3D-Printing Guide

This document will serve as an instruction manual detailing the quantity, filament, print setting, and print orientation of each 3D-Printed part. The orientation each part is printed at is very important as it directly correlates to the durability of each part as well as the amount of filament required. *Table 2* shows which filament to use, how many of each part is required, and a reference to the figure showing its print orientation. For assembly of the 3D-Printed parts refer to the *3D-Printed Part Assembly Guide*. Note that all 3D models were designed in the imperial system and the 3D printers typically default to the metric system. Figures 1 – 18 show all the parts in a possible printing orientation and the correct dimensions necessary – some files may need to have the sizes scaled to obtain the correct dimensions.

The filament that is used for the competition board is the following with the approximate total amount required shown. *Table 1* shows the approximate filament weight required for each part. These estimates are from a Bambu Lab P1S 3d-printer using standard print profile with no modified settings. The file SouthEastcon2026_Bambu_project.3mf is a project for Bambu printers with all parts placed

3D-Print total filament requirement:
Black Filament: ~1340g: Amazon, 1x$26.98 ELEGOO PLA Filament 1.75mm Black 2KG
Gray filament: ~3285g: Amazon 2x$27.98 ELEGOO PLA Filament 1.75mm Gray 2KG

Table 1 – Approximate Print Weight of Parts

Part Name	Per Piece(g)	Quantity	Total Weight(g)	Color
Crater Bottom	32	4	128	Gray
Lower Rim	45	16	720	Gray
Upper Rim	105	16	1680	Gray
Antennas*	135	4	540	Gray
Earth Side 1	110	1	110	Gray
Earth Side 2	110	1	110	Gray
Total Gray			**3288**	
Antenna Hatch	85	4	340	Black
Antenna Box**	255	4	1020	Black
Crank Housing(1), spacer(2) and sleeve(1)		1		Black
Total Black			**1360**	

* For the antennas the weight is for both shafts and the dish
** For the Antenna Box, that weight is from the Pressure Box

The file SouthEastcon2026_Bambu_project.3mf contains all of the 3D-Print objects for use in Bambu Studio

Table 2 3D Print Part Information			
Part Name	**Filament Color**	**Quantity**	**Print Orientation**
Upper Rim	Gray	16	*Figure #1*
Lower Rim	Gray	16	*Figure #2*
Flat Area V1	Gray	2	*Figure #3*
Flat Area V2	Gray	2	*Figure #4*
Antenna Box Hatch	Black	4	*Figure #5*
Antenna Dish	Gray	4	*Figure #6*
Antenna Shaft Bottom	Gray	4	*Figure #7*
Antenna Shaft Top	Gray	4	*Figure #8*
Antenna Box Button	Black	1	*Figure #9*
Antenna Box Crank	Black	1	*Figure #10*
Crank Housing	Black	1	*Figure #11*
Crank Spacers	Black	1	*Figure #12*
Rotary Encoder Sleeve	Black	1	*Figure #13*
Antenna Box Pressure	Black	1	*Figure #14*
Antenna Box Keypad	Black	1	*Figure #15*
Shell V1	Gray	1	*Figure #16*
Shell V2	Gray	1	*Figure #17*
Hook	Gray	1	*Figure #18*

