

<b>Subject:</b>	Proposed Annex to SC S5 - Judging and Scoring Systems	Annex No. -	54a
<b>Author:</b>	Bernard Nicolas, Chair Judges Committee	Agenda ref. -	23.2
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**Annex to Section 5: chapters 4 and 6  
to define the requirements  
of the Judging and Scoring Systems to be used at FCEs**

IPC Judges Committee and the Competition Discipline Committee are the only agents who can decide on the suitability of a judging system for use at an FCE. The organiser of an FCE must accept this decision.

Bid documents from an organiser wishing to host an FCE, must define the Judging and Scoring system(s) they plan to use i.e. the name of the provider(s) of the system(s) together with full details of the system(s) to be used.

During the Bid review and Evaluation Process, the Judges Committee will be consulted by the IPC Bureau to ensure that the Judging and Scoring system proposed is acceptable and will refer back to the bidder if there is a problem.

When a bid is accepted and therefore the Judging and Scoring system(s) approved, the Organiser and the Provider(s) will work directly with the Judges Committee and the relevant Discipline Committee to define exact requirements.

Any scoring system made available to an Organiser must be updated annually with rule changes made by the IPC and the Provider must be able to justify that this has been done. The provider must also keep a logbook recording all use of the system which must be counter-signed by the CJ of each competition as confirmation.

Three months before the start of the competition the Chief Judge, the President of the Jury and the FAI Controller will determine whether or not the scoring system provided is "fit for purpose". If it is not and any identified problems have not been solved by the scheduled start date of the competition, approval to start the competition may not be given and any additional costs involved in providing a working system will be at the expense of the organiser. (A list of suitable judging and scoring system which are known to fulfil the requirements and expectation of the Chair of the relevant discipline will be established and updated each year by the IPC Judges committee in close collaboration with all disciplines committee). At the end of an FCE, the System provider must deliver to the Fai Controller, the IPC Judge Video Librarian and to the IPC Media Liaison Officer/Webmaster, hard discs containing a download of all videos used for judging.

**JUDGING AND SCORING SYSTEM SPECIFICATIONS PER DISCIPLINE**

**1 - Accuracy Landing:**

The system must include:

Anemometer being capable of Wind speed and Wind direction- certification annually and current certificate produced for the CJ prior to the competition. A computerised system to record wind-speed and produce a print-out both electronically to a large screen and on paper showing the speed and time particularly when winds are close to the limit and also directional, and the competitor number. .

Tuffet as defined in the Competition Rules (foam or air tuffet defined by the AL committee)

Pads/AMDs: both small (central) and large (16 cm measure) as defined in the competition rules - with 3 spares of each.

For all the following to work the organiser must provide a safe and secure power supply at the landing area.

Connection from the scoring pad to the computer which has a printer, with the software to record and print the score and competitor number, time and wind speed and directional variance. This also, therefore, needs to be connected to the wind-speed scoring device (anemometer). The anemometer needs to be certified and the provider has to ensure this is done prior to the competition. (Annually)

This is also connected to a public display for competitors, judges and audience. This should be a display in the landing area but also to a large screen display outside.

The printed score and the scoring display system need to show the score as a single figure, i.e. in centimetres only.

The score must be visible on the display immediately after it is made with no perceptible delay and remain until cleared.

The provider will need to supply an assistant who is fully conversant with the system being used. They both need to remain during all competition jumping with their system.

The provider and the CJ and EJ need to work closely together throughout the competition.

The computer system has to be capable of providing Start lists and scoring sheets at the commencement of each round reflecting a reverse order of jumping at the end of each round.

For the semi-final and final rounds also produce a start list taking account of the cut as detailed in the rules for the competition.

The provider also has to enable a public display of the results with the competitor name, country and score - and cumulative score as the competition proceeds. These are provisional results and must be marked as such until approval at the end of a round by the CJ only.

The system must also be able to provide a jump order (start list) in reverse order as defined in the competition rules.

The scoring system software must be capable of distinguishing more than one competition using the same results, i.e. Team and Individual and also World Cup and Continental Championships, Male and Female and Junior (particularly if Juniors are used in an Open team).

The scoring system should also be capable of integrating the Style results (either from a combined system or separate system) to give an Overall standing as defined in the Competition Rules.

Results of all competitions regardless of type must be available immediately the competition has ended.

All results must be capable of being digitally linked to the internet results pages of FAI/IPC and any web site of the organiser, immediately they are made public at the competition site.

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**2 - Freefall Style**

The system must include:

HD Camera capable of digitally recording the jump.

Computer system capable of taking the digital image with a connection to the camera and of the same quality.

The Recorded Image from the camera must show the competitor number, the round, the heading, angle of drift, time and date.

