

**Rating Requirements  
for Air Traffic Controllers**

**Area Control Surveillance Rating**

**ACS**

**Radar Endorsement**

**RAD**

**Document history**

<b>Edition number</b>	<b>In force</b>	<b>Change of content</b>
1.0	01.12.2004	Released issue
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## 1. INTRODUCTION

### 1.1 Background

This document is derived from the Requirements for Air Traffic Controllers developed for the European ATC Licence harmonisation project. The terminology used was developed by Drafting Group 4 of the Common Core Content Task Force.

The requirements in this document represent the minimum level for approving a Unit Training Plan. Every ATS Unit must on this background produce its own Unit Training Plan (UTP) which should satisfy these requirements and have it approved by the Danish CAA.

The **Requirements** are the outcome of a functional analysis of the controller's job, which produced a series of statements called **Performance Objectives** which describe the actions, behaviours or outcomes that the controller should be able to demonstrate.

Each control discipline contains a number of **Key Roles**. For instance a key role common to all ratings is to 'Correlate information useful for the safe and efficient conduct of flights' This key role is divided into two **Topics**, one dealing with Meteorological information and the other with Aeronautical information. Each Topic is then divided into **Sub-topics**, in this case to 'collect, to collate and to disseminate the information'.

Topics common to more than one discipline, Aerodrome, Approach or Area control, can be identified and credit given to staff who have already undergone training in those topics in a different discipline. As not all topics are applicable to every discipline, the numbering used will not necessarily be sequential.

Each sub-topic contains a number of **Performance Objectives**.

A statement of Conditions qualifies each Performance Objective. Conditions describe the context in which the Performance Objectives apply, which means in its simplest form 'can the controller act with equal ability by day or night, and in good or poor weather conditions?'

Finally the Requirements contain detail of the **Essential Knowledge** that is, the knowledge and understanding a controller needs to carry out the task. In order to separate aircraft, the controller must not only know the separation standard to be applied; he must also understand how to apply it. Similarly the controller needs to understand some aspects of the formation of thunderstorms in order to be able to predict their effect on operations and to make allowance for those effects when exercising control.

### 1.2 Determining Competence by Assessment

In order to determine Competence an Assessor (Examiner) seeks evidence of performance (Can the student/trainee controller actually do the job) both by direct observation and by reference to the training records. Assessment differs from an examination system, by taking a longer more detailed view of performance, rather than taking an intense but short sample of the trainees' work. Performance is assessed in all areas under all conditions seeking to prove that the trainee can perform reliably and consistently to the required level of competence.

Performance must be assessed against the Performance Objectives on sufficient occasions to ensure competence has been demonstrated across all the Conditions for which performance evidence is required. Where performance is tested in only some of the contexts in the conditions, the application of knowledge must be tested by questioning for the remainder.

All items listed as Content must be tested to prove an understanding of the knowledge, the underlying principles and the application of the knowledge to performance in the workplace. A Student/Trainee, who demonstrates practically that he can do the job and can explain his reasons for acting in a particular manner, thereby demonstrating understanding, has fulfilled all the requirements without the need for additional written testing. It is essential that the Assessor (Examiner) determine understanding, rather than pure knowledge, when determining competence.

### **1.3 Summary of terms**

#### Key Role

Describes in broad terms, the principal components of the controller's job.

#### Topic

Divides the Key Role into definable common areas.

#### Sub-Topic

Defines specific areas of the topic.

#### Performance Objective

Describes the actions of the controller that demonstrate the correct performance of the Sub-Topic.

#### Conditions

Describes the contexts in which the Performance Objective applies.

#### Essential Knowledge

The fundamental knowledge and understanding necessary to perform to the Requirements and to transfer the skills from one situation to another.

### **1.4 Training**

The Unit Training consist of theoretical aspects as well as practical aspects. The training must be planned in a way that the Student/trainee benefits most profitable from this.

The Unit Training plan must indicate the content of the Transitional OJT and the Pre-OJT. As a minimum the following subjects must be included:

Regional and local geography

ATS message handling

Search and Rescue

Local equipment

Local ATS Procedures

Simulator training if necessary according to BL 6-95.

### 1.5 Minimum training time (OJT)

For ACS/RAD 400 hours\*  
For ACS/ADS 400 hours\*

\* may be reduced depending on number of positions, but never less than 300 hrs.

Training time (OJT) is meant to be, time “on position” operationally meaningful acquiring skills relevant to the rating/endorsement.

Hours with very little or no traffic should not be counted as training time (OJT).

### 1.6 Extension of license, same rating/endorsement – another unit

Minimum training time required for extending the privileges of the license for the same rating/endorsement to another unit is

For ACS/RAD: 200 hours  
For ACS/ADS: 200 hours

### 1.7 Examination/Assessment

For every 1<sup>st</sup> time application for a rating/endorsement an examination must be passed.

The examination will include:

- Review the summative report from the Unit Training Plan (UTP)
- the practical check (min. 2hrs on each endorsement)
- the scenario interview (oral examination)
- the final assessment

To Pass the Examination, the Student/Trainee must:

- satisfactorily have fulfilled the objectives of the UTP
- satisfactorily have passed the practical check
- satisfactorily have passed the scenario interview

All three has to be passed during the same examination.

Assessment for validating or revalidating a Unit Endorsement should be made according to the Performance Objectives in this document for the appropriate Rating/Endorsement at the Unit.

