TARGET: FAA UAG EXAM [ACS 10B]
MODULE GATE: 85% MINIMUM
STATUS: READY FOR UPLINK

Mastering the Invisible Sky

Module 3: Airspace, Sectional Charts & Tactical Navigation

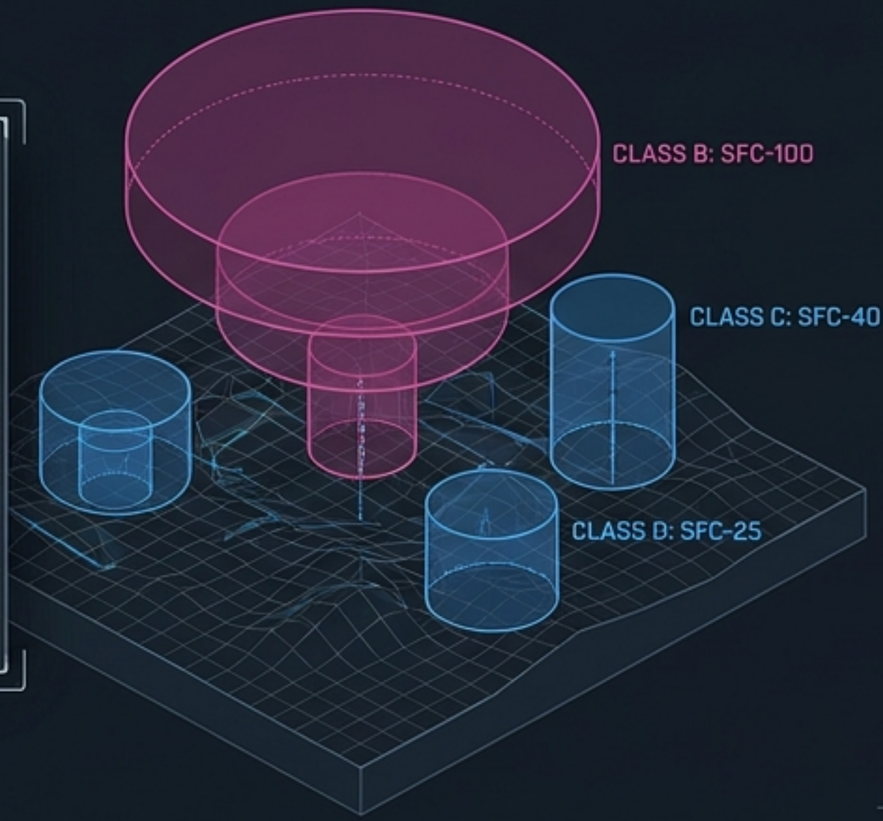
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The Sky is a Structured 3D Arena

2D SECTIONAL CHART: RAW DATA CHAOS



3D ISOMETRIC VISUALIZATION: STRUCTURED AWARENESS



- **The Challenge:** Airspace rules account for 20% of the FAA Part 107 UAG Exam.
- **The Trap:** Relying purely on memorizing 2D chart colors leads to critical safety failures in the field.
- **The Objective:** Translate 2D maps into 3D situational awareness to make rapid, safe Go/No-Go decisions.

Passing the 85% Mastery Gate requires proving you can safely command this environment, not just memorize it.

THE COMPETENCY ENGINE: HOW YOU WILL HACK THE SKY



ACCELERATION RULE:
Time is compressed, standards are not.

