



RLES AI® PRECISION WFG/TG REPORT

COMPLEX CASE: VECTOR PLANNING IN HIGH ORA — AMARIS 1050RS · DEMO

REFRACTIVE LASER EYE SURGERY – ARTIFICIAL INTELLIGENCE ASSISTED

DEMO REPORT — FICTITIOUS PATIENT

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1 · CASE & DEVICE — WHAT HAPPENS IF YOU CARVE THE MANIFEST INTO THE CORNEA

Field	Value
Patient	DEMO PATIENT F (fictitious) · 34
Manifest (spectacle plane)	−2.00 −2.50 ×90 · vertex 12 mm → cylinder at the corneal plane 2.38 D
Manifest OS (corneal plane)	−2.25 −1.50 ×85 → cylinder 1.44 D
Anterior corneal astigmatism (Sirius) OD / OS	0.75 D @ 100 · 1.10 D @ 88
Posterior corneal astigmatism	0.30 D @ 175 (entered on the form — context)
Excimer laser	SCHWIND AMARIS 1050RS — profile loaded: the transition zone is computed by CAM and GROWS with the correction; no fixed margin can represent this platform

2 · ALPINS VECTOR ANALYSIS — IN THE DOUBLE-ANGLE PLANE

Dioptric values cannot be subtracted as scalars ($3.00 \times 90 - 1.00 \times 180 \neq 2.00$): the calculation lives in the 2θ plane — $X = S \cdot \cos(2\alpha)$, $Y = S \cdot \sin(2\alpha)$; $ORA = M \ominus C$ (the Alpines method).

Vector	X	Y	Magnitude @ axis
M — manifest (corneal plane)	−2.380	0.000	2.38 D @ 90°
C — anterior corneal	−0.705	−0.257	0.75 D @ 100°
ORA(OD) = M ⊖ C	−1.675	+0.257	1.69 D @ 86° — RED
ORA(OS) = M ⊖ C — same method	−0.321	+0.173	0.36 D @ 76° — GREEN (ratio 0.25)

The threshold runs per eye: OD enters source analysis (red) while OS stays on standard planning (green) — the two eyes need not share a band.

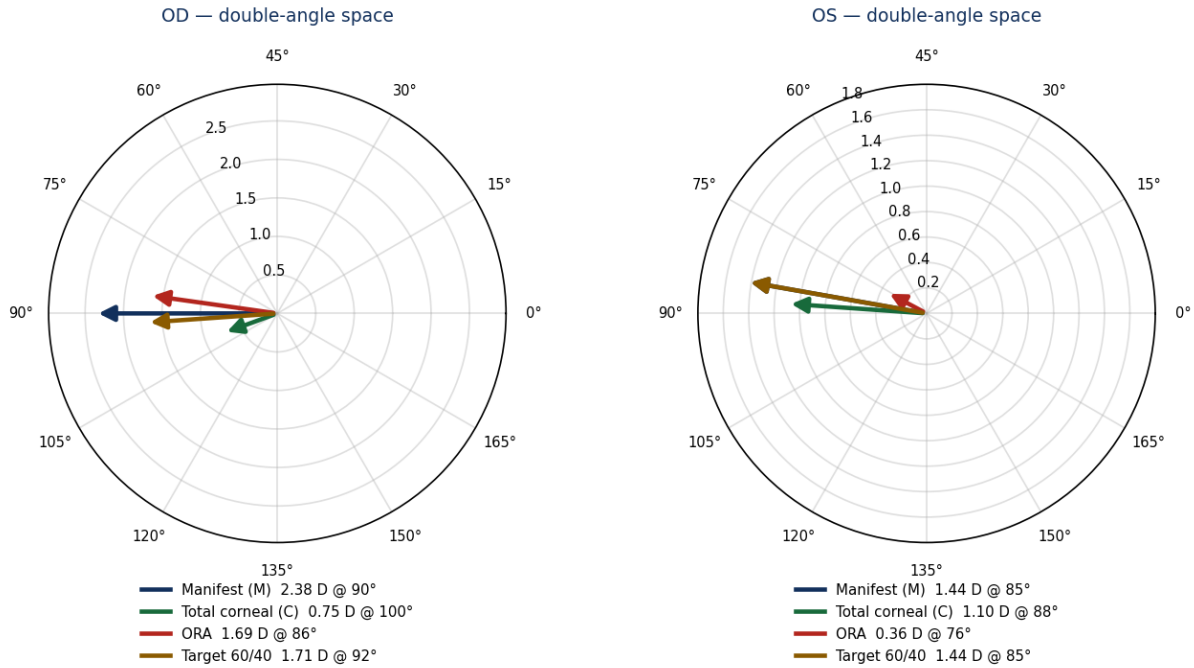


Figure 1 — Alpins double-angle vector diagrams, BOTH EYES: in OD the ORA arrow approaches M (intraocular source → apportioned T vector 1.71@92); in OS, M and C overlap and ORA is short (0.36) → T = full manifest 1.44@85, standard plan. The difference between the eyes is visible at a glance.

RULE 16 — RED BAND: SOURCE ANALYSIS MANDATORY

ORA 1.69 D $\geq$ 1.00 D. The dominant source of the cylinder is INSIDE THE EYE (lenticular; the posterior corneal contribution of 0.30 D was entered — the weight sits in the lens). Carving the manifest into the cornea leaves a PERMANENT 1.69 D neutralisation error there — when the lens changes with age this cylinder returns, now etched into the cornea. ORA-to-refractive ratio 0.71.

