

marhar исправлен путь для img.008

е475978-6 лет назад

🕒 История

⋮

114 lines (80 loc) · 5.37 KB

Предварительный просмотр

Код

Виноват

Raw

⋮

Протокол оценки FDM

Загрузите [последнюю тестовую геометрию](#) (единицы измерения указаны в мм) из папки FDM-протокола и распечатайте геометрию с использованием нити ESUN PLA + Cool White, доступной в размерах [1,75 мм](#) и [2,85 мм](#), используя “стандартные” настройки (т.е. Все настройки по умолчанию). Очень важно использовать один и тот же материал, поскольку реологические и термические свойства материалов могут сильно различаться у разных производителей, что фактически сводит на нет любые результаты, полученные без контроля свойств материала.

Что тестирует эта геометрия:

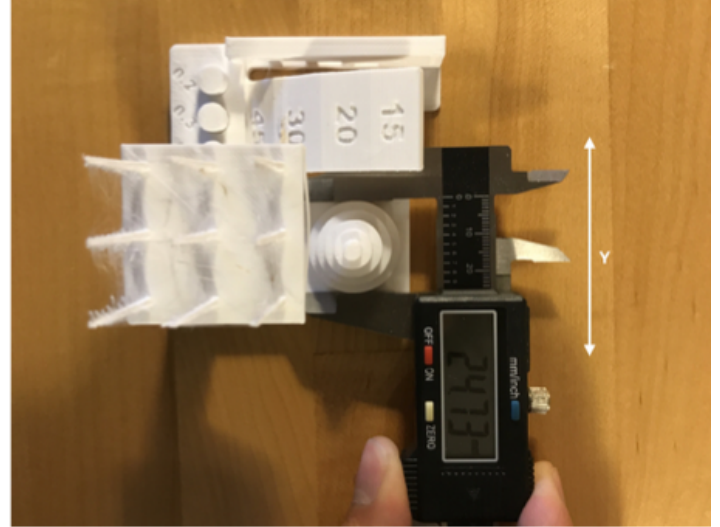
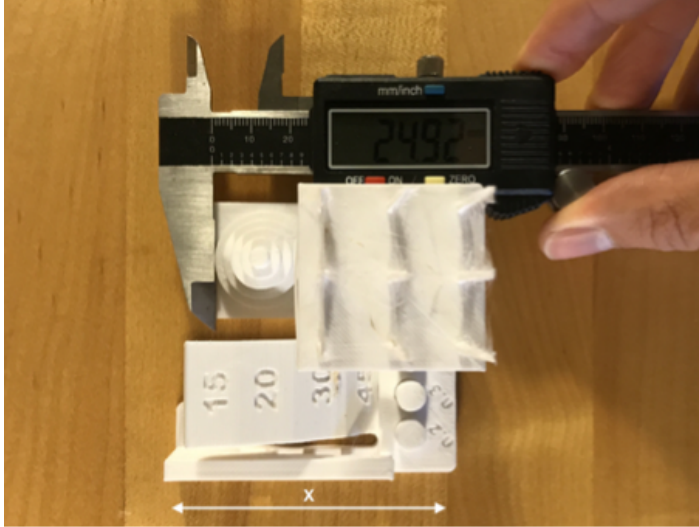
- Точность размеров (люфт необязателен)
- Разрешение отрицательных функций
- Положительное разрешение функций / точное управление потоком
- Основные возможности навеса
- Основные возможности объединения
- XY ringing
- Выравнивание по оси Z

Что не тестирует эта геометрия:

- Деформация / адгезия
- Возможности нависания над рядом функций (вогнутые, выпуклые и т.д.)
- Обработка срезом деталей тонкой плоскости XY (положительный и отрицательный пробелы)
- Complex bridging situations
- Surface finish over a range of features
- Extrusion temperature optimization
- Support structure/geometry interaction

This geometry can be used both to characterize and compare different 3D printers and to tune parameters relevant to different features present in the geometry.

