

This is no FAI/CIAM rule



## F2B Judging Recommendations



Fachkommission Fesselflug F2  
Schweizerischer Modellflugverband SMV

## Recommendations for judges F2B

1. Rules
2. Manoeuvres and Critical Points
3. Judging
4. Typical Errors
5. Error Weighting and Scoring

**These recommendations do not constitute FAI/CIAM regulations. The purpose of the presentation is to provide national model aviation organisations with guidance on the uniform training of judges for the evaluation of F2B flights.**



# 1. Rules

The FAI / CIAM rules for the F2B class are regularly adapted to the state of the art. The CIAM F2 Control-Line Subcommittee is responsible for the content:

<https://www.fai.org/page/f2-control-line>

Current rules: <https://www.fai.org/page/ciam-code>

## **SPORTING CODE-SECTION 4 AEROMODELLING**

Basics for all classes, organisation: **CIAM General Rules 21. pdf**

All classes F2: **CIAM F2 controlline 21 .pdf**

Manoeuvre diagrams F2B: **CIAM F2 controlline annex 4 j 21 .pdf**

The original text in English is binding





# Changes to the rules

**Anyone is entitled to request changes to the rules. Proposals are to be submitted to the FAI / CIAM through a national model flying organisation**



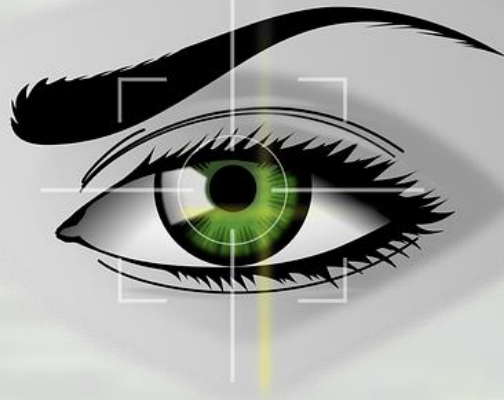
<https://www.fai.org/ciam-documents>

- CIAM FORMS & OTHER DOCUMENTS**
- CIAM Proposal Forms and Guidelines**
- CIAM Proposal Form for Sporting Code Section 4**

The Plenary Assembly of the national CIAM delegates decides on the changes.

## 2. Manoeuvres and Critical Points

Class F2B - CL Aerobatics and Annex 4 j – Class F2B Manoeuver Diagrams



All text and diagrams for the manoeuvres describe the figures as the **pilot** sees them from the centre of the circle.

## 4.2.15.1 Terminology and Wording

**Flight Hemisphere:** The hemisphere on which the model moves.

**Base:** The lower edge of the hemisphere. It is located at a height of 1.5 m above the highest point of the center of the circle.

**Parallel:** (Minor Circle ) An imaginary line on the surface of the hemisphere. It results when the model is flown with a **constant line angle**.

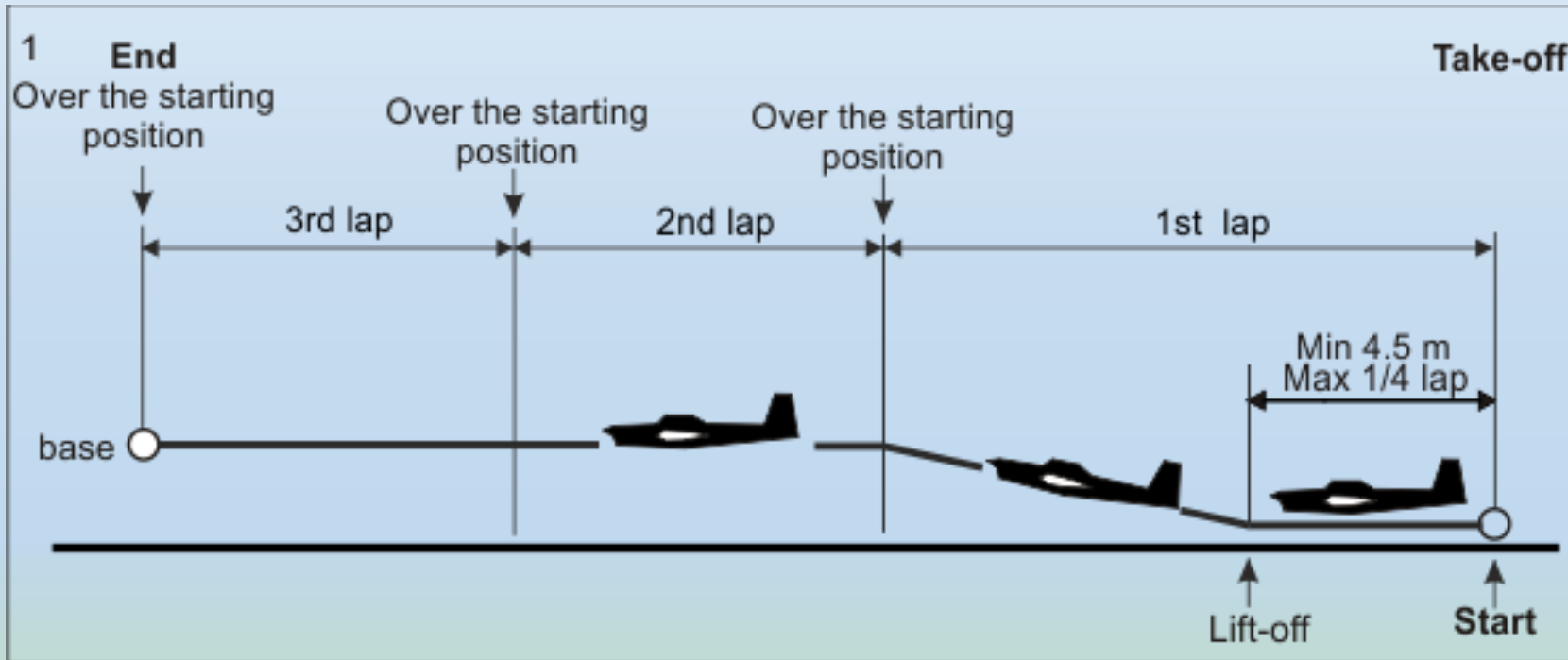
**Great Circle:** A **straight line** (as seen from the pilot) flown on the surface of the hemisphere. Examples: Horizontal- inverted flight, wingover and the horizontal connecting lines in the cloverleaf.

**Horizontal:** Flight on the base (great circle) or parallel to base (minor circle)

**Vertical:** A climb or dive flown at right angles to the base.

**90° Wingover Path:** A straight path (great circle) 90° to the base, passing over the highest point of the hemisphere.

## 4.J.1. Take-off (Rule 4.2.15.3)

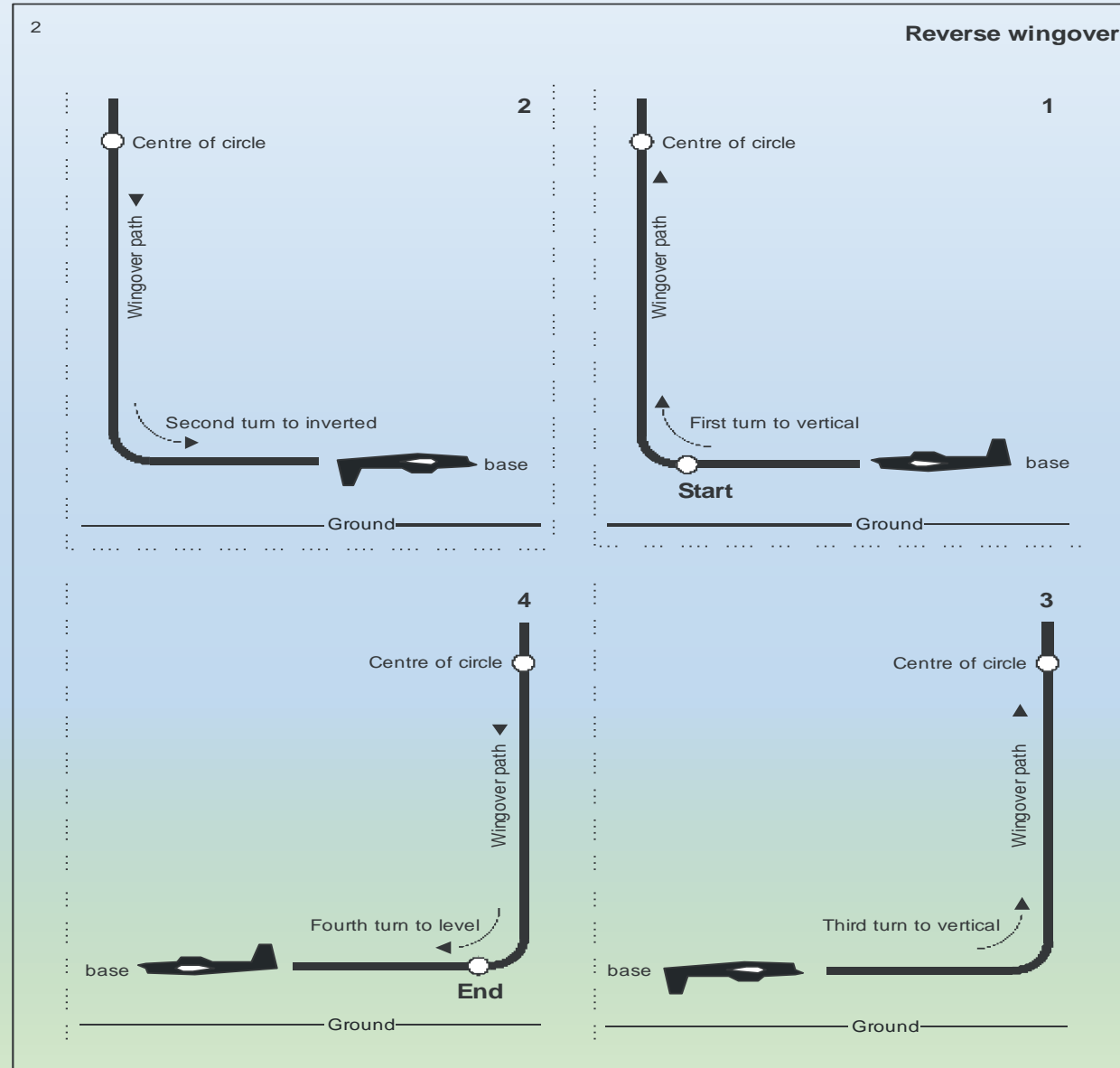


- The takeoff run measures at least **4.5 m** or maximum **1/4 - lap**.
- The distance from **Start** to reaching the level of horizontal flight measures **one lap**
- **Two laps** of horizontal flight at the height of the base (+/- 30 cm) are **part of the manoeuvre**.

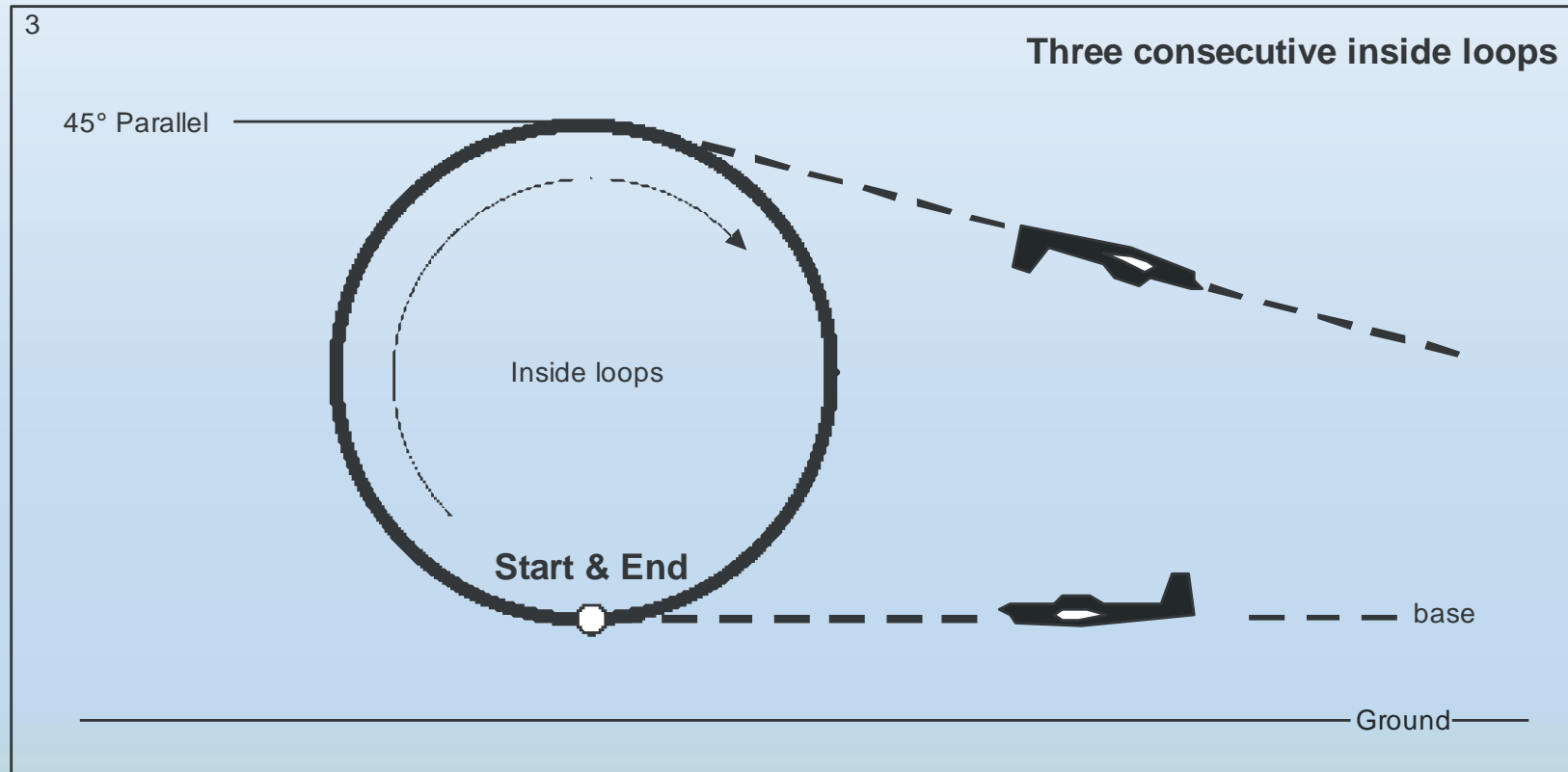


## 4.J.2. Reverse wingover (Rule 4.2.15.4)

- All turns **tight**.
- Turns flown wide are errors.
- Vertical through the top point of the hemisphere
- Horizontal along the base
- Turns exactly 180° opposite

