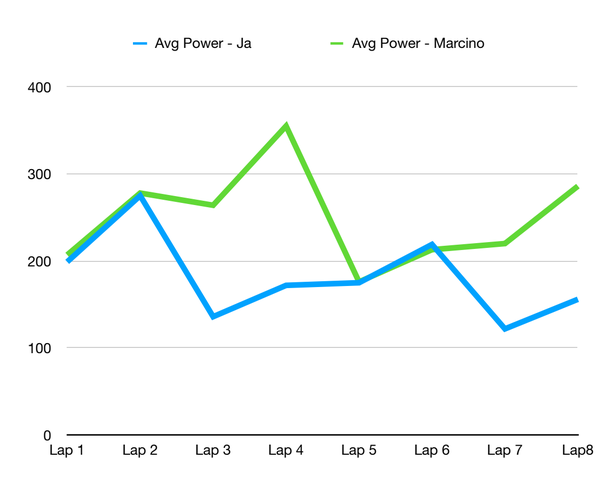
Pre Race data and analysis

strava: https://www.strava.com/athletes/11013011

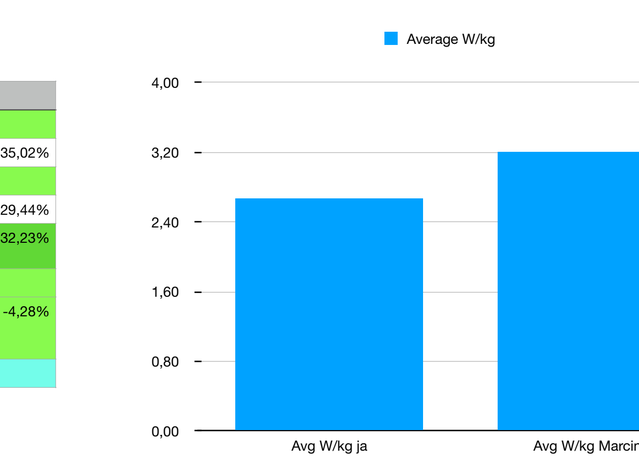
22.08 Trening (full areo setup - disk, TT helmet)

Elapsed Time in seconds	Avg Power - Ja	Avg W/kg ja	Avg Power - Marcino	Avg W/kg Marcino	Avg Speed	Work in KJ	Distance in	Distance in meters	Avg HR	Max HR	Intensity	Zone	Direction of ride	Wind	Lead	Save
360	199	2,93	207	2,65	40,7	71,9	4,07	4070	141	151	60	2	N	+7m/s	Ja	
361	275	4,04	278	3,56	40,8	99,5	4,1	4100	155	165	83	3	S	-7m/s	Ja	
371	136	2,00	264	3,38	39,6	50,6	4,08	4080	124	140	41	1	N	+7m/s	Marcino	29,13%
360	172	2,53	355	4,55	40,6	62,1	4,06	4060	134	144	52	2	S	-7m/s	Marcino	37,45%
386	175	2,57	176	2,26	37,2	67,6	4,02	4020	135	149	53	2	N	+7m/s	Ja	
387	219	3,22	213	2,73	37,3	84,9	4	4000	146	154	66	2	S	-7m/s	Ja	
391	122	1,79	220	2,82	37,3	48,0	4,05	4050	120	135	36	1	N	+7m/s	Marcino	30,29%
390	156	2,29	286	3,67	37,3	60,9	4,04	4040	126	134	47	1	S	-7m/s	Marcino	28,77%
		2,67		3,20												
				-19,86%												



Summary of few first session with full areo setup - disk, TT helmet

Lead	Avg power run	Avg Speed	Avg Hr	Avg Work per	
Ja (full areo setup)	237	40,75	148	20,98	
Marcino	154	40,1	129	13,85	35,02%
Ja (full areo setup)	197	37,35	141	19,01	
Marcino	139	37,3	123	13,5	29,44%
				Savings on Marcino's wheel	32,23%
Ja (full areo setup)	187	36,575	138	18,42	
Ja (bez dysku, zwykły kask, bez owiewek na buty)	195	36,725	144	19,15	-4,28%
182 3,08,2024	192		136	21,11	



23.08 Trening (full areo setup)

Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Wind	Distance	Work per
407	148	94	15	130	146	-0,1	44	1	36,5	60,3	4,12	+8m/s	4120	14,64
393	216	94	22	145	154	-0,1	65	2	36,6	85	4	-8m/s	4000	21,25
398	157	94	16	131	145	0	47	1	36,6	62,6	4,04	+8m/s	4040	15,50
342	227	93	24	147	155	-0,1	68	2	36,6	77,6	3,48	-8m/s	3480	22,30

24.08 Trening (regular 50mm rear wheel DTswiss 1100, road helmet, without shoes covers)

Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Wind	Distance	Work per
402	150	87	17	134	148	-0,1	45	1	36,7	60,6	4,1	+10m/s	4100	14,78
400	240	89	28	153	161	-0,1	72	2	36,7	96,2	4,08	-10m/s	4080	23,58
399	153	84	20	135	147	-0,1	46	1	36,8	61	4,07	+10m/s	4070	14,99
402	237	89	25	153	159	-0,1	71	2	36,7	95,4	4,1	-10m/s	4100	23,27

Summary -> goal speed and data calculated ~10th of September

AVG Power from the whole race	AVG W/KG	AVG SPEED	MOVING TIME	425 (15 laps) time +20 min breaks	TOTAL WORK
166,25	2,48	37 /h	11:28:42	11:48:42	6876,68 kJ

The marathon course has an elevation gain of 42m (approximately 15m per half lap), which gives an average incline of about 0.28. I conducted my tests on a segment with an average incline of 0.225%. I believe that elevation gain can therefore be disregarded, as over the course of 15 laps, we will cover "only 630m of elevation."

07.09.2024

Type	Elapsed Time	Avg Power	Normalized Watts	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Avg w/kg	Altitude Gain	Work per
Lead tempo	1223	194	197	94	20	148	155	0	58	2	37,2	238	12,64	2,89	45m	18,83
Recovery	417	170	171	91	18	141	150	-0,2	51	1	36,2	71	4,19	2,52	4m	16,95
Lead tempo	1500	207	209	94	21	150	155	-0,1	62	2	37,0	311	15,42	3,08	34m	20,17
Recovery	1407	178	191	88	20	141	151	-0,1	53	2	32	242	12,52	2,65	68m	19,33
Lead tempo	390	207	208	96	21	146	153	-0,1	62	2	37,4	80,8	4,06	3,08	6m	19,90
Lead tempo	392	213	215	96	21	148	152	-0,1	64	2	37,2	83,5	4,06	3,17	5m	20,57

Strava activity: https://www.strava.com/activities/12351608283
Quick training session, too short to realistically feel high fatigue, but upon returning, I could feel that my legs had worked. Generally, it was a training session without food, just ~30g of isotonic drink in the bottle. My RPE was about 6/10; the fatigue didn't have a chance to catch up with me, but I wouldn't be able to sustain that for 12 hours (especially alone :)).

