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IEEE Recommended Practice for Rectangular Metallic Waveguides and Their Interfaces for Frequencies of 110 GHz and Above—

Part 3: Recommendations for Performance and Uncertainty Specifications

IEEE Microwave Theory and Techniques Society

Sponsored by the
Standards Coordinating Committee

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IEEE Std 1785.3™-2016

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Abstract: Recommendations for summarizing the performance and the expected uncertainty of the reflection coefficient of rectangular-waveguide apertures and interfaces for 110 GHz and above are provided in this recommended practice. The information provided also facilitates the development of a complete uncertainty analysis for the performance of rectangular waveguide interfaces. For example, it includes the dimensional information essential for calculating the uncertainty of both reflection and transmission coefficients through interfaces provided by different manufacturers if both follow this recommended practice.

Keywords: IEEE 1785.3™, millimeter-wave, performance, rectangular waveguides, specification, submillimeter-wave, terahertz, uncertainty of measurement, waveguide apertures, waveguide interfaces, waveguide tolerances

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Introduction

This introduction is not part of IEEE Std 1785.3-2016, IEEE Recommended Practice for Rectangular Metallic Waveguides and Their Interfaces for Frequencies of 110 GHz and Above—Part 3: Recommendations for Performance and Uncertainty Specifications.

IEEE Std 1785.3-2016 is the third standard in a series of three standards that provide the agreed reference for all organizations using rectangular metallic waveguides at frequencies of 110 GHz and above.[1] This series of standards enables efficient trade between customers and suppliers, and common design criteria and practices for component, systems and design engineers. The three IEEE 1785 standards (Parts 1, 2, and 3) are described briefly below:

— IEEE Std 1785.1™-2012 describes the frequency bands and aperture dimensions of the waveguides.

— IEEE Std 1785.2™-2016 describes the waveguide interfaces.

— IEEE Std 1785.3™-2016 (i.e., this publication) gives recommendations for performance and uncertainty specifications for the combined waveguide apertures and interfaces.

[1]Information on references can be found in Clause 2.

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