



**ISSF**

**CERTIFICATION  
PROCEDURE  
MANUAL  
FOR  
ELECTRONIC SCORING TARGETS  
FOR INTERESTED COMPANIES**

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Date: March 2018

## **1. INTRODUCTION**

- 1.1** The ISSF is concerned with ensuring the accuracy, security, and functionality of electronic scoring systems. To achieve this goal the ISSF will issue “Certification” of electronic scoring systems that meet the ISSF’s requirements. Requirements are tested using a series of phased tests laid out within this document.

### **AUTHORIZATION OF TESTING COMMITTEE**

To maintain the requirements and administer the tests the ISSF Executive Committee has authorized and formed the “Ad Hoc EST Testing Committee.”

### **CONFIDENTIALITY**

The testing committee is committed to keeping all information about a manufacturer’s EST design, security mechanisms, certification process and related proprietary information confidential. No confidential information is shared outside of the testing committee and authorized ISSF personnel. Upon request the ISSF is ready to have checked any further non disclosure agreements provided by the company.

## **1.2 The Testing Cycle consists of three main phases:**

- 1.2.1 Pre-phase I (optional)** – The ISSF believes it is important to work with manufacturers as they are developing new EST systems. The ISSF offers a Pre-Production Version Test to help manufacturers build systems that will ultimately meet the ISSF accuracy and functionality standards. This type of test is voluntary but encouraged.
- 1.2.2 Phase I – An Accuracy and Basic Functionality Test** to check that the equipment has the capability to achieve the required accuracy and functionality required in ISSF style competitions. This must be based upon the testing of a fully engineered production model that is manufactured to the frozen build standard for series production. The units will be tested as if they are being used in an ISSF competition.
- 1.2.3 Phase II** – The phase II test, of which there are three parts, is designed to test the reliability and functionality of EST units in a competition environment and to test the result ranking system of the EST system.
- Phase II (Part 1)** – A Functional Test for ISSF Competitions is conducted to verify the software system can manage all Qualification and Finals in ISSF Competitions. By request the Part 1 Functional Test for ISSF Competitions may be conducted in conjunction of the Phase I Accuracy Test.
- Phase II (Part 2)** – An Initial Field Test competition has to be conducted with a minimum of 20 athletes using the electronic targets for which approval has been requested. Various print outs have to be collected and sent to the ISSF. The print out must include start lists, qualification results, Finals start list, Finals result list for individuals and teams according to ISSF standards. Further lists may be added at short notice. The match must be conducted according to ISSF rules, with outputs in English. Official ISSF observer(s) will be appointed to attend.

**Phase II (Part 3)** – Further, a Controlled Field Test will be conducted. For this the company must provide a location with a minimum of 8 athletes and a full simulated competition will be conducted. Several incidents will be included on instruction of the ISSF observer(s).

1.2.4 **Phase III** – Companies certified Phase I and Phase II for all targets used in ISSF World Championships.

Phase III certification is the pre-condition to become the exclusive ISSF Result Service Provider..

When appropriate the ISSF solicits bids to enter into an agreement with the ISSF as exclusive ISSF Results Service Provider. Within the evaluation of the bids the ISSF will in particular take into account a manufacturer's ability to:

- provide results in the standard ISSF formats for Rifle, Pistol and Shotgun
- provide supporting TV graphics
- use new and stored historical data for compelling graphics or statistical reports
- use and improve the present ISSF programs such as competition entries, accreditation, records, Quota Places etc.
- adjustments for third party requirements may be included for example multiple sport events such as Olympic Games

1.2.5 **Modification Re-test** – In the event that a manufacturer modifies their system (hardware or software) they must notify the ISSF. The ISSF may then require a Modification Re-test to ensure the new system continues to meet the ISSF accuracy and functionality requirements.

1.2.6 **Post Certification** - The ISSF will have the right to conduct a Post Certification Test to ensure that an EST system continues to meet the accuracy and functionality standards of the ISSF.

1.2.7 **Olympic Cycle Re-Certification** - All approved target systems have to undergo an Olympic Cycle Re-Certification every four-year Olympic Cycle. This test is similar to the Accuracy and Basic Functionality Test. Further details will be provided by the ISSF Headquarters.

## 1.3 ISSF CERTIFICATIONS

### 1.3.1 PHASE I

The ISSF will issue a notification if the company has passed successfully Phase I Accuracy tests.

### 1.3.2 PHASE II

ISSF Certification will be issued after the formal approval by the ISSF Executive Committee for specific electronic scoring targets that have demonstrated the required accuracy and reliability. This may be restricted for certain ISSF supervised Competitions / Championships depending on other contractual sponsor contracts.

### 1.3.3 PHASE III

The ISSF will issue a notification if the company is certified (Phase I and Phase II) for all targets used in ISSF World Championships.

#### 1.3.4 **ADVERTISEMENT**

The above-mentioned notifications authorize the respective company to use the designation “International Shooting Sport Standard – Phase (I, II or III)” – depending on the achieved certification. ISSF’s name written out in full, the abbreviation “ISSF” or ISSF’s logo may only be used by the respective company upon conclusion of a license agreement with the ISSF subject to a license fee..