Averages 07.09.2024

All lead Avg Power	All lead distance	Avg lead speed	Avg Lead HR	W/kg avg	IF Avg	Summary lead seconds
205,25	36,18	37,2	148	3,02	61,50	3505,00

08.09.2024

Label	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Normalized Watts	Avg w/kg	Altitude Gain	Wind
Lead tempo	901	198	94	22	148	153	0,2	0,60	2	36,6	178	9,18	201	2,95	26m	+7m/s
Recovery	901	155	93	17	136	147	-0,2	0,46	1	40,9	139	10,25	160	2,31	3m	+7m/s
Lead tempo	406	204	92	21	145	151	-0,2	0,61	2	39	83,2	4,4	208	3,04	1m	+7m/s
Lead tempo	1201	195	94	20	146	150	-0,1	0,59	2	39,8	234	13,27	196	2,91	5m	+7m/s
Recovery	885	168	89	18	136	146	0,1	0,50	1	39,4	149	9,7	171	2,5	15m	+7m/s
Lead tempo	537	224	92	24	148	153	-0,1	0,67	2	38,8	120	5,79	226	3,34	1m	+7m/s
Recovery	80	195	81	23	143	146	-0,2	0,59	2	31,8	15,6	0,71	198	2,91	0m	+7m/s
Lead tempo	497	223	92	24	149	153	-0,1	0,67	2	37	111	5,12	226	3,32	16m	0m/s
Lead tempo	277	227	90	25	150	153	0	0,68	2	34,8	63,1	2,68	229	3,38	1m	0m/s
Recovery	409	182	85	21	138	147	0,2	0,55	2	32,9	74,5	3,73	190	2,71	18m	0m/s
Lead tempo	302	234	90	25	149	152	0	0,70	2	34,4	70,7	2,89	235	3,49	3m	-10m/s
Recovery	310	168	85	20	139	150	0	0,50	1	35,9	52,1	3,09	176	2,5	2m	-10m/s
Lead tempo	316	235	89	25	149	153	0	0,71	2	36	74,4	3,16	234	3,5	1m	-10m/s
Recovery	331	153	83	20	137	152	-0,3	0,46	1	35,7	50,9	3,28	164	2,27	0m	-10m/s
Lead tempo	441	207	82	25	143	151	0	0,62	2	30,4	83,7	3,73	217	3,08	7m	-10m/s
Recovery	316	183	87	21	141	148	0	0,55	2	37	58	3,25	187	2,73	2m	-10m/s
Lead tempo	356	229	89	26	150	154	0,2	0,69	2	36	81,8	3,56	229	3,41	10m	-10m/s
Recovery	328	177	84	21	141	149	0,1	0,53	2	35,6	58,3	3,24	187	2,64	10m	-10m/s
Lead tempo	330	235	91	25	151	155	0,1	0,71	2	35,5	77,6	3,25	235	3,5	5m	-10m/s
Recovery	210	192	81	25	145	153	0	0,58	2	37,2	40,5	2,17	197	2,86	4m	-10m/s
Lead tempo	386	204	89	22	145	151	0	0,61	2	38	79,1	4,07	209	3,04	6m	10m/s
Mixed	2712	184	83	23	142	154	0	0,55	2	29,3	438	22,13	194	2,74	107m	0m/s
Lead tempo	417	213	88	24	149	153	0	0,64	2	35,1	89,2	4,07	215	3,17	8m	-10m/s

Strava activity: https://www.strava.com/activities/12356289680

Overall, it was quite a demanding effort at 6-7 RPE. We rode as a duo. In the second phase, where the strong wind picked up (40 km/h on the weather map - I noted 10 m/s or 36 km/h in the table based on forecast), to maintain a speed around an average of 36 km/h against the wind, we needed to ride at ~230W (3.38W/kg), which I consider too much for the long term. Everything up to ~205W (3W/kg) is okay for me in the context of those 12 hours, and that's how I'd like to ride at the front. I consumed 300g of carbohydrates (~270g from the mix - maltodextrin, dextrose, fructose 3:1:1, and a can of Coke) and drank about ~2 liters of water. This was a good amount of sugar, and I felt strong the whole time, but I suggest starting with more electrolytes. In the second position, you save only about 20%, so I didn't rest significantly at those speeds. I'd like to maintain an IF below 0.55 for the first 3 hours. I feel that anyone who maintains an IF above 0.65 for the first 6 hours will suffer greatly and slow down dramatically later on, so I'd like to avoid that. The last segment at the front (the last 4 km, average 35.1 km/h against the wind with 213W) was quite tough for me, and it was only the 5th hour of effort - that was an IF of 0.64.

I suggest that everyone test themselves as much as possible (ideally out and back - to average the wind throughout the week and assess similar metrics), because every measurement and body is different - so you can know your numbers from your own equipment. I wore a white Van Rysel suit (it's not super aero, but it was a great decision in full sun). If it's sunny during the race, I recommend bringing a cooler with ice packs and keeping it behind your jersey during stops.

During the race, I personally want to ride below the fatigue threshold for the first 3 hours because it will come regardless. Even if we lose 5-10 minutes in the first 3 hours, the finish line is still far away. These are my general thoughts and observations; hopefully, it helps someone :)

Averages 08.09.2024

All lead Avg Power	All lead distance	Avg lead speed	Avg Lead HR	W/kg avg	IF Avg all	Summary lead seconds
217,54	65,17	36,3	148	3,20	0,60	6367,00

Averages 08.09.2024 Recovery

All recovery Avg Power	All recovery distance	Avg recovery speed	Avg Lead HR	W/kg avg	IF Avg only recovery	Summary recovery seconds	Recovery save (2nd position)
174,78	39,42	36,3	140	2,57	0,52	3770,00	19,66%

Averages Tail wind

All lead Avg Power	All lead distance	Avg lead speed	Avg Lead HR	W/kg avg	IF Avg	Summary lead seconds
208,00	41,83	38,2	147	3,06	0,61	3928,00

Averages Headwind

All lead Avg Power	All lead distance	Avg lead speed	Avg Lead HR	W/kg avg	IF Avg	Summary lead seconds
225,71	23,34	34,6	149	3,32	0,61	2439,00

Averages 10.09.2024

Label	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Normalized Watts	Avg w/kg	Altitude Gain	Avg Power / Avg HR
Lead tempo	706	189	91	20	142	147	-0,2	57	2	32,9	133	6450	194	2,82	27m	1,33
Lead tempo	780	199	88	22	142	149	0	60	2	33,1	155	7170	203	2,97	27m	1,4
Lead tempo	951	220	93	23	148	152	0	66	2	38,3	209	10120	221	3,28	17m	1,48
Lead tempo	399	202	89	22	135	145	-0,1	61	2	36,6	80,9	4060	207	3,01	6m	1,49

Averages 19.09.2024

Label	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Normalized Watts	Avg w/kg	Altitude Gain	Avg Power / Avg HR
Lead tempo	586	210	94	21	148	154	0	63	2	37,6	123	6130	213	3,13	23m	1,41
Lead tempo	1390	217	93	22	149	155	0	65	2	36,4	302	14070	219	3,23	25m	1,45
Lead tempo	311	227	91	24	149	153	0,2	68	2	33,7	70,7	2910	229	3,38	7m	1,52
Lead tempo	404	230	92	24	142	150	0	69	2	36,1	93,1	4060	231	3,43	6m	1,61

20.09.2024

Label	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Normalized Watts	Avg w/kg	Altitude Gain	Avg Power / Avg HR	Average Temp
	403	196	94	20	143	150	0	59	2	36,4	79,3	4,08	197	2,92	6m	1,37	19,5
	397	199	92	21	135	143	-0,1	60	2	36,9	79,3	4,07	198	2,97	5m	1,47	16,0

21.09.2024

Label	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work	Distance	Normalized Watts	Avg w/kg	Altitude Gain	Avg Power / Avg HR	Average Temp
	499	220	94	22	151	155	-0,1	66	2	36,8	110	5,1	230	3,28	9m	1,45	7,0
	195	217	87	24	146	153	0	65	2	34,2	42,3	1,85	221	3,23	1m	1,48	8,0
	781	234	94	24	152	158	0	70	2	36,6	183	7,94	235	3,49	15m	1,53	10,0
	864	223	92	23	149	156	0	67	2	37,8	192	9,07	228	3,32	28m	1,49	12,6
	259	220	90	23	150	156	-0,3	66	2	38,9	57,1	2,8	228	3,28	12m	1,46	17,9
	373	230	93	24	151	158	-0,1	69	2	37,8	86	3,92	234	3,43	14m	1,52	17,1
	131	220	91	23	151	155	-0,6	66	2	36,5	28,8	1,33	231	3,28	2m	1,45	20,0
	266	206	92	21	147	151	-0,7	62	2	37,4	54,9	2,76	210	3,07	5m	1,4	21,5
	406	224	91	24	150	153	-0,1	67	2	36,1	91,3	4,07	226	3,34	5m	1,49	22,0
	387	215	92	22	148	154	-0,1	65	2	37,7	83,2	4,06	218	3,20	7m	1,45	21,8

What I eat on this training:

1. Maltodextrin, dextrose, and fructose mixture:
   - 370 g of the mixture contains mainly carbohydrates (100%).
   - Amount of carbohydrates: 370 g.
2. Snickers (40 g):
   - Carbohydrate content: approximately 25 g.
3. Coca-Cola (250 ml):
   - Carbohydrate content (sugars): approximately 27 g.
4. Gummy candies (120 g):
   - Carbohydrate content: approximately 80 g.

