



MICROWAVE WAVEGUIDES

Datasheet Index

Siemianowice 2026-08

Using this document

This document is an index of datasheets for waveguides and accessory components offered by MARKOM Microwaves.

Each entry is a link to the full datasheet in PDF format, containing drawings, dimensions, electrical and mechanical parameters, and material data.

Datasheets are also available on the respective product pages on our website.

Internet access is required to open the selected document.

The latest version of this document is always available on our server:

 [Waveguide Datasheet Index](#)

Peak and average power

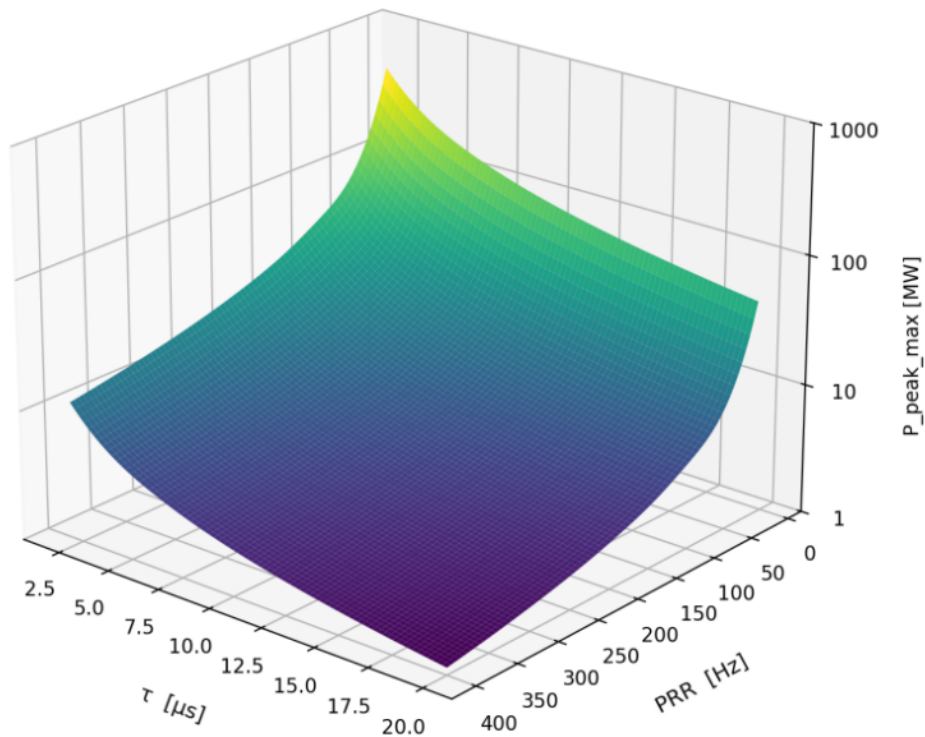
MARKOM determines the peak and average power limits carried by a waveguide using its own purpose-built calculation tool. The following are taken into account:

- cross-section shape, internal dimensions, and wall thickness
- operating frequency, attenuation, and VSWR
- pulse duration and pulse repetition rate
- type and pressure of the insulating gas, or vacuum level
- the material the waveguide is made of
- internal and external surface finishes and their roughness
- ambient and waveguide temperature
- thermal emissivity of the waveguide walls
- the waveguide's spatial orientation and the list of walls dissipating heat
- type, number, and attenuation of flanges

Four criteria are considered: pulse heating, steady-state thermal balance, dielectric strength of the medium filling the waveguide, and multipactor risk.

The final result also depends on the DC pulse fill factor (Duty Cycle) – pulse duration τ [μ s] and pulse repetition rate PRR [Hz]. The extreme case is continuous wave CW (Continuous Wave).

The chart shows the calculated dependence of peak power P_{peak} [MW] on the parameters τ [μ s] and PRR [Hz]. The chart applies to a WR284 waveguide made of CW004A copper, with internal and external surfaces left unfinished, where the limiting criterion is a waveguide temperature of 40 °C.



