WORK INSTRUCTION/REV. NO.	***L3SN-OP-W2001-67 Rev A***
TITLE:	***SUPPLIER FIRST ARTICLE INSPECTION (STANDARD REQUIREMENT)***

1.0 SCOPE

This document defines the tasks associated with First Article Inspection (FAI) of products manufactured by Suppliers (hereinafter referred to as Sellers) for L3 Communications, Space & Navigation (L3SN). This is L3SN's standard FAI requirement; as such, it is not formatted in accordance with Aerospace Standard (AS) 9102.

2.0 PURPOSE

First Article Inspection verifies, prior to continued production, that the Seller's quality system, drawings, planning, technical instructions, processing systems and controls, tooling, inspection/test equipment, and level of personnel proficiency will produce a product in compliance with applicable L3SN purchase order, drawing, and/or specification requirements as well as the Seller's own product definitions. The requirements of this document establish a methodology for ensuring compliance with contract requirements prior to delivery of the first unit.

3.0 REFERENCES

L3SN-OP-2001	Supplier Source Selection and Order Placement
L3SN-OP-2003	Evaluation of Procured Material Upon Receipt
L3SN-OP-2004	Verification of Material at Source

4.0 DEFINITIONS

First Article Inspection - A documented verification of compliance to all purchase order, drawing, and specification requirements on a given part or item.

5.0 APPLICABILITY

All tasks specified herein are applicable when a standard First Article Inspection (FAI) is imposed by L3SN purchase order (Quality Clause C15) or other contractual document. L3SN retains the unilateral right to withhold acceptance of Seller's products due to failure to comply with the requirements of this document.

5.1 When FAI is specified in follow-on purchase orders for the same part number, a new FAI is not required unless:

a. Non-clerical Engineering changes have been incorporated in the product
b. A change in the manufacturing facility has occurred
c. A tooling change has occurred

5.2 **Partial FAI** - When subsequent FAIs are required, a partial FAI may be completed (in lieu of a full FAI) to document acceptability of only those attributes or characteristics which have been affected by change.

5.3 **Tooling changes -** Tooling changes include the use of new tools, as well as reworked existing tools. The term "tools" utilized in this context refers to tools that control features, attributes, contours, etc. The term "tools" in this context does not refer to perishable tools, such as drill bits, reamers, cutting tools, etc.

5.4 **Changes to facilities** - This condition includes changes in equipment used for manufacturing, inspection, test, processing, machine set-ups, or tools. This condition also includes relocation of the work from one facility to another and relocation of existing equipment within the same facility or new facility.

6.0 INSPECTION REQUIREMENTS

The Seller shall perform all tasks required by this document. The Seller's FAI shall verify and document the following as may be applicable to each part or assembly requiring inspection (documentation shall be in accordance with paragraph 8 of this document):

6.1 **Use of correct material/parts -** Verification methods may include chemical analysis, certification, or approved material identification markings as applied by the manufacturer required specifications.

6.2 **Dimensional Conformance** - Dimensional conformance to L3SN drawings and specifications shall be verified by actual measurement, and documentation of all dimensions.

6.3 **Special Process Compliance -** Special process requirements invoked by L3SN drawings and/or specifications such as coating, plating, chemical conversion, heat treating, etc., shall be verified by Special Process Certification from a source approved by L3SN for the required special process.

6.4 **Surface Finish Compliance** - Surface finishes, other than finishes accomplished by special process(s) (i.e. coatings, platings, chemical conversions, etc.) shall be verified by comparison to a finish standard. The results shall be documented.

6.5 **Nondestructive Test Compliance -** Nondestructive test requirements invoked by L3SN drawings and/or specifications shall be verified by Nondestructive Test Certification from a source approved by L3SN for the required nondestructive testing.

6.6 **Identification and Marking Compliance -** Identification and marking requirements shall be verified by inspection for proper location, and use of correct materials (i.e. inks,

labels, etc.). The results shall be documented. Use of proper marking materials shall be verified by material certification.

