Out of Home Advertising Association of America

DOOH Exposure Methodology Standardization Guidelines and Best Practices

A framework for standardizing the methodology for capturing mobile advertising IDs that represent consumers exposed to digital out of home (DOOH) media. This document addresses specifically out of home media that is stationary outdoor and indoor. While Moving transit data is included, an addendum will be published by an OAAA working group to ensure for greater inclusion of variables that impact measurement of these formats.

Objectives

- Enable industry-wide collaboration to establish a standard for DOOH exposure and drive ongoing improvements
- Increase the adoption of DOOH by making it easier to buy with consistent and transparent methodology for exposure data collection
- Empower marketers to incorporate DOOH into their omnichannel marketing strategy by providing a strong theoretical foundation to support the use and development of data solutions using DOOH exposure data

Problem Statement

Due to the one-to-many nature of out-of-home media, it has been a challenge to understand who was exposed to an DOOH ad. Thanks to the rise of location data, mobile advertising IDs have become an offline equivalent of cookies to help marketers understand who may have been exposed to DOOH media, which serves as the foundation for evaluating the impact of DOOH advertising on consumer behavior.

The definition of DOOH ad exposure today, however, is not consistent within the industry. Depending on the input variables and the methodology used to generate exposed mobile advertising IDs, the scale and precision of exposure output could vary significantly. The lack of standardization in DOOH exposure capture has caused confusion in the marketplace as to what makes exposure-based solutions feasible. For example, the minimum number of impressions required for the same solution could vary greatly by provider due to the different inputs and

methodologies used for capturing exposure. This problem has slowed adoption of DOOH by omnichannel marketers, and standardizing the methodology of exposure capture would be crucial to the future of DOOH.

Focus Areas

Exposed mobile advertising IDs can be used for various purposes. As the primary objective of this initiative is to make it easier for omnichannel marketers to adopt DOOH, the initiative focuses primarily on the **retargeting** and **attribution** use cases of DOOH exposure data. This initiative is not intended to alter any existing impression-based currency measurement systems for DOOH.

Approach

First, Vistar Media facilitated multiple roundtable discussions with industry leaders from DOOH media networks to understand gaps in the existing input data sources and methodologies for DOOH exposure capture.

Upon the development of an initial framework, Vistar then conducted feedback sessions with buyers and data providers to review the initial draft and standardization approach, as well as to identify the specific needs and use cases of DOOH exposure data.

Once the key stakeholders approved of the initial framework, media owners provided feedback for standardizing the input variables used for DOOH exposure capture to create this document.

Key Considerations for Capturing DOOH Exposure

Input Variables by Inventory Type

There are different inventory types within the DOOH industry, and these inventory types require different input variables. For example, screen facing is a necessary input variable for validating the traveling direction of a mobile device towards an outdoor display, but it is not as relevant for determining exposure to indoor displays, as consumers could turn around and look at indoor displays after passing by.

Another factor to consider is the precision of latitude and longitude information tied to a screen. A large number of indoor displays do not have screen-level latitude and longitude information available, oftentimes caused by hardware limitations of networks. As a result, the confidence of exposure capture decreases when distance is being determined between a mobile device's observed location and the centroid of a venue location.

In order to account for the differences in exposure environment and data availability by inventory type while ensuring consistency of exposure capture within each inventory type, the following methods are recommended for capturing exposure for outdoor and indoor DOOH displays:

DOOH Exposure Capture by Inventory Type

- **Outdoor displays**
  - Precise screen location: mobile device observed within the viewing distance of screen when an ad plays while traveling towards the screen. For example, a north facing screen is viewed by consumers traveling south.
- **Indoor displays**
  - Precise screen location: mobile device observed within the viewing distance of screen when an ad plays.
  - Centroid of venue location: mobile device dwelled within the viewing area of a venue location while ads play.