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**KEY ROLES AND TOPICS FOR AREA CONTROL SURVEILLANCE – ACS/RAD  
 (RADAR ENDORSEMENT)**

<b>KEY ROLES</b>	<b>TOPICS</b>
<b>KEY ROLE A</b> COMMUNICATE WITH AIRCRAFT AND OTHER AGENCIES	A1 CHECK AND OPERATE COMMUNICATIONS EQUIPMENT A9 COMMUNICATE FROM AN AREA RADAR CONTROL UNIT
<b>KEY ROLE B</b> ESTABLISH AND UPDATE A REPRESENTATIVE FLIGHT DATA DISPLAY	B1 CORRELATE FLIGHT DATA INTO APPROPRIATE PROFORMA FOR DISPLAY B7 MAINTAIN A REPRESENTATIVE FLIGHT DATA DISPLAY FOR AREA RADAR CONTROL
<b>KEY ROLE C</b> CORRELATE INFORMATION USEFUL FOR THE SAFE AND EFFICIENT CONDUCT OF FLIGHTS	C1 OBTAIN, INTERPRET AND DISSEMINATE METEOROLOGICAL INFORMATION C2 OBTAIN, INTERPRET AND DISSEMINATE AERONAUTICAL INFORMATION
<b>KEY ROLE E</b> SET UP AND USE SURVEILLANCE RADAR EQUIPMENT	E1 SELECT AND SET UP SURVEILLANCE RADAR EQUIPMENT E2 USE PRIMARY RADAR E3 USE SECONDARY RADAR
<b>KEY ROLE G</b> MANAGE THE OPERATIONAL POSITION AND ITS TRAFFIC	G35 PROVIDE AN AREA CONTROL SERVICE WITH THE USE OF SURVEILLANCE RADAR G36 CO-ORDINATE WITH OTHER AGENCIES G37 MANAGE DIVERSIONS AND HOLDING SITUATIONS G38 WORK AS A TEAM MEMBER ON THE AREA RADAR CONTROL OPERATIONAL POSITION
<b>KEY ROLE H</b> MANAGE EMERGENCIES AND DOMESTIC CONTINGENCIES	H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT H8 MANAGE DOMESTIC CONTINGENCIES IN AN AREA CONTROL ROOM

**TOPICS AND SUB-TOPICS FOR AREA CONTROL SURVEILLANCE – ACS/RAD  
 (RADAR ENDORSEMENT)**

<b>KEY ROLE A</b>		<b>COMMUNICATE WITH AIRCRAFT AND OTHER AGENCIES</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
A1	Check and operate communications equipment	A1.1	Establish and monitor the communications equipment serviceability
		A1.2	Use the communications equipment
A9	Communicate from an area radar control unit	A9.1	Use standard phraseology applicable to area radar control
<b>KEY ROLE B</b>		<b>ESTABLISH AND UPDATE A REPRESENTATIVE FLIGHT DATA DISPLAY</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
B1	Correlate flight data into appropriate proforma for display	B1.1	Obtain flight data information
		B1.2	Insert flight data into the appropriate proforma
B7	Maintain a representative flight data display for area radar control	B7.1	Correlate flight data into a display for area radar control
		B7.2	Update the area radar control flight data display
<b>KEY ROLE C</b>		<b>CORRELATE INFORMATION USEFUL FOR THE SAFE AND EFFICIENT CONDUCT OF FLIGHTS</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
C1	Obtain, interpret and disseminate meteorological information	C1.1	Obtain meteorological information
		C1.2	Interpret meteorological information
		C1.3	Disseminate meteorological information
C2	Obtain, interpret and disseminate aeronautical information	C2.1	Obtain aeronautical information
		C2.2	Interpret aeronautical information
		C2.3	Disseminate aeronautical information
<b>KEY ROLE E</b>		<b>SET UP AND USE SURVEILLANCE RADAR EQUIPMENT</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
E1	Select and set up surveillance radar equipment	E1.1	Select and set up primary surveillance radar
		E1.2	Select and set up secondary surveillance radar
E2	Use primary radar	E2.1	Identify aircraft using primary radar
		E2.2	Use primary radar information
E3	Use secondary radar	E3.1	Identify aircraft using secondary radar
		E3.2	Validate and Verify secondary radar information
		E3.3	Use secondary radar information

<b>KEY ROLE G</b>		<b>MANAGE THE NON RADAR OPERATIONAL POSITION AND ITS TRAFFIC</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
G35	Provide an area control service with the use of surveillance radar.	G35.1	Provide radar separation within controlled airspace
		G35.2	Provide radar service on advisory routes and in advisory areas.
		G35.3	Provide flight information service with the use of surveillance radar
G36	Co-ordinate with other agencies	G36.1	Co-ordinate with adjacent area control positions
		G36.2	Co-ordinate with adjacent aerodromes
G37	Manage diversions and holding situations	G37.1	Handle diversions
		G37.2	Manage holding situations
G38	Work as a team member on the area radar control operational position	G38.1	Accept responsibility for the operational position
		G38.2	Monitor performance whilst responsible for the operational position
		G38.3	Transfer responsibility for the operational position
<b>KEY ROLE H</b>		<b>MANAGE EMERGENCIES AND DOMESTIC CONTINGENCIES</b>	
<b>TOPICS</b>		<b>SUB-TOPICS</b>	
H7	Manage developed emergencies from the radar equipped area control unit	H7.1	Manage radio failures
		H7.2	Manage situations arising from unlawful interference
		H7.3	Manage Aircraft Emergencies
		H7.4	Provide Alerting Service
		H7.5	Recover from a radar failure
H8	Manage domestic contingencies in an area control room.	H8.1	Safely evacuate the control room

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**Topic A1 CHECK AND OPERATE COMMUNICATIONS EQUIPMENT**

**Sub-Topic A1.1 ESTABLISH AND MONITOR THE COMMUNICATIONS EQUIPMENT SERVICEABILITY**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
A1.1.1 Visual and/or aural indications are checked whilst making and receiving transmissions for indications of normal operation.	<b>Procedures:</b> Unit specific.	<b>Local procedures</b> Equipment visual and aural indications. Watch log entries. Local standing procedures for reporting equipment faults.  <b>Underpinning knowledge</b> Deriving information from NOTAMS.
A1.1.2 Documentation confirming equipment status is checked.		
A1.1.3 Malfunctions and defects are recorded and reported to the appropriate authority according to standing procedures.		

