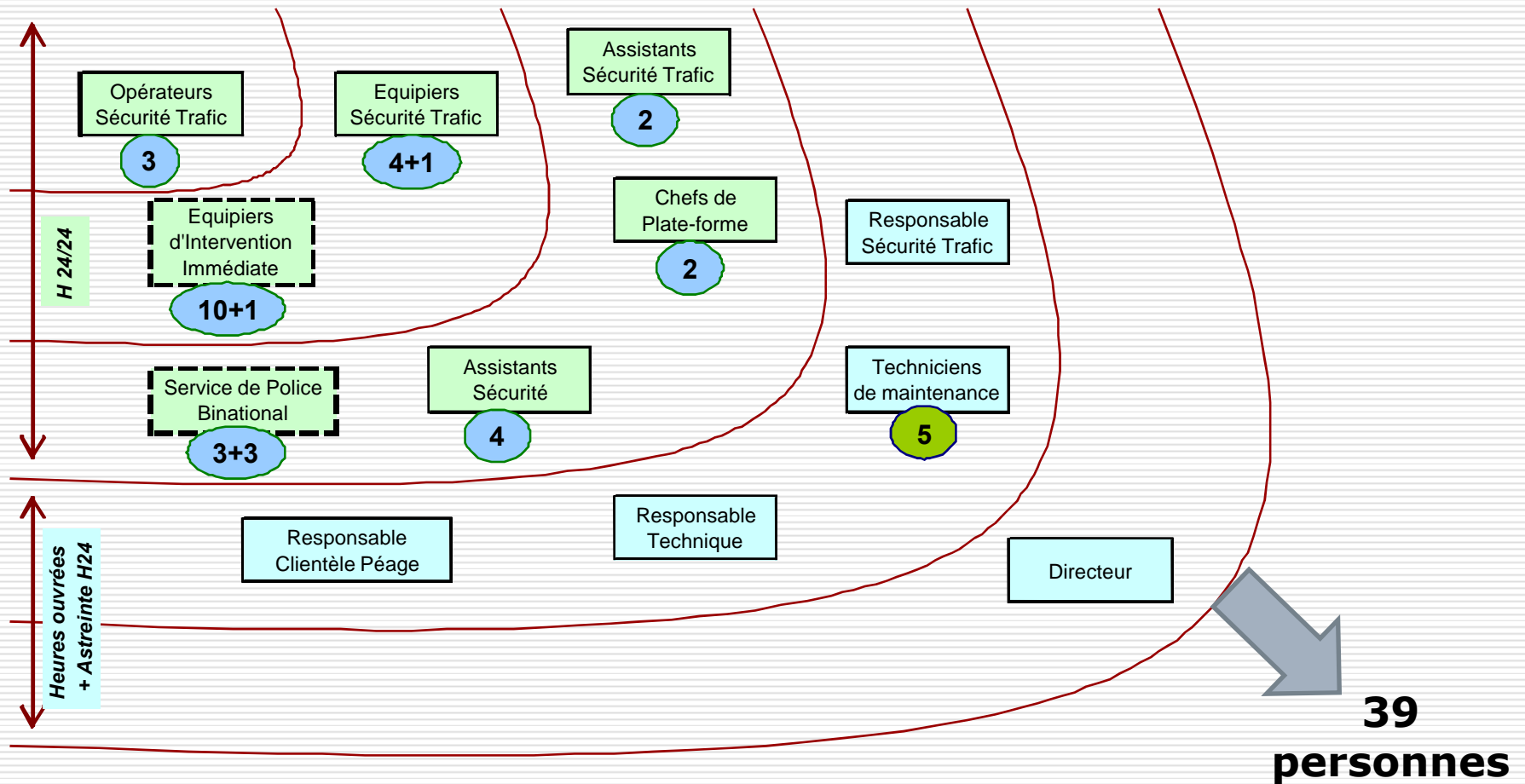


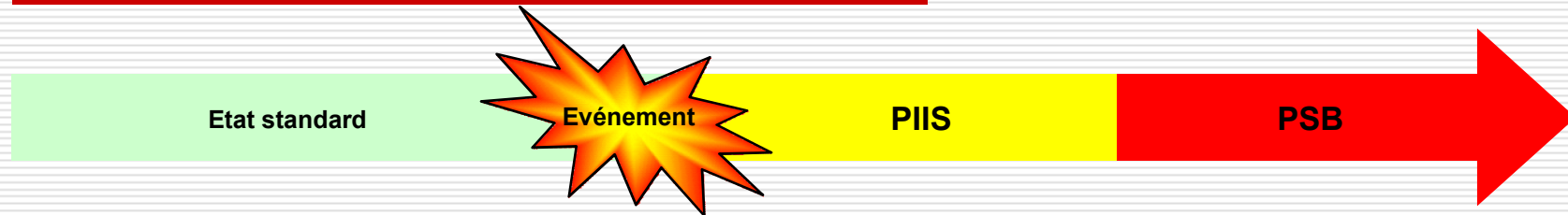
Interdistance measurement system



Overview: emergency rescue organisation: human resources for safety



Overview: emergency rescue organisation: emergency plans



- PIIS: contains contingency plans, incident control, minimum operating conditions and equipment to be activated;
- PSB: depending on the nature of incidents, under the authority of the Prefect.

