U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER
8200.39C

4/10/07

SUBJ: Flight Inspection of Precision Runway Monitors/ Final Monitor Aid

1. Purpose of This Order. This order prescribes the procedures for flight inspecting Precision Runway Monitors (PRM) and Final Monitor Aid Displays.

2. Who This Order Affects. This order is distributed to the Communication, Navigation, and Surveillance Platform Division of the National Airspace System Implementation Program; to the Terminal Facilities Division of the Terminal Business Service; to the National Operations and NAS Policy Divisions of National Airspace Operations; to the National Airway Systems Engineering Division of Operational Support; to the Director and Deputy Program Director of the Office of Communications, Navigation, and Surveillance Systems; to the En Route/Terminal Operations/Procedures Division of the Air Traffic Planning and Procedures Program; to the Flight Technologies and Procedures Division of Flight Standards Service; to the branch level in the National Flight Procedures Office and Flight Inspection Operations Group of Aviation System Standards; to the Air Traffic Technical Operations Service Areas; and to all Flight Inspection Field Offices.

3. Cancellation:

a. Order 8200.39B, Flight Inspection of Precision Runway Monitors/ Final Monitor Aid, dated March 3, 2003, and Change 1, dated November 15, 2004, are canceled.

b. N 8200.89, FAA Order 8200.39, Flight Inspection of Precision Runway Monitors/Final Monitor Aid, dated May 3, 2006, is canceled.

4. Background:

a. **Order 7110.65, Air Traffic Control,** contains the ATC requirements for simultaneous precision approaches.

b. **When the approach courses are parallel,** the runway spacing between centerlines can be as close as 3,400 ft, provided the no-transgression zone (NTZ) is monitored by a high update rate surveillance system capable of a 1.0 second update interval such as the Precision Runway Monitor (PRM). The parallel runway centerlines can be as close as 3,000 ft if an offset ILS/ MLS/ LDA facility (not meeting localizer siting critiera) of 2.5° - 3.0° serves one of the runways. A simultaneous offset instrument approach (SOIA) is applicable where parallel runway centerlines are from 750 to 3,000 ft apart.

Distribution: Special Addressees

Initiated By: Air Traffic Technical Operations (ATO-W)
Aviation System Standards
Flight Inspection Policy (AJW-3310)

c. **A high resolution color monitor with alert algorithms**, such as a Standard Terminal Automation Replacement System (STARS) final monitor aid (FMA), or that required in the precision runway monitor program, must be used to monitor approaches where:

(1) **Triple parallel runway centerlines** are at least 4,300 but less than 5,000 ft apart, and the airport field elevation is less than 1,000 ft MSL.

(2) **Triple parallel approaches to airports** where the airport field elevation is 1,000 ft MSL or more require the high-resolution color monitor with alert algorithms and an approved FAA aeronautical study IAW FAA Order 7110.65.

5. Explanation of Changes:

a. Paragraph 9d: Added requirements for PRM/ FMA site data submission.

b. Appendix 1:

(1) Paragraph 4b(1), first paragraph. Added requirement to conduct periodic and commissioning inspections with the aircraft transponder power output and receiver sensitivity set to "Low/ Low". Added requirement for commissioning inspection to use PCMIS card, or equivalent, to log data.

(2) Paragraph 4b(1)(b). Reworded last sentence for clarification.

(3) Paragraph 4b(3), first paragraph. Reworded last sentence for clarification.

(4) Paragraph 4b(4). Changed paragraph heading.(e) Paragraph 4b(4)(a). Clarified requirements.

(5) Paragraph 4b(4)(b). Reworded for clarification.

(6) Paragraph 4b(4)(c). Removed procedure for evaluating the inbound courses and NTZ boundary accuracy using ILS-1 crossings. Added procedures for evaluating the inbound courses and NTZ boundary accuracy using Differential GPS (DGPS) as the truth source.

(7) Paragraph 5. Added requirement to use DGPS for NTZ and Video Map Boundary accuracy evaluations. Clarified requirements in paragraph.

(8) Paragraph 6. Clarified when low altitude coverage is required. Defined periodic requirement. Removed requirement to analyze inbound course alignment by comparing localizer alignment to monitor controller centerline calls. This requirement has been replaced with DGPS analysis of inbound courses.

(9) Tolerances, Parameters 6 and 7. Clarified requirements.

c. Appendix 2, Paragraph 3. Added commissioning requirements for STAR FMA when requested.

d. Appendix 3. Deleted Figures 12 and 13 and renumbered the following figures. This guidance is no longer required.

e. Appendix 4, Workbook Instructions. Deleted the Offset Localizer Worksheet guidance. Deleted Figures 1 – 5 and renumbered the following figures. This guidance is no longer required.

f. Appendix 5. Reorganized report guidance to accommodate new form contained within the automated Flight Inspection Report Processing System. Replaced PRM/ FMA form.

g. Appendix 6. Added this new appendix to provide for the submission of PRM/ FMA site data to Flight Inspection Central Operation Technical Services Sub-Team for entry into the AVNIS data system.

6. General. The PRM and STARS FMA are air traffic monitoring devices using secondary radar to generate position information for display to the monitor controller. The PRM is a stand-alone secondary surveillance radar and display system and requires a commissioning flight inspection. The STARS FMA uses “Mode S" data to update positioning information.

7. Definitions/ Abbreviations

a. Active Monitored Zone (AMZ). Used in the STARS FMA. Deviation and runway alerts are processed with respect to adapted runway and course definitions and airspace volumes. The collection of adapted elements for a given runway configuration is defined as an AMZ. This area is synonymous with the video map display of the PRM.

b. Aircraft Identification (ACID).

c. Blunder. An unexpected turn, by an aircraft already established on the localizer, toward the adjacent runway.

d. Coast (CST). For a PRM, when there is a loss of transponder reception, the data block will turn a constant yellow, and "CST" will appear in the altitude field of the data block. For the STARS FMA, a “CST” is received when a surveillance alert is in effect. The data block of the affected track contains an adaptable text string (default “CST”) displayed in warning alert color (red), which will blink until acknowledged by the FMA terminal controller workstation (TCW) operator.

e. Coast Drop (CSTD). For a PRM, when there is a loss of transponder reception for a period of 10 seconds, the beacon radar system (BRS) must drop the track. All of the data block fields will blink yellow and "CSTD" will appear in the alert field of the data block. For the STARS FMA, if the surveillance updates are lost long enough for the track to coast out, the data block remains in the last displayed position at FMA Terminal Control Workstation. When the alert is acknowledged, the alert text will remain displayed in warning alert color (red), but will no longer blink.

f. Final Monitor Aid. A high-resolution, color display that is equipped with the controller alert system software/ hardware used in the PRM system or STARS.

g. Geographical Filter. A filter that inhibits the acquisition and tracking of target reports outside of established geographical filter boundaries.

h. IFR Room. Commonly referred to as TRACON (Terminal Radar Approach Control).

i. **Interrogation Blanking Sector.** Azimuth blanking sector where the PRM does not interrogate aircraft.

j. **Localizer Directional Aid (LDA).** A lateral guidance facility, which provides localizer-type guidance but does not meet localizer siting/ alignment criteria.

k. **Loss of Track.** This equates to a coast drop.

l. **Monitor Controller.** Air traffic controller who continuously monitors aircraft conducting parallel precision approaches.

m. **No Transgression Zone (NTZ).** The region of airspace (2,000 ft wide) located between the extended inbound courses of parallel runways for the purpose of detecting aircraft deviations from an approach along the extended inbound courses. Additional NTZ(s), which may vary in size and shape, may be added within the geographical filter boundary area for the purpose of terrain or airspace avoidance and for noise abatement. The NTZ(s) is included as a site parameter designed for each individual installation.

n. **Normal Operating Zone (NOZ).** The NOZ is defined as an area, within the runway environment, with a width bounded by its associated NTZ(s) and a length extending to the end of the longest NTZ on the approach end and the longest NTZ on the departure end. The NOZ encloses the approach course for its associated runway and represents airspace in which flights that are approaching the runway normally operate.

o. **Precision Runway Monitor System (PRM).** A stand-alone high update monopulse secondary surveillance radar system that employs an electronically scanned phase array antenna and high resolution CRT monitors.

p. **Runway Environment.** An area depicted within the video map display that includes the NTZ and NOZ.

q. **Simultaneous Offset Instrument Approach (SOIA).** SOIA(s) are applicable where parallel runway centerlines are from 750 to 3,000 ft apart. It is a simultaneous approach to one set of parallel runways utilizing a straight-in instrument landing system (ILS) approach to one runway and a localizer type directional aid (LDA) with glide slope instrument approach to the other runway. In SOIA, the approach course separation (instead of the runway separation) meets established approach criteria.

r. **Special Position Identification (SPI).** An extra pulse that follows the normal pulse train of an aircraft transponder identification, providing a method of identifying the aircraft sending the pulse.

s. **Video Map Display:** The PRM display coverage area, outlined in blue, defined by the geographical filter data, which represents the site-specific geographical boundaries. Other terminology used to define the video map display is blue polygon or keyhole. For the STARS FMA, it is the coverage area, normally outlined in white, defined by a collection of adapted elements for a given runway configuration and is called the Active Monitored Zone (AMZ).

8. Flight Inspection Requirements:

a. **The PRM must be commissioned** in accordance with this order. Periodic inspections will be performed at 540-day intervals, concurrently with the check of each ILS to which it is associated.

If requested, complete the flight inspection of a STARS FMA using the procedures outlined in this order. There are no STARS FMA commissioning or periodic requirements.

b. **Aircraft Requirements.** GPS positioning and the following transponder modes are required for the type system indicated:

(1) **PRM -** Modes 3/A and C.

(2) **STARS FMA -** Modes S, 3/A, and C.

9. Flight Inspection Procedures, Analysis, Data, Reporting, and Tolerances:

a. **Appendixes 1, 3, and 4** contain the PRM flight inspection procedures, analysis, and tolerances.

b. **Appendix 2** contains the STARS FMA flight inspection procedures, analysis, and tolerances.

c. **Appendix 5** contains instructions for flight inspection reporting.

d. **Appendix 6** contains PRM/ FMA data requirements.

10. INFORMATION UPDATE. Any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this order should be noted on FAA Form 1320-19, Directive Feedback Information. If an interpretation is needed, call the originating office for guidance; however, you should also use FAA Form 1320-19 as a follow-up to the verbal conversation.

/s/

Thomas C. Accardi
Director of Aviation System Standards

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APPENDIX 1. PRECISION RUNWAY MONITORS (PRM)

1. INTRODUCTION. The PRM is a high update mono-pulse secondary surveillance radar system that employs an electronically scanned phased array antenna and high resolution color CRT monitors. The PRM system provides detection, acquisition, tracking, and presentation of aircraft to assist air traffic controllers in monitoring and maintaining the required separation of air traffic on approach to parallel runways.

a. PRM Characteristics:

(1) General. The elevation coverage is from -2° to +31° with respect to a horizontal line passing through the antenna for ranges from 500 ft to 3 nautical miles (nm). The elevation coverage is from +1.5° to +31° with respect to a horizontal line passing through the antenna, extending to a minimum altitude of 15,000 ft, for ranges from 3 nm to 32 nm (See Appendix 3, Figure 1).

(2) PRM Display Presentation. The display presentation (see Appendix 3, Figure 3) will provide the necessary information and alerts to properly assess the condition on the runway approaches and intervene as necessary. The display presentation must consist of alphanumeric and graphic data on a CRT screen.

