



*Fédération
Aéronautique
Internationale*

Minutes

Issue 1

of the **e-Plenary Meeting** of the
FAI Aeromodelling Commission

held via **Zoom conference Call Application**
on **8th May 2021**

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MINUTES

CIAM e-PLenary MEETING 2021

held via Zoom Conference Call Application
on Saturday 8 May 2021, at 13:00

Present:

In the chair: Mr Antonis Papadopoulos (Greece)

Mr Bruno Delor (France)
Mr Narve Jensen (Norway)
Mr Andras Ree (Hungary)
Mr Massimo Semoli (Germany)
Mr Kevin Dodd (Australia)
Mr Ian Kaynes (United Kingdom)
Mr Vernon Hunt (United Kingdom)
Mr Peter Uhlig (Germany)

Mr Tomas Bartovsky (Czech Republic)

Mr Stefan Wolf (Germany)
Mr Rob Metkemeijer (Netherlands)

Mr Pal Linden Anthonisen (Norway)

Mr Emil Giezendanner (Switzerland)

Mr Johannes Eissing (Germany)
Mr Zoran Pelagic (Slovakia)

Mr Per Findahl (Sweden)

President of CIAM

1st Vice-President / Delegate
2nd Vice-President / Delegate
3rd Vice-President / Treasurer / Delegate
Secretary
Technical Secretary
F1 Sub-Committee Chairman
F2 Sub-Committee Chairman
F3 Aerobatics Sub-Committee Chairman / Delegate
F3 Soaring Sub-Committee Chairman / Delegate
F3 Helicopters Sub-Committee Chairman
F3 Pylon Sub-Committee Chairman / Alternate Delegate
F4 Sub-Committee Chairman / Alternate Delegate
F5 Sub-Committee Chairman / Alternate Delegate
F7 Sub-Committee Chairman
Space Models Sub-Committee Chairman / Alternate Delegate
Education Sub-Committee Chairman

Last Name	First Name	NAC	Function
Dodd	Tyson	AUS	Delegate
Hoff	Martin	AUT	Delegate
Lex	Manfred	AUT	Alt. Delegate
Halleux	Paulette	BEL	Alt. Delegate
Herzog	Robert	BEL	Delegate
Lazarkov	Sotir	BUL	Delegate
Ells	Harry	CAN	Delegate
Zapata	Arturo	COL	Delegate
Charalambous	George	CYP	Delegate
Bartovsky	Tomas	CZE + CIAM BUREAU	Delegate
Christensen	Erik	DEN	Delegate
Aymat	Carles	ESP	Delegate
Leomar	Priit	EST	Delegate
Valo	Jari	FIN	Delegate
Delor	Bruno	FRA + CIAM BUREAU	Delegate

Fisher	Julie	GBR	Delegate
Schwendemann	Bernhard	GER	Alt. Delegate
Uhlig	Peter	GER + CIAM BUREAU	Delegate
Ioannidis	Constantine	GRE	Delegate
Leontaritis	Christos	GRE	Observer
Spiriadis	Kostas	GRE	Observer
Reé	András	HUN + CIAM BUREAU	Delegate
Mane	Virendra	IND	Delegate
Dible	Joe	IRL	Delegate
Chester	Shlomi	ISR	Observer
Leshed	Amram	ISR	Delegate
Rozi	Yair	ISR	Observer
Condello	LILLO	ITA	Delegate
Koyama	Shuzo	JPN	Observer
Ueyama	Kenichi	JPN	Delegate
Hangsik	KIM	KOR	Delegate
Zukauskas	Nerijus	LIT	Delegate
Mattiussi	Ernest	LUX	Delegate
Luvsanchultem	Byambajav	MGL	Delegate
Todoroski	Zdravko	MKD	Delegate
Keim	Peter	NED	Delegate
Jensen	Narve	NOR + CIAM BUREAU	Delegate
Sorensen	Tom Erik	NOR	Observer
Wurts	Joseph	NZL	Delegate
Dominiak	Marek	POL	Delegate
Fernandes	Emanuel	POR	Delegate
Dumitru	Ioana	ROM	Delegate
Skinner	Bob	RSA + CIAM President of Honor	
Ezhov	Alexey	RUS	Delegate
Cuden	Joze	SLO	Delegate
Jevtic	Dragan	SRB	Observer
Pelagic	Srdjan	SRB	Delegate
Giezendanner	Emil Ch.	SUI + CIAM BUREAU	Alt. Delegate
Stoll	Hans	SUI	Observer
Yeginsoy	Faruk	SUI	Delegate
Drmla	Jakub	SVK	Delegate
Findahl	Per	SWE + CIAM Bureau	Delegate
Lindgren	Bengt	SWE	Alt. Delegate
Arslan	MEHMET	TUR	Delegate
Duffy	James	USA	Observer
Hanson	Richard	USA	Alt. Delegate
Jesky	Tim	USA	Delegate
Langford	John	USA	Observer
Lee	Bill	USA	Observer

The new FAI President, David Monks, elected at the FAI GC in December 2020, was present at the meeting and he introduced himself.

A helicopter pilot, he won a silver medal during championships in Germany and Russia.

He has been both a delegate and the Secretary of the UK NAC. In 2018 he represented the Helicopter commission in Egypt.

Now, as FAI President, he is focused on improving the financial situation of the FAI organisation. He expressed appreciation of the FAI team and optimism for the future.

1. PLENARY MEETING SCHEDULE AND TECHNICAL MEETINGS

Due to the Covid-19 situation, and after confirmation at the 2020 CIAM December Bureau Meeting by the relevant Subcommittee Chairmen, the following technical meetings were held: F1, F3A, F3 Soaring, F3CN, F3DE, F9, Space Models and Education. The F5 technical meeting was cancelled.

The written reports are filed in the FAI website <https://www.fai.org/ciamplenary2021> .

The Technical Meetings were held via Zoom Conference Call Application before the CIAM Plenary session with the following schedule. One additional session was held related to the CIAM General Rules with discussion and vote.

Technical Meetings			
F3 RC Aerobatics	April 10	Saturday	13:00 CEST
F3 RC Pylon Racing	April 10	Saturday	21:30 CEST
F3 RC Helicopters	April 11	Sunday	13:00 CEST
F3 RC Soaring	April 17	Saturday	13:00 CEST
F1 Free Flight	April 17	Saturday	19:30 CEST
F9 Drone Sport	April 10	Saturday	10:00 CEST
SM Space Models	April 11	Sunday	9:30 CEST
Education	March 27	Saturday	9:30 CEST
CIAM General Rules	April 18	Sunday	13:00 CEST
F5 Scale Models	Cancelled		

2. DECLARATION OF CONFLICTS OF INTEREST

Mr Barrie Lever, the new F3 RC Pylon Racing Subcommittee Chairman, mentioned that he sells engines for the Pylon Racing competitions. It was not considered a conflict of interest.

No Delegates declared any potential conflicts of interest to the FAI.

3. PRESENTATION IN MEMORIAM

A minute's silence was observed in honour of distinguished aeromodellers who passed away recently: Mr Grzegorz DATA - Poland, Mr Marin GEORGIEV – Bulgaria, Mr Stefan GERENCER – Slovakia, Alex GOOSSENS – Belgium, Mr Andrzej KIEPSCH – Poland, Mr Valeriy KRAMARENKO – Ukraine, Mr Antoni OPOCZKA – Poland, Mr Viktor ROZHKOVA – Russia, Mr Tadeusz WISNIOWSKI – Poland, Mr Michal WOJCIK - Poland.

4. MINUTES OF THE APRIL 2020 BUREAU & PLENARY MEETINGS, AND OF THE DECEMBER 2019 BUREAU MEETING

4.1. 2020 Bureau e-meetings

Several Bureau e-meetings were held during 2020 owing to the Covid-19 situation. The relevant decisions were notified to the delegates during the year and at the 2020 Plenary and will be included as interim decisions to the Bureau Meeting minutes.

4.2. **2020 e-Plenary**

- 4.2.1. There were no corrections.
- 4.2.2. The Minutes of the 2020 Plenary meeting were approved unanimously.
- 4.2.3. There were no Matters Arising.

4.3. **2020 December e-Bureau Meeting**

- 4.3.1. There were no corrections
- 4.3.2. The Minutes of the 2020 December Bureau meeting were approved unanimously.
- 4.3.3. There were no Matters Arising.

5. **APRIL 2021 BUREAU MEETING DECISIONS**

The decisions of the April 2021 Bureau e-meeting, were notified and discussed during the Plenary meeting.

6. **NOMINATION AND ELECTION OF SUBCOMMITTEE CHAIRMEN**

6.1. **Subcommittee Chairmen to be elected**

The nomination process took place electronically with notification to the FAI office by the authorized delegates.

The results were distributed by the FAI office on the 25th of April 2021.

The Subcommittee Chairmen elected are shown in bold text.

F1 Free Flight	Mr Ian Kaynes
F3 RC Aerobatics	Mr Peter Uhlig
F3 RC Soaring	Mr Tomas Bartovsky
F3 RC Helicopter	Mr Stefan Wolf
F3 RC Pylon Racing	Mr Barrie Lever (new Chairman)

The CIAM President thanked Mr Rob Metkemeijer for his valuable contribution as Pylon Racing Subcommittee Chairman and for the huge improvements he made to the category.

The CIAM President welcomed Mr Barrie Lever, with the best wishes from FAI and for the good ideas he is going to implement.

6.2. **Subcommittee Chairmen to be confirmed**

F2 Control Line	Mr Vernon Hunt , confirmed in post
F3U FPV	Mr Bruno Delor , confirmed in post
F4 RC Scale	Mr Pal Linden Anthonisen , confirmed in post
F5 RC Electric	Mr Emil Giezendanner , confirmed in post
F7 RC Aerostats	Mr Johannes Eissing , confirmed in post
S Space Models	Mr Zoran Pelagic , confirmed in post
Education	Mr Per Findahl , confirmed in post

7. **REPORTS**

7.1. **2020 FAI General Conference, by the FAI office representative**

The FAI Secretary General Mr Markus Haggenev welcomed the Plenary and presented his report about the general FAI activity during last year.

FAI was financially audited and yesterday ~~it was held~~ the final debrief assessing the auditor's report was held.

New budgeting scheme will support the new FAI financial system.

The situation is difficult due to income stress. ~~and the~~ The FAI personnel ~~was~~ has been reduced to 4.8 persons compared to the 10 persons of two years ago.

The FAI Executive Board is discussing ~~the~~ changes to the Organiser Agreement document as to take into account the Covid-19 situation.

CAT1 events ~~was~~ were cancelled or postponed for all airports.

All International Federations will be affected by CAS decision related to antidoping control methods in Russia.

WADA antidoping organisation will announce soon the way the CAS decision will be implemented and then we will evaluate how this will affect FAI.

The TWG will be held in Alabama (USA) next year in July. The CIAM President and Mr Delor are discussing the organisation with AMA. Two airport disciplines will be considered: Drone Racing (CIAM) and Canopy Piloting (ISC).

The next General Conference will be held electronically from 9th to 11th November.

7.2. **CIAM Bureau report on its activity since the last Plenary, by CIAM President, Antonis Papadopoulos (annex 9)**

The CIAM President presented his report about the FAI, CASI and CIAM activity during last year.

CASI Plenary meeting was organized by electronic means during the FAI General Conference period. Two new projects were decided. Revision of the Sporting Code General Section and Disciplinary procedures.

The management of ~~the~~ two appeals is in progress. It is not involving CIAM.

During the General Conference a new FAI President and a new FAI Executive Board were elected.

Financial issues occurred last year with discussion with all the commissions ~~for~~ aimed at finding a solution.

- CIAM Bureau activity

It has been difficult to manage competition activity, resulting in the stop of all ~~the~~ competition events. The situation should be improved at the end of this year due to vaccination campaigns.

The CAT 2 events for 2021 are suspended until July 1st.

The use of the Calendar Application will start soon enabling electronic registration of events and ~~the~~ payments. Later this year, Nosphere will organise training sessions.

The Belgian delegate pointed out that only the NACs should register events using the application. The CIAM President informed that the application is very flexible and the NACs can decide how they want to manage event registration. However, he took a note of the observation.

The Zoom tool is used extensively for the meetings. The F3 Aerobatics subcommittee chairman will organise a training session for the judges using [Zoom](#).

In December an application will be launched regarding CIAM history with a register of all the events results from 1954. The application will be used by the other commissions. CIAM has the highest number of events.

The CIAM President thanked the FAI President, the FAI Staff, the General Secretary and the FAI EB for their support.

The Aeroclub of Israel CEO commented in writing about the possibility of holding CAT1 championships even under the Covid-19 situation. CIAM President commented that as Bureau we are considering all the available options but mainly, we are looking to host events similar to what was the status before the pandemic and considering the difficulties existing in many countries with travelling.

The CIAM President pointed out that the EDIC group will continue to work on managing the development of the tools used during the CIAM competition events.

7.3. 2020 Sporting Code Section 4: CIAM Technical Secretary, Mr Kevin Dodd (ANNEX 3 and 10)

The CIAM Technical Secretary report is available.

The CIAM President thanked him for the excellent work done.

7.4. 2020 Subcommittee Chairmen (ANNEX 3)

- 7.4.1. Free Flight: Ian Kaynes
Written report at Annex 3a.
- 7.4.2. Control Line: Vernon Hunt
Written report at Annex 3b.
- 7.4.3. RC Aerobatics: Peter Uhlig
Written report at Annex 3c.
- 7.4.4. RC Gliders: Tomas Bartovsky
Written report at Annex 3d.
- 7.4.5. RC Helicopters: Stefan Wolf
Written report at Annex 3e.
- 7.4.6. RC Pylon: Rob Metkemeijer
Written report at Annex 3f.
- 7.4.7. RC Scale: Pal Linden Anthonisen
Written report at Annex 3g.
- 7.4.8. RC Electric: Emil Giezendanner
Written report at Annex 3h.
- 7.4.9. Aerostats: Johannes Eissing
No report was prepared.
- 7.4.10. Drone Sport: Bruno Delor
Written report at Annex 3i.
- 7.4.11. Space Models: Zoran Pelagic
Written report at Annex 3k.
- 7.4.12. Education: Per Findahl
Written report at Annex 3l.

The CIAM President thanked all the organisers and for their cooperation when all the decisions were unanimously taken.

The CIAM President pointed out his support of the very good idea coming from the Education Subcommittee chairman Per Findahl. The Rookies Project (annex 13), a worldwide project for young pilots, uses an aircraft that is robust and easy to build. The CIAM President asked the meeting to promote the project and it will have a snowball effect. He mentioned the interest for youngsters of the Rocketry Association with John Langford, suggesting a cooperation with Per Findahl.

John Langford, present at the meeting, concurred with the excellent idea looking forward to a this cooperation.

7.5. 2020 Trophy Report, by CIAM Secretary, Massimo Semoli (ANNEX 5)

Three new trophies were registered. No competition events were held and no trophy was awarded for 2020.

7.6. Aeromodelling Fund- Budget 2021, by the Treasurer, Andras Ree (ANNEX 3n and 11)

There is an updated written report at Annex 3n. The Treasurer explained his report with the aid of a PowerPoint presentation.

The CIAM treasurer explained the event occurred in December 2018 when the CIAM bank account balance passed from 60.000 Euro to 7280 Euro.

From 2013 to 2017 were no difference between special reserve and bank account balance.

The incomes are mainly due to the sanction fees.

The CIAM treasurer asked some info about the FAI special reserve.

The FAI General Secretary pointed out that the new financial system cannot be used for defining such figures and that the Special Reserve and the bank account balance cannot be compared.

He showed a chart where the special reserve for CIAM is 104.424 euros in 2019. In fact, he pointed out that the bank account has nothing to rely with the special reserve.

The CIAM results are all years showed and audited. Now the balance is 107.700.

Mr Delor asked if the amount in the special reserve is available for being spent.

The FAI General Secretary explained that the FAI capital is used for the salaries, the budget, etc. The Special reserve is the accumulated amount from CIAM activities but not all of the time it is available in cash.

Mr Delor appreciated that the FAI General Secretary is open and clear.

The FAI President pointed out that Special Reserve approach is not fully understood. In fact, the Commission Special Reserves are not cash reserve but another form of asset. If all commissions should require cash, the situation will be not solvable.

The FAI President and the FAI General Secretary will write a document for clarifying this matter.

The audit report about the FAI financial management is available for consultation.

The CIAM President thanked the FAI President and the FAI General Secretary for the clarification looking forward to avoid similar situations in the future.

The CIAM Treasurer presented the 2021 Budget which was unanimously approved by the Plenary.

7.7. CIAM Flyer, by the Editor, Emil Giezendanner

The CIAM President thanked Mr Emil Giezendanner for his valuable activity and congratulated him for the FAI Bronze Medal he received in 2020.

7.8. EDIC WG report, by Chairman, Manfred Lex

Mr Lex pointed out the good activity performed by the WG in particular for the Space Model category.

8. SCHOLARSHIP SELECTION APPROVAL

Scholarship report, by Per Findahl (ANNEX 3 and 12)

The Scholarship Report is attached at Annex 3p and the presentation at Annex 12. Mr Findahl explained his report with the aid of a PowerPoint presentation and added his encouragement to re-nominate candidates who might be successful the second time.

8.1. Nominations (ANNEX 8)

Three candidates submitted applications for the ninth CIAM scholarship which is worth €2,000. The nomination forms are attached at Annex 8,

Nominees: Kristina IVANOVA (Bulgaria)
Adam KOSZALKA (Poland)
Svetlana SURKOVA (Russia)

The Selection Committee voted to award the ninth CIAM Scholarship to Kristina IVANOVA (Bulgaria). The Bureau recommended Kristina IVANOVA (Bulgaria) for the Scholarship and the Delegates at the Plenary meeting unanimously approved.

Awarded to: Kristina IVANOVA (Bulgaria)

It is the first time that a female was awarded. The CIAM President congratulated her.

9. NOMINATIONS FOR FAI-CIAM AWARDS (ANNEX 6)

Alphonse Penaud Diploma

Nominees: Matthew HOYLAND (GBR)

The meeting was in agreement that this diploma is awarded without vote since there is a single nominee:

Awarded to: Matthew HOYLAND (GBR)

Andrei Tupolev Diploma

- No Candidates

Antonov Diploma

Nominees: Karl-Heinz Helling (GER)

The meeting was in agreement that this diploma is awarded without vote since there is a single nominee:

Awarded to: **Karl-Heinz Helling (GER)**

Frank Ehling Diploma

Nominees: Mike Colling (SWE)

The meeting was in agreement that this diploma is awarded without vote since there is a single nominee:

Awarded to: **Mike Colling (SWE)**

Andrei Tupolev Medal

- No Candidates

FAI Aeromodelling Gold Medal

Nominees: Bogdan WIERZBA (Poland)

The meeting was in agreement that this diploma is awarded without vote since there is a single nominee:

Awarded to: **Bogdan WIERZBA (Poland)**

The CIAM President congratulated the winners and asked the meeting to provide nominate more candidates next years.

ITEM NUMBERS 10, 11, 12, 13 ARE INTENTIONALLY NOT USED

14. SPORTING CODE PROPOSALS

The Sporting Code proposals begin overleaf.

14. SPORTING CODE PROPOSALS

The proposals were discussed at dedicated e-meetings according to the meeting schedule in Item 1.

The voting for the proposals took place electronically from the 1st to the 3rd of May 2021 with notification to the FAI office by the authorized delegates.

The Agenda contains all the proposals received by the FAI Office according to the manner required in rule A.10.

Additions in proposals are shown as **bold, underlined**, deletions as ~~strikethrough~~ and instructions as *italic*.

Bureau proposals appear in the appropriate rule section of item 14.

Each section begins on a new page.

The text of the submitted proposals may have been changed to correct the English grammar or to improve clarity and understanding. Technical Secretary notes should be addressed, if required, at the Technical meetings.

14.1 Volume CIAM General Rules, Section 4A (CIAM Internal Regulations)

a) **A.10.2 Effective date of rule changes** **Bureau**

Amend sub-paragraph h) as shown below:

h) Proposals **shall not be placed on the Plenary Agenda** if they seek to reverse or nullify decisions on topics that have been voted on by Plenary ~~within the previous two years~~ **at the previous applicable Plenary Meeting** ~~shall not be placed on a Plenary Agenda.~~ **Proposals that were withdrawn may be reintroduced.**

Reason: To clarify the rule that was meant to prevent failed proposals being re-introduced or successful proposals being overturned at the very next applicable meeting.

CIAM General Rules Meeting referred this proposal back to the Bureau for further consideration.

b) **A.14 Aeromodelling Scholarship** **Education Subcommittee**

Transferred from 2020 Plenary Meeting, and will be put forward if appropriate (see note below). Amend sub-paragraph A.14 e) as follows:

e) Payment

- i) The FAI will transfer the Scholarship award of ~~2,000~~ **2,500** Euros to the awarded student, or his/her parents or his/her guardians after all valid receipts which justify the full amount of the Scholarship have been submitted.

Reason: To keep the value and status of the scholarship we must follow the changes of value of money over time. The amount of 2,000 Euros has stayed the same since the scholarship was first started and it's quite a few years back in time. So we think 2,500 is a good amount to keep the same status of the Scholarship today as when it started.

Technical Secretary Note: In 2020, this proposal was withdrawn by the Education S/C Chairman and was not included for approval by the Plenary. The reason for withdrawal was because of the current situation with COVID-19 and so many events cancelled or postponed; the CIAM financial situation was not as it was when the proposal was submitted. The delegates attending the meeting unanimously recommended to consider this proposal when appropriate.

CIAM General Rules Meeting unanimously recommended the proposal. The exact date for implementation is to be defined by the CIAM Bureau.

Vote: Approved unanimously by the Plenary Meeting. Effective date to be determined by the CIAM Bureau.

n/a) **A.5.2 Technical Meetings** **Bureau**

Amend the first paragraph with the additions as shown below:

On the first day, **in the case of a physical Plenary Meeting,** there will **may** be

preliminary Technical Meetings held by the Chairmen of the appropriate Subcommittees. **In the case that it is decided to organise Plenary via electronic means, Technical Meetings may be held over a longer period but always before the Plenary Meeting session. The CIAM Bureau may also decide to host these meetings using electronic means, even if the Plenary Meeting is going to happen physically.**

Technical Meetings shall consider items in the Agenda for the purpose of discussion and briefing of all those present and shall, through the Subcommittee Chairman, make their recommendations thereon, together with the recommendations resulting from voting in the Subcommittee proper, to the Plenary Meeting.

Reason: To bring this paragraph up to date with current circumstances.

CIAM General Rules Meeting unanimously recommended the proposal. CIAM Bureau will consider ways to introduce live broadcasting of physical meetings and possible participation through electronic means.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

n/a) A.6.1 Bureau Composition

Bureau

Amend the first paragraph and add a second paragraph, as shown below:

The Bureau is composed of a President, three Vice Presidents, ~~one of whom shall assume the duties of Treasurer,~~ a Secretary, a Technical Secretary, plus the Chairmen of the permanent Subcommittees.

One of the Vice Presidents shall assume the duties of Treasurer. The other two, depending on the circumstances, will assist the President and the Bureau with duties such as coordinator of Subcommittee Chairmen, CIAM annual events coordinator or any other task that is agreed in order to improve the CIAM Bureau performance and effectiveness.

Reason: To bring this paragraph up to date with current circumstances.

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

Volume CIAM General Rules, Section 4B begins overleaf

14.2 Volume CIAM General Rules, Section 4B
(General Specifications for CIAM Classes)

Technical Secretary Note: Proposals received for amendments to B.2.2 – Classification of Space Models, will be dealt with as a consequence of the related Space proposals.

Volume CIAM Records begins overleaf

14.4 Volume CIAM Records

a) 4.5.3 Homologation Requirements (Space Models) Serbia

Amend the section of 4.5.3.1 as shown below:

4.5.3.1. The competition flight card of the submitted record attempt shall be marked, "Record Attempt." ~~Tracking station angular~~ **Record attempt result** data must be entered in ink.

In addition see the following proposal b)

Space Models Technical Meeting and CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

b) Forms: Application for record confirmation – Space Models Serbia

*In this suite of forms, available from the 'Documents' section of the CIAM website, delete pages 4 & 5 (Table V Sheet 1 & 2) and replace with a single page form. Refer to **Agenda Annex 7a: Space Altitude Record Attempt Form**.*

Reason: Electronic altimeters have been used for altitude measurements in space models altitude classes S1, S2 and S5 for last ten years. Triangulation Method is not being used anymore because of slow procedure and limited accuracy of calculated altitudes in comparison with electronic measurements. Therefore it is necessary to change this form in relation with present situation.

Space Models Technical Meeting and CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

c) Forms: Record Dossier Check Form – Space Models Serbia

*In this suite of forms, available from the 'Documents' section of the CIAM website, amend the above form. Refer to **Agenda Annex 7h: Record Dossier Check List**.*

Reason: CIAM Sporting Code 4 was reorganized several years ago. So all paragraphs on aeromodelling and spacemodelling records were moved from Volume ABC Section C and Volume Space Models Chapter 14 to a new Volume CIAM Records. However, reference paragraphs in the Record Dossier Check Form - Space Models were not renumbered and that is necessary to do now to allow interconnection between this form and homologation requirements and homologation data defined in Volume Records, which should be submitted to CIAM for confirmation of records.