#### 1.4 **TESTING LOCATION AND TIME SCALE**

- 1.4.1 Once formal applications for testing have been submitted to ISSF Headquarters, the Phase I Test (Accuracy & Specification Testing) will be scheduled as soon as possible after the ISSF Executive Committee gives the authority to the Ad Hoc EST Testing Committee to conduct the test, bearing in mind that the members of the Test Committee must travel from several countries. The location of all Phase I Tests is in Pfreimd, Germany, unless mutually agreed to by the manufacturer and the ISSF.
- 1.4.2 After submitting an application a manufacturer having a new design of a target may be required to submit to the ISSF an exact look of the target in order to find a good set up for the testing. A video conference or a Pre-test may be scheduled.
- 1.4.3 The Phase II Test (Field Testing) will be scheduled after the successful conclusion of the Phase I Test, an application has been received from the company, and authorization by the Executive Committee has been given. The location where the Field Testing is to be conducted will be agreed mutually between the ISSF and the manufacturer concerned.
- 1.4.4 The Reports of the Ad Hoc EST Testing Committee will be completed and forwarded to the ISSF Executive Committee.
- 1.4.5 The Executive Committee of the ISSF is responsible for the final decision regarding the formal ISSF Certification of systems and equipment for the shooting sport.
- 1.4.6 A Phase I Pre-Test may be scheduled at any time by the ISSF Headquarters. A testing date will be scheduled as soon as possible after the request is received.
- 1.4.7 After passing the Phase I Test, manufacturers must notify the ISSF Headquarters whenever their EST system is changed. This includes all changes to a manufacturer’s designed hardware, software, bit streams, printed circuit boards, or similar. Changes to well-known third party vendor software used within the EST system (e.g. Microsoft Windows OS patches) should be tested by the manufacturer but are not required to be reported to the ISSF. If the ISSF decides that a change is significant, a Modification Test will be scheduled as soon as possible after the notification is received.
- 1.4.8 Any Post Certification Test will be initiated by the ISSF and coordinated with the manufacturer. This test will be conducted on units randomly selected from the production line. The test will be conducted to a pre-established test plan to confirm that production equipment continues to meet the approved standard. The result of any Post Certification Testing will be reported to the Executive Committee. Denial of the conduct of such a Post Certification Testing by the company may result in withdrawal of the Certification. The failure of a Post Certification Testing may also result in withdrawal of the Certification.

## **1.5 NOTIFICATION**

- 1.5.1 Applicants will be advised of the decision of the ISSF Executive Committee, concerning the outcome of the testing, by the ISSF Secretary General.

## **1.6 TIME OF CERTIFICATION VALIDITY**

- 1.6.1 The duration of the certification is for the current Olympic 4 year cycle. Applications for re-test must be made six (6) months before the date of the next Olympic Games. If an application is not made before the deadline, the validity will expire at the end of the Olympic year.

## **2. SPECIFICATIONS FOR ISSF ELECTRONIC SCORING EQUIPMENT**

### **2.1 ACCURACY**

- 2.1.1 The ISSF requirement is to ensure that the measuring accuracy of the target is better than one half of a decimal ring. A decimal ring is one tenth (1/10<sup>th</sup>) of a scoring ring of the target concerned. All target dimensions are given in the ISSF Technical Rules.

The ISSF defines the center of the shot in an EST as the geometric center of the total area the bullet makes as it passes through the aiming plane.

- 2.1.2 Comparison with paper target printing tolerances or plug gauge tolerances is not relevant to electronic scoring systems. This is because manual scoring of paper targets is a different type of scoring system. The ISSF recognizes that each scoring system, whether it is electronic, human, or otherwise has its own source of inaccuracies. To ensure fairness to competitors the ISSF must regulate these sources of inaccuracies based on the type of scoring system.

### **2.2 SCORING**

- 2.2.1 The manufacturer may use any internal data format or algorithm to derive the radial distance to the shot's center, furthermore the manufacturer may store the necessary data values (e.g. x and y coordinates) to permanent storage using any data format. When calculating the value of a shot, the manufacturer must use the calculated radial distance of a shot with the scoring table listed in Appendix A that is based on the ISSF Technical Rules.

- 2.2.2 The ISSF will use the internally calculated radial value to measure the accuracy of the EST system.

- 2.2.3 EST must display the decimal score of each shot on the athlete's monitor.

- 2.2.4 EST systems may further display the x and y coordinates of the center of the shot. If displayed or transferred out of the EST system these values must be listed as decimal values, the coordinates must be measured in millimeters to two (2) decimal places. **And the displayed x and y coordinates must result in the same decimal score of the displayed shot.**

### **2.3 FUNCTIONALITY**

- 2.3.1 Each EST system must be capable of conducting all ISSF events (Qualification and Finals) for which it is intended.

- 2.3.2 All realistic competition conditions must be manageable. For example, shots not fired in an event or series, late hits, early hits, cross fires, and so on.

## **2.4 RANKING**

- 2.4.1 If an electronic scoring system is provided for phase II certification, the system must be capable of ranking competitors according to the ISSF Rules for the individuals and teams in the competition events involved.
- 2.4.2 If certification is being sought for any ISSF supervised competition that requires interfacing to the ISSF Results Service Computer, the system must meet the interface requirement. This includes compatibility with the ORIS (Olympic Results and Information Services) format – as used for all ISSF supervised competitions.

## **2.5 RELIABILITY**

- 2.5.1 The manufacturer must state the anticipated number of cycles (shots or targets processed) by their equipment before any major servicing may be required.
- 2.5.2 The equipment must demonstrate reliability to any advertised specification of the manufacturer and/or the specified number of cycles listed on the “Application for Certification” provided the owners maintain the units as specified in the user manual.

## **2.6 CONSISTENCY**

- 2.6.1 The accuracy specification must be sustained during the operating life of the equipment, or any specified servicing or testing intervals.

## **2.7 EASE OF OPERATION**

- 2.7.1 The equipment must be designed to be operable by the average ISSF official using the provided documentation, and without technical assistance from the manufacturer. If any operational or user changes are made, the ISSF must be notified in advance.

## **2.8 SYSTEM SECURITY**

- 2.8.1 The manufacturer must design the system to guard against unauthorized intervention of the software or hardware. This includes, but not limited to, the EST unit, athlete’s monitors, network connections, data collection software, and result software.

## **2.9 PRESENTATION OF CLASSIFICATION RESULTS**

- 2.9.1 The shot(s) value(s) must be recorded by mechanical printing **and** by electronic storage (that must not be erased or corrupted in the event of a power failure).
- 2.9.2 **Electronic Scoring Target Ranking systems.** The results must show the correct ranking of competitors in accordance with the current version of the ISSF Rules. A printout facility must be available (for diagnostic purposes) giving for every shot:
  - 2.9.3 the Target Number;
  - 2.9.4 the shot number;
  - 2.9.5 the x & y co-ordinates of each shot to two decimal places in mm. These values should be consistent with 2.2.4, (i.e. the x and y values must produce the calculated radial values to two decimals that match the derived decimal scores);
  - 2.9.6 the time of each shot to one hundredth of a second (all targets must be synchronized to the same time);
  - 2.9.7 the integer score;

- 2.9.8 the decimal score (the maximum decimal score is 10.9);
- 2.9.9 an annotation of shots which scored as 'inner tens'; Inner tens must be counted and the total for the event shown on the print out.
- 2.9.10 indication of sighting shots;
- 2.9.11 series number, subtotal and total of series.
- 2.9.12 Full user documentation (in the English language) must be provided for all equipment submitted for testing that will allow operation by the average ISSF official without technical assistance.