6.7 **Design Specification Compliance** - Design specification compliance shall be verified by tests. The results of the tests shall typically be documented in the Safety of Flight, Qualification, and Life Test reports, as applicable. This verification shall only become a requirement of the First Article Inspection Report (FAIR) when contractually imposed as a requirement for delivery. ***Design specification compliance acceptance by similarity to a like product shall be approved by L3SN in writing, and included as an attachment to the FAIR.***

6.8 **Configuration compliance** - Configuration compliance shall be verified by comparison of L3SN purchase order revision level requirements to the L3SN drawings, and/or specification revision level(s). Record results.

6.9 **Purchase Order Compliance -** All special provisions or conditions identified on the purchase order or in any document made a part of the purchase order by inclusion in the purchase order (i.e. Statement of Work, Memorandum of Agreement, etc.) shall be verified by an appropriate method. The results shall be documented and attached to the FAIR.

6.10 **Functional Test and Acceptance Test Compliance** - Evidence of conformance in this area shall be accomplished by attaching a copy of the L3SN approved functional and/or acceptance test report to the FAIR.

6.11 **Packaging Compliance -** The adequacy of the intended packaging method shall be evaluated and documented as to compliance with the L3SN specified packaging instruction, or procedure. Record results.

6.12 **Drawing Notes Compliance** - All drawing notes shall be verified by an appropriate method. The results shall be documented.

7.0 FIRST ARTICLE INSPECTION METHODS

The choice of methods for performing the FAI is the responsibility of the Seller. The Seller may perform incremental FAIs on detail parts as they are manufactured and continue to gather the FAI reports as the sub-assemblies and assemblies are finished. Seller has the option, alternatively, to choose to perform a teardown FAI on a finished assembly. However, L3SN prefers any method that achieves the intent and requirements of this document without unnecessary expense to the Seller or L3SN.

7.1 ***Seller shall notify the L3SN buyer when FAI is to be performed to allow for L3SN participation at L3SN discretion.***

7.2 It should be noted that, although desirable, it is not mandatory for the Seller to assemble the final assembly completely from the specific detail parts that were measured during the detail FAIs. The records of such FAIs shall be available during the FAI of the sub-assemblies and shall be traceable to the lot of parts from which the measured part was taken. The components used in the designated FAI top assembly shall be from the same lots as the parts represented by the lower level FAI reports.

8.0. DOCUMENTATION REQUIREMENTS

Seller shall document the results of the FAI on the following First Article Inspection Report (FAIR) forms:

FORM No.	TITLE
L21155	First Article Inspection Report Summary
L21156	First Article Inspection Detail Report
L21157	First Article Inspection Discrepancy Report

8.1 The Seller shall make all necessary copies from the master FAIR forms, which are found as Appendix A - C.

8.2 The following preparation guidelines shall be followed:

8.3 First Article Inspection Report Summary (Form # L21155) (See Fig. 1). This Report shall be used to summarize the first article results. All required summary information shall be entered as applicable.

FORM KEY FOR FORM # L21155

1. Name of supplier performing work.
2. L3SN top level part number and revision level under inspection.
3. Date the First Article Inspection was started.
4. Name of part as it appears on top level L3SN drawing.
5. L3SN top level drawing number and revision level (the drawing number will be located in the lower right corner of the title block).
6. Date the First Article Inspection was completed.
7. Indicate number of pages included in the entire First Article Report, including all Summary pages, First Article Inspection Detail Report pages, and First Article Discrepancy Report pages.
8. Supplier top level part number and revision level (if applicable).
9. Serial number of top level part number under inspection (if applicable).

10. L3SN Purchase Order number for L3SN top level part number.
11. Supplier Date Code for top level part number (if applicable).
12. List part numbers of all sub-assemblies and / or procurement specifications that form a part of the top level part number.
13. List the required revision level for the sub-assembly.
14. List the actual revision level to which the sub-assembly was manufactured.
15. List all supplier deliverable data items as specified on the drawing, procurement specification, purchase order, statement of work, memorandum of agreement, or other contract document(s).
16. Indicate the date the data item was delivered to L3SN.
17. List equipment, tools, fixtures, dies used in the production of part number under inspection.
18. List manufacturer of equipment / tools used in the production of part number under inspection.
19. List model number and serial number of equipment / tools used in the production of part number under inspection.
20. List operations / functions the equipment / tools were used to perform.
21. Record of names, signatures, and inspection status appraisal of individuals, who have performed or participated in the First Article Inspection, or who have reviewed the First Article Inspection report, or performed an evaluation of the First Article Inspection Report.