1. Dimensional Accuracy

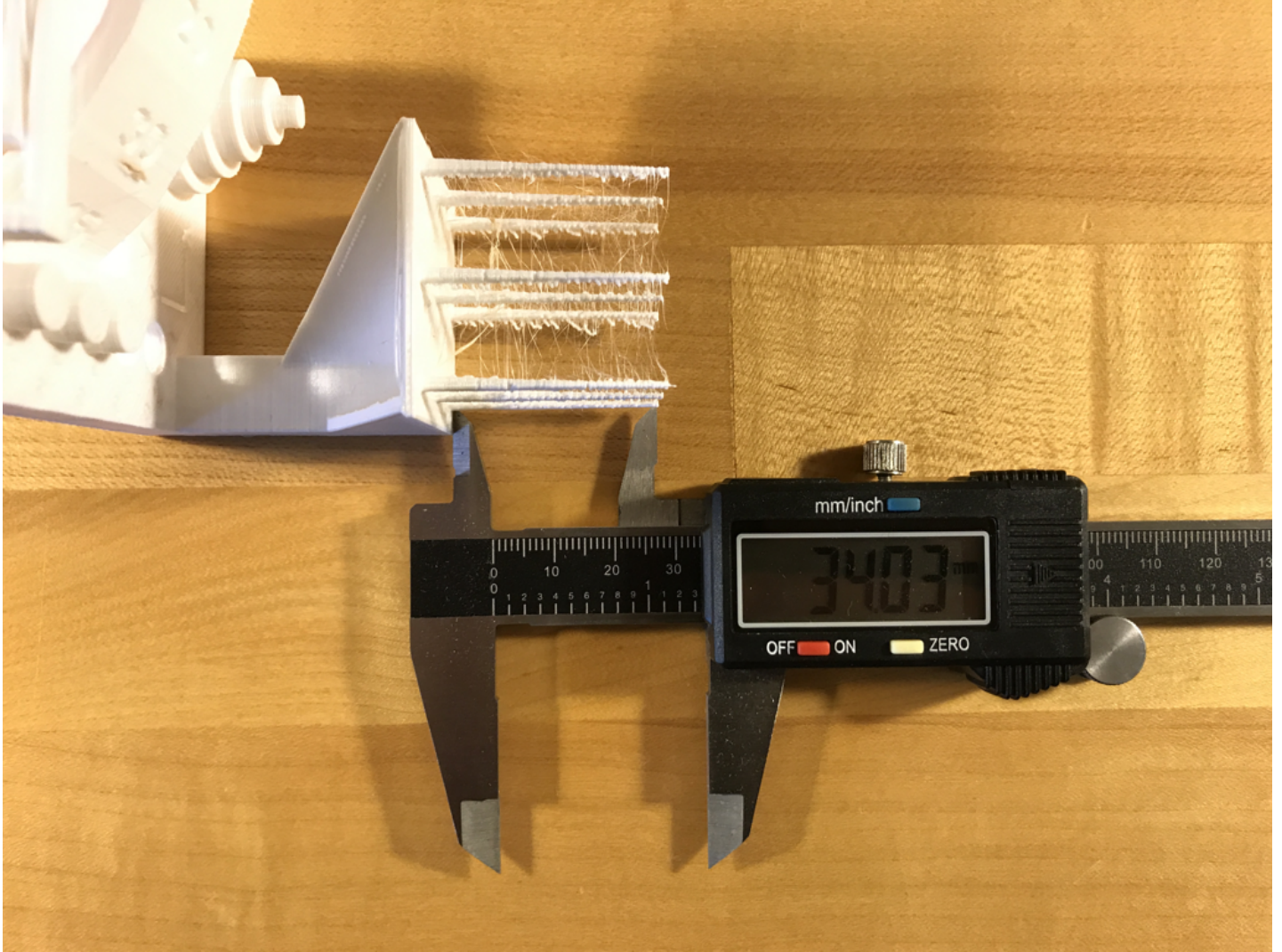


To assess dimensional accuracy, measure each tier of the dimensional accuracy stack and record the absolute different between the target and the measured dimensions in a table like so:

