



# Minutes of the 39th MMPDS Coordination Meeting

## Held in:

Virtual Meeting  
March 28 - April 1, 2022

---

### Compiled by:

Battelle  
505 King Avenue  
Columbus, OH 43201-2693

### Prepared for:

FAA William J. Hughes Technical  
Atlantic City, NJ 08405

# 39<sup>th</sup> MMPDS Coordination Meeting – Table of Contents

<b>Introduction of Attendees.....</b>	<b>1</b>
<b>Approval of the 39<sup>th</sup> MMPDS Meeting Minutes.....</b>	<b>1</b>
<b>Vice-Chairman Remarks.....</b>	<b>2</b>
<b>Summaries .....</b>	<b>3</b>
Registrants Attendance .....	4
New Item Numbers Assigned in 2021 .....	7
Closed Agenda Items .....	9
Final Minutes Agenda Item Summary .....	10

# 39<sup>th</sup> MMPDS Coordination Meeting

---

## Introduction of Attendees

---

A list of 39th Coordination Meeting attendees, indicating the virtual meetings they attended, has been incorporated into this document.

---

## Approval of the 39th MMPDS Meeting Minutes

---

Except for Item 22-14, if no objections or corrections have been received within 30 days, the minutes of the 39th GCC Meeting are considered approved. Item 22-14 will be considered approved 60 days after the minutes are posted unless Battelle is notified.

# 39<sup>th</sup> MMPDS Coordination Meeting

---

## Vice-Chairman's Remarks - Walter Sippel

---

Once again, thanks to everyone who participated in the 39th MMPDS General Coordination Committee meetings held virtually between March 28 and April 1. The COVID-19 virus continues to be a great challenge that will impact the aerospace industry for some time to come. The Battelle team did an excellent job of organizing and coordinating the WebEx sessions to keep the program moving forward. The final Minutes become official 30 days after posting unless comments are sent to Battelle as described in the Foreword to MMPDS-16.

Participants of each meeting discuss significant Agenda Items. At the 39th meeting, Battelle reviewed the improved Indirect Method. The GCC decided that the item could not be passed without including data generation requirements. These will be added to the Fall Agenda. Comments on the beta tool will also help Battelle improve Item 15-36, which everyone hopes to approve during the fall meeting. Battelle also reviewed the latest draft of Sections 9.1, 9.2, and 9.3 for Volume II that gathers information about the MMPDS Handbook process, material specification requirements, material testing, data generation requirements, and data submission process. This is in preparation for publishing the new Volume. Battelle presented a detailed program plan listing all identified items for the first version of Volume II. While we still have work to do, we have made great progress in completing many of the items thanks to your efforts. During this meeting, we reached general agreement that completing those unfinished items will support receipt and analysis of data and preparation of proposed entries for additively manufactured metals.

As of this writing, Battelle and the FAA expect that the 40th Meeting will take place in Denver, CO the week of September 19, 2022. Travel restrictions may require special accommodations, especially for members from outside the US. Battelle is continuing to monitor federal, state, and local developments and will work with the GSG to decide upon the final meeting format (face-to-face, virtual, hybrid). The FAA is monitoring COVID risk levels through the [CDC](https://www.cdc.gov). Battelle is also watching international trends at: [www.globalepidemics.org](https://www.globalepidemics.org). You should expect a final decision by July 21.

As discussed during the 39th GCC, there will be a summer session of the ETTG to review four items: 21-04: Section 9.1, 9.2, 9.3 for Volume II and 21-20: Microstructural Submittal Requirements, 22-08: Chapter 1 for Volume II, and 22-21: Chapter 10A: Use of C/D/S-Basis Allowables in Volume II. Battelle will send invitations for approximately 2-4 hours of discussion for the week of July 18. There may be other virtual sessions in August to introduce specific items, gather feedback from a wider audience, and provide an opportunity to discuss Consent Agenda items. The success of every meeting depends on your continuing participation.

Thanks again for attending the 39th MMPDS GCC meetings. Your commitment, dedication, and donation of your valuable time to maintain MMPDS is most appreciated. I look forward to seeing everyone in Denver.

