

29.05.2017

# Tracking coverage calculation

Application	<b>VR-Wall Cinemascope</b>
Dimensions	<b>4,80 x 2,00m projizierte Fläche 4m breiter Projektionskasten</b>
System	<b>ARTTRACK5/C</b>
Number of cameras	<b>4</b>
Interaction	<b>Head, Flystick</b>

The ART coverage calculation (ART\_CC) indicates a theoretically possible tracking area, where at least two cameras can see:

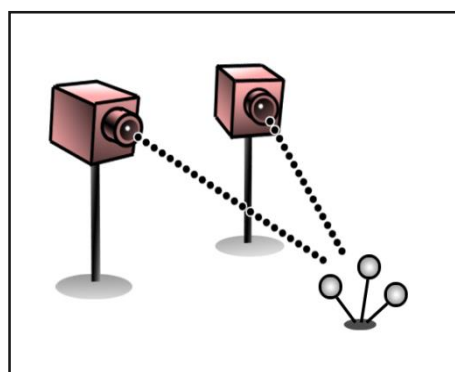
- a single marker for 3 DOF tracking
- at least three markers of one 6DOF target simultaneously for 6 DOF tracking

This area is shown as a green area. The lighter the green in one area is, the higher the redundancy in this area is. A number of tracking applications need high redundancy, e.g.:

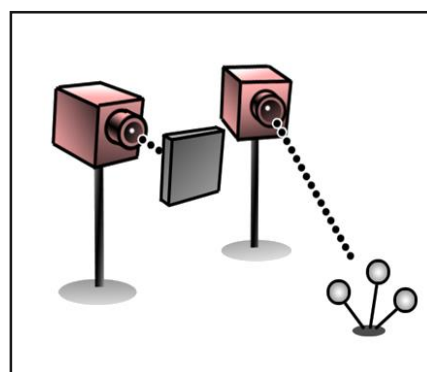
- Fingertracking and Motion Capture: The user himself will occlude the line of sight between the cameras and the target while he is moving through the area.
- Seating buck applications: Depending on where the targets are moved, the seating buck will occlude the line of sight between camera and target.

Each red area indicates a field which is seen by only one camera and is not sufficient for tracking.

New ARTTRACK and TRACKPACK cameras can reduce the field of view to increase the tracking frequency. If not explicitly stated differently, the coverage is calculated with full sensor resolution.



Target is tracked

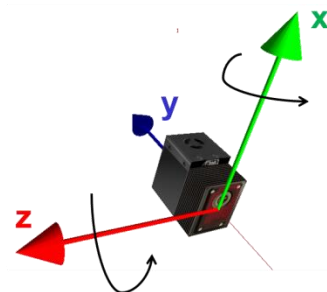


Target is not tracked

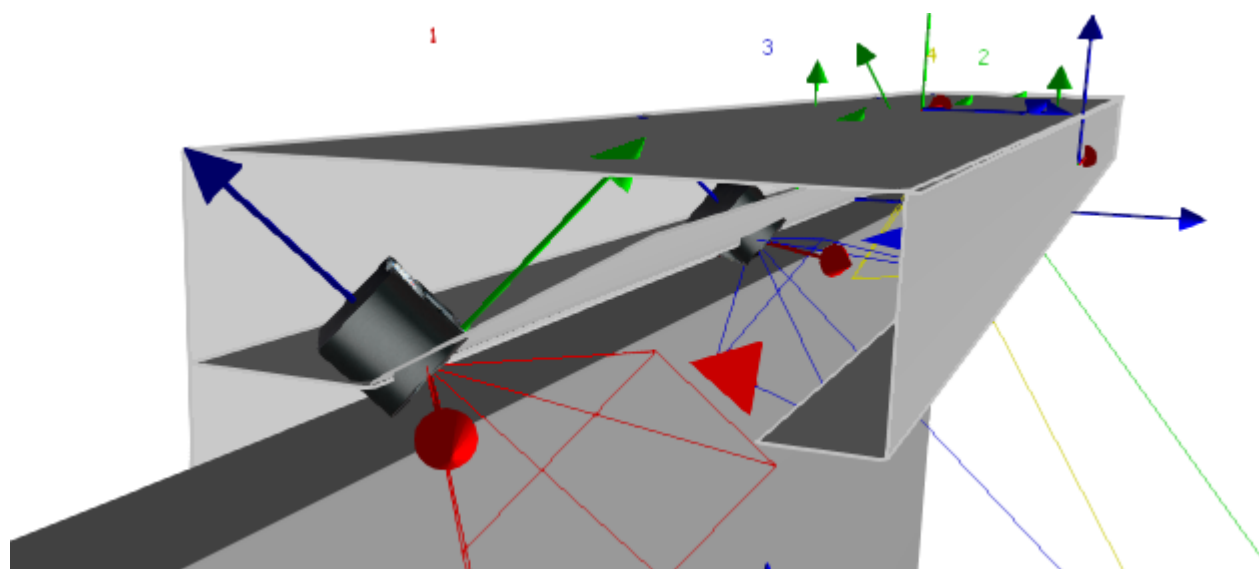
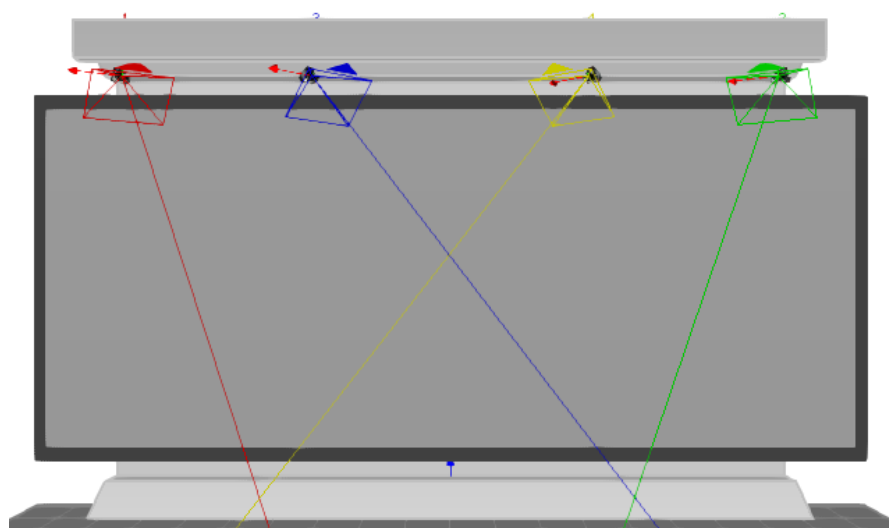
# Camera positions