Space Models Technical Meeting and CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

Volume Section 12 – Unmanned Aerial Vehicles (UAV) Class U begins overleaf

14.5 Volume Section 12 – Unmanned Aerial Vehicles (UAV) Class U

Technical Secretary Note: Because there may be record attempts in 2021, the Technical Secretary requests early implication of all UAV proposals.

Chapter 1 – Definitions

a) 1.8 Other Definitions Bureau

Add word for additional clarification as follows:

1.8.3 Operator in Command - The individual, **team** or organisation responsible for the function and safety of the UAV in flight.

Reason: Clarification

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/07/21. An updated Volume and Technical Notice will be organised for early implementation.

Chapter 3 – Records in Class U

b) 3.3 Holder of Records Bureau

Add a reference for clarification as follows:

3.3.1 The record will be held by the Operator in Command of the UAV.

Refer 1.8: Other Definitions

1.8.3 Operator in Command – The individual, team or organisation responsible for the function and safety of the UAV in flight.

Reason: Clarification

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/07/21. An updated Volume and Technical Notice will be organised for early implementation.

Chapter 4 – Rules For World Records

Bureau

c) 4.4 Other Rules

Add an additional rule as 4.1 and renumber the following rules accordingly:

4.1 FAI Sporting Licence

4.1.1 At the very least, the FAI Observer, who certifies the application for a World Record, must hold a valid FAI Sporting Licence. A Sporting Licence shall only be considered issued and valid, if the holder is

listed on the FAI Sporting Licence database by the NAC that is issuing the particular Sporting Licence. The holder of the Sporting Licence shall declare this on the certification.

Refer to the FAI Sporting Code General Section Chapter 5 (5.2) for additional requirements for FAI Observer/s and Chapter 7 for additional requirements for setting World Records.

Reason: Clarification

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/07/21. An updated Volume and Technical Notice will be organised for early implementation.

d) Chapter 6 – Record File

Bureau

Amend the location of the form required for the dossier:

6.2.1 Each record file shall contain all flight certificates **and information** necessary to establish full details of the record. The certificate **official form: Record Claim Statement for UAV shall be used and can be downloaded from the Documents section of the CIAM website <http://www.fai.org/ciam-documents>** in Annex 3 of the Sporting Code, Section 2, shall be used.

Reason: Correction and consequential addition for the new form (see below).

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/07/21. An updated Volume and Technical Notice will be organised for early implementation.

e) Form – Record Claim Statement for UAV

Bureau

New form:

Add a new form to the Documents section of the CIAM website to assist groups setting UAV records with their documentation.

The proposed form is shown in **Annex 7j – Record Claim Statement for UAV**

Reason: Necessary addition

CIAM General Rules Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/07/21. An updated Volume and Technical Notice will be organised for early implementation.

Volume F1 – Free Flight begins overleaf

14.6 Section 4 Volume F1 - Free Flight

a) F1.1.2 Provision of Timekeepers

F1 Subcommittee

Add a new sentence to F1.1.2 a) as follows:

- a) In Free Flight events, provide each starting position with two time keepers in Championships. **At Open Internationals each starting position should be provided** ~~or with at least one timekeeper for other contests,~~ **but if the organisers are unable to provide official timekeepers they must announce this in advance in a bulletin.** For fly-offs an additional timekeeper must be provided (i.e. three for Championships, at least two for other contests). All time keepers must have binoculars. Each starting position must be equipped with at least one tripod for supporting binoculars.

F1.2.1 Timekeepers

- b) Competitors may act as timekeepers **for flights of other competitors.**

Reason: This emphasises that organisers should provide at least one time keeper at each starting position. However, some competition organisers do not manage to meet this basic need and it is important that competitors know in advance if there will be no official timekeepers. They can then make a decision in advance of whether to attend the event.

F1 Technical Meeting unanimously recommended the proposal with the amendment to F1.2.1 Timekeepers (b) as shown above.

Vote: Amended proposal was approved unanimously by the Plenary Meeting.
Effective 01/01/22.

b) F1A - Gliders

Netherlands (Switzerland & Germany)

*Amend three paragraphs 3.1.4, 3.1.5, and 3.1.12 which all pertain to the same **safety** issue.*

3.1.4. Definition of an Official Flight

- b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of any of 3.1.5.a, 3.1.5.b, 3.1.5.c, 3.1.5.d, ~~or~~ 3.1.5.e **or 3.1.5.g**, then a zero time is recorded for the flight.

3.1.5. Definition of an Unsuccessful Attempt *(add a new paragraph 'g')*

- g) **The competitor falls during the process of releasing of the model from the cable to the extent that parts of the competitor's body other than the feet come into contact with the ground (jumping allowed).**

3.1.12. Organisation of Launching

- a) The competitor must be **standing, walking or running** on the ground **when releasing the model from the cable** and must operate the launching device himself (jumping allowed).

- b) All freedom of action and movement is permitted to allow the best use of the cable, except throwing of the launching device.
- c) The model must be ~~launched~~ **released to initiate tow** within approximately 5 metres from the starting position marker.

Reason: More and more F1A sportsmen can be seen throwing themselves to the ground when launching their models to generate additional line pull, model speed and therefore altitude of the model to increase flight performance. Tests have shown that line pull can exceed 40 kgf during this stage. The risk of the towline breaking is the highest during this falling down stage as the line pull is highest of all tow phases. This high line pull reduces the impact of the body on the ground. However if the towline breaks and, as one but frequently both hands are holding the towline, the sportsman cannot break the fall with the hands. The head, which is one of the heaviest part of the human body, will hit the ground hard. This may lead to injury like concussion etc., in particular if the head hits a hard object like a stone, rock, dried clay or road, which are commonplace on most of the fields where competitions are flown. Several injuries (head, shoulder, elbow, back) have already been reported by sportsmen. This proposal forces the sportsmen to stand up during the launch, thereby preventing injury. Bonus effects: Since the launch altitude will be reduced by up to 10 metres, flight performance is reduced. No changes in model design are required.



Supporting Evidence:

Allard van Wallene, the author of this proposal, measured the tow line pull during the falling down launch technique in 2-3 m/s wind speeds to be well over 40 kgf by using a spring scale and painters tape as a marker. The scale was attached to the end of the towline.



A picture of Michael Kosonoshkin all padded up (once bitten twice shy?) to avoid injury. As can be seen, both hands are used to pull the towline, which can therefore not be used to break the fall. If the towline would break at this moment, the body is thrown to the ground and the head will hit the ground hard leading to potential injury.



Here Per Findahl from Sweden can be seen in an edited photo showing him shortly before (right side) and shortly after (left side) the release of the towline. A single hand technique is used, however the risk of injury is still present (hand/wrist/elbow/head); in particular when the towline breaks at this moment.

Photos: Malcolm Campbell

Withdrawn by the delegates.

c) F1B: 3.2.8 Classification

F1 Subcommittee

Modify item (c) as shown below. All other items (a, b, d, e) in this paragraph remain unchanged:

- c) The organiser will establish a 7 minute period during which all fly-off competitors must **wind their rubber motor and** launch their model. ~~Competitors may use one rubber motor which was wound before the start of the 7 minute period and may wind additional rubber motors during the period.~~ Within these 7 minutes the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.2.5. Starting positions will be decided by a draw for each fly-off.

Reason: When the flyoff period for F1A F1B F1C was reduced to 7 minutes, F1B flyers were given the option of winding a motor before the start of the 7 minute period. This has been difficult to control and has been open to different interpretations. It is proposed to forbid winding motors before the start of the flyoff rounds, in exactly the same way that winding motors is not allowed before the start of the basic official flights. While this gives a reduced launch period compared to F1A and F1C, there is no relationship between the classes and the rule will be uniform for all F1B flyers.

F1 Subcommittee recommended the proposal by majority vote: For 11, Against 1.

F1 Technical Meeting recommended the proposal by majority vote: For - at least 9 of the 22 delegates, Against - 1.

Vote: Approved by the Plenary Meeting: For 28, Against 3. Effective 01/01/22.

d) F1.3.1, F1.4.1, ANNEX 1, ANNEX 3

Poland

The below changes and the following proposal (e) all relate to the proposal to run first-class events for Juniors in the class F1C instead of in the Junior class, F1P.

F1.3.1 Processing of Free Flight Model Aircraft - Class F1A, F1B, F1C, F1E, ~~F1P~~ ...

- c) Before the start and during the contest, the competitors have the right to have launching cables (F1A) and motors (F1B) and swept volumes of motors (~~F1C~~, and ~~F1P~~) officially checked.

F1.4.1 Team Classification

Team Classification at all Free Flight Championships will be made according to the scheme described in C.15.6.2.a (ii). As a clarification of the application for free flight, the initial classification is based on the score in the regular flights and the next stage is based on the sum of the individual placing of team members (including flyoffs for F1A, F1B, F1C, F1E, ~~F1P~~ or counting more flights in F1D).

3.6 Class F1P Model Aircraft with Piston Motors should be transferred to the Provisional Rules and given number 3.P.

Annex 1. Classes

The following separate classes are recognised for World Cup competition: F1A, F1B, F1C, F1E, F1Q, F1A Junior, F1B Junior, ~~F1P Junior~~ and F1E Junior. 2. Competitors.

All competitors in the specified open international contests are eligible for the World Cup. Only Junior competitors are eligible for the F1A Junior, F1B Junior, F1E Junior and ~~F1P Junior~~ World Cup.

Annex 3.A2.1.....

This guide is applicable to World and Continental Championships in classes F1A, F1B, F1C and for ~~Junior Championships at which F1P is flown in place of F1C.~~ Organisers of Championships should note the administrative advice given in the CIAM General Rules on the organisation of Championships. For organisers of FAI Open International events, appendix A gives changes and comments appropriate to Open Internationals for classes F1A, F1B, F1C, ~~F1P~~ and also F1G, F1H, F1J, F1Q, and F1S.

Annex 3.A2A.2.....

~~Note that under World Cup rules (Volume F1 Annex 1 para1) F1P models may be flown alongside F1C in World Cup Open Internationals. The F1P models are flown to their class rules except that the maximum flight time must be the same as the F1C flights. The F1P results are included with the F1C results for F1C World Cup scoring and also count for F1P Junior World Cup for junior flyers.~~

Reason: Unification and clarification of regulations for juniors competing in the free-flying model class with an internal combustion engine drive. F1P is currently practiced by the juniors only.

The consequence of this proposal is running the first-class events for Free Flight for Juniors in the class F1C instead of F1P. Juniors could compete in more competitions for the Word Cup and develop their skills under the supervision of elders (just like in the other classes).

F1 Subcommittee declined to recommend the proposal by majority vote: For 2, Against 8.

F1 Technical Meeting declined to recommend the proposal by majority vote: For 3, Against 12.

Vote: Rejected by the Plenary Meeting: For 6, Against 19.

e) **F1C: 3.3.2 Characteristics of Model Aircraft with Piston Motor(s)** **Poland**

Make the following addition to the section as shown below as a consequence of the acceptance of the previous proposal:

Maximum duration of motor run: 4 seconds from release of model

Additional requirements for models flown by Juniors:

Gearing between engine shaft and propeller is not allowed.

Variable geometry (e.g. folding wing) and/ or variable airfoil camber (e.g. flaps) is not allowed.

Fuel to a standard formula ... etc.

Reasons:

1. Class F1P does not allow a smooth transition to F1C class (from junior to senior in fact).
2. Class F1P with its technical rules is an archaic one. Result - a small number of juniors compete in competitions especially in EChs and WChs - 16 juniors F1P only (6 countries) in 2018 FAI F1 Junior WChs for Free Flight Model Aircraft.
3. During the course of juniors there is no need to build from a scratch or to invest in other models (just replace an engine and readjust a model) - to increase a number of young players competing.
4. Currently, the clubs and F1C competitors have a large amount of good equipment (shorter tail booms, larger fins), built in the 90s, which is suitable for use by juniors.

F1 Subcommittee declined to recommend the proposal by majority vote: For 2, Against 8.

F1 Technical Meeting declined to recommend the proposal by majority vote: For 3, Against 12.

Vote: Rejected by the Plenary Meeting: For 5, Against 19.

f) **F1D: 3.4.2 Characteristics of Indoor Model Aircraft** **France**

No changes are proposed to the existing section; however an addition at the end of the section is proposed to allow half motor in F1D Open Internationals for Cat1 and Cat 2. The addition is:

For Open Internationals (not Championships) in category 1 (less than 8m) and category 2 (from 8 to 15 m) sites, the organiser may specify that the rubber motor (0,4g) must be replaced by a rubber motor of [maximum weight 0,2g](#) and a spacer (free length but minimum weight 0,2g). This must be announced in advance in the competition bulletin.

The reduced motor and the spacer are to be checked before or after the flight as in F.1.3.2.

Reason: This possibility is already used by all F1D participants for training at World Championships in order to make more test flights during training days.

This reduced motor gives the opportunity to run an FAI contest in one day if the number of participants is low and the flying area large enough (hand-ball gym).

Opportunity to fly FAI events in low ceiling where steering may be done by fishing poles.

The idea is to have many open international events in order to stimulate F1D activity, and later on start an F1D World CUP

F1 Subcommittee recommended the proposal by majority vote: For 7, Against 1.

F1 Technical Meeting recommended the proposal by majority vote: For 9, Against 2.

Vote: Amended proposal was approved by the Plenary Meeting: For 25, Against 2.
Effective 01/01/22.

g) Annex 1 – Rules for Free Flight World Cup **F1 Subcommittee**

Modify item (c) and (e) as shown below. All other items (a, b, c, d, f, g) in Paragraph 4 remain unchanged.

4. Points Allocation

- c) The number of points awarded is 500 for the winner and linearly decreases to zero for the highest place competitor receiving no points. For the competitor in place P this is expressed by:

$$\text{points} = 500 * [1 - (P-1)/H]$$

The points calculated are rounded up to the nearest whole number of points.
Additional points are awarded for the top three places subject to the requirement (b) to be in the top half of the results. Place 1 receives 75 extra points, place 2 receives 50 points and place 3 receives 25 points.

- e) Each competitor awarded placing points is also eligible for one bonus point for each competitor they have beaten in the competition. The number of people beaten by someone in place P is (N-P). ~~The winner is awarded an additional 25% bonus points, that is he receives 1.25*(N-P) points, rounded up to the nearest whole number of points.~~

Reason: The new scoring system introduced evenly graduated points from first place down to half way down the results. In a large competition this results in only a few points difference between the top places. The proposal makes a clearer reward for people placing on the podium of any event.

F1 Subcommittee unanimously recommended the proposal.

F1 Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

h) Annex 1 – Rules for Free Flight World Cup **F1 Subcommittee**

Modify item (a) and (e) as shown below. All other items (b, c, d, f, g) in Paragraph 4 remain unchanged.

- a) The only competitors considered for the calculation of World Cup points are those who completed a flight in the first round of **have recorded a time on at least one official flight during** the competition. The number of these competitors is denoted by N and the place of an individual in this list is denoted by P.

- e) Each competitor awarded placing points is also eligible for one bonus point for each competitor they have beaten in the competition, **but counting only the competitors with a flight time in round one of the competition**. The number of people beaten by someone in place P is (N-P). The winner is awarded an additional 25% bonus points, that is he receives $1.25*(N-P)$ points, rounded up to the nearest whole number of points.

Reason: Originally a limitation was introduced to calculate bonus points counting only the competitors who had flown in the first round. This was to prevent any additional bonus points being accrued if extra competitors were introduced during the competition. The rules were later simplified to count only the competitors who had flown in the first round for the basic points as well as the bonus points.

Using this current system can be considered to penalise competitors who had made no flight in the first round compared to those with a zero score later in the competition. It is proposed to return to the consideration of the score in the first round only for the award of bonus points.

F1 Subcommittee unanimously recommended the proposal.

F1 Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

i) Annex 1 – Rules for Free Flight World Cup France

Additions are proposed for Paragraph 1 and 2.

Technical Secretary Note: *The proposal has been changed to include F1Q Junior which was added in January 2021.*

1. Classes

The following separate classes are recognised for World Cup competition: F1A, F1B, F1C, **F1D**, F1E, F1Q, F1A Junior, F1B Junior, **F1D Junior**, F1P Junior, F1Q Junior and F1E Junior.

2. Competitors

All competitors in the specified open international contests are eligible for the World Cup. Only Junior competitors are eligible for the F1A Junior, F1B Junior, **F1D Junior**, F1E Junior, F1Q Junior and F1P Junior World Cup.

Reason: This proposition suggests creating an F1D and F1D junior world cup based on the same principle as outdoor free flight classes. An indoor free flight world cup could revitalise the category. Not only will the competitors have more occasions to train but they could also challenge foreign flyers. Moreover, it will allow national competitors (not flying in the national team) to take part in an international event and ranking. For instance in France, only half of the F1D flyers take part in the world championships. Such a proposition could motivate them to compete on a worldwide scale.

F1 Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22

j) **Annex 2 – A Guide for the Organisers of FAI Contests in the Outdoor Free Flight Classes** **France**

An additional section is proposed for this Annex; however the Technical Secretary will require guidance on its exact placement, should the proposal be accepted.

Self-timing

The organisers of international competitions counting for the World Cup may use self-timing under the following conditions:

The timing mode must be announced on the entry form.

The organiser must provide an official supervisor for four poles.

The organiser will respect the general rules of organisation in the articles above.

Role and power of the supervisor

The identifiable supervisor must be present at the start line at all times.

His mission will be to supervise the proper conduct of the self-timing of his four poles.

He can time the competitor of his choice unexpectedly and control false starts.

He will have the same powers as the timekeeper cited in the above article.

Reason: This proposal suggests to formalize and frame the self-timing already widely practiced in international competitions counting for the World Cup. Today the majority of international competition organizers can no longer mobilize a sufficient number of timekeepers; they resort to this type of timekeeping. But there is too much disparity between each competition and it would be good to standardize the practices.

F1 Subcommittee declined to support the proposal: For 4, Against 9.

The opinion at the Technical Meeting was to refer this back to the Subcommittee.

Volume F3 Aerobatics begins overleaf

14.7 Section 4C Volume F3 – Aerobatics

F3A – R/C Aerobatic Aircraft

a) 5.1.2 General Characteristics ...

USA

Add a sentence to sub-paragraph b) as shown below:

b) Propulsion device limitations: Any suitable propulsion device may be utilised. Propulsion devices that are not permitted are those requiring solid expendable propellants, gaseous fuels (at room temperature and atmospheric pressure), or liquefied gaseous fuels. **Internal combustion engine displacement shall be limited to 32.7741 cubic centimetres (2.00 Cubic Inches).** Electric powered model aircraft are limited to a maximum of 42.56 volts for the propulsion circuit, measured off load, and prior to flight while the competitor is in the ready box.

Reason: The proposals sets the maximum displacement for internal combustion engines.

F3-Aerobatics Subcommittee declined to recommend this proposal by majority: For 2, Against 18. Proposal was withdrawn by USA.

b) 5.1.2 General Characteristics ...

F3 Aero Subcommittee

Modify sub-paragraph f) as shown below:

f) With the propulsion device running at full power, the measurement will be taken 90 degrees on the right-hand side, with the nose of the model aircraft pointing into the wind. The SLM microphone shall be placed on a stand 30cm above the ground in line with the propulsion device Other than the helper restraining the model aircraft, and the sound steward, no persons or sound/noise reflecting or sound absorbing objects shall be nearer than 3m to the model aircraft or the microphone. The sound/noise measurement shall be made ~~as part of model processing.~~ **only if a majority of the judges consider the in-flight sound level of the model aircraft to be too loud.** Electric powered model aircraft must have installed the same batteries for all model processing procedures. **as during the flight with noise problems. Batteries must be recharged before the noise test.** The sound test area must be located in a position that does not create a safety hazard to any person around. Noise measurements shall not be taken with wind readings taken over 30 sec of more than 5m/s. Gusts shall be avoided. **Noise measurement equipment shall be made available during model processing should a pilot request a noise measurement to confirm that his models are within the regulations.**

Reasons: F3A models are quiet and a general noise measuring is not necessary anymore. The model processing will be simplified. Competitors will have the possibility for a test.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 17, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 30, Against 1. Effective 01/01/22.

c) **5.1.2 General Characteristics ...**

F3 Aero Subcommittee

Modify sub-paragraph g) as shown below:

g) In the event of a model aircraft failing the sound/noise test, indication of the result or the reading shall be given to the competitor, and his team manager, and both the transmitter and the model aircraft shall be impounded by a flight line official immediately following the sound test. The competitor and his equipment shall remain under supervision of the flight line official, while ~~modifications or adjustments may be made and~~ the propulsion battery is fully recharged. The model aircraft shall be re-tested under regular operational conditions within 90 minutes by a second noise steward using a second Sound Level ~~Metre~~ **Meter**, and in the event that the model aircraft fails the re-test, ~~its entire model processing has failed.~~ **the score for the preceding flight will be zeroed. The competitor may proceed in the competition with his reserve model aircraft. Should this model aircraft be considered to be noisy by the judges, the procedure is the same as explained above.**

Reason: Consequence of change in 5.1.2. f).

F3-Aerobatics Subcommittee recommended the proposal by majority: For 17, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

d) **5.1.8 Marking**

F3 Aero Subcommittee

Amend sub-paragraph k) with the deletion and addition of the text as shown:

k) At the conclusion of the flight, each judge must independently consider if the in-flight sound level of the model aircraft is too loud. If a majority of the judges consider the in-flight sound level of the model aircraft to be too loud, ~~then the flight score will be penalised by 10 points for each counting judge on that panel during the flight.~~ **a noise test shall be done according to 5.1.2 f) and 5.1.2 g).** ~~If, during a flight, the sound level of the model aircraft increases perceptibly as a result of an equipment malfunction, or of a condition initiated by the competitor, the flight line director may request a sound re-test and in the event that the model aircraft fails the re-test, the score for the preceding flight shall be zero. For this re-test, both, the transmitter and the model aircraft shall be impounded by a flight line official immediately following the flight. No modification or adjustment to the model aircraft shall be permitted (other than refuelling or battery recharging). The competitor and his equipment shall remain under supervision of the flight line official. The model aircraft shall be re-tested under regular operational conditions within 90 minutes. If an equipment malfunction during the flight (such as mechanical failure of the exhaust/muffler system) causes excessive noise, the flight line director may request the competitor to land his model aircraft, and scoring shall cease from the point of malfunction.~~

Reasons: Consequence of change in 5.1.2. f) and g).

F3-Aerobatics Subcommittee recommended the proposal by majority: For 17, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

e) **5.1.8 Marking** **F3 Aero Subcommittee**

Amend sub-paragraph m) with the deletion and addition of the text as shown:

m) The individual manoeuvre scores given by each judge for each competitor must be made public at the end of each flight of competition. The team manager must be afforded the opportunity to check that the scores on each judge's score document correspond to the tabulated scores (to avoid data capture errors). ~~The A~~ score board/monitor must be located in a prominent position at the flight line, in full view of the competitors and the public. **At World-and Continental Championships a paper copy of the scores of each competitor must be given to their team manager.**

Reason: For team managers, it is easier to have a paper copy to check and analyze scores.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

f) **5.1.8 Marking** **France**

Amend sub-paragraph b) with the deletion and addition of the text as shown:

b) Each manoeuvre may be awarded marks by each of the judges during the flight. Every manoeuvre starts with the mark of 10 points and will be downgraded for each defect during the execution of the manoeuvre in one or multiple 0.5 **1 point** steps, depending on the severity of the defect. The remaining points result in the mark for the manoeuvre. During tabulation, these marks are multiplied by a coefficient (K-Factor) which relates to the difficulty of the manoeuvre.

Reasons: The majority of the members of the Subcommittee F3 Radio Control Aerobatics believed that the use of half-points would better decide between high-level pilots.

During the last 2018 F3A European Championship in BELGIUM and the last F3A World Championship 2019 in Italy, it appears that scoring using half points had an opposite effect than expected by closing the gaps between the top pilots.

It seems to be common sense to go back by scoring with whole numbers.

Technical Secretary Comment: The change from 1 to 0.5 point steps was agreed at Plenary 2017 for introduction in 2018. This proposal to reverse that decision was submitted for the 2019 Agenda but

was withdrawn by France at the Plenary Meeting. The comment remains the same as in 2019; that this proposal will result in substantial changes in Manoeuvre Execution Guide (Annex 5B), which have not been included.

F3-Aerobatics Subcommittee declined to recommend this proposal by majority: For 2, Against 16. Proposal was withdrawn by France.

g) 5.1.9 Classification

France

Add text to sub-paragraph e) as shown below. Refer to **Annex 7g** for the supporting data tables:

e) All scores for each round, preliminary, semi-final and finals, will then be normalized as follows: **When all competitors have** ~~The average score of the top half of competitors~~ flown in front of a particular group of judges (i.e. a round), **the highest score** shall be awarded 1000 points. The remaining scores for that group of judges are normalized to a percentage of the 1000 points in the ratio of actual score over this average score.

$$\text{Points } x = \frac{S_x}{S_w} \times 1000$$

Points x = points awarded to competitor x

S_x = score of competitor x

S_w = score of winner of round.