Best Regards,

MMPDS Vice-Chairman, Walter Sippel

Aerospace Engineer, Materials and Structural Properties Section, AIR-621

Technical Innovation Policy Branch, AIR-620



# SUMMARIES

<b>39th MMPDS Meeting Attendance</b>			March 15th	March 28th				March 29th	March 30th	March 31st	April 1st	
Last Name	First Name	Company	ASG	Orientation	ISG	GSG	ISG/GSG	ETTG 1-4	FTG 1-3	GTG 1-4	MTG 1-3	GCC
Anderegg	David	Defense Logistics Agency				X	X	X				
Anderson	Neil	The Boeing Company			X		X		X	X	X	X
Ashforth	Cindy	Federal Aviation Administration						X		X		
Bach	Andreas	Novelis		X	X					X	X	
Bakuckas	John	Federal Aviation Administration		X		X	X	X		X	X	X
Barnett	Roger	ANSYS UK Limited		X	X		X					
Beckman	Jonathan	Gulfstream Aerospace			X			X		X	X	
Bennett	Jay	NASA				X	X	X		X	X	
Bennett	Russell	The Boeing Company	X	X	X		X			X	X	X
Benson	Callie	Collins Aerospace			X		X	X	X	X	X	
Bihlman	Bill	Aerolytics LLC						X				
Bittner	Peter	Constellium			X		X	X		X	X	X
Bostanci	Melike Nur	Turkish Aerospace Industries						X	X	X	X	X
Bray	Gary	Westmoreland						X		X	X	X
Chen	Bingqing	Beijing Institute for Aeronautical Materials						X				
Chung	Pui See	Blue Origin						X				
Cordner	Sam	NASA		X		X	X	X	X	X	X	X
Coronado	Peter	The Boeing Company		X	X		X		X			
Crill	Matthew	The Boeing Company			X		X	X				
Crisler	Elizabeth	Textron Aviation (Cessna)						X	X	X	X	
Cunha	Mauricio	Embraer		X	X		X	X		X	X	X
Daley	Nancy	Rocket						X		X	X	X
Davis	Joel	Rolls-Royce		X	X		X	X		X	X	X
Doty	Peter	SAE International / SAE ITC						X		X	X	X
Elwell	Abram	The Boeing Company	X	X	X		X			X	X	X
Esparragoza	Manuel	Questek									X	
Garcia-Avila	Matias	ATI Metals			X			X		X	X	
Gill	Joseph	Collins Aerospace						X		X	X	X
Goode	Randy	Lockheed Martin							X			
Goodman	Jay	Blue Origin		X	X		X	X		X	X	X
Gorelik	Michael	Federal Aviation Administration				X	X	X				
Gossard	Justin	Battelle Memorial Institute		X	X		X	X	X	X		
Gruen	Brian	Battelle Memorial Institute		X			X					
Guerrier	Paul	Moog Inc.			X			X				
Guo	Guangping	Beijing Institute for Aeronautical Materials		X	X			X				
Gurrola	Robert	Howmet Aerospace Inc.			X		X		X	X		X
Habib	Ahsan	Raytheon Intelligence & Space			X			X	X	X	X	X
Hahn	Michael	Northrop Grumman	X	X	X		X	X	X	X	X	X
Hall	Doug	Battelle Memorial Institute		X	X	X	X	X	X	X	X	X
Hall	Gary	Bell Helicopter	X	X	X		X	X		X		
Hasting	Will	Velo3D		X	X		X	X		X	X	
Heine	Christoph	Airbus	X	X	X		X	X	X	X	X	X
Hirsch	Mike	US Air Force					X	X				X
Holman	Mitch	Gulfstream Aerospace		X	X		X	X	X	X	X	X
Jahner	Linda	Federal Aviation Administration		X			X	X	X	X	X	X