This table indicates the position and rotation of each camera, as well as its type and range.

- The x, y, z coordinates give the position of the cameras lenses in the room.
- The origin is marked in the graphics below
- The angles are Euler angles, given in the following notation:
  - Rx ... Yaw: Rotation around vertical axis     0° in +X direction (forward)
  - Ry ... Pitch: Rotation against vertical axis     0° down to the floor
  - Rz ... Roll: Rotation around lens axis     0° edge of camera in horizontal plane

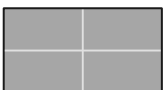
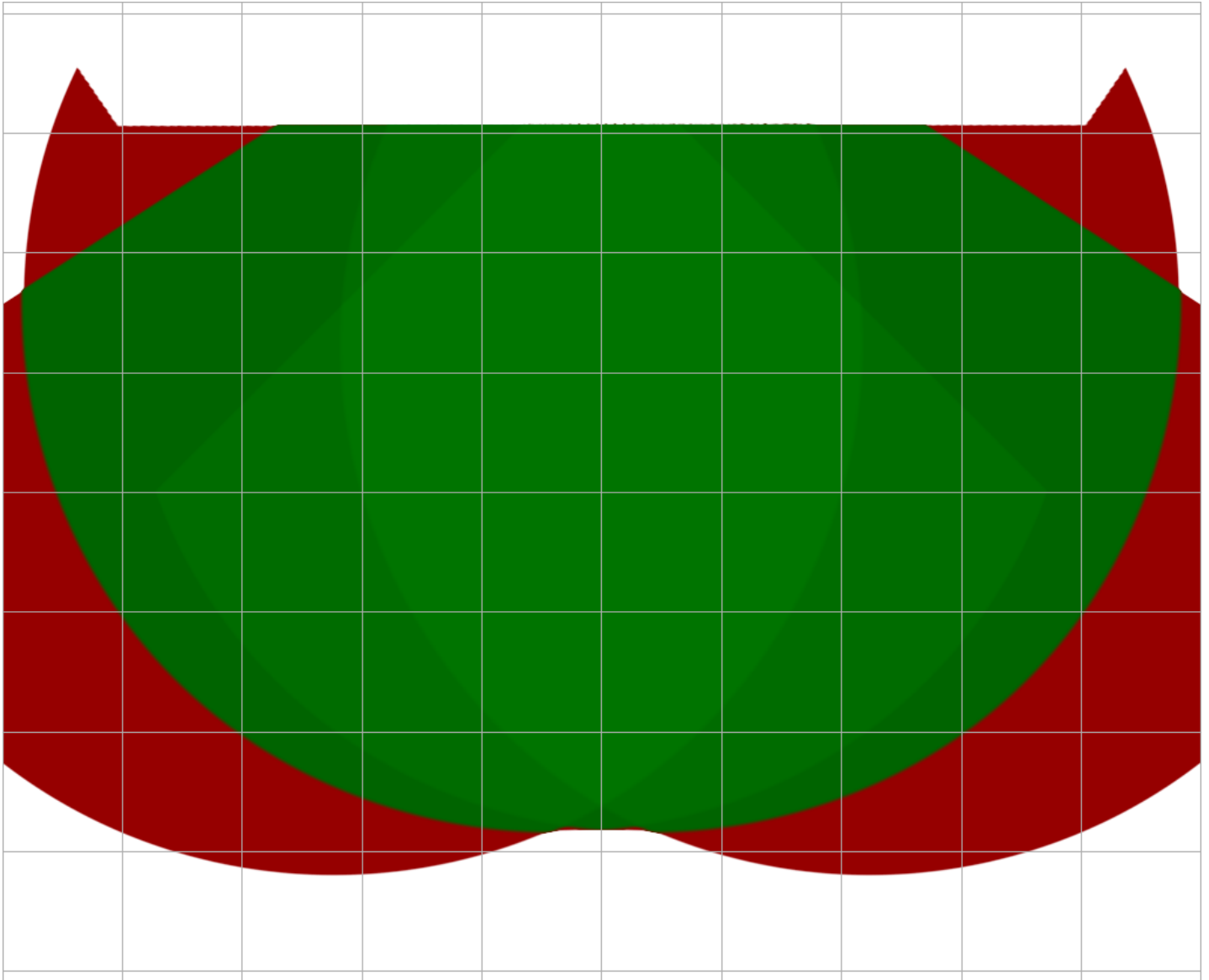


