



U.S. Department
of Transportation
**Federal Highway
Administration**

1200 New Jersey Ave., SE
Washington, D.C. 20590

December 18, 2017

In Reply Refer To:
HSST-1/ B-295

Michael van der Vlist
Laura Metaal Road Safety
Rimburgerweg 40, 647 XX Kerkrade
Netherlands

Dear Mr. van der Vlist:

This letter is in response to your August 23, 2017 request for the Federal Highway Administration (FHWA) to review a roadside safety device, hardware, or system for eligibility for reimbursement under the Federal-aid highway program. This FHWA letter of eligibility is assigned FHWA control number B-295 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

Decision

The following devices are eligible, with details provided in the form which is attached as an integral part of this letter:

- SafeZone MASH TL-4 Standard

Scope of this Letter

To be found eligible for Federal-aid funding, new roadside safety devices should meet the crash test and evaluation criteria contained in the American Association of State Highway and Transportation Officials' (AASHTO) Manual for Assessing Safety Hardware (MASH). However, the FHWA, the Department of Transportation, and the United States Government do not regulate the manufacture of roadside safety devices. Eligibility for reimbursement under the Federal-aid highway program does not establish approval, certification or endorsement of the device for any particular purpose or use.

This letter is not a determination by the FHWA, the Department of Transportation, or the United States Government that a vehicle crash involving the device will result in any particular outcome, nor is it a guarantee of the in-service performance of this device. Proper manufacturing, installation, and maintenance are required in order for this device to function as tested.

This finding of eligibility is limited to the crashworthiness of the system and does not cover other structural features, nor conformity with the Manual on Uniform Traffic Control Devices.

Eligibility for Reimbursement

Based solely on a review of crash test results and certifications submitted by the manufacturer, and the crash test laboratory, FHWA agrees that the device described herein meets the crash test and evaluation criteria of the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH). Therefore, the device is eligible for reimbursement under the Federal-aid highway program if installed under the range of tested conditions.

Name of system: SafeZone MASH TL-4 Standard
Type of system: Rigid/Semi-Rigid Barriers
Test Level: MASH Test Level 4
Testing conducted by: Crashtest-service.com GmbH
Date of request: August 23, 2017

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within the attached form.

Full Description of the Eligible Device

The device and supporting documentation, including reports of the crash tests or other testing done, videos of any crash testing, and/or drawings of the device, are described in the attached form.

Notice

This eligibility letter is issued for the subject device as tested.

You are expected to supply potential users with sufficient information on design, installation and maintenance requirements to ensure proper performance.

You are expected to certify to potential users that the hardware furnished has the same chemistry, mechanical properties, and geometry as that submitted for review, and that it will meet the test and evaluation criteria of AASHTO's MASH.

Issuance of this letter does not convey property rights of any sort or any exclusive privilege. This letter is based on the premise that information and reports submitted by you are accurate and correct. We reserve the right to modify or revoke this letter if: (1) there are any inaccuracies in the information submitted in support of your request for this letter, (2) the qualification testing was flawed, (3) in-service performance or other information reveals safety problems, (4) the system is significantly different from the version that was crash tested, or (5) any other information indicates that the letter was issued in error or otherwise does not reflect full and complete information about the crashworthiness of the system.

Standard Provisions

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA

control number B-295 shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed upon request.

- This letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder.
- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid projects: (a) they must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.






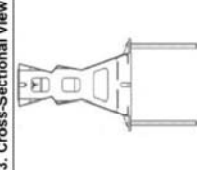
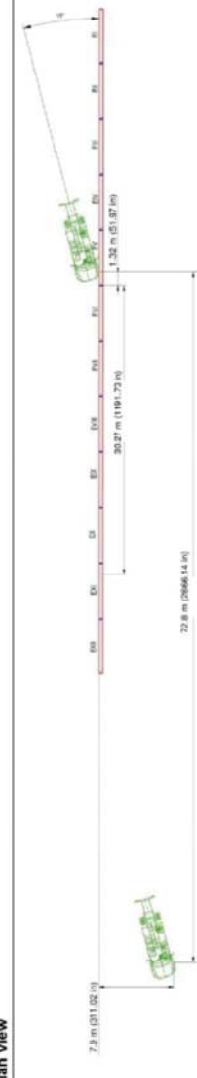
Sincerely,



