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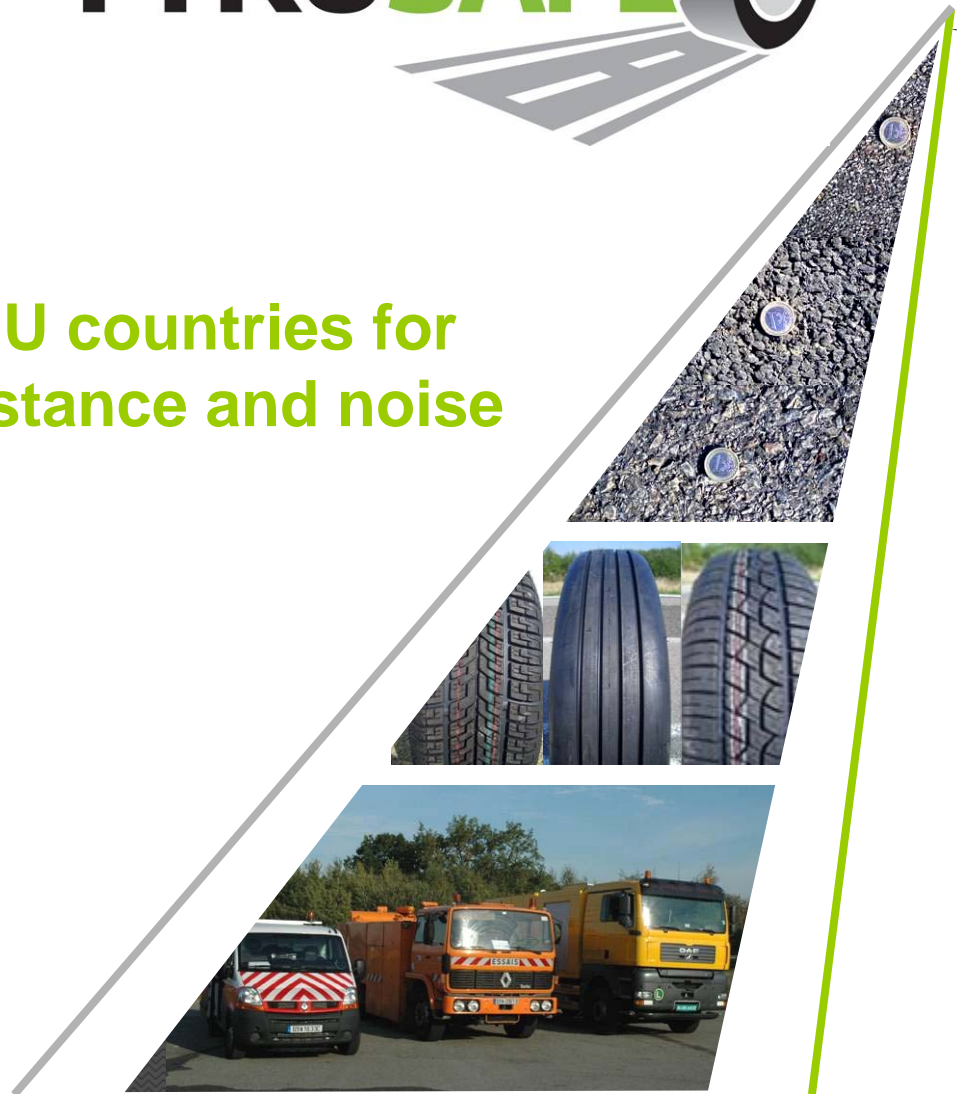


Policies and Standards of EU countries for skid resistance, rolling resistance and noise emissions – WP1

