



IAAF Photo Finish Guidelines

For IAAF World Athletics Series Competitions

April 2010

IAAF PHOTO FINISH GUIDELINES

1 Introduction

The position of an International Photo Finish Judge (IPFJ) was first identified in the IAAF Handbook in 1994. IAAF Rule 118 stipulates that the IPFJ “shall supervise all Photo Finish functions” but with no other guidelines as to what is expected of that official.

This document aims to provide clear guidelines as to the duties to be carried out by the International Photo Finish Judge. This will ensure consistency amongst the IPFJ Panel and ensure that the Local Organising Committees are well aware of the role and responsibilities of this Delegate.

It is recommended that Member Federations adopt these Guidelines for the organisation of their own athletics competitions.

2 International Photo Finish Judges Panel

- 2.1 Initially, the practice of IAAF was to appoint as International Photo Finish Judges the National Chief Photo Finish Judges from previous World Championships and other IAAF events.
- 2.2 After the approval of the International Photo Finish Judges Panel in March 2007, appointments to designated IAAF competitions are made from this Panel.
- 2.3 The deployment of an International Photo Finish Judge is intended to:
 - Add a consistent approach to the reading of photo finish images;
 - Ensure the Technical Rules concerned with photo finish timing are correctly interpreted and implemented;
 - Provide the National Photo Finish Judge with the necessary guidance to perform his duties properly.

3 Responsibilities of the International Photo Finish Judge (IPFJ)

3.1 Before the Competition

- 3.1.1 The IPFJ should visit the competition stadium one or two days before the start of the event to meet the National Chief Photo Finish Judge (NPFJ) and to ensure that everything is in order. It is very likely that the NPFJ may be relatively inexperienced with the complexity of the timing equipment to be used at the event. Together with the Timing Service Provider, the IPFJ should ensure the NPFJ understands exactly how the equipment works.
- 3.1.2 Contact should be made with the Timing Service Provider, as an introduction and to identify the person from the Provider who is in charge of that team. A review of the duties being allocated to those members of the team should be clearly undertaken by the IPFJ.
- 3.1.3 The IPFJ is to agree which camera shall be designated as “official” (Note to Rule 165.20). Under normal circumstances, this will be the camera located on the outside of the track. Where there are two cameras located on the outside of the track it will be necessary for the IPFJ to decide which is to be designated the “official” camera, leaving the second as a back-up. Naturally, the IPFJ will review the images produced by both cameras, and consider the ability of each camera to react to poor light conditions before identifying which is to be the “official” one. The designated “official” camera should always be used for determining the result unless it is clear that a problem has developed, in which case the back-up camera should then be designated as official. Where possible, such change in camera status should only be undertaken at the conclusion of a specific series of races of a particular event.

