inkbit

Vision-Controlled Jetting™ delivers **low-loss dielectric** parts at production scale.

Cyclic Olefin Thermoset

Low-Loss Material for Next Generation **mmWave Components**

Inkbit's Platform Unlocks
Product Innovation and Scalable Deployment

Vista™
INKBIT INDUSTRIAL 3D PRINTER

- High Precision and Accuracy
- Multi-Material Builds
- Throughput for Scaled Production

Construct
INKBIT BUILD SOFTWARE

- Auto-Generate GRIN Lattices
- Multi-Material Designs
- No Support or Design Constraints

COT
INKBIT CYCLIC OLEFIN THERMOSET

- Low Dielectric Loss
- Low Permativity
- Tough and Strong

Advantages of Partnering with Inkbit

Inkbit's platform gives engineers the power to create antenna components with unmatched control over dielectric performance and geometry with production scalability.

Higher Gain, Lower Power

Inkbit's gradient-index (GRIN) components enhance signal gain or reduce transmission power, while suppressing side lobes. Printed with low-loss dielectric materials, these lenses efficiently shape RF beams for next-gen wireless systems.

Wideband Performance

Print dielectric structures with low-loss, broadband behavior from sub-6 to 90 GHz. Enabling multi-band functionality in a single component without the need for redesign. Engineers can streamline system complexity while supporting mmWave, and emerging 6G applications.

Minimized Beam Degradation

Traditional beamformers lose effectiveness as scan angles increase. GRIN lenses produced using our VCJ techonolgy preserve beam fidelity and gain across wide scan angles, ideal for adjustable wireless systems.

Broader Field-of-View

Produce lenses that expand the effective FOV of phased arrays and fixed-feed systems, enabling coverage without increasing hardware complexity - ideal for mmWave sensing, satcom, and radar.

Reduced SWaP-C

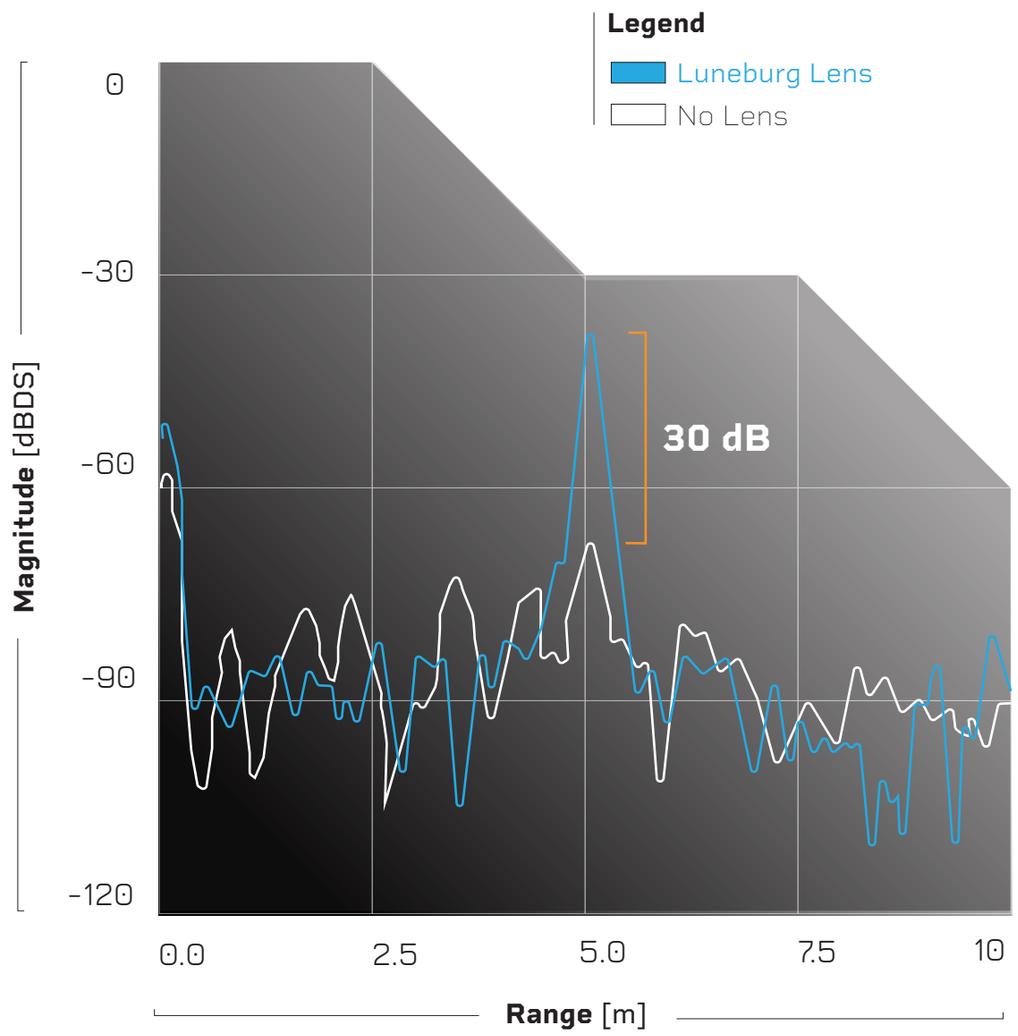
By consolidating multiple components into a single printed structure using lightweight and low loss materials, engineers can produce leaner, more efficient wireless platforms optimized for performance.

