Federal Aviation Administration

Initial En Route Qualification Training

Instructor
Lesson 47
Scanning and Awareness

Course 50148001

LESSON PLAN DATA SHEET

COURSE NAME:	INITIAL EN ROUTE QUALIFICATION TRAINING
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LESSON TITLE:	SCANNING AND AWARENESS
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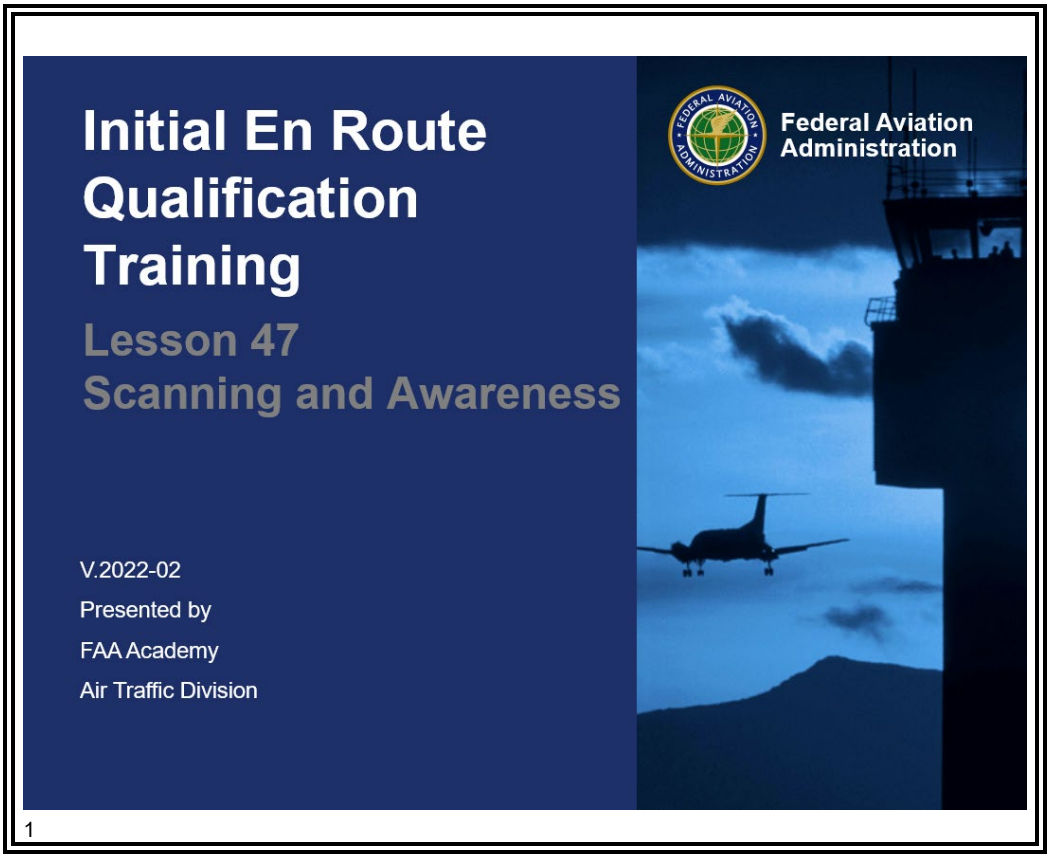
END-OF-LESSON TEST:	NONE
PERFORMANCE TEST:	NONE
MATERIALS:	NONE
OTHER PERTINENT INFORMATION:	NONE

☞ ***NOTE:*** *As you prepare for this lesson, recall and be prepared to talk about examples and personal experiences that illustrate or explain the teaching points in the lesson.*

INTRODUCTION

Gain Attention



In previous lessons, you learned the duty priorities for air traffic controllers. Scanning your sector and sector environment is essential in order to recognize situations and effectively prioritize them.

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INTRODUCTION *(Continued)*

Gain Attention

SCANNING

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An effective scanning method enables the controller to project, plan, and act in any given situation, whether it involves separation or **not**. If actions are **not** planned correctly, this may complicate a situation involving separation instead of resolving it.

