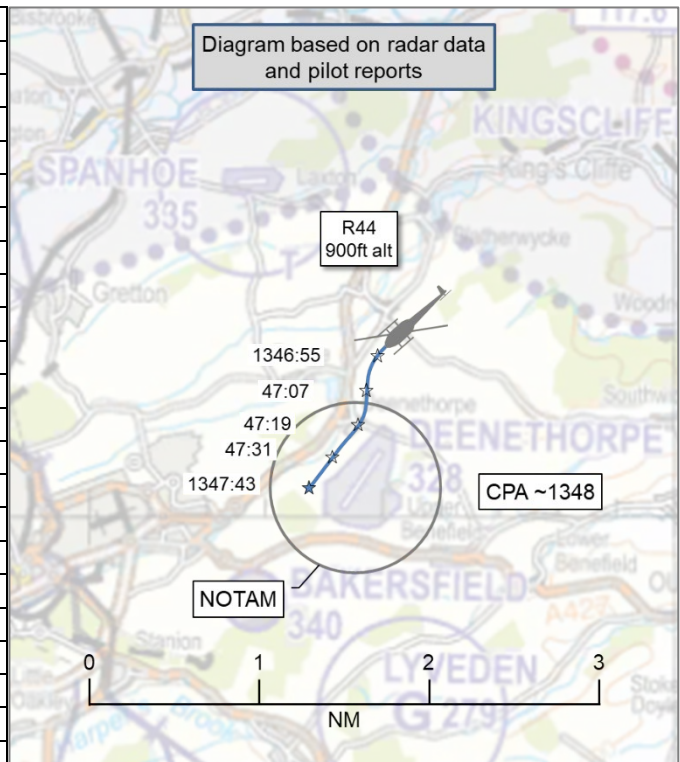


AIRPROX REPORT No 2021130

Date: 21 Jul 2021 Time: 1348Z Position: 5230N 00036W Location: ivo Deenethorpe Airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	RPAS FX2	R44
Operator	Civ Comm	Civ Helo
Airspace	London FIR	London FIR
Class	G	G
Rules	VLOS	VFR
Service	None	None
Altitude/FL	NK	600ft
Transponder	Not fitted	A, C, S
Reported		
Colours	White, orange	Blue
Lighting	Not fitted	Nav, beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	450fl agl	600ft
Altimeter	QNH (1023hPa)	QNH (NK hPa)
Heading	180°	~210°
Speed	60kt	120kt
ACAS/TAS	ADS-B in	Not fitted
Alert	None	None
Separation		
Reported	150ft V/400m H	Not seen
Recorded	NK	



THE RPAS FX2 PILOT reports conducting a survey over Deenethorpe Airfield within a NOTAM'd area. A helicopter was seen, less than 1NM northwest of the centre of Deenethorpe runway, low-level, southbound, parallel to the runway. The RPAS was in a descending left-hand orbit through south at about 400-500ft. Although the separation was less than required, the continuation of the left-hand turn meant separation was assured. The survey was continued and the helicopter's registration, altitude and position was obtained from 'ADS-B Exchange.' The next day, the same helicopter was observed to pass through the NOTAM'd area, about 200m east of the runway at 600ft. The RPAS had been conducting a survey 5 minutes earlier in the same airspace at 700ft and had fortunately just landed when the helicopter was sighted.

The pilot assessed the risk of collision as 'Medium'.

THE R44 PILOT reports in transit along a route that they had flown on many occasions over the past 50 years. They did not see a drone.

Factual Background

The weather at Wittering was recorded as follows:

METAR EGXT 211350Z 07008KT 9999 FEW034 27/18 Q1023 RMK BLU=

A NOTAM at Deenethorpe was promulgated as follows:

H4418/21
 Q) EGTT/QWULW/IV/BO/W/000/011/5230N00035W 001
 UAS OPR WI 0.5NM RADIUS OF 523018N 0003528W (DEENTHORPE AD).
 MAX HGT 700FT AGL. FOR INFO 0757 8940640/0771 9907213. 2021-07-0598/AS2
 LOWER: SFC

UPPER: 1040FT AMSL
 FROM: 20 JUL 2021 07:45 TO: 22 JUL 2021 16:00
 SCHEDULE: 0700-1600

Analysis and Investigation

UKAB Secretariat

The RPAS FX2 and R44 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. During the flight, the remote pilot shall keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property². A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft³. A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property⁴.

Summary

An Airprox was reported when an RPAS FX2 and an R44 flew into proximity just west of Deenethorpe airfield at about 1348Z on Wednesday 21st July 2021. Both pilots were operating in VMC, the RPAS FX2 pilot under VLOS rules and the R44 pilot under VFR and not in receipt of a FIS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first discussed the R44 pilot's route plan, noting that they were very familiar with the local area and that route. Members agreed that although the NOTAM was a warning and not an avoid, it was likely that a pilot would not see a relatively small RPAS and therefore that the R44 pilot would have been better placed by making the small detour around the NOTAM (**CF2**) or contacting the UAS operator before departure to agree a plan (**CF1**, **CF3**). Members wondered whether the R44 pilot could have contacted the RPAS operator on Safety Comm frequency. The RPAS operator had no situational awareness on the approaching R44 and the R44 pilot had generic situational awareness at best (**CF4**) so they were both reliant on EC or see-and-avoid to prevent collision. The Board was heartened to hear that the RPAS was fitted with EC in the form of an ADS-B 'in' receiver, but unfortunately the R44 transponder was not ADS-B 'out' capable so the EC fits were incompatible (**CF5**). In the event, the R44 pilot did not see the RPAS (**CF6**) but the RPAS operator did see the R44 in time to assess that although the aircraft were in closer proximity than desirable (**CF7**) there was no risk of collision due to the RPAS already turning away from the helicopter. Members agreed that any risk of collision had been averted but, by a majority, that normal procedures, safety standards and parameters had not pertained.

¹ (UK) SERA.3205 Proximity.

² Part UAS.OPEN.060 Responsibilities of the remote pilot (2)(b).

³ ANO 2016, Article 240 Endangering safety of an aircraft.

⁴ ANO 2016, Article 241 Endangering safety of any person or property.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2021130			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
2	Human Factors	• Aircraft Navigation	An event involving navigation of the aircraft.	Flew through promulgated and active airspace, e.g. Glider Site
3	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
• Situational Awareness of the Conflicting Aircraft and Action				
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
5	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
• See and Avoid				
6	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
7	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Recommendation: Nil.

Safety Barrier Assessment⁵

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the R44 pilot had not adapted their plan to take account of the NOTAM'd UAS activity.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the RPAS FX2 pilot did not have situational awareness of the R44 pilot's route, and the R44 pilot had at best only generic situational awareness of the presence of the UAS.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the R44 transponder was not ADS-B 'out' equipped and so did not activate the ADS-B 'in' equipped RPAS FX2.

⁵ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Airprox Barrier Assessment: 2021130

Outside Controlled Airspace

Barrier		Provision	Application	Effectiveness Barrier Weighting					
				0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	●	●						
	Manning & Equipment	●	●						
	Situational Awareness of the Confliction & Action	●	●						
	Electronic Warning System Operation and Compliance	●	●						
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓						
	Tactical Planning and Execution	✓	⚠						
	Situational Awareness of the Conflicting Aircraft & Action	⚠	✗						
	Electronic Warning System Operation and Compliance	✗	✓						
	See & Avoid	✓	✓						
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	✓	⚠	✗	●	○				
Application	✓	⚠	✗	●	○				
Effectiveness									