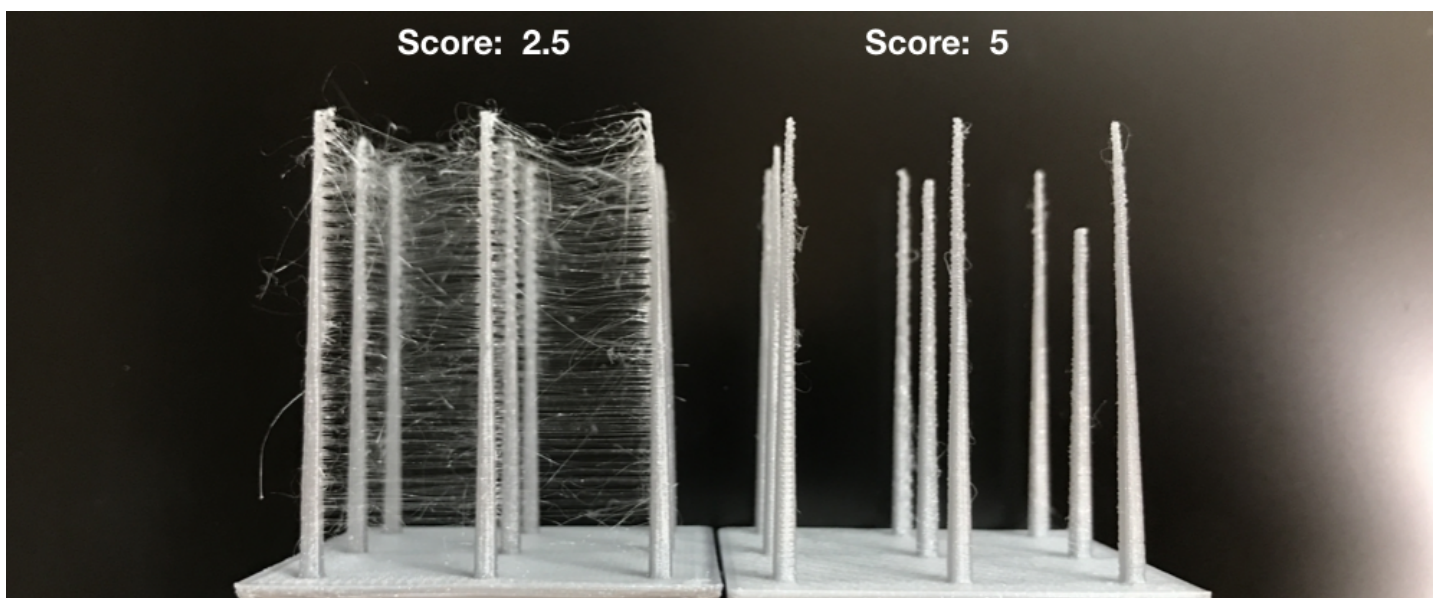
Target	Measured X	Measured Y	X Error	Y Error
25	24.82	24.69	0.18	0.31
20	19.93	19.75	0.07	0.25
15	14.99	14.82	0.01	0.18
10	10.01	9.85	0.01	0.15
5	4.84	4.84	0.16	0.16
Avg Err:	0.082	0.21		
Average of avg. X and avg. Y error	0.146			
Difference between avg. X and avg. Y error	0.128			

- Record a "1" if the magnitude of the overall average error is greater than 0.40mm.
 - Record a "2" if the magnitude of the overall average error is between 0.31 and 0.40mm.
 - Record a "3" if the magnitude of the overall average error is between 0.21 and 0.30mm.
 - Record a "4" if the magnitude of the overall average error is 0.11 and 0.20mm.
 - Record a "5" if the magnitude of the overall average error is between 0.0 and 0.10mm.
- While it is not explicitly scored in this evaluation, this test also reveals the presence of backlash (or incorrectly calibrated motion systems) when the average X and average Y errors are compared. A significant difference between the two values indicates a problem.

