

Walkie One enclosure handoff

Concept 02.2 Silicone Monolith | Revision R9

Prepared for Rapid Product Solutions on behalf of Jacob Catalano. Please review and quote a thin, serviceable prototype enclosure using the supplied CAD and the material schedule in this document. The selected body measures 88 × 136 × 27.0 mm, with a continuous silicone front and sides over a rigid nylon chassis.

This package is ready for supplier DFM and prototype planning. Final fabrication depends on confirming the material grades, thin-wall process limits, button function and physical fit with the actual electronics. It is not a production tooling release.



The intended finish is warm ivory silicone, a terracotta PTT paddle and sage volume keys. The microphone opening is centered directly above the light, with 12 mm between centers. The play recess remains Ø33 mm at Y-43, with a curved 1.1 mm dish and larger triangle. It keeps an 8.5 mm bottom margin and 3.8 mm edge gap to the light. The rear-face service pad conceals a removable screw-fastened cover. Colors in CAD are visual targets; approve physical swatches before finishing.

Use the case-only STEP for nominal manufactured geometry. Use the native Fusion archive for assembly review, the part-level files for fabrication, BOM.csv for part identification, and the dimensioned reference PDF for inspection planning.

Original concept reference

Concept 02.2 Silicone Monolith in the Lozenge form was the starting visual reference. Its soft ivory surface, terracotta side control, sage keys and recessed play area establish the intended character.



Original Concept 02.2 image from walkieone.com/concepts. This is concept imagery, not a photograph of the CAD or a dimensioned fabrication reference.

R9 reduces body depth from 28 to 27 mm while retaining the current 88 × 136 mm outline, Ø33 play dish, smaller acoustic field and microphone directly above the light. The centered rear wordmark and smaller Designed in Los Angeles inscription retain their approved sizes and spacing.

Use the current STEP geometry and the dimensions in this document for manufacture. Do not infer internal space, wall thickness or exact feature positions from the concept image.

Slimmer body, same front design

Body depth is 1 mm (3.6%) smaller than R8. Each face moves inward 0.5 mm; front controls and supports follow the front face. The antenna support is integrated into the rear cover and the battery tray sits 0.2 mm lower. Width, height, corner radii and visible control layout are retained.



R9 detail rendered from the actual Fusion model. The microphone remains directly above the light. Surface colors indicate the intended finish.

Feature	Previous R8	Current R9
Body depth / incl. LED	28.0 / 28.2 mm	27.0 / 27.2 mm
Width × height	88 × 136 mm	88 × 136 mm
Play dish / position	Ø33 mm / X0 Y-43	Unchanged
Nylon faces / silicone skin	1.6 / 1.0 mm	Unchanged
Battery front allowance	1.3 mm nominal	1.0 mm nominal
PCB-to-tray allowance	0.5 mm nominal	0.3 mm nominal
Antenna mounting	Separate nylon seat	Integral rear-cover landing

The light-to-play edge gap remains 3.8 mm and the bottom margin remains 8.5 mm. The dish has 0.8 mm nominal normal thickness; its raised symbol is 0.25 mm above the curved surface. The hidden plunger follows the dish underside. Set the mechanism against the actual switch and test silicone force, return and fatigue.

Front and rear CAD views



Current R9 CAD, front at left and rear at right. The rear lettering is upright when viewed from the back.

