FAI

CIAM F3 Helicopter Sub-committee

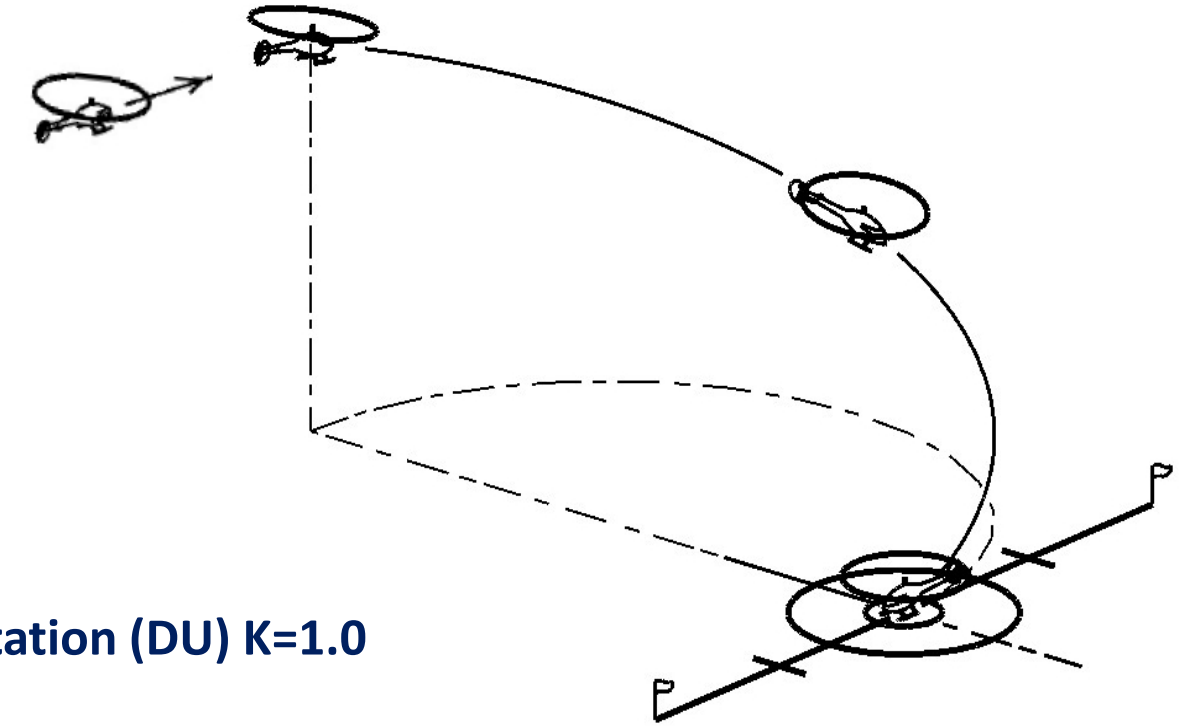
Preliminar “P” Program 2026/2027

Prentation of the figure: P9

180º Autorotation

Presentation Created by Roger Lacôme and Eladi Lozano

P9. 180* AUTOROTATION

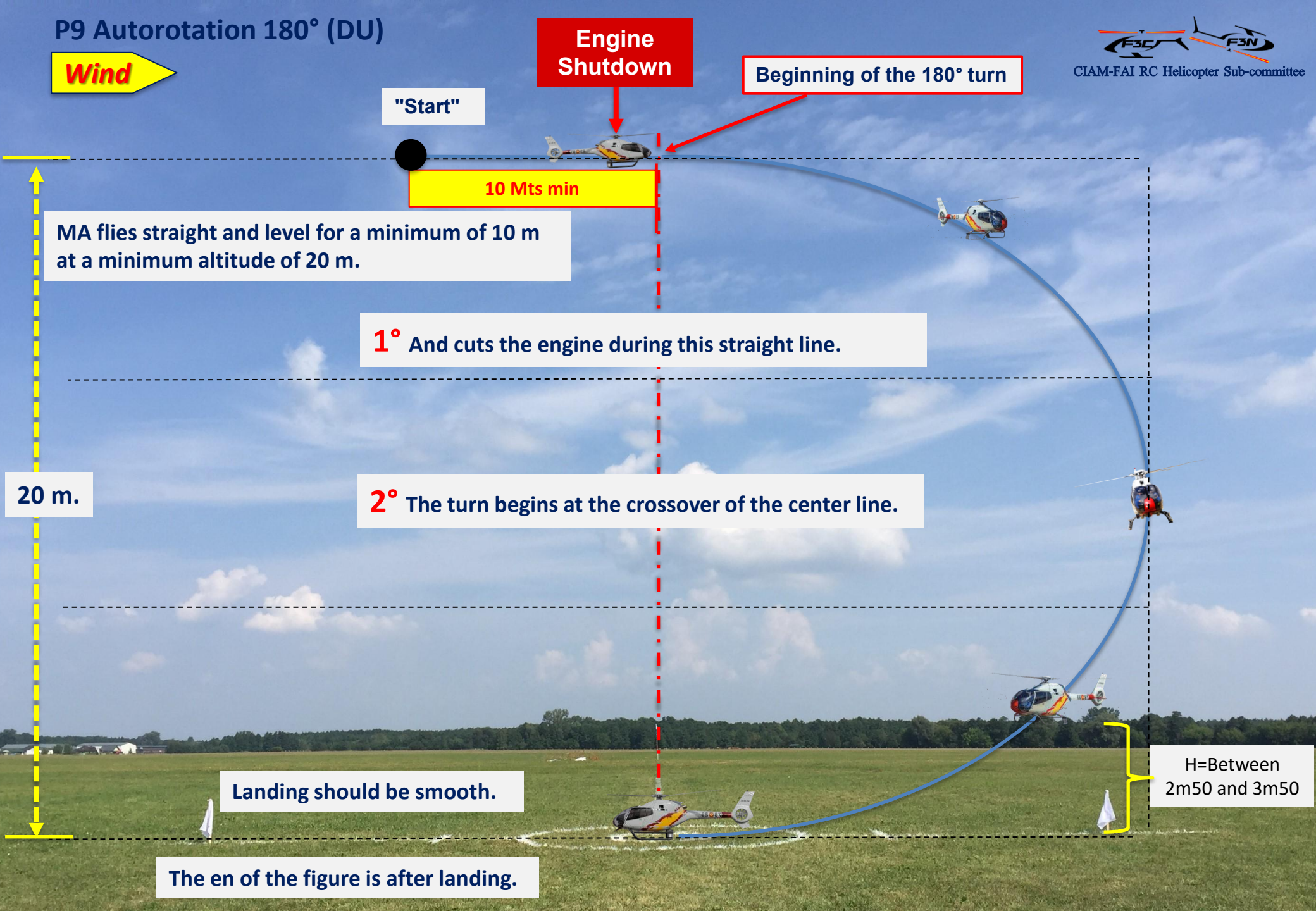


P9: 180° Autorotation (DU) K=1.0

MA flies straight and level for a minimum of 10 m at a minimum altitude of 20 m. Before crossing an imaginary plane that extends vertically upward from a line drawn from the center judge out through the helipad, MA turns the engine off (or at idle) and continues to fly straight and level. When crossing this line MA must start the autorotation and descend. It is also at this point that the 180° turn must start and the turning and descending rate must be constant to a point just before touchdown on the helipad. The flight path of the MA must appear as a semi-circle when viewed from above, starting at the vertical plane and ending at a line drawn from the center judge through the helipad. The MA's flight path must never be parallel to the ground or judge's line.

Scoring criteria for landing: See ANNEX 5E Paragraph 5E.6.11.

P9 Autorotation 180° (DU)



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5E.6.11. AUTOROTATIONS

The manoeuvre begins and ends as announced by the caller. The end must be after the landing. Because the autorotation can contain several flying manoeuvres, the announced beginning can be before the engine is powered off or set to idle. The manoeuvre description must clearly state, when the engine has to be powered off or set to idle position. In order to obtain the maximum score, the MA must have executed the flying manoeuvres exactly as described in the manoeuvre description, and after the smooth landing the MA tailboom must be parallel to the judges' line. If the start of the manoeuvre which includes the 10m straight level entry is too late, there is a downgrade of 2 points. If the flight path is stretched, shortened or deviated from, in order to reach the landing circle, the manoeuvre must be downgraded. The required flight path gives maximum score, but there will be downgrades of 1 or 2 points depending of the severity of the path deviation. For example: If the flight path clearly points to a landing close to one of the flags, but the path is stretched to reach the circle, the score can only be a maximum of 6 (corresponding to outside the circles), and there will be an additional downgrade of 2 points for the stretch. This means the score can only be a maximum of 4. If the model lands without stretching, the maximum score would have been a 6.

Scoring criteria for Autorotation landings:
Rotor shaft points inside the 1m circle = Maximum 10 points.
Rotor shaft points on the 1m circle = Maximum 9 points.
Rotor shaft points inside of 3m circle = Maximum 8 points.
Rotor shaft points on the 3m circle = Maximum 7 points.
Rotor shaft points outside of 3m circle = Maximum 6 points.

Note: If a flying manoeuvre is missed out or if the engine is not powered off (or not set to idle position), the score for the complete figure shall be zero.

