#### **CAST Safety Enhancement (SE)**

## MINIMUM VECTORING ALTITUDE (MVA) REEVALUATION

# STUDY TOPIC TAWS TERRAIN AWARENESS AND WARNING SYSTEM CICTT RISK AREAS CFIT

## **SECTION I: SE OVERVIEW**

Study Topic Overview Summary In 2009, CAST initiated a directed study of terrain awareness and warning system (TAWS) alerts and warnings because flightcrews reported receiving incorrect, nuisance, or overly conservative alerts and warnings. This study, a follow-on to address specific issues not focused on in earlier, broader studies, involved gathering data from multiple databases (1981 through 2008), identifying event reports of interest, and reviewing those reports to identify contributing factors.

The TAWS Joint Safety Analysis and Implementation Team (JSAIT) identified the top contributing factors to excessive TAWS alerts and determined there was a large occurrence of nuisance alerts, which could cause crew desensitization. The findings from this analysis indicated TAWS software upgrades available from manufacturers could significantly reduce the majority of undesired TAWS alerts issued when an airplane is not in imminent danger. The analysis also reemphasized the importance of CAST SE 120, which calls for air carriers to install Global Positioning Systems (GPS) and to maintain the TAWS equipment with the most current software updates. Based on these findings, JIMDAT developed two SEs to reduce TAWS alerts.

SE Objective

CAST recommends the FAA Air Traffic Organization (ATO) reduce or eliminate the number of TAWS alerts by adjusting MVAs where needed. To help determine which MVAs need to be adjusted, ASIAS should develop an analytical capability that can identify, by geographical area, the minimum MVA. FAA ATO should consider sector design and airspace limitations in the reevaluation as appropriate.

Primary Risks Mitigated

Controlled Flight Into or Toward Terrain (CFIT)

Action	Organization(s)	Strategy	Description	Due Date			
Action 1	FAA/ASIAS	Design	Develop an analytical capability to facilitate the study of MVAs.	N/A			
Action 1	Comments: CAST closed this action based on Austin Digital, Inc., developing the analytical capability during the CAST TAWS study.						
Action 2	FAA ATO	Research	Accomplish a study of MVAs at prioritized sites identified in CAST TAWS study.	08/06/2010			
	Comments: CAST closed this action.						
Action 3	FAA ATO Procedures		Implement the MVA changes identified by the MVA evaluation in Action 2.	08/06/2011			
	Comments: CAST closed this action.						

See section II of this SE for detailed action descriptions.

*References:* The detailed analysis in the TAWS Joint Safety Analysis and Implementation Team (JSAIT) Final Report (December 3, 2009) is available through CAST.

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## **TABLE OF CONTENTS**

SE 18	84 consists of three actions, which this section lays out in detail.	
•	Action 1 (FAA/ASIAS)  Develop analytical capability to facilitate reevaluation of MVAs	PAGE 3
•	Action 2 (FAA ATO)	PAGE 4
•	Action 3 (FAA ATO) Implement MVA changes identified in Action 2 evaluation	Page 5

#### **SECTION III: SUPPLEMENTAL INFORMATION**

SECTION II: DETAILED ACTION INFORMATION

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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**

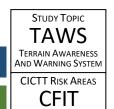
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This section provides a history of revisions to this SE.



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## **SECTION II: DETAILED ACTION INFORMATION**

#### Action 1: Develop analytical capability to facilitate reevaluation of MVAs

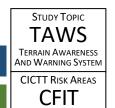
Primary Implementer		ASIA	S		
Action Objective		Develop an analytical capability to facilitate the study of MVAs. This capability should use digital elevation model (DEM) data that is currently available to determine what the MVA for a specific geographical area/sector should be.			
Action Timeline		Flo	Flow Time: N/A		
		Due Date: N/A			
Timeline/Flow for Future Adopters		N/A	N/A		
CAST Le	ead	ASIAS	5		
#	Organizati	on(s)	Detailed Steps		
<b>1</b> a	ASIAS		Develop an analytical capability to facilitate the study of MVAs and assist FAA ATO during the evaluation of the MVAs at the prioritized sites identified in the TAWS Joint Safety Analysis and Implementation Team (JSAIT) study.		
	Complete.				
Notes		This will be in addition to the Sector Design and Analysis Tool (SDAT) and the Instrument Approach Procedures Automation (IAPA) program.			

