Quasi-Steady-State Report

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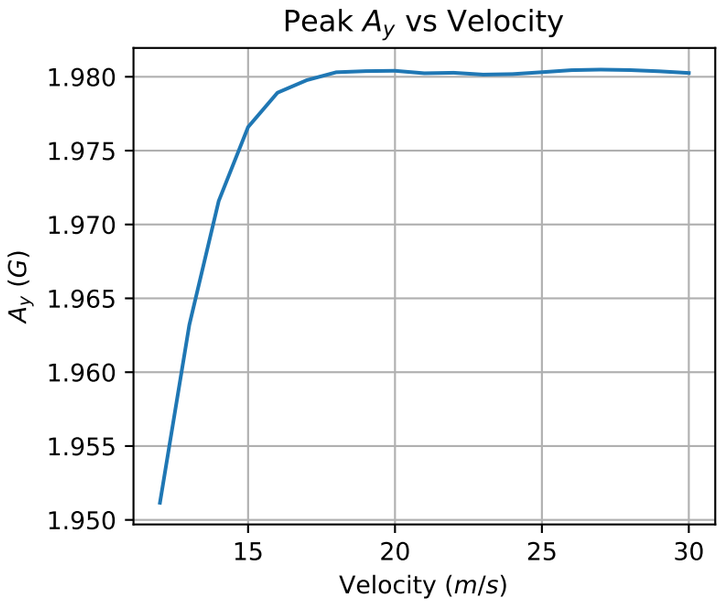
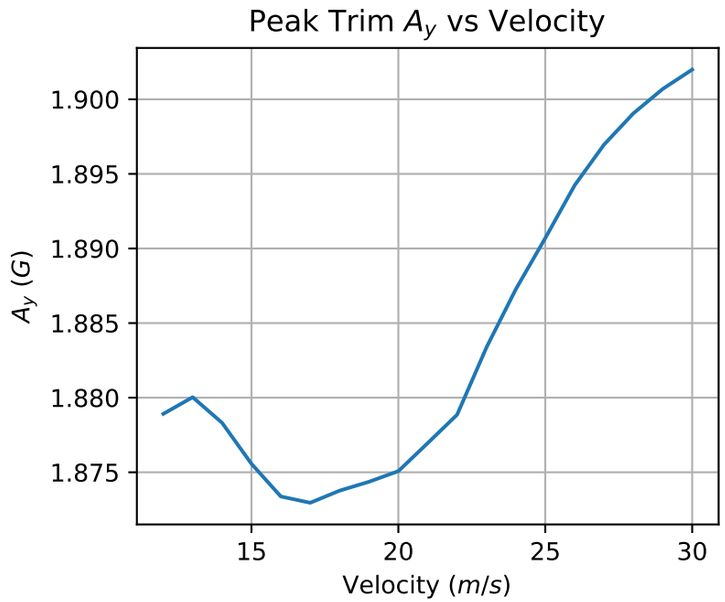
Note 1: The variable δ always refers to the average heading angle of the front tires

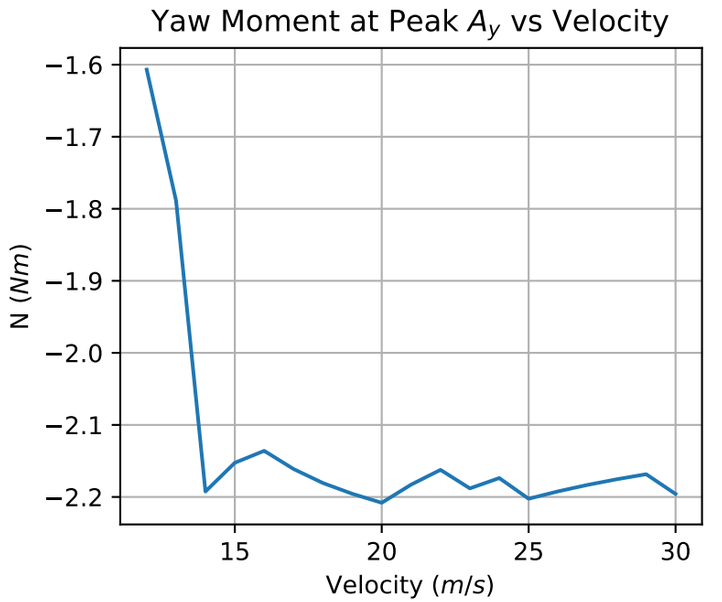
Acceleration vs Velocity



	$\frac{dA_y}{dV}$ $\left(\frac{G}{m/s}\right)$
at Min Velocity	0.014
at Avg Velocity	-0.000
at Max Velocity	-0.000

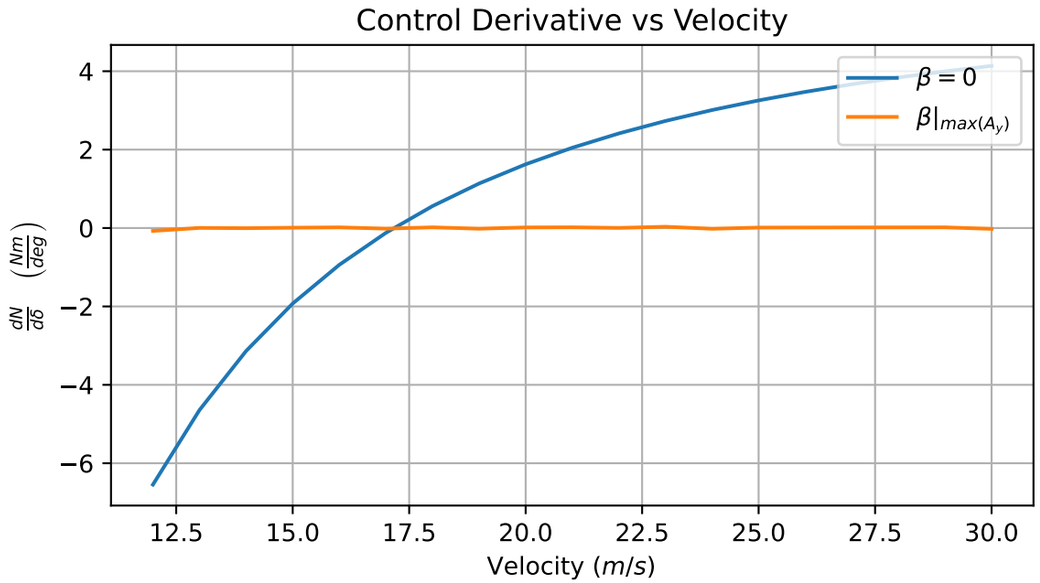


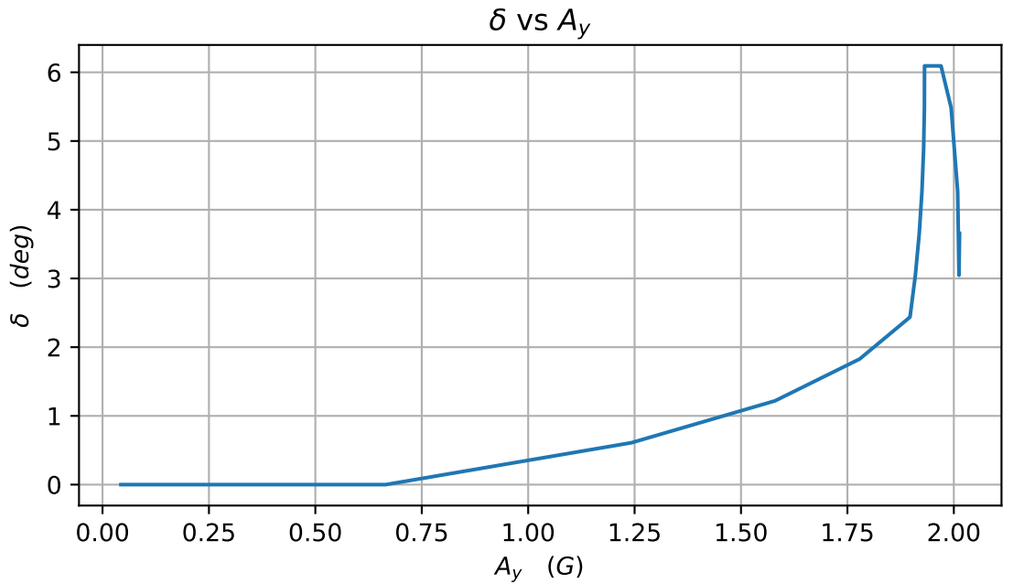
	$\frac{dA_y}{dV}$ $\left(\frac{G}{m/s}\right)$
at Min Velocity	0.003
at Avg Velocity	0.002
at Max Velocity	0.001

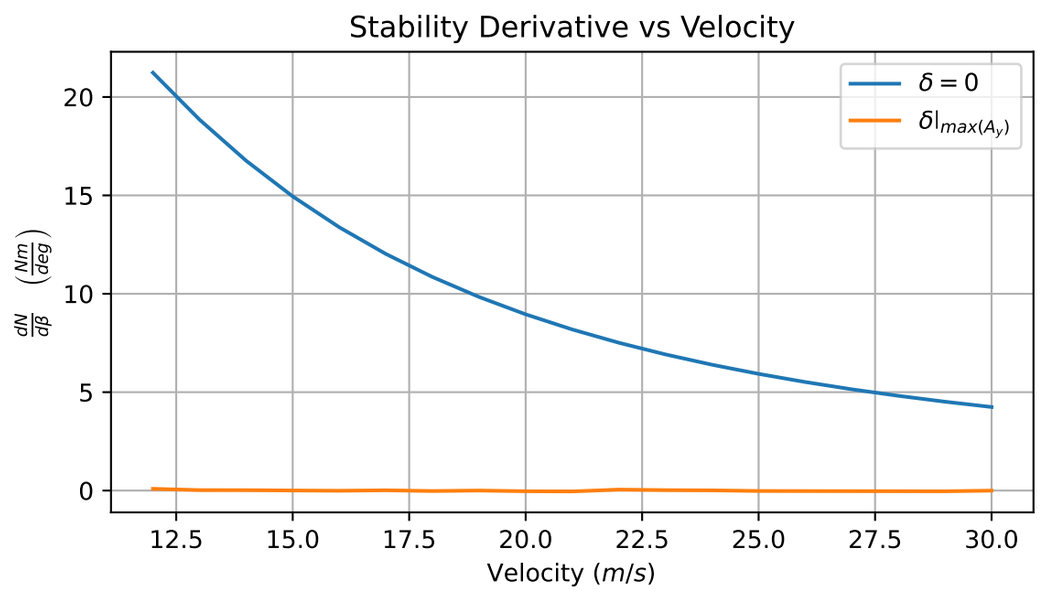


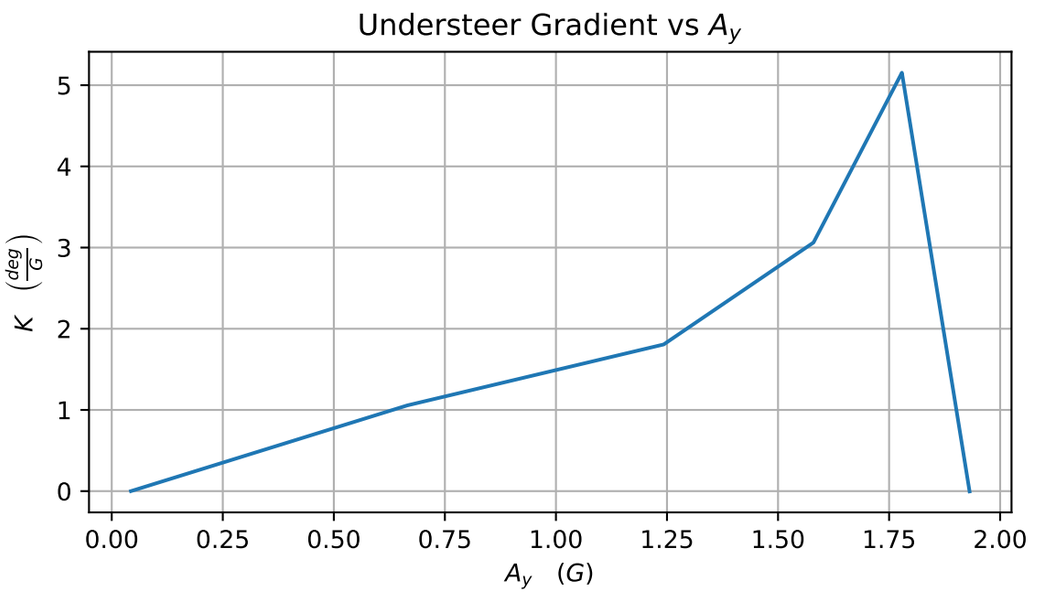
	$\frac{dN}{dV}$ $\left(\frac{Nm}{m/s}\right)$
at Min Velocity	0.027
at Avg Velocity	0.004
at Max Velocity	-0.006

