

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES**1 ATS Surveillance Services****1.1 General**

- 1.1.1 The UK generally subscribes to the procedures for the use of ATS surveillance systems in the provision of ATS, which are given in ICAO Doc 4444 with the important difference that the ATS surveillance service provided outside controlled airspace will be either a Deconfliction Service or a Traffic Service as described at ENR 1.1.2. In addition, in order to clarify the exact arrangements in use within each type of Airspace in the UK FIR, the UK has found it necessary to amplify certain of the ICAO statements.

1.2 Types of ATS Surveillance Service**1.2.1 ICAO References**

Doc 4444, paragraph 8.

- 1.2.2 The provision of an Air Traffic Service is dependent upon specific types of airspace. Details of the services provided are stated in the table below.

Table (see also maps at ENR 6-1-6-1/2 and ENR 6-3-2-1/2).

Type of Airspace	Type of Service	ATC action with regard to Unknown Aircraft that may be in Unsafe Proximity to the Aircraft in Receipt of an Air Traffic Service
Class A, C and D Airspace.	Radar Control Service	If ATS surveillance system derived, or other information, indicates that the unknown aircraft is lost, has experienced radio failure or is making an unauthorised penetration of the airspace - avoiding action shall be given and traffic information shall be passed.
Class E Airspace, Controlled Airspace in which VFR flight without ATC clearance is permitted.		Pass traffic information unless the controller's primary function of sequencing and separating IFR flights is likely to be compromised. Avoiding action will be given at the request of pilots but to limits decided by the controller or if information has been received which indicates that a position indication/symbol may be a particular aircraft that is lost or experiencing radio failure.
Class G Airspace and Temporary Reserved Areas and all other airspace.	Deconfliction Service or Traffic Service	Traffic information will be passed followed by advice on avoiding action. or Traffic information will be passed but no avoiding action is to be given. The pilot is responsible for his own separation.

1.3 ATS Surveillance Service Outside Controlled Airspace**1.3.1 London Control - Requests for Deconfliction Service or Traffic Service**

- 1.3.1.1 In order to avoid excessive RTF conversations on the frequencies used by 'London Control', pilots who intend to request such a service from 'London Control' are to make their initial request on the London Information frequency appropriate to their geographical position. The FISO will co-ordinate with the appropriate Radar Sector and subsequently inform the pilot whether or not a Deconfliction Service or Traffic Service can be provided and, if so, on what frequency.
- 1.3.1.2 Pilots should note that no Deconfliction Service or Traffic Service will be available on any London Control Frequency below FL 70. In any case a serviceable transponder will be a pre-requisite for either service.

1.4 Radar Vectoring — Controlled Airspace

- 1.4.1 At certain aerodromes where the associated Controlled Airspace does not encompass the Surveillance Minimum Altitude Area (SMAA), aircraft may be vectored outside the notified airspace for approaches to certain runways. The aerodromes and runways to which this procedure may apply are listed below:

Aerodromes	Runways	Aerodromes	Runways
Bournemouth	08	London/City	27
Durham Tees Valley	05	Prestwick	21
Leeds Bradford	14	Southend	06/24

1.5 Radar Vectoring for ILS Approach**1.5.1 ICAO Reference**

Doc 4444, Chapter 8, paragraph 8.9.4.

- 1.5.2 Aircraft being positioned for final approach will be given a heading to close with the localizer at a range of at least 5 NM from the runway threshold and at a level below the glide path. The pilot will be told to complete the turn on and to report established on ILS, but at this point if he requests it, ATC will give another vector to bring the aircraft on to the localizer. If the pilot wishes to lock himself

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on to the localizer, he must ask permission from ATC when there is still time for the action to take place without crossing the localizer.

- 1.5.3 On occasions in order to maintain the correct spacing between aircraft, ATC will deliberately vector the aircraft through the localizer for approach from the other side. Pilots will be warned when this manoeuvre is being given.

1.6 Terrain Clearance

1.6.1 ICAO Reference

Doc 4444, Chapter 8, paragraphs 8.6.5.2 and 8.6.5.3.

- 1.6.2 Controllers will ensure that levels assigned to IFR flights when in receipt of a Radar Control Service will provide at least the minimum terrain clearances given below:

- 1.6.2.1 Within 30 NM of the radar antenna but excluding the Final and Intermediate Approach Area: 1000 FT above any fixed obstacle which is closer than 5 NM to the aircraft or which is situated within the area 15 NM ahead of and 20 degrees either side of the aircraft's track. These distances may be reduced to 3 NM and 10 NM respectively where official CAA approval has been promulgated. Levels assigned to aircraft during initial approach will also provide this terrain clearance.

- 1.6.2.2 Outside 30 NM from the Radar Antenna, for flights on Airways, 1000 FT above any fixed obstacle within 15 NM of the centre-line; otherwise 1000 FT above any fixed obstacle within 30 NM of the aircraft.

- 1.6.2.3 Radar Controllers have no responsibility for the terrain clearance of, and will not assign levels to, aircraft operating Special VFR or VFR within controlled airspace which accept radar vectors.

Note: In sections of Airways where the base is defined as a Flight Level, the lowest usable level normally provides not less than 1500 FT Terrain Clearance.

- 1.6.3 Within Class G Airspace, regardless of the service being provided, pilots are ultimately responsible for terrain clearance.

- 1.6.3.1 A Deconfliction Service shall only be provided to aircraft operating at or above the ATC unit's terrain safe level, unless on departure from an aerodrome when climbing to the ATC unit's terrain safe level, or when following notified instrument approach procedures.

- 1.6.3.2 Subject to ATS surveillance system coverage, a Traffic Service may be provided below ATC unit terrain safe levels. However, levels allocated by controllers shall be terrain safe unless an agreement is reached with the pilot, or such levels form part of VFR clearances for aerodrome arrival or to enter controlled airspace that by necessity require flight below the unit terrain safe levels. Controllers shall only instigate heading allocations when the aircraft is at or above an ATC unit's terrain safe level. However, if pilots request a heading from the controller whilst operating below the ATC unit terrain safe level, this may be provided as long as the controller reminds the pilot that he remains responsible for terrain clearance.

1.6.4 ATC Surveillance Minimum Altitude Charts

- 1.6.4.1 In November 2007, ICAO introduced new charting requirements for the depiction of minimum altitudes issued by a controller providing an ATC Surveillance service under the title ATC Surveillance Minimum Altitude Chart (ATCSMAC). The purpose of the ATCSMAC is to provide information that will enable flight crews to monitor and cross check altitudes assigned whilst receiving vectoring instructions from air traffic controllers.

- 1.6.4.2 In the UK, the ATCSMAC depicts the Surveillance Minimum Altitude Area(s) in the vicinity of a designated aerodrome. For the purposes of the UK application of ATCSMACs, the following definition of a Surveillance Minimum Altitude Area (SMAA) will apply:

'A Surveillance Minimum Altitude Area is a defined area in the vicinity of an aerodrome, in which the minimum safe levels allocated by a controller vectoring IFR flights with Primary and/or Secondary Radar equipment have been predetermined.'

- 1.6.4.3 Charts for individual aerodromes appear in the AIP Aerodrome Section (AD 2-EGXX-5-1). Each chart includes the following:

- Outline of the Surveillance Minimum Altitude Area(s);
- significant obstructions and spot heights;
- minimum initial altitudes within the Surveillance Minimum Altitude Area(s) and detailed geographic delineation;
- Final Approach Tracks;
- Intermediate Approach Areas (where appropriate);
- aerodrome elevation;
- Transition Altitude;
- Missed Approach instructions;
- loss of communication procedures.

- 1.6.4.4 Further information about the criteria used in the design of ATCSMACs will be included in CAP 777 - ATC Surveillance Minimum Altitude Charts in UK Airspace, Policy and Design Criteria.

CAP 777 is available at:

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Http: www.caa.co.uk (Publications)

Additionally, paper versions of this publication can be obtained from the CAA Library or through:

Post: The Stationery Office, PO Box 29, Norwich, NR3 1GN

Email: book.orders@tso.co.uk

1.7 Navigational Assistance**1.7.1 ICAO Reference**

Doc 4444, Chapter 8, paragraph 8.6.6.

1.7.2 In order that a controller may provide the most appropriate advice/instructions, the pilot of an aircraft requesting navigational assistance when in receipt of an ATS surveillance service shall state the reason (eg to avoid areas of adverse weather or unreliable navigational instruments) and giving as much information as possible in the circumstances.

1.7.3 Identified aircraft operating within controlled airspace are deemed to be separated from unknown aircraft flying in adjoining uncontrolled airspace. However, whenever practicable the controller will aim to keep aircraft under his control at least 2 NM within the boundary of controlled airspace.

1.8 Weather Avoidance**1.8.1 ICAO Reference**

Doc 4444, Chapter 8, paragraph 8.6.9.

1.8.2 In order to avoid weather, if a controller considers it expedient for the aircraft to leave controlled airspace, the pilot will be advised and will be responsible for accepting the detour into uncontrolled airspace.

1.8.3 In controlled airspace, a pilot using an aircraft radar and intending to detour around observed weather, must obtain a clearance from the controller before doing so. Under these circumstances, if it is necessary to leave controlled airspace the pilot must request permission to re-join.

2 SSR OPERATING PROCEDURES**2.1 General**

2.1.1 In accordance with the Air Navigation Order, a SSR Mode S transponder shall be operated within the airspace notified at GEN 1.5, paragraph 5.3.1. In all other airspace, when a serviceable SSR transponder is carried, a pilot shall operate the transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for ATS purposes in accordance with SERA.13001(a) and should enable pressure-altitude reporting if available, in order to facilitate detection of their aircraft by collision avoidance systems and ATS surveillance equipment.

2.1.2 Except for flight in airspace designated by the CAA for mandatory operation of transponder, aircraft without sufficient electrical power supply are exempted from the requirement to operate the transponder at all times.

2.1.3 In airspace where the operation of transponders is not mandatory, pilots of suitably equipped aircraft shall comply with paragraph 2.2.2.1.2.

2.1.4 With the exceptions detailed in paragraph 2 pilots **shall**:

- a) If proceeding from an area where a specific Mode A code has been assigned to the aircraft by an ATS Unit, maintain that code setting unless otherwise instructed;
- b) select or reselect Mode A codes, or switch off the equipment when airborne only when instructed by an ATS Unit;
- c) acknowledge Mode A code setting instructions by reading back the code to be set;
- d) select Mode C pressure-altitude reporting mode of the transponder simultaneously with Mode A unless otherwise instructed by an ATS Unit;

Note: Where the term Mode C pressure-altitude reporting is used, the information and requirements also apply to pressure-altitude reporting employed by Mode S transponders in response to interrogations from Mode S radars.

- e) when reporting levels under routine procedures or when requested by ATC, state the current altimeter reading to the nearest 100 FT. This is to assist in the verification of Mode C pressure-altitude reporting data transmitted by the aircraft.

Note: If, on verification there is a difference of more than 200 FT between the level readout and the reported level, the pilot will normally be instructed to switch off the Mode C pressure-altitude reporting mode of the transponder. If independent switching of Mode C pressure-altitude reporting is not possible, the pilot will be instructed to select Mode A code 0000 to indicate a transponder malfunction.

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2.2 Special Purpose Mode A Codes

2.2.1 Some Mode A codes are reserved internationally for special purposes and should be selected as follows:

- Code 7700. To indicate an emergency condition, this code should be selected as soon as is practicable after declaring an emergency situation, and having due regard for the over-riding importance of controlling aircraft and containing the emergency. However, if the aircraft is already transmitting a discrete code and receiving an air traffic service, that code may be retained at the discretion of either the pilot or the controller;
- Code 7600. To indicate a radio failure;
- Code 7500. To indicate unlawful interference with the planned operation of a flight, unless circumstances warrant the use of Code 7700;
- Code 1000. To indicate an aircraft conducting IFR flight as GAT, where the downlinked aircraft identification is validated as matching the aircraft identification entered in the flight plan;
- Code 2000. When entering United Kingdom airspace from an adjacent region where the operation of transponders has not been required; or by Mode S transponder equipped aircraft on the aerodrome surface when under tow, or parked and prior to selecting OFF or STDBY - unless otherwise instructed by ATC.
- Code 7007. This code is allocated to aircraft engaged on airborne observation flights under the terms of the Treaty on Open Skies. Flight Priority Category B status has been granted for such flights and details will be published by NOTAM.

Note: The Mode C pressure-altitude reporting mode of the transponder should be selected with all of the above Mode A codes.

2.2.2 Mode A Conspicuity Codes

2.2.2.1 General Conspicuity Codes

2.2.2.1.1 When operating at and above FL 100 pilots of aircraft shall select the relevant Mode A conspicuity code (see paragraph 2.2.2.1.3) and the Mode C pressure-altitude reporting mode of the transponder except:

- When receiving a service from an ATS Unit or Air Surveillance and Control System Unit which requires a different setting;
- When circumstances require the use of one of the Special Purpose Mode A codes or one of the other specific Mode A conspicuity codes assigned in accordance with the UK SSR Code Allocation Plan as detailed in the table at paragraph 2.6 of ENR 1.6.

2.2.2.1.2 When operating a SSR equipped aircraft below FL 100 in circumstances where the operation of SSR transponders is not mandatory, pilots shall select the relevant Mode A conspicuity code (see paragraph 2.2.2.1.3) with Mode C pressure-altitude reporting if available, except:

- As in sub-paragraphs 2.2.2.1.1 (a) and 2.2.2.1.1 (b); or
- When selecting a Monitoring Code (see paragraph 2.2.5).

2.2.2.1.3 Types:

*7000 - General conspicuity code.

2.2.2.2 Other Conspicuity Codes

2.2.2.2.1 In addition to Special Purpose Codes and the General Conspicuity Codes detailed above, there are a number of other conspicuity codes in the UK SSR Code Allocation Plan, as detailed in the table at paragraph 2.6 of ENR 1.6. For ease of reference, those not specific to particular locations or ATS Units are listed in the table below:

Code	Use	Conditions/Remarks
*0024	Radar Flight Evaluation/Calibration	Aircraft conducting radar evaluation/calibration flights shall only squawk 0024 for the duration of the trial. The code shall not be used whilst transiting to/from the trial; in such circumstances the appropriate Mode A code as per paragraph 2.2.2.1 should be selected. May be selected at pilot's discretion.
*0033	Aircraft Paratropping	Unless a discrete Mode A code has already been assigned, pilots of transponder equipped aircraft should select Mode A code 0033, together with Mode C pressure altitude reporting mode of the transponder, five minutes before the drop commences until the drop is complete and parachutists or loads are known or estimated by the pilot to be on the ground.
*0450	Blackpool Basic Service Conspicuity	Aircraft in receipt of a Basic Service from Blackpool Approach. Shall only be selected with ATC direction.
*1177	London AC (Swanwick) FIS	Aircraft in receipt of a Basic Service from London Information. Shall only be selected with ATC direction.
*4520	Oxford Approach Basic Service	Aircraft in receipt of a Basic Service from Oxford Approach. Shall only be selected with ATC direction.

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Code	Use	Conditions/Remarks
*7001	Military Fixed-Wing Low Level Conspicuity and Climb-out	For use by military fixed-wing aircraft on passing 2000 FT MSD in the descent to the UK Low Flying System (LFS) and retained whilst operating in the LFS. When a radar service is required on climb-out from the LFS, the code will be retained until alternative instructions are passed by an ATC Unit. May be selected at pilot's discretion.
*7002	Danger Areas General	May be selected at pilot's discretion.
*7003	Red Arrows Transit/Display	May be selected at pilot's discretion.
*7004	Aerobatics and Display	For use by civil or military aircraft conducting solo or formation aerobatic manoeuvres, whilst displaying, practising or training for a display or for aerobatics training or general aerobatic practice. Unless a discrete Mode A code has already been assigned, pilots of transponder equipped aircraft should select *7004, together with Mode C pressure-altitude reporting mode of the transponder, five minutes before commencement of their aerobatic manoeuvres until they cease and resume normal operations. Pilots are encouraged to contact ATS Units and advise them of the lateral, vertical and temporal limits within which they will be operating and using *7004. Controllers are reminded that *7004 must be considered as unvalidated and the associated Mode C pressure-altitude reporting data unverified. Traffic information will be passed to aircraft receiving a service as follows: 'Unknown aerobatic traffic, (number) o'clock (distance) miles opposite direction/crossing left/right indicating (altitude) unverified (if Mode C pressure-altitude reporting data is displayed)'. May be selected at pilot's discretion.
*7005	High-Energy Manoeuvres	Unless a discrete Mode A code has already been assigned, outside controlled airspace below FL 195 and outwith the UK Low Flying System, pilots of military fast-jet aircraft should select *7005 prior to engaging in sustained high-energy manoeuvres. This will highlight to controllers the nature of the flight. Controllers should expect such aircraft to perform sudden and unpredictable changes in altitude and heading, and should be prepared to react accordingly. Controllers are reminded that the *7005 must be considered as unvalidated and the associated Mode C pressure-altitude reporting data unverified. May be selected at pilot's discretion.
*7006	Autonomous Operations within a TRA and TRA(G)	For use by military aircraft conducting autonomous operations within a TRA or TRA(G). May be selected at pilot's discretion.
*7010	Operating in an Aerodrome Traffic Pattern	For use by aircraft operating in an aerodrome traffic pattern, when instructed to do so by an ATS Unit or local operating instructions. Shall only be selected with ATC direction or in accordance with local aerodrome procedures.
*7401	Scottish FIS	Aircraft in receipt of a Basic Service from Scottish Information. Shall only be selected with ATC direction.

2.2.2.2.2 **Pilots are warned of the need for caution when selecting Mode A conspicuity codes in the 70xx series, due to the proximity of the Special Purposes Mode A codes.**

2.2.2.2.3 **Controllers are reminded that codes annotated with * are used for conspicuity, co-ordination or special purposes and the Mode A and associated Mode C pressure-altitude reporting data must be considered unvalidated and unverified.**

2.2.2.2.4 The use of aerodrome-specific conspicuity codes detailed in the UK SSR Code Plan (Table at paragraph 2.6 of ENR 1.6) should be strictly in accordance with local operating instructions/procedures as published by the relevant aerodrome.

