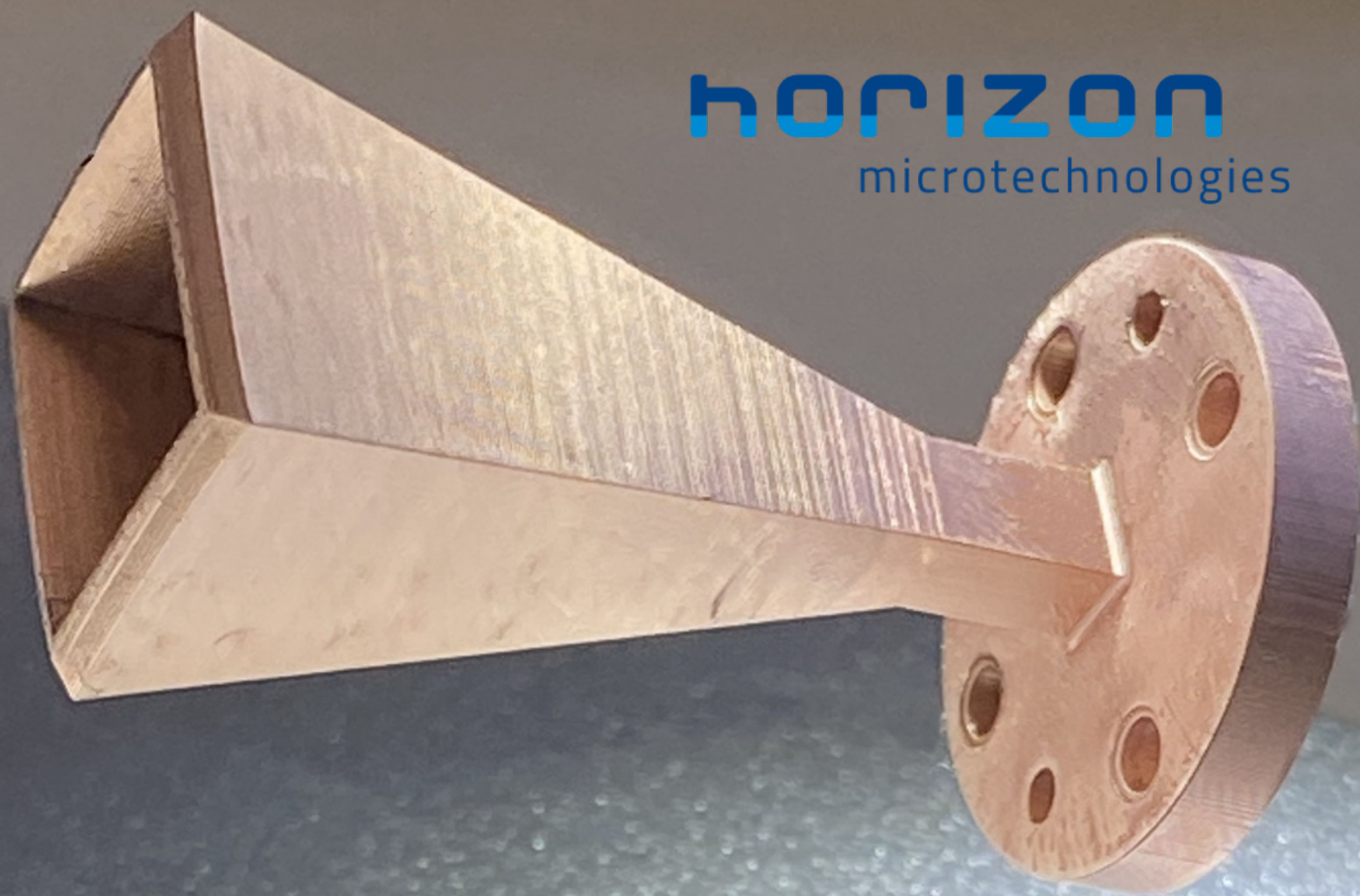




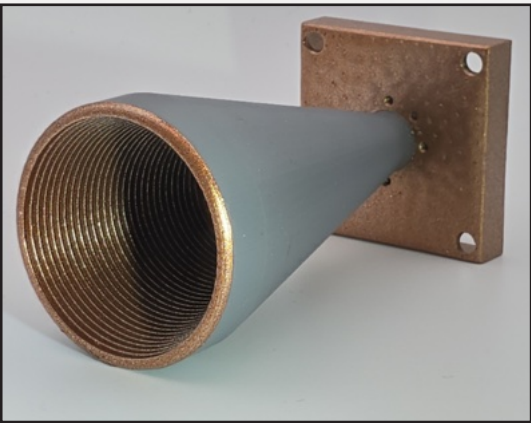
**LIGHTWEIGHT ANTENNAS ENABLED BY PRECISION
3D PRINTING WITH QUICK DEVELOPMENT &
MANUFACTURING TURNAROUND**

German Precision Engineering & Manufacturing

At the forefront of precision engineering, we have pioneered a groundbreaking innovation: the fusion of high-precision, lightweight polymeric 3D printing with advanced 3D metallization. This unique combination empowers us to produce better, lighter, and more compact millimetre-wave (mm-wave) components, as well as high-precision parts for a wide range of advanced applications.