**Topic A1 CHECK AND OPERATE COMMUNICATIONS EQUIPMENT**

**Sub-Topic A1.2 USE THE COMMUNICATIONS EQUIPMENT**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
A1.2.1 The readability of transmissions is assessed.	<b>Communication methods:</b> Radiotelephony, Telephone.	Communications technique. Speech technique. Test transmissions.
A1.2.2 Standard speech technique is adhered to.		
A1.2.3 The appropriate frequency is selected and used.		
A1.2.4 Transmit and intercom switches are used in accordance with standard procedures.		
A1.2.5 The appropriate telephone is used.		
A1.2.6 Ancillary telephone equipment is used in accordance with standard procedures.		

**Topic A9 COMMUNICATE FROM AN AREA RADAR CONTROL UNIT**

**Sub-Topic A9.1 USE STANDARD PHRASEOLOGY APPLICABLE TO AREA RADAR CONTROL**

Performance Objectives	Conditions	Essential Knowledge
A9.1.1 Standard phraseology is employed wherever possible in communications.	<b>Communication by:</b> Radiotelephone, Telephone.  <b>Message Types:</b> Clearances, instructions, information.	Standard area radar control phraseology. Standard speech abbreviations. Radiotelephony callsigns. Communication with aircraft. Transfer of communications. Transmission of company messages.
A9.1.2 Composition of messages is concise and unambiguous.		
A9.1.3 Station identity is used correctly.		
A9.1.4 Acknowledgements and readbacks are obtained and verified when required.		
A9.1.5 Abbreviated phraseology is used when appropriate.		

**Topic B1 CORRELATE FLIGHT DATA INTO APPROPRIATE PROFORMA FOR DISPLAY**

**Sub-Topic B1.1 OBTAIN FLIGHT DATA INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
B1.1.1 Flight data information is extracted from all appropriate sources.	<b>Methods of Display:</b> Flight progress strips. Electronic data displays.	<b>Doc. 4444 Appendix 2</b> Content of full and abbreviated flight plans ATS service messages. <b>Doc. 7910</b> ICAO location indicators <b>Doc.8585</b> ICAO abbreviations  Filing of flight plans Non standard routes Repetitive flight plan Exemptions and non standard flights  <b>Local procedures</b> Flight plan processing
B1.1.2 Relevant flight data is included at the earliest opportunity.		
B1.1.3 Flight data is checked to ensure completeness.		
B1.1.4 Any significant deficiency in flight data is rectified.		

**Topic B1 CORRELATE FLIGHT DATA INTO APPROPRIATE PROFORMA FOR DISPLAY**

**Sub-Topic B1.2 INSERT FLIGHT DATA INTO THE APPROPRIATE PROFORMA**

Performance Objectives	Conditions	Essential Knowledge
B1.2.1 Strip marking is legible and conforms to standard procedures.	<b>Methods of Display:</b> Flight progress strips. Electronic data displays.	<b>Doc. 7910</b> ICAO location indicators. <b>Doc. 8585</b> ICAO abbreviations.  <b>Local procedures</b> Conventional strip marking
B1.2.2 Correct message entry formats are used.		
B1.2.3 Relevant flight data is included at the earliest opportunity.		

**Topic B7 MAINTAIN A REPRESENTATIVE FLIGHT DATA DISPLAY FOR AREA RADAR CONTROL**

**Sub-Topic B7.1 CORRELATE FLIGHT DATA INTO A DISPLAY FOR AREA RADAR CONTROL**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
<p>B7.1.1 Strip marking is legible and conforms to standard procedures.</p> <p>B7.1.2 Correct message entry formats are used.</p> <p>B7.1.3 All relevant traffic is included on the display.</p> <p>B7.1.4 Flight progress strips are organised in a manner, which reflects the traffic situation in accordance with laid down procedures.</p> <p>B7.1.5 Electronic flight data displays are organised in accordance with laid down procedures.</p>	<p><b>Types of display:</b>  'Multiple strip' flight progress displays.  Electronic flight data displays.</p>	<p><b>Local Procedures</b>  Layout and use of flight progress strips.  Layout of and use of electronic flight data displays.</p>



**Topic B7 MAINTAIN A REPRESENTATIVE FLIGHT DATA DISPLAY FOR AREA RADAR CONTROL**

**Sub-Topic B7.2 UPDATE THE AREA RADAR CONTROL FLIGHT DATA DISPLAY**

Performance Objectives	Conditions	Essential Knowledge
B7.2.1 Information is extracted from all relevant sources.	<b>Sources of information:</b> Pilot reports. Information from other controllers. Information from other agencies. Computer derived information.  <b>Methods of display:</b> Flight progress strips and electronic data displays.	Aircraft performance. Time, speed, and distance calculations. Effects of wind. Report formats. EDD display parameters.
B7.2.2 The display is updated using information received.		
B7.2.3 Clearances and instructions passed to aircraft and other agencies are recorded.		
B7.2.4 Co-ordination agreed with other agencies is recorded.		
B7.2.5 The integrity of EDD performance and data is monitored.		

