010-07-03

Radar services: key figures

21 figures in 8 groups. Read the cue, say the figure, then check. Each group ends with a recap.
Rules change: check the regulation in force.

PPL Knowledge · © rpvfalmeida · CC BY-NC-ND 4.0 Educational content. It does not replace ATO instruction.

Primary blip matched to a just-departed aircraft, measured from the runway end

1 NM

Maximum distance for matching a primary blip to a departure

Heading changes that identify a primary radar target, under ATC only

30° or more

Heading changes instructed by ATC when identifying with primary radar only

Conspicuity code when Mode S downlinked identification is used

A1000

Assigned to eligible flights in declared airspace, not during listed contingencies

What makes an SSR code a discrete code

4 digits

The last two digits are not "00"

Identification: recap

CUE	FIGURE	DETAIL
Primary blip matched to a just-departed aircraft, measured from the runway end	**1 NM**	Maximum distance for matching a primary blip to a departure
Heading changes that identify a primary radar target, under ATC only	**30° or more**	Heading changes instructed by ATC when identifying with primary radar only
Conspicuity code when Mode S downlinked identification is used	**A1000**	Assigned to eligible flights in declared airspace, not during listed contingencies
What makes an SSR code a discrete code	**4 digits**	The last two digits are not "00"

> **Departure: 1 NM. Turns: 30 or more. Discrete code: 4 digits.**

Distance from the runway on departure within which position information is unnecessary

1 NM

Only when the observed position is consistent with the departure time

Position information: recap

CUE	FIGURE	DETAIL
Distance from the runway on departure within which position information is unnecessary	1 NM	Only when the observed position is consistent with the departure time

Format for the relative bearing of conflicting traffic

12-hour clock

Use compass points instead when the aircraft is turning

Traffic information: recap

CUE	FIGURE	DETAIL
Format for the relative bearing of conflicting traffic	12-hour clock	Use compass points instead when the aircraft is turning

Clock positions on a 12-hour clock, then compass points in a turn.

Minimum distance from the airspace limit when vectoring, except at a transfer of control

2.5 NM

Not required where local arrangements protect separation with traffic next door

Minimum distance from the airspace limit when the separation minimum exceeds 5 NM

half the separation minimum

Applies where the minimum separation is greater than 5 NM

Vectoring: recap

CUE	FIGURE	DETAIL
Minimum distance from the airspace limit when vectoring, except at a transfer of control	**2.5 NM**	Not required where local arrangements protect separation with traffic next door
Minimum distance from the airspace limit when the separation minimum exceeds 5 NM	**half the separation minimum**	Applies where the minimum separation is greater than 5 NM

> **2.5 NM from the boundary. Above a 5 NM minimum: half that minimum.**

Outside RVSM airspace: level tolerance for displayed level information

±300 ft

The authority can tighten this tolerance, as the next slide shows

Outside RVSM airspace: the tightest tolerance an authority can set

±200 ft

The authority can tighten the ±300 ft criterion, but not below this value

Inside RVSM airspace only: level tolerance for displayed level information

±200 ft

Applies inside RVSM airspace, not outside it

Change from a cleared level that means the aircraft has vacated it

more than 300 ft

Measured in the expected direction, after clearance to leave the level

Distance beyond a level after which a climbing or descending aircraft has passed it

more than 300 ft

Measured beyond the level, for a climb or descent

Time within tolerance before an aircraft has reached its cleared level

15 s

Or 3 display updates or 3 sensor updates, whichever is greatest

How many times a unit must verify the displayed level, and when

at least once

On initial contact, or as soon as possible afterwards, unless the authority says otherwise

Level verification: recap

CUE	FIGURE	DETAIL
Outside RVSM airspace: level tolerance for displayed level information	**±300 ft**	The authority can tighten this tolerance, as the next slide shows
Outside RVSM airspace: the tightest tolerance an authority can set	**±200 ft**	The authority can tighten the ±300 ft criterion, but not below this value
Inside RVSM airspace only: level tolerance for displayed level information	**±200 ft**	Applies inside RVSM airspace, not outside it
Change from a cleared level that means the aircraft has vacated it	**more than 300 ft**	Measured in the expected direction, after clearance to leave the level
Distance beyond a level after which a climbing or descending aircraft has passed it	**more than 300 ft**	Measured beyond the level, for a climb or descent
Time within tolerance before an aircraft has reached its cleared level	**15 s**	Or 3 display updates or 3 sensor updates, whichever is greatest
How many times a unit must verify the displayed level, and when	**at least once**	On initial contact, or as soon as possible afterwards, unless the authority says otherwise

> **Outside RVSM: 300 ft. Inside RVSM: 200 ft. Vacated or passed: more than 300 ft.**

Default horizontal separation minimum with radar, ADS-B or MLAT

5 NM

The default, where separation is provided

General reduced horizontal separation minimum, not below this value

3 NM

Only when the provider establishes it, the authority approves it and the system permits

Reduced minimum between succeeding aircraft on the same final approach track

2.5 NM

Only when all listed conditions are met and the authority approves

Distance from the threshold within which the 2.5 NM final-approach minimum can apply

10 NM

Measured from the runway threshold

Separation: recap

CUE	FIGURE	DETAIL
Default horizontal separation minimum with radar, ADS-B or MLAT	**5 NM**	The default, where separation is provided
General reduced horizontal separation minimum, not below this value	**3 NM**	Only when the provider establishes it, the authority approves it and the system permits
Reduced minimum between succeeding aircraft on the same final approach track	**2.5 NM**	Only when all listed conditions are met and the authority approves
Distance from the threshold within which the 2.5 NM final-approach minimum can apply	**10 NM**	Measured from the runway threshold

> **Default 5 NM. General reduced 3 NM. Final approach 2.5 NM within 10 NM.**

Temporary level spacing after complete surveillance failure with radio working

half the minimum

Half the applicable vertical separation minimum, as a temporary emergency measure

Surveillance failure: recap

CUE	FIGURE	DETAIL
Temporary level spacing after complete surveillance failure with radio working	**half the minimum**	Half the applicable vertical separation minimum, as a temporary emergency measure

Where a normal surveillance radar approach ends

2 NM

From touchdown, unless the authority allows closer or clutter comes first

Radar approach (awareness): recap

CUE	FIGURE	DETAIL
Where a normal surveillance radar approach ends	**2 NM**	From touchdown, unless the authority allows closer or clutter comes first