

Hyppha

Passive Persons Detection via Mobile App in Media Measurement Panel Households

Mobile Apps and Sensors in Surveys (MASS) workshop

March 6, 2024 – Washington, DC

Hypha's Measurement Next-Generation Technology

Data is collected and managed through our patented measurement system in privacy-compliant homes

AI-POWERED TECH

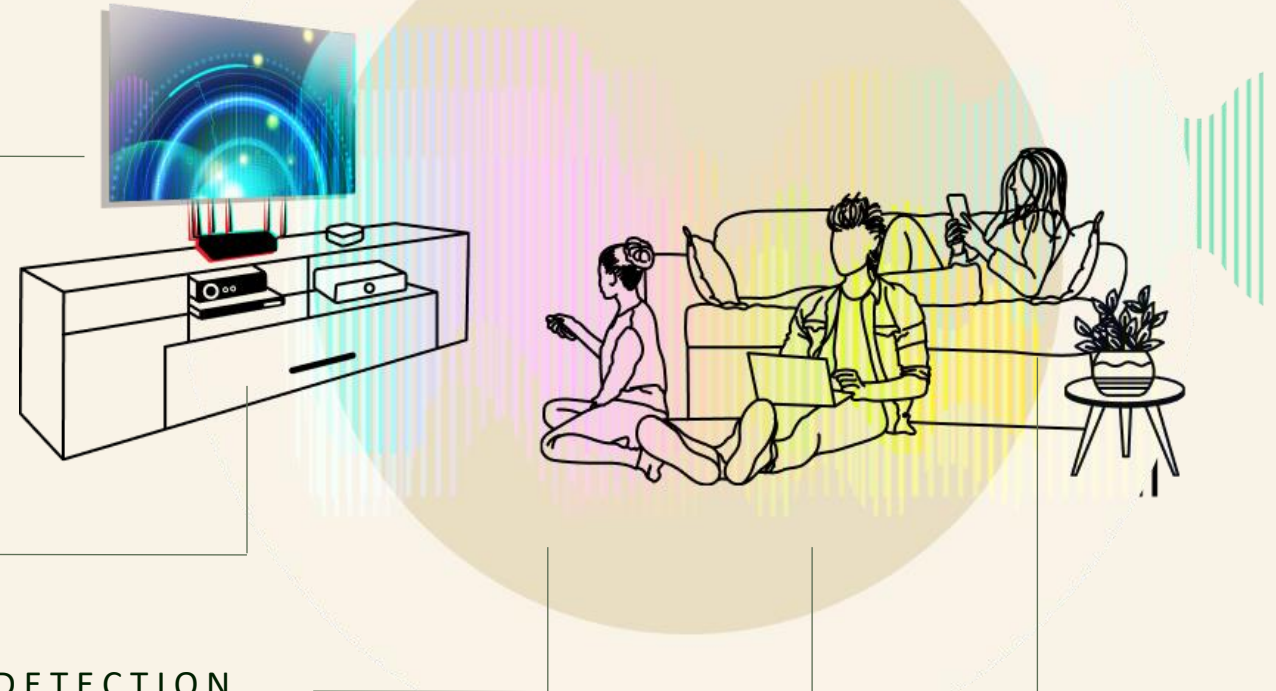
State of the art computer vision, machine learning, and advanced optical character recognition ensure the definitive measurement of everything that happens across screens

DEVICE TRAFFIC

Router in the coreMeter system collects IP traffic across all devices in the household

INDIVIDUAL DETECTION

Multilayered person-detection technology (Wi-Fi, Bluetooth, Infrared) ties viewing activity to an individual and provides unique person-level consumption metrics

