**CONFIRMED MINUTES**

**FEBRUARY 22, 2017**

**NEW ORLEANS, LOUISIANA, USA**

**These minutes are not final until confirmed by the Task Group in writing or by vote at a subsequent meeting. Information herein does not constitute a communication or recommendation from the Task Group and shall not be considered as such by any agency.**

**WEDNESDAY, 22-FEB-2017**

# OPENING COMMENTS – OPEN



## Call to Order / Quorum Check

The Non Metallic Materials Manufacturing (NMMM) and Non Metallic Materials Testing (NMMT) Task Groups (TG) was called to order at 8:00 a.m., 22-FEB-2017

It was verified that only SUBSCRIBER MEMBERS were in attendance during the closed portion of the meeting.

A quorum was established with the following representatives in attendance:

***Subscriber Members/Participants Present (\* Indicates Voting Member)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | NAME |  | COMPANY NAME |  |
|  |  |  |  |  |
| \* | Jason | Adams | Lockheed Martin Corp. |  |
| \* | Monica | Alcala | Honeywell Aerospace |  |
| \* | Douglas | Armstrong | GE Aviation |  |
| \* | Randy | Armstrong | Raytheon Co. |  |
|  | Christine | Brassine | SAFRAN |  |
| \* | Kevin | Dowling | Spirit AeroSystems |  |
| \* | Patrick | Dunleavy | SAFRAN |  |
| \* | Achim | Enzmann | Airbus Helicopters |  |
|  | Ray | Fontanares | The Boeing Company |  |
|  | Javier | Garcia-Baeza | Airbus |  |
|  | Veronica | Guerrero | The Boeing Company |  |
| \* | Brett | Hemingway | BAE Systems - MAI (UK) |  |
| \* | John | Key | Bell Helicopter | Secretary |
|  | Uwe Alexander | Kleinert | Airbus Helicopters |  |
| \* | Ronald | Kramer | Gulfstream / General Dynamics |  |
|  | Herman | Leibovich | Israel Aerospace Industries |  |
| \* | Lance | Loeks | The Boeing Company |  |
|  | Muriel | Malhomme | Airbus |  |
|  | Andreas | Mastorakis | GE Aviation |  |
|  | Ashley | O'shea | The Boeing Company |  |
| \* | Rick | Ouellette | The Boeing Company |  |
|  | Scott | Palmer | Rolls-Royce |  |
| \* | Richard | Perrett | GKN Aerospace - Filton | Vice Chairperson |
| \* | Patrick | Phelan | UTC Aerospace (Goodrich) |  |
| \* | Minh | Quan | Triumph Aerostructures |  |
|  | Maria | Sanchez-Arjona | Airbus Defence & Space |  |
|  | Kodai | Shimono | Mitsubishi Heavy Industries Ltd. |  |
| \* | Sally | Spindor | Triumph Group |  |
|  | Fabrice | Trebeden | Airbus Helicopters |  |
|  | Andrew | Williams | Gulfstream |  |

***Other Members/Participants Present (\* Indicates Voting Member)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | NAME |  | COMPANY NAME |  |
|  |  |  |  |  |
|  | Natalia | Becerra-Pozo | Exova |  |
| \* | Jim | Brown | Hexcel |  |
|  | Gordon | Cameron | LMI Aerospace Everett-Merrill Creek |  |
|  | Xavier | Carteron | Toray Carbon Fibers Europe |  |
|  | Hugh F | Casper | MTS Systems Corporation |  |
|  | John | Chesna | E.i. dupont de nemours & Co. |  |
|  | Charles | Clinton | Meggitt Polymers & Composites |  |
|  | Kevin | Edwards | DuPont |  |
|  | Matthew | Ferrarelli | Shimadzu Scientific Instruments |  |
|  | Bruce | Fuhrmann | Meggitt Polymers & Composites |  |
|  | Lu | Gan | Hexcel Corp. |  |
|  | James | Krone | Park Aerospace Technologies Corp. |  |
|  | Jari | Quassdorf | Shimandzu |  |
| \* | Karen | Quinn | Orbital ATK |  |
|  | James | Rossi | Westmoreland Mechanical Testing & Res Inc. |  |
| \* | Don | Russell | Toray Composites |  |
| \* | Vitorio | Stana | Avcorp Industries Inc. |  |
| \* | Rhonda | Sutter | Composiflex, Inc. |  |
| \* | Arno | Toelkes | Euro-Composites |  |
| \* | Nancy E | Vancil | Toray Carbon Fibers America, Inc. |  |
|  | Prof Dr Frank | Walther | TU Dortmund University |  |
| \* | Jim | Weishampel | DuPont |  |

