b) Maximum height above ground for flight

On dedicated sites declared to the NAA, a volume for flight is defined with a maximum height above ground flight taking in account the eventual local airspace limitations. This height may be above 150 meters (500 ft) when it is possible and justified by the aeromodelling activity practised on the site for example for aerobatics or glider activities.

In any case, outside dedicated sites, there is no reason to introduce for the aeromodelling activities a more restrictive maximum height above ground (for example 50 meters), except in the forbidden and restricted zones published on the aeronautical information (AIP).

c) Minimum age

There is no minimum age imposed by CIAM to practise aeromodelling. Junior classes are defined such as junior events especially for the FAI World Championships.

Note: A competitor is considered to be a junior up to and including the calendar year in which he attains the age of 18. All other competitors are classed as senior.

If something must be defined regarding age limitation for aeromodelling, it can be specified that a model flyer under 12 may not fly alone and must accompanied by a senior as helper.

Note: This minimum age may be eventually fixed up at 14 which is the age proposed for subcategories A1 to A3 in Open Category.

d) Security & Data Protection

Such limitations are not justified when the flight is done on a dedicated site which has been authorized (permanently or temporarily) by the concerned NAA.

Registration of the model flyer combined with electronic identification of the model aircraft may be considered when flight is done outside such a dedicated site. In that case, it is recommended to limit those requirements to the use of model aircraft above 1 kg.

Regarding geo-limitations, such as for example geo-fencing, there is no need to apply it to model aircraft except for drone model aircraft. Furthermore and as emphasized by the EASA task force 'geo-limitations', the technology involved in conventional model aircraft would not make it feasible to implement automatic geo-limitation functions.

So, geo-limitations requirements must be restricted to the drone' model aircraft as defined in paragraph 5 of the present document.

e) Model flyer competence

Regarding learning of aeromodelling flight, it may be assumed that it is done appropriately in any aeromodelling or association.

A minimum level of flight competence may be required from those who fly a model aircraft without being licensed in an official aeromodelling federation (or member of another aeromodelling association recognised by the NAA). Such a requirement may be eventually limited to use of model aircraft above a minimum mass such as for example 1 kg.

In order to increase awareness amongst model flyers community how to operate model aircraft safely and in compliance with the airspace rules, a basic formation covering the following aspects may be required: airspace rules, aeromodelling regulation, safety, privacy law. Such a formation may be simple and accessible easily and for free on Internet.

That means the Open Category which is now focused on consumer / prosumer products sold in retails shop or on Internet is not appropriate for the aeromodelling activities, such as for example requirement of a CE (*Conformité Européenne*) marking on the model aircraft. Furthermore, the actual sub-categories defined in the Open Category and especially application of the injury criteria AIS are not adapted and too sophisticated for aeromodelling.

Recommendation 7 - *Delete from Open Category any possible application to model aircraft, such as the privately built ones in subcategory A0.*

So, the only logical place for aeromodelling to fit within an EASA regulation for UA operations is the Specific Category. EASA have indicated its intention to 'grandfather' the existing aeromodelling activities under the current conditions and limitations and that any concessions for aeromodelling have to be incorporated through article 15 and.

It is acknowledged that EASA has made a genuine attempt to introduce some flexibility within this article to allow the national aviation authorities (NAA) to permit continuation of established aeromodelling activities with minimum impact through a simplified authorization procedure.

However, the term ‘transitional’ has been interpreted as indicating that the provisions would be temporary rather than enduring.

The Explanatory Note mentions page 8 that the reference to associations or clubs have been made because they have a structure, procedures and safety culture that created good safety record, which means that individual hobbyist should either comply with the rules or join an association or club.

As written now, the article 15 does not give sufficient reassurance. As a matter of fact, the prototype rule seems to offer ‘grand-father’ rights to activities conducted only on dedicated sites under the umbrella of an association, federation or club recognised by the NAA. But, it is also necessary to take into account model flyers affiliated to a federation or an association when they fly on a site not declared. Such users should also benefit from ‘grand-father’ rights eventually under certain conditions. It must be consider that it is difficult, taking into account the specificities of some aeromodelling activities with for example R/C slope soaring gliders, to declare all the sites to be used.