Reason: During the last 2018 F3A European Championship in BELGIUM and different World Cup or other events, the classification system showed a lot of imperfections, the same that lead the F3C to stop using it during a WC event.

During the 2019 F3A World Championship in ITALY, due to the complexity of this process, the classification after the semi-final was wrong with 9 pilots mis-ranked. The most serious is that because of this one competitor was expelled from the final instead of another.

It is a very serious incident, never seen in a World or Continental Championship, which must not happen again. For this we must return to the traditional 1000 ratio which has proven its effectiveness for many years.

Technical Secretary Comment: This proposal was submitted for the 2019 by France but it was rejected by the Plenary Meeting: For: 11; Against 17. Therefore, this proposal seeks to reverse a decision that was made by Plenary two years ago.

Note 2: Following discussion, this proposal has subsequently been supported by the F3 Aerobatics Subcommittee.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 18, Against 2.

F3-Aerobatics Technical Meeting recommended the proposal with the following comment: *Current normalisation (normalisation introduced since 2018) had unintended consequences and needs to revert back to the traditional normalisation UNTIL a better approach can be devised.*

Vote: Approved by the Plenary Meeting: For 28, Against 3. Effective 01/01/22.

h) 5.1.11 Organisation for R/C Aerobatics Contests F3 Aero Subcommittee

In sub-paragraph e), add the text as shown below.

e) The flight order for the first semi-finals round will also be by random draw. The second semi-finals flight will start $\frac{1}{2}$ way down the semi-finals flight order. **If two flight lines are used for the Preliminary rounds, two flight lines must be used for the semi-finals. The first semi-final round will start at flight line one according to the flight order, the second round at flight line two starting half ($\frac{1}{2}$) way down the semi-finals flight order for round one.**

Reason: Two flight lines are necessary for World Championships, when four panels of judges are used. The semi-final day can be run more smoothly and without time pressure, if the two available flight lines will be used for semi-final, too.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 19, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

i) 5.1.11 Organisation for R/C Aerobatics Contests F3 Aero Subcommittee

Modify sub-paragraph f) as shown below.

f) The flight order for the first round of the finals will be established by a random draw as above. **Team members will be separated by one competitor.**

At World or Continental Championship with 40 and more competitors ~~The the~~ flight order for flights two and three will start **at position 4, and 7** ~~$\frac{1}{3}$ and $\frac{2}{3}$ down~~ the finals flight order ~~with decimals rounded-up.~~

At World or Continental Championship with less than 40 competitors, the flight order for flights two, and three will start at position 3, and 5 down the finals flight order.

Reason: The draw and the flight order for F3A final flights will be better defined.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

j) 5.1.10 Judging F3 Aero Subcommittee

Add the text to sub-paragraphs e) and f) as shown below:

e) For **World or** Continental Championships with 40 or fewer competitors, the organiser must appoint a single panel of five judges, with the same selection criteria as above.

f) For World or Continental Championship with 80 or fewer, but more than 40, competitors two panels of five judges may be used for the preliminary and semi-final rounds, and one panel of ten judges may be used for the final rounds. For a **World or** Continental Championship with 40 or fewer competitors, one panel of five judges may be used for preliminary, semi-final, and final rounds.

Reason: The proposal clarifies the number of judges for a World Championships with 40 competitors and fewer.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

k) Annex 5B Manoeuvre Execution Guide **F3 Aero Subcommittee**

Modify sub-paragraph 5B.8.5, with the deletions and additions as shown below.

Note that the following parts are unchanged: a), b), c), and the final two paragraphs.

5B.8.5. ROLLS

Rolls and part-rolls may be performed as individual manoeuvres, or as parts of other manoeuvres. The following applies to all continuous rolls **(continuous rolling 360 degrees and more)** and part-rolls **(rolling less than 360 degrees)** as well as to consecutive continuous rolls and part-rolls:

d) In all manoeuvres which have more than one continuous roll, the continuous rolls must have the same roll-rate. In all manoeuvres which have more than one part-roll, the part-rolls must have the same roll rate. **Where there are continuous rolls and part-rolls within one manoeuvre, the roll-rate for the part-rolls does not necessarily have to be the same as the roll-rate for the continuous rolls. The roll-rate of the first continuous roll or part roll of a manoeuvre does not define the roll-rate for the remaining continuous rolls or part rolls of a manoeuvre but it is a starting point. As the manoeuvre progresses, the judge will compare the roll-rate of each continuous roll or part roll that was just flown to the roll-rate of the last flown continuous roll or part roll and if there is a difference, then a downgrade will be given based on the severity of the difference. In a manoeuvre with both continuous rolls and part rolls the two types of rolls must be considered separately for roll rate deviations.**

Note: 5B.8.5.d) doesn't apply to integrated rolls and integrated part rolls.

~~Lines between consecutive part-rolls must be short and of equal length. Between consecutive continuous rolls or part-rolls in opposite direction there must be no line. . Where there are continuous rolls and part-rolls within one manoeuvre, the roll-rate for the part-rolls does not necessarily have to be the same as the roll-rate for the continuous rolls.~~

e) Lines between consecutive part-rolls must be short and of equal length. Between consecutive continuous rolls or part-rolls in opposite direction there must be no line.

Reason: Clarification of continuous rolls and part rolls, clarification for judging rolling speed in manoeuvres with more than one roll and more than one part roll.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

I) Annex 5B Manoeuvre Execution Guide **F3 Aero Subcommittee**

Modify sub-paragraph 5B.8.9, by delimiting the existing section as part a), with the additions as shown below. Add a new part b) as shown below:

5B.8.9. ~~HORIZONTAL CIRCLES~~

a) Horizontal Circles and Part Circles

Horizontal circles are performed in a horizontal plane and mostly used as centre manoeuvres. **Horizontal Part Circles are mostly part of a manoeuvre.** They may be positioned at a higher or lower altitude. Horizontal circles **and Part Circles** are mainly judged about the circular flight path, constant altitude of the circle, and by constant rates of roll, and integration of the continuous rolls or part-rolls with the circle, if applicable.

The circular flight path should be maintained throughout the manoeuvre and there must be no deviation in altitude. At low level it may be more difficult for judges to determine the roundness of the circle. The 150m distance requirement is waived for horizontal circles, and a downgrade should only be applied if the far side of the circle exceeds approximately 350m. Deviations from geometry should be downgraded as in loops and using the 1 point per 15 degree rule. **Circles and Part Circles within a manoeuvre must have the same radius. Each occurrence of a minor deviation in radius must be downgraded by 0.5 point, while more severe deviations may downgraded by 1, 1.5, 2 or more points for each occurrence.**

Depending on the distance from the pilot at the entry, horizontal circles may be performed away from, or towards, the pilot and are at the pilot's discretion.

Other horizontal manoeuvres as combinations of horizontal circles or part-circles with lines etc have to be judged accordingly.

b) 45° Plane Circles and 45° Plane Part Circles

45° Plane circles are performed on a 45° plane and mostly used in centre manoeuvres. 45° Plane Part Circles are mostly part of a manoeuvre. They are judged with same criteria as Horizontal Circles and Part Circles. As they are not horizontal they cannot be judged by constant altitude.

Reason: Circles and part circles 45° plane circles and 45° plane part circles needed to be defined. Judging of circles and part circles needed to be clarified.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

m) **Annex 5B Manoeuvre Execution Guide** **F3 Aero Subcommittee**

Modify sub-paragraph 5B.8.10, with the addition as shown below:

5B.8.10. LINE/LOOP/ROLL/HORIZONTAL CIRCLE COMBINATIONS

These are much diversified, but all are combinations of lines, loops, part-loops, continuous rolls, part-rolls, snap-rolls, horizontal circles, and horizontal part-circles, **45° plane circles and 45° plane part circles**. The judging of all these components applies as described above. ...

Reason: 45° plane circles and 45° plane part circles will be implemented in the rule.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

n) **Annex 5B Manoeuvre Execution Guide** **F3 Aero Subcommittee**

Add the new text as 5B.3, as shown; rename old 5B.3 as 5B.4, and delete the old 5B.4 as shown:

5B.3. EXECUTION OF MANOEUVRES

All manoeuvres should be executed with:

Geometrical Accuracy;

Constant Flying Speed;

Correct positioning within the manoeuvring zone;

Size matching to the size of the manoeuvring zone.

5B.34. ACCURATE AND CONSISTENT JUDGING

The most important aspect of consistent judging is for each judge to establish his standard and then maintain that standard throughout the competition.

~~5B.4. **PRINCIPLES**~~

~~The principles of judging the performance of a competitor in an R/C Aerobatic competition is based on the perfection with which the competitor's model aircraft executes the aerobatic manoeuvres as described in Annex 5A. The main principles used to judge the degree of perfection are:~~

- ~~1. Geometrical accuracy of the manoeuvre; (weighting approximately 60%).~~
- ~~2. Smoothness and gracefulness of the manoeuvre; (weighting approximately 20%).~~
- ~~3. Positioning of the manoeuvre within the manoeuvring zone; (weighting approximately 10%).~~
- ~~4. Size of the manoeuvre; (weighting approximately 10%).~~

Reason: Clarification of execution of manoeuvres, deleting percentage of weighting in judging criteria to adapt all criteria to downgrade/deduct system.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 16, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

o) Annex 5B Manoeuvre Execution Guide **F3 Aero Subcommittee**

Modify sub-paragraph 5B.8.4, with the additional text as shown below:

5B.8.4. LOOPS

..., and eight-sided loops, the main criteria are that the loop must have the sides at the same lengths/correct angles for the defined number of times, and all part-loops must have the same radius.

Part loops must have a recognisable radius which must not be too tight (very high G-load) or too loose (a well-defined line between the part loops is not clearly recognisable). If part loops are performed too tight or too loose, up to one point must be deducted.

Reason: Integration of smoothness and gracefulness into downgrade/deduction system.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 16, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

By error, the proposal was omitted from the schedule of proposals for voting. It is apparent from previous and subsequent Plenary voting, that the proposal would have been approved.

p) Annex 5B Manoeuvre Execution Guide **F3 Aero Subcommittee**

Delete the current 5B.9, add the following (bold underlined) heading and text as new 5B.9, as shown below:

~~**5B.9. SMOOTHNESS AND GRACEFULNESS OF THE MANOEUVRE**~~

~~Concerns the harmonic appearance of an entire manoeuvre; i.e. maintaining a constant flight speed throughout the various manoeuvre components, like in climbing and descending sections contributes significantly to smoothness and gracefulness. Radii performed very tight or very loose, though being of equal size within one manoeuvre may be subject for downgrading Smoothness and Gracefulness.~~

5B.9. CONSTANT FLYING SPEED

The model aircraft shall maintain a constant flight speed throughout the various manoeuvre components; for example, in climbing and

descending sections. For significant differences up to one point is subtracted.

Reason: Constant Flying Speed as a criterion of execution of manoeuvres will be defined and integrated into downgrade/deduct system.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 16, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

q) Annex 5B Manoeuvre Execution Guide F3 Aero Subcommittee

Modify sub-paragraph 5B.11, with the additions as shown below:

5B.11. SIZE OF THE MANOEUVRE

The size of a manoeuvre is ~~scored~~ **defined** by its matching size relative to the size of the manoeuvring zone and relative to the size of the other manoeuvres performed throughout a schedule. **For not matching size up to 1 point downgrade.**

Reason: Adaption of size of manoeuvres to downgrade deduct/system.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

r) Annex 5G Unknown Manoeuvre Schedule ... F3 Aero Subcommittee

Modify sub-paragraph 5G.2, with the deletion and additions as shown below:

5G.2. If the composition of the unknown manoeuvre schedules is done by the finalists, each finalist nominates in turn an appropriate centre or turn-around manoeuvre from the approved and published list of manoeuvres. This nomination and selection of manoeuvres may be either manual or computer-aided. The order of selection will be determined following the random flight draw with the order repeating until the manoeuvre schedule is complete.

If the composition of the unknown manoeuvre schedules is done by Subcommittee approved software, three unknown schedules should be generated for each required unknown schedule, by the contest director, in the presence of the FAI Jury members in advance of the Finals. The unknown schedules must be kept secret. At the Team Managers meeting, a random draw by the contest director will select the required number of unknown schedules.

The nominated and selected manoeuvres must conform to the following general criteria:

... (no change to the criteria)

~~If the composition of the unknown schedules is done by computer software, then criteria 1–9 apply accordingly.~~

The end of the last manoeuvre of the unknown sequences must be defined clearly during the Team Managers meeting before the Final.

Reason: The team manager meeting after semi-final may be long lasting if unknown schedules will be created there. The computer programme needs some time, too. To comply with 5G.1, the composition of unknown schedule can be completed earlier. It seems to be necessary to define the end of the last manoeuvre to avoid discussions, if flying time comes to an end.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 19, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

s) Annex 5G Unknown Manoeuvre Schedule ... F3 Aero Subcommittee

Modify sub-paragraph 5G.3, with the additional text as shown below:

5G.3. Once an unknown schedule has been composed and checked for correctness **and the exact end of the last manoeuvre defined**, it must receive the final approval of the Jury and the contest director. Printed copies, showing the Aresti pictograms and manoeuvre lists, shall then be distributed to team managers, finalists, judges, jury members, and non-finalists who are scheduled to perform warm-up flights. A sufficient number shall be made available by the organisers for spectators.

Reason: If flying time may come to an end, it is useful to define when the last manoeuvre is over.

F3-Aerobatics Subcommittee recommended the proposal by majority: For 19, Against 1.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

t) 5.1.13 Schedule of Manoeuvres F3 Aero Subcommittee

Amend introduction, delete obsolete schedule A-20; add new schedule A-25 as shown below:

~~For 2019-2020 Schedule A-20 is recommended to be flown in local competitions so as to offer advanced pilots a suitable way to achieve skills to step-up to P-21 Schedules.~~

For 2021-2023 Schedule A-23 is recommended to be flown in local competitions so as to offer advanced pilots a suitable way to achieve skills to step-up to P-23 Schedules.

For 2024-2025 Schedule A-25 is recommended to be flown in local competitions so as to offer advanced pilots a suitable way to achieve skills to step-up to P-Schedules.

For 2020-2021 Schedule P-21 will be flown in the preliminaries.

For 2022-2023 Schedule P-23 will be flown in the preliminaries.

For 2024-2025 Schedule P-25 will be flown in the preliminaries.

For 2020-2021 Schedule F-21 will be flown in the semi-finals, as well as in the finals, together with unknown schedules.

For 2022-2023, Schedule F-23 will be flown in the semi-finals, as well as in the finals, together with unknown schedules.

For 2024-2025, Schedule F-25 will be flown in the semi-finals, as well as in the finals, together with unknown schedules.

Advanced Schedule A-25 (2024-2025)	K-Factor
A-25.01 Triangle from Top with roll	K 3
A-25.02 Half Square Loop with half roll	K 2
A-25.03 Square Loop on corner with half roll, half roll	K 4
A-25.04 Figure Nine with half roll	K 3
A-25.05 Four consecutive Quarter Rolls	K 4
A-25.06 Stall Turn with half roll	K 3
A-25.07 Double Immelman with half roll, half roll, half roll	K 4
A-25.08 Humpty Bump with half roll	K 2
A-25.09 Half Roll, Loop, Half Roll	K 3
A25.10 Half Square Loop on Corner	K 2
A-25.11 Half Cloverleaf	K 5
A-25.12 Reverse Figure ET	K 3
A-25.13 Spin two turns	K 3
A-25.14 Top hat with half roll Option: Top hat with quarter roll, quarter roll	K 3
A-23.15 Figure Z with half roll	K 4
A-25.16 Comet	K 3
A-25.17 Figure S	K 3
	Total K = 54

Reason: F3A schedules change every two years.

The Subcommittee members selected the 25-schedule sequences from more than one proposed manoeuvre sequence. The manoeuvre sequences proposed to the Plenary are selected by a clear majority of the Subcommittee members.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

u) **5.1.13 Schedule of Manoeuvres** **F3 Aero Subcommittee**

Delete obsolete schedule P-21, add new schedule P-25:

PRELIMINARY SCHEDULE P-25 (2024-2025)	K-Factor
P-25.01 Triangle from Top with two quarter rolls, roll, two quarter rolls	K 3
P-25.02 Half Square Loop with roll	K 2
P-25.03 Square Loop on corner with half roll, half roll, half roll, half roll	K 5
P-23.04 Figure Nine with half roll	K 3
P-25.05 Roll Combination with three quarter rolls, three quarter rolls in opposite direction	K 4
P-25.06 Stall Turn with half roll	K 3
P-25.07 Double Immelman with roll, quarter roll, quarter roll, half roll.	K 4
P-25.08 Humpty Bump with two consecutive half rolls in opposite direction, half roll	K 3
P-25.09 Loop with two half rolls integrated.	K 5
P-25.10 Half Square Loop on Corner with half roll, half roll	K 2
P-25.11 Half Cloverleaf with half roll, half roll, half roll	K 5
P-25.12 Reverse Figure ET with half roll, two quarter rolls	K 4
P-25.13 Inverted Spin two turns, half roll	K 3
P-25.14 Top hat with two quarter rolls. Option: Top hat with quarter roll, quarter roll.	K 3
P-25.15 Figure Z with snap roll	K 4
P-25.16 Comet with two quarter rolls, roll	K 3
P-25.17 Figure S with quarter roll, quarter roll	K 5
Total K = 61	

Reason: F3A schedules change every two years.

The Subcommittee members selected the 25-schedule sequences from more than one proposed manoeuvre sequence. The manoeuvre sequences proposed to the Plenary are selected by a clear majority of the Subcommittee members.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

v) **5.1.13 Schedule of Manoeuvres** **F3 Aero Subcommittee**

Delete obsolete schedule F-21, add new schedule F-25:

Semifinal/Final Schedule F-25 (2024-2025)	K-Factor
F-25.01 Square Loop on Corner with quarter roll integrated, half roll integrated, half roll integrated, half roll integrated, quarter roll integrated	K 4
F-25.02 Figure Nine with roll, half roll in opposite directions	K 3
F-25.03 Roll Combination with consecutive two quarter rolls, four consecutive quarter rolls in opposite direction, two consecutive quarter rolls in opposite direction	K 4

F-25.04 Half Loop with half roll integrated	K 4
F-12.05 Pull Pull Push Humpty Bump with one and half snap rolls, half roll integrated, one and a half roll	K 5
F-25.06 Three Turn Spin with half roll	K 3
F-25.07 Horizontal Circle with three half rolls in opposite direction integrated	K 5
F-25.08 Shark Fin with roll, two snap rolls in opposite directions	K 4
F-25.09 Square Vertical Eight with half roll, roll, quarter roll, roll, quarter roll, roll, half roll	K 5
F-25.10 Push Push Pull Humpty Bump with half roll, one and a half roll	K 3
F-25.11 Knife-edge Triangle with quarter roll integrated, half roll, half roll integrated, half roll, quarter roll integrated	K 5
F-25.12 Half Eight Sided Loop with quarter roll, quarter roll	K 3
F-25.13 Forty Five Degree Downline with two consecutive one and a quarter snap rolls in opposite direction.	K 4
F-25.14 Half Square Loop with roll, half roll in opposite direction	K 3
F-25.15 Avalanche (from top) with quarter roll integrated, snap roll, quarter roll integrated	K 6
F-25.16 Knife Edge Split S with quarter roll, quarter roll	K 4
F-25.17 Stall Turn with half roll, three quarter rolls, snap roll, half roll.	K 5
Total K = 70	

Reason: F3A schedules change every two years.

The Subcommittee members selected the 25-schedule sequences from more than one proposed manoeuvre sequence. The manoeuvre sequences proposed to the Plenary are selected by a clear majority of the Subcommittee members.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

w) Annex 5A – Aerobatic Description of Manoeuvres F3 Aero Subcommittee

*Delete the obsolete manoeuvre descriptions of schedules A-20, P-21, and F-21 and replace with descriptions of A-25, P-25 and F-25. Refer to Agenda **Annex 7b**.*

Reason: F3A schedules change every two years.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22

F3M – R/C Large Aerobatic Aircraft

x) 5.10.11 Classification France

Amend sub-paragraph c) as shown below:

c) Final classification of the Classic Aerobatics will be done considering the sum of the scores of the two best normalized flights: known and unknown, multiplied by the following coefficients:

Known 50% 75%
 Unknown 50% 25%

The highest combined scores will determine the winner. In case of ties, all the normalized flights of the contestant shall be used to determine the winner.

Reason: This rule gives priority to the mastery of the known program with the weight represented by the work done in preparation, the unknown program showing responsiveness as well as mastery of the pilot. Final classification of the Classic Aerobatics will be done considering the sum of the scores of the two best normalized flights: known and unknown, multiplied by the following coefficients.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

F3P – R/C Indoor Aerobatic Aircraft

y) 5.9.13 Schedule of Manoeuvres

F3 Aero Subcommittee

Delete the obsolete schedules AA-21, AP-21, AF-21, add new schedules AA-23, AP-23, AF-23:

Advanced Schedule AA-23 (2022-2023)

AA-23.01 Pyramid with quarter roll, quarter roll	K 3
AA-23.02 Crossbox Top Hat with quarter roll, half roll, quarter roll	K 3
AA-23.03 Loop with roll integrated	K 5
AA-23.04 Shark Fin with half roll, half roll	K 3
AA-23.05 Torque Roll	K 4
AA-23.06 Half Hourglass	K 3
AA-23.07 Rolling Circle	K 5
AA-23.08 Figure ET with half roll	K 3
AA-23.09 Crossbox Figure Z with quarter roll, half roll quarter roll	K 4
AA-23.10 Stall Turn with quarter roll, quarter roll	K 3
AA-23.11 Square Loop with quarter roll, quarter roll	K 4

Total K = 40

Preliminary Schedule AP-23 (2022-2023)

AP-23.01 Pyramid with quarter roll, half roll integrated, quarter roll	K 3
AP-23.02 Crossbox Top Hat with half roll, half roll, half roll	K 3
AP-23.03 Loop with half roll integrated, half roll in opposite direction integrated	K 5

AP-23.04 Shark Fin with quarter roll, half roll, quarter roll	K 3
AP-23.05 Three quarter Torque Roll, Upline, three quarter Torque Roll in opposite direction	K 4
AP-23.06 Half Hourglass with two consecutive ¼ rolls, roll, half roll	K 4
AP-23.07 Rolling Circle with two rolls in opposite directions	K 5
AP-23.08 Figure ET with quarter roll, quarter roll	K 3
AP-23.09 Crossbox Figure Z with quarter roll, four consecutive one eighth rolls, quarter roll	K 5
AP-23.10 Stall Turn with three quarter roll, quarter roll	K 3
AP-23.11 Square Loop with quarter roll, quarter roll, quarter roll, quarter roll	K 5

Total K = 43

FINAL SCHEDULE AF-23 (2022-2023)

AF-23.01 Square Loop with half roll, quarter roll, two consecutive quarter rolls, quarter roll	K 4
AF-23.02 Double Stall Turn with half roll, half roll, half roll	K 3
AF-23.03 Double Humpty Bump with quarter roll, half roll integrated, quarter roll, quarter roll half roll integrated, quarter roll	K 5
AF-23.04 Half Square Loop with four consecutive one quarter torque rolls	K 4
AF-23.05 Loop Crossbox Circle Combination with half roll integrated, half roll integrated, half roll integrated, half roll integrated	K 6
AF-23.06 Half Loop with two consecutive quarter rolls in opposite direction integrated	K 4
AF-23.07 Crossbox Top Hat with quarter roll, two consecutive one eight rolls, two consecutive one eight rolls in opposite direction, quarter roll.	K 4
AF-23.08 Corner Combination with half roll integrated, quarter roll, half roll integrated	K 3
AF-23.09 Triangle with quarter roll, half roll integrated, quarter roll	K 5
AF-23.10 Reverse Shark Fin from Top with quarter roll, half roll, quarter roll	K 4
AF-23.11 Triangle Crossbox Square Combination with quarter roll, three consecutive one eighth rolls, half roll, three consecutive one eighth rolls, quarter roll	K 6

Total K = 48

Reason: F3P Aerobatic schedules change every two years.

[F3-Aerobatics Subcommittee unanimously recommended the proposal.](#)

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

z) Annex 5M – Indoor Aerobic Description of Manoeuvres
F3 Aero Subcommittee

*Delete the obsolete manoeuvre descriptions of schedules AA-21, AP-21, and AF-21 and replace with descriptions of AA-23, AP-23 and AF-23. Refer to Agenda **Annex 7c**.*

Reason: F3P schedules change every two years.

F3-Aerobatics Subcommittee unanimously recommended the proposal.

F3-Aerobatics Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

Volume F3 Pylon begins overleaf

14.8 Section 4C Volume F3 - RC Pylon

F3D

a) 5.2.14 Radio Equipment F3 Pylon Racing Subcommittee

Amend sub-paragraph a), then delete b) and c) as shown below:

a) For transmitter and frequency checks see *CIAM General Rules C.16.2*. Spread spectrum (2.4 GHz) technology may be used and if it is, then 5.2.14 b) & c) may not apply. **Only radio systems with “spread spectrum” technology are allowed.**

~~b) Heats shall be arranged in accordance with the radio frequencies in use to permit simultaneous flights, taking into account that frequency will not follow frequency.~~

~~c) Each competitor has to supply two different frequencies, separated by a minimum of 20 kHz, which he must be able to use on all his model aircraft entered in the competition.~~

Consequential change: renumber par. 5.2.14. d) to 5.2.14. b).

