

Subcommittee on Human Factors SUMMER/FALL 2016 | MINUTES

Meeting date | September 7-8, 2016

Meeting location | Washington, DC

Purpose: Review the R&D accomplishments for fiscal year 2016. Strategic Guidance – FY 2019.

Note taker: Dr. S. Chappell / T. Phillips

Wednesday, September 7, 2016

Attendees	Affiliation	Attendees	Affiliation
Alan Jacobsen	Boeing	Jack Blackhurst	US Air Force
Amer Younossi	FAA	Jaime Figueroa	FAA
Ashley Awwad	FAA	James Bruno	FAA
Carla Hackworth	FAA	Jessica Nowinski	NASA
Chinita Roundtree-Coleman	FAA	Kenneth Allendoerfer	FAA
Chris DeSenti	MITRE	Kerin Olson	FAA
Dan Herschler	FAA	Kevin Comstock	ALPA
Divya Chandra	FAA	Mark Orr	FAA
Mike Gallivan	FAA	Nick Lento	FAA
Phil Smith	OSU	Regina Bollinger	FAA
Richard Barhydt	NASA	Sabrina Woods	FAA
Shelly Yak	FAA	Sherry Chappell	FAA
Stephanie Kreseen	FAA	Tiffany Philips	JMA
Tom Prevot	NASA		

- Jack Blackhurst and Sherry Chappell welcomed the Subcommittee members and welcomed the new member, Richard Barhydt.
- Introductions around the room and on the phone.

Presentation Welcome & Director's perspective | **Presenter** *Shelley Yak, Director of William J. Hughes Technical Center and REDAC Co-Chair since January 2016.*

- By 2018, the NARP is to become the strategic plan for FAA research
- NARP to be central to FAA-REDAC dialog
- Discussing making NARP include F&E research
- Committed to getting the recommendation responses back to subcommittees by next meeting
- Looking at best practices in addressing the responses

Presentation Review of REDAC Roles and Processes | **Presenter** *Chinita Roundtree-Coleman, William J. Hughes Technical Center*

- Leverage members from other agencies to collaborate on research needs
- Role of addressing the budget/use of the research money
 - Macro level – look at how the research money is being used; Is the research being done in the right areas
 - Can go even into the different projects within a budget line item (BLI)
- Summer-fall meeting provide strategic guidance for current +3 years, e.g., FY19 for this October
 - To provide guidance for budget cycle
- Winter-Spring – FAA look at strategic level for 2019
- Findings and recommendations
 - A finding describes what you observed
 - A recommendation tells the FAA what to do
 - FAA only responds to the recommendation

Presentation HF Budget Impact and Implications | **Presenter** *Mike Gallivan, RE&D Financial Manager*

- Information security is new initiative, can't start until we are no longer under a CR
- Human Factors (HF) request \$8.5M
- No language in House or Senate budget regarding HF
- Already working with the presidential transition teams for FY18

Presentation Review of HF activities/Emerging Issues | **Presenter** *Nick Lento, ANG-CI Acting Division Manager*

- Funding – NextGen ATC HF research funding was eliminated in FY15 – hoping for FY18 to have it reestablished
- More requests for flight deck research & are getting budget cut
- Staffing – Seeking 2 more program managers & 1 business manager
- Have 4 vacancies at in the Division

Presentation Review of FY16 ATC Core Research Accomplishments | **Presenter** *Dan Herschler, Scientific and Technical Advisor for Human Factors*

- Program reduced due to budget cuts from \$5M to \$500K
- Developing a set of tools for programs to use
 - Scenarios
 - Performance metrics

Presentation Update Air Traffic Organization's Human Performance efforts | **Presenter** *Jason Demagalski, Human Performance Manager, ATO Safety and Technical Training*

- Now have Human Performance in the NATCA agreement
- 3 components: HF, Health & Wellness, Fatigue Risk Management
- Has new app that stores fatigue data the controller inputs anonymously on a secure, separate server
- Conducting an international fatigue survey to see how other ANSP organizations are dealing with fatigue
- Health & wellness
 - How to get controllers to use information that is out there already
 - Support for this will largely come from NATCA
- Roundtable in October 2016
- Looking at the CANSO 12 maturity elements of human performance standard of excellence
 - Some of them involve research, some policy
- Re: F&R show the subcommittee the results of the roundtable & the other activities at the next meeting
- F&Rs are closed, and action item to continue to brief is created
- The action item 7 was closed based on the presentation