2.2.3 Transponder Testing

2.2.3.1 Transponder testing has the potential to generate false SSR returns, thereby incorrectly triggering safety nets such as TCAS and short term conflict alert, with consequential disruption to flight crews and ATC and potential to cause an adverse safety impact. Therefore, individuals or Organisations intending to conduct ground-based transponder testing and maintenance shall take necessary precautions to ensure transponder transmissions cannot be erroneously identified as valid replies by airborne or ground interrogator systems that may detect them. Consequently, the following steps are strongly recommended:

- Set the Mode A code to *0002 (UK-specific ground transponder testing code);
- Use effective screening or absorption devices on the antennas or physically connect the ramp test set to the antenna system;
- Where possible, conduct the testing inside a hangar, as this may provide additional shielding;

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- d) Manually set the Mode C pressure-altitude data to either a high value (eg over 60000 FT) or an unrealistically low value (eg 2000 FT below ground);
 - e) Select the transponder(s) to 'OFF' or 'STANDBY' when testing is complete.
- 2.2.3.2 Additional guidance on transponder testing can be found in ICAO Annex 10 Vol IV, JAA TGL 13 and EUROCAE ED-73C.
- 2.2.4 **SSR Site Monitors/Far Field Monitors**
- 2.2.4.1 SSR site monitors, sometimes referred to as Far Field Monitors (FFMs) for Mode S radars, shall use Mode A codes *7776 and *7777, along with Mode C pressure-altitude data set to either a high value (eg over 60000 FT) or an unrealistically low value (eg 2000 FT below ground).
- 2.2.4.2 Mode S FFMs will also require an ICAO 24-bit address to uniquely identify them. These addresses shall be allocated as part of the National IFF/SSR Committee approval process. For further details contact: nisc@caa.co.uk
- 2.2.5 **Frequency Monitoring Codes**
- 2.2.5.1 In order to both prevent and mitigate the consequences of airspace infringements, pilots operating close to the peripheries of certain controlled airspace and monitoring the relevant frequency (but not requiring an Air Traffic Service) should select a local SSR conspicuity code and the Mode C pressure-altitude mode (if available) as specified to indicate they are monitoring the promulgated ATC frequency. This facility also exists for aircraft routing close to certain airfields outside controlled airspace to advise ATC that pilots are monitoring their frequency.
- 2.2.5.2 This will allow the appropriate Air Traffic Control Unit to attempt to establish contact with an aircraft which is displaying such a code and which is considered to be infringing, or is likely to infringe, controlled airspace in order to resolve an actual or potential infringement quickly and efficiently. For units outside controlled airspace, this will allow Air Traffic Control to attempt to establish contact with pilots in order to resolve potential conflicts. Selection of such codes does not imply the provision of any form of Air Traffic Service and the use of such codes does not prevent a pilot from requesting an Air Traffic Service at any time should they subsequently decide they require one.
- 2.2.5.3 In such circumstances, blind transmissions will be made by Air Traffic Control on the appropriate frequency including the code, position, level (if appropriate) and direction of flight of the observed contact. The Mode S-derived callsign may also be used. A pilot monitoring the frequency who suspects, on the basis of the information provided, that theirs is the aircraft being referred to should contact Air Traffic Control accordingly. At this point a discrete code may be assigned to confirm identity. The controller will establish the requirements of the pilot and will confirm the type of Air Traffic Service available. Exceptionally, Air Traffic Control may issue immediate instructions or advice to resolve a particular situation. For aircraft outside controlled airspace, Air Traffic Control may request the pilot's compliance to achieve coordination. If, after positive identification or on the basis of additional information provided by the pilot it is felt that the aircraft responding is not the aircraft concerned, the pilot will be informed accordingly and may continue to monitor the frequency and if necessary revert to the appropriate monitoring code.
- 2.2.5.4 Use of monitoring codes does not imply that any form of Air Traffic Service is being provided. The code and any associated Mode C pressure-altitude reporting data is considered to be unvalidated and unverified. Pilots remain responsible for their own navigation and in particular for obtaining permission to enter controlled airspace and Aerodrome Traffic Zones from the appropriate agency.
- 2.2.5.5 Any pilot who believes they are flying in the vicinity of the aerodromes listed below who is lost or temporarily uncertain of position should immediately seek navigational assistance from the appropriate radar unit. Alternatively, they should select code 0030 and contact either London or Scottish Centre on 121.500 MHz for assistance.
- 2.2.5.6 **Codes in Use**
- 2.2.5.6.1 * **0010** - This code may be used when flying in the vicinity of Birmingham within the area defined in EGBB AD 2.22 - FLIGHT PROCEDURES.
- 2.2.5.6.2 * **0011** - This code may be used when flying in the vicinity of Bournemouth Control Zone and monitoring Bournemouth Radar Frequency within the area defined in EGHH AD 2.22. The delineation with Solent is west of a line between Stoney Cross VRP and Hurst Castle VRP.
- 2.2.5.6.3 * **0012** - This code may be used when flying in the vicinity of London City and London Heathrow and operating outside of the London CTR/London City CTR/London CTA but within the area defined in EGLC AD 2.22 - FLIGHT PROCEDURES and EGLL AD 2.22 - FLIGHT PROCEDURES.
- 2.2.5.6.4 * **0013** - This code may be used when flying in the vicinity of London Luton and operating outside of the London Luton CTR/ London Luton CTA but within the area defined in EGGW AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.5 * **0440** - This code may be used when flying in the vicinity of Edinburgh within the area defined in EGPB AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.6 * **2620** - This code may be used when flying in the vicinity of Glasgow Airport within the area defined in EGPF AD 2.22 FLIGHT

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- 2.2.5.6.7 * **2677** - This code may be used when flying in the vicinity of Leeds Bradford within in the area defined in EGNM AD 2.22 FLIGHT-PROCEDURES.
- 2.2.5.6.8 * **3636** - This code may be used when flying in the vicinity of Cardiff Airport and operating outside of the Cardiff CTR/Cardiff CTA but within the area defined in EGFF AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.9 * **3660** - This code may be used when flying in the vicinity of Warton Aerodrome, and operating outside of controlled airspace, but within the area defined in EGNO AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.10 * **3727** - This code may be used when flying outside of Brize Norton Zone and monitoring Brize Radar Frequency 124.275 MHz.
- 2.2.5.6.11 * **3737** - This code may be used when flying in the vicinity of Newcastle Airport and operating outside of the Newcastle CTR/ Newcastle CTA but within the area defined in EGNT AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.12 * **4255** - This code may be used when flying in the vicinity of Belfast/City, within the area defined in EGAC AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.13 * **4517** - This code may be used when flying in the vicinity of Oxford Airport and operating outside of the Brize Norton CTR but within the area defined in EGTK AD 2.22 - FLIGHT PROCEDURES.
- 2.2.5.6.14 * **4572** - This code may be used when flying in the vicinity of the East Midlands Control Zones/Areas and monitoring the East Midlands Radar Frequency. Pilots should refer to UK AIP EGNX AD 2.22 – FLIGHT PROCEDURES for further details.
- 2.2.5.6.15 * **4572** - This code may be used when flying in the vicinity of Farnborough and monitoring the LARS West Frequency. Pilots should refer to UK AIP EGLF AD 2.22 – FLIGHT PROCEDURES for further details.
- 2.2.5.6.16 * **4607** - This code may be used when flying in the vicinity of Hawarden within the area defined in EGNR AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.17 * **5050** - This code may be used when flying in the vicinity of Southend and operating outside of the Southend CTR/Southend CTA but within the area defined in EGMC AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.18 * **5060** - This code may be used when flying in the vicinity of Liverpool and operating outside of the Liverpool CTR/Liverpool CTA but within the area defined in EGGP AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.19 * **5077** - This code may be used when flying in the vicinity of Bristol controlled airspace within the area defined in EGGD AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.20 * **6170** - This code may be used when flying in the vicinity of Doncaster Sheffield within the area defined in EGCN AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.21 * **7011** - This code may be used when flying in the vicinity of Southampton and operating outside of the Southampton CTR/Solent CTA but within the area defined in EGHI AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.22 * **7012** - This code may be used when flying in the vicinity of London Gatwick and operating outside of the London Gatwick CTR/ London Gatwick CTA but within the area defined in EGKK AD 2.22 - FLIGHT PROCEDURES.
- 2.2.5.6.23 * **7013** - This code may be used when flying in the vicinity of Stansted and operating outside of the Stansted CTR/Stansted CTA but within the area defined in EGSS AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.24 * **7045** - This code may be used when flying in the vicinity of Belfast/Aldergrove, within the area defined in EGAA AD 2.22 FLIGHT PROCEDURES.
- 2.2.5.6.25 * **7366** - This code may be used when flying in the vicinity of Manchester and operating outside of the Manchester CTR/Manchester CTA but within the area defined in EGCC AD 2.22 - FLIGHT PROCEDURES.

2.3 Mode S Aircraft Identification

- 2.3.1 To comply with ICAO airborne equipment requirements, all Mode S transponder equipped aircraft engaged in international civil aviation must incorporate an Aircraft Identification Feature (sometimes referred to as Flight Identity or Flight ID). Correct setting of Aircraft Identification is essential for the correlation of radar tracks with flight plan data in Air Traffic Management (ATM) and Airport Operator ground systems. Data analysed by the Eurocontrol AMP has shown that many Mode S compliant aircraft are transmitting an incorrect Aircraft Identification, for example, incorrectly setting ABC_123 instead of ABC123.
- 2.3.2 **Incorrect Aircraft Identification settings compromise the safety and ATM benefits of Mode S and will prohibit automatic**

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flight plan correlation, which could affect subsequent ATC clearances and sequencing.

- 2.3.3 In accordance with ICAO Doc 8168 (PANS-OPS) Vol I, Part III, Section 3, Chapter 1, paragraph 1.3, flight crew of aircraft equipped with Mode S having an Aircraft Identification Feature shall set the Aircraft Identification in the transponder. This setting shall correspond to the Aircraft Identification specified in item 7 of the ICAO flight plan, or if no flight plan has been filed, the aircraft registration or as detailed in paragraph 2.3.4.1.
- 2.3.4 Aircraft Identification, not exceeding 7 alphanumeric characters, is to be entered in item 7 of the flight plan and set in the aircraft as follows:
- 2.3.4.1 Either,
- a) The ICAO three letter designator (not the IATA two letter designator) for the aircraft operating agency followed by the flight identification, for example, BAW213 or JTR25, when:
 - i. In radiotelephony, the callsign used consists of the ICAO telephony designator for the operating agency followed by the flight identification, for example, SPEEDBIRD 213 or HERBIE 25.
 - Or,
 - b) The registration marking of the aircraft, for example, G-INFO or EIAKO, when:
 - i. In radiotelephony, the callsign used comprises the registration marking alone, for example, G-INFO, or is preceded by the ICAO telephony designator for the operating agency, for example, SVENAIR EIAKO;
 - ii. the aircraft is not equipped with radio.
 - Or,
 - c) The callsign determined by the military authorities if this will be used to identify the aircraft in radiotelephony during flight.
- Note 1:** When the Aircraft Identification consists of less than 7 characters, no zeros, dashes or spaces are to be added, either before or between the characters. Only alphanumeric characters are to be used. Nothing should be added after the final character of the registration. For example, an aircraft registered 'G-INFO' would be input as 'GINFO'.
- Note 2:** Appendix 2 to ICAO Doc 4444 (PANS-ATM) refers. ICAO designators and telephony designators for aircraft operating agencies are contained in ICAO Doc 8585.
- 2.3.5 Flight crew of aircraft which have the capability to change the downlinked aircraft identification feature when airborne shall not change the downlinked aircraft identification feature during the flight unless requested by the air navigation service provider.

2.4 Transponder Failure

- 2.4.1 Failure before intended departure
- 2.4.1.1 If the transponder fails before intended departure and cannot be repaired pilots shall:
- a) Plan to proceed as directly as possible to the nearest suitable aerodrome where repair can be made;
 - b) inform ATS as soon as possible preferably before the submission of a flight plan. When granting clearance to such aircraft, ATC will take into account the existing and anticipated traffic situation and may have to modify the time of departure, flight level or route of the intended flight;
 - c) insert in item 10 of the ICAO flight plan under SSR the letter N for complete unserviceability of the transponder or in the case of partial failure, the letter corresponding to the remaining transponder capability, including unserviceability of any Mode S functionality, as specified in ICAO Doc 4444, Appendix 2.
- 2.4.2 Failure after departure
- 2.4.2.1 If the transponder fails after departure or en-route, ATS Units will endeavour to provide for continuation of the flight in accordance with the original flight plan. In certain traffic situations this may not be possible particularly when the failure is detected shortly after take-off. The aircraft may then be required to return to the departure aerodrome or to land at another aerodrome acceptable to the operator and to ATC. After landing, pilots shall make every effort to have the transponder restored to normal operation. If the transponder cannot be repaired then the provisions in paragraph 2.4.1.1 apply.
- 2.4.3 At present the temporary failure of Mode C alone would not restrict the normal operation of the flight.

2.5 Radio Telephony Phraseology For Use With SSR.

This is in accordance with ICAO Doc 4444, Chapter 12, para 12.4.3.

2.6 UK SSR Code Allocation Plan

(as detailed in the table at ENR 1.6-9 (See also notes below)).

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Note 1: Pilots are not to preselect Mode A code settings for discrete codes until instructed to do so by the appropriate controlling agency.

Note 2: The codes or series annotated * are used for conspicuity, co-ordination or special purposes and, unless procedures have been agreed with UK CAA Directorate of Airspace Policy, the Mode A code and associated Mode C pressure-altitude reporting data must be considered unvalidated and unverified.

Note 3: These codes are assigned by Aberdeen for helicopters operating in Northern North Sea Off-shore area and out to 5° West.

Note 4: Non-discrete assignment to military aircraft operating within the Vale of York AIAA. Leeming and Linton-on-Ouse are authorised by UK CAA Directorate of Airspace Policy, to apply standard vertical separation between military aircraft under service and military aircraft assigned this code.

Note 5: Ground based transponder equipment.

Note 6: For use within a 25 NM radius of Colerne in the FIR, up to FL 100, outside of Controlled Airspace.

Note 7: This code is allocated to Transit (ORCAM) UK and is temporarily assigned for use by London Control (Swanwick) FIS. Notwithstanding, it retains all the properties and protection of an ORCAM Transit code.

Note 8: These codes will be assigned to aircraft on air policing missions within the UK FIR/UIR operating under Air Defence Priority Flight (ADPF) status. NATO Air Surveillance and Control System (ASACS) units, NATO Airborne Early Warning aircraft or military ATCCs will normally control the aircraft. The actual controlling unit for a particular flight will be notified by the relevant NATO ASACS unit to the military ATC supervisor whose area of responsibility contains the intended route of the ADPF aircraft. The military ATC supervisor will then inform the relevant civil ATCC. Where any doubt about the controlling agency exists, the relevant military ATC supervisor with the responsibility for the area within which the ADPF aircraft is operating should be contacted in the first instance.

Note 9: This code is assigned by the FISO to aircraft requesting entry into Controlled Airspace for the purpose of joining or crossing the ATS Route network. Pilots shall only select the code when they are within two-way communication with the London FIS. Where available, the Mode C pressure-altitude reporting mode of the transponder should also be selected. If communication is lost or the aircraft leaves the FIS frequency, pilots shall deselect this special purpose code. The assignment of this code does not imply the provision of a radar service and the code and any associated Mode C pressure-altitude reporting data must be considered to be unvalidated and unverified.

Note 10: All Spadeadam squawks indicating flight above FL 50 will be validated and verified by Spadeadam ATC.

Note 11: This conspicuity code shall be used by aircraft operating in an Off-shore Safety Area (OSA) when contact with the Area Air Traffic Service Provider (ATSP) has not been established and no other code has previously been allocated.

Note 12: Unless otherwise instructed by ATC, Mode S transponder equipped aircraft on the aerodrome surface should select Mode A code 2000 when under tow; or parked and prior to selecting OFF or STDBY.

Note 13: These codes will be assigned to Unmanned Aeronautical Vehicles operating within an active danger area, which will be validated but may be unverified.

Note 14: Aircraft operating within, and in the vicinity of, EG D123, D124, D125, D126, D128.

Note 15: This conspicuity code shall be used by Unmanned Aerial Systems/Remotely Piloted Aircraft that have lost communications with their remote pilot and are following a pre-programmed Lost Link flight profile.

Note 16: This code may also be used for Blackpool Instrument Training.

Note 17: For use within a 20 NM radius of Lands End up to 4000 FT AMSL.

