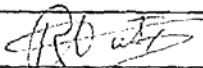
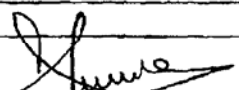
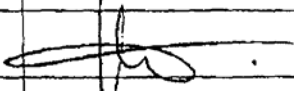
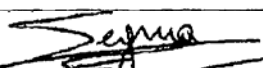
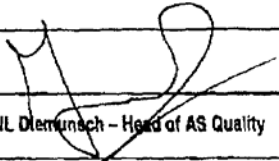


# ASTRIUM Satellites Direct Materials Generic Quality Assurance Requirements for Suppliers

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## **PART I – ENGLISH VERSION**

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## 1 SCOPE

This document applies to all suppliers selected by ASTRIUM Satellites providing flight direct materials and associated services It defines, as listed here after :

Standard Quality Requirements for :

- Accredited Suppliers - in §5
- Non 2<sup>nd</sup> or 3<sup>rd</sup> party Accredited Suppliers - in §6

Additional Requirements for :

- Mechanical Subcontracting Suppliers - in Appendix 1
- Stockists / Distributors – in Appendix 2
- Proprietary Parts Suppliers – in Appendix 3
- Formed Raw Material Suppliers– in Appendix 4
- Printed Circuit Board Suppliers – in Appendix 5
- Test Centres (material & process tests) – in Appendix 6

EADS ASTRIUM DIRECT MATERIAL perimeter :

- ⇒ Mechanical finished or semi-finished products
- ⇒ Machined parts and Mechanical Subcontracting activities
- ⇒ Mechanical product services ( special processes (\*), coating..)
  - \* Special Processes : A process where the conformity of the resulting product cannot be readily or economically verified
- ⇒ Non-mechanical products e.g. adhesives, chemicals, cables, optical..
- ⇒ Raw materials.
- ⇒ Printed Circuit Board non populated
- ⇒ Test Centres (material & process tests) : inspection, destructive analysis, radiation, outgassing ...

## 2 APPLICABILITY

These requirements are applicable to all Direct Material suppliers, including Test Centres on whom Purchase Orders in furtherance of ASTRIUM Satellites work, are placed and are mandatory to the extent stated on the applicable Purchase Order. In the event of any conflict between the requirements of the Purchase Order and this document, the Purchase Order shall have precedence.

The acceptance of the order / contract is worth acceptance of these requirements when this document is mentioned as applicable.

Note : Requirements associated to Product Related Services suppliers and Test Centres for equipments / sub-systems / satellites or EEE are not covered by this document.

## 3 IMPLEMENTATION

Suppliers shall be able to demonstrate quality management systems that are compliant with the relevant requirements outlined herein. Where no such approvals exist, the supplier will be required to fully demonstrate compliance with those requirements outlined herein that are relevant to the scope of work, product and ASTRIUM Satellites deliverables, for which the supplier is contracted by ASTRIUM Satellites.

Implementation of the applicable requirements, shall be through flow down from the ASTRIUM Satellites purchase order. The supplier shall review all applicable sections as part of the order acceptance process and shall advise compliance or non-compliance with reference to both the suppliers internal Quality procedures and to the published Astrium requirements.

These requirements will be also used as the baseline to support internal ASTRIUM Satellites processes for supplier approval/disapproval.

As a general statement, ASTRIUM Satellites Supply Chain and in particular buyers are the only and always the key contacts of a supplier even for transmission of any quality information (e.g. non conformance, alert, obsolescence, changes, source inspection notification, first article inspection (FAI) notification)

## 4 REFERENCES

### 4.1 APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. Unless an issue is quoted for a document, the current issue is deemed to apply. When an issue is quoted, that issue and no other must be used.

[AD1] EN 9100:2003	Aerospace series for Quality management systems
[AD2] EN ISO 9001:2000	Quality System Requirements – Requirements
[AD3] EN 9102	Quality Systems - First Article Inspection
[AD4] EN 9120	Quality management Systems – Requirement for Stockist distributor
[AD5] ISO 17025	General requirements for the competence of testing and calibration

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## 4.2 REFERENCE DOCUMENTS

The publications listed below were used in the preparation of this document, and contain background information relating to the subjects addressed.

[RD1] ECSS-Q-70-22A	Control of limited shelf-life materials
[RD2] ECSS-Q-70-11A	Procurement of printed circuit boards
[RD3] ECSS-Q-20-07A	Quality assurance for test centres
[RD4] ECSS-Q-70-02	Thermal vacuum outgassing test for the screening
[RD5] ECSS-Q-70-10A	Qualification of printed circuit board
[RD6] ST/SG/AC.10/1	Recommendation on the transport of dangerous goods

## DEFINITIONS

**ASTRIUM Satellites Representative** – any person or organisation who has authorisation to act on the behalf of ASTRIUM Satellites : an EADS ASTRIUM company or EADS acting as the parent company of ASTRIUM Satellites (or their successors).

**ASTRIUM Satellites Direct Material Quality** – the department within ASTRIUM Satellites with the direct responsibility to ensure the quality of supplies to ASTRIUM Satellites.

## DIRECT MATERIAL SUPPLIERS:

⇒ **Subcontractor** A vendor who designs and/or makes a product that is specifically to EADS Astrium requirements, usually raised through a subcontract agreement.

⇒ **Supplier** A vendor who supplies standard product (i.e. product that is not EADS Astrium specific), usually through a purchase order. Supplier can be directly the manufacturer

⇒ **Vendor** A generic term for all subcontractors, distributors and suppliers that provide material for processing facilities or services to EADS Astrium.

