

Assessment of The Air Navigation Order 2016 and other parts of CAP 393, Air Navigation: The Order and Regulations

By Jeremy Swift, British Kite Flying Association, August 2017

This assessment has been undertaken by Jerry Swift, Chairman of the British Kite Flying Association. It can only be taken as a guide. It looks at the Air Navigation Order and Regulations as well as SERA, the Standardised European Rules of the Air as they all relate to kites. We would like to thank Stephen Baker, Legal Advisor at the Civil Aviation Authority for his help and thoughtful review of the drafts of this document. We would also like to thank Jim and Julie White, Bill Souten and John Dobson for reviewing the final draft.

A FULL VERSION OF THIS DOCUMENT IS AVAILABLE ON THE BKFA WEBSITE.

This guide cannot be definitive. As noted below, the definitive documents are the Queen's Printers Editions. Formal legal advice must be sought if you are in any doubt.

The source document is CAP 393, Air Navigation: The Order and Regulations dated August 2016. To quote from the Forward to CAP 393:

"This work sets out the provisions of the Air Navigation Order as amended together with Regulations made under the Order. These Regulations are The Rules of the Air Regulations, The Air Navigation (General) Regulations, the Air Navigation (Cosmic Radiation) (Keeping of Records) Regulations, the Air Navigation (Dangerous Goods) Regulations and a number of permanent Air Navigation (Restriction of Flying) Regulations. It also contains the provisions of the Civil Aviation Authority Regulations. As with the Air Navigation Order itself, the Regulations are in their currently amended form.

"It has been prepared for those concerned with day to day matters relating to Air Navigation who require an up to date version of the Orders and the Regulations mentioned above. It is edited by the Office of the General Counsel of the Civil Aviation Authority. Courts of Law will however refer only to the Queen's Printer's Edition of Statutory Instruments."

CAP 393 is therefore not to be treated as authoritative.

CAP 393 is published by the Civil Aviation Authority (CAA) and, as at 1st August 2017, the current edition is dated 2 June 2017. It is only available online.

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Background

It may seem strange, but under UK law kites are classified as 'aircraft'. They therefore fall within the scope of the Air Navigation Order.

The August 2016 publication of The Air Navigation Order and the other parts of CAP 393 form quite a substantial revision of previous versions. To the author of this review, it appears that several long-standing

anomalies with respect to kites and kite flying have been resolved. It is now clearer what regulations apply to kites weighing 2 kg or less and those weighing more than 2 kg.

The author of this review was concerned that for heavier kites there is an interpretation that could be made that would bring them under the regulations set out in the Standardised European Rules of the Air (SERA). However Counsel at the CAA has drawn our attention to a Technical Opinion, "Introduction of a regulatory framework for the operation of unmanned aircraft" TE.RPRO.00036-003 dated 18.12.2015 produced by the European Aviation Safety Agency and Commission Implementing Regulation 2016/1185 which taken together appear to make clear that kites with a "Maximum Certified Take-off Mass" (MTOM) of less than 150 kg are excluded.

EASA and SERA

The European Aviation Safety Agency (EASA) is the European Union Authority for aviation safety.

Under "Commission Implementing Regulation(EU) No 923/2012 of 26/09/2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation", EASA has established the Standardised European Rules of the Air (SERA) which have largely superseded the Rules of the Air which were established under the UK's Air Navigation Orders.

The Office of the General Counsel at the CAA has told us that "It is a moot point whether SERA applies to a kite. A kite is clearly a type of aircraft (at least it is in national law - see article 23 of the Order) but under Article 1 of the SERA Regulation (923/2012), SERA applies to "general air traffic within the scope of Regulation (EC)551/2004".

However, the CAA further note that under Regulation 1185/2016, SERA is disapplied to all model aircraft and toy aircraft. The regulation now states:

"4. This Regulation shall not apply to model aircraft and toy aircraft. However, Member States shall ensure that national rules are established to ensure that model aircraft and toy aircraft are operated in such a manner as to minimise hazards related to civil aviation safety, to persons, property or other aircraft."

This Regulation then goes on to define 'model' and 'toy' aircraft:

"95a. "model aircraft" means an unmanned aircraft, other than toy aircraft, having an operating mass not exceeding limits prescribed by the competent authority, that is capable of sustained flight in the atmosphere and that is used exclusively for display or recreational activities;"

"129a. "toy aircraft" means an unmanned aircraft designed or intended for use, whether or not exclusively, in play by children under 14 years of age;".

Technical Opinion, "Introduction of a regulatory framework for the operation of unmanned aircraft" TE.RPRO.00036-003 states:

"The Agency considered several terms such as 'unmanned aircraft systems (UAS)', 'remotely piloted aircraft systems (RPAS)' — a UAS subcategory — and 'unmanned aircraft'; consistent with the proposed Basic Regulation text and in line with many comments received during the A-NPA 2015-10 public consultation, the term 'unmanned aircraft' is used for regulatory proposals with the following definition:

"'Unmanned aircraft' means any aircraft operated or designed to be operated without a pilot on board.

"This wide definition will allow to establish rules for different kinds of operations with a distributed allocation of responsibilities for the flying aircraft and the ground station as well as for autonomous aircraft or 'unmanned aircraft' carrying persons.

“It needs to be understood that this definition also includes machines normally not perceived by the general public as aircraft, such as flying toys, small tethered balloons or kites. Special attention is therefore required to not negatively impact any ‘operation’ that does not cause aviation risk.”

