Civil Aviation Authority

SAFETY NOTICE

Number: SN–2020/002

Issued: 16 January 2020

Small Unmanned Aircraft – Overflight of Uninvolved People

This Safety Notice contains recommendations regarding operational safety.

Recipients must ensure that this Notice is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

Applicability:	
Aerodromes:	Not primarily affected
Air Traffic:	Not primarily affected
Airspace:	Not primarily affected
Airworthiness:	Not primarily affected
Flight Operations:	All Small Unmanned Aircraft Operations
Licensed/Unlicensed Personnel:	Not primarily affected

1 Introduction

1.1 The recent preparation of material for the Drone and Model Aircraft Education and Registration Service (DMARES) and the investigation of several UAS incidents has highlighted a requirement to provide better guidance for remote pilots of small unmanned aircraft when flying over uninvolved people in accordance with Air Navigation Order 2016 (ANO) article 95.

1.2 Article 95(2)(d) permits flight of small unmanned surveillance aircraft directly over uninvolved people at a distance of no less than 50 metres, providing the people are not an organised open-air assembly of more than 1,000 people. Furthermore, article 95(3) sets out a reduction of this distance to 30 metres, during take-off or landing. However, following any loss of control or propulsion, multi-rotor types of small unmanned aircraft often drop vertically downwards; this means that people directly below an unmanned aircraft are at increased risk.

1.3 The purpose of this Safety Notice is to provide additional guidance to remote pilots in the form of suggested best practice when considering flight over people in accordance with articles 95(2)(d) or 95(3) of the ANO. It is also intended to remind and assist remote pilots in meeting the requirement in law that states that they must be "reasonably satisfied that a flight can be safely made" (ANO article 94(2)).

2 Compliance/Action to be Taken

2.1 This Safety Notice **strongly recommends** the following guidance for remote pilots when flying small unmanned aircraft over uninvolved people:

a) **Fly defensively** and with the expectation that control of the small unmanned aircraft could be lost without notice.

- Only fly ***directly*** over people when absolutely necessary to achieve the aim of the flight, and minimise the time doing so.

- Consider remote pilot experience and fatigue level.

- When flying over uninvolved people remote pilots should, whenever reasonably possible, maintain *some* ***horizontal*** separation between their aircraft and those uninvolved people. The extent of this ***horizontal*** distance is for the remote pilot to judge based on any relevant factors such as the prevailing weather circumstances, the flight characteristics of the small unmanned aircraft and its flight, for example;

  - Take careful note of the wind direction and do not fly 'upwind' of uninvolved people – a strong wind may actually blow the aircraft towards them as it falls.

  - Think before flying towards people, especially at higher speeds as the aircraft's trajectory while falling may present a danger to people on the ground.

- Remember, a minimum distance of **50 metres from uninvolved people must be maintained at all times,** except for the purpose of take-off and landing when the distance may be reduced to 30 metres. Also consider the nature and temperament of uninvolved people being overflown and how they may react to the presence of a small unmanned aircraft.

b) **Reduce the harmful characteristics** of the small unmanned aircraft to people.

- Minimise the mass of the aircraft while flying. Less mass means less kinetic energy is transferred in a collision with a person.

  - If possible, use a lighter small unmanned aircraft.

  - The small unmanned aircraft should only carry loads that are necessary.

- Use small unmanned aircraft with design features that reduce harm following collision with a person.

- Do not fly at excessive speeds when close to people.

c) **Ensure that the small unmanned aircraft is safe to fly**.

- Keep it maintained in accordance with manufacturer's guidance

- Maintain an appropriate margin of confidence in the flying time that can be provided by the existing battery power/charge to carry out the intended operation and cope with unexpected issues.

d) **Consider environmental factors** that may aggravate loss of control or propulsion.

- Flight in precipitation – which may suddenly prevent the small unmanned aircraft from operating.

- Sources of interference with the Command and Control link.

- Wind speed and turbulence – which could affect the remote pilot's ability to control the aircraft precisely and increase its power consumption.

- Colder outside air temperatures - which could reduce battery performance.

e) Consider **use of observers** to warn uninvolved people immediately following any loss of control or propulsion of the small unmanned aircraft.

f) **Consider use of available technology**

Wherever reasonably possible, consider the use of technologies such as return-to-home capabilities, geofencing, pre-programed waypoint software, land immediately function, reliable navigation system, use of reliable flight control systems and use of ballistic recovery system (e.g. parachutes) to reduce the risk of harm to uninvolved people following a loss of control of the small unmanned aircraft.

3 Further Information

3.1 Safety Notice – SN-2020/001: Small - Unmanned Aircraft - Water Ingress

4 Queries

4.1 Any queries or requests for further guidance as a result of this communication should be addressed to **uavenquiries@caa.co.uk** with the subject line, 'Safety Notice – SUA Overflight of people', or by post to the following address:

UAS Unit
Safety and Airspace Regulation Group
Civil Aviation Authority
Aviation House
Beehive Ring Road
Crawley
West Sussex
RH6 0YR

5 Cancellation

5.1 This Safety Notice will remain in force until further notice.