

200

Characteristics and Analysis of Ride Comport of HANVIT-200 Train

*C.W. Lee¹, J. C. Kim¹

Key words : ride comport, HANVIT-200 train, tilting train

1.

180km/h train) 200 200 (tilting table 1

2001 2008 2

Table 1 Specification of HANVIT-200 train

Description	Specification
Formation	4 Motorized Cars + 2 passenger Cars
Seats	Total 278 seats
Max. speed of operating	180km/h
Max. speed of design	200km/h
Max. tilting angle	8°
Max. tilting angle speed	4°/sec
Interior noise	70dBA at 180km/h
Wheel base	2,600mm
2nd spring	diaphragm + emergency spring
1st spring	conical rubber spring
bogie	bolster type
material of carbody	Composite + steel
Weight of car type	Tc 451kN, M1 510kN, M2 461kN
Ride comport	Jerk limit 0.7

(ride comport)

가 가 가 KS R 9216-2000 가 가 가 (HANVIT-200 train)

2.

200 KS R 9216-2000 ISO 2631 B&K type 2522 가 가 가 M2 가 가

Table 2 table3

3 125km/h - 155km/h 130km/h 2 180km/h

Table 2 Track curve condition of Ho-nam line(Iksan-Songjeongri)

Station name	kilo -post	Curve	Bridge	Tunnel	Speed
Iksan	87.886				110km/h
	88.5	R2400			150km/h
	89.8		108m		150km/h
	90.5	R1400	492m		150km/h
	92.9	R800			130km/h
	94.3	R2400			140km/h
	96.2	R800			130km/h
	97.5	R1000			140km/h
	99.0, 100.2	R800			130km/h
	103.8	R2400			140km/h
Gimje	105.517				130km/h
	105.9, 110.2	R800			130km/h
	115.2	R3000			150km/h
	116.5, 118.5	R800			130km/h
	119.0		355m		130km/h
	120.3			300m	140km/h
	123.9	R800			130km/h
	124.5		105m		130km/h
	125.3	R800			130km/h
	126.7	R3000			150km/h
Jeongeup	127.5	R1000			150km/h
	130.5	R800			130km/h
	131.472				130km/h
	132.2	R1200			130km/h
	134.9		90m		150km/h
	135.0	R1200			150km/h
	136.5	R800			130km/h
	138.5, 139.5	R1200			140km/h
	142.25	R800		590m	130km/h
	143.5			2300m	130km/h
Janhseong	146.6, 149.2	R800			130km/h
	150.5	R1600		180m	150km/h
	151.8	R1400		175m	150km/h
	156.0	R3000			150km/h
	157.6			1000m	150km/h
	158.6, 160.8	R1600			150km/h
	161.2		100m		150km/h
	162.6	R1200			135km/h
	163.767				130km/h
	164.5	R850			140km/h
Songjeongri	166.3	R1400			150km/h
	167.0, 168.1	R2000			150km/h
	169.5	R1400			150km/h
	170.5	R2000			150km/h
	171.0	R1000			150km/h
	173.0, 175.4	R800			130km/h
	176.45	R1200			140km/h
	178.4	R1600			150km/h
	179.5, 182.3	R800			130km/h
	184.2	R1400			150km/h
185.681				130km/h	

Table 3 Track curve condition of Ho-nam line(Songjeongri-Illro)

Station name	kilo -post	Curve	Bridge	Tunnel	Speed	
Songjeongri	185.681				130km/h	
	186.4		2492m		140km/h	
	186.6	R1000			140km/h	
	188.2, 188.6	R8000			150km/h	
	189.4	R2000			150km/h	
	191.45	R4000			150km/h	
	192.7	R2000			150km/h	
	193.5	R2000	577m		150km/h	
	195.5		966m		140km/h	
	197.2		668m		150km/h	
	198.2	R1500	296m		150km/h	
	199.9	R1000			150km/h	
	Naju	201.517				140km/h
		202.1	R1200	300m		140km/h
202.45				340m	140km/h	
202.85				175m	150km/h	
203.15			146m		150km/h	
203.5			173m		150km/h	
203.75				880m	150km/h	
204.7		R2000			150km/h	
204.95				154m	150km/h	
205.45				570m	150km/h	
206.1			373m		150km/h	
206.6, 207.45		R2000			150km/h	
208.5			182m		150km/h	
209.2			557.9m		150km/h	
209.65		R3000			150km/h	
211.25			198m		140km/h	
213.4			323m		150km/h	
215.2, 217.2		R2000			150km/h	
217.4			123m		150km/h	
218.2			198m		150km/h	
Hampyeong	218.917				140km/h	
	219.6	R2000	948m		140km/h	
	221.5		98m		150km/h	
	222.75	R3000	1925m		150km/h	
	224.9		373m		150km/h	
Muan	226.470				140km/h	
	227.3	R2000			150km/h	
	232.35		1820		150km/h	
	234.1	R5000			150km/h	
	235.0		903m		150km/h	
	235.65		500m		150km/h	
	236.4		964m		150km/h	
	236.6	R2000			150km/h	
237.65		1280m		150km/h		
239.15		115m		140km/h		
Ilro	239.950				140km/h	

160km/h ~ 180km/h
109.9dBA
105dBA
109.7dBA

Fig. 1

Table 3 Ride comfort index in the KS R 9216-2000

Level(A)	Effectiveness value(%) (B)	Index
100dBA > A	0.1 > B	very good comfortable
100dBA ≤ A < 105dBA	0.1 ≤ B < 0.178	good comfortable
105dBA ≤ A < 110dBA	0.178 ≤ B < 0.315	not comfortable
110dBA ≤ A < 115dBA	0.315 ≤ B < 0.562	a little uncomfortable
115dBA ≤ A < 120dBA	0.562 ≤ B < 1.0	uncomfortable
120dBA ≤ A < 125dBA	1.0 ≤ B < 1.779	very uncomfortable
125dBA ≤ A	1.779 ≤ B	extremely uncomfortable

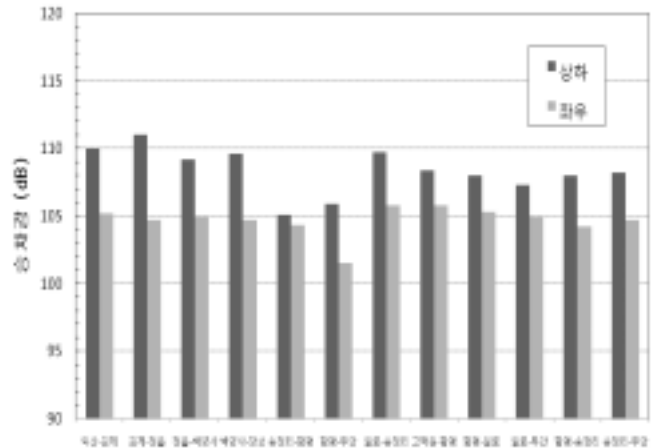


Fig. 1 Experimental value of ride comfort at Hanvit-200 train

4.

2001 2008 2 180 km/h
200 200
125km/h ~ 156km/h 2
130km/h ~ 180km/h

200 180km/h

3.

200 KS R 9216-2000

가 table 3 가 200

125km/h ~ 156km/h 109.2dBA ~ 110.1dBA
가 가
104.7dBA ~ 105.2dBA 가

1. KS R 9216-2000 가
2. 가

, 28-35, 2003