Detailed specifications of required and optional input variables from venue data, movement data, and ad play data can be found in the following tables:

- Figure 1: Required Input Variables from Venue Data
- Figure 2: Required Input Variables from Movement Data
- Figure 3: Required Input Variables from Ad Play Data

Detailed specification of input values by venue type aggregated feedback from media owners can be found in the following table:

- Figure 4: Lat/long Precision, Distance and Average Dwell Time Values by Venue Type

Output Variables by Use Case

The number of required output variables may vary by intended use case. For example, retargeting usually requires only mobile advertising IDs, while attribution requires more exposure details such as time of exposure, exposed content, and environment of exposure, etc.

Detailed specification of required and optional input values by retargeting and attribution use case can be found in the following table:

- Figure 5: Output Variables by Use Case

Figure 1: Required Input Variables from Venue Data

Variable	Requirements by Inventory Type		Description	Sample Value
	Outdoor	Indoor		
Distance	Yes	Yes	Distance in meters where the screen is visible.	100
Latitude	Yes	Yes*	Latitude coordinate of screen. For indoor displays, centroid latitude of venue location can be used if screen-level lat/long is not available.	40.7399443
Longitude	Yes	Yes*	Latitude coordinate of screen. For indoor displays, centroid longitude of venue location can be used if screen-level lat/long is not available.	-73.9910549
Average Dwell Time	No	Yes	Average interval of time when a consumer is in close proximity to a screen in minutes.	300
Facing	Yes	No	The cardinal direction that a screen faces. As an example, a north facing bulletin is viewed by vehicles traveling south.	NW
Venue ID	Yes	Yes	Globally unique identifier of the screen.	vae9d:acb1234
Venue Type	Yes	Yes	Venue type of screen	Billboard
Publisher Name	Yes	Yes	Name of the publisher.	Publisher ABC

Figure 2: Required Input Variables from Movement Data

Variable	Description	Sample Value
Advertising ID	Mobile device advertising ID	0a5c256f-0dc8-4fb4-82a9-ead7732XXXXX
Device Type	Type of mobile advertising ID	IDFA
Latitude	Mobile device latitude.	40.7399443
Longitude	Mobile device longitude.	-73.9910549
Timestamp	The time the device was observed at given location in UTC date string format.	1603828254
Horizontal Accuracy	Device provided accuracy value on lat/long coordinates	150

Figure 3: Required Input Variables from Ad Play Data

Variable	Description	Sample Value
Campaign ID	Campaign ID associated with the ad play.	HTpXbLjfS8uKKMXXXXXXXX
Creative ID	Creative ID associated with the ad play.	PZp_H8rJTSGliVXXXXXXXX
Display Time	The time the ad was played in UTC date string format.	1603828254
Duration	Creative duration in seconds.	30
Venue ID	Globally unique identifier of the screen.	vae9d:acb1234

Figure 4: Lat/long Precision, Distance and Average Dwell Time Values by Venue Type

Venue Type	**Lat/long Precision**	**Distance in Meters**	**Average Dwell Time in Minutes** (if applicable)
Airports	Precise screen location	30	90
	Centroid of venue location	300	90
Buses	Precise screen location	5	N/A

Taxi and Rideshare TV	Precise screen location	5	N/A
Taxi and Rideshare Top	Precise screen location	10	N/A
Subway	Precise screen location	30	10
Train Stations	Precise screen location	30	30
Gas Stations	Centroid of venue location	25	3
Convenience Stores	Precise screen location	5	5
	Centroid of venue location	50	5
Grocery	Precise screen location	5	5
	Centroid of venue location	50	5
Liquor Stores	Centroid of venue location	30	5
Malls	Precise screen location	30	75
	Centroid of venue location	100	75
Dispensaries	Centroid of venue location	50	15
Pharmacies	Centroid of venue location	50	15
Parking Garages	Centroid of venue location	50	10

