U.S. Department of Transportation
Federal Highway Administration

1200 New Jersey Avenue, SE.
Washington, DC 20590

December 18, 2007

In Reply Refer To: HSSD/WZ-265

Mr. Ronnie Price
General Manager
Signtex, Inc.
1835 Greenvale Court
Richmond, VA 23225

Dear Mr. Price:

In your letter of December 10, 2007, you requested the Federal Highway Administration (FHWA) acceptance of the Signtex 3mm thick aluminum composite material as a sign substrate for use on the National Highway System under the provisions of the National Cooperative Highway Research Program Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features." To support your request you provided a copy of Karco Engineering, LLC test report dated November 5, 2007, entitled "Crash Test Report for Signtex, Inc. 4 X 4 Sign Test," test videos, and product specification information.

This letter is the acknowledgment of the FHWA's acceptance of your request. The original completed form has been modified by the addition of the FHWA acceptance letter number and the date of our review. The form, of which a copy is enclosed for reference, will be posted on our Web site in the near future.

Sincerely yours,

George E. Rice, Jr.
Acting Director, Office of Safety Design
Office of Safety

Enclosures

MOVING THE AMERICAN ECONOMY

Federal Highway Administration
Office of Safety Design

Category 2 Work Zone Device Acceptance Letter

Letter Number : WZ-265
Date : 12/14/2007

CONTACT INFORMATION:	**Petitioner / Developer Name:** *RONNIE PRICE*	
	Title: *GENERAL MANAGER*	
	Company: *SIGNTEX, INC.*	
	Street: *1835 GREENVALE CT.*	
	City, State, and Zip Code: *RICHMOND, VA 23225*	
	I herby certify that the device(s) covered by this Acceptance Letter meet(s) the crash – worthiness test and evaluation requirements of the FHWA and NCHRP Report 350.	
	Signature:	
	Telephone Number: *804-690-9827*	
	E-mail Address: *SIGNTEX@COMCAST.NET*	
	Engineer Name: *JOHNNY H. DUTTO*	
	Laboratory Name: *KARCO ENGINEERING, LLC.*	
	Street: *9270 HOLLY RD.*	
	City, State, and Zipcode: *ADELANTO, CA 92301*	
	Check One:	
	[X]	I hereby certify that the testing that supports this Acceptance Letter was conducted in accordance with NCHRP Report 350 guidelines, that the device(s) tested is/are accurately described on this form, and that the test results indicate that the device meets all applicable NCHRP Report 350 evaluation criteria.
	[ ]	I have evaluated the requested modifications to these devices previously found acceptable by the FHWA in Acceptance Letter WZ-____, and hereby certify that, in my opinion, the modifications do not adversely affect the crash performance of the devices. I also certify that these devices are accurately described on this form.
	Signature:	
	Telephone Number: *760-246-1672*	
	E-mail Address: *JOHNNYD@KARCO.COM*	

KEYWORDS	**Please select from the following Keywords for "Type of Device":** Longitudinal Channelizing Barricade Curb (Curb channelizer system with or without road tubes or other channelizers) Drum H-Footprint Sign Stand X-Footprint Sign Stand	**Type of Device:** *OTHER – ALUMINUM SIGN MOUNTED ON A PREVIOUSLY CERTIFIED MIDDLE GEORGIA SIGN STAND. MODEL #: MGS48A*

	Trailer Mounted Signs (Does not include arrow boards or variable message signs or other Category 4 trailer mounted devices.) Automated Flagger Device (not trailer mounted) Tripod Sign Stand Type I Barricade Type II Barricade Type III Barricade Vertical Panel Intrusion Detector Ballast (Action relates to ballast on one or more devices) Channelizer (Individual units unlike cones, road tubes, or drums) Other (Please describe on form)	
	Please Select from the following Keywords for Composition of Sign or Rail Substrate: Roll-up / Fabric (with fiberglass spreaders – aluminum or steel spreaders are not allowed.) Plywood Aluminum – Solid Aluminum – Laminate Corrugated Plastic Extruded Plastic Wafflebord Plastic Wood / Lumber	**Composition of Sign or Rail Substrate:** *ALUMINUM*
	Thickness of substrate (inches): *0.118 INCHES*	
	Indicate the height of sign from the ground (inches), if applicable:	Low 12 to 18 inches above the pavement Mid-A 20 to 24 inches above the pavement Mid-B 25 to 36 inches above the pavement Mid-C 37 to 59 inches above the pavement Tall 60 to 71 inches above the pavement Oversized 72 inches and taller **Height of Sign:** *LOW – 12 TO 18 INCHES ABOVE THE PAVEMENT*
	Flags and or lights present during test? Indicate number of each: *NONE*	
	# of flags: *0* # of lights: *0*	Weight of lights: ea. *N/A*

