

# Norwegian Athletic Federation

Ullevaal stadion  
Sognsveien 75 J  
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NORWAY  
E-mail: [friidrett@friidrett.no](mailto:friidrett@friidrett.no)  
Phone: +47 94 83 33 26



## COURSE MEASUREMENT REPORT

### - REPORT FOR NATIONAL CERTIFIED COURSE -

INFORMATION ABOUT EVENT AND COURSE
Event: <b>Hardanger Halvmaraton</b>
Technical Organiser: <b>Øystese IL</b>
City/Place: <b>Øystese</b>
Date of Arrangement: <b>13.08.2022</b>
Date and time for measurement: <b>10.08.2022 at 10.30 AM</b>
Measured distance(s): <b>Half Marathon</b>
Length of calibration course: <b>320m</b>
Terrain: Flat <input type="checkbox"/> Slightly hilly <input checked="" type="checkbox"/> Hilly <input type="checkbox"/> Terrain <input type="checkbox"/>
Type of course route: Closed loop <input type="checkbox"/> Back and forth <input checked="" type="checkbox"/> A to B <input type="checkbox"/> Other <input type="checkbox"/>
Race surface: <b>Asphalt</b>
Elevation Start - Finish: <b>-2m</b>
Description of start: <b>On parking area, Storeteigen ( Figure 1 &amp; 2)</b>
Description of finish: <b>At light pole in Storeteigen ( Figure 1 &amp; 2)</b>
Distance, in a straight line, between start & finish: <b>32m</b>
Start and Finish marked: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Km-markings: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Measurement direction: Running direction <input checked="" type="checkbox"/> Opposite running direction <input type="checkbox"/>
National record can be approved: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

CONTACT INFORMATION		
	Measured by:	Organizer:
Contact person:	Ivar Andreas Sandø	Rune Mo- Bjørkelund
Phone:	+4791648793	+4791354018
Email:	Ivarsando53@gmail.com	runemobjorkelund@gmail.com

It is hereby confirmed that the course has been measured by a national certified course measurer from Norwegian Athletics. The course is measured in accordance with Norwegian athletics regulations, and the distance(s) has the minimum reported length(s). The survey is valid for 5 years, except if the route is changed.

12.08.2022	IVAR A. SANDØ	25.8.2022	<i>Peer Jensen</i>
Date	Signature by Course measurer	Date	Signature by NFIF

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CALIBRATION COURSE AND PROCEDURE	
Length of measuring tape (steel measuring tape only)	50m
Length of calibration course 1st measurement	320.00m
Length of calibration course 2nd measurement	320.02m
Possible 3rd measure (max. 1 cm diff per 100m 1 <sup>st</sup> and 2 <sup>nd</sup> )	
Average of measurements before adjustments	320.01m
Temperature (road or measuring tape)	+16.4 ° C on asphalt
Adjustment cf. $D-(D*(1+(temp-20)*0,0000115))$	1,0 cm
Measured calibration distance after adjustment	319,99m
Distance from start/finish to calibration distance	1 k

CALIBRATION INFORMATION - (max 8 counts difference of 1000 m between 4 measurements, ie 2 counts of 300m and 3 count of 400m)						
	Pre-measurement:			Post measurement:		
	Date and Time: 10.00 AM, 10.08.22			Date and Time: 1.00 PM, 10.08.22		
	Start	End	Diff.	Start	End	Diff.
1st measure	275748	271250	4498	958260	953773	4487
2nd measure	271250	266751	4499	953773	949285	4488
3rd measure	266751	262251	4500	940304	935818	4486
4th measure	262251	257752	4499	935818	931330	4488

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	Pre measurement	Post measurement	
<b>Average (1+2+3+4) / 4</b>	4498,75	4487,5	Today's constant. Either highest or average of before and after measurement
<b>Constant 1 km</b>	14058,6	14023,4	
<b>Addn. +1‰</b>	14,06	14,02	
<b>Measurement constant (rounded)</b>	14073	14037	14073

MEASUREMENT PROCEDURE		
<b>Measurement constant</b>	14073	
<b>Measured Distance</b>	<b>Counter</b>	<b>Description of place</b>
0	240359	Startline ( figure 3)
1000m	226286	1K marked with spray on asphalt
2000m	212213	2K marked with spray on asphalt
3000m	198140	3K marked with spray on asphalt
4000m	184067	4K marked with spray on asphalt
5000m	169994	5K marked with spray on asphalt
6000m	155921	6K marked with spray on asphalt
7000m	141848	7K marked with spray on asphalt
8000m	127775	8K marked with spray on asphalt
9000m	113702	9K marked with spray on asphalt
10000m	99629	10K marked with spray on asphalt
10532,6m	92134	Turning point half marathon ( Figure 3)

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## CONCLUSION OF MEASUREMENT

### 1. Measurement method

The measurement was done in the running direction, from start line to turning point for half marathon.