Final Seminar

10th June 2010, Brussels

Roland Spielhofer

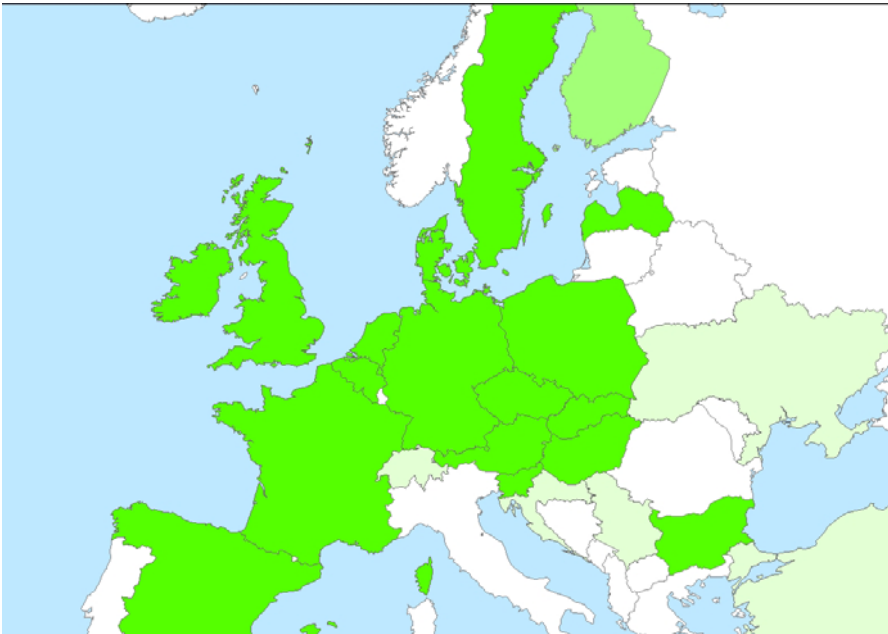


Aims of the Work package

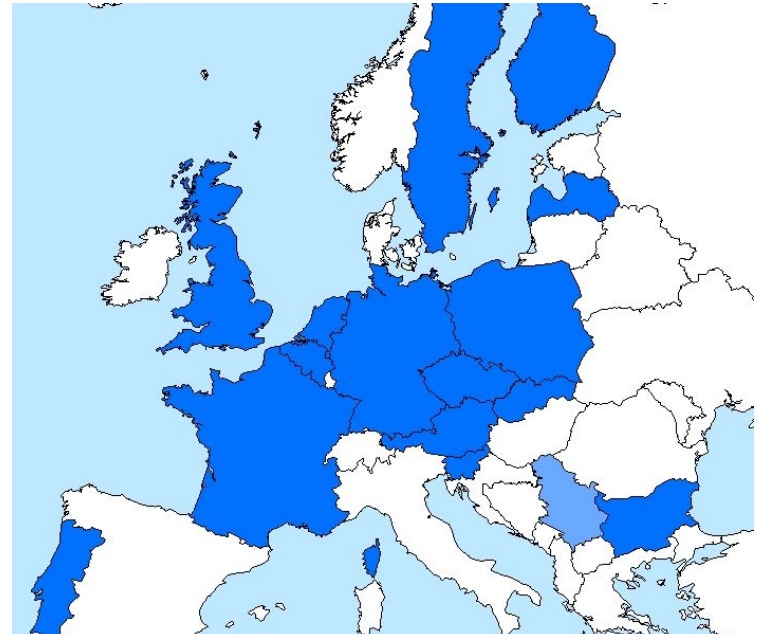
- Review of
 - EU policies and standardisation work
 - Current position in EU member states
 - Differences, advantages/disadvantages of approaches
- Recommendations for future harmonised policies
- Organisation of expert workshops

What did we do?

- Questionnaires on national policies and standards
 - Skid resistance: 17 answers
 - Noise emissions & rolling resistance: 15 answers