The same document also states:

‘In accordance with Articles 1 and 4 of and Annex II to the current Basic Regulation, the scope of EU regulations is limited to unmanned aircraft with an MTOM above 150 kg that are not used for military, customs, police, firefighting, search and rescue, or experimental work. This means that the vast majority of unmanned aircraft development and operations today are regulated by national aviation legislation.’

CAA Counsel believes this demonstrates that EASA view kites in the same way as ‘toy’ and ‘model’ aircraft. The prescribed mass limit in 95a appears to be a MTOM of 150 kg.

EASA aircraft and non-EASA aircraft

Under the regulations set out by European Commission and implemented through the European Aviation Safety Agency (EASA) are those governing the design and operation of aircraft.

Aircraft are divided into two areas for licensing and airworthiness purposes:

- EASA aircraft; and
- non-EASA aircraft

Non-EASA aircraft are also known as ‘Annex II’ aircraft, as they are listed in Annex II to the ‘Basic Regulation’. Non-EASA aircraft are regulated by national aviation authorities. The CAA is the national aviation authority in the UK.

This classification applies to types of aircraft, not individual aircraft.

Whilst there are no known EASA kites, the CAA have pointed out that the theoretical possibility exists, and that the Order must therefore allow for it. An unmanned aircraft with a MTOM of not more than 150 kg is an “Annex II aircraft” so a kite could only be an EASA aircraft if it was larger than this. The only situation that the author can currently conceive of an EASA kite is if power generation by kite proves practical and economic, in which case pan-European regulation might become highly desirable.

Abridged relevant sections of the Air Navigation Order

In the following table, the author has only included those Articles that apply to most kite fliers in order to reduce the length of the table. Technical Articles (e.g. ones that describe law required to make the ANO work) have also been excluded. **IF you fly kites over 2 kg in mass** you should review the full version on the BKFA website.

Article number	Applies to kites weighing 2 kg and less	Applies to kites weighing more than 2 kg	<p>Text of article</p> <p>Where the Article applies directly in full, the original text is included. Where the reference is partial or limited in scope, we have included the relevant text and/or <i>summarized the points and shown them in italics.</i></p> <p><i>“...” shows irrelevant text has been omitted.</i></p> <p><i>Any interpretive notes are also in italic. Some Articles do not apply to kites but have been included because either they could be in force IF there was an “EASA kite” or because they are dis-applied by part of their own text. An example of this is Article 24.</i></p> <p><i>For reasons explained elsewhere, for all practical purposes the expression “non-EASA” can be assumed to relate to all kites.</i></p>
5	X	X	<p>(1) Subject to paragraphs (3) and (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as 1,850 metres or less is that specified in paragraph (2).</p> <p>(2) The aerodrome traffic zone at an aerodrome referred to in paragraph (1) is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified mid-point of the longest runway and having a radius of two nautical miles.</p> <p>(3) Paragraph (4) applies if—</p> <p>(a) the aerodrome traffic zone specified in paragraph (2) would extend less than 11/2 nautical miles beyond the end of any runway at the aerodrome; and</p> <p>(b) this paragraph is notified as being applicable.</p> <p>(4) The aerodrome traffic zone is that specified in paragraph (5) as though the length of the longest runway at the aerodrome were notified as greater than 1,850 metres.</p> <p>(5) Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as greater than 1,850 metres is that specified in paragraph (6).</p> <p>(6) The aerodrome traffic zone is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified midpoint of the longest runway and having a radius of 21/2 nautical miles.</p> <p>(7) Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is on an off-shore installation is the airspace extending from mean sea level to 2,000 feet above mean sea level and within 11/2 nautical miles of the offshore installation.</p> <p>(8) The aerodrome traffic zone of a notified aerodrome excludes any airspace which is within the aerodrome traffic zone of another aerodrome which is notified for the purposes of this article as being the controlling aerodrome.</p> <p><i>The impact of this Article on where kites may be flown is discussed elsewhere.</i></p>
23	X	X	<p>(1) This article applies to—</p> <p>(a) any small balloon;</p> <p>(b) any kite weighing not more than 2kg;</p> <p>(c) any small unmanned aircraft; and</p> <p>(d) any parachute including a parascending parachute.</p> <p>(2) Subject to paragraph (3), nothing in this Order applies to or in relation to an aircraft to which this article applies.</p> <p>(3) Articles 2, 91, 92, 94, 95, 239, 241 and 257 (except 257(2)(a)) apply to or in relation to an aircraft to which this article applies, and article 265 applies in relation to those articles.</p> <p><i>This Article limits the parts of the order to kites which weigh not more than 2 kg. It also shows that in the Order (unlike SERA) there is a difference between kites and small unmanned aircraft.</i></p>

