

Department of Automotive Technologies – Vehicle Mechanics Fundamentals

Gábor Sipos



Lecture 10

Schedule of the semester

Week nr.	Official nr.	Date		Lecture (Monday)		Lab (date+1;Tuesday)
1	1	12th Feb	1	General information, Tyre, Driving force	1	Lab
2	2	19th Feb	2	Longitudinal and lateral behaviour		
3	3	26th Feb	3	Concepts and over/understeer	2	Lab
4	4	4th Mar	4	Weight transfer		
5	5	11th Mar	5	Bicycle model	3	Lab
6	6	18th Mar	T1	Midterm exam I. ONLINE		
7	7	25th Mar	6	Braking and brakes ONLINE	4	Lab ONLINE
8		1st Apr	-	Break		
9	8	8th Apr	7	Systems of the vehicle		
10	9	15th Apr	8	Quarter vehicle model ONLINE	T1 R	Exam 1 - subsequent ONLINE
11	10	22th Apr		Break		
12	11	29th Apr	T2	Midterm exam II. ONLINE		Break
13	12	6th May	9	Tyre management		
14	13	13th May	10	Racecar engineering	T2 R	Exam 2 - subsequent
	14	20th May	11	Semester championship presentation		

Reminder

- Regs to clarify
- Retake tomorrow – online
- Send recorded presentation of Semester project until 20th May, 15:00
- Second retake 27th May 14:00, ST318

Semester championship results

	Final result				
	SUM	place			
REJ38Z	234	2	+40% to the result of freely choosen midterm exam		
G4RQ6R	246	1	Right to skip one mid-term exam with proven grade 5, that the student can choose		
BIDMZ7	180	3	+30% to the result of freely choosen midterm exam		



Analysis

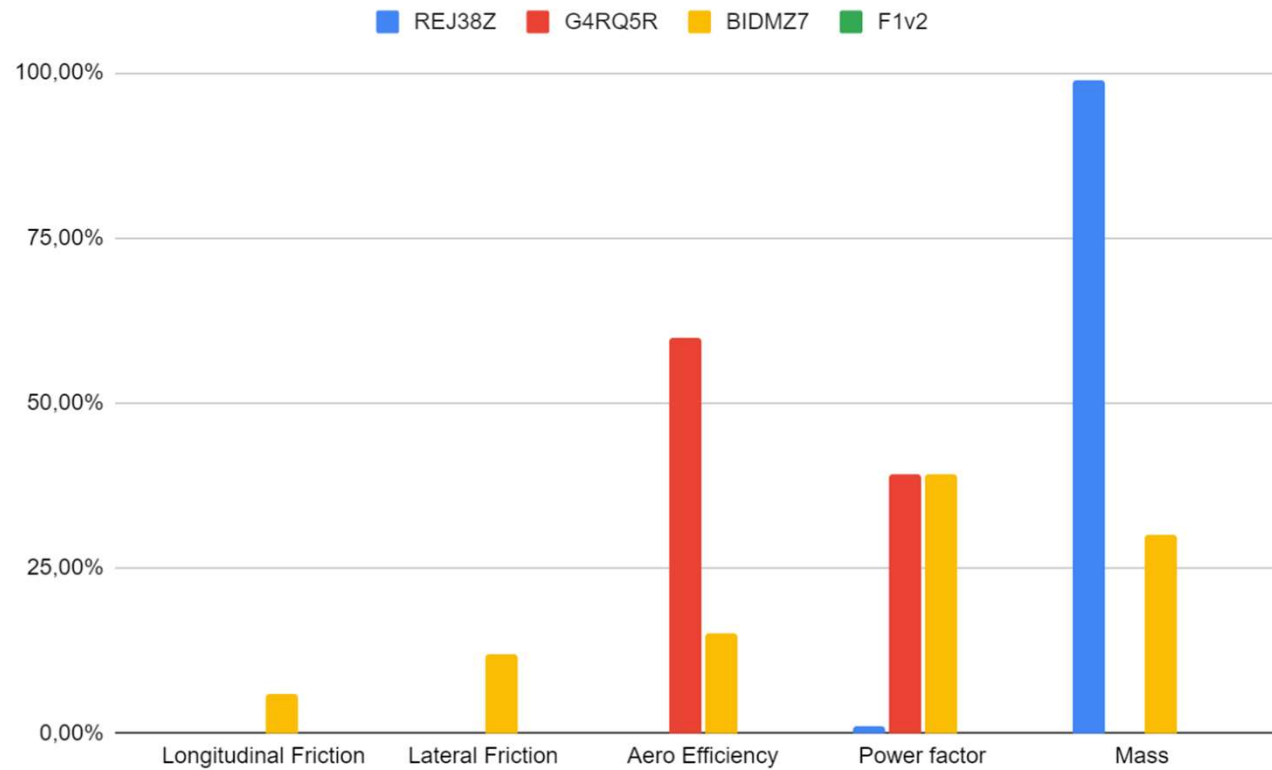


Semester championship results

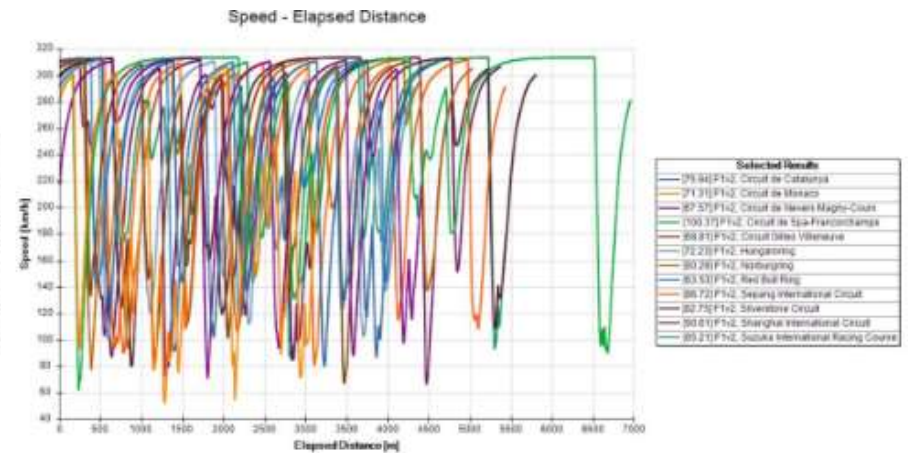
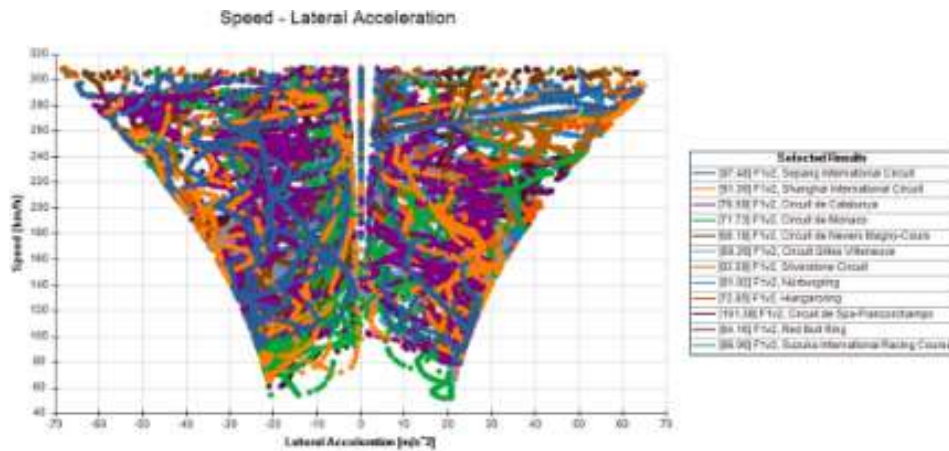
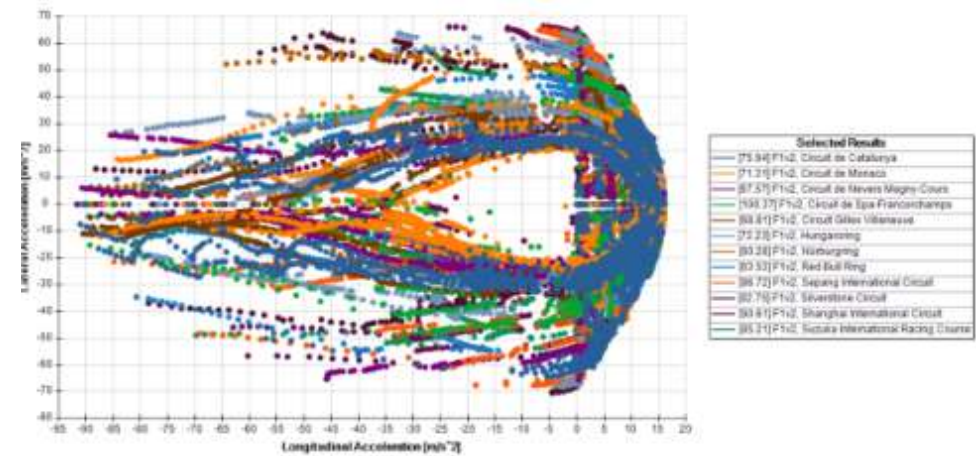
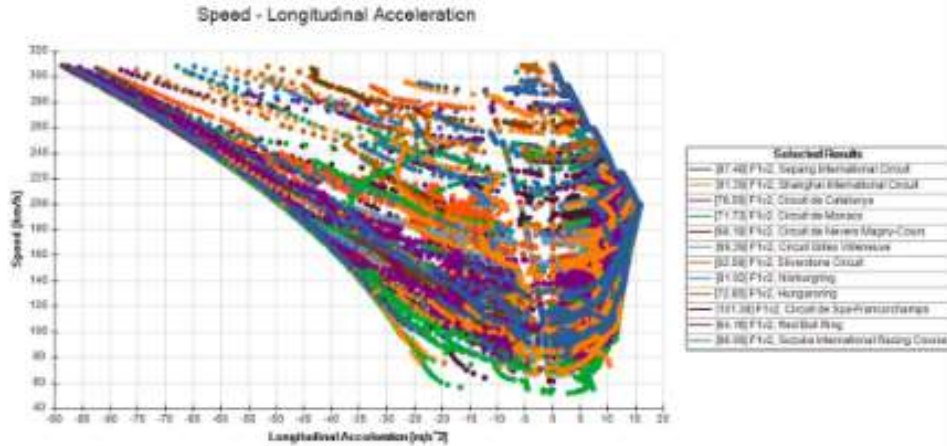
team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p	s	pl a c e	p
REJ38Z	86,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	67,55	3	12	68,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,41	3	12	63,32	1	25	84,92	2	18
G4RQ5R	86,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	67,2	1	25	68,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	63,33	2	18	84,89	1	25
BIDMZ7	86,55	3	12	90,46	3	12	75,81	3	12	71,27	2	18	67,4	2	18	68,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,06	2	18	63,39	3	12	85,01	3	12
F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	68,18	4	10	69,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,38	4	10	64,16	4	10	86,09	4	10

Semester championship results

0	REJ38Z	G4RQ5R	BIDMZ7	F1v2
Longitudinal Fric	0,00%	0,00%	6,00%	0,00%
Lateral Friction	0,00%	0,00%	12,00%	0,00%
Aero Efficiency	0,00%	60,00%	15,00%	0,00%
Power factor	1,19%	39,29%	39,29%	0,00%
Mass	98,80%	0,00%	30,12%	0,00%



Bad examples



Speed - Lateral Acceleration

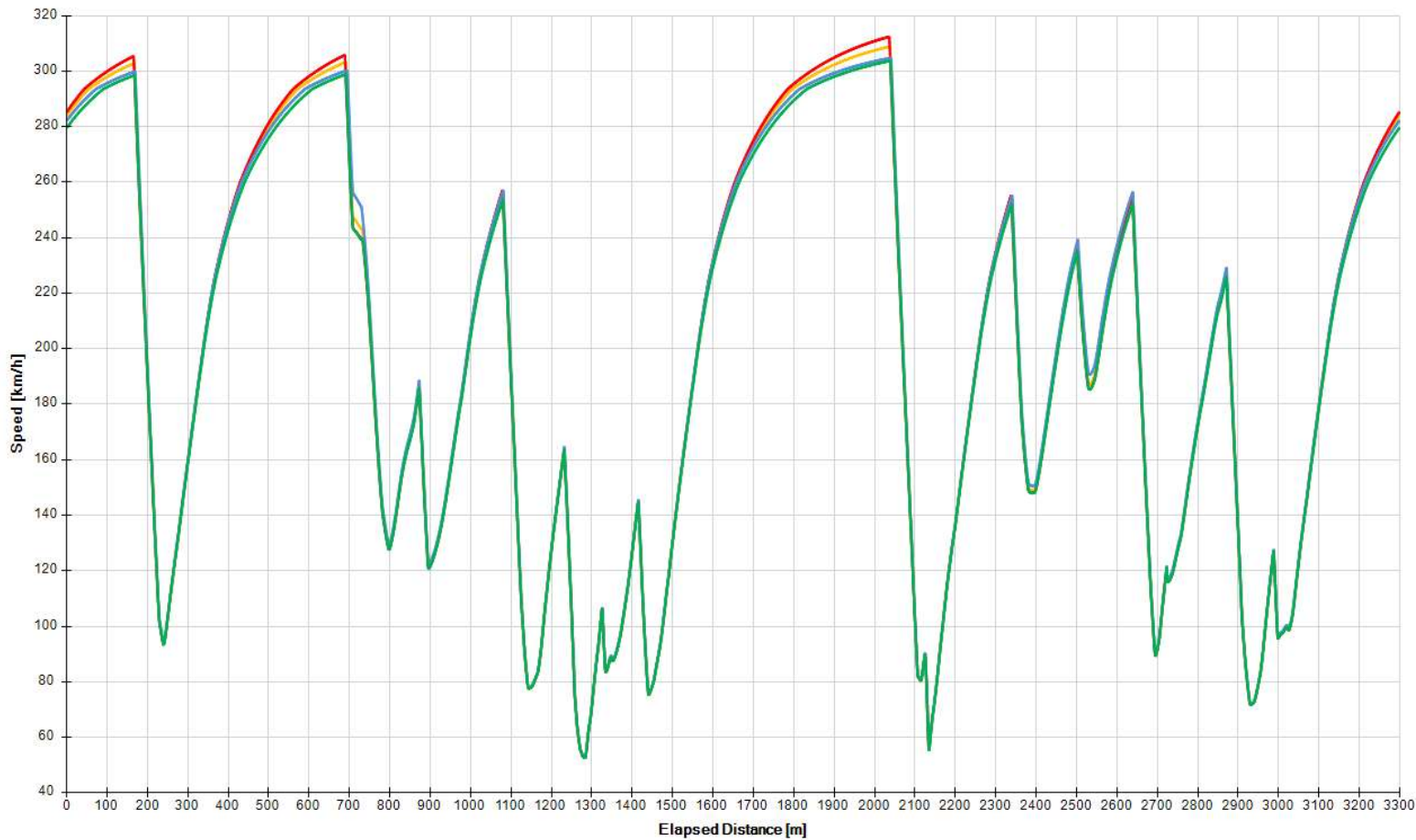
Analysis



Monaco

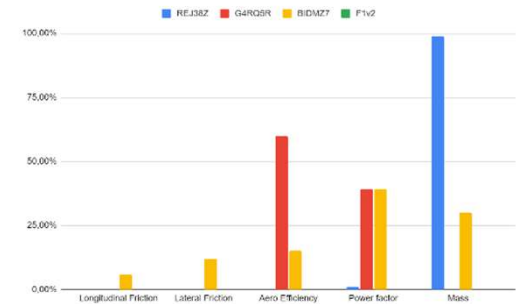
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Elapsed Distance (1)



