MRC Out-of-Home Measurement Standards

Phase 1 & 2 Combined

Final – December 2025

Sponsoring Association:
Media Rating Council (MRC)

Media Rating Council, Inc.

Out-Of-Home Measurement Standards

1. Overview

This document represents a combination of two previous phases of Standards related to Out-of-Home (OOH) measurement, previously released separately, but combined herein. The first phase release (published final April 2024; Phase 1) addressed Standards applicable to several of the underlying components necessary to establish a qualified OOH measurement metric, and purposely omitted audience requirements. The second phase (Phase 2) intended to foster a common core of metrics that can be applied across the full expanse of OOH media, as well as provide for comparability to other measured media. Phase 2 was focused on the detail as to what is necessary to qualify a reported statistic as audience. Phase 2 served as a supplement to Phase 1 and was released for public comment July 2025. Both documents are combined in this final Standard.

These Standards are designed to be applicable to visual media formats including Display (including Printed and Static formats for OOH) and Video whether delivered via digital or analog means. The document was prepared for the use and benefit of the media Industry, especially those constituents that analyze measurement statistics, whether for content or advertising in OOH Media, and those that monetize media metrics associated with advertising (whether buyer or seller) in the OOH environment.

The term audience is defined as the number of unique individuals estimated to be within the Display Exposure Zone that have met the criteria for a Likelihood-to-See (LTS) Impression and the criteria specified below in Section 3.2 of this document in addition to LTS to qualify as Audience. Additionally, many of the metrics covered herein are fundamental to establishing audience for OOH, and the requirements and defined criteria associated with each of these apply to the audience requirements detailed below. Note, the term “individual” is used throughout this document serving as a counting mechanism and its mention should not be inferred to represent audience. Multiple metrics are reported based on individuals including traffic counts, impressions, and audience, though each is defined separately based on its own set of unique qualifiers. The term “individual” alone does imply any form of characteristic, unless these data are attributed by the measurer.

It should be noted that the “best” methods and approaches to measure the audience of any media are driven by the nature of the medium, its environment, its mode(s) of delivery and how its audience consumes and interacts with the medium. This is especially true of OOH due to the diverse nature of the locations and delivery methods, the environmental factors associated with the varying locations and delivery vehicles, and the available measurement techniques for these unique environments.

These Standards are intended to lead toward improved measurement practices in the United States for OOH media, encouraging adoption for countries and entities outside the U.S., and are expected to evolve over time through a regimented revision process in order to keep pace with industry change, and as further advanced and technological solutions and other research methods become more feasible. The revision process will include consideration of other guidance issued around the globe, with the intent to align or adopt practices to the extent possible, bearing in mind that differences in local mores, regulations, restrictions, and common

practices may result in certain limits. Changes in the size and diversity of the marketplace should also be considered and we will continue to monitor measurement developments, some of which may already be employed elsewhere that should be considered for use once deemed feasible. Our intention is to work to continually improve the quality and state of research for OOH media as the medium continues to grow and advance, and we expect media owners will adopt and accept the need for continued advancement in research methods and quality.

The MRC also promotes full transparency and throughout this document specifies that measurement organizations must be transparent with respect to all aspects of their operations so that users have a complete understanding of the methods used to collect, edit, adjust, process, and report the data. The level of transparency we promote (as detailed in required disclosures discussed throughout this document) **is not intended to force disclosure of any protected intellectual property or highly proprietary techniques, though these aspects should be subject to confidential audit conducted by an independent body.**

This document also encourages validation of the underlying information that forms the basis for counting, as well as the methods and techniques employed by measurers to edit and process raw data to derive impression metrics. Validation shall extend to external data sources, to the extent possible, and shall be performed periodically both internally and by external parties. For syndicated measurement services, empirical research that validates methodological techniques is generally required and should be available for customer review in a summary fashion.

This document is principally applicable to OOH media measurement companies and media suppliers who deliver OOH content and/or related advertising, and is intended as Standards for accepted measurement practice. Other users of OOH data including marketers, advertising planners and buyers, and sales executives can use this document to assist in determining how accurately measurement parameters are executed, or rely on the executive summary that will be produced with the final release and will provide a general overview and core principles on the measurement of OOH.

This document was prepared considering material published or supplied by various industry associations, including DSF, DPAA, ESOMAR, Geopath, IAB and OAAA and we would like to recognize the efforts of these organizations in producing the earlier work. Information excerpted from materials supplied by one or more of these organizations is denoted with “+”, and permission was granted.

1.1 Goal of Standards

This document, serves to establish a set of methods and standard practices for entities that calculate OOH Measurement and associated metrics, in addition to providing guidance and benchmarking for voluntary inspection and auditing of OOH measurement products and associated practices and disclosures by a third-party. The OOH Standards are intended to:

- Establish and document sound and minimally acceptable measurement practices
- Improve OOH measurement practices and disclosures used by practitioners
- Educate users of OOH Measurement data across the various industry sectors

- Providing a consistent set of definitions for key elements of OOH Measurement that are applicable to all OOH media types
- Recommending minimum disclosures for measurement data users
- Clearly outlining recommended research, operating practices and quality standards, inclusive of best practices
- Foster innovation and improvements to enhance measurement research quality
- Encourage cross-media and geographical comparability

The ultimate goal of this document is to provide standards for OOH media measurement, and audience delivery that provide for consistency with other media formats, including digital. This document seeks to provide the definitions and standards for measurement providers to support the hierarchical spectrum of metrics from Gross Impressions to OTS-to LTS-to-Audience for the OOH Industry and relevant organizations to determine transactional requirements. This is to allow for OOH to be bought and sold using standards consistent with other media, to facilitate easier planning and buying through direct and/or programmatic platforms, although MRC's aim is not to dictate currency or transactional practices.

1.2 Development Process

The Standards contained in this document emanate from a project facilitated by the Media Rating Council (MRC), with the participation of a large group of OOH vendors and related Industry associations including DPAA, Geopath, and OAAA, plus measurement organizations and other interested entities.

These Standards were exposed to major buyer-side trade organizations (e.g., 4As) and their constituents, and thereafter provided to the public through a formal period of public comment prior to formal adoption.

MRC will re-assess these Standards periodically to ensure they remain applicable over time.

1.3 Development Team

The development team consisted of a large group of individuals representing the following organizations and entities.

- Media Rating Council (MRC)
- Advertising Agencies
- Out-of-Home Trade Associations
- Digital Out-of-Home Trade Associations
- Digital Trade Associations
- Industry Consultants
- Media Content Distributors
- Media Measurement Services
- Various International Entities

1.4 Standards Scope and Applicability

These Standards are intended to cover the methods applied to measure the prevalent forms of OOH media including the different forms of content and ad types distributed through either analog or digital delivery methods. Depending on the nature of the delivery method, content as well as ads may be static in nature, changing only after some extended period of time, or rotate mechanically or digitally at periodic intervals. It is important to know the method by which ads or content are displayed, and the times at which they appear, so that proper accounting can occur when measuring and reporting on content, ad content, or individual ad units.

Digital content types, including ad inventory, covered by this Standard are broadly characterized based on how ads or content are delivered and the devices they are delivered to as: static linear (fixed ad or content position delivered to a fixed device regardless of location or other conditions), rotating linear (fixed ad or content position delivered to a moveable device regardless of location or other conditions), dynamic (content or ad delivery that varies based on location or other conditions) or interactive (content or ads delivered to a device whereby the ads, content and device can be interacted with), and encompass static display, video or animated images that may or may not include sound. OOH elements (i.e., Content or Ads) may be further generalized by the following parameters.

- Is the content on a unit that is rotating between multiple spots? (Y/N)
- Is the content/Ad delivered via electronic means "digital"? (Y/N)
- Is the content/Ad a full motion video? (Y/N)
- Is the content/Ad displayed with partial motion or animation? (Y/N)
- Is the Display Audience capable of interacting with the content/Ad? (Y/N)
- Does the content/Ad include an audio component? (Y/N)
- Do Ads rotate among multiple display units? (Y/N)
- Do Ads Share the Display with other content? (Content) (Y/N)

Table 1 generalizes the ad types available through the different forms of delivery.

Form	**Ad Types**			
	Static (Linear)	*Rotating (Linear)*	*Dynamic Insertion*	*Rich Media Interactive*
Display (Audio optional)				
Analog	Y	$Y_{(Tri\text{-}vision)}$	N	N
Digital	Y	$Y_{(Network)}$	Y	Y
Video (Audio optional)				
DOOH Including Digital Place-Based	Y	Y	Y	Y
Audio Only				
	Presently excluded from the Standards.			

Tri-vision – Advertising display, typically the size of a traditional billboard, that utilizes moving prism panels to rotate its surface. Three different ad messages in a predetermined order and for set amounts of time would be shown on the billboard.

OOH media are distributed through varying means that can be broadly categorized into four major groupings (Billboards, Street Furniture, Transit, & Place-Based), and while each of these categories offers its own set of unique characteristics and qualities in terms of delivering content and advertising to consumers, the same OOH Measurement requirements shall be applied, subject to the extent to which a requirement is applicable. Table 2 summarizes the major OOH categories along with a description of each. OOH industry associations offer more details on the varying types of units or content delivery mechanisms contained within each of the four broad categories.

Table 2 – Type of OOH Media (+)

Name	Description
Billboards	Outdoor stationary inventory whose audience moves by those locations on a trip to a destination. Billboard audiences are primarily within moving vehicles, but also include pedestrian traffic.
Street Furniture	Outdoor stationary inventory, many that provide a functional and public amenity, positioned in close proximity to foot traffic or adjacent to roadsides near vehicular traffic. Street furniture includes, but is not limited to transit benches/shelters, newsstands, kiosks, and interactive posts.
Transit*	Outdoor and indoor inventory affixed to moving vehicles or positioned at transport hubs. Moving vehicle (fleet) media are affixed to moving vehicles that can be seen by people in other vehicles and pedestrians. Transport hub and interior-vehicle audiences are typically pedestrians on the way to another destination.
Place-Based	Inventory located at a destination venue (indoors or outdoors) with associated dwell time. Place-based media audiences are typically pedestrians or can be individuals located within a Venue.

*Scenarios may exist where Transit OOH Media can transition to Place-Based OOH media. For instance, a person moving through a Transit Hub (e.g., airport, train station, etc.) that arrives at a destination, such as the airport gate or bus terminal where there may be associated dwell time, could be an example where there is overlap from Transit to Place-Based OOH media.

OOH media, including video and static display may or may not have an audio component. Audio-only OOH media are not fully addressed in this Standard though many of the principles and measurement methods apply. Audio-only providers were not prevalent at the time these Standards were written and specific requirements for audio-only OOH services will require evaluation so that further refinements can be considered as that form of OOH media develops and the need arises. Audio-only will be addressed through an addendum to this document or its successor, or in a separate document.

In instances when audio is employed in conjunction with video or display, the measurer must consider that the area in which someone can see the Display likely differs from the area in which the source can be heard. The measurer must determine how it will account for the variations in potential exposure, and disclose the methods used to determine each type of exposure, including any overlapping measure (e.g., Audio and Video) that may be included in reporting. Regardless of whether information is gathered directly from respondents, or developed using spatial definitions, empirical support must be maintained as to whether the medium is viewable and/or audible.

Video Reporting

The minimally acceptable base measure for reporting purposes for video-oriented OOH are measures associated with only the video component of the medium. Reporting on this single aspect provides for consistency and enables direct comparison across the various forms of video

OOH media that may or may not have an audio component. Additional measures may be reported as optional variables and must be clearly labeled and defined, and represented as supplemental measures.

Following are a set of key metrics available for video OOH reporting:

Required Reporting Metric

- Measures associated with Video Only – Reflects an area in which exposure to the Video can be determined, and there is no assurance as to whether the audio can be heard. This area is referred to as the Visual Exposure Zone or Display Exposure Zone.

Optional Reporting Metrics

- Measures that reflect both Video and Audio – Based on an area in which the video can be seen and the audio can be heard.
- Measures associated with Audio Only – Considers an area in which the audio can be heard though there is no assurance as to whether the video is visible. This area is referred to as the Audio Exposure Zone.
- Measures that reflect either Video or Audio – Reflects the area in which someone has the opportunity to either see the video or hear the audio, and does not necessarily require that they have opportunity for exposure to both components. This is the most liberal definition among the reporting metrics, and in most instances will yield the largest Impressions based counts though, this will vary based on the environment in which the medium is delivered.

Display Reporting

The minimally acceptable base measure for reporting purposes for display OOH are measures associated with only the visual component of the medium. Reporting of this single measure provides for consistency and enables direct comparison across the various forms of Display OOH media that may or may not have an audio component. Additional measures may be reported as optional variables and must be clearly labeled and defined, and represented as supplemental measures.

Following are a set of key metrics available for Display OOH reporting:

Required Reporting Metric

- Measures associated with the visual component Only – Reflects an area in which exposure to the Display can be determined, and there is no assurance as to whether the audio can be heard. This area is referred to as the Visual Exposure Zone or Display Exposure Zone.

Optional Reporting Metrics

- Measures that reflect both Visual and Audio – Based on an area in which the Display can be seen and the audio can be heard.

- Measures associated with Audio Only – Considers an area in which the audio can be heard though there is no assurance the Display is viewable. This area is referred to as the Audio Exposure Zone.
- Measure that reflects either Visual or Audio – Reflects the area in which someone has the opportunity to either see the Display or hear the audio, and does not necessarily require that they have opportunity for exposure to both components. This is the most liberal definition among the reporting metrics, and in most instances will yield the largest Impressions based counts though, this will vary based on the environment in which the medium is delivered.

Audio and other considerations

The default reporting metric for Audio-only OOH media should be "Exposure to Audio Only", though this does not restrict the measurer from reporting ancillary metrics. "Exposure to Audio Only" metrics must be segregated or clearly delineated from "Exposure to Video Only" or "Exposure to Display Only" related metrics. For example, reported metrics should not comingle "Exposure to Video Only" and "Exposure to Audio Only" metrics. Further, ad formats should also be delineated in reporting (e.g., display and video).

Measurers may elect to report on additional metrics, possibly indicating interactions, though these should not supplant the base measures of "Exposure to Video Only", "Exposure to Display Only", or "Exposure to Audio Only" for Audio-Only providers, and any additional measures should be clearly defined and disclosed.

Measurers that employ an audio-based measurement solution must consider that exposure within the Display Exposure Zone might be shaped differently than what the device measures. For instance, audio signals may be detectable outside the area in which the Display can be viewed (e.g., behind the Display) and may also be confounded by ambient noise. While an audio-based measurement technique can provide reasonable assurance of exposure to the audio content the same does not hold true for the video. Situations may also exist where the Video or Display is viewable and the audio is inaudible.

Measurers that employ an audio-based measurement solution must disclose this measurement limitation or take steps to account for these possible differences. The latter action will necessitate careful study so that logical adjustments can be applied that are supported by empirical evidence. The measurer must also delineate situations where the audio-based method is incapable of determining possible exposure due to the lack of audio present in the content or display device, and any method to adjust for this shall be supported by empirical evidence.

