

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety
Administration

49 CFR Part 571

[Docket No. 00-7381]

RIN 2127-AH66

**Federal Motor Vehicle Safety
Standards; Side Impact Protection;
Grant in Part, Denial in Part of Petition
for Rulemaking****AGENCY:** National Highway Traffic
Safety Administration (NHTSA), DOT.**ACTION:** Grant in part, denial in part of
petition for rulemaking.

SUMMARY: This document responds to a petition for rulemaking from the Association of International Automobile Manufacturers, the Insurance Institute for Highway Safety, and the American Automobile Manufacturers Association. Petitioners asked us first to determine that dynamic side impact provisions of a European regulation (consisting of performance requirements, crash test barrier, test barrier face, and test procedures) are at least "functionally equivalent" to those in the U.S. side impact standard. Based on the assumption that that determination will be made, the petitioners then asked that we add the dynamic provisions of the European regulation to the U.S. standard as a compliance alternative in the short run. Based on their belief that the European dynamic provisions are superior to those in the U.S. standard in some respects, they want us to replace the current dynamic provisions of the U.S. standard with those of the European regulation (slightly modified) in the long run.

This document grants the portion of the petition requesting that we open a rulemaking proceeding to consider replacing the side impact test dummy currently specified in the U.S. standard with an improved version of the dummy specified in the European regulation. We are denying the remainder of the petition.

FOR FURTHER INFORMATION CONTACT: For nonlegal issues: Dr. William Fan, Office of Crashworthiness Standards, Light Duty Vehicle Division (telephone 202-366-4922). For legal issues: Deirdre Fujita, Esq., Office of Chief Counsel (202-366-2992). Both of these officials can be reached at the National Highway Traffic Safety Administration, 400 Seventh St., S.W., Washington, D.C., 20590.

SUPPLEMENTARY INFORMATION:**Background**

NHTSA estimates that about 4,500 fatalities occur annually to occupants of motor vehicles resulting from contact between the side interior of the vehicle and the abdomen, chest, pelvis and upper extremities. To address the problems of side impact deaths and injuries, NHTSA issued Federal Motor Vehicle Safety Standard No. 214, "Side Impact Protection" (49 CFR 571.214). The standard specifies both quasi-static performance requirements, as well as dynamic performance requirements, for protection of occupants in side impact crashes. Under the dynamic requirements, a vehicle must provide protection to occupants' thoracic and pelvic regions, as measured by the accelerations registered on an instrumented side impact dummy in a full-scale crash test. In the test, the vehicle (known as the "target" vehicle) is struck in the side by a moving deformable barrier (MDB) simulating another vehicle.

The European Union also has a side impact safety regulation, EU Directive 96/27/EC¹ (hereinafter EU 96/27/EC), that has a dynamic test requirement. Similar to the U.S. standard, EU 96/27/EC incorporates an anthropomorphic test dummy, called EuroSID-1 (a second-generation test dummy derived from its predecessor, "EuroSID"). Crash test forces experienced by the dummy must not exceed specified limits when the target vehicle is struck by a moving deformable barrier simulating a striking vehicle. Limits are specified for head injury criterion, rib deflection criterion, viscous criterion, abdominal force, and pubic symphysis force.

Petition

In December 1997, the Association of International Automobile Manufacturers (AIAM), the Insurance Institute for Highway Safety (IIHS), and the American Automobile Manufacturers Association (AAMA)² petitioned us to "harmonize" Standard 214 with EU 96/27/EC. Petitioners asked us to take several actions. First, they asked us to determine that dynamic side impact provisions of a European regulation (consisting of performance requirements, crash test barrier, test barrier face, and test procedures) are at least "functionally equivalent" to those in the U.S. side impact standard.

¹ This directive is identical to Economic Commission for Europe Regulation (ECE) 95/01. The directive was approved by the EU in October 1996. It applies to new or redesigned models of passenger vehicles introduced after October 1, 1998, and will apply to all vehicles manufactured after October 1, 2003.

² This association has since ceased to exist.

Second, based on the assumption that that determination will be made, the petitioners asked that we add the dynamic provisions of the European regulation to the U.S. standard as a compliance alternative in the short run. Third, based on their belief that the European dynamic provisions are superior to those in the U.S. standard in some respects, they asked us to replace the current dynamic provisions of the U.S. standard with those of the European regulation in the long run.³

**Supporting Argument, Data and
Analysis**

The petitioners conceded that when NHTSA adopted its side impact dummy (SID) in 1990, SID and TTI(d)⁴ were more fully developed than other dummies and injury assessment criteria. They recited the reasons given by NHTSA then, and over the next several years, for not adopting EuroSID or even allowing it as an alternative dummy.