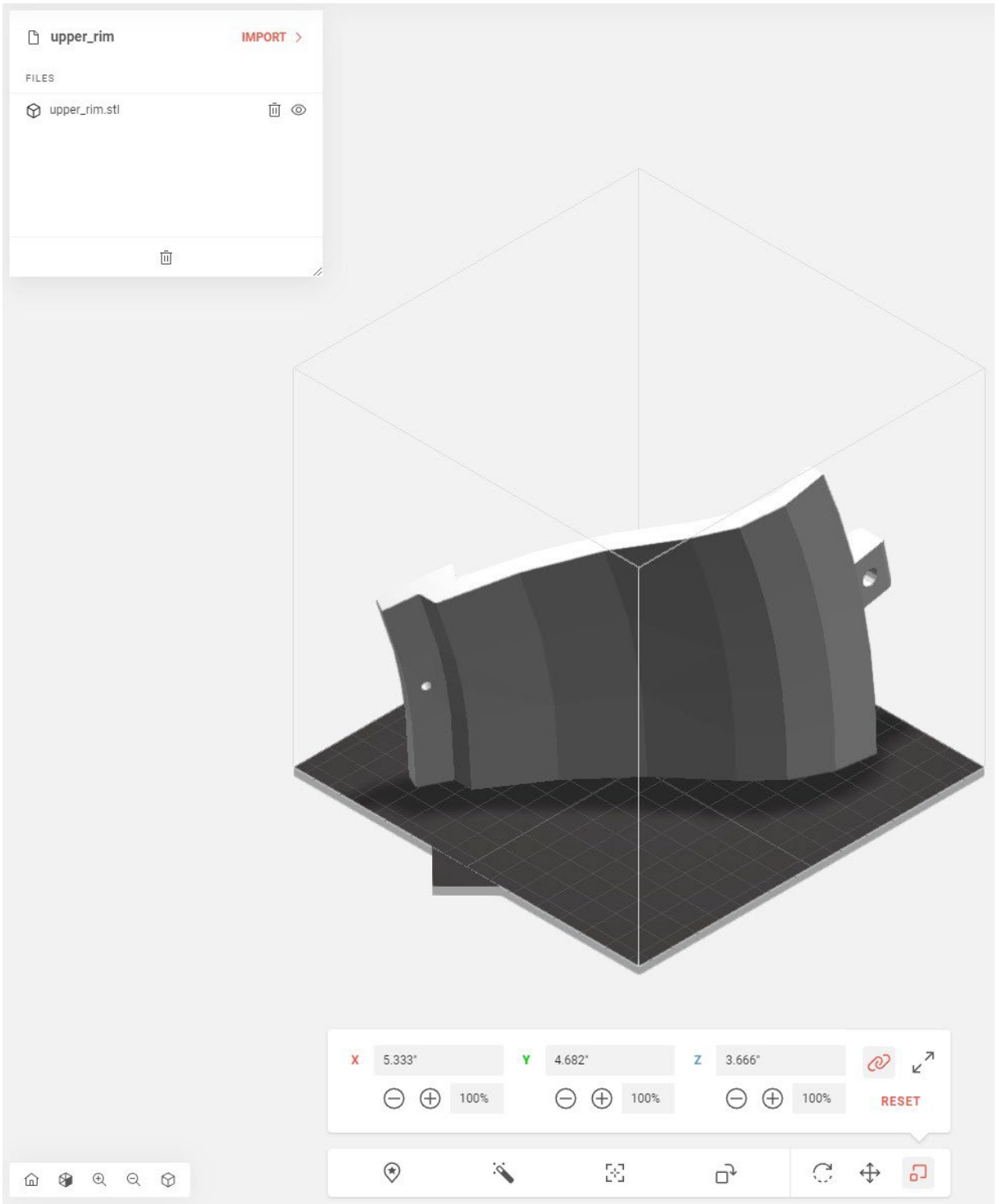

Figure 1 – Upper Rim

Figure 2 – Upper Rim

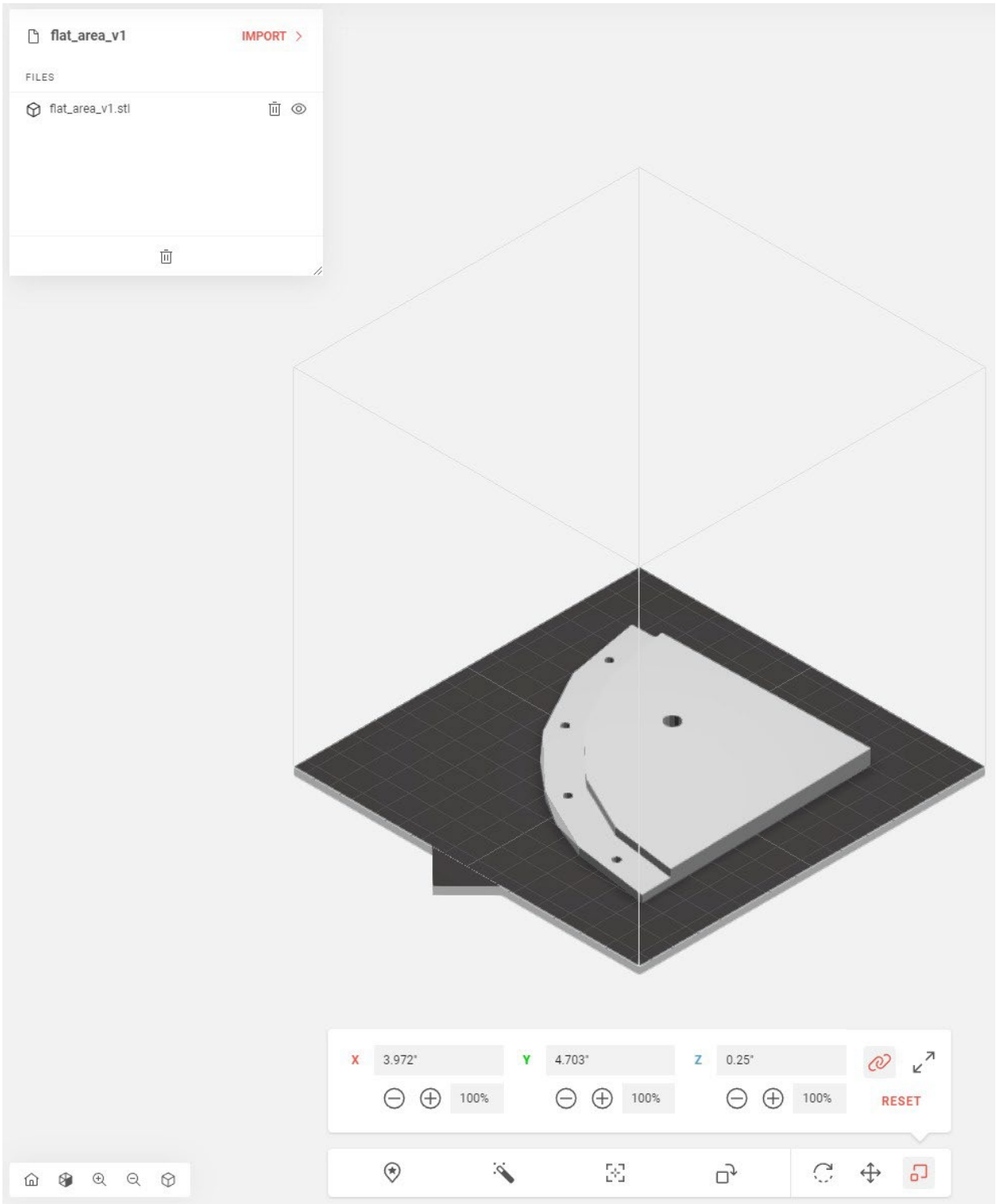

Figure 3 – Crater Base V1