Detailed disclosure is necessary so that users understand the nature of the measurement and any subsequent adjustments, and include quantification of the magnitude of the adjustments.

The methods applied for measuring OOH media include:

- Determining the location, orientation, and characteristics of Display inventory so that appropriate measures of activity surrounding the Display can be established. Measurement

should occur at the Display level so that information can be aggregated for ad campaign or network reporting purposes.

- In certain instances it may be desirable to report at a venue level, in which case it is important to establish Venue Traffic of appropriate quality (these establish the estimate of potential unduplicated Traffic by virtue of Presence in the Venue – the unduplicated Traffic estimates can never be more than the Venue Traffic).
- Establishing Viewable Impression estimates of appropriate quality (these establish the counts of potential individuals (or counts) to the Display by virtue of Presence within a zone where the individuals have an opportunity for exposure to the Display while a viewability condition exists).
- Establishing Likelihood-to-See Impression estimates of appropriate quality (these represent the number of individuals who were present with Opportunity-to-See and/or hear the source while a viewability condition exists, with evidence of notice or seen).
- Calculating average Ad Unit Impression estimates of appropriate quality, where applicable (representing a refinement of Impression estimates to account for actual Ad unit delivery, in lieu of media content, and based on Dwell Time of the individuals).

Measurement and reporting are also dependent upon having a complete Display classification database, including known locations, that are subject to independent verification of the asset registry and audit.

Measurers should seek to adopt a syndicated measurement approach, across the spectrum of OOH media, or at the very least among the various entities serving a particular category (e.g., Transit), and avoid custom methods unless dictated by a unique set of measurement circumstances. In instances where custom methods are employed users shall be informed of any measurement differences with steps taken to limit comingling of the data, ideally through separate reporting. This document describes major types of measurement techniques and describes best practices and basic measurement quality requirements for each type.

1.5 Privacy

All data collection, processing and transmission processes must adhere to applicable privacy regulations and requirements. Data collectors and users should ensure proper permissions and access rights are present. MRC acknowledges that such privacy requirements may prevent inclusion or otherwise require anonymization of some data fields, particularly those related to user identifying or targeting data. It is critical that privacy be protected in all aspects of OOH measurement.

Measurement organizations are encouraged to consider and comply with additional industry and regulatory guidelines and requirements in this area including the EU General Data Protection Regulation (GDPR) where applicable and the following:

The *IAB's Mobile Location Data Guide for Publishers*:
(https://www.iab.com/wp-content/uploads/2016/04/IAB_Mobile-Location-Data-Guide-for-Publishers_Feb2016-Revised.pdf)

The *Digital Advertising Alliance's Self-Regulatory Principles*:
(http://www.aboutads.info/principles)

The *Network Advertising Initiative's Code of Conduct*:
(https://thenai.org/accountability/code-of-conduct/)

Additionally, measurement organizations seeking MRC accreditation are required to adhere to relevant *MRC Minimum Standards* in this area. Localized privacy regulations must also be considered. Privacy regulations as they emerge must be monitored and staged for the measurement organization as soon as known.

2 Measurement Definitions

IMPORTANT: Many of these definitions are taken from existing sources including the DOOH Glossary of Terms assembled through a collaborative effort involving Geopath, IAB, DSF, and DPAA, OAAA, and WOO Guidelines, plus DPAA's *Glossary of Buying and Selling Terms for Digital Place-Based Advertising Networks* (the Glossary) and the CIMM Lexicon. In some cases, existing definitions have been modified and/or expanded by the MRC and project participants; this was necessary to add specificity and to make the definitions fit to be used in these measurement Standards, and to the extent possible, congruent with terms employed in other media. *The text is presented italicized in those cases where a definition has been taken from an existing source.*

Ad Campaign: A series of Ad Units delivered for an advertiser during a defined period of time.

Ad Rotation Duration: The number of seconds required to view all of the ads in a rotation or Loop. (Note: this applies to situations in which an ad rotation or a Loop exists, and neither of these elements are required.)

Ad Segment: The portion of the Loop, or some other defined period of time, containing advertising content. The Ad Segment can contain one or more Ad Units, and is also referred to as commercial pod.

Ad Unit (Unit): A piece of creative content designed to deliver a message (i.e., an ad) intended for an Advertiser's existing or prospective customer base. Ad Units are designed to conform to the media in which they will be delivered. Ad Unit is analogous to the term "Spot" as applied in other media.

Ad Unit Length (Ad Duration or Ad Length): The duration of the Ad Unit as applicable to Video and Audio. Display ads that rotate periodically can also have an assigned duration, which is equivalent to the amount of time the Ad Unit is intended to be displayed. Ad Unit Length is also known as Ad Duration or Ad Length.

Affidavit: Legitimate proof of posting by the vendor that the advertiser's message ran as scheduled. The terms of what constitutes acceptable elements of an Affidavit (e.g., play log, proof of play, controls, images, etc.) should be agreed to by the buyer and seller prior to initiation of the ad campaign.

Apparent Size - The size a display appears within an individual's field of view (measured in degrees). It is dependent upon the angle the display is in relation to the individual's view (e.g., face-on vs. oblique view) as well as the distance from the viewer. If the individual is moving, Apparent Size can be measured as the weighted average of the angular size of the Display from the perspective of the audience as they travel through the Display Exposure Zone while the Display is in their field of view.

Audience (Audience Impressions): The number of individuals estimated to be within the Display Exposure Zone and meet certain qualifying criteria of Presence, Display Functionality, Viewability Condition exists, and evidence of consumption, with Audience having further requirements in addition to LTS Impressions whereby additional criterion is applied; Audience requirements are detailed below in this document. Audience can be further refined to reflect times when only Ad content is viewable (i.e., Ad Audience) or restricted to those times when only program data is viewable (e.g., Program Audience) as well as presented for specific relevant time periods. When no distinction is made as to whether Ad content or program content is viewable, Audience counts are considered to be only a surrogate measure for Ad Impressions, and this limitation should be clearly disclosed.

Audio Exposure Zone –The physical area in which a person has an opportunity to hear a specific OOH medium source (e.g., video etc.). The Audio Exposure Zone must be disclosed by the measurement organization and subject to empirical support and validation requirements discussed below.

Average Ad Impressions: Average Ad Impressions represents Impressions to a period of time equivalent to the length of an Ad Unit delivered by the distributor (:30, :60, etc.). Average Ad Impressions can also be stated on a measure of time independent of the size of the Ad Units, for instance average minute that is a commonly accepted metric.

Composition: Demographic, psychographic, behavioral or other segmentation/targeting characteristics of the Audience reached.

Content – Program or ad material intended for delivery through the Display, and this can be video, audio, or both. Promotional activity and Public Service Announcements also qualify as a form of Content.

Content Segment: The portion of the Loop, or some other defined period of time, containing program or non-advertising content.

Coverage Area: Geographic area covered by network installations.

Daypart: Refers to a specific period or segment of the day during which a particular type of programming or advertising is displayed. Reporting Exposure Metrics are required to align with contracted daypart.

Display: A device or medium designed to deliver OOH Content and/or Advertising in various forms including video, display, audio, or a combination of these elements.

Display Exposure Zone: The physical area in which a person has an opportunity to see and/or hear a specific OOH medium source (e.g., display, poster, etc.) agnostic to persons level LTS considerations. This must meet the criteria specified for either Visual Exposure Zone or Audio Exposure Zone depending on the characteristics being measured (the selection of Exposure Zone used must be disclosed by the measurement organization and subject to empirical support and validation requirements discussed below). **Distance, size of the display and angle (of the asset relative to the Exposure Zone, not persons level LTS considerations) needs to be considered in the definition of the Display Exposure Zone.**

Dwell Time: The length of time spent by an individual or the audience in the Display Exposure Zone.

Functional: Confirmation that a digital asset or display is working as intended (able to display ads or content) and free of faulting or malfunction conditions that would prevent display of ads or content.

Gross Impressions: The number of potential ad exposures (Ad Play/Post), over a period of time, where Presence in the defined Display Exposure Zone exists while the Display is functional. More than one ad impression can be counted per individual when evidence exists demonstrating the individual transited in and out of the Display Exposure Zone on different occasions and impressions may be counted for multiple ads displayed during Presence in the defined Display Exposure Zone while the Display is functional. Obstructions would not necessarily negate the counting of gross impressions.

Location Circulation: The duplicative count of people, pedestrians or people in vehicles (or proxies for people such as mobile device or transit activity such as ridership swipes) in a defined location (i.e., consideration of Presence). The location can be as discrete as an area in the proximity of Display, a predefined geographical area (e.g., zip code, county, etc.), or a Venue (e.g., mall, stadium, etc.). Solely based on presence at a location, area of venue – and not necessarily a zone related to the OOH media.

Location Traffic (distinct from Circulation): The *count of vehicles* (with 1 or more persons within them) that pass through a known set of 'gates' or other bounds (geographic segments of roadways or Exposure Zones) on a roadway over a specific time period. The location can be as discrete as an area in the proximity of Display or a predefined geographical area (e.g., zip code, county, etc.). Solely based on presence at a location, area of venue – and not necessarily a zone related to the OOH media.

Loop: Segments of content and advertising programmed to a specific length that repeats on standard intervals. Example: A six-minute Loop that contains 11-15 second ad positions along with editorial content. The Loop repeats 10 times an hour, providing 10 plays for each message per hour, each message playing once in the Loop. The use of a Loop is not required and is not relevant in a pure ad serving environment where ads are served dynamically, with varying times and content associated with them.

LTS Impressions (Likelihood-To-See): A further refinement of Viewable Impressions whereby an adjustment is applied to account for the likelihood of exposures to the Content or Ad on the

Display with some evidence of notice or seen. (See Gross Impressions for added context on Impression counting)

Non-Probability Samples: Any of several different sampling schemes in which the elements in the "sampling frame" do not have both a known and non-zero probability of selection. It is impossible to calculate this type of study's margin of sampling error though methods exist that allow you to approximate a value.

Obstruction: A condition in which the Display is visually or audibly blocked, partially or in its entirety, from the potential viewers. This is disambiguated into Environmental/Visual Obstruction and Logical Obstruction.

-Environmental/Visual Obstruction (not a required viewability consideration but a required LTS and Audience consideration) refers to permanent or semi-permanent non-device or non-on-screen considerations such as trees, shrubbery, buildings and other physical obstructions that may be present in the environment surrounding an OOH asset (does not include temporary obstructions such as passing vehicles).

-Logical Obstruction (a required viewability consideration) is used generally to include any on-device or on-screen occlusion of content including Z-order layering (or vertical stacking, such as other applications or players) of elements, OS level alerts or notifications (a device pop up), content in the background and content clipped or scrolled on the display which is either partially or completely unable to be seen.

Opportunity to See or OTS Impressions (also known as Viewable Impressions) - The number of exposures, over a period of time, with Presence in the defined Display Exposure Zone while a Display is functional and a viewability condition exists (for OOH, the Cross-Media requirement of 100% of pixels [or posting] on-screen [on asset] for one second for Display/Static and 2 continuous seconds for Video are applied). Logical Obstructions would negate the counting of viewable ad impressions; Environmental/Visual Obstructions (also defined above) would not. (See Gross Impressions for added context on Impression counting)

Presence: The state of being present in a defined location, whether it is a predetermined discrete area surrounding a Display or within the defined Display Exposure Zone. There should be sufficient consideration and controls to ensure accuracy of presence determination while being compliant with local privacy regulations, especially when relying on digital location methods (See section 4.1 of this document)

Probability Sampling: Any of several different sampling approaches in which each element in the population has a known, non-zero probability of being selected.

Response Rate: The percentage of eligible sample units that provide usable, complete information in a survey.

Sample Frame: A listing that should include all those in the population to be sampled and excludes all those who are not in the population.

Syndicated Measurer – An entity that measures and reports audience or other metrics across multiple properties, content distributors or providers that are used to support planning and buying of advertising. It is preferred that the measurer be independent of the media being measured, and that a consistent method of reporting be made available to all users of the data.

Tracked Ads: The number of ads where measurement was initiated and counted when a vendor's measurement assets have fully downloaded and initiated, but prior to ad content loading and rendering. This metric should not be labeled as an Ad Impression.

Universe: The basis of population amount required for OOH media subject to measurement. These may be customized (or limited) based on the specific attributes of the measurement/media and the associated locations and may be specific to defined markets or other geographic areas. In some cases a customized universe can be stated, though preferably, a general population estimate should be used (e.g., Census estimates) for media comparability purposes.

Venue: The place and location of the advertising network and Displays. Examples include supermarkets, office buildings, gas stations, airports, transit stations and other places where people can be found.

Viewable/Viewability – Assurance that content and/or ads are present on the Display so that it can be viewed or listened to, with presence in the Exposure Zone and Play/Post (as defined above) thereby enabling the possibility of Exposure. Measurement of ad content has specific requirements in terms of the duration and portion of the ad content that must be present in order to be considered viewable (for OOH, the Cross-Media requirement of 100% of pixels (and postings) on-screen (on-asset) for one second for Display/Static and 2 continuous seconds for Video are applied). Logical Obstructions (defined above) would negate the Display being viewable or meeting the viewability condition; Environmental/Visual Obstructions (also defined above) would not.