Selected Results

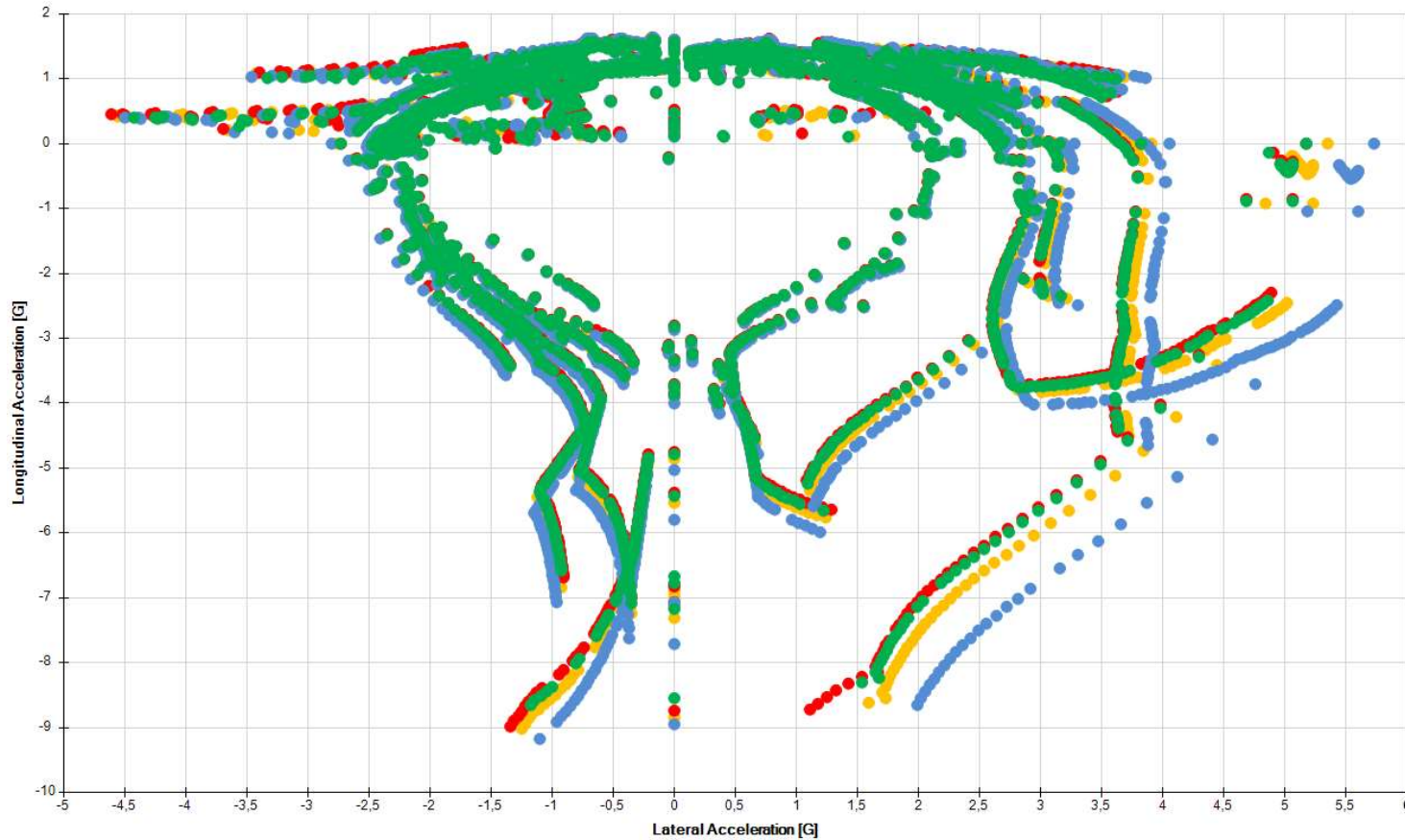
- [71,73] F1v2, Circuit de Monaco
- [71,07] REJ38Z, Circuit de Monaco
- [71,35] G4RQ5R, Circuit de Monaco
- [71,27] BIDMZ7, Circuit de Monaco



Monaco

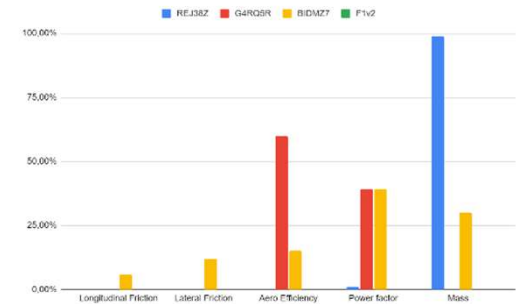
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Longitudinal Acceleration - Lateral Acceleration



Selected Results

- [71,73] F1v2, Circuit de Monaco
- [71,07] REJ38Z, Circuit de Monaco
- [71,35] G4RQ5R, Circuit de Monaco
- [71,27] BIDMZ7, Circuit de Monaco



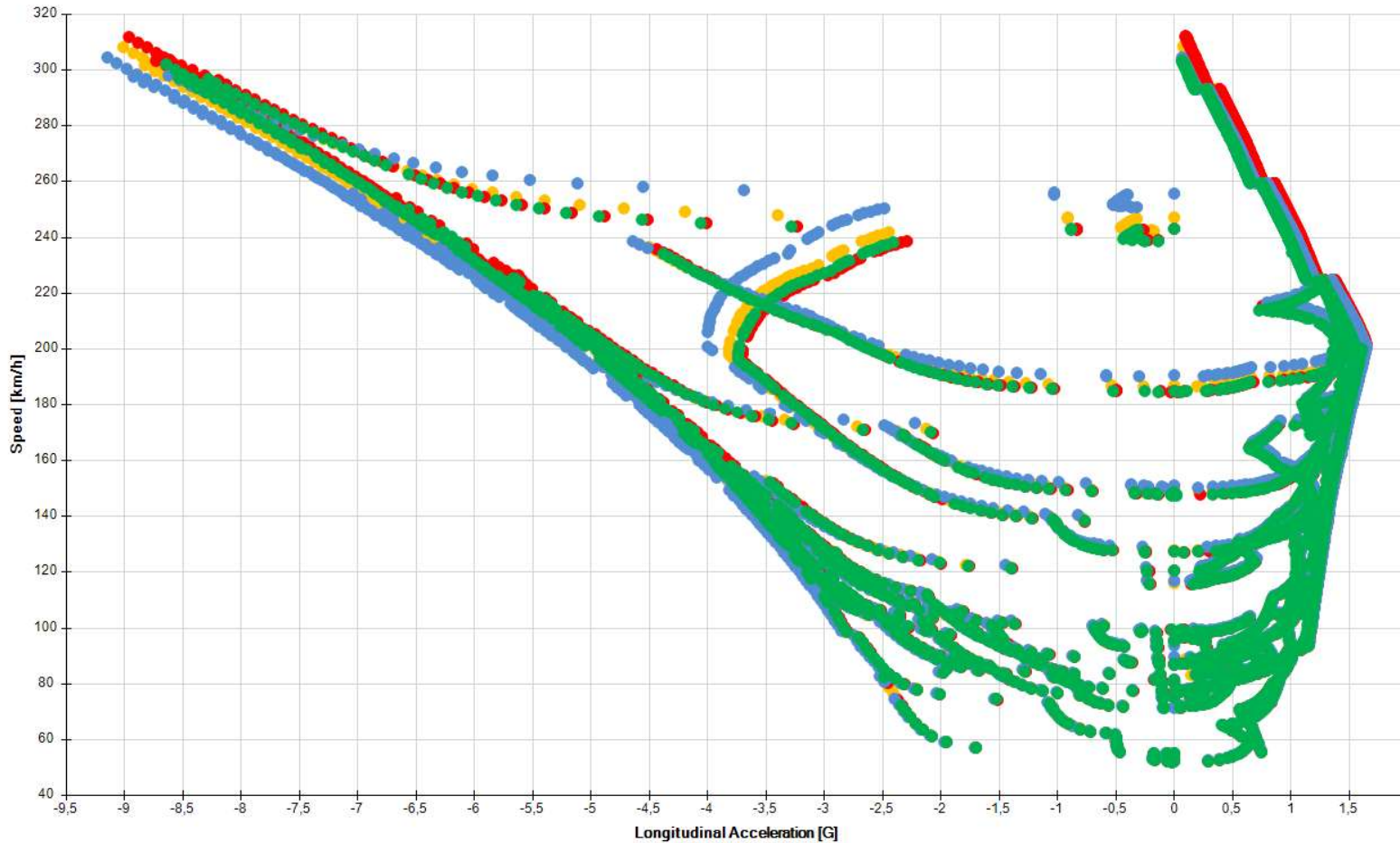
Analysis



Monaco

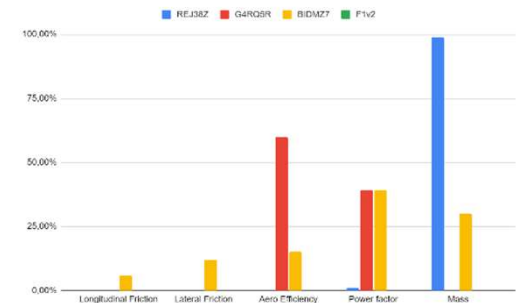
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
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Speed - Longitudinal Acceleration



Selected Results

- [71,73] F1v2, Circuit de Monaco
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- [71,27] BIDMZ7, Circuit de Monaco

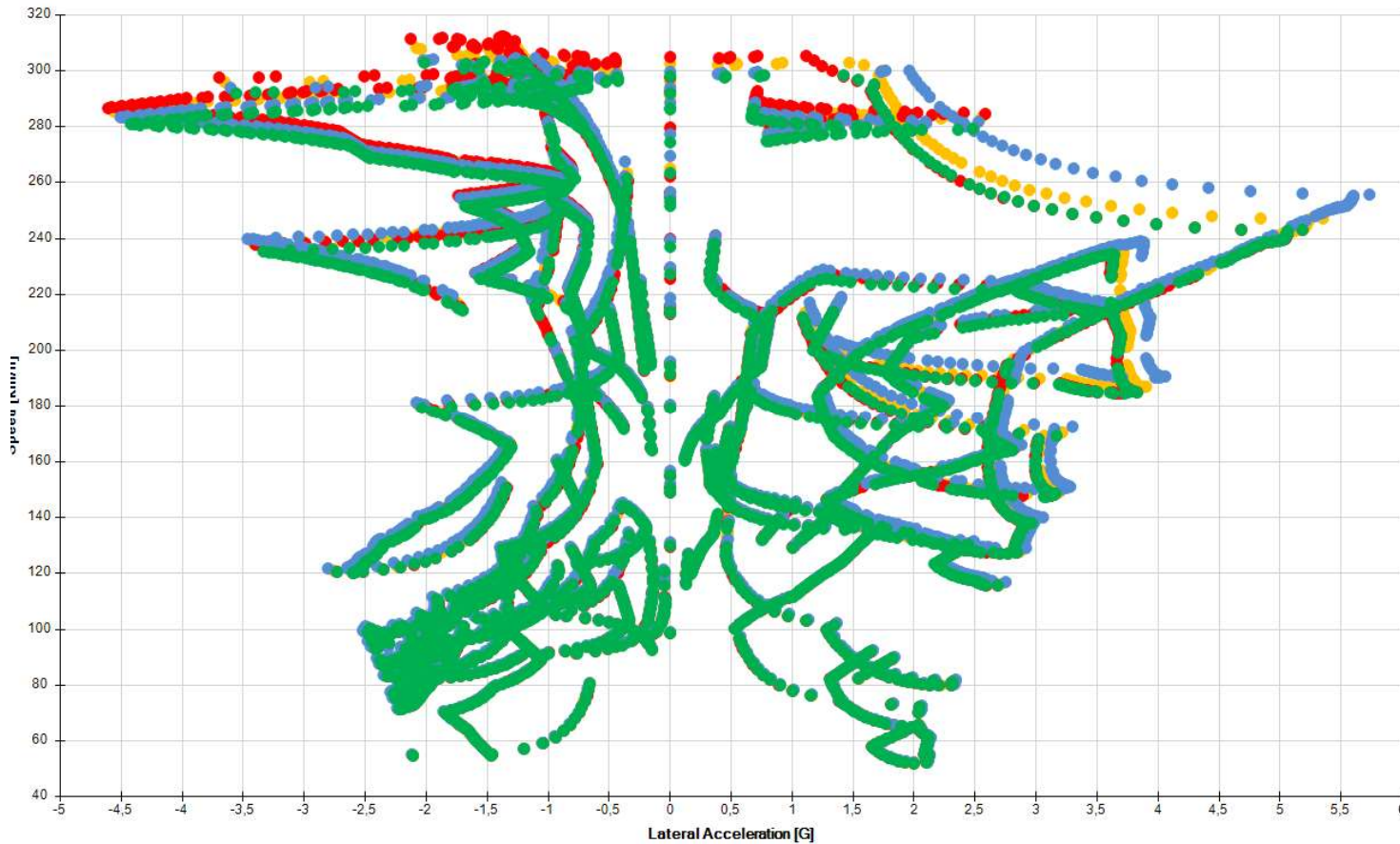


Analysis

Monaco

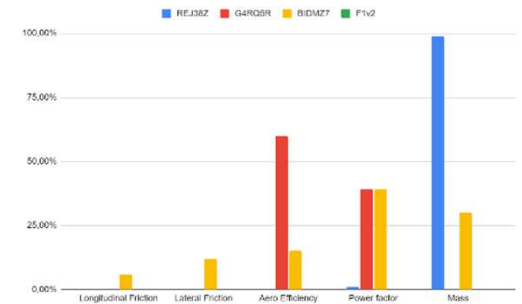
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
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Speed - Lateral Acceleration