In its 1990 final rule adopting SID, NHTSA said:

One of the problems discovered in NHTSA's EuroSID sled tests was that the ribs were bottoming out, which may have invalidated the V*⁵C⁵ measurements being made. This condition was characterized by a flat spot on the displacement-time history curve, while the acceleration-time history curve showed an increase with time until the peak g was reached. Although considerable attempts were made to correlate V*⁵C and TTI(d), the deflection data collected continued to be questionable. (October 30, 1990; 55 FR 45757)

³ Specifically, the petitioners requested that we issue a final rule—(a) Immediately giving manufacturers the option of meeting Standard 214 by certifying to either: (1) The existing dynamic requirements, assessment criteria and test procedures of Standard 214; or (2) Those of European Directive 96/27/EC or the United Nations/Economic Commission for Europe (ECE) Regulation 95/01, as modified; and (b) Requiring, beginning at the end of the first 7 full model years after the final rule, compliance with a modified version of European regulation.

That version, referred to by the petitioners as the "modified European regulation," would differ from the existing European regulation in two respects. First, it would specify the use of an upgraded version of EuroSID-1. Second, it would provide placing a dummy in the front and rear outboard seating positions, as specified in the test procedures of the U.S. standard. The existing European regulation specifies that a test dummy is positioned in only the front outboard seating position on the struck side of the test vehicle.

⁴ TTI(d), which stands for thoracic trauma index, is a measure of side impact injury. TTI(d) correlates measurements on the test dummy with thoracic injury severity observed in cadaver testing conducted for the agency. TTI(d) is essentially a statistical estimate of probability of various injury severity levels derived from data on age, body weight, and peak accelerations measured at specific locations on the test dummy.

⁵ V*⁵C, viscous criterion, another way of measuring thoracic injury, is based on combined rib displacement and velocity. [Footnote added.]

In the final rule amending Standard 214 itself, the agency said:

NHTSA also notes that there are a number of characteristics associated with the European test procedure that make it inappropriate, at this time, for a U.S. safety standard. The European test dummy (EuroSID), while capable of assessing injury potential and providing insight into side impact crash occupant protection, needs further refinement before it can be used as a regulatory tool.

These ongoing efforts include the development of biofidelity response corridors to assure the EuroSID responds in a human-like manner, the evaluation of the repeatability and reproducibility of the test dummy, and the demonstration of its durability in full-scale crash tests. The EuroSID is progressing in all of these areas. Additionally, the urethane foam face of the European barrier appears to break down and bottom out, creating unexpectedly high dummy acceleration responses due to the unrealistic crash conditions it imposes.

(October 30, 1990; 55 FR 45722, at 45740)

These problems led NHTSA to conclude in the dummy final rule that the best dummy available for incorporation into Standard 214 was the U.S. side impact dummy (SID), which had been developed between 1979 and 1982:

NHTSA recognizes that BioSID and EuroSID have potential advantages over SID to the extent that they can measure V*C or other compression-based injury criteria in addition to TTI(d). Specification of EuroSID as an alternate test device could also promote international harmonization.

However, the agency does not believe that these potential advantages should lead to a delay in this rulemaking for further consideration of alternate dummies. NHTSA believes that TTI(d) is a reliable predictor for thoracic injury and that SID is fully developed and validated. Since SID is ready now, and a final rule specifying SID can result in significant safety benefits, the agency believes it is appropriate to now go to a final rule using the SID.

Assuming that NHTSA's review of the BioSID is satisfactory, the agency intends to propose the use of the BioSID as an alternate test device. Europe is continuing to work on the EuroSID. If the agency obtains data showing that EuroSID compares satisfactorily with SID, it may also propose that dummy as an alternate test device.

(October 30, 1990; 55 FR 45757)

The petitioners argued that much has changed since the early 1990s. EuroSID has evolved since 1993. There is now a EuroSID-1 which incorporates enhancements to improve the biofidelity of the dummy and to make assembly, disassembly and certification of the dummy easier. They noted that various governments and regional and international standards organizations have concluded since then that SID/

TTI(d) are no longer the best dummy/injury assessment criterion to help reduce the risk of injury to vehicle occupants in side impacts. Instead, those governments and organizations have adopted a side impact regulation that incorporates EuroSID-1 and its deflection-based injury criteria, chest compression and V*C. It is that side impact regulation that petitioners asked NHTSA to adopt.

