

- Side refers to the side of the page the laser is facing. The front is smooth and the capsules expand that direction, the back is fuzzy
- Pattern refers to the method the laser is applied to the paper. Full row indicates that the laser strafes across the whole page, building each row of dots simultaneously. Individual indicates that the laser builds each dot until it is complete before moving onto the next

#### Universal Laser Systems CO2; model PLS6.75; 75 W

- Test 1
  - Power: 35
  - Speed: 40%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Burned straight through
  - Back Visual: Burned straight through
  - Tactility: Insufficient
- Test 2
  - Power: 35
  - Speed: 40%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Burned straight through
  - Back Visual: Burned straight through
  - Tactility: Insufficient
- Test 3
  - Power: 10
  - Speed: 40%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Orange burn marks
  - Tactility: Too subtle for commercial use
- Test 4
  - Power: 10
  - Speed: 40%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Orange burn marks
  - Back Visual: Slight discoloration
  - Tactility: None
- At 40% speed, powers over 10 risk burning through paper

#### Razor CO2; model Razor Duo 3; 30 W

- Test 1
  - Power: 35
  - Speed: 40%

- Side: Back
  - Pattern: Full row
  - Front Visual: Burned straight through
  - Back Visual: Burned straight through
  - Tactility: Insufficient
- Test 2
  - Power: 10
  - Speed: 200%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight discoloration
  - Back Visual: Orange burn marks
  - Tactility: None
- Test 3
  - Power: 30
  - Speed: 200%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others. First potentially sufficient test.
- Between tests 2 and 3, powers between 10 and 35 were used, and the tactility slowly increased
- Test 4
  - Power: 30
  - Speed: 200%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Orange burn marks
  - Back Visual: Very subtle discoloration
  - Tactility: Insufficient
- Test 5
  - Power: 28
  - Speed: 200%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others. New best test.
- Test 5
  - Power: 35
  - Speed: 250%

- Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others.
- Test 6
  - Power: 35
  - Speed: 225%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others. New best test.
- Test 7
  - Power: 32
  - Speed: 235%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others. New best test.
- Test 8
  - Power: 35
  - Speed: 235%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others. New best test.
- Test 9
  - Power: 11
  - Speed: 200%
  - Side: Back
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable. Some dots were more prominent than others. Potential new best test.
- Test 10
  - Power: 8

- Speed: 200%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Discoloration
  - Back Visual: Very subtle discoloration
  - Tactility: None
- Test 11
  - Power: 22
  - Speed: 200%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Orange burn marks
  - Back Visual: Discoloration
  - Tactility: Insufficient
- Between tests 10 and 11, powers between 8 and 22 were used, and the braille became more visually noticeable but tactility remained poor
- Test 12
  - Power: 10
  - Speed: 200%
  - Side: Front
  - Pattern: Individual
  - Front Visual: Orange burn marks
  - Back Visual: Discoloration
  - Tactility: Insufficient
- Test 13
  - Power: 10
  - Speed: 300%
  - Side: Front
  - Pattern: Individual
  - Front Visual: Discoloration
  - Back Visual: Very subtle discoloration
  - Tactility: None
- Between tests 12 and 13, speeds between 200% and 300% were used, and the braille became less visually noticeable but tactility remained poor
- Test 14
  - Power: 21
  - Speed: 200%
  - Side: Back
  - Pattern: Full row
  - Front Visual: Slight raised bumps
  - Back Visual: Hollow craters inversely expanded
  - Tactility: Noticeable, although rather subtle. Some dots were more prominent than others.
- Test 15

- Power: 37
- Speed: 260%
- Side: Back
- Pattern: Full row
- Front Visual: Some raised bumps, but mostly burned-through holes
- Back Visual: Hollow craters inversely expanded and burned through holes
- Tactility: Inconsistent
- Between tests 14 and 15, both speed and power were slowly increased, but beyond test 14 more holes were burnt through and tactility did not improve
- Test 16
  - Power: 10
  - Speed: 200%
  - Side: Back
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: Orange burn marks
  - Tactility: Noticeable. Some dots were more prominent than others.
- Test 17
  - Power: 14
  - Speed: 240%
  - Side: Back
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: Orange burn marks
  - Tactility: Protrusive. Some dots were more prominent than others. Potential new best test.
- Test 18
  - Power: 14
  - Speed: 250%
  - Side: Back
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: Orange burn marks
  - Tactility: Protrusive. Some dots were more prominent than others. Potential new best test.
- Between tests 16 and 17, both speed and power were slowly increased, but very little change was detected beyond very slightly more prominent dots

Blue Diode Laser; model xTool D1 Pro; 5 W

- Test 1
  - Power: 100
  - Speed: 100%
  - Side: Front
  - Pattern: Full row
  - Front Visual: Raised bumps

- Back Visual: None
  - Tactility: Noticeable. Some dots were more prominent than others.
- Test 2
  - Power: 100
  - Speed: 100%
  - Side: Back
  - Pattern: Full row
  - Front Visual: None
  - Back Visual: Orange burn marks
  - Tactility: None
- Test 3
  - Power: 100
  - Speed: 20%
  - Side: Back
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: Orange burn marks
  - Tactility: Noticeable. Some dots were more prominent than others.
- Test 4
  - Power: 100
  - Speed: 30%
  - Side: Front
  - Pattern: Individual
  - Front Visual: Raised bumps
  - Back Visual: None
  - Tactility: Noticeable. Some dots were more prominent than others. Potential new best test.