Application Use Case Examples
Components for Next-Generation RF Systems

Boosting Radar Performance

To meet the growing demands of mmWave radar, Inkbit enables production of precision Luneburg lenses with engineered dielectric lattices.

With a Infineon XENSIV™ radar sensor, our printed lens amplified radar return by +30 dB – matching theoretical performance and unlocking new design freedom for next-gen sensing systems.



The Results

- Enhanced radar return at 5m by +30 dB
- Matched 30 dBi lab-verified gains

Ka-Band Luneburg Lens

Industry standard performance with improved manufacturability and robustness

Properties

Unit Cell Length	5 mm
Lattice Type	Gyroid
Diameter	62 mm
Aperture	30 cm2
Weight	51 g
Maximum Gain (34 GHz)	25 dBi
Maximum Frequency	42 GHz

W-Band Luneburg Lens

Smallest unit cells in the market for the highest operating frequencies

Properties

Unit Cell Length	2 mm
Lattice Type	Diamond
Diameter	62 mm
Aperture	30 cm^2
Weight	36 g
Maximum Gain (80 GHz)	27 dBi
Maximum Frequency	90+ GHz

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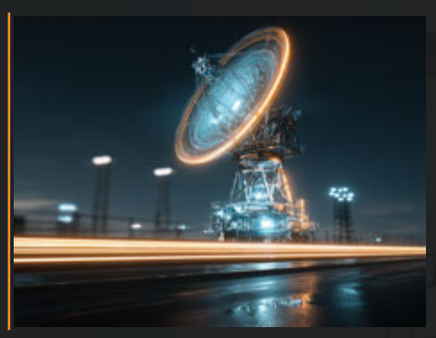
INDUSTRIES

Defense & Aerospace

From GRIN lenses to beam-shaping inserts, Inkbit empowers defense and aerospace teams innovate antenna hardware. Our digital process enables rapid iteration, lightweight structures, and high-frequency performance. These capabilities are ideal for mission-critical systems where precision, weight, and signal integrity matter.

Automotive | ADAS Systems

Development of radar and sensor components is in high-demand. The Vista™ platform produces compact, integrated dielectric parts that reduce assembly time and enhance signal performance. Automotive teams gain design freedom while scaling production for cost-sensitive, high-volume markets.



Telecommunications & Wireless Infrastructure

Inkbit simplifies the path to smarter, more adaptable wireless hardware. Engineers can print components like Luneburg lenses and mmWave housings with fewer steps and no tooling. This enables faster rollouts, improved coverage, and reliable support for the evolving needs of 5G, 6G, and future wireless networks.

Test & Measurement | R&D

R&D teams count on Inkbit to close the gap between simulation and real-world validation. Complex dielectric structures can be printed directly from CAD without tooling delays or manual assembly. Researchers can test, iterate, and refine faster, all while maintaining material fidelity and precision.

LEARN MORE

Built for What's Next™

Visit inkbit3D.com for more information.