



Docket Operations, M-30  
U.S. Department of Transportation  
1200 New Jersey Avenue SE, Room W12-140

Re: Docket No. FAA-2023-1256, UAS Beyond Visual Line of Sight and Associated Dockets.

Dear Docket Operator:

The Balloon Federation of America (BFA) supports the FAA's effort to integrate UAS into the national airspace system in a manner that continues to promote the safety of flight to all operators using that airspace. As is consistent with our message in the past, this process must be well thought out, safety-driven and must adhere to the standards for safety already set by existing rules. Safe and effective BVLOS operation through viable solutions, constructed through collaboration with existing airspace users, will be the key to success in the final integration of BVLOS operations into the low-altitude airspace structure.

As users of the airspace below 400 feet, hot air, and gas balloon pilots are faced with the limitations of visual avoidance as their sole means to remain clear of other air traffic. As defined in the current 14 CFR 91.113 (d) (1), balloons have the right of way over all other aircraft. The basis for this rule has already been stated during a previous ARC, where the BFA stated that in fact, a hot air or gas balloon does not have the ability to avoid any type of powered aircraft, whether manned or unmanned. Further, the operation of these lighter-than-air aircraft is exempted by existing rule 14 CFR FAR 91.225 (e), preventing the aircraft from complying with the provisions of paragraph (f) full-time operations and FAR 91.227, minimum performance requirements. This renders lighter-than-air aircraft of all types, invisible to electronic detection by remote services, which can detect transmissions from aircraft having transponders and ADS-B out equipment.

We are very pleased and encouraged that the subject of this request for comment recognizes the need for DAA or Detect and Avoid equipment to be mounted on UAS vehicles in the spirit of safety for not only manned air traffic but for the safety of personnel on the ground in the event of a collision between two UA. We believe that we are not where we need to be yet, and our comments below will define our thoughts in a more detailed manner.

In a comment to this docket, the BFA would like to make the following comments:

A. Detect and Avoid Standards

The use of Minimal Operations Performance Standards (MOPS) which involves the ability of a UAS to detect an object in its flight path whether equipped with an electronically transmitted signal or not is critical to the development of these systems. Many users of the airspace below 400 feet are not equipped with such devices for reasons already stated. If remote, Ground Based

Surveillance Systems (GBSS) are employed, then similar capabilities should be required in some manner.

A1, A2: In our opinion, combined detection and avoidance may not meet the requirements of an acceptable level of safety, as avoidance in the flight of another moving object may be difficult to accomplish from a remote site, unless onboard visual detection equipment is able to transmit the need to deviate from the flight path of the UA, back to the operator.

#### B. Declarations of Compliance for Detect and Avoid

There is a difference in the types of applications serviced by UAS operators, so declaration type may vary based on the mission and geographical location of the operation being conducted by the UAS operator.

B1. It is our opinion that UAS operations taking place in support of the governmental organization, for example, U.S. Forest Service, Geographical Survey, and Police and Fire Department Operation, done altitudes of 100 feet or less may possibly have less effect on manned operations, however, a declaration should be a requirement, even if detection equipment follows the standards outlined in Section A above.

B2. Operators of large, heavy, fast UA equipment should be required by FAA to meet a specific standard of detection capability, which should include the autonomous ability to detect any object in its path. Proof of adherence to the standards set for such equipment should carry the weight of the rule and should be verified prior to authorization to operate in airspace up to 400 feet. This should apply specifically to delivery vehicles being used to supply consumers with goods that are operated remotely from a central location or loading/launch area. These operations present the greatest risk of collision between the UAS and manned aircraft. Autonomous detection and avoidance equipment should be the standard imposed under these circumstances.

#### C. Well Clear Boundary

The BFA agrees with the suggested horizontal and vertical clearances stated in this section. There are vast differences between the maneuverability of different crewed aircraft, ranging from very maneuverable, in the case of engine-driven aircraft, to minimally maneuverable, as in the case of lighter-than-air aircraft. Gliders, while maneuverable, are limited by a lack of powered flight capability.