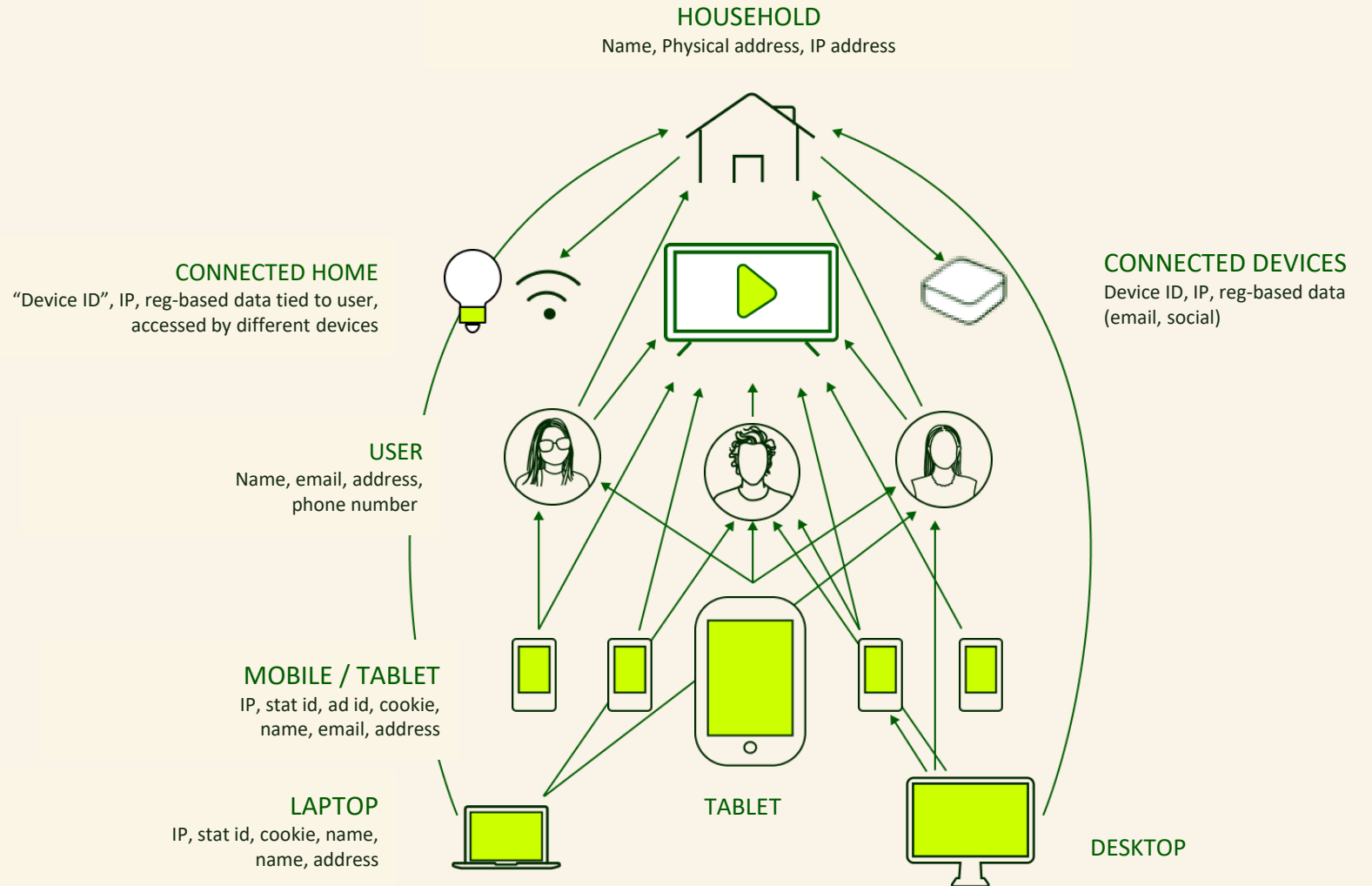


Objective: Measurement of All Persons & Devices from Single Source Homes

UNIFIED INDIVIDUAL MEDIA METRICS

We measure each component of the modern media experience down to the exact individual within the home to provide the only unified individual media metric.