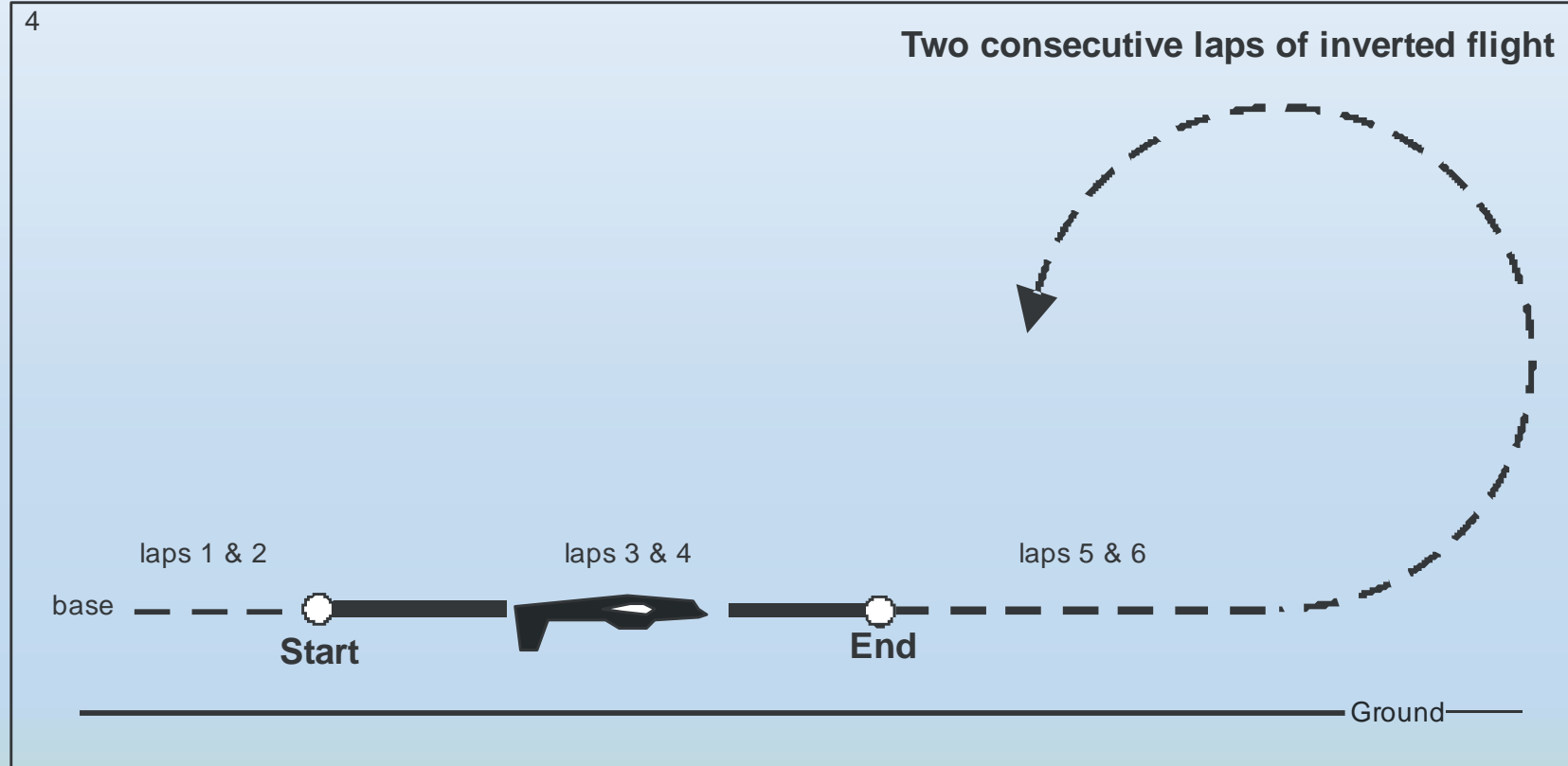


# Three consecutive inside loops (Rule 4.2.15.5)



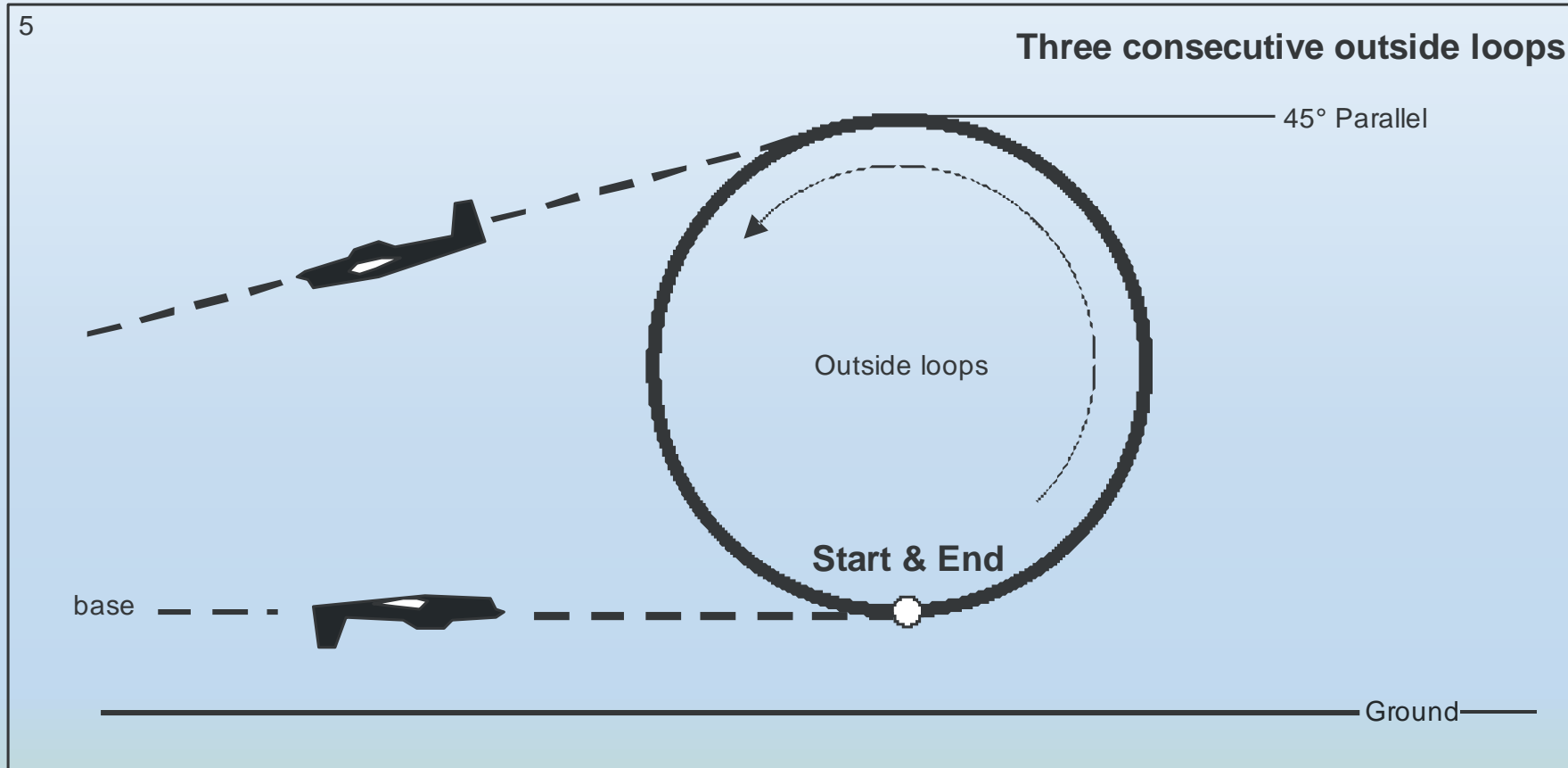
- **Circular** shape
- Line elevation angle at the highest point **45°**
- The second and third loops should be placed in exactly the **same position** as the first loop, and should be of exactly the **same size**

## Two consecutive laps of inverted level flight (Rule 4.2.15.6)



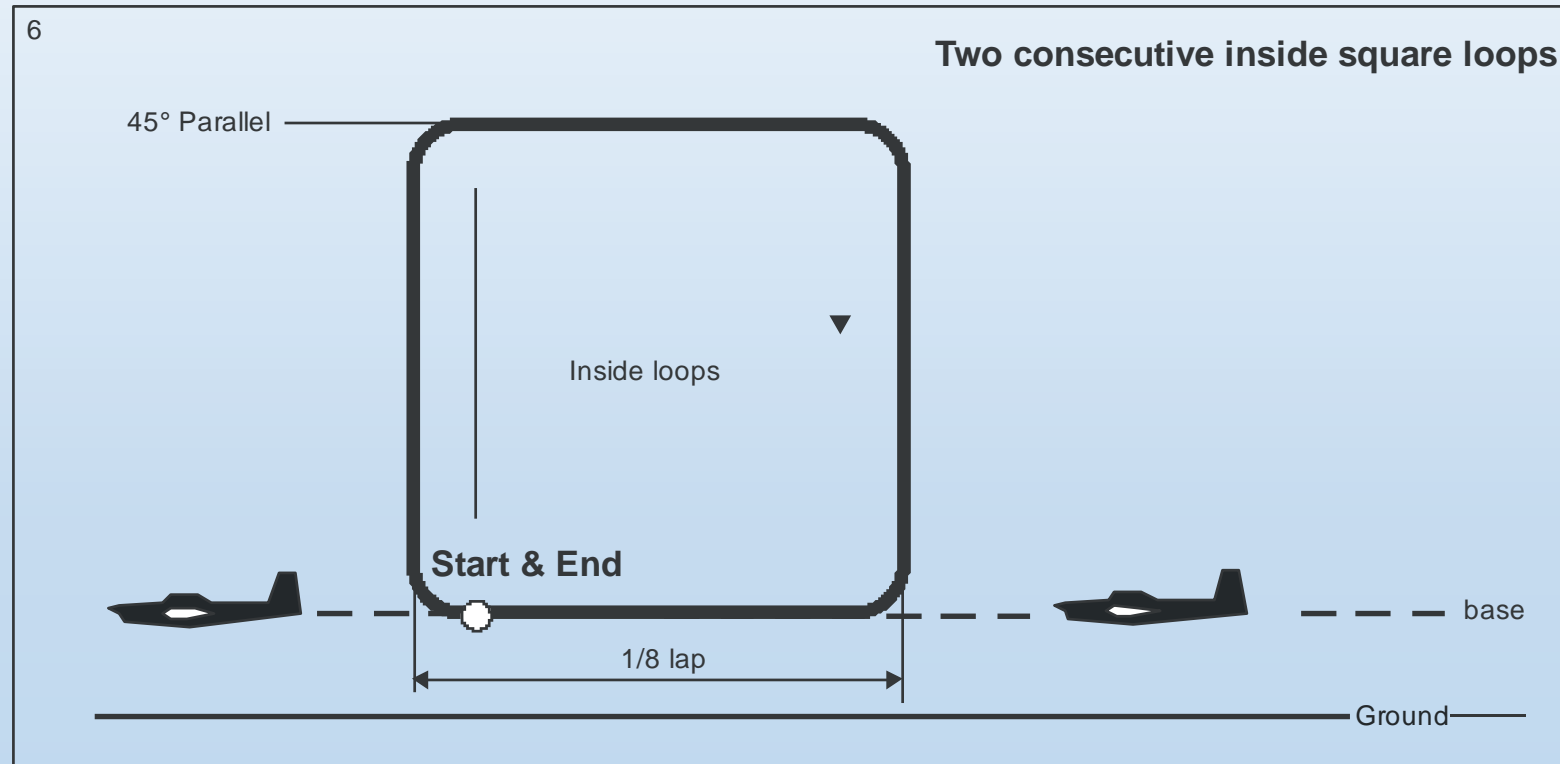
- **At the beginning of round 3**, the entry altitude at the start is: base plus/minus 30 cm (1.2 - 1.8m).
- The altitude must be maintained in laps 3 and 4 **without visible correction**.

# Three consecutive outside loops (Rule 4.2.15.7)



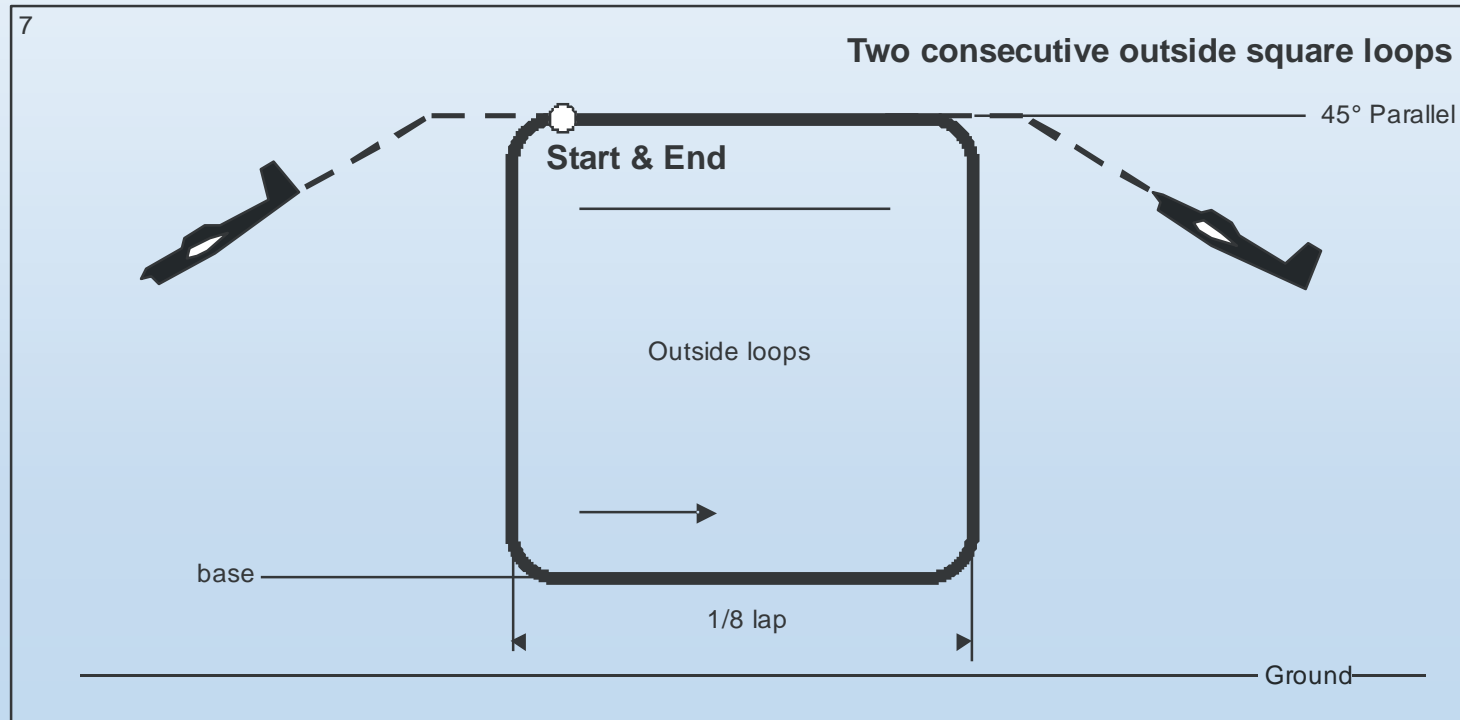
- **Circular** shape
- Line elevation angle at the highest point **45°**
- The second and third loops should be placed in exactly the **same position** as the first loop, and should be of exactly the **same size**

## Two consecutive inside square loops (Rule 4.2.15.8)



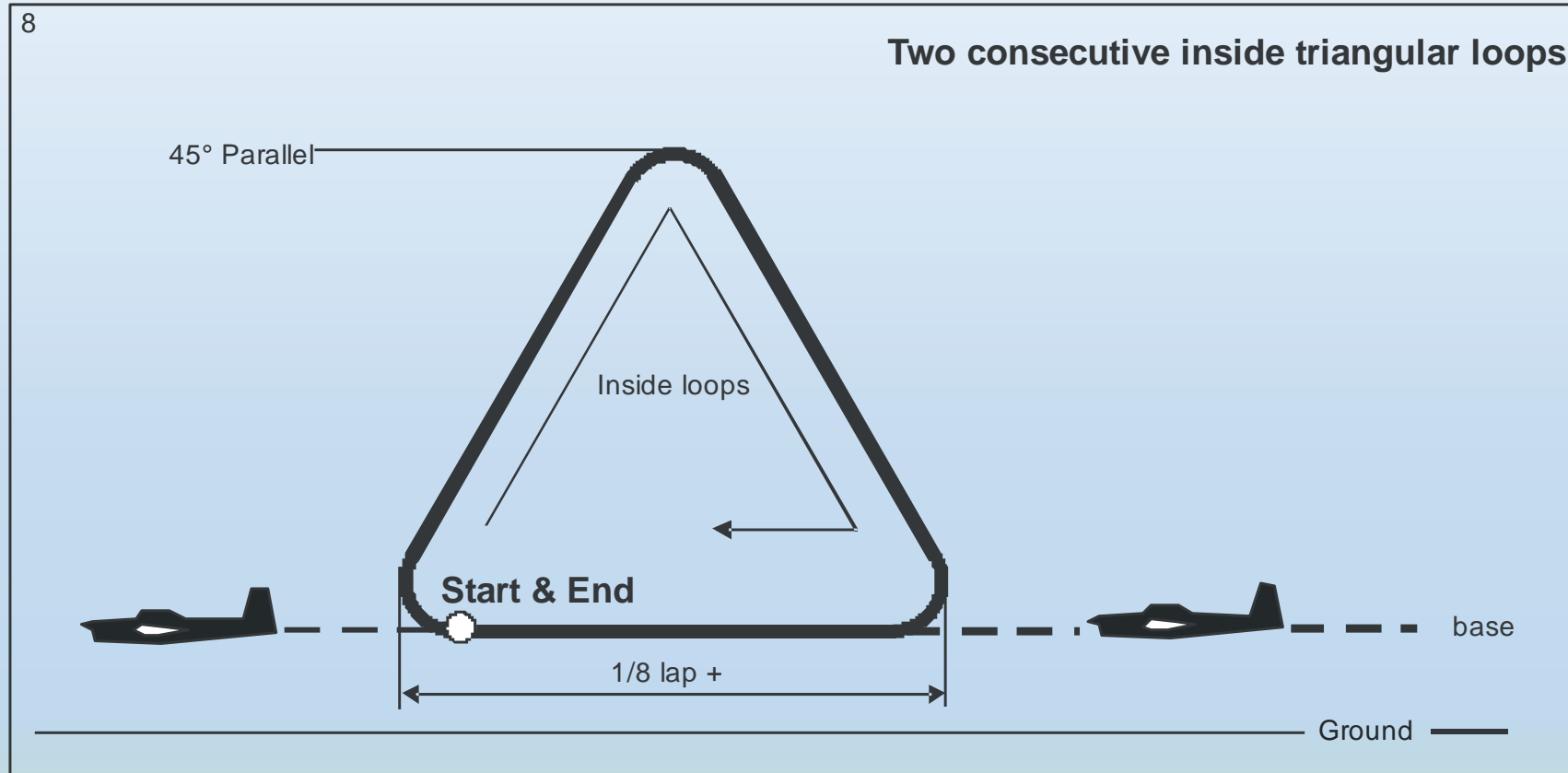
- All turns **tight**. Turns flown wide are defects.
- Along the **base**, the width, including both turns, is **1/8 lap**.
- From the pilot's point of view, verticals (90°) are flown **perpendicular to the base**.
- The upper side is flown with **45° line elevation angle**. It is, at the 45° elevation, 1/8 lap wide, but **shorter** in meters length than the width at the base.
- Both in the **same place**.

## Two consecutive outside square loops (Rule 4.2.15.9)



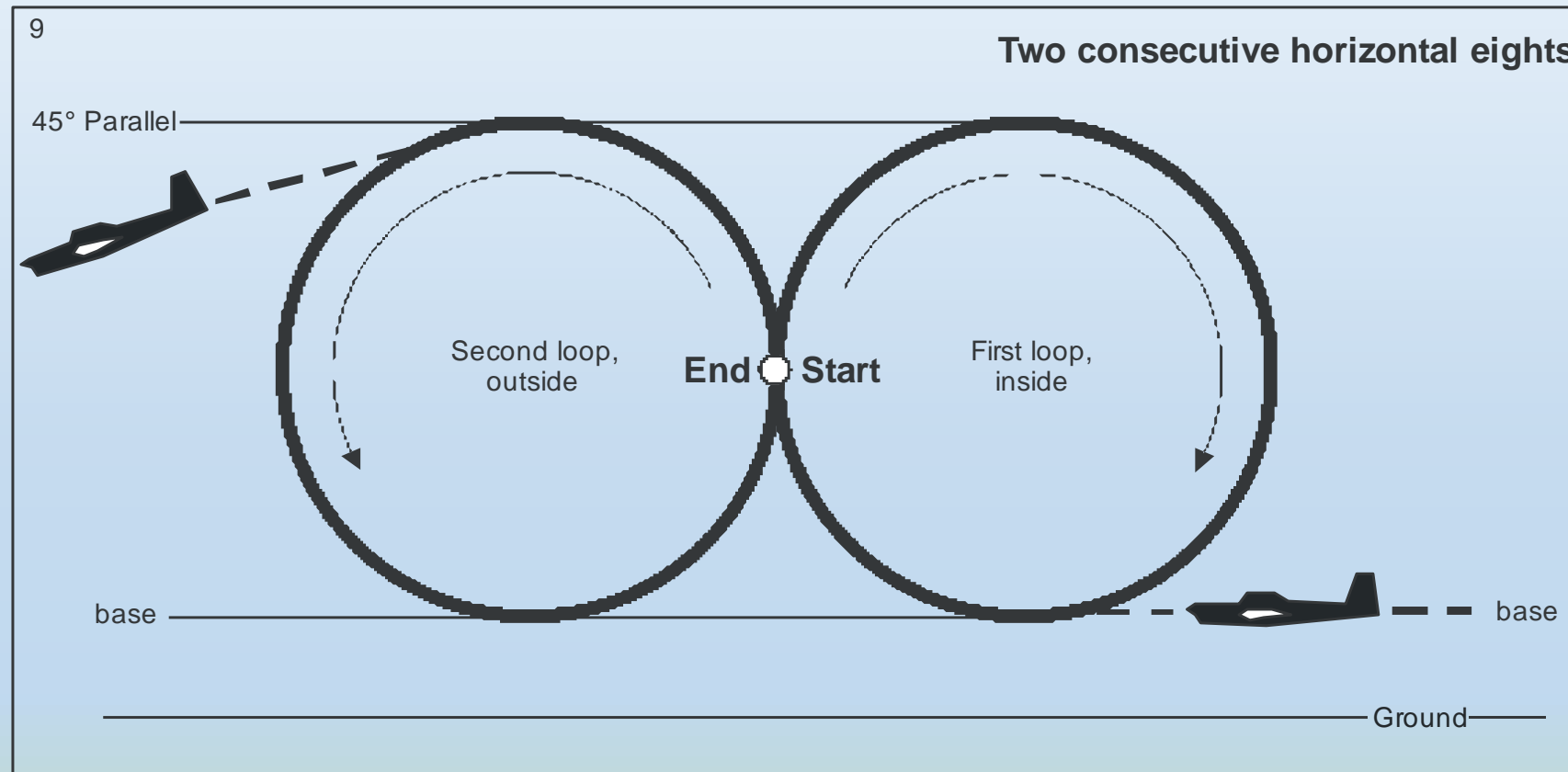
- All turns **tight**. Turns flown wide are defects.
- Along the **base**, the width, including both turns, is **1/8 lap**.
- From the pilot's point of view, verticals (90°) are flown **perpendicular to the base**.
- The upper side is flown with **45° line elevation angle**. It is, at the 45° elevation, 1/8 lap wide, but **shorter** in meters length than the width at the base.
- Both in the **same place**.