C1: This standard may be more appropriate for longer-range and heavier UAS vehicles. This would require detection capability that is able to detect obstacles farther away and may require a combination of visual and electronic detection. It would likely not be as appropriate for tactical UAS operations, such as law enforcement, where freedom of movement would be hampered by onboard avoidance equipment.

C2: In our opinion, a lesser distance can still be safe, if, the time between detection and action to avoid is not delayed by communication issues or lack of proper monitoring of the progress of the UA.

D. DAA Systems That Include Third-Party Services/Associated Elements (AD)

In general, observation and action by third-party individuals may not have the ability to act in a timely manner to avoid a midair collision between a UA and a manned aircraft. Given the operational characteristics of lighter-than-air aircraft, avoidance of a collision rests solely on the operator in direct command of the UA. From detection to reaction takes time, and an open line of communication between observer and operator to the action to avoid a collision is crucial.

D1, D2: We have no comment on whether the FAA should include Service Provider Approval or not in the exemptions from parts 61, 91. We remain skeptical as to the benefits of using a third-party service provider to provide separation services.

E. Use of UTM Services for Strategic Deconfliction

The BFA has only one comment regarding this proposal. Any deconfliction should be on a common frequency and standardized to limit incompatibility between systems.

F. Detection and Avoidance Between Unmanned Aircraft

We have only one comment related to F3.

F3: As stated in E, deconfliction devices should be standardized onboard devices synced to automatically deconflict, thus removing the human element. Allowing human interaction with deconfliction between UA leaves much room for errors based on reaction time and loss of situational awareness.

G. Beyond Visual Line of Sight Shielded Operations

42 U.S.C. 5195(c) is meant to provide a shielded area around critical national infrastructure and is a matter of national security. We are not sure how this applies to all UAS operations.

G1: It is apparent that shielded operations for UAS operations that deal with the security of infrastructure may be necessary because of the critical and time-sensitive nature of this type of operation. However, it is likely that manned aircraft could be operating within the area within 100 ft vertically or horizontally from this type of infrastructure. This could mean that items like bridges, towers, or other objects that become the subject of inspections or investigations could possibly interfere with manned aircraft before proper notification is available.

G2: Yes. Shielded operations should not be established arbitrarily and only with critical operations being conducted in that area, but without the 100'X100" foot boundaries. Operations in these shielded areas should be limited in scope to the area immediately adjacent to the task or operation, where interference from other airborne aircraft, manned or otherwise, is minimized.

G3: Any shielded area should only be as large as is necessary to provide a secure area in which to operate, not beyond, and not at times when the operation will be dormant.

G4: It should be required that proper notification be made to general aviation. If the operation is being conducted by emergency or law enforcement services, Flight Service should be notified of the emergency or law enforcement activity to note to balloon pilots obtaining preflight information, with possibly a TFR being established over the immediate area of the emergency. In other cases, a NOTAM should be filed delineating the area of operation. In the case of retail seller activities, shielded operations should not be allowed, and right-of-way rules for lighter-than-air aircraft retained in accordance with 14 CFR 91.113. For all aircraft, a charted area on the sectional chart should establish the flight areas where commercial activities will be allowed from the surface to 400 feet AGL, but it should remain a requirement for any, UA flying in these areas, to be equipped with an autonomous means of detect and avoid equipment, not reliant on a third-party service provider.

Unlike UA, which enjoy nearly unlimited 3D maneuverability, hot air and gas balloons are constrained by zero lateral maneuverability, delayed climb responses, and default evasive descents into a risk-rich environment below 400'AGL. We welcome UAS developers and operators as airspace users, provided they address and shoulder their compliance and risk obligations as every other class of aircraft has.

The Balloon Federation of America supports the proper integration of UAS into the national airspace system but remains committed to the safety of flight of all lighter-than-air aircraft that are authorized under 14 CFR 91.119 (a) and (c), to operate in the area less than 400 feet above the surface. These operations will continue in areas that may be occupied by UA aircraft. The risk of midair collision will remain unacceptably high unless UA aircraft are required to remain clear of and give way to, these lighter-than-air manned aircraft. Loss of life and property damage is an unacceptable safety risk and the sharing of this airspace by UAS must be accompanied by the willingness of the UAS industry to accept that responsibility by properly equipping UA with autonomous detect and avoid capability.

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