Petitioners believe that their argument that EuroSID-1, its associated injury criteria, and 96/27/EC's test procedure are suitable as alternatives to the current requirements of Standard 214 is supported by data from biomechanical and other research programs. First, they cited unspecified technical data from NHTSA's continuing biomechanical research. Second, they cited AAMA's comparisons of EuroSID-1 and SID performance. The petitioners believe that EuroSID-1 and its deflection-based injury criteria correlate better than SID with cadaver data. More specifically, they stated that research studies sponsored by AAMA have shown that, while cadavers were sensitive to both padding stiffness and padding type and that softer padding would help further reduce the risk of injury,⁶ TTI(d) (the injury criterion used by SID) did not show the benefits of softer over stiffer padding.⁷ In contrast, the study found that chest compression and V*C (the injury criteria used by EuroSID) were good predictors of thoracic injury. *Id.* Petitioners also referred to a report comparing the responses of cadavers to that of EuroSID in full-scale side impact crash tests. Petitioners stated that the authors of the report concluded that EuroSID showed a good correlation between several dummy protection criteria and cadaver injury severity. (The petition did not provide information comparing SID with cadaver responses in full scale tests.) Petitioners further stated: "From all of this we conclude, EuroSID-1 and its deflection-based injury criteria correlate better [than SID] with the cadaver data." They also cited several AAMA-sponsored studies of side impact dummy performance in full vehicle impact tests.

Next, the petitioners cited several comparative assessments of SID and EuroSID-1, and one comparative assessment of EU 96/27/EC and Standard 214. First, they cited the Monash University report (Side Impact

⁶ Cavanaugh, *et al.*, "SID Response Data in a Side Impact Sled Test Series," Society of Automotive Engineers 920350.

⁷ Cavanaugh, *et al.*, "Injury Response of the Thorax in Side Impact Cadaveric Tests."

Regulations Benefits) prepared for the Federal Office of Road Safety of the Government of Australia. That report "documents the study that determined both * * * [ECE] Regulation 95 and FMVSS No. 214 would lead to vehicles designs that, though different in approach, are essentially equivalent in performance, i.e., functionally equivalent."

Second, the petitioners cited comparisons by the International Organization for Standardization (ISO), a worldwide voluntary federation of ISO member bodies. The petitioners said that EuroSID-1 is acceptable to ISO because of its biofidelity and repeatability, while SID is not because it is insufficiently biofidelic. The petitioners based these statements on resolutions adopted by the ISO Working Group on Anthropomorphic Test Devices in 1990 and on ISO's adoption of a side impact test procedure incorporating EuroSID as an international standard in 1997. The petitioners said that the ISO test is patterned after EU 96/27/EC.

The petitioners then referred to comparisons by Transport Canada to support their view that EuroSID-1 and its associated injury criteria are superior to SID and its criteria because they can measure more or more complete injury-causing force mechanisms than SID and its criteria. They said that Transport Canada has expressed dissatisfaction with SID and has stated that there is a need for a dummy that is capable of supporting deflection and force criteria and that can measure abdominal loading. Petitioners stated:

In 1991, Transport Canada concluded that the SID, with its arm down position, "has the potential of masking the effects of changes in the loading introduced through design countermeasures." They went on to conclude, based on their testing, that "Similar TTI values can be produced by completely different loadings * * *. [Test data showed] a relatively high TTI value with almost no deformation of the chest (i.e., principally as a result of rigid-body accelerations)."⁸

According to petitioners, Transport Canada has also indicated that:

Side interior designs or changes which provide low TTI values are not necessarily consistent with those required to minimize injury potential to the abdomen * * * [T]he absence of any performance criterion addressing abdominal injury clearly represents a major deficiency in the current requirements of Standard 214. The problem could be remedied by replacing the US SID

⁸ Dalmotas, *et al.*, "Side Impact Occupant Protection Technologies," SAE SP-851, February 1991.

with * * * Eurosid 1 * * *. Given current biomechanical knowledge, to base regulations on a dummy capable only of supporting acceleration-based measurements serves only as a disincentive to manufacturers to seek out more effective means of reducing injury within the constraints imposed by the regulation.⁹

In addition, petitioners stated that Transport Canada has also stated in a report that:

[I]n its tests, "vehicle models * * * showed exceptionally low TTI values when tested with the US SID but exceptionally high abdominal deflection, V*C, and force values when tested with either the Eurosid or BIOSID under identical test conditions. The need for a regulatory dummy capable of supporting deflection and force criteria will become all the more important in the near future as competitive pressures are likely to force vehicle manufacturers to accelerate the development and fitment of side air bag systems."¹⁰

The petitioners argued that their petition provides "a means to not only harmonize safety standards and take a step toward a single harmonized side impact test procedure and test dummy, but to further improve safety for the American public." Petitioners said that NHTSA itself has cited the side impact standards and regulations as a prime example of the need to harmonize, especially given their different test dummies and injury criteria. They further stated:

The agency has correctly stated that people in Europe are exposed to the same causes of injury in side crashes as are vehicle occupants in the U.S. People all over the world are essentially the same and there is no compelling reason to measure their potential for injury using different test dummies and different injury criteria.