Hypha has the unique ability to bring digital metrics to the TV ecosystem



Person Detection

We use three layers of person detection technology (Wifi, Bluetooth, Infrared) in order to definitively capture exactly **who** is watching. Our system detects individuals as they enter, are present, and leave the room.

Our Machine Learning Models continually learn the room that the coreMeter device is in to optimize data collection and calibration



Wifi (passive)



Bluetooth (passive)



Remote Control (active)

Project Overview

- HyphaMetrics commissioned third party validated study designed to measure the accuracy of Hypha's television viewership data
 - Coalition for Innovative Media Measurement (CIMM) provided funding
- Research Questions specific to mobile sensors:
 - R1: install the mobile app and consistently carry their mobile device?
 - R2: validation of meter sensor data?
 - R3: will panelist communication influence / improve data quality?
- Third party vendor made phone calls to households every other week asking questions related to TV viewing
- Results used to establish validity between coreMeter's person detection and panelist self-reported responses

Validating Persons Detection via Coincidental Phoning

Methodology

- "In the moment" validation & accepted methodology
- Each home will receive 1–2-minute telephone survey every other week / 2X per month
- Third-party call center

Data Collected

- Who is home at moment phone rang
- What TV(s) were on
- What was being watched or activity (e.g., live TV, DVR, streaming, game play)
- Which HH members were in the rooms with TVs on

KPI

- Match rates between meter-reported persons detection vs. "source of truth" call data
- Person watching vs. not watching
- Co-viewing

Validating Persons Detection via Coincidental Phoning

INTRODUCTION

Q1: Ask for household (HoH) at home or
Q1A-B: Ask for alternate household member (HHM)
Q1C: Schedule callback if needed

TV ON

Q2: At the time the phone rang, how many of your [# of TVs] TVs were on (can include any activity on the TV - watching, DVR, streaming, playing video games, etc.)
Q2A: Confirmation if no TVs are on

PERSON IN THE HOME

Q3: Of the registered household members, who is home at the moment the phone rang?
Q3A: Confirmation no HHMs are home
Q4: Are there any guests at home at the moment the phone rang?
Q5: Collect guest(s)' first name, age, & gender