Presentation NASA Aeronautics Strategic Thrust 5 Roadmap, Real-time System-wide Safety | **Presenter** *Dr. Jessica Nowinski, NASA Technical Advisor for Safety, Airspace Operations and Safety Program*

- 6 strategic aeronautics thrusts
- Monitor, assess, mitigate using real-time data
- Want to alert prior to a hazard, e.g., predict engine failure 50 flights prior
- Look at improving what data need to be collected & analyzed
- Decision-making authority is distributed
- The program has a 30-year time horizon
- Includes ASIAS & ASRS
- In the future want to determine that a pilot is fatigued & make a notification

- Look at areas that should be collaborated across initiatives: HF, verification and validation (V&V), & data mining
- NASA has transitioned from discipline-based research to mission-based research
- The strategic implementation plan has really helped them get funding for aeronautics
- Are trying to input HF into all the work like they did with V&V
- This briefing satisfied Action Item 4 for this meeting

Presentation Administrator’s initiative on Risk-Based Decision Making (RBDM) | **Presenter** *Amer Youmossi, Deputy Division Manager, Safety Management and Research Planning Division*

- ICAO requirement to put together a state safety program (SSP)
- Already had safety management system (SMS)
- 4 initiatives: RBDM, NAS for future, workface of future, global leadership
- RBDM activities: data standardization, enhance decision making process
- Evolve oversight, transition to safety management
- >100 databases – working on common taxonomies, including those used by CAST
- FAA has signed an agreement with industry to work collaboratively on a non-punitive basis
- Action item 11 was closed based on the presentation

Thursday, September 8, 2016

Attendees	Affiliation	Attendees	Affiliation
Alan Jacobsen	Boeing	Jack Blackhurst	US Air Force
Ashley Awwad	FAA	Jaime Figueroa	FAA
Bill Johnson	FAA	Jerome Lard	FAA
Bill Kaliardos	FAA	Jessica Nowinski	NASA
Carla Hackworth	FAA	Jimmy Bruno	FAA
Cathy Swider	FAA	Ken Allendoerfer	FAA
Chinita Roundtree-Coleman	FAA	Kerin Olson	FAA
Chris DeSenti	MITRE	Kevin Comstock	ALPA
Chris Swider	FAA	Mark Orr	FAA
Dan Herschler	FAA	Michelle Yeh	FAA
Daniel Brock	FAA	Nick Lento	FAA
David McKenney	ALPA	Phil Smith	OSU
David Chen	FAA	Regina Bollinger	FAA
Richard Barhydt	NASA	Sherry Chappell	FAA
Stephen Plishka	FAA	Tiffany Philips	JMA

Presentation Review of FY16 ATC NextGen Research Accomplishments | **Presenter** *Dr. Jerome Lard, Scientific & Technical Advisor for Human Factors*

- Last received funds in FY14
- Have FY14 & FY16 project level agreements (PLA)
- FY13 PLA is wrapping up

Presentation Review of FY16 Core Flight Deck Research Accomplishments | **Presenter** *Dr. Sherry Chappell, Scientific & Technical Advisor for Human Factors*

Flight Deck Human Factors Research Requirement Area	Principal Technical Sponsor
Avionics & New Technologies - Certification and Operational Approval Criteria (A11G.HF.2)	Aircraft Certification (AIR-134)
General Aviation Safety Improvement Research – A Multi-Method Approach to Accident Reduction (A11G.HF.6)	Small Airplane Directorate, Standards Office - Programs and Procedures Branch (ACE-114)
Advanced Vision Systems (EFVS, EVS, SVS, and CVS), Head Up Displays (HUD), Head Mounted Displays (HMD): Certification and Operational Approval Criteria (A11G.HF.4)	Flight Standards – Flight Technologies and Procedures (AFS-470)
Enhancing Aviation Safety Through Advanced Procedures, Training & Checking Methods, to Include Loss of Control Detection, Avoidance, and Recovery (A11G.HF.1)	Flight Standards – Air Carrier Training and Voluntary Safety Programs (AFS-280)
Human Factors Maintenance Risk Management (A11G.HF.3)	Flight Standards – Aircraft Maintenance Division (AFS-360)
UAS Human Factors Considerations (A11G.HF.5 & A11L.UAS.30)	Flight Standards – Unmanned Aircraft Systems (AFS-86)
Fatigue Mitigation in Flight Operations (A11G.HF.8)	Flight Standards – Air Transportation Division (AFS-220)
Human Factors R&D for Improved Rotorcraft Operational Safety (A11G.HF.7)	Flight Standards – General Aviation and Commercial Division (AFS-820)

