# CERTIFICATION

# PROCEDURE

# MANUAL

# FOR

# ELECTRONIC SCORING TARGETS
## FOR INTERESTED COMPANIES



**Date: March 2012**

## 1. INTRODUCTION

**1.1** The ISSF is concerned with insuring 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's Executive Committee has authorized and formed the "Ad Hoc Committee for Electronic Scoring Targets."

**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 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 two parts, is design 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) – An Initial Field Test competition has to be conducted with a minimum of 20 shooters 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, final result list for individual and teams. 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 2) – Further, a Controlled Field Test will be conducted. For this the company must provide a location with a minimum of 8 shooters 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** – Major Competition Compatibility with the ISSF Results Service

Use and exchange of data files with the ISSF for the conduct of ISSF competitions. Generation of start lists and results in the approved ISSF formats and results displays during and after the competition. Details can be requested by the company only after approval of Phase II.

1.2.5 **Modification Retest** – In the event that a manufacturer modifies their system (hardware or software) they must notify the ISSF. The ISSF may then require a Modification Retest 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-Test** - All approved target systems have to undergo an Olympic Cycle Retest 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 AFTER PHASE I

The ISSF will issue a notification if the company has passed successfully Phase I accuracy tests. This notification does not authorize any advertisement or publication regarding the test result.

### 1.3.2 AFTER 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. With this Phase II Certification a special advertisement agreement may be negotiated with the ISSF.

### 1.3.3 AFTER PHASE III

ISSF Authorization may be issued after formal approval by the ISSF Executive Committee for specific electronic scoring targets and equipment that has demonstrated the required ability to conduct World Cups and other ISSF supervised Championships. This may be restricted depending on other contractual matters.

## 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 Adhoc 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 The Phase II Test (Field Testing) will be scheduled as soon as possible 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.

1.4.3 The Phase III Test (Major competition compatibility) will be scheduled as soon as possible after the successful conclusion of the Phase II Test, an application has been received from the company and authorization by the Executive Committee has been given.

1.4.4 The Reports of the Adhoc Test 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. SPECIFICATION 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 ($1/10^{th)}$ 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 shooter'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, shooter'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 2.2.2, (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 6 sets 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 6 sets 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.

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 Manufacturer must submit a minimum of 10 EST units for testing.

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 a shooter 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, shooter'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.3.9.2Each 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"
```

## 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 seconds, and 6 seconds 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 shooter.
- Frame hit, to make sure the shot does not disrupt the normal operation of the EST unit.
- An allowable malfunction.
- An unallowable malfunction.
- A shooter 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).

4.5 Specific functional tests for Rapid Fire Pistol:

- 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 shooter is ready.

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

## 5. RE-TESTING AFTER TEST FAILURE

5.1 If a target system fails to pass any part of the certification test, the unit will have to be re-scheduled and re-tested for that Phase.

5.2 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 occure in some systems, the ISSF requires manufactuers of these systems, after a successful phase 1 test, to include a warning in their manual regarding parallax. The manufacturer may either come up with their own text or use the bellow 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 shooter is aiming at is not the same as the plane the shot is being evaluated on. This is known as parallax. Parallax creates a problem for the shooter if he or she moves significantly within the firing point. If the shooter stays in the same location the problem will be avoided. Where possible the shooter should stand near the center of the firing point. (It is proposed to add a drawing for better understanding).

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## 6.0 TESTING FEES

6.1 The manufacturer must pay the following testing fees:

| Event | Phase I | Phase II (note #) | Phase III |
|---|---|---|---|
| Base Fee per Test* | 5000 | 4000 | TBD |
| 10m Air Rifle Men | Per Model 5000 | Per Model 1000 | TBD |
| 10m Air Rifle Women | Incl. in 10m AR Men | Incl. in 10m AR Men | TBD |
| 10m Air Pistol Men | Incl. in 10m AR Men | Per Model 1000 | TBD |
| 10m Air Pistol Women | Incl. in 10m AR Men | Incl. in 10m AR Men | TBD |
| 10m Five Shot Air Pistol | Per Model 3000 | Per Model 1000 | TBD |
| 50m Rifle Target for Clubs | Per Model 1000 | Not Applicable | Not Applicable |
| 10m Running Target | Per Model 3000 | Per Model 1000 | TBD |
| 25m Pistol Women | Per Model 6000 | Per Model 1000 | TBD |
| 25m Standard Pistol | Incl. in 25m Pistol | Per Model 1000 | TBD |
| 25m Rapid Fire Pistol | Incl. in 25m Pistol | Per Model 1000 | TBD |
| 25m Center Fire Pistol | Incl. in 25m Pistol | Incl. in 25m Pistol | TBD |
| 50m Three Position Men | Per Model 4400 | Per Model 1000 | TBD |
| 50m Three Position Women | Incl. in 50 3P Men | Per Model 1000 | TBD |
| 50m Prone Men | Incl. in 50 3P Men | Per Model 1000 | TBD |
| 50m Prone Women | Incl. in 50 3P Men | Incl. in 50m Prone Men | TBD |
| 50m Pistol Men | Incl. in 50 3P Men | Per Model 1000 | TBD |
| 50m Running Target | Per Model 3000 | Per Model 1000 | TBD |
| 300m Three Position Men | Per Model 4400 | Per Model 1000 | TBD |
| 300m Three Position Women | Incl. in 300m 3P Men | Per Model 1000 | TBD |
| 300m Prone Men | Incl. in 300m 3P Men | Per Model 1000 | TBD |
| 300m Prone Women | Incl. in 300m 3P Men | Incl. in 300m Prone Men | TBD |
| 300m Standard Rifle | Incl. in 300m 3P Men | Incl. in 300m 3P Women | TBD |

Payments are in Euros

* "Test" is each time the Adhoc Committee meets to conduct a series of evaluations for a vendor.

The cost of a Pre-Phase I test or Modification Retest 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 and accommodation of Adhoc Committee members.

Phase II tests include both individual and team events.

# Phase II tests do not include the expenses of Adhoc Committee members and vendor will be billed separately for these expenses.

Phase III test costs are determined at the time of application.

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

300m test location is decided mutually between the vendor and the Adhoc Committee and all extra costs such as travel, accommodation, local transportation, food and ammunition will be billed separately.

Phase I tests 10m, 25m, and 50m will be conducted in Pfreimd Germany.

Phase II tests are carried out at a mutually agreed location between the vendor and Adhoc Committee.

# APPLICATION
# FOR
# ISSF CERTIFICATION

Submit completed form to

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

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 _____

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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 | | NO | |
| Did it PASS | YES | | NO | |
| | | | | |
| "CE" | YES | | NO | |
| Did it PASS | YES | | NO | |

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## 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 its installed in the range)?

_____

_____

## 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

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

**YES** **NO**

IF YES, PLEASE LIST LOCATION AND DATE

_____

_____

_____

_____

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

DATE OF LAST TEST: _____

_____

_____

_____

_____

**THE FOLLOWING DOCUMENTATION MUST BE SUBMITTED WITH THIS APPLICATION FORM:**

1. - Manufacturer's specifications (6 Copies in English)
2. - Copy of "Standard Approvals"
3. - User's Manual (6 Copies in English)
4. - Sales Literature (6 Copies in English)

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 Radii up to mm to Score:)

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **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** | 25.00 | 80.00 | 252.80 | 254.825 | 504.00 | | | **1.0** |

| Target | Inner Ten starts… | At Radius (mm): |
|---|---|---|
| 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 | ≤29.0 |