Figure 4 – Crater Base V2

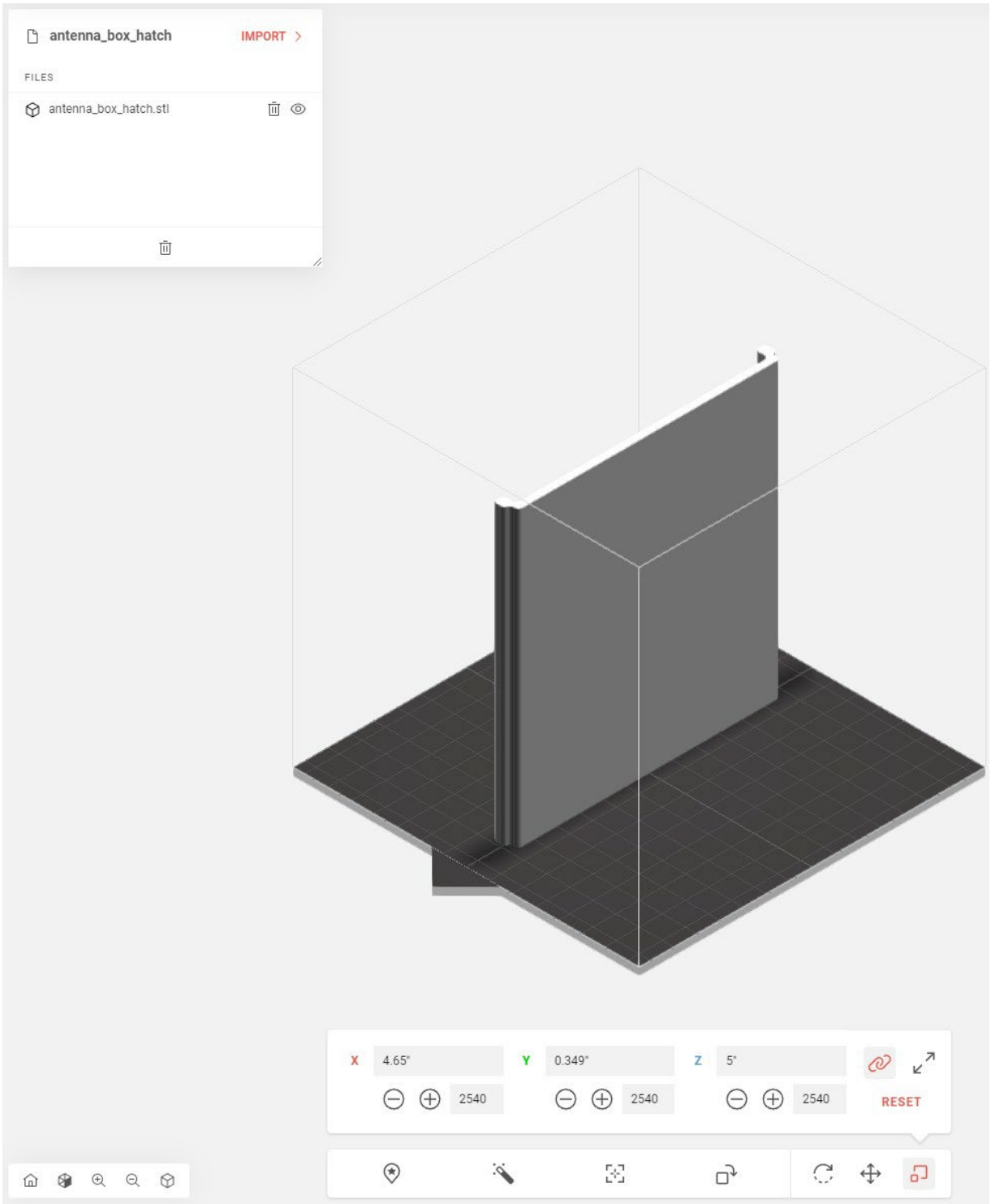

Figure 5 – Antenna Box Hatch

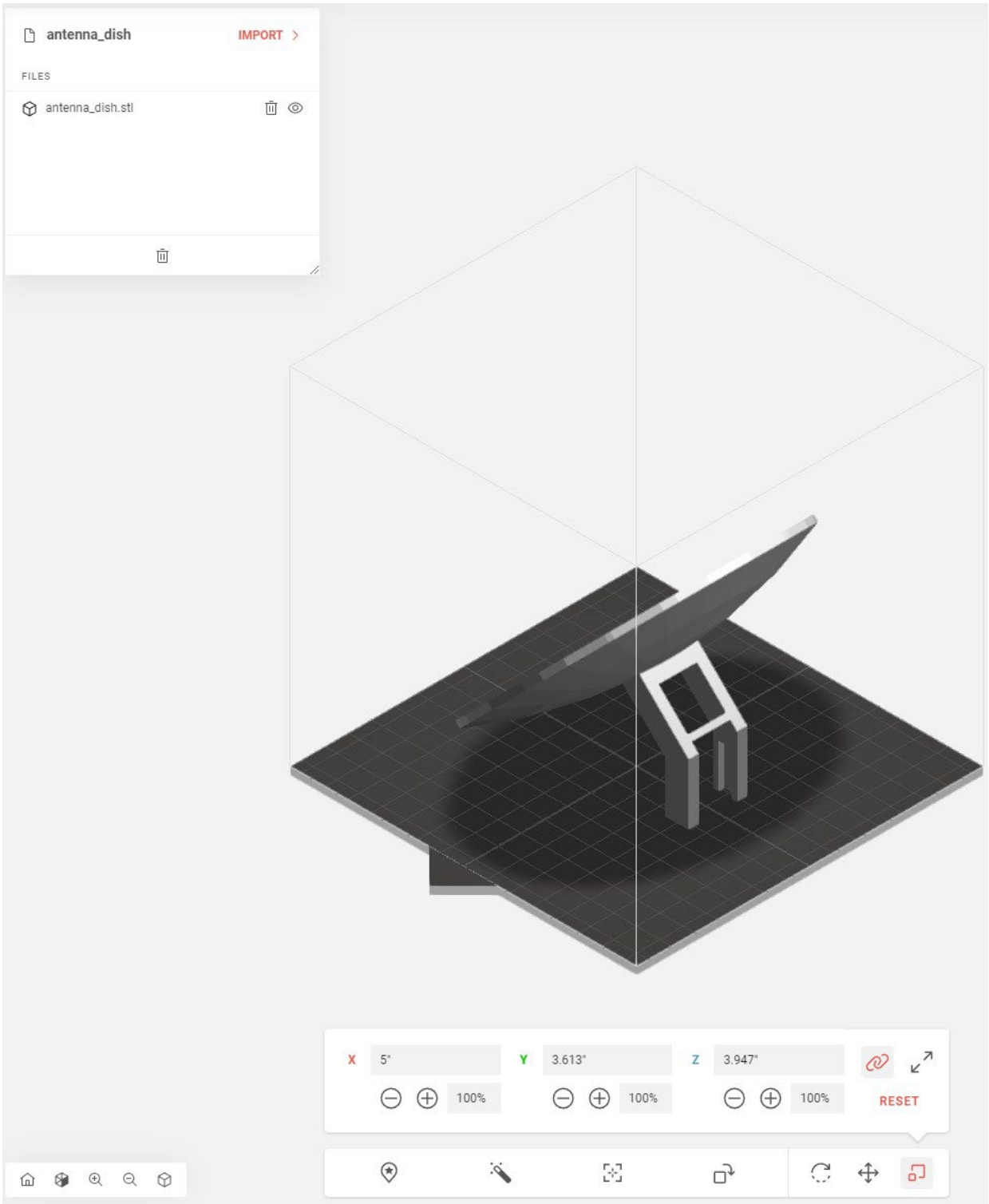

Figure 6 – Antenna Dish