68		X	<p>(1) The pilot in command of an aircraft is responsible—</p> <ul style="list-style-type: none"> (a) before every flight, for defining the roles and duties of each crew member; (b) for the operation and safety of the aircraft and for the initiation, continuation, termination or diversion of a flight in the interest of safety; and (c) during aircraft operations, for ensuring the safety of all crew members...
69		X	<p>(1) The pilot in command must only use aerodromes and operating sites that are adequate for the type of aircraft and operation concerned.</p> <p>...</p> <p>(3) The pilot in command must ensure that—</p> <ul style="list-style-type: none"> (a) <i>...specified in the flight manual ...</i> (b) procedures are established and followed for any reasonably foreseeable emergency situation. <p>(4) The pilot in command must only commence or continue—</p> <ul style="list-style-type: none"> (a) a Visual Flight Rules flight if— <ul style="list-style-type: none"> (i) the latest available meteorological information indicates that the weather conditions along the route and at the intended destination aerodrome at the estimated time of use will be at or above the applicable Visual Flight Rules operating minima; and (ii) the pilot in command has planned an alternative course of action to provide for the eventuality that the flight cannot be completed as planned because of weather conditions; <p>...</p> <p><i>Instrument flight rules and en-route navigation</i></p> <p>(8) The pilot in command must ensure that—</p> <ul style="list-style-type: none"> (a) the aircraft is airworthy; <p>...</p> <p><i>The rest of this Article does not apply to kites</i></p>
70		X	<p>(1) During flight, the pilot in command must—</p> <p>...</p> <ul style="list-style-type: none"> (b) remain at the controls of the aircraft at all times except if another pilot is taking the controls. <p>...</p>
75		X	<p>(1) Before commencing take-off, the pilot in command—</p> <ul style="list-style-type: none"> (a) <i>of a balloon ...</i> (b) of all other aircraft must be satisfied that— <ul style="list-style-type: none"> (i) according to the information available, the weather at the aerodrome or operating site and the condition of the runway or final approach and take-off area intended to be used would not prevent a safe take-off and departure; and (ii) aerodrome operating minima notified, prescribed or otherwise designated by the relevant competent authority will be complied with. <p>...</p> <p><i>The rest of this Article does not apply to kites</i></p>
86	?	X	<p><i>CAA advise that they believe this Article was not intended to apply to kites in general, in so far as much of the article is to do with the pilot-in-command of the display aircraft and a kite can't have a pilot-in-command on or in the kite. Potentially it does apply to a person organising a flying display of kites which has been advertised and is open to the public (see definition of flying display in Schedule 1) unless the CAA exempts any such display.</i></p> <p>BKFA will seek further clarification. The requirement to seek height clearance in separate to this issue.</p> <p>(1) Subject to paragraphs (15), (16) and (18), no person may act as the organiser of a flying display (in this article referred to as “the flying display director”) without first applying for and obtaining the permission of the CAA for that flying display.</p> <p>...</p>

			<p>(6) The CAA must grant a permission required by paragraph (1) if it is satisfied that the flying display director is fit and competent to safely organise the proposed flying display, having regard in particular to the flying display director's—</p> <ul style="list-style-type: none"> (a) previous conduct and experience; and (b) organisation, staffing and other arrangements. <p>(7) The CAA may grant such a permission subject to such conditions, which may include conditions concerning military aircraft, as the CAA thinks fit.</p> <p>...</p> <p>(15) Paragraph (1) does not apply to—</p> <ul style="list-style-type: none"> (a) a flying display which takes place at an aerodrome in the occupation of the Ministry of Defence or of any visiting force or any other premises in the occupation or under the control of the Ministry of Defence; or (b) a flying display at which the only participating aircraft are military aircraft. <p>(16) Paragraphs (1) to (5) do not apply to a flying display at which the only participating aircraft are balloons.</p> <p>...</p> <p><i>BKFA will seek an extension to paragraph 16 to include kites.</i></p>
88		X	<p><i>BKFA will be seeking further information on this Article.</i></p> <p>(1) Subject to the provisions of this article, an aircraft in flight must not, by means external to the aircraft, tow any article, other than a glider, or pick up or raise any person, animal or article, unless—</p> <ul style="list-style-type: none"> (a) <i>there is a certificate of airworthiness—</i> <ul style="list-style-type: none"> (i) <i>issued or rendered valid for that aircraft under the law of the country in which the aircraft is registered; and</i> (ii) <i>that certificate, or the flight manual for the aircraft, includes an express provision that it may be used for that purpose; or</i> (b) the aircraft has been authorised to do so by— <ul style="list-style-type: none"> (i) the CAA; or (ii) an organisation approved by the CAA to provide such an authorisation. <p>(2) An aircraft must not launch or pick up tow ropes, banners or similar articles other than at an aerodrome.</p> <p>(3) An aircraft in flight must not tow any article, other than a glider, at night or when flight visibility is less than one nautical mile.</p> <p>(4) The length of the combination of towing aircraft, tow rope, and article in tow, must not exceed 150 metres.</p> <p><i>... Helicopters...</i></p> <p>(7) Nothing in this article—</p> <ul style="list-style-type: none"> (a) prohibits the towing in a reasonable manner by an aircraft in flight of any radio aerial, any instrument which is being used for experimental purposes, or any signal, apparatus or article required or permitted by or under this Order to be towed or displayed by an aircraft in flight; <p>...</p>
89		X	<p>(1) Articles and animals (whether or not attached to a parachute) must not be dropped, or permitted to drop, from an aircraft in flight so as to endanger persons or property.</p> <p>(2) Subject to paragraphs (3) and (4), articles and animals (whether or not attached to a parachute) must not be dropped, or permitted to drop, to the surface from an aircraft flying over the United Kingdom except—</p> <ul style="list-style-type: none"> (a) under and in accordance with the terms of an aerial application certificate granted under article 91; or (b) with the permission of the CAA. <p><i>...Exceptions which could not apply to kites...</i></p> <p><i>...Helicopters...</i></p> <p>(5) In this article, "dropping" includes projecting and lowering.</p>
92	X	X	<p>(1) This article applies to or in relation to—</p> <ul style="list-style-type: none"> (a) balloons except unmanned free balloons;