skid resistance answers



noise & rolling resistance answers

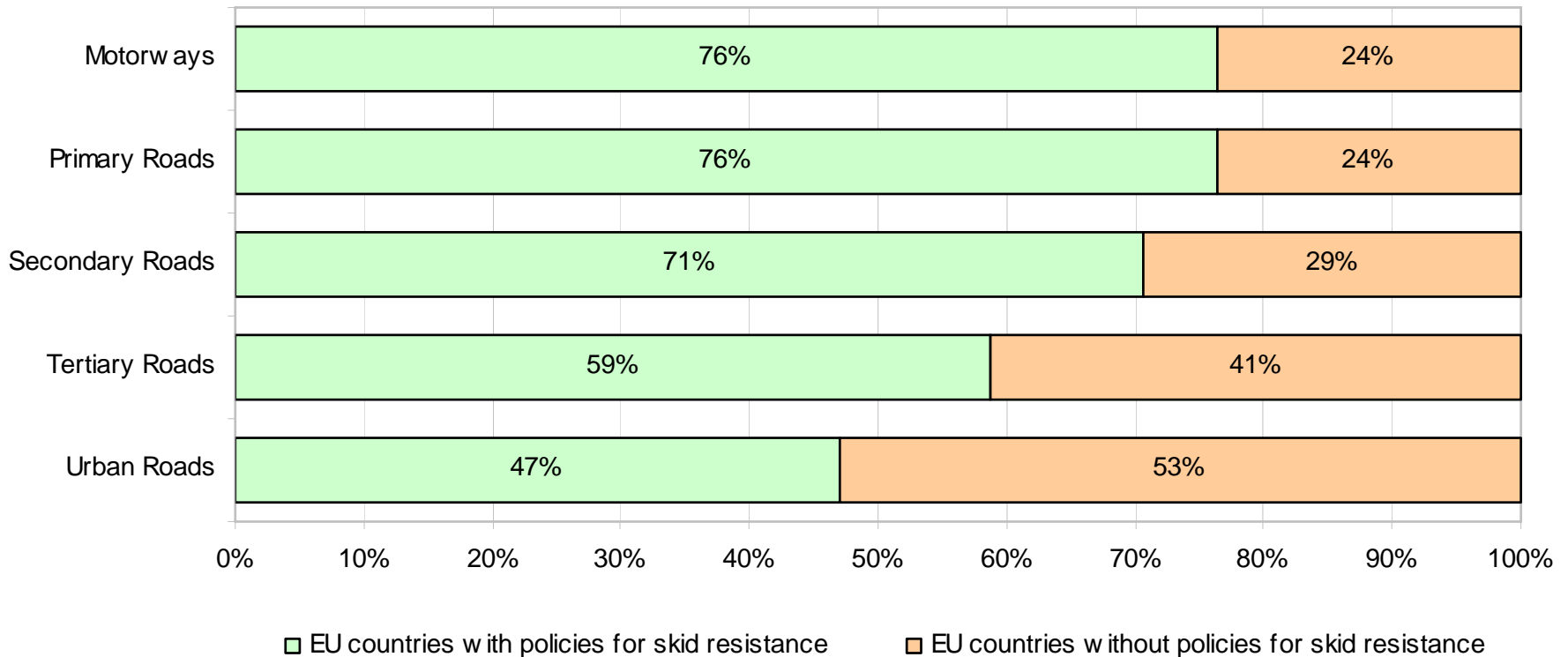
Skid resistance

European policies – skid resistance

- Skid resistance considered as important surface property
- No formal EU policy has been issued yet
- Policies only on national level

