

EASA Proposed CM-S-004 Issue 01 – Composite Materials – Shared Databases –

Acceptance of Composite Specifications and Design Values Developed using the NCAMP Process - Comment Response Document

Comment				Comment summary	Suggested resolution	Comment is an observation or is a suggestion	Comment is substantive or is an objection	EASA comment disposition	EASA response
NR	Author	Section, table, figure	Page						
1	Rolls-Royce plc	3.1.2	8	<p>The text "Subject to appropriate European Industry interest being expressed to EASA, EASA may consider further development of the harmonisation process, as necessary, to identify the scope of NCAMP tasks which may be completed directly within Europe under EASA approval, e.g. the independent panel testing by a recognised test facility etc."</p> <p>Does this section mean EASA will assist Industry in clarifying how much drafting and approval responsibility, currently retained by NCAMP and approved American Industry Partners, can be delegated to EASA and to organisations regulated by EASA"?</p>	Paragraph would benefit from further clarification to be clear what EASA (with sufficient push from European Industry) is offering to do and what EASA would hope to achieve by pursuing harmonisation	Yes	No	Accepted	Text amended in new section 3.1.2 to better distinguish what is being accepted now by EASA and what could be developed should interest be expressed by European Industry.
2	Rolls-Royce plc	3.1.2	8	<p>Section 3.1.2, titled "FAA Policy Intent" (commencing on page 7) does indeed cover FAA policy intent, however, within the same section then goes on to discuss:</p> <p>1) Process differences between European and USA processes.</p> <p>2) EASA offer to further develop process harmonisation with a view to EASA being able to then approve NCAMP tasks.</p> <p>These later discussion items do not appear to fit comfortably under "FAA Policy Intent".</p>	<p>Introduce a new sub-section (3.1.3 XXXX) or include in the existing section 3.1.1 titled "EASA Policy"</p> <p>Would also perhaps read better if the 2nd to last paragraph, highlighting European and USA process differences, came before the 3rd to last paragraph, where EASA then offers to pursue future harmonisation of the processes.</p>	Yes	No	Partially Accept	<p>Format slight amended. However, paragraph order is retained because, further to comment response 1/ above, and indicating acceptance of data using the NCAMP data, the EASA Policy includes the request for interest regarding fully harmonised processes. The discussion regarding ATSM/EN equivalence, although potentially important, is secondary.</p> <p>Note: NCAMP and FAA have indicated willingness to engage in a fully harmonised process working within Europe with EASA.</p> <p>Text amended in new section 3.1.2 to better distinguish what is being accepted now by EASA and what could be developed should interest be expressed by European Industry.</p>
3	Airbus	1.1	4	<p>"...EASA believes that some further work remains to be completed in order to fully harmonise the processes..."</p> <p>It is not clear which processes EASA is referring to.</p>	To be clarified by EASA.	Yes		Partially Accepted	<p>See response to comment 1.</p> <p>Furthermore, EASA considers those organisations potentially interested will use the identified references to determine which activities would be beneficial to European organisations if completed within Europe. Note, the independent panel testing is identified as an example in the CM. This might require harmonised approval of an independent European test house capability etc.</p> <p>Text amended in new section 3.1.2 to better distinguish what is being accepted now by EASA and what could be developed should interest be expressed by European Industry.</p>
4	Airbus	2.3	7	This Certification Memorandum provides guidance to the aircraft certification offices". Is this a correct statement to use the wording Aircraft Certification Offices in the European context? They seem to originate from FAA environment.	To be corrected.	Yes		Accepted	Text deleted. Issue addressed by amended section 3.2
5	Airbus	3.1.2	8	"...Any testing conducted by non-NCAMP organisations should be performed per FAA approved test programme or processes." Text in this paragraph is not applicable for organisations in Europe, should be deleted or replaced with guidance what European organisations should do.	To be clarified by EASA.		Yes	Accepted	The EASA intent was to state the FAA Policy in full for reference. In order to make this clear the text is amended and the policy italicised. Reference to EASA has been insert simply to make clear than outside NCAMP, established EASA processes apply regarding the showing of compliance with 2X.603, 2X.605, 2X.613 etc. However, note that the title of this CM already makes clear that that it addresses only NCAMP processes. Otherwise, established processes would be expected to apply. Furthermore, CM development will be possible for other database systems.

