

**Aberdeen International  
Airport**



# **Glossary & Terminology**

ACP-2019-82

# Introduction

This document forms part of our set of Consultation documents for our Aberdeen Airport airspace change proposals.

Aberdeen Airport is consulting on two changes to the airspace surrounding the airport. These proposals are part of an industry-wide drive, led by the Civil

Aviation Authority (CAA) who regulate the UK's airspace, to modernise UK airspace infrastructure.

As part of this consultation, we are asking for your feedback on the following two proposals:

1

The introduction of modern satellite-based arrival procedures<sup>1</sup> which would be used by a very small percentage of arrivals for resilience and training purposes; and

2

The release of a section of the Controlled Airspace (CAS), which is not routinely used by the aircraft arriving or departing from Aberdeen Airport, for the benefit of other airspace users.

**This document is intended to be read alongside our main consultation document and provides consultees with a glossary of terms and descriptions of the technical terms that are used in those documents.**

Acronym	Term	Description
<b>AIAL</b>	Aberdeen International Airport Ltd	Aberdeen Airport – the sponsor of this ACP
<b>ACOG</b>	Airspace Change Organising Group	Established in 2019 at the request of the Department for Transport and Civil Aviation Authority to coordinate the delivery of key elements of the UK's Airspace Modernisation Strategy.
<b>ACP</b>	Airspace Change Proposal	To carry out any permanent change to the published airspace, the Civil Aviation Authority (CAA) requires the change sponsor to carry out an airspace change proposal in accordance with CAP1616.
<b>ADS-B</b>	Automatic Dependent Surveillance Broadcast	A means by which aircraft can automatically transmit and/or receive data such as identification, position, and additional data, as appropriate in a broadcast mode via a data link.
<b>AIP</b>	Aeronautical Information Publication	A publication which contains details of regulations, procedures and other information pertinent to the operation of aircraft in the particular country to which it relates.
<b>AMS</b>	Airspace Modernisation Strategy	UK Government has tasked the aviation industry to modernise airspace in the whole of the UK. The long-term strategy of the CAA and the UK Government is called the Airspace Modernisation Strategy (AMS). Its CAA document reference number is CAP1711.
<b>AMSL</b>	Above Mean Sea Level	
<b>ANSP</b>	Air Navigation Service Provider	An organisation that provides the service of managing the aircraft in flight or on the manoeuvring area of an airport and which is the legitimate holder of that responsibility.
<b>ATC</b>	Air traffic control	The ground-based personnel and equipment concerned with controlling and monitoring air traffic within a particular area.
<b>ATZ</b>	Aerodrome Traffic Zone	An airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.
<b>CAA</b>	Civil Aviation Authority	The UK Regulator for aviation matters
<b>CAP1616</b>	Civil Aviation Publication 1616	The airspace change process regulated by the CAA
	Capacity	A term used to describe how many aircraft can be accommodated within an airspace area without compromising safety or generating excessive delay

Acronym	Term	Description
<b>CAS</b>	Controlled Airspace	Generic term for the airspace in which an air traffic control service is provided as standard; note that there are different sub classifications of airspace that define the particular air traffic services available in defined classes of controlled airspace.
	Centreline	The nominal track for a published route
	Concentration	Refers to a density of aircraft flight paths over a given location, this generally refers to high density where tracks are not spread out; this is the opposite of dispersal
<b>CCO</b>	Continuous Climb Operations	An aircraft operating technique facilitated by the airspace and procedure design and assisted by appropriate ATC procedures, allowing the execution of a flight profile optimised to the performance of aircraft, leading to significant economy of fuel and environmental benefits in terms of noise and emissions reduction
<b>CDO</b>	Continuous Descent Operations	An aircraft operating technique in which an arriving aircraft descends from an optimal position with minimum thrust and avoids level flight to the extent permitted by the safe operation of the aircraft and compliance with published procedures and ATC instructions
	Conventional navigation	The historic navigation standard where aircraft fly with reference to ground-based radio navigation aids
	Conventional route	Routes defined to the conventional navigation standard, i.e. using ground based radio navigation beacons to determine their position.
<b>CTA</b>	Control Area	Controlled airspace extending upwards from a specified limit above the earth. Control Areas are situated above the Aerodrome Traffic Zone (ATZ) and afford protection over a larger area to a specified upper limit.
<b>CTR</b>	Control Zone	Controlled airspace extending upwards from the surface of the earth to a specified upper limit. Aerodrome Control Zones afford protection to aircraft within the immediate vicinity of aerodromes
<b>db</b>	Decibels	A unit used to measure the intensity of a sound (or the power level) of an electrical signal by comparing it with a given level on a logarithmic scale.
	Dispersal	Refers to the density of aircraft flight paths over a given location, this generally refers to lower density – tracks that are spread out; this is opposite of Concentration
<b>DPE</b>	Design Principle Evaluation	A evaluation of each option against each design principle which forms part of Stage 2A of the CAP1616 process
	Easterlies	When a runway is operating such that aircraft are taking off and landing in an easterly direction
	Final Approach	The final part of an arrival flight path that is directly lined up with the runway