PIIS: plan interne d'intervention et de sécurité
PSB: plan de secours binational

Interdistance measurement system



Preamble

- ❑ A key element in the TMB security measures;
- ❑ Designed to avoid the propagation of a fire to following vehicles;
- ❑ Also designed to facilitate the intervention of safety teams, and the evacuation of injured people;

Preamble (b)

- ❑ A bi-national police service is on duty to enforce traffic regulations;
- ❑ It receives warnings concerning excess speed and interdistance infringements;
- ❑ It fines in case of the first;
- ❑ It stops and warns the offender in case of the second;

Plan

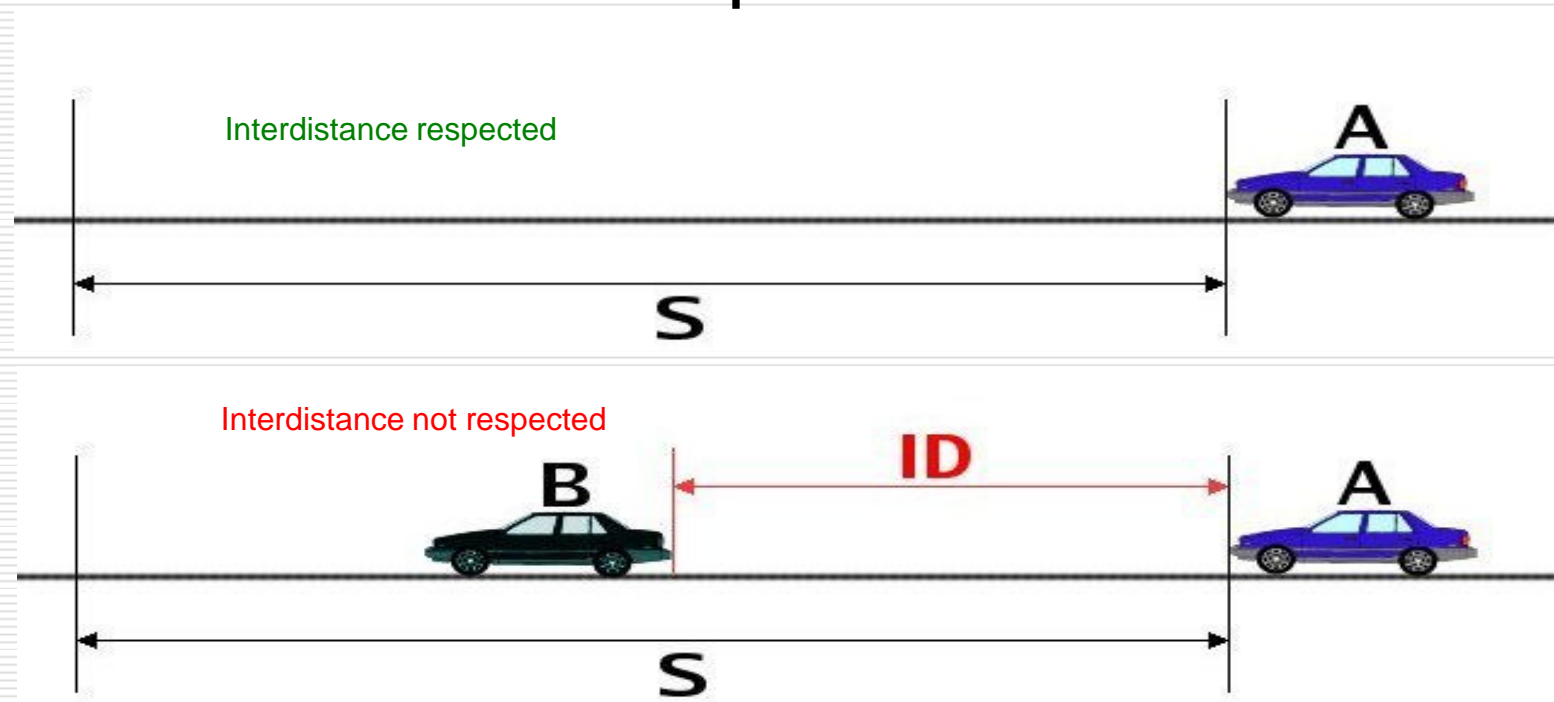
1. Aim
2. General principle
3. Method
4. Certification requirements
5. Complete system
6. Results
7. Conclusion

1. Aim

- Detecting interdistance offences;
- Give the documentation required to fine.