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THE CONTROL MATRIX: MAPPING THE NATIONAL AIRSPACE SYSTEM

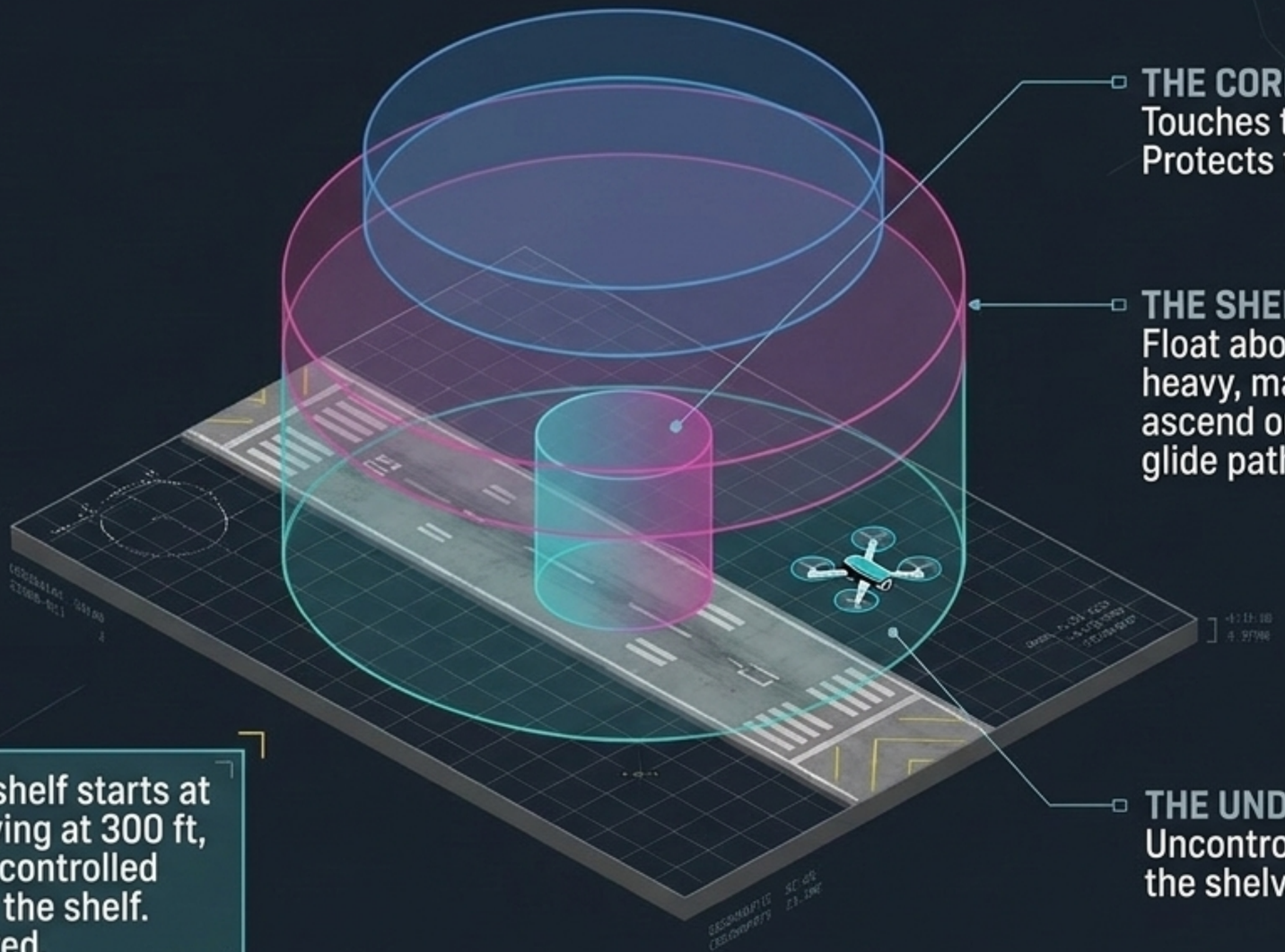
TYPE	CONTROLLE	PROXIMITY TO AIRPORTS	ATC AUTHORIZATION REQUIRED?	sUAS OPERATIONS ALLOWED?
Class B	“Controlled”	Busiest	Yes	Permitted with LAANC/Authorization
Class C	“Controlled”	Busy	Yes	Permitted with LAANC/Authorization
Class D	“Controlled”	Local	Yes	Permitted with LAANC/Authorization
Class E	“Controlled”	En Route / Varies	Yes (Surface), No (Aloft)	Permitted with LAANC/Authorization (Surface only)
Class G	Uncontrolled	None	No	Permitted without Authorization

*Class A: >18,000 MSL, outside sUAS scope.

KEY INSIGHT: THE DRONE PILOT’S PRIMARY DOMAIN IS CLASS G (UNCONTROLLED), BUT COMMERCIAL OPS REQUIRE MASTERING TRANSITIONS INTO B, C, D, AND E.

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THE ARCHITECTURE OF PROTECTION: THE INVERTED WEDDING CAKE



THE CORE (SURFACE AREA):
Touches the ground. Highest risk. Protects the runway zone.