Selected Results

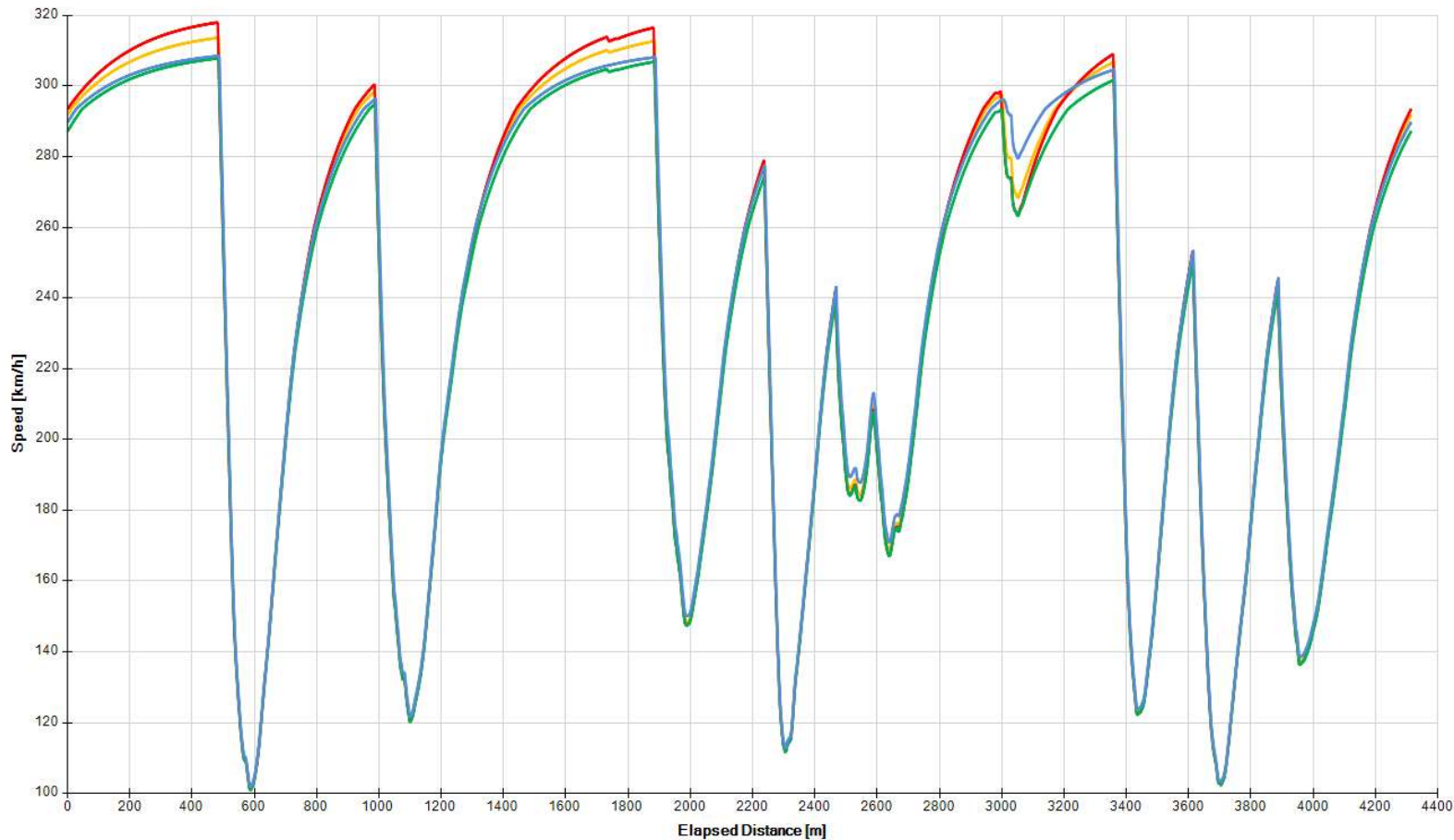
- [71,73] F1v2, Circuit de Monaco
- [71,07] REJ38Z, Circuit de Monaco
- [71,35] G4RQ5R, Circuit de Monaco
- [71,27] BIDMZ7, Circuit de Monaco



Hungaroring

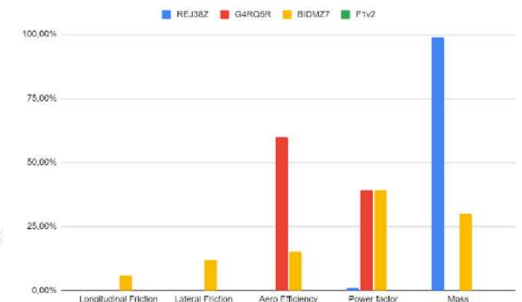
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
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2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Elapsed Distance (1)



Selected Results

- [71,85] REJ38Z, Hungaroring
- [72,85] F1v2, Hungaroring
- [72,20] G4RQ5R, Hungaroring
- [72,14] BIDMZ7, Hungaroring

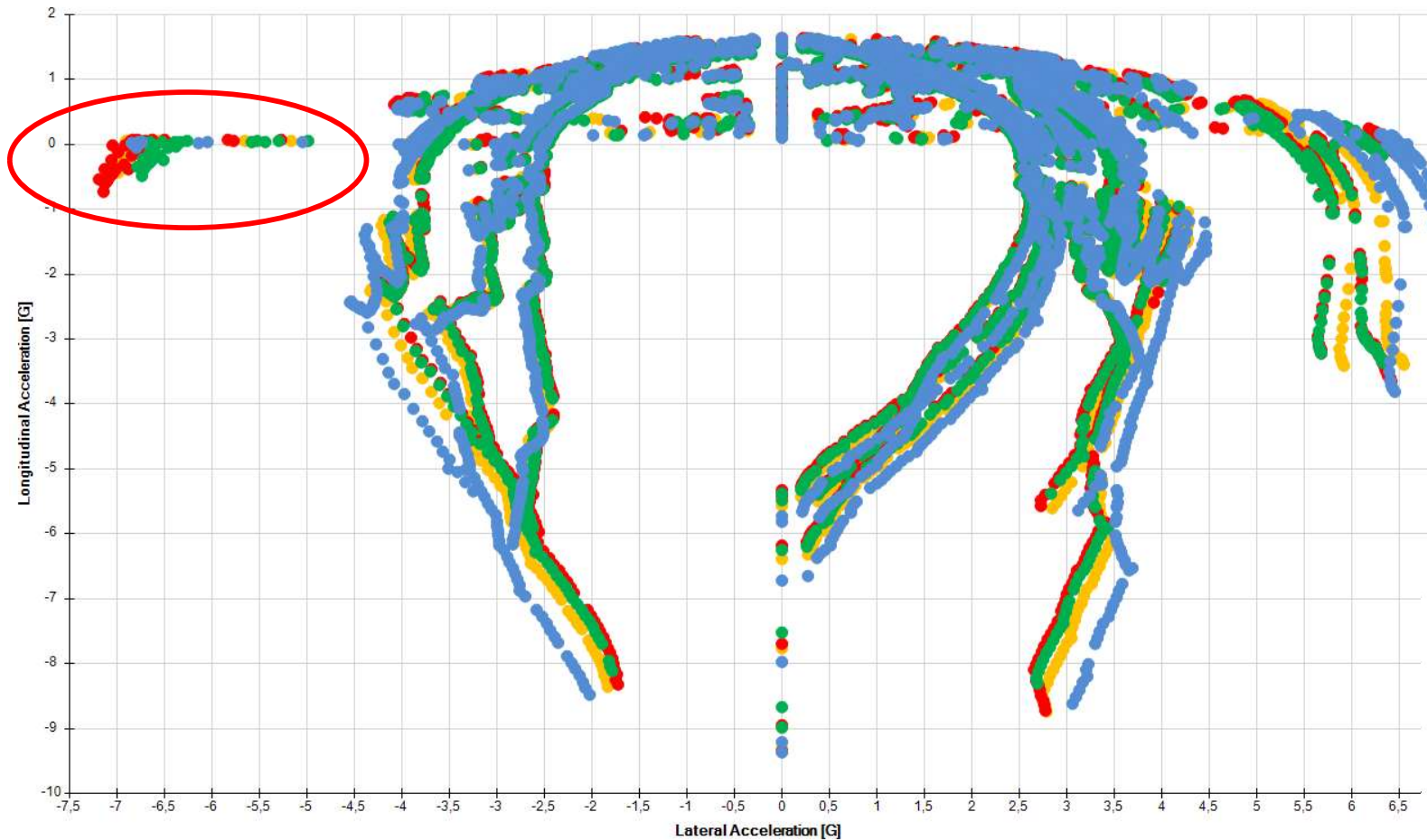


Analysis

Hungaroring

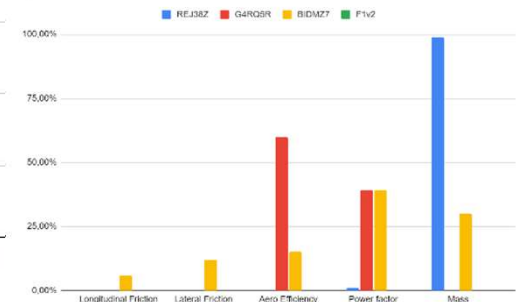
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
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GG



Selected Results

- [71,85] REJ38Z, Hungaroring
- [72,85] F1v2, Hungaroring
- [72,20] G4RQ5R, Hungaroring
- [72,14] BIDMZ7, Hungaroring

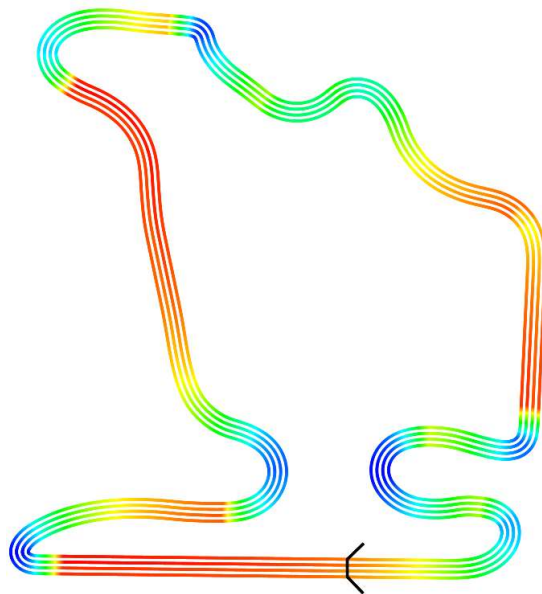


Analysis

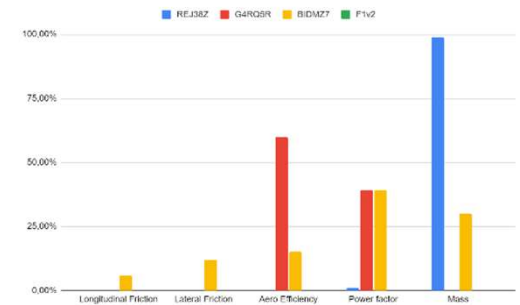
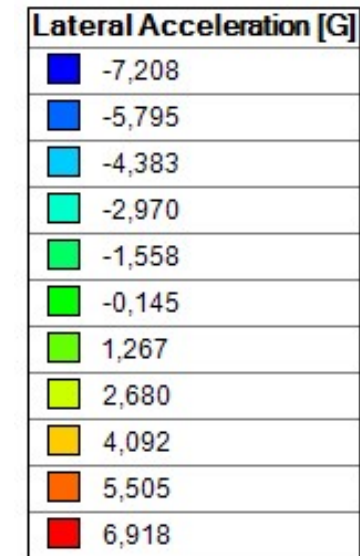
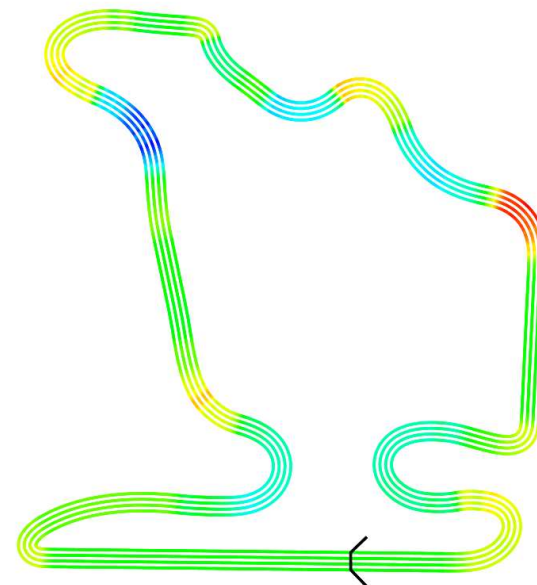
Hungaroring

nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
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Hungaroring - Speed