Codes / Series	Controlling Authority / Function
* 0000	SSR data unreliable
* 0001	Height Monitoring Unit (See note 5)
* 0002	Ground Transponder Testing (Refer to ENR 1.6, paragraph 2.2.3)
* 0003	Surrey/Sussex HEMS (HLE60)
0004 — 0005	Scottish Non-standard Flights
* 0006	British Transport Police ASU
* 0007	Off-shore Safety Area (OSA) Conspicuity (See note 11)
* 0010	This code may be used when flying in the vicinity of Birmingham, operating outside of Birmingham CTR/ Birmingham CTA and monitoring Birmingham Approach frequency (Refer to ENR 1.6, paragraph 2.2.5)
* 0011	Aircraft operating in the vicinity of Bournemouth Control Zone and monitoring Bournemouth Radar Frequency West (Refer to ENR 1.6, paragraph 2.2.5)
* 0012	This code may be used when flying in the vicinity of London City and London Heathrow and monitoring Thames Radar frequency (Refer to ENR 1.6, paragraph 2.2.5)
* 0013	This code may be used when flying in the vicinity of London Luton and monitoring Luton Radar frequency (Refer to ENR 1.6, paragraph 2.2.5)
* 0014	Kent Air Ambulance (HLE21)
* 0015	Essex Air Ambulance (HLE07)

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
* 0016	Thames Valley Air Ambulance (HLE24)
* 0017	London Air Ambulance (HLE27)
* 0020	Air Ambulance Helicopter Emergency Medivac
* 0021	Fixed-wing aircraft (Receiving service from a ship)
* 0022	Helicopter(s) (Receiving service from a ship)
* 0023	Aircraft engaged in actual SAR Operations
* 0024	Radar Flight Evaluation/Calibration (Refer to ENR 1.6, paragraph 2.2.2.2)
0025	Scottish Non-standard Flights
* 0026	Special Tasks
* 0027	London Control (Swanwick) Ops Crossing/Joining CAS (See note 9)
* 0030	FIR Lost
* 0031	Hertfordshire Air Ambulance (HLE55)
* 0032	Aircraft engaged in police air support operations
* 0033	Aircraft Paratropping (Refer to ENR 1.6, paragraph 2.2.2.2)
* 0034	Antenna trailing/target towing
* 0035	Selected Flights - Helicopters
* 0036	Helicopter Pipeline/Powerline Inspection Flights
* 0037	Royal Flights - Helicopters
* 0040	Civil Helicopters North Sea
* 0041 — 0061	Police Air Support
0062 — 0077	No 1 Air Control Centre
* 0100	NATO - CAOC F (activated by NOTAM via ASACS Force Command)
0101 — 0117	Transit (ORCAM) Brussels
0120 — 0137	Transit (ORCAM) Germany
0140 — 0177	Transit (ORCAM) Amsterdam
* 0200	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
0201 — 0277	Allocated to NATS as CCAMS redundancy
* 0300	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
0301 — 0377	Assigned by CCAMS
* 0400	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
* 0401	RAF Leeming Conspicuity
0401 — 0417	Birmingham Approach
0401 — 0437	Ireland Domestic
0401 — 0450	Exeter Approach
0401 — 0467	RAF Lakenheath
0402 — 0426	RAF Leeming
* 0420	Coventry Conspicuity
0421 — 0427	Farnborough Radar
* 0427	RAF Leeming (Topcliffe) Conspicuity
* 0430	Hawarden Airport Conspicuity Code
0430 — 0437	Edinburgh Approach
0430 — 0446	Farnborough LARS West
0431 — 0446	Hawarden Approach
* 0440	This code may be used when flying in the vicinity of Edinburgh, operating outside of Edinburgh CTR/ Edinburgh CTA and monitoring Edinburgh Approach frequency (Refer to ENR 1.6, para 2.2.5)
0441 — 0443	Edinburgh Approach
* 0447	Farnborough LARS West (Blackbushe departures)
* 0450	Blackpool Basic Service Conspicuity
0450 — 0456	Farnborough LARS West
* 0451	Blackpool Procedural Service Conspicuity (See note 16)
* 0452	Morecambe Bay Helicopter Conspicuity

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
* 0453	Liverpool Bay Helicopter Conspicuity
0455	Ekofisk RMZ
* 0457	Farnborough LARS West (Fairoaks departures)
0460 — 0465	Farnborough LARS West
* 0466	Farnborough LARS West (Fairoaks Departures)
0467	Farnborough LARS West
0470 — 0477	Allocated to NATS as CCAMS redundancy
* 0500	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
0501 — 0577	Assigned by CCAMS
* 0600	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
0601 — 0637	Transit (ORCAM) Germany
0640 — 0677	Transit (ORCAM) Paris
* 0700	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
0701 — 0727	Transit (ORCAM) Maastricht
0730 — 0767	Assigned by CCAMS
0770 — 0777	Transit (ORCAM) Maastricht

Codes / Series	Controlling Authority / Function
1000	IFR GAT flights operating in designated Mode S Airspace
1001 — 1067	Transit (ORCAM) Spain
1070 — 1077	Assigned by CCAMS
* 1100	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
1101 — 1137	Transit (ORCAM) Germany
1140 — 1176	Assigned by CCAMS
* 1177	London Control (Swanwick) FIS (Refer to ENR 1.6, paragraph 2.2.2.2 and note 7)
* 1200	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
1201 — 1277	Channel Islands Domestic
* 1300	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
1301 — 1327	NATO - Air Policing (Air Defence Priority Flights) (See note 8)
1330 — 1377	Transit (ORCAM) Germany
* 1400	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
1401 — 1407	Irish CCAMS Contingency Codes
1410 — 1477	Assigned by CCAMS
* 1500 — 1577	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
* 1600 — 1677	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
* 1700 — 1727	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
1730 — 1744	Newquay Approach

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
1730 — 1746	Farnborough LARS East
* 1730 — 1767	RAF Spadeadam (See note 10)
1730 — 1776	RAF Coningsby
1745	Newquay Fixed-wing
1746	Newquay Helicopters
* 1747	Farnborough LARS East Conspicuity
* 1747	Newquay Conspicuity
1750 — 1757	Newquay Approach
1750 — 1757	Scatsta, Shetland
1760 — 1777	RNAS Yeovilton Fighter Control
* 1777	RAF Coningsby Conspicuity

Codes / Series	Controlling Authority / Function
* 2000	Aircraft from a non SSR environment, or on the aerodrome surface in accordance with Note 12
2001 — 2077	Assigned by CCAMS
* 2100	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
2101 — 2147	Transit (ORCAM) Amsterdam
2150 — 2177	Assigned by CCAMS
* 2200	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
2201 — 2277	Assigned by CCAMS
* 2300	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
2301 — 2377	Transit (ORCAM) France
* 2400 — 2477	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
* 2500	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
2501 — 2577	Transit (ORCAM) Germany
* 2600	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
2601 — 2617	Glasgow Approach
2601 — 2637	RAF Cranwell
2601 — 2645	MoD Boscombe Down
2601 — 2657	Irish Domestic Westbound departures and Eastbound arrivals
* 2620	This code may be used when flying in the vicinity of Glasgow, operating outside of Glasgow CTR/ Glasgow CTA and monitoring Glasgow Approach frequency (Refer to ENR 1.6 para 2.2.5)
2621 — 2630	Aberdeen (Sumburgh Approach)
2631 — 2637	Aberdeen (Northern North Sea Off-shore) (See note 3)
2640 — 2642	RAF Cranwell - Lincolnshire AIAA
2640 — 2657	Aberdeen (Northern North Sea Off-shore - Sumburgh Sector) (See note 3)
2643 — 2644	RAF Cranwell
* 2645	RAF Cranwell Conspicuity
2646 — 2647	RAF Cranwell
2646 — 2647	MoD Boscombe Down - UAS
* 2650	MoD Boscombe Down Conspicuity
2650 — 2653	Leeds Bradford Approach
2651 — 2657	MoD Boscombe Down
* 2654	Leeds Bradford Conspicuity
2655 — 2676	Leeds Bradford Approach

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
* 2660	Thrunxton conspicuity
2660 — 2677	Aberdeen (Northern North Sea Off-shore) (See note 3)
2661 — 2675	Middle Wallop
* 2676	Middle Wallop Conspicuity
2677	Middle Wallop Conspicuity
* 2677	This code may be used when flying in the vicinity of Leeds Bradford and monitoring the Leeds Bradford Radar Frequency (Refer to ENR 1.6, para 2.2.5)
* 2700	NATO - CAOC Uedem (activated by NOTAM via ASACS Force Command)
2701 — 2737	Assigned by CCAMS
2740 — 2777	Transit (ORCAM) Zurich

Codes / Series	Controlling Authority / Function
3000	NATO - Aircraft receiving a service from AEW aircraft
3001 — 3077	Transit (ORCAM) Zurich
3100	NATO - Aircraft receiving a service from AEW aircraft
3101 — 3127	Transit (ORCAM) Germany
3130 — 3177	Transit (ORCAM) Amsterdam
3200	NATO - Aircraft receiving a service from AEW aircraft
3201 — 3277	Transit (ORCAM) Turkey - may also be Assigned by CCAMS
3300	NATO - Aircraft receiving a service from AEW aircraft
3301 — 3303	Swanwick (Military) Special Tasks
3304 — 3306	Aircraft receiving a service from London D&D Cell
* 3307	D&D Conspicuity Training Fix
3310 — 3367	Swanwick (Military)
3370 — 3377	Allocated to NATS as CCAMS redundancy
3400	NATO - Aircraft receiving a service from AEW aircraft
3401 — 3477	Assigned by CCAMS
3500	NATO - Aircraft receiving a service from AEW aircraft
3501 — 3507	Transit (ORCAM) Luxembourg
3510 — 3537	Assigned by CCAMS
3540 — 3577	Transit (ORCAM) Berlin
3600	NATO - Aircraft receiving a service from AEW aircraft
3601 — 3623	RAF Benson
3601 — 3632	Scottish ATSOCA Purposes
3601 — 3634	RAF Waddington
3601 — 3647	Jersey Approach
3601 — 3657	Cardiff Approach
* 3624	RAF Benson Conspicuity
3625 — 3627	RAF Benson
* 3636	This code may be used when flying in the vicinity of Cardiff, operating outside of Cardiff CTR/Cardiff CTA and monitoring Cardiff Approach frequency (Refer to ENR 1.6, para 2.2.5)
* 3637	Wymcombe Air Park Conspicuity. Not to be used outside 20 NM from the airfield.
3640 — 3645	RAF Odiham
3640 — 3666	RAF Marham

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
3640 — 3677	Aberdeen (Northern North Sea Off-shore) (See note 3)
3641 — 3647	BAE Systems Warton
* 3646	RAF Odiham Conspicuity
3646 — 3657	Cardiff Approach
3647 — 3653	RAF Odiham
* 3650	BAE Systems Warton Conspicuity
3651 — 3657	BAE Systems Warton
* 3660	This code may be used when flying in the vicinity of Warton Aerodrome and monitoring Warton Radar frequency (Refer to ENR 1.6, para 2.2.5)
3660 — 3665	Solent Approach (Southampton)
3661 — 3677	BAE Systems Warton
* 3666	Solent Radar Conspicuity
* 3667	RAF Marham - FIS Conspicuity
3667 — 3677	Solent Approach (Southampton)
3700	NATO - Aircraft receiving a service from AEW aircraft
3701 — 3710	Norwich Approach
* 3701 — 3717	Military aircraft under service from RN AEW aircraft in South West Approaches
3701 — 3736	RAF Brize Norton
3701 — 3747	Guernsey Approach
3701 — 3767	RAF Lossiemouth
3720 — 3727	RAF Valley RAF Wittering Approach/Director
3720 — 3766	Newcastle Approach
* 3727	This code may be used when flying in the vicinity of RAF Brize Norton, operating outside of Brize Norton CTR and monitoring Brize Norton LARS frequency (Refer to ENR 1.6, paragraph 2.2.5)
3730 — 3736	RAF Valley
3730 — 3747	RAF Wittering Tutor Operations
* 3737	RAF Valley - Visual Recovery RAF Brize Norton Approach Conspicuity
* 3737	This code may be used when flying in the vicinity of Newcastle, operating outside of Newcastle CTR and Newcastle CTA and monitoring Newcastle Approach frequency (Refer to ENR 1.6, para 2.2.5)
3740 — 3745	RAF Brize Norton
3740 — 3747	RAF Valley
* 3750	RAF Wittering Zone Conspicuity (Basic Service)
3750 — 3751	RAF Valley GH
3750 — 3761	TC Gatwick
3751 — 3757	RAF Wittering Zone Transits
3752	RAF Valley - RIFA
* 3753	RAF Valley - Low Level Helicopters
* 3754	RAF Valley - Special Tasks
3755	RAF Valley Radar Practice Force Landing (RPFL)
3756	RAF Valley Straight In Practice Force Landing (SIPFL)
3757	RAF Valley Rotary at RAF Mona
3760	RAF Wittering
3760 — 3765	RAF Valley GH
3761	RAF Wittering – Cranwell/Wittering/Cranwell VFR Transit
* 3762	Shoreham ATS IFR
3762	RAF Wittering
* 3763	Shoreham ATS VFR
3764 — 3766	Gatwick Tower
* 3767	Redhill Approach Conspicuity
* 3767	Newcastle Approach Conspicuity
3770 — 3777	Western Radar

Codes / Series	Controlling Authority / Function
4000	NATO - Aircraft receiving a service from AEW aircraft

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
4001 — 4077	Transit (ORCAM) France
4100	NATO - Aircraft receiving a service from AEW aircraft
4101 — 4177	Transit (ORCAM) Germany
4200	NATO - Aircraft receiving a service from AEW aircraft
4201 — 4214	Assigned by CAA
4215 — 4247	Assigned by CCAMS
4250 — 4257	Belfast City Approach
4250 — 4267	Aberdeen Approach
4250 — 4277	Humberside Approach
* 4255	This code may be used when flying in the vicinity of Belfast/City, operating outside of Belfast/City CTR/ Belfast TMA and monitoring Belfast/City Approach frequency (Refer to ENR 1.6, para 2.2.5)
4300	NATO - Aircraft receiving a service from AEW aircraft
4301 — 4305	Assigned by CAA
* 4306	Lee-on-Solent Conspicuity
4307 — 4317	London Control Non-Standard Flights
4320 — 4327	Ireland Domestic RNAS Yeovilton
4330 — 4337	UK Domestic (Prestwick Centre Special Sector Codes)
4340 — 4353	UK Domestic (Scottish Special Sector Codes)
* 4354 — 4356	Westland Helicopters Yeovil
4357	Ireland Domestic
* 4357	RNAS Yeovilton Conspicuity
* 4360 — 4361	Coventry Airport Conspicuity
4360 — 4361	Oil Survey Helicopters - Faeroes/Iceland Gap
* 4360 — 4367	Westland Helicopters Yeovil
4360 — 4367	RAF Northolt
4370 — 4377	Anglia Radar
	Ireland Domestic
	RNAS Yeovilton
4400	NATO - Aircraft receiving a service from AEW aircraft
4401 — 4427	Transit (ORCAM) Brussels
4430 — 4477	Assigned by CCAMS
4500	NATO - Aircraft receiving a service from AEW aircraft
* 4501	Lands End GNSS Approach (See note 17)
* 4501	Wattisham Conspicuity
4501 — 4505	RAF Linton-on-Ouse
4501 — 4516	Oxford Approach
4501 — 4517	Prestwick Approach
4502 — 4547	Wattisham Approach
* 4506	RAF Linton-on-Ouse Conspicuity
4507 — 4527	RAF Linton-on-Ouse
* 4517	This code may be used when flying in the vicinity of Oxford Airport and monitoring Oxford Approach frequency (Refer to ENR 1.6, para 2.2.5)
* 4520	Prestwick Conspicuity
* 4520	Oxford Approach Basic Service
* 4521 — 4527	West Wales Radar (NQY)
* 4530	RAF Linton-on-Ouse Conspicuity

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
* 4530	MoD Aberporth Conspicuity
4530 — 4546	Plymouth (Military) Radar
4531 — 4537	RAF Linton-on-Ouse
4531 — 4537	MoD Aberporth
* 4540	RAF Linton-on-Ouse Conspicuity
* 4540 — 4542	MoD Aberporth (See note 13)
4541 — 4547	RAF Linton-on-Ouse
* 4543	West Wales Airport UAS Conspicuity Code. Shall only be selected with AFIS direction.
* 4547	Plymouth (Military) Radar conspicuity
4550 — 4567	Plymouth (Military) Radar
4550 — 4567	Isle of Man
4550 — 4570	East Midlands Radar
* 4571	East Midlands LARS Basic Service Conspicuity
* 4572	Aircraft operating outside of East Midlands Controlled Airspace/Zone and monitoring East Midlands Radar frequency (Refer to ENR 1.6, paragraph 2.2.5)
* 4572	Farnborough LARS West Frequency Monitoring Code (Refer to ENR 1.6, paragraph 2.2.5)
* 4573	Costock Helicopters operating inside East Midlands CTR - Conspicuity
* 4574	Not currently allocated for use in the UK FIR
* 4575	RAF Leeming/RAF Linton-on-Ouse (See note 4)
	Southend Airport Conspicuity
* 4576	RAF Colerne Conspicuity (See note 6)
* 4576	Vale of York AIAA Conspicuity
4577	Vale of York AIAA Conspicuity
4600	NATO - Aircraft receiving a service from AEW aircraft
* 4601	MoD Ops in Salisbury Plain Training Area (See note 14)
4602 — 4607	Anglia Radar
* 4607	This code may be used when flying in the vicinity of Hawarden and monitoring the Hawarden Radar Frequency (Refer to ENR 1.6 para 2.2.5)
4610 — 4667	Assigned by CCAMS
4670 — 4676	TC Stansted/TC Luton
* 4677	Carlisle Airport Conspicuity Luton Airport Tower Conspicuity
4700	NATO - Aircraft receiving a service from AEW aircraft
4701 — 4777	Assigned by CCAMS

Codes / Series	Controlling Authority / Function
5000	NATO - Aircraft receiving a service from AEW aircraft
5001 — 5012	London Control Non-Standard Flights
5013 — 5017	Assigned by CCAMS
5020 — 5036	Farnborough LARS North
* 5037	Farnborough LARS North Conspicuity
5040 — 5047	Assigned by CAA
* 5050	Liverpool Conspicuity
* 5050	This code may be used when flying in the vicinity of Southend and monitoring Southend Approach Frequency (Refer to ENR 1.6, para 2.2.5)
5050 — 5067	Bristol Approach Southend Approach
5051 — 5067	Liverpool Airport
* 5060	This code may be used when flying in the vicinity of Liverpool and monitoring the Liverpool Radar Frequency (Refer to ENR 1.6, para 2.2.5)
* 5070	Bristol VFR Conspicuity
* 5070 — 5071	RAF Syerston Conspicuity
5071 — 5076	Bristol Approach