The image must be replayed to the EJ and to the panel of five judges on individual screens. The EJ must have a compilation screen of all judges scoring - time and penalties. The system must be able to show 1 view at normal speed and a 2nd view reduced speed (50%). The system must show the jump to the canopy opening. The system must be capable of showing all penalties awarded.

If a judge fails to record a time on the first view, the system must enable that judge to see the jump again at normal speed in order to record a time.

The result is calculated by removing the highest and the lowest score given and averaging the 3 remaining scores to the second decimal rounded down.

The system must be capable of calculating the time + the penalties to give a result; it is this result which is displayed for the competitors and the public and shown on the printed result sheet. The result is in seconds only, in a decimal format.

The system must be able to produce start lists for each round taking into account ~~of~~ the cut as specified in the competition rules.

The scoring system software must be capable of using the same scores to produce results for different rankings such as: World Cup and Continental Championships, Male and Female and Junior.

Final Results for all the different rankings required, regardless of type, must be available immediately the competition has ended.-Scoring systems must provide a simple system for each judge to recording the judgment, i.e. a keyboard or a separate easy-to-use box.

It must be possible to digitally link all results to the FAI/IPC internet result pages and any web site of the organiser at the same time they are made public at the competition site.

**3 -Formation Skydiving (including VFS), Canopy Formation, Artistic Events, Wingsuit Flying (Acro)**

Dubbing station, Equipment (referred to hereafter as a dubbing station) that enables a team videographer to download each recorded round of the competition must be provided in conjunction with the Judging and Scoring System. It must be capable of recording and processing HD quality images without any loss of image quality. In the case of a multiple discipline event, a minimum of two dubbing stations must be made available. The dubbing station(s) must be set up four days prior to the start of the competition to give each team videographer the opportunity to verify camera compatibility. The dubbing station(s) should be manned at all times by a qualified person trained by the provider under the responsibility of the Chief Judge or event judge. The dubbing station(s) should be set up close to the judging room(s).

The System provider, in co-operation with the Organiser, will ensure that all computer systems used for dubbing and by the Judging and Scoring System are powerful enough to provide the quality of image demanded by the competition rules.

The system must be able to display the competition jumps to the judging panels and to the public on large display screens with the same quality of image to all.

Each judging panel comprising an Event Judge (EJ) and five judges will have an individual screen to view and score the competition jumps. In addition, the EJ will ~~also~~ have a separate screen on which he/she will be able to view the scores of each member of the judging panel together with the collated results.

Scoring systems must provide a simple system for each judge to recording the judgment, i.e. a keyboard or a separate easy-to-use box.

The system must be capable of providing a first view of the recorded jump at normal speed, ending in a freeze frame at the end of working time as specified in the competition rules. This freeze frame will be used for all subsequent viewings and must be the same regardless of the speed at which the video is viewed. The system must have the capacity to show the jump at a reduced speed, as defined in the competition rules and must enable multiple viewings of the same jump, as defined in the competition rules, controlled by the EJ and as defined in the competition rules.

The system must be able to determine a start time from the input of the 5 judges with the margin ~~as~~ defined in the competition rules. The system must also be able to display to each individual judge the results of that judge's input, and once all judges have confirmed their input, show the collated results of the other 4 judges. It must be capable of recording Points, ~~or~~ Busts or Omissions and be capable of allowing each judge to easily alter the initial input until and then to confirm the score as final. The System must allow for an EJ to be able to cancel the confirmation of individual judge scores. Once the EJ has confirmed the scores as final, the collated score sheet must be visible to the public.

The system must be able to provide score sheets by round in order of ranking and also provide individual score sheets per jump which give the score of each member of the judging panel and define busts and/or penalties. It must be possible to project these score sheets to the public or to print them. The system must also be able to provide a jump order (start list) in reverse order as defined in the competition rules.

The scoring system software must be capable of using the same scores to produce results for different rankings such as: World Cup and Continental Championships, Male and Female and Junior.

Final Results for all the different rankings required, regardless of type, must be available immediately the competition has ended.

It must be possible to digitally link all results to the FAI/IPC internet results pages ~~of~~ and any web site of the organiser at the same time they are made public at the competition site.

The System provider must work with the CJ and the Video Librarian prior to the competition to set up a "test" competition for the Judges Seminar. In addition to the actual competition, a separate competition needs to be set up to enable the official training jumps to be scored and the results to be published.

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At the end of the competition, the system provider must have the authorisation of the chief judge(s) before dismantling the system

#### **4 - Canopy Piloting**

Anemometer specification as in AL- certification annually and current certificate produced for the CJ prior to the competition. A computerised system to record wind-speed and produce a print-out both electronically to a large screen and on paper showing the speed and time particularly when winds are close to the limit and also directional, and the competitor number.

