MRC Out-of-Home Measurement Standards

Phase 2 –Audience

Public Comment Draft – July 2025

Sponsoring Association:
Media Rating Council (MRC)

Media Rating Council, Inc.

Out-Of-Home Measurement Standards
Phase 2 (Audience)

1. Overview

This document represents the second phase of Standards for the measurement of Out-of-Home (OOH) Media Audiences (Phase 2) intended to foster a common core of metrics that can be applied across the full expanse of out-of-home media, as well as provide for comparability to other measured media. Phase 2 is focused on the detail as to what is necessary to qualify a reported statistic as audience. 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. Phase 2 serves as a supplement to Phase 1, which can be found here:

https://mediaratingcouncil.org/sites/default/files/News/Standards-Guidelines/MRC_OOH_Standards_Phase%201_Exclusive_of_Audience_Final_April%202024.pdf

Once finalized, Phase 2 will be combined with Phase 1 in one unified document.

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 3.3 of this document to convert LTS to Audience. Additionally, many of the metrics covered in Phase 1 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 and the Phase 1 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.

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 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.

1.1 Goal of Standards

This document, along with its Phase 1 counterpart ("OOH Standards" collectively), 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 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 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. See Phase 1 for further guidance.

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.*

Apparent Size - The size a display appears within an individual's field of view (measured in degrees). It is dependent upon the angle the advertisement is in relation to the individual's view as well as the distance from the viewer. 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 being a further refinement of LTS Impressions whereby additional criterion is applied; Phase 2 OOH Standards 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.

It is recommended that unique or unduplicated counts (Reach) and Frequency estimates be measured and reported on the basis of Audience Impressions (per the below Phase 2 requirements), which are considered to be the most valuable for the purpose of buying and selling advertising. Measurers may also present unduplicated counts and frequency on the

basis of Gross Impressions, OTS Impressions and/or LTS Impressions. If Audience Impression counts are also reported, measurers must clearly label and disclose the basis of each in metric names, definitions and related disclosures. Audience Impression delineated Reach and Frequency is considered fully compliant with this Standard. Other, alternate bases of Reach and Frequency must be labelled as such and be positioned as not fully compliant with Audience requirements and diagnostic in nature. MRC can accredit alternate bases of Reach and Frequency with proper disclosure.

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

Audio Exposure Zone –The physical area in which a person has an opportunity to hear a specific OOH medium source (e.g., display, poster, etc.). See Phase 1 for more detailed guidance.

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.

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 is also referred to as the viewshed and 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). Distance, size of the display and angle (of the asset relative to the Exposure Sone, not persons level LTS considerations) needs to be considered in the definition of the Display Exposure Zone. See Phase 1 for more detailed guidance.

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. See Phase 1 for further guidance on data collection and measurement.

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. See Phase 1 for further guidance on data collection and measurement.

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)

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 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.

-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 in the user interface 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 of this document)

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 without qualification.

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 distributor 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.