P9 Autorotation 180° (DU)

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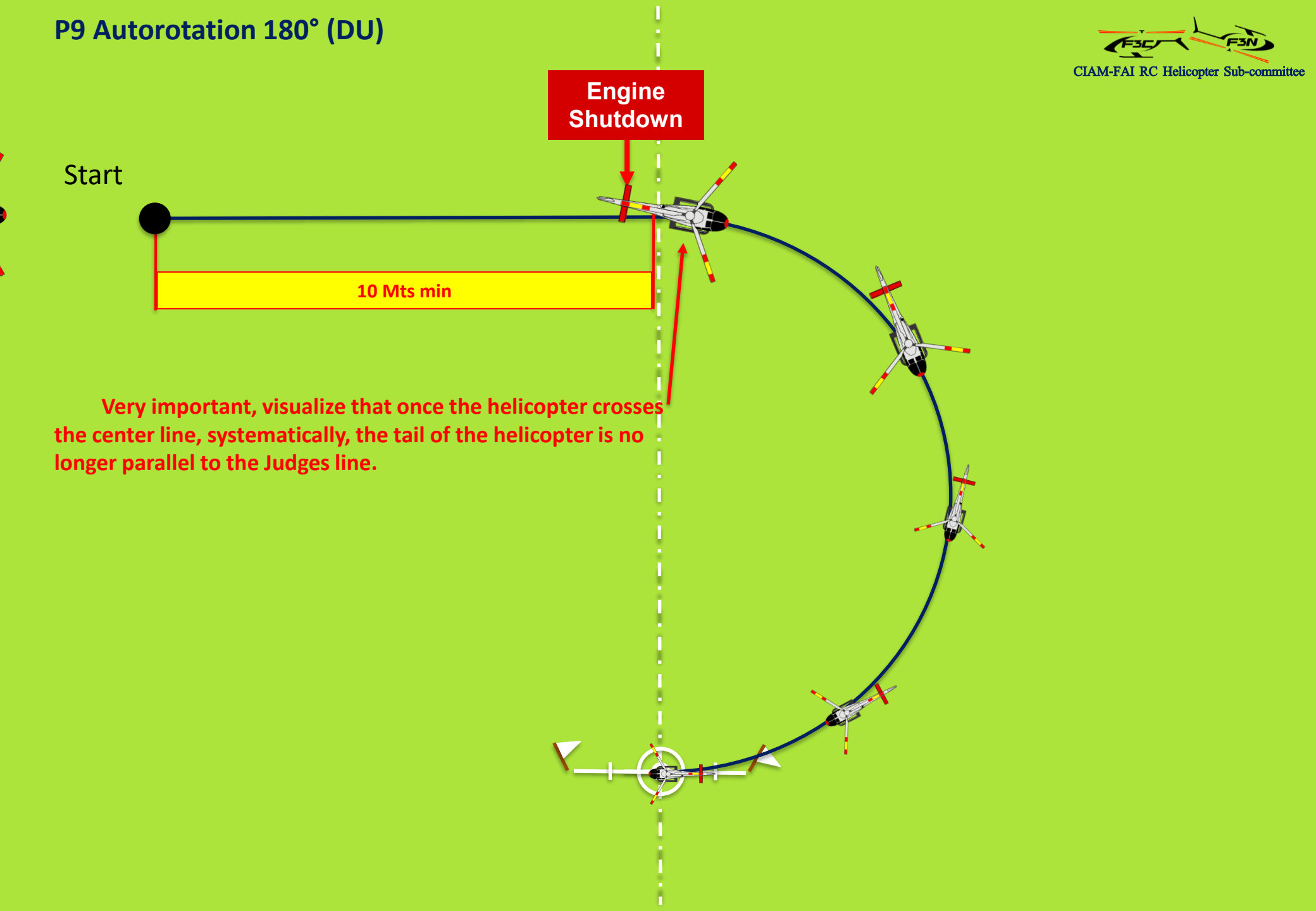

Very important, visualize that once the helicopter crosses the center line, systematically, the tail of the helicopter is no longer parallel to the Judges line.

P9 Autorotation 180° (DU)

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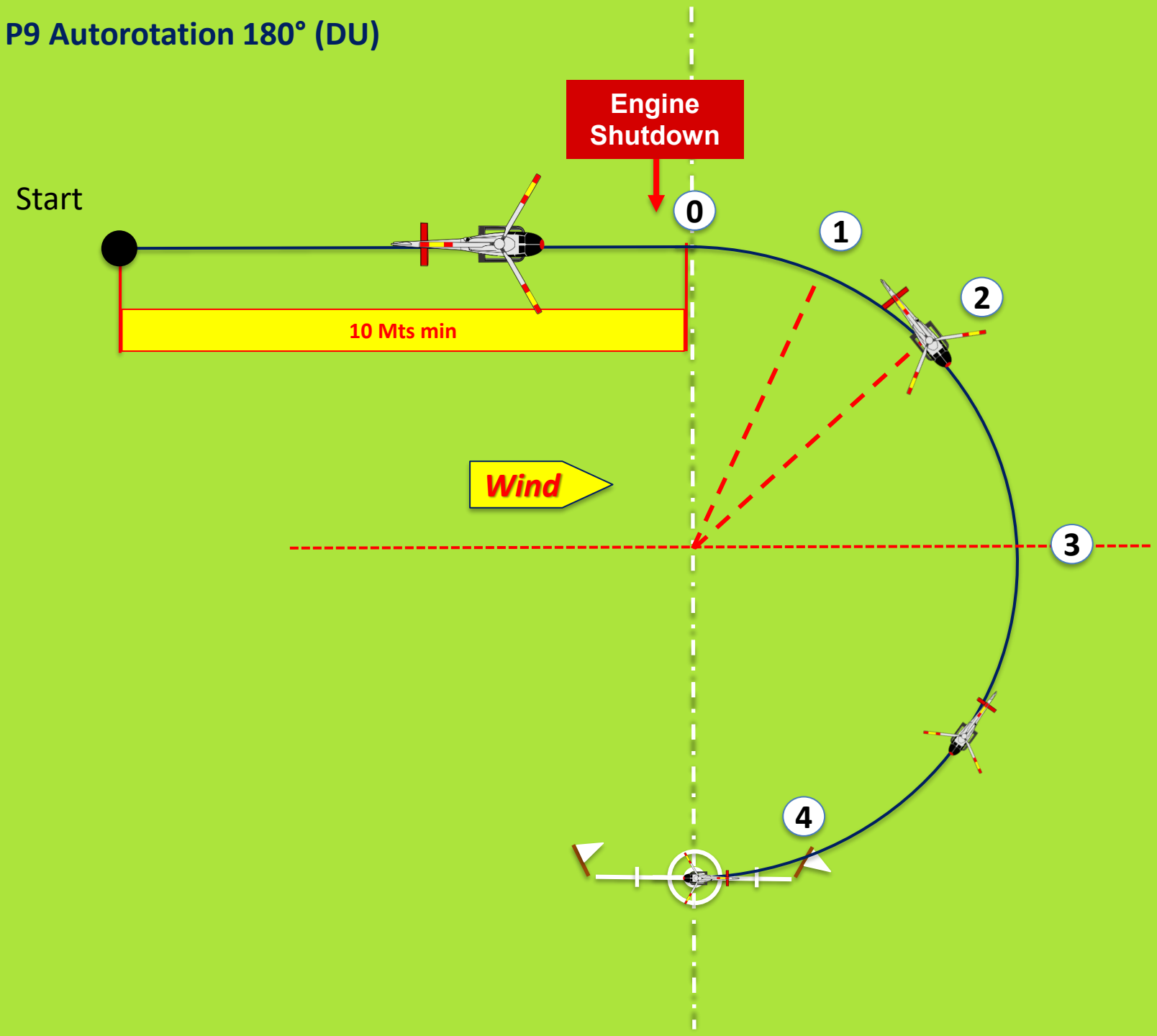

P9 Autorotation 180° (DU)

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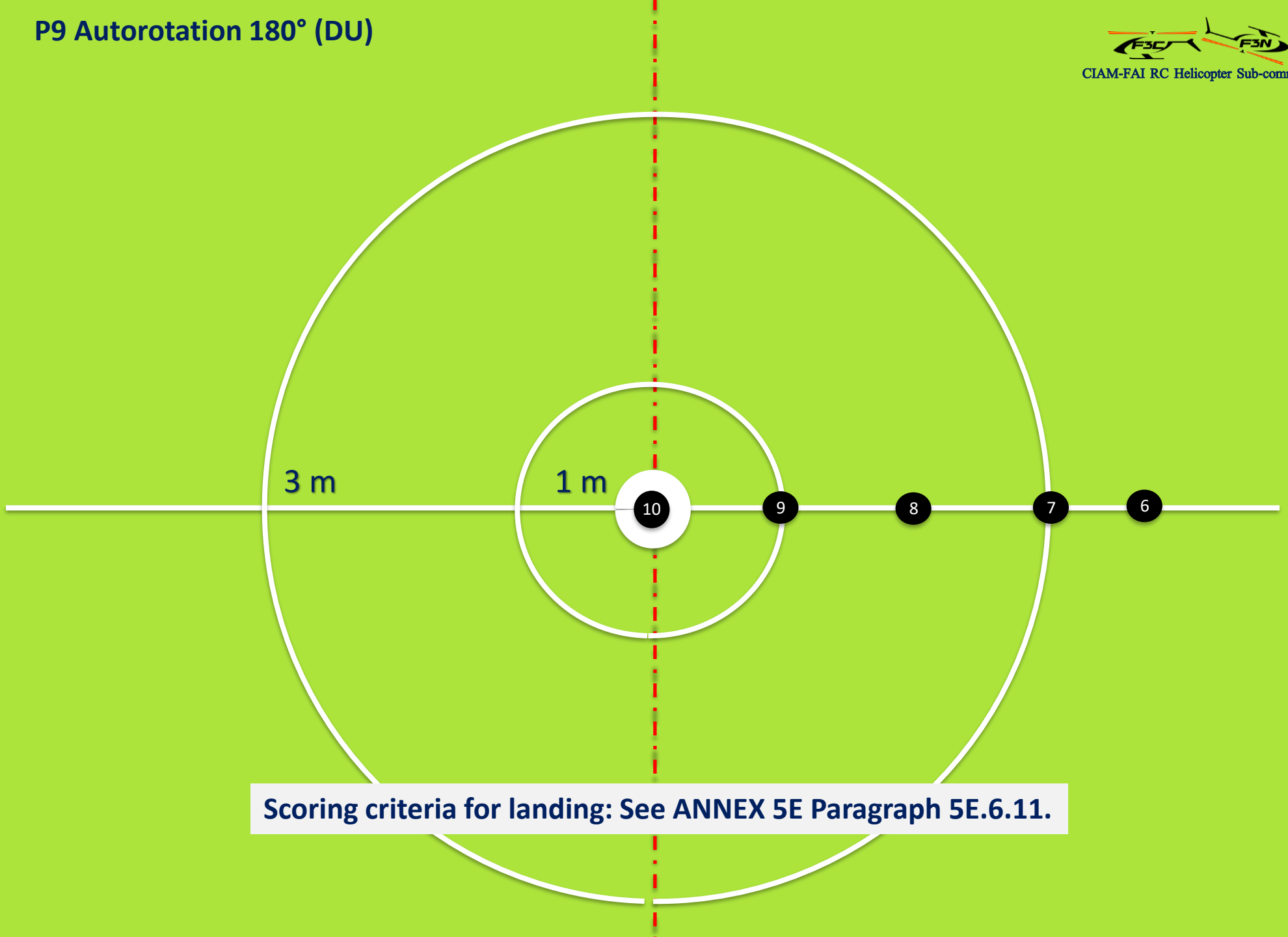

Scoring criteria for landing: See ANNEX 5E Paragraph 5E.6.11.

