



**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

Air Traffic Organization Policy

**ORDER
JO 7110.124**

Effective Date:
January 28, 2017

SUBJ: Microprocessor En Route Automated Radar Tracking System (Micro-EARTS) Fused Display Mode (FDM) for 3NM and 5NM Separation throughout the National Airspace System (NAS)

- 1. Purpose of This Order.** This order provides interim guidance for the use of FDM surveillance data for 3NM and 5NM separation in the Terminal and En Route environments using the Micro-EARTS automation platform.
- 2. Audience.** This order applies to all facilities using Micro-EARTS in the Terminal and En Route environments.
- 3. Where Can I Find This Order?** This order is available on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/ and on the FAA Web site at http://www.faa.gov/regulations_policies/orders_notices/.
- 4. Cancellation.** This order cancels FAA JO 7110.120 Fused Display Mode (Fusion) using Micro-En Route Automatic Tracking System (Micro-EARTS) at Anchorage Air Route Traffic Control Center (ZAN) for 5NM Separation.
- 5. Responsibilities.** Air traffic managers at facilities using Micro-EARTS must ensure the provisions of this order are briefed to all front-line managers, controllers-in-charge, and operational air traffic controllers prior to the effective date of this order, or prior to initial operational use of FDM for 3NM and 5NM separation.
- 6. Background.** This modification of Micro-EARTS will provide the air traffic controller with a FDM target usable for 3NM or 5NM separation. FDM combines primary radar, secondary radar, ADS-B, and WAM surveillance data to display a smooth system track position. Current Mosaic Mode and Single Sensor Display Mode will be retained to allow a smooth transition to FDM. 3NM FDM is an overlay, adapted for use within defined 3NM airspace, that can be enabled or disabled as needed. Once disabled, the affected polygon only supports 5NM FDM. 3NM FDM is not allowed when the only surveillance input is long range radar. Disabling 5NM FDM also disables 3NM FDM throughout the facility. The most operationally advantageous contingency plan, as determined by the facility, should be specified in facility SOP.
- 7. Procedures.**
 - a. General:**
 - 1.** FDM surveillance data may be used for 3NM and 5NM separation in Terminal and En-Route environments using Micro-EARTS when an operational advantage and an increase

in safety and efficiency are realized. Facility directive must specify 3NM FDM airspace using the most operationally advantageous combination of available surveillance sources and in accordance with the provisions of FAA JO 7110.65 5-5-4 Minima. 3NM FDM is not allowed when the only surveillance input is long range radar.

NOTE-

3NM FDM airspace can be enabled or disabled as needed. Once disabled, the affected airspace must use 5NM FDM separation.

2. The entire facility must be in either FDM or Sensor/Mosaic Display Mode. All facility displays will return to Mosaic Display Mode, with all single sensor polygons disabled, when FDM is exited. The applicable display keyboard entry will be required to enable any single sensor polygons or to place a display in sensor oriented mode. A controller preference file with the desired settings can also be loaded if desired.
3. All procedures and requirements contained in FAA Order JO 7110.65 related to ATC services provided to secondary radar targets apply to ATC services provided to FDM targets.
4. FDM Tracks qualifying for 5NM separation minima must use the current 5NM Target Symbol (/) and are within defined 5NM airspace in accordance with the provisions of FAAO JO 7110.65 5-5-4 Minima.
5. FDM Tracks qualifying for 3NM separation minima must have a 3NM Target Symbol (light blue circle) and are within defined 3NM airspace in accordance with the provisions of FAAO JO 7110.65 5-5-4 Minima.
6. Aircraft within defined 3NM airspace that no longer qualify for 3NM separation will present the term "ISR," the target will switch from the 3NM Target Symbol (light blue circle) to the 5NM Target Symbol (slash) and 5NM separation is required.
7. Aircraft that no longer qualify for radar separation will display the term "TRK," the target position symbol will be removed and non-radar separation is required.
8. The Limited Data Block (LDB) Aircraft Identifier (ID) will display Field 1 of the International Civil Aviation Organization (ICAO) address if a valid beacon/4096 code is not received.
9. The displayed coast indicator in the FDB will be "CST" when all surveillance sources are lost.
10. The displayed ADS-B loss indicator in the FDB will be "ADB" when ADS-B surveillance data is lost.

b. General Control:

1. Controllers must notify pilots of Call Sign Mis-Match Alerts. The FDB will flash "CSMM" if the aircraft ID in the flight plan does not match the non-blank reported Target ID received in the ADS-B message.

EXAMPLE-

(Aircraft ID) YOUR ADS-B CALL SIGN DOES NOT MATCH YOUR FLIGHT PLAN CALL SIGN.

- 2. Controllers must notify FLM/CIC of Duplicate ICAO Address Alerts. The FDB will flash “DUP” if the broadcast ICAO address is shared with one or more aircraft in the same ADS-B Service Area.

NOTE-

Aircraft broadcasting duplicate ADS-B ICAO addresses may cause target tracking to be lost if the following conditions are present:

- 1. *Multiple flights in the same ADS-B Service Volume share the same broadcast ICAO address.*
- 2. *Lateral target separation is less than 6NM, regardless of altitude.*
- 3. *Target information is derived from ADS-B surveillance only.*

If this occurs controllers should ensure targets remain radar reinforced or at least 6 NMs apart.

- 3. Controllers may specify the number of track histories and specify the history interval.

8. Distribution. This order is distributed to ATO service units: System Operations Services, Air Traffic Services (ATS), ATS North, ATS South, Safety Directorate, Safety and Technical Training Services, Air Traffic Safety Oversight Service (AOV), William J. Hughes Technical Center and Mike Monroney Aeronautical Center.

9. Safety Risk Management. With the approval of the Safety Risk Management Document (SRMD) Addendum Critical Services: Microprocessor En-Route Automated Radar Tracking System (Micro-EARTS) Fusion for 3NM and 5NM Separation NAS-wide SBS 066x, Rev 0.1 (SBS-066-01-20150413, v1.0, April 13, 2015), FDM is approved for 3NM and 5NM separation in the Terminal and En Route environments using the Micro-EARTS automation platform. The deployment of the Micro-EARTS platform with FDM requires no change to current separation minima. This order is not intended as mitigation to an existing hazard, nor does it affect any air traffic procedure, separation minima or operation. Therefore, additional SRM analysis is not required.

Original signed by Heather Hemdal
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Air Traffic Organization

11/8/2016

Date Signed