(3) Target Symbols and Data Block Fields. Appendix 3, Figure 4 gives a close-up view of a target and common symbols found on the PRM display. Each tracked symbol must have an associated data block. The data block layout (Appendix 3, Figure 4) illustrates what information can be included in the data block.

2. PREFLIGHT REQUIREMENTS. Complete the applicable preparations in FAA Order 8200.1, Chapter 4.

3. FLIGHT INSPECTION PROCEDURES. Flight inspection of the PRM will define the recognition accuracy provided to the monitor controller and coverage of the system.

4. DETAILED PROCEDURES.

a. Checklist for PRM Flight Inspection. The following checklist items must be performed on all runways associated with the PRM.

Type Check	Reference Paragraph	Commissioning	Periodic
Modes/ Codes	Appendix 1, 4b(2)	X	
Transponder Check	Appendix 1, 4b(3)	X	X
Usable Distance	Appendix 1, 4b(4)b	X	
Inbound Courses/ NTZ Boundary Display Accuracy	Appendix 1, 4b(4)c	X	
Altitude Boundary	Appendix 1, 4b(4)a	X	
NTZ Boundaries (outside the runway environment) and Video Map Display Boundaries (when present)	Appendix 1, 4b(5)	X	
Approach/Missed Approach	Appendix 1, 4b(6)	X	X
Low Altitude Coverage	Appendix 1, 4b(6)	X	X
Communications	Appendix 1, 4b(7)	X	X

b. PRM Flight Checks:

(1) General. During commissioning and periodic inspections, all checks must be accomplished with the flight inspection transponder power output and receiver sensitivity set to "LOW/ LOW". For a commissioning inspection, a Personal Computer Memory Card International Association (PCMCIA) card, or equivalent, must be used to log the inspection data and must be forwarded to the Flight Inspection Policy Team for archiving.

Appendix 3, Figures 2, 5, and 5A illustrate how the PRM and the No Transgression Zones (NTZ) could be utilized. The NTZ is the area where the aircraft is prohibited from entering. The runway NTZ is normally 2,000 ft wide and located equidistant between inbound courses. The Normal Operating Zone (NOZ) (see Appendix 3, Figure 3) is the area around each inbound course that is not part of the NTZ. The range and shape of the NTZ(s) are site variable. The range of the NTZ used between runways is normally determined by the runway with the furthest glide slope intercept (GSI) used on the simultaneous approaches (see Appendix 3, Figure 6). This range will determine the beginning of the NTZ, and it will extend to one-half mile beyond the departure end of the runway. For SOIA(s), the NTZ terminates at the MAP of the localizer-type directional aid (LDA) approach. Other NTZ(s) may be located anywhere within the PRM service volume, be of various shapes, and have site-specific altitude boundaries. Some NTZ(s) may be vertically stacked, allowing a corridor for flight between the NTZ areas.

(a) **If an aircraft gets within 10 seconds (a projected alert)** of entering the NTZ, the monitor controller will receive an audible alert "[ACID] deviating" where [ACID] is the aircraft's identification. In addition, the monitor controller will get an NTZ alert in the alert field of the target data block plus the data block will turn yellow (see Appendix 3, Figure 7). The monitor controller will issue heading instructions to return the aircraft on course. For NTZ(s) designed for areas outside the runway environment (see Appendix 3, Figure 2), the monitor controller will issue heading and/or altitude instructions to the deviating aircraft to avoid entry into the NTZ.

(b) **If the aircraft still enters the NTZ,** the monitor controller will receive a blinking red NTZ alert in the alert field of the target data block (see Appendix 3, Figure 8). When this happens, the aircraft on the other approach must be issued breakout instructions.

(c) **When an emergency code is received,** the alert field of the associated target's data block will contain the appropriate blinking red acronym (see Appendix 3, Figure 9).

(2) Modes and Codes:

(a) Purpose: To verify the proper decoding of ATCRBS reply pulses. Facilities maintenance personnel must ensure that all modes and codes are verified by equipment test procedures before requesting flight inspection. Codes 7500, 7600, and 7700 should not be used due to the possibility of alarming other facilities.

(b) Approved Procedure. Facilities maintenance personnel must monitor the flight inspection aircraft transponder replies or targets-of-opportunity throughout the coverage area of the video map display (AMZ for STARS FMA). During these tests, facilities maintenance personnel should request the flight inspection aircraft use different modes or codes to sample various modes and code trains. When targets-of-opportunity are used, ensure that the sample contains all modes interrogated and a sufficiently large sample of codes to ensure correct decoding of beacon replies.

(3) Transponder Check. The purpose of this check is to verify the PRM displays the proper alert to the monitor controller. This check will simulate a transponder loss and verify the PRM provides the monitor controller with the proper alerts (aural and/or visual) to detect track loss. When the track loss is detected, the monitor controller will receive a coast "CST" alert in the alert field of the data block. This check is only required for NTZ(s) located between the inbound courses.

Approved Procedure. Fly inbound on course at Glide Slope Intercept altitude (GSI). Turn the aircraft transponder off. Request the monitor controller respond when a coast "CST" alert is received in the alert field of the data block. Turn the transponder back on.

Evaluation. Verify the monitor controller receives the proper alert.

(4) Altitude Boundary, Usable Distance, Inbound Courses, and NTZ Boundary Display Accuracy. These checks must be accomplished based on the operational requirements of the specific facility under evaluation. The service volume for the PRM presentation is defined by the geographical filter data, which is software generated. The width and altitude boundaries of the service volume are site variable, and this information is available on the AVNIS PRM Data Sheet.

The PRM video map display, defined by the geographical filter, may be displayed using a portion of the usable system service volume as illustrated in Appendix 3, Figure 3, or the entire system service volume (see Appendix 3, Figure 2). The video map display boundaries, as defined by the geographical filter, are outlined in blue on the PRM display presentation (see Appendix 3, Figures 2 and 3). There could be more than one video map display and NTZ presentation at one location. Typically a presentation for the opposite runway ends would be present (see Appendix 3, Figure 13). Additionally, there could be more than one configuration of the video map display and NTZ(s) at a runway end (see Appendix 3, Figure 14).

The altitude boundary of the NTZ(s) may be defined in a step configuration (see Appendix 3, Figure 11) to satisfy operational requirements. The geographical filter may be configured to filter out all transponder data that is not within the video map boundaries, or it can be configured to track a limited number of tracks outside of the video map boundaries.

(a) **Altitude Boundary (Video Map Display and No Transgression Zones Altitude Boundaries).** This check is required to verify that the altitude defined by the geographic filter of the video map and NTZ boundaries are accurate. When the altitude boundaries of an NTZ are designed in a stepped configuration and have different altitudes than the video map display (see Appendix 3, Figure 11), the altitudes of each portion must be evaluated individually in addition to the altitude boundary of the video map display. When the altitude boundary limits are the same for the NTZ and the Video Map Display and in a stepped configuration, the check may be accomplished by transitioning the higher altitude first then descending to transition the lower altitude boundary.

Approved Procedure (see Appendix 3, Figure 11). The altitude boundary check for the video map display and the NTZ may be flown anywhere within the defined service volume that encompasses the video map display and/or the NTZ. Within the video map display or NTZ boundary, fly 500 ft below the upper defined coverage altitude. Climb until the monitor controller reports exiting the video map or NTZ boundary, or 500 ft above the boundary, whichever occurs first. Descend until the monitor controller reports re-entry into the video map or NTZ boundary, or 500 ft below the boundary, whichever occurs first. Enter and exit the boundary as many times as feasible within the distance defined (maintain a vertical speed of less than 500 ft per minute.)

Request the monitor controller report both the exiting and re-entering of the coverage area. Request the monitor controller be as accurate as possible.

Evaluation. Note the MSL altitude each time when **exiting** the coverage area.

(b) **Usable Distance Check.** The service volume will be evaluated by flying inbound from the limits of the service volume of the Video Map Display throughout to exit the departure end of the video map boundary. Only one usable distance check is required per video map display, unless additional checks are requested.

Approved Procedure. Fly a level run inbound on course of either a localizer or LDA at the GSI altitude, or 500 ft above the highest terrain or obstruction, from the limits of the service volume of the Video Map Display. Continue inbound until exiting the departure end of the video map display boundary. Request the monitor controller report when entering and exiting the video map boundary.

Evaluation. Usable distance is satisfactory when there is no loss of track, as defined by the video map display boundaries.

(c) Inbound Courses and NTZ Boundary Accuracy. This check is performed to verify the accuracy of the presentation of the inbound courses and the NTZ boundaries that are located between the inbound courses. For NTZ(s) which are defined by 6 or more points (see Appendix 3, Figure 5A, Example 7), the accuracy of the NTZ boundaries will be verified by flying each segment of the inbound boundaries separately.

Use the Automated Flight Inspection System (AFIS) GPS Non-Precision Mode and Differential GPS (DGPS) to evaluate the inbound courses and the NTZ boundaries. Information about AFIS operations using DGPS as a truth system is located in Order VN200 8240.52, Appendix 9.

Automated Flight Inspection System (AFIS) GPS Non-Precision Mode (GPS NP) and DGPS. The latitude/ longitude of the corner-posts defining the NTZ boundary(ies) will be available on the AVNIS PRM Data Sheet. Calculate the latitude/ longitudes for the points 2 nm prior and beyond the corner-posts for each leg that defines the NTZ boundary, using the 8200.39B PRM Worksheet located in the Aircrew Information File/ Flight Inspection/ Related Documents Link. The 2 nm points will define the IAF and the IF (see Appendix 3, Figures 12 and 15). The pilot must enter a flight plan using the calculated IAF and IF for each leg of the NTZ, which will be flown. The pilot will transfer the flight plan to the AFIS. The mission specialist will designate the waypoints as “IAF” and “IF”. The mission specialist will record each leg of the boundary using AFIS GPS non-precision mode, and plot as a minimum the RXTK, RXER, number of satellites tracked, and ground speed traces.

Approved Procedure for NTZ Boundary. This check may be flown at any altitude within the service volume of the NTZ up to but not including the top altitude of the boundary (recommend flying at least 500 ft below the top altitude). The pilot will fly the track along each long leg of the NTZ boundary (do not fly the boundary that is 2,000 ft wide). Request the monitor controller verbally report each time the aircraft is centered on the boundary. The mission specialist will actuate an event mark and the “on path” event at each report. The “on path” event will document the on centerline mark on the data logger file. Request the monitor controller report, using the phrase, “Ready, Mark” to facilitate accurate marking.

Evaluation. Average the cross-track results (RXTK) of all event marks on each leg flown. Obtain as many centerline reports from the controller as possible, but a minimum of three reports is required. If only three controller reports are documented, they must be located near the beginning, the middle, and the end of the boundary flown.

Approved Procedure for Inbound Course. This check may be flown at any altitude within the service volume of the video map display up to but not including the top altitude of the boundary (recommend flying at least 500 ft below the top altitude). The pilot will fly the track along the inbound course. Request the monitor controller verbally report each time the aircraft is centered on the inbound course. The mission specialist will actuate an event mark and the "on path" event at each report. The "on path" event will document the on centerline mark on the data logger file. Request the monitor controller report, using the phrase, "Ready, Mark" to facilitate accurate marking.

Evaluation. Average the cross-track results (RXTK) of all event marks on each inbound course flown. Obtain as many centerline reports from the monitor controller as possible, but a minimum of three reports is required. If only three centerline reports are documented, they must be located near the beginning, the middle, and the end of the boundary flown.

