

# NOTICE

**U.S. DEPARTMENT OF TRANSPORTATION**  
**FEDERAL AVIATION ADMINISTRATION**  
Air Traffic Organization Policy

**N JO 7110.510**

**Effective Date:**  
October 30, 2009

**Cancellation Date:**  
October 29, 2010

**SUBJ:** Guidance for the Implementation of System Track Display Mode (STDM)/FUSION within the Common Automated Radar Terminal System-Model IIIE (CARTS) at Louisville TRACON (SDF)

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- 1. Purpose of This Notice.** This purpose of this notice is to prescribe guidance when using STDM/FUSION. These procedures are currently being tested at Louisville TRACON (SDF).
- 2. Audience.** This notice applies to the Air Traffic Organization (ATO) Terminal Service Unit at SDF TRACON.
- 3. Where Can I Find This Notice?** The notice is available on the MYFAA employee Web site at [https://employees.faa.gov/tools\\_resources/orders\\_notices/](https://employees.faa.gov/tools_resources/orders_notices/) and on the air traffic publications Web site at [http://www.faa.gov/air\\_traffic/publications](http://www.faa.gov/air_traffic/publications).
- 4. Procedures.**
  - a.** All procedures contained in FAA Order JO 7110.65 for the terminal domain related to ATC services using the Automated Radar Terminal Systems (ARTS)-Terminal, to include radar identification, separation, advisories, and phraseology, apply to FUSION target.
  - b.** FUSION may not be used for monitoring simultaneous independent instrument landing system/microwave landing system approaches.
  - c.** Use FUSION tracker automation systems as follows:
    - (1) For initial operating capability, the STDM should be the preferred sensor to the extent that it is operationally feasible.
    - (2) Inform other inter-faced facilities of scheduled and unscheduled shutdowns.
    - (3) Initiate a track/tag on all aircraft to the extent possible. As a minimum, aircraft identification should be entered and automated handoff functions should be used.
    - (4) Assigned and reported altitude must be displayed, if available, and be kept current all times that the aircraft is in level flight. Climb and descent arrows, where available, must be used to indicate other than level flight.
    - (5) The automatic altitude readout of an aircraft under another controller's jurisdiction may be used for vertical separation purposes without verbal coordination provided that:
      - (a) Operation is conducted in a STDM mode.
      - (b) Prearranged coordination procedures are in a facility directive that follows procedures in FAA Order JO 7110.65, Paragraph 5-4-10, Prearranged Coordination, and FAA Order JO 7210.3, Paragraph 3-7-7, Prearranged Coordination.
  - d.** Information Displayed. STDM in the status menu area represents Fused Mode.

**e. Apply standard separation:**

(1) Between the centers of fused targets; however, do not allow a fused target to touch another fused target. Target resolution must be applied between the edges of the fused target. All other provision for terminal separation must apply.

(2) A solid circle target symbol must be displayed depicting the aircraft position.

(3) A solid circle target symbol associated with a three-character indicator for increase separation required (ISR) must be displayed in the data block indicating that confidence level of the track is such that 3-mile separation and target resolution cannot be used and 5-mile separation is required.

(4) If the target is 60 miles or more from the primary Mode S ASR, 5 miles separation is required even if target data block does not contain "ISR."

(5) When the primary Mode S ASR is out of service, 5 miles separation is required in all areas even if the target data block does not contain "ISR."

**f. ADS-B Indicator.**

(1) Non-ADS-B indicators must be distinguishable in line 1 of the data block. When an aircraft is not ADS-B equipped, the "Non-ADS-B" indicator must be a solid circle.

(2) When an aircraft is within ADS-B coverage and its ADS-B equipment becomes inoperable, an unfilled (hollow) circle will be displayed to the left of the aircraft ID in line 1 of the data block. Additionally, the three-character "ADS" indicator in line 2 of the data block shall be displayed. ATC shall acknowledge the "ADS" indicator with a 'Slew' and Enter which will then remove "ADS" from the data block.

(3) Inform an aircraft when its ADS-B transmitter appears to be inoperative or malfunctioning.

**PHRASEOLOGY-**

*(Aircraft ID) YOUR ADS-B TRANSMITTER APPEARS TO BE INOPERATIVE/MALFUNCTIONING.*


**g. Data Block Indicators.** When operating in the STDM Mode, "TRK" may be displayed in the data block. "TRK" indicates the track can no longer be used to provide radar services or separation.

**6. Distribution.** This notice is distributed to the following ATO service units: Terminal, Safety, En Route and Oceanic, and Systems Operations Services; the Air Traffic Safety Oversight Service; the Office of Chief Counsel; and the William J. Hughes Technical Center.

**7. Background.** FUSION is the combination of all available surveillance sources (airport surveillance radar [ASR], air route surveillance radar [ARSR], automatic dependent surveillance – broadcast [ADS-B], etc.) into the display of a single tracked target for air traffic control separation services. FUSION is the equivalent of the current single-sensor radar display. FUSION performance is characteristic of a single-sensor radar display system. Terminal areas use mono-pulse secondary surveillance radar (ASR-9, Mode S). The performance of this system will be used as the baseline radar system to ensure minimal degradation of current separation operations within the NAS.

ADS-B is a key enabling technology supporting the implementation of the Next Generation Air Transportation System. The incorporation of ADS-B as a surveillance source requires the incorporation of multiple surveillance sources such as ARSR, ASR, ADS-B, and multilateration into existing and future air traffic control automation systems. It has been determined that FUSION is the best method to

accomplish this. The Surveillance and Broadcast Services (SBS) Air Traffic CHI Workgroup was established to ensure functional standardization and usability of multiple surveillance sources integration in both the terminal and en route domains.

  
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Air Traffic Organization

10/29/09  
Date Signed