Control, Stability, and Handling

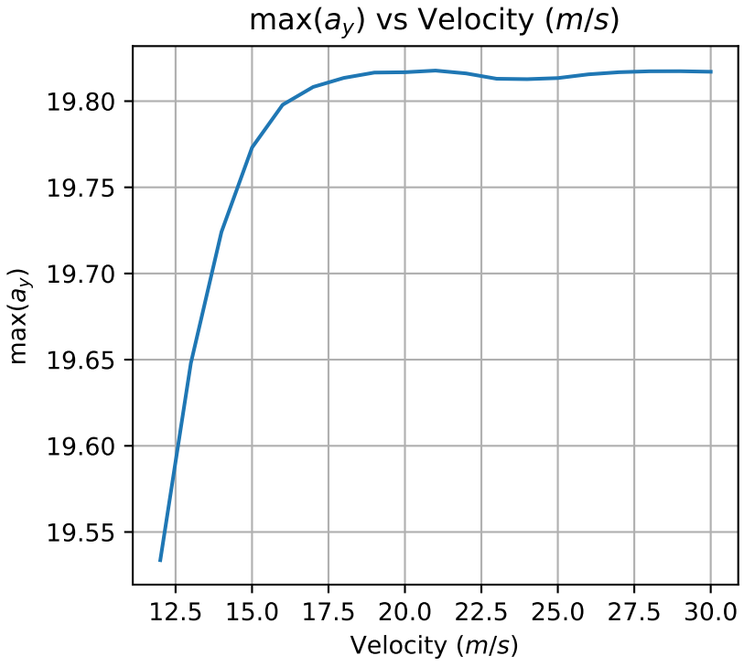


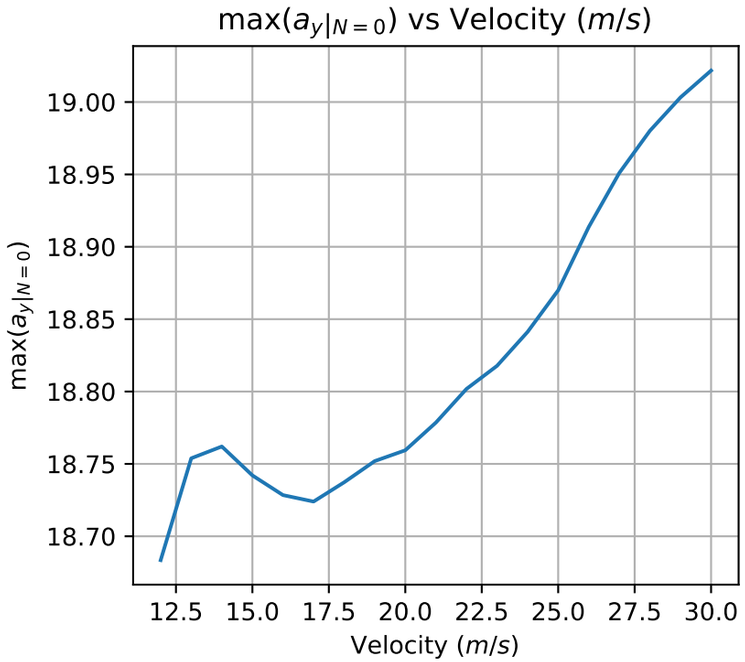


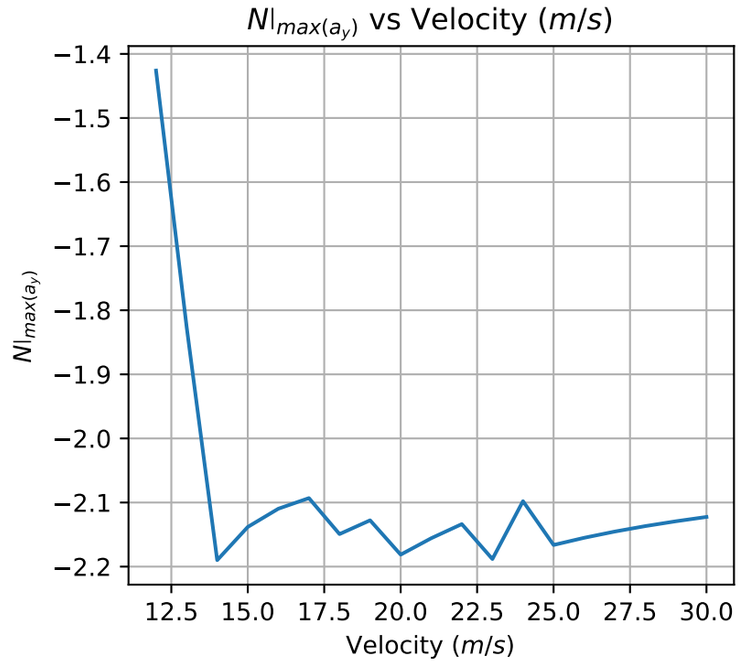


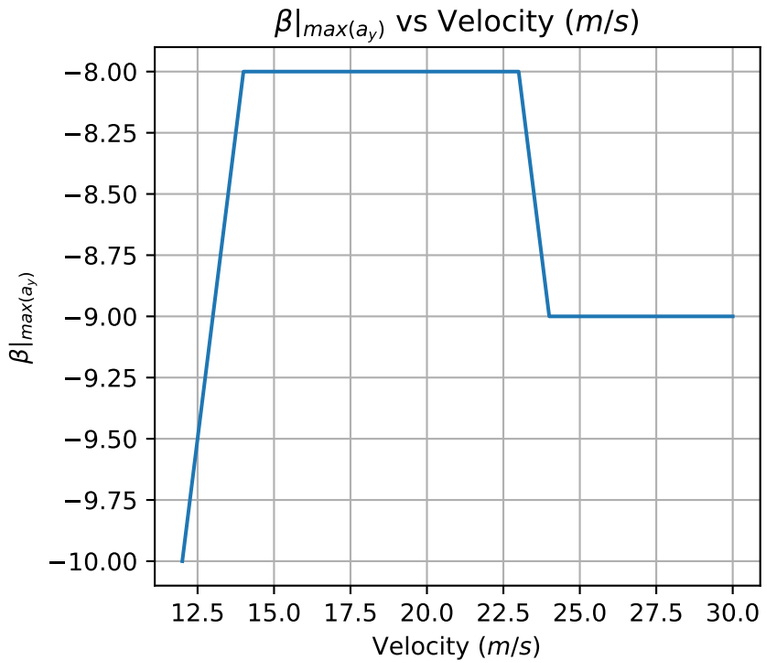


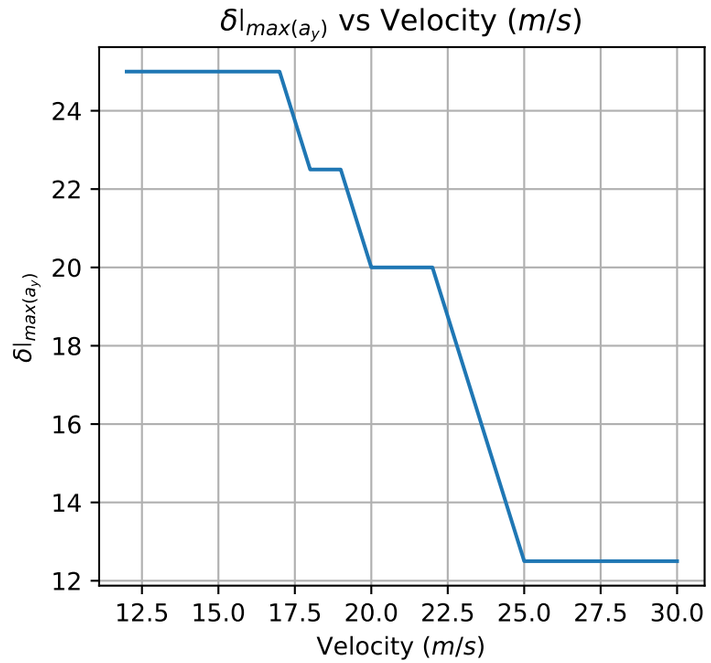
Appendix

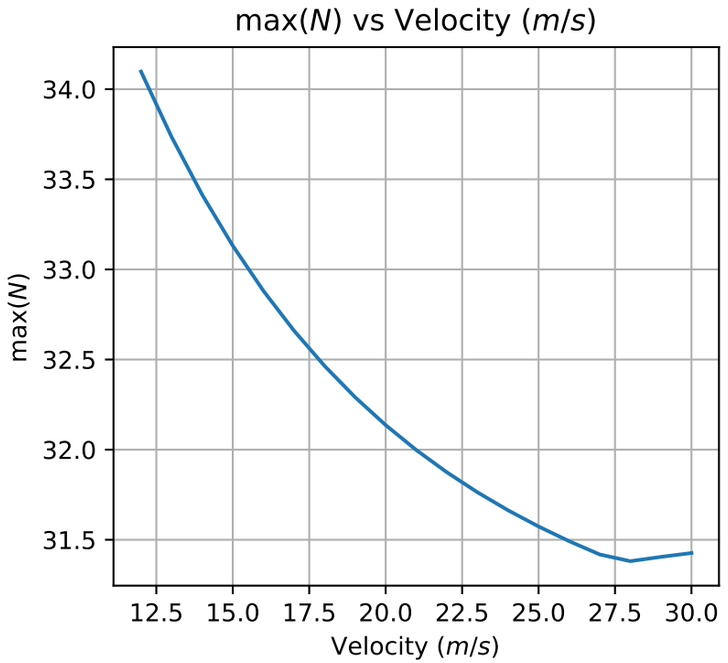

max(a_y) vs Velocity (m/s)
max(a_y)
19.80
19.75
19.70
19.65
19.60
19.55
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

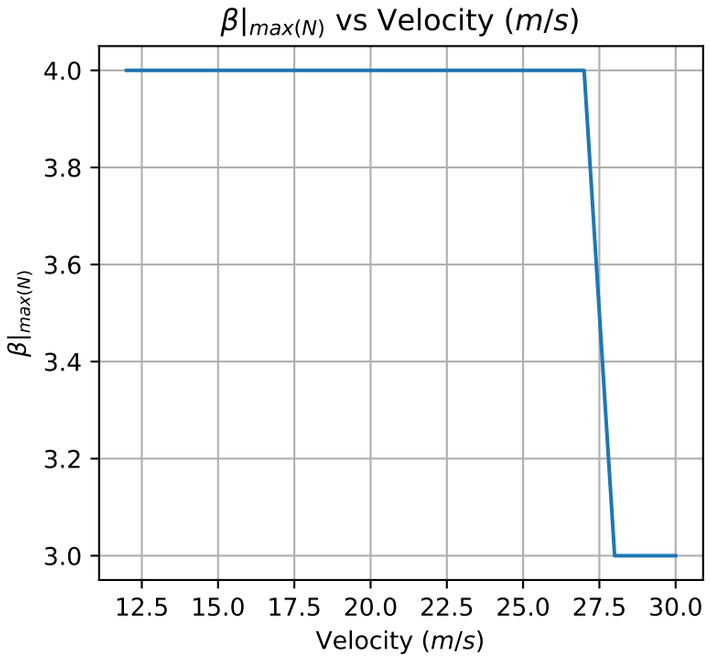

max($a_{y|N=0}$) vs Velocity (m/s)
max($a_{y|N=0}$)
19.00
18.95
18.90
18.85
18.80
18.75
18.70
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

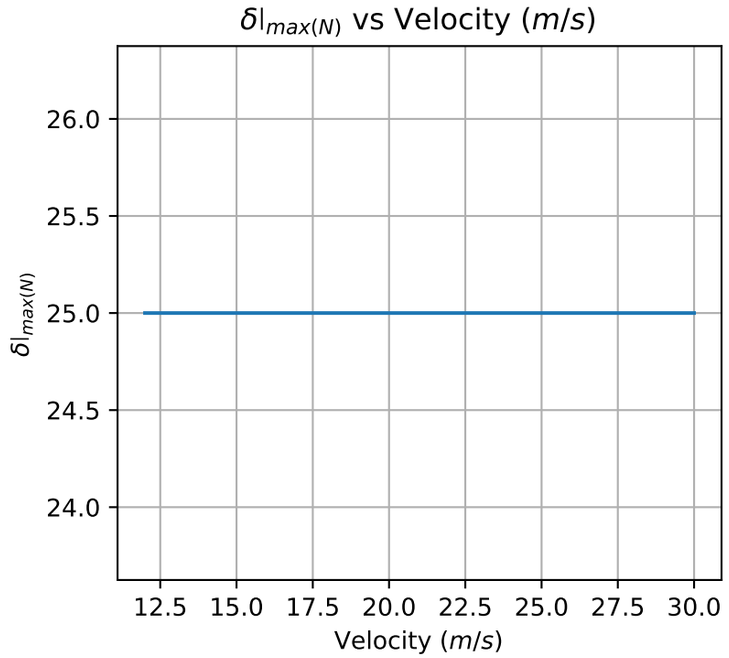

$N|_{max(a_y)}$ vs Velocity (m/s)
$N|_{max(a_y)}$
−1.4
−1.5
−1.6
−1.7
−1.8
−1.9
−2.0
−2.1
−2.2
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

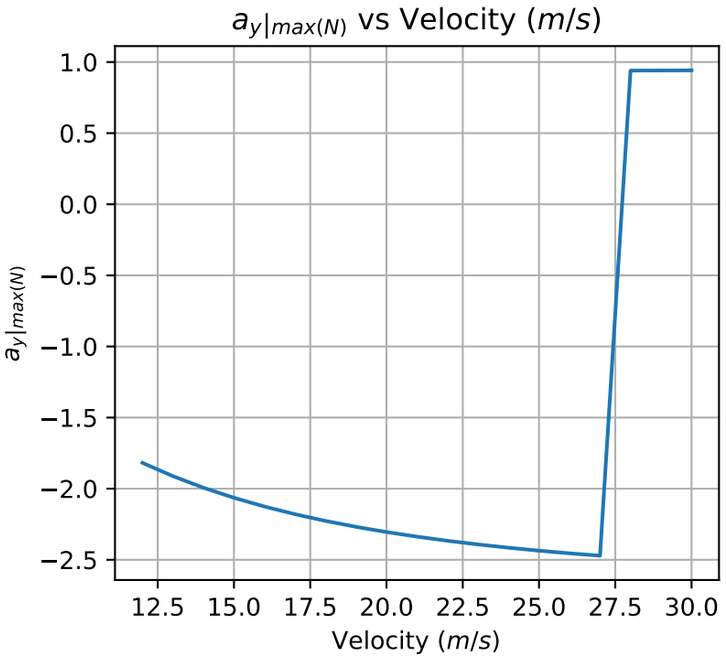

$\beta|_{max(a_y)}$ vs Velocity (m/s)
$\beta|_{max(a_y)}$
−8.00
−8.25
−8.50
−8.75
−9.00
−9.25
−9.50
−9.75
−10.00
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

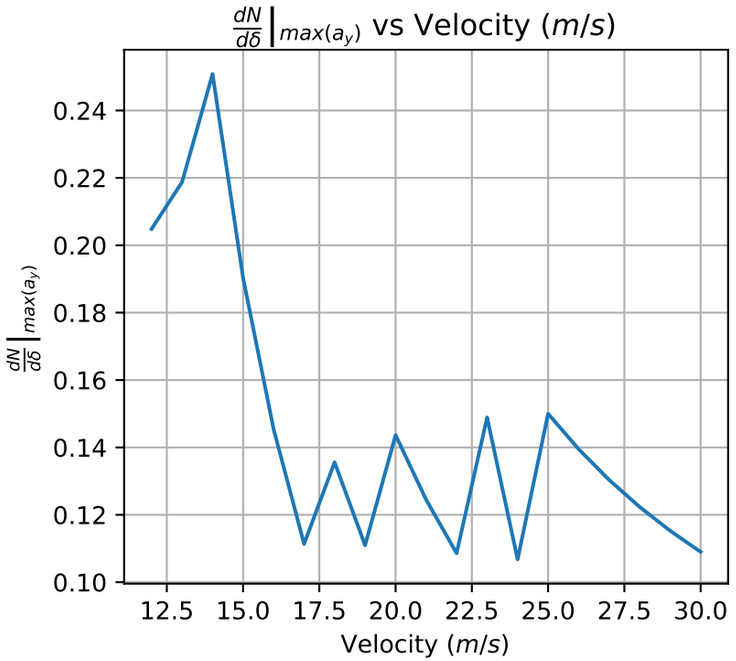

$\delta|_{max(a_y)}$ vs Velocity (m/s)
$\delta|_{max(a_y)}$
24
22
20
18
16
14
12
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

