Date: 2023-06-06   **Report CNC Parametric Curve Interpolation and Trajectory Tracking**
Author: wruslandr@gmail.com   **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
6	Check Total u-points	21575	7599	9448	8338	7351	116194	58102	46483	38738	29056
	Epsilon eps(u) chord error										
7	Count eps(u) above (1E-6)	0	0	0	0	0	0	0	0	0	0
8	Count eps(u) in (1E-7, 1E-6)	7058	7599	9448	8338	7351	0	0	0	1455	8433
9	Count eps(u) in (1E-8, 1E-7)	14517	0	0	0	0	9483	33004	46483	37283	20623
10	Count eps(u) in (1E-9, 1E-8)	0	0	0	0	0	106711	25098	0	0	0
11	Count eps(u) in (1E-10, 1E-9)	0	0	0	0	0	0	0	0	0	0
12	Count eps(u) below (1E-10)	0	0	0	0	0	0	0	0	0	0
13	Check Total eps(u) points	21575	7599	9448	8338	7351	116194	58102	46483	38738	29056
	Count interpolated u-points										
14	Count_rising_S_curve u-points	443	480	370	370	370	3673	1837	1470	1225	919
15	Count_frate is_lower than fratelimit	14764	4342	6120	5270	3308	75069	39802	31837	26531	19939
16	Count_frate is_equal to fratelimit	0	0	0	0	0	0	0	0	0	0
17	Count_frate is_higher than fratelimit	5926	2298	2589	2329	3304	33779	14626	11707	9757	7279
18	Count_falling_S_curve u-points	442	479	369	369	369	3673	1837	1469	1225	919
19	Check Total u-points	21575	7599	9448	8338	7351	116194	58102	46483	38738	29056
	Count u-points histogram (G01 codes)										
20	Count u-points [0.00 <= u < 0.10)	1231	779	748	748	748	7322	3661	2929	2441	1831
21	Count u-points [0.10 <= u < 0.20)	2586	1292	1035	878	791	12603	6302	5042	4202	3151
22	Count u-points [0.20 <= u < 0.30)	3154	1578	1262	1051	797	18245	9123	7298	6081	4562
24	Count u-points [0.30 <= u < 0.40)	2586	1293	1034	863	710	12604	6302	5042	4202	3151
25	Count u-points [0.40 <= u < 0.50)	1230	704	644	628	629	7322	3662	2930	2442	1832
26	Count u-points [0.50 <= u < 0.60)	1228	704	644	629	629	7323	3662	2930	2442	1832
27	Count u-points [0.60 <= u < 0.70)	2586	1293	1034	862	710	12603	6302	5041	4201	3151
28	Count u-points [0.70 <= u < 0.80)	3155	1577	1262	1051	796	18244	9122	7298	6082	4561
29	Count u-points [0.80 <= u < 0.90)	2586	1293	1035	878	791	12604	6303	5043	4202	3152
30	Count u-points [0.90 <= u <= 1.00]	1233	782	750	750	750	7324	3663	2930	2443	1833
31	Check Total u-points	21575	11295	9448	8338	7351	116194	58102	46483	38738	29056
32	**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
33	**Total dist traversed (sum of chord lengths)**	215.643	215.649	215.644	215.647	215.643	445.714	445.714	445.714	445.714	445.714

	NOTES											

Sheet1