



### Rig Mass Flow Rate Calculations

Please Enter Parameters in highlighted boxes below

Engine Data File		
Ambient Conditions		
Air Temperature	5	[C]
Atmospheric Pressure	975	[mBar]
Air Humidity	95	[%]
Viper Engine Parameters		
Engine Air Intake Mass Flow	18.7	[Kg/s]
Butane Flow Rate	1732	[Ltr/h]
Engine Speed	12150	[RPM]
ETC	650	[C]
Gas Delivery System Data File		
Gas Delivery System		
Mixed Gas (Fuel) Mass Flow rate	0.017	[Kg/s]
Oxygen Mass Flow rate	0.155	[Kg/s]

Please do not change anything in this box

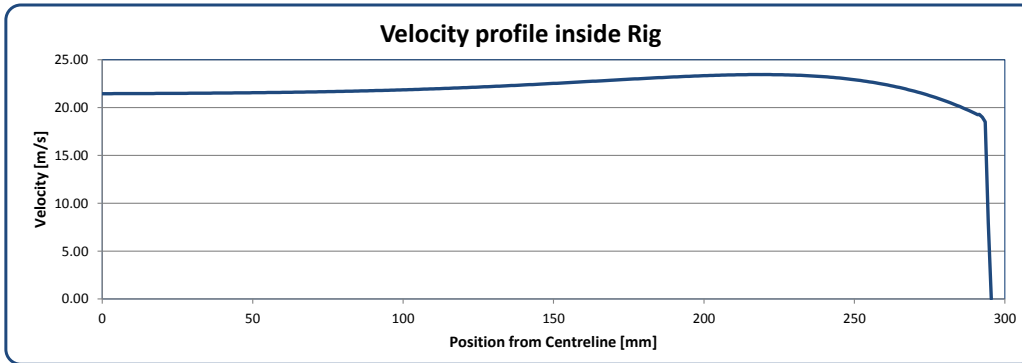
Test Date and Time = 24.10.2014 15:34:23.1

Calculated Parameters		
Air density	1.217898	[Kg/m <sup>3</sup> ]
Liquid Butane density	584	[Kg/m <sup>3</sup> ]
Butane mass Flow rate	0.280969	[Kg/s]
Air Fuel Ratio	79.23263	[ ]
Calculated Exhaust gas properties (Reaction Engines)		
Exhaust products density	0.389	[Kg/m <sup>3</sup> ]
Pitot Traverse Results		
Rig Gas flow rate - Integrated	2.355134	[Kg/s]
Total Rig Mass flow	2.527134	[Kg/s]
Rig Gas Temperature as read from TC 11		
Gas Temperature	516	[C]

Bruce Ewan to fill in

Note

Manual for viper 201 gives figures for fuel flow rate to be as follows at maximum power					
Fuel Flow	2035	lb/hr	to	2920	lb/hr
	925	Kg/hr		1327.273	Kg/hr
	1156.25	ltr/hr		1659.091	ltr/hr



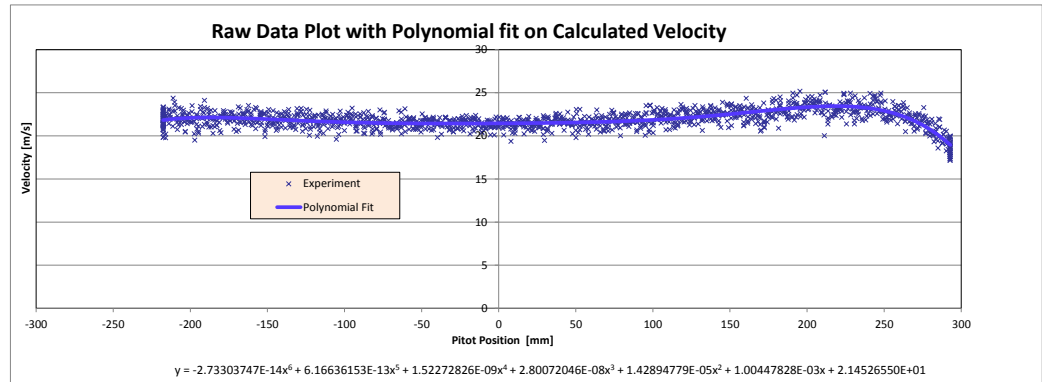
**Data Acquisition Parameters**

Sampling Rate	1000	[Hz]	
No of samples recorded	100	Samples	
Averaged samples sampling rate	10	[Hz]	
Pitot Traverse speed	7	[mm/s]	Averaged Pitot dp
Distance Travelled every 0.1sec	0.7	[mm]	0.936537544
		Average Vel	21.91437 [m/s]

**Raw Data from CSV File**

Date and time [dd:mm:yyyy hh:mm:ss.ms]	Pitot Position from rig centre [mm]	TC11 - Pitot [deg C]	Pitot dP [mBar]	O2 %
24.10.2014 15:34:23.1	-217.54	512.6	0.9512	16.39
24.10.2014 15:34:23.2	-217.54	512.6	1.0527	16.15
24.10.2014 15:34:23.3	-217.55	512.8	1.0545	16.18
24.10.2014 15:34:23.4	-217.52	512.9	0.9269	16.28
24.10.2014 15:34:23.5	-217.56	512.8	0.8787	16.35
24.10.2014 15:34:23.6	-217.58	512.8	0.8005	16.17
24.10.2014 15:34:23.7	-217.56	513.1	0.9464	16.19
24.10.2014 15:34:23.8	-217.53	513.1	0.8615	16.29
24.10.2014 15:34:23.9	-217.54	512.9	0.8719	16.29
24.10.2014 15:34:24.0	-217.53	512.9	0.9784	16.21
24.10.2014 15:34:24.1	-217.53	513.2	1.0123	16.21
24.10.2014 15:34:24.2	-217.55	513.1	1.0614	16.27
24.10.2014 15:34:24.3	-217.56	512.9	0.9351	16.27
24.10.2014 15:34:24.4	-217.57	513	1.0181	16.21
24.10.2014 15:34:24.5	-217.56	513.3	0.7644	16.24
24.10.2014 15:34:24.6	-217.54	513.2	0.7658	16.31
24.10.2014 15:34:24.7	-217.53	513.1	0.8313	16.23
24.10.2014 15:34:24.8	-217.54	513.2	0.8519	16.17
24.10.2014 15:34:24.9	-217.21	513.3	0.952	16.28
24.10.2014 15:34:25.0	-216.42	513.1	0.9628	16.34
24.10.2014 15:34:25.1	-216.55	513	0.9845	16.21
24.10.2014 15:34:25.2	-216.38	513.2	0.951	16.14
24.10.2014 15:34:25.3	-213.77	513.2	1.0386	16.3
24.10.2014 15:34:25.4	-213.94	513.1	0.8926	16.35
24.10.2014 15:34:25.5	-213.92	513.1	1.0254	16.18
24.10.2014 15:34:25.6	-213.52	513.3	0.9778	16.16
24.10.2014 15:34:25.7	-211.16	513.4	1.1563	16.28
24.10.2014 15:34:25.8	-211.39	513.1	1.0185	16.35
24.10.2014 15:34:25.9	-211.35	513.1	0.8668	16.18
24.10.2014 15:34:26.0	-208.62	513.4	0.9364	16.2
24.10.2014 15:34:26.1	-208.38	513.4	0.9695	16.26
24.10.2014 15:34:26.2	-208.39	513.2	0.8365	16.28
24.10.2014 15:34:26.3	-208.38	513.2	0.9071	16.21
24.10.2014 15:34:26.4	-205.75	513.5	1.0451	16.21
24.10.2014 15:34:26.5	-205.85	513.5	0.9141	16.29
24.10.2014 15:34:26.6	-205.77	513.3	0.8839	16.22
24.10.2014 15:34:26.7	-204.91	513.5	0.9699	16.2
24.10.2014 15:34:26.8	-203.07	513.7	0.9377	16.23
24.10.2014 15:34:26.9	-203.22	513.7	0.819	16.31
24.10.2014 15:34:27.0	-203.26	513.7	0.8138	16.19
24.10.2014 15:34:27.1	-201.85	513.9	0.9216	16.15
24.10.2014 15:34:27.2	-200.1	514	0.9553	16.25
24.10.2014 15:34:27.3	-200.28	513.8	0.9157	16.35
24.10.2014 15:34:27.4	-199.76	513.7	0.9059	16.17
24.10.2014 15:34:27.5	-197.13	514	0.74	16.14
24.10.2014 15:34:27.6	-197.34	514	0.7973	16.26
24.10.2014 15:34:27.7	-197.34	513.8	0.9161	16.33
24.10.2014 15:34:27.8	-195.67	513.8	0.8411	16.16
24.10.2014 15:34:27.9	-194.63	514	0.8019	16.13
24.10.2014 15:34:28.0	-194.71	514	0.8155	16.28
24.10.2014 15:34:28.1	-194.71	513.7	0.8688	16.26
24.10.2014 15:34:28.2	-192.88	513.7	0.9493	16.17
24.10.2014 15:34:28.3	-192.14	514	0.864	16.18
24.10.2014 15:34:28.4	-192.11	513.9	0.945	16.28
24.10.2014 15:34:28.5	-190.92	513.7	0.886	16.22
24.10.2014 15:34:28.6	-189.05	513.7	0.888	16.21
24.10.2014 15:34:28.7	-189.19	513.9	0.9064	16.19
24.10.2014 15:34:28.8	-189.15	513.8	0.9488	16.28
24.10.2014 15:34:28.9	-187.88	513.7	0.8602	16.21
24.10.2014 15:34:29.0	-186.51	513.8	0.8603	16.16

Calculated Velocity [m/s]
22.1144487
23.2644349
23.2843162
21.8301459
21.2549707
20.2871418
22.0585806
21.0459163
21.172568
22.4284065
22.8136522
23.3603712
21.9264956
22.8789145
19.8244221
19.842568
20.6737418
20.9283267
22.1237464
22.2488843
22.4982147
22.1121237
23.1081063
21.4224254
22.9607914
22.4215284
24.3823443
22.8834085
21.1105549
21.9417317
22.3261637
20.7383008
21.5957246
23.1803037
21.6788905
21.3177696
22.3307689
21.9569572
20.5202264
20.4549791
21.7676442
22.1620579
21.6978551
21.5814354
19.5054537
20.2465523
21.7025936
20.7952437
20.3048742
20.4763328
21.1348954
22.0923512
21.0764309
22.042259
21.3430783
21.367154
21.5873904
22.0865323
21.0300312
21.0312535