(5) NTZ Boundaries or Video Map Display Boundaries (when presented). This check is for NTZ boundaries that are not located within the runway environment (see Appendix 3, Figure 2) and video map display boundaries when presented as depicted in Appendix 3, Figure 3. The latitude/ longitudes of the corner-posts of the video map/ NTZ boundaries are site variable, and this information must be obtained from the AVNIS PRM Data Sheet. Some facilities will not have video map width boundaries (See Appendix 3, Figure 2) and will not require this portion of the check.

Some PRM applications will require uniquely shaped NTZ(s), based on operational requirements (see Appendix 3, Figure 5A, Example 6, and Figure 2). Other facilities could be sited with one or more NTZ areas beyond the runway environment for varied purposes, such as noise abatement, terrain, or airspace avoidance. This check must be accomplished based on operational requirements as determined by air traffic control. The boundaries of the video map display (when present) and one or more of the NTZ(s) will be evaluated to provide confidence in the accuracy of the map presentation. There is no requirement to check all of the NTZ(s), unless Air Traffic deems it necessary.

Use the Automated Flight Inspection System (AFIS) GPS Non Precision Mode and DGPS to evaluate the video map display and NTZ boundaries. Information for AFIS operations using DGPS as a truth system is located in Order VN200 8240.52, Appendix 9.

Automated Flight Inspection System (AFIS) GPS Non-Precision Mode (GPS NP) and DGPS. The latitude/ longitude of the corner-posts defining the video map display and NTZ boundary(ies) will be available on the PRM Data Sheet. Calculate the latitude/ longitudes for the points 2 nm prior and beyond the corner-posts for each leg that defines the video map display and NTZ boundaries using the 8200.39 Worksheet located on the Airmen's Information File/ Flight Inspection/ Related Documents Link. The 2 nm points will define the IAF and the IF (See Appendix 3, Figures 12 and 15). The pilot must enter a flight plan using the calculated IAF and IF for each leg of the video map display or NTZ that will be flown. The pilot will transfer the flight plan to the AFIS. The mission specialist will designate the waypoints as "IAF" and "IF". The mission specialist will record each leg of the boundary using AFIS GPS non-precision mode and plot as a minimum the RXTK, RXER, number of satellites tracked, and ground speed traces.

Approved Procedure. This check may be flown at any altitude within the service volume of the video map display or NTZ up to but not including the top altitude (recommend flying at least 500 ft below the top altitude. The pilot will fly the track along each leg of the video map display or NTZ boundary. Request the monitor controller verbally report each time the aircraft is centered on the boundary. The mission specialist will actuate an event mark and the "on path" at each report. Request the monitor controller report, using the phrase, "Ready, Mark" to facilitate accurate marking.

Evaluation. Average the cross-track results (RXTK) of all event marks on each leg flown. Obtain as many centerline reports from the monitor controller as possible, but a minimum of three reports is required. If only three centerline reports are documented, they must be located near the beginning, the middle, and the end of the boundary flown.

(6) Approach/ Missed Approach/ Low Altitude Coverage. On commissioning inspections, the approach will be verified by flying the published approach, missed approach procedure, and the low altitude coverage.

During periodic inspections, fly the final approach segment and the low altitude coverage (when required).

Approved Procedure.

(a) Published approach and missed approach procedure. Fly the published approach and missed approach procedure and verify the accuracy of each fix that is presented on the video map. The monitor controller must report each fix (FAF, LOM, etc.), when present, to the pilot as the fix is transitioned. Verify that the monitor controller can track the aircraft throughout the approach and missed approach procedure.

(b) **Low altitude coverage.** Cross the threshold at 50 ft AGL, and then conduct a low approach at 50 ft AGL from the runway threshold to the runway end. The low altitude coverage check is not required inside the missed approach point (MAP) for those facilities where the NTZ ends at the MAP (See Appendix 3, Figure 5, Example 4).

Evaluation:

1 **Fixes.** The pilot will determine from the controller reports if the fixes (when present) are displayed accurately on the video map.

2 **Low altitude coverage.** Verify from the monitor controller there is no loss of track (coast drop "CSTD") throughout the approach. If there is a loss of track at 50 ft AGL, fly the low altitude approach again at 100 ft AGL from runway threshold to the runway end. If there is a loss of track at 100 ft AGL, continue checking incrementally as requested by engineering personnel, or up to the limit of the service volume altitude as defined by the geographical filter, to determine if and at what altitude the track coverage is regained. Provide this information to the appropriate operations and engineering personnel. When there is a loss of track at 100 ft or above, the PRM is unusable and cannot be commissioned unless a waiver is granted by Flight Standards Service Technical Programs Division.

(7) **Communications.** To avoid blocked transmissions, each runway will have a primary and a monitor frequency. The tower controller and monitor controller will have the capability to transmit on both frequencies. Pilots will ONLY transmit on the primary frequency but will listen to both frequencies. The monitor controller has the capability of overriding the tower controller. If a breakout is initiated by the monitor controller and the primary frequency is blocked by another transmission, the breakout instructions may be heard on the second frequency. This check will verify the override capability.

Approved Procedure. Transmit to the tower on the primary frequency. Request the monitor controller exercise the override capability and transmit a test message. It is important that the volume is set at about the same level on both radios so that the pilots will be able to hear transmissions on at least one frequency if the other is blocked.

Evaluation. Verify the test message is heard on the monitor frequency.

Tolerances

Parameter	Reference	Tolerance/Limit
1. Modes/ Codes	Appendix 1, 4b(2)	Each code must generate the proper alert in the appropriate alarm field of the track data block.
2. Transponder Check	Appendix 1, 4b(3)	Proper alert "CST" must be detected and displayed in the track data block. Verify the monitor controller receives the proper alert.
3. Usable Distance	Appendix 1, 4b(4)b	Satisfactory when there is no loss of track as defined by the site-specific video map boundary and meets ATC requirements.
4. Inbound Courses and NTZ Boundary Accuracy for NTZ(s) that are located between the inbound courses.	Appendix 1, 4b(4)c	Must not exceed ± 200 ft from the desired boundary position.
5. Altitude Boundary	Appendix 1, 4b(4)a	Within ± 125 ft of the altitude displayed in the cockpit.
6. NTZ Boundaries (not located between the inbound courses) and Video Map Display boundaries (when present)	Appendix 1, 4b(5)	Must not exceed ± 500 ft from the desired boundary position.
7. Approach/ Missed Approach	Appendix 1, 4b(6)	Fixes (if present) must be displayed accurately on the video map as determined by the pilot from the controller reports. Distance accuracy = ± 0.2nm.
8. Low Altitude Coverage	Appendix 1, 4b(6)	Satisfactory when there is no loss of track throughout the runway environment (threshold to runway end): a. Unrestricted – no loss at 50 ft (all categories of aircraft). No loss at 100 ft (Category I only). b. Restricted – Loss of track at 50 ft. Restricted to CAT I weather minimums only. c. Unusable – Loss of track at or above 100 ft
9. Communications	Appendix 1, 4b(7)	Satisfactory when override capability provides ability to transmit message that is clear and readable.

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APPENDIX 2. FINAL MONITOR AID

1. INTRODUCTION. The Standard Terminal Automation Replacement System (STARS) Final Monitor Aid (FMA) uses a high-resolution monitor display unit and built-in software similar to the PRM. The STARS FMA uses Mode "S" transponders to provide position information to the system. The STARS FMA would normally supplement the air traffic monitoring procedures already in place for simultaneous ILS/ MLS approaches with parallel runway centerlines separated by at least 4,300 ft but less than 5,000 ft.

2. STARS FMA Characteristics:

FMA Alerts – Only tracked targets within the bounds of the AMZ are processed for FMA alert generation. FMA processing can generate the following alerts:

a. NTZ Warning. The track has entered the NTZ after being detected in the NOZ or its assigned runway. When a FMA warning alert is in effect, the outline of the penetrated NTZ will be displayed in warning color (red). The FMA Terminal Controller Workstation (TCW) operator can acknowledge FMA Warning alerts. The alert indication in the data block of the affected track is an adaptable text string (default “NTZ”), displayed in warning color (red), which will blink until acknowledged by the FMA TCW operator. When the alert is acknowledged, the alert text will remain displayed in warning color (red) after acknowledgement of the alert, and will only return to default color (white) when no track with an NTZ alert remains in the NTZ.

b. NTZ Caution. The track is predicted to enter the NTZ. When a FMA Caution alert is in effect, the outline of the NTZ to be penetrated will be displayed in caution alert color (yellow). The data block of the affected track will show an adaptable text string (default “NTZ”) in caution alert color (yellow). The outline of the NTZ will return to default color (white) when no track in FMA NTZ alert remains in the NTZ.

c. Runway Error. The track has stabilized its course on a runway that is not indicated in its scratch pad data. When an FMA Runway alert is in effect, the data block of the affected track contains an adaptable text string (default “RWY”), displayed in warning alert color (red), which will blink until acknowledged by the FMA TCW operator. When the alert is acknowledged, the alert text will remain displayed in warning alert color (red), but will no longer blink.

d. Surveillance Error. Radar updates are missing for an adapted number of consecutive scans for a track with an AMZ assigned runway. When an FMA surveillance alert is in effect, the data block of the affected track contains an adaptable text string (default “CST”), displayed in warning alert color (red), which will blink until acknowledged by the FMA TCW operator. If the surveillance updates are lost long enough for the track to coast out, the data block remains in the last displayed position at the FMA TCW. When the alert is acknowledged, the alert text will remain displayed in warning alert color (red), but will no longer blink. If surveillance reports are re-established, the alert text is removed and any voice alert immediately canceled.

e. **Voice Alert Indication.** When an alert condition is initially detected, a voice alert indication is initiated. This identifies the flight using standard phraseology as directed in FAA Order 7110.65, followed by the adaptable alert condition for the track. If an alert is locally acknowledged at the FMA TCW while the voice alert is in progress, the voice alert ceases immediately. The voice alert indication is generated once at the onset of the alert condition.

3. FLIGHT INSPECTION PROCEDURES. A STARS FMA does not require a commissioning or periodic flight check. However, a commissioning inspection may be accomplished when requested. When a commissioning inspection is requested, complete the following procedures as described in Appendix 1 (PRM):

a. Appendix 1, Paragraph 4b(4)(c), Inbound Courses/ NTZ Boundary Accuracy.

b. Appendix 1, Paragraph 4b(4)(a), Altitude Boundary.

c. Appendix 1, Paragraph 4b(7), Communications.

