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Report CNC Parametric Curve Interpolation and Trajectory Tracking

Part 2 of 5 Ellipse and Skewed-Astroid (x-y) parametric curves

ITEM	DESCRIPTION	ELLIPSE CURVE					SKEWED-ASTROID CURVE				
1	Run user feedrate command (mm/s)	FC10	FC20	FC25	FC30	FC40	FC10	FC20	FC25	FC30	FC40
2	Total interpolated u-points	21575	7599	9448	8338	7351	116194	58102	46483	38738	29056
3	Parameter completion (reached u-end)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Pushdown epsilon eps(u) algorithm										
4	Count before pushdown, eps(u) is below (1E-6)	21396	1427	7046	5149	928	116194	58102	46483	38738	29056
5	Count pushdown points, eps(u) to below (1E-6)	179	6172	2402	3189	6423	0	0	0	0	0
	Epsilon eps(u) chord error										
6	Count eps(u) above (1E-6)	0	0	0	0	0	0	0	0	0	0
7	Count eps(u) in (1E-7, 1E-6)	7058	7599	9448	8338	7351	0	0	0	1455	8433
8	Count eps(u) in (1E-8, 1E-7)	14517	0	0	0	0	9483	33004	46483	37283	20623
9	Count eps(u) in (1E-9, 1E-8)	0	0	0	0	0	106711	25098	0	0	0
10	Count eps(u) in (1E-10, 1E-9)	0	0	0	0	0	0	0	0	0	0
11	Count eps(u) below (1E-10)	0	0	0	0	0	0	0	0	0	0
	Count interpolated u-points										
12	Count_rising_S_curve u-points	443	480	370	370	370	3673	1837	1470	1225	919
13	Count_frate is_lower than fratelimit	14764	4342	6120	5270	3308	75069	39802	31837	26531	19939
14	Count_frate is_equal to fratelimit	0	0	0	0	0	0	0	0	0	0
15	Count_frate is_higher than fratelimit	5926	2298	2589	2329	3304	33779	14626	11707	9757	7279
16	Count_falling_S_curve u-points	442	479	369	369	369	3673	1837	1469	1225	919
	Count u-points histogram (G01 codes)										
17	Count u-points [0.00 <= u < 0.10)	1231	779	748	748	748	7322	3661	2929	2441	1831
18	Count u-points [0.10 <= u < 0.20)	2586	1292	1035	878	791	12603	6302	5042	4202	3151
19	Count u-points [0.20 <= u < 0.30)	3154	1578	1262	1051	797	18245	9123	7298	6081	4562
20	Count u-points [0.30 <= u < 0.40)	2586	1293	1034	863	710	12604	6302	5042	4202	3151
21	Count u-points [0.40 <= u < 0.50)	1230	704	644	628	629	7322	3662	2930	2442	1832
22	Count u-points [0.50 <= u < 0.60)	1228	704	644	629	629	7323	3662	2930	2442	1832
23	Count u-points [0.60 <= u < 0.70)	2586	1293	1034	862	710	12603	6302	5041	4201	3151
24	Count u-points [0.70 <= u < 0.80)	3155	1577	1262	1051	796	18244	9122	7298	6082	4561
25	Count u-points [0.80 <= u < 0.90)	2586	1293	1035	878	791	12604	6303	5043	4202	3152
26	Count u-points [0.90 <= u <= 1.00]	1233	782	750	750	750	7324	3663	2930	2443	1833
27	Check Total u-points	21575	11295	9448	8338	7351	116194	58102	46483	38738	29056
	Performance										
28	Total curve error (sum of epsilon(u))	0.002991	0.007141	0.005928	0.006562	0.007332	0.000516	0.001033	0.001291	0.001549	0.00206
29	Total dist traversed (sum of chord lengths)	215.6437	215.6499	215.644	215.6478	215.6439	445.7143	445.7143	445.7143	445.7143	445.7143
30	Percent (Tot curve error / Tot dist traversed)	0.001387	0.003311	0.002749	0.003043	0.0034	0.000116	0.000232	0.00029	0.000347	0.000462

	NOTES											

Sheet1