

Datum Shroom / 3D Scan Alignment Marker

MDL-DATUM-001 / REV IMPORT-01 / 2026.09.05

This record preserves the shared design conversation around a small scan marker: a simple mushroom silhouette carrying deliberately non-symmetric geometry so a scanner can distinguish orientation and align repeat captures. The attached material includes concept plates, Datum Shroom revisions, a slicer preview, spray references, and field-marker examples. The geometry is promising, but scan accuracy and print settings remain experimental until a controlled scan comparison is recorded.

STATUS	Recovered / Experimental
CLASSIFICATION	MDL
MATERIAL	PLA / SCAN TARGET / MAGNET OPTION
DISPOSITION	PUBLIC / LOCAL SUMMARY + IMAGE SET
CATEGORY	CAD / Scanning
RECORD TYPE	model-and-field-study

TECHNICAL NOTES

An asymmetric mushroom-shaped registration marker designed to give phone and photogrammetry scans a repeatable orientation signal through irregular gear-like teeth, varied bumps, a bite notch, and a possible magnetic base.

GOAL

Create a compact, scan-friendly object whose asymmetry makes orientation and repeat alignment obvious.

EQUIPMENT

- Phone or portable 3D scanner
- Photogrammetry or mesh capture software
- FDM printer
- Optional 10x3 mm magnet

MATERIALS

- PLA or another matte single-color filament
- Optional scanning spray
- Optional magnet

METHOD / STEPS

1. Print a single-color prototype at 0.20 mm layers.
2. Keep small perimeters near 30 mm/s and reduce outer/top speeds from the slicer preview for cleaner geometry.
3. Capture the marker from multiple sides with consistent lighting and overlap.
4. Test whether the irregular base, notch, bumps, and cap shape produce repeatable orientation.
5. Compare alignment error against a simpler reference marker before revising the geometry.

RESULT / WHERE THIS STANDS

Final printed marker photographed after a multi-color test print; scan registration still requires a controlled comparison test.

TROUBLESHOOTING

- A multi-color print consumed 277 tool changes and 18.34 g of tower for an 18.05 g model; a matte single-color print may be more practical.
- Fast outer and top walls may soften the small registration features even when infill can remain fast.
- Spray can improve scanability on difficult surfaces, but it should be treated as a controlled surface-preparation step.

SAFETY / LIMITATIONS

- Follow the scanning-spray product label and SDS; use ventilation and appropriate protective equipment.
- Keep magnets away from sensitive electronics and storage media.
- Treat dimensions and scan performance as provisional until independently reproduced.

SPECIFICATION

PURPOSE	Repeatable scan registration and orientation
GEOMETRY	Asymmetric cap / irregular gear base / bumps / bite notch
SCALE	Approx. 34 mm wide x 45 mm tall
PRINT	0.20 mm layers / matte single-color option

MAGNET	Optional 10x3 mm pocket or flat base
STATUS	Experimental / scan validation pending
3MF HISTORY	Rev 1 original + Rev 2 corrected project

DEVELOPMENT HISTORY

2026.09.05 / IMPORT-01

Imported from the supplied shared chat with eleven unique attached images; one exact duplicate image was not republished.

2026.09.05 / CONCEPT

Compared Scan Shroom and Datum Shroom geometry plates as alternate marker revisions.

2026.09.05 / FILES

Added the supplied 3MF project and STL mesh as direct public downloads for print and mesh testing.

2026.09.05 / FINAL

Added the finished multi-color print photographs as the current physical result.

2026.09.05 / REV-02

Added the corrected 3MF revision with repaired magnet pockets and larger magnet clearance; Revision 1 remains available for comparison.

2026.10.10 / PROJECT UPDATE

Connected the newer project records: HOW-PIKA-001. Existing test limitations remain in place.