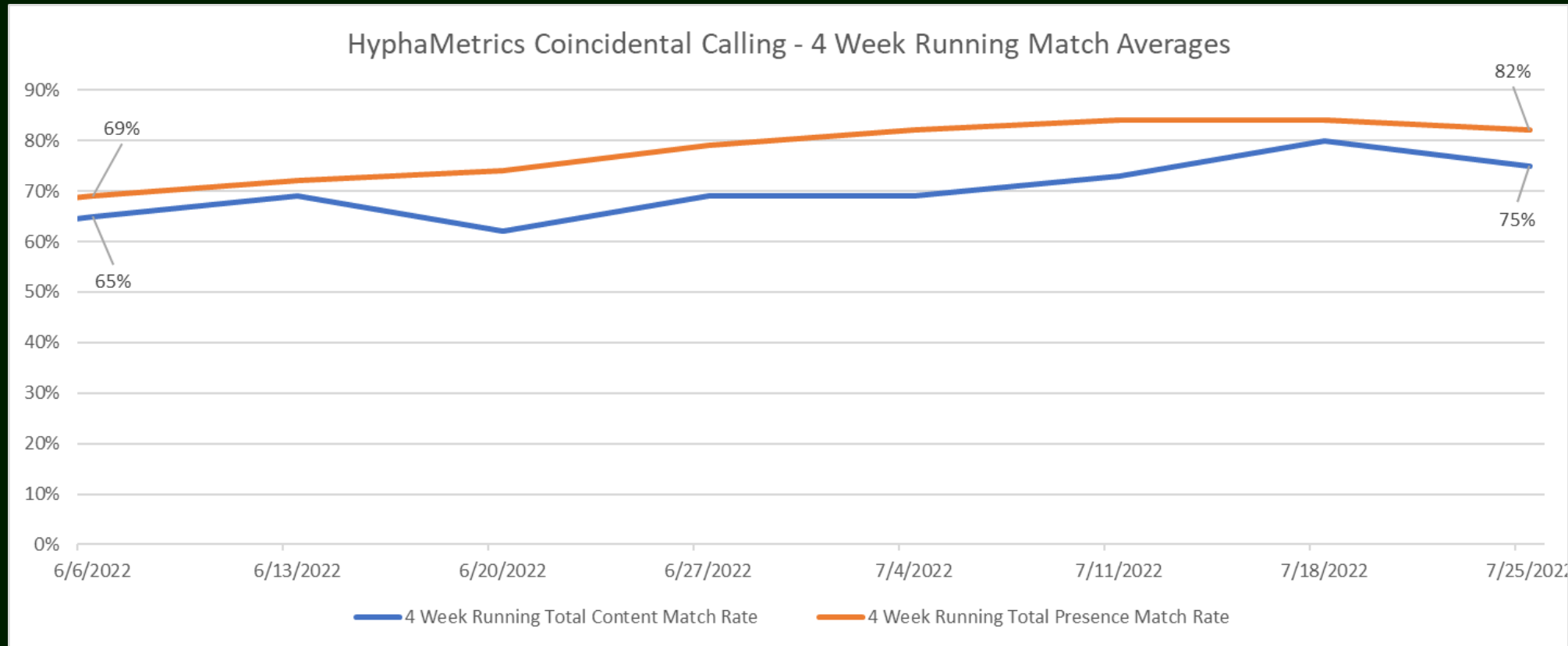
TV ACTIVITY

Q6_[TV#]: Of TVs on - collect room location, TV on/off, & TV activity
Q7_[TV#]: Brief description of activity (e.g., watching [PROGRAM NAME] on channel [X], streaming [STREAMING SERVICE] on my Roku, playing [GAME] on Nintendo Switch, etc.)
Q8_[TV#]: Which people were in the room with this TV? [HHMs & Guests]

Content and Presence Detection Results

A match is defined as an individual's phone report data conquering with data from the coreMeter

- Match rates consistently in upper 70s & 80s (on par w/ legacy / active-only measurement)
- Content match rate average 78% (85% high)
- Presence match rate average 70% (80% high)
- Multilayered Persons Detection successfully captures w/ minimal intrusion & optimal data integrity