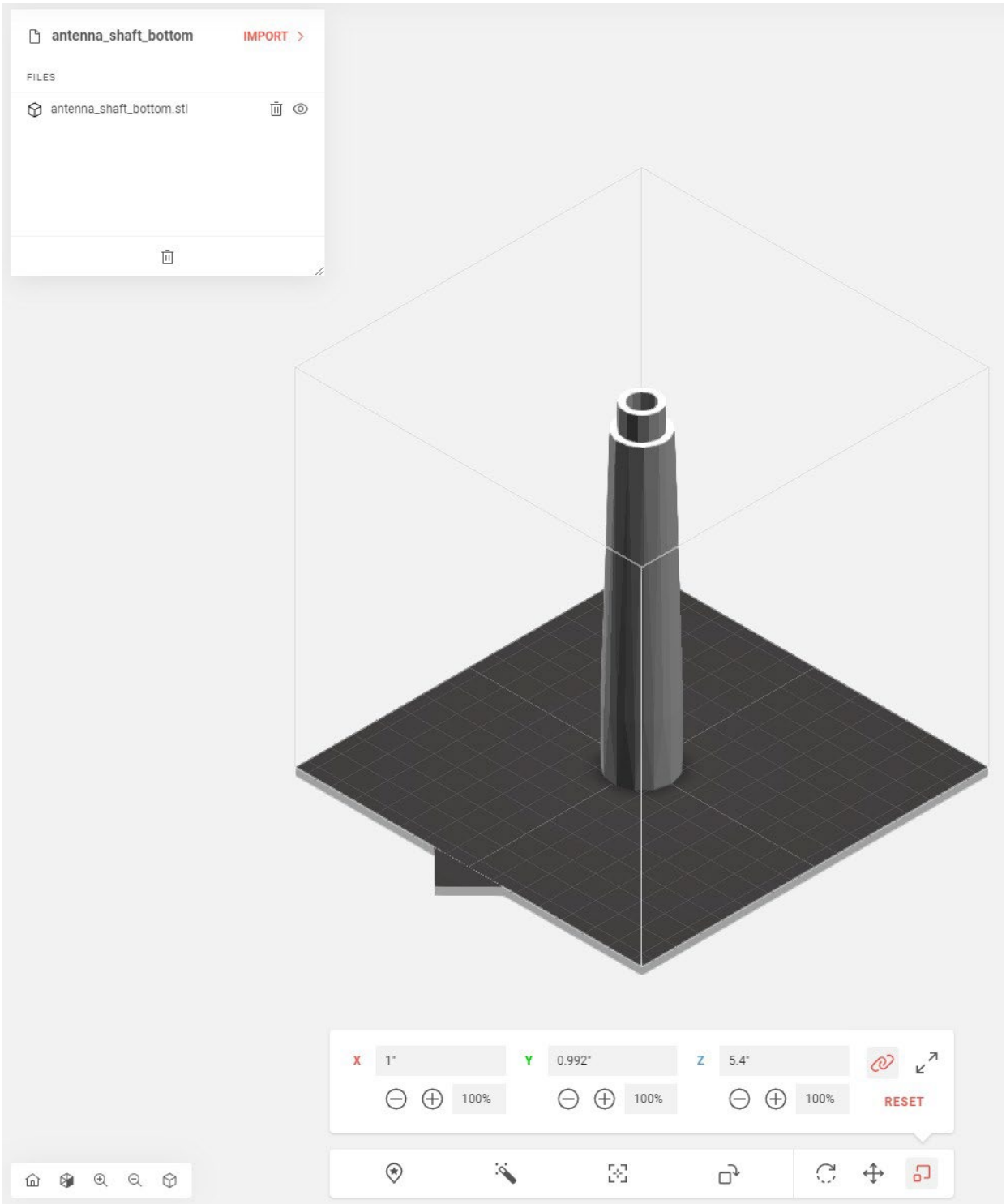

Figure 7 –Antenna Shaft Top

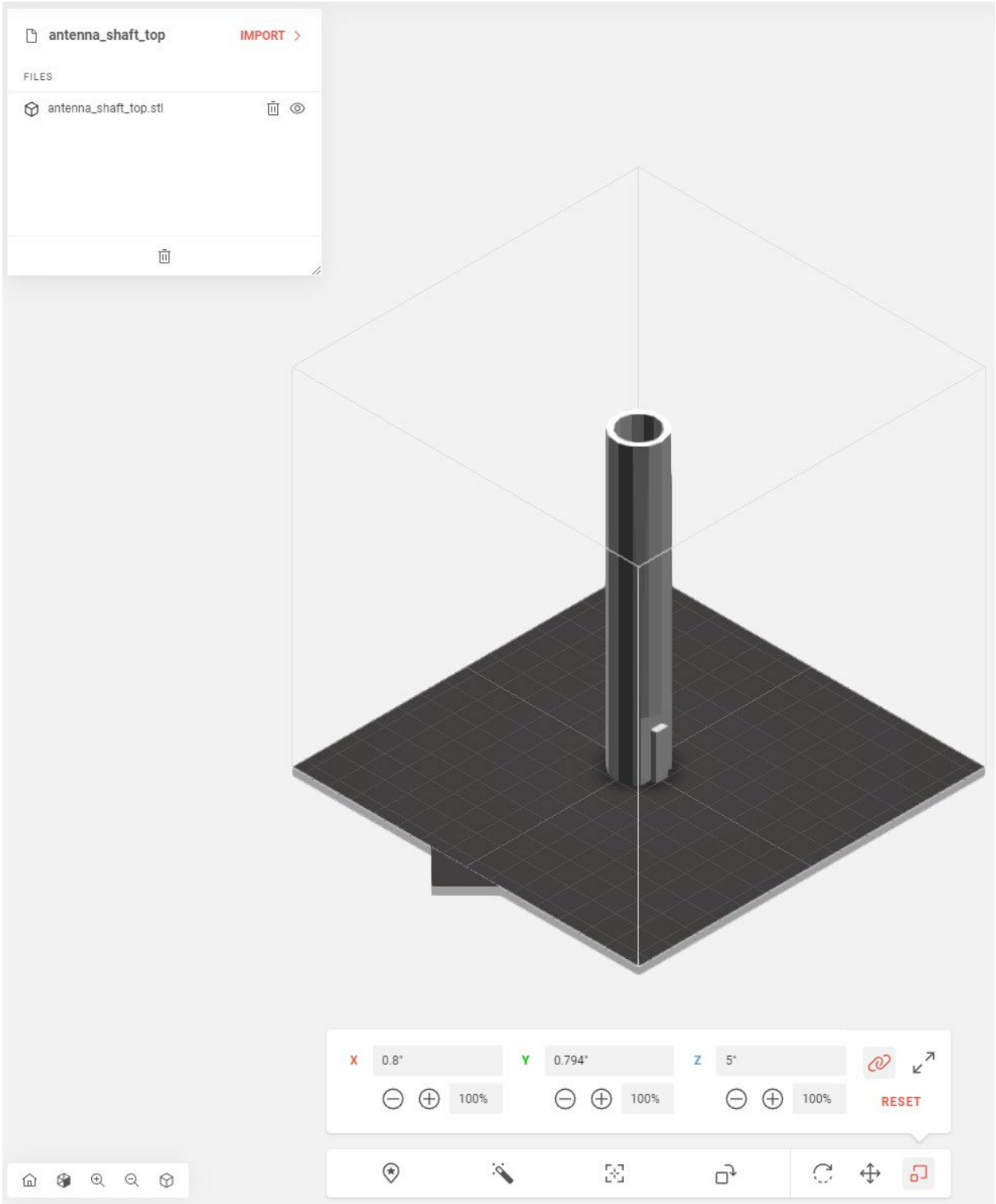

Figure 8 –Antenna Shaft Top

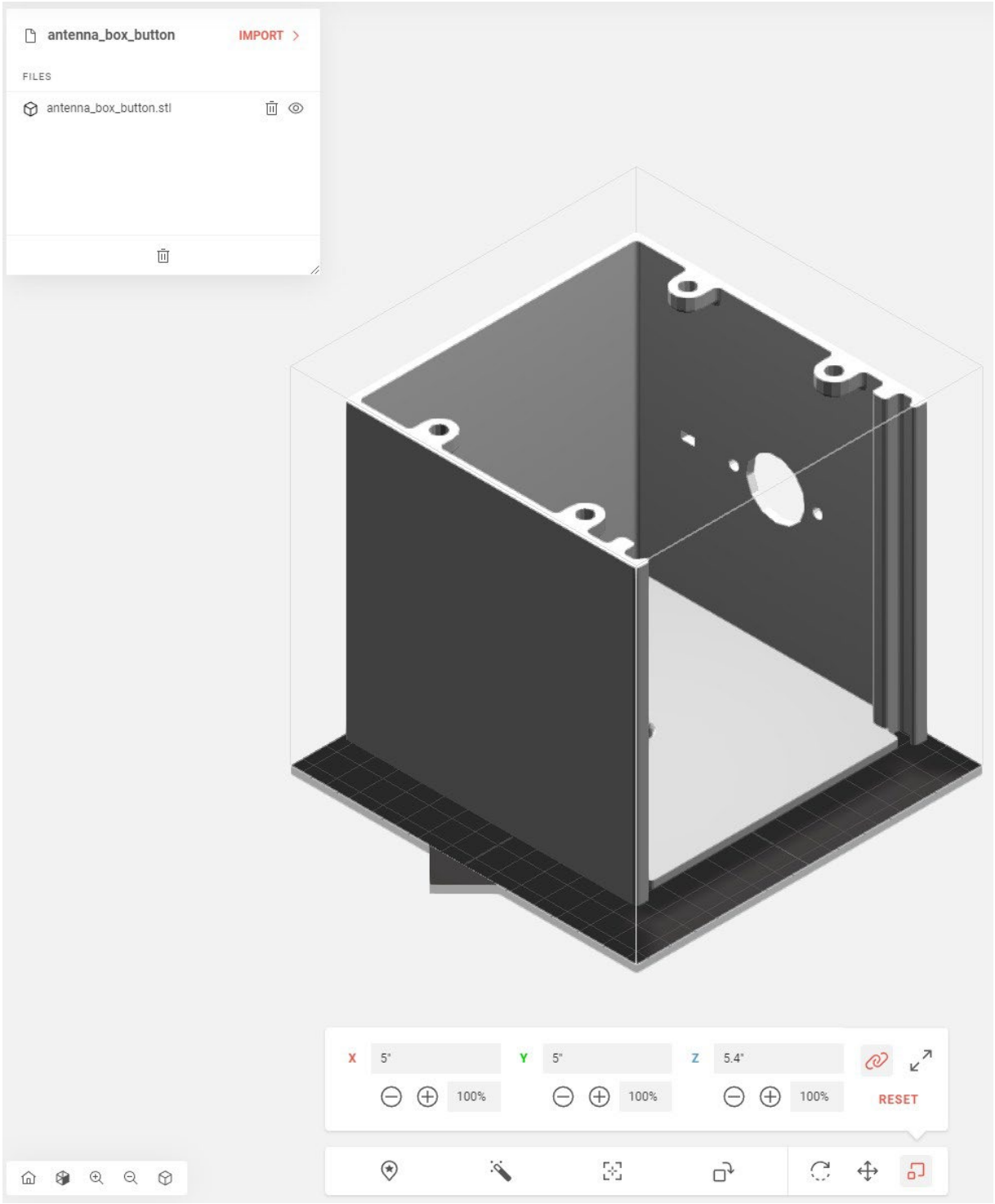