Acronym	Term	Description
<b>FL</b>	Flight Level	The Altitude above sea-level in 100 feet units measured according to a standard atmosphere. A flight level is an indication of pressure, not of altitude. Only above the transition level (which depends on the local QNH but is typically 4000 feet above sea level) are flight levels used to indicate altitude; below the transition level feet are used.
<b>FLARM</b>	Flight Alarm	FLARM (an acronym based on 'flight alarm') is the proprietary name for an electronic device which is in use as a means of alerting pilots of small aircraft, particularly gliders, to potential collisions with other aircraft which are similarly equipped.
	Flight-path	The track flown by aircraft when following a route, or when being directed by air traffic control
<b>ft</b>	Feet	The standard measure for vertical distances used in air traffic control
<b>FASI</b>	Future Airspace Implementation Strategy	Under the Government's Airspace Modernisation Strategy (AMS, ref 15) airports in the UK are required to update their airspace and routes in a coordinated way.
<b>GA</b>	General Aviation	All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. The most common type of GA activity is recreational flying by private light aircraft and gliders, but it can range from paragliders and parachutists to microlights, balloons, and private corporate jet flights.
<b>IFP</b>	Instrument Flight Procedures	A published procedure used by aircraft flying in accordance with the instrument flight rules, which is designed to achieve and maintain an acceptable level of safety in operations and includes an instrument approach procedure, a standard instrument departure, a planned departure route and a standard instrument arrival.
<b>ILS</b>	Instrument Landing System	An ILS operates as a ground-based instrument approach system that provides precision lateral and vertical guidance to an aircraft approaching and landing on a runway, using a combination of radio signals to enable a safe landing even during poor weather.
<b>IOA</b>	Initial Options Appraisal	A qualitative appraisal of an option against a baseline 'do nothing' scenario, as required at Step 2B of CAP1616
$L_{Aeq}$		The most common international measure of noise, meaning, 'equivalent continuous sound level'. This is a measurement of sound energy over a period of time.
$L_{Aeq 16h}$		The A-weighted Leq measured over the 16 busiest daytime hours (0700-2300) is the normal time-period used to develop the Airport Noise Contours for day-time operations.
$L_{Aeq 8h}$		The A-weighted Leq measured over the 8 night-time hours (2300-0700) is the normal time-period used to develop the Airport Noise Contours for night-time operations.

