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

Part 1: Frequency Bands and Waveguide Dimensions

IEEE Microwave Theory and Techniques Society

Sponsored by the
Standards Coordinating Committee

IEEE
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Approved 5 December 2012

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Abstract: Specifications for the waveguide (including aperture dimensions, frequency range, cut-off frequency, etc.) are given in this standard. This standard considers the tolerances of the waveguide aperture dimensions and the effect these have on the electrical properties (in terms of return loss, transmission loss, etc.) of the waveguide.
Keywords: IEEE 1785.1™, millimeter-wave, rectangular waveguides, submillimeter-wave, terahertz, waveguide apertures, waveguide tolerances

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Introduction

This introduction is not part of IEEE Std 1785.1-2012, IEEE Standard for Rectangular Metallic Waveguides and Their Interfaces for Frequencies of 110 GHz and Above—Part 1: Frequency Bands and Waveguide Dimensions.

IEEE Std 1785.1-2012 is the first standard in a series of three IEEE standards that will provide the agreed reference for all organizations using rectangular metallic waveguides at frequencies of 110 GHz and above. This series of standards will enable 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 as follows:

— IEEE Std 1785.1 (i.e., this publication) describes the frequency bands and aperture dimensions of the waveguides.

— IEEE P1785.2 (to be published separately) will describe the waveguide interfaces.

— IEEE P1785.3 (to be published separately) will give recommendations for performance and uncertainty specifications for the combined waveguide apertures and interfaces.

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Part 1: Frequency Bands and Waveguide Dimensions

1. Overview

1.1 Scope

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1.2 Purpose

The purpose of this standard is to provide the agreed reference for all organizations using rectangular waveguides at these frequencies. This will enable efficient trade between customers and suppliers, and common design criteria and practices for component, systems, and design engineers.