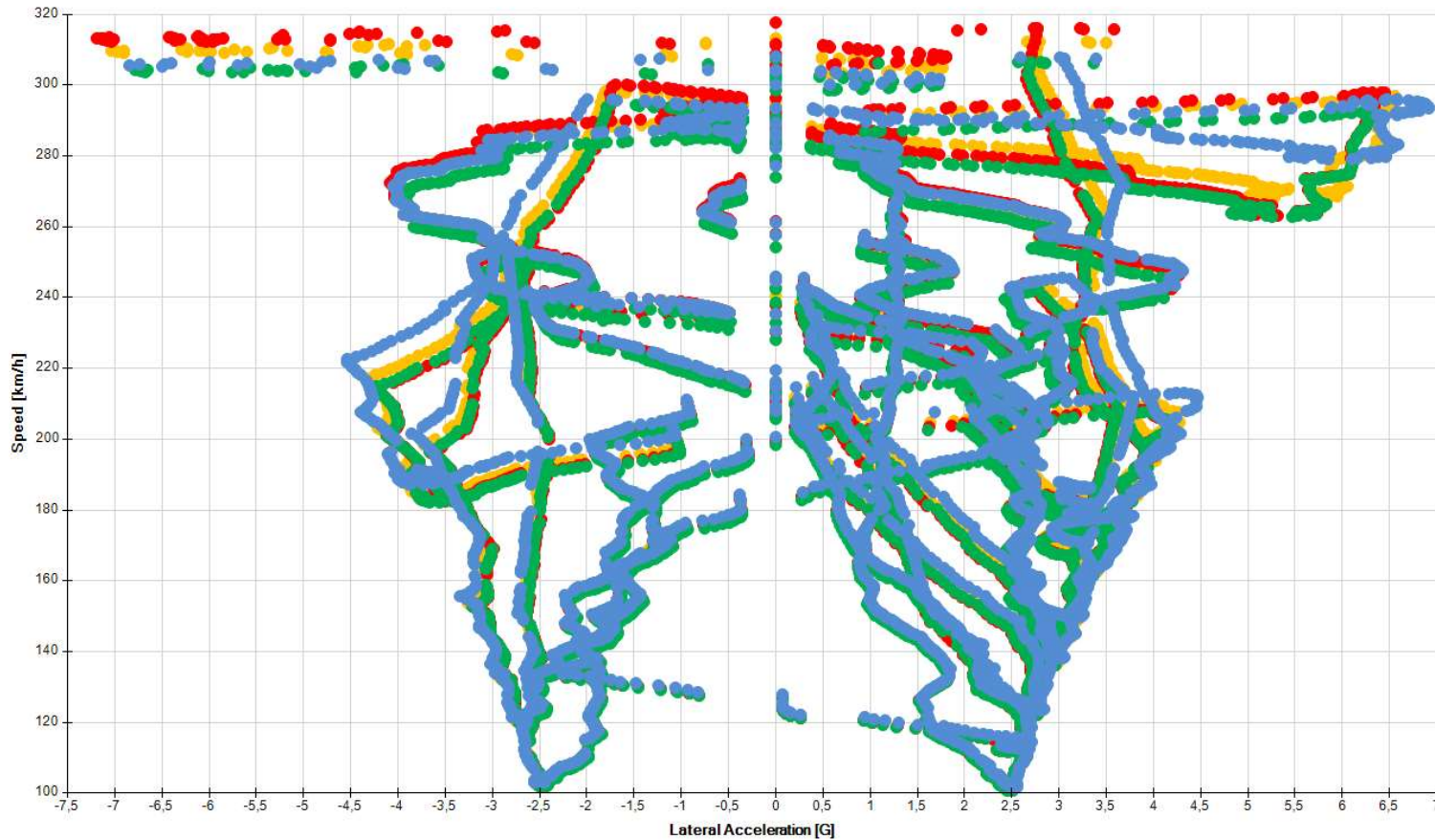
Hungaroring - Lateral Acceleration



Hungaroring

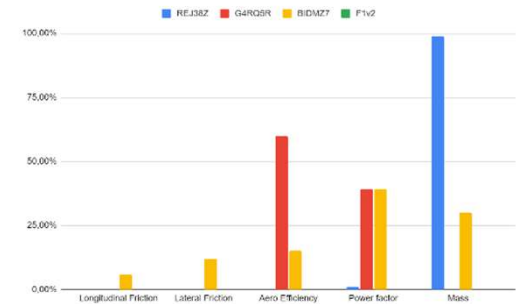
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Speed - Lateral Acceleration



Selected Results

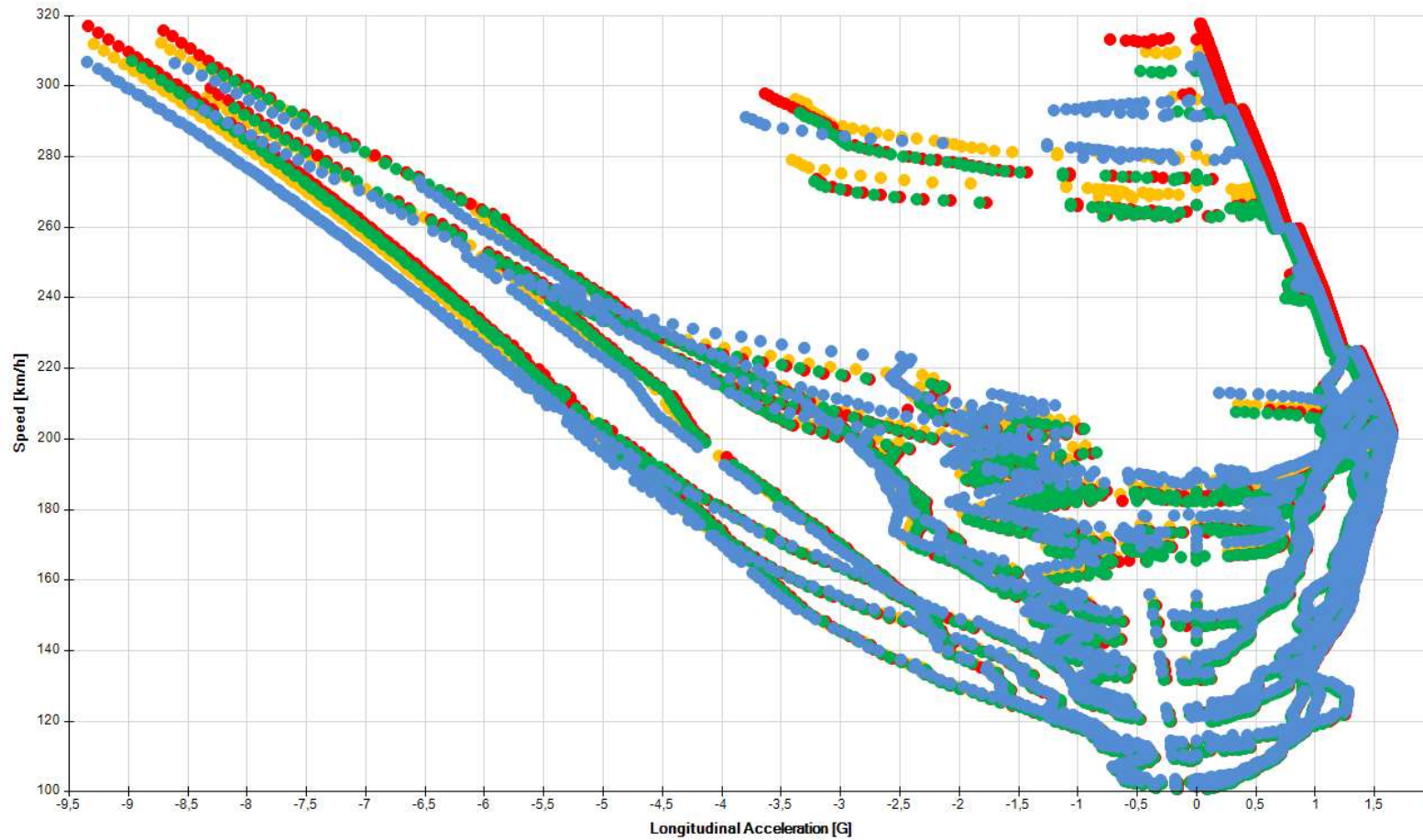
- [71,85] REJ38Z, Hungaroring
- [72,85] F1v2, Hungaroring
- [72,20] G4RQ5R, Hungaroring
- [72,14] BIDMZ7, Hungaroring



Hungaroring

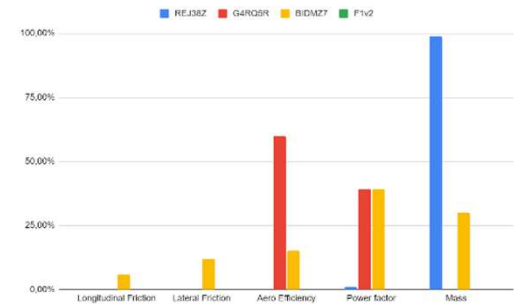
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Longitudinal Acceleration



Selected Results

- [71.85] REJ38Z, Hungaroring
- [72.85] F1v2, Hungaroring
- [72.20] G4RQ5R, Hungaroring
- [72.14] BIDMZ7, Hungaroring



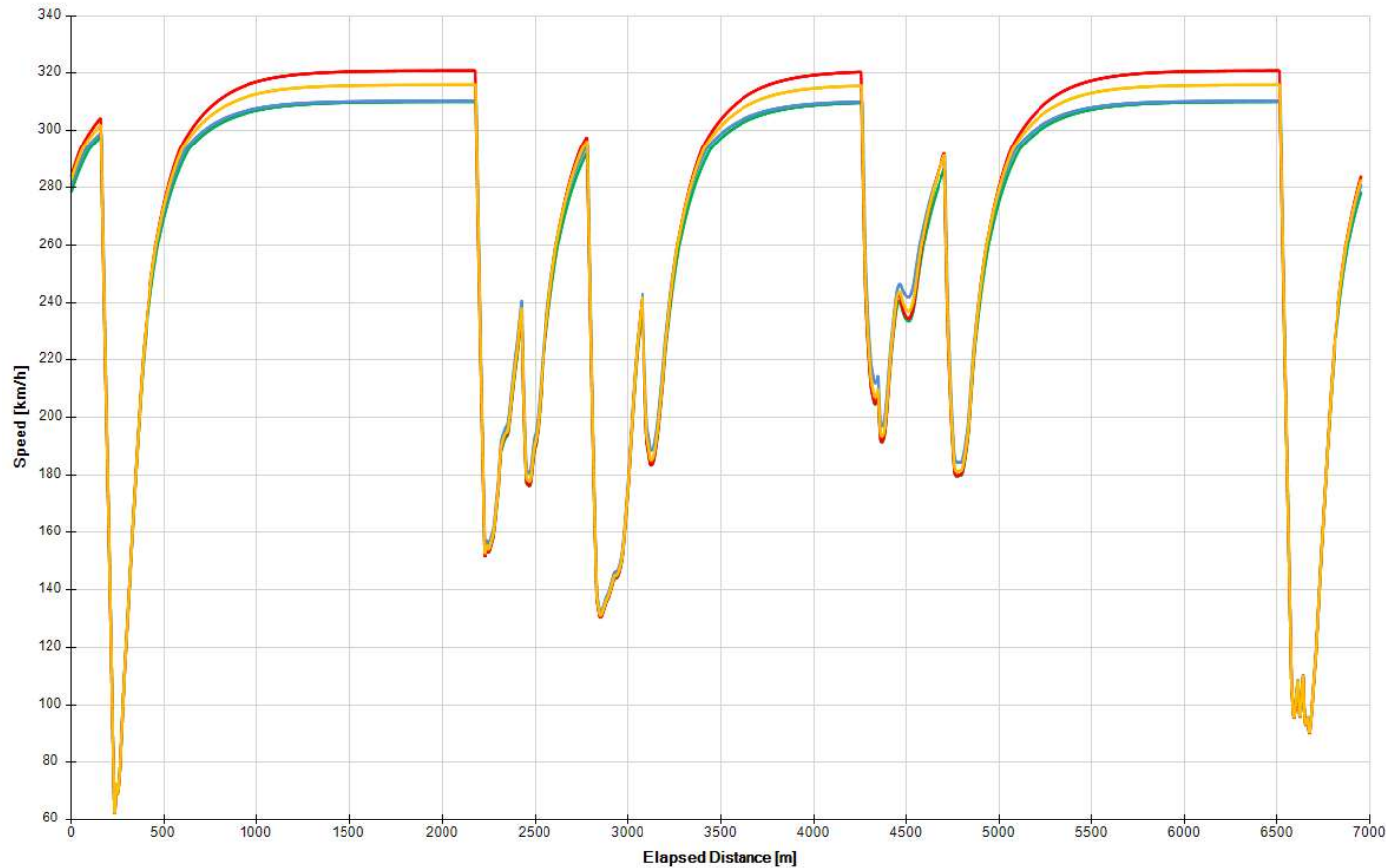
Analysis



Spa

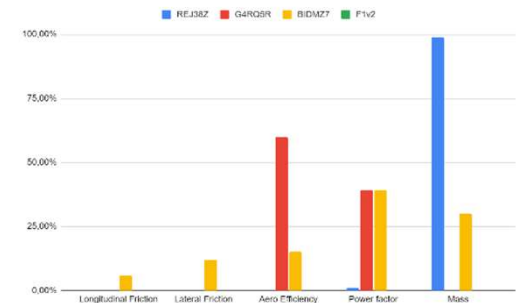
nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Elapsed Distance (1)