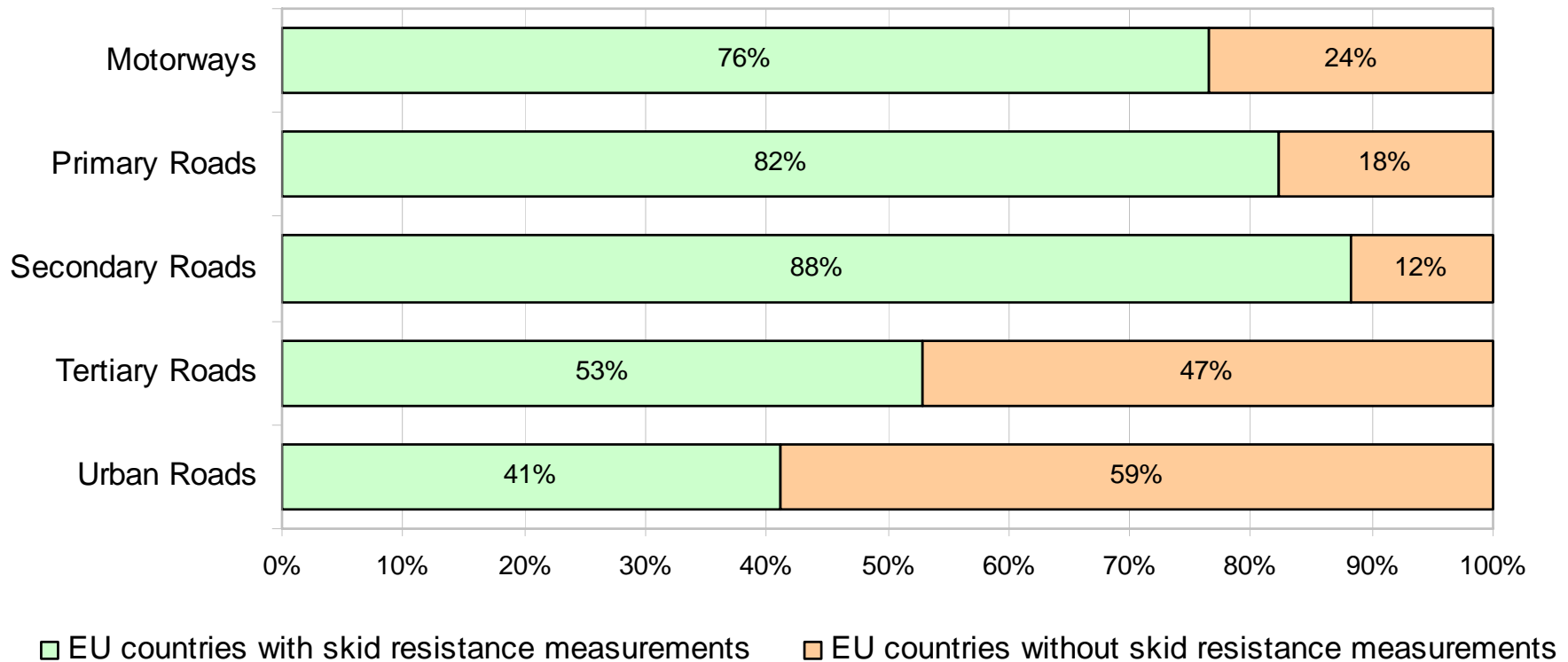
Policy - Skid resistance

“Do road administrations set policies or standards for skid resistance in your country?”



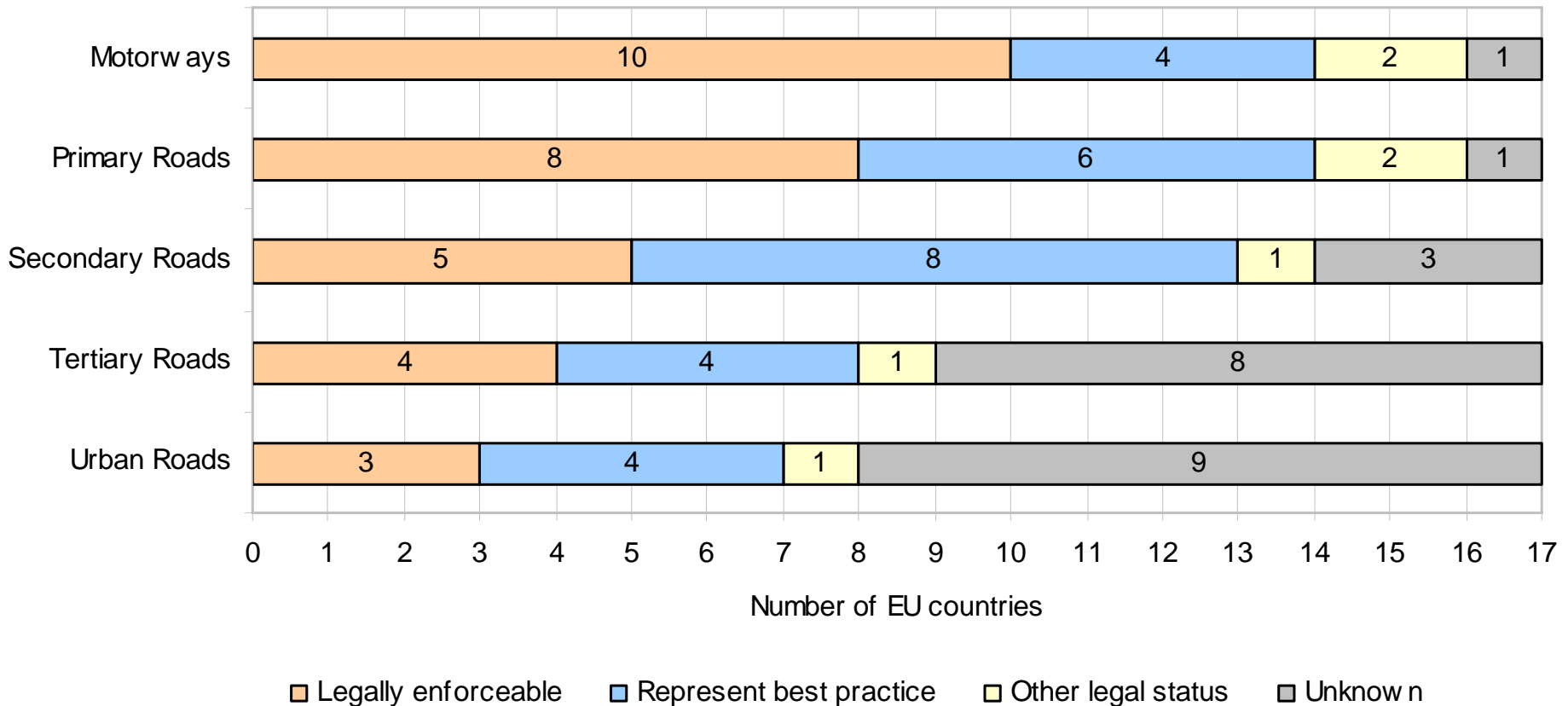
Do you measure?