2. Fine Flow Control



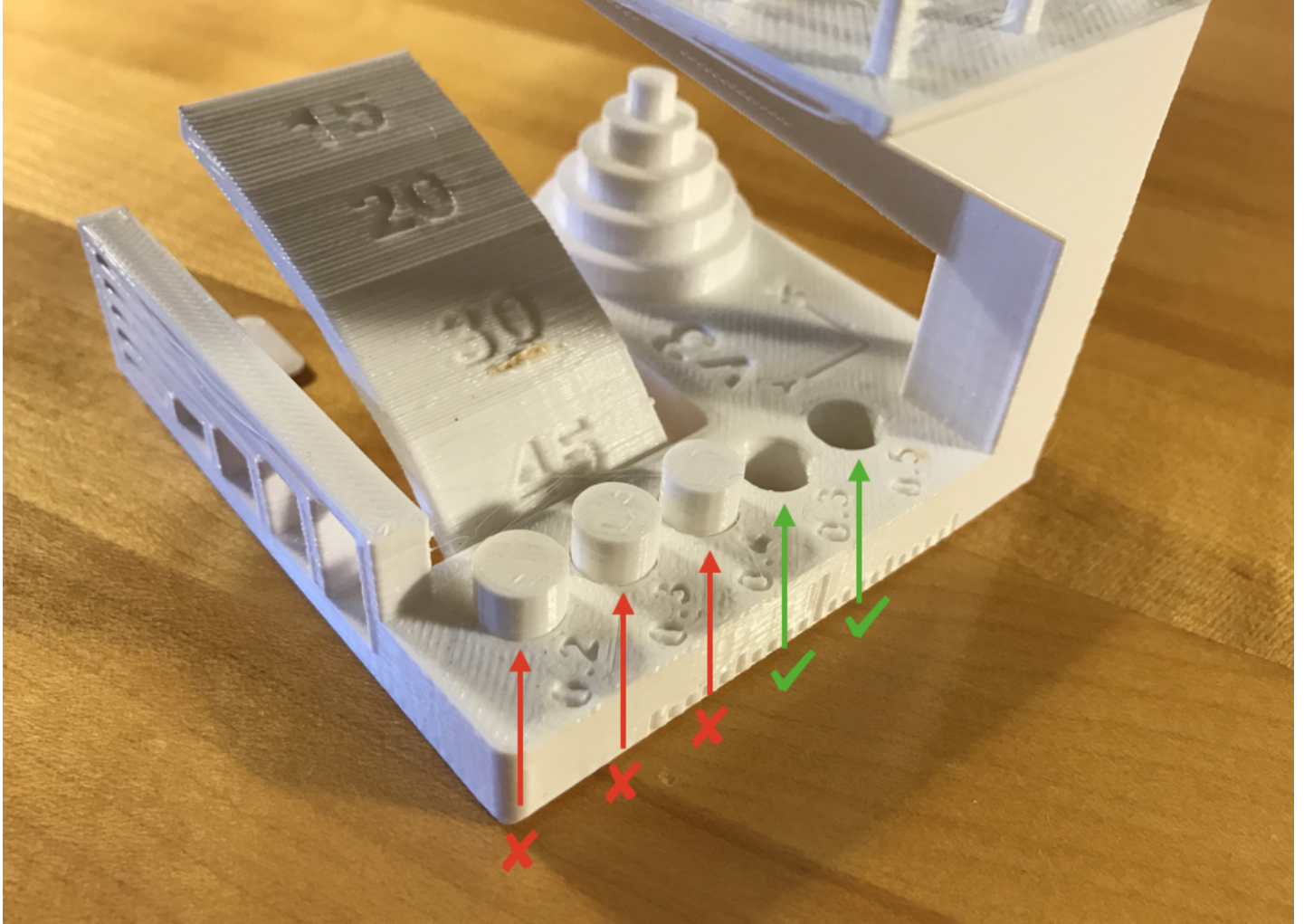
Using a pair of calipers, measure the height of the shortest spire on the top of the test print. Visually inspect for threads of material connecting the spires.



Measure the shortest spire. This print would score 2.5.

- If the spires are less than 30mm long, assign a 0.
- If the spires are greater than 30mm, but there is stringing between them, assign a 2.5.
- If the spires are greater than 30mm long and there is no stringing between them, assign a 5.