24.10.2014 15:34:29.1	-186.58	513.8	0.9407	16.24	21.9920528
24.10.2014 15:34:29.2	-186.61	513.7	1.0261	16.28	22.9686273
24.10.2014 15:34:29.3	-184.11	513.7	0.863	16.19	21.0642303
24.10.2014 15:34:29.4	-184.01	513.8	0.964	16.09	22.2627451
24.10.2014 15:34:29.5	-183.97	513.9	1.0226	16.31	22.9294212
24.10.2014 15:34:29.6	-183.11	513.7	0.949	16.29	22.08886
24.10.2014 15:34:29.7	-180.85	513.7	0.8267	16.17	20.6164633
24.10.2014 15:34:29.8	-181.1	514	0.9056	16.12	21.5778616
24.10.2014 15:34:29.9	-180.9	514	0.9713	16.29	22.3468797
24.10.2014 15:34:30.0	-178.34	513.8	1.001	16.27	22.6859639
24.10.2014 15:34:30.1	-178.52	513.8	0.9488	16.18	22.0865323
24.10.2014 15:34:30.2	-178.49	514	1.0216	16.17	22.9182071
24.10.2014 15:34:30.3	-177.22	514	0.935	16.28	21.9253231
24.10.2014 15:34:30.4	-175.74	513.9	0.8968	16.24	21.4727663
24.10.2014 15:34:30.5	-175.94	513.9	0.9083	16.19	21.6100043
24.10.2014 15:34:30.6	-175.89	514.2	0.9376	16.2	21.9557864
24.10.2014 15:34:30.7	-173.13	514.2	0.9648	16.28	22.2719809
24.10.2014 15:34:30.8	-172.96	514.1	1.006	16.23	22.7425515
24.10.2014 15:34:30.9	-172.94	514.2	0.9964	16.16	22.6337782
24.10.2014 15:34:31.0	-172.2	514.4	0.9412	16.26	21.9978966
24.10.2014 15:34:31.1	-170.13	514.3	0.819	16.28	20.5202264
24.10.2014 15:34:31.2	-170.37	514.2	0.9418	16.23	22.0049071
24.10.2014 15:34:31.3	-170.33	514.4	0.9555	16.15	22.1643777
24.10.2014 15:34:31.4	-169.41	514.5	0.8958	16.26	21.4607911
24.10.2014 15:34:31.5	-167.62	514.4	1.0491	16.35	23.2246213
24.10.2014 15:34:31.6	-167.78	514.4	0.914	16.18	21.6777047
24.10.2014 15:34:31.7	-167.46	514.7	0.9015	16.15	21.5289606
24.10.2014 15:34:31.8	-164.63	514.8	0.9902	16.28	22.5632501
24.10.2014 15:34:31.9	-164.82	514.6	0.9055	16.33	21.5766703
24.10.2014 15:34:32.0	-164.83	514.6	0.914	16.18	21.6777047
24.10.2014 15:34:32.1	-164.36	515	0.8837	16.15	21.3153577
24.10.2014 15:34:32.2	-162.05	515.1	0.9052	16.3	21.5730957
24.10.2014 15:34:32.3	-162.27	514.9	0.9509	16.27	22.1109611
24.10.2014 15:34:32.4	-162.26	514.9	1.0768	16.22	23.5292303
24.10.2014 15:34:32.5	-160.58	515.2	0.9483	16.19	22.080712
24.10.2014 15:34:32.6	-159.54	515.2	0.8758	16.26	21.2198675
24.10.2014 15:34:32.7	-159.63	515	0.9217	16.29	21.7688251
24.10.2014 15:34:32.8	-158.71	515.1	1.0363	16.18	23.0825054
24.10.2014 15:34:32.9	-156.45	515.2	0.9113	16.23	21.6456625
24.10.2014 15:34:33.0	-156.74	515.2	0.8993	16.27	21.5026751
24.10.2014 15:34:33.1	-156.68	515	0.9346	16.24	21.9206327
24.10.2014 15:34:33.2	-154.68	515.1	0.9766	16.16	22.4077658
24.10.2014 15:34:33.3	-154.08	515.3	1.0135	16.28	22.82717
24.10.2014 15:34:33.4	-154.08	515.1	0.8739	16.31	21.1968373
24.10.2014 15:34:33.5	-153.74	515	0.9013	16.2	21.5265723
24.10.2014 15:34:33.6	-151.36	515.2	0.8359	16.14	20.730862
24.10.2014 15:34:33.7	-151.58	515.3	0.8154	16.3	20.4750773
24.10.2014 15:34:33.8	-151.51	515.1	0.7712	16.31	19.9124046
24.10.2014 15:34:33.9	-149.13	515	1.0338	16.19	23.0546462
24.10.2014 15:34:34.0	-148.97	515.3	0.9132	16.13	21.6682156
24.10.2014 15:34:34.1	-148.9	515.3	0.962	16.29	22.239639
24.10.2014 15:34:34.2	-148.93	515	0.9497	16.31	22.0970051
24.10.2014 15:34:34.3	-146.26	515	1.0217	16.18	22.9193287
24.10.2014 15:34:34.4	-146.38	515.2	0.9514	16.18	22.1167735
24.10.2014 15:34:34.5	-146.35	515.2	0.8915	16.29	21.4092213
24.10.2014 15:34:34.6	-144.15	514.9	0.8276	16.27	20.6276825
24.10.2014 15:34:34.7	-143.39	514.9	0.8406	16.2	20.7890618
24.10.2014 15:34:34.8	-143.4	515.1	0.8984	16.22	21.4919127
24.10.2014 15:34:34.9	-143.39	515	0.8618	16.27	21.0495803
24.10.2014 15:34:35.0	-141.2	514.8	0.8966	16.26	21.4703718
24.10.2014 15:34:35.1	-140.83	514.9	0.8582	16.17	21.0055691
24.10.2014 15:34:35.2	-140.84	515	0.9882	16.25	22.5404521
24.10.2014 15:34:35.3	-140.32	514.9	0.9398	16.32	21.98153
24.10.2014 15:34:35.4	-138.04	514.8	1.002	16.2	22.6972927
24.10.2014 15:34:35.5	-138.27	514.9	0.8496	16.18	20.900056
24.10.2014 15:34:35.6	-138.21	514.9	0.9215	16.26	21.7664632
24.10.2014 15:34:35.7	-135.25	514.7	0.8587	16.36	21.0116873
24.10.2014 15:34:35.8	-135.31	514.7	0.9056	16.19	21.5778616
24.10.2014 15:34:35.9	-135.29	514.9	0.884	16.15	21.3189755
24.10.2014 15:34:36.0	-134.39	515	0.9267	16.3	21.8277906
24.10.2014 15:34:36.1	-132.55	514.7	0.9731	16.32	22.3675766
24.10.2014 15:34:36.2	-132.75	514.7	0.879	16.18	21.2585987

24.10.2014 15:34:36.3	-132.7	514.9	0.8772	16.18	21.2368211
24.10.2014 15:34:36.4	-131.56	515	0.8362	16.3	20.7345817
24.10.2014 15:34:36.5	-129.96	514.7	0.8959	16.29	21.4619889
24.10.2014 15:34:36.6	-130.12	514.7	0.9749	16.19	22.3882544
24.10.2014 15:34:36.7	-129.64	514.9	0.9901	16.22	22.5621108
24.10.2014 15:34:36.8	-126.96	514.9	0.9764	16.26	22.4054712
24.10.2014 15:34:36.9	-127.18	514.6	0.8792	16.26	21.2610171
24.10.2014 15:34:37.0	-127.18	514.7	0.8195	16.16	20.5264892
24.10.2014 15:34:37.1	-126.56	514.9	0.8927	16.22	21.4236253
24.10.2014 15:34:37.2	-124.35	514.7	0.9011	16.29	21.5241838
24.10.2014 15:34:37.3	-124.59	514.5	1.0362	16.21	23.0813917
24.10.2014 15:34:37.4	-124.59	514.6	0.9317	16.16	21.8865972
24.10.2014 15:34:37.5	-122.74	514.6	0.7837	16.23	20.0731311
24.10.2014 15:34:37.6	-121.94	514.3	0.9182	16.32	21.7274541
24.10.2014 15:34:37.7	-122.03	514.3	0.8632	16.17	21.066671
24.10.2014 15:34:37.8	-122	514.3	0.8396	16.13	20.7766925
24.10.2014 15:34:37.9	-119.62	514.4	0.9309	16.26	21.8771988
24.10.2014 15:34:38.0	-119.01	514.1	0.9724	16.31	22.3595301
24.10.2014 15:34:38.1	-119.03	514	0.9673	16.16	22.3008179
24.10.2014 15:34:38.2	-117.58	514.2	0.7736	16.09	19.9433645
24.10.2014 15:34:38.3	-115.95	514.2	0.8119	16.28	20.4310868
24.10.2014 15:34:38.4	-116.1	513.9	0.8419	16.24	20.8051309
24.10.2014 15:34:38.5	-116.09	513.9	0.895	16.19	21.4512061
24.10.2014 15:34:38.6	-113.68	514	0.8005	16.11	20.2871418
24.10.2014 15:34:38.7	-113.51	513.9	0.8823	16.27	21.2984666
24.10.2014 15:34:38.8	-113.47	513.6	0.903	16.22	21.5468641
24.10.2014 15:34:38.9	-112.79	513.5	0.9435	16.15	22.0247582
24.10.2014 15:34:39.0	-110.72	513.7	0.8444	16.18	20.8359981
24.10.2014 15:34:39.1	-110.9	513.5	0.9288	16.24	21.8525086
24.10.2014 15:34:39.2	-110.94	513.3	0.8966	16.19	21.4703718
24.10.2014 15:34:39.3	-108.74	513.3	0.9332	16.12	21.9042084
24.10.2014 15:34:39.4	-107.91	513.4	0.863	16.24	21.0642303
24.10.2014 15:34:39.5	-107.95	513.1	0.9128	16.23	21.6634695
24.10.2014 15:34:39.6	-107.64	513	0.9844	16.17	22.4970721
24.10.2014 15:34:39.7	-105.23	513	0.7486	16.05	19.6184688
24.10.2014 15:34:39.8	-105.37	513	0.9064	16.25	21.5873904
24.10.2014 15:34:39.9	-105.39	512.8	0.9446	16.22	22.0375935
24.10.2014 15:34:40.0	-103.02	512.7	0.9352	16.13	21.927668
24.10.2014 15:34:40.1	-102.82	512.9	0.887	16.06	21.3551196
24.10.2014 15:34:40.2	-102.8	512.8	1.0172	16.23	22.8687998
24.10.2014 15:34:40.3	-102.12	512.5	0.932	16.26	21.8901206
24.10.2014 15:34:40.4	-99.99	512.5	0.8263	16.1	20.6114751
24.10.2014 15:34:40.5	-100.24	512.7	0.9001	16.08	21.5122372
24.10.2014 15:34:40.6	-100.14	512.7	0.8969	16.23	21.4739634
24.10.2014 15:34:40.7	-97.47	512.4	0.9456	16.2	22.0492554
24.10.2014 15:34:40.8	-97.69	512.5	0.904	16.13	21.5587915
24.10.2014 15:34:40.9	-97.66	512.7	1.0057	16.16	22.7391602
24.10.2014 15:34:41.0	-96.53	512.8	0.8889	16.23	21.3779792
24.10.2014 15:34:41.1	-94.88	512.6	0.9103	16.13	21.633783
24.10.2014 15:34:41.2	-95.06	512.7	0.9763	16.16	22.4043239
24.10.2014 15:34:41.3	-95.05	512.9	1.0478	16.12	23.2102273
24.10.2014 15:34:41.4	-92.75	512.8	0.9879	16.26	22.5370304
24.10.2014 15:34:41.5	-92.48	512.6	0.8743	16.12	21.2016879
24.10.2014 15:34:41.6	-92.47	512.8	0.8212	16.07	20.5477687
24.10.2014 15:34:41.7	-91.81	512.9	0.8234	16.19	20.5752741
24.10.2014 15:34:41.8	-89.28	512.8	0.9102	16.22	21.6325947
24.10.2014 15:34:41.9	-89.51	512.7	0.9572	16.08	22.1840861
24.10.2014 15:34:42.0	-89.49	512.9	0.8877	16.1	21.3635444
24.10.2014 15:34:42.1	-87.73	512.9	0.9324	16.29	21.8948175
24.10.2014 15:34:42.2	-86.85	512.7	0.7988	16.21	20.2655888
24.10.2014 15:34:42.3	-86.93	512.6	0.8536	16.16	20.9491979
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24.10.2014 15:34:43.3	-79.17	512.8	0.8939	16.2	21.4380197
24.10.2014 15:34:43.4	-79.16	512.6	0.8384	16.18	20.7618396

