

4.2 RUNWAY ORIENTATION

Runway

“Rectangular area on an aerodrome used for landing and takeoff.” Runway orientation is important in airport planning. Current practice is to layout a runway in the direction of prevailing wind.

Importance of runway layout

- Determination of runway is a critical task.
- It is very important for safe take offs and approaches.
- The width and sloping of runway also play a role in safe approaches.

Runway Numbers

- Runways are numbered according the magnetic compass direction.
- Consists of two numbers one at each end of runway.
- Preceding that number are eight stripes.

Runway Heading

- By 500 feet is the touchdown zone, identified by six stripes.
- Runway numbers are not given in degrees, rather in shorthand format.
- A runway with a marking of 14 is actually 140 degrees.
- For simplicity FAA rounds off the precise headings to nearest tens.

Runway Configuration

FAA includes over 20 runway layouts. Amongst them there are 4 basic runway patterns:

- Single Runway
- Parallel Runway
- Open-V Runway
- Intersecting Runway

Factors affecting runway orientation

- Wind
- Airspace Availability
- Environmental factors
- Obstructions to navigation
- Air traffic control visibility
- Wild life hazards
- Terrain and soil consideration

Wind rose analysis

An approach often used in determining the runway orientation. The method uses a wind rose template. A transparent runway template is placed and rotated around the center of wind rose. At each rotating angle, the percentage of allowable cross winds is measured

Runway Lighting

These lights are used to assist pilot in to identify the runway.

- Green Threshold Lights: Line the runway edge.
- Red Lights: Mark the end of runway.
- Blue Lights: Run alongside taxiways.

While runways have Yellow or White lights marking their edges

Runway Signs

Various kinds of runway signs are also used for facilitation. They differ according to their purpose and action.