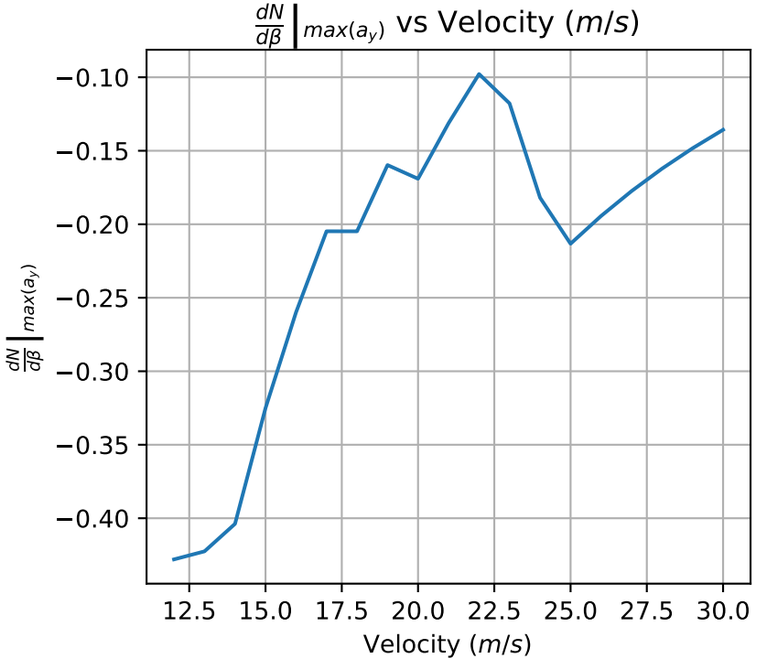

max(N) vs Velocity (m/s)
max(N)
34.0
33.5
33.0
32.5
32.0
31.5
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
Velocity (m/s)

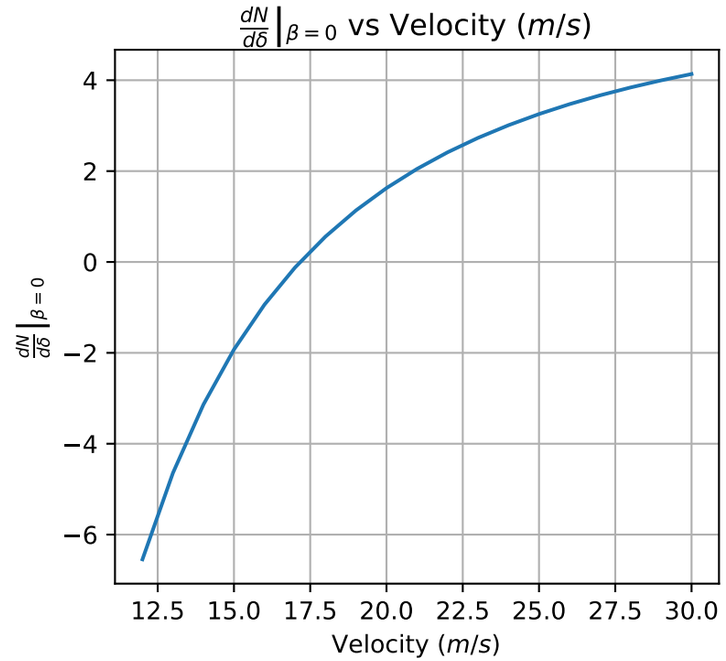

$\beta|_{max(N)}$ vs Velocity (m/s)
$\beta|_{max(N)}$
Velocity (m/s)
4.0
3.8
3.6
3.4
3.2
3.0
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0

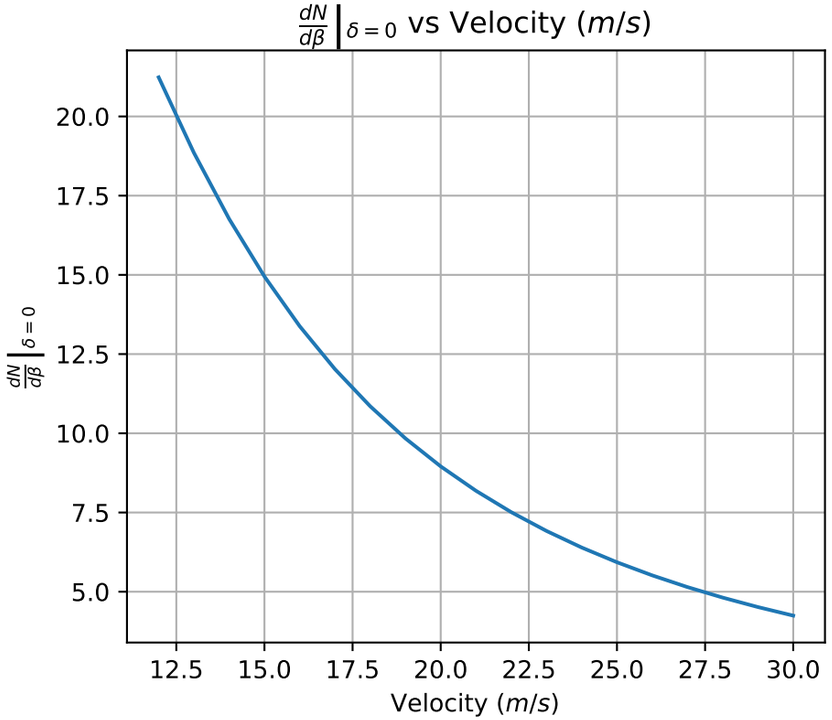

$\delta|_{max(N)}$ vs Velocity (m/s)
$\delta|_{max(N)}$
Velocity (m/s)
26.0
25.5
25.0
24.5
24.0
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0

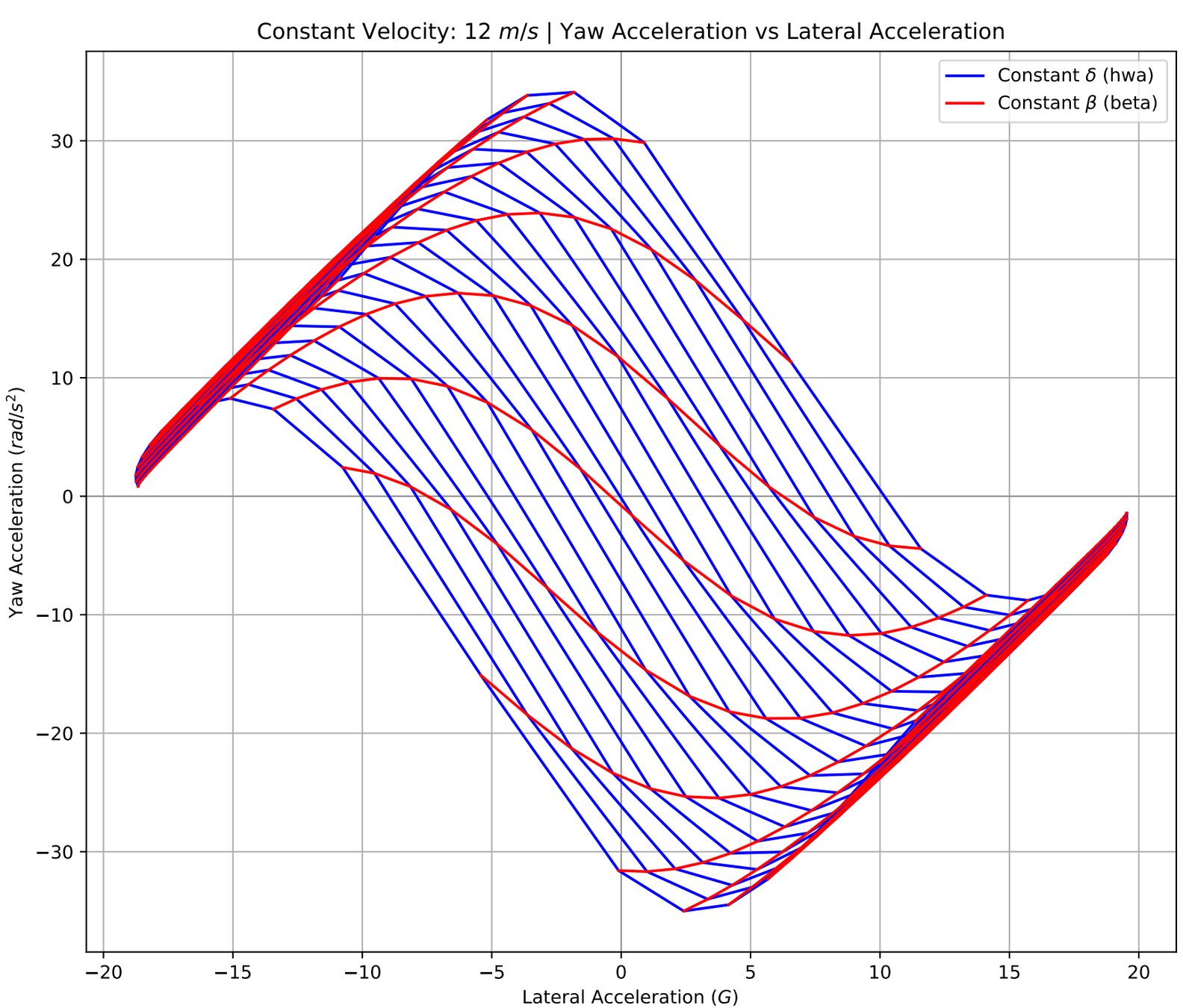

$a_y|_{max(N)}$ vs Velocity (m/s)
$a_y|_{max(N)}$
Velocity (m/s)
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0


$\frac{dN}{d\delta}\Big|_{max(a_y)}$ vs Velocity (m/s)
$\frac{dN}{d\delta}\Big|_{max(a_y)}$
Velocity (m/s)
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0

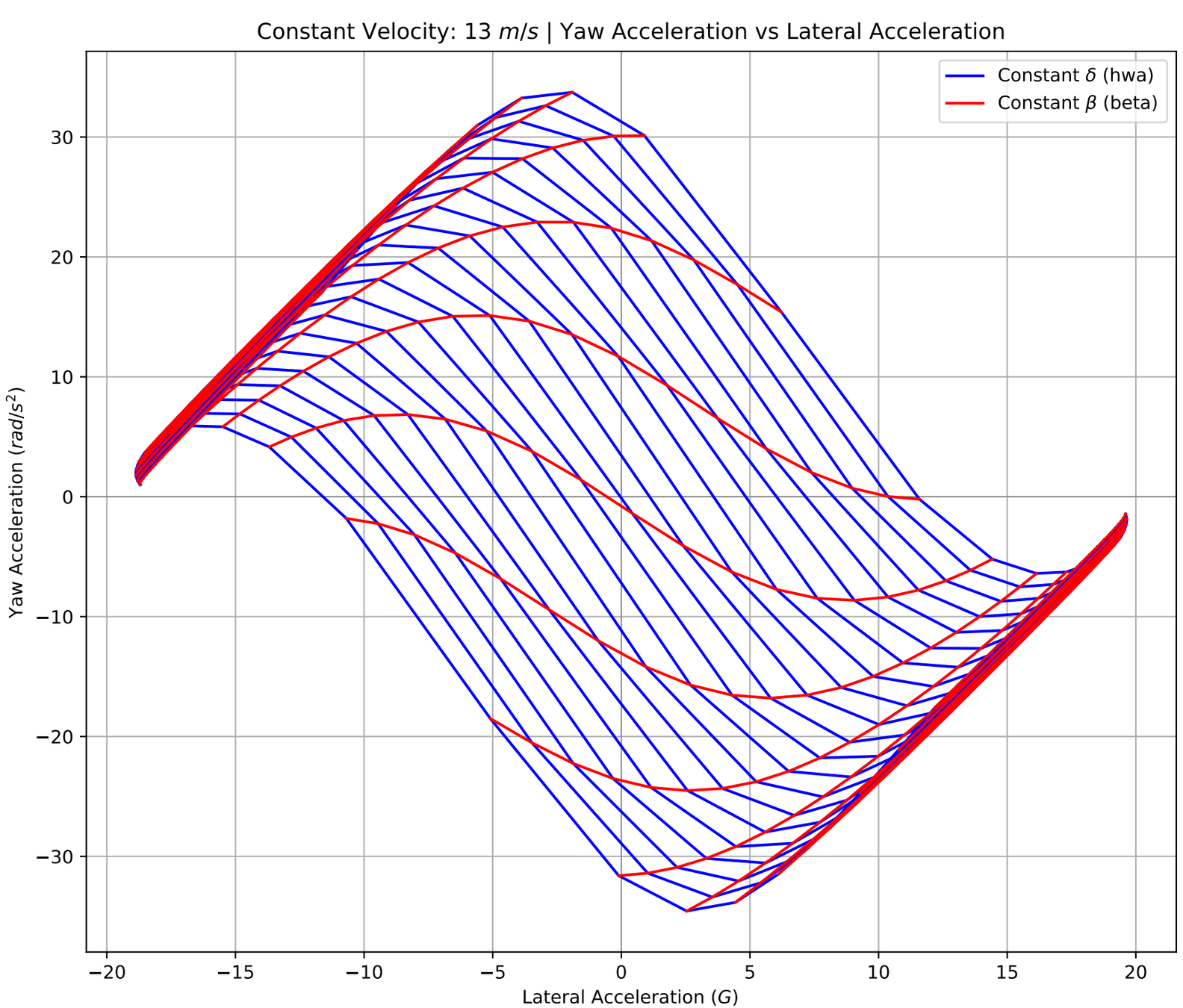

$\frac{dN}{d\beta}\Big|_{max(a_y)}$ vs Velocity (m/s)
$\frac{dN}{d\beta}\Big|_{max(a_y)}$
Velocity (m/s)
−0.10
−0.15
−0.20
−0.25
−0.30
−0.35
−0.40
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0


$\frac{dN}{d\delta}\Big|_{\beta=0}$ vs Velocity (m/s)
$\frac{dN}{d\delta}\Big|_{\beta=0}$
Velocity (m/s)
4
2
0
−2
−4
−6
12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0