# Two consecutive inside triangular loops (Rule 4.2.15.10)



- All turns **tight**. Turns flown wide are defects.
- **Along the base**, the width, including both turns, is **slightly more than 1/8 lap (+)**.
- The top corner reaches a **maximum of 45°** line elevation angle.
- Both in the **same place**

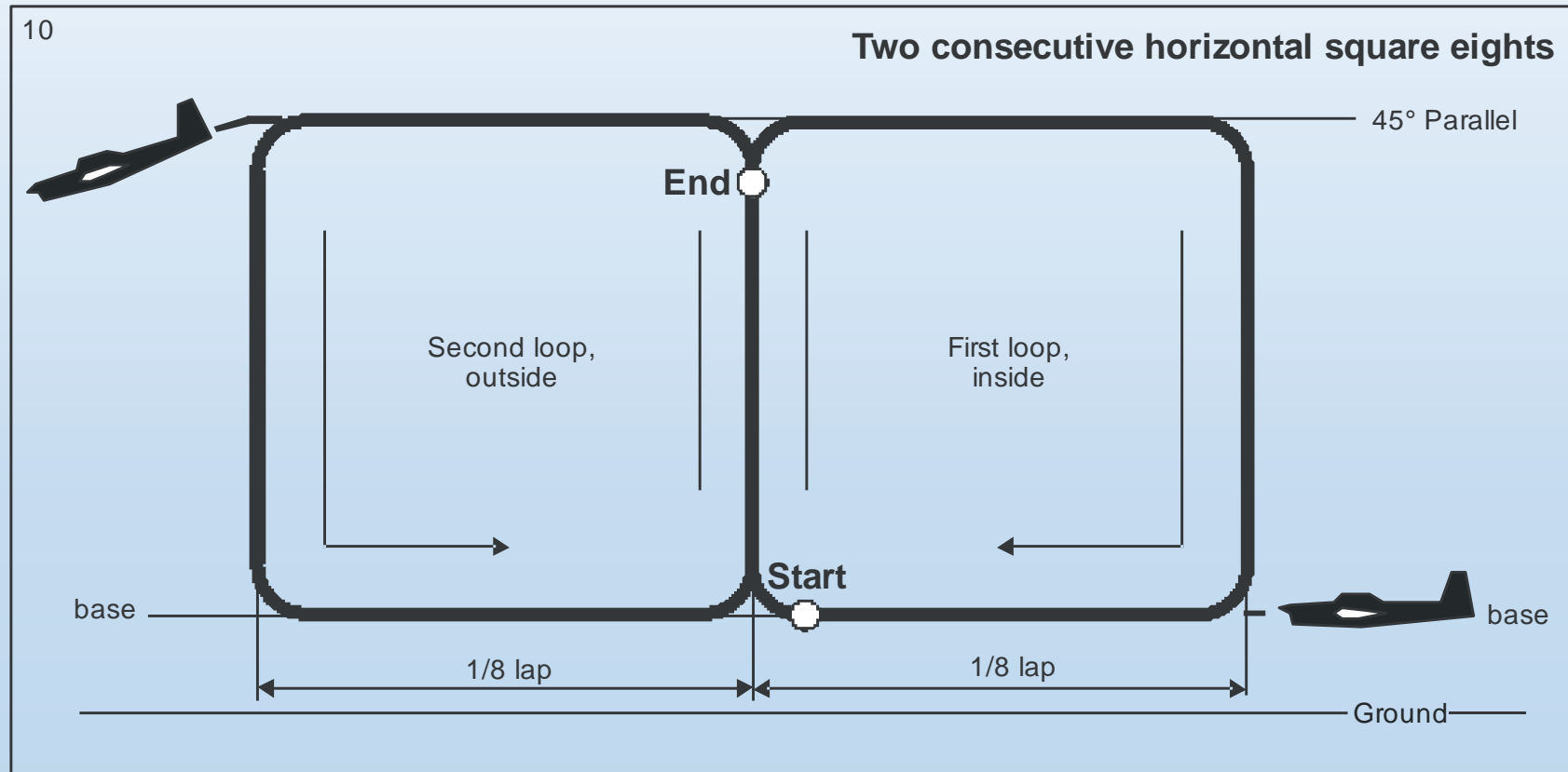
# Two consecutive horizontal eight (Rule 4.2.15.11)



- The highest point of both loops reaches a **maximum line elevation angle of 45°**
- The loops have a circular round shape and **touch each other tangentially**
- When flying through the intersection the model flies **momentarily vertical**
- All crossings are in the **same place**

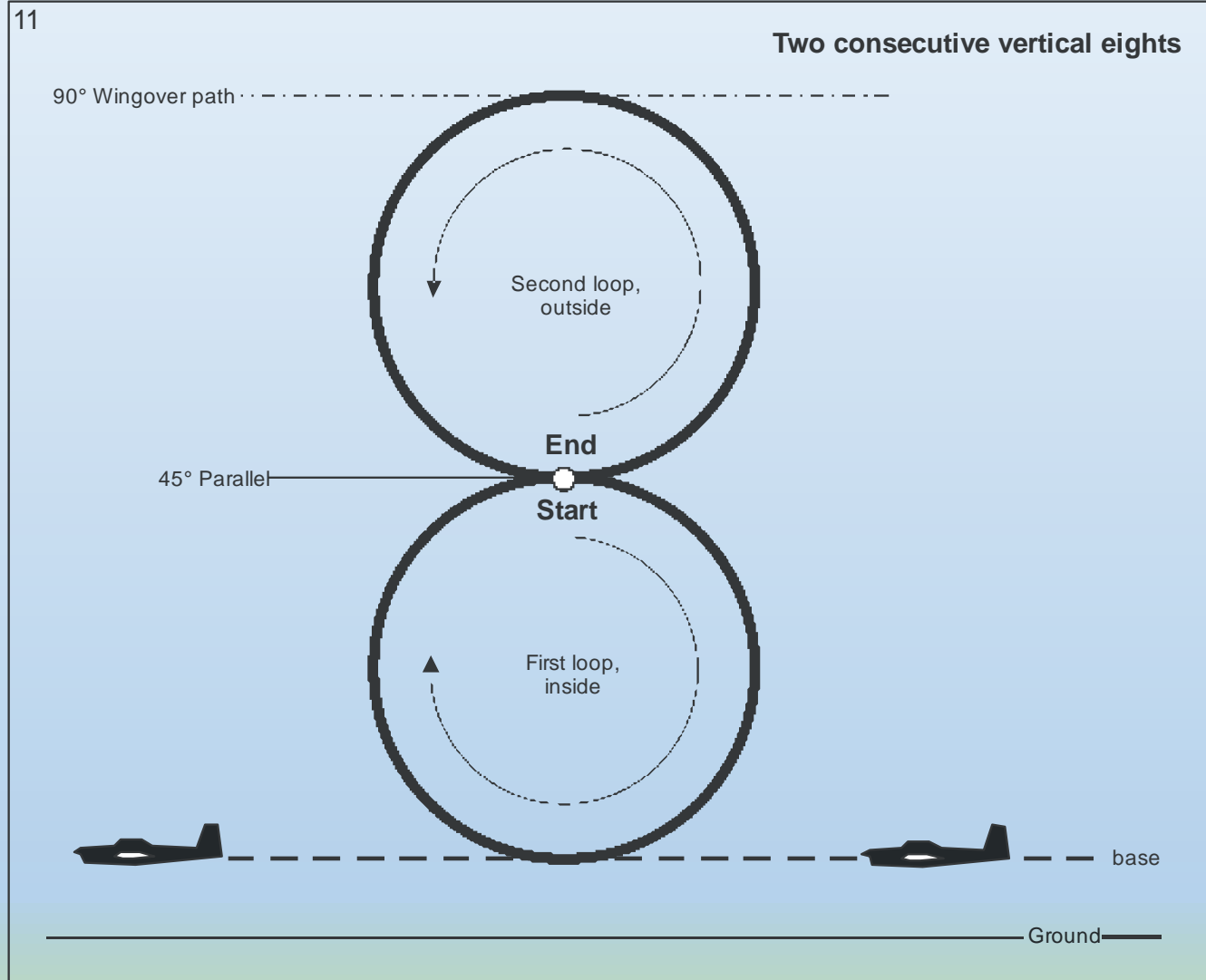


## Two consecutive horizontal square eight (Rule 4.2.15.12)



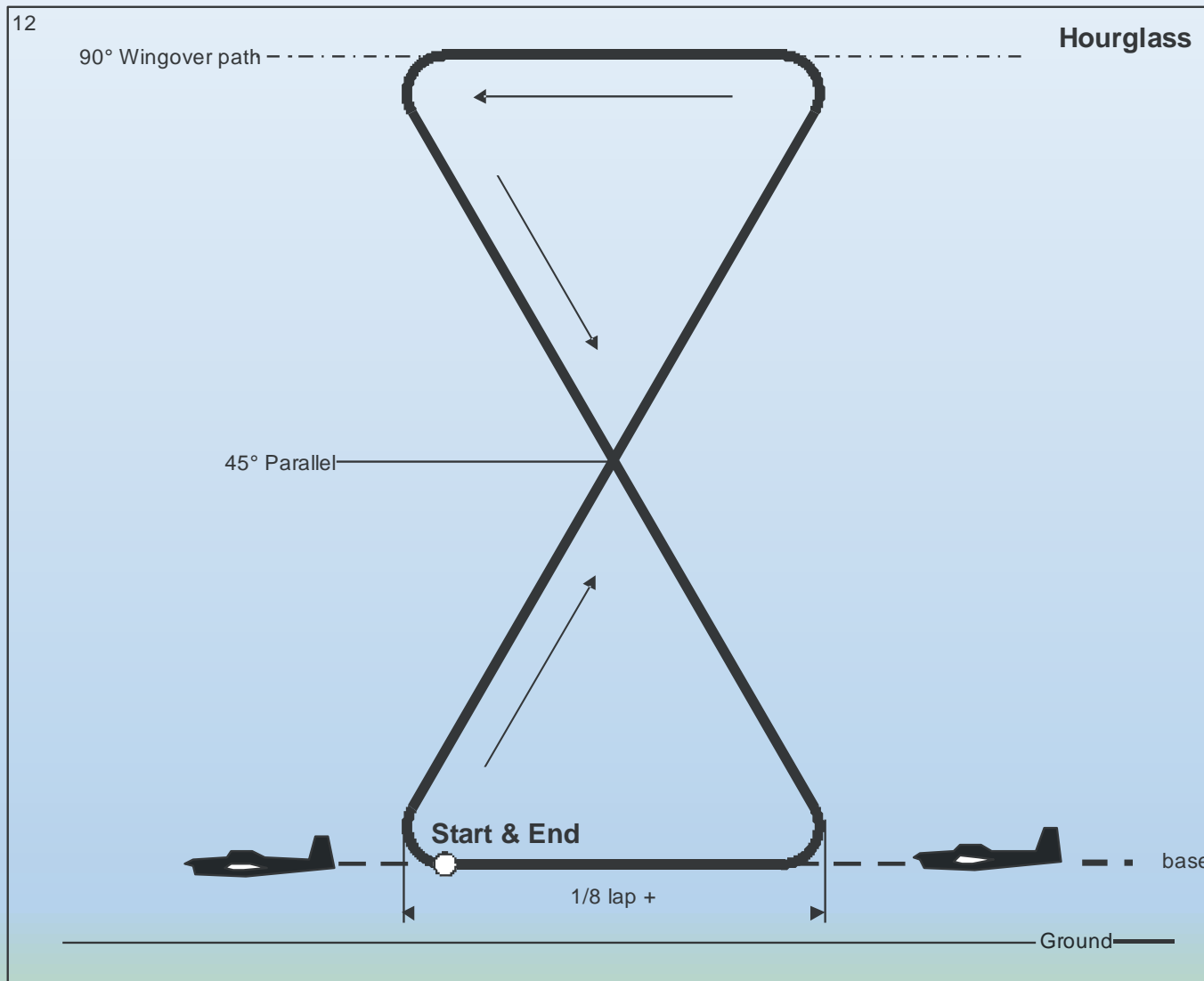
- All turns **tight**. Turns flown wide are faults.
- Along the base, the width of each loop, including both turns, is **1/8 of a lap**.
- The upper sides are flown at **45°** line angle. They are, at the 45° height, each 1/8 lap wide, but **shorter** in metres than the widths at the base.
- All crossings are in the **same place**

# Two consecutive vertical eight (Rule 4.2.15.13)



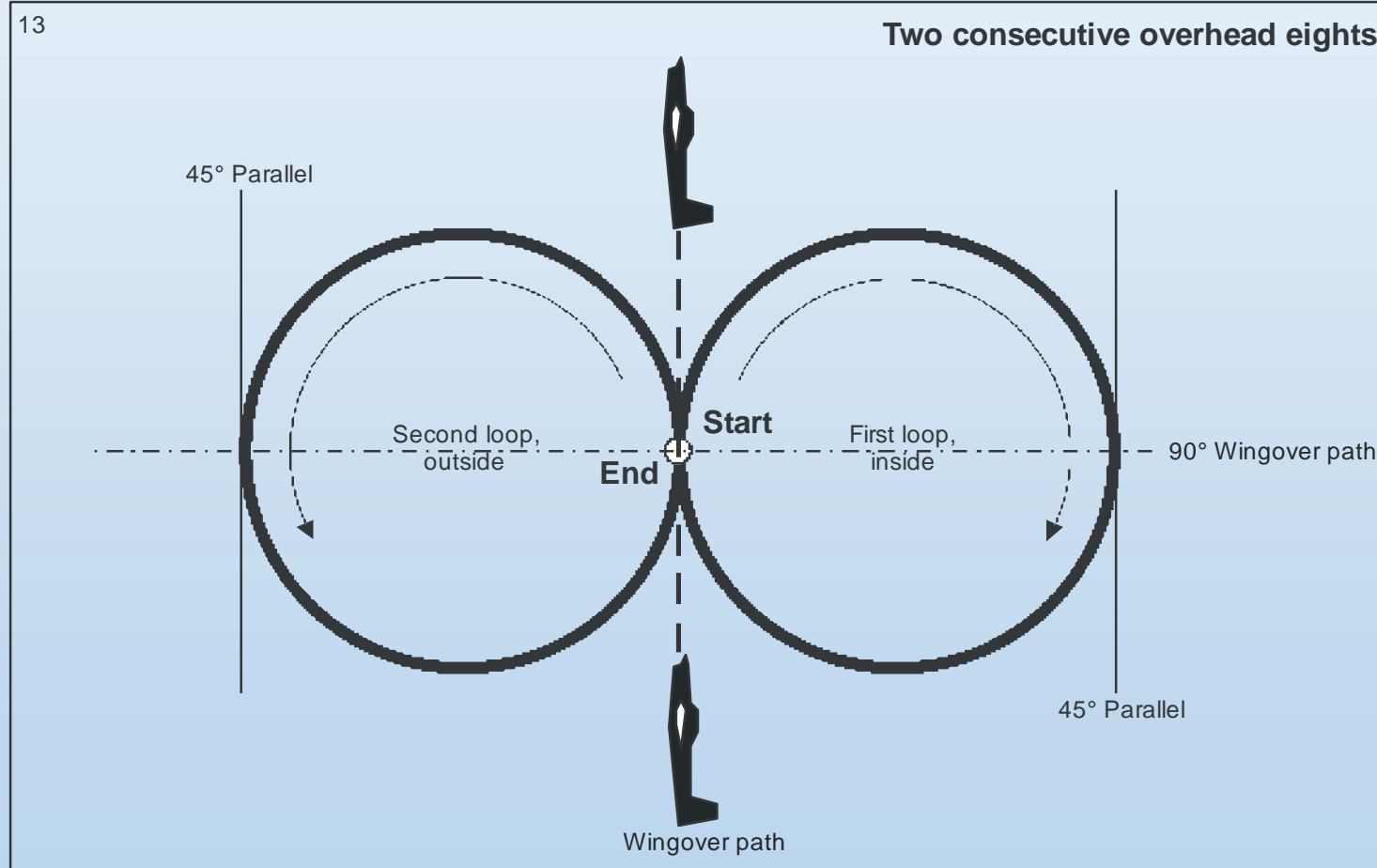
- Crossing at 45° line elevation angle
- Highest point at 90° line elevation angle
- When flying through the intersection the model flies momentarily horizontal
- Loopings circular round shape
- Manoeuvres bottom/top symmetrical
- Manoeuvre right/left symmetrical
- Both eights in the same place

# Hourglass (Rule 4.2.15.14)



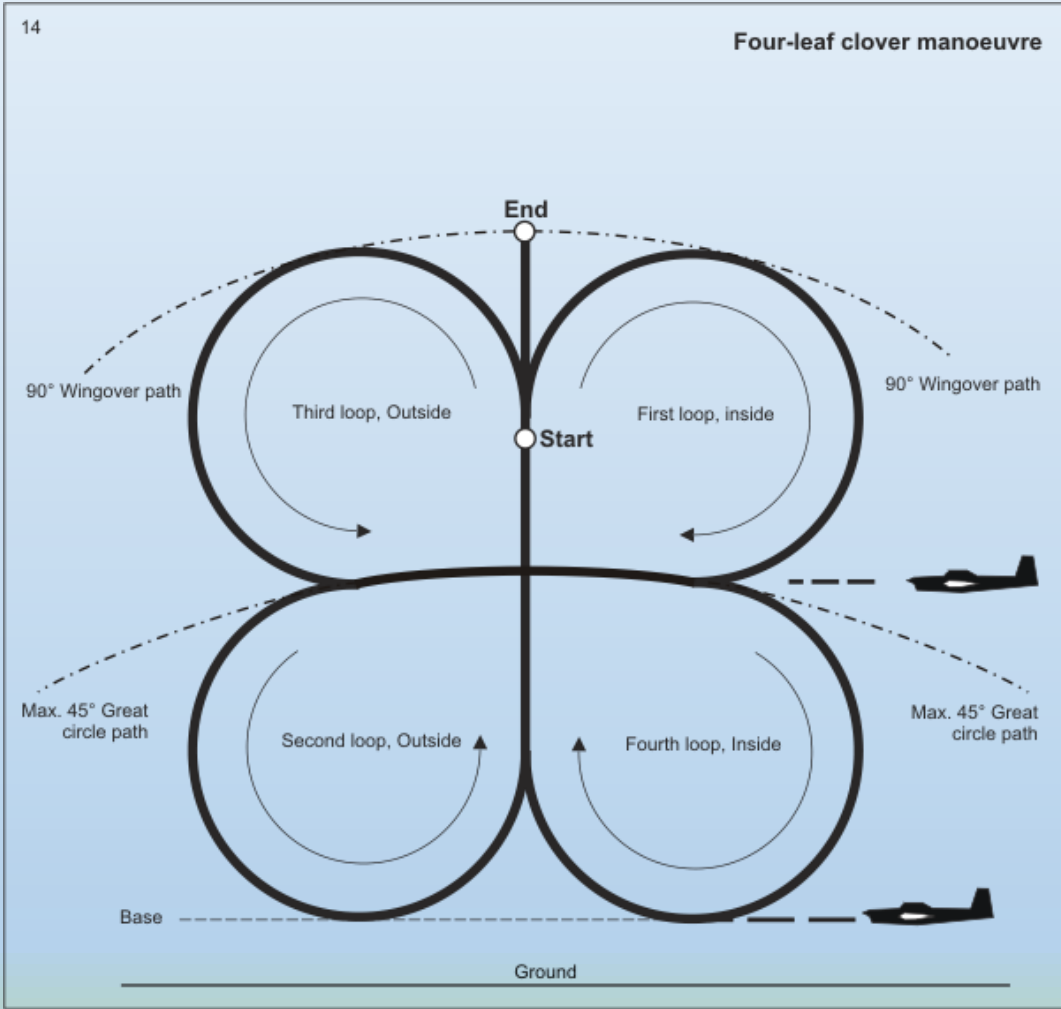
- All turns are tight. Turns flown wide are faults
- Width at the bottom and top is slightly more than 1/8 lap (+)
- Climb and dive are straight lines along great circle tracks
- Crossing at 45° line elevation angle
- Upper segment flown along a great circle track offset by 90°
- Manoeuvre down/up symmetrical
- Manoeuvre right/left symmetrical