			<p>(b) gliders; (c) kites; (d) parascending parachutes; and (e) airships, within the United Kingdom (which are referred to in this article as “relevant aircraft”).</p> <p>(2) A relevant aircraft which is launched, moored, tethered or towed must not be operated—</p> <p>(a) in such a manner as to—</p> <p>(i) represent a hazard to other airspace users; or</p> <p>(ii) without the permission of the CAA, result in any part of the relevant aircraft whilst it is being launched or towed, or its tether, mooring or towing equipment, extending more than 60 metres above ground level;</p> <p>(b) within controlled airspace or airspace notified for the purpose of this article;</p> <p>(c) within the aerodrome traffic zone of a notified aerodrome during the notified operating hours of that aerodrome except—</p> <p>(i) during the day and in Visual Meteorological Conditions; and</p> <p>(ii) with the permission of the person in charge of the aerodrome, the appropriate air traffic control unit or the CAA.</p> <p>(3) A relevant aircraft which is flown, launched, moored, tethered or towed must be operated in accordance with any guidance issued from time to time by the CAA relating to such operation.</p> <p>(4) <i>An airship—</i> ... (5) <i>A balloon—</i> ... <i>This Article defines the standard height limit for kites as 60m unless there is permission from the CAA in force. It also places restrictions on flying in controlled airspace, notified airspace or within an aerodrome traffic zone unless permission has been granted.</i></p>
94	X	X	<p><i>The Article is applied by Article 23. But the CAA have said that as kites are excluded from the definition of ‘small unmanned aircraft’ this article does not apply even to a radio-controlled kite. Care is needed here since the aircraft in question are not connected to a fixed point by a line and thus could be argued to be aircraft with ‘soft’ wings rather than ‘kites’ as their manufacturers describe them. BKFA would say that paragraphs 1, 2 and 3 are good practice in any event. Paragraph 4 would be covered by the limits in Article 92.</i></p> <p>(1) A person must not cause or permit any article or animal (whether or not attached to a parachute) to be dropped from a small unmanned aircraft so as to endanger persons or property.</p> <p>(2) The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.</p> <p>(3) The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.</p> <p>(4) The person in charge of a small unmanned aircraft which has a mass of more than 7kg excluding its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight, must not fly the aircraft—</p> <p>(a) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;</p> <p>(b) within an aerodrome traffic zone during the notified hours of watch of the air traffic control unit (if any) at that aerodrome unless the permission of any such air traffic control unit has been obtained; or</p> <p>(c) at a height of more than 400 feet above the surface unless it is flying in airspace described in sub-paragraph (a) or (b) and in accordance with the</p>

			<p>requirements for that airspace.</p> <p>(5) The person in charge of a small unmanned aircraft must not fly the aircraft for the purposes of commercial operations except in accordance with a permission granted by the CAA.</p>
95	X	X	<p><i>The Article is applied by Article 23. But the CAA have said that as kites are excluded from the definition of 'small unmanned aircraft' this article would not apply. This Article is clearly intended to deal with drones.</i></p> <p>(1) The person in charge of a small unmanned surveillance aircraft must not fly the aircraft in any of the circumstances described in paragraph (2) except in accordance with a permission issued by the CAA.</p> <p>(2) The circumstances referred to in paragraph (1) are—</p> <ol style="list-style-type: none"> over or within 150 metres of any congested area; over or within 150 metres of an organised open-air assembly of more than 1,000 persons; within 50 metres of any vessel, vehicle or structure which is not under the control of the person in charge of the aircraft; or subject to paragraphs (3) and (4), within 50 metres of any person. <p>(3) Subject to paragraph (4), during take-off or landing, a small unmanned surveillance aircraft must not be flown within 30 metres of any person.</p> <p>(4) Paragraphs (2)(d) and (3) do not apply to the person in charge of the small unmanned surveillance aircraft or a person under the control of the person in charge of the aircraft.</p> <p>(5) In this article, "a small unmanned surveillance aircraft" means a small unmanned aircraft which is equipped to undertake any form of surveillance or data acquisition.</p>
239	X	X	<p>(1) If the Secretary of State decides it is necessary in the public interest to restrict or prohibit flying by reason of—</p> <ol style="list-style-type: none"> the intended gathering or movement of a large number of persons; the intended holding of an aircraft race or contest or of a flying display; or national defence or any other reason affecting the public interest, <p>the Secretary of State may make regulations prohibiting, restricting or imposing conditions on flights by aircraft specified in paragraph (2) flying in the circumstances specified in paragraph (2).</p> <p>(2) The aircraft and circumstances are—</p> <ol style="list-style-type: none"> aircraft, whether or not they are registered in the United Kingdom, in any airspace over the United Kingdom or in the neighbourhood of an offshore installation; and ... <p>(3) Regulations made under this article may apply either generally or in relation to any class of aircraft.</p> <p>(4) It is an offence to contravene, permit the contravention of or fail to comply with any regulations made under this article.</p> <p><i>(5) If the pilot in command ...</i></p> <p><i>The rest of the Article cannot apply as there is no "pilot-in-command" for a kite.</i></p>
241	X	X	<p>A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.</p>
248		X	<p>(1) The CAA may direct an aircraft operator by means of an operational directive that an operation is prohibited, or must be limited or is subject to specified conditions, in the interests of safe operations.</p> <p>(2) An operational directive must state—</p> <ol style="list-style-type: none"> the reason for its issue; its applicability and duration; and the action required by the operator. <p>(3) An operational directive may be made in respect of one or more operators or one or more classes of operator.</p> <p>(4) An operational directive may be revoked by the CAA.</p>