Further, article 15 only permits aeromodelling to benefit from deviations to subpart B of annex 1. It is therefore assumed that all other elements apply which would by default impose unnecessary and disproportionate marked regulations and product specifications. In note 2 at the bottom of page 8 of the Explanatory Note, it is acknowledged that the appendices may be difficult to comply with by mass produced 'model aircraft’, but it is also possible to argue that they would be difficult to comply with by any model aircraft. Therefore, it is necessary to define a mechanism to either remove model aircraft from these requirements entirely or introduce some additional flexibility into article 15 to allow the Competent Authority to determine which (if any) elements should apply.

So, wording of article 15, combined if necessary with an amendment of article 14, must be completely reconsidered in order to correctly take in account sportive and recreational activities with UA and especially aeromodelling activities; to fully enable this, an amendment to article 14 would probably also be required.

Note: The wording of article 15 as suggested in the 'EAS & FAI Respond to EASA Rules for UAS' document may be taken in consideration.

Recommendation 8 - *Adress aeromodelling activities (and model aircraft) in a dedicated article in Specific Category of the EASA regulation for UA operations.*

7- Other requirements

a) Maximum mass of the model aircraft

The maximum flying mass of a model aircraft is 25 kg for competition activities as specified in CIAM rules,

In most of the countries, flight of model aircraft above 25 kg (20 kg in some countries) is allowed especially for aishows, and so in presence of public, under a specific regulation.

According to the different practises of the concerned countries, it is appropriate to define an EASA safety assessment process for aircraft above 25 kg (and under 150 kg), with control by the NAA of the model aircraft design with structural test and delivery of a specific flight authorisation for the tandem aircraft and model flyer.

So, Free Flight activity needs a specific consideration in the EASA regulation for UA operations according to its nature and negligible risk to damage a manned aicraft or injure a person on the ground.

Control line model aircraft may be considered as 'tethered' and are flown on dedicated places with marked circles without any risk to damage a manned aircraft or to seriously injure a person on the ground.

Recommendation 4 - *Exempt Free Flight and Control Line activities of any requirement or limitation in the EASA regulation for UA operations.*

4- Aeromodelling definition

FAI suggests to only considering as aeromodelling the sportive and recreational activities realised with:

- R/C model aircraft requiring a direct visual contact with the model flyer to be controlled; ***or***
- R/C model aircraft of a mass lower 2 kg flying without direct visual contact with the model flyer and at a maximal distance of 500 meters from the model flyer and a maximum altitude of 50 meters (150 ft); ***or***
- model aircraft not R/C of a mass lower 1 kg which, after launching, flies autonomously by following the movements of the atmosphere

Note: Second subparagraph covers FPV drone racing activity and the third one covers Free Flight activity.

5- 'Drone' model aircraft

R/C model aircraft must be within visual line of sight (VLOS) for its whole flight. VLOS is considered to be satisfied when a direct unaided visual contact for the control of the model aircraft is assumed.

Note: For FPV flight, an 'helper' may be required to guarantee VLOS of the drone model and safety by informing the model flyer in case of any problem or by taking the direct control if necessary.

On a conventional R/C model aircraft, the model flyer directly actions with his radio-control system the control surfaces of the model aircraft. So, to keep the control of the model aircraft, the model flyer is obliged to have always the direct visual contact with the model if he wants to maintain its control. That guarantees the respect of VLOS of the model and so considerably minimizes the occurrences of problems.

In recent years, the advent of 'drones' has created new problems because these aircraft have functionality and performance capability not found in conventional model aircraft.

'Drone' is mainly associated to multi-rotor … but fixed wing aircraft arrive on the market with equivalent performances and possibly more risk of problems. It is not the configuration (multi-rotor or fixed wing) which is the cause of the problems but the on-board equipment.