Total carbohydrates:
- Total amount of carbohydrates: 370 + 25 + 27 + 80 = 502 g.

Carbohydrates per hour:
- Duration of effort: 6 hours.
- Amount of carbohydrates per hour: approx 83.67(g/h).

Drinking:
- 750 ml + 1400 ml = 2150 ml of water
- 400 ml in a bottle with sugar

Note: The food was okay (although it could have been a bit more), but I was about 500-750 ml short on water - towards the end, I was lacking and had a dry mouth.

Intermediate times

Lap	Distance (km)	Time (HH:MM) avg 35,00 km/h	Time (HH:MM) avg 36,30 km/h	Time (HH:MM) avg 37,00 km/h	Time (HH:MM) avg 38,00 km/h	Michał - buffet
1/Czas rundy:	28,3	00:48:30	00:46:46	00:45:53	00:44:41	Bidon 1
2	56,6	01:37:01	01:33:33	01:31:47	01:29:22	Bidon 2
3	84,9	02:25:32	02:20:19	02:17:40	02:14:03	
4	113,2	03:14:03	03:07:06	03:03:34	02:58:44	Bidon 3 i 4
5	141,5	04:02:34	03:53:53	03:49:27	03:43:25	
6	169,8	04:51:05	04:40:39	04:35:21	04:28:06	Bidon 5 i 6
7	198,1	05:39:36	05:27:26	05:21:14	05:12:47	
8	226,4	06:28:06	06:14:12	06:07:08	05:57:28	Bidon 7 i 8
9	254,7	07:16:37	07:00:59	06:53:01	06:42:09	
10	283,0	08:05:08	07:47:46	07:38:55	07:26:50	Bidon 9 i 10
11	311,3	08:53:39	08:34:32	08:24:48	08:11:31	
12	339,6	09:42:10	09:21:19	09:10:42	08:56:12	Bidon 11 i 12
13	367,9	10:30:41	10:08:05	09:56:35	09:40:53	
14	396,2	11:19:12	10:54:52	10:42:29	10:25:34	Bidon 13 i 14
15	424,5	12:07:42	11:41:39	11:28:22	11:10:15	
16	452,8				11:54:56	

Limit V 15 laps <12h - 35,42 km/h
Limit V16 laps <12h - 37,73km/h

Międzyczasy-1

Lap	Distance (km)	Time avg 35,00 km/h	Time avg 36,30 km/h	Time avg 37,00 km/h	Daytime dla 37,00kmh	Time (HH:MM) avg 38,00 km/h	Michał - bufet	Karol - bufet	Marcin - bufet	Szymon - bufet
1/Czas rundy:	28,3	00:48:30	00:46:46	00:45:53	06:54	00:44:41	Bidon 1			
2	56,6	01:37:01	01:33:33	01:31:47	07:40	01:29:22	Bidon 2			
3	84,9	02:25:32	02:20:19	02:17:40	08:25	02:14:03				
4	113,2	03:14:03	03:07:06	03:03:34	09:11	02:58:44	Bidon 3 i 4			
5	141,5	04:02:34	03:53:53	03:49:27	09:57	03:43:25				
6	169,8	04:51:05	04:40:39	04:35:21	10:43	04:28:06	Bidon 5 i 6			
7	198,1	05:39:36	05:27:26	05:21:14	11:29	05:12:47				
8	226,4	06:28:06	06:14:12	06:07:08	12:15	05:57:28	Bidon 7 i 8			
9	254,7	07:16:37	07:00:59	06:53:01	13:01	06:42:09				
10	283,0	08:05:08	07:47:46	07:38:55	13:46	07:26:50	Bidon 9 i 10			
11	311,3	08:53:39	08:34:32	08:24:48	14:32	08:11:31				
12	339,6	09:42:10	09:21:19	09:10:42	15:18	08:56:12	Bidon 11 i 12			
13	367,9	10:30:41	10:08:05	09:56:35	16:04	09:40:53				
14	396,2	11:19:12	10:54:52	10:42:29	16:50	10:25:34	Bidon 13 i 14			
15	424,5	12:07:42	11:41:39	11:28:22	17:36	11:10:15				
16	452,8				18:08	11:54:56				
Moc		190 W	216 W	228 W		247 W				

Limit V 15 laps <12h - 35,42 km/h
Limit V16 laps <12h - 37,73km/h

Michał bufet

LAP	Dist. (km)	Time for 37,00kmh	Michał - buffets start 250g of carbs + 750ml water
1	28,3	06:54	
2	56,6	07:40	200g + water
3	84,9	08:25	
4	113,2	09:11	water + Izo
5	141,5	09:57	
6	169,8	10:43	water + 200g + bat. Proteins
7	198,1	11:29	
8	226,4	12:15	water + Izo + smar
9	254,7	13:01	Izo+ gel caffeine
10	283,0	13:46	water + izo + bat. Prot.
11	311,3	14:32	
12	339,6	15:18	water + 200g
13	367,9	16:04	Izo + gel z caffeine
14	396,2	16:50	water + 100g
15	424,5	17:36	
16	452,8	18:08	

Bufet

LAP	Dyst. (km)	Godz. dla 37,00kmh	Buffets
1	28,3	06:54	
2	56,6	07:40	
3	84,9	08:25	
4	113,2	09:11	
5	141,5	09:57	
6	169,8	10:43	
7	198,1	11:29	
8	226,4	12:15	
9	254,7	13:01	
10	283,0	13:46	
11	311,3	14:32	
12	339,6	15:18	
13	367,9	16:04	
14	396,2	16:50	
15	424,5	17:36	
16	452,8	18:08	

Labeled data for Python chart

Number	Avg Power	Avg Speed	Label color
1	150	36,7	Green
2	240	36,7	Green
3	153	36,8	Green
4	237	36,7	Green
5	198	36,6	Blue
6	204	39,0	Blue
7	195	39,8	Blue
8	224	38,8	Blue
9	223	37,0	Blue
10	227	34,8	Blue
11	234	34,4	Blue
12	235	36,0	Blue
13	207	30,4	Blue
14	229	36,0	Blue
15	235	35,5	Blue
16	204	38,0	Blue
17	213	35,1	Blue
18	189	32,9	Orange
19	199	33,1	Orange
20	220	38,3	Orange
21	202	36,6	Orange
22	210	37,6	Red
23	217	36,4	Red
24	227	33,7	Red
25	230	36,1	Red
26	196	36,4	Black
27	199	36,9	Black
28	220	36,8	Yellow
29	217	34,2	Yellow
30	234	36,6	Yellow
31	223	37,8	Yellow
32	220	38,9	Yellow
33	230	37,8	Yellow
34	220	36,5	Yellow
35	206	37,4	Yellow
36	224	36,1	Yellow
37	215	37,7	Yellow