Selected Results

[100,06] BIDMZ7, Circuit de Spa-Francorchamps
[99,63] G4RQ5R, Circuit de Spa-Francorchamps
[100,41] REJ38Z, Circuit de Spa-Francorchamps
[101,38] F1v2, Circuit de Spa-Francorchamps

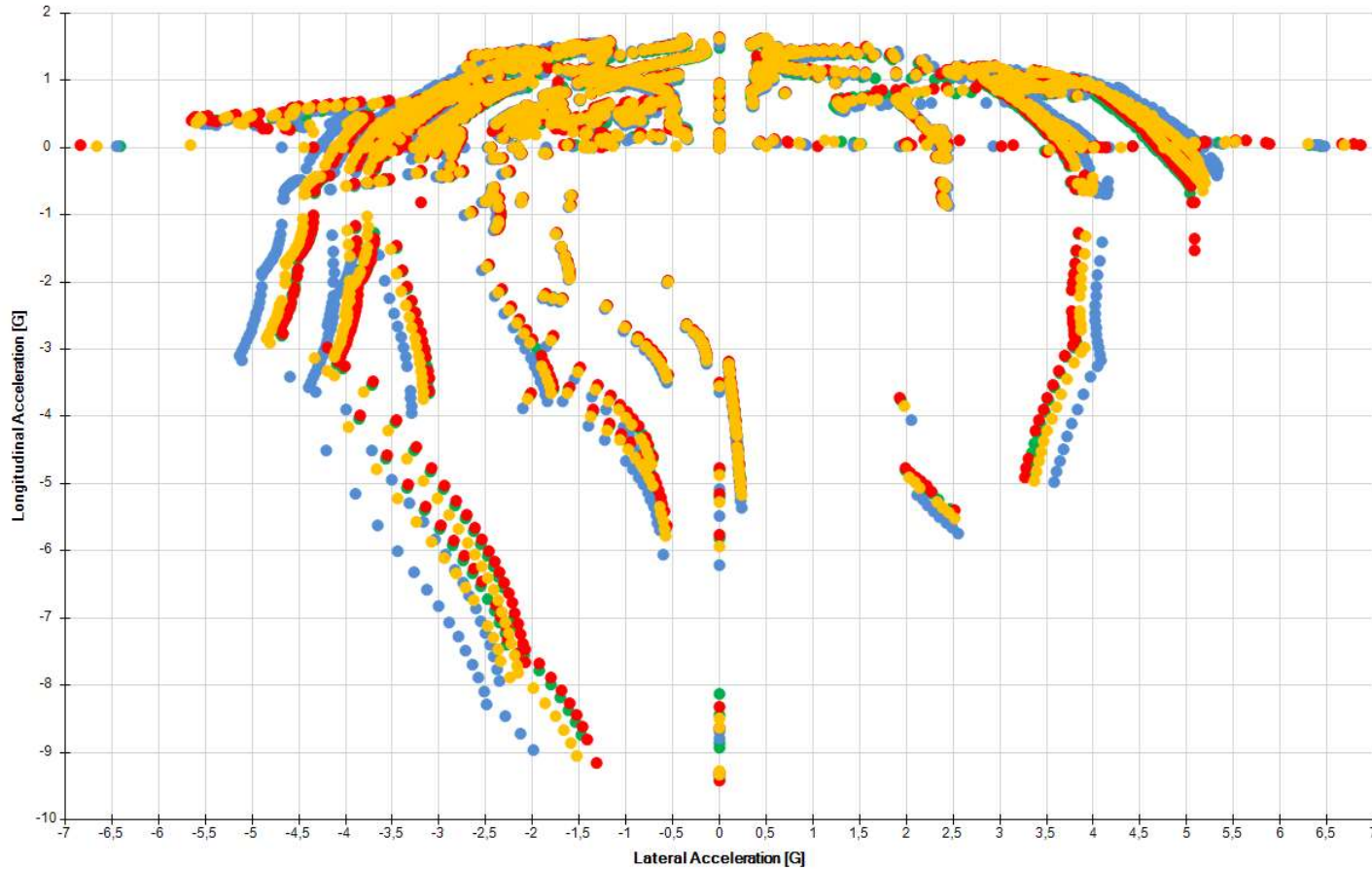


Analysis

Spa

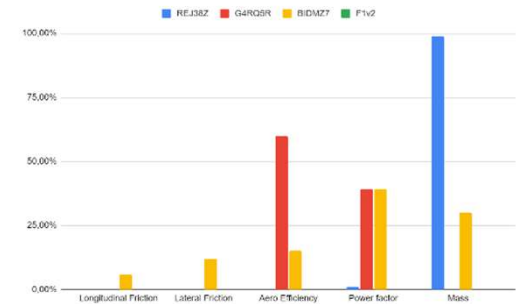
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

GG



Selected Results

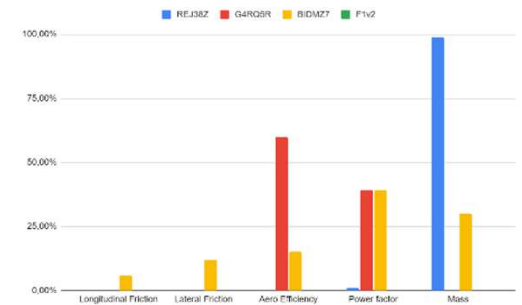
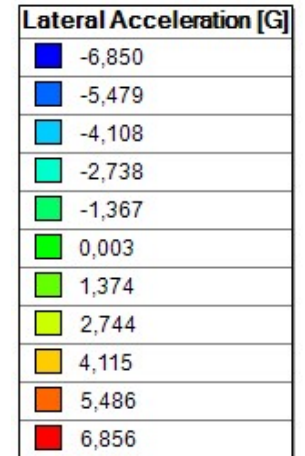
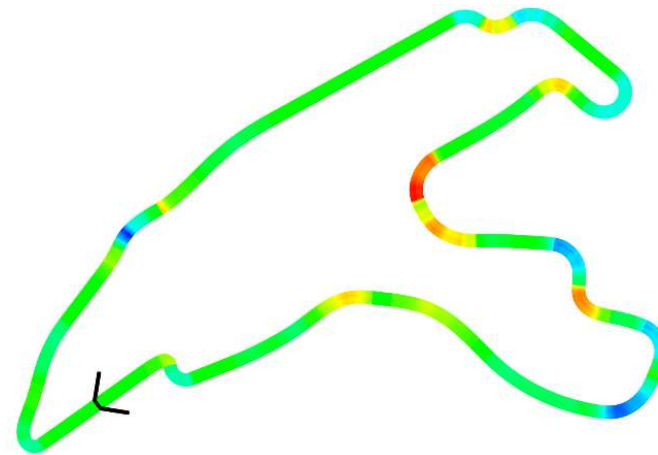
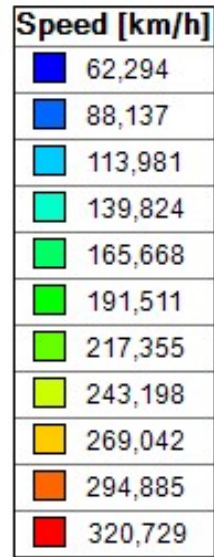
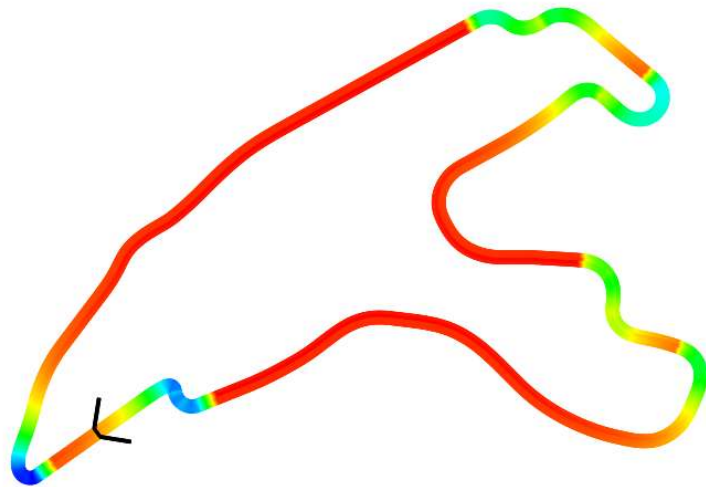
- [100,06] BIDMZ7, Circuit de Spa-Francorchamps
- [99,63] G4RQ5R, Circuit de Spa-Francorchamps
- [100,41] REJ38Z, Circuit de Spa-Francorchamps
- [101,38] F1v2, Circuit de Spa-Francorchamps



Analysis

Spa

nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

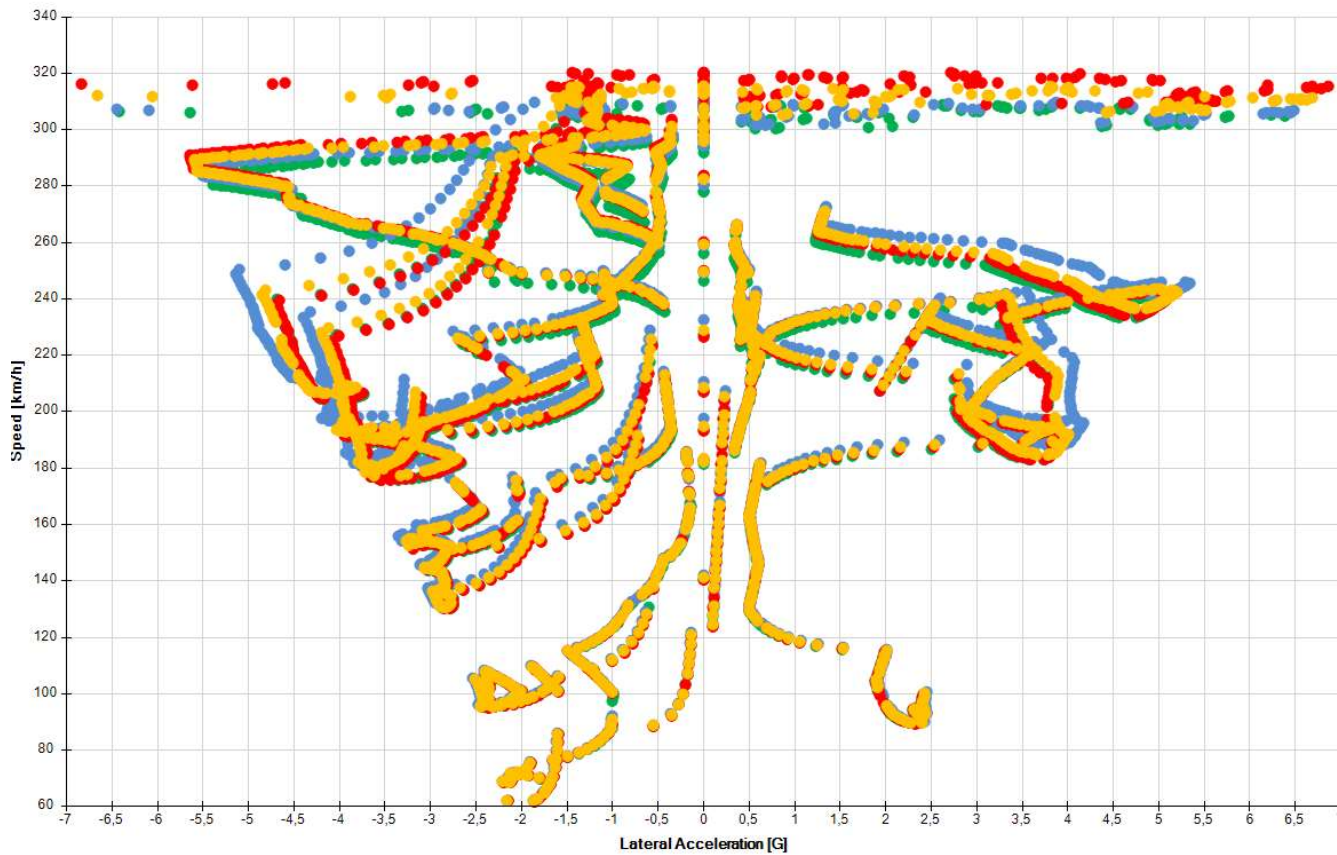


Analysis

Spa

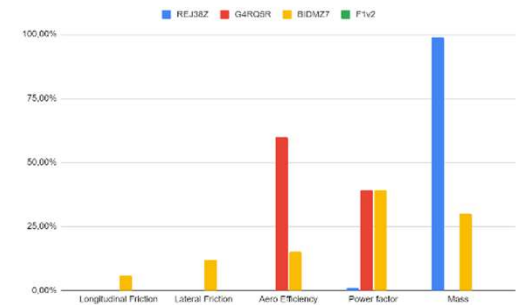
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Lateral Acceleration