THE SHELVES (OUTER TIERS):
Float above the ground. Protects heavy, manned aircraft as they ascend or descend on long glide paths.

THE UNDERBELLY (CLASS G):
Uncontrolled airspace beneath the shelves.

TACTICAL RULE: If the shelf starts at 1,200 ft, and you are flying at 300 ft, you are operating in uncontrolled Class G airspace under the shelf. No authorization required.

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ANATOMY OF A SECTIONAL CHART





THE BLUE SOLID LINE:
Class B Airspace boundaries.
Busiest airports, strict ATC control.



THE MAGENTA SOLID LINE:
Class C Airspace boundaries.
Busy airports, radar service required.



THE DASHED BLUE/MAGENTA:
Class D / Class E surface boundaries.
Local tower (Blue) or En Route/Surface E (Magenta).

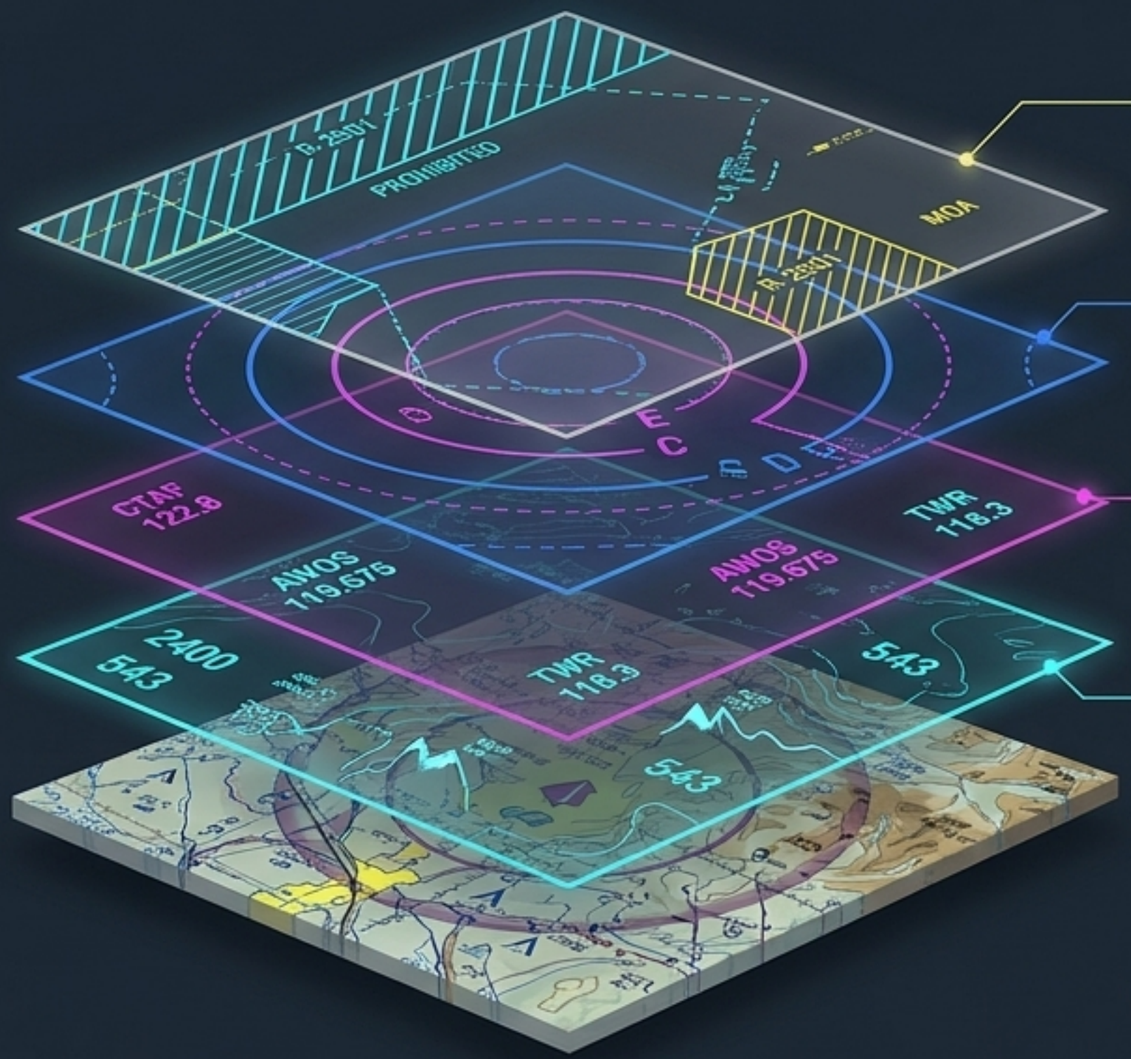


ELEVATION FRACTIONS: (e.g., 110/20) Decoding MSL (Mean Sea Level) ceiling and floor data.
Ceiling in hundreds of feet / Floor in hundreds of feet. MSL.