P9 Autorotation 180° (DU)

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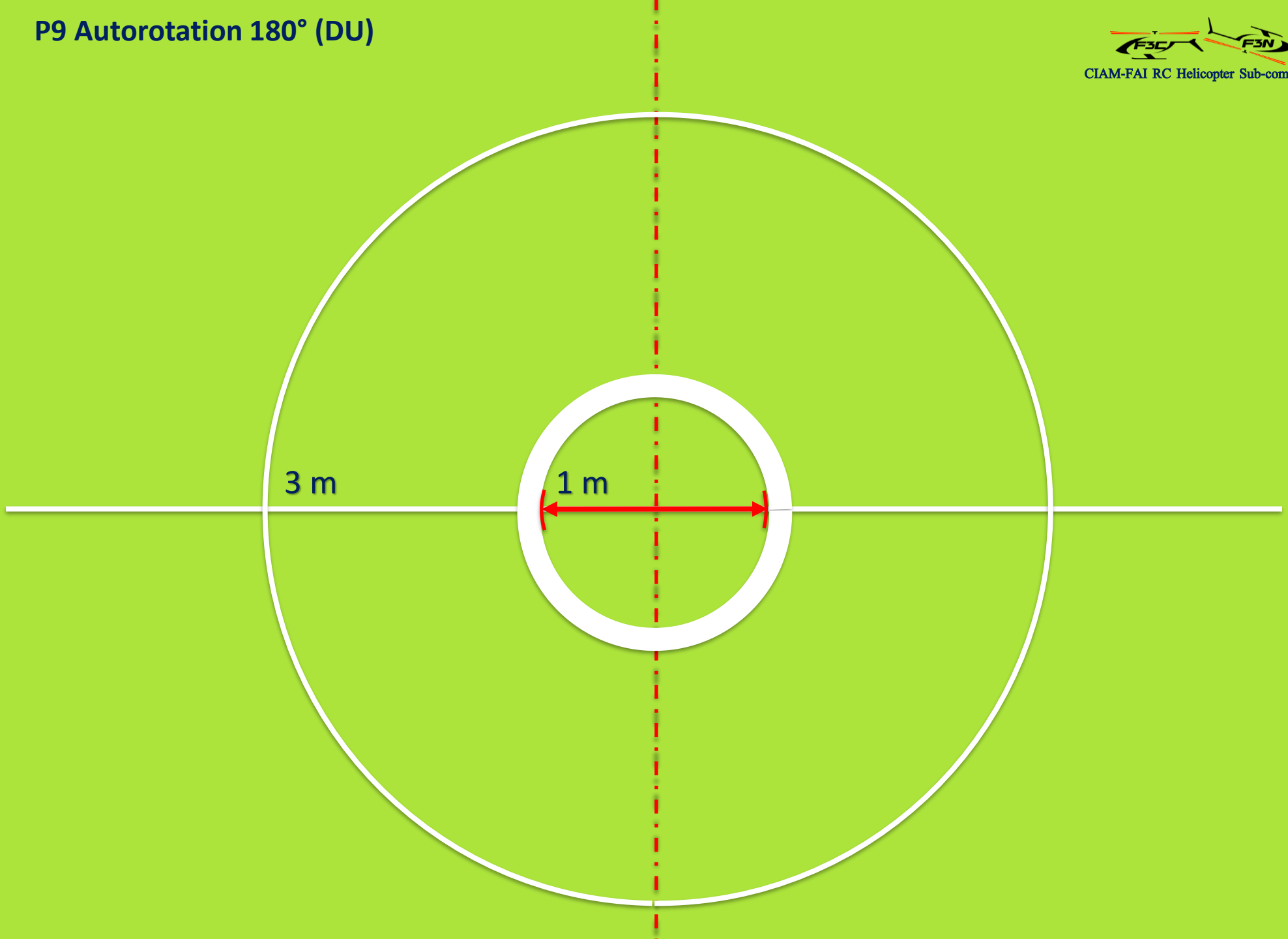

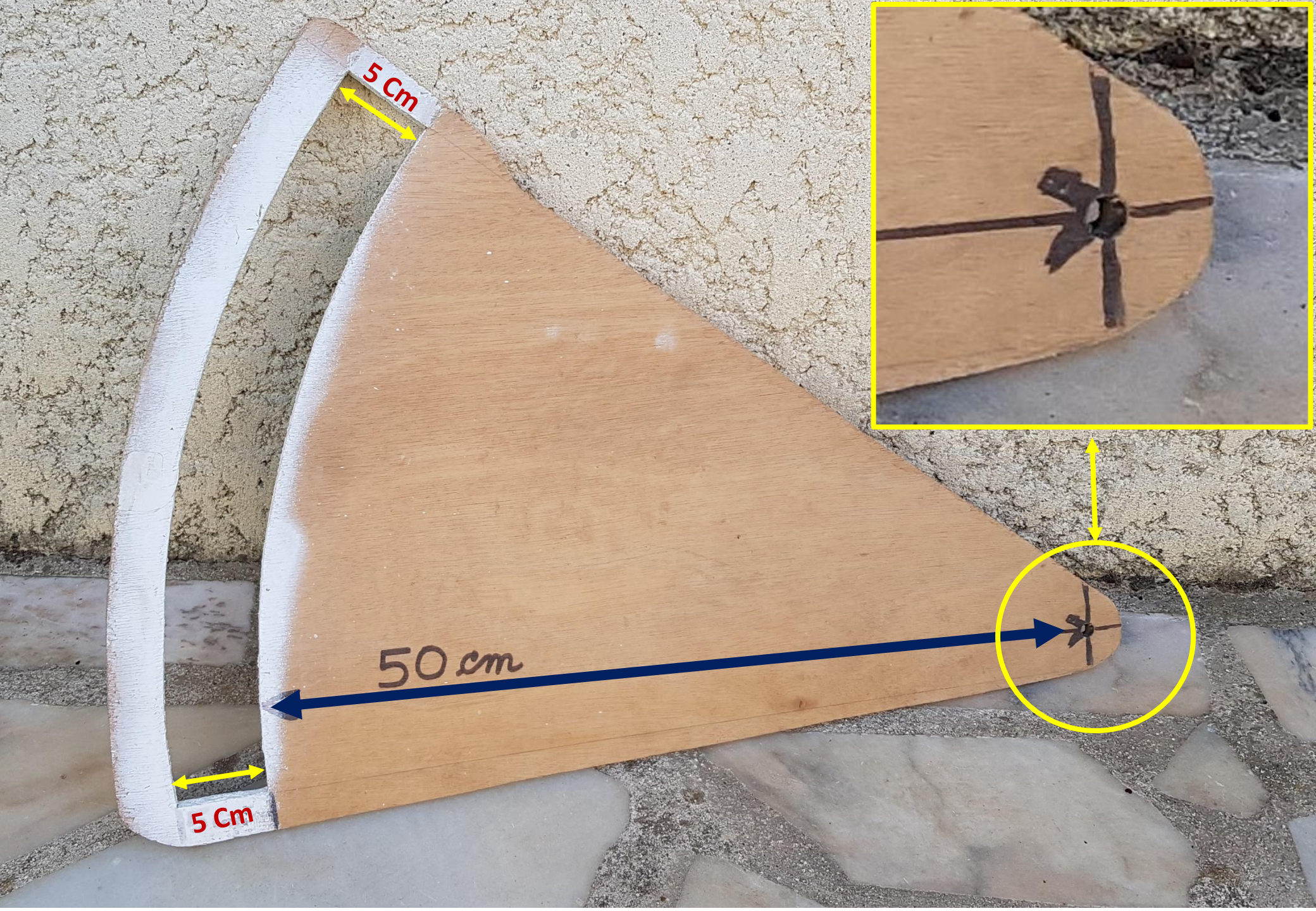
5 Cm
50 cm
5 Cm

P9 Autorotation 180° (DU)

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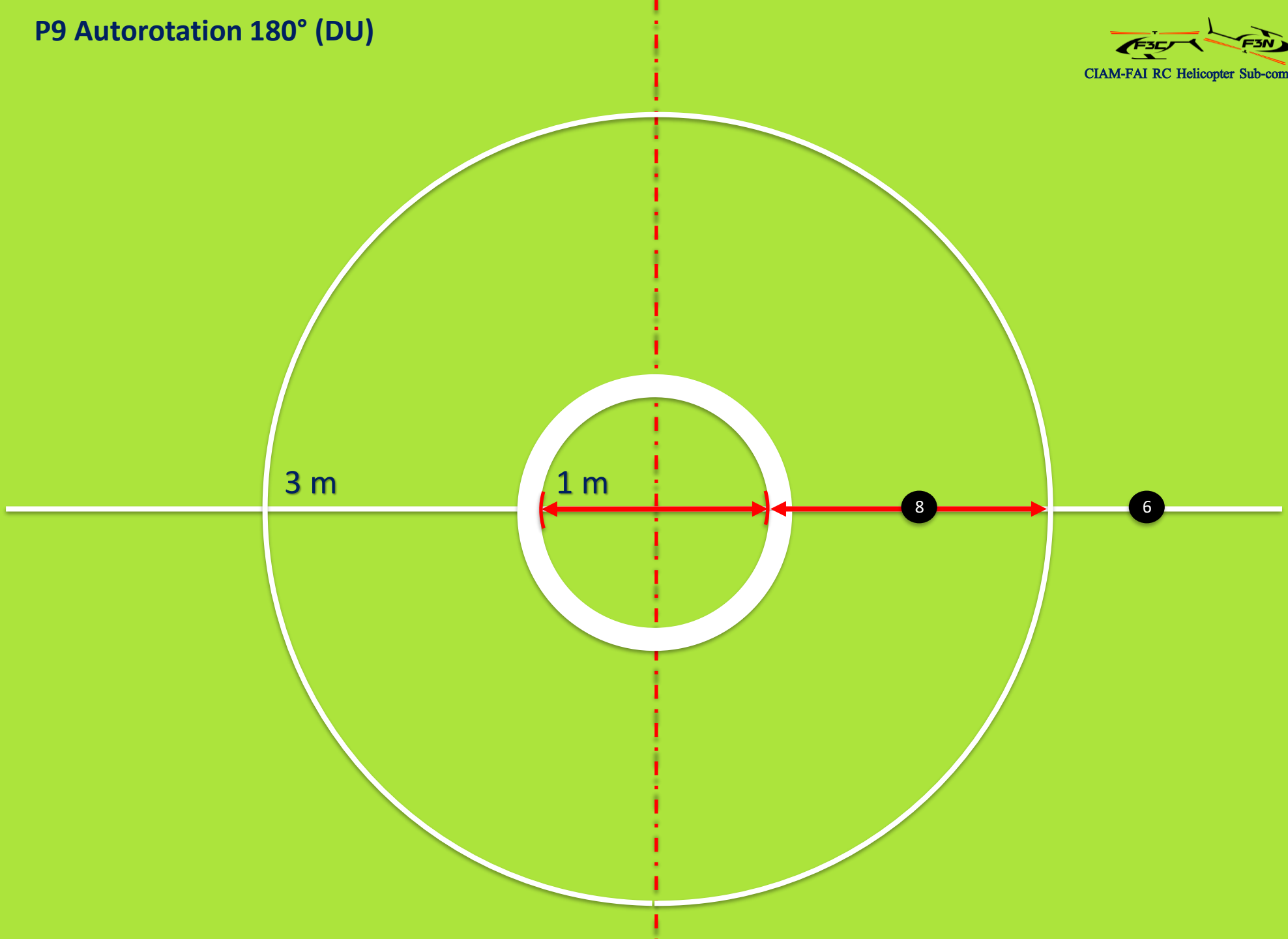