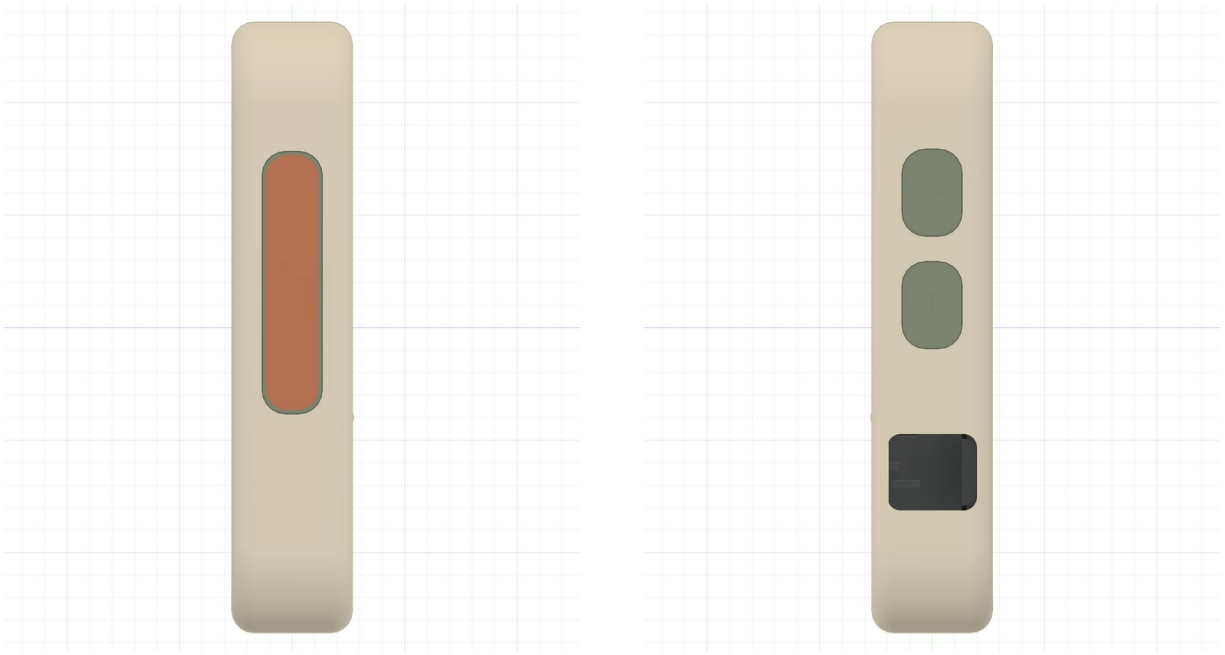
Rear branding

Both markings are centered left to right on the removable silicone rear pad. The supporting copy retains its 20% reduction introduced in R8. Designed in Los Angeles sits directly below the wordmark, with a 4.98 mm clear vertical gap. The supplied horizontal Walkie One wordmark is centered at the midpoint of the back, X0 Y0. The logo retains its original split-weight letterforms and proportions.

Marking	Placement and size
Walkie One wordmark	X0, Y0 mm; 42 mm overall artwork width; 5.23 mm height
Designed in Los Angeles	X0, Y-9 mm; 32 mm overall artwork width; 2.81 mm height; IBM Plex Sans 500
Recess and finish	0.15 mm molded deboss into the rear silicone pad; 0.85 mm nominal silicone remains locally. Carbon fill target #171716.

Use the supplied outlined SVG files for marking artwork. RPS should confirm fine-feature molding, a silicone-compatible color-fill system, cure compatibility and rub adhesion before fabrication. Keep the service seam and screw recesses clear. The revised nominal body depth is 27 mm.

Controls and rear surface



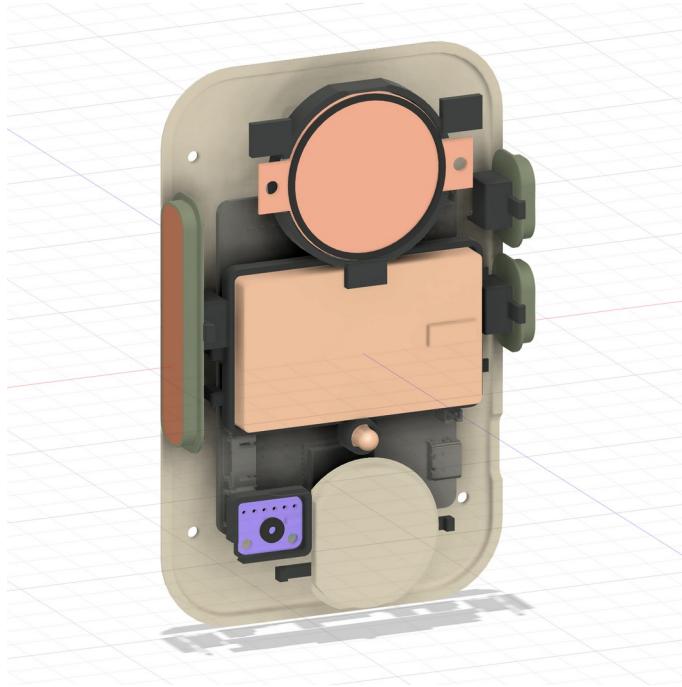
Left: PTT side. Right: the widened charging opening is centered beneath the volume keys. Its outer centerline is Z0; the connector remains on its original PCB axis.