4. TOLERANCES. PRM tolerances apply (Appendix 1).

APPENDIX 3. FIGURES AND DRAWINGS

Figure 1

PRM SYSTEM COVERAGE

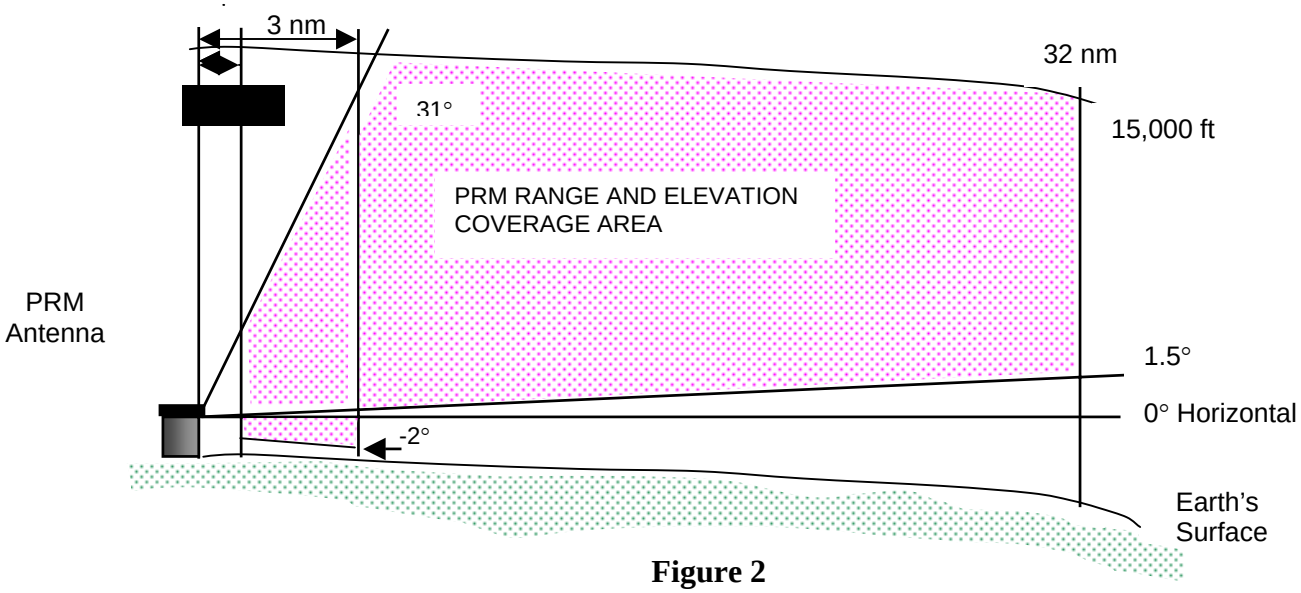


Figure 2

PRM GEOGRAPHICAL FILTER SERVICE VOLUME CAPABILITY WITH MULTIPLE NTZ(s) PLOTTED

(Example not to scale.)

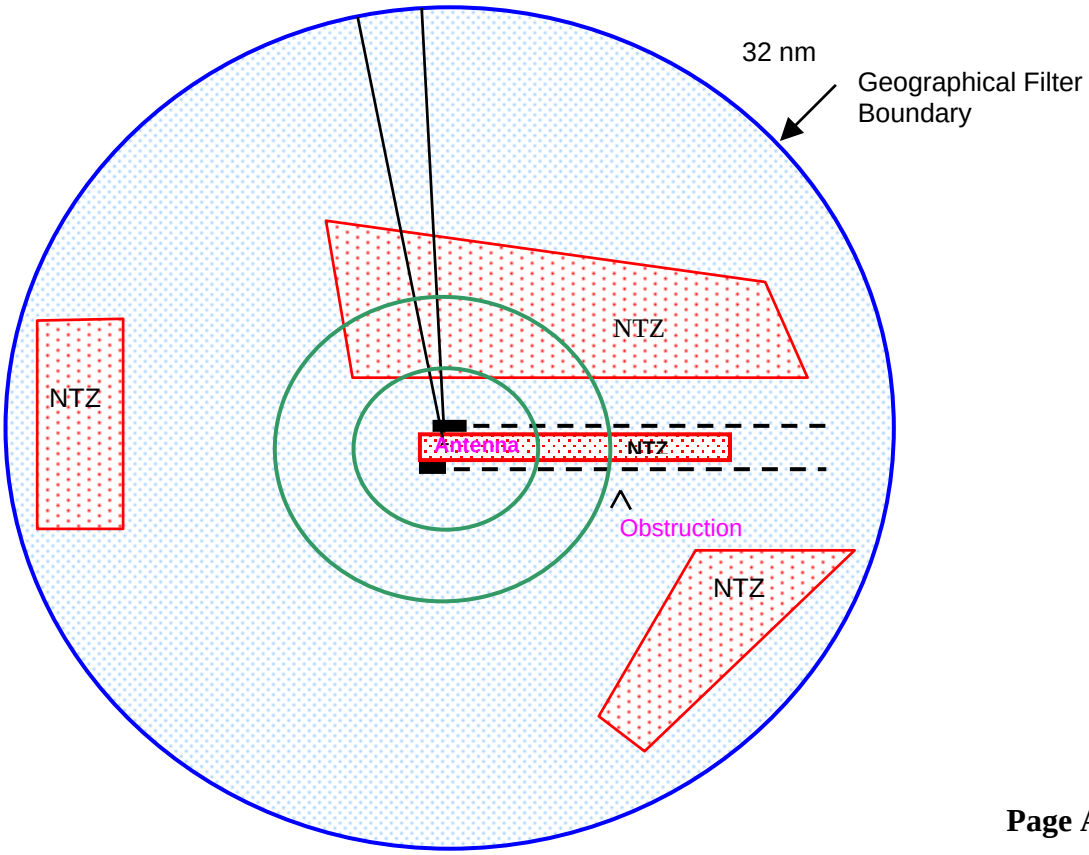


Figure 3

PRM DISPLAY PRESENTATION

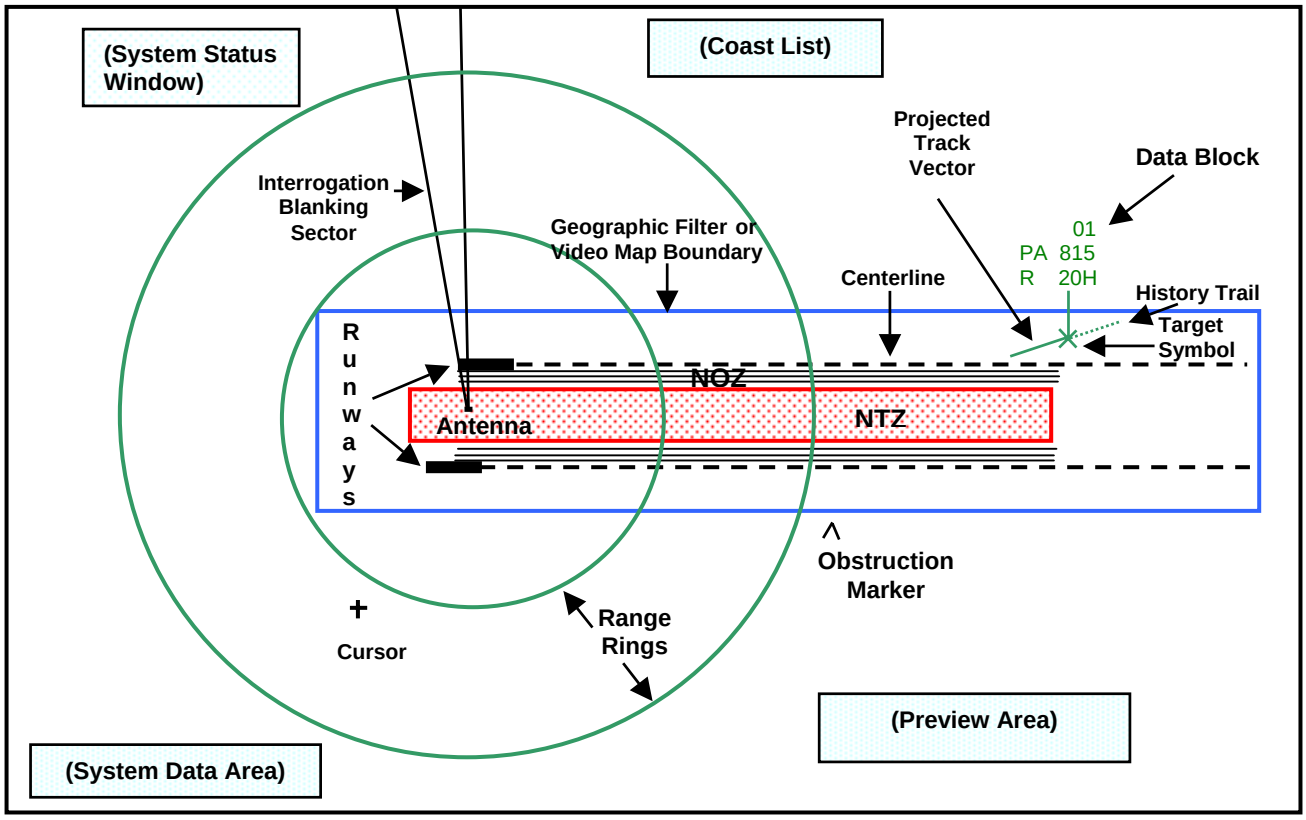
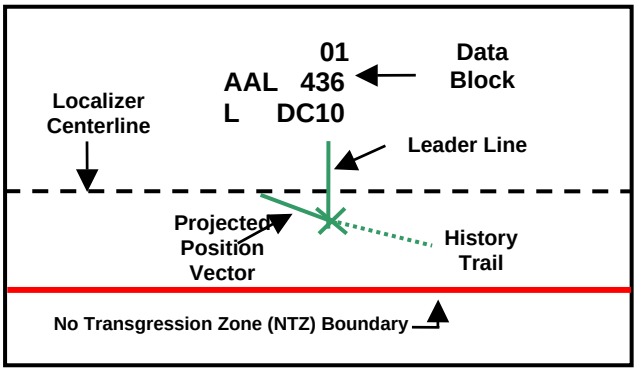
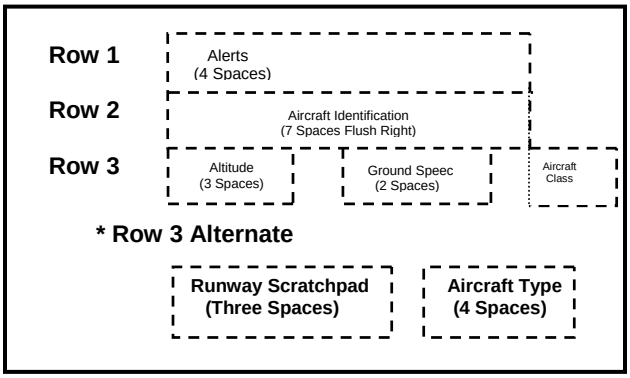


Figure 4

TRACK SYMBOLS AND DATA BLOCK FIELDS



DATA BLOCK LAYOUT



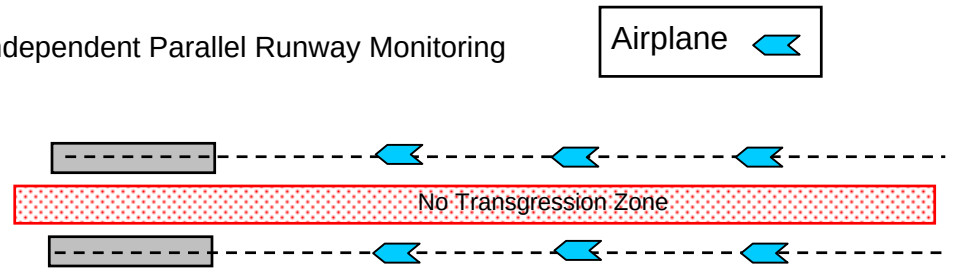
TRACK SYMBOLOGY

PARROT	▲	VFR WITH MODE C	□
TEST	■	DISCRETE NO MODE C	+
VFR NO MODE C	△	DISCRETE WITH MODE C	×

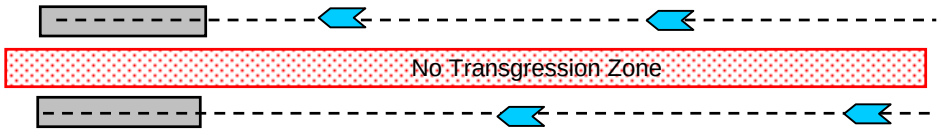
Figure 5

POSSIBLE PRM APPLICATIONS

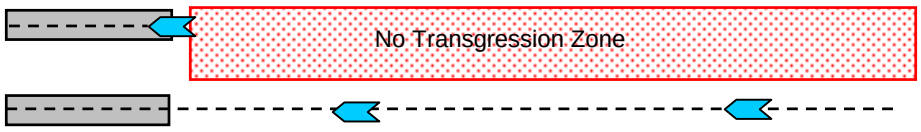
1. Independent Parallel Runway Monitoring