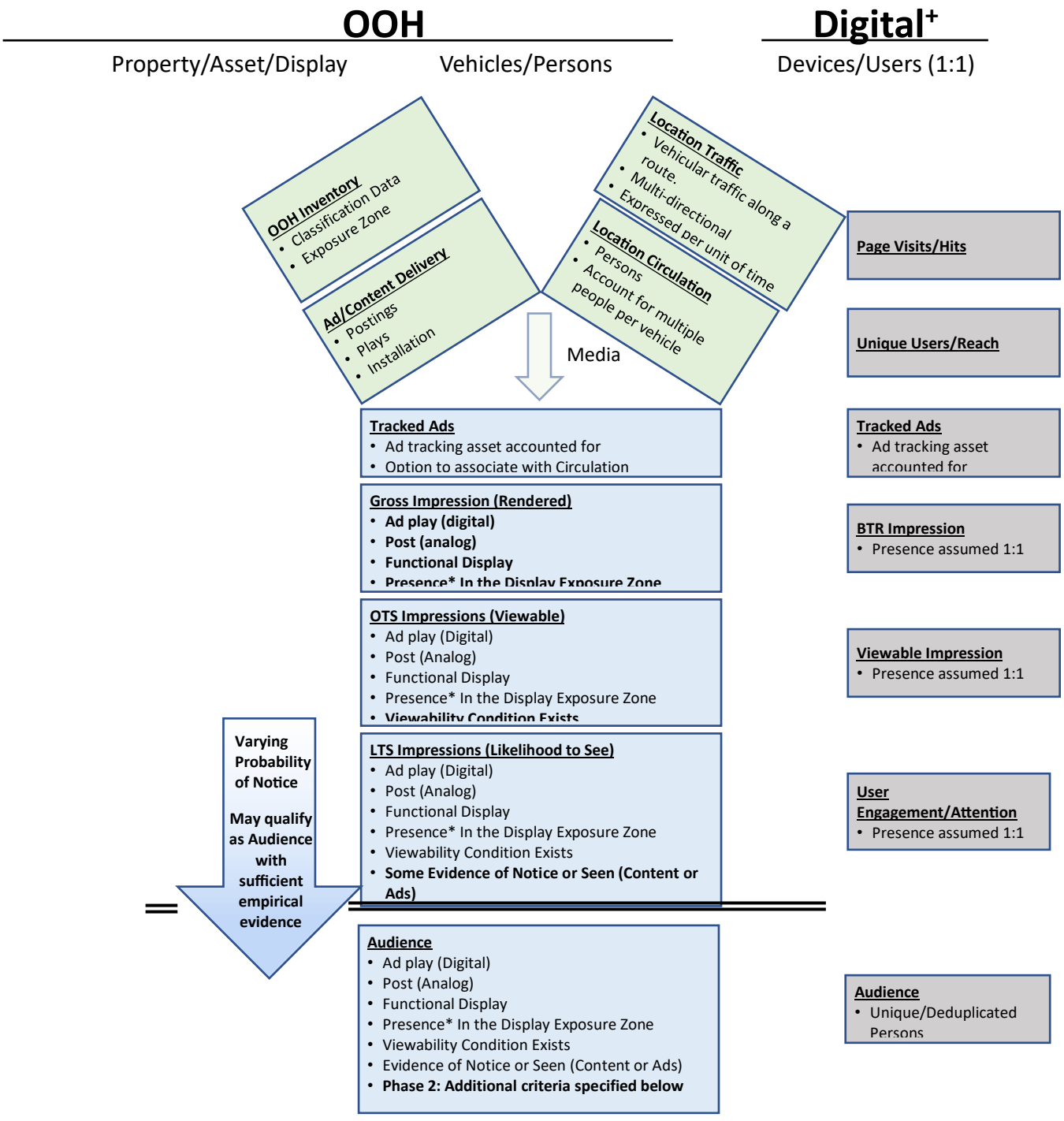
Visual Exposure Zone – The physical area in which a person has an opportunity to see a specific OOH medium source (e.g., display, poster, etc.). **Distance, size of the display and angle of the viewer to the display needs to be considered in the definition of the Visual Exposure Zone.** See minimum values for Apparent Size below (which combines size of the display and distance of the viewer into a single meaningful value) and maximum viewing angle discussed further below. The actual values used for apparent size and angle should be disclosed by all measurement providers and subject to empirical support and validation requirements discussed below.

Weighting: Statistical adjustments applied before data are analyzed, to account for respondents' unequal probabilities of selection in probability samples, as well as to project in-tab sample to defined universe estimates.

3 Out-of-Home Metrics

MRC OOH Measurement Metrics

Illustrating the Relationship to Digital Metrics



* Presence – Applied because the number of people per property/asset/display can be large for OOH and people are engaged in other activities and not intending to consume the media as a purposeful activity, thereby creating a greater risk of overstatement

+ Digital in this context refers to personal devices (desktop computer, mobile devices etc.) and not digital signage in OOH environments.

3.1 Display and Ad Measurement

Display measurement provides valuable insight as to the level and nature of impressions or audience counts that OOH media are capable of delivering, and as such provides for some measure of comparability to other measured media. Display measurement alone; however, is not sufficient to establish impressions to advertising, since in some cases, Display measurement will encompass times when program content as well as ad content are being delivered. Audience counts are considered to be only a surrogate measure for Ad Impressions when there is no accounting for whether Ad or program content are viewable and this limitation should be clearly disclosed. Strong efforts should be undertaken to directly measure Ad activity rather than rely on a surrogate.

3.1.1 General Guidance

Audience is a common and valuable metric for media in the U.S. Additional metrics can be produced to serve the planning, buying, and analysis needs of the OOH marketplace, absent the measurement and reporting of an Audience metric, and these vary in terms of measurement intensity and value.

Location Circulation of persons or pedestrians either transiting on foot or in vehicles, or situated in an area, while easier to measure, provide the least value due to missing evidence of Opportunity-to-See (OTS) and/or hear. While Location Circulation is a count of people, it is not Audience without the measurement of other Audience Qualification criteria discussed below including the base requirements for Gross, OTS and LTS Impressions. OTS (Viewable) Impressions are more valuable than Location Circulation in that an OTS impression accounts for Presence in the Display Exposure Zone which provides the Opportunity-to-See (OTS) while a viewability condition exists. The next refinement level is Likelihood to See (LTS) impressions that must meet all of the qualifying criteria for viewable impressions as well as an additional determination that the Display is noticed or seen.

Measurement organizations should strive to report metrics in a manner that makes them directly comparable to existing media metrics to enable direct comparison to other media and to facilitate cross-media comparison.

3.1.2 Core Metrics (Location Traffic, Impressions (Gross, Viewable (OTS), LTS))

A Hierarchy of OOH Measurement

Section	Metric
3.1.2.1	Location Circulation or Traffic
	⇩
3.1.2.2	Impressions (Gross, Viewable (OTS), LTS)
	⇩
3.1.2.2.1	Gross Impressions (Impressions – Rendered)

3.1.2.2.2 Viewable Impressions (OTS)

3.1.2.2.3 Likelihood-to-See Impressions (LTS)

3.2 Audience

3.1.2.1 Location Circulation or Traffic

Qualifying Criterion

- Presence

Location Circulation or Traffic can be a basic component of calculating Impressions or Display Audience estimates though it is not required for reporting. Measurement approaches involving direct persons counting methods independent of the environment, such as facial or other automated detection techniques, are not reliant on area counts, and so Location Circulation or Traffic would not be necessary. Estimates can represent both pedestrian (circulation) as well as vehicular (traffic), and for the latter, estimates of the number of passengers per vehicle can be applied to develop circulation counts, producing a more complete measure. Location Circulation or Traffic does serve a purpose in that it can be used to gauge the maximum potential audience to an OOH asset or medium, though it is not required. Location Circulation or Traffic is insufficient in nature to qualify, alone, as either Impressions or audience.

Location Circulation or Traffic can be attributed to a discrete area surrounding an OOH media asset, for instance, an intersection adjacent to a billboard, or can be aggregated to much larger areas, for instance, Venues.

Location Circulation or Traffic does serve a purpose in situations where measurement is dependent on knowing the pedestrian traffic or persons in the area. The criterion for inclusion in Circulation or Location Traffic is Presence at the location, and this Presence at the location must be established to qualify for Impression counts or audience estimates. Specifically, to qualify for inclusion in Impression counts or audience a person must be documented to be present at the location.

Location Circulation or Traffic can be established solely by counting procedures and is often times secured from third-party sources, and these sources must have sufficient evidential matter to establish Presence. Passive methods are preferred, and regardless of the method counts shall ensure fluctuations by day of week and time of day are accounted for.

Transit figures or transactional data, such as register receipts or ticket sales are often times relied on for Location Circulation or Traffic. When these data are gathered from disparate sources (e.g., sales data from multiple sources), or through technology solutions that are subject to overlap, there shall be some study or means to account for possible duplication, and any subsequent adjustments shall be empirically supported and disclosed. Measurers should avoid

reliance on surrogate data (e.g., retail transaction information in lieu of mall data, or third-party ridership estimates in lieu of ticket sales) unless there is sufficient evidence of a strong correlation, and any differences are accounted for. These data shall be periodically monitored and assessed to determine their continued validity and whether further adjustments are necessary.

If Location Circulation or Traffic figures are based on periods prior to the measurement period, and thereby inferred to be applicable to the measurement period, the specific periods actually measured for Location Traffic estimates shall be disclosed. It is preferable for the Location Circulation or Traffic measurement period and the Impressions or audience measurement period to closely correspond in time, preferably overlap. Significant timing deviations create risk that Location Circulation or Traffic information cannot be attributed accurately to Display Impressions or Audience, thereby lessening the utility of the measurement data. Seasonality at the location should be strongly considered, with material adjustments made when measurement periods differ.

Location counting data shall be subject to quality control checks that prevent material error and subject to periodic internal auditing to verify accuracy. Evidence supporting area counts shall be retained for at least 12 months following release of specific Impressions or audience data.

Operating times for the location should be stated, and qualification for inclusion in counts shall be limited to the location operating times. Sufficient internal controls shall be established to: (1) ensure accurate capture of operating times across measured locations, and (2) the application of these times to counting procedures (exclusion of pedestrians or traffic during times when the location is closed or not accessible).

If third-party estimates are used by the measurement organization in establishing location counts, the measurement organization should have sufficient understanding and visibility into the accuracy of these estimates. Access to observe and/or verify vendor processes and access to the counting data itself are critical to establishing a basis for relying on such data for measurement purposes.

In situations in which the processes associated with an underlying data source cannot be independently verified or observed, the measurement service shall develop some means to obtain the necessary assurance on the quality of this foundational data, with evidence that these controls are adequate for the task and functioning as intended. Disclosure is required when an underlying data source is not an industry recognized trusted provider (e.g., US Census), and cannot be independently verified.

Location data is considered a foundational element to measurement, in those instances where direct persons measurement independent of the environment are not utilized (e.g., automated detection techniques), and as such all aspects must be periodically validated as well as subject to independent external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

3.1.2.2 Impressions (Gross, Viewable (OTS), LTS)

Impressions are another component of calculating the Display Audience estimates, and also are not sufficient in nature, alone, to qualify as audience counts. Similar to Location Traffic, Impressions estimates are not a necessary component for calculating audience when there is a direct measurement of persons independent of the surrounding environment, for instance, utilization of facial detection technologies, GPS technologies, cell-tower triangulation, applications, or other methods. Impressions can still serve a purpose to dimension the maximum potential audience to a Display, though it is not a required element in these situations.

Digital Display and Video ads must be loaded and at minimum begin to render on the Display in order to count as a valid Gross Ad Impression. Measurement of begin-to-render should include logical components necessary to display the ad, but does not necessarily include logical elements that are not essential (such as other tracking elements). This provides greater assurance to advertisers that the ad was actually delivered to a device, and was not subject to delivery interruptions such as those posed by ad blocking, pre-rendering, or latency effects. It also creates a more appropriate basis for other important ad delivery measures, such as viewable impressions, as well as other analytical metrics that are based on the initial delivery of the ad content.

Content or Ads distributed via Analog Displays are not typically rendered in a dynamic manner and subject to the same delivery interruptions (e.g., latency, pre-rendering, etc.) as in a digital environment, though there may be situations where rotation or some other form of switching of materials may occur. Absent rotation or other form of switching event that may render the material unviewable for a period of time, the Analog OOH Display would be considered viewable when it is determined that the Content or Ads have been installed and properly maintained during the measurement period. Any obstruction would negate the counting of viewable impressions.

A mechanism should exist to assess inventory for obstructions in a manner that ensures all assets are evaluated over the course of a pre-defined period of time, not to exceed 12 months. Stratification should be considered to allow differing verification intervals based on assigned risk.

A measurement vendor may elect to measure and report the number of ads where measurement was initiated, and this metrics should be reported as Tracked Ads, and alternate labeling may apply. This activity can be counted when a vendor's measurement assets have fully downloaded and initiated, but prior to ad content loading and rendering. This metric should not be labeled as an Ad Impression, without qualification, but will assist both buyers and sellers in addressing rendering issues by providing a means to ascertain ads that do not render.

Measurement of impressions does not alone ensure measurement to the Advertising, unless the Display solely displays advertising content, and all the prerequisite measurement conditions are determined to have been met. In certain instances, the Display delivers advertising as well as programming content, or other non-advertisement material, and this creates challenges and added requirement for measuring discrete types of impressions, producing three types of reporting scenarios:

- Display Impressions – There is no effort to differentiate nor account for the type of content (Ad or program) displayed on the Display at the time measurement occurs and as such, estimates may represent some mixture of the two.
- Ad Impressions – Measurement is restricted to, or in some ways accounts for times when solely Ad content is visible (i.e., Ad Unit or Ad Segment). This is relatively easy to accomplish when the Display is dedicated to delivering solely Ad content, and much more complex when a Display delivers a mix of Advertising, program content, and other information. Ad Units should be tracked independently, noting situations whereby the information is deemed to be promotional activity or a Public Service Announcement (PSA). Ad Measurers must disclose their methods for handling promotional activity and PSAs, and notify users as to whether these items are included as part of impression reporting.
- Content Impressions – Measurement is limited to times when program content, and no Ad content appeared on the Display (i.e., Content Segment). These metrics can be useful in assessing the value of program content. Measuring content only, when a mix of material is intended to be delivered to a Display creates a similarly challenging situation as measuring Ad Impressions alone.

Measurers must also consider that automated activation triggers may be employed by OOH sources that cause content to change based on certain conditions, such as time of day, temperature, weather forecasts, or trending events, and assess whether this may alter ad delivery.

The following documents contain additional guidance on impression measurement and reporting:

- Digital Video Impression Measurement Guidelines
- Viewable Ad Impression Measurement Guidelines
- Mobile Viewable Ad Impression Measurement Guidelines

Dwell Time in the Display Exposure Zone must also be considered in order to be counted.

Measurement organizations should consider that an ad must run at least one time during the Dwell Time (based on Loop size or period being measured, and the frequency) to be exposed and projected to 100% of the Display impression counts. Otherwise, calculation processes must be used to fractionalize the impression estimates.

If Dwell Time for respondents is established through technology-based means, the accuracy of the techniques shall be established through rigorous periodic testing with general accuracy rates described to measurement users. Technical tools should function accurately for the entire Display Exposure Zone; otherwise, modification of the zone should be considered. Physical or operational limitations of the technical tool shall be disclosed and the tool shall be subject to audit.

Non-technical measurements of Dwell Time, such as those based on a survey/interview of a sample of respondents are subject to traditional quality controls and best practices. These forms

of measurement are generally incapable of distinguishing between exposure to ad content or program content when both types are present. In these instances, reporting is to represent general impressions and not to distinguish between ad or content exposure.

Internal controls shall exist to ensure advertisements are inserted as intended and ad content of Displays is accurately captured and reported to measurement users…essentially ad trafficking controls. These controls shall be periodically validated for accuracy for internal purposes. Independent organizations exist that can assist in assessing the effectiveness of ad trafficking controls and compliance.

Known variations in pedestrian or vehicular traffic that lead to variations shall be described to users of measurement data and accounted for in projections of samples or other forms of measurement. Variations may be the result of seasonality, time of day, day of week, or other such factors.

Dwell Time is typically defined on the basis of seconds, but if longer Dwell Times are typical, this can be converted to minutes. Dwell Times shall be measured with sufficient frequency to ensure they are representative of reported behavior keeping in mind such factors as time of day, day of week, seasonality, and other variables that may cause variation. Measurement organizations should keep in mind that Dwell Times can vary based on content and advertising within the Display's media, so venue and Display environments are not the sole source of Dwell Time variability.

For Display (i.e., non-video) Advertising and analog forms of OOH media, Dwell Time becomes less of a consideration though there must be evidence demonstrating Presence during times at which ad or program content was viewable. Impressions would then be calculated based on Presence during the applicable measurement period, and when the Ad or program content was viewable.