### **3. REQUIREMENTS FOR PHASE I CERTIFICATION**

#### **3.1 DESIGN SPECIFICATION STATEMENT**

- 3.1.1 The applicant must assert that the equipment meets the ISSF specification at the time of application.
- 3.1.2 The applicant must state that the design is to a defined build standard, which must be specified in the application.

#### **3.2 USER DOCUMENTATION**

- 3.2.1 The applicant must provide 1 set of user documentation in English which must include full operating instructions and a list of any consumable spare parts.

#### **3.3 SALES LITERATURE**

- 3.3.1 The applicant must provide 1 set of current sales literature in English.

#### **3.4 STANDARDS APPROVALS**

- 3.4.1 The applicant must provide evidence that the equipment meets "standard internationally accepted certifications" e.g. Electro-Static Discharge (ESD), etc.

#### **3.5 APPLICATION FOR CERTIFICATION**

- 3.5.1 The applicant must formally request testing for certification using the "Application for ISSF Certification" form at the end of this manual.
- 3.5.2 A special advertising agreement must be made with the ISSF prior to the publication of any advertisement, leaflet, letterhead, or public notification by the manufacturer.

#### **3.6 EST UNITS FOR PHASE I TESTING**

- 3.6.1 Manufacturers must submit a minimum of 10 EST targets for testing (for 25m: 2 groups of 5 targets).
- 3.6.2 Equipment submitted will be tested for all ISSF events for which it is designed and specified.

#### **3.7 MANUFACTURER REQUIRED SUPPORT**

- 3.7.1 A manufacturer's representative(s), who can communicate fluently in English, must be present during all phases of testing.
- 3.7.2 The manufacturer's representative(s) must have adequate technical knowledge of the hardware and software.
- 3.7.3 The manufacturer must be able to print out a 1 to 1 scale of the shot groups. The center of the group must be the center of the page. Please ensure that enough of those overlay papers are available.

### **3.8 MANUFACTURER PRESENTATION**

3.8.1 Prior to the start of the testing, the manufacturer must give a presentation of the EST unit being tested at the testing location. The presentation must include the following:

- A technical description of the EST. This includes a description of each component of the EST system, scoring algorithm, and result presentation.
- A description as to how the manufacturer tests each EST unit prior to it being delivered to their end customers.
- A description of how an athlete can interact with the EST.
- A description of how range officers, jury members, or other officials can interact with the EST.
- A description as to how the system is secured from unauthorized access to either the hardware and software portions of their system. This includes, but not limited to, the EST unit, athlete's monitors, network connections, data collection software, and result software.

### **3.9 ACCURACY TEST PROCEDURE**

3.9.1 In general each EST system will be tested as if it was used in a competition. However, due to the necessity of testing the unit the manufacturer will be required to set the units up in special ways. This section is meant to inform the manufacturer of these special requirements.

3.9.2 Each Target Unit must have a unique serial number. This number will be recorded by the testing committee.

3.9.3 Equipment submitted will be tested for all ISSF events for which it is designed and specified.

3.9.4 The manufacturer will need to set up the EST unit as if it was going to be used in a competition. This includes setting it up at the regulation height (e.g. 1.4m for 10m units) and with an advancing paper strip, rubber band, or witness strip as applicable. The testing committee will not modify the EST unit in any way except that we require applying a series of small stickers around the edge of the EST unit's frame.

3.9.5 Each EST unit will be tested in a series of tests. Each "test" will be 5 to 60 shots in length. There may be many series of tests for each EST unit. Each test will be given a "test number."

3.9.6 In the event that an EST unit has an apparent failure, the manufacturer may not touch or modify the EST system in anyway until the testing committee has an opportunity to inspect the equipment. After the testing committee has inspected the equipment the manufacturer will have sufficient time to inspect the equipment themselves.

3.9.7 The manufacturer will need to be able to set up their EST unit and accompanying software to score 60 shots in a slow fire stage. For example, a 25m EST will need to be able to score 60 slow fire shots on the rapid fire target as well as 60 slow fire shots on the precision target.

3.9.8 The advancing paper bands for 10m EST units must be available in white (not the standard black). Likewise, the advancing rubber bands for 25m, 50m, and



300m units (if used) must be available in white. If rubber bands are being spray painted white, please paint the bands in advance so they have sufficient time to dry.

- 3.9.9 The manufacturer must ensure that the advance of the paper strip or rubber band (if used) can be stopped and released manually after each shot. This is because the testing committee will need to take photos of each shot before the band advances. In addition the advance of the paper strip or rubber band (if used) must be variable in length, between 1cm and 5cm. The testing committee will inform the manufacturer the length of the advance at the time of test.
- 3.9.10 The manufacturer must provide a print out of each shot group from each test.
- 3.9.11 Each manufacturer must bring enough spare material to operate the EST units for 50 tests, and 60 shots per test. This includes for example paper or rubber bands, target faces, and printer paper. All used materials will be collected by the testing committee.
- 3.9.12 EST units that do not use a paper or rubber band immediately behind the target face, must have sufficient paper target faces that do not have an aiming hole or an aiming mark. In other words blank white paper that fits where the normal aiming face fits.
- 3.9.13 The manufacturer needs to be able to make the following data available in an electronic data file for each test. The data file format must be a CSV file and named with the test number. Each row in the file represents one shot. The column definitions are as follows:
- the shot number;
  - the x co-ordinate that is shown to two decimal places in mm (see 2.2.4);
  - the y co-ordinate that is shown to two decimal places in mm (see 2.2.4);
  - the radial value of each shot in mm, used by the EST to calculate the value of the shot (see 2.2.1);
  - the integer score;
  - the decimal score (the maximum decimal score is 10.9);
  - an indication of shots which scored as 'inner tens' (\* for inner tens);
  - the Test Number (provided by the ISSF Test Committee);
  - the Target Number (Firing point);
  - the date of each shot (YYYY-MM-DD);
  - the time of each shot to one hundredth of a second (all targets must be synchronized to the same time);
  - indication of sighting shots (0 for sighters and 1 for competition);
  - event (abbreviated event codes).