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24.10.2014 15:35:04.0	76.26	511.6	0.9308	16.26	21.8760237
24.10.2014 15:35:04.1	78.07	511.7	0.913	16.25	21.6658427
24.10.2014 15:35:04.2	78.92	511.9	0.9269	16.24	21.8301459
24.10.2014 15:35:04.3	78.83	511.7	0.8512	16.33	20.9197266
24.10.2014 15:35:04.4	79.08	511.6	0.7802	16.24	20.0282577
24.10.2014 15:35:04.5	81.96	511.7	0.882	16.2	21.2948453
24.10.2014 15:35:04.6	81.75	511.8	0.8892	16.28	21.3815864
24.10.2014 15:35:04.7	81.77	511.7	0.9692	16.35	22.3227091
24.10.2014 15:35:04.8	83.08	511.6	0.982	16.19	22.469631
24.10.2014 15:35:04.9	84.52	511.8	0.865	16.19	21.0886244
24.10.2014 15:35:05.0	84.36	511.9	0.9828	16.31	22.4787818

24.10.2014 15:35:05.1	84.92	511.7	0.9191	16.35	21.7380999
24.10.2014 15:35:05.2	87.15	511.8	0.9236	16.22	21.7912508
24.10.2014 15:35:05.3	86.93	512	0.9068	16.15	21.5921532
24.10.2014 15:35:05.4	86.96	512	0.9088	16.34	21.6159515
24.10.2014 15:35:05.5	88.66	511.8	0.9239	16.32	21.7947896
24.10.2014 15:35:05.6	89.61	511.8	0.8328	16.23	20.6923852
24.10.2014 15:35:05.7	89.57	512	0.8173	16.18	20.4989184
24.10.2014 15:35:05.8	89.69	511.9	0.9058	16.33	21.5802442
24.10.2014 15:35:05.9	92.26	511.7	0.8642	16.28	21.0788701
24.10.2014 15:35:06.0	92.1	511.7	0.9238	16.22	21.7936101
24.10.2014 15:35:06.1	92.13	511.9	0.8479	16.23	20.8791356
24.10.2014 15:35:06.2	93.44	511.8	0.8827	16.32	21.303294
24.10.2014 15:35:06.3	95.24	511.6	0.8719	16.27	21.172568
24.10.2014 15:35:06.4	95.08	511.7	0.8876	16.19	21.362341
24.10.2014 15:35:06.5	95.09	511.8	0.7837	16.29	20.0731311
24.10.2014 15:35:06.6	97.43	511.6	0.9084	16.32	21.6111939
24.10.2014 15:35:06.7	97.7	511.5	0.8336	16.25	20.7023216
24.10.2014 15:35:06.8	97.67	511.7	0.8106	16.18	20.4147233
24.10.2014 15:35:06.9	99.25	511.8	0.8947	16.3	21.4476106
24.10.2014 15:35:07.0	100.29	511.6	0.8739	16.36	21.1968373
24.10.2014 15:35:07.1	100.23	511.6	0.8059	16.2	20.3554532
24.10.2014 15:35:07.2	100.33	511.8	0.9014	16.18	21.5277665
24.10.2014 15:35:07.3	102.95	511.9	0.9343	16.31	21.9171143
24.10.2014 15:35:07.4	102.82	511.7	0.9294	16.38	21.8595658
24.10.2014 15:35:07.5	102.83	511.7	1.054	16.19	23.2787954
24.10.2014 15:35:07.6	104.87	512	1.0122	16.2	22.8125253
24.10.2014 15:35:07.7	105.42	512.1	0.9687	16.32	22.3169503
24.10.2014 15:35:07.8	105.4	511.8	0.8982	16.29	21.4895204
24.10.2014 15:35:07.9	105.81	511.9	0.9338	16.24	21.9112489
24.10.2014 15:35:08.0	108.19	512.2	0.9803	16.19	22.4501733
24.10.2014 15:35:08.1	107.97	512.1	1.0139	16.32	22.8316742
24.10.2014 15:35:08.2	108.04	511.9	1.0328	16.27	23.043493
24.10.2014 15:35:08.3	108.57	512.1	0.8341	16.24	20.7085293
24.10.2014 15:35:08.4	110.79	512.3	0.8363	16.23	20.7358215
24.10.2014 15:35:08.5	110.53	512.2	0.9642	16.34	22.2650544
24.10.2014 15:35:08.6	110.59	512.2	0.969	16.22	22.3204058
24.10.2014 15:35:08.7	113.65	512.4	0.9113	16.21	21.6456625
24.10.2014 15:35:08.8	113.52	512.5	0.8865	16.28	21.3490998
24.10.2014 15:35:08.9	113.54	512.3	0.8574	16.34	20.9957763
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24.10.2014 15:35:09.1	116.34	512.5	0.8764	16.15	21.227135
24.10.2014 15:35:09.2	116.12	512.6	0.8909	16.31	21.4020156
24.10.2014 15:35:09.3	116.11	512.4	0.8697	16.36	21.1458395
24.10.2014 15:35:09.4	118.28	512.3	1.0871	16.18	23.6414955
24.10.2014 15:35:09.5	118.76	512.6	0.9138	16.17	21.6753328
24.10.2014 15:35:09.6	118.72	512.6	0.9352	16.31	21.927668
24.10.2014 15:35:09.7	120.32	512.3	0.9078	16.33	21.6040556
24.10.2014 15:35:09.8	121.81	512.2	0.9827	16.22	22.4776381
24.10.2014 15:35:09.9	121.68	512.5	1.006	16.18	22.7425515
24.10.2014 15:35:10.0	121.64	512.4	0.9165	16.32	21.7073312
24.10.2014 15:35:10.1	123.87	512.1	0.9106	16.24	21.6373475
24.10.2014 15:35:10.2	123.85	512.1	0.8791	16.23	21.259808
24.10.2014 15:35:10.3	123.88	512.4	0.9621	16.22	22.2407949
24.10.2014 15:35:10.4	124.87	512.2	0.9121	16.32	21.6551614
24.10.2014 15:35:10.5	127.1	512.1	0.9489	16.23	22.0876962
24.10.2014 15:35:10.6	126.83	512.3	0.9447	16.21	22.03876
24.10.2014 15:35:10.7	126.85	512.4	0.8826	16.25	21.3020872
24.10.2014 15:35:10.8	128.91	512.4	0.9925	16.34	22.5894395
24.10.2014 15:35:10.9	129.43	512.3	0.8892	16.2	21.3815864
24.10.2014 15:35:11.0	129.41	512.5	0.9844	16.15	22.4970721
24.10.2014 15:35:11.1	129.87	512.5	0.9597	16.29	22.2130372
24.10.2014 15:35:11.2	132.17	512.3	0.8283	16.33	20.6364043
24.10.2014 15:35:11.3	131.98	512.3	0.9195	16.21	21.7428297
24.10.2014 15:35:11.4	132.06	512.5	0.9382	16.15	21.9628104
24.10.2014 15:35:11.5	133.77	512.6	1.003	16.29	22.7086159
24.10.2014 15:35:11.6	135.04	512.4	0.9195	16.32	21.7428297
24.10.2014 15:35:11.7	134.95	512.4	0.9787	16.18	22.4318448
24.10.2014 15:35:11.8	134.98	512.6	0.9942	16.16	22.6087773
24.10.2014 15:35:11.9	137.66	512.6	0.9396	16.26	21.9791909
24.10.2014 15:35:12.0	137.53	512.4	1.0755	16.28	23.5150228
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24.10.2014 15:35:12.2	138.54	512.6	0.9211	16.2	21.7617386