Note : in the document, the generic term "SUPPLIER" cover also Subcontractor and Vendor

**LOT** : A lot defines a quantity of batches collected together produced according to the procurement specification / documents. Lot is produced w.r.t. its own working order.

**BATCH** : A batch defines a quantity of items which must have been manufactured by a unique industrial process including raw material (i.e. when in an amount of items of the lot, different parts receive a working/treatment in different conditions, these each different part constitutes a different batch of the lot).

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**DEVIATION PERMIT** : permission to depart from the originally specified requirements of a product prior to realization

**WAIVER** : “waiver” is synonymous with the word “concession”. Permission to use or release a product that does not conform to specified requirements

**ALERT** : formal notification to users, informing them of failures or nonconformity of items, already released for use or not, which could also be present on other items already delivered

<b>AIR</b>	Astrium Investigation Request
<b>APL</b>	Authorised Parts List
<b>CAR</b>	Corrective Action Report
<b>CDR</b>	Critical Design Review
<b>CofC</b>	Certificate of Conformance / Certificate of Conformity
<b>DMQ</b>	Direct Materials Quality
<b>ECM</b>	Electro Chemical Machining
<b>ECSS</b>	European Co-operation for Space Standardization
<b>EDM</b>	Electro Discharge Machining
<b>ESA</b>	European Space Agency
<b>FAI</b>	First Article Inspection
<b>FIFO</b>	First In First Out
<b>ISO</b>	International Standards Organisation
<b>LTA</b>	Long Term Agreement
<b>NCR</b>	Non Conformance Report
<b>NDT</b>	Non Destructive Testing
<b>OEM</b>	Original Equipment Manufacturer
<b>OR</b>	Occurrence Report
<b>PCN</b>	Personal Certification Non destructive testing
<b>PDR</b>	Preliminary Design Review
<b>QA</b>	Quality Assurance
<b>RFD</b>	Request For Deviation
<b>RFW</b>	Request for Waiver
<b>SPC</b>	Statistical Process Control
<b>WN</b>	Warning Notice

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## **5 QUALITY ASSURANCE REQUIREMENTS (ALL ACCREDITED SUPPLIERS)**

### **5.1 SCOPE**

Suppliers, who have gained and maintain approval to either EN 9100 [AD1] or at least EN ISO 9001-2000 [AD2] with a recognised accreditation body as appropriate to their business, will be deemed to have a basic Quality Management System acceptable to ASTRIUM Satellites. **The Quality System conditions contained in this procedure are based on the requirements contained within [AD1] or [AD2] with some emphasis and additional references to specific criteria and must therefore be understood and applied to ASTRIUM Satellites purchase order requirements.**

Note : Suppliers / Lower Tiers involved in special processes, with NADCAP accreditation, shall be considered as preferred.

### **5.2 ACCESS**

An ASTRIUM Satellites Representative (accompanied by the customers representative when required), shall be granted access at all reasonable times to the supplier's premises and their subcontractors / lower tiers, quality procedures and/or any internal documents or records relating to the ASTRIUM Satellites purchase order for the purpose of evaluating and monitoring the supplier's conformance to the requirements of this document and ASTRIUM Satellites purchase order conditions (subject to contractual terms and conditions).

### **5.3 FORBIDDEN MATERIALS**

Parts and components containing the following materials in any form are prohibited, except when formally agreed on a case-by-case basis by ASTRIUM Satellites Direct Materials Quality.

- Zinc & Cadmium
- Mercury
- Radioactive material
- Pure tin (electroplated or fused – defined as a material including at least 97% of Sn)
- Polyvinyl chloride (PVC)

For metallic surface finish, Certificate of Conformance shall contain a statement that certifies that no pure tin : both hot dipped and electroplated tin alloys with more than 97% tin, exist either contained within the material or on the surface

Any proposal by the supplier to deviate from this requirement shall be subject a to formal RFD fully justified and demonstrating that the risk associated with the material is of an acceptable level. (see § 5.8.1)

#### **5.4 QUALITY SYSTEM REQUIREMENTS**

The Quality System, established in accordance with the requirements of [AD1] or [AD2] section 4, shall be covered by configured procedures and should be periodically reviewed for effectiveness. Records of the reviews shall be maintained and made available to an ASTRIUM Satellites representative on request.

Verification may be conducted through ASTRIUM Satellites 2<sup>nd</sup> party audits

The supplier shall ensure that their Quality and/or Inspection departments, receive or have direct access to copies of ASTRIUM Satellites purchase orders and specifications / drawings as appropriate.

**Under no circumstances, shall verbal instructions from ASTRIUM Satellites be accepted which may change any aspect of the purchase order or drawing requirements, regardless of origin. All changes are to be detailed in writing and may for expediency be forwarded by fax, e-mail or any electronic support. .**

#### **5.5 CONTRACT REVIEW**

The supplier shall have a documented system for reviewing the purchase orders placed upon them and the methods of resolving any anomalies arising from the order.

Upon completion of the contract review, with any queries resolved, the supplier shall formally acknowledge acceptance of the ASTRIUM Satellites purchase order by signing and returning the purchase order acknowledgement to the relevant ASTRIUM Satellites Buyer.

Recall : It is the responsibility of the supplier to analyse and extract requirements and key characteristics that must be flow down to lower-tiers in accordance with § 7.4.2 (h) EN 9100 [AD1].

#### **5.6 DOCUMENT CONTROL**

The supplier shall maintain a system to record, acknowledge and control the receipt of drawings, specifications, instructions and electronic media with their references and associated issues.