The petitioners noted that the dummy, injury criteria, and test procedures of the EU side impact directive were adopted by the ECE prior to their adoption by the EU and have since been accepted or announced for future acceptance in Japan, Australia and the Gulf Cooperation Council. In addition, the Russian Federation and Israel are said to "have acted to adopt ECE Regulation 95."

The petitioners acknowledged that the European dummy needs to be improved and that improvements are being planned for the dummy, and in fact base their petition on the making of those improvements. Petitioners stated that TNO, the supplier of EuroSID-1, is working on an "upgrade package" that

includes possible improvements to the dummy's rib modules, back plate, pelvis, proximal femur, shoulder and abdominal instrumentation.

Improvements may also be made to the procedure for calibrating the abdomen, neck and lumbar spine. The petitioners concluded by urging NHTSA

* * * to adopt the upgraded Eurosid-1 and to work jointly with the Commission of the European Union for adoption of an upgrade package in both the EU Directive and the ECE Regulation.

Similarities and Differences Between the U.S. Standard and the ECE Regulation

a. Test procedure

Standard 214's dynamic test is designed to simulate what would happen in the real world if a vehicle were traveling 48 kilometers per hour (km/h) (30 miles per hour, mph) at a 90 degree angle to a second vehicle traveling 24.2 km/h (15 mph) and struck that second vehicle in the side, i.e., a typical intersection crash involving cross traffic. While a test involving two moving vehicles could be used, it is more difficult to conduct tests yielding repeatable results when testing in that manner.

The simulation is achieved by "crabbing" the front and rear wheels of the MDB at an angle of 27 degrees to the right of its longitudinal centerline in a left side impact and to the left of that centerline in a right side impact. The MDB moves at that angle into the side of the target car. The closing speed of the MDB is 54 km/h (33.5 mph). These aspects of the procedure were selected so that the test simulates the typical intersection crash discussed above. The agency determined that the 30 mph/15 mph combination is a representative of the threshold of serious chest injury. The orientation of 90 degrees was selected because it is the one most frequently seen in field data. Instrumented side impact dummies are placed in the outboard front and rear seating positions on the side of the vehicle which is being struck.

Under EU 96/27/EC's test procedure, the wheels of the barrier are aligned straight ahead, not crabbed to the side. The barrier moves straight ahead at a 90 degree angle to the target vehicle at 50 km/h (31 mph). EU 96/27/EC specifies only one dummy be used in the compliance test. This dummy is placed in the front seat of the struck side of the test vehicle.

b. Barrier

The moving deformable barrier (MDB) used in Standard 214 tests has a total mass of 1,367 kg (3,015 lb). The barrier

face is aluminum honeycomb in design. Its contact face is 559 mm (22 in) high and 1,676 mm (66 in) wide. The top of the barrier face is 838 mm (33 in) above the ground and the bottom edge is 280 mm (11 in) above the ground. The protruding portion of the barrier simulates a bumper. The bottom surface of the "bumper" is 330 mm (13 in) above the ground, and the top surface is 533 mm (21 in) above the ground.

The European barrier has a mass of 950 kg (2,095 lb), compared to 1,367 kg (3,015 lb) for the U.S. barrier. The face of the European moving deformable barrier is smaller than that of the U.S. barrier. The European barrier is narrower, 1,500 mm (59 inches), compared to 1,676 mm (66 inches) for the U.S. barrier. The bottom edge is the most forward part of the European barrier and is 300 mm (11.8 in) above the ground. In comparison, the bottom edge of the U.S. barrier face is 280 mm (11.0 in) above the ground and the bottom edge of the U.S. "bumper" is 330 mm (13.0 in) above the ground. The top edge of the European "bumper" is 550 mm (21.7 in) above the ground, while the top edge of the U.S. "bumper" is 533 mm (21 in) above the ground. The face of the European barrier is divided vertically into thirds with the center third representing the area of the engine block. The right 1/3 of the barrier face and the left 1/3 of the barrier face, simulating the fender areas, are softer than the corresponding portions of the U.S. barrier face.

c. Injury Criteria

Standard 214 requires that the dummies must exhibit rib, spine and pelvic accelerations below specified thresholds in order for the vehicle to pass the test. The rib and spine accelerations are combined into a single metric called the Thoracic Trauma Index (TTI(d)) which has an 85g limit for 4-door vehicles and a 90g limit for 2-door vehicles. There also is a pelvic acceleration limit of 130g.