<i><b>39th MMPDS Meeting Attendance</b></i>			March 15th	March 28th				March 29th	March 30th	March 31st	April 1st	
Last Name	First Name	Company	ASG	Orientation	ISG	GSG	ISG/GSG	ETTG 1-4	FTG 1-3	GTG 1-4	MTG 1-3	GCC
James	Mark	Federal Aviation Administration				X	X	X		X		X
Jennings	James	US Navy						X	X	X	X	
Johnson	Dwight	Textron Aviation (Cessna)						X	X			
Johnson	Chloe	Elementum3D						X				
Jones	Lindsay	The Boeing Company		X				X		X		
Jones	Marshall	US Navy				X	X	X		X		
Kane	Michael	US Army		X		X	X	X	X	X	X	X
Kasami	Akiko	Mitsubishi Heavy Industries Ltd			X			X		X	X	
Kikuchi	Yusuke	Honda R&D Americas, Inc.						X				
Klenosky	Dan	Spirit Aero			X		X	X	X	X	X	X
Krile	Bob	Battelle Memorial Institute			X		X	X		X		X
Kusner	Robert	Materion		X	X		X	X		X	X	
Lamas	Jose	Embraer			X		X		X			
Lamb	Justin	Universal Alloy		X	X		X	X	X	X	X	X
Latour	Andrew	Moly Works Materials								X	X	X
Leicht	Doug	Parker LORD						X	X			
Liou	Richard	Collins Aerospace		X	X		X	X	X	X	X	X
Liu	George	US Army				X	X	X	X	X	X	X
Lu	Yan	National Institutes for Standards & Technology		X			X	X		X	X	X
Maciejewski	Kimberly	Arconic		X	X		X	X		X	X	X
McGill	Matthew	Parker LORD			X				X	X		
Melemez	Fazli	Turkish Aerospace Industries			X		X	X	X	X	X	
Muldoon	Ariel	The Boeing Company						X		X		
Nagao	Kazuki	Honda R&D Americas, Inc.			X		X					
Nicholson	Shane	Parker LORD		X	X		X	X		X		
Niedzinski	Michael	Constellium										X
Nixon	Edward	Gulfstream Aerospace								X		
Norimatsu	Koichi	IHI Corporation								X		
Ofsthun	Mark	Honda Aircraft Company		X	X		X	X	X	X		
Olsen	Kirk	Parker LORD		X	X		X	X	X	X	X	X
Oshino	Hironobu	IHI Corporation		X	X		X					
Piché	Marie	Bombardier Aerospace		X	X		X	X	X	X	X	X
Pujar	Vijay	Collins Aerospace			X		X	X				
Reakes	Clay	Battelle Memorial Institute			X		X	X	X	X	X	X
Reber	Korey	Collins Aerospace		X	X		X	X		X	X	X
Robertson	Jessica	Haynes International		X			X	X		X	X	X
Rubadue	Jana	Battelle Memorial Institute	X	X	X		X	X		X	X	X
Scalf	Cyndee	Battelle Memorial Institute		X	X		X	X	X	X	X	X
Scheuring	Jason	Kaiser Aluminum		X	X		X	X		X	X	X
Shannon	Carinne	Battelle Memorial Institute	X		X		X	X	X	X	X	X
Sheffels	Christopher	Honda Aircraft Company	X	X	X		X	X	X	X	X	X
Shivers	Brian	US Air Force						X			X	
Sippel	Walter	Federal Aviation Administration				X	X	X	X	X	X	X
Slattery	Kevin	Student/Invited Guest - Contact Battelle Before Registering						X				

39th MMPDS Meeting Attendance			March 15th	March 28th				March 29th	March 30th	March 31st	April 1st	
Last Name	First Name	Company	ASG	Orientation	ISG	GSG	ISG/GSG	ETTG 1-4	FTG 1-3	GTG 1-4	MTG 1-3	GCC
Smith	Ryan	General Electric (Guest)						X				
Snyder	Don	Bell Helicopter			X		X	X		X		
Snyder	Matthew	Battelle Memorial Institute								X		
Sodouri	Pedrum	Norsk Titanium		X	X			X				
Spiegelberg	William	Materion						X			X	
Steele	Leslie	Collins Aerospace	X		X		X	X		X	X	X
Steevens	Andrew	The Boeing Company	X		X		X	X		X	X	X
Stonaker	Kevin	Federal Aviation Administration		X		X	X	X		X	X	X
Takahashi	Kotomi	IHI Corporation		X				X				
Thomas	Bruce	Bombardier Aerospace	X		X		X	X	X	X	X	X
Thompson	Steven	US Air Force				X	X	X	X	X	X	X
Tummons	David	The Boeing Company	X		X		X	X	X	X	X	X
Ullmann	Joseph	US Navy						X				
Vanderpol	Paul	Collins Aerospace		X	X			X	X	X	X	X
Ventura	Kyle	Northrop Grumman		X				X			X	
Vick	Mark	Gulfstream Aerospace		X								
Vico	Federica	Lilium						X		X	X	
Vogel	Bret	Textron Aviation (Cessna)	X		X		X	X	X	X	X	X
Wachs	Julia	The Boeing Company	X		X		X	X		X	X	X
Waite	Simon	Other - Contact Battelle		X		X	X	X			X	
Wertz	Katelun	US Air Force					X			X	X	
Wheelock	Paul	Rolls-Royce			X		X	X	X	X	X	X
White	Joel	Niar-Wichita-edu (Student)						X				
White	Will	Battelle Memorial Institute						X		X		
Woish	Mason	Lockheed Martin						X				
Wrenn	Katy	The Boeing Company						X		X		
Yavari	Parviz	Northrop Grumman		X	X			X				
Young	Bruce	Battelle Memorial Institute								X	X	X
Zhong	Bin	Beijing Institute for Aeronautical Materials						X		X	X	