“Even if they do not have a formal policy,
do they make skid resistance measurements?”

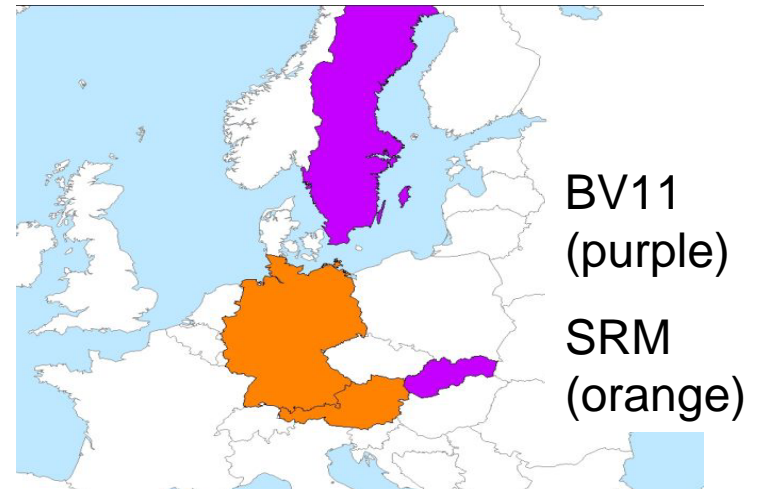
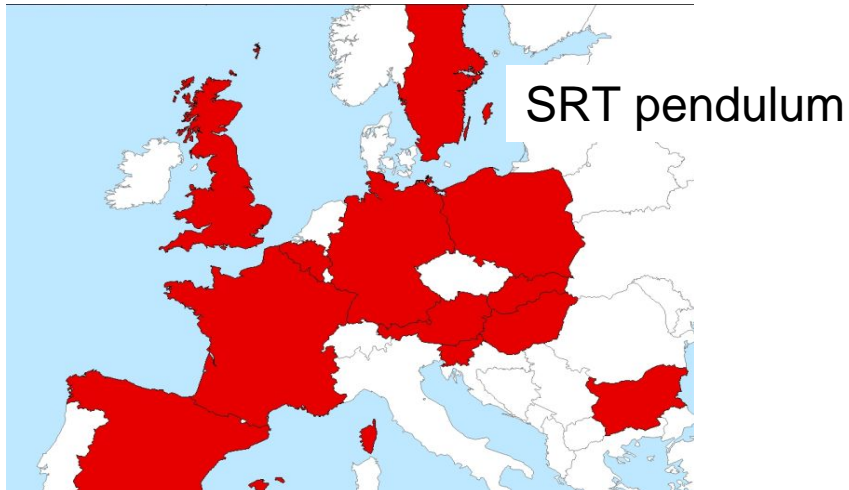


Legal status of policies – skid resistance

“What is the legal status of the standards in your country?”