3.1.2.2.1 Gross Impressions (Rendered Impressions) (device level or persons)

Qualifying Criteria

- Functional Display
- Presence In the Display Exposure Zone

The qualifying criteria for inclusion in Gross Impressions estimates is Presence at the specific media Display within the Display Exposure Zone while the Display is determined to be functioning. Obstructions would not necessarily negate the counting of gross impressions.

Gross Impressions can help dimension maximum counts that could be potentially qualified as audience counts, or be further delineated to account for conditions such as viewable impressions (OTS) and the added measure of Likelihood-to-See (LTS) as well as Audience. Gross Impressions are based on the least restrictive set of criteria among the differing types of impressions metrics; therefore, its count levels will generally exceed that of Audience, LTS, OTS impressions, though in no instance will it be lower. The qualifying criteria and requirements associated with determining Gross Impressions counts are also to be applied when establishing OTS, LTS or Audience impressions metrics that are documented later in this document.

Presence in the Display Exposure Zone (where required) must be established with sufficient evidential matter. Generally, this is based on observation or other direct method of counting (manual observation, survey-based response or technology-based electronic means). Passive methods that do not entail direct interaction with respondents are preferred. Regardless of the method, counts shall ensure that fluctuations by day of week and time of day are accounted for. Impressions estimates require that an established viewable area around the Display, commonly referred to as a Display Exposure Zone, be determined that restricts the count for a specific media Display. Facial detection processes, or other direct persons measurement techniques that are not reliant on the surrounding environment may be used; however, must be able to account for the differing characteristics among Display Exposure Zones, adjusting for size, angle of view and other variables that may impact an individual's ability to view or hear the Display.

If Impressions figures are based on periods prior to the measurement period, and thereby inferred to be applicable to the measurement period, the specific periods actually measured for Impressions metrics shall be disclosed. It is preferable for the Impressions measurement period and the audience measurement period to closely correspond in time, preferably overlap. Significant timing deviations create risk that Impressions information cannot be attributed accurately to Display audience, thereby lessening the utility of the measurement data. Seasonality in Impressions should be strongly considered, with material adjustments made when measurement periods differ.

Impressions data shall be subject to quality control checks that prevent material error and subject to periodic internal auditing to verify accuracy. Evidence supporting Impressions data shall be retained for at least 12 months following release of specific Impressions or Audience data.

The specific nature, size and empirical evidence supporting the basis for a Display Exposure Zone shall be retained and also disclosed to users. If Display Exposure Zones vary in size based on the environment of the location or Display setting, this shall be described and dimensioned for the user of Impressions or Audience data.

Operating times for Displays should be stated, and qualification for inclusion in counts shall be limited to Display operating times and when the Display is functional. Sufficient internal controls shall be established to: (1) ensure accurate capture of these operating times across measured Displays, and (2) apply these times to counting procedures, specifically excluding pedestrians or traffic during times when the Display is not operational or functional.

Services shall rely on industry accepted Display classification databases for measurement and reporting purposes, and the source should be subject to independent third-party verification and audit. (See Section 7)

Measurement organizations should have sufficient understanding of the accuracy in establishing Impression counts, locations, and other Display classification details, as well as in determining the Display Exposure Zone. Access to observe and/or verify vendor processes and access to the counting data itself are critical to establishing a basis for relying on such data for measurement purposes.

In situations in which the processes associated with an underlying data source cannot be independently verified or observed, the measurement service shall develop some means to obtain the necessary assurance on the quality of this foundational data, with evidence that these controls are adequate for the task and functioning as intended. Disclosure is required when an underlying data source is not an industry recognized trusted provider (e.g., U.S. Census), and cannot be independently verified.

Impressions estimates are considered a foundational element to measurement and as such must be periodically validated as well as subject to independent external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

3.1.2.2.2 Viewable Impressions (OTS)

Qualifying Criteria

- Functional Display
- Presence In the Display Exposure Zone
- Viewability Condition Exists

Viewable Impressions must meet all of the qualifying criteria and requirements necessary to establish Gross Impressions as specified above, plus have the added criteria of determining a viewability condition exists. Logical Obstructions could negate the counting of viewable ad impressions, Environmental Obstructions would not. Directionality of traffic should also be considered, where appropriate.

Generally, to qualify for inclusion in Viewable Impressions, individuals must not only be documented to be present at the locations but must be documented to be present at the Display, in the Display Exposure Zone, while the Display is functional and a viewability condition exists. The above qualifiers for Viewable Impressions are not required in situations where a direct person counting mechanism is utilized that is independent of activities in the surrounding environment. Viewable Impressions are not sufficient in nature, alone, to qualify as audience counts.

Operating times for Displays should be stated, and qualification for inclusion in counts shall be limited to Display operating times and when content is deemed viewable. Illumination as well as seasonality effects that may alter hours of daylight and darkness must be considered. Sufficient internal controls shall be established to: (1) ensure accurate capture of operating times across measured Displays, and (2) the application of these times to counting procedures (exclusion of pedestrians or traffic during times when the Display is not operational or content is otherwise not viewable).

Viewable Impressions estimates are considered a foundational element to measurement and as such must be periodically validated as well as subject to independent external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

3.1.2.2.3 LTS Impressions (Likelihood to See; Gross and OTS/Viewable Impressions)

Qualifying Criteria:

- Functional Display
- Presence in the Display Exposure Zone
- Viewability Condition Exists
- Evidence of Notice or Seen

LTS Impressions must meet all of the qualifying criteria and requirements necessary to establish Viewable Impressions specified above, and additionally establish that the Display was likely either noticed or seen. The determination as to whether the Display was likely seen or noticed may not be sufficient to qualify the LTS impression as audience since the probability can vary depending on the nature and characteristics of the display, plus the surrounding environment and conditions, and the strength of the measurement technique. Some Displays may be deemed to have a lower likelihood to be seen or noticed than others, and the certainty to which a Display meets these conditions shall be described and dimensioned to users of the data.

Generally, to qualify for inclusion in LTS Impressions, individuals must not only be documented to be present at the locations but also must be documented to be present within the Display Exposure Zone, while the Display is functional and a Viewability condition exists, with evidence the Display was seen or noticed. The above qualifiers for LTS Impressions may be met in situations where a direct person counting mechanism is utilized that is independent of activities in the surrounding environment, but also may use a number of indirect counting mechanisms with empirical support.

LTS Impressions estimates are considered a foundational element to measurement and as such must be periodically validated, as well as subject to independent external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

3.2 Audience

An audience measure (Audience Impressions) needs to satisfy a more stringent requirement than those applied for Gross, OTS/Viewable and LTS impressions measurement, and include some form of evidence of consumption (Note: This does not mean attribution of an Outcome, but simply LTS plus sufficient evidence of notice or seen as detailed below). The goal is to produce a set of standards comparable to how other media forms are measured, and notably digital given the overlap, placing OOH on an equal footing for cross-media comparisons. It is possible that previous measures of LTS reported prior to finalization of these Standards meet the Audience requirements stipulated below and if so, may be presented as Audience, subject to validation.

Following are extracts from MRC's Digital Audience Based Measurement Standards, a complete copy of which is available at:

https://www.mediaratingcouncil.org/sites/default/files/News/General-Announcements/MRC%20Digital%20Audience-Based%20Measurement%20Standards%20Final%201.0.pdf

Many, though not all, of the listed requirements are applicable to OOH audience measurement, and among those that are applicable certain revisions are noted below to conform guidance considering the unique characteristics and environment of the OOH industry. Many requirements are also necessary to support impressions measurement, and are reflected in the content below.

MRC Digital Audience, Cross-Media and Outcomes Measurement Standards Excerpts (Presented solely for comparison to existing digital and cross-media audience requirements)

The *Digital Audience Based Measurement Standards* are intended to apply primarily to the measurement of digital advertising audiences, although the concepts it includes can be used to guide the measurement of digital content audiences, until such time that content-specific audience measurement guidelines have been established. This document serves as the framework for measuring and reporting audiences for digital ads that are viewable, filtered for invalid activity, attributed to an audience segment (or in target), duration weighted (for video where applicable and in cross-media comparisons) and comparable/able to be deduplicated across media types.

Standards include the following key tenets (with appropriate Section reference):

- *Viewable Impressions are the minimum required qualifying measurement unit for digital audience-based measurement including digital and cross-media Reach, Frequency and GRP (Sections 2.1 and 2.2.1).*
- *The Universe used for calculating a GRP must be based on the total audience (or selected demographic/target) measured and must be considered when determining the coverage of measurements; for cross-media audience measurement, the minimum acceptable universe should be the de-duplicated total of all persons in the media universe for each medium (Sections 3.1 and 3.2).*
- *Records evidencing longitudinal consumption of content (duration) during the measured time period should be based on active user affirmation (Section 4.1.1).*
- *Digital audience assignment should only be done at the unique device or, more preferably, unique user level (Sections 2.4 and 4.3).*
- *Digital audience measurement and reporting requires filtration inclusive of both General and Sophisticated Invalid Traffic (Section 6.2).*

Guidance and requirements of other IAB, MRC, and, where applicable, MMA measurement guidelines are applicable where relevant. These include the MRC Viewable Impression Measurement Guidelines (for both desktop and mobile viewable impression measurement), the IAB Audience Reach Measurement Guidelines, the IAB/MMA/MRC Mobile Web and Mobile In-Application Measurement Guidelines, among others.

Cross-Media Section 2.2.1:

Please note, the definition of viewability relates to delivery of an ad with sufficient opportunity to see (OTS) based on the number of pixels that are on a screen for a specific amount of time. It should not be confused with visibility (which often means any portion of an ad is on screen for any time) nor be used to imply presence of a user or that an ad has been viewed/seen. While certain measurement controls such as people meters and other factors such as user initiated sessions and the personal nature of mobile devices, may create stronger linkage between ad delivery and presence of a user, they are not absolute. Viewable conditions may occur without the presence of a user in digital (such as in Auto-Play), OTT and linear environments.

Cross-Media Section 2.5.1:

As discussed above, the Digital Audience-Based Measurement Standards specify that a viewable impression is the qualifying unit for inclusion of a digital ad impression in audience-based measurement. However, the definition of viewability should not be used to imply presence of a user or that an ad has been viewed/seen. Viewable conditions may occur without the presence of a user in digital (such as in Auto-Play), OTT and linear environments.

That said, there are several requirements discussed in this document as well as the Digital Audience-Based Measurement Standards that signal the likelihood that a user is present during associated measured activity including, but not limited to, inactivity rules, session cut off rules, auto-play requirements, continuous play requirements and TV Off controls (all discussed throughout this document). All of these considerations are required for inclusion in audience measurement.

Certain measurement controls such as people meters and other factors such as user initiated sessions and the personal nature of mobile devices may create stronger linkage between ad delivery and presence of a user may also be present. Additional controls that provide additional assurance of presence of user are encouraged and should be disclosed.

Outcomes and Data Quality Section 2.2.3:

Beyond measuring media and ad exposure (rendered and viewable), establishing presence of an audience via "eyes/ears on" or attention and engagement are critical factors in determining meaningful exposure of an advertising message by the consumer. These criteria have an unequivocal bearing on the advertising's actual contact with, or impact on, consumers, the consumer's consequent actions and ultimate brand Outcomes. As such, Outcomes measurement providers should consider Advertising Exposure or contact by the consumer as well as their Attention or impact for any audience if causality is to be assessed. Direct measurement of Attention is not required for Outcomes measurement in all cases due to feasibility and privacy considerations, however it's direct significance to causality should be recognized.

…

While consumer Attention measures are included in this phase of these Standards, to the extent they are derived from either first- or third-party measurement of consumer's media and ad exposure (with contact, i.e., "Eyes-On" or "Ears- On" as a minimum)/activity, more advanced methodologies and models employed within them are intended to be addressed as part of a later phase of these Standards.

It should be noted that Audience is a minimum requirement for Cross-Media reporting and comparisons.

Specific Considerations for Unique Aspects of OOH

1. Consider the one-to-many aspects of exposure to OOH advertising assets. This difference is significant from the traditional structure of other forms of digital media which are more likely to be one-to-one or one-to-few exposures.

2. Consider existing audience measurement processes already accepted by the OOH marketplace such as Visibility Adjusted Contact (VAC) or "Eyes On" processes for key codifiable requirements for LTS. Seek out and study internationally accepted practices as part of this consideration.
3. Consider the new environments of digital data overlays or other forms of attribution and how these will supplement, or with appropriate ties to exposure and consumption (not attribution) frameworks could possibly qualify as audiences.
4. Consider existing or new techniques/technologies that are available to help establish strong likelihood to see metrics that can qualify as audience directly.
5. Consider the multitude of OOH forms and varying delivery methods, some of which may necessitate special handling from an audience measurement perspective.
6. Consider the need to create exposure zones specific to the nature of the OOH asset (e.g., billboard vs. kiosk vs. TV screen, etc.) and the associated venue (e.g., transit station, movie theater, taxicab, grocery store, etc.).
7. Consider the dynamic nature of OOH environments, including roads/streets, retail and entertainment venues, transit hubs, arenas, office buildings, etc. which can have widely varying traffic patterns over the course of a day as well as over the course of a week or month, and over the course of a year.

OOH Audience Qualification Requirements

These Standards do not set prescriptive methodological requirements or establish detailed thresholds for Audience qualification, allowing for flexibility among the methods used. Audience is defined as the number of individuals estimated to be within the Display Exposure Zone meeting the following qualifying criteria, with Audience being a further refinement of LTS Impressions whereby this additional criteria is applied:

1. Converting LTS to Audience: Once LTS is established, counts must be adjusted to represent what proportion of those with sufficient evidence that an individual actually looked at the asset or had a significant likelihood to see (qualified for Audience) an ad or content that has OTS (Viewability) established for a certain period of time and for specific format considerations. Such adjustment is likely to be based on modelled or algorithmic approaches. When determining the adjustments to be applied for Audience qualification, the following factors must be considered where applicable to the OOH asset, location and population being measured **(all areas below required for Audience)**:

    a. Size of the asset (minimum size considerations) and size with respect to distance from field of view (at least 1.5% of field of view) within the Exposure Zone (vertically or height above traversed surface and horizontally; i.e., apparent size) and maximum visibility distance or size of the Exposure Zone should be considered together as part of Apparent Size along with Maximum Viewing Angle (in instances where the angle can be measured for X, Y, and Z coordinates discretely, an ad angle no greater than 55 degrees *for any one coordinate on an absolute basis relative to the screen* is recommended). Note, while these are required considerations of LTS, further refinement is required for evidence of notice or seen sufficient for qualification in audience. These specific thresholds were adopted from previous IAB/MRC Intrinsic In-Game and Augmented Reality Measurement Guidelines.
    b. Environmental/Visual obstruction (assets obstructed should not be considered as establishing LTS)

c. Presence of audio where applicable and audio obstruction (mute, zero volume or competing environment audio); for video ads/content with corresponding audio, while not required for Audience qualification, audio state should be considered and at minimum, reported where known consistent with MRC Cross-Media Standards; audio-only ads/content should follow the guidance for Audible Exposure Zone
d. Precise location of an asset (such as location within a location; lat/long or description of location/placement)
e. Dynamic nature of asset (rotating or variable ads/content)
f. Visual clutter (both ad/content assets and non-assets such as environmental distractions); reasonable efforts must be made to understand the environment surrounding the asset, on a periodically updated basis and considered where relevant; it should be noted that visual attractiveness of the asset (in terms of size, illumination and functionality relative to the surrounding environment) should be considered; reasonable efforts must be made to understand the environment surrounding the asset, on a periodically updated basis and considered where relevant
g. Illumination and related seasonality compared to time of day (depending on whether the asset is self-illuminated or not)
h. Exposure time (at minimum, 1 continuous second for static content/ads and 2 continuous seconds for video content/ads for OTS); average exposure or dwell time should be reported
i. Speed, direction and mode of travel relative to asset; Note, these are required considerations in addition to LTS; further refinement is required for evidence of notice or seen sufficient for qualification in audience
j. Person characteristics (composition) where known (influence of demographic or behavioral characteristics) should be considered in model construction where relevant, but do not need to be directly measured as an input into audience qualification

2. Thresholds: Likelihood to see thresholds should be developed and empirically supported by OOH measurement vendors and include established minimum levels of likelihood as well as higher degrees of evidence of seen in consideration of the above audience factors. Such thresholds should be based on some form of deterministic data and periodic validation (discussed further below). OOH measurement vendors should apply statistical significance estimates based on historical data when deriving these thresholds and are encouraged to develop and apply thresholds within meaningful cohorts or categories of assets and location types. Such thresholds should be disclosed to measurement users and periodically revisited. OOH measurement vendors are encouraged to report likelihood thresholds above minimum levels for LTS and Audience qualification where present to be utilized at the measurement user's discretion.