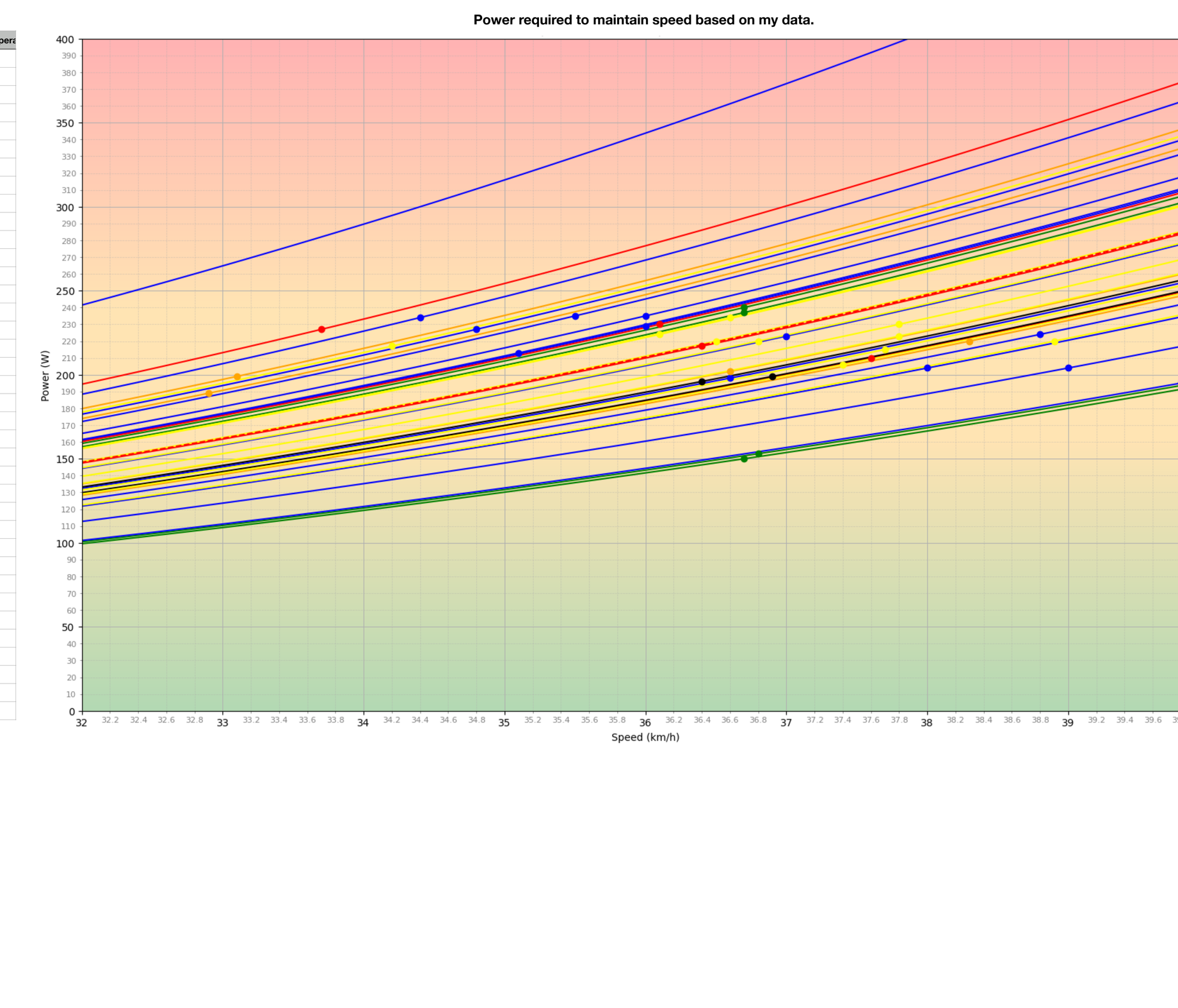
Trainings data all - all lead leas from trainings (position: drops, wearing the same or similar clothes that I planned to wera during the race)

Number	Elapsed Time	Avg Power	Avg Cadence	Avg Torque	Avg HR	Max HR	Avg Gradient	Intensity	Zone	Avg Speed	Work in KJ	Distance	Distance	Work per km	Avg Power / Avg HR	Avg w/kg	Altitude Gain	Ambient Temp	Body Temperature
1	402	150	87	17	134	148	-0,1	0,45	1	36,7	60,6	4,1	4100,0	14,78	1,12	2,21	6m	29	38,06
2	400	240	89	28	153	161	-0,1	0,72	2	36,7	96,2	4,08	4080,00	23,58	1,57	3,53	5m	29	38,02
3	399	153	84	20	135	147	-0,1	0,46	1	36,8	61,0	4,07	4070,00	14,99	1,13	2,25	6m	29	38,15
4	402	237	89	25	153	159	-0,1	0,71	2	36,7	95,4	4,1	4100,0	23,27	1,55	3,49	5m	29	38,19
5	901	198	94	22	148	153	0,2	0,60	2	36,6	178,0	9,18	9180,00	19,39	1,34	2,91	26m	17,0	38,09
6	406	204	92	21	145	151	-0,2	0,61	2	39,0	83,2	4,4	4400,0	18,91	1,41	3,00	1m	17,2	38,24
7	1201	195	94	20	146	150	-0,1	0,59	2	39,8	234	13,27	13270,00	17,63	1,34	2,87	5m	18,2	38,25
8	537	224	92	24	148	153	-0,1	0,67	2	38,8	120,0	5,79	5790,00	20,73	1,51	3,29	1m	19,1	38,21
9	497	223	92	24	149	153	-0,1	0,67	2	37,0	111,0	5,12	5120,00	21,68	1,50	3,28	16m	19,0	38,26
10	277	227	90	25	150	153	0	0,68	2	34,8	63,1	2,68	2680,00	23,54	1,51	3,34	1m	19,8	38,30
11	302	234	90	25	149	152	0	0,70	2	34,4	70,7	2,89	2890,00	24,46	1,57	3,44	3m	23,0	37,97
12	316	235	89	25	149	153	0	0,71	2	36,0	74,4	3,16	3160,00	23,54	1,58	3,46	1m	23,0	38,22
13	441	207	82	25	143	151	0	0,62	2	30,4	83,7	3,73	3730,00	22,44	1,45	3,04	7m	24,1	38,26
14	356	229	89	26	150	154	0,2	0,69	2	36,0	81,8	3,56	3560,00	22,98	1,53	3,37	10m	24,9	38,30
15	330	235	91	25	151	155	0,1	0,71	2	35,5	77,6	3,25	3250,00	23,88	1,56	3,46	5m	25,6	38,36
16	386	204	89	22	145	151	0	0,61	2	38,0	79,1	4,07	4070,00	19,43	1,41	3,00	6m	27,00	38,30
17	417	213	88	24	149	153	0	0,64	2	35,1	89,2	4,07	4070,00	21,92	1,43	3,13	8m	29,0	38,26
18	706	189	91	20	142	147	-0,2	0,57	2	32,9	133,0	6,45	6450	20,62	1,33	2,78	27m	11,0	38,70
19	780	199	88	22	142	149	0	0,60	2	33,1	155,0	7,17	7170	21,62	1,40	2,93	27m	11,0	38,70
20	951	220	93	23	148	152	0	0,66	2	38,3	209,0	10,12	10120	20,65	1,49	3,24	17m	11,8	38,70
21	399	202	89	22	135	145	-0,1	0,61	2	36,6	80,9	4,06	4060	19,93	1,50	2,97	6m	14,5	38,70
22	586	210	94	21	148	154	0	0,63	2	37,6	123,0	6,13	6130	20,07	1,42	3,09	23m	12,0	38,81
23	1390	217	93	22	149	155	0	0,65	2	36,4	302,0	14,07	14070	21,46	1,46	3,19	25m	12,0	39,05
24	311	227	91	24	149	153	0,2	0,68	2	33,7	70,7	2,91	2910	24,30	1,52	3,34	7m	12,0	39,04
25	404	230	92	24	142	150	0	0,69	2	36,1	93,1	4,06	4060	22,93	1,62	3,38	6m	14,0	38,90
26	403	196	94	20	143	150	0	59	2	36,4	79,3	4,08	4080	19,44	1,37	2,88	6m	19,5	38,15
27	397	199	92	21	135	143	-0,1	60	2	36,9	79,3	4,07	4070	19,48	1,47	2,93	5m	16,0	38,15
28	499	220	94	22	151	155	-0,1	66	2	36,8	110	5,1	5100	21,57	1,46	3,24	9m	7,0	38,28
29	195	217	87	24	146	153	0	65	2	34,2	42,3	1,85	1850	22,86	1,49	3,19	1m	8,0	38,15
30	781	234	94	24	152	158	0	70	2	36,6	183	7,94	7940	23,05	1,54	3,44	15m	10,0	38,15
31	864	223	92	23	149	156	0	67	2	37,8	192	9,07	9070	21,17	1,50	3,28	28m	12,6	38,15
32	259	220	90	23	150	156	-0,3	66	2	38,9	57,1	2,8	2800	20,39	1,47	3,24	12m	17,9	38,15
33	373	230	93	24	151	158	-0,1	69	2	37,8	86	3,92	3920	21,94	1,52	3,38	14m	17,1	38,00
34	131	220	91	23	151	155	-0,6	66	2	36,5	28,8	1,33	1330	21,65	1,46	3,24	2m	20,0	38,00
35	266	206	92	21	147	151	-0,7	62	2	37,4	54,9	2,76	2760	19,89	1,40	3,03	5m	21,5	38,00
36	406	224	91	24	150	153	-0,1	67	2	36,1	91,3	4,07	4070	22,43	1,49	3,29	5m	22,0	38,00
37	387	215	92	22	148	154	-0,1	65	2	37,7	83,2	4,06	4060	20,49	1,45	3,16	7m	21,8	38,00