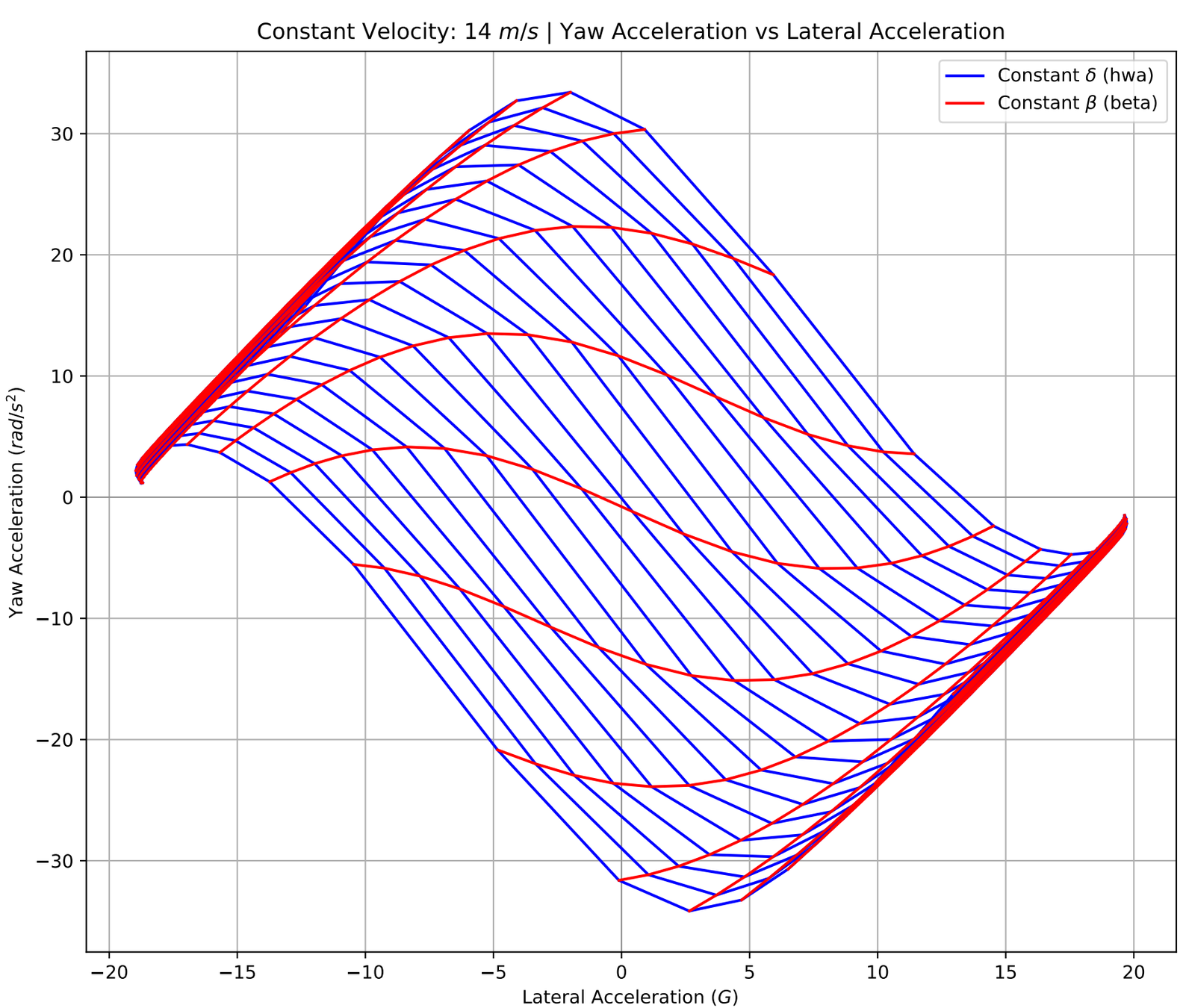

$\frac{dN}{d\beta}\Big|_{\delta=0}$ vs Velocity (m/s)
$\frac{dN}{d\beta}\Big|_{\delta=0}$
20.0
17.5
15.0
12.5
10.0
7.5
5.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
Velocity (m/s)



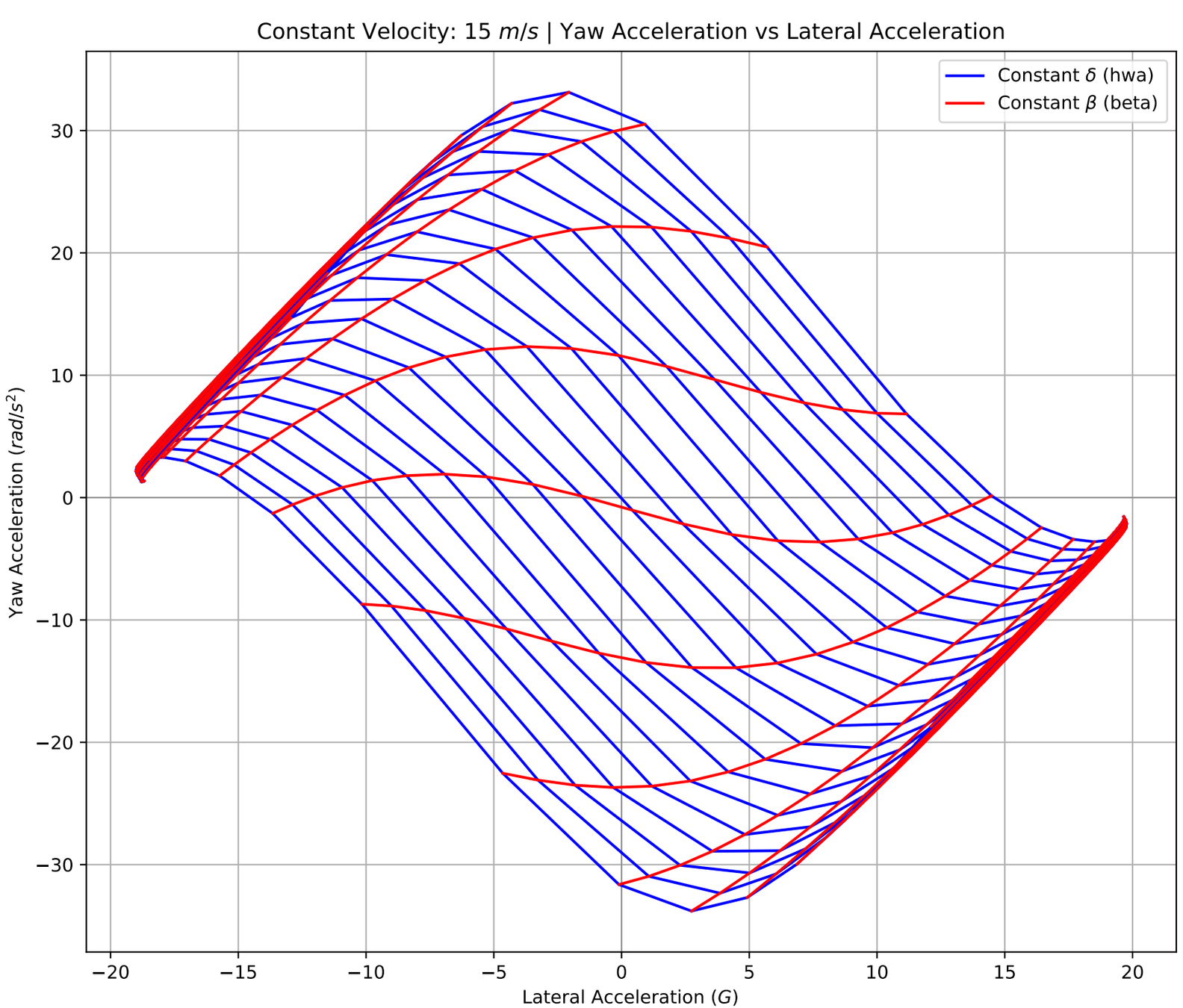
		Left Half	Right Half
$\max(a_y)$	(m/s)	-18.748	19.534
$\max(a_{y\|N=0})$	(m/s)	-18.181	18.683
$N\|_{max(a_y)}$	(Nm)	1.788	-1.426
$\beta\|_{max(a_y)}$	(deg)	8.000	-10.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(N)$	(Nm)	-35.009	34.098
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.416	-1.818
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.352	0.205
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.605	-0.428
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-6.545
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		21.235



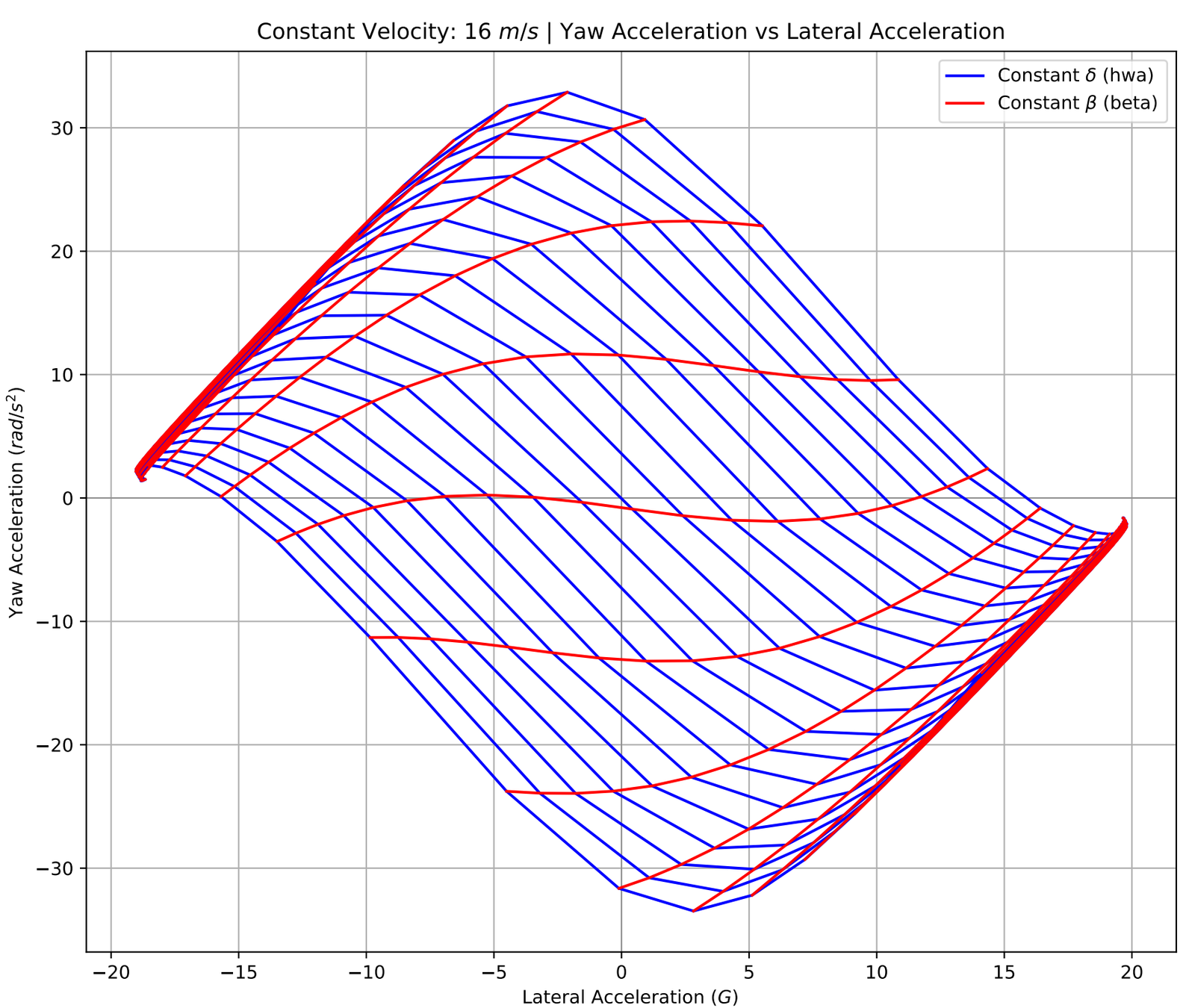
		Left Half	Right Half
$\max(a_y)$	(m/s)	-18.870	19.648
$\max(a_{y\|N=0})$	(m/s)	-18.132	18.754
$N\|_{max(a_y)}$	(Nm)	1.752	-1.826
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(N)$	(Nm)	-34.556	33.735
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.539	-1.912
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.213	0.219
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.467	-0.423
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-4.642
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		18.851



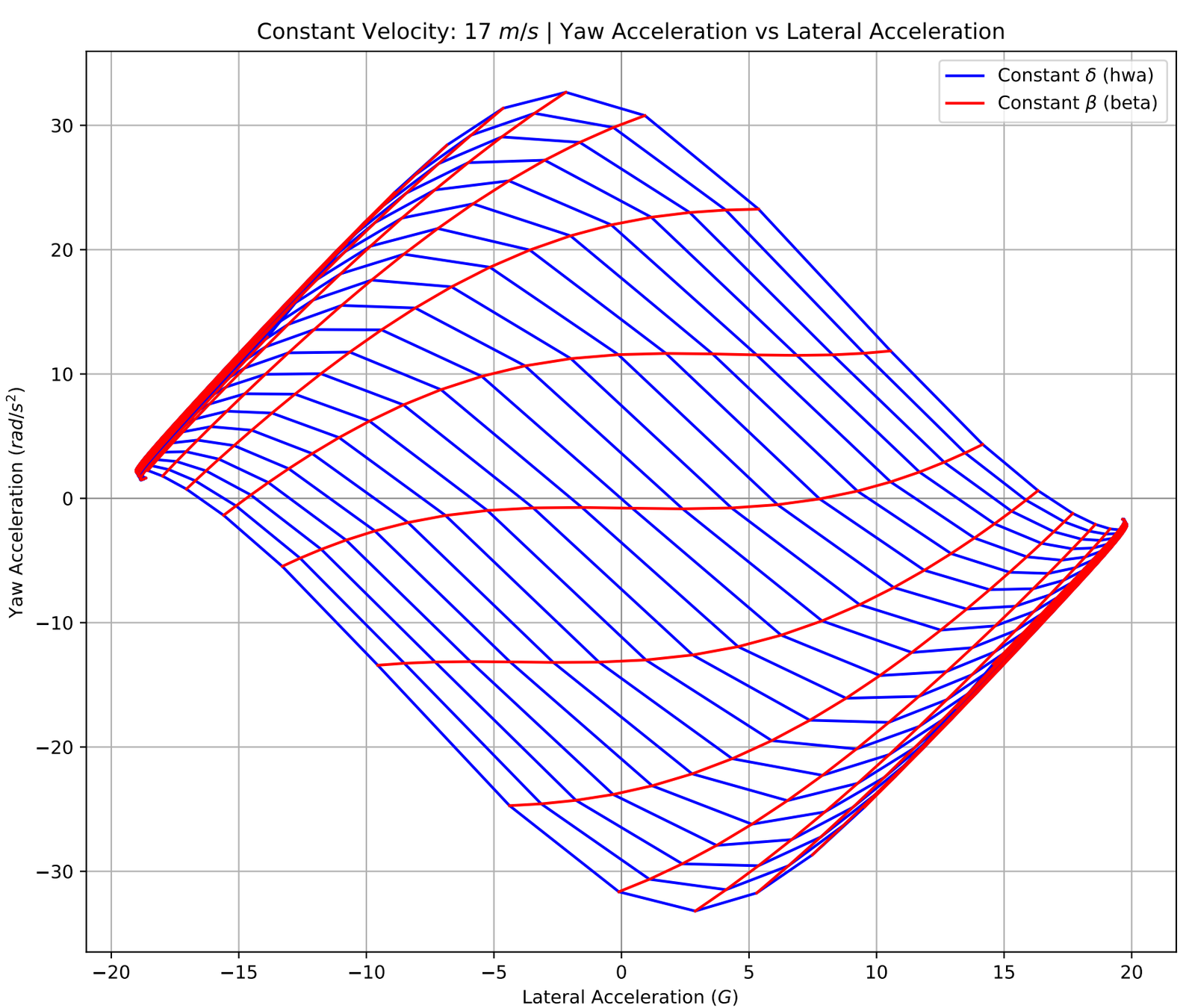
		Left Half	Right Half
$\max(a_y)$	(m/s)	-18.958	19.724
$\max(a_{y\|N=0})$	(m/s)	-18.091	18.762
$N\|_{max(a_y)}$	(Nm)	2.195	-2.190
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(N)$	(Nm)	-34.153	33.414
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.646	-1.993
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.259	0.251
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.444	-0.404
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-3.136
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		16.763



