VATSIM UK

NORTHERN RTS | OPERATIONS DEPARTMENT

DURHAM VMATS PART 2 - REVISION 1.1

19TH DECEMBER 2016

Distribution and Scope

This manual outlines the recommended operational procedures for controllers within the VATSIM UK Division for Durham Airport (Aerodrome and Approach Control).

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Alex Ashley and Charlie Watson *for their help in converting the document into VATSIM UK's template*

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SECTION 1 | UNIT GENERAL OPERATING INSTRUCTIONS

1.1 Altimeter Setting Procedures

1.1.1 Locally Based Light Aircraft

- Light aircraft operating on local flights should be passed the QNH on taxiing. Once clear of controlled airspace they may be given the Tyne and/or Barnsley RPS when requested or if considered necessary.
- Aircraft intending to remain within the circuit should be passed the QFE on taxi.

1.1.2 Transit Aircraft

Aircraft transiting Durham CAS will normally use the Durham QNH.

1.1.3 Transition Altitude

The Transition Altitude within Durham CTR/CTA is 6000 feet. The TA in the surrounding FIR is 3000 feet.

1.1.4 Transition Levels

Aerodrome QNH	Transition Level	Minimum Stack Level*
1050 – 1032	55	60
1031 – 1013	60	65
1012 – 996	65	70
995 – 978	70	75
977 – 960	75	80
959 – 943	80	85

*Based on aircraft holding at TD up to a maximum altitude of 5500 feet

1.1.5 Altimeter Setting Regions

Durham Tees Valley is situated within the Tyne ASR however the Barnsley ASR is applicable to aircraft operating the south and west.

1.2 Light Aircraft and Helicopter Procedures

1.2.1 VFR

ADC will issue clearance to all VFR departures of not above altitude 1500 feet prior to taxi or at the holding point. This restriction may be lifted with the approval of APR or once the aircraft is on the APR frequency. Departing traffic will be transferred to APR prior to the CTR/CTA boundary.

All VFR traffic entering or leaving the CTR/CTA will require a clearance.

APR will issue CTR/CTA entry clearance and co-ordinate arriving traffic with ADC prior to entering the CTR/CTA. Joining instructions are normally issued on the ADC frequency.

1.2.2 Special VFR

The responsibility for issuing SVFR clearances rests with APR. ADC must obtain approval from APR for SVFR circuits. In the case of conflicting inbound aircraft, APR is responsible for providing separation until the ADC controller has both aircraft in sight and can provide reduced separation in the vicinity of the aerodrome as described in MATS Part 1 §1 Chapter 3.

SVFR clearances must apply to the CTR only i.e. “cleared to the northern control zone boundary” instead of “cleared to leave controlled airspace”.

1.2.3 Helicopters

Helicopters with wheels are normally treated the same as fixed-wing traffic and normally use the runway for landing. They may air-taxi across the grass. Other helicopters may land directly on stand.