24.10.2014 15:35:12.3	140.3	512.5	1.0003	16.28	22.6780303
24.10.2014 15:35:12.4	140.11	512.3	0.9281	16.23	21.8442724
24.10.2014 15:35:12.5	140.45	512.4	0.9559	16.16	22.1690166
24.10.2014 15:35:12.6	142.88	512.6	1.0298	16.24	23.0100012
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24.10.2014 15:35:12.8	142.7	512.3	0.8893	16.25	21.3827886
24.10.2014 15:35:12.9	144.16	512.5	0.8557	16.09	20.9749514
24.10.2014 15:35:13.0	145.41	512.6	0.9792	16.29	22.4375741
24.10.2014 15:35:13.1	145.27	512.5	0.9744	16.28	22.3825125
24.10.2014 15:35:13.2	145.25	512.5	1.1111	16.2	23.9010385
24.10.2014 15:35:13.3	148.29	512.6	1.0886	16.14	23.6578003
24.10.2014 15:35:13.4	148.21	512.7	0.9964	16.23	22.6337782
24.10.2014 15:35:13.5	148.23	512.5	0.9188	16.35	21.7345519
24.10.2014 15:35:13.6	149.16	512.5	0.8546	16.15	20.9614654
24.10.2014 15:35:13.7	151.06	512.7	0.872	16.14	21.1737821
24.10.2014 15:35:13.8	150.81	512.7	1.0263	16.24	22.9708656
24.10.2014 15:35:13.9	150.82	512.4	0.9464	16.29	22.0585806
24.10.2014 15:35:14.0	152.94	512.4	0.9534	16.15	22.1400079
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24.10.2014 15:35:14.3	153.95	512.4	0.9534	16.25	22.1400079
24.10.2014 15:35:14.4	156.56	512.4	1.071	16.16	23.4657766
24.10.2014 15:35:14.5	156.37	512.6	0.9788	16.19	22.4329908
24.10.2014 15:35:14.6	156.34	512.5	1.0723	16.28	23.4800139
24.10.2014 15:35:14.7	157.96	512.4	1.0336	16.21	23.052416
24.10.2014 15:35:14.8	159	512.5	0.8719	16.17	21.172568
24.10.2014 15:35:14.9	158.96	512.5	0.8772	16.22	21.2368211
24.10.2014 15:35:15.0	158.98	512.4	0.9072	16.31	21.5969149
24.10.2014 15:35:15.1	161.63	512.2	0.9176	16.17	21.720354
24.10.2014 15:35:15.2	161.54	512.3	0.8968	16.16	21.4727663
24.10.2014 15:35:15.3	161.57	512.3	0.9148	16.26	21.6871895
24.10.2014 15:35:15.4	163.82	512.2	0.9927	16.3	22.5917154
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24.10.2014 15:35:15.6	164.54	512.3	0.956	16.12	22.1701761
24.10.2014 15:35:15.7	164.78	512.4	1.0575	16.28	23.3174141
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24.10.2014 15:35:16.4	170.32	512.5	0.83	16.15	20.6575705
24.10.2014 15:35:16.5	172.45	512.4	0.8532	16.32	20.9442889
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24.10.2014 15:35:16.8	174.19	512.5	0.9075	16.24	21.6004856
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24.10.2014 15:35:17.1	175.12	512.6	0.9951	16.1	22.6190083
24.10.2014 15:35:17.2	177.62	512.7	0.9503	16.28	22.1039842
24.10.2014 15:35:17.3	177.34	512.6	1.0101	16.25	22.7888486
24.10.2014 15:35:17.4	177.38	512.6	0.9616	16.25	22.2350149
24.10.2014 15:35:17.5	179.82	512.9	1.0306	16.15	23.0189371
24.10.2014 15:35:17.6	179.99	513	1.0002	16.37	22.6768967
24.10.2014 15:35:17.7	180.01	512.9	0.9376	16.19	21.9557864
24.10.2014 15:35:17.8	181.55	512.9	0.8485	15.99	20.8865216
24.10.2014 15:35:17.9	182.67	513.3	1.0766	16.02	23.5270451
24.10.2014 15:35:18.0	182.56	513.3	1.0682	16.35	23.4350824
24.10.2014 15:35:18.1	182.56	513.1	1.1692	16.28	24.5179751
24.10.2014 15:35:18.2	185.27	513.1	1.0375	16.22	23.0958659
24.10.2014 15:35:18.3	185.14	513.3	1.0394	16.18	23.1170043
24.10.2014 15:35:18.4	185.17	513.3	1.0084	16.27	22.7696637
24.10.2014 15:35:18.5	187.18	513.1	0.9591	16.27	22.2060924
24.10.2014 15:35:18.6	187.75	513.2	0.935	16.17	21.9253231
24.10.2014 15:35:18.7	187.75	513.4	0.9797	16.24	22.4433019
24.10.2014 15:35:18.8	188.11	513.4	1.1254	16.28	24.0543515
24.10.2014 15:35:18.9	190.46	513.3	1.054	16.23	23.2787954
24.10.2014 15:35:19.0	190.29	513.5	0.9518	16.16	22.1214223
24.10.2014 15:35:19.1	190.38	513.6	0.9631	16.25	22.2523503
24.10.2014 15:35:19.2	191.78	513.5	0.9269	16.34	21.8301459
24.10.2014 15:35:19.3	193.02	513.5	0.9561	16.18	22.1713356
24.10.2014 15:35:19.4	192.94	513.7	1.0958	16.17	23.7359077

24.10.2014 15:35:19.5	193.6	513.8	0.9816	16.24	22.4650543
24.10.2014 15:35:19.6	195.68	513.6	1.0494	16.37	23.2279417
24.10.2014 15:35:19.7	195.45	513.6	1.2323	16.15	25.1708813
24.10.2014 15:35:19.8	195.51	513.8	1.0371	16.14	23.0914133
24.10.2014 15:35:19.9	197.36	513.8	1.0456	16.32	23.185848
24.10.2014 15:35:20.0	198.16	513.5	0.9559	16.29	22.1690166
24.10.2014 15:35:20.1	198.08	513.5	1.0262	16.21	22.9697465
24.10.2014 15:35:20.2	199.19	513.7	1.1398	16.16	24.2077555
24.10.2014 15:35:20.3	200.82	513.7	1.1684	16.32	24.5095858
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24.10.2014 15:35:20.5	201.06	513.6	1.0927	16.21	23.7023097
24.10.2014 15:35:20.6	203.42	513.8	1.1024	16.21	23.8072811
24.10.2014 15:35:20.7	203.25	513.7	1.1744	16.3	24.5724363
24.10.2014 15:35:20.8	203.25	513.5	1.0656	16.24	23.4065445
24.10.2014 15:35:20.9	204.8	513.6	1.1462	16.19	24.2756238
24.10.2014 15:35:21.0	205.95	513.7	1.1168	16.23	23.9622668
24.10.2014 15:35:21.1	205.77	513.6	1.0842	16.31	23.6099408
24.10.2014 15:35:21.2	205.83	513.5	1.1246	16.22	24.0458003
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24.10.2014 15:35:21.5	208.39	513.6	1.1294	16.34	24.0970617
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24.10.2014 15:35:21.7	211.06	513.9	1.0493	16.12	23.2268349
24.10.2014 15:35:21.8	211	513.9	0.9784	16.34	22.4284065
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24.10.2014 15:35:22.0	213.75	513.7	0.9476	16.19	22.0725609
24.10.2014 15:35:22.1	213.56	514	0.9229	16.16	21.7829914
24.10.2014 15:35:22.2	213.58	514.1	0.8885	16.31	21.3731687
24.10.2014 15:35:22.3	215.99	513.8	0.9698	16.28	22.3296177
24.10.2014 15:35:22.4	216.16	513.9	1.0711	16.18	23.4668721
24.10.2014 15:35:22.5	216.19	514.1	0.9563	16.19	22.1736544
24.10.2014 15:35:22.6	217.82	514	0.9792	16.3	22.4375741
24.10.2014 15:35:22.7	218.83	513.8	1.0458	16.25	23.1880654
24.10.2014 15:35:22.8	218.71	513.8	1.0139	16.19	22.8316742
24.10.2014 15:35:22.9	218.87	514	0.9719	16.23	22.3537808
24.10.2014 15:35:23.0	221.46	513.8	1.052	16.28	23.2566987
24.10.2014 15:35:23.1	221.3	513.7	1.0358	16.24	23.0769363
24.10.2014 15:35:23.2	221.37	513.8	1.1159	16.14	23.9526096
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24.10.2014 15:35:23.7	226.19	514.1	1.1273	16.29	24.0746483
24.10.2014 15:35:23.8	226.51	513.9	1.0433	16.33	23.1603331
24.10.2014 15:35:23.9	226.51	513.9	1.1161	16.19	23.954756
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24.10.2014 15:35:24.1	229.7	514.2	1.0109	16.31	22.7978712
24.10.2014 15:35:24.2	229.42	514	1.0396	16.31	23.1192282
24.10.2014 15:35:24.3	229.42	514.1	1.1613	16.17	24.4350038
24.10.2014 15:35:24.4	231.25	514.5	1.1822	16.22	24.6539025
24.10.2014 15:35:24.5	232.12	514.5	1.0333	16.25	23.0490703
24.10.2014 15:35:24.6	232.01	514.3	1.0077	16.28	22.7617593
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24.10.2014 15:35:24.8	234.83	514.7	1.082	16.25	23.5859747
24.10.2014 15:35:24.9	234.59	514.7	1.0743	16.25	23.5019006
24.10.2014 15:35:25.0	234.62	514.6	1.05	16.24	23.2345811
24.10.2014 15:35:25.1	236.82	514.8	1.0525	16.19	23.2622249
24.10.2014 15:35:25.2	237.21	515	1.1596	16.25	24.4171123
24.10.2014 15:35:25.3	237.19	514.9	1.0808	16.32	23.5728919
24.10.2014 15:35:25.4	237.72	514.9	1.0562	16.21	23.3030775
24.10.2014 15:35:25.5	240	515	1.052	16.15	23.2566987
24.10.2014 15:35:25.6	239.78	515.1	0.9885	16.28	22.5438732
24.10.2014 15:35:25.7	239.78	514.9	1.0395	16.34	23.1181163
24.10.2014 15:35:25.8	241.7	514.8	1.0312	16.2	23.0256368
24.10.2014 15:35:25.9	242.81	514.9	1.1322	16.11	24.1269138
24.10.2014 15:35:26.0	242.75	514.9	1.1761	16.32	24.5902148
24.10.2014 15:35:26.1	242.85	514.7	0.9895	16.3	22.5552734
24.10.2014 15:35:26.2	245.45	514.7	0.9913	16.19	22.5757793
24.10.2014 15:35:26.3	245.34	515	1.1138	16.14	23.9300609
24.10.2014 15:35:26.4	245.35	515	1.1275	16.32	24.0767838
24.10.2014 15:35:26.5	247.42	514.8	1.1873	16.26	24.7070237
24.10.2014 15:35:26.6	247.95	514.8	1.2114	16.18	24.9565175