Whole Google Colab notebook with Python code available to view here:

https://colab.research.google.com/drive/1ayu8Yt9ber3tthCnbG3qFh4SFQllyC6S?usp=sharing

Power required to maintain speed based on my data.



Post Race data and analysis

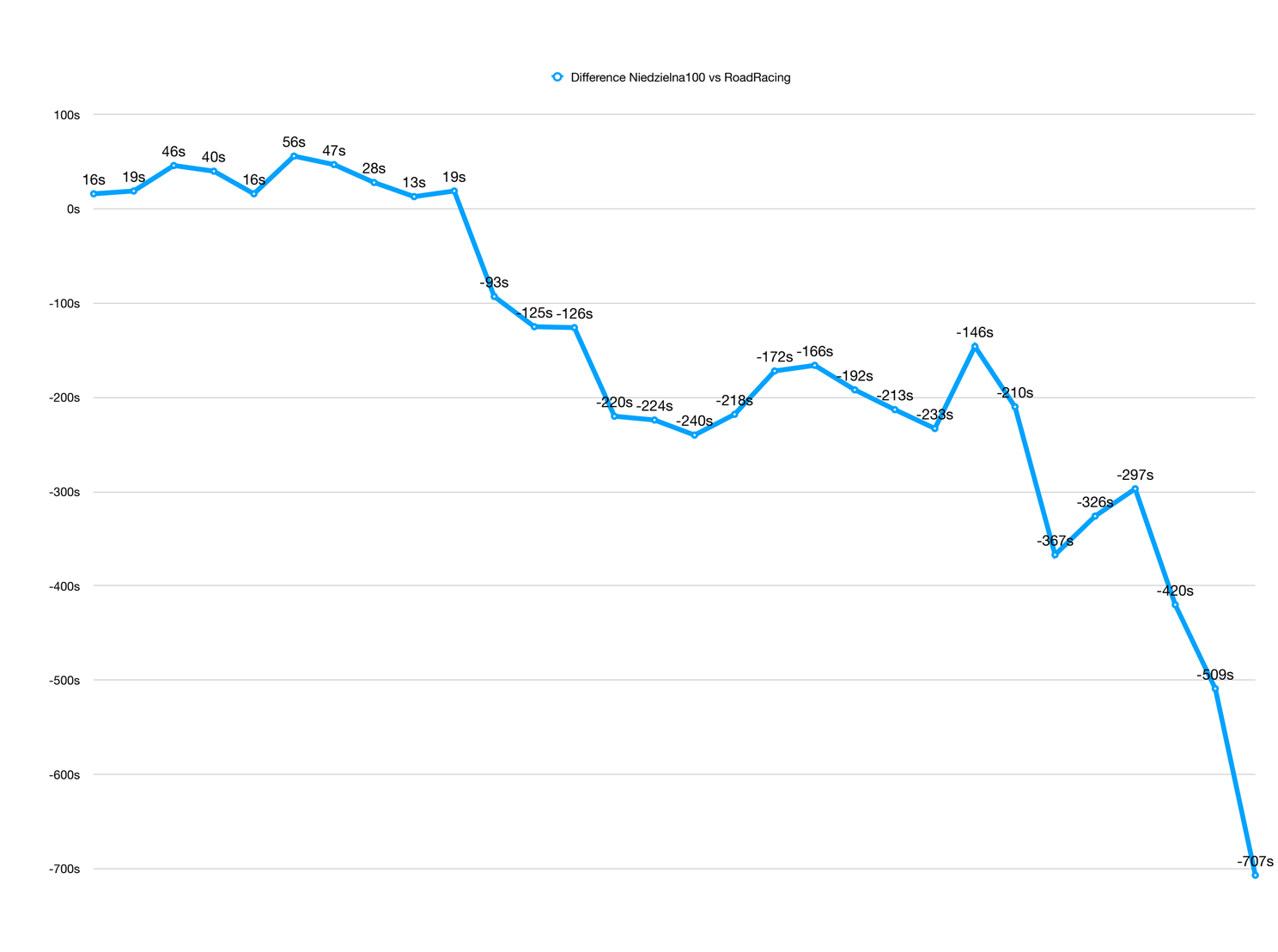
Race results: https://www.maratonczykpomiarczasu.pl/sites/default/files/II Maraton kolarski od świtu do zmierzchu - wyniki drużyny szczegółowe.pdf
Strava activity: https://www.strava.com/activities/12525282786

