



www.stm-fencing.com

order@stm-fencing.com

**Technology Roadmap
for Organizing Committees of
COMPLEX
(epee, foil, sabre) competitions
using StM WIRELESS
2012-2013**

1. PERSONAL EQUIPMENT OF ATHLETES

Each athlete – competitor must have besides his/her standard fencing equipment:

Epee fencer – conductive **cuff for epee** (at least one),

Foil fencer – conductive **T-shirt for foil** (at least one),

Sabre fencer – conductive **T-shirt for sabre** (at least one).

Electrical resistance of conductive fabric of T-shirt or cuff must fully meet the requirements in Chapter 3., and have to be easily checked by an athlete him/her-self or by any technician using any device for resistance measurement.

Attention!

There are **three types** of conductive **cuffs** for epee:

1) **standard**,

2) **long** – for bandaged or taped wrist and/or a small part of forearm of a main hand (equipped with a weapon),

3) **extra-long** – for bandaged or taped wrist and/or major part of forearm of a main hand (equipped with a weapon).

In case of injured and bandaged/taped wrist and/or forearm of a main hand (equipped with a weapon) – **the use of a long or extra-long conductive cuff is obligatory**.

T-shirt for foil is sewed-in with conductive fabric **in waist section, collar and sleeves**.

T-shirt for sabre is sewed-in with conductive fabric **only in waist section**.

It is categorically forbidden:

to use sabre T-shirts for foil wireless fencing,

to use foil T-shirts for sabre wireless fencing.

2. WORKPLACE AND STORING PLACE FOR StM EQUIPMENT

The organizing committee has to give the following spaces for StM technicians.

A place (or a room) for preparing and installation of the wireless equipment and athletes equipment control.

Location – **inside of (or in immediate proximity to) the Call Room.**

Area – **at least 30 m².**

Necessary set equipment inside (at least):

table with table top at least 1,2 m² – **9 pcs,**

chair – **7 pcs,**

power socket – **8 pcs,**

coat rack (for 4 persons) – **1 piece,**

free Internet cable connection – **2 points**

(or free Wi-Fi zone – **free public or a password for closed network**).

An area for athlete's equipment control directly before bouts.

Location – **inside the Call Room just before athletes exit on the piste in competitions arena.**

Area – **at least 8 m².**

Necessary set equipment inside:

table with table top at least 0,8 m² – **1 piece,**

power socket – **2 pcs.**

Storing room for the wireless equipment.

Location (desirable) – **near the Call Room.**

Area – **at least 6 m².**

Necessary set equipment inside (at least):

table with table top at least 0,8 m² – **1 piece,**

chair – **2 pcs,**

power socket – **2 pcs,**

coat rack (for 4 persons) – **1 piece.**

This room should be closed with a key which has to be given to StM technicians during all days of the competitions.

Location of StM technicians controlling and maintaining the competitions.

Seats – **2.**

Location – **in the middle of both long sides of a zone (or a podium) of colored pistes, so that the main scoring apparatus (master) and StM radio receivers of two nearby pistes will be in direct vision of one technician.**

Equipment:

chair – **1 piece.**

Location of StM technicians controlling and maintaining the competitions during final bouts.

Location – **near a final stage (podium), so that the main scoring apparatus (master) and StM radio receiver will be in direct vision of technicians.**

Equipment:

chair – **2 pcs.**

Location of StM radiomonitoring technician.

Location – **the middle of the one long side of a zone (or podium) of colored pistes, near the seat of StM technician controlling and maintaining the competitions.**

Equipment:

table (or a part of a table) with table top at least 0,5 m² – **1 piece,**

chair – **1 piece,**

power socket – **1 piece**.

Attention!

In Chapters 2. and 4. of this document the term “power socket” means a free from other devices (besides StM devices) electric plug of European standard with the voltage 110-230V and frequency 50-60Hz.

