U.S. Department of Transportation
Federal Highway Administration

1200 New Jersey Ave., S.E.
Washington, DC 20590

June 14, 2007

In Reply Refer To:
HSSD/SS-149

Ms. Shubha Hosalli
Quality Assurance Test Specialist
Carmanah Technologies Corp.
Building 300, 770 Enterprise Crs.
Victoria, British Columbia V9A 3S2

Dear Ms. Hosalli:

Thank you for your mail correspondence of March 5, 2007, requesting the Federal Highway Administration (FHWA) acceptance of your company's Roadway Beacon mounted on the previously accepted breakaway sign post coupling, the “Kleen Break” (model 425) by Xcessories Squared Inc., for use on the National Highway System (NHS) under the provisions of the National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features". Accompanying your letter were the details of the Kleen Break breakaway coupling and a drawing of the Carmanah Roadway Beacon, both of which are enclosed with this letter.

The Carmanah Roadway Beacon is a compact solar flashing beacon referred to as a “Single Beacon Sign Post Square.” It consists of a solar engine, the engine housing, a signal head with LED signal module, and a mount for the 1-3/4 inch and 2 inch (51 mm) solid or perforated square steel tube (PSST). The weight of the device is approximately 50 lb (23 kg).

Testing of the Kleen Break was in compliance with the guidelines contained in the NCHRP Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features and was documented in the FHWA acceptance letter SS-131 dated December 2, 2005. Requirements for breakaway supports are those in the American Association of State Highway and Transportation Officials' Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

Because the previously accepted Kleen Break breakaway coupling uses a rigid perforated or solid square steel tube post with the frangible coupling, I agree that the maximum change in vehicle velocity and overall breakaway performance of the frangible coupling will not be

affected by the addition of the 50 lb (23 kg) Carmanah Roadway Beacon installed above the sign. The maximum change in velocity in the low-speed pendulum tests conducted on the Kleen Break coupling was 0.29 m/s and is therefore likely to pass this test with the 50 lb (23 kg) Carmanah Roadway Beacon installed. Further, the normal rotation of the sign assembly about the center of gravity will likely allow the test vehicle to pass under it with minimal contact. Since the maximum weight for luminaire poles is limited to 1000 pounds (454 kg) to reduce roof deformation in the low speed impact, it is likely that the extra 50 lbs (23 kg) of the Carmanah Roadway Beacon added to the approximate 66 lb (30 kg) Kleen Break coupler with PSST post would not cause a roof deformation in excess of the acceptable limits of 6 inches.

When the Carmanah Roadway Beacon is installed on a 1-3/4 inch or a 2 inch solid or PSST sign post and utilizes the previously FHWA accepted breakaway sign post coupler as mentioned above, it is acceptable for use at all appropriate locations on the NHS as a Test Level 3 device under the provisions of NCHRP Report 350 when selected by the contracting authority.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number SS-149, shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The Carmanah Roadway Beacon is a patented product and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) 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.

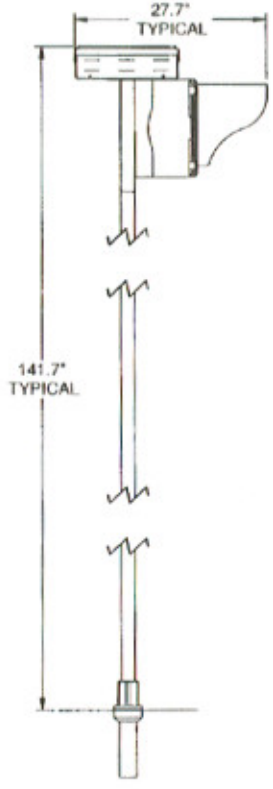
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

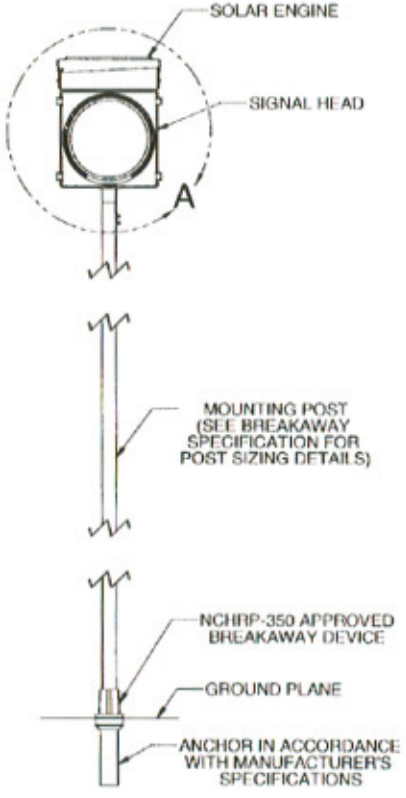
Sincerely yours,

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

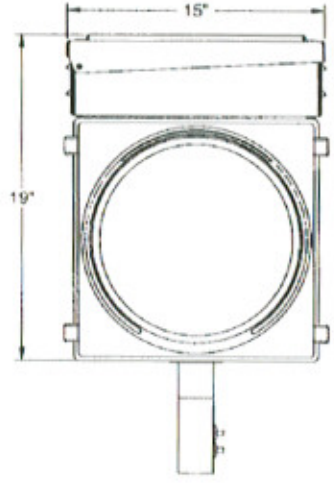
Enclosures

REVISION			
REV	DESCRIPTION	DATE	APPROVED
X1	INITIAL RELEASE FOR FHWA REVIEW	2/22/2007	T HARMON





10W BEACON COMPONENT OVERVIEW:



DETAIL A
SCALE 1 : 6

Carmanah

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Victoria, BC Canada V9A 3S2
Tel [250] 380-0052
Fax [250] 380-0062

TITLE
INSTALLATION OVERVIEW, BEACON ON BREAKAWAY BASE

DRAWN BY	DRAWING NO	REVISION	SHEET
Trevor Harmon	53298	X1	1 OF 1
DATE 18-Feb-2007			

Sign Post - Dimensions for Beacons Assembly					
Solid and Perforated Steel Square Post	**Gauge**	**Thickness**	**Height of the Steel Post**	**Minimum Sectional Modulus**	**Maximum Sectional Modulus**
1.75"	14ga	1.9mm	127"	0.248 cubic inch	0.710 cubic inch
1.75"	12ga	1.6mm	127"	0.248 cubic inch	0.710 cubic inch
2"	14ga	1.9mm	127"	0.248 cubic inch	0.710 cubic inch
2"	12ga	1.6mm	127"	0.248 cubic inch	0.710 cubic inch