## 39th MMPDS Coordination Meeting

### New Item Numbers Assigned in 2022

22-01	Review Use of Grain Direction and Orientation.
22-02	Investigation of Remaining Materials of Table 8.1.2(b)
22-03	Fasteners Requested for Analysis
22-04	Proper use of "Gage"
22-05	Revise Fracture Toughness Table for Titanium Alloys
22-06	Combinability in Vol II
22-07	Update Tolerance Bound Figure in Section 9.2.4
22-08	Chapter 1 for Volume II
22-09	Preface for MMPDS Volume I and II
22-10	Uniformity Test for more than three bins
22-11	Directional Shear and Poisson Ratio Properties
22-12	Revision to Ferrium M54 Property Table
22-13	Considerations for the Development of Design Values
22-14	Modification to Section 9.2.2, V2
22-15	Test Plan for Fastener XXX
22-16	Addition of Final Heat Treatment Thickness Information
22-17	Correction to Table 3.7.5.0(b1) 7050-T7451 Plate
22-18	Section 9.2.1.5: Stress-Strain Properties
22-19	Corrections to Fatigue Curves for 2024 Aluminum Alloy
22-20	Correction to Fsu for 7050-T74511 Extrusion, AMS 4342
22-21	Sections 10.1 and 10.2: Introduction & One-Sample Acceptance Test
22-22	Definition of "Joint Allowable"

### 39th MMPDS Coordination Meeting

#### New Item Numbers Assigned in 2022

22-23	Clarify use of "Alloy" and "Product"
22-24	Update Section 1.4.6 for Historic Pin Shear
22-25	Clarify Legacy Alloy Review Guidelines