Figure 9 –Antenna Box for Button Task

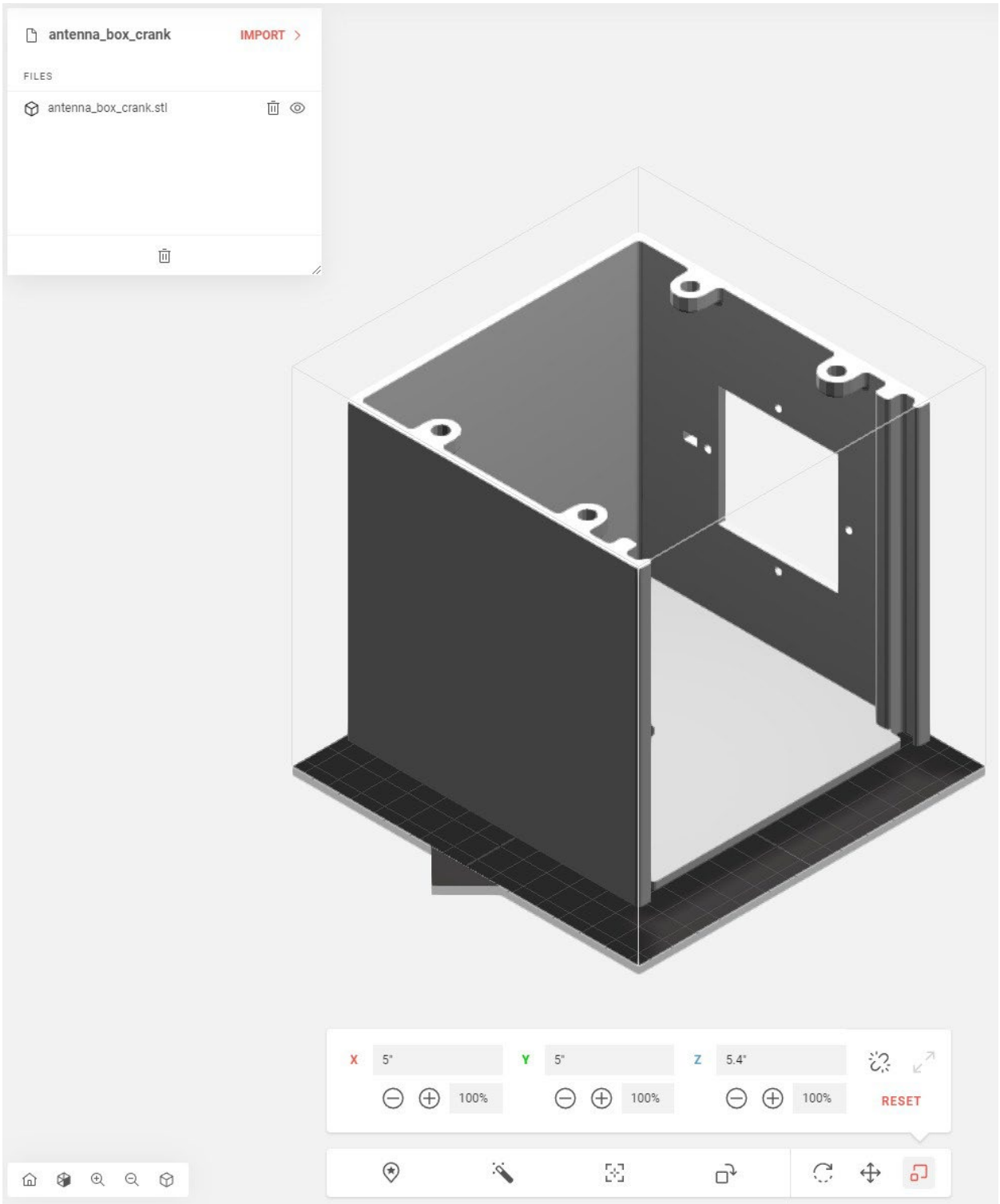

Figure 10 –Antenna Box for Crank Task

Figure 11 - Crank Housing

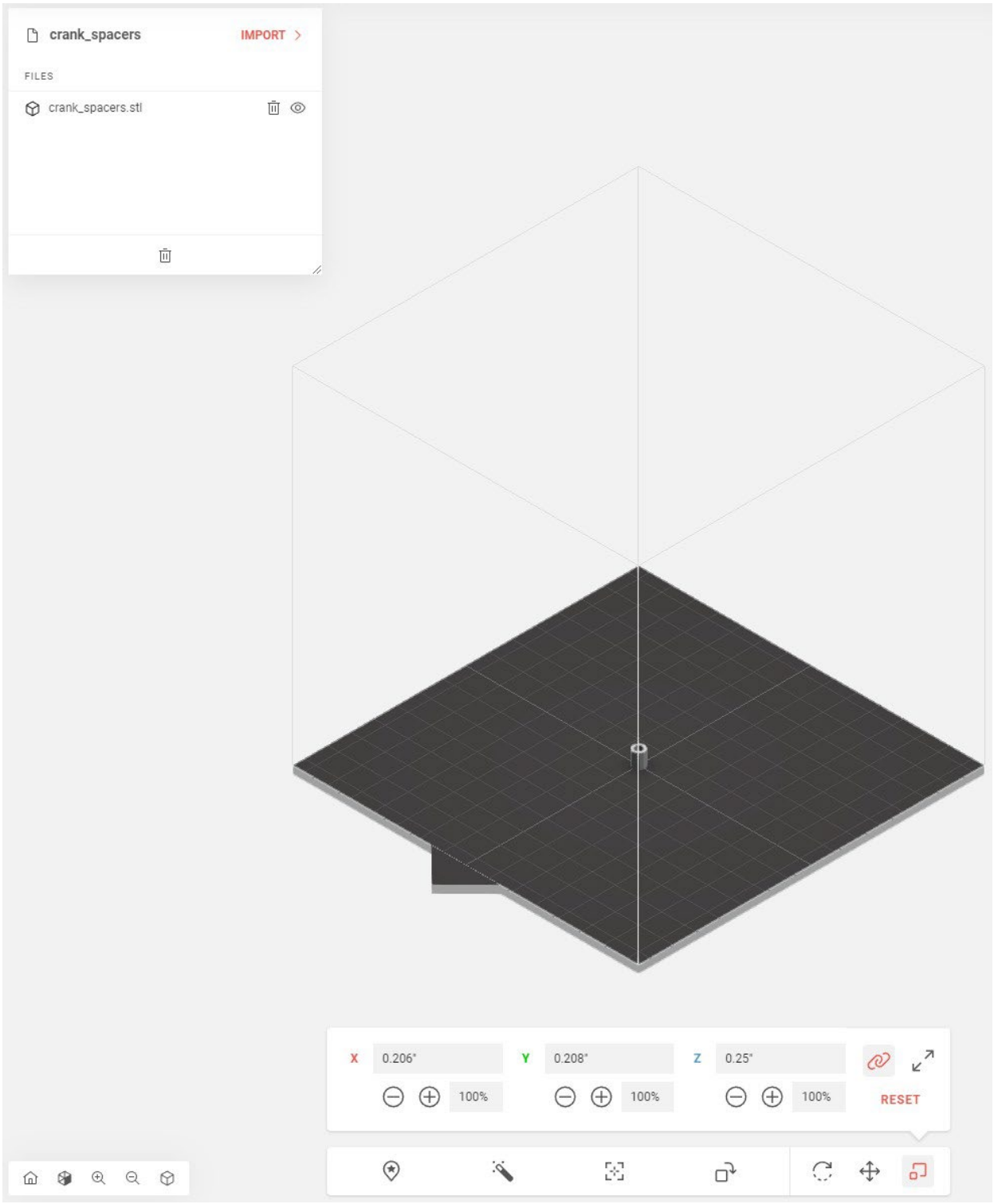