Selected Results

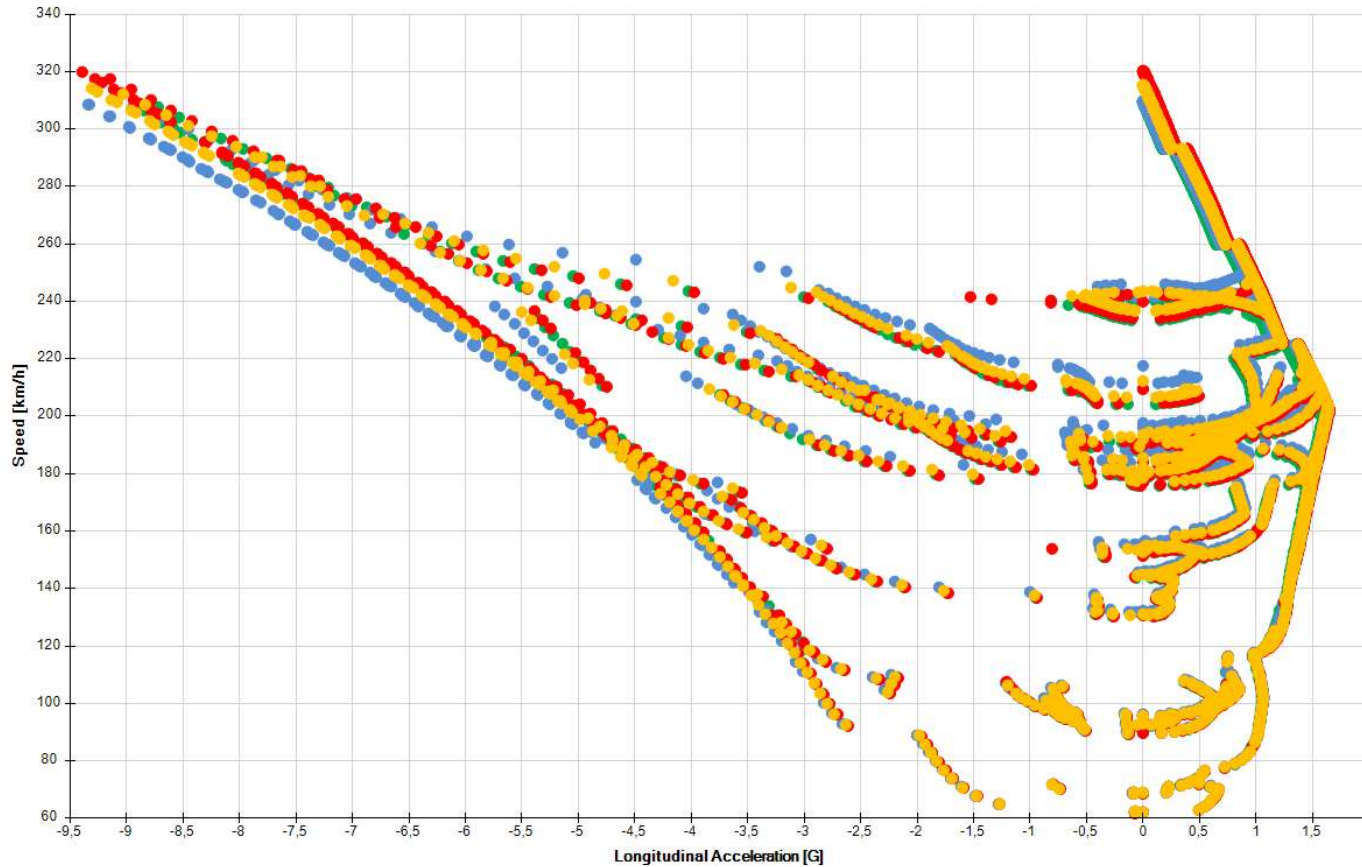
- [100,06] BIDMZ7, Circuit de Spa-Francorchamps
- [99,63] G4RQ5R, Circuit de Spa-Francorchamps
- [100,41] REJ38Z, Circuit de Spa-Francorchamps
- [101,38] F1v2, Circuit de Spa-Francorchamps



Spa

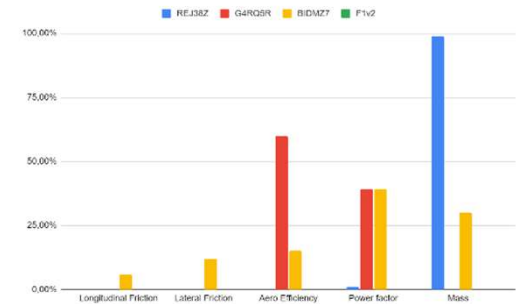
nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDM27	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Longitudinal Acceleration



Selected Results

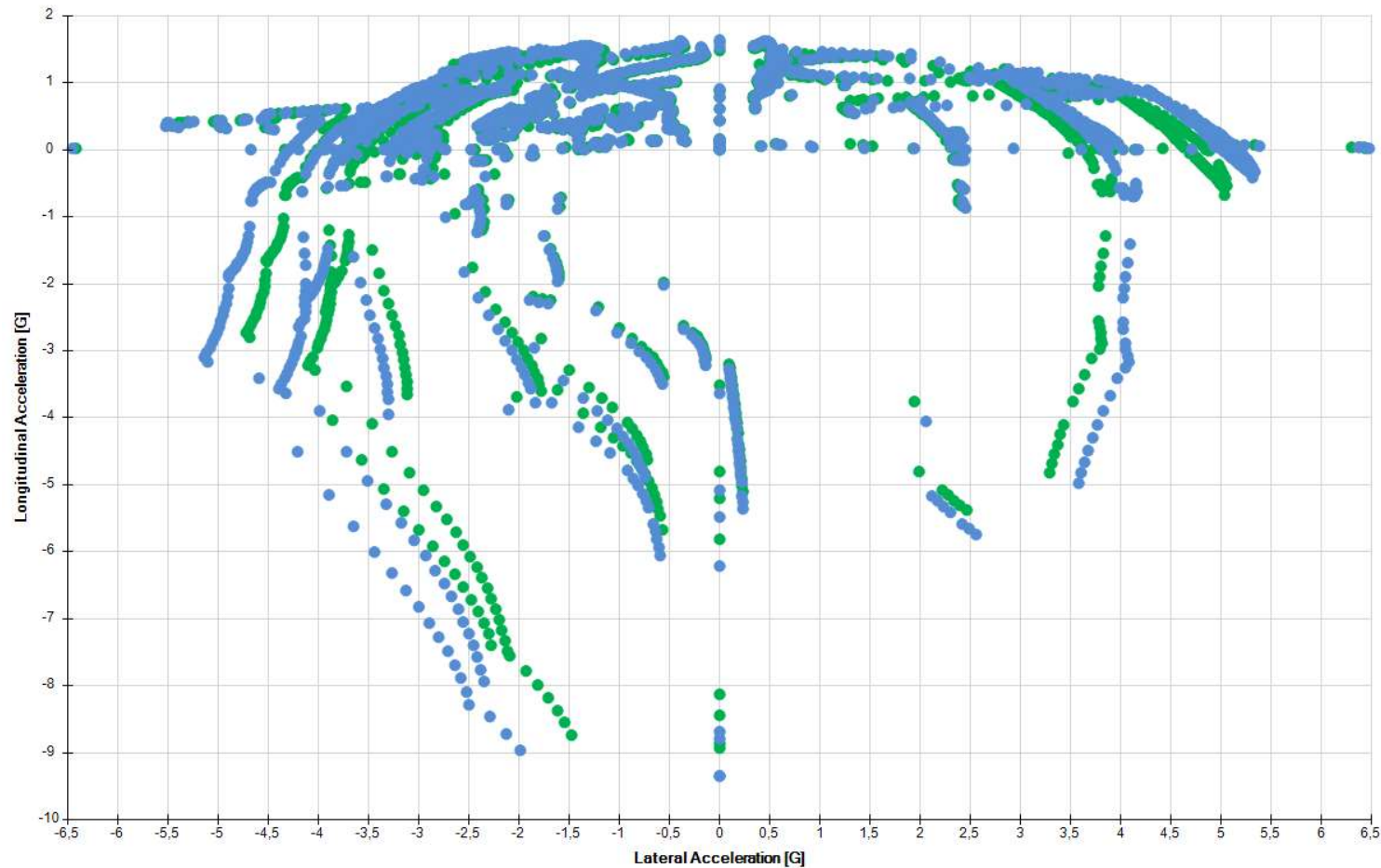
- [100,06] BIDM27, Circuit de Spa-Francorchamps
- [99,63] G4RQ5R, Circuit de Spa-Francorchamps
- [100,41] REJ38Z, Circuit de Spa-Francorchamps
- [101,38] F1v2, Circuit de Spa-Francorchamps



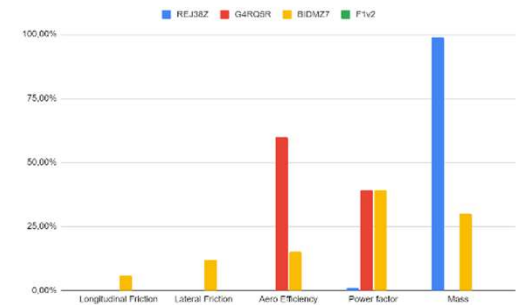
Spa – effect of mass reduction only*

nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

GG



Selected Results
 [100,41] REJ38Z, Circuit de Spa-Francorchamps
 [101,38] F1v2, Circuit de Spa-Francorchamps

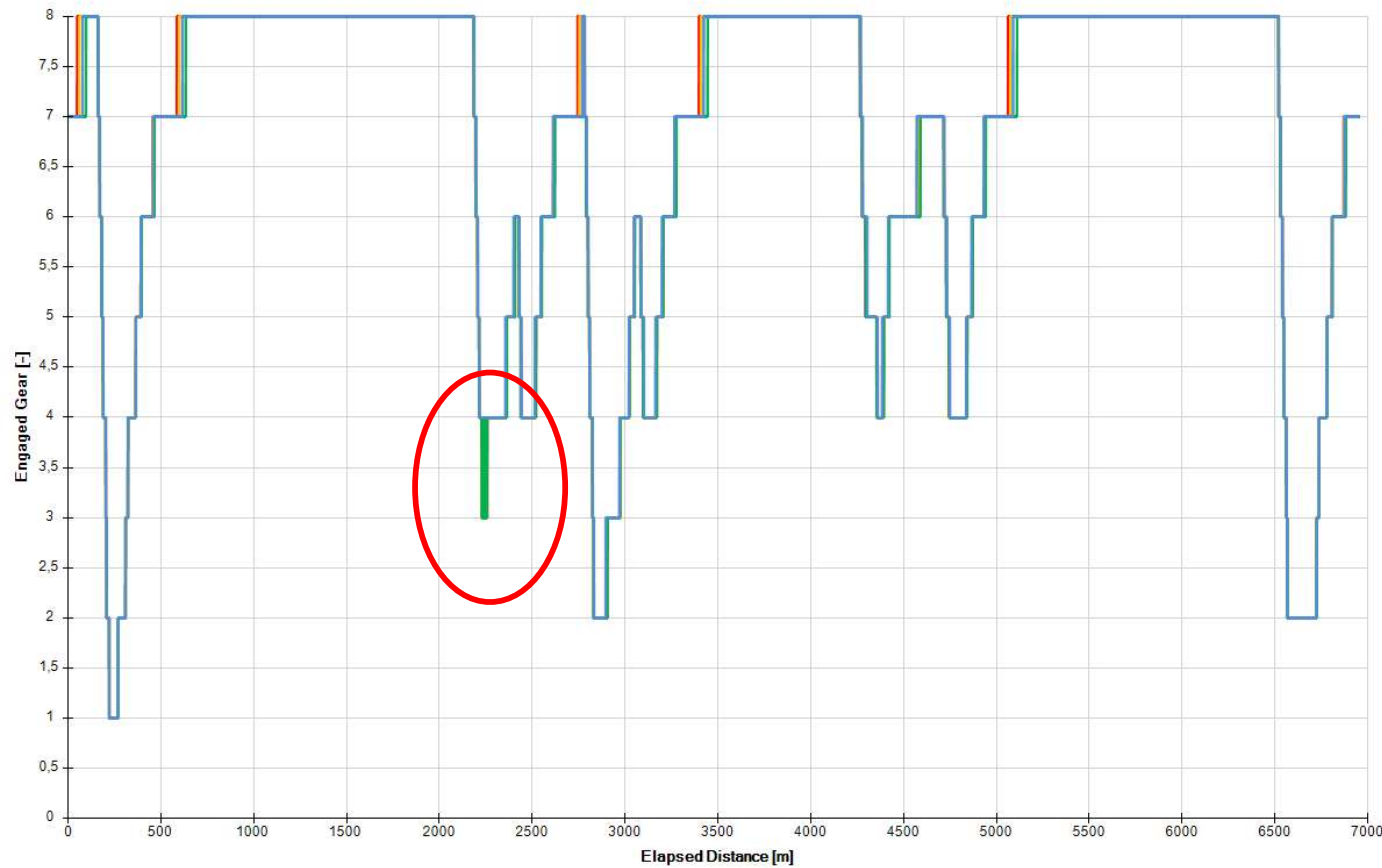


Analysis

Spa

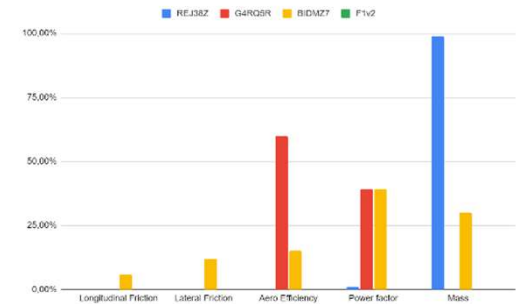
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Engaged Gear - Elapsed Distance



