

Table S1. Orthogonal test results table

Tests	Factors			Test results
	turning rate v ($^{\circ}/s$)	the centre of mass height h (mm)	road adhesion coefficient f	LTR_{max}
1	1	1	1	0.23
2	1	2	2	0.24
3	1	3	3	0.24
4	1	4	4	0.27
5	2	1	2	0.35
6	2	2	1	0.35
7	2	3	4	0.36
8	2	4	3	0.34
9	3	1	3	0.37
10	3	2	4	0.43
11	3	3	1	0.37
12	3	4	2	0.43
13	4	1	4	0.4
14	4	2	3	0.41
15	4	3	2	0.47
16	4	4	1	0.5
\bar{k}_1	0.245	0.323	0.378	
\bar{k}_2	0.345	0.342	0.367	
\bar{k}_3	0.395	0.372	0.337	
\bar{k}_4	0.445	0.393	0.348	
Range	0.200	0.070	0.041	
Secondary factors	Turning rate > the centre of mass height > road adhesion coefficient			
optimal alterative	Turning rate 50°/s; the centre of mass height 1200mm; road adhesion coefficient 0.6			