TALS-1.0 | Signia Protocol v1.1

Chicago Cited Final Archival Master

v1.1 — Chicago Cited Edition

Eclipse Venture Studio | 2025

Executive Summary

TALS (Target Audio Listening Standard) defines a next-generation system for personalized, private, and spatially isolated audio experiences. It enables individuals to receive unique audio signals within shared environments without disturbing others, through device-based signal mapping, aural isolation algorithms, and automated personalization. The Signia Protocol governs identification, calibration, and transmission of these unique audio signatures in real time.

Objectives

Deliver true personal sound fields using digital signal separation.
Maintain environmental coexistence allowing distinct experiences.
Enable cross-device compatibility (app, dongle, wearable).
Define baseline specifications for isolation, adaptation, and privacy.

System Overview

Each listener’s hearing profile, ear geometry, and environment are used to generate a unique audio signature (Audio DNA). TALS delivers individualized soundscapes over secure links to Signia-enabled devices, including dongles, headsets, AR frames, and wearables.

Technical Components

Component	Description
Target Audio Modulation (TAM)	Encodes streams with micro-phase control for precise, listener-targeted localization.
Personalized Equalization (PEQ)	Adaptive EQ matched to hearing profile and preference.
Spatial Null Mapping (SNM)	Phase-aware processing designed to reduce audible bleed beyond a defined radius.
Ambient Layer Control (ALC)	Optional ambient soundscapes for non-participants in shared spaces.

Compliance Metrics

Metric	Standard
Aural Isolation Index	≥ 98%
Dynamic Response Time	≤ 250 ms
Harmonic Integrity	≤ 0.05% THD
Energy Efficiency	≥ 12 hrs continuous

Governance: Eclipse Venture Studio | Audio Futures Division
Proposed for: Audio Futures Consortium (AFC), AES, ITU-R, IEEE

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