2. General principle

- An analysis area, with a length \geq interdistance required

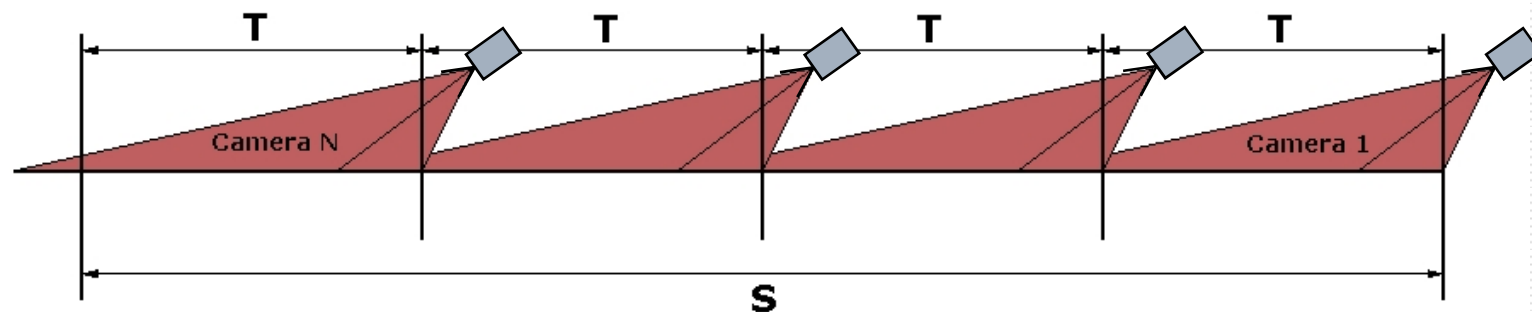


2. General principle

- A photo of the rear of the vehicle allowing a licence plate reading in case of infringement.

