

ROAD RACE MEASURER - the architect of the competition stadium on the road

Expertise based on international regulations and publications

For better readability, the generic masculine is used in this expertise. The personal designations used refer to all genders – unless otherwise indicated.

Introduction:

As part of my work as a recognized road course measurer since 1992, I explain the topic of "Road race measurement of competitive events on the road" based on the international and national regulations of athletics and the terms used for this in regulations and in practice. In 2010, I was awarded the highest graduation level A for this job by the International Association of Athletics Federations (IAAF) – now World Athletics (WA).

From 2010 to spring 2024, I volunteered in the administration for course measurement on the road at the national athletics association DLV. Many measurers of road competitions who are active today have been trained and further trained under my leadership.

In literature, regulations and publications, the road course measurer is repeatedly confronted with terms and actions that describe, partially reproduce erroneously or do not comply with this.

In my professional career, as a senior municipal official in the field of surveying, I have worked on higher-level guidelines and ordinances of state surveying in Rhineland-Palatinate, among other things. I was able to contribute extensive experience from my professional career with the surveying authorities of the state after my studies at the University of Applied Sciences in Mainz.

In this respect, I see myself equipped and committed to the matter of classifying the topic of course measurement and course measurer conceptually and professionally for athletics associations and organisers of road competitions.

With the following remarks, I would like to describe the overall problem of road course measurement and to discuss its special significance in the context of competitive sports in athletics. My main aim is to explain the requirements for the road measurer, the organizers and the national and international association organizations and not to go into the details of the actual measurement, as detailed dissertations are already available on this subject.

History of road race measurement

Since the 1960s, dedicated authors have published writings about route lengths of competition courses on the road. With the invention of the Jones counter by Alan Jones (USA 1971), the determination of these routes was raised to a new level. For the first time, an Olympic marathon for the World Games in Montreal/Canada was measured in 1976 with this mechanical counting measuring device, mounted on the front wheel of a bicycle. It was the birth of the determination method - the "shortest possible route" (SPR) that a competitor can travel on the road in a corridor determined by the measurement. The International Competition Rules IWR, published by World Athletics (WA), defines this method as the basis for road race measurement, which must be used by a recognized road course measurer. In the recognized writings of the WA/AIMS (Course Measurement Book – 2023 edition) and USATF/RRTC (Course Measurement and Certification Procedures – 2022 edition), the process flows for measurement on the road are described in detail.

The graduate road race measurer

In English, the terms "Road Course Measurer" or "Road Race Measurer" are used. He, hereinafter referred to as the measurer, measures the corridor on roads and paths within the defined barriers based on the information provided by the organizer, in which the competitor can run or walk on the day of the event. He is the architect of the competition stadium on the street.

The grading of the measurers is carried out internationally as "Grade A" and "Grade B" ("accredited"), organized by WA in conjunction with AIMS (Association of International Marathons and Distance Races); according to the regulations, these graduations are the ability

to measure and check road courses for international records up to the world record. Serial events of WA, courses of the Olympics and the ratification of world records are the responsibility of the Grade A measurer. The appointment is made by WA in coordination with AIMS.

The member associations, such as the DLV, can have their own national measurers. The field of activity extends to local tracks and courses of national championships. The process of grading measurer (Grades A, B, C) is organized by the four internationally active administrators and is at their discretion. Hugh Jones (UK, London) is responsible for all national and international measurers in the DLV as administrator for the English-speaking world.

National measurers will receive a C grade if they have successfully completed a WA/AIMS seminar led by a Grade A measurer to be determined and have submitted several independent measurements with full documentation. Grade C graduation is a recognition that the individual has skills suitable for measuring road courses in their own country.

The qualification includes the basic technical knowledge of the measurement procedure on the road and the preparation of the measurement report, which can be easily and unambiguously understood by an interested observer. The classification as a Grade C measurer can only be made if at least two measurements and documentation are submitted to the responsible international administrator within the 12 months following the seminar.

An upgrade to the international level Grade B can be made by the national measurer upon application to the international administrator. Under the observation of a Grade A measurer, the measurer can carry out another measurement. The assessment of the competence is then carried out by the International Administrator, who can apply for an upgrade at the annual joint meeting of WA/AIMS.

The Grade B rating recognizes that the measurer can measure and document measurement standards for international events. Communication on an international level, street circuits, organizing and driving with police escort, implementation of "following the shortest possible route" in connection with driving in two-way traffic play an important role. The measurer should be able to travel on an unknown course with a foreign bicycle and counter. Furthermore, the determination of a new calibration section or, if it exists, its verification, is a decision criterion for suitability.

The measurer achieves the authorization for classification in Grade A based on many assignments on international routes of WA/AIMS and an assessment of a Grade A measurer. He must also be prepared to prove his abilities at international missions when invited. Graduation A is based on the proposal of the International Administrator and ratification at the WA/AIMS Congress.

Requirements profile and qualifications

The following characteristics, among others, are important for the job:

- physical fitness
- comprehensive knowledge of the "Bicycle" and "Jones-Counter" tools
- cycling as a matter of course
- athletic affinity for running and endurance sports
- excellent comprehension mathematical and analytical way of thinking
- qualitative assessment of accuracy
- effective communication in speech and writing
- innovative access to data processing.