#	Type	Focal	Range	X	Y	Z	Rx	RY	Rz
1	ARTTRACK5/C	4,0mm	4,5m	-1,90m	-0,20m	2,54m	-147°	47°	0°
2	ARTTRACK5/C	4,0mm	4,5m	1,90m	-0,20m	2,54m	147°	47°	0°
3	ARTTRACK5/C	4,0mm	4,5m	-0,80m	-0,20m	2,54m	-135°	47°	0°
4	ARTTRACK5/C	4,0mm	4,5m	0,80m	-0,20m	2,54m	135°	47°	0°



# Horizontal section

Height = 0.0m (~0')



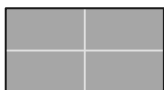
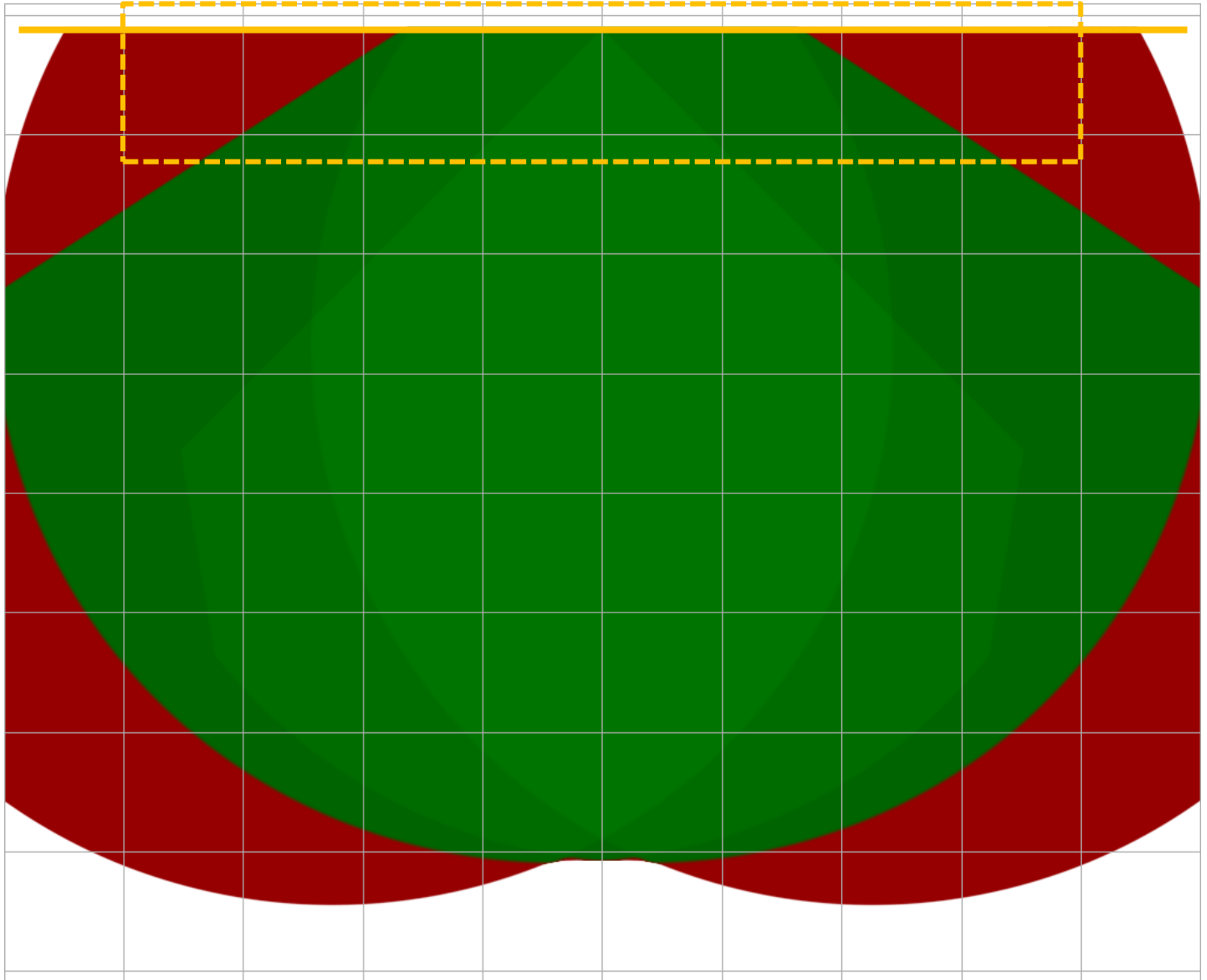
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 0.3m (~1')