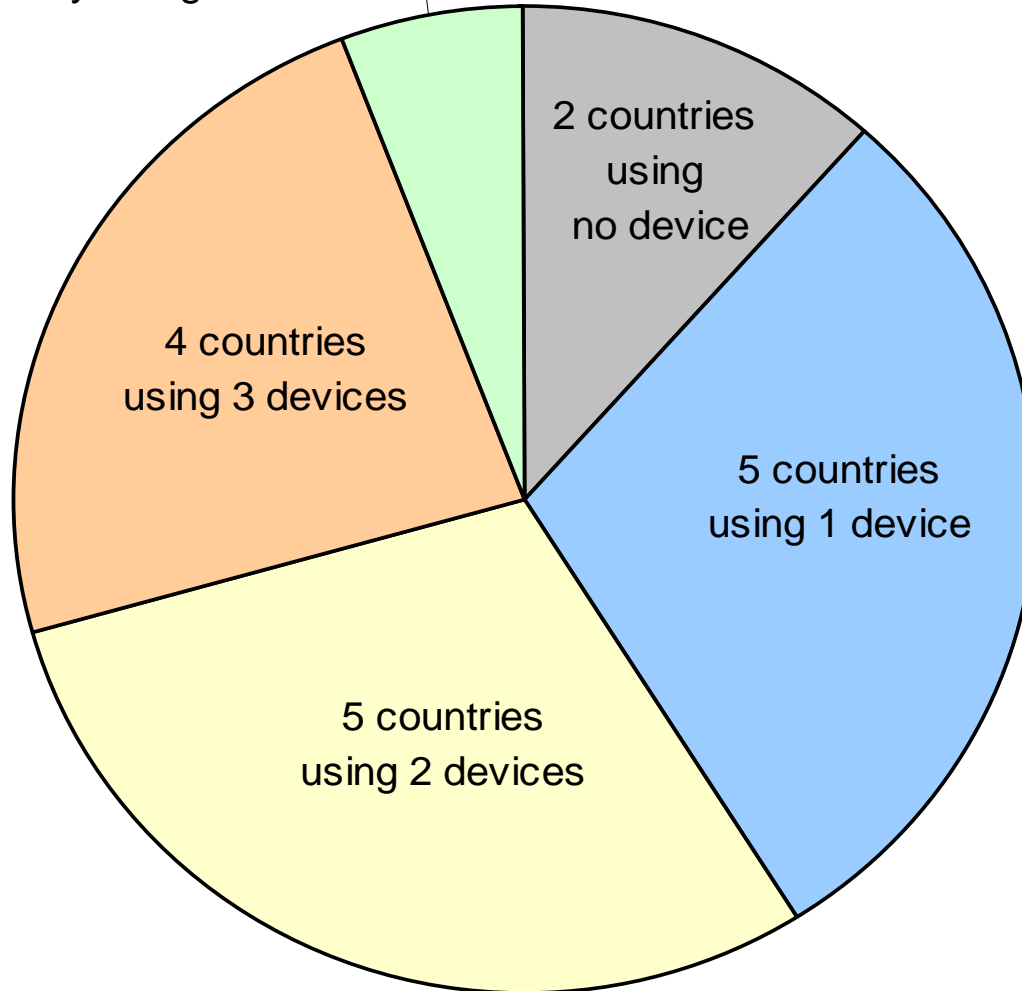


Devices used – skid resistance



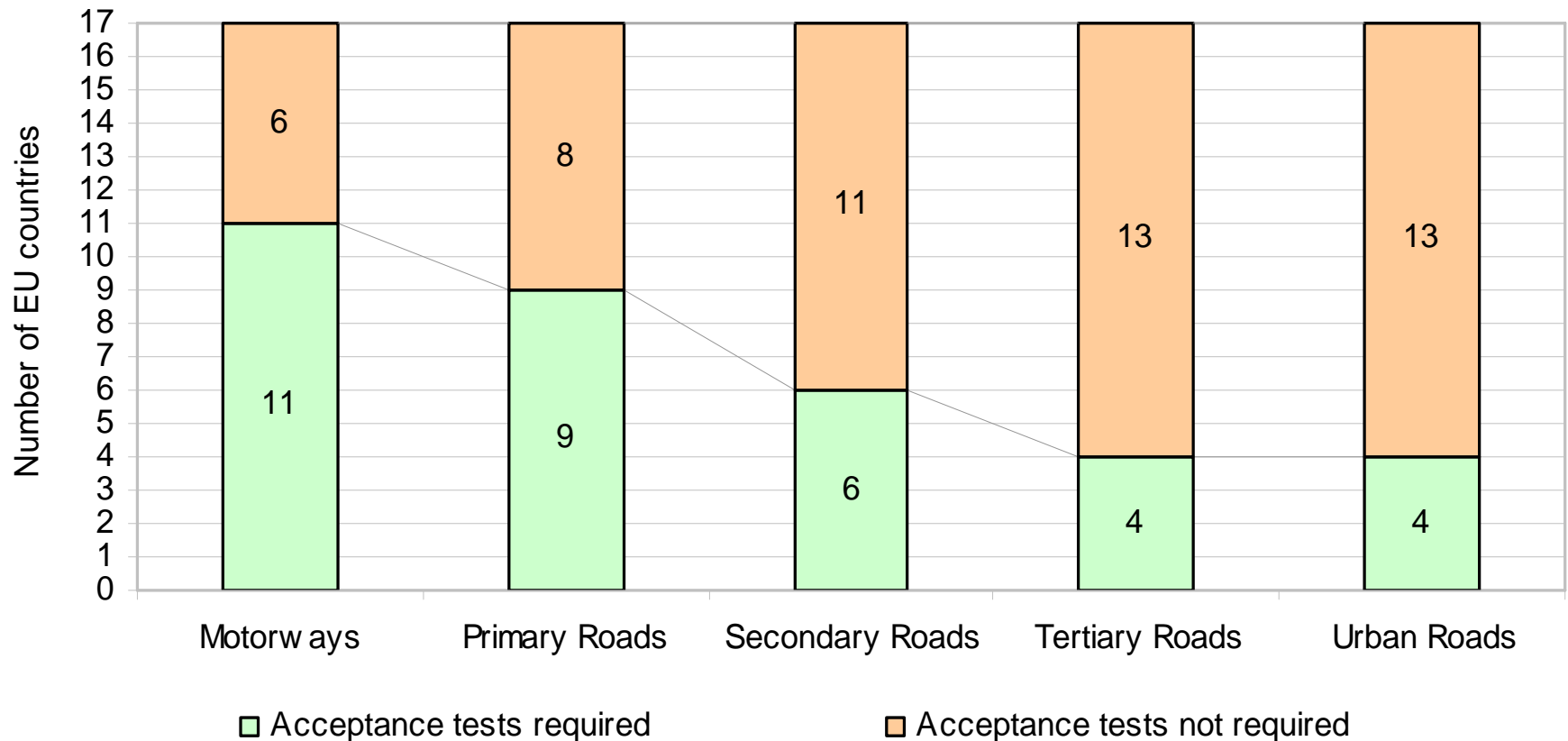
How many devices? – skid resistance

1 country using 4 devices



Acceptance tests required? – skid resistance

“Are acceptance tests required for newly built roads?”



Noise emissions

European Policies – noise emissions

- Directive 70/157/EEC – emission limits
- Directive 2002/49/CE – environmental noise
 - noise maps for large road infrastructures
 - equal noise areas, source of noise
 - number of people affected
 - no limits/thresholds defined
- Directive 2001/43/EC – tyre rolling noise
 - noise limit values
 - test procedure
 - evaluation shows that limits could be stricter

Measurements – noise emissions