End-to-End Expertise – Fully Vertically Integrated

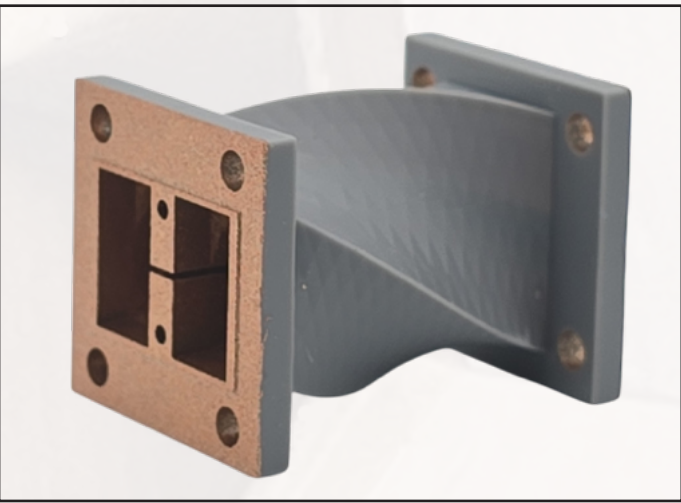
From concept to completion, we control every stage of the process to ensure rapid execution, uncompromising quality, and absolute confidentiality. Our capabilities include advanced **RF Design** using proprietary code and CST Microwave Studio, and **Complete In-House Manufacturing** covering 3D printing, coating, passivation, and rigorous quality control.



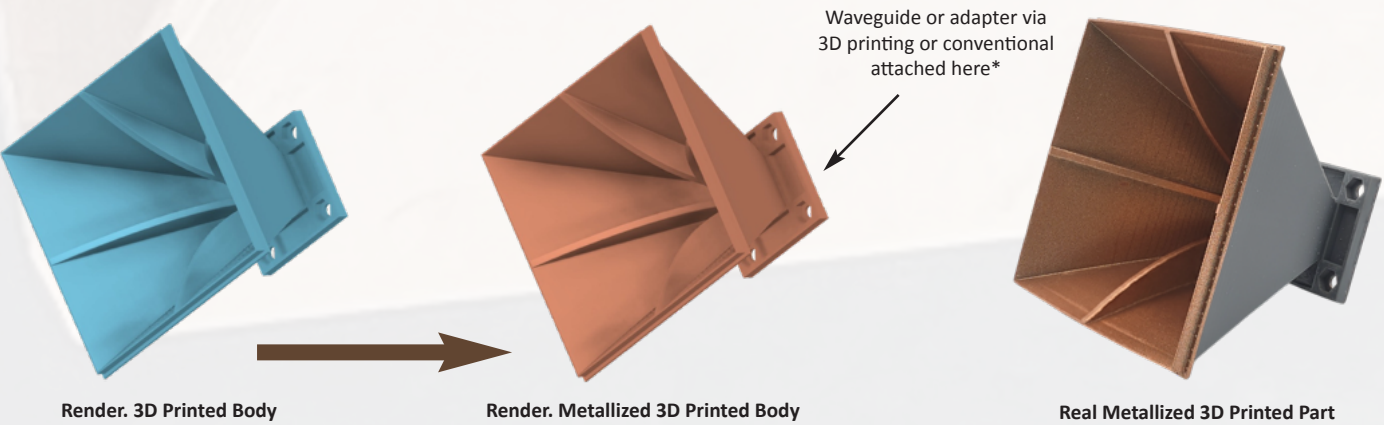
In addition, we offer comprehensive **RF Testing** up to 20 GHz with our in-house Vector Network Analyzer (VNA), and access to higher frequencies and an anechoic chamber testing through trusted partners.

Backed by over **30 years of combined experience** in precision engineering, electromagnetic design, and simulation, our expert team is uniquely positioned to meet the most demanding technical challenges.