Figure 12 -Crank Spacers

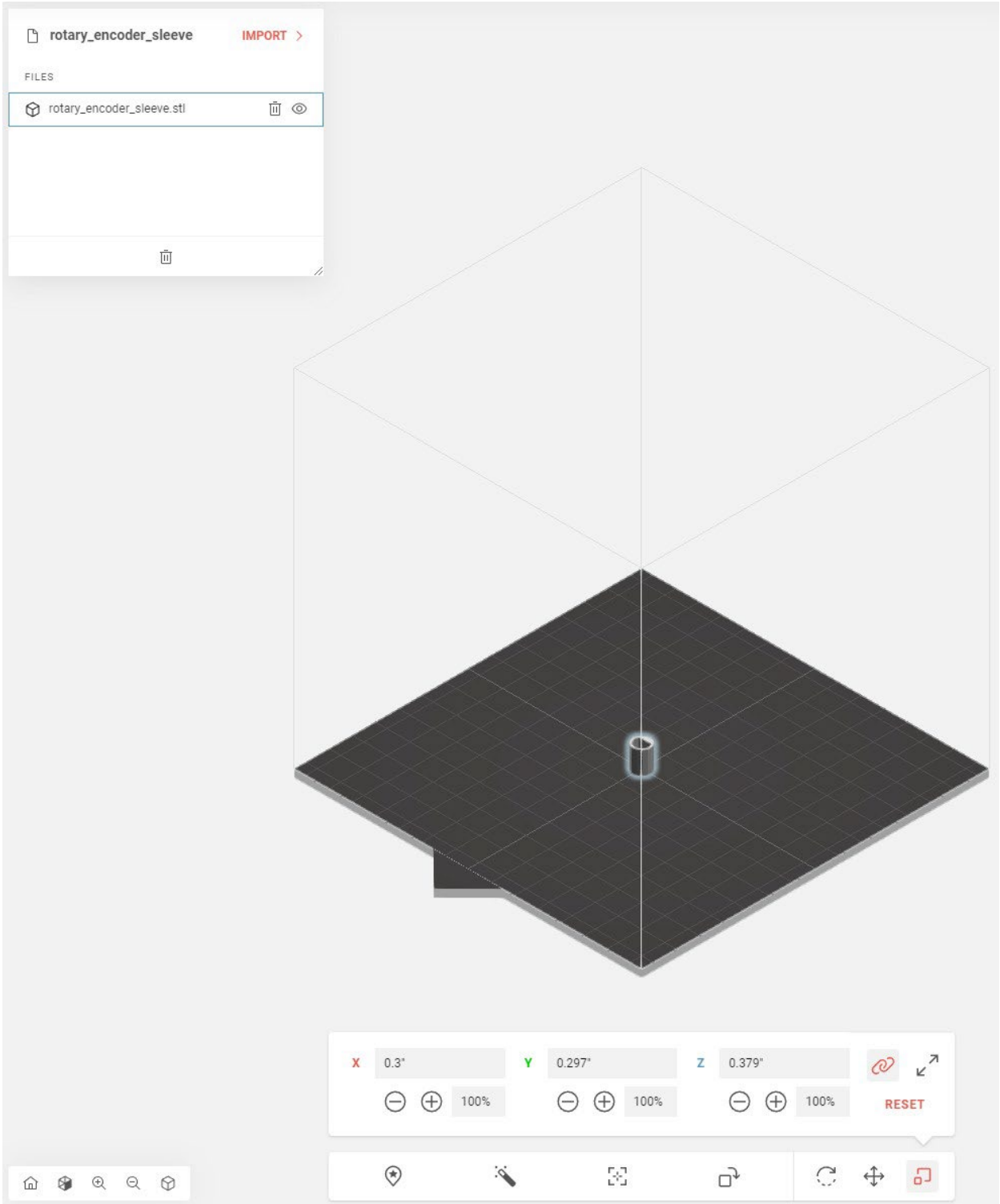

Figure 13 – Rotary encoder sleeve

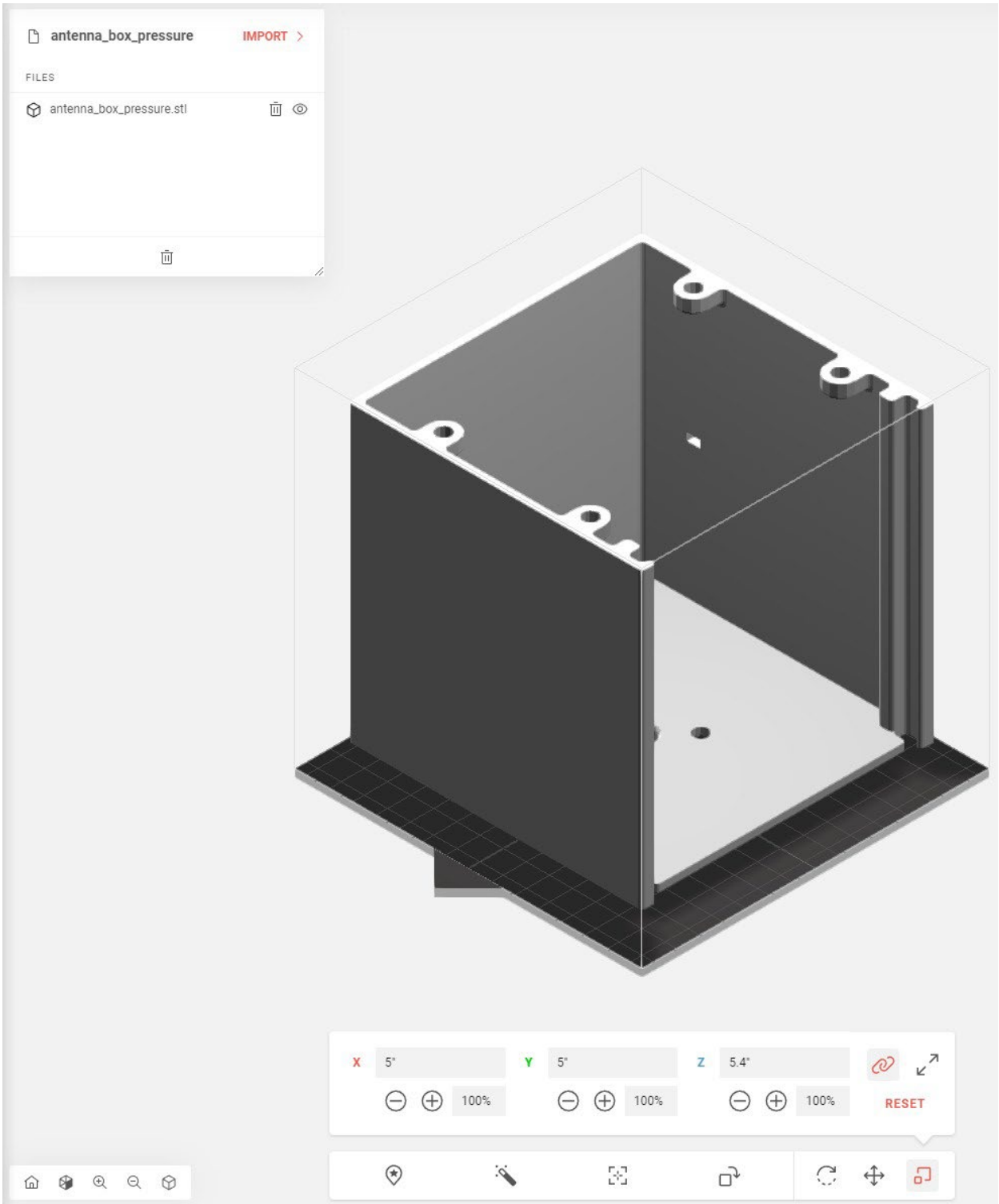