P9 Autorotation 180° (DU)

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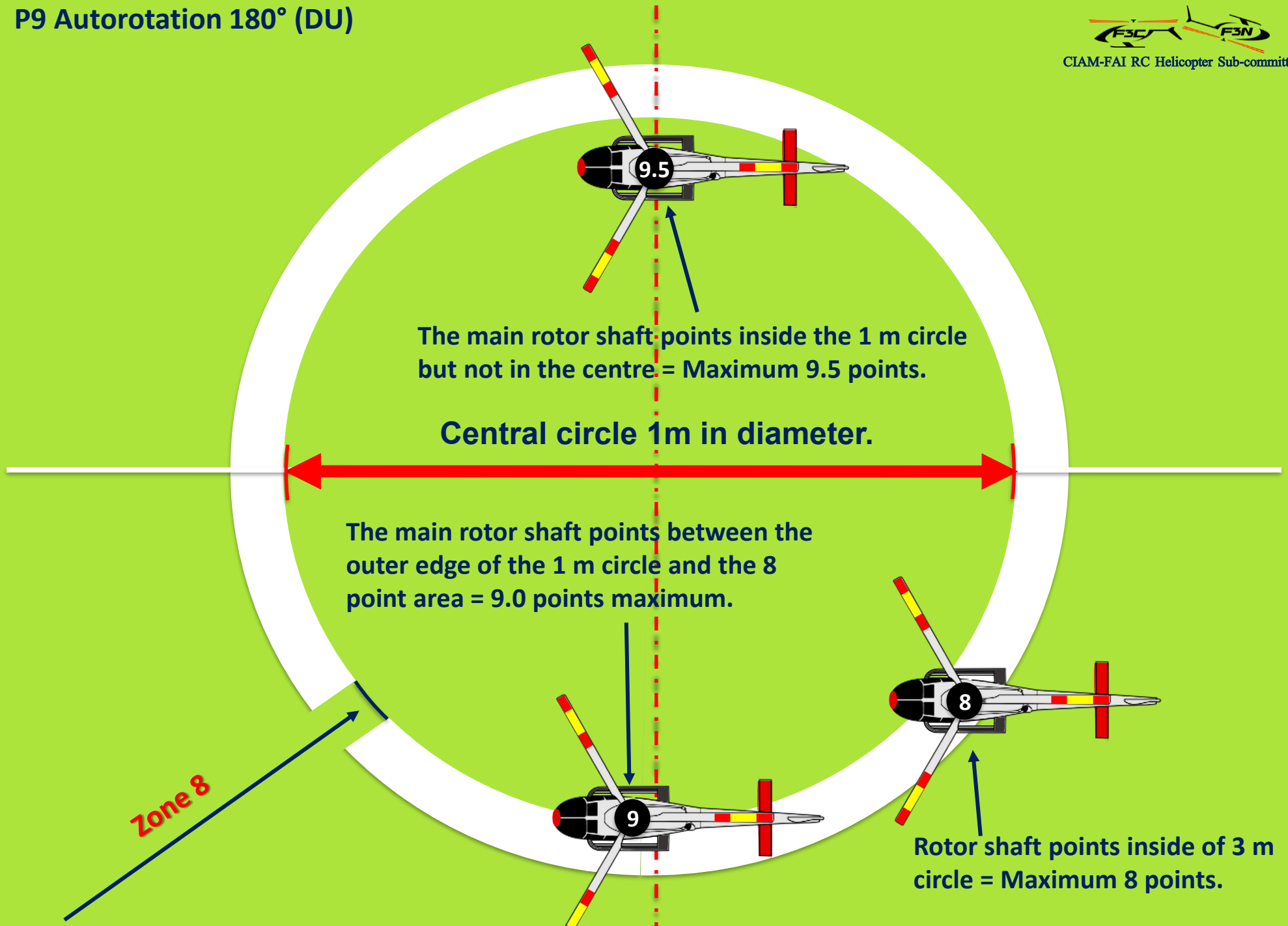

P9 Autorotation 180° (DU)

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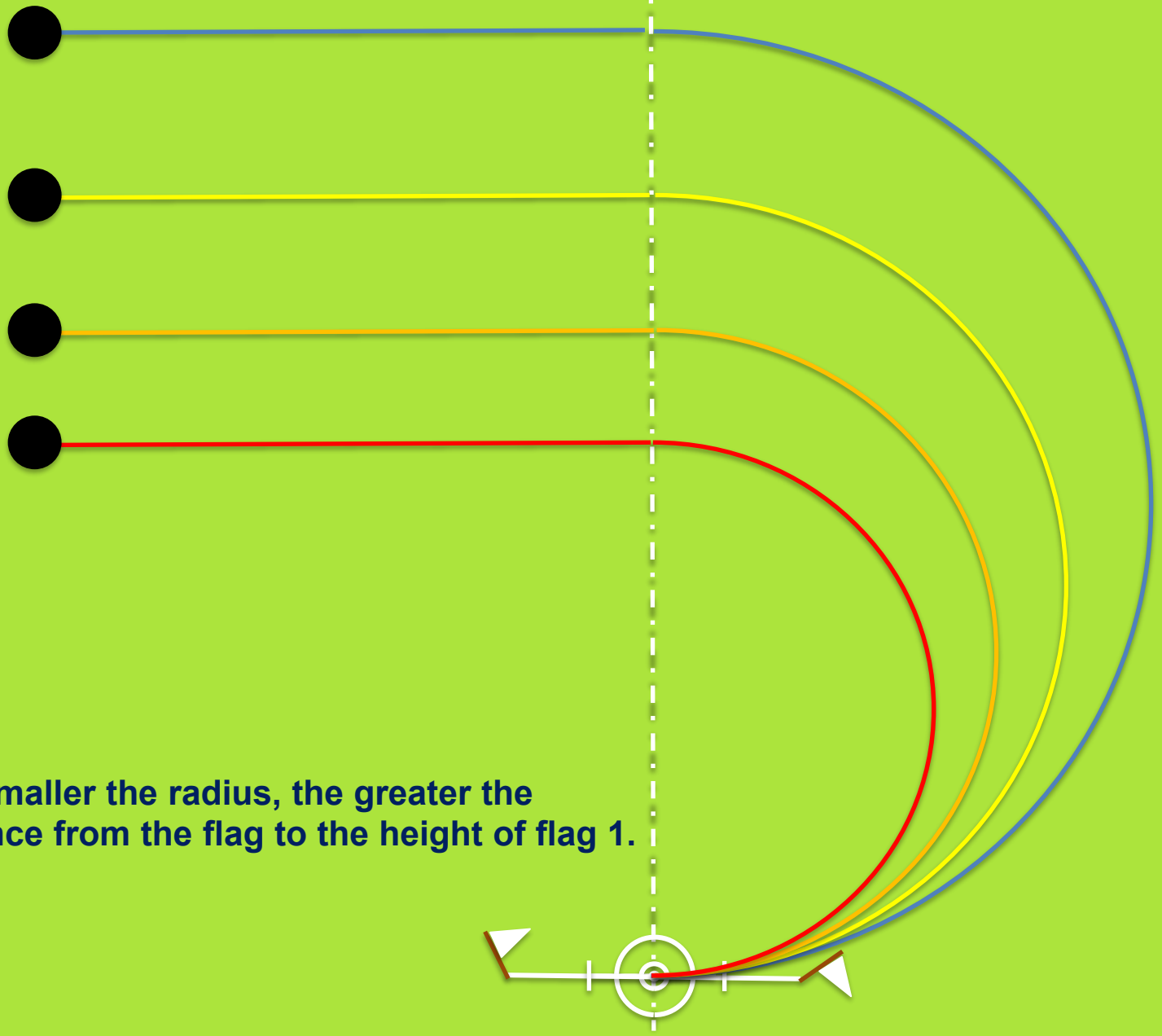
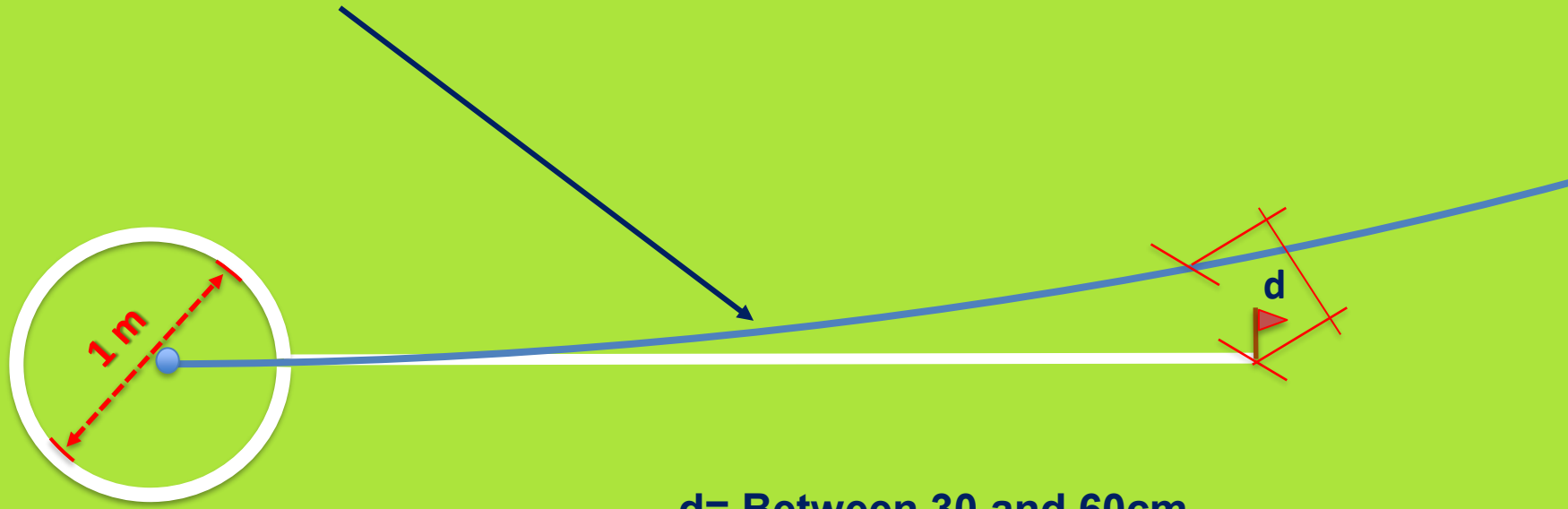
Start



The smaller the radius, the greater the distance from the flag to the height of flag 1.