			(5) ... <i>The rest of the Article cannot apply to kites.</i>
265	X	X	<p>(1) Subject to paragraph (2), if any provision of this Order, any regulations made under this Order, an EASA Regulation or EU-OPS is contravened in relation to an aircraft, the operator of that aircraft and the pilot in command and, in the case of a contravention of article 250, the charterer of that aircraft, is (without prejudice to the liability of any other person for that contravention) deemed for the purposes of the following provisions of this article to have contravened that provision.</p> <p>(2) A person will not be deemed to have contravened a provision specified in paragraph (1) if the person proves that the contravention occurred without that person's consent or connivance and that that person exercised all due diligence to prevent the contravention.</p> <p>(3) If it is proved that an act or omission of any person which would otherwise have been a contravention by that person of a provision of this Order, any regulations made under this Order, an EASA Regulation or EU-OPS was due to any cause not avoidable by the exercise of reasonable care by that person, the act or omission will be deemed not to be a contravention by that person of that provision.</p> <p>(4) ...</p> <p>(5) Any person who contravenes any provision specified in Part 1 of Schedule 13 is guilty of an offence and liable on summary conviction to a fine not exceeding level 3 on the standard scale.</p> <p>(6) Any person who contravenes any provision specified in Part 2 of Schedule 13 is guilty of an offence and liable on summary conviction to a fine not exceeding level 4 on the standard scale.</p> <p>(7) Any person who contravenes any provision specified in Part 3 of Schedule 13 is guilty of an offence and punishable—</p> <p>(a) on summary conviction—</p> <p>(i) in England and Wales by a fine; or</p> <p>(ii) in Scotland or Northern Ireland by a fine not exceeding the statutory maximum; or</p> <p>(b) on conviction on indictment by a fine or by imprisonment for a term not exceeding two years, or to both.</p> <p>(8) Any person who contravenes any provision specified in Part D of Schedule 13 is guilty of an offence and punishable—</p> <p>(a) on summary conviction—</p> <p>(i) in England and Wales by a fine; or</p> <p>(ii) in Scotland or Northern Ireland by a fine not exceeding the statutory maximum; or</p> <p>(b) on conviction on indictment by a fine or by imprisonment for a term not exceeding five years, or to both.</p>
266	X	X	The CAA may exempt from any of the provisions of this Order (other than articles 179, 230, 247, 250, 251, 252, 255, and 267) or any regulations made under this Order, any aircraft or persons or classes of aircraft or persons, subject to such conditions it deems appropriate.

The Rules of the Air Regulations 2015

Came into force on 30 April 2015

Article 249 of the Air Navigation Order allows the Secretary of State to make regulations including the Rules of the Air amongst others. However, Article 23 of the Order says that for kites weighing 2kg or less only a limited number of Articles apply and 249 is not amongst them. Therefore, The Rules of the Air do not apply to kites weighing 2 kg or less.

They have been excluded from this version **but anyone flying kites with a mass greater than 2 kg should review the full version.**

Other sections of the CAP393

The Air Navigation (Restriction of Flying) (Scottish Highlands) Regulations 2008

These regulations apply to all kites (by virtue of Article 239 of the Order). These regulations say an aircraft (kite) must not fly at or below 5,000 feet above mean sea level on Monday to Thursday between 1500 and 2300. The regulation sets out an area to which this applies by a set of OS coordinates.

There are a further set of coordinates which are active at similar times between 750 feet and 5,000 feet. A further set of coordinates limit flying below 2,000 feet above mean sea level, at the same times.

As kites cannot be flown above 60m without permission, this has the effect of banning kite flying in the designated area. This would also apply to the following four Regulations. The restricted flying rules also need to be checked.

The Air Navigation (Restriction of Flying) (Scampton) Regulations 2000

These regulations apply to all kites (by virtue of Article 239 of the Order). These regulations say an aircraft (kite) must not fly at or below 9,500 feet above mean sea level at any time Scampton is notified as being open, in an area bounded by a circle with a radius of 5 nautical miles centred on Scampton.

The Air Navigation (Restriction of Flying) (Nuclear Installations) Regulations 2007

These regulations apply to all kites (by virtue of Article 239 of the Order). These regulations say an aircraft (kite) must not fly at or below a specified height within a given radius (given in a schedule) of nuclear facilities in the UK. The heights specified are generally in excess of 2,000 feet and the radius generally 2 nautical miles. There are exceptions but they generally allow aircraft landing at nearby aerodromes or helicopter landing facilities.

The Air Navigation (Restriction of Flying) (Prisons) Regulations 2001

These regulations apply to all kites (by virtue of Article 239 of the Order). These regulations say an aircraft (kite) must not fly at or below a specified height within a given radius or specified area (given in a schedule) of a number of high security prisons in the UK. The heights specified are generally in excess of 2,000 feet and the radius generally 2 nautical miles. There are exceptions but they generally allow aircraft landing at nearby aerodromes or helicopter landing facilities.

The Air Navigation (Restriction of Flying) (Highgrove House) Regulations 2007

These regulations apply to all kites (by virtue of Article 239 of the Order). These regulations say an aircraft (kite) must not fly at or below 2,000 feet above mean sea level within a 1.5 nautical mile radius of Highgrove House in Gloucestershire.

Restricted flying rules also apply to Hyde Park, London, the Isle of Dogs, London and The City of London.