Samples of data records:

```
1;0.26;-1.81;1.8286;10;10.2;"*";101;001;"2010-11-07";"10:58:42.500";0;"AR40"  
1;6.70;-7.39;9.9750;9;9.7;" ";102;059;"2010-11-07";"12:00:42.500";1;"AP60"
```

3.9.14 At the start of an accuracy test, or after a target under test has been changed, the manufacturer will be given time to conduct a short basic functionality test or self-diagnostic test.

3.9.15 The manufacturer may, without penalty, change a target under test for a new unit if, the target under test reports an error on the shooter's monitor discovered in a self-diagnostic test. For example, in an acoustical target, if one of the microphones is not picking up a shot's sound wave but the other microphones are, the target may report this error to the shooter's monitor.

#### **4. FUNCTIONAL TESTS**

4.1 Each EST unit may be tested in a series of functional tests for the ISSF events it is designed for.

4.2 For each functional test the scores must be calculated correctly given the specified condition and applicable penalties must be assigned according to the rulebook and under the direction of the jury member. A committee member will act as the jury member.

4.3 The target must be able to be set up to operate at any stage or series of a course of fire for testing purposes. For example, shoot a 4-second series for a rapid fire target course of fire, without going through the sighters, 8-second, and 6-second series.

4.4 General functional tests for any event are as follows:

- Conduct a normal qualification course of fire and Finals for each ISSF event the EST unit is designed for.
- A cross shot fired from another firing point.
- A shot fired before the start time of the event or series.
- A shot fired after the end time of the event or series.
- A shot not fired in an event or series in the allocated time.
- An additional shot fired in an event or series.
- Additional penalties assigned to the athlete.
- Frame hit, to make sure the shot does not disrupt the normal operation of the EST unit.
- An allowable malfunction.
- An unallowable malfunction.
- An athlete protesting the value of a shot.
- The timing of the red and green lights for each type of series (25m events only).
- Red and green lights are visible in any reasonable lighting condition (25m events only).
- For specific 25m Pistol functional tests see Appendix B.

4.5 Specific functional tests for Rapid Fire Pistol Finals:

- The Rapid Fire Target Finals must either be simulated using a single bay, or manufacturers may alternatively bring three bays for this functional test.

- Deduction of “hits” in Finals.
- The electronic scoring centers of each target in the bay are identical.
- Shots fired on the five targets in any order.
- Two shots fired on one of the five targets.

4.6 Specific functional tests for Running Target

- The timing of the slow and fast runs, for both the left and right runs.
- The target is released before the athlete is ready.

4.7 The testing committee reserves the right to conduct additional functional tests that simulate realistic competition conditions.

**5. SPECIAL CIRCUMSTANCES**

5.1 In the event of an obvious error (e.g. shot not detected, grossly inaccurate scoring) during testing, the Ad Hoc EST Testing Committee will:

1. Stop the current test and give the manufacturer time to investigate.
2. After the investigation, the manufacturer will report on what they found.
3. Once the report is made the Ad Hoc EST Testing Committee Members present will decide whether to continue or not.
4. If it is decided to continue, the Ad Hoc EST Testing Committee Members present must prepare a plan for how to continue.

5.2 In all cases the manufacturer must determine the root cause of the obvious error. Once determined the manufacturer is responsible for fixing the root cause and reporting on the root cause. If the root cause can be determined and fixed during the test period, the manufacturer will be given the opportunity to make the fix and continue on with the test. The EST Committee is responsible for conducting additional tests to confirm the fix is successful. These additional tests will be the least disruptive and as timely as possible while still maintaining the EST’s accuracy and performance requirements. Completely repeating a Phase 1 or Phase 2 test, due to a found obvious error, will only be required in the event that the fix results in major changes to the EST system.

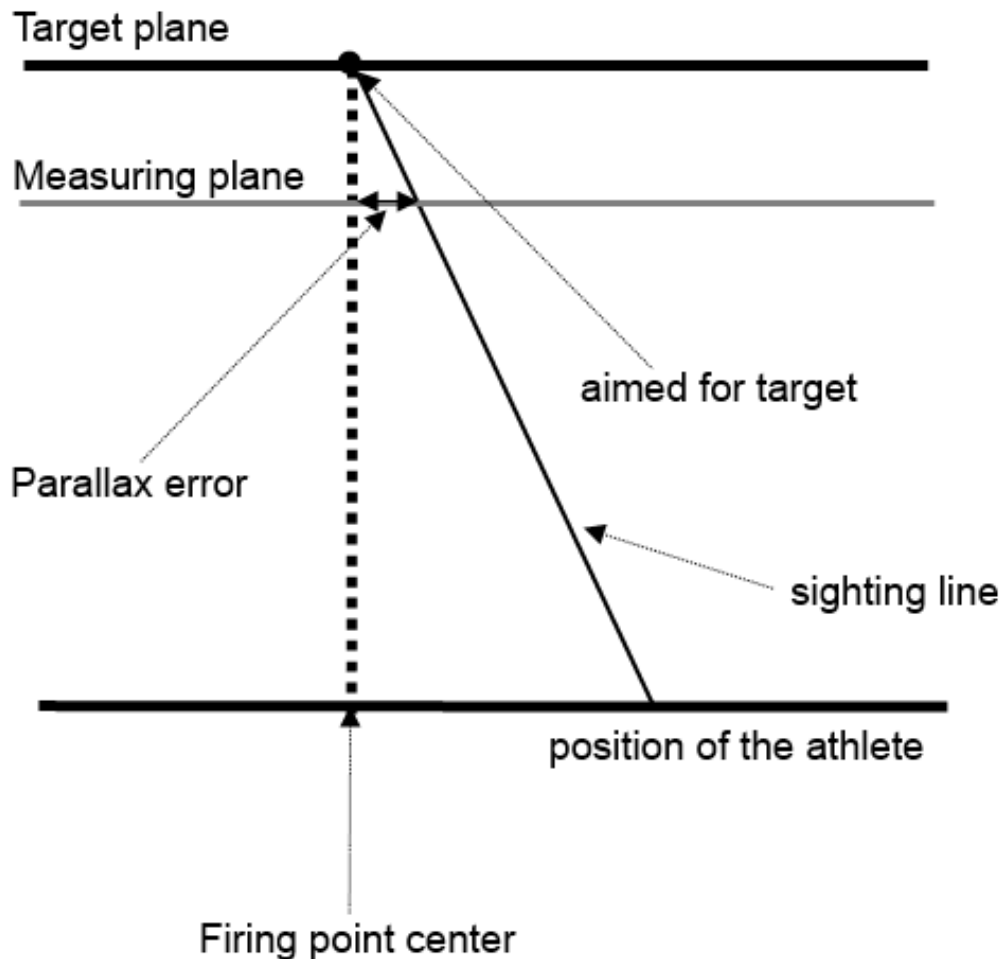
5.3 If a target system fails after applying procedures in 5.1 and 5.2, the targets will have to be re-scheduled and re-tested for that Phase.