#### **5.7 PURCHASING OF GOODS AND/OR SERVICES FROM LOWER TIER SUPPLIERS**

Suppliers purchasing services or goods in support of an ASTRIUM Satellites purchase order, shall follow requirements identified in EN 9100 § 7.4 [AD1].

When necessary, the supplier must define packaging, handling and storage conditions in adequacy with the end product.

## **5.8 CONTROL OF NON-CONFORMING PRODUCT**

The product shall be fully compliant with ASTRIUM Satellites requirements.

Should there be any deviation, the supplier shall notify ASTRIUM Satellites immediately with a preliminary formalised assessment, for treatment. ASTRIUM Satellites shall be entitled to accept or not this deviation.

### **5.8.1 Deviations**

Authorisation to deviate from the ASTRIUM Satellites drawing, specification or purchase order may be granted in advance of manufacture : identified at request for quotation review, and notified with the purchase order acknowledgement, by use of a request for deviation (RFD). Application for a deviation request shall be as for a waiver. When approved, the identification of the parts and recording requirements are as for an approved waiver.

### **5.8.2 Waivers**

Any item, which deviates from the requirements of the drawing or purchase order in any respect, shall be considered "non-conforming". Items shall not be salvaged or re-claimed. unless authorised by a request for waiver (RFW) or NCR approved by ASTRIUM Satellites Quality Assurance

Non-conforming parts may be submitted for waiver on a Request for Waiver application form, or alternatively Non conformance report, on the suppliers own format, provided that this has been accepted by ASTRIUM Satellites Quality Assurance. Applications for the consideration of a waiver/NCR must be addressed to the ASTRIUM Satellites buyer for formal approval at the earliest available opportunity subject to operational constraints but without exceeding 5 working days..

When a waiver is approved by ASTRIUM Satellites, the non-conforming parts shall be clearly identified with the waiver number, which shall be recorded on release documentation when being delivered to ASTRIUM Satellites. A copy of the final approved waiver shall accompany the release documentation.

## **5.9 PROCESSING OF NON-CONFORMING PRODUCT ON RECEIPT AT EADS ASTRIUM**

Non-conforming product found at ASTRIUM Satellites will be the subject of an Occurrence Report (OR) and potential EADS Astrium reject note. Any non-conforming part returned to the supplier shall not be re-submitted without reference being made to the original rejection, together with a completed Corrective Action Report (CAR), when requested by ASTRIUM Satellites Direct Material Quality, detailing the action to avoid recurrence of the deficiency.

Non-conforming parts that are deemed beyond economical repair, or otherwise scrapped shall be disposed of, such that they can NEVER be salvaged or made to appear fit for purpose.

## 5.10 PREVENTATIVE AND CURATIVE ACTIONS

For rejected product, the supplier shall be required to complete a Corrective Action Report (CAR) when deemed necessary by ASTRIUM Satellites Direct Material Quality and forward to ASTRIUM Satellites Direct Material Quality department within fourteen (14) calendar days, or agree another mutually acceptable date dependant on the complexity of the issue.

## 5.11 RELEASE CERTIFICATION PROCEDURE

All supplies delivered to ASTRIUM Satellites shall be accompanied by a recognised certificate of conformity (C of C) to ASTRIUM Satellites requirements.

Unless otherwise agreed by ASTRIUM Satellites Supplier Quality, a C of C shall:

- State the company name and company registration details (including registered office address and company registration number);
- State "Certificate of Conformance" or "Certificate of Conformity";
- Be uniquely numbered;
- List the items covered by clearly;
  - identifying the ASTRIUM Satellites Purchase Order reference (including line number);
  - providing a description of the items including the ASTRIUM Satellites part number (where applicable);
  - identify the quantity delivered;
  - quoting any specifications, standards or drawings along with the issue number that are applicable;
  - stating serial number(s), batch If split batches, then each batch is required as a separate entry;
  - stating shelf life details, if appropriate, and storage conditions
  - making any additional remarks applicable to the item (e.g. waiver or deviation reference number, FAI number etc);
  - states the reference number of the C of C from any applicable 2<sup>nd</sup> tier suppliers or OEM's with copies supplied .
- Contain a statement that certifies that the items conform in all aspects to the requirements of the purchase order or contract and where applicable certifies conformance to any specifications quoted
- Contain a statement that, for metallic surface finish, certifies that no pure tin : both hot dipped and electroplated tin alloys with more than 97% tin, exist either contained within the material or on the surface
- State any third party quality related approvals in support of delivered product including registration numbers where applicable.

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The certificate shall be signed by the supplier's Quality Manager or their authorised representatives.

In the case of make-to-print items, the certificate shall contain particulars, which will provide traceability both to work carried out and to the original source of manufacture. This includes the source of self-procured materiel, raw materials, lower tier machining, processing, NDT, proprietary and standard parts. "Release certification" from the supplier's sources should be readily available for review as required by ASTRIUM Satellites Direct Material Quality. This maybe achieved by a unique job or works number.

## **5.12 HANDLING, STORAGE, PACKAGING AND DELIVERY / TRANSPORTATION**

The supplier shall ensure that adequate Quality Control of packaging is exercised , and compliant to EADS ASTRIUM requirements, when specified in a dedicated procurement specification, so as to achieve correct identification and that subsequent delivery is free from damage, corrosion or other forms of deterioration.

Where products are subject to 'limited life' control, they shall be marked to indicate date(s) of manufacture, cure and / or life expiry, etc. as appropriate..

