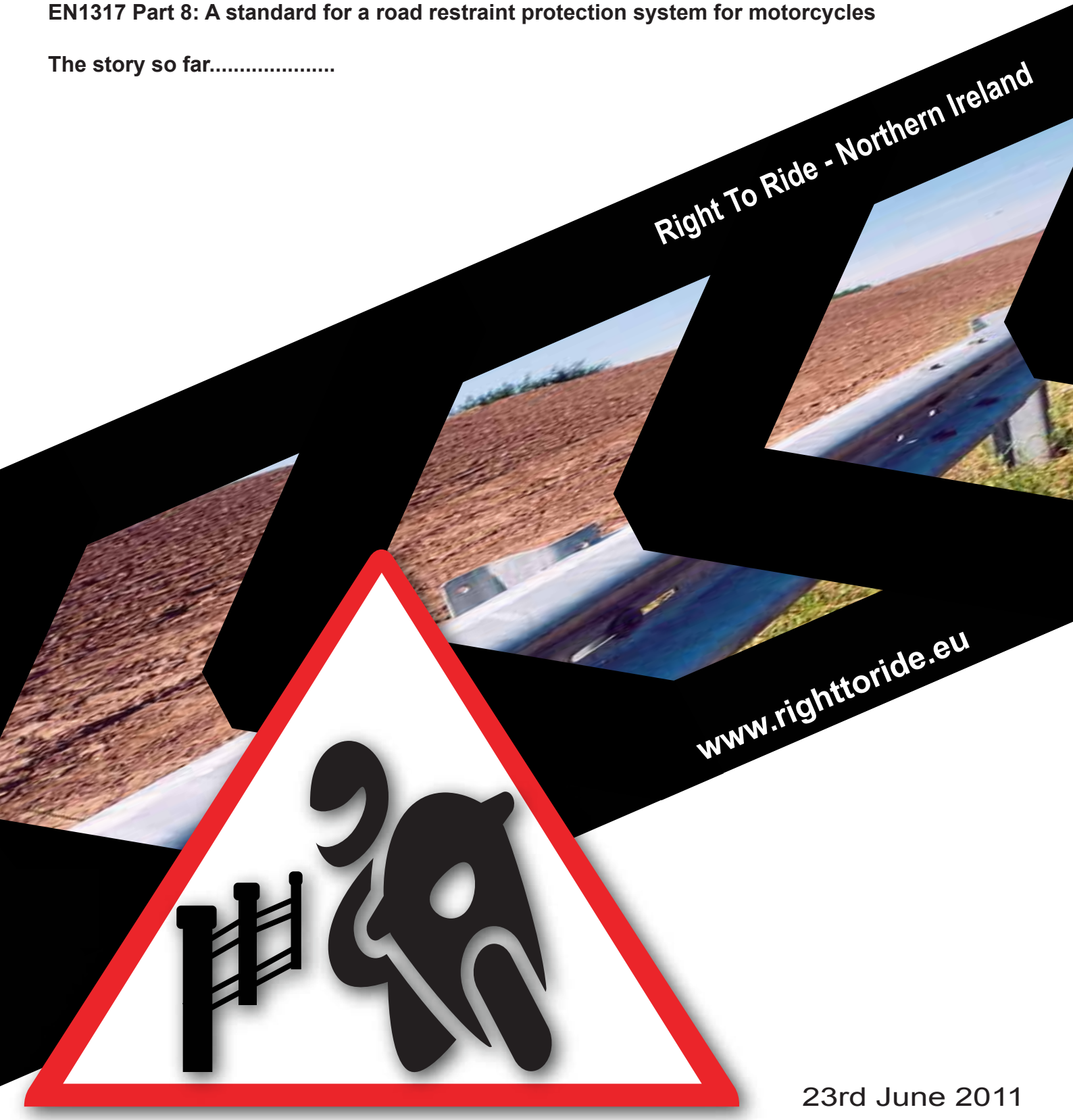
The Mystery of Motorcycle Friendy Crash Barriers

EN1317 Part 8: A standard for a road restraint protection system for motorcycles

The story so far.....



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On Thursday, June 16, the CEN (European Committee for Standardization) technical committee on road equipment (TC226) held its annual meeting in Stockholm. The draft standard for a road restraint protection system for motorcycles (EN1317-8) was on the agenda[1]. Over the previous months there had been discussions around the testing procedures for motorcyclists hitting crash barriers, the relevance of rider positions when crashing, types of barriers and so forth.

At the meeting, the committee chose to opt for a Technical Specification, which seems to have caused consternation amongst some motorcyclists. The purpose of this paper is to provide information about the draft standard, the issues and why the vote to approve the standard has been delayed.