2. Dependent Parallel Runway Monitoring



3. Segregated Departures and Landing on Closely Spaced Parallels



4. PRM display configuration with a simultaneous offset instrument approach (SOIA)

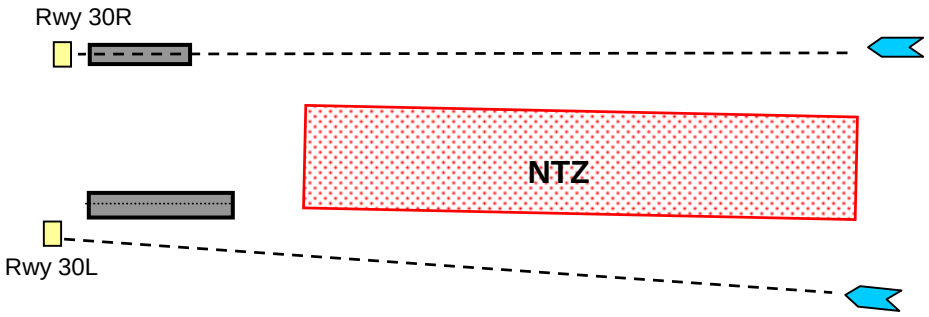
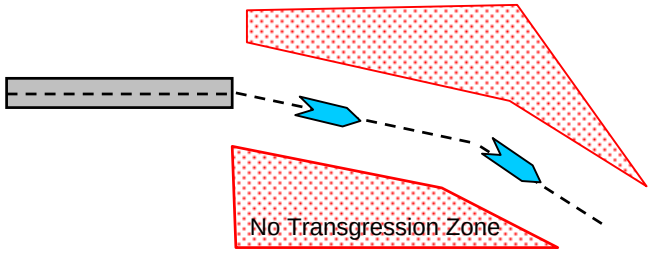


Figure 5A

POSSIBLE PRM APPLICATIONS (continued)

5. Independent Parallel Operations to Triple or Quadruple Parallel Runways

6. Departure Monitoring to Avoid Noise Sensitive or High Risk Areas



7. PRM Display Configuration with 2.5 Degree Offset Localizer

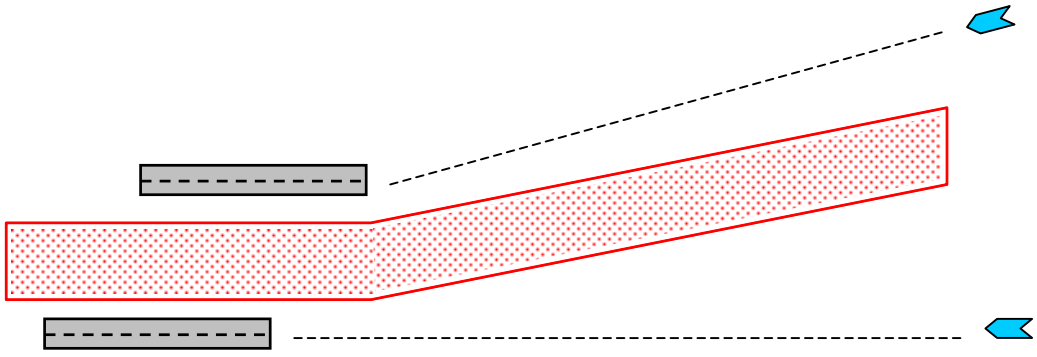
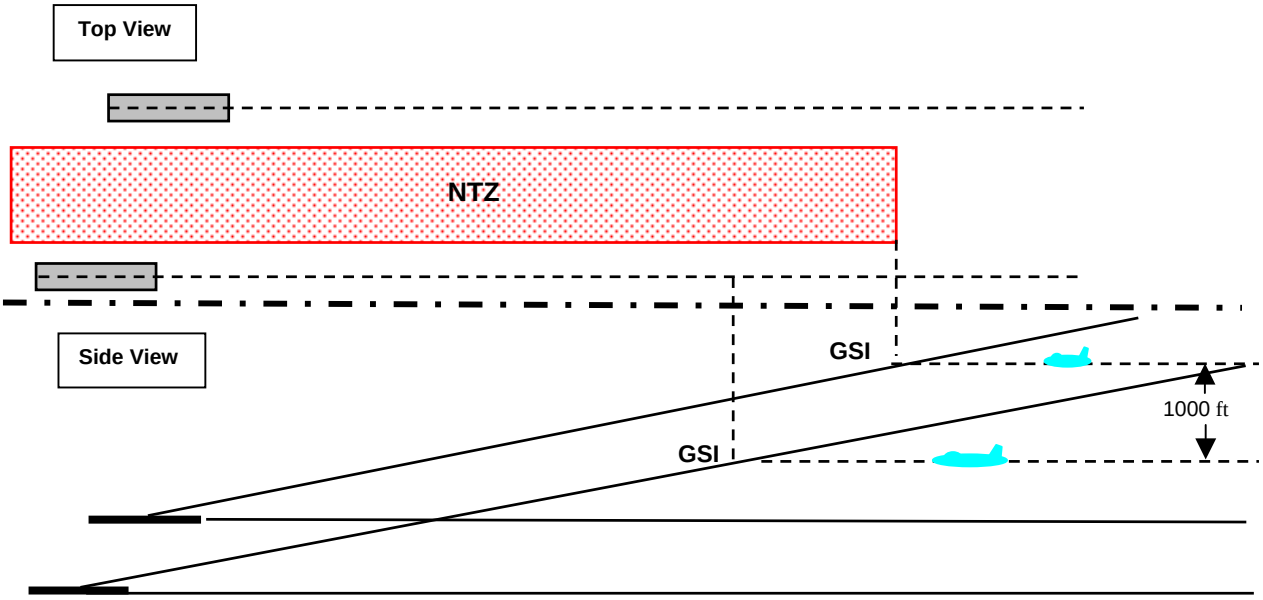


Figure 6

DETERMINING THE NTZ RANGE



The length of the NTZ is determined by the runway with the furthest glide slope intercept (GSI) used on the simultaneous approaches. Air traffic has a 1,000 ft vertical separation requirement prior to GSI.

Figure 7

AIRCRAFT PROJECTED ALERT

A projected alert must be generated when an assigned track's projected position indicates that the aircraft will enter the NTZ within 10 seconds. When a projected alert is generated, the following audible voice message shall be generated, "[ACID] DEVIATING", where [ACID] is the aircraft's identification.

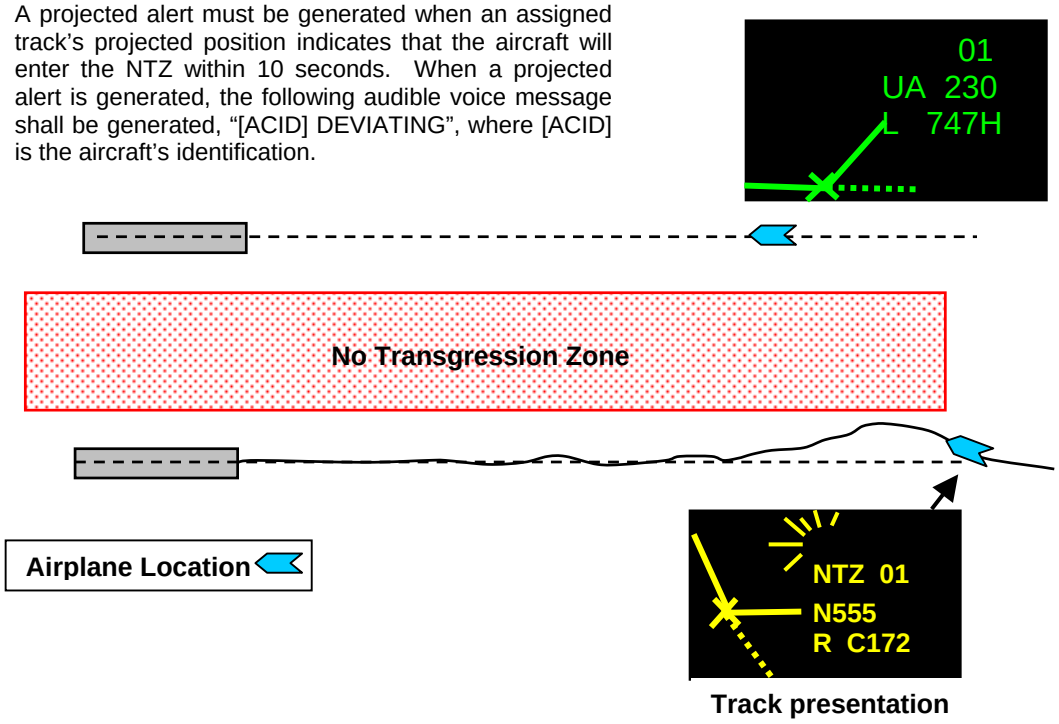


Figure 8

AIRCRAFT ENTERS THE NTZ

If an aircraft enters the NTZ, the monitor controller will receive a blinking red NTZ alert in the alert field of the data block, and the target will turn red. When this happens, the monitor controller will instruct the aircraft on the adjacent final approach to alter course to avoid the deviating aircraft.

