POLYGON
All Screens. Everywhere.

POLYGON IMPRESSION MULTIPLIER TECHNICAL METHODOLOGY APPENDIX (PDOOH)

1. Purpose of This Document

This appendix describes the technical principles, data inputs, assumptions, and calculation steps used in the Polygon Impression Multiplier methodology for pDOOH audience measurement.

The objective is to ensure that the methodology is transparent and auditable; all impressions are comparable across media owners; the approach aligns with global OOH best practice (WOO principles); and the outputs are conservative, defensible, and suitable for trading and reporting.

2. Data Inputs

Polygon uses a hybrid measurement framework that combines industry currency measurement where available and Polygon's proprietary modelling framework where it is not.

This approach ensures:

- Full coverage of heterogeneous inventory
- One consistent measurement logic
- Comparable outputs across media owners
- Trading-grade, auditable audience metrics

The methodology deliberately separates:

Traffic and movement data (inputs) from audience exposure modelling (calculation).

2.1 OMC-Enabled Inventory (Industry Currency Measurement)

OMC (Out of Home Measurement Council) is the industry body responsible for providing independent, standardised audience measurement for Out-of-Home media in South Africa.

OMC measurement is based on large-scale research and modelling that combines:

- Traffic and movement data
- Visibility modelling
- Survey and behavioural inputs
- Environmental and format characteristics

OMC provides the industry currency for OOH measurement and is widely used for planning, trading, a

nd reporting.

Where OMC measurement exists:

- Polygon ingests OMC audience and impression outputs directly from the IDS platform
- These outputs are treated as the authoritative source
- Polygon does not re-model or reinterpret OMC numbers

In these cases, Polygon acts purely as a distribution, normalisation, and reporting layer for industry currency measurement.

2.2 LMX Mobile Location Data (Traffic Input for Non-OMC Inventory)

LMX is a mobile location data provider that supplies aggregated, anonymised device movement data derived from real-world mobile signals.

LMX data indicates:

- How many devices move through or dwell within a location
- At what times of day
- On which days of the week
- With what dwell and movement patterns

Polygon uses LMX strictly as a traffic input, not as a final audience or impression number.

Device presence is not equivalent to advertising exposure.

All LMX traffic data is therefore processed through Polygon's modelling framework, including:

- Venue-specific visibility radii
- Time-of-day and day-of-week weighting
- Visibility Adjustment Coefficient (VAC)
- Coverage Factor (where applicable)

This converts movement and presence into probabilistic exposure estimates, consistent with global OOH measurement practice.

2.3 Why Polygon Uses Both OMC and LMX

Polygon uses OMC where it exists and LMX where it does not in order to:

- Ensure full inventory coverage across the market
- Maintain one consistent measurement logic
- Avoid excluding non-OMC inventory from credible planning, trading, and reporting
- Provide a normalised, comparable measurement layer across heterogeneous media owners

Regardless of data source, all impressions delivered through Polygon follow the same conceptual framework, definitions, and modelling principles.

This ensures that:

- OMC inventory remains aligned to industry currency
- Non-OMC inventory is measured in a way that is methodologically consistent, conservative, and auditable
- The market can transact against one coherent measurement standard

3. Visibility Zone (Radius)

3.1 Definition

Each venue type is assigned a venue-specific visibility radius which defines the Opportunity-To-See (OTS) zone for a given screen.

The radius represents the maximum plausible spatial area within which exposure is possible, given the physical and behavioural characteristics of the environment. It does not represent guaranteed viewing.

Different venue classes (e.g. roadside, mall, airport, restaurant, elevator) use different radii because human visual behaviour and environmental geometry differ materially across environments.

The radius is therefore used to define exposure opportunity, not actual exposure.

3.2 Methodological Basis for Visibility Radii

Polygon's visibility radii are derived from long-standing international OOH measurement principles and industry practice, including:

- World Out of Home Organisation (WOO) measurement principles
- OMC (South Africa) audience measurement methodology
- International OOH measurement systems such as UK Route and Geopath (USA)
- Established visibility and sightline modelling conventions used in OOH audience measurement

In OOH measurement globally, the purpose of a visibility radius is to define the maximum plausible OTS zone, taking into account:

- Typical human sightline distances in that environment
- Physical constraints of the venue or road environment
- Screen scale, height, and orientation
- Clutter density and visual competition
- Pedestrian versus vehicular viewing behaviour

Polygon's radii therefore represent environment-class OTS zones, not deterministic viewing boundaries.

The purpose of the radius is to define exposure opportunity, not to assert that all individuals within the zone actually see the screen.

VAC tables are documented, version controlled, reviewable, and refined over time as further validation data and industry standards evolve.

3.3 Environment-Specific Rationale for Visibility Radii

Different venue classes are assigned different visibility radii because human visual behaviour, movement speed, sightlines, and attentional state differ materially by environment.