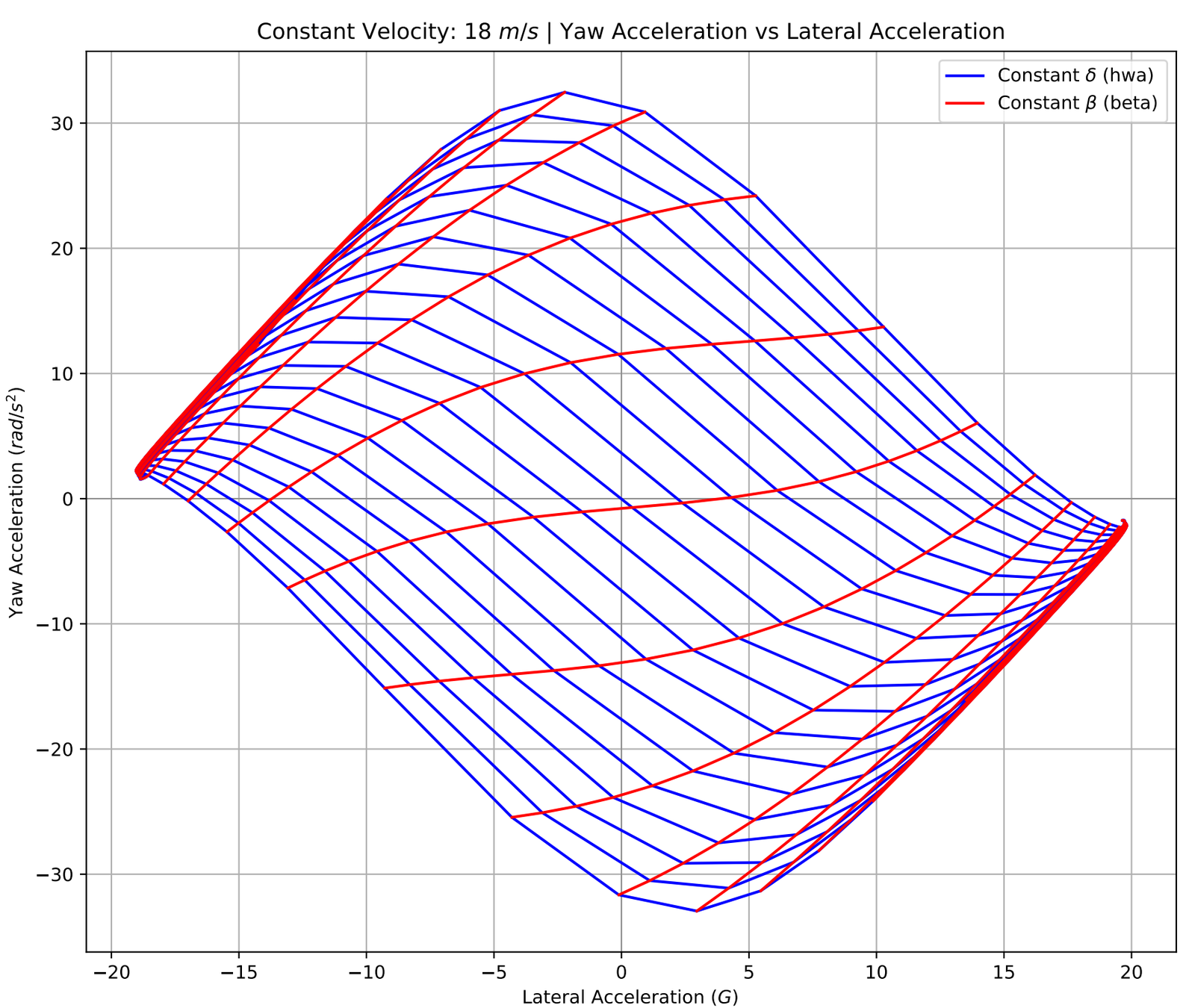
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.008	19.773
$\max(a_{y\|N=0})$	(m/s)	-18.057	18.742
$N\|_{max(a_y)}$	(Nm)	2.167	-2.138
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(N)$	(Nm)	-33.795	33.131
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.740	-2.064
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.174	0.190
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.332	-0.325
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-1.926
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		14.949



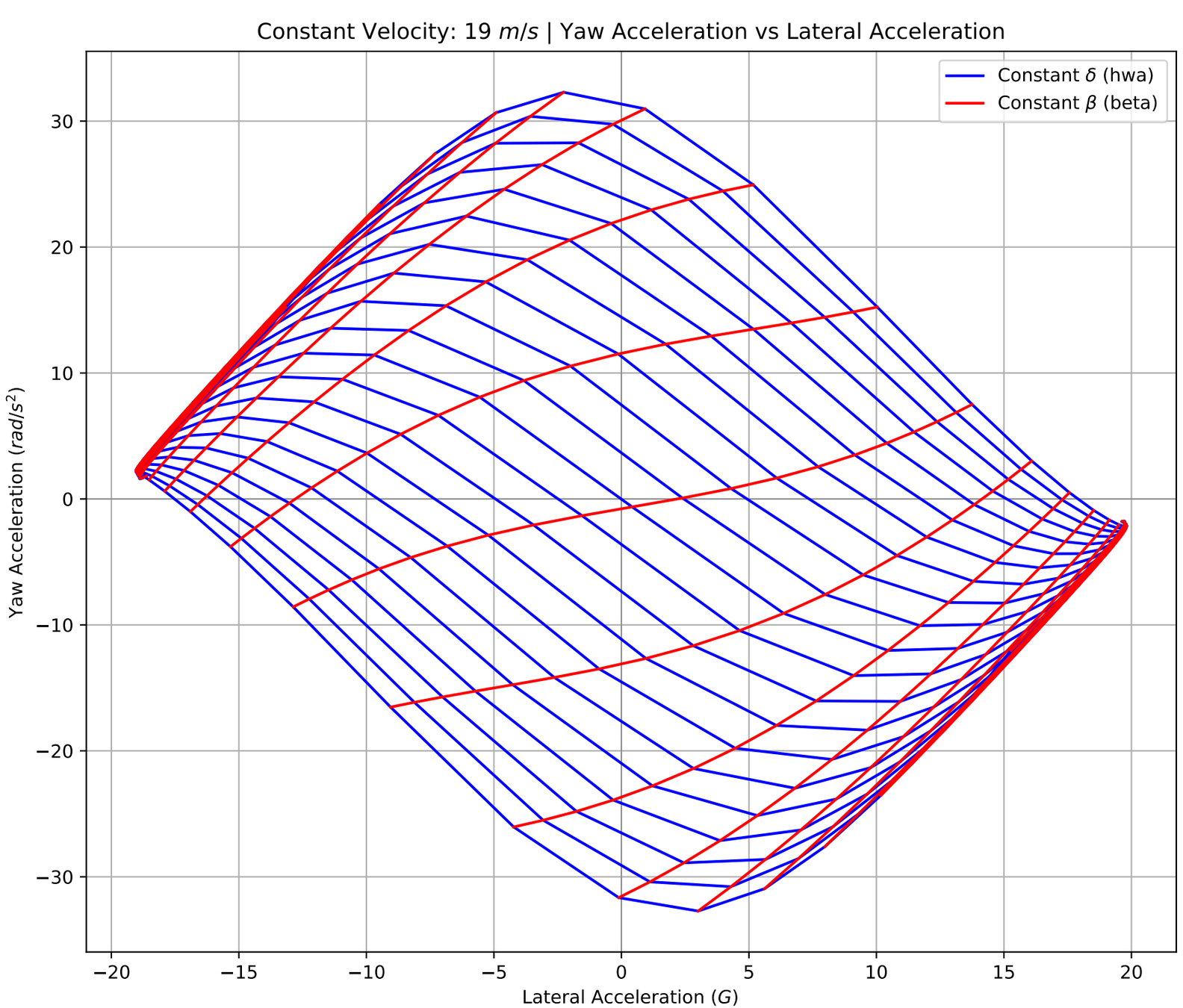
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.029	19.798
$\max(a_{y\|N=0})$	(m/s)	-18.027	18.728
$N\|_{max(a_y)}$	(Nm)	2.162	-2.110
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(N)$	(Nm)	-33.477	32.882
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.821	-2.126
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.112	0.145
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.240	-0.260
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-0.939
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		13.380



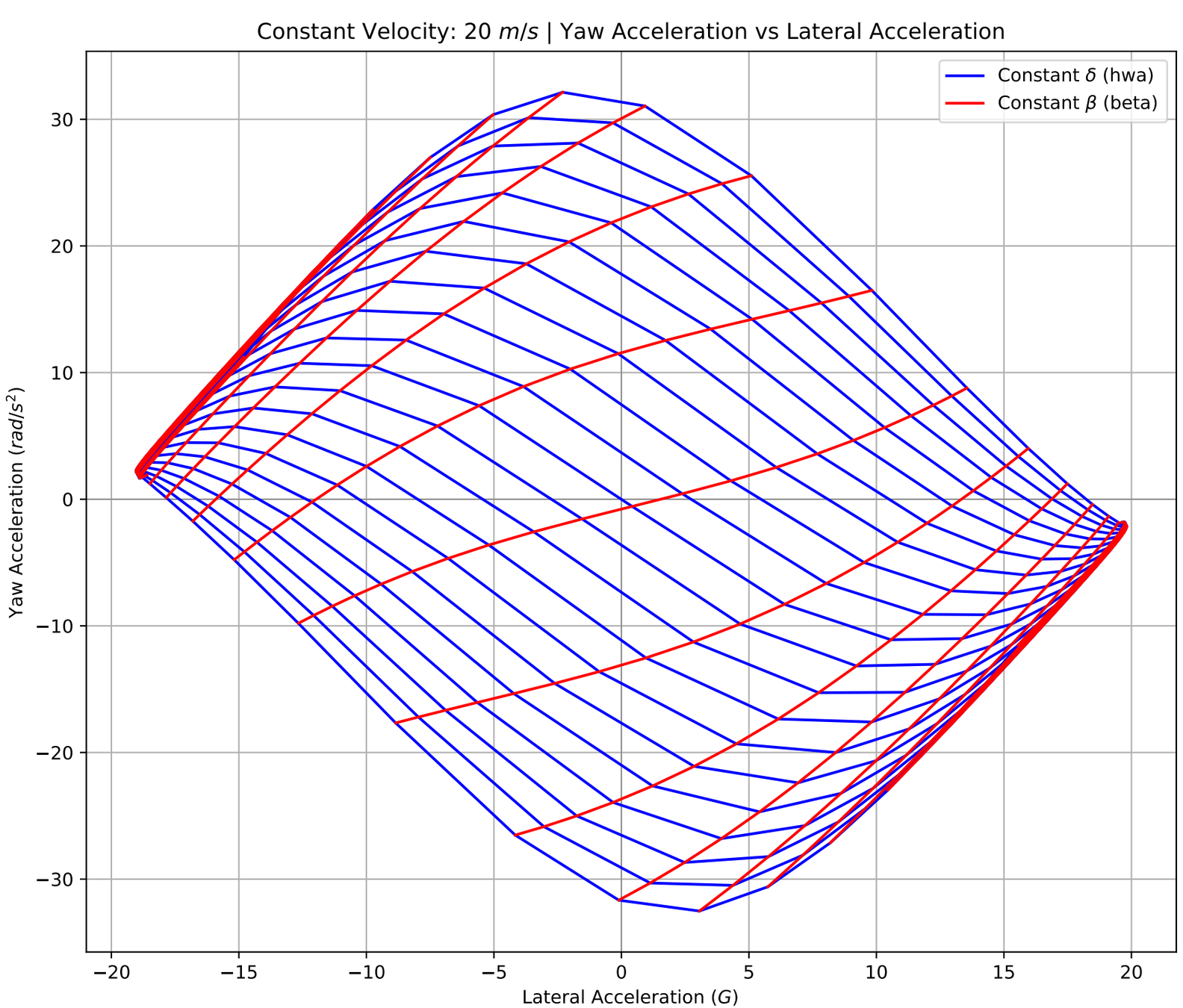
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.035	19.808
$\max(a_{y\|N=0})$	(m/s)	-18.023	18.724
$N\|_{max(a_y)}$	(Nm)	2.229	-2.093
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-22.500	25.000
$\max(N)$	(Nm)	-33.195	32.661
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.892	-2.179
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.143	0.111
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.231	-0.205
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		-0.123
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		12.025



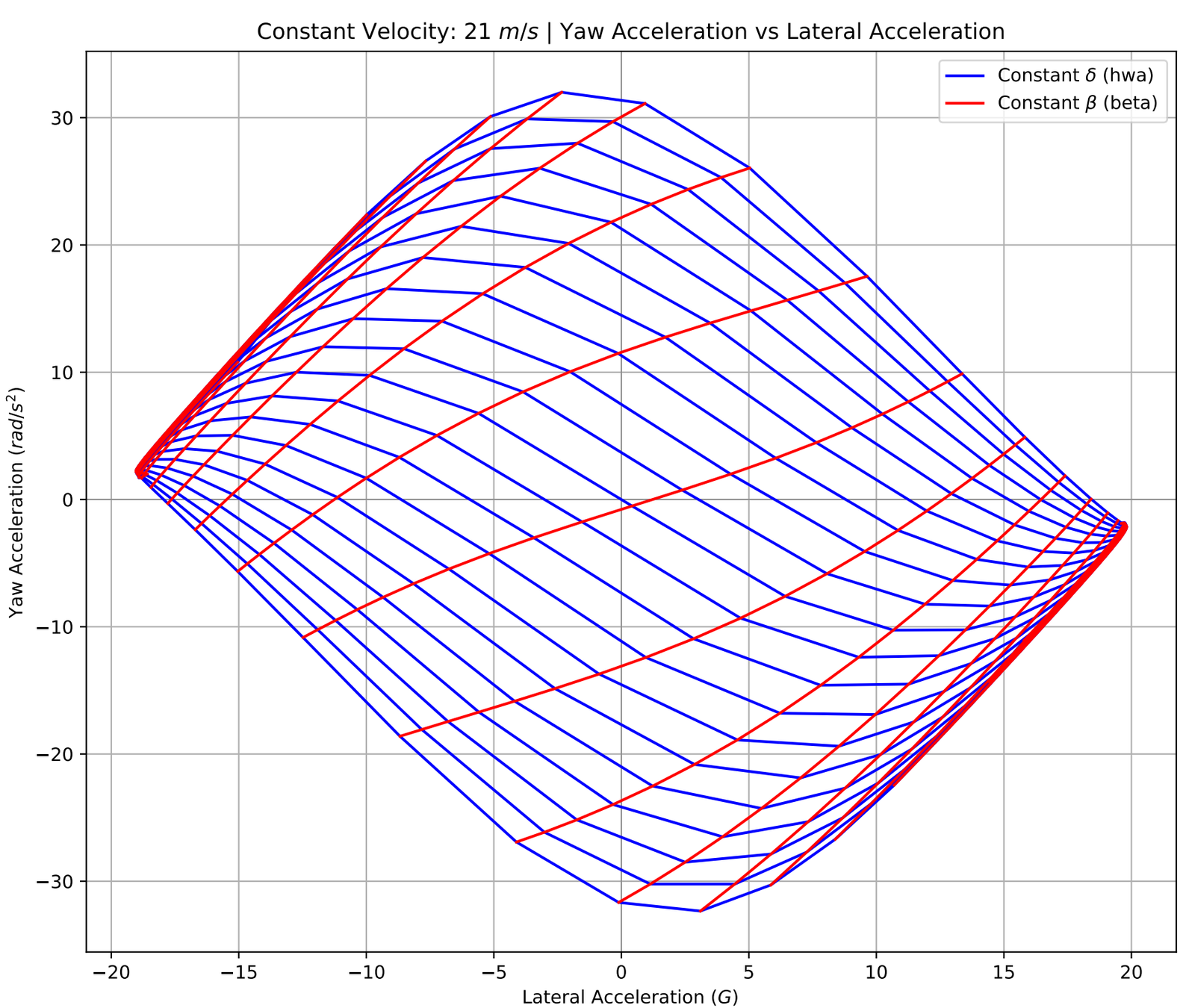
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.040	19.813
$\max(a_{y\|N=0})$	(m/s)	-18.026	18.737
$N\|_{max(a_y)}$	(Nm)	2.212	-2.149
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-22.500	22.500
$\max(N)$	(Nm)	-32.944	32.465
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	2.954	-2.227
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.101	0.136
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.156	-0.205
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		0.559
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		10.853