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6	GE Aviation			<p>Thank you for the invitation to comment. GE has reviewed the proposed CM and has no specific comments.</p> <p>In general, GE concurs with EASA Certification Memorandum on Composite Materials Shared Databases proposal. The document is consistent with the FAA document it references on the same topic.</p> <p>GE has participated in a NCAMP database program on a polyimide composite material. The concept of sharing a database with a common specification and process control document at the material supplier is very efficient. GE agrees with EASA that there is more work to do, specifically with converting the NCAMP specification document to an industry specification like an AMS specification.</p>				Noted	Thank you for confirming the situation, identifying the benefits, and recognising the need for further work.
7	SAE International	2.2	6	<p>The statement</p> <p><i>"Non-proprietary material specifications for composite materials have not been made public like those currently available for Metallic Materials."</i></p> <p>is correct from a historical perspective but activity is underway to develop publically available material specifications for composite materials.</p>	<p>A standards development committee, AMS P-17, Polymer Matrix Composites, exists within SAE International which is developing publically available composites material specifications that may voluntarily be used to procure composite materials. Three Aerospace Material Specifications (AMS) for composite materials with associated data published in Volume 2 of the Composite Materials Handbook-17 (CMH-17) were released by SAE in the 2011-2013 timeframe (AMS3960, AMS3914, and AMS3915).</p> <p>The FAA Policy Memo AIR100-2010-120-003 entitled Acceptance of Composite Specifications and Design Values using the NCAMP Process mentions NCAMP's intention to work closely with SAE International to convert NCAMP specifications into SAE specifications. The purpose is to develop publically available consensus specifications which may be utilized by industry to procure composite materials. NCAMP recently provided SAE with NCAMP Material Specifications for two materials, NMS 128 and NMS 451, and draft specifications will soon be released for comment.</p> <p>SAE International respectfully requests that EASA modify proposed CM-S-004 to acknowledge the standardisation work described above to provide the aerospace community with non-proprietary publically available composite materials specifications and associated data.</p>	Yes	No	Accepted	Reference to such work being in progress has been added.
8	AFF	1.1	4	<p>Sec. 1.1 should address the fact, that NCAMP is not the only acceptable process to create and share a database.</p>	<p>Add Note 2: NCAMP is not the only acceptable process to create and share a database.</p>			Partially Accepted	EASA considers that the title, the text of 1.1, and the text of 2.3 clearly acknowledges that other systems exist. It also uses AFF as an example. However, the text of 1.1 and 2.3 has been slightly amended to help reinforce the point.

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9	AFF	1.1	4	Since the NCAMP SOP cover the requirements of part 2x (and are suitable for military & space applications as well), they seem to be "oversized" and inefficient for GA community.	Deviation from the NCAMP process is acceptable subject to the DOA privilege and detail of the product (e.g. CS-23 down to ELA1).			Noted	The CM indicates in para.1.1 that it presents an interim position. It also indicates a flexible approach from EASA and requests European interest regarding future development. Noting that NCAMP developed from AGATE, intended for small aircraft use, the processes should not be too severe. However, the small aircraft industry remains free to propose alternatives, either within NCAMP or independently. The CM simply explains the current EASA position regarding a specific database option available.
10	AFF	1.1	4	The NCAMP process does not need to be applied to approved data.	As long as approved data are available (from another TC-holder through DO-DO arrangements) no SOP is needed.			Noted	The CM simply explains the current EASA position regarding a specific database option available.
11	AFF	1.2	4	CS2x.603 correct title.	CS2x.603 correct title "and workmanship" is missing.			Accepted	Amended accordingly.
12	AFF	1.3	5	Add AFF, HFF.				Accepted	Amended accordingly.
13	AFF	1.4	5	Definition: what is a shared database.	Shared database definition should include proprietary database.			Noted	A formal definition needs to be agreed. For the purposes of this CM, the shared database is as defined by the NCAMP SOPs , FAA/DOT/AR-03/19 etc. for the specific NCAMP database option discussed.
14	AFF	3.2	8	CS-22, VLA?	Add: unless the applicant utilizes other means to show compliance.			Accepted	Amended.
15	Toray Composites (America), Inc.			Please find attached with minor comments. Document is in line with FAA document. Currently TCA is working with SAE & CMH-17 QPG for approval of our #2510 resin system. Does EASA recognize this? FAA wants an industry oversight on shared database that is/shall be published in CMH-17 Vol. 2.				Noted	As discussed in the CM, if the NCAMP processes have been followed and the material data accepted NCAMP, then this could be acceptable. However, please note that EASA reminds applicants that, as always, the material data needs to be considered in the context of the application and product in accordance with normal validation and certification procedures. Regulators do not directly approve materials or processes, but accept them as part of the product.
16	Toray Composites (America), Inc.	Title	1	"Acceptance of Composite Specifications and Design Values Developed using the NCAMP Process." Is this the same process in CMH-17, albeit the AIR & AER? Is it always necessary to engage with NCAMP in the development of Acceptance specifications and design values?				Noted	The CMH-17 is similar to, but not the same as, the NCAMP process. Differences include the AIR/AER function identified in the NAMP SOPs. However, EASA understands that the processes are converging and should be the same by the time of the next CMH-17 revision, Rev. H. Currently, EASA considers the NCAMP processes to be the working processes relative to this CM.
17	Toray Composites (America), Inc.	3.1.2, 1 st bullet	7	"Procure materials per specifications developed using NCAMP procedures;"	How about materials developed using CMH-17 procedures? It should include CMH-17 procedures in the sentence. It has DAR & DER oversight in partnership with an OEM project number.			Noted	See comment above. The reference to project numbers etc. are relevant once the lower pyramid data integrated into the higher proprietary pyramid project data.
18	Toray Composites (America), Inc.	3.1.2, para 3	8	"Data generated by the NCAMP organisation following the procedures defined in NCAMP Standard Operation Procedures (SOP), Doc. # NSP 100 is acceptable to FAA without further showing."	What does this mean? Delete, if not necessary or does it mean equivalency trials?			Noted	Equivalency will be required by the process, e.g. per DOT/FAA/AR-03/19.

