AUDEAMUS GROUP, LLC

Wi-Fi Sensing & Privacy Weekly Brief

September 18, 2026 | Historical public-summary edition

HISTORICAL PUBLIC SUMMARY

Ambient packets and coarse RSSI lower the sensing barrier

September 11–18, 2026 · Two items met the relevance, date and evidence checks. New research: one through-wall sensing preprint that became discoverable after the prior edition. Meaningful publication update: one June conference paper received an open arXiv manuscript; its underlying result is not new this week. Standards and regulatory updates: none verified for inclusion. The common signal is broader access to useful sensing inputs, but neither study establishes product-grade performance in occupied homes.

01 / NEW · arXiv preprint · Naotunna et al. / 2026-09-11

Through-Wall Detection using Software-Defined Radio based on adaptive Principal Component Analysis

Key finding. The paper introduces a Welch-spectrum score that selects the five motion-relevant PCA components from CSI captured by a customized Bluebottle software-defined radio, then applies wavelet analysis and CFAR detection. It uses ambient Wi-Fi packets without transmitter control and became publicly discoverable after the prior briefing.

Why it matters for Audeamus. Adaptive component selection attacks a real deployment problem: the useful CSI dimensions change with noise and multipath. Passive use of existing traffic could reduce installation friction for security, rescue and eventual gateway-based presence sensing.

Evidence limits. Validation is a small, single-volunteer office study built around direct-path crossings and a custom SDR. Results are mostly representative plots and component scores, not aggregate sensitivity, specificity or home-level false-alarm rates; pets, still occupants and multiple people are untested.

Read in full? Read in full. The method is concrete and the paper's narrow experiment makes the commercialization gap visible rather than hiding it behind a headline accuracy number.

Open original source

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02 / UPDATE · Open author manuscript of June 2026 DCOSS-IoT paper · Duschanek-Myers et al. / 2026-09-15

Cross-Domain Inference for Human Localization: Applying Wi-Fi RSSI Data to CSI-Trained Models

Key finding. An open manuscript is now available for a June conference paper. It feeds normalized RSSI from three ESP32-C3 access points and a Raspberry Pi into a CSI-trained pose model, reporting roughly 80% average model confidence while the room is occupied without retraining the model.

Why it matters for Audeamus. RSSI is exposed on far more consumer and IoT platforms than CSI. Even a weak positive result widens the privacy threat model from specialist PHY access to ordinary signal-strength telemetry and suggests a cheaper path to coarse occupancy inference.

Evidence limits. Confidence is not localization accuracy. The evaluation uses one short, controlled room sequence, a tailored three-AP layout, empty-room calibration and hand-tuned preprocessing; empty-room inputs sometimes produced high confidence, and no multi-home or multi-person test is reported.

Read in full? Skim. Read the setup and threats-to-validity sections for the privacy signal, but do not treat the 80% confidence figure as an accuracy claim.

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ARCHIVE NOTE

This edition preserves the dated public summary and original citations from Wi-Fi Sensing Review. It has been repackaged for the Audeamus Group archive; the historical claims have not been independently reverified during this formatting pass. No private desk analysis is included.

Original public Wi-Fi Sensing Review

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