P9 Autorotation 180° (DU)

If the start of the turn is 60m from the center circle, the MA should be approximately 42cm from flag 1 when passing in front of it.



d= Between 30 and 60cm

Start 80m, d= 31 cm

Start 70m, d= 35 cm

Start 60m, d= 42 cm

Start 50m, d= 50 cm

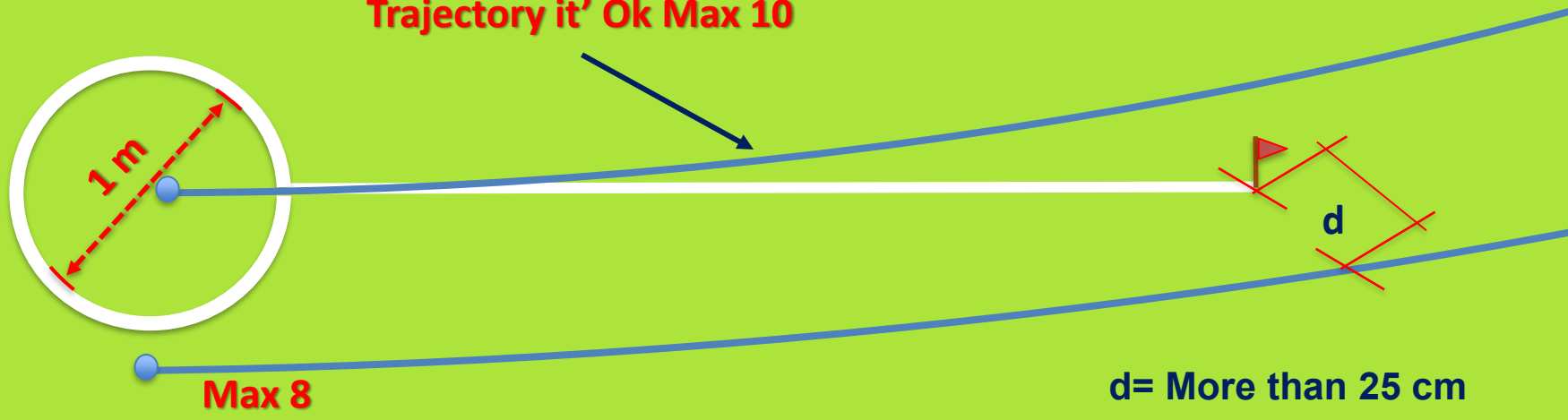
Start 40m, d= 62 cm

Trajectory it' Ok Max 10

P9 Autorotation 180° (DU)

Top start, OK
Rate of descent, OK
Turn rate, OK
Trajectory, OK
Max Rating: 10

Trajectory it' Ok Max 10



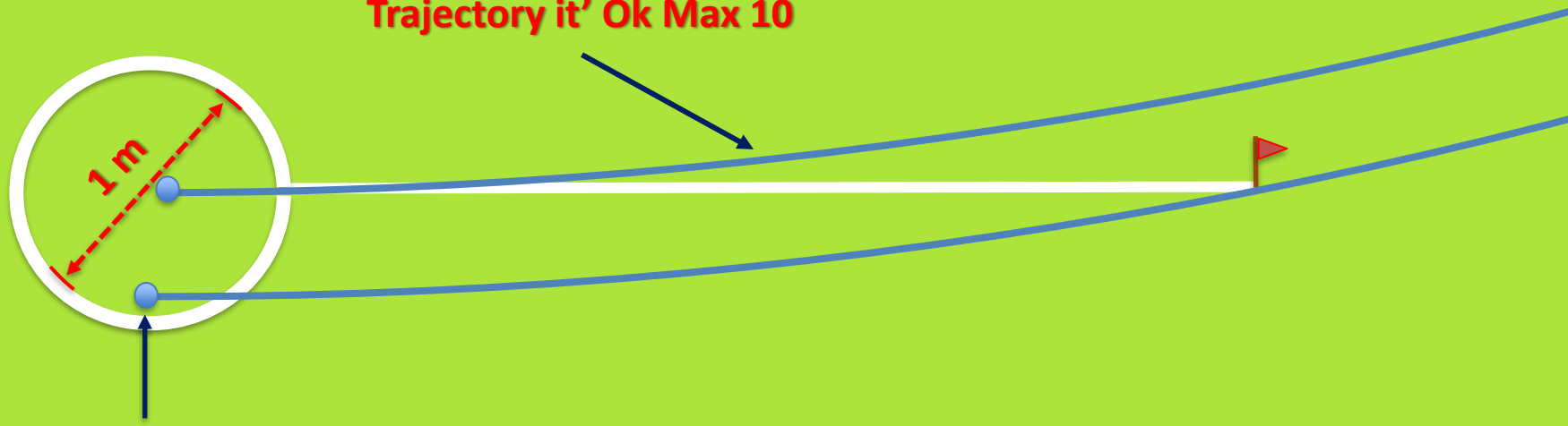
d= More than 25 cm

P9 Autorotation 180° (DU)

If the start of the turn is 60m from the center circle, the MA should be approximately 42cm from flag 1 when passing in front of it.

Top start, OK
Rate of descent, OK
Turn rate, OK
Trajectory, OK
Max Rating: 10

Trajectory it' Ok Max 10



Rotor axis in the <u>10 point zone</u>
but not in the center of the circle: Maxi 9,5 Points

P9 Autorotation 180° (DU)

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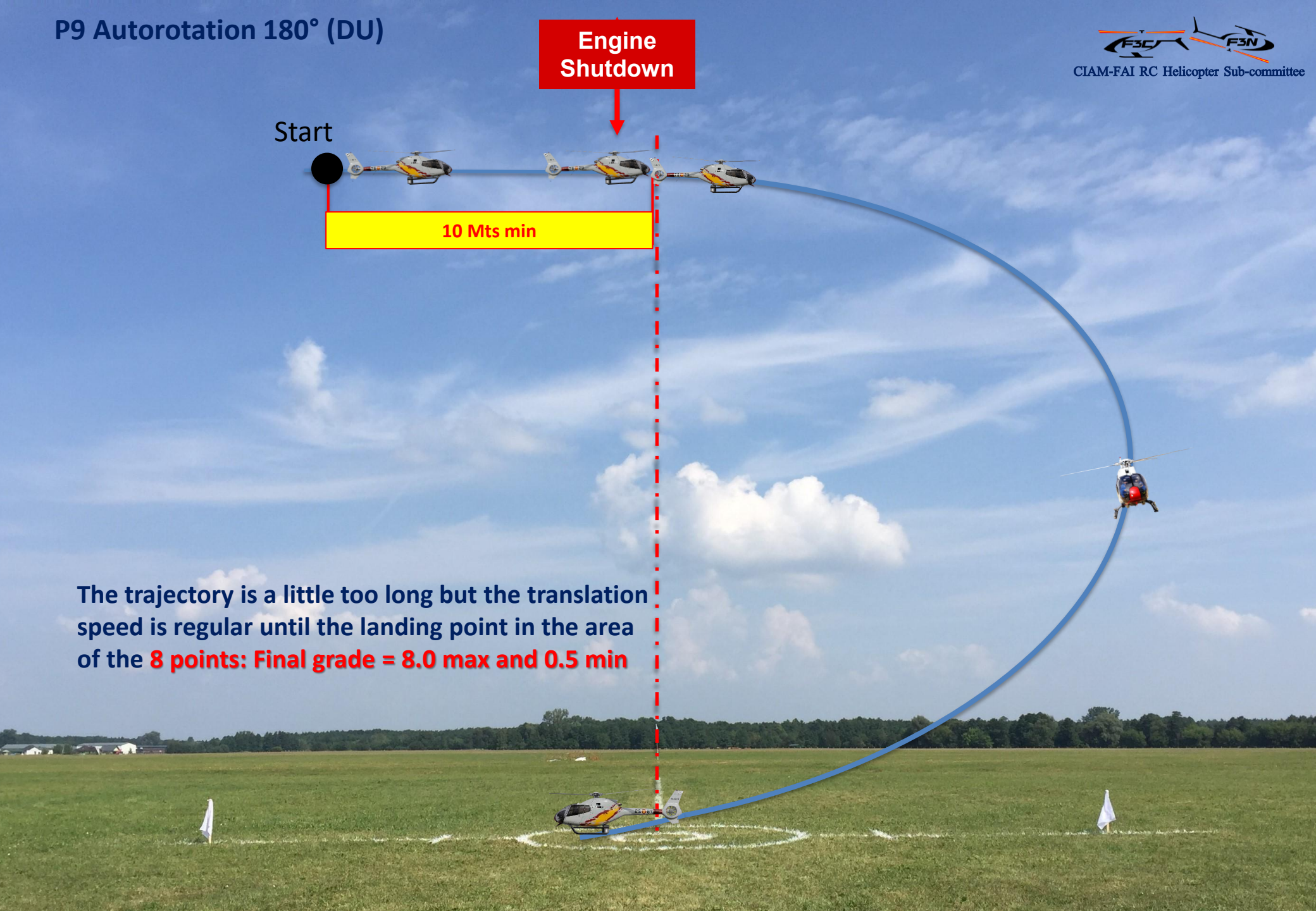

The trajectory is a little too long but the translation speed is regular until the landing point in the area of the 8 points: Final grade = 8.0 max and 0.5 min

P9 Autorotation 180° (DU)