EU 96/27/EC measures five dummy parameters to determine vehicle performance. The head injury criterion (HIC) is derived from head accelerations and is computed only if head contact occurs, and must remain below 1000. A rib deflection criterion (RDC) of 42 mm (1.7 in.) is allowed in the thorax along with a viscous criterion (V*C) of 1 m/s. The viscous criterion is calculated from combined rib displacement and velocity. The abdominal force is limited to 2.5 kN (562 lb). Finally, the pubic symphysis force, which is in the pelvic region, must be less than 6 kN (1350 lb).

⁹Dalmotas, *et al.*, "Side Impact Occupant Protection Technologies," SAE SP-851, February 1991.

¹⁰Dalmotas, *et al.*, "Side Impact Opportunities," Fifteenth International Technical Conference on the Enhanced Safety of Vehicles, May 1996.

Congressional Mandate to Explore Harmonization Possibilities

On September 16, 1996, in Congressional Conference Report 104-785 for the Department of Transportation and Related Agencies Appropriations Act for fiscal year 1997, the conferees directed NHTSA to study the differences between the U.S. and then-proposed European side impact regulations and to develop a plan for achieving harmonization of these regulations. In response to this directive, NHTSA submitted a side impact harmonization plan to Congress in April 1997 ("Report to Congress NHTSA Plan for Achieving Harmonization of the U.S. and European Side Impact Standards," April 1997, see docket NHTSA 1998-3935-1 of the Department's docket management system.)

In the report, we described how we would follow our functional equivalence process in determining whether Standard 214 and the modified European regulation are functionally equivalent.¹¹ This process is used to determine whether the vehicles or equipment manufactured under a foreign standard produce more or at least as many safety benefits as those produced by the vehicles or equipment manufactured under a similar U.S. standard.

The first step in the process is to obtain and assess any available industry and government research data comparing the two regulations, especially full-scale vehicle compliance tests. We stated in the report that in parallel with this assessment of outside data, the agency would carry out an initial phase of testing to the EU regulation.¹² The vehicles tested would be identical to vehicles which successfully completed U.S. compliance testing. We anticipated that completion of this initial phase of testing and data analysis would place NHTSA at a major decision point in the functional equivalence process. That is, we would have to determine whether there were

sufficient data to assess the functional equivalency of the two standards, or if not, whether additional research could be conducted to generate data. We recognized that any non-trivial problems with the test procedure or dummy must be identified as part of the determination of the acceptability of the EU regulation as an alternative or replacement for the U.S. regulation. We further stated:

If the EU regulation is found to be an acceptable alternative or replacement, rulemaking in the U.S. could be initiated and the functional equivalence/harmonization process would be complete. *However, it may be that there is not sufficient information for this determination or that functional equivalence is clearly not possible.* If it is only a matter of conducting additional vehicle tests and analyses, NHTSA would continue such an effort and iterate through the Functional Equivalence Process steps. *However, if other problems are apparent in performing the EU tests * * * or if each standard indicates unrelated safety performance for the same vehicle, the harmonization plan will need to proceed in a different direction * * *.* The next steps in this different direction would be to determine what additional information is needed to accept or exclude functional equivalence and any other potential harmonization solutions.

(Emphases added.)

Agency Test Results

As a first step in assessing the functional equivalence of the two regulations, we tested vehicles that were certified to Standard 214 using the procedures and criteria of EU 96/27/EC (as modified, with a test dummy placed in the rear outboard seating position in addition to the front outboard position). The following eight vehicles were tested: a MY 1997 Lexus SC300, 1997 Ford Mustang, 1997 Mitsubishi Eclipse, 1995 Geo Metro, 1996 Ford Taurus (the EU test was performed by Ford Motor Company), 1995 Volvo 850 SW, 1997 Hyundai Sonata, and a 1997 Nissan Sentra. The vehicles provided a range of marginal to good performers relative to Standard 214 and represented a wide range of manufacturers. The results indicated that the ranking of the eight vehicles, according to their relative performance, was not the same when tested under EU 96/27/EC and Standard 214. Additionally, a measurement anomaly in the European test dummy (EuroSID-1) related to the rib displacement was present in most, if not all, tests. This anomaly, along with the limited amount of comparative test data, did not allow a positive determination of functional equivalence of the two side impact regulations. We could not conclude from this set of testing

whether vehicles designed to meet the EU regulation will meet the U.S. regulation. (Results of the vehicle testing were discussed in NHTSA's report to Congress on the agency's progress in assessing the functional equivalence of the two regulations. "Status of NHTSA Plan for Side Impact Regulation Harmonization and Upgrade, Report to Congress, March 1999." See docket NHTSA-98-3935-10.)

Discussion and Analysis

Short Run

Available data and analyses do not support a finding of functional equivalence. Petitioners provided no data supporting their request. The data generated by our eight vehicle tests are insufficient to enable us to determine whether EU 96/27/EC is functionally equivalent to Standard 214.