- Pass-by-Method (SPB, CPB) – standards exist
- Close proximity Method (CPX) – standardisation ongoing



Measurements – noise emissions

- SPB, CPB
 - on the spot
 - controlled vehicles (CPB)
 - difficult site conditions (no obstacle, slope, curve, ...)
 - difficult to operate in dense urban areas
- CPX
 - continuous
 - choice of tyres
- Compatibility not established

Noise labeling of road surfaces

- Classification schemes not comparable
 - bases on SPB measurements
 - but very different use of results

- Monitoring of noise properties of road surfaces
 - 60 % on some networks, on case-by-case basis
 - usually repeated every year

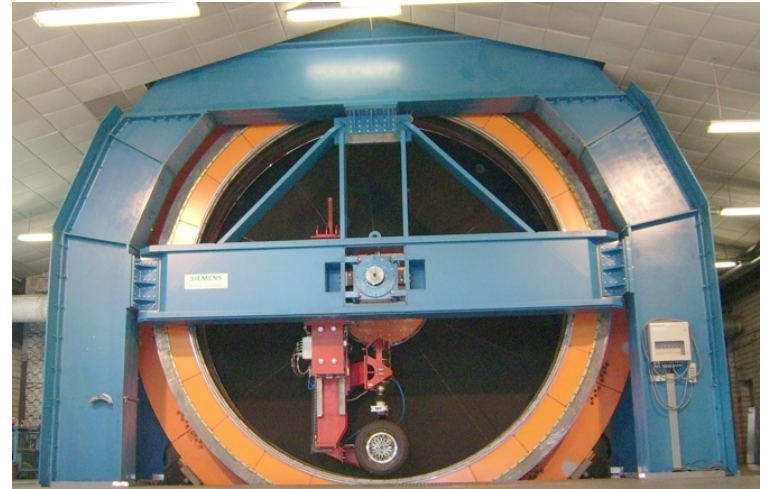
Rolling resistance (of pavements)