MEMORIZE THE INK: BLUE = BUSY/TOWERED. MAGENTA = MEDIUM/NON-TOWERED OR RADAR.

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THE SECTIONAL SPEED READ: FILTERING THE NOISE



4. SPECIAL USE LAYER:
ISOLATING HATCHED LINES FOR RESTRICTED ZONES.

3. BOUNDARY DATA LAYER:
ISOLATING THE BLUE/MAGENTA AIRSPACE RINGS.

2. FREQUENCY DATA LAYER:
ISOLATING CTAF, AWOS/ASOS, AND TOWER RADIO FREQUENCIES.

1. ELEVATION DATA LAYER:
ISOLATING MSL NUMBERS, OBSTACLE HEIGHTS, AND TERRAIN CONTOURS.

GAME STATS

OBJECTIVE:
SPOT SYMBOLS, FREQUENCIES, OBSTACLES, AND COORDINATES.

TIME LIMIT:
30 SECONDS PER CHART.

SCORING METRIC:
SYMBOL ID SPEED + ACCURACY.

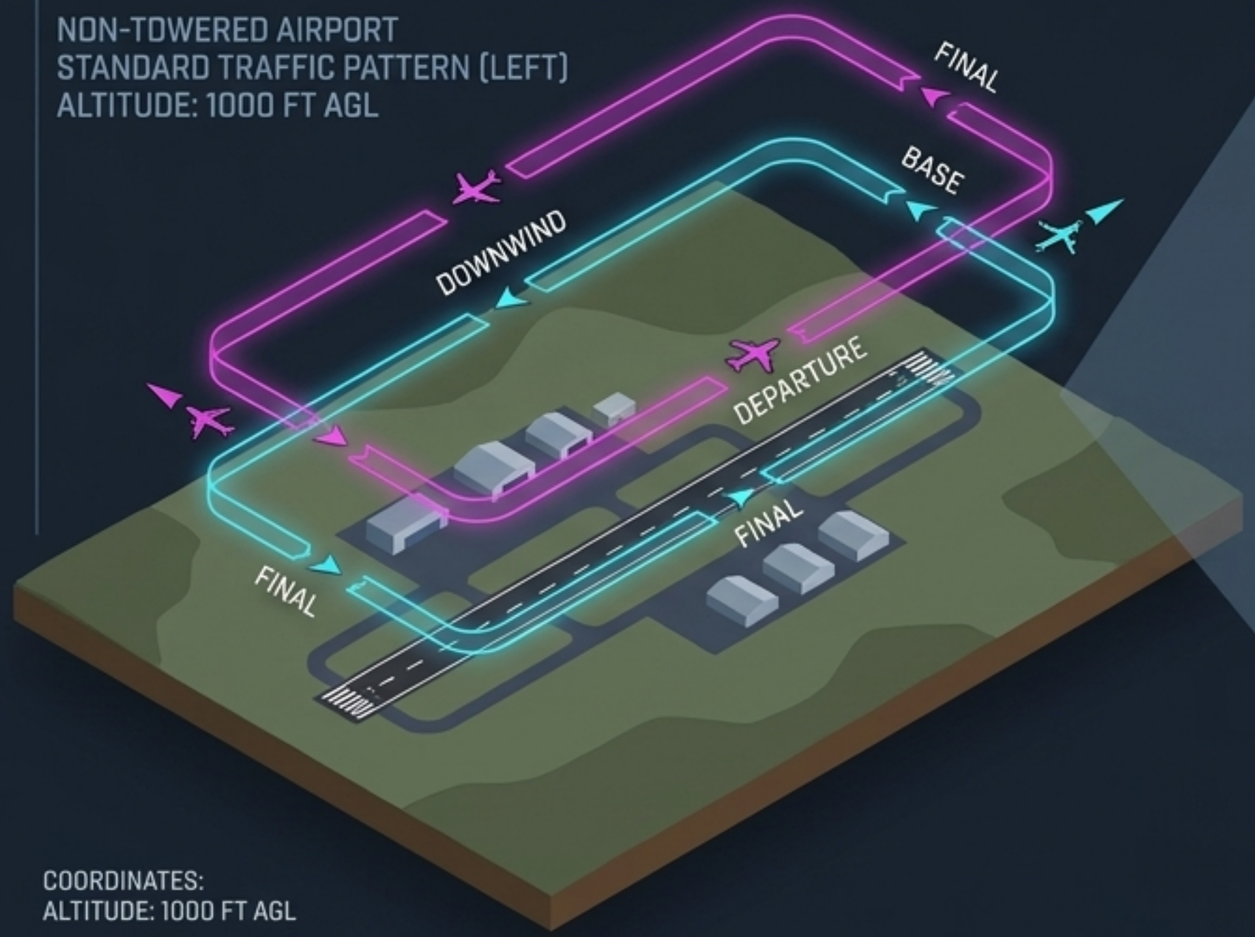
GAME:	3 Sectional Speed Read
HOW TO PLAY:	Spot airport symbols frequencies obstacles elevations coordinates on sectional, 30 sec per chart.
FAA ACS LINK:	Airspace 20%
SCORING:	Symbol ID speed, Accuracy