***PRI Staff Present***

|  |  |
| --- | --- |
| John | Tibma |

## Safety Information

The minutes from 26-Oct-2017 were approved per the motion below.

A motion was made by Brett Hemingway (BAE Systems) to accept the minutes with the correction that Tara Campbell was not in attendance at the meeting and a correction to a supplier identified.. This motion was seconded by Doug Armstrong (GE Aviation). A voice vote was taken and there was 100% voicing of an acceptance vote. The minutes are approved.

## Review Code of Ethics and Meeting Conduct

## Present Antitrust Video

## Acceptance of Meeting Minutes

## Review of Voting Member Status

The following requests for additions or changes to voting membership were received and confirmed by the Task Group Chairperson pending verification of PD 1100 requirements:

* Subscriber Voting Member: UVM
* Supplier Voting Member: SVM
* Alternate: ALT
* Task Group Chairperson: CHR
* Vice Chairperson: VCH
* Secretary: SEC

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **First Name** | **Surname** | **Company** | **Position:**  **(new / updated role)** | **Meetings Attended (Month/Year)** | |
| Mike | Song | Lockheed Martin | ALT UVM, NMMM & NMMT | October/ 2015 | February/ 2016 |
| Maria | Sanchez-Arjona Cuesta | Airbus Defense & Space | UVM, NMMM & NMMT | February/ 2016 | June/2016 |
| Gordon | Cameron | LMI Aerospace | SVM, NMMT | October/ 2015 | October/ 2016 |
| Uwe | Kleinert | Airbus Helicopter | UVM, NMMM & NMMT | February/ 2016 | June/2016 |

The compliance to voting requirements per PD 1100 were reviewed. No voting members have failed to meet requirements for maintaining their voting rights.

## Review of Agenda

# nmmm/nmmt staff report– OPEN



* Recent Activities

John Tibma presented the list of subscribers mandating NMMM and NMMT.

John Tibma is supporting 100% of NMMM Audits in a Delegated Role.

Jeff Bue is an auditor trainee, T1 and T2 scheduled.

Keith Panuska is now an auditor for the NMMM commodity.

John Tibma is supporting 60% of NMMT Audits in a Delegated Role.

Betty Koscis is supporting 40% of NMMT Audits in a Non-Delegated Role. There must be a full quorum to approve and review her audit packages.

Jeff Bue is currently an auditor in training for the NMMT commodity and has completed his T1.

Betty Koscis has been promoted to a Lead Auditor.

21 NMMM Audits projected

(10 – Americas, 8 – Europe, 3 - Asia)

* + 12 total scheduled through August
    - 9 – Americas, 3 – Europe, Asia – 0
    - 57% of Plan

37 NMMT audits projected.

(11 – Americas, 19 – Europe, 7 - Asia)

* + 18 total scheduled through August
    - 6 – Americas, 9 – Europe, Asia – 3
    - 49% of Plan
* Procedure Review

John Tibma went over OP 1110 Audit Failure Procedure Review

* Risk Mitigation Revision (RMI)
  + Staff Engineer conducts Risk Mitigation
  + Completed RCCA balloted to Task Goup
  + Supplier must pay a fee to go through RMI
* Mode B failure criteria determined in open meeting

John Tibma went over OP 1105 Audit Process and OP 1114 Task Group Operation

* Supplier Self Audit Requirement
  + Supplier must submit a self-audit to the Auditor 30 days prior to the audit start date
  + The self-audit must use the applicable Audit Criteria and scope for initial, reaccreditation, and add scope audits
  + The self-audit must document where evidence of compliance may be found.
* Mode B Failure Criteria Review

John Tibma presented the Mode B Failure Criteria for Initial Audits of NMMM.