Figure 14 –Antenna Box for Pressure Task

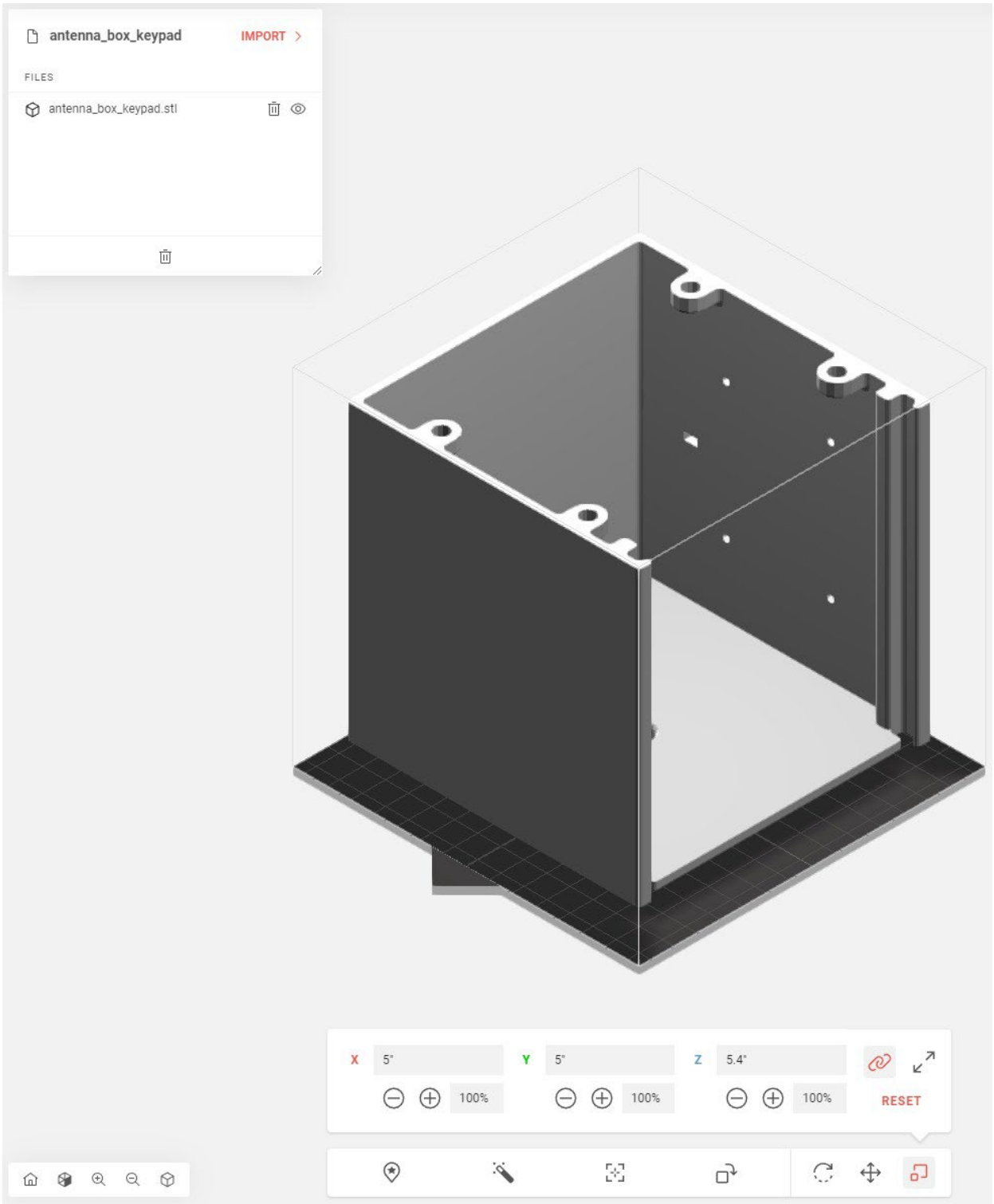

Figure 15 –Antenna Box for Keypad Task

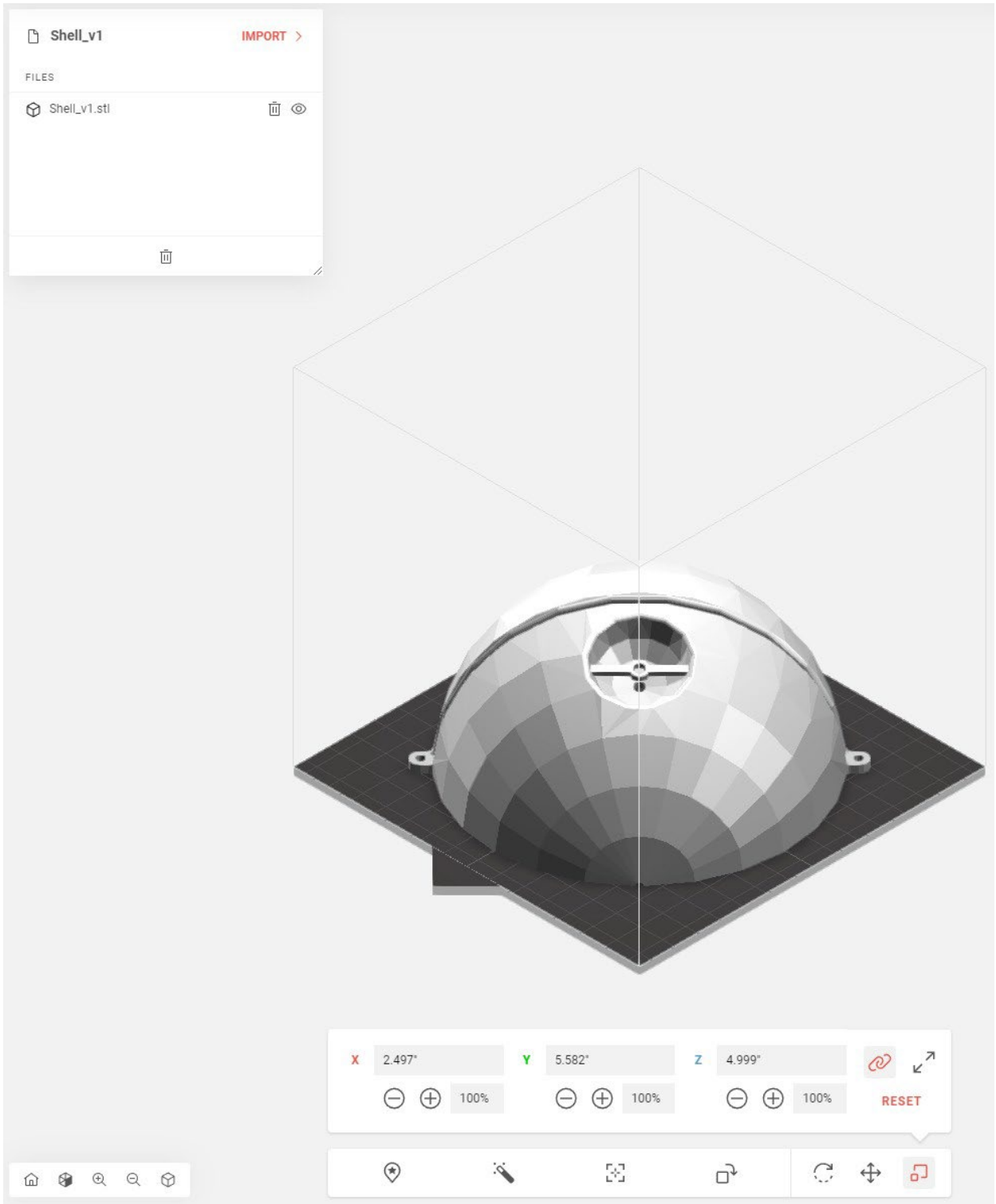

