NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Science and Technology

LEVEL 5 | CONFINED

PAYLOAD FUNCTIONALITY

Perform the designated flight paths to triangulate around dual bucket rails in various orientations. Align with perpendicular buckets then angled buckets. Use zoom and exposure control to identify targets inside the buckets.

- All sequences have 10 positions with 20 buckets to score: **1 2 3 4 – 3 2 1 – 2 3 4** *(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 identifying and 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.

- Extreme ~~...~~ flight path, or contact with any object, ends the trial to ensure safety.


PERCH
PAY 6
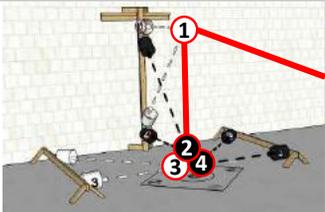
- Land or hover just above the ground within proximity to a wall or obstacle with additional ground obstacles on both sides. Launch and land repeatedly if necessary to score all buckets in the sequence of perch tasks.
- Inspect **vertical** and **horizontal** object features **all around the aircraft**.
- **Complete 10 positions to score up to 50 Alignment points and 50 Acuity points.**
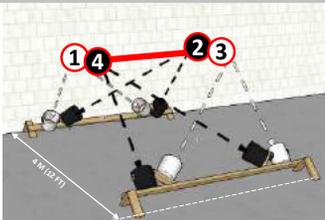

WALL
PAY 7
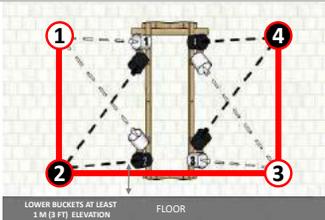
- Fly within proximity to a wall or obstacle at **45 degrees from forward** of the aircraft.
- Inspect **vertical** object features **upward** and **downward**.
- **Complete 10 positions to score up to 50 Alignment points and 50 Acuity points.**
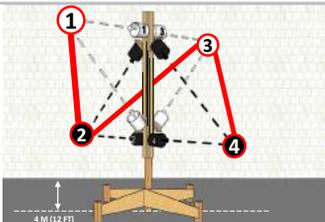

GROUND
PAY 8
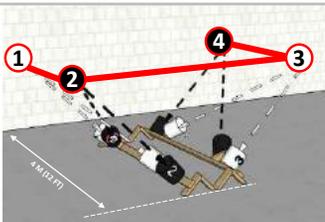
- Fly within proximity to a wall or obstacles at **90 degrees from forward** of the aircraft.
- Inspect **horizontal** object features **leftward** and **rightward**.
- **Complete 10 positions to score up to 50 Alignment points and 50 Acuity points.**

ALLEY
PAY 9

- Fly within proximity to a wall or obstacle in **front of the aircraft (0 degrees)** and **behind the aircraft (180 degrees)**.
- Inspect **horizontal** object features **leftward** and **rightward**.
- **Complete 10 positions to score up to 50 Alignment points and 50 Acuity points.**

POSTS
PAY 10

- Fly within proximity to a post and wall or obstacle and pass between the post and the wall.
- Inspect **vertical** object features **upward** and **downward** all around the post.
- **Complete 10 positions to score up to 50 Alignment points and 50 Acuity points.**

LEVEL 5 | CONFINED

PAYLOAD FUNCTIONALITY

CONFINED TEST LANE

Montgomery County Police Drone Training & Evaluation Facility

Team #: _____
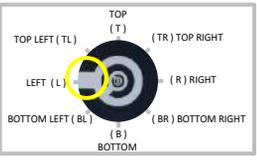
Lane #: _____

BUCKET DIAMETER		VISIBILITY		WIND		PILOT VIEW		TIME LIMIT
2 IN (5 CM)	4 IN (10 CM)	LIGHTED 300+ LUX	DIM 1-300 LUX	AVERAGE	GUSTS	LINE OF SIGHT	VIEW INTERFACE ONLY	TIME LIMIT 5 - 10 20 MIN
(CIRCLE ONE)		(CIRCLE ONE)	DARK <1 LUX	MPH	MPH	FACINE LANE OPTIONAL V.O.	INTERFACE BACK TO LANE MANDATORY V.O.	(CIRCLE ONE or FILL IN)

PERCH

21 IMAGES
- 1 PRE-LAUNCH
- 20 ALIGNMENTS WHILE PERCHED

POST (PAY 10)

21 IMAGES TO CAPTURE
- 1 PRE-LAUNCH
- 20 ALIGNMENTS

Scoring Table (repeated columns)

BUCKET SEQUENCE	IMAGE POINTS	ALIGNMENT / ACUITY — CIRCLE CORRECT GAPS (1 POINT EACH)
1 / 1A	5 5 / 5 1	T BL R BR L / TR B TR L BR
2 / 2A	5 5 / 5 1	WHILE PERCHED / L BR T TL R
3 / 3A	5 5 / 5 1	T BL R BR L / BR T TL R BL
4 / 4A	5 5 / 5 1	T BL B TR L / T BL B TR L
3 / 3A	5 5 / 5 1	BL T BR R L / BR T TL R BL
2 / 2A	5 / 5 1	WHILE PERCHED / L BR T TL R
1 / 1A	5 5 / 5 1	TR B TR L BR / TR B TR L BR
2 / 2A	5 5 / 5 1	WHILE PERCHED / L BR T TL R
3 / 3A	5 5 / 5 1	TR B TR L BR / BL T TL R BL
4 / 4A	5 5 / 5 1	T BL B TR L / T BL B TR L

SCORE /100	SCORE /100
/50	/50

ELAPSED TIME (MM : SS)

PASS / FAIL (CIRCLE ONE)