24.10.2014 15:35:26.7	247.93	515.1	1.1152	16.19	23.9450957
24.10.2014 15:35:26.8	248.34	515.1	1.101	16.26	23.7921592
24.10.2014 15:35:26.9	250.7	514.9	1.1247	16.25	24.0468694
24.10.2014 15:35:27.0	250.49	515	0.9382	16.14	21.9628104
24.10.2014 15:35:27.1	250.51	515.1	1.038	16.28	23.1014305
24.10.2014 15:35:27.2	253.02	515	0.9846	16.26	22.4993573
24.10.2014 15:35:27.3	253.07	514.9	0.9804	16.23	22.4513184
24.10.2014 15:35:27.4	253.09	515	1.0242	16.12	22.9473523
24.10.2014 15:35:27.5	253.82	515.1	0.987	16.27	22.5267621
24.10.2014 15:35:27.6	255.88	514.8	0.9368	16.28	21.9464176
24.10.2014 15:35:27.7	255.63	514.7	0.989	16.16	22.5495741
24.10.2014 15:35:27.8	255.69	514.9	1.1184	16.12	23.9794256
24.10.2014 15:35:27.9	257.7	514.8	1.0111	16.26	22.8001263
24.10.2014 15:35:28.0	258.28	514.6	0.9664	16.32	22.2904408
24.10.2014 15:35:28.1	258.25	514.5	0.9847	16.14	22.5004999
24.10.2014 15:35:28.2	258.7	514.7	0.8914	16.14	21.4080205
24.10.2014 15:35:28.3	261.38	514.7	0.9387	16.26	21.968662
24.10.2014 15:35:28.4	261.15	514.4	0.9757	16.26	22.3974383
24.10.2014 15:35:28.5	261.23	514.4	1.0135	16.16	22.82717
24.10.2014 15:35:28.6	262.72	514.7	1.0427	16.14	23.1536724
24.10.2014 15:35:28.7	263.87	514.6	0.8176	16.25	20.5026802
24.10.2014 15:35:28.8	263.8	514.4	0.9166	16.22	21.7085154
24.10.2014 15:35:28.9	263.78	514.5	0.9134	16.16	21.6705883
24.10.2014 15:35:29.0	266.42	514.7	0.9996	16.17	22.670094
24.10.2014 15:35:29.1	266.34	514.6	0.9763	16.26	22.4043239
24.10.2014 15:35:29.2	266.36	514.4	0.9097	16.17	21.6266521
24.10.2014 15:35:29.3	268.53	514.5	0.8919	16.15	21.4140237
24.10.2014 15:35:29.4	269.41	514.7	0.9237	16.16	21.7924305
24.10.2014 15:35:29.5	269.32	514.5	0.8641	16.31	21.0776505
24.10.2014 15:35:29.6	269.54	514.4	0.8207	16.12	20.5415123
24.10.2014 15:35:29.7	271.71	514.6	0.8519	16.1	20.9283267
24.10.2014 15:35:29.8	271.53	514.7	0.9456	16.2	22.0492554
24.10.2014 15:35:29.9	271.52	514.5	0.8389	16.28	20.7680296
24.10.2014 15:35:30.0	273.08	514.5	0.9118	16.13	21.6515998
24.10.2014 15:35:30.1	274.69	514.8	0.8906	16.06	21.3984119
24.10.2014 15:35:30.2	274.48	514.9	0.9178	16.25	21.722721
24.10.2014 15:35:30.3	275.09	514.7	0.93	16.23	21.8666207
24.10.2014 15:35:30.4	277.3	514.7	0.85	16.17	20.9049754
24.10.2014 15:35:30.5	277.05	515	0.7988	16.08	20.2655888
24.10.2014 15:35:30.6	277.04	515	0.8073	16.22	20.3731261
24.10.2014 15:35:30.7	278.88	514.7	0.9027	16.19	21.5432846
24.10.2014 15:35:30.8	279.69	514.8	0.8237	16.14	20.5790219
24.10.2014 15:35:30.9	279.67	515.1	0.7769	16.14	19.9858562
24.10.2014 15:35:31.0	279.89	515.1	0.8041	16.2	20.3327082
24.10.2014 15:35:31.1	282.37	514.9	0.7262	16.18	19.3227226
24.10.2014 15:35:31.2	282.2	515	0.7813	16.08	20.0423716
24.10.2014 15:35:31.3	282.25	515.2	0.798	16.2	20.2554382
24.10.2014 15:35:31.4	283.48	515.1	0.7502	16.21	19.6394231
24.10.2014 15:35:31.5	284.95	515.1	0.672	16.16	18.5876649
24.10.2014 15:35:31.6	284.85	515.3	0.7334	16.06	19.4182751
24.10.2014 15:35:31.7	285.46	515.4	0.7667	16.2	19.8542245
24.10.2014 15:35:31.8	287.99	515.3	0.7158	16.26	19.1838621
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24.10.2014 15:35:32.1	288.45	515.6	0.7919	16.19	20.1778723
24.10.2014 15:35:32.2	290.58	515.4	0.7051	16.3	19.0399391
24.10.2014 15:35:32.3	290.34	515.4	0.6486	16.1	18.2611729
24.10.2014 15:35:32.4	290.5	515.7	0.7238	16.11	19.2907666
24.10.2014 15:35:32.5	292.96	515.6	0.7773	16.19	19.9910005
24.10.2014 15:35:32.6	292.84	515.5	0.6911	16.27	18.8499691
24.10.2014 15:35:32.7	292.83	515.5	0.6498	16.14	18.278058
24.10.2014 15:35:32.8	292.83	515.7	0.7047	16.16	19.0345377
24.10.2014 15:35:32.9	292.78	515.7	0.5884	16.2	17.3930814
24.10.2014 15:35:33.0	292.77	515.5	0.6346	16.24	18.0630145
24.10.2014 15:35:33.1	292.8	515.6	0.5757	16.1	17.2043517
24.10.2014 15:35:33.2	292.81	515.8	0.6029	16.22	17.6060868
24.10.2014 15:35:33.3	292.78	515.7	0.6253	16.21	17.9301702
24.10.2014 15:35:33.4	292.79	515.7	0.7167	16.18	19.1959186
24.10.2014 15:35:33.5	292.78	515.8	0.698	16.13	18.9438353
24.10.2014 15:35:33.6	292.8	515.9	0.721	16.21	19.2534176
24.10.2014 15:35:33.7	292.78	515.8	0.6382	16.32	18.1141766
24.10.2014 15:35:33.8	292.75	515.7	0.6505	16.12	18.2879004

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24.10.2014 15:35:34.1	292.82	515.8	0.5731	16.3	17.1654582
24.10.2014 15:35:34.2	292.82	515.8	0.7142	16.14	19.1624096
24.10.2014 15:35:34.3	292.86	516	0.686	16.11	18.7802883
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24.10.2014 15:35:34.5	292.81	515.8	0.6347	16.25	18.0644376
24.10.2014 15:35:34.6	292.84	515.8	0.7259	16.2	19.318731
24.10.2014 15:35:34.7	292.87	516.1	0.7716	16.12	19.9175679
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24.10.2014 15:35:34.9	292.84	515.8	0.7621	16.19	19.7945748
24.10.2014 15:35:35.0	292.8	515.8	0.7044	16.22	19.0304856
24.10.2014 15:35:35.1	292.8	516	0.6196	16.18	17.8482607
24.10.2014 15:35:35.2	292.77	515.9	0.6009	16.29	17.5768602
24.10.2014 15:35:35.3	292.78	515.6	0.585	16.22	17.3427567
24.10.2014 15:35:35.4	292.78	515.8	0.6058	16.16	17.6483794
24.10.2014 15:35:35.5	292.81	515.9	0.6768	16.26	18.6539313
24.10.2014 15:35:35.6	292.72	515.8	0.6679	16.28	18.5308747
24.10.2014 15:35:35.7	291.62	515.6	0.6609	16.21	18.4335115
24.10.2014 15:35:35.8	291.66	515.8	0.7507	16.14	19.6459668
24.10.2014 15:35:35.9	291.67	515.9	0.7666	16.31	19.8529297
24.10.2014 15:35:36.0	290.44	515.7	0.8206	16.3	20.5402608
24.10.2014 15:35:36.1	288.89	515.7	0.7487	16.2	19.6197791
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24.10.2014 15:35:36.5	286.17	515.8	0.8603	16.19	21.0312535
24.10.2014 15:35:36.6	286.15	516.1	0.9334	16.2	21.9065555
24.10.2014 15:35:36.7	285.47	516.1	0.9391	16.31	21.9733421
24.10.2014 15:35:36.8	283.25	515.8	0.8935	16.31	21.4332227
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24.10.2014 15:35:37.0	283.54	516	0.8217	16.21	20.5540231
24.10.2014 15:35:37.1	281.65	515.9	0.789	16.26	20.1408919
24.10.2014 15:35:37.2	280.93	515.6	0.9044	16.26	21.5635606
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24.10.2014 15:35:37.4	279.71	515.8	0.8885	16.23	21.3731687
24.10.2014 15:35:37.5	277.81	515.7	0.8963	16.28	21.4667795
24.10.2014 15:35:37.6	278	515.6	0.8888	16.22	21.3767767
24.10.2014 15:35:37.7	277.99	515.8	0.9299	16.15	21.865445
24.10.2014 15:35:37.8	276.88	515.9	0.9659	16.28	22.2846737
24.10.2014 15:35:37.9	275.69	515.8	1.0542	16.32	23.2810039
24.10.2014 15:35:38.0	275.79	515.8	0.938	16.19	21.9604693
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24.10.2014 15:35:38.4	272.79	516	0.9765	16.19	22.4066186
24.10.2014 15:35:38.5	270.15	516.2	0.9723	16.16	22.3583804
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24.10.2014 15:35:38.9	267.49	516.4	0.8927	16.2	21.4236253
24.10.2014 15:35:39.0	267.67	516.5	0.9304	16.29	21.8713227
24.10.2014 15:35:39.1	267.68	516.2	0.9617	16.25	22.236171
24.10.2014 15:35:39.2	265.43	516.3	0.9552	16.23	22.160898
24.10.2014 15:35:39.3	265.06	516.5	1.0531	16.19	23.2688545
24.10.2014 15:35:39.4	265.09	516.4	0.9481	16.31	22.0783834
24.10.2014 15:35:39.5	264.56	516.2	0.9795	16.19	22.4410109
24.10.2014 15:35:39.6	262.29	516.3	1.0702	16.2	23.4570109
24.10.2014 15:35:39.7	262.55	516.4	1.1063	16.25	23.8493558
24.10.2014 15:35:39.8	262.48	516.1	1.072	16.33	23.4767292
24.10.2014 15:35:39.9	259.46	516.1	1.0766	16.2	23.5270451
24.10.2014 15:35:40.0	259.6	516.2	1.034	16.15	23.0568761
24.10.2014 15:35:40.1	259.52	516.2	1.0257	16.29	22.96415
24.10.2014 15:35:40.2	259.38	516	1.0757	16.3	23.5172091
24.10.2014 15:35:40.3	256.84	515.9	1.0263	16.18	22.9708656
24.10.2014 15:35:40.4	257.04	516.2	1.0674	16.12	23.4263052
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24.10.2014 15:35:41.0	251.68	516.2	0.9241	16.26	21.7971485