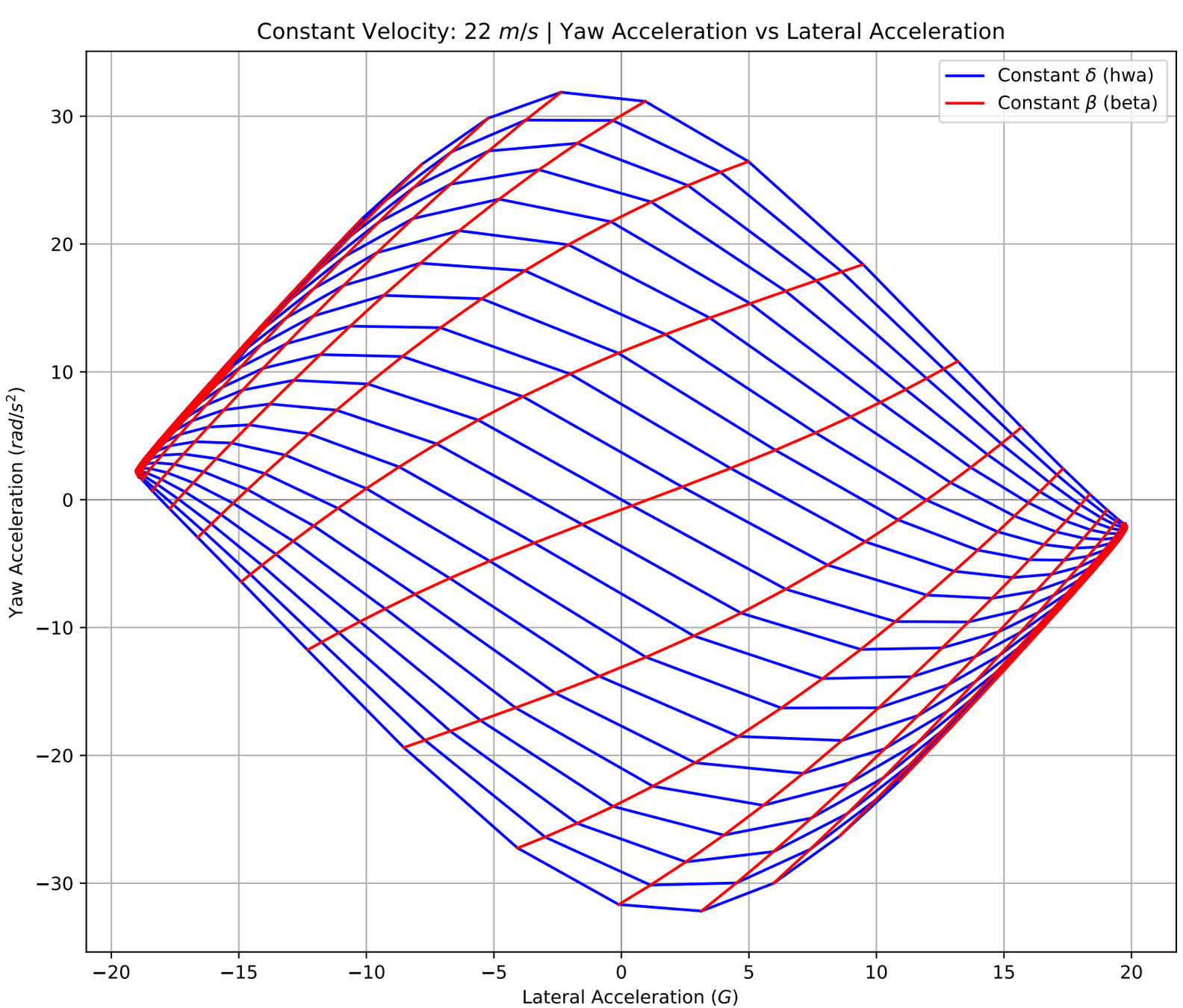
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.039	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.023	18.752
$N\|_{max(a_y)}$	(Nm)	2.264	-2.128
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-20.000	22.500
$\max(N)$	(Nm)	-32.720	32.291
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.009	-2.268
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.145	0.111
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.161	-0.160
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		1.135
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		9.838



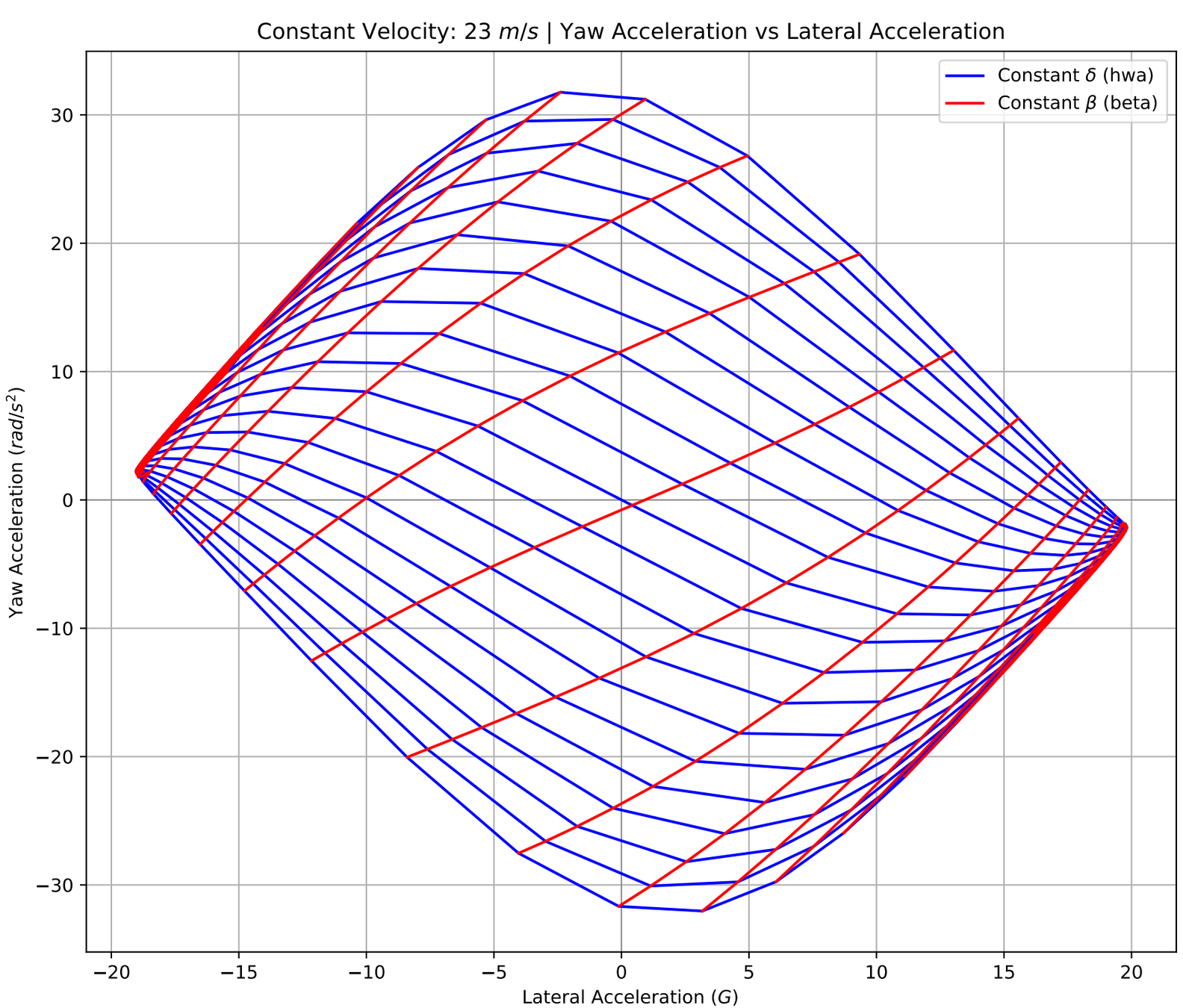
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.039	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.030	18.759
$N\|_{max(a_y)}$	(Nm)	2.235	-2.181
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-20.000	20.000
$\max(N)$	(Nm)	-32.520	32.136
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.058	-2.305
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.114	0.144
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.098	-0.169
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		1.626
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		8.956



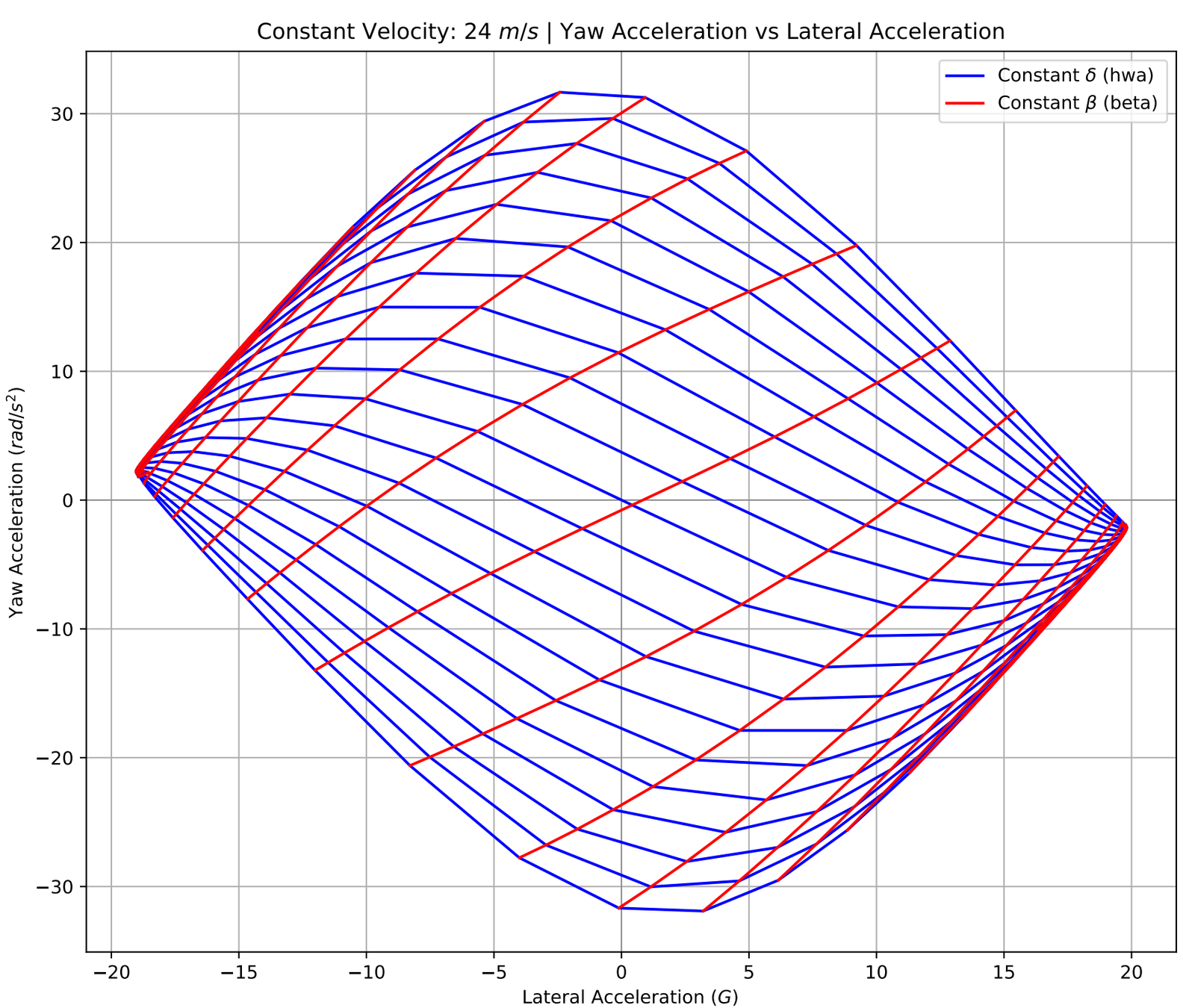
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.035	19.818
$\max(a_{y\|N=0})$	(m/s)	-18.047	18.779
$N\|_{max(a_y)}$	(Nm)	2.210	-2.156
$\beta\|_{max(a_y)}$	(deg)	7.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-20.000	20.000
$\max(N)$	(Nm)	-32.341	31.998
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.101	-2.337
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.088	0.125
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.043	-0.131
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		2.048
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		8.186