5.4 When the system is re-submitted for testing, the entire Phase I test plan will be conducted.

## 6. PARALLAX SITUATION

6.1 Due to the fact that a parallax situation may occur in some systems, the ISSF requires manufacturers of these systems, after a successful phase 1 test, to include a warning in their manual regarding parallax. Parallax is deemed to exist if it exceeds  $\frac{1}{2}$  of a decimal ring of the 10m Air Rifle targets which equals 0.125mm (to be tested with a 33cm move to the right or left). The manufacturer may either come up with their own text or use the below recommended text. Text prepared by the manufacturer must be approved by the ISSF.

Optical scoring systems have a potential limitation in that the surface the athlete is aiming at is not the same as the plane the shot is being evaluated on. This is known as parallax. Parallax may create a problem for the athlete if he or she moves within the firing point. If the athlete stays in the same location the problem will be avoided. Where possible the athlete should stand near the center of the firing point.



## 7.0 TESTING FEES

7.1 The manufacturer must pay the following testing fees (in Euros):

Event	Phase I	Phase II (note #)
Base Fee per Test*	5000	
10m Air Rifle Men	Per Model 5000	Per Model 1000
10m Air Rifle Women	Incl. in 10m AR Men	Incl. in 10m AR Men
10m Air Pistol Men	Incl. in 10m AR Men	Per Model 1000
10m Air Pistol Women	Incl. in 10m AR Men	Incl. in 10m AR Men
10m Five Shot Air Pistol	Per Model 3000	Per Model 1000
50m Rifle Target for Clubs	Per Model 1000	Not Applicable
10m Running Target	Per Model 3000	Per Model 1000
25m Pistol Women	Per Model 6000	Per Model 1000
25m Standard Pistol	Incl. in 25m Pistol	Per Model 1000
25m Rapid Fire Pistol	Incl. in 25m Pistol	Per Model 1000
25m Center Fire Pistol	Incl. in 25m Pistol	Incl. in 25m Pistol
50m Three Position Men	Per Model 4400	Per Model 1000
50m Three Position Women	Incl. in 50 3P Men	Per Model 1000
50m Prone Men	Incl. in 50 3P Men	Per Model 1000
50m Prone Women	Incl. in 50 3P Men	Incl. in 50m Prone Men
50m Pistol Men	Incl. in 50 3P Men	Per Model 1000
50m Running Target	Per Model 3000	Per Model 1000
300m Three Position Men	Per Model 4400	Per Model 1000
300m Three Position Women	Incl. in 300m 3P Men	Per Model 1000
300m Prone Men	Incl. in 300m 3P Men	Per Model 1000
300m Prone Women	Incl. in 300m 3P Men	Incl. in 300m Prone Men
300m Standard Rifle	Incl. in 300m 3P Men	Incl. in 300m 3P Women

\* "Test" is time the Ad Hoc EST Testing Committee meets to conduct a series of evaluations for a vendor.

The cost of a Pre-Phase I test or Modification Re-test will be determined at the time the application is submitted.

There is no fee for a Post Certification Test, but the manufacturer must cover their own costs (travel, accommodation, testing supplies, etc.).

Phase I tests include expenses for travel, food and accommodation of Ad Hoc EST Testing Committee members. Phase I tests 10m, 25m, and 50m will be conducted in Pfreimd, Germany unless mutually agreed to by the manufacturer and the ISSF, but all costs must be paid.

Phase II tests include both individual and team events, and are carried out at a mutually agreed location between the vendor and Ad Hoc EST Testing Committee.

Phase II tests do not include the expenses of Ad Hoc EST Testing Committee members and vendor will be billed separately for these expenses.

Costs of the four year Olympic Cycle Re-Certification may be found in a separate ISSF manual.

Cancellation by the manufacturer within two weeks before any scheduled test may result in paying the full fees. Any test not conducted in accordance with the schedule due to the fault of the manufacturer may not be permitted to be repeated for at least 6 months.

# APPLICATION FOR ISSF CERTIFICATION

Submit completed form to

ISSF - International Shooting Sport Federation  
Bavariaring 21, D-80336 München, Germany

Email: [munich@issf-sports.org](mailto:munich@issf-sports.org)

Fax: +49-89-54435544

DATE: \_\_\_\_\_

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

COUNTRY: \_\_\_\_\_

TELEPHONE NO. \_\_\_\_\_

FAX NO. \_\_\_\_\_

CONTACT NAME: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

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## EQUIPMENT TO BE TESTED

NAME OF EQUIPMENT: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_

BUILD STANDARD NUMBER/LETTER: \_\_\_\_\_

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### DESIGN STATUS

At what stage is the equipment that is being submitted for test?