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**Topic C1 OBTAIN, INTERPRET AND DISSEMINATE METEOROLOGICAL INFORMATION**

**Sub-Topic C1.1 OBTAIN METEOROLOGICAL INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
<p>C1.1.1 Current and forecast weather information is obtained before taking over watch.</p> <p>C1.1.2 Current and forecast weather information is monitored during the watch.</p> <p>C1.1.3 Weather information and reports from pilots are recorded.</p>	<p><b>Types of briefing:</b>                      Self and Met office briefing.</p> <p><b>Types of report:</b>                      Routine and special reports.                      Met Warnings.                      Reports from pilots.</p>	<p>Altimeter setting and vertical reference.</p> <p>Windshear.</p> <p>Meteorological services:-                      Briefing of controllers.                      Explanation of terms.                      Supply of information.                      Aerodrome meteorological reports (Routine)                      Aerodrome meteorological reports (Special)                      Coded aerodrome weather reports.                      SIGMET.                      Forecasts</p> <p><b>Underpinning knowledge</b>                      Meteorology:-                      Wind, cloud, thunderstorms, microbursts, icing, line squalls.                      Pilot in flight reports (PIREPS)                      Low level charts.                      Significant weather charts.</p>

**Topic C1 OBTAIN, INTERPRET AND DISSEMINATE METEOROLOGICAL INFORMATION**

**Sub-Topic C1.2 INTERPRET METEOROLOGICAL INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
<p>C1.2.1 Significant weather changes are recognised</p> <p>C1.2.2 The relevance of meteorological information to individual flights or agencies is established.</p>	<p><b>Significant weather:</b>                      Thunderstorms and Cumulonimbus clouds.                      Freezing rain,                      Moderate / Severe icing.                      Severe turbulence.                      Severe mountain waves.                      Low visibility.</p>	<p>Altimeter setting and vertical reference.                      Windshear.</p> <p>Meteorological services:-                      Briefing of controllers.                      Explanation of terms.                      Supply of information.                      Aerodrome meteorological reports (Routine)                      Aerodrome meteorological reports (Special)                      Coded aerodrome weather reports.                      SIGMET.                      Forecasts</p> <p><b>Underpinning knowledge</b>                      Meteorology:-                      Wind, cloud, thunderstorms, microbursts, icing, line squalls.                      Pilot in flight reports (PIREPS)                      Low level charts.                      Significant weather charts.</p>

**Topic C1 OBTAIN, INTERPRET AND DISSEMINATE METEOROLOGICAL INFORMATION**

**Sub-Topic C1.3 DISSEMINATE METEOROLOGICAL INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
<p>C1.3.1 Aircraft are advised of significant changes in weather information.</p> <p>C1.3.2 Other agencies are advised of significant changes in weather information.</p>	<p><b>Significant weather:</b>                      Thunderstorms and Cumulonimbus clouds.                      Freezing rain.                      Moderate / Severe icing.                      Severe turbulence.                      Severe mountain waves.                      Low visibility.</p>	<p>Effects of weather on flight operations.                      Meteorology:-                      Wind. Cloud, thunderstorms, icing, jetstreams, clear air turbulence, microburst, marked mountain waves, line squalls, solar radiation.</p>

**Topic C2 OBTAIN, INTERPRET AND DISSEMINATE AERONAUTICAL INFORMATION**

**Sub-Topic C2.1 OBTAIN AERONAUTICAL INFORMATION**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
C2.1.1 Aeronautical information is obtained before taking over watch.	<b>Sources of information:</b> AIP, NOTAMS, Local notices. Airspace restrictions.	<b>DK/GREENLAND/FAROE AIP</b> Content and use of AIP, NOTAM. Restricted, prohibited airspace. Danger areas. Aeronautical charts.  Aeronautical information circulars.
C2.1.2 Aeronautical information is monitored during the watch.		
C2.1.3 Pilot's requests for information are promptly and appropriately responded to.		
C2.1.4 Required information is obtained promptly from appropriate agencies.		

**Topic C2 OBTAIN, INTERPRET AND DISSEMINATE AERONAUTICAL INFORMATION**

**Sub-Topic C2.2 INTERPRET AERONAUTICAL INFORMATION**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
C2.2.1 Significant changes are recognised.	<b>Operating conditions:</b> Normal conditions. Unserviceable navigation aids. Restrictions at aerodromes. Airspace restrictions.	Communication and navigation systems, uses and limitations. Conditions affecting operations at aerodromes. Airspace restrictions.
C2.2.2 The relevance of aeronautical information to individual flights or agencies is established.		

**Topic C2 OBTAIN, INTERPRET AND DISSEMINATE AERONAUTICAL INFORMATION**

**Sub-Topic C2.3 DISSEMINATE AERONAUTICAL INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
<p>C2.3.1 Aircraft are advised of significant changes in aeronautical information.</p> <p>C2.3.2 Other agencies are advised of significant changes in aeronautical information.</p>	<p><b>Operating conditions:</b>            Normal conditions.            Unserviceable navigation aids.            Restrictions at aerodromes.            Airspace restrictions.</p>	<p>Flight information service.</p> <p><b><i>Underpinning knowledge</i></b>            Communication and navigation systems, uses and limitations.            Conditions affecting operations at aerodromes.            Airspace restrictions.</p>

**Topic E1 SELECT AND SET UP SURVEILLANCE RADAR EQUIPMENT**

**Sub-Topic E1.1 SELECT AND SET UP PRIMARY SURVEILLANCE RADAR**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
E1.1.1 Most suitable available surveillance radar is selected.	<b>Operating conditions:</b> Normal atmospheric and anomalous propagation conditions. Weather and ground clutter.  <b>Types of Radar:</b> Analogue and processed radar.	Primary radar principles of operation. Limitations of primary radar. Radar accuracy and definition. Operational radar coverage. The use and effects of controls available to the controller. The use and effects of suppressers. Processing and display of primary radar data.
E1.1.2 Controls are adjusted to provide best available performance.		
E1.1.3 Accuracy of radar is checked against laid down criteria.		
E1.1.4 Deficiencies are notified in accordance with local procedures.		