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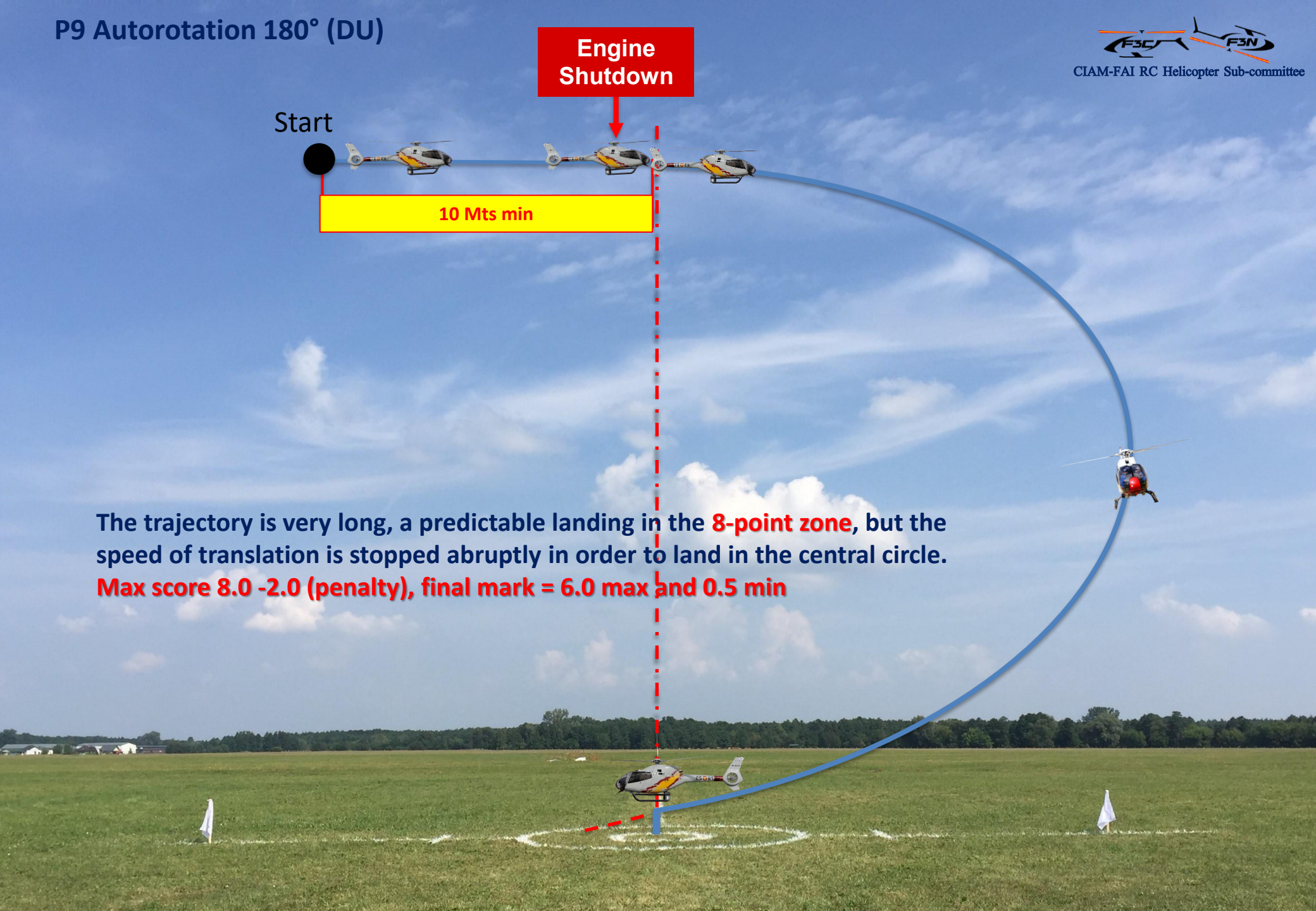

The trajectory is very long, a predictable landing in the 8-point zone, but the speed of translation is stopped abruptly in order to land in the central circle.

Max score 8.0 -2.0 (penalty), final mark = 6.0 max and 0.5 min

P9 Autorotation 180° (DU)

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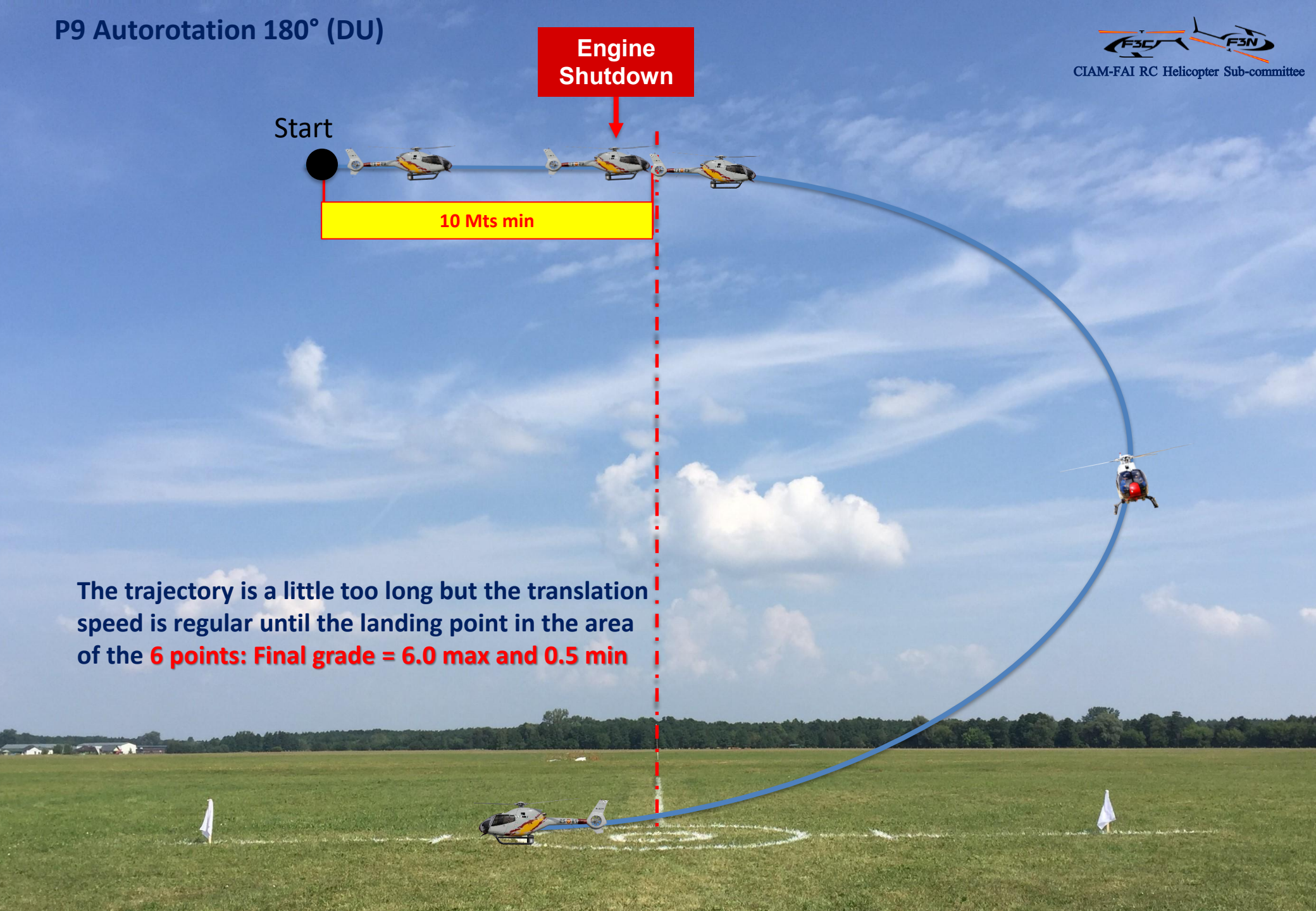

The trajectory is a little too long but the translation speed is regular until the landing point in the area of the 6 points: Final grade = 6.0 max and 0.5 min

P9 Autorotation 180° (DU)

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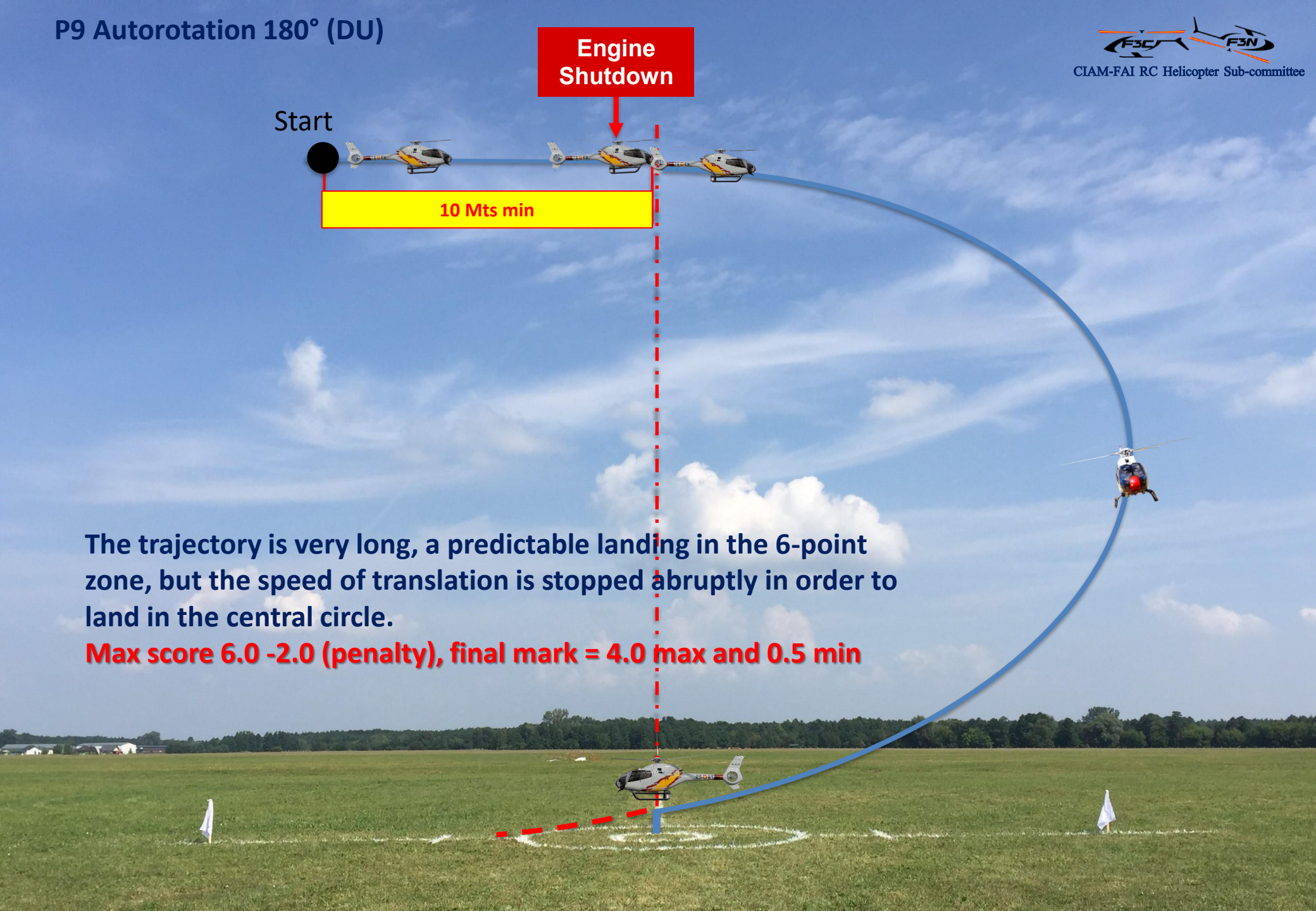
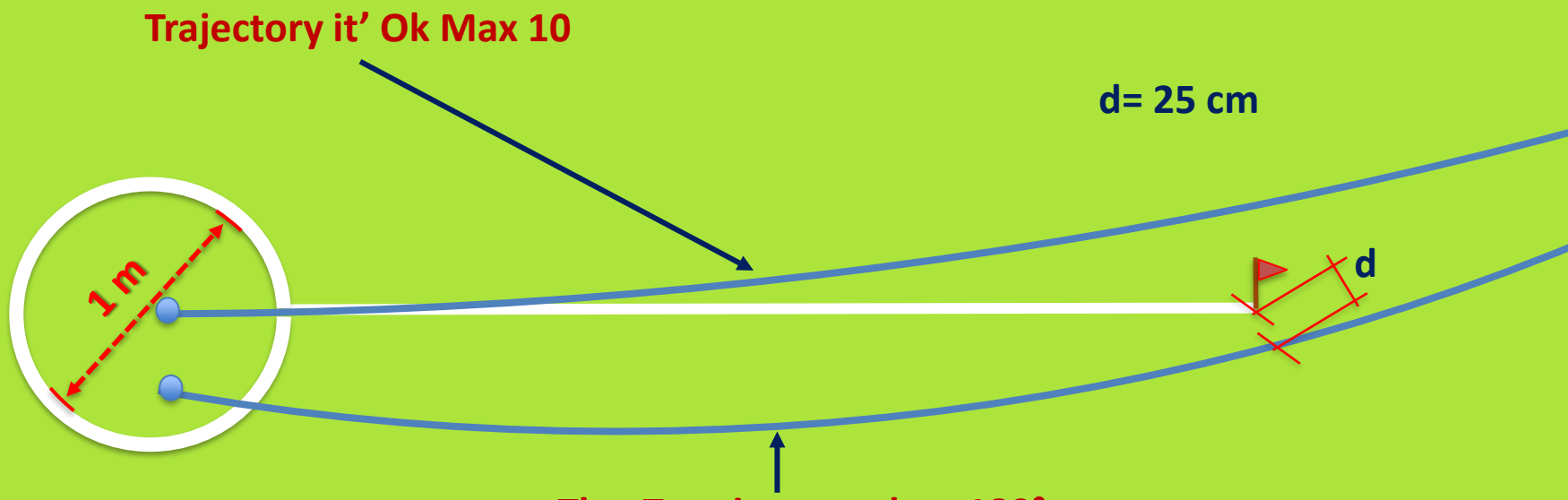