Concept Stage \_\_\_\_\_

Development Stage \_\_\_\_\_

Production Stage \_\_\_\_\_

Are there any national or international patents covering this design? \_\_\_\_\_

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### TOOLING STATUS

At what stage is the tooling that is being used to produce the equipment which is being submitted for test?

Laboratory Tooling \_\_\_\_\_

Pre-Production \_\_\_\_\_

Full Production \_\_\_\_\_

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### STANDARDS TESTING

Has the equipment been tested for the following:

ESD / EMI	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Did it PASS	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
“CE”	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Did it PASS	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

---

### TARGET MAINTENANCE

What is the expected life time of the target unit? \_\_\_\_\_

What section in your user manual describes target maintenance? \_\_\_\_\_

What after market support do you provide (e.g. service of targets after it is installed in the range)?

\_\_\_\_\_



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**INDICATE ALL ISSF EVENTS FOR WHICH THIS EQUIPMENT  
MAY BE USED**

Check the box(s) which are applicable:

**10 Meters:**

- 10 m Air Pistol
- 10 m Five Shot Air Pistol
- 10 m Air Rifle
- 10 m Running Target

**25 Meters:**

- 25 m Rapid Fire Pistol
- 25 m Pistol
- 25 m Center Fire Pistol
- 25 m Standard Pistol

**50 Meters:**

- 50 m Pistol
- 50 m Rifle
- 50 m Running Target

**300 Meters:**

- 300 m Standard Rifle
- 300 m Rifle

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**HAS THIS EQUIPMENT BEEN USED IN ANY COMPETITION?**

**YES**  **NO**

IF YES, PLEASE LIST LOCATION AND DATE

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**IF THIS IS A RE-TEST, LIST ALL CHANGES MADE SINCE THE LAST TEST WAS CONDUCTED**

DATE OF LAST TEST: \_\_\_\_\_

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**THE FOLLOWING DOCUMENTATION MUST BE SUBMITTED WITH THIS APPLICATION FORM IN ENGLISH AND PDF FORMAT:**

1. - Manufacturer's specifications
2. - A copy of "Standard Approvals"
3. - User's Manual
4. - Sales Literature

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I CERTIFY THAT THE DESIGN RIGHTS ARE OWNED BY THE COMPANY SUBMITTING THIS APPLICATION AND THAT THE FOREGOING INFORMATION IS CORRECT.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Position

FOR AND ON THE BEHALF OF:

\_\_\_\_\_  
NAME OF COMPANY

## Appendix A – ISSF Scoring Table

**DECIMAL SCORES (MAXIMUM Radius up to mm to Score:)**

Score	10m Air Rifle	10 Air Pistol 50m Rifle	25m & 50m Pistol Precisn	25m C Fire Pistol Precisn	300m Rifle	25m Rapid Fire Pistol	25m C Fire Pistol RF	Score
	MAX Radius up to mm	MAX Radius up to mm	MAX Radius up to mm	MAX Radius up to mm	MAX Radius up to mm	MAX Radius up to mm	MAX Radius up to mm	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>10.9</b>	0.25	0.80	2.78	2.9825	5.40	5.28	5.4825	<b>10.9</b>
<b>10.8</b>	0.50	1.60	5.56	5.9650	10.80	10.56	10.9650	<b>10.8</b>
<b>10.7</b>	0.75	2.40	8.34	8.9475	16.20	15.84	16.4475	<b>10.7</b>
<b>10.6</b>	1.00	3.20	11.12	11.9300	21.60	21.12	21.9300	<b>10.6</b>
<b>10.5</b>	1.25	4.00	13.90	14.9125	27.00	26.40	27.4125	<b>10.5</b>
<b>10.4</b>	1.50	4.80	16.68	17.8950	32.40	31.68	32.8950	<b>10.4</b>
<b>10.3</b>	1.75	5.60	19.46	20.8775	37.80	36.96	38.3775	<b>10.3</b>
<b>10.2</b>	2.00	6.40	22.24	23.8600	43.20	42.24	43.8600	<b>10.2</b>
<b>10.1</b>	2.25	7.20	25.02	26.8425	48.60	47.52	49.3425	<b>10.1</b>
<b>10.0</b>	2.50	8.00	27.80	29.8250	54.00	52.80	54.8250	<b>10.0</b>
			<u>Change</u>	<u>Change</u>	<u>Change</u>	<u>Change</u>	<u>Change</u>	
<b>9.9</b>	2.75	8.80	30.30	32.325	59.00	56.80	58.825	<b>9.9</b>
<b>9.8</b>	3.00	9.60	32.80	34.825	64.00	60.80	62.825	<b>9.8</b>
<b>9.7</b>	3.25	10.40	35.30	37.325	69.00	64.80	66.825	<b>9.7</b>
<b>9.6</b>	3.50	11.20	37.80	39.825	74.00	68.80	70.825	<b>9.6</b>
<b>9.5</b>	3.75	12.00	40.30	42.325	79.00	72.80	74.825	<b>9.5</b>
<b>9.4</b>	4.00	12.80	42.80	44.825	84.00	76.80	78.825	<b>9.4</b>
<b>9.3</b>	4.25	13.60	45.30	47.325	89.00	80.80	82.825	<b>9.3</b>
<b>9.2</b>	4.50	14.40	47.80	49.825	94.00	84.80	86.825	<b>9.2</b>
<b>9.1</b>	4.75	15.20	50.30	52.325	99.00	88.80	90.825	<b>9.1</b>
<b>9.0</b>	5.00	16.00	52.80	54.825	104.00	92.80	94.825	<b>9.0</b>
<b>8.9</b>	5.25	16.80	55.30	57.325	109.00	96.80	98.825	<b>8.9</b>
<b>8.8</b>	5.50	17.60	57.80	59.825	114.00	100.80	102.825	<b>8.8</b>
<b>8.7</b>	5.75	18.40	60.30	62.325	119.00	104.80	106.825	<b>8.7</b>
<b>8.6</b>	6.00	19.20	62.80	64.825	124.00	108.80	110.825	<b>8.6</b>
<b>8.5</b>	6.25	20.00	65.30	67.325	129.00	112.80	114.825	<b>8.5</b>
<b>8.4</b>	6.50	20.80	67.80	69.825	134.00	116.80	118.825	<b>8.4</b>
<b>8.3</b>	6.75	21.60	70.30	72.325	139.00	120.80	122.825	<b>8.3</b>
<b>8.2</b>	7.00	22.40	72.80	74.825	144.00	124.80	126.825	<b>8.2</b>
<b>8.1</b>	7.25	23.20	75.30	77.325	149.00	128.80	130.825	<b>8.1</b>
<b>8.0</b>	7.50	24.00	77.80	79.825	154.00	132.80	134.825	<b>8.0</b>
<b>7.9</b>	7.75	24.80	80.30	82.325	159.00	136.80	138.825	<b>7.9</b>
<b>7.8</b>	8.00	25.60	82.80	84.825	164.00	140.80	142.825	<b>7.8</b>
<b>7.7</b>	8.25	26.40	85.30	87.325	169.00	144.80	146.825	<b>7.7</b>
<b>7.6</b>	8.50	27.20	87.80	89.825	174.00	148.80	150.825	<b>7.6</b>
<b>7.5</b>	8.75	28.00	90.30	92.325	179.00	152.80	154.825	<b>7.5</b>
<b>7.4</b>	9.00	28.80	92.80	94.825	184.00	156.80	158.825	<b>7.4</b>
<b>7.3</b>	9.25	29.60	95.30	97.325	189.00	160.80	162.825	<b>7.3</b>
<b>7.2</b>	9.50	30.40	97.80	99.825	194.00	164.80	166.825	<b>7.2</b>
<b>7.1</b>	9.75	31.20	100.30	102.325	199.00	168.80	170.825	<b>7.1</b>
<b>7.0</b>	10.00	32.00	102.80	104.825	204.00	172.80	174.825	<b>7.0</b>