Consequential change: change reference in 5.2.11. d) from 5.2.14. d) to 5.2.14. b).

Reason: Use of old FM systems is considered to give not maximum safety in pylon racing now.

Use of spread spectrum gives more freedom for draw of races.

Currently FM systems are not in use anymore in pylon racing.

[F3-Pylon Technical Meeting unanimously recommended the proposal.](#)

[Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.](#)

b) 5.2.18 Timekeeping and Judging F3 Pylon Racing Subcommittee

Add a sentence at the end of sub-paragraph d) as shown below.

d) The judges' signals will be off as the aircraft reach midcourse between No. 3 and No. 1 pylons, or earlier. At the instant the model aircraft draws level with the No. 1 pylon the pylon judge will switch his signal on. When the model aircraft draws level with the No.1 pylon on the way back the signal is switched off. When a pylon cut has been made the signal will flash on and off five (5) times or another signal will be activated to inform the competitor about the pylon cut.

This system of signalling is the preferred one, but alternative systems with a fixed light duration and a separate pylon cut indication are allowed.

[The light has to be off when the model is between pylon #2 and pylon #3.](#)

[The CD will inform the competitors which type of system is used.](#)

Reason: To allow current systems, which are in use without major problems.

[F3-Pylon Technical Meeting unanimously recommended the proposal as amended.](#)

[Vote: Amended proposal was approved unanimously by the Plenary Meeting.](#)

Effective 01/01/22.

c) **5.2.20 Scoring and Classification** **F3 Pylon Racing Subcommittee**

Add text to sub-paragraph e) as shown below.

e) Points shall be awarded after each race as follows: The competitor's score shall be his corrected time in seconds and hundredths of a second, **rounded to the next upper 0.1 second**. If the competitor fails to complete his flight or is disqualified his score shall be 200.

Reason: To bring the scores better in line with the real timing accuracy.

Proposal was withdrawn by the F3 Pylon Racing Subcommittee after discussion at the Technical Meeting.

F3E

d) **5.3.2.7 Augmented stability systems and similar** **France**

Delete the text and replace with the alternate text as shown below, which is the text from the F3D section regarding Radio Equipment 5.2.14 d):

~~Augmented stability systems are allowed. Any other airborne device or function that uses sensors to actuate any control surface is prohibited (CGR par. B.1.1.e).)~~

The radio equipment shall be of the open loop type (i.e. no automated electronic feedback to the control surfaces either internally or from the model aircraft to the ground).

Systems or components which can move control surfaces of the aircraft or which can move masses in the aircraft based on input other than pilot input from their transmitter are not allowed to be installed in the aircraft.

Permitted:

1. Control rate devices that are manually switched by the pilot.

2. Any type of transmitter button or lever, switch, or dial control that is initiated or activated and terminated by the competitor.

3. Manually operated switches or programmable options to couple and mix control functions.

4. Devices for position tracking solely for the purpose of an automated tracking and scoring system for the competition event.

cont/...

Not permitted:

Any system that can move the control surfaces without direct pilot input in response to other inputs, like:

1. Pre-programming devices to automatically perform a series of commands.

2. Auto-pilots or gyros for automatic stabilisation of the model aircraft, whether separate devices or integrated into the radio receiver or servos.

3. Automatic flight path guidance.

4. Any type of learning function involving manoeuvre to manoeuvre or flight to flight analysis.

5. Terrestrial reference systems like GPS, which can notify the pilot through telemetry when their plane reaches a specified distance away.

Reason: No change of this paragraph will:

- disregard pilots' skills to benefit the industrial technology.
- sideline the pilots who don't want (or can't) use any type of "augmented stability" systems
- increase again the cost of this class
- reinforce again the elitist aspect of this class
- split F3E class to the pylon racing spirit (which run counter to the pylon subcommittee's work in progress - i.e F5D to F3E).

Proposal was recommended by the majority in the F3 Pylon Racing Subcommittee and by the Technical Meeting. The Subcommittee Chairman will discuss the exact formulation of this rule (and the same rule that applies to F3D) to prevent overlap or inconsistency with General Rules B 1.1.e.

Voting: Approved by the Plenary Meeting: For 21, Against 1. Effective 01/01/22.

e) **5.3.3 Power source**

The Netherlands

Replace sub-paragraph a) with the text shown below; no change to b); modify c) with the deletion and addition shown below:

a) ~~The power source shall consist of any kind of rechargeable batteries (or secondary cells), the maximum no load voltage must not exceed 21Volts (max. tolerance +0.2 Volts).~~

The maximum no load voltage must not exceed 21 Volts (max. tolerance +0.2 Volts). The minimum no load voltage shall be at least 15 Volts (max. tolerance -0.2 Volts).

b) In case the voltage is measured, this shall be done at the moment the preparation time for the pilot starts. After the measurement has been taken, the pilot is allowed 5 minutes preparation time before he is called to the start.

c) ~~If the model aircraft carries more than the allowed number of cells as power source for the motor or the voltage exceeds this voltage,~~ **If the model aircraft power source for the motor exceeds this voltage range,** the competitor is disqualified from that heat.

Reason: Energy limiters work most accurately and reproducibly when the operating boundaries of voltage and current are the smallest. A defacto standard has become operation with 5s Lipo battery packs. The proposal is to limit the no load voltage between certain boundaries so that way we can always be sure about best energy limiter precision, since limiters are designed to work best in a certain voltage and current range.

F3-Pylon Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was approved unanimously by the Plenary Meeting.
Effective 01/01/22.

f) 5.3.3 Power Source **F3 Pylon Racing Subcommittee**

In sub-paragraph d) 'Battery type', change the max battery weight as shown below.

iii) Maximum weight of battery pack: 400 ~~300~~ g. [Delete rule 5.3.3.ii and 5.3.3.iii](#)

Reason: According to current battery technology.

After discussion in the F3-Pylon Technical Meeting, it was unanimously recommended to make an amendment to this proposal by [deleting the requirements for battery weight in 5.3.3.ii and 5.3.3.iii from the rules.](#)

Vote: Amended proposal was approved by the Plenary Meeting: For 24, Against 1.
Effective 01/01/22.

g) 5.3.9 Transmitter and frequency checks **F3 Pylon Racing Subcommittee**

Modify sub-paragraph a) with the deletions and addition as shown below; then delete b) and c).

a) For transmitter and frequency checks see CIAM General Rules C.16.2. ~~Spread spectrum (2.4 GHz) technology may be used and if it is, then 5.2.14 b) & c) may not apply.~~ **Only radio systems with "spread spectrum" technology are allowed.**

~~b) Heats shall be arranged in accordance with the radio frequencies in use to permit simultaneous flights, taking into account that frequency will not follow frequency.~~

~~c) Each competitor has to supply two different frequencies, separated by a minimum of 20 kHz, which he must be able to use on all his model aircraft entered in the competition.~~

Reason: Use of old FM systems is considered to give not maximum safety in pylon racing now.

Use of spread spectrum gives more freedom for draw of races.

Currently FM systems are not in use anymore in pylon racing.

F3-Pylon Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

h) 5.3.10 Race Course, Distance and Number of Rounds **F3 Pylon Racing Subcommittee**

Modify sub-paragraph a) as shown below.

ii) In case of **> 5m/s** tail wind the course direction should be changed, if possible.

~~iii) If this is not possible due to physical or time constraints and when there is a strong tail wind (>5 m/s) the starter can decide a 180° change of take-off direction at least ten (10) minutes before the first heat of a round. This direction of launch shall~~

be continued for that complete round.

iii) For Category 2 events, National or Local competitions only: In the event that this is not possible due to physical or time constraints and when there is a strong tail wind (>5 m/s), the starter can decide a 180° change of take-off direction at least ten (10) minutes before the first heat of a round. This direction of launch shall be continued for that complete round.

Reason: Consequential change for F3E course lay-out by deletion of starting lanes for reverse start. There is a majority of the Sub Committee that want to delete the reverse start method.

In the Technical Meeting it was considered reasonable for smaller competitions where it is not possible to change the course direction, that the possibility of the reverse start method is maintained. The F3-Pylon Technical Meeting unanimously recommended the amended proposal.

Vote: Amended proposal was approved unanimously by the Plenary Meeting. Effective 01/01/22.

i) 5.3.14 F3 Pylon Racing Subcommittee

Change safety distance from 45 to 60 metres in 5.3.14 and the drawing of F3E course lay-out.

5.3.14 Timekeeping and Judging

Annex 5R describes the duties of timekeepers and judges.

a) All officials (timekeepers, lap counters and pylon judges) must stay at a minimum distance of ~~45~~ **60** m outside the course as drawn on the F3E course lay-out in 5.3.10.

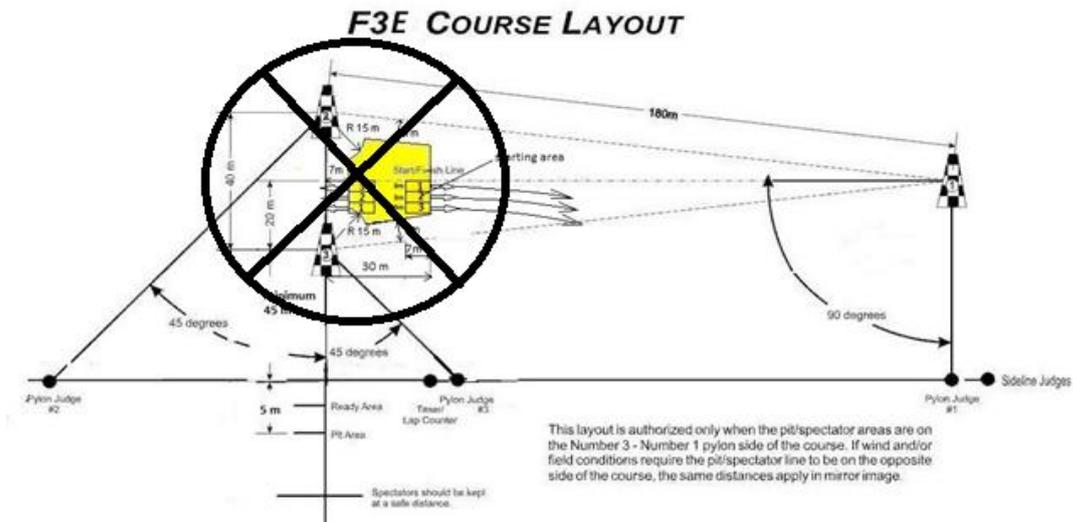
Reason: 45 meters is considered to be a too small safety distance.

F3-Pylon Technical Meeting unanimously recommended the proposal.

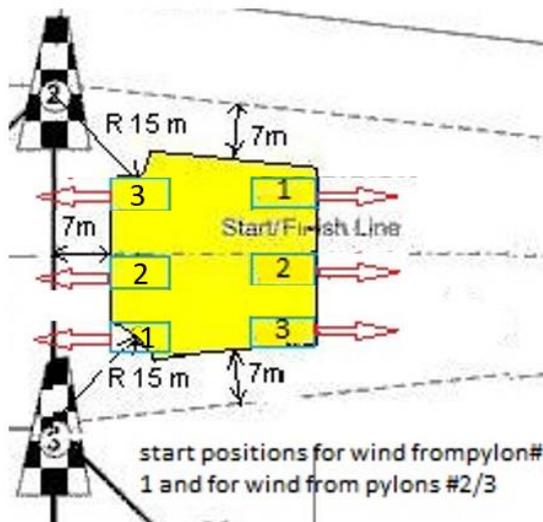
Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

j) 5.3.10 F3E Course Layout The Netherlands

Change course layout. Replace the indicated detail.



Replace the indicated detail with the drawing shown below:



Reason: Use the full width of the start line to position helper and models of lanes 1, 2 and 3. This enhances safety, and the space is there, so why not use it.

Proposal was supported by the Subcommittee by small majority, but was not recommended by the F3-Pylon Technical Meeting and after discussion was referred back to the Subcommittee for further study.

The proposal was withdrawn by the Netherlands delegate shortly after the meeting.

k) 5.3.14 Timekeeping and judging F3 Pylon Racing Subcommittee

Add text to sub-paragraph d) as shown below.

d) The judges' signals will be off as the aircraft reach midcourse between No. 3 and

No. 1 pylons, or earlier. At the instant the model aircraft draws level with the No. 1 pylon the pylon judge will switch his signal on. When the model aircraft draws level with the No.1 pylon on the way back the signal is switched off. When a pylon cut has been made the signal will flash on and off five (5) times or another signal will be activated to inform the competitor about the pylon cut.

This system of signalling is the preferred one, but alternative systems with a fixed light duration and a separate pylon cut indication are allowed.

The light has to be off when the model is between pylon #2 and pylon #3.

The CD will inform the competitors which type of system is used.

Reason: To allow current systems, which are in use without major problems.

F3-Pylon Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was approved unanimously by the Plenary Meeting.

Effective 01/01/22.

I) 5.3.16 Scoring and Classification **F3 Pylon Racing Subcommittee**

Add text to sub-paragraph e) as shown below.

e) Points shall be awarded after each race as follows: The competitor's score shall be his corrected time in seconds and hundredths of a second, **rounded to the next upper 0.1 second**. If the competitor fails to complete his flight or is disqualified his score shall be 200.

Reason: To bring the scores better in line with the real timing accuracy.

The proposal was withdrawn by the F3-Pylon Racing Subcommittee, following discussion in the Technical Meeting.

Volume F3 Helicopter begins overleaf

14.9 Section 4C Volume F3 - RC Helicopter

F3N – RC Freestyle Aerobatic Helicopters

a) Annex 5F – F3N Manoeuvre Descriptions & Diagrams F3 Heli Subcommittee

Annex 5F.1 – F3N Set Manoeuvre Descriptions

Rewrite manoeuvre 1.5 “Inverted horizontal eight”.

Rewrite manoeuvre 1.9 „360°-turn with roll“.

Rewrite manoeuvre 1.11 „Spike“.

Rewrite manoeuvre 1.12 „Inverted backwards horizontal eight“.

Rewrite manoeuvre 1.16 „Tumbling Circuit“.

Rewrite manoeuvre 1.17 „Triple pirouetting flip“.

Rewrite manoeuvre 1.18 „Cuban eight backwards“.

Rewrite manoeuvre 1.19 „Pirouetting loop“.

Rewrite manoeuvre 1.20 „Backward rolling circle“.

Rewrite manoeuvre 1.21 „Waltz“.

Rewrite manoeuvre 1.22 „Double 4-point Tic-toc“.

Rewrite manoeuvre 1.23 „Pirouetting funnel“.

Rewrite manoeuvre 1.24 „Four point tic-toc reversal“.

Rewrite manoeuvre 1.25 „Pirouetting globe“.

Rewrite manoeuvre 1.26 „Duus Iglo“.

Rewrite manoeuvre 1.27 „Rolling Circle Tail Reversal“.

Rewrite manoeuvre 1.28 “Funnel with half rolls“.

Rewrite manoeuvre 1.29 „Pirorainbow X reversal“.

Rewrite manoeuvre 1.30 “Vertical Tic Toc Eight”.

Refer to Agenda **Annex 7d** for the detail of the above changes.

Reason: Clarifications were needed to avoid misunderstandings.

Manoeuvre 1.25 Pirouetting globe was amended as follows:

1.25 Pirouetting globe

K=9.0

MA enters in upright flight and then performs four pirouetting loops. During each loop, the flight path is changed in a way, that the next loop is rotated about 45° (seen from above) until a complete globe has been described. The MA exits the manoeuvre at the same altitude but in opposite direction to the beginning. During each loop, the MA ~~there~~ **the MA must perform at least two pirouettes must perform at least two pirouettes be at least 2 but not more than 6 pirouettes. The pirouettes should be distributed equally through the loop.**

F3-Helicopter Technical Meeting unanimously recommended the proposal as amended. The Subcommittee Chairman requested early implementation at June 1st 2021.

Vote: Amended proposal was approved unanimously by the Plenary Meeting.

Technical Secretary note: Early implementation will be expedited and a Technical Notice and updated Volume issued. Note the later date. Effective 01/07/21.

b) Annex 5F – F3N Manoeuvre Descriptions & Diagrams F3 Heli Subcommittee

Annex 5F.2 – F3N Set Manoeuvre Drawings

Replace the F3N Set Manoeuvre drawing 1-17.

Refer to Agenda **Annex 7d**.

Reason: The drawing of manoeuvre 1.16 “Tumbling Circuit” was not correct and needed to be replaced.

F3-Helicopter Technical Meeting unanimously recommended. The Subcommittee Chairman requested early implementation at June 1st 2021.

Vote: Proposal was approved unanimously by the Plenary Meeting.

Technical Secretary note: Early implementation will be expedited and a Technical Notice and updated Volume issued. Note the later date. Effective 01/07/21.

Volume F3 Soaring begins overleaf

14.10 Section 4C Volume F3 - Soaring

F3B – Multi-Task Gliders

a) **5.3.1.3 Characteristics of R/C Gliders F3B** **Germany**

Delete sub-paragraph c), and insert a replacement as shown:

~~e) The radio shall be able to operate simultaneously with other equipment at 10 kHz spacing below 50 MHz and 20 kHz spacing above 50 MHz.~~

c) Each competitor not using a Spread Spectrum Technology transmitter must provide at least two frequencies on which his model glider may be operated, and the organiser may assign any of these frequencies for the duration of the complete contest.

Reason: The rules should be actual; therefore we should adapt the rules to the existing technology. Today most of the competitors use radios with Spread Spectrum Technology. At the other side some competitors use still old radios; these radios should be also allowed; but not especially specified.

F3-Soaring Technical Meeting unanimously recommended the proposal.

Vote: Proposal was approved unanimously by the Plenary Meeting. Effective 01/01/22.

b) **5.3.1.3 Characteristics of R/C Gliders F3B** **Germany**

In sub-paragraph e), add two words in the second line:

e) The competitor may use a maximum of three (3) model aircraft in the contest. All exchangeable parts (wing, fuselage, **canopy**, tail planes, **joiner(s)**) must be marked uniquely and in a way that does not allow replication of this mark on additional parts.

Reason: The construction of the fuselage has changed in the past. Most constructions use a separate deductible canopy, therefore it must be marked. Often joiners with different angels are used for the different tasks to adjust the flight characteristic of the model. With this action the geometry the projected wing area is changed; in paragraph 5.3.1.1 is stated that “Any variation of geometry or area must be actuated at distance”; therefore this is mandatory especially for the joiners with different angles.

Technical Secretary Comment: This proposal has been slightly modified (and has a different reason) from one that was submitted for the 2019 Agenda by Germany, but it was rejected by the Plenary Meeting: For: 3; Against 9. Therefore, this proposal seeks to reverse a decision that was made by Plenary two years ago.

F3-Soaring Technical Meeting declined to recommend this proposal by majority: For 5, Against 10.

Proposal was subsequently withdrawn by the German Delegate.

c) 5.3.2.2 Launching

Germany

In sub-paragraph d), delete the battery specification:

d) The power source shall be a 12 volt lead/acid battery.

~~The cold cranking capability of the winch battery must be specified according to one of the following standards:~~

~~300 amperes max. according to DIN 43539-02 (30s/9V at -18OC)~~

~~355 amperes max. according to IEC/CEI 95-1 (60s/8,4V at -18OC)~~

~~500 amperes max. according to SAE J537, 30s Test (30s/7,2V at 0 OF)~~

~~510 amperes max. according to EN 60095-1 (10s/7.5V at -18OC)~~

~~Other standards are acceptable if evidence is provided that these standards are equivalent to one of the above stated standards.~~

Reason: The specification of the cold cranking capability which is a measure of the internal resistance of the battery is no longer necessary because we measure the total resistance of the winch-equipment consisting of motor, battery, cables and switch.

F3-Soaring Technical Meeting recommended this proposal by majority: For 15, Against 6.

Vote: Approved by the Plenary Meeting: For 25, Against 2. Effective 01/01/22.

d) 5.3.2.2 Launching

Germany

In sub-paragraphs h), m), and n) add the word 'equipment':.

h) The complete winch-**equipment** (battery, cables, switch and motor) must have a total resistance of at least 23.0 milliohms. The allowed resistance may be obtained

m) At the test of the winch-**equipment** before the competition the voltage of the battery U300 must be greater or equal to 9V; this does not apply for testing during the competition.

n) The organiser must appoint at least two processing officials, who will process the winches-**equipment** with a single measuring apparatus, or several measuring apparatus proven to produce reproducible results within a tolerance of 0.5 %.

Reason: We test not only the winch but the whole winch-equipment.

F3-Soaring Technical Meeting unanimously recommended the proposal.

Vote: Proposal was approved unanimously by the Plenary Meeting. Effective 01/01/22.

e) 5.3.2.2 Launching

Germany

In sub-paragraph p), add words to the first sentence as shown below:

p) The **result of the** flight is **zero and additionally** penalised with 1000 points if the winch-**equipment** is not in accordance with the rules; this is valid for the flight before

the test. The penalty of 1000 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.

Reason: If the winch-equipment is not in accordance to the rule (total resistance < 23 mOhm; this means a too high performance) a penalisation of 1000 points is not sufficient; additionally the result of the flight must be set to zero, because it was reached with a more powerful winch.

In the "Sporting Code 2008" there was introduced for the first time a penalty of 1000 points for an illegal winch-equipment, but we have forgotten to observe the zero-result from the "Sporting Code 2007".

"Sporting Code 2007"

5.3.2.2. Launching

p) The penalty for using a winch not in accordance with the rules results in zero score for the competitor at the task concerned.

"Sporting Code 2008"

5.3.2.2. Launching

p) The flight is penalised with 1000 points if the winch is not in accordance with the rules; this is valid for the flight before the test. The penalty of 1000 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.

Unfortunately we have forgotten the zero-result from "Sporting Code 2007".

F3-Soaring Technical Meeting recommended this proposal by majority: For 24, Against 3.

Vote: Approved by the Plenary Meeting: For 27, Against 2. Effective 01/01/22.

f) 5.6.4 Re-flights

Germany

In sub-paragraph d), add additional text as shown below:

The competitor is entitled to a new working time if:

d) the attempt has not been judged by the official time-keeper(s). **In Task A, the pilot and/or his helper has to inform the timekeeper(s) about the position of the model a reasonable time before landing; if this is not done, the competitor is not entitled to a re-flight if his attempt was not (or not correctly) judged by the timekeeper(s).**

Reason: It's not reasonable, not necessary and mostly impossible for the official time-keeper(s) to observe the model during the whole flight, especially if the model is extremely far away. For the time-keeper(s) it's only necessary to watch the off-hooking and at the end of the flight, the rest of the model. If the model doesn't reach the landing-spot it's nearly impossible without additional information to stop the flight-time correctly.

At the WC F3B 2017 in Jesenik/CZE we had the situation that a pilot landed far away and simulated that the model is still flying by moving the steering sticks of his transmitter. The official time-keeper didn't observe the landing but he was clever

enough and stopped the flight-time when the pilot stopped moving the steering sticks. Therefore his time was longer than the real flight-time; out of this reason the pilot got first a re-flight which was annulled afterwards.

F3-Soaring Technical Meeting recommended this proposal by majority: For 25, Against 2.

Vote: Approved by the Plenary Meeting: For 28, Against 2. Effective 01/01/22.

F3G – Multi-Task Gliders with Electric Motors

g) 5.G.2.6 Partial Scores

Germany

In sub-paragraph a), note the following additions (Technical Secretary Note: The (5.B-E G.2.3) issue has been fixed):

a) Partial Score for Task A for each competitor is determined as follows:

Partial Score A = $1000 \times P1/PW$

$P1 \leq 250 \text{ m} = \text{Flight-time [s]} - 0,5 \times \text{height-start altitude [m]}$ **plus additional landing-points** (5.B-E G.2.3.)

$P1 > 250 \text{ m} = \text{Flight-time [s]} - ((250 \text{ [m]} \times 0,5) + (3 \times (\text{height-start altitude [m]} - 250 \text{ [m]})))$ **plus additional landing-points** (5.G.2.3)

PW = points of the winner in the related group.

Reason: In the chapter “Partitional Scores” three transformations are wrong. In this case it’s helpful to draw attention to the landing-points.

F3-Soaring Technical Meeting unanimously recommended the proposal.

Vote: Proposal was approved unanimously by the Plenary Meeting. Effective 01/01/22.

h) F3RES – 2-Axis Thermal Gliders

Germany

*Add a new class, F3RES to the Sporting Code. Refer to **Annex 7f** for the detail:*

Reason: This glider class has been practiced successfully in Germany since 2011. In the meantime the rules have been optimized. Many other countries also organize F3RES competitions with similar rules. For example: Austria, Netherlands, Czech Republic, Belgium, USA, Turkey. International rules are a prerequisite for further positive development of this class.

F3-Soaring Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 29, Against 1. Effective 01/01/22.

Volume F9 Drone Sport begins overleaf

14.11 Section 4C Volume F9 – Drone Sport

F9U – Multi-Rotor FPV Racing

a) Annex C.1 – Racing Circuit

Russia

In Section 4. Obstacles, add the text shown at the end of the section:

...