The trajectory is very long, a predictable landing in the 6-point zone, but the speed of translation is stopped abruptly in order to land in the central circle.

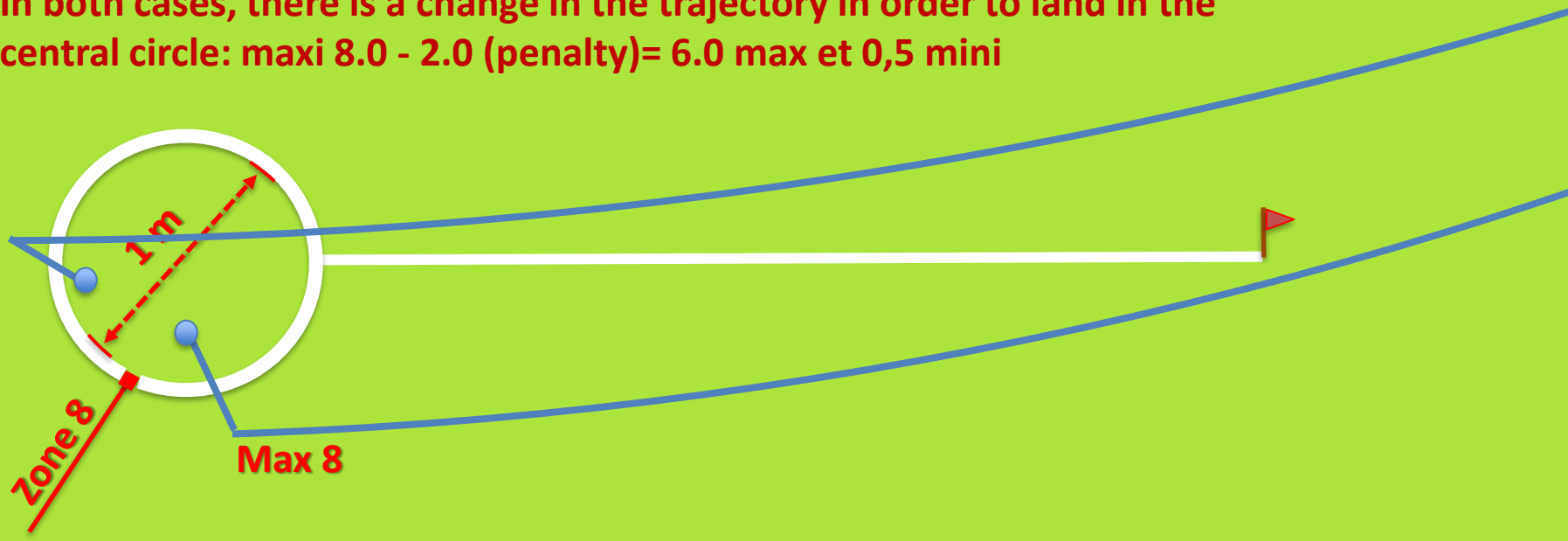
Max score 6.0 -2.0 (penalty), final mark = 4.0 max and 0.5 min

P9 Autorotation 180° (DU)



P9 Autorotation 180° (DU)

In both cases, there is a change in the trajectory in order to land in the central circle: maxi 8.0 - 2.0 (penalty)= 6.0 max et 0,5 mini



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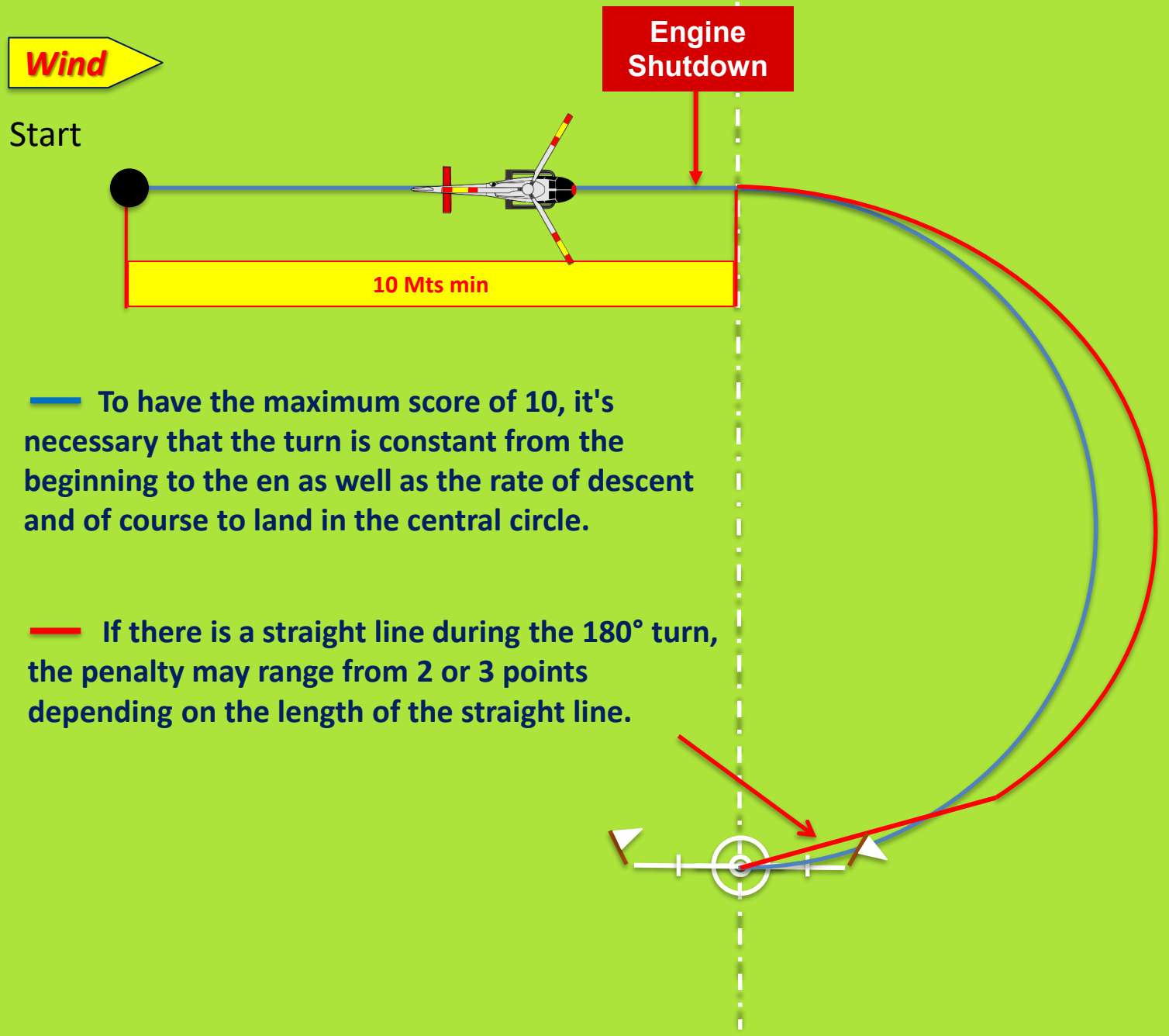

To have the maximum score of 10, it's necessary that the turn is constant from the beginning to the en as well as the rate of descent and of course to land in the central circle.

If there is a straight line during the 180° turn, the penalty may range from 2 or 3 points depending on the length of the straight line.