Figure 16 -Earth Shell V1

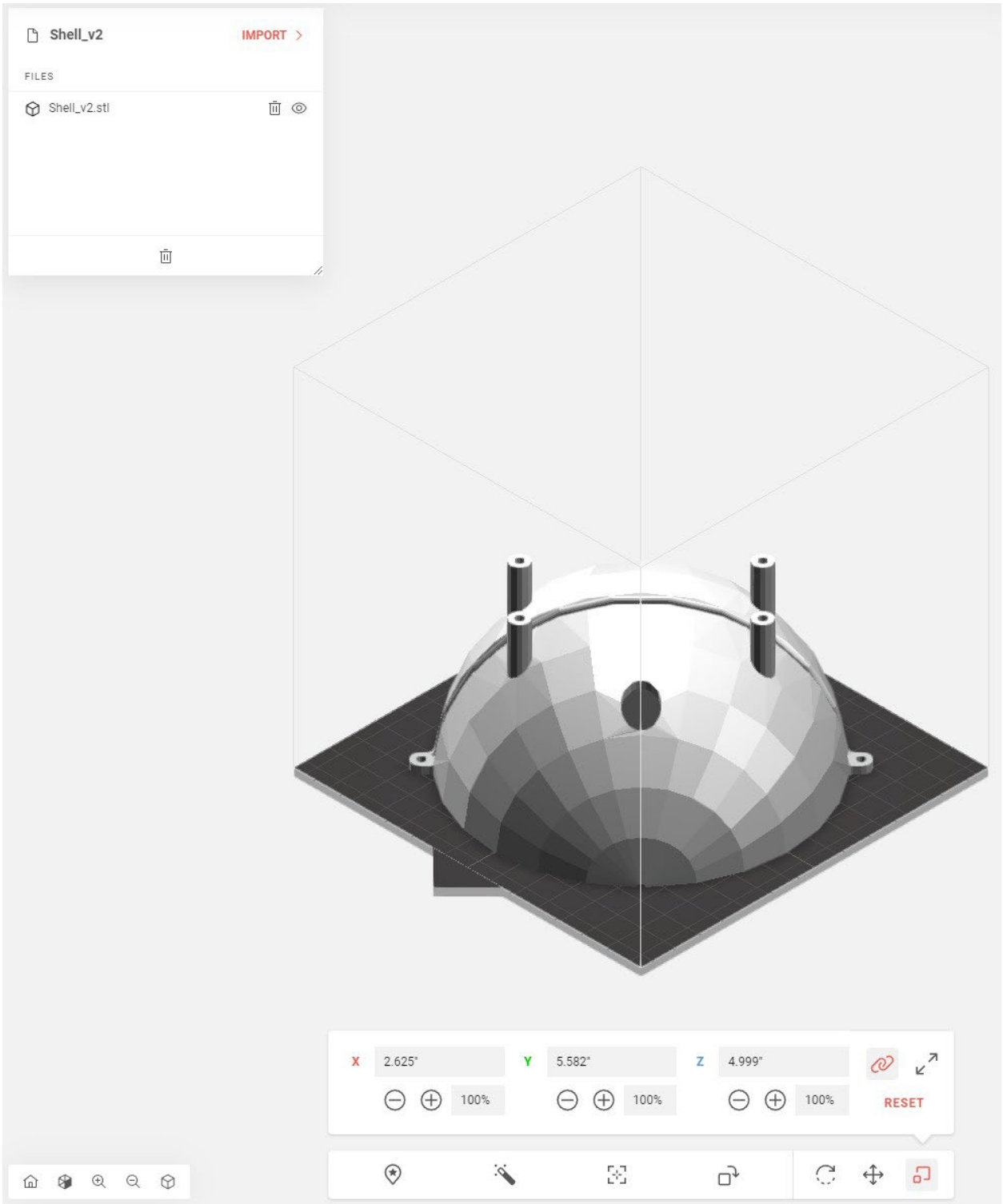

Figure 17 -Earth Shell V2

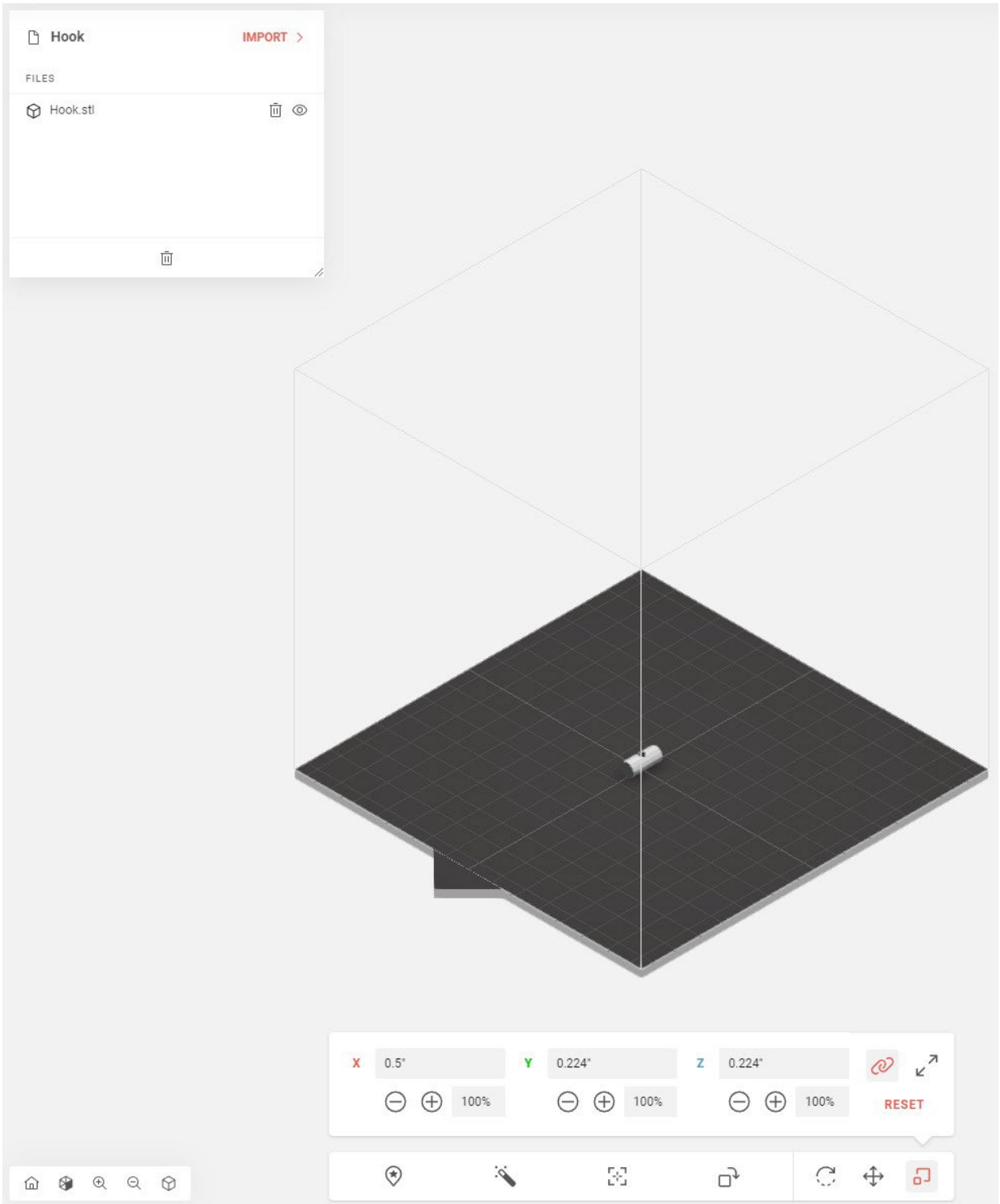

Figure 18 -Earth Shell Hanging Hook