Selected Results

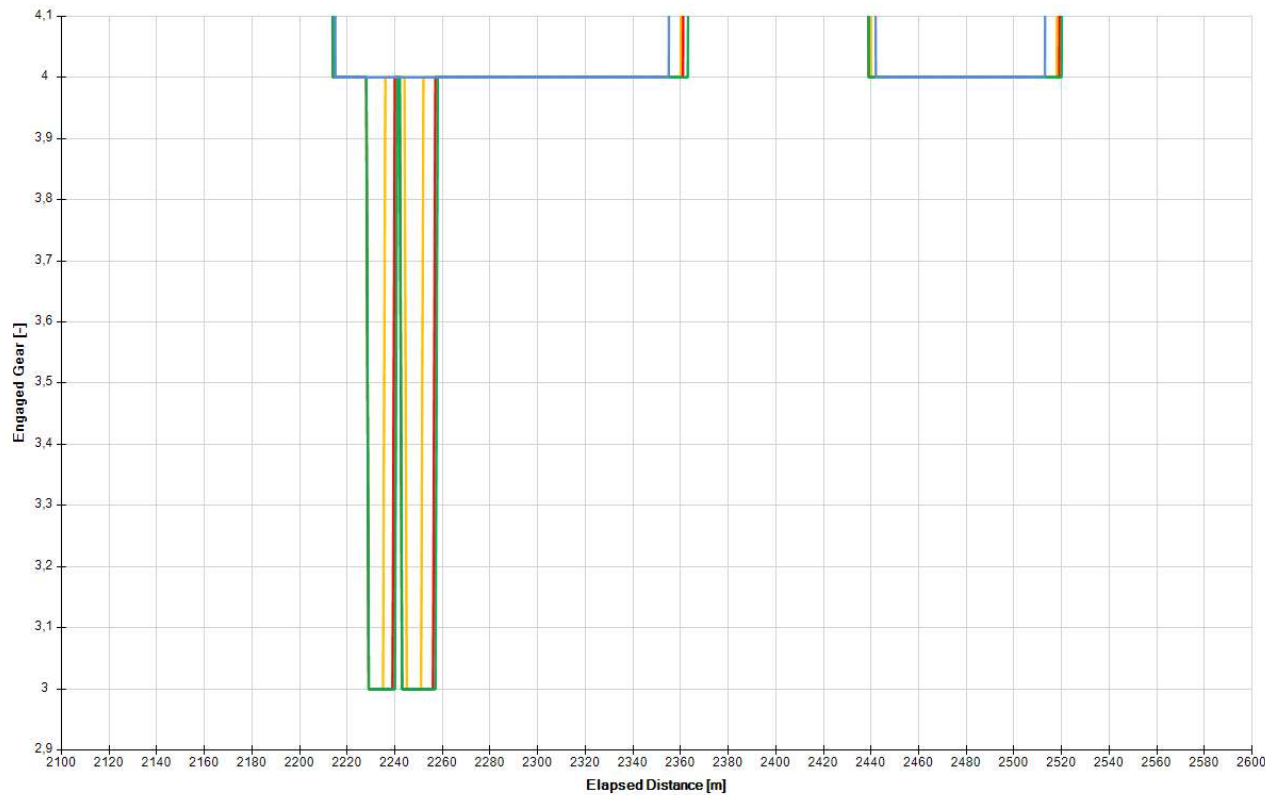
- [100,41] REJ38Z, Circuit de Spa-Francorchamps
- [101,38] F1v2, Circuit de Spa-Francorchamps
- [100,06] BIDMZ7, Circuit de Spa-Francorchamps
- [99,63] G4RQ5R, Circuit de Spa-Francorchamps



Spa

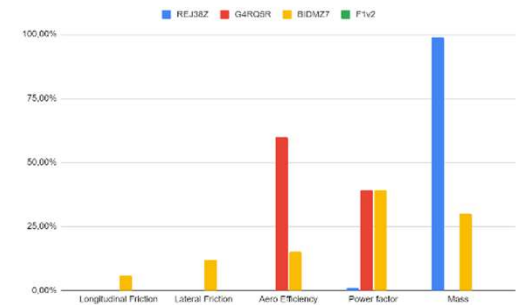
nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Engaged Gear - Elapsed Distance



Selected Results

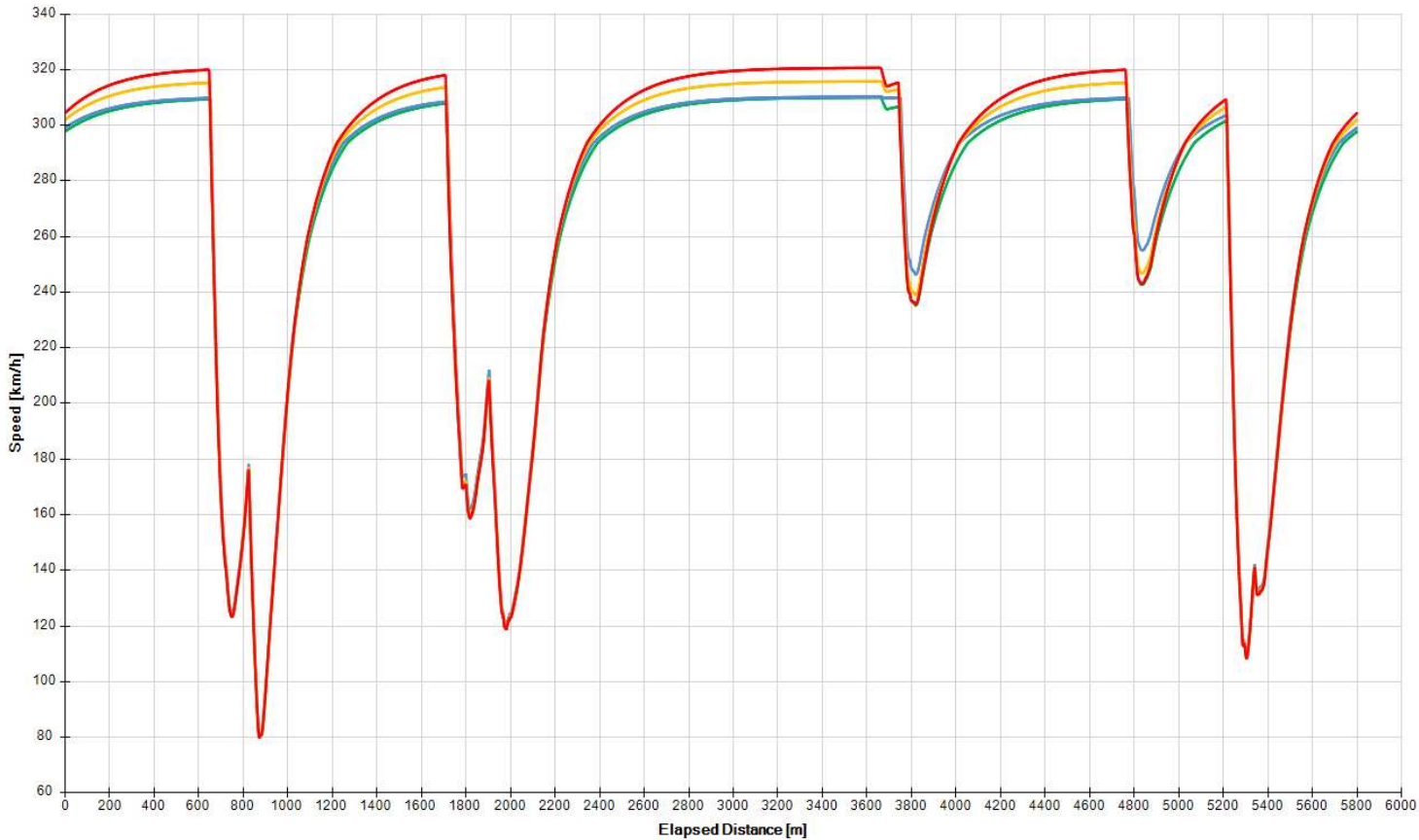
- [100,41] REJ38Z, Circuit de Spa-Francorchamps
- [101,39] F1v2, Circuit de Spa-Francorchamps
- [99,63] G4RQ5R, Circuit de Spa-Francorchamps
- [100,06] BIDMZ7, Circuit de Spa-Francorchamps



Silverstone

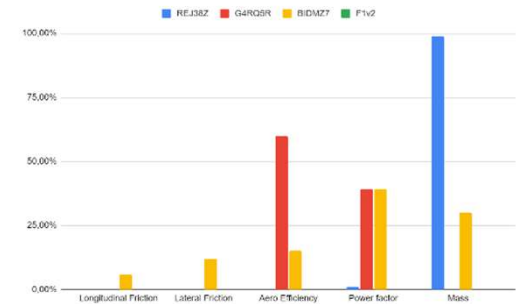
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Elapsed Distance (1)



Selected Results

- [82,17] G4RQ5R, Silverstone Circuit
- [82,50] BIDMZ7, Silverstone Circuit
- [82,73] REJ38Z, Silverstone Circuit
- [83,59] F1v2, Silverstone Circuit

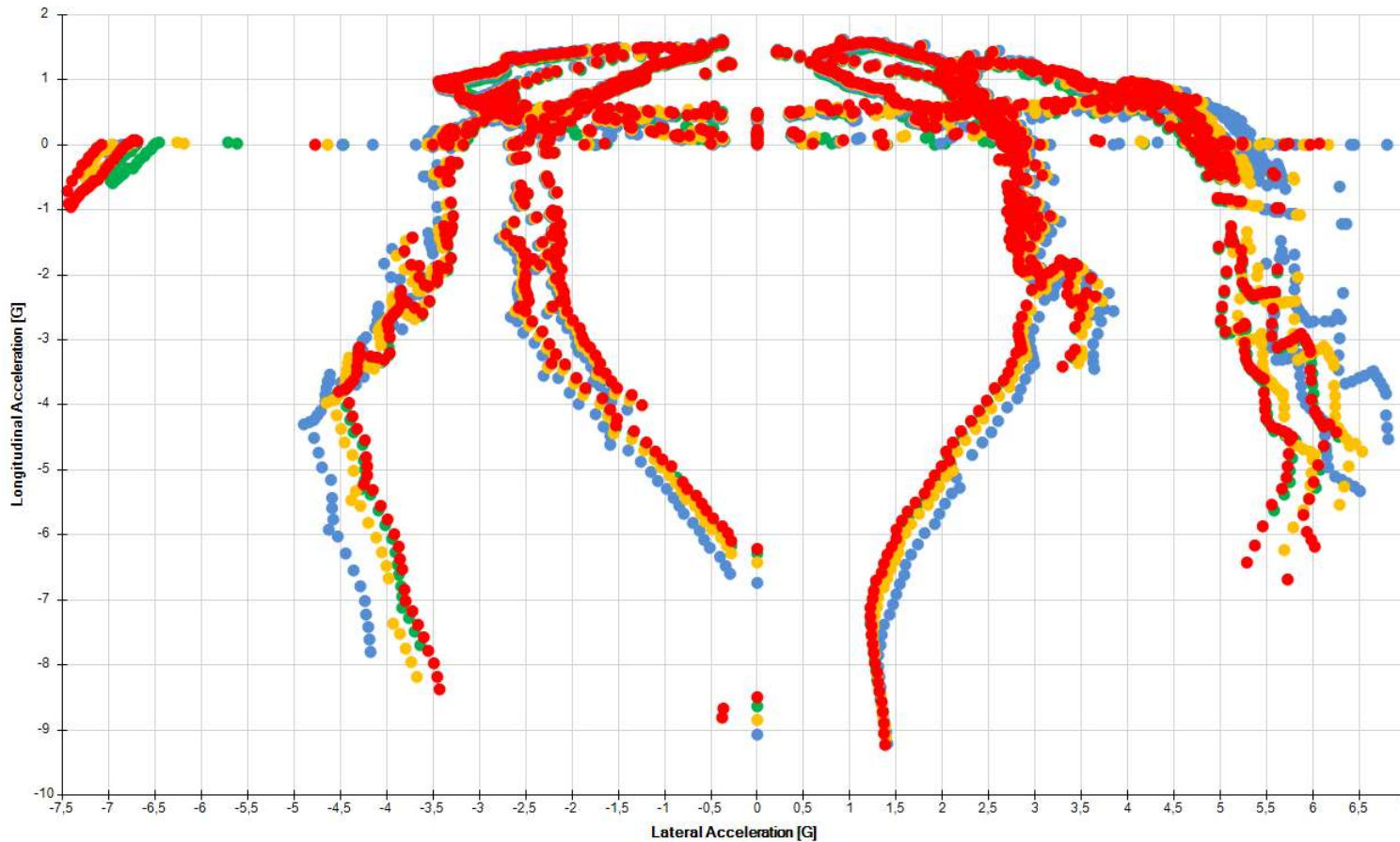


Analysis

Silverstone

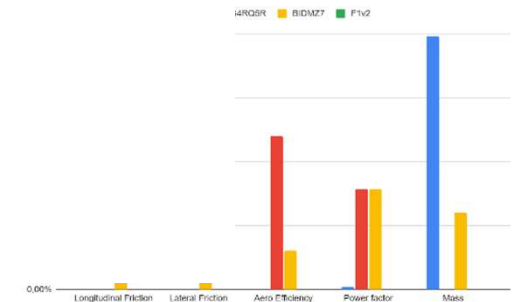
nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

