

Concept 27 / UC1

Urethane casting option | Original + Palladium | 9 September 2026



The approved soft-rim design, prepared as a separate casting-review derivative. Concept 27 R2 remains the existing option.

Existing / R2	New / UC1
PA12 / TPU prototype route	Rigid and elastomeric cast urethane targets
Existing finished CAD	Finished CAD + 4 casting masters + drilling schedule
R2 prototype engineering review	UC1 supplier casting review; first article required

No production-ready tooling, qualified resin, service life or physical fit is claimed. The current CAD renders show finished parts, not the blank front master.

What changes in the CAD

Targeted release features and a separate front casting master.



Feature	UC1 treatment
16 boss outer walls	1-degree release taper with a 0.10 mm root land: 8 closure bosses, 4 speaker bosses, 4 antenna bosses. Material removal only; bore axes and seat planes retained.
Front master	121 grille holes blanked to avoid fine silicone pins. Drill afterward using the supplied XY / diameter schedule. Nominal re-drill returns the finished part.
Other three masters	Rear shell, rim and PTT grip supplied separately at nominal size. Mold splits, peel strategy and gates remain RPS decisions.
Retained interfaces	Exterior envelope, microphone position, controls, OEM placements and internal carriers retain R2 datums. No global shrink or finish scaling.

Remaining straight walls and undercuts have not been eliminated. Silicone mold release is process-specific; these local tapers do not establish whole-part moldability.

Review the inherited 0.8 mm rear divider and approximately 0.75 mm microphone cradle wall before committing to a tool. A local revision or separate carrier may be needed after RPS review.

Materials, colour and finish

Two appearances on the same UC1 geometry. Physical samples define approval.

Component group	Fabrication target
Front / rear shells	Tough rigid cast urethane, ABS-like target; RPS resin grade and cure TBD.
Soft rim / talk grip	Elastomeric cast urethane, Shore A 80-85 evaluation target.
Internal carriers / caps	10 rigid PA12 carriers; 3 separate 6061 aluminium caps.
Optics / stock / bonds	2 clear optical parts; 29 compliant parts, 2 sheet pieces, 6 bond allowances. Not all part meshes are print or casting jobs.

Colourway / surface	Website HEX	Proposed Pantone
Original / Front and back shell	E3E0D6	9081 C
Original / Soft rim	7D786E	Warm Gray 9 C
Original / Front / volume caps	99968C	402 C
Original / PTT grip	CC4118	173 C
Palladium / Front and back shell	C5C9CA	428 C
Palladium / Soft rim	8D9290	423 C
Palladium / Front cap	E3E7E8	7541 C
Palladium / PTT grip / volume caps	7B827C	444 C

9081 C uses Pastels & Neons Coated; the others use Solid Coated. These are proposed visual matches, not measured or approved matches. Metallic appearance cannot be specified by Pantone alone.

Original: fine matte chalk shell, warm grey soft rim, pewter caps and orange PTT. Palladium: satin silver shell finish, grey rim and light metal caps. The Palladium body remains urethane; assess coating durability and RF compatibility.

Fits, fastening and assembly

Finished nominal dimensions: 78 x 150 x 24 mm rigid body.



Overall envelope with controls / rim: approximately 83.35 x 152.70 x 24.739 mm. STEP is in millimetres. Establish final tolerances and finish allowances with RPS; nominal CAD is not a fully toleranced drawing.

Stage	Assembly / process requirement
Prepare	Approve master finish, resin samples, pilot-hole preparation, masking and drilled grille before component installation.
Front assembly	Fit optics, speaker and microphone keepers, and front clamp before placing the PCB. Confirm switch actuation and return with actual components.
Rear assembly	Install antenna frame screws before upper battery liners. Protect the pouch and protection PCB; keep leads out of seams and moving controls.
Close / service	Close the rigid case before stretching the rim over it. Qualify screw torque and repeated service in urethane. No inserts are modeled or approved.

The smaller tapered boss tips keep their axial seats but have slightly less annular bearing area. Load capacity, stripped-thread resistance and clamp force require physical testing.

Before tooling and a production run

Review requirements for RPS, Elian and the Walkie One team.

Stage / owner	Open qualification
Before tooling / RPS + Walkie One	Select rigid and elastomeric urethane grades; confirm cure, shrink, tear resistance, aging, sweat/skin compatibility and coating adhesion. Shore A 80-85 is an evaluation target, not a qualified resin.
Mold design review / RPS	Approve split lines, peel directions, gates and vents. UC1 has 16 local one-degree boss tapers; remaining straight walls, holes and undercuts need silicone-tool review. No whole-part release approval is implied.
Thin features / RPS + mechanical lead	Review the inherited 0.8 mm rear battery divider and approximately 0.75 mm microphone cradle wall. Confirm fill and demold survival on a first article, or request local thickening / a separate carrier. General walls and all narrow regions have not been thickness-certified.
Fastening / service / RPS + mechanical lead	Qualify all existing pilot bores, screw engagement and assembly torque in the selected urethane. Repeated-service thread durability is unproven. Inserts are preferred for frequent service but need a new boss/insert design; UC1 does not contain inserts and must not be quoted as insert-ready.
Finish sample / RPS + Jacob	Approve physical Original and Palladium samples under agreed lighting. Pantones are proposed matches to digital references, not approved colour standards. Preserve matte soft parts and orange Original PTT. Mask fits; establish coating allowance.
First article / RPS + Elian	Measure finished interface datums, drill grille using supported workholding, dry-assemble supplied electronics, and test buttons, closure, optics, sound, USB, battery retention and RF. Validate drop / wear / repeated service before a run.

First_Article_Inspection.csv covers cosmetic samples, seam quality, dimensional checks, control feel, retention, serviceability and functional / durability testing. Agree measurable acceptance criteria and a sample quantity before the run.

Reference guidance: RPS offers silicone-mold urethane casting and finishing. Fictiv notes that draft is not universally required in soft-tool casting, but thin walls, ribs and fastening need process-specific review. Neither source approves this device.

Files and verification

Use finished CAD for assembly; use the explicitly named masters for tooling review.

Folder / file	Purpose
cad / CASE and REFERENCE_ASSEMBLY	74-solid case including 18 nominal screws; 430-solid assembly adds 10 supplied OEM groups.
cad/parts + meshes	56 named finished/reference parts, with separate material roles.
cad/casting_masters	4 master-pattern STEP files. Front is intentionally blank in the grille region. Not mold halves or finished devices.
documents	Handoff, 56-part BOM, fasteners, soft stock, colour/finish targets, drilling schedule, route, assembly and open items.
source + inputs/R2	Editable UC1 BRep builder and 105 checksum-locked baseline input files. Original R2 inputs preserved.
audit + renders	Export checks, change schedule, source hashes, 9 actual CAD views and finish-viewer assets.

Verified: valid STEP round trips, 56 watertight part STLs, four master STLs, unchanged device bounds, 16 subtractive boss edits, unchanged other-part geometry and nominal front-master re-drilling. New rigid interferences cannot be introduced by these material-removal edits; this is not a fresh physical or complete motion audit.

Source provenance: local engineering derivative of the existing Adam-derived R2 model. Adam authentication was unavailable; no new Adam task created or approved UC1. The editable STEP/BRep source does not claim a native Fusion feature timeline.

Process sources

RPS: <https://www.rapid-products.com/service/urethane-castings/>

Fictiv: <https://www.fictiv.com/wp-content/uploads/2024/08/urethane-casting-design-guide.pdf>

See Casting_Shop_Notes.md for source sections, limitations and rebuild commands. SHA256SUMS.txt and File_Manifest.csv identify delivered files.