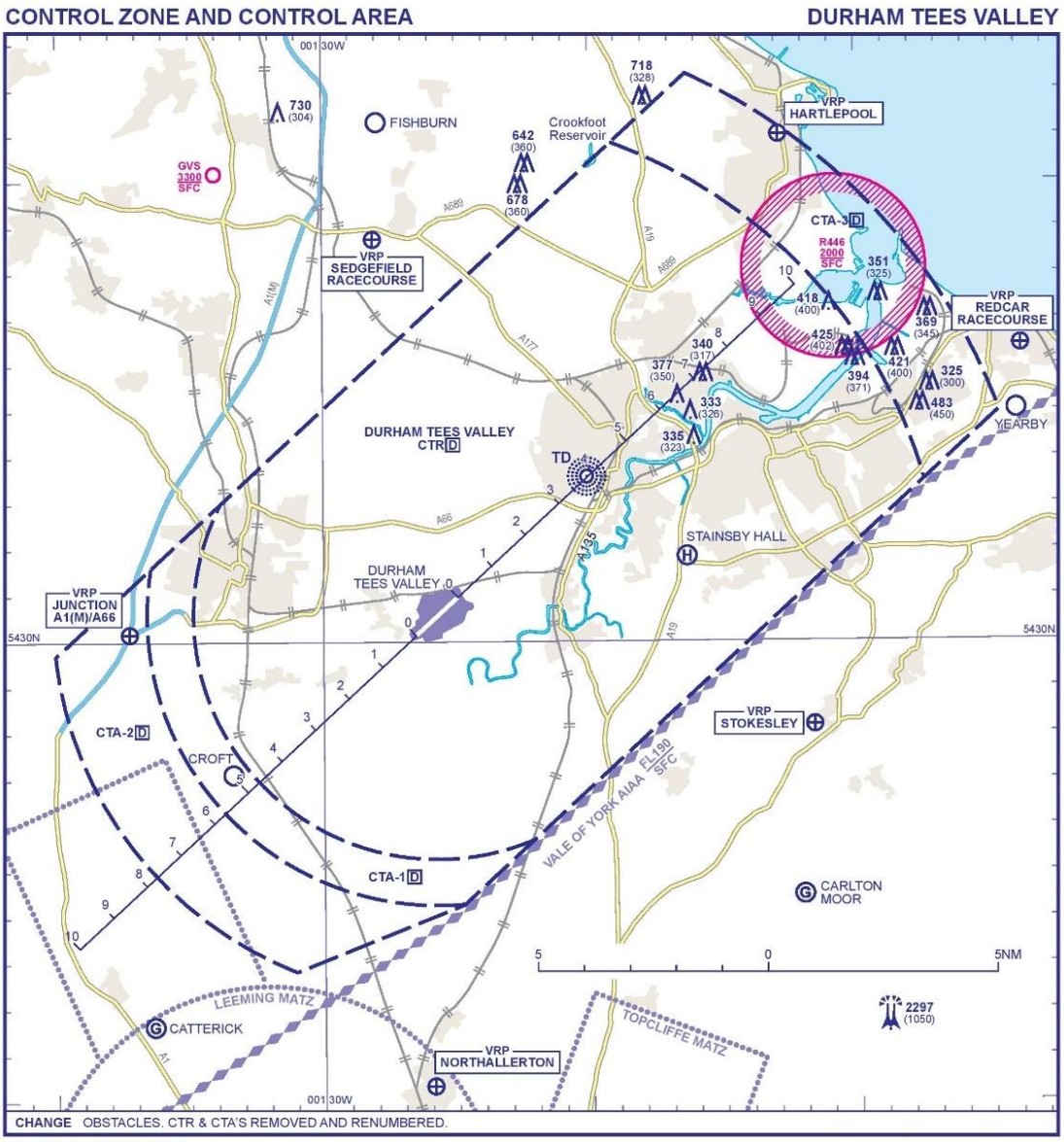
1.2.4 Entry/Exit

VRPs are published for entry/exit of the CTR/CTA.

VRP Name	Bearing/Range from EGNV
Hartlepool	041/13
Redcar Racecourse	071/14
Stokesley	111/8
Northallerton	186/10
Motorway Junction A66/A1	272/7
Sedgefield Racecourse	356/8

1.2.5 Local Airspace

Durham controlled airspace (Class D airspace).



AERO INFO DATE 11 AUG 09

ATS AIRSPACE VERTICAL LIMTS		
DURHAM TEES VALLEY CTR D 6000 / SFC	DURHAM TEES VALLEY CTA-1 D 6000 / 1200 CTA-2 D 6000 / 1500 CTA-3 D 6000 / 3000	
LATERAL LIMITS		
See AD 2-EGNV-2-17		

1.3 Noise Abatement

1.3.1 Noise Abatement Procedures

Minimum Noise Procedures are published in the UK AIP AD 2.EGNV-1-9.

1.4 Traffic Data Display

1.4.1 Flight Progress Strips

FPS marking is in accordance with MATS Part 1 Appendix E and this chapter. Standard abbreviations should be used.

1.4.1.1 Departures

Flights departing to land elsewhere are displayed in blue FPS holders.

CTOT		Type Callsign Speed					**HDG**	**LVL**	**ATIS/** RWY
ETD	ATD	Squawk	Next Squawk	IFR/VFR Level Route Destination		Clearance issued			

1.4.1.2 Arrivals

Inbound flights are displayed in buff FPS holders.