ACCURACY SPEED

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DECODING THE AIRPORT ENVIRONMENT & RADIO TELEMETRY

NON-TOWERED AIRPORT
STANDARD TRAFFIC PATTERN (LEFT)
ALTITUDE: 1000 FT AGL



COORDINATES:
ALTITUDE: 1000 FT AGL



CTAF (COMMON TRAFFIC ADVISORY FREQUENCY):

THE 'C' ICON. THE CHANNEL PILOTS USE TO SELF-ANNOUNCE POSITIONS WHEN NO TOWER IS PRESENT.

AWOS/ASOS:
AUTOMATED WEATHER FREQUENCIES.

RUNWAY LENGTH/ELEVATION:
VITAL FOR UNDERSTANDING THE SCALE OF THE FACILITY.

GOLDEN RULE FOR sUAS

DRONES DO NOT COMMUNICATE ON AVIATION RADIOS. WE MONITOR CTAF TO MAINTAIN RIGHT-OF-WAY, YIELD TO MANNED AIRCRAFT, AND MAINTAIN COLLISION AVOIDANCE.

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THE INVISIBLE WALLS: NAVIGATING SPECIAL USE AIRSPACE (SUA)

AIRSPACE TYPE	RISK LEVEL	FAA CHART COLOR	PART 107 FLYABILITY
Prohibited Area	Highest Risk	Blue Hatched Lines	NO FLY (Never authorized)
Restricted Area	High Risk (Invisible hazards/artillery)	Blue Hatched Lines	NO FLY (Unless active permission granted by controlling agency)
Warning Area	Coastal/Offshore	Blue Hatched Lines	Caution advised
MOA (Military Operations Area)	High Speed Traffic	Magenta Hatched Lines	Flyable, but extreme caution required
Alert Area	High volume of training/unusual activity	Magenta Hatched Lines	Flyable, yield right of way

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DYNAMIC OBSTACLES: REAL-TIME AIRSPACE RESTRICTIONS

TFRs (TEMPORARY FLIGHT RESTRICTIONS)

DEFINITION:

Invisible, temporary no-fly zones erected for VIPs (Presidential movement), major sporting events (Stadium rules), or natural disasters (wildfire response).

ACTION:

Flying in a TFR without authorization is a **CRITICAL SAFETY FAILURE** and grounds for **CERTIFICATE REVOCATION**.