3. Deterministic Data: In considering the above, some form of deterministic data must be used as a base of deriving and informing variables and models employed to adjust LTS to audience. This may include biological or physiological data such as eye-tracking and facial coding or recognition, or survey/panel data and likely involves data regarding the asset (such as location, dimensions, operational status and ad activity provided by media owners) as well as data regarding persons and traffic in exposure zones (such as mobile location and other foot traffic data such as POS, camera and survey data). Such data shall be:

    a. Representative: For sample-based measurement of any kind, the measurement organization shall be diligent about ensuring valid projections are made and that the sample is

representative of the population targeted for measurement for probabilistic samples or that non-probabilistic samples properly account (via weighting or data adjustment) for inherent biases and are subject to robust quality control. Methods for weighting or adjusting data to ensure projectability shall be supported by empirical study, and these empirical studies shall be updated periodically (at minimum annually). Standard errors around sample-based projections shall be disclosed along with the impact of known non-systematic error and bias.

b. Robust with sufficient coverage: Measurement needs to span *all* of a media owner's locations and media types (which might be very diverse, e.g., billboards, transit stations, malls, etc.). At minimum, deterministic data should either directly inform or be used to reasonably model (with empirical support including minimum sample sizes and disclosure) material and relevant aspects of locations and media types that may expect to exhibit different consumption behaviors.

c. Recent with staleness policies applied: Time to Live (TTL) and staleness policies should be developed with support and disclosure based on data type and use with periodic re-validation. At minimum, monthly updates to deterministic data is recommended, although retraining of models may be less frequent with empirical support and model performance monitoring against defined acceptable thresholds. Data collection and measurement should be as frequent or "always on" as possible.

d. Sufficiently granular: The granularity (at least consistent with the level of reporting) and specificity of these datasets is of utmost importance. The level of granularity at which data is collected and the method to convert the collected granularity by the measurer to a finer level for purposes of matching, individual resolution or analysis must be disclosed and supported for accuracy. Such disclosures are the initial responsibility of the organization that collects and maintains the data if conversion is done prior to being supplied to a measurer, but ultimately also the responsibility of the vendor or service utilizing them for measurement products if performed by said vendor or service

4. Empirical Support: Measurement organizations shall develop appropriate empirical support and base-research for establishing the validity to Audience measurement and adjustment methods chosen, including but not limited to logic tests, distribution and trend analyses. This support shall be updated periodically as audience behavior and data availability may change. Empirical support should be robust based on OOH-specific research conducted within the relevant market (Country or Global Region), rather than relying on extrapolated data from other markets or media types.

5. Quality Control Over Data Sources: Measurement organizations shall work with vendors and data providers to understand the processes to append data to records, including procedures in situations where the vendor or provider is unable to append specific information to a person, household or record when no direct source information is available. This may be accomplished through routine data qualification, vetting and onboarding processes as well as ongoing quality control and logic checks. See Phase 1 for further data quality guidance.

   Appropriate transaction records (supporting reported results) should be maintained for OOH measurements. If changes are made to this information through the information processing of the measurement organization, these changes should be documented and care should be exercised to not bias or distort the measurement process. The baseline of measurement must always have a statistical level of probably for extrapolation to total audience fitting the last known census distribution at a granular level.

Measurers should apply continuous and robust validation (such as back testing or validation based on directly observed or "ground truth" data) and quality control techniques to collected and reported data including cleaning and editing functionality. Such techniques should be periodically monitored and assessed. Measurers should consider whether other data validation processes should be included as part of routine and ongoing data inspection, validation and editing.

The measurement organizations should maintain processes to identify, assess and potentially act-upon for disclosure purposes, situations where underlying transactional measurement data, or the data used in OOH measurement processes, have significant gaps or missing intervals for a reporting period. This includes non-reporting or suspect data transfer conditions, data interruptions, natural disasters that may cause data gaps, system failures or other conditions that may suppress normal data acquisition levels. These gaps should be assessed for significance using judgment as to the use and significance of the information from the standpoint of measurement service customers (i.e., which data is important for commerce or other forms of decision making).

Data Gaps must be considered in disclosures on the "projection validity" of the research compared to the population being measured for the reporting period. If a measurement service decides that data gaps are significant enough to curtail measurement reporting for a period or for a geographic area or location (or if such gaps are assessed and a measurement service decides to report), this decision should be supported by appropriate empirical (preferably statistical) analysis and retained for auditors and later customer review. Specific non-reporting situations or "data outages" should be reported to customers through standardized processes with the underlying empirical support summarized.

MRC audits will generally require certain verification of upstream processes maintained or relied upon by vendors. This does not necessarily mean direct audit of upstream processes or data sources (although MRC audit and accreditation would obviate audit requirements as part of vendor measurer audits), but means that OOH measurers are responsible for developing data qualification criteria as well as quality control processes over ingestion and use of third-party datasets that must be exposed to audit as part of the MRC accreditation process.

A measurement service should maintain appropriate data aggregation controls to ensure that material information is not lost in the collection process and that no changes to the collected data are made, unless through organizationally authorized editing or data adjustment procedures. These aggregation controls can be real-time run-stream or batch oriented – but they should be periodically tested and monitored by the measurement services. Underlying data aggregation controls and completeness checking statistics should be retained for auditor review for a period of at least 12 months.

Individual data collection functions should include data completeness checks that are appropriately structured to minimize data loss, and flag situations where data gaps exist. These controls should be periodically tested and monitored by the measurement service. The measurement service should apply appropriate, preferably statistically based, testing to missing data conditions or data gaps to determine the impact of these situations on reported measurement results.

Missing data or data gaps can be caused by systematic problems (generally recurring issues within the data that persist over time or between similar data records) or they can be one-time data outages or natural disasters. Measurement service processes may vary based on the type of issue encountered.

By their nature, systematic data issues are recurring and they are generally caused by specific conditions within data capture mechanisms or the technical environment at the time of data collection/creation. In general, these are error conditions or failures and most are attributable to mistakes within the software or technical structure of data capture. Systematic data issues should be assessed for materiality based on the nature and extent of their occurrences and the impact of each occurrence.

6. Model Selection and Support: Models selected for OOH measurement must have empirical support that they are fit for their intended purpose. This includes empirical support, which can be achieved, for example, by performing k-fold cross-validation on modelled data and selecting the model that produces results on a repeated basis. Such support must include policies to periodically validate and improve selected models. Whether the models employed are existing solutions for similar use cases or internally developed, documentation must be maintained related to how the models achieve stated objectives and any relevant methodological decisions. Further, robust documentation must also be maintained related to data and application infrastructure including details on data sources, recency and time to live policies as well as analytical platforms used. Measurement organizations utilizing models for OOH must subject these models to documented oversight and governance procedures including decision routing, role designation and responsibilities.

   Training and test data is critical to model functionality. Measurement organizations must develop and support training and test data source qualification requirements including standards for inclusion and exclusion metrics, data granularity, level of detail and data completeness, variability, and reliability as well as applicable bias tests and analyses.

   A process for algorithm training and test design must also be developed and documented including algorithms/techniques considered for evaluation and evaluation standards used to select an algorithm (minimum performance within the below) as well as performance analyses related to the efficacy of the algorithms including, but not limited to:

   - Classification Accuracy
   - Recall
   - Precision
   - False Positives and Negatives
   - F1 scores
   - R-Squared and Adjusted R-Squared
   - Root Mean Squared, Mean Absolute, Mean Absolute (#, %) and Symmetric Mean Absolute Error
   - Akaike and Bayesian Information Criterion
   - Heteroscedasticity and Durbin Watson Tests for Autocorrelation
   - P-Value with Bonferroni Correction
   - Variable Inflation Factors for Multicollinearity

Algorithmic biases including any systematic exclusion or differential performance of any relevant cohort, group, demographic (especially as it relates to Racial and Ethnic groups) must be considered, disclosed and an attempt must be made to address.

Finally, measurement organizations must provide disclosures to measurement reporting end-users that describe any sampling procedures as well as tests performed to assess set dimensionality (time, size, etc.), bias controls and representativeness as well as cross-validation and empirical analysis and the cadence for performance actualization.

7. Disclosures: Disclosures of method and associated error/variability must be made to users including, but not limited to: dwell time thresholds employed, variables, consideration of the above factors (for Audience qualification), likelihood probability thresholds employed, assumptions, errors and limitations. These Standards require clear definitional disclosures for various metrics directly within reporting tools in direct proximity to reported results as well as direct linkage to robust methodological disclosures for each aspect of the Standards requirements (asset measurement including functionality, exposure zone definitions, circulation/traffic measurement methods, Gross Impression, OTS, LTS and audience thresholds, etc.).

3.3 Extended Calculated Metrics (Average Ad Impressions, Average Ad Segment Impressions, and Reach & Frequency)

3.3.1 Average Ad Impressions

Media sources have been slowly moving toward discrete measurement of advertising to a specific advertising creative.

Impressions associated with advertising can be stated on the basis of an “average” ad which is the easier execution, and can be reported on the basis of a defined duration (e.g., :30, :60, etc.), or on the basis of a specific ad campaign or creative which is technically more difficult.

It is recommended that Average Ad Impressions be measured and reported on the basis of LTS Impressions, and in all instances, measurers must clearly label and disclose the basis on which the type of Average Ad Impression are formed, for instance Gross Impressions, OTS Impressions, LTS impressions or Audience impressions.

Average Ad Impressions represent Impressions to a period time equivalent to the length of an Ad Unit delivered by the distributor (:30, :60, etc.). Average Ad Impressions can also be stated on a measure of time independent of the size of the Ad Units (e.g., average minute that is a commonly accepted metric). Average minute estimates can also be averaged across broader time periods, for example quarter hour or daypart, or for a defined program segment. Average minute and quarter hour reporting can help facilitate comparisons to other media.

To qualify for inclusion in Ad Impression counts, all of the prerequisite conditions for the respective Impression type (i.e., Rendered, OTS, LTS, Audience) must be met, plus there needs to be an accounting to restrict measurement and reporting to only those periods when advertising

content is displayed. Trafficking (i.e., programming, Ads, and Loops) internal controls are very critical in determining the accuracy of Average Ad Impressions.

General reporting of Average Ad Impressions does not account for the different types of brand or creative messages that may be delivered during the measurement period, and so this method is well suited for situations in which dynamic ad insertion occurs. Promotional activity and Public Service Announcements (PSAs) shall also be identified and the methods used to account for these forms of content shall be disclosed.

Ad Impressions to a specific creative Ad Unit or brand messaging can be produced though this requires added controls to ensure measurement and reporting are restricted to those times when the specified creative message is displayed. Technically this is much more complex and Ad trafficking internal controls become even more critical. Added controls are also necessary to establish Dwell Time and ensure other related estimation procedures are sufficiently granular and functioning properly to enable this more discrete form of advertising measurement. Dynamic Ad insertion is measurable, though this increases the level of complexity and warrants added controls.

Procedures to calculate average impressions to content are the same as those for calculating Average Ad Impressions, except the measurer instead controls for those times when content is delivered through the Display as opposed to advertising. Promotional activity and Public Service Announcements (PSAs) shall also be identified, and the methods used to account for these aspects shall be disclosed.

3.3.2 Average Ad Segment Impressions

Average Ad Segment Impressions represent impressions to a unit of time that is equivalent to the length of the average Ad Segment delivered by the Network. The Ad Segment represents that portion of the Loop or some other defined period of time during which program content and advertising are intended to be delivered (e.g., daypart), that contains advertising. The Ad Segment may contain one or more brand or creative Ad Units. Promotional activity and Public Service Announcements (PSAs) shall be identified and the methods used to account for these forms of content shall be disclosed. This is the first, most general, measure of exposure to OOH advertising. Average Ad Segment Impressions requires measurement of the respondent's Dwell Time during exposure to the Display, which then needs to be considered in context of the advertising within the Loop, and the Loop frequency. In order to be reported as Ad Impressions, Dwell Time estimates must be restricted to those periods during which ad content is viewable, otherwise reporting is restricted to general impressions. Dwell Time that accounts for periods when non-ad content is displayed, for instance Content Segments, or some combination of Ad and Content Segments, can be used to calculate a general impression figure for the Display or OOH source; however, this cannot be represented as Ad impressions.

It is recommended that Average Ad Segment Impressions be measured and reported on the basis of Audience Impressions, and in all instances, measurers must clearly label and disclose the basis on which the type of Average Ad Impression are formed, for instance Gross Impressions, OTS Impressions, LTS impressions or Audience Impressions).

3.3.3 Reach and Frequency

Reach and Frequency are important variables to understand in selling OOH media and similarly are important for those entities that plan and buy these media.

Reach is the net (unique or unduplicated) count or percent of the defined universe of the target impressions exposed to content, advertising, or a specific ad, in a Display Exposure Zone within a defined time frame. This time frame can be a day, week, or month, or even less frequent time periods although more frequent reports are generally desirable to users.

Frequency refers to the number of times the universe of target impressions is typically exposed to content, advertising, or a specific ad, in the defined time frame. Frequency represents the average exposure when used in conjunction with cumulative reach estimates, though it can also be reported on the basis of specific exposure levels when evaluated in the context of discrete reach estimates through frequency distribution analyses.