# Two consecutive overhead eight (Rule 4.2.15.15)



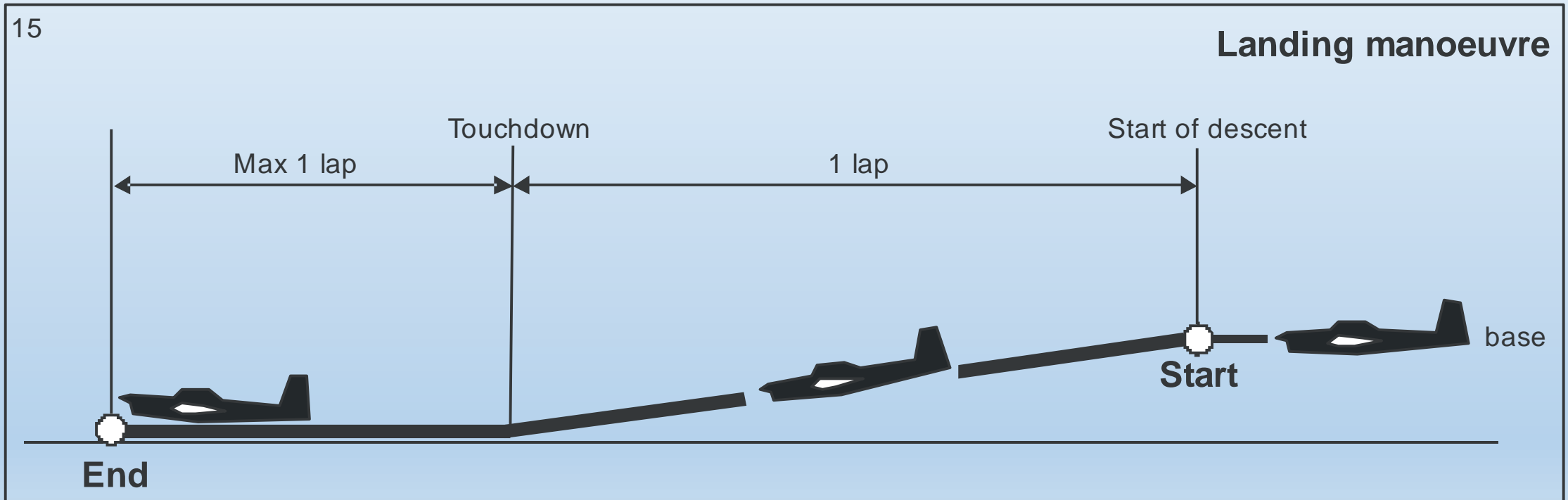
- Equal sized round loops
- **Lowest points 45°** line angle
- Start/end at 90° line angle
- Axis of eights **90° to Wingover Path**
- In the crossing **very short** along Wingover Path
- Manoeuvre left/right **symmetrical**
- Manoeuvre front/rear **symmetrical**
- Both eights at the **same place**

# Four-leaf clover manoeuvre (Rule 4.2.15.16)



- 4 circular approx.  $\frac{3}{4}$  loops of the **same size**.
- At the pilot's option and without prior notice to the judges the rule allows the entry into the manoeuvre from the **base or**, as before, **from above** at a suitable altitude allowing the correct execution of the first loop.
- Upper loops **tangential to the 90° wingover path**.
- "Horizontal" connecting lines **along a great circle track inclined upwards by 45°**.
- Lower loops **tangential to the base and vertical axis**.
- Vertical connecting lines **90°** perpendicular to the base.
- Manoeuvre left/right **symmetrical**
- Manoeuvre upper/lower **symmetrical**

# Landing manoeuvre (Rule 4.2.15.17)



- The landing manoeuvre begins when the model leaves the base altitude of 1.5 m (+/- 30 cm) in **power-off** condition.
- From the point **begin of approach** the length of the descent is **1 lap until touchdown**.
- The descent is steady with a **constant angle of approach**.
- The manoeuvre, and thus the flight, ends when **the model comes to a standstill**.



## 3. Judging

### **ANNEX 4 B - CLASS F2B AEROBATICS JUDGES' GUIDE**

The regulations in the F2B Judges' Guide in the FAI Sporting Code support the national model flying organisations in their efforts to standardise the training of F2B judges.



**Regardless of the person, without consideration of previous performances and uninfluenced by the construction or technology of the model, the only task of the judge is to recognise deviations from the rules and to assess these as faults.**

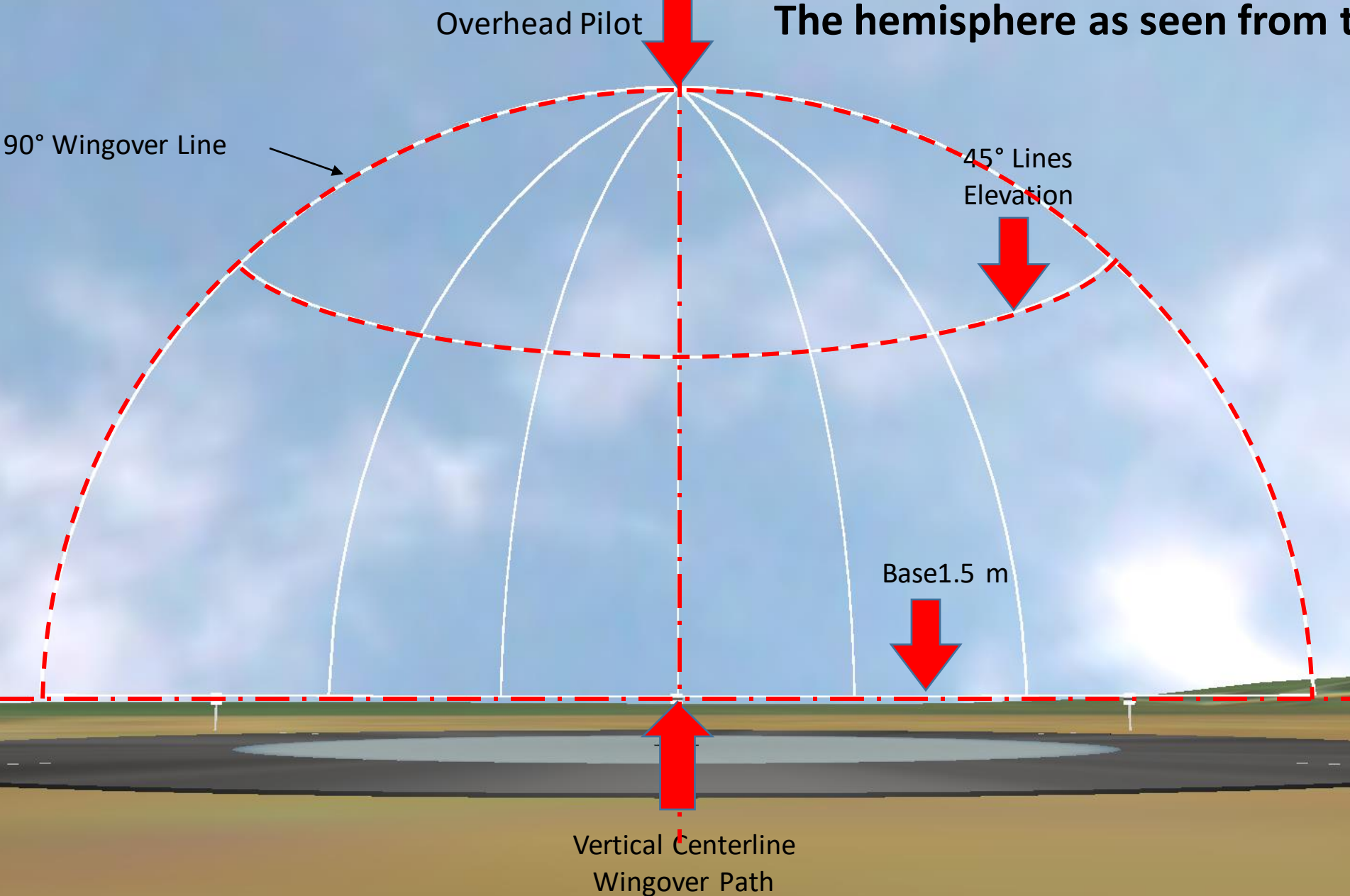


## 4. Typical Errors



Simplified display of frequently observed deviations from the "right path".

# The hemisphere as seen from the judge



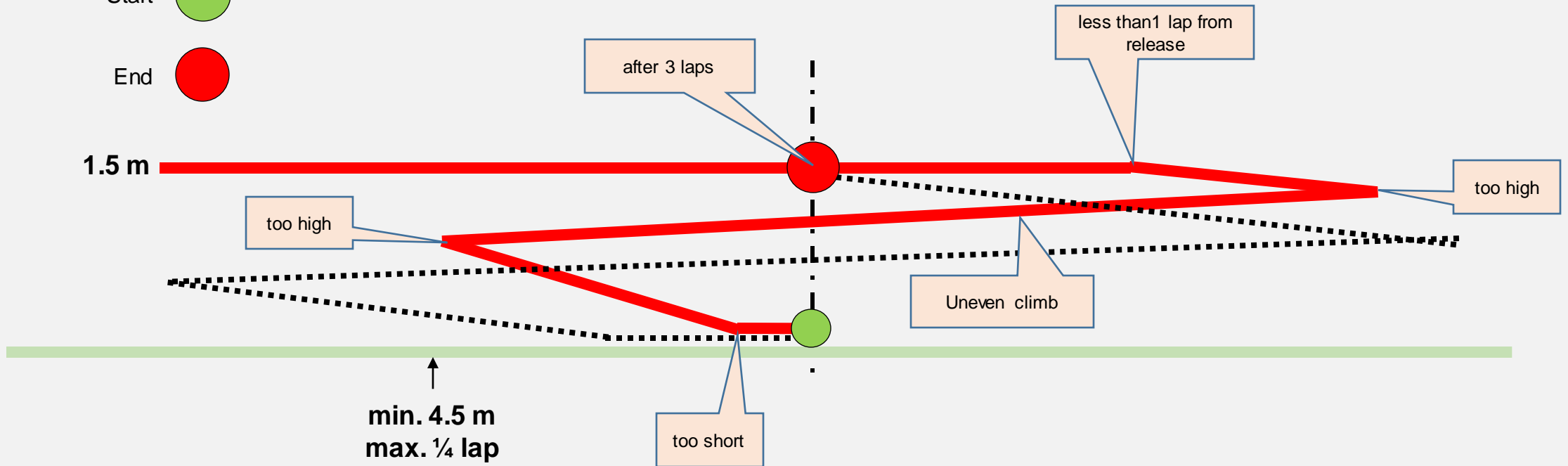
### 4.2.15.3 Take-off

Rule 

Track 

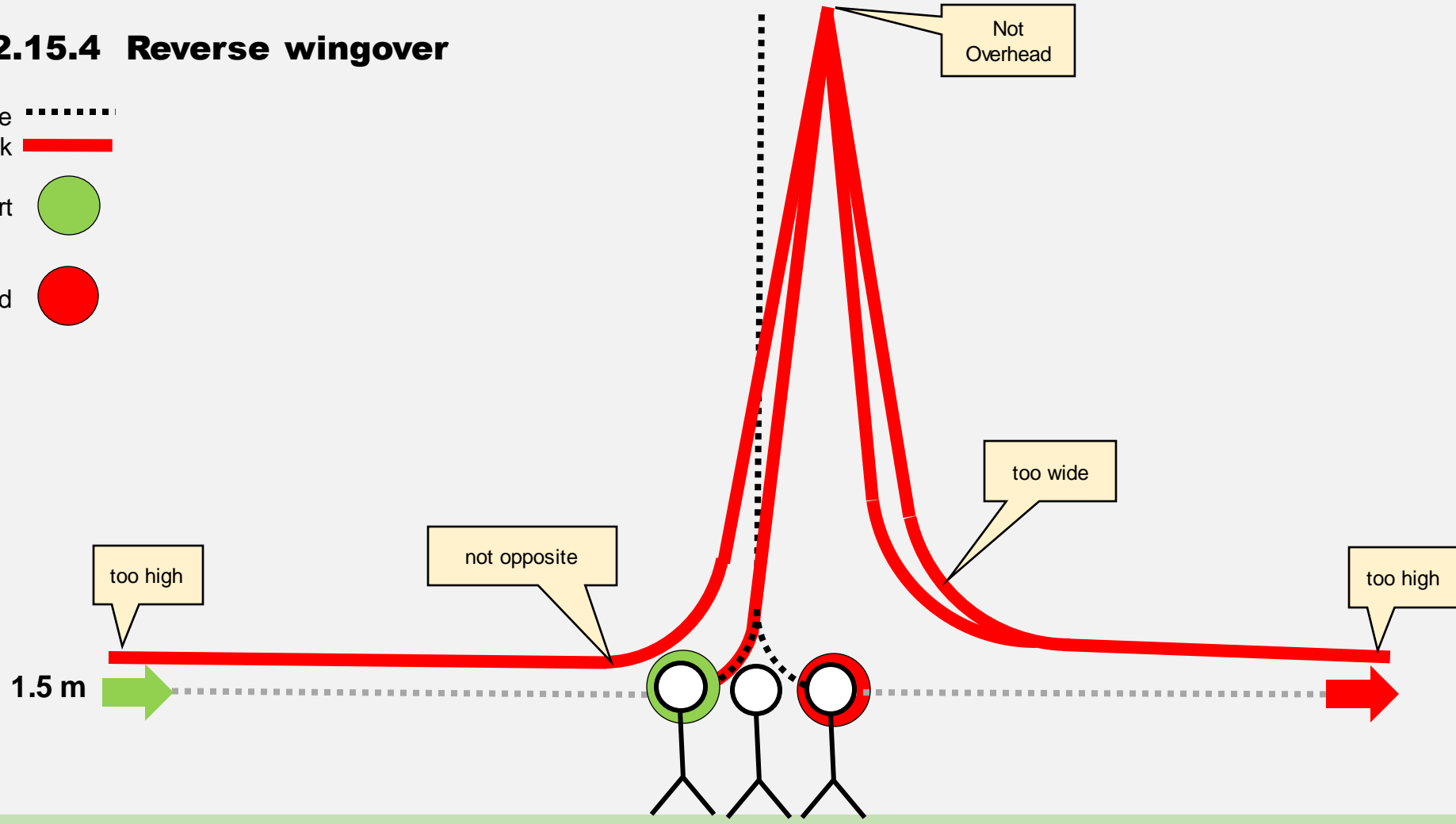
Start 

End 



### 4.2.15.4 Reverse wingover

- Rule ..... (dotted line)
- Track ——— (thick red line)
- Start ● (green circle)
- End ● (red circle)