GG



Selected Results

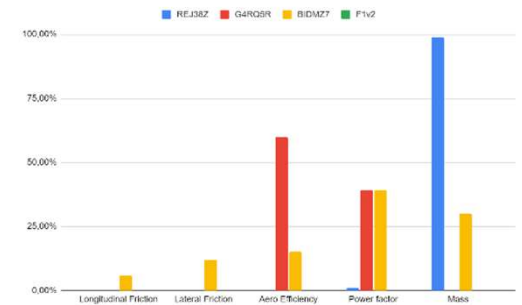
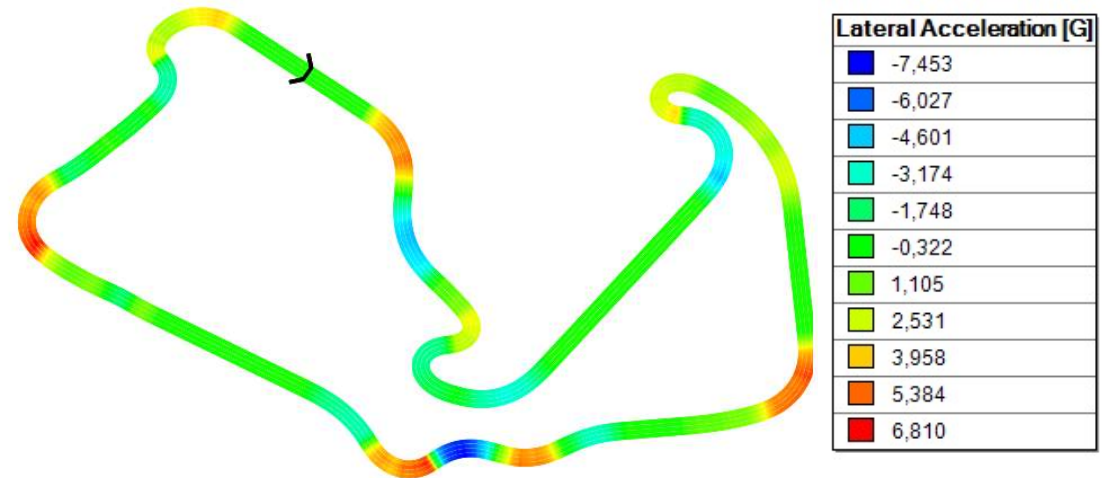
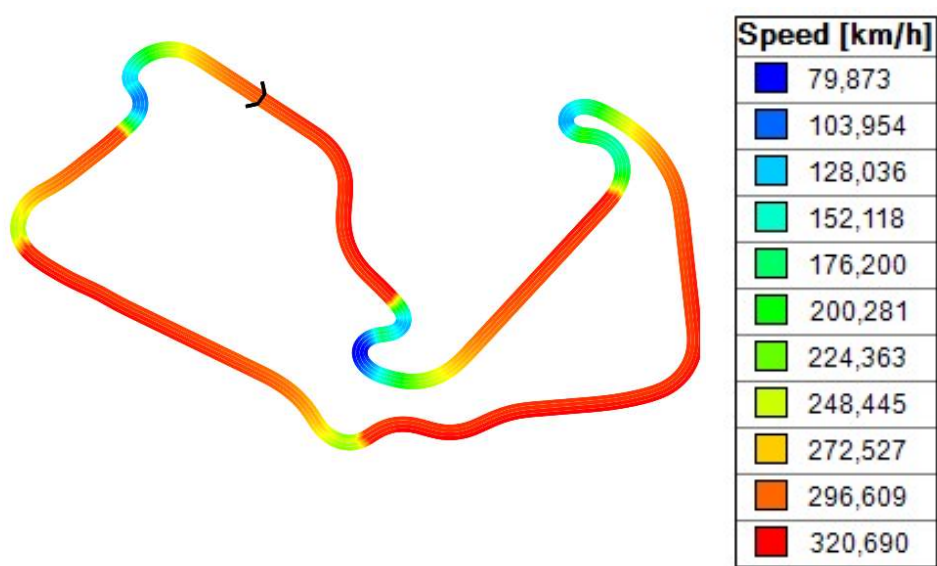
- [82,17] G4RQ5R, Silverstone Circuit
- [82,50] BIDMZ7, Silverstone Circuit
- [82,73] REJ38Z, Silverstone Circuit
- [83,59] F1v2, Silverstone Circuit



Analysis

Silverstone

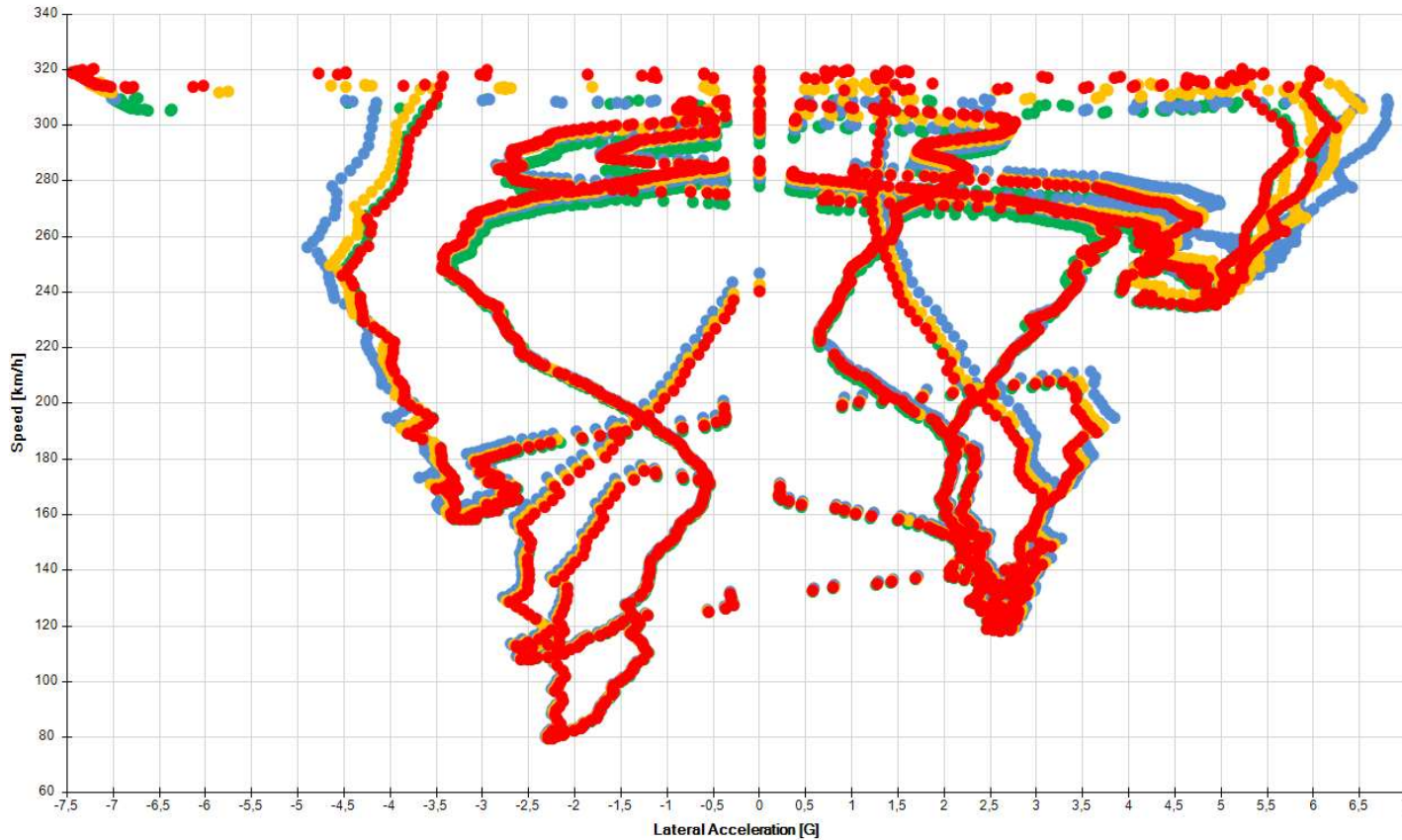
nr	team name	Sepang			Sanghai			Barcelona			Monaco			Magny cours			Canada			Silverstone			Nürburgring			Hungaroring			Spa			RedBul Ring			Suzuka		
		s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p	s	place	p						
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10



Silverstone

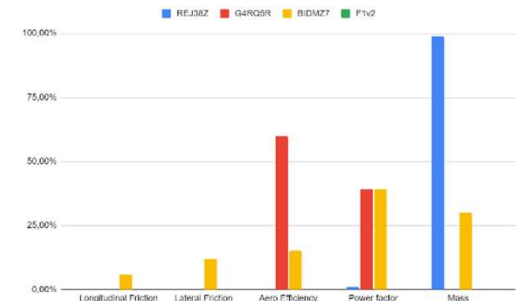
nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,63	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Lateral Acceleration



Selected Results

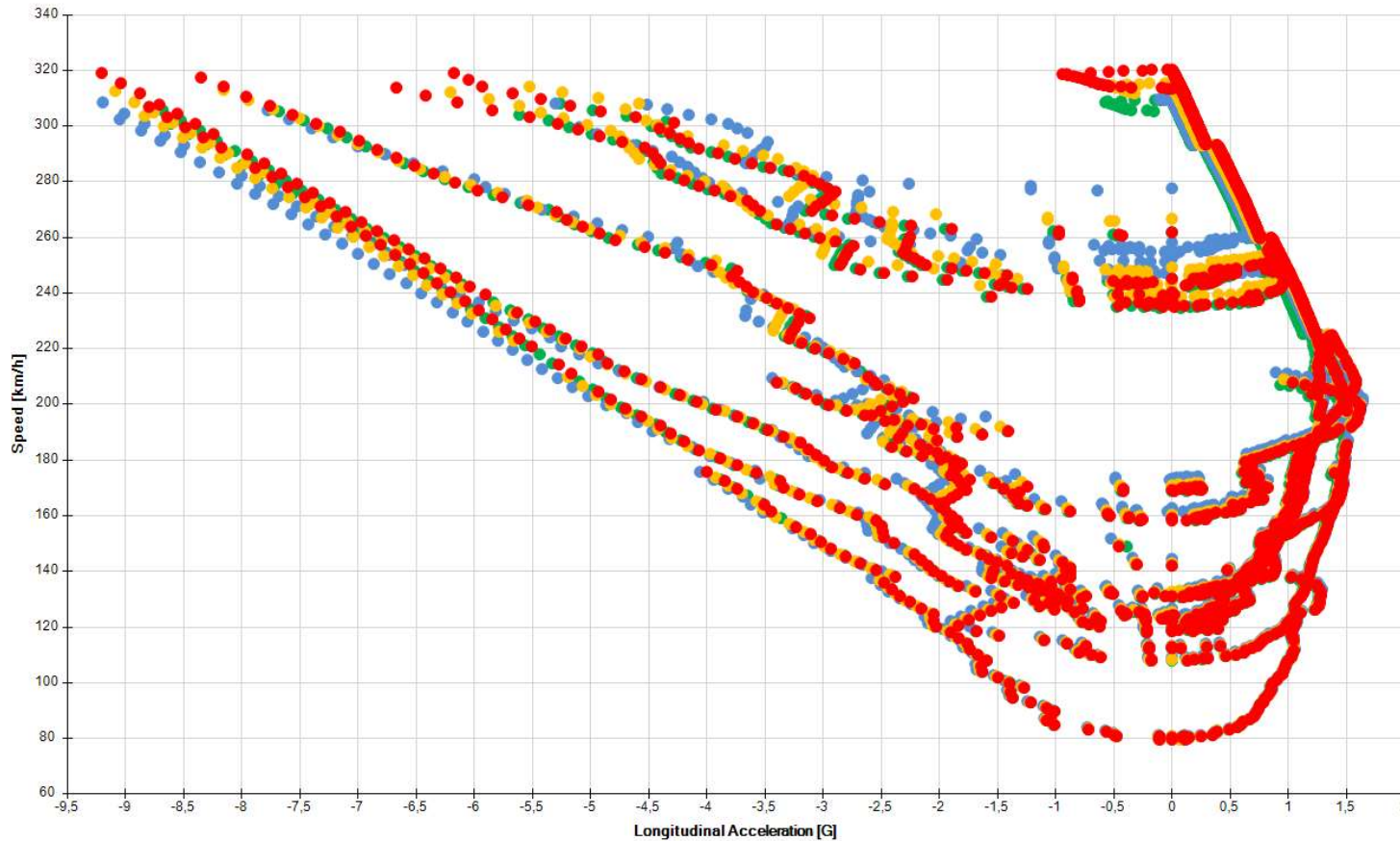
- [82.17] G4RQ5R, Silverstone Circuit
- [82.50] BIDMZ7, Silverstone Circuit
- [82.73] REJ38Z, Silverstone Circuit
- [83.59] F1v2, Silverstone Circuit



Silverstone

nr	team name	Sepang		Sanghai		Barcelona		Monaco		Magny cours		Canada		Silverstone		Nürburgring		Hungaroring		Spa		RedBul Ring		Suzuka													
		s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p	s	place p												
1	REJ38Z	88,53	2	18	90,33	1	25	75,71	1	25	71,07	1	25	87,55	3	12	88,72	3	12	82,73	3	12	80	1	25	71,85	1	25	100,4	3	12	83,32	1	25	84,92	2	18
2	G4RQ5R	88,48	1	25	90,42	2	18	75,8	2	18	71,35	3	12	87,2	1	25	88,56	1	25	82,17	1	25	80,1	2	18	72,2	3	12	99,83	1	25	83,33	2	18	84,89	1	25
3	BIDMZ7	88,55	3	12	90,48	3	12	75,81	3	12	71,27	2	18	87,4	2	18	88,68	2	18	82,5	2	18	80,14	3	12	72,14	2	18	100,0	2	18	83,39	3	12	85,01	3	12
4	F1v2	87,48	4	10	91,39	4	10	76,59	4	10	71,73	4	10	88,18	4	10	89,39	4	10	83,59	4	10	81,02	4	10	72,85	4	10	101,3	4	10	84,16	4	10	88,09	4	10

Speed - Longitudinal Acceleration



Selected Results

- [82,17] G4RQ5R, Silverstone Circuit
- [82,50] BIDMZ7, Silverstone Circuit
- [82,73] REJ38Z, Silverstone Circuit
- [83,59] F1v2, Silverstone Circuit