Background

The Federation of European Motorcyclists Associations (FEMA) had been pressuring the CEN since 2000 to include motorcyclists within the EN 1317 standard. In that year, FEMA together with other partners and supported by DG Energy and Transport, prepared the "Motorcyclists & Crash Barriers Project Report"[2]

- In 2005, three of the National organisation representatives, Morten Hansen (NMCU); Wim Taal (MAG NL); Trevor Baird (MAG UK) prepared another report "The Road to Success", which set out the issues and solutions for a standard[3].

- The result was that in January, 2007 FEMA was granted liaison status within the European Committee for Standardisation (CEN) Technical Committee (TC) 226 "Road equipment" as the representative of motorcyclists.

- In July 2007, the FEMA General Secretary and President visited CIDAUT in Valladolid to take part in the CIDAUT workshop on ´the Impacts of Motorcyclists in to Road Infrastructure".

- In June 2008 CEN members voted to improve the crash barrier testing standard (EN 1317) to include the testing of systems designed to reduce the severity of motorcyclist impacts to barriers. The proposal was to define an additional part of the EN 1317 standard: EN1317-8, to be added to the existing seven parts. The TC 226 resolution 319 states: "Part 8: Motorcycle road restraint systems which reduce the impact severity of motorcyclist collisions with safety barriers". Part 8 is intended primarily for the testing of motorcyclist protection systems to be added on to barriers. Generally speaking, the Motorcycle Protection System (MPS) will be a separate product, even though it is tested as a complete system along with the barrier.

- Prior to the vote in 2008, in 1998 LIER (France) had developed a protocol: for the evaluation of motorcyclist protection systems for safety barriers, in 2008 the Spanish standards agency (AENOR) had defined a similar national testing standard based on the French procedure (Standard UNE 135900:2008 rev.01). The use of these two test procedures, and more recently very similar testing in Italy, has led to the approval and deployment of motorcyclist protection systems for barriers on Spanish, French, Italian and Portuguese roads.

[1] **TG1** = Technical Group 1: An Expert Committee composed by over 20 entities, in charge of preparing the final draft for WG1; **WG1** = Working Group 1: This group includes representatives of over 40 entities, with member countries taking part in the vote. This Group is in charge of proposing documents for approval to TC226; **TC226** = Technical Committee 226. The formal CEN Committee is where the various national bodies in charge of standardization (AENOR/Spain - AFNOR/France – BSI/UK etc.) are represented. This Committee is the one which will decide on the standard EN1317-8.
[2] http://www.fema.ridersrights.org/crashbarrier/index.html
[3] http://www.fema.ridersrights.org/crashbarrier2005/index.html

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- In March 2009 the Spanish protocol was put forward to the technical committee (TC226) working group 1, ("Crash barriers, safety fences, guard rails and bridge parapets") to consider for adoption throughout Europe as the definitive standard EN1317-8.

- In November 2009, a draft standard for a road restraint system to include motorcyclists, based on the Spanish protocol was approved by the Technical Group 1 of CEN (a sub group).

- In March 2010 WG 1 (Working Group 1) approved the proposal. The next step in the CEN standards development process was to send the proposed draft for the standard EN 1317-8 to public enquiry, which was held between June 2010 and January 2011, in order for general comments to be made about the proposal. CEN members put forward numerous comments and raised queries about the proposed draft. (8 Members answered "No" to the question "Possible acceptance as a European Standard").

- On June 16th 2011, the proposal was put forward to the TC 226 committee to accept. Rather than reject the proposed draft, the committee decided to accept it as a Technical Specification. Technical Specifications were once called experimental standards and these are intended to be tested to see if they work before they evolve into full standards.

There are cases where CEN groups do not go through this phase but go straight to the standard – this usually happens because there is a consensus that there is already sufficient experience with the test methods described in the standard. In the case of part 8 of EN 1317 – there was the possibility of moving straight ahead which experienced countries were more inclined to accept, but countries with less experience with this particular type of testing felt uncomfortable with it, hence the decision to opt for the Technical Specification as an interim solution.

What is EN 1317-8 and what is it supposed to do?

The standard (part 8 of EN 1317) is intended to apply to any system which would fit onto any barrier or a specific barrier which is expected to be forgiving of motorcyclist impacts.

The scope of the standard is to allow testing of the accident configuration with the rider sliding along the road surface having fallen from a motorcycle. The scope of CEN is to provide a common standard for Europe. It is not obligatory for any country to adopt this standard until its use is required by a national regulation. Therefore, each individual country has the option of installing barriers which they believe to be safer without subjecting them to testing – but in this case, the country or rather the National Road Authority, would be responsible for this decision.

Similarly, a national authority may also decide that the priority should be to install protection systems for other crash configurations, such as an upright rider colliding with a barrier whilst still on the motorcycle. This type of product cannot be evaluated by the Part 8 proposal and so an alternative evaluation method would be needed.