6.9	10.25	32.80	105.30	107.325	209.00	176.80	178.825	6.9
6.8	10.50	33.60	107.80	109.825	214.00	180.80	182.825	6.8
6.7	10.75	34.40	110.30	112.325	219.00	184.80	186.825	6.7
6.6	11.00	35.20	112.80	114.825	224.00	188.80	190.825	6.6
6.5	11.25	36.00	115.30	117.325	229.00	192.80	194.825	6.5
6.4	11.50	36.80	117.80	119.825	234.00	196.80	198.825	6.4
6.3	11.75	37.60	120.30	122.325	239.00	200.80	202.825	6.3
6.2	12.00	38.40	122.80	124.825	244.00	204.80	206.825	6.2
6.1	12.25	39.20	125.30	127.325	249.00	208.80	210.825	6.1
6.0	12.50	40.00	127.80	129.825	254.00	212.80	214.825	6.0
5.9	12.75	40.80	130.30	132.325	259.00	216.80	218.825	5.9
5.8	13.00	41.60	132.80	134.825	264.00	220.80	222.825	5.8
5.7	13.25	42.40	135.30	137.325	269.00	224.80	226.825	5.7
5.6	13.50	43.20	137.80	139.825	274.00	228.80	230.825	5.6
5.5	13.75	44.00	140.30	142.325	279.00	232.80	234.825	5.5
5.4	14.00	44.80	142.80	144.825	284.00	236.80	238.825	5.4
5.3	14.25	45.60	145.30	147.325	289.00	240.80	242.825	5.3
5.2	14.50	46.40	147.80	149.825	294.00	244.80	246.825	5.2
5.1	14.75	47.20	150.30	152.325	299.00	248.80	250.825	5.1
5.0	15.00	48.00	152.80	154.825	304.00	252.80	254.825	5.0
4.9	15.25	48.80	155.30	157.325	309.00			4.9
4.8	15.50	49.60	157.80	159.825	314.00			4.8
4.7	15.75	50.40	160.30	162.325	319.00			4.7
4.6	16.00	51.20	162.80	164.825	324.00			4.6
4.5	16.25	52.00	165.30	167.325	329.00			4.5
4.4	16.50	52.80	167.80	169.825	334.00			4.4
4.3	16.75	53.60	170.30	172.325	339.00			4.3
4.2	17.00	54.40	172.80	174.825	344.00			4.2
4.1	17.25	55.20	175.30	177.325	349.00			4.1
4.0	17.50	56.00	177.80	179.825	354.00			4.0
3.9	17.75	56.80	180.30	182.325	359.00			3.9
3.8	18.00	57.60	182.80	184.825	364.00			3.8
3.7	18.25	58.40	185.30	187.325	369.00			3.7
3.6	18.50	59.20	187.80	189.825	374.00			3.6
3.5	18.75	60.00	190.30	192.325	379.00			3.5
3.4	19.00	60.80	192.80	194.825	384.00			3.4
3.3	19.25	61.60	195.30	197.325	389.00			3.3
3.2	19.50	62.40	197.80	199.825	394.00			3.2
3.1	19.75	63.20	200.30	202.325	399.00			3.1
3.0	20.00	64.00	202.80	204.825	404.00			3.0
2.9	20.25	64.80	205.30	207.325	409.00			2.9
2.8	20.50	65.60	207.80	209.825	414.00			2.8
2.7	20.75	66.40	210.30	212.325	419.00			2.7
2.6	21.00	67.20	212.80	214.825	424.00			2.6
2.5	21.25	68.00	215.30	217.325	429.00			2.5
2.4	21.50	68.80	217.80	219.825	434.00			2.4
2.3	21.75	69.60	220.30	222.325	439.00			2.3
2.2	22.00	70.40	222.80	224.825	444.00			2.2
2.1	22.25	71.20	225.30	227.325	449.00			2.1
2.0	22.50	72.00	227.80	229.825	454.00			2.0
1.9	22.75	72.80	230.30	232.325	459.00			1.9
1.8	23.00	73.60	232.80	234.825	464.00			1.8
1.7	23.25	74.40	235.30	237.325	469.00			1.7
1.6	23.50	75.20	237.80	239.825	474.00			1.6
1.5	23.75	76.00	240.30	242.325	479.00			1.5
1.4	24.00	76.80	242.80	244.825	484.00			1.4
1.3	24.25	77.60	245.30	247.325	489.00			1.3
1.2	24.50	78.40	247.80	249.825	494.00			1.2
1.1	24.75	79.20	250.30	252.325	499.00			1.1
1.0	<b>25.00</b>	<b>80.00</b>	<b>252.80</b>	<b>254.825</b>	<b>504.00</b>			1.0