Acronym	Term	Description
	Lower Airspace	Airspace in the general vicinity of the airport containing arrival and departure routes below 7,000ft. Airports have the primary accountability for the design of this airspace, as its design and operation is largely dictated by local noise requirements, airport capacity and efficiency
<b>NAP</b>	Noise Abatement Procedures	Noise abatement procedures are designed to minimise exposure of residential areas to aircraft noise, while ensuring safety of flight operations
<b>NATS (ATC)</b>		NATS ATC - the air navigation service provider at Aberdeen Airport under commercial contract for the aerodrome control provision.
<b>NATS NERL</b>		NATS NERL - The UK's licenced air traffic service provider for the en route airspace (upper network) that connects airports with each other, and with the airspace of neighbouring states.
<b>nm</b>	Nautical Mile	Aviation measures distances in nautical miles. One nautical mile (nm) is 1,852 metres. One road mile ('statute mile') is 1,609 metres, making a nautical mile about 15% longer than a statute mile.
	Network Airspace / Upper network	En route airspace above 7,000ft in which NATS has accountability for safe and efficient air traffic services for aircraft travelling between the UK airports and the airspace of neighbouring states.
<b>NTK</b>	Noise Track Keeping	A system that monitors and records radar data to monitor aircraft operations and report statistics focused around noise.
<b>PANS OPS</b>	Procedures for Air Navigation Services Aircraft Operations	PANS-OPS is contained in an ICAO Document 8168 which sets out the design criteria and rules for instrument flight procedures which include approach and departure procedures.
<b>PBN</b>	Performance Based Navigation	Referred to as PBN; a generic term for modern standards for aircraft navigation capabilities including satellite navigation (as opposed to 'conventional' navigation standards)
<b>RMA</b>	Radar Manoeuvring Area	An ATC operational area articulated as a volume of airspace by the ANSP. It facilitates the close-in radar vectoring by ATC that is required to take the aircraft safely from a holding stack and established onto final approach.
<b>RNAV / RNAV 1</b>	aRea NaVigation	This is a generic term for a particular specification of Performance Based Navigation. The suffix '1' denotes a requirement that aircraft can navigate to within 1nm of the centreline of the route 95% or more of the time. In practice the accuracy is much greater than this.
<b>RNP-RF</b>	Required Navigation Performance – Radius to fix	An advanced navigation specification under the PBN umbrella. The suffix '1' denotes a requirement that aircraft can navigate to within 1nm of the centreline 95% or more of the time, with additional self-monitoring criteria. In practice the accuracy is much greater than this. The RF means Radius to Fix, where airspace designers can set extremely specific curved paths to a greater accuracy than RNAV1.

Acronym	Term	Description
<b>RNP-AR</b>	Required Navigation Performance – Authorisation required	An advanced navigation specification under the PBN umbrella. ‘Authorisation required’ refers to aircraft and operators complying with specific airworthiness and operational requirements. RNP-AR allow airspace designers to set extremely specific curved paths to a greater accuracy than RNAV1, these can be designed before and after the Final Approach Fix.
	Separation	Aircraft under Air Traffic Control are kept apart by standard separation distances, as agreed by international safety standards. Participating aircraft are kept apart by at least 3nm or 5nm lateral separation (depending on the air traffic control operation), or 1,000ft vertical separation.
<b>SID</b>	Standard Instrument Departure	Usually abbreviated to SID; this is a route for departures to follow straight after take-off.
	Tactical Intervention	Air traffic control methods that involve controllers directing aircraft for specific reasons at that particular moment (see Vector)
<b>TMA / ScTMA</b>	Terminal Manoeuvring Area (Terminal Airspace) / Scottish Terminal Manoeuvring Area	An aviation term to describe a designated area of controlled airspace surrounding a major airport or cluster of airports where there is a high volume of traffic. The airspace surrounding Glasgow & Edinburgh airports is described as the Scottish TMA (ScTMA). This is the airspace that contains all the arrival and departure routes for Glasgow & Edinburgh from the surface to 6000ft.
<b>TMZ</b>	Transponder Mandatory Zone	Airspace of defined dimensions where the carriage and operation of transponder equipment is mandatory.
<b>VFR</b>	Visual Flight Rules	Visual Flight Rules (VFR) are the rules that govern the operation of aircraft in Visual Meteorological Conditions (VMC) (conditions in which flight solely by visual reference is possible)
<b>VMC</b>	Visual Meteorological Conditions	Visual meteorological conditions (VMC) are the meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima
<b>VSA</b>	VFR Significant Area	A volume of airspace which has been identified as being particularly important to VFR operations. A VSA might take the form of a route, a zone, or an area chosen for its particular importance to GA users. These areas do not have any official status but are intended to highlight the importance of a particular area so that future airspace development plans can take account of the GA activity.
	Vector / vectoring	An air traffic control method that involves directing aircraft off the established route structure or off their own navigation – ATC instruct the pilot to fly on a compass heading and at a specific altitude. In a busy tactical environment, these can change quickly. This is done for safety and for efficiency.
	Westerly operation	When a runway is operating such that aircraft are taking off and landing in a westerly direction.