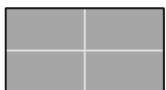
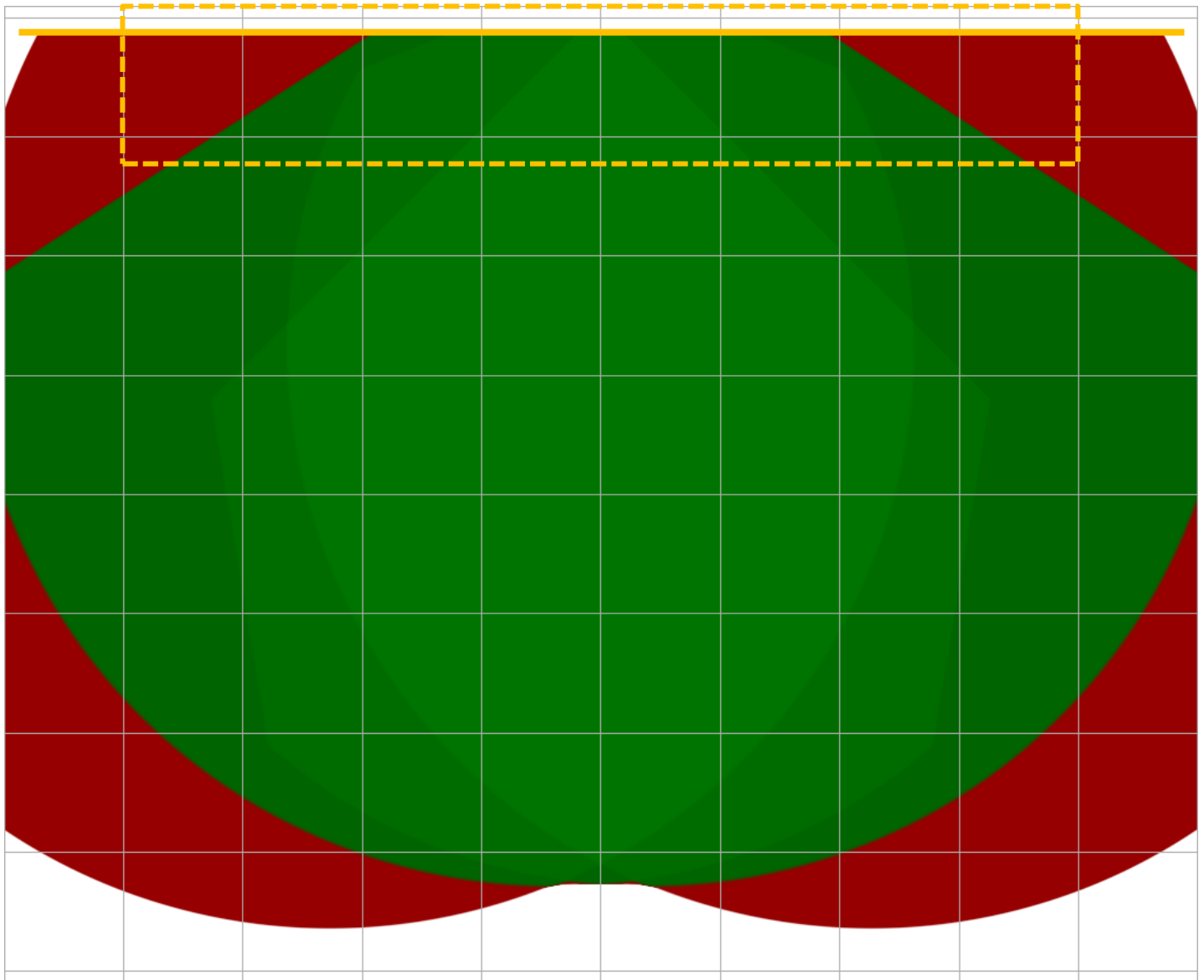
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 0.6m (~2')