Reasonable efforts should be made by organizers to create or to cover obstacles by shock absorbing materials to protect models in case of a crash.

a. Obstacles support safety. Any obstacle support including rigging (wire, ropes) and other elements of low initial visibility should be perfectly visible with a standard FPV video device at a distance of 30 metres at the time of the flights. It can be special illumination at night time or just some kind of marker, covering all the support and making it visible.

b. Night obstacle illumination. If night heats are supposed to happen, this should be pre-announced. Night track illumination should be tested and done in such a way that a standard FPV camera can be set up for good circuit recognition. Direct disorienting illumination of the flight path should be avoided.

Reason: A lot of traditional obstacles, especially inflatable types have supporting rigging. And sometimes those cables are not clearly seen. Since the sport is evolving and new obstacles are being implemented at a height above the ground, it should be a must for organizers to remember to have every support structure or cable (wire, rope) seen at least as good as the obstacle itself. Also the night flights are very spectacular but should also be specifically planned to not only be good looking, but also safe to pilot.

There may be some kind of optimal average Lux characteristic for the whole track that can be recommended.

After exchanging on the topic, unanimous position of the e-Technical Meeting to refer back the proposal to the F9 S/C for further consideration.

In that situation, the proposal will not be considered for the CIAM Delegates voting.

b) C.2 Racing Circuit or A.9 Responsibilities of the Event Organiser

Russia

The proposal below has been incorporated into the C.2 section of the Drone Racing Rules; however it also suggested that it may also be applicable to A.9 Responsibilities of the Event Organiser.

Any major open (state scale or international) event organizer should obligatory make the circuit public by making a 3-d virtual showcase or a track in any or all the popular simulators and publish it at least one month prior (before) the event.

Only minor changes are allowed following publication and those changes must be

justified. *This part needs a clarification in the event that the rule has the above addition.*

If there is a track in the simulator that doesn't have rigs, this should be announced separately. Also the maximum difference between the simulator circuit and the real one should not exceed 30% for obstacle sizes and 20% for distances between them (these numbers can be debated and become more strict if necessary). The organizer does not take responsibility for unofficial simulator or 3D virtual showcase circuits if such are made.

Reason: It has become a good tradition in most countries to make tracks-showcases in 3D or tracks for simulators as it: 1) allows the participants be better overall prepared and put on a better show and competition; 2) serves as a marketing purpose, making more pilots come to the events; 3) Supports fairplay and good community spirit. Also the simulators have become a great deal, especially during to Covid pandemic, so we should use it to counter itself and bring people back to the fields, where the sport is as real as it may be.

Since the widespread use of great simulators with nice integrated track builders, the organizer can make this without any special skills. Moreover, this will help plan the track better in any case. Also, if any new element is introduced (without breaking any FAI rules and regulations in Annex 1 - Racing circuit), it should be demonstrated ahead of the event.

After exchanging on the topic, Russian Federation representative proposed to withdraw the proposal. In that situation, the proposal will not be considered for the CIAM Delegates voting.

The S/C will continue to exchange on the topic for recommendations regarding simulators especially for the biggest FAI events (WDRG Grand Final and World Cup Masters Series events).

The S/C is also encouraged to analyse the interest to introduce virtual competition (e-drone racing) within FAI and to do proposals how to proceed.

Volume S – Space begins overleaf

14.12 Section 4C Volume S – Space

- a) **Part Thirteen: Class S10 Flex Wing Duration Competition** **Switzerland & Ukraine**

Delete Class S10: Flex-Wing Duration Competition – and all references throughout the Space Volume and also in Volume CIAM General Rules:

~~Part Thirteen—Class S10 Flex-Wing Duration Competition~~

~~2.4.7 Models in Classes S4 **and** S8 and S10 must fly and land without separation of any part in flight.~~

~~11.1.2 Any model that qualifies for flex-wing rules 13.1.1 or 13.2 is not eligible for this event.~~

Reason: This class is no longer performed and will be deleted.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 21, Against 2. Effective 01/01/22.

- b) **S11/P Rocket Powered Aircraft and Spaceships Competition (Provisional)** **Switzerland**

Delete Class S11/P: Rocket Powered Aircraft and Spaceships Competition (Provisional) – and all references throughout the Space Volume and also in Volume CIAM General Rules:

~~11.8 CLASS S11/P: The whole of the section 11.8.1 – 11.8.8.4 will be deleted. No renumbering as a consequence.~~

Reason: This class was never performed.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 22, Against 1. Effective 01/01/22.

- c) **1.3 Classification of Space Models** **Switzerland**

Delete this section and replace with the reference as shown below:

~~S1 Altitude Models~~

~~S2 Payload Models~~

~~S3 Parachute duration models~~

~~S4 Boost glider duration models~~

~~S5 Scale-altitude models~~

~~S6 Streamer duration models~~

~~S7 Scale models~~

~~S8 Rocket glider duration models~~

~~S9 Gyrocopter duration models~~

~~S10 Flex-wing duration models~~

~~Each class, except class S7 has been subdivided related to engine size. Refer to the rules applicable to each particular class.~~

See CIAM General Rules: B.2.2 Classification of space models

Reason: Simplification. The definition exists twice and must be changed twice. The CIAM General Rules are valid.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 20, Against 2. Effective 01/01/22.

Part Two – Space Model Specifications

d) 2.2 Propellant Croatia

Modify the paragraph by deleting the existing text and replacing it as shown below:

2.2 Propellant

~~No more than 200 g of propellant materials shall be contained in its space model engines nor shall their total impulse exceed 160 Newton-seconds (Ns).~~

No more than 125 g of propellant material shall be contained in its space model engines nor shall their total impulse exceed 80 Newton-seconds (Ns).

Reason: From a safety point, 125 g of propellant is enough for 80 Ns engines.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 8, Against 13.

e) 2.4 Construction Requirements Croatia

Modify sub-paragraph 2.4.3 with the addition of a sentence as follows:

2.4.3 Construction shall be of any modelling material without substantial metal parts. A substantial metal part is a nose cone, body tube, fins, any hard, sharp and external pointed part or any internal heavy metal part that can cause injuries to persons or damages to property. **Nose cones must be made from soft or deformable material, which in the event of impact will mitigate this impact.**

Reason: In the event of a model fall without a parachute or streamer, the soft head (nosecone) of the model mitigates the impact.

Space Models Subcommittee declined to support the proposal: For 6, Against 10.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

n/a) 2.4 Construction Requirements

Space Subcommittee

This 2021 proposal is a compilation of similar proposed rule changes related to changing dimensions of S1 and S5 (S1 is to be changed and S5 is to remain as such). This proposal takes into account the following 2020 Agenda proposals from f) to n). This proposal is submitted by Joze Cuden – Coordinator of the Altitude Classes Working Group for the Space Subcommittee.

Technical Secretary Note: This proposal has been delineated n/a to avoid changing the item numbers of the many proposals which follow.

2.4.4 Minimum dimensions of subclasses of classes S1, S2, S3, S6, S9 and S10 must not be less than:

Event Class	Minimum diameter (mm) (for at least 50% of the overall length)	Minimum Overall Length (mm)
A/2	30	350
A	40	500
B	40	500
C	50	650
D	60	800
E	70	950
F	80	1100

In the case of Class S1 models, the smallest body diameter must be not less than 18 mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.

The minimum dimensions of Class S1 must not be less than:

<u>Event Class</u>	<u>Minimum diameter (mm) (for at least 50% of the overall length)</u>	<u>Smallest body diameter of each stage (mm) must be not less than: (for at least 20% of the minimum overall length)</u>	<u>Minimum overall length (mm)</u>
A	40	24	500
B	50	30	650

The minimum dimensions of Class S5 must not be less than:

Event Class	Minimum diameter (mm) of each stage	Minimum overall length (mm)
A	20	400
B	25	500
C	30	600
D	40	800
E	50	1000
F	60	1500

Class S5 models shall have a minimum diameter of an enclosed airframe equal or larger than that in the table above for at least 50% of the overall length of each stage.

Reason: Models fly too high and judges have problems with model visibility.

Enlarging models should cause models to fly lower.

In larger models, there should be no problem placing GPS or other location system in the future.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by the Space Models Subcommittee.

f) 2.4.4 Minimum dimensions of Class S5 **Slovak Republic**

Modify the table with the minimum dimensions as shown below, deleting sub-classes S5D, S5E and S5F, with a consequential change to 10.5:

The minimum dimensions of Class S5 must not be less than:

Event Class	Minimum external diameter (mm) of each stage	Minimum overall length (mm)
A	20	400
B A	25	500
C B	30	600
D C	40 50	800 1000
E	50	1000
F	60	1500

Reason: The current S5 models are reaching high altitudes of 600+metres. The proposal will lower to altitudes to a half. Also with this it is reduced to only the classes which are flown in competition.

Technical Secretary Note: Items 'g' and 'h' which follow also propose changes to this table.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Slovakia.

g) 2.4.4 Minimum dimensions of Class S5 **Poland**

Modify the table with the minimum dimensions as shown below:

The minimum dimensions of Class S5 must not be less than:

Event Class	Minimum diameter (mm) of each stage	Minimum overall length (mm)
A	20 30	400 450
B	25 40	500 600
C	30 50	600 750
D	40 60	800 900
E	50 70	1000 1050
F	60 80	1500 1200

Reason: Models fly too high and judges have problems with model visibility. Enlarging models should cause models to fly lower. In addition, the models will become more spectacular. In larger models, there should be no problem placing GPS or other location system in the future.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Poland.

h) 2.4.4 Minimum dimensions of Class S5

Bulgaria

Modify the table with the minimum dimensions as shown below:

The minimum dimensions of Class S5 must not be less than:

Event Class	Minimum diameter (mm) of each stage	Minimum overall length (mm)
A	20 <u>30</u>	400 <u>1000</u>
B	25 <u>40</u>	500 <u>1000</u>
C	30 <u>45</u>	600 <u>1000</u>
D	40 <u>50</u>	800 <u>1000</u>
E	50 <u>60</u>	1000 <u>1000</u>
F	60 <u>60</u>	1500 <u>1500</u>

Reason: The models will become more attractive and visible to the viewers. The safety of the competitors will be improved.

The timekeeper factor - "I see / I don't see" will decrease and disappear.

The models will not be much larger in length and this will facilitate their transportation and hence the additional cost.

In the height classes, the models will be visible due to the smaller height and will not lose altimeters which also reduces the cost to the competitor.

Technical Secretary Note: This is the first of a number of related changes proposed by Bulgaria, which will follow in the appropriate section.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Bulgaria.

i) 2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, and S9 and S10

Switzerland

Technical Secretary Note: The items i), j), k), l), m) and n) also propose changes to this section of the Volume. They will be dealt with together.

Change the heading. Delete the table and replace it as shown below. Additionally delete the sentence below the table and replace it as shown below:

Event Class	Minimum diameter (mm) (for at least 50% of the overall length)	Minimum Overall Length (mm)
A	40	500
B	40	500

C	50	650
D	60	800
E	70	950
F	80	1100

Event Class	Minimum diameter (mm) (for at least 50% of the overall length)	Minimum Overall Length (mm)
A/2	40	500
A	60	500
B	80	650

In the case of Class S1 models, the smallest body diameter must be not less than 18 mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.

In the case of Class S1 models, the smallest body diameter must be not less than 60% of the minimum diameter for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.

Reasons: New Engine Class A/2

In order to reduce the too high starting heights there are two solutions:

With the current models a reduction of the engine power to A/2.

With the current motors an increase in diameter, a longer length results in transport problems. A short thick rocket is more unstable and has to be stabilized with bigger fins or more weight in the nose cone. This should produce more weight and with the greater drag, this will result in less launch height.

A diameter of 50mm reduces the starting height too less.

*Note: Switzerland previously proposed to delete Model Class S10. Supporting data to this proposal is contained in **Annex 7i**. See also Item ao (7.44), av (8.4), bt (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

j) 2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, S9 and S10 Croatia

Delete the table (shown in Item 'h') and replace it as shown below. Additionally add an explanatory sentence to the one below the table as shown below:

Event Class	<u>Minimum diameter (mm)</u> <u>in the minimum length (mm)</u>	Minimum Overall Length (mm)
<u>1/2-A, A, B</u>	<u>40 250</u>	<u>500</u>
<u>C</u>	<u>50 325</u>	<u>650</u>
<u>D</u>	<u>60 400</u>	<u>800</u>
<u>E</u>	<u>70 475</u>	<u>950</u>
<u>F</u>	<u>80 550</u>	<u>1100</u>

In the case of Class S1 models, the smallest body diameter must be not less than 18 mm for a least 75% of the overall length of each stage. An S1 sustainer stage

may not have a boat tail.

The length of model is the distance between the top of the model and the bottom – the nozzle of the mounted engine.

Reason: Dimension of the model may remain and the minimum diameter should be constant – one value and not a percentage of (variable) length of model.

Technical Secretary Note: It is not clear from the submitted proposal, whether the sentence above is a reason or was intended to follow the added sentence in the proposal.

See Croatia's related proposals: Items t (4.2), an (7.4), az (8.4)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 19.

k) 2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, S9 and S10 Ukraine

Delete the table (shown in Item 'h') and replace it as shown below. Additionally delete the sentence below the table and replace it as shown below:

Event Class	Minimum diameter (mm) (for at least 50% of the overall length)	Minimum Overall Length (mm)
A/2	40	500
A	50	650
B	60	850

~~In the case of Class S1 models, the smallest body diameter must be not less than 48 mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.~~

In the case of Class S1 models, the smallest diameter of the body shall be at least 60% of the diameter of the first stage and shall be at least 75% of the total length of each stage. At the reference stage S1 there can be no boat tail.

3.1.2 All space modelling events shall be divided into sub-classes according to total impulse as follows:

Event Class	Total Impulse
A/2	0.00 to 1.25 Newton-seconds (NSs)
A	1.26 to 2.50 NSs
B	2.51 to 5.00 NSs
... (no further changes)	

Reason: The introduction of new classes of models of rockets in adults and juniors will give a powerful impetus to the development of new technologies, will make rocket sports for the spectators and sponsors more attractive. It will allow the organizers of European and World Championships to be more flexible in the choice of rocket model classes, depending on the size of the flying field. Reducing the overall momentum for racing in radio-controlled models will be interesting because more athleticism and skill.

Technical Secretary Note: This is the first of a number of related changes proposed by Ukraine for

the above reason, which will follow in the appropriate section. See Items s (4.1), ap (7.4), aw (8.4), bv (12.5)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

l) 2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, S9 and S10 Russia

Modify the section. Retain the existing table (shown above in Item 'h'), but delete the sentence below the table and replace it as shown below:

~~In the case of Class S1 models, the smallest body diameter must be not less than 18 mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.~~

S1 models shall have:

- two stages;

- minimum diameter of an enclosed airframe equal or larger than that in the table above for at least 50% of the overall length of each stage;

- the smallest body diameter must be not less than 18 mm for at least 75% of the overall length of each stage;

- S1 second stage may not have a boat tail.

Reason: Using the same diameter of the first and second stages of the S1 model will significantly reduce the flight altitude of the model. The larger size of the second stage facilitates visibility for the RSO. Also, the diameter of the second step of 40 mm facilitates the search for a model.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia.

m) 2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, S9 and S10 Bulgaria

Delete the table (shown in Item 'h') and replace it as shown below. Additionally delete the sentence below the table and replace it as shown below:

Event Class	Minimum diameter (mm) of each stage	Minimum overall length (mm)
A	<u>50</u>	<u>500</u>
B	<u>50</u>	<u>500</u>
C	<u>60</u>	<u>650</u>
D	<u>70</u>	<u>800</u>
E	<u>70</u>	<u>950</u>
F	<u>80</u>	<u>1100</u>

~~In the case of Class S1 models, the smallest body diameter must be not less than 18 mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.~~

For Class S1 models, the diameter of the first stage is 50 mm with a length of 200 mm. Second stage with diameter 20mm and length 300mm. Stage S1 may have no boat tail.

Reason: The models will become more attractive and visible to the viewers. The safety of the competitors will be improved.

The timekeeper factor - "I see / I don't see" will decrease and disappear.

The models will not be much larger in length and this will facilitate their transportation and hence the additional cost.

In the height classes, the models will be visible due to the smaller height and will not lose altimeters which also reduces the cost to the competitor.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Bulgaria.

n) **2.4.4 Minimum dimensions of subclasses S1, S2, S3, S6, S9 and S10** **Italy**

Modify the table with the two additional rows as shown below:

Event Class	Minimum diameter (mm) of each stage	Minimum overall length (mm)
A/2	40	500
A3/4	40	500
A	40	500
B	40	500
C	50	650
D	60	800
E	70	950
F	80	1100

Reason: The present proposal intends to meet the need to facilitate the recovery of the S1, S3, S4, S6 and S9 models normally used in competition by reducing the available total impulse of the engine.

This allows for a more rational, efficient and cheaper approach instead of increasing the size of the models.

Two new classes of engines that can be used in competition are introduced: A/2 and A3/4, endowed respectively with 50% and 75% of the total impulse of the class A, the least powerful to date.

Consequential Amendments:

3.1.2 All space modelling events shall be divided into sub-classes according to total impulse as follows:

Event Class	Total Impulse
A/2	0.00 to 1.25 Newton-seconds (NSs)
A3/4	1.26 to 1.88 Ns
A	0,00 1.89 to 2.50 NSs
B	2.51 to 5.00 NSs

C	5.01 to 10.00 <u>NSs</u>
D	10.01 to 20.00 <u>NSs</u>
E	20.01 to 40.00 <u>NSs</u>
F	40.01 to 80.00 <u>NSs</u>

3.1.4 In space modelling competitions usage of engines of the following total impulse is allowed:

Engine Class	Total Impulse
A/2	1.25 Ns
<u>A3/4</u>	<u>1.88 Ns</u>
A	2.50 Ns

4.2 NUMBER OF MODELS

The number of models eligible for entry is as follows:

Class S1A, B, C, D, E, F	Two (2) only
Class S2C, E, F	Two (2) only
Class S3 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S4 <u>A/2, A3/4</u> , A, B, C, D, E, F	Two (2) only
Class S5A, B, C, D, E, F	One (1) only
Class S6 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S7	One (1) only
Class S8A, B, C, D, E (E/P), F	Two (2) only
Class S9 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S10 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only

See also Items aq (7.4), ba (8.4), bu (12.5)

Consequential Amendments in CIAM General Rules:

B.2.2 Classification of space models

Each class, except class S7, is divided into subclasses defined as follows according to total impulse (in Newton-seconds):

A/2 - 0.00 to 1.25 Ns

A3/4 - 1.26 to 1.88 Ns

A - 0.001.89 to 2.50 Ns

C.10.2 Class S - Space models

Class S3 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S4 <u>A/2, A3/4</u> , A, B, C, D, E, F	Two (2) only
Class S6 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S9 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only
Class S10 <u>A/2, A3/4</u> , A, B, C, D	Two (2) only

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Italy.

o) 2.4.7 Construction Requirements

Croatia

Modify the following sub-paragraph with one deletion as shown below:

2.4.7 Models in Classes S4, S8 and S10 must fly and land without separation of any part in flight.

Reason: Without Class S4.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 19.

Part Three – Space Model Motor Standards

p) 3.9 Modifications

USA

Modify the following section with additional text as shown below:

A space model engine shall not be altered in any manner to change its published and established performance characteristics or dimensions **and shall not be used for any purposes except those recommended by the manufacturer.**

Reason: Part of an overall set of proposals to enhance safety by implementing language similar to the Model Rocket Safety Code of the U.S. National Association of Rocketry. This language is intended to prevent space model engines from being used unsafely in ways that they were not designed for or intended to be used for, which is flight propulsion of a space model through the air. It is identical to language in the U.S. Model Rocket Safety Code.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 21, Against 1. Effective 01/01/22.

q) 3.10 Certification for FAI Contests

Croatia

Modify the following section by deleting text and replacing it as shown below:

A space model motor used in a space model in FAI competition or for the purpose of establishing or surpassing FAI space model performance records shall be of a type previously tested and certified ~~for such use by a National Airsports Control~~ **by an internationally accredited institution. In Europe, such motors are in the pyrotechnical class P1 and must be CE marked for marketing.**

3.13 Space Models Motor Testing Standards

In addition to the FAI regulation, it is necessary for the testing of model motors to be issued by an internationally authorized pyrotechnical institution.

A space model motor type may be certified by a National Airsports Control if the performance of a randomly selected sample meets the following standards:

3.13.4 Static tests shall be conducted with the test motor at a temperature of 20 degrees Centigrade, +/- 5 degrees Centigrade. **The Organizer must provide a thermo-chamber with constant temperature 20° +/- 5° C.**

Technical Secretary Note: The first proposal in this section deleted the possibility for the NAC to test and certify space model motors. Consequential changes are needed in 3.11 Static Testing and 3.13

shown above, for this proposal to be acceptable. Also note, that in the 2020 Volume the term ‘space model engine’ was changed to ‘space model motor’ throughout.

Reason: None given.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 19.

Part Four – General Rules for International Contests

r) 4.1 World Championship Events for Space Models Switzerland

Modify the following sections (4.1 and 4.2) by deleting all text and replacing it with a reference as shown below:

~~The following event categories are recognised as World Championships for Space Models:~~

- ~~• Altitude models — S1, S2, or S2/P~~
- ~~• Parachute duration models — S3~~
- ~~• Boost Glider duration models — S4~~
- ~~• Scale Altitude models — S5~~
- ~~• Streamer duration models — S6 or S6/P~~
- ~~• Scale — S7 or S11~~
- ~~• Rocket Glider duration and precision landing models — S8~~
- ~~• Gyrocopter duration models — S9~~

~~The events and total impulse classes shall be selected by the contest organiser. One event is required for each category. Different events and total impulse classes may be selected for Senior and Junior classes.~~

See CIAM General Rules C.15.2.2 Class S Space Models

4.2 Number of Models

Class S1A, B, C, D, E, F	Two (2) only
Class S2C, E, F	Two (2) only
Class S3A, B, C, D	Two (2) only
Class S4A, B, C, D, E, F	Two (2) only
Class S5A, B, C, D, E, F	One (1) only
Class S6A, B, C, D	Two (2) only
Class S7	One (1) only
Class S8A, B, C, D, E (E/P), F	Two (2) only
Class S9A, B, C, D	Two (2) only
Class S10A, B, C, D	Two (2) only

~~For classes S1, S2, S3, S4, S6, S8, S9 and S10 one (1) additional model may be processed and flown by the competitor on there being a tie for first place at the end of the third round.~~

See CIAM General Rules C.10.2 Class S Space Models

Reason: Simplification. The definition exists twice and must be changed twice. The

CIAM General Rules are valid.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 20, Against 2. Effective 01/01/22.

s) 4.1 World Championship Events for Space Models Ukraine

Make the following deletions and additions to the tables as shown below:

The following event categories are recognised as World Championships for Space Models:

- a) altitude models – S1, ~~S2~~, **or S2/P**
- b) parachute duration models – S3 **or S12P**
- c) boost glider duration models – S4
- d) scale altitude models – S5
- e) streamer duration models – S6 **or S6A/P**
- f) scale – S7 ~~or S11~~
- g) rocket glider duration and precision landing models – S8
- h) gyrocopter duration models – S9

4.2 Number of Models

The number of models eligible for entry is as follows:

Class S1A, B, C, D, E, F	Two (2) only
Class S2C, E, F	Two (2) only
Class S3 A/2 , A, B, C, D	Two (2) only
Class S4 A/2 , A, B, C, D, E, F	Two (2) only
Class S5A, B, C, D, E, F	One (1) only
Class S6 A/2 , A, B, C, D	Two (2) only
Class S7	One (1) only
Class S8A, B, C, D , D for, P, E for P (E/P) , F	Two (2) only
Class S9 A/2 , A, B, C, D	Two (2) only
Class S10 A/2 , A, B, C, D	Two (2) only
Class S2/P,	One (1) only
Class S6A/P,	Two (2) only
Class S12/P,	One (1) only

Reason: The introduction of new classes of models of rockets in adults and juniors will give a powerful impetus to the development of new technologies, will make rocket sports for the spectators and sponsors more attractive. It will allow the organizers of European and World Championships to be more flexible in the choice of rocket model classes, depending on the size of the flying field. Reducing the overall momentum for racing in radio-controlled models will be interesting because more athleticism and skill.

Technical Secretary Note: This is the second of a number of related changes proposed by Ukraine for the above reason, which will follow in the appropriate section. See also Items k (2.4.4), 7.4, 8.4, 11.1.3, 11.6, 11.7, 12.5. CIAM General Rules will be amended to agree with successful proposals.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

t) **4.2 NUMBER OF MODELS, STARTS AND MAXIMUM DURATION** Croatia

Replace the current table (see Item 'r' above for the current table) with the table shown below. Note there is also a new heading proposed:

The number of models eligible for entry is as follows:

Class S1A,B,C,D,E,F	Two(2) only
Class S3A/2	Three (3) only, five (5) starts, max 240 s
Class S4A/2	Three(3) only, five (5) starts, max 120 s
Class S5A,B,C,D,E,F	One (1) only
Class S6A/2	Three (3) only, five (5) starts, max 120 s
Class 7	One(1) only
Class 8A,B,C,D,E(E/P) F...	Two (2) only
Class S9A/2	Three (3) only, five (5) starts, max 120 s
Class S10A/2	Three (3) only, five (5) starts, max 180 s

Reason: The number of models and startings is a subject to the agreement. It should be considered in the writing of this sporting code. To consider this problem should take a long time. At the first world championship won the competitor with one longest flight of two start (I know, I was one of the competitors). It's now funny. Polygons, sports airports are less and less available, and you should consider how the competition has more startings with a lower maximum flight duration and the result of the sum of all these flights. I hope we will enjoy the implementation of this proposal.