Presentation Review of FY16 NextGen Flight Deck Research Accomplishments | **Presenter** *Regina Bolinger*, Scientific & Technical Advisor for Human Factors

Flight Deck Human Factors Research Requirement Area	Principal Technical Sponsor
NextGen-Flight Deck Systems-flightcrew interfaces, installation, integration, and operations	Aircraft Certification (AIR-134) & Flight Standards – Flight Technologies and Procedures (AFS-410)
NextGen: Procedures, Tasks, Skills and Training for NextGen Air Carrier Pilots and Dispatchers	Flight Standards – Air Carrier Training and Voluntary Safety Programs (AFS-280)
NextGen-Human Factors Guidelines for Advanced Instrument Procedure Design and Use	Flight Standards – Flight Technologies and Procedures (AFS-470)
NextGen-Human Error and Complex Systems	Flight Standards – Air Carrier Training and Voluntary Safety Programs (AFS-280)
NextGen-DataComm Human Factors R&D	Flight Standards – Flight Technologies and Procedures (AFS-470)
Minimum Detect and Avoid (DAA) Display and Flight Path Information	Flight Standards - Unmanned Aircraft Systems (AFS-86)
UAS Assessment for Enroute Contingency Operations	Air Traffic Procedures (AJV-8)

Presentation Review of FY16 UAS Flight Deck Research Accomplishments | **Presenter** *Ashley Awwad*, Scientific & Technical Advisor for Human Factors

Flight Deck Human Factors Research Requirement Area	Principal Technical Sponsor
Minimum Detect and Avoid (DAA) Display and Flight Path Information	Flight Standards - Unmanned Aircraft Systems (AFS-86)
UAS Assessment for Enroute Contingency Operations	Air Traffic Procedures (AJV-8)
UAS Human Factors Consideration	Flight Standards - Unmanned Aircraft Systems (AFS-86)

- This briefing satisfied Action Item 3 for this meeting

Presentation Update on UAS Human Factors Roadmap | **Presenter** *Dr. Carla Hackworth, Division Manager, Aerospace Human Factors Division*

- Two-day meeting at MMAC to establish a roadmap for UAS human factors research.
- The summit was the result of a call to action for collaboration with WJHTC by the MMAC NextGen Integration Committee (ACNIC).
- Summit attendees included:
 - UAS Integration Office and Other FAA Regulatory Representatives
 - FAA HF R&D (CAMI, WJHTC, ANG-C1)
 - Industry Representatives
 - Academia and Other Scientific Organizations (e.g., ASSURE COE, NASA, MITRE)
- Break-Out Group Topics
 - Unique Certification Requirements (including Control of Multiple UAS)
 - Unique Operational Requirements for UAS Missions (such as lost link/off nominal conditions, navigation, and unique visibility requirements)
 - Control Station Design (in terms of DAA displays, limitations of sensory information, automation, etc.)
 - UAS in the NAS (in terms of Crew/NAS interactions, ATC systems and requirements, and latencies)
- New action item 12 was created regarding this briefing

Presentation Maintenance Human Factors Research and Development Activities | **Presenter** *Dr. Bill Johnson, Scientific and Technical Advisor for Maintenance Human Factors*

- This presentation was made to address the action item 6:
 - Provide a more detailed description of the research plan for maintenance human factors to the REDAC Human Factors Subcommittee at the next meeting and invite the CSTA for Maintenance Human Factors to the meeting to discuss the overall plan.
- The action item was closed based on the presentation

Discussion of Findings & Recommendations (see below)

- The FAA response to the UAS recommendations was presented to the members as a read-ahead for this meeting
- Action item 8 was closed based on this information

Accepted FAA responses to Recommendations

- Recommendations 3-7 are closed.