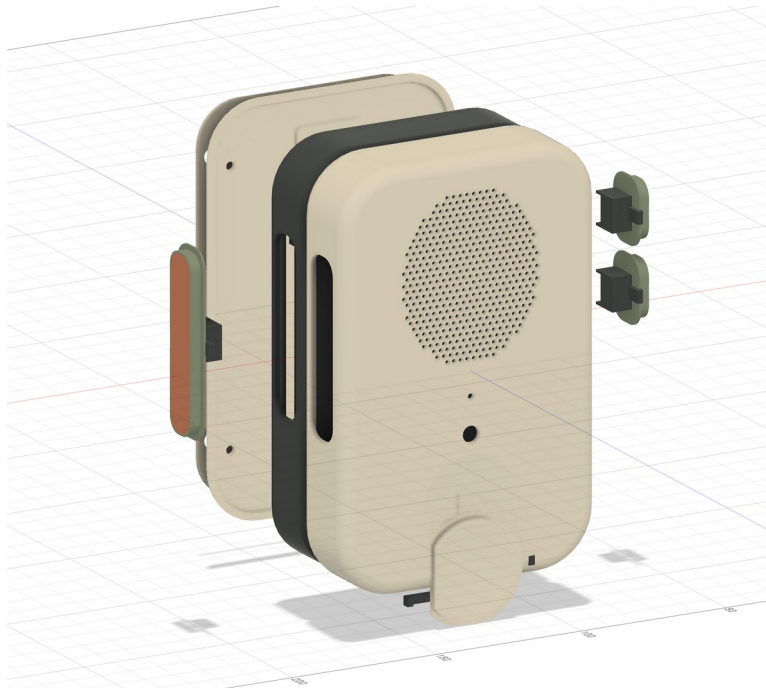
Rear oblique CAD view shows the service-pad perimeter, shallow markings and rounded shell. Surface colors are visual targets for physical swatch matching.

The outer charging well is 17 mm high along Y and 20 mm across Z, with R3 corners. The inner 15 × 10 mm passage stays centered at Z-4.7396 to reach the unchanged board connector. A straight 14 × 9 mm rounded cable envelope with R2.5 corners clears the modeled case; test the actual cable and full seating on the prototype.

Internal layout and assembly view



Internal CAD layout with the front tub and silicone skin hidden. Purchased hardware is included for fit review; flexible wiring still needs a physical routing check.



Exploded CAD visualization of the shell, rear pad and captured controls. Offsets are illustrative and do not prescribe a validated assembly path.

Geometry and component fit

All CAD uses millimeters. X is left to right, Y is bottom to top and Z points toward the front. The origin is the center of the nominal outer body. No supplied component was scaled.

Feature	Nominal dimension or position
Body and protrusions	88 W × 136 H × 27.0 D; up to 88.6 W at side keys; 27.2 D including the LED dome
Shell construction	1.6 mm front/rear wall + 1.0 mm silicone; 2.6 mm side wall; R19 plan corners and R5 exterior edge rounds
Front acoustic field	48 × 56 oval field centered X0, Y30; 453 through holes Ø1.30; X pitch 2.30 / Y pitch 2.00, staggered
Action and light	Action X0, Y-43; Ø33 spherical dish, 1.1 deep, 0.8 membrane. Glyph 9.1 × 10.4, relief 0.25. LED hole Ø5.4 at X0, Y-20
Microphone aperture	Ø1.8 at X0, Y-8; 12 mm directly above LED. Internal duct connects to the original mic board at X-24, Y-38.762
Side controls	PTT centered Y10, 58 tall; volume keys Y30 and Y5, 19 tall; 0.3 perimeter allowance
USB access	Right side at Y-32.1393. Outer well 17 Y × 20 Z, R3, centered Z0 with volume keys; inner passage 15 Y × 10 Z at Z-4.7396
Rear screws	Four centers at X±34, Y-44 and +46; clearance Ø2.8, counterbore Ø5.3
Rear service opening	78 × 126 nominal silicone opening on rear face; peelable silicone surround permits cover removal