8.4 First Article Inspection Detail Report (Form # L21156) (See Fig. 2). This report shall be used to record the inspection details of the top level part number and the sub-assembly part numbers making up the top level part number. All required information shall be provided as applicable.

FORM KEY FOR FORM # L21156

1. Name of supplier performing work.
2. Part number and revision level of assembly or detail under inspection.
3. Number of pages associated with the particular assembly or detail only.
4. Start date for inspection associated with the particular assembly or detail under inspection.
5. Completion date for inspection associated with the particular assembly or detail under inspection.
6. The name of the assembly or detail part as it appears in the title block of the associated drawing.
7. Indicate assembly or detail for the particular part under inspection.

8. Indicate whether the assembly or detail under inspection is accepted or rejected. If rejected, attach the associated discrepancy report(s) (see fig. 3).
9. Record serial number or lot date of assembly or detail under inspection.
10. Record the method used to accomplish the inspection.
11. Record dimension or attribute being inspected and the tolerance for that dimension or attribute.
12. Record the drawing location of the dimension or attribute being inspected.
13. Record the actual dimension or attribute results from inspection.
14. List all drawing notes and indicate accept if complete, reject if incomplete.
15. List material / substance requirements and indicate accept if complied with, reject if not complied with. Reference material certification attachment.
16. List finish requirements and indicate accept if complied with, reject if not complied with. Reference special process certification attachment.
17. Record hardness requirement and indicate accept if complied with, reject if not complied with. Reference heat-treat certification attachment.
18. Record testing requirement (Electrical, Qualification, Reliability, Acceptance, etc.). Indicate accept if the test has been performed and the results of the test were acceptable; indicate reject if the test was not performed or the results are unacceptable. Reference test results attachment.

8.5 First Article Inspection Discrepancy Report (Form # L21157) (See Fig. 3). This report shall be used to record incidence of non-conformance or discrepancies discovered during the First Article Inspection. All required information shall be provided as applicable. The identification of discrepancies may require the supplier to submit a Supplier Request for Variation (SRV) to L3SN.

FORM KEY FOR FORM # L21157

1. Name of supplier performing work.
2. Part number and revision level of assembly or detail under inspection.
3. Number of pages of discrepancy report for particular assembly or detail.
4. Date discrepancy report was completed.
5. Name of the assembly or detail part as it appears in the title block of the associated drawing.
6. Indicate assembly or detail for the particular part under inspection.
7. Record serial number of assembly / detail exhibiting discrepancy.
8. Record lot date of assembly / detail exhibiting discrepancy.
9. Record, in detail, the nature of the discrepancy discovered during the course of the First Article Inspection.

10. Record proposed corrective action resolution for discrepancy discovered during First Article Inspection.
11. Record proposed effectivity date for the proposed corrective action.
12. Record of names and signatures of supplier and L3SN personnel reviewing and accepting proposed corrective action for noted discrepancy.

8.6 Copies of all test records, certifications, and other substantiating quality data shall be attached to the forms for the applicable detail/subassembly or assembly and shall become an integral part of the FAIR.

8.7 The final FAI report shall include all FAI data sheets for all required details and sub-assemblies. Copies of test records, certifications, and other substantiating data shall also be included as part of the report.

9.0 DISCREPANCIES

During the FAI, non-conformances to drawing, specification, or purchase order requirements may be detected. Non-conformances will preclude acceptance of the affected equipment by L3SN until properly dispositioned.

9.1 Non-conformances, including the rejection and disposition documents, are to be noted on the First Article Inspection Discrepancy Report (see Fig. 3). Corrective action shall be taken to preclude recurrence. The FAI will be considered to be acceptable for delivery of equipment when corrective action has been approved and annotated on the First Article Inspection Discrepancy Report.

9.2 The FAI is not fully complete until all necessary subsequent partial FAIs on details or assemblies are complete and no unapproved non-conformances remain open.