Not accepted responses

- Recommendation 1 was not accepted and a new recommendation will be created.
- A new action item will be created to address the response to recommendation 2.

New recommendations

- There was a discussion of the issue of mixed equipage for aircraft capabilities. This issue impacts both the flight deck and ATC. There will be a new finding and recommendation on this topic.

Next meeting dates:

- Spring meeting March 28-30, 2017 at NASA Ames Research Center (Moffett Field, CA)
- Fall meeting 8/28/17 in DC

Action Items Status as a result of the Summer/Fall 2016 meeting – Updated September 19, 2016

No.	ID	Action Item	Meeting	Summer 2015 Status
1	Winter 2015_03	Provide briefing on monitoring research results, when available. Identified as action of the guidance for FMS uses. (Kathy Abbott)	Winter/Spring 2015	Open
2	Winter 2015_05	Have the software and digital systems team brief on the V&V work they are doing. Note that the FAA Tech Center and NASA briefed on their V&V work at the September meeting. (Kathy Abbott, Michelle Yeh)	Winter/Spring 2015	Deferred to SAS – remove from HF <i>(pending confirmation)</i>
3	Summer 2015_01	Every meeting present updates on all FAA UAS human factors research projects.	Summer/Fall 2015	Open
4	Summer 2015_02	Every meeting present updates on NASA’s program for data mining of operational data and identification of unique anomalies. (Jessica Nowinski)	Summer/Fall 2015	Open
5	Summer 2015_04	FAA to brief on the Human Performance Center of Excellence.	Summer/Fall 2015	Deferred to next meeting Winter/Spring 2017
6	Winter 2016_01	Provide a more detailed description of the research plan for maintenance human factors to the REDAC Human Factors Subcommittee at the next meeting and invite the CSTA for Maintenance Human Factors to the meeting to discuss the overall plan.	Winter/Spring 2016	Closed
7	Winter 2016_02	Provide a status briefing to the REDAC Human Factors Subcommittee on progress of the Air Traffic Organization’s Human Performance efforts and specifically on the roundtable process at the next meeting. (Jason Demagalski)	Winter/Spring 2016	Closed
8	Winter 2016_03	Provide a status briefing to the REDAC Human Factors Subcommittee on the status and progress of UAS recommendations at the next subcommittee meeting.	Winter/Spring 2016	Closed
9	Winter 2016_04	There are two areas that the REDAC Human Factors subcommittee feels the FAA should initiate research on. First, distance learning is already in the requirements, but funding has not been initiated. The FAA should provide a briefing to the REDAC Human Factors Subcommittee at the next meeting on how	Winter/Spring 2016	Open

No.	ID	Action Item	Meeting	Summer 2015 Status
		funding for this research will be incorporated in the portfolio.		
10	Winter 2016_05	The subcommittee recommends the FAA initiate research on training methodologies (including required knowledge and skills) required for current and future NextGen systems. Provide a briefing to the REDAC Human Factors Subcommittee at the next meeting on their progress and how this research will be incorporated in the portfolio and funded.	Winter/Spring 2016	Open
11	Winter 2016_06	Provide a status briefing on the Administrator's initiative on risk based decision making.	Winter/Spring 2016	Closed
New 12	Summer 2016_01	Provide a briefing on the influence of the HF UAS research summit report on the FAA's overall UAS Research Plan (TCRG-approved) and the integration with the UAS Implementation Plan.	Summer/Fall 2016	New

Federal Aviation Administration
REDAC Human Factors Subcommittee
Washington, DC
Meeting Agenda, September 7-8, 2016

Location: JMA Solutions, Capital Gallery East, 600 Maryland Ave SW, Suite 400E,
Washington, DC 20024
L'Enfant Metro, Maryland Ave. & 7th St. Exit, elevators behind Vie de France

DAY 1 – Wednesday, September 7, 2016

<https://meetings.webex.com/collabs/meetings/join?uuid=M043HFP8NBPH83YNGU0V5GOWK7-2NIJ>