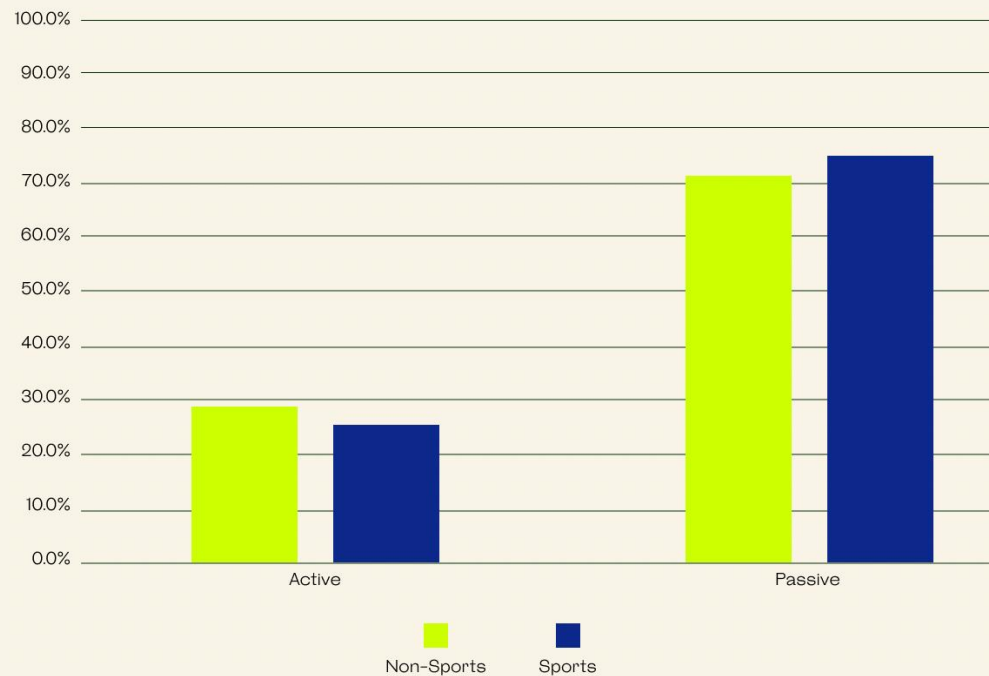


Passive measures were the primary choice | Panelists reported they were “easy to use” | There is no statistical difference between persons detection method by genre (e.g., Sports vs. Non-Sports)

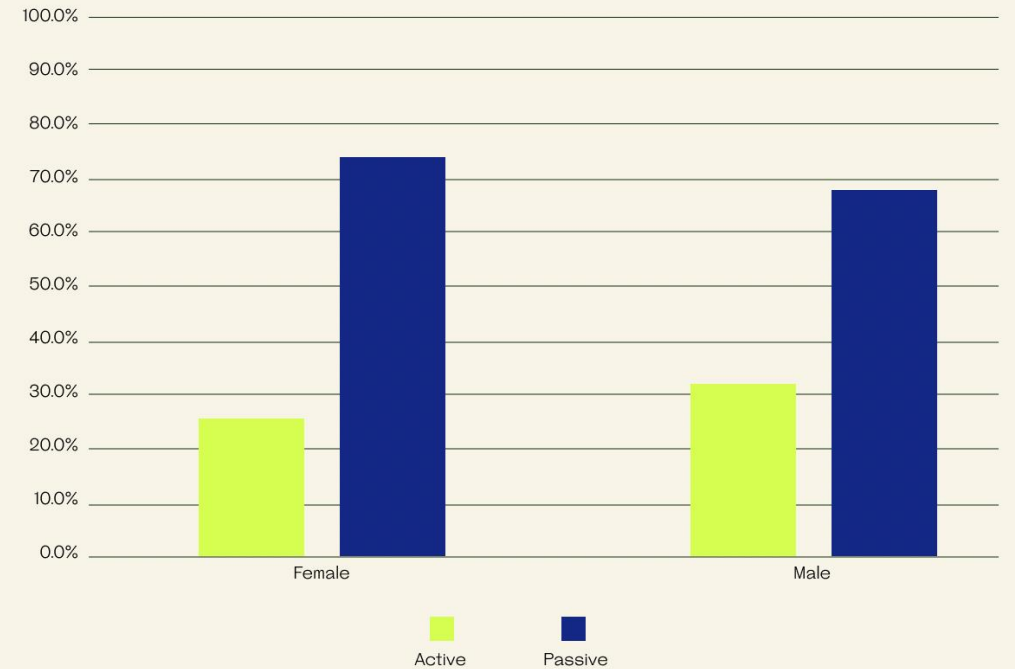
Persons Detection Method Distribution at the Time of the Call

Remote	45.9%
App	12.6%
Beacon	55.4%
Any Active	45.9%
Any Passive	68.0%

Person Detection Method by Program Genre



Person Detection Method by Gender



Improved Panelist Communication = Improved Data Quality

Early cohort communications assumed panelists understood & would choose passive methods

Latter cohorts received training on why passive methods lower burden

Found a significant increase in presence detection and compliance

Recruitment Date	#	Presence Match
Original on-boarding education	111	76.6%
Revised on-boarding education	73	86.3%
Total	184	80.4%