**Topic E1 SELECT AND SET UP SURVEILLANCE RADAR EQUIPMENT**

**Sub-Topic E1.2 SELECT AND SET UP SECONDARY SURVEILLANCE RADAR**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
E1.2.1 Most suitable available surveillance radar is selected.	<b>Secondary Radar Modes:</b> Modes A, C and S.  <b>Types of Radar display:</b> Analogue and processed radar.	Secondary radar principles of operation. Limitations of secondary radar. Processing and display of secondary radar data.
E1.2.2 Controls are adjusted to provide best available performance.		
E1.2.3 Accuracy of radar is checked against laid down criteria.		
E1.2.4 Deficiencies are notified in accordance with local procedures.		

**Topic E2 USE PRIMARY RADAR**

**Sub-Topic E2.1 IDENTIFY AIRCRAFT USING PRIMARY RADAR**

Performance Objectives	Conditions	Essential Knowledge
E2.1.1 Probable target is located using available information.	<b>Types of Radar display:</b> Analogue and processed displays.	Radar Operation:- Identification using primary radar.
E2.1.2 Identification is carried out using standard methods.	<b>Special conditions:</b> Mis-identification.	Summary identification and position information.
E2.1.3 Aircraft are informed, where necessary, of identification		

**Topic E2 USE PRIMARY RADAR**

**Sub-Topic E2.2 USE PRIMARY RADAR INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
E2.2.1 Tracks and speeds are accurately assessed using displayed information.	<b>Atmospheric conditions:</b> Cyclonic, anticyclonic and zero wind conditions.	Indicated airspeed, true airspeed and ground speed. Heading and track. Effects of wind.
E2.2.2 Vectors are provided to make good a track or reach a specified location.	<b>Traffic speeds:</b> Low and high speed traffic.	Radar operation:- Position information. Vectoring. Terrain clearance.
E2.2.3 Aircraft are informed, where necessary, of their position, other traffic and significant displayed weather.		Unknown aircraft. Traffic information.



**Topic E3 USE SECONDARY RADAR**

**Sub-Topic E3.1 IDENTIFY AIRCRAFT USING SECONDARY RADAR**

Performance Objectives	Conditions	Essential Knowledge
E3.1.1 Probable target is located using available information.	<b>Types of Radar display:</b> Analogue and processed displays.  <b>Special conditions:</b> Mis-identification.	Identification using secondary radar. Summary identification and position information.
E3.1.2 Identification is carried out using standard methods.		
E3.1.3 Aircraft are informed, where necessary, of identification.		

**Topic E3 USE SECONDARY RADAR**

**Sub-Topic E3.2 VALIDATE AND VERIFY SECONDARY RADAR INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
E3.2.1 Mode A information is validated using laid down procedures.	<b>Received indications:</b> Correct and incorrect, correctable and non-correctable indications. Special purpose codes Code Callsign conversion failure.	Altimetry, Heights, Altitudes and Flight Levels.  <b>DK/GREENLAND/FAROE AIP</b> Allocation of SSR codes. Originating region code allocation method.  Methods of validating mode A. Actions in the event of incorrect mode A indications. Methods of verifying mode C. Actions in the event of incorrect mode C indications.  Procedures for confirming the accuracy of Mode S information.
E3.2.2 Action is taken to rectify incorrect Mode A information in accordance with laid down procedures.		
E3.2.3 Mode C information is verified using laid down procedures.		
E3.2.4 Action is taken to rectify incorrect mode C indications in accordance with laid down procedures.		
E3.2.5 Mode S information is confirmed in accordance with laid down procedures.		
E3.2.6 Action is taken to minimise the effects of incorrect indications.		

**Topic E3 USE SECONDARY RADAR**

**Sub-Topic E3.3 USE SECONDARY RADAR INFORMATION**

Performance Objectives	Conditions	Essential Knowledge
E3.3.1 Tracks and speeds are accurately assessed using displayed information.	<b>Atmospheric conditions:</b> Cyclonic, anticyclonic and zero wind conditions.	Indicated airspeed, true airspeed and ground speed. Heading and track. Effects of wind.
E3.3.2 Vectors are provided to make good a track or reach a specified location.	<b>Traffic speeds:</b> Low and high speed traffic.	Radar operation:- Position information. Vectoring. Terrain clearance.
E3.3.3 Aircraft are informed, where necessary, of their position, and other traffic.		Unknown aircraft. Traffic information.

**Topic G35 PROVIDE AN AREA CONTROL SERVICE WITH THE USE OF SURVEILLANCE RADAR**

**Sub-Topic G35.1 PROVIDE AN AREA RADAR SERVICE WITHIN CONTROLLED AIRSPACE**

Performance Objectives	Conditions	Essential Knowledge
G35.1.1 Flight data is assessed for actual and potential traffic conflicts.	<p><b>Airspace category:</b> A, B, C, D. Airways and control areas excluding terminal control areas.</p> <p><b>Types of radar:</b> Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Control techniques:</b> Radar Monitoring, Vectoring, Speed Control.</p> <p><b>Types of flight:</b> Aircraft en route, joining, crossing and leaving controlled airspace.</p>	<p>Altimetry, Heights, Altitudes and Flight Levels. Radar principles of operation and limitations. Aircraft performance. Effects of weather on flight operations. Use and limitations of navigation and communications aids. Vectoring techniques. Speed control techniques.</p> <p><b>Rules of the Air</b> General Flight Rules Instrument Flight Rules Visual Flight Rules</p> <p>Air traffic services:- Introduction. Air traffic service Air traffic control service Radar operation:- Radar services. Penetration by independent units. Identification using primary radar. Identification using secondary radar. Transfer of identity. Lost identity.</p> <p>Non radar separation standards applicable to a radar environment. Radar separation standards. Wake turbulence spacing. Traffic information. Unknown traffic information. Actions in the event of loss of separation. Weather avoidance by pilots. Weather avoidance by radar controllers.</p>
G35.1.2 Aircraft are identified on radar.		
G35.1.3 A control strategy is developed to achieve separation with the least average delay to flights.		
G35.1.4 Appropriate radar separation is achieved.		
G35.1.5 The radar is monitored to ensure that separation is not eroded.		
G35.1.6 The applied separation is the most appropriate taking into account safety and expedition.		
G35.1.7 Immediate action is taken to restore separation when it has been eroded.		
G35.1.8 Information on unknown traffic considered to constitute a hazard is passed promptly to participating aircraft.		
G35.1.9 Appropriate traffic information is passed without delay.		
G35.1.10 Radar procedures are adjusted to allow for the effects of weather on flight operations.		
G35.1.11 Radar procedures are		