Policies - Rolling resistance

- No European regulation
- No National regulation

Measurements – rolling resistance

- Drum
 - outer side (replica pavements)
 - inner side (real pavements)
- Trailer
- Equipped car – fuel consumption (indirect)



Questionnaire analysis – rolling resistance

- No national thresholds for rolling resistance of pavements
- 50 % of answering countries are aware of fuel/CO₂ saving potential
- 50 % perform tests, equipment differs:
 - 4 trailers
 - 3 drums
 - test procedures not standardized, some bases on empirical knowledge, some used ISO 18164

Conclusions of survey

- Situation in Europe is diverse
 - concerning the three parameters
 - through the countries
 - on European level, noise is the „most regulated“ surface property
 - Noise measurements are standardized
 - Skid resistance measurements not
 - Levels of policies decline through the networks
 - Rolling resistance not covered by policies at all
 - upcoming issue

... STILL A LOT LEFT TO DO!

Future harmonised policies

Recommendations for ...

Skid resistance

- The policy will be **set at EC level** through CEDR or CEN and **implemented** in each country **by their national road authorities**.
- The harmonised policy should apply to **Level 1 and Level 2 networks** (**motorways** and **principal roads** linking major towns).
- Policy applies to in-service roads.
- Policy does not apply to new asphalt surfacings (early life skid resistance is not covered).

- The measurement technique will be defined based on the following principles: **Continuous measurement using a device for which there is an established standard** (e.g. a CEN TS).
- For in-service roads, the network should be **monitored every year; maximum: 3 years**
- in both directions.
- For normal network assessment purposes measurements will be **averaged over not more than 100 m** for comparison with thresholds.

- **Threshold levels** will be **based** on the **risk of skidding** on different types of site with the overall **objective of equalising skidding accident risk** across the network.
- On in-service roads: when the **threshold is not met**, **prioritised investigation** will be used to establish whether improvement to the skid resistance at that site would be worthwhile and should be programmed.
- Supporting documentation
 - Identification of measurement device and operating conditions
 - Reference speed
 - Details on how to deal with seasonal variation
 - Details on calculation of characteristical values
 - Advice on materials

Recommendations for...

Noise emissions

Noise emissions

- **EC** sets a model policy, **Road Authorities** (national, regional, urban or private company) **implement the policy and fix the thresholds.**
- The harmonised policy should apply **to all kinds of networks but concentrated on areas exposed to road noise.**
- **Measurement technique** will distinguish between **road surface classification, assessment of a new surface and monitoring of networks** over time.

- A **classification method** will be defined for **noise prediction models** and to prescribe **low noise surfaces**.
- Measurements for **assessing new surfaces** for contractual purposes will be **recommended**.
- For in-service roads, the network can be **monitored annually**.
- Measurements will be **adjusted to a standard reference speed** – critical issue for noise!
- On new road surfaces: where a **threshold** is set for contractual purposes on a new surface, when the threshold is not met **individual countries will set their own choice of actions**.

Recommendations for...

Rolling resistance

Rolling resistance

- The policy will be **set by the EC** through CEDR or CEN and **implemented** in each country **by their national road authorities**.
- Key activities *before* harmonised policy is set
 - Define reference surface (e.g. ISO10844)
 - Define reference tyre (e.g. SRTT or smooth tyre)
 - Research to establish a reference rolling resistance coefficient (for comparison of performance of roads)
 - Research on texture and evenness may allow texture parameters to be used as an alternative to direct rolling resistance monitoring

- The policy should apply to Level 1 and Level 2 networks (motorways and principal roads linking major towns)
 - these networks carry most traffic
 - greatest benefit to be expected
 - generally the highest quality demands
- Measurement technique
 - based on established standard (e.g. ISO)
 - defined test speed
- Measurements for assessing new surfaces should be made (including definition of actions to be taken when thresholds are not met)
- In-services roads: monitoring intervals to be defined

Thank you for your attention!

Questions?

Available on <http://tyrosafe.fehrl.org>:

D06 Report on policies and standards concerning skid /
rolling resistance and noise emissions

D08 Recommendations for harmonized EU policies on skid
resistance, rolling resistance and noise emission