My post race data from intervals.icu

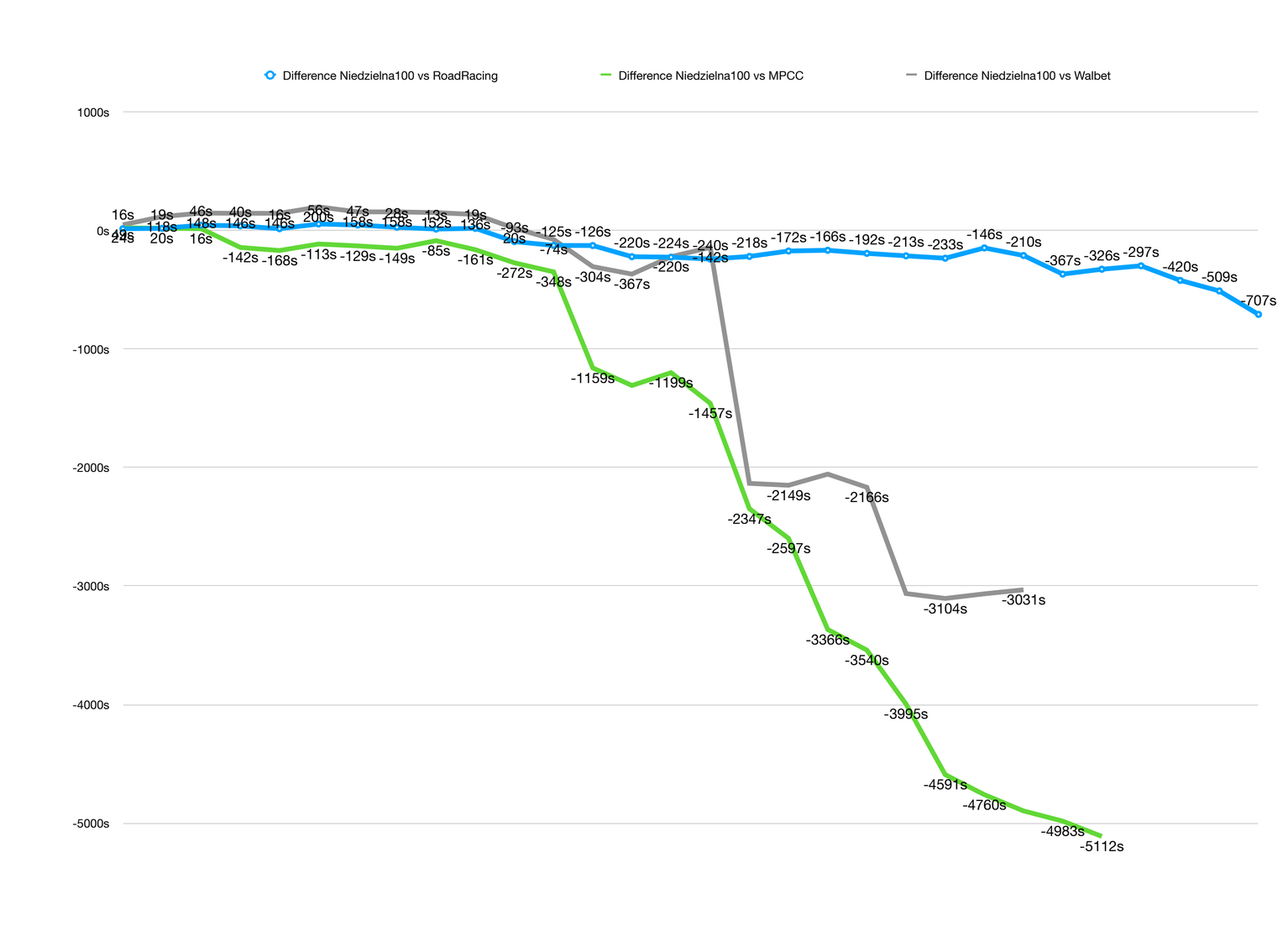
AVG Power from the whole race	AVG W/KG	AVG SPEED	MOVING TIME	ELAPSED TIME	TOTAL WORK
190	2,79	36.8 /h	11:26:45	11:33:55	7882 kJ

Race time real results

Lap	Niedzielna100	Niedzielna100 Lap time	MPCC		Walbet Team		RoadRacing		Difference Niedzielna100 vs RoadRacing	Difference Niedzielna100 vs MPCC	Difference Niedzielna100 vs Walbet	Plan 37,00kmh	Ostaszewski vs Plan
	0:18:26		0:18:02		0:17:37		0:18:10		16s	24s	49s		
1	0:44:58	44m 58s	0:44:38	0:44:38	0:43:00	0:43:00	0:44:39	0:44:39	19s	20s	1m 58s	00:45:53	55s
	1:03:02		1:02:46		1:00:34		1:02:16		46s	16s	2m 28s		
2	1:28:56	43m 58s	1:31:18	46m 40s	1:26:30	43m 30s	1:28:16	43m 37s	40s	-2m 22s	2m 26s	01:31:47	2m 51s
	1:45:59		1:48:47		1:43:33		1:45:56		16s	-2m 48s	2m 26s		
3	2:13:32	44m 36s	2:15:25	44m 7s	2:10:12	43m 42s	2:12:36	44m 20s	56s	-1m 53s	3m 20s	02:17:40	4m 8s
	2:31:05		2:33:14		2:28:27		2:30:18		47s	-2m 9s	2m 38s		
4	2:57:51	44m 19s	3:00:20	44m 55s	2:55:13	45m 1s	2:57:23	44m 47s	28s	-2m 29s	2m 38s	03:03:34	5m 43s
	3:17:41		3:19:06		3:15:09		3:17:28		13s	-1m 25s	2m 32s		
5	3:44:13	46m 22s	3:46:54	46m 34s	3:41:57	46m 44s	3:43:54	46m 31s	19s	-2m 41s	2m 16s	03:49:27	5m 14s
	4:01:49		4:06:21		4:01:29		4:03:22		-1m 33s	-4m 32s	20s		
6	4:28:13	44m	4:34:01	47m 7s	4:29:27	47m 30s	4:30:18	46m 24s	-2m 5s	-5m 48s	-1m 14s	04:35:21	7m 8s
	4:47:33		5:06:52		4:52:37		4:49:39		-2m 6s	-19m 19s	-5m 4s		
7	5:13:38	45m 25s	5:35:25	1h 1m 24s	5:19:45	50m 18s	5:17:18	47m	-3m 40s	-21m 47s	-6m 7s	05:21:14	7m 36s
	5:35:17		5:55:16		5:38:57		5:39:01		-3m 44s	-19m 59s	-3m 40s		
8	6:02:24	48m 46s	6:26:41	51m 16s	6:04:46	45m 1s	6:06:24	49m 6s	-4m	-24m 17s	-2m 22s	06:07:08	4m 44s
	6:21:52		7:00:59		6:57:25		6:25:30		-3m 38s	-39m 7s	-35m 33s		
9	6:49:24	47m	7:32:41	1h 6m	7:25:13	1h 20m 27s	6:52:16	45m 52s	-2m 52s	-43m 17s	-35m 49s	06:53:01	3m 37s
	7:11:13		8:07:19		7:45:28		7:13:59		-2m 46s	-56m 6s	-34m 15s		
10	7:36:58	47m 34s	8:35:58	1h 3m 17s	8:13:04	47m 51s	7:40:10	47m 54s	-3m 12s	-59m	-36m 6s	07:38:55	1m 57s
	7:56:37		9:03:12		8:47:40		8:00:10		-3m 33s	-1h 6m 35s	-51m 3s		
11	8:22:39	45m 41s	9:39:10	1h 3m 12s	9:14:23	1h 1m 19s	8:26:32	46m 22s	-3m 53s	-1h 16m 31s	-51m 44s	08:24:48	2m 9s
	8:44:40		10:04:00		9:35:45		8:47:06		-2m 26s	-1h 19m 20s	-51m 5s		
12	9:10:45	48m 6s	10:32:22	53m 12s	10:01:16	46m 53s	9:14:15	47m 43s	-3m 30s	-1h 21m 37s	-50m 31s	09:10:42	-3s
	9:31:25		10:54:28				9:37:32		-6m 7s	-1h 23m 3s			
13	9:57:40	46m 55s	11:22:52	50m 30s			10:03:06	48m 51s	-5m 26s	-1h 25m 12s		09:56:35	-1m 5s
	10:18:43		11:22:52				10:23:40		-4m 57s				
14	10:45:09	47m 29s					10:52:09	49m 3s	-7m			10:42:29	-2m 40s
	11:05:37						11:14:06		-8m 29s				
15	11:32:15	47m 6s					11:44:02	51m 53s	-11m 47s			11:28:22	-3m 53s