* Task Group tries to stay between the 95th percentile and 98th percentile
  + For Initials, we have 0 failed initial audits to date. The data has been unchanged since 2014. This data set includes 24 audits.
  + John presented the current Mode B Failure Criteria vs the current data at the 98th percentile.

A motion was made by Patrick Dunleavy (SAFRAN) and was seconded by Lance Loeks (Boeing Company) to keep the Mode B Failure Criteria for NMMM Initial Audits Unchanged from the current requirements. A vote was taken:

**16 Green (Yea), 1 Yellow (Waive), 0 Red (Nay) - The motion passed and is approved.**

John Tibma presented the Mode B Failure Criteria for Reaccreditation Audits of NMMM.

* Task Group tries to stay between the 95th percentile and 98th percentile
  + For Reaccreditations, we have 0 failed reaccreditation audits to date. This data set includes 61 audits.
  + John presented the current Mode B Failure Criteria vs the current data at the 98th percentile.

A motion was made by Jason Adams (Lockheed Martin) and was seconded by Lance Loeks (Boeing Company) to keep the Mode B Failure Criteria for NMMM Reaccreditation Audits Unchanged from the current requirements. A vote was taken:

**19 Green (Yea), 1 Yellow (Waive), 0 Red (Nay) - The motion passed and is approved.**

John Tibma presented the Mode B Failure Criteria for Initial Audits of NMMT.

* Task Group tries to stay between the 95th percentile and 98th percentile
  + For Initials, we have 0 failed initial audits to date. The data has been unchanged since 2012. This data set includes 35 audits.
  + John presented the current Mode B Failure Criteria vs the current data at the 98th percentile.

A motion was made by Natalia Becerra Pozo (Exova Limited) and was seconded by Brett Hemingway (BAE Systems) to keep the Mode B Failure Criteria for NMMT Initial Audits Unchanged from the current requirements. A vote was taken:

**22 Green (Yea), 0 Yellow (Waive), 0 Red (Nay) - The motion passed and is approved.**

John Tibma presented the Mode B Failure Criteria for Reaccreditation Audits of NMMT.

* Task Group tries to stay between the 95th percentile and 98th percentile
  + For Reaccreditations, we have 0 failed reaccreditation audits to date. This data set includes 127 audits.
  + John presented the current Mode B Failure Criteria vs the current data at the 98th percentile.

A motion was made by John Key (Bell Helicopter) and was seconded by Lance Loeks (Boeing Company) to keep the Mode B Failure Criteria for NMMT Reaccreditaiton Audits Unchanged from the current requirements. A vote was taken:

**22 Green (Yea), 0 Yellow (Waive), 0 Red (Nay) - The motion passed and is approved.**

* Top NCRs

John Tibma went over the Top 10 questions sited for NCRs during audits occurring in 2016 and compare this to the Top 10 questions in 2015 for NMMM and NMMT.

Discussion ensued on the five working days required on AC7122-P and -I question 19.4 and if the five days is realistic in determining a real RCCA and resolve this issue. The suppliers were concerned when the time started, and the comment was that it starts at the time the error is discovered. The customer can give more time for an RCCA, and notifying the customer of the incident and that it is under investigation is acceptable.

Another discussion ensued on AC7122-I question 3.4. It was noted that Handbook clarification was made in October 2016 which the Supplier was not able to attend. This clarification and auditor training made this clearer. The Task Group expectation is that an industry test method or test standard cannot be used by the test operator alone, there must be supporting documents specific to that machine or laboratory.

* Audit Statistical Summary

NMMM Red Metrics

* Currently no red metrics
* On-time certification – Green - 100%
* Supplier Merit – Yellow – We are currently at 79% of our suppliers are on merit.
* Cycle Time – Green – 51 days.

The metrics were reviewed and discussed by the Task Group and there were no red metrics to address at this time.

NMMT Red Metrics

* Currently no red metrics
* On-time certification – Green - 100%
* Supplier Merit – Green – We are currently at 95% of our suppliers are on merit
* Cycle Time – Green – 43 days.

The metrics were reviewed and discussed by the Task Group and there were no red metrics to address at this time.