As a proud alumnus of the **ESA Business Incubation Centre (ESA BIC)**, we thrive on pushing the boundaries of innovation for the most complex and mission-critical applications.



3D Printing + Coating for mm-Wave Devices



* Proprietary screw-free connection system available for additional weight savings.

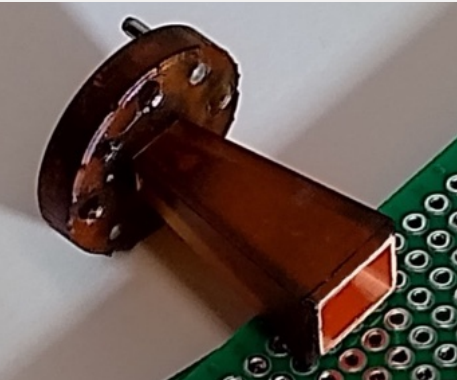


Combination of 3D printed and machined parts in splitblock-type design, and connectors/adapters opens additional design possibilities

3D printing and metallization of ceramics also enables dielectrically loaded devices such as this orthomode transducer

Case Study — Precision D-Band Horn

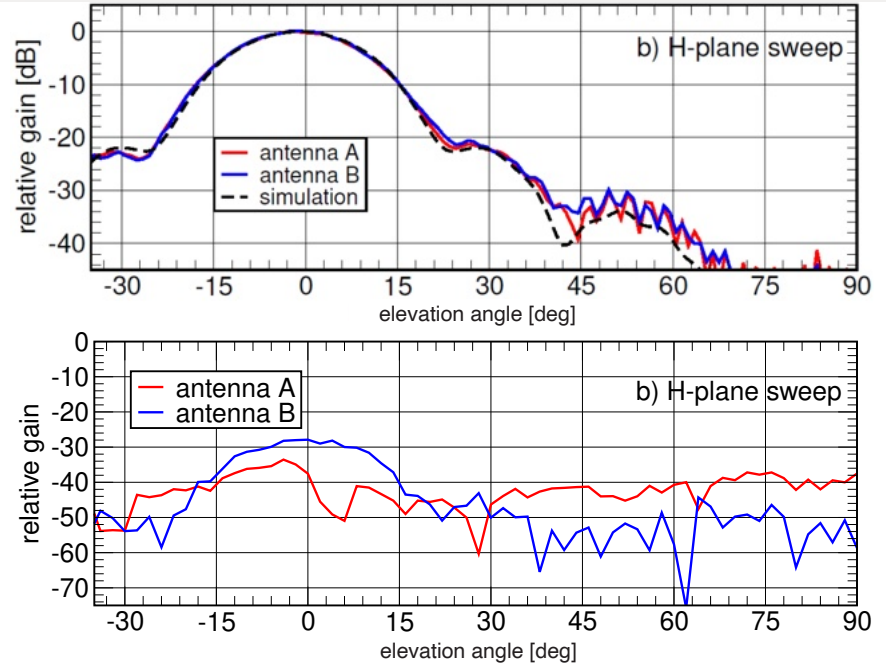
3D Printed, Metallized Polymer 22 dBi Gain Horn



Weight:
3 g including pins and screws vs 18 g for a machined counterpart

Length:
25 mm vs 30 mm for machined counterpart

Return loss:
-30 dB vs -23 dB for COTS antenna



H-plane radiation patterns of 2 randomly chosen D-Band horn antennas at 140 GHz in comparison to simulations based on CAD file as well as cross-polarization measurements. All lines are in excellent agreement. Contact us for full data set.

Benefits & Applications

Unlock new possibilities in design and performance between 2 GHz and 220 GHz with our innovative approach to precision manufacturing.

Application Scenarios

Antennas for on-the-move applications, testing and sensing solutions, electronic Intelligence (ELINT) systems, dielectric GRIN lenses, radomes and high frequency filters.

From Impossible to Achievable

We make (near) impossible designs manufacturable through cutting-edge 3D printing technologies, breaking free from the limitations of conventional production methods.

