

Harrow School Track Marathon Measurement – 7 DEC 2012

The length of this 400m track has not been certified by UKA or IAAF. Therefore the length was measured using two class II steel tapes. The tape could be guided around the track by placing it against the plastic kerb on the inside of lane 1. The tapes were tensioned at 10 lbs using a spring scale at the 50 m end. The zero end was held against the left edge of sticky tape placed on the side of the kerb. For the first lap sticky tape was placed exactly at the 50m points. For the second measurement with the second tape the tape zero was again placed against the left tape edge and the scale reading was then taken opposite the left edge of the sticky tape near 50m.

Roles: First tape measurement: Tape zero - Geoffrey Sandford, Tape 50m & note recording - Mike Sandford, Tape tensioning – Steve Paull

Roles: Second tape measurement: Tape zero – Steve Paull, Tape 50m & note recording - Mike Sandford, Tape tensioning – Geoffrey Sandford

The temperature was 3c before starting and 5C after finishing. Initially it was overcast but weak low sun emerged during the measurement so the tape 1 measurement was corrected to 3.5C and the tape 2 measurement was corrected to 4.5C. These values are unlikely to be in error by more than 1C which produce change of correction to the 400m lap length of only 4.4mm

	Tape 1	Tape 2	
Length 1	50.000	50.001 metres	
Length 2	50.000	50.003 metres	
Length 3	50.000	50.001 metres	
Length 4	50.000	50.004 metres	
Length 5	50.000	50.004 metres	
Length 6	50.000	49.991 metres	
Length 7	50.000	49.990 metres	
Length 8	48.153	48.157 metres	
Total for 1 lap	398.153	398.151 metres	
Correct for temperature, 3.5C tape 1, 4.5C tape 2	398.081	398.083 metres	
add $2\pi \times 300\text{mm}$ for running line at 300mm from kerb	399.966	399.968 metres	
Average of two tape measurements			399.967 metres
The result of the tape measurement is 33mm less than 400m. However tape measurements are less accurate than can be carried out by a surveyor with access to the centre points of the semicircular arcs and using Total Station measuring device. We need to apply a short course prevention factor to our tape measurements in order to guarantee that the marathon course will not be short			
Apply Short Course Prevention Factor of -0.03%. This is based on the 0.02% accuracy of the markings on a class II tape plus 0.01% to cover taping errors.			
Length of marathon			399.847 metres
Number of laps for marathon			42195 metres
			105.5279 laps
Marathon is 105 full laps + one half lap + 0.0279 of a lap which is 11.15 metres		0.0279	11.15 metres

If track had been surveyed and certified to UKA/ IAAF standards for a track then the track length would be guaranteed to be between 400m and 400.04m. So in this case to guarantee at least a marathon distance 105 laps + half lap less 5 metres would have been required

Therefore our tape measurement results in adding 16.15 metres compared to what would be needed if the track had a proper UKA/IAAF track survey certificate.



FINISH LINE

Marathon
Start Line

200m start

11.15m

Harrow Track Marathon
105 + 1/2 Laps + 11.15m
Measured 7/12/12 by MCWS