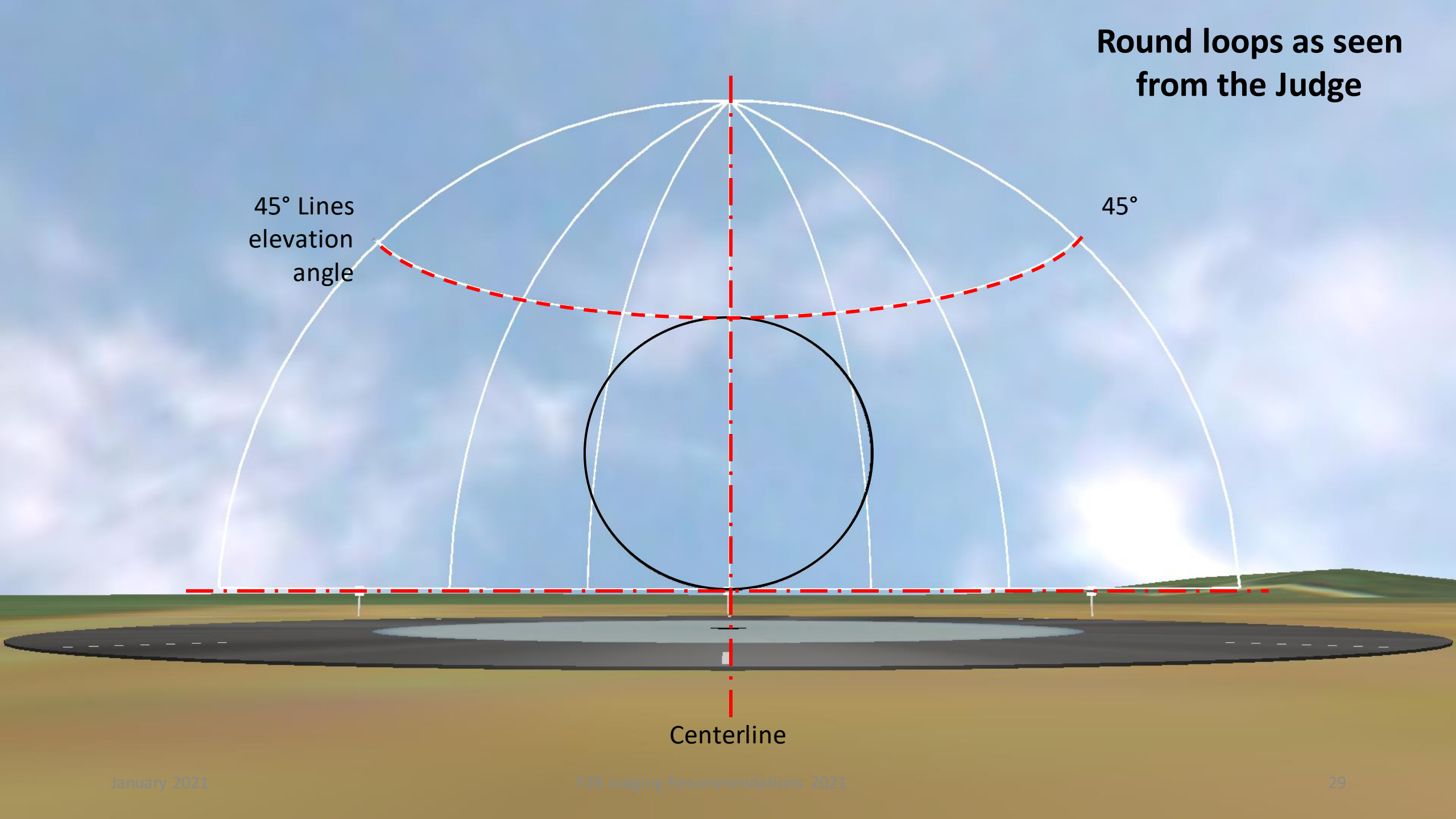


# Round loops as seen from the Judge

45° Lines elevation angle

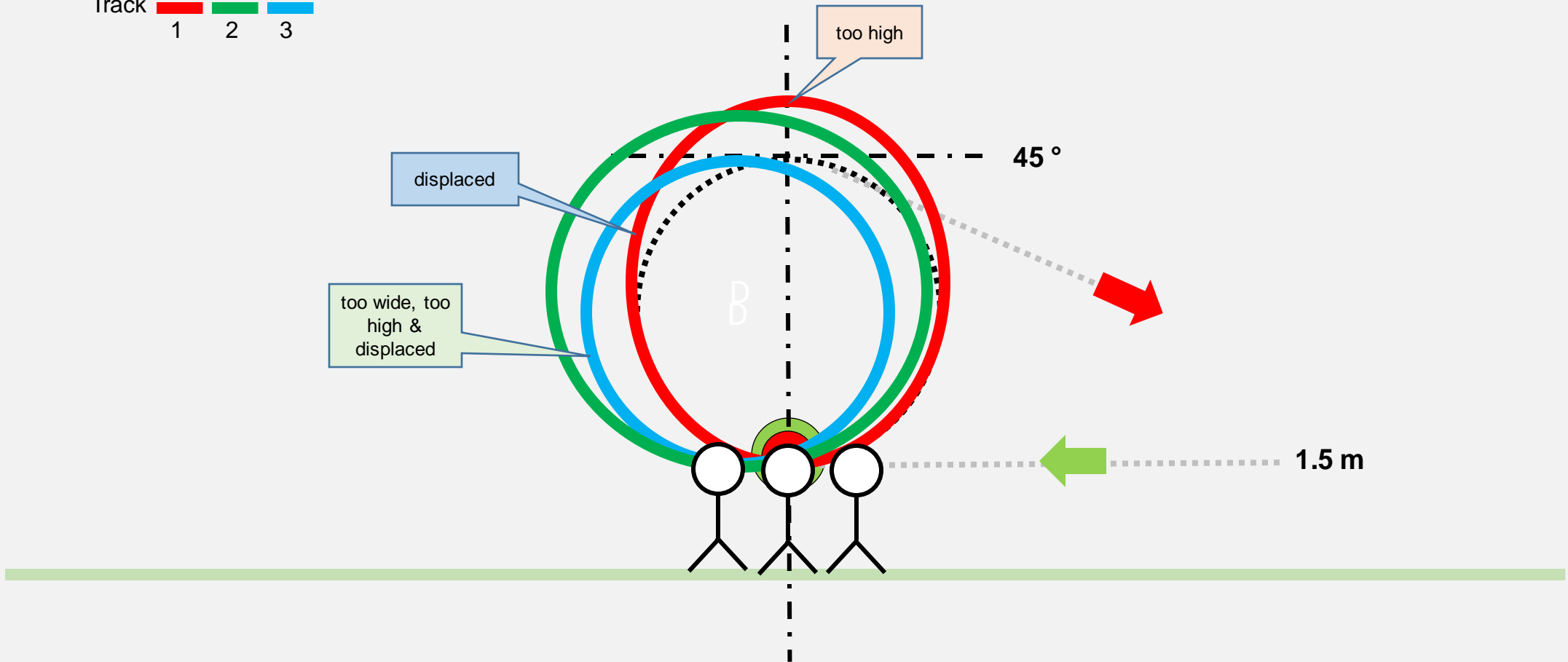
45°

Centerline



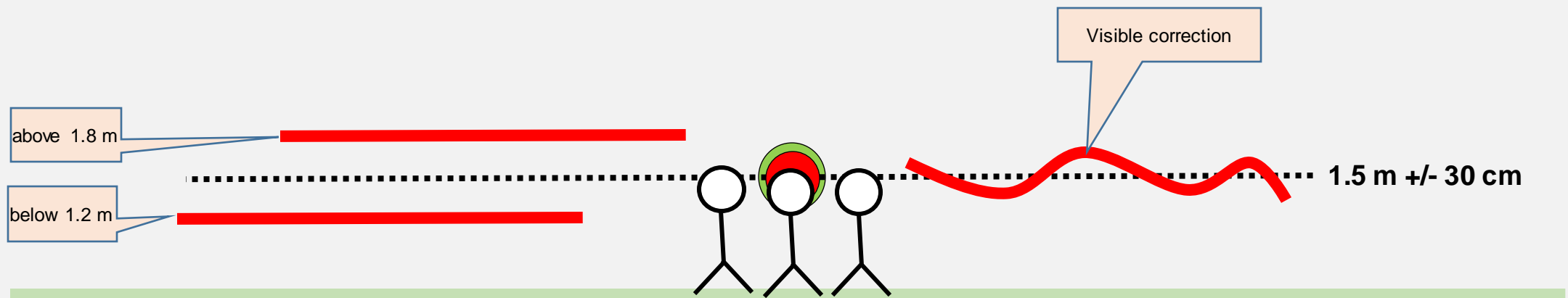
### 4.2.15.5 Three consecutive inside loops

Rule .....  
Track 1 2 3



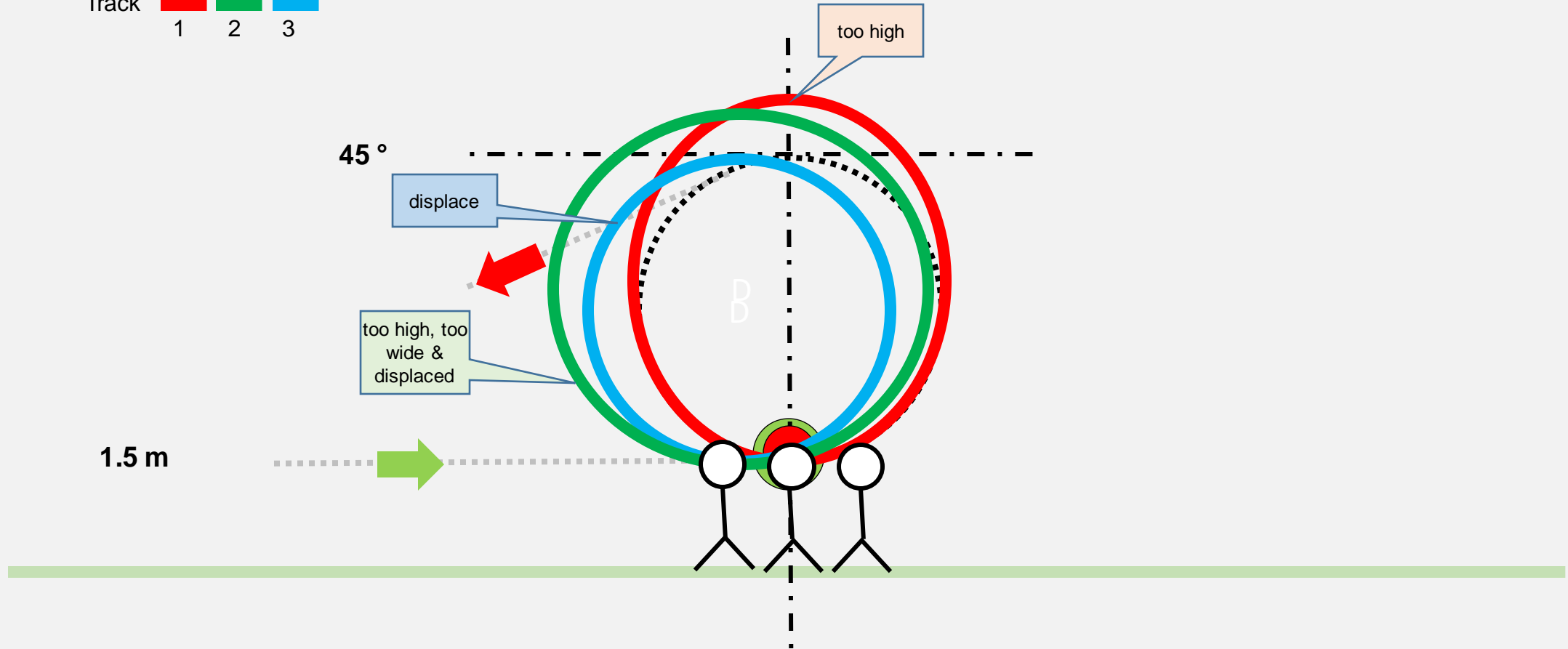
## 4.2.15.6 Two consecutive laps of inverted level flight

Rule .....  
Track **█**



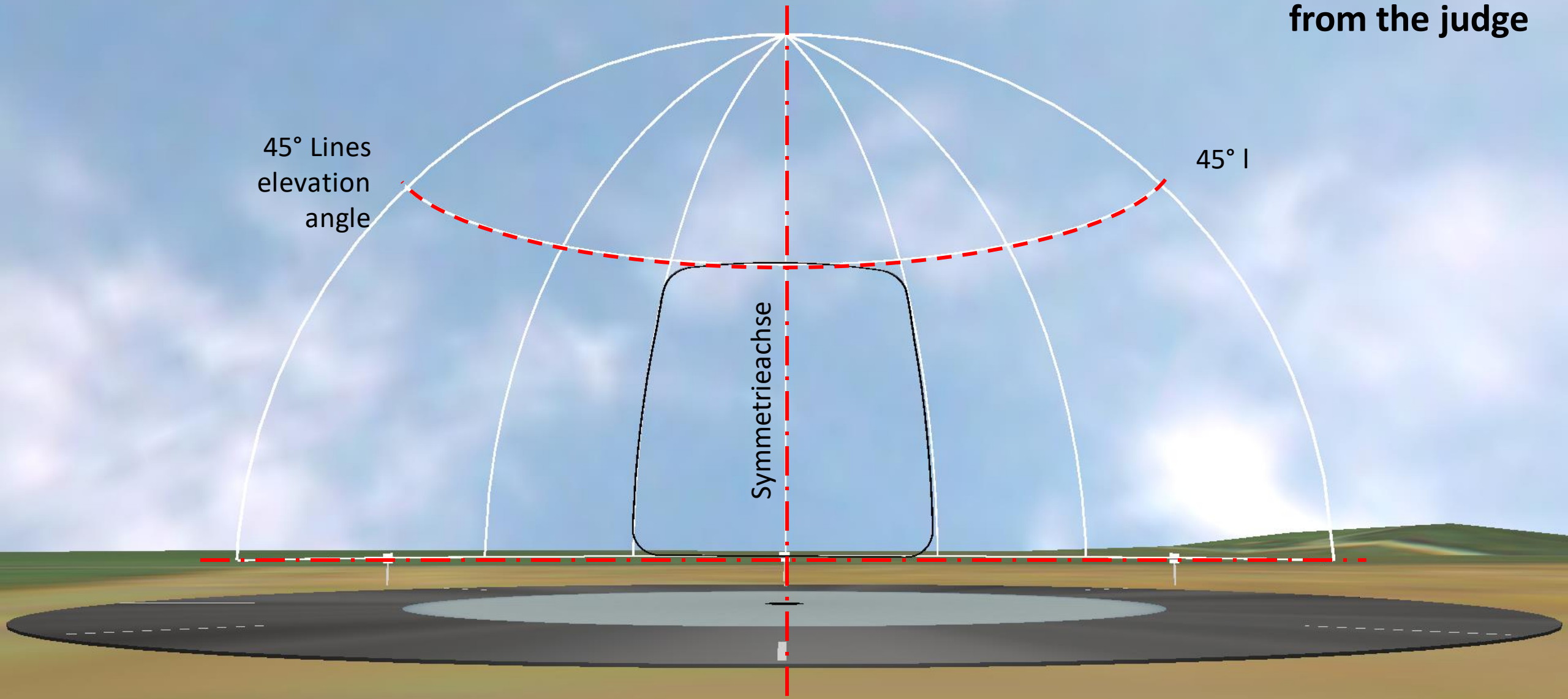
### 4.2.15.7 Three consecutive outside loops

Rule .....  
Track 1 2 3



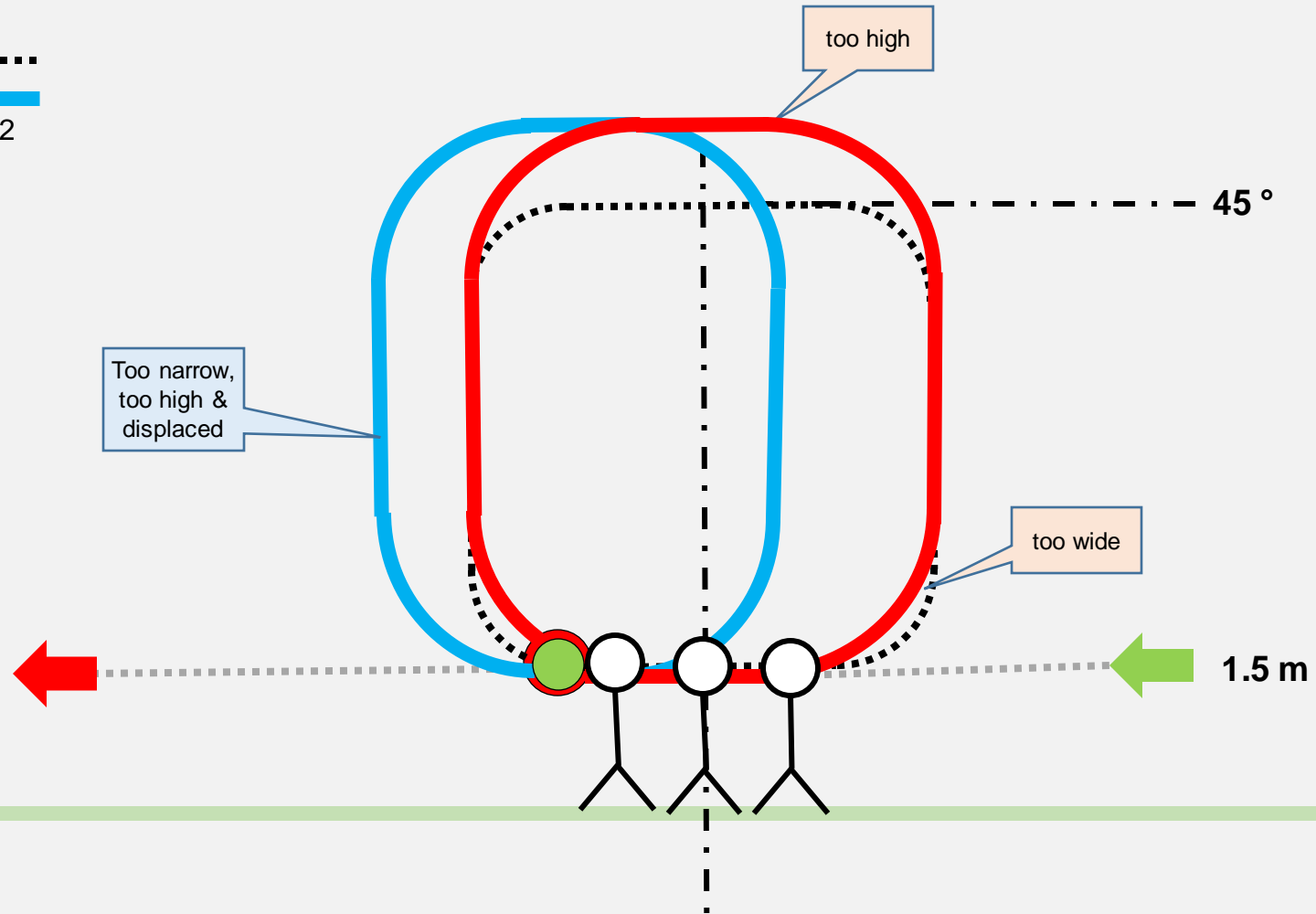


# Square as seen from the judge



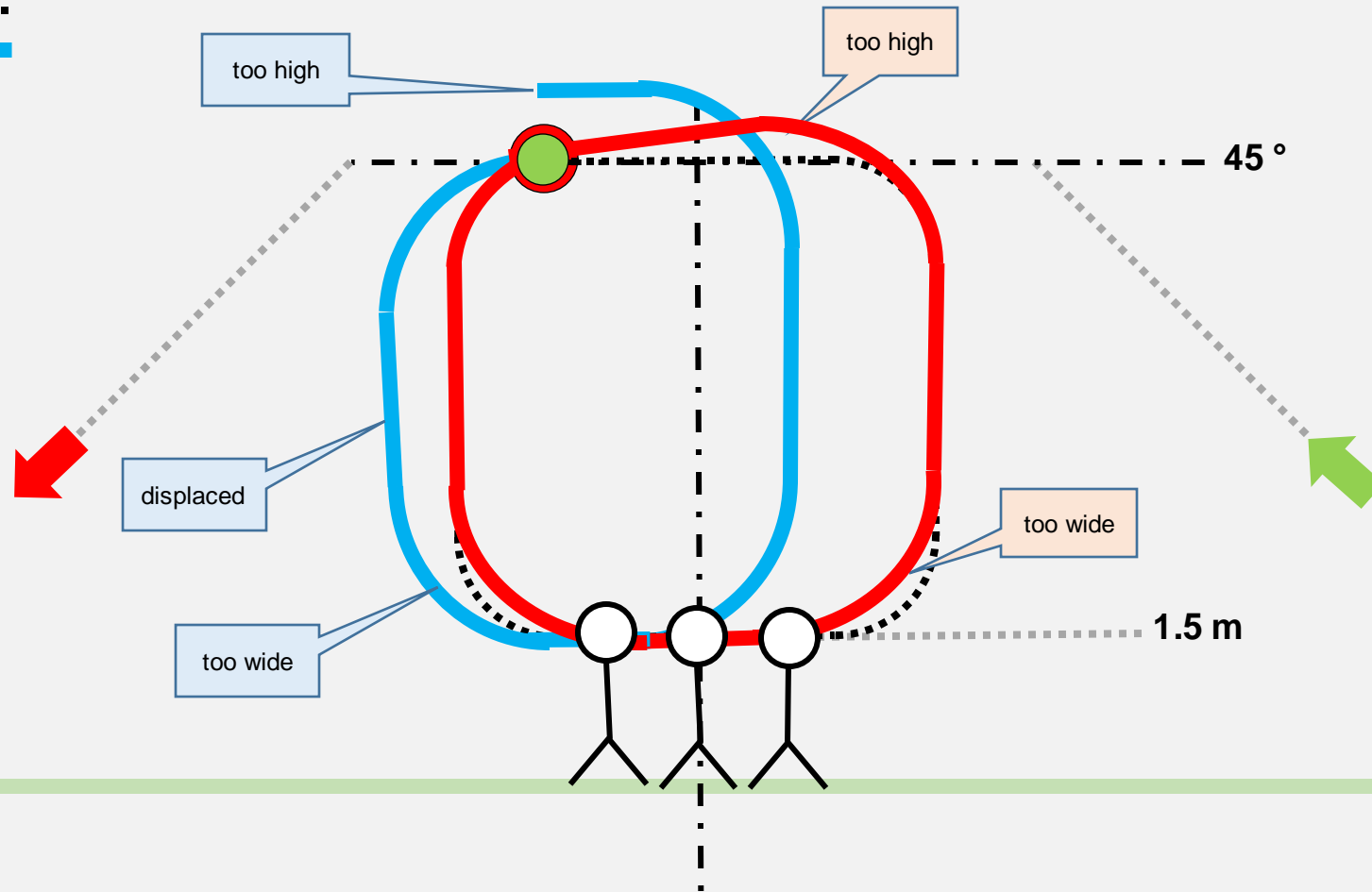
### 4.2.15.8 Two consecutive inside square loops

