LulzBot Filament Testing Report

Manufacturer: Proto Pasta
Filament Name: Black Carbon Fiber PLA 3.0mm
Filament Type: Carbon filled PLA
Date: 7/27/2015

Ease of use: 8/10
Appearance: really nice slightly reflective surface, has a similar surface texture to wood filled filaments
Size consistency: Good
Color consistency: Good
Print temperature: 230/60 (LulzBot Mini)
Prints using Lulzbot profiles/temps: Yes, could use some minor tweaks

Recommendation: This is a super exciting filament, and it prints extremely well as long as the layer height is kept high enough to allow the carbon fibers to pass out of the nozzle (0.2mm or greater). 0.75kg run through a standard hexagon caused slight wear, enlarging the 0.5mm diameter orifice to nearly 0.6mm. We have also received a RMA TAZ with extensive wear to the aluminum nozzle Budashnozzle as well as the extruder body itself.

Because of the greatly increased rate of toolhead wear, the best path is to stay away from selling this filament until we can develop an more wear resistant hotend, or decide that toolheads can be considered consumable under our warranty and return policy. We have pushed profiles for the material, as well as a warning to users about the increased wear.

We are proceeding with testing large quantities of the carbon fiber filament with a hexagon modified to have a fully stainless steel filament path. We're in the process of running 9+kg of filament through the hotend to determine any other possible wear points.

Notes:

- Prints well with default PLA settings with the temperature bumped up to 230
- really great looking filament
- despite higher printing temperature, it's got the same low Tg for other PLA's making it unsuitable for any printer parts hear the bed or toolhead

Filament	**Variance in diameter**	**Maximum out of round**	**Extrusion temperature**
3.0mm Carbon fiber PLA	2.84-2.90 (.06mm)	0.05mm (2.85-2.90)	190-240C (printed at 230C with standard profiles)