ETA	**TD**	From Type Callsign Speed		**HDG**	**LVL**				**NDB**	**ATIS/** RWY
IFR/VFR Live ETA						**R/I**	**R/V**	**SRA**	**ILS**	
		Previous Squawk	Squawk			GASKO		EAT		

1.4.1.3 Local Flights

Local flights (not landing away) and training flights are the same layout as arrivals but are displayed in pink FPS holders.

1.4.1.4 Overflights

Flights which are overflying are displayed in green FPS holders.

Type Callsign		From	**HDG**	**LVL**	Turning point/ETA	Turning point/ETA	**BS** **TS** **DS** **RCS**
Squawk	Next Squawk	To			Turning point/ETA	Turning point/ETA	

1.5 All Weather Operations

1.5.1 Runway Visual Range

RVR is by human observer method and readings will be taken whenever the lowest reported Met. Visibility is less than 1500 metres.

1.5.2 Maximum Values

The maximum RVR reported is 1000 metres on runway 23 and 1400 metres on runway 05.

1.5.3 Meteorological Information

An Automated Terminal Information Service is available on frequency 132.37 MHz.

1.5.4 Air Traffic Control Procedures

Low Visibility Procedures will be initiated whenever the meteorological visibility is less than 1500 metres, and/or the cloud base is 200 feet or less.

Where available, RVR values will be passed to arriving aircraft with landing clearance and departing aircraft on start-up, with taxi instructions and take-off clearance.

If unable to be observed visually, departing aircraft will be instructed to report commencing taxi, commencing take-off, airborne and arriving aircraft will be instructed to report landed or runway vacated.

The following restrictions apply to operations during Low Visibility Procedures:

- When the RVR is 800m or less, spacing between arriving aircraft should be increased so that the preceding inbound has come to a complete stop on the apron before the next inbound reaches 5NM.
- Landing clearance must be issued by 5NM from touchdown.
- Departing aircraft must have commenced take-off run before an arriving aircraft reaches 8NM from touchdown.
- When the lowest reported Met. Visibility is less than 600m only one aircraft is permitted to use the manoeuvring area at any one time.

SECTION 2 | LOCAL SEPARATION STANDARDS

2.1 Special Separation Standards IFR

2.1.1 Landing Interval

During non-radar operations, the landing interval for instrument approaches are as follows:

- Runway 05 – 15 minutes
- Runway 23 – 10 minutes

2.1.2 Reduction of IFR separation In the Vicinity of the Aerodrome

IFR separations may be reduced in accordance with MATS Part 1 §1 Chapter 3 ¶3A.

2.2 Separation Standards SVFR

2.2.1 Deemed Separations

There are no deemed separations for SVFR inside the Durham CTR. Separation from other SVFR and IFR traffic should be provided in accordance with MATS Part 1 §1 Chapter 2.

2.2.2 Weather Limitations

The weather limitations applicable for SVFR are described in MATS Part 1 §1 Chapter 2.

SECTION 3 | AERODROME CONTROL

3.1 Aerodrome Control

3.1.1 General Responsibilities

ADC is responsible for the provision of an Aerodrome Control Service to all aircraft flying with visual reference to the surface operating in, and in the vicinity of the ATZ and to those aircraft, personnel and vehicles operating on the manoeuvring area. The 'Air' and 'Ground Movement' functions of ADC are combined.

3.1.2 Selection of Runway in Use

The term 'Runway in Use' is used to indicate the main runway or landing direction selected by Aerodrome Control as the most suitable. When considering a runway change, ADC should consult with APR for the final decision.

3.1.3 Description of Airfield

ICAO Code	EGNV
Reference Point Co-ordinates and Location	**Lat**: 543033N **Long**: 0012546W Mid-point of Runway 05/23
Elevation	120ft AMSL – 4 hPa
Magnetic Variation/Annual Change	1.82°W (2015)
Transition Altitude	6000ft
Safety Altitude	3400ft

3.1.4 Runways

RWY Designator	QDM	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	
05	050°	2291	2570	2291	2291	
23	230°	2291	2500	2291	2291	
05	-	1788	2067	1788	-	T/O from intersection at C

3.1.5 Taxiways

Not all taxiways are available for use by all aircraft types. For VATSIM purposes, aircraft larger than a Falcon 20 are not to use taxiway A, therefore for runway 23, larger types will need to use B and backtrack.

