

**TEAMS**

**WILBUR Y ORVILLE WRIGHT**  
**41309 LA RINCONADA**  
**Spain**

**FOR THE ATTENTION OF**

Carlos ARELLANO VERA Structural Laboratory Manager  
Esther GARCIA DEL CASTILLO Laboratory Manager (CEO)  
Diana MORERA Quality assurance manager

**CERTIFICATE PREPARED BY**  
NUNEZ Cesar

**YOUR QUALITY RESPONSIBLE DEPUTY**  
NUNEZ Cesar

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**DATE**  
04/07/2017

**OUR REFERENCE**  
SUR2017.0148 Ind. B

**ARP-ID of the External Shop**  
277364

**TYPE of External Shop**  
Independent

**Attestation letter for Qualification on Test Methods**

Dear Madam, Dear Sir,

We herewith inform that the couples <Test Methods / External Shop> as detailed in the Appendix have been either registered or modified in the Official Airbus Qualified Test Methods List (QTML) Database.

The latest valid status of all qualified <Test Methods / External Shop> couples is published by regular QTML reports:

- On Airbus homepage for Suppliers (<http://www.airbus.com/tools/airbusfor/suppliers/>) - Only Independent Labs.
- On Airbus Supply Portal A2QS - All External Shops.

A qualified couple is not linked to a specific product. It is the proof that the External Shop is meeting the requirement of the AP5262: Qualification Process of Couples <Test Method / External Shop>.

We remind you that the maintenance of your Test Methods Qualification depends on your monitoring on quality and technical aspects and is surveyed by Airbus on a regular basis, every year or every 2 years.

- On a quality aspect: we kindly ask you to indicate us any modification which could have a quality impact.
- Concerning technical requirements:
  - \* We kindly ask you to participate at least every 2 years to the PTP organized by Exova for the tests you perform on Airbus Products (see Appendix for details on next PTP participation requirements).  
You can find all necessary information about PTP participation process on the website: <https://ptp.exova.com>.  
In case of PTP results out of tolerances, the couples qualification can be downgraded to an authorisation to proceed or withdrawn and the PTP participation frequency is reduced to one year, subject to acceptance by Airbus of your Root Cause Analysis and associated Corrective Actions.
  - \* On the other hand, you shall supply at least every 2 years the results of your Internal Homogeneity Studies per Test Families.

Airbus reserves the right to withdraw or suspend the qualification at any time for specific reason, e.g.

- Any major incident(s) detected on one or several Test processes
- Lack in quality
- Evidence non-compliance with the AP5262
- Loss of Airbus Supplier Approval
- Stop of the Business

Yours faithfully,

**NUNEZ Cesar**  
**TM Qualification Engineer - TM PO Central Team**  
**Your Quality Responsible Deputy**



**MALHOMME Muriel**  
**TM Qualification Manager - TM PO Central Team**  
**Your Quality Responsible**



Appendix: Matrix of qualified Couples <Test Methods / External Shop>

## APPENDIX: Matrix of qualified Couples <Test Methods / External Shop>

We hereby declare the External Shop:

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Qualified or Authorised to proceed for the following Test processes:

Test Standard(s) *	Test label	Complex.	Qualif. Status	Next PTP part. **	Remark
	Metallic specimen preparation (for mechanical testing) (method to be defined)		Qualified		
	Composite specimen production		Qualified		
	Composite specimen machining / cutting / tabbing		Qualified		
	Optical metallography (method to be defined)		Qualified		
	Various physical tests (method to be defined)		Qualified		
	Various mechanical test (method to be defined)		Qualified		
AITM 1-0002 (ISO 14129)	Fibre reinforced plastics - Determination of in-plane shear properties ( $\pm 45^\circ$ tensile test)	Low	Qualified	2017	
AITM 1-0003	Determination of the glass transition temperatures (DMA)	High	Qualified	2017	QCS 131032
AITM 1-0005 (EN 6033)	Fibre reinforced plastics - Determination of interlaminar fracture toughness energy - Mode I - G1c	High	Qualified	2018	QCS 110894
AITM 1-0007-A / B / C / D	Fibre reinforced plastics - Determination of plain, open hole and filled hole tensile strength	Low	Qualified	2017	
AITM 1-0008-A1 (<200kN) / A2	Fiber reinforced plastics - Determination of plain compression strength	High	Qualified	2017	QCS 111414
AITM 1-0008-B / C / D	Fiber reinforced plastics - Determination of open hole or filled hole compression strength	Low	Qualified		
AITM 1-0009-1 / 2	Fibre reinforced plastics - Determination of bearing strength by either pin or bolt bearing configuration	High	Qualified	2018	QCS 150672
AITM 1-0010 (EN 6038)	Fibre reinforced plastics - Determination of compression strength after impact	High	Qualified		QCS 150345
AITM 1-0018	Fibre reinforced plastics - Sandwich flexural test - Four-point bending	Low	Qualified		
AITM 1-0019	Determination of tensile lap shear strength of composite joints	Low	Qualified	2017	
AITM 1-0025	Fiber reinforced plastics - Flatwise tensile test of composite sandwich panel	Low	Qualified	2017	