RELEASED MATERIAL / SOURCE LINKS

DATUM-SHROOM-FIELD-REPORT.pdf

U225X FIELD REPORT / PDF / U225X PUBLIC RECORD

<https://u225x.com/uploads/datum-shroom-field-report.pdf>

MDL-DATUM-001-public-summary.txt

PUBLIC SUMMARY / 3D SCAN ALIGNMENT MARKER

<https://u225x.com/downloads/record-notes/MDL-DATUM-001-public-summary.txt>

marker-mushroom-rev2.3mf

MODEL FILE / 3MF REV 2 / CORRECTED MAGNET POCKET

<https://u225x.com/uploads/marker-mushroom-rev2.3mf>

datum-shroom-final-product.png

IMAGE / FINAL MULTI-COLOR PRINT / FIELD RESULT

<https://u225x.com/uploads/datum-shroom-final-product.png>

datum-shroom-final-product-side.png

IMAGE / FINAL MULTI-COLOR PRINT / SIDE VIEW

<https://u225x.com/uploads/datum-shroom-final-product-side.png>**marker-mushroom.3mf**

MODEL FILE / 3MF PROJECT / SUPPLIED FOR DOWNLOAD TEST

<https://u225x.com/uploads/marker-mushroom.3mf>**meshy-ai-gearcap-mushroom.stl**

MODEL FILE / STL MESH / SUPPLIED FOR DOWNLOAD TEST

<https://u225x.com/uploads/meshy-ai-gearcap-mushroom.stl>**datum-shroom-slicer-preview.png**

IMAGE / MULTI-FILAMENT SLICER PREVIEW / ATTACHED

<https://u225x.com/uploads/datum-shroom-slicer-preview.png>**datum-shroom-concept-sheet.png**

IMAGE / SCAN SHROOM CONCEPT PLATE / ATTACHED

<https://u225x.com/uploads/datum-shroom-concept-sheet.png>**datum-shroom-reference-marker.jpg**

IMAGE / REFERENCE MARKER / ATTACHED

<https://u225x.com/uploads/datum-shroom-reference-marker.jpg>**datum-shroom-photogrammetry-field.jpg**

IMAGE / FIELD TARGET LAYOUT / ATTACHED

<https://u225x.com/uploads/datum-shroom-photogrammetry-field.jpg>**datum-shroom-marker-set.jpg**

IMAGE / MARKER SET / ATTACHED

<https://u225x.com/uploads/datum-shroom-marker-set.jpg>**datum-shroom-aesub-blue.jpg**

IMAGE / SCANNING SPRAY REFERENCE / ATTACHED

<https://u225x.com/uploads/datum-shroom-aesub-blue.jpg>**datum-shroom-scan-spray-before-after.jpg**

IMAGE / SURFACE PREP BEFORE + AFTER / ATTACHED

<https://u225x.com/uploads/datum-shroom-scan-spray-before-after.jpg>**datum-shroom-aesub-orange.jpg**

IMAGE / SCANNING SPRAY REFERENCE / ATTACHED

<https://u225x.com/uploads/datum-shroom-aesub-orange.jpg>**datum-shroom-overview.png**

IMAGE / DATUM SHROOM OVERVIEW / ATTACHED

<https://u225x.com/uploads/datum-shroom-overview.png>

datum-shroom-v2-overview.png

IMAGE / DATUM SHROOM V2 OVERVIEW / ATTACHED

<https://u225x.com/uploads/datum-shroom-v2-overview.png>

scan-shroom-overview.png

IMAGE / SCAN SHROOM OVERVIEW / ATTACHED

<https://u225x.com/uploads/scan-shroom-overview.png>

CONNECTED RECORDS

EXP-0031

<https://u225x.com/record/EXP-0031>

COD-0002

<https://u225x.com/record/COD-0002>

CAD-022

<https://u225x.com/record/CAD-022>

DAT-0026

<https://u225x.com/record/DAT-0026>

EXP-CONDUCTIVE-PLA-001

<https://u225x.com/record/EXP-CONDUCTIVE-PLA-001>

HOW-PIKA-001

<https://u225x.com/record/HOW-PIKA-001>

RETURN TO THE LIVING RECORD

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This PDF preserves the public notes at this revision. Visit the record for updates and attached images.

<https://u225x.com/record/MDL-DATUM-001>