<p>adjusted to allow for the effect of degradation of essential navigational and communication services on flight operations.</p>		<p>Actions in the event of loss of separation, reporting action.</p> <p>Radar separation</p> <p>Ground based collision avoidance systems.</p>
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**Topic G35 PROVIDE AN AREA CONTROL SERVICE WITH THE USE OF SURVEILLANCE RADAR**

**Sub-Topic G35.2 PROVIDE RADAR SERVICE ON ADVISORY ROUTES AND IN ADVISORY AREAS**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
<p>G35.2.1 Flight data is assessed for actual and potential traffic conflicts.</p> <p>G35.2.2 Aircraft are identified on radar.</p> <p>G35.2.3 A control strategy is developed to avoid conflicts with the least average delay to flights.</p> <p>G35.2.4 Appropriate radar separation is achieved.</p> <p>G35.2.5 The radar is monitored to ensure that traffic conflicts are avoided.</p> <p>G35.2.6 The applied separation is the most appropriate taking into account safety and expedition.</p> <p>G35.2.7 Immediate action is taken to restore separation when a collision conflict has been potential.</p> <p>G35.2.8 Information on unknown traffic considered to constitute a hazard is passed promptly to participating aircraft.</p>	<p><b>Airspace category:</b> F. Advisory routes and advisory areas.</p> <p><b>Types of radar:</b> Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Control techniques:</b> Radar Monitoring, Vectoring, Speed Control.</p> <p><b>Types of flight:</b> Aircraft en route, joining, crossing and leaving advisory airspace.</p>	<p><b>Altimetry, Heights, Altitudes and Flight Levels.</b> Radar principles of operation and limitations.</p> <p>Aircraft performance.</p> <p>Vectoring techniques.</p> <p>Speed control techniques.</p> <p>Effects of weather on flight operations.</p> <p>Use and limitations of navigation and communications aids.</p> <p><b>Rules of the Air</b> General Flight Rules Instrument Flight Rules Visual Flight Rules</p> <p>Methods of Identification.</p> <p>Non radar separation standards applicable to a radar environment.</p> <p>Radar separation standards.</p> <p>Wake turbulence spacing.</p> <p>Actions in the event of loss of separation.</p> <p>Traffic information.</p> <p>Unknown traffic information.</p> <p>Weather avoidance by pilots.</p> <p>Weather avoidance by radar controllers</p> <p>Actions in the event of loss of separation; reporting action.</p> <p>Radar separation</p>

<p>G35.2.9 Avoiding action, where necessary, is prompt and effective.</p> <p>G35.2.10 Appropriate traffic information is passed without delay.</p> <p>G35.2.11 Radar procedures are adjusted to allow for the effects of weather on flight operations.</p> <p>G35.2.12 Radar procedures are adjusted to allow for the effect of degradation of essential navigational and communication services on flight operations.</p>		<p>Ground based collision avoidance systems.</p>
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**Topic G35 PROVIDE AREA CONTROL SERVICE WITH THE USE OF SURVEILLANCE RADAR**

**Sub-Topic G35.3 PROVIDE FLIGHT INFORMATION SERVICE WITH THE USE OF SURVEILLANCE RADAR**

Performance Objectives	Conditions	Essential Knowledge
G35.3.1 Flight data is assessed for actual and potential traffic conflicts.	<b>Airspace category:</b> C, D, E, F, G	Altimetry, Heights, Altitudes and Flight Levels. Radar principles of operation and limitations.
G35.3.2 Aircraft are identified on radar.	<b>Types of Radar:</b> Primary, Secondary, Analogue, Processed Radar.	Aircraft performance. Effects of weather on flight operations.
G11.3.3 The radar is monitored to provide information on displayed weather.	<b>Control techniques:</b> Radar Monitoring, Navigation assistance, Speed Control.	Use and limitations of navigation and communications aids.
G35.3.4 The radar is monitored to provide information on observed traffic.	<b>Types of flight:</b> Aircraft operating outside, joining and leaving controlled airspace and advisory airspace.	Vectoring techniques. Speed control techniques.
G35.3.5 Information on observed weather is passed to pilots and appropriate agencies.		<b>Rules of the Air</b> General Flight Rules Instrument Flight Rules Visual Flight Rules
G35.3.6 Appropriate traffic information is passed without delay.		Air traffic services:- Introduction.
G35.3.7 Radar procedures are adjusted to allow for the effects of weather on flight operations.		Air traffic service:- Radar information service Radar operation:- Radar services. Provision of services.
G35.3.8 Radar procedures are adjusted to allow for the effect of degradation of essential navigational and communication services on flight operations.		Radar information service. Identification using primary radar. Identification using secondary radar. Transfer of identity. Lost Identity. Traffic information. Unknown traffic information. Weather avoidance by pilots. Weather avoidance by radar controllers.