Where limited life items are supplied individually, or in kits, no more than 25% of life, shall have expired at the date of delivery to ASTRIUM Satellites, unless different requirements are identified in the detailed procurement specification / document.

When ASTRIUM Satellites stock is maintained at supplier level, regular communication on remaining quantity and shelf life shall be done.

Any specific storage condition, e.g. low temperature, shall be clearly identified on the external package and shall be also applied and guaranty during transportation.

Each individual package shall be univocally identified by a durable and legible external marking indicating the product denomination, quantity, batch identification, manufacturer, product conformance report as and date of packing.

## **5.13 QUALITY RECORDS**

The supplier shall establish and maintain procedures for identification, collection, indexing, filing, storage, maintenance and disposition of Quality records in support of ASTRIUM Satellites purchase orders in accordance to §4.2 of [AD1] or [AD2].

Retention times for these records shall be as follows:

- Manufacturing, inspection and test results, raw material test results and constituent analysis reports, records, minimum period of ten (10) years otherwise differently specified.
- Records associated with product design and certification ten (10) years

The supplier shall refer to ASTRIUM Satellites Direct Material Quality department if such records cannot be retained as required. In the event of termination of the contract or insolvency, all Quality records applicable to the purchase order / contract must be surrendered to ASTRIUM Satellites Direct Material Quality department.

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#### **5.14 STATISTICAL PROCESS CONTROL (SPC)**

When SPC is a requirement of the drawing, purchase order or procurement specification the supplier must submit to ASTRIUM Satellites Direct Material Quality a written procedure for approval.

#### **5.15 CHANGES**

The Supplier shall implement a configuration system to manage any change including lower tiers activities, as defined in § 7.5.1.2 in [AD1].

Major changes to be considered :

- a. Design methodology changes.
- b. Fabrication process changes including operator ( when applicable – operator dependant)
- c. Formulation / properties changes
- d. Assembly process changes including operator ( when applicable – operator dependant)
- e. Package changes.
- f. Test facility changes.
- g. Location changes to fabrication, assembly, test, and qualification.

Such changes with regard to previous orders / deliveries shall be reported to ASTRIUM via a formal request. ASTRIUM can ask for a dedicated review/audit. If a supplier implemented change affects the qualification status, then a new qualification or a delta qualification activity may be required to be undertaken under the responsibility of the Supplier dependant on the qualification status of the product involved.

New qualification or a delta qualification plan shall be submitted to ASTRIUM Satellites for formal approval

#### **5.16 CLEANLINESS**

The risks of chemical or particle pollution generated by parts, materials or processes used shall be identified and reduced in accordance with procurement requirements, when applicable.

All elements manufactured shall be the object of a cleaning process, before they are packaged for delivery.

#### **5.17 OUTGASSING AND OFFGASSING**

In accordance with outgassing / offgassing requirements / constraints due to space environment, ASTRIUM Satellites reserve the right to request information or test, to the manufacturer/supplier.

When identified in ASTRIUM Satellites procurement specifications / documents, on products / substances, manufacturer / suppliers shall propose a test plan in accordance with tests methods [RD4] unless otherwise agreed.

If necessary, ASTRIUM Satellites could provide technical support or expertise.

### **5.18 TRACEABILITY & LOT / BATCH REQUIREMENTS**

The supplier shall identify all the products manufactured as well as the destination (delivery, scrap) in compliance with § 7.5.3 of EN 9100 [AD1]. This include associated raw material and all processes / procedures / reports, even if subcontracted or delegated to lower tiers.

When possible the items delivered according to the procurement specification / document shall be from a single manufactured batch in term of the material and/or treatment.

Note : If lot is made up several batches, full traceability must be ensured to retrieve sequential record of its production (manufacture, assembly, inspection).

### **5.19 ALERT ISSUES**

Supplier shall provide information to ASTRIUM Satellites about potential alerts (internal and external) in respect of product affected by the purchase order.

### **5.20 ASTRIUM SATELLITES SOURCE INSPECTION**

When required by ASTRIUM Satellites, source inspection e.g. visual inspection of piece parts, intermediate assembly, final inspection before delivery, will be carried out by an ASTRIUM Satellites representative as per purchase order / contract.

Relevant quality records (depending of the step defined) shall be made available during the inspection including, but not limited to, the following;

- ASTRIUM Satellites purchase order.
- Applicable drawings and specifications.
- Manufacturing traveller/route card.
- Associated further processing release documentation.
- Purchase orders and flowed down requirements on lower tier suppliers.
- Results of any testing including coupons and samples.
- The lower tiers / supplier's release certification.

Note: ASTRIUM Satellites source inspection is not a replacement for any supplier's own inspection activity.

### **5.21 FIRST ARTICLE INSPECTION (FAI)**

FAI shall be performed to ensure that the manufacturing process is capable of producing parts in series to specification, in accordance with [AD3]. The FAI shall be applied as follows:

- On the first batch of component parts, which have not been previously manufactured by the supplier.
- When there is a change to the manufacturing method or process.
- At the specific request of the purchase order.

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FAI of a component part will be 100% checked for all features and parameters, that are contained within the drawing and associated specifications.

ASTRIUM Satellites , shall be informed 5 working days in advance of the presentation, and reserve the right to participate to the FAI with their customer. At this FAI, features or details of parts may be re-checked..

The component part, against which the FAI was conducted, shall be supplied to ASTRIUM Satellites as follows:

- Identified with a suitable label.
- Supplied complete with certificates of conformity for the raw material and any lower tier processes.
- Tabulated dimensional findings, test results and other features with reference to the actual drawing / specification requirement on a FAI inspection report, or on a report of the suppliers own format.