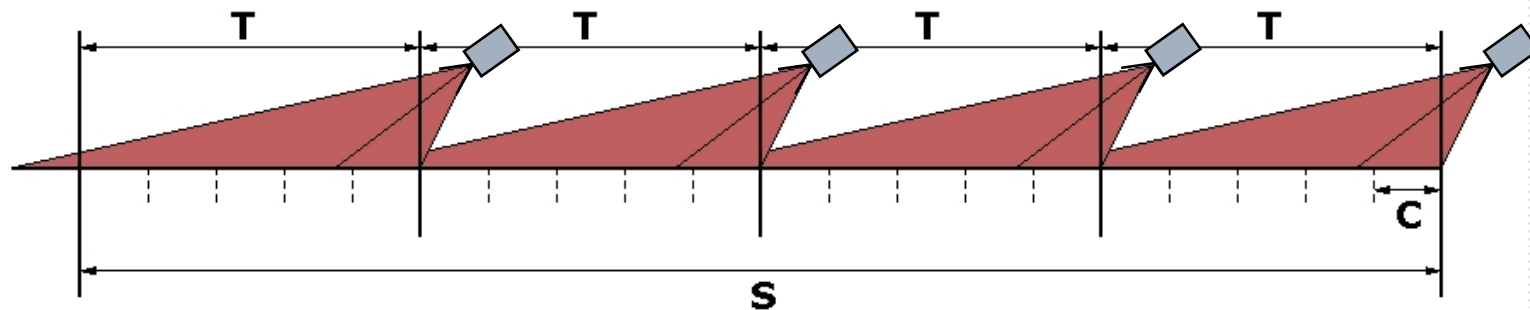
3. Method

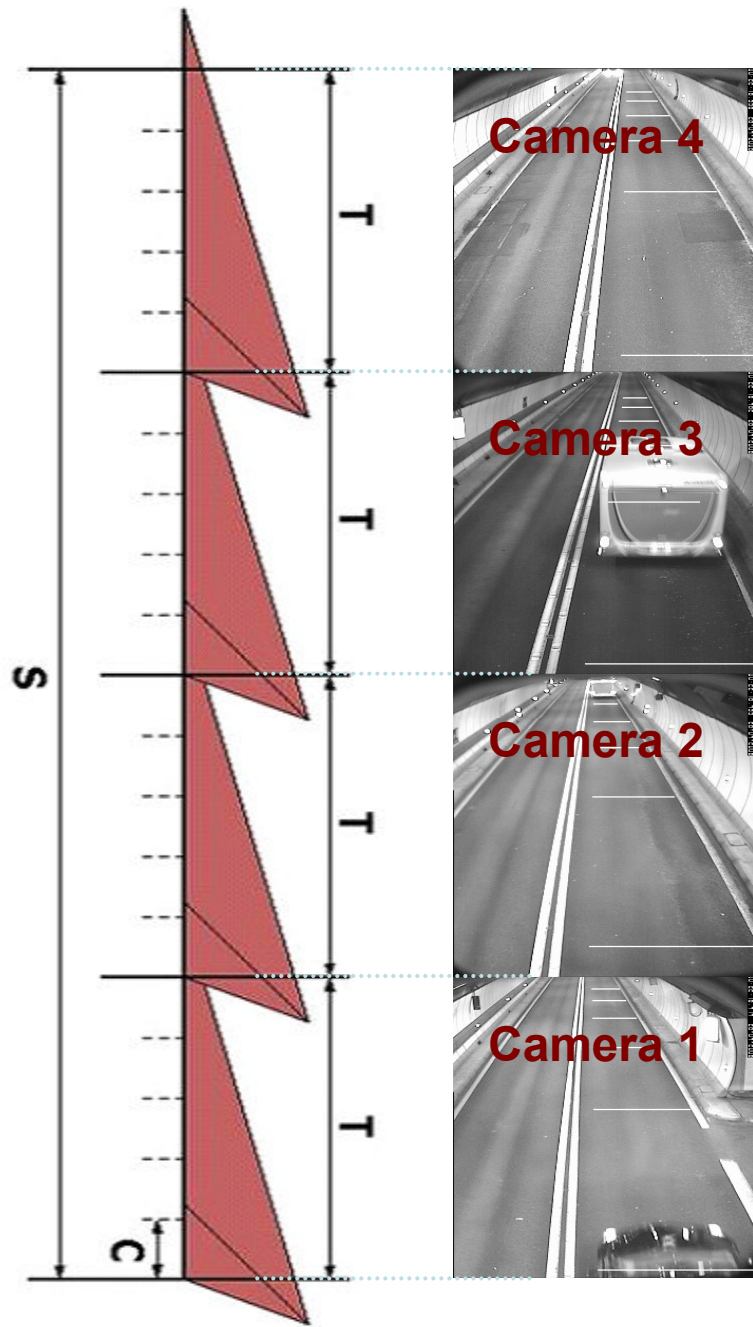
- An analysis area, 170 meters long, covered by 4 cameras;