### 39th MMPDS Coordination Meeting Final Minutes

#### CLOSED AGENDA ITEMS

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
12-17	MTG	ASG & MATSSG	6	Footnote for Non-Ferrous Alloys Test Specimen When Not From Full Thickness	Status	MTG-1	Closed w no Action	No alloys have been identified. If an alloy is identified, a new item will be opened.
17-25	GTG		9	Re-evaluation of Reduced Ratio Sample Size Determination	Status	GCC	Closed w no Action	This item was closed with no action.
17-34	GTG	SSWG	9	Guidelines for Rejection of Stress-Strain Curves from Parametric Analysis	Agenda	GTG-2	Closed w no Action	B. Young gave a presentation on this item and Item 21-43. A copy of the presentation is included in the minutes. This item will be incorporated into 21-43.
19-44	MTG		multi	Update Stress-Strain Figures to Report Bron Method Relevance	Agenda	MTG-2	Approved and Closed	J. Rubadue presented this item.
21-23	GTG		9	Definitions of "Design Allowable", "Design Value", and "Material Allowable" for MMPDS	Agenda	GTG-1	Approved and Closed	C. Shannon presented this item. S. Thompson (AFRL) requested that a separate item be sent to GSG to change Foreword. This could be done between meetings.
21-33	MTG		5	Legacy Analysis of AMS 4911 Ti-6Al-4V Sheet and Plate	Agenda	MTG-2	Approved w Changes and Closed	J. Rubadue presented this item. Proposals #1, #2, #3, and #5 approved. Proposal 4 was approved with a change to 4c, the footnote will be changed to "Shear test method unknown. See Section 1.4.6." Open new item to update Section 1.4.6. Open new item to review legacy guidelines for clarity since there were 7 objections to approving.
21-41	GTG	ETTG	V2	V2: Section 9.8.3 Tabular Data Presentation	Agenda	ETTG-3, GTG-2	Approved and Closed	D. Hall presented this item.
22-06	GTG	ETTG	V2	Combinability in Vol II	Agenda	ETTG-3, GTG-2	Approved and Closed	C. Shannon presented this item.
22-09	GCC		Both	Preface for MMPDS Volume I and II	Agenda	GTG-3, GCC	Approved and Closed	D. Hall presented this item. Agreed to renaming MMPDS to include the year it is released.
22-10	GTG	ETTG	Both	Uniformity Test for more than three bins	Agenda	ETTG-4	Approved and Closed	W. White presented this item.
22-12	MTG		2	Revision to Ferrium M54 Property Table	Agenda	MTG-2	Approved w Changes and Closed	J. Rubadue presented this item. Reference to thickness changed to cross-sectional area, in <sup>2</sup> of full aged material = <0.64
22-14	GTG	ETTG	V2	Modifications to Section 9.2.2, V2	Agenda	ETTG-3, GTG-2	60 Day Approval with changes	D. Hall presented this item. The word "minimum" and the phrase "produce consistent material properties" will be added to proposed text as shown in the minutes. Remove sentence in 9.2.2.X reference specific AMS specifications.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
04-21	FTG		8	Fastener Tables of Sunset Review Interest	On Hold		Not Covered	This item is on hold, pending items 12-50, 12-105, 17-28
08-23	FTG		8	Sunset Review of Table 8.1.3.2.2(c), NAS1921C	On Hold		Not Covered	This item is on hold, pending items 12-50, 12-105, 17-28
09-13	FTG		8	Sunset Review of Table 8.1.3.2.3(a), MS21140	On Hold		Not Covered	This item is on hold, pending items 12-50, 12-105, 17-28
11-05	MTG		1	AMS Coordination	Status	MTG-1	Continue	C. Shannon gave a status report. More information on recent specification activity will be included in the minutes.
11-38	FTG		8	Sunset Review of Flush Head, Mechanical Lock Spindle Blind Rivet Table 8.1.3.2.2(e) NAS 1921 M	On Hold		Not Covered	This item is on hold, pending items 12-50, 12-105, 17-28
12-105	GTG-F	FTG	9	Modification to the Sunset Criteria Procedures	On Hold		Not Covered	This item is on hold, pending items 12-50, 17-28
12-17	MTG	ASG & MATSSG	6	Footnote for Non-Ferrous Alloys Test Specimen When Not From Full Thickness	Status	MTG-1	Closed w no Action	No alloys have been identified. If an alloy is identified, a new item will be opened.
12-50	GTG-F	FTG	9	Evaluation of new Regression and Confidence Models for Lap Joint Tests	On Hold		Not Covered	This items is on hold, pending item 17-28
12-89	MTG	PSG		Target Materials for Propulsion Applications	Status		Not Covered	This item was not covered.
13-34	MTG		5	Addition of AMS 4919 Ti-6-2-4-2 Plate Properties	Status	MTG-1	Continue	C. Shannon gave a status update. Data received from ATI and AFRL. Howmet has also agreed to send data.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
13-50	GTG		9	ASTM Coordination	Status	GTG-1	Continue	D. Hall gave a status report. B. Young will be presenting his stress-strain presentation to ASTM E08.03. ASTM will have virtual availability for meetings.
14-28	FTG		8	Sunset Review of Table 8.1.4.2(i), LGPL2SC-V Pin, 3SLC-C Collar in Clad 7075-T6	On Hold		Not Covered	This item is on hold, pending items 8-23, 12-50, 12-105, 17-28
15-13	MTG		multi	Clarification of Shear Orientation for Legacy Alloys	Agenda	MTG-1	Continue	J. Rubadue presented this item. Discussion topics #1, #2 approved. Discussion topics #3 and #5 are continued. For discussion topic #4, it was decided to leave the table as is.
15-19	GTG-F		9	Verification of Secondary Modulus Methods for Fasteners	Handout	FTG-3	Continue	C. Reakes presented this handout. FTG members will attempt locate ARTC Report 33 from March 1964.
15-36	GTG	ISG, GSG	9	Modification of Indirect Analysis Equation	Agenda	GTG-3	Continue	B. Krile gave a presentation related to the Agenda. The presentation slides will be included in the minutes. A. Muldoon (Boeing) also added input regarding limitations. Their slides will be included in the minutes. They were not presented due to a lack of time. A final agenda will be presented in the fall to add correlation restrictions and calculation for Spearman. Clearly document limits and applicability. Add definitions for Precision and Accuracy. Consider counting of pairs, not averaging lots. Data requirements in Table 9.2.4 will be updated. The Indirect Method Example in 9.8.2 will be replaced with a new example using the new Indirect Method.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
15-38	GTG		9	Reevaluation of Degrees of Freedom Calculation for Regression with Effect of Temperature	Status		Not Covered	This item was not covered.
16-12	FTG		8	Identifying Basis of Fastener Shear Strength on Remaining Tables	Handout	FTG-3	Continue	C. Reakes presented this handout. Battelle to investigate archived data packages. FTG to search for remaining data packages.
16-13	FTG		8	Corrections to Table 8.1.3.2.2(c) NAS 1921C	On Hold		Not Covered	This item is on hold, pending items 8-23, 12-50, 12-105, 17-28
16-20	GTG	ETTG	V2	Equivalence Testing Assuming Change in Process (From Item 11-40)	On Hold		Not Covered	This item was not covered.
16-23	GTG		6	Re-evaluate Guidelines for Effect of Temperature Curves	Status		Not Covered	This item was not covered.
17-23	GTG		9	Legacy Alloy Review Strategy – Near Term	Handout	GTG-1	Continue	D. Hall presented this with Item 21-48.
17-25	GTG		9	Re-evaluation of Reduced Ratio Sample Size Determination	Status	GCC	Closed w no Action	This item was closed with no action.
17-28	GTG-F	FTG	9	Consideration of Origin in Multiple Regression Analysis for Joint Allowables	On Hold		Not Covered	Per FTG call on 6/24/21, this item is on hold until data are received from Boeing/Allfast. This will include full review of whether current MMPDS applied to the M7885-27 fastener data adequately illustrates the concerns about perceived overly conservative allowables for small t/D. If confirmed, possible remedies will be discussed.
17-34	GTG	SSWG	9	Guidelines for Rejection of Stress-Strain Curves from Parametric Analysis	Agenda	GTG-2	Closed w no Action	B. Young gave a presentation on this item and Item 21-43. A copy of the presentation is included in the minutes. This item will be incorporated into 21-43.
17-45	MTG		3	Effect of Temperature Curves for 2395-T84 Extrusion	Status		Not Covered	This item was not covered.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
17-52	GTG	FatWg	9	Review Section 9.6.1 - Load and Strain Control Fatigue	Status	GTG-2	Continue	C. Reakes is continuing to review this section in conjunction with the LCF software development.
17-56	MTG		3	FCG Analysis for 2397-T87 Plate	Handout		Not Covered	This item was not covered.
17-61	GTG		9	Revising R-curve Requirement in Table 9.2.4	Status		Not Covered	This item was not covered.
17-62	GTG	FatWg	9	Revising Fatigue Requirement in Table 9.2.4	Status		Not Covered	This item was not covered.
17-63	GTG	FatWg	9	Use of Box-Cox Transformation in the Fitting of Fatigue Data	Presentation	GTG-2	Continue	B. Young gave a presentation which will be included in the Full Minutes.
18-08	MTG		6	718 Investment Cast (AMS5383) Addition of Tensile A/B-basis and Elevated Temperature	Agenda	MTG-1	Continue	C. Shannon presented this item. Battelle is still waiting for information on the casting geometry where the specimens were located.
18-10	GTG	MATSSG	9	Data Requirements for Forgings	Agenda	GTG-4	Continue	J. Rubadue presented this item. More detail is needed for initial forging stock.
18-13	GTG		9	Guidelines for Exclusion of Low Secondary Property Test Values	On Hold		Not Covered	This item is on hold pending Item 15-36
19-19	GTG	FatWg	9	Consideration of a new Equivalent Stress model for Load-Controlled Fatigue	Status		Not Covered	This item was not covered.
19-25	GTG	ASG	9	Guidelines for Derived Properties for Legacy Alloys	On Hold		Not Covered	At the 37th meeting it was decided to put this item on hold until Items 15-36 and 17-23 are resolved. Meanwhile, decisions will be made on a case-by-case basis.
19-34	GTG		9	Waive Requirement for Bearing and/or Shear Properties When Appropriate	Handout		Not Covered	This item was not covered.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
19-37	GTG-F	FTG	9	Establish a Guideline for Reinserting Chapter 8 Tables.	Handout	FTG-2	Continue	R. Goode (Lockheed) gave a presentation of FEA work done to investigate if fastener shear lot release data could be used to confirm tables. FEA analysis would require extra physical testing which is not desired. A telecon will be setup for further discussion on the use of lot release data for sunset confirmation.
19-38	ETTG		V2	Process Intensive Materials & Technologies SDO Coordination	Status	ETTG-1	Continue	D. Hall provided a status update
19-40	GTG		9	Review Section 9.4 Substantiation of Data	Status		Not Covered	This item was not covered.
19-42	MTG		3	Confirmation of Design Properties of AMS 4202 for 7475-T7351 Aluminum Alloy Plate	Handout	MTG-3	Continue	C. Shannon presented this item. An agenda item will be prepared for the Fall meeting.
19-44	MTG		multi	Update Stress-Strain Figures to Report Bron Method Relevance	Agenda	MTG-2	Approved and Closed	J. Rubadue presented this item.
20-03	GTG		9	MMPDS Review & Approval Process	Handout		Not Covered	This item was not covered
20-04	GTG	ETTG	V2	V2: MMPDS Review & Approval Process	Handout		Not Covered	This item was not covered
20-09	MTG		3	Expansion of Thickness Range for 6061-T651 Plate	Status		Not Covered	This item was not covered. Suppliers agreed to supply L and ST data for 6-12 inches to extend minimum properties. However, the material spec is awaiting changes to tolerances in ANSI H35.2 for plate > 8 inch before extending spec thickness range.



## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
20-10	MTG		3	Upgrade of Secondary Properties of 7075-T76511 Aluminum Alloy Extrusions	Status		Not Covered	This item was not covered. This item is related to Item 18-22 closed at the 34th meeting where derived properties in the 1-2 inch range were S-basis due to small sample size. Kaiser and Universal alloy agreed to supply data or material. AFRL agreed to testing. Data for 2.5-3 inch is also desired.
20-13	ETTG		V2	CMH-17/MMPDS Coordination & Collaboration	Status	ETTG-1	Continue	D. Hall provided a status update
20-16	GTG	ETTG	V2	MMPDS & Additive Metals - Program Plan	Handout	ETTG-1	Continue	D. Hall presented this handout.
20-29	GTG		9	Analysis of Bearing and Shear Properties with the new Indirect Method	Status	GTG-3	Not Covered	This item was not covered due to time.
20-30	GTG	ETTG	V2	Components of Variance Analysis of AM, Cast, & Wrought Ti 6-4	Status		Not Covered	This item was not covered.
20-35	MTG		multi	Alloys Requested for Analysis	Status		Not Covered	This item was not covered. See the 37th Handout for priority list.
20-36	MTG		multi	Request for Secondary Property Data	Status		Not Covered	Please let Battelle know what non-lot release test data you have that can be combined with data from other companies.
21-01	GTG	ETTG	V2	Foreword to Volume II	Status	ETTG-1	Continue	M. Gorelik (FAA) and W. Sippel (FAA) gave a status update. Foreword still in progress.
21-02	GTG	ETTG	V2	Section 9.5 & 9.6 for Volume II	Status	ETTG-2	Continue	D. Hall gave a status update. Currently there are no arguments against using Sections 9.5 and 9.6 to analyze AM data. If there are objections, please send them to Battelle.
21-04	GTG	ETTG	V2	Section 9.1, 9.2, 9.3 for Volume II	Agenda/ Handout	ETTG-2, GTG-2	Continue	D. Hall presented this item. Please read and send comments to Battelle. New item to address "alloy" vs. "product".

