

Test Methods for Evaluating Aerial Drones Safety | Capabilities | Proficiency RobotTestMethods.nist.gov



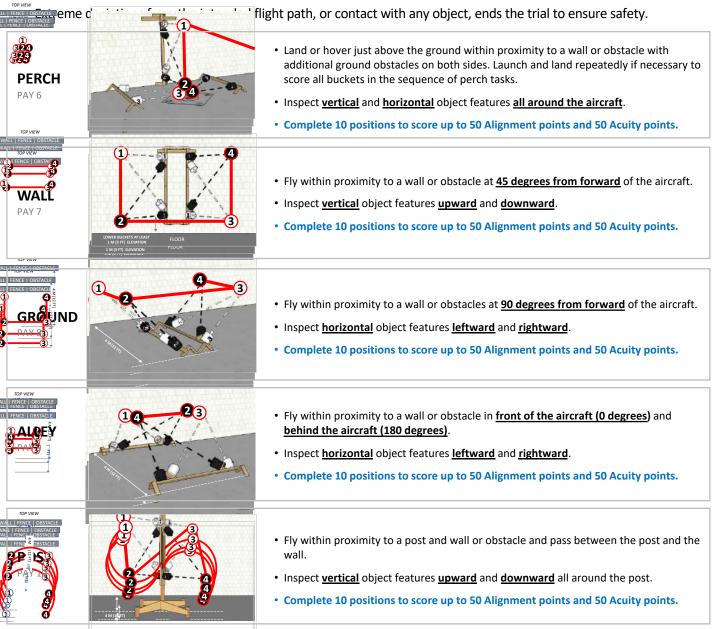
VERSION 2023A



LEVEL 4OBSTRUCTEDPAYLOAD FUNCTIONALITY

Perform 5 different flight paths to triangulate around the dual bucket rails. Each flight path includes alignments with perpendicular buckets then angled buckets using zoom and exposure control to identify recessed targets.

- All sequences have 10 positions with 20 buckets to score: 1234-321-234 (forward-reverse-forward)
- Score ALIGNMENT POINTS by capturing a SINGLE IMAGE of the inscribed rings to verify alignments during or after the trial: UNBROKEN RINGS (5 pts), BROKEN RINGS (1 pt).
- Score ACUITY POINTS by calling out the 5 increasingly small VISUAL ACUITY TARGET GAPS (1 pt each).
- Start timer at launch and end after the last task is completed. Trial time limits are typically 5 minutes each (25 minutes to complete all 5 tests) although organizations may set their own trial time limits and passing scores.



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3(2)			tional bucket stands, a measuring taps h stand include:	Bucket Stands Each Iane uses (4) comni-dire Launch/Land Platform, and a centerline. The parts for eac		ASD)	A Science and
	mery (6	(8in diameter)	 4x4x5in center post 2x4x12in legs with 45di 2-gallon white buckets 3in screws to affix the) 	on Facility	ASTMINTERNATIONAL	ASTMINTERNATIONAL
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		Safety Capabilities Proficienc	DOJ/DHS National U	Align with each bucket lor single alignment image (N green ring inside the buck	CONFINED TEST		
		OBSTRUCTED TEST LANE	OPEN TEST LANE	continuous green ring or 1 p ring. Similar scoring for accur			0) //
PAY	LOAD	FUNCT	IONAL				
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		Lights Out, Buckets Lit	Pilot's Back Turned (Interface Only) Pilot's Back Turned	or) (Available)	Standard Lai (Indoor or Outdoo Embedded Sce		– Open, Obstruc
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$\begin{array}{c c} 3A_A & 5 \\ 4 & 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 1 \\ 1$	4 5	1 BR T TL R BL 1 T BL R BR L	$\begin{array}{c c} 3A_{3A} & 5 \\ \hline 4 & 5 \\ 5 \\ 1 \\ \end{array}$	BR T TL R BL	_ / 5 1	BRTTLRBL BRTTLRBL	$\begin{array}{c c} 3A_{A} & 5 \\ \hline 1 \\ 1 \\$
$\begin{array}{c} 4A_A \\ \hline 3 \\ \hline 5 \\ 1 \\ \hline \end{array} \begin{array}{c} T \\ BL \\ BR \\ \hline T \\ BR \\ T \\ TL \\ R \\ S \\ S$	44 _A 5		442A 5 4	T BL B TR L	4A ₂₀	T BL B TR L	$\begin{array}{c c} 4A_{A} & T & BL & B & TR & L \\ \hline 3 & 5 & 1 & BR & TL & R \end{array}$
$\begin{array}{c} 3_{2} \\ 3_{3} \\ 3_{4} \\ 3_{5} \\ 3_{6} \\ 3_{7} \\ 3$			3A ₃	BL T BR R TL BR T TL R BL	$3^{\circ}_{5^{\circ}}$		BR T TL R BL
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1 5 1 L BR T TL R T T T T T T T T T	1 5 ⁵		1 5 [°] 1	LBRTTLR	1^{1} 1 5 ⁵ 1 ¹	LBRTTLR	$\begin{array}{c c} 1 \\ \hline 1 \\ \hline 5 \\ 1 \\ \hline \end{array}$
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	2A 5		ot 2A 5 1	L ^B BR ^R T ^L T ^{BL} R	2A 5 1	L ^B BR ^R T ^L T ^{BL} R ^D ot	
$ \begin{array}{c} \mathbf{3^{1A}} 5^{5} \mathbf{1^{1}} & \text{TR B TR L BR} \\ \mathbf{3A^{P1}} & 5^{1} \mathbf{BR^{BL} T^{R} TL R^{L} BL} \\ \end{array} $	$\begin{array}{c c} & 3^{1A} & 5^{5} \\ B^{L} & 3A^{P1} & 5 \end{array}$		$\begin{array}{c c c c c c c c c c c c c c c c c c c $	TR B TR L BR	3^{1A} 5^{5} 1^{1} 3^{3} $3A^{P1}$ 5^{1}	TR B TR L BR	$3^{\mathbf{1A}}$ 5^{5} 1^{1} TR B TR L BR $\mathbf{3A}^{\mathbf{P1}}$ 5^{1} $\mathbf{BR}^{\mathbf{BL}}$ TR TL R BL
$4^{P2} 5^5 1^{1} \xrightarrow{\text{BR} \text{T} \text{TL } \text{R} \text{BL}}$	4 ^{P2} 5 ⁵				$4^{P2} 5^{5} 1^{1}$		
4A T BL B TR L R SCORE /100 SCORE /100	L 4A SCORE	T BL B TR L	4A SCORE /*	T BL B TR L 00 SCORE /100	4A SCORE /1	T BL B TR L	T 4A T BL B TR L SCORE /100 SCORE /100
/50 /50 [Elapsed]	_µ	<u>50 /50 </u>	/50) /50 	/50	/50 /	
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*lfivour training aircraft cam	era has a limi	ted range of motion, a	alion with as m	anv buckets as po	ossible. Pilot pro	oficiency is only con	npared using similar systems.