In sum, the objective is to have a protocol out there to use, whether Part 8 is a full EN standard or a Technical Specification, the choice of which type of motorcyclist protection system to deploy, or indeed the decision to use these systems or not, remains the responsibility of national authorities.

There seems to be the belief amongst motorcyclists that if this standard is approved then all EU countries will be obliged to use it, clearly, this is not the case. There are already some countries such as the UK that have developed their own “motorcycle friendly” road restraint systems which are in use.

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Is the Proposed System the Best Solution?

A Research Engineer involved in the CEN TC226 committee, summarized the issues relating to the Spanish protocol and highlights some of the concerns raised:

"Re the UNE135900 Spanish test procedure, I will not say that I know all background details, but as far as I have knowledge about the historical process, the initial "motorcyclists" crash test procedure was "invented" by French researchers at INRETS/LIER. Since then, that procedure has been used and somewhat more developed by traffic safety researchers in Spain and in Italy. In a very simplified way it seems to me that traffic safety persons in one of these countries regard this procedure as to be the solution to the motorcyclist to the barrier problem, and researchers from the other countries seem to see this as only one small step towards a more total solution". He then commented that he agreed with the latter researchers.

He continued to explain his concerns: *"A problem is that the more you try to learn about a subject, the more complicated is the problem and needs several different solutions. At a first glance, a Spanish motorcyclist crash test procedure seems to be a great advantage towards better safety for motorcyclists.*

The test procedure only concentrates on a very small part of the problem, a motorcyclist that has become fully detached from his motorcycle and is lying flat on the ground, sliding towards a barrier, head first. I will not say that it is a bad procedure, and such accidents happen all the time. But the UNE 135900 (Spanish protocol) does not consider motorcyclists still on their bike, nor motorcyclists driving into the barrier or falling on to the barrier.

At a meeting in Milan last year, the German delegation did show data supporting that more motorcyclists (if I remember correctly 51%) was sitting upright on the bike while hitting the barrier and that about 47% was on the ground, sliding towards the barrier. The Spanish UNE 135900 will, in its current shape, most certainly not change the standard barriers more than just slightly, adding some minor protection for a very narrow selection of accident types.

I do think that it is better to do something, even if it is not the optimal and final solution, than to wait and continue doing research, still waiting for some good results to come and accept that people meanwhile are killed still out on the roads. From that point of view, even if I disagree with most of the UNE135900, I do support it as we do not currently know anything better".

Next Steps

The convenor of CEN/TC 226/WG 1 explained that the plan is to undertake inter-laboratory testing, which would focus on checking that the test procedures are understandable and that when identical tests according to the protocol are performed by different laboratories in different countries, the results obtained are the same.

There was the general consensus within the WG 1 to develop the Spanish protocol and focus initially on the sliding configuration firstly because the experience already gained with similar testing on a national basis would allow a European standard to be developed more quickly.

Secondly, in the light of the national product approval testing that had been performed, the group could be certain that a wide range of products for the sliding configuration could be developed and made available for use. Although countries such as Germany wanted to concentrate on the upright configuration, it was viewed that, at that time, there was little experience of the latter configuration and so it should be considered as a second priority. This was the recommendation of WG 1, based on the view of the majority, which was subsequently accepted by TC 226.

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The sliding configuration is the first priority but according to the convenor, the time is right to work on second configuration i.e. the upright position.

So far, it is known that five test laboratories have experience of testing to the Spanish, French and Part 8 test protocols, which are all very similar. At this point in time, it is thought that at least one other will be equipped to use this protocol by the end of 2011. Overall there are about twelve test houses in the EU working performing crash tests according to EN 1317.

There are constraints due to lack of budget and high workloads and the data available are limited. As mentioned, the proposed test protocol is limited to one possible collision configuration and there are some data contradictions concerning which configuration is most prominent[4].

The outcome of the TC 226 meeting on June 16th was that the proposal was evaluated and a decision was taken to send it for an official vote by all of the CEN member states on its acceptance as a Technical Specification.

The blue print is there and the objective of TC 226 is to produce part 8 of EN1317 in order for the testing standard for road restraint systems to take motorcyclists into account. So there is no mystery and the Committee did not vote against the proposed standard. As explained above they opted for the Technical Specification as an interim solution. The TC 226 committee expects to have this standard ready and approved within the next two/three years.

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[4] (The Spanish crash data in the 2-BE-SAFE project (Task 1.2 pages 150/151) highlighted priorities for other crash types than those described in the Spanish test procedures). http://www.2besafe.eu/sites/default/files/deliverables/2BES-WP1.2_D2-Road%20infrastructure%20and%20road%20safety%20for%20PTW-AIT-Final.pdf