24.10.2014 15:35:41.1	251.78	516.3	0.9073	16.19	21.5981052
24.10.2014 15:35:41.2	251.81	516.6	0.9458	16.19	22.0515871
24.10.2014 15:35:41.3	249.28	516.5	0.9835	16.27	22.4867856
24.10.2014 15:35:41.4	249.21	516.3	0.9364	16.22	21.9417317
24.10.2014 15:35:41.5	249.17	516.5	1.0104	16.17	22.7922325
24.10.2014 15:35:41.6	248.41	516.7	1.0171	16.23	22.8676757
24.10.2014 15:35:41.7	246.4	516.5	1.051	16.29	23.2456425
24.10.2014 15:35:41.8	246.64	516.5	1.013	16.19	22.8215386
24.10.2014 15:35:41.9	246.65	516.7	1.0412	16.13	23.1370123
24.10.2014 15:35:42.0	244.66	516.8	1.1501	16.25	24.3168882
24.10.2014 15:35:42.1	243.99	516.7	1.1726	16.32	24.5535981
24.10.2014 15:35:42.2	244.02	516.7	1.1847	16.17	24.6799566
24.10.2014 15:35:42.3	242.66	516.9	1.0869	16.12	23.6393206
24.10.2014 15:35:42.4	240.92	516.9	1.2075	16.3	24.9163124
24.10.2014 15:35:42.5	241.04	516.7	1.0919	16.3	23.6936315
24.10.2014 15:35:42.6	241.1	516.7	0.9731	16.15	22.3675766
24.10.2014 15:35:42.7	239.84	516.9	1.0676	16.16	23.4284998
24.10.2014 15:35:42.8	238.78	516.9	0.9672	16.28	22.2996651
24.10.2014 15:35:42.9	238.9	516.7	1.0228	16.26	22.9316633
24.10.2014 15:35:43.0	238.07	516.8	0.928	16.18	21.8430955
24.10.2014 15:35:43.1	235.64	517	0.9421	16.17	22.0084116
24.10.2014 15:35:43.2	235.95	517	0.9232	16.29	21.7865315
24.10.2014 15:35:43.3	235.9	516.8	1.0546	16.2	23.2854203
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24.10.2014 15:35:43.7	232.19	516.7	0.9436	16.2	22.0259254
24.10.2014 15:35:43.8	230.57	516.9	1.0024	16.15	22.7018226
24.10.2014 15:35:43.9	230.78	516.9	0.8897	16.24	21.387597
24.10.2014 15:35:44.0	230.72	516.6	0.9231	16.32	21.7853516
24.10.2014 15:35:44.1	228.41	516.5	0.9789	16.2	22.4341367
24.10.2014 15:35:44.2	228.2	516.6	1.2122	16.11	24.9647566
24.10.2014 15:35:44.3	228.19	516.6	1.1064	16.26	23.8504337
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24.10.2014 15:35:44.7	225.53	516.8	1.0124	16.28	22.814779
24.10.2014 15:35:44.8	223.47	516.5	1.0855	16.27	23.6240912
24.10.2014 15:35:44.9	222.57	516.6	0.9551	16.17	22.1597379
24.10.2014 15:35:45.0	222.63	516.8	1.015	16.15	22.8440561
24.10.2014 15:35:45.1	222.4	516.8	1.0359	16.26	23.0780502
24.10.2014 15:35:45.2	219.93	516.5	1.0481	16.22	23.2135498
24.10.2014 15:35:45.3	220.06	516.6	1.0204	16.21	22.9047429
24.10.2014 15:35:45.4	220.03	516.7	1.0195	16.19	22.8946396
24.10.2014 15:35:45.5	218.77	516.6	1.0125	16.21	22.8159057
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24.10.2014 15:35:45.8	217.47	516.6	1.0129	16.23	22.8204121
24.10.2014 15:35:45.9	214.66	516.4	1.0844	16.22	23.6121184
24.10.2014 15:35:46.0	214.51	516.3	1.075	16.21	23.5095561
24.10.2014 15:35:46.1	214.54	516.5	1.0742	16.1	23.5008067
24.10.2014 15:35:46.2	213.79	516.6	1.0186	16.29	22.8845319
24.10.2014 15:35:46.3	211.63	516.4	1.2213	16.3	25.0582868
24.10.2014 15:35:46.4	211.92	516.3	1.2226	16.15	25.0716198
24.10.2014 15:35:46.5	211.93	516.5	1.101	16.14	23.7921592
24.10.2014 15:35:46.6	209.95	516.5	1	16.27	22.6746294
24.10.2014 15:35:46.7	209.31	516.3	1.0054	16.32	22.7357685
24.10.2014 15:35:46.8	209.34	516.3	1.0077	16.15	22.7617593
24.10.2014 15:35:46.9	208.02	516.6	1.1262	16.17	24.0628996
24.10.2014 15:35:47.0	206.21	516.6	1.029	16.25	23.0010618
24.10.2014 15:35:47.1	206.39	516.4	1.1252	16.27	24.052214
24.10.2014 15:35:47.2	206.38	516.5	1.0563	16.19	23.3041806
24.10.2014 15:35:47.3	205.15	516.7	0.999	16.2	22.6632892
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24.10.2014 15:35:47.5	204.21	516.5	1.1002	16.22	23.7835138
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24.10.2014 15:35:47.9	201.09	516.6	1.0403	16.2	23.1270104
24.10.2014 15:35:48.0	198.5	516.7	1.105	16.13	23.8353392
24.10.2014 15:35:48.1	198.68	516.8	1.0983	16.29	23.7629683
24.10.2014 15:35:48.2	198.6	516.6	1.1111	16.29	23.9010385

24.10.2014 15:35:48.3	197.56	516.6	1.0554	16.23	23.2942505
24.10.2014 15:35:48.4	195.93	516.8	0.9628	16.07	22.2488843
24.10.2014 15:35:48.5	196.07	516.9	0.9908	16.31	22.5700851
24.10.2014 15:35:48.6	195.62	516.7	1.0688	16.3	23.4416631
24.10.2014 15:35:48.7	193.28	516.7	1.0753	16.16	23.5128363
24.10.2014 15:35:48.8	193.5	517	1.1906	16.15	24.7413354
24.10.2014 15:35:48.9	193.43	517	1.0959	16.25	23.7369908
24.10.2014 15:35:49.0	191.93	516.7	1.1092	16.32	23.8805941
24.10.2014 15:35:49.1	190.81	516.7	1.1034	16.08	23.8180766
24.10.2014 15:35:49.2	190.89	517	1.1583	16.26	24.4034217
24.10.2014 15:35:49.3	190.88	516.9	1.2109	16.14	24.9513666
24.10.2014 15:35:49.4	188.18	516.5	1.0958	16.31	23.7359077
24.10.2014 15:35:49.5	188.3	516.5	1.0583	16.13	23.3262322
24.10.2014 15:35:49.6	188.27	516.6	1.019	16.25	22.8890248
24.10.2014 15:35:49.7	187.3	516.5	0.9577	16.23	22.1898793
24.10.2014 15:35:49.8	185.51	516.3	1.0105	16.24	22.7933603
24.10.2014 15:35:49.9	185.75	516.4	0.9877	16.1	22.5347489
24.10.2014 15:35:50.0	185.39	516.5	1.0172	16.26	22.8687998
24.10.2014 15:35:50.1	182.58	516.4	0.9897	16.29	22.5575528
24.10.2014 15:35:50.2	182.76	516.3	1.019	16.18	22.8890248
24.10.2014 15:35:50.3	182.79	516.5	1.1289	16.11	24.091727
24.10.2014 15:35:50.4	182.25	516.6	1.0847	16.24	23.6153843
24.10.2014 15:35:50.5	179.93	516.4	1.1333	16.33	24.1386313
24.10.2014 15:35:50.6	180.2	516.4	1.0413	16.14	23.1381233
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24.10.2014 15:35:50.8	178.5	516.7	1.1521	16.26	24.3380223
24.10.2014 15:35:50.9	177.53	516.4	1.1044	16.3	23.8288672
24.10.2014 15:35:51.0	177.61	516.5	1.1337	16.15	24.1428908
24.10.2014 15:35:51.1	176.72	516.7	0.9633	16.15	22.2546607
24.10.2014 15:35:51.2	174.79	516.7	0.9575	16.25	22.1875622
24.10.2014 15:35:51.3	175.03	516.5	1.0084	16.26	22.7696637
24.10.2014 15:35:51.4	175.01	516.5	1.027	16.19	22.9786981
24.10.2014 15:35:51.5	173.91	516.8	0.979	16.17	22.4352825
24.10.2014 15:35:51.6	172.26	516.7	0.9179	16.26	21.7239044
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24.10.2014 15:35:51.8	171.92	516.7	1.1028	16.18	23.8115999
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24.10.2014 15:35:52.2	167.92	516.8	0.9691	16.15	22.3215575
24.10.2014 15:35:52.3	166.84	516.9	0.9955	16.26	22.6235539
24.10.2014 15:35:52.4	166.89	516.8	1.0398	16.34	23.121452
24.10.2014 15:35:52.5	166.09	516.8	1.0153	16.16	22.8474318
24.10.2014 15:35:52.6	164.14	517.1	1.0841	16.11	23.608852
24.10.2014 15:35:52.7	164.33	517.2	1.0374	16.32	23.0947529
24.10.2014 15:35:52.8	164.14	517	0.9341	16.27	21.9147683
24.10.2014 15:35:52.9	161.54	517.1	1.0455	16.18	23.1847392
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24.10.2014 15:35:53.8	156.55	517.6	0.9665	16.22	22.2915941
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24.10.2014 15:35:54.3	151.79	517.6	1.0113	16.33	22.8023812
24.10.2014 15:35:54.4	150.93	517.6	1.0871	16.17	23.6414955
24.10.2014 15:35:54.5	151	517.8	1.0939	16.1	23.715321
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24.10.2014 15:35:54.7	148.26	517.7	1.0933	16.28	23.7088163
24.10.2014 15:35:54.8	148.46	517.7	1.0709	16.19	23.4646811
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24.10.2014 15:35:55.3	145.84	518	1.0048	16.13	22.7289833
24.10.2014 15:35:55.4	142.92	518	1.0315	16.26	23.0289859