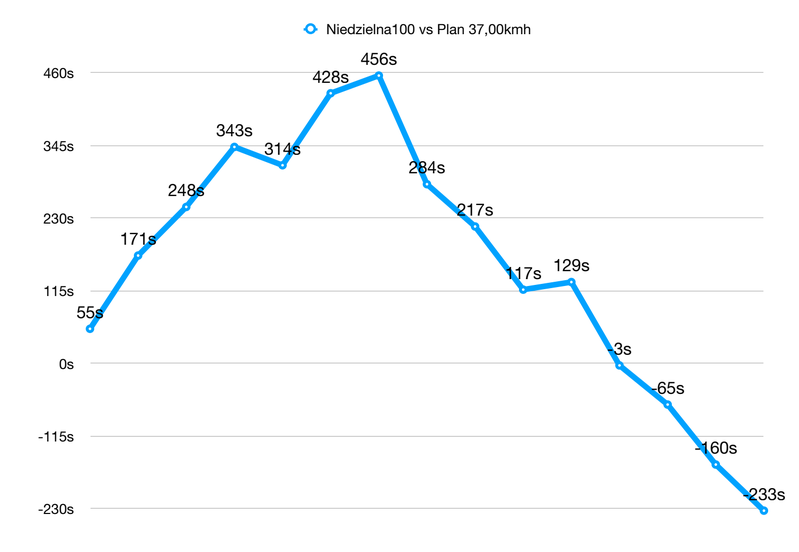
Time Difference between Niedzielna100 vs RoadRacing Team



Difference on in time(seconds) between Niedzielna100 and other teams

Race time real results-2

Lap	Niedzielna100	Plan 37,00kmh	Niedzielna100 vs Plan 37,00kmh
1	0:44:58	00:45:53	55s
2	1:28:56	01:31:47	2m 51s
3	2:13:32	02:17:40	4m 8s
4	2:57:51	03:03:34	5m 43s
5	3:44:13	03:49:27	5m 14s
6	4:28:13	04:35:21	7m 8s
7	5:13:38	05:21:14	7m 36s
8	6:02:24	06:07:08	4m 44s
9	6:49:24	06:53:01	3m 37s
10	7:36:58	07:38:55	1m 57s
11	8:22:39	08:24:48	2m 9s
12	9:10:45	09:10:42	-3s
13	9:57:40	09:56:35	-1m 5s
14	10:45:09	10:42:29	-2m 40s
15	11:32:15	11:28:22	-3m 53s