Basis for the thin body

The supplied populated PCB is 60 × 85.75 × 9.5 mm. Its placed depth is Z-9.3 to +0.2. The battery tray starts at Z0.5, leaving 0.3 mm above the board envelope. A 0.8 mm tray floor and 0.2 mm pad put the battery base at Z1.5. The supplied cell body is 60 × 36 × 7 mm; its protection feature reaches 8.4 mm above its base. This leaves 1.0 mm to the front cavity plane at Z10.9.

R9 retains the 1.6 mm nylon faces and 1.0 mm silicone skin. A 0.6 mm integral landing on the rear cover replaces the separate 1.0 mm antenna seat; antenna and PCB positions remain fixed. The front assembly moves rearward 0.5 mm and the battery tray drops 0.2 mm. The 1.0 mm battery allowance and 0.3 mm board-to-tray gap require physical tolerance, insulation and swelling checks before fabrication. This is a modest prototype reduction, not a proven minimum thickness.

The centered mic port uses a 2.4 × 1.0 mm internal channel, about 39.0 mm long, cut into the nylon front deck and capped by bonded silicone. The mic board retains X-24, Y-38 and moves rearward 0.5 mm with the front assembly. The 0.70 mm installed inlet gasket seals to Z11.23; the duct floor is 0.6 mm nominal. Verify sealing and speech-band response on the prototype.

The board is rigidly centered, rotated 180° about Z and translated to (0, -7, -4.55). The USB connector stays on the measured source axis. Its mating face is recessed about 14.2 mm from the outer right side. The outer well is centered Z0 beneath the buttons; the inner passage follows Z-4.7396. The clearance check uses a 14 × 9 mm cable envelope with R2.5 rounded corners; test the actual overmold shape and full seating.

Materials and fabrication

Please quote the following materials and identify the exact grade, supplier and process in the quotation. Any substitution requires an agreed sample or written change to this schedule. A printed TPU shell would be a fit surrogate and would not reproduce the specified silicone.

Parts	Specified prototype material	Process and finish
03, 04 and 11	Smooth-On Dragon Skin 30, platinum-cure silicone, 30 Shore A	Cast in finished tooling; ivory main skin and rear pad, terracotta PTT face, sage volume faces. RPS to confirm procurement and cure process.
01, 02, 07, 09, 10, 12, 13, 15, 16, 17	RPS Nylon PA from its SLS material schedule	SLS, depowdered; finish critical bores and sliding surfaces. RPS to name its current powder designation. No conductive coating.
08 speaker seal	Rogers BISCO HT-800 medium silicone foam, 0.79 mm stock	Cut annulus; 0.70 mm modeled installed thickness. Confirm compression on the actual speaker frame.
18 microphone seal	Rogers BISCO HT-800 medium silicone foam, 0.79 mm stock	Cut annulus; 0.70 mm modeled installed thickness. Check airtight contact to the microphone port and nylon inlet seat.
Assembly supplies	Four stainless M2.5 × 8 screws; two nonconductive PET battery straps; 0.2 mm insulating pad	Screw heads ≤5.3 diameter, ≤2.4 high. RPS to select compatible adhesives/primers and verify retention without loading the battery pouch.

Process decisions for Rapid Products

The 453-hole silicone field, 0.8 mm action membrane and wraparound skin require a casting and demolding plan. Please propose the parting line, core strategy, venting, gating, shrink compensation and matte tool texture. Keep gates and flash off the front face and moving controls. The CAD describes finished parts, not mold tooling.