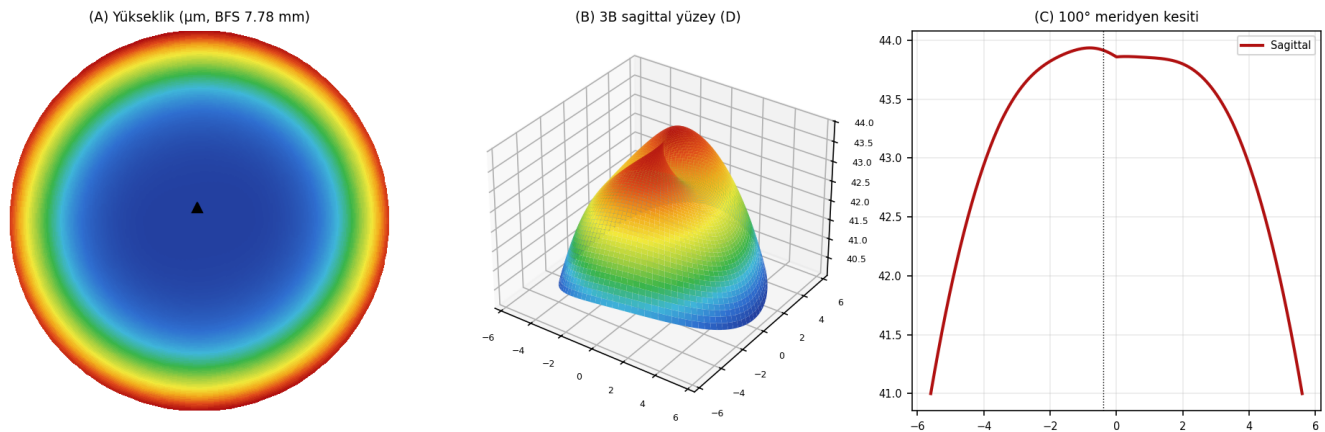


Figure 2 — Anterior surface reconstruction (Rule 13 standard visual): a regular, LOW-amplitude bow-tie (0.75 D @ 100). Visual proof: this cornea is NOT the source of the 2.38 D manifest cylinder. Reconstruction apex $\approx$ 43.6 D — concordant with the device-printed Kmax of 43.7 D. A reconstruction from the device map; not raw output.

REKONSTRÜKSİYON DİPNOTU

Bu görsel, cihaz çıktısındaki sayısal değerlerden türetilmiş bir rekonstrüksiyondur; ham cihaz çıktısı değildir. 1 D $\approx$ 10 μm.



3 · VECTOR PLANNING — APPORTIONED TREATMENT (60/40)

Scenario	Treatment vector (TIA)	Expected refractive residual	Expected corneal residual
Full manifest (naive)	2.38 @ 90	0.00	1.69 @ 176 — PERMANENT
Full corneal	0.75 @ 100	1.69 @ 86	0.00
ALPINS 60/40 — CHOSEN	1.71 @ 92	0.68 @ 86	1.02 @ 176

Apportionment balances the error between the two planes: refractive residual 0.68 D (easily managed with spectacles, may lessen with age), corneal residual 1.02 D (against the naive plan's 1.69). The target discussion is given to the patient in numbers. Age 34 — the lenticular component is tracked; at 45+ the split would be re-weighted.

3b · THE HOA SET · RULE 17 DECISION TREE · REMAINING SCREENS

Measure / step	OD	OS	Decision
Ocular HOA RMS (6 mm)	0.31 μ m	0.24 μ m	< 0.35 → WFG not mandatory
Coma · spherical ab. (corneal)	0.18 · 0.11	0.14 · 0.10	low — no decentration signal
Rule 17 sequence	13 CLEAR → ORA RED	13 CLEAR → ORA green	OD: TG + source analysis MANDATORY · OS: WFO sufficient — two eyes, two profiles
Rule 13 · tear film · medication	0/9 · 0/6	0/9 · 0/6	clear — vector analysis ran on a stable surface
Glaucoma intersection	ACA 33°	ACA 34°	green — no G rule fired, no Referral Summary

4 · AMARIS 1050RS SURGICAL PLAN — READY FOR APPROVAL

Item	Plan
Method	Topography-guided (TG) ablation — ORK-CAM; diagnostic device Sirius registered and pairing verified
Treatment vector OD	cylinder 1.71 D @ 92 (apportioned) — deliberately NOT 2.38; spherical-equivalent preserving
Treatment vector OS	cylinder 1.44 D @ 85 — FULL manifest (ORA green; no apportionment needed)
Optical zone	6.7 mm (series band 6.25–7.25 — amber, not a device limit)
Transition/total zone	COMPUTED BY CAM and grows with the correction — the number to program is what CAM prints for this case; that value goes into the T-zone field
Cyclotorsion	static + dynamic registration active; axis error is costly in TG
Postop assessment frame	Alpins indices computed from the FOLLOW-UP record: $CI = SIA/TIA$ (target 1.0) · $DV = TIA \ominus SIA$ · $IOS = DV/TIA$ (target 0.0) — the outcome feeds the personal nomogram

CONCLUSION

An eye where any manifest-copying platform would etch a permanent 1.69 D error is surgery-ready via full Alpins decomposition + an apportioned vector + AMARIS's own CAM geometry. The final profile is fixed on the surgeon's planning screen (Rule 11).

SURGEON'S SIGNATURE & AI VERIFICATION

This report is clinical decision support; the plan is finalised by surgeon approval. Signature: _____ Date: _____