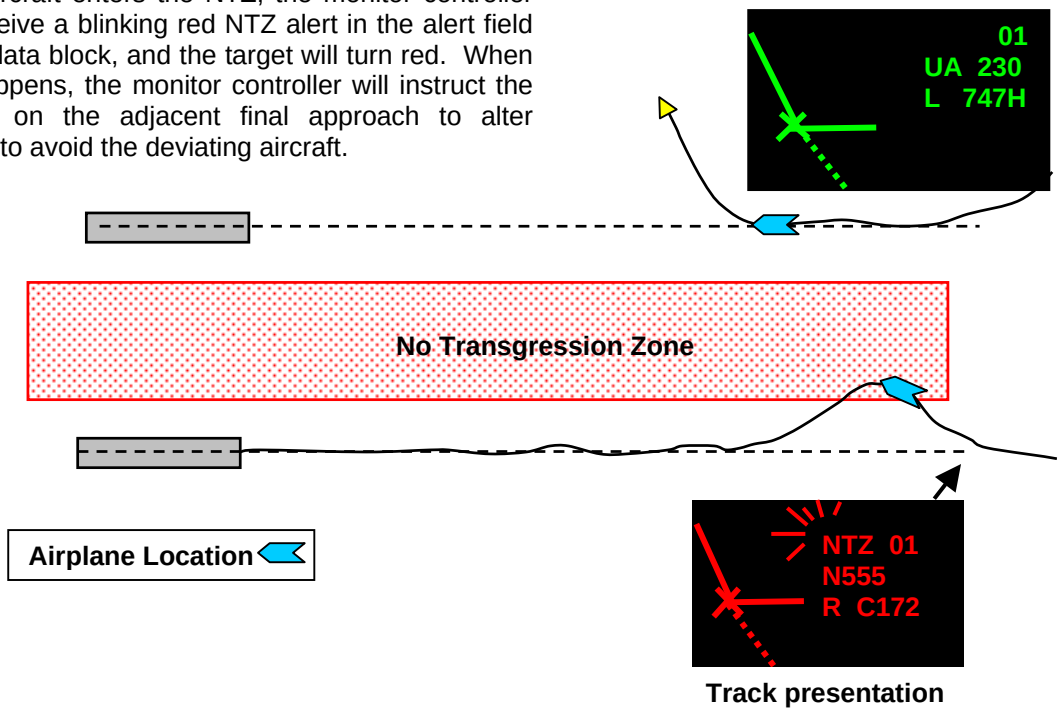


Figure 9

TRANSPONDER CODES

Transponder codes 7500, 7600, and 7700 will cause a red blinking alert and one of the following acronyms will appear in the alert data block field:

RF 7600 Radio Failure
EM 7700 Emergency
HJ 7500 Hijacking

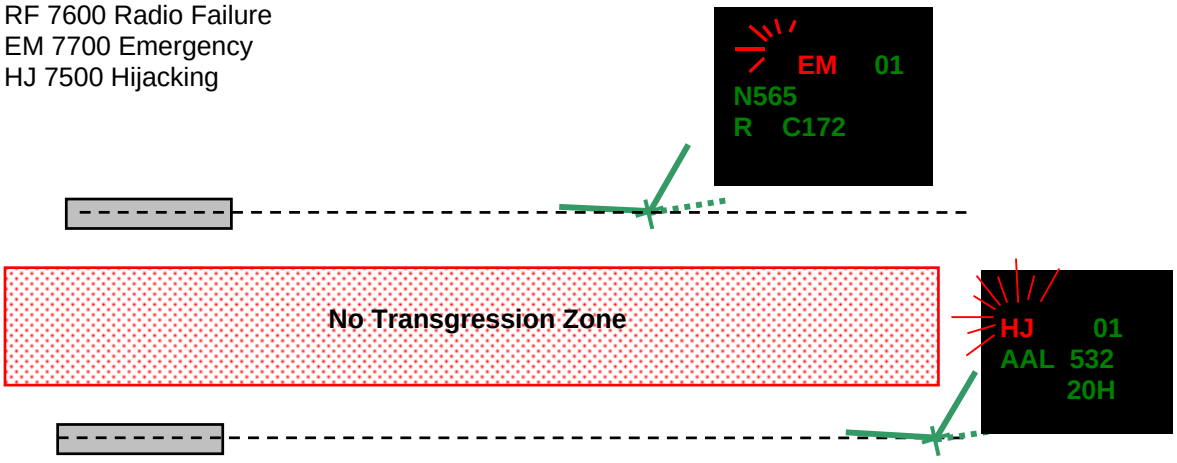


Figure 10

TRANSPONDER CHECK

Fly inbound on course at glide slope intercept altitude (GSI). Turn the aircraft transponder off and verify the monitor controller receives a coast alert. Turn the transponder back on.

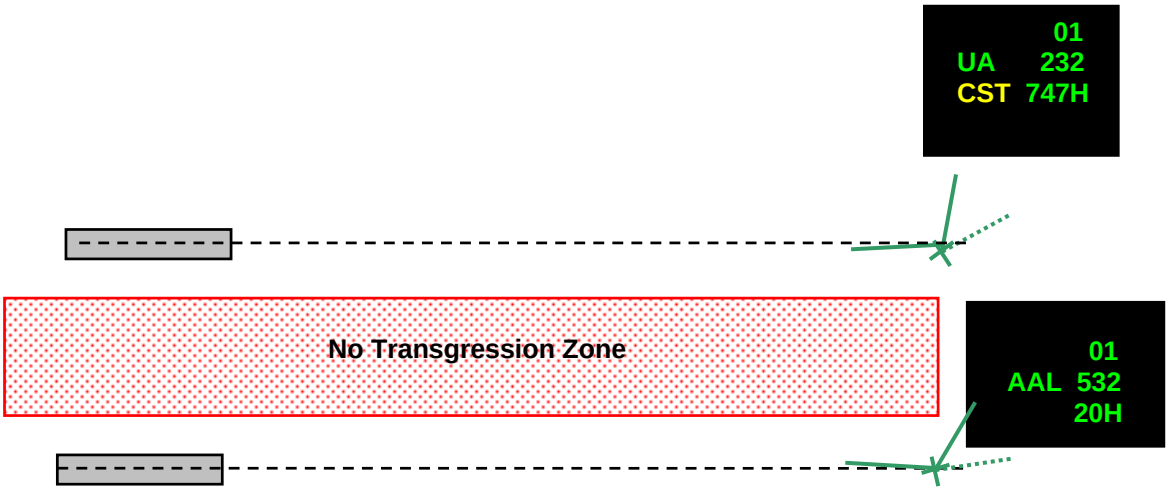
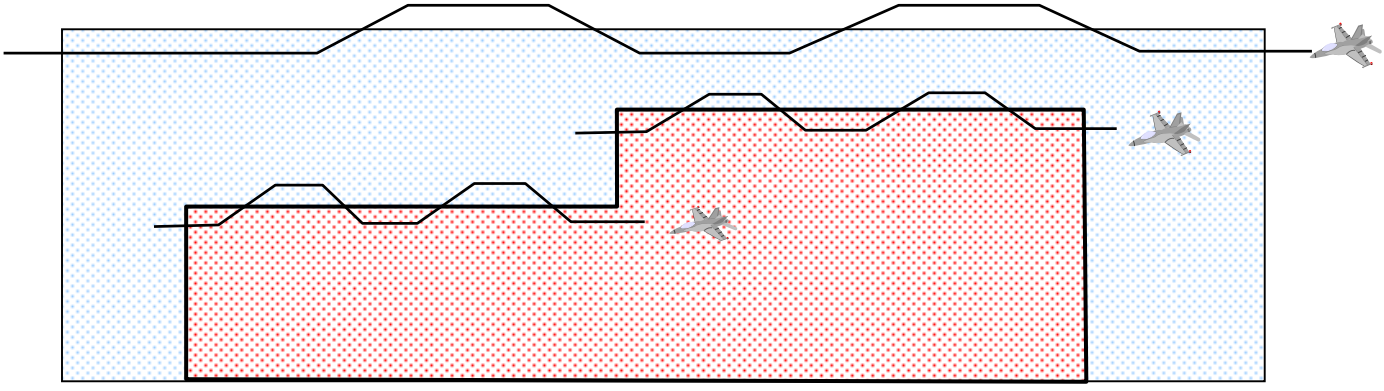


Figure 11

ALTITUDE COVERAGE CHECK

Video Map and NTZ Altitude Boundaries

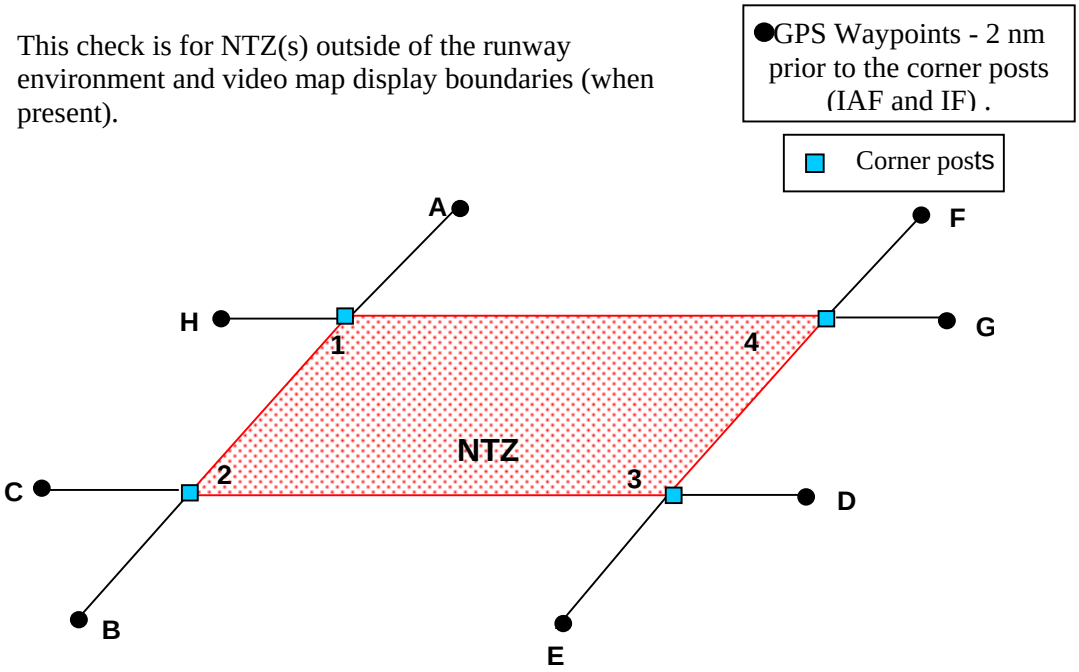


Checking Altitude Coverage (Mode C): When the altitude boundaries of an NTZ are designed in a stepped configuration, the altitudes of each portion shall be evaluated individually. Enter and exit the boundary as many times as feasible within the distance defined.

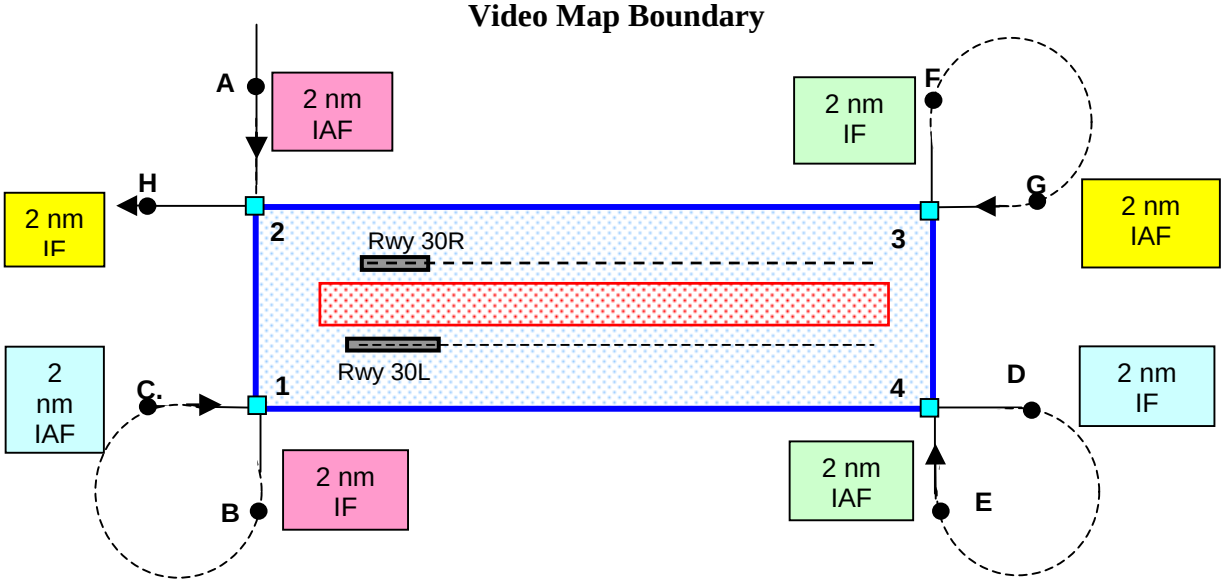
Figure 12

NTZ AND VIDEO MAP BOUNDARIES

This check is for NTZ(s) outside of the runway environment and video map display boundaries (when present).