### 2. Measurement procedure

The organizer has predefined start and finish lines, while the turning point is flexible and is used to determine the correct length of the course. Start and finish lines are close to each other, but not exactly at the same location ( Figure 1). As indicated in the figure, the finish line is passed 32,3m after the runners cross the start line coming back to the finish.

Thus, the turning point is found by subtracting 16,15m from the  $\frac{1}{4}$  half marathon length which is 10548,75m. This gives the adjusted turning point at 10532,6m from the start line.

From the start to the 2K mark, the course follows the road Hardangerfjordvegen and the whole width of the road is available for the runners. From the 2kmark, the course follows pathways along the main roads all the way to the turning point. There are no points where the runners cannot choose the shortest possible route. This also applies for locations with pedestrian crossings..

### 3. Course adjustment

The weather conditions changed quite abruptly after finishing the measurement at the turning point while returning to the the post measurement calibration. ( from cloudy 15 degrees to sunny 21 degrees). This probably explains most of the difference between pre- and post-measurement constants. Hence the maximum value (the pre-measurement value) was selected as final constant.

Thus, no course adjustments are needed.

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## CALIBRATION COURSE MAP



The calibration course is a 320m straight, flat stretch along Hardangerfjordvegen approximately 1K from the start and finishing area.

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## COURSE MAP & DESCRIPTION



The course start and finish is at Storeteigen in Øystese. The course follows the road Hardangerfjordveien until the 2K mark. Then the course follows the pathways along Hardangerfjordvegen, Sandvenvegen and Vikøyvegen to the turning point. Same route back to the finish at Storeteigen.