By analogy to transport engineering and signage design:

- **Roadside environments**
    - High movement speed
    - Long forward sightlines
    - Large-format signs
    - Visibility defined by detection distance rather than reading distance.

    Justifies longer radii (e.g. 80–120m)

- **Malls, retail corridors, and concourses**
    - Moderate walking speed
    - Shorter sightlines
    - Higher clutter density
    - Visual competition between many stimuli

    Justifies medium radii (e.g. 20–50m)

- **Restaurants, bars, gyms, waiting rooms**
    - Low movement speed or seated audiences
    - Short sightlines
    - High attentional competition from social and task-based activity

    Justifies short radii (e.g. 10–20m)

- **Elevators and confined spaces**
    - Very short viewing distances
    - Extremely constrained geometry
    - Near-field visibility only

    Justifies very short radii (e.g. ~5m)

This mirrors how:

- Transport authorities define sign legibility distance vs detection distance
- Human factors standards define near-field vs far-field visual tasks
- Architectural signage systems define viewing zones by space type

Polygon's radii therefore represent environment-class detection zones, not arbitrary distances.

POLYGON
All Screens. Everywhere.

Main venue category	Venue type	Radius (m)
Outdoor	Billboards – Roadside	80
Outdoor	Billboards – Super Size	120
Outdoor	Parking lots	30
Retail	Mall – Regional / Mega	50
Retail	Mall – Community / Standard	30
Retail	Mall – Township	25
Retail	Grocery / Shopping Area	25
Retail	Liquor Store	15
Health & Beauty	Gyms, Fitness Centres, Sports Venues	20
Point of Care	Doctor's Offices (waiting rooms)	10
Point of Care	Pharmacies	12
Entertainment	Bars	15
Entertainment	Casual Dining / Restaurants	15
Entertainment	Recreational Locations (cinemas, bowling, arcades)	18
Public Transport	Taxi Ranks	30
Public Transport	Airport (concourses & gate lounges)	20
Retail / Transit	Mall / Retail Elevator – External (lobby)	10
Retail / Transit	Mall / Retail Elevator – Internal (cab)	5

4. Visibility Adjustment Coefficient (VAC)

4.1 Definition

Not all people inside the Opportunity-To-See (OTS) zone will notice the screen.

Polygon applies a Visibility Adjustment Coefficient (VAC) to convert raw OTS contacts into probable viewed impressions.

VAC represents the probability that a person within the OTS zone actually notices the screen.

This reflects a fundamental principle of OOH measurement globally:

Not all OTS contacts become actual exposures.

From a statistical perspective, each individual within the OTS zone represents a binary outcome (seen / not seen). VAC therefore represents the expected value of this binary outcome across a population.

4.2 Methodological Basis for VAC Values

Polygon's VAC framework is informed by:

- World Out of Home Organisation (WOO) principles regarding the separation of "opportunity to see" and "actually seen"
- OMC (South Africa) visibility adjustment methodology
- International OOH visibility modelling approaches (e.g. UK Route, Geopath)
- Media Rating Council (MRC) and ESOMAR principles regarding probabilistic exposure and viewability
- Long-standing OOH industry practice of modelling exposure as a probability, not a certainty

VAC values are determined based on:

- Environmental clutter and visual competition
- Screen orientation and height
- Typical dwell time in the environment
- Audience attention behaviour in that context
- The degree of visual dominance of the medium within the space

Polygon's VAC values are:

- Venue-type specific
- Conservative by design
- Anchored around industry norms rather than assuming 100% visibility
- Designed to prevent systematic overstatement of exposure

From a modelling perspective:

- A value of 1.0 would imply certainty of exposure, which is demonstrably false in any real-world environment.
- A value of 0.0 would imply impossibility of exposure, which contradicts the definition of Opportunity-To-See.
- A value anchored around 0.5 represents a neutral, non-optimistic prior probability: on average, a person who has the opportunity to see the screen is approximately as likely to notice it as not notice it.

In the absence of environment-specific eye-tracking or observational studies, Polygon therefore uses conservative prior probabilities anchored around 0.5 and adjusts them by environment class. These adjustments typically result in working VAC ranges of approximately 0.4 to 0.6, reflecting reasonable, controlled deviations from a neutral baseline based on environmental conditions.

The numeric VAC values are not claimed to represent exact individual-level truth. They are reasonable, conservative probability approximations consistent with how OOH exposure has been modelled internationally for decades.

VAC tables are documented, version controlled, reviewable, and refined over time as additional validation data and industry standards evolve.