<b>Target</b>	<b>Inner Ten starts...</b>	<b>At Radius (mm):</b>
10m Air Rifle	at 10.2	≤2.0
10m Air Pistol	within 10.4	≤4.75
10m Running Target	at 10.5	≤2.5
50m Small Bore Rifle	within 10.3	≤5.3
25/50m Precision Pistol Target (5.6. mm)	within 10.4	≤15.3
25m Rapid Fire Pistol Target (5.6mm)	within 10.4	≤27.8
25m Precision Pistol Target (9.65 mm)	within 10.4	≤17.325
25m Rapid Fire Pistol Target (9.65 mm)	within 10.4	≤29.825
300m Rifle Target	within 10.4	≤29.0

## **APPENDIX B**

### **Special Specifications for 25m Functional Tests**

#### **PHASE I**

##### **25m Target Specification**

The 25m EST must represent the 25m Turning Targets that are still widely used throughout the world.

The target technology must accommodate the following 25m events:

- 25m Rapid Fire Pistol Men (including 2013 Finals);
- 25m Pistol Women;
- 25m Centre Fire Pistol Men;
- 25m Standard Pistol Men.

As there is no turning mechanism, red and green lights are required to indicate the times when the targets are active. ISSF Rule 6.4.13 gives the specifications. However, for clarity the lights should operate as follows:

**Red Lights on** at command “ATTENTION”, then the Green Lights on in 25m Rapid Fire Pistol Men 7 seconds after “START”;

60 seconds after the command “LOAD” the Chief Range Officer switches the lights to RED and after 7 seconds the GREEN lights go on for the 25m Pistol Women and 25m Centre Fire Pistol Men and the series starts according to the rules;

60 seconds after the command “LOAD” the Chief Range Officer switches the lights to RED and after 7 seconds the GREEN lights go on for the 25m Standard Pistol and the series starts according to the rules.

**Then the Red Lights come on** again after the nominal exposure time plus 0.1 seconds. However, the targets must continue to accept (as valid shots) shots hitting the target up until the nominal exposure time plus 0.3 seconds (to allow for the simulation of skid shots on turning targets).

##### **Aiming Mark**

The aiming marks must be as specified as in ISSF Rules 6.3.4.

##### **Monitors**

Each target needs a monitor. For the 25m Rapid Fire Pistol Men event all five targets must also be presented on one of the monitors (the Master monitor) which must also show the five shot series total.

##### **Scoring**

For all timed events or phases the score must be the total of the valid hits obtained (within the specified times given above). In the event of non-valid or “illegal” shots such as shots fired early or late an indication must be given that the shot is illegal and if it was an early or a late shot and the time and value must be shown.

In a situation where an athlete fires more shots than are permitted on one exposure only the first shot to hit the target should be scored (a penalty will be awarded in such situation so that the second shot should be shown as illegal).

In the event of a target being activated by debris from an adjacent target the result for this shot must also be shown to allow subsequent adjudication of the correct score.

For 25m events, fired with semi-automatic pistols, there is the possibility of a pistol "Malfunction". These are categorized as "Non-Allowable" (being the fault of the athlete) and "Allowable" (not being the fault of the athlete). Detailed ISSF rules are at 6.13. Such decisions are made by Range Officers, supervised by Range Jury Members. It is recommended that once the decision "ALLOWABLE" or "NON-ALLOWABLE" has been made, this should be input and the score derived automatically by the EST. However, where this is not possible, the corrected scores (following an "ALLOWABLE" malfunction) depending on whether a Completion or Repetition is required by the ISSF Rules, must be input manually under the supervision of a RTS Jury Member (based upon the relevant Forms RFPM & STDP on pages 340 & 341 of the ISSF Rules Edition 2017 (Second Print 01/2018)).

In the case of a "NON-ALLOWABLE" malfunction, no Completion or Repetition is permitted (8.9.4.4) and every shot not fired will be scored as a miss (zero). Therefore, no change to the score as recorded is required.

In the case of an "ALLOWABLE" malfunction (only one malfunction may be claimed):

"8.9.1 a) once in each 30 shot stage of the of the 25m Rapid Fire Pistol, 25m Pistol, and 25m Centre Fire Pistol events;

"8.9.1 b) once in the 150 seconds stage and once in the combined twenty (20) seconds and ten (10) seconds stages of the 25 m Standard Pistol event. "

If an "ALLOWABLE" malfunction occurs:

In the 25m Rapid Fire Pistol event the series must be **repeated** and the lowest scoring shots on each target taken separately must be added to give the series score.

In the 25m Pistol and 25m Centre Fire Pistol events the series must be **completed** and the first five shots must be added to give the series score (including any shots not fired or missing the target being scored as zeros).

In the 25m Standard Pistol event the five lowest score shots must be added to give the series score (including any shots not fired or missing the target being scored as zeros).

If a second malfunction occurs during a **repetition**, the athlete must be credited only with as many of the lowest value hit(s) as the highest number of shots fired in the series or repeat series (any shots not fired in both series must be scored as zeros).

If a second malfunction occurs during a **completion**, any shots not fired or not hitting the target must be scored as zeros.

## **Printers**

It must be possible to print out the scores for each lane, sub-totaled in ten shot groups, and with the grand total for the event. Any late shots during any timed sequence must be scored, the time error must be shown, and be annotated as an overtime or late indication.

All print outs have to be in English language.

It must be possible to print out (log-print) the shot by shot analysis with timing to one hundredth of a second, plus the x & y co-ordinates in mm to two places of decimals.

## **Special Functions**

Targets must be capable of identifying and scoring correctly the following situations:

The firing of more shots than specified on any exposure;

The missing of one or more shots during a series;

A target receiving automatically fired shots;

Accept manual insertion of penalties;