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
* 5077	This code may be used when flying in the vicinity of Bristol Airport, operating outside of Bristol CTR/ Bristol CTA and monitoring Bristol Radar frequency (Refer to ENR 1.6, para 2.2.5)
5100	NATO - Aircraft receiving a service from AEW aircraft
5101 — 5177	CRC Boulmer
5200	NATO - Aircraft receiving a service from AEW aircraft
5201 — 5270	Assigned by CCAMS
5271 — 5277	Transit (ORCAM) Channel Islands
5300	NATO - Aircraft receiving a service from AEW aircraft
5301 — 5377	Transit (ORCAM) Barcelona
5400	NATO - Aircraft receiving a service from AEW aircraft
5401 — 5477	Assigned by CCAMS
5500	NATO - Aircraft receiving a service from AEW aircraft
5501 — 5577	Transit (ORCAM) Barcelona
5600	NATO - Aircraft receiving a service from AEW aircraft
5601 — 5647	Transit (ORCAM) Paris
5650 — 5657	Transit (ORCAM) Luxembourg
5660 — 5664	Allocated to NATS as CCAMS redundancy
5665 — 5676	Assigned by CCAMS
5677	Medical emergency in France
5700	NATO - Aircraft receiving a service from AEW aircraft
5701 — 5777	Transit (ORCAM) Geneva

Codes / Series	Controlling Authority / Function
* 6000	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
* 6001 — 6037	Special Events (Activated by NOTAM)
6040 — 6077	Swanwick (Military)
* 6100	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6101 — 6157	Swanwick (Military)
* 6160	Doncaster Sheffield Conspicuity
6160 — 6176	Inverness Approach
6160 — 6176	Cambridge Approach
6160 — 6177	Plymouth (Military) Radar
6161 — 6167	Doncaster Sheffield Approach
* 6170	This code may be used when flying in the vicinity of Doncaster Sheffield, operating outside of Doncaster Sheffield CTR/Doncaster Sheffield CTA and monitoring Doncaster Sheffield Radar frequency (Refer to ENR 1.6, para 2.2.5)
6171 — 6177	Doncaster Sheffield Approach
* 6177	Cambridge Conspicuity
* 6177	Inverness Conspicuity
* 6200	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
6201 — 6257	Assigned by CCAMS
6260 — 6277	Transit (ORCAM) Amsterdam
* 6300	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6301 — 6377	Assigned by CCAMS
* 6400	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6401 — 6457	Swanwick (Military) Radar
6460 — 6467	Assigned by CCAMS – Not in use in the UK as these codes cause conflicts with France
6470 — 6477	Allocated to NATS as CCAMS redundancy
* 6500	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6501 — 6577	CRC Scampton
* 6600	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6601 — 6677	Transit (ORCAM) Germany
* 6700	NATO - CAOC Udem (activated by NOTAM via ASACS Force Command)
6701 — 6777	Transit (ORCAM) France

Codes / Series	Controlling Authority / Function
* 7000	General conspicuity code (Refer to ENR 1.6, paragraph 2.2.2.2)
* 7001	Military Fixed-wing Low Level Conspicuity/ Climb-out (Refer to ENR 1.6, paragraph 2.2.2.2)
* 7002	Danger Areas General
* 7003	Red Arrows Transit/Display
* 7004	Conspicuity Aerobatics and Display (Refer to ENR 1.6, paragraph 2.2.2.2)
* 7005	High-Energy Manoeuvres
* 7006	Autonomous Operations within TRA and TRA (G) (Refer to ENR 1.6, paragraph 2.2.2.2)
7007	Open Skies Observation Aircraft
* 7010	Operating in Aerodrome Traffic Pattern (Refer to ENR 1.6, paragraph 2.2.2.2)
* 7011	This code may be used when flying in the vicinity of Southampton Airport and monitoring Solent Radar frequency (Refer to ENR 1.6, paragraph 2.2.5)
* 7012	This code may be used when flying in the vicinity of London Gatwick and monitoring London Gatwick Radar frequency (Refer to ENR 1.6, para 2.2.5)
* 7013	This code may be used when flying in the vicinity of Stansted and monitoring Essex Radar frequency (Refer to ENR 1.6, para 2.2.5)
7014 — 7017	Allocated to NATS as CCAMS redundancy
7020 — 7027	Assigned by CCAMS
* 7030	RNAS Cudrose Conspicuity
7030 — 7044	Aldergrove Approach
7030 — 7046	TC Thames/TC Heathrow
7030 — 7066	Durham Tees Valley Airport
7030 — 7077	Aberdeen (Northern North Sea Off-shore) (See note 3)
7031 — 7077	RNAS Cudrose
* 7045	This code may be used when flying in the vicinity of Belfast/Aldergrove, operating outside of Belfast/Aldergrove CTR/Belfast TMA and monitoring Belfast/Aldergrove Approach frequency (Refer to ENR 1.6, para 2.2.5)
7046 — 7047	Aldergrove Approach
* 7047	TC Thames (Biggin Hill Airport Conspicuity) RNAS Cudrose Conspicuity
7050 — 7056	TC Thames/TC Heathrow
* 7057	TC Thames (London City Airport Conspicuity)
* 7066	Lydd Approach VFR
* 7067	Durham Tees Valley Airport Conspicuity Lydd Approach IFR

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Codes / Series	Controlling Authority / Function
7070 — 7076	TC Thames/TC Heathrow
* 7077	TC Thames (London Heliport Conspicuity)
* 7100	SSR Code Saturation
7101 — 7167	Transit (ORCAM) Brussels
7170 — 7177	Transit (ORCAM) Luxembourg
* 7200	RN Ships Conspicuity
7201 — 7267	Allocated to NATS as CCAMS redundancy
7270 — 7277	Assigned by CCAMS
* 7300	MPA/DEFRA/Fishery Protection/METMAN (Civil Contingency) Conspicuity
7301 — 7327	Assigned by CCAMS
7330 — 7347	Transit (ORCAM) Netherlands
* 7350	Norwich Approach Conspicuity
7350 — 7353	RNAS Culdrose
7350 — 7361	MoD Ops in EG D701 (Hebrides)
7350 — 7364	Manchester Approach
7350 — 7376	Bournemouth Approach/LARS
7351 — 7377	Norwich Approach
* 7354 — 7355	RNAS Culdrose Conspicuity
7356	RNAS Culdrose
* 7357	RNAS Culdrose Conspicuity
7360 — 7367	RNAS Culdrose
* 7362	MoD Ops in EG D702 (Fort George)
* 7365	Manchester Barton Conspicuity
* 7366	This code may be used when flying in the vicinity of Manchester Airport and monitoring Manchester Radar frequency (Refer to ENR 1.6, paragraph 2.2.5)
7367 — 7373	Manchester Approach
* 7374	Dundee Airport IFR Procedural Approach
* 7375	Manchester TMA and Woodvale Local Area (Woodvale UAS Conspicuity)
* 7376	Dundee Airport VFR Conspicuity
* 7377	Bournemouth Radar Conspicuity
* 7400	UAS/RPA Lost Link (See note 15)
* 7401	Scottish FIS (Refer to ENR 1.6, paragraph 2.2.2.2)
* 7402	RAF Leuchars Conspicuity
7402 — 7414	TC Stansted/TC Luton
7402 — 7417	RAF Shawbury
7402 — 7436	RNAS Yeovilton
7402 — 7437	Anglia Radar
7403 — 7427	RAF Leuchars
* 7417	Cranfield Airport - IFR Conspicuity Purposes
* 7420	RAF Shawbury Conspicuity
7421 — 7425	RAF Shawbury
* 7426	RAF Shawbury Conspicuity
* 7427	RAF Shawbury
7428 — 7437	RAF Shawbury
* 7437	RNAS Yeovilton Conspicuity
7440 — 7477	Transit (ORCAM) France
* 7500	Special Purpose Code - Hi-Jacking

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Codes / Series	Controlling Authority / Function
7501 — 7507	Assigned by CCAMS
7510 — 7535	Transit (ORCAM) Switzerland
7536 — 7537	Assigned by CCAMS
7540 — 7547	Transit (ORCAM) Germany
7550 — 7567	Transit (ORCAM) Paris
7570 — 7577	Assigned by CCAMS
* 7600	Special Purpose Code - Radio Failure
7601 — 7617	Allocated to NATS as CCAMS Redundancy (Prestwick Upper)
7620 — 7677	Assigned by CCAMS
* 7700	Special Purpose Code - Emergency
7701 — 7775	Assigned by CCAMS
* 7776 — 7777	SSR Monitors (Refer to ENR 1.6, paragraph 2.2.4)

2.7 Centralised Code Assignment and Management System (CCAMS)

- 2.7.1 The UK is part of the Centralised Code Assignment and Management System (CCAMS). CCAMS optimises the efficiency of European SSR code management by centrally selecting a SSR Mode A code for each flight based on its area of applicability and distributing it to the appropriate ATS unit. The Originating Region Code Assignment Method (ORCAM) will continue to be used by those nations which are not participating in CCAMS for international flights. For participating nations CCAMS will allocate ORCAM compatible codes.
- 2.7.2 To mitigate against the risk of CCAMS failure or in the event of a potential confliction with a CCAMS allocated code, states are allocated blocks of codes that can be used in place of CCAMS if necessary. In the UK, these blocks of codes are managed by NATS and are articulated in Section 2.6 as "Allocated to NATS as CCAMS redundancy".

3 Automatic Dependent Surveillance - Broadcast (ADS-B)

- 3.1 To be developed.

4 Other Relevant Information and Procedures

4.1 Lower Airspace Radar Service (LARS)

4.1.1 Availability of Service

- 4.1.1.1 The service is available to all aircraft flying outside Controlled Airspace up to FL 100, within the limits of radar/radio cover. The service will be provided within approximately 30 NM of each participating ATS Unit. Unless a participating ATS Unit is H24, the service will normally be available between Winter 0800 and 1700, Summer 0700 and 1600, Mondays to Fridays. However, as some participating Units may remain open to serve evening, night or weekend flying, pilots are recommended to call for the service irrespective of the published hours of ATS. If no reply is received after three consecutive calls, it should be assumed that the service is not available.

- 4.1.1.2 LARS will not normally be available from non-H24 Units at weekends and during public holidays.

- 4.1.1.3 Pilots intending to operate at or above FL 100 may be advised to contact an appropriate ATCRU and request a Deconfliction Service or a Traffic Service. However, as VHF frequencies at Military ATCRUs are not continuously monitored, unless in use, civil pilots may ask controllers to arrange a frequency on which to call the appropriate Unit.

4.1.2 Description of Service

- 4.1.2.1 The service provided will be a Deconfliction Service or Traffic Service as detailed at ENR 1.1, subsection 2 (UK Flight Information Service).

4.1.3 Procedures

- 4.1.3.1 Pilots intending to use the Lower Airspace Radar Service should note the participating ATS Units close to their intended track and establish two-way RTF communication on the appropriate frequency using the phraseology: '. . . . (Participating ATS Unit), (Aircraft callsign), request (Basic/Traffic/Deconfliction Service)'. Pilots may be asked to 'stand-by'. When asked to pass your

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

message, pilots should pass the following information:

- a) Callsign and type of aircraft;
- b) departure aerodrome;
- c) destination aerodrome;
- d) present position;
- e) level;
- f) additional details/intentions as necessary (next route point, squawk code).

4.1.3.2 Aircraft will be identified and pilots so informed before radar service is given.

4.1.3.3 Under a Deconfliction Service or Traffic Service, participating LARS aircraft will be given the service in accordance with ENR 1.1, subsection 2 (UK Flight Information Service).

4.1.3.4 Whenever possible, aircraft will be handed over from controller to controller in an area of overlapping radar cover and pilots told to 'Contact' the next Unit. When this cannot be effected, pilots will be informed of their position and advised which Unit to call for further service.

4.1.3.5 If a pilot wishes to enter regulated airspace, even though he may be in receipt of a LARS beforehand, he remains responsible for obtaining the required clearances before entry. LARS Controllers may assist in obtaining clearance, if workload permits, but pilots must be prepared to carry out this task independently.

4.1.4 **Terrain Clearance**

4.1.4.1 Terrain clearance will be the responsibility of pilots. However, LARS Units will set a level or levels below which a Deconfliction Service is to be refused or terminated.

4.1.5 **Advice to Pilots**

4.1.5.1 The provision of LARS is at the discretion of the controllers concerned because they may be fully engaged in their primary tasks. Therefore, occasionally, the service may not be available.

4.1.5.2 **Farnborough and Boscombe Down Service Limitations**

4.1.5.2.1 Due to periodic traffic congestion and high ATC workload, traffic information provided under a Deconfliction or Traffic Service (ENR 1.6, paragraph 1.2) may be limited by the following ATS Units:

- a) **Farnborough** - Limited Traffic Service - At all altitudes/Flight Levels. Aircraft inbound to Farnborough should contact Farnborough Approach on 134.355 MHz. On weekdays (excluding PHs) LARS/MATZ service is not normally available on 125.250 MHz after 2000 hrs (one hour earlier in summer). Traffic inbound to Odiham should contact Odiham Approach on 131.300 MHz;
- b) **Boscombe Down** - Limited Traffic Service - At and below FL 40. Subject to ATC workload, pilots, will be informed of any limitations to Deconfliction Service and standard separation will be provided whenever possible.

4.1.5.3 **Warton Service Limitations**

4.1.5.3.1 Warton PSR is suppressed in certain sectors to mitigate interference from ground clutter and wind turbines. Pilots will be advised of reduced service by Warton Radar.

4.1.5.4 **Cardiff Radar Service Limitations**

4.1.5.4.1 Due to limits of surveillance cover, a LARS may not be available below altitude 3000 FT. Pilots will be advised if LARS is not available and an alternative ATS may be offered.

4.1.6 **ATS Units Participating in the Lower Airspace Radar**

Unit	Position	Frequency To Be Used (MHz)	Service Radius (NM)	Availability/ Remarks
Boscombe Down	510912N 0014504W	126.700	30	Mon-Thu 0830-1700 (0730-1600), Fri 0830-1630 (0730-1530). Opening hours may vary subject to operational flying requirements.
Bournemouth	504648N 0015033W	119.475	30	0800-2000 (0700-1900).
Brize Norton	514500N 0013500W	124.275	40	0900-1700 (0800-1600).
Cardiff	512348N 0032036W	119.150	40	0600-2300 (0500-2200).
Coningsby	530535N 0000958W	119.200	30	Mon-Fri 0800-1700 (0700-1600).
Culdrose	500507N 0051515W	134.050	30	Mon-Thu 0830-1700 (0730-1600), Fri 0830-1400 (0730-1300).

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Unit	Position	Frequency To Be Used (MHz)	Service Radius (NM)	Availability/ Remarks
Durham Tees Valley	543033N 0012546W	118.850	40	0800-1800 (0700-1700).
East Midlands	524952N 0011940W	134.180	30	H24.
Exeter	504404N 0032450W	128.975	30	Mon-Fri 0630-0230 (0500-0200), Sat 0600-2100 (0500-0200), Sun 0600-2200 (0500-0200).
Farnborough (West)	511633N 0004635W	125.250	See ENR 6-1-6-3	0800-2000 (0700-1900). See paragraph 4.1.7.
Farnborough (East)	511633N 0004635W	123.225		
Farnborough (North)	511633N 0004635W	132.800		
Humberside	533428N 0002103W	119.130	30	0630-2115 (0530-2015).
Leeming	541733N 0013207W	133.375	30	Mon-Thu 0800-1800 (0700-1700), Fri 0800-1700 (0700-1600).
Leuchars	562229N 0025140W	126.500	40	0900-1700 (0800-1600).
Linton-on-Ouse	540258N 0011513W	118.550	30	Mon-Thu 0730-1715 (0630-1615), Fri 0730-1700 (0630-1600).
Lossiemouth	574225N 0032015W	119.575	40	Mon-Fri 0900-1700 (0800-1600).
Marham	523854N 0003302E	124.150	30	Mon-Thu 0800-2359 (0700-2300), Fri 0800-1800 (0700-1700).
Newcastle	550217N 0014123W	124.380	40	H24.
Newquay	502627N 0045943W	133.405	60	0730-2130 (0630-2030).
Norwich	524033N 0011658E	119.355	30	0630-2130 (0530-2030).
Plymouth Military (West)	501900N 0040700W	121.250	40	Mon-Thu 0800-1700 (0700-1600), Fri 0800-1400 (0700-1300).
Plymouth Military (East)	503405N 0022659W	124.150	40	The East and West LARS areas are divided at the western edge of Berry Head CTA 1, 3 & 5.
Shawbury	524737N 0024004W	133.150	40	Mon-Fri 0830-1700 (0730-1630).
Southend	513417N 0004144E	130.780	25	0900-1800 (0800-1700).
Valley	531450N 0043201W	125.225	40	Mon-Thu 0800-1800 (0700-1700), Fri 0800-1700 (0700-1600).
Waddington	530958N 0003126W	119.500	30	Mon-Thu 0800-2000 (0700-1900), Fri 0800-1800 (0700-1700), Sat & Sun 1000-1700 (0900-1600).
Warton	534442N 0025300W	129.530	40	Mon-Thu 0730-1900 (0630-1800), Fri 0730-1700 (0630-1600).
Yeovilton	510029N 0023845W	127.350	30	Mon-Thu 0830-1600; Fri 0830-1300.