Aerodrome Traffic Zones and air navigation

Article 92 of the Order sets out the restrictions on flying kites:

- (2) A relevant aircraft (*kite, defined in (1)*) which is launched, moored, tethered or towed must not be operated—
 - (a) in such a manner as to—
 - (i) represent a hazard to other airspace users; or
 - (ii) without the permission of the CAA, result in any part of the relevant aircraft whilst it is being launched or towed, or its tether, mooring or towing equipment, extending more than 60 metres above ground level;
 - (b) within controlled airspace or airspace notified for the purpose of this article;

- (c) within the aerodrome traffic zone of a notified aerodrome during the notified operating hours of that aerodrome except—
 - (i) during the day and in Visual Meteorological Conditions; and
 - (ii) with the permission of the person in charge of the aerodrome, the appropriate air traffic control unit or the CAA.

Article 5 defines aerodrome traffic zones. This is effectively the minimum level of protection and applies to all notified aerodromes. However, many larger airports have much more extensive control areas and these can be found on aeronautical charts (of which more later).

An aerodrome is defined by NATS (National Air Traffic Services) as a location from which flight operations take place such as large commercial airports, small General Aviation airfields and Military Air Bases. The term airport may imply a certain stature (having satisfied certain certification criteria or regulatory requirements) that an aerodrome may not have. So whilst all airports are aerodromes, not all aerodromes are airports.

- (1) Subject to paragraphs (3) and (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as 1,850 metres or less is that specified in paragraph (2).
- (2) The aerodrome traffic zone at an aerodrome referred to in paragraph (1) is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified mid-point of the longest runway and having a radius of two nautical miles.
- (3) Paragraph (4) applies if—
 - (a) the aerodrome traffic zone specified in paragraph (2) would extend less than 1 1/2 nautical miles beyond the end of any runway at the aerodrome; and
 - (b) this paragraph is notified as being applicable.
- (4) The aerodrome traffic zone is that specified in paragraph (5) as though the length of the longest runway at the aerodrome were notified as greater than 1,850 metres.
- (5) Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as greater than 1,850 metres is that specified in paragraph (6).
- (6) The aerodrome traffic zone is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified midpoint of the longest runway and having a radius of 2 1/2 nautical miles.
- (7) Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is on an off-shore installation is the airspace extending from mean sea level to 2,000 feet above mean sea level and within 1 1/2 nautical miles of the offshore installation.
- (8) The aerodrome traffic zone of a notified aerodrome excludes any airspace which is within the aerodrome traffic zone of another aerodrome which is notified for the purposes of this article as being the controlling aerodrome.

So, to be absolutely certain of being clear of the aerodrome traffic zone were this is not specified elsewhere, you should assume that it is within a circle of 2.5 nautical miles (4.7 km or 2.9 miles) centred on the middle of the longest runway and to a height of 2,000' above the height of the aerodrome.

Article 92 says you cannot fly in “notified” or “controlled” airspace.

“Notified” and “controlled airspace” are defined in Article 2 and Schedule 1 of the Air Navigation Order 2016. The classification of airspace in the United Kingdom is notified in the Aeronautical Information Publication which is published by the CAA

Class A. In class A airspace, only Instrument Flight Rules (IFR) flying is permitted. Generally speaking, it is above 24,500'.

Class C. Class C airspace in the UK extends from Flight Level FL195 (19,500 feet) to FL600 (60,000 feet).

Class D. Class D airspace is for IFR and VFR flying. An ATC clearance is needed and compliance with ATC instructions is mandatory. Control areas around aerodromes are typically class D. You should not be flying in

class D airspace without prior permission. Class D airspace could extend down to the surface. The area might extend out for many miles from the airport: in the case of Heathrow the CTA (down to 1500' – see below) which is Class D airspace extends from White Waltham in the West almost as far as the Dartford crossing in the east.

Class E. Class E airspace is for IFR and VFR use.

Class G. In class G airspace, aircraft may fly when and where they like, subject to a set of simple rules. Although there is no legal requirement to do so, many pilots notify Air Traffic Control of their presence and intentions and pilots take full responsibility for their own safety, although they can ask for help. It's the bit kitefliers can use.

In addition to being given a class, which specifies rules for flying, controlled airspace may be further defined by its 'type' depending on where it is and the function it provides.

Control Zones (CTZ). Aerodrome Control Zones afford protection to aircraft within the immediate vicinity of aerodromes. Shown as CTR on UK charts – normally surface to a height and often over a wider area than the minimum aerodrome traffic zone specified above.

Control Areas (CTA). Control Areas are situated above the Aerodrome Traffic Zone (ATZ) and afford protection over a larger area to a specified upper limit – normally between two heights.

Terminal Control Areas (TMA) are normally established at the junction of airways in the vicinity of one or more major aerodromes.

The London Terminal Control Area is an example of this and deals with air traffic arriving and departing from London Heathrow, Gatwick, Luton, Stansted, London City, Northolt, Biggin Hill, Southend, Farnborough and other minor airfields in the London area.

Restricted areas (sometimes called 'Danger areas') prevent aircraft straying into dangerous places. Danger can come from airborne activities, such as military aircraft training or air-to-air refuelling. It can also come from the ground, such as from weapons testing ranges. To ensure efficient use of the airspace, most Restricted areas can be deactivated when they are not in use, allowing other aircraft to then use the airspace.

<http://www.ais.org.uk/> The is the NATS (National Air Traffic Services) Aeronautical Information Services website and it contains information on facilities, services, rules, regulations and restrictions in UK airspace.

On that site, the current UK wide chart can be found at http://www.ead.eurocontrol.int/pamslight/pdf/4e415453/EG/C/EN/AMDT/AD/EG_Amdt_A_2017_05_B_en.