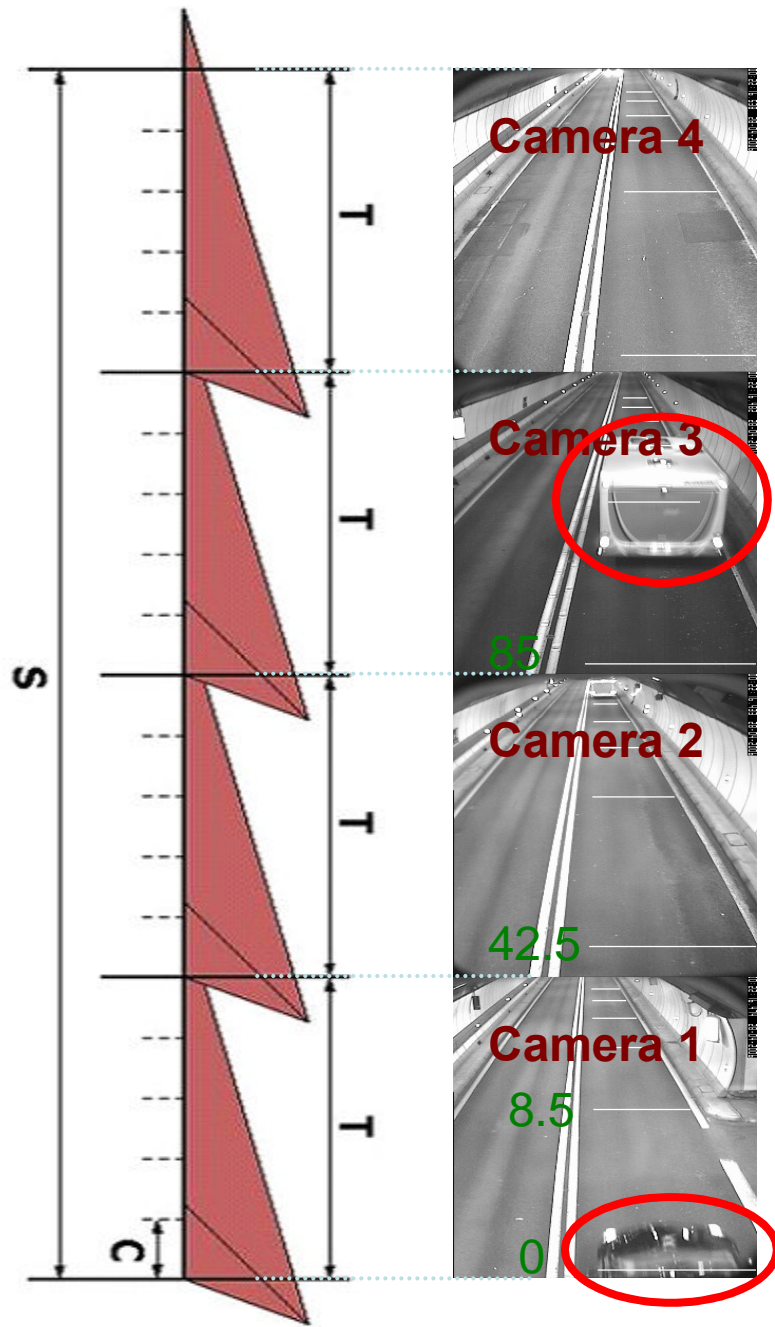


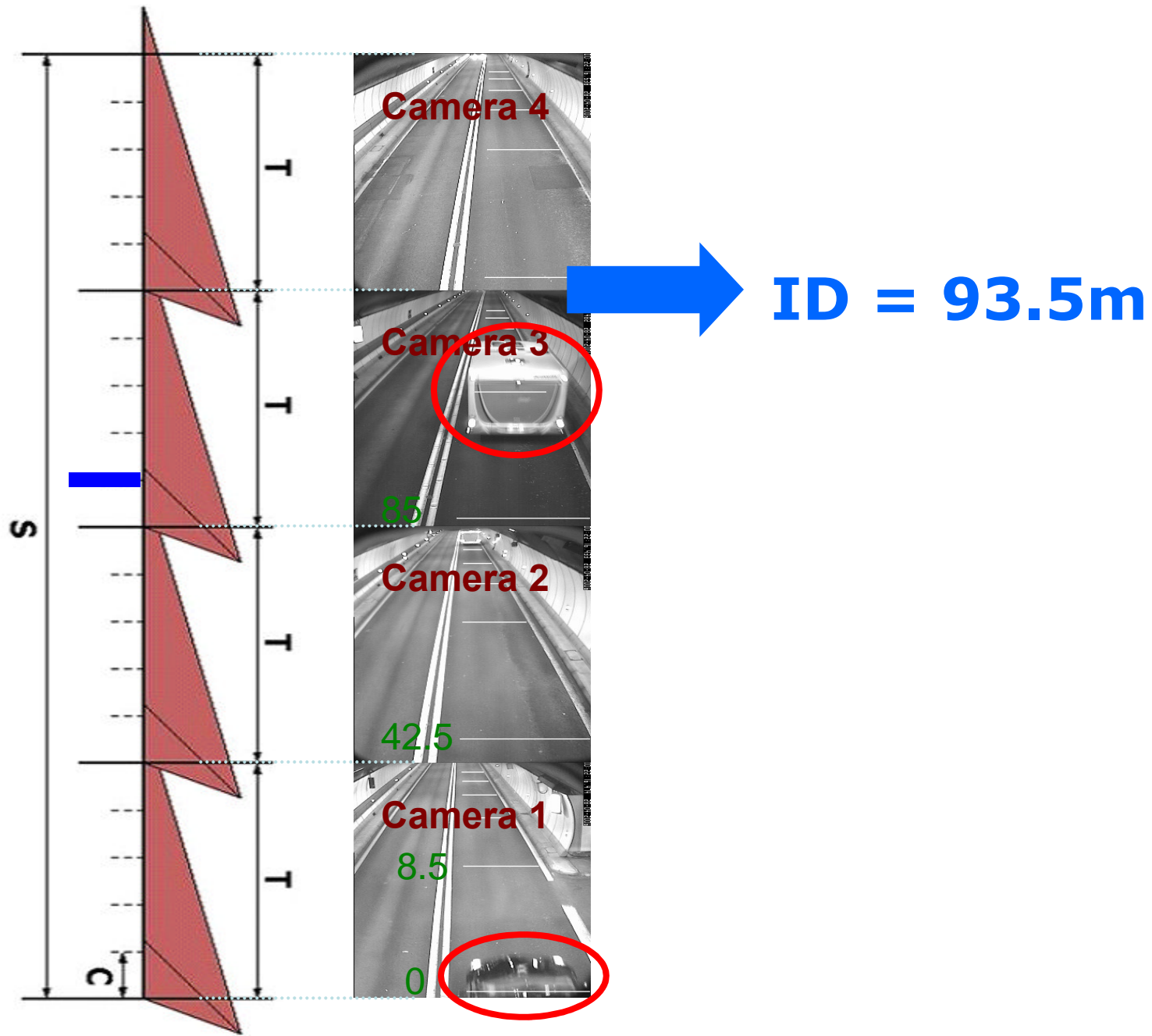
3. Method

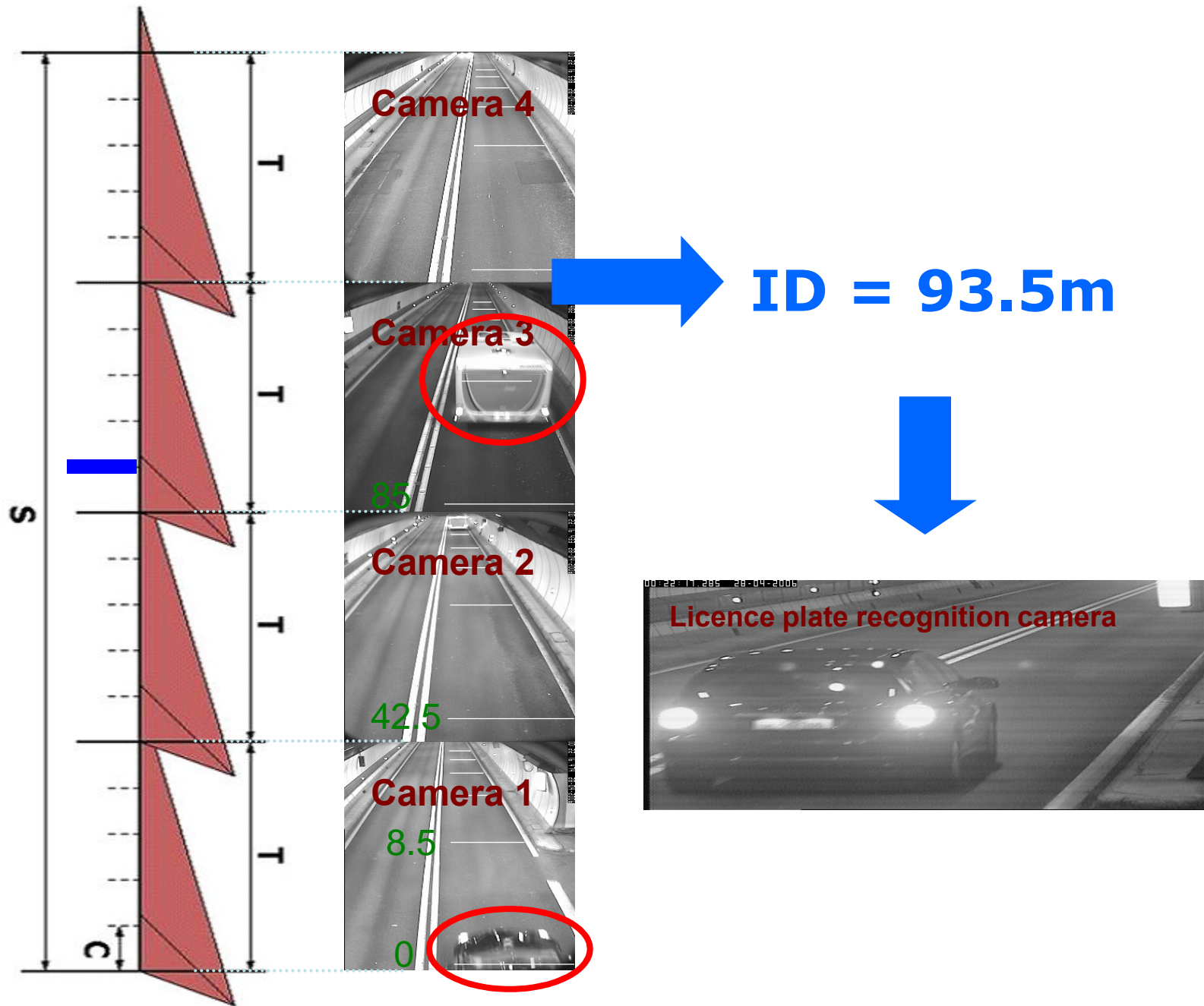
- A division of each section in five cells, 8,5m long, allowing the interdistance calculation;











4 Certification requirements

- A signpost:

4 Certification requirements

- A signpost:

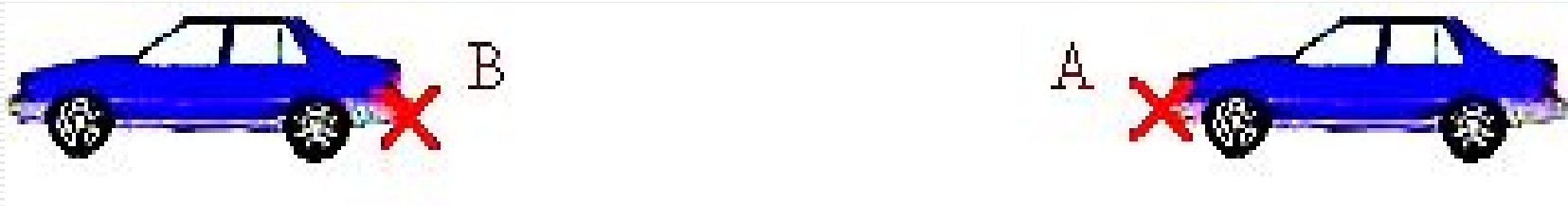


4 Certification requirements

- A signpost;
- Very precise reference points:

4 Certification requirements

- ❑ A signpost;
- ❑ Very precise reference points:



4 Certification requirements

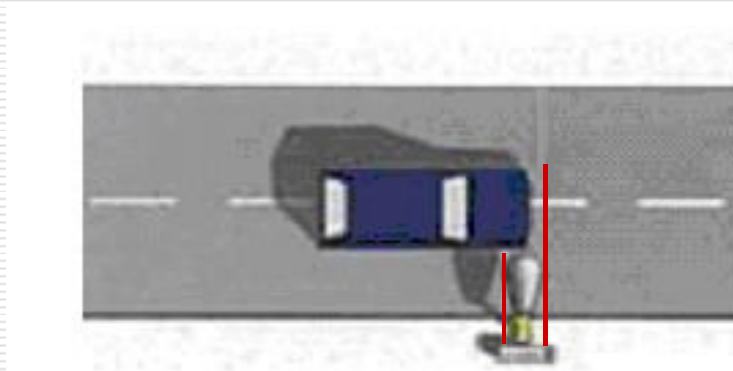
- A signpost;
- Very precise reference points;
- Difference between the instantaneous speed and the average speed $< 3\%$
 - Instantaneous speed measurement;
 - Average speed measurement.

4 Certification requirements

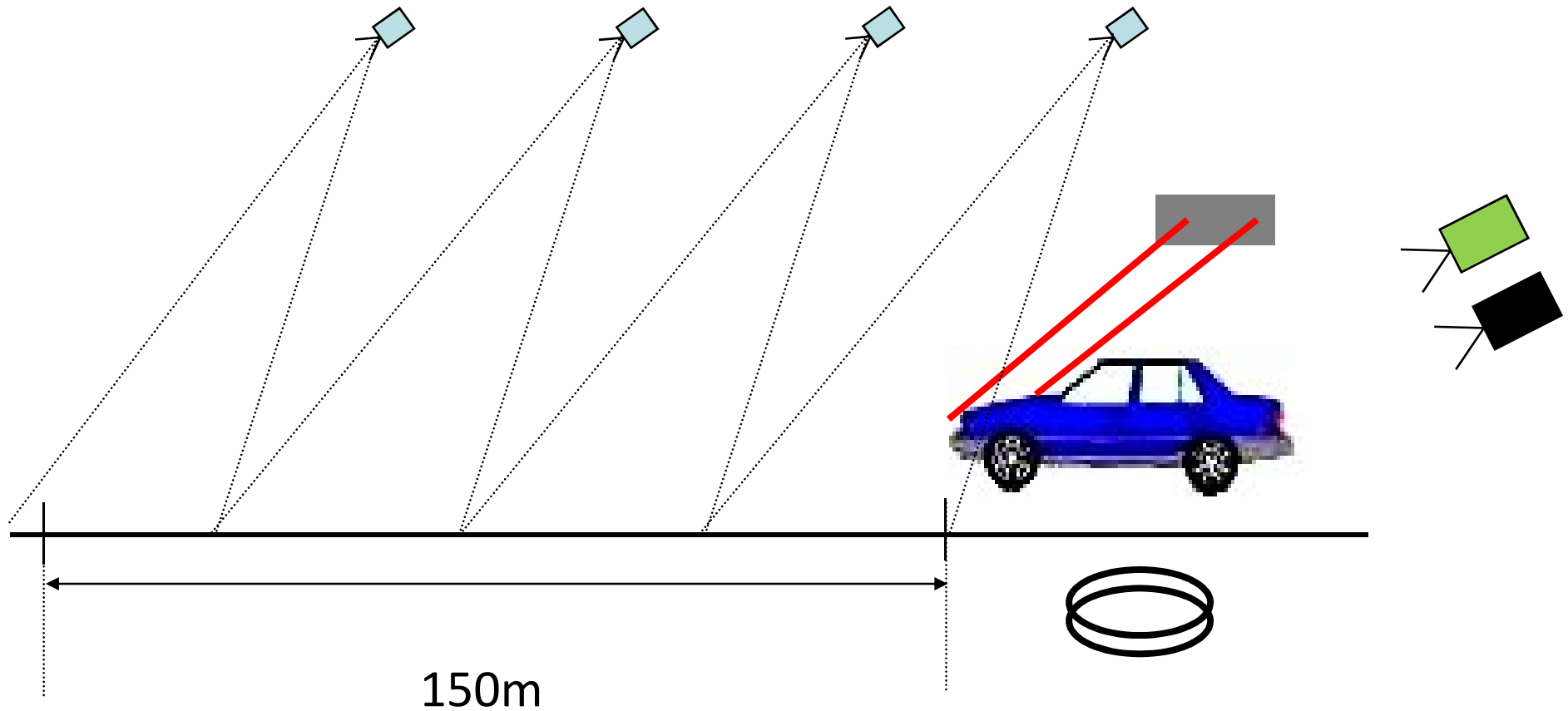
- Difference between the instantaneous speed and the average speed $< 3\%$
 - Instantaneous speed measurement