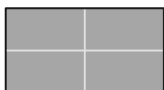
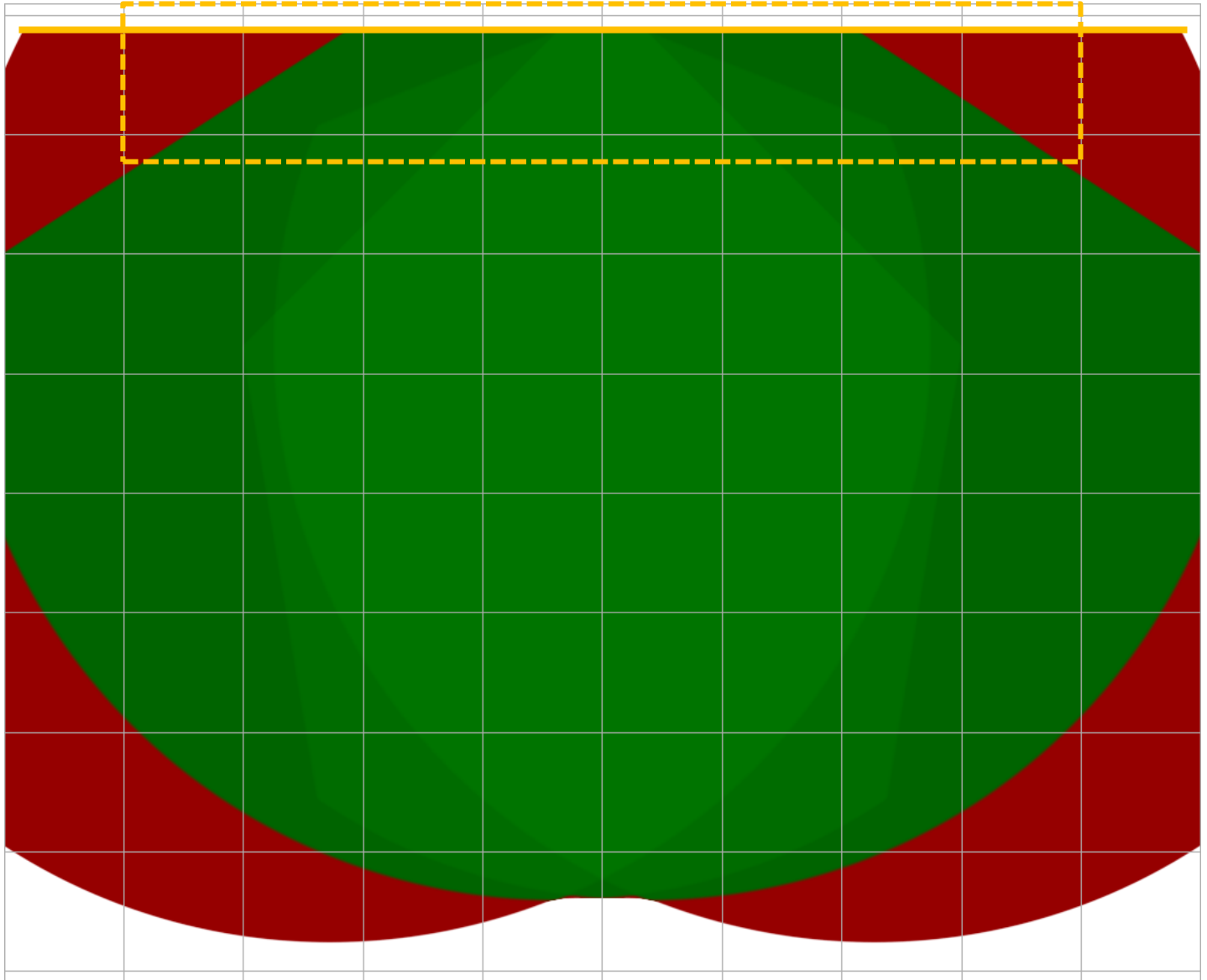
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 0.9m (~3')