Purpose

In this lesson, we will cover different reasons for scanning, methods for scanning, and the scanning environment.

Lesson Objectives

LESSON OBJECTIVES

At the end of this lesson, you will be familiar with:

- Reasons for scanning
- Scanning methods
- Scanning environment

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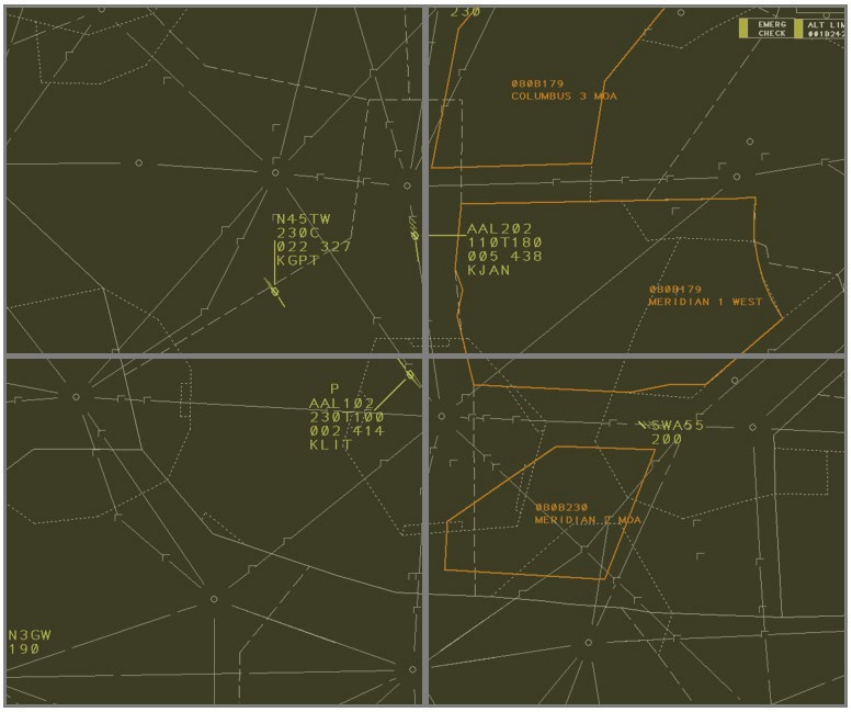
☞ ***NOTE:*** *Teach from graphic.*

RADAR SCANNING

Radar Scanning

RADAR SCANNING



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- Do **not** get fixated on any one spot or event.
- Constantly move from target to target.
  - In either an organized clockwise scan or top-to-bottom scan, looking at:
    - Points where handoffs/point outs are usually made
    - FDBs in your sector
    - ELDBs and LDBs around your sector
    - Unusual targets (MCIs, VFR, primary)
- Identify actions necessary for each aircraft as you scan.
  - Follow through on that action (separation, clearance, coordination, etc.)
  - Continue scan where you left off
- Do **not** neglect areas of light traffic.
- Update information in EDST as it is issued.
  - Complete one task before beginning another

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RADAR SCANNING *(Continued)*

Radar Scanning (Cont'd)

- Since scanning is a learned behavior, scan in the same way when you are **not** busy as you would when you are busy.
  - This will enable you to keep up with sector operations since you are familiar and comfortable with your scanning method

NOTE: The method that you use to scan is **not** as important as having and maintaining an effective scan. Find a method that works for you and use it consistently.

Prior to Issuing a Clearance

- Scan all available equipment (Radar display, EDST, SIA, etc.) for any information that would affect the clearance.
- Questions to ask yourself:
  - Does this clearance create a confliction with another aircraft or airspace?
  - Does this clearance require coordination prior to issuing it?
  - Does a clearance issued by the Radar Controller require coordination or a computer message entry?
  - Will delaying a clearance (climb/descent, departure, or approach) result in additional coordination and increase my workload?

