Informal Document - ACSF-12-04

Ministry of Land, Infrastructure and Transport

Korea Automobile Testing & Research Institute

Detecting Range to the Rear by ACSF system of Category C

Korea Automobile Testing & Research Institute

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A detecting range to the rear by ACSF Cat. C based on TTC

$$S_{rear(m)} = (TTC \times V_{sd}) + S_{min}$$

where :

TTC(sec) = time to collision

Vsd = Speed Difference = Vsmax - Vsmin

Vsmax = the maximum speed up to which an ACSF is designed to operate

Vsmin = the minimum speed down to which an ACSF is designed to operate

Smin(m)= The length of main view mirror(=device) ~ the trailing edge of ACSF vehicle

A detecting range to the rear by ACSF Cat. C based on TTC

<Option A>

$$S_{rear(m)} = (3.5 \times V_{sd}) + S_{min}$$

<Option B>

$$S_{rear(m)} = (2.5 \times V_{sd}) + S_{min}$$

Factor background for the formula to the rear detecting(1)

$$S_{rear(m)} = (TTC \times V_{sd}) + S_{min}$$

where :

- **TTC(sec) = 3.5* or 2.5****

*** TTC of the highest performance(Type C) of types by target vehicle closing speed classification**

**** a half completed time of L.C as we are agreed(ACSF-11-03-Rev.2 para. 5.6.4.1.6), whatever is lower**

- M1, N1 : 5sec, M2, M3, N2, N2 : 10sec

Table 3 — Closing vehicle warning time to collision by target vehicle closing speed classification

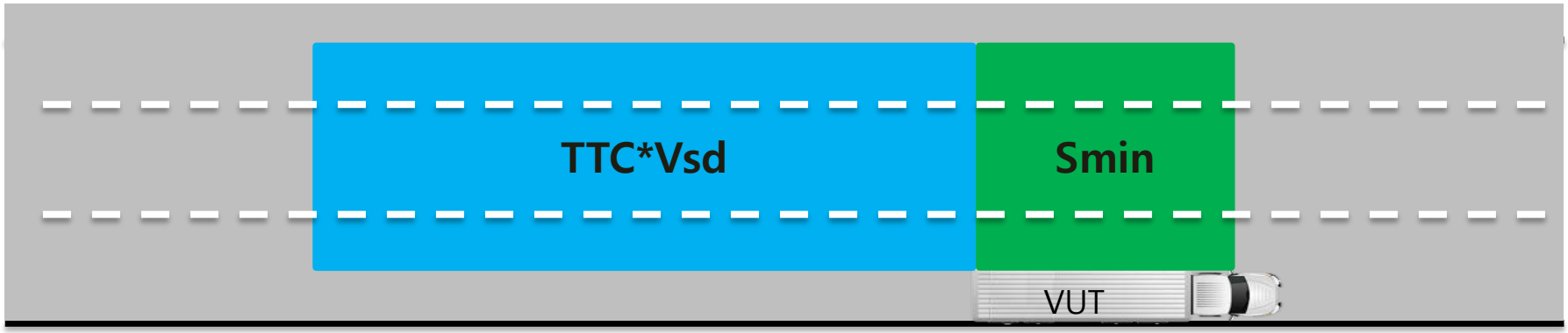
Type	Maximum target vehicle closing speed for full performance m/s	Time to collision s
A	10	2,5
B	15	3,0
C	20	3,5

[ISO 17387 Lane change decision aid systems(LCDAS)-Performance Requirement and test procedures]

Factor background for the formula to the rear detecting(2)

- Vsd(=Vsmax – Vsmin) : speed range specified by the vehicle manufacturer of Cat. C. That is, the monitoring range should also be increased if operating speed range increases

- Smin(m)= The length of main view mirror(=device) ~ the trailing edge of ACSF vehicle



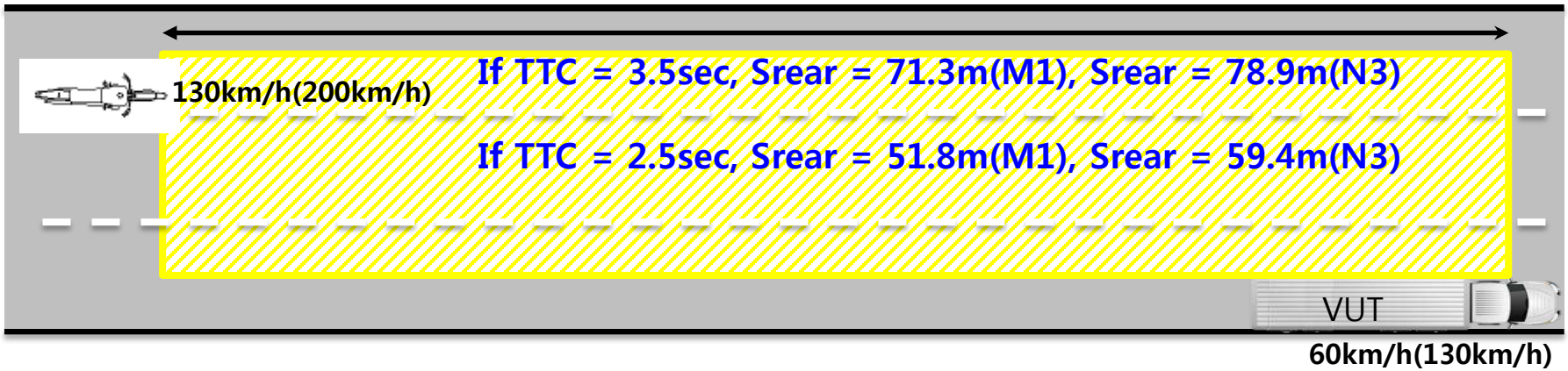
Calculation example

■ TTC = 3.5/2.5sec, Vsd = 70km/h(operating speed range)