Rule .....  
Track 1 2



### 4.2.15.9 Two consecutive outside square loops

Rule .....  
Track 1 2

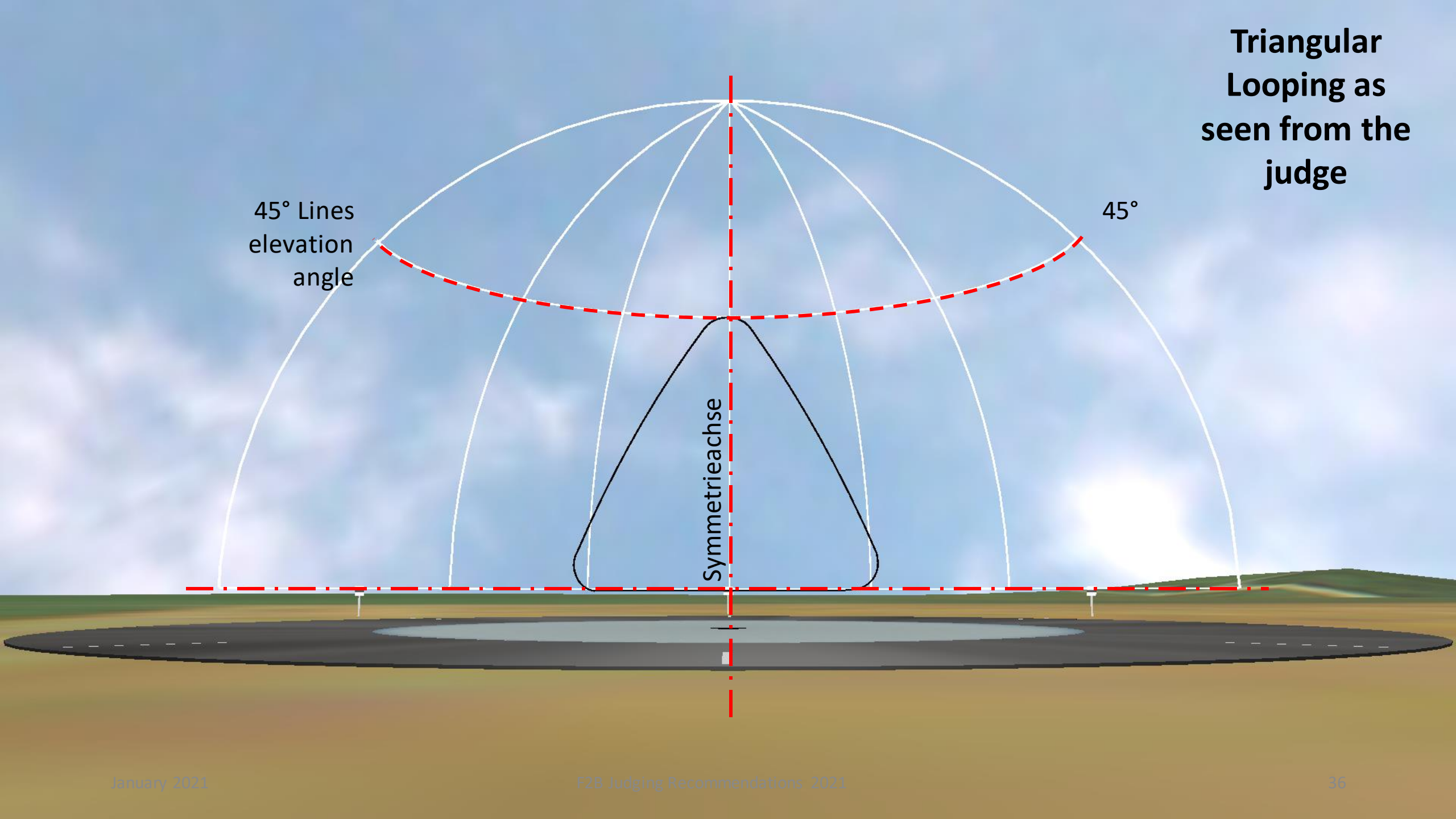


# Triangular Looping as seen from the judge

45° Lines elevation angle

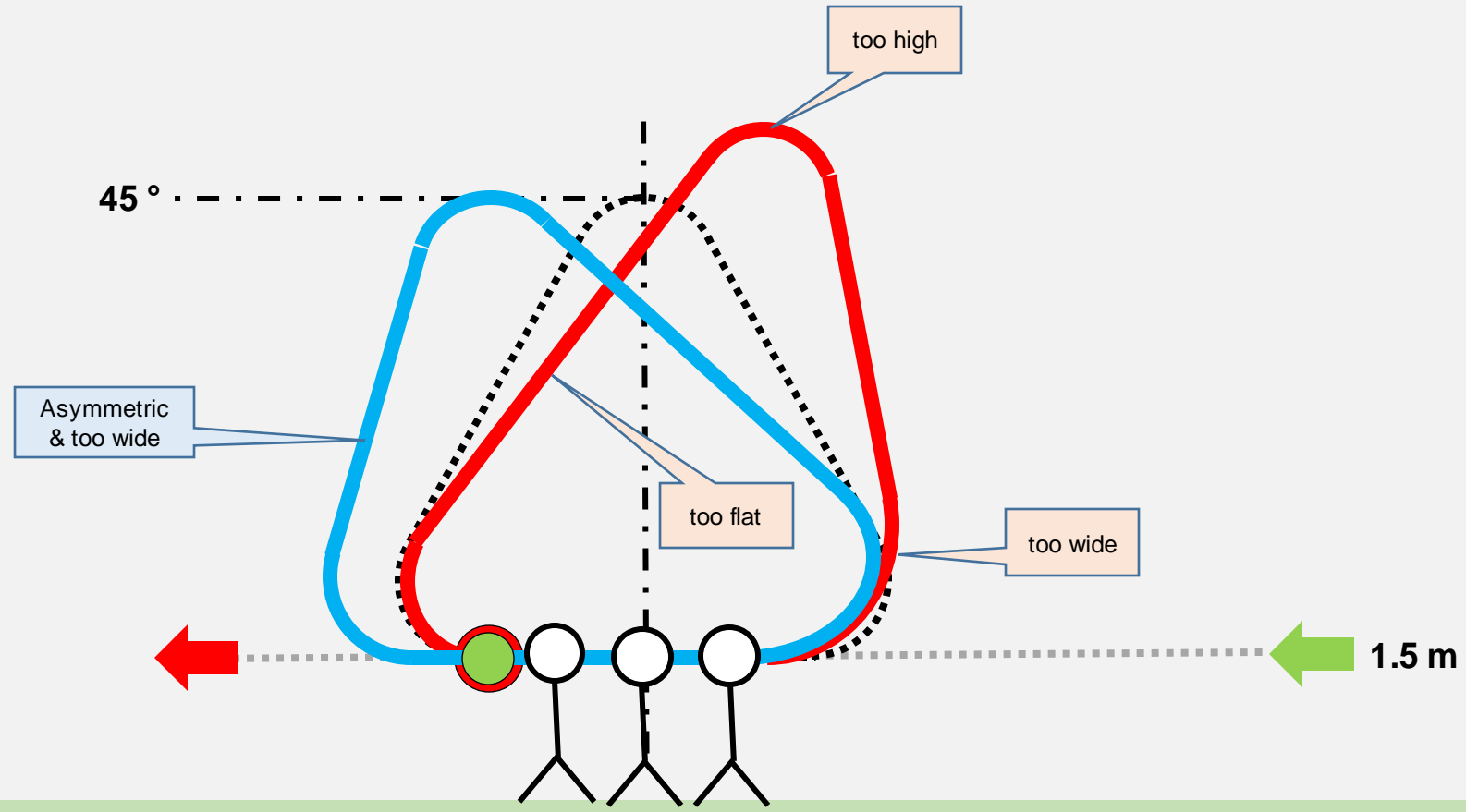
45°

Symmetrieachse



## 4.2.15.10 Two consecutive inside triangular loops

Rule .....  
Track 1 2

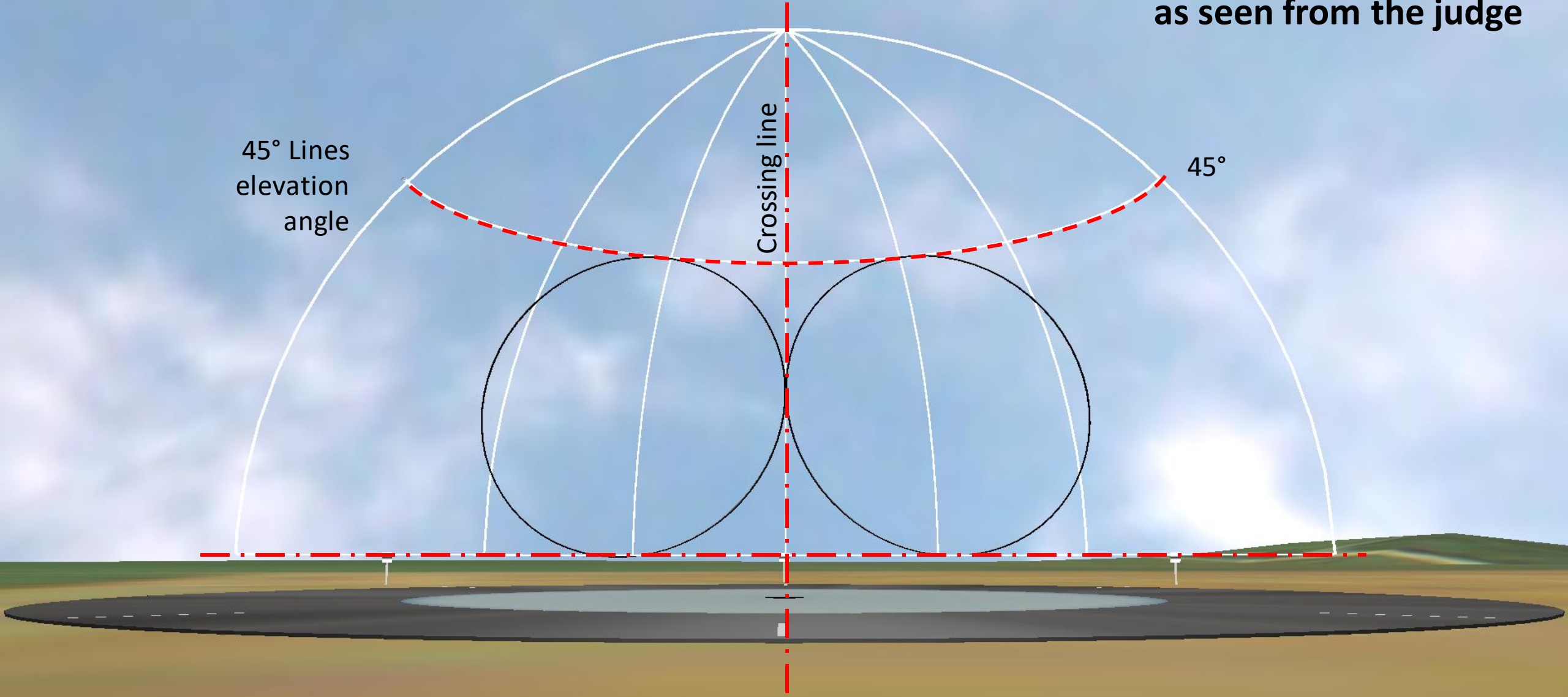


# Horizontal Eight as seen from the judge

45° Lines  
elevation  
angle

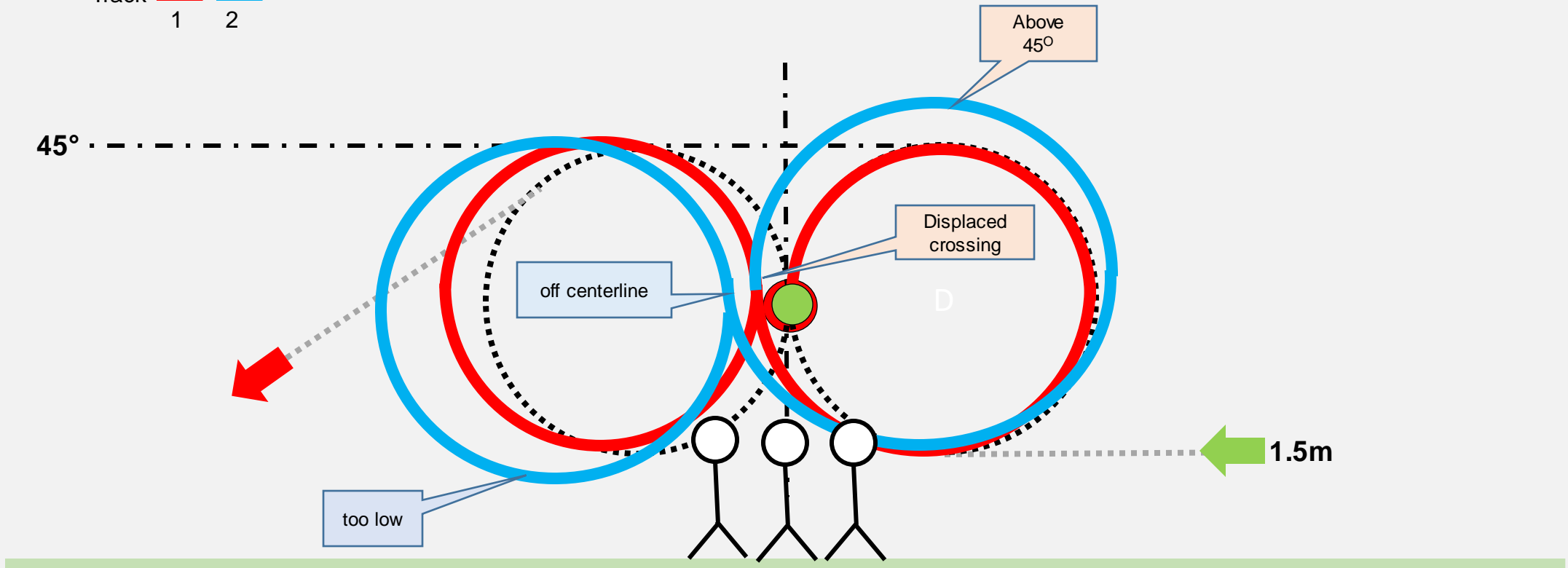
45°

Crossing line

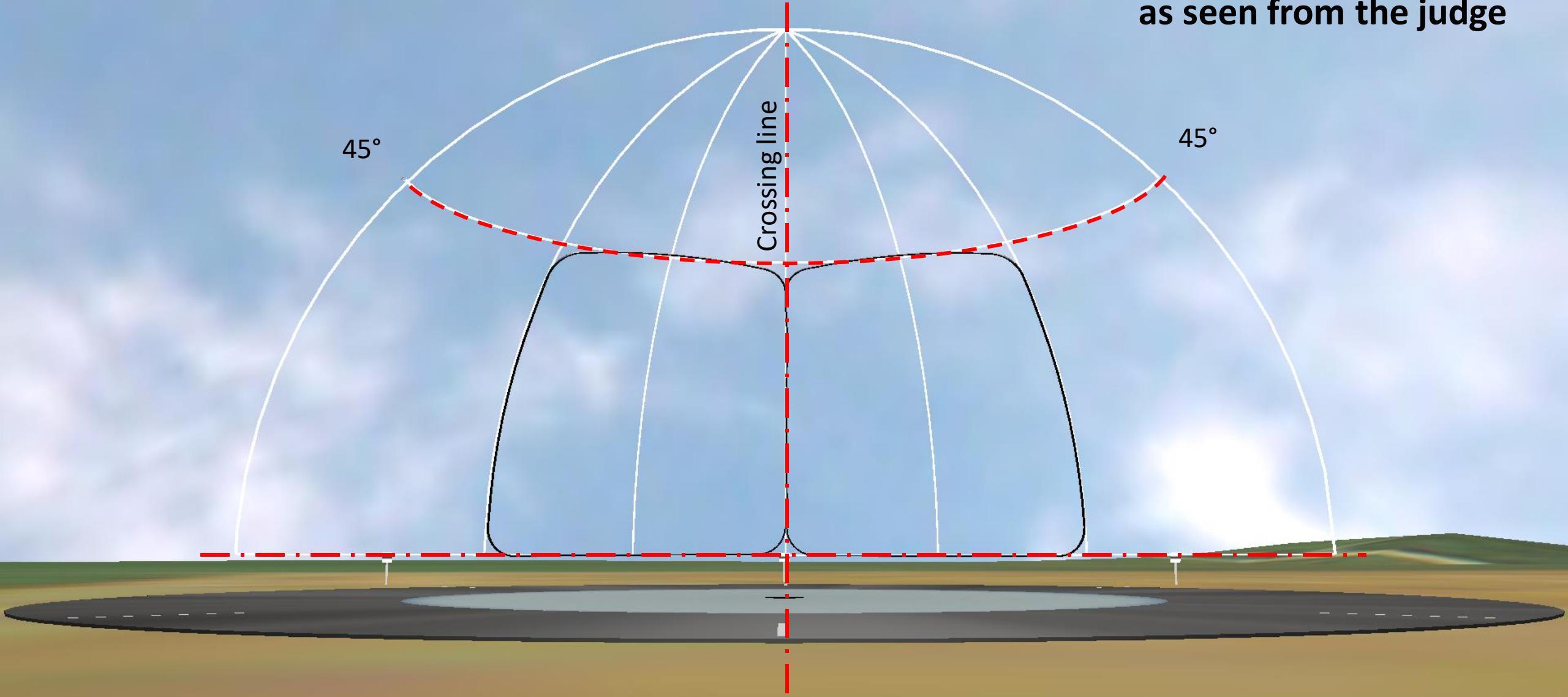


### 4.2.15.11 Two consecutive horizontal eight

Rule .....  
Track 1 2

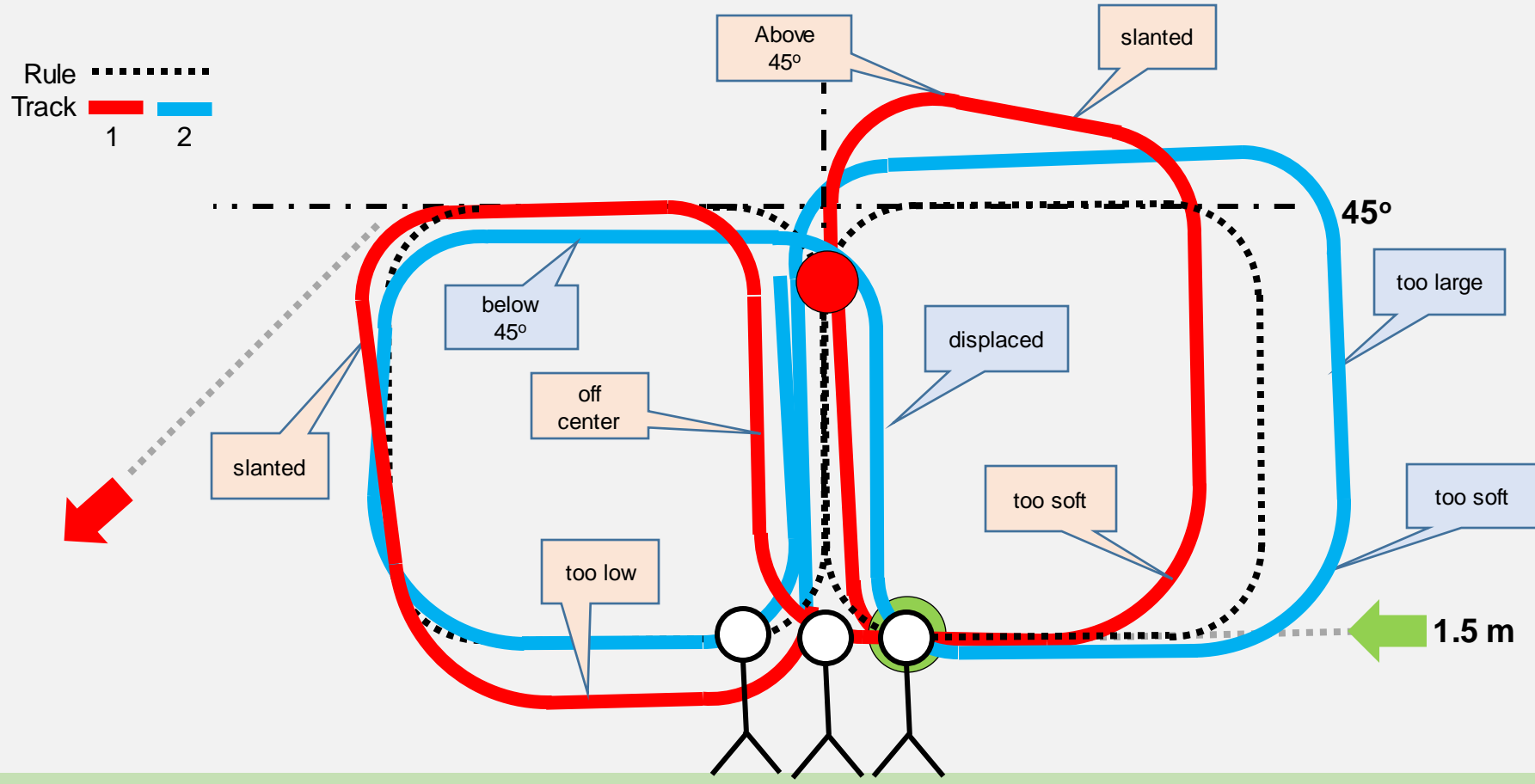


# Square Eight as seen from the judge

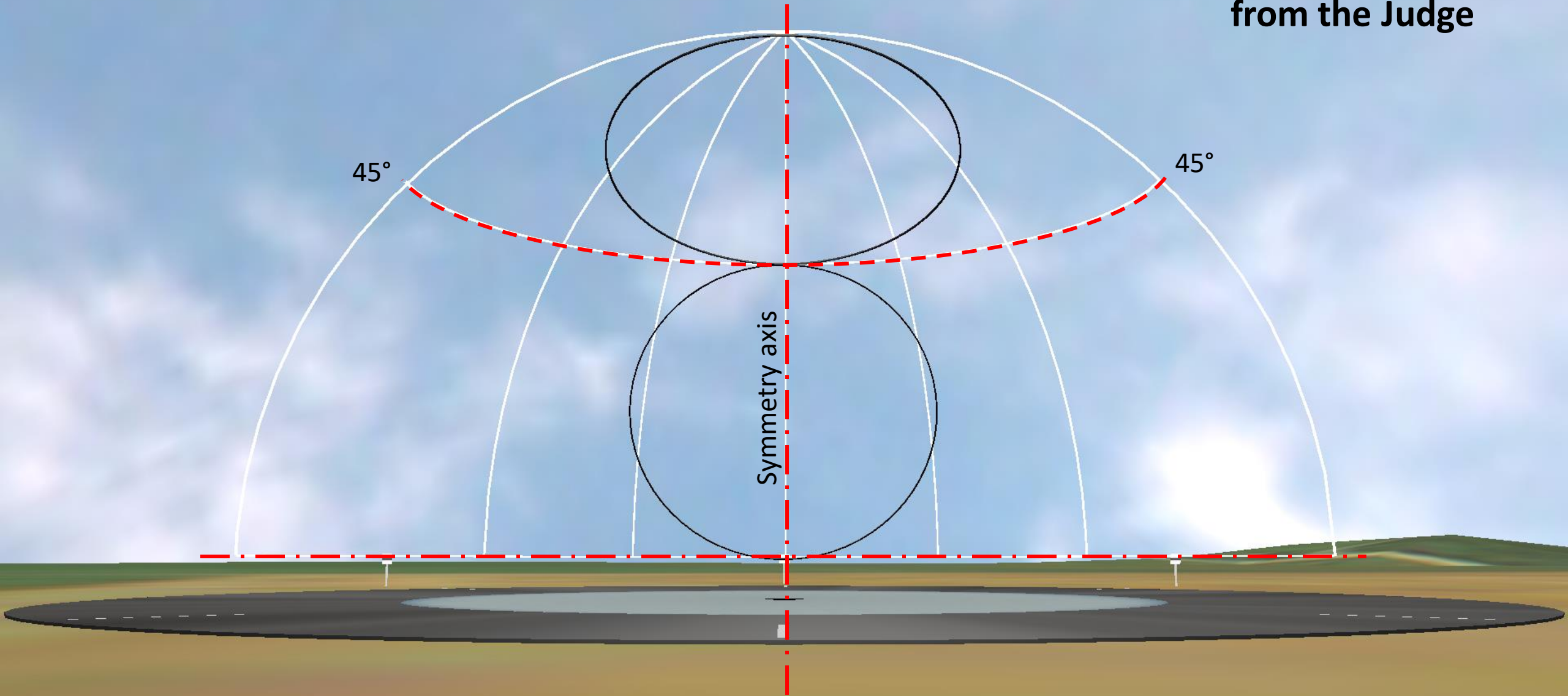




### 4.2.15.12 Two consecutive horizontal square eights

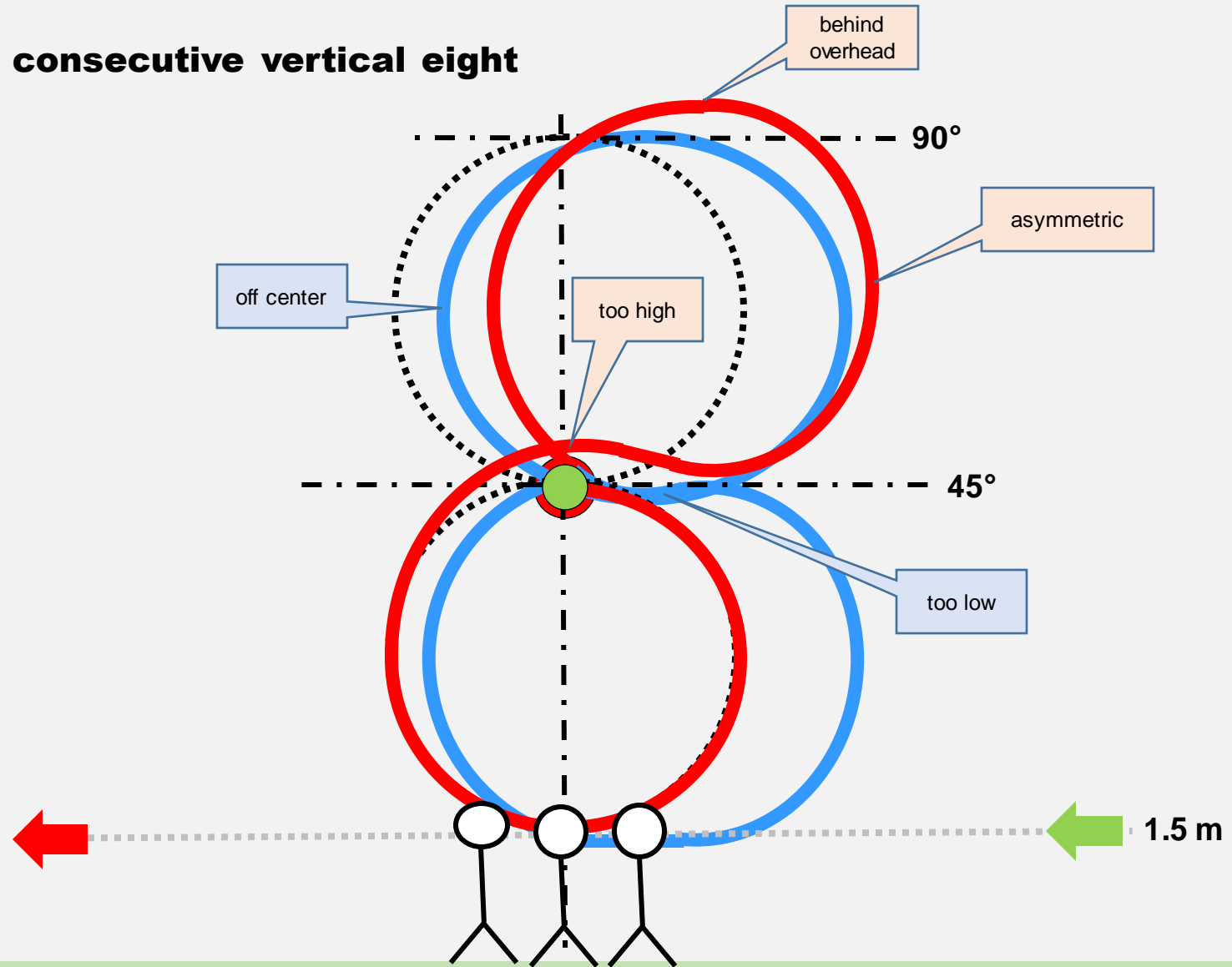


# Vertical Eight as seen from the Judge



### 4.2.15.13 Two consecutive vertical eight

Rule .....  