10. 0 APPROVALS

Upon completion of the FAIR the seller shall submit a copy of the report to the buyer for approval and signing by the L3SN Quality Representative as a minimum. The supplier shall then forward a copy of the FAIR signed by the L3SN quality representative with the material to L3SN or other destination specified by the L3SN purchase order.

11.0 RECORD RETENTION

The FAI report, or a copy, shall be retained on file by the Seller and made available upon request and/or provided to L3SN, as required by the purchase order.

Prepared By: _____

Marv Milley
MQA Manager

Approved By:_____

Fred Campbell
Supply Chain Manager

FIRST ARTICLE INSPECTION REPORT SUMMARY

SUPPLIER NAME **1**	L3SN PART NO. REV. **2**	START DATE **3**
PART NAME **4**	DWG. NO. REV. **5**	COMPLETION DATE **6**
PAGE OF **7**	SUPPLIER PART NO. REV. **8**	SERIAL NUMBER **9**
L3SN PURCHASE ORDER # **10**		DATE CODE **11**

SUB-ASSEMBLY PART NUMBERS / PROCUREMENT SPECIFICATIONS

PART NO.	REQUIRED REVISION	ACTUAL REVISION	PART NO.	REQUIRED REVISION	ACTUAL REVISION
12	**13**	**14**			

ATTACH ADDITIONAL SHEETS AS REQUIRED

DATA ITEM(S) RECORD

DATA ITEM (S)	DATE	DATA ITEM (S)	DATE
15	**16**		

ATTACH ADDITIONAL SHEETS AS REQUIRED

MANUFACTURING EQUIPMENT AND TOOL RECORD

EQUIPMENT/TOOL TYPE	MANUFACTURER	MODEL /SERIAL NO.	USED FOR
17	**18**	**19**	**20**

ATTACH ADDITIONAL SHEETS AS REQUIRED

21 INSPECTION STATUS

SUPPLIER QUALITY REP. (PRINT NAME)	SIGNATURE	ACCEPT	REJECT	CONDITIONAL
L3SN QUALITY REP. (PRINT NAME)	SIGNATURE	ACCEPT	REJECT	CONDITIONAL
L3SN ENGINEERING REP. (PRINT NAME)	SIGNATURE	ACCEPT	REJECT	CONDITIONAL
L3SN MFG. REP. (PRINT NAME)	SIGNATURE	ACCEPT	REJECT	CONDITIONAL
CUSTOMER QUALITY REP. (PRINT NAME)	SIGNATURE	ACCEPT	REJECT	CONDITIONAL

Form # L21155 **Figure 1**

FIRST ARTICLE INSPECTION DETAIL REPORT

SUPPLIER NAME	PART NO. REV.	PAGE OF	START DATE	COMPLETION DATE
1	2	3	4	5
PART NAME	**ASSEMBLY DETAIL**	**ACCEPT REJECT**	**SERIAL NO. / LOT DATE**	
6	❑ 7 ❑	❑ 8 ❑	9	

INSPECTION METHOD	ATTRIBUTE & TOLERANCE RANGE	B/P ZONE	ACTUAL	INSPECTION METHOD	ATTRIBUTE & TOLERANCE RANGE	B/P ZONE	ACTUAL
10	11	12	13				

	ACCEPT	REJECT
DRAWING NOTES 14		
MATERIAL 15		
FINISH 16		
HARDNESS 17		
TESTING (ELECTRICAL, QUALIFICATION, RELIABILITY, ACCEPTANCE, ETC.) 18		

Form # L21156

Figure 2

FIRST ARTICLE INSPECTION DISCREPANCY REPORT

SUPPLIER NAME	PART NO. REV.	PAGE OF	DATE
1	2	3	4
PART NAME	**ASSEMBLY DETAIL**	**SERIAL NO**	**LOT DATE**
5	❑ 6 ❑	7.	8

DISCREPANCY:
9

CORRECTIVE ACTION COMMITMENT:
10
EFFECTIVITY: 11

CORRECTIVE ACTION APPROVAL 12

SUPPLIER QUALITY REP. NAME (PRINT)	SUPPLIER QUALITY REP. SIGNATURE	DATE
L3SN QUALITY REP. NAME (PRINT)	L3SN QUALITY REP. SIGNATURE	DATE
L3SN ENGINEERING REP. NAME (PRINT)	L3SN ENGINEERING REP. SIGNATURE	DATE