It is recommended that unique or unduplicated counts (Reach) and Frequency estimates be measured and reported on the basis of Audience Impressions (per the above requirements). Measurers may also present unduplicated counts and frequency on the basis of Gross Impressions, OTS Impressions and/or LTS Impressions (alternate bases) if Audience Impression counts are also reported, but must clearly label and disclose the basis of each in metric names, definitions and related disclosures. MRC can accredit alternate bases of Reach and Frequency if all of the above conditions are met with proper disclosure.

It should be noted that Audience is a minimum requirement for Cross-Media reporting and comparisons.

Reach and Frequency can cross Display locations and Display types, and are aggregations from more granular measurements described above – but in all cases Presence, Dwell Time, and Viewability are required for Reach and Frequency estimates for OOH media. Reach and Frequency should be calculated at individual unit levels and de-duplicated appropriately.

Methods for establishing unduplicated Reach counts shall be disclosed and periodically tested for effectiveness (requirements for validation discussed above). This process may require use of modeling/estimation techniques and collection of duplication rates. Likewise, these estimation techniques shall be supported by sufficient empirical evidence of effectiveness and be periodically validated and subject to audit.

Respondent surveys/interviews (conducted to understand OOH Reach assessment) requiring recall of exposure over specified time periods (days, weeks, months, etc.) are subject to traditional quality controls and best practices. Technology-based solutions may also be used to assist in determining levels of duplication, and the accuracy of these techniques shall be established through rigorous testing and independently verified through an external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

Syndicated measurement services shall strive to conduct research in a manner that allows for the calculation of Reach and Frequency estimates across media networks based on empirical data, and not solely derived through modeling processes. The measurement should be sufficiently granular, and consistent, in terms of reporting period (e.g., daily, weekly, multi-week, etc.) within data reported and for other media.

Measurers should seek to report Reach/Frequency metrics on the same basis as other media (as required by *MRC Cross-Media Standards and discussed further below*) to allow for direct comparison and to facilitate cross-media comparisons.

3.4 Other Audience Considerations

3.4.1 Attribution

Measurement organizations may sometimes use techniques other than direct observation, for instance, surveys or reliance on independent data sources, to attribute characteristics to traffic at a Display within the Display Exposure Zone as well as related impressions measurement. If these techniques are used, they shall be subject to rigorous testing and evaluation. Efficacy of these techniques must be established and disclosed by the measurement organization to measurement users.

In general, a measurement organization must directly collect at least a portion of the actual characteristics (i.e., modeling and attribution methods cannot be used as the sole source of assigning characteristics). This directly collected data is essential to the validation of the attribution method over time.

The proportion of attributed to actually gathered characteristics shall be disclosed and if this proportion varies by targeted/reported characteristic the nature and extent of the variability should be disclosed to measurement users.

Attribution techniques shall be subjected to periodic re-affirmation testing over time, since traffic patterns and behavior can change.

3.4.2 Cross-Media Considerations

Measurement organizations should consider and strive to develop systems that are comparable with other competitive media types to help facilitate the integration of OOH data with data on other media. Accordingly, the following measurement attributes are encouraged, but not required:

- Use of measurement techniques that are similar to best practices in other media.
- Development of a gross rating point type measurement for advertising audiences to facilitate metric comparability.
- Consider a method to produce unique audience when combining estimates with other media.
- Adopting a frequency of measurement that is relevant across media types, which may entail increasing the frequency of measurement in OOH media.

- Segregating content from advertising measurement – a technique that is either already accepted or emerging in other media.
- Measurement and reporting of demographic and geographic characteristics comparable to those available for other media

4 OOH Measurement Specifics

4.1 Measurement Approaches

An interesting but complex area of OOH media is the varied nature of the media formats and locations and subsequent measurement techniques used. Almost all OOH media depend on a combination of measurement techniques and these techniques vary among the sources. Some rely on third-party sources of traffic or pedestrian data and other audience information, and others rely solely on third-party measurement organizations that may themselves depend on third-party sources for certain of their data. The following presents a summary of most of the techniques employed. If a specific technique is not presented here, the OOH source and measurement organization should use the concepts expressed herein to develop controls and disclosures for their technique.

Passive measurement methods are acceptable when feasible, and in many situations are preferred, though passive measurement is not a requirement under these Standards. When seemingly passive measurement technologies require involvement or action by a respondent or panelist, it is incumbent on the measurement service to employ sufficient techniques to ensure each individual complies with the assigned tasks; otherwise the potential benefit of passive measurement will be rendered less effective.

Note that not all of the methods are necessarily applicable to each of the component metrics (e.g., Location Traffic, Viewable Impressions etc.), and that each method, regardless of whether it be a technology-based solution or dependent on respondent recall has inherent limitations that should be studied and disclosed.

As it relates to counting techniques, whether census or sample, more passive observational techniques are preferred because of the likely minimization of non-response.

<u>Location and Viewable Impressions</u>

- Third-party Source Data
- Industry or Government Data
- Electronic counts from cameras, sensors, beacons, or similar devices
- Manual Counts – Census
- Projected Manual Counts – Sample (must be very rigorous and comprehensive in coverage)
- Respondent Recall; Surveys/Interviews
- On-Site Surveys/Interviews/Observation

<u>Ad Units</u>

- Respondent Recall; Surveys/Interviews of Specific Ad Awareness

- Technology-Based Measurement Tools focused on Ad Activity
- Projected Manual Counts – Generally Executed at the Time of Consumption and Generally Sample-Based
- Viewability Technology Solutions

Dwell Time

- Respondent Recall; Surveys/Interviews
- Manual Counts – Census with Time Stamps
- Projected Manual Counts – Sample, Generally Executed at the Time of Consumption
- Technology-Based Measurement Tools with Time-Stamps including facial detection methods, GPS, mobile data

Reach

- Respondent Recall; Surveys/Interviews
- Projected Manual Counts – Sample Based
- Technology-based measurement

Frequency

- Almost Exclusively Respondent Recall Based, Due to Difficulty in De-duplicating Activity
- Technology-based measurement

Other General Topics, Not Covered Elsewhere:

Universe Definitions

A geographic universe or coverage definition stated on the basis of population amounts is required for OOH media subject to measurement. These may be customized (or limited) based on the specific attributes of the measurement/media and the associated locations and may be specific to defined markets or other geographic areas. In some cases a customized universe can be stated, though, a general population estimate (e.g., Census estimates) is preferred for media comparability purposes.

The source used for such universe definitions must be referenced and should be from generally accepted independent Industry or governmental third-party sources. These figures are critical for the projection of estimates. This data shall be updated at regular periodic intervals and preferably be stated on a basis that corresponds to the audience targets and weighting variables being employed by the measurement organization.

In certain situations universe estimates relative to what is being measured are less relevant, and in instances where this is material disclosure is warranted so that users can understand the possible impact on certain measures (e.g., GRP's). A prime example is airports, where a large transient population passes through that is not represented in standard universe estimates for the locale. Similarly, transit hubs supporting long-distance commuters, and locales that draw significant tourism are also subject to this phenomenon. Virtually every media type is subject to the effects of travel and visitation; however, the condition and effects are exacerbated in certain OOH environments, thereby warranting strong disclosure with regard to the possible effects on measurement and reporting and possibly use of "in-market" measures. Note, this is only a

disclosure requirement related to potential limitations of projection and does not require alternative sources of universe estimates.

It is important that users of the data understand when these situations exist, and how the transient population is accounted for. In some instances, for example a national brand, the inclusion of transient individuals in traffic and impression counts may be acceptable, whereas this may not hold true for local brands. Measurement techniques may also be developed and operate in such a manner that obviates the need for accounting for transient individuals, since by design that group would be purposely excluded from measurement. In all cases the users of the data should be informed as to how the transient population is accounted for, including explanations of how any methods or adjustments applied influence reported metrics (e.g., GRPs, Reach, etc.).

In addition to the necessary disclosures, a measurement service may elect to adjust collected data as a means to normalize reported estimates, which can involve, as examples, removing person counts deemed attributable to transients or adjusting the universe estimate to include universe estimate counts for those areas traveled from. Data adjustments shall be fully described and shall be based on systematic and reasonable procedures supported by underlying empirical studies.

Demographic Parameters

Reporting of Impressions metrics should at minimum delineate total persons (all Persons measured or in Universe), and Persons 18+ reporting. The below illustrates a standard list of demographic (and geographic) breaks commonly used in the industry for measurement and reporting that should be considered when reporting audience estimates. These are presented to allow for flexible reporting and are not required reporting variables. These breakouts are examples only for illustration; measurers may have different breakouts.

Gender:
Male
Female

Age:
Persons 15-17
Persons 18-21
Persons 18+
Persons 21+
Persons 18-24
Persons 25-34
Persons 35-44
Persons 45-49
Persons 50-54
Persons 55-64
Persons 65+

Age-Gender
Female 15-17
Female 18-21
Female 18-24
Female 25-34
Female 35-44
Female 45-49
Female 50-54
Female 55-64
Female 65+
Male 15-17
Male 18-21
Male 18-24
Male 25-34
Male 35-44
Male 45-49
Male 50-54
Male 55-64
Male 65+

Household income range (including other updated breaks)
0 - $24,999
$25,000- $39,999
$40,000- $59,999
$60,000- $74,999
$75,000- $99,999
$100,000+

Race Characteristics
- White
- Black
- Asian
- Others

Ethnicity
- Hispanic
    - By Language Spoken

Geography
CBSA
County
DMA
National
Zip Code or may consider ZCTA

These should be matched with data collection instruments, data adjustment procedures, weighting and reporting procedures to ensure that any distortion of demographic and geographic data reported to measurement users is minimized.

Additional demographic or geographic breaks are permitted for highly targeted OOH media, however the source of this information within data collection should be disclosed.

The ultimate goal in demographic measurement should be to ultimately provide breaks for subsequent campaign target analysis that are commonly available on currencies used for other media.

Location Determination

Establishing and maintaining valid and reliable location information is crucial to OOH measurement given the diverse nature of the media, the varying environments in which assets are situated, and the mobility aspects both in terms of pedestrian traffic, and in certain situations the media itself.

Specific guidance and requirements for location determination when using electronic methods are contained in the MRC Location-Based Advertising Measurement Guidelines (March 2017) that establish a detailed set of methods and common practices for entities that measure and use location-based metrics. These Guidelines document good practices of measurement; improve practices and disclosures used by practitioners; and also provide education to users of location-based measurement data from all segments of the industry. OOH media measurers should seek to adhere to MRC's Location-Based Measurement Guidelines to the extent they are applicable.

Viewable Impressions

Viewable impressions have become the currency for digital Internet and mobile measurement – ensuring the Opportunity-to-See a digital advertisement, rather than just that the advertisement was digitally served. In the digital environment video ads are considered viewable when at least 50% of the ad's pixels are visible in the viewable space of the browser for 2 continuous seconds or more, which is independent of someone having seen or "looked at" the ad. For Display, the viewability requirement is at least 50% of pixels for 1 continuous second or more. Viewability pertains solely to the availability of content, thereby allowing for the possibility of exposure.

For OOH, the Cross-Media requirement of 100% of pixels (and postings) on-screen (on-asset) for one second for Display/Static and 2 continuous seconds for Video are applied. Logical Obstructions (defined above) would negate the Display being viewable or meeting the viewability condition; Environmental/Visual Obstructions (also defined above) would not.

Analog OOH media is considered viewable when it is determined that the Content or Ads have been installed and properly maintained during the measurement period, absent rotation or other form of switching event that may render the material unviewable for a period of time. Any obstruction would negate the counting of viewable impressions.

Viewability ensures that content is rendered in a manner that allows individuals to be exposed to, or view the content and/or ads.

Audio Audibility Standards would apply to audio OOH media until additional study suggests otherwise.

Use of ESOMAR Global Guidelines VAC Adjustments

An accepted technique for out-of-home posters (static non-video content) is the use of an estimator for the likelihood of an individual to look at a piece of content, referred to as a Visibility Adjusted Contact (VAC). This technique, though not explicitly stated in the ESOMAR Guidelines, should be applied to Video formats as well.

These Standards implicitly support the application of VAC since the conditions of Notice or Seen are necessary qualifiers to support the reporting of LTS and Audience Impressions.

If this type of estimator is used by a measurement organization, it should be customized to the environment and supported by periodic study and evaluation. The use of a VAC-type estimator should be disclosed and quantified by the measurement organization to measurement users.

Individuals or media that are In Motion during Dwell Time

If the Display and/or Display audience is in motion when the Display audience is in the Display Exposure Zone, this motion should be considered in the development of the reported metrics. Motion patterns, where relevant, shall be studied and accounted for as part of information gathering about audiences exposed to content and advertising.

4.2 Data Quality, Completeness and View Requirements

Transparency is a highly encouraged general principle; when in doubt, disclose a situation fully to measurement users. For organizations subject to MRC auditing, transparency is a requirement.

It is preferred, but not required, that measurement source-data be gathered and compiled by third-party sources, such as independent organizations specializing in measurement.

Where third-party sources are used for gathering pedestrian counts or vehicular traffic estimates, or other significant measurement source-data, the procedures used to gather this data should be known and the accuracy of these procedures shall be periodically assessed by the measurement organization reliant on the data. A measurement organization cannot delegate away its responsibility for the accuracy of underlying data.

Probability sampling is a requirement for projecting counts and audience data to populations and for computation of sampling error. Non-probability samples will be assumed to lead to non-generalizable results with the burden of proof otherwise being on the measurement organization. Sample frames shall be representative of the populations targeted for measurement. Significant omissions from the sampling frame shall be disclosed and quantified.

Seasonality and time-zone equalization are issues to be considered when accumulating and projecting measurement results, as well as variations that may occur by day of week and time of day.

Response rates shall be captured and disclosed, and specific research processes should be employed on a continuous basis to minimize non-response.

Organizations shall have sufficient internal controls over all aspects of measurement data collection, processing, data adjustment, weighting and reporting to minimize error and ensure adequate disclosure.

We encourage compliance with the MRC Minimum Standards for Media Rating Research (published by MRC, Last modified in 2011), available at www.mediaratingcouncil.org as well as the other relevant guidance referenced in this document, including:

- Digital Video Impressions Measurement
- Viewable Ad Impressions Measurement
- Mobile Viewable Ad Impressions Measurement
- Invalid Traffic and Filtration
- Location Based

We also encourage independent external auditing, such as that conducted by the MRC, for measurement organizations.

4.3 Inferences, Estimation, Ascription, Projection of Measurement Data

Inferences made about OOH data in estimation, ascription and projection processes and the size and impact of adjustments made, as part of data collection by the OOH media measurement organization, shall be fully described and shall be based on systematic and reasonable procedures supported by underlying empirical studies.

4.4 Data Editing and Adjustment

Data Editing and Adjustment procedures can be critical to processing audience measurement data. These procedures can be a part of best practices for ensuring complete and consistent measurement results over time. However, the specific data adjustment and editing parameters used shall be supported by empirical justification based on prior study.

The volume/extent of editing and adjustment to originally collected pedestrian counts or vehicular traffic and respondent data shall be disclosed, where this volume is material to the total (generally if that exceeds 5% of records). These disclosures should be granular by type and reported on the basis of weighted and reported characteristic.