4.1.7 Farnborough LARS

4.1.7.1 The co-ordinates of the Farnborough Radar Sectors are detailed below. The boundaries shown purely indicate the extent of the available service and DOES NOT infer that Farnborough LARS will be the controlling Authority for the crossing of either CAS or Military ATZs.

a) LARS North

520742N 0001825W - 520729N 0000708W - 520755N 0000723E - 520457N 0002608E - 520157N 0003808E - 515031N 0004700E - 514654N 0003118E - 513759N 0001801E - 513421N 0001707E - 513534N 0001246E - 513612N 0002639W - 513611N 0004133W - 514401N 0010541W thence clockwise by the arc of a circle radius 30 NM centred on 511631N 0004639W (Farnborough ARP) to 514550N 0005638W - 515411N 0004452W - 520742N 0001825W.

b) LARS East

511814N 0003550E - 505613N 0003110E - 504354N 0001455E - 504325N 0003247W - 504846N 0003247W - 510054N 0002700W - 511030N 0002352W thence clockwise by the arc of a circle radius 8 NM centred on 510853N 0001125W to 511118N 0002332W - 511242N 0001323W - 512013N 0001255W - 513611N 0001253W - 513534N 0001246E - 513421N 0001707E - 511833N 0002531E - 511814N 0003550E

c) LARS West

514401N 0010541W - 513611N 0004133W - 513612N 0002639W - 513611N 0001253W - 512013N 0001255W - 511242N 0001323W - 511118N 0002332W thence an arc radius 8 NM centred on 510853N 0001125W to 511030N 0002352W - 510054N 0002700W - 504846N 0003247W - 504325N 0003247W - 504313N 0004727W - 504957N 0010837W thence an arc 30 NM radius centred on 511631N 0004639W (Farnborough ARP) to 514401N 0010541W.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)**4.2 Radar Service - FL 100 and Above (Outside CAS)****4.2.1 Availability of Service**

- 4.2.1.1 This service is available to all aircraft flying outside Controlled Airspace in the UK FIRs between FL 100 and FL 190, and within active TRAs, except for flight within the Sumburgh FISA. This service is subject to Unit capacity.
- 4.2.1.2 The military Units providing this service together with their boundaries are depicted on the chart at ENR 6-1-6-4. The table below shows their hours of operation, the RTF operating frequency on which this service is normally provided and a telephone number for pre-flight contact.

Unit and Callsign	Operating Hours	Initial Contact Frequency (ICF)	Telephone Number
RAF(U) Swanwick (Swanwick Mil)	H24	North West Sector 134.300 MHz, North Sector 136.375 MHz, North East Sector 135.075 MHz, East Sector 133.325 MHz, Central Sector 128.700 MHz, West Sector (Northern) 127.450 MHz, West Sector (Southern) 133.900 MHz & South West Sector 135.150 MHz.	01489-612417 01489-612408 01489-612943
Western Radar	0630-2015 (Summer 1hr earlier)	132.300 MHz	01489-445560 01489-585500

- 4.2.1.3 Participating aircraft must be equipped with a serviceable transponder.

4.2.2 Type of Service

- 4.2.2.1 The service provided will be a Deconfliction Service or Traffic Service (See ENR 1.1.2).

4.2.3 Procedures

- 4.2.3.1 In order to comply with the requirements of the FPPS at RAF(U) Swanwick, captains of aircraft requiring a radar service in the Upper or Lower Airspace within the Swanwick(Mil) area of responsibility are to pre-notify their intended flight details to Swanwick(Mil) by one of the following methods:

- a) Pre-flight Notification - Flight Plans. As the preferred method of notification flight plans (F2919/CA48) should be submitted as far in advance of ETD as possible and in any case not less than 30 minutes before service is required. The Swanwick(Mil) signals address - EGZYOATT - must be included on the flight plan. When appropriate these additions to the standard flight plan format must also be included:
 - i. Item 18. The point and the time at which a radar service is required to commence;
 - ii. Item 15. The point of entry into the area and the point of exit.

Note: Item 15. If a flight is planned to enter any Controlled Airspace (CAS) within the Swanwick(Mil) area of responsibility and a service is required before joining or after leaving CAS, both parts of the route may be entered in Item 15 of the same flight plan. In this case both IFPS - EGZYIFPS - and Swanwick(Mil) EGZYOATT must appear as addressees.

- b) Pre-Flight Notification - Military Prenote. When it has not been possible to file a flight plan, as sub-paragraph (a), relevant details of the intended flight should be telephoned by the pilot or by his aerodrome operations or ATC to Swanwick(Mil), Main Flight Plan Reception Section, (ATOTN Telephone Ext 6710) at least 15 minutes before service is required. Flight details should be passed in this order:
 - i. Callsign;
 - ii. number of aircraft (if more than 1) and aircraft type(s);
 - iii. position and time at which service is required to commence;
 - iv. speed and flight level at commencement of service;
 - v. route (including any required speed or level changes);
 - vi. position of leaving the delineated area (if applicable); and
 - vii. destination (ICAO Location Indicator).
- c) In-Flight Notification (Air Filing). Exceptionally, when neither form of pre-flight notification has been made the flight details listed in sub-paragraph (b) above, may be notified in flight (Air Filed) by radio to:
 - i. ATCRU. Airfile with the ATCRU, currently providing a service for onward transmission by them to Swanwick(Mil) at least 15 minutes in advance of service being required;
 - ii. Swanwick(Mil). Request radar service by calling Swanwick(Mil) on the appropriate (ICF), at least 5 minutes before service is required passing the details listed in sub-paragraph (b) above.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

- d) In order to comply with the requirements of the FPPS for Western Radar, pilots and operators of aircraft leaving or joining Controlled Airspace within the Western Radar Area of Operation, who wish to receive an ATS from Western Radar are advised to file all flight plans (CA48) to both EUCZMFP and EUCBZMFP not less than 30 minutes before the ATS is required.

The flight plan should include the following information:

- i. Item 18. The point and time at which a UK FIS radar service will be required within the Western Radar Area of Operation.
- ii. Item 15. The point of entry into and exit from the Western Radar Area of Operation.

Note: An ATS is available to aircraft entering or leaving CAS within the Western Radar Area of Operation; therefore, to secure an ATS, Flight Plan Item 15 is to be fully completed.

4.2.3.1.1 Changes to Flight Details

- a) Pre-Flight Notification. Changes to pre-flight notifications are to be passed to Swanwick(Mil) as soon as possible by:
- i. Amended flight plan if time permits (as in paragraph 4.2.3.1 (a)); otherwise
 - ii. by telephone (as in paragraph 4.2.3.1 (b)).
- b) In-Flight Notification (Air Filing). By RTF as soon as possible (as in paragraph 4.2.3.1 (c)).

4.3 (Former) Pennine Radar Area of Responsibility

4.3.1 Area of Responsibility

- 4.3.1.1 Provision of ATS outside of controlled airspace within the area defined below is a NATS licensed task which is provided, subject to unit workload, by Swanwick(Mil):

- a) 550000N 0015420W - 550000N 004444W - 534153N 0002245E - 534134N 0010443W - 534007N 0011937W - 535348N 0013100W - 535955N 0014027W - 540236N 0014900W - 535557N 0020827W - 541113N 0021858W - 541201N 0021700W - 545127N 0023916W - 550000N 0015420W.
- b) But excluding:
- i. Aerodrome Traffic Zones (ATZ);
 - ii. Danger Areas;
 - iii. Managed Danger Areas (MDA) (when promulgated as active);
 - iv. Newcastle CTR/CTA;
 - v. Durham Tees Valley CTR/CTA

- 4.3.1.2 Vertical limits between FL 55 and FL 195. Deconfliction Service will not be provided below 4000 FT Regional Pressure Setting (RPS). Exceptionally, a Traffic Service may be provided below 4000 FT RPS, however, radar vectors will not be provided. (If there are high traffic levels in the Vale of York AIAA this may preclude standard separation from being maintained and a Traffic Service or a re-route may be offered).

- 4.3.1.3 Core operating hours are Mon-Fri 0700-2030 (Summer 1hr earlier). However, outside of these hours a service may still be provided H24 subject to unit capacity.

- 4.3.1.4 Other ATSUs providing a radar service, within the Area of Responsibility, are:

- a) Lower Airspace Radar Service (LARS) areas of Warton, Durham Tees Valley, Newcastle, Leeming, Linton-on-Ouse and Humberside;
- b) Anglia Radar Area of Responsibility (ENR 6-1-15-3).

4.3.2 Flight Plan Requirements

- 4.3.2.1 Pilots wishing to receive an ATS from Swanwick(Mil) within the Former Pennine Radar Area are to include within their Flight Plan the Swanwick(Mil) address EGZYOATT, in addition to any other IFPS address requirements. This requirement also applies to aircraft wishing to join or leave L602 at ERKIT routing in or outbound from EGNT or EGNV. Failure to address Flight Plans to Swanwick(Mil) may result in the refusal of service.

4.3.3 Radio Communication

- 4.3.3.1 Pilots receiving a service who wish to leave the frequency temporarily (for example to listen to VOLMET), and as a result will be unable to maintain two-way communication, must inform the controlling unit (ordinarily Swanwick(Mil)) of their intentions to leave the frequency and also of their return to it.

- 4.3.3.2 The Initial Contact Frequency for Swanwick(Mil) is 135.075 MHz.

- 4.3.3.3 If radio communication is lost, attempts should be made to establish contact with either Newcastle, Durham Tees Valley, London or Scottish Control as appropriate to the planned route.

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4.3.3.4 If complete radio failure occurs, pilots should follow the standard radio failure procedure detailed at ENR 1.1, paragraph 3.4.

4.4 Western Radar Area of Operation**4.4.1 Area of Operation**

4.4.1.1 Provision of ATS outside of controlled airspace within the area defined below is a NATS licensed task provided on a full-time basis by Swanwick(Mil) and by Western Radar depending on the time of day and the flight profile.

- a) 492840N 0045516W - 493146N 0060840W - 510000N 0080000W - 522000N 0053000W - 524406N 0053000W - 525704N 0053000W - 524318N 0050508W - 525038N 0045358W - 531042N 0053000W - 531500N 0053000W - 532315N 0051017W - 532019N 0033502W - 531855N 0031650W - 530313N 0024434W - 521902N 0014707W - 513536N 0012124W - 511623N 0012049W - 510122N 0012720W - 504944N 0013439W - 495813N 0020959W - 495427N 0023012W - 492840N 0045516W.
- b) But excluding:
 - i. Danger Areas*;
 - ii. Managed Danger Areas (MDA)(when promulgated as active)*;
 - iii. North Wales MTA;
 - iv. Cardiff CTR/CTA*;
 - v. Bristol CTR/CTA*.

*Note: * Western Radar may be able to obtain crossing clearance from the appropriate agency.*

4.4.2 Vertical limits between FL 100 and FL 195 (FL 245 within active TRAs). The service from Western Radar is intended for (although not exclusively restricted to) aircraft wishing to join or leave Controlled Airspace within the Area of Operation.

4.4.3 Western Radar core operating hours are daily 0630-2015 (Summer 1hr earlier). Swanwick(Mil) will continue to provide an ATS on a full-time basis subject to unit workload.

4.4.4 Other ATSU's providing a radar service, within the Area of Operation, are:

- a) Lower Airspace Radar Service (LARS) areas of Boscombe Down, Bournemouth, Brize Norton, Cardiff, Culdrose, Exeter, Farnborough North/West, Newquay, Plymouth Military, Shawbury, Valley and Yeovilton;
- b) Swanwick(Mil);
- c) Solent Radar.

4.4.5 Flight Plan Requirements

4.4.5.1 Pilots wishing to receive an ATS from Western Radar are to include within their Flight Plan the Western Radar address EGTTFZFB in addition to any other IFPS address requirements. Failure to address Flight Plans to Western Radar may result in the refusal of service.

4.4.6 Radio Communication

4.4.6.1 Pilots receiving a service who wish to leave the frequency temporarily (for instance to listen to VOLMET), and as a result will be unable to maintain two-way communication, must inform the controlling authority of their intentions to leave the frequency and also of their return to it.

4.4.6.2 The primary frequency for Western Radar is 132.300 MHz.

4.4.6.3 If radio communication is lost, attempts should be made to establish contact with either Swanwick(Mil), Newquay, Exeter, Bournemouth, Brize Norton, London Control or Scottish Control as appropriate to the planned route.

4.4.6.4 If complete radio failure occurs, pilots should follow the standard radio failure procedure detailed at ENR 1.1, paragraph 3.4.

4.5 Off-Shore Operations**4.5.1 Southern North Sea Low Level Air Traffic Services and Helicopter Operating Procedures****4.5.1.1 Introduction**

4.5.1.1.1 To enhance flight safety and expedite Search and Rescue in the Southern North Sea Airspace, a Deconfliction Service, Traffic Service, Basic Service and Alerting Service is available from the Air Traffic Service Unit (ATSU) at Aberdeen Airport (Anglia Radar). These services are available to helicopters operating in support to the off-shore oil and gas industry and to civil and military aircraft transiting the area at and below FL 65.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

4.5.1.2 Description

Lateral Limits	Vertical Limits	Controlling Authority Callsign and frequencies Hours
Anglia Radar Area of Responsibility 550000N 0010000W - 550000N 0030301E - 543715N 0025349E - 542245N 0024543E - 535745N 0025155E - 534003N 0025719E - 533503N 0025913E - 532809N 0030055E - 531803N 0030319E - 525551N 0030936E - 523606N 0025307E - 523612N 0014423E then following the coastline to 525655N 0010856E to Strubby (531836N 0001034E) to Easington (533919N 0000706E) - 550000N 0010000W.	FL 65 <hr/> SFC	Anglia Radar (Aberdeen ATSU). 'Anglia Radar' Primary: 125.275 MHz Secondary: 128.925 MHz Hours: 0630-2200 daily Winter (Summer 1hr earlier).

4.5.1.3 The ATSU will provide, within its specified area of responsibility, Deconfliction Service or Traffic Service within the limits of surveillance cover. Outside surveillance cover or in the event of surveillance failure, a Basic Service and Alerting Service will be provided within the limits of VHF cover. These services will be provided to helicopter pilots routing:

- To off-shore installations, until the time that the pilot is in contact with the destination rig/platform;
- from off-shore installations, from the time two-way communications is established with the ATSU, until the time that the pilot is in contact with the destination landing pad or other agency.

Note: Under the terms of a Memorandum of Understanding between NATS Limited and the off-shore helicopter companies, aircraft operated by these companies will be provided with modified Flight Information Services, which are prefixed by the term 'Off-shore', eg 'Off-shore Deconfliction Service'.

4.5.1.4 Airspace Structure

4.5.1.4.1 Helicopter Main Routes (HMR)

4.5.1.4.1.1 Helicopter Main Routes are routes typically and routinely flown by helicopters operating to and from off-shore destinations and are promulgated for the purpose of signposting concentrations of helicopter traffic to other airspace users. HMR promulgation does not predicate the flow of helicopter traffic. Whilst HMRs have no airspace status and assume the background airspace classification within which they lie (in the case of the Southern North Sea, Class G), they are used by the air navigation service provider (NATS Ltd/Anglia Radar) and helicopter operators for flight planning and management purposes.

4.5.1.4.1.2 HMRs have no lateral dimensions. Vertically the HMRs over the Southern North Sea extend from 1500 FT AMSL to FL 60 (inclusive) except that:

- Anglia Radar will not normally allocate cruising levels above FL 40 on HMRs in the Southern North Sea beneath EG D323B and EG D323C.
- Where helicopter icing conditions or other flight safety considerations dictate, helicopters may be forced to operate below 1500 FT AMSL. In these circumstances, where possible, pilots should endeavour to follow HMRs and advise the ATSU of the new altitude giving the reason for operating below 1500 FT AMSL.

4.5.1.4.1.3 Compliance with the HMR structure is not compulsory. In the general interests of flight safety, however, civil helicopter pilots are strongly encouraged to plan their flights using HMRs wherever possible.

4.5.1.4.1.4 Other traffic operating in proximity of these routes are advised to maintain an alert look out, especially in the Off-shore Safety Area.

4.5.1.4.2 The Southern North Sea HMR Structure is as follows:

HMR 1	SORER (524815N 0013445E) to Indefatigable '23A' (*531924N 0023428E);
HMR 2	SORER (524815N 0013445E) to Windermere (*534954N 0024617E) (Note 1);
HMR 3	BAGPA (525338N 0012421E) to Munro (*542602N 0021755E) (Note 1);
HMR 4	BAGPA (525338N 0012421E) to Trent (*541755N 0013930E) (Note 1);
HMR 5	Waveney (*532109N 0011811E) to Leman '27A' (*530313N 0021358E);
HMR 6	LAGER (533640N 0000849W) to Viking 'B' (*532648N 0021954E);
HMR 7	LAGER (533640N 0000849W) to Hyde (*534828N 0010144E) (Note 1);
HMR 8	LAGER (533640N 0000849W) to Rough 'A' (*534928N 0002811E) to Ravenspurn North (*540150N 0010603E) to Munro (*542602N 0021755E) (Note 1);
HMR 9	Rough 'A' (*534928N 0002811E) to Cleeton 'PQ' (*540159N 0004336E) (Note 1);
HMR 10	Cleeton 'PQ' (*540159N 0004336E) to Hyde (*534828N 0010144E) (Note 1);
HMR 20	Lowestoft (522824N 0014519E) to Inner Gabbard (515450N 0015636E) to Galloper (514710N 0015729E) (Note 2);
HMR 435	IRDUK (533327N 0025937E) to Carrack (*533444N 0024727E);
HMR 440	INDEV (531720N 0030331E) to Indefatigable '49/24N' (*531717N 0024316E);
HMR 445	KUSON (531141N 0030508E) to Indefatigable '49/24N' (*531717N 0024316E);
HMR 446	KOPAD (530746N 0030615E) to Hewitt '52/5A' (*525956N 0015045E);

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HMR 447 LUVOR (524823N 0030321E) to Hewitt '52/5A' (*525956N 0015045E);

HMR 450 LUVOR (524823N 0030321E) to RIKPU (524235N 0014227E).

Note 1: The maximum cruising level on all HMRs beneath EG D323B and EG D323C is restricted to FL 40 unless cleared by Anglia Radar.

Note 2: HMR 20 lies outside the Anglia Area of Responsibility and extends vertically from 500 FT AMSL to 2000 FT AMSL inclusive. There are no ATS service provision arrangements to support operations on this HMR.