When aircraft using the ILS glidepath for runway 05 are within 10NM from touchdown, departing aircraft must hold at holding point D2 unless they can depart immediately.

3.1.6 Stands

Stand Number	Largest Aircraft Type	Usage
1L	B735	
1	B772, L101, B767	Large aircraft
1R	B757, A321	
2	B757, A321	
3	B735	KLM
4	B757, A321	BEE/EZE
5	B735	EZE
5R	F50, ATR-72	
6		Police Helicopter
7-9		GA Aircraft
10-11		FRA (Cobham)
12-13		GA Aircraft

3.1.7 Use of ATM

The information derived from the ATM may be used to:

- Determine the arrival interval;
- Determine the departure interval;
- Confirming that the initial track of a departing aircraft conforms with the clearance issued;
- Emergency traffic information

3.2 Aerodrome Operations

3.2.1 Co-ordination between ADC & APR

ADC is responsible for effecting co-ordination with APR on all departures and IFR missed approaches and any inbound VFR flights which make their first call on the Tower frequency, transferring them to APR if necessary.

IFR and SVFR departure clearances must be requested from APR. Standard clearances may be issued to VFR departures as per Section 1, Chapter 2, Paragraph 1.2.1.

ADC will inform APR when IFR/SVFR aircraft start-up and pass airborne times to APR for all departures via the intercom.

ADC is to inform APR of circuit activity.

APR will pass traffic information to ADC on all aircraft wishing to transit within 5NM of the aerodrome below 2500 feet (Durham QNH). ADC may elect to work the traffic if required.

APR will advise ADC of the following:

- Estimates for IFR arrivals
- When IFR aircraft report the field in sight for a visual approach
- When IFR or training aircraft are 10NM from touch-down with type of approach (intentions if not landing).

3.2.2 Circuit Procedures

APR is to be kept informed of the number of such aircraft and of any manoeuvre which departs from the normal circuit pattern.

Circuits are normally Left Hand on runway 23 and Right Hand on runway 05. The circuit direction for one aircraft only may be varied at the controllers' discretion. Circuits are to take place not above height 1300 feet QFE (or altitude 1500 feet) unless otherwise approved by APR. Aircraft should be instructed to squawk 7010.

3.2.3 Start-up Clearances

Aircraft parked on stands 1-9 are required to request start clearance from ATC.

3.2.4 Departure Clearances

3.2.4.1 IFR Departures

Departure clearance must be obtained from APR before the aircraft is permitted to enter the runway.

Example: *"(full callsign) after departure left/right turn cleared to leave controlled airspace (heading or 'on track' Fix or north/south etc.) climb to altitude (or flight level), squawk … (contact frequency if not 118.850)"*

3.2.4.2 VFR Departures

Example: *"(full callsign) after departure (left/right) turn cleared to leave controlled airspace (north/south etc. or via a VRP) not above altitude 1500 feet VFR, squawk (local SSR code)"*

3.2.5 Training Aircraft

3.2.5.1 Instrument Flight Training

Instrument training aircraft which will be carrying missed-approaches are normally retained by the APR controller who will pass range checks at 10NM and will request a go-around clearance from the aerodrome controller by 4NM.

SECTION 4 | APPROACH CONTROL AND APPROACH RADAR

4.1 Approach Control

4.1.1 Responsibilities

Durham is an Approach Radar (APR) unit. APC procedures will only apply in the event of a complete radar failure. The responsibilities of APR are as per MATS Part 1, §3, Chapter 1 and 2.

4.1.2 Liaison with Aerodrome Control

APR is to pass ETAs for all IFR inbounds to ADC and a range check at 10NM from touchdown.

IFR departure clearances will be issued to ADC in the following format:

- Aircraft callsign
- Direction of turn
- Initial route or heading
- Level
- Squawk
- Frequency if not 118.850
- 'Radar Departure' (if the departure is not Released)

4.2 Procedures for IFR Traffic

4.2.1 Allocation of Levels

Normally, Flight Levels will be allocated to IFR inbounds. The lowest flight level at the TD can be determined using the table in Section 1.1.4.