Video Map Boundary



Flight plans will be entered into the GPS/ FMS using the calculated latitude/ longitudes of the points 2 nm prior and beyond the corner posts for each leg that defines the video map or NTZ boundary. The points for each leg will be designated IAF and IF.

Figure 13

MULTIPLE VIDEO MAP DISPLAYS

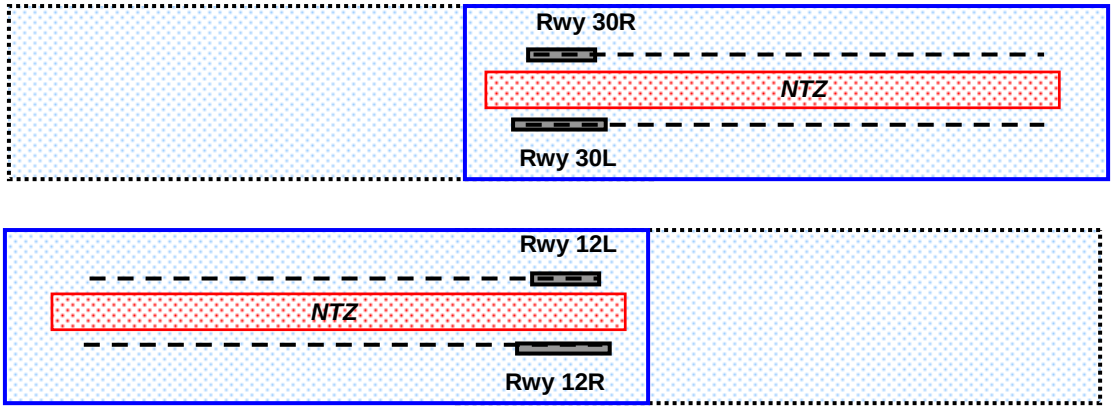
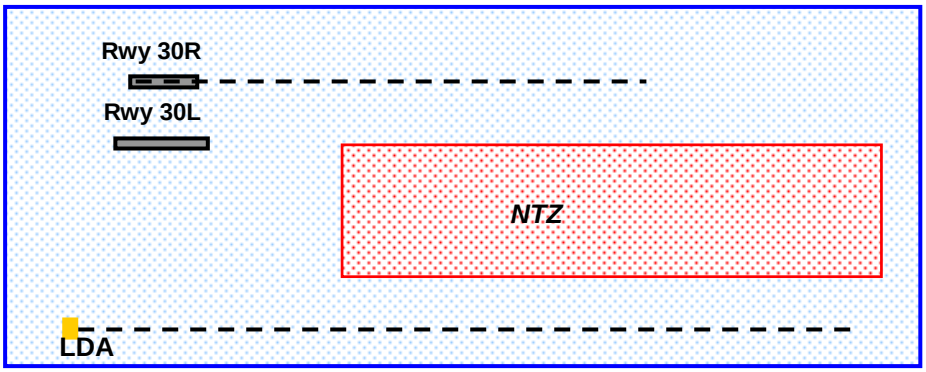


Figure 14

MULTIPLE VIDEO MAP DISPLAYS ON SAME RUNWAY END



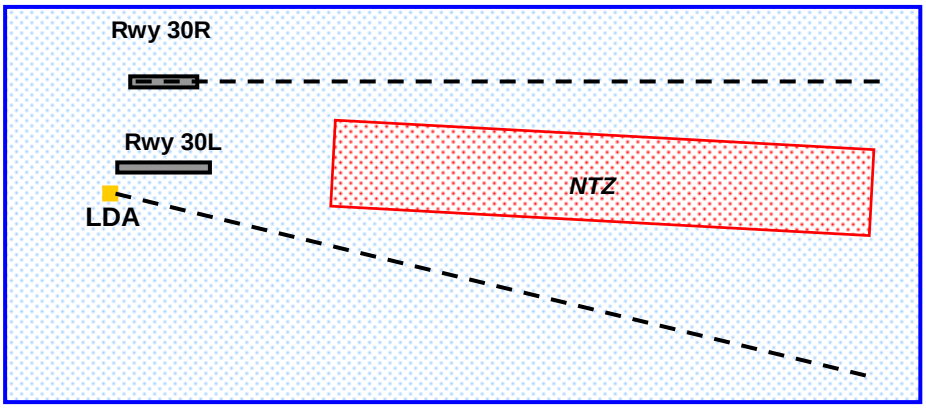
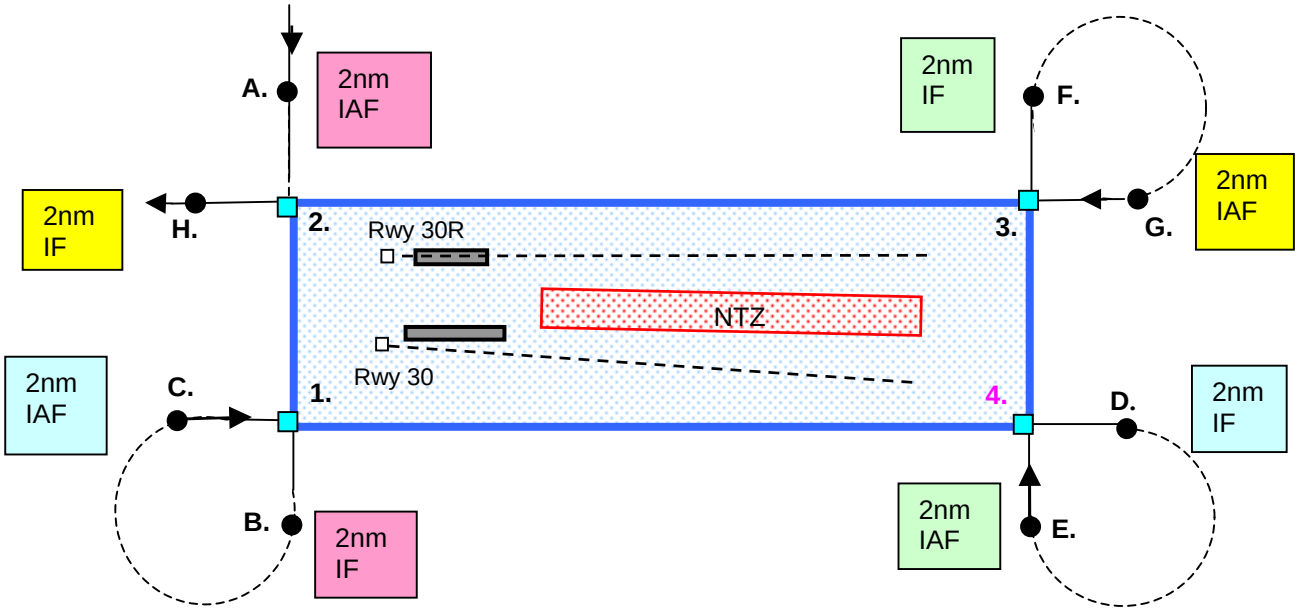


Figure 15

SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA)



Flight plans will be entered into the GPS/ FMS using the calculated latitude/ longitudes of the points 2nm prior and beyond the corner posts for each leg that defines the video map. The points for each leg will be designated IAF and IF.

APPENDIX 4. PRM EXCEL® WORKBOOK

WORKBOOK INSTRUCTIONS FOR FAA ORDER 8200.39
Facility Data Worksheet
Video or NTZ Data Worksheet (Page 1)
This worksheet is provided to calculate the latitude/longitudes of the points 2nm prior and 2nm beyond the corner-posts of the video map display or NTZ boundaries . These points will be entered into the GPS/ FMS for each leg that defines the video map or NTZ boundary. The points for each leg will be identified as IAF and IF. Following data entry into this worksheet (page 1) the resultant lat/ longs will be located in the Video or NTZ data worksheet pg 4.
Video or NTZ Data Worksheet (Page 2)
No data entry required. Part of "Video or NTZ Data Page 1" worksheet calculation.
Video or NTZ Data Worksheet (Page 3)
No data entry required. Part of "Video or NTZ Data Page 1" worksheet calculation.
Video or NTZ Data Worksheet (Page 4)
Following entry of the required data into the "Video or NTZ Data Page 1" worksheet, the resultant latitude and longitudes designated as IAF and IF will be presented. These points will be entered into the GPS/FMS for each leg that defines the video map display or NTZ boundary (see Appendix 3, Figures 12 and 15).

Figure 1

VIDEO OR NTZ DATA WORKSHEET (Page 1)

Video Map or NTZ Worksheet	
Location	ST LOUIS, MO
NTZ or Video Map	VMD
Runway served/ILS Ident	30L
Video Map or NTZ Enter corners in CCW order starting with northern most point	
Point 1 Latitude	383704.41
Point 1 Longitude	900658.24
Point 2 Latitude	383721.14
Point 2 Longitude	900644.81
Point 3 Latitude	384617.33
Point 3 Longitude	902447.51
Point 4 Latitude	384600.60
Point 4 Longitude	902500.97
Distance prior and beyond each point	2.00
From the PRM data sheet enter the NTZ or Video map information into the appropriate fields. When this page is completed, the final latitude/longitudes needed to fly the NTZ or Video Map Display boundaries will be located on the Video or NTZ Data worksheet page 4. Complete a worksheet for each NTZ and/or Video map to be checked.	

Figure 2
VIDEO OR NTZ DATA WORKSHEET (Page 2)

NO DATA ENTRY REQUIRED - INFORMATION ONLY

Point 1	384252.20	DISTA (NM)	0.33
	901826.10	DISTA (FT)	2012.18
Point 2	384308.65	RADA	34.20
	901811.83	RADB	214.20
**********			
Point 2	384308.65	DISTA (NM)	13.22
	901811.83	DISTA (FT)	80325.42
Point 3	383547.14	RADA	123.71
	900410.22	RADB	303.86
**********			
Point 3	383547.14	DISTA (NM)	0.33
	900410.22	DISTA (FT)	2015.65
Point 4	383530.72	RADA	214.49
	900424.59	RADB	34.49
**********			
Point 4	383530.72	DISTA (NM)	13.22
	900424.59	DISTA (FT)	80320.36
Point 1	384252.20	RADA	303.86
	901826.10	RADB	123.71
**********			
LLNA LATITUDE	0.00	DISTA (NM)	0.00
LLNA LONGITUDE	0.00	DISTA (FT)	0.00
LLNA LATITUDE	0.00	RADA	0.00
LLNA LONGITUDE	0.00	RADB	0.00
**********			
LLNA LATITUDE	0.00	DISTA (NM)	0.00
LLNA LONGITUDE	0.00	DISTA (FT)	0.00
LLNA LATITUDE	0.00	RADA	0.00
LLNA LONGITUDE	0.00	RADB	0.00
**********			
LLNA LATITUDE	0.00	DISTA (NM)	0.00
LLNA LONGITUDE	0.00	DISTA (FT)	0.00
LLNB LATITUDE	0.00	RADA	0.00
LLNB LONGITUDE	0.00	RADB	0.00
**********			
LLNA LATITUDE	0.00	DISTA (NM)	0.00
LLNA LONGITUDE	0.00	DISTA (FT)	0.00
LLNB LATITUDE	0.00	RADA	0.00
LLNB LONGITUDE	0.00	RADB	0.00
**********			
LLNA LATITUDE	0.00	DISTA (NM)	0.00
LLNA LONGITUDE	0.00	DISTA (FT)	0.00
LLNB LATITUDE	0.00	RADA	0.00
LLNB LONGITUDE	0.00	RADB	0.00