Track 1 2



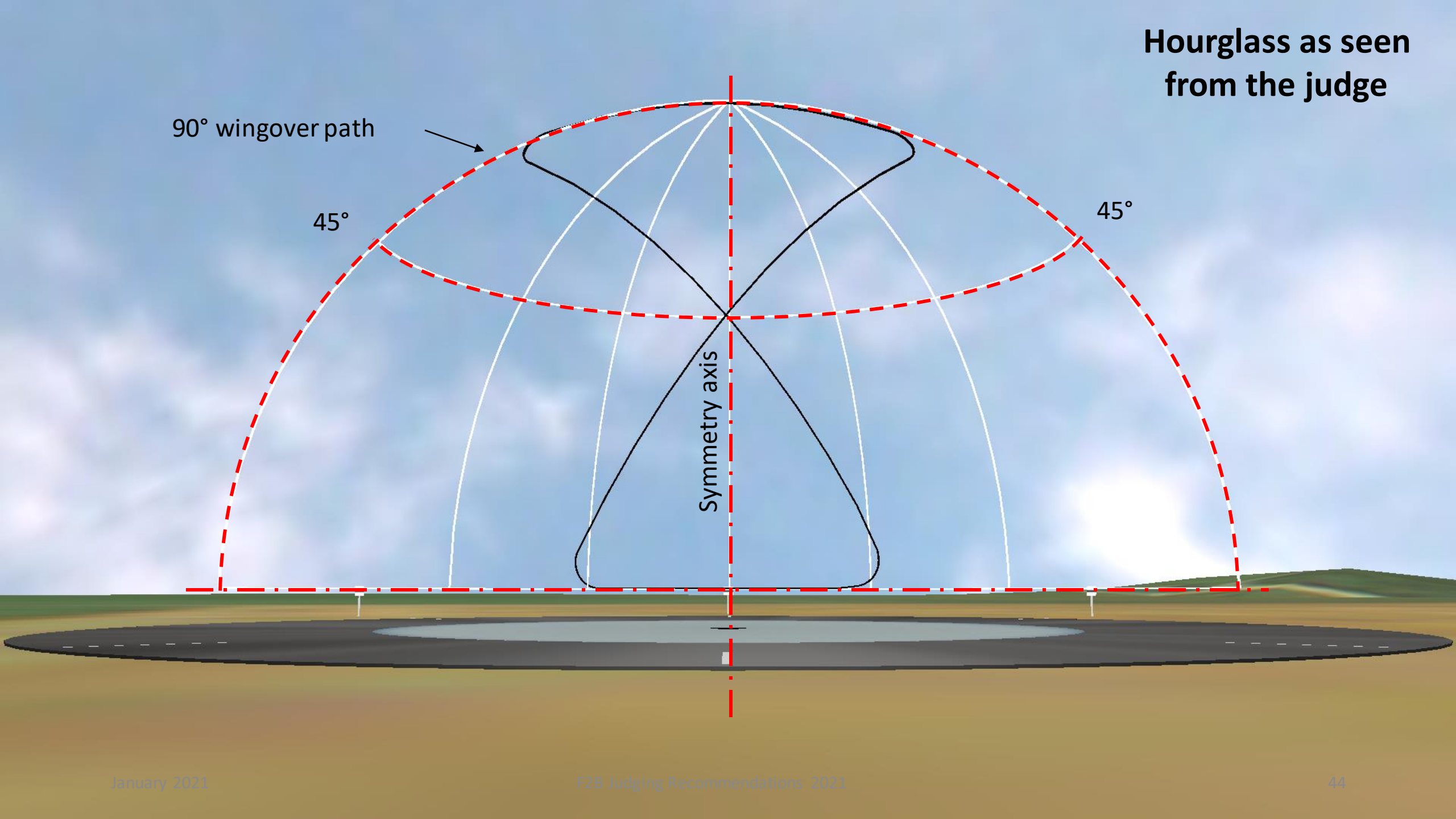
# Hourglass as seen from the judge

90° wingover path

45°

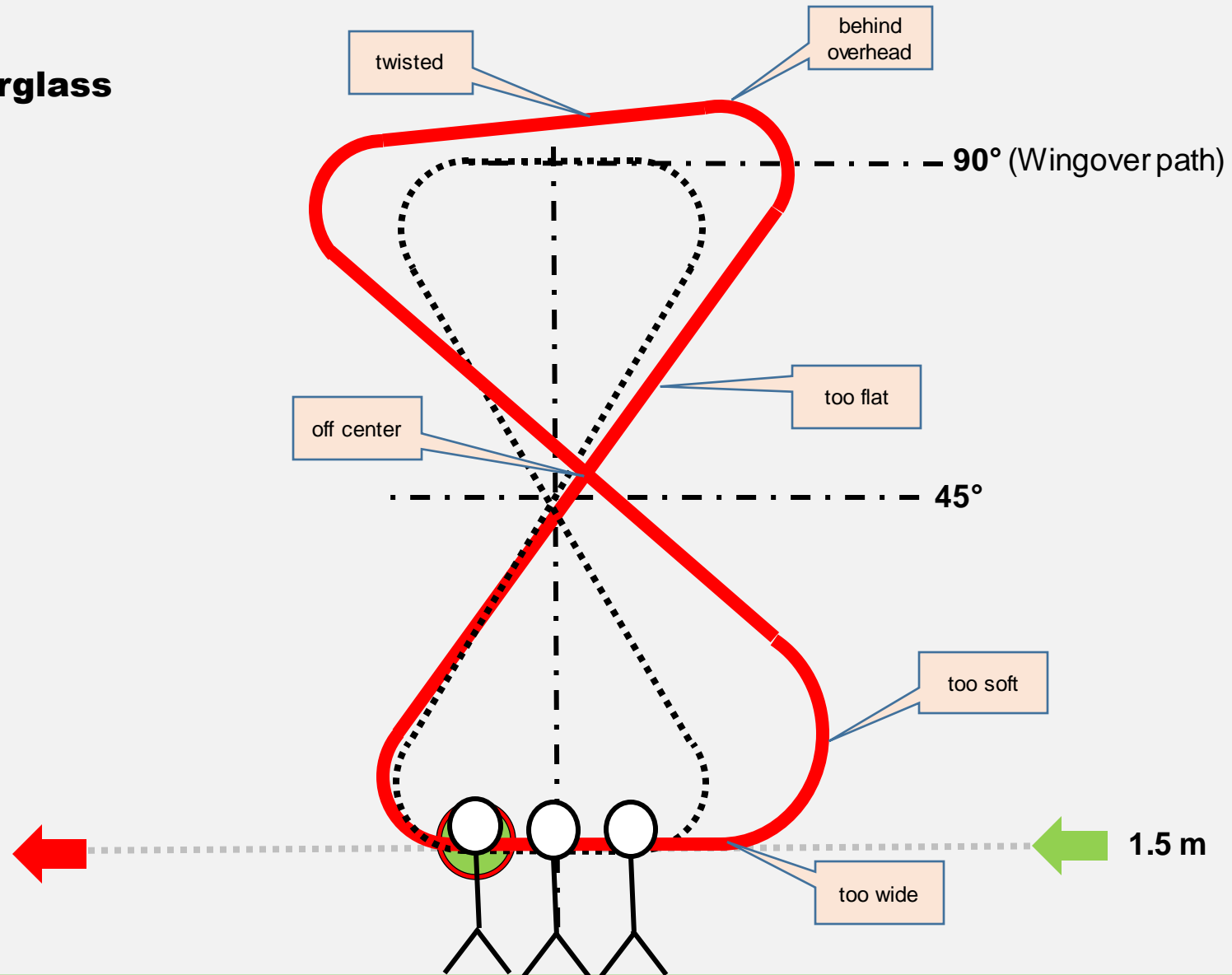
45°

Symmetry axis



## 4.2.15.14 Hourglass

Regel .....  
Flugweg **—**



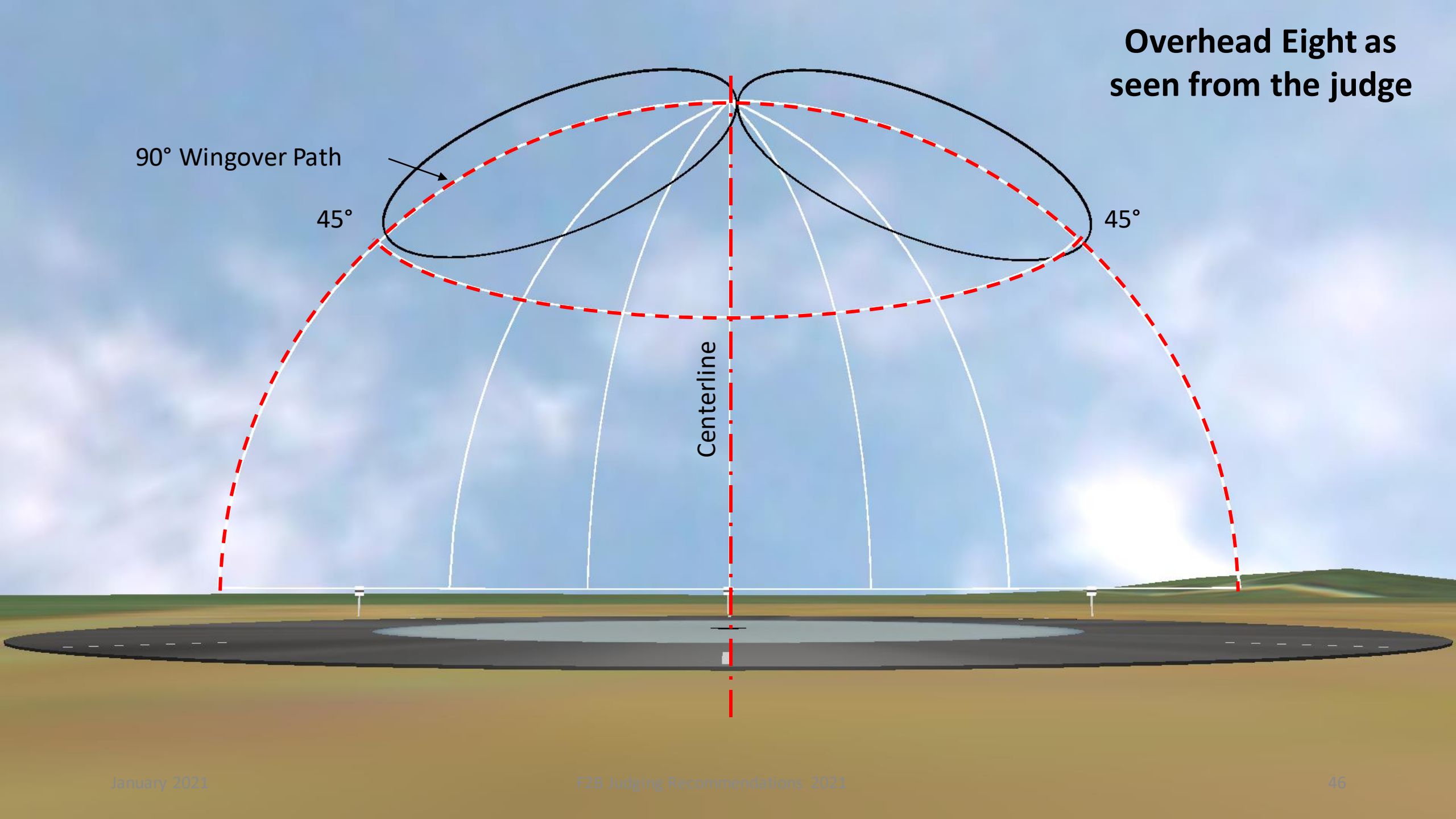
# Overhead Eight as seen from the judge

90° Wingover Path

45°

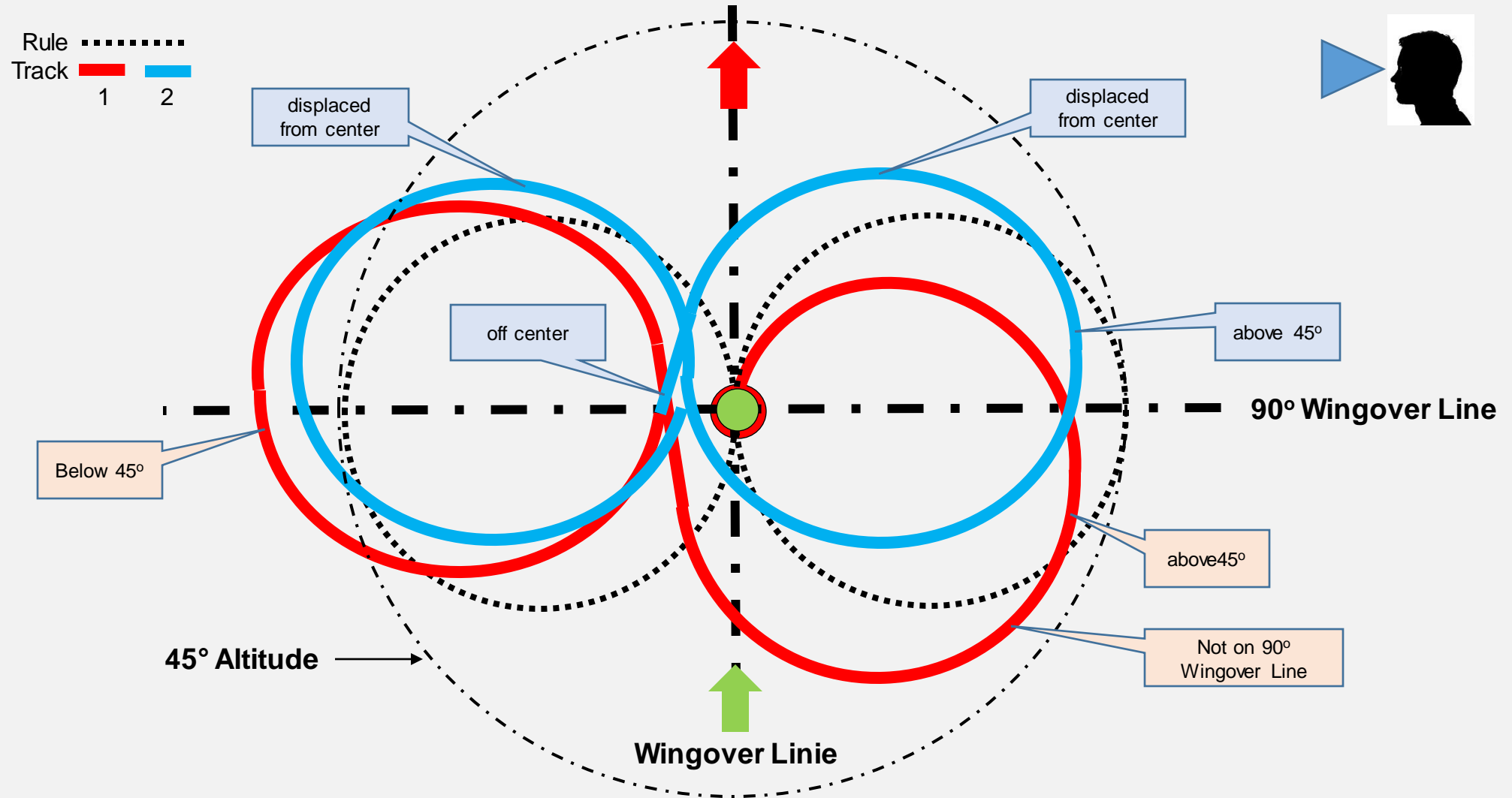
45°

Centerline



### 4.2.15.15 Two consecutive overhead eight

Pilots View Diagram



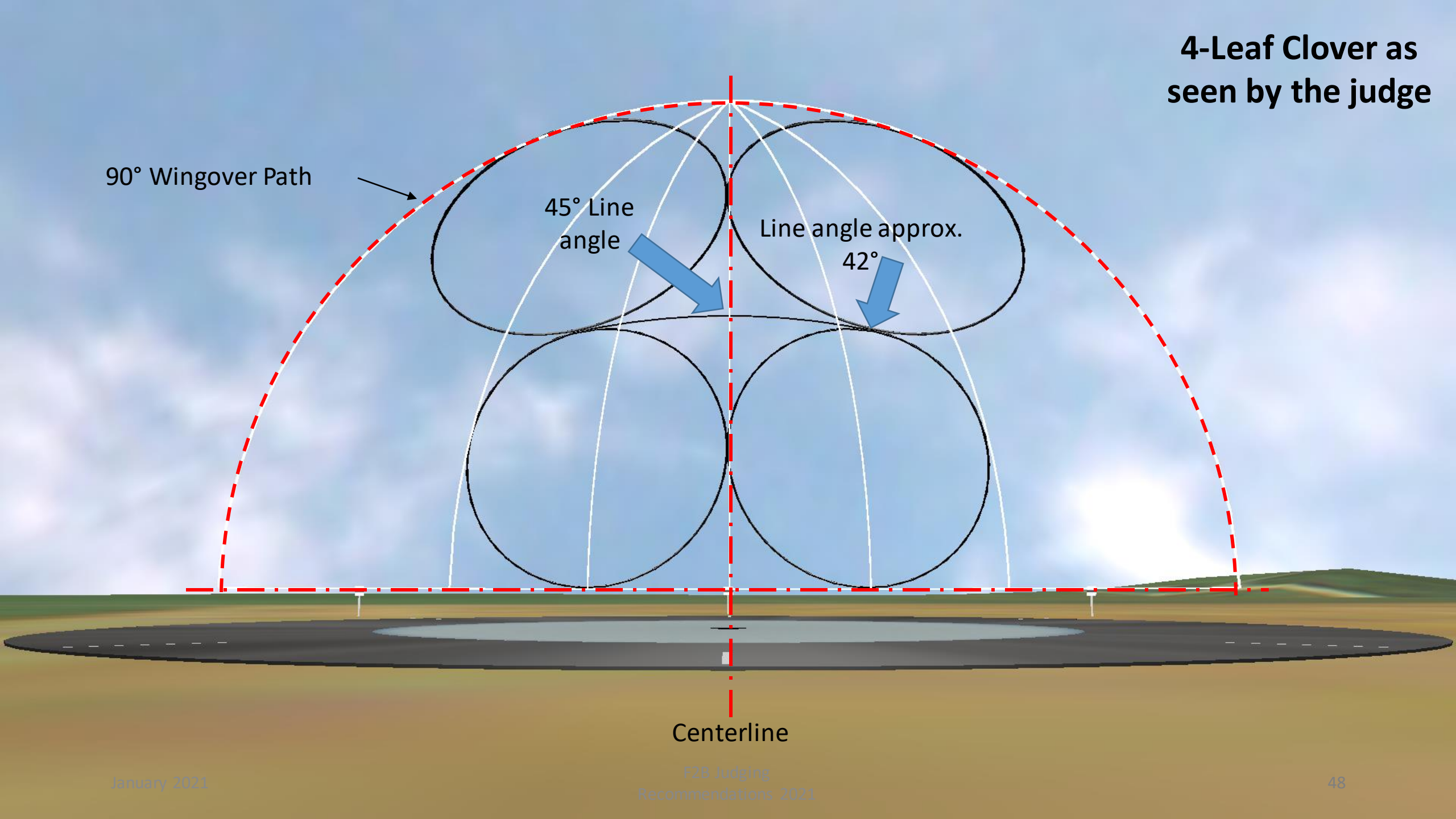
# 4-Leaf Clover as seen by the judge

90° Wingover Path

45° Line angle

Line angle approx. 42°

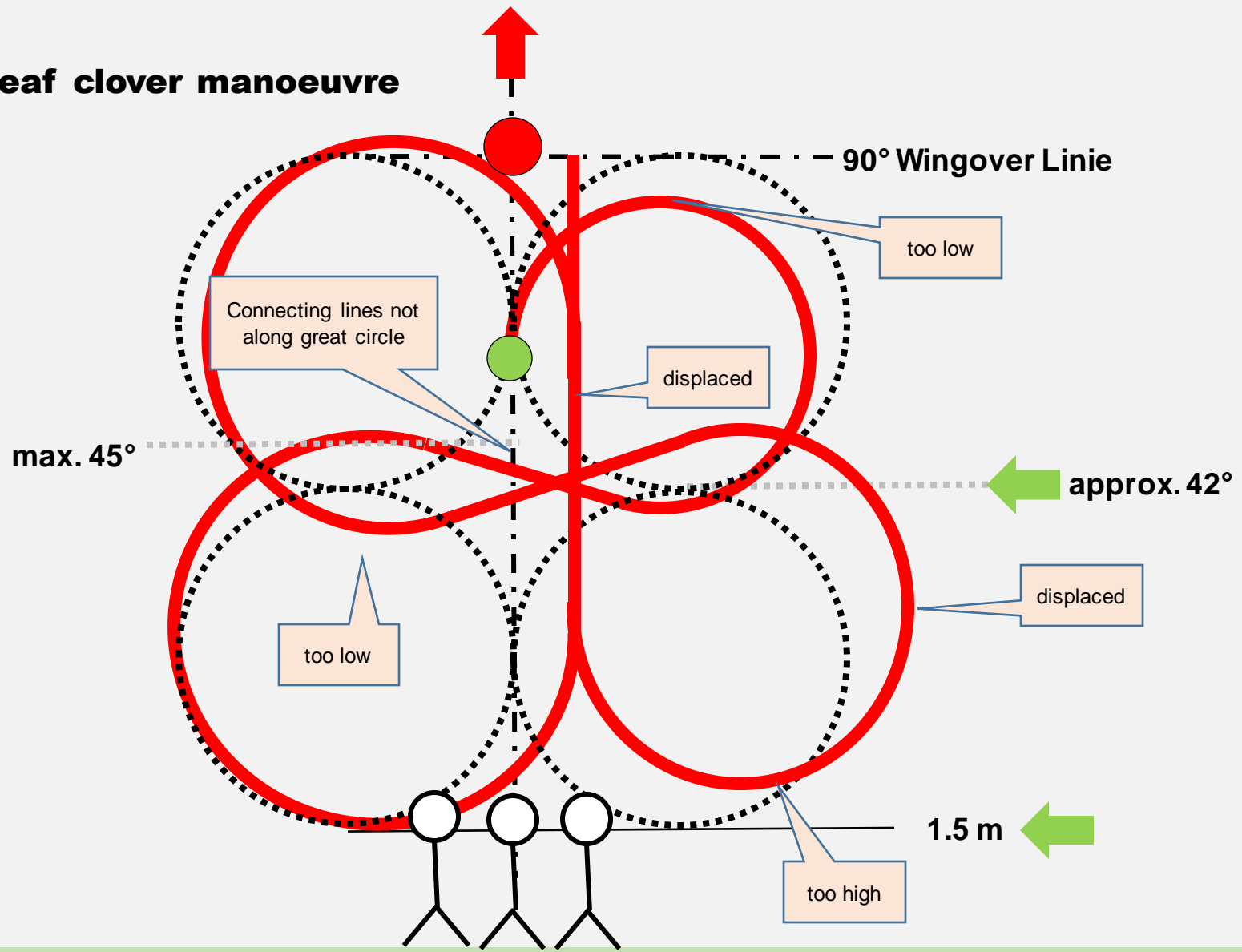
Centerline





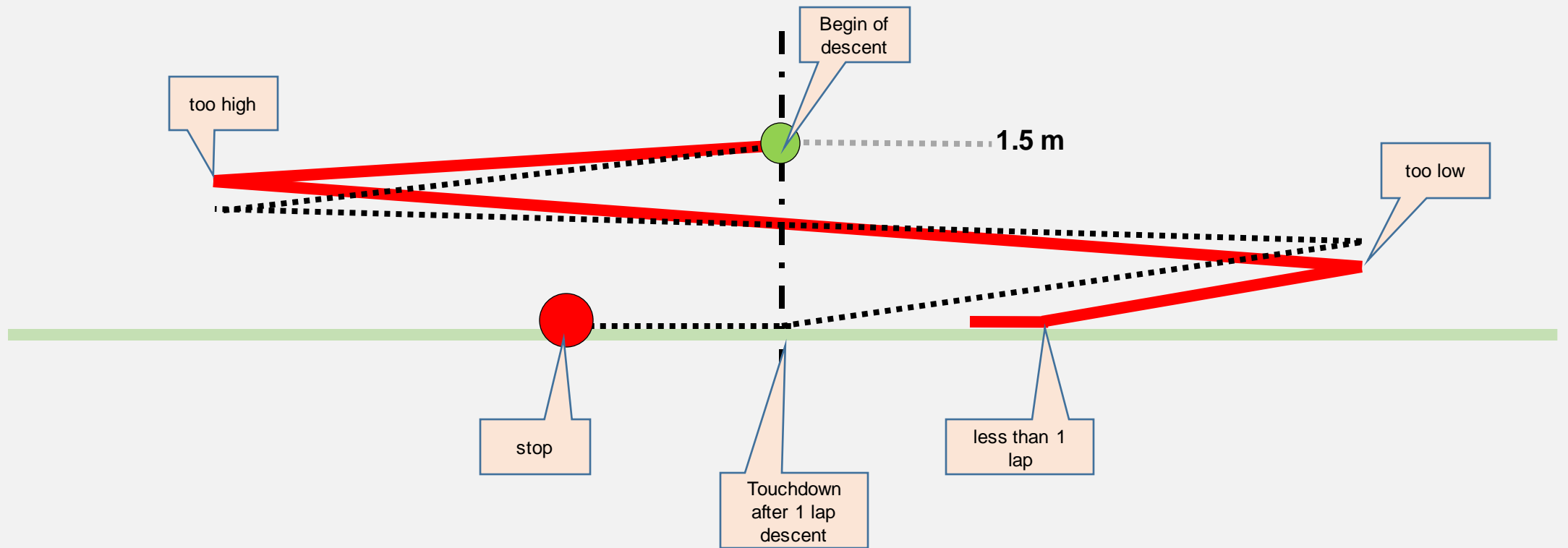
### 4.2.15.16 Four-leaf clover manoeuvre

Rule .....  
Track ———



## 4.2.15.17 Landing Manoeuvre

Rule .....  
Track ———



## 5. Error Weighting and Scoring



The weighting of detected errors is the **sole responsibility** of the judge.

He shall make **use of the whole range** of available scores.

It is of crucial importance that the determination of deductions for specific errors **always remains the same** throughout the competition.

It is **not** the purpose of judging at a competition to have all judges award the same marks for a manoeuvre.

The aim is for each judge to score the observed faults **consistently** throughout the competition **according to his or her own standard**.





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# Questions and suggestions on how to improve



Made by Peter Germann, Switzerland  
Supported by Keith Renecke, South Africa  
Toni Borer and Louis Winkler, Switzerland.  
Video post-processing by Alberto Solera, Spain.

**Thank you very much for your participation. You are making a sustainable and valuable contribution to our common cause.**