NHTSA believes that there is no point in continuing the test program and generating additional data in an effort to assess whether the European regulation is functionally equivalent to Standard 214. To be adopted as or added to a U.S. standard, a non-U.S. standard must meet the statutory criteria of our safety statute, 49 U.S.C. 30101 *et seq.*, apart from its functional equivalency to a U.S. standard. Those criteria specify that each motor vehicle safety standard must be practicable, meet the need for motor vehicle safety, and be stated in objective terms (49 U.S.C. 30111(a)).

We conclude that the results of the testing, in particular the measurement anomalies in the EuroSID-1, do not support a finding that EU 96/27/EC is appropriate for addition in the short run as a compliance alternative. There are several reasons for this conclusion.

First, EuroSID-1 is not biofidelic. It has a displacement measurement anomaly that is depicted as plateaus or "flat-tops" on the test data plots. The flat-tops were present in the data generated by the dummy in the driver position for all the vehicles tested and by the dummy in the rear seat of three of the six vehicles.

A test dummy that is not biofidelic is unsuitable as a compliance test device. The less biofidelic a test device is, the less likely its results are reasonable and useful as a measure of the protection a vehicle provides to a real occupant. A test dummy that is not representative of a human could lead to vehicle designs that provide little or no benefit to real occupants.

Second, the agency believes that the EU barrier is less representative than the Standard 214 barrier of the side impact crash environment in this country. Due to the increased market share of light

¹¹ The functional equivalence process was described in a November 14, 1996 **Federal Register** document and later incorporated as Appendix B to our rulemaking procedures (49 CFR Part 553) by a May 13, 1998 final rule (63 FR 26508).

¹² This series of tests was only one part of a general matrix that we had prepared to assess the comparative performance of vehicles relative to the two regulations. The general matrix was to include testing of European production vehicles to determine how well such vehicles perform relative to Standard 214. The matrix also was to include testing of vehicles designed for both U.S. and European markets to the requirements of both regulations. Vehicles equipped with side air bag systems was also part of this matrix as they are becoming prevalent in both the U.S. and European fleet.

trucks, vans and sport utility vehicles (LTVs), a large portion of the current U.S. side impact casualties results from impacts with the LTV class of vehicles. The EU moving deformable barrier is lighter and less stiff than the barrier used in Standard 214 testing. Side impact countermeasures based on the EU barrier may lead to fewer safety benefits than those resulting from use of the Standard 214 barrier. NHTSA notes further that the specifications for the EU barrier allow non-metallic faces that disintegrate in some impacts.

Further, we are unable to agree with Petitioners that an analysis by Monash University for the Government of Australia ("Side Impact Regulations Benefits," June 1995)¹³ furnishes an adequate basis for our making a finding of functional equivalence. The outcome of the Monash harm reduction analyses is highly dependent on assumptions. Thus, the assumptions must be carefully grounded in real world crash data and in crash test data. We believe that the assumptions of the Monash analysis were not so grounded.

The first assumption was that a regulation based on SID and TTI(d) would result in a 2 AIS reduction in injury, while EuroSID and V*C measures would result in a 3 AIS injury reduction. In other words, if the baseline vehicle injury level were an AIS 4, the Monash report estimates that the injury level of a vehicle meeting Standard 214 would be an AIS 2 and a vehicle meeting EU 96/27/EC would be an AIS 1.

We do not believe that an effectiveness estimate can be made without knowing the current compliance with the injury criteria and how much improvement is needed to meet the injury criteria.¹⁴ There is no logic provided that would lead one to conclude that EU 96/27/EC is more effective than, or even as effective as,

Standard 214. The report does not include data or analysis to support the estimates about the difference in effectiveness between Standard 214 and the ECE Regulation 95. It does not discuss current compliance with the injury criteria of EU 96/27/EC criteria or how much improvement is needed in the fleet to meet the injury criteria.

The second assumption made by the authors of the report was that an overall injury reduction of 1 AIS is expected for SID and 3 AIS for EuroSID, assuming an abdominal injury criterion is applied when using the latter dummy, because SID cannot measure abdominal loads while EuroSID can. The report does not discuss or analyze injury criteria or baseline test data, nor explain how use of EuroSID would necessarily lead to the greater reduction in AIS injury level.

The third assumption was that EuroSID will have an additional benefit of a 2 AIS injury reduction for head contacts with the side rails. We have never seen the head of the dummy in the front seat of a vehicle strike the side rail in any of our side impact tests. Accordingly, it is unclear why the authors concluded that use of EuroSID in the test would lead to improvements of the side rail.