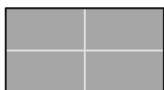
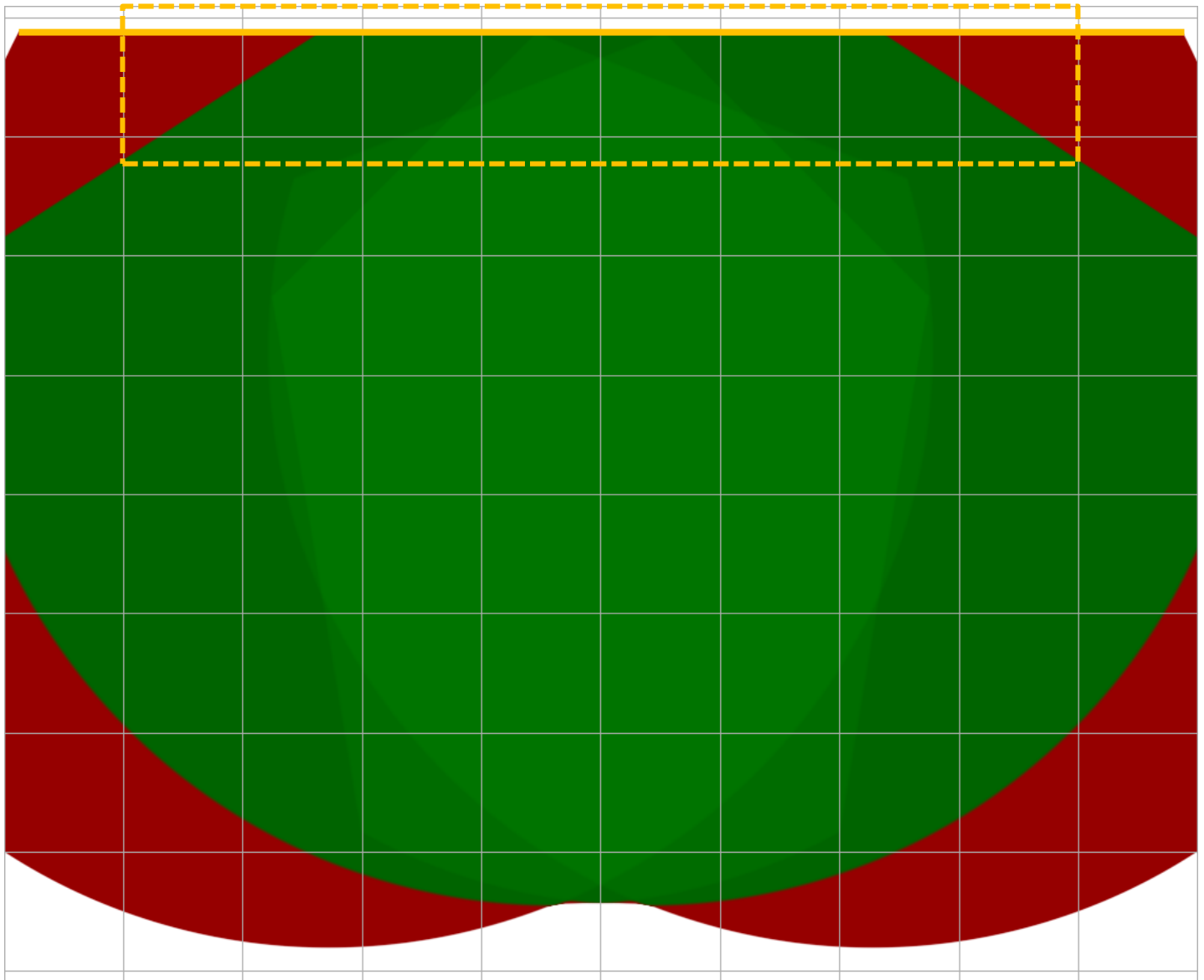
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 1.2m (~4')



Grid: 0.5m

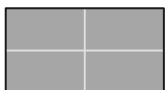
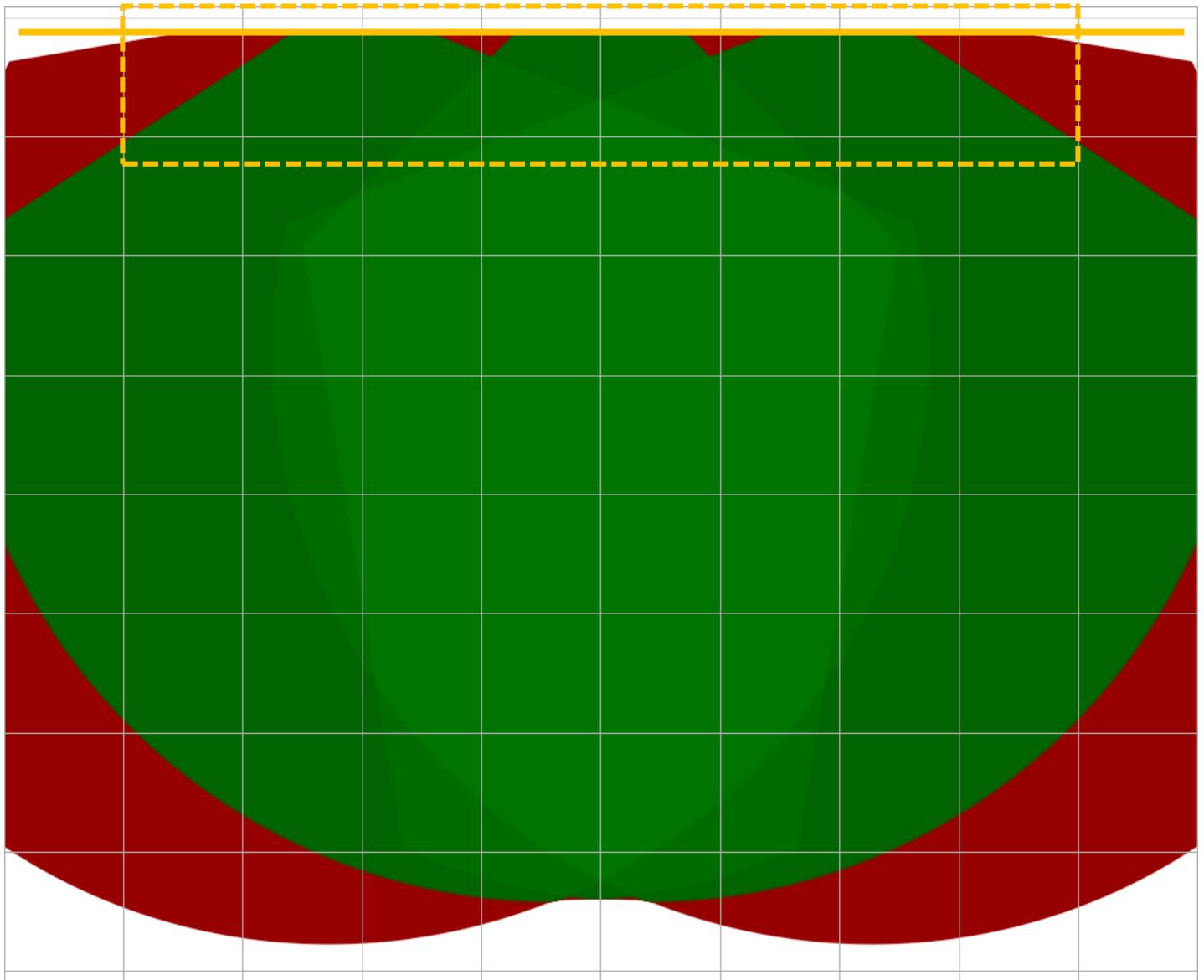