Michael Griffith
Director, Office of Safety Technologies
Office of Safety

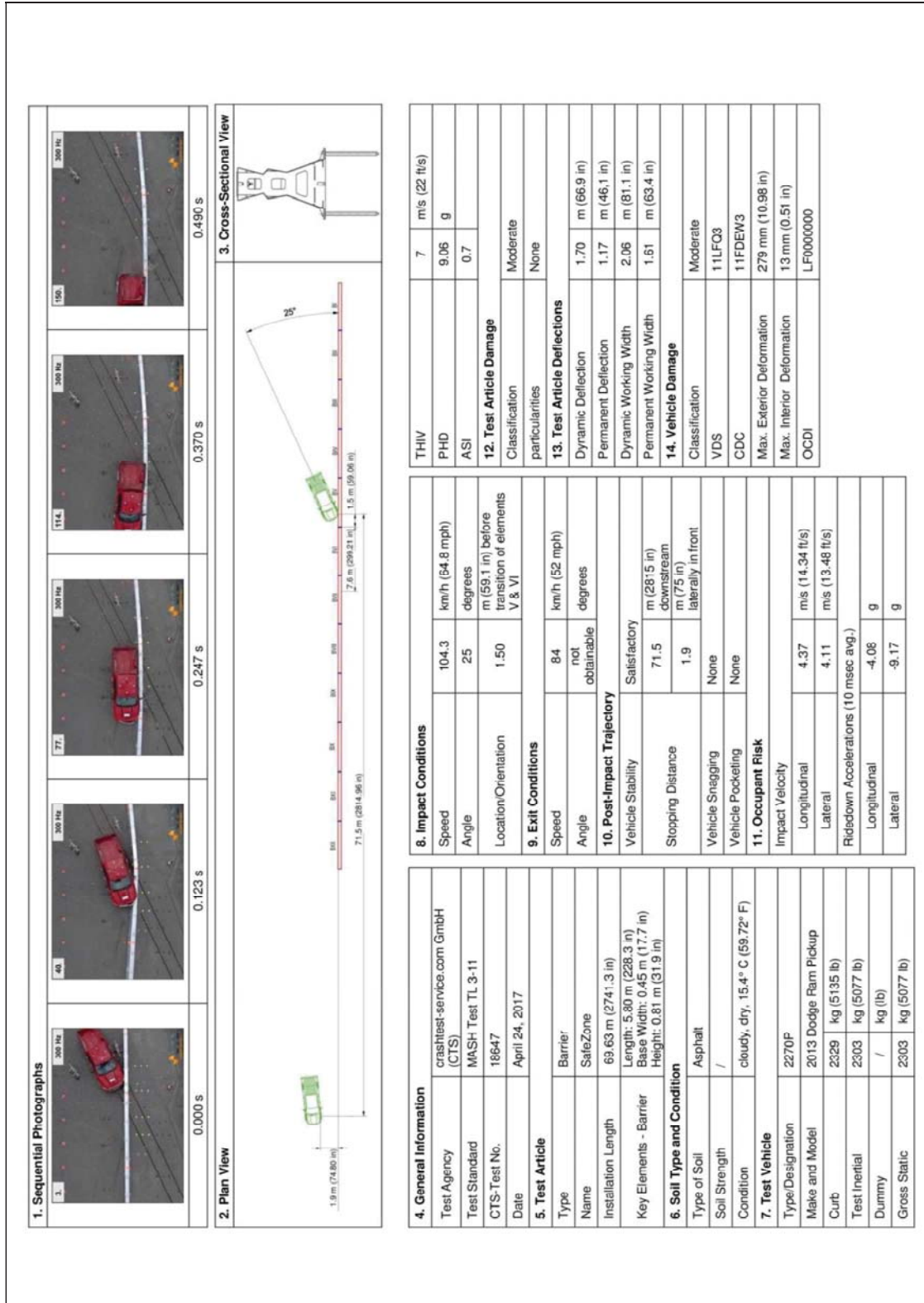
Enclosures

Summary of Crash Test Results






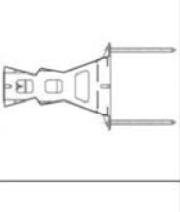

1. Sequential Photographs		2. Plan View		3. Cross-Sectional View	
					
0.000 s		0.257 s		0.513 s	
0.000 s		0.257 s		0.770 s	
0.000 s		0.257 s		1.033 s	
					

4. General Information		8. Impact Conditions		THIV	
Test Agency	crashtest-service.com GmbH (CTS)	Speed	88.8 km/h (55.2 mph)	PHD	N/A
Test Standard	MASH Test TL4-12	Angle	15 degrees	ASI	N/A
CTS-Test No.	18550	Location/Orientation	1.32 m (52.0 in) before transition of elements V & VI	12. Test Article Damage	
Date	May 3, 2017	9. Exit Conditions		Classification	Moderate
5. Test Article		Speed	76.9 km/h (48 mph)	particularities	None
Type	Barrier	Angle	not obtainable	13. Test Article Deflections	
Name	SafeZone	10. Post-Impact Trajectory		Dynamic Deflection	2.07 m (81.5 in)
Installation Length	69.63 m (228.3 in)	Vehicle Stability	Satisfactory	Permanent Deflection	1.81 m (71.3 in)
Key Elements - Barrier	Length: 5.60 m (228.3 in)	Stopping Distance	72.8 m (238.6 in) downstream	Dynamic Working Width	2.48 m (97.6 in)
	Base Width: 0.45 m (17.7 in)		7.9 m (31.1 in) laterally behind	Permanent Working Width	2.25 m (88.6 in)
6. Soil Type and Condition		11. Occupant Risk		14. Vehicle Damage	
Type of Soil	Asphalt	Impact Velocity		Classification	Moderate
Soil strength	/	Longitudinal	N/A m/s (ft/s)	VDS	11-LFQ-1
Condition	cloudy, dry, 21.8° C (71.24° F)	Lateral	N/A m/s (ft/s)	CDC	11FYEN1
7. Test Vehicle		Ridedown Accelerations (10 msec avg.)		Max. Exterior Deformation	N/A
Type/Designation	10000S	Longitudinal	N/A g	Max. Interior Deformation	N/A
Make and Model	2005 Freightliner M2	Lateral	N/A g	OCDI	N/A
Curb	6005 kg (13239 lb)				
Test Inertial	10096 kg (22258 lb)				
Dummy	/ kg (lb)				
Gross Static	10096 kg (22258 lb)				

Summary of Crash Test Results



Summary of Crash Test Results

1. Sequential Photographs		2. Plan View		3. Cross-Sectional View	
					
0.000 s		0.130 s		0.260 s	
0.130 s		0.260 s		0.457 s	
0.260 s		0.457 s		0.657 s	
					

4. General Information		8. Impact Conditions		12. Test Article Damage		13. Test Article Deflections		14. Vehicle Damage	
Test Agency	crashtest-service.com GmbH (CTS)	Speed	101.6 km/h (63.1 mph)	THIV	7	Dynamic Deflection	1.13 m (44.5 in)	Classification	Moderate
Test Standard	MASH Test TL 3-10	Angle	25 degrees	PHD	22.32 g	Permanent Deflection	0.85 m (33.5 in)	particularities	None
CTS-Test No.	18649	Location/Orientation	1.23 m (48.4 in) before transition of barriers V & VI	ASI	1.2	Dynamic Working Width	1.52 m (59.8 in)		
Date	April 21, 2017	9. Exit Conditions		13. Test Article Deflections					
Type	Barrier	Speed	84.3 km/h (52 mph)	Vehicle Stability		Permanent Working Width		14. Vehicle Damage	
Name	SafeZone	Angle	not obtainable	Satisfactory		Permanent Working Width		Classification	
Installation Length	69.63 m (228.3 in)	10. Post-Impact Trajectory		Stopping Distance		Max. Exterior Deformation		Moderate	
Key Elements - Barrier	Length: 5.80 m (228.3 in) Base Width: 0.45 m (17.7 in) Height: 0.61 m (31.9 in)	Vehicle Stability		61.3 m (2413 in) downstream m (338 in) laterally behind		Max. Interior Deformation		11LFQ3	
6. Soil Type and Condition		Stopping Distance		8.6		69 mm (2.72 in)		11FDEW3	
Type of Soil	Asphalt	Vehicle Snagging		None		65 mm (2.56 in)		LF0000011	
Soil strength	/	Vehicle Pockeling		None		OCDI			
Condition	overcast, dry 14.9° C (58.82° F)	11. Occupant Risk		Impact Velocity					
7. Test Vehicle		Longitudinal		3.77 m/s (12.37 ft/s)					
Type/Designation	1100C	Lateral		4.96 m/s (16.27 ft/s)					
Make and Model	2012 KIA Rio	Ridedown Accelerations (10 msec avg.)		Longitudinal					
Curb	1076 kg (2372 lb)	Longitudinal		-3.17 g					
Test Inertial	1085 kg (2392 lb)	Lateral		-10.83 g					
Dummy	75 kg (165 lb)								
Gross Static	1160 kg (2557 lb)								

A.1 Maker's drawings of the item to be tested