NOTAMs (NOTICES TO AIR MISSIONS)

DEFINITION:

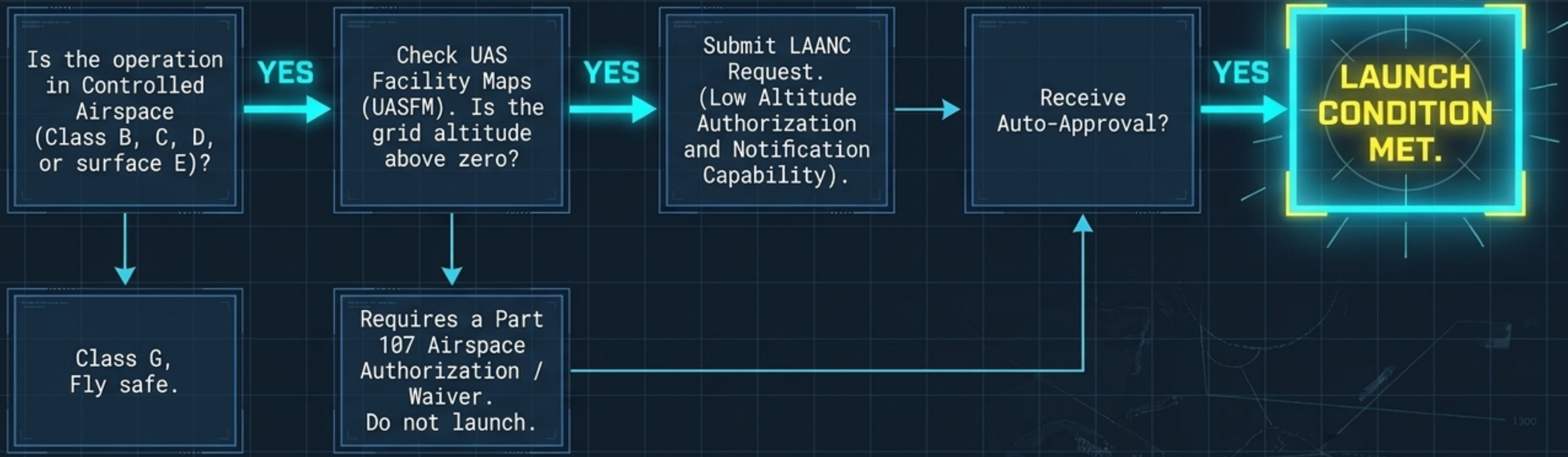
Time-critical aeronautical information not known far enough in advance to be printed on a sectional chart.

ACTION:

Must be checked during every preflight briefing. The map is only half the story; NOTAMs tell you what is happening **TODAY**.

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THE GREEN LIGHT PROTOCOL: UNLOCKING CONTROLLED AIRSPACE



LAANC gives you a legal ceiling. If the grid says 100 ft, your drone does not exceed 100 ft.

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THE ULTIMATE TEST: GAME 0 (AIRSPACE COMMANDER)



GAMEPLAY MECHANICS:

- Input: You are given a mission location, an altitude, an operation description, and a chart extract.

- Output: You must select the exact Airspace Class + Authorization Status + Action + Rationale.

70% : Action Accuracy (Go / No-Go)

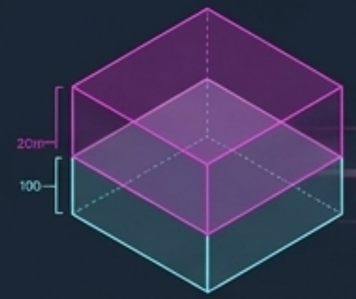
20% : Rationale (Why is it legal/illegal?)

10% : Speed/Time

THE SAFETY OVERRIDE: ANY ANSWER THAT KNOWINGLY CREATES AN UNSAFE OR UNAUTHORIZED OPERATION RECEIVES A ZERO FOR THE ROUND, REGARDLESS OF SPEED.

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THE AIRSPACE COMMANDER SYNTHESIS



SPATIAL (THE VOLUME):
OPERATING UNDER THE CLASS C SHELF.



ACOUSTIC (THE FREQUENCY):
MONITORING CTAF 122.8 FOR MANNED TRAFFIC.

VISUAL (THE CHART):
OUTSIDE THE SOLID MAGENTA LINE, INSIDE THE CLASS E SURFACE AREA.



REGULATORY (THE ACTION):
LAANC GRID CONFIRMS 200FT CEILING; AUTHORIZATION SECURED.



GO

CORE TAKEAWAY: SAFE FLIGHT IS NEVER A SINGLE DATA POINT. IT IS THE REAL-TIME SYNTHESIS OF THE INVISIBLE SKY. YOU ARE NOW READY TO COMMAND THE AIRSPACE.

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