Long run

The agency has further determined that EU 96/237/EC is unacceptable as a replacement of Standard 214. As noted from real world crash data, the side impact crash environment in this country is changing. While the current moving deformable barrier used in Standard 214's dynamic test may be too small and too light to represent the future U.S. fleet, the barrier used in EU 96/27/EC is even smaller in size and mass. Instead of adopting the smaller ECE barrier, NHTSA plans to consider adopting a more representative barrier than the current barrier used in Standard 214. The agency's resources would be better utilized upgrading Standard 214 to address the changing U.S. side impact crash environment than adopting the smaller ECE barrier.

However, it does not appear that the problems with EuroSID-1 are insurmountable. NHTSA tested EuroSID-1 with prototype modification to the ribs utilizing ball bearing cylinders in the posterior piston cylinders. This modification was developed by Advanced Safety Technologies Corporation, a dummy manufacturer in this country, to reduce the flat-topping phenomenon. Results to date indicate a significant reduction in the flat-tops and a subsequent increase in maximum rib displacements. With further development to cure continuing

biofidelity problems, a newer version of EuroSID-1 might become acceptable as a replacement for SID.

Near Term Agency Research

NHTSA is carrying out the research plan set forth in the March 1999 Report to Congress. Current activities include evaluating ES-2 (a modified EuroSID-1), conducting out-of-position testing with side air bags, and conducting an in-depth evaluation of field crash data so that the Standard 214 barrier can be upgraded to be more representative of current and future striking vehicles.

Agency Decision

Based on the foregoing, we are denying the portion of the petition requesting us to conclude that EU 96/27/EC is functionally equivalent to Standard 214 and to add the ECE regulation to Standard 214 as a short run compliance alternative. We are also denying the portion of the petition requesting us to replace Standard 214 in its entirety with the ECE regulation.

However, we are granting the petition to the extent that it requests us to examine replacing SID with an enhanced side impact dummy. If the biofidelity problems with EuroSID-1 can be solved, the greater measurement capabilities of the dummy would make its adoption attractive as a way of upgrading Standard 214. Thus, our first steps will be to work with the Europeans to cure the dummy's biofidelity problems. Once that is accomplished, we will consider issuing a proposal to replace SID with the improved side impact dummy. (Adopting a more advanced test dummy means that we will also be considering the appropriate injury criteria to adopt with the dummy into our side impact protection standard. If we eventually propose to replace SID with an improved EuroSID-1, we might propose adopting the injury criteria now in EU 96/27/EC as well.) There is a reasonable possibility that a test dummy that is technically superior to SID could be incorporated into Standard 214 in place of SID.

This grant of the petition is consistent with other agency side impact protection initiatives. It is consistent with our grant of a July 1998 rulemaking petition from Advocates for Highway and Auto Safety (Advocates) requesting us to upgrade Standard 214. Advocates petitioned us to increase the safety of occupants of passenger cars and LTVs in side crashes with larger, heavier and stiffer vehicles. Among other suggestions, they suggested using EuroSID-1 instead of SID. Today's granting of the petition is also consistent

¹³ Petitioners state: The Monash University analysis utilized the concept of "harm," first developed by NHTSA in 1982 and subsequently used in several NHTSA reports. Monash considered both car-to-car and fixed object impacts. Their analysis was thorough and considered "harm" to the head, face, thorax, abdomen, pelvis and upper and lower limbs. The Australian Government report actually showed that the potential benefit of ECE Regulation 95 as estimated to be 8 percent higher than that of FMVSS 214. Nevertheless, the report advocated acceptance of either standard. This appears to be the type of comparative study that the NHTSA concluded was needed when it terminated the alternative side impact dummy rulemaking.

¹⁴ The report itself recognizes that "Unlike the US standard, there was little or no information available on the likely effects of ECE Regulation 95 in reducing injuries" (p. ix). It further states (p. 1) that " * * * (incidental reports by Wall, 1992, and Lowne, 1994 provide some crude estimates of the overall reductions in injury likely for ECE95 but were by no means, definitive)."

with our support of the development of a next-generation side impact dummy called WorldSID. That dummy is being developed by industry representatives from the U.S., Europe and Japan, and the European and Japanese governments. It is anticipated for prototype completion in the fall of 2000. WorldSID is expected to be technically superior to all other predecessor side impact dummies, including EuroSID-1. We have been and continue to be highly interested in the development of WorldSID. A future upgrade of Standard 214 could involve the adoption of a technically superior dummy such as WorldSID.

In accordance with 49 CFR Part 552, this completes our review of the petition.

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50

Issued on May 18, 2000.