☞ Condition

* In case of Germany, the recommended max. speed limit = 130km/h, the min. speed limit = 60km/h on highway

** if the length of Main view mirror ~ the trailing edge of ACSF vehicle : M1 = 3.2m(Chrysler 300c), N3 = 10.8m(Volvo FM cargo), Smin(m) = 3.2m(M1), 10.8m(N3)



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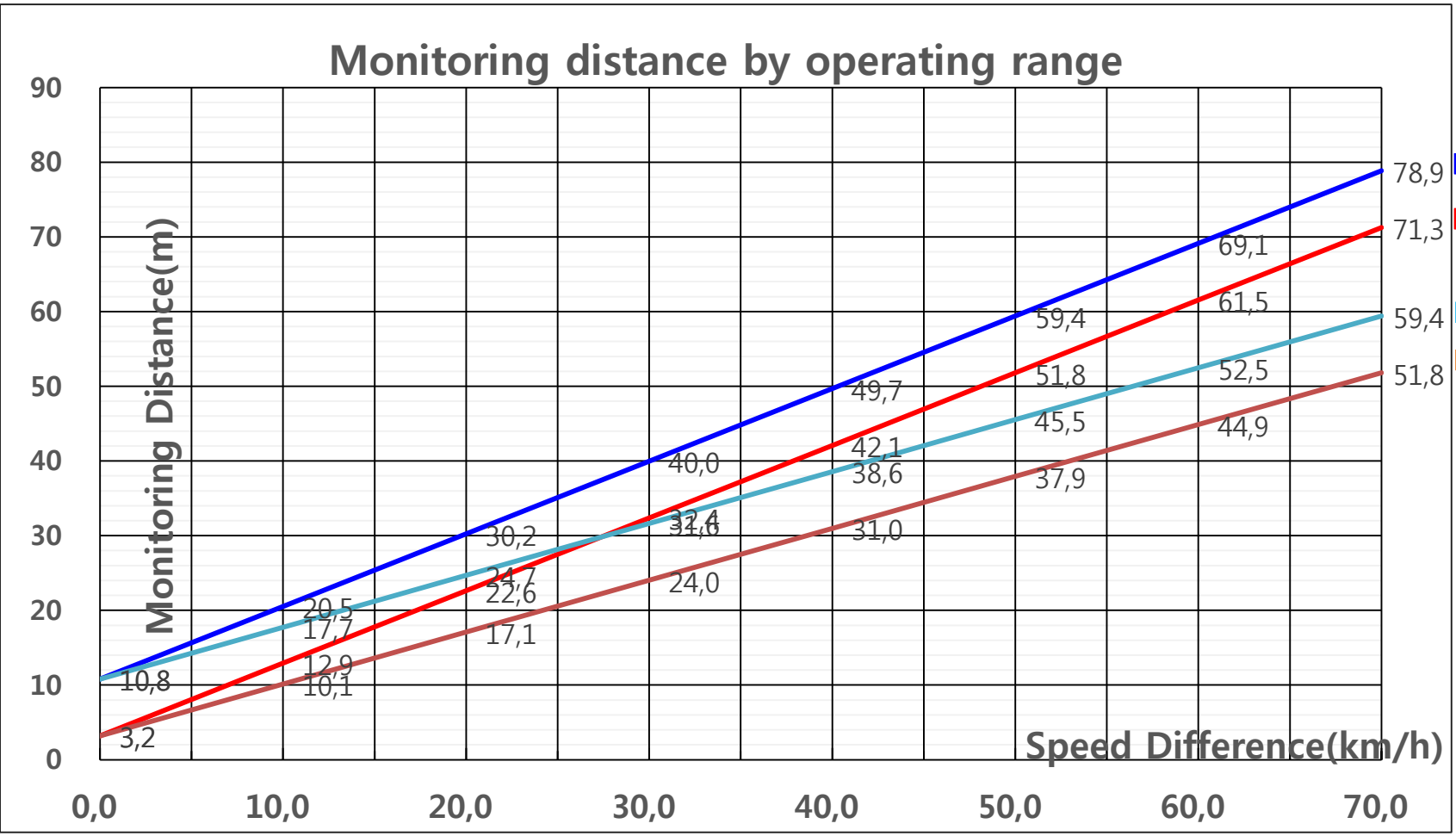
Detecting Range(m) by Speed difference(operating range)



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Option A ? Option B ?

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