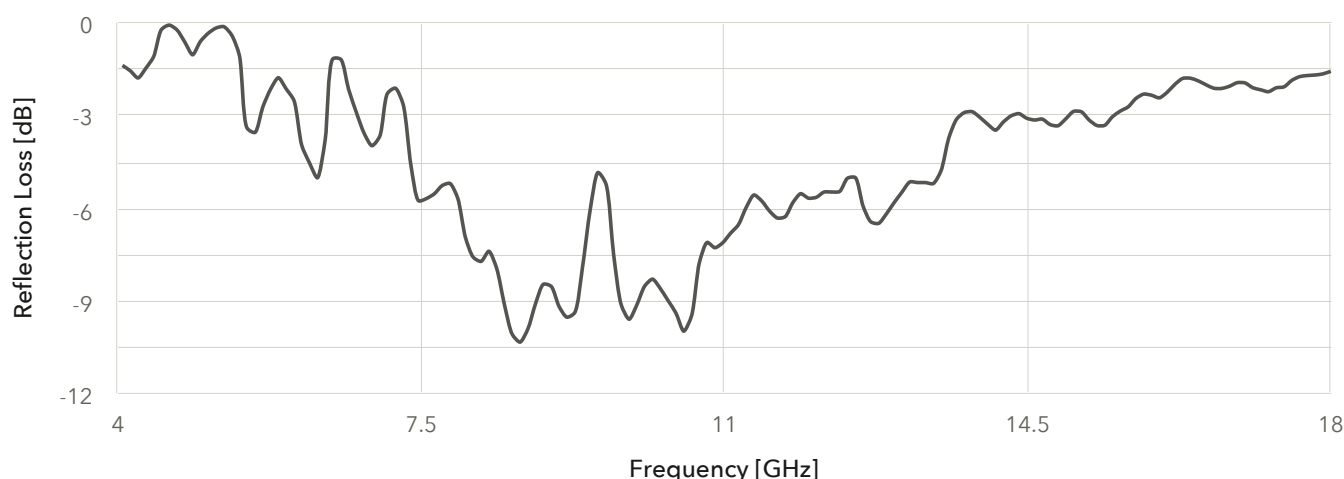


AVEO ASA RAM

Radar-absorbing ASA-based FDM filament

AVEO ASA RAM is a radar-absorbing FDM filament with tunable dielectric properties, engineered for demanding defense and aerospace applications. It delivers peak electromagnetic attenuation in the X-band (8-12 GHz), with measurable attenuation across 4-18 GHz. Potential applications include stealth drones, interceptor drones, unmanned boats, and retrofit components for military platforms, supporting radar-signature reduction and the protection of strategic assets. The spectrum below shows indicative reflection loss measured on specimens 3D printed using ASA RAM filament. Final performance depends on part geometry, thickness, and integration.

Reflection Loss



Performance

Peak reflection loss

-11 dB at 9 GHz

Surface resistance

$2.8 \times 10^2 \Omega$

Key Properties

- Radar-absorbing ASA-based filament
- High dielectric loss for microwave attenuation



Technical Process

Filament Drying

The filament is delivered vacuum-sealed and pre-dried. After extended exposure to ambient humidity (e.g. several days to weeks, depending on storage conditions), drying is recommended at 70 °C for 4-6 hours to ensure optimal print quality. Moisture absorption may lead to stringing, surface defects, and reduced mechanical performance.

Process Parameters

Standard ASA processing parameters can generally be applied. The following settings are recommended for advanced parameters.

Parameter	Recommendation	Unit
Nozzle Temperature first layer	260	°C
Nozzle Temperature	260	°C
Build plate Temperature first layer	110	°C
Build plate Temperature	110	°C
Chamber Temperature	At least 50, preferably 70	°C
Build plate	Textured with glue	-
Max volumetric flow	5	mm ³ /s
Brim type	Outer and inner	-
Brim Width	5	mm
Brim object gap	0	mm

Fan Settings

Parameter	Setting
Fan speed min	0 %
Fan speed max	0 %
Fan speed for overhangs	25 %

Cooling Thresholds

Parameter	Setting
Special cooling for the first	0 layers, fan speed 0
Enable fan if layer print time is below	20 s
Slow down if layer print is below	10 s
Min print speed	20 mm/s

Printing Notes

Print results may vary depending on part geometry and equipment. Minor parameter adjustments may be required to achieve optimal results.

- A higher nozzle temperature improves layer adhesion and mechanical strength
- Moderate cooling ensures good surface quality without compromising bonding
- Strong bed adhesion is recommended

Parameter Definitions

Printing parameters

Nozzle temperature	Recommended temperature range of the printer nozzle during extrusion and deposition of the filament.
Build-plate temperature	Recommended build-plate temperature during printing to promote first-layer adhesion and reduce warping.
Chamber temperature	Recommended air temperature inside the enclosed build chamber during printing.
Print speed Minimum print speed	Recommended linear movement speed of the nozzle while depositing material. Unless stated, this is usually a recommended maximum for stable printing.
Maximum volumetric flow rate	Maximum volume of material that can be extruded through the nozzle per second while maintaining stable extrusion and acceptable print quality, expressed in mm ³ /s.
Part-cooling fan	Recommended part-cooling fan setting during printing, expressed as a percentage of the printer's maximum fan speed.

Material handling and preparations

Drying temperature	Recommended temperature for drying the filament before printing to remove absorbed moisture without damaging or deforming the filament or spool.
Drying time	Recommended duration for which the filament should be dried at the specified drying temperature.
Build-plate surface	Recommended printing surface or build-plate material used to obtain suitable adhesion and part release.
Adhesive requirement	Recommended use of an adhesive glue, release layer, or surface-treatment method on the build plate.