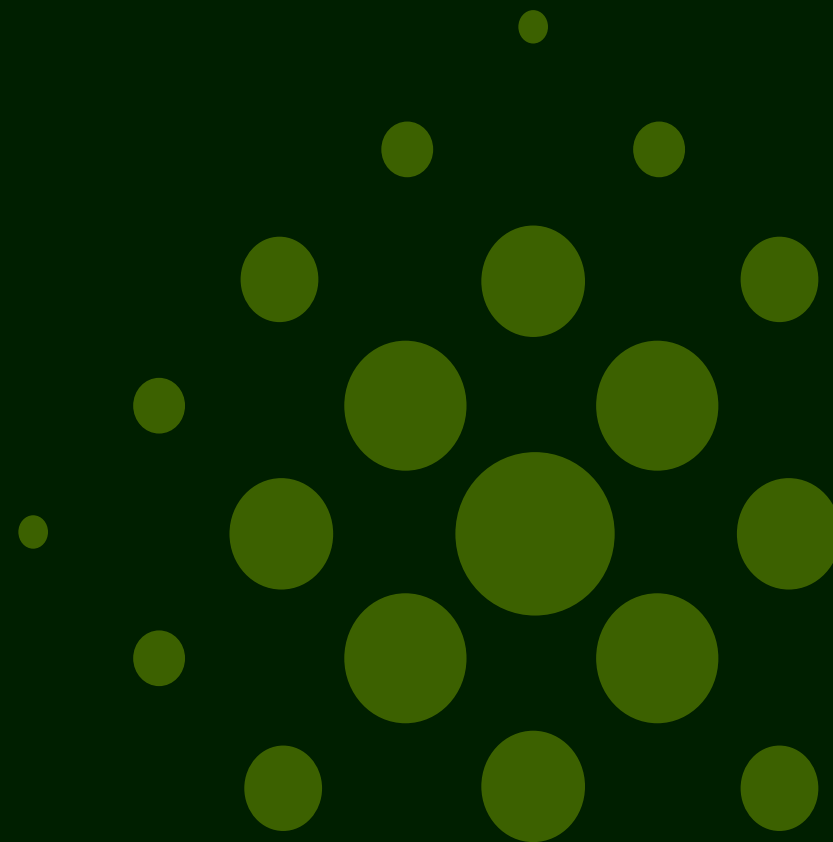
Study Conclusion

- By achieving consistently high match rates for both learning what households are watching on TV as well as what members of the home are watching TV, we have proven our technology's high-quality ability to passively measure people in a non-intrusive manner
- The match rates for both content and presence illustrated both consistent and directional improvement throughout the effort and is due to on-going panel management best practices and compliance efforts
- We will continue to leverage next-generation approaches (e.g., applying Machine Learning to continually improve panelist detection at the panelist and meter level) to make sure the panelist experience is as seamless as possible
- Panelist communications improve data quality

Thank You

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Appendix



The "so, what"

- Individuals' media viewing habits at home are unpredictable. People have their preferences which differ by the location of TVs within a household, device types used and evolving habits over time.
- Therefore, a one-size-fits all method cannot capture all people in their natural viewing environments.
- Due to its non-intrusive nature, a passive approach is the most encompassing method of capturing that natural state. The introduction of actions skews results due to the interruption and intrusion of the preferred viewing method.
- Checks and balances are required to validate the detection of an individual and guarantee preciseness.
- This is vital because the detection of an impression can be lost in cumbersome persons' measurement environments.
- Hypha's proprietary multi-layered persons' approach to measurement facilitates the most precise detection of an individual in relation to their media exposure.

Weekly Calling Campaign Results

Split sample size	50 HHs
Average eligible HHs called	37 HHs
Total HHs attempted	298
Total completed calls	184
Call completion %	62%

- Sample split each week & eligible HHs (meters online, not on vacation, not called in prior week, etc.)
- Average call was completed in 2-3 minutes.