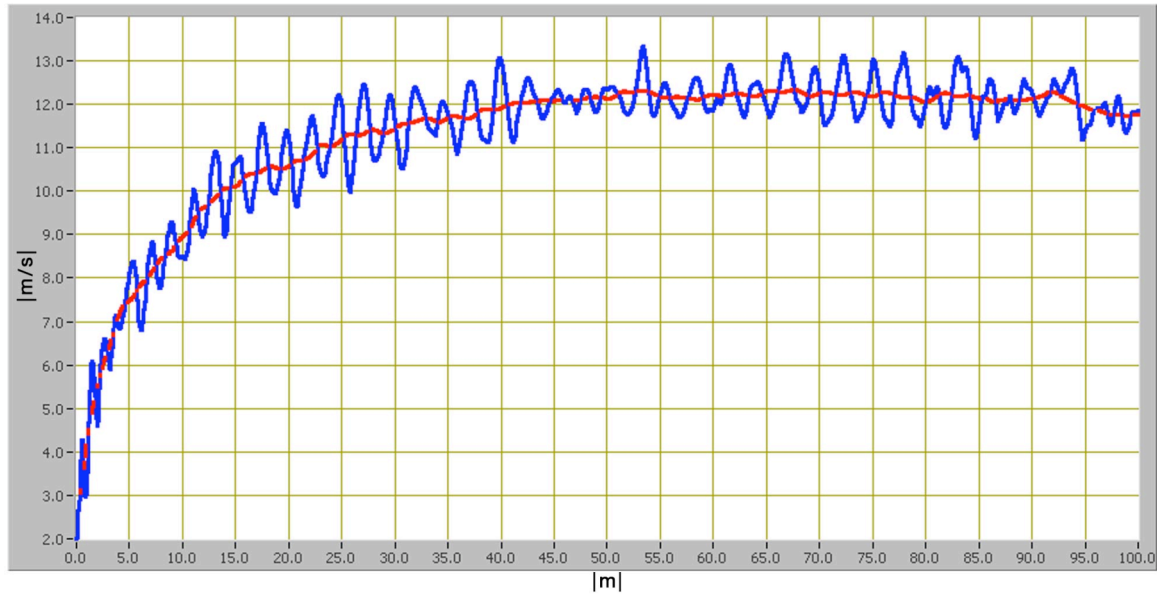




**Biomechanical analysis**

**12th IAAF World Championships in Athletics • Berlin, 15.-23.08.2009**

**100m men final: Usain BOLT (JAM) 9,58s – WR**



Race distribution: LAVEG measurement curve (blue) and average speed (red)

**Split times [s]**

	Reaction time	t10	t20	t30	t40	t50	t60	t70	t80	t90	t100
Bolt	0,146	1,89	2,88	3,78	4,64	5,47	6,29	7,10	7,92	8,75	9,58
Powell	0,134	1,87	2,90	3,82	4,70	5,55	6,39	7,23	8,08	8,94	9,84

**Average velocities at 10m, 20m, ... 100m [m/s]**

	V10	V20	V30	V40	V50	V60	V70	V80	V90	V100
Bolt	5,29	10,10	11,11	11,63	12,05	12,20	12,35	12,20	12,05	12,05
Powell	5,35	9,71	10,87	11,36	11,76	11,90	11,90	11,76	11,63	11,11

Vmx	at m	V99%	at m
12,27	65,03	12,15	48,18

Vmax is the maximal velocity of 12,27m/s, reached at 65m

V99 is 99% of the maximal velocity, reached at 48,18m