##### **4-1 - Speed Event**

Sensors: Must be easy to set up and to change rapidly, at both ends of the course when required.

The sensors must be linked to the computer system to record and display the speed, together with the competitor number and the time through the course. They must allow for a fast reset.

If it is not possible to reset the sensors before the next competitor run and a rejump is called for, the system must recognise this and clear all record of the first attempt, after a manual input.

At the end of the round the calculation of the score is made as per the competition rules based on the speed of all competitors and a score sheet must be produced both electronically to the screen and in a printed format.

Cameras installed as per the competition rules at Gates 1 and 5 must record the event, round and competitor number and enable images to be played back through the computer system in the case of a video review.

##### **4-2 - Distance**

As for Speed, the Cameras at Gates 1 and 5 must record the event, round and competitor number and be capable of being played back through the computer system in the case of a video review. The camera must have reduced speed function.

##### **4-3 - Accuracy**

The Cameras installed as per the competition rules (at Gates 1 and the 2nd wide-angle camera position to record the flight through the water of the course, and 3rd camera positioned at landing zone 8 and covering all the landing zones), must record the event, round and competitor number and enable images to be played back through the computer system in the case of a video review.

The computer system used to play back the images from all cameras must be capable of showing them at reduced speed as defined in the competition rules.

A person who is fully familiar with the Scoring system (provided by the Organiser or the System provider) will be responsible for feeding the scores under the supervision of the CJ.

The Scoring system must be capable of displaying all results to a large screen showing Event, Competitor number, name, nation, and ranking calculation. At the end of each round a complete score with ranking will be calculated based on the event and a score sheet must be produced both electronically to the screen and in printed format.

The Scoring system must be able to produce Jump Order Sheets for the subsequent round as per the competition rules (taking into account the 20% change of order) that can be printed and together with the necessary judges scoring sheets.

#### **5 - Speed Skydiving**

1. Jumps in a SP-competition are measured with two L&B Protracks (PT) each. At the Moment these are the only SMDs approved for SP-Competitions. PTs are recording barometric pressure, one measurement as ground reference directly before take-off, 4 measurements per second during the jump. The result is a recorded pressure-profile of the jump.

2. The Software must be capable to read out the ground-pressure and the profile via the infrared-interface of the PT

3. The calculation of the speed must be using the altitude-formula (TAS) published by L&B

4. The results must be verifiable by exporting the barometric readings, elevation values and visualization of the profile.

5. It is necessary to prove that the results are identical with Speedware or JumpTrack interpolation method.

6. The exact calculation method is submitted to the SP subcommittee and is presented on request.

7. It must be demonstrated that the download and evaluation of 16 profiles (8 skydivers) can be carried out permanently within 15 min. A Judge must be able to determine 8 results within the duration of a single load.

8. The results must either be exportable to a spreadsheet, or the software must allow the direct creation of all rule-compliant score sheets for a competition.

#### **Note:**

- If new measuring devices or systems are to be approved for competitions, it must be applied to the SP subcommittee to approve this. The necessary directives are / should be set in Portugal in 2017:

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- Evaluation requirements for new devices with barometric measurement
  - Requirements for completely new systems (e.g., GPS)
  - Consequences for previous records and results

#### **6 - Indoor Skydiving:**

Very similar to Formation Skydiving and Artistic Events requirements in terms of the system of actual judgement and subsequent results, etc.

The organiser and system provider need to work closely together to link the camera recording system to the judging and scoring system in accordance with the competition rules.

Because the Artistic Events both Solo Freestyle and Dynamic are judged live, the system must be capable of recording and calculating the results that are fed into it.

The Dynamic judgement system may be integrated with the FS and AE scoring system to produce a results page for each event for public display and electronic transmission to web-sites and result sites.

The system for Dynamic must be capable of displaying the results of the qualifying rounds and the tournament rounds in an understandable format.

The system provider(s) needs to ensure that either they individually or fully qualified assistants are provided to ensure that the results entry from the live judgements are correct, under the supervision of the CJ.

#### **7 - Wingsuit Flying:**

##### **7-1 - Performance Flying:**

An official certified GPS system to record the flight of the competitor, speed, distance and duration.

A computerised system capable of taking the results from the GPS device and converting it to calculate the competition requirements according to the competition rules and give a print out of these results and a ranking order for the competition. It must also be capable of sending these results to a public display system and to results sites of both IPC and the Organiser, without sponsorship logos etc.

The system provider must ensure that all portable devices are fully charged and available for use during the competition.

The organiser must provide sufficient secure electrical connections to enable this.

##### **7-2 - Acrobatic Flying:**

See FS/VFS/CF/AE.

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**For any new discipline the proposed scoring system must be tested, evaluated and accepted by the Judges Committee and the Discipline(s) Committee(s) before being offered to Organisers bidding to host an FCE.**