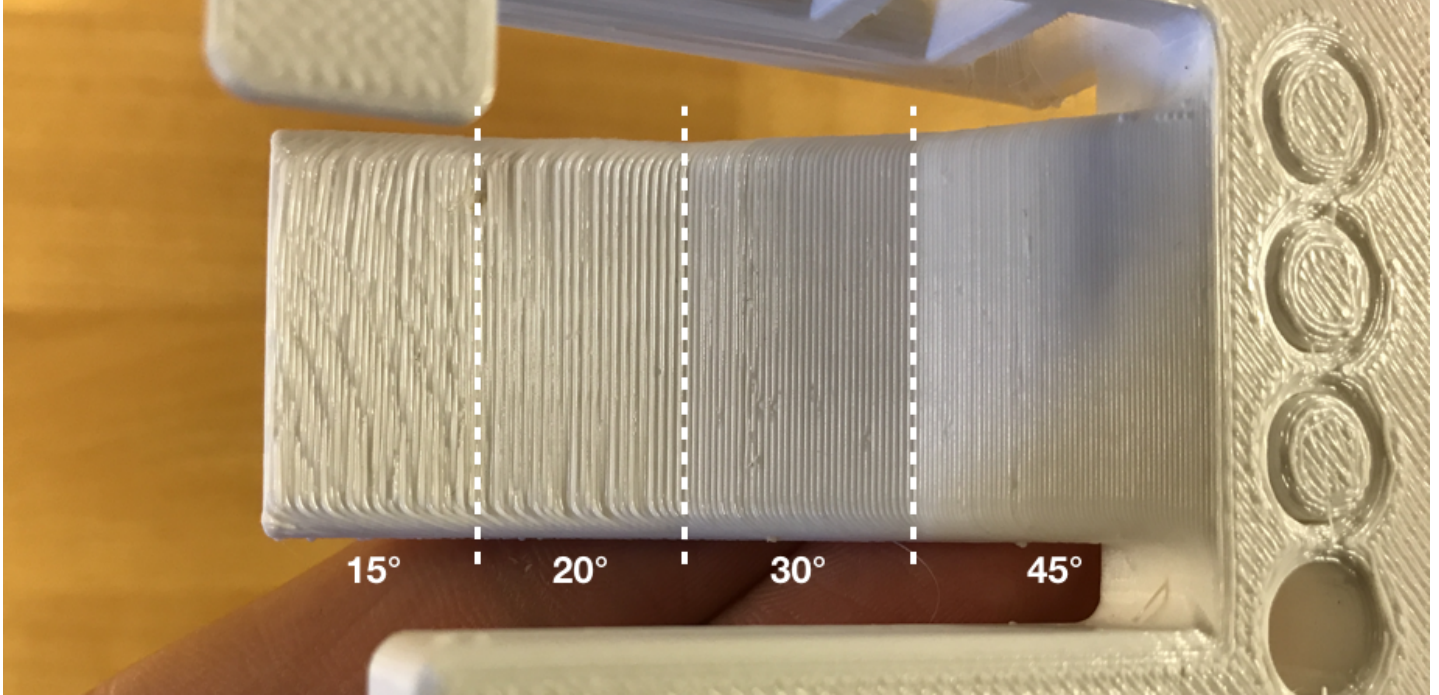
3. Fine Negative Features



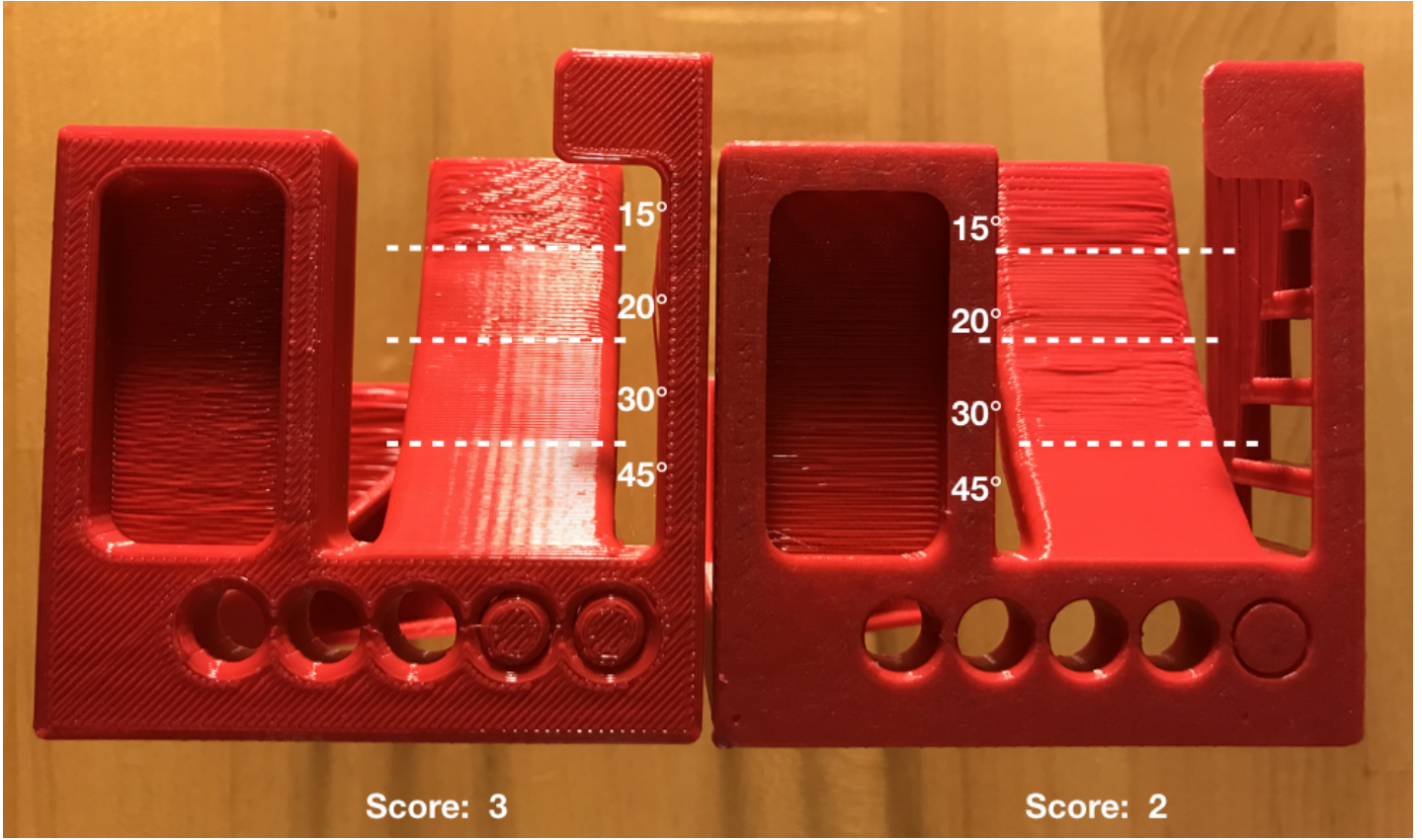
Attempt to remove all the pins from their holes using fingers (no tools). The example above would score 2.