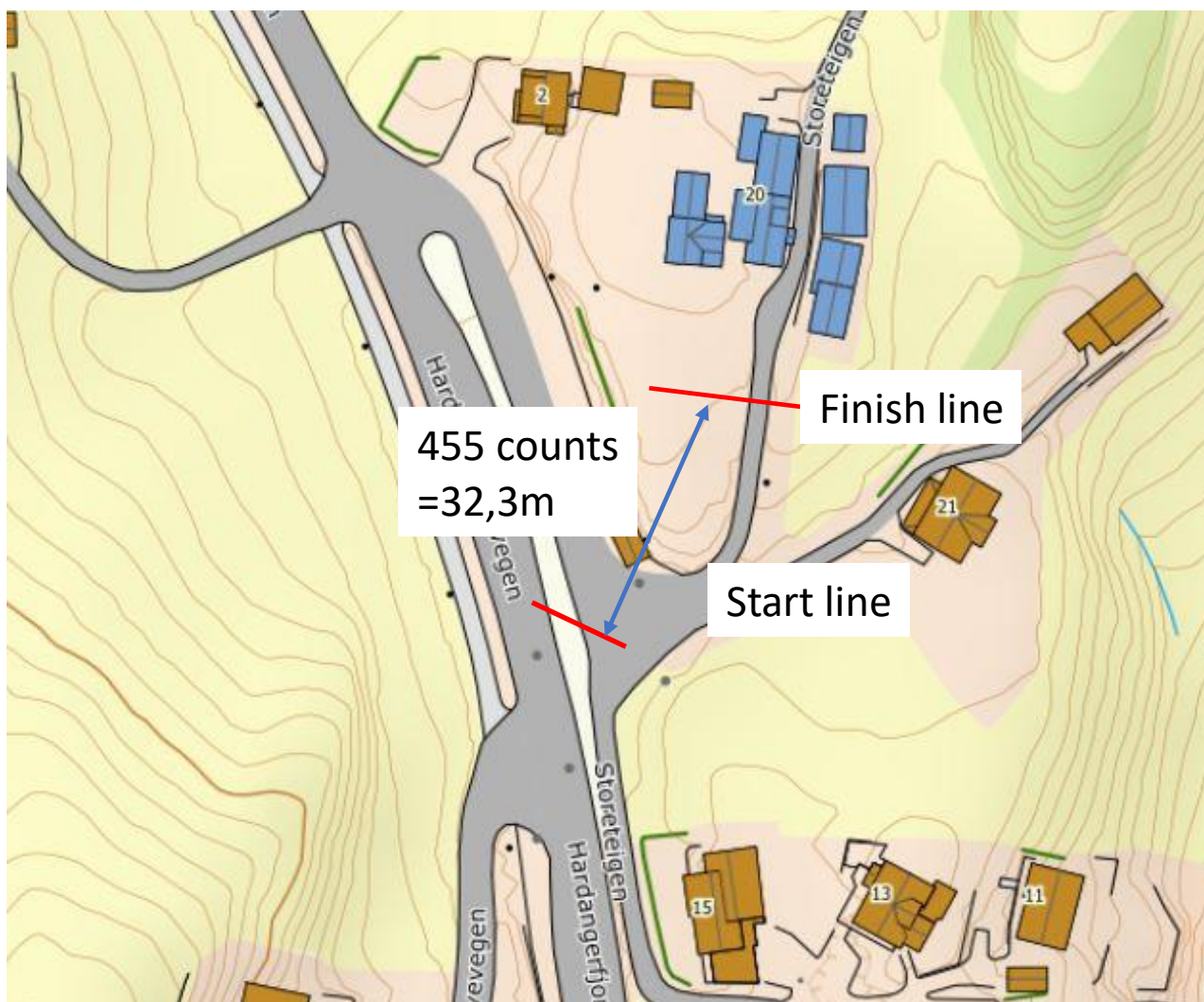


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**Figure 1 : Overview Start/ Finish area.**



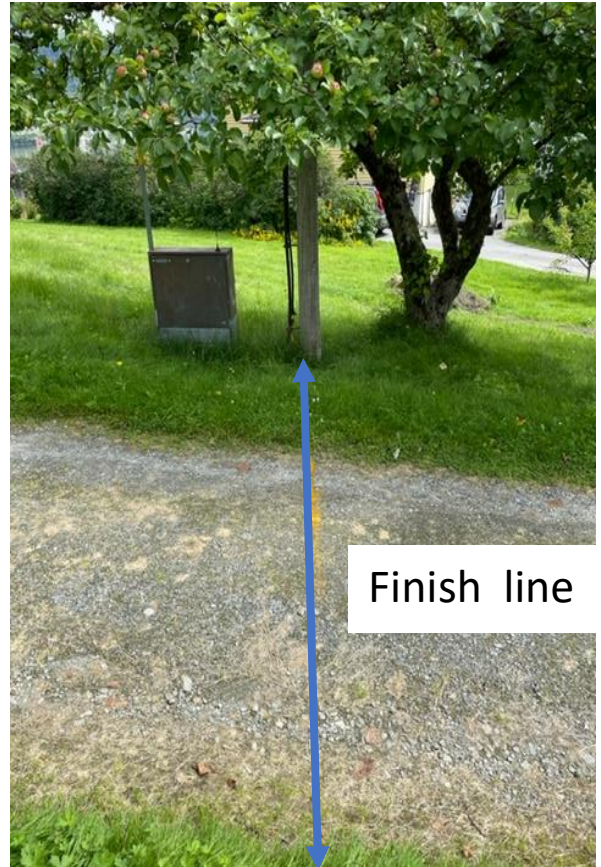
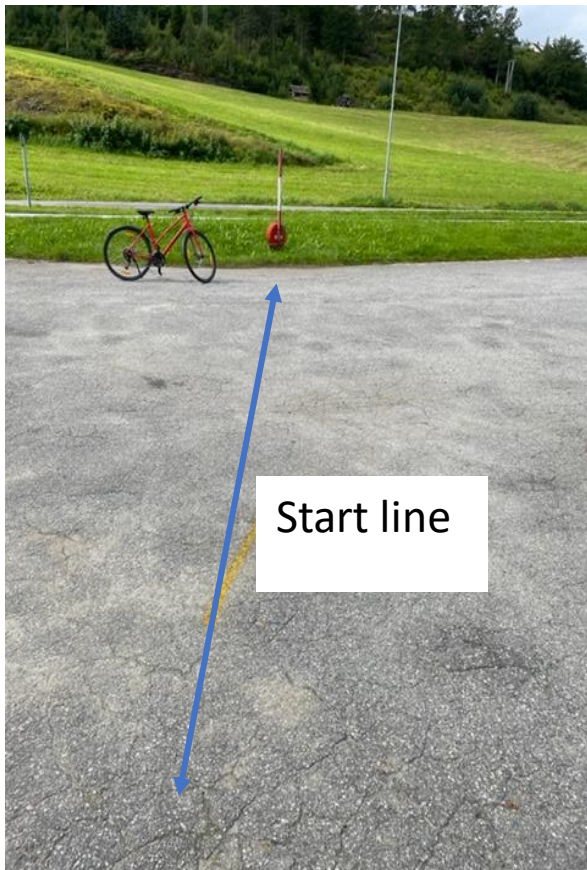
The runners continue 32.3 m after crossing the start line when returning to the finish.

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**Figure 2 : Start and finish lines**



Start line at parking area Storeteigen, Finish line at light pole 32,3m away from Start line ( shown in Figure 1)



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**Figure 3 : Turning point half marathon**