Meeting number: 192 813 294

Audio Connection: 415-655-0001, Access code: 192 813 294

Time	Topic	Presenter
8:30 am – 9:00 am	Welcome / Opening Comments / Introductions	Jack Blackhurst , HF Subcommittee Chair, Sherry Chappell , DFO
9:00 am – 9:45 am	Welcome	Shelley Yak , FAA Director of William J. Hughes Technical Center, REDAC Co-Chair
9:45 am – 10:15 am	Budget Update	Mike Gallivan , Manager, R,E&D Financial Management
10:15 am – 10:45 am	Morning Break	
10:45 am – 11:15 am	Review of HF REDAC Top Issues	Nick Lento , ANG-C1 Acting Division Manager
11:15 am – 11:45 am	Review of FY16 ATC Core Research Accomplishments	Dan Herschler , Scientific & Technical Advisor for Human Factors
11:45 am – 12:45 pm	Lunch	
12:45 pm – 1:30 pm	Update Air Traffic Organization's Human Performance efforts and specifically on the roundtable process (including F&R 3 response from March meeting)	Jason Demagalski , Human Performance Manager, ATO Safety and Technical Training
1:30 pm – 2:15 pm	F&R Discussion	All
2:15 pm – 2:45 pm	Afternoon Break	
2:45 pm – 3:45 pm	NASA Aeronautics Strategic Thrust 5 Roadmap, Real-time System-wide Safety	Dr. Jessica Nowinski , NASA Technical Advisor for Safety, Airspace Operations and Safety Program
3:45 pm – 4:15 pm	Administrator's initiative on Risk-Based Decision Making (RBDM)	Amer Youmossi , Deputy Division Manager, Safety Management and Research Planning Division
4:15 pm – 5:00 pm	Wrap up – Homework Assignments – Review of Action Items	All
EVENING	Group Dinner – Del Frisco's Grille 1201 Pennsylvania Avenue, NW Washington, DC 20004	

Federal Aviation Administration
REDAC Human Factors Subcommittee
Washington, DC
Meeting Agenda, September 7-8, 2016

DAY 2 - Thursday, September 8, 2016

<https://meetings.webex.com/collabs/meetings/join?uuid=M043HFP8NBPH83YNGU0V5GOWK7-2NIJ>

Meeting number: 192 813 294

Audio Connection: 415-655-0001, Access code: 192 813 294

Time	Topic	Presenter
8:30 am – 9:00 am	Review of Homework Assignments from Previous Day / Findings and Recommendations Discussion	All
9:00 am – 9:30 am	Review of FY16 ATC NextGen Research Accomplishments	Dr. Jerome Lard, Scientific & Technical Advisor for Human Factors
9:30 am – 10:00 am	Review of FY16 Core Flight Deck Research Accomplishments	Dr. Sherry Chappell, Scientific & Technical Advisor for Human Factors
10:00 am – 10:30 am	Review of FY16 NextGen Flight Deck Research Accomplishments	Regina Bolinger, Scientific & Technical Advisor for Human Factors
10:30 am – 10:45 am	Morning Break	
10:45 am – 11:00 am	Review of FY16 UAS Flight Deck Research	Ashley Awwad, Scientific & Technical Advisor for Human Factors
11:00 am – 11:30 am	Update on UAS Human Factors Roadmap	Dr. Carla Hackworth, Division Manager, Aerospace Human Factors Division
11:30 am – 12:30 pm	Lunch	
12:30 pm – 1:15 pm	Maintenance Human Factors Research and Development Activities	Dr. Bill Johnson, Scientific and Technical Advisor for Maintenance Human Factors
1:15 pm – 2:00 pm	Discussion of the Proposed FAA Responses to the REDAC Findings from March 2016 Regarding UAS Human Factors	All
2:00 pm – 2:15 pm	Afternoon Break	
2:15 pm – 3:15 pm	F&R Discussion	All
3:15 pm – 4:00 pm	Q&A/Findings and Recommendations Discussion / Wrap up – Homework Assignments – Review of Action Items	All
EVENING	Happy Hour – After Hours, Capital Gallery	