## **5.22 WORKMANSHIP**

Any products shall be free from burrs, tool marks, scale, and other surface defects and contaminants.

They shall be handled and packed in order to prevent mechanical damage and contamination (e.g. from PVC or fibreboard) during storage and transportation.

- ⇒ Any items from the same batch shall be packed in unit packages.
- ⇒ No protective lubricants or substances shall be applied unless otherwise specified in the ASTRIUM Satellites specification document.

### **5.22.1 New Manufacture**

All products delivered shall be new manufacture. No reworking shall be carried out without prior written authorisation from ASTRIUM Satellites.

## **5.23 WARRANTY OF LIFE**

All goods supplied shall be new and unused. Surplus, re-worked, re-claimed, re-manufactured goods shall not be supplied without prior approval by ASTRIUM Satellites Supplier Quality Assurance for each individual item or batch of items.

## **5.24 SAFETY DATA SHEET**

For chemical products, the last update Material Safety Data Sheet shall be supplied with every delivery. Each time the MSDS is updated, it shall explicitly appear. The MSDS will be written in the language of the consignee country and compliant to European directive REACH Regulation EN N°1907/2006 annex II

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## **6 ADDITIONAL QA REQUIREMENTS FOR NON 2<sup>ND</sup> OR 3<sup>RD</sup> PARTY ACCREDITED SUPPLIERS**

### **6.1 SCOPE**

The following requirements are applicable to a supplier whose Quality system is not certified to EN 9100 [AD1], ISO 9001:2000 (AD2), but are considered sufficient to control the service required after ASTRIUM Satellites preliminary investigation. An approval, based on the minimum requirements shown below, will only be awarded to the supplier after an audit by ASTRIUM Satellites.

This approval may be enhanced to include other controls as and when considered necessary including key requirements identified in Appendix 1 to 5

**Note : Stockist distributor that are not EN 9120 certified shall not be considered.**

### **6.2 PROCESS / DOMAIN**

During audit, in addition to Quality Management System review based on EN 9100 template, process / domain linked to supplies against ASTRIUM Satellites request shall be reviewed, in order to determine:

- ⇒ Manufacturer / Supplier capabilities
- ⇒ Facilities and Expertise
- ⇒ Skills and State of the Art
- ⇒ Production control

#### **6.2.1 Quality Management system**

The supplier organisation shall establish, document, implement and maintain a minimum quality management system to cover :

- control of documents
- management of customer requirements and orders
- necessary competence for personnel performing work affecting product quality
- design and development of products
- purchasing process
- production processes
- process control to ensure monitoring and measurement to provide evidence of conformity

#### **6.2.2 Traceability**

- See § 5.18

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### **6.2.3 Verification of purchased product**

The supplier organization shall establish and implement the inspection and other activities for ensuring that purchased product meets specified purchase requirements. Evidence of the quality of the product supplies (e.g. accompanying documentation, certificate of conformity.. must be verified.

### **6.2.4 Non Conformance**

- See § 5.9 ; § 5.10

### **6.2.5 Identification and management of Changes**

- See § 5.15

### **6.2.6 Lower tiers**

The supplier organisation shall establish and demonstrate that all requirements defined in this specification are really flowed down to any Lower Tiers involved in the products procured through the ASTRIUM Purchase Order.

Direct Material Suppliers shall evaluate and select lower tiers based on their ability to supply / manufacture / process.... in accordance with Astrium stated requirements. Criteria for selection shall be established, and records of the results and any actions arising presented to ASTRIUM Satellites during audit.

ASTRIUM Satellites, reserves the right to audit any lower tiers proposed, involved in product/services procured through the ASTRIUM Purchase order.

### **6.2.7 Forbidden Material**

- See § 5.3

### **6.2.8 Release certification procedure**

As a minimum, all supplies shall be accompanied by a Certificate of Conformance that contain

- a statement that certifies that the items conform in all aspects to the requirements of the purchase order.
- a statement that, for metallic surface finish, certifies that no pure tin : both hot dipped and electroplated tin alloys with more than 97% tin, exist either contained within the material or on the surface

### **6.2.9 First article inspection**

- See § 5.21

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## **APPENDIX 1 - ADDITIONAL QA REQUIREMENTS FOR MECHANICAL SUBCONTRACTING SUPPLIERS**

### **A1-1 SCOPE**

A Mechanical subcontracting source is defined as a supplier who provides a service, manufacturing component parts, sub-assemblies or unit assemblies, including processing and testing within its own facility or at an approved lower tier source, to drawings and test plans / specifications supplied by ASTRIUM Satellites, as the design authority or on behalf of a design authority.

### **A1-2 RELEASE OF PARTS MANUFACTURED FROM SELF PROCURED MATERIAL**

In addition to the requirements identified in section 5.11 the supplier's certificate of conformity shall:

- Specify the source of material and, NDT when applicable,
- Include a copy of material certificate of conformity.
- Provide confirmation of the raw material heat treatment condition.

Note:

- a) Where material has been procured in a different heat treatment condition to that of the final supply, full heat treatment history shall be provided, including ageing details. Split batches shall not be co-mingled if they were split before final heat treatment.
- b) ASTRIUM Satellites reserve the right to request and approve any NDT procedure

The supplier shall ensure that where required, the following information is marked on all parts at a location and method as specified on the drawing:

- Part number and issue.
- Traceability number (All parts shall be uniquely traceable to both the raw material used and the manufacturing history of the part)
- Other identification required by drawing.