Venue type	VAC default
Billboards – Roadside	0.5
Billboards – Super Size	0.6
Parking lots	0,3
Mall – Regional / Mega	0.55
Mall – Community / Standard	0.55
Mall – Township	0.50
Grocery / Shopping Area	0.55
Liquor Store	0.6
Gyms, Fitness Centres, Sports Venues	0.55
Doctor's Offices (waiting rooms)	0.6
Pharmacies	0.55
Bars	0.55
Casual Dining / Restaurants	0,55
Recreational Locations (cinemas, bowling, arcades)	0.5
Taxi Ranks	0.45
Airport (concourses & gate lounges)	0.6
Mall / Retail Elevator – External (lobby)	0.55
Mall / Retail Elevator – Internal (cab)	0,10

5. Time-Based Weighting

All impressions are calculated at ad-play level, by day of week, and by time of day. This ensures that peak and off-peak traffic patterns are reflected and that campaign delivery matches actual temporal audience availability.

6. Multi-Screen Venues (Coverage Factor)

6.1 Definition

In some venues, a single media player drives multiple screens located in different zones.

Polygon applies a Coverage Factor to represent the increased probability that a person in the venue is exposed to at least one screen.

The Coverage Factor:

- Does not multiply people
- Does not assume viewers see all screens
- Does not scale linearly with screen count

Its purpose is to reflect incremental probability of exposure, not duplication of audience.

6.2 Methodological Basis for Coverage Factors

Venue type	Screen Multiplier α - 1 screen	Screen Multiplier α - 2 screen	Screen Multiplier α - 3 screen	Screen Multiplier α - 4 screen	Screen Multiplier α - Max
Billboards – Roadside	1	0,1	0,05	NA	
Billboards – Super Size	1	0,1	0,05	NA	
Parking lots	1	0,1	0,05	NA	
Mall – Regional / Mega	1	0,3	0,2	0,1	1,6
Mall – Community /	1	0,25	0,15	0,05	1,45
Mall – Township	1	0,15	0,1	0,05	1,35
Grocery / Shopping Area	1				
Liquor Store	1	0,1	0,05	NA	1,15
Gyms, Fitness Centres,	1	0,25	0,15	0,1	1,5
Doctor's Offices (waiting	1	0,05	NA	NA	1,05
Pharmacies	1	0,15	0,19	NA	1,25
Bars	1	0,2	0,1	0,05	1,35
Casual Dining /	1	0,15	0,1	0,05	1,3
Recreational Locations (cinemas, bowling, arcades)	1	0,3	0,2	0,1	1,6
Taxi Ranks	1	0,2	0,1	NA	1,3
Airport (concourses &	1	0,3	0,2	0,1	1,6
Mall / Retail Elevator –	1	0,1	0,05	NA	1,15
Mall / Retail Elevator –	1	0,05	NA	NA	1,05

7. Core Calculation Formula

For non-OMC inventory:

Final Impressions = Traffic Contacts × VAC × Coverage Factor

Where Traffic Contacts are LMX mobile location data within the venue radius, time-weighted; VAC is the venue-specific visibility probability; and Coverage Factor adjusts for multi-screen venue layouts (if applicable).

For OMC inventory, Polygon calculates OMC impression multipliers from the IDS platform directly.

8. Standardisation & Comparability

All impressions delivered through Polygon follow the same logical framework, use consistent definitions, are comparable across media owners, and are auditable and explainable at each step.

Polygon acts as a normalisation layer across heterogeneous inventory and data availability.

9. Governance & Auditability

All parameters (radius, VAC, coverage factors) are documented, version controlled, and reviewable.

The methodology is conservative by design, transparent by intent, and suitable for agency, advertiser, and auditor review.

10. Design Philosophy

Polygon's methodology prioritises realism over optimism, consistency over convenience, and credibility over inflation.

The system is intentionally designed to avoid overstating exposure and to provide a defensible, trading-grade measurement standard for pDOOH.

11. Alignment with Industry Best Practice (WOO)

Polygon's methodology is designed to align with the principles set out by the World Out of Home Organisation (WOO), including transparency of methodology, conservative visibility modelling, separation of opportunity-to-see and actually-seen, auditable data inputs, and consistency across markets and media owners.

12. Methodological Provenance of Model Parameters

Polygon's visibility radii, VAC values, and coverage factors are not intended to represent physical constants. They are modelling parameters derived from long-standing global OOH measurement principles and industry conventions.

They are informed by:

- World Out of Home Organisation (WOO) measurement principles
- OMC and international OOH audience measurement systems (e.g. UK Route, Geopath)
- Opportunity-To-See (OTS) frameworks
- Visibility probability modelling traditions
- Conservative exposure modelling practice
- Real-world environmental and behavioural constraints

The purpose of these parameters is not to assert exact truth at an individual level, but to provide a:

- Consistent
- Comparable
- Conservative
- Auditable

representation of likely exposure across heterogeneous environments.

Polygon's methodology explicitly prioritises credibility over inflation and consistency over overfitting.