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
21-10	FTG		other	Fatigue of PH13-8Mo Bolts	Handout	FTG-1	Continue	C. Reakes presented this handout. Dr. Kirk Olsen (Parker Lord) gave a presentation on his research. Dr. Olsen to investigate 6% bending against 2 degree alignment requirement. An agenda will be prepared for the Fall meeting.
21-13	MTG		5	Review of Section 5.5.3 Ti-10V-2Fe-3Al Comments and Properties	Agenda	MTG-3	Continue	C. Shannon gave a status report. More information was received after the agenda. Continue and present an agenda in the Fall.
21-18	ETTG		V2	Updates from V2WG Sub-teams	Status	ETTG-2	Continue	Co-chairs for each V2WG sub-team gave a status update.
21-20	GTG	ETTG	V2	Microstructural Submittal Requirements	Status	ETTG-4	Continue	D. Hall provided a status update. S. Cordner provided some background. Comments from the group will be captured as part of the minutes.
21-23	GTG		9	Definitions of "Design Allowable", "Design Value", and "Material Allowable" for MMPDS	Agenda	GTG-1	Approved and Closed	C. Shannon presented this item. S. Thompson (AFRL) requested that a separate item be sent to GSG to change Foreword. This could be done between meetings.
21-33	MTG		5	Legacy Analysis of AMS 4911 Ti-6Al-4V Sheet and Plate	Agenda	MTG-2	Approved w Changes and Closed	J. Rubadue presented this item. Proposals #1, #2, #3, and #5 approved. Proposal 4 was approved with a change to 4c, the footnote will be changed to "Shear test method unknown. See Section 1.4.6." Open new item to update Section 1.4.6. Open new item to review legacy guidelines for clarity since there were 7 objections to approving.
21-40	GTG	ETTG	V2	Impact of Powder Re-use on AMS7000 625 LPBF	Status	ETTG-3	Not Covered	Not covered due to time constraints. Planned presentation will be included in minutes.
21-41	GTG	ETTG	V2	V2: Section 9.8.3 Tabular Data Presentation	Agenda	ETTG-3, GTG-2	Approved and Closed	D. Hall presented this item.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
21-42	MTG		6	Update for Haynes 230 Strength vs. Temperature curves	Status	MTG-3	Continue	C. Shannon noted that Battelle is still working on this item.
21-43	GTG		9	MMPDS use of ASTM E3076 for Slope Determination	Agenda	GTG-2	Continue	B. Young gave a presentation on this item and Item 21-43. A copy of the presentation is included in the minutes. Effort on development of a tool to implement ASTM E3076. A presentation will be given to ASTM in May. This item will be continued to develop suitable guidelines.
21-45	MTG		5	Analysis of FCGR and Load Control Fatigue data for Ti 6-2-4-2 per AMS4919	Status	MTG-3	Continue	Effort on this item is on-going.
21-46	ETTG		V2	MMPDS Vol 2, Certification & Qualification "Further Showing"	Status	ETTG-4	Continue	P. Guerrier (Moog) gave a status update.
21-48	GTG		9	Periodic Testing Options for Specifications	Handout	GTG-1	Continue	D. Hall presented this item with Item 17-23. K. Sabo (Lockheed) is sponsoring a General Agreement for SAE about periodic testing.
21-52	MTG	ASG	3	Removal of 7075-T6xxx Design Allowables for Thick Sections	Agenda	MTG-2	Continue	This item was discussed in ASG. There is a concern due to the SCC properties. This would apply to some other alloys as well. An agenda item will be prepared for Fall.
21-53	ETTG		V2	Analysis of 718 Laser Powder Bed Fusion per AMS7038	Handout	ETTG-3	Continue	C. Shannon presented this handout. An agenda will be prepared when new data is available.
21-54	MTG		2	Clarification of Footnote "...Adequate Quality Control Testing"	Agenda	MTG-2	Continue	J. Rubadue presented this item.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
22-01	GTG			Review Use of Grain Direction and Orientation.	Handout	GTG-4	Continue	C. Shannon presented this Handout. An agenda will be prepared for fall with proposals. Comment to change grain orientation to specimen orientation (defined by 2 grain directions) to clarify that it is for a test specimen. PLEASE review and provide feedback on proposed changes as indicated in the Handout.
22-02	FTG			Investigation of Remaining Materials of Table 8.1.2(b)	Status	FTG-3	Continue	C. Reakes gave a status update. Clay to investigate data for Ti-45Nb.
22-03	FTG			Fasteners Requested for Analysis	Status	FTG-3	Continue	C. Reakes gave a status update
22-04	GTG			Proper use of "Gage"	Handout	GTG-4	Continue	C. Shannon presented this Handout. G. Bray (WMTR) commented that GAUGE is the preferred spelling today. An agenda will be prepared for the fall meeting.
22-05	MTG		5	Revise Fracture Toughness Table for Titanium Alloys	Status	MTG-3	Continue	J. Rubadue gave a status update.
22-06	GTG	ETTG	V2	Combinability in Vol II	Agenda	ETTG-3, GTG-2	Approved and Closed	C. Shannon presented this item.
22-07	GTG	ETTG	V2	Update Tolerance Bound Figure in Section 9.2.4	Agenda	ETTG-2, GTG-2	Continue	W. White presented this item. More clarification will be added in order to distinguish between population and sample.
22-08	GTG	ETTG	V2	Chapter 1 for Volume II	Handout	ETTG-4	Continue	D. Hall presented this handout. Please provide feedback. Battelle will prepare an Agenda Item for the Fall meeting
22-09	GCC		Both	Preface for MMPDS Volume I and II	Agenda	GTG-3, GCC	Approved and Closed	D. Hall presented this item. Agreed to renaming MMPDS to include the year it is released.