### **A1-3 LOWER TIERS USED FOR ANY SURFACE TREATMENT**

The mechanical subcontracting supplier who intends to propose or complies with surface treatment request, subcontracted to a lower tiers, shall provide :

- the whole list of lower tiers approved for the considered treatments
- associated ISO 9001 / EN 9100 certificate and scope of approval
- Reference of process and associated procedure / standard requested and/or agreed
- proof of capability/skill/background

Note : NADCAP accreditations shall be considered as a plus

## **APPENDIX 2 - ADDITIONAL QA REQUIREMENTS FOR STOCKIST DISTRIBUTORS**

### **A2-1 SCOPE**

Stockist distributors : organization carrying out the purchase, storage, splitting and sale of products without affecting product conformance.

- Raw material ( metallic or non metallic)
- Standard parts based on national / international standards
- Proprietary parts as selling agent for a manufacturer

The original raw material shall be obtained only from accredited sources

Stockist distributors shall have gained and maintained approval to EN 9120 [AD4], with a recognised accreditation body

Stockist distributor shall not have the right to subcontract any surface treatment to lower tiers without ASTRIUM Satellites formal authorisation based on :

- the whole list of lower tiers approved
- associated ISO 9001 / EN 9100 certificate and scope of approval
- Reference of process and associated procedure / standard requested and/or agreed
- proof of capability/skill/background (note : NADCAP accreditations shall be considered as a plus)

### **A2-2 TRACEABILITY**

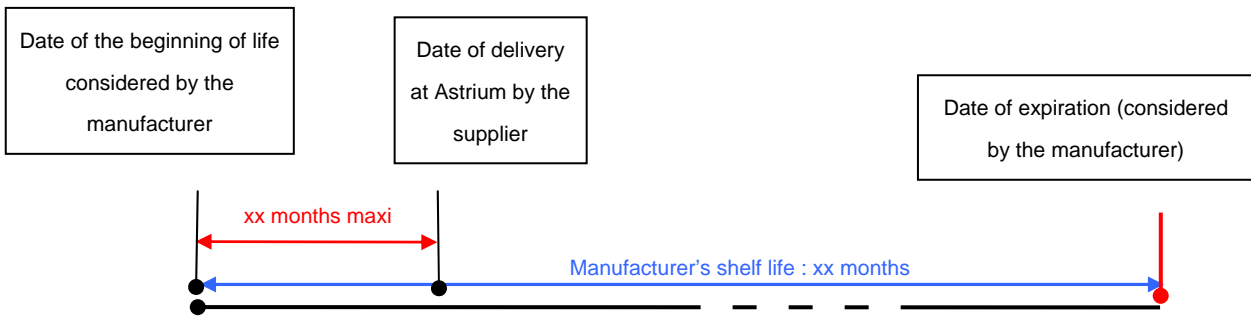
Traceability of casting, supplier/manufacturer, product reference shall be available and delivered with copy of CoC and test / control certificates. All Standard parts delivered to ASTRIUM Satellites shall be accompanied by the stockist distributor's certificate of conformity, which must make direct reference to the original source of manufacture and provide unbroken traceability by virtue of a batch number or equivalent.

ASTRIUM Satellites shall have, on request, access to all documentation relating to the original sources of manufacture and reserve the right to audit those sources by appointment.

**A2-3 SHELF LIFE**

Manufacturer of non-metallic raw materials shall indicate any applicable shelf life and expiry date limitations on their certificate of conformity, and on all containers and/or packages.

The following figure illustrates the delivery time requirement applicable to the supplier and the shelf life requirement applicable to the manufacturer :



**Life of material**

Requested duration are specified, if any, in procurement specification / documents.

Suppliers shall ensure that there is at least seventy five percent (75%) of the applicable shelf life remaining unless otherwise specified on the ASTRIUM Satellites purchase order or in procurement specification. Extension of shelf life (re-certification) is not authorised.

**A2-4 REWORKING OF RAW MATERIAL**

No reworking that may affect the finished item, shall be carried out without prior written authority from ASTRIUM Satellites Supplier Quality Assurance.

**APPENDIX 3 - ADDITIONAL QA REQUIREMENTS FOR PROPRIETARY PART SUPPLIERS**

**A3-1 SCOPE**

A manufacturer of proprietary products is a supplier whose products are of his own design to a declared specification and performance.

A supplier of a controlled item, is a supplier whose specification is defined by varying degrees by both the manufacturers own design documents and by technical specification issued by ASTRIUM Satellites. A controlled item is to be supplied in accordance with the suppliers description and part number and specification defined by ASTRIUM Satellites.

**A3-2 PROPRIETARY PRODUCTS**

Should the manufacturer of a proprietary product wish to change the design or performance against the specification, and that change affects the requirements of the ASTRIUM Satellites purchase order / contract, the proposed change must be submitted to ASTRIUM Satellites for approval.

**A3-3 CONTROLLED ITEMS**

Controlled items must be designed and manufactured in accordance with ASTRIUM Satellites procurement specifications and purchase orders.