*If the competitions are held in location where **another, non-European standard** of sockets is used, the organizing committee has to give to StM the **appropriate quantity of adapter connectors**.*

3. WEAPON CONTROL SERVICE

Weapon control service has to carefully check next items: weapons, personal cables, conductive T-shirts and cuffs, as well as electric part of foil mask peaks of each athlete. All of them have to satisfy the technical regulations and the FIE rules.

Particular attention should be paid to the measurement and control of the electrical resistance of conductive T-shirts and cuffs:

for epee – resistance between any two points of conductive cuff shall not exceed **7 ohms**,

for foil and sabre – resistance between any two points of conductive fabric of the waist section of a T-shirt, including both “straps” for crocodile clip of sensor wire, shall not exceed **15 ohms**,

for foil additionally – resistance between any point of conductive fabric of the waist section of a T-shirt, including both “straps” for crocodile clip of sensor wire and any point of conductive fabric of collar and sleeves shall not exceed **50 ohms**.

It is necessary to correctly and properly check every athlete’s weapon. Verification of admissible electrical resistances of a weapon has to be done in its standstill state, and as well during mechanical influence upon its blade and point (bending, hitting, spinning and deflection from the central axis of tip point etc.).

Admissible electrical resistance in tip circuit:

epee

correctly simulating a touch (pressing a tip point) –

shall not exceed 5 ohms,

without simulating a touch (not pressing a tip point) -

shall be at least 100 kilo ohms;

foil

without simulating a touch (not pressing a tip point) –

shall not exceed 5 ohms,

correctly simulating a touch (pressing a tip point) –

shall be at least 100 kilo ohms.

4. INSTALLATION AND EQUIPMENT OF BOUT AREAS

Each metal (electroconductive) piste has to be electrically isolated from any other metal (electroconductive) piste and from any reinforced-concrete and metal constructions. Any connection of the pistes with electric grounding has to be excluded. It is categorically unacceptable to fix pistes to any electroconductive material of a floor, podium or its framework.

If competitions are held in a hall with a reinforced-concrete floor, the use of any isolating surface (parquet, lamination, resin-bonded chipboard, synthetic covering, linoleum etc.) of **at least 5 mm thickness** is obligatory.

The mentioned electric isolation of metal (electroconductive) pistes and isolating coverings **have to fully execute its isolating functions during all the days of competitions – both in standstill state and during carrying out bouts.**

If a stage (podium) for a final bouts is situated separately (more than 10 meters) from a zone of colored pistes, it is necessary to place close to it (at most 5 meters) or under it an additional electroconductive piste. This piste can be situated without fixing to the floor, but it has to be electrically isolated from metal (electroconductive) piste for a final bouts.

Close to the main scoring apparatus (master) on each piste, free space (width x length x height) for placing StM wireless fencing system has to be provided:

- 1) radio receiver (400x400x300mm) – on a distance of **no more than 0,5 meter** from the main electrical scoring apparatus (master) and **at the same level with it,**
- 2) device of blocking touches in metal piste (250x110x80mm),
- 3) uninterruptable power supply (250x110x80mm).

Nearby each piste and very close to the main scoring apparatus (master) **three** power sockets have to be found – **exclusively for StM equipment and devices.**

5. INSTALLATION OF PERSONAL WIRELESS EQUIPMENT AND CONTROL OF ATHLETES - TIME, SCHEDULE

The installation of personal wireless equipment to each fencer and its first check (inspection) has to be held by StM technicians **with at least 30 min before** the first individual (or team) bout using the wireless.

The second check (inspection) of each athlete has to be held by StM technicians directly before athletes (team) call on the piste.

Any “wireless” check of an athlete is done with all his/her personal equipment (including **one** weapon, **one** personal cable, mask, lamé and T-shirt (for foil and sabre) or conductive cuff (for epee)) – **exactly that equipment he/she uses to fence on piste.** In this case every item of athlete’s equipment has to be **checked beforehand** by Weapon Control Service and has to be **marked** by them.