Billboards	Precise screen location	100	N/A
Urban Panels	Precise screen location	30	N/A
Bus Shelters	Precise screen location	30	N/A
Gyms	Precise screen location	5	60
	Centroid of venue location	50	60
Salons	Precise screen location	5	120
Spas	Precise screen location	5	120
Doctor's Offices	Precise screen location	5	60
Veterinary's Offices	Centroid of venue location	30	30
Schools	Precise screen location	5	60
Colleges and Universities	Precise screen location	5	60
Office Buildings	Centroid of venue location	50	240
Recreational Locations	Centroid of venue location	50	60
Movie Theaters	Precise screen location	10	60
	Centroid of venue location	50	60
Sports Entertainment	Precise screen location	10	150
Bars	Precise screen location	10	90
Casual Dining	Precise screen location	10	60
QSR	Precise screen location	10	30

Hotels	Centroid of venue location	50	120
DMVs	Precise screen location	10	60
Military Bases	Centroid of venue location	50	60
Banks	Centroid of venue location	30	30
Apartment Buildings	Centroid of venue location	30	240

*Based on venue types listed in the Venue Taxonomy developed as part of the Open OOH project: https://github.com/openooh/venue-taxonomy.

Figure 5: Output Variables by Use Case

Variable	Requirements by Use Case		Description	Sample Value
	Retargeting	Attribution		
Exposed Ad ID	Yes	Yes	Mobile device advertising ID observed in the area where the ad can be seen as it plays.	0a5c256f-0dc8-4fb4-82a9-ead7732XXXX X
Timestamp	No	Yes	Time of ad play when the exposed mobile device is within the screen's viewing distance. Format is in UTC date string.	1603828254
Creative ID	No	No	Creative ID associated with the ad play.	PZp_H8rJTSGliVXX XXXXXX
Venue ID	No	No	Globally unique identifier of the screen that plays the ad.	vae9d:acb1234
Venue Type	No	No	Venue type of screen that plays the ad.	Billboard
Publisher Name	No	No	Name of the publisher.	Publisher ABC

Privacy

Mobile advertising ID and location data must be collected, stored, processed, and disclosed under the premise of safeguarding consumer privacy. To ensure compliant use of DOOH exposure data, all companies that provide and use DOOH exposure data shall stay compliant with privacy regulations that correspond to their jurisdictions, including but not limited to GDPR and CCPA

Appendix

Why is mobile GPS data used for understanding consumer movement patterns?

*Notes: ★ = excellent; ✓ = good; ⊖ = average; ✗ = poor

Category	Collection	Accuracy	Precision	Passiveness	Scale
Carrier	Every time a consumer's phone is connected to the network (any text, call, or internet use)	✓	✗	✓	★
GPS	From mobile apps and SDKs where consumers opt in to allow access to their location information	✓	✓	✓	✓
Bid Stream	When a consumer is using a mobile app and has location services turned on while seeing an ad in-app	✗	⊖	✗	✗
Beacon	Uses bluetooth technology to scan devices within 10-100 feet; users need to have BT turned on and visible	★	★	⊖	✗

Definitions

- Accuracy: when the description of a consumer's location matches that consumer's actual location at the time when such description is made. For example, location signal indicates that consumer A is inside the MetLife stadium. If the signal is accurate, then consumer A is physically inside the stadium at the time when the signal was made.
- Precision: often refers to the number of decimal places required to describe a consumer's location at the desired level. For example, latitude and longitude coordinates with five decimal places are considered more precise than those with three decimal places.
- Passiveness: refers to the amount of foreground activities required for collecting data. The less foreground activities required, the more passive the data is. For example, a signal recorded from a mapping app running on the background is considered more passive than a signal recorded from a pop-up ad a consumer sees when opening up a gaming app.
- Scale: usually refers to the adequateness of a sample dataset used to describe the target population. In the context of location data, a variety of metrics are used to assess the adequateness of a given dataset, such as monthly and daily active devices, frequency of pings per device per day, etc.

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- New Tradition

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- Pacific Outdoor Advertising
- ReachTV
- Rouge Media
- Screenvision Media
- SellrTV
- Social Indoor
- Topgolf
- TouchTunes
- UPshow
- Velocity / Velocity Grocery Network
- Vertical Impression