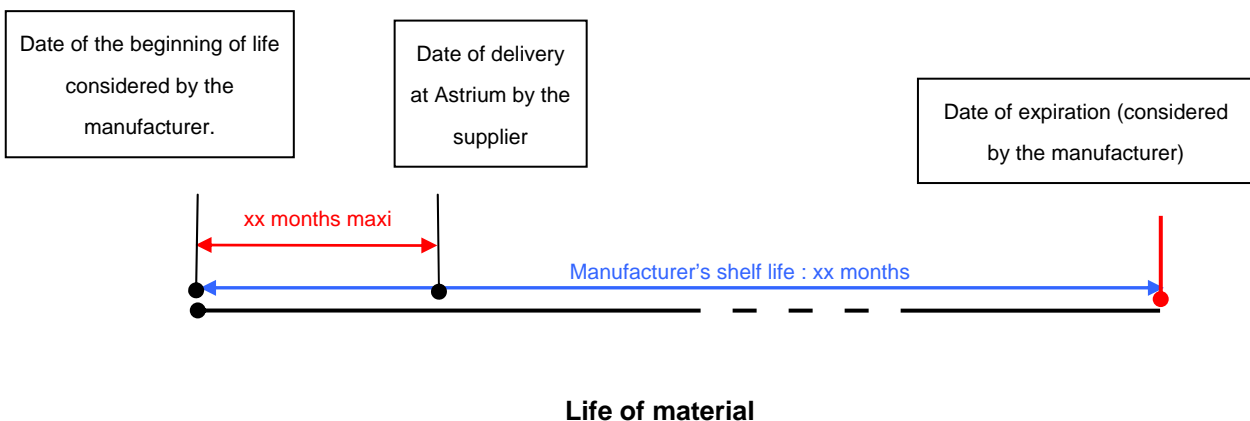
When requested by ASTRIUM Satellites, the manufacturer of controlled items shall make available, results of his own in house inspection and testing.

**A3-3.1 Non- Mechanical ( Adhesive – Chemical..) shelf life**

Any applicable shelf life and expiry date limitations must be indicated on certificate of conformity, and on all containers and/or packages.

Requested duration are specified, if any, in procurement specification / documents.

The following figure illustrates the delivery time requirement applicable to the supplier and the shelf life requirement applicable to the manufacturer :



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Manufacturers shall ensure that there is at least seventy five percent (75%) of the applicable shelf life remaining unless otherwise specified on the ASTRIUM Satellites purchase order or in procurement specification. Extension of shelf life (re-certification) is not authorised.

### **A3-3.2 Pyrotechnic**

#### Identification and Marking

- Pyrotechnic devices shall be delivered with colour coding for visual identification of the nature of the item according to ST/SG/AC 10/1 [RD6] : Recommendation on the Transport of Dangerous Goods
- All elements used in the subsystem shall fulfil the requirements on traceability
- The marking on the elements shall not be removable by the action of solvents or to the environmental conditions

#### Transportation

Pyrotechnic devices transportation shall follow ST/SG/AC 10/1 [RD6] rules : Recommendation on the Transport of Dangerous Goods

#### Shelf life

Manufacturers of pyrotechnic devices shall indicate any applicable shelf life and expiry date limitations on their certificate of conformity, and on all containers and/or packages.

#### Storage

Manufacturers of pyrotechnic devices shall indicate any applicable storage requirements on their certificate of conformity, and on all containers and/or packages.

## **APPENDIX 4 - ADDITIONAL QA REQUIREMENTS FOR SUPPLIERS OF FORMED RAW MATERIAL**

### **A4-1 SCOPE**

A supplier of formed raw material is defined as:

- A forge, producing forgings and stampings from basic forging stock.
- A foundry, producing castings or cast bars from basic raw materials.
- A mill, producing ingots, rolled, forged or extruded sections.

### **A4-2 CONTROL OF RAW MATERIAL**

The original raw material shall be obtained only from accredited sources

All material obtained by the supplier for re-working i.e. billets for forging, shall be supported by documentation confirming the material specification and analyses of chemical and mechanical properties.

ASTRIUM Satellites reserve the right to request and approve any NDT procedure.

### **A4-3 QUALITY ASSURANCE OF INITIAL DELIVERIES**

First Article Inspection (FAI) shall be performed to ensure that the manufacturing process is capable of producing parts in series to specification, in accordance with [AD3]. The FAI shall be applied as follows:

- On the first batch of component parts, which have not been previously manufactured by the supplier.
- When there is a change to the manufacturing method or process.
- At the specific request of the purchase order.

FAI of a component part will be 100% checked for all features and parameters, that are contained within the drawing and associated specifications. The component part, against which the FAI was conducted, shall be supplied to ASTRIUM Satellites as follows:

- Identified with a suitable label.
- Supplied complete with certificates of conformity for the raw material and any lower tier processes.
- Tabulated dimensional findings, test results and other features with reference to the actual drawing / specification requirement on a FAI inspection report, or on a report of the suppliers own format.

ASTRIUM Satellites Supplier Quality, reserve the right to participate in the FAI with their customer. At this FAI, features or details of parts may be re-checked. In this case, advance notification shall be given

### **A4-4 CONTROL OF PROCESSING**

Where ASTRIUM Satellites specifications are invoked for heat treatment, NDT and metallurgic functions, only facilities approved by ASTRIUM Satellites for that particular process, shall be used.

NADCAP accreditation shall be considered as a plus, if in accordance with ASTRIUM Satellites requirements.

Weld repair of castings and forgings is forbidden.

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## **APPENDIX 5 - ADDITIONAL QA REQUIREMENTS FOR FLIGHT PRINTED CIRCUIT BOARD SUPPLIERS**

### **A5-1 SCOPE**

A flight PCB supplier recognised by ASTRIUM Satellites shall be formally part of the ESA Approved PCB Manufacturer list.

### **A5-2 MANUFACTURING**

Qualification model and Flight model PCBs shall be manufactured according to the PID ( process identification Document) agreed by ESA.

