SE 188 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

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: CAS	T closed this act	tion.				
Action 2	A4A	Research	Complete a safety validation using the prioritized list completed in Action 1.	02/28/2013			
	Comments: CAS	T closed this act	tion.				
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 Action 5	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.						
	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: CAS	T closed this act	tion.				



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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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SECT*

ION II: **DETAILED ACTION INFORMATION** PAGE 4 SE 188 consists of six actions, which this section lays out in detail. Action 1 (JIMDAT)......PAGE 4 Develop prioritized list of locations for changes in ATC procedures and airspace design

- Complete safety validation using prioritized list from Action 1
- Action 3 (FAA ATO, Study Team)......PAGE 6 Develop plan for airspace design/procedure changes to minimize IFR/VFR traffic interaction
- Action 4 (FAA ATO, CAST, JIMDAT, Work Group)......PAGE 7 Complete a study to minimize the impact on TCAS alerting in future airspace design
- Implement processes to minimize the impact of airspace design changes on TCAS alerting
- Monitor metroplex to evaluate if CAST-identified risk areas were mitigated

SECTION III: SUPPLEMENTAL INFORMATION

PAGE 10

This section contains the following additional information that may be of interest to implementers:

- Source Study
- **Related Initiatives**
- Total Cost / Resource Overview

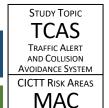
SECTION IV: REVISION LOG

PAGE 11

This section provides a history of revisions to this SE.



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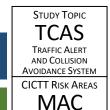
SECTION II: DETAILED ACTION INFORMATION

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

Primary Implementer		JIMD	АТ
Action Objective		air tr	ASIAS data, JIMDAT should develop a prioritized list of locations where changes in existing affic control (ATC) procedures and/or airspace design could provide the changes necessary to mize the interaction between instrument flight rules (IFR) and visual flight rules (VFR) traffic.
Action 7	Timeline	Flo	ow Time: 2 months
ACTION I	rimeiine	D	ue Date: 02/28/2011
	e/Flow for Adopters	N/A	
CAST Le	ead	JIMD	AT
#	Organizatio	on(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	Notes		



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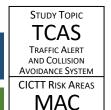
SECTION II: DETAILED ACTION INFORMATION

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

Primary Implementer		Airlin	es for America (A4A)
Action Objective			should develop a team to complete a safety validation using the prioritized list completed in n 1 reviewing the impact of the necessary airspace and procedural changes.
Action	Timeline	Flo	w Time: 24 months (upon completion of <u>Action 1</u>)
ACLION	Timeime	D	ue Date: 02/28/2013
	ne/Flow for Adopters	N/A	
CAST L	ead	A4A	
#	Organizatio	on(s)	Detailed Steps
2a	A4A		Develop a team to conduct this safety validation.
	Complete.		
2b	2b Study Tear		Conduct the safety validation.
Complete.			
2c	Study Tear	n	Produce a report of the findings.
	Complete.		
Notes			



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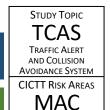


SECTION II: DETAILED ACTION INFORMATION

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

/ 1011011	. J. Develo	P Piai	rior anspace acsign, procedure changes to minimize in it, that traine interaction
Primary Implementer FAA		FAA A	Air Traffic Organization (ATO)
Action Objective airs		airspa	ATO should organize a team to develop an implementation plan for changes in the existing ace design and/or procedures to minimize the interaction between instrument flight rules and visual flight rules (VFR) traffic at prioritized locations.
Action	Timalina	Flo	ow Time: 12 months (upon completion of <u>Action 2</u>)
ACTION	Timeline	D	ue Date: 02/28/2014
	Timeline/Flow for Future Adopters		
CAST L	ead	FAA A	ATO
#	Organizatio	on(s)	Detailed Steps
3a	FAA ATO		Organize a team to develop an implementation plan.
	Complete.		
3b	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			

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SECTION II: DETAILED ACTION INFORMATION

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

Primary FAA I			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	Flo	w Time: 12 months	
ACLION	Timeline	Dı	ue Date: 12/31/2011	
	e/Flow for Adopters	N/A		
CAST L	ead	FAA A	ATO	
#	Organizatio	on(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 Grou	p	Convene as per its work group charter and conduct the study.	
	Complete.			
4e	4e Work Group		Draft modifications to current airspace design/change procedures.	
	Complete.			
4f	Work Grou	р	Present recommended modifications to CAST for approval.	
	Complete.			
Notes				

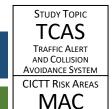


Complete.

Notes

CAST Safety Enhancement (SE)

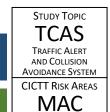
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SECTION II: DETAILED ACTION INFORMATION

Action	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 <u>Action 4</u>)				
ACTION	rimeiine	Due Date: 12/31/2013				
Timeline/Flow for Future Adopters		BD				
CAST L	.ead	AA 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.				

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SECTION II: DETAILED ACTION INFORMATION

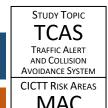
Action 6: Monitor metroplex to evaluate if CAST-identified risk areas w	vere mitigated
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Primary Implementer		FAA A	Air Traffic Organization (ATO)
Action Objective		FAA ATO should periodically monitor metroplex (airspace above contiguous metropolitan 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.	
		D	ue Date: 09/30/2019
	ne/Flow for Adopters	TBD	
CAST Le	ead	FAA A	ATO
#	Organizatio	on(s)	Detailed Steps
6a	FAA ATO		Monitor progress through the collaborative OAPM/ASIAS dashboard.
· ·		perpe	existing ASIAS protocols to coordinate with airspace design teams. ASIAS coordination is tuity and any issues will come through the Issue Analysis Team (IAT) and Joint Implementation of Data Analysis Team (JIMDAT).
Notes			

Note: See section III for detailed costs and resources.

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SECTION III: SUPPLEMENTAL INFORMATION

	Section	II. SOLI ELIMENTAL INI ONMATION	IVIAC			
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

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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.



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