The lowest holding altitude is altitude 2500 feet, however aircraft will not normally be held lower than altitude 4500 feet in order to allow for missed approaches (which climb to 2500 feet) and for departures – the lowest terrain safe level for departures is 3500 feet.

4.2.2 Expected Approach Times

EATs are issued in accordance with MATS Part 1 §3 Chapter 1 or at any time when operating non-radar if holding is taking place. For landing intervals see Section 2.2.2.

4.2.3 Holding and Approach Patterns

A holding pattern 'TD' is established based on the TD NDB, consisting of a racetrack pattern inbound 230°M, right turns, outbound time 1 minute or 8DME I-TD/I-SE. Maximum holding speed is 210 knots, lowest holding altitude 2500 feet AMSL.

Runway	Approach Procedures
05	ILS/DME/NDB(L) LLZ/DME/NDB NDB(L)/DME SRA
23	ILS/DME/NDB(L) LLZ/DME/NDB NDB(L)/DME NDB(L) SRA

4.2.4 Missed Approach Procedures

Missed Approach Procedures are published on the approach plates in the UK AIP.

4.2.5 Departure Clearances

APR is responsible for issuing departure clearances, including modifying those issued by other units (such as Scottish ACC or Swanwick (Mil)), to provide separation between local IFR traffic (i.e. IFR traffic for which estimates have been received and those currently in receipt of an ATS).

The departure clearance will normally be passed by ADC on behalf of APR.

4.3 Co-ordination

4.3.1 P18 Airway

4.3.1.1 Controlling Authority

The P18 Airway runs from POL to NATEB. The controlling authority is Scottish ACC. The portion north of UVAVU below FL125 is delegated to Newcastle APR. Durham APR may use the portion of the P18 between TILNI and UVAVU which is delegated to Newcastle provided they inform Newcastle APR of their intention to do so.

4.3.1.2 Inbounds from the South-West

Scottish ACC will pass the estimate for GASKO and squawk code (which will be retained by Durham).

The silent handover procedure is descending FL140 positioned on a heading on the east side of P18. The release point is 10NM before GASKO if 'clean'. Inbound traffic at or below FL130 will be individually co-ordinated with Durham. Durham APR is responsible for co-ordinating with Leeds if they require to enter Leeds airspace. If Durham APR intends to vector traffic north of TILNI, they must co-ordinate with Newcastle APR.

4.3.1.3 Inbounds from the North

Newcastle APR will pass the estimate for TILNI and squawk code (which may be retained by Durham). Durham APR will provide the acceptance level and runway in use. A silent handover may be used if 'clean'.

4.3.1.4 Departures to the South-West

Durham APR will call Scottish ACC (MAN East) when the aircraft starts-up with an estimated airborne time (the actual airborne time is to be passed if it differs by 5 minutes or more). Scottish will provide the squawk and contact frequency. The standard outbound clearance is to join controlled airspace on track GASKO climbing FL130, released for climb by Scottish on contact.

4.3.1.5 Departures to the North

Durham APR will call Newcastle APR when the aircraft starts-up with an estimated airborne time. Newcastle will provide a clearance and squawk. Durham will then pass the actual airborne time and provide TS/DS once clear of CAS until the boundary of P18.

4.3.1.6 Overflights FL130 or Below

In the event of traffic cruising at FL130 in P18, Scottish ACC will inform Durham APR and the standard outbound clearance will be suspended. Inbound traffic will be subject to a Radar Release in accordance with MATS Part 1 §1 Chapter 6 ¶12.

4.3.2 UL602/UL90

4.3.2.1 Departures via OTR

Durham APR will call Swanwick (Mil) when the aircraft starts with an estimated airborne time and allocated Durham squawk code. Swanwick will provide a squawk, level and frequency. If 'clean' and climbing to the agreed level (usually FL190), the aircraft is transferred to Swanwick on their squawk by silent handover, otherwise a radar handover must be carried out.