Form # L21157 **Figure 3**

FIRST ARTICLE INSPECTION REPORT SUMMARY

SUPPLIER NAME	**L3SN PART NO. REV.**	**START DATE**
PART NAME	**DWG. NO. REV.**	**COMPLETION DATE**
PAGE OF	**SUPPLIER PART NO. REV.**	**SERIAL NUMBER**
L3SN PURCHASE ORDER #		**DATE CODE**

SUB-ASSEMBLY PART NUMBERS / PROCUREMENT SPECIFICATIONS

PART NO.	REQUIRED REVISION	ACTUAL REVISION	PART NO.	REQUIRED REVISION	ACTUAL REVISION

ATTACH ADDITIONAL SHEETS AS REQUIRED

DATA ITEM(S) RECORD

DATA ITEM (S)	DATE	DATA ITEM (S)	DATE

ATTACH ADDITIONAL SHEETS AS REQUIRED

MANUFACTURING EQUIPMENT AND TOOL RECORD

EQUIPMENT/TOOL TYPE	MANUFACTURER	MODEL /SERIAL NO.	USED FOR

ATTACH ADDITIONAL SHEETS AS REQUIRED

INSPECTION STATUS

SUPPLIER QUALITY REP. (PRINT NAME)	**SIGNATURE**	**ACCEPT**	**REJECT**	**CONDITIONAL**
L3SN QUALITY REP. (PRINT NAME)	**SIGNATURE**	**ACCEPT**	**REJECT**	**CONDITIONAL**
L3SN ENGINEERING REP. (PRINT NAME)	**SIGNATURE**	**ACCEPT**	**REJECT**	**CONDITIONAL**
L3SN MFG. REP. (PRINT NAME)	**SIGNATURE**	**ACCEPT**	**REJECT**	**CONDITIONAL**
CUSTOMER QUALITY REP. (PRINT NAME)	**SIGNATURE**	**ACCEPT**	**REJECT**	**CONDITIONAL**

Form # L21155 **APPENDIX A**

FIRST ARTICLE INSPECTION DETAIL REPORT

SUPPLIER NAME	PART NO. REV.	PAGE OF	START DATE	COMPLETION DATE

PART NAME	ASSEMBLY ❑	DETAIL ❑	ACCEPT ❑	REJECT ❑	SERIAL NO. / LOT DATE

INSPECTION METHOD	ATTRIBUTE & TOLERANCE RANGE	B/P ZONE	ACTUAL	INSPECTION METHOD	ATTRIBUTE & TOLERANCE RANGE	B/P ZONE	ACTUAL

DRAWING NOTES	ACCEPT	REJECT

MATERIAL	ACCEPT	REJECT

FINISH	ACCEPT	REJECT

HARDNESS	ACCEPT	REJECT

TESTING (ELECTRICAL, QUALIFICATION, RELIABILITY, ACCEPTANCE, ETC.)	ACCEPT	REJECT

Form # L21156 **APPENDIX B**

FIRST ARTICLE INSPECTION DISCREPANCY REPORT

SUPPLIER NAME	PART NO. REV.	PAGE OF	DATE
PART NAME	ASSEMBLY ❑ DETAIL ❑	SERIAL NO.	LOT DATE

DISCREPANCY:

CORRECTIVE ACTION COMMITMENT:
EFFECTIVITY:

CORRECTIVE ACTION APPROVAL

SUPPLIER QUALITY REP. NAME (PRINT)	SUPPLIER QUALITY REP. SIGNATURE	DATE
L3SN QUALITY REP. NAME (PRINT)	L3SN QUALITY REP. SIGNATURE	DATE
L3SN ENGINEERING REP. NAME (PRINT)	L3SN ENGINEERING REP. SIGNATURE	DATE

Form # L21157 **APPENDIX C**