Stephen R. Kratzke,
*Associate Administrator for Safety
Performance Standards.*

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 635

[Docket No. 000515139-0139-01; I.D. 041200D]

RIN 0648-AO03

Atlantic Highly Migratory Species (HMS); Atlantic Bluefin Tuna Specifications and HMS Regulatory Amendment

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed annual quota specifications and regulatory amendment; public hearings; request for comments.

SUMMARY: NMFS proposes specifications for the Atlantic bluefin tuna (BFT) fishery to set BFT quota and General category effort control specifications for the 2000 fishing year. NMFS also proposes to amend the regulations governing the Atlantic HMS fisheries to adjust the date on which the BFT General category fishing season ends; adjust the date on which BFT allocations become available to Atlantic tunas Purse Seine category vessel owners; authorize NMFS to add the

underharvest to, or subtract the overharvest from, individual Purse Seine category vessels' allocations for the following fishing year on a per vessel basis; revise text regarding restricted fishing days (RFDs) in the General category BFT fishery; and revise text regarding authorized gear in the North Atlantic swordfish fishery. The proposed specifications and regulatory amendment are necessary to implement the 1998 recommendation of the International Commission for the Conservation of Atlantic Tunas (ICCAT) as required by the Atlantic Tunas Convention Act (ATCA) and to achieve domestic management objectives under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). NMFS will hold public hearings to receive comments from fishery participants and other members of the public regarding the proposed specifications and regulatory amendment.

DATES: Written comments must be received on or before June 19, 2000.

The public hearings dates are:

1. Tuesday, May 30, 2000, 7-9 p.m., Gloucester, MA.
2. Wednesday, May 31, 2000, 9-11 a.m., Silver Spring, MD.

ADDRESSES: Written comments on the proposed specifications and regulatory amendment should be sent to Rebecca Lent, Chief, Highly Migratory Species Management Division, Office of Sustainable Fisheries (F/SF1), NMFS, 1315 East-West Highway, Silver Spring, MD 20910-3282. Comments also may be sent via facsimile (fax) to (301) 713-1917. Comments will not be accepted if submitted via e-mail or the Internet.

The public hearing locations are:

1. Silver Spring-NMFS, SSMC III—Room 4527, 1315 East-West Highway, Silver Spring, MD 20910.
2. Gloucester-Milton Fuller School, 4 School House Road. Gloucester, MA 01930.

FOR FURTHER INFORMATION CONTACT: Pat Scida or Sarah McLaughlin, (978) 281-9260.

SUPPLEMENTARY INFORMATION: Atlantic tunas are managed under the dual authority of the Magnuson-Stevens Act and ATCA. ATCA authorizes the Secretary of Commerce (Secretary) to implement binding recommendations of ICCAT. The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary to the Assistant Administrator for Fisheries, NOAA (AA).

Background

On May 28, 1999, NMFS published in the **Federal Register** (64 FR 29090) final regulations, effective July 1, 1999, implementing the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP) that was adopted and made available to the public in April 1999. The HMS FMP and the implementing regulations established percentage quota shares for each of the domestic fishing categories of the ICCAT-recommended U.S. BFT landings quota of 1,387 metric tons (mt). These percentage shares were based on allocation procedures that had been developed by NMFS in recent years.

The HMS FMP also established a new fishing year for the Atlantic tunas fisheries, beginning June 1 each calendar year and continuing until May 31 of the subsequent calendar year. NMFS specified the 1999 fishing year BFT quota allocations in June 1999, reflecting underharvests or overharvests from the 1998 calendar year, as appropriate for each fishing category (64 FR 29806, June 3, 1999). Subsequently, NMFS made inseason quota adjustments to account for underharvest or overharvest for the period from January 1, 1999, through May 31, 1999; these adjustments were required to make the transition to the new fishing year (64 FR 48111, September 2, 1999).

NMFS then amended the HMS regulations to remove the 250-mt limit on allocating BFT landings quota to the Purse Seine category (64 FR 58793, November 1, 1999). This rulemaking also reinstated the transferability of partial purse seine vessel quota allocations from one vessel to another, which was inadvertently omitted from the consolidated regulations to implement the HMS FMP.

NMFS proposes the fishing year 2000 BFT quota specifications under the annual adjustment procedures of the HMS FMP. Also in accordance with the HMS FMP, NMFS proposes the General category effort control schedule, including time-period subquotas and RFDs, for the upcoming fishing season. After consideration of public comment, NMFS will issue final specifications and publish them in the **Federal Register**.

Domestic Quota Allocation

NMFS proposes fishing category allocations for the 2000 fishing year, beginning June 1, 2000, consistent with the HMS FMP and the 1,387 mt U.S. allocation. The percentage quota shares established in the HMS FMP for fishing years beginning June 1, 1999, as amended by the Purse Seine category adjustment discussed above, are as