As a matter of fact, when the R/C model aircraft is equipped with a flight stabilisation or an automatic flight control system combined with on-board sensors and electronic devices (calculator, gyro sensor, altimeter, telemetry, GPS, video camera, ...), it is then possible to operate it out of VLOS without losing its control. A R/C model aircraft may be considered as a 'drone' when it is equipped with a flight and/or navigation on-board assistance system.

So, it is technically possible to differentiate a 'drone' model aircraft from another R/C model aircraft.

Recommendation 5 - *Define a ' drone model aircraft' as a model aircraft equipped with a (technical/electronic) system that enables a stable and controlled fight without the necessity of a pilot having direct view on the model aircraft to control it.*

6- General considerations about regulation for aeromodelling

The most effective way of ensuring that aeromodelling are not caught up within disproportionate regulations intended by drone model aircraft, would be to define them so that aeromodelling could then be removed from the EASA regulation for UA operations, in a similar way to the situation with FAA in USA.

Recommendation 6 - *On the basis of a definition of 'aeromodelling' and 'R/C drone model aircraft', remove from the EASA regulation for UA operations aeromodelling activities realised with model aircraft other than drone model aircraft.*

If finally this recommendation is not retained by EASA, then it is necessary to reconsider how to take in account in an appropriate manner aeromodelling (and R/C model aircraft) for the EASA regulation for UA operations.

Most of the conventional model aircraft are privately built (or assembled) and needs expertise and flight competence.

Recommendation 1 - *Mention that space models are not concerned by the EASA regulation for UA operations.*

Recommendation 2 - *Consider a model aircraft as an unmanned aircraft of limited dimensions, with or without a propulsion device, used for sportive or recreational activities.*

3- FAI specifications and characteristics of a model aircraft

General specifications of a model aircraft are defined by FAI/CIAM as follows:

a) A model aircraft is an aircraft of limited dimensions, with or without a propulsion device, not able to carry a human being and to be used for contest, sport or recreational purposes.

b) For the whole flight, a radio-controlled model aircraft must be within visual line of sight (VLOS) of the person who directly assumes its control or who is in a situation to take the direct control at any moment, including if the model is being flown automatically to a selected location.

Note: VLOS is normally assumed by the model flyer. For FPV Racing, an 'helper' to the model flyer is mandatory to guarantee VLOS of the model aircraft and inform immediately the pilot of any problem such as an exit of the flight circuit.

c) For control line model aircraft, the flier must physically hold the control line handle and control the model aircraft himself.

d) Free flight model aircraft must be launched by the flier, and must not be equipped with any device that allows them to be flown automatically to a selected location or controlled remotely during the flight other than to stop the motor and/or to terminate the flight.

In any case, regulations applicable to air law, air traffic and control in the respective countries take precedence.

Note: aircraft is defined by FAI as a vehicle that can be sustained in the atmosphere by forces exerted on it by the air and states that there are two types of aircraft:

- Aerodyne defined as an heavier-than-air aircraft which derives its lift in flight mainly from aerodynamic forces.
- Aerostat defined as an aircraft lighter than air.

According to CIAM rules the maximum flying mass of a model aircraft must be **25 kg.** Unless specified otherwise in the rules for a particular class or in the records rules, model aircraft shall also meet the following general specifications:

Maximum surface area ..... 500 dm^2
Maximum loading ..... 250 g/dm^2
Maximum swept volume of piston motor(s) ..... 250 cm^3
Electric Motors power source max. no load voltage ..... 72 volts
Maximum total thrust of turbines ..... 25 kg (250 Newton)

Model aircraft classes are organised in three disciplines:

a) **Free Flight** - The model aircraft is hand launched and then there is no physical connection between the model aircraft and the competitor or his helper during the flight. Closed loop control systems with active sensors and operating aerodynamic flight controls or moving mass are not allowed.

b) **Control Line** - All flight control of the model is accomplished via a physical connection to the pilot through one or more inextensible wires or cables directly connected to the model aircraft.