4.3.2.2 Inbounds via UMBEL/OTR

Swanwick (Mil) will call Durham APR with the inbound estimate and Swanwick allocated squawk. Durham APR will provide a Durham squawk, acceptance level and frequency. The aircraft will be transferred no later than 20nm from the TD by silent handover if 'clean' and descending to the agreed level, otherwise transfer will take place via a radar handover.

4.3.3 Non-Airways Traffic

4.3.3.1 Northbound

All traffic routing north outside CAS will be notified to Newcastle APR. Traffic will be transferred to Newcastle on their squawk prior to passing abeam Durham city. Inter-airport flights will be notified prior to departure and an acceptance level obtained for IFR flights.

Outbound traffic routing east of P18 will be notified to Newcastle APR on start-up. Newcastle will provide an acceptance level (not below FL80) and squawk. Durham will pass the airborne time and once clear of Durham traffic and CAS and if clean, the traffic will be transferred by silent handover.

4.3.3.2 Southbound

Traffic operating above FL100 should be offered to Swanwick (Mil) in the first instance, in all other cases the traffic should be offered to the next LARS unit available.

4.3.4 RAF Leeming

Due to the close proximity of RAF Leeming, IFR arrivals and departures (specifically those to/from the south/south-west) which may affect Leeming operations should be notified to Leeming and co-ordination agreed whenever necessary. Leeming may co-ordinate with Durham APR crossing of the Durham Class D airspace on an individual basis traffic arriving or departing from Leeming. Durham APR will provide the lowest level available which ensures standard separation against all traffic within Durham CAS.

4.3.5 Leeds

IFR traffic inbound to Leeds will be co-ordinated with Leeds Radar on an individual basis and a handover will be required for traffic under a radar service.

4.4 Approach Radar Control

4.4.1 Services and Responsibilities

Durham APR is responsible for providing a radar service to arriving and departing IFR traffic within 40NM of the ATZ including the provision of:

- Surveillance Radar Approaches;
- Radar vectoring/sequencing to ILS or NDB/DME Approach
- Monitoring of ILS or NDB/DME approaches
- Radar services to departing and transit aircraft.
- Lower Airspace Radar Service within 40NM of the airfield;

Traffic Service or Deconfliction Service will be provided outside CAS and Radar Control inside CAS as specified in MATS Part 1 §1. The pilot must be notified of the change of service when an aircraft enters or leaves CAS.

4.4.1.1 Durham Radar

The Approach Radar controller operating on 118.850 is responsible for the overall Approach Radar function including LARS and may delegate specific functions to Durham Director.

4.4.1.2 Durham Director

Durham Director operating on 128.850 shall provide final sequencing of inbound aircraft and SRAs when necessary. Director may also provide a service to transit aircraft and departing aircraft when delegated by APR in exceptional circumstances.