Light as Polymer, as Effective as Metal

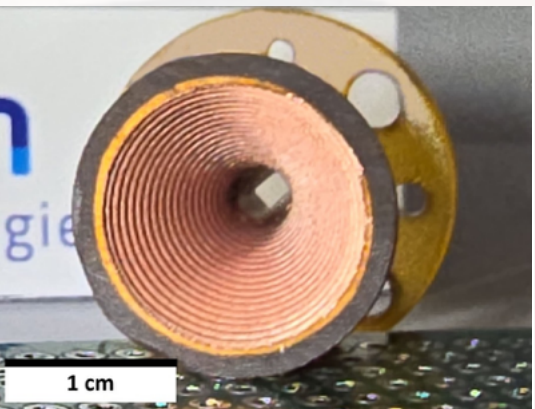
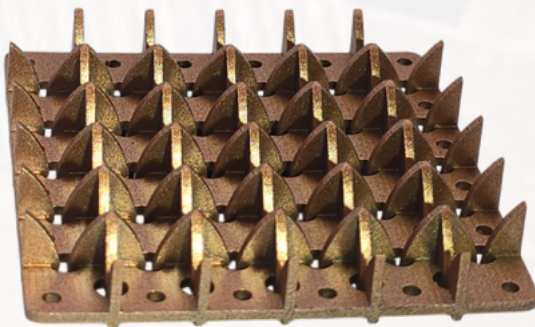
By combining lightweight, precise polymer structures with very smooth surfaces with highly conductive metallic coatings, we deliver devices that are both incredibly light and have the high transmission, and low scattering associated with highly polished metallic parts.

Smaller, Smarter Designs

Our design freedom allows for significant size reductions by consolidating multiple components and functions into a single, highly efficient device. The result: more compact, streamlined solutions without compromising on performance.

Fast and Hassle-Free Delivery

As your one-stop shop for antenna and precision part design, validation, and production, we offer short lead times and a straightforward, efficient business process — getting you from concept to reality faster and shortening your time to market.





Precision 3D Printed mm-Wave Components

- Antennas
- Filters
- Waveguide
- GRIN Lenses, Randomes, and Absorbers

... with very smooth surfaces

Ultra Lightweight Antennas

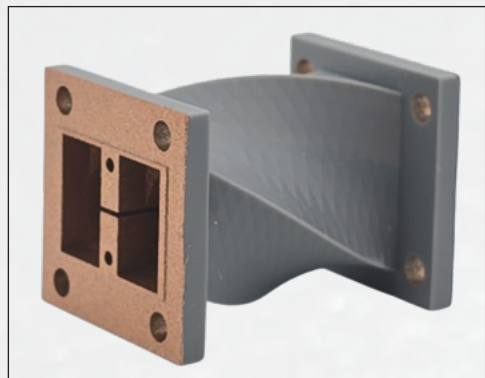
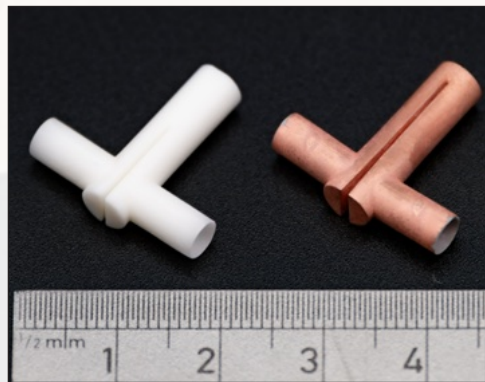
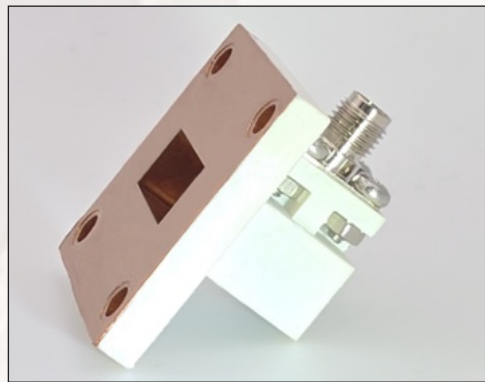
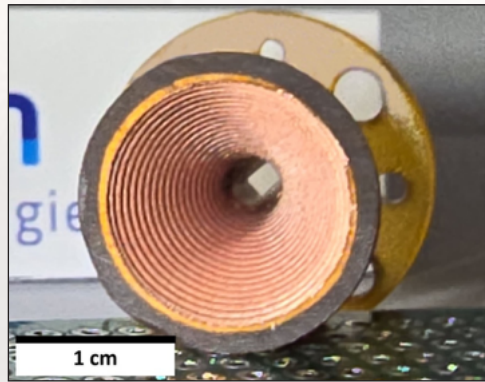
- Linear, circular and dual polarized
 - Very broadband designs
 - Low cross polarization
- Excellent piece-to-piece similarity

...based on existing designs or designed to your specifications, and delivered with short lead terms

We Are Your Partner for Metallisation of 3D Printed Polymers and Ceramics

- Very high design freedom
- Highly conductive surfaces
- Dielectric loaded metallic waveguides

...as a contract manufacturing service or in combination with our design-for-manufacturability engineering services



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