NOTICE

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

N JO 7110.561

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July 24, 2011

Cancellation Date:
July 23, 2012

SUBJ: Guidance for the Implementation of FUSION/Automatic Dependent Surveillance-Broadcast (ADS-B) within the Common Automated Terminal System Model IIIE (CARTS) at New York (N90) Terminal Radar Approach Control (TRACON)

1. Purpose of This Notice. The purpose of this notice is to prescribe guidance when using FUSION. These procedures are currently being tested at N90 TRACON.

2. Audience. This notice applies to the Air Traffic Organization (ATO) Terminal Service Unit at N90 TRACON.

3. Where Can I Find This Notice? This notice is available on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications Web site at 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 air traffic control (ATC) services using the Common Automated Radar Terminal Systems (CARTS) terminal, to include radar identification, separation, advisories, monitoring simultaneous independent area navigation/global positioning system, or independent approaches and phraseology, must apply to the FUSION target.

b. Use FUSION tracker automation systems as follows:

(1) For initial operating capability, the System Track Display Mode should be the preferred sensor display mode to the extent that it is operationally feasible.

(2) Inform other interfaced 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 or pilot-reported altitude must be displayed, if available, and be kept current all times that the aircraft is in level flight.

c. Apply standard separation 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 provisions for terminal separation must apply.

d. A solid circle target symbol must be displayed depicting the aircraft position.

e. The current terminal or en route radar sensor required for 3NM must update the target position to apply 3NM separation with the exception of an ADS-B reinforced target to any ADS-B reinforced target not displaying ISR-*3 miles*.

NOTE-
During periods of known radar outages, ADS-B-only surveillance may not be used in lieu of radar to meet surveillance requirements for Q and T routes or for RNAV/RNP approach procedures and any approach that states "RADAR Required."

(3) A solid circle target symbol associated with a three-character indicator for increased separation required (ISR) must be displayed when the terminal or en route radar sensors updating the target position is outside of the current sensor requirement for 3NM separation. ISR indicates that either the confidence level of the track is such that 3-mile separation, 1½-mile separation, and target resolution cannot be used, and 5-mile separation is required or that the track is not being updated by an eligible sensor.

NOTE-
In the event of a sensor outage or other loss of confidence resulting in an unexpected ISR on one or more aircraft, the ATC specialist working that aircraft must transition from 3-mile to 5-mile separation or establish some other form of approved separation (for example, visual or vertical) as soon as feasible. This action must be timely but taken in a reasonable fashion, using the controller's best judgment, as not to minimize safety or the integrity of the traffic situation. (For example, if an ISR message is received when an aircraft is established on final with another aircraft on short final, it would be beneficial from a safety perspective to allow the trailing aircraft to continue the approach and land, rather than terminate a stabilized approach.)

(4) When applying Class B or C Service to VFR aircraft and an ISR is being displayed, discontinue 1½-mile separation or target resolution and revert to 5-mile separation or VFR vertical separation.

NOTE-
Currently there is no ADS-B to ADS-B separation standard approved for air traffic operations.

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 the aircraft's 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 must be displayed. ATC must 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 separation.

5. Distribution. This notice is distributed to the following ATO service units: Terminal, En Route and Oceanic, System Operations, and Mission Support; the ATO Office of Safety; the Air Traffic Safety Oversight Service; the William J. Hughes Technical Center; and the Mike Monroney Aeronautical Center.

6. 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 National Airspace System.

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 ATC automation systems. It has been determined that FUSION is the best method to accomplish this. The Surveillance and Broadcast Services 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.

7. Safety Management System. The provisions of this notice are based on the FUSION System Safety Risk Management Document (SRMD), Sub-System Hazard/System Hazard Analysis for N90 Airport Traffic Control Tower, prepared by the FAA Surveillance and Broadcast Services Program. This SRMD supports the procedural guidance contained in this notice.

Elizabeth L. Ray
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Air Traffic Organization

July 22, 2011
Date Signed