Ministry of Land, Infrastructure and Transport

Korea Automobile Testing & Research Institute

Minimum Safety Distance to the front

ACSF IWG 20th meeting
November 2018, Liverpool

Korea **A**utomobile **T**esting & **R**esearch **I**nstitute
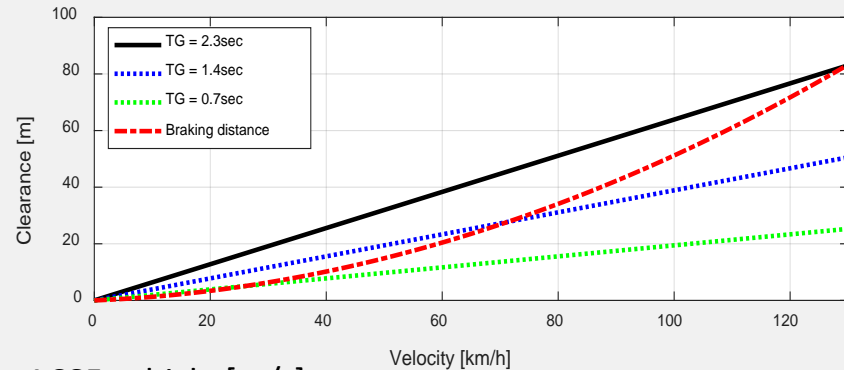
Time Gap proposed in last session

● **Safety distance in front**

$$S_{Critical-Front} = v_{ACSF} \times t_{front}$$

Where: v_{ACSF} : the actual speed of the ACSF vehicle [m/s]

t_{front} : time gap of [2.3] seconds between the ACSF vehicle and the lead vehicle

- Clearance by TG 2.3 sec is higher than braking distance in operating velocity (0~130km/h)

● **Comment from 19th session**

- Concern for frequent occurrence of cutting-in vehicle in front of the activated vehicle with too long clearance in low speed range (traffic jam situation) due to a fixed time gap

New Approach

- **New approach for time gap increased linearly by vehicle speed**

  - Fixed time gap to variable time gap by vehicle speed

    (starting time gap 0.8 at 0 km/h and ending 2.4 at 130km/h)
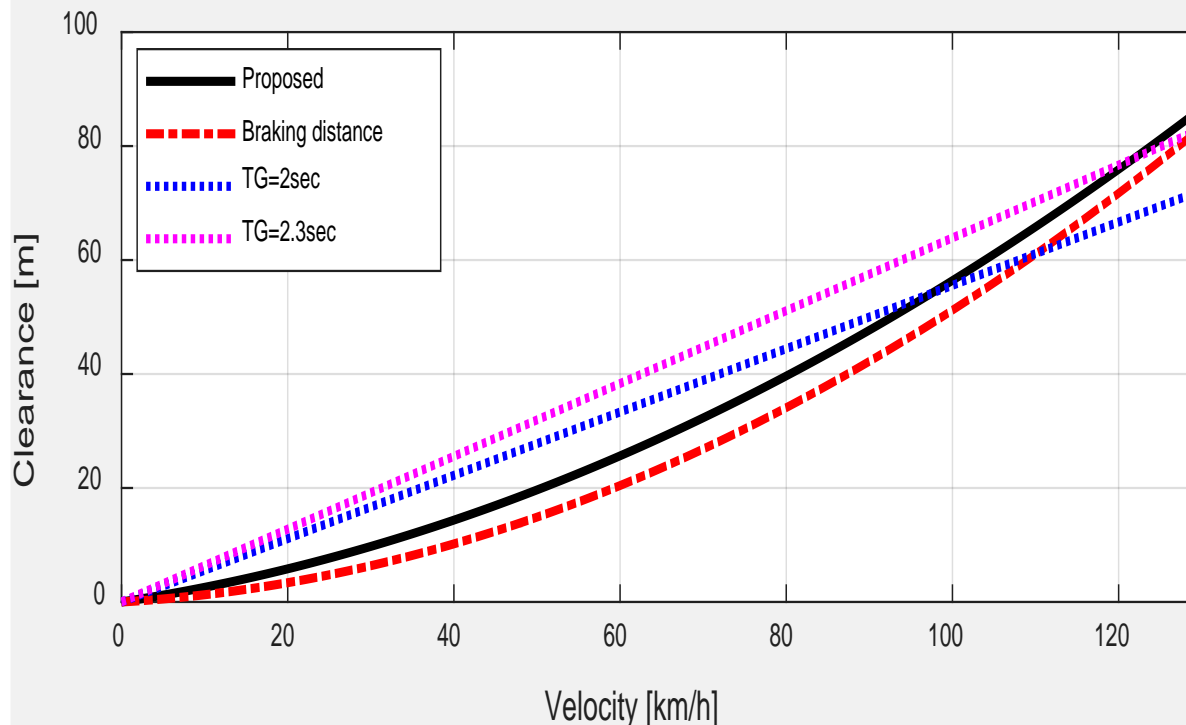
Speed (km/h)	Braking Dist.(m)	Proposed Safety Dist.(m)	Dis. Gap (m)
0	0.0	0.0	0.0
10	1.3	2.6	1.3
20	3.4	5.8	2.4
30	6.4	9.7	3.4
40	10.2	14.4	4.2
50	14.9	19.7	4.8
60	20.4	25.6	5.2
70	26.8	32.3	5.5
80	34.1	39.7	5.6
90	42.2	47.7	5.5
100	51.2	56.4	5.2
110	61.0	65.8	4.8
120	71.7	75.9	4.2
130	83.3	86.7	3.4

Proposal

● Amended proposal

$$S = V_{LKLC} \times t_{front}$$

Where :

V_{LKLC} : the actual speed of the LKLC vehicle in [m/s];

t_{front} : time gap between the LKLC vehicle and the leading vehicle in front
in [second] $= 0.8 + \dfrac{1.6v_{LKLC}}{36.1}$

 * 1.6s = (2.4s-0.8s),   36.1m/s = (130km/h/3.6)