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
22-10	GTG	ETTG	Both	Uniformity Test for more than three bins	Agenda	ETTG-4	Approved and Closed	W. White presented this item.
22-11	GTG		9	Directional Shear and Poisson Ratio Properties	Handout	GTG-4	Continue	D. Tummons (Boeing) presented this item. Have ASG consider this item.
22-12	MTG		2	Revision to Ferrium M54 Property Table	Agenda	MTG-2	Approved w Changes and Closed	J. Rubadue presented this item. Reference to thickness changed to cross-sectional area, in^2 of full aged material = <0.64
22-13	GTG	ETTG	V2	Considerations for the Development of Design Values	Handout	ETTG-4	Continue	P. Guerrier (Moog) presented this handout.
22-14	GTG	ETTG	V2	Modifications to Section 9.2.2, V2	Agenda	ETTG-3, GTG-2	60 Day Approval with changes	D. Hall presented this item. The word "minimum" and the phrase "produce consistent material properties" will be added to proposed text as shown in the minutes. Remove sentence in 9.2.2.X reference specific AMS specifications.
22-15	FTG		8	Test plan for Fastener XXX	Status	FTG-2	Continue	C. Reakes gave a status update. A test plan will be developed.
22-16	MTG		2	Addition of Final Heat Treatment Thickness Information	Agenda/Handout	MTG-2	Not Covered	Not covered due to time constraints.
22-21	GTG	ETTG	V2	Sections 10.1 and 10.2: Introduction & One-Sample Acceptance Test	Status		Not Covered	D. Hall gave a status update.
22-22	GTG-F	FTG	1	Definition of "Joint Allowable"	Handout	FTG-3	Continue	C. Reakes presented this handout. Chapter 9 reference will be added, and this handout will be circulated with minutes. FTG An agenda item will be prepared for the Fall.
22-23	GTG		Both	Clarify use of "Alloy" and "Product"			New	

## 39th MMPDS Coordination Meeting Final Minutes

***SORTED BY ITEM NUMBER***

Item No	Responsible Group		Chpt	Title	Type	WebEx Session	39th Action	39th Meeting Description
	Final	Initial						
22-24	GTG		9	Update Section 1.4.6 for Historic Pin Shear			New	Results from 21-33 discussions. Update the section to include more history of pin shear testing.
22-25	GTG		9	Clarify Legacy Alloy Review Guidelines			New	Results from 21-33 discussions.