Technical Secretary Note: See Croatia's related proposals: Items j (2.4.4), an (7.4), az (8.4)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 3, Against 20.

u) **4.3.4 Assisted Launch** USA

Delete the current 4.3.4 and replace it with the text shown below:

4.3.4 Assisted Launch

A launcher shall not impart any velocity change or change of momentum except for that caused by the space model engine(s) contained in the space model. A launcher shall not include any stored energy feature (pyrotechnic, chemical, mechanical, pneumatic, etc.) that imparts velocity change or change of momentum to the rocket. No part of the launcher shall loose contact with the launcher assembly.

Pressurization (piston) launchers that use the exhaust gas from the space model motor(s) contained in the space model to accelerate the space model may be used unless prohibited for an event. No other materials or devices may be added to or included in the launcher to augment the pressure produced by the space model motor(s) contained in the space model.

For the S1, S2, and S5 events, pressurization (piston) launchers shall not be used. For these events, the nozzle(s) of the space model motors(s) contained in the model must be exposed to the atmosphere.

Reason: Rule 4.3.4 was significantly modified during the 2018 rules revision cycle. The 2018 rule change (submitted by Ukraine) had a Technical Secretary's Note saying "This note is to request that the above proposal is corrected for English at the Technical Meeting." The correction for English was not made in 2018. The proposed change corrects for English while keeping the intent of the 2018 rule update. *The word 'motor' has been substituted for 'engine'.*

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 22, Against 1. Effective 01/01/22.

v) **4.3.5 Launching Procedure**

USA

Modify 4.3.5 'Launching Procedure' by deleting some text and making further additions to the paragraph as shown below:

4.3.5 Launching Procedure

Launching or ignition must be conducted by remote electrical means **with a launch system that has a safety interlock in series with the launch switch and a launch switch that returns to the "off" position when released. When launching all persons shall be** at a safe distance that depends on the space model class, weather conditions and number of spectators. **This distance shall be no less than 3 meters; for rockets containing clusters of multiple motors shall be at least 10 meters; and for rockets where safety or stability is in question shall be a distance and direction as determined by the Range Safety Officer.** ~~It shall be announced by the Range Safety Officer before the beginning of competition in a particular class of the model and must be fully under the control of the person launching the model.~~ All persons in the vicinity of the launching must be advised that a launching is imminent before a space model may be ignited and launched, and a minimum five (5) second "count down" must be given before ignition and launching of a space model. **If a space model does not launch when the button of the electrical launch system is pressed, the launch system's safety interlock shall be removed or the system shall be disconnected from the battery before anyone approaches the space model.**

Reason: The additional specifications for the electrical launch system and for the procedure for approaching a space model that has misfired are taken from the U.S. Model Rocket Safety Code, where they have been for 40 years. The stand-off distances from a space model launch are made precise because currently they are not precise and so no stand-off distance is currently being observed by competitors. This is not a safe practice. The U.S. safety code requires a minimum stand-off of 5 meters, and a wait time of 60 seconds after a misfire, but the engines used by most people in the U.S. are much larger than those used in FAI competition and therefore require a greater stand-off and a wait time.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 21, Against 1. Effective 01/01/22.

w) 4.3.5 Launching Procedure

Croatia

Add a sub-paragraph to 4.3.5 after the existing as shown below:

For one stage space models with D motor or smaller, except class S2, a minimum safe distance of a least 4 metres from the model is required. These models can be launched near vertical elevation, 80° – 90° with direction in a safe, empty place.

For multistage or cluster space models, class S2 and space models with stronger space motor (than D), the safe distance is 8 metres. These models must be launched with elevation 65° – 80° in a safe, empty place.

Reason: From a safety standpoint, the possibility of fall exist within the radius of the longest range of the model used. Firing the rocket in vertical directions, threatens the area around the launcher. This can be reduced using smaller elevations in safe direction. For heavier and less accurate path models, it is advisable to use lower elevations.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 19.

x) 4.3.7 Hazard

USA

Modify 4.3.7 ‘Hazard’ by deleting some text and making further additions to the paragraph as shown below:

4.3.7 Hazard

A space model in flight **shall not be launched into clouds or near** ~~create a hazard to~~ aircraft and shall not be used as a weapon against ground or air targets. **Space models shall not eject any materials such as recovery device protection that are not flameproof and shall use containment tubes for fuse-type dethermalizers, so that the space models do not present a fire hazard upon landing. Launch devices shall have a means to prevent the motor's exhaust from directly hitting the ground, and any dry grass close to the launch pad shall be cleared before launch. No attempt shall be made to recover space models from power lines, tall trees, or other dangerous places.**

Reason: These hazard-prevention requirements are all similar to requirements that have been in the U.S. safety code for many years. Ejection of flammable materials such as tissue parachute protectors that are burning when they land on the ground; landing of duration models with dethermalizer fuses still burning and exposed in a way that makes them able to touch grass; and the spray of rocket exhaust directly onto dry grass on the ground have all been sources of launch site fires in the U.S.. 7 people have died in the U.S. in the last 30 years while trying to recover space models from electric power lines.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

y) 4.3.8 Launch Site

USA

Move the existing 4.3.8 'Thermal Creation and Protection' to a new paragraph 4.3.9 and rename 4.3.8 ('Launch Site' is a suggestion), then add the text as shown below:

4.3.8

Space models shall be launched outdoors, in an open area free of hazards to the safety of fliers or spectators and whose size is appropriate to the power of the models and to the weather conditions, as determined by the RSO.

Reason: This is a completely new paragraph. There is no requirement in the current space model code to fly from a launch site that is safe (free of dangerous ditches, lakes, tall dry vegetation that may catch fire) and large enough to support the types of models being flown in the weather conditions at the time of launching. The U.S. Model Rocket Safety Code has a table of minimum launch site sizes, but these are for guidance to individual hobbyists who are flying by themselves. They do not match well with the types of models that are flying in FAI competition. There are too many factors to consider in deciding whether it is safe to fly space models at a particular place on a particular day than can be accounted for in code language, so this decision is best left to the Range Safety Officer but it should be specified as a responsibility of that person.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

z) 4.4.2 Model Marking and Identification

Switzerland

Delete this section and replace with the reference as shown below:

~~Each entry shall carry, prominently displayed upon its body, fins, or other exterior part, the competitor's FAI license number or FAI Unique ID number in letters and numbers approximately one (1) centimetre high except in classes S5 and S7 where it is 4 mm for each stage. The name, national insignia, or international identification mark of the competitor's nation must be displayed on the exterior of the model.~~

~~A light coloured area of minimum dimensions 1 cm by 3 cm must be provided for the organiser's processing mark except in classes S5 and S7 where the mark shall be put on interior of the model.~~

See CIAM General Rules C.11.2 Class S Space Models

Technical Secretary Note: The section in the General rules Volume is virtually the same as that in the Space Volume, allowing this deletion, except for the following inconsistency, which must be addressed for this proposal to be acceptable.

Space Volume: ... in letters and numbers approximately one (1) centimetre high except in classes S5 and S7 where it is 4 mm for each stage.

CIAM General Rules Volume: b) The letters and numbers must be approximately one (1) centimetre high except in classes S5 and S7 where it is 7 mm for the 1st stage and 4 mm for upper stages.

Reason: Simplification. The definition exists twice and must be changed twice. The CIAM General Rules are valid.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

aa) **4.4.2 Model Marking and Identification**

Poland

Add the following text at the end of this section:

4.4.2 Model Marking and Identification

...

A light coloured area of minimum dimensions 1 cm by 3 cm must be provided for the organiser's processing mark except in classes S5 and S7 where the mark shall be put on interior of the model **during scale judging**.

Reason: If the model is not marked during scale judging, it is possible to mark and fly with a different model.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 24, Against 1. Effective 01/01/22.

ab) **4.6.5 Disqualification**

Slovak Republic

Modify the following section by deleting text and replacing it as shown below:

In the S4 and S10 classes, the model must reach a stable flight within 30 s ~~from the moment of reaching the apogee~~ **of the model's first motion on the launching device from the moment the model or any part of the model leaves the launching device**, otherwise the flight is disqualified.

In S3, S6 and S9 classes, the recovery system must deploy correctly within 30 s ~~from the moment of reaching the apogee~~ **of the model's first motion on the launching device from the moment the model or any part of the model leaves the launching device**, otherwise the flight is disqualified.

Reason: The apogee of a model rocket is a difficult to determine parameter as praxis has shown. 30s from the model's start is easy and precisely measurable.

Space Models Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was approved unanimously by the Plenary Meeting. Effective 01/01/22.

ac) **4.6.5 Disqualification**

Croatia

Modify the first sub-paragraph of 4.6.5 by deleting the text and replacing it as shown below:

4.6.5 ~~In the S4 and S10 classes, the model must reach a stable flight within 30 s from the moment of reaching the apogee, otherwise the flight is disqualified.~~

In S4 and S10 classes, the model must fly a minimum of 20 seconds. Shorter flights will be disqualified.

Reason: From a safety standpoint, the possibility of fall exist within the radius of the longest range of the model used. Firing the rocket in vertical directions, threatens the area around the launcher. This can be reduced using smaller elevations in safe direction. For heavier and less accurate path models, it is advisable to use lower elevations.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 20.

ad) **4.8 Timing and Classification**

Croatia

Modify the following section: 4.8.1 by deleting text and replacing it as shown below:

4.8.1 The timing of flights is limited to a maximum determined by the individual class and size of engine used. The total flight time is taken from the model's ~~first motion on the launching device~~ **time at which the model or any part of the model leaves the launching device** to the end of the flight.

Reason: It is the intention to change this to agree with 4.5.1 'Definition of Official Flight' ... therefore the actual words from 4.5.1 have been substituted by the Technical Secretary for the words given in the proposal: **the model live the launcher.**

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 22, Against 1. Effective 01/01/22.

ae) **4.8 Timing and Classification**

Slovak Republic

Modify the following section: 4.8.3 by deleting text and replacing it as shown below:

In order to decide the winner when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. ~~The maximum time of flight in each additional round shall be increased by two (2) minutes on the maximum time of flight of the previous round.~~ **There shall be no more than two fly-off rounds to determine the winner. The maximum time of flight in the first fly-off round shall be increased by two (2) minutes on the maximum time of flight of the previous round. The second fly-off round will be timed to the completion of the flight for final results.** There shall be only one attempt for each additional flight. The times of the additional flights shall not be included in the final figures of classification for teams, they are for the purpose of determining the winner and for awarding the prizes attached to the title. The organiser will decide the time during which all competitors must launch their models. In the case of a tie in the team classification, the best individual score (classification) will be used.

~~There shall be no more than two fly-off rounds to determine the winner. The second fly-off round will be timed to the completion of the flight for final results.~~

Reason: Clarification of the fly-off rule. The current text is making two different statements in one paragraph. The amended paragraph states clearly the intention of

a fly-off rule and also the procedure.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

af) **4.8 Timing and Classification**

Serbia

Add a new paragraph 4.8.12. as follows:

4.8.12. Electronic altimeters produced and approved in accordance with the provisions of the Sporting Code Volume EDIC – Electronic Devices in Competition – Section 2 - Technical Guidance Notes and Technical Specification for Altimeters Used in Space Modelling Competition V.1.0, which register the whole space model's flight trajectory and have time scale recording to at least 1/100th of a second, which is equivalent to quartz controlled electronic stopwatches with digital readout required for timing in paragraph 4.8.8 of these rules, can be used for timing in space models contests. Qualified personnel and procedure of calibration, preparation for flight and readout of data is the same as for altitude measurements.

Reason: Space models contests are very good participated so it is not easy to provide necessary number of qualified time keepers and stopwatches. If time keepers with little experience are engaged, errors in timing are not rare. Therefore it is better to rely on new technology which proved as accurate and reliable in last ten years in altitude measurements. This shall also make contest cheaper which is very important for good participation of sportsmen at all levels of contests.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

ag) **4.9.1. Triangulation Method**

Serbia

*Delete the entire section. Replace it with the following paragraph and a new Annex 7. For the text of **ANNEX 7 – TRIANGULATION METHOD**, refer to **Annex 7k**:*

Triangulation Method is described in Annex 7 of these rules. It is the oldest method for space models altitude measurements, is simple and cheap and is acceptable for lower levels of contests, but because of its slow procedure of tracking and results calculation as well as its limited accuracy, may be used only in Category 2 contests when and where electronic altimeters are not available. It is suitable for contests with smaller number of competitors and shall not be used for record attempts. It is also suitable as an educational tool for juniors.

Reason: Triangulation Method was used for decades but since 2010 is mostly replaced with electronic altimeters which are much more precise, quicker, efficient and require smaller crew for the measurement process. However, this method is still useful where spacemodelling is just being introduced and where electronic altimeters are not available yet. It is also good as the educational tool for juniors, but because of its limited accuracy (+/- 10%) may not be used for record attempts.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

ah) **4.10.1. Special Contest Organisation Requirements** **Croatia**

*Modify the following section: 4.10.1 by deleting text and replacing it as shown below. See **Annex 7p – Launch Boxes and Safety Code** for diagrams of the proposed launch boxes:*

4.10.1 Provide a starting line divided in two sectors for seniors and juniors (if both classifications exist in an event). Each sector shall be composed of the launch boxes ~~5 x 7~~ **9 x 9** metres marked by plastic, marking ribbon. The whole launching area shall be protected by marking ribbons of from the access of non-authorized persons. **The launcher must be mounted only in the central line of boxes. The minimum safe distance from the launcher to competitors who start the model must be 5 metres. The launch box must be empty of other competitors, helpers or timekeepers, when the RSO makes the 5 second countdown.**

Reason: Increasing the space around the launcher, makes it easier to maintain the safety distance of all present – competitors, helpers and judges.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 2, Against 20.

ai) **4.10.7 Special Contest Organisation Requirements** **Serbia**

Modify the following section: 4.10.7 by deleting text and replacing it as shown below:

4.10.7 Provide ~~at least two altitude measuring devices (theodolites)~~ **the necessary number of CIAM approved electronic altimeters with software** for altitude classes S1, S2 and S5 with proven qualified personnel. ~~and an appropriate radio communication system for data transfer from the tracking stations to the computer centre. In the case of electronic altitude measurements~~ **All electronic altimeters shall be impounded prior to the beginning of the competition and supervised by a special official qualified and equipped with the relevant devices to check and calibrate impounded equipment when necessary. If electronic altimeters are not available, Triangulation Method (Annex 5) can be used in Category 2 contests if the organizer provides at least two altitude measuring devices (theodolites) for altitude classes S1, S2 and S5 with proven qualified personnel and an appropriate radio communication system for data transfer from the tracking stations to the computer centre.**

Reason: Electronic altimeters are in regular practice for altitude measurements for last ten years at the FAI SM Championships and should have priority in the rules over mostly obsolete Triangulation Method. However this method should still be preserved in the rules to be used as an auxiliary method in areas where spacemodelling is just starting its activity and electronic devices are not available.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

aj) **4.10.10 Special Contest Organisation Requirements** **Serbia**

Add a new sub-paragraph to this section as follows:

4.10.10 The organiser of a space models international contest listed in the FAI Contest Calendar shall provide and use a software approved by CIAM to produce uniform documentation of the contest. This relates to bulletins, results lists, jury reports and other accompanying documentation required by CIAM. Requirements for this software are given in Annex 2 Chapter 5.d.

Reason: The organizers of Cat 1 and Cat 2 spacemodelling contests send bulletins, results and jury reports to the FAI office and/or World Cup coordinator which are very different from one to the other contest. This makes problems in WCup and SM International Ranking and cause errors in calculations and presentation of the final results. Modern technology also allows on-line registration and a number of possible statistical analysis and presentations but inputs must be of the same kind. Therefore a software approved by CIAM and available to and used by everyone is of a great importance.

Technical Secretary Note: See also the following proposals: Items ak) and al).

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

Annex 2 – Space Modelling Judges and Organisers' Guide

ak) **5. Organisers' Tasks** **Serbia**

Add a new paragraph 5. d. Contest Documentation Software as follows:

d. Contest Documentation Software - The organizer of a space models international contest listed in the FAI Contest Calendar shall provide and use to produce documentation of the contest, a software approved by CIAM. It shall contain:

Basic version: Templates for Bulletins 0 to 3, list of the contest officials, result tables for individuals and teams for all space models classes, template for jury report, contest calendar for the current year.

Advanced version: Basic version with its on-line presentation, on-line registration of participants, on-line presentation of the results in real time during the contest with automatic sorting of placings, downloadable pdf versions of the presented documents after the contest and downloadable excel versions of result tables.

Sophisticated version: Advanced version completed with checking of on-line registrations in the FAI data base, selecting contests per year, per country and per class, some statistical calculations and presentations etc.

This software shall have a tutorial for those who use it. The updated version if needed shall be approved by CIAM at the end of preceding year for the next year.

Reason: In the proposal for a new paragraph 4.10.10 are given reasons for such software approved by CIAM. This proposal gives guidelines what such software shall fulfil. Some of these requirements are already realized in existing software in different countries, but no one is approved and is not mandatory for application, which is very important. Basic version is prepared by Space S/C some ten years ago in “classic form”. It requires inclusion in more modern versions. Advanced version is partly realized and tested in different contests in Ukraine and Serbia. Sophisticated version gives direction for future development. All this should be in incorporated in one system to be used by everyone.

Technical Secretary Note: In Item cg) it was proposed to add a new paragraph, also 5.d. If both that proposal and this one (Item ak) are successful, the above proposal (Item ak) will be 5.e., and Item cg), Landing Safety Officer (LSO,) will become 5.d.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

a) **5. Organisers' Tasks**

Ukraine

Add a new paragraph 5. d. Contest Documentation Software as follows:

d. Contest Documentation Software - The organizer of a space models international contest listed in the FAI Contest Calendar must use contest automation software approved by CIAM.

Such a software must have the following features:

- **Be available online on the Internet;**
- **Be able to display event data online including list of the contest officials, competition schedule, organizers details, event location, entry fees, accommodation and board information, contacts, payment options, transfer information, display of registered teams and participants;**
- **Be able to maintain on-line registration of participants and teams;**
- **Be able to process entry fee payments online;**
- **Be able to validate FAI ID of participants online and retrieve name, date of birth, licenses, country, sport, and validity);**
- **Be able to automatically populate participants data based on information retrieved by their FAI ID;**
- **Provide way to input contest results manually;**
- **Provide API(application programming interface) to retrieve contest results from third-party systems;**
- **Provide customizable templates and generate downloadable PDF documents:**
 - **Bulletins 0 to 3;**
 - **List of contest officials;**

- **Jury reports:**
- **Provide customizable templates and generate downloadable PDF and Excel documents:**
- **Results for individuals and teams for all space model classes:**
- **Be able to display individual and team results in real time during contest:**
- **Be able to publish news, photos and videos;**
- **Be able to submit contest results to the FAI database;**
- **Be able to pull Cat 1 and Cat 2 spacemodelling contests from the FAI database;**
- **Display all Cat 1 and Cat 2 spacemodelling contests, sort competitions by years, countries, dates, classes of models;**
- **This software shall have a tutorial for those who use it.**

Reason: The proposal for the new paragraph 4.10.10 explains why we need such software that is approved by CIAM. This proposal gives detailed requirements for what such software should fulfill. The availability of the system online on the Internet makes it a multi-tool for all space modelling competitions and be readily accessible at all times. The ability to work with the API will allow the program to receive information from third-party programs and calculate it (upload data in Excel format, receive flight data from altimeter software, etc.). With such program functionality, competitions such as the World Cup stage can be held using one laptop or even one tablet. Similar software has shown a positive result when used in space modelling contests Cat 1 (European Championship 2015 & 2019, World Championship 2016) and different stages of the World Cup which pertain to Cat 2. We need one system that will include all these requirements and will be used by everyone.

Space Models Subcommittee declined to support the proposal: For 2, Against 11.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

Part Seven – Parachute/Streamer Duration Competition (Classes S3 and S6)

am) 7.1 General

Slovak Republic

Modify the paragraph by deleting text as shown below:

The Parachute or Streamer Duration Competition is divided into classes according to the total impulse of the engine used. During the flight no part of the model ~~other than parachute protectors or wadding~~ may be detached or jettisoned.

Reason: Safety update, and not detaching any part of the model makes the class more challenging.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 20, Against 1. Effective 01/01/22.

an) 7.4 Sub-Classes**Croatia**

Delete the table and replace it as shown below. The last three rows remain unchanged:

For Parachute and Streamer Duration Competitions the classes and their respective maximum flight times are:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM PARACHUTE (sec)	FLIGHT TIME STREAMER (sec)
S3A/S6A	0,00 - 2,50	100	300	180
S3B/S6B	2,51 - 5,00	100	420	240
S3C/S6C	5,01 - 10,00	200	540	300
S3D/S6D	10,01 - 20,00	500	660	360

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	<u>MINIMUM WEIGHT</u>	MAXIMUM PARACHUTE (sec)	FLIGHT TIME STREAMER (sec)
S3A/2A - S61/2A	0,00 - 1,25	100		240	120
S3A/S6A	1,26 - 2,50	100		300	180
S3B/S6B	2,51 - 5,00	100		420	240
S3C/S6C	5,01 - 10,00	200		540	300
S3D/S6D	10,01 - 20,00	500		660	360

Reason: Using smaller A/2 engines instead A, can reduce the maximum flight duration and this make smaller grounds to complete. In Croatia, the A/2 motors with good results have been used at the state championship for many years. See also Items j (2.4.4), t (4.2), az (8.4)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 3, Against 20.

ao) 7.4 Sub-Classes**Switzerland**

Delete the table (shown above in Item am)) and replace it as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM PARACHUTE (sec)	MAXIMUM STREAMER (sec.)
S3A/2/S6A/2	0,00 - 1,25		300	180
S3A/S6A	1,26 - 2,50	100	300	180
S3B/S6B	2,51 - 5,00	100	420	240
S3C/S6C	5,01 - 10,00	200	540	300
S3D/S6D	10,01 - 20,00	500	660	360

Consequential Change: Provisional Rules: Class S6A/P – Streamer target Duration Time

7.5.2. Construction requirement and specification

Models for this class are identical with those in Class S6A **S6A/2** – Streamer duration competition.

Reason: New Class. See also *Items i (2.44), av (8.4), bt (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

ap) 7.4 Sub-Classes

Ukraine

Delete the table (shown above in Item am)) and replace it as shown below:

CLASS	TOTAL IMPULSE (Ns)	MAXIMUM WEIGHT (g)	MAXIMUM PARACHUTE (sec)	MAXIMUM STREAMER (sec.)
S3A/2 - S6A/2	0,00 – 1,25	100	300	180
S3A/S6A	1.26 - 2,50	100	300	180
S3B/S6B	2,51 - 5,00	100	420	240
S3C/S6C	5,01 - 10,00	200	540	300
S3D/S6D	10,01 - 20,00	500	660	360

Reason: The introduction of new classes of models of rockets in adults and juniors will give a powerful impetus to the development of new technologies, will make rocket sports for the spectators and sponsors more attractive. It will allow the organizers of European and World Championships to be more flexible in the choice of rocket model classes, depending on the size of the flying field. Reducing the overall momentum for racing in radio-controlled models will be interesting because more athleticism and skill. See also *Items k (2.44), s (4.1), aw (8.4), bv (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

aq) 7.4 Sub-Classes

Italy

Delete the table (shown above in Item am)) and replace it as shown below:

CLASS	TOTAL IMPULSE (Newton-secondsNs)	MAXIMUM WEIGHT (g)	MAXIMUM PARACHUTE (sec)	MAXIMUM FLIGHT TIME STREAMER (sec)
S3A/2 - S6A/2	0.00 - 1.25	100	300	180
S3A3/4 - S3A3/4	1.26 - 1.88	100	300	180
S3A/_S6A	0,001.89 - 2,50	100	300	180
S3B/_S6B	2,51 - 5,00	100	420	240
S3C/_S6C	5,01 - 10,00	200	540	300
S3D/_S6D	10,01 - 20,00	500	660	360

Reason: The present proposal intends to meet the need to facilitate the recovery of the S1, S3, S4, S6 and S9 models normally used in competition by reducing the available total impulse of the engine.

This allows for a more rational, efficient and cheaper approach instead of increasing the size of the models.

Two new classes of engines that can be used in competition are introduced: A/2 and A3/4, endowed respectively with 50% and 75% of the total impulse of the class A, the least powerful to date. See also *Items n (2.44), ba (8.4), bu (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Italy.

ar) **7.4 Sub-Classes**

Russia

Add a column to the table as shown below:

CLASS	<u>MINIMUM LENGTH OF STREAMER</u> (mm)	<u>MINIMUM WIDTH OF STREAMER</u> (mm)
S3A/S6A	<u>3000</u>	<u>150</u>
S3B/S6B	<u>4000</u>	<u>170</u>
S3C/S6C	<u>5000</u>	<u>190</u>
S3D/S6D	<u>6000</u>	<u>210</u>

Reason: Using a larger tape will increase the starting weight of the model, which in turn will reduce the flight altitude of the model and improve its visibility.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia.

