



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

July 26, 2022

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

In Reply Refer To:  
HSST-1/WZ-430

John Pasakarnis  
Dicke Safety Products  
1201 Warren Ave  
Downers Grove, IL 60515

Dear Mr. Pasakarnis:

This letter is in response to your December 23, 2021 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 WZ-430 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

### **Decision**

The following device is eligible within the length-of-need, with details provided in the form which is attached as an integral part of this letter:

- Dicke Safety Products DSB100 Sign Stand w/ 48in x 48in roll-up sign

### **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 AASHTO's 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: Dicke Safety Products DSB100 Sign Stand w/ 48in x 48in roll-up sign  
Type of system: Work Zone  
Test Level: TL-3  
Testing conducted by: Applus IDIADA KARCO Engineering,  
Date of request: December 23, 2021

FHWA concurs with the recommendation of the accredited crash testing laboratory on 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. Modifications made to the device are not covered by this letter. Any modifications to this device should be submitted to the user (i.e., state DOT) as per their requirements.

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 WZ-430 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.
- This FHWA eligibility letter is not an expression of any Agency view, position, or determination of validity, scope, or ownership of any intellectual property rights to a specific device or design. Further, this letter does not impute any distribution or licensing rights to the requester. This FHWA eligibility letter determination is made based solely on the crash-testing information submitted by the requester. The FHWA reserves the right to review and revoke an earlier eligibility determination after receipt of subsequent information related to crash testing.

Sincerely,

A handwritten signature in blue ink that reads "Michael S. Griffith". The signature is written in a cursive style with a large, stylized "M" and "G".

Michael S. Griffith  
Director, Office of Safety Technologies  
Office of Safety

Enclosures

## Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

<b>Submitter</b>	Date of Request:	February 01, 2022	<input checked="" type="radio"/> New <input type="radio"/> Resubmission
	Name:	John Pasakarnis	
	Company:	Dicke Safety Products	
	Address:	1201 Warren Avenue, Downers Grove, IL 60515	
	Country:	United States of America	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

**Device & Testing Criterion** - Enter from right to left starting with Test Level

1 - 1 - 1

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'WZ': Crash Worthy Work Zone Traffic Control Devices	<input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> Engineering Analysis	DSB100 with 48" x 48" Roll-Up Sign	AASHTO MASH	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the AASHTO Manual for Assessing Safety Hardware and that the evaluation results meet the appropriate evaluation criteria in the MASH.

**Individual or Organization responsible for the product:**

Contact Name:	John Pasakarnis	Same as Submitter <input checked="" type="checkbox"/>
Company Name:	Dicke Safety Products	Same as Submitter <input checked="" type="checkbox"/>
Address:	1201 Warren Avenue, Downers Grove, IL 60515	Same as Submitter <input checked="" type="checkbox"/>
Country:	United States of America	Same as Submitter <input checked="" type="checkbox"/>

Enter below all disclosures of financial interests as required by the FHWA 'Federal-Aid Reimbursement Eligibility Process for Safety Hardware Devices' document.

Dicke Safety Products is the manufacturer and marketer of device.

Applus IDIADA KARCO Engineering, LLC (IDIADA KARCO) is an independent research and testing laboratory having no affiliation with any other entity. IDIADA KARCO is actively involved in data acquisition and compliance/certification testing for a variety of government agencies and equipment manufacturers. The principals and staff of IDIADA KARCO have no past or present financial, contractual or organizational interest in any company or entity directly or indirectly related to the products that KARCO tests. If any financial interest should arise, other than receiving fees for testing, reporting, etc., with respect to any project, the company will provide, in writing, a full and immediate disclosure to the FHWA.

## PRODUCT DESCRIPTION

New Hardware or Significant Modification    
  Modification to Existing Hardware

Product Description of DSB100 with 48" x 48" Roll-Up Sign  
(Reference Drawing: DSB100)

The DSB100 is a work-zone traffic control device used to display traffic control signs.

Further Description:

The DICKE Safety Products DSB100 device utilized a 48.0 in. (1.2 m) reflective square vinyl roll-up sign mounted at a height of 12.5 in. (317.5 mm) measured to the bottom corner of the sign. The device has a total weight of 50.5 lbs (23.0 kg). The DSB100 consists of a rubber with steel frame base assembly and a steel and aluminum sign holder. The rubber base has a width of 20 in. (508 mm), a length of 28 in. (711 mm), and a thickness of 3.5 in. (89 mm). The sign holder has a height from grade of 14.5 in (368 mm). The vinyl roll-up sign is mounted to the mast via a fiberglass cross brace constructed of 1.25 in. (32 mm) wide fiberglass. The total sign height measured at 80.5 in. (2.04 m).

### CRASH TESTING

By signature below, the Engineer affiliated with the testing laboratory, agrees in support of this submission that all of the critical and relevant crash tests for this device listed above were conducted to meet the MASH test criteria. The Engineer has determined that no other crash tests are necessary to determine the device meets the MASH criteria.

Engineer Name:	Antonio Reyes	
Engineer Signature:	<b>Antonio Reyes</b>	Digitally signed by Antonio Reyes Date: 2022.02.01 09:31:34 -08'00'
Address:	9270 Holly Road, Adelanto, CA 92301	Same as Submitter <input type="checkbox"/>
Country:	United States of America	Same as Submitter <input checked="" type="checkbox"/>

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-70 (1100C)	Designed to evaluate the ability of a small vehicle to activate any breakaway, fracture, or yielding mechanism. Is considered optional for work-zone traffic control devices weighing less than 220 lbs (100 kg). The as-tested device weighed 50.5 lbs (23.0 kg) and therefore Test 70 was not performed.	Non-Relevant Test, not conducted

Required Test Number	Narrative Description	Evaluation Results
3-71 (1100C)	An 1100C test vehicle approached the test article at a nominal speed of 62 mph. The first device was oriented at 0° and was impacted at a velocity of 62.94 mph (101.30 km/h). Upon impact, the DSB100 sign holder and vinyl roll-up broke away from its rubber base in a predictable manner without causing deformation or penetration into the vehicle's occupant compartment. The second device was oriented at 90° and was impacted at a velocity of 60.53 mph (97.42 km/h). Upon impact, the DSB100 deformed and broke away in a predictable manner however unlike the 0° CIA, the sign holder didn't shear off the base assembly. The impact did not cause deformation or penetration into the vehicle's occupant compartment. The DSB100 with 48" x 48" vinyl roll-up sign met all the requirements for MASH Test 3-71.	PASS
3-72 (2270P)	An 2270P test vehicle approached the test article at a nominal speed of 62 mph. The first device was oriented at 0° and was impacted at a velocity of 62.92 mph (101.26 km/h). Upon impact, the DSB100 sign holder deformed, and the vinyl roll-up broke away from the sign holder without causing deformation or penetration into the vehicle's occupant compartment. The second device was oriented at 90° and was impacted at a velocity of 61.63 mph (99.18 km/h). Upon impact, the DSB100 sign holder yielded however, remained intact with the base assembly. The vinyl roll-up broke away from the sign holder. The impact did not cause deformation or penetration into the vehicle's occupant compartment. The DSB100 with 48" x 48" vinyl roll-up sign met all the requirements for MASH Test 3-72.	PASS

Full Scale Crash Testing was done in compliance with MASH by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Laboratory Name:	Applus IDIADA KARCO Engineering, LLC.	
Laboratory Signature:	<b>Antonio Reyes</b>	Digitally signed by Antonio Reyes Date: 2022.02.01 09:29:45 -08'00'
Address:	9270 Holly Road, Adelanto, CA 92301	Same as Submitter <input type="checkbox"/>
Country:	United States of America	Same as Submitter <input checked="" type="checkbox"/>
Accreditation Certificate Number and Dates of current Accreditation period :	TL 371: July 1, 2019 - July 1, 2022	

Submitter Signature\*:



**Submit Form**

**ATTACHMENTS**

Attach to this form:

- 1) Additional disclosures of related financial interest as indicated above.
- 2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 3) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [Hardware Guide Drawing Standards]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are relevant to understanding the dimensions and performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

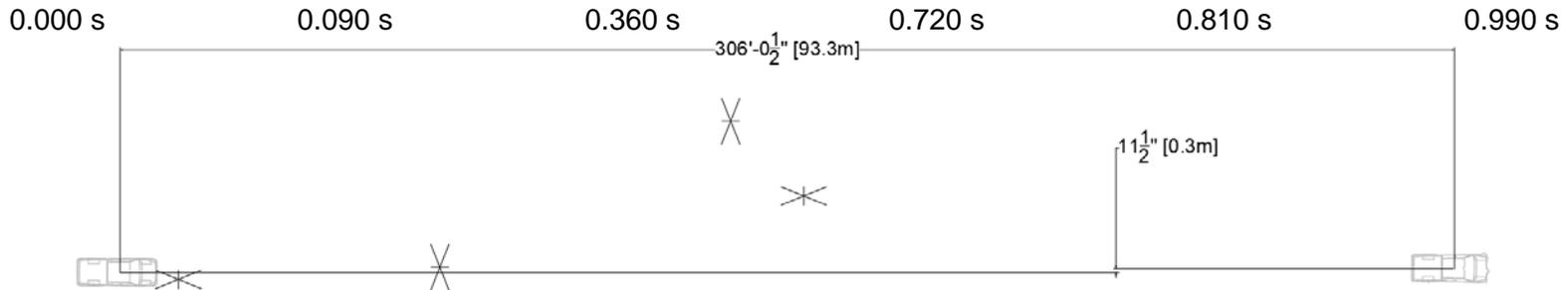
Eligibility Letter		
Number	Date	Key Words



# MASH 2016 Test 3-72 Summary

0° CIA

90° CIA

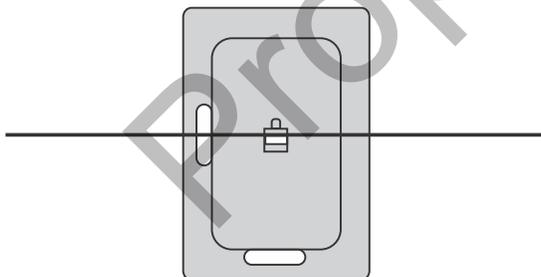
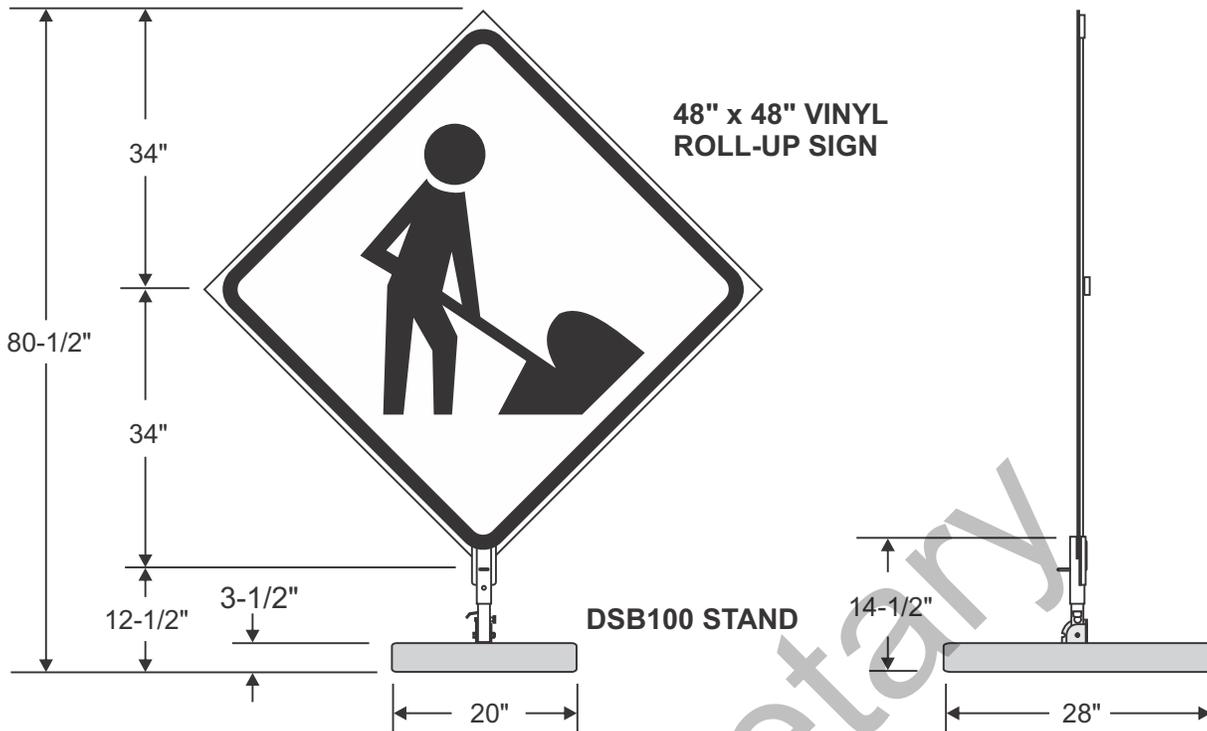


<p><b>General Information</b></p> <p>Test Agency..... Applus IDIADA KARCO          Test No..... P41059-01          Test Designation..... 3-72          Test Date..... 3/4/21</p> <p><b>Test Article</b></p> <p>Name / Model..... DSB100          Type..... Work-Zone Device          Device Height ..... 6.7 ft. (2 m)          Key Elements..... Rubber Base, Sign Holder, Vinyl Roll-Up Sign          Road Surface..... Smooth, clean concrete</p> <p><b>Test Vehicle</b></p> <p>Type / Designation..... 2270P          Year, Make, and Model..... 2016 Ram 1500          Curb Mass..... 5,147.8 lbs (2,335.0 kg)          Test Inertial Mass..... 5,005.5 lbs (2,270.5 kg)          Gross Static Mass..... 5,005.5 lbs (2,270.5 kg)</p>	<p><b>Impact Conditions</b></p> <p>Impact Velocity Device 1.... 62.92 mph (101.26 km/h)          Impact Velocity Device 2.... 61.63 mph (99.18 km/h)          Device 1 Angle..... 0.0°          Device 2 Angle..... 90.0°          Location / Orientation Device 1... 20.1 in. (511 mm) From Veh. C/L on Pass. Side          Location / Orientation Device 2... 18.1 in. (461 mm) From Veh. C/L on Dr. Side          Device 1 Kinetic Energy..... 662.5 kip-ft (898.2 kJ)          Device 2 Kinetic Energy..... 635.5 kip-ft (861.7 kJ)          Minimum KE Required..... 594.0 kip-ft (806.0 kJ)</p> <p><b>Exit Conditions</b></p> <p>Device 1 Exit Velocity..... 61.87 mph (99.6 km/h)          Device 2 Exit Velocity..... 61.40 mph (98.8 km/h)          Vehicle Resting Position..... 306.1 ft. (93.3 m) Downstream          1.0 ft. (0.3 m) Left          Vehicle Stability ..... Satisfactory          Maximum Roll Angle..... N/A*          Maximum Pitch Angle..... N/A*          Maximum Yaw Angle..... N/A*</p>	<p><b>Occupant Risk</b></p> <p>Longitudinal OIV..... N/A*          Lateral OIV..... N/A*          Longitudinal RA..... N/A*          Lateral RA..... N/A*          THIV..... N/A*          PHD..... N/A*          ASI..... N/A*</p> <p><b>Test Article Deflections</b></p> <p>0° Sign Debris Field (longitudinal) ... 143.4 ft. (43.7 m)          0° Sign Debris Field (lateral)... 19.0 ft. (5.8 m)          90° Sign Debris Field (longitudinal).. 66.6 ft. (20.3 m)          90° Sign Debris Field (lateral)..... 33.5 ft. (10.2 m)</p> <p><b>Vehicle Damage</b></p> <p>Vehicle Damage Scale..... 12-FC-1          CDC..... 12FDEN1          Maximum Deformation..... 0.0 in. (0 mm)</p>
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\* Not Applicable, device weighs less than 220 lbs (100 kg)

Figure 2: Summary of Test 3-72

# DSB100



## DSB100 STAND

- Base- Rubber with steel frame
- Sign Holder - Steel and Aluminum

## VINYL ROLL-UP SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1-1/4" w x 65" long fiberglass
- Crossbrace- Horizontal member is 1-1/4" w x 65" long fiberglass

### Weight: DSB100

Sign, Crossbrace,	5.0 lbs.
Sign Stand	45.5 lbs.
Total	50.5 lbs.



## DICKE SAFETY PRODUCTS

[www.dicketool.com](http://www.dicketool.com)

**Illinois** - 1201 Warren Avenue • Downers Grove, IL 60515 • Ph: 630.969.0050 • Fax: 630.969.3973  
**Oregon** - 1845 Anunsen Street, N.E. • Salem, OR 97301 • Ph: 800.333.5641 • Fax: 503.364.0340