## Aircraft Movement

An aircraft movement, sometimes known as an Air Transport movement (ATM) is either a landing or a take-off of an aircraft or helicopter at an airport.

## How are runways used?

A runway may be used in two directions, depending on wind direction, amongst other factors. As far as possible, aircraft need to and take-off into wind.

When the wind blows from the south, planes take off and land towards the south.

# 60%

### Runway 16

Over the past 10 years, 60% of flights used Runway 16 (southerly)



Southerly Operations

When the wind blows from the north, planes take off and land towards the north.

# 40%

### Runway 34

Over the past 10 years, 40% of flights used Runway 34 (northerly).



Northerly Operations



## Aircraft Navigation Terminology

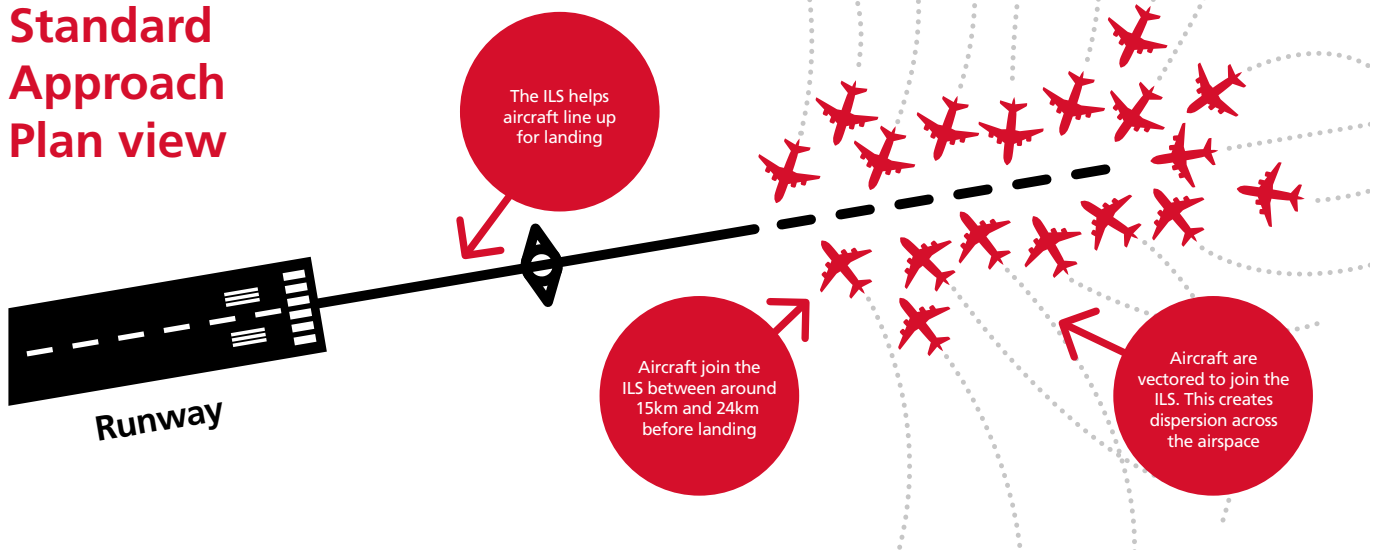
### Performance-Based Navigation

Performance based navigation (PBN) is a type of navigation that uses satellite-based technology. This is similar to the type of technology used in car sat-navs, or in GPS based sports watches. PBN is being introduced across the world and Aberdeen Airport are required to consider implementing it as part of meeting the requirements of the Airspace Modernisation Strategy.