- 4.5.1.4.3 **Off-shore Safety Areas (OSAs).** The Anglia OSA consists of the Airspace from surface to 3500 FT ALT within the area bounded by straight lines joining in succession:

533544N 0015732E - 533328N 0021621E - 532200N 0023900E - 531143N 0025505E - 523612N 0014423E then following the coastline to 525242N 0012618E - 532132N 0013545E - 532838N 0014150E - 533544N 0015732E.

- 4.5.1.4.4 **Helicopter Traffic Zones (HTZ).** HTZs are established as notification of helicopters engaged in platform approaches, departures and extensive unco-ordinated inter-platform transit flying. Inter-platform flying by civil helicopters within HTZs contained within the OSA will be conducted on the company or field discrete frequency. HTZs consist of the airspace from sea level to 2000 FT ALT contained within tangential lines, not exceeding 5 NM in length, joining the neighbouring circumferences of circles 1.5 NM radius around each individual platform helideck.

- 4.5.1.4.4.1 The position of individual platforms, together with their maximum height AMSL and helideck height AMSL, within their parent field complex are detailed at paragraph 5.2.

4.5.1.5 **Operating Procedures**

4.5.1.5.1 **General**

- 4.5.1.5.1.1 **Helicopter Procedures.** Helicopter pilots wishing to use this service must establish two way RTF communication with the ATSU. For flights within the same or adjacent field complex, helicopter pilots should remain on the field frequency. Pilots should advise ATC before changing frequency and/or altitude.

- 4.5.1.5.1.2 **Fixed-Wing Procedures.** Pilots of civil and military fixed-wing aircraft intending to fly within the area of responsibility of Anglia Radar are strongly advised to make use of the services provided. Crews of wildlife and aerial survey aircraft should consider utilising notification procedures detailed at ENR 1.1.4 as well as contacting Aberdeen ATSU prior to commencing operations. Whenever possible civil aircraft should be flown above the Transition Altitude at the appropriate level. Pilots are also advised that the helicopters on inter-platform flights in the same field complex normally operate at 500 FT AMSL and frequently carry underslung loads which limit the pilot's ability to take sudden avoiding action.

4.5.1.5.2 **Position Reporting; ATC Reports**

- 4.5.1.5.2.1 Position reports on initial contact will include the following information:

- a) Callsign;
- b) Type;
- c) Point of departure;
- d) Point of next landing;
- e) Altitude/requested Altitude;
- f) Total number of people on board.

- 4.5.1.5.2.2 Subsequent position reports if requested by the ATSU will include the following abbreviated information:

- a) Callsign;
- b) Position;
- c) Altitude.

- 4.5.1.5.2.3 Helicopter pilots will, prior to leaving a frequency, inform the ATSU of the next off-shore sector to be flown.

4.5.1.5.3 **Off-shore Safety Area (OSA)**

- 4.5.1.5.3.1 Pilots of helicopters entering the Anglia OSA should contact Anglia Radar.

- 4.5.1.5.3.2 **Fixed-Wing Procedures.** Military and civil pilots of fixed-wing aircraft are recommended to avoid the Anglia OSA, however, if penetration is essential, contact should be made with Anglia Radar no later than 10 NM before entering the area giving their position, altitude, squawk, heading and intentions. When unable to maintain contact with Anglia Radar, and where not previously allocated a squawk by Anglia Radar, pilots should squawk A0007 with ALT (or mode C) selected. Maritime patrol aircraft (MPA) and fisheries protection aircraft should squawk A7400 with ALT (or mode C) selected.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

4.5.1.5.4 Cruising Altitudes

4.5.1.5.4.1 Helicopters will normally plan to fly at the following en-route altitudes:

- a) Outbound (land to sea) 2000 FT and 3000 FT AMSL;
- b) Inbound (sea to land) 1500 FT and 2500 FT AMSL;
- c) Inter-field:
 - i. Northbound (270° to 089° MAG track) 1000 FT, 2000 FT and 3000 FT AMSL;
 - ii. Southbound (090° to 269° MAG track) 500 FT, 1500 FT and 2500 FT AMSL.

Above the Transition Altitude (3000 FT AMSL) all aircraft should conform to the Semicircular Rule.

4.5.1.5.5 Altimeter Setting Procedures

4.5.1.5.5.1 En-route altitudes of 3000 FT AMSL and below will be flown with reference to the appropriate Regional Pressure Setting (RPS). Anglia Radar will give the appropriate pressure setting on first contact. Helicopters operating along HMRs crossing from one Altimeter Setting Region (ASR) to another, and when in contact with Anglia Radar will not change the RPS datum until instructed to do so. This procedure is to enable the Controller to plan and control vertical separation in the vicinity of an ASR boundary and beneath EG D323B, EG D323C and the Lakenheath ATA North.

***Note:** When instructed by Anglia Radar to squawk the allocated code, helicopter pilots are requested to state their level to the nearest hundred feet in order that the Mode C transponder information can be verified.*

4.5.1.5.6 Use of GPS for North Sea Operations

4.5.1.5.6.1 UK AOC Holders intending to use GPS for en-route navigation for North Sea flight operations are to use GPS equipment that meets or exceeds CAA Specification 22. AOC holders requiring further information should contact their assigned flight operations Inspector. Non UK AOC holders are recommended to operate to at least the Specification 22 standard.

4.5.1.6 Out of Hours Helicopter Operations

4.5.1.6.1 Helicopter off-shore support activity is not confined to published ATS hours and helicopters may be operating in VMC or IMC at all levels and times.

4.5.2 Northern North Sea and Atlantic Rim Low Level Air Traffic Services and Helicopter Operating Procedures

4.5.2.1 To enhance flight safety and expedite Search and Rescue in the Northern North Sea Airspace, including Atlantic Rim Airspace and the East Shetland Basin, a Deconfliction Service, Traffic Service, Basic Service and Alerting Service is available from the Air Traffic Service Unit (ATSU) at Aberdeen Airport. These services are available to helicopters operating in support to the off-shore oil and gas industry and to civil and military aircraft transiting the area at and below FL 100.

4.5.2.2 **Description.** Within the areas of responsibility specified below, a Deconfliction Service or Traffic Service within the limits of surveillance cover and, outside surveillance cover or in the event of surveillance failure, a Basic Service and Alerting Service within the limits of VHF cover will be provided. Outside the hours of service notified above, a Basic Service and Alerting Service is available within the limits of VHF RTF cover from the FIR Sector at Scottish ACC, callsign 'Scottish Information' on 129.225 MHz. The above services will be provided to helicopter pilots routing:

- a) To off-shore installations until two-way communication is established with their destination; and
- b) from off-shore installations from the time two-way communication is established with the appropriate Sector.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Lateral Limits (A chart depicting the sectors is at ENR 6-1-15-1)	Vertical Limits	Controlling Authorities Callsign and frequencies Hours
Sumburgh Radar Sector — Cormorant QNH Area This area of responsibility is enclosed by straight lines joining in succession the following points: 602856N 0004429W - 610000N 0002000W - 610000N 0000000E - 605109N 0000000E thence clockwise by the arc of a circle radius 70 NM centred on 595244N 0011712W (SUM VOR) to 600453N 0010000E - 600000N 0010000E - 600000N 0000059E thence anti-clockwise by the arc of a circle radius 40 NM centred on 595244N 0011712W (SUM VOR) to 602856N 0004429W.	FL 85 — SL	Sumburgh Radar (Aberdeen ATSU) 'Sumburgh Radar' – 131.300 MHz and 124.900 MHz (west of meridian 3 degrees West) Hours: (all Sumburgh Areas) 0630-2200 daily Winter (Summer 1hr earlier)
Sumburgh Radar Sector — Shetland QNH Area This area of responsibility is enclosed by straight lines joining in succession the following points: 602856N 0004429W thence anti-clockwise by the arc of a circle radius 40 NM centred on 595244N 0011712W (SUM VOR) to 593000N 0022203W - 593000N 0050000W - 610000N 0050000W - 610000N 0002000W - 602856N 0004429W.	FL 85 — SL	
Sumburgh Radar Sector—Sumburgh QNH Area This area of responsibility, excluding that portion of Y905 contained within the area, is enclosed by straight lines joining in succession the following points: 600000N 0000059E thence anti-clockwise by the arc of a circle radius 40 NM centred on 595244N 0011712W (SUM VOR) to 593000N 0022203W - 590000N 0021602W - 590000N 0000319W - 594421N 0010000E - 600000N 0010000E - 600000N 0000059E.	FL 85 — SL	
Sumburgh Radar Sector—Aberdeen QNH Area This area of responsibility, excluding that portion of Y905 contained within the area, is enclosed by straight lines joining in succession the following points: 590000N 0021602W - 590000N 0000319W - 583242N 0004037W - thence anti-clockwise by the arc of a circle radius 90 NM centred on 571838N 0021602W (ADN VOR) to 584825N 0021817W - 590000N 0021602W.	FL 85 — SL	
Sumburgh Radar Sector — North Sea Area IV (Delegated ATS, see ENR 2-2-1-1) This area of responsibility is enclosed by straight lines joining in succession the following points: 610000N 0000000E - 610000N 0040000W - 630000N 0012637W - 630000N 0000000E - 610000N 0000000E.	FL 85 — SL	
Aberdeen Sectors The area of responsibility, excluding that portion of Y905, Y904 and the Aberdeen CTR/CTA contained within the area, is enclosed by straight lines joining in succession the following points: 584825N 0021817W - 582000N 0024600W - 580946N 0031432W thence anti-clockwise by the arc of a circle radius 5 NM centred on 580539N 0030912W (Beatrice C) to 580313N 0031725W - 572100N 0023356W - 571838N 0021602W (ADN VOR) - 560000N 0013000W - 560000N 0000000E - 560510N 0031455E - 563540N 0023642E - 573628N 0020654E - 575416N 0015748E - 582546N 0012854E - 591722N 0014236E - 595346N 0020430E - 600000N 0020320E - 600000N 0010000E - 594421N 0010000E - 583242N 0004037W - thence anti-clockwise by the arc of a circle radius 90 NM centred on 571838N 0021602W (ADN VOR) to 584825N 0021817W.	FL 85 — SL	Aberdeen ATSU. 'Aberdeen Radar' 134.100 MHz – within the defined sector, out to ADN 90 DME from the northwestern boundary to the 038 HMR, and then out to ADN 80 DME clockwise from the 038 HMR. 135.175 MHz - on and north of 065 HMR 132.550 MHz - south of 065 HMR within the Aberdeen sector outwith the areas described above. Hours: 0630-2200 daily Winter (Summer 1hr earlier).
Brent Radar Sector Area enclosed by straight lines joining in succession the following points: 605109N 0000000E - 620000N 0000000E - 620000N 0012222E - 612122N 0014718E (ALLOY) - 600000N 0020320E - 600000N 0010000E - 600453N 0010000E - thence anti-clockwise by the arc of a circle radius 70 NM centred on 595244N 0011712W (SUM VOR) to 605109N 0000000E.	FL 85 — SL	Aberdeen ATSU. 'Brent Radar' - 122.250 MHz is the primary ATC frequency. Hours: 0630-2200 Mon-Fri, 0700-2100 Sat & Sun Winter (Summer 1hr earlier).
East Shetland Basin (ESB) To co-ordinate the inter-platform and transit helicopter traffic within the ESB, an ATS is established in the area which will provide Flight Information Services. Pilots intending to overfly the ESB below FL 85 are strongly recommended to contact Brent Radar before penetrating the Airspace.		

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

Lateral Limits (A chart depicting the sectors is at ENR 6-1-15-1)	Vertical Limits	Controlling Authorities Callsign and frequencies Hours
Area enclosed by arcs of circles joining in succession the following points: 614410N 0003900E - 612412N 0003900E (Gate Golf) - 610807N 0004319E (Gate Hotel) - 605828N 0004555E (Gate Juliet) - 604846N - 0010430E (Gate Lima) - 604116N 0011454E (Gate Mike) - 603808N 0012042E (Gate November) - 603300N 0014257E (Gate Oscar) - 603300N 0015659E - 612122N 0014718E (ALLOY) - 614410N 0013329E - 614410N 0003900E.	FL 85 SL	Aberdeen ATSU. 'Brent Radar' - 122.250 MHz is the primary ATC frequency. Hours: 0630-2200 Mon-Fri, 0700-2100 Sat & Sun, Winter (Summer 1hr earlier).

4.5.2.3 Helicopter Main Routes - En-Route Structure

4.5.2.3.1 Helicopter Main Routes are routes typically and routinely flown by helicopters operating to and from off-shore destinations and are promulgated for the purpose of signposting concentrations of helicopter traffic to other airspace users. HMR promulgation does not predicate the flow of helicopter traffic. Whilst HMRs have no airspace status and assume the background airspace classification within which they lie (in the case of the Northern North Sea, Class G), they are used by the air navigation service provider (NATS Ltd/ Aberdeen) and helicopter operators for flight planning and management purposes.

4.5.2.3.2 HMRs have no lateral dimensions. Vertically the HMRs over the Northern North Sea (55°N to 62°N) extend from 1500 FT AMSL to FL 85 (inclusive), except that:

Where helicopter icing conditions or other flight safety considerations dictate, helicopters may be forced to operate below 1500 FT AMSL. In these circumstances, where possible, pilots should endeavour to follow HMRs and advise the ATSU of the new altitude giving the reason for operating below 1500 FT AMSL.

4.5.2.3.3 Compliance with the HMR structure is not compulsory. In the general interests of flight safety, however, civil helicopter pilots are strongly encouraged to plan their flights using HMRs wherever possible.

4.5.2.3.4 Other traffic operating in proximity of these routes are advised to maintain an alert look out, especially in the Off-shore Safety Area (OSA).

4.5.2.3.5 **Off-shore Safety Areas (OSAs).** The Aberdeen OSA consists of the Airspace from surface to FL 100 within the area bounded by straight lines joining in succession:

590000N 0013755E following the North Sea Median Line (eastern limit of published Aberdeen Sector) to 560510N 0031455E - 560441N 0024328E - 571227N 0015238W then anti-clockwise around eastern boundary of the Aberdeen CTR/CTZ to HACKLEY HD (571948N 0015717W) then following the coastline anti-clockwise to 574044N 0015652W - 590000N 0013930W - 590000N 0013755E.

4.5.2.3.6 The HMR track structure between Sumburgh and the East Shetland Basin is as follows:

- HMR 'Golf' (eastbound) - from 40 DME SUM on HMR 'Hotel' direct to Gate 'Golf';
- HMR 'Hotel' (eastbound) - from Gate 'Hotel' parallel to HMR 'Juliet' to 40 DME SUM thence to Sumburgh VOR;
- HMR 'Juliet' (westbound) - from Gate 'Juliet' direct track to Sumburgh VOR;
- HMR 'Lima' (eastbound) - from Sumburgh VOR direct to Gate 'Lima';
- HMR 'Mike' (westbound) - from Gate 'Mike' parallel to HMR 'Lima' to 40 DME SUM thence to Sumburgh VOR.

4.5.2.3.7 **Aberdeen** based pilots use HMRs based on a radial track system centred on 571838N 0021602W (ADN VOR). The system is keyed to the outbound master HMR 029 commencing at 575506N 0014423W and terminating at Gate 'Lima' (604846N 0010430E) on the ESB boundary. The other HMRs, spaced at 3 degree intervals, are designated alternately 'inbound' or 'outbound' and are identified by three figures. They terminate at either the appropriate Gate on the ESB boundary or the Median Line. The table below shows co-ordinates for the Gates and the points at which the HMRs intercept the Median Line. When operating to or from permanent off-shore installations or mobile vessels, pilots normally use the nearest HMR. In the Aberdeen area, HMRs 023 to 086 (inclusive) are joined to two parallel bi-directional 'feeder/funnel' HMRs, HMRs Whiskey and Echo. The direction of use of HMRs Whiskey and Echo is dependent upon the runway in use at Aberdeen. VANOR (571408N 0020304W) and NOBAL (571518N 0020336W) are used as reporting points within the Aberdeen CTR.

HMR 023	612412N 0003900E (G Gate)	HMR 074	580248N 0015004E
HMR 026	605828N 0004555E (J Gate)	HMR 077	575606N 0015608E
HMR 029	604846N 0010430E (L Gate)	HMR 080	574904N 0020028E
HMR 032	603808N 0012042E (N Gate)	HMR 083	574153N 0020408E
HMR 035	603300N 0014257E (O Gate)	HMR 086	573435N 0020749E
HMR 038	602326N 0015851E	HMR 089	572709N 0021133E
HMR 041	600658N 0020200E	HMR 092	571931N 0021521E
HMR 044	595102N 0020249E	HMR 095	571139N 0021915E
HMR 047	593014N 0015015E	HMR 098	570328N 0022316E
HMR 050	591341N 0014136E	HMR 101	565455N 0022726E
HMR 053	590103N 0013811E	HMR 104	564556N 0023147E

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HMR 056	584942N 0013510E	HMR 107	563633N 0023535E
HMR 059	583924N 0013227E	HMR 110	562416N 0025108E
HMR 062	582958N 0012959E	HMR 113	560957N 0030900E
HMR 065	582221N 0013204E	HMR 116	555535N 0032034E
HMR 068	581553N 0013804E		
HMR 071	580923N 0014403E		

- 4.5.2.3.7.1 HMR Whiskey is aligned along the axis MOCHA (593256N 0012159W) to PETOX (573333N 0014902W) thence to Hackley Head (571949N 0015717W). When Runway 16 is in use at Aberdeen, HMR Whiskey is the designated inbound track and when Runway 34 is in use HMR Whiskey is the designated outbound track for traffic planning to operate at 2000 FT and above.
- 4.5.2.3.7.2 HMR Echo is aligned along the axis GORSE (571037N 0015351W) to SPIKE (573226N 0013953W) to TYSTI (592224N 0011440W) to TIRIK (593219N 0011214W). When Runway 34 is in use at Aberdeen, HMR Echo is the designated inbound track but will also be used by outbound traffic planning to operate below 2000 FT. When Runway 16 is in use at Aberdeen, HMR Echo is the designated outbound track for traffic at all levels.
- 4.5.2.3.7.3 Helicopter traffic inbound to Aberdeen following the HMRs 026 to 086 (inclusive) will be required to maintain the inbound HMR until intercepting either HMR Whiskey (Runway 16 in use at Aberdeen) or HMR Echo (Runway 34 in use at Aberdeen) and then follow the designated inbound track as directed by Aberdeen ATC. Inbound HMRs south of the HMR 086 terminate at 30 DME ADN, from whence helicopter traffic will be directed by Aberdeen ATC.
- 4.5.2.3.7.4 Outbound helicopter traffic utilising the HMRs 023 to 113 (inclusive) will be directed by Aberdeen to join the desired outbound HMR via either HMR Whiskey/Echo or as directed to a specific position on the required HMR, dependent upon the runway in use at Aberdeen. (Outbound HMRs south of HMR 086 commence at 40 DME ADN).
- 4.5.2.3.7.5 Within the Aberdeen sectors, Aberdeen ATC will allocate ALTs or FLs tactically to participating flights.