Figure 3

VIDEO OR NTZ DATA WORKSHEET (Page 3)

NO DATA ENTRY REQUIRED - INFORMATION ONLY			
Dist Prior to Pt 1	2.00	2nm Prior to Pt 1	384112.85
			901952.25
Point 1 Latitude	384252.20		
Point 1 Longitude	901826.10		
RAD B from INV83	214.20		
**********			
Dist Beyond Pt 2	2.00	2nm Beyond to Pt 2	384447.99
			901645.62
Point 2 Latitude	384308.65		
Point 2 Longitude	901811.83		
RAD A from INV83	34.20		
**********			
Dist Prior to Pt 2	2.00	2nm prior to Pt 2	384415.56
			902019.19
Point 2 Latitude	384308.65		
Point 2 Longitude	901811.83		
RAD B from INV83	303.86		
**********			
Dist Beyond Pt 3	2.00	2nm Beyond to Pt 3	383440.45
			900202.93
Point 3 Latitude	383547.14		
Point 3 Longitude	900410.22		
RAD A from INV83	123.71		
**********			
Dist Prior to Pt 3	2.00	2nm prior to Pt 3	383726.14
			900243.51
Point 3 Latitude	383547.14		
Point 3 Longitude	900410.22		
RAD B from INV83	34.49		
**********			
Dist Beyond Pt 4	2.00	2nm Beyond to Pt 4	383351.70
			900551.23
Point 4 Latitude	383530.72		
Point 4 Longitude	900424.59		
RAD A from INV83	214.49		
**********			
Dist Prior to Pt 4	2.00	2nm prior to Pt 4	383424.03
			900217.31
Point 4 Latitude	383530.72		
Point 4 Longitude	900424.59		
RAD B from INV83	123.71		
**********			
Dist Beyond Pt 1	2.00	2nm Beyond to Pt 1	384359.11
			902033.45
Point 1 Latitude	384252.20		
Point 1 Longitude	901826.10		
RAD A from INV83	303.86		
	0.00		0.00
	0.00		0.00

Figure 4

VIDEO OR NTZ DATA WORKSHEET (Page 4)

Latitude/Longitude Used for NTZ or Video Map Boundary Check			
2nm Prior to Pt 1	**384112.85**	**DIS IAF to IF**	**4.33**
or **Pt. A (IAF)**	**901952.25**	DISTA (FT)	26316.58
2nm Beyond Pt 2	**384447.99**	RADA	34.18
or **Pt. B (IF)**	**901645.62**	RADB	214.22
2nm Prior to Pt 2	**384415.56**	**DIS IAF to IF**	**17.22**
or **Pt. C (IAF)**	**902019.19**	DISTA (FT)	104629.74
2nm Beyond Pt 3	**383440.45**	RADA	123.69
or **Pt. D (IF)**	**900202.93**	RADB	303.88
2nm Prior to Pt 3	**383726.14**	**DIS IAF to IF**	**4.33**
or **Pt. E (IAF)**	**900243.51**	DISTA (FT)	26320.05
2nm Beyond Pt 4	**383351.70**	RADA	214.51
or **Pt. F (IF)**	**900551.23**	RADB	34.47
2nm Prior to Pt 4	**383424.03**	**DIS IAF to IF**	**17.22**
or **Pt. G (IAF)**	**900217.31**	DISTA (FT)	104624.68
2nm Beyond Pt 1	**384359.11**	RADA	303.88
or **Pt. H (IF)**	**902033.45**	RADB	123.69

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APPENDIX 5. FLIGHT INSPECTION REPORT – PRECISION RUNWAY MONITOR/ FINAL MONITOR AID, FAA FORM 8240-5-4

This report must be used for reporting all site, commissioning, periodic, special, and other inspections.

1. Field 1 – Flight Inspection Report Header. Complete as shown in Chapter 2, Paragraph 12 of the current edition of FAA Order 8240.36, Flight Inspection Report Processing System (FIRPS), except for "Ident" which must enter the airport ident.

2. Field 2 - Crew Information. Complete as shown in Chapter 2, Paragraph 12 of the current edition of FAA Order 8240.36, Flight Inspection Report Processing System (FIRPS).

3. Field 3 - Facility Information. Complete as shown in Chapter 2, Paragraph 12 of the current edition of FAA Order 8240.36, Flight Inspection Report Processing System (FIRPS).

4. Field 4 – NOTAM(s). Complete as shown in Chapter 3, Paragraph 21 of the current edition of FAA Order 8240.36, Flight Inspection Report Processing System (FIRPS).

5. Field 5 - Remarks. Complete as shown in Chapter 3, Paragraph 21 of the current edition of FAA Order 8240.36, Flight Inspection Report Processing System (FIRPS). Additionally, if the low altitude coverage for a Category I facility is satisfactory at 100 ft but not at 50 ft, enter a remark in this field. Include this information in the Remarks field of the facility data sheet. If there are one or more NTZ(s) that are not located between the runways, enter a description of each, using latitude/ longitudes, or a name if one is designated by engineering or maintenance. Following the description of each NTZ checked, indicate whether the boundaries are satisfactory, using "SAT" or unsatisfactory "UNSAT". If unsatisfactory, explain why.

6. Field 6 – Flight Inspection Data:

a. Runway/ Ident. Enter the runway number and ident of the ILS facility serving the PRM/ FMA approach being inspected.

b. Modes/ Codes. Satisfactory when monitor controller verifies each code generates the proper alert in the appropriate alarm field of the track data block. Click on the drop-down box and select the appropriate entry.

c. Transponder Check. Satisfactory when the monitor controller verifies the proper alert "CST" is detected and displayed in the track data block. Click on the drop-down box and select the appropriate entry.

d. Usable Distance. Satisfactory when there is no loss of track throughout the service volume, as defined by the site-specific video map display boundary, and meets ATC requirements. Click on the drop down-box and select the appropriate entry.

e. Inbound Courses and NTZ Boundary. Satisfactory if within ± 200 ft of the desired boundary or centerline position. Click on the drop-down box and select the appropriate entry.

f. **Altitude Boundary.** Satisfactory if within ± 125 ft of the desired coverage altitude. Click on the drop-down box and select the appropriate entry.

g. **Video Map Display (VMD) and NTZ Boundary(ies) (not located within the runway environment).** Satisfactory if within ± 500 ft of the desired boundary position. Click on the drop-down box and select the appropriate entry.

h. **Approach/ Missed Approach.** Satisfactory when fixes are displayed accurately on the video map, as determined by the pilot from the monitor controller reports. Click on the drop-down box and select the appropriate entry.

i. **Low Altitude Coverage.** Satisfactory when there is no loss of track throughout the runway environment (threshold to runway end). Click on the drop-down box and select the appropriate entry (Refer to Appendix 1, Page 9, Tolerances).

j. **Communications.** Satisfactory when override capability provides ability to transmit message that is clear and readable. Click on the drop-down box and select the appropriate entry.

k. **Approach Status.** If unrestricted, click on the drop down box and select "SAT". If restricted, select "SAT*" and explain in Remarks. If unusable, select "UNSAT" and explain in Remarks. Any restriction here must incur a restriction in facility status Field 3.

FLIGHT INSPECTION REPORT – PRECISION RUNWAY MONITOR/ FINAL MONITOR AID, FAA FORM 8240-5-4

FLIGHT INSPECTION REPORT
PRM/FMA

1. FLIGHT INSPECTION REPORT HEADER

IDENT	OWNER	STATE	CTRY	REGION	INSPECTION DATE(S)

LOCATION	INSP TYPE

2. CREW INFORMATION

PIC	SIC	MS	A/C NO

ACM	FIFO

3. FACILITY INFORMATION

FACILITY STATUS

4. NOTAMs

5. REMARKS

6. FLIGHT INSPECTION DATA

APPROACH DATA						
RUNWAY/IDENT						
MODES/CODES						
TRANSPONDER CHECK						
USABLE DISTANCE						
RWY INBOUND COURSE & NTZ WIDTH BOUND.						
ALTITUDE BOUNDARY						
VMD AND/OR NTZ BOUNDARY(IES)						
APCH/MISSED APCH						
LOW ALTITUDE COVERAGE						
COMMUNICATIONS						
APPROACH STATUS						

** Remarks are required for fields marked with an asterisk*

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APPENDIX 6
PRELIMINARY DATA INFORMATION FOR NEW/ RELOCATED PRM/ FMA FACILITIES

The PRM/FMA site engineer or designee must provide the following information to AJW-3351, Technical Services Sub-Team. Information requested that is unknown by site engineer or designee may be left blank. Forward the data as an attachment to E-Mail or fax it to (405) 954-3164. The preferred method is to use E-Mail and mail it to mailbox: 9-AMC-AVN-AVN210-DATA.

Coordinates to the hundredth of a second

Submit in NAD/ 83 or WGS/ 84 datum and indicate which is used.

Distances to the nearest foot

AIRPORT DATA and RUNWAY DATA FOR EACH RUNWAY SERVED

Runway Served		
Airport Identifier		
Airport Name		
Airport Location (City)		
Airport State/ Country		
Horizontal Datum		
Threshold Latitude		
Threshold Longitude		
Displaced Threshold Latitude		
Displaced Threshold Longitude		
Runway End Latitude		
Runway End Longitude		
Runway Length		
Runway Width		
Displaced Threshold Distance		
Runway Landing Length		
Distance Between Runways		
Identify as PRM or FMA		
PRM Owner		
FMA Owner		
Estimated Commissioning Date		
Equipment Type		
Antenna Type		
Antenna Latitude		
Antenna Longitude		

If there are more than 2 runways, make copies of this page and for additional runway data.

PRM/ FMA FACILITIES – Cont'd

*** * * NoTransgression Zones (NTZ) * * ***

For each Runway NTZ:

Zone located between (enter Rwy #) _____ and (enter Rwy #) _____

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

Zone located between (enter Rwy #) _____ and (enter Rwy #) _____

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

If there are more than 2 Runway NTZ(s), make copies of this page for the additional NTZ(s)

PRM/ FMA FACILITIES – Cont'd

For each 'Other' NTZ (*not associated with a runway*):

Purpose of NTZ: ___Terrain Avoidance; ___ Airspace Boundary; ___Noise Abatement

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

Purpose of NTZ: ___Terrain Avoidance; ___ Airspace Boundary; ___Noise Abatement

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

If there are more than 2 'Other' NTZ(s), make copies of this page for the additional NTZ(s)

PRM/ FMA FACILITIES – Cont'd

For each Video Map Display - VMD (PRM) or Active Monitored Zone – AMZ (FMA) Boundary:

VMD or AMZ - Encompasses Runways _____ _____ _____ (Enter Rwy #s)

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

VMD or AMZ - Encompasses Runways _____ _____ _____ (Enter Rwy #s)

(List all corners in CCW order starting with northern most point)

Zone Corner Latitude:	Zone Corner Longitude:

List altitudes:

Upper Altitude (MSL)	Lower Altitude (MSL)

If there are more than 2 Video Map Displays or Active Monitored Zones, make copies of this page for the additional VMD(s) or AMZ(s)