

## Online Resource 11

**Table S5** Vertex position, inclination angle, distance-to-monitor, centroid and area errors for the 12x12 and 8x8 cm marker sizes (n = 5832) with marker positions 1-9

|                          | Marker position | N   | Min  | Max  | Mean | SD  |
|--------------------------|-----------------|-----|------|------|------|-----|
| Inclination angle (°)    | 1               | 108 | 2.2  | 7.1  | 4.8  | 1.2 |
|                          | 2               | 108 | 4.6  | 9.9  | 6.8  | 1.5 |
|                          | 3               | 108 | 1.7  | 5.7  | 3.7  | 0.9 |
|                          | 4               | 108 | 0    | 4.3  | 1.3  | 1.1 |
|                          | 5               | 108 | 1.7  | 9.2  | 5.2  | 1.7 |
|                          | 6               | 108 | 4.9  | 13.6 | 8.5  | 1.6 |
|                          | 7               | 108 | 2.9  | 9.9  | 5.5  | 1.6 |
|                          | 8               | 108 | 0    | 2.1  | 0.7  | 0.5 |
|                          | 9               | 108 | 0    | 3.3  | 1.3  | 0.8 |
| Distance-to-monitor (mm) | 1               | 108 | 0.7  | 19.9 | 11.0 | 4.9 |
|                          | 2               | 108 | 0    | 6.1  | 2.4  | 1.8 |
|                          | 3               | 108 | 0.5  | 15.0 | 6.5  | 3.8 |
|                          | 4               | 108 | 2.9  | 32.9 | 12.7 | 9.7 |
|                          | 5               | 108 | 0    | 31.0 | 11.1 | 8.9 |
|                          | 6               | 108 | 0.2  | 13.2 | 7.4  | 3.3 |
|                          | 7               | 108 | 3.7  | 23.4 | 13.7 | 5.4 |
|                          | 8               | 108 | 12.2 | 30.6 | 21.7 | 4.4 |
|                          | 9               | 108 | 6.0  | 16.6 | 11.0 | 2.7 |
| Vertex position (mm)     | 1               | 648 | 0.1  | 3.9  | 1.5  | 0.7 |
|                          | 2               | 648 | 0    | 3.5  | 1.1  | 0.5 |
|                          | 3               | 648 | 0.4  | 8.1  | 1.8  | 0.8 |
|                          | 4               | 648 | 0.1  | 14.8 | 2.9  | 3.1 |
|                          | 5               | 648 | 0    | 12.5 | 3.1  | 3.3 |
|                          | 6               | 648 | 0.8  | 7.8  | 3.3  | 1.5 |
|                          | 7               | 648 | 0.1  | 12.8 | 2.9  | 2.4 |
|                          | 8               | 648 | 0.1  | 8.9  | 1.7  | 1.4 |
|                          | 9               | 648 | 0    | 2.0  | 0.8  | 0.4 |

|                        |          |   |     |       |      |      |     |
|------------------------|----------|---|-----|-------|------|------|-----|
| Centroid position (mm) |          | 1 | 108 | 0.5   | 2.0  | 1.1  | 0.4 |
|                        |          | 2 | 108 | 0.2   | 1.5  | 0.8  | 0.3 |
|                        |          | 3 | 108 | 0.5   | 3.2  | 1.3  | 0.5 |
|                        |          | 4 | 108 | 0.9   | 9.0  | 2.8  | 2.7 |
|                        |          | 5 | 108 | 0.2   | 7.4  | 2.7  | 2.6 |
|                        |          | 6 | 108 | 1.8   | 3.9  | 2.8  | 0.5 |
|                        |          | 7 | 108 | 0.3   | 6.6  | 2.3  | 1.8 |
|                        |          | 8 | 108 | 0.3   | 4.9  | 1.3  | 1.1 |
|                        |          | 9 | 108 | 0     | 0.8  | 0.4  | 0.2 |
| Area (%)               | Absolute | 1 | 108 | 0     | 3.8  | 1.1  | 0.8 |
|                        |          | 2 | 108 | 0.1   | 3.4  | 1.5  | 0.9 |
|                        |          | 3 | 108 | 0     | 5.5  | 1.7  | 1.1 |
|                        |          | 4 | 108 | 0     | 15.5 | 4.5  | 4.8 |
|                        |          | 5 | 108 | 0     | 12.5 | 4.3  | 4.6 |
|                        |          | 6 | 108 | 1.2   | 8.0  | 4.8  | 1.2 |
|                        |          | 7 | 108 | 0     | 14.1 | 3.9  | 3.7 |
|                        |          | 8 | 108 | 0.1   | 11.3 | 4.0  | 2.4 |
|                        |          | 9 | 108 | 0     | 4.7  | 1.7  | 0.9 |
|                        | Relative | 1 | 108 | -2.2  | 3.8  | 0.7  | 1.1 |
|                        |          | 2 | 108 | -3.4  | 2.1  | -1.3 | 1.1 |
|                        |          | 3 | 108 | -3.8  | 5.5  | 1.6  | 1.3 |
|                        |          | 4 | 108 | -15.5 | 4.9  | -1.7 | 6.4 |
|                        |          | 5 | 108 | -12.5 | 4.3  | -2.9 | 5.6 |
|                        |          | 6 | 108 | -8.0  | -1.2 | -4.8 | 1.2 |
|                        |          | 7 | 108 | -14.1 | 2.6  | -3.0 | 4.5 |
|                        |          | 8 | 108 | -11.3 | 5.8  | 2.2  | 4.1 |
|                        |          | 9 | 108 | -0.6  | 4.7  | 1.7  | 0.9 |

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**Title:** Effect of marker position and size on the registration accuracy of HoloLens in a non-clinical setting with implications for high-precision surgical tasks

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