SE 188

CAST Safety Enhancement (SE)

MODIFYING AIRSPACE DESIGN AND AIR TRAFFIC CONTROL (ATC) PROCEDURES

STUDY TOPIC
TCAS
TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM

CICTT RISK AREAS
MAC

SECTION I: SE OVERVIEW

SECTION I

320Study Topic Overview Summary	In October 2008, the ASIAS Executive Board (AEB) directed its Issue Analysis Team (IAT) to conduct a follow-on study of TCAS alerts to address specific issues not focused on in earlier, broader studies. The study had several objectives: determine areas within the National Airspace System (NAS) where TCAS resolution advisories (RA) occur with high frequency, utilize NAS-wide results and expert input to guide focused investigations at key airports, and characterize the causes of RAs. In 2010, CAST adopted three SEs as a result of the study.
SE Objective	The purpose of this SE is to reduce the rate of TCAS alerts by implementing new or modified processes for airspace design and ATC procedures that minimize the number of TCAS alerts.
Primary Risks Mitigated	AIRPROX/TCAS Alert/Loss of Separation/Near Midair Collisions/Midair Collisions (MAC)

Action	Organization(s)	Strategy	Description	Due Date
Action 1	JIMDAT	Research	Using ASIAS data, develop a prioritized list of locations where changes in existing ATC procedures and/or airspace design could provide the changes necessary to minimize the interaction between instrument flight rules (IFR) and visual flight rules (VFR) traffic.	02/02/2011
	Comments: CAST closed this action.			
Action 2	A4A	Research	Complete a safety validation using the prioritized list completed in Action 1.	02/28/2013
	Comments: CAST closed this action.			
Action 3	FAA ATO	Research	Develop an implementation plan for changes in the existing airspace design and/or procedures to minimize the interaction between IFR and VFR traffic at prioritized locations.	02/28/2014
	Comments: CAST closed this action.			
Action 4	FAA ATO	Research	Complete a study to determine how current airspace design and alteration processes and procedures could be modified to minimize the impact on TCAS alerting for future airspace design.	12/31/2011
	Comments: CAST closed this action.			
Action 5	FAA ATO, FAA AFS	Procedures	Implement processes and procedures that minimize the impact on TCAS alerting during future airspace design or alteration of air traffic procedures.	12/31/2013
	Comments: CAST closed this action.			

SECTION I: SE OVERVIEW

Action	Organization(s)	Strategy	Description	Due Date
Action 6	FAA ATO	Monitoring	Periodically monitor metroplex to evaluate if CAST-identified risk areas were mitigated.	09/30/2019
	Comments: CAST closed this action based on existing ASIAS protocols to coordinate with airspace design teams.			

See section II of this SE for detailed action descriptions.

References:

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SECTION II: DETAILED ACTION INFORMATION

Action 1: Develop prioritized list of locations for changes in ATC procedures and airspace design

Primary Implementer	**JIMDAT**
Action Objective	Using ASIAS data, JIMDAT should develop a prioritized list of locations where changes in existing air traffic control (ATC) procedures and/or airspace design could provide the changes necessary to minimize the interaction between instrument flight rules (IFR) and visual flight rules (VFR) traffic.
Action Timeline	Flow Time: 2 months Due Date: 02/28/2011
Timeline/Flow for Future Adopters	N/A
CAST Lead	JIMDAT

#	Organization(s)	Detailed Steps
1a	JIMDAT	Work with Lincoln Labs and MITRE to query the ASIAS data to develop a prioritized list of locations to meet this action.
	Complete.	
1b	JIMDAT	Produce a report of prioritized locations.
	Complete.	

Notes

Note: See section III for detailed costs and resources.

SECTION II: DETAILED ACTION INFORMATION

Action 2: Complete safety validation using prioritized list from Action 1

Primary Implementer	**Airlines for America (A4A)**
Action Objective	A4A should develop a team to complete a safety validation using the prioritized list completed in Action 1 reviewing the impact of the necessary airspace and procedural changes.
Action Timeline	Flow Time: 24 months (upon completion of Action 1) Due Date: 02/28/2013
Timeline/Flow for Future Adopters	N/A
CAST Lead	A4A

#	Organization(s)	Detailed Steps
2a	A4A	Develop a team to conduct this safety validation.
	Complete.	
2b	Study Team	Conduct the safety validation.
	Complete.	
2c	Study Team	Produce a report of the findings.
	Complete.	

Notes

Note: See section III for detailed costs and resources.