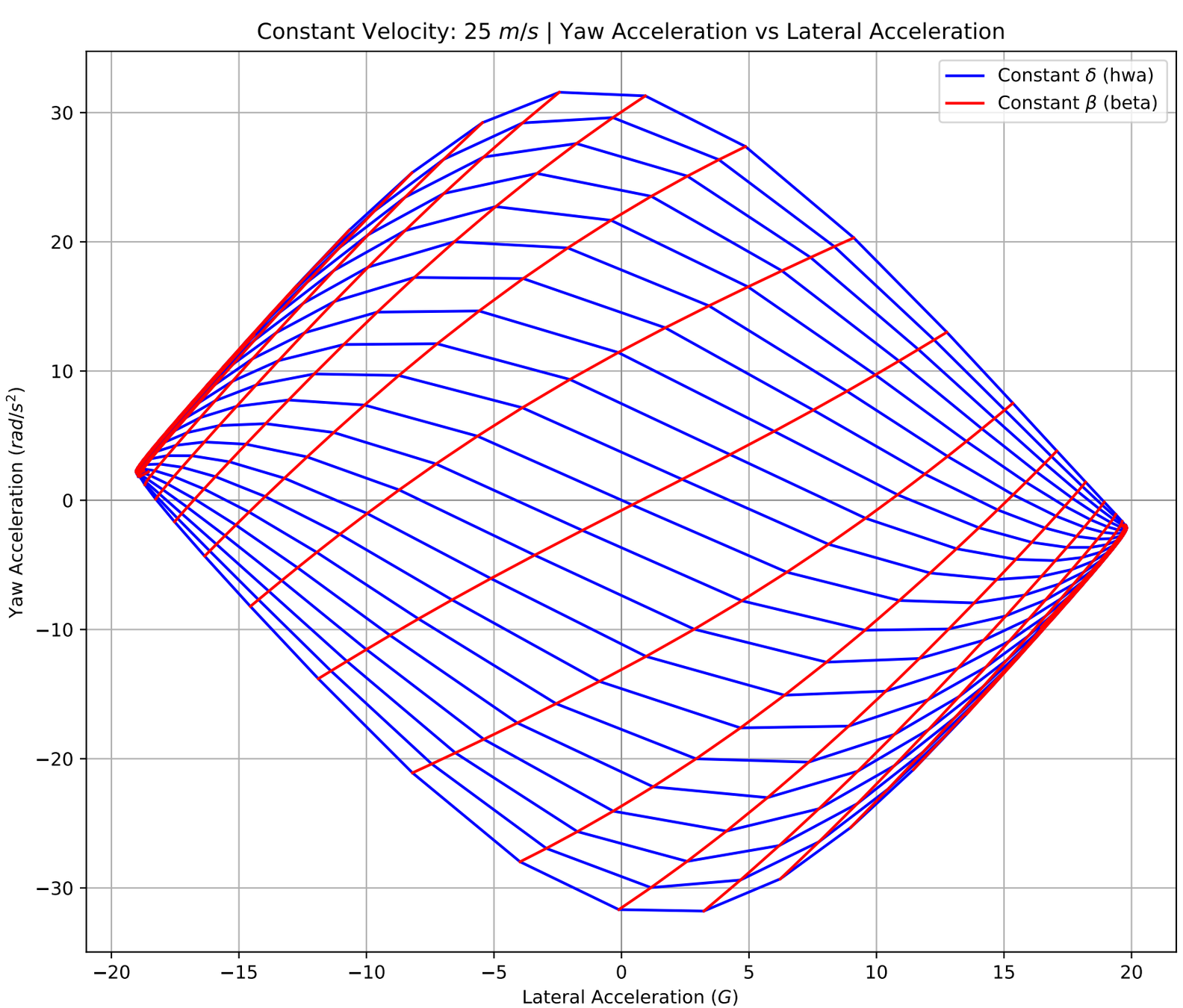
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.037	19.816
$\max(a_{y\|N=0})$	(m/s)	-18.061	18.802
$N\|_{max(a_y)}$	(Nm)	2.191	-2.134
$\beta\|_{max(a_y)}$	(deg)	8.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-15.000	20.000
$\max(N)$	(Nm)	-32.181	31.874
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.139	-2.366
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.103	0.109
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.195	-0.098
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		2.413
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		7.512



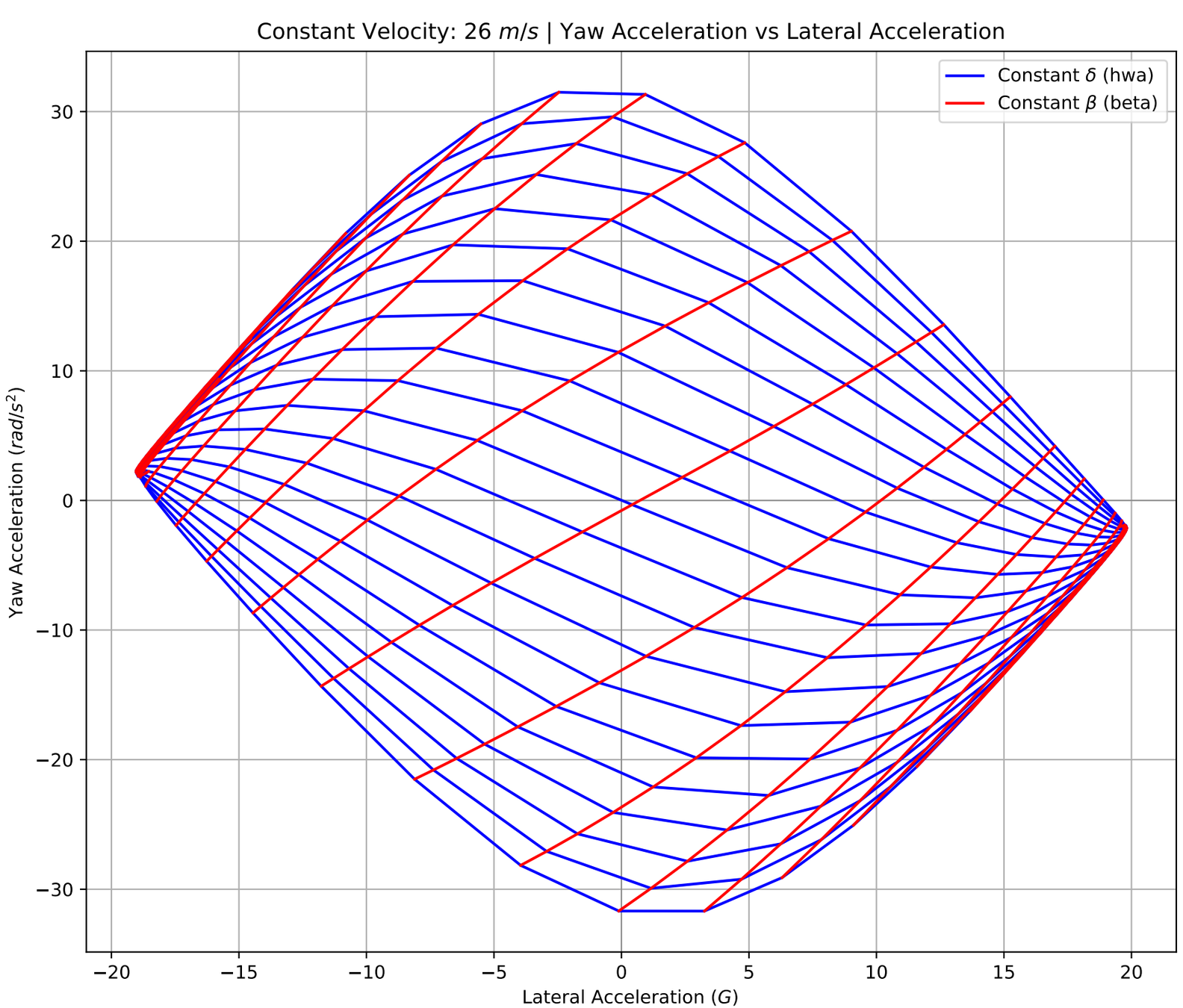
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.037	19.813
$\max(a_{y\|N=0})$	(m/s)	-18.134	18.818
$N\|_{max(a_y)}$	(Nm)	2.188	-2.188
$\beta\|_{max(a_y)}$	(deg)	8.000	-8.000
$\delta\|_{max(a_y)}$	(deg)	-15.000	17.500
$\max(N)$	(Nm)	-32.036	31.764
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.174	-2.392
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.084	0.149
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.160	-0.118
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		2.731
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		6.919



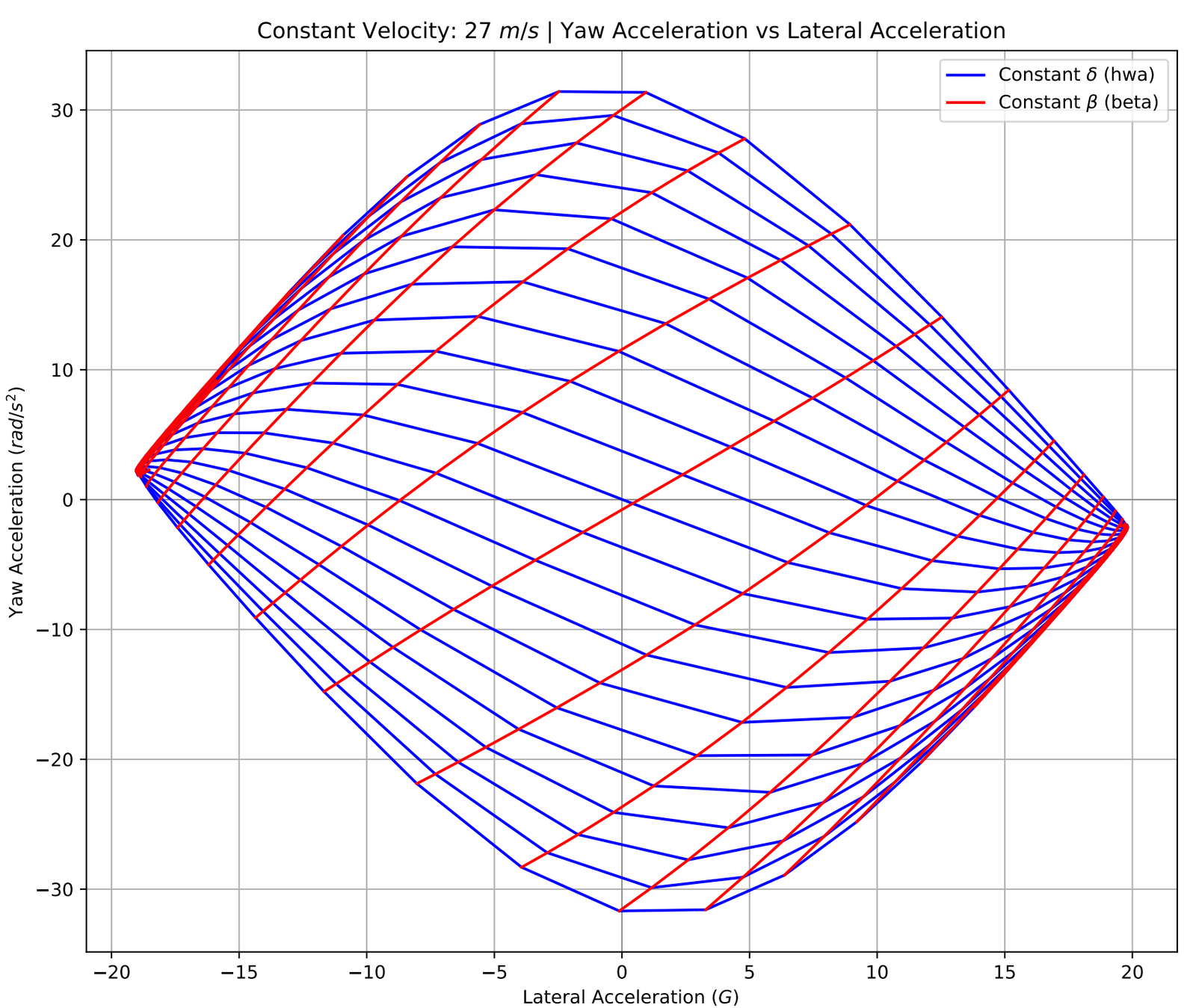
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.038	19.813
$\max(a_{y\|N=0})$	(m/s)	-18.187	18.841
$N\|_{max(a_y)}$	(Nm)	2.250	-2.098
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	15.000
$\max(N)$	(Nm)	-31.906	31.664
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.204	-2.415
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.145	0.107
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.200	-0.182
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.010
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		6.395



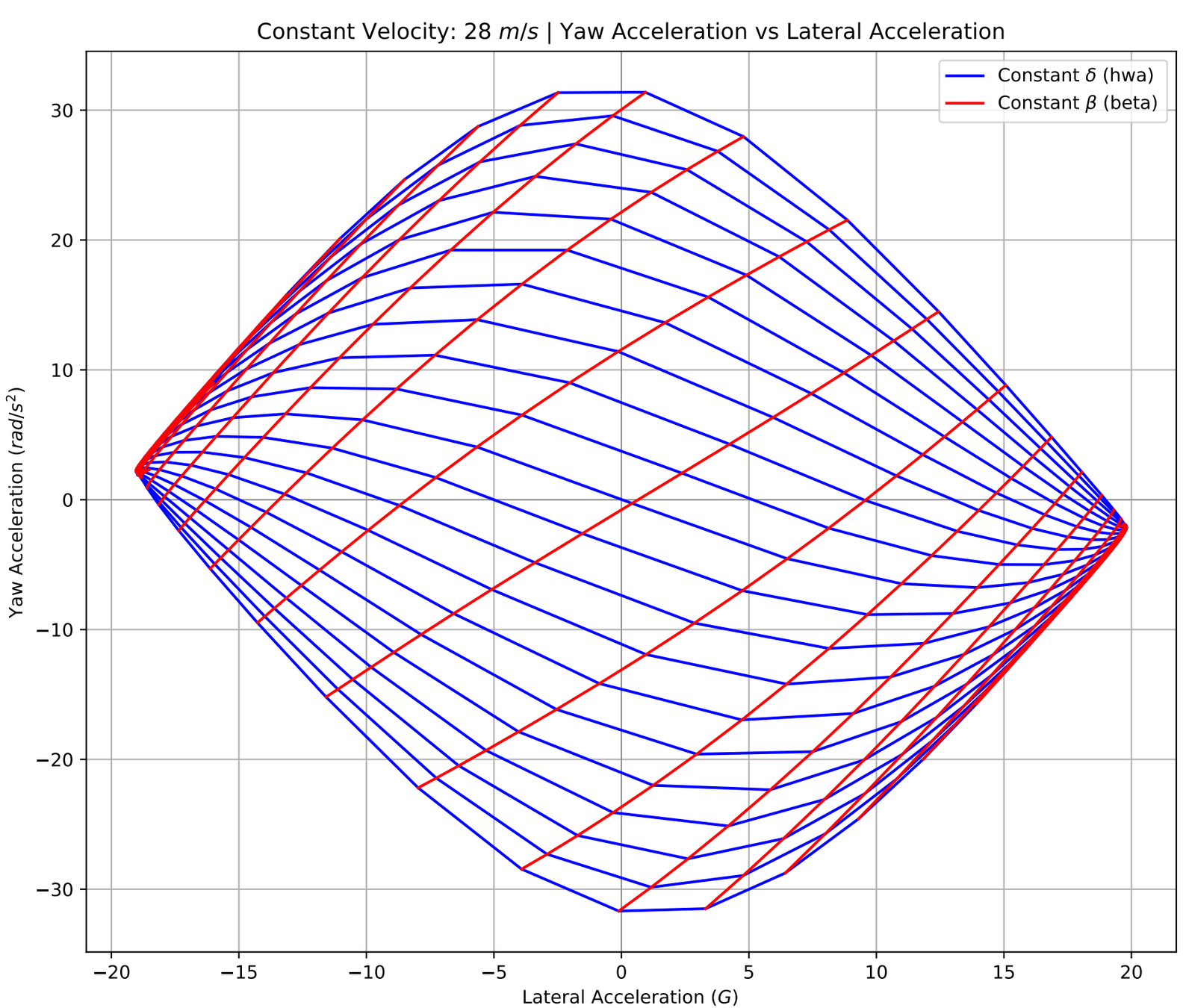
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.040	19.813
$\max(a_{y\|N=0})$	(m/s)	-18.226	18.870
$N\|_{max(a_y)}$	(Nm)	2.239	-2.166
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	12.500
$\max(N)$	(Nm)	-31.789	31.574
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.232	-2.436
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.128	0.150
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.170	-0.213
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.255
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		5.930