If editing or adjustment rates are only periodically measured, this measurement should be frequent enough to be pertinent to reported data.

4.5 Frequency of Measurement

Many OOH measurers employ periodic, not continuous, measurement processes. The frequency of measurement, including the age of the basis for all measurements in each report, shall be prominently disclosed to measurement users.

Less frequent measurement, particularly as it ages, is less valuable to users of the measurement data. Measurement organizations are encouraged to measure as frequently as possible to minimize the potential for unknown changes in results, and measure all reported sources during each measurement interval.

5 Enhancing OOH Measurement Accuracy

5.1 Filtration for Invalid Activity

If technical tools are used to establish pedestrian counts at the locations, venues, Displays, or within Display Exposure Zones, the measurement organization shall have controls to ensure this traffic is solely representative of valid activity.

Measurement organizations must perform a periodic risk assessment for invalid traffic detection, and maintain specifically directed internal controls for the filtration and removal of this activity. Specific guidance and requirements related to filtration for invalid traffic are specified in MRC's Invalid Traffic Detection and Filtration Standards Addendum (June 2020 – Update Final), and as periodically updated. Audience requires full Sophisticated Invalid Traffic (SIVT) filtration as defined in these Standards and non-Audience metrics required General Invalid Traffic (GIVT) filtration, at minimum. While the risk and occurrence of IVT is lower (but not nil given the ability to hijack devices, manipulate data or create publisher IVT such as stacking or stuffing) given the nature of OOH measurement, it is still a required consideration of Audience measurement in all media where applicable.

Additional consideration should be given to activity that occurs on non-OOH displays (e.g., information associated with supplemental materials not considered part of the display or internal test traffic) that may be included in reporting, as well as activity that occurs outside of defined operating hours.

5.2 Error Correction and Reissue Policies

A measurement organization shall have internal controls to catch and disclose material errors in its measurement production processes. Objective, prescribed policies should be promulgated by the measurement organization for determining the materiality of errors discovered. If material errors are noted, these should be disclosed to measurement users through written notices and reissued data.

An organization shall distinguish reissued data from original data through prominent labeling. Reissues should be tracked and available to users of the measurement data, including both sell-side and buy-side users.

Evidence supporting material errors discovered shall be retained for at least one year following the measurement period. Errors discovered that are not sufficiently material for disclosure should be retained for a similar period, to facilitate evaluation by auditors and other external parties where necessary.

5.3 Proof of Play

There must be strong evidence of proof-of-play (PoP) to support the reporting of Gross Impressions or Audience estimates associated with content or ad activity, with the latter activity being more challenging to accomplish. Multiple methods may be employed to establish PoP for analog inventory due to the varied nature of the formats and locations, and these methods should be agreed to by the buyer and seller prior to initiation of the ad campaign. In the digital OOH environment, the PoP function can be supported by existing technologies that log player activity, and the completeness and accuracy of these methods should be tested and validated prior to implementation and periodically monitored. PoP methods should be independently validated as subject to independent external audit in accordance with the guidance outlined in the Auditing Guidelines section of this document (Section 9).

Several OOH Associations have worked collaboratively to develop a framework and define a consistent set of PoP standards to support media sellers and buyers involved in the digital OOH industry. The goal is to have clear guidance and avoid errors when developing or operating PoP services.

6 Reporting Parameters

6.1 Data Access

It is strongly recommended that a measurement organization make its data accessible in a manner that facilitates user access, independent of its proprietary electronic delivery tools. In general data should be produced in a standardized electronic format that can be delivered to users for use in their internal systems or by a third-party processor of their choice, provided any necessary licensing requirements are satisfied. It is recommended that data be provided to external sources in a granular form rather than at a summary level that can restrict usage and limit custom analysis. The nature of the granular data shall be such that the identification of individual respondents is protected.

This information should be available no later than when the reported data is officially released, and ideally in advance to any licensed third-party processors to allow sufficient time to load the data and perform the necessary checks for data accuracy and completeness prior to the official data release date. Summary level information shall also be provided to licensed third-party processors for checking purposes.

6.2 General Parameters

General reporting parameters (dayparts, weekparts, time zones, etc.) provide for consistency and comparability. These should be based on the logical application of information about the usage patterns of the medium.

In order to provide for more standardization in OOH media Impressions and Audience measurement reporting, the following general reporting parameters are recommended. Note that these are only several of the possible reporting parameters that may be used. If parameters in addition to these are reported, similar rules should be defined and applied.

Measurers should seek to align each of the reporting parameters so that they are consistent, to the extent possible, with parameters reported for existing measured media to allow for a direct comparison to other media and facilitate multi-media analysis.

6.2.1 Time

Day — 00:00:00 to 23:59:59

Time Zone – Full disclosure of the time zone used to produce the measurement report is required. It is preferable, although not a current compliance requirement, for certified measurement organizations to have the ability to produce measurement reports in a consistent time zone so buyers can assess activity across measurement organizations. For US-based reports it is recommended that reports be available on the basis of the Eastern Time zone; for non-U.S.-based reports this is recommended to be GMT.

Week — Monday through Sunday

Week-parts — M-F, M-Sun, Sat, Sun, Sat-Sun

Month – Three reporting methods: (1) TV Broadcast month definition. In this definition, the Month begins on the Monday of the week containing the first full weekend of the month, (2) 4-week periods – (13 per year) consistent with media planning for other media, or (3) a calendar month. For financial reporting purposes, a month is defined as a calendar month.

Additional Recommendation: Dayparts – OOH media usage patterns need further analysis to determine the usefulness of establishing effective and logical standardized reporting dayparts. We encourage such analysis to determine the need for standardization of this measurement parameter, and to the extent possible be consistent with reporting for other media.

6.2.2 Location

Locations reported, if reported, in OOH media reports should be the actual physical locations of the location, venue and/or Display as applicable. If assumptions are made about physical locations of audience members or Displays, those shall be described. Accuracy of assumptions made shall be established by empirical study and disclosed to users of measurement data.

If electronic means are used to establish Location Traffic or Display Audience member counts (i.e., IP geo-location, mobile-device location services, meter placement, etc.), the accuracy of these functions shall be established and disclosed. These methods shall be validated to be appropriately accurate at the levels of granularity being employed.

6.2.3 Segregating Non-Like Ad Content or Activity

For reporting purposes, users shall have the ability to segregate measurement by the various types of ads or events included in the campaign. Additionally, counts should be reported separately for ads within the campaign of different sizes or functionalities, different brands, different brand sub-components, etc.

7 Display Classification

The OOH media industry should strive to maintain a uniform set of classification specifications of device types, location types, environmental factors, and other characteristics expected to exert some influence on audience metric components such as Opportunity-to-See, exposure, viewability, or audibility. The classification schema should be sufficiently granular to account for meaningful differences associated with each of the characteristics, though it need not demand precision to the point where the information becomes unwieldy and cannot be sufficiently maintained.

The specifications should be developed through collaboration with the OOH media providers in cooperation with all industry constituency and housed within an independent body that is assigned the responsibility to maintain the information, and administer a routine process for monitoring industry changes and instituting revisions when appropriate. Media buyers, including Advertisers and Agencies should also be actively involved to ensure classification information is structured to meet marketplace needs. OOH Media owners are encouraged to actively participate in this process since their information forms the foundation of the measurement process and the resulting data set.

The complete set of classification criteria and specifications should be assessed for continued relevance at least annually, with a more frequent review for characteristics subject to more rapid change due to evolving technologies, new entrants, or forms of delivery, and environmental factors. OOH media owners are responsible for ensuring the data are complete and accurate for their properties, and submitting changes commensurate to when they occur, at minimum on a weekly basis, noting the exact date of the change. The complete set of classification data should be subject to independent audit.

Measurement organizations should also be consulted as part of this process since many of the characteristics will be utilized in statistical modeling and visibility adjustment processes. New entrants are encouraged to participate at the early development stage to help ensure conformity to existing criteria and contribute toward defining possible new variable requirements.
The following list contains a set of characteristics for consideration and this information should not be viewed as exhaustive. These variables are intended to provide guidance to the entity responsible for establishing and maintaining the Display classification data-set, and that body should work with the industry to define the detailed specifics of each criteria.

- Media owner including contact information
- Description, including type and classifications (Billboard, Street Furniture, Transit/Fleet, Place-Based)
- Digital OOH Classification for Programmatic Solutions
- Precise geographic location (Latitude/Longitude) of the Display
- Distance from the road or travel way
- Venue Location and Display placements within the venue, where applicable
- Orientation details represented as an angle of detail
- Type of illumination plus on/off times
- Display Type (Analog, Digital Display or Video, etc.)
- Display Size (physical) with height, width and unit of measure

- Display size in pixels
- Facial detection or counting capability
- Return path functionality
- Video and Audio capability and quality (Resolution & decibel level)
- Known limitations or obstructions
- Description of the environment
- Stationary or mobile
- Ad Clutter (including digital and also static signage in the vicinity)
- Ad to Program display ratio (i.e., partial display ads or banners)
- Display elevation
- Free Space surrounding / Aisle / Wall mounted / In Store
- Other Functionality in the Display (Activation triggers, Map interaction / Wi-Fi Spot / Battery Charger)
- Pedestrian environment of area: Captive surroundings / Passing / Corridor / etc.
- Days and times of operation including:
    - Per timeframe/Weekday/Weekend/Season
    - Loop length (typical)
    - Ad Unit Length (typical)
    - The type of content & ads (Analog Display – static or rotating, Digital Static/Dynamic/Slight movement/Full Video)

As noted earlier in this document measurement should occur at the Display level so that information can be aggregated for ad campaign or network reporting purposes, and as such precise location data is foundational to OOH measurement. In some instances, OOH reporting is intended at a venue level. Precise venue maps to scale, including dimensions and exact Display positions/orientations, are considered valuable in addition to precise geographic location (Latitude/Longitude) of each venue and each Display within the venue in order to establish video and/or audio exposure zones for each Display. It is noted that technology exists for the detailed mapping of indoor spaces, like malls, that can be precisely related to traffic flow/mobility and visibility in each and every corridor. The use of such technologies is encouraged to enhance accuracy and precision of measurement and the final results.

The Display classification system should also contain detailed information on situations in which multiple Displays are co-located in close proximity to one another, including the number and characteristics of each, as well as the distance from one another so that this information can be accounted for when calculating Display Audience estimates for ad campaign and networks level reporting, as well as for de-duplication purposes.

Standards should be established to enable the electronic transfer of Display classification information, including routine updates, in a consistent manner in order to facilitate the flow of information and reduce the likelihood of human error.

8 Disclosure Guidance

OOH media measurement organizations should fully disclose their measurement process to buyers and other users of the measurement data. An organization's methodology for accumulating OOH media advertising measurements shall be fully described to users of the data,

including methods for calculating segment and Ad unit Impressions and Audience, where applicable. Specifically, the nature of counts and/or measurements, methods of sampling used (if applicable), data collection methods employed, data editing procedures or other types of data adjustment or projection, calculation explanations, reporting standards (if applicable), reliability of results (if applicable) and limitations of the data shall be included in the disclosure. **These disclosure requirements are not intended to force disclosure of any protected intellectual property or highly proprietary techniques, though these aspects should be subject to confidential audit conducted by an independent body**. See Phase 1 of these Standards for examples of the type of information that should be disclosed for OOH measurement. In addition, the following presents examples of the types of information that should be disclosed for Audience considerations.

Nature of Audience Measurements

- Sampling/Projections Used
    - Sampling Methods Used
    - Explanation of Projection Methods
    - Universe and Source
- Method for Determining Exposure Zone, Apparent Size of Asset, Post and Functionality
- Audience Movement, Orientation and Travel Directionality Considerations Including Dwell Time (Traffic and Circulation Approaches)
- Use of LTS and Audience Qualifier Variables and Thresholds for Above Audience Factors

Data Collection Methods Employed

- Method of Data Collection
- Types and Source of Data Collected
    - Surveys, Diary, Observations, Electronic Measurements, etc.
    - Frequency of Collection
    - Granularity
- Research on Accuracy of Basic Data
    - Latency Issues with Periodic Measurement, as applicable
- Rate of Response (if applicable)

Editing or Data Adjustment Procedures

- Models and Algorithms Employed (high-level)
- Checking Records for Completeness
- Consistency Checks
- Accuracy Checks
- Rules for Handling Inconsistencies
- Circumstances for Discarding Data
- Handling of Partial Data Records
    - Ascription Procedures

Computation of Reported Results

- Description of How Estimates are Calculated Including Reach and Frequency
    - Illustrations are desirable
- Weighting Techniques (if applicable)

Reporting Standards (if applicable)

- Requirements for Inclusion in Reports, Based on Minimum Activity Levels
- Demographic and Geographic Breaks Reported

Reliability of Results

- Sampling Error and Variability (if applicable)

Limitations on Data Use

- Non-sampling Error
- Errors or Unusual Conditions Noted in Reporting Period
- Assumptions
- Limitations of Measurements

9 Auditing Guidelines

9.1 General

Third-party independent auditing is encouraged for all OOH media measurement used in the buying and selling process. This auditing is recommended to include counting methods, surveying and measurement methods and processes/controls as follows:

1. Counting Methods: Independent verification of activity for a defined period. Counting method procedures generally include a basic process review and risk analysis to understand the measurement methods, analytical review, transaction authentication, validation procedures and measurement recalculations.
2. Survey/Measurement Methods: Independent verification of activity to convert Location Traffic to Gross Impressions and Display Audience, including the establishment of the Display Exposure Zones. These procedures generally include process reviews, methods to ensure accurate representation from Location Traffic, qualifiers applied and testing of application of these qualifiers for inclusion in Gross Impressions and Display Audience counts, transaction authentication, validation of weighting and projection procedures and measurement recalculations.
3. Processes/Controls: Examination of the internal controls surrounding all phases of the measurement process. Process auditing includes examination of the adequacy of applied counting and qualification techniques. Although audit reports can be issued as infrequently as once per year, some audit testing should extend to more than one period during the year to determine whether internal controls are maintained. Audit reports shall clearly state the periods covered by the underlying audit testing and the period covered by the resulting certification.

Third-party data providers, including independent Operators and media entities that supply information that is foundational to measurement should also be subject to independent audit or the measurement service should have sufficient controls in place to validate the data used or relied on for measurement purposes. These audits should be designed to verify the completeness and accuracy of the information, and the extent to which the information is representative, as well as examine controls surrounding the collection, maintenance, processing, and the reporting of the information.

Similarly, as noted in the Display Classification section of this document (Section 7), classification information, and the underlying sources contributing to the data set, should be subject to

independent audit and these should be conducted at least annually, as recommended for U.S. certifications.

9.2 U.S. Certification Recommendation

OOH media measurement products used in the buying and selling process, inclusive of the underlying data sources they depend on, are recommended to be certified as compliant with these Standards, at minimum annually. This recommendation is strongly supported by members of the buying community, for consideration of measurements as "currency." In addition to MRC and its congressional supported certification process for the media industry, there are a number of other certifiers and types of certification available to OOH measurement organizations.