Qualified domains are identified in the PID ( design rules, materials and processes)

### **A5-3 NON-ESA QUALIFIED MANUFACTURERS**

MIL qualified manufacturer can be considered only after review of qualified domain and ASTRIUM in house qualification based on ECSS-Q-70-10A [RD5] group 1.2, 3, 4 and 5 minimum or IPC-TM-650

### **A5-4 PROCUREMENT**

The engineering drawing will define the appropriate material details, its specification and the standard of board manufacture required.

The minimum applicable requirements are those defined in ECSS Q 70-11A [RD2] or IPC-A-600-G Class 3 if criteria domain are not covered by ECSS standard.

#### **A5-4.1 Specific Requirement**

Thermal shocks and rework soldering simulation in accordance with ECSS-Q-70-10A § 10 [RD5] on test coupons connected to micro-section examination ( ECSS-Q-70-11 A § 8.2 ) are required

Reworks : Warp and twist reworks are forbidden

### **A5-5 CUSTOMER ACCEPTANCE**

The minimum applicable requirements are those defined in ECSS Q 70-11A [RD2] and Visual inspection shall be performed in accordance with ECSS Q 70-11A [RD2] A.1.1 and A.1.2.

### **A5-6 DELIVERY REQUIREMENTS**

As a minimum, requirements of ECSS-Q-70-11A [RD2] shall be applied.

## **APPENDIX 6 - ADDITIONAL QA REQUIREMENTS FOR TEST CENTRES (MATERIAL & PROCESS TESTS)**

### **A6-1 ASTRIUM ACCREDITED TEST CENTRES**

ASTRIUM Satellites approval will be granted to Test Centres holding ISO 17025 [AD 5] accreditation for a specified service linked to Direct Material products only (material & process tests).

### **A6-2 NON-ASTRIUM ACCREDITED TEST CENTRES**

The following requirements are applicable to a Test Centre who are not certified to ISO 17025 [AD5], but are considered sufficient to control the service required after preliminary investigation. An approval, based on the minimum requirements shown below, will only be awarded to the supplier after an audit by ASTRIUM Satellites based on ECSS Q 20-07A [RD3]

Note: Accredited Test Centres operating outside of their scope of approval shall be regarded as non-approved.

### **A6-3 DOMAIN**

During audit, in addition to Quality Management System review, domain linked to supplies against ASTRIUM Satellites request shall be reviewed, in order to determine :

- ⇒ Supplier capabilities
- ⇒ Facilities and Expertise
- ⇒ Skills and State of the Art
- ⇒ Test process control & realization

### **A6-4 MINIMUM QUALITY REQUIREMENTS**

#### **A6-4.1 Quality Management system**

The supplier organisation shall establish, document, implement and maintain a minimum quality management system to cover :

- control of documents
- management of customer requirements and orders
- necessary competence for personnel performing work affecting product quality
- Infrastructure and work environment
- Test process
- Safety and security process
- calibration and maintenance control

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**A6-4.2 Traceability**

The supplier shall identify all the customer-supplied items and shall retained throughout all the subsequent stages of work to ensure continued configuration control

**A6-4.3 Cleanliness and Contamination**

The test centre shall implement a plan for cleanliness control of the facility that sets out the ways in which it is intended to achieve, to measure and to maintain the required cleanliness levels throughout the testing, handling and the storage of the test equipment and its ground support equipment (GSE) at the test site in compliance § 6.3.3 of ECSS Q 20-07A [RD3]

**A6-4.4 Identification and management of Changes**

The Supplier shall implement a configuration system to manage any change e.g; tool, test equipment, test program., . Such changes shall be reported to ASTRIUM via a formal request. ASTRIUM can ask for a dedicated review/audit. If a supplier implemented change affects the qualification status, then a new qualification or a delta qualification activity may be required to be undertaken under the responsibility of the Supplier dependant on the qualification status of the product involved.

**A6-4.5 Release certification procedure**

As a minimum, test centre shall ensure that all tests are adequately and suitably documented in the test report delivered in compliance with § 7.5.1 of ECSS Q 20-07A [RD3]

**A6-4.6 Handling, storage, transportation, preservation and delivery**

The test centre shall implement and maintain documented procedures, in agreement with the customer, engineering and quality assurance, which cover the safe handling, storage, transportation, preservation and delivery to the test centre of the test specimen and associated test equipment, while maintaining the required environmental conditions and taking into consideration all safety and security aspects in compliance with § 7.5.5 of ECSS Q 20-07A [RD3]

**A6-4.7 Safety and security**

The test centre, in cooperation with safety assurance, shall define and implement a safety programme to assure the safety of all personnel as well as the customer, the test specimen and the test facilities

The test centre shall define and implement a system for security and access control to restricted areas, such as clean rooms and all areas where test specimens or hazardous items are stored, handled or tested.

**A6-4.8 Maintenance control**

The test centre shall establish a maintenance plan for buildings, test facilities, test equipment and related software. The plan shall include the kind and the extent of activities, resources needed as well as planning of dates of performance.

Records of the performance of the maintenance activities shall be kept.

**PART II – VERSION FRANCAISE**

**See ADS.F.0570**

## **PART III – DEUTSCHE VERSION**

**See ADS.D.0570**

**CHANGE RECORD**

<b>ISSUE</b>	<b>DATE</b>	<b>CHANGE</b>
1 dft 0	28/05/07	First Is 1 draft0, on ADS Reference, based on R. Wallace Is 0 draft F New Owner - § 7 about EEE removed ; updated doc
1 dft 1	10/08/07	Update dft based on feedback DMQ ; M&P ; MDO ; FP
1	21/01/08	1 <sup>st</sup> issue

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