3D DESIGNS | GHz Narrowband

HONEYCOMB

The honeycomb structure is optimized for the absorption of electromagnetic waves **on a targeted frequency**. This honeycomb design maximizes absorption efficiency while maintaining a **light weight and robust** mechanical structure. By adjusting the dimensions (cell diameter, wall thickness, angle of inclination), absorption can be calibrated to a specific frequency in the GHz range.



Shape: Honeycomb structure.

<u>Dimensions</u>: Adjustable dimensions to target other frequencies.

<u>Use frequencies</u>: **Adjustable** on request and according to the constraints of your systems.

Below the results of a 3D honeycomb pattern designed to absorb in the dozen of GHz: significant reflection losses of **-16 dB around 12 GHz** and **a weight three times lighter** than a 3D sheet of the same thickness.



This architecture shows resonance when the cell dimensions correspond to a quarter of the targeted wavelength. This wave will be reflected many times in the cells, generating a **progressive absorption of the wave.**

More elaborate architectures can be developed on request, in particular to enable multiple resonances.

New architecture breaks down into multi-scale cells. With this shaping, several resonances will appear to allow absorption peaks at different frequencies.



Why choose FILAMAG $\stackrel{\scriptscriptstyle{(0)}}{\to}$ honeycomb structure?

- Lightweight: performance/weight ratio
- Flexible material
- Customized, adaptable

<u>Example of use</u>: This honeycomb is used by device manufacturers and/or users whose aim is to reduce the reflection of electromagnetic waves on the surface of these systems. This is particularly the case for equipment that needs to **be made undetectable by reducing its** radar cross section (RCS).

*of the filament used: here refer to FILAMAG-F