* Future Meeting Information

June 2017 – Berlin, Germany (05 – 08 June)

* + Estrel Hotel

October 2017 – Pittsburgh, Pennsylvania (23 – 27 October)

* + Omni William Penn

February 2018 – Madrid, Spain (19 – 22 February)

* + NH Eurobuilding

# supplier support committee (SSC) report OPEN



Victorio Stana (Avcorp Industries) presented new Supplier News from the SSC Meeting last night.

OP 1123, the operating procedure for the SSC, which clarifies roles and responsibilities for supplier leaders, was revised to add accountability. The procedure has been approved and is posted with the other operating procedures on eAuditNet.

Arno Toelkes (Euro-Composites) will be leading a team to develop our next biennial supplier survey.

Nancy Vancil (Toray Carbon Fibers America) has stepped down as leader of the Supplier Help Desk.

New annual objectives were created. They are:

On-time closing of SSC Rolling Action Item List (RAIL) items

LT Attendance

Reviewing of SSC events feedback scores and comments

SSC Objectives are all being met and are showing green within the metric system.

SSC Request forms submittals in 2016 were well below expectations. The Leadership Team reviewed the form and determined it was overly complicated. The Leadership Team revised the form to make it much simpler to use and it is now posted and available on the p-r-i.org website.

Nadcap Technical Symposia planned, but not confirmed for 2017. There are three in each sector to support the global supply chain. This is a Nadcap process presentation.

Relief to Checklist Requirements – Will be used to make an immediate change to the checklist, which will be presented by the Staff Engineer to the task group Chairperson or Vice Chairperson for approval. If the approval is approved, the information will be communicated by Auditor Advisory.

Mike Graham clarified that this is a motion currently in review, and not something that has been approved at this point in time. The Nadcap Management Council (NMC) is working on relief to Checklist requirements for exceptional circumstances.

* Quicker way for relief from an undue financial burden or a poorly written checklist question
* Shorten ballot from 28 to 7 days
* Potential waive the 90-day notification
* Can be proposed by a supplier, staff engineer, or subscriber
* Needs approved by 2/3 majority of Task Group Voting Members, Task Group Chairperson, and NMC Chairperson

Victorio Stana (Avcorp Industries) also presented highlights of the NMC meeting.

# aerospace quality systems (aqs) update – OPEN

* AQS Liaison Report Out

Sally Spindor (Triumph Group) commented upon the action item to complete the compliance and review of questions within the checklist concerning Quality System questions. The COMP/NMMM/NMMT checklists have been review and our action has been completed and we are waiting for other Task Groups to complete.

AQS states that a procedure for the handling of expired material has to exist and has to be complied with. Their internal procedure can allow a weekly review and meet that, but this may allow the expire material to remain in the system. If the procedure allows this, then it is not a finding. If the Subscriber does not like this, then they should address the issue within the Quality System flowdown or within the Engineering Definition of the process.

# grip alignment update – OPEN



Natalia Becerra Pozo (Exova) presented an update to the Guidance for Alignment Verification.

The scope of the project was to review the current status on the use of ASTM E1012-14, Annex 1 and 2 Correction Factors and define the approach to establish best practice criteria on the use of Correction Factors and limits. The Sub-Team was to define guidance for the use and limits of transducers within the testing environment.

There is currently no industry consensus on the use of Correction Factors.

The initial proposal to limit Percent Bending after the application of correction factors were proposed, but there was limited data available, so it was decided to set up a project trying to generate the data to establish the percent bending limits and correction factors limits for alignment bars. Subscriber requirements for the use of correction factors varies and is not consistent, but all primer were open to review the approach of the Task Group on alignment and defining the limits of correction factors and percent bending allowances for the alignment bars.

So the Task Group created an Alignment Project Test Plan to created reference data and then to compare this with effect of misalignment on the test results. We would use two different Tests Labs, one from Instron and one from MTS. There was some issues within the test data and it is noted on Slide 11 of the Presentation 4.0 “Grip Alignment Feb2017”. The team is now questioning the data, and questioning the approach that was accepted previously.

Inspection of damaged transducers shows that the correlation is very clear. The transducer on steel and aluminum specimens that are used over and over again were assessed with the amount of bending that the transducers are seeing over time. This was checked with a dead load connected to a live strain loading and measurement equipment. The dead load test was performed from 0 to 700N load in increments of 50N and initial tension and compression in strain gages were check and measured.