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24.10.2014 15:35:55.8	140.09	518	1.0128	16.25	22.8192856
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24.10.2014 15:35:57.5	128.04	517.9	1.0159	16.09	22.8541818
24.10.2014 15:35:57.6	127.35	518.1	1.0754	16.18	23.5139296
24.10.2014 15:35:57.7	127.36	518	0.9789	16.23	22.4341367
24.10.2014 15:35:57.8	126.08	517.8	1.0463	16.18	23.1936078
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24.10.2014 15:36:01.6	98.2	518.4	1.0762	16.2	23.5226741
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24.10.2014 15:36:01.8	95.66	518.7	1.0744	16.17	23.5029944
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24.10.2014 15:36:02.0	94.69	518.5	0.9797	16.2	22.4433019
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24.10.2014 15:36:03.9	79.81	518.7	0.9867	16.23	22.5233384
24.10.2014 15:36:04.0	79.73	518.8	0.9473	16.11	22.0690666
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24.10.2014 15:36:31.9	-130.69	521.3	0.9933	16.13	22.5985417
24.10.2014 15:36:32.0	-130.81	521.3	0.9325	16.25	21.8959916
24.10.2014 15:36:32.1	-133.35	521.1	0.8618	16.21	21.0495803
24.10.2014 15:36:32.2	-133.2	521.2	0.8548	16.14	20.9639181
24.10.2014 15:36:32.3	-133.2	521.4	0.925	16.19	21.8077602
24.10.2014 15:36:32.4	-135.73	521.3	0.9576	16.23	22.1887208
24.10.2014 15:36:32.5	-136.18	521.2	1.0349	16.19	23.0669084
24.10.2014 15:36:32.6	-136.2	521.3	0.9955	16.13	22.6235539
24.10.2014 15:36:32.7	-136.7	521.4	0.9656	16.19	22.2812128
24.10.2014 15:36:32.8	-138.93	521.3	1.0111	16.28	22.8001263
24.10.2014 15:36:32.9	-138.72	521.3	0.9641	16.15	22.2638998
24.10.2014 15:36:33.0	-138.73	521.5	0.9567	16.11	22.1782913
24.10.2014 15:36:33.1	-141.37	521.5	0.9443	16.23	22.0340937
24.10.2014 15:36:33.2	-141.29	521.4	0.9424	16.29	22.0119154
24.10.2014 15:36:33.3	-141.36	521.4	0.9401	16.1	21.9850381
24.10.2014 15:36:33.4	-142.29	521.6	0.9853	16.09	22.5073538
24.10.2014 15:36:33.5	-144.09	521.8	0.9211	16.26	21.7617386
24.10.2014 15:36:33.6	-143.91	521.6	1.0013	16.24	22.6893631
24.10.2014 15:36:33.7	-143.93	521.7	0.9116	16.15	21.6492251
24.10.2014 15:36:33.8	-145.06	522	0.9425	16.12	22.0130833
24.10.2014 15:36:33.9	-146.63	522	0.8732	16.24	21.1883462
24.10.2014 15:36:34.0	-146.5	521.8	0.9047	16.23	21.5671368
24.10.2014 15:36:34.1	-147.06	521.9	0.9305	16.15	21.872498
24.10.2014 15:36:34.2	-149.65	522.2	0.8668	16.16	21.1105549
24.10.2014 15:36:34.3	-149.41	522.2	0.8983	16.27	21.4907166
24.10.2014 15:36:34.4	-149.46	522	1.003	16.21	22.7086159
24.10.2014 15:36:34.5	-150.11	522.2	0.8804	16.15	21.2755215
24.10.2014 15:36:34.6	-152.21	522.4	0.9882	16.22	22.5404521
24.10.2014 15:36:34.7	-152	522.3	0.9983	16.24	22.6553477
24.10.2014 15:36:34.8	-152.03	522.2	0.9835	16.21	22.4867856
24.10.2014 15:36:34.9	-153.93	522.4	0.9974	16.12	22.6451332
24.10.2014 15:36:35.0	-154.66	522.4	0.9951	16.23	22.6190083
24.10.2014 15:36:35.1	-154.62	522.3	0.9536	16.3	22.14233
24.10.2014 15:36:35.2	-154.64	522.2	0.968	16.16	22.3088856
24.10.2014 15:36:35.3	-157	522.4	1.0439	16.12	23.1669919
24.10.2014 15:36:35.4	-157.56	522.4	1.0555	16.24	23.2953541
24.10.2014 15:36:35.5	-157.56	522.2	0.8453	16.32	20.8470991
24.10.2014 15:36:35.6	-159.1	522.2	0.9054	16.14	21.5754788
24.10.2014 15:36:35.7	-160.66	522.4	0.9691	16.12	22.3215575
24.10.2014 15:36:35.8	-160.52	522.5	0.8826	16.28	21.3020872
24.10.2014 15:36:35.9	-160.52	522.2	0.9966	16.24	22.6360497
24.10.2014 15:36:36.0	-162.1	522.3	1.0155	16.19	22.849682
24.10.2014 15:36:36.1	-163.15	522.6	1.0326	16.15	23.0412617
24.10.2014 15:36:36.2	-163.08	522.6	1.0115	16.25	22.8046358
24.10.2014 15:36:36.3	-163.1	522.4	0.9364	16.24	21.9417317
24.10.2014 15:36:36.4	-165.83	522.5	0.9807	16.16	22.4547531
24.10.2014 15:36:36.5	-165.67	522.7	0.949	16.23	22.08886
24.10.2014 15:36:36.6	-165.68	522.7	0.9847	16.24	22.5004999
24.10.2014 15:36:36.7	-165.93	522.6	0.9979	16.22	22.6508085
24.10.2014 15:36:36.8	-168.82	522.8	1.0623	16.12	23.3702731
24.10.2014 15:36:36.9	-168.59	522.9	0.9874	16.24	22.5313264
24.10.2014 15:36:37.0	-168.62	522.8	0.83	16.26	20.6575705
24.10.2014 15:36:37.1	-171.21	522.8	0.9588	16.17	22.2026192
24.10.2014 15:36:37.2	-171.62	523.1	0.9717	16.11	22.3514807
24.10.2014 15:36:37.3	-171.57	523.1	0.8389	16.23	20.7680296
24.10.2014 15:36:37.4	-171.6	522.9	0.9168	16.31	21.7108836
24.10.2014 15:36:37.5	-174.07	522.9	1.0107	16.12	22.7956159
24.10.2014 15:36:37.6	-174.16	523.2	0.922	16.11	21.7723676
24.10.2014 15:36:37.7	-174.17	523.2	0.9188	16.23	21.7345519
24.10.2014 15:36:37.8	-174.98	523	0.9664	16.27	22.2904408
24.10.2014 15:36:37.9	-177.39	523.1	1.0121	16.15	22.8113984
24.10.2014 15:36:38.0	-177.13	523.3	0.9521	16.14	22.1249083
24.10.2014 15:36:38.1	-177.17	523.3	0.9834	16.25	22.4856424
24.10.2014 15:36:38.2	-178.14	523	0.9814	16.21	22.4627655
24.10.2014 15:36:38.3	-179.9	523.1	0.9624	16.15	22.2442621
24.10.2014 15:36:38.4	-179.7	523.3	0.9689	16.16	22.319254
24.10.2014 15:36:38.5	-180.1	523.2	0.806	16.25	20.356716
24.10.2014 15:36:38.6	-182.83	523	0.8779	16.15	21.2452928

24.10.2014 15:36:38.7	-182.68	523.2	0.8765	16.11	21.228346
24.10.2014 15:36:38.8	-182.68	523.3	0.9212	16.19	21.7629198
24.10.2014 15:36:38.9	-184.1	523.2	0.9273	16.23	21.8348557
24.10.2014 15:36:39.0	-185.39	523.1	0.9351	16.17	21.9264956
24.10.2014 15:36:39.1	-185.25	523.4	0.8741	16.06	21.1992627
24.10.2014 15:36:39.2	-185.21	523.4	0.8009	16.22	20.2922098
24.10.2014 15:36:39.3	-186.93	523.3	0.9556	16.24	22.1655375
24.10.2014 15:36:39.4	-187.89	523.3	1.0144	16.14	22.8373032
24.10.2014 15:36:39.5	-187.86	523.6	0.9859	16.05	22.5142057
24.10.2014 15:36:39.6	-188.86	523.6	1.047	16.21	23.2013651
24.10.2014 15:36:39.7	-191.03	523.4	0.9988	16.26	22.6610205
24.10.2014 15:36:39.8	-190.78	523.4	1.1317	16.04	24.1215858
24.10.2014 15:36:39.9	-190.8	523.7	1.0542	16.16	23.2810039
24.10.2014 15:36:40.0	-191.93	523.7	1.0072	16.15	22.7561116
24.10.2014 15:36:40.1	-193.47	523.4	0.9585	16.23	22.1991454
24.10.2014 15:36:40.2	-193.36	523.5	1.0326	16.08	23.0412617
24.10.2014 15:36:40.3	-193.39	523.8	1.0674	16.19	23.4263052
24.10.2014 15:36:40.4	-195.69	523.8	0.9725	16.16	22.3606798
24.10.2014 15:36:40.5	-195.96	523.7	0.9842	16.18	22.4947866
24.10.2014 15:36:40.6	-195.97	523.9	0.9401	16.11	21.9850381
24.10.2014 15:36:40.7	-195.94	524.1	0.8835	16.13	21.3129455
24.10.2014 15:36:40.8	-198.81	524.1	1.0753	16.14	23.5128363
24.10.2014 15:36:40.9	-198.92	524.1	0.907	16.11	21.5945342
24.10.2014 15:36:41.0	-198.91	524.4	1.0117	16.13	22.8068902
24.10.2014 15:36:41.1	-201	524.5	0.9974	16.15	22.6451332
24.10.2014 15:36:41.2	-201.93	524.4	0.9799	16.28	22.4455926
24.10.2014 15:36:41.3	-201.92	524.4	0.8931	16.09	21.4284245
24.10.2014 15:36:41.4	-201.85	524.7	0.9719	16.09	22.3537808
24.10.2014 15:36:41.5	-203.89	524.8	0.9092	16.18	21.620708
24.10.2014 15:36:41.6	-204.47	524.6	1.003	16.26	22.7086159
24.10.2014 15:36:41.7	-204.43	524.6	1.0265	16.08	22.9731038
24.10.2014 15:36:41.8	-204.91	525	0.9826	16.07	22.4764944
24.10.2014 15:36:41.9	-207.55	525	0.8807	16.21	21.279146
24.10.2014 15:36:42.0	-207.36	524.8	1.0535	16.19	23.2732732
24.10.2014 15:36:42.1	-207.43	524.9	0.9503	16.13	22.1039842
24.10.2014 15:36:42.2	-208.01	525.2	0.9268	16.1	21.8289683
24.10.2014 15:36:42.3	-210.15	525.2	1.1123	16.2	23.9139417
24.10.2014 15:36:42.4	-209.94	525	1.0768	16.15	23.5292303
24.10.2014 15:36:42.5	-210	525.2	1.0191	16.11	22.8901479
24.10.2014 15:36:42.6	-210.91	525.4	0.9427	16.15	22.0154188
24.10.2014 15:36:42.7	-213.13	525.4	0.9828	16.24	22.4787818
24.10.2014 15:36:42.8	-212.94	525.3	0.9541	16.11	22.1481341
24.10.2014 15:36:42.9	-213.16	525.5	0.9332	16.1	21.9042084
24.10.2014 15:36:43.0	-216.01	525.6	0.7615	16.19	19.7867812
24.10.2014 15:36:43.1	-215.86	525.5	0.7936	16.23	20.1995189
24.10.2014 15:36:43.2	-215.88	525.5	0.9676	16.14	22.3042758
24.10.2014 15:36:43.3	-216.11	525.7	0.9704	16.06	22.3365241
24.10.2014 15:36:43.4	-217.63	525.7	0.8969	16.22	21.4739634
24.10.2014 15:36:43.5	-217.57	525.5	0.8345	16.26	20.7134942
24.10.2014 15:36:43.6	-217.55	525.5	0.8371	16.13	20.745737
24.10.2014 15:36:43.7	-217.53	525.8	0.8896	16.08	21.386395
24.10.2014 15:36:43.8	-217.57	525.8	1.0202	16.21	22.9024982
24.10.2014 15:36:43.9	-217.51	525.5	1.0006	16.26	22.6814307
24.10.2014 15:36:44.0	-217.56	525.6	0.9808	16.09	22.4558979
24.10.2014 15:36:44.1	-217.55	525.8	0.9674	16.14	22.3019706
24.10.2014 15:36:44.2	-217.52	525.8	1.0228	16.2	22.9316633
24.10.2014 15:36:44.3	-217.54	525.6	0.8981	16.21	21.4883241
24.10.2014 15:36:44.4	-217.59	525.7	0.8856	16.13	21.3382599
24.10.2014 15:36:44.5	-217.57	525.9	0.8995	16.16	21.5050661
24.10.2014 15:36:44.6	-217.53	525.8	0.9038	16.25	21.5564065
24.10.2014 15:36:44.7	-217.56	525.7	0.8865	16.17	21.3490998
24.10.2014 15:36:44.8	-217.55	525.8	0.962	16.13	22.239639
24.10.2014 15:36:44.9	-217.52	525.9	0.947	16.19	22.0655718
24.10.2014 15:36:45.0	-217.54	525.8	1.0295	16.3	23.0066493
24.10.2014 15:36:45.1	-217.56	525.7	1.0361	16.08	23.0802779
24.10.2014 15:36:45.2	-217.57	526	0.9484	16.11	22.0818762
24.10.2014 15:36:45.3	-217.54	526	0.9528	16.22	22.1330401
24.10.2014 15:36:45.4	-217.56	525.8	0.9856	16.31	22.5107801
24.10.2014 15:36:45.5	-217.53	525.9	0.9625	16.1	22.2454178
24.10.2014 15:36:45.6	-217.5	526.2	0.9386	16.07	21.9674918
24.10.2014 15:36:45.7	-217.51	526.2	1.0037	16.27	22.7165387
24.10.2014 15:36:45.8	-217.53	525.9	0.9744	16.24	22.3825125