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19	Toray Composites (America), Inc.	3.1.2, para 6	8	"Similarly, the integration of the NCAMP process with CMH-17 is in progress and may broaden and change the scope of future revisions to this Certification Memorandum."	Good!			Noted	Yes, this CM was written to provide the current EASA position in an evolving broader development of shared database processes.
20	Hexcel Composites Ltd	1.1, para 2	4	"..., initially developed by FAA, ..."	"..., initially developed by the FAA, ..."			Accepted	Text amended accordingly.
21	Hexcel Composites Ltd	1.1, para 2	4	"... Currently, there is also involvement from organisations from other non-USA countries..."	Are you able to expand and explain further, otherwise what do you think about removing the statement?			Partially Accepted	Text partially amended to indicate developing global interest.
22	Hexcel Composites Ltd	1.1, para 2	4	"... Furthermore, the process retains regulatory guidance."	A question, do you really mean 'retains'			Partially Accepted	Text amended.
23	Hexcel Composites Ltd	2.1, para 3	6	"... Material specifications developed following the NCAMP standard operation procedures are compliant with the US regulations regarding CFR 2X.603(a)&(b)."	operation or operating ?			Noted	Text not changed as it is a quote from the original FAA Policy.
24	Hexcel Composites Ltd	2.2	6	"...This is partly due to the inability of suppliers to share material property data and associated specifications, which are relevant to more than one manufacturer's production processes..."	Simon, I think 'inability' is rather harsh. It is not 'inability' but rather a fact of intellectual property and competitive edge that is gained within the composite industry. As you know, in the end the User defines the design requirements and each manufacturer offers their tailored best fit material. Due to knowledge and patents, each manufacturer will have a different material for the same end use. Then after that the OEM will ask if we can accommodate a slightly different tack due to processing in their shop, for example, so the work performed is then tailored. Plus other reasons, so it is not an 'inability' rather 'difficulty'. But this is explained in the next sentence. Finally, this is possible for older more generic materials such as, in our case 8552; but more and more we are asked to tie in a specific development, and thus product, with a particular customer. This type of activity will not be on a public database			Accepted	Use of 'inability' as expressed in the comment, was not intended in the sense described in the comment. Text amended.
25	Hexcel Composites Ltd	2.3, para 1	7	"The final mechanical behaviour of composite structures is extremely dependent on both the materials and the production processes controlled by the manufacturers..."	and possibly agreed with the end user (design authority). As a material manufacturer we propose our best practices, but the user may wish to deviate and we will have to prove fit for purpose. Having said this, it depends on your definition of manufacturer in this sentence, material manufacturer or part manufacturer			Accepted	Text added to make this point.

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26	Hexcel Composites Ltd	3.1.2, para 3,4,5	8	<p><i>"Subject to appropriate European Industry interest being expressed to EASA, EASA may consider further development of the harmonisation process, as necessary, to identify the scope of NCAMP tasks which may be completed directly within Europe under EASA approval, e.g. the independent panel testing by a recognised test facility etc.</i></p> <p><i>EASA understands that some process differences exist between European and USA processes, e.g. the SOPs, and supporting documents, identify ASTM test standards, whilst European organisations may be using EN test standards etc. However, EASA will work with European Industry, as required, to address such matters.</i></p> <p><i>This Certification Memorandum may be amended, subject to changes in associated EASA regulations, e.g. regarding acceptance of third party industry activities etc. Similarly, the integration of the NCAMP process with CMH-17 is in progress and may broaden and change the scope of future revisions to this Certification Memorandum."</i></p>	Should this be in a new section, as it is not part of the FAA policy?			Accepted	Section 3.1 reformatted to clarify.