Action 3: Develop plan for airspace design/procedure changes to minimize IFR/VFR traffic interaction

Primary Implementer	**FAA Air Traffic Organization (ATO)**
Action Objective	FAA ATO should organize a team to develop an implementation plan for changes in the existing airspace design and/or procedures to minimize the interaction between instrument flight rules (IFR) and visual flight rules (VFR) traffic at prioritized locations.
Action Timeline	Flow Time: 12 months (upon completion of Action 2) Due Date: 02/28/2014
Timeline/Flow for Future Adopters	N/A
CAST Lead	FAA ATO

#	Organization(s)	Detailed Steps
3a	FAA ATO	Organize a team to develop an implementation plan.
	Complete.	
3b	Study Team	Review the reports from Action 1 and Action 2 and develop a plan that could be completed by FAA ATO.
	Complete.	
3c	FAA ATO	Agree to implement the plan.
	Complete.	

Notes

SECTION II

Note: See section III for detailed costs and resources.

SECTION II: DETAILED ACTION INFORMATION

Action 4: Complete a study to minimize the impact on TCAS alerting in future airspace design

Primary Implementer	**FAA Air Traffic Organization (ATO)**
Action Objective	FAA ATO should charter a work group to complete a study to determine how current airspace design and alteration processes and procedures could be modified to minimize the impact on TCAS alerting for future airspace design.
Action Timeline	Flow Time: 12 months Due Date: 12/31/2011
Timeline/Flow for Future Adopters	N/A
CAST Lead	FAA ATO

#	Organization(s)	Detailed Steps
4a	FAA ATO	Develop a work group charter for a team to complete this action and present to CAST for approval.
	Complete.	
4b	CAST	Approve or modify work group charter.
	Complete.	
4c	JIMDAT	Provide the digital signature of TCAS issues identified in the ASIAS TCAS Directed Study.
	Complete.	
4d	Work Group	Convene as per its work group charter and conduct the study.
	Complete.	
4e	Work Group	Draft modifications to current airspace design/change procedures.
	Complete.	
4f	Work Group	Present recommended modifications to CAST for approval.
	Complete.	

Notes

Note: See section III for detailed costs and resources.

SECTION II: DETAILED ACTION INFORMATION

Action 5: Implement processes to minimize the impact of airspace design changes on TCAS alerting

Primary Implementer	**FAA Air Traffic Organization (ATO), FAA Flight Standards Service, Safety Standards (AFS)**
Action Objective	FAA ATO and FAA AFS should implement processes and procedures that minimize the impact on TCAS alerting during future airspace design or alteration of air traffic procedures.
Action Timeline	Flow Time: 24 months (upon completion of Action 4) Due Date: 12/31/2013
Timeline/Flow for Future Adopters	TBD
CAST Lead	FAA ATO

#	Organization(s)	Detailed Steps
5a	FAA AFS, FAA ATO	Implement processes and procedures that minimize the impact on TCAS alerting during future airspace design or alteration of air traffic procedures.
	Complete.	

Notes

Note: See section III for detailed costs and resources.

SECTION II: DETAILED ACTION INFORMATION

Action 6: Monitor metroplex to evaluate if CAST-identified risk areas were mitigated

Primary Implementer	**FAA Air Traffic Organization (ATO)**
Action Objective	FAA ATO should periodically monitor metroplex (airspace above contiguous metropolitan areas composed of multiple cities) to evaluate if CAST-identified risk areas were mitigated.
Action Timeline	Flow Time: Follows the Optimization of Airspace & Procedures in the Metroplex (OAPM) deployment schedule. Due Date: 09/30/2019
Timeline/Flow for Future Adopters	TBD
CAST Lead	FAA ATO

#	Organization(s)	Detailed Steps
6a	FAA ATO	Monitor progress through the collaborative OAPM/ASIAS dashboard.
	Closed based on existing ASIAS protocols to coordinate with airspace design teams. ASIAS coordination is ongoing in perpetuity and any issues will come through the Issue Analysis Team (IAT) and Joint Implementation Measurement and Data Analysis Team (JIMDAT).	

Notes

Note: See section III for detailed costs and resources.

SECTION III: SUPPLEMENTAL INFORMATION

Source Study	Issue Analysis Team (IAT) TCAS Study (2008)
Related Initiatives	N/A

Total Cost	**$0**

	Organization	Resources Needed
Direct Resource Overview – Government	N/A	N/A

	Organization	Resources Needed
Direct Resource Overview – Industry	N/A	N/A

Indirect Resource Overview

The organizations identified in this section are not expected to incur direct costs associated with implementing this SE, but they may incur indirect costs within their normal line of work.

Organization	Description
N/A	N/A

SECTION IV: REVISION LOG

Major revisions (whole numbers) represent CAST-approved changes to SE language. Minor revisions (decimals) represent minor changes to target dates or completion notes that do not affect implementer actions.

Revision	Date	Description
2.1	10/03/2019	Action 6 closed based on existing ASIAS protocols to coordinate with airspace design teams.
2.0	09/17/2018	New SE format. Content reorganized and terminology updated. No substantive changes.
1.0	04/03/2014	Action 1 closed. Action 2 closed. Action 3 closed. Action 4 closed. Action 5 closed. Action 6 added.
Original	12/02/2010	CAST adopted SE 188.