24.10.2014 15:36:45.9	-217.53	525.9	0.8899	16.13	21.3900008
24.10.2014 15:36:46.0	-217.56	526.2	0.8804	16.12	21.2755215
24.10.2014 15:36:46.1	-217.55	526.2	0.8401	16.25	20.7828781
24.10.2014 15:36:46.2	-217.51	525.9	0.8818	16.19	21.2924308
24.10.2014 15:36:46.3	-217.54	525.9	0.926	16.16	21.819545

Calculation of mass flow rate based on polynomial equation fitted to the experimental data

$$y = -2.73303747E-14x^6 + 6.16636153E-13x^5 + 1.52272826E-09x^4 + 2.80072046E-08x^3 + 1.42894779E-05x^2 + 1.00447828E-03x + 2.14526550E+01$$

Please enter below Polynomial Coefficients

Order no	Coeff
6	-2.733037E-14
5	6.166362E-13
4	1.522728E-09
3	2.800720E-08
2	1.428948E-05
1	1.004478E-03
0	2.145266E+01

Actual Area	0.274324656	[m <sup>2</sup> ]
Integrated area	0.274324656	[m <sup>2</sup> ]
Area Error	0	[%]
Integrated Mass flow	2.355133916	[Kg/s]

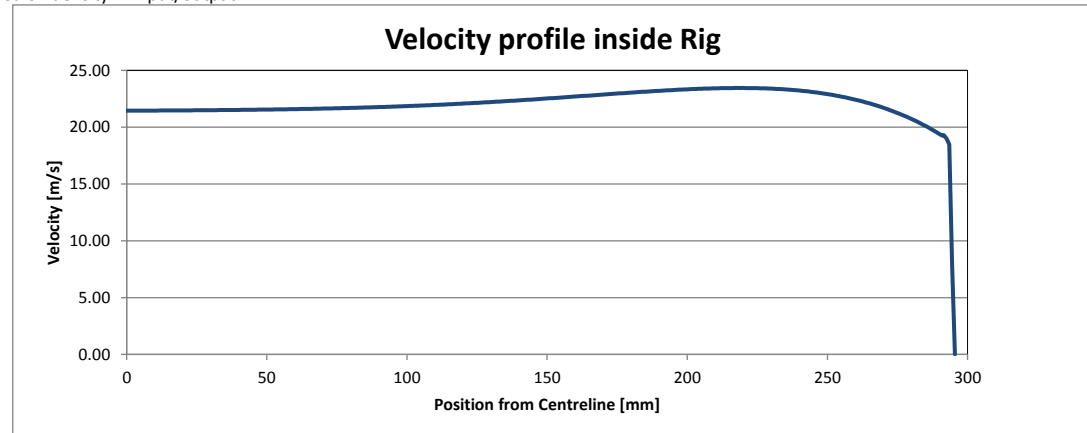
Polynomial curve (dP vs position)

Please do NOT alter any of the figures below

position [mm]	Velocity [m/s]
0	21.452655
1	21.453674
2	21.454721
3	21.455798
4	21.456904
5	21.458039
6	21.459204
7	21.460400
8	21.461626
9	21.462883
10	21.464172
11	21.465493
12	21.466846
13	21.468233
14	21.469654
15	21.471109
16	21.472599
17	21.474126
18	21.475689
19	21.477289
20	21.478928
21	21.480606
22	21.482325
23	21.484084
24	21.485885
25	21.487730
26	21.489618
27	21.491552
28	21.493532
29	21.495559
30	21.497635
31	21.499760
32	21.501937

Delta Area [m <sup>2</sup> ]	Delta Mass flow [Kg/s]
0	0
3.14159E-06	2.62181E-05
9.42478E-06	7.86581E-05
1.5708E-05	0.000131103
2.19911E-05	0.000183554
2.82743E-05	0.000236011
3.45575E-05	0.000288473
4.08407E-05	0.000340942
4.71239E-05	0.000393417
5.34071E-05	0.000445899
5.96903E-05	0.000498388
6.59734E-05	0.000550883
7.22566E-05	0.000603386
7.85398E-05	0.000655897
8.4823E-05	0.000708416
9.11062E-05	0.000760943
9.73894E-05	0.000813478
0.000103673	0.000866022
0.000109956	0.000918575
0.000116239	0.000971137
0.000122522	0.001023709
0.000128805	0.001076291
0.000135088	0.001128884
0.000141372	0.001181487
0.000147655	0.001234101
0.000153938	0.001286726
0.000160221	0.001339363
0.000166504	0.001392012
0.000172788	0.001444674
0.000179071	0.001497349
0.000185354	0.001550037
0.000191637	0.001602739
0.00019792	0.001655456

Based on density in input/output



33	21.504165
34	21.506447
35	21.508784
36	21.511177
37	21.513628
38	21.516138
39	21.518708
40	21.521339
41	21.524034
42	21.526794
43	21.529619
44	21.532513
45	21.535476
46	21.538510
47	21.541616
48	21.544796
49	21.548053
50	21.551386
51	21.554799
52	21.558292
53	21.561868
54	21.565528
55	21.569274
56	21.573108
57	21.577031
58	21.581045
59	21.585152
60	21.589354
61	21.593653
62	21.598049
63	21.602546
64	21.607144
65	21.611847
66	21.616654
67	21.621569
68	21.626593
69	21.631728
70	21.636975
71	21.642337
72	21.647815
73	21.653411
74	21.659127
75	21.664964
76	21.670924
77	21.677010
78	21.683222
79	21.689562
80	21.696033
81	21.702635
82	21.709370

0.000204204	0.001708187
0.000210487	0.001760933
0.00021677	0.001813696
0.000223053	0.001866474
0.000229336	0.00191927
0.000235619	0.001972082
0.000241903	0.002024913
0.000248186	0.002077762
0.000254469	0.002130631
0.000260752	0.002183519
0.000267035	0.002236427
0.000273319	0.002289357
0.000279602	0.002342308
0.000285885	0.002395281
0.000292168	0.002448278
0.000298451	0.002501298
0.000304734	0.002554343
0.000311018	0.002607413
0.000317301	0.00266051
0.000323584	0.002713633
0.000329867	0.002766783
0.00033615	0.002819963
0.000342434	0.002873171
0.000348717	0.00292641
0.000355	0.00297968
0.000361283	0.003032982
0.000367566	0.003086316
0.00037385	0.003139685
0.000380133	0.003193088
0.000386416	0.003246528
0.000392699	0.003300004
0.000398982	0.003353517
0.000405265	0.00340707
0.000411549	0.003460662
0.000417832	0.003514296
0.000424115	0.003567971
0.000430398	0.00362169
0.000436681	0.003675453
0.000442965	0.003729261
0.000449248	0.003783115
0.000455531	0.003837018
0.000461814	0.003890969
0.000468097	0.00394497
0.00047438	0.003999023
0.000480664	0.004053128
0.000486947	0.004107286
0.00049323	0.0041615
0.000499513	0.00421577
0.000505796	0.004270098
0.00051208	0.004324484



83	21.716241
84	21.723248
85	21.730393
86	21.737678
87	21.745104
88	21.752672
89	21.760385
90	21.768243
91	21.776248
92	21.784401
93	21.792704
94	21.801158
95	21.809764
96	21.818523
97	21.827436
98	21.836505
99	21.845731
100	21.855114
101	21.864655
102	21.874356
103	21.884217
104	21.894238
105	21.904422
106	21.914768
107	21.925276
108	21.935948
109	21.946784
110	21.957784
111	21.968949
112	21.980278
113	21.991772
114	22.003432
115	22.015256
116	22.027245
117	22.039399
118	22.051717
119	22.064200
120	22.076846
121	22.089655
122	22.102627
123	22.115761
124	22.129056
125	22.142510
126	22.156124
127	22.169896
128	22.183824
129	22.197907
130	22.212144
131	22.226534
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0.00183469	0.013560195
0.001840973	0.013248564
0.001847256	0.005748662
0.00185354	0

Please do not change any of the values in this sheet

Patm	Atmospheric air pressure - (As recorded from engine data)	975 [mBar]
Patm		97500 [Pa]
Tatm		5 [C]
Tatm		278 [K]
Relative Humidity		95 [%]

$$\rho_{\text{humid air}}^{[1]} = \frac{p_d}{R_d T} + \frac{p_v}{R_v T} = \frac{p_d M_d + p_v M_v}{RT}$$

where:

$\rho_{\text{humid air}}$	Density of the humid air (kg/m <sup>3</sup> )
$p_d$	Partial pressure of dry air (Pa)
$R_d$	Specific gas constant for dry air, 287.058 J/(kg·K)
$T$	Temperature (K)
$p_v$	Pressure of water vapor (Pa)
$R_v$	Specific gas constant for water vapor, 461.495 J/(kg·K)
$M_d$	Molar mass of dry air, 0.028964 (kg/mol)
$M_v$	Molar mass of water vapor, 0.018016 (kg/mol)
$R$	<a href="#">Universal gas constant, 8.314 J/(K·mol)</a>

$$\rho_{\text{humid air}} = 1.217898 \text{ Kg/m}^3$$

$$0.318090154$$

The vapor pressure of water may be calculated from the [saturation vapor pressure](#) and [relative humidity](#). It is found by:

$$p_v = \phi p_{\text{sat}}$$

$$p_u = 828.6578 \text{ [Pa]}$$

Where:

$p_v$	Vapor pressure of water
$\phi$	Relative humidity
$p_{\text{sat}}$	Saturation vapor pressure

The [saturation vapor pressure of water](#) at any given temperature is the vapor pressure when relative humidity is 100%. One formula <sup>[1]</sup> used to find the saturation vapor pressure is:

$$p_{\text{sat}} = 6.1078 \times 10^{\frac{7.5T}{T+237.3}}$$

$$p_{\text{sat}} = 8.722714 \text{ hPa}$$

$$p_{\text{sat}} = 872.2714 \text{ [Pa]}$$

where T is in degrees C. Note:

$$\rho = \frac{p}{R_{\text{specific}} T} \quad 1.22177 \text{ [kg/m}^3]$$

$$R = 287.058 \text{ J/Kg K}$$

$$T = \text{Temperature in degrees Kelvin}$$

$$P = \text{Absolute Pressure in Pa}$$