When a Message is Entered into the Computer

- **Always** verify that the action attempted has been successful (whether on Radar display, EDST, or other display devices).
- Ensure the correct entry is entered for the correct aircraft.

RADAR SCANNING *(Continued)*

Factors Affecting Scan

FACTORS AFFECTING SCAN

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⊙ These are a few of the factors that may affect your ability to scan effectively:

- Boredom
- Distractions
  - For example, conversations that are **not** job-related
- Workload

☞ ***NOTE:*** *Discuss these and other factors with the class.*

RADAR SCANNING *(Continued)*

Knowledge Check

KNOWLEDGE CHECK

QUESTION: What are some questions you should ask yourself before issuing a clearance?

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☞ ***NOTE:*** *Click once to show answer.*

POSSIBLE ANSWERS:

1. *Does this clearance create a confliction with another aircraft or airspace?*

2. *Does this clearance require coordination prior to issuing it?*

3. *Does a clearance issued by the Radar Controller require coordination or a computer message entry?*

4. *Will delaying a clearance (climb/descent, departure, or approach) result in additional coordination and increase my workload?*

KNOWLEDGE CHECK

QUESTION: When updating information in EDST, it is important to complete one task before beginning another.

A. True

B. False

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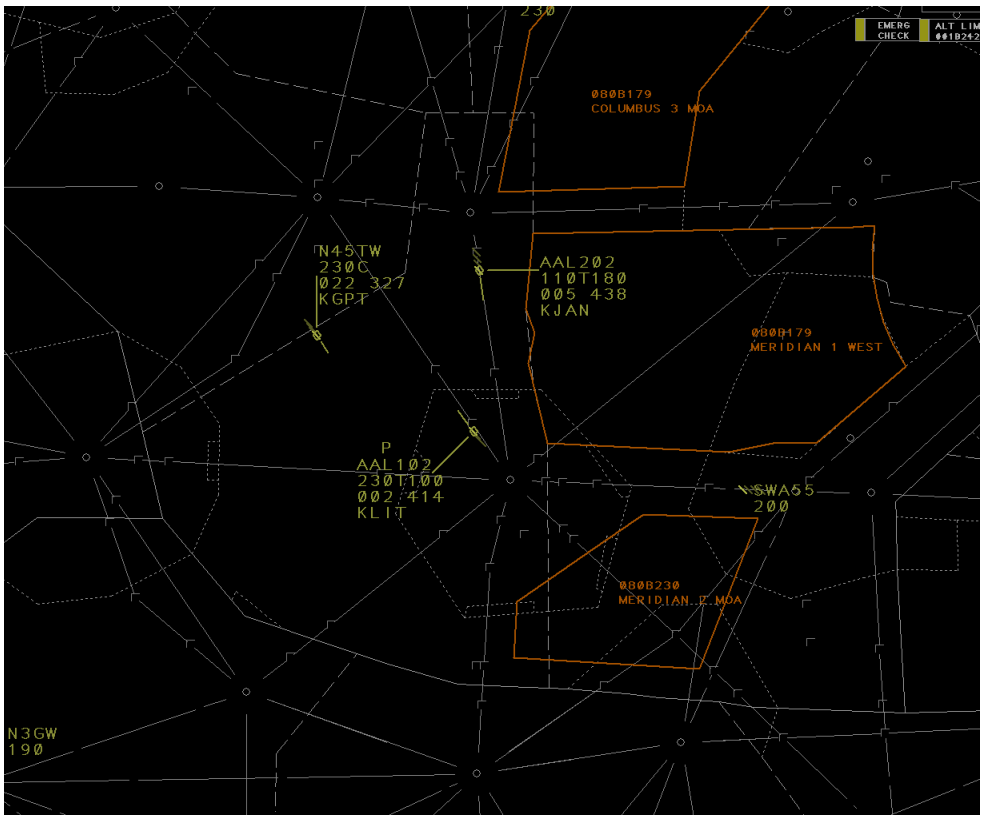
☞ ***NOTE:*** *Click once to show answer.*

ANSWER: *A*

SCANNING AREAS

Radar Display

RADAR DISPLAY



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⊙ Ensure positive Radar identification for all aircraft in your sector.

