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IEEE Standard for the Performance of Down-the-Road Radar Used in Traffic Speed Measurements

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IEEE Instrumentation and Measurement Society

Developed by the
Traffic Enforcement Technologies Committee

IEEE Std 2450™-2019

IEEE

IEEE Standard for the Performance of Down-the-Road Radar Used in Traffic Speed Measurements

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Traffic Enforcement Technologies Committee
of the
IEEE Instrumentation and Measurement Society

Approved 13 June 2019

IEEE-SA Standards Board

Abstract: Baseline performance requirements and associated test procedures for down-the-road (DTR) traffic radar speed-measuring devices are established in this standard. Modulated or unmodulated continuous-wave (CW) microwave energy is transmitted, the signal reflected from moving vehicles within the microwave beam is received, the Doppler shift of the reflected signal to measure and display the speed of the vehicle that is being tracked, and if applicable, the speed of the patrol vehicle, is processed by these DTR radar devices. Unmanned radar speed-measuring devices, automated speed enforcement, or DTR radar range measurements are not covered in this standard.

Keywords: IEEE 2450™, performance standards, radar, speed measurement, test methods, traffic

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Participants

At the time this standard was completed, the DTR Radar - Down-The-Road Radar Working Group had the following membership:

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William Boyer	LaMont McAliley	Greg Roberts
John Broxon	John McConnell	Roosevelt Rogers
Barry Cole	Lane Mitcham	Maurice Shelton
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Lei Du	Florin Codrut Nemtanu	Steven Tilden
Steven Hocker	Scott Patterson	Allen Tripp
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The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

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Introduction

This introduction is not part of IEEE Std 2450-2019, IEEE Standard for the Performance of Down-the-Road Radar Used in Traffic Speed Measurements.

This standard is based on the Speed-Measuring Device Performance Specifications: Down-The-Road Radar Module (DOT HS 812 266), April 2016 [B5],[1] that was maintained by the National Highway Traffic Safety Administration of the Department of Transportation. This standard establishes baseline performance requirements and associated test procedures for traffic radar speed-measuring devices. Citizens, courts, and law enforcement officers should be assured that those radar speed-measuring device models, determined by test to comply with these specifications, will provide the performance required to accurately measure and record vehicle speed. This standard incorporates most or all of the performance requirements contained in the DOT HS 812 266 with updates to requirements and test methods. This standard is intended, upon its release, to serve a full replacement for the DOT HS 812 266 [B5].

[1]The numbers in brackets correspond to those of the bibliography in Annex A.

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IEEE Standard for the Performance of Down-the-Road Radar Used in Traffic Speed Measurements

1. Overview

1.1 Scope

The scope of this standard is limited to radar speed-measuring devices used by law enforcement agencies for enforcing vehicle speed regulations, where these radar devices are operated in a "down-the-road" (DTR) fashion, meaning that the radar is aimed in a direction nominally parallel to direction of travel on the roadway and toward traffic. These DTR radar units transmit modulated or unmodulated continuous-wave (CW) microwave energy, receive the signal reflected from moving vehicles within the microwave beam, process the Doppler shift of the reflected signal to measure and display the speed of the vehicle that is being tracked, and if applicable, the speed of the patrol vehicle. This standard does not apply to unmanned radar speed-measuring devices, automated speed enforcement, or DTR radar range measurements.

1.2 Purpose

The purpose of this standard is to specify the baseline performance requirements and associated test procedures for radar speed-measuring devices used by law enforcement agencies for enforcing vehicle speed regulations. This standard does not define a product conformity program.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEC 60950-1:2005+AMD1:2009+AMD2:2013 CSV, Consolidated version, Information technology equipment—Safety—Part 1: General requirements.[2]

IEC 61000-4-6:2013, Electromagnetic compatibility (EMC)—Part 4-6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields.

U.S. Code of Federal Regulations, Title 47, Section 1.1310 (47 CFR 1.1310), Radiofrequency radiation exposure limits.[3]

[2]IEC publications are available from the International Electrotechnical Commission (https://www.iec.ch).
[3]CFR publications are available from the U.S. Government Publishing Office (https://www.ecfr.gov/).