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AITM 1-0029	Fibre reinforced plastics - Determination of tensile strength of a tapered or stepped joint	Low	Qualified		
AITM 1-0030	Sealants - Determination of lap shear strength	Low	Qualified		
AITM 1-0042 (ASTM E647)	Determination of fatigue crack growth rates for aluminium clad sheet and clad plate up to 12 mm in constant-load-amplitude tests - K-increasing method	High	Qualified	2018	QCS150084 restricted to specimens of the type CT.
AITM 1-0053	Carbon fibre reinforced plastics - Determination of fracture toughness energy of bonded joints - Mode I - G1c	High	Qualified	2017	QCS 120350
AITM 1-0065	Fiber reinforced plastics - Determination of joint strength of mechanically fastened joints	High	Qualified		
AITM 1-0066	Fibre reinforced plastics – Determination of pull-out / pull-through strength on riveted joints	Low	Qualified		
AITM 1-0067	Determination of tension through the hole strength on fastened joints	Low	Qualified		
AITM 1-0070	Surface roughness measurements using surface stylus methods	Low	Qualified		
AITM 1-0076	Fibre reinforced plastics - Determination of compression and tension strength after edge impact	High	Authorised to Proceed December 2017	TBD *	Limited for thicknesses < 6 mm. Pending QCS
AITM 2-0061	Water pick up test-method to determine the impregnation level of prepreg materials	Low	Qualified		
AITM 3-0002	Analysis of non metallic material (uncured) by differential scanning calorimetry (DSC)	High	Authorised to Proceed December 2017	2017	QCS Pending
AITM 3-0003 (EN 6042)	Analysis of organic compounds by infrared spectroscopy (IR)	Low	Qualified		
AITM 3-0004 (EN 6043)	Determination of gel time and viscosity	Low	Qualified		
AITM 3-0008 (EN 6064)	Determination of the extent of cure by differential scanning calorimetry (DSC)	High	Authorised to Proceed December 2017	2017	QCS pending
AITM 4-0003	Test method for determining the pore content of fibre reinforced plastics using automatic image analysis	High	Authorised to Proceed December 2017		QCS Pending
AITM 4-0005	Macroscopic and microscopic examination of fiber reinforced plastics	Low	Qualified		

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AMS 2315	Determination of delta ferrite content		Qualified		
ASTM C273	Shear properties of sandwich core materials	Low	Qualified		
ASTM C363	Node tensile strength of honeycomb core materials	Low	Qualified		
ASTM C365	Flatwise compressive properties of sandwich cores	Low	Qualified		
ASTM C393	Core shear properties of sandwich constructions by beam flexure	Low	Qualified		
ASTM D1781	Climbing drum peel for adhesives	Low	Qualified		
ASTM D1876	Peel resistance of adhesives (T-Peel test)	Low	Qualified		
ASTM D6641	Compressive properties of polymer matrix composite materials using a combined loading compression (CLC) test fixture		Qualified		
ASTM D732	Standard test method for shear strength of plastics by punch tool	Low	Qualified		
ASTM E111	Young's modulus, tangent modulus, and chord modulus	High	Qualified		
ASTM E112	Determining average grain size	Low	Qualified	2018	
ASTM E1251	Analysis of aluminum and aluminum alloys by Atomic Emission Spectrometry	Low	Authorised to Proceed December 2017	2017	
ASTM E238	Pin-type bearing test of metallic materials	High	Qualified	2017	QCS 090782
ASTM E2602	Assignment of the glass transition temperature by modulated temperature differential scanning calorimetry (DSC)	High	Authorised to Proceed December 2017		QCS Pending.
ASTM E3	Standard guide for preparation of metallographic specimens	Low	Qualified		
ASTM E340	Macroetching metals and alloys	Low	Qualified		
ASTM E399	Linear-elastic plane-strain fracture toughness K <sub>Ic</sub> of metallic materials	High	Qualified	2018	QCS 090795
ASTM E407	Microetching metals and alloys	Low	Qualified		