4.4.2 Radar Separation minima

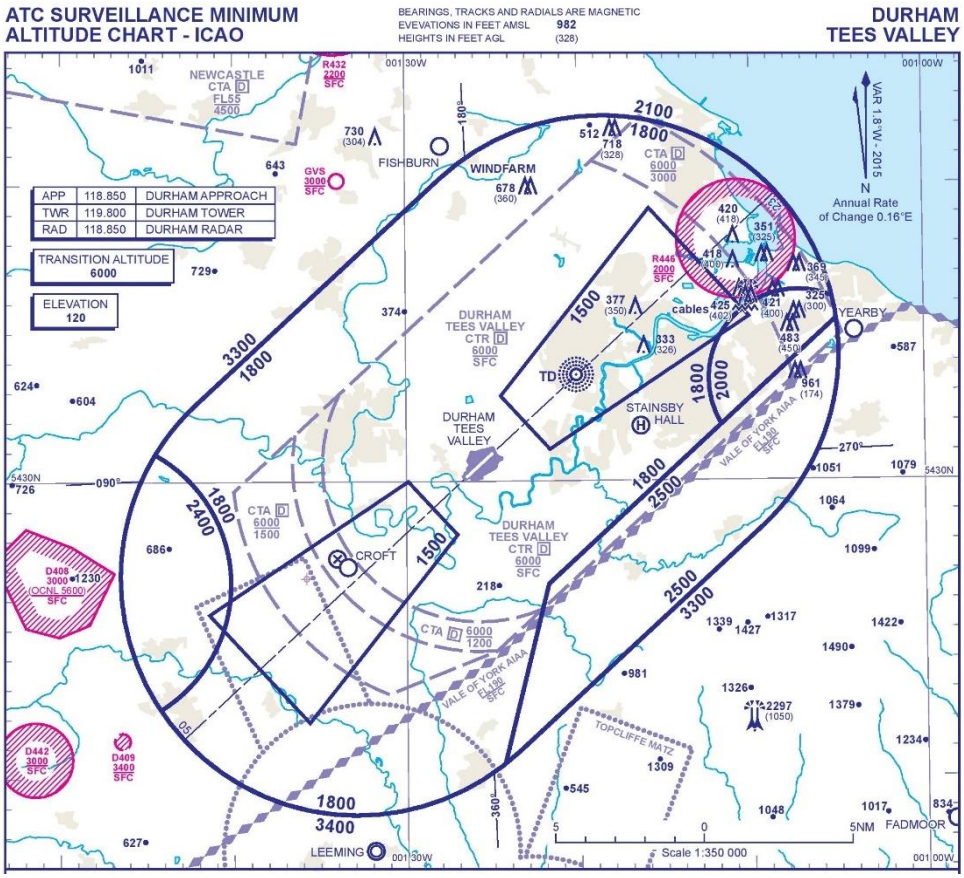
The minimum horizontal separation based on radar is 5NM. This may be reduced to 3NM between identified primary contacts operating on the same R/T frequency below FL190.

4.4.3 Terrain clearance

The Minimum Sector Altitude within 25NM of the airfield is:

Direction	Altitude (ft)
Northwest	3300
Southwest	3400
Northeast	2100
Southeast	3300

IFR aircraft receiving a radar service are to be provide with altitudes in accordance with the terrain clearance criteria in MATS Part 1 §1 Chapter 6 and the SMAC.



The minimum altitude at which Deconfliction Service may be provided within 30NM is 3500ft; the minimum altitude outside 30NM, to the north-east and south-east 3500ft, to the northwest 4200ft and southwest 4300ft. If an aircraft receiving a DS descends below the terrain safe level, should subject to radar coverage provide a TS instead and remind the pilot that they remain responsible for terrain clearance.

4.4.4 Danger areas

Danger Areas D407 (Warcop), D408 (Feldom), D409 (Catterick) and D442 (Bellerby) are displayed on the radar display.

4.4.5 Surveillance Radar Approaches

Surveillance Radar Approaches terminating at 2NM from touchdown based on a 3 degree glidepath are approved for both runways at Durham. Phraseology should be in accordance with CAP 413.

Runway	OCA	OCH	Threshold Elevation (ft)
05	750	635	115
23	760	644	116

Runway 05			Runway 23		
Range	Altitude (QNH)	Height (QFE)	Range	Altitude (QNH)	Height (QFE)
			5.5	1900	1790
5	1700	1590	5	1740	1630
4	1380	1270	4	1410	1300
3	1060	950	3	1090	980
2	750	640	2	760	650

4.4.6 Co-ordination with ADC

Approach Radar/Director shall provide the following information to Aerodrome Control:

- Range checks 10 track miles (and 4NM if low-approach/landing clearance required).
- When IFR aircraft requesting a visual approach have the airfield in sight and VFR aircraft.
- Overflying aircraft intending to pass within 5NM of the airfield below 2500 feet.

4.4.7 Lower Airspace Radar Service

Durham Radar will provide LARS in accordance with the AIP ENR 1.6.3 up to and including FL100 within 40NM of the ATZ within the limits of radio/radar coverage.

4.4.8 SSR Operating Instructions

All aircraft must be identified by using one of the methods described in MATS Part 1, §1, Chapter 6.

All aircraft will normally be allocated a discrete squawk which must be validated/verified as soon as practicable, except for 7067 which is allocated when operating PSR-only or non-radar.

4.4.8.1 Squawk Allocation

Conspicuity (unvalidated/unverified)	7067
Operating altitude 5000 feet and below	7030 - 7047
Operating above altitude 5000 feet	7050 - 7066