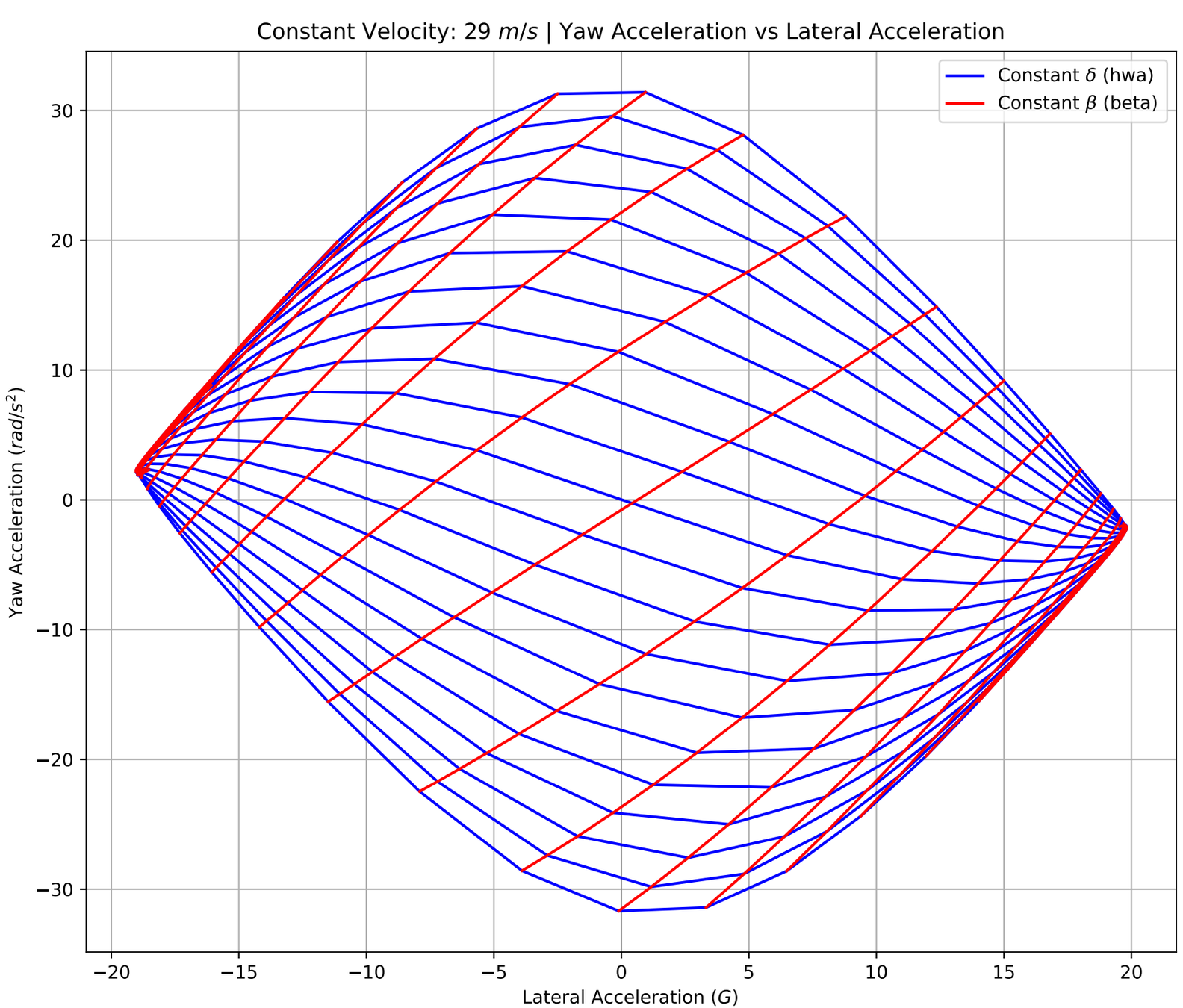
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.041	19.816
$\max(a_{y\|N=0})$	(m/s)	-18.251	18.914
$N\|_{max(a_y)}$	(Nm)	2.229	-2.155
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	12.500
$\max(N)$	(Nm)	-31.682	31.492
$\beta\|_{max(N)}$	(deg)	-4.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	3.257	-2.455
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.114	0.140
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.142	-0.194
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.473
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		5.516



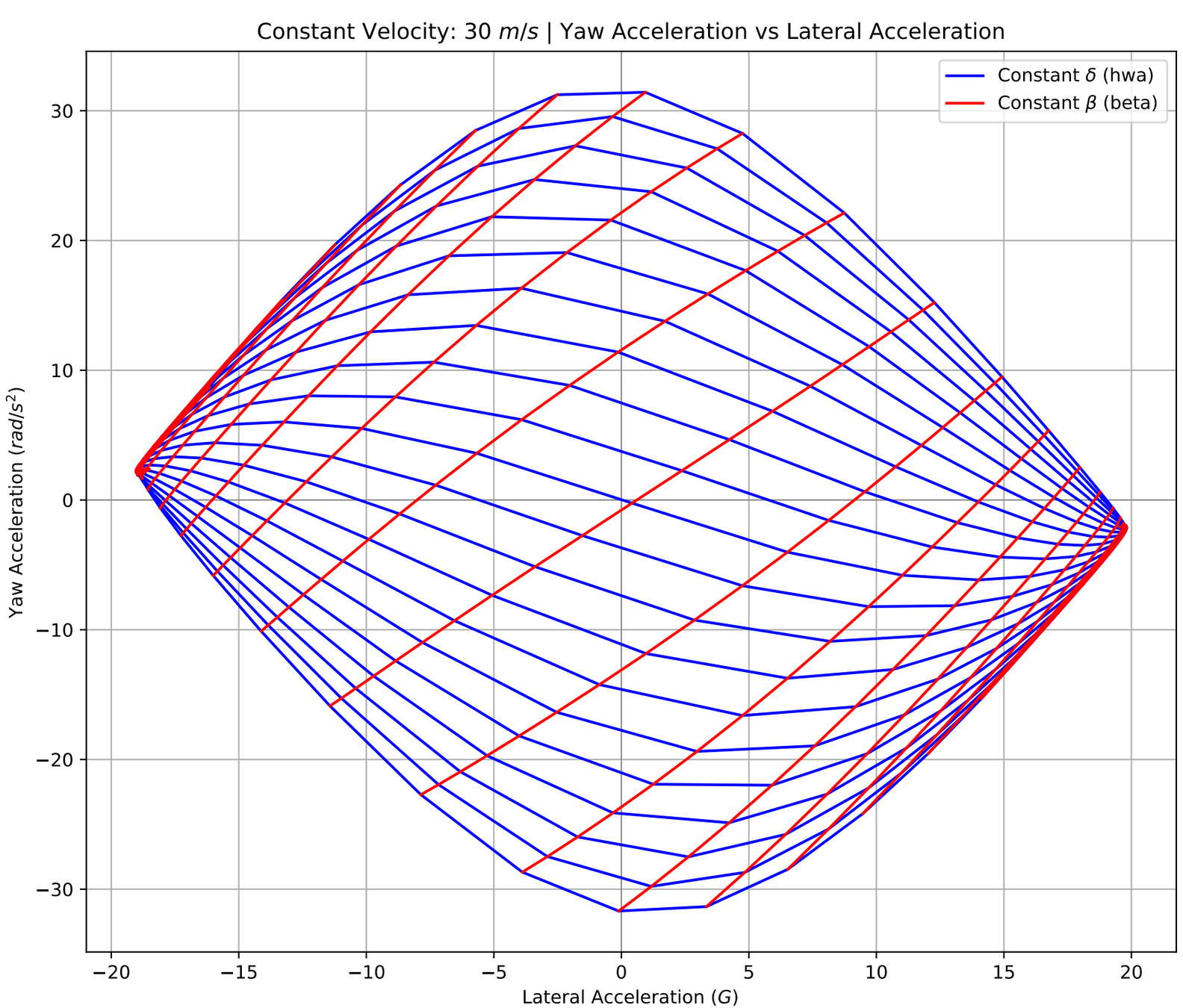
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.040	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.267	18.951
$N\|_{max(a_y)}$	(Nm)	2.221	-2.145
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	12.500
$\max(N)$	(Nm)	-31.680	31.418
$\beta\|_{max(N)}$	(deg)	-3.000	4.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	-0.104	-2.471
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.101	0.130
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.117	-0.177
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.667
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		5.146



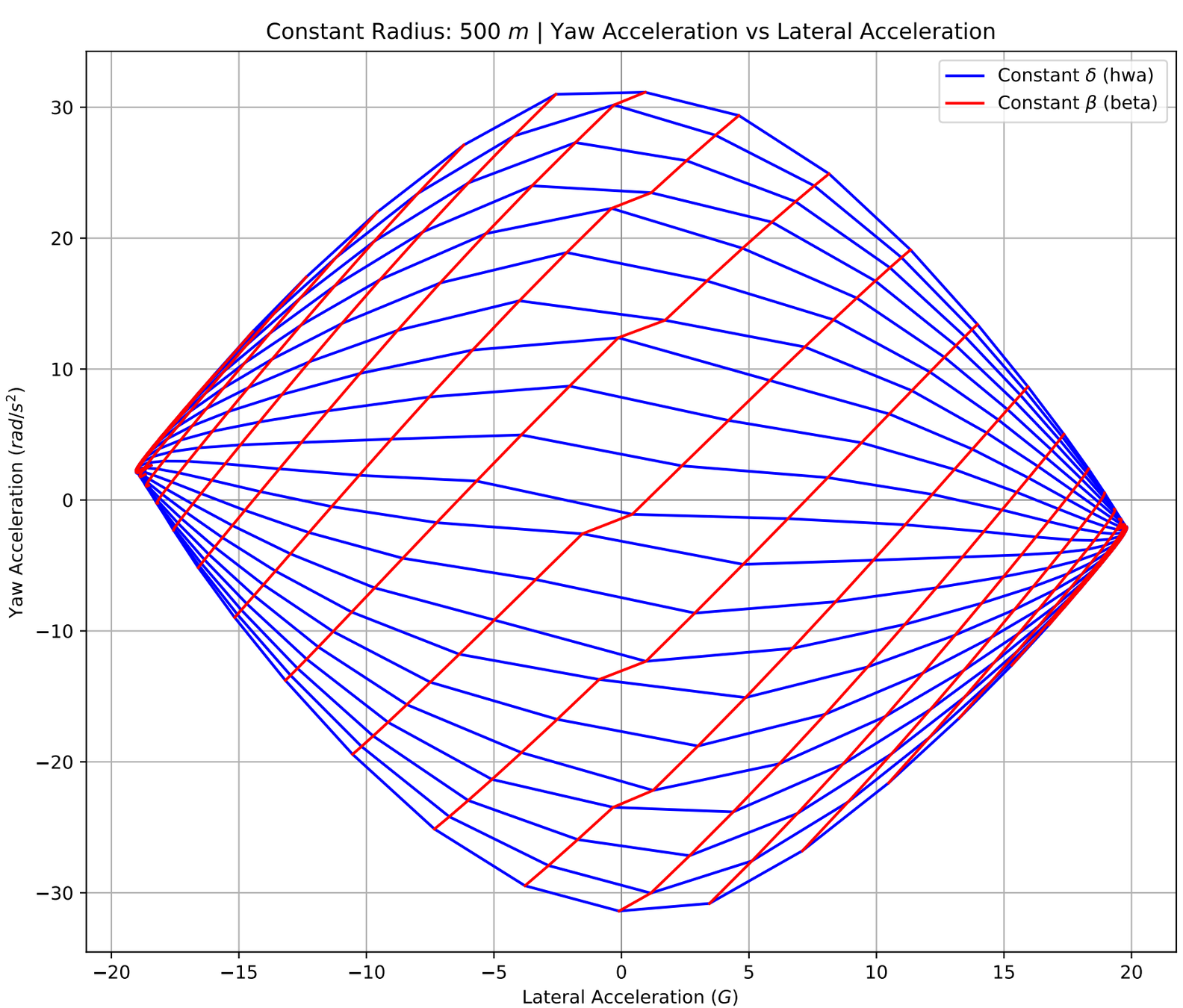
		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.039	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.279	18.980
$N\|_{max(a_y)}$	(Nm)	2.214	-2.137
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	12.500
$\max(N)$	(Nm)	-31.681	31.381
$\beta\|_{max(N)}$	(deg)	-3.000	3.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	-0.104	0.940
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.091	0.122
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.095	-0.162
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.840
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		4.814



		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.038	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.288	19.003
$N\|_{max(a_y)}$	(Nm)	2.208	-2.129
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-12.500	12.500
$\max(N)$	(Nm)	-31.683	31.405
$\beta\|_{max(N)}$	(deg)	-3.000	3.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	-0.104	0.941
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.081	0.115
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.075	-0.148
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.996
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		4.516



		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.036	19.817
$\max(a_{y\|N=0})$	(m/s)	-18.295	19.022
$N\|_{max(a_y)}$	(Nm)	2.269	-2.123
$\beta\|_{max(a_y)}$	(deg)	8.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-10.000	12.500
$\max(N)$	(Nm)	-31.684	31.426
$\beta\|_{max(N)}$	(deg)	-3.000	3.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	-0.104	0.941
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.151	0.109
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.129	-0.136
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		4.136
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		4.246



		Left Half	Right Half
$\max(a_y)$	(m/s)	-19.039	19.815
$\max(a_{y\|N=0})$	(m/s)	-18.323	19.123
$N\|_{max(a_y)}$	(Nm)	2.260	-2.095
$\beta\|_{max(a_y)}$	(deg)	9.000	-10.000
$\delta\|_{max(a_y)}$	(deg)	-2.500	5.000
$\max(N)$	(Nm)	-31.396	31.143
$\beta\|_{max(N)}$	(deg)	-3.000	3.000
$\delta\|_{max(N)}$	(deg)	-25.000	25.000
$a_y\|_{max(N)}$	(m/s)	-0.093	0.931
$\frac{dN}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	0.150	0.101
$\frac{dN}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{Nm}{deg}\right)$	-0.173	-0.155
$\frac{dN}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{Nm}{deg}\right)$		3.830
$\frac{dN}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{Nm}{deg}\right)$		1.704