HOLDERCARD: Original 3D Geometry and Vision Model

INDEPENDENT COMPUTATIONAL STUDY | 24 OCTOBER 2026



Direct image rendered from the original folded HOLDERCARD GLB with its included handset; no substitute stand geometry.

1 / Original model: verified source

We examined the actual published **Holdercard_Fold_Corrected_v7.glb** (11,392,644 bytes; 46 scene nodes, 41 meshes, 8 animations) in the folded animated configuration at 12.84 s. Assumed world unit: metre, consistent with the handset dimensions. SHA-256: 15B29C297291D13FAA41B87C6C42CD585FD7E6624546C63CF0B4442A69C1950B

3D dimensions: central top-facing panel 25.426 × 85.983 mm; modeled screen major-axis span 141.684 mm. The selected front strip comprises a 14-mm end region (663.596 mm²) with centre T=(0.000489, 0, −0.032966) m. This is a defined portion of the actual model, not a claim that a particular printed logo outline was measured.

2 / Geometrical method

For each eye coordinate E and real screen mesh fixation coordinate S, the line to front-print candidate point T gives the separation $\theta = \arccos((S-E)\cdot(T-E) / (|S-E|\,|T-E|))$. Optical distance difference is $\Delta D = |1/|E-T| - 1/|E-S||$ dioptres.

We tested six sampled printed-surface triangle centroids from five hypothetical eye positions against 102,420 phone body and screen triangles. **No intersections** were found for these tested rays. This does not assert that every point of every possible printed logo is unobstructed.

15 Numerical Scenarios from the Original GLB

FIVE DEFINED EYE POSITIONS × THREE SCREEN FIXATION LOCATIONS

Eye	Screen fixation	Angular separation (°)	ΔD (dioptres)	Eye-screen (m)
A	lower	1.040	0.0245	0.478
A	center	4.131	0.0191	0.477
A	upper	7.288	0.0202	0.477
B	lower	0.714	0.0119	0.690
B	center	2.853	0.0094	0.689
B	upper	5.038	0.0091	0.688
C	lower	0.632	0.0060	0.846
C	center	2.347	0.0018	0.840
C	upper	4.113	0.0086	0.835
D	lower	0.680	0.0126	0.697
D	center	2.817	0.0103	0.696
D	upper	4.980	0.0101	0.696
E	lower	0.736	0.0105	0.697
E	center	2.831	0.0080	0.695
E	upper	4.991	0.0075	0.695

Viewpoint coordinates (metres): A=(0,0.35,−0.35); B=(0,0.50,−0.50); C=(0,0.70,−0.50); D=(0.10,0.50,−0.50); E=(−0.10,0.50,−0.50).

> **Result:** angular separation between the selected printed zone and screen fixation varies with viewing configuration. Across these 15 scenarios, the calculated ΔD range is **0.0018–0.0245 dioptres**. Eye coordinates are explicit scenario inputs rather than coordinates supplied by the product model.

These figures measure geometrical and optical proximity. They do not report probability of brand attention, readability, recognition or campaign performance.

MIT Peripheral Vision Method

TRACEABLE APPLICATION OF SOURCE CODE; INDEPENDENT HOLDERCARD ANALYSIS

3 / MIT Texture Tiling Model (TTM)

The MIT Perceptual Science Group, led by Ruth Rosenholtz, developed the Texture Tiling Model. The original source code and release are publicly available. This work refers to those methods and uses the original **simulatePeripheralBlur.m** auxiliary function as a tested image-transformation component.

The source function was executed under GNU Octave 11.3 on a 768×768 screenshot rendered directly from the original HOLDERCARD model, with **foveaSize=21 px** and fixation points (384,449), (384,384) and (384,319). Normalized mean absolute image difference for these fixations: **0.002153473; 0.002297623; 0.001951736**.

The auxiliary function models eccentricity-dependent visual-acuity blur. The full **synthesizeMongrel** statistical TTM run was attempted and its required **computeWeightedAutocorrelation_mex** dependency was compiled for Octave, but complete full-TTM synthesis was not obtained. The default **poolingRate=0.5** is a parameter of that model, not a brand-recognition score.

4 / Research sources

MIT Texture Tiling Model repository: https://dspace.mit.edu/entities/publication/603ba1ad-db07-4da2-a58d-c0059e2b82f5
Rosenholtz Lab original code: https://github.com/RosenholtzLab/TTM
MIT Perceptual Science explanation: https://persci.mit.edu/mongrels/index.html
Original HOLDERCARD GLB: https://video-en-experiment.holdercard-3d.pages.dev/Holdercard_Fold_Corrected_v7.glb
Vision science review DOI: 10.1146/annurev-vision-082114-035733

> **Attribution:** This is independent HOLDERCARD computational research using original HOLDERCARD geometry and a publicly released MIT auxiliary algorithm. It is not an MIT publication, joint project, validation, certification or endorsement.

Package files: English PDF, machine-readable 15-row CSV, parameter JSON, original-model render and three auxiliary image outputs.