Tracking area (FoV of 2 or more cameras)



# Horizontal section

Height = 1.5m (~5')



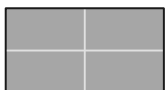
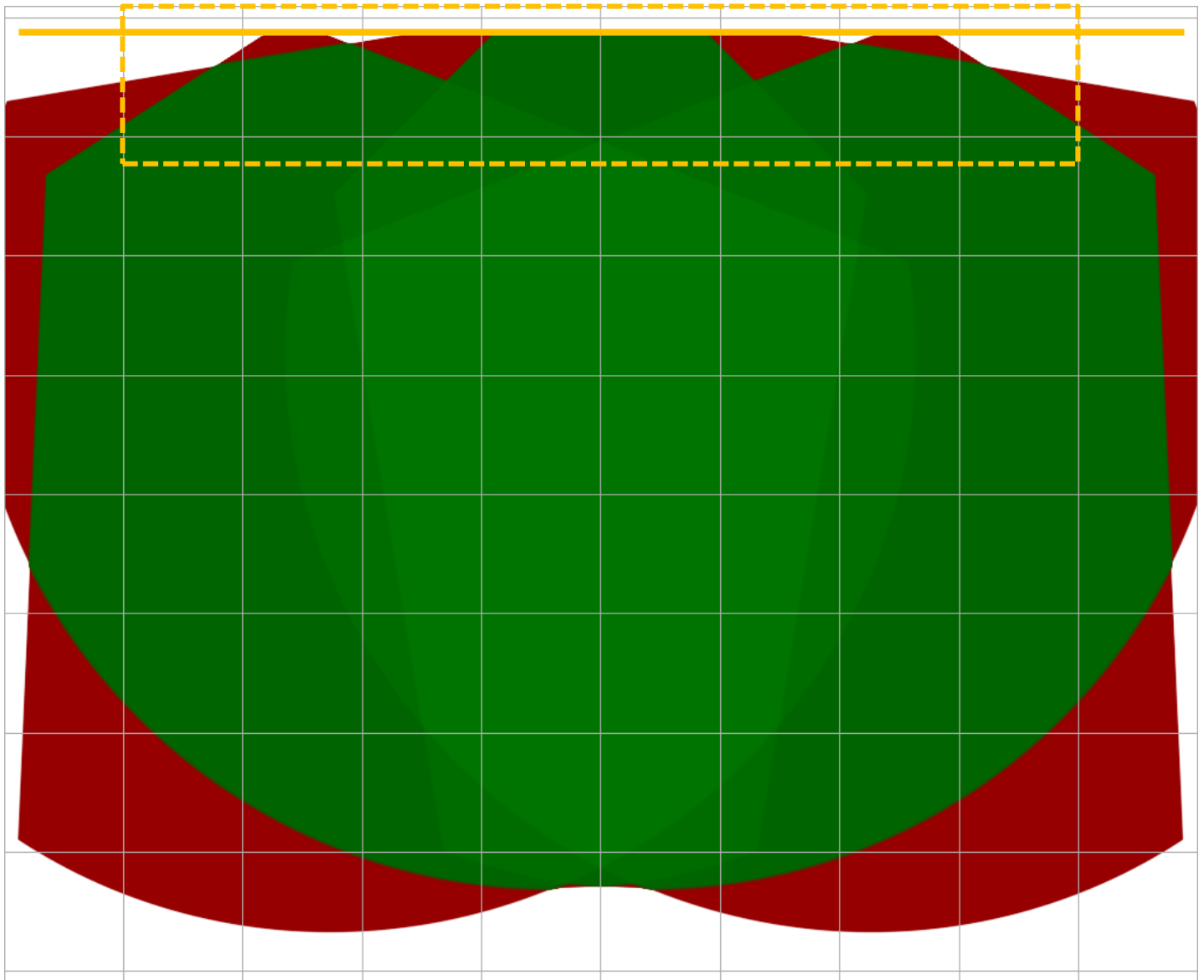
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 1.8m (~6')