Provisional Rules – Class S6A/P – Streamer Target Duration Competition

as) **7.5. Class S6A/P – Streamer target time duration competition**

Switzerland

Change the title:

~~Class S6A/P – Streamer target time duration competition~~

Class S6-G – Streamer group duration competition

Reason: Clarification.

Space Models Subcommittee declined to support the proposal: For 6, Against 7.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

at) **7.5. Class S6A/P – Streamer target time duration competition**

Switzerland

Change this class from Provisional to Official.

Move full text 7.5 to 7.5.4 from Page 56 to 7.5 to 7.5.4 in Part Seven Page 27

Space Models Subcommittee declined to support the proposal: For 6, Against 7.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

au) 7.5.1 Purpose of competition

Switzerland

Modify the following section: 4.8.1 by deleting some text as shown below:

The purpose of this competition is to achieve, ~~as exact as possible~~, the target time of 240 sec and to launch the model within the five (5) minutes working time for the relevant group. The model shall be timed from the instant of first motion on the launcher until the instant it touches the ground.

Reason: Clarification.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

Part Eight – Boost Glider Duration Competition (Class S4)

av) 8.4 Sub-Classes

Switzerland

Delete the table and replace it as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S4A	0,00 - 2,50	60	180
S4B	2,51 - 5,00	90	240
S4C	5,01 - 10,00	120	300
S4D	10,01 - 20,00	240	360
S4E	20,01 - 40,00	300	360
S4F	40,01 - 80,00	500	360

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	<u>MINIMUM WING SPAN (mm)</u>	MAXIMUM FLIGHT TIME (sec.)
<u>S4A/2</u>	<u>0,00 – 1,25</u>		<u>600</u>	<u>180</u>
S4A	1,26 - 2,50	60	<u>700</u>	180
S4B	2,51 - 5,00	90		240
S4C	5,01 - 10,00	120		300
S4D	10,01 - 20,00	240		360
S4E	20,01 - 40,00	300		360
S4F	40,01 - 80,00	500		360

Reason: Add Class, delete old Classes. See also *Items i (2.44), ao (7.4), bt (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

aw) 8.4 Sub-Classes**Ukraine**

Delete the table (shown above in Item au)) and replace it as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S4A/2	0,00 – 1,25	60	180
S4A	1,26 - 2,50	60	180
S4B	2,51 - 5,00	90	240
S4C	5,01 - 10,00	120	300
S4D	10,01 - 20,00	240	360
S4E	20,01 - 40,00	300	360
S4F	40,01 - 80,00	500	360

Reason: As for Item ap). See also Items k (2.4.4), s (4.1), ap (7.4), bv (12.5)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

ax) 8.4 Sub-Classes**Russia**

Modify the table (shown above in Item au)) with the deletions and additions as shown below:

8.4. SUB-CLASSES

CLASS	TOTAL IMPULSE (Newton-seconds)	<u>MINIMUM WING SPAN</u> <u>(mm)</u>	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S4A	0,00 - 2,50	1000	60 90	180
S4B	2,51 - 5,00	1100	90 120	240
S4C	5,01 - 10,00	1200	120 150	300
S4D	10,01 - 20,00	1300	240 180	360
S4E	20,01 - 40,00	1400	300 210	360
S4F	40,01 - 80,00	1500	500 240	360

In a class of models S4 wing chord size should be at least 7% of the wingspan, and at least 50% of the total length of the wing.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia.

ay) 8.4 Sub-Classes**Bulgaria**

Modify the table with an additional column as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	<u>MINIMUM WING SPAN</u> <u>(mm)</u>	MAXIMUM FLIGHT TIME (sec.)
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S4A	0,00 - 2,50	60	700	180
S4B	2,51 - 5,00	90	800	240
S4C	5,01 - 10,00	120	900	300
S4D	10,01 - 20,00	240	1000	360
S4E	20,01 - 40,00	300	1200	360
S4F	40,01 - 80,00	500	1200	360

Reason: The models will become more attractive and visible to the viewers. The safety of the competitors will be improved. The timekeeper factor - "I see / I don't see" will decrease and disappear. The models will not be much larger in length and this will facilitate their transportation and hence the additional cost. In the height classes, the models will be visible due to the smaller height and will not lose altimeters which also reduces the cost to the competitor.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Bulgaria.

az) 8.4 Sub-Classes

Croatia

Modify the table as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S4A/2	0,00 – 1,25	60	120
S4A	1,26 - 2,50	60	180
S4B	2,51 - 5,00	90	240
S4C	5,01 - 10,00	120	300
S4D	10,01 - 20,00	240	360
S4E	20,01 - 40,00	300	360
S4F	40,01 - 80,00	500	360

8.5 If the S4 models can throw off the engine mouth, they will be able to climb more steadily.

Reason: Using the lower engine in class S4, can reduce the maximum flight duration, this satisfying the smaller terrains and introducing more starts, one day. See also Items j (2.4.4), t (4.2), an (7.4)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 2, Against 21.

ba) 8.4 Sub-Classes

Italy

Modify the table as shown below:

8.4. SUB-CLASSES

For Boost/Glider Duration Competitions the classes and their respective maximum flight times are:

CLASS	TOTAL IMPULSE (Newton-seconds Ns)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.) (s)
<u>S4A/2</u>	<u>0.00 - 1.25</u>	<u>60</u>	<u>180</u>
<u>S4A3/4</u>	<u>1.26 - 1.88</u>	<u>60</u>	<u>180</u>
S4A	0,001.89 - 2,250	60	180
S4B	2,251 - 5,200	90	240
...			

Reason: Two new classes of engines that can be used in competition are introduced: A/2 and A3/4, endowed respectively with 50% and 75% of the total impulse of the class A, the least powerful to date. *See also Items n (2.44), aq (7.4), bu (12.5)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Italy.

Part Nine – Scale Competition (Class S7)

bb) 9.1 Definition

Slovak Republic

Add a note to this section:

9.1. DEFINITION

Scale competition is a single event and is limited to flying space models that re true scale models of existing or historical guided missiles, rocket vehicles, or space vehicles. **Note: To indicate the subject full-size rocket being scale modelled, the word "prototype" may be used. To indicate the scale model itself, the word "entry" may be used.**

Reason: Added definition for “prototype” and “entry” in the definitions section.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Unanimously approved by the Plenary Meeting. Effective 01/01/22.

bc) 9.6 Stabilising Fins

Slovak Republic

Add a sentence to this section as shown below:

9.6. STABILISING FINS

Scale models of rockets, missiles or space vehicles that are not fin-stabilised may be fitted with transparent plastic fins so as to make the model stable in flight while detracting the least from the scale qualities of the model. **The clear stabilising fins may be detached from the entry for static judging, but must be presented with the entry (best near it).**

Consequential Amendment to 9.8:

9.8. CONDITIONS OF MODEL FOR JUDGING

Models will be judged for scale qualities in flight condition minus space model motors. All ~~clear plastic fins~~, launching lugs, and fittings and other flight items must be attached to the model for scale judging. Nothing may be added to or taken off the model between the scale judging and the flight except space model motors, **detachable plastic fins** and recovery device packing.

Reason: Clear plastic fins have to be used to stabilize the model. For esthetical reasons, competitors don't use proper stabilising surfaces, which causes in some cases unstable flights. Allowing detachable fins, the judges can better judge the model, and the model's stability is improved.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 22, Against 1. Effective 01/01/22.

bd) 9.7. Plastic Model Kit Parts

Slovakia

Add the following text to Par.9.7. as shown below.

Parts from plastic model kits **and 3D printed parts** may be used on scale space models provided that this use is pointed out in the data presented with the model at the time of judging for scale qualities.

Reason: 3D printed parts are becoming more often used on scale models. As they are parts not directly manufactured by the competitor, they underly the same level and treatment as parts from kit parts.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 21, Against 1. Effective 01/01/22.

be) 9.11. Scale Judging

Slovakia

Modify the following section: 9.11.1 with the deletions and additional text shown below:

9.11.1. A competitor who presents the following proper technical data may be awarded with points defined in the paragraphs below only for items documented in these technical data:

7. authentic, authorised drawing(s) of the prototype with ~~at least ten dimensions and three~~ cross sections, i.e. data which define colour of ~~cross-sections~~ and markings on it;
8. workshop drawing of scale model that shows prototype and model dimensions;
9. ~~at least one colour~~ photographs of the whole prototype with clearly visible details of colour and markings;
10. ~~at least three~~ photographs of details and assemblies;
11. **Flight profile - taken from official sources: official publications, magazines, books, specifications of the design bureau or developer of space rocket systems.**

12. [Drawing that indicates powered parts and separation joints.](#)
13. file containing all necessary technical data including data regarding the locations of the centre of gravity, centre of pressure, gross weight, burnout weight and/or calculated or measures flight performance of the model necessary for safety reasons.

Reason: Clarification of what data are needed to be presented by the competitor.

Space Models Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was approved by the Plenary Meeting: For 23, Against 2. Effective 01/01/22.

bf) 9.11. Scale Judging

Russia

Modify the following section: 9.11.1 with the additional text shown below:

- 9.11.1. A competitor who presents the following proper technical data may be awarded with points defined in the paragraphs below only for items documented in these technical data:
- i. authentic, authorised drawing(s) ...;
 - ii. workshop drawing of scale model that shows prototype and model dimensions; **place stage separation model;**
 - iii. at least one colour photograph ...;
 - iv. at least three photographs of details and assemblies;
 - v. file containing all necessary technical data ...;
 - vi. **the cyclogram flight of the prototype.**

Reason: Place stage separation, you must specify to estimate the sub-heading "Degrees" of Flight Characteristics.

The prototype flight cyclogram is necessary to confirm the claimed special effects and flight stages.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia as the proposal had been included in Item be).

bg) 9.11. Scale Judging

Slovak Republic

Modify the following section: 9.11.4 by deleting the last sentence as shown below:

Degree of difficulty: 150 points maximum. To be judged on the degree of difficulty involved in constructing the model up to 110 points. Factors to be considered include symmetry of model; number of external components; intricacy of paint pattern; degree of detailing; and degree of difficulty in adapting the model for flight conditions. A bonus of 40 points for "originality" shall be awarded to a prototype that is the only one in the competition and a bonus of 20 points shall be awarded if two prototypes of the same kind enter the competition. No bonus points shall be awarded if there are three or more models of the same kind. ~~For originality points, prototypes with the same external appearance except for flight serial~~

number/markings and colours/paint pattern shall not be considered unique vehicles (e.g., Saturn IB/Skylab flights, Soyuz-FG/TMA flights, etc.).

Reason: The definition of a scale model prototype is stated in Annex 2 d.5 so the second definition is not needed. *See also the following proposal.*

Space Models Subcommittee declined to support the proposal: For 8, Against 8

Proposal was withdrawn by Slovakia at the Technical Meeting.

bh) 9.11. Scale Judging

Ukraine

Delete the section: 9.11.4. (not reproduced here – see Item bd) – and replace it with the paragraph shown below:

Degree of difficulty: maximum 150 points. Judge the degree of difficulty associated with model building up to 150 points. Factors to consider include the symmetry of the model; number of external components; sophistication of paint; the degree of detail; and the degree of difficulty in adapting the model to flight conditions.

Reason: The main purpose of introducing 40 points for "originality" was the hope of the emergence of new scale models that would receive points for "fresh breath" in this class. Unfortunately, this did not happen. Therefore, it is suggested that you redistribute these points in the "Difficulty" section, leaving a total score of 150. This will remove the tension and speculation around this topic.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

bi) 9.11. Scale Judging

Ukraine

Modify the following section: 9.11.5 as shown below:

9.11.5. **Flight, characteristics:** ~~300~~ **350** points maximum. To be judged on launch, stability of flight, staging (if any) and recovery. A competitor has to designate which operations his models are to perform in flight (eg separation of stages; radio controlled trajectory; ejection of payload, etc).

When submitting a space model for bench evaluation, the participant must also submit a flight cyclogram to evaluate the flight characteristics, confirming all flight stages of the selected prototype and its specific consequences: separation of stages in time (tandem or block division of stages), separation of transition surfaces, hulls, satellites, inclusion or exclusion of upper stage engines, or optical clouds, etc. In assessing the flight of a space model, judges should calculate points based on how close that flight is to the flight of a real rocket based on the provided flight cyclogram.

If the model has been disqualified in both official flights, the competitor will not be eligible for final classification.

Reason: Increasing a flight rating from 300 points to 350 reduces the "dominant pressure" between scale and flight ratings. This requirement, regarding the provision of the official flight scheme and the system of separation of the prototype stages, will make it possible to familiarize the crew of judges of scale with the flight scheme of the model rocket before the start of the start and remove the annoying errors in terms of time limit at the launch pad.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine as the proposal had been partially included in Item be).

Part Eleven – Rocket Glider Duration Competition (Class S8)

bj) 11.2 Purpose

Switzerland

Modify the following section: 11.2 Purpose - as shown below:

The purpose of this competition is to achieve the longest flight duration time in combination with a landing of any part of the model within a given **one or more** landing area(s) of 20 by 20 **15 by 15** metres.

Reason: At the World or Continental Championships the pilots have to walk a long distance to the landing field. The pilot level has improved so that the landing field can be reduced.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

bk) 11.6 Sub-Classes

Switzerland

Delete the table and replace it as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec)
S8A	0,00 - 2,50	60	500	180
S8B	2,51 - 5,00	90	650	240
S8C	5,01 - 10,00	120	800	300
S8D	10,01 - 20,00	300	950	360
S8E & S8E/P	20,01 - 40,00	300	1100	360
S8F	40,01 - 80,00	500	1250	360

CLASS	TOTAL IMPULSE (Ns)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec)
S8B	2,51 - 5,00	90	650	240
S8D	10,01 - 20,00	250	1100	360
S8D-P	10,01 - 20,00	250	1250	360
S8E	20,01 - 40,00	250	1450	360

Reason: The specifications for class S8-P are defined under 11.7.2. Adaptation of the model specifications to the coming aviation regulations so that they can be flown

without major restrictions.

Also see Item bl) which follows.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

bl) 11.7 Class S8E/P Radio Controlled Rocket Glider Time Duration And Precision Landing Competition **Switzerland & Ukraine**

Change the name of the Class:

Class S8E/P **S8-P** Radio Controlled Rocket Glider Time Duration and Precision Landing Competition.

Consequential Amendment to 4.10.2 b):

b) for S8E/P **S8-P** a landing line with landing circles in accordance with Volume S paragraph 11.7.5 and relevant subparagraphs.

Reason: The specifications for the engine class S8-P are defined under 11.7.2. See *Item bj) below.*

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

bm) 11.7.2 Specifications **Switzerland**

Modify the following section: 11.7.2 Specifications - as shown below:

~~The competition has only one subclass determined for models which comply with subclass S8E. Total impulse of engine(s) 20,01 to 40,00 is allowed.~~

The competition has only one subclass determined for models which comply with subclass S8D-P.

Reason: The reduction in performance makes competition more interesting as flight times are more difficult to achieve. Adaptation of the model specifications to the coming aviation regulations so that they can be flown without major restrictions.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

bn) 11.6 Sub-Classes **Ukraine**

Delete the table shown in Item bh) and replace it with the table shown below.

In addition the amendment of 11.1.3. is consequential to Switzerland, Ukraine and Russia proposals:

11.1.3. Radius of the nose must be a minimum of 5 mm in all orientations for S8D,

S8E, S8E/P S8D/P and S8F.

CLASS	TOTAL IMPULSE (Ns)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (s)
S8D	10,01 - 20,00	250	1100	360
S8D for P	10,01 - 20,00	250	1250	360
S8E for P	20,01 - 40,00	250	1450	360

Reason: See previous proposals.

Space Models Subcommittee declined to support the proposal: For 5, Against 9.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

bo) 11.6 Sub-Classes

Russia

Delete the table shown in Item bh) and replace it with the table shown below.

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec.)
S8A	0,00 - 2,50	60	500	180
S8B	2,51 - 5,00	90	650	240
S8C	5,01 - 10,00	120	800	300
S8D	10,01 - 20,00	240	960	360
S8E & S8E/P	10,01 - 20,00	250	1100	360
S8F	40,01 - 80,00	500	1500	360

Motors for the competition category 1 (Championships and World and European Championships) must be provided by the organizers in an amount sufficient to participate in the contest and training flights.

Space Models Subcommittee declined to support the proposal: For 2, Against 12.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

bp) 11.6 Sub-Classes

Bulgaria

Modify the table as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec.)
S8A	0,00 - 2,50	60	500	180
S8B	2,51 - 5,00	90	650	240
S8C	5,01 - 10,00	120	800	300
S8D	10,01 - 20,00	240	1300	360
S8E & S8E/P	10,01 - 20,00	250	1450	360

S8F	40,01 - 80,00	500	1450	360
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Reason: The models will become more attractive and visible to the viewers. The safety of the competitors will be improved. The timekeeper factor - "I see / I don't see" will decrease and disappear. The models will not be much larger in length and this will facilitate their transportation and hence the additional cost. In the height classes, the models will be visible due to the smaller height and will not lose altimeters which also reduces the cost to the competitor.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Bulgaria.

bq) 11.7.2 Specifications

Ukraine

Modify the following section: 11.7.2 Specifications - as shown below:

~~The competition has only one subclass determined for models which comply with subclass S8E. Total impulse of engine(s) 20,01 to 40,00 is allowed.~~

~~The radio shall be able to operate at 2.4 GHz. Where the radio does not meet this requirement, the working bandwidth (Maximum 50 kHz) shall be specified by the competitor.~~

There are two subclasses defined for the S8-P class. Allowed total impulse of the motor(s) for S8D / P from 10.01 to 20.00 Ns, for S8E / P from 20.01 to 40.00 Ns.

Specifications for flight time models in Class S8-P shall be as specified in paragraph 11.6.

Landing accuracy points are accrued in accordance with 11.7.3, 11.7.5.

The radio should operate at 2.4 GHz. If the radio does not meet this requirement, the competitor must determine the working bandwidth (maximum 50 kHz).

Reason: The introduction of new classes of models of rockets in adults and juniors will give a powerful impetus to the development of new technologies, will make rocket sports for the spectators and sponsors more attractive. It will allow the organizers of European and World Championships to be more flexible in the choice of rocket model classes, depending on the size of the flying field. Reducing the overall momentum for racing in radio-controlled models will be interesting because more athleticism and skill.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

br) 11.7.3 Landing Area

Ukraine

Modify the following section b) in 11.7.3. 'Landing Area' with the additions as shown below:

b) A landing area consisting of the appropriate number of 10 metre landing circles,

for the final, 3 metre circles, laid out square to the wind direction and with the marked landing tapes pinned down at the centre of each circle. The contest director is responsible for determining the direction and layout of the circles. Any changes of indicated landing area are forbidden during the round. The landing area must be located at a place on the field where there is no danger of collision with any person during the landing of the models.

c) The location of the ~~timekeepers~~ ~~timekeeping judges~~ and pilots during landing near their landing circles is the responsibility of a specially appointed landing officer.

Reason: See previous reason.

Space Models Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was unanimously approved by the Plenary Meeting. Effective 01/01/22.

bs) 11.7.4. Timing and Classification

Switzerland

Modify the following sections: 11.7.4.9 and 11.7.4.10 - as shown below. Renumber the final sub-paragraph 11.7.4.11 to 11.7.4.10:

11.7.4.9. There shall be **four rounds** ~~three initial rounds and one final round~~, except for ~~Continental and World Championships~~ **Category One events** which shall have four initial rounds and two final rounds. **At Category One events the five competitors with the highest score after the initial rounds qualify for the final rounds, and shall fly as a group.**

~~11.7.4.10. The five competitors with the highest scores after the initial rounds qualify for the final round(s).~~

~~All competitors in the final round(s) shall fly as a group. If there is a frequency conflict, the competitor with the worst score in the initial rounds must change the frequency of his/her radio.~~

Reason: This solves the problem with the World Cup point calculation (large difference in points between the finalists and the other participants). 11.7.4.9. must be changed together with 11.7.4.10.

Space Models Technical Meeting unanimously recommended the proposal as amended.

Vote: Amended proposal was unanimously approved by the Plenary Meeting. Effective 01/01/22.

bt) 11.7.5.4. Organisation of Starts

Switzerland

Modify the following section: 11.7.5.4. with the addition of two sentences:

In normal situations the circles will overlap each other but the centres should never be closer than 10 metres apart as in the diagram above. A competitor (pilot) and one helper may stay at the landing area either inside or outside the landing circles.

The timekeepers must stand outside the landing circles behind the pilots.

The LSO (landing safety officer) supervises the pilots, helpers and timekeepers and the measuring team of the landing points to prevent obstructions to landing models.

Reason: Safety! The pilots, helpers and timekeepers run like chickens through the landing circles after their flight and have already caused collisions and severe obstructions of the models landing later.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

bu) 11.7.5.3. Organisation of Starts

Ukraine

Modify the following section as shown below:

11.7.5.3. Each group of competitors has 42 **10** minutes of working time to perform an official fight. In the case of the working time being exceeded (a delay in landing), the competitor will be disqualified for the round.

Reason: See previous reason for this section of proposals from Ukraine.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

Part Twelve – Gyrocopter Duration Competition (Class S9)

bv) 12.5 Sub-Classes

Switzerland

Modify the tables as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S9A/2	0,00 – 1,25		180
S9A	1,26 - 2,50	60	180
S9B	2,51 - 5,00	90	240
S9C	5,01 - 10,00	150	300
S9D	10,01 - 20,00	200	360

12.6.5 Time Duration Triathlon Tournament (Provisional) Sub-Classes

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S12A/2/P	0,00 – 1,25		180
S12A/P	1,26 - 2,50	60	180

S12B/P	2,51 - 5,00	90	240
S12C/P	5,01 - 10,00	150	300
S12D/P	10,01 - 20,00	200	360

Reason: Add Class, delete old Class. See also *Items i (2.4.4), ao (7.4), av (8.4)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

bw) 12.5 Sub-Classes

Italy

Modify the tables as shown below:

CLASS	TOTAL IMPULSE (Newton-secondsNs)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.s)
S9A/2	0.00 - 1.25	60	180
S9A3/4	1.26 - 1.88	60	180
S9A	0,001.89 - 2,250	60	180
S9B	2,251 - 5,200	90	240
...			

13.6. Sub-Classes

CLASS	TOTAL IMPULSE (Newton-secondsNs)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.s)
S10A/2	0.00 - 1.25	60	180
S10A3/4	1.26 - 1.88	60	180
S10A	0,001.89 - 2,250	60	180
S10B	2,251 - 5,200	90	240
...			

12.6.5. Sub-Classes

CLASS	TOTAL IMPULSE (Newton-secondsNs)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.s)
S12A/2	0.00 - 1.25	60	180
S12A3/4	1.26 - 1.88	60	180
S12A	0,001.89 - 2,250	60	180
S12B/P	2,251 - 5,200	90	240
...			

Reason: Two new classes of engines that can be used in competition are introduced: A/2 and A3/4, endowed respectively with 50% and 75% of the total impulse of the class A, the least powerful to date. See also *Items n (2.44), aq (7.4), ba (8.4)*

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Italy.

bx) 12.5 Sub-Classes

Ukraine

Modify the tables as shown below:

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S9A/2	0,00 – 1,25	60	180
S9A	1,26 - 2,50	60	180
S9B	2,51 - 5,00	90	240
S9C	5,01 – 10,00	150	300
S9D	10,01 – 20,00	200	360

12.6.5 Time Duration Triathlon Tournament (Provisional) Sub-Classes

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MAXIMUM FLIGHT TIME (sec.)
S12A/2	0,00 – 1,25	60	180
S12A	1,26 - 2,50	60	180
S12B/P	2,51 - 5,00	90	240
S12C/P	5,01 – 10,00	150	300
S12D/P	10,01 – 20,00	200	360

Reason: See previous reason for the similar proposals. See also Items k (2.4.4), s (4.1), ap (7.4), aw (8.4)

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

by) 12.5 Sub-Classes

Russia

Add a column to the table as shown below:

CLASS	MINIMUM LENGTH OF BLADE (mm)
S9A	700
S9B	800
S9C	900
S9D	1000

Reason: The use of rocket planes with a large wing size will reduce the flight altitude of the model and improve visibility for timekeepers, and facilitate the search for models.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia.

Annex 1 – Scale Space Models Judge’s Guide

bz) Scale Judging Tables

Slovak Republic

*Amend the Scale judging tables. Also, if rule change applied, change the number of points in Paragraphs 9.11.2-9.11.5 accordingly to the numbers in the tables in Annex 1. See **Annex 7l – Space Annex 1 – Scale Judging Tables – Item bz.***

Note: Version 2 was supplied for Plenary 2021.