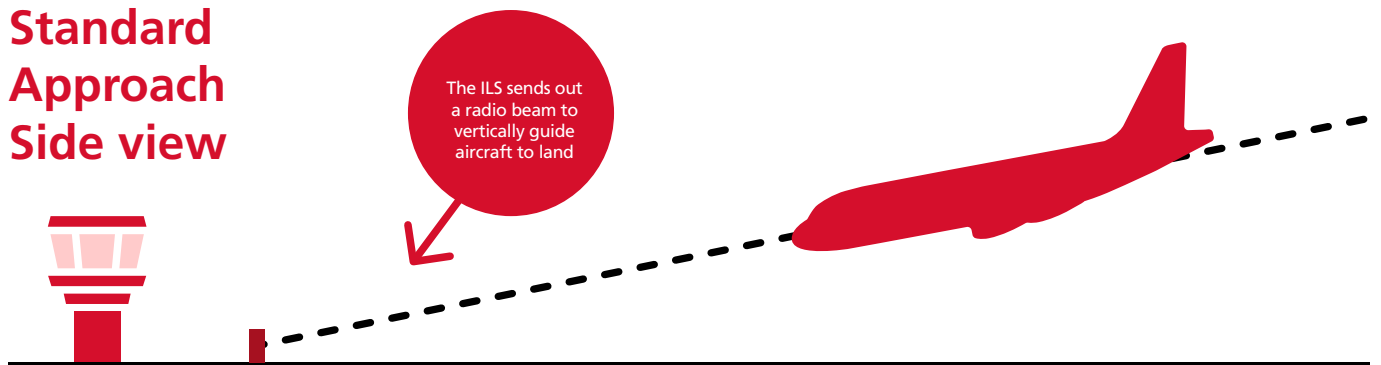
### Instrument Landing System

The Instrument Landing System (ILS) is used by aircraft once on final approach. It is a system of radio beacons which provide the aircraft with horizontal and vertical guidance, so that they know their exact position just before and during landing, even in the poorest of visibility. The ILS relies on physical infrastructure which is located on the ground at the airport.

#### Standard Approach Plan view



#### Standard Approach Side view



## Other navigation aids

### VOR

**VOR** stands for **very high frequency omnidirectional range** and is a navigation aid for aircraft. It uses very high frequency radio signals emitted by radio beacons and sends a signal that an aircraft can pick up and use it to navigate.

### DME

**DME** stands for **Distance Measuring Equipment**. This equipment is usually co-located with a VOR and will give a pilot an indication of the aircraft's distance from the VOR.

### NDB

**NDB** is a **Non-Directional Beacon**. It is a ground-based radio transmitter which is used to aid navigation and is used as an approach aid for airports.

## Vectoring (also known as tactical controlling)

When there are no set routes for aircraft to fly, pilots rely on instructions from air traffic controllers to navigate them. These instructions can be a climb or descent instruction and/or a positioning instruction. To ensure the aircraft is flying in the right direction, the air traffic controller will provide the pilot with a right or left turn instruction, combined with a heading to fly. This heading is based on a compass bearing between 001-360 degrees. This is known as vectoring. At larger airports, the Air Traffic Controller will have radar equipment to see where the aircraft are flying, in that situation this is known as Radar Vectoring.

## Dispersion

Dispersion refers to the density of flight paths over a given area, and generally refers to low density operations where tracks or routes are 'spread out' over a wider area.

## Concentration

Concentration refers to the density of aircraft flight paths over a given location. Generally, refers to high density, where tracks are not spread out over a wide area.

# Airspace Terminology

## Controlled Airspace

Controlled Airspace is a generic term for airspace in which an Air Traffic Control service is provided and aircraft flying in controlled airspace must follow instructions from Air Traffic Controllers. Controlled airspace is provided primarily to protect its users, mostly commercial airlines.

The UK there are currently five classes of airspace: A, C, D, E and G. The classification of airspace an aircraft is flying in determines how much control Air Traffic Controllers provide and responsibilities of the pilots and ATC differs between the classifications.

In the UK, Classes A-E are classed as controlled airspace. For more information see the NATS website [here](#).

## Control Zone (CTR)

Controlled airspace extending upwards from the surface of the earth to a specified upper limit. Control Zones afford protection to aircraft within the immediate vicinity of an aerodrome.

## Control Area (CTA)

A CTA is controlled airspace which extends from a specified limit above the earth. Control Areas do not start at ground level, but are situated above the Airport zone and afford protection over a larger area to a specified upper limit.