- 3.1.4 The IPFJ will need to confirm whether the cameras in use have an automatic iris adjustment and aligning function. During the Championships, there is a wide range of lighting conditions between morning and evening session, the latter likely to be under floodlights. If such an automatic function is not available, then it will be necessary to enquire how accessible the cameras are to enable manual adjustments to be made, other than during a complete break in the competition sessions. The biggest problem may well lie with the infield camera which, clearly, is not accessible for manual adjustment of exposure or focus during the course of a session. As will be appreciated, the key races in terms of media interest are likely to be held during the evening session in adverse lighting conditions, coupled with strobing caused by the artificial lighting. Every effort needs to be made to make the images produced to be of the highest possible clarity.
- 3.1.5 Contact should be made with the representative of the Service Provider responsible for the relaying of results from the terminal in the photo finish room to determine what data will be needed to identify the finishing order of the athletes. In races run in lanes, this is almost inevitably by the input of the appropriate lane number. For events not finishing in lanes, the process needs to be clearly identified.
- If the draw order (and corresponding leg / hip number) is to be used there needs to be a careful check that the numbers have been allocated correctly. In Championships, it is perhaps unlikely that athletes will be sharing lanes but in these instances there is always the chance that the athletes sharing the lane have been allocated leg / hip numbers the wrong way round. The Service Provider seldom seems to wish for the draw order to be utilised for inputting other than in races run wholly in lanes.
- If bib numbers or names are to be used for inputting, there is a greater chance of misunderstanding of the digits called, possibly four in total, if the Judge is not suitably fluent in the language being used.
- 3.1.6 Identify if there is any form of test event or rehearsals planned prior to the first day of competition and attend such event together with the NPFJ. The rehearsal event can often be a good indicator of the level of competence and speed of decision-making by the NPFJ and may influence the level of support which will need to be provided by the IPFJ during the actual competition.
- 3.1.7 If the photo finish system is assisted by an integrated video camera showing the finish line from a head on position, the value of such camera in the identification of athletes can be vital. As the cursor on the image on the read computer is moved, the image from the video camera is advanced to the same elapsed time automatically.
- It is essential that the IPFJ checks that the video camera shows the finish line at least as far out as lane 6 and that the image is suitably in focus. It is also essential the IPFJ is alert to anything which might block the image in the course of a finish. Judges, photographers and others may well not be aware of the function of such a camera and may inadvertently stray into the line of vision of that camera at a critical time during the finish of a middle distance race.
- The image from this camera should be made available for scrutiny in close proximity to the screen showing the image from the main photo finish camera.
- 3.1.8 It is essential that the photo finish room is set out, as far as possible, with the screens showing the image from the "official" and the infield camera in close proximity to each other so that both may be reviewed quickly.
- 3.1.9 Attend, if possible, the first meeting of the National Judge(s) and the Service Provider team.
- 3.1.10 Identify the level of communication and understanding of language between the operators and the National Judge(s). If there are obvious language difficulties

then the degree of “supervision” by the IPFJ will be increased and may necessitate a more active role in the decision making process and in the transfer of the data to the computer operator by the IPFJ.

- 3.1.11 Agree with the Technical Delegate(s) what principle is to be adopted as far as the confirmation of results is concerned. In general, the results will be displayed on the stadium scoreboard before there is confirmation from the track officials that the race is clear of potential infringements and possible disqualifications. It is necessary that such results are indicated clearly to be “unofficial” until such confirmation is received.
- 3.1.12 Agree with the NPFJ and the Service Provider at what time the zero control tests shall be carried out. Ideally, keep the same time interval between the test and the start of the first track event for all subsequent sessions, unless there are unusual circumstances (i.e. the start of the Marathon on the track at the time allotted or similar circumstances).
- 3.1.13 Agree with the Service Provider at what time prior to the first session of the day the start and “run through” checks are to be carried out. Endeavour to be present on each occasion that these checks are carried out and review the results for uniformity of times between all of the cameras in use. (See 3.2.1)
- 3.1.14 Confirm with the NPFJ what procedure is in place to obtain from the Track Referee that the race is clear of infringements and that the result can be made “official”. Also, identify the process by which details of disqualifications are to be notified to the NPFJ, including the relevant IAAF Rule number under which the disqualification has been made. Identify if the finishing order of athletes in middle-distances races is to be notified to the NPFJ by the Track Referee. With video assisted photo finish systems and transponder timing, this is less likely to be a concern.
- 3.1.15 Ensure that the finish line is marked in accordance with IAAF Rule 165.16.