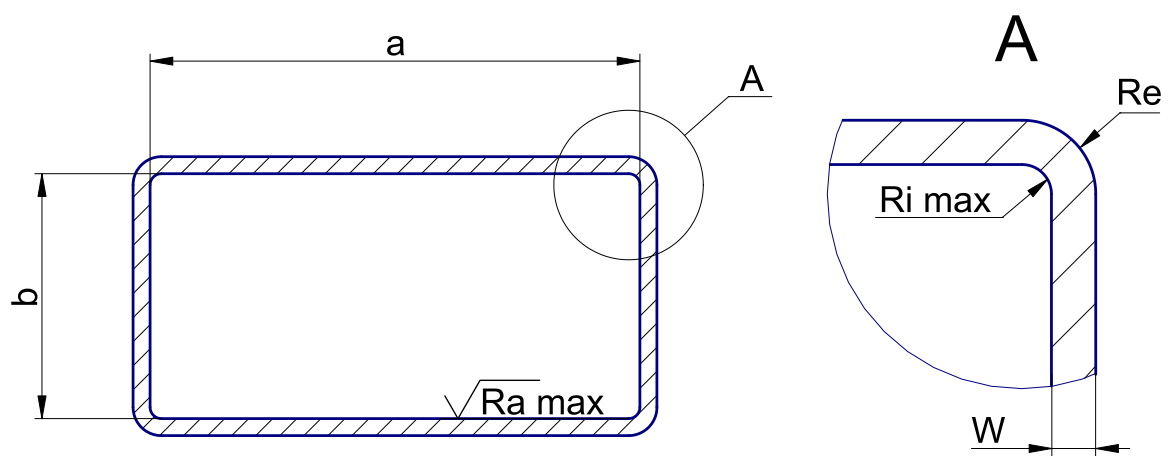
Waveguide standards

The standards used by MARKOM are:

- WR (Waveguide Rectangular) is the American industrial standard
- WG (Waveguide) is the European standard
- R (Rectangular) is the international waveguide designation system
- C (Circular Waveguide) is the international IEC standard for circular waveguides
- WC (Waveguide Circular) is the standard normalized by EIA.

Each standard has clearly defined dimensions and tolerances, which we adhere to. As an example, the table below compares the minimum requirements set by the WR284 standard with the parameters of the WR284 waveguide supplied by MARKOM.

symbol	parameter	unit	Standard		MARKOM	
			value	tolerance	value	tolerance
a	internal dimension, wider wall	mm	72.14	± 0.102	72.14	± 0.05
b	internal dimension, narrower wall	mm	34.04	± 0.102	34.04	± 0.05
Ra max	surface roughness	μm	0.762	–	≤ 0.5	–
Ri max	max. internal radius	mm	1.2	–	1.2	–
Re	external radius	mm	1.5–2	–	2	–
W	min. wall thickness	mm	2.03	–	3	–



Surface finish

MARKOM datasheets provide information on waveguides whose surfaces are all left unfinished. This is a deliberate approach, establishing a common baseline for evaluating mechanical, electrical, and power-handling parameters, regardless of the waveguide standard.

Depending on the material, internal surfaces are left unfinished, passivated, or silver-plated.

External surfaces are left unfinished or powder-coated.

The choice of surface finish depends solely on the user's needs, environmental conditions, and the applications in which the waveguides will operate.

1 Waveguides WR284 WG10 R32

1.1 Straight waveguides

-  [WR284-SW-Al \(aluminum AW-6082\)](#)
-  [WR284-SW-Cu \(copper Cu-ETP\)](#)
-  [WR284-SW-SS \(stainless steel 316L\)](#)

1.2 E-plane bent waveguides

-  [WR284-RW30E / WR284-RW30E-LS \(30° bend angle\)](#)
-  [WR284-RW45E / WR284-RW45E-LS \(45° bend angle\)](#)
-  [WR284-RW60E / WR284-RW60E-LS \(60° bend angle\)](#)
-  [WR284-RW90E / WR284-RW90E-LS \(90° bend angle\)](#)

2 Waveguides WR340 WG9A R26

2.1 Straight waveguides

-  [WR340-SW-Al \(aluminum AW-6082\)](#)
-  [WR340-SW-Cu \(copper Cu-ETP\)](#)
-  [WR340-SW-SS \(stainless steel 316L\)](#)

2.2 E-plane bent waveguides

-  [WR340-RW30E / WR340-RW30E-LS \(30° bend angle\)](#)
-  [WR340-RW45E / WR340-RW45E-LS \(45° bend angle\)](#)
-  [WR340-RW60E / WR340-RW60E-LS \(60° bend angle\)](#)
-  [WR340-RW90E / WR340-RW90E-LS \(90° bend angle\)](#)

3 Waveguides WR650 WG6 R14

3.1 Straight waveguides

-  [WR650-SW-Al \(aluminum AW-6082\)](#)
-  [WR650-SW-Cu \(copper Cu-ETP\)](#)
-  [WR650-SW-SS \(stainless steel 316L\)](#)

3.2 E-plane bent waveguides

-  [WR650-RW30E / WR650-RW30E-LS \(30° bend angle\)](#)
-  [WR650-RW45E / WR650-RW45E-LS \(45° bend angle\)](#)
-  [WR650-RW60E / WR650-RW60E-LS \(60° bend angle\)](#)
-  [WR650-RW90E / WR650-RW90E-LS \(90° bend angle\)](#)