Pilots on inter-rigging flights should plan to fly at the following ALTs:

- a) Northbound (270° to 089° MAG track) 1000 FT, 2000 FT and 3000 FT AMSL;
- b) Southbound (090° to 269° MAG track) 500 FT, 1500 FT and 2500 FT AMSL.

Note: Under certain operating and meteorological conditions civil helicopters may operate below the base of the HMRs.

4.5.2.3.8 Aberdeen - Atlantic Rim (West of Shetland Operations)

- 4.5.2.3.8.1 The HMR tracks between Aberdeen and the Atlantic Rim (as depicted at ENR 6-1-15-6) are as follows:

- a) HMR X-Ray (Outbound) - ADN VOR (571838N 0021602W) to SMOKI (574637N 0023556W) to WIK VOR (582732N 0030601W) to SODKI (584751N 0033753W) to VAMLA (600000N 0040000W);
- b) HMR Yankee (Inbound) - NESTA (600000N 0041000W) to MADOX (584343N 0034639W) to WIK VOR (582732N 0030601W).

Note: HMR X-Ray is bi-directional between Aberdeen and Wick.

4.5.2.3.8.2 Altimeter Setting:

- a) Within 30 DME ADN - Aberdeen QNH, or as directed by ATC;
- b) Outside 30 DME ADN - The appropriate Regional Pressure Setting (RPS), or as directed by ATC.

Note: To enable controllers to plan and control vertical separation near the boundaries of Altimeter Setting Regions (ASR), helicopters approaching an ASR boundary, and in radio contact with ATC, are not to change RPS until instructed to do so.

4.5.2.3.8.3 Cruising altitudes:

Within the Aberdeen sectors, Aberdeen ATC will allocate ALTs or FLs tactically to participating flights.

Note: Under certain operating and meteorological conditions civil helicopters may operate below the base of the HMRs.

4.5.2.3.8.4 Moray Firth TMZ Phase 1 Controlling Authority Lossie Departures (119.575 MHz), active H24, see ENR 2.2 paragraph 4.

- 4.5.2.3.9 Charts depicting the Aberdeen Area HMR track structure are at AD 2-EGPD-3-1/2. The chart at ENR 6-1-15-5 depicts the en-route HMR track structure and shows the bi-directional HMR established between the Ekofisk Hotel platform and platform P37/4, a route normally used by Norwegian helicopters.

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4.5.2.4 Operating Procedures

4.5.2.4.1 General

4.5.2.4.1.1 Helicopter Procedures. Helicopter pilots wishing to use the service specified in paragraph 4.5.2.2 must file a flight plan. Pilots who have established two-way communication with the appropriate Sector and subsequently do not receive acknowledgement of a scheduled position report, should make every effort to relay the report via another aircraft or agency. For flights within the same or adjacent field complexes, helicopter pilots should maintain RTF contact on the field, company or Traffic Area frequency. Position reports by civil helicopter pilots operating on HMRs are to be based on distance from either Aberdeen or Sumburgh VORs, according to the departure or destination aerodrome. Position reports are only required if the flight is not receiving a radar service from the ATSU. In this instance, unless otherwise specified by the ATSU, an initial report is to be made on outbound HMRs at 40 NM and then at 20 NM intervals, subject to the limitations of VHF cover. For inbound flights subsequent to the initial call, reports are to be made at the same 20 NM intervals according to the destination aerodrome. If the elapsed time between two reporting points exceeds 15 minutes, an additional report is to be made after 15 minutes elapsed time since the last report.

En-route position reports are to include the following information:

- a) Callsign;
- b) Position (HMR and range);
- c) ALT or FL;
- d) Position of next intended report.

On lifting from an installation or ship off-shore, the initial report is to include:

- a) Callsign;
- b) Actual position and altitude;
- c) Requested HMR and point of joining;
- d) Requested altitude;
- e) Total persons on board.

4.5.2.4.1.2 Fixed-Wing Procedures. Pilots of civil and military fixed-wing aircraft intending to fly within the areas of responsibility of the above Sectors are strongly advised to make use of the services provided. Crews of wildlife and aerial survey aircraft should consider utilising notification procedures detailed at ENR 1.1.4 as well as contacting Aberdeen ATSU prior to commencing operations. Whenever possible civil aircraft should be flown above the Transition Altitude at the appropriate level. Pilots are advised that helicopters engaged on inter-platform flights within the same field complex normally operate at about 500 FT AMSL and frequently carry underslung loads which limit the pilot's ability to take sudden avoidance action.

4.5.2.4.2 Off-shore Safety Area (OSA)

4.5.2.4.2.1 Pilots of helicopters entering the Aberdeen OSA should follow procedures detailed in paragraph 4.5.2.4.1.1.

4.5.2.4.2.2 Fixed-Wing Procedures . Where penetration of the Aberdeen OSA is essential, contact should be made on the appropriate Aberdeen frequency (paragraph 4.5.2.2) no later than 10 NM before entering the OSA giving their position, altitude, squawk, heading and intentions. Military pilots not previously in contact with the ASACS should call Boulmer ICF (269.325) or the appropriate Aberdeen frequency. Where pilots are unable to maintain contact on the appropriate Aberdeen frequency or the ASACS, and when not previously allocated a squawk, they should squawk A0007 with ALT (or mode C) selected. Maritime patrol aircraft (MPA) and fisheries protection aircraft should squawk A7400 with ALT (or mode C) selected.

4.5.2.4.2.3 General Procedures. Within the Sumburgh Radar and Brent Radar sectors, Aberdeen ATC will allocate ALTs or FLs tactically to participating flights.

4.5.2.4.2.4 Off-shore Operations. Helicopter off-shore support activity is not confined to published ATS hours and helicopters may be operating in VMC or IMC at all levels and times.

4.5.2.4.2.4.1 The positions of individual platforms within their parent field complex are detailed at paragraph 4.5.5.2.

4.5.2.4.2.5 Within the Aberdeen ATSU Areas of Responsibility as described in paragraph 4.5.2.2, during the published hours of operation, the following QNH values will be used:

- a) Brent Radar Sector and northern area of the Sumburgh Radar Sector - Cormorant QNH. If the actual Cormorant QNH data is lost, the Puffin or Marlin will be used as appropriate.
- b) Central and eastern area of the Sumburgh Radar Sector - Sumburgh QNH.
- c) Western area of the Sumburgh Radar Sector - Shetland Regional QNH.
- d) Southern area of the Sumburgh Radar Sector, south of 59N – Aberdeen QNH.
- e) Aberdeen Sector out to ADN DME 90 - Aberdeen QNH.
- f) Aberdeen Sector beyond ADN DME 90 and north of HMR 086 - Brae QNH. (If Brae QNH data is lost the Weller QNH will be used, this being the lower of the Rattray or Petrel RPS.)
- g) Aberdeen Sector beyond ADN DME 90 and south of HMR 086 - Fulmar QNH. (If Fulmar QNH data is lost the McCabe QNH will be used, this being the lower of the Rattray or Skua RPS.)
- h) Aircraft routing on HMR 086 will be instructed to set the most appropriate QNH for the traffic situation.

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Note: See chart at ENR 6-1-15-1 for areas.

4.5.2.4.2.5.1 Transition level within the above areas will be determined with reference to the above pressure settings.

4.5.2.4.2.6 Use of GPS for North Sea Operations

4.5.2.4.2.6.1 UK AOC Holders intending to use GPS for en-route navigation for North Sea flight operations are to use GPS equipment that meets or exceeds CAA Specification 22. AOC holders requiring further information should contact their assigned flight operations Inspector. Non UK AOC holders are recommended to operate to at least the Specification 22 standard.

4.5.2.5 Sumburgh CTR Helicopter Procedures

4.5.2.5.1 Standard Arrival and Departure Routes

4.5.2.5.1.1 The Standard Arrival and Departure Routes are established for use in conjunction with the HMRs and are shown at AD 2-EGPB-3-1/2. The route orientation is dependant on the runway-in-use as follows:

a) Westerly Operation (Runways 27 and 33 in use):

Departures for the East Shetland Basin are to route via BODAM (595506N 0011606W) and those for HMRs Whiskey/Echo are to route via SILOK (594612N 0012900W);

Arrivals from the East Shetland Basin are to route via IZACK (595327N 0010113W) and those from HMRs Whiskey/Echo are to route via BENTY (594615N 0010810W).

b) Easterly Operation (Runways 09 and 15 in use):

Departures for the East Shetland Basin are to route via IZACK and those for HMRs Whiskey/Echo are to route via BENTY;

Arrivals from the East Shetland Basin are to route via BODAM and those from HMRs Whiskey/Echo are to route via SILOK.

4.5.2.5.1.2 Additionally, to assist in the integration of flights operating under VFR or, at night, in accordance with a Special VFR clearance, VFR/SVFR flights may be instructed to route via Mousa Visual Reference Point (600000N 0010936W) (See AD 2-EGPB- 2.22 paragraph 2).

4.5.2.5.2 Helicopter Holding Patterns

4.5.2.5.2.1 **IFR Holding Patterns.** IFR holding patterns are established at Juliet 20, Mike 20, MOCHA and TIRIK. The holds are 1-minute left-hand patterns aligned on the HMR inbound track.

4.5.2.5.2.2 **Visual Holding Patterns.** Visual holding patterns are established at BODAM, Mousa VRP, IZACK, BENTY and SILOK. Holding is to be conducted clear of cloud and in sight of the surface and helicopters will adopt a 2 minute left-hand orbit, except at BENTY which is right-hand. Maximum holding altitude 1000 FT AMSL.

4.5.3 Morecambe Bay and Liverpool Bay Gas Fields - Helicopter Support Flights

4.5.3.1 Permanent platforms positioned on the Morecambe Bay and Liverpool Bay Gas Fields are shown at ENR 6-1-15-7.

4.5.3.2 Helicopter Traffic Zone (HTZ)

4.5.3.2.1 A Helicopter Traffic Zone (HTZ), established as notification of helicopters engaged in platform approaches, departures and extensive unco-ordinated inter-platform transit flying, is established around the Morecambe Bay and Liverpool Bay Gas Fields. A HTZ consists of the airspace from sea level to 2000 FT AMSL contained within the tangential lines, not exceeding 5 NM in length, joining the neighbouring circumferences of circles 1.5 NM radius around each individual platform helideck.

4.5.3.3 Airspace Structure - Morecambe Bay

4.5.3.3.1 The helicopter support land base is Blackpool Airport. Low level flights, normal operating height 1000 FT AMSL or above on the Blackpool QNH, operate daily between Blackpool Airport and the helidecks. Under certain operating and meteorological conditions civil helicopters may operate below 1000 FT AMSL on the Blackpool QNH.

4.5.3.3.2 The route structure is:

Blackpool to Point 'N' (534922N 0030858W) to DP4.

Note 1: Point 'N' may be used as a holding point.

Note 2: Route is bi-directional.

4.5.3.3.3 Helicopter traffic information is available from Blackpool Approach during published hours of operation.

4.5.3.3.4 Pilots are warned that gas release and burn-off operations may take place at any time without prior notification from off-shore gas

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installations.

4.5.3.4 Airspace Structure - Liverpool Bay

4.5.3.4.1 The helicopter support land base is Blackpool Airport. Low level flights, normal operating height 1000 FT AMSL on the Blackpool QNH, operate daily between Blackpool Airport and the helidecks. Transit height to/from the Lennox platform is 500 FT AMSL. Flights between helidecks are normally conducted between 500 FT and 1000 FT.

4.5.3.4.2 The route structure is:

- a) Blackpool to Gate G (534449N 0030441W) to Hamilton (533357N 0032716W);
- b) Blackpool to Gate G to Lennox (533719N 0031037W).

Note: Routes are bi-directional.

4.5.3.4.3 Helicopter traffic information is available from Warton Approach during the Warton ATC published hours of operation. Outside these hours, information is available from Blackpool Approach.

4.5.3.4.4 Gas release and burn-off operations may take place at any time without prior notification from off-shore gas installations.

4.5.3.4.5 Burbo Bank TMZ Controlling Authority Warton, (APP 129.530 MHz), active Mon-Thu 0730-1900 (0630-1800), Fri 0730-1700 (0630-1600). See ENR 2.2.

4.5.3.4.6 Walney TMZ Controlling Authority Warton, (APP 129.530 MHz), active Mon-Thu 0730-1900 (0630-1800), Fri 0730-1700 (0630-1600). See ENR 2.2.

4.5.3.5 Altimeter Setting

4.5.3.5.1 The Blackpool QNH will be used by helicopter support flights in transit to and from Blackpool Airport, and within the Morecambe Bay and Liverpool Bay Gas Fields.

4.5.4 Flight Plan Procedures for Helicopter Operations over Sea Areas around the United Kingdom

4.5.4.1 Pilots are warned of the need to consider application of the procedures detailed at ENR 1-10-4 paragraph 1.11, when operating under both VFR and IFR in support of off-shore facilities (particularly over the Southern and Northern North Sea, Atlantic Rim and Morecambe and Liverpool Bays). When flying to a location without an ATSU or AFTN link, nomination of a responsible person is vital to guarantee the initiation of alerting action in the event of non-arrival.

4.5.5 RTF and NDB Frequencies Used on Off-shore Installations

4.5.5.1 General

4.5.5.1.1 All Operators wishing to establish an aeronautical radio station within the UK Off-shore Areas under concession are required to obtain regulatory approval from the Civil Aviation Authority before establishing that radio station.

4.5.5.1.1.1 Application for approval to establish and operate an aeronautical radio station on fixed or mobile installations must be made in writing to:

Civil Aviation Authority

Post: ATM, Aerodromes and Airspace

Safety and Airspace Regulation Group, 1E Aviation House, London Gatwick Airport South, West Sussex, RH6 0YR.

Fax: 01293-573974.

Phone: 01293-573692.

Applicants should note:

- a) Coordination with other European states may be necessary before a frequency assignment can be made; applications for approval should be made as early as possible and can be made up to six months before operationally required.
- b) Operators of radio stations are also required to obtain a radio broadcast licence from Ofcom (through Aeronautical Radio Licensing, CAA House, 45-59 Kingsway, London WC2B 6TE) and an approval of the radio equipment by the Civil Aviation Authority.

4.5.5.1.2 Frequencies listed for fixed installations and the frequency plan for mobile installations in UK Areas Under Concession.

- a) Information on frequencies in use by the off-shore helicopter community can be obtained from the Helideck Certification Agency at <http://www.helidecks.org/index.php/helideck-certificates>;
- b) Mobiles must operate in accordance with the frequency plan shown in paragraph 4.5.5.3;
- c) Aeronautical RTF operations for all installations north of 56°N and east of 5°W and within the UK Off-shore Areas Under Concession, with the exception of the East Shetland Basin – that is Off-shore RTF Areas A to I (**Note 1**) – have each been provided with two RTF frequencies, one for Traffic (**Note 2**) RTF calls and the other for Logistics (**Note 3**) RTF calls, as listed

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in paragraph 4.5.5.3.1. No suffix will be added to the Civil Aviation Authority approved callsign when traffic information is to be passed by the operator of the aeronautical radio station. When logistics information is to be passed the suffix 'LOG' shall be added to the approved callsign.

Simultaneous operation of the traffic and the LOG frequencies may be required, installations are therefore required to carry radio facilities to support this.

Note 1: Operators wishing to operate installations in Area X on the RTF frequency allocations chart should contact the Authority at least 90 days before operation is required in order to obtain a temporary RTF frequency assignment.

Note 2: The Traffic frequency is to be used for giving information on aircraft positions, obtaining deck clearance, and for lifting calls.

Note 3: The logistics (LOG) frequency should be used for all other calls permitted within the terms of an OPC service such as, departure messages, in-field routings, payload information, and ordering fuel and refreshments.

RTF Operation - Areas A to P.

RTF frequency assignments for off-shore installations may only be used for communication between installations and aircraft that are both within the same off-shore RTF frequency assignment area. The Traffic frequencies may be used for communication with aircraft that are below 2000 feet and the LOG frequencies may be used for communication with aircraft that are below 7000 feet.

Published Air Traffic Service procedures should be followed where available. A listening watch should be maintained with the Air Traffic Service Unit (ATSU) where possible. Prior to leaving the ATSU's operating area, pilots should advise the ATSU of the aircraft's movement intentions. Where maintaining a listening watch with the ATSU is not possible and at all times when the aircraft is below 1500 feet a listening watch on the RTF Area Traffic Frequency shall be maintained.

Outbound - To the off-shore installation.

Pilots who are in communication with the ATSU should, once established in the descent and still above 1500 feet, establish contact with their destination on the Area Traffic Frequency, and hand over the flight watch. They should then advise the ATSU on passing 1500 feet. Landing clearances should be obtained from the HLO who will be operating on the Traffic frequency.

Inbound - From the off-shore installation.