3.2 During the Competition

- 3.2.1 The IPFJ should be present when the “run throughs” are carried out by the Service Provider or request to inspect the images produced during the checks which will normally be stored within the computer’s memory. Ensure that those running through do so in lanes 1, 4 and 8. It is likely that the Service Provider will have the cameras set to read to 1/1000th of a second. Check the torso position to ensure that the track side clocks have not produced a time which is faster than that identified from the image on the screen. Ensure that comparable times are read from an easily identifiable part of the body visible on the images from all cameras - distinct knee or foot for example. Check the times produced on that part of the image on all cameras. If times are comparable to within 1/1000th of a second in all three lane positions, then it should be possible to read a time from the infield camera, where the exact part of the torso is obscured on the “official” camera, and the time position identified on the “official” image.
If possible, check comparability of times between the cameras at different positions on the athlete’s bodies – i.e. foot, chest, and prominent feature on the head (nose perhaps) – to further ensure the perpendicular alignment of the cameras in relation to the leading edge of the finish line.
- 3.2.2 Ensure that the zero gun control is taken on all cameras in use at a rate of 1000 lines per second, and preferably 2000 lines per second, and that the time is read to a precision of at least 1/1000th of a second and preferably 1/10,000th of a second. Ensure in the case where ammunition is being used that the cursor is not placed on any minor build up of smoke / flame which would mark the “pre-burn” before the actual explosion producing the “gun sound”. An electronic gun will

produce a clear vertical flash. Check that the resulting times correspond to the requirements of Rule 165.14.

Ensure that a photograph of the test from each camera for each session is produced, suitably labelled and is retained by the IPFJ and given to the Technical Delegates.

- 3.2.3 At an early stage in the first session, take the opportunity to check the comparability of times for a given athlete on both the “official” and infield camera and also between the “official” camera and any other being utilised as a back-up.
- 3.2.4 Ensure that the Service Provider operator pressing the capture button appreciates that in middle distance races once the winner has been recorded the image of every athlete crossing the finishing line subsequently will need to be captured whether finishing or not. The usual practice of recording on a piece of paper either a “tick” or a “cross” as a record of whether a given athlete has finished or is going on for another lap(s) is essential. Ensure that this procedure is known by all parties and will be operational.
- 3.2.5 Ensure that the Judge making decisions is quite clear about what constitutes the “torso” as far as photo finish is concerned. The exact location of the border line between the upper arm / shoulder and the “torso” would vary depending on the development of the upper body of an individual athlete and would not therefore be totally consistent. Based on anatomy, however, we can say that the endpoint of the torso is the outer end / articulation of the collarbone (clavicle). Normally, this is approximately at the border of the middle and outer third of the distance between the neck and the peak of the shoulder.
In close finishes and in instances where the upper part of the athlete’s body is twisted, ensure that the cursor is correctly aligned. The read computer operator should wait for confirmation from the NPFJ as to the placing of the cursor and the athlete’s number identity before sending the data.
- 3.2.6 Care should also be taken to ensure that the cursor is not placed on the outside of the number bib where it seems likely that the torso is not in direct contact with that leading section of the bib.
- 3.2.7 If there is an obvious very close finish, irrespective of the length of the race, stop the operator from entering a competitor’s number until it is confirmed that one athlete is in a lead position. If the decision is finally made that there has been a tie, ensure that the cursor is not moved whilst the numbers of the two athletes are entered. Confirm that the results show an equal place and also confirm that the operator from the results company is also aware of the situation and has notified the results control room of that fact. It is essential that the IPFJ be closely involved in the decision making process in the result of key races – sprint finals in particular and in the positioning of the cursor on the torso of any athlete equalling or improving on a world record time.
- 3.2.8 In the case of events in which fastest losers progress, it is advisable to keep a personal record of the performances of the leading performers likely to qualify by time. If there is a situation in which there are more fastest losers than are being sought, have the image of the athletes involved re-read to 1/1000th second. Arrange at the same time for a picture of those athletes to be printed in case of an appeal to the Jury. (See also 3.2.9.)
Also, in deciding if there has been a tie for a ranking position in the seeding for a subsequent round, consider the times to 1/1000th second.
- 3.2.9 In the case of a decision taken to 1/1000th of a second for a qualifying position as a fastest loser or in the case of a close finish for a medal position, it is desirable to arrange for an enlargement of the image(s) to be produced and where possible to have it made available in the TIC where it can be inspected by the Team Management of the country concerned prior to any decision being taken about

whether they should make a protest to the Jury. In the case of time qualifications it is acceptable to produce photographs showing times to 1/1000th second. Ensure that times read to 1/1000th of a second are reported to the terminal operator within the photo finish room so that this data can be included on the official result sheet relating to qualifiers.