**Topic G36 CO-ORDINATE WITH OTHER AGENCIES**

**Sub-Topic G36.1 CO-ORDINATE WITH ADJACENT AREA CONTROL OPERATIONAL POSITIONS**

Performance Objectives	Conditions	Essential Knowledge
<p>G36.1.1 Traffic situation is analysed to determine the need for co-ordination.</p> <p>G36.1.2 Appropriate co-ordination is initiated in sufficient time to permit negotiation and any agreement to be effected.</p> <p>G36.1.3 The effect of co-ordination requested by adjacent air traffic units is assessed.</p> <p>G36.1.4 An appropriate course of action is negotiated and agreed.</p> <p>G36.1.5 The agreed course of action is effected.</p> <p>G36.1.6 Flow management requirements are met.</p>	<p><b>Airspace category:</b>                      A, B, C, D, F.                      Airways and control areas excluding terminal control areas.                      Advisory routes and advisory areas.</p> <p><b>Types of radar:</b>                      Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Control positions:</b>                      Adjacent operational positions.                      Adjacent centres.</p>	<p>Aircraft performance.</p> <p>Methods of co-ordination.                      Approval request.                      Transfer of identity.                      Radar handover.</p> <p>Approval requests.                      Transfer point.</p> <p>Standing agreements.                      Letters of agreement.</p> <p>Flow management procedures.</p>

**Topic G36 CO-ORDINATE WITH OTHER AGENCIES**

**Sub-Topic G36.2 CO-ORDINATE WITH ADJACENT AERODROMES**

Performance Objectives	Conditions	Essential Knowledge
G36.2.1 Co-ordination for arriving aircraft is initiated in sufficient time to permit its implementation.	<p><b>Airspace category:</b> A, B, C, D, E, F. Airways and control areas excluding terminal control areas. Advisory routes and areas.</p> <p><b>Types of radar:</b> Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Control techniques:</b> Radar Monitoring, Vectoring, Speed Control.</p> <p><b>Conditions:</b> Single and multiple arrivals and departures.</p>	Aircraft performance.
G36.2.2 Releases are formulated to expedite arrivals whilst minimising disruption to the en route flow of traffic.		Methods of co-ordination. Transfer of identity. Radar handover.
G36.2.3 Departure clearances are formulated to expedite departures whilst minimising disruption to the en route flow of traffic.		Data on IFR traffic. Departing aircraft Releases to approach control. Radar release.
G36.2.4 Flow management requirements are met.		Release subject. Flow management procedures.

**Topic G37 MANAGE DIVERSIONS AND HOLDING SITUATIONS**

**Sub-Topic G37.1 HANDLE DIVERSIONS**

Performance Objectives	Conditions	Essential Knowledge
G37.1.1 Information necessary to facilitate the diversion is obtained.	<p><b>Airspace category:</b> A, B, C, D, F. Airways and control areas excluding terminal control areas. Advisory routes and areas.</p> <p><b>Types of radar:</b> Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Types of diversion:</b> Pilot initiated. ATC initiated. Company initiated.</p>	Reasons for diversions.
G37.1.2 Other relevant agencies are informed of the diversion.		Aerodrome actions.
G37.1.3 Flight plan data is amended.		ATC actions.
G37.1.4 Diversion messages are issued when appropriate.		Background on weather minima. Background on fuel management.



**Topic G37 MANAGE DIVERSIONS AND HOLDING SITUATIONS**

**Sub-Topic G37.2 MANAGE HOLDING SITUATIONS**

Performance Objectives	Conditions	Essential Knowledge
G37.2.1 Flight data is assessed to determine the need for holding. G37.2.2 Aircraft are informed of the need to hold in sufficient time. G37.2.3 Aircraft are advised of the expected delay. G37.2.4 Other relevant agencies are informed of the holding. G37.2.5 Flight plan data is amended. G37.2.6 Identity is re-established when aircraft leave the holding pattern.	<p><b>Airspace category:</b>                      A, B, C, D, F.                      Airways and control areas excluding terminal control areas.                      Advisory routes and areas.</p> <p><b>Types of radar:</b>                      Primary, Secondary, Analogue, Processed Radar.</p> <p><b>Holding:</b>                      For traffic, weather, airfield closure.</p>	Reasons for holding. <p><b>ICAO Doc. 8168</b>                      Holding Criteria.</p> Onward clearance times. Expected approach time. Holding for weather improvement

**Topic G38 WORK AS A TEAM MEMBER ON THE AREA RADAR OPERATIONAL POSITION**

**Sub-Topic G38.1 ACCEPT RESPONSIBILITY FOR THE OPERATIONAL POSITION**

Performance Objectives	Conditions	Essential Knowledge
<p>G38.1.1 Compliance with licensing and medical requirements is confirmed.</p> <p>G38.1.2 Pre task briefing is carried out.</p> <p>G38.1.3 The current and projected traffic situation is obtained from the duty controller.</p> <p>G38.1.4 Current and projected workload is evaluated to determine whether the resources available are appropriate.</p> <p>G38.1.5 Action is taken to ensure resources are adequate for the task.</p>	<p>Initial arrival for duty period.                      Return following fatigue break.</p>	<p><b>Aeronautical Information Circulars</b>                      Effects of drugs, medicines, fatigue, stress, medical conditions.</p> <p><b>Air Navigation Order</b>                      Licensing requirements.                      Certification of competence.</p> <p>Actions before taking over an operational position.</p>

**Topic G38 WORK AS A TEAM MEMBER ON THE AREA RADAR OPERATIONAL POSITION**

**Sub-Topic G38.2 MONITOR PERFORMANCE WHILST RESPONSIBLE FOR THE OPERATIONAL POSITION**

Performance Objectives	Conditions	Essential Knowledge
G38.2.1 Assistance is called for in sufficient time to ensure personal capabilities are not exceeded.	<b>Traffic flow:</b> Light, Medium, Heavy.	Scheme for regulation of the working hours of civil ATCOs
G38.2.2 Assistance provided to other team members is appropriate to the circumstances.		<b><i>Underpinning knowledge</i></b> Indications of stress. Indications of fatigue. Workload sharing.
G38.2.3 Current and projected workload is evaluated to determine whether the resources available are appropriate.		
G38.2.4 Action is taken to ensure resources are adequate for the task.		
G38.2.5 Rest/fatigue break requirements are complied with.		
G38.2.6 Concentration is maintained at an appropriate level for the task.		
G38.2.7 Indications of reduced or inadequate performance are acted upon in an appropriate manner.		