Bond the skin to the front chassis only where needed to hold alignment; preserve the ability to peel back the rear perimeter for service. Bond the rear pad to the removable rear cover. Do not bridge the service joint with adhesive. Keep all acoustic holes open and register the two perforated layers. Bond a continuous airtight seal around both edges and ends of the mic channel; prevent adhesive from entering the duct or its ports.

Suggested inspection targets are ±0.20 mm for rigid general dimensions, ±0.10 mm for finished critical fits and ±0.30 mm for silicone general dimensions. These are proposed requirements, not verified RPS capabilities. RPS should return exceptions before committing to manufacture.

The rear pad includes molded debossed artwork with Carbon silicone-compatible fill. RPS must specify the fill material and verify adhesion on the cured silicone. The silicone grade is a concrete prototype choice. Long-term wear, oils, UV exposure, tear resistance and button force need sample testing before selecting a production elastomer. The public RPS information confirms silicone work and SLS nylon, but does not confirm that it stocks Dragon Skin 30.

Part schedule and file usage

Each row corresponds to one manufactured solid. Each part has a STEP and STL in assembly coordinates; identify the material by this schedule and BOM.csv. There are 21 fabricated parts; former part 19 is integrated into part 02. Purchased hardware and original source files are reference data.

Part identifier	Qty	Fabrication
01 front structural tub	1	SLS nylon
02 rear structural cover	1	SLS nylon
03 continuous silicone skin	1	Cast silicone
04 rear silicone service pad	1	Cast silicone
07 speaker edge cradle	1	SLS nylon
08 speaker front gasket	1	Cut silicone foam
09 battery tray	1	SLS nylon
10 ptt key	1	SLS nylon
11 ptt silicone face	1	Cast silicone
12 ptt switch cradle	1	SLS nylon
10 volume plus key	1	SLS nylon
11 volume plus silicone face	1	Cast silicone
12 volume plus switch cradle	1	SLS nylon
10 volume minus key	1	SLS nylon
11 volume minus silicone face	1	Cast silicone
12 volume minus switch cradle	1	SLS nylon
13 action plunger under membrane	1	SLS nylon
15 front switch holder	1	SLS nylon
16 rgb led support ring	1	SLS nylon
17 microphone cradle	1	SLS nylon
18 microphone acoustic gasket	1	Cut silicone foam

The case-only STEP excludes electronics. The Fusion file includes a separate purchased-hardware group, with the original board STEP and placed reference meshes. Do not fabricate anything prefixed REF or stored in source_inputs.

The native Fusion design contains editable direct BRep components. The included Python generator controls rebuild dimensions; this is not a sketch-driven Fusion feature timeline. STEP is the neutral geometry handoff. STL uses millimeters and is intended for the assigned process only.

Prototype assembly

1. Print the rigid components first. Remove powder, deburr and trial-fit the shell. Finish screw holes and tap the 2.1 mm pilots to M2.5 × 0.45 as appropriate for the selected nylon. Confirm the proposed 8 mm screws engage without bottoming; do not force threads.
2. Insert the PCB from the rear into its locating rails. Verify bearing occurs on safe board edges and that connectors, exposed solder and components clear the rails. Add removable insulating retention after the physical fit check; the source does not supply a board fastening specification.
3. Fit the battery tray to its rail seats. Install a 0.2 mm insulating pad and two removable PET straps. Keep the pouch free of screw points and clamp loads. The 1.0 mm nominal front allowance is not a battery-maker-approved swelling specification.
4. Install the three side switches in their adjustable cradles. Insert the captured rigid keys and attach their silicone faces. Set approximately 0.2 mm actuator freeplay and verify actuation and return before the 0.5 mm stop. Bond the cradles only after testing the actual switches.
5. Fit the front B3F4000 switch, hidden plunger and integral silicone action membrane. The nominal actuator gap is 0.2 mm, membrane gap 0.1 mm and inward hard-stop travel 0.55 mm. Check the real switch travel and elastomer force curve, then shim the carrier as necessary.
6. Seat the 40 mm speaker and its foam gasket. Its supplied mounting-ear span is 53.8 mm along X after a 90° rotation; its center is Y43. Bond the cradle feet to the front deck while leaving the diaphragm and leads free. Keep the microphone in its side mount; fit the 0.79 mm stock foam inlet ring at 0.70 mm installed thickness. Seal the channel roof continuously before testing the new centered opening.
7. Attach the LTE flex antenna to the integral landing on part 02 using its factory adhesive. Taoglas specifies peel-and-stick mounting on non-metal surfaces; finish and test adhesion on the actual nylon landing. Part 19 is no longer a separate component. Route battery and speaker leads and the antenna coax with strain relief. Confirm bend radii, connectors and solder clearances; avoid the button mechanisms, diaphragm, screws and seam.
8. Test USB charging, audio, microphone isolation and cellular reception before closing. Install the rear cover with four screws, then fit the silicone exterior and rear pad. Recheck button return and access with the final silicone and adhesive stack.