Reason: The intention of this proposal is to make the current rules easier for both – competitors and judges. As praxis has shown a bigger focus has to be brought to the realism and stability of the flight as it currently plays a more minor role than it should. Beside this, the smaller difference between static/flight motivates people to build a wider range of prototypes.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

ca) Scale Judging Tables

Ukraine

*Modify the Scale judging tables. See **Annex 7m - Space Annex 1 – Scale Judging Tables – Item ca.***

Reason: These changes are proposed for improvement in the Scale Model category. They should empower competitors to realize the potential embedded in each space model. Scale judges will make it easier to calculate points when assessing scale accuracy and flight demonstration.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

cb) Scale Judging Tables

Russia

*Modify 9.11.4. ‘Degree of Difficulty’ and the Scale judging tables. See **Annex 7n Space Annex 1 – Scale Judging Tables – Item cb.***

9.11.4. Degree of Difficulty

150 points maximum. To be judged on the degree of difficulty involved in constructing the model up to 440 **150** points. Factors to be considered include ...

Reason: - Improving the objectivity of assessment: comparison of the number of similar elements.

- Configuration. 20 points not enough for the differentiated assessment between complex models with side blocks and a simple model "cylinder with cone".

- External components and Detailing. A fairer assessment of the participant's work. Production of external components and parts takes a significant part of the total time to manufacture the model.

- Originality. Practice has shown that there are no more new models. In addition, it is necessary to exclude the random element of evaluation in the exact technical sport.

- Improving the objectivity of the assessment: assessing the elements of the flight in

accordance with the complexity of the demonstration.

- Divide the "Special effects" category into 3 subcategories with varying difficulty demonstrating special effects.
- List the most common special effects and evaluate them according to the complexity of the demonstration. Demonstration of smoke before the flight is much easier than the demonstration of the separation of the side blocks (busters).
- Fair encouragement for participants demonstrating difficult special effects.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Russia.

Annex 2 – Scale Space Models Judges’ and Organisers’ Guide

cc) 2. Judges Tasks

Ukraine

Modify the following sections as shown below, with the deletion in c. and the addition of a final sentence, named f.:

Special Judge Duties:

~~c. Radio control events require that all transmitters (including 2.4 GHz) be impounded and kept under control of a steward and be issued to the competitor at flight time then returned. The steward or the judge will also monitor radio frequencies to detect interference and communicate this information to the pilot.~~

Engine Test Officials:

f. The calibration control of electronic equipment undergoing static rocket test shall meet the requirements of 3.12.1; 3.12.2; 3.12.3; 3.13.4

Reason: Clarifications and changes are agreed in Annex 2 to the GENERAL REGULATIONS and SPECIAL RULES OF SPATIAL COMPETITIONS, Championships and entries.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

cd) 4. Specific Events

Ukraine

*Modify d.1., d.4., and d.5. in **Scale Events** as shown below:*

d.1. Flight Characteristics-Staging: Stages must separate step by step. If the 3rd stage separate simultaneously with the 2nd stage the flight will be considered two stage only. ~~With Saturn 1B and Soyuz if the competitor performs a powered flight of command module, this shall be evaluated as "modeller's third stage", according to paragraph 2.3.1.~~

~~d.4. Flight Characteristics-Recovery: For single stage, one parachute up to 10 points will be awarded. If a single stage rocket separates up to 20 points will be awarded. With multistage models deployment of a parachute will be awarded up to 10 points and a deployment of streamer 5 points. Maximum recovery points in any case may not exceed 40.~~

d.4. Flight Recovery Characteristics: Damage points are not calculated in accordance with paragraph 1.1. Part One - GENERAL DEFINITIONS: All parts of the space model, separated during flight, must be returned through the rescue system. To prove if the scale models to be launched are the same models which were submitted for static judging, judges will designate each model with an appropriate marking during the static judging.

d.5. Definition of a scale model prototype: A scale model prototype is defined as the first sub- class of a rocket family (according to NASA and Wikipedia this is defined as version). ~~For example : Ariane is the name of a rocket family, which has flown five variants up to date, thus: Ariane 1, 2, 3, 4 and 5. These five variants are defined as scale model rocket prototypes.~~

Reason: Clarifications and changes are agreed in Annex 2 to the GENERAL REGULATIONS and SPECIAL RULES OF SPATIAL COMPETITIONS, Championships and entries.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

ce) 4. Specific Events

Slovak Republic

Modify d.5. in Scale Events as shown below:

d.5. Definition of a scale model prototype: A scale model prototype is defined as the first sub-class of a rocket family (according to NASA and Wikipedia this is defined as version). For example: Ariane is the name of a rocket family, which has flown five variants **launch vehicles** up to date, thus: Ariane 1, 2, 3, 4 and 5. These five variants **launch vehicles** are defined as **different** scale model rocket prototypes.

Reason: More understandable definition for a scale model rocket prototype.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

cf) 4. Specific Events

Switzerland

Delete the final sentence in 4.a. Rocket Glider and Boost Glider:

~~In classes S4, S8 and S10, a flight is declared official if the model maintains a stable aerodynamic glide for at least 60 seconds, or it lands by stable flight.~~

Reason: Conflicting with 4.6.5.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

cg) 5. Organisers' Tasks

Switzerland

Add a paragraph (d.) to this section as shown below:

d. Landing Safety Officer (LSO) - Organiser of an international S8 contest will appoint a person to act as Landing Safety Officer (LSO). LSO can be from the organising NAC. When there are junior and senior classifications at the same place and at the same time organiser shall appoint two LSO, one for senior and the other for junior classification.

Reason: Safety! The pilots, helpers and timekeepers run like chickens through the landing circles after their flight and have already caused collisions and severe obstructions of the models landing later.

Technical Secretary Note: In Item ak) it was proposed to add a new paragraph 5.d. Contest Documentation Software. If both that proposal and this one are successful, the above proposal will be 5.d., and the Contest Documentation Software will become 5.e.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

Annex 3 – Space Models World Cup

ch) 1. Classes

Switzerland

Modify this section with the deletion and addition as shown below:

~~The following separate classes are recognised for World Cup Competition: S4A, S6A, S7, S8E/P and S9A.~~

The following separate classes are recognised for World Cup Competition: S4, S6, S7, S8-P and S9.

The subclasses to be performed are defined in CIAM General Rules C.15.2.2

Reason: Clarification

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved unanimously by the Plenary Meeting. Effective 01/01/22.

Annex 5 – FAI Space Model Safety Code

ci) Proposed new Annex 5 – FAI Space Model Safety Code Space Subcommittee

*For the text of the proposed new Annex 5, see **Annex 7o**:*

Note: This is a replacement for the submission from USA for the 2020 Plenary Meeting. This replacement version of the proposed new Annex 5 is based on meetings and discussions of an international working group on safety organised by Zoran Pelagic.

Reason: This is a proposed new Annex to the Space Model Code, to provide a complete Safety Code that has all of the safety-related requirements from all parts of the Code brought together and summarized in one place for easy reference.

Space Models Technical Meeting unanimously recommended the proposal.

Vote: Approved by the Plenary Meeting: For 24, Against 1. Effective 01/01/22.

cj) Proposed new Annex 5 – FAI Space Model Safety Code **Croatia**

*For the text of the proposed new Annex 5, see **Annex 7p – Launch Boxes and FAI Space Model Safety Code**:*

Reason: This is a proposed new Annex to the Space Model Code, together with landing site dimensions which were proposed for a previous rule change.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Vote: Plenary Meeting rejected the proposal: For 4, Against 19.

Annex 6 – Common Motor Source

ck) Proposed new Annex 6 – Common Motor Source **USA**

*For the text of the proposed new Annex 6, see **Annex 7q – Space Annex 6 – Common Motor Source***

Reason: Providing a “common motor source” for space model contests could improve transportation logistics, expedite motor testing, and provide improved competition by providing a common source of motors for all competitors for specified events at a contest. A common motor source can improve competition.

Space Models Subcommittee declined to support the proposal: For 6, Against 9.

The opinion at the Technical Meeting was to refer this back to the Subcommittee for further evaluation.

Consequential Amendments in CIAM General Rules

Technical Secretary Note: Changes to B.2.2 Classification of Space Models which lists the space model classes and sub-classes, and C.10.2 Number of Models Eligible for Entry (Class S – Space Models) will be made as a consequence of successful proposals.

Proposals relating to CGR rule C.15.2.2 Current World Championships for Class S (Space Models) have been located below for Plenary’s consideration.

cl) CGR 15.2.2 Current World Championships for Class S (Space Models) **Italy**

Amend this section as shown below, and add a sentence at the end:

C.15.2.2 Class S (Space Models)

The Space Models World Championships are held in **even years**. The following classes (or subclasses) are recognised for the Space Models World Championships:

a) Senior

S1BA, S3A/2, S4A/2 or **S4A3/4, S5C, S6A/2 or **S6A3/4**, S7, S8E/P, S9A/2 or **S9A3/4**.**

b) Junior

S1A, S3A/2, S4A/2 or S4A3/4, S5B, S6A/2 or S6A3/4, S7, S8D, S9A/2 or S9A3/4.

The choice between S4A/2 or S4A3/4, and S6A/2 or S6A3/4, and S9A/2 or S9A3/4 classes, both for seniors and juniors, is in charge of the organizer who, based on appropriate evaluations on the chosen competition field and other logistical considerations, will communicate in Bulletin No. 1 of the event.

Reason: Two new classes of engines that can be used in competition are introduced: A/2 and A3/4, endowed respectively with 50% and 75% of the total impulse of the class A, the least powerful to date.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Italy.

cm) CGR 15.2.2 Current World Championships for Class S

Switzerland

Amend this section as shown below:

The Space Models World Championships are held in **even years**. The following classes (or subclasses) are recognised for the Space Models World Championships:

a) Senior

~~S1B S3A S4A S5C S6A S7 S8E/P S9A~~

S1A / S3A/2 or S12A/2/P / S4A/2 / S5C / S6A/2 or S6-G / S7 / S8-P / S9A/2

Note: Subclass S8E/P complies with sub-class S8E; the purpose of the contest in S8E/P is to achieve as exactly as possible the given time of 360 seconds and to precisely land the model in a specified landing circle of 10 metres radius.

b) Junior

~~S1A S3A S4A S5B S6A S7 S8D S9A~~

S1A Single Stage / S3A/2 or S12A/2/P / S4A/2 / S5B Single Stage / S6A/2 or S6-G / S7 / S8D / S9A/2

Reason: Simplification.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Switzerland.

cn) CGR 15.2.2 Current World Championships for Class S

Slovak Republic

Amend this section as shown below:

The Space Models World Championships are held in **even years**. The following classes (or subclasses) are recognised for the Space Models World Championships:

a) Senior

~~S1B S3A S4A S5C S6A S7 S8E/P S9A~~

~~Note: Subclass S8E/P complies with sub-class S8E; the purpose of the contest in S8E/P is to achieve as exactly as possible the given time of 360 seconds and to precisely land the model in a specified landing circle of 10 metres radius.~~

The following event categories are recognised as World Championships for Space Models:

a) Altitude Models – S1, or S2/P

b) Parachute duration models – S3 or S12P

c) Boost glider Boost Glider duration models – S4 or Rocket Gliders S8B for senior competition

d) Scale Altitude Models – S5

e) Streamer Duration Models – S6 or S6/P

f) Scale – S7

g) Rocket Glider Duration And Precision Landing Models – S8

h) Gyrocopter Duration Models – S9

The events and total impulse classes shall be selected by the contest organiser. One event is required for each category. Different events and total impulse classes may be selected for Senior and Junior classes.

b) Junior

~~S1A S3A S4A S5B S6A S7 S8D S9A~~

Reason: The proposal is a simplification on the rules, and also gives the organizer the possibility to choose the events, which makes the competitions more interesting and versatile.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Slovakia.

co) CGR 15.2.2 Current World Championships for Class S

Ukraine

Amend this section as shown below:

The Space Models World Championships are held in **even** years. The following classes (or subclasses) are recognised for the Space Models World Championships:

a) Senior

S1B or **S2/P**, S3A **or S12P**, S4A/2 or S4A, S5C, S6A **or S6A/P**, S7, S8-**P** for **D** or **E**, S9A.

~~Note: Subclass S8E/P complies with sub-class S8E; the purpose of the contest in S8E/P is to achieve as exactly as possible the given time of 360 seconds and to precisely land the model in a specified landing circle of 10 metres radius. Note: Subclass S8E/P complies with sub-class S8E; the purpose of the contest in S8E/P is to achieve as exactly as possible the given time of 360 seconds and to precisely land the model in a specified landing circle of 10 metres radius.~~

Note: The S8D / P and S8E / P subclasses are of the S8-P class, and the aim of the S8-P is to reach the set time of 360 seconds as accurately as possible and to accurately land the model within a specified landing circle within 10 metres; in the final - within 3 metres.

- Junior

S1A or **S2/P**, S3A/**2** or **S12P**, S4A/**2**, S5B, S6A/**2** or **S6A/P**, S7, S8D, S9A/**2**.

The choice between classes S1B or S2 / P, S4A / 2 or S4A, S6A or S6A / P, S8D / P or S8E / P and S3A or S12P, both for seniors and juniors, is made by the organizer of the Continental or World Championships, who should indicate classes in event Bulletin # 1.

Reason: The introduction of new classes of models of rockets in adults and juniors will give a powerful impetus to the development of new technologies, will make rocket sports for the spectators and sponsors more attractive. It will allow the organizers of European and World Championships to be more flexible in the choice of rocket model classes, depending on the size of the flying field.

Space Models Technical Meeting unanimously declined to recommend the proposal.

Withdrawn by Ukraine.

Volume F4 Scale begins overleaf

14.13 Section 4C Volume F4 – Scale

- a) *Technical Secretary Note: The F4 Subcommittee had notified their intention to amend their Sporting Code, applying clarifications but no rule changes. The upgraded version will be made available prior to the Plenary Meeting, where it is intended to be presented.*

The F4 Subcommittee Chairman later notified the Bureau that their planned amendments would be held over until the next appropriate Plenary meeting.

End of Agenda Item 14

15. FAI WORLD AND CONTINENTAL CHAMPIONSHIPS 2021 – 2025

The voting for the bids took place electronically on the 9th of May 2021 with notification to the FAI office by the authorized delegates.

The results were distributed by the FAI office.

Note 1: in accordance with SC4 CIAM GR Rule C.15.3 d), bids for consideration at a Plenary Meeting may be submitted to the FAI office at any time in the year prior to the Plenary Meeting that is two years in advance of the Championship year and not later than 45 days before the Plenary Meeting.

In the case there were competing bids, on time and late, the priority is given to the bids which were submitted on time. When there is only one late bid, the involved subcommittee chairman and the Plenary Meeting have to approve that bid. The strikethrough bids in the following table are the bids not approved.

Note 2: The dates and locations of the Championships are the ones effective at the date of closure of the 2019 Plenary Minutes of meeting. They can vary after that date.

Therefore, always refer to the dates and locations provided by the Calendar in the FAI website which are constantly up-to-date.

Date of table status: 2 July 2021

The CIAM President clarified the term reschedule and cancelled for the 2021 year championships.

- Rescheduled is a championship whose registration and the relevant fee were kept for the year when the championship is rescheduled.
- Cancelled is a championship whose registration is cancelled and its fee is returned.

Each nation has to decide how to manage the selection of the athletes of a championship which will not happen as scheduled . CIAM has no responsibility of that selection.

FAI WORLD CHAMPIONSHIPS

2021 FAI World Championships	Organiser Country	Championship Dates	Organiser Contact	Due dates to consider			Event ID
				Preliminary Entry Form	Decision date for continuing the Championship(s)	Final Entry Form	
Postponed from 2020							
S Space Models Sen & Jun	Romania	21 – 27 August Postponed to 2 - 8 October	ioanaeu822@gmail.com Ioana Dumitru	20 April	15 June	TBD	12998
F3F Model Gliders Sen & Jun	France	3 – 9 October	A.Fricke2@gmx.de Andreas Fricke	1 June	Cancelled Rescheduled to 2024	15 July	12996
F1D Indoor Model Aircraft Sen & Jun	Romania	6 – 9 December	ioanaeu822@gmail.com Ioana Dumitru	1 September	1 September	1 October	12994
New for 2021							
F1E Free Flight Slope Soaring Gliders Aircraft Sen & Jun	Romania	29 August – 1 September	ioanaeu822@gmail.com Ioana Dumitru	1 June	Cancelled Rescheduled to 2023	1 July	13820
F3P Indoor Aerobatics Model Aircraft Sen & Jun	Romania	21 – 27 November	ioanaeu822@gmail.com Ioana Dumitru	15 June	20 August	15 September	13823

2022 FAI World Championships for...	Status	Location and Actual Dates
F1A, F1B, F1P Juniors	Awarded to BULGARIA	1 – 4 August
F1D (Seniors and/or Juniors)	Awarded to ROMANIA	28 November – 1 December
F2A, F2B, F2C, F2D (Seniors and Juniors)	Awarded to POLAND	TBD
F3D, F3E (Seniors and Juniors)	Awarded to USA	TBD
F3F (Seniors and Juniors)	Awarded to DENMARK	TBD
F3K (Seniors and Juniors)	Awarded to SLOVAKIA	TBD
F3J (Seniors and/or Juniors)	Awarded to SLOVAKIA	20 – 27 August
F4CH (Seniors and Juniors)	Awarded to NORWAY	23 – 30 July
F5B Electric model (Seniors and Juniors)	Awarded to BULGARIA	TBD

2023 FAI World Championships for...	Status	Location and Actual Dates
F1A, F1B, F1C Seniors	Awarded to FRANCE	
F1E (Seniors and/or Juniors)	Awarded to ROMANIA	
F3A (Seniors and Juniors)	Awarded to AUSTRALIA	

F3B (Seniors and Juniors)	Awarded to DENMARK	
F3CN (Seniors and Juniors)	Awarded to USA	
F3D, F3E (Seniors and Juniors)	Offers invited	
F3K (Seniors and/or Juniors)	Awarded to ROMANIA	
F3P (Seniors and Juniors)	Offers invited	
F5J (Seniors and Juniors)	Awarded to BULGARIA	
SPACE MODELS (Seniors and Juniors)	Awarded to USA	

2024 FAI World Championships for...	Status	Remarks
F1A, F1B, F1P Juniors	Bid from Russia (firm)	To be Awarded in 2022
F1D (Seniors and/or Juniors)	Offers invited	
F2A, F2B, F2C, F2D (Seniors and Juniors)	Offers invited	
F3F (Seniors and Juniors)	Awarded to FRANCE	Awarded in 2021 by CIAM Bureau
F3J (Seniors and/or Juniors)	Offers invited	
F4CH (Seniors and Juniors)	Bid from Romania (firm)	To be Awarded in 2022
F5B (Seniors and Juniors)	Offers invited	

2025 FAI World Championships for...	Status	Remarks
F1A, F1B, F1C Seniors	Bid from Mongolia (firm) Romania (firm)	To be Awarded in 2023
F1E (Seniors and/or Juniors)	Offers invited	
F3A (Seniors and Juniors)	Awarded to USA	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	Awarded to ROMANIA	
F3D, F3E (Seniors and Juniors)	Offers invited	
F3K (Seniors and/or Juniors)	Offers invited	
F3P (Seniors and Juniors)	Offers invited	
F5J (Seniors and Juniors)	Bids from Argentina (firm) Ukraine (firm) Romania (firm)	To be Awarded in 2023
SPACE MODELS (Seniors and Juniors)	Offers invited	

FAI CONTINENTAL CHAMPIONSHIPS

2021 FAI European Championships	Organiser Country	Championship Dates	Organiser Contact	Due dates to consider			Event ID
				Preliminary Entry Form	Decision date for continuing the Championship(s)	Final Entry Form	
Postponed from 2020							
F5J Electric Powered Thermal Duration Gliders Sen & Jun	Hungary	22-28 August	mquality5@t-online.hu Marko Laszlo	30 May	Cancelled Rescheduled to 2022	30 June	13826

2022 FAI Continental Championships for...	Status	Location and Actual Dates
F1A, F1B, F1C Seniors	Awarded to NORTH MACEDONIA	
F1A, F1B, F1C Seniors Asian-Oceanic	Awarded to MONGOLIA	
F1E (Seniors and/or Juniors)	Awarded to ROMANIA	
F3A (Seniors and Juniors)	Awarded to SPAIN	21 – 28 August
F3A Asian-Oceanic (Seniors and Juniors)	Offers invited	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	Awarded to ITALY	
F3CN Asian-Oceanic	Offers invited	

(Seniors and Juniors)		
F3P (Seniors and Juniors)	Offers invited	
F5J (Seniors and Juniors)	Bid from Romania (firm) Awarded to HUNGARY	Awarded in 2021 by CIAM Bureau
SPACE MODELS (Seniors and Juniors)	Awarded to SERBIA	Zrenjanin, 21 – 28 August

2023 FAI Continental Championships for...	Status	Location and Actual Dates
F1A, F1B, F1P Juniors	Awarded to FRANCE	
F1D (Seniors and/or Juniors)	Awarded to ROMANIA	
F2A, F2B, F2C, F2D (Seniors and Juniors)	One offer in progress	
F3F (Seniors and/or Juniors)	Offers invited	
F3J (Seniors and/or Juniors)	Offers invited	

2024 FAI Continental Championships for...	Status	Remarks
F1A, F1B, F1C Seniors	Bid from Russia (firm)	To be awarded in 2022
F1E (Seniors and/or Juniors)	Offers invited	
F3A (Seniors and Juniors)	Offers invited	

F3A Asian-Oceanic (Seniors and Juniors)	Offers invited	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	Offers invited	
F3CN Asian-Oceanic (Seniors and Juniors)	Offers invited	
F3K (Seniors and/or Juniors)	Offers invited	
F3P (Seniors and Juniors)	Offers invited	
F5J (Seniors and Juniors)	Bid from Romania (firm)	To be awarded in 2022
SPACE MODELS (Seniors and Juniors)	Offers invited	

2025 FAI Continental Championships for...	Status	Remarks
F1A, F1B, F1P Juniors	Bid from Romania (firm) Russia (firm)	To be awarded in 2023
F1D (Seniors and/or Juniors)	Offers invited	
F2A, F2B, F2C, F2D (Seniors and Juniors)	Offers invited	
F3F (Seniors and/or Juniors)	Offers invited	
F3J (Seniors and/or Juniors)	Offers invited	

16. ANY OTHER BUSINESS

Selection for 2022 TWG

Mr Delor informed that a limited number of competitors will be selected for the Drone Racing at the 2022 TWG. This is not a CIAM or FAI decision but a request from the organizers.

32 competitors in total: 20 men and 12 women.

It will be considered the ranking of the 2019 event since last year no world cup was held.

We have to be flexible and proposals are welcome.

e-Meetings

It was appreciated the use of e-Meetings using Zoom tool.

The participation at the meetings increased a lot.

They can be properly managed together with the meetings with presence.

EASA regulations

It was requested to know when a meeting dealing about the EASA rules will be organised.

The CIAM President informed to be in contact with many countries for understanding their different approaches. When a clear view is available the meeting will be organised.

e-Sport

News about the e-Sport were required.

The CIAM President point out that the e-Sport is also recognised by the Olympic committee.

Mr Delor informed that a relevant working group could be created since such category will attract many competitors who like computer games.

Next year a proposal can be created and Mr Sotir Lazarkov, who tooks the task, can be contacted.

17. NEXT CIAM MEETINGS

Bureau meeting on December 2021 dates to be confirmed

Bureau meeting on April 2022 to be confirmed

Plenary meeting on April 2022 to be confirmed

The table of minutes Annexes appears overleaf.

ANNEXES TO THE AGENDA AND TO THE MINUTES OF THE 2021 CIAM PLENARY MEETING

ANNEX FILE NAME	ANNEX CONTENT
ANNEX 2 (annex number not used)	
ANNEX 3 (a-p) ANNEX 3 n updated for the Plenary	2020 Subcommittee Chairmen Reports, Technical Secretary, Treasurer Reports, Scholarship
ANNEX 4 (annex number not used)	
ANNEX 5 (a-d)	2020 Trophy Reports
ANNEX 6 (a-d)	FAI-CIAM Awards: Nominees Forms
ANNEX 7a	Space Altitude Record Attempt Form
ANNEX 7b	Description of F3A Manoeuvres
ANNEX 7c	Description of F3P Manoeuvres
ANNEX 7d	F3N Manoeuvre Descriptions
ANNEX 7e	F3N Manoeuvre Drawings
ANNEX 7f	F3RES Annex
ANNEX 7g	Supporting Data - France
ANNEX 7h	Space Models Record Dossier Check Form
ANNEX 7i	Supporting Data - Switzerland
ANNEX 7j	Record Claim Statement for UAV
ANNEX 7k	Space Annex 7 Triangulation Method
ANNEX 7l	Space Annex 1 – Scale Judging Tables – Item bz)
ANNEX 7m	Space Annex 1 – Scale Judging Tables – Item ca)
ANNEX 7n	Space Annex 1 – Scale Judging Tables – Item cb)
ANNEX 7o	FAI Space Safety Code
ANNEX 7p	Launch Boxes and Safety Code
ANNEX 7q	Space Annex 6 Common Motor Source
ANNEX 8 (a-c)	Scholarship Candidates
ANNEX 9	CIAM President report 2019
ANNEX 10	Technical Secretary Report
ANNEX 11	CIAM Treasurer Presentation
ANNEX 12	Scholarship Presentation
ANNEX 13	Rookie project images

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