**Topic G38 WORK AS A TEAM MEMBER ON THE AREA RADAR OPERATIONAL POSITION**

**Sub-Topic G38.3 TRANSFER RESPONSIBILITY FOR THE OPERATIONAL POSITION**

Performance Objectives	Conditions	Essential Knowledge
G38.3.1 The current traffic situation is clearly communicated to the relieving controller.	Running handover.	Scheme for regulation of the working hours of civil ATCOs  Actions when handing over an operational position.
G38.3.2 The current and projected operating conditions are clearly communicated to the relieving controller.		
G38.3.3 Current and projected workload is evaluated to determine whether the resources available are appropriate.		
G38.3.4 Action is taken to ensure resources are adequate for the task.		

**Topic H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT**

**Sub-Topic H7.1 MANAGE RADIO FAILURES**

Performance Objectives	Conditions	Essential Knowledge
H7.1.1 Aircraft radio failure is recognised from available information.	<b>Types of failure:</b> Ground radio. Partial and complete aircraft radio.  <b>Environment:</b> Radar.	Pilot actions in the event of loss of communications. ATC procedures in the event of loss of communications.  Reporting actions.  Availability of supplementary flight plan information
H7.1.2 Standard radio failure procedures are implemented.		

**Topic H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT**

**Sub-Topic H7.2 MANAGE SITUATIONS ARISING FROM UNLAWFUL INTERFERENCE**

Performance Objectives	Conditions	Essential Knowledge
H7.2.1 The possibility of unlawful interference is recognised from available information.	Aircraft overflying, intending to land within area of jurisdiction.  <b>Environment:</b> Radar.	Indications of unlawful interference. Laid down handling procedures, National and International. Special communications procedures. Reporting action.  Availability of supplementary flight plan information.
H7.2.2 Standard procedures are adhered to when dealing with aircraft subject to unlawful interference.		

**Topic H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT**

**Sub-Topic H7.3 MANAGE AIRCRAFT EMERGENCIES**

Performance Objectives	Conditions	Essential Knowledge
H7.3.1 The possibility of an emergency situation existing is recognised from available information.	<b>Types of emergency:</b> Engine. Airframe. Fuel based. Medical.  <b>Environment:</b> Radar.	Aircraft performance and performance limitations.
H7.3.2 The nature of the emergency is determined.		Recognising an emergency situation: Handling aircraft emergencies; overdue aircraft, criteria and actions; phases of emergency.
H7.3.3 The level of priority over other traffic is evaluated		Reporting action.  Availability of supplementary flight plan information.

**Topic H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT**

**Sub-Topic H7.4 PROVIDE ALERTING SERVICE**

Performance Objectives	Conditions	Essential Knowledge
H7.4.1 Available information is evaluated to determine the phase of emergency existing.	<b>Phases of emergency:</b> Uncertainty. Alert. Distress.  <b>Environment:</b> Radar.	Recognising an emergency situation: Handling aircraft emergencies; overdue aircraft, criteria and actions; phases of emergency.
H7.4.2 Actions follow laid down procedures appropriate to the phase of the emergency.		Reporting action.  Availability of supplementary flight plan information.

**Topic H7 MANAGE DEVELOPED EMERGENCIES FROM THE RADAR EQUIPPED AREA CONTROL UNIT**

**Sub-Topic H7.5 RECOVER FROM A RADAR FAILURE**

Performance Objectives	Conditions	Essential Knowledge
H7.5.1 Aircraft are informed of the failure.	<b>Airspace category:</b> A, B, C, D, F.	Altimetry, Heights, Altitudes and Flight Levels.
H7.5.2 Flight data is assessed for actual and potential traffic conflicts.	Airways and control areas excluding terminal control areas. Advisory routes and advisory areas.	Effects of weather on flight operations. Use and limitations of navigation and communications aids.
H7.5.3 A control strategy is developed to achieve separation with the least average delay to flights.	<b>Operating environment</b> Total radar failure Partial radar failure Computer assisted failure	Non radar separation standards. Radar separation standards. Wake turbulence spacing.
H7.5.4 Immediate action is taken to achieve non-radar separation in accordance with the unit contingency plan.	<b>Types of flight:</b> Aircraft en route, joining, crossing and leaving controlled or advisory airspace.	Aircraft performance. Actions when radar service is restored. Reporting action.
H7.5.5 Appropriate traffic information is passed without delay.		Contingency plans
H7.5.6 The applied separation is the most appropriate taking into account safety and expedition.		
H7.5.7 Appropriate traffic flow restrictions are applied.		
H7.5.8 Aircraft are identified on resumption of radar service.		
H7.5.9 Aircraft are informed of the resumption of radar service.		

**Topic H8 MANAGE DOMESTIC CONTINGENCIES IN AN AREA CONTROL ROOM**

**Sub-Topic H8.1 SAFELY EVACUATE THE AREA CONTROL ROOM**

<b>Performance Objectives</b>	<b>Conditions</b>	<b>Essential Knowledge</b>
H8.1.1 Available information is evaluated to determine the need to evacuate the control room.	<b>Reasons for evacuation:</b> Fire and Bomb Warnings.	<b>Local procedures</b> Evacuation of control room.
H8.1.2 Traffic is disposed of in accordance with laid down procedures.		
H8.1.3 Evacuation is conducted in accordance with laid down procedures.		



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