- Record a "0" if no pins can be removed.
- Record a "1" if 1 pin can be removed.
- Record a "2" if 2 pins can be removed.
- Record a "3" if 3 pins can be removed.
- Record a "4" if 4 pins can be removed.
- Record a "5" if all pins can be removed.

4. Overhangs

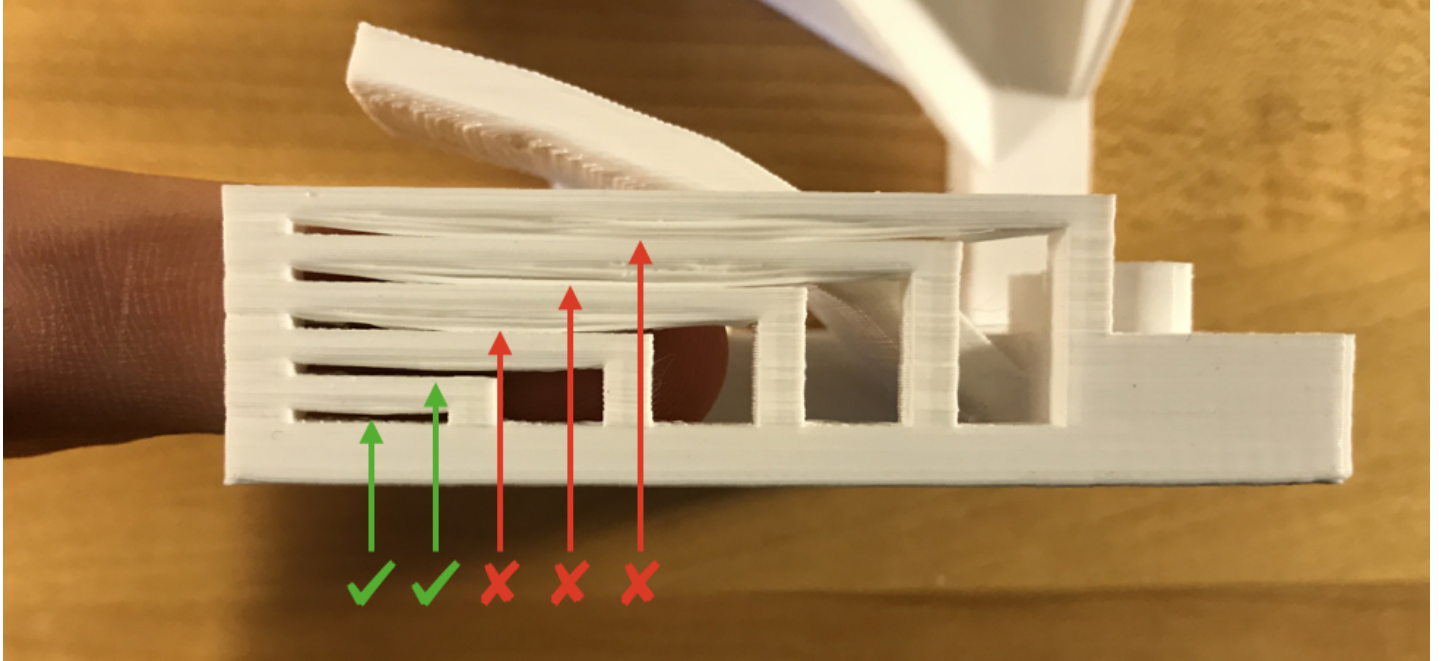


Inspect the overhang surfaces. This print would score 3.