For individual route charts http://www.nats-uk.ead-it.com/public/index.php%3Foption=com_content&task=blogcategory&id=4&Itemid=11.html

And scroll down to "ENR6 - En Route Charts".

Specific aerodrome information is on the same website – the left hand sidebar "Aerodrome Index – Specific" will take you there.

A really helpful website is <http://notaminfo.com>. On the National Planning map various types of airspace can be selected under the airspace tab on the right. The website also shows all NOTAMS (so publication of height clearances can be checked).

To decipher aeronautical charts: http://www.nats-uk.ead-it.com/public/index.php%3Foption=com_content&task=blogcategory&id=3&Itemid=10.html

Scroll down to Gen 2.3 chart symbols.

On aeronautical charts, boxes show the designations of various airspace areas. The first group of numbers and

letters is the area designation. The letter in a square box shows the airspace class. Height boundaries are then shown thus:

6000'

3000' meaning between 3000' and 6000'

FL1950 = flight level 1950 which is 19,500'

SFC – surface level

Lower heights are shown in feet rather than as flight levels.

Finally, it is worth outlining what the Visual Flight Rules are. This is from ENR 1.2 again from the AIS website.

“amsl” - above mean sea level.

“KIAS” – knots indicated airspeed

1.1 VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in Table 1.

Table 1			
Altitude Band (Note 1)	Airspace Class	Flight Visibility	Distance from Cloud
At and above 3050 m (10000 ft) amsl	ABCDEFG (Note 2)	8 km	1500 m horizontally 300 m (1000 ft) vertically
Below 3050 m (10000 ft) amsl and above 900 m (3000 ft) amsl, or above 300 m (1000 ft) above terrain, whichever is the higher.	ABCDEFG (Note 2)	5 km	1500 m horizontally 300 m (1000 ft) vertically
At and below 900 m (3000 ft) amsl, or 300 m (1000 ft) above terrain, whichever is the higher	A B C D E (Note 2)	5 km	1500 m horizontally 300 m (1000 ft) vertically
	FG	5 km (Note 3)	Clear of cloud and with the surface in sight

Note 1: Or if, any aircraft which is not a helicopter, at 3000 ft amsl or below and flying by day only at 140 KIAS or less: Clear of Cloud and with the surface in sight in a Flight Visibility of at least 5 km.

Note 2: Or if a Helicopter and flying by day at 3000 ft amsl or below: Clear of Cloud and with the surface in sight in a Flight Visibility of at least 1500 m.

Note 3: Flight visibilities reduced to not less than 1500 m are permitted for flights operating:

(a) at speeds of 140 KIAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collision;

or

(b) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

Standardised European Rules of the Air (SERA)

Kites weighing not more than 2kg are exempted from most of the provisions of the Air Navigation Order 2016 by article 23(1)(b) apart from articles 2, 91, 92, 94, 95, 239, 241 and 257 (apart from 257(2)). The Rules of the Air 2007 did not apply to such kites nor do the current 2015 Rules.

This also means that kites weighing 2 kg or less are exempted from the SERA Rules of the Air (noting the CAA opinion that ALL kites are exempt from SERA by the Technical Opinion Regulation 1185/2016).

The part of the Rules of the Air Regulations that most concerned kite fliers was Article 52 (along with all the other lighting requirements in the 2007 Rules). Article 52 was removed from the Rules of the Air Regulations in 2015. BKFA would suggest that flying below 60m at night should not pose any particular requirements. Should there be a requirement to fly above that height at night, CAA have issued guidance on their website and requirements will be given as part of their permission. Details can be found towards the end of this document.

Conclusions

- For all kites, Articles 1, 2, 5, 17, 23, 24, 33, 91, 92, 94, 95, 239, 241, 257, 265, 266, Schedule 1, Schedule 13 and Schedule 14 of the Air Navigation Order apply to a greater or lesser extent;
- Specifically, for kites weighing 2 kg or less, Articles 2, 91, 92, 94, 95, 239, 241, 257 (apart from 257(2)(a)) and 265 of the Air Navigation Order apply as set out in Article 23;
- For kites weighing more than 2 kg, our discussions with CAA show that Articles 1, 2, 3, 4, 5, 17, 23, 24, 33, 68, 69, 70, 71, 75, 86, 88, 89, 90, 91, 92, 94, 95, 97, 98, 99, 100, 239, 241, 248, 249, 253, 256, 257, 263, 264, 265, 266 apply to a greater or lesser extent;
- For kites weighing more than 2 kg Rules 1, 2, 3, 4, 5, 7, 11, 17, 18 and 25 of the Rules of the Air Regulations apply;
- For kites weighing 2 kg or less SERA does not apply;
- For kites with a MTOM of greater than 2 kg and less than 150 kg CAA advise SERA does not apply;
- For kites with a MTOM of greater than 150 kg SERA apply;
- For kites weighing 2 kg or less, flying at night is permitted, subject always to the requirements of Article 241 in particular; and
- For kites weighing more than 2 kg, flying at night is not permitted without a specific permission from the CAA.

Guidance issued by CAA on flying kites above 60m

The following is from the CAA website current at 1 August 2017. The site should be checked for any updated advice (<http://www.caa.co.uk/General-aviation/Displays,-events-and-activities/Kites/>). Putting 'kite' as a search term into the CAA website will produce results with 'kite' in the title or on the web page. It WILL NOT produce a list of all references to 'kite' in CAP393.

