



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

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

AUG 3 2010

In Reply Refer To:  
HOTO-1

Mr. Ron Van Houten  
Professor  
Western Michigan University  
3700 Wood Hall  
Kalamazoo, MI 49008

Dear Mr. Van Houten:

Thank you for your email of July 15 to Mr. Scott Wainwright of our Manual on Uniform Traffic Control Devices (MUTCD) Team requesting an interpretation of item 5.b. of the technical conditions of Interim Approval IA-11 for Rectangular Rapid Flashing Beacons (RRFB) dated July 16, 2008.

Item 5.b. pertains to the flashing pattern of the two yellow indications of the RRFB and requires that "During each of its 70 to 80 flashing periods per minute, one of the yellow indications shall emit two rapid pulses of light and the other yellow indication shall emit three rapid pulses of light." This specified flashing pattern was based on the flashing pattern used in the successful experiments with RRFB in St. Petersburg, Florida, and elsewhere. The specific product tested in the experiments with RRFB was a device known as the "Enhancer" as supplied by Stop Experts, Inc.

In your message you indicate that, while conducting product acceptance testing of an RRFB submitted by Stop Experts, Inc., the Florida Department of Transportation used an oscilloscope to check the flash pattern. The human eye saw a flash pattern as specified in item 5.b. (two flashes by the left-hand yellow indication, followed by three flashes by the right-hand yellow indication. However, as shown in the photograph you provided, the oscilloscope revealed that the right-hand yellow indication actually emitted four pulses of light rather than three.

You also provided a video of an RRFB installed in St. Petersburg in which the speed of the video has been slowed down to one-fourth the actual speed. That video appears to show two flashes followed by three flashes and thus the eye is being deceived, as the oscilloscope can detect pulses of light that the human eye cannot detect.

Stop Experts, Inc. has certified that the RRFB units tested with an oscilloscope by the Florida Department of Transportation are identical to those installed and evaluated in the RRFB

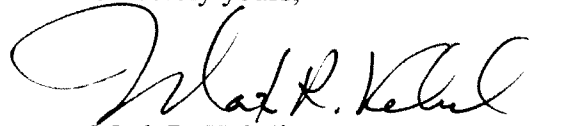


experiments that led to the issuance of IA-11 in July 2008. Therefore, you asked that a flash pattern of two flashes followed by four flashes be considered acceptable for use of RRFB under the conditions of IA-11.

We believe that what the human eye sees is the proper basis for determining whether the flash pattern of an RRFB meets the specified details of item 5.b. in the IA-11 technical conditions. However, based on the information submitted, we concur that units for which an oscilloscope detects a flash pattern of two pulses in one of the yellow indications followed by four pulses in the other yellow indication meet the intent of item 5.b., as long as the units appear to human observers with 20:40 visual acuity or better to flash in the specified two-three pattern.

Thank you for writing on this subject. We hope that our interpretations answer your questions. If you have any questions, please contact Mr. Wainwright by e-mail at [scott.wainwright@dot.gov](mailto:scott.wainwright@dot.gov) or by telephone at 202-366-0857. Please note that we have assigned your request the following official interpretation number and title: "4(09)-4(I)—RRFB Flash Pattern." Please refer to this number in any future correspondence regarding this issue.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Mark R. Kehrli". The signature is fluid and cursive, with a large initial "M" and a distinct "K".

Mark R. Kehrli  
Director, Office of Transportation  
Operations