- Record a "1" if the printer compiled the geometry but dropped loops and infill on the 15, 20, and 30 degree overhangs.
- Record a "3" if only the 15 and 20 degree surfaces differ from the 45 degree overhang.
- Record a "4" if only the 15 degree overhang differs from the 45 degree overhang.
- Record a "5" if there the surface finish between all four overhang surfaces is equivalent.

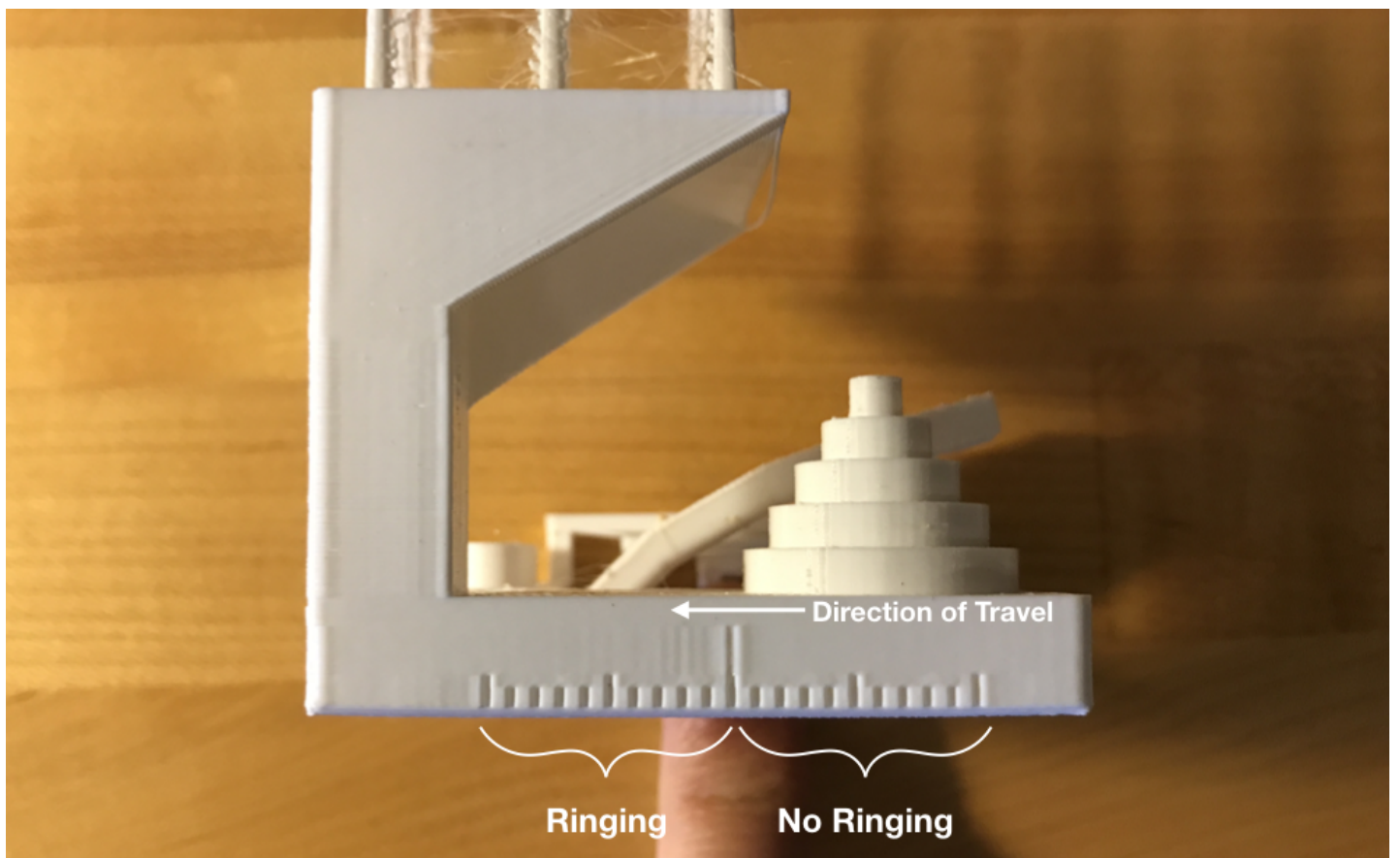
5. Bridging



Inspect for contact between bridges and the surface beneath each. This example would score 2.

- Record a "1" if more than 3 are in contact with the surfaces beneath them.
- Record a "2" if 3 bridges contact the surfaces beneath them.
- Record a "3" if 2 bridges contact the surfaces beneath them.
- Record a "4" if 1 bridge contacts the surface beneath it.
- Record a "5" if no bridges contact the surfaces beneath them.

