Summary and recommendation:

The EASA draft Implementing Regulation on Unmanned Aircraft Operations of 4 May 2017 creates considerable obstacles for recreational and sports remote controlled model aircraft construction and flying. These obstacles include a general altitude limit of 120 meters, a registration requirement for pilots and their aircraft, age limitations and supervision or certification requirements for pilots, as well as technical requirements for aircraft such as geofencing.

Most aspects of recreational and sports model aircraft building and flying will need to seek accommodation under two exemptions in the EASA draft: 1) the ability to exempt activities conducted in the framework of model clubs and associations; and 2) operations in specific zones where requirements can be alleviated. The application of these exemptions is left to Member States. The result of the EASA draft is therefore that recreational and sports model aircraft pilots will need to seek and negotiate exemptions within each Member State. Unless they obtain such exemption they will be unable to exercise important aspects of their sport.

This paper recommends that the EASA draft be amended to provide for a general exemption for the construction and piloting of remote controlled model aircraft with a take-off weight of less than 25kg, when built and flown for sports and recreational purposes, and allow Member States to regulate this sector if they so desire. Only such a change in regulatory approach will avoid a situation where this sports finds itself in an uncertain situation where in each Member State exemptions will need to be negotiated from overly burdensome and strict rules. This is especially important for a sector that has shown an excellent safety record (as recognised by EASA) and where no need has been demonstrated for new or tightened rules at the EU level.

Background:

On 4 May 2017 EASA published a new draft of an implementing Regulation on Unmanned Aircraft Operations ("the draft Regulation") for public consultation[1]. **Comments on this draft can be submitted until 12 August 2017**. The draft Regulation provides technical rules to implement a new EU legal Framework ("the Framework") that is currently in the final stages of completion and aims to increase safety of unmanned aircraft systems (UAS)[2], and facilitate their deployment by providing harmonised EU-wide rules on their operations. The most relevant feature of the new Framework is that the current 150kg exemption threshold is removed and that, as a result, all unmanned aircraft will in the future be covered under EU law. The EASA (optimistic) timetable intends to have the Regulation adopted by the European Commission in the 2nd half of 2018, following which Member States will need to introduce these rules. EASA expects the rules to be fully in place by 2020/2021.

[1] European Aviation Safety Agency Notice of Proposed Amendment 2017-05 (A), Introduction of a regulatory framework for the operation of drones; unmanned aircraft system operations in the open and specific category.

[2] Proposal for a Regulation of the European Parliament and of the Council on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and repealing Regulation (EC) No 216/2008 of the European Parliament and of the CouncilBrussels, 7.12.201, COM(2015) 613 final, 2015/0277 (COD).

Summary of the draft, where relevant for model aircraft:

The draft applies to the production, sale and operation of Unmanned Aircraft Systems (UAS). This includes all model aircraft, including free flying, regardless of characteristics such as use (recreational, commercial), type, size or weight. The applicable rules are defined on the basis of where the aircraft is flown (proximity to people) and the weight of the aircraft. As a general rule, pilots of all UAS over 250gr will require registration and all UAS over 900gr will require registration. Additional applicable rules include the altitude of operation (maximum 50 to 120m), the competence of the pilot (informed by a leaflet, online training and test, certificate of competence and exam), age limit (no limit or minimum 14 or 16 years with supervisor), and technical requirements on the aircraft (operational instructions, lost-link management, selectable altitude limit, electronic identification, geofencing). **An overview of this complex system is given in the table included on page 15 of the EASA draft and reproduced in the Annex to this paper**.

The flying of model aircraft in most situations will need to be accomodated under the exemptions provided for in the draft Regulation. These exemptions, most of which are to be defined by Member State authorities (i.e. not at the EU level), are:

- **"Activities conducted in the framework of model clubs and associations" (Art. 14)**: Member State authorities may provide exemptions to model clubs or associations on the basis of the model club's or association's procedures, organisational structure and management system.
- **"Operations in specific zones where requirements can be alleviated" (Art. 12(1)(d))**: Member State authorities may designate zones where UAS are exempted from one or more of the requirements. Note that this exemption requires explict action on the side of the authorities to allow for model aircraft operations outside the boundaries of the standard rules.
- **Operations in category A3 of the open category**: this exemption applies to operations of UAVs of less than 25kg in areas "far from people" ("no uninvolved persons are present"), but maintains the 120m altitude limit.

In addition, the draft Regulation exempts existing model aircraft from the need to implement additional technical requirements for three years (until 2021, according to the EASA timetable).

Examples of consequences of the draft for model aircraft:

This section provides three examples of the consequences of the draft Regulation for model aircraft on the basis of three typical situations.