Also used a flat table test method of measurement of the transducers. This is less accurate, but the attempt was made to use this information.

Also used an induced bending test my introducing known bending displacements to investigate the comparison of strain gages in each plane of bending.

All three tests have pros and cons, and there is really no one good assessment for determining this information.

So where are we?

* + Guidance for the use of Annex A1 & A2 of ASTM E1012
* Inducing misalignment in a control manner
* Effect of Misalignment on Test Results
* The Inspection of Alignment transducers

There is really no such thing as a perfect transducer and the process of alignment. Experience and common sense dictates that the transducer contribution should always be accounted for to give the most accurate description of the load train situation.

Instron proposed a method for inducing misalignment in a controlled manner. They are proposing to attach an apparatus to a new AC7122 type Alignment Specimen (transducer) to induce actual bends into the specimen. This will be done while it is installed in a Test Frame’s Load Train under load. The fixture may allow us tests of the Alignment Specimens Contribution to Total Percent Bending in both (even all three) rotational positions. The photo is on Slide 20 of the Presentation 4.0 “Grip Alignment Feb2017”.

The aim of this proposed method and fixture is to provide confirmation of the use of correction factors in using one or another of the E1012’s Annexes. This will provide information to establish a limit to the acceptable amount of Intrinsic bending that can be allowed in an Alignment Specimen (transducer). This testing is to de-couple the loading from the specimen and loading from the machine and validating the equations within the Annexes of ASTM E1012.

Inspection of Alignment transducers is difficult as ASTM E1012 does not define a limit on the transducer contribution to the results of the tests. The ability of the transducer to determine the alignment of the load train depends on the specific load train. This will make it hard to put a value on the limit. IF the load train and grips are sufficiently stiff that the transducer cannot affect the system, then the transducer can be used and percentage bending due to test frame and transducer can be calculated as described in Annex 2. Should the load train not be able to hold the sample in a true position, then the fixture will move and the results will not meet the criteria for percentage bending and repeatability. The limit to be defined does not need to be any more than the limits already prescribed for percentage bending repeatability. Any transducer which cannot fulfill these criteria should not and in fact cannot, be used for alignment verification. This can be defined in more detail during the experiment with the Instron’s bending fixture.

The effect of misalignment on tests results will be determine with a plan/proposal on modulus assessment of frame aligned using Instron’s bending fixture. Experimentation into the effect of misalignment on material property measurement can be performed using shims between the sample and the grip face to induce misalignment in stages so offset can be quantified using either beam theory or use a transducer to measure the effect or a more repeatable process for attempting to misalign the entire load train. This will be attempted and the results shown at the June 2017 Nadcap Meeting in Berlin, Germany.

ACTION ITEM: Sub-Team from Action Item 071 Natalia Beccera Pozo (Exova Limited) (Lead) et. al of NMMT, to meet to discuss a new test plan for specimen controlled bending and a controlled load train misalignment and the effect on percent bending and with empirical test results to prove the decoupling of the percent bending from the specimen and the load train. Sub-Team to report out this information during the June 2017 Nadcap Meeting in Berlin, Germany. (Due Date: 31-May-2017)

# 2017 interlaboratory proficinecy testing (ipt) update – OPEN



Interlaboratory Proficiency Testing (IPT) has 40 labs participating in 2017. Specimen distribution is scheduled to be completed by the end of February 2017 so the program is on schedule. The testing includes Tensile Strength/Modulus, Compression Strength, Lap Shear, Glass Transition Temperature by DMA, and Resin Flow.

The Laboratory Reports are still Due on 01-May-2017.

# verification of exova ptp participation in ac7122 – OPEN



* Airbus and SAFRAN have concerns over how this is currently being verified

SAFRAN and Airbus seek for an NMMT Audit approach that is in compliance with their way of controlling test method consistency by IPT and compliant with ISO 17025

There are three points that SAFRAN and Airbus wants to emphasize in respect to quality test results monitoring actions which come from Airbus and SAFRAN requirements:

* General

At a frequency of 1 per 2 years per test code (currently not strictly defined in the checklists to catch any deviation with the adequate reactivity.