Special Auditing Guidance for Advertising Agencies or Other Buying Organizations:

If buying organizations modify or alter measurements from certified OOH media audience measurement organizations upon receipt, auditing of these activities should be considered.

10 Who We Are

About the Media Rating Council (MRC)

The MRC is a non-profit Industry association established in 1964 comprised of leading television, radio, print and Internet companies, as well as advertisers, advertising agencies and trade associations whose goal is to ensure measurement services that are valid, reliable and effective. Measurement services desiring MRC Accreditation are required to disclose to their customers all methodological aspects of their service; comply with the MRC's *Minimum Standards For Media Rating Research*; and submit to MRC-designed audits to authenticate and illuminate their procedures. In addition, the MRC membership actively pursues research issues they consider priorities in an effort to improve the quality of research in the marketplace. Currently, more than 100 syndicated research products are audited by the MRC. For more information, visit www.mediaratingcouncil.org.

11 References

- CODACAN DOOH Audience Metrics Guidelines – September 2009
- DPAA Audience Metrics Guidelines - August 8, 2008
- ESOMAR Global Guidelines on Out-of-Home Audience Measurement Version 1.0 - May 2009
- OVAB Europe Standards DooH Audience Measurement –January 2013
- MRC Digital Audience-Based Measurement Standard – December 2017
- MRC Cross-Media Measurement Standard – September 2019
- MRC Outcomes and Data Quality Standards – September 2022
- MRC Invalid Traffic Detection and Filtration Standards Addendum – June 2020

12 Contact Us

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13 Appendix A – Section Summaries

The OOH Measurement Standards introduce foundational standards for measuring Out-of-Home (OOH) Media Audiences with the intention of establishing a common core of metrics for various OOH media and aim to align with other media forms. These standards target visual media, both digital and analog, and cater to the media industry, including those analyzing or monetizing OOH media metrics.

To recap, the major aspects of Sections 1 and 3-8, include, but are not limited to, the following:

Section 1 – Overview Summary

- The OOH Standards emphasize the unique challenges in measuring OOH due to diverse locations, delivery methods, and environmental factors; measurement approaches should adapt accordingly.
- The Standards address measurement methods for various OOH media (e.g., static and periodically changing ads, analog or digital) essential for accurate measurement and reporting.
- Digital OOH content and ads are categorized as static linear, rotating linear, dynamic or interactive, and encompass static display, video or animated images that may or may not include sound.
- Key parameters for categorizing OOH content include rotation frequency, digital delivery, motion type, interactivity, audio, and whether the ads rotate on multiple units or share the display with content.
- Billboards, Street Furniture, Transit, and Place-Based categories are categorized as OOH media
- OOH media with video and static displays may have audio components; however, audio-only OOH media are not comprehensively covered in the current Standard (will be in the future).
- When OOH media includes audio, measurers must distinguish and disclose methods for measuring visual and auditory exposure due to the differing areas of reach, and provide empirical support for the viewability and audibility of the medium.
- For OOH media reporting, the required reported metric is “Measures associated with Video only” for video OOH and “Measures associated with the visual component” for display OOH.
- Audio-only OOH media should be "Exposure to Audio Only" and segregated or clearly delineated from Video or Display related metrics.
- Measurement techniques for OOH include assessing Display location/orientation, Venue Traffic, Viewable Impression estimates, and Likelihood-to-See Impression estimates
- Measurement and reporting are dependent on a complete Display classification database, including known locations, that is subject to independent verification and audit.
- OOH media measurement should use a common, syndicated approach for consistency across media or within specific categories like Transit, with custom methods used only for unique situations and clearly communicated to users to prevent data confusion.
- Privacy in data collection, processing, and transmission is critical and must be protected, adhering to regulations like GDPR, with organizations expected to monitor emerging privacy laws and maintain user anonymity where required, particularly for MRC accreditation seekers.

Section 3 – Out-of-Home metrics summary

- The hierarchy of OOH Measurement is Location Traffic, Gross Impressions (Rendered), Viewable Impressions (Opportunity-to-See), Likelihood-to-See Impressions (LTS) and Audience. Each metric in the hierarchy builds from the preceding metrics' qualifying criteria (see below table).

Metric Name:	Gross Impressions	Viewable Impressions (OTS)	Likelihood-to-See Impressions (LTS)	Audience
Qualifying criteria	Ad Play (digital)	Ad Play (digital)	Ad Play (digital)	Ad Play (digital)
	Post (analog)	Post (analog)	Post (analog)	Post (analog)
	Functional Display	Functional Display	Functional Display	Functional Display
	Presence in the Display Exposure Zone	Presence in the Display Exposure Zone	Presence in the Display Exposure Zone	Presence in the Display Exposure Zone
		Viewability Condition Exists	Viewability Condition Exists	Viewability Condition Exists
			Evidence of Notice or Seen	Evidence of Notice or Seen
				Additional criteria with sufficient LTS

Location Traffic:

- Location Traffic is used to measure potential audience, including both pedestrian and vehicular, for Out-of-Home (OOH) media assets, but not required for all measurement approaches.
- Presence in the specific area of interest is essential for generating Impressions or Audience.
- Location Traffic data can be derived from direct counting methods or third-party sources, with a preference for passive collection; fluctuations across different days and times must be accounted for.
- Data used for Location Traffic, such as transit figures or transactional records, must be carefully vetted for duplication, and any adjustments should be empirically justified.
- Timing alignment between Location Traffic and Impression data is needed to ensure data accuracy; discrepancies and seasonal trends should be addressed.
- Quality control and internal audits are necessary for validating Location Traffic data, which should correspond with the operation times of the location.
- If using third-party data, measurement organizations must ascertain the accuracy of such data, with transparency required when sources cannot be independently verified.

Gross Impressions (Rendered):

- Presence within the Display Exposure Zone while a media display is operational is the key criterion for counting Gross Impressions, and obstruction would not necessarily negate counting.
- Gross Impressions reflect the highest potential audience estimate, exceeding other metrics like Likelihood-to-See (LTS), Opportunity-to-See (OTS) and Audience counts.
- Evidence of presence must be verifiable and can be obtained through direct methods such as observation or technology, with a preference for passive methods; variations by time and day must be considered.

- Impressions data should ideally match the timing of the audience measurement period to ensure accuracy, with considerations for seasonality and necessary adjustments for measurement period differences.
- Details of a Display Exposure Zone should be clearly documented and disclosed, with size descriptions varying by location environment, if applicable.
- Display operating times must be defined and factored into impression counts, with adequate internal controls for accurate recording and applicability to the counting process.

Viewable Impressions (OTS):

- Presence alone at the location does not guarantee a Viewable Impression; individuals must also be documented to be present at the Display in the Display Exposure Zone, while the Display is functional and a viewability condition exists. Obstruction would negate counting of a viewable impression.
- Counts occur only during the display's operating hours and when content can be seen, with adjustments for lighting and seasonal changes.

Extended calculated metrics summary

- Average Ad Impressions must clearly label and disclose the basis of measurement (e.g., Gross Impressions, OTS Impressions, LTS Impressions, Audience).
- Measurers must ensure that conditions for each Impression type are met and exclude non-advertising content from Ad Impression counts.
- Method used when reporting Promotional activities and Public Service Announcements must be disclosed.
- For technically complex measurements, such as discrete creative Ad Units, strict controls and internal traffic controls are critical and must be detailed.
- Dwell Time must only account for periods when ad content is viewable for Ad Impressions reporting.
- It is recommended that unique or unduplicated counts (Reach) and Frequency estimates be measured and reported on the basis of Audience Impressions
- Measurers may also present unduplicated counts and frequency on the basis of Gross Impressions, OTS Impressions and/or LTS Impressions (alternate bases) if Audience Impression counts are also reported, but must clearly label and disclose the basis of each in metric names, definitions and related disclosures.
- MRC can accredit alternate bases of Reach and Frequency if all of the above conditions are met with proper disclosure.
- Audience is a minimum requirement for Cross-Media reporting and comparisons.
- Measurers must disclose methods for establishing unduplicated Reach counts, validate effectiveness periodically, and be subject to audit.
- Empirical data should support Reach and Frequency estimates rather than solely modeling processes.
- Reach and Frequency reported on a Viewable Impressions basis must be disclosed as such.
- Attribution techniques require rigorous testing and validation, and their efficacy must be disclosed.
- At least a portion of characteristics must be directly collected and proportion of attributed to actual characteristics disclosed.
- Organizations should aim for systems comparable with other media types to integrate OOH data with other media metrics, although these are encouraged but not required.

Audience:

- An audience measure needs to satisfy a more stringent requirement than those applied for Gross, OTS/Viewable and LTS impressions measurement, and include some form of evidence of consumption.
- There are many, though not all, requirements in MRC's *Digital Audience* and *Cross-Media* Standards that are applicable to OOH Audience measurement.
- Consider various unique aspects of OOH.
- Audience is defined as the number of individuals estimated to be within the Display Exposure Zone meeting the following qualifying criteria, with Audience being a further refinement of LTS Impressions whereby this additional criteria is applied:
    - Once LTS is established, counts must be adjusted to represent what proportion of those with sufficient evidence that an individual actually looked at the asset or had a significant likelihood to see (qualified for Audience) an ad or content that has OTS (Viewability) established for a certain period of time and for specific format considerations. The following factors must be considered where applicable**:**
        - Size of the asset (minimum size considerations) and size with respect to distance from field of view (at least 1.5% of field of view) within the Exposure Zone (vertically or height above traversed surface and horizontally; i.e., apparent size) and maximum visibility distance or size of the Exposure Zone should be considered together as part of Apparent Size along with Maximum Viewing Angle (an ad angle no greater than 55 degrees for any one coordinate on an absolute basis relative to the screen is recommended).
        - Environmental/Visual obstruction
        - Presence of audio where applicable and audio obstruction
        - Precise location of an asset
        - Dynamic nature of asset
        - Visual clutter
        - Illumination and related seasonality compared to time of day
        - Exposure time (at minimum, 1 continuous second for static content/ads and 2 continuous seconds for video content/ads for OTS)
        - Speed, direction and mode of travel relative to asset;
        - Person characteristics where known should be considered in model construction where relevant
- Likelihood to see thresholds should be developed and empirically supported by OOH measurement vendors and include established minimum levels of likelihood as well as higher degrees of evidence of seen in consideration of the above audience factors.
- In considering the above, some form of deterministic data must be used as a base of deriving and informing variables and models employed to adjust LTS to audience. Such data shall be:
    - Representative
    - Robust with sufficient coverage
    - Recent with staleness policies applied
    - Sufficiently granular
    - Have empirical support
    - Be subject to quality control over data sources
- Measurers should apply continuous and robust validation (such as back testing or validation based on directly observed or "ground truth" data) and quality control techniques to collected and reported data including cleaning and editing functionality.

- Data Gaps must be considered in disclosures on the "projection validity" of the research compared to the population being measured for the reporting period.
- Models selected for OOH measurement must have empirical support that they are fit for their intended purpose.
- Disclosures of method and associated error/variability must be made to users including, but not limited to: dwell time thresholds employed, variables, consideration of the above factors (for Audience qualification), likelihood probability thresholds employed, assumptions, errors and limitations.

Section 4 – OOH Measurement Specifics Summary

- OOH media requires a mix of measurement techniques, which may include third-party data and direct observations.
- Measurement should account for limitations inherent in each method, whether technology-based or reliant on respondent recall.
- Viewable and location impressions should employ third-party data, manual counts, surveys, and technology such as sensors and beacons.
- Universe definitions for OOH measurement should be based on independent industry or government data and regularly updated for accuracy.
- Demographic reporting should minimally include total persons and adults over 18, with additional demographic and geographic breaks recommended.
- Valid location information is crucial, and electronic measurement should comply with MRC's Location-Based Measurement Guidelines.
- Viewability adjustments for OOH media should match cross-media standards unless further study suggests modifications.
- Visibility Adjusted Contact (VAC) estimators should be employed, disclosed, and customized to the environment for static content.
- Motion of displays and audiences should be accounted for in metrics development.
- Organizations should be transparent with data quality and source procedures should be periodically assessed for third-party gathered data.
- Sampling used for data projection should be probability-based and represent the targeted population with significant omissions disclosed.
- Inferences, estimations, and projections should be well explained, systematic, and empirically supported.
- Data editing and adjustment should be justified empirically, and significant volumes disclosed.
- The frequency of measurement should be as regular as possible and disclosed

Section 5 – Enhancing OOH Measurement Accuracy Summary

- Controls are required to ensure pedestrian counts are human-only.
- Periodic risk assessments for IVT and fraud with established filtration controls are required
- Internal controls should be established to identify and disclose significant measurement errors
- Defined policies for assessing error materiality, notifications/disclosures and reissuance of corrected data should be maintained.
- Reissued data should be clearly labeled or distinguishable from original data
- Evidence retention on material errors should be maintained for 12 months following measurement period.
- Strong evidence of proof-of-play (PoP) is necessary for reporting Gross Impressions or Audience estimates.

- Analog OOH requires agreement on PoP methods between buyers and sellers.
- Digital OOH can utilize technology for PoP logging, requiring testing, validation, and monitoring.
- PoP practices should undergo independent audit as per the Auditing Guidelines.

Section 6 – Reporting parameters summary

- OOH measurement data should be provided in a standard format that is easily accessible for users and third parties, protecting respondent anonymity.
- Offers detailed data to enable comprehensive analysis, available concurrently with or ahead of official releases to ensure accuracy.
- Utilizes consistent reporting parameters to harmonize with existing media measurements.
- Exact physical location of OOH displays required.
- Assumptions about audience locations must be backed by studies and fully disclosed.
- Electronic methods for counting must be validated for accuracy and disclosed.
- Data should be sortable by ad types and characteristics for targeted reporting.

Section 7 - Display Classification Summary

- OOH media industry should adopt a standardized set of classifications for device and location types, environmental factors, and other relevant characteristics that influence audience metrics (OTS, exposure, viewability, audibility).
- Classification criteria and specifications should be reviewed at least annually, with more frequent checks for rapidly changing characteristics.
- OOH media owners must keep their property data up-to-date, with weekly changes reported.
- All classification data should be independently verified for accuracy.
- A set of characteristics are listed for consideration and intended to provide guidance to the entity responsible for establishing and maintaining the Display classification data-set (list not exhaustive).
- Measurement should occur at the Display level to aggregate for ad campaign or network reporting.
- The use of detailed mapping technologies for accurate indoor space measurements is encouraged for enhancing measurement precision.
- Detailed information on multiple displays in proximity should be included to refine audience estimates and for de-duplication in reporting.

Section 8 - Disclosure Guidance Summary

- OOH media measurement organizations must transparently disclose their measurement processes, including location traffic, impressions, and display activity.
- The methodology used to gather OOH media advertising data should be thoroughly explained to data users, covering calculations for segment/ad unit impressions and audience metrics.
- Disclosures should include, but are not limited to the following:
    - Nature of OOH media measurements
    - Data collection methods employed
    - Editing or Data Adjustment procedures
    - Computations of Reported Results
    - Reporting Standards (if applicable)
    - Reliability of results
    - Data retention rules
    - Limitations on Data Use