

AZ Mandible

OPSEC Variant & Military Variant Specification

1. Overview

This document defines two advanced product variants derived from the core AZ Mandible platform: a high-privacy OPSEC model and a future military-oriented jaw-strap system. Both share the same foundational principle — private audio delivery through bone conduction — but are optimized for different users and constraints.

2. OPSEC Variant

Target user: privacy-focused individuals, high-OPSEC operators, and discreet communication needs. This version prioritizes silence to the room, encryption, and radio linking.

Core Capabilities

- User speaks into an integrated microphone
- Audio is encrypted and transmitted over radio
- Receiving unit decrypts and re-emits audio only through the jaw via bone conduction
- Result: clear to the wearer, effectively silent to everyone else in the room
- Rotating radio channel toggle
- Target range: up to 3 miles under ideal line-of-sight conditions
- Encryption to resist eavesdropping and hijacking
- Retains tongue-click / silent intent layer from the base platform

Target Price

\$1,600 – \$2,200 per unit (early direct sales). Higher configurations possible for specialized buyers.

Key Hardware Notes

Requires a more capable microcontroller than the basic Nano (e.g. ESP32-class or equivalent), a suitable long-range radio module (LoRa or higher-power UHF), quality microphone, bone-conduction transducer, channel selection control, and careful antenna design. Battery capacity must support both radio transmission and continuous wear.

3. Military Variant (Future Evolution)

Long-term evolution of the OPSEC architecture into a helmet-integrated jaw strap. Intended for tactical environments where silent or near-silent communication is required.

Intended Capabilities

- Integrated jaw-strap form factor compatible with standard helmets
- Same private bone-conduction audio delivery (silent to the surrounding environment)
- Hardened radio interface and higher power options
- Robust encryption and channel management
- Push-to-talk and/or voice-activated modes
- Environmental sealing and higher durability materials
- Potential external radio system integration

Positioning

This is not the first product to build. It is a later-generation system that reuses the proven OPSEC signal chain (mic → encrypt → radio → decrypt → bone conduction) inside a military-grade mechanical package.

4. Quick Comparison

Attribute	OPSEC Variant	Military Variant
Primary User	Privacy / OPSEC individuals	Tactical / military units
Form Factor	Wearable jaw mount	Helmet jaw-strap
Audio Privacy	Silent to room	Silent to environment
Radio	Integrated, channel toggle	Hardened + external options
Encryption	Required	Required + hardened
Timeline	Near-term prototype	Later generation
Price Band	\$1,600–\$2,200	Significantly higher

5. Recommended Development Order

1. Finish and validate the basic tongue-click / bone-conduction prototype.
2. Build the OPSEC variant (mic + encrypt + radio + jaw re-emission).
3. Prove range, privacy, and encryption under real conditions.
4. Only then evolve the mechanical package toward a military jaw-strap form.