For each test being included in the scope of Nadcap accreditation covering the Subscribers Scope of qualification.

Applicable to all labs, including independent and captive labs of both material and part suppliers.

Any non-satisfying result must be addressed by the applicable corrective action process.

* IPT program participation

In a program recognized or accepted by the customer. Note, in case of no program availability during the required period (including all PTP programs accepted by Nadcap and defined in OP 1114 Appendix COMP/NMMMT/NMMM) no NCR shall be issued.

In case of non-satisfying result, immediate participation is mandatory in order to demonstrate the efficiency of the corrective action identified.

* Internal Round Robin

For operators and equipment.

NOTE: ISO 17025 new version: PTP & IRR will both be required.

There are two possible ways forward:

* Subscribers globally have the same interest in proficiency testing requirement
  + We can propose an AC7122/AH7122/OP 1114 revision for the next meeting
  + Goal is to cover these criteria to guarantee their consideration under audit
  + NOTE: Some inconsistencies have been identified when reviewing NMMT documentation to evaluate the applicability to SAFRAN/Airbus process, but in the meantime it could improve the Task Group checklists and documents.
* Subscribers majority has not the same interest in proficiency testing requirement then supplements can be added to cover the Airbus and SAFRAN (and other potential Subscribers) spefically.

Airbus and SAFRAN are concerned that the IPT is not testing all the codes in a timely manner in a small enough database. The Task Group explained our position and why we have Supplier Inter-Laboratory Proficiency Test Program in Section 6 for our AC7122 Revision C document. That this requirement was set because of the Fiber Manufacturing Testing that is covered by our documents.

The Task Group agreed that if there are areas that are confusing or are incomplete, then they should be addressed in the next revision.

ACTION ITEM: Airbus (Muriel Malhomme) and SAFRAN (Christine Brassine) to present clarification list to the current AC7122 checklist and proposed changes to the AC7122/AH7122/OP 1114 documents to eliminate their concerns on IPT/PTP validation, Internal Round Robins and Operator Qualification. Report out of this information will occur during the June 2017 Nadcap Meeting in Berlin, Germany. (Due Date: 31-May-2017)

They also had concerns on Operator Qualification and Internal Round Robins. Our checklist does not address either of these issues at this point in time, and they are not currently being actively worked.

# open discussion – OPEN

**Topic 1 - AC7122-I and Class C Elastomers Test Codes**

Are NMMT reviewers qualified to review Class C test NCRs?

The current Memorandum of Understanding specifically allows AC7122-I to allow Class C tests. Both the NMMT Sub-Group and SEAL Task Groups can use AC7122 checklists to audit Elastomeric Testing. The NMMT Sub-Group will use it to the audit Independent Test Laboratories (AC7122-I, Class C) and SEAL Task Group will use it to audit Captive Test Laboratories performing Elastomeric Testing (AC7122-P, Class C).

It also requires NMMT to review AC7122-I audits for Class C tests. For Independent Test Laboratories, all AC7122-I audits are to be reviewed by the NMMT Sub-Group Staff Engineers and not the SEAL Staff Engineer. The NMMT Sub-Group is responsible for review of the checklist and closure of NCRs and accreditation to AC7122-I.

The Task Group agrees that this is within our expertise and should continue to review the Class C test NCRs for Independent Laboratories. We also need to verify with the Supplier who is seeking only Class C for AC7122-I understands their mandate, and do we need to review our AC7122 document for this situation.

**Topic 2 – Should the Task Group consider Thermoplastic Testing as part as AC7124?**

The Task Group concurs.

# meeting close out – OPEN

ADJOURNMENT – 22-Feb-2017 – Meeting was adjourned at 3:00 p.m.

Minutes Prepared by: John Key, [jk2@bh.com](mailto:jk2@bh.com)

|  |  |  |
| --- | --- | --- |
| \*\*\*\*\* For PRI Staff use only: \*\*\*\*\*\*  Are procedural/form changes required based on changes/actions approved during this meeting? (select one)  YES\*  NO  \*If yes, the following information is required: | | |
| Documents requiring revision: | Who is responsible: | Due date: |
|  |  |  |
|  |  |  |