- There should be a target associated with each data block
- If **no** target exists, follow identification procedures or advise aircraft that Radar service is terminated

⊙ Sector boundary

- Ensure that required handoffs have been initiated to the correct sector
- Ensure that handoffs have been accepted by the next sector

  – R in front of the CID

NOTE: Ensure coordination is completed to authorize your aircraft to enter the next sector **prior** to the point at which the aircraft can be turned and **not** violate the protected airspace of the next sector.

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SCANNING AREAS *(Continued)*

Radar Display (Cont'd)

- Ensure aircraft being handed off to you are **not** in confliction with:
  - Aircraft in your sector
    - → Same altitude
    - → Overtaking on same route
  - Special Use Airspace
  - TFRs (Temporary Flight Restrictions)
- Be aware of ELDBs or LDBs approaching your sector

⊙ Within your sector:

- Locate aircraft at same altitude
  - Climbing/descending through the altitude of other aircraft

NOTE: Ensure that the Radar Controller is aware of aircraft at same altitude, whether it's a crossing or overtake situation.

- Ensure compliance with LOA

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SCANNING AREAS *(Continued)*

Radar Display (Cont'd)

FULL DATA BLOCK

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⊙ Full Data Blocks (FDBs)

- **Must** have a FDB for each aircraft in your sector that you are working
- When the entire FDB is blinking
  - – Conflict Alert (CA) is activated
    - → Assess the situation and resolve with the Radar Controller
- Field B & C
  - – Altitude status

☞***NOTE:*** *Discuss EVRI, climbing, descending, invalid Mode C, altitude reporting, etc.*

- Field D
  - – Track control indications

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SCANNING AREAS *(Continued)*

Radar Display (Cont'd)

- Field E
  - Ground speed
    - → Head wind vs. tail wind

☞ ***NOTE:*** *Discuss the effect this would have on using vectors for separation, and how it might affect aircraft's climb/descent rate.*

  - Handoff status
  - Correct beacon code
  - Special status indicators (e.g. MISM, FRZN, etc.)
- Field F - 4th line data
  - Destination, or
  - Aircraft data, or
  - Vector, speed, or other control information

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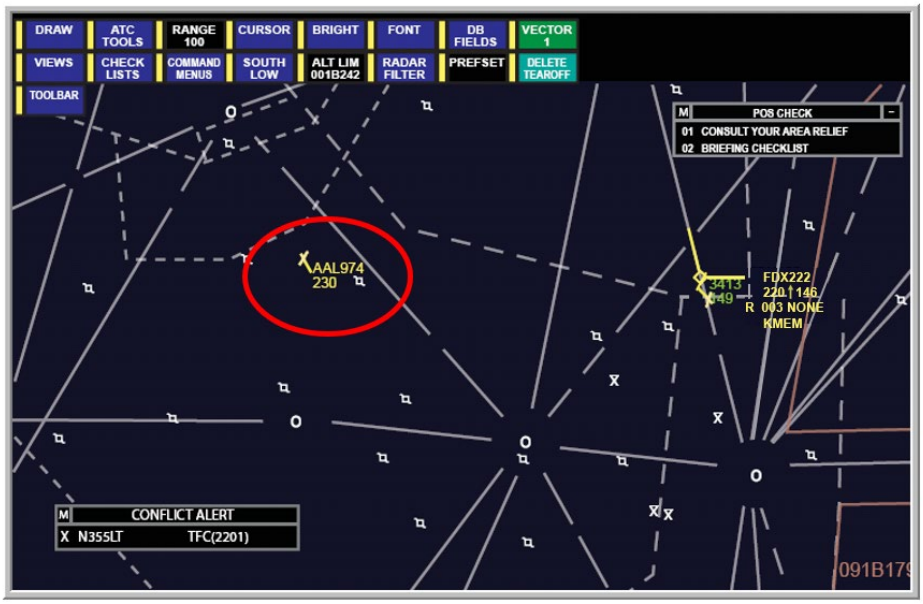
SCANNING AREAS *(Continued)*