- 3.2.10 Ensure in any events involving athletes with disabilities that the NPFJ is familiar with the rules relating to these events:
 - i) In wheelchair events, that the position and timing is taken from the leading edge of the axle of the front wheel of the chair.
 - ii) In the case of races for the blind, that the torso of the athlete reaches the leading edge of the finish line in advance of the torso of the guide, and that the two athletes are still linked by a cord or similar when the line is reached.
- 3.2.11 If requested by the IAAF, ensure that arrangements are in place to record the passage of the baton across the finish line for the first three legs in the 4x400m relay heats and subsequent rounds. Note that it is the position of the baton which is to be recorded. As there is an accepted formula for converting times on the first lap to an approximate 400m equivalent it would be necessary to record each athlete reaching the finish line on the first leg even though the athletes in lane 8, for example, will have run well short of the prescribed 400m. Ideally, the infield camera should be used – as data entered there will not be automatically transferred to the output to the results computer. It is essential that a request is made at an early stage that all athletes on all legs of the race should be wearing leg / hip numbers for easy identification in this process. The completed data should be passed to the IAAF Competitions Department.
- 3.2.12 National and other records will usually be identified on the official result sheet which should be obtained for each race from the results computer operator. It is desirable that where such a record(s) is identified a photograph is produced and passed through to the Technical Information Centre for distribution to the relevant country. In the case of an Area Record, then two copies of that photograph need to be produced. Similarly, for World Record performances, three copies of the photograph should be produced.
- 3.2.13 If requested by the governing body, ensure a digital or hard copy of the photograph showing all of the athletes finishing the race are produced. This will serve as the official result to be passed to the governing body at the end of the competition.
- 3.2.14 Ensure that the NPFJ has appointed an official to identify both athletes not appearing at the start of an event and any who drop out in the course of the race. It is essential that a careful check is made that these athletes are accurately recorded on the result as DNS or DNF as appropriate.
- 3.2.15 At the end of each session endeavour to ensure that the NPFJ remains in the vicinity of the photo finish room until after the time allotted for protests following the last event of that session has passed, and that the photo finish reading computer remains fully operational until this time has elapsed (Rule 146.2).

3.3 After the Competition

The IPFJ shall complete the report form as provided by the IAAF.

This will include an assessment of the NPFJ and the potential of that official to be considered in the future as a member of the IPFJ Panel.

3.4 Indoor Competitions

Whilst almost all of the above can be considered relevant to indoor competitions there are perhaps a couple of areas where circumstances may be deemed to be materially different.

3.4.1 *Camera Location*

At indoor facilities there is unlikely to be a camera located within the inside of the track. Normally the camera(s) will be located outside the track on each side. This gives the IPFJ the possible option of identifying either camera position as providing the “official” image to be used for reading. This will be clearly determined by the quality of the image produced by two (or more) cameras.

3.4.2 *Lighting Output*

Under normal circumstances the lighting conditions on indoor tracks will not alter in the course of the day unless there is natural light available from above or from side windows which will influence the general lighting conditions.

Attempt to ensure during a preliminary visit that the light output on the finish lines is satisfactory.

Bear in mind that artificial lighting can take a considerable time to reach optimum output levels. Beware of an opening ceremony during which the lights are to be turned off or dimmed. It could be up to 30 minutes before the main lights are back to optimum output levels.

Access to camera positions in indoor facilities may be difficult and the need for automatic iris control becomes highly desirable in order to compensate for lower levels of light intensity until the normal level of output has been restored.

Additionally, it is likely that strobing across the image will be a problem throughout the indoor event, as it is outdoors once the main stadium floodlights are in operation.