Lifting calls should be made on the Traffic frequency. Once airborne establish communication with the appropriate ATSU whilst below 1000 feet or as soon practical. Published Air Traffic Service procedures should be followed where available.

The appropriate LOG frequency should be used as required to exchange information with the destination. When operating below 1500 feet or outside the ATSU's area of operation pilots should retune the ATSU radio to the LOG frequency for passing Logistics information. When not being used for LOG messages the radio should be retuned to monitor the appropriate ATSU's frequency.

- 4.5.5.1.3 Offshore installation's VHF RTF facilities and aeronautical Non Directional Beacons operate by arrangement only; the unserviceability of these facilities will **NOT** be promulgated by NOTAM.
- 4.5.5.1.4 **NDBs on both fixed and mobile installations generally operate on shared frequencies.** NDBs that share frequencies should only be switched on if requested by the helicopter pilot and then only after the frequency has been monitored by the pilot and found to be vacant immediately prior to switching on. The pilot should advise the NDB operators as soon as they no longer require the use of the NDB. When no longer required the NDB should be switched off. Additionally, in order to assist helicopters transiting fields a small number of NDBs on fixed installations have been assigned frequencies that enable them to operate as close to H24 as practical. Pilots may find these NDBs already on and that they remain on after they have advised the installation that they no longer require their use.
- 4.5.5.1.5 Flight Information Services are provided by NATS Limited from Aberdeen in the Aberdeen ATSU Off-shore Areas of Responsibility (ENR 6-1-15-1 and 6-1-15-3).
- 4.5.5.2 **RTF and NDB Frequencies/Channels for Fixed Installations**
- 4.5.5.2.1 Data on RTF and NDB frequencies/channels in use by the off-shore helicopter community can be obtained from the Helideck Certification Agency at <http://www.helidecks.org/index.php/helideck-certificates>.
- 4.5.5.3 **RTF and NDB Frequencies/Channels used on Off-shore Installations in the UK Areas under Concession**
- 4.5.5.3.1 RTF Frequencies/Channels for Off-shore Installations.

Area	Boundaries	VHF RTF Channel	
		Traffic	LOG
A	583736N 0050000W - 602049N 0050000W - 602106N 0045640W - 602405N 0044416W - 604743N 0041832W - 605149N 0041400W - 605459N 0041030W - 610245N 0040352W - 610427N 0040226W - 610739N 0035937W - 612137N 0034754W - 614500N 0031304W - 614500N 0003400W - 595244N 0011712W - 574200N 0014713W - 574200N 0035805W thence along the UK East Coast to 583736N 0050000W.	122.805	129.130

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Area	Boundaries	VHF RTF Channel	
		Traffic	LOG
B	574200N 0014713W - 595244N 0011712W - 614500N 0003400W - 614410N 0003900E - 612412N 0003900E - 610807N 0004319E - 605828N 0004555E - 604846N 0010430E - 604116N 0011454E - 603808N 0012042E - 603300N 0014257E - 603300N 0015659E - 602324N 0015851E - 574200N 0014648W - 574200N 0014713W.	122.805	129.130
C	602324N 0015851E - 595346N 0020430E - 591722N 0014236E - 591340N 0014136E - 584026N 0002838E thence anti-clockwise by the arc of a circle radius 120 NM centred on 571838N 0021602W (ADN VOR) to 585707N 0000719W - 602324N 0015851E.	122.180	125.405
D	591340N 0014136E - 582546N 0012854E - 582430N 0013034E - 581627N 0010020E thence anti-clockwise by the arc of a circle radius 120 NM centred on 571838N 0021602W (ADN VOR) to 584026N 0002838E - 591340N 0014136E.	123.655	129.130
E	585707N 0000719W thence clockwise by the arc of a circle radius 120 NM centred on 571838N 0021602W (ADN VOR) - 581627N 0010020E - 573123N 0013500W - 574200N 0013500W - 574200N 0014648W - 585707N 0000719W.	123.005	128.405
F	582430N 0013034E - 580500N 0014803E - 572707N 0013500W - 573123N 0013500W - 582430N 0013034E.	123.555	126.405
G	580500N 0014803E - 575416N 0015748E - 573927N 0020521E - 572231N 0013500W - 572707N 0013500W - 580500N 0014803E.	122.005	126.355
H	573927N 0020521E - 564859N 0023018E - 571506N 0013500W - 572231N 0013500W - 573927N 0020521E.	122.330	129.705 (Shell 130.880)
I	564859N 0023018E - 563540N 0023642E - 560510N 0031455E - 560000N 0031758E - 560000N 0013500W - 571506N 0013500W - 564859N 0023018E.	122.780	126.805 (Shell 130.880)
J	560000N 0031758E - 555004N 0032355E - 543715N 0025349E - 542245N 0024543E - 525851N 0005830E thence along the UK East Coast - 560000N 0023000W - 560000N 0031758E.	122.230	122.230
K	542245N 0024543E - 535745N 0025155E - 534003N 0025719E - 533503N 0025913E - 532809N 0030055E - 531803N 0030319E - 525551N 0030936E - 520000N 0022345E - 520000N 0012528E thence along the UK East Coast - 525851N 0005830E - 542245N 0024543E. In some circumstances the following may apply:		
	(a) The Leman/Sean Indefatigable Fields use	123.630	123.630
	(b) The Esmond/Forbes/Gordon Fields use	122.330	122.330
	(c) The Rough/West Sole Fields and Villages use	129.880	129.880
	(d) The Viking Field use	118.655	118.655
	(e) The Viking/Ann Field use	123.580	123.580
	(f) The Hewett/Arpet Fields use	122.880	122.880
	(g) The Thames Field use	123.230	123.230
	(h) The Ravenspurn Field use	123.030	123.030
	(i) The Cleeton/West Sole Fields and Villages use	130.730	130.730
L	550000N 0051004W thence along the UK West Coast - 530000N 0042542W - 530000N 0051200W - 540000N 0051200W - 540000N 0060608W thence along the Northern Ireland East Coast - 550000N 0055911W - 550000N 0051004W.	122.380	122.380
	In some circumstances the following may apply: Liverpool Bay Fields use	129.780	129.780
M	595000N 0050000W - 583736N 0050000W - 583100N 0061538W thence along the UK West Coast to 580000N 0070542W - 580000N 0100000W - 595952N 0100000W - 595627N 0090040W - 601845N 0052412W - 602049N 0050000W - 595000N 0050000W.	123.255	123.255
N	580000N 0070542W thence along the UK West Coast - 554000N 0063000W - 554000N 0064800W - 555000N 0064800W - 555000N 0070000W - 560000N 0070000W - 560000N 0080000W - 561000N 0080000W - 561000N 0084800W - 562000N 0084800W - 562000N 0093000W - 562312N 0100000W - 580000N 0100000W - 580000N 0070542W.	130.155	130.155
O	595952N 0100000W - 562312N 0100000W - 570000N 0192700W - 595000N 0142600W - 594957N 0131612W - 600902N 0131612W - 600718N 0121737W - 600250N 0111627W - 600208N 0105047W - 600057N 0102051W - 595952N 0100000W.	122.230	122.230

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Area	Boundaries	VHF RTF Channel	
		Traffic	LOG
P	530000N 0051900W - 530000N 0042542W thence along the UK South Coast to 520000N 0012528E - 520000N 0023831E - 514957N 0023015E - 513647N 0021512E - 513328N 0021418E - 513014N 0020718E - 512011N 0020218E - 511935N 0020143E - 511424N 0015713E - 510555N 0014326E - 510216N 0013248E - 505657N 0012120E - 505344N 0011653E - 504747N 0011523E - 503835N 0010721E - 502319N 0004634E - 501938N 0003607E - 501409N 0000209E - 501310N 0001535W - 500726N 0003005W - 500824N 0010005W - 500912N 0013005W - 500911N 0020331W - 495747N 0024829W - 494627N 0025635W - 493827N 0032105W - 493309N 0033455W - 493239N 0034249W - 493205N 0035552W - 492736N 0041759W - 492719N 0042151W - 492310N 0043244W - 491424N 0051110W - 491256N 0052045W - 491206N 0054035W - 481257N 0091200W - 481000N 0092216W - 481000N 0100000W - 482000N 0100000W - 482000N 0094800W - 483000N 0094800W - 483000N 0093600W - 485000N 0093600W - 485000N 0092400W - 490000N 0092400W - 490000N 0091700W - 490956N 0091705W - 490956N 0091205W - 492000N 0091200W - 492000N 0090300W - 493000N 0090300W - 493000N 0085400W - 494000N 0085400W - 494000N 0084500W - 494956N 0084505W - 494956N 0083605W - 495956N 0083605W - 495956N 0082405W - 500956N 0082405W - 500956N 0081205W - 502000N 0081200W - 502000N 0080000W - 502956N 0080005W - 502956N 0073605W - 503956N 0073605W - 503956N 0071205W - 505000N 0071200W - 505000N 0070300W - 510000N 0070300W - 510000N 0064800W - 511000N 0064800W - 511000N 0064200W - 512000N 0064200W - 512000N 0063300W - 513000N 0063300W - 513000N 0061800W - 514000N 0061800W - 514000N 0060600W - 515000N 0060600W - 515000N 0060000W - 515400N 0060000W - 515400N 0055700W - 515800N 0055700W - 515800N 0055400W - 520000N 0055400W - 520000N 0055000W - 520400N 0055000W - 520400N 0054600W - 520800N 0054600W - 520800N 0054200W - 521200N 0054200W - 521200N 0053900W - 521600N 0053900W - 521600N 0053500W - 522400N 0053500W - 522400N 0052248W - 523200N 0052248W - 523200N 0052800W - 524400N 0052800W - 524400N 0052430W - 525200N 0052430W - 525200N 0052230W - 525900N 0052230W - 525900N 0051900W - 530000N 0051900W.	122.780	122.780
ESB	614410N 0003900E - 612412N 0003900E (Gate Golf) - 610807N 0004319E (Gate Hotel) - 605828N 0004555E (Gate Juliet) - 604846N 0010430E (Gate Lima) - 604116N 0011454E (Gate Mike) - 603808N 0012042E (Gate November) - 603300N 0014257E (Gate Oscar) - 603300N 0015659E - 612122N 0014718E (ALLOY) - 614410N 0013329E - 614410N 0003900E.	129.405	129.405

4.5.5.3.2 NDB Frequencies for Mobiles

Within the East Shetland Basin (ESB)	614410N 0003900E - 614410N 0013329E - 612122N 0014718E (ALLOY) - 612000N 0014735E - 612000N 0004008E - 612412N 0003900E - 614410N 0003900E.	553.5	20
	612000N 0004008E - 612000N 0014735E - 610000N 0015138E - 610000N 0004530E - 610807N 0004319E - 612000N 0004008E.	597.5	20
	610000N 0004530E - 610000N 0015138E - 603300N 0015659E - 603300N 0014257E - 603808N 0012042E - 604116N 0011454E - 604846N 0010430E - 605828N 0004555E - 610000N 0004530E.	579.5	20
1	635313N 0002927W - 633809N 0003007W - 633809N 0001106W - 625328N 0003821E - 622219N 0010622E - 614410N 0013329E - 614410N 0003900E - 612412N 0003900E - 610807N 0004319E - 605828N 0004555E - 604846N 0010430E - 604116N 0011454E - 603808N 0012042E - 603300N 0014257E - 603300N 0015659E - 595346N 0020430E - 591722N 0014236E - 590000N 0013755E - 590000N 0050000W - 602049N 0050000W - 602106N 0045640W - 602405N 0044416W - 604743N 0041832W - 605149N 0041400W - 605459N 0041030W - 610245N 0040352W - 610427N 0040226W - 610739N 0035937W - 612137N 0034754W - 615207N 0031144W - 615914N 0030320W - 634039N 0004744W - 635313N 0002927W.	588.5	20
2	590000N 0002400E - 570000N 0002400E - 570000N 0021012W thence along the UK East Coast to 583736N 0050000W - 590000N 0050000W - 590000N 0002400E.	597.5	20
	590000N 0002400E - 590000N 0013755E - 582546N 0012854E - 575416N 0015748E - 570000N 0022458E - 570000N 0002400E - 590000N 0002400E.	553.5	20
	570000N 0022458E - 563540N 0023642E - 560510N 0031455E - 560000N 0031758E - 560000N 0023000W thence along the East Coast of Scotland to 570000N 0021012W - 570000N 0022458E.	897.0	20
4A	560000N 0031758E - 555004N 0032355E - 543715N 0025349E - 542245N 0024543E - 525851N 0005830E thence along the UK East Coast to 560000N 0023000W - 560000N 0031758E.	949.0 (+)	20
4B	542245N 0024543E - 535745N 0025155E - 534003N 0025719E - 533503N 0025913E - 532809N 0030055E - 531803N 0030319E - 525551N 0030936E - 520000N 0022345E - 520000N 0012528E thence along the UK East Coast to 525851N 0005830E - 542245N 0024543E.	579.5 (+) 897.0 (+)	20

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES (continued)

5	550000N 0051004W thence along the UK West Coast - 530000N 0042542W - 530000N 0051200W - 540000N 0051200W - 540000N 0060608W thence along the N Ireland East Coast to 550000N 0055911W - 550000N 0051004W.	597.5	20
6	595000N 0050000W - 583736N 0050000W - 583100N 0061538W thence along the UK West Coast to 580000N 0070542W - 580000N 0100000W - 595952N 0100000W - 595627N 0090040W - 601845N 0052412W - 602049N 0050000W - 595000N 0050000W.	579.5	20
7	580000N 0070542W thence along the UK West Coast to 554000N 0063000W - 554000N 0064800W - 555000N 0064800W - 55000N 0070000W - 560000N 0070000W - 560000N 0080000W - 561000N 0080000W - 561000N 0084800W - 562000N 0084800W - 562000N 0093000W - 562312N 0100000W - 580000N 0100000W - 580000N 0070542W.	553.5	20
(†) Area 4a NDB/VHF pairing — 949.0 kHz/122.225 MHz. (‡) Area 4b NDB/VHF pairing — 579.5 kHz/130.275 MHz or 897.0 kHz/130.275 MHz. For Notes See End of Table.			
8	595952N 0100000W - 562312N 0100000W - 570000N 0192700W - 595000N 0142600W - 594957N 0131612W - 600902N 0131612W - 600718N 0121737W - 600250N 0011627W - 600208N 0105047W - 600057N 0102051W - 595952N 0100000W.	897.0	20 min 50 max
9	530000N 0051900W - 530000N 0042542W thence along the UK South Coast to 520000N 0012528W - 520000N 0023831E - 514957N 0023015E - 513647N 0021512E - 513328N 0021418E - 513014N 0020718E - 512011N 0020218E - 511935N 0020143E - 511424N 0015713E - 510555N 0014326E - 510216N 0013248E - 505657N 0012120E - 505344N 0011653E - 504747N 0011523E - 503835N 0010721E - 502319N 0004634E - 501938N 0003607E - 501409N 0000209E - 501310N 0001535W - 500726N 0003005W - 500824N 0010005W - 500912N 0013005W - 500911N 0020331W - 495747N 0024829W - 494627N 0025635W - 493827N 0032105W - 493309N 0033455W - 493239N 0034249W - 493205N 0035552W - 492736N 0041759W - 492719N 0042151W - 492310N 0043244W - 491424N 0051105W - 491256N 0052045W - 491206N 0054035W - 481257N 0091200W - 481000N 0092216W - 481000N 0100000W - 482000N 0100000W - 482000N 0094800W - 483000N 0094800W - 483000N 0093600W - 485000N 0093600W - 485000N 0092400W - 490000N 0092400W - 490000N 0091700W - 490956N 0091705W - 490956N 0091205W - 492000N 0091200W - 492000N 0090300W - 493000N 0090300W - 493000N 0085400W - 494000N 0085400W - 494000N 0084500W - 494956N 0084505W - 494956N 0083605W - 495956N 0083605W - 495956N 0082405W - 500956N 0082405W - 500956N 0081205W - 502000N 0081200W - 502000N 0080000W - 502956N 0080005W - 502956N 0073605W - 503956N 0073605W - 503956N 0071205W - 505000N 0071200W - 505000N 0070300W - 510000N 0070300W - 510000N 0064800W - 511000N 0064800W - 511000N 0064200W - 512000N 0064200W - 512000N 0063300W - 513000N 0063300W - 513000N 0061800W - 514000N 0061800W - 514000N 0060600W - 515000N 0060600W - 515000N 0060000W - 515400N 0060000W - 515400N 0055700W - 515800N 0055700W - 515800N 0055400W - 520000N 0055400W - 520000N 0055000W - 520400N 0055000W - 520400N 0054600W - 520800N 0054600W - 520800N 0054200W - 521200N 0054200W - 521200N 0053900W - 521600N 0053900W - 521600N 0053500W - 522400N 0053500W - 522400N 0052248W - 523200N 0052248W - 523200N 0052800W - 524400N 0052800W - 524400N 0052430W - 525200N 0052430W - 525200N 0052230W - 525900N 0052230W - 525900N 0051900W - 530000N 0051900W.	435	20

Note 1: Simultaneous operation of NDBs on the same frequency by more than one mobile installation is likely to result in incorrect navigational information being displayed to pilots. For this reason it is essential that NDB operators read and comply with Notes regarding off-shore radio facilities. CAA Doc 446 is available from the department detailed at paragraph 4.5.5.1.1.1.

Note 2: Alternative arrangements may be desirable for flight safety reasons when working adjacent to a permanent installation. These will be agreed by the CAA in consultation with the parties concerned. Where the mobile installation temporarily uses the RTF frequency assigned to the permanent installation, helicopters will not normally use the mobile NDB because of the difficulty in co-ordinating with other users of the same NDB frequency.

Note 3: If NDB operation does become necessary the appropriate NDB frequency shown in the diagram at ENR 6-1-15-10 is to be used and the helicopter company involved is requested to co-ordinate use with other mobiles on the appropriate area frequency.