Radar Display (Cont'd)

LIMITED DATA BLOCK



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- Limited Data Blocks (LDBs)
  - Aircraft **not** in your sector
    - In Area of Interest (AOI)
    - May become a point out
  - Mode C Intruder (MCI)
  - VFR aircraft
- Ensure all FDBs can be seen.
  - Avoid data block overlap
    - Assist Radar Controller with this, if possible

SCANNING AREAS *(Continued)*

ERAM Decision Support Tool (EDST)

ERAM DECISION SUPPORT TOOL (EDST)

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⊙ Scan the display for electronically distributed information, evaluate, and take action, as appropriate.

- Bookkeeping box
  - Must be used to determine aircraft on frequency
- Coordination column
  - **Must** be open at ZAE
- Remarks section of flight plan **shall** be read by the Radar team
  - Indicated by an asterisk (*)

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SCANNING AREAS *(Continued)*

ERAM Decision Support Tool (EDST) (Cont'd)

⊙ EDST views

- Aircraft List (ACL)
  - Primary source of flight data of active flights for the Radar-Associate Controller
  - Uses color coding

    → Alerts, IAFDOF, UTMs, etc.

  - Unusual situations

    → Route Action Notification (RAN) – blue dept. point

    → Unrecognized routing – XXX or ??? in route

    → Embedded Route Text (ERT) – outlined in route display with a blue box

  - Special Posting Area (above single line)

    → Use primarily for aircraft on approach or in hold

  - Normal Posting Area (center)

    → Use for all other active flights

  - Manual Posting Area (below double separator line)

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SCANNING AREAS *(Continued)*

ERAM Decision Support Tool (EDST) (Cont'd)

- Other views to scan for updates:
  - Departure List
  - GPD
  - Response Area
  - Message Composition Area

    → View messages as you type them
  - Update Area
  - Outages
  - NOT (NOTAMs)
  - Status
  - SIG (SIGMETs)

    → Ensure Radar Controller is made aware of new SIGMETs.

☞ ***NOTE:*** *Discuss each view and review how new information is displayed.*

⊙ Flight strip printer

- Ensure printer is online and has paper
- Ensure required strips are posted for the sector
- Print SIGMETs for the Radar Controller, when necessary

SCANNING AREAS *(Continued)*

Knowledge Check

KNOWLEDGE CHECK

QUESTION: If **no** target associated with a data block exists, what should you do?

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☞ ***NOTE:*** *Click once to show answer.*

ANSWER: *Follow identification procedures or advise aircraft that Radar service is terminated*

KNOWLEDGE CHECK

QUESTION: When scanning within your sector, what is the first thing you should scan for?

A. Military aircraft

B. Aircraft at the same altitude

C. Groundspeed of all aircraft

D. Areas of light traffic

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☞ ***NOTE:*** *Click once to show answer.*

ANSWER: *B*

KNOWLEDGE CHECK

QUESTION: How will you know that a handoff has been accepted by the next sector?

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☞ ***NOTE:*** *Click once to show answer.*

ANSWER: *R in front of CID*

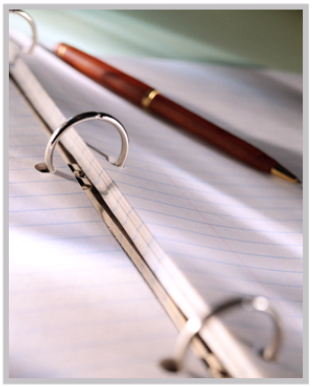
IN CONCLUSION

Lesson Review

LESSON REVIEW

The following topics were covered in this lesson:

- Basic radar scan
- Scanning areas



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☞ ***NOTE:*** *Teach from graphic. Review and elaborate briefly on the topics covered in this lesson.*