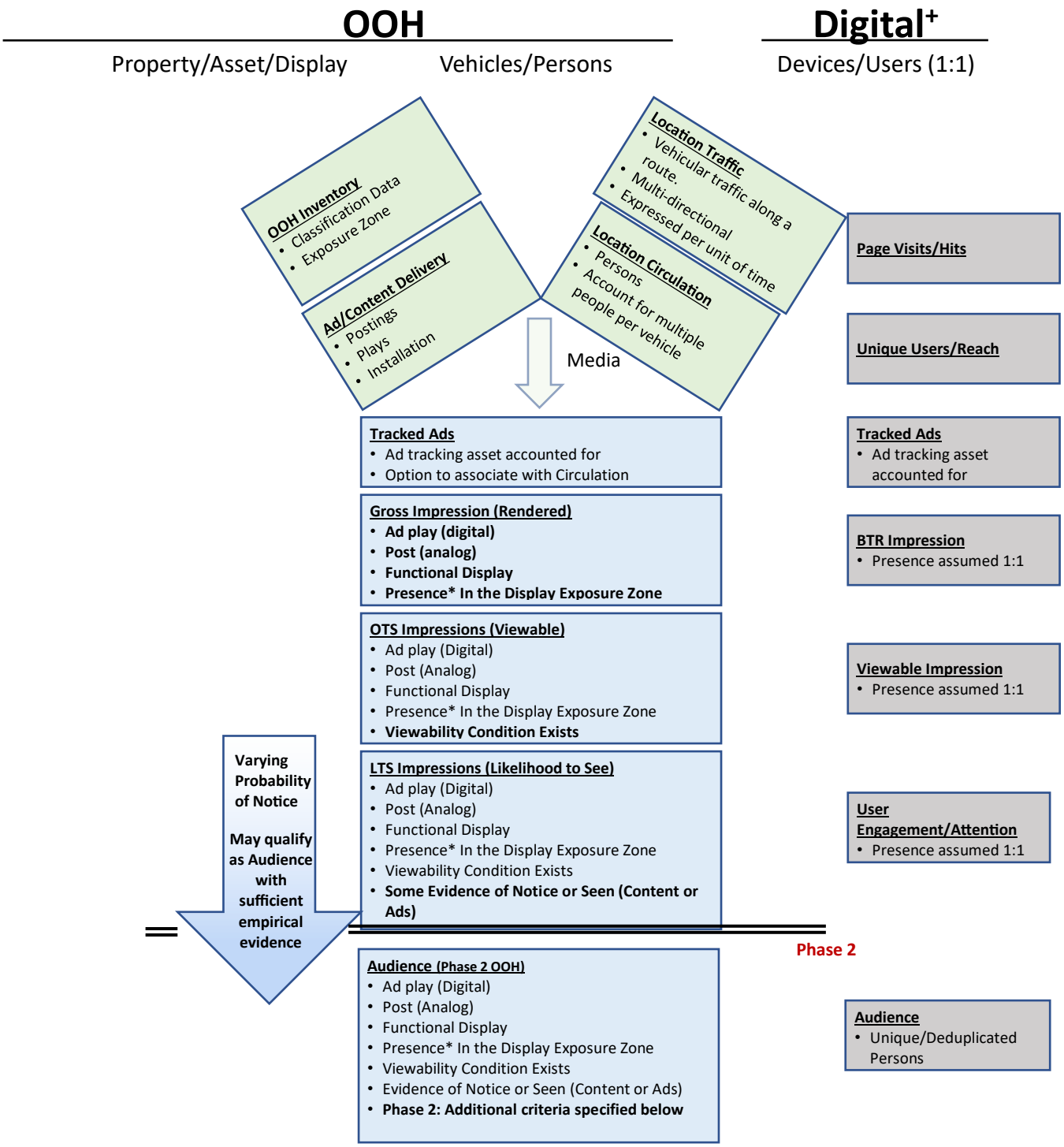
Viewable/Viewability – Assurance that content and/or ads are present on the Display so that it can be viewed or listened to, with presence in the Exposure Zone and Play/Post (as defined above) thereby enabling the possibility of Exposure. Measurement of ad content has specific requirements in terms of 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.). This is also referred to as the viewshed. 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.

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 General Guidance

Audience is a common and valuable metric for media in the U.S. and as noted earlier, Audience is the focus of this Phase 2 document. 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.

3.2 LTS Impressions (Likelihood to See; See Phase 1 for 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 as specified in Phase 1, 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 the Phase 1 document (Section 9).

3.3 Audience

An audience measure (Audience Impressions) needs to satisfy a more stringent requirement than those applied for Gross, OTS/Viewable and possibly even LTS impressions measurement, and include some form of evidence of consumption (Note: This does not mean attribution of an Outcome, but simply 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.

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.

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.

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, LTS counts must be adjusted to represent what proportion of those with likelihood to see 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:

    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
    g. Visual attractiveness of the asset (in terms of size, illumination and functionality relative to the surrounding environment; reasonable efforts must be made to understand the environment surrounding the asset, on a periodically updated basis and considered where relevant)
    h. Illumination and related seasonality compared to time of day (depending on whether the asset is self-illuminated or not)
    i. 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
    j. Speed, direction and mode of travel relative to asset; Note, these are required considerations of LTS, further refinement is required for evidence of notice or seen sufficient for qualification in audience
    k. 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. LTS Thresholds: Significant likelihood to see thresholds should be developed and empirically supported by OOH measurement vendors and include established minimum levels of likelihood for Audience qualification as well as higher degrees of likelihood in consideration of the above 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 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 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 limited to logic tests, distribution and trend analyses. This support shall be updated periodically as audience behavior and data availability may change.

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.).

3.4 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), which are considered to be the most valuable for the purpose of buying and selling advertising. 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. Audience Impression delineated Reach and Frequency is considered fully compliant with this Standard. Other alternate bases of Reach and Frequency must be labelled as such and be positioned as not fully compliant with Audience requirements and diagnostic in nature. MRC can accredit alternate bases of Reach and Frequency if all of the above conditions are met with proper disclosure.

Reach and Frequency can cross Display locations, and in some cases 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, 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.

3.5 Other Audience Considerations

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 distributor 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

Phase 1 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.

<u>Use of ESOMAR Global Guidelines VAC Adjustments</u>
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 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.

3.6 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 respondents.

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 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.

4 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

5 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.

6 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

7 Contact Us

MRC:
Ron Pinelli, SVP Digital Research and Standards
212-972-0300
rpinelli@mediaratingcouncil.org

Appendix A

Section Summaries (To Be Completed with Finalization)