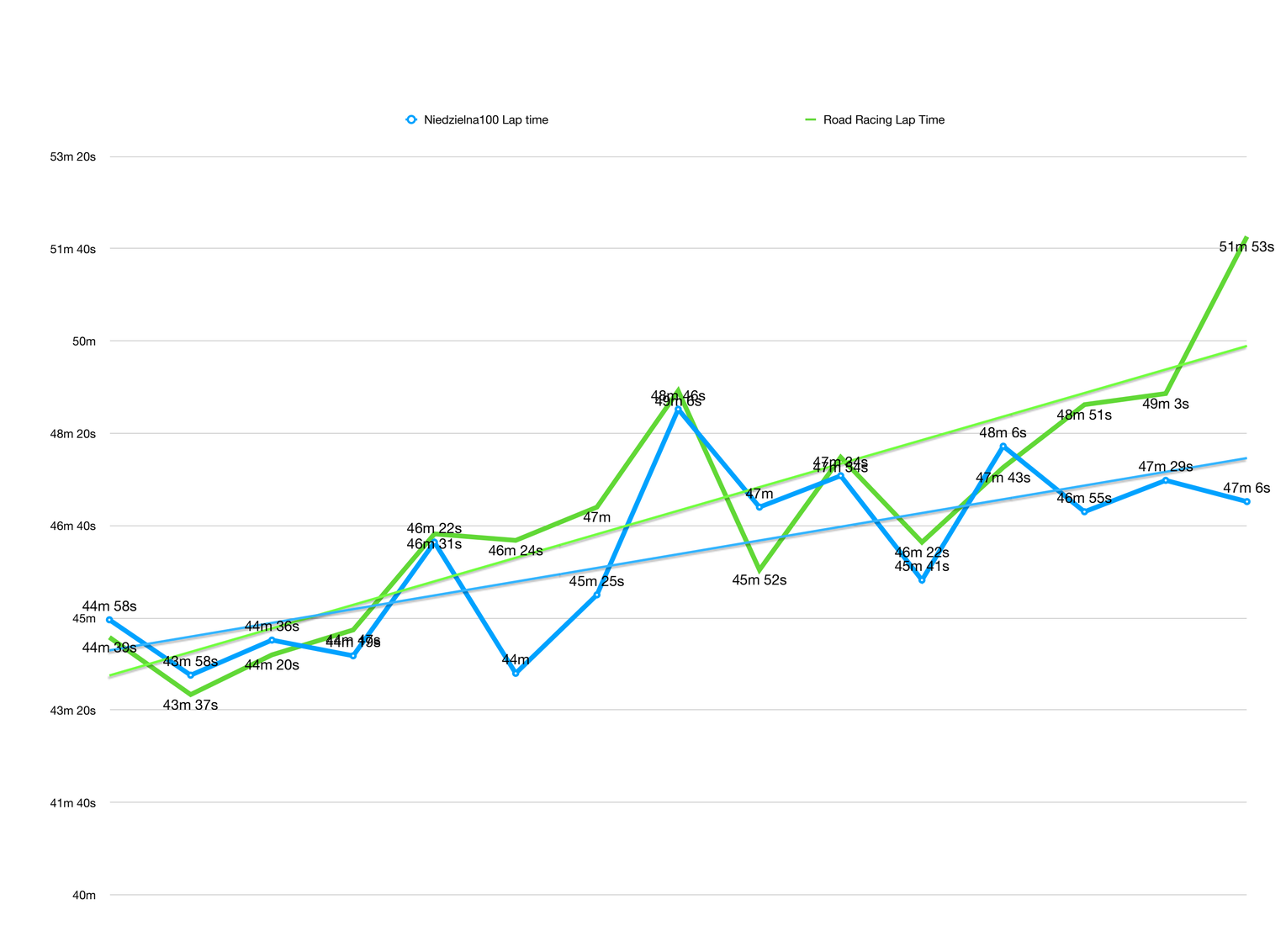


Lap times teams

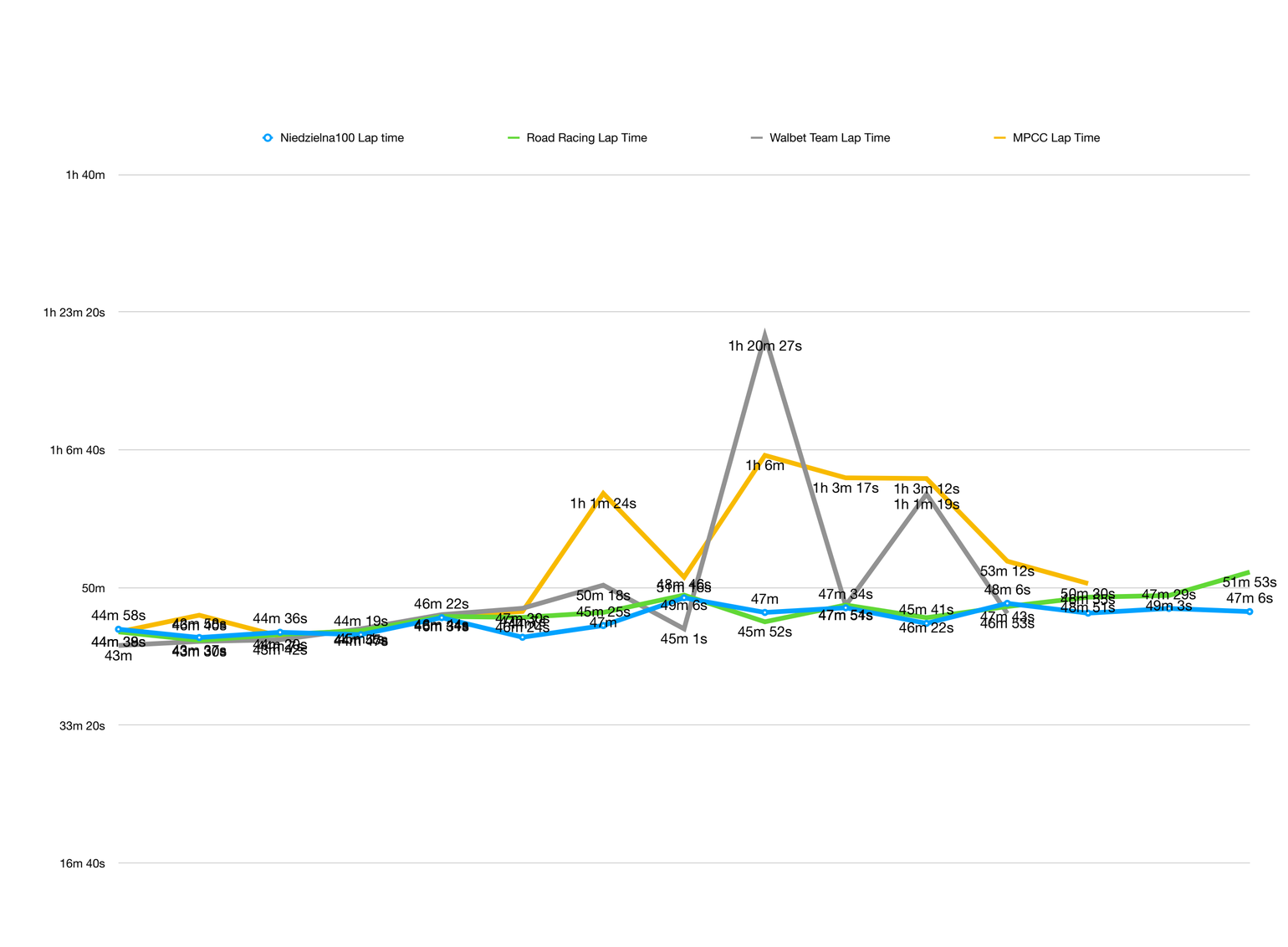
Lap	Niedzielna100	Niedzielna100 Lap time	MPCC	MPCC Lap Time	Walbet Team	Walbet Team Lap Time	RoadRacing	Road Racing Lap Time
1	0:44:58	44m 58s	0:44:38	44m 38s	0:43:00	43m	0:44:39	44m 39s
2	1:28:56	43m 58s	1:31:18	46m 40s	1:26:30	43m 30s	1:28:16	43m 37s
3	2:13:32	44m 36s	2:15:25	44m 7s	2:10:12	43m 42s	2:12:36	44m 20s
4	2:57:51	44m 19s	3:00:20	44m 55s	2:55:13	45m 1s	2:57:23	44m 47s
5	3:44:13	46m 22s	3:46:54	46m 34s	3:41:57	46m 44s	3:43:54	46m 31s
6	4:28:13	44m	4:34:01	47m 7s	4:29:27	47m 30s	4:30:18	46m 24s
7	5:13:38	45m 25s	5:35:25	1h 1m 24s	5:19:45	50m 18s	5:17:18	47m
8	6:02:24	48m 46s	6:26:41	51m 16s	6:04:46	45m 1s	6:06:24	49m 6s
9	6:49:24	47m	7:32:41	1h 6m	7:25:13	1h 20m 27s	6:52:16	45m 52s
10	7:36:58	47m 34s	8:35:58	1h 3m 17s	8:13:04	47m 51s	7:40:10	47m 54s
11	8:22:39	45m 41s	9:39:10	1h 3m 12s	9:14:23	1h 1m 19s	8:26:32	46m 22s
12	9:10:45	48m 6s	10:32:22	53m 12s	10:01:16	46m 53s	9:14:15	47m 43s
13	9:57:40	46m 55s	11:22:52	50m 30s			10:03:06	48m 51s
14	10:45:09	47m 29s					10:52:09	49m 3s
15	11:32:15	47m 6s					11:44:02	51m 53s

Laps analysis (without outliers)

	Niedzielna100	MPCC	Walbet Team	RoadRacing
Fastests Lap	43m 58s	44m 7s	43m	43m 37s
Slowest Lap	48m 6s	53m 12s	50m 18s	49m 6s
Difference	4m 8s	9m 5s	7m 18s	5m 29s



Lap Time - Niedzielna100 vs Road Racing

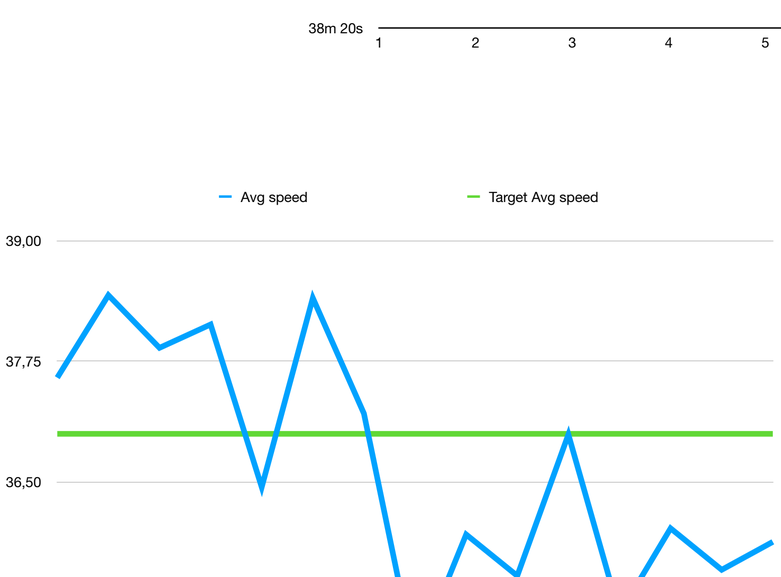


Lap Time - All Teams

Corrected distance of single lap = 422,5km/15laps = 1 lap = 28,166km

Lap average speed

Lap	Distance (km)	Niedzielna100	Niedzielna100 Lap time	Lap Time in seconds	Avg speed	Target Avg speed
1	28,166	0:44:58	0:44:58	2698	37,58	37,00
2	56,332	1:28:56	0:43:58	2638	38,44	37,00
3	84,498	2:13:32	0:44:36	2676	37,89	37,00
4	112,664	2:57:51	0:44:19	2659	38,13	37,00
5	140,83	3:44:13	0:46:22	2782	36,45	37,00
6	168,996	4:28:13	0:44:00	2640	38,41	37,00
7	197,162	5:13:38	0:45:25	2725	37,21	37,00
8	225,328	6:02:24	0:48:46	2926	34,65	37,00
9	253,494	6:49:24	0:47:00	2820	35,96	37,00
10	281,66	7:36:58	0:47:34	2854	35,53	37,00
11	309,826	8:22:39	0:45:41	2741	36,99	37,00
12	337,992	9:10:45	0:48:06	2886	35,13	37,00
13	366,158	9:57:40	0:46:55	2815	36,02	37,00
14	394,324	10:45:09	0:47:29	2849	35,59	37,00
15	422,49	11:32:15	0:47:06	2826	35,88	37,00



Real data from the race

	Sum of Carbs	Maltodextrin	Dextrose	Fructose	SIS - isotonic	Inne - juce
Bottle 1	250	120	40	40	33	71
Bottle 2	200	90	30	30	23	30
Bottle 3	120	90	18	18	17,5	18
Bottle Isotonic	20				20	
3x gel biedronka	180					
226er hydra jelly	22,6					
High energy 226er gel	50					
0,5 beta fuel gel	40					
Sandwich with cheese	35					
350-400ml pepsi	45					
SUM	962,6	3850,4	Kcal			
CHO/h	83,70	334,82	Kcal/h			
Clear water	3000ml					
Water in carbs bottles	1200ml					
All water intake		365,22	ml/h			