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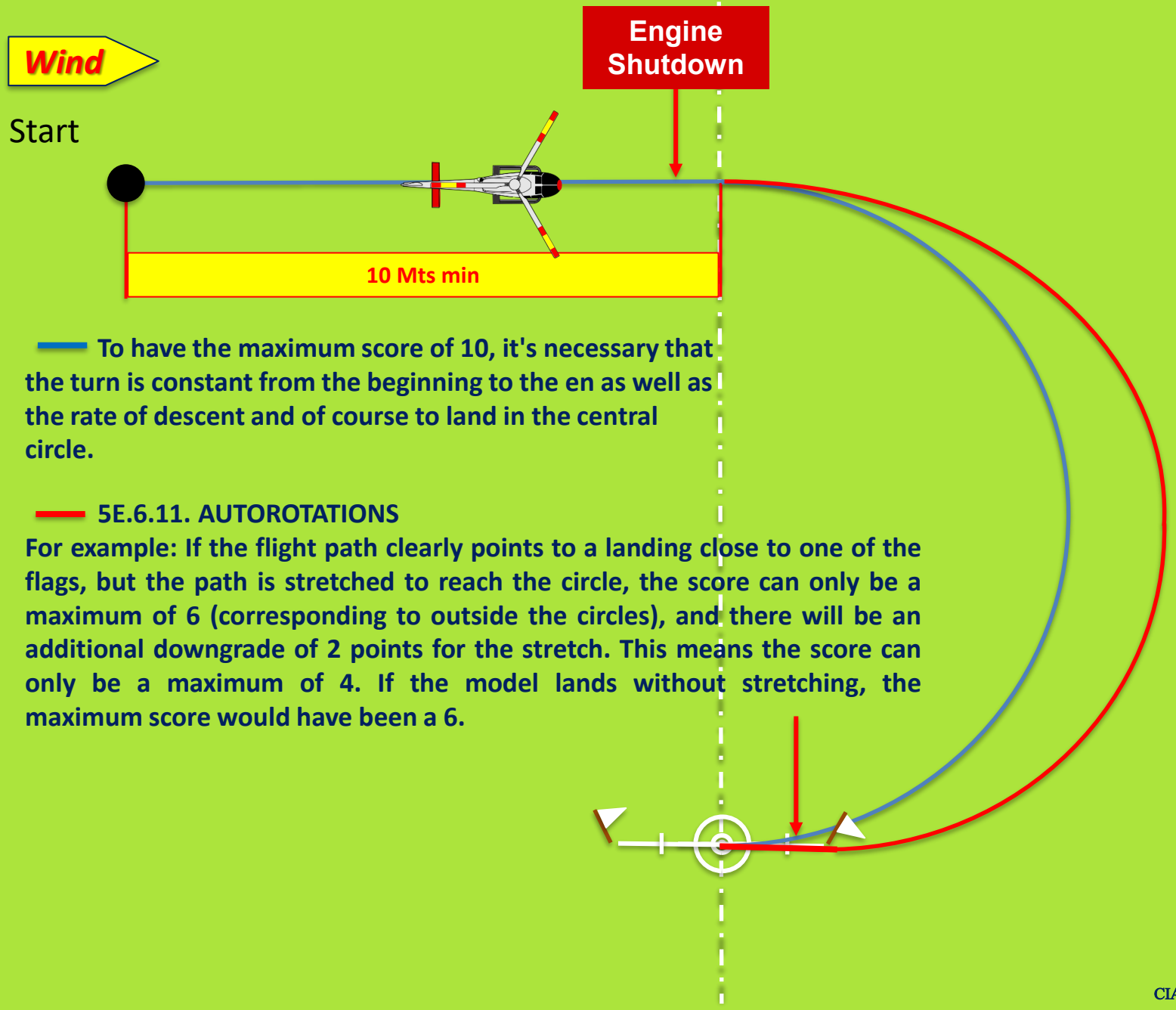
P9 Autorotation 180° (DU)



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5E.6.11. AUTOROTATIONS

For example: If the flight path clearly points to a landing close to one of the flags, but the path is stretched to reach the circle, the score can only be a maximum of 6 (corresponding to outside the circles), and there will be an additional downgrade of 2 points for the stretch. This means the score can only be a maximum of 4. If the model lands without stretching, the maximum score would have been a 6.

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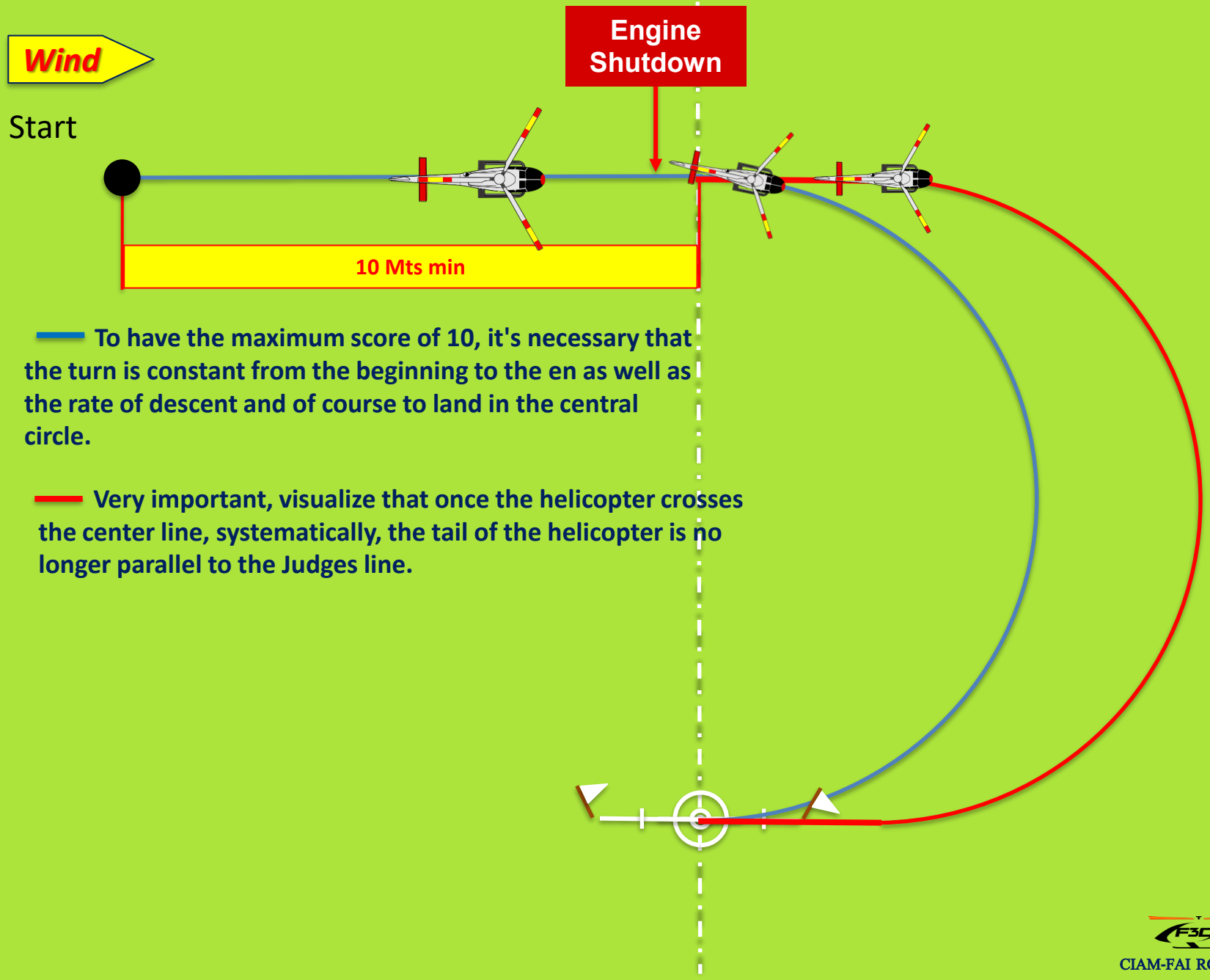

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Very important, visualize that once the helicopter crosses the center line, systematically, the tail of the helicopter is no longer parallel to the Judges line.

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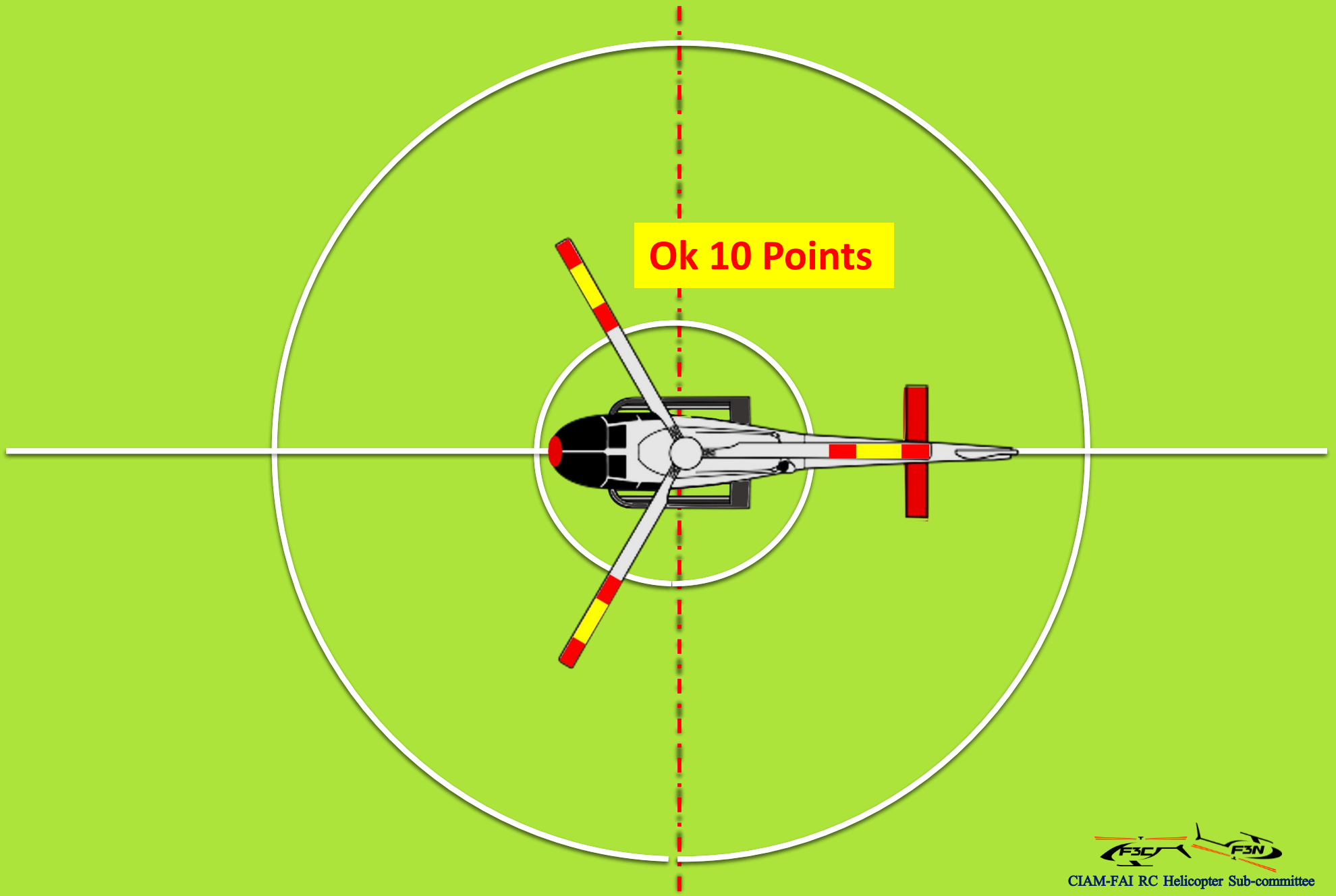

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Thanks for your interest

Presentation Created by Roger Lacôme and Eladi Lozano