Example 1: Recreational flying a model aircraft between 900gr and 25kg on a club's model airfield

The altitude restriction of 120m applies and both the model and the pilot must be registered. If the model is to be flown close to, but in a safe distance (>50m) from "uninvolved persons", the pilot must pass a theoretical qualification and an exam in an approved centre and must be older than 16 or with a supervisor. The aircraft may not be heavier than 4kg, must have electronic identification, geofencing, lost-link management and a selectable altitude limit. Models heavier than 4kgs may only be flown "far from people". Pilots must be at least 16 years or with a supervisor and pass online training with a test. If the aircraft is "privately built", it may need to have electronic identification or geofencing if so required by the zone it is flying in and must fly far from the boundaries of cities, towns, settlements or airfields. If the aircraft is not "privately built" it must have lost-link management and a selectable altitude limit if it is to be flow in proximity to the

boundaries of cities, towns, settlements or airfields, as well as electronic identification or geofencing if so required by the zone it is flying in.

Example 2: *Scale GPS glider (below 25kg) competition on model airfield*

GPS triangle glider competitions have a starting altitude well above the 120m permitted by the EASA draft. Most gliders used in these competitions are heavier than 4kgs and will therefore need to comply with the requirements listed in the previous example.

Example 3: Slope soaring in a publicly accessible area

Slope soaring is the recreational or competitive flying of remote controlled gliders of all weights and sizes, usually outside club airfields in mountainous areas. These areas are often crossed by hiking or cycling trails used by "uninvolved persons". In addition, slope soaring often exceeds altitudes of 120m. Gliders used for slope soaring usually weigh more than 900 grams and regularly weigh more than 4 kilos, as a result of which the rules set out in Example 1 apply.

These examples show that only in very few situations the flying of model aircraft can be accommodated within the framework provided for in the draft Regulation and must therefore be covered by one of the exemptions, implemented by the Member States.

Issues of concern

The main difficulties to accommodate recreational and sports model aircraft flying within the framework, and options to address these difficulties are:

- *The altitude restriction of 120m*: model aircraft regularly exceed altitudes of 120m. Depending on the size and purpose of the model, exceeding this altitude may even be required for its safe operation (aerobatics) or for finding suitable thermals. In many areas a general altitude restriction of 150 is neither required nor justified. Although the draft Regulation allows for this altitude restriction to be lifted for specific areas, or for model groups and assocations, **it makes more sense to reverse this rule, and instead allow Member State authorities to introduce an altitude restriction for specific areas**.
- *Proximity to uninvolved persons*: many model airfields or flying locations are in locations where the presence of uninvolved persons cannot be excluded or is the rule rather than an exception (hiking trails, allotment gardens, farms, scattered homes or even busy roads and industrial areas). The current rules state that "should a person incidentally enter the visual range of the remote pilot, the remote pilot should avoid overflying the person, and discontinue the operation when the safety of the UAS operation is not ensured". **This definition should be reviewed to allow a continued operation away from cities, towns, settlements and airfields, but in proximity to uninvolved persons providing that the pilot takes due care and precautions to ensure the safety of those persons**.

There are also a number of issues which raise problems for model aircraft pilots. These include:

- The draft requires a minimum age of 14 (for aircraft between 250 and 900gr without camera) or 16 (for heavier aircraft or aircraft with camera), or adult supervision. This seriously limits the ability for new young model pilots to access this sport. This also has broader educational consequences as young model pilots are, through their sport, stimulated to pursue technical or aviation related

professions. **Sports and recreational model aircraft pilots should not be subject to an age requirement.**

Moreover, the exemptions provided for in the draft regulation raise a number of issues:

- The most important exemption for model aircraft is that of *"activities conducted in the framework of model clubs and associations".* The draft Regulation only stipulates that Member States are free to apply this exemption to a broad range of requirements. There are two issues with this exemption. The first is that it may imply that all pilots must be a member of a club or association, which may seriously limit new pilots to enter the hobby. The second is that the exemption is ambiguous as its territorial coverage (it should not be possible to interpret the exemption to be limited to activities on approved airfields). **For this exemption to be workable, it must apply (1) to all recreational and sports model aircraft pilots, regardless of their membership of an association or club; that (2) adhere to the rules elaborated between clubs, associations and the state in relation to exercise of their hobby, (3) regardless of where they exercise their sports (i.e. it may not be limited to model airfields only)**.
- As mentioned above, any *altitude limit* should not be a general limit to which exemptions can be provided, but be an option that can be imposed by a competent authority for a specific area, on the basis of specific security concerns. **For Switzerland altitude limits could for instance be identical to the 150m altitude limit for all areas that are currently designated Control Zones (CTR).**

A number of other issues in the draft Regulation are unclear and in particular their implementation by the competent authority raises questions:

- *A number of the technical requirements may be difficult or impossible to implement for model aircraft*. This includes in particular lost-link management, altitude limits, but in particular also geofencing. While these may be easier to implement in programmable drones, this is not the case for scale gliders or motor aircraft. While limited forms of lost-link management ("fail safe operation") and altitude/location warnings are possible, more complex systems that enable automatic landings and prevent aircraft from climbing to higher altitudes or enter geofenced areas do not currently exist.
- The need, costs, complexity and requirements of the *registration system for pilots and aircraft* (many model aircraft pilots have a large number of aircrafts) and of *exam or certification systems for pilots*. Sports and recreational model aircraft flying has an excellent safety record. The proposed system would create an enormous additional burden on national authorities and model aircraft associations, without significant gain in safety. **A requirement to provide contact details of the owner on the aircraft is already common practice and can be reinforced**. Additional requirements make little sense or will have no or marginal safety benefits.
- *Definition of "privately built",* in particular in relation to producers and sellers of model aircraft, but also in relation to applicable rules for pilots. Are all aircraft supplied without a pre-installed transmitter and receiver are "privately built"? If so, that would be beneficial for the producers and sellers of these aircraft, but could limit the use of these aircraft under the current rule system.

Conclusion

The above points address the draft Regulation as it now stands, and criticise the most problematic areas. Taken together, it is clear that the draft Regulation is extremely difficult to apply, or indeed unworkable, and likely to seriously affect sports and recreational model aircraft pilots. Since most of these activities will need to be accomodated under the exemptions of the draft Regulation, which are to be implemented by the Member States themselves, it makes much more sense the provide for a blanket exemption for all sports and recreational model aircraft operations (below 25kgs) in the regulation, and allow Member States to elaborate their own framework for such operations, if they so desire. The outcome of such approach would, in substance, not be significantly different from the currently proposed approach. The difference in procedure to achieve this outcome is however crucial. Rather than putting the sports into a defensive position, where exemptions will need to be acquired in each Member State on each of the points in the EASA draft, national authorities will need to justify any limitations of the sports in a domestic regulatory process. In addition, it avoids a situation where protracted discussions between national authorities and interest groups delay regulations to implement the exemptions and as a result temporarily halt the exercise of key elements of sports and recreational model aircraft operations.

A general exemption could be elaborated on the basis of the exemptions currently provided for in the framework, and include the following criteria:

- UAS below a maximum take-off mass (MTOM) of 25kg;
- Operated for hobby or recreational use;
- Operated within visual line of sight;
- Operated in respect of flight control zones and altitude restrictions where such zones or restrictions are in place.

An example for the text of such an exemption is provided below.

Example of a draft exemption for sports and recreational model aircraft flying

Preambular Paragraph 9

Taking into account the good safety record of sports and recreational model aircraft flying, such activities should be exempted from the scope of this Regulation. Member States may issue operational restrictions for such activities.

Article 14 - UAS operations conducted for recreational or sports purposes

1. Exempted from the scope of this Regulation are UAS operations that:
   - are conducted for recreational or sports purposes; and
   - operate UAS with a maximum take-off mass (MTOM) of less than 25 kg; and
   - operate within visual line of sight; and
   - are conducted while respecting flight control zones and altitude restrictions.

2. The competent authority (Member State) may issue operational restrictions for recreational and sports model aircraft activities that are exempted from the scope of this Regulation, including through agreements with model clubs or associations, on the basis of the model club's or association's established procedures, organisational structure, and management system.

Annex: Summary of Proposed categorisation and applicable rules

UAS subcategory	UAS class	MTOM/ Joule (J)	Distance from people	Maximum height of the operation	Remote-pilot competence	Age of the remote pilot	Main technical requirements (CE marking)	UAS registration	Electronic identification, geofencing
A1 Fly over people	Privately built C0	< 250 g	Fly over uninvolved people (not over assemblies of people)	< 50 m	Leaflet	No limitation	N/a Directive 2009/48/EC, no sharp edges, awareness leaflet	No, if without camera of > 5 MP or an audio sensor	No
	C1	< 80 J or 900 g		< 120 m or up to 50 m above a higher obstacle, at the request of the owner of the object	Leaflet plus online training with a test	14 years or with supervisor	Kinetic energy, no sharp edges, selectable height limit, awareness leaflet	Only for operator	If required by the zone of operations
A2 Fly close to people	C2	900 g to 4 kg	Fly intentionally in proximity to but at a safe distance from uninvolved people (> 20 m for rotary-wing UAS or > 50 m for fixed-wing UAS)	< 120 m or up to 50 m above a higher obstacle, at the request of the owner of the object	Leaflet plus CoC (theoretical qualification) and exam in an approved centre	16 years or with supervisor	Mechanical strength, lost-link management, selectable height limit, awareness leaflet	Operator and UA	Yes
A3 Fly far from people	C3	< 25 kg	Fly in an area where it is reasonably expected that no uninvolved person will be present	< 120 m or up to 50 m above a higher obstacle, at the request of the owner of the object	Leaflet plus online training with a test	16 years or with supervisor	Lost-link management, selectable. height limit, awareness leaflet	Operator and UA	If required by the zone of operations
	C4		In addition to the above, keep a safety distance from the boundaries of congested areas of cities, towns or settlements, or aerodromes				Operational. Instructions, awareness leaflet		
	Privately built						N/a		