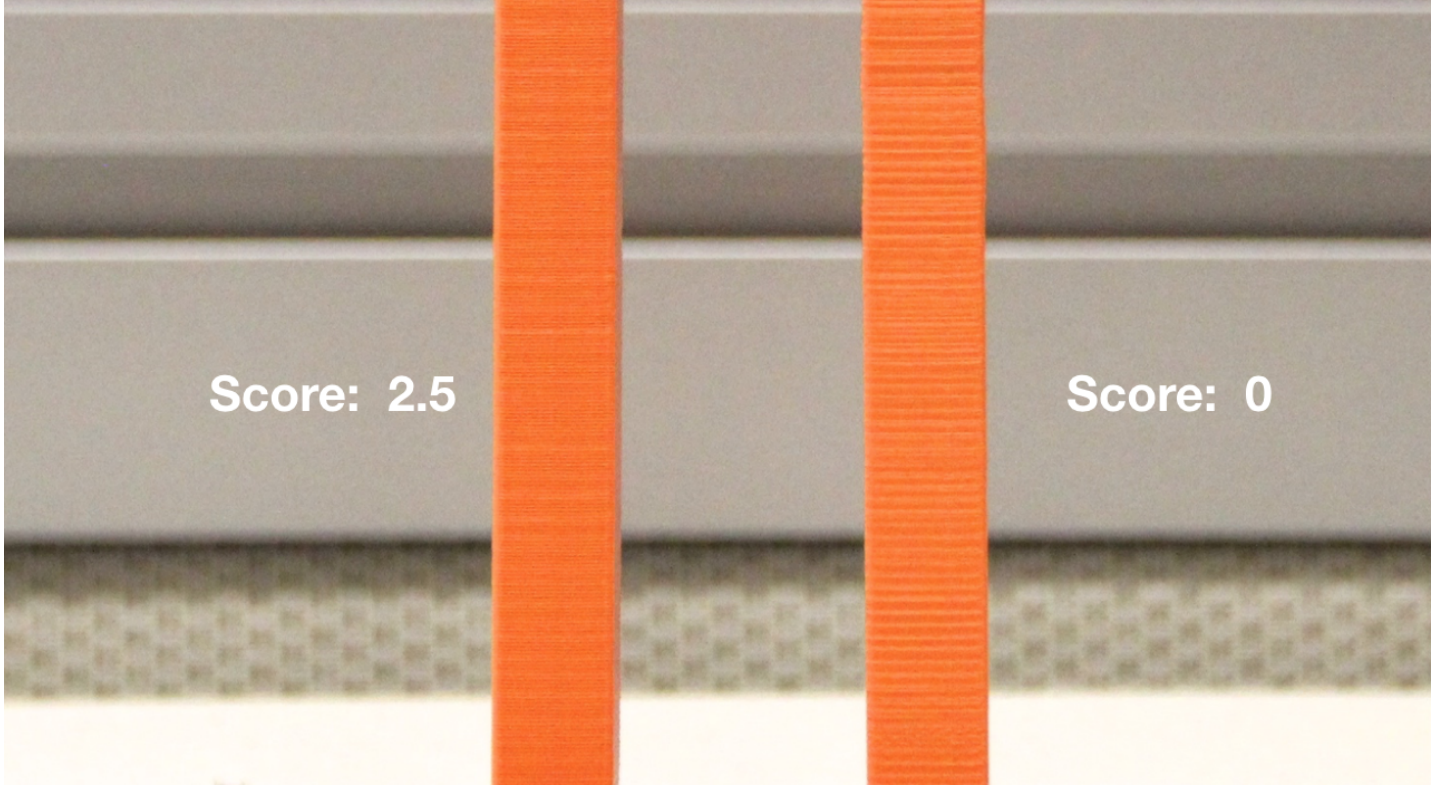
6. XY Resonance



Visually inspect the X and Y ringing features, illuminating the test print from the side to highlight any ringing captured in the print. This example would score 0.

If rippling in the X or Y axis can be observed at or past three hash marks, record a "0", otherwise, record a "2.5".

7. Z-axis alignment



If a layer registration effect with a period equal to that of the leadscrew is visible on the pillar supporting the fine positive features test, record "0," otherwise, record "2.5."

Scoring

Sum the results of each section of the test protocol. The highest possible score is 30, indicating a very well-calibrated system. For reference, a Prusa i3 MK3 scores 22.5 and a Makerbot Replicator 2 scores 18.