Schedules of individual and team tournaments have to be organized in such a way that there is enough time for “wireless” athlete’s checks:

individual – between the endings of T.64 bouts and begging of T.32 bouts – **30 min at least,** and if all T.64 bouts are **held only on 4 pistes – 10 min at least;**

team – between the endings of T.16 bouts and begging of T.8 bouts – **60 min at least,** and if all T.16 bouts are **held only on 4 pistes – 30 min at least.**

Attention!

If T.32 (individual) competitions are held on the next day after T.64 day, just after all T.64 bouts the organizing committee has to gather by its own efforts all the masks of T.32 competitors and to bring them to the StM work place to install in masks wireless system sets.

If T.8 (team) competitions are held on the next day after T.16 day, just after all T.16 bouts the organizing committee has to gather by its own efforts all the masks of team T.8 competitors and

to bring them (each team separately) to the StM work place to install in masks wireless system sets.

*The organizing committee has to provide by them own efforts **storing** of athletes' masks equipped with wireless sets and provide its **safety** before individual T.32 or team T.8 tournaments.*

6. USE OF RADIO BAND OF Wi-Fi ZONE

The common use of Wi-Fi zone with frequency 2,4-2,4835 GHz (all the 14 channels) by different services in the competition arena needs to be properly agreed at least one day before the beginning of competitions.

The organizing committee has to organize the work of every service in such a manner that **at least 6 channels of a mentioned radio band will be constantly clear** only for StM wireless system during all the competitions days.

A chaotic uncontrolled use of radio band of Wi-Fi zone in the competitions arena is categorically not allowed. The quantities of users and separate frequencies for them have to be strictly controlled by the organizing committee.

7. VOLUNTEERS

During all the competitions days at least two (and better four) local volunteers have to be **permanently** provided for StM. They have to talk fluently English or/and Russian.

Volunteers, involved by the organizing committee for pistes serving have to connect and fix on both athletes StM radio transmitters ("red" and "green" one) – just before a bout, and unplug (disconnect) them after the end of a bout. Volunteers have to **put** turned-off transmitters **nearside the piste** or to **bring them in an appropriate place in the Call Room as fast as they can.**

Attention!

Before competitions the organizing committee has to accord with StM and confirm a common scheme of connection/disconnection of all athletes before/after each bout.

All the volunteers serving the pistes have to gather one day before the first competitions day (with a translator of English or Russian if necessary) for maintaining of "wireless" training with StM instructors. Briefing time: **15-20 min.**

8. THE MAIN SCORING APPARATUS (MASTER)

To provide a 100% matching of touches visibility, on the athlete's masks and at the same time on the scoring apparatus (displays, lights repeaters etc.) it is necessary to use on all pistes the main electrical scoring apparatus (master), which has besides 3 standard modes: "epee", "foil", "sabre", **a special separate mode "Wireless"**.

9. SAFETY OF EQUIPMENT

The organizing committee has to provide by its own forces a safety of all StM equipment and devices, placed in StM workplace in Call Room and in the competitions arena.

10. TRANSFERS, LIVING AND NUTRITION ORGANISATION

The organizing committee has to pay and provide for StM the following.

Living: **4 single rooms including breakfast** in one of the official hotels.

Transfers:

«**airport - hotel**» - 4 technicians with equipment and personal stuff – at arrival day (or days),
«**hotel – competitions arena**» - 4 technicians with equipment – in the morning of the first day of preparing and installation of the wireless equipment,
«**hotel – competitions arena – hotel**» - 4 technicians daily all preparing (2-3 days) and competitions days,
«**competitions arena – hotel**» - 4 technicians with equipment – in the evening, 1 hour after the last competitions day program,
«**hotel - airport**» - 4 technicians with equipment and personal stuff – at departure day (or days).

Attention!

*The term “**equipment**” means all necessary hardware, repair parts and instruments, brought by StM technicians in **ten** standard fencing roll-bags, overall weight ~**250 kg**.*

Nutrition for 4 technicians inside the competitions arena:

drinking water – everyday during preparing (2-3 days) and all competitions days,
tea, coffee, fruit, sandwiches (or a complex dinner) – everyday during all competitions days.