The profile, which is reflected in the above-mentioned characteristics, is to be found in the field of geodetic engineering. According to the information provided by the organizer, the measurer defines the corridor for the athletics competition on the street; it is reconstructing the competition track that already exists in the athletics stadium on the roads and approved paved paths. As already described above, he is the architect and builder of the competition corridor outside the stadium.

This is equivalent to the requirement that an athletics stadium must meet for its competitions. The stadium requirements are set out in the technical rules of the IWR. The referees of the

federations working in the stadium determine compliance with the rules and the performances of the athletes in the corridor provided.

The corridor defined on the road by the measurement is defined and documented by the measurer based on the technical rules TR 54 and TR 55 IWR. The technical supervisors and referees appointed by the federations check before and during the competition event whether the athletes have completed their competition in this corridor determined by the measurer and their performances. The procedures of local measurement are described in the well-known published writings and are taught and practiced in courses. The technical support of the measurers in the context of the approval procedure of the documentation is to be expressly mentioned here in addition and is assistance and learning on the part of the national and international administrators appointed.

There are some basic peculiarities in the requirement profile.

On the one hand, reference must be made to the necessary care of the local measurement. The basis for the "shortest possible route" (SPR) measurement method is the known length of a reference route required for the calibration of the Jones counter. The accuracy of this calibration section determines the accuracy of the measurement. This correlates directly with the intended measurement arrangement for determining the course length. It makes a difference whether a 10 KM run takes place on a 5 or 10 KM circuit or on a 1 KM circuit. The care and accuracy requirement should always be set high; in special cases of measurement arrangement, the measurer must be able to adapt the requirements to the quality of his work.

As a rule, it makes sense for the measurer to carry out a basic measurement and a control measurement. In the process, many error factors are eliminated. The second measurement run can also be carried out by another measurer. It must be clear to the operator(s) that errors in the reference track and the inaccuracies between the first and second test run have a different effect on the measurement results, depending on whether the run has one lap or the lap is run 10 times.

The measurer must clearly and unambiguously communicate the measurement procedure, the measurement arrangement (with or against the flow of traffic) and the possible obstructions during the measurement to the security personnel (police / fire brigade) present during the measurement. If necessary, due to official requirements, a temporal or logistical reorganization of the planned local measurement must be found and implemented.

External and technical problems may arise during the test runs. It is important to keep a cool head and assess the situation. Extreme weather conditions can have a negative impact on the test runs. External incidents in public traffic areas must be assessed as well as technical breakdowns on the bicycle and Jones counter equipment.

The measurement arrangement should be chosen in such a way that physical fitness is given, e.g. for a double measurement of a marathon lap, and that approx. 90 km (with pre- and post-calibration etc.) is possible on one measurement day. A bicycle with motor support can be helpful here but may also require a higher financial advance payment by the measurer and additional care during the measurement itself with motor support.

Finally, the affinity for endurance sports on the road is a characteristic of all measurers operating worldwide. During the measurement run, the experienced runner and measurer regularly drives the more optimal course (SPR) in the corridor to be defined for the competition course for the competitor.

The implementation of the measurement results and the defined constraint conditions in today's common, graphic and photographically elaborated documentation, is the supreme discipline of measurement with automated aids and software products. This applies if this protocol is provided to the officials of the competition event in a self-explanatory manner. The author of the minutes should be thoroughly familiar with the common office and graphics applications on a PC, laptop or tablet/smartphone. For the organizers, the graduation levels already described are also a level of performance for the measurer to be commissioned.

This closes the circle of the measurer's responsibility for his product, which he makes available as a service to the organizer and competitor and ultimately to the associations. It must always be considered that he is independent and self-employed and at his own risk, bears sole

responsibility for the documented results, and delivers his quasi-expert work or the TÜV seal for the street stadium in the sense of sport.

Status – independent and self-reliant

The measurer is self-employed and independent. Since the beginnings in the 1980s, measurers around the world have organized themselves into their own groups (communities). Examples include the associations in the USA and England.

In the USA, the RRTC (Road Running Technical Council) is considered the umbrella organization for road course measurers, which is recognized by the national association USATF as the body. The RRTC ensures the know-how and quality assurance of all road measuring work, provides acquisition, accreditation, training and further education, offers insurance cover during the activity and is also the approval body for the measurement reports.

In Great Britain, road race measuring is organised by AUKCM – Association of UK Course Measurers – in a similar form in an LTD company.

What both organizations have in common is that the measurer act independently as service providers for the organizers and the national associations and make the results available to the organizers in measurement report – approved by the administrations. They bill the organizers on their own account according to free costs, in some areas with flat-rate costs (proposals of the organizations).

The current international handbook explicitly deals with the accounting of the measurers vis-à-vis the commissioning tour operator. It is attested that there are no standard measurement fees and that these are based on daily rates or flat rates depending on the agreement between the organizer and the measurer and that these are always dependent on distance, complexity, number of laps or other factors. The agreement should also include reimbursement of travel and other expenses.

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