The control wires or cables must be attached to a hand held device (control handle) with a safety strap connecting the competitor's wrist to the control handle used during the flight.

Note: the model aircraft is at a very limited distance from the model flyer which is the length of the control wires or cables (from about 15 to 25 meters depending of the size of the model aircraft).

c) **Radio Control** (R/C) - The model aircraft is manoeuvred by control surface(s) in attitude, direction and altitude by the flier on the ground using radio control.

Recommendation 3 - *Exclude aeromodelling indoor activities from the EASA regulation for UA operations.*

A Free Flight model aircraft fly autonomous after it has been hand launched but pose a negligible risk to damage a manned aircraft regarding its low mass (less than 1 kg), speed and flight altitude. Such a model aircraft can be assimilated to a bird. In addition, such a model aircraft cannot be flown alone without a sufficient level of competence.

Lausanne, 8 November 2016

'Prototype' Commission Regulation for Unmanned Aircraft Operations
FAI considerations for model aircraft and aeromodelling

At that stage, the main concern for FAI on the EASA prototype regulation is the impact on model flying activities. This concern has been raised by the model flying community that the proposed rules does not meet their needs and could result in demanding and inappropriate technical requirements being imposed.

The prototype regulation is written to provide a regulatory framework for the rapidly developing area of 'drone' operation (at this time principally multi-rotor aircraft). Unfortunately, 'drones' and model aircraft share the same legal definition as 'unmanned aircraft' (UA) which means that the proposed regulations also capture model flying.

It seems now clearly admitted that experience shows that model aircraft have a good safety record due particularly to organisation in associations and clubs with a safety culture.

Aeromodelling activities require simple regulation easily understandable by any model flyer. If finally the regulation is not adequate and not proportionate, that will make it more difficult to enforce and will potentially render it worthless.

The present document provides concrete proposals on how the prototype regulation could be amended to better reflect the needs of model flyers especially through article 15.

1- About FAI

The Fédération Aéronautique Internationale (FAI) is the World Air Sports Federation. FAI was founded in 1905 and is located in Lausanne.

FAI is an international, non-profit-making, non-governmental organization with the main aim to develop throughout the world of sport aviation and astronautical activities.

The current FAI Statutes describe in detail its specific objectives:

- Make evident the essentially international spirit of aeronautics as a powerful instrument for bringing all people closer in mutual understanding and friendship regardless of political, racial or religious considerations, thereby helping to create international good will and thus build a better and more peaceful world.
- Bring together the air sports men and women of the world in international competition.
- Educate young people through sport in a spirit of mutual understanding and friendship.
- Coordinate its Members' separate efforts to further aeronautics and astronautics throughout the world.
- Protect and safeguard the interests of its Members in the use of air space.
- Provide a forum for the exchange of information and discussion of mutual problems with other elements of civil aeronautics.

To fulfil these objectives FAI is structured with air sport commissions (ASC) to cover activities of all air sport disciplines and with technical commissions.

2- FAI classes relative to unmanned aircraft

Two FAI classes are directly concerned by the 'Prototype' Commission Regulation for UA Operations:

a) **Class F** relative to Model Aircraft defined as an aircraft of limited dimensions, with or without a propulsion device, not able to carry a human being and to be used for competition, sport or recreational purposes.

b) **Class U** relative to Unmanned Aerial Vehicle (UAV) defined as an aerodyne with means of propulsion that does not carry a human, and which is designed for scientific research, commercial, governmental or military purposes.

Those two classes are mainly differentiated by the use which is done of the unmanned aircraft.

Another FAI class is also relative to vehicle unable to carry a human being. It is the class S relative to Space Model defined as a spacecraft or aerospacecraft of limited dimensions and limited payload-carrying capability unable to carry a human being or commercial payloads.

Those three classes are governed within FAI by CIAM (Commission Internationale d'Aéromodélisme).