Note: See Section III for detailed costs and resources.

### **CAST Safety Enhancement (SE)**

Action 2: Study MVAs at prioritized sites

## MINIMUM VECTORING ALTITUDE (MVA) REEVALUATION



## **SECTION II: DETAILED ACTION INFORMATION**

Primary Implementer	FAA Air Traffic Organization (ATO)
Action Objective	FAA ATO should accomplish a study of MVAs at prioritized sites identified in the TAWS Joint Safety Analysis and Implementation Team (JSAIT) study. This may be in addition to the current tasking contained in FAA Notice JO 7210.3, Facility Operation and Administration. This study will utilize expertise from FAA ATO at the headquarters and the facility level.
Action Timeline	Flow Time: 12 months
Action Timeline	Due Date: 08/06/2010
Timeline/Flow for	N/A

Future Adopters		Adopters	,	
CAST Le		ead F	FAA A	ATO
	#	Organization	n(s)	Detailed Steps
	2a	2a FAA ATO		Direct appropriate Air Traffic Facilities to utilize ASIAS to accomplish a study of MVAs at prioritized sites identified in the TAWS JSAIT study.
		Complete.		
	2b	FAA ATO		Identify MVAs for modification based on the evaluation.
		Complete.		

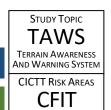
Notes

Note: See Section III for detailed costs and resources.



### **CAST Safety Enhancement (SE)**

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## **SECTION II: DETAILED ACTION INFORMATION**

## Action 3: Implement MVA changes identified in Action 2 evaluation

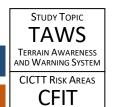
Primary Implementer		FAA Air Traffic Organization (ATO)				
Ac	tion (	Objective	FAA	FAA ATO should implement the MVA changes identified by the MVA evaluation in Action 2.		
1.0	tion '	Timeline	Flo	Flow Time: 24 months		
AC	LIOII	rimeime	D	Due Date: 08/06/2011		
Timeline/Flow for Future Adopters		N/A				
CA	ST Le	ead	FAA ATO			
	#	# Organizati		Detailed Steps		
	3a	FAA ATO		Modify MVAs based on the results of the study, if necessary.		
		Complete.				
	3b	FAA ATO		Implement MVA changes in a prioritized manner as soon as practical.		
		Complete.				
No	Notes		unab	nal Statement of Work: Adjust the MVAs to add a safety margin for those aircraft that are le to accept the TAWS 218 (and above) software load or fly Performance Based Navigation ) routes.		

Note: See Section III for detailed costs and resources.



## **CAST Safety Enhancement (SE)**

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## **SECTION III: SUPPLEMENTAL INFORMATION**

Source Study	TAWS Joint Safety Analysis and Implementation Team (JSAIT) Final Report (December 3, 2009)			
Related Initiatives	N/A			
Total Cost	N/A			
	Organization	Resources Needed		
Direct	ASIAS	• Action 1: 0.5 full time equivalents (FTE) to develop MVA analysis capability.		
Resource Overview – Government	FAA ATO	<ul> <li>Action 2: 0.5 FTE to execute the MVA study.</li> <li>Action 3: 1.0 FTE to implement the MVA changes identified by the study.</li> </ul>		
	Organization	Resources Needed		
Direct Resource Overview – Industry	N/A	N/A		
Indirect Resource	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.			
Overview	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
1.0	09/17/2018	New SE format. Content reorganized and terminology updated. No substantive changes.
Original	08/06/2009	CAST adopted SE 184.

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