The wire shapes in the original STLs are straight reference leads. The placed packaging references retain the rigid battery, speaker, antenna and feed details, while those extended flexible leads are omitted. No cable routing, connector substitution or electronics redesign is implied.

Validation and supplier review

The supplied ZIP contains one board STEP and seven component STLs. The side-switch STL represents one switch and is inserted three times. All eight originals are retained unchanged with SHA-256 checksums. The LED source includes non-watertight planar fragments; it remains reference geometry.

Check	Recorded result
Manufactured solids	21 parts; all valid single BRep solids and watertight STL meshes
Fabricated-part intersections	0 overlaps above 0.005 mm ³ ; see intersections.json
Hardware against case	0 conservative overlaps above 0.02 mm ³ ; see hardware_clearance_screen.json
Hardware against hardware	0 conservative overlaps above 0.02 mm ³ ; see hardware_pair_screen.json
Microphone channel	Opening at Y-8 and inlet clear; old port closed; sampled duct, floor and roof verified
Play recess / guide	Ø33 at Y-43; 1.1 mm dish, 0.8 mm membrane; rigid-guide travel screen in action_validation.json
Rear branding	Wordmark at Y0; copy 32 mm wide at Y-9, 20% smaller; 0.15 mm deboss
Charging opening	Outer well aligned Z0 with both volume keys; rounded 14 × 9 mm cable envelope clears case geometry
Fusion archive	Exported, reopened and solid count verified in Autodesk Fusion

The hardware screens use the exact placed PCB STEP and convex hulls of connected nondegenerate source mesh pieces. They do not validate flexible leads, positive minimum clearances at every interface, assembly insertion paths, adhesive thickness or tolerance accumulation. Zero nominal overlap is only a geometry check.

Items to resolve with the physical prototype

- RPS acceptance of the 1.6 mm nylon face wall and 1.0 mm silicone skin, silicone molding strategy and the stated materials; sample-match colors and surface feel.
- Actual USB cable insertion, PCB edge retention, battery swelling/insulation requirements and complete cable routing.
- Switch actuation, return, freeplay, hard-stop travel and silicone membrane fatigue under part tolerances.
- Acoustic sealing, mic-channel leakage and speech-band response, microphone feedback isolation, speaker output, antenna performance and operating temperatures.
- Rear-skin service access, silicone bond strength, screw engagement and practical assembly sequence. No drop, ingress or life-cycle rating has been established.

Sources and design authority

Concept 02.2 establishes the visual direction. Enclosure dimensions are developed from the supplied component geometry and the assembly allowances recorded here. The website images are not dimensioned engineering drawings. Material information below is from the manufacturers and RPS.

Walkie One concept 02.2 — <https://walkieone.com/concepts>

Walkie One logo and type system — <https://walkieone.com/design-system>

RPS SLS process and materials — <https://www.rapid-products.com/service/selective-laser-sintering-sls/>

RPS silicone/casting capability — <https://www.rapid-products.com/service/urethane-castings/>

Dragon Skin 30 grade — <https://www.smooth-on.com/products/dragon-skin-30/>

Rogers HT-800 — <https://www.rogerscorp.com/elastomeric-material-solutions/bisco-silicones/bisco-ht-800-medium-silicone-foam>

Taoglas antenna adhesive mounting — <https://www.taoglas.com/product/fxub63-ultra-wide-band-flex-antenna/>

Sources checked 04 September 2026. No files sent or order placed.