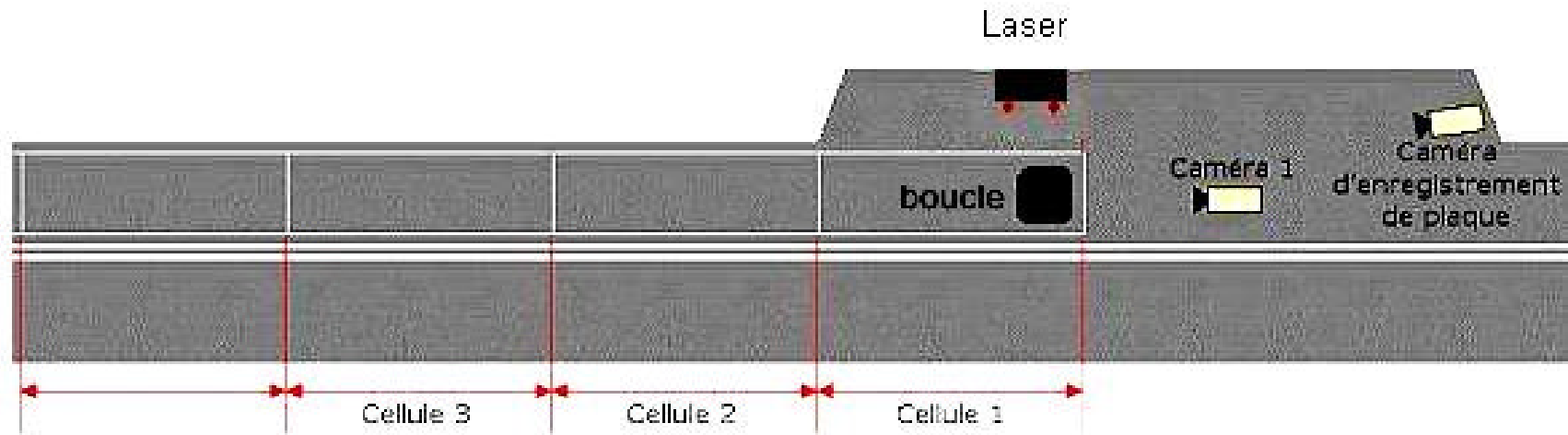
Use of a laser device



5. Complete system



5. Complete system (b)

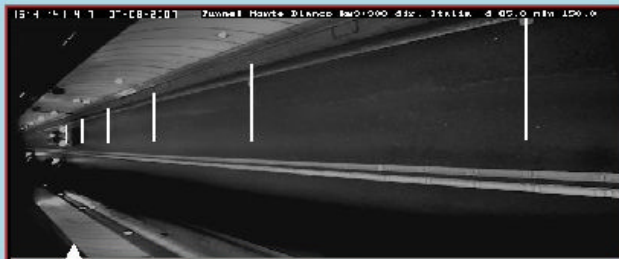


Riepilogo Infrazione

Click sulle foto per ingrandirle



Tratta 1



Tratta 2



Tratta 3



Tratta 4



Posteriore Veicolo



Targa Veicolo

Caratteristiche infrazione:

Direzione: Corsia Francia-Italia garage 32 Km 9+900

Interdistanza minima: 150 metri

Interdistanza rilevata: 85.0 metri

Data: 06/08/2007

Ora: 15:41:42

Lo scarto tra la velocità istantanea e media (su 150 m) del veicolo seguito è inferiore al 3%

7. Conclusion

- A system consisting of
 - cameras;
 - A computer analysing each frame;
- A system extendable to the entire tunnel;
- Offered for preliminary assessment;
- Patent: PCT/IT2006/000796.

Thank for your attention.