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ASTM E647	Measurement of fatigue crack growth rates (da/dn)	High	Qualified	2018	QCS 090788
ASTM E8	Tension testing of metallic materials	Low	Authorised to Proceed December 2017	2018	
ASTM E9	Compression testing of metallic materials at room temperature	Low	Qualified	2016	
ASTM G34	Exfoliation corrosion susceptibility in 2XXX and 7XXX series aluminum alloys (EXCO Test)	Low	Qualified		
ASTM G85	Modified salt spray (fog) testing	Low	Qualified		
EN 2002-1 (ASTM E8 / ASTM B557)	Tensile testing at ambient temperature	Low	Authorised to Proceed December 2017	2018	
EN 2002-2	Tensile testing at elevated temperature	Low	Authorised to Proceed December 2017	2017	
EN 2003-9	Titanium and titanium alloys - Part 9: Determination of surface contamination (method A: Micrographic examination / Method B: Hardness testing)	Low	Qualified	2018	Method A
EN 2243-1	Structural adhesives - Part 1: Single lap shear	Low	Qualified	2017	
EN 2243-2	Structural adhesives - Part 2: Peel metal-metal	Low	Qualified	2017	
EN 2243-3	Structural adhesives - Part 3: Peeling test metal-honeycomb core	Low	Qualified	2017	
EN 2243-4	Structural adhesives - Part 4: Metal-honeycomb core flatwise tensile test	Low	Qualified	2017	
EN 2332	Textile glass fibre preimpregnates - Test method for the determination of the resin flow	Low	Qualified		
EN 2377 (ISO 14130)	Glass fibre reinforced plastics - Determination of apparent interlaminar shear strength	Low	Qualified		
EN 2557	Carbon fibre preimpregnates - Determination of mass per unit area	Low	Qualified		
EN 2558	Carbon fibre preimpregnates - Determination of the volatile content	Low	Qualified		

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EN 2559	Carbon fibre preimpregnates - Test method for the determination of the resin and fibre content and the mass of fibre per unit area	Low	Qualified		
EN 2560	Carbon fibre preimpregnates - Determination of the resin flow	Low	Qualified		
EN 2561	Carbon Fibre reinforced plastics - Unidirectional laminates - Tensile test parallel to the fibre direction	Low	Qualified	2017	
EN 2562	Carbon fibre reinforced plastics - Unidirectional laminates - Flexural test parallel to the fibre direction	Low	Qualified	2017	
EN 2563	Carbon fibre reinforced plastics - Unidirectional laminates - determination of apparent interlaminar shear strength	Low	Qualified	2017	
EN 2564	Carbon fibre laminates - Determination of the fibre, resin and void contents	Low	Qualified	2017	
EN 2597	Carbon Fibre reinforced plastics - Unidirectional laminates - Tensile test perpendicular to the fibre direction	Low	Qualified		
EN 2667-1 (Pren)	Foaming structural adhesives - Part 1: Tensile single-lap shear	Low	Qualified		
EN 2667-2 (Pren)	Foaming structural adhesives - Part 2: Compressive tube shear	Low	Qualified		
EN 2746	Glass fibre reinforced plastics - Flexural test - Three point bend method	Low	Qualified	2017	
EN 2747	Glass fibre reinforced plastics - Tensile test	Low	Qualified		
EN 2823 (prEN)	Fibre reinforced plastics - Determination of the effect of exposure to humid atmosphere on physical and mechanical characteristics	Low	Qualified		
EN 2850-A (Pren) (ISO 14126-1)	Carbon fibre thermosetting resin unidirectional laminates - Compression test parallel to fibre direction - Method A	High	Qualified		QCS126664
EN 2850-B (Pren) (ISO 14126-2)	Carbon fibre thermosetting resin unidirectional laminates - Compression test parallel to fibre direction - Method B	Low	Qualified	2016	
EN 3615	Fibre reinforced plastics - Determination of the conditions of exposure to humid atmosphere and of moisture absorption	Low	Qualified		
EN 3683	Titanium alloy wrought products - Determination of primary $\alpha$ content - Point count method and line intercept method	Low	Qualified		

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EN 3684	Titanium alloy wrought products - Determination of $\beta$ transus temperature - Metallographic method	Low	Qualified		
EN 6072	Fatigue test specimen machining (NADCAP test code O)	High	Qualified	2017	QCS 090787
EN 6072	Constant amplitude fatigue testing (HCF)	High	Authorised to Proceed December 2017	2017	QCS 090787
ISO 1183-1	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method	Low	Qualified		
ISO 1519	Paints and varnishes - Bend test (cylindrical mandrel)	Low	Qualified		
ISO 2812-2	Paints and varnishes - Determination of resistance to liquids - Part 2: Water immersion method	Low	Qualified	2016	
ISO 4578	Adhesives - Determination of peel resistance of high-strength adhesive bonds - Floating roller method	Low	Qualified		
ISO 4587	Adhesive - Determination of tensile lap-shear strength of rigid-to-rigid bonded assemblies	Low	Qualified		
ISO 527-2	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	Low	Qualified		
ISO 527-4	Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fiber reinforced plastic composites	Low	Qualified		
ISO 527-5	Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites	Low	Qualified		
ISO 604	Plastics - Determination of compressive properties	Low	Qualified		
ISO 643	Steels - Micrographic determination of the apparent grain size	Low	Qualified	2018	
ISO 6508 (ASTM E18)	Rockwell hardness test	Low	Qualified	2018	

\* Unless otherwise specified, last issue of the standard shall apply.

\*\* Next PTP participation year is given for information - It is the External Shop's responsibility to check every year on the PTP Website (<https://ptp.exova.com/>) which kits are proposed.