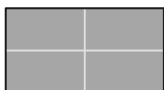
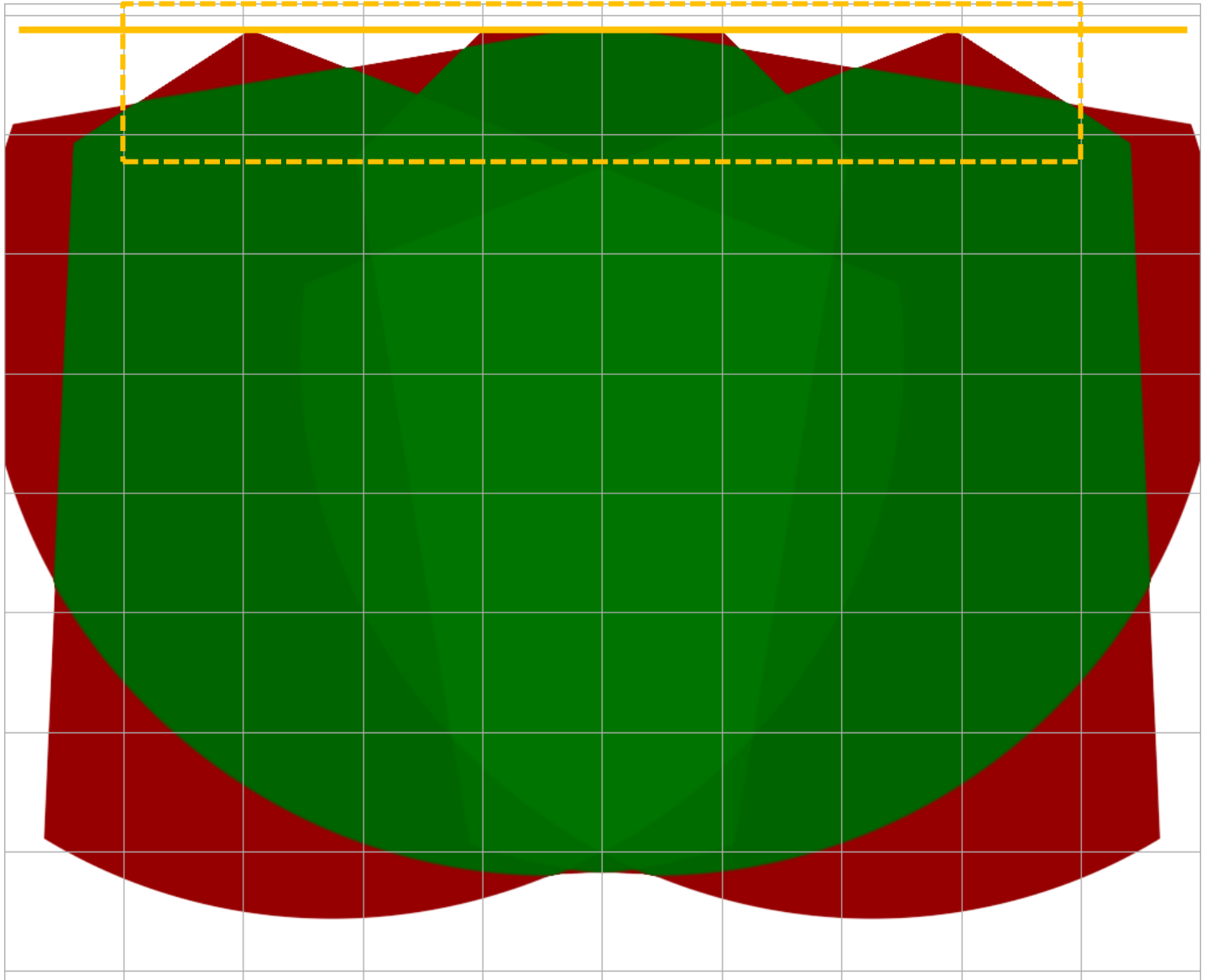
Grid: 0.5m



Tracking area (FoV of 2 or more cameras)

# Horizontal section

Height = 2.0m (6' 6 $\frac{3}{4}$ " )



Grid: 0.5m



Tracking area (FoV of 2 or more cameras)