Anyone looking to fly a kite at significant heights in the UK should ensure that they comply with important safety rules. These rules are in place to ensure the safety of any aircraft flying in the vicinity.

Flight above 60 metres

Anyone flying a kite at a height greater than 60 metres above the surface requires a permission from the CAA. Where permission has been granted for kite flyers to operate at heights greater than 300 feet (91.4 metres) above the surface, the CAA will also issue a Notice to Airmen (NOTAM) to forewarn other airspace users of the potential hazard. The regulations for kite activity in the UK are contained in Article 92 of the Air Navigation Order (ANO) 2016.

How to apply for a permission

The organiser or operator must complete the application form, giving at least 28 days' notice and return to the Safety and Airspace Regulation Group at the CAA. Contact details are given on the form.

There are no costs associated with gaining a permission to operate a kite above 60 metres.

Lighting and markings when flying above 60 metres

The current recommendations for kites are as follows. Each kite permission that is issued will include the relevant parts of this guidance.

Flying of kites during the day

A kite flying at a height exceeding 60 metres above ground level should have either:

- tubular streamers attached to the string which are: not less than 40 centimetres in diameter and 2 metres in length, marked with alternate bands of red and white which are 50 centimetres wide, at intervals of not more than 200 metres measured from the lowest part of the kite; or*
- streamers not less than 80 centimetres long and 30 centimetres wide at their widest point, marked with alternate bands of red and white which are 10 centimetres wide, at intervals of not more than 100 metres measured from the lowest part of the kite*

Flying of kites at night

A kite flying at a height exceeding 60 metres above ground level should display lights in the following manner:

- A group of two steady lights should be displayed, consisting of a white light placed four metres above a red light, both being of at least five candela and showing in all directions. The white light should be placed not less than five metres and no more than ten metres below the lowest part of the kite.*
- On the kite string, at intervals of not more than 300 metres from the group of lights described above, should be further groups of two lights of the colour, power, and relative position as described above.*
- If the lowest group of these lights is obscured by cloud, an additional group of such lights should be displayed below the cloud base.*

On the surface of the ground, a group of three flashing lights should be displayed in an approximately equilateral triangle in a horizontal plane. Each side of this triangle should measure at least 25 metres. One side of the triangle should be approximately at right angles to the horizontal projection of the kite string, and this side should be defined by two red lights. The third light should be green and placed so that the triangle encloses the object on the surface from which the kite is flown.

Further impacts of the changes

Following the introduction of SERA and the removal of Rules 52 and 53 from the Rules of the Air and CAA adopting a risk based approach to safety where Rules do not exist, they have added extra

conditions within their height clearance permission. This is discussed by the CAA on their website (see '**Guidance issued by CAA on flying kites above 60m**').

A recent typical example saw the permission granted as:

1. *The Civil Aviation Authority, pursuant to article 92(2)(ii) of the Air Navigation Order 2016, hereby permits any kite flown by to be flown more than 60 metres above ground level.*
2. *This Permission is granted subject to the following conditions:*
 - (a) *the said kite shall only be flown from (OS Grid Ref.....);*
 - (b) *the said kite MUST NOT be flown above 500 feet above ground level;*
 - (c) *the said kite shall not be flown in a visibility of less than 5 kilometres, nor within 1000 feet vertically or 1800 metres horizontally of cloud;*
 - (d) *a kite flying by day at a height exceeding 60 metres above the surface should have attached to its mooring cable;*
 - (a) *tubular streamers or*
 - (b) *at intervals of not more than 100 metres measured from the lowest part of the kite, streamers not less than 80cm long and 30cm wide at their widest point, marked with alternate bands of red and white 10cm wide.*
 - (e) *the mobile contact telephone number (.....) MUST be manned throughout the periods of kite flying;*
 - (f) *the Operator shall have this Permission in his possession at all times during flight.*
3. *This Permission shall have effect 1000 - dusk, local time, on, unless previously revoked, varied or suspended.*

General note on mass of kites and further clarification needed

Following our very helpful discussions with the Office of General Counsel at the CAA we will be seeking clarification on a few points. They are very specific and unlikely to impact on 99% of kite fliers or kite events.

Kites may be heavier than CAA realise? We know of many kites inflated by wind pressure that have a mass (excluding the air in them) of 32kg. This upper limit is generally applied due to airline baggage limits. The world's largest kites currently have a mass of around 300kg (<https://gomborgkites.com/bigkite/index.html> - although the original was actually the Kuwait flag). Peter Lynn is currently developing another kite around 10-20% bigger than this.

The very largest kites are not flown that often – it takes too much preparation, space is critical and anchors such as large dump trucks are needed. However, kites up to 32kg mass are quite common.

In terms of the application of the wider ANO, Rules and SERA, 2 kg and below is straightforward, but we do wonder whether there should be an upper limit at around 50kg above which CAA permission for flight would be required, but below which a more pragmatic approach as clearly intended in the current regulations is applicable.

We also need to clarify the impact of the MTOM of 150 kg. There is a 20 kg limit set in relation to the Order's definition of small unmanned aircraft but the Article specifically excludes kites.

Further work is needed in respect of “towing” (may impact tails and line junk), “picking up and raising of persons and articles” (may impact beer lifts for example) and “dropping of articles and animals” (which could impact bear parachuting or sweet drops).

We also need to clarify whether there any specific considerations for kites weighing more than 2 kg when a kite is being used for say, training raptors or aerial photography for commercial or research purposes?

With Article 86 in mind we also need to clarify whether the CAA expect kite fliers and others organising festivals etc to apply for permission?