DEVICE NAME:	Provide Detailed Description of Device, Materials, sizes, Fasteners, Substrates, Foundation, Aux. Features Ballast, etc. (May be attached on separate page(s)): *PLEASE SEE ATTACHED PAGES THAT INCLUDES SPEC. SHEET*
MANDATORY ATTACHMENTS:	**Please include those pages as separate electronic files as they will be posted on the FHWA website in lieu of the entire final report.**
	Attachment #1: Test data summary page(s)
	Attach. #1a — Test # *3-71*
	Alternative
	Attachment #1: Description and discussion of modification(s) to crash tested and/or accepted device.
	Date:
	Attachment # 2: PDF drawing(s) of device(s) - **Mandatory Attachments: Please include those pages as separate electronic files as they will be posted on the FHWA website in lieu of the entire final report.**
	Attach. #2a — Drawing Title: *MIDDLE GEORGIA SIGN STAND*
	Drawing #: *1*

DATA SHEET NO. 3

SUMMARY OF RESULTS FOR TEST NO. 3-71

GENERAL INFORMATION		OCCUPANT RISK VALUES	
TEST AGENCY	KARCO ENGINEERING	FLAIL SPACE VELOCITY (m/sec)	
TEST NO.	3-71	X-DIRECTION	*
DATE	11/5/07	Y-DIRECTION	*
TEST ARTICLE		THIV (optional)	N/A
TYPE	Signtex 4 X 4 Sign	RIDEDOWN ACCELERATION (g's)	*
INSTILLATION LENGTH (m)		X-DIRECTION	*
SIZE AND/OR DIMENSION OF KEY ELEMENTS	19.0 kg (42.0 lb) each	Y-DIRECTION	*
SOIL TYPE AND CONDITION	CONCRETE	PHD (optional)	
TEST VEHICLE	820C	ASI (optional)	
TYPE	PRODUCTION	TEST ARTICLE DEFLECTIONS (m)	
DESIGNATION	3-71	DYNAMIC	
MODEL	1998 CHEVROLET METRO	PERMANENT	
MASS (CURB)	772 kg (1702 lbs)	VEHICLE DAMAGE	
MASS (TEST INERTIAL)	821 (1810 lbs)	EXTERIOR	
DUMMY(s) MASS	75 Kg (165 lbs)	VDS	12-FC-4
GROSS STATIC WEIGHT	894 kg (1970 lbs)	CDC	12FCAN4
IMPACT CONDITIONS		INTERIOR	
SPEED (km/h)	97.0 kph (60.3 mph) / 94.8 kph (58.9 mph)	OCDI	FS0100011
ANGLE (Deg.)	90 / 0		
IMPACT SEVERITY (kJ)	325.0	POST IMPACT VEHICULAR BEHAVIOR	
EXIT CONDITIONS		MAXIMUM ROLL ANGLE (Deg.)	*
SPEED (km/h)	97.0 kph (60.3 mph)	MAXIMUM PITCH ANGLE (Deg.)	*
ANGLE (Deg.)	90 / 0	MAXIMUM YAW ANGLE (Deg.)	*

***Values not calculated due to occupant not contacting the vehicle's interior.**

Alutile USA Composite Panels

Properties	Unit	Test Value (3mm)	Test Standard
Aluminum Thickness	mm	0.21	
Weight	kg/m2	3.7	ASTM D-792
Tensile Strength	Mpa	45	ASTM D-638
Yield Strength	Mpa	43	ASTM D-638
Thermal Expansion(-20-60℃)	10-6/0C	15.3	ASTM D-696
Temp.for Thermal Deformation	℃	98℃	ASTM D-648
Sound Transmission Coefficient	dB	24	ASTM E-413
Bending Strength	MPa	72.8	ASTM C-393
Bending Modules of Elasticity	104MPa	2.0 x 104MPa	ASTM C-393
Penetrating Resistance	KN	5.0	ASTM D-732
Shearing Strength	MPa	20.4	ASTM D-732
180° Peel-off Strength	N/mm	6.8N/mm	ASTM D-903

Coating Properties

Properties	Test Method	Result
Coating Thickness	ISO2360	17μm
Pencil Hardness	ASTM D-3363-92a	2H
Adhesion Dry Wet Boiling Water	 ASTM D-3359 (Method 8) 37.8℃,24Hrs 100℃,20 min	No Change
Abrasion Resistance	ASTM D-968-63	No Change
Salt Spray Resistance (100% Salt Fog,35℃,3000Hrs)	ASTM D-B117-90	No Change
Humidity Resistance 100% RH,35℃, 3000Hrs)	ASTM D-B2247-94	No Change
Chemical Resistance HCL H2SO4 Mortar Detergent	 ASTM D-1308-87 ASTM D-1308-87 AAMA 605.2-90 ASTM D-2248-93	No Change
Impact Resistance	ASTM D2794	No Change

Signtex Inc.

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