANALYSIS: In the event of serious malfunction, unacceptable performance trends, Customer RMA's, lot rejections or NCT line stoppage attributed to product made by the vendor, the vendor shall provide timely failure analysis to identify root cause and implement corrective action.
S55	NO VENDOR QUALITY REQUIREMENTS: The Part requirements were reviewed; there are no special quality clauses applied.
S56	INSURANCE: The supplier shall have \$2m Business Liability Insurance.
S57	WORKMAN'S COMPENSATION: The supplier shall be in good standing with the Ontario WSIB.
S58	SAFETY TRAINING: The supplier staff performing the work shall have the following safety training as applicable: <ul style="list-style-type: none"> • Fall arrest • Scissor Lift • Confined Space • Electrical Lock-out • WHMIS/GHS • First Aid
S59	CONFLICT MINERALS: The supplier shall not directly source or process conflict minerals such as Tin, Tantalum, Tungsten, or Gold, and declare that their products contain such minerals sourced from conflict-free areas.
PQR	NCT Internal Requirements
N1	CERTIFIED PART-ROUTE TO STOCK: This requirement is